

# DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/24

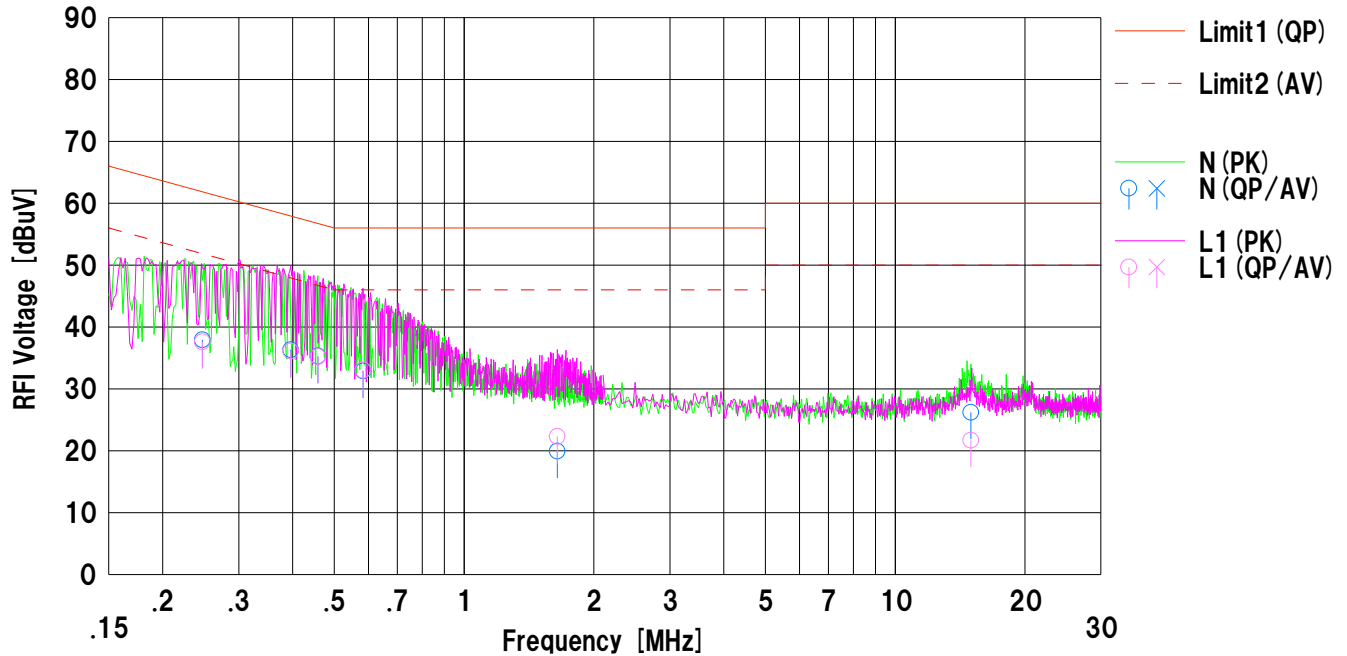
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11b 2437MHz 2Mbps  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



| No. | Freq.<br>[MHz] | Reading        |                | C.Fac<br>[dB] | Results        |                | Limit          |                | Margin       |              | Phase | Comment |
|-----|----------------|----------------|----------------|---------------|----------------|----------------|----------------|----------------|--------------|--------------|-------|---------|
|     |                | <QP><br>[dBuV] | <AV><br>[dBuV] |               | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dB] | <AV><br>[dB] |       |         |
| 1   | 0.24718        | 25.3           | ---            | 12.6          | 37.9           | ---            | 61.8           | 51.8           | 23.9         | ---          | N     |         |
| 2   | 0.39633        | 23.6           | ---            | 12.7          | 36.3           | ---            | 57.9           | 47.9           | 21.6         | ---          | N     |         |
| 3   | 0.45807        | 22.6           | ---            | 12.7          | 35.3           | ---            | 56.7           | 46.7           | 21.4         | ---          | N     |         |
| 4   | 0.58278        | 20.3           | ---            | 12.6          | 32.9           | ---            | 56.0           | 46.0           | 23.1         | ---          | N     |         |
| 5   | 1.64559        | 7.1            | ---            | 12.8          | 19.9           | ---            | 56.0           | 46.0           | 36.1         | ---          | N     |         |
| 6   | 14.98402       | 12.9           | ---            | 13.3          | 26.2           | ---            | 60.0           | 50.0           | 33.8         | ---          | N     |         |
| 7   | 0.24718        | 25.0           | ---            | 12.6          | 37.6           | ---            | 61.8           | 51.8           | 24.2         | ---          | L1    |         |
| 8   | 0.39633        | 23.4           | ---            | 12.7          | 36.1           | ---            | 57.9           | 47.9           | 21.8         | ---          | L1    |         |
| 9   | 0.45807        | 22.5           | ---            | 12.7          | 35.2           | ---            | 56.7           | 46.7           | 21.5         | ---          | L1    |         |
| 10  | 0.58278        | 20.4           | ---            | 12.6          | 33.0           | ---            | 56.0           | 46.0           | 23.0         | ---          | L1    |         |
| 11  | 1.64559        | 9.5            | ---            | 12.8          | 22.3           | ---            | 56.0           | 46.0           | 33.7         | ---          | L1    |         |
| 12  | 14.98402       | 8.4            | ---            | 13.3          | 21.7           | ---            | 60.0           | 50.0           | 38.3         | ---          | L1    |         |

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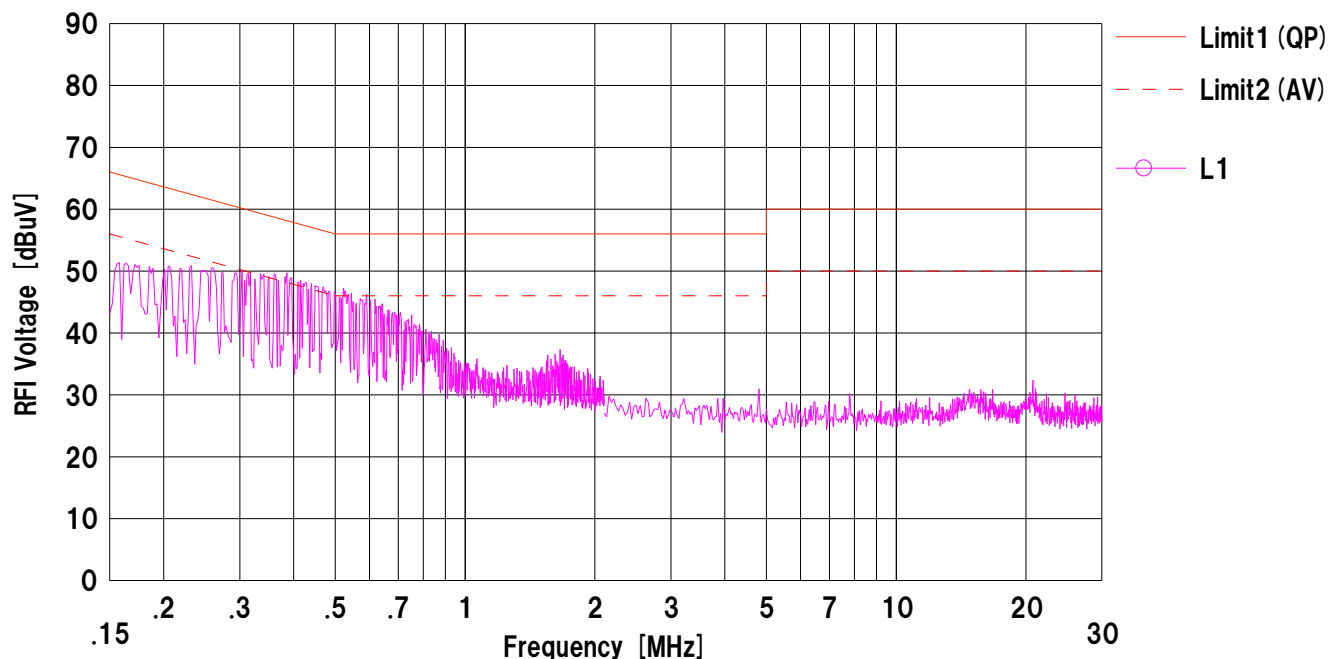
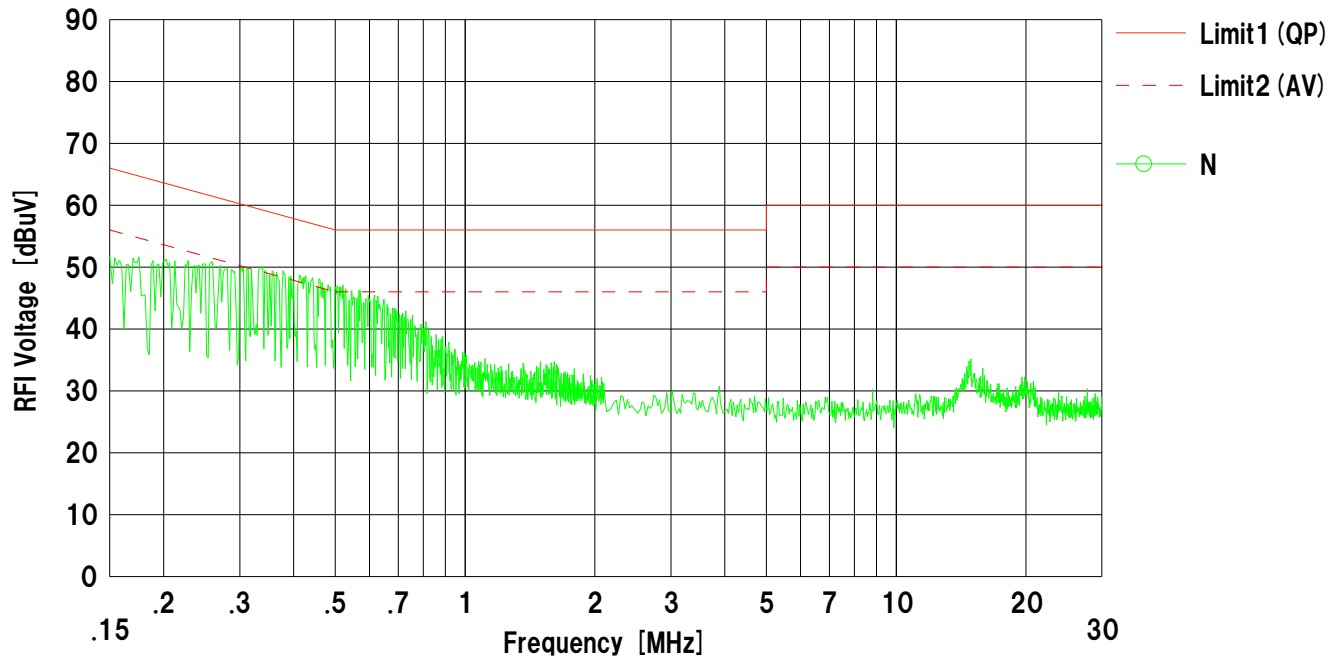
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11b 2412MHz 2Mbps  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



# DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/24

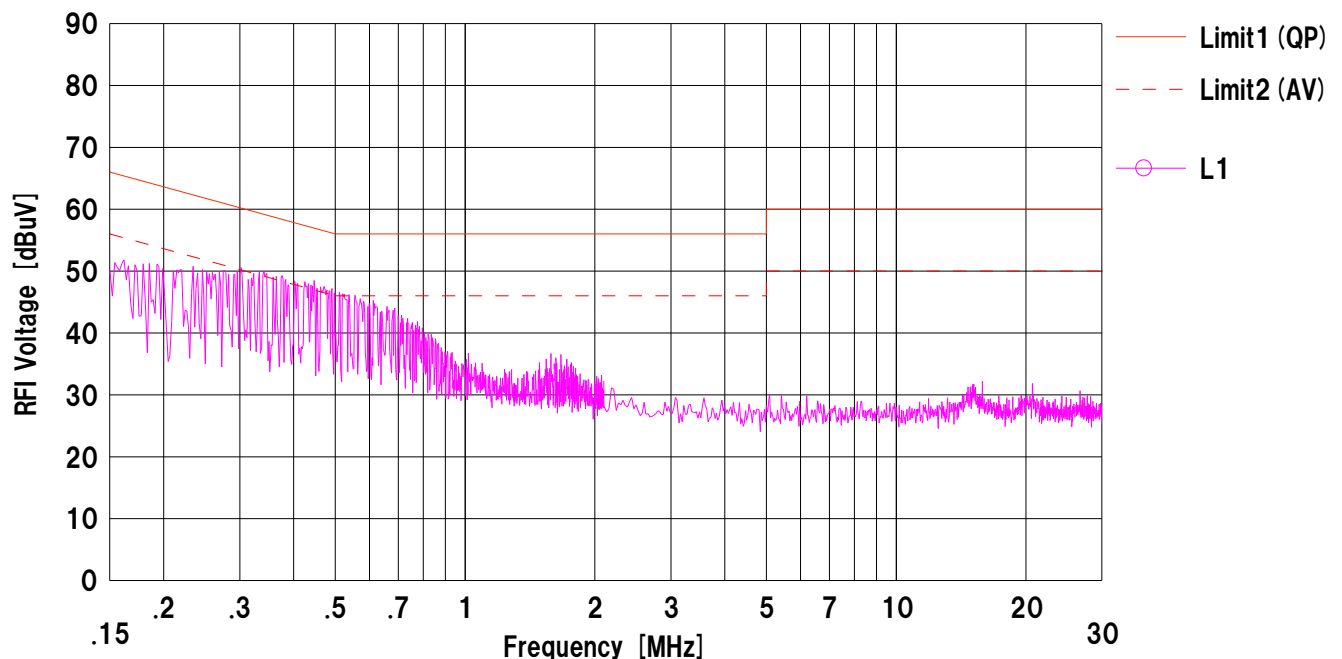
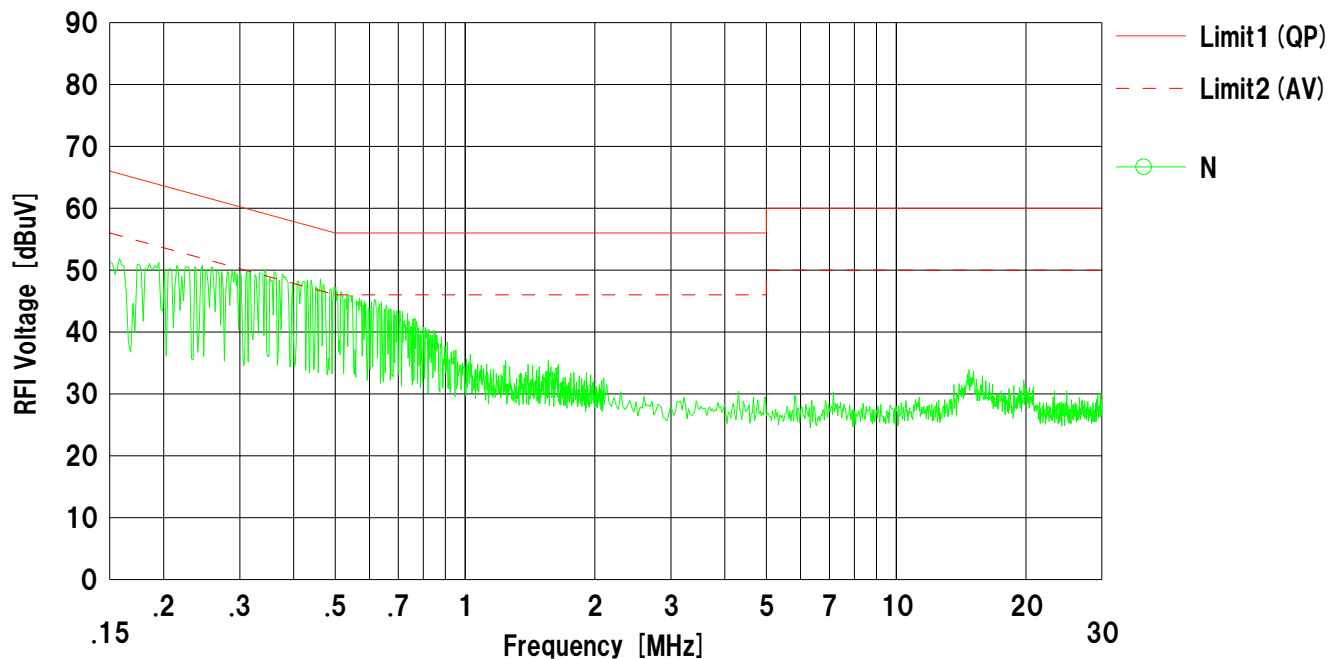
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11b 2462MHz 2Mbps  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



# DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/24

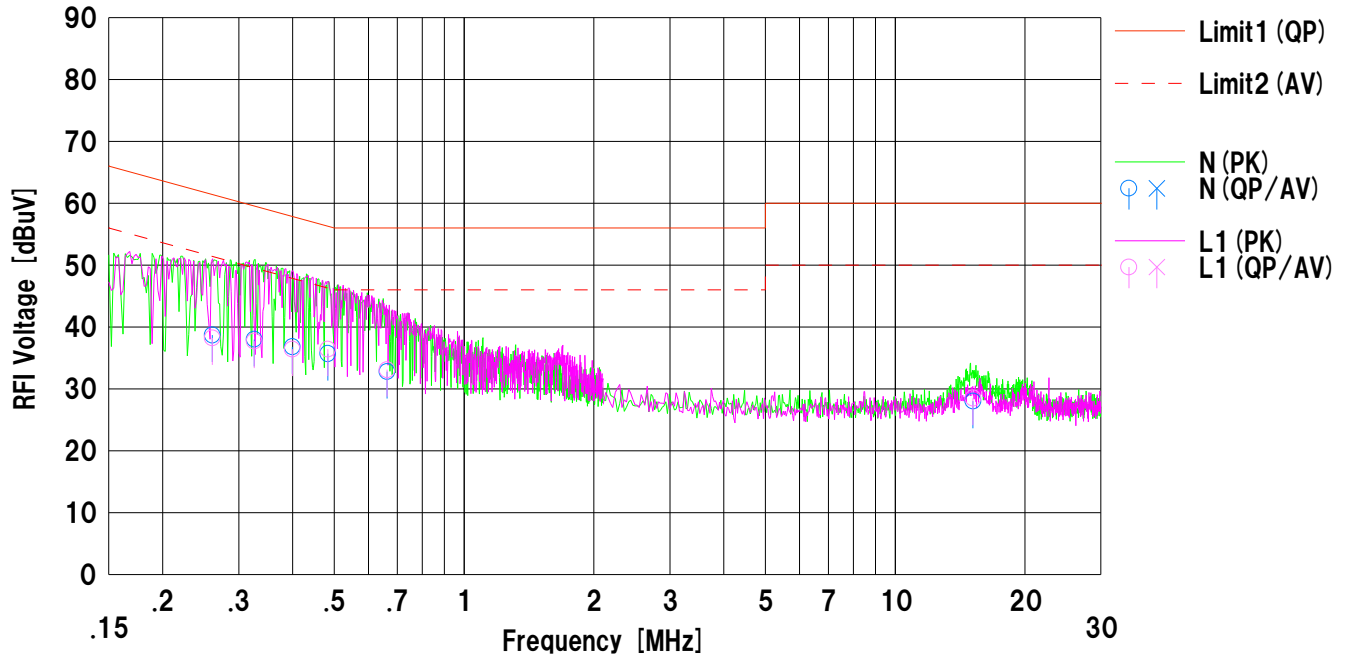
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11g 2437MHz 24Mbps  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



| No. | Freq.<br>[MHz] | Reading |        | C.Fac<br>[dB] | Results |        | Limit  |        | Margin |      | Phase | Comment |
|-----|----------------|---------|--------|---------------|---------|--------|--------|--------|--------|------|-------|---------|
|     |                | <QP>    | <AV>   |               | <QP>    | <AV>   | <QP>   | <AV>   | <QP>   | <AV> |       |         |
|     |                | [dBuV]  | [dBuV] |               | [dBuV]  | [dBuV] | [dBuV] | [dBuV] | [dB]   | [dB] |       |         |
| 1   | 0.26058        | 26.1    | ---    | 12.6          | 38.7    | ---    | 61.4   | 51.4   | 22.7   | ---  | N     |         |
| 2   | 0.32575        | 25.3    | ---    | 12.7          | 38.0    | ---    | 59.5   | 49.5   | 21.5   | ---  | N     |         |
| 3   | 0.39954        | 24.1    | ---    | 12.7          | 36.8    | ---    | 57.8   | 47.8   | 21.0   | ---  | N     |         |
| 4   | 0.48301        | 23.0    | ---    | 12.7          | 35.7    | ---    | 56.2   | 46.2   | 20.5   | ---  | N     |         |
| 5   | 0.66290        | 20.1    | ---    | 12.7          | 32.8    | ---    | 56.0   | 46.0   | 23.2   | ---  | N     |         |
| 6   | 15.17047       | 14.7    | ---    | 13.3          | 28.0    | ---    | 60.0   | 50.0   | 32.0   | ---  | N     |         |
| 7   | 0.26058        | 25.6    | ---    | 12.6          | 38.2    | ---    | 61.4   | 51.4   | 23.2   | ---  | L1    |         |
| 8   | 0.32575        | 25.0    | ---    | 12.7          | 37.7    | ---    | 59.5   | 49.5   | 21.8   | ---  | L1    |         |
| 9   | 0.39954        | 23.7    | ---    | 12.7          | 36.4    | ---    | 57.8   | 47.8   | 21.4   | ---  | L1    |         |
| 10  | 0.48301        | 23.7    | ---    | 12.7          | 36.4    | ---    | 56.2   | 46.2   | 19.8   | ---  | L1    |         |
| 11  | 0.66290        | 20.4    | ---    | 12.7          | 33.1    | ---    | 56.0   | 46.0   | 22.9   | ---  | L1    |         |
| 12  | 15.17047       | 15.2    | ---    | 13.3          | 28.5    | ---    | 60.0   | 50.0   | 31.5   | ---  | L1    |         |

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UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/24

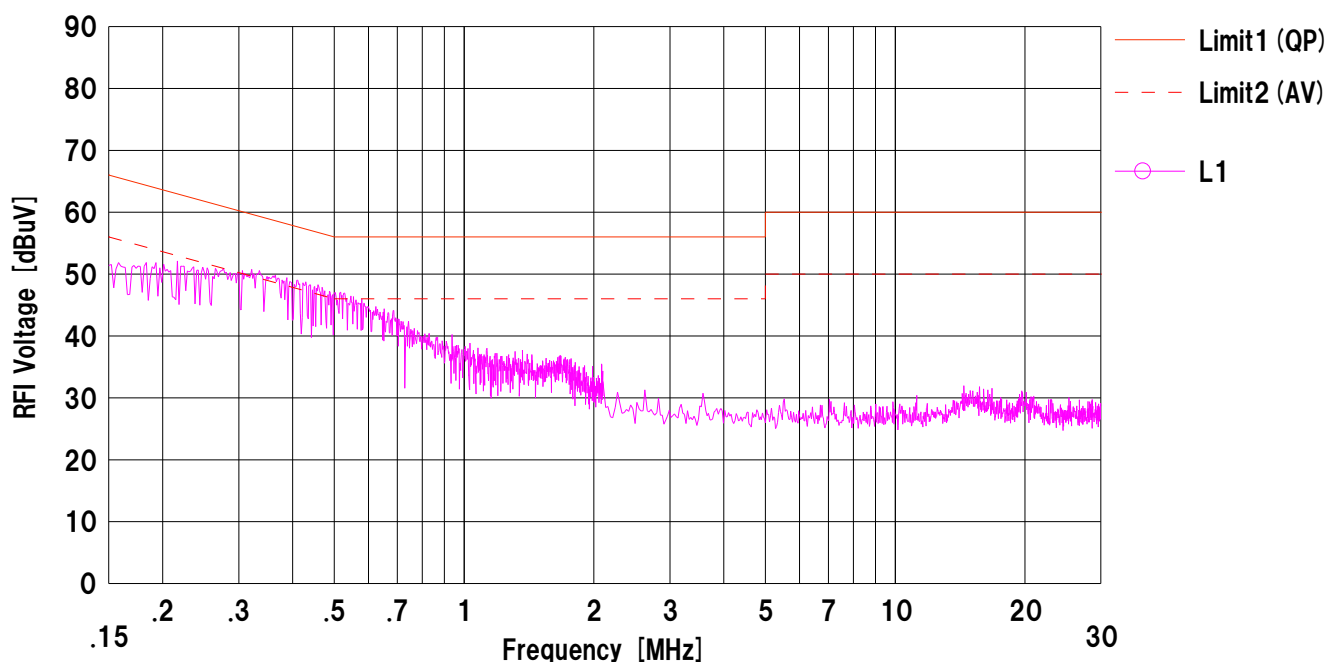
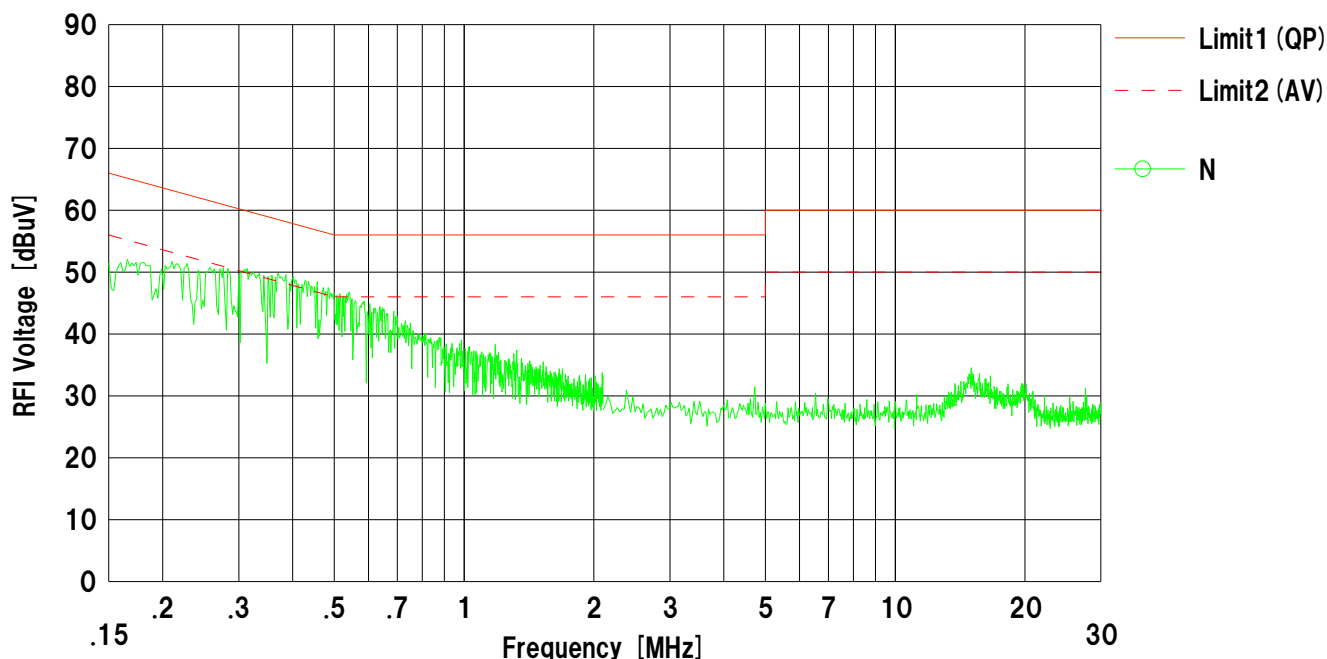
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11g 2412MHz 24Mbps  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



# DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Sehiilded Room  
Date : 2011/05/24

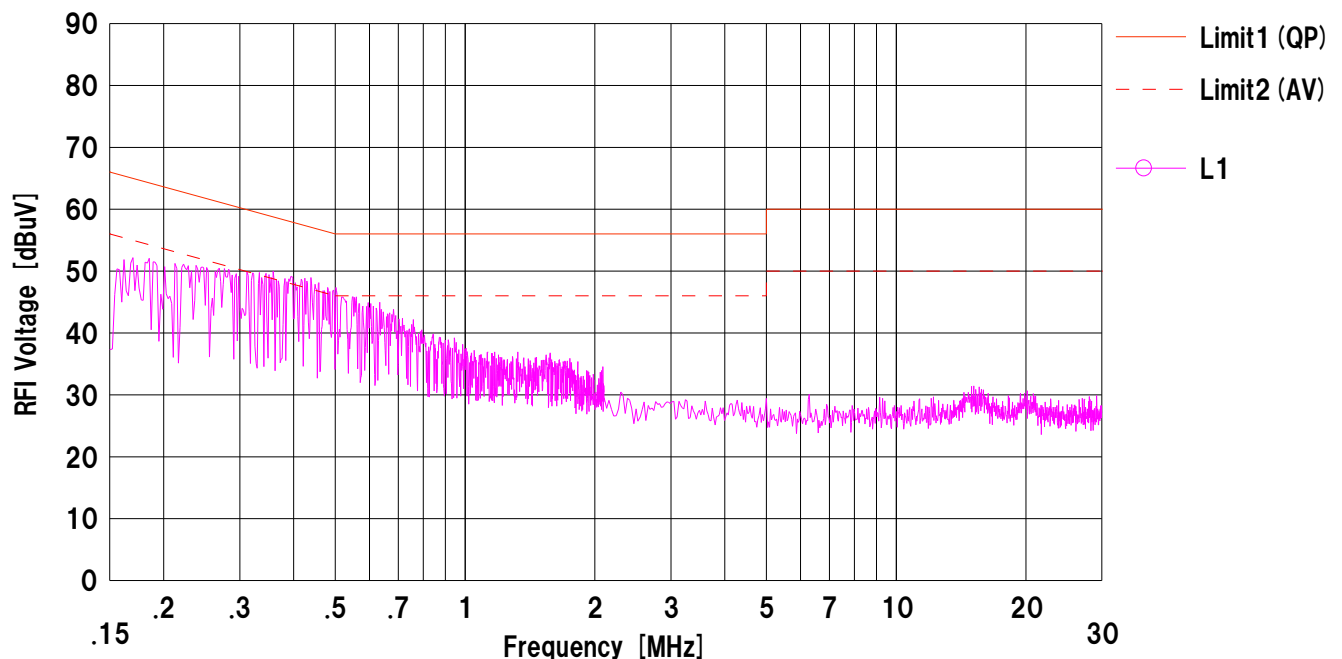
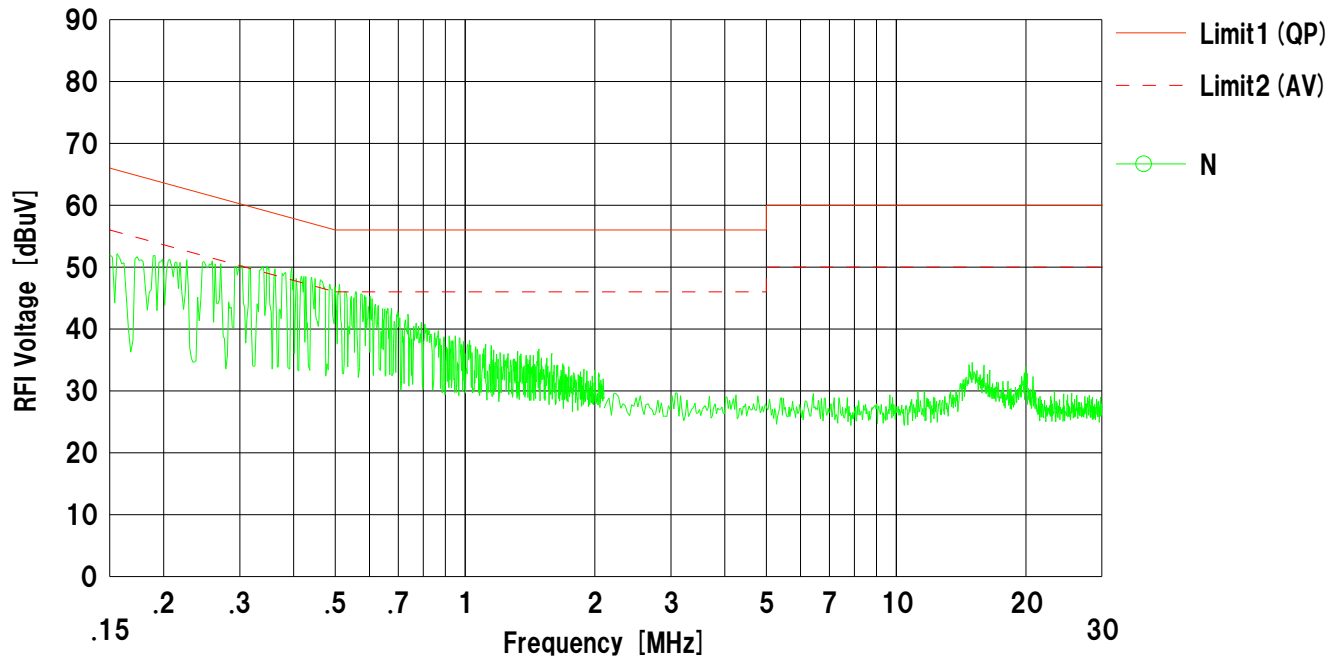
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11g 2462MHz 24Mbps  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



# DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/24

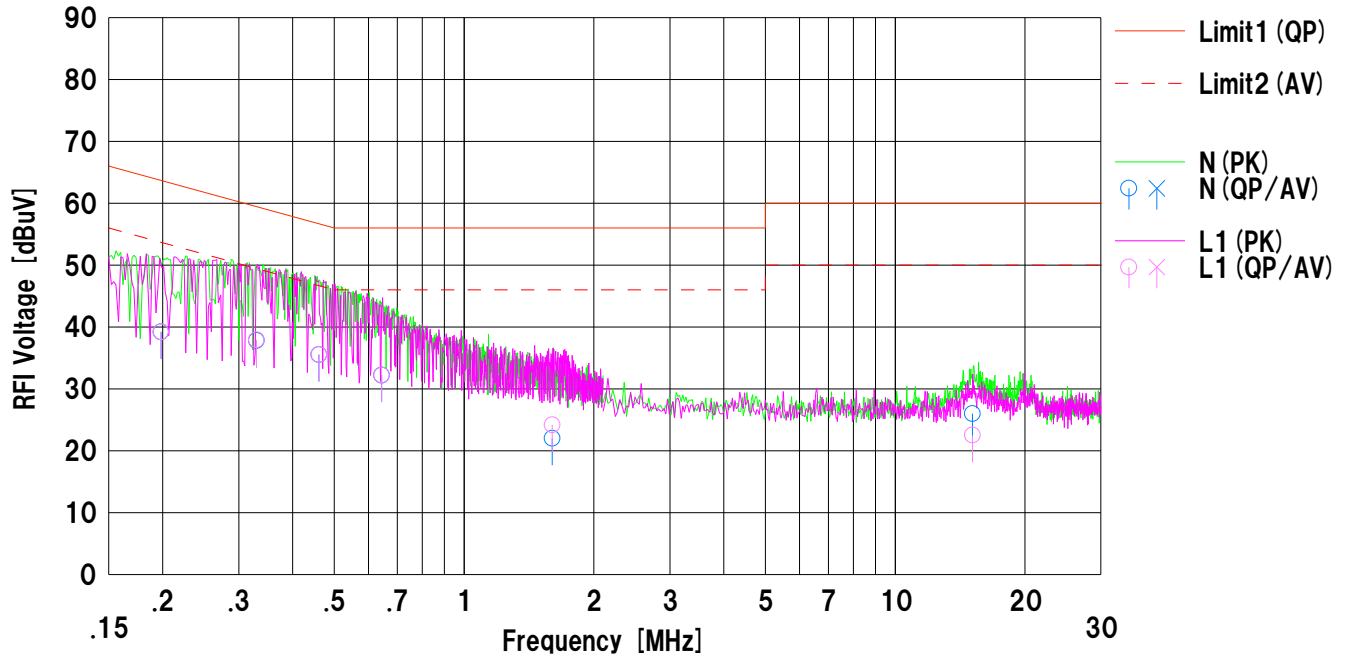
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11n (20HT) 2437MHz MCS3  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



| No. | Freq.<br>[MHz] | Reading |        | C.Fac<br>[dB] | Results |        | Limit  |        | Margin |      | Phase | Comment |
|-----|----------------|---------|--------|---------------|---------|--------|--------|--------|--------|------|-------|---------|
|     |                | <QP>    | <AV>   |               | <QP>    | <AV>   | <QP>   | <AV>   | <QP>   | <AV> |       |         |
|     |                | [dBuV]  | [dBuV] |               | [dBuV]  | [dBuV] | [dBuV] | [dBuV] | [dB]   | [dB] |       |         |
| 1   | 0.19804        | 26.5    | ---    | 12.7          | 39.2    | ---    | 63.6   | 53.6   | 24.4   | ---  | N     |         |
| 2   | 0.32998        | 25.1    | ---    | 12.7          | 37.8    | ---    | 59.4   | 49.4   | 21.6   | ---  | N     |         |
| 3   | 0.46030        | 22.8    | ---    | 12.7          | 35.5    | ---    | 56.6   | 46.6   | 21.1   | ---  | N     |         |
| 4   | 0.64387        | 19.5    | ---    | 12.7          | 32.2    | ---    | 56.0   | 46.0   | 23.8   | ---  | N     |         |
| 5   | 1.60094        | 9.2     | ---    | 12.8          | 22.0    | ---    | 56.0   | 46.0   | 34.0   | ---  | N     |         |
| 6   | 15.10855       | 12.7    | ---    | 13.3          | 26.0    | ---    | 60.0   | 50.0   | 34.0   | ---  | N     |         |
| 7   | 0.19804        | 26.5    | ---    | 12.7          | 39.2    | ---    | 63.6   | 53.6   | 24.4   | ---  | L1    |         |
| 8   | 0.32998        | 25.2    | ---    | 12.7          | 37.9    | ---    | 59.4   | 49.4   | 21.5   | ---  | L1    |         |
| 9   | 0.46030        | 22.8    | ---    | 12.7          | 35.5    | ---    | 56.6   | 46.6   | 21.1   | ---  | L1    |         |
| 10  | 0.64387        | 19.5    | ---    | 12.7          | 32.2    | ---    | 56.0   | 46.0   | 23.8   | ---  | L1    |         |
| 11  | 1.60094        | 11.4    | ---    | 12.8          | 24.2    | ---    | 56.0   | 46.0   | 31.8   | ---  | L1    |         |
| 12  | 15.10855       | 9.2     | ---    | 13.3          | 22.5    | ---    | 60.0   | 50.0   | 37.5   | ---  | L1    |         |

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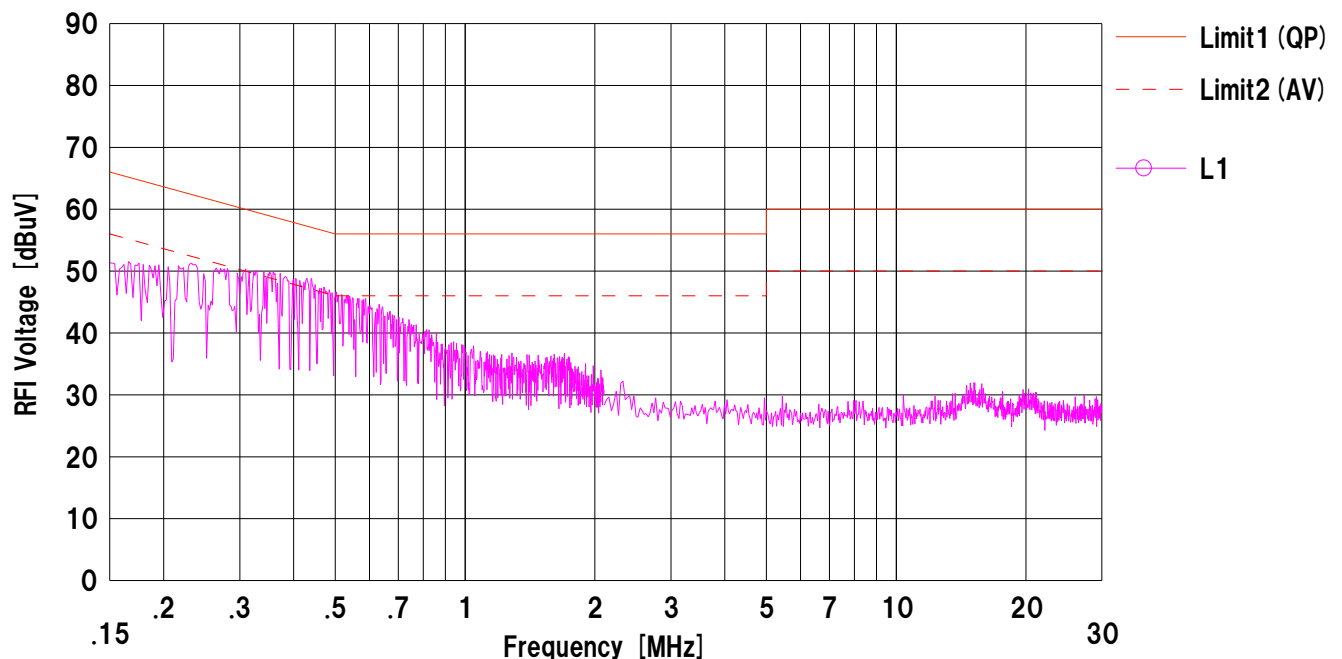
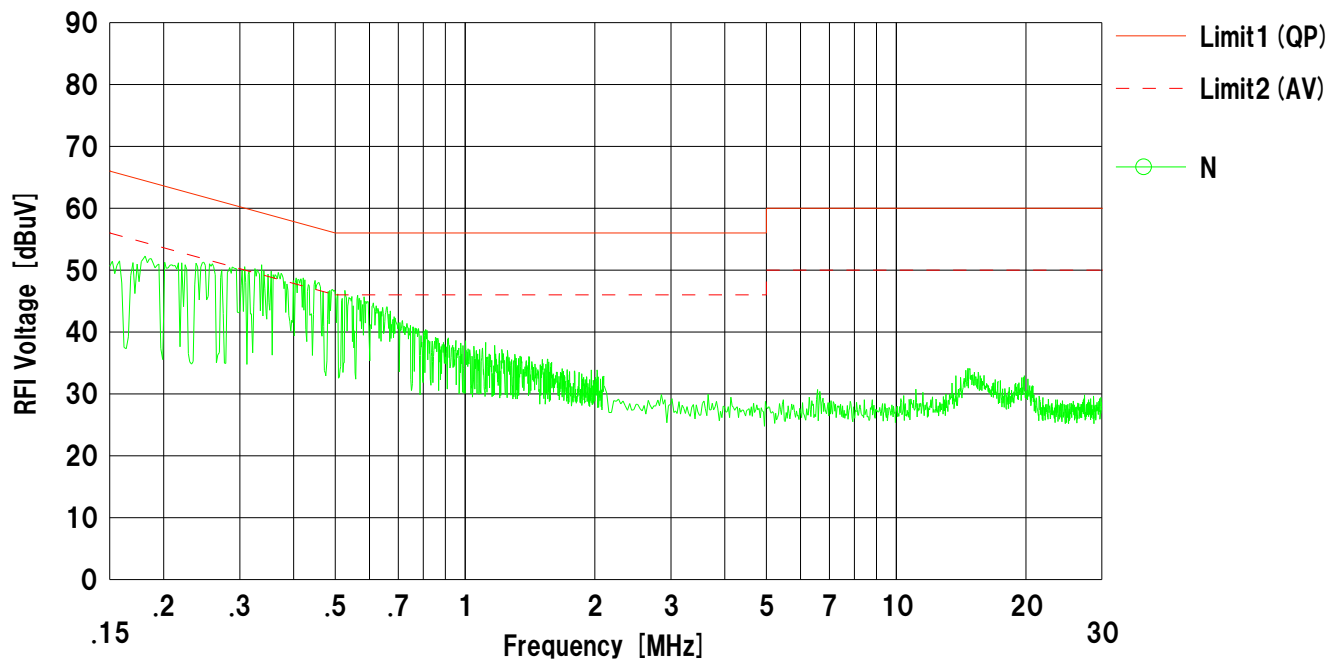
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11n (20HT) 2412MHz MCS3  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



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Date : 2011/05/24

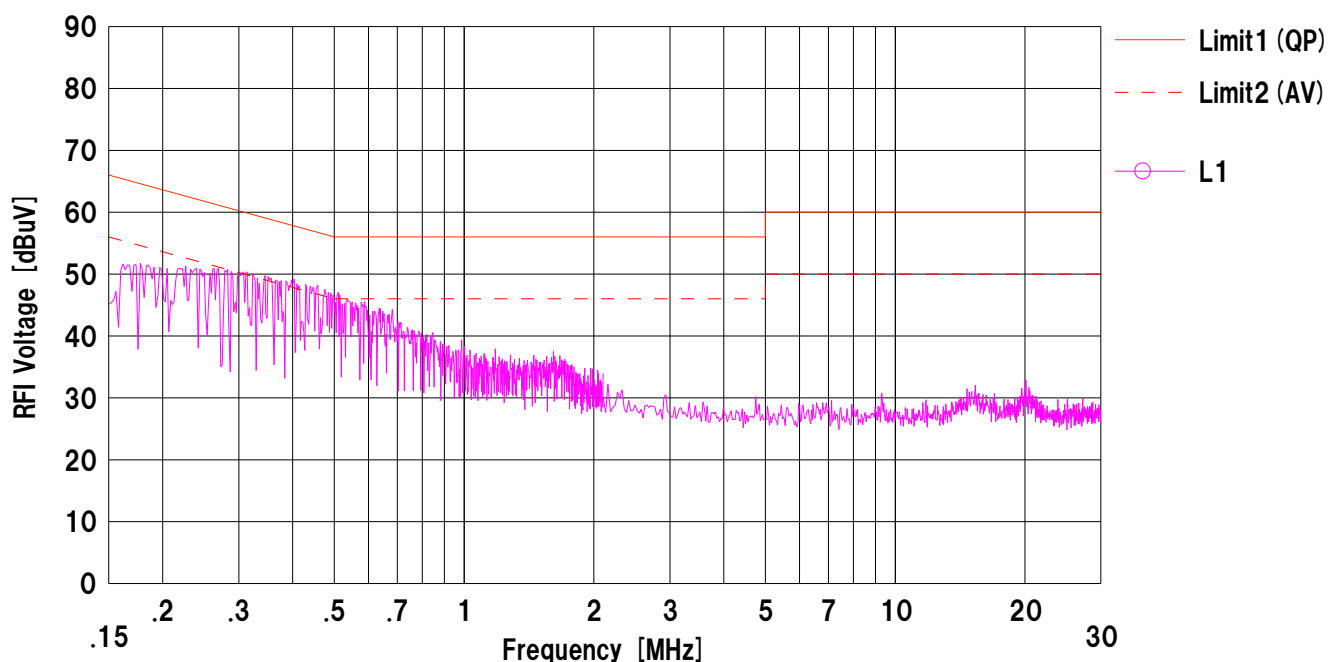
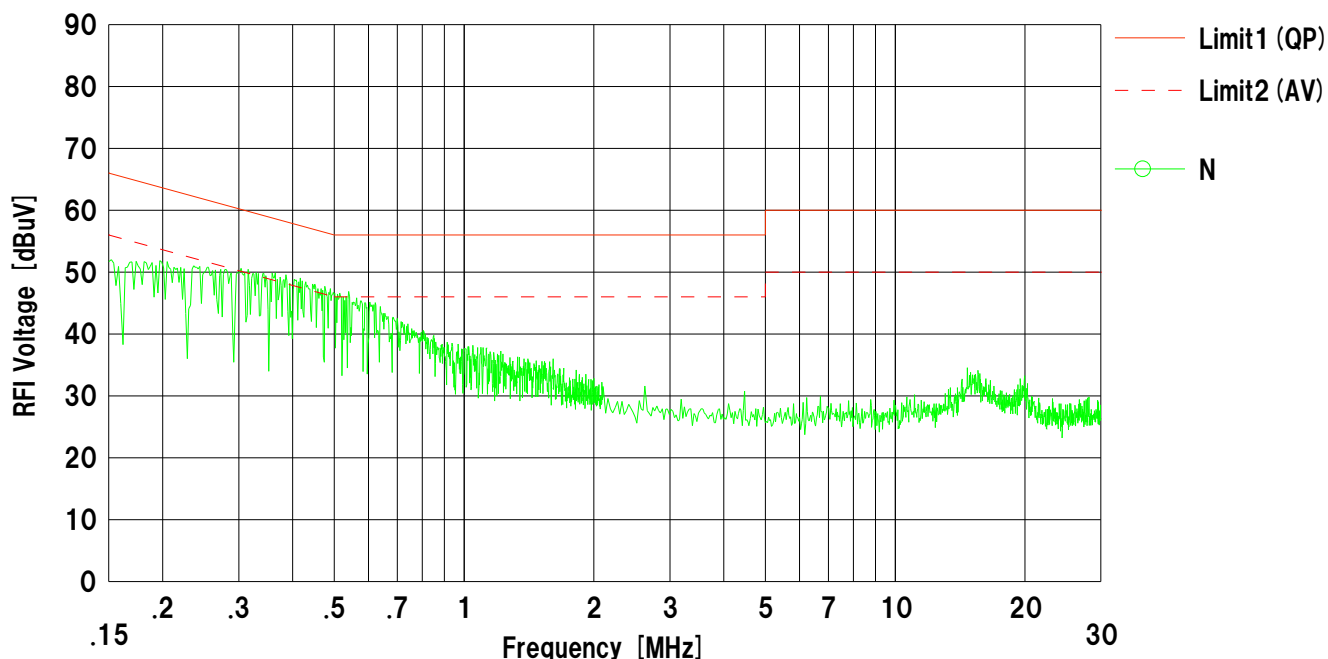
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11n (20HT) 2462MHz MCS3  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



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UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/24

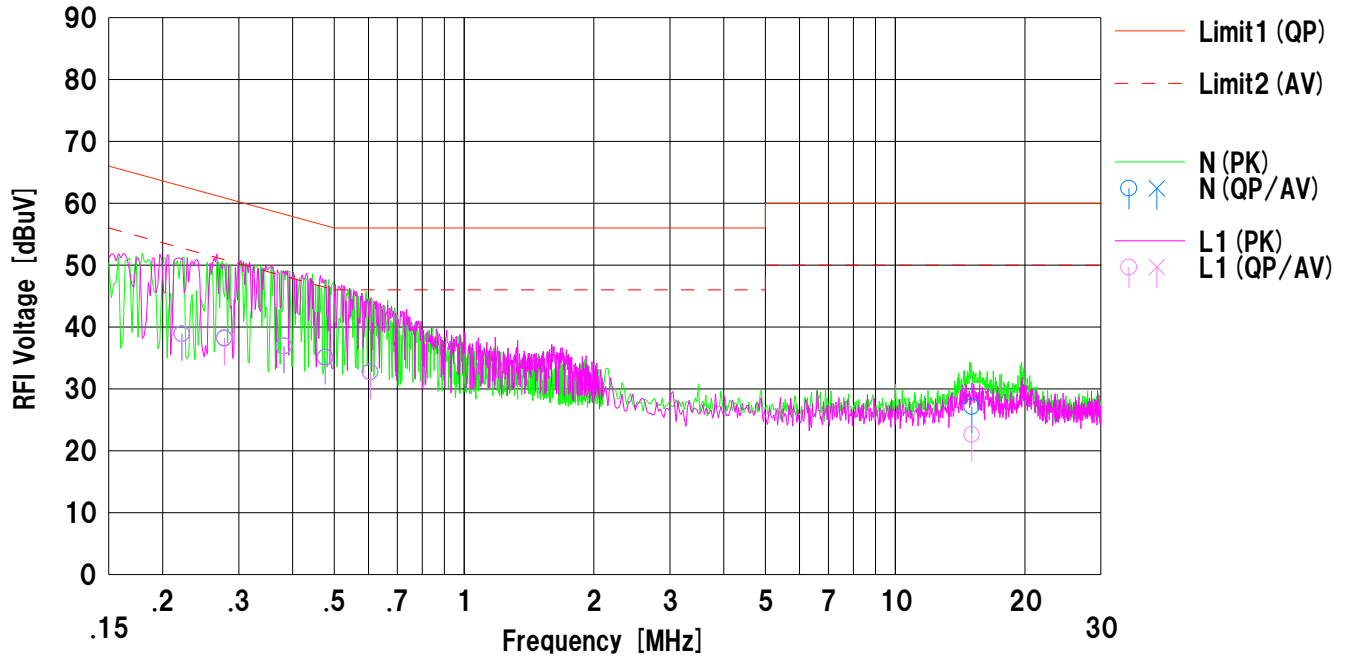
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11n (40HT) 2437MHz MCS3  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



| No. | Freq.<br>[MHz] | Reading        |                | C.Fac | Results        |                | Limit          |                | Margin       |              | Phase | Comment |
|-----|----------------|----------------|----------------|-------|----------------|----------------|----------------|----------------|--------------|--------------|-------|---------|
|     |                | <QP><br>[dBuV] | <AV><br>[dBuV] |       | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dB] | <AV><br>[dB] |       |         |
| 1   | 0.22125        | 26.3           | ---            | 12.6  | 38.9           | ---            | 62.7           | 52.7           | 23.8         | ---          | N     |         |
| 2   | 0.27782        | 25.6           | ---            | 12.6  | 38.2           | ---            | 60.8           | 50.8           | 22.6         | ---          | N     |         |
| 3   | 0.38226        | 24.2           | ---            | 12.7  | 36.9           | ---            | 58.2           | 48.2           | 21.3         | ---          | N     |         |
| 4   | 0.47655        | 22.4           | ---            | 12.7  | 35.1           | ---            | 56.3           | 46.3           | 21.2         | ---          | N     |         |
| 5   | 0.60566        | 20.1           | ---            | 12.6  | 32.7           | ---            | 56.0           | 46.0           | 23.3         | ---          | N     |         |
| 6   | 15.04851       | 13.8           | ---            | 13.3  | 27.1           | ---            | 60.0           | 50.0           | 32.9         | ---          | N     |         |
| 7   | 0.22125        | 26.3           | ---            | 12.6  | 38.9           | ---            | 62.7           | 52.7           | 23.8         | ---          | L1    |         |
| 8   | 0.27782        | 25.5           | ---            | 12.6  | 38.1           | ---            | 60.8           | 50.8           | 22.7         | ---          | L1    |         |
| 9   | 0.38226        | 24.2           | ---            | 12.7  | 36.9           | ---            | 58.2           | 48.2           | 21.3         | ---          | L1    |         |
| 10  | 0.47655        | 22.3           | ---            | 12.7  | 35.0           | ---            | 56.3           | 46.3           | 21.3         | ---          | L1    |         |
| 11  | 0.60566        | 20.1           | ---            | 12.6  | 32.7           | ---            | 56.0           | 46.0           | 23.3         | ---          | L1    |         |
| 12  | 15.04851       | 9.3            | ---            | 13.3  | 22.6           | ---            | 60.0           | 50.0           | 37.4         | ---          | L1    |         |

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UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/24

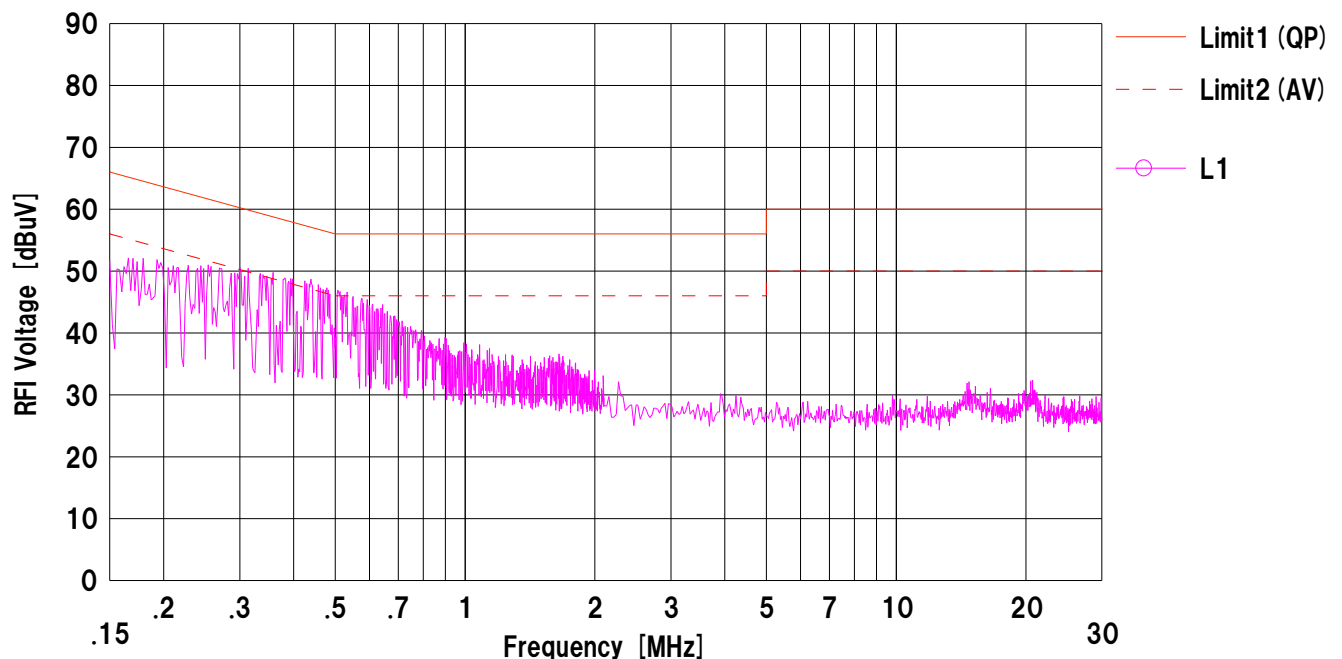
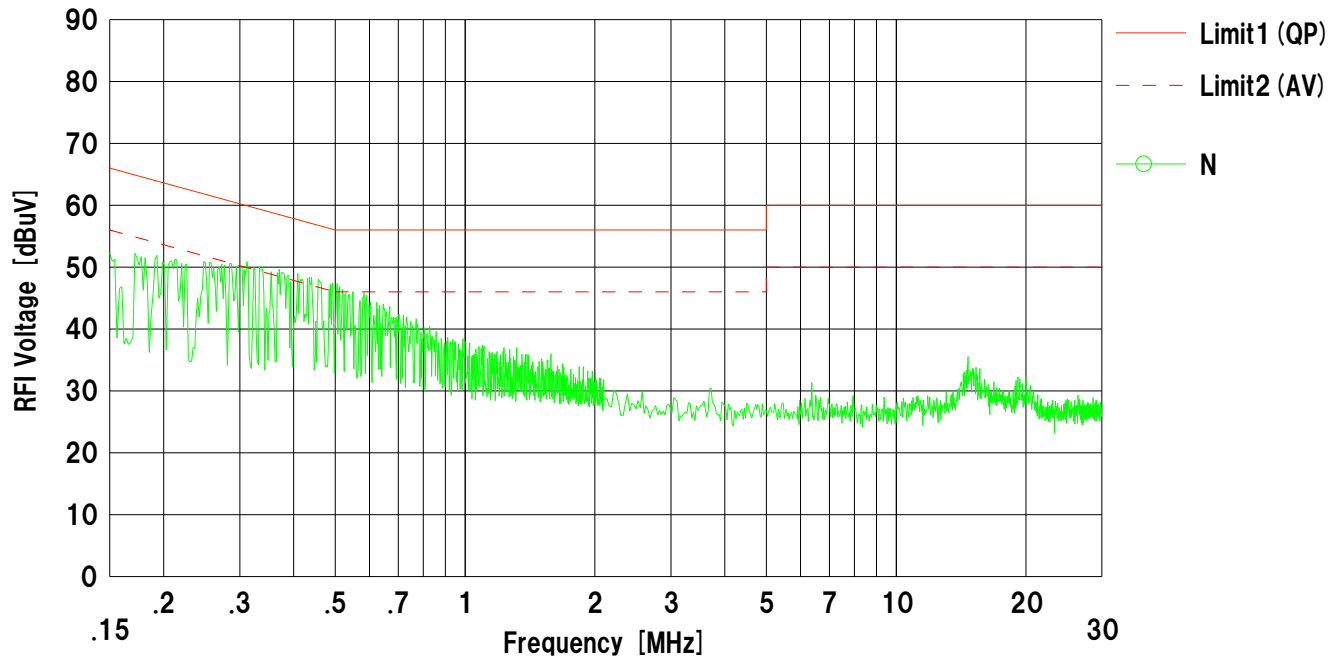
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11n (40HT) 2422MHz MCS3  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



# DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/24

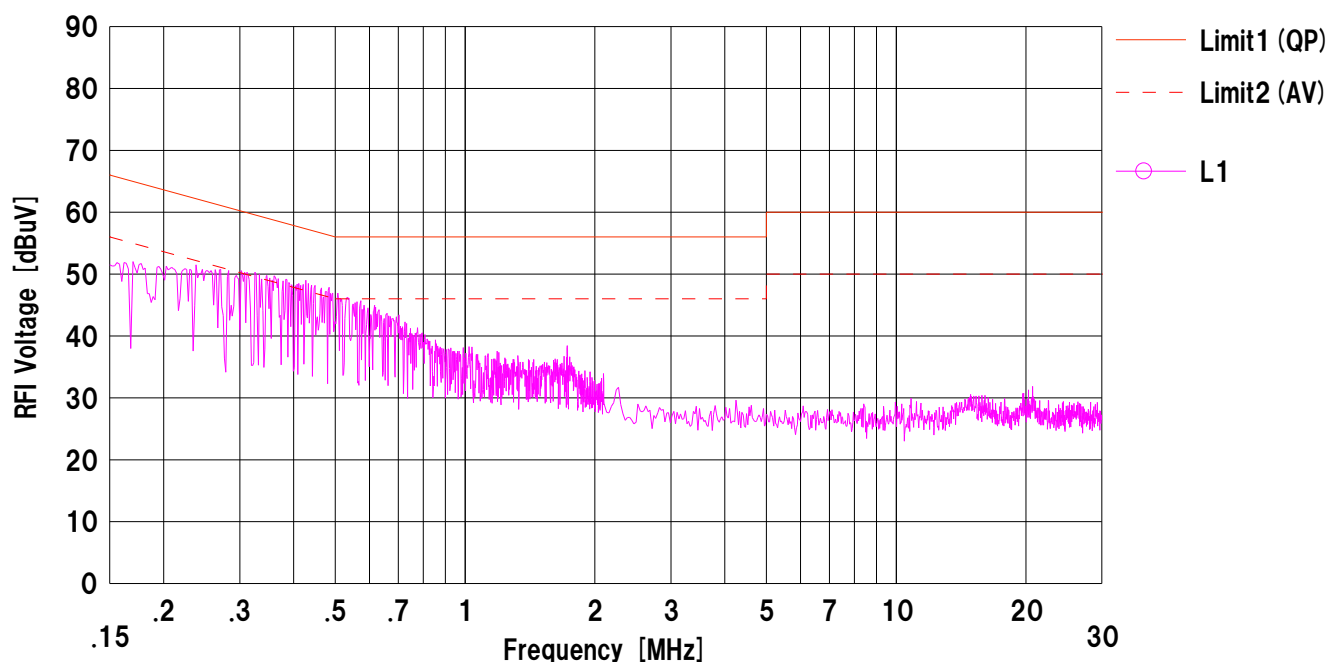
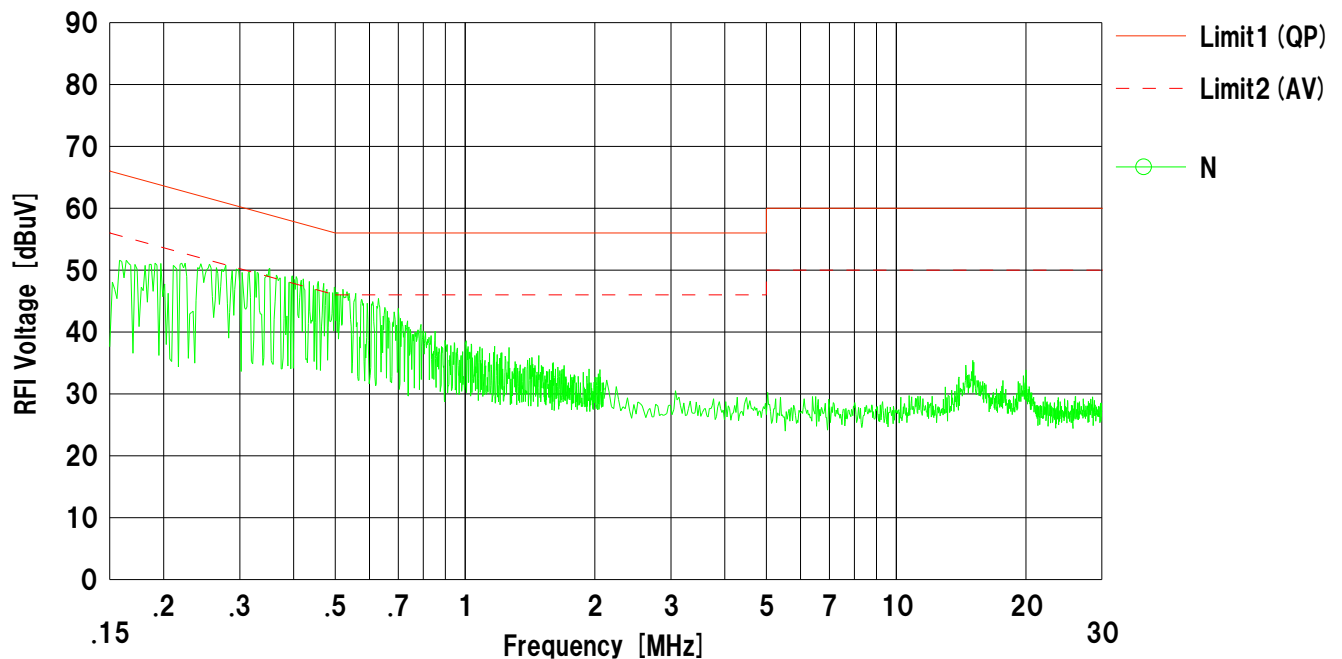
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11n (40HT) 2452MHz MCS3  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



# DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/25

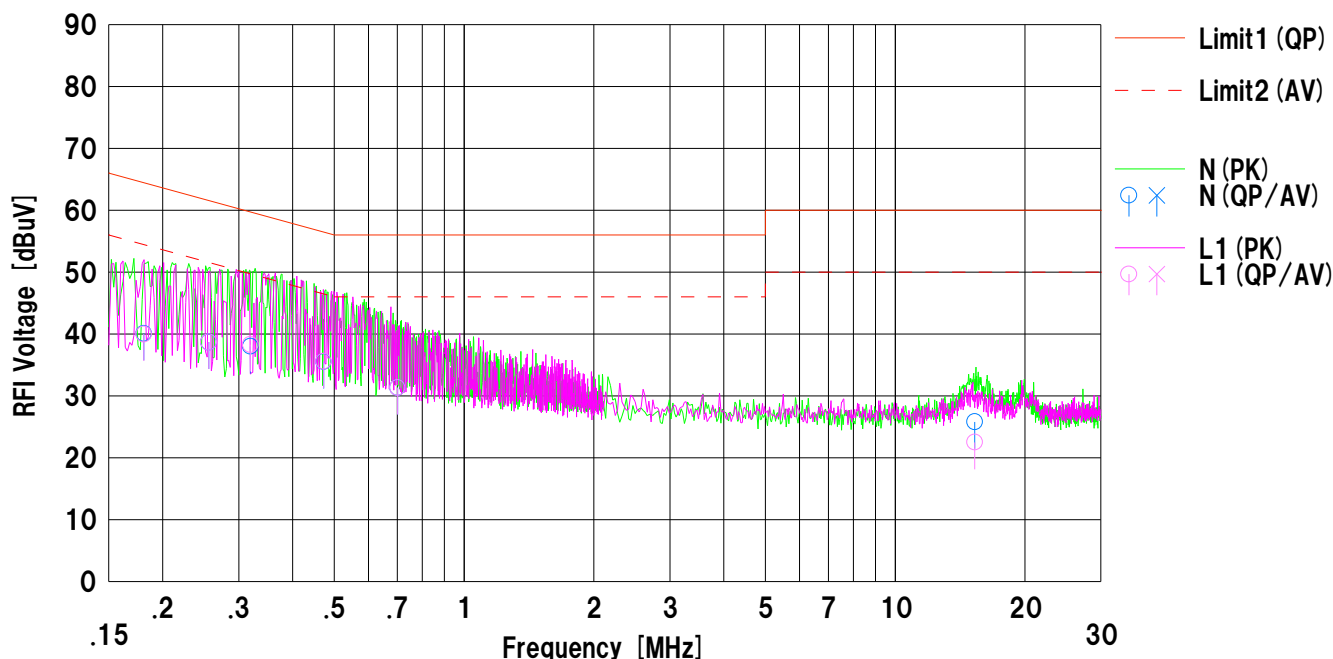
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11a 5785MHz 24Mbps  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



| No. | Freq.<br>[MHz] | Reading        |                | C.Fac<br>[dB] | Results        |                | Limit          |                | Margin       |              | Phase | Comment |
|-----|----------------|----------------|----------------|---------------|----------------|----------------|----------------|----------------|--------------|--------------|-------|---------|
|     |                | <QP><br>[dBuV] | <AV><br>[dBuV] |               | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dB] | <AV><br>[dB] |       |         |
| 1   | 0.18073        | 27.4           | ---            | 12.7          | 40.1           | ---            | 64.4           | 54.4           | 24.3         | ---          | N     |         |
| 2   | 0.25563        | 26.1           | ---            | 12.6          | 38.7           | ---            | 61.5           | 51.5           | 22.8         | ---          | N     |         |
| 3   | 0.31926        | 25.3           | ---            | 12.7          | 38.0           | ---            | 59.7           | 49.7           | 21.7         | ---          | N     |         |
| 4   | 0.47209        | 22.8           | ---            | 12.7          | 35.5           | ---            | 56.4           | 46.4           | 20.9         | ---          | N     |         |
| 5   | 0.70081        | 18.6           | ---            | 12.7          | 31.3           | ---            | 56.0           | 46.0           | 24.7         | ---          | N     |         |
| 6   | 15.29669       | 12.5           | ---            | 13.3          | 25.8           | ---            | 60.0           | 50.0           | 34.2         | ---          | N     |         |
| 7   | 0.18073        | 27.3           | ---            | 12.7          | 40.0           | ---            | 64.4           | 54.4           | 24.4         | ---          | L1    |         |
| 8   | 0.25563        | 26.1           | ---            | 12.6          | 38.7           | ---            | 61.5           | 51.5           | 22.8         | ---          | L1    |         |
| 9   | 0.31926        | 25.6           | ---            | 12.7          | 38.3           | ---            | 59.7           | 49.7           | 21.4         | ---          | L1    |         |
| 10  | 0.47209        | 22.9           | ---            | 12.7          | 35.6           | ---            | 56.4           | 46.4           | 20.8         | ---          | L1    |         |
| 11  | 0.70081        | 18.6           | ---            | 12.7          | 31.3           | ---            | 56.0           | 46.0           | 24.7         | ---          | L1    |         |
| 12  | 15.29669       | 9.2            | ---            | 13.3          | 22.5           | ---            | 60.0           | 50.0           | 37.5         | ---          | L1    |         |

# DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/25

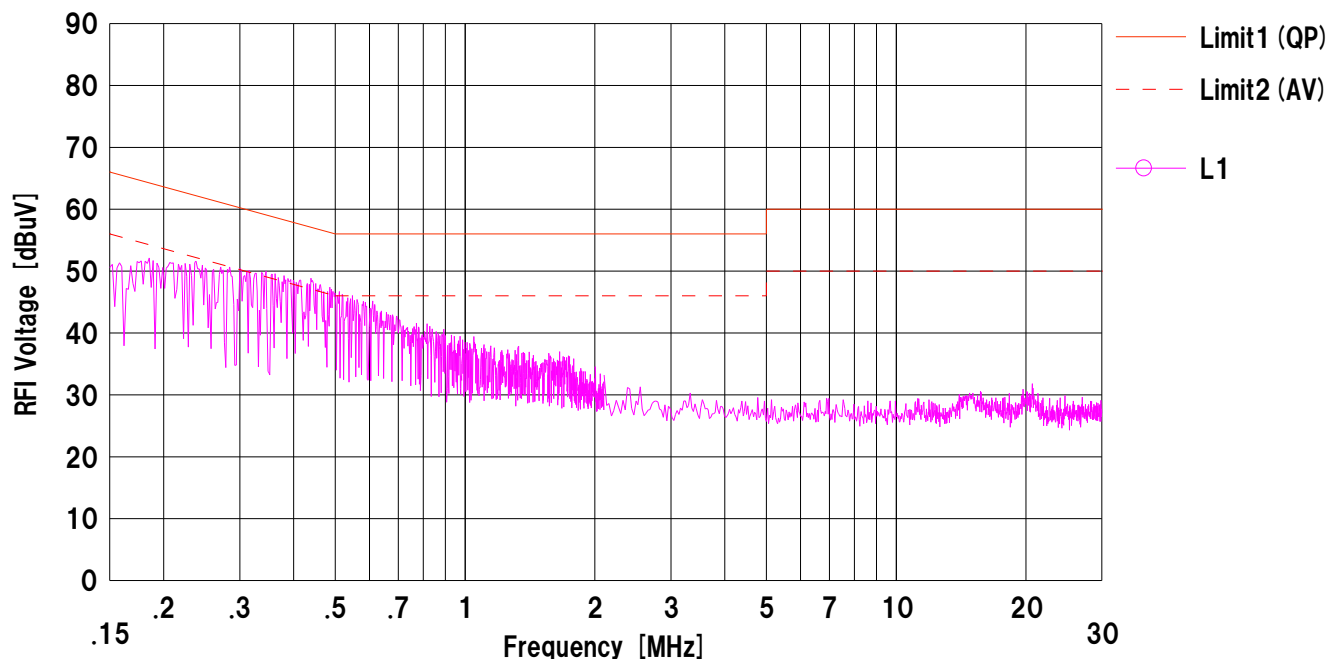
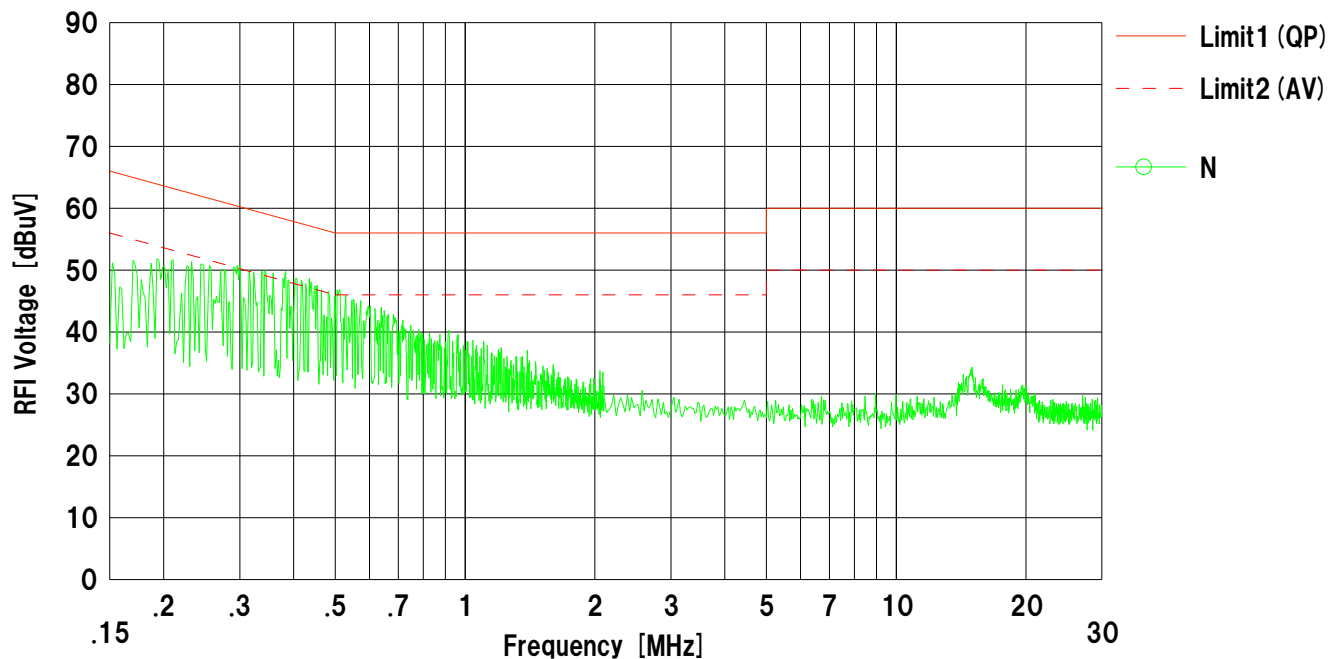
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11a 5745MHz 24Mbps  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



# DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/25

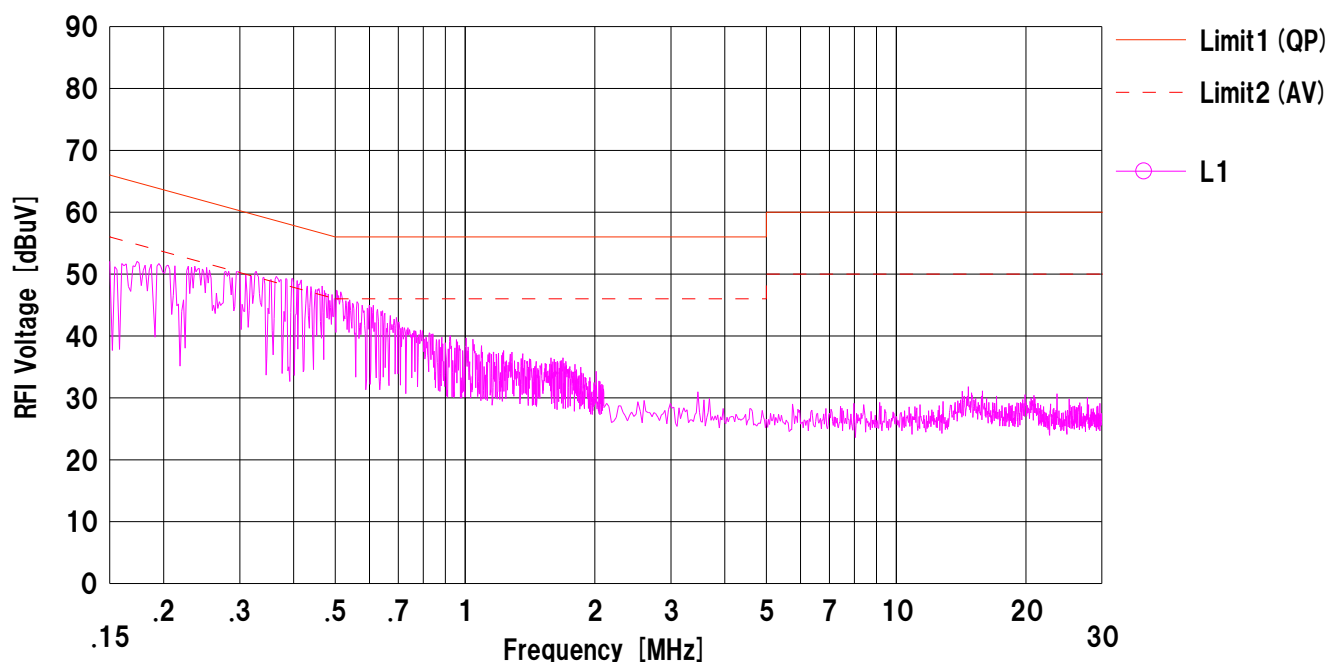
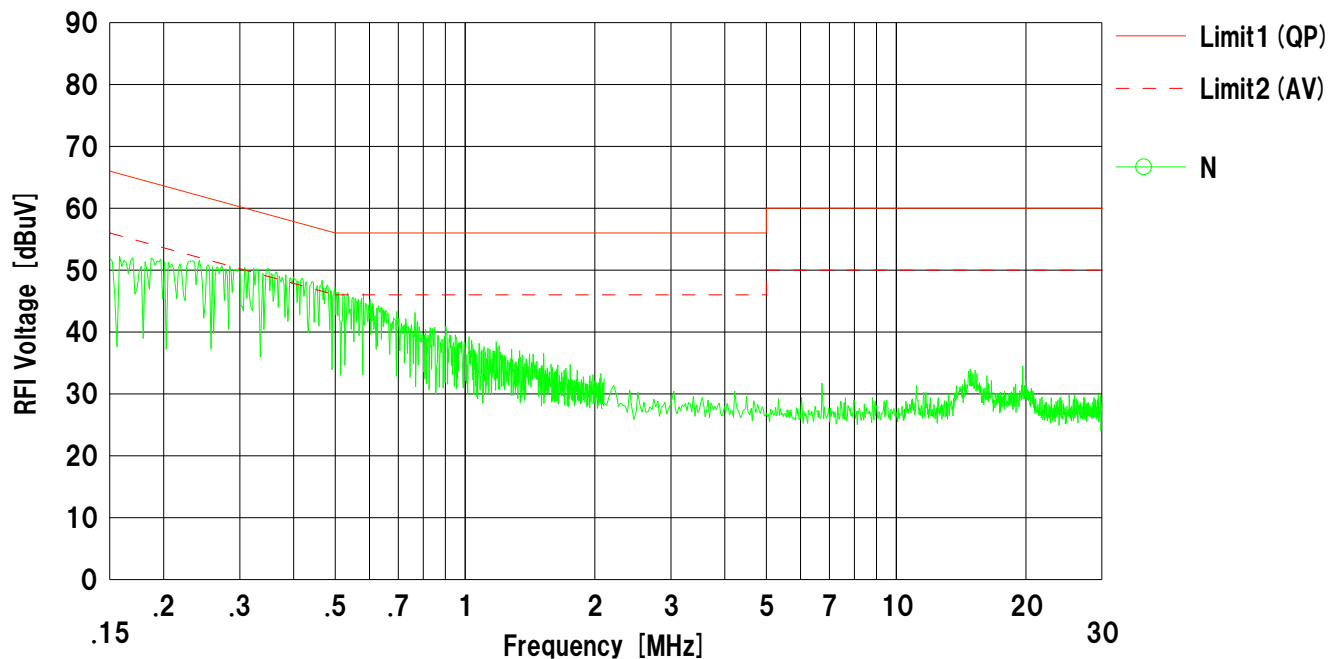
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11a 5825MHz 24Mbps  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



# DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/25

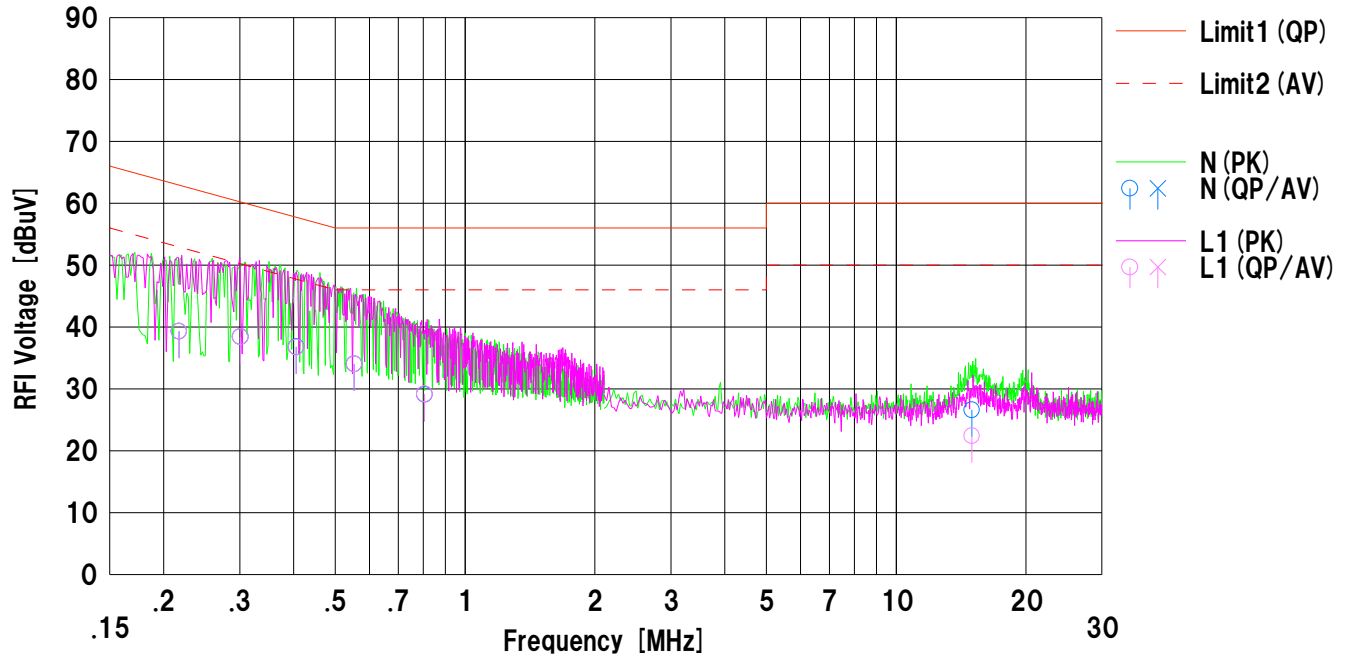
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11n (20HT) 5785MHz MCS1  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



| No. | Freq.<br>[MHz] | Reading        |                | C.Fac<br>[dB] | Results        |                | Limit          |                | Margin       |              | Phase | Comment |
|-----|----------------|----------------|----------------|---------------|----------------|----------------|----------------|----------------|--------------|--------------|-------|---------|
|     |                | <QP><br>[dBuV] | <AV><br>[dBuV] |               | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dB] | <AV><br>[dB] |       |         |
| 1   | 0.21681        | 26.7           | ---            | 12.6          | 39.3           | ---            | 62.9           | 52.9           | 23.6         | ---          | N     |         |
| 2   | 0.30128        | 25.7           | ---            | 12.7          | 38.4           | ---            | 60.2           | 50.2           | 21.8         | ---          | N     |         |
| 3   | 0.40565        | 24.1           | ---            | 12.7          | 36.8           | ---            | 57.7           | 47.7           | 20.9         | ---          | N     |         |
| 4   | 0.55293        | 21.4           | ---            | 12.6          | 34.0           | ---            | 56.0           | 46.0           | 22.0         | ---          | N     |         |
| 5   | 0.80577        | 16.4           | ---            | 12.7          | 29.1           | ---            | 56.0           | 46.0           | 26.9         | ---          | N     |         |
| 6   | 14.97029       | 13.3           | ---            | 13.3          | 26.6           | ---            | 60.0           | 50.0           | 33.4         | ---          | N     |         |
| 7   | 0.21681        | 26.7           | ---            | 12.6          | 39.3           | ---            | 62.9           | 52.9           | 23.6         | ---          | L1    |         |
| 8   | 0.30128        | 25.7           | ---            | 12.7          | 38.4           | ---            | 60.2           | 50.2           | 21.8         | ---          | L1    |         |
| 9   | 0.40565        | 24.0           | ---            | 12.7          | 36.7           | ---            | 57.7           | 47.7           | 21.0         | ---          | L1    |         |
| 10  | 0.55293        | 21.4           | ---            | 12.6          | 34.0           | ---            | 56.0           | 46.0           | 22.0         | ---          | L1    |         |
| 11  | 0.80577        | 16.5           | ---            | 12.7          | 29.2           | ---            | 56.0           | 46.0           | 26.8         | ---          | L1    |         |
| 12  | 14.97029       | 9.1            | ---            | 13.3          | 22.4           | ---            | 60.0           | 50.0           | 37.6         | ---          | L1    |         |

# DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/25

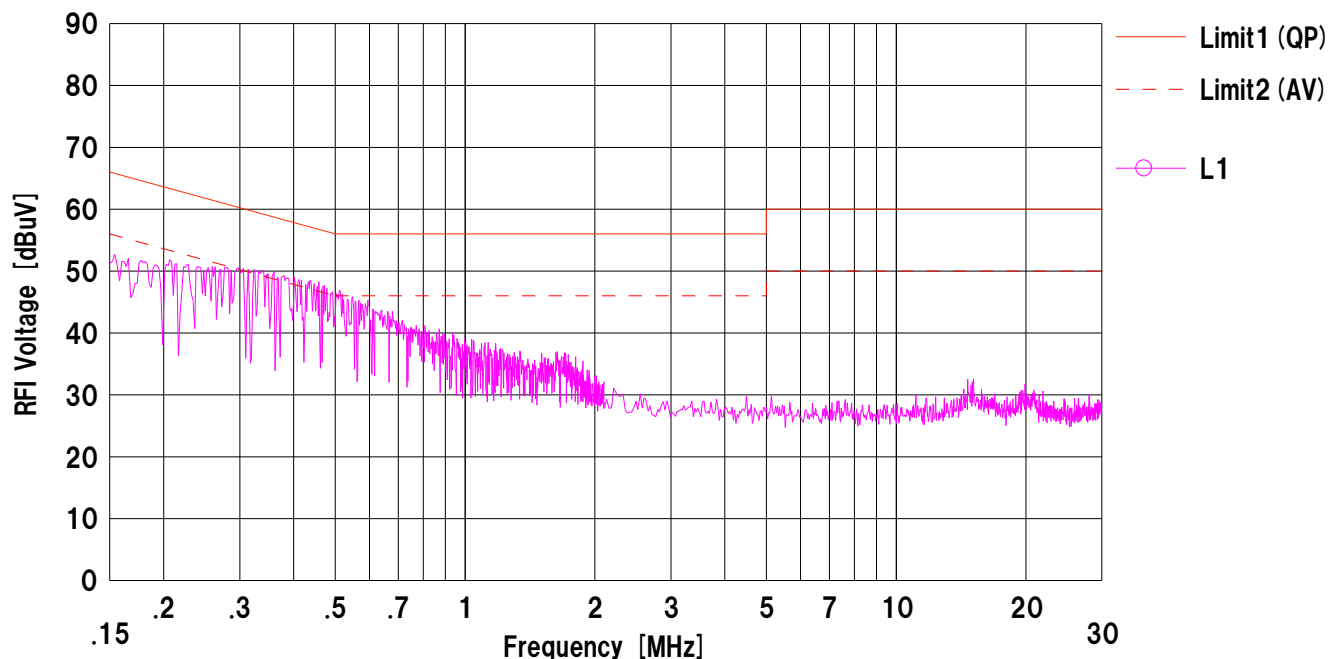
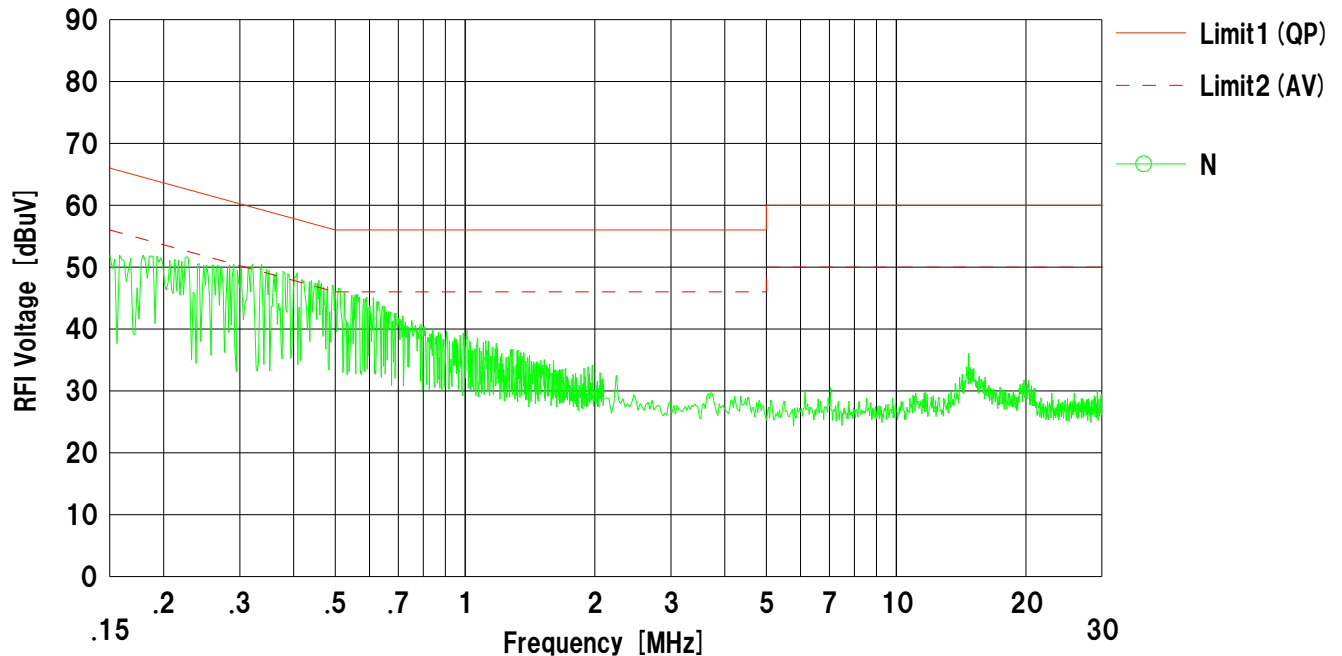
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11n (20HT) 5745MHz MCS1  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



# DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/25

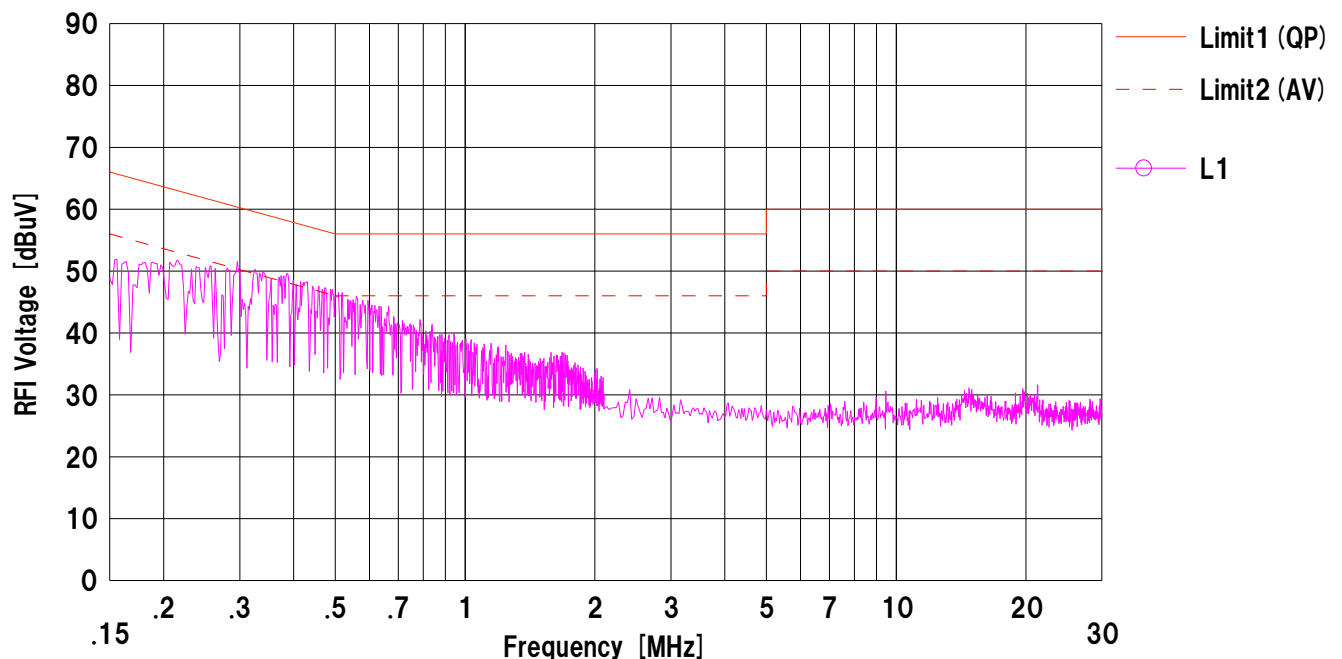
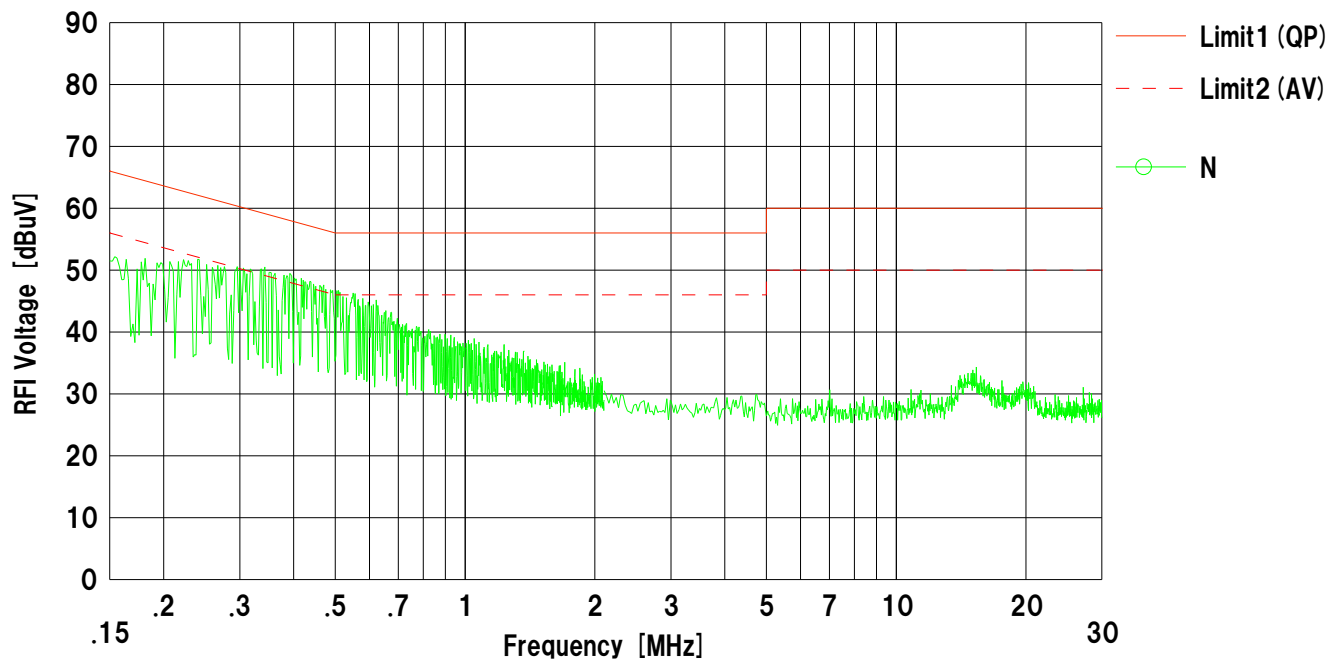
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11n (20HT) 5825MHz MCS1  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



# DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/25

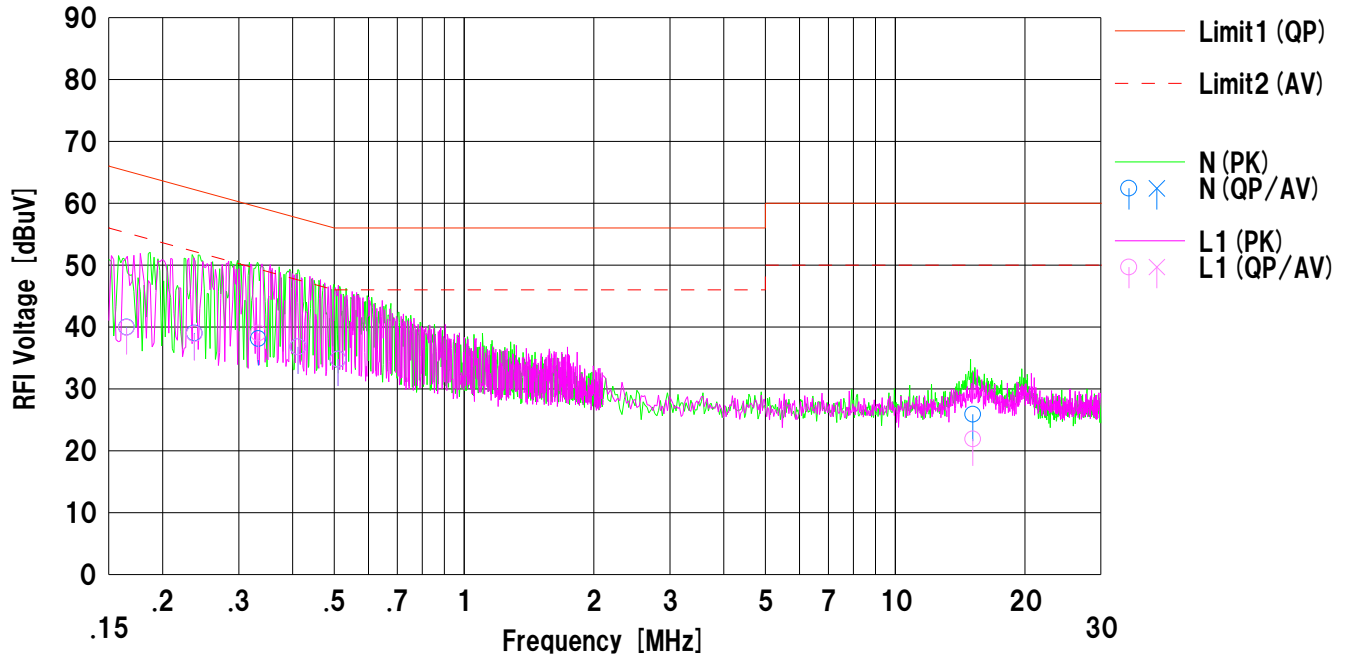
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11n (40HT) 5755MHz MCS5  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

Engineer : Hikaru Shirasawa



| No. | Freq.<br>[MHz] | Reading        |                | C.Fac | Results        |                | Limit          |                | Margin       |              | Phase | Comment |
|-----|----------------|----------------|----------------|-------|----------------|----------------|----------------|----------------|--------------|--------------|-------|---------|
|     |                | <QP><br>[dBuV] | <AV><br>[dBuV] |       | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dBuV] | <AV><br>[dBuV] | <QP><br>[dB] | <AV><br>[dB] |       |         |
| 1   | 0.16478        | 27.3           | ---            | 12.7  | 40.0           | ---            | 65.2           | 55.2           | 25.2         | ---          | N     |         |
| 2   | 0.23686        | 26.4           | ---            | 12.6  | 39.0           | ---            | 62.2           | 52.2           | 23.2         | ---          | N     |         |
| 3   | 0.33299        | 25.4           | ---            | 12.7  | 38.1           | ---            | 59.3           | 49.3           | 21.2         | ---          | N     |         |
| 4   | 0.41199        | 24.1           | ---            | 12.7  | 36.8           | ---            | 57.6           | 47.6           | 20.8         | ---          | N     |         |
| 5   | 0.51046        | 22.2           | ---            | 12.6  | 34.8           | ---            | 56.0           | 46.0           | 21.2         | ---          | N     |         |
| 6   | 15.14819       | 12.6           | ---            | 13.3  | 25.9           | ---            | 60.0           | 50.0           | 34.1         | ---          | N     |         |
| 7   | 0.16478        | 27.2           | ---            | 12.7  | 39.9           | ---            | 65.2           | 55.2           | 25.3         | ---          | L1    |         |
| 8   | 0.23686        | 26.3           | ---            | 12.6  | 38.9           | ---            | 62.2           | 52.2           | 23.3         | ---          | L1    |         |
| 9   | 0.33299        | 26.3           | ---            | 12.7  | 39.0           | ---            | 59.3           | 49.3           | 20.3         | ---          | L1    |         |
| 10  | 0.41199        | 24.1           | ---            | 12.7  | 36.8           | ---            | 57.6           | 47.6           | 20.8         | ---          | L1    |         |
| 11  | 0.51046        | 22.2           | ---            | 12.6  | 34.8           | ---            | 56.0           | 46.0           | 21.2         | ---          | L1    |         |
| 12  | 15.14819       | 8.6            | ---            | 13.3  | 21.9           | ---            | 60.0           | 50.0           | 38.1         | ---          | L1    |         |

# DATA OF CONDUCTED EMISSION TEST

UL Japan, Inc. Shonan EMC Lab. No.1 Shielded Room  
Date : 2011/05/25

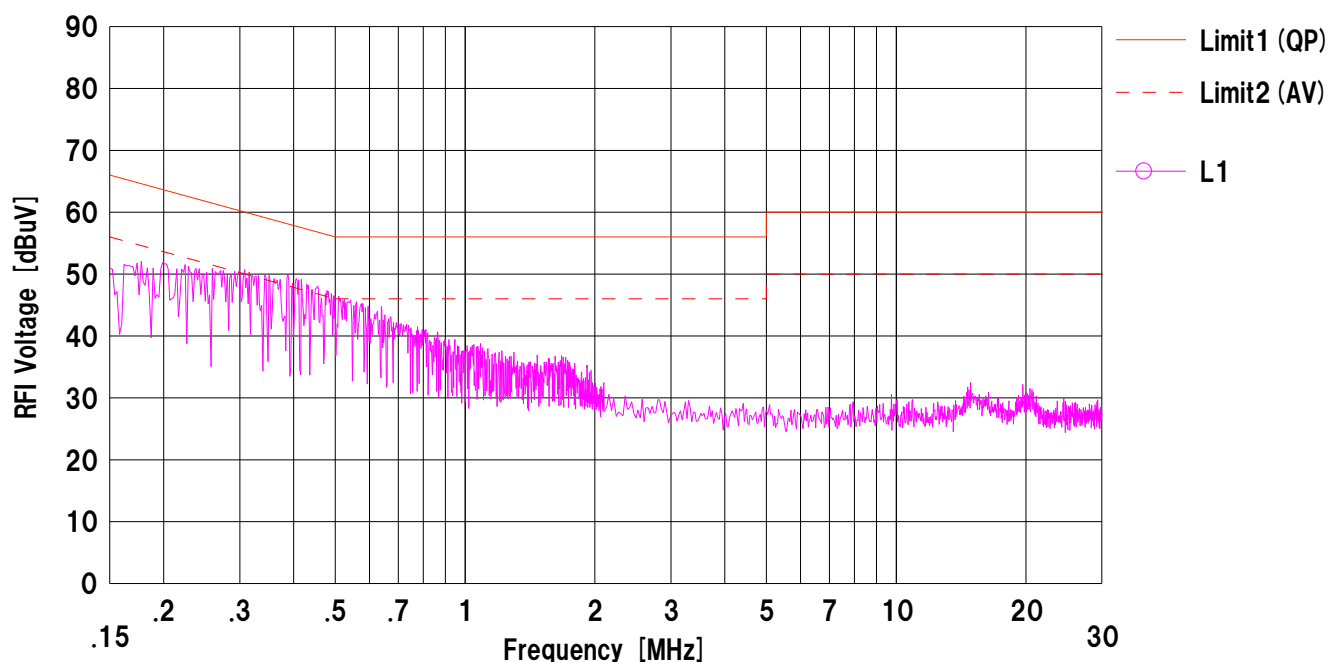
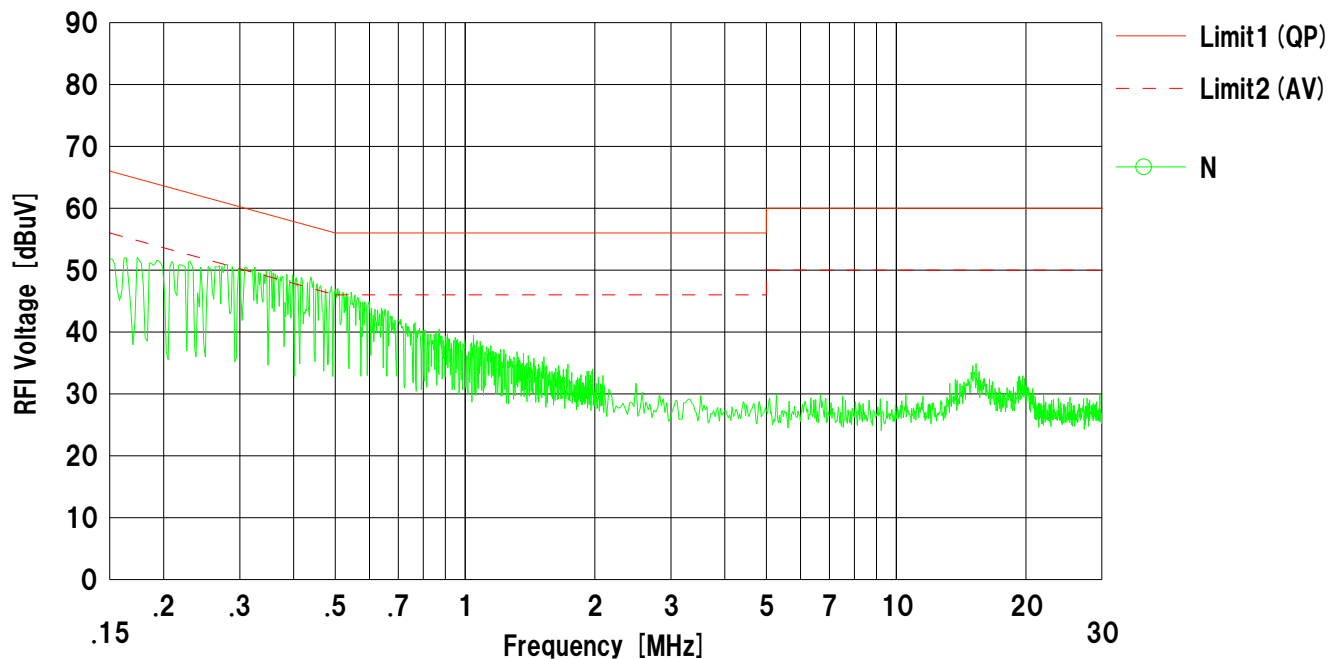
Company : CANON INC.  
Kind of EUT : Wireless LAN Module  
Model No. : BM70659  
Serial No. : DE2-17

Mode : Tx 11n (40HT) 5795MHz MCS5  
Report No. : 31IE0161-SH-02-A  
Power : DC3.5V (AC120V/60Hz)  
Temp./Humi. : 24deg.C. / 56%RH

Remarks : -

Limit1 : FCC 15C (15.207) QP  
Limit2 : FCC 15C (15.207) AV

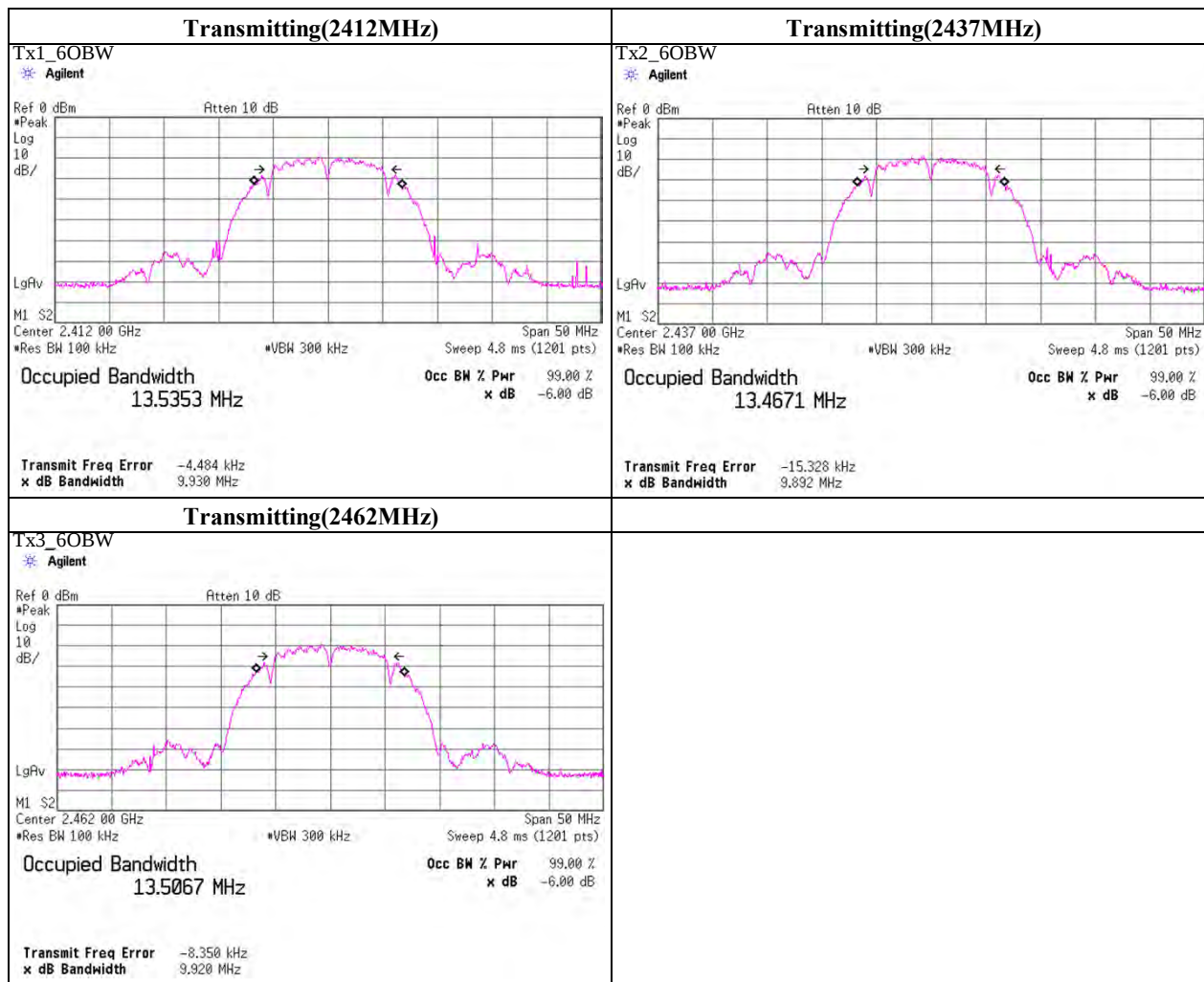
Engineer : Hikaru Shirasawa



**-6dB Bandwidth**

|                        |                                             |                    |
|------------------------|---------------------------------------------|--------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.              | No.5 Shielded Room |
| Date                   | May 23, 2011                                |                    |
| Temperature / Humidity | 25deg.C , 47%RH                             |                    |
| Engineer               | Kenichi Adachi                              |                    |
| Mode                   | Tx, IEEE802.11b, PN9, worst data mode 2Mbps |                    |

| Freq.<br>[MHz] | -6dB Bandwidth<br>[MHz] | Limit<br>[MHz] |
|----------------|-------------------------|----------------|
| 2412.0000      | 9.930                   | > 0.500        |
| 2437.0000      | 9.892                   | > 0.500        |
| 2462.0000      | 9.920                   | > 0.500        |

**UL Japan, Inc.****Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

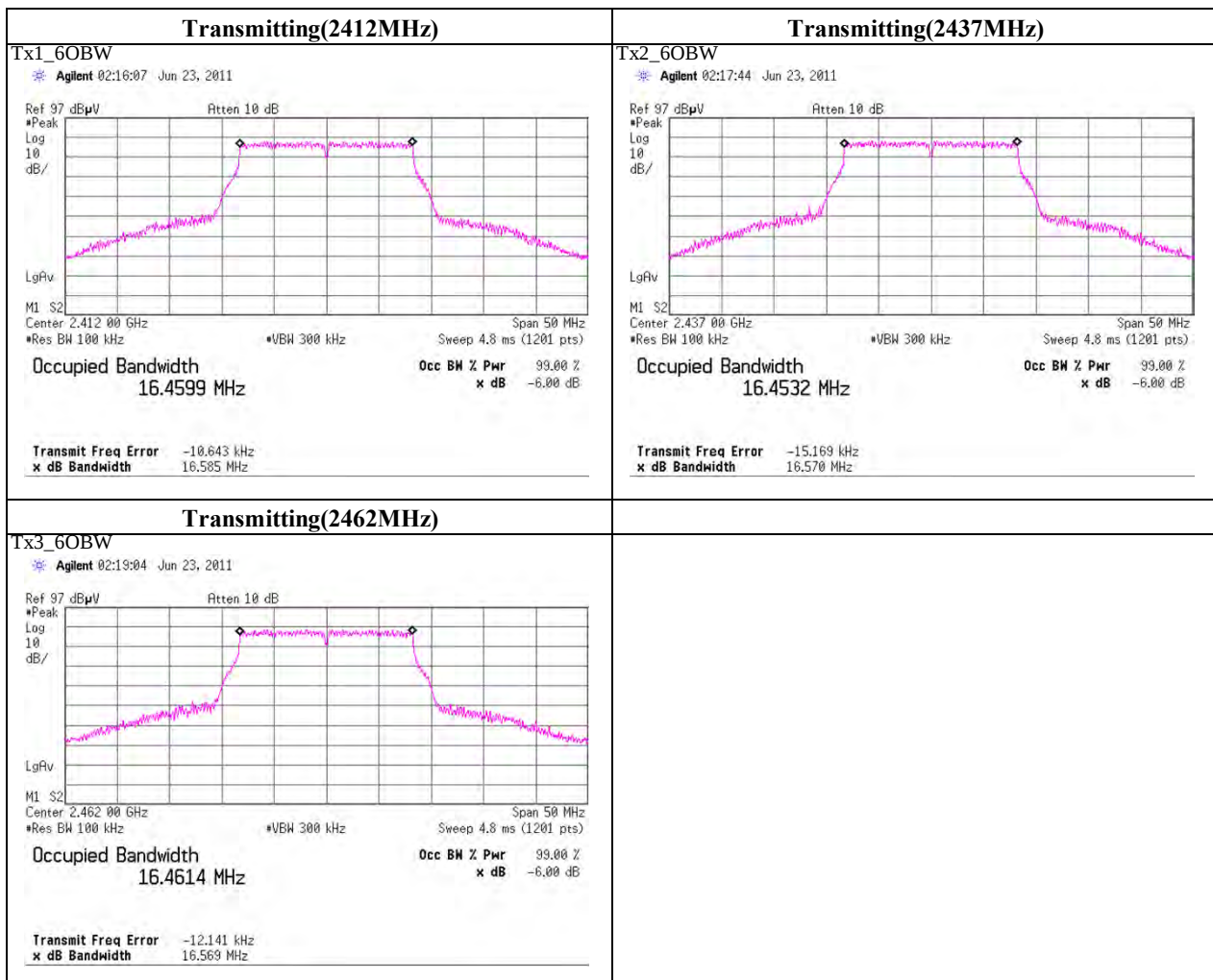
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

**-6dB Bandwidth**

|                        |                                              |                    |
|------------------------|----------------------------------------------|--------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.               | No.3 Shielded Room |
| Date                   | May 16, 2011                                 |                    |
| Temperature / Humidity | 23deg.C. , 47%RH                             |                    |
| Engineer               | Hiklaru Shirasawa                            |                    |
| Mode                   | Tx, IEEE802.11g, PN9, worst data mode 24Mbps |                    |

| Freq.<br>[MHz] | -6dB Bandwidth<br>[MHz] | Limit<br>[MHz] |
|----------------|-------------------------|----------------|
| 2412.0000      | 16.585                  | > 0.500        |
| 2437.0000      | 16.570                  | > 0.500        |
| 2462.0000      | 16.569                  | > 0.500        |

**UL Japan, Inc.****Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

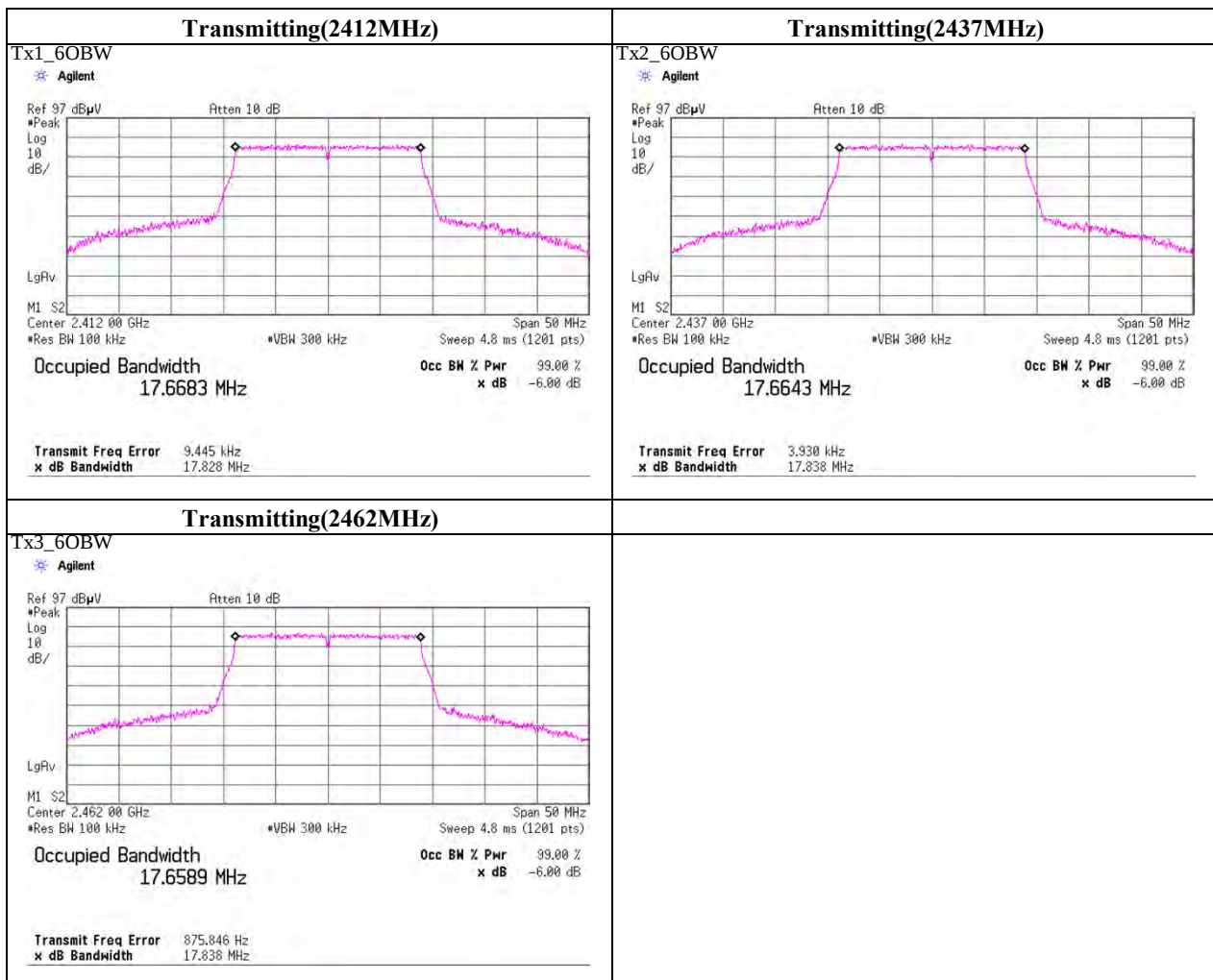
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

**-6dB Bandwidth**

|                        |                                                            |                    |
|------------------------|------------------------------------------------------------|--------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.                             | No.3 Shielded Room |
| Date                   | May 18, 2011                                               |                    |
| Temperature / Humidity | 26deg.C. , 47%RH                                           |                    |
| Engineer               | Hikaru Shirasawa                                           |                    |
| Mode                   | Tx, IEEE802.11n(20HT)(2.4GHz), PN9, worst data mode 3(MCS) |                    |

| Freq.<br>[MHz] | -6dB Bandwidth<br>[MHz] | Limit<br>[MHz] |
|----------------|-------------------------|----------------|
| 2412.0000      | 17.828                  | > 0.500        |
| 2437.0000      | 17.838                  | > 0.500        |
| 2462.0000      | 17.838                  | > 0.500        |

**UL Japan, Inc.****Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

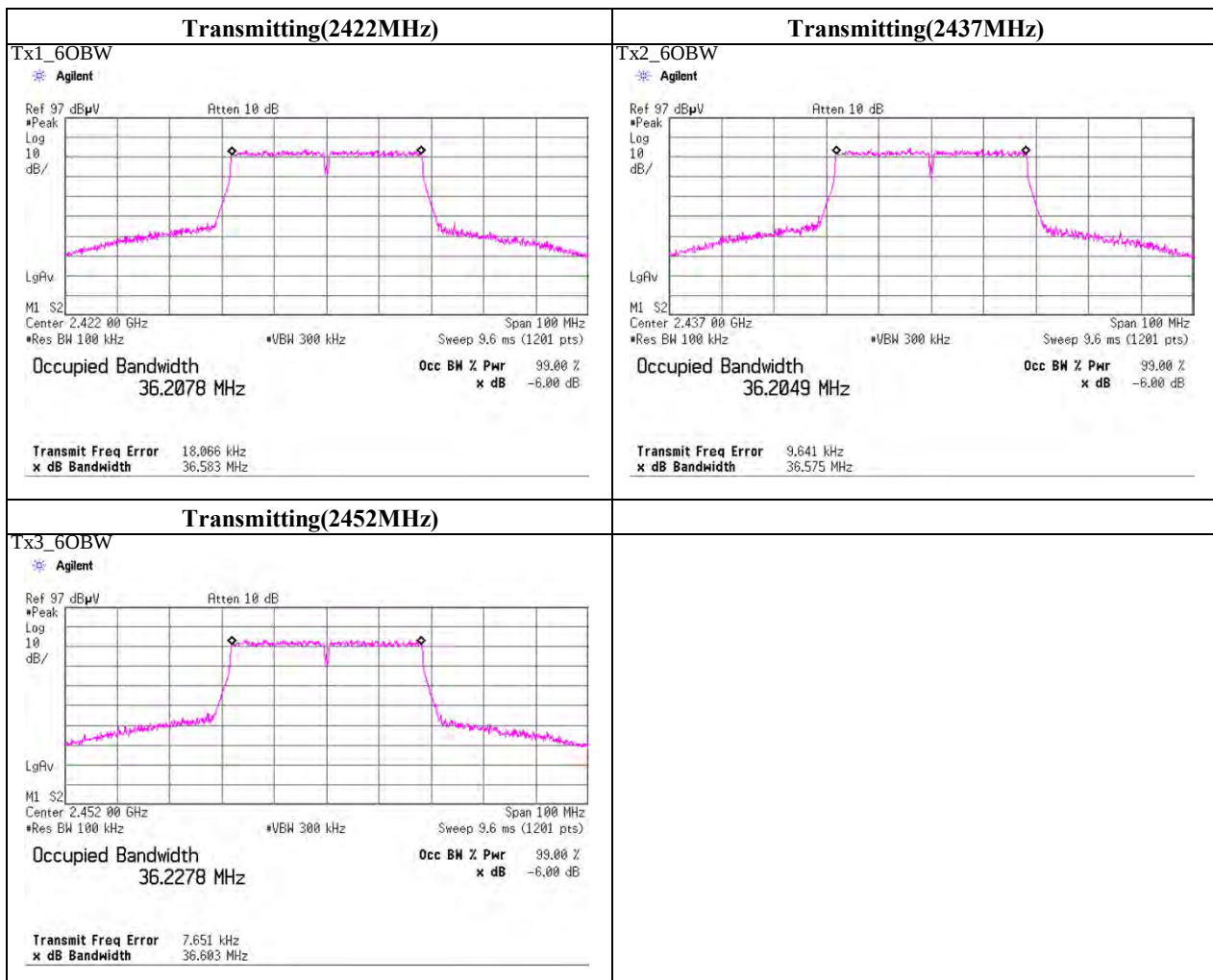
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

**-6dB Bandwidth**

|                        |                                                            |                    |
|------------------------|------------------------------------------------------------|--------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.                             | No.3 Shielded Room |
| Date                   | May 18, 2011                                               |                    |
| Temperature / Humidity | 26deg.C. , 47%RH                                           |                    |
| Engineer               | Hikaru Shirasawa                                           |                    |
| Mode                   | Tx, IEEE802.11n(40HT)(2.4GHz), PN9, worst data mode 3(MCS) |                    |

| Freq.<br>[MHz] | -6dB Bandwidth<br>[MHz] | Limit<br>[MHz] |
|----------------|-------------------------|----------------|
| 2422.0000      | 36.583                  | > 0.500        |
| 2437.0000      | 36.575                  | > 0.500        |
| 2452.0000      | 36.603                  | > 0.500        |

**UL Japan, Inc.****Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

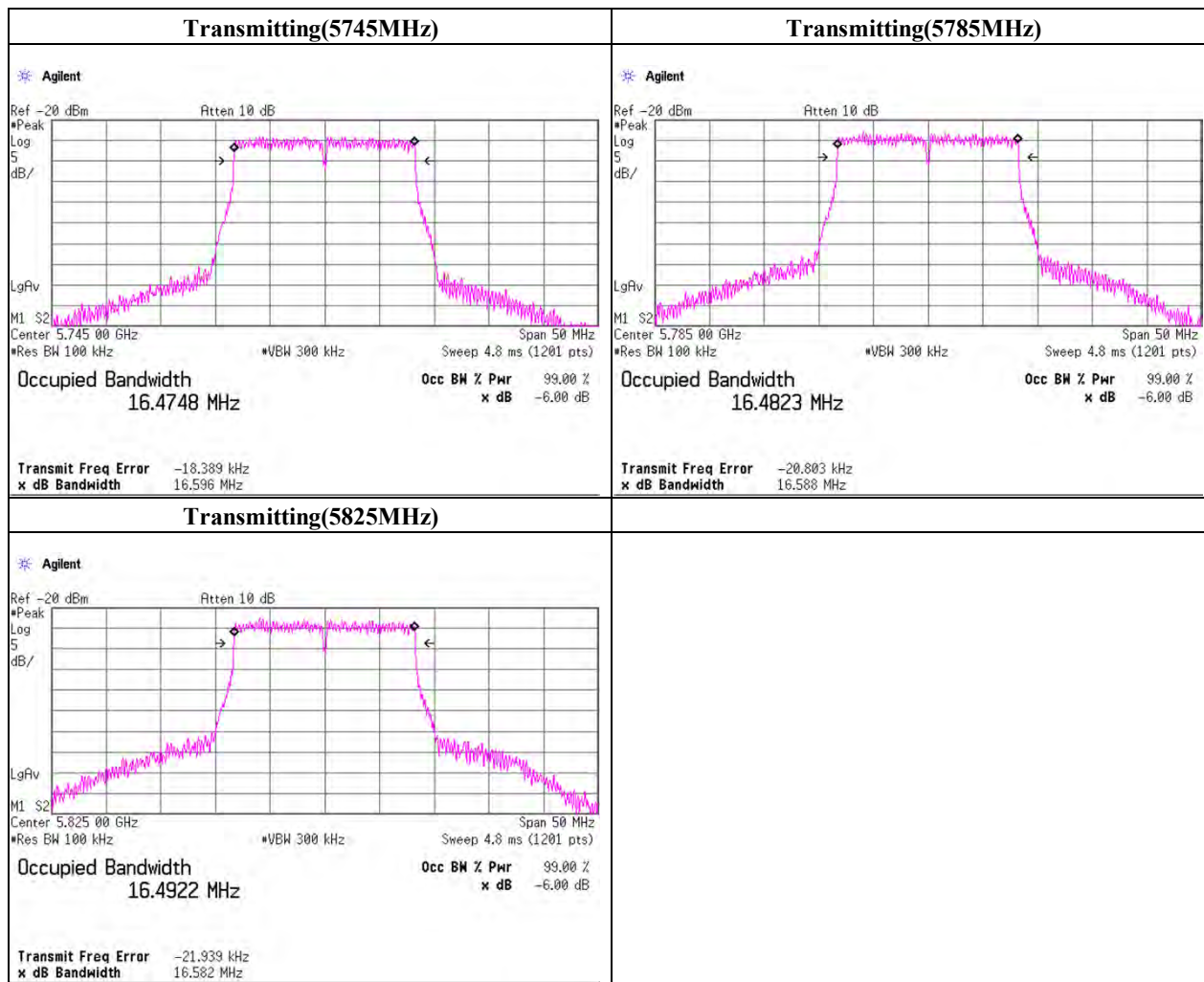
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

**-6dB Bandwidth**

|                        |                                                    |                    |
|------------------------|----------------------------------------------------|--------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.                     | No.5 Shielded room |
| Date                   | May 20, 2011                                       |                    |
| Temperature / Humidity | 24deg.C , 49%RH                                    |                    |
| Engineer               | Makoto Hosaka                                      |                    |
| Mode                   | Tx, IEEE802.11a (W58), PN9, worst data mode 24Mbps |                    |

| Freq.<br>[MHz] | -6dB Bandwidth<br>[MHz] | Limit<br>[MHz] |
|----------------|-------------------------|----------------|
| 5745.0000      | 16.596                  | > 0.500        |
| 5785.0000      | 16.588                  | > 0.500        |
| 5825.0000      | 16.582                  | > 0.500        |

**UL Japan, Inc.****Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

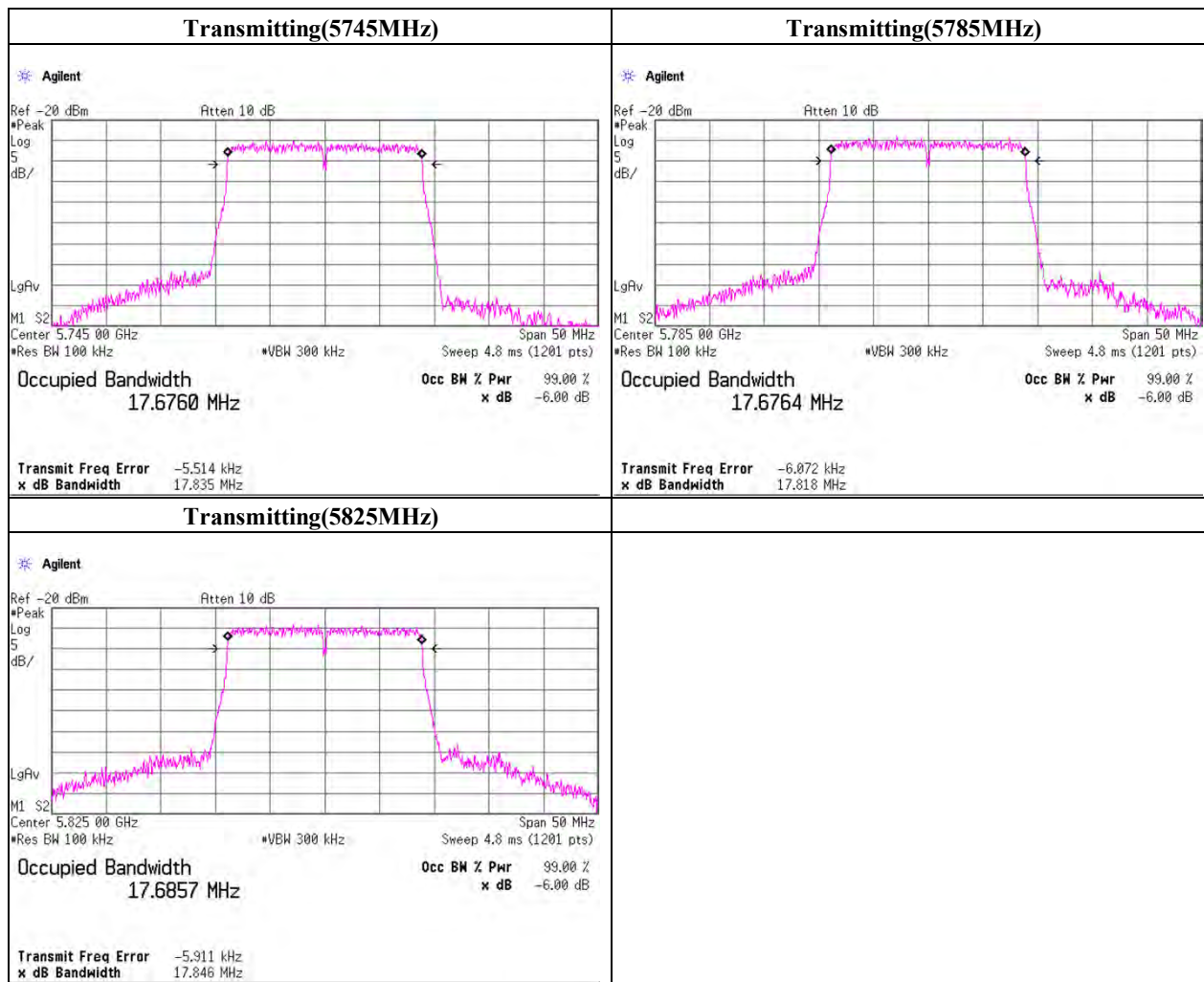
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

**-6dB Bandwidth**

|                        |                                                            |                   |
|------------------------|------------------------------------------------------------|-------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.                             | No.5 Shilded room |
| Date                   | May 20, 2011                                               |                   |
| Temperature / Humidity | 24deg.C , 49%RH                                            |                   |
| Engineer               | Makoto Hosaka                                              |                   |
| Mode                   | Tx, IEEE802.11n (20HT), (W58), PN9, worst data mode 1(MCS) |                   |

| Freq.<br>[MHz] | -6dB Bandwidth<br>[MHz] | Limit<br>[MHz] |
|----------------|-------------------------|----------------|
| 5745.0000      | 17.835                  | > 0.500        |
| 5785.0000      | 17.818                  | > 0.500        |
| 5825.0000      | 17.846                  | > 0.500        |

**UL Japan, Inc.****Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

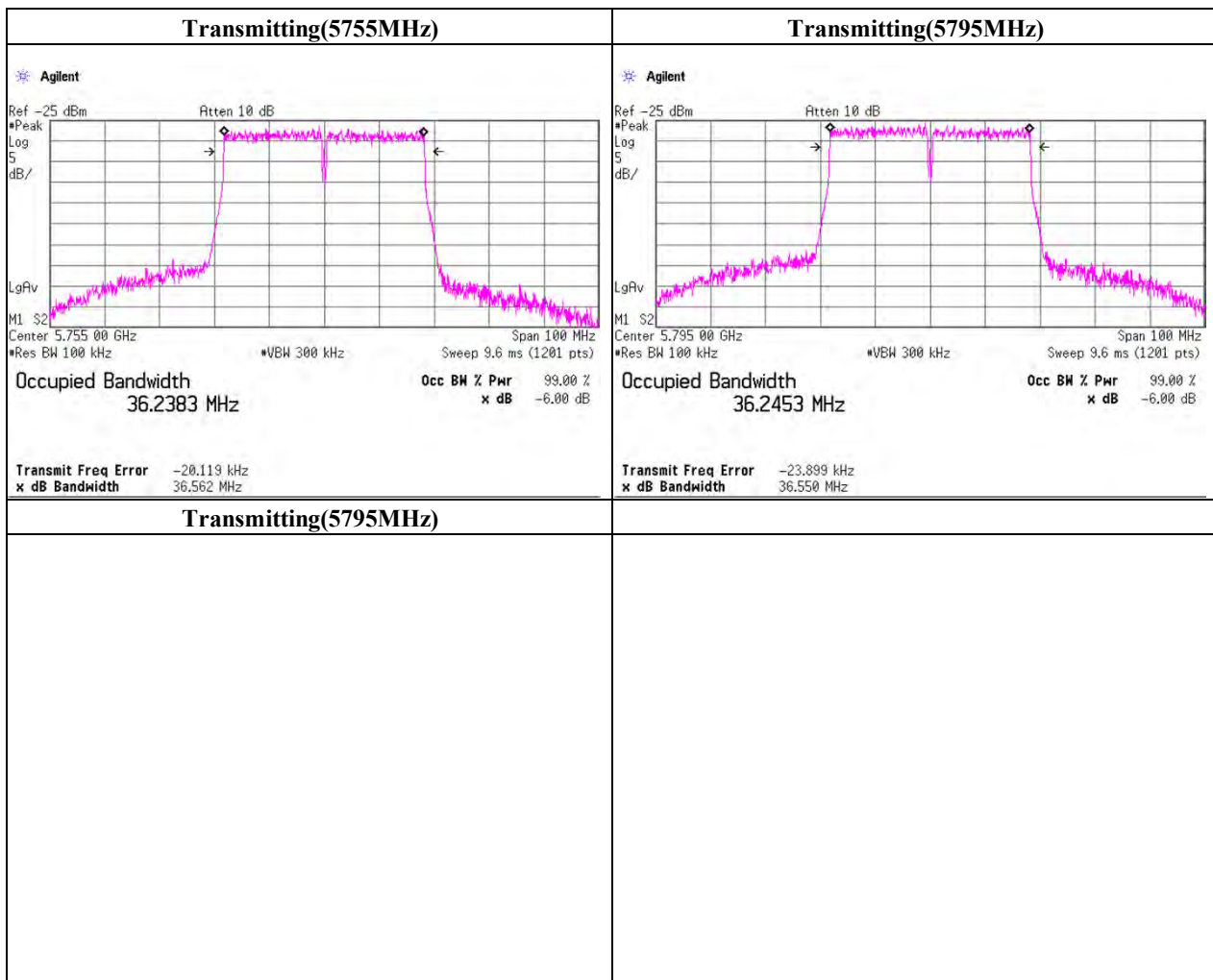
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

**-6dB Bandwidth**

|                        |                                                           |                   |
|------------------------|-----------------------------------------------------------|-------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.                            | No.5 Shilded room |
| Date                   | May 20, 2011                                              |                   |
| Temperature / Humidity | 24deg.C. , 49%RH                                          |                   |
| Engineer               | Makoto Hosaka                                             |                   |
| Mode                   | Tx, IEEE802.11n (40HT),(W58), PN9, worst data mode 5(MCS) |                   |

| Freq.<br>[MHz] | -6dB Bandwidth<br>[MHz] | Limit<br>[MHz] |
|----------------|-------------------------|----------------|
| 5755.0000      | 36.562                  | > 0.500        |
| 5795.0000      | 36.550                  | > 0.500        |
|                |                         |                |

**UL Japan, Inc.****Shonan EMC Lab.**

1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN

Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Peak Output Power (Conducted)

Test place                      UL Japan, Inc. Shonan EMC Lab.                      No.5 Shielded Room  
 Date                              May 23, 2011  
 Temperature / Humidity      25deg.C.                      , 47%RH  
 Engineer                        Kenichi Adachi  
 Mode                              Tx, IEEE802.11b, PN9,                      worst data mode :                      2 Mbps  
                                          (Power setting 12dBm)

| Ch   | Freq.<br>[MHz] | P/M (PK)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result |       | Limit |      | Margin<br>[dB] |
|------|----------------|------------------------------|-----------------------|------------------------|--------|-------|-------|------|----------------|
|      |                |                              |                       |                        | [dBm]  | [mW]  | [dBm] | [mW] |                |
| Low  | 2412.0         | -5.83                        | 0.74                  | 20.16                  | 15.07  | 32.12 | 30.00 | 1000 | 14.93          |
| Mid  | 2437.0         | -5.36                        | 0.74                  | 20.15                  | 15.54  | 35.78 | 30.00 | 1000 | 14.46          |
| High | 2462.0         | -5.50                        | 0.75                  | 20.15                  | 15.40  | 34.65 | 30.00 | 1000 | 14.60          |

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss

## [Pre check]

## Antenna

|  | Data rate<br>[Mbps] | Freq.<br>[MHz] | P/M (PK)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result       |       | Limit |      | Margin<br>[dB] |
|--|---------------------|----------------|------------------------------|-----------------------|------------------------|--------------|-------|-------|------|----------------|
|  |                     |                |                              |                       |                        | [dBm]        | [mW]  | [dBm] | [mW] |                |
|  | 1                   | 2437.0         | -5.41                        | 0.74                  | 20.15                  | 15.49        | 35.37 | 30.00 | 1000 | 14.51          |
|  | 2                   | 2437.0         | -5.36                        | 0.74                  | 20.15                  | <b>15.54</b> | 35.78 | 30.00 | 1000 | <b>14.46</b>   |
|  | 6                   | 2437.0         | -5.75                        | 0.74                  | 20.15                  | 15.15        | 32.71 | 30.00 | 1000 | 14.85          |
|  | 11                  | 2437.0         | -5.37                        | 0.74                  | 20.15                  | 15.53        | 35.70 | 30.00 | 1000 | 14.47          |
|  |                     |                |                              |                       |                        |              |       |       |      |                |
|  |                     |                |                              |                       |                        |              |       |       |      |                |
|  |                     |                |                              |                       |                        |              |       |       |      |                |

## Reference data for SAR testing

|  | Data rate | Freq.<br>[MHz] | P/M (AV)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result |       |
|--|-----------|----------------|------------------------------|-----------------------|------------------------|--------|-------|
|  |           |                |                              |                       |                        | [dBm]  | [mW]  |
|  | -         |                |                              |                       |                        |        |       |
|  | 1         | 2437.0         | -8.11                        | 0.74                  | 20.15                  | 12.79  | 18.99 |
|  | 2         | 2437.0         | -8.04                        | 0.74                  | 20.15                  | 12.86  | 19.30 |
|  | 6         | 2437.0         | -8.07                        | 0.74                  | 20.15                  | 12.83  | 19.17 |
|  | 11        | 2437.0         | -8.01                        | 0.74                  | 20.15                  | 12.89  | 19.44 |
|  |           |                |                              |                       |                        |        |       |
|  |           |                |                              |                       |                        |        |       |
|  |           |                |                              |                       |                        |        |       |

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## Peak Output Power (Conducted)

Test place                      UL Japan, Inc. Shonan EMC Lab.                      No.3 Shielded Room  
 Date                              May 15, 2011  
 Temperature / Humidity      24deg.C.                      , 34%RH  
 Engineer                        Kenichi Adachi  
 Mode                              Tx, IEEE802.11g, PN9,                      worst data mode :                      24 Mbps  
                                          (Power setting 12dBm)

| Ch   | Freq.<br>[MHz] | P/M (PK)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result |        | Limit |      | Margin |
|------|----------------|------------------------------|-----------------------|------------------------|--------|--------|-------|------|--------|
|      |                |                              |                       |                        | [dBm]  | [mW]   | [dBm] | [mW] | [dB]   |
| Low  | 2412.0         | 0.67                         | 0.74                  | 20.16                  | 21.57  | 143.49 | 30.00 | 1000 | 8.43   |
| Mid  | 2437.0         | 0.89                         | 0.74                  | 20.15                  | 21.79  | 150.88 | 30.00 | 1000 | 8.21   |
| High | 2462.0         | 0.99                         | 0.75                  | 20.15                  | 21.89  | 154.43 | 30.00 | 1000 | 8.11   |

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss

## [Pre check]

## Antenna

|  | Data rate<br>[Mbps] | Freq.<br>[MHz] | P/M (PK)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result       |        | Limit |      | Margin      |
|--|---------------------|----------------|------------------------------|-----------------------|------------------------|--------------|--------|-------|------|-------------|
|  |                     |                |                              |                       |                        | [dBm]        | [mW]   | [dBm] | [mW] | [dB]        |
|  | 6                   | 2437.0         | 0.87                         | 0.74                  | 20.15                  | 21.77        | 150.18 | 30.00 | 1000 | 8.23        |
|  | 9                   | 2437.0         | 0.29                         | 0.74                  | 20.15                  | 21.19        | 131.41 | 30.00 | 1000 | 8.81        |
|  | 12                  | 2437.0         | 0.48                         | 0.74                  | 20.15                  | 21.38        | 137.28 | 30.00 | 1000 | 8.62        |
|  | 18                  | 2437.0         | 0.02                         | 0.74                  | 20.15                  | 20.92        | 123.49 | 30.00 | 1000 | 9.08        |
|  | 24                  | 2437.0         | 0.89                         | 0.74                  | 20.15                  | <b>21.79</b> | 150.88 | 30.00 | 1000 | <b>8.21</b> |
|  | 36                  | 2437.0         | 0.14                         | 0.74                  | 20.15                  | 21.04        | 126.95 | 30.00 | 1000 | 8.96        |
|  | 48                  | 2437.0         | 0.35                         | 0.74                  | 20.15                  | 21.25        | 133.23 | 30.00 | 1000 | 8.75        |
|  | 54                  | 2437.0         | 0.61                         | 0.74                  | 20.15                  | 21.51        | 141.45 | 30.00 | 1000 | 8.49        |

## Reference data for SAR testing

|  | Data rate | Freq.  | P/M (AV)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result |       |
|--|-----------|--------|------------------------------|-----------------------|------------------------|--------|-------|
|  | -         | [MHz]  |                              |                       |                        | [dBm]  | [mW]  |
|  | 6         | 2437.0 | -8.73                        | 0.74                  | 20.15                  | 12.17  | 16.47 |
|  | 9         | 2437.0 | -8.76                        | 0.74                  | 20.15                  | 12.14  | 16.35 |
|  | 12        | 2437.0 | -8.70                        | 0.74                  | 20.15                  | 12.20  | 16.58 |
|  | 18        | 2437.0 | -8.71                        | 0.74                  | 20.15                  | 12.19  | 16.54 |
|  | 24        | 2437.0 | -8.76                        | 0.74                  | 20.15                  | 12.14  | 16.35 |
|  | 36        | 2437.0 | -8.89                        | 0.74                  | 20.15                  | 12.01  | 15.87 |
|  | 48        | 2437.0 | -8.87                        | 0.74                  | 20.15                  | 12.03  | 15.94 |
|  | 54        | 2437.0 | -8.90                        | 0.74                  | 20.15                  | 12.00  | 15.83 |

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|                        |                                                             |                           |
|------------------------|-------------------------------------------------------------|---------------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.                              | No.3 Shielded Room        |
| Date                   | May 15, 2011                                                |                           |
| Temperature / Humidity | 24deg.C. , 34%RH                                            |                           |
| Engineer               | Kenichi Adachi                                              |                           |
| Mode                   | Tx, IEEE802.11n(20HT)(2.4GHz), PN9<br>(Power setting 12dBm) | worst data mode : 3 (MCS) |

| Ch   | Freq.  | P/M (PK)<br>Reading | Cable<br>Loss | Atten.<br>Loss | Result |        | Limit |      | Margin |
|------|--------|---------------------|---------------|----------------|--------|--------|-------|------|--------|
|      | [MHz]  | [dBm]               | [dB]          | [dB]           | [dBm]  | [mW]   | [dBm] | [mW] |        |
| Low  | 2412.0 | -0.06               | 0.74          | 20.16          | 20.84  | 121.29 | 30.00 | 1000 | 9.16   |
| Mid  | 2437.0 | 0.07                | 0.74          | 20.15          | 20.97  | 124.92 | 30.00 | 1000 | 9.03   |
| High | 2462.0 | 0.15                | 0.75          | 20.15          | 21.05  | 127.27 | 30.00 | 1000 | 8.95   |

$$\text{Result} = \text{Reading} + \text{Cable Loss} + \text{Atten. Loss}$$

## Antenna

|  | Mode  | Freq.  | P/M (PK)<br>Reading | Cable<br>Loss | Atten.<br>Loss | Result       |        | Limit |      | Margin      |
|--|-------|--------|---------------------|---------------|----------------|--------------|--------|-------|------|-------------|
|  | (MCS) | [MHz]  | [dBm]               | [dB]          | [dB]           | [dBm]        | [mW]   | [dBm] | [mW] | [dB]        |
|  | 0     | 2437.0 | -0.16               | 0.74          | 20.15          | 20.74        | 118.47 | 30.00 | 1000 | 9.26        |
|  | 1     | 2437.0 | 0.02                | 0.74          | 20.15          | 20.92        | 123.49 | 30.00 | 1000 | 9.08        |
|  | 2     | 2437.0 | 0.03                | 0.74          | 20.15          | 20.93        | 123.77 | 30.00 | 1000 | 9.07        |
|  | 3     | 2437.0 | 0.07                | 0.74          | 20.15          | <b>20.97</b> | 124.92 | 30.00 | 1000 | <b>9.03</b> |
|  | 4     | 2437.0 | -0.16               | 0.74          | 20.15          | 20.74        | 118.47 | 30.00 | 1000 | 9.26        |
|  | 5     | 2437.0 | -0.14               | 0.74          | 20.15          | 20.76        | 119.02 | 30.00 | 1000 | 9.24        |
|  | 6     | 2437.0 | -0.18               | 0.74          | 20.15          | 20.72        | 117.93 | 30.00 | 1000 | 9.28        |
|  | 7     | 2437.0 | -0.22               | 0.74          | 20.15          | 20.68        | 116.85 | 30.00 | 1000 | 9.32        |

|  | Mode | Freq.  | P/M (AV)<br>Reading | Cable<br>Loss | Atten.<br>Loss | Result |       |
|--|------|--------|---------------------|---------------|----------------|--------|-------|
|  | -    | [MHz]  | [dBm]               | [dB]          | [dB]           | [dBm]  | [mW]  |
|  | 0    | 2437.0 | -8.84               | 0.74          | 20.15          | 12.06  | 16.06 |
|  | 1    | 2437.0 | -8.80               | 0.74          | 20.15          | 12.10  | 16.20 |
|  | 2    | 2437.0 | -8.78               | 0.74          | 20.15          | 12.12  | 16.28 |
|  | 3    | 2437.0 | -8.76               | 0.74          | 20.15          | 12.14  | 16.35 |
|  | 4    | 2437.0 | -8.87               | 0.74          | 20.15          | 12.03  | 15.94 |
|  | 5    | 2437.0 | -8.86               | 0.74          | 20.15          | 12.04  | 15.98 |
|  | 6    | 2437.0 | -8.84               | 0.74          | 20.15          | 12.06  | 16.06 |
|  | 7    | 2437.0 | -8.87               | 0.74          | 20.15          | 12.03  | 15.94 |

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|                        |                                                             |                           |
|------------------------|-------------------------------------------------------------|---------------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.                              | No.3 Shielded Room        |
| Date                   | May 15, 2011                                                |                           |
| Temperature / Humidity | 24deg.C. , 34%RH                                            |                           |
| Engineer               | Kenichi Adachi                                              |                           |
| Mode                   | Tx, IEEE802.11n(40HT)(2.4GHz), PN9<br>(Power setting 11dBm) | worst data mode : 3 (MCS) |

| Ch   | Freq.  | P/M (PK)<br>Reading | Cable<br>Loss | Atten.<br>Loss | Result |        | Limit |      | Margin |
|------|--------|---------------------|---------------|----------------|--------|--------|-------|------|--------|
|      | [MHz]  | [dBm]               | [dB]          | [dB]           | [dBm]  | [mW]   | [dBm] | [mW] |        |
| Low  | 2422.0 | 0.02                | 0.74          | 20.15          | 20.92  | 123.52 | 30.00 | 1000 | 9.08   |
| Mid  | 2437.0 | 0.06                | 0.74          | 20.15          | 20.96  | 124.63 | 30.00 | 1000 | 9.04   |
| High | 2452.0 | -0.18               | 0.74          | 20.15          | 20.72  | 117.90 | 30.00 | 1000 | 9.28   |

$$\text{Result} = \text{Reading} + \text{Cable Loss} + \text{Atten. Loss}$$

## Antenna

|  | Mode  | Freq.  | P/M (PK)<br>Reading | Cable<br>Loss | Atten.<br>Loss | Result       |        | Limit |      | Margin      |
|--|-------|--------|---------------------|---------------|----------------|--------------|--------|-------|------|-------------|
|  | (MCS) | [MHz]  | [dBm]               | [dB]          | [dB]           | [dBm]        | [mW]   | [dBm] | [mW] | [dB]        |
|  | 0     | 2437.0 | -0.92               | 0.74          | 20.15          | 19.98        | 99.45  | 30.00 | 1000 | 10.02       |
|  | 1     | 2437.0 | -0.87               | 0.74          | 20.15          | 20.03        | 100.60 | 30.00 | 1000 | 9.97        |
|  | 2     | 2437.0 | -0.31               | 0.74          | 20.15          | 20.59        | 114.45 | 30.00 | 1000 | 9.41        |
|  | 3     | 2437.0 | 0.06                | 0.74          | 20.15          | <b>20.96</b> | 124.63 | 30.00 | 1000 | <b>9.04</b> |
|  | 4     | 2437.0 | -0.13               | 0.74          | 20.15          | 20.77        | 119.29 | 30.00 | 1000 | 9.23        |
|  | 5     | 2437.0 | 0.01                | 0.74          | 20.15          | 20.91        | 123.20 | 30.00 | 1000 | 9.09        |
|  | 6     | 2437.0 | -0.65               | 0.74          | 20.15          | 20.25        | 105.83 | 30.00 | 1000 | 9.75        |
|  | 7     | 2437.0 | -0.81               | 0.74          | 20.15          | 20.09        | 102.00 | 30.00 | 1000 | 9.91        |

## Peak Output Power (Conducted)

Test place                      UL Japan, Inc. Shonan EMC Lab.                      No.3 Shielded Room  
 Date                              May 15, 2011  
 Temperature / Humidity      24deg.C.                      , 34%RH  
 Engineer                        Kenichi Adachi  
 Mode                              Tx, IEEE802.11a (W58), PN9,                      worst data mode :                      24 Mbps  
                                          (Power setting: 11dBm)

| Ch   | Freq.<br>[MHz] | P/M (PK)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result |        | Limit |      | Margin<br>[dB] |
|------|----------------|------------------------------|-----------------------|------------------------|--------|--------|-------|------|----------------|
|      |                |                              |                       |                        | [dBm]  | [mW]   | [dBm] | [mW] |                |
| Low  | 5745.0         | -0.54                        | 1.16                  | 20.15                  | 20.77  | 119.50 | 30.00 | 1000 | 9.23           |
| Mid  | 5785.0         | -0.36                        | 1.16                  | 20.15                  | 20.96  | 124.65 | 30.00 | 1000 | 9.04           |
| High | 5825.0         | -0.28                        | 1.16                  | 20.16                  | 21.04  | 127.06 | 30.00 | 1000 | 8.96           |

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss

### [Pre check]

#### Antenna

|  | Data rate<br>[Mbps] | Freq.<br>[MHz] | P/M (PK)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result       |        | Limit |      | Margin<br>[dB] |
|--|---------------------|----------------|------------------------------|-----------------------|------------------------|--------------|--------|-------|------|----------------|
|  |                     |                |                              |                       |                        | [dBm]        | [mW]   | [dBm] | [mW] |                |
|  | 6                   | 5785.0         | -0.46                        | 1.16                  | 20.15                  | 20.86        | 121.81 | 30.00 | 1000 | 9.14           |
|  | 9                   | 5785.0         | -0.74                        | 1.16                  | 20.15                  | 20.58        | 114.21 | 30.00 | 1000 | 9.42           |
|  | 12                  | 5785.0         | -0.64                        | 1.16                  | 20.15                  | 20.68        | 116.87 | 30.00 | 1000 | 9.32           |
|  | 18                  | 5785.0         | -0.83                        | 1.16                  | 20.15                  | 20.49        | 111.86 | 30.00 | 1000 | 9.51           |
|  | 24                  | 5785.0         | -0.36                        | 1.16                  | 20.15                  | <b>20.96</b> | 124.65 | 30.00 | 1000 | <b>9.04</b>    |
|  | 36                  | 5785.0         | -0.45                        | 1.16                  | 20.15                  | 20.87        | 122.09 | 30.00 | 1000 | 9.13           |
|  | 48                  | 5785.0         | -0.76                        | 1.16                  | 20.15                  | 20.56        | 113.68 | 30.00 | 1000 | 9.44           |
|  | 54                  | 5785.0         | -0.65                        | 1.16                  | 20.15                  | 20.67        | 116.60 | 30.00 | 1000 | 9.33           |

### Reference data for SAR testing

|  | Data rate | Freq.<br>[MHz] | P/M (AV)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result |       |
|--|-----------|----------------|------------------------------|-----------------------|------------------------|--------|-------|
|  |           |                |                              |                       |                        | [dBm]  | [mW]  |
|  | -         |                |                              |                       |                        |        |       |
|  | 6         | 5785.0         | -9.58                        | 1.16                  | 20.15                  | 11.74  | 14.92 |
|  | 9         | 5785.0         | -9.58                        | 1.16                  | 20.15                  | 11.74  | 14.92 |
|  | 12        | 5785.0         | -9.54                        | 1.16                  | 20.15                  | 11.78  | 15.06 |
|  | 18        | 5785.0         | -9.49                        | 1.16                  | 20.15                  | 11.83  | 15.23 |
|  | 24        | 5785.0         | -9.49                        | 1.16                  | 20.15                  | 11.83  | 15.23 |
|  | 36        | 5785.0         | -9.65                        | 1.16                  | 20.15                  | 11.67  | 14.68 |
|  | 48        | 5785.0         | -9.66                        | 1.16                  | 20.15                  | 11.66  | 14.65 |
|  | 54        | 5785.0         | -9.69                        | 1.16                  | 20.15                  | 11.63  | 14.54 |

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## Peak Output Power (Conducted)

Test place                      UL Japan, Inc. Shonan EMC Lab.                      No.3 Shielded Room  
 Date                              May 15, 2011  
 Temperature / Humidity      24deg.C.                      , 34%RH  
 Engineer                        Kenichi Adachi  
 Mode                              Tx, IEEE802.11n (20HT), (W58), PN9,                      worst data mode :                      1 (MCS)  
                                          (Power setting: 11dBm)

| Ch   | Freq.<br>[MHz] | P/M (PK)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result |        | Limit |      | Margin<br>[dB] |
|------|----------------|------------------------------|-----------------------|------------------------|--------|--------|-------|------|----------------|
|      |                |                              |                       |                        | [dBm]  | [mW]   | [dBm] | [mW] |                |
| Low  | 5745.0         | -0.72                        | 1.16                  | 20.15                  | 20.59  | 114.65 | 30.00 | 1000 | 9.41           |
| Mid  | 5785.0         | -0.67                        | 1.16                  | 20.15                  | 20.65  | 116.06 | 30.00 | 1000 | 9.35           |
| High | 5825.0         | -0.58                        | 1.16                  | 20.16                  | 20.74  | 118.58 | 30.00 | 1000 | 9.26           |

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss

### [Pre check]

#### Antenna

|  | Mode<br>(MCS) | Freq.<br>[MHz] | P/M (PK)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result       |        | Limit |      | Margin<br>[dB] |
|--|---------------|----------------|------------------------------|-----------------------|------------------------|--------------|--------|-------|------|----------------|
|  |               |                |                              |                       |                        | [dBm]        | [mW]   | [dBm] | [mW] |                |
|  | 0             | 5785.0         | -0.95                        | 1.16                  | 20.15                  | 20.37        | 108.82 | 30.00 | 1000 | 9.63           |
|  | 1             | 5785.0         | -0.67                        | 1.16                  | 20.15                  | <b>20.65</b> | 116.06 | 30.00 | 1000 | <b>9.35</b>    |
|  | 2             | 5785.0         | -0.79                        | 1.16                  | 20.15                  | 20.53        | 112.90 | 30.00 | 1000 | 9.47           |
|  | 3             | 5785.0         | -0.84                        | 1.16                  | 20.15                  | 20.48        | 111.61 | 30.00 | 1000 | 9.52           |
|  | 4             | 5785.0         | -0.95                        | 1.16                  | 20.15                  | 20.37        | 108.82 | 30.00 | 1000 | 9.63           |
|  | 5             | 5785.0         | -0.69                        | 1.16                  | 20.15                  | 20.63        | 115.53 | 30.00 | 1000 | 9.37           |
|  | 6             | 5785.0         | -0.79                        | 1.16                  | 20.15                  | 20.53        | 112.90 | 30.00 | 1000 | 9.47           |
|  | 7             | 5785.0         | -0.97                        | 1.16                  | 20.15                  | 20.35        | 108.32 | 30.00 | 1000 | 9.65           |

### Reference data for SAR testing

|  | Mode | Freq.<br>[MHz] | P/M (AV)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result |       |
|--|------|----------------|------------------------------|-----------------------|------------------------|--------|-------|
|  |      |                |                              |                       |                        | [dBm]  | [mW]  |
|  | -    |                |                              |                       |                        |        |       |
|  | 0    | 5785.0         | -9.56                        | 1.16                  | 20.15                  | 11.76  | 14.99 |
|  | 1    | 5785.0         | -9.47                        | 1.16                  | 20.15                  | 11.85  | 15.30 |
|  | 2    | 5785.0         | -9.46                        | 1.16                  | 20.15                  | 11.86  | 15.34 |
|  | 3    | 5785.0         | -9.57                        | 1.16                  | 20.15                  | 11.75  | 14.95 |
|  | 4    | 5785.0         | -9.67                        | 1.16                  | 20.15                  | 11.65  | 14.61 |
|  | 5    | 5785.0         | -9.49                        | 1.16                  | 20.15                  | 11.83  | 15.23 |
|  | 6    | 5785.0         | -9.49                        | 1.16                  | 20.15                  | 11.83  | 15.23 |
|  | 7    | 5785.0         | -9.54                        | 1.16                  | 20.15                  | 11.78  | 15.06 |

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## Peak Output Power (Conducted)

Test place                      UL Japan, Inc. Shonan EMC Lab.                      No.3 Shielded Room  
 Date                              May 15, 2011  
 Temperature / Humidity      24deg.C.                      , 34%RH  
 Engineer                        Kenichi Adachi  
 Mode                              Tx, IEEE802.11n (40HT),(W58), PN9,                      worst data mode :                      5 (MCS)  
                                          (Power setting: 11dBm)

| Ch   | Freq.<br>[MHz] | P/M (PK)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result |        | Limit |      | Margin<br>[dB] |
|------|----------------|------------------------------|-----------------------|------------------------|--------|--------|-------|------|----------------|
|      |                |                              |                       |                        | [dBm]  | [mW]   | [dBm] | [mW] |                |
| Low  | 5755.0         | -0.54                        | 1.16                  | 20.15                  | 20.77  | 119.52 | 30.00 | 1000 | 9.23           |
| High | 5795.0         | -0.48                        | 1.16                  | 20.15                  | 20.84  | 121.27 | 30.00 | 1000 | 9.16           |

Sample Calculation:

Result = Reading + Cable Loss + Atten. Loss

### [Pre check]

#### Antenna

|  | Mode<br>(MCS) | Freq.<br>[MHz] | P/M (PK)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result       |        | Limit |      | Margin<br>[dB] |
|--|---------------|----------------|------------------------------|-----------------------|------------------------|--------------|--------|-------|------|----------------|
|  |               |                |                              |                       |                        | [dBm]        | [mW]   | [dBm] | [mW] |                |
|  | 0             | 5755.0         | -0.89                        | 1.16                  | 20.15                  | 20.43        | 110.35 | 30.00 | 1000 | 9.57           |
|  | 1             | 5755.0         | -0.90                        | 1.16                  | 20.15                  | 20.42        | 110.10 | 30.00 | 1000 | 9.58           |
|  | 2             | 5755.0         | -0.65                        | 1.16                  | 20.15                  | 20.67        | 116.62 | 30.00 | 1000 | 9.33           |
|  | 3             | 5755.0         | -0.57                        | 1.16                  | 20.15                  | 20.75        | 118.79 | 30.00 | 1000 | 9.25           |
|  | 4             | 5755.0         | -0.69                        | 1.16                  | 20.15                  | 20.63        | 115.55 | 30.00 | 1000 | 9.37           |
|  | 5             | 5755.0         | -0.54                        | 1.16                  | 20.15                  | <b>20.78</b> | 119.61 | 30.00 | 1000 | <b>9.22</b>    |
|  | 6             | 5755.0         | -0.84                        | 1.16                  | 20.15                  | 20.48        | 111.63 | 30.00 | 1000 | 9.52           |
|  | 7             | 5755.0         | -1.05                        | 1.16                  | 20.15                  | 20.27        | 106.36 | 30.00 | 1000 | 9.73           |

### Reference data for SAR testing

|  | Mode | Freq.<br>[MHz] | P/M (AV)<br>Reading<br>[dBm] | Cable<br>Loss<br>[dB] | Atten.<br>Loss<br>[dB] | Result |       |
|--|------|----------------|------------------------------|-----------------------|------------------------|--------|-------|
|  |      |                |                              |                       |                        | [dBm]  | [mW]  |
|  | -    |                |                              |                       |                        |        |       |
|  | 0    | 5755.0         | -9.94                        | 1.16                  | 20.15                  | 11.38  | 13.73 |
|  | 1    | 5755.0         | -9.89                        | 1.16                  | 20.15                  | 11.43  | 13.89 |
|  | 2    | 5755.0         | -9.89                        | 1.16                  | 20.15                  | 11.43  | 13.89 |
|  | 3    | 5755.0         | -9.87                        | 1.16                  | 20.15                  | 11.45  | 13.96 |
|  | 4    | 5755.0         | -9.95                        | 1.16                  | 20.15                  | 11.37  | 13.70 |
|  | 5    | 5755.0         | -9.87                        | 1.16                  | 20.15                  | 11.45  | 13.96 |
|  | 6    | 5755.0         | -9.90                        | 1.16                  | 20.15                  | 11.42  | 13.86 |
|  | 7    | 5755.0         | -9.96                        | 1.16                  | 20.15                  | 11.36  | 13.67 |

**UL Japan, Inc.**  
**Shonan EMC Lab.**

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## Radiated Emission

Test place                      UL Japan, Inc. Shonan EMC Lab.      No.3 Semi Anechoic Chamber  
Date                              May 19, 2011      May 20, 2011      May 22, 2011  
Temperature / Humidity      26deg.C/40%RH    25deg.C/47%RH    25deg.C/43%RH  
Engineer                        Akio Hayashi      Akio Hayashi      Minoru Nakatake  
Mode                              Tx,                    2412 MHz  
Tx, IEEE802.11b, PN9, worst data mode 2Mbps

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 934.078            | QP       | 22.6              | 21.0               | 10.8         | 30.7         | 23.7               | 46.0              | 22.3           | 100            | 4               |        |
| Hori.    | 2390.000           | PK       | 28.2              | 27.5               | 3.8          | 0.0          | 59.5               | 73.9              | 14.4           | 120            | 172             |        |
| Hori.    | 4824.000           | PK       | 49.7              | 31.6               | 6.1          | 36.6         | 50.8               | 73.9              | 23.1           | 102            | 190             |        |
| Hori.    | 7236.000           | PK       | 44.0              | 36.5               | 7.5          | 38.4         | 49.6               | 73.9              | 24.3           | 100            | 0               |        |
| Hori.    | 9648.000           | PK       | 43.1              | 37.9               | 8.8          | 37.1         | 52.7               | 73.9              | 21.2           | 100            | 0               |        |
| Hori.    | 12060.000          | PK       | 44.8              | 39.3               | 10.3         | 37.9         | 56.5               | 73.9              | 17.4           | 100            | 0               |        |
| Hori.    | 14472.000          | PK       | 51.3              | 41.3               | 1.6          | 37.4         | 56.8               | 73.9              | 17.1           | 101            | 330             |        |
| Hori.    | 19296.000          | PK       | 50.6              | 40.0               | -3.2         | 48.3         | 39.1               | 73.9              | 34.8           | 100            | 56              |        |
| Hori.    | 2390.000           | AV       | 1.6               | 27.5               | 3.8          | 0.0          | 32.9               | 53.9              | 21.0           | 120            | 172             |        |
| Hori.    | 4824.000           | AV       | 43.2              | 31.6               | 6.1          | 36.6         | 44.3               | 53.9              | 9.6            | 102            | 190             |        |
| Hori.    | 7236.000           | AV       | 33.9              | 36.5               | 7.5          | 38.4         | 39.5               | 53.9              | 14.4           | 100            | 0               |        |
| Hori.    | 9648.000           | AV       | 32.2              | 37.9               | 8.8          | 37.1         | 41.8               | 53.9              | 12.1           | 100            | 0               |        |
| Hori.    | 12060.000          | AV       | 33.9              | 39.3               | 10.3         | 37.9         | 45.6               | 53.9              | 8.3            | 100            | 0               |        |
| Hori.    | 14472.000          | AV       | 44.6              | 41.3               | 1.6          | 37.4         | 50.1               | 53.9              | 3.8            | 101            | 330             |        |
| Hori.    | 19296.000          | AV       | 44.0              | 40.0               | -3.2         | 48.3         | 32.5               | 53.9              | 21.4           | 100            | 56              |        |
| Vert.    | 934.280            | QP       | 22.7              | 21.0               | 10.8         | 30.7         | 23.8               | 46.0              | 22.2           | 100            | 297             |        |
| Vert.    | 2390.000           | PK       | 24.8              | 27.5               | 3.8          | 0.0          | 56.1               | 73.9              | 17.8           | 103            | 338             |        |
| Vert.    | 4824.000           | PK       | 49.9              | 31.6               | 6.1          | 36.6         | 51.0               | 73.9              | 22.9           | 116            | 17              |        |
| Vert.    | 7236.000           | PK       | 43.9              | 36.5               | 7.5          | 38.4         | 49.5               | 73.9              | 24.4           | 100            | 0               |        |
| Vert.    | 9648.000           | PK       | 43.7              | 37.9               | 8.8          | 37.1         | 53.3               | 73.9              | 20.6           | 100            | 0               |        |
| Vert.    | 12060.000          | PK       | 44.3              | 39.3               | 10.3         | 37.9         | 56.0               | 73.9              | 17.9           | 100            | 0               |        |
| Vert.    | 14472.000          | PK       | 44.9              | 41.3               | 1.6          | 37.4         | 50.4               | 73.9              | 23.5           | 100            | 30              |        |
| Vert.    | 19296.000          | PK       | 48.3              | 40.0               | -3.2         | 48.3         | 36.8               | 73.9              | 37.1           | 100            | 100             |        |
| Vert.    | 2390.000           | AV       | 1.7               | 27.5               | 3.8          | 0.0          | 33.0               | 53.9              | 20.9           | 103            | 338             |        |
| Vert.    | 4824.000           | AV       | 42.5              | 31.6               | 6.1          | 36.6         | 43.6               | 53.9              | 10.3           | 116            | 17              |        |
| Vert.    | 7236.000           | AV       | 34.2              | 36.5               | 7.5          | 38.4         | 39.8               | 53.9              | 14.1           | 100            | 0               |        |
| Vert.    | 9648.000           | AV       | 32.2              | 37.9               | 8.8          | 37.1         | 41.8               | 53.9              | 12.1           | 100            | 0               |        |
| Vert.    | 12060.000          | AV       | 33.8              | 39.3               | 10.3         | 37.9         | 45.5               | 53.9              | 8.4            | 100            | 0               |        |
| Vert.    | 14472.000          | AV       | 34.3              | 41.3               | 1.6          | 37.4         | 39.8               | 53.9              | 14.1           | 100            | 30              |        |
| Vert.    | 19296.000          | AV       | 38.7              | 40.0               | -3.2         | 48.3         | 27.2               | 53.9              | 26.7           | 100            | 100             |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:              13GHz-40GHz               $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 2412.000           | PK       | 68.0              | 27.6                    | 3.8          | 0.0          | 99.4               | -                 | -              | Carrier |
| Hori.    | 2397.475           | PK       | 19.2              | 27.5                    | 3.8          | 0.0          | 50.5               | 79.4              | 28.9           |         |
| Hori.    | 2400.000           | PK       | 16.2              | 27.5                    | 3.8          | 0.0          | 47.5               | 79.4              | 31.9           |         |
| Vert.    | 2412.000           | PK       | 63.9              | 27.6                    | 3.8          | 0.0          | 95.3               | -                 | -              | Carrier |
| Vert.    | 2397.475           | PK       | 17.1              | 27.5                    | 3.8          | 0.0          | 48.4               | 75.3              | 26.9           |         |
| Vert.    | 2400.000           | PK       | 16.5              | 27.5                    | 3.8          | 0.0          | 47.8               | 75.3              | 27.5           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

## Radiated Emission

Test place                      UL Japan, Inc. Shonan EMC Lab.      No.3 Semi Anechoic Chamber  
 Date                              May 20, 2011              May 22, 2011  
 Temperature / Humidity      25deg.C/47%RH      25deg.C/43%RH  
 Engineer                        Akio Hayashi              Minoru Nakatake  
 Mode                              Tx,                              2437 MHz  
                                       Tx, IEEE802.11b, PN9, worst data mode 2Mbps

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 935.384            | QP       | 22.9              | 21.0               | 10.8         | 30.7         | 24.0               | 46.0              | 22.0           | 100            | 137             |        |
| Hori.    | 4874.000           | PK       | 49.2              | 31.7               | 6.1          | 36.6         | 50.4               | 73.9              | 23.5           | 101            | 185             |        |
| Hori.    | 7311.000           | PK       | 44.0              | 36.7               | 7.5          | 38.4         | 49.8               | 73.9              | 24.1           | 100            | 0               |        |
| Hori.    | 9748.000           | PK       | 43.2              | 38.1               | 8.8          | 37.1         | 53.0               | 73.9              | 20.9           | 100            | 0               |        |
| Hori.    | 12185.000          | PK       | 43.8              | 39.2               | 10.3         | 38.0         | 55.3               | 73.9              | 18.6           | 100            | 0               |        |
| Hori.    | 19496.000          | PK       | 52.6              | 40.1               | -3.1         | 48.1         | 41.5               | 73.9              | 32.4           | 100            | 54              |        |
| Hori.    | 4874.000           | AV       | 41.9              | 31.7               | 6.1          | 36.6         | 43.1               | 53.9              | 10.8           | 101            | 185             |        |
| Hori.    | 7311.000           | AV       | 32.9              | 36.7               | 7.5          | 38.4         | 38.7               | 53.9              | 15.2           | 100            | 0               |        |
| Hori.    | 9748.000           | AV       | 31.4              | 38.1               | 8.8          | 37.1         | 41.2               | 53.9              | 12.7           | 100            | 0               |        |
| Hori.    | 12185.000          | AV       | 32.1              | 39.2               | 10.3         | 38.0         | 43.6               | 53.9              | 10.3           | 100            | 0               |        |
| Hori.    | 19496.000          | AV       | 47.4              | 40.1               | -3.1         | 48.1         | 36.3               | 53.9              | 17.6           | 100            | 54              |        |
| Vert.    | 935.190            | QP       | 22.8              | 21.0               | 10.8         | 30.7         | 23.9               | 46.0              | 22.1           | 100            | 169             |        |
| Vert.    | 4874.000           | PK       | 50.3              | 31.7               | 6.1          | 36.6         | 51.5               | 73.9              | 22.4           | 102            | 15              |        |
| Vert.    | 7311.000           | PK       | 45.0              | 36.7               | 7.5          | 38.4         | 50.8               | 73.9              | 23.1           | 100            | 0               |        |
| Vert.    | 9748.000           | PK       | 42.7              | 38.1               | 8.8          | 37.1         | 52.5               | 73.9              | 21.4           | 100            | 0               |        |
| Vert.    | 12185.000          | PK       | 42.9              | 39.2               | 10.3         | 38.0         | 54.4               | 73.9              | 19.5           | 100            | 0               |        |
| Vert.    | 19496.000          | PK       | 49.5              | 40.1               | -3.1         | 48.1         | 38.4               | 73.9              | 35.5           | 100            | 88              |        |
| Vert.    | 4874.000           | AV       | 44.3              | 31.7               | 6.1          | 36.6         | 45.5               | 53.9              | 8.4            | 102            | 15              |        |
| Vert.    | 7311.000           | AV       | 33.2              | 36.7               | 7.5          | 38.4         | 39.0               | 53.9              | 14.9           | 100            | 0               |        |
| Vert.    | 9748.000           | AV       | 31.7              | 38.1               | 8.8          | 37.1         | 41.5               | 53.9              | 12.4           | 100            | 0               |        |
| Vert.    | 12185.000          | AV       | 32.2              | 39.2               | 10.3         | 38.0         | 43.7               | 53.9              | 10.2           | 100            | 0               |        |
| Vert.    | 19496.000          | AV       | 41.7              | 40.1               | -3.1         | 48.1         | 30.6               | 53.9              | 23.3           | 100            | 88              |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:              13GHz-40GHz               $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 2437.000           | PK       | 88.1              | 27.6                    | 24.0         | 37.7         | 102.0              | -                 | -              | Carrier |
| Hori.    | 14622.000          | PK       | 49.4              | 41.5                    | 1.7          | 37.6         | 54.9               | 82.0              | 27.1           |         |
| Vert.    | 2437.000           | PK       | 84.2              | 27.6                    | 24.0         | 37.7         | 98.1               | -                 | -              | Carrier |
| Vert.    | 14622.000          | PK       | 38.7              | 41.5                    | 1.7          | 37.6         | 44.3               | 78.1              | 33.8           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

## Radiated Emission

Test place                      UL Japan, Inc. Shonan EMC Lab.      No.3 Semi Anechoic Chamber  
Date                              May 20, 2011              May 22, 2011  
Temperature / Humidity      25deg.C/47%RH      25deg.C/43%RH  
Engineer                      Akio Hayashi              Minoru Nakatake  
Mode                              Tx,                              2462 MHz  
Tx, IEEE802.11b, PN9, worst data mode 2Mbps

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 922.076            | QP       | 22.8              | 20.9               | 10.8         | 30.8         | 23.7               | 46.0              | 22.3           | 100            | 92              |        |
| Hori.    | 2483.500           | PK       | 12.6              | 27.6               | 3.8          | 0.0          | 44.0               | 73.9              | 29.9           | 116            | 170             |        |
| Hori.    | 4924.000           | PK       | 52.5              | 31.8               | 6.1          | 36.5         | 53.9               | 73.9              | 20.0           | 100            | 207             |        |
| Hori.    | 7386.000           | PK       | 44.1              | 36.8               | 7.4          | 38.4         | 49.9               | 73.9              | 24.0           | 106            | 126             |        |
| Hori.    | 9848.000           | PK       | 43.4              | 38.3               | 8.9          | 37.2         | 53.4               | 73.9              | 20.5           | 100            | 0               |        |
| Hori.    | 12310.000          | PK       | 42.1              | 39.2               | 10.3         | 38.0         | 53.6               | 73.9              | 20.3           | 100            | 0               |        |
| Hori.    | 19696.000          | PK       | 53.2              | 40.1               | -3.0         | 48.1         | 42.2               | 73.9              | 31.7           | 100            | 58              |        |
| Hori.    | 2483.500           | AV       | 3.9               | 27.6               | 3.8          | 0.0          | 35.3               | 53.9              | 18.6           | 116            | 170             |        |
| Hori.    | 4924.000           | AV       | 46.7              | 31.8               | 6.1          | 36.5         | 48.1               | 53.9              | 5.8            | 100            | 207             |        |
| Hori.    | 7386.000           | AV       | 33.9              | 36.8               | 7.4          | 38.4         | 39.7               | 53.9              | 14.2           | 106            | 126             |        |
| Hori.    | 9848.000           | AV       | 32.1              | 38.3               | 8.9          | 37.2         | 42.1               | 53.9              | 11.8           | 100            | 0               |        |
| Hori.    | 12310.000          | AV       | 31.2              | 39.2               | 10.3         | 38.0         | 42.7               | 53.9              | 11.2           | 100            | 0               |        |
| Hori.    | 19696.000          | AV       | 48.2              | 40.1               | -3.0         | 48.1         | 37.2               | 53.9              | 16.7           | 100            | 58              |        |
| Vert.    | 922.102            | QP       | 22.7              | 20.9               | 10.8         | 30.8         | 23.6               | 46.0              | 22.4           | 100            | 311             |        |
| Vert.    | 2483.500           | PK       | 13.0              | 27.6               | 3.8          | 0.0          | 44.4               | 73.9              | 29.5           | 100            | 190             |        |
| Vert.    | 4924.000           | PK       | 52.6              | 31.8               | 6.1          | 36.5         | 54.0               | 73.9              | 19.9           | 100            | 346             |        |
| Vert.    | 7386.000           | PK       | 44.7              | 36.8               | 7.4          | 38.4         | 50.5               | 73.9              | 23.4           | 100            | 1               |        |
| Vert.    | 9848.000           | PK       | 41.3              | 38.3               | 8.9          | 37.2         | 51.3               | 73.9              | 22.6           | 100            | 0               |        |
| Vert.    | 12310.000          | PK       | 41.6              | 39.2               | 10.3         | 38.0         | 53.1               | 73.9              | 20.8           | 100            | 0               |        |
| Vert.    | 19696.000          | PK       | 50.2              | 40.1               | -3.0         | 48.1         | 39.2               | 73.9              | 34.7           | 107            | 85              |        |
| Vert.    | 2483.500           | AV       | 2.2               | 27.6               | 3.8          | 0.0          | 33.6               | 53.9              | 20.3           | 100            | 190             |        |
| Vert.    | 4924.000           | AV       | 47.1              | 31.8               | 6.1          | 36.5         | 48.5               | 53.9              | 5.4            | 100            | 346             |        |
| Vert.    | 7386.000           | AV       | 34.2              | 36.8               | 7.4          | 38.4         | 40.0               | 53.9              | 13.9           | 100            | 1               |        |
| Vert.    | 9848.000           | AV       | 31.1              | 38.3               | 8.9          | 37.2         | 41.1               | 53.9              | 12.8           | 100            | 0               |        |
| Vert.    | 12310.000          | AV       | 31.1              | 39.2               | 10.3         | 38.0         | 42.6               | 53.9              | 11.3           | 100            | 0               |        |
| Vert.    | 19696.000          | AV       | 40.7              | 40.1               | -3.0         | 48.1         | 29.7               | 53.9              | 24.2           | 107            | 85              |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:              13GHz-40GHz               $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 2462.000           | PK       | 69.8              | 27.6                    | 3.8          | 0.0          | 101.2              | -                 | -              | Carrier |
| Hori.    | 14772.000          | PK       | 48.9              | 41.8                    | 1.7          | 37.8         | 54.6               | 81.2              | 26.6           |         |
| Vert.    | 2462.000           | PK       | 66.8              | 27.6                    | 3.8          | 0.0          | 98.2               | -                 | -              | Carrier |
| Vert.    | 14772.000          | PK       | 38.5              | 41.8                    | 1.7          | 37.8         | 44.2               | 78.2              | 34.0           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

## Radiated Emission

Test place                      UL Japan, Inc. Shonan EMC Lab.                      No.3 Semi Anechoic Chamber  
Date                              May 18, 2011                      May 19, 2011                      May 20, 2011                      May 22, 2011  
Temperature / Humidity      26deg.C/45%RH                      26deg.C/40%RH                      26deg.C/40%RH                      25deg.C/43%RH  
Engineer                        Akio Hayashi                      Akio Hayashi                      Akio Hayashi                      Minoru Nakatake  
Mode                              Tx,                              2412 MHz  
Tx, IEEE802.11g, PN9, worst data mode 24Mbps

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 941.0              | QP       | 22.7              | 21.1               | 10.8         | 30.7         | 23.9               | 46.0              | 22.1           | 100            | 330             |        |
| Hori.    | 2390.0             | PK       | 29.0              | 27.5               | 3.8          | 0.0          | 60.3               | 73.9              | 13.6           | 116            | 179             |        |
| Hori.    | 4824.0             | PK       | 54.7              | 31.6               | 6.1          | 36.6         | 55.8               | 73.9              | 18.1           | 100            | 206             |        |
| Hori.    | 7236.0             | PK       | 44.8              | 36.5               | 7.5          | 38.4         | 50.4               | 73.9              | 23.5           | 100            | 0               |        |
| Hori.    | 9648.0             | PK       | 43.0              | 37.9               | 8.8          | 37.1         | 52.6               | 73.9              | 21.3           | 100            | 0               |        |
| Hori.    | 12060.0            | PK       | 43.8              | 39.3               | 10.3         | 37.9         | 55.5               | 73.9              | 18.4           | 100            | 0               |        |
| Hori.    | 14472.0            | PK       | 53.1              | 41.3               | 1.6          | 37.4         | 58.6               | 73.9              | 15.3           | 102            | 330             |        |
| Hori.    | 19296.0            | PK       | 53.0              | 40.0               | -3.2         | 48.3         | 41.4               | 73.9              | 32.5           | 105            | 57              |        |
| Hori.    | 2390.0             | AV       | 15.7              | 27.5               | 3.8          | 0.0          | 47.0               | 53.9              | 6.9            | 116            | 179             |        |
| Hori.    | 4824.0             | AV       | 42.9              | 31.6               | 6.1          | 36.6         | 44.0               | 53.9              | 9.9            | 100            | 206             |        |
| Hori.    | 7236.0             | AV       | 33.9              | 36.5               | 7.5          | 38.4         | 39.5               | 53.9              | 14.4           | 100            | 0               |        |
| Hori.    | 9648.0             | AV       | 32.1              | 37.9               | 8.8          | 37.1         | 41.7               | 53.9              | 12.2           | 100            | 0               |        |
| Hori.    | 12060.0            | AV       | 34.0              | 39.3               | 10.3         | 37.9         | 45.7               | 53.9              | 8.2            | 100            | 0               |        |
| Hori.    | 14472.0            | AV       | 39.0              | 41.3               | 1.6          | 37.4         | 44.5               | 53.9              | 9.4            | 102            | 330             |        |
| Hori.    | 19296.0            | AV       | 44.8              | 40.0               | -3.2         | 48.3         | 33.3               | 53.9              | 20.6           | 105            | 57              |        |
| Vert.    | 941.1              | QP       | 22.7              | 21.1               | 10.8         | 30.7         | 23.9               | 46.0              | 22.1           | 100            | 171             |        |
| Vert.    | 2390.0             | PK       | 26.0              | 27.5               | 3.8          | 0.0          | 57.3               | 73.9              | 16.6           | 100            | 259             |        |
| Vert.    | 4824.0             | PK       | 50.4              | 31.6               | 6.1          | 36.6         | 51.5               | 73.9              | 22.4           | 102            | 341             |        |
| Vert.    | 7236.0             | PK       | 45.3              | 36.5               | 7.5          | 38.4         | 50.9               | 73.9              | 23.0           | 100            | 0               |        |
| Vert.    | 9648.0             | PK       | 43.8              | 37.9               | 8.8          | 37.1         | 53.4               | 73.9              | 20.5           | 100            | 0               |        |
| Vert.    | 12060.0            | PK       | 45.5              | 39.3               | 10.3         | 37.9         | 57.2               | 73.9              | 16.7           | 100            | 0               |        |
| Vert.    | 14472.0            | PK       | 47.4              | 41.3               | 1.6          | 37.4         | 52.9               | 73.9              | 21.0           | 100            | 32              |        |
| Vert.    | 19296.0            | PK       | 49.8              | 40.0               | -3.2         | 48.3         | 38.3               | 73.9              | 35.6           | 102            | 85              |        |
| Vert.    | 2390.0             | AV       | 12.8              | 27.5               | 3.8          | 0.0          | 44.1               | 53.9              | 9.8            | 100            | 259             |        |
| Vert.    | 4824.0             | AV       | 39.9              | 31.6               | 6.1          | 36.6         | 41.0               | 53.9              | 12.9           | 102            | 341             |        |
| Vert.    | 7236.0             | AV       | 34.2              | 36.5               | 7.5          | 38.4         | 39.8               | 53.9              | 14.1           | 100            | 0               |        |
| Vert.    | 9648.0             | AV       | 32.1              | 37.9               | 8.8          | 37.1         | 41.7               | 53.9              | 12.2           | 100            | 0               |        |
| Vert.    | 12060.0            | AV       | 34.0              | 39.3               | 10.3         | 37.9         | 45.7               | 53.9              | 8.2            | 100            | 0               |        |
| Vert.    | 14472.0            | AV       | 33.6              | 41.3               | 1.6          | 37.4         | 39.1               | 53.9              | 14.8           | 100            | 32              |        |
| Vert.    | 19296.0            | AV       | 40.0              | 40.0               | -3.2         | 48.3         | 28.5               | 53.9              | 25.4           | 102            | 85              |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:                      13GHz-40GHz                       $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 2412.000           | PK       | 64.1              | 27.6                    | 3.8          | 0.0          | 95.5               | -                 | -              | Carrier |
| Hori.    | 2400.000           | PK       | 31.6              | 27.5                    | 3.8          | 0.0          | 62.9               | 75.5              | 12.6           |         |
| Vert.    | 2412.000           | PK       | 60.1              | 27.6                    | 3.8          | 0.0          | 91.5               | -                 | -              | Carrier |
| Vert.    | 2400.000           | PK       | 26.4              | 27.5                    | 3.8          | 0.0          | 57.7               | 71.5              | 13.8           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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**Shonan EMC Lab.**

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## Radiated Emission

Test place                      UL Japan, Inc. Shonan EMC Lab.                      No.3 Semi Anechoic Chamber  
Date                              May 18, 2011                      May 19, 2011                      May 20, 2011                      May 22, 2011  
Temperature / Humidity      26deg.C/45%RH                      26deg.C/40%RH                      26deg.C/40%RH                      25deg.C/43%RH  
Engineer                        Akio Hayashi                      Akio Hayashi                      Akio Hayashi                      Minoru Nakatake  
Mode                              Tx,                                      2437 MHz  
Tx, IEEE802.11g, PN9, worst data mode 24Mbps

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 935.4              | QP       | 22.9              | 21.0               | 10.8         | 30.7         | 24.0               | 46.0              | 22.0           | 100            | 137             |        |
| Hori.    | 4874.0             | PK       | 51.2              | 31.7               | 6.1          | 36.6         | 52.4               | 73.9              | 21.5           | 100            | 218             |        |
| Hori.    | 7311.0             | PK       | 44.1              | 36.7               | 7.5          | 38.4         | 49.9               | 73.9              | 24.0           | 100            | 0               |        |
| Hori.    | 9748.0             | PK       | 42.4              | 38.1               | 8.8          | 37.1         | 52.2               | 73.9              | 21.7           | 100            | 0               |        |
| Hori.    | 12185.0            | PK       | 43.3              | 39.2               | 10.3         | 38.0         | 54.8               | 73.9              | 19.1           | 100            | 0               |        |
| Hori.    | 19496.0            | PK       | 56.5              | 40.1               | -3.1         | 48.1         | 45.4               | 73.9              | 28.5           | 100            | 53              |        |
| Hori.    | 4874.0             | AV       | 39.2              | 31.7               | 6.1          | 36.6         | 40.4               | 53.9              | 13.5           | 100            | 218             |        |
| Hori.    | 7311.0             | AV       | 32.9              | 36.7               | 7.5          | 38.4         | 38.7               | 53.9              | 15.2           | 100            | 0               |        |
| Hori.    | 9748.0             | AV       | 31.4              | 38.1               | 8.8          | 37.1         | 41.2               | 53.9              | 12.7           | 100            | 0               |        |
| Hori.    | 12185.0            | AV       | 32.5              | 39.2               | 10.3         | 38.0         | 44.0               | 53.9              | 9.9            | 100            | 0               |        |
| Hori.    | 19496.0            | AV       | 46.4              | 40.1               | -3.1         | 48.1         | 35.3               | 53.9              | 18.6           | 100            | 53              |        |
| Vert.    | 935.2              | QP       | 22.8              | 21.0               | 10.8         | 30.7         | 23.9               | 46.0              | 22.1           | 100            | 169             |        |
| Vert.    | 4874.0             | PK       | 51.1              | 31.7               | 6.1          | 36.6         | 52.3               | 73.9              | 21.6           | 100            | 336             |        |
| Vert.    | 7311.0             | PK       | 44.6              | 36.7               | 7.5          | 38.4         | 50.4               | 73.9              | 23.5           | 100            | 0               |        |
| Vert.    | 9748.0             | PK       | 43.0              | 38.1               | 8.8          | 37.1         | 52.8               | 73.9              | 21.1           | 100            | 0               |        |
| Vert.    | 12185.0            | PK       | 43.0              | 39.2               | 10.3         | 38.0         | 54.5               | 73.9              | 19.4           | 100            | 0               |        |
| Vert.    | 19496.0            | PK       | 50.0              | 40.1               | -3.1         | 48.1         | 38.9               | 73.9              | 35.0           | 100            | 91              |        |
| Vert.    | 4874.0             | AV       | 41.0              | 31.7               | 6.1          | 36.6         | 42.2               | 53.9              | 11.7           | 100            | 336             |        |
| Vert.    | 7311.0             | AV       | 34.0              | 36.7               | 7.5          | 38.4         | 39.8               | 53.9              | 14.1           | 100            | 0               |        |
| Vert.    | 9748.0             | AV       | 31.4              | 38.1               | 8.8          | 37.1         | 41.2               | 53.9              | 12.7           | 100            | 0               |        |
| Vert.    | 12185.0            | AV       | 32.7              | 39.2               | 10.3         | 38.0         | 44.2               | 53.9              | 9.7            | 100            | 0               |        |
| Vert.    | 19496.0            | AV       | 39.9              | 40.1               | -3.1         | 48.1         | 28.8               | 53.9              | 25.1           | 100            | 91              |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:                      13GHz-40GHz                      20log(3.0m/1.0m)= 9.5dB

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 2437.000           | PK       | 92.6              | 27.6                    | 13.7         | 37.7         | 96.2               | -                 | -              | Carrier |
| Hori.    | 14622.000          | PK       | 43.0              | 41.5                    | 1.7          | 37.6         | 48.6               | 76.2              | 27.6           |         |
| Vert.    | 2437.000           | PK       | 91.5              | 27.6                    | 13.7         | 37.7         | 95.1               | -                 | -              | Carrier |
| Vert.    | 14622.000          | PK       | 37.3              | 41.5                    | 1.7          | 37.6         | 42.9               | 75.1              | 32.2           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

## Radiated Emission

Test place                      UL Japan, Inc. Shonan EMC Lab.      No.3 Semi Anechoic Chamber  
Date                              May 18, 2011      May 19, 2011      May 20, 2011      May 22, 2011  
Temperature / Humidity      26deg.C/45%RH    26deg.C/40%RH    26deg.C/40%RH    25deg.C/43%RH  
Engineer                        Akio Hayashi      Akio Hayashi      Akio Hayashi      Minoru Nakatake  
Mode                              Tx,                      2462 MHz  
Tx, IEEE802.11g, PN9, worst data mode 24Mbps

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 922.1              | QP       | 22.8              | 20.9               | 10.8         | 30.8         | 23.7               | 46.0              | 22.3           | 100            | 92              |        |
| Hori.    | 2483.5             | PK       | 29.5              | 27.6               | 3.8          | 0.0          | 60.9               | 73.9              | 13.0           | 110            | 182             |        |
| Hori.    | 4924.0             | PK       | 50.3              | 31.8               | 6.1          | 36.5         | 51.7               | 73.9              | 22.2           | 100            | 217             |        |
| Hori.    | 7386.0             | PK       | 45.4              | 36.8               | 7.4          | 38.4         | 51.2               | 73.9              | 22.7           | 126            | 58              |        |
| Hori.    | 9848.0             | PK       | 40.7              | 38.3               | 8.9          | 37.2         | 50.7               | 73.9              | 23.2           | 100            | 0               |        |
| Hori.    | 12310.0            | PK       | 42.8              | 39.2               | 10.3         | 38.0         | 54.3               | 73.9              | 19.6           | 100            | 0               |        |
| Hori.    | 19696.0            | PK       | 57.0              | 40.1               | -3.0         | 48.1         | 46.0               | 73.9              | 27.9           | 100            | 53              |        |
| Hori.    | 2483.5             | AV       | 17.0              | 27.6               | 3.8          | 0.0          | 48.4               | 53.9              | 5.5            | 110            | 182             |        |
| Hori.    | 4924.0             | AV       | 39.1              | 31.8               | 6.1          | 36.5         | 40.5               | 53.9              | 13.4           | 100            | 217             |        |
| Hori.    | 7386.0             | AV       | 34.5              | 36.8               | 7.4          | 38.4         | 40.3               | 53.9              | 13.6           | 126            | 58              |        |
| Hori.    | 9848.0             | AV       | 31.1              | 38.3               | 8.9          | 37.2         | 41.1               | 53.9              | 12.8           | 100            | 0               |        |
| Hori.    | 12310.0            | AV       | 31.7              | 39.2               | 10.3         | 38.0         | 43.2               | 53.9              | 10.7           | 100            | 0               |        |
| Hori.    | 19696.0            | AV       | 46.5              | 40.1               | -3.0         | 48.1         | 35.5               | 53.9              | 18.4           | 100            | 53              |        |
| Vert.    | 922.1              | QP       | 22.7              | 20.9               | 10.8         | 30.8         | 23.6               | 46.0              | 22.4           | 100            | 311             |        |
| Vert.    | 2483.5             | PK       | 29.0              | 27.6               | 3.8          | 0.0          | 60.4               | 73.9              | 13.5           | 100            | 185             |        |
| Vert.    | 4924.0             | PK       | 52.0              | 31.8               | 6.1          | 36.5         | 53.4               | 73.9              | 20.5           | 100            | 340             |        |
| Vert.    | 7386.0             | PK       | 49.7              | 36.8               | 7.4          | 38.4         | 55.5               | 73.9              | 18.4           | 170            | 3               |        |
| Vert.    | 9848.0             | PK       | 41.7              | 38.3               | 8.9          | 37.2         | 51.7               | 73.9              | 22.2           | 100            | 0               |        |
| Vert.    | 12310.0            | PK       | 43.0              | 39.2               | 10.3         | 38.0         | 54.5               | 73.9              | 19.4           | 100            | 0               |        |
| Vert.    | 19696.0            | PK       | 50.3              | 40.1               | -3.0         | 48.1         | 39.3               | 73.9              | 34.6           | 101            | 87              |        |
| Vert.    | 2483.5             | AV       | 15.6              | 27.6               | 3.8          | 0.0          | 47.0               | 53.9              | 6.9            | 100            | 185             |        |
| Vert.    | 4924.0             | AV       | 41.0              | 31.8               | 6.1          | 36.5         | 42.4               | 53.9              | 11.5           | 100            | 340             |        |
| Vert.    | 7386.0             | AV       | 38.5              | 36.8               | 7.4          | 38.4         | 44.3               | 53.9              | 9.6            | 170            | 3               |        |
| Vert.    | 9848.0             | AV       | 31.1              | 38.3               | 8.9          | 37.2         | 41.1               | 53.9              | 12.8           | 100            | 0               |        |
| Vert.    | 12310.0            | AV       | 31.6              | 39.2               | 10.3         | 38.0         | 43.1               | 53.9              | 10.8           | 100            | 0               |        |
| Vert.    | 19696.0            | AV       | 39.3              | 40.1               | -3.0         | 48.1         | 28.3               | 53.9              | 25.6           | 101            | 87              |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:              13GHz-40GHz               $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 2462.000           | PK       | 62.8              | 27.6                    | 3.8          | 0.0          | 94.2               | -                 | -              | Carrier |
| Hori.    | 14772.000          | PK       | 43.9              | 41.8                    | 1.7          | 37.8         | 49.6               | 74.2              | 24.6           |         |
| Vert.    | 2462.000           | PK       | 57.7              | 27.6                    | 3.8          | 0.0          | 89.1               | -                 | -              | Carrier |
| Vert.    | 14772.000          | PK       | 36.9              | 41.8                    | 1.7          | 37.8         | 42.6               | 69.1              | 26.5           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

## Radiated Emission

Test place                      UL Japan, Inc. Shonan EMC Lab.      No.3 Semi Anechoic Chamber  
Date                              May 18, 2011      May 19, 2011      May 20, 2011      May 22, 2011  
Temperature / Humidity      26deg.C/45%RH    26deg.C/40%RH    26deg.C/40%RH    25deg.C/43%RH  
Engineer                        Akio Hayashi      Akio Hayashi      Akio Hayashi      Minoru Nakatake  
Mode                              Tx,                      2412 MHz  
Tx, IEEE802.11n(20HT)(2.4GHz), PN9, worst data mode 3(MCS)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 935.6              | QP       | 22.8              | 21.0               | 10.8         | 30.7         | 23.9               | 46.0              | 22.1           | 100            | 180             |        |
| Hori.    | 2390.0             | PK       | 37.6              | 27.5               | 3.8          | 0.0          | 68.9               | 73.9              | 5.0            | 117            | 172             |        |
| Hori.    | 4824.0             | PK       | 52.8              | 31.6               | 6.1          | 36.6         | 53.9               | 73.9              | 20.0           | 100            | 217             |        |
| Hori.    | 7236.0             | PK       | 44.0              | 36.5               | 7.5          | 38.4         | 49.6               | 73.9              | 24.3           | 100            | 0               |        |
| Hori.    | 9648.0             | PK       | 42.8              | 37.9               | 8.8          | 37.1         | 52.4               | 73.9              | 21.5           | 100            | 0               |        |
| Hori.    | 12060.0            | PK       | 45.5              | 39.3               | 10.3         | 37.9         | 57.2               | 73.9              | 16.7           | 100            | 0               |        |
| Hori.    | 14472.0            | PK       | 54.2              | 41.3               | 1.6          | 37.4         | 59.7               | 73.9              | 14.2           | 102            | 329             |        |
| Hori.    | 19296.0            | PK       | 54.0              | 40.0               | -3.2         | 48.3         | 42.5               | 73.9              | 31.4           | 103            | 49              |        |
| Hori.    | 2390.0             | AV       | 19.8              | 27.5               | 3.8          | 0.0          | 51.1               | 53.9              | 2.8            | 117            | 172             |        |
| Hori.    | 4824.0             | AV       | 40.8              | 31.6               | 6.1          | 36.6         | 41.9               | 53.9              | 12.0           | 100            | 217             |        |
| Hori.    | 7236.0             | AV       | 33.8              | 36.5               | 7.5          | 38.4         | 39.4               | 53.9              | 14.5           | 100            | 0               |        |
| Hori.    | 9648.0             | AV       | 31.7              | 37.9               | 8.8          | 37.1         | 41.3               | 53.9              | 12.6           | 100            | 0               |        |
| Hori.    | 12060.0            | AV       | 33.9              | 39.3               | 10.3         | 37.9         | 45.6               | 53.9              | 8.3            | 100            | 0               |        |
| Hori.    | 14472.0            | AV       | 39.7              | 41.3               | 1.6          | 37.4         | 45.2               | 53.9              | 8.7            | 102            | 329             |        |
| Hori.    | 19296.0            | AV       | 44.7              | 40.0               | -3.2         | 48.3         | 33.2               | 53.9              | 20.7           | 103            | 49              |        |
| Virt.    | 935.6              | QP       | 22.8              | 21.0               | 10.8         | 30.7         | 23.9               | 46.0              | 22.1           | 100            | 337             |        |
| Vert.    | 2390.0             | PK       | 36.0              | 27.5               | 3.8          | 0.0          | 67.3               | 73.9              | 6.6            | 103            | 80              |        |
| Vert.    | 4824.0             | PK       | 53.0              | 31.6               | 6.1          | 36.6         | 54.1               | 73.9              | 19.8           | 102            | 332             |        |
| Vert.    | 7236.0             | PK       | 45.5              | 36.5               | 7.5          | 38.4         | 51.1               | 73.9              | 22.8           | 100            | 0               |        |
| Vert.    | 9648.0             | PK       | 42.5              | 37.9               | 8.8          | 37.1         | 52.1               | 73.9              | 21.8           | 100            | 0               |        |
| Vert.    | 12060.0            | PK       | 44.7              | 39.3               | 10.3         | 37.9         | 56.4               | 73.9              | 17.5           | 100            | 0               |        |
| Vert.    | 14472.0            | PK       | 46.6              | 41.3               | 1.6          | 37.4         | 52.1               | 73.9              | 21.8           | 100            | 31              |        |
| Vert.    | 19296.0            | PK       | 48.6              | 40.0               | -3.2         | 48.3         | 37.1               | 73.9              | 36.8           | 101            | 82              |        |
| Vert.    | 2390.0             | AV       | 17.0              | 27.5               | 3.8          | 0.0          | 48.3               | 53.9              | 5.6            | 103            | 80              |        |
| Vert.    | 4824.0             | AV       | 40.4              | 31.6               | 6.1          | 36.6         | 41.5               | 53.9              | 12.4           | 102            | 332             |        |
| Vert.    | 7236.0             | AV       | 34.5              | 36.5               | 7.5          | 38.4         | 40.1               | 53.9              | 13.8           | 100            | 0               |        |
| Vert.    | 9648.0             | AV       | 31.8              | 37.9               | 8.8          | 37.1         | 41.4               | 53.9              | 12.5           | 100            | 0               |        |
| Vert.    | 12060.0            | AV       | 33.9              | 39.3               | 10.3         | 37.9         | 45.6               | 53.9              | 8.3            | 100            | 0               |        |
| Vert.    | 14472.0            | AV       | 33.7              | 41.3               | 1.6          | 37.4         | 39.2               | 53.9              | 14.7           | 100            | 31              |        |
| Vert.    | 19296.0            | AV       | 38.6              | 40.0               | -3.2         | 48.3         | 27.1               | 53.9              | 26.8           | 101            | 82              |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:              13GHz-40GHz              20log(3.0m/1.0m)= 9.5dB

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 2412.000           | PK       | 62.6              | 27.6                    | 3.8          | 0.0          | 94.0               | -                 | -              | Carrier |
| Hori.    | 2400.000           | PK       | 29.8              | 27.5                    | 3.8          | 0.0          | 61.1               | 74.0              | 12.9           |         |
| Vert.    | 2412.000           | PK       | 60.3              | 27.6                    | 3.8          | 0.0          | 91.7               | -                 | -              | Carrier |
| Vert.    | 2400.000           | PK       | 29.3              | 27.5                    | 3.8          | 0.0          | 60.6               | 71.7              | 11.1           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

## Radiated Emission

Test place                      UL Japan, Inc. Shonan EMC Lab.                      No.3 Semi Anechoic Chamber  
Date                              May 18, 2011                      May 19, 2011                      May 20, 2011                      May 22, 2011  
Temperature / Humidity      26deg.C/45%RH                      26deg.C/40%RH                      26deg.C/40%RH                      25deg.C/43%RH  
Engineer                        Akio Hayashi                      Akio Hayashi                      Akio Hayashi                      Minoru Nakatake  
Mode                              Tx,                                      2437 MHz  
Tx, IEEE802.11n(20HT)(2.4GHz), PN9, worst data mode 3(MCS)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 934.6              | QP       | 22.9              | 21.0               | 10.8         | 30.7         | 24.0               | 46.0              | 22.0           | 100            | 61              |        |
| Hori.    | 4874.0             | PK       | 51.1              | 31.7               | 6.1          | 36.6         | 52.3               | 73.9              | 21.6           | 100            | 218             |        |
| Hori.    | 7311.0             | PK       | 44.2              | 36.7               | 7.5          | 38.4         | 50.0               | 73.9              | 23.9           | 100            | 0               |        |
| Hori.    | 9748.0             | PK       | 42.4              | 38.1               | 8.8          | 37.1         | 52.2               | 73.9              | 21.7           | 100            | 0               |        |
| Hori.    | 12185.0            | PK       | 43.7              | 39.2               | 10.3         | 38.0         | 55.2               | 73.9              | 18.7           | 100            | 0               |        |
| Hori.    | 19496.0            | PK       | 56.1              | 40.1               | -3.1         | 48.1         | 45.0               | 73.9              | 28.9           | 103            | 51              |        |
| Hori.    | 4874.0             | AV       | 38.2              | 31.7               | 6.1          | 36.6         | 39.4               | 53.9              | 14.5           | 100            | 218             |        |
| Hori.    | 7311.0             | AV       | 32.8              | 36.7               | 7.5          | 38.4         | 38.6               | 53.9              | 15.3           | 100            | 0               |        |
| Hori.    | 9748.0             | AV       | 31.4              | 38.1               | 8.8          | 37.1         | 41.2               | 53.9              | 12.7           | 100            | 0               |        |
| Hori.    | 12185.0            | AV       | 32.4              | 39.2               | 10.3         | 38.0         | 43.9               | 53.9              | 10.0           | 100            | 0               |        |
| Hori.    | 19496.0            | AV       | 45.9              | 40.1               | -3.1         | 48.1         | 34.8               | 53.9              | 19.1           | 103            | 51              |        |
| Vert.    | 934.2              | QP       | 22.8              | 21.0               | 10.8         | 30.7         | 23.9               | 46.0              | 22.1           | 100            | 358             |        |
| Vert.    | 4874.0             | PK       | 53.7              | 31.7               | 6.1          | 36.6         | 54.9               | 73.9              | 19.0           | 100            | 343             |        |
| Vert.    | 7311.0             | PK       | 45.3              | 36.7               | 7.5          | 38.4         | 51.1               | 73.9              | 22.8           | 100            | 0               |        |
| Vert.    | 9748.0             | PK       | 42.5              | 38.1               | 8.8          | 37.1         | 52.3               | 73.9              | 21.6           | 100            | 0               |        |
| Vert.    | 12185.0            | PK       | 43.2              | 39.2               | 10.3         | 38.0         | 54.7               | 73.9              | 19.2           | 100            | 0               |        |
| Vert.    | 19496.0            | PK       | 49.9              | 40.1               | -3.1         | 48.1         | 38.8               | 73.9              | 35.1           | 101            | 81              |        |
| Vert.    | 4874.0             | AV       | 41.3              | 31.7               | 6.1          | 36.6         | 42.5               | 53.9              | 11.4           | 100            | 343             |        |
| Vert.    | 7311.0             | AV       | 33.7              | 36.7               | 7.5          | 38.4         | 39.5               | 53.9              | 14.4           | 100            | 0               |        |
| Vert.    | 9748.0             | AV       | 31.4              | 38.1               | 8.8          | 37.1         | 41.2               | 53.9              | 12.7           | 100            | 0               |        |
| Vert.    | 12185.0            | AV       | 32.5              | 39.2               | 10.3         | 38.0         | 44.0               | 53.9              | 9.9            | 100            | 0               |        |
| Vert.    | 19496.0            | AV       | 39.1              | 40.1               | -3.1         | 48.1         | 28.0               | 53.9              | 25.9           | 101            | 81              |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:                      13GHz-40GHz                      20log(3.0m/1.0m)= 9.5dB

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 2437.000           | PK       | 90.0              | 27.6                    | 13.7         | 37.7         | 93.6               | -                 | -              | Carrier |
| Hori.    | 14622.000          | PK       | 44.3              | 41.5                    | 1.7          | 37.6         | 49.9               | 73.6              | 23.7           |         |
| Vert.    | 2437.000           | PK       | 89.9              | 27.6                    | 13.7         | 37.7         | 93.5               | -                 | -              | Carrier |
| Vert.    | 14622.000          | PK       | 39.2              | 41.5                    | 1.7          | 37.6         | 44.8               | 73.5              | 28.7           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

## Radiated Emission

Test place                      UL Japan, Inc. Shonan EMC Lab.                      No.3 Semi Anechoic Chamber  
Date                              May 18, 2011                      May 19, 2011                      May 20, 2011                      May 22, 2011  
Temperature / Humidity      26deg.C/45%RH                      26deg.C/40%RH                      26deg.C/40%RH                      25deg.C/43%RH  
Engineer                        Akio Hayashi                      Akio Hayashi                      Akio Hayashi                      Minoru Nakatake  
Mode                              Tx,                                      2462 MHz  
Tx, IEEE802.11n(20HT)(2.4GHz), PN9, worst data mode 3(MCS)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 932.6              | QP       | 22.9              | 21.0               | 10.8         | 30.7         | 24.0               | 46.0              | 22.0           | 100            | 291             |        |
| Hori.    | 2483.5             | PK       | 34.1              | 27.6               | 3.8          | 0.0          | 65.5               | 73.9              | 8.4            | 112            | 358             |        |
| Hori.    | 4924.0             | PK       | 46.8              | 31.8               | 6.1          | 36.5         | 48.2               | 73.9              | 25.7           | 100            | 236             |        |
| Hori.    | 7386.0             | PK       | 46.2              | 36.8               | 7.4          | 38.4         | 52.0               | 73.9              | 21.9           | 132            | 102             |        |
| Hori.    | 9848.0             | PK       | 41.6              | 38.3               | 8.9          | 37.2         | 51.6               | 73.9              | 22.3           | 100            | 0               |        |
| Hori.    | 12310.0            | PK       | 42.9              | 39.2               | 10.3         | 38.0         | 54.4               | 73.9              | 19.5           | 100            | 0               |        |
| Hori.    | 19696.0            | PK       | 55.8              | 40.1               | -3.0         | 48.1         | 44.8               | 73.9              | 29.1           | 101            | 58              |        |
| Hori.    | 2483.5             | AV       | 19.0              | 27.6               | 3.8          | 0.0          | 50.4               | 53.9              | 3.5            | 112            | 358             |        |
| Hori.    | 4924.0             | AV       | 35.6              | 31.8               | 6.1          | 36.5         | 37.0               | 53.9              | 16.9           | 100            | 236             |        |
| Hori.    | 7386.0             | AV       | 35.1              | 36.8               | 7.4          | 38.4         | 40.9               | 53.9              | 13.0           | 132            | 102             |        |
| Hori.    | 9848.0             | AV       | 31.2              | 38.3               | 8.9          | 37.2         | 41.2               | 53.9              | 12.7           | 100            | 0               |        |
| Hori.    | 12310.0            | AV       | 31.8              | 39.2               | 10.3         | 38.0         | 43.3               | 53.9              | 10.6           | 100            | 0               |        |
| Hori.    | 19696.0            | AV       | 42.9              | 40.1               | -3.0         | 48.1         | 31.8               | 53.9              | 22.1           | 101            | 58              |        |
| Vert.    | 932.9              | QP       | 22.8              | 21.0               | 10.8         | 30.7         | 23.9               | 46.0              | 22.1           | 100            | 343             |        |
| Vert.    | 2483.5             | PK       | 32.2              | 27.6               | 3.8          | 0.0          | 63.6               | 73.9              | 10.3           | 100            | 240             |        |
| Vert.    | 4924.0             | PK       | 53.5              | 31.8               | 6.1          | 36.5         | 54.9               | 73.9              | 19.0           | 100            | 330             |        |
| Vert.    | 7386.0             | PK       | 50.1              | 36.8               | 7.4          | 38.4         | 55.9               | 73.9              | 18.0           | 161            | 355             |        |
| Vert.    | 9848.0             | PK       | 42.7              | 38.3               | 8.9          | 37.2         | 52.7               | 73.9              | 21.2           | 100            | 0               |        |
| Vert.    | 12310.0            | PK       | 42.2              | 39.2               | 10.3         | 38.0         | 53.7               | 73.9              | 20.2           | 100            | 0               |        |
| Vert.    | 19696.0            | PK       | 50.4              | 40.1               | -3.0         | 48.1         | 39.4               | 73.9              | 34.5           | 101            | 84              |        |
| Vert.    | 2483.5             | AV       | 17.4              | 27.6               | 3.8          | 0.0          | 48.8               | 53.9              | 5.1            | 100            | 240             |        |
| Vert.    | 4924.0             | AV       | 40.7              | 31.8               | 6.1          | 36.5         | 42.1               | 53.9              | 11.8           | 100            | 330             |        |
| Vert.    | 7386.0             | AV       | 38.2              | 36.8               | 7.4          | 38.4         | 44.0               | 53.9              | 9.9            | 161            | 355             |        |
| Vert.    | 9848.0             | AV       | 31.2              | 38.3               | 8.9          | 37.2         | 41.2               | 53.9              | 12.7           | 100            | 0               |        |
| Vert.    | 12310.0            | AV       | 31.9              | 39.2               | 10.3         | 38.0         | 43.4               | 53.9              | 10.5           | 100            | 0               |        |
| Vert.    | 19696.0            | AV       | 39.4              | 40.1               | -3.0         | 48.1         | 28.4               | 53.9              | 25.5           | 101            | 84              |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:                      13GHz-40GHz                       $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 2462.000           | PK       | 61.7              | 27.6                    | 3.8          | 0.0          | 93.1               | -                 | -              | Carrier |
| Hori.    | 14772.000          | PK       | 43.9              | 41.8                    | 1.7          | 37.8         | 49.6               | 73.1              | 23.5           |         |
| Vert.    | 2462.000           | PK       | 58.8              | 27.6                    | 3.8          | 0.0          | 90.2               | -                 | -              | Carrier |
| Vert.    | 14772.000          | PK       | 37.2              | 41.8                    | 1.7          | 37.8         | 42.9               | 70.2              | 27.3           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

## Radiated Emission

Test place                      UL Japan, Inc. Shonan EMC Lab.      No.3 Semi Anechoic Chamber  
Date                              May 18, 2011      May 19, 2011      May 20, 2011      May 23, 2011  
Temperature / Humidity      26deg.C/45%RH    26deg.C/40%RH    26deg.C/40%RH  
Engineer                        Akio Hayashi      Akio Hayashi      Akio Hayashi  
Mode                              Tx,                      2422 MHz  
Tx, IEEE802.11n(40HT)(2.4GHz), PN9, worst data mode 3(MCS)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 929.9              | QP       | 20.9              | 22.2               | 10.1         | 31.2         | 22.0               | 46.0              | 24.0           | 100            | 359             |        |
| Hori.    | 2390.0             | PK       | 32.1              | 27.5               | 3.8          | 0.0          | 63.4               | 73.9              | 10.5           | 117            | 172             |        |
| Hori.    | 4844.0             | PK       | 46.5              | 31.6               | 6.1          | 36.6         | 47.6               | 73.9              | 26.3           | 100            | 218             |        |
| Hori.    | 7266.0             | PK       | 45.1              | 36.6               | 7.5          | 38.4         | 50.8               | 73.9              | 23.1           | 100            | 0               |        |
| Hori.    | 9688.0             | PK       | 41.3              | 38.0               | 8.8          | 37.1         | 51.0               | 73.9              | 22.9           | 101            | 0               |        |
| Hori.    | 12110.0            | PK       | 43.2              | 39.3               | 10.3         | 38.0         | 54.8               | 73.9              | 19.1           | 100            | 0               |        |
| Hori.    | 19376.0            | PK       | 51.4              | 40.1               | -3.1         | 48.2         | 40.2               | 73.9              | 33.7           | 104            | 54              |        |
| Hori.    | 2390.0             | AV       | 20.3              | 27.5               | 3.8          | 0.0          | 51.6               | 53.9              | 2.3            | 117            | 172             |        |
| Hori.    | 4844.0             | AV       | 35.4              | 31.6               | 6.1          | 36.6         | 36.5               | 53.9              | 17.4           | 100            | 218             |        |
| Hori.    | 7266.0             | AV       | 34.3              | 36.6               | 7.5          | 38.4         | 40.0               | 53.9              | 13.9           | 100            | 0               |        |
| Hori.    | 9688.0             | AV       | 31.3              | 38.0               | 8.8          | 37.1         | 41.0               | 53.9              | 12.9           | 101            | 0               |        |
| Hori.    | 12110.0            | AV       | 32.4              | 39.3               | 10.3         | 38.0         | 44.0               | 53.9              | 9.9            | 100            | 0               |        |
| Hori.    | 19376.0            | AV       | 44.7              | 40.1               | -3.1         | 48.2         | 33.5               | 53.9              | 20.4           | 104            | 54              |        |
| Vert.    | 944.2              | QP       | 21.2              | 22.3               | 10.2         | 31.1         | 22.6               | 46.0              | 23.4           | 100            | 118             |        |
| Vert.    | 2390.0             | PK       | 32.3              | 27.5               | 3.8          | 0.0          | 63.6               | 73.9              | 10.3           | 100            | 273             |        |
| Vert.    | 4844.0             | PK       | 48.1              | 31.6               | 6.1          | 36.6         | 49.2               | 73.9              | 24.7           | 101            | 341             |        |
| Vert.    | 7266.0             | PK       | 45.8              | 36.6               | 7.5          | 38.4         | 51.5               | 73.9              | 22.4           | 100            | 0               |        |
| Vert.    | 9688.0             | PK       | 43.1              | 38.0               | 8.8          | 37.1         | 52.8               | 73.9              | 21.1           | 100            | 0               |        |
| Vert.    | 12110.0            | PK       | 43.2              | 39.3               | 10.3         | 38.0         | 54.8               | 73.9              | 19.1           | 100            | 0               |        |
| Vert.    | 19376.0            | PK       | 49.3              | 40.1               | -3.1         | 48.2         | 38.1               | 73.9              | 35.8           | 101            | 91              |        |
| Vert.    | 2390.0             | AV       | 19.4              | 27.5               | 3.8          | 0.0          | 50.7               | 53.9              | 3.2            | 100            | 273             |        |
| Vert.    | 4844.0             | AV       | 37.6              | 31.6               | 6.1          | 36.6         | 38.7               | 53.9              | 15.2           | 101            | 341             |        |
| Vert.    | 7266.0             | AV       | 34.3              | 36.6               | 7.5          | 38.4         | 40.0               | 53.9              | 13.9           | 100            | 0               |        |
| Vert.    | 9688.0             | AV       | 30.8              | 38.0               | 8.8          | 37.1         | 40.5               | 53.9              | 13.4           | 100            | 0               |        |
| Vert.    | 12110.0            | AV       | 31.8              | 39.3               | 10.3         | 38.0         | 43.4               | 53.9              | 10.5           | 100            | 0               |        |
| Vert.    | 19376.0            | AV       | 38.3              | 40.1               | -3.1         | 48.2         | 27.1               | 53.9              | 26.8           | 101            | 91              |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:              13GHz-40GHz               $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 2422.000           | PK       | 59.1              | 27.6                    | 3.8          | 0.0          | 90.5               | -                 | -              | Carrier |
| Hori.    | 2400.000           | PK       | 22.5              | 27.5                    | 3.8          | 0.0          | 53.8               | 70.5              | 16.7           |         |
| Hori.    | 14532.000          | PK       | 37.8              | 41.4                    | 1.6          | 37.5         | 43.3               | 70.5              | 27.2           |         |
| Vert.    | 2422.000           | PK       | 59.0              | 27.6                    | 3.8          | 0.0          | 90.4               | -                 | -              | Carrier |
| Vert.    | 2400.000           | PK       | 22.8              | 27.5                    | 3.8          | 0.0          | 54.1               | 70.4              | 16.3           |         |
| Vert.    | 14532.000          | PK       | 35.0              | 41.4                    | 1.6          | 37.5         | 40.5               | 70.4              | 29.9           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

## Radiated Emission

Test place                      UL Japan, Inc. Shonan EMC Lab.      No.3 Semi Anechoic Chamber  
 Date                              May 18, 2011      May 19, 2011      May 20, 2011      May 23, 2011  
 Temperature / Humidity      26deg.C/45%RH    26deg.C/40%RH    26deg.C/40%RH  
 Engineer                        Akio Hayashi      Akio Hayashi      Akio Hayashi  
 Mode                              Tx,                      2437 MHz  
                                      Tx, IEEE802.11n(40HT)(2.4GHz), PN9, worst data mode 3(MCS)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 932.4              | QP       | 20.9              | 22.2               | 10.2         | 31.1         | 22.2               | 46.0              | 23.8           | 165            | 359             |        |
| Hori.    | 4874.0             | PK       | 45.7              | 31.7               | 6.1          | 36.6         | 46.9               | 73.9              | 27.0           | 100            | 217             |        |
| Hori.    | 7311.0             | PK       | 43.8              | 36.7               | 7.5          | 38.4         | 49.6               | 73.9              | 24.3           | 100            | 0               |        |
| Hori.    | 9748.0             | PK       | 41.1              | 38.1               | 8.8          | 37.1         | 50.9               | 73.9              | 23.0           | 100            | 0               |        |
| Hori.    | 12185.0            | PK       | 43.6              | 39.2               | 10.3         | 38.0         | 55.1               | 73.9              | 18.8           | 100            | 0               |        |
| Hori.    | 19496.0            | PK       | 53.3              | 40.1               | -3.1         | 48.1         | 42.2               | 73.9              | 31.7           | 102            | 51              |        |
| Hori.    | 4874.0             | AV       | 34.2              | 31.7               | 6.1          | 36.6         | 35.4               | 53.9              | 18.5           | 100            | 217             |        |
| Hori.    | 7311.0             | AV       | 33.4              | 36.7               | 7.5          | 38.4         | 39.2               | 53.9              | 14.7           | 100            | 0               |        |
| Hori.    | 9748.0             | AV       | 31.6              | 38.1               | 8.8          | 37.1         | 41.4               | 53.9              | 12.5           | 100            | 0               |        |
| Hori.    | 12185.0            | AV       | 31.6              | 39.2               | 10.3         | 38.0         | 43.1               | 53.9              | 10.8           | 100            | 0               |        |
| Hori.    | 19496.0            | AV       | 46.1              | 40.1               | -3.1         | 48.1         | 35.0               | 53.9              | 18.9           | 102            | 51              |        |
| Vert.    | 942.2              | QP       | 21.3              | 22.3               | 10.2         | 31.1         | 22.7               | 46.0              | 23.3           | 100            | 0               |        |
| Vert.    | 4874.0             | PK       | 46.8              | 31.7               | 6.1          | 36.6         | 48.0               | 73.9              | 25.9           | 100            | 347             |        |
| Vert.    | 7311.0             | PK       | 43.5              | 36.7               | 7.5          | 38.4         | 49.3               | 73.9              | 24.6           | 100            | 0               |        |
| Vert.    | 9748.0             | PK       | 41.2              | 38.1               | 8.8          | 37.1         | 51.0               | 73.9              | 22.9           | 100            | 0               |        |
| Vert.    | 12185.0            | PK       | 42.1              | 39.2               | 10.3         | 38.0         | 53.6               | 73.9              | 20.3           | 100            | 0               |        |
| Vert.    | 19496.0            | PK       | 49.3              | 40.1               | -3.1         | 48.1         | 38.2               | 73.9              | 35.7           | 102            | 124             |        |
| Vert.    | 4874.0             | AV       | 36.3              | 31.7               | 6.1          | 36.6         | 37.5               | 53.9              | 16.4           | 100            | 347             |        |
| Vert.    | 7311.0             | AV       | 33.1              | 36.7               | 7.5          | 38.4         | 38.9               | 53.9              | 15.0           | 100            | 0               |        |
| Vert.    | 9748.0             | AV       | 31.4              | 38.1               | 8.8          | 37.1         | 41.2               | 53.9              | 12.7           | 100            | 0               |        |
| Vert.    | 12185.0            | AV       | 32.5              | 39.2               | 10.3         | 38.0         | 44.0               | 53.9              | 9.9            | 100            | 0               |        |
| Vert.    | 19496.0            | AV       | 40.3              | 40.1               | -3.1         | 48.1         | 29.2               | 53.9              | 24.7           | 102            | 124             |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:              13GHz-40GHz              20log(3.0m/1.0m)= 9.5dB

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 2437.000           | PK       | 86.4              | 27.6                    | 13.7         | 37.7         | 90.0               | -                 | -              | Carrier |
| Hori.    | 14622.000          | PK       | 38.6              | 41.5                    | 1.7          | 37.6         | 44.2               | 70.0              | 25.8           |         |
| Vert.    | 2437.000           | PK       | 83.9              | 27.6                    | 13.7         | 37.7         | 87.5               | -                 | -              | Carrier |
| Vert.    | 14622.000          | PK       | 33.9              | 41.5                    | 1.7          | 37.6         | 39.5               | 67.5              | 28.0           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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## Radiated Emission

Test place                      UL Japan, Inc. Shonan EMC Lab.      No.3 Semi Anechoic Chamber  
Date                              May 18, 2011      May 19, 2011      May 20, 2011      May 23, 2011  
Temperature / Humidity      26deg.C/45%RH    26deg.C/40%RH    26deg.C/40%RH  
Engineer                        Akio Hayashi      Akio Hayashi      Akio Hayashi  
Mode                              Tx,                    2452 MHz  
Tx, IEEE802.11n(40HT)(2.4GHz), PN9, worst data mode 3(MCS)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 932.2              | QP       | 20.9              | 22.2               | 10.2         | 31.1         | 22.2               | 46.0              | 23.8           | 100            | 9               |        |
| Hori.    | 2483.5             | PK       | 31.9              | 27.6               | 3.8          | 0.0          | 63.3               | 73.9              | 10.6           | 113            | 192             |        |
| Hori.    | 4904.0             | PK       | 45.6              | 31.8               | 6.1          | 36.6         | 46.9               | 73.9              | 27.0           | 100            | 221             |        |
| Hori.    | 7356.0             | PK       | 45.6              | 36.8               | 7.4          | 38.4         | 51.4               | 73.9              | 22.5           | 169            | 239             |        |
| Hori.    | 9808.0             | PK       | 42.0              | 38.2               | 8.9          | 37.2         | 51.9               | 73.9              | 22.0           | 100            | 0               |        |
| Hori.    | 12260.0            | PK       | 42.1              | 39.2               | 10.3         | 38.0         | 53.6               | 73.9              | 20.3           | 100            | 0               |        |
| Hori.    | 19616.0            | PK       | 53.5              | 40.1               | -3.0         | 48.1         | 42.5               | 73.9              | 31.4           | 103            | 315             |        |
| Hori.    | 2483.5             | AV       | 20.0              | 27.6               | 3.8          | 0.0          | 51.4               | 53.9              | 2.5            | 113            | 192             |        |
| Hori.    | 4904.0             | AV       | 34.9              | 31.8               | 6.1          | 36.6         | 36.2               | 53.9              | 17.7           | 100            | 221             |        |
| Hori.    | 7356.0             | AV       | 34.1              | 36.8               | 7.4          | 38.4         | 39.9               | 53.9              | 14.0           | 169            | 239             |        |
| Hori.    | 9808.0             | AV       | 31.5              | 38.2               | 8.9          | 37.2         | 41.4               | 53.9              | 12.5           | 100            | 0               |        |
| Hori.    | 12260.0            | AV       | 31.8              | 39.2               | 10.3         | 38.0         | 43.3               | 53.9              | 10.6           | 100            | 0               |        |
| Hori.    | 19616.0            | AV       | 45.7              | 40.1               | -3.0         | 48.1         | 34.7               | 53.9              | 19.2           | 103            | 315             |        |
| Vert.    | 944.8              | QP       | 21.3              | 22.3               | 10.2         | 31.1         | 22.7               | 46.0              | 23.3           | 100            | 359             |        |
| Vert.    | 2483.5             | PK       | 29.8              | 27.6               | 3.8          | 0.0          | 61.2               | 73.9              | 12.7           | 119            | 291             |        |
| Vert.    | 4904.0             | PK       | 48.0              | 31.8               | 6.1          | 36.6         | 49.3               | 73.9              | 24.6           | 100            | 346             |        |
| Vert.    | 7356.0             | PK       | 45.8              | 36.8               | 7.4          | 38.4         | 51.6               | 73.9              | 22.3           | 173            | 355             |        |
| Vert.    | 9808.0             | PK       | 41.6              | 38.2               | 8.9          | 37.2         | 51.5               | 73.9              | 22.4           | 100            | 0               |        |
| Vert.    | 12260.0            | PK       | 42.1              | 39.2               | 10.3         | 38.0         | 53.6               | 73.9              | 20.3           | 100            | 0               |        |
| Vert.    | 19616.0            | PK       | 49.6              | 40.1               | -3.0         | 48.1         | 38.6               | 73.9              | 35.3           | 100            | 121             |        |
| Vert.    | 2483.5             | AV       | 17.8              | 27.6               | 3.8          | 0.0          | 49.2               | 53.9              | 4.7            | 119            | 291             |        |
| Vert.    | 4904.0             | AV       | 37.4              | 31.8               | 6.1          | 36.6         | 38.7               | 53.9              | 15.2           | 100            | 346             |        |
| Vert.    | 7356.0             | AV       | 35.2              | 36.8               | 7.4          | 38.4         | 41.0               | 53.9              | 12.9           | 173            | 355             |        |
| Vert.    | 9808.0             | AV       | 31.5              | 38.2               | 8.9          | 37.2         | 41.4               | 53.9              | 12.5           | 100            | 0               |        |
| Vert.    | 12260.0            | AV       | 31.8              | 39.2               | 10.3         | 38.0         | 43.3               | 53.9              | 10.6           | 100            | 0               |        |
| Vert.    | 19616.0            | AV       | 39.4              | 40.1               | -3.0         | 48.1         | 28.4               | 53.9              | 25.5           | 100            | 121             |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:            13GHz-40GHz             $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 2452.000           | PK       | 59.0              | 27.6                    | 3.8          | 0.0          | 90.4               | -                 | -              | Carrier |
| Hori.    | 14712.000          | PK       | 39.2              | 41.7                    | 1.7          | 37.7         | 44.9               | 70.4              | 25.5           |         |
| Vert.    | 2452.000           | PK       | 58.1              | 27.6                    | 3.8          | 0.0          | 89.5               | -                 | -              | Carrier |
| Vert.    | 14712.000          | PK       | 35.3              | 41.7                    | 1.7          | 37.7         | 41.0               | 69.5              | 28.5           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

## Radiated Emission

Test place                      UL Japan, Inc. Shonan EMC Lab.                      No.3 Semi Anechoic Chamber  
Date                              May 17, 2011                      May 19, 2011                      May 20, 2011                      May 22, 2011  
Temperature / Humidity      27deg.C/43%RH                      26deg.C/40%RH                      25deg.C/47%RH                      25deg.C/43%RH  
Engineer                        Akio Hayashi                      Akio Hayashi                      Akio Hayashi                      Minoru Nakatake  
Mode                              Tx,                                      5745 MHz  
Tx, IEEE802.11a (W58), PN9, worst data mode 24Mbps

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 952.8              | QP       | 22.9              | 21.2               | 10.8         | 30.6         | 24.3               | 46.0              | 21.7           | 100            | 194             |        |
| Hori.    | 11490.0            | PK       | 51.7              | 40.2               | 9.3          | 37.7         | 63.5               | 73.9              | 10.4           | 103            | 57              |        |
| Hori.    | 22980.0            | PK       | 55.3              | 40.1               | -2.2         | 47.5         | 45.7               | 73.9              | 28.2           | 100            | 57              |        |
| Hori.    | 28725.0            | PK       | 63.6              | 43.5               | 3.6          | 67.0         | 43.7               | 73.9              | 30.2           | 100            | 72              |        |
| Hori.    | 11490.0            | AV       | 37.8              | 40.2               | 9.3          | 37.7         | 49.6               | 53.9              | 4.3            | 103            | 57              |        |
| Hori.    | 22980.0            | AV       | 40.2              | 40.1               | -2.2         | 47.5         | 30.6               | 53.9              | 23.3           | 100            | 57              |        |
| Hori.    | 28725.0            | AV       | 53.0              | 43.5               | 3.6          | 67.0         | 33.1               | 53.9              | 20.8           | 100            | 72              |        |
| Vert.    | 953.4              | QP       | 23.0              | 21.2               | 10.8         | 30.6         | 24.4               | 46.0              | 21.6           | 100            | 7               |        |
| Vert.    | 11490.0            | PK       | 49.5              | 40.2               | 9.3          | 37.7         | 61.3               | 73.9              | 12.6           | 100            | 281             |        |
| Vert.    | 22980.0            | PK       | 55.4              | 40.1               | -2.2         | 47.5         | 45.8               | 73.9              | 28.1           | 100            | 121             |        |
| Vert.    | 28725.0            | PK       | 61.5              | 43.5               | 3.6          | 67.0         | 41.6               | 73.9              | 32.3           | 109            | 205             |        |
| Vert.    | 11490.0            | AV       | 36.2              | 40.2               | 9.3          | 37.7         | 48.0               | 53.9              | 5.9            | 100            | 281             |        |
| Vert.    | 22980.0            | AV       | 40.3              | 40.1               | -2.2         | 47.5         | 30.7               | 53.9              | 23.2           | 100            | 121             |        |
| Vert.    | 28725.0            | AV       | 51.5              | 43.5               | 3.6          | 67.0         | 31.6               | 53.9              | 22.3           | 109            | 205             |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:                      13GHz-40GHz                       $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 5745.000           | PK       | 85.7              | 32.9                    | 16.0         | 37.6         | 97.0               | -                 | -              | Carrier |
| Hori.    | 5725.000           | PK       | 44.5              | 32.9                    | 16.0         | 37.6         | 55.8               | 77.0              | 21.2           |         |
| Hori.    | 17235.000          | PK       | 36.8              | 42.2                    | 2.1          | 37.6         | 43.5               | 77.0              | 33.5           |         |
| Vert.    | 5745.000           | PK       | 83.7              | 32.9                    | 16.0         | 37.6         | 95.0               | -                 | -              | Carrier |
| Vert.    | 5725.000           | PK       | 44.0              | 32.9                    | 16.0         | 37.6         | 55.3               | 75.0              | 19.7           |         |
| Vert.    | 17235.000          | PK       | 36.6              | 42.2                    | 2.1          | 37.6         | 43.2               | 75.0              | 31.8           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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## Radiated Emission

Test place                      UL Japan, Inc. Shonan EMC Lab.                      No.3 Semi Anechoic Chamber  
Date                              May 17, 2011                      May 19, 2011                      May 20, 2011                      May 22, 2011  
Temperature / Humidity      27deg.C/43%RH                      26deg.C/40%RH                      25deg.C/47%RH                      25deg.C/43%RH  
Engineer                        Akio Hayashi                      Akio Hayashi                      Akio Hayashi                      Minoru Nakatake  
Mode                              Tx,                                      5785 MHz  
Tx, IEEE802.11a (W58), PN9, worst data mode 24Mbps

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 949.9              | QP       | 22.9              | 21.2               | 10.8         | 30.6         | 24.3               | 46.0              | 21.7           | 100            | 134             |        |
| Hori.    | 7713.3             | PK       | 49.6              | 37.4               | 7.5          | 38.3         | 56.2               | 73.9              | 17.7           | 136            | 0               |        |
| Hori.    | 11570.0            | PK       | 51.1              | 40.0               | 9.4          | 37.7         | 62.8               | 73.9              | 11.1           | 141            | 300             |        |
| Hori.    | 23140.0            | PK       | 56.9              | 40.1               | 7.3          | 47.4         | 47.4               | 73.9              | 26.5           | 100            | 51              |        |
| Hori.    | 28925.0            | PK       | 65.8              | 43.4               | 13.1         | 67.0         | 45.8               | 73.9              | 28.1           | 100            | 71              |        |
| Hori.    | 29125.0            | PK       | 67.7              | 43.4               | 13.2         | 67.1         | 47.7               | 73.9              | 26.2           | 100            | 61              |        |
| Hori.    | 7713.3             | AV       | 43.9              | 37.4               | 7.5          | 38.3         | 50.5               | 53.9              | 3.4            | 136            | 0               |        |
| Hori.    | 11570.0            | AV       | 38.6              | 40.0               | 9.4          | 37.7         | 50.3               | 53.9              | 3.6            | 141            | 300             |        |
| Hori.    | 23140.0            | AV       | 42.4              | 40.1               | 7.3          | 47.4         | 32.9               | 53.9              | 21.0           | 100            | 51              |        |
| Hori.    | 28925.0            | AV       | 54.1              | 43.4               | 13.1         | 67.0         | 34.1               | 53.9              | 19.8           | 100            | 71              |        |
| Hori.    | 29125.0            | AV       | 57.4              | 43.4               | 13.2         | 67.1         | 37.4               | 53.9              | 16.5           | 100            | 61              |        |
| Vert.    | 949.5              | QP       | 22.9              | 21.2               | 10.8         | 30.6         | 24.3               | 46.0              | 21.7           | 100            | 65              |        |
| Vert.    | 7713.3             | PK       | 49.7              | 37.4               | 7.5          | 38.3         | 56.3               | 73.9              | 17.6           | 149            | 2               |        |
| Vert.    | 11570.0            | PK       | 49.4              | 40.0               | 9.4          | 37.7         | 61.1               | 73.9              | 12.8           | 133            | 293             |        |
| Vert.    | 23140.0            | PK       | 55.9              | 40.1               | 7.3          | 47.4         | 46.4               | 73.9              | 27.5           | 100            | 120             |        |
| Vert.    | 28925.0            | PK       | 62.8              | 43.4               | 13.1         | 67.0         | 42.8               | 73.9              | 31.1           | 107            | 208             |        |
| Vert.    | 29125.0            | PK       | 64.6              | 43.4               | 13.2         | 67.1         | 44.6               | 73.9              | 29.3           | 108            | 199             |        |
| Vert.    | 7713.3             | AV       | 43.8              | 37.4               | 7.5          | 38.3         | 50.4               | 53.9              | 3.5            | 149            | 2               |        |
| Vert.    | 11570.0            | AV       | 37.2              | 40.0               | 9.4          | 37.7         | 48.9               | 53.9              | 5.0            | 133            | 293             |        |
| Vert.    | 23140.0            | AV       | 42.0              | 40.1               | 7.3          | 47.4         | 32.5               | 53.9              | 21.4           | 100            | 120             |        |
| Vert.    | 28925.0            | AV       | 52.9              | 43.4               | 13.1         | 67.0         | 32.9               | 53.9              | 21.0           | 107            | 208             |        |
| Vert.    | 29125.0            | AV       | 54.2              | 43.4               | 13.2         | 67.1         | 34.2               | 53.9              | 19.7           | 108            | 199             |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:                      13GHz-40GHz                      20log(3.0m/1.0m)= 9.5dB

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 5785.000           | PK       | 87.2              | 33.0                    | 16.0         | 37.7         | 98.5               | -                 | -              | Carrier |
| Hori.    | 17355.000          | PK       | 38.5              | 43.2                    | 11.7         | 37.7         | 46.2               | 78.5              | 32.3           |         |
| Vert.    | 5785.000           | PK       | 84.8              | 33.0                    | 16.0         | 37.7         | 96.1               | -                 | -              | Carrier |
| Vert.    | 17355.000          | PK       | 37.7              | 43.2                    | 11.7         | 37.7         | 45.4               | 76.1              | 30.7           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

## Radiated Emission

Test place                      UL Japan, Inc. Shonan EMC Lab.                      No.3 Semi Anechoic Chamber  
Date                              May 16, 2011                      May 17, 2011                      May 19, 2011                      May 20, 2011                      May 22, 2011  
Temperature / Humidity      23deg.C/45%RH                      27deg.C/43%RH                      26deg.C/40%RH                      25deg.C/47%RH                      25deg.C/43%RH  
Engineer                        Akio Hayashi                      Akio Hayashi                      Akio Hayashi                      Akio Hayashi                      Minoru Nakatake  
Mode                              Tx,                                      5825 MHz  
Tx, IEEE802.11a (W58), PN9, worst data mode 24Mbps

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 949.3              | QP       | 22.8              | 21.2               | 10.8         | 30.6         | 24.2               | 46.0              | 21.8           | 100            | 289             |        |
| Hori.    | 11650.0            | PK       | 48.4              | 39.9               | 9.4          | 37.8         | 59.9               | 73.9              | 14.0           | 105            | 70              |        |
| Hori.    | 23300.0            | PK       | 58.1              | 40.1               | -2.2         | 47.3         | 48.7               | 73.9              | 25.2           | 100            | 66              |        |
| Hori.    | 11650.0            | AV       | 37.4              | 39.9               | 9.4          | 37.8         | 48.9               | 53.9              | 5.0            | 105            | 70              |        |
| Hori.    | 23300.0            | AV       | 44.2              | 40.1               | -2.2         | 47.3         | 34.8               | 53.9              | 19.1           | 100            | 66              |        |
| Vert.    | 949.6              | QP       | 22.8              | 21.2               | 10.8         | 30.6         | 24.2               | 46.0              | 21.8           | 100            | 44              |        |
| Vert.    | 11650.0            | PK       | 52.0              | 39.9               | 9.4          | 37.8         | 63.5               | 73.9              | 10.4           | 108            | 303             |        |
| Vert.    | 23300.0            | PK       | 54.0              | 40.1               | -2.2         | 47.3         | 44.6               | 73.9              | 29.3           | 100            | 117             |        |
| Vert.    | 11650.0            | AV       | 38.2              | 39.9               | 9.4          | 37.8         | 49.7               | 53.9              | 4.2            | 108            | 303             |        |
| Vert.    | 23300.0            | AV       | 39.3              | 40.1               | -2.2         | 47.3         | 29.9               | 53.9              | 24.0           | 100            | 117             |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:                      13GHz-40GHz                       $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 5825.000           | PK       | 89.7              | 33.1                    | 16.0         | 37.8         | 101.0              | -                 | -              | Carrier |
| Hori.    | 5850.000           | PK       | 45.3              | 33.1                    | 16.1         | 37.8         | 56.7               | 81.0              | 24.3           |         |
| Hori.    | 7766.677           | PK       | 44.5              | 37.5                    | 7.5          | 38.3         | 51.2               | 81.0              | 29.8           |         |
| Hori.    | 17475.000          | PK       | 41.5              | 44.2                    | 2.2          | 37.7         | 50.2               | 81.0              | 30.8           |         |
| Vert.    | 5825.000           | PK       | 84.3              | 33.1                    | 16.0         | 37.8         | 95.6               | -                 | -              | Carrier |
| Vert.    | 5850.000           | PK       | 41.5              | 33.1                    | 16.1         | 37.8         | 52.9               | 75.6              | 22.7           |         |
| Vert.    | 7766.677           | PK       | 45.6              | 37.5                    | 7.5          | 38.3         | 52.3               | 75.6              | 23.3           |         |
| Vert.    | 17475.000          | PK       | 38.5              | 44.2                    | 2.2          | 37.7         | 47.2               | 75.6              | 28.4           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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## Radiated Emission

|                        |                                                            |               |                            |               |                            |
|------------------------|------------------------------------------------------------|---------------|----------------------------|---------------|----------------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.                             |               | No.3 Semi Anechoic Chamber |               | No.1 Semi Anechoic Chamber |
| Date                   | May 16, 2011                                               | May 17, 2011  | May 19, 2011               | May 20, 2011  | May 23, 2011               |
| Temperature / Humidity | 23deg.C/45%RH                                              | 27deg.C/43%RH | 26deg.C/40%RH              | 25deg.C/47%RH | 24deg.C/51%RH              |
| Engineer               | Akio Hayashi                                               | Akio Hayashi  | Akio Hayashi               | Akio Hayashi  | Hikaru Shirasawa           |
| Mode                   | Tx, 5745 MHz                                               |               |                            |               |                            |
|                        | Tx, IEEE802.11n (20HT), (W58), PN9, worst data mode 1(MCS) |               |                            |               |                            |

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 946.8              | QP       | 21.0              | 22.3               | 10.2         | 31.1         | 22.4               | 46.0              | 23.6           | 150            | 359             |        |
| Hori.    | 7660.0             | PK       | 47.2              | 37.3               | 7.4          | 38.3         | 53.6               | 73.9              | 20.3           | 140            | 2               |        |
| Hori.    | 11490.0            | PK       | 48.6              | 40.2               | 9.3          | 37.7         | 60.4               | 73.9              | 13.5           | 105            | 57              |        |
| Hori.    | 22980.0            | PK       | 54.8              | 40.1               | 7.3          | 47.5         | 45.2               | 73.9              | 28.7           | 100            | 71              |        |
| Hori.    | 28725.0            | PK       | 62.1              | 43.5               | 13.1         | 67.0         | 42.2               | 73.9              | 31.7           | 100            | 69              |        |
| Hori.    | 7660.0             | AV       | 40.8              | 37.3               | 7.4          | 38.3         | 47.2               | 53.9              | 6.7            | 140            | 2               |        |
| Hori.    | 11490.0            | AV       | 37.0              | 40.2               | 9.3          | 37.7         | 48.8               | 53.9              | 5.1            | 105            | 57              |        |
| Hori.    | 22980.0            | AV       | 38.3              | 40.1               | 7.3          | 47.5         | 28.7               | 53.9              | 25.2           | 100            | 71              |        |
| Hori.    | 28725.0            | AV       | 50.6              | 43.5               | 13.1         | 67.0         | 30.7               | 53.9              | 23.2           | 100            | 69              |        |
| Vert.    | 909.4              | QP       | 21.3              | 22.0               | 10.1         | 31.3         | 22.1               | 46.0              | 23.9           | 100            | 356             |        |
| Vert.    | 7660.0             | PK       | 47.6              | 37.3               | 7.4          | 38.3         | 54.0               | 73.9              | 19.9           | 161            | 357             |        |
| Vert.    | 11490.0            | PK       | 46.4              | 40.2               | 9.3          | 37.7         | 58.2               | 73.9              | 15.7           | 100            | 281             |        |
| Vert.    | 22980.0            | PK       | 52.3              | 40.1               | 7.3          | 47.5         | 42.7               | 73.9              | 31.2           | 100            | 99              |        |
| Vert.    | 28725.0            | PK       | 59.6              | 43.5               | 13.1         | 67.0         | 39.7               | 73.9              | 34.2           | 107            | 195             |        |
| Vert.    | 7660.0             | AV       | 40.9              | 37.3               | 7.4          | 38.3         | 47.3               | 53.9              | 6.6            | 161            | 357             |        |
| Vert.    | 11490.0            | AV       | 34.1              | 40.2               | 9.3          | 37.7         | 45.9               | 53.9              | 8.0            | 100            | 281             |        |
| Vert.    | 22980.0            | AV       | 37.1              | 40.1               | 7.3          | 47.5         | 27.5               | 53.9              | 26.4           | 100            | 99              |        |
| Vert.    | 28725.0            | AV       | 50.4              | 43.5               | 13.1         | 67.0         | 30.5               | 53.9              | 23.4           | 107            | 195             |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 5745.000           | PK       | 84.3              | 32.9                    | 16.0         | 37.6         | 95.6               | -                 | -              | Carrier |
| Hori.    | 5725.000           | PK       | 47.3              | 32.9                    | 16.0         | 37.6         | 58.6               | 75.6              | 17.0           |         |
| Hori.    | 17235.000          | PK       | 36.2              | 42.2                    | 11.6         | 37.6         | 42.9               | 75.6              | 32.7           |         |
| Vert.    | 5745.000           | PK       | 80.6              | 32.9                    | 16.0         | 37.6         | 91.9               | -                 | -              | Carrier |
| Vert.    | 5725.000           | PK       | 43.9              | 32.9                    | 16.0         | 37.6         | 55.2               | 71.9              | 16.7           |         |
| Vert.    | 17235.000          | PK       | 36.3              | 42.2                    | 11.6         | 37.6         | 43.0               | 71.9              | 28.9           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

## Radiated Emission

|                        |                                                            |               |                            |               |                            |
|------------------------|------------------------------------------------------------|---------------|----------------------------|---------------|----------------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.                             |               | No.3 Semi Anechoic Chamber |               | No.1 Semi Anechoic Chamber |
| Date                   | May 16, 2011                                               | May 17, 2011  | May 19, 2011               | May 20, 2011  | May 23, 2011               |
| Temperature / Humidity | 23deg.C/45%RH                                              | 27deg.C/43%RH | 26deg.C/40%RH              | 25deg.C/47%RH | 24deg.C/51%RH              |
| Engineer               | Akio Hayashi                                               | Akio Hayashi  | Akio Hayashi               | Akio Hayashi  | Hikaru Shirasawa           |
| Mode                   | Tx, 5785 MHz                                               |               |                            |               |                            |
|                        | Tx, IEEE802.11n (20HT), (W58), PN9, worst data mode 1(MCS) |               |                            |               |                            |

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 945.9              | QP       | 21.1              | 22.3               | 10.2         | 31.1         | 22.5               | 46.0              | 23.5           | 111            | 0               |        |
| Hori.    | 7713.3             | PK       | 50.1              | 37.4               | 7.5          | 38.3         | 56.7               | 73.9              | 17.2           | 128            | 353             |        |
| Hori.    | 11570.0            | PK       | 49.6              | 40.0               | 9.4          | 37.7         | 61.3               | 73.9              | 12.6           | 117            | 287             |        |
| Hori.    | 23140.0            | PK       | 55.2              | 40.1               | -2.2         | 47.4         | 45.7               | 73.9              | 28.2           | 100            | 72              |        |
| Hori.    | 28925.0            | PK       | 65.4              | 43.4               | 3.6          | 67.0         | 45.4               | 73.9              | 28.5           | 100            | 52              |        |
| Hori.    | 7713.3             | AV       | 43.0              | 37.4               | 7.5          | 38.3         | 49.6               | 53.9              | 4.3            | 128            | 353             |        |
| Hori.    | 11570.0            | AV       | 37.2              | 40.0               | 9.4          | 37.7         | 48.9               | 53.9              | 5.0            | 117            | 287             |        |
| Hori.    | 23140.0            | AV       | 39.1              | 40.1               | -2.2         | 47.4         | 29.6               | 53.9              | 24.3           | 100            | 72              |        |
| Hori.    | 28925.0            | AV       | 52.1              | 43.4               | 3.6          | 67.0         | 32.1               | 53.9              | 21.8           | 100            | 52              |        |
| Vert.    | 910.5              | QP       | 21.4              | 22.0               | 10.1         | 31.3         | 22.2               | 46.0              | 23.8           | 100            | 74              |        |
| Vert.    | 7713.3             | PK       | 50.0              | 37.4               | 7.5          | 38.3         | 56.6               | 73.9              | 17.3           | 147            | 4               |        |
| Vert.    | 11570.0            | PK       | 49.3              | 40.0               | 9.4          | 37.7         | 61.0               | 73.9              | 12.9           | 159            | 296             |        |
| Vert.    | 23140.0            | PK       | 54.9              | 40.1               | -2.2         | 47.4         | 45.4               | 73.9              | 28.5           | 100            | 117             |        |
| Vert.    | 28925.0            | PK       | 64.7              | 43.4               | 3.6          | 67.0         | 44.7               | 73.9              | 29.2           | 109            | 208             |        |
| Vert.    | 7713.3             | AV       | 43.9              | 37.4               | 7.5          | 38.3         | 50.5               | 53.9              | 3.4            | 147            | 4               |        |
| Vert.    | 11570.0            | AV       | 36.3              | 40.0               | 9.4          | 37.7         | 48.0               | 53.9              | 5.9            | 159            | 296             |        |
| Vert.    | 23140.0            | AV       | 39.2              | 40.1               | -2.2         | 47.4         | 29.7               | 53.9              | 24.2           | 100            | 117             |        |
| Vert.    | 28925.0            | AV       | 51.8              | 43.4               | 3.6          | 67.0         | 31.7               | 53.9              | 22.2           | 109            | 208             |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 5785.000           | PK       | 85.6              | 33.0                    | 16.0         | 37.7         | 96.9               | -                 | -              | Carrier |
| Hori.    | 17355.000          | PK       | 37.9              | 43.2                    | 2.2          | 37.7         | 45.6               | 76.9              | 31.3           |         |
| Vert.    | 5785.000           | PK       | 82.4              | 33.0                    | 16.0         | 37.7         | 93.7               | -                 | -              | Carrier |
| Vert.    | 17355.000          | PK       | 37.2              | 43.2                    | 2.2          | 37.7         | 44.9               | 73.7              | 28.8           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

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## Radiated Emission

|                        |                                                            |               |                            |               |                            |
|------------------------|------------------------------------------------------------|---------------|----------------------------|---------------|----------------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.                             |               | No.3 Semi Anechoic Chamber |               | No.1 Semi Anechoic Chamber |
| Date                   | May 16, 2011                                               | May 17, 2011  | May 19, 2011               | May 20, 2011  | May 23, 2011               |
| Temperature / Humidity | 23deg.C/45%RH                                              | 27deg.C/43%RH | 26deg.C/40%RH              | 25deg.C/47%RH | 24deg.C/51%RH              |
| Engineer               | Akio Hayashi                                               | Akio Hayashi  | Akio Hayashi               | Akio Hayashi  | Hikaru Shirasawa           |
| Mode                   | Tx, 5825 MHz                                               |               |                            |               |                            |
|                        | Tx, IEEE802.11n (20HT), (W58), PN9, worst data mode 1(MCS) |               |                            |               |                            |

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 950.3              | QP       | 20.9              | 22.3               | 10.2         | 31.1         | 22.3               | 46.0              | 23.7           | 100            | 358             |        |
| Hori.    | 11650.0            | PK       | 50.6              | 39.9               | 9.4          | 37.8         | 62.1               | 73.9              | 11.8           | 118            | 285             |        |
| Hori.    | 23300.0            | PK       | 58.8              | 40.1               | -2.2         | 47.3         | 49.4               | 73.9              | 24.5           | 100            | 71              |        |
| Hori.    | 29125.0            | PK       | 67.2              | 43.4               | 3.7          | 67.1         | 47.2               | 73.9              | 26.7           | 100            | 57              |        |
| Hori.    | 11650.0            | AV       | 36.4              | 39.9               | 9.4          | 37.8         | 47.9               | 53.9              | 6.0            | 118            | 285             |        |
| Hori.    | 23300.0            | AV       | 43.2              | 40.1               | -2.2         | 47.3         | 33.8               | 53.9              | 20.1           | 100            | 71              |        |
| Hori.    | 29125.0            | AV       | 54.4              | 43.4               | 3.7          | 67.1         | 34.4               | 53.9              | 19.5           | 100            | 57              |        |
| Vert.    | 912.9              | QP       | 21.4              | 22.1               | 10.1         | 31.3         | 22.3               | 46.0              | 23.7           | 100            | 18              |        |
| Vert.    | 11650.0            | PK       | 50.0              | 39.9               | 9.4          | 37.8         | 61.5               | 73.9              | 12.4           | 159            | 303             |        |
| Vert.    | 23300.0            | PK       | 54.5              | 40.1               | -2.2         | 47.3         | 45.1               | 73.9              | 28.8           | 100            | 117             |        |
| Vert.    | 29125.0            | PK       | 66.3              | 43.4               | 3.7          | 67.1         | 46.3               | 73.9              | 27.6           | 108            | 207             |        |
| Vert.    | 11650.0            | AV       | 38.1              | 39.9               | -0.1         | 37.8         | 49.6               | 53.9              | 4.3            | 159            | 303             |        |
| Vert.    | 23300.0            | AV       | 39.2              | 40.1               | -2.2         | 47.3         | 29.8               | 53.9              | 24.1           | 100            | 117             |        |
| Vert.    | 29125.0            | AV       | 54.1              | 43.4               | 3.7          | 67.1         | 34.1               | 53.9              | 19.8           | 108            | 207             |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor: 13GHz-40GHz 20log(3.0m/1.0m)= 9.5dB

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 5825.000           | PK       | 88.7              | 33.1                    | 16.0         | 37.8         | 100                | -                 | -              | Carrier |
| Hori.    | 5850.000           | PK       | 45.1              | 33.1                    | 16.1         | 37.8         | 56.5               | 80.0              | 23.5           |         |
| Hori.    | 7766.666           | PK       | 46.7              | 37.5                    | 7.5          | 38.3         | 53.4               | 80.0              | 26.6           |         |
| Hori.    | 17475.000          | PK       | 40.1              | 44.2                    | 2.2          | 37.7         | 48.8               | 80.0              | 31.2           |         |
| Vert.    | 5825.000           | PK       | 83.2              | 33.1                    | 16.0         | 37.8         | 94.5               | -                 | -              | Carrier |
| Vert.    | 5850.000           | PK       | 42.2              | 33.1                    | 16.1         | 37.8         | 53.6               | 74.5              | 20.9           |         |
| Vert.    | 7766.666           | PK       | 44.4              | 37.5                    | 7.5          | 38.3         | 51.1               | 74.5              | 23.4           |         |
| Vert.    | 17475.000          | PK       | 38.5              | 44.2                    | 2.2          | 37.7         | 47.2               | 74.5              | 27.3           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

**UL Japan, Inc.**

**Shonan EMC Lab.**

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Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

## Radiated Emission

|                        |                                                           |                             |                            |
|------------------------|-----------------------------------------------------------|-----------------------------|----------------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.                            | No.3 Semi Anechoic Chamber, | No.1 Semi Anechoic Chamber |
| Date                   | May 17, 2011      May 19, 2011                            | May 20, 2011                | May 23, 2011               |
| Temperature / Humidity | 27deg.C/43%RH    26deg.C/40%RH                            | 25deg.C/47%RH               | 24deg.C/51%RH              |
| Engineer               | Akio Hayashi      Akio Hayashi                            | Akio Hayashi                | Hikaru Shirasawa           |
| Mode                   | Tx,                      5755 MHz                         |                             |                            |
|                        | Tx, IEEE802.11n (40HT),(W58), PN9, worst data mode 5(MCS) |                             |                            |

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 934.9              | QP       | 21.1              | 22.2               | 10.2         | 31.1         | 22.4               | 46.0              | 23.6           | 100            | 108             |        |
| Hori.    | 7673.3             | PK       | 46.6              | 37.3               | 7.4          | 38.3         | 53.0               | 73.9              | 20.9           | 102            | 302             |        |
| Hori.    | 11490.0            | PK       | 45.0              | 40.2               | 9.3          | 37.7         | 56.8               | 73.9              | 17.1           | 144            | 58              |        |
| Hori.    | 23020.0            | PK       | 50.8              | 40.1               | -2.2         | 47.5         | 41.2               | 73.9              | 32.7           | 100            | 53              |        |
| Hori.    | 28775.0            | PK       | 59.9              | 43.5               | 3.6          | 67.0         | 40.0               | 73.9              | 33.9           | 100            | 74              |        |
| Hori.    | 7673.3             | AV       | 38.5              | 37.3               | 7.4          | 38.3         | 44.9               | 53.9              | 9.0            | 102            | 302             |        |
| Hori.    | 11490.0            | AV       | 33.7              | 40.2               | 9.3          | 37.7         | 45.5               | 53.9              | 8.4            | 144            | 58              |        |
| Hori.    | 23020.0            | AV       | 37.7              | 40.1               | -2.2         | 47.5         | 28.1               | 53.9              | 25.8           | 100            | 53              |        |
| Hori.    | 28775.0            | AV       | 50.9              | 43.5               | 3.6          | 67.0         | 31.0               | 53.9              | 22.9           | 100            | 74              |        |
| Vert.    | 919.5              | QP       | 21.2              | 22.1               | 10.1         | 31.2         | 22.2               | 46.0              | 23.8           | 100            | 62              |        |
| Vert.    | 7673.3             | PK       | 48.0              | 37.3               | 7.4          | 38.3         | 54.4               | 73.9              | 19.5           | 161            | 356             |        |
| Vert.    | 11490.0            | PK       | 44.1              | 40.2               | 9.3          | 37.7         | 55.9               | 73.9              | 18.0           | 162            | 301             |        |
| Vert.    | 23020.0            | PK       | 50.1              | 40.1               | -2.2         | 47.5         | 40.5               | 73.9              | 33.4           | 100            | 119             |        |
| Vert.    | 28775.0            | PK       | 56.6              | 43.5               | 3.6          | 67.0         | 36.7               | 73.9              | 37.2           | 100            | 0               |        |
| Vert.    | 7673.3             | AV       | 42.4              | 37.3               | 7.4          | 38.3         | 48.8               | 53.9              | 5.1            | 161            | 356             |        |
| Vert.    | 11490.0            | AV       | 33.6              | 40.2               | 9.3          | 37.7         | 45.4               | 53.9              | 8.5            | 162            | 301             |        |
| Vert.    | 23020.0            | AV       | 37.4              | 40.1               | -2.2         | 47.5         | 27.8               | 53.9              | 26.1           | 100            | 119             |        |
| Vert.    | 28775.0            | AV       | 47.3              | 43.5               | 3.6          | 67.0         | 27.4               | 53.9              | 26.5           | 100            | 0               |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:            13GHz-40GHz             $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 5755.000           | PK       | 83.5              | 32.9                    | 16.0         | 37.7         | 94.7               | -                 | -              | Carrier |
| Hori.    | 5725.000           | PK       | 49.2              | 32.9                    | 16.0         | 37.6         | 60.5               | 74.7              | 14.2           |         |
| Hori.    | 17265.000          | PK       | 36.6              | 42.4                    | 2.2          | 37.6         | 43.6               | 74.7              | 31.1           |         |
| Vert.    | 5755.000           | PK       | 82.5              | 32.9                    | 16.0         | 37.7         | 93.7               | -                 | -              | Carrier |
| Vert.    | 5725.000           | PK       | 48.3              | 32.9                    | 16.0         | 37.6         | 59.6               | 73.7              | 14.1           |         |
| Vert.    | 17265.000          | PK       | 34.5              | 42.4                    | 2.2          | 37.6         | 41.5               | 73.7              | 32.2           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

## Radiated Emission

|                        |                                                           |                            |                            |
|------------------------|-----------------------------------------------------------|----------------------------|----------------------------|
| Test place             | UL Japan, Inc. Shonan EMC Lab.                            | No.3 Semi Anechoic Chamber | No.1 Semi Anechoic Chamber |
| Date                   | May 17, 2011      May 19, 2011                            | May 20, 2011               | May 23, 2011               |
| Temperature / Humidity | 27deg.C/43%RH    26deg.C/40%RH                            | 25deg.C/47%RH              | 24deg.C/51%RH              |
| Engineer               | Akio Hayashi      Akio Hayashi                            | Akio Hayashi               | Hikaru Shirasawa           |
| Mode                   | Tx,                      5795 MHz                         |                            |                            |
|                        | Tx, IEEE802.11n (40HT),(W58), PN9, worst data mode 5(MCS) |                            |                            |

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant.Fac.<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[deg.] | Remark |
|----------|--------------------|----------|-------------------|--------------------|--------------|--------------|--------------------|-------------------|----------------|----------------|-----------------|--------|
| Hori.    | 932.0              | QP       | 20.9              | 22.2               | 10.2         | 31.1         | 22.2               | 46.0              | 23.8           | 100            | 272             |        |
| Hori.    | 7726.7             | PK       | 47.3              | 37.4               | 7.5          | 38.3         | 53.9               | 73.9              | 20.0           | 102            | 239             |        |
| Hori.    | 11590.0            | PK       | 44.9              | 40.0               | 9.4          | 37.7         | 56.6               | 73.9              | 17.3           | 113            | 43              |        |
| Hori.    | 23180.0            | PK       | 51.7              | 40.1               | -2.2         | 47.4         | 42.2               | 73.9              | 31.7           | 100            | 58              |        |
| Hori.    | 28975.0            | PK       | 61.6              | 43.4               | 3.6          | 67.0         | 41.6               | 73.9              | 32.3           | 100            | 55              |        |
| Hori.    | 7726.7             | AV       | 39.3              | 37.4               | 7.5          | 38.3         | 45.9               | 53.9              | 8.0            | 102            | 239             |        |
| Hori.    | 11590.0            | AV       | 34.3              | 40.0               | 9.4          | 37.7         | 46.0               | 53.9              | 7.9            | 113            | 43              |        |
| Hori.    | 23180.0            | AV       | 38.4              | 40.1               | -2.2         | 47.4         | 28.9               | 53.9              | 25.0           | 100            | 58              |        |
| Hori.    | 28975.0            | AV       | 52.4              | 43.4               | 3.6          | 67.0         | 32.4               | 53.9              | 21.5           | 100            | 55              |        |
| Vert.    | 919.4              | QP       | 21.1              | 22.1               | 10.1         | 31.2         | 22.1               | 46.0              | 23.9           | 100            | 0               |        |
| Vert.    | 7726.7             | PK       | 49.8              | 37.4               | 7.5          | 38.3         | 56.4               | 73.9              | 17.5           | 161            | 1               |        |
| Vert.    | 11590.0            | PK       | 45.9              | 40.0               | 9.4          | 37.7         | 57.6               | 73.9              | 16.3           | 153            | 311             |        |
| Vert.    | 23180.0            | PK       | 49.1              | 40.1               | -2.2         | 47.4         | 39.6               | 73.9              | 34.3           | 100            | 121             |        |
| Vert.    | 28975.0            | PK       | 58.9              | 43.4               | 3.6          | 67.0         | 38.9               | 73.9              | 35.0           | 100            | 0               |        |
| Vert.    | 7726.7             | AV       | 43.7              | 37.4               | 7.5          | 38.3         | 50.3               | 53.9              | 3.6            | 161            | 1               |        |
| Vert.    | 11590.0            | AV       | 35.1              | 40.0               | 9.4          | 37.7         | 46.8               | 53.9              | 7.1            | 153            | 311             |        |
| Vert.    | 23180.0            | AV       | 37.7              | 40.1               | -2.2         | 47.4         | 28.2               | 53.9              | 25.7           | 100            | 121             |        |
| Vert.    | 28975.0            | AV       | 50.4              | 43.4               | 3.6          | 67.0         | 30.4               | 53.9              | 23.5           | 100            | 0               |        |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

\*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).

\*The 10th harmonic was not seen so the result was its base noise level.

Distance factor:            13GHz-40GHz             $20\log(3.0\text{m}/1.0\text{m}) = 9.5\text{dB}$ 

### 20dBc Data Sheet (RBW 100kHz, VBW 300kHz)

| Polarity | Frequency<br>[MHz] | Detector | Reading<br>[dBuV] | Ant<br>Factor<br>[dB/m] | Loss<br>[dB] | Gain<br>[dB] | Result<br>[dBuV/m] | Limit<br>[dBuV/m] | Margin<br>[dB] | Remark  |
|----------|--------------------|----------|-------------------|-------------------------|--------------|--------------|--------------------|-------------------|----------------|---------|
| Hori.    | 5795.000           | PK       | 86.5              | 33.0                    | 16.0         | 37.7         | 97.8               | -                 | -              | Carrier |
| Hori.    | 5850.000           | PK       | 39.8              | 33.1                    | 16.1         | 37.8         | 51.2               | 77.8              | 26.6           |         |
| Hori.    | 17385.000          | PK       | 35.7              | 43.5                    | 2.2          | 37.7         | 43.7               | 77.8              | 34.1           |         |
| Vert.    | 5795.000           | PK       | 81.8              | 33.0                    | 16.0         | 37.7         | 93.1               | -                 | -              | Carrier |
| Vert.    | 5850.000           | PK       | 37.2              | 33.1                    | 16.1         | 37.8         | 48.6               | 73.1              | 24.5           |         |
| Vert.    | 17385.000          | PK       | 35.2              | 43.5                    | 2.2          | 37.7         | 43.2               | 73.1              | 29.9           |         |

Result = Reading + Ant Factor + Loss (Cable+Attenuator+Filter-Distance factor(above 13GHz)) - Gain(Amplifier)

**UL Japan, Inc.**  
**Shonan EMC Lab.**

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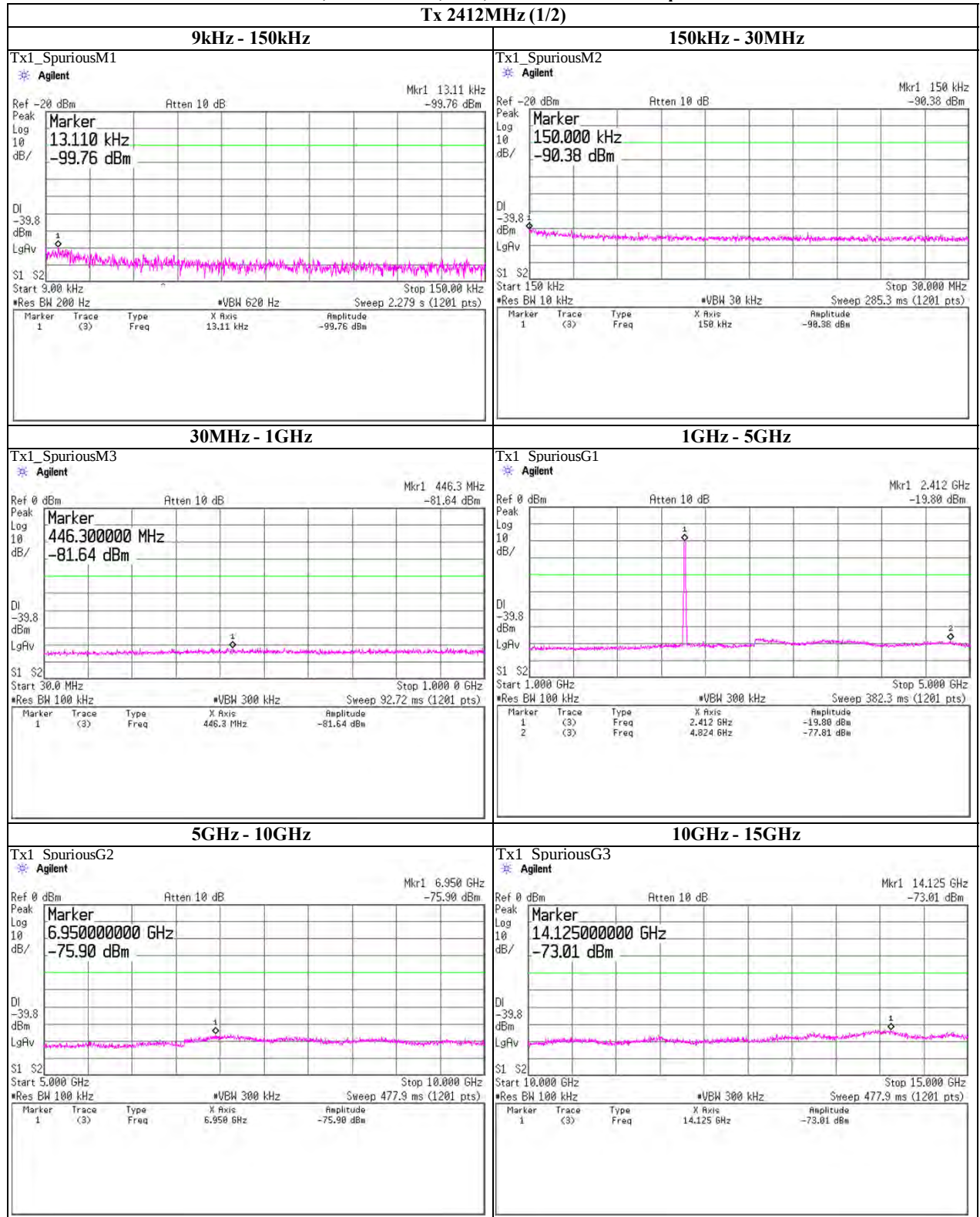
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

**Spurious emission (Conducted)**

Tx, IEEE802.11b, PN9, worst data mode 2Mbps

Tx 2412MHz (1/2)

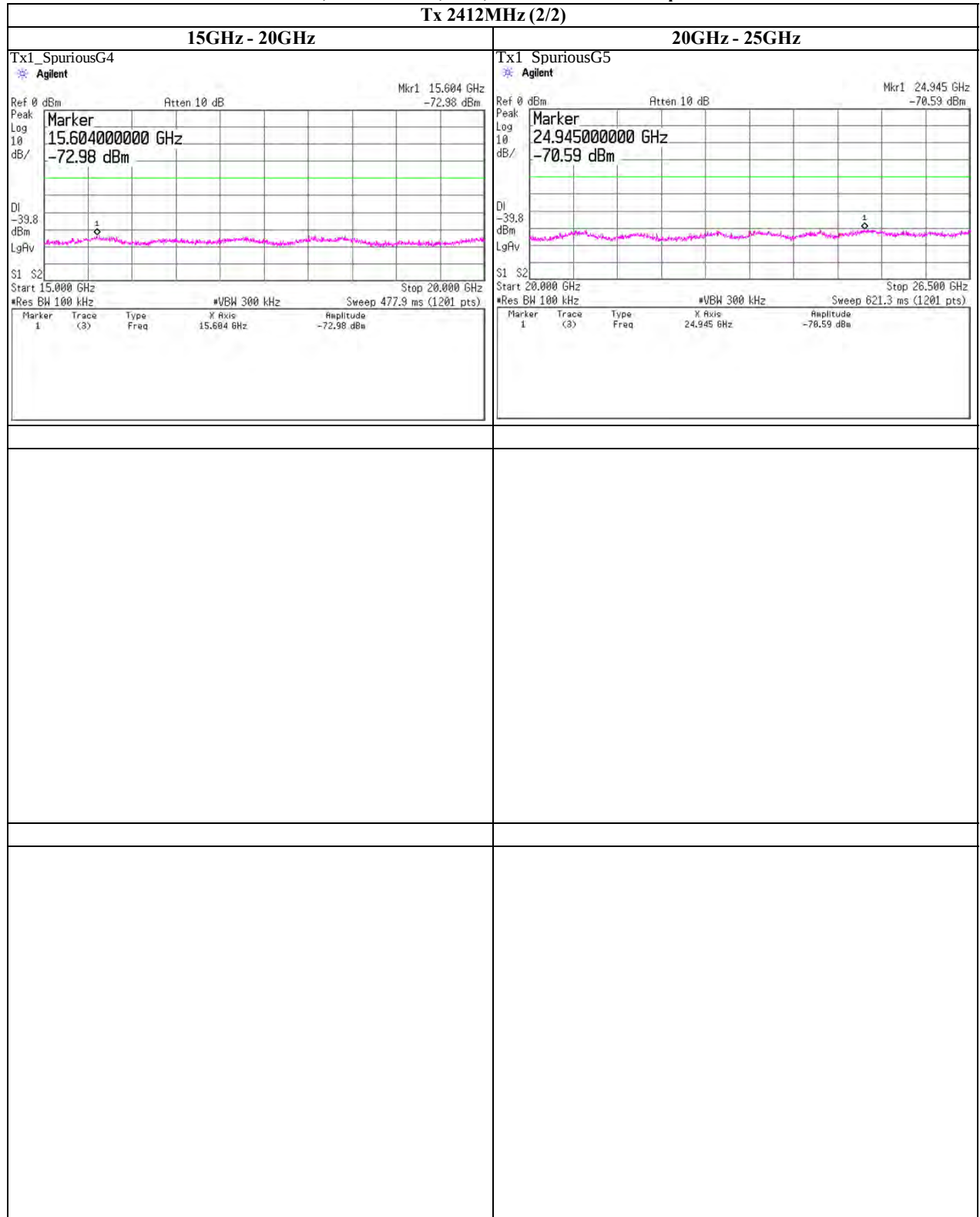
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**Spurious emission (Conducted)**  
**Tx, IEEE802.11b, PN9, worst data mode 2Mbps**



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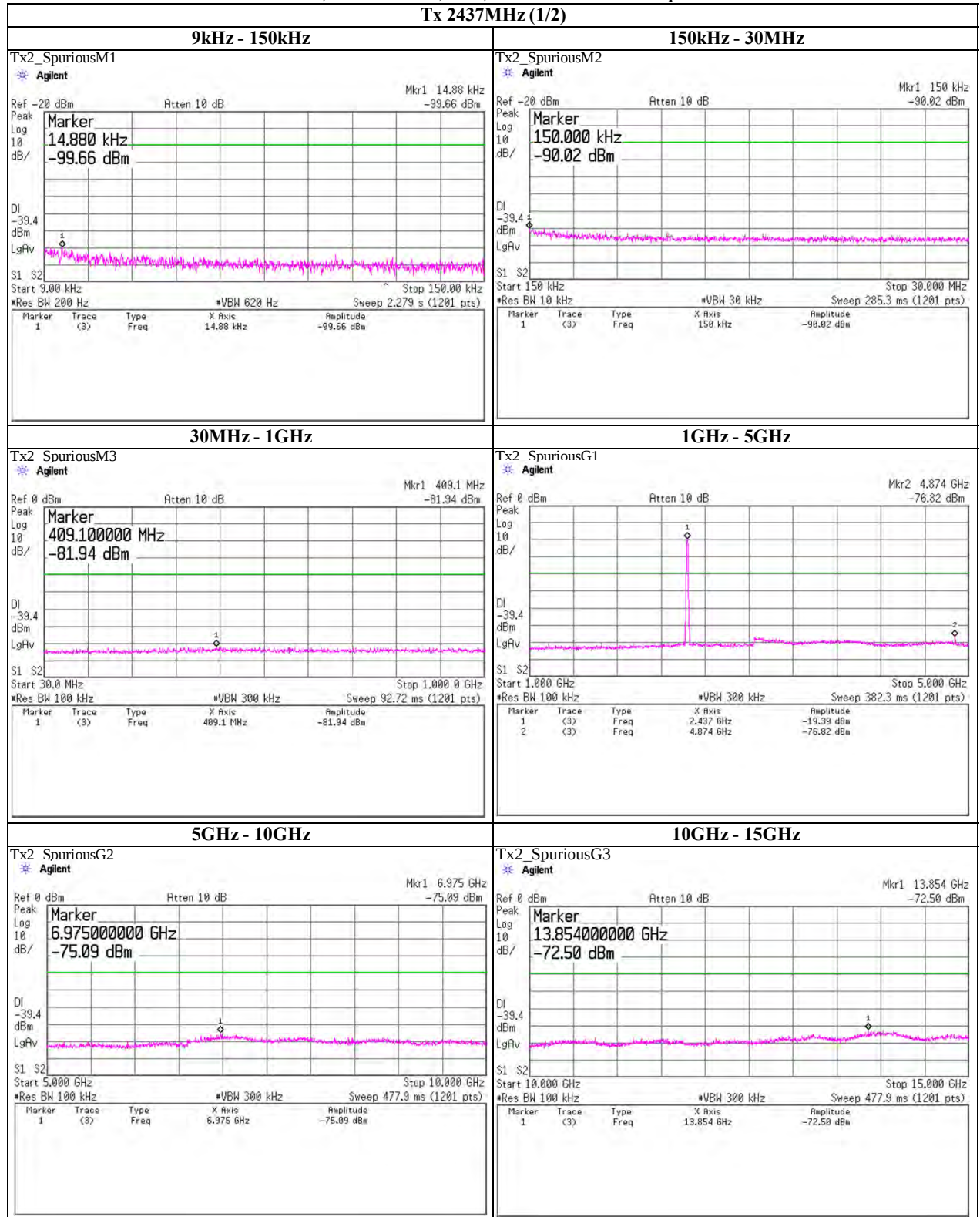
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**Spurious emission (Conducted)**

Tx, IEEE802.11b, PN9, worst data mode 2Mbps

Tx 2437MHz (1/2)

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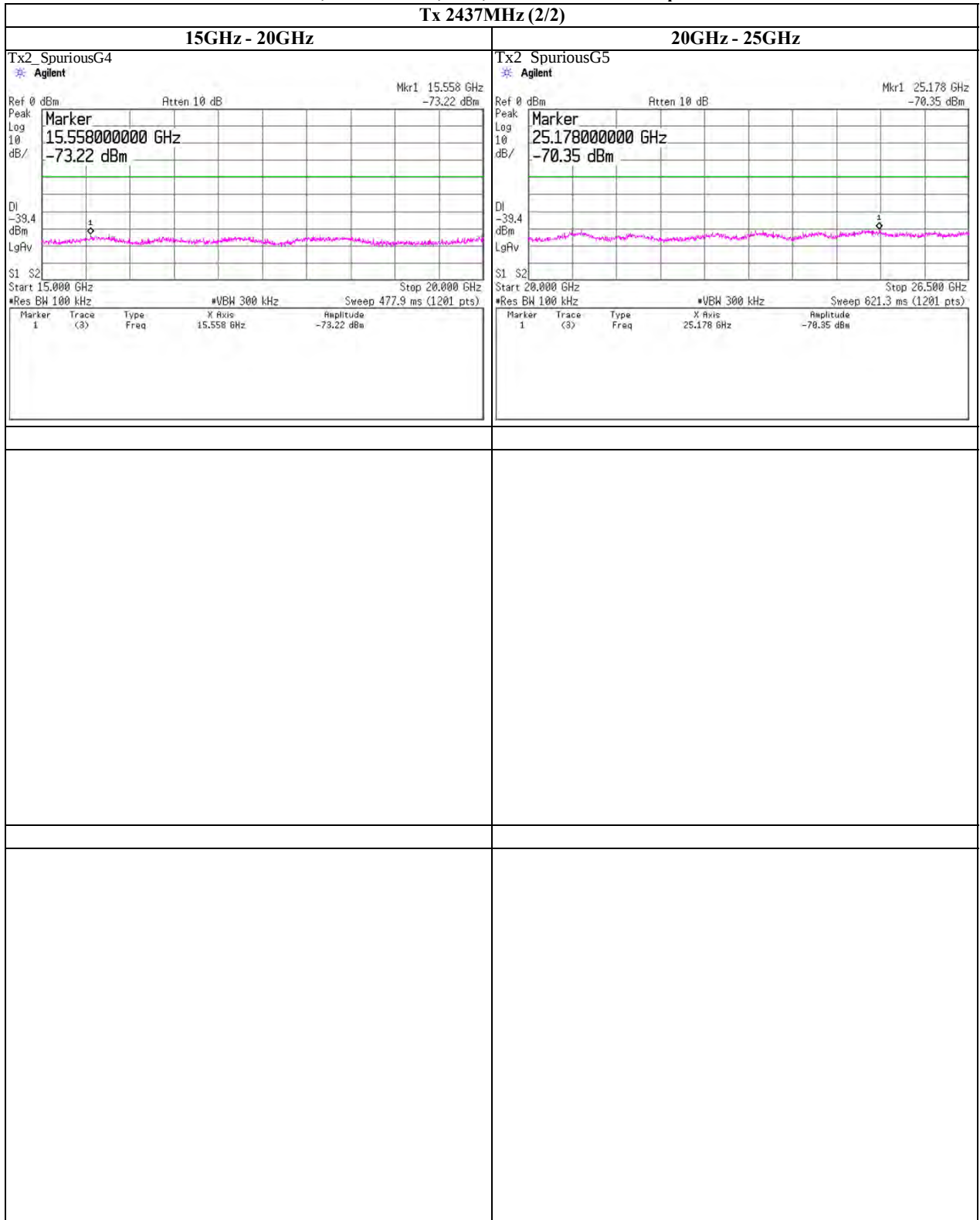
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Facsimile : +81 463 50 6401

**Spurious emission (Conducted)**

Tx, IEEE802.11b, PN9, worst data mode 2Mbps

Tx 2437MHz (2/2)

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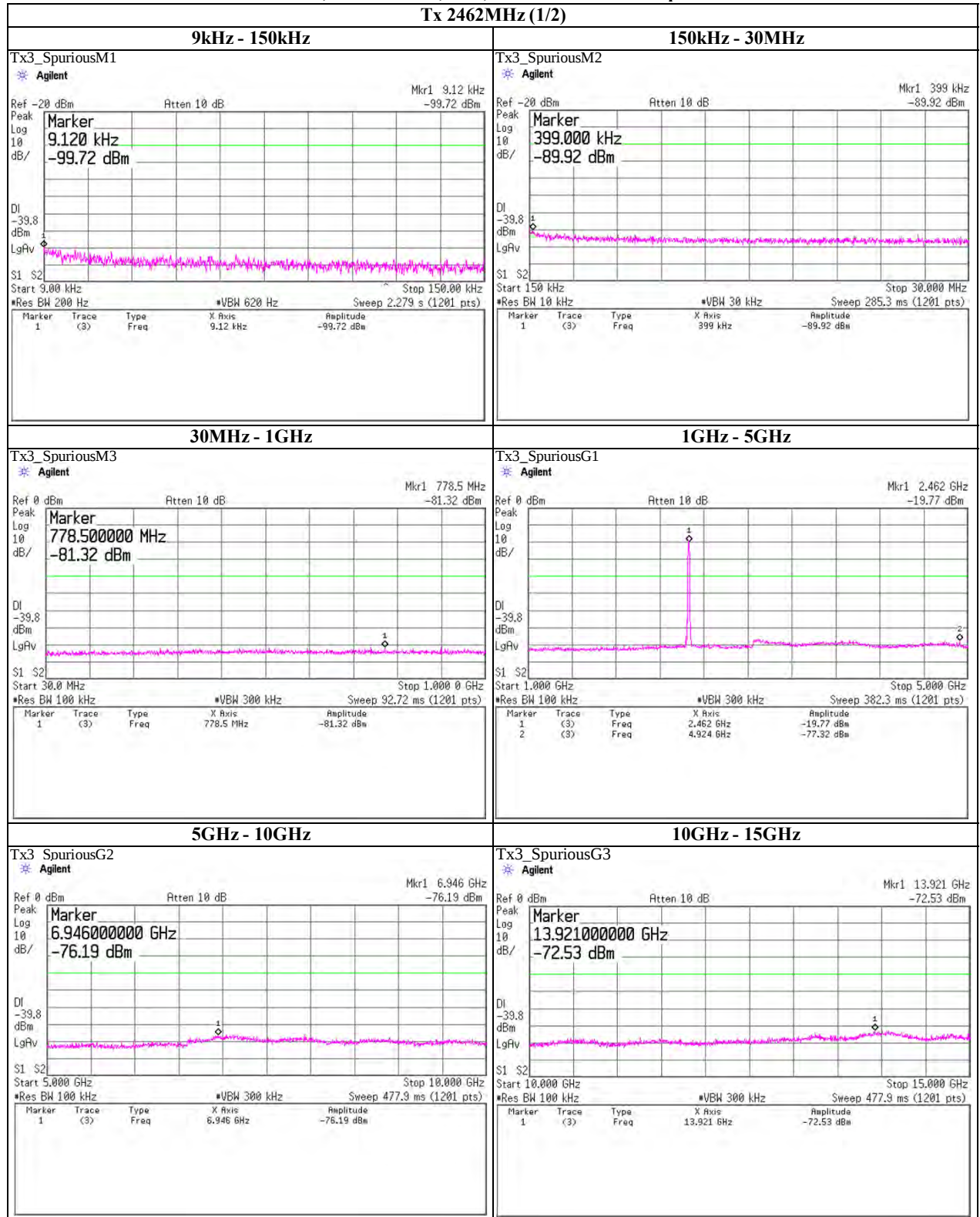
Telephone : +81 463 50 6400

Facsimile : +81 463 50 6401

**Spurious emission (Conducted)**

Tx, IEEE802.11b, PN9, worst data mode 2Mbps

Tx 2462MHz (1/2)

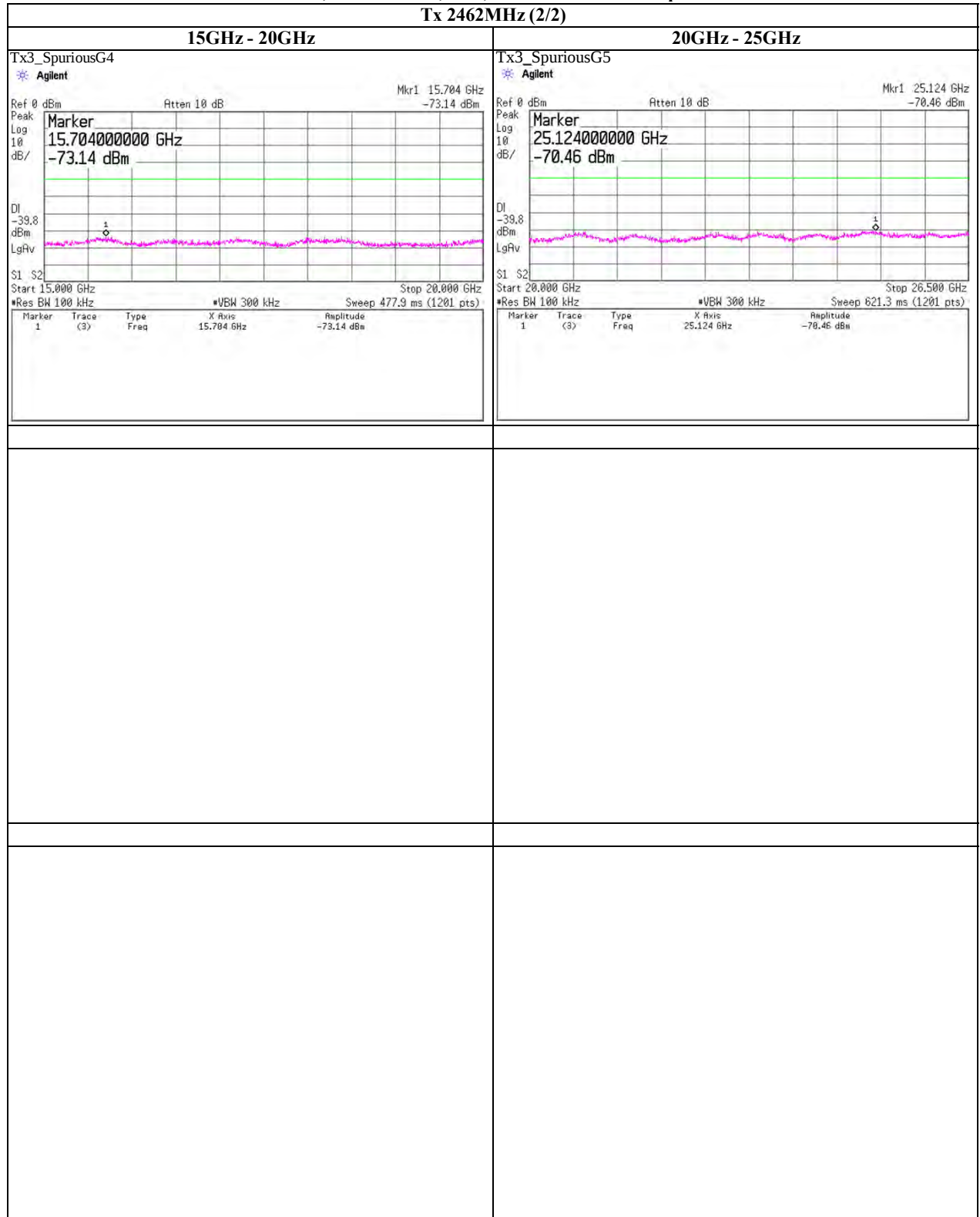
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**Spurious emission (Conducted)**  
**Tx, IEEE802.11b, PN9, worst data mode 2Mbps**



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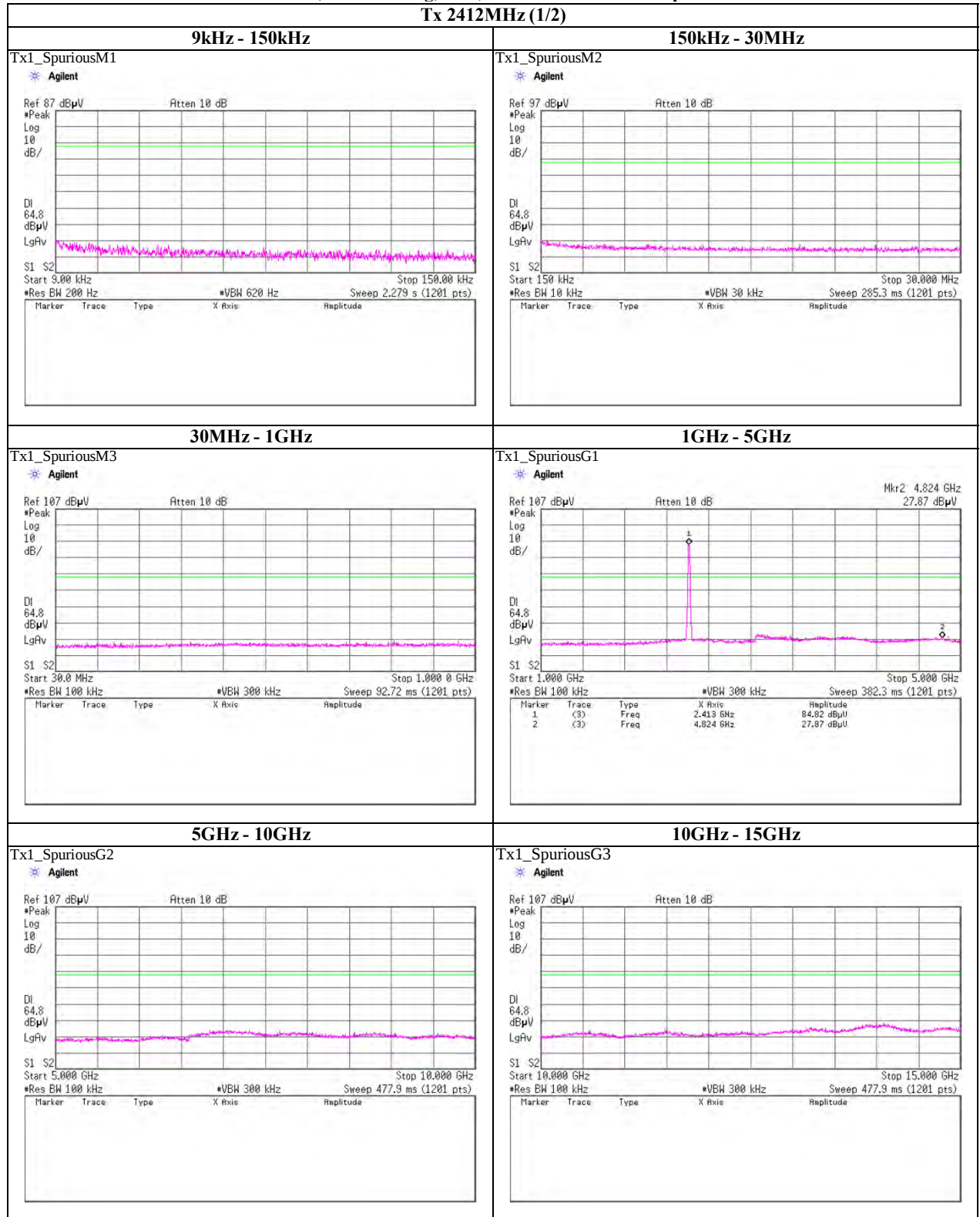
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## Spurious emission (Conducted)

Tx, IEEE802.11g, PN9, worst data mode 24Mbps

Tx 2412MHz (1/2)



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**Spurious emission (Conducted)****Tx, IEEE802.11g, PN9, worst data mode 24Mbps****Tx 2412MHz (2/2)****UL Japan, Inc.****Shonan EMC Lab.**

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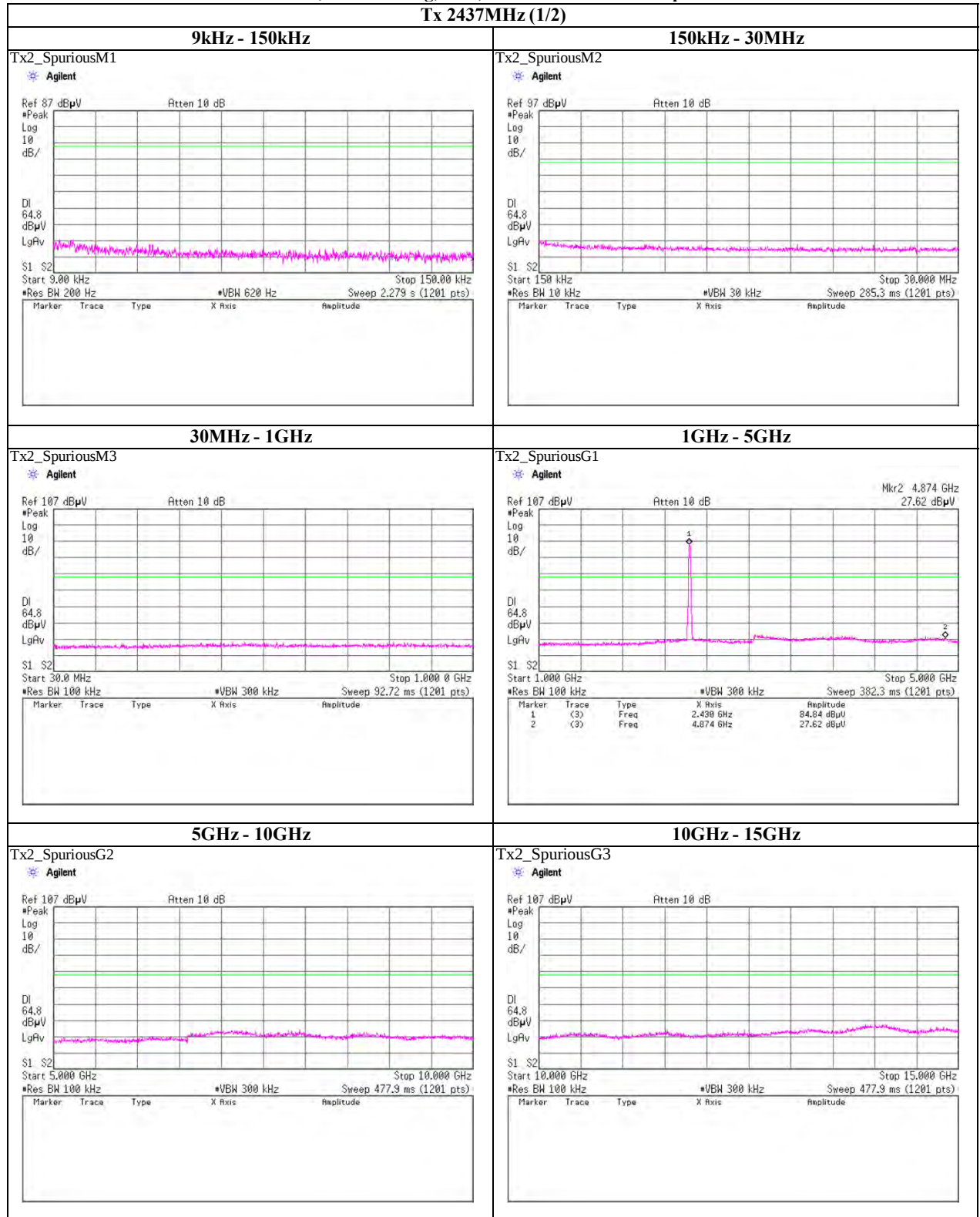
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## Spurious emission (Conducted)

**Tx, IEEE802.11g, PN9, worst data mode 24Mbps**

Tx 2437MHz (1/2)



UL Japan, Inc.

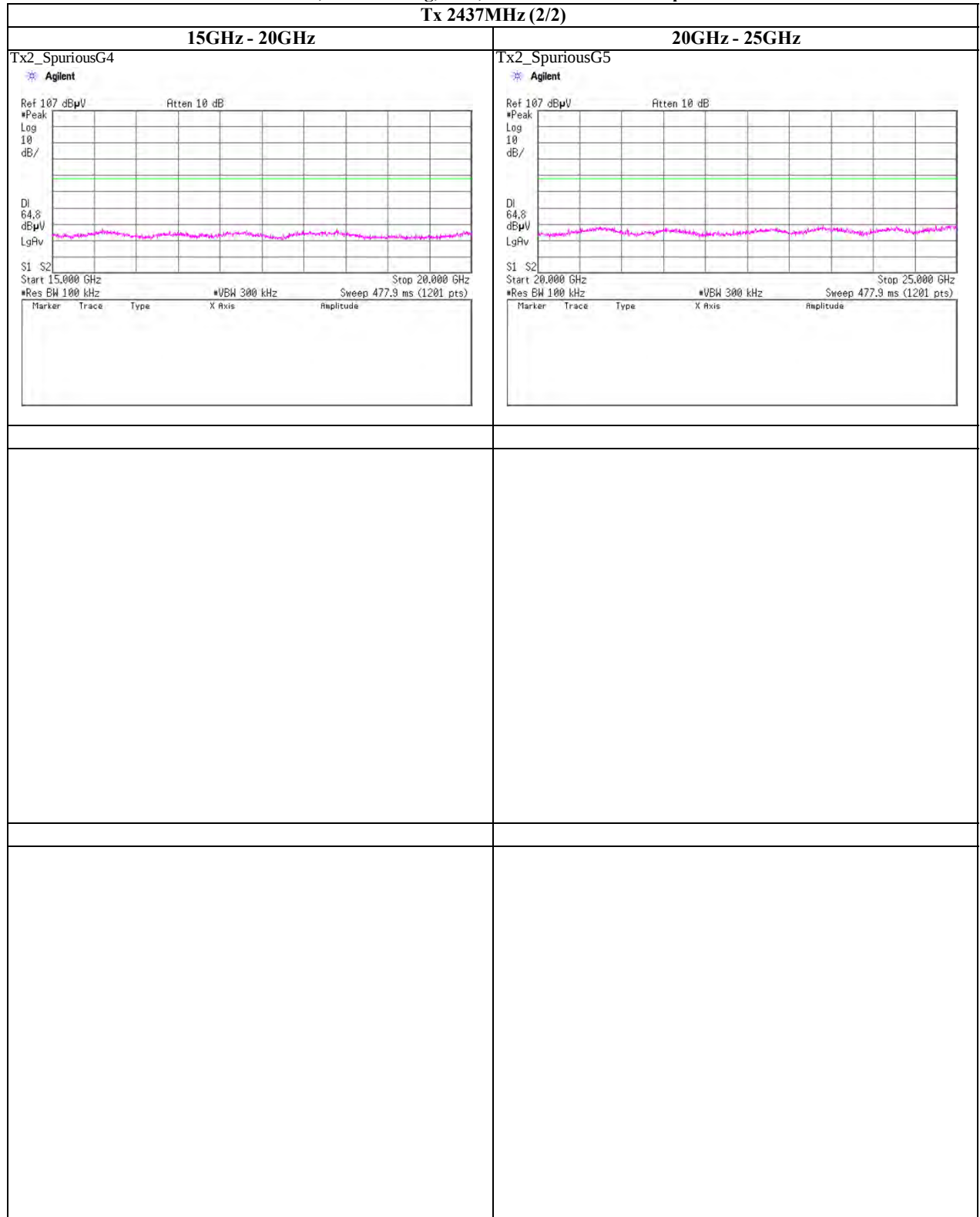
Shonan EMC Lab.

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**Spurious emission (Conducted)**  
**Tx, IEEE802.11g, PN9, worst data mode 24Mbps**



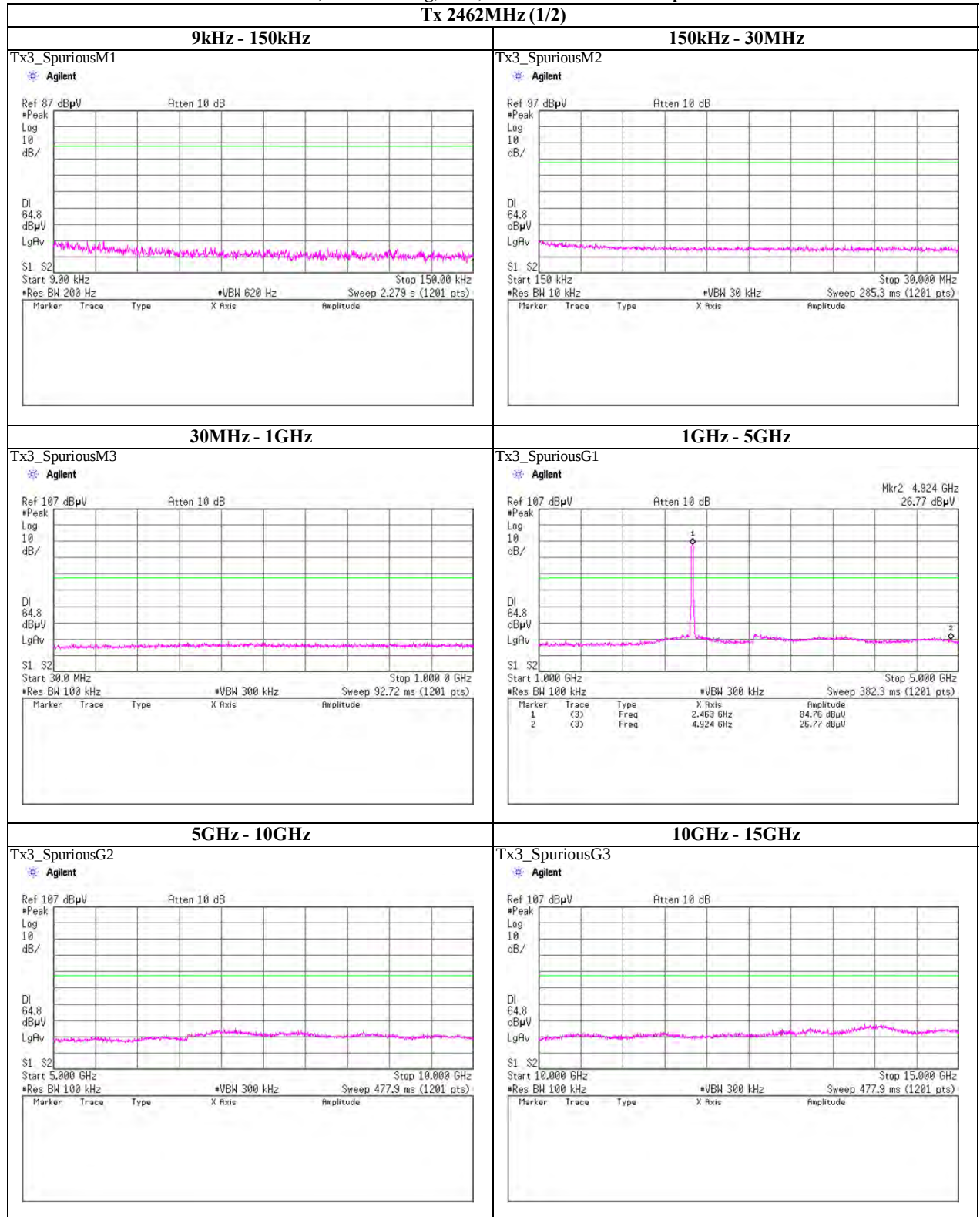
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**Spurious emission (Conducted)****Tx, IEEE802.11g, PN9, worst data mode 24Mbps****Tx 2462MHz (1/2)****UL Japan, Inc.****Shonan EMC Lab.****1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN****Telephone : +81 463 50 6400****Facsimile : +81 463 50 6401**

**Spurious emission (Conducted)**  
**Tx, IEEE802.11g, PN9, worst data mode 24Mbps**



**UL Japan, Inc.**

**Shonan EMC Lab.**

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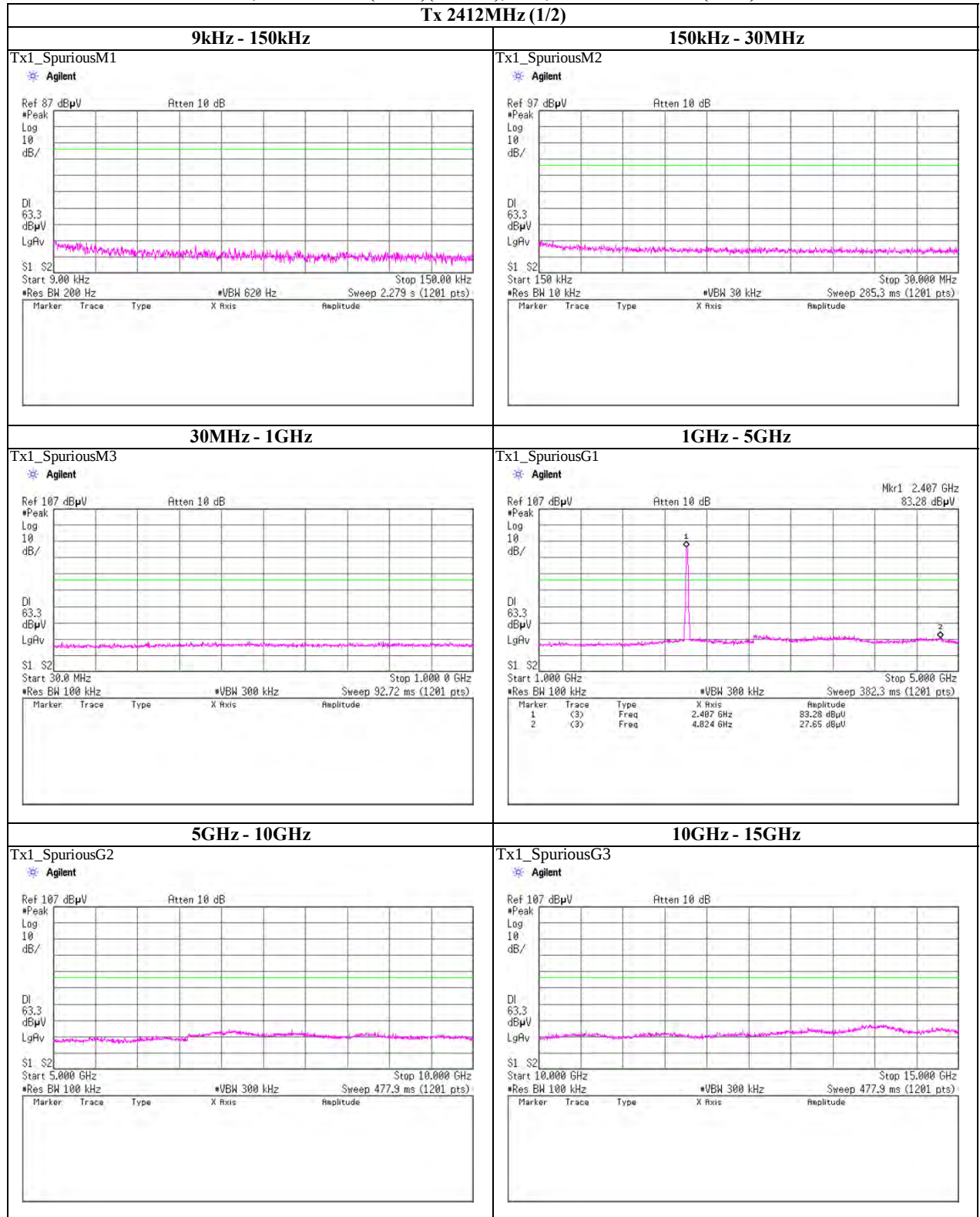
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**Spurious emission (Conducted)**

Tx, IEEE802.11n(20HT)(2.4GHz), PN9, worst data mode 3(MCS)

Tx 2412MHz (1/2)

**UL Japan, Inc.****Shonan EMC Lab.**

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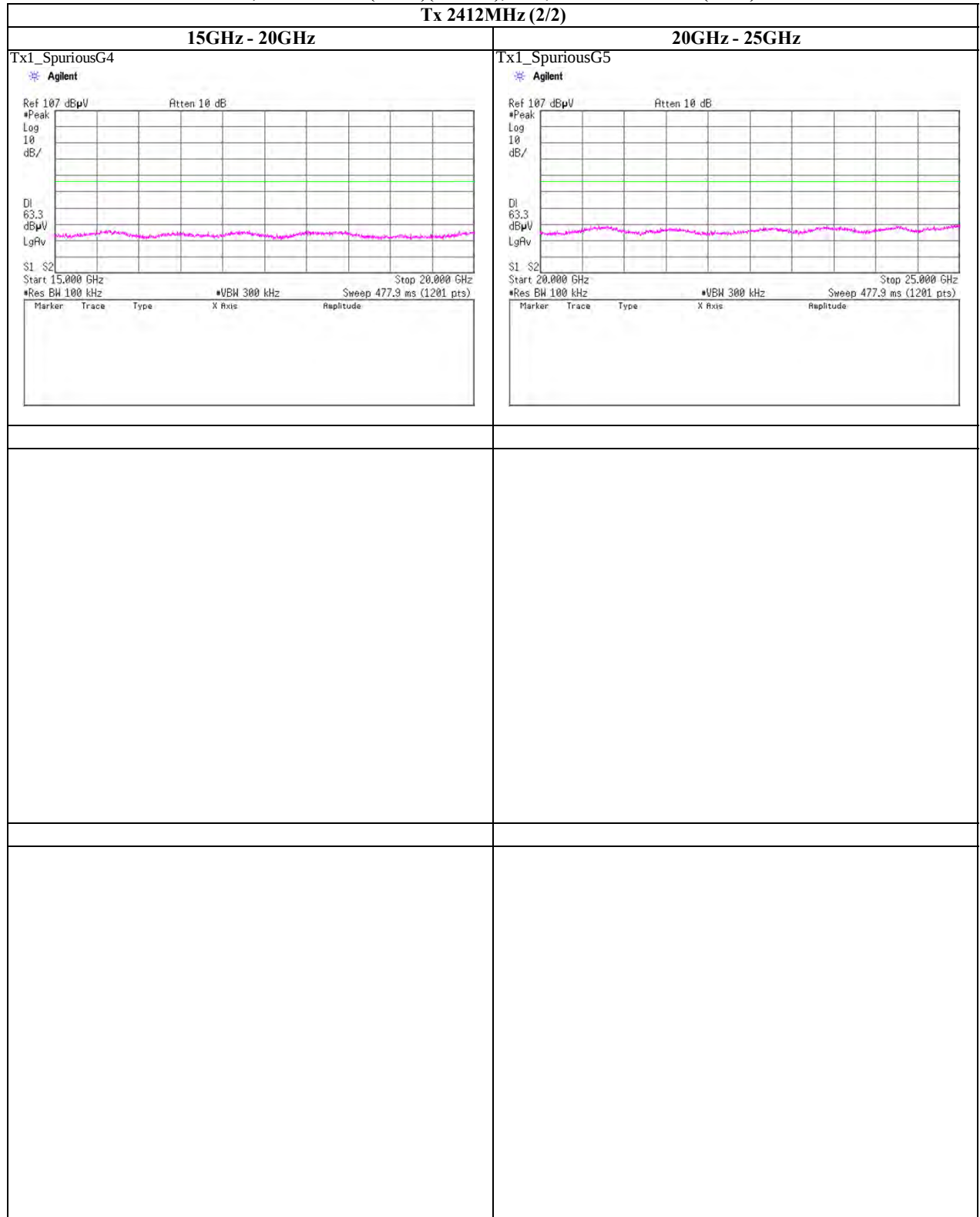
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Facsimile : +81 463 50 6401

**Spurious emission (Conducted)**

Tx, IEEE802.11n(20HT)(2.4GHz), PN9, worst data mode 3(MCS)

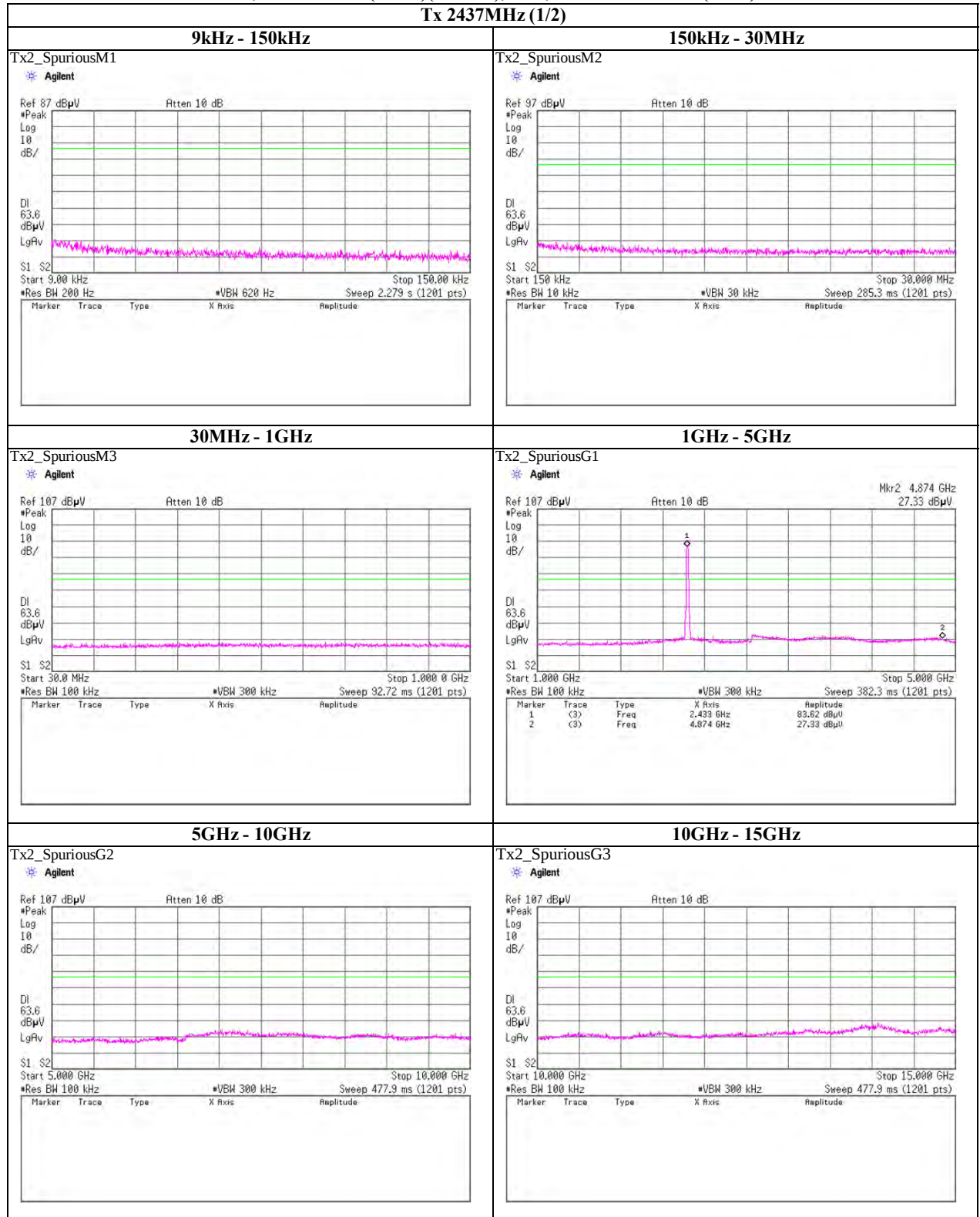
Tx 2412MHz (2/2)

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Telephone : +81 463 50 6400

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**Spurious emission (Conducted)****Tx, IEEE802.11n(20HT)(2.4GHz), PN9, worst data mode 3(MCS)****Tx 2437MHz (1/2)****UL Japan, Inc.****Shonan EMC Lab.****1-22-3 Megumigaoka, Hiratsuka-shi, Kanagawa 259-1220 JAPAN****Telephone : +81 463 50 6400****Facsimile : +81 463 50 6401**

**Spurious emission (Conducted)**

Tx, IEEE802.11n(20HT)(2.4GHz), PN9, worst data mode 3(MCS)

Tx 2437MHz (2/2)

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