

APPENDIX 2: Data of EMI test

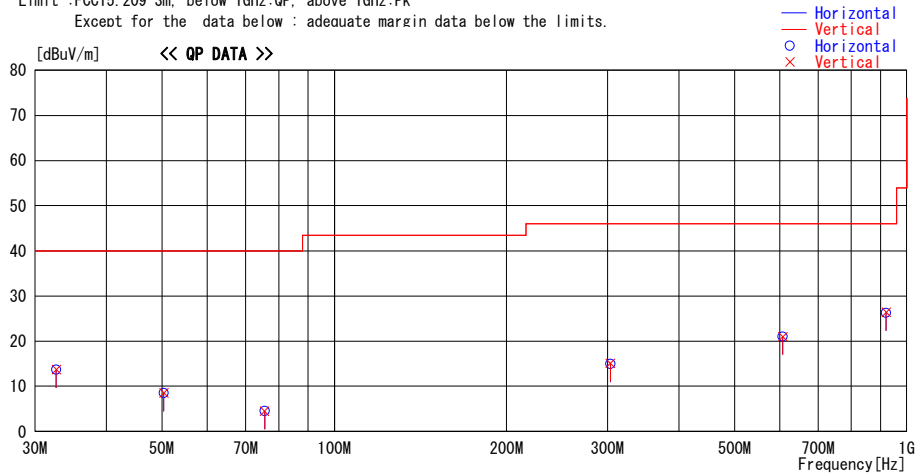
Radiated Emission Variation No. 3

DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber

Report No. : 30KE0045-HO-02
Temp. / Humi. : 24deg.C / 39%
Engineer : Tomohisa Nakagawa

Mode / Remarks: RKES Receiving mode (314.35MHz) Worst Axis (Hori:X, Vert:X)
Limit : FCC15.209 3m, below 1GHz:QP, above 1GHz:Pk
Except for the data below : adequate margin data below the limits.



Frequency	Reading	DET	Antenna Factor	Loss & Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
32.700	22.0	QP	16.8	-25.1	13.7	0	100	Hori.	40.0	26.3	
32.700	22.0	QP	16.8	-25.1	13.7	0	100	Vert.	40.0	26.3	
50.400	22.4	QP	10.8	-24.7	8.5	0	100	Hori.	40.0	31.5	
50.400	22.4	QP	10.8	-24.7	8.5	0	100	Vert.	40.0	31.5	
75.600	22.4	QP	6.5	-24.4	4.5	0	100	Hori.	40.0	35.5	
75.600	22.4	QP	6.5	-24.4	4.5	0	100	Vert.	40.0	35.5	
303.450	21.5	QP	15.3	-21.8	15.0	0	100	Hori.	46.0	31.0	
303.450	21.6	QP	15.3	-21.8	15.1	0	100	Vert.	46.0	30.9	
606.900	21.6	QP	19.5	-20.1	21.0	0	100	Hori.	46.0	25.0	
606.900	21.6	QP	19.5	-20.1	21.0	0	100	Vert.	46.0	25.0	
920.350	21.3	QP	22.4	-17.4	26.3	0	100	Hori.	46.0	19.7	
920.350	21.4	QP	22.4	-17.4	26.4	0	100	Vert.	46.0	19.6	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

*The limit is rounded down to one decimal place.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission Variation No. 3

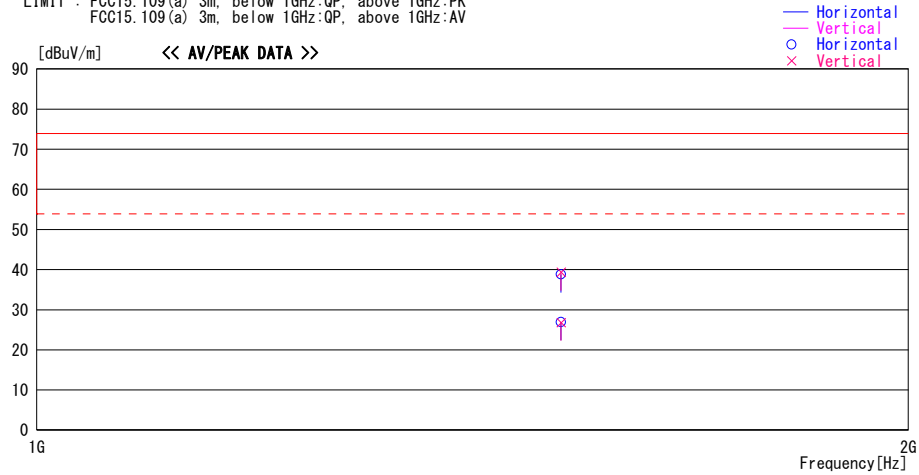
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2010/11/12

Report No. : 30KE0045-HO-02
Temp. / Humi. : 24deg. C / 45%
Engineer : Hiroyuki Furutaka

Mode / Remarks : RKES Receiving mode (314.35MHz) Worst Axis (Hori:X. Vert:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit	Margin	Comment
			Factor [dB/m]	Gain [dB]					[dBuV/m]	[dB]	
1517.250	43.5	PK	26.9	-31.6	38.8	0	100	Hori.	73.9	35.1	
1517.250	44.0	PK	26.9	-31.6	39.3	0	100	Vert.	73.9	34.6	
1517.250	31.6	AV	26.9	-31.6	26.9	0	100	Hori.	53.9	27.0	
1517.250	31.5	AV	26.9	-31.6	26.8	0	100	Vert.	53.9	27.1	

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

*The limit is rounded down to one decimal place.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

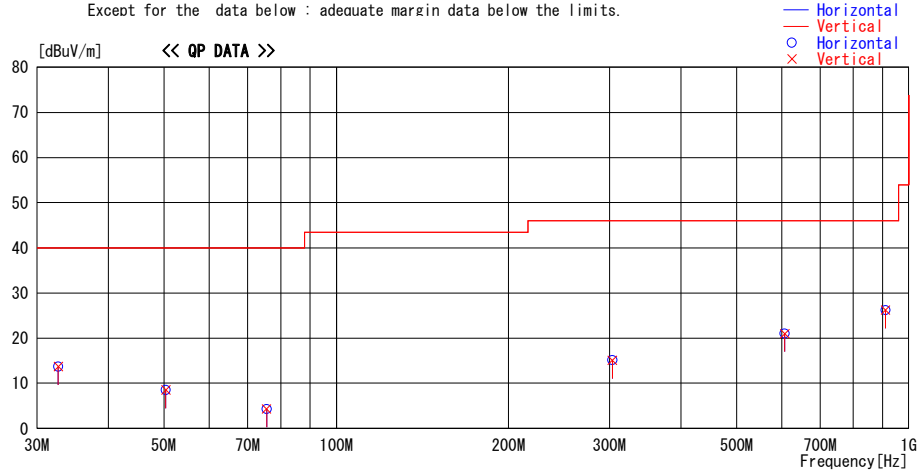
Radiated Emission
Variation No. 1
(Reference data)

DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber

Report No. : 30KE0045-HO-02
Temp. / Humi. : 24deg. C / 39%
Engineer : Tomohisa Nakagawa

Mode / Remarks: RKES Receiving mode (314.35MHz) Worst Axis (Hori:X, Vert:X)
Limit: FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
32.700	22.0	QP	16.8	-25.1	13.7	0	100	Hori.	40.0	26.3	
32.700	22.0	QP	16.8	-25.1	13.7	0	100	Vert.	40.0	26.3	
50.400	22.4	QP	10.8	-24.7	8.5	0	100	Hori.	40.0	31.5	
50.400	22.4	QP	10.8	-24.7	8.5	0	100	Vert.	40.0	31.5	
75.600	22.2	QP	6.5	-24.4	4.3	0	100	Hori.	40.0	35.7	
75.600	22.2	QP	6.5	-24.4	4.3	0	100	Vert.	40.0	35.7	
303.450	21.6	QP	15.3	-21.8	15.1	0	100	Hori.	46.0	30.9	
303.450	21.6	QP	15.3	-21.8	15.1	0	100	Vert.	46.0	30.9	
606.900	21.6	QP	19.5	-20.1	21.0	0	100	Hori.	46.0	25.0	
606.900	21.6	QP	19.5	-20.1	21.0	0	100	Vert.	46.0	25.0	
910.350	21.4	QP	22.3	-17.5	26.2	0	100	Hori.	46.0	19.8	
910.350	21.4	QP	22.3	-17.5	26.2	0	100	Vert.	46.0	19.8	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-:HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

*The limit is rounded down to one decimal place.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission
Variation No. 1
(Reference data)

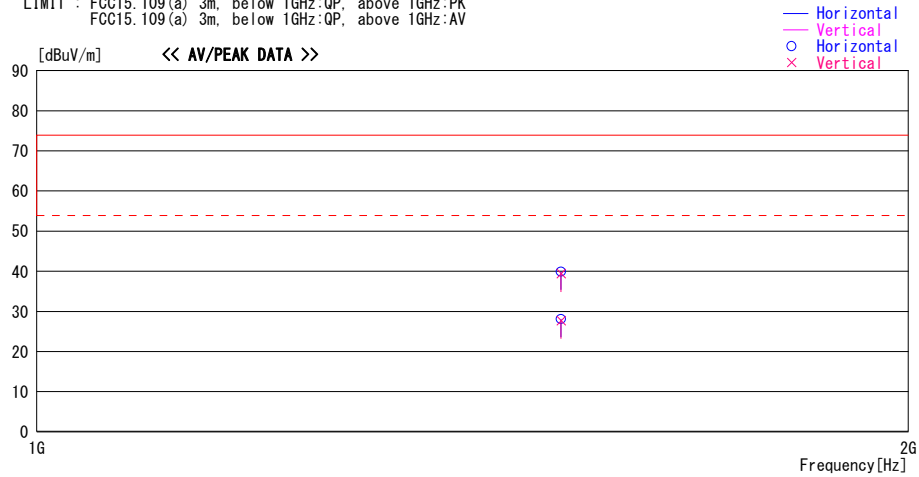
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2010/11/12

Report No. : 30KE0045-HO-02
Temp. / Humi. : 24deg. C / 45%
Engineer : Hiroyuki Furutaka

Mode / Remarks : RKES Receiving mode (314.35MHz) Worst Axis (Hori:X, Vert:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit		Comment
			Factor [dB/m]	Gain [dB]					[dBuV/m]	[dB]	
1517.250	44.6	PK	26.9	-31.6	39.9	0	100	Hori.	73.9	34.0	
1517.250	44.1	PK	26.9	-31.6	39.4	0	100	Vert.	73.9	34.5	
1517.250	32.8	AV	26.9	-31.6	28.1	0	100	Hori.	53.9	25.8	
1517.250	32.4	AV	26.9	-31.6	27.7	0	100	Vert.	53.9	26.2	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

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*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission

Variation No. 5
(Reference data)

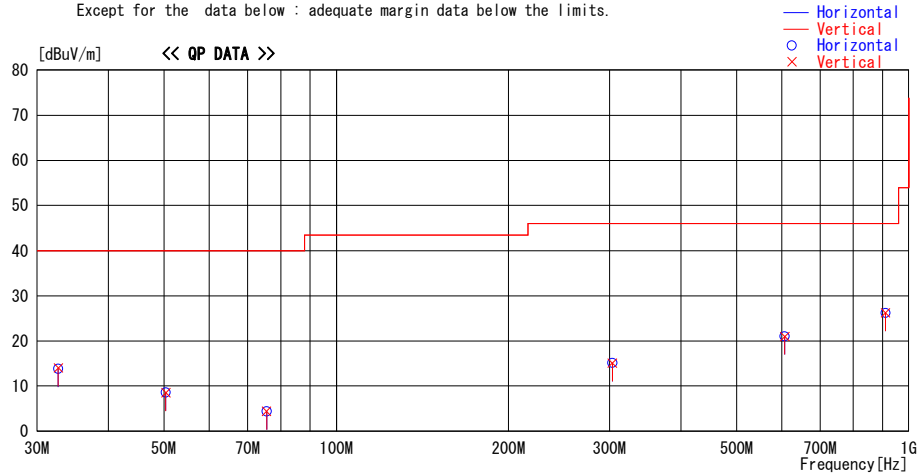
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber

Report No. : 30KE0045-HO-02

Temp. / Humi. : 24deg.C / 39%
Engineer : Tomohisa Nakagawa

Mode / Remarks: RKES Receiving mode (314.35MHz) Worst Axis (Hori:X, Vert:X)
Limit : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit	Margin	Comment
			Factor [dB/m]	Gain [dB]					[dBuV/m]	[dB]	
32.700	22.1	QP	16.8	-25.1	13.8	0	100	Hori.	40.0	26.2	
32.700	22.3	QP	16.8	-25.1	14.0	0	100	Vert.	40.0	26.0	
50.400	22.5	QP	10.8	-24.7	8.6	0	100	Hori.	40.0	31.4	
50.400	22.4	QP	10.8	-24.7	8.5	0	100	Vert.	40.0	31.5	
75.600	22.3	QP	6.5	-24.4	4.4	0	100	Hori.	40.0	35.6	
75.600	22.3	QP	6.5	-24.4	4.4	0	100	Vert.	40.0	35.6	
303.450	21.6	QP	15.3	-21.8	15.1	0	100	Hori.	46.0	30.9	
303.450	21.6	QP	15.3	-21.8	15.1	0	100	Vert.	46.0	30.9	
606.900	21.6	QP	19.5	-20.1	21.0	0	100	Hori.	46.0	25.0	
606.900	21.6	QP	19.5	-20.1	21.0	0	100	Vert.	46.0	25.0	
910.350	21.4	QP	22.3	-17.5	26.2	0	100	Hori.	46.0	19.8	
910.350	21.4	QP	22.3	-17.5	26.2	0	100	Vert.	46.0	19.8	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

Radiated Emission

Variation No. 5
(Reference data)

DATA OF RADIATED EMISSION TEST

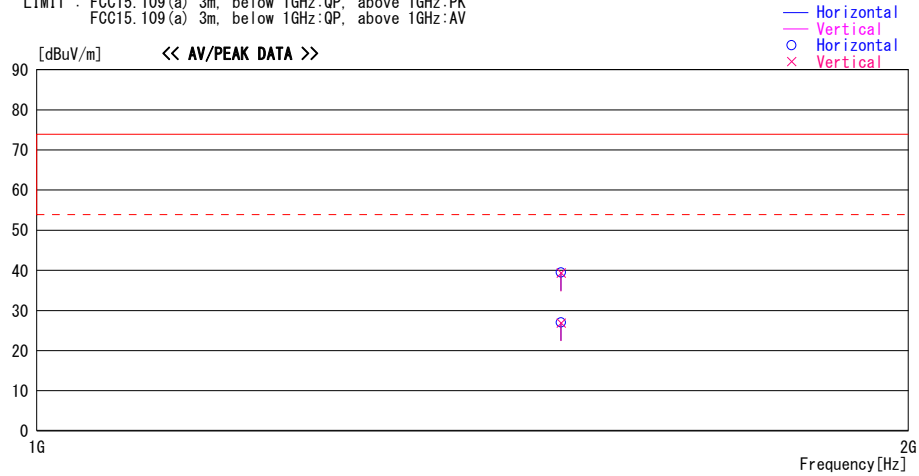
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2010/11/12

Report No. : 30KE0045-HO-02

Temp. / Humi. : 24deg. C / 45%
Engineer : Hiroyuki Furutaka

Mode / Remarks : RKES Receiving mode (314.35MHz) Worst Axis (Hori:X, Vert:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit	Margin	Comment
			Factor [dB/m]	Gain [dB]					[dBuV/m]	[dB]	
1517.250	44.2	PK	26.9	-31.6	39.5	0	100	Hori.	73.9	34.4	
1517.250	44.0	PK	26.9	-31.6	39.3	0	100	Vert.	73.9	34.6	
1517.250	31.7	AV	26.9	-31.6	27.0	0	100	Hori.	53.9	26.9	
1517.250	31.6	AV	26.9	-31.6	26.9	0	100	Vert.	53.9	27.0	

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

*The limit is rounded down to one decimal place.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

UL Japan, Inc.

Head Office EMC Lab.

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Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

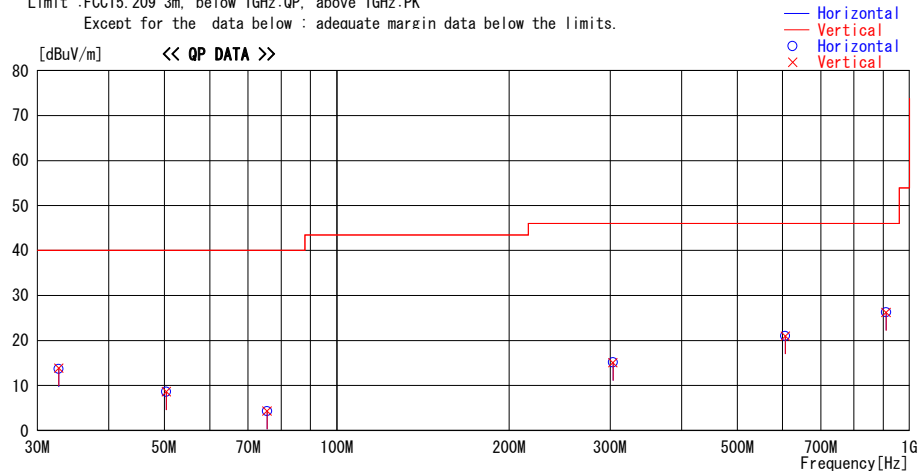
Radiated Emission
Variation No. 7
(Reference data)

DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber

Report No. : 30KE0045-HO-02
Temp. / Humi. : 24deg. C / 39%
Engineer : Tomohisa Nakagawa

Mode / Remarks: RKES Receiving mode (314.35MHz) Worst Axis (Hori:X, Vert:X)
Limit :FCC15.209 3m, below 1GHz:QP, above 1GHz:PK
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
32.700	22.0	QP	16.8	-25.1	13.7	0	100	Hori.	40.0	26.3	
32.700	22.2	QP	16.8	-25.1	13.9	0	100	Vert.	40.0	26.1	
50.400	22.5	QP	10.8	-24.7	8.6	0	100	Hori.	40.0	31.4	
50.400	22.5	QP	10.8	-24.7	8.6	0	100	Vert.	40.0	31.4	
75.600	22.2	QP	6.5	-24.4	4.3	0	100	Hori.	40.0	35.7	
75.600	22.2	QP	6.5	-24.4	4.3	0	100	Vert.	40.0	35.7	
303.450	21.6	QP	15.3	-21.8	15.1	0	100	Hori.	46.0	30.9	
303.450	21.6	QP	15.3	-21.8	15.1	0	100	Vert.	46.0	30.9	
606.900	21.6	QP	19.5	-20.1	21.0	0	100	Hori.	46.0	25.0	
606.900	21.6	QP	19.5	-20.1	21.0	0	100	Vert.	46.0	25.0	
910.350	21.5	QP	22.3	-17.5	26.3	0	100	Hori.	46.0	19.7	
910.350	21.4	QP	22.3	-17.5	26.2	0	100	Vert.	46.0	19.8	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission

Variation No. 7
(Reference data)

DATA OF RADIATED EMISSION TEST

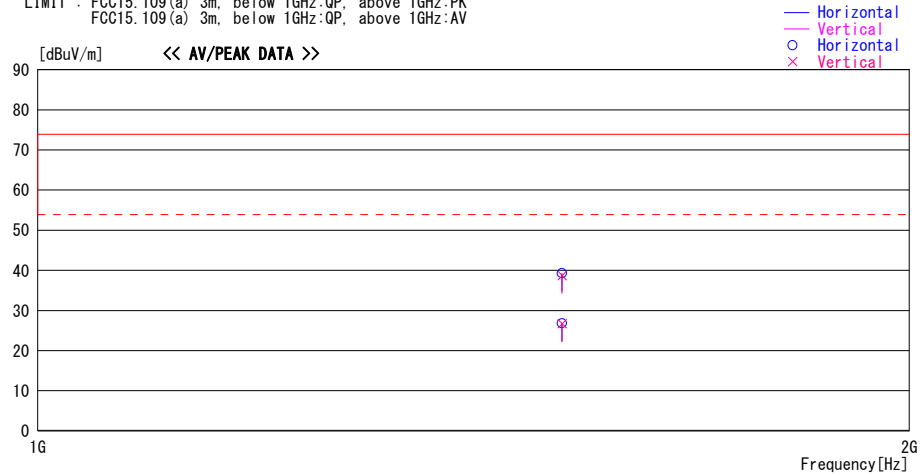
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2010/11/12

Report No. : 30KE0045-HO-02

Temp. / Humi. : 24deg. C / 45%
Engineer : Hiroyuki Furutaka

Mode / Remarks : RKES Receiving mode (314.35MHz) Worst Axis (Hori:X, Vert:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit	Margin	Comment
			Factor [dB/m]	Gain [dB]					[dBuV/m]	[dB]	
1517.250	44.0	PK	26.9	-31.6	39.3	0	100	Hori.	73.9	34.6	
1517.250	43.4	PK	26.9	-31.6	38.7	0	100	Vert.	73.9	35.2	
1517.250	31.5	AV	26.9	-31.6	26.8	0	100	Hori.	53.9	27.1	
1517.250	31.4	AV	26.9	-31.6	26.7	0	100	Vert.	53.9	27.2	

CHART: WITH FACTOR ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

*The limit is rounded down to one decimal place.

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Radiated Emission

Variation No. 11
(Reference data)

DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber

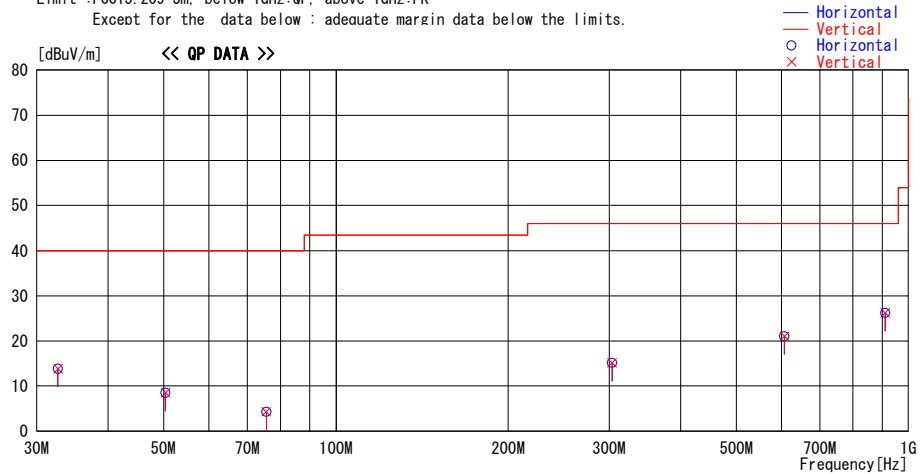
Report No. : 30KE0045-HO-02

Temp. / Humi. : 24deg. C / 39%
Engineer : Tomohisa Nakagawa

Mode / Remarks: RKES Receiving mode (314.35MHz) Worst Axis (Hori:X, Vert:X)

Limit : FCC15.209 3m, below 1GHz:QP, above 1GHz:PK

Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
32.700	22.1	QP	16.8	-25.1	13.8	0	100	Hori.	40.0	26.2	
32.700	22.2	QP	16.8	-25.1	13.9	0	100	Vert.	40.0	26.1	
50.400	22.4	QP	10.8	-24.7	8.5	0	100	Hori.	40.0	31.5	
50.400	22.4	QP	10.8	-24.7	8.5	0	100	Vert.	40.0	31.5	
75.600	22.2	QP	6.5	-24.4	4.3	0	100	Hori.	40.0	35.7	
75.600	22.2	QP	6.5	-24.4	4.3	0	100	Vert.	40.0	35.7	
303.450	21.6	QP	15.3	-21.8	15.1	0	100	Hori.	46.0	30.9	
303.450	21.7	QP	15.3	-21.8	15.2	0	100	Vert.	46.0	30.8	
606.900	21.6	QP	19.5	-20.1	21.0	0	100	Hori.	46.0	25.0	
606.900	21.7	QP	19.5	-20.1	21.1	0	100	Vert.	46.0	24.9	
910.350	21.4	QP	22.3	-17.5	26.2	0	100	Hori.	46.0	19.8	
910.350	21.4	QP	22.3	-17.5	26.2	0	100	Vert.	46.0	19.8	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.

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Radiated Emission

Variation No. 11
(Reference data)

DATA OF RADIATED EMISSION TEST

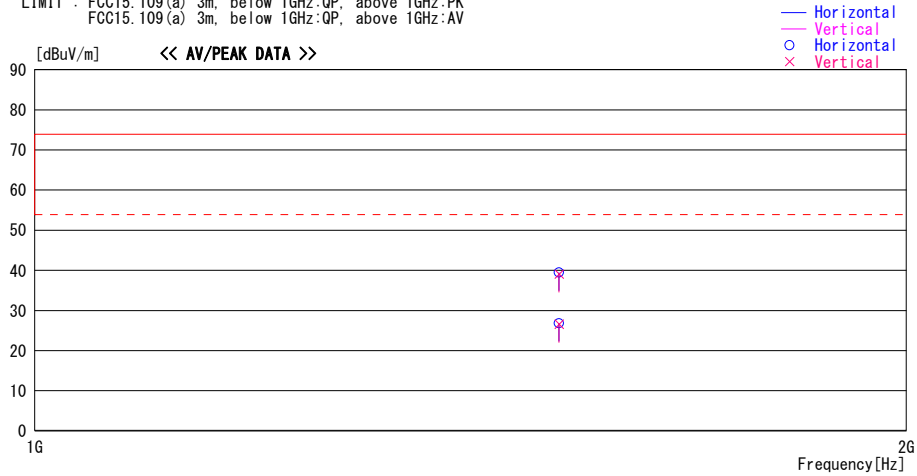
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Date : 2010/11/12

Report No. : 30KE0045-HO-02

Temp. / Humi. : 24deg. C / 45%
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Mode / Remarks : RKES Receiving mode (314.35MHz) Worst Axis (Hori:X, Vert:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit	Margin	Comment
			Factor [dB/m]	Gain [dB]					[dBuV/m]	[dB]	
1517.250	44.2	PK	26.9	-31.6	39.5	0	100	Hori.	73.9	34.4	
1517.250	43.8	PK	26.9	-31.6	39.1	0	100	Vert.	73.9	34.8	
1517.250	31.5	AV	26.9	-31.6	26.8	0	100	Hori.	53.9	27.1	
1517.250	31.3	AV	26.9	-31.6	26.6	0	100	Vert.	53.9	27.3	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

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Facsimile : +81 596 24 8124

Radiated Emission
Variation No. 3

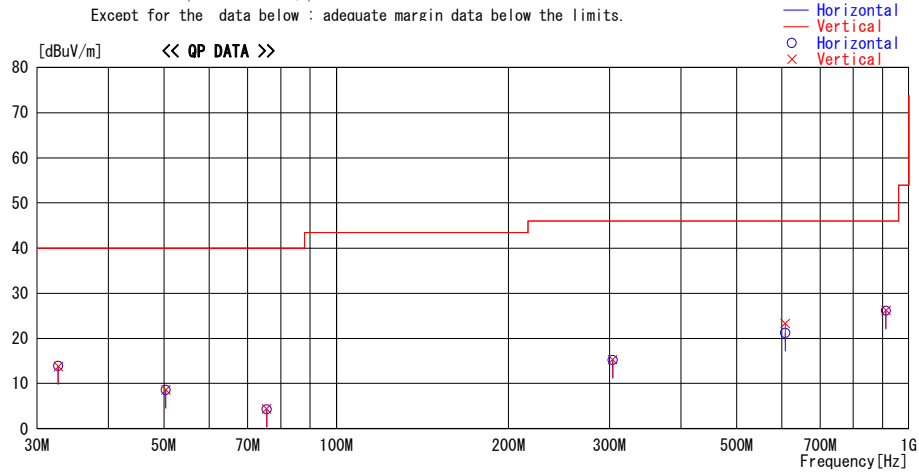
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber

Report No. : 30KE0045-HO-02
Temp. / Humi. : 24deg. C / 39%
Engineer : Tomohisa Nakagawa

Mode / Remarks: TPMS Receiving mode (314.98MHz) Worst Axis (Hori:X, Vert:X)
Limit :FCC15.209 3m, below 1GHz:QP, above 1GHz:PK

Except for the data below : adequate margin data below the limits.



Frequency	Reading	DET	Antenna	Loss&	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		Factor	Gain	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
32.700	22.2	QP	16.8	-25.1	13.9	0	100	Hori.	40.0	26.1	
32.700	22.1	QP	16.8	-25.1	13.8	0	100	Vert.	40.0	26.2	
50.400	22.5	QP	10.8	-24.7	8.6	0	100	Hori.	40.0	31.4	
50.400	22.5	QP	10.8	-24.7	8.6	0	100	Vert.	40.0	31.4	
75.600	22.2	QP	6.5	-24.4	4.3	0	100	Hori.	40.0	35.7	
75.600	22.3	QP	6.5	-24.4	4.4	0	100	Vert.	40.0	35.6	
304.080	21.7	QP	15.3	-21.8	15.2	0	100	Hori.	46.0	30.8	
304.080	21.8	QP	15.3	-21.8	15.3	0	100	Vert.	46.0	30.7	
608.160	21.8	QP	19.5	-20.1	21.2	0	100	Hori.	46.0	24.8	
608.160	23.9	QP	19.5	-20.1	23.3	359	100	Vert.	46.0	22.7	
912.240	21.3	QP	22.3	-17.5	26.1	0	100	Hori.	46.0	19.9	
912.240	21.4	QP	22.3	-17.5	26.2	0	100	Vert.	46.0	19.8	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission Variation No. 3

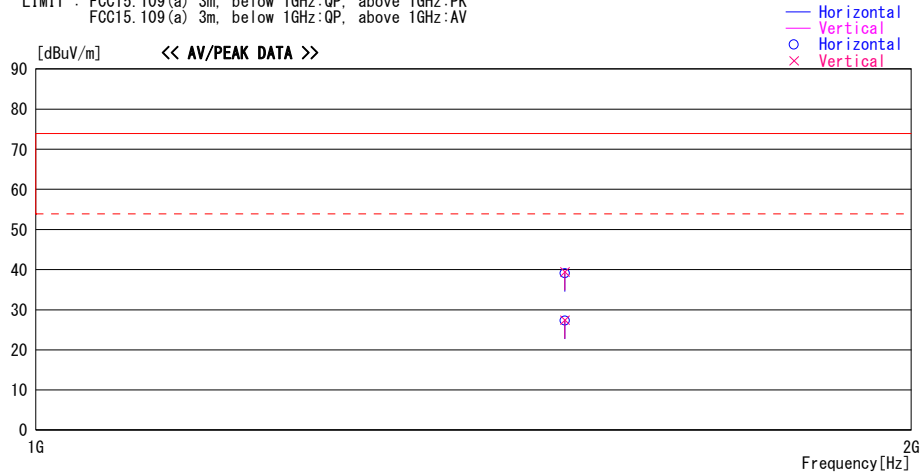
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2010/11/12

Report No. : 30KE0045-HO-02
Temp. / Humi. : 24deg. C / 45%
Engineer : Hiroyuki Furutaka

Mode / Remarks : TPMS Receiving Mode(314.98MHz) Worst Axis(Hori:X , Vert:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit	Margin	Comment
			Factor [dB/m]	Gain [dB]					[dBuV/m]	[dB]	
1520.400	43.8	PK	26.9	-31.6	39.1	0	100	Hori.	73.9	34.8	
1520.400	44.1	PK	26.9	-31.6	39.4	0	100	Vert.	73.9	34.5	
1520.400	32.0	AV	26.9	-31.6	27.3	0	100	Hori.	53.9	26.6	
1520.400	32.1	AV	26.9	-31.6	27.4	0	100	Vert.	53.9	26.5	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission

Variation No. 1 (Reference data)

DATA OF RADIATED EMISSION TEST

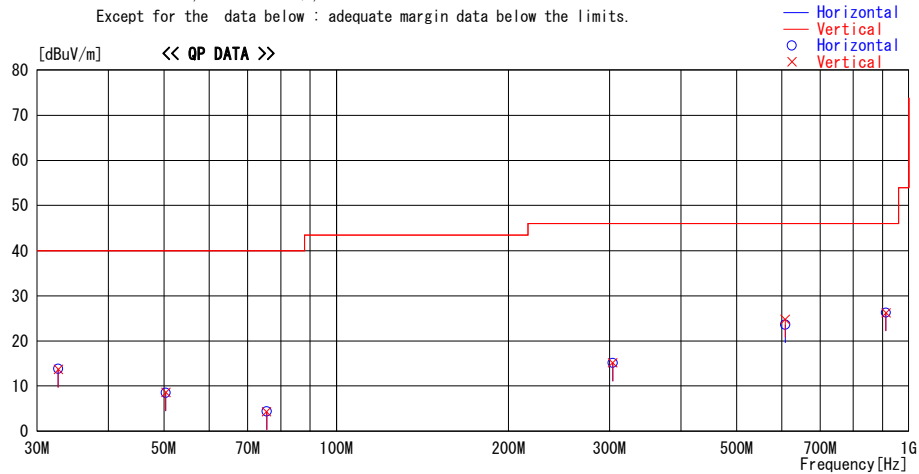
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber

Report No. : 30KE0045-HO-02

Temp. / Humi. : 24deg.C / 39%
Engineer : Tomohisa Nakagawa

Mode / Remarks: TPMS Receiving mode (314.98MHz) Worst Axis (Hori:X, Vert:X)
Limit :FCC15.209 3m, below 1GHz:QP, above 1GHz:Pk

Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit	Margin	Comment
			Factor [dB/m]	Gain [dB]					[dBuV/m]	[dB]	
32.700	22.1	QP	16.8	-25.1	13.8	0	100	Hori.	40.0	26.2	
32.700	22.0	QP	16.8	-25.1	13.7	0	100	Vert.	40.0	26.3	
50.400	22.4	QP	10.8	-24.7	8.5	0	100	Hori.	40.0	31.5	
50.400	22.5	QP	10.8	-24.7	8.6	0	100	Vert.	40.0	31.4	
75.600	22.3	QP	6.5	-24.4	4.4	0	100	Hori.	40.0	35.6	
75.600	22.2	QP	6.5	-24.4	4.3	0	100	Vert.	40.0	35.7	
304.080	21.6	QP	15.3	-21.8	15.1	0	100	Hori.	46.0	30.9	
304.080	21.7	QP	15.3	-21.8	15.2	0	100	Vert.	46.0	30.8	
608.160	24.2	QP	19.5	-20.1	23.6	211	100	Hori.	46.0	22.4	
608.160	25.4	QP	19.5	-20.1	24.8	44	100	Vert.	46.0	21.2	
912.240	21.5	QP	22.3	-17.5	26.3	0	100	Hori.	46.0	19.7	
912.240	21.4	QP	22.3	-17.5	26.2	0	100	Vert.	46.0	19.8	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

Radiated Emission
Variation No. 1
(Reference data)

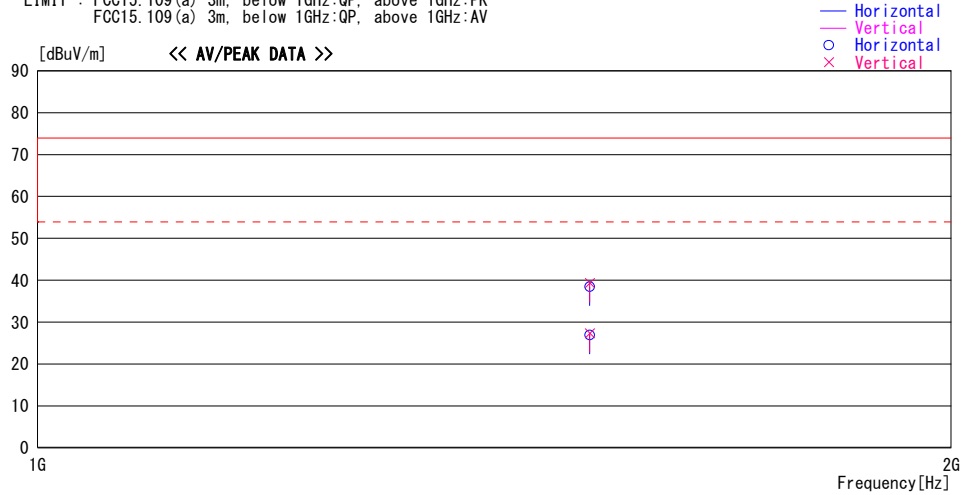
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2010/11/12

Report No. : 30KE0045-HO-02
Temp. / Humi. : 24deg.C / 45%
Engineer : Hiroyuki Furutaka

Mode / Remarks : TPMS Receiving Mode(314.98MHz) Worst Axis(Hori:X , Vert:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency	Reading	DET	Antenna	Loss&	Level	Angle	Height	Polar.	Limit	Margin	Comment
			Factor	Gain					[dBuV/m]	[dB]	
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]				
1520.400	43.2	PK	26.9	-31.6	38.5	0	100	Hori.	73.9	35.4	
1520.400	44.0	PK	26.9	-31.6	39.3	0	100	Vert.	73.9	34.6	
1520.400	31.6	AV	26.9	-31.6	26.9	0	100	Hori.	53.9	27.0	
1520.400	32.0	AV	26.9	-31.6	27.3	0	100	Vert.	53.9	26.6	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

Radiated Emission
Variation No. 5
(Reference data)

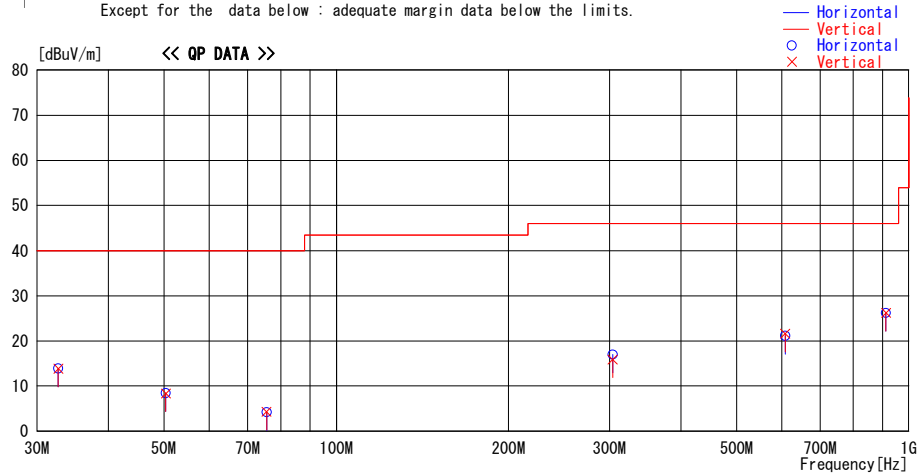
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber

Report No. : 30KE0045-HO-02

Temp. / Humi. : 24deg.C / 39%
Engineer : Tomohisa Nakagawa

Mode / Remarks: TPMS Receiving mode (314.98MHz) Worst Axis (Hori:X, Vert:X)
Limit :FCC15.209 3m, below 1GHz:QP, above 1GHz:Pk
Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit	Margin	Comment
			Factor [dB/m]	Gain [dB]					[dBuV/m]	[dB]	
32.700	22.2	QP	16.8	-25.1	13.9	0	100	Hori.	40.0	26.1	
32.700	22.2	QP	16.8	-25.1	13.9	0	100	Vert.	40.0	26.1	
50.400	22.3	QP	10.8	-24.7	8.4	0	100	Hori.	40.0	31.6	
50.400	22.3	QP	10.8	-24.7	8.4	0	100	Vert.	40.0	31.6	
75.600	22.1	QP	6.5	-24.4	4.2	0	100	Hori.	40.0	35.8	
75.600	22.2	QP	6.5	-24.4	4.3	0	100	Vert.	40.0	35.7	
304.080	23.5	QP	15.3	-21.8	17.0	343	298	Hori.	46.0	29.0	
304.080	22.4	QP	15.3	-21.8	15.9	22	100	Vert.	46.0	30.1	
608.160	21.7	QP	19.5	-20.1	21.1	0	100	Hori.	46.0	24.9	
608.160	22.2	QP	19.5	-20.1	21.6	350	100	Vert.	46.0	24.4	
912.240	21.4	QP	22.3	-17.5	26.2	0	100	Hori.	46.0	19.8	
912.240	21.4	QP	22.3	-17.5	26.2	0	100	Vert.	46.0	19.8	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission
Variation No. 5
(Reference data)

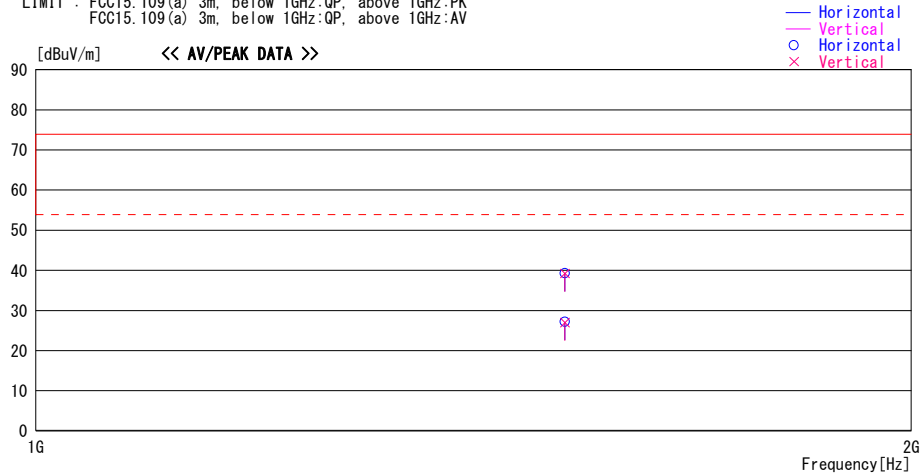
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2010/11/12

Report No. : 30KE0045-HO-02
Temp. / Humi. : 24deg. C / 45%
Engineer : Hiroyuki Furutaka

Mode / Remarks : TPMS Receiving Mode(314.98MHz) Worst Axis(Hori:X , Vert:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
1520.400	44.0	PK	26.9	-31.6	39.3	0	100	Hori.	73.9	34.6	
1520.400	43.9	PK	26.9	-31.6	39.2	0	100	Vert.	73.9	34.7	
1520.400	31.9	AV	26.9	-31.6	27.2	0	100	Hori.	53.9	26.7	
1520.400	31.7	AV	26.9	-31.6	27.0	0	100	Vert.	53.9	26.9	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

*The limit is rounded down to one decimal place.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission
Variation No. 7
(Reference data)

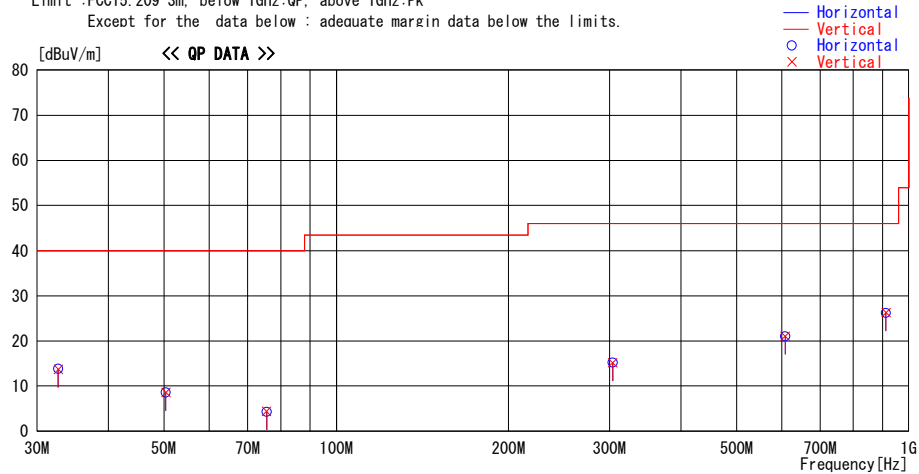
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber

Report No. : 30KE0045-HO-02
Temp. / Humi. : 24deg.C / 39%
Engineer : Tomohisa Nakagawa

Mode / Remarks: TPMS Receiving mode (314.98MHz) Worst Axis (Hori:X, Vert:X)
Limit :FCC15.209 3m, below 1GHz:QP, above 1GHz:Pk

Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Loss& Gain [dB]							
32.700	22.1	QP	16.8	-25.1	13.8	0	100	Hori.	40.0	26.2	
32.700	22.0	QP	16.8	-25.1	13.7	0	100	Vert.	40.0	26.3	
50.400	22.5	QP	10.8	-24.7	8.6	0	100	Hori.	40.0	31.4	
50.400	22.5	QP	10.8	-24.7	8.6	0	100	Vert.	40.0	31.4	
75.600	22.2	QP	6.5	-24.4	4.3	0	100	Hori.	40.0	35.7	
75.600	22.3	QP	6.5	-24.4	4.4	0	100	Vert.	40.0	35.6	
304.080	21.7	QP	15.3	-21.8	15.2	0	100	Hori.	46.0	30.8	
304.080	21.7	QP	15.3	-21.8	15.2	0	100	Vert.	46.0	30.8	
608.160	21.6	QP	19.5	-20.1	21.0	0	100	Hori.	46.0	25.0	
608.160	21.7	QP	19.5	-20.1	21.1	0	100	Vert.	46.0	24.9	
912.240	21.4	QP	22.3	-17.5	26.2	0	100	Hori.	46.0	19.8	
912.240	21.5	QP	22.3	-17.5	26.3	0	100	Vert.	46.0	19.7	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

Radiated Emission

Variation No. 7
(Reference data)

DATA OF RADIATED EMISSION TEST

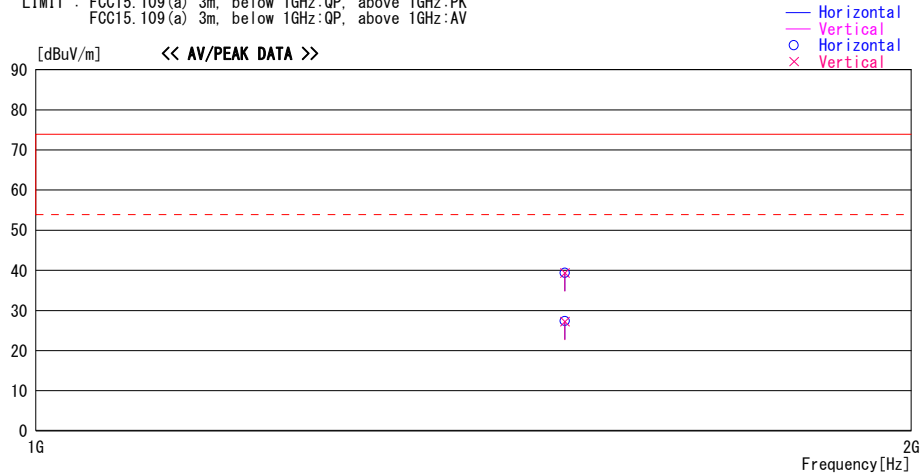
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2010/11/12

Report No. : 30KE0045-HO-02

Temp. / Humi. : 24deg. C / 45%
Engineer : Hiroyuki Furutaka

Mode / Remarks : TPMS Receiving Mode(314.98MHz) Worst Axis(Hori:X , Vert:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency	Reading	DET	Antenna Factor	Loss & Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
1520.400	44.1	PK	26.9	-31.6	39.4	0	100	Hori.	73.9	34.5	
1520.400	44.0	PK	26.9	-31.6	39.3	0	100	Vert.	73.9	34.6	
1520.400	32.1	AV	26.9	-31.6	27.4	0	100	Hori.	53.9	26.5	
1520.400	31.9	AV	26.9	-31.6	27.2	0	100	Vert.	53.9	26.7	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

*The limit is rounded down to one decimal place.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

Radiated Emission

Variation No. 11
(Reference data)

DATA OF RADIATED EMISSION TEST

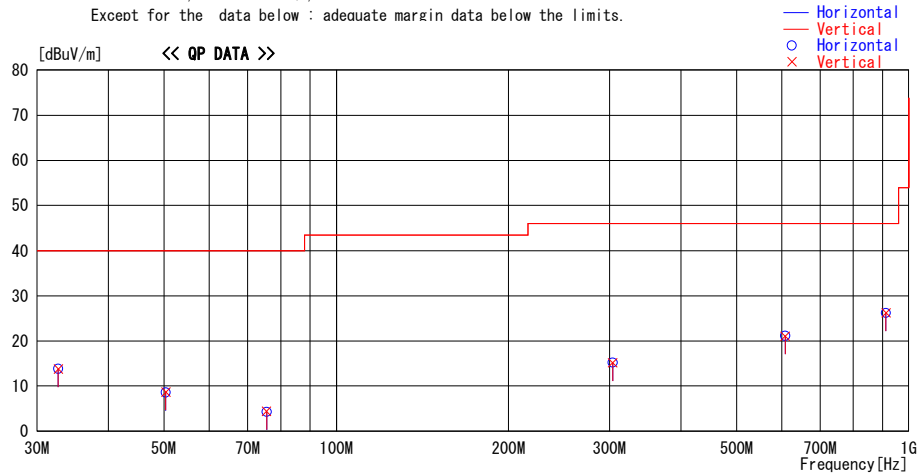
UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber

Report No. : 30KE0045-HO-02

Temp. / Humi. : 24deg.C / 39%
Engineer : Tomohisa Nakagawa

Mode / Remarks: TPMS Receiving mode (314.98MHz) Worst Axis (Hori:X, Vert:X)
Limit :FCC15.209 3m, below 1GHz:QP, above 1GHz:Pk

Except for the data below : adequate margin data below the limits.



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit	Margin	Comment
			Factor [dB/m]	Gain [dB]					[dBuV/m]	[dB]	
32.700	22.1	QP	16.8	-25.1	13.8	0	100	Hori.	40.0	26.2	
32.700	22.1	QP	16.8	-25.1	13.8	0	100	Vert.	40.0	26.2	
50.400	22.5	QP	10.8	-24.7	8.6	0	100	Hori.	40.0	31.4	
50.400	22.6	QP	10.8	-24.7	8.7	0	100	Vert.	40.0	31.3	
75.600	22.2	QP	6.5	-24.4	4.3	0	100	Hori.	40.0	35.7	
75.600	22.3	QP	6.5	-24.4	4.4	0	100	Vert.	40.0	35.6	
304.080	21.7	QP	15.3	-21.8	15.2	0	100	Hori.	46.0	30.8	
304.080	21.7	QP	15.3	-21.8	15.2	0	100	Vert.	46.0	30.8	
608.160	21.7	QP	19.5	-20.1	21.1	0	100	Hori.	46.0	24.9	
608.160	21.7	QP	19.5	-20.1	21.1	0	100	Vert.	46.0	24.9	
912.240	21.4	QP	22.3	-17.5	26.2	0	100	Hori.	46.0	19.8	
912.240	21.4	QP	22.3	-17.5	26.2	0	100	Vert.	46.0	19.8	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS(CABLE+ATTEN.) - GAIN(AMP)

*The limit is rounded down to one decimal place.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

Radiated Emission
Variation No. 11
(Reference data)

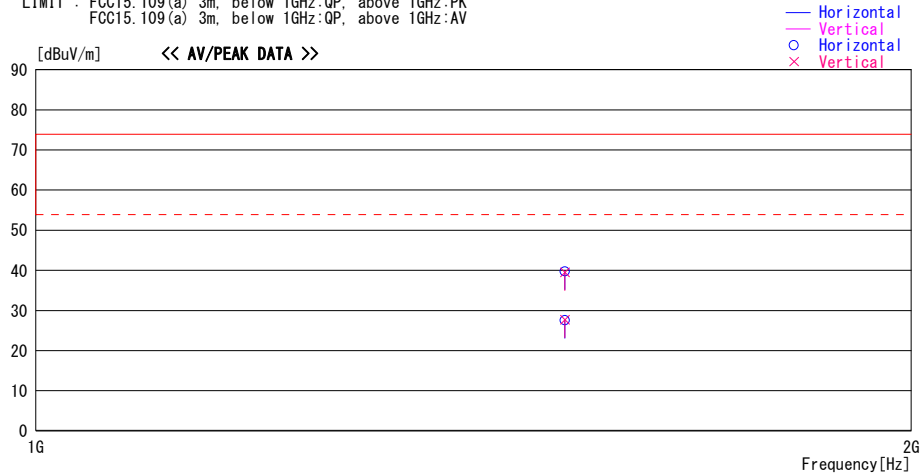
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2010/11/12

Report No. : 30KE0045-HO-02
Temp. / Humi. : 24deg. C / 45%
Engineer : Hiroyuki Furutaka

Mode / Remarks : TPMS Receiving Mode(314.98MHz) Worst Axis(Hori:X , Vert:X)

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
1520.400	44.4	PK	26.9	-31.6	39.7	0	100	Hori.	73.9	34.2	
1520.400	44.2	PK	26.9	-31.6	39.5	0	100	Vert.	73.9	34.4	
1520.400	32.3	AV	26.9	-31.6	27.6	0	100	Hori.	53.9	26.3	
1520.400	32.4	AV	26.9	-31.6	27.7	0	100	Vert.	53.9	26.2	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-300MHz:BICONICAL, 300MHz-1000MHz:LOGPERIODIC, 1000MHz:-HORN
CALCULATION:RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

*The limit is rounded down to one decimal place.

*The test result is rounded off to one or two decimal places, so some differences might be observed.

APPENDIX 3: Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-03	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 3m	DA-10005	RE	2010/02/01 * 12
MOS-13	Thermo-Hygrometer	Custom	CTH-180	-	RE	2010/02/09 * 12
MJM-06	Measure	PROMART	SEN1955	-	RE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE	-
MSA-10	Spectrum Analyzer	Agilent	E4448A	MY46180655	RE	2010/02/03 * 12
MTR-08	Test Receiver	Rohde & Schwarz	ESCI	100767	RE	2010/08/23 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	1915	RE	2010/10/11 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	174	RE	2010/10/11 * 12
MCC-51	Coaxial cable	UL Japan	-	-	RE	2010/07/06 * 12
MAT-09	Attenuator(6dB)	Weinschel Corp	2	BK7973	RE	2009/11/12 * 12
MPA-13	Pre Amplifier	SONOMA INSTRUMENT	310	260834	RE	2010/03/23 * 12
MSA-09	Spectrum Analyzer	Advantest	R3273	95090115	RE	2009/12/11 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	258	RE	2010/05/07 * 12
MCC-56	Microwave Cable	Suhner	SUCOFLEX104	174410(1m) / 284655(5m)	RE	2010/01/25 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	MY39500779	RE	2010/03/03 * 12

The expiration date of the calibration is the end of the expired month.

All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibrations.

Test Item:

RE: Radiated emission

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124