

# DATA OF CONDUCTION TEST

UL Japan, Inc.  
YAMAKITA No.2 SHIELD ROOM  
Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2441MHz) DH5  
Remarks : -  
Date : 10/21/2008  
Phase : Single Phase  
Temperature : 25 °C  
Humidity : 54 %  
Regulation : FCC Part15C § 15. 207. (CISPR Pub. 22 )  
Engineer : Makoto Hosaka

| No. | FREQ.<br>[MHz] | READING(N)     |                | READING(L1)    |                | LISN<br>FACTOR<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT     |                | LIMITS         |                | MARGIN     |            |
|-----|----------------|----------------|----------------|----------------|----------------|------------------------|-----------------------|----------------|------------|----------------|----------------|----------------|------------|------------|
|     |                | QP<br>[dB μ V] | AV<br>[dB μ V] | QP<br>[dB μ V] | AV<br>[dB μ V] |                        |                       |                | QP<br>[dB] | AV<br>[dB μ V] | QP<br>[dB μ V] | AV<br>[dB μ V] | QP<br>[dB] | AV<br>[dB] |
| 1.  | 0.2036         | 39.8           | -              | 39.1           | -              | 0.1                    | 0.1                   | 0.0            | 40.0       | -              | 63.5           | 53.5           | 23.5       | -          |
| 2.  | 0.2629         | 38.9           | -              | 37.9           | -              | 0.1                    | 0.1                   | 0.0            | 39.1       | -              | 61.3           | 51.3           | 22.2       | -          |
| 3.  | 0.3445         | 38.5           | -              | 38.9           | -              | 0.1                    | 0.1                   | 0.0            | 39.1       | -              | 59.1           | 49.1           | 20.0       | -          |
| 4.  | 1.0002         | 37.4           | 17.2           | 38.4           | 18.0           | 0.1                    | 0.1                   | 0.0            | 38.6       | 18.2           | 56.0           | 46.0           | 17.4       | 27.8       |
| 5.  | 1.7850         | 40.5           | 16.2           | 41.0           | 15.8           | 0.1                    | 0.2                   | 0.0            | 41.3       | 16.5           | 56.0           | 46.0           | 14.7       | 29.5       |
| 6.  | 2.1460         | 38.3           | 15.9           | 40.5           | 16.4           | 0.1                    | 0.2                   | 0.0            | 40.8       | 16.7           | 56.0           | 46.0           | 15.2       | 29.3       |

CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

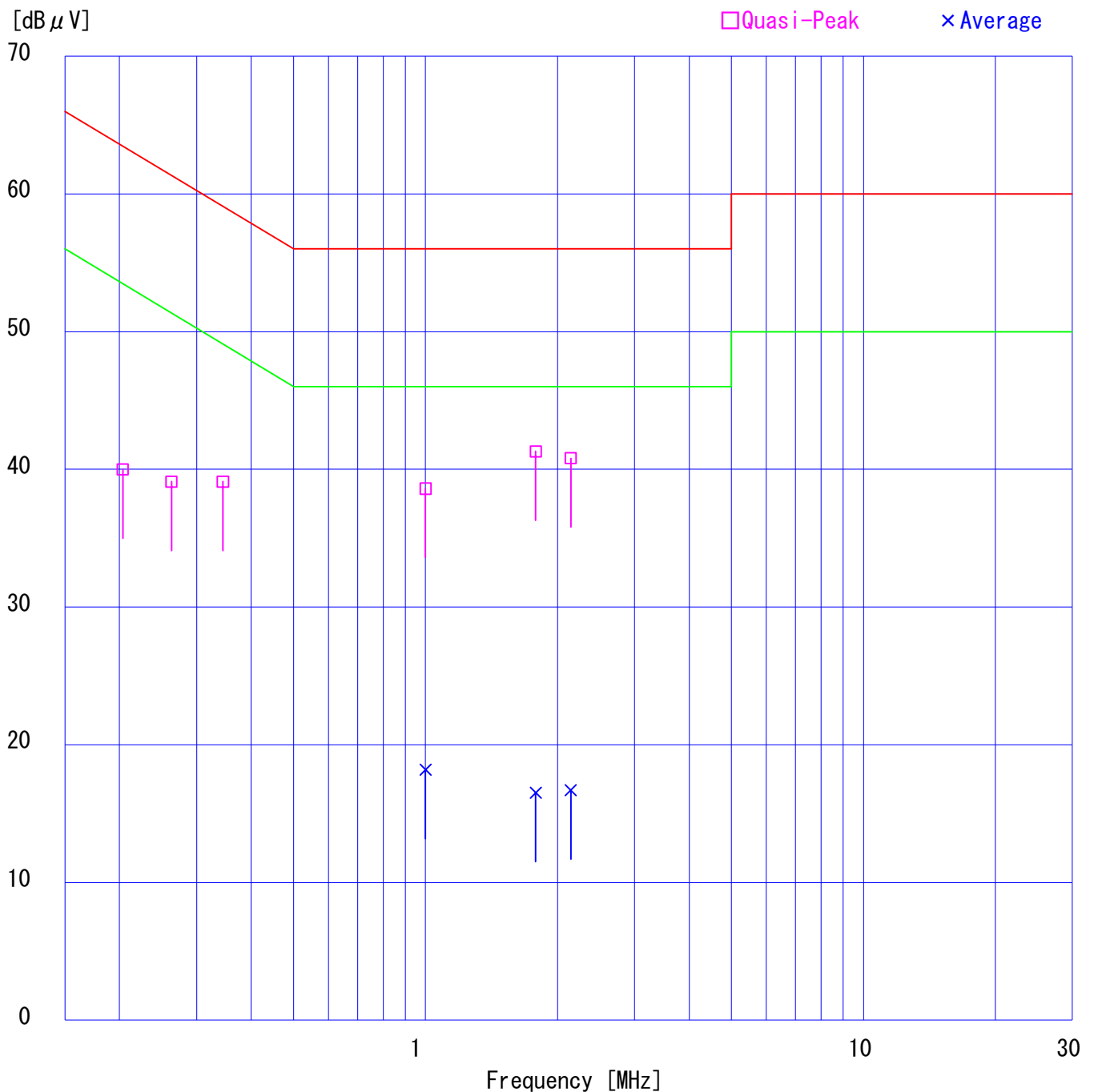
■ LISN : KLS-06 (NSLK8127) ■ COAXIAL CABLE : KCC-33/34  
■ EMI RECEIVER : KTR-01 (ES140)

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Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2441MHz) DH5  
Remarks : -  
Date : 10/21/2008  
Phase : Single Phase  
Temperature : 25 °C  
Humidity : 54 %  
Regulation : FCC Part15C § 15. 207. (CISPR Pub. 22 )

Engineer : Makoto Hosaka



# DATA OF CONDUCTION TEST CHART

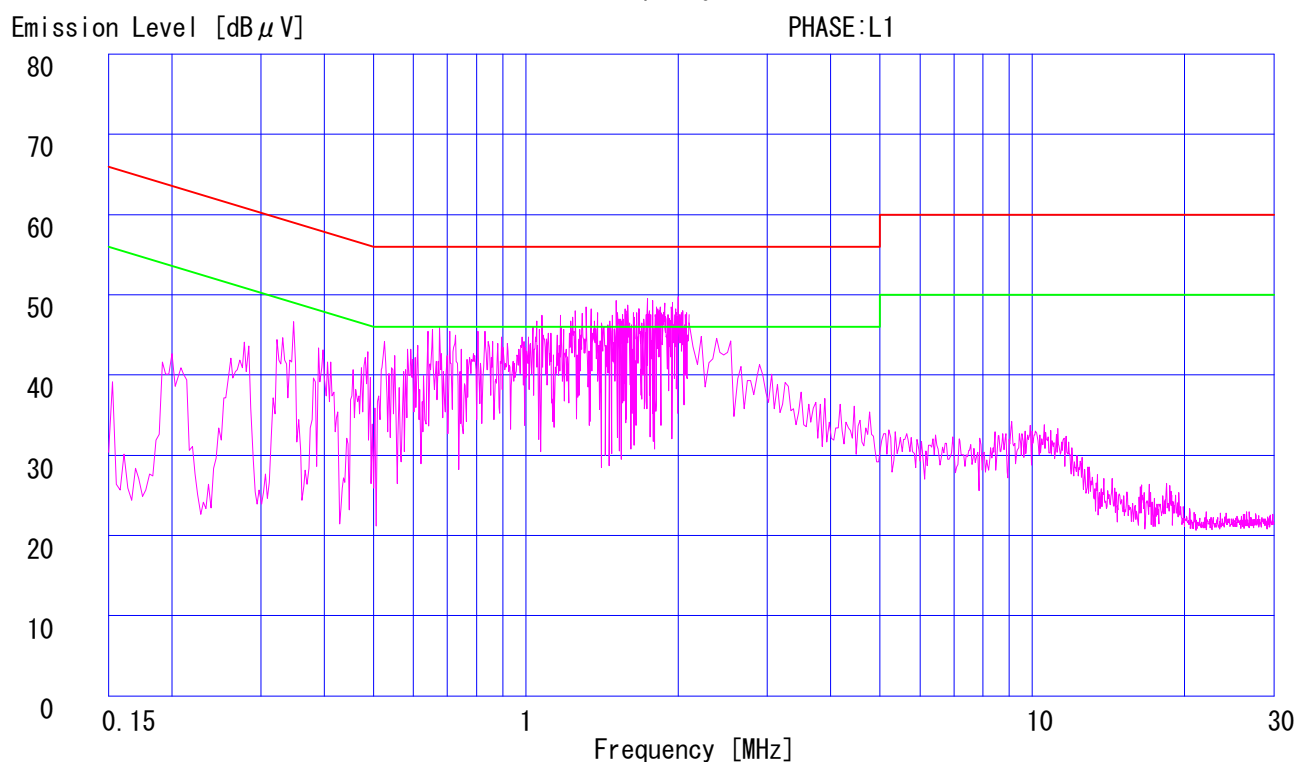
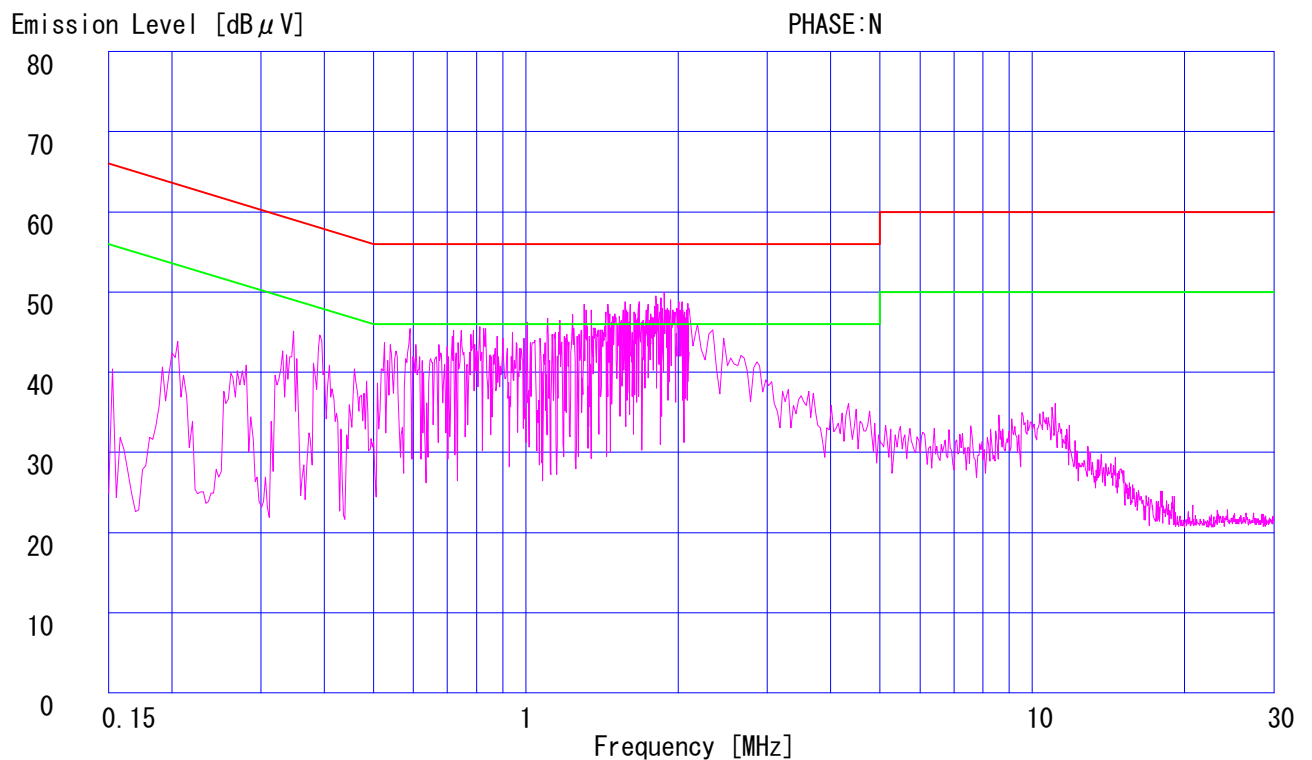
UL Japan, Inc.

YAMAKITA No.2 SHIELD ROOM

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Applicant : SATO CORPORATION  
Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2441MHz) DH5  
Remarks : -  
Date : 10/21/2008  
Phase : Single Phase  
Temperature : 25 °C  
Humidity : 54 %  
Regulation 1 : FCC Part15C § 15.207. (CISPR Pub.22 )  
Regulation 2 : None

Engineer : Makoto Hosaka



# DATA OF CONDUCTION TEST CHART

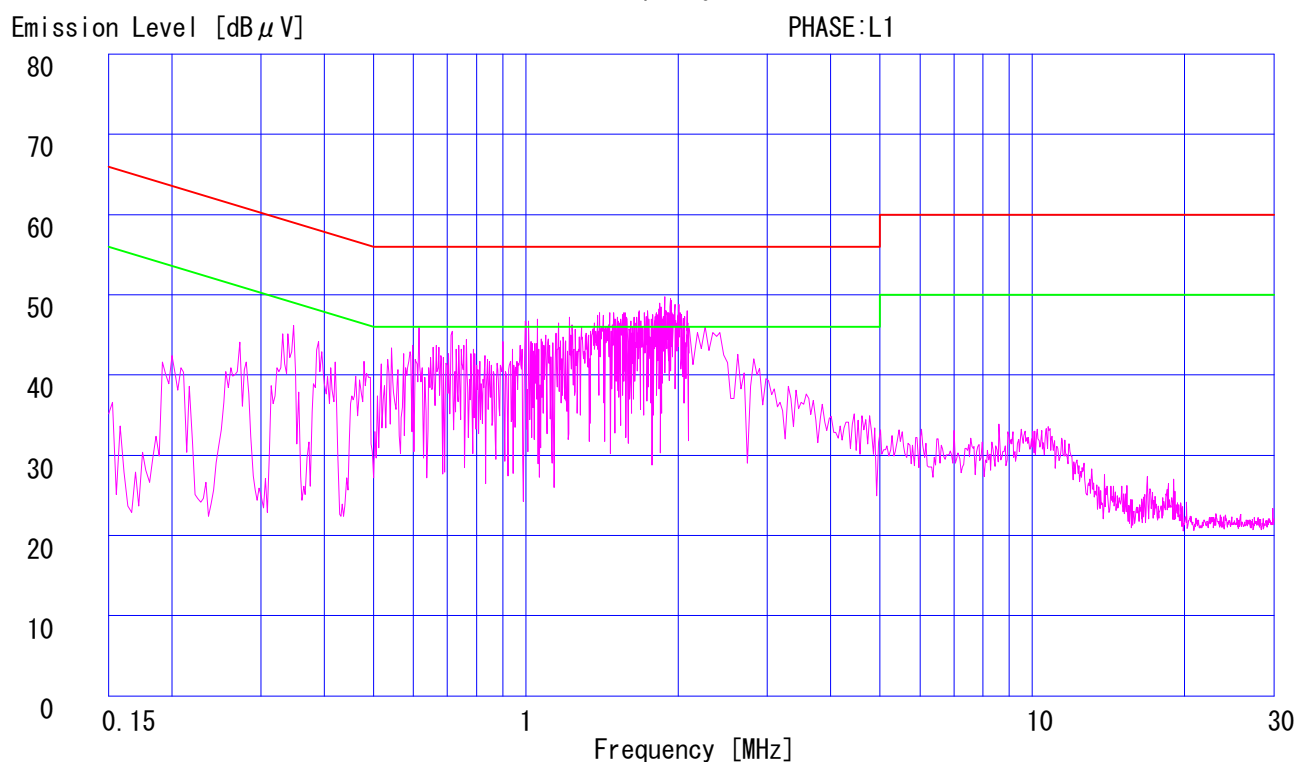
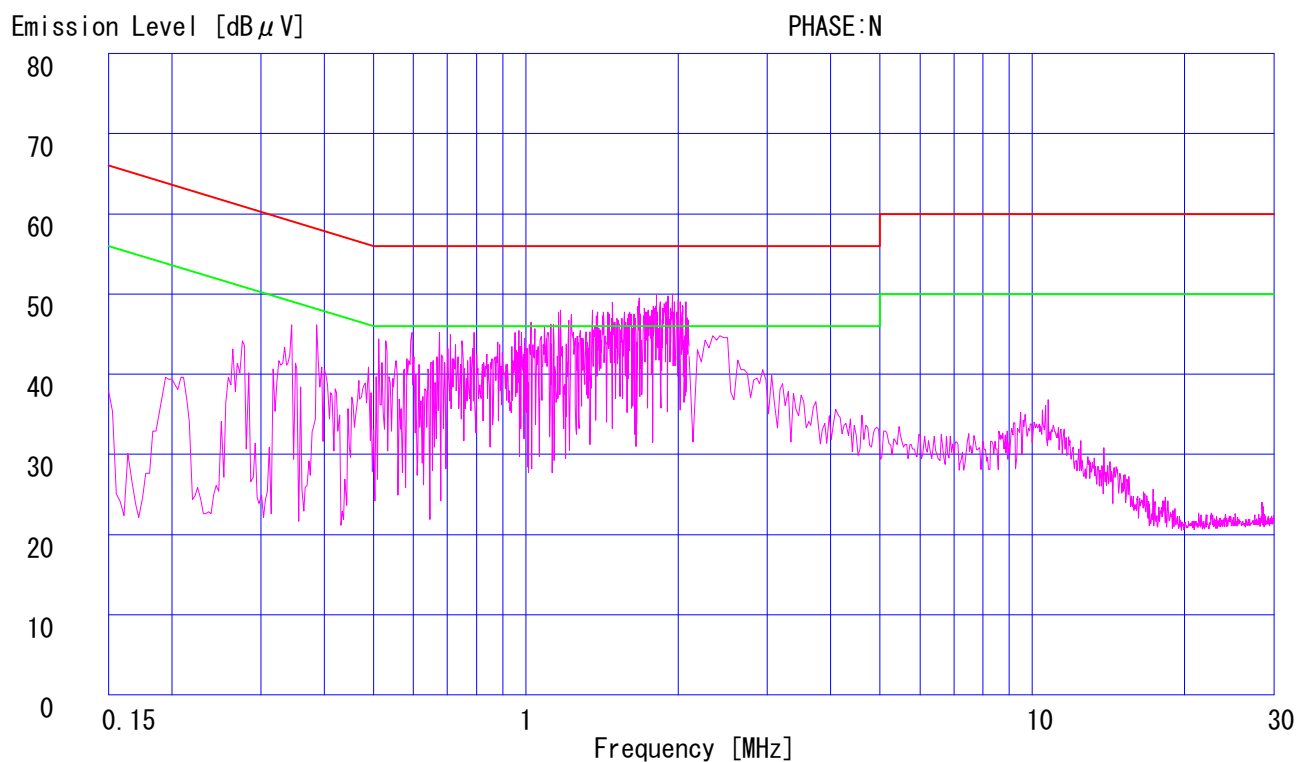
UL Japan, Inc.

YAMAKITA No.2 SHIELD ROOM

Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2402MHz) DH5  
Remarks : -  
Date : 10/21/2008  
Phase : Single Phase  
Temperature : 25 °C  
Humidity : 54 %  
Regulation 1 : FCC Part15C § 15.207. (CISPR Pub.22 )  
Regulation 2 : None

Engineer : Makoto Hosaka



# DATA OF CONDUCTION TEST CHART

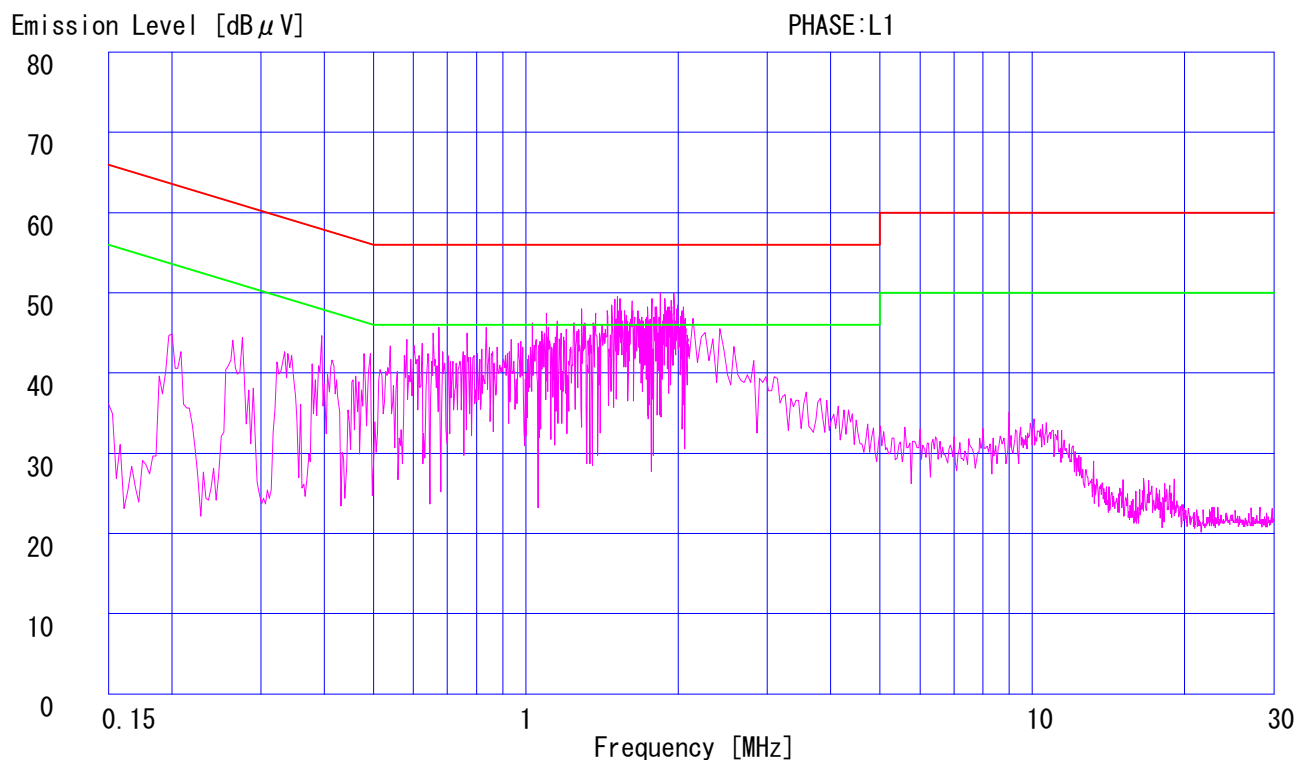
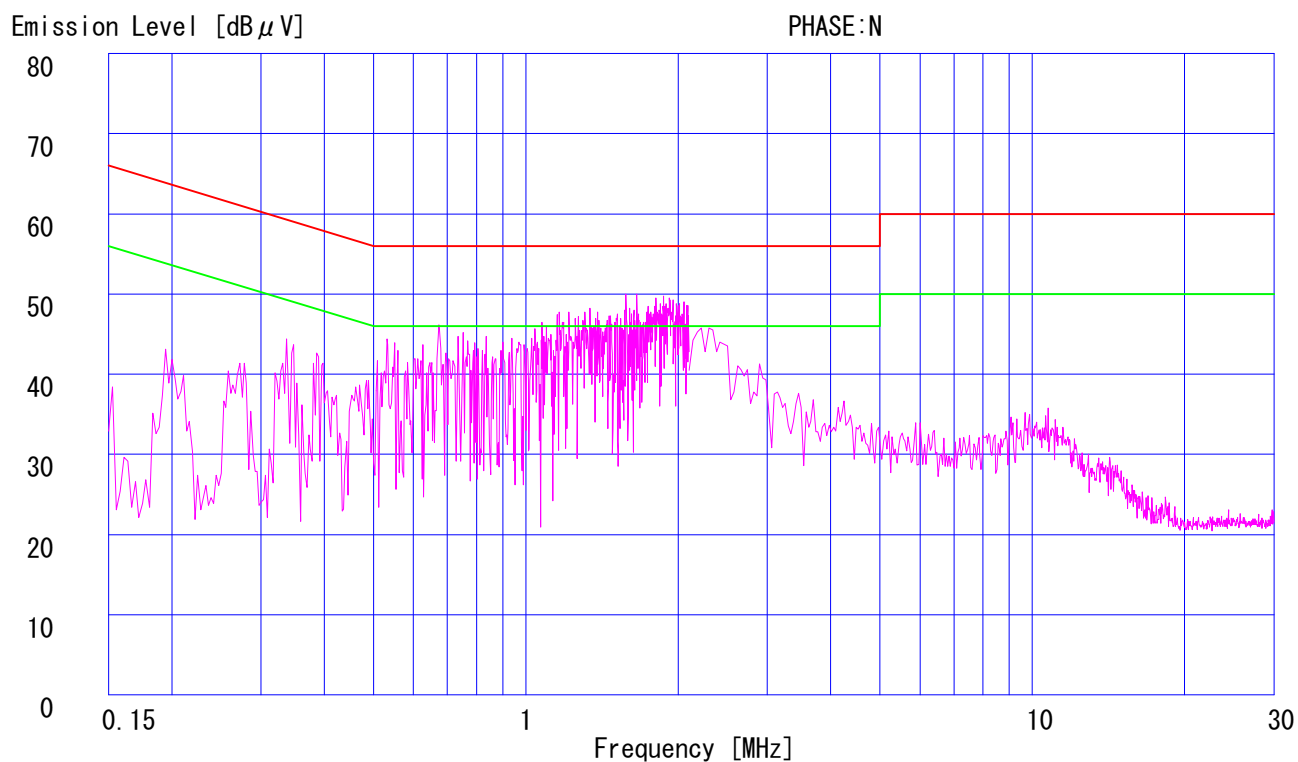
UL Japan, Inc.

YAMAKITA No.2 SHIELD ROOM

Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2480MHz) DH5  
Remarks : -  
Date : 10/21/2008  
Phase : Single Phase  
Temperature : 25 °C  
Humidity : 54 %  
Regulation 1 : FCC Part15C § 15.207. (CISPR Pub.22 )  
Regulation 2 : None

Engineer : Makoto Hosaka



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YAMAKITA No.2 SHIELD ROOM  
Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2441MHz) 3DH5  
Remarks : -  
Date : 10/21/2008  
Phase : Single Phase  
Temperature : 25 °C  
Humidity : 54 %  
Regulation : FCC Part15C § 15. 207. (CISPR Pub. 22 )  
Engineer : Makoto Hosaka

| No. | FREQ.<br>[MHz] | READING(N)     |      | READING(L1)    |      | LISN<br>FACTOR<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT     |                | LIMITS         |                | MARGIN     |            |
|-----|----------------|----------------|------|----------------|------|------------------------|-----------------------|----------------|------------|----------------|----------------|----------------|------------|------------|
|     |                | QP<br>[dB μ V] | AV   | QP<br>[dB μ V] | AV   |                        |                       |                | QP<br>[dB] | AV<br>[dB μ V] | QP<br>[dB μ V] | AV<br>[dB μ V] | QP<br>[dB] | AV<br>[dB] |
| 1.  | 0.2019         | 39.8           | -    | 39.1           | -    | 0.1                    | 0.1                   | 0.0            | 40.0       | -              | 63.5           | 53.5           | 23.5       | -          |
| 2.  | 0.2640         | 38.9           | -    | 37.9           | -    | 0.1                    | 0.1                   | 0.0            | 39.1       | -              | 61.3           | 51.3           | 22.2       | -          |
| 3.  | 0.3469         | 38.5           | -    | 38.7           | -    | 0.1                    | 0.1                   | 0.0            | 38.9       | -              | 59.0           | 49.0           | 20.1       | -          |
| 4.  | 1.0122         | 37.4           | 15.5 | 38.4           | 15.8 | 0.1                    | 0.1                   | 0.0            | 38.6       | 16.0           | 56.0           | 46.0           | 17.4       | 30.0       |
| 5.  | 1.6940         | 40.5           | 16.1 | 41.0           | 16.2 | 0.1                    | 0.2                   | 0.0            | 41.3       | 16.5           | 56.0           | 46.0           | 14.7       | 29.5       |
| 6.  | 2.1023         | 38.3           | 15.9 | 40.5           | 15.8 | 0.1                    | 0.2                   | 0.0            | 40.8       | 16.2           | 56.0           | 46.0           | 15.2       | 29.8       |

CALCULATION: READING + LISN FACTOR + CABLE LOSS + ATTEN.

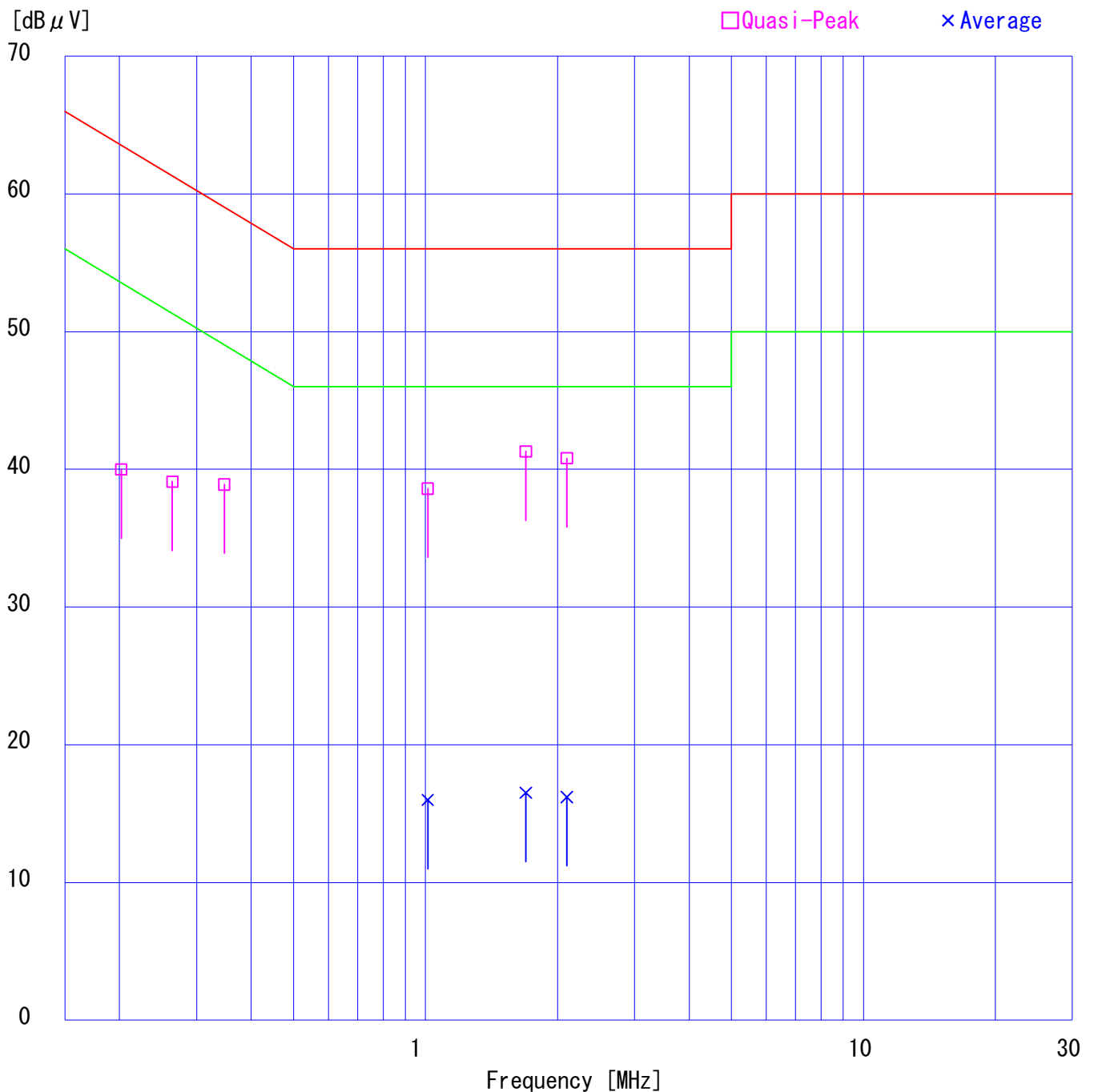
■ LISN : KLS-06 (NSLK8127) ■ COAXIAL CABLE : KCC-33/34  
■ EMI RECEIVER : KTR-01 (ES140)

# DATA OF CONDUCTION TEST

UL Japan, Inc.  
YAMAKITA No.2 SHIELD ROOM  
Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2441MHz) 3DH5  
Remarks : -  
Date : 10/21/2008  
Phase : Single Phase  
Temperature : 25 °C  
Humidity : 54 %  
Regulation : FCC Part15C § 15. 207. (CISPR Pub. 22 )

Engineer : Makoto Hosaka



# DATA OF CONDUCTION TEST CHART

UL Japan, Inc.

YAMAKITA No.2 SHIELD ROOM

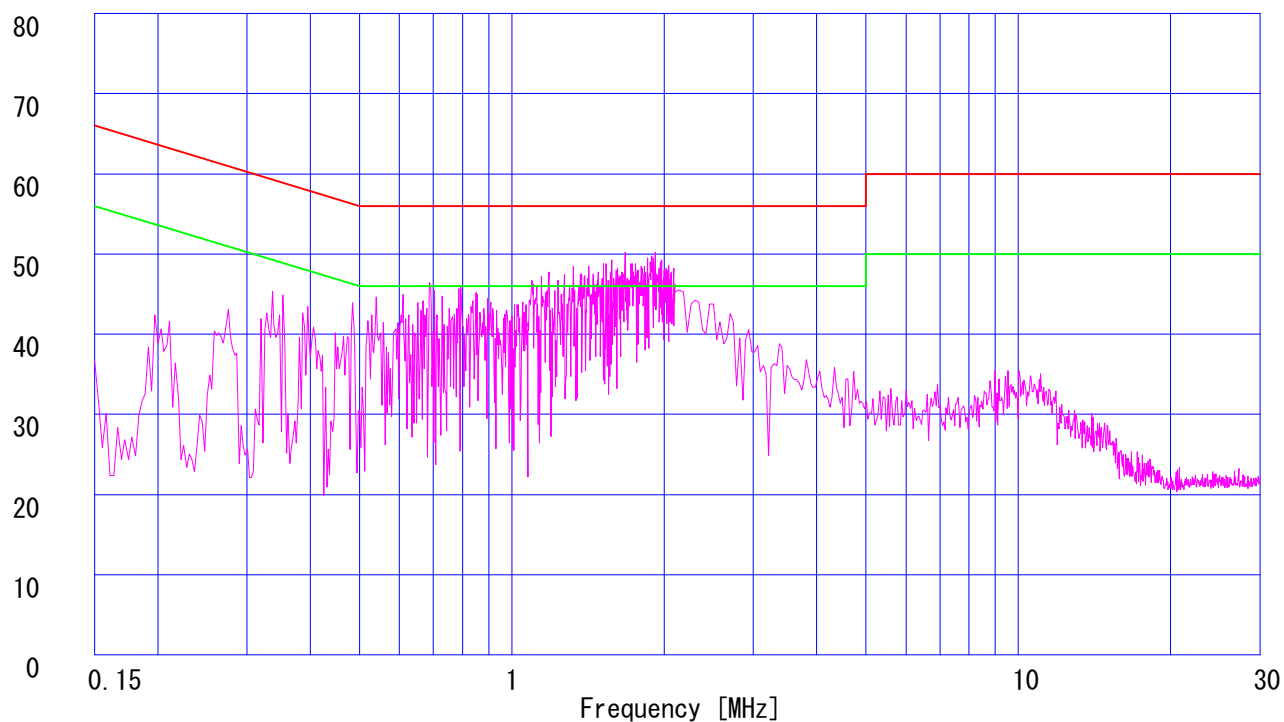
Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2402MHz) 3DH5  
Remarks : -  
Date : 10/21/2008  
Phase : Single Phase  
Temperature : 25 °C  
Humidity : 54 %  
Regulation 1 : FCC Part15C § 15.207. (CISPR Pub.22 )  
Regulation 2 : None

Engineer : Makoto Hosaka

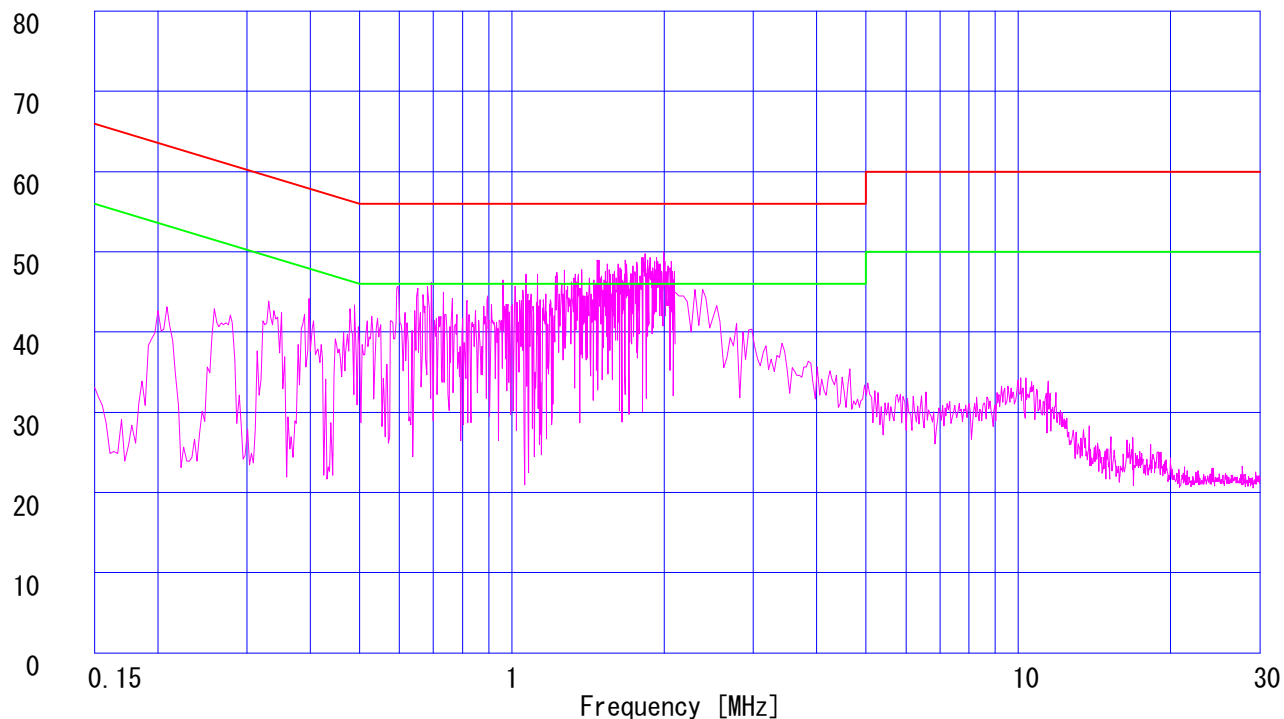
Emission Level [dB $\mu$ V]

PHASE:N



Emission Level [dB $\mu$ V]

PHASE:L1



# DATA OF CONDUCTION TEST CHART

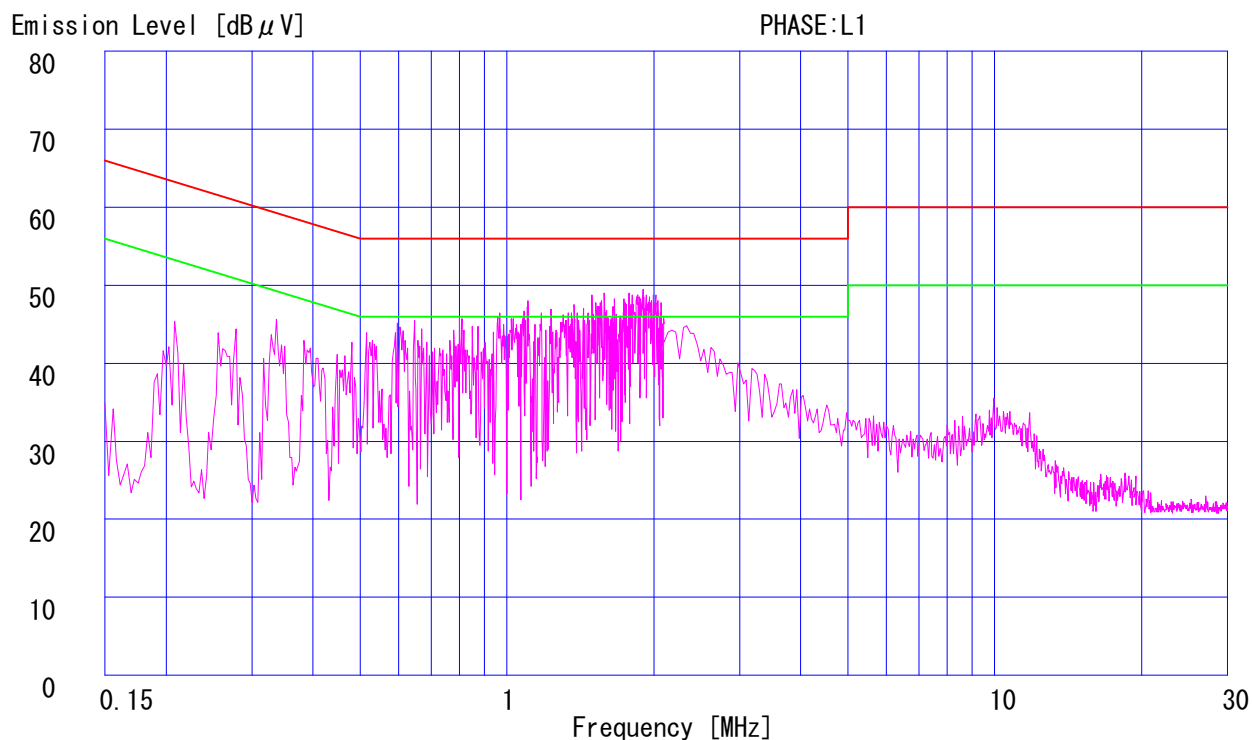
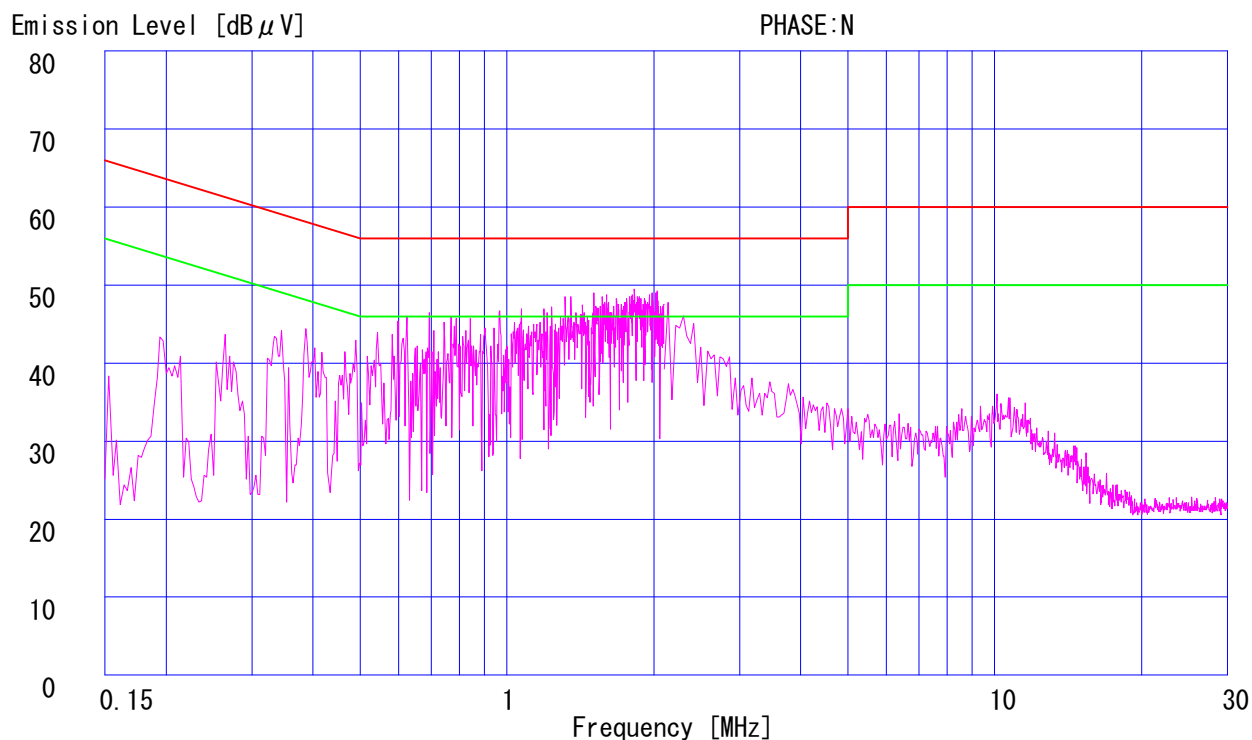
UL Japan, Inc.

YAMAKITA No.2 SHIELD ROOM

Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2480MHz) 3DH5  
Remarks : -  
Date : 10/21/2008  
Phase : Single Phase  
Temperature : 25 °C  
Humidity : 54 %  
Regulation 1 : FCC Part15C § 15.207. (CISPR Pub.22 )  
Regulation 2 : None

Engineer : Makoto Hosaka



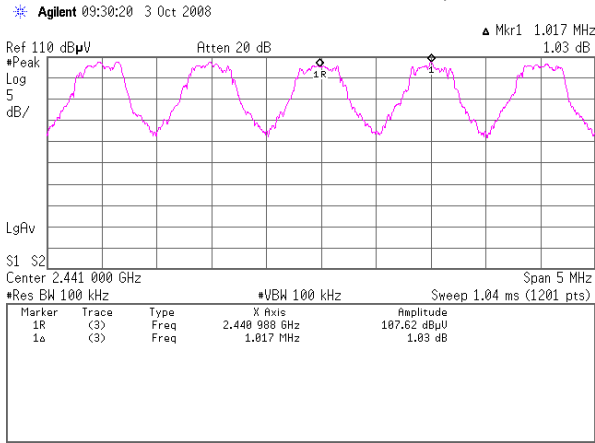
Channel Separation (Regulation: FCC 15.247(a)(1))

UL Japan, Inc. Yamakita EMC lab.  
Date:  
Temp./Humid.:  
Engineer:  
Test mode:

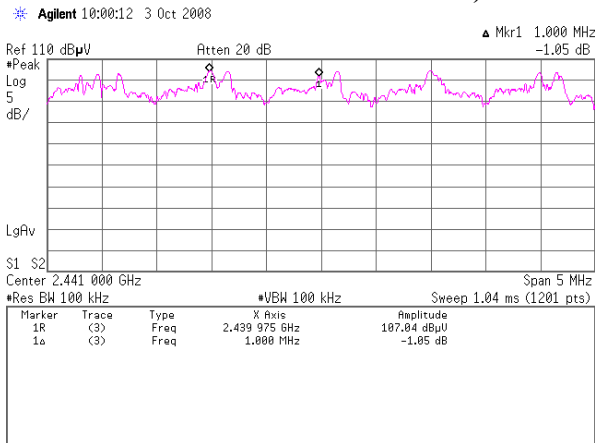
No.2    shielded room  
October 3, 2008  
24    deg. C. /    51    %  
Tatsuya Arai  
Transmitting

Limit: ≥25kHz or 2/3 \* 20dB Bandwidth (Power: No greater than 125mW)

1. Hopping, DH5: 1.017MHz (2/3\*20dB Bandwidth:2/3\*1.125MHz = 750kHz)



2. Hopping, 3DH5: 1.000MHz (2/3\*20dB Bandwidth:2/3\*1.385MHz = 923.3kHz)



20dB Bandwidth (Regulation: FCC 15.247(a)(1))

UL Japan, Inc. Yamakita EMC lab.

Date:

Temp./Humid.:

Engineer:

Test mode:

No.2

shielded room

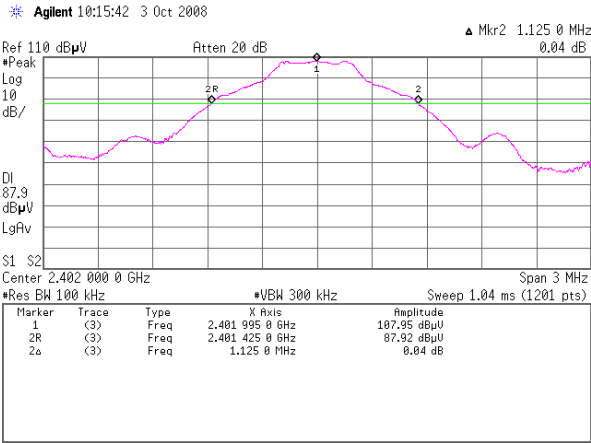
October 3, 2008

24 deg. C. / 51 %

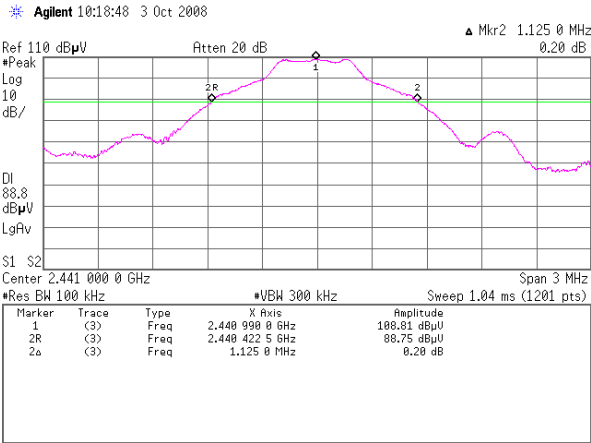
Tatsuya Arai

Transmitting

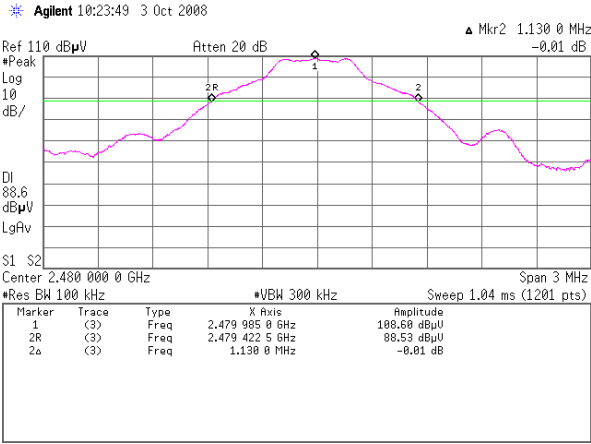
[Hopping off, DH5]  
1. ch : 2402MHz/20dB Bandwidth:1.125MHz



2. ch : 2441MHz/20dB Bandwidth:1.125MHz

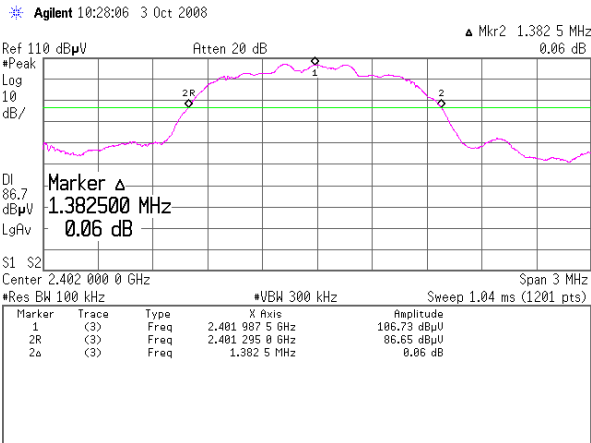


3. ch : 2480MHz/20dB Bandwidth:1.130MHz

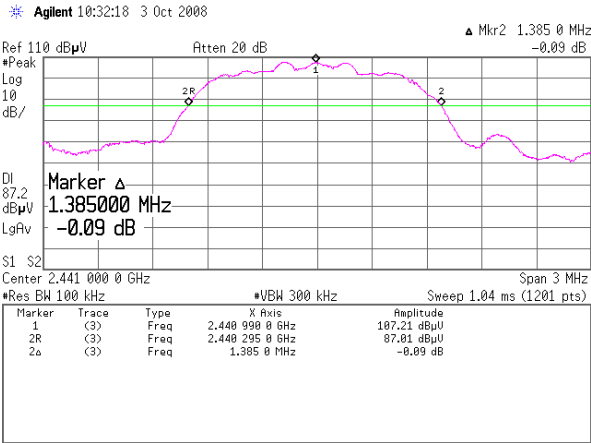


[Hopping off, 3DH5]

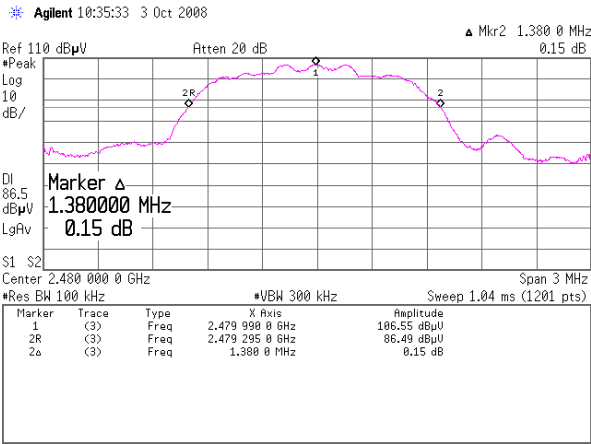
4. ch : 2402MHz/20dB Bandwidth:1.383MHz



5. ch : 2441MHz/20dB Bandwidth:1.385MHz



6. ch : 2480MHz/20dB Bandwidth:1.380MHz



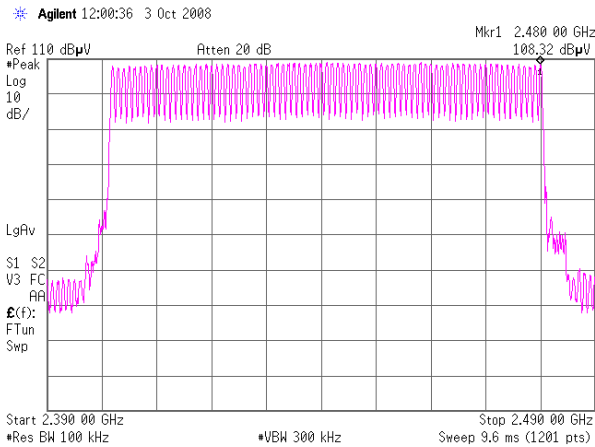
Channel Utilization (Regulation: FCC 15.247(a)(1)(iii))

UL Japan, Inc. Yamakita EMC lab.  
Date:  
Temp./Humid.:  
Engineer:  
Test mode:

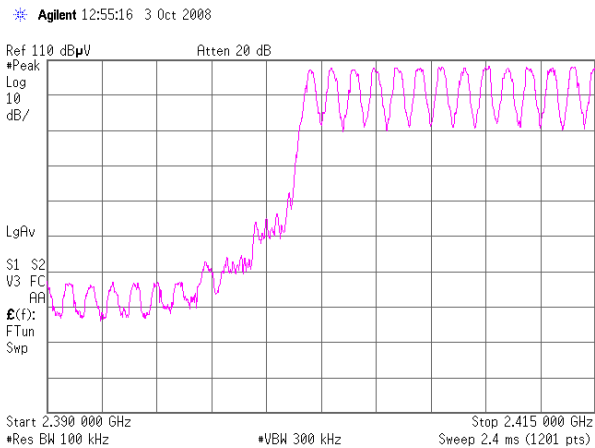
No.2 shielded room  
October 3, 2008  
24 deg. C. / 51 %  
Tatsuya Arai  
Transmitting

Hopping, DH5: 79ch

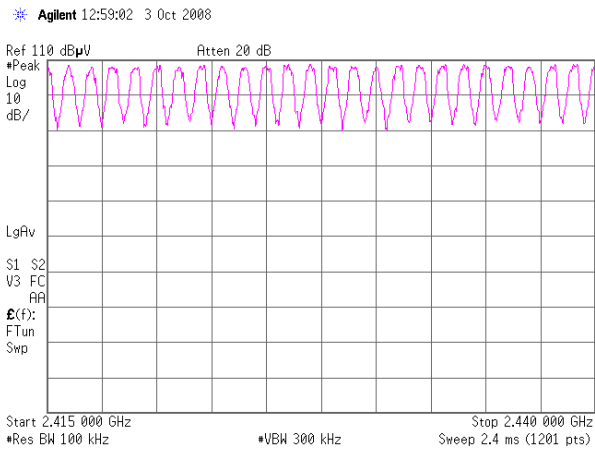
1.



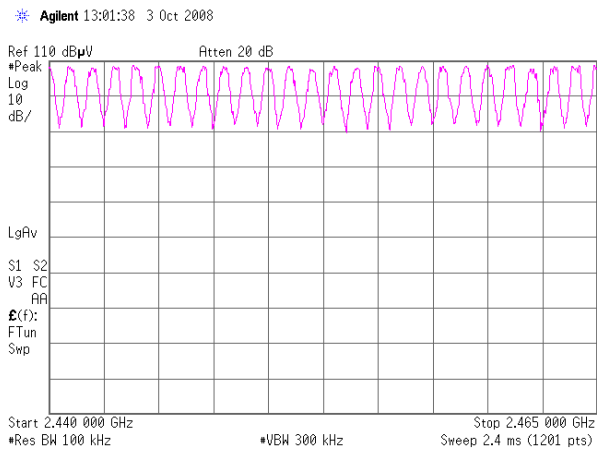
2.



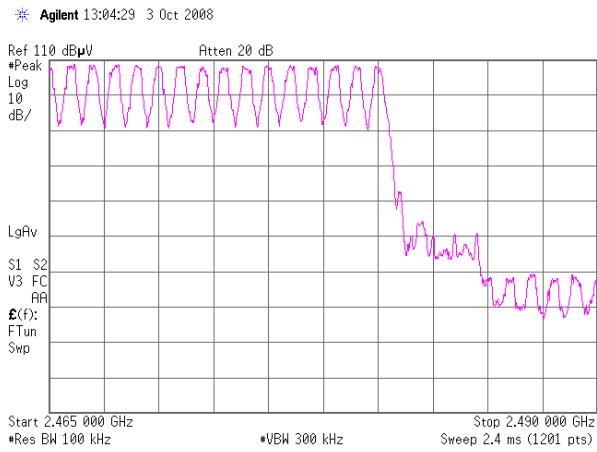
3.



4.

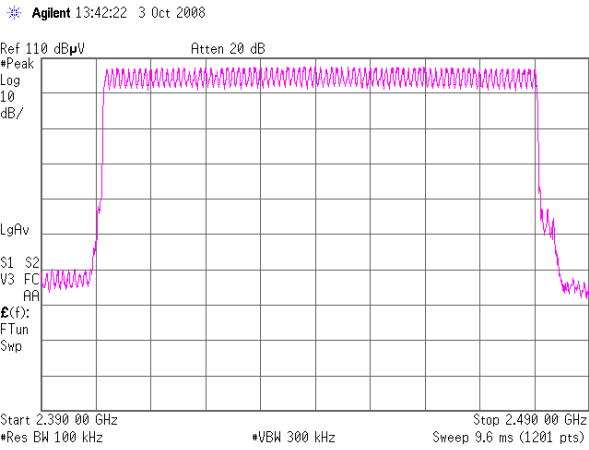


5.

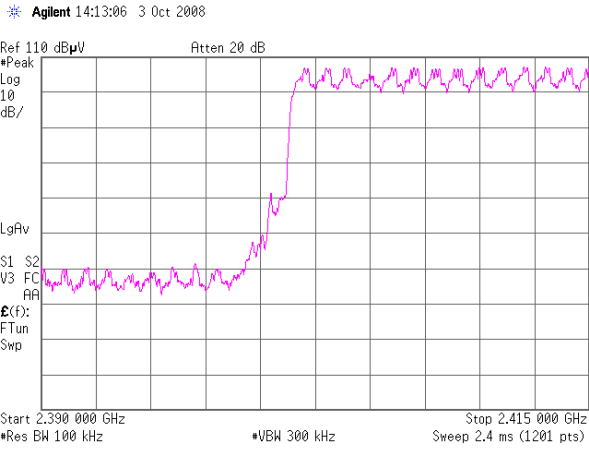


Hopping, 3DHS: 79ch

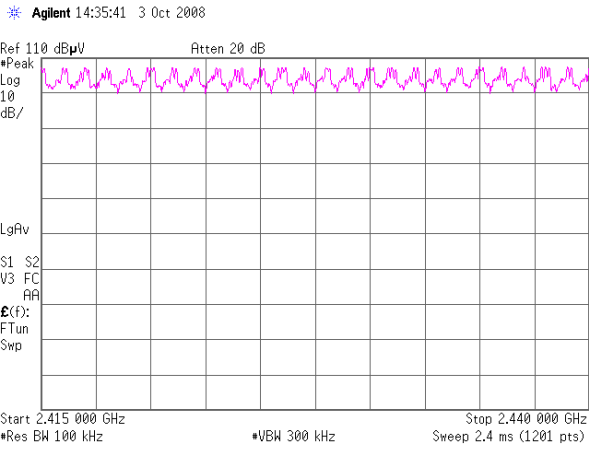
1.



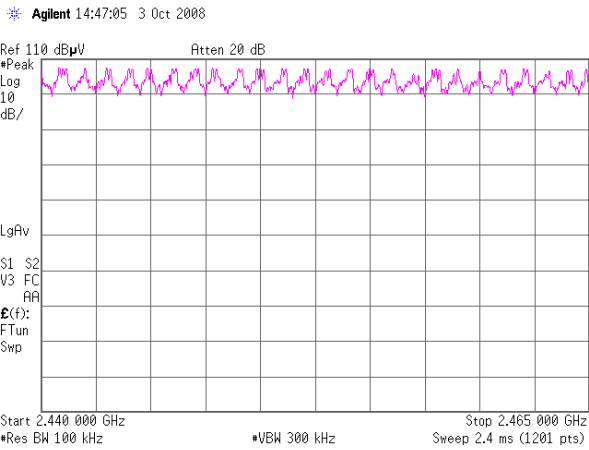
2.



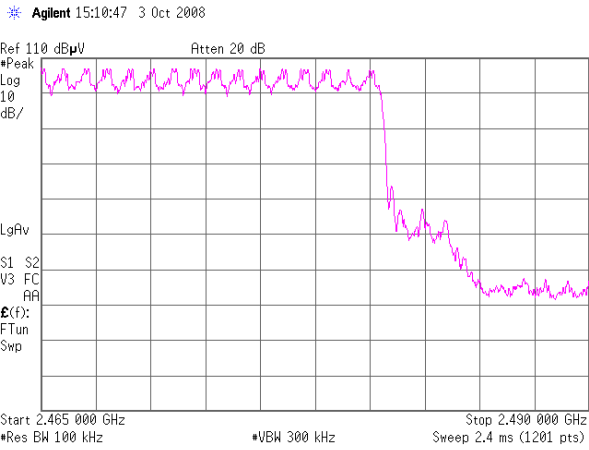
3.



4.



5.



Company: SATO CORPORATION  
Kind of Equipment: BARCODE PRINTER  
Serial No.: ES0000009

Report No.:  
Model No.:  
Power:

29AE0053-YK-02-A-R2  
MB410i-B2  
AC120V/60Hz

## Dwell Time (Regulation: FCC 15.247(a)(1)(iii))

UL Japan, Inc. Yamakita EMC lab.

No.4 shielded room

Date:

October 24, 2008

Temp./Humid.:

22 deg. C. / 61 %

Engineer:

Makoto Hosaka

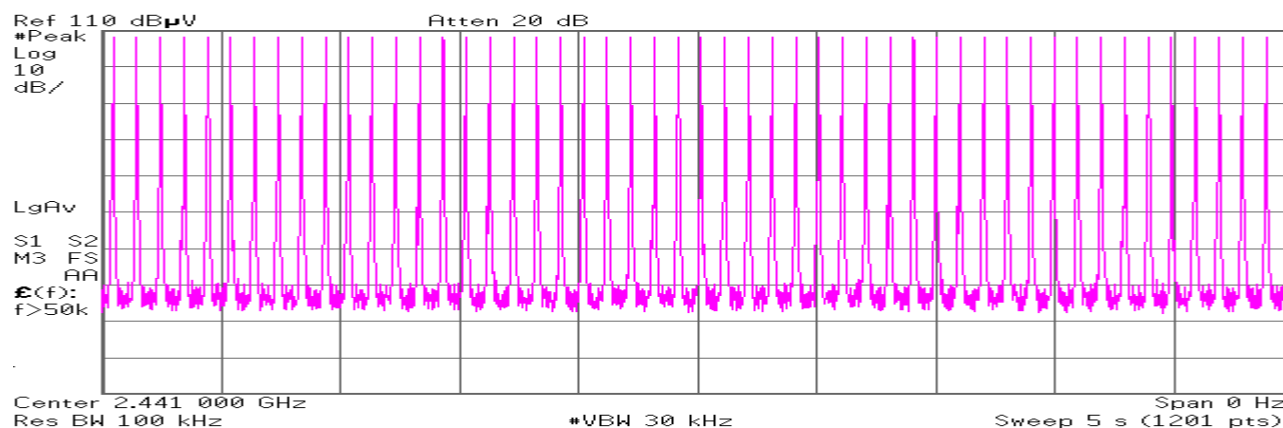
Test mode:

Transmitting

### Hopping (DH1):

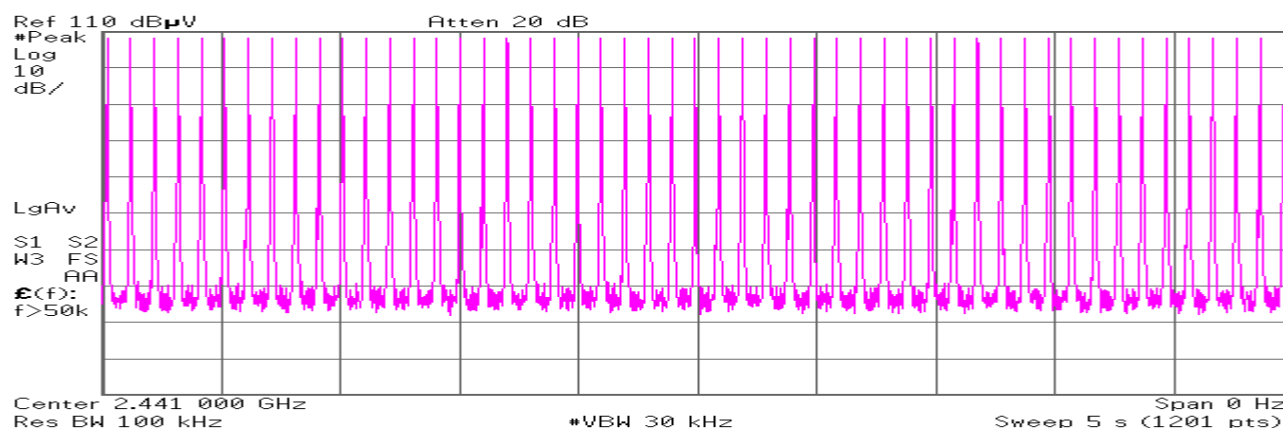
#### Count 1

Agilent 09:17:41 24 Oct 2008



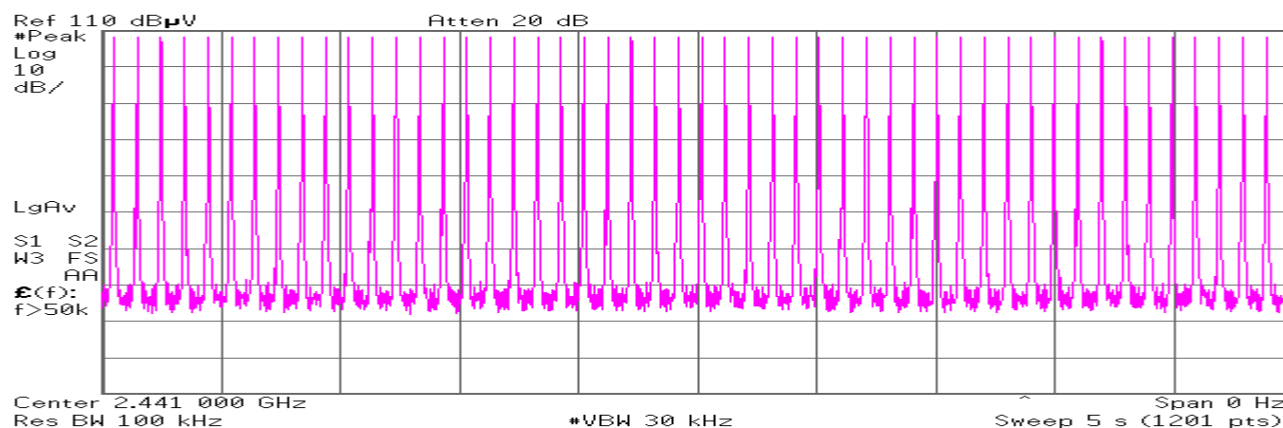
#### Count 2

Agilent 09:19:11 24 Oct 2008



#### Count 3

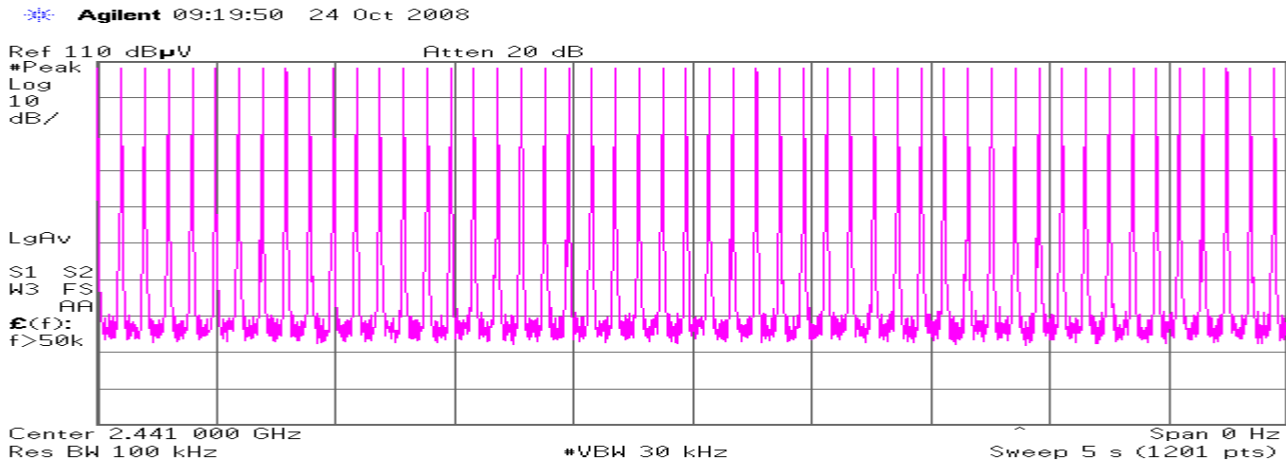
Agilent 09:19:30 24 Oct 2008



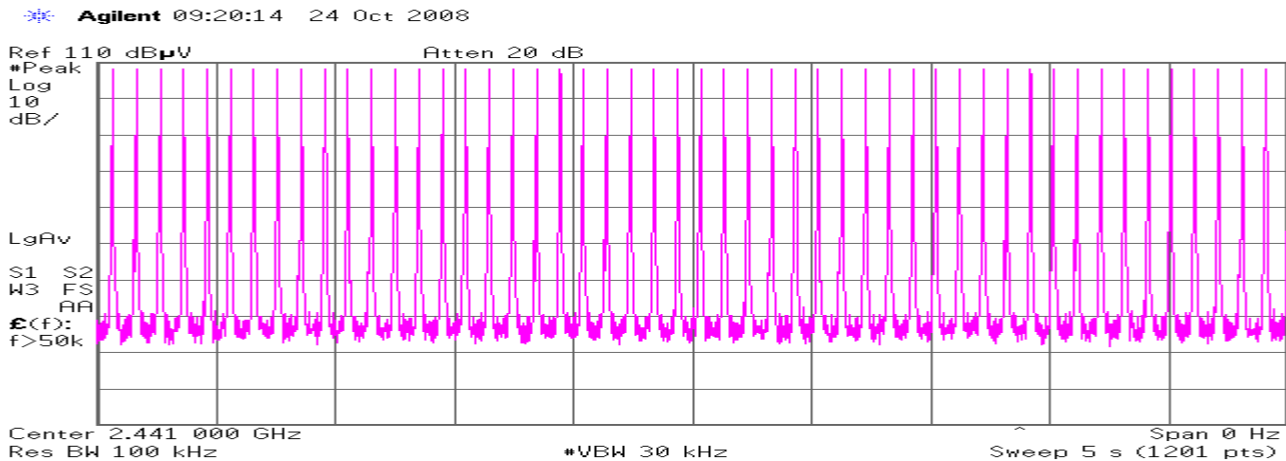
Company: SATO CORPORATION  
 Kind of Equipment: BARCODE PRINTER  
 Serial No.: ES0000009

Report No.: 29AE0053-YK-02-A-R2  
 Model No.: MB410i-B2  
 Power: AC120V/60Hz

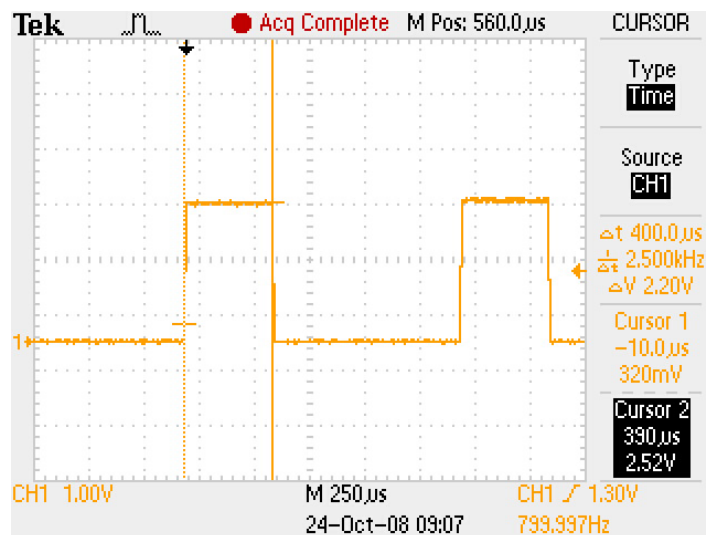
#### Count 4



#### Count 5



#### Duty cycle(Hopping DH1)



Average times of rising in 5 sec. of sweep =  $(51 + 51 + 51 + 51 + 50) / 5 = 50.8$

Average times of rising in 1 sec. =  $50.8 / 5s = 10.16$

Average times of rising in 0.4x =  $0.4 * 79ch * 10.16 = 321.056$

Dwell time =  $321.056 * 0.400 = 128.42$  [ms]

Limit : Dwell Time < 0.4[s]

Company: SATO CORPORATION  
Kind of Equipment: BARCODE PRINTER  
Serial No.: ES0000009

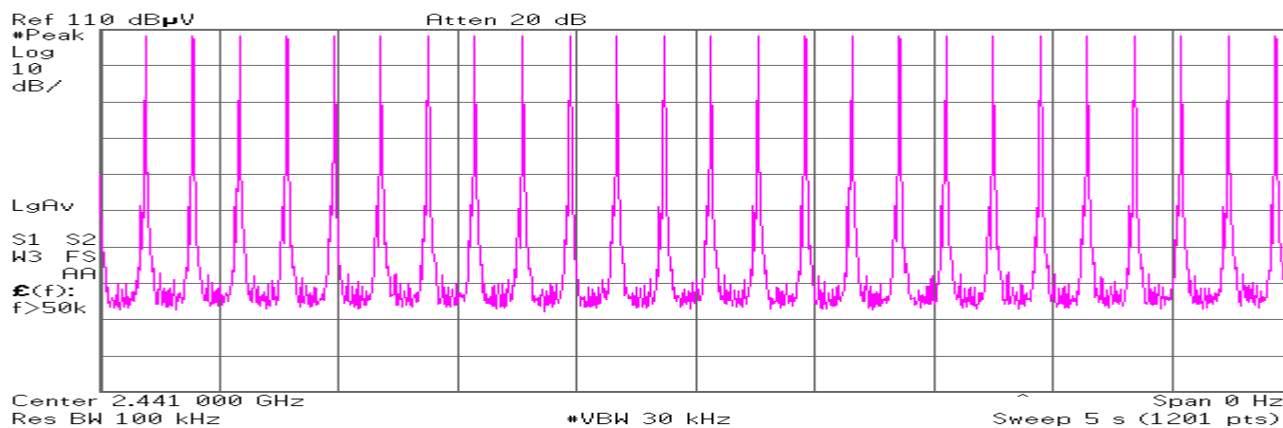
Report No.:  
Model No.:  
Power:

29AE0053-YK-02-A-R2  
MB410i-B2  
AC120V/60Hz

### Hopping (DH3):

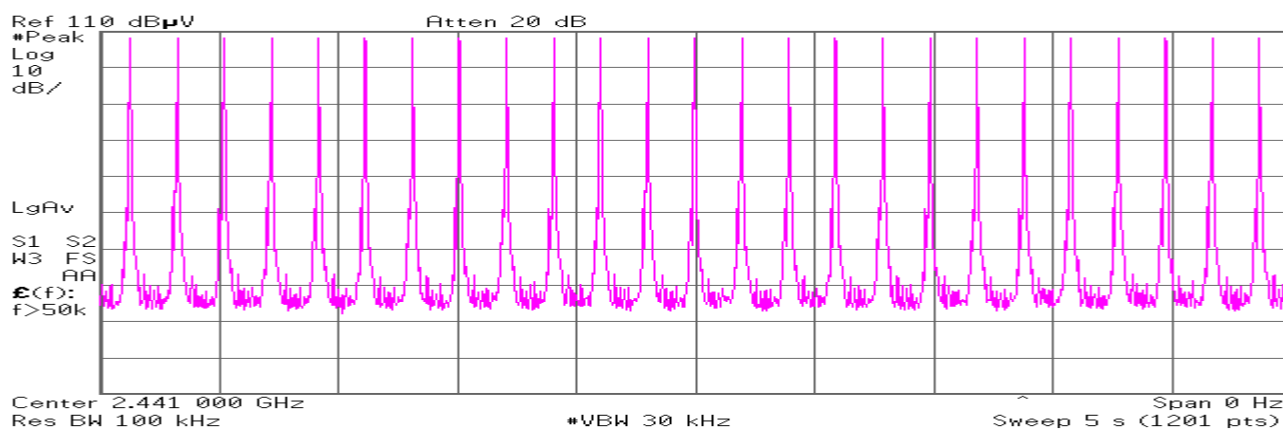
#### Count 1

Agilent 09:22:09 24 Oct 2008



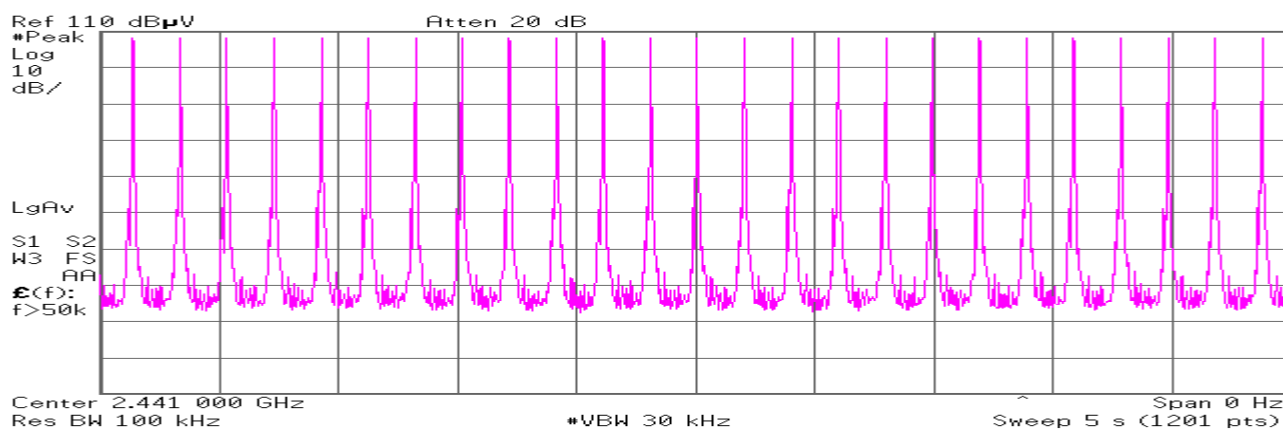
#### Count 2

Agilent 09:22:34 24 Oct 2008



#### Count 3

Agilent 09:22:54 24 Oct 2008

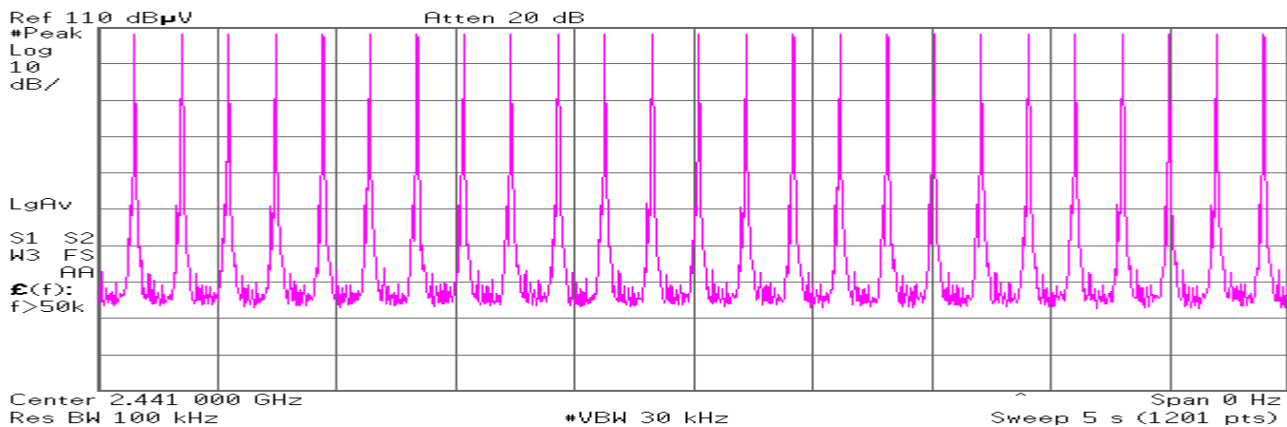


Company: SATO CORPORATION  
 Kind of Equipment: BARCODE PRINTER  
 Serial No.: ES0000009

Report No.: 29AE0053-YK-02-A-R2  
 Model No.: MB410i-B2  
 Power: AC120V/60Hz

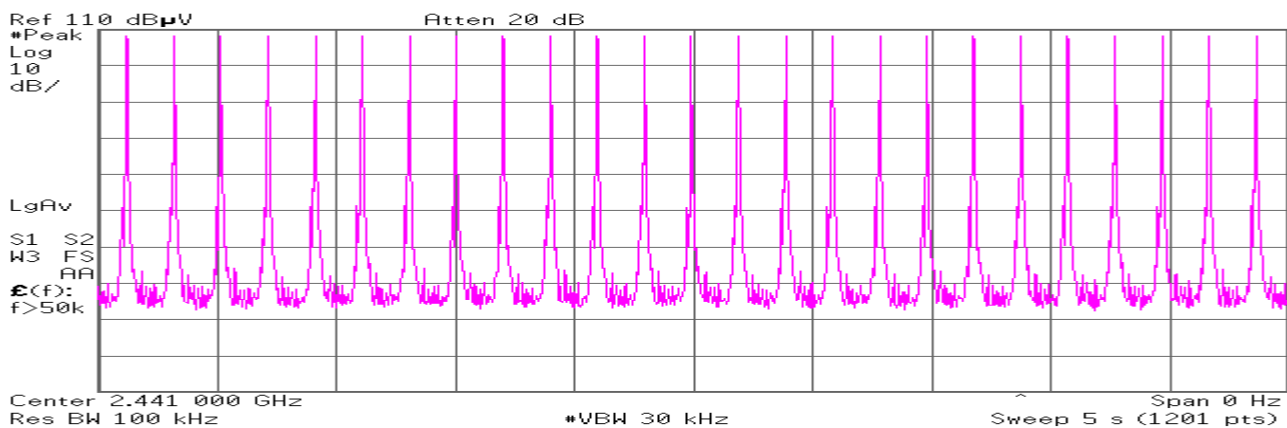
#### Count4

Agilent 09:23:18 24 Oct 2008

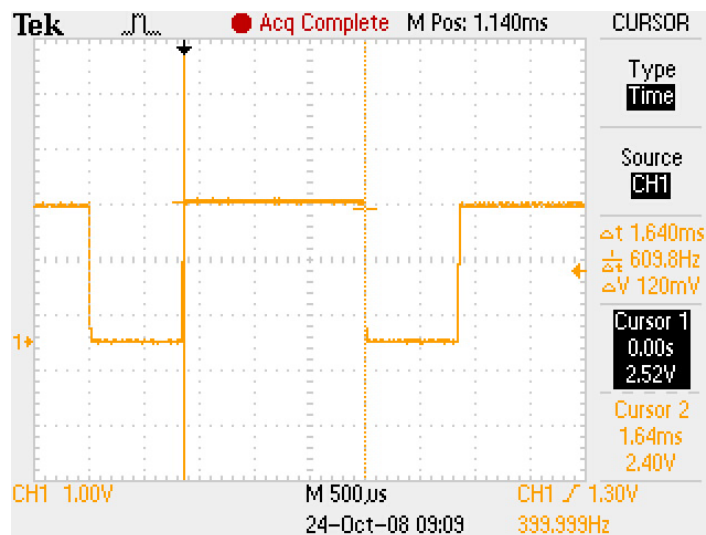


#### Count5

Agilent 09:23:40 24 Oct 2008



#### Duty cycle(Hopping DH3)



Average times of rising in 5 sec. of sweep =  $(25 + 25 + 25 + 25 + 25) / 5 = 25.0$

Average times of rising in 1 sec. =  $25.0 / 5s = 5.0$

Average times of rising in 0.4x =  $0.4 * 79ch * 5.0 = 158.0$

Dwell time =  $158.0 * 1.64 = 259.12 [ms]$

Limit : Dwell Time < 0.4[s]

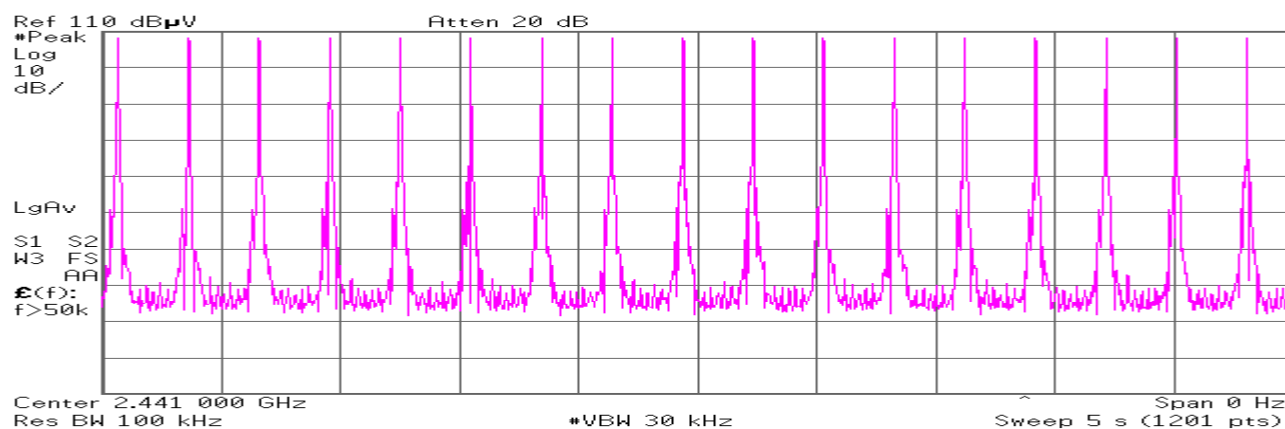
Company: SATO CORPORATION  
Kind of Equipment: BARCODE PRINTER  
Serial No.: ES0000009

Report No.: 29AE0053-YK-02-A-R2  
Model No.: MB410i-B2  
Power: AC120V/60Hz

### Hopping (DH5):

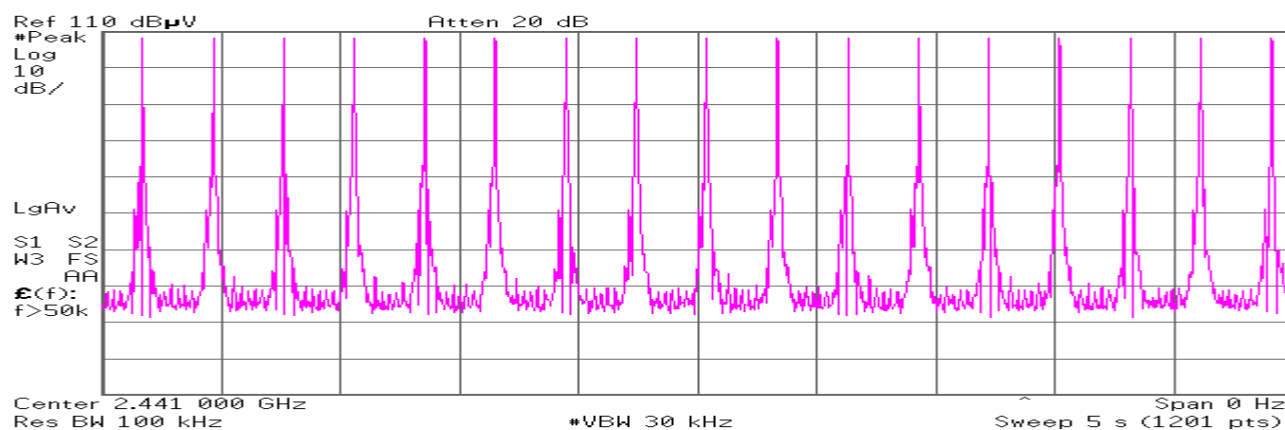
#### Count 1

Agilent 09:24:08 24 Oct 2008



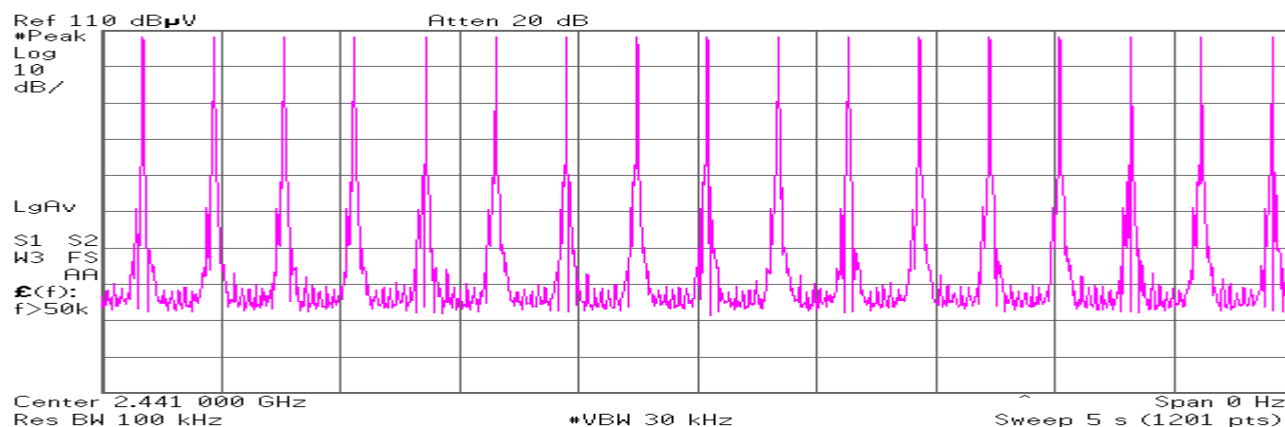
#### Count 2

Agilent 09:24:29 24 Oct 2008



#### Count 3

Agilent 09:24:50 24 Oct 2008



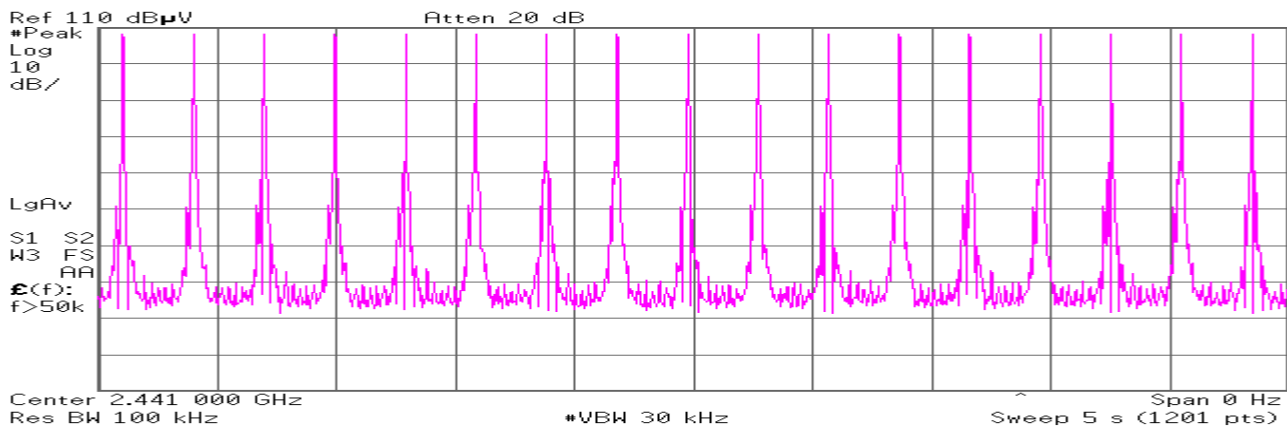
Company: SATO CORPORATION  
Kind of Equipment: BARCODE PRINTER  
Serial No.: ES0000009

Report No.:  
Model No.:  
Power:

29AE0053-YK-02-A-R2  
MB410i-B2  
AC120V/60Hz

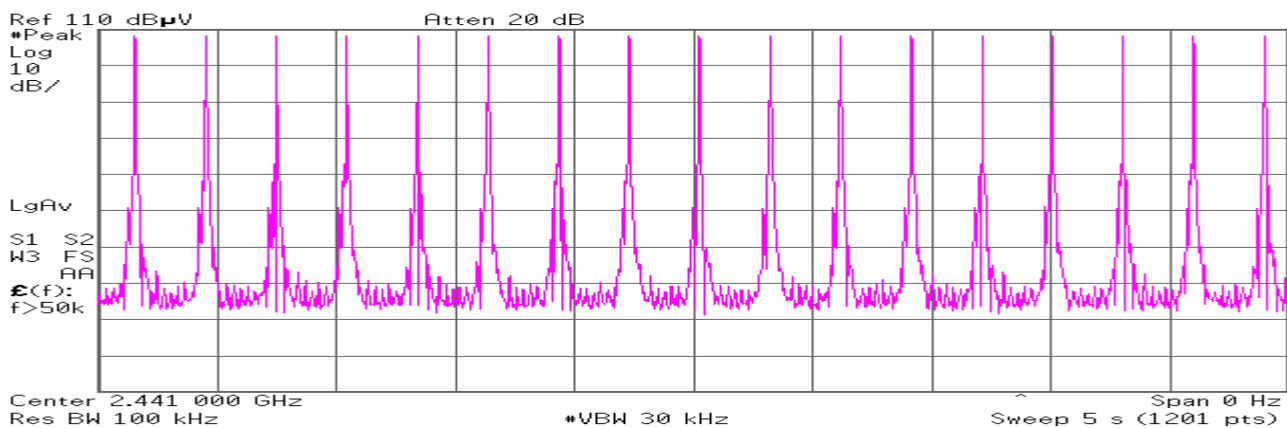
#### Count 4

Agilent 09:25:09 24 Oct 2008

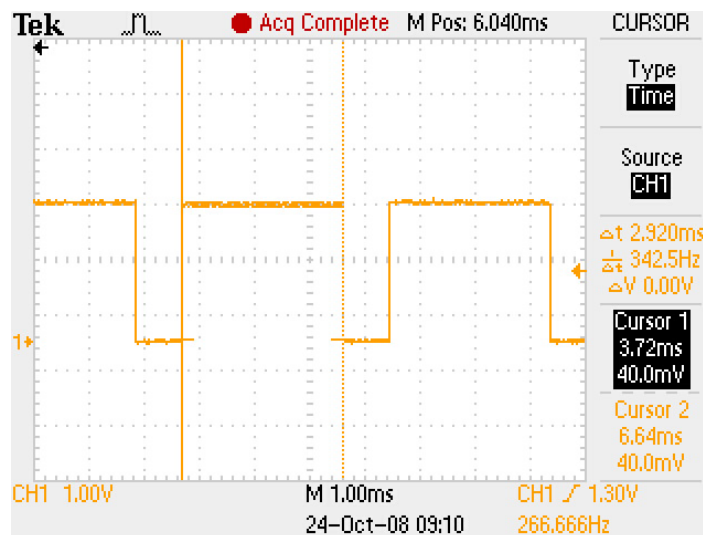


#### Count 5

Agilent 09:25:30 24 Oct 2008



#### Duty cycle(Hopping DH5)



Average times of rising in 5 sec. of sweep =  $(17 + 17 + 17 + 17 + 17) / 5 = 17.0$

Average times of rising in 1 sec. =  $17.0 / 5s = 3.40$

Average times of rising in 0.4x =  $0.4 * 79ch * 3.40 = 107.44$

Dwell time =  $107.44 * 2.92 = 313.72$  [ms]

Limit : Dwell Time < 0.4[s]

Company: SATO CORPORATION  
Kind of Equipment: BARCODE PRINTER  
Serial No.: ES0000009

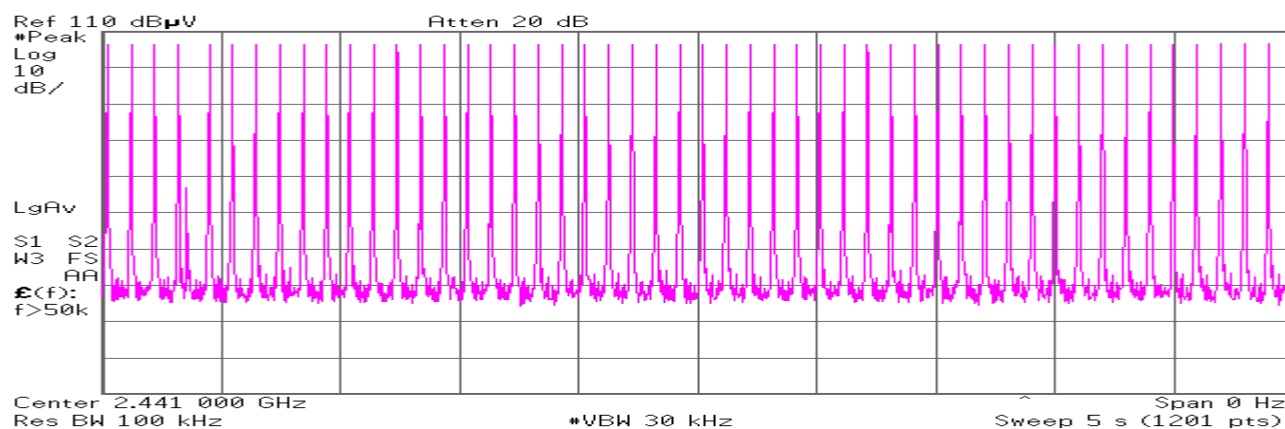
Report No.:  
Model No.:  
Power:

29AE0053-YK-02-A-R2  
MB410i-B2  
AC120V/60Hz

### Hopping (3DH1):

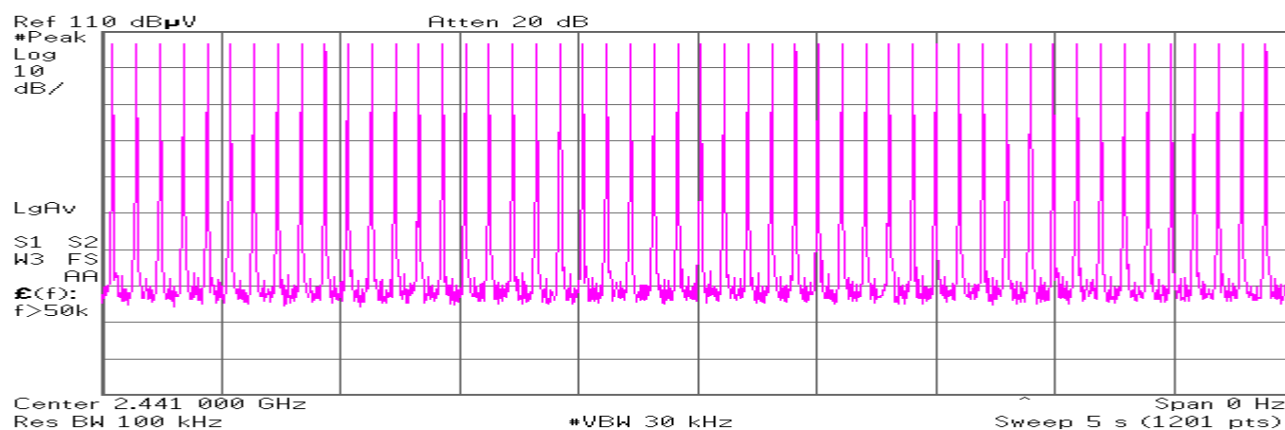
#### Count 1

Agilent 09:32:35 24 Oct 2008



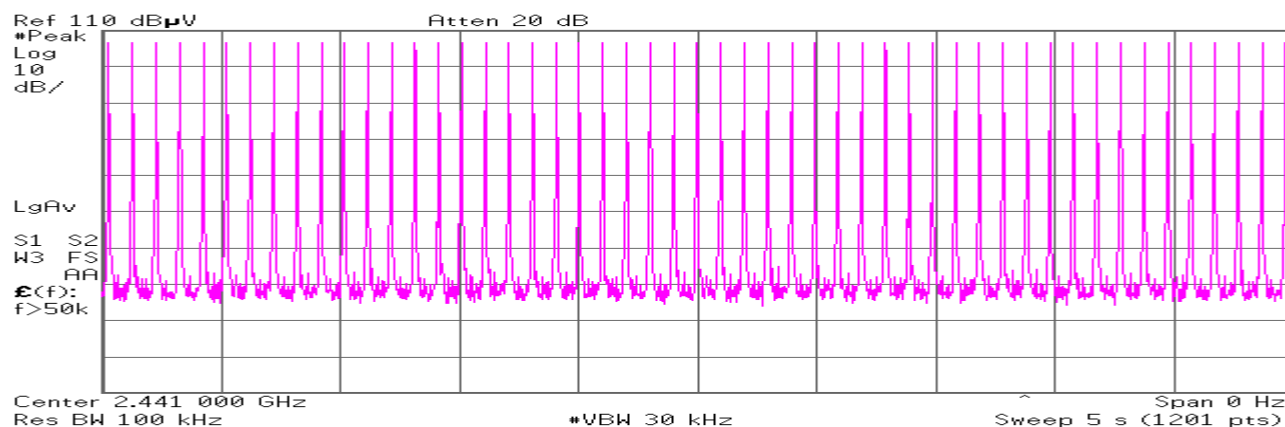
#### Count 2

Agilent 09:32:49 24 Oct 2008



#### Count 3

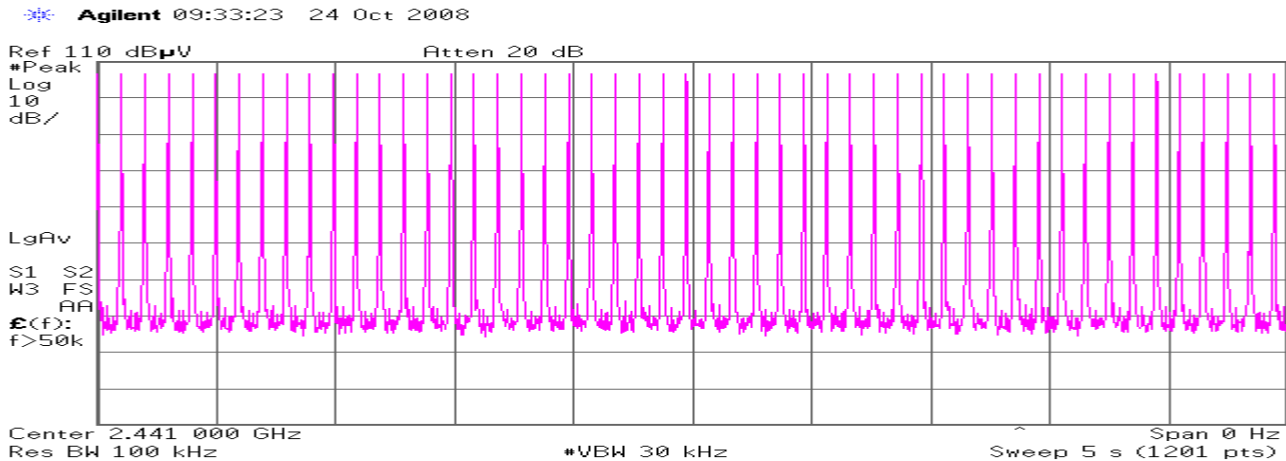
Agilent 09:33:04 24 Oct 2008



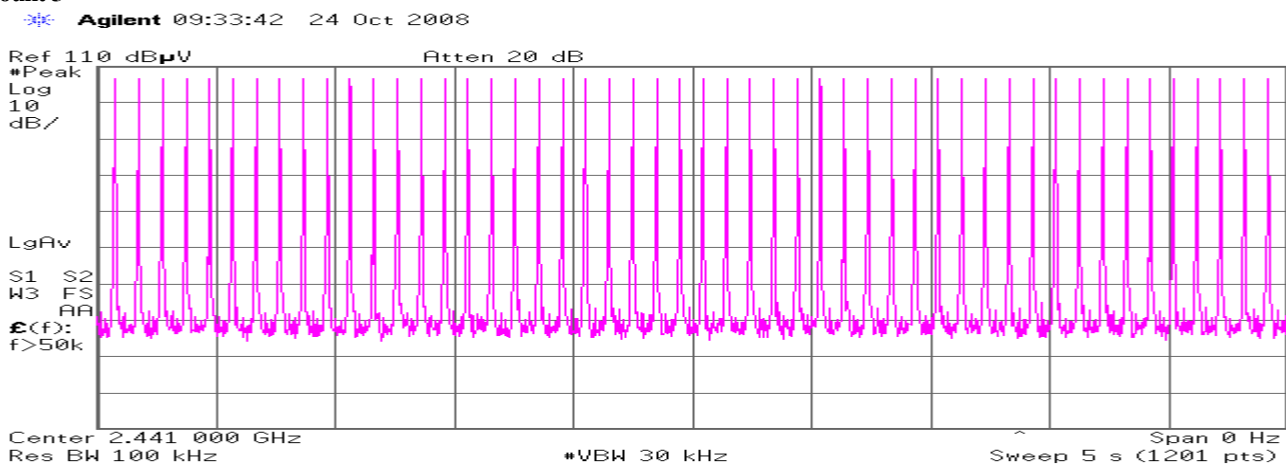
Company: SATO CORPORATION  
 Kind of Equipment: BARCODE PRINTER  
 Serial No.: ES0000009

Report No.: 29AE0053-YK-02-A-R2  
 Model No.: MB410i-B2  
 Power: AC120V/60Hz

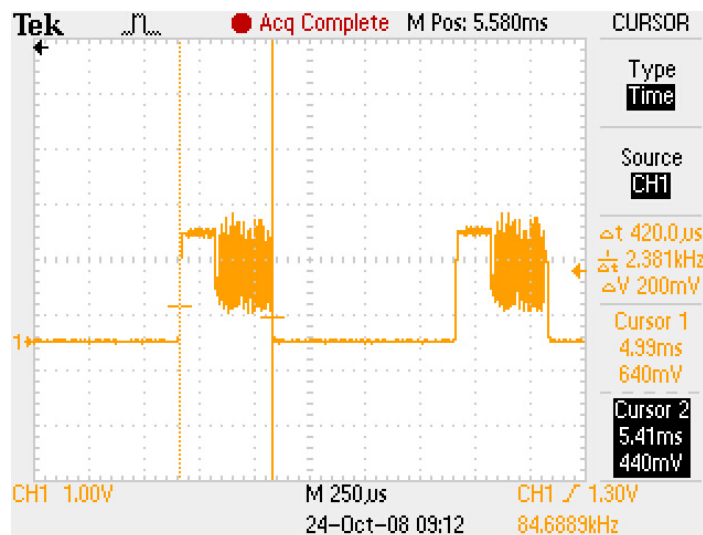
#### Count 4



#### Count 5



#### Duty cycle(Hopping 3DH1)



Average times of rising in 5 sec. of sweep =  $(51 + 51 + 51 + 51 + 50) / 5 = 50.8$

Average times of rising in 1 sec. =  $50.8 / 5s = 10.16$

Average times of rising in 0.4x =  $0.4 * 79ch * 10.16 = 321.056$

Dwell time =  $321.056 * 0.42 = 134.84$  [ms]

Limit : Dwell Time < 0.4[s]

Company: SATO CORPORATION  
Kind of Equipment: BARCODE PRINTER  
Serial No.: ES0000009

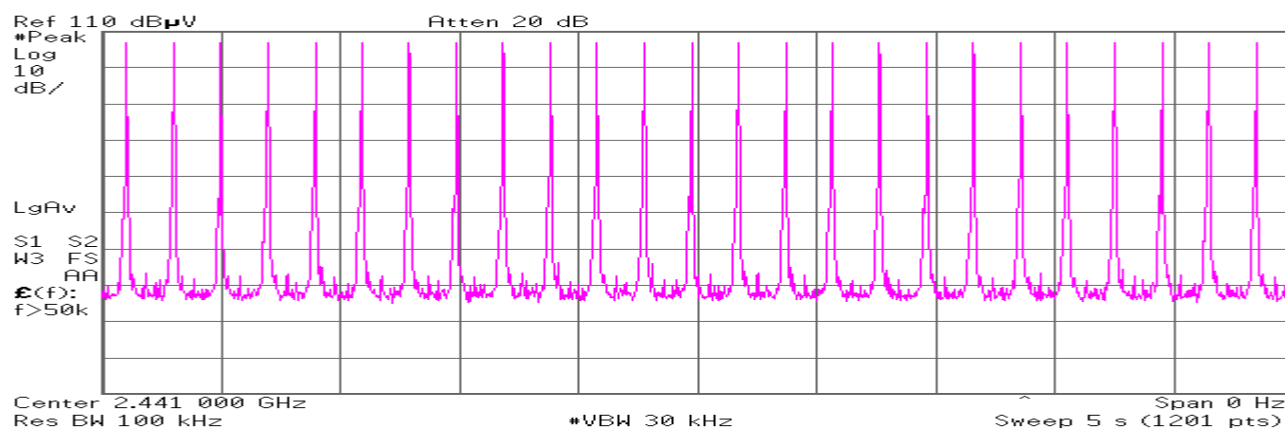
Report No.:  
Model No.:  
Power:

29AE0053-YK-02-A-R2  
MB410i-B2  
AC120V/60Hz

### Hopping (3DH3):

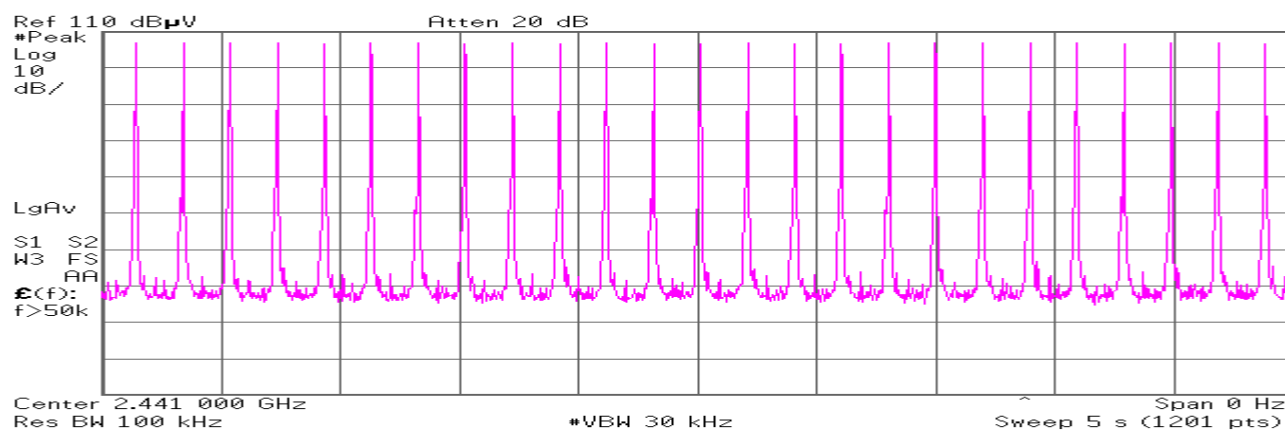
#### Count 1

Agilent 09:34:24 24 Oct 2008



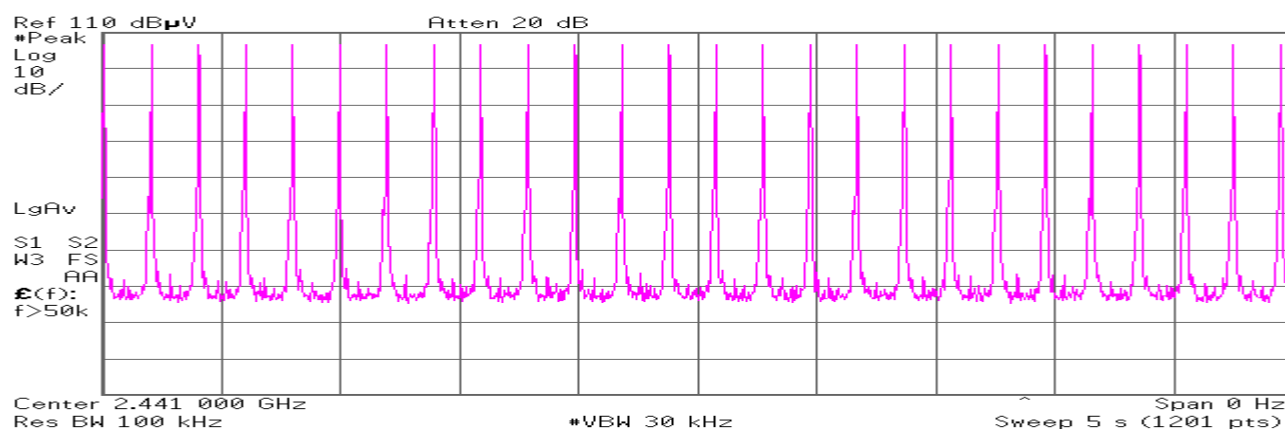
#### Count 2

Agilent 09:34:44 24 Oct 2008



#### Count 3

Agilent 09:35:02 24 Oct 2008

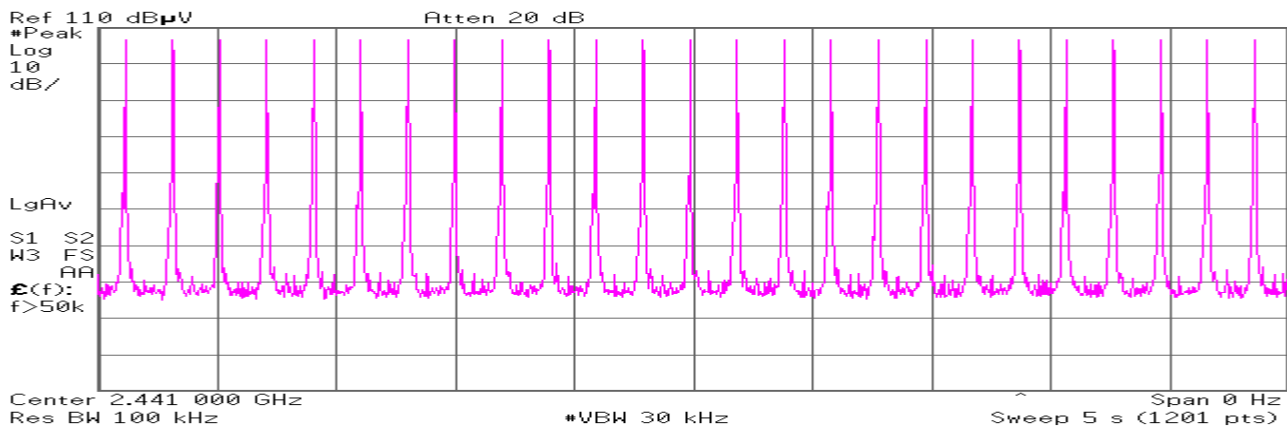


Company: SATO CORPORATION  
 Kind of Equipment: BARCODE PRINTER  
 Serial No.: ES0000009

Report No.: 29AE0053-YK-02-A-R2  
 Model No.: MB410i-B2  
 Power: AC120V/60Hz

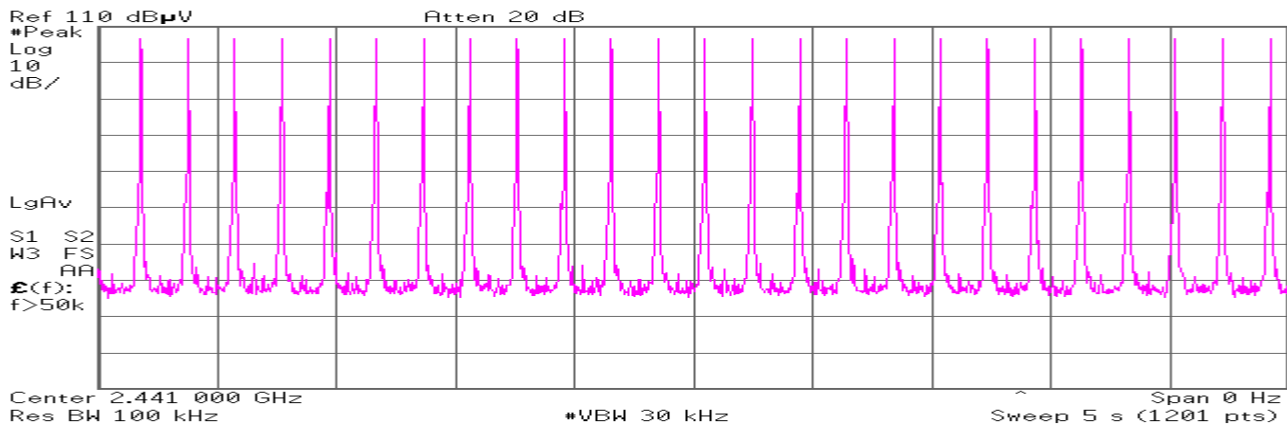
#### Count 4

Agilent 09:35:21 24 Oct 2008

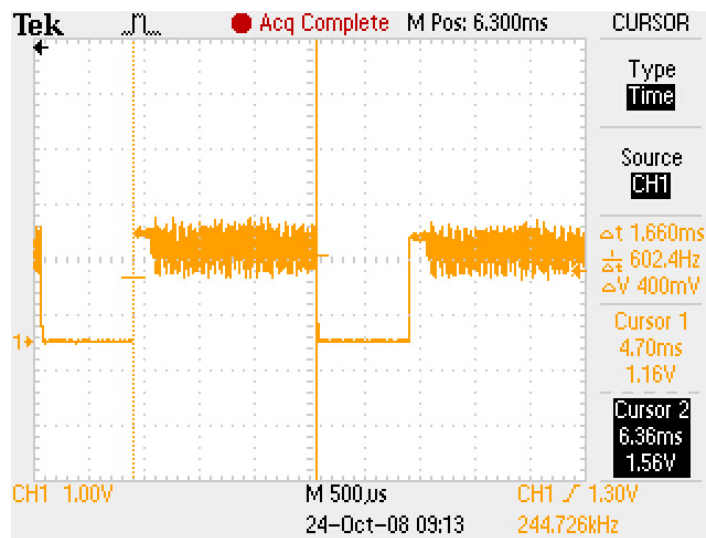


#### Count 5

Agilent 09:35:39 24 Oct 2008



#### Duty cycle(Hopping 3DH3)



Average times of rising in 5 sec. of sweep =  $(25 + 25 + 26 + 25 + 25) / 5 = 25.2$

Average times of rising in 1 sec. =  $25.2 / 5s = 5.04$

Average times of rising in 0.4x =  $0.4 * 79ch * 5.04 = 159.264$

Dwell time =  $159.264 * 1.66 = 264.38$  [ms]

Limit : Dwell Time < 0.4[s]

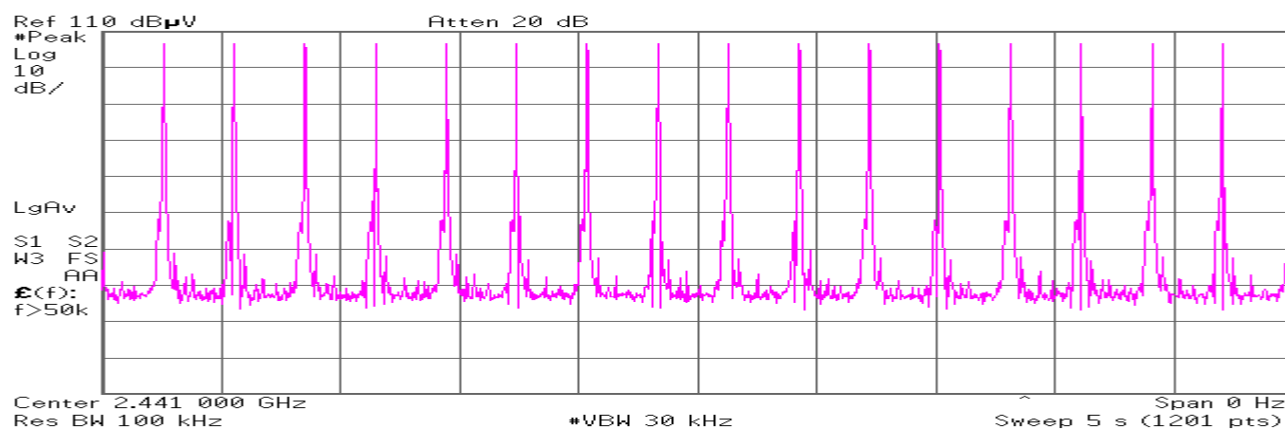
Company: SATO CORPORATION  
Kind of Equipment: BARCODE PRINTER  
Serial No.: ES0000009

Report No.: 29AE0053-YK-02-A-R2  
Model No.: MB410i-B2  
Power: AC120V/60Hz

### Hopping (3DH5):

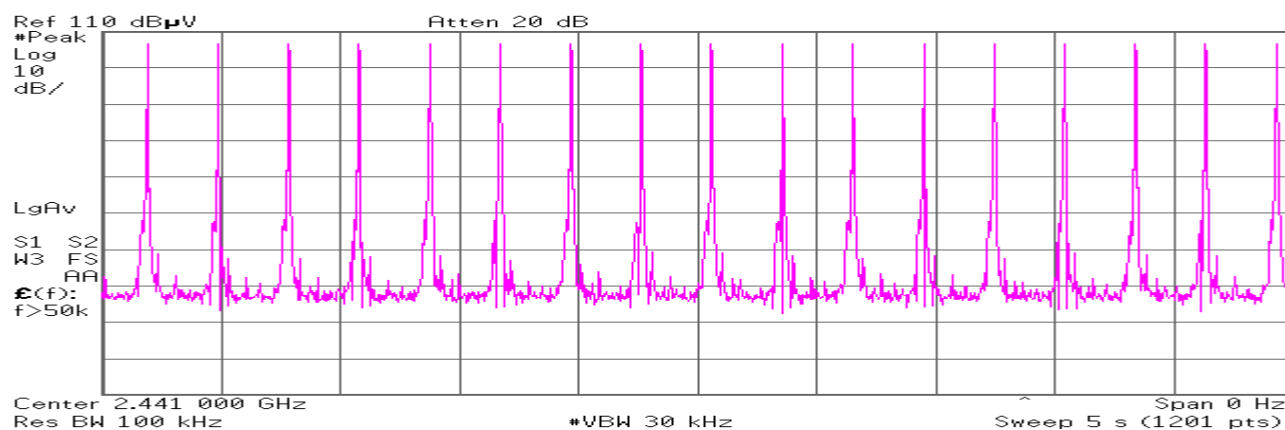
#### Count 1

Agilent 09:36:28 24 Oct 2008



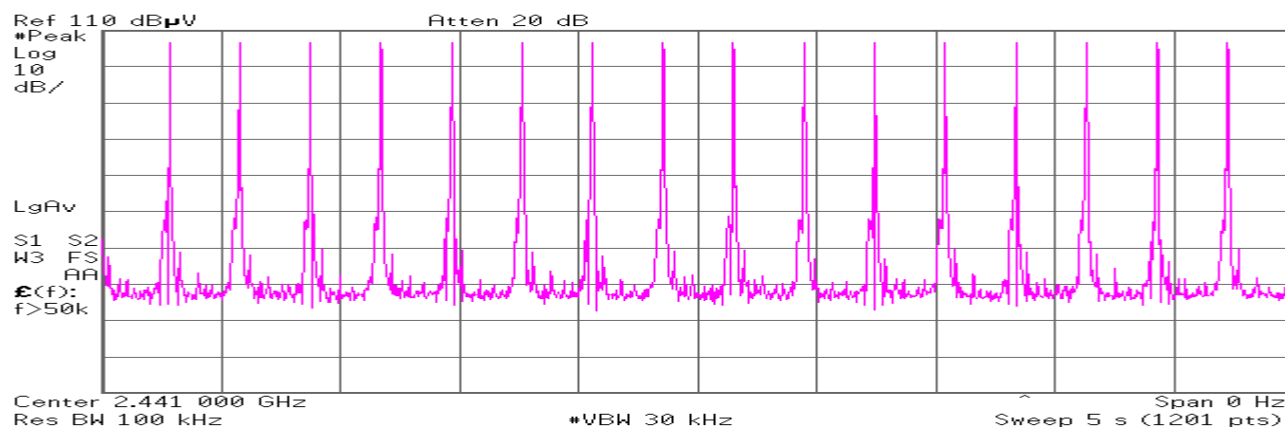
#### Count 2

Agilent 09:36:56 24 Oct 2008



#### Count 3

Agilent 09:37:16 24 Oct 2008

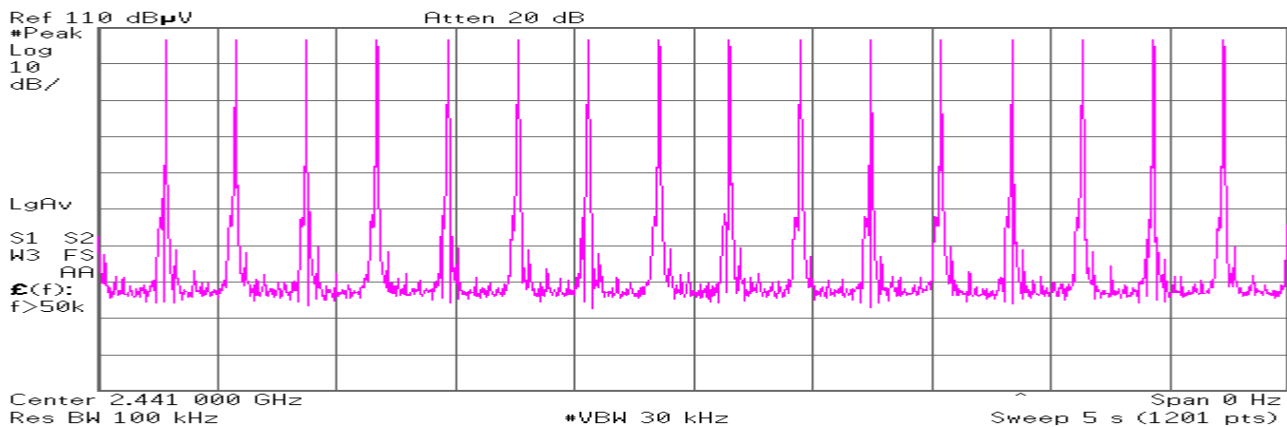


Company: SATO CORPORATION  
 Kind of Equipment: BARCODE PRINTER  
 Serial No.: ES0000009

Report No.: 29AE0053-YK-02-A-R2  
 Model No.: MB410i-B2  
 Power: AC120V/60Hz

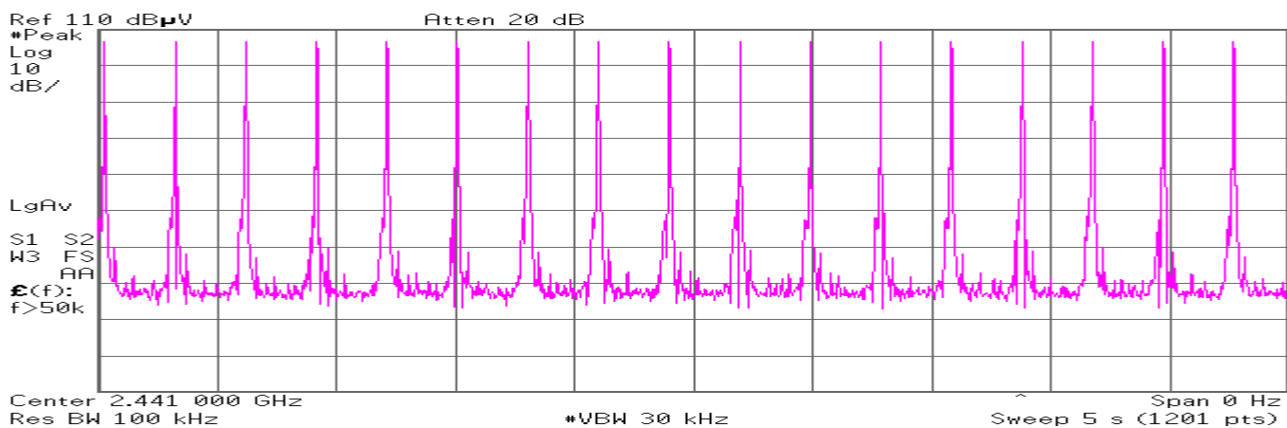
#### Count4

Agilent 09:37:29 24 Oct 2008

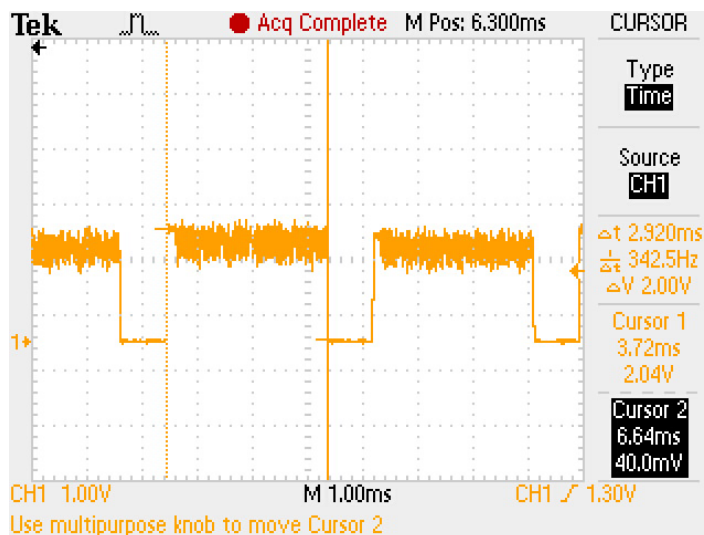


#### Count5

Agilent 09:37:47 24 Oct 2008



#### Duty cycle(Hopping 3DH5)



Average times of rising in 5 sec. of sweep =  $(17 + 17 + 16 + 16 + 17) / 5 = 16.6$

Average times of rising in 1 sec. =  $16.6 / 5s = 3.32$

Average times of rising in 0.4x =  $0.4 * 79ch * 3.32 = 104.912$

Dwell time =  $104.912 * 2.92 = 306.34 [ms]$

Limit : Dwell Time < 0.4[s]

Company: SATO CORPORATION  
Kind of Equipment: BARCODE PRINTER  
Serial No.: ES0000009

Report No.: 29AE0053-YK-02-A-R2  
Model No.: MB410i-B2  
Power: AC120V/60Hz

## **Maximum Peak Conducted Output Power (Regulation: FCC 15.247(b)(1))**

UL Japan, Inc Yamakita EMC lab.  
No.2 Shielded Room

DATE: 3-Oct-08  
TEMP./HUMID.: 24deg.C/51%  
TEST MODE: Transmitting

ENGINEER: Tatsuya Arai

### **DH5**

| CH   | FREQ<br>[GHz] | P/M<br>Reading<br>[dBm] | Cable Loss<br>[dB] | Results<br>[dBm] | Limit<br>(125mW)<br>[dBm] | MARGIN<br>[dB] |
|------|---------------|-------------------------|--------------------|------------------|---------------------------|----------------|
| Low  | 2402.00       | 0.83                    | 0.45               | 1.28             | 20.96                     | 19.68          |
| Mid  | 2441.00       | 1.70                    | 0.45               | 2.15             | 20.96                     | 18.81          |
| High | 2480.00       | 1.66                    | 0.45               | 2.11             | 20.96                     | 18.85          |

Limit: 125mW=20.96dBm

P/M: Power Meter

CABLE LOSS:Customer's cable

### **2DH5**

| CH   | FREQ<br>[GHz] | P/M<br>Reading<br>[dBm] | Cable Loss<br>[dB] | Results<br>[dBm] | Limit<br>(125mW)<br>[dBm] | MARGIN<br>[dB] |
|------|---------------|-------------------------|--------------------|------------------|---------------------------|----------------|
| Low  | 2402.00       | 0.69                    | 0.45               | 1.14             | 20.96                     | 19.82          |
| Mid  | 2441.00       | 1.23                    | 0.45               | 1.68             | 20.96                     | 19.28          |
| High | 2480.00       | 0.82                    | 0.45               | 1.27             | 20.96                     | 19.69          |

Limit: 125mW=20.96dBm

P/M: Power Meter

CABLE LOSS:Customer's cable

### **3DH5**

| CH   | FREQ<br>[GHz] | P/M<br>Reading<br>[dBm] | Cable Loss<br>[dB] | Results<br>[dBm] | Limit<br>(125mW)<br>[dBm] | MARGIN<br>[dB] |
|------|---------------|-------------------------|--------------------|------------------|---------------------------|----------------|
| Low  | 2402.00       | 0.72                    | 0.45               | 1.17             | 20.96                     | 19.79          |
| Mid  | 2441.00       | 1.28                    | 0.45               | 1.73             | 20.96                     | 19.23          |
| High | 2480.00       | 0.94                    | 0.45               | 1.39             | 20.96                     | 19.57          |

Limit: 125mW=20.96dBm

P/M: Power Meter

CABLE LOSS:Customer's cable

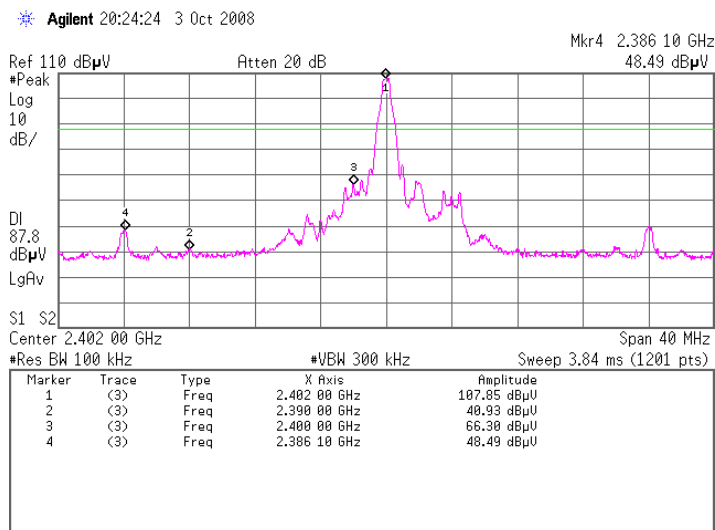
## Out of Band Emission (Antenna Terminal Conducted) (Regulation: FCC 15.247(d))

|                                  |               |                |
|----------------------------------|---------------|----------------|
| UL Japan, Inc. Yamakita EMC lab. | 2             | shielded room  |
| Date:                            | 2008.10.03    |                |
| Temp./Humid.:                    | 23            | deg. C. / 57 % |
| Engineer:                        | Makoto Hosaka |                |
| Test mode:                       | Transmitting  |                |

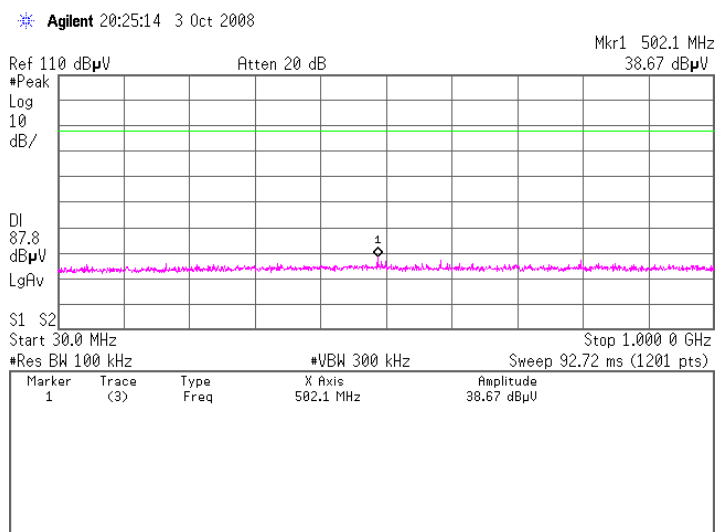
[Transmitting DH5]

Ch:2402MHz

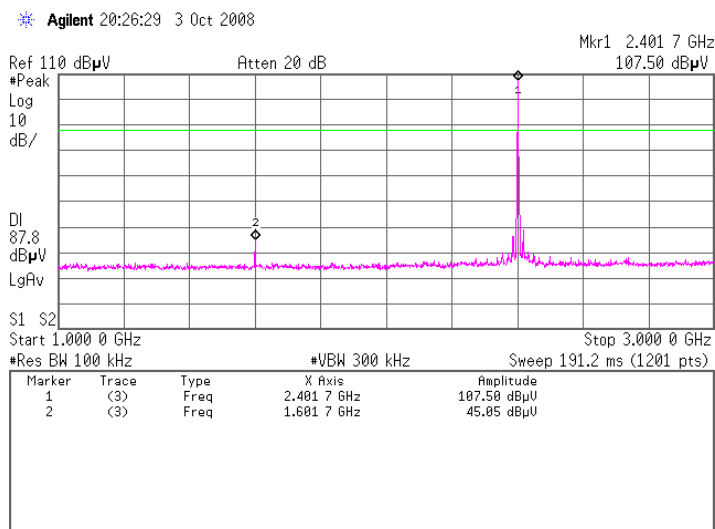
1.



2.

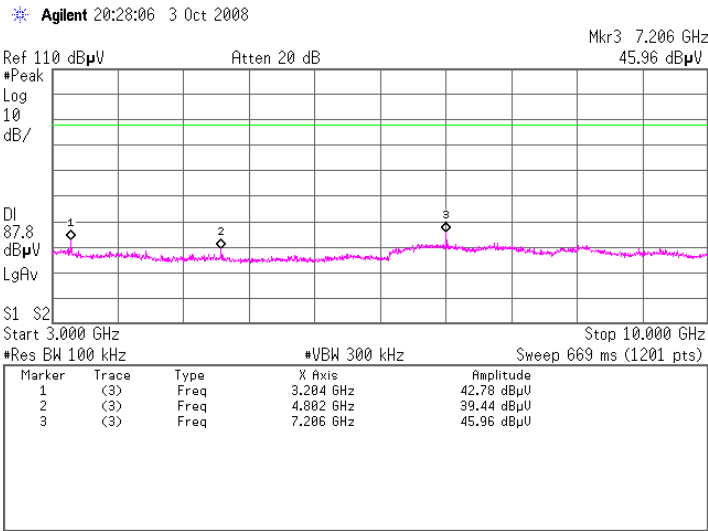


3.

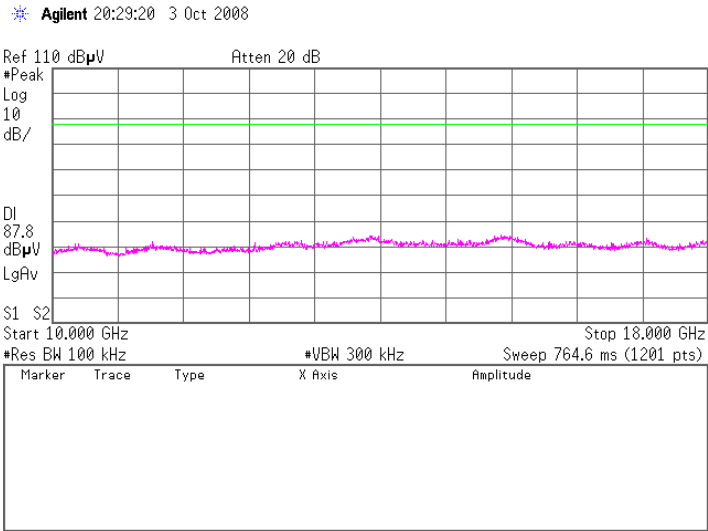


[Transmitting DH5]  
Ch:2402MHz

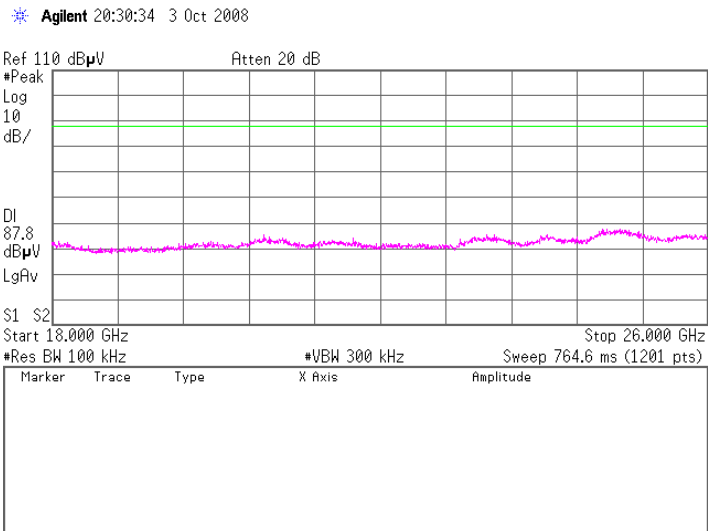
4.



5.

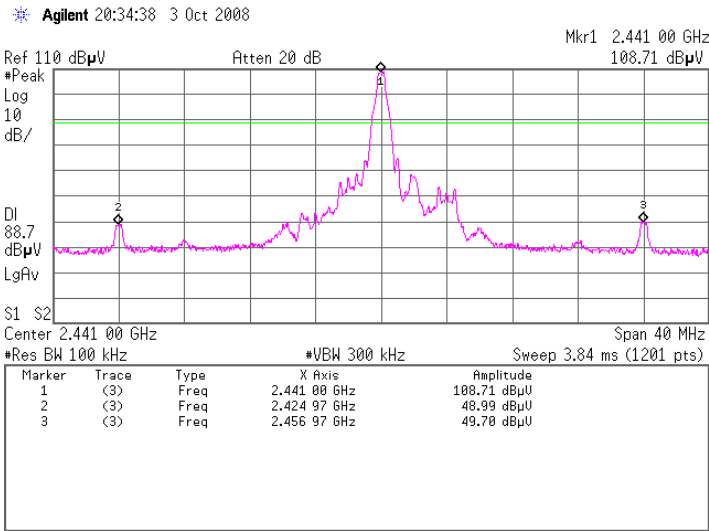


6.

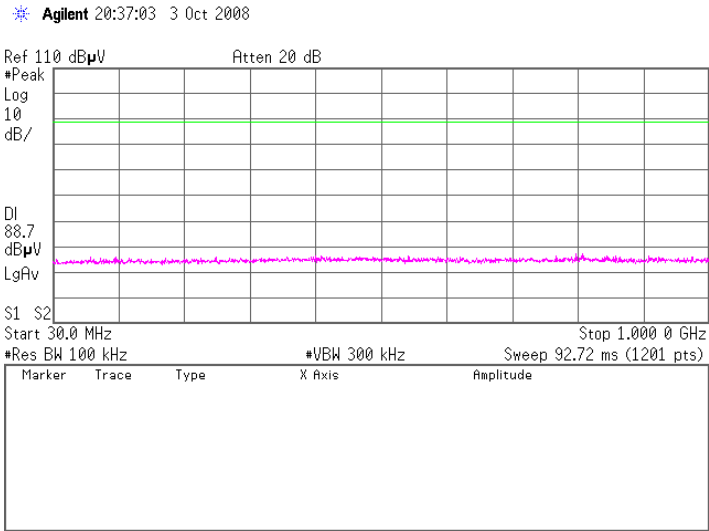


[Transmitting DH5]  
Ch:2441MHz

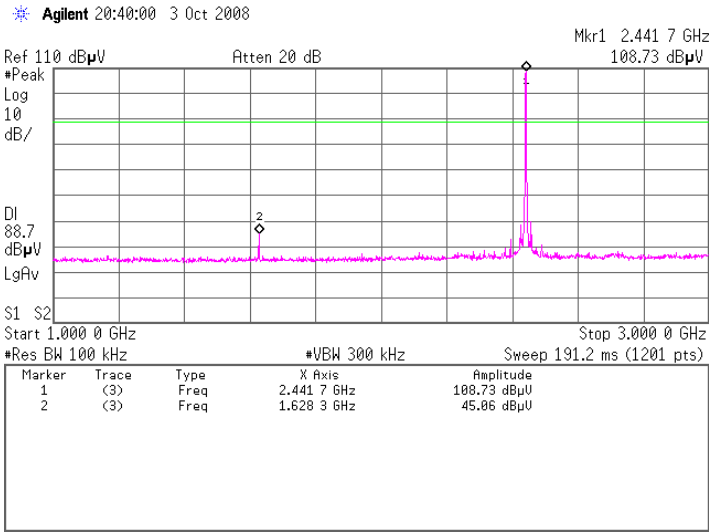
1.



2.

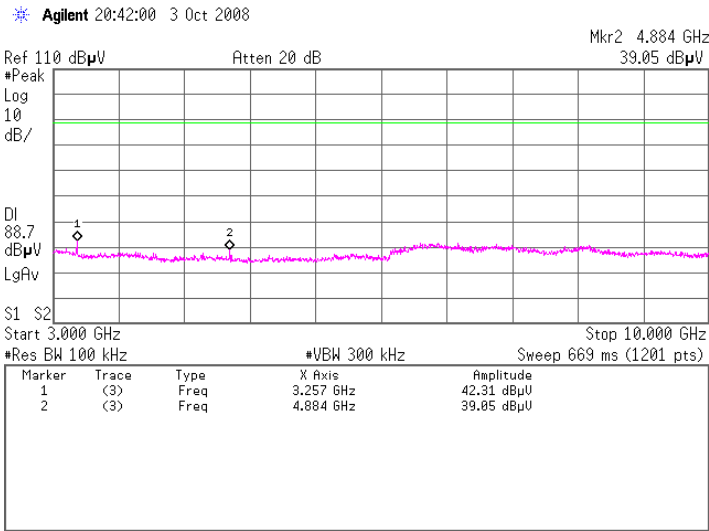


3.

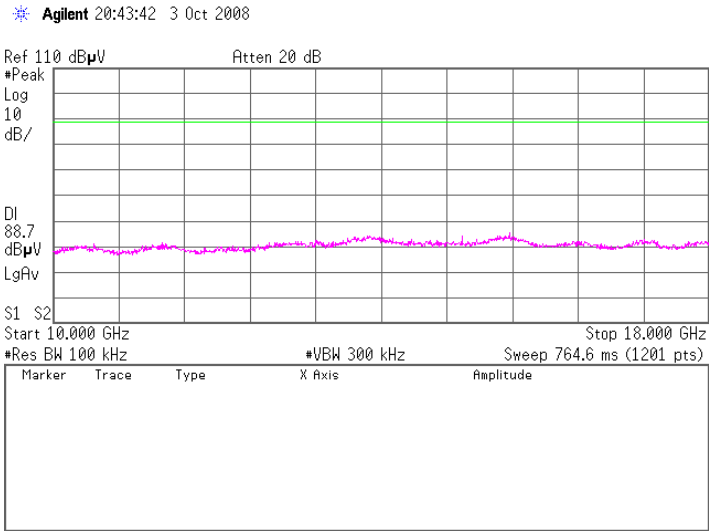


[Transmitting DH5]  
Ch:2441MHz

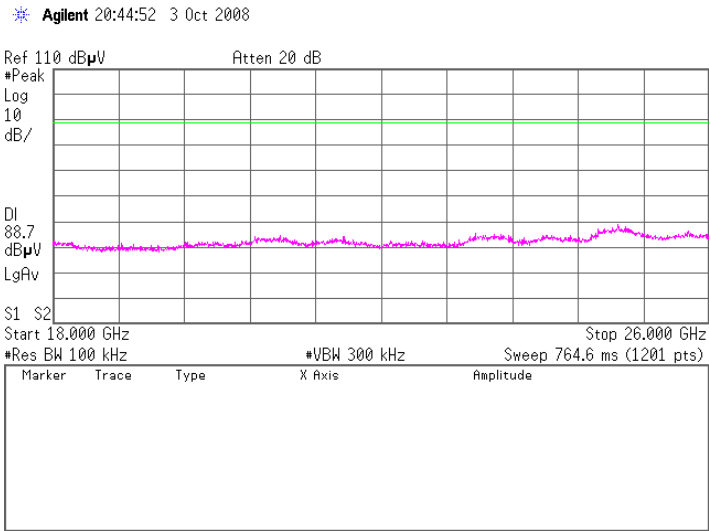
4.



5.



6.



Company:  
Kind of Equipment:  
Serial No.:

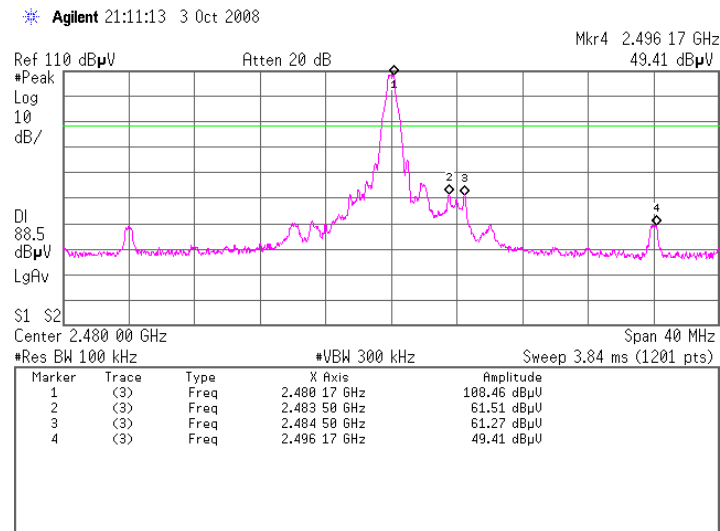
SATO CORPORATION  
BARCODE PRINTER  
ES0000009

Report No.:  
Model No.:  
Power:

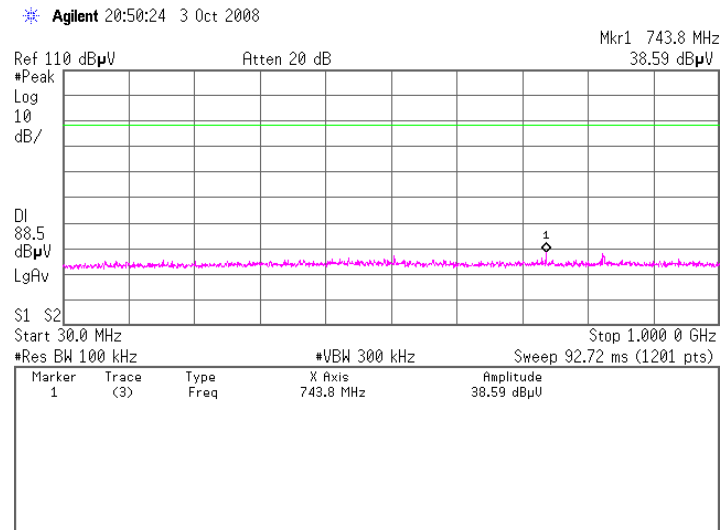
29AE0053-YK-02-A-R2  
MB410i-B2  
AC120V/60Hz

[Transmitting DH5]  
Ch:2480MHz

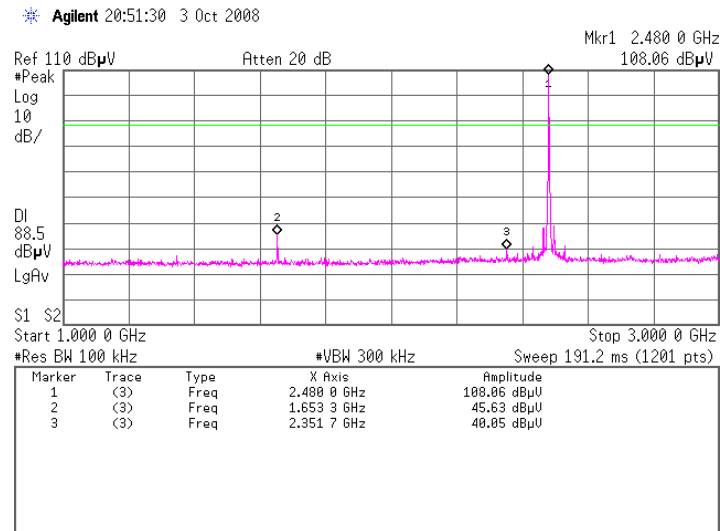
1.



2.

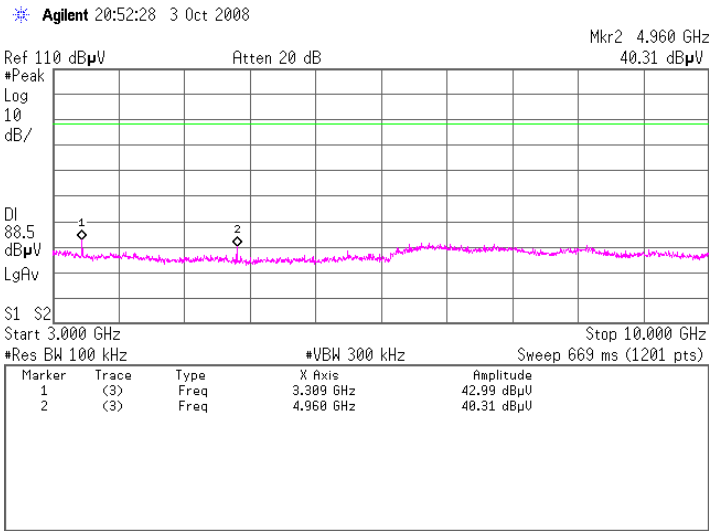


3.

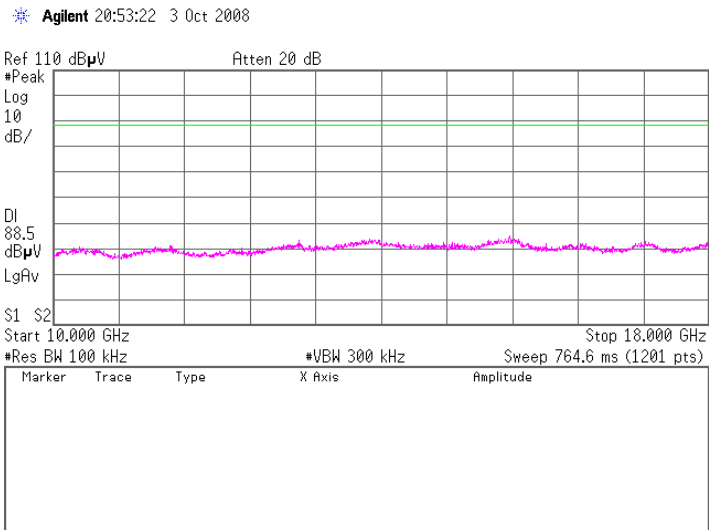


[Transmitting DH5]  
Ch:2480MHz

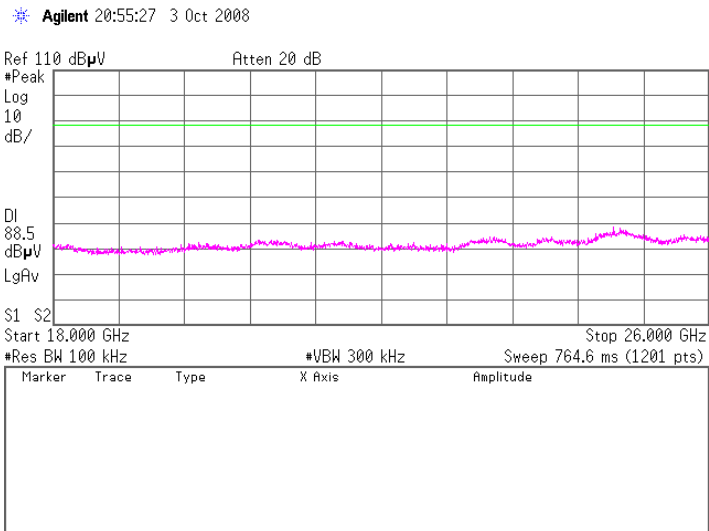
4.



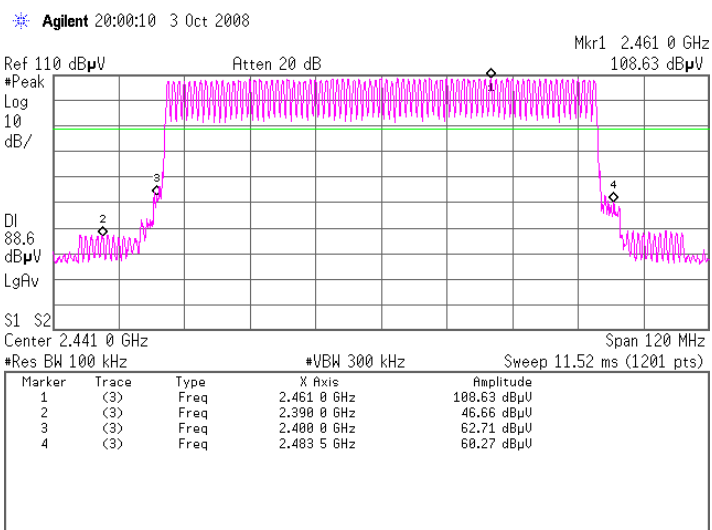
5.



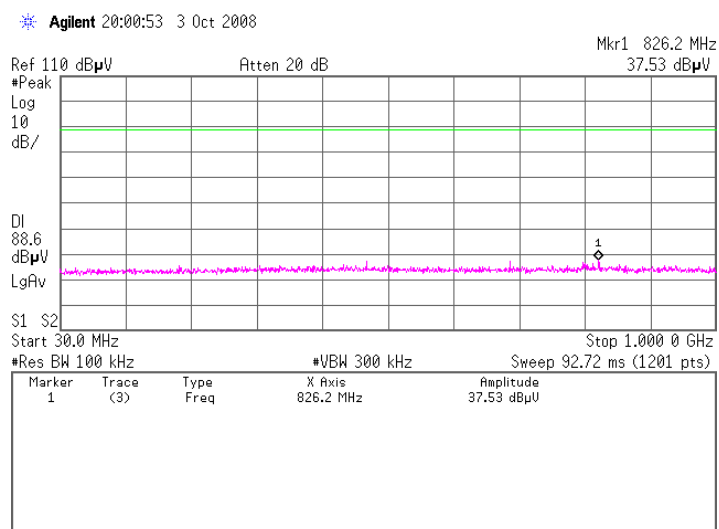
6.



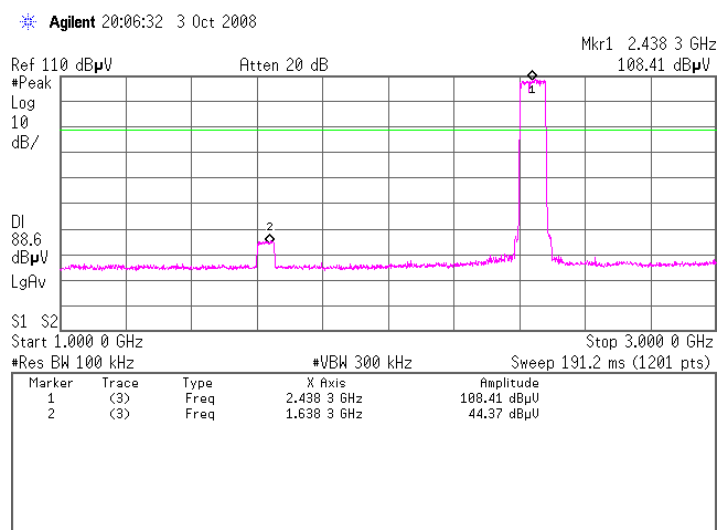
1.



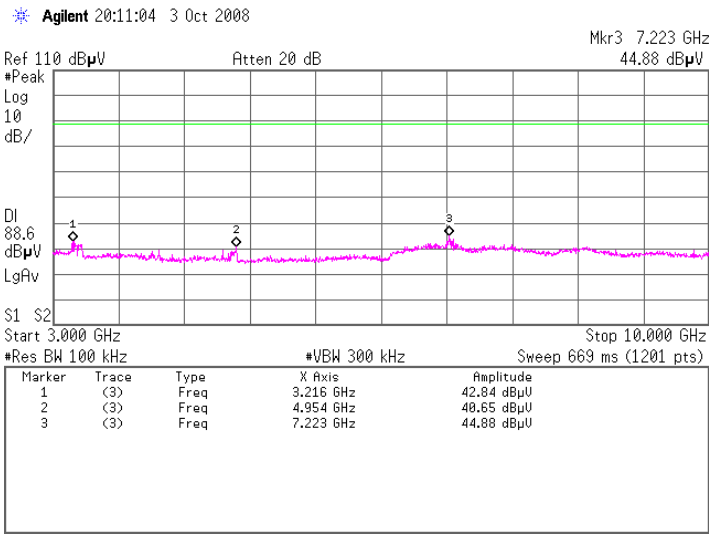
**2.**



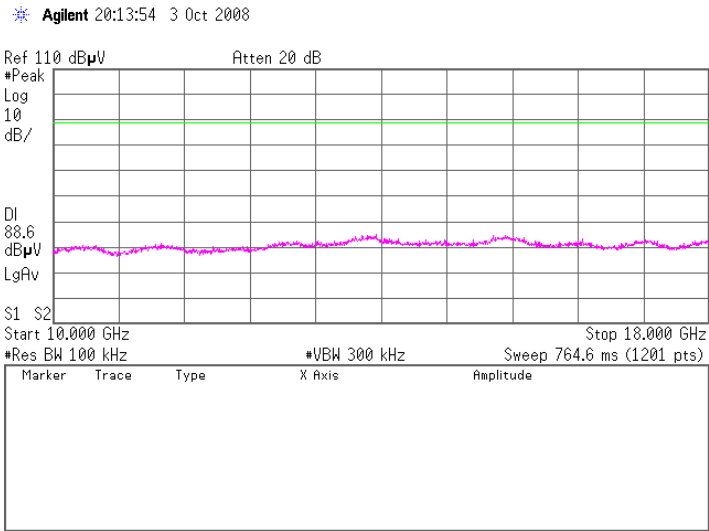
**3.**



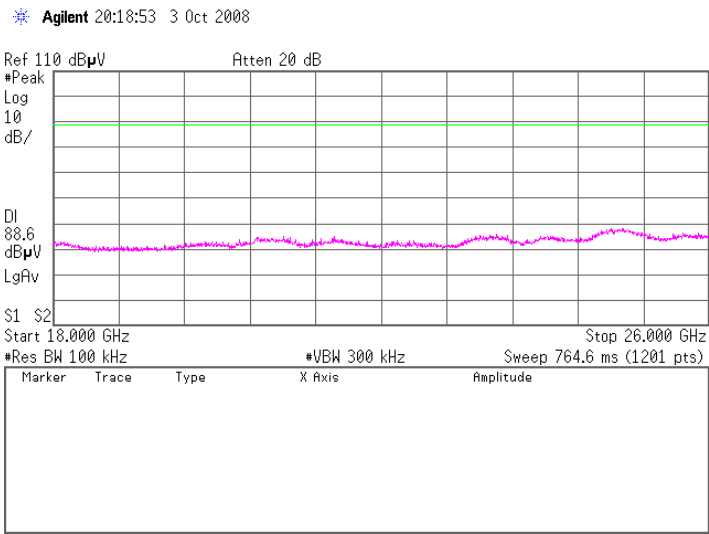
[Transmitting DH5]  
Hopping  
4.



5.

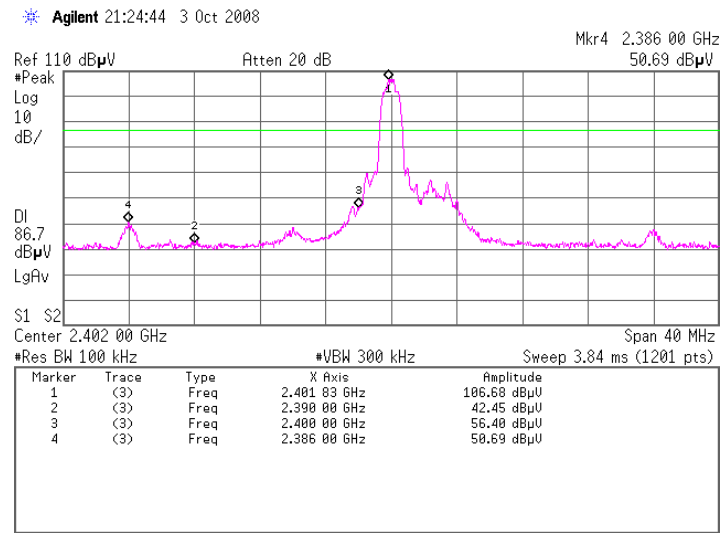


6.

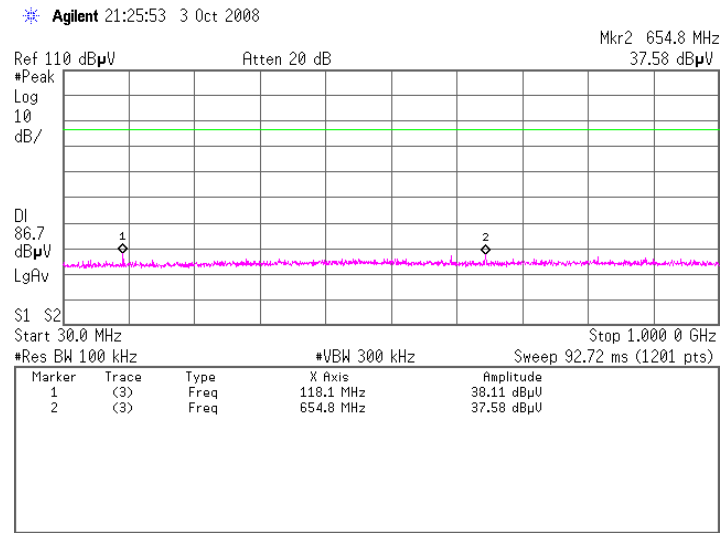


[Transmitting 3DH5]  
Ch:2402MHz

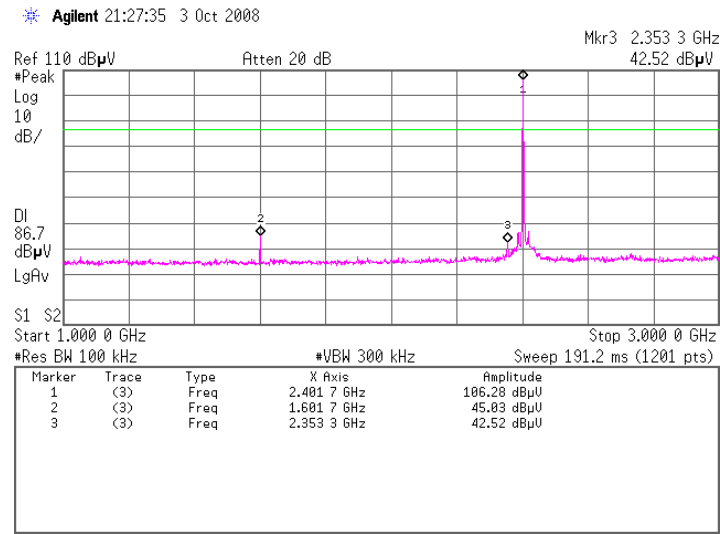
1.



2.

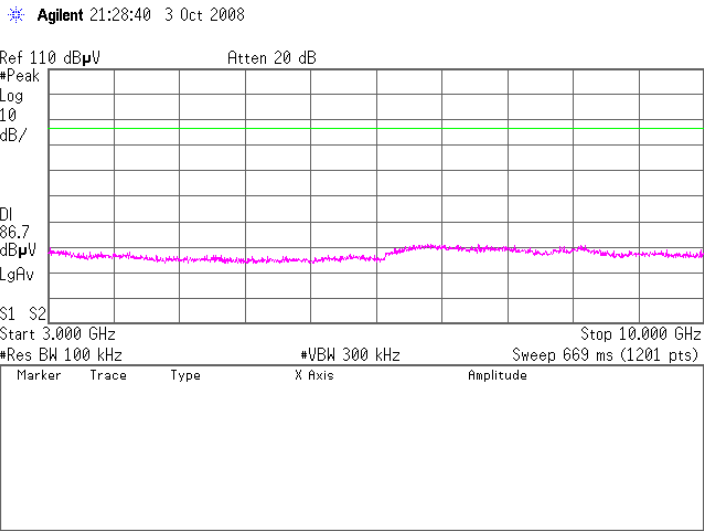


3.

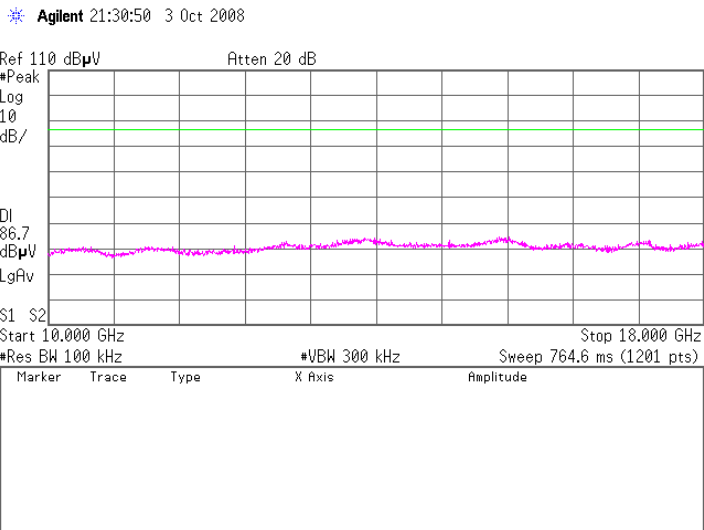


[Transmitting 3DH5]  
Ch:2402MHz

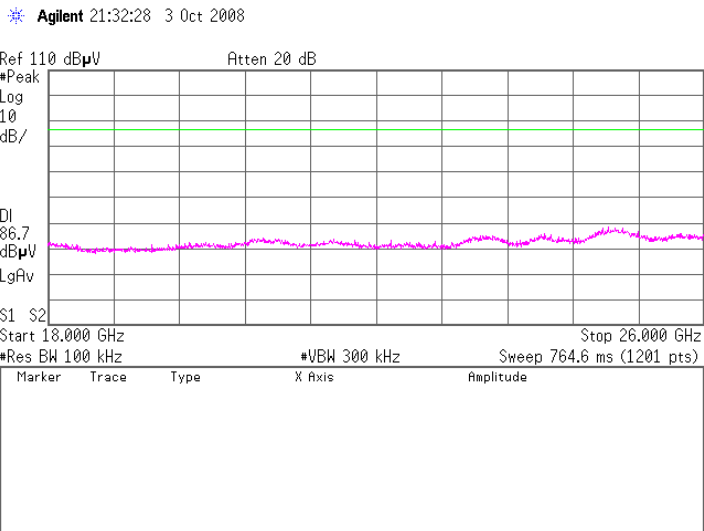
4.



5.

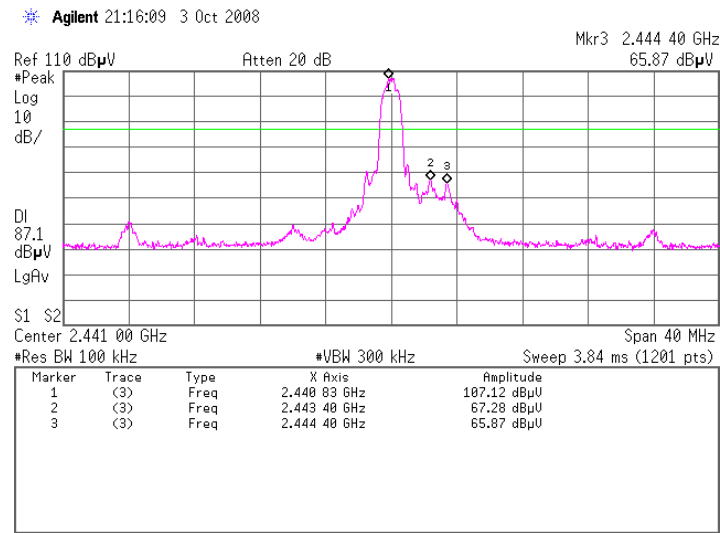


6.

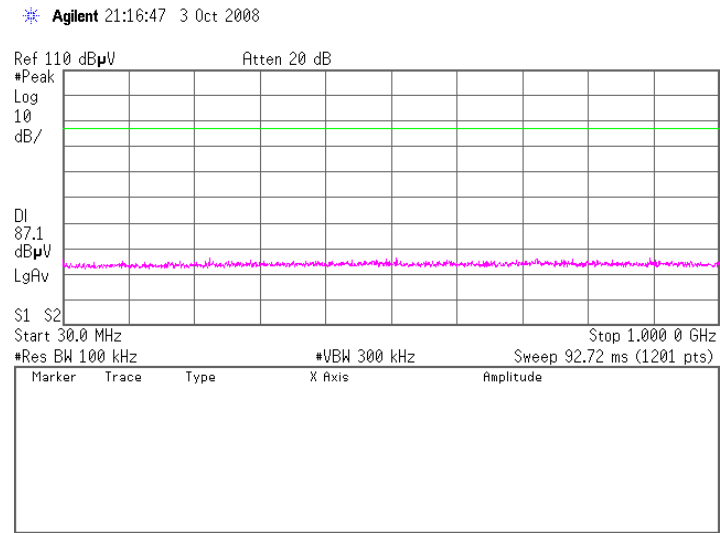


[Transmitting 3DH5]  
Ch:2441MHz

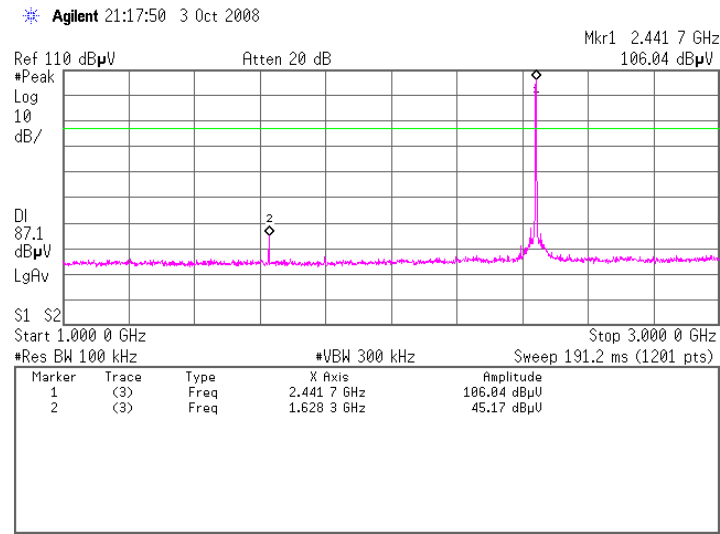
1.



2.

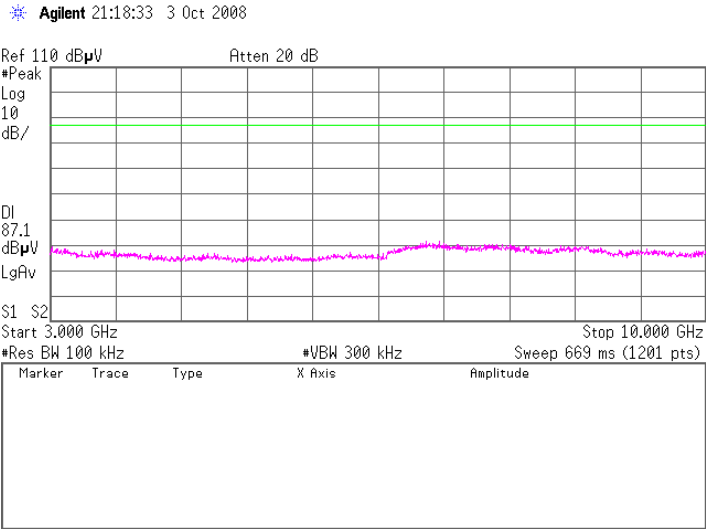


3.

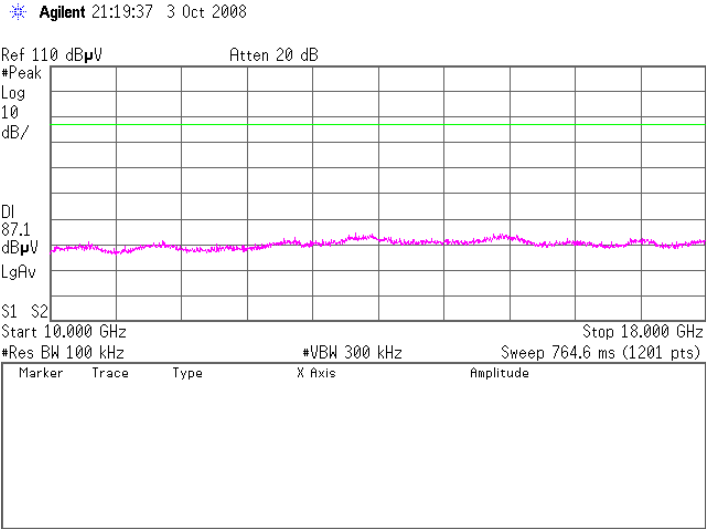


[Transmitting 3DH5]  
Ch:2441MHz

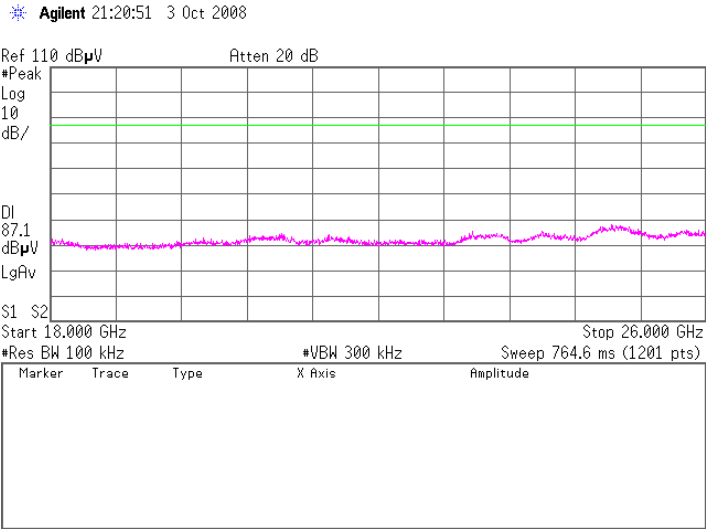
4.



5.



6.



1.

Ref 110 dBμV      Atten 20 dB      Mkr3 2.496 00 GHz  
 #Peak 48.09 dBμV  
 Log  
 10  
 dB/  
 DI 86.5 dBμV  
 LgAv  
 S1 S2  
 Center 2.480 00 GHz      Span 40 MHz  
 #Res BW 100 kHz      #VBW 300 kHz      Sweep 3.84 ms (1201 pts)

| Marker | Trace | Type | X Axis       | Amplitude   |
|--------|-------|------|--------------|-------------|
| 1      | (3)   | Freq | 2.479 83 GHz | 106.54 dBμV |
| 2      | (3)   | Freq | 2.483 50 GHz | 62.58 dBμV  |
| 3      | (3)   | Freq | 2.496 00 GHz | 48.09 dBμV  |

2.

Ref 110 dB $\mu$ V Atten 20 dB Mkr1 506.9 MHz 37.38 dB $\mu$ V

#Peak Log 10 dB/

DI 86.5 dB $\mu$ V LgAv

S1 S2

Start 30.0 MHz Stop 1.000 0 GHz

#Res BW 100 kHz #VBW 300 kHz Sweep 92.72 ms (1201 pts)

| Marker | Trace | Type | X Axis    | Amplitude        |
|--------|-------|------|-----------|------------------|
| 1      | (3)   | Freq | 506.9 MHz | 37.38 dB $\mu$ V |

**3.**

Ref 110 dB $\mu$ V Atten 20 dB Mkr1 2.480 0 GHz 106.50 dB $\mu$ V

#Peak Log 10 dB/

DI 86.5 dB $\mu$ V LgAv

S1 S2

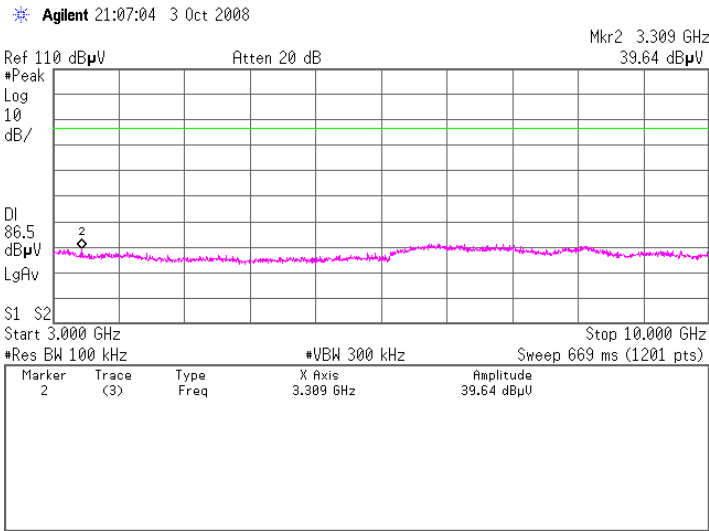
Start 1.000 0 GHz Stop 3.000 0 GHz

#Res BW 100 kHz #VBW 300 kHz Sweep 191.2 ms (1201 pts)

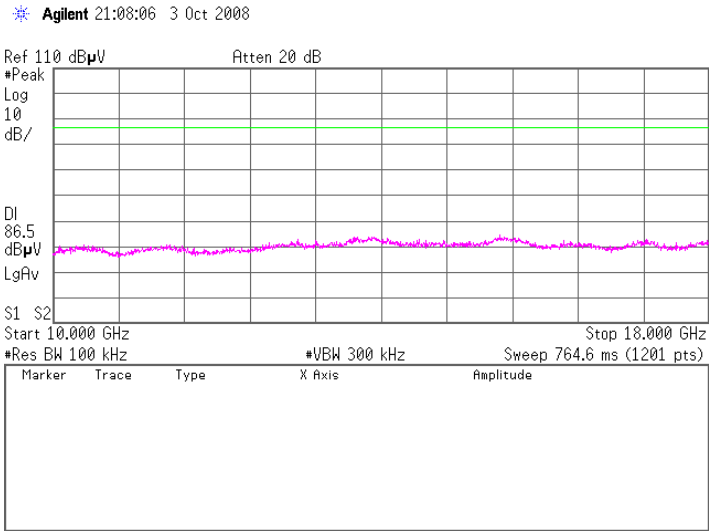
| Marker | Trace | Type | X Axis      | Amplitude         |
|--------|-------|------|-------------|-------------------|
| 1      | (3)   | Freq | 2.480 0 GHz | 106.50 dB $\mu$ V |
| 2      | (3)   | Freq | 1.653 3 GHz | 45.55 dB $\mu$ V  |

[Transmitting 3DH5]  
Ch:2480MHz

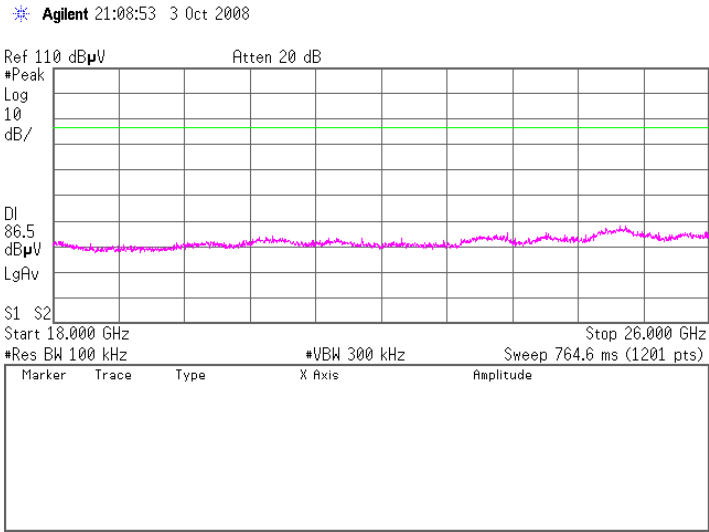
4.



5.

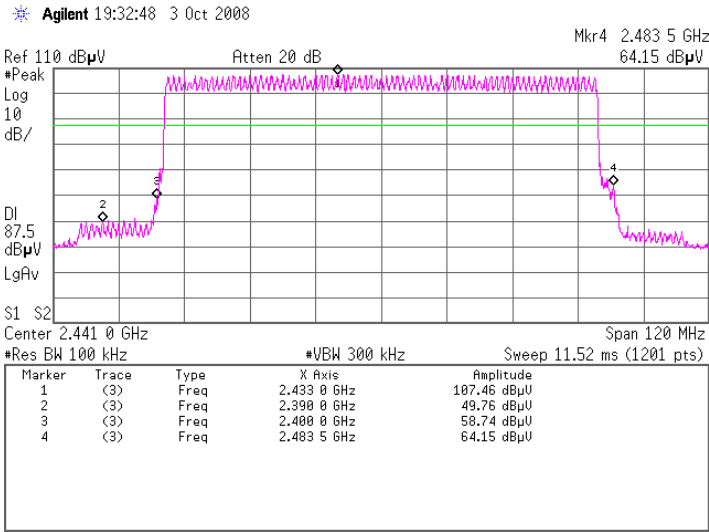


6.

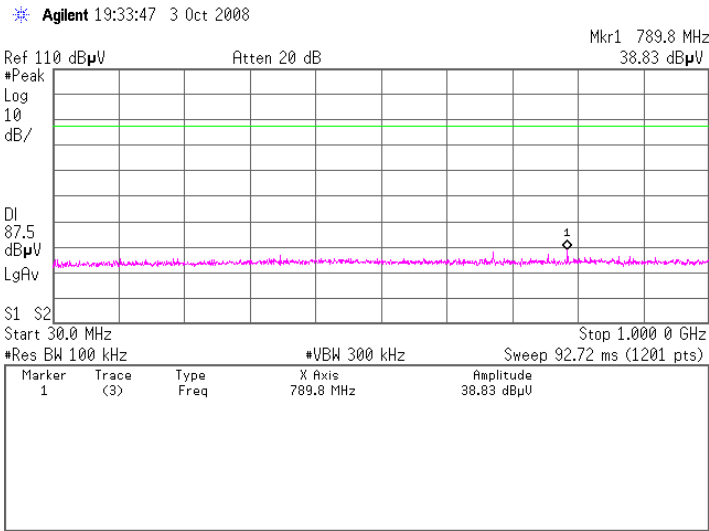


[Transmitting 3DH5]  
Hopping

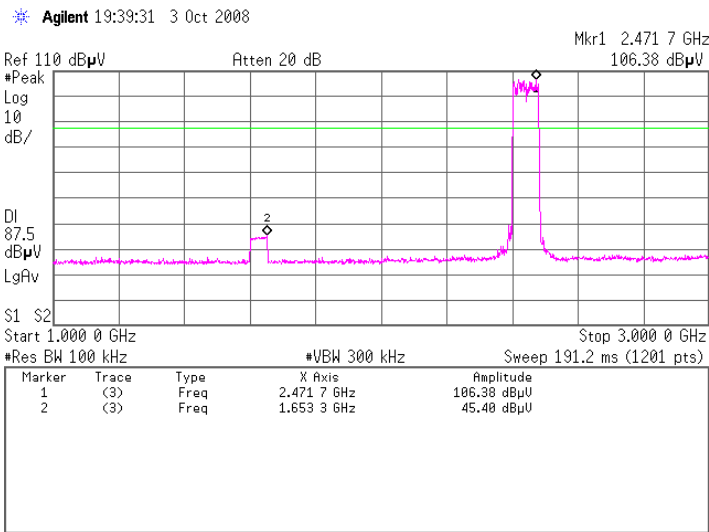
1.



2.

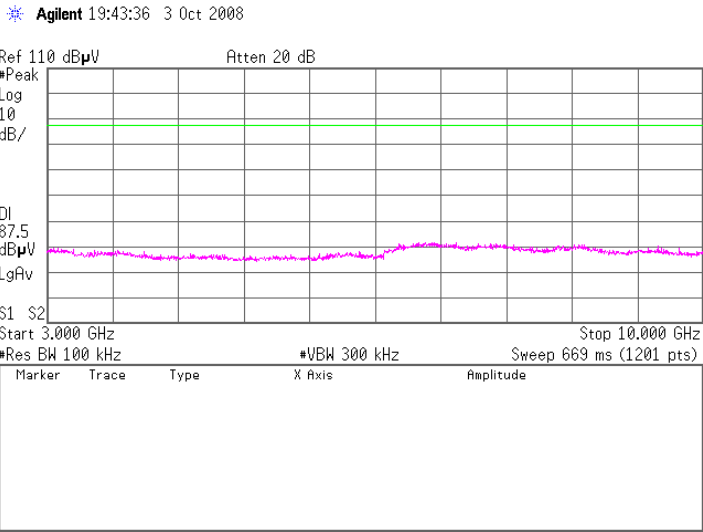


3.

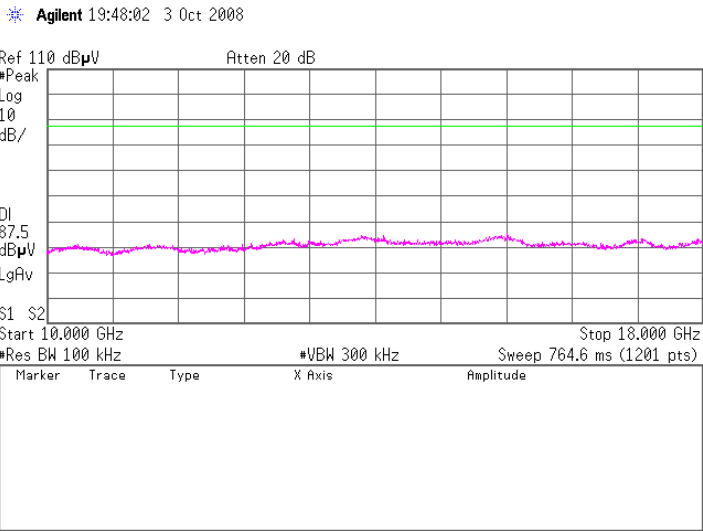


[Transmitting3 DHS]  
Hopping

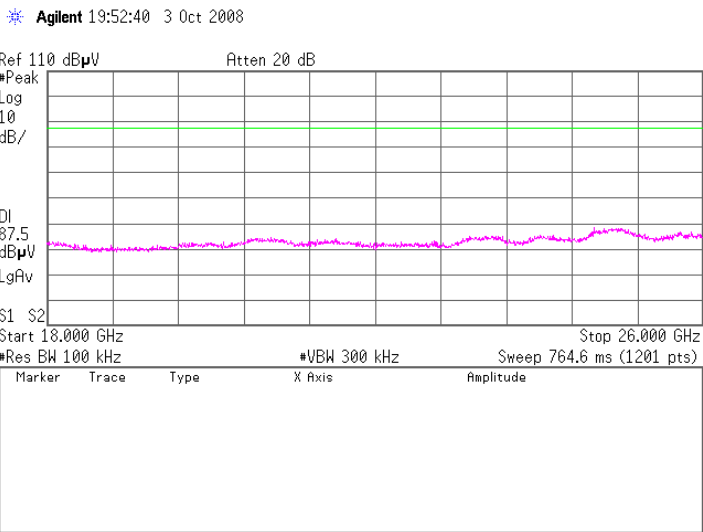
4.



5.



6.



# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
 Kind of Equipment : BARCODE PRINTER  
 Model No. : MB410i-B2  
 Serial No. : ES0000007  
 Power : AC120V/60Hz  
 Mode : Transmitting (2402MHz) DH5  
 Remarks : H-X , V-Z  
 Date : 10/21/2008  
 Test Distance : 3 m  
 Temperature : 21 °C  
 Humidity : 60 %  
 Regulation : FCC Part15C § 15.209

Engineer : Makoto Hosaka

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING         |                 | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT            |                   | LIMITS<br>[dB μ V/m] | MARGIN      |             |
|-----|----------------|-------------|-----------------|-----------------|-------------------------|---------------------|-----------------------|----------------|-------------------|-------------------|----------------------|-------------|-------------|
|     |                |             | HOR<br>[dB μ V] | VER<br>[dB μ V] |                         |                     |                       |                | HOR<br>[dB μ V/m] | VER<br>[dB μ V/m] |                      | HOR<br>[dB] | VER<br>[dB] |
| 1.  | 58.99          | BB          | 30.3            | 44.0            | 8.2                     | 27.7                | 1.6                   | 6.0            | 18.4              | 32.1              | 40.0                 | 21.6        | 7.9         |
| 2.  | 353.91         | BB          | 37.5            | 31.5            | 16.0                    | 27.3                | 4.2                   | 6.0            | 36.4              | 30.4              | 46.0                 | 9.6         | 15.6        |
| 3.  | 471.88         | BB          | 33.3            | 35.3            | 18.2                    | 27.2                | 4.9                   | 6.0            | 35.2              | 37.2              | 46.0                 | 10.8        | 8.8         |
| 4.  | 589.83         | BB          | 29.8            | 31.8            | 19.9                    | 27.1                | 5.6                   | 6.0            | 34.2              | 36.2              | 46.0                 | 11.8        | 9.8         |
| 5.  | 825.78         | BB          | 29.2            | 27.7            | 21.6                    | 27.3                | 6.7                   | 6.1            | 36.3              | 34.8              | 46.0                 | 9.7         | 11.2        |

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ ANTENNA: KBA-03 (BBA9106) 30-299.99MHz/KLA-03 (USLP9143) 300-1000MHz

■ CABLE: KCC-30/31/32/34 ■ PREAMP: KAF-08 (MH648A) ■ EMI RECEIVER: KTR-01 (ES140)

# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2441MHz) DH5  
Remarks : H-X , V-Z  
Date : 10/21/2008  
Test Distance : 3 m  
Temperature : 21 °C  
Humidity : 60 %  
Regulation : FCC Part15C § 15.209

Engineer : Makoto Hosaka

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING         |                 | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT            |                   | LIMITS<br>[dB μ V/m] | MARGIN      |             |
|-----|----------------|-------------|-----------------|-----------------|-------------------------|---------------------|-----------------------|----------------|-------------------|-------------------|----------------------|-------------|-------------|
|     |                |             | HOR<br>[dB μ V] | VER<br>[dB μ V] |                         |                     |                       |                | HOR<br>[dB μ V/m] | VER<br>[dB μ V/m] |                      | HOR<br>[dB] | VER<br>[dB] |
| 1.  | 58.99          | BB          | 30.4            | 44.0            | 8.2                     | 27.7                | 1.6                   | 6.0            | 18.5              | 32.1              | 40.0                 | 21.5        | 7.9         |
| 2.  | 353.92         | BB          | 37.1            | 31.5            | 16.0                    | 27.3                | 4.2                   | 6.0            | 36.0              | 30.4              | 46.0                 | 10.0        | 15.6        |
| 3.  | 471.88         | BB          | 36.1            | 35.1            | 18.2                    | 27.2                | 4.9                   | 6.0            | 38.0              | 37.0              | 46.0                 | 8.0         | 9.0         |
| 4.  | 589.85         | BB          | 30.7            | 31.7            | 19.9                    | 27.1                | 5.6                   | 6.0            | 35.1              | 36.1              | 46.0                 | 10.9        | 9.9         |
| 5.  | 825.79         | BB          | 29.5            | 27.1            | 21.6                    | 27.3                | 6.7                   | 6.1            | 36.6              | 34.2              | 46.0                 | 9.4         | 11.8        |

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ ANTENNA: KBA-03 (BBA9106) 30-299.99MHz/KLA-03 (USLP9143) 300-1000MHz

■ CABLE: KCC-30/31/32/34 ■ PREAMP: KAF-08 (MH648A) ■ EMI RECEIVER: KTR-01 (ES140)

# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
 Kind of Equipment : BARCODE PRINTER  
 Model No. : MB410i-B2  
 Serial No. : ES0000007  
 Power : AC120V/60Hz  
 Mode : Transmitting (2480MHz) DH5  
 Remarks : H-X , V-Z  
 Date : 10/21/2008  
 Test Distance : 3 m  
 Temperature : 21 °C  
 Humidity : 60 %  
 Regulation : FCC Part15C § 15.209

Engineer : Makoto Hosaka

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING         |                 | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT            |                   | LIMITS<br>[dB μ V/m] | MARGIN      |             |
|-----|----------------|-------------|-----------------|-----------------|-------------------------|---------------------|-----------------------|----------------|-------------------|-------------------|----------------------|-------------|-------------|
|     |                |             | HOR<br>[dB μ V] | VER<br>[dB μ V] |                         |                     |                       |                | HOR<br>[dB μ V/m] | VER<br>[dB μ V/m] |                      | HOR<br>[dB] | VER<br>[dB] |
| 1.  | 58.99          | BB          | 30.4            | 43.8            | 8.2                     | 27.7                | 1.6                   | 6.0            | 18.5              | 31.9              | 40.0                 | 21.5        | 8.1         |
| 2.  | 353.92         | BB          | 37.0            | 31.2            | 16.0                    | 27.3                | 4.2                   | 6.0            | 35.9              | 30.1              | 46.0                 | 10.1        | 15.9        |
| 3.  | 471.89         | BB          | 36.1            | 34.9            | 18.2                    | 27.2                | 4.9                   | 6.0            | 38.0              | 36.8              | 46.0                 | 8.0         | 9.2         |
| 4.  | 589.84         | BB          | 31.1            | 32.0            | 19.9                    | 27.1                | 5.6                   | 6.0            | 35.5              | 36.4              | 46.0                 | 10.5        | 9.6         |
| 5.  | 825.78         | BB          | 29.6            | 27.6            | 21.6                    | 27.3                | 6.7                   | 6.1            | 36.7              | 34.7              | 46.0                 | 9.3         | 11.3        |

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ ANTENNA: KBA-03 (BBA9106) 30-299.99MHz/KLA-03 (USLP9143) 300-1000MHz

■ CABLE: KCC-30/31/32/34 ■ PREAMP: KAF-08 (MH648A) ■ EMI RECEIVER: KTR-01 (ES140)

# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2402MHz) 3DH5  
Remarks : H-X , V-Z  
Date : 10/21/2008  
Test Distance : 3 m  
Temperature : 21 °C  
Humidity : 60 %  
Regulation : FCC Part15C § 15.209

Engineer : Makoto Hosaka

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING         |                 | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT            |                   | LIMITS<br>[dB μ V/m] | MARGIN      |             |
|-----|----------------|-------------|-----------------|-----------------|-------------------------|---------------------|-----------------------|----------------|-------------------|-------------------|----------------------|-------------|-------------|
|     |                |             | HOR<br>[dB μ V] | VER<br>[dB μ V] |                         |                     |                       |                | HOR<br>[dB μ V/m] | VER<br>[dB μ V/m] |                      | HOR<br>[dB] | VER<br>[dB] |
| 1.  | 58.99          | BB          | 30.6            | 44.1            | 8.2                     | 27.7                | 1.6                   | 6.0            | 18.7              | 32.2              | 40.0                 | 21.3        | 7.8         |
| 2.  | 353.92         | BB          | 37.5            | 31.0            | 16.0                    | 27.3                | 4.2                   | 6.0            | 36.4              | 29.9              | 46.0                 | 9.6         | 16.1        |
| 3.  | 471.89         | BB          | 35.4            | 35.2            | 18.2                    | 27.2                | 4.9                   | 6.0            | 37.3              | 37.1              | 46.0                 | 8.7         | 8.9         |
| 4.  | 589.85         | BB          | 30.9            | 31.5            | 19.9                    | 27.1                | 5.6                   | 6.0            | 35.3              | 35.9              | 46.0                 | 10.7        | 10.1        |
| 5.  | 825.78         | BB          | 29.6            | 28.0            | 21.6                    | 27.3                | 6.7                   | 6.1            | 36.7              | 35.1              | 46.0                 | 9.3         | 10.9        |

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ ANTENNA: KBA-03 (BBA9106) 30-299.99MHz/KLA-03 (USLP9143) 300-1000MHz

■ CABLE: KCC-30/31/32/34 ■ PREAMP: KAF-08 (MH648A) ■ EMI RECEIVER: KTR-01 (ES140)

# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2441MHz) 3DH5  
Remarks : H-X , V-Z  
Date : 10/21/2008  
Test Distance : 3 m  
Temperature : 21 °C  
Humidity : 60 %  
Regulation : FCC Part15C § 15.209

Engineer : Makoto Hosaka

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING         |                 | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT            |                   | LIMITS<br>[dB μ V/m] | MARGIN      |             |
|-----|----------------|-------------|-----------------|-----------------|-------------------------|---------------------|-----------------------|----------------|-------------------|-------------------|----------------------|-------------|-------------|
|     |                |             | HOR<br>[dB μ V] | VER<br>[dB μ V] |                         |                     |                       |                | HOR<br>[dB μ V/m] | VER<br>[dB μ V/m] |                      | HOR<br>[dB] | VER<br>[dB] |
| 1.  | 58.99          | BB          | 30.8            | 44.2            | 8.2                     | 27.7                | 1.6                   | 6.0            | 18.9              | 32.3              | 40.0                 | 21.1        | 7.7         |
| 2.  | 353.91         | BB          | 37.5            | 31.6            | 16.0                    | 27.3                | 4.2                   | 6.0            | 36.4              | 30.5              | 46.0                 | 9.6         | 15.5        |
| 3.  | 471.88         | BB          | 35.7            | 35.5            | 18.2                    | 27.2                | 4.9                   | 6.0            | 37.6              | 37.4              | 46.0                 | 8.4         | 8.6         |
| 4.  | 589.84         | BB          | 31.6            | 31.4            | 19.9                    | 27.1                | 5.6                   | 6.0            | 36.0              | 35.8              | 46.0                 | 10.0        | 10.2        |
| 5.  | 825.78         | BB          | 29.9            | 28.2            | 21.6                    | 27.3                | 6.7                   | 6.1            | 37.0              | 35.3              | 46.0                 | 9.0         | 10.7        |

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ ANTENNA: KBA-03 (BBA9106) 30-299.99MHz/KLA-03 (USLP9143) 300-1000MHz

■ CABLE: KCC-30/31/32/34 ■ PREAMP: KAF-08 (MH648A) ■ EMI RECEIVER: KTR-01 (ES140)

# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2480MHz) 3DH5  
Remarks : H-X , V-Z  
Date : 10/21/2008  
Test Distance : 3 m  
Temperature : 21 °C  
Humidity : 60 %  
Regulation : FCC Part15C § 15.209

Engineer : Makoto Hosaka

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING         |                 | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT            |                   | LIMITS<br>[dB μ V/m] | MARGIN      |             |
|-----|----------------|-------------|-----------------|-----------------|-------------------------|---------------------|-----------------------|----------------|-------------------|-------------------|----------------------|-------------|-------------|
|     |                |             | HOR<br>[dB μ V] | VER<br>[dB μ V] |                         |                     |                       |                | HOR<br>[dB μ V/m] | VER<br>[dB μ V/m] |                      | HOR<br>[dB] | VER<br>[dB] |
| 1.  | 58.99          | BB          | 30.6            | 43.9            | 8.2                     | 27.7                | 1.6                   | 6.0            | 18.7              | 32.0              | 40.0                 | 21.3        | 8.0         |
| 2.  | 353.90         | BB          | 37.5            | 31.5            | 16.0                    | 27.3                | 4.2                   | 6.0            | 36.4              | 30.4              | 46.0                 | 9.6         | 15.6        |
| 3.  | 471.88         | BB          | 35.7            | 35.5            | 18.2                    | 27.2                | 4.9                   | 6.0            | 37.6              | 37.4              | 46.0                 | 8.4         | 8.6         |
| 4.  | 589.85         | BB          | 30.7            | 31.4            | 19.9                    | 27.1                | 5.6                   | 6.0            | 35.1              | 35.8              | 46.0                 | 10.9        | 10.2        |
| 5.  | 825.79         | BB          | 29.9            | 27.9            | 21.6                    | 27.3                | 6.7                   | 6.1            | 37.0              | 35.0              | 46.0                 | 9.0         | 11.0        |

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ ANTENNA: KBA-03 (BBA9106) 30-299.99MHz/KLA-03 (USLP9143) 300-1000MHz

■ CABLE: KCC-30/31/32/34 ■ PREAMP: KAF-08 (MH648A) ■ EMI RECEIVER: KTR-01 (ES140)

# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2402MHz) DH5  
Remarks : PK (RBW:1MHz, VBW:1MHz) Hor-Z, Ver-Z  
Date : 10/21/2008  
Test Distance : 3 m  
Temperature : 21 °C Engineer : Go Ishiwata  
Humidity : 60 %  
Regulation : FCC Part15C § 15.209 (PK Detection) 1-26GHz:3m/26-40GHz:1m

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING         |                 | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT            |                   | LIMITS<br>[dB μ V/m] | MARGIN      |             |
|-----|----------------|-------------|-----------------|-----------------|-------------------------|---------------------|-----------------------|----------------|-------------------|-------------------|----------------------|-------------|-------------|
|     |                |             | HOR<br>[dB μ V] | VER<br>[dB μ V] |                         |                     |                       |                | HOR<br>[dB μ V/m] | VER<br>[dB μ V/m] |                      | HOR<br>[dB] | VER<br>[dB] |
| 1.  | 2390.00        | BB          | 45.1            | 45.4            | 28.8                    | 35.4                | 4.4                   | 0.0            | 42.9              | 43.2              | 74.0                 | 31.1        | 30.8        |
| 2.  | 2400.00        | BB          | 58.6            | 58.9            | 28.8                    | 35.3                | 4.5                   | 0.0            | 56.6              | 56.9              | 74.0                 | 17.4        | 17.1        |
| 3.  | 4804.00        | BB          | 57.4            | 59.8            | 33.6                    | 34.1                | 5.9                   | 0.0            | 62.8              | 65.2              | 74.0                 | 11.2        | 8.8         |
| 4.  | 7206.00        | BB          | 44.5            | 44.1            | 36.1                    | 34.7                | 7.1                   | 0.0            | 53.0              | 52.6              | 74.0                 | 21.0        | 21.4        |
| 5.  | 9608.00        | BB          | 45.4            | 45.3            | 37.6                    | 35.3                | 8.2                   | 0.0            | 55.9              | 55.8              | 74.0                 | 18.1        | 18.2        |

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ ANTENNA: KHA-01 (SAS-200 571) 1-18GHz/KHA-03 (3160-09) 18-26GHz

■ CABLE: KCC-D16/D17 ■ PREAMP: KAF-07 (8449B) ■ EMI RECEIVER: KTR-01 (ES140)

# DATA OF RADIATION TEST (Above 1GHz)

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29AE0053-YK-02-A-R2

Company : SATO CORPORATION

Equipment : BARCODE PRINTER

Model : MB410i-B2

Sample No. : ES0000007

Power : AC120V/60Hz

Mode : Transmitting 2402MHz(DH5)

Regulation : FCC Part15C Section 15.209

Test Distance : 3m

Date : 2008/10/21

Temperature : 21deg.C

Humidity : 60%

ENGINEER : Go Ishiwata

## AV calculation value SPECTRUMANALYZER RBW:1MHz

| No. | FREQ<br>[MHz] | READING       |               | ANT<br>Factor<br>[dB] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN<br>[dB] | Duty<br>Factor | RESULT          |                 | LIMIT<br>[dBuV/m] | MARGIN      |             | VBW<br>[Hz] |
|-----|---------------|---------------|---------------|-----------------------|---------------------|-----------------------|---------------|----------------|-----------------|-----------------|-------------------|-------------|-------------|-------------|
|     |               | HOR<br>[dBuV] | VER<br>[dBuV] |                       |                     |                       |               |                | HOR<br>[dBuV/m] | VER<br>[dBuV/m] |                   | HOR<br>[dB] | VER<br>[dB] |             |
| 1   | 2390.00       | 45.1          | 45.4          | 28.8                  | 35.4                | 4.4                   | 0.0           | -30.7          | 12.2            | 12.5            | 54.0              | 41.8        | 41.5        | 1M          |
| 2   | 2400.00       | 58.6          | 58.9          | 28.8                  | 35.3                | 4.5                   | 0.0           | -30.7          | 25.9            | 26.2            | 54.0              | 28.1        | 27.8        | 1M          |
| 3   | 4804.00       | 57.4          | 59.8          | 33.6                  | 34.1                | 5.9                   | 0.0           | -30.7          | 32.1            | 34.5            | 54.0              | 21.9        | 19.5        | 1M          |
| 4   | 7206.00       | 44.5          | 44.1          | 36.1                  | 34.7                | 7.1                   | 0.0           | -30.7          | 22.3            | 21.9            | 54.0              | 31.7        | 32.1        | 1M          |
| 5   | 9608.00       | 45.4          | 45.3          | 37.6                  | 35.3                | 8.2                   | 0.0           | -30.7          | 25.2            | 25.1            | 54.0              | 28.8        | 28.9        | 1M          |

Sample Calculation :

RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + ATT + Duty Factor

Duty Factor calculation.  $20 \cdot \log(2.92[\text{ms}]/100[\text{ms}]) = -30.69[\text{dB}]$  See Appendix 4

\* This noise is not plus emission

# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2441MHz) DH5  
Remarks : PK (RBW:1MHz, VBW:1MHz) Hor-Z, Ver-Z  
Date : 10/21/2008  
Test Distance : 3 m  
Temperature : 21 °C Engineer : Go Ishiwata  
Humidity : 60 %  
Regulation : FCC Part15C § 15.209 (PK Detection) 1-26GHz:3m/26-40GHz:1m

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING         |                 | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT            |                   | LIMITS<br>[dB μ V/m] | MARGIN      |             |
|-----|----------------|-------------|-----------------|-----------------|-------------------------|---------------------|-----------------------|----------------|-------------------|-------------------|----------------------|-------------|-------------|
|     |                |             | HOR<br>[dB μ V] | VER<br>[dB μ V] |                         |                     |                       |                | HOR<br>[dB μ V/m] | VER<br>[dB μ V/m] |                      | HOR<br>[dB] | VER<br>[dB] |
| 1.  | 4882.00        | BB          | 54.1            | 57.8            | 33.8                    | 34.1                | 6.0                   | 0.0            | 59.8              | 63.5              | 74.0                 | 14.2        | 10.5        |
| 2.  | 7323.00        | BB          | 44.7            | 44.4            | 36.2                    | 34.8                | 7.1                   | 0.0            | 53.2              | 52.9              | 74.0                 | 20.8        | 21.1        |
| 3.  | 9764.00        | BB          | 45.6            | 45.4            | 37.6                    | 35.4                | 8.2                   | 0.0            | 56.0              | 55.8              | 74.0                 | 18.0        | 18.2        |

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ ANTENNA:KHA-01 (SAS-200 571) 1-18GHz/KHA-03 (3160-09) 18-26GHz

■ CABLE:KCC-D16/D17 ■ PREAMP:KAF-07 (8449B) ■ EMI RECEIVER:KTR-01 (ES140)

## DATA OF RADIATION TEST (Above 1GHz)

UL Japan, Inc.  
YAMAKITA No.1 ANECHOIC CHAMBER  
Report No. : 29AE0053-YK-02-A-R2

Company : SATO CORPORATION  
Equipment : BARCODE PRINTER  
Model : MB410i-B2  
Sample No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting 2441MHz(DH5)

Regulation : FCC Part15C Section 15.209  
Test Distance : 3m  
Date : 2008/10/21  
Temperature : 21deg.C  
Humidity : 60%

ENGINEER : Go Ishiwata

### AV calculation value SPECTRUMANALYZER RBW:1MHz

| No. | FREQ<br>[MHz] | READING       |               | ANT<br>Factor<br>[dB] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN<br>[dB] | Duty<br>Factor | RESULT          |                 | LIMIT<br>[dBuV/m] | MARGIN      |             | VBW<br>[Hz] |
|-----|---------------|---------------|---------------|-----------------------|---------------------|-----------------------|---------------|----------------|-----------------|-----------------|-------------------|-------------|-------------|-------------|
|     |               | HOR<br>[dBuV] | VER<br>[dBuV] |                       |                     |                       |               |                | HOR<br>[dBuV/m] | VER<br>[dBuV/m] |                   | HOR<br>[dB] | VER<br>[dB] |             |
| 1   | 4882.00       | 54.1          | 57.8          | 33.8                  | 34.1                | 6.0                   | 0.0           | -30.7          | 29.1            | 32.8            | 54.0              | 24.9        | 21.2        | 1M          |
| 2   | 7323.00       | 44.7          | 44.4          | 36.2                  | 34.8                | 7.1                   | 0.0           | -30.7          | 22.5            | 22.2            | 54.0              | 31.5        | 31.8        | 1M          |
| 3   | 9764.00       | 45.6          | 45.4          | 37.6                  | 35.4                | 8.2                   | 0.0           | -30.7          | 25.3            | 25.1            | 54.0              | 28.7        | 28.9        | 1M          |

Sample Calculation :

RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + ATT + Duty Factor

Duty Factor calculation  $20 \cdot \log(2.92[\text{ms}]/100[\text{ms}]) = -30.69[\text{dB}]$  See Appendix 4

\* This noise is not plus emission

# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
 Kind of Equipment : BARCODE PRINTER  
 Model No. : MB410i-B2  
 Serial No. : ES0000007  
 Power : AC120V/60Hz  
 Mode : Transmitting (2480MHz) DH5  
 Remarks : PK (RBW:1MHz, VBW:1MHz) Hor-Z, Ver-Z  
 Date : 10/21/2008  
 Test Distance : 3 m  
 Temperature : 21 °C  
 Humidity : 60 %  
 Regulation : FCC Part15C § 15.209 (PK Detection) 1-26GHz:3m/26-40GHz:1m

Engineer : Go Ishiwata

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING         |                 | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT            |                   | LIMITS<br>[dB μ V/m] | MARGIN      |             |
|-----|----------------|-------------|-----------------|-----------------|-------------------------|---------------------|-----------------------|----------------|-------------------|-------------------|----------------------|-------------|-------------|
|     |                |             | HOR<br>[dB μ V] | VER<br>[dB μ V] |                         |                     |                       |                | HOR<br>[dB μ V/m] | VER<br>[dB μ V/m] |                      | HOR<br>[dB] | VER<br>[dB] |
| 1.  | 2483.50        | BB          | 57.1            | 58.7            | 28.8                    | 35.3                | 4.5                   | 0.0            | 55.1              | 56.7              | 74.0                 | 18.9        | 17.3        |
| 2.  | 4960.00        | BB          | 53.0            | 56.2            | 34.1                    | 34.1                | 6.0                   | 0.0            | 59.0              | 62.2              | 74.0                 | 15.0        | 11.8        |
| 3.  | 7440.00        | BB          | 44.7            | 44.2            | 36.3                    | 34.8                | 7.1                   | 0.0            | 53.3              | 52.8              | 74.0                 | 20.7        | 21.2        |
| 4.  | 9920.00        | BB          | 45.5            | 45.4            | 37.6                    | 35.4                | 8.3                   | 0.0            | 56.0              | 55.9              | 74.0                 | 18.0        | 18.1        |

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

■ ANTENNA: KHA-01 (SAS-200 571) 1-18GHz/KHA-03 (3160-09) 18-26GHz

■ CABLE: KCC-D16/D17 ■ PREAMP: KAF-07 (8449B) ■ EMI RECEIVER: KTR-01 (ES140)

# DATA OF RADIATION TEST (Above 1GHz)

UL Japan, Inc.  
YAMAKITA No.1 ANECHOIC CHAMBER  
Report No. : 29AE0053-YK-02-A-R2

Company : SATO CORPORATION  
Equipment : BARCODE PRINTER  
Model : MB410i-B2  
Sample No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting 2480MHz(DH5)

Regulation : FCC Part15C Section 15.209  
Test Distance : 3m  
Date : 2008/10/21  
Temperature : 21deg.C  
Humidity : 60%

ENGINEER : Go Ishiwata

## AV calculation value SPECTRUMANALYZER RBW:1MHz

| No. | FREQ<br>[MHz] | READING       |               | ANT<br>Factor<br>[dB] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN<br>[dB] | Duty<br>Factor | RESULT          |                 | LIMIT<br>[dBuV/m] | MARGIN      |             | VBW<br>[Hz] |
|-----|---------------|---------------|---------------|-----------------------|---------------------|-----------------------|---------------|----------------|-----------------|-----------------|-------------------|-------------|-------------|-------------|
|     |               | HOR<br>[dBuV] | VER<br>[dBuV] |                       |                     |                       |               |                | HOR<br>[dBuV/m] | VER<br>[dBuV/m] |                   | HOR<br>[dB] | VER<br>[dB] |             |
| 1   | 2483.50       | 44.7          | 46.6          | 28.8                  | 35.3                | 4.5                   | 0.0           | -30.7          | 12.0            | 13.9            | 54.0              | 42.0        | 40.1        | 1M          |
| 2   | 4960.00       | 53.0          | 56.2          | 34.1                  | 34.1                | 6.0                   | 0.0           | -30.7          | 28.3            | 31.5            | 54.0              | 25.7        | 22.5        | 1M          |
| 3   | 7440.00       | 44.7          | 44.2          | 36.3                  | 34.8                | 7.1                   | 0.0           | -30.7          | 22.6            | 22.1            | 54.0              | 31.4        | 31.9        | 1M          |
| 4   | 9920.00       | 45.5          | 45.4          | 37.6                  | 35.4                | 8.3                   | 0.0           | -30.7          | 25.3            | 25.2            | 54.0              | 28.7        | 28.8        | 1M          |

Sample Calculation :

RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + ATT + Duty Factor

Duty Factor calculation:  $20 \times \log(2.92[\text{ms}]/100[\text{ms}]) = -30.69[\text{dB}]$  See Appendix 4

\* This noise is not plus emission

# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
 Kind of Equipment : BARCODE PRINTER  
 Model No. : MB410i-B2  
 Serial No. : ES0000007  
 Power : AC120V/60Hz  
 Mode : Transmitting (2402MHz) 3DH5  
 Remarks : PK (RBW:1MHz, VBW:1MHz) Hor-Z, Ver-Z  
 Date : 10/21/2008  
 Test Distance : 3 m  
 Temperature : 21 °C  
 Humidity : 60 %  
 Regulation : FCC Part15C § 15.209 (PK Detection) 1-26GHz:3m/26-40GHz:1m

Engineer : Go Ishiwata

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING         |                 | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT            |                   | LIMITS<br>[dB μ V/m] | MARGIN      |             |
|-----|----------------|-------------|-----------------|-----------------|-------------------------|---------------------|-----------------------|----------------|-------------------|-------------------|----------------------|-------------|-------------|
|     |                |             | HOR<br>[dB μ V] | VER<br>[dB μ V] |                         |                     |                       |                | HOR<br>[dB μ V/m] | VER<br>[dB μ V/m] |                      | HOR<br>[dB] | VER<br>[dB] |
| 1.  | 2390.00        | BB          | 47.0            | 47.1            | 28.8                    | 35.4                | 4.4                   | 0.0            | 44.8              | 44.9              | 74.0                 | 29.2        | 29.1        |
| 2.  | 2400.00        | BB          | 65.0            | 66.0            | 28.8                    | 35.3                | 4.5                   | 0.0            | 63.0              | 64.0              | 74.0                 | 11.0        | 10.0        |
| 3.  | 4804.00        | BB          | 49.5            | 53.0            | 33.6                    | 34.1                | 5.9                   | 0.0            | 54.9              | 58.4              | 74.0                 | 19.1        | 15.6        |
| 4.  | 7206.00        | BB          | 43.9            | 44.3            | 36.1                    | 34.7                | 7.1                   | 0.0            | 52.4              | 52.8              | 74.0                 | 21.6        | 21.2        |
| 5.  | 9608.00        | BB          | 44.9            | 44.5            | 37.6                    | 35.3                | 8.2                   | 0.0            | 55.4              | 55.0              | 74.0                 | 18.6        | 19.0        |

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ ANTENNA: KHA-01 (SAS-200 571) 1-18GHz/KHA-03 (3160-09) 18-26GHz

■ CABLE: KCC-D16/D17 ■ PREAMP: KAF-07 (8449B) ■ EMI RECEIVER: KTR-01 (ES140)

# DATA OF RADIATION TEST (Above 1GHz)

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29AE0053-YK-02-A-R2

Company : SATO CORPORATION

Equipment : BARCODE PRINTER

Model : MB410i-B2

Sample No. : ES0000007

Power : AC120V/60Hz

Mode : Transmitting 2402MHz(3DH5)

Regulation : FCC Part15C Section 15.209

Test Distance : 3m

Date : 2008/10/21

Temperature : 21deg.C

Humidity : 60%

ENGINEER : Go Ishiwata

## AV calculation value SPECTRUMANALYZER RBW:1MHz

| No. | FREQ<br>[MHz] | READING       |               | ANT<br>Factor<br>[dB] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN<br>[dB] | Duty<br>Factor | RESULT          |                 | LIMIT<br>[dBuV/m] | MARGIN      |             | VBW<br>[Hz] |
|-----|---------------|---------------|---------------|-----------------------|---------------------|-----------------------|---------------|----------------|-----------------|-----------------|-------------------|-------------|-------------|-------------|
|     |               | HOR<br>[dBuV] | VER<br>[dBuV] |                       |                     |                       |               |                | HOR<br>[dBuV/m] | VER<br>[dBuV/m] |                   | HOR<br>[dB] | VER<br>[dB] |             |
| 1   | 2390.00       | 47.0          | 47.1          | 28.8                  | 35.4                | 4.4                   | 0.0           | -30.7          | 14.1            | 14.2            | 54.0              | 39.9        | 39.8        | 1M          |
| 2   | 2400.00       | 65.0          | 66.0          | 28.8                  | 35.3                | 4.5                   | 0.0           | -30.7          | 32.3            | 33.3            | 54.0              | 21.6        | 20.7        | 1M          |
| 3   | 4804.00       | 49.5          | 53.0          | 33.6                  | 34.1                | 5.9                   | 0.0           | -30.7          | 24.2            | 27.7            | 54.0              | 29.8        | 26.3        | 1M          |
| 4   | 7206.00       | 43.9          | 44.3          | 36.1                  | 34.7                | 7.1                   | 0.0           | -30.7          | 21.7            | 22.1            | 54.0              | 32.3        | 31.9        | 1M          |
| 5   | 9608.00       | 44.9          | 44.5          | 37.6                  | 35.3                | 8.2                   | 0.0           | -30.7          | 24.7            | 24.3            | 54.0              | 29.3        | 29.7        | 1M          |

Sample Calculation :

RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + ATT + Duty Factor

Duty Factor calculation.  $20 \cdot \log(2.92[\text{ms}]/100[\text{ms}]) = -30.69[\text{dB}]$  See Appendix 4

\* This noise is not plus emission

# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
Kind of Equipment : BARCODE PRINTER  
Model No. : MB410i-B2  
Serial No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting (2441MHz) 3DH5  
Remarks : PK (RBW:1MHz, VBW:1MHz) Hor-Z, Ver-Z  
Date : 10/21/2008  
Test Distance : 3 m  
Temperature : 21 °C Engineer : Go Ishiwata  
Humidity : 60 %  
Regulation : FCC Part15C § 15.209 (PK Detection) 1-26GHz:3m/26-40GHz:1m

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING         |                 | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT            |                   | LIMITS<br>[dB μ V/m] | MARGIN      |             |
|-----|----------------|-------------|-----------------|-----------------|-------------------------|---------------------|-----------------------|----------------|-------------------|-------------------|----------------------|-------------|-------------|
|     |                |             | HOR<br>[dB μ V] | VER<br>[dB μ V] |                         |                     |                       |                | HOR<br>[dB μ V/m] | VER<br>[dB μ V/m] |                      | HOR<br>[dB] | VER<br>[dB] |
| 1.  | 4882.00        | BB          | 49.7            | 50.7            | 33.8                    | 34.1                | 6.0                   | 0.0            | 55.4              | 56.4              | 74.0                 | 18.6        | 17.6        |
| 2.  | 7323.00        | BB          | 44.1            | 44.6            | 36.2                    | 34.8                | 7.1                   | 0.0            | 52.6              | 53.1              | 74.0                 | 21.4        | 20.9        |
| 3.  | 9764.00        | BB          | 44.7            | 44.9            | 37.6                    | 35.4                | 8.2                   | 0.0            | 55.1              | 55.3              | 74.0                 | 18.9        | 18.7        |

CALCULATION: READING + ANT.FACTOR + CABLE LOSS - AMP.GAIN + ATTEN.

■ ANTENNA:KHA-01 (SAS-200 571) 1-18GHz/KHA-03 (3160-09) 18-26GHz

■ CABLE:KCC-D16/D17 ■ PREAMP:KAF-07 (8449B) ■ EMI RECEIVER:KTR-01 (ES140)

# DATA OF RADIATION TEST (Above 1GHz)

UL Japan, Inc.  
YAMAKITA No.1 ANECHOIC CHAMBER  
Report No. : 29AE0053-YK-02-A-R2

Company : SATO CORPORATION  
Equipment : BARCODE PRINTER  
Model : MB410i-B2  
Sample No. : ES0000007  
Power : AC120V/60Hz  
Mode : Transmitting 2441MHz(3DH5)

Regulation : FCC Part15C Section 15.209  
Test Distance : 3m  
Date : 2008/10/21  
Temperature : 21deg.C  
Humidity : 60%

ENGINEER : Go Ishiwata

## AV calculation value SPECTRUMANALYZER RBW:1MHz

| No. | FREQ<br>[MHz] | READING       |               | ANT<br>Factor<br>[dB] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN<br>[dB] | Duty<br>Factor | RESULT          |                 | LIMIT<br>[dBuV/m] | MARGIN      |             | VBW<br>[Hz] |
|-----|---------------|---------------|---------------|-----------------------|---------------------|-----------------------|---------------|----------------|-----------------|-----------------|-------------------|-------------|-------------|-------------|
|     |               | HOR<br>[dBuV] | VER<br>[dBuV] |                       |                     |                       |               |                | HOR<br>[dBuV/m] | VER<br>[dBuV/m] |                   | HOR<br>[dB] | VER<br>[dB] |             |
| 1   | 4882.00       | 49.7          | 50.7          | 33.8                  | 34.1                | 6.0                   | 0.0           | -30.7          | 24.71           | 25.7            | 54.0              | 29.3        | 28.3        | 1M          |
| 2   | 7323.00       | 44.1          | 44.6          | 36.2                  | 34.8                | 7.1                   | 0.0           | -30.7          | 21.91           | 22.4            | 54.0              | 32.1        | 31.6        | 1M          |
| 3   | 9764.00       | 44.7          | 44.9          | 37.6                  | 35.4                | 8.2                   | 0.0           | -30.7          | 24.41           | 24.6            | 54.0              | 29.6        | 29.4        | 1M          |

Sample Calculation :

RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + ATT + Duty Factor

Duty Factor calculation  $20 \cdot \log(2.92[\text{ms}]/100[\text{ms}]) = -30.69[\text{dB}]$  See Appendix 4

\* This noise is not plus emission

# DATA OF RADIATION TEST

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29AE0053-YK-02-A-R2

Applicant : SATO CORPORATION  
 Kind of Equipment : BARCODE PRINTER  
 Model No. : MB410i-B2  
 Serial No. : ES0000007  
 Power : AC120V/60Hz  
 Mode : Transmitting (2480MHz) 3DH5  
 Remarks : PK (RBW:1MHz, VBW:1MHz) Hor-Z, Ver-Z  
 Date : 10/21/2008  
 Test Distance : 3 m  
 Temperature : 21 °C  
 Humidity : 60 %  
 Regulation : FCC Part15C § 15.209 (PK Detection) 1-26GHz:3m/26-40GHz:1m

Engineer : Go Ishiwata

| No. | FREQ.<br>[MHz] | ANT<br>TYPE | READING         |                 | ANT<br>FACTOR<br>[dB/m] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN.<br>[dB] | RESULT            |                   | LIMITS<br>[dB μ V/m] | MARGIN      |             |
|-----|----------------|-------------|-----------------|-----------------|-------------------------|---------------------|-----------------------|----------------|-------------------|-------------------|----------------------|-------------|-------------|
|     |                |             | HOR<br>[dB μ V] | VER<br>[dB μ V] |                         |                     |                       |                | HOR<br>[dB μ V/m] | VER<br>[dB μ V/m] |                      | HOR<br>[dB] | VER<br>[dB] |
| 1.  | 2483.50        | BB          | 61.7            | 62.7            | 28.8                    | 35.3                | 4.5                   | 0.0            | 59.7              | 60.7              | 74.0                 | 14.3        | 13.3        |
| 2.  | 4960.00        | BB          | 47.5            | 51.6            | 34.1                    | 34.1                | 6.0                   | 0.0            | 53.5              | 57.6              | 74.0                 | 20.5        | 16.4        |
| 3.  | 7440.00        | BB          | 44.3            | 44.4            | 36.3                    | 34.8                | 7.1                   | 0.0            | 52.9              | 53.0              | 74.0                 | 21.1        | 21.0        |
| 4.  | 9920.00        | BB          | 44.5            | 44.7            | 37.6                    | 35.4                | 8.3                   | 0.0            | 55.0              | 55.2              | 74.0                 | 19.0        | 18.8        |

CALCULATION: READING + ANT. FACTOR + CABLE LOSS - AMP. GAIN + ATTEN.

■ ANTENNA: KHA-01 (SAS-200 571) 1-18GHz/KHA-03 (3160-09) 18-26GHz

■ CABLE: KCC-D16/D17 ■ PREAMP: KAF-07 (8449B) ■ EMI RECEIVER: KTR-01 (ES140)

## DATA OF RADIATION TEST (Above 1GHz)

UL Japan, Inc.

YAMAKITA No.1 ANECHOIC CHAMBER

Report No. : 29AE0053-YK-02-A-R2

Company : SATO CORPORATION

Equipment : BARCODE PRINTER

Model : MB410i-B2

Sample No. : ES0000007

Power : AC120V/60Hz

Mode : Transmitting 2480MHz(3DH5)

Regulation : FCC Part15C Section 15.209

Test Distance : 3m

Date : 2008/10/21

Temperature : 21deg.C

Humidity : 60%

ENGINEER : Go Ishiwata

### AV calculation value SPECTRUMANALYZER RBW:1MHz

| No. | FREQ<br>[MHz] | READING       |               | ANT<br>Factor<br>[dB] | AMP<br>GAIN<br>[dB] | CABLE<br>LOSS<br>[dB] | ATTEN<br>[dB] | Duty<br>Factor | RESULT          |                 | LIMIT<br>[dBuV/m] | MARGIN      |             | VBW<br>[Hz] |
|-----|---------------|---------------|---------------|-----------------------|---------------------|-----------------------|---------------|----------------|-----------------|-----------------|-------------------|-------------|-------------|-------------|
|     |               | HOR<br>[dBuV] | VER<br>[dBuV] |                       |                     |                       |               |                | HOR<br>[dBuV/m] | VER<br>[dBuV/m] |                   | HOR<br>[dB] | VER<br>[dB] |             |
| 1   | 2483.50       | 46.8          | 46.5          | 28.8                  | 35.3                | 4.5                   | 0.0           | -30.7          | 14.11           | 13.8            | 54.0              | 39.9        | 40.2        | 1M          |
| 2   | 4960.00       | 47.5          | 51.6          | 34.1                  | 34.1                | 6.0                   | 0.0           | -30.7          | 22.81           | 26.9            | 54.0              | 31.2        | 27.1        | 1M          |
| 3   | 7440.00       | 44.3          | 44.4          | 36.3                  | 34.8                | 7.1                   | 0.0           | -30.7          | 22.21           | 22.3            | 54.0              | 31.8        | 31.7        | 1M          |
| 4   | 9920.00       | 44.5          | 44.7          | 37.6                  | 35.4                | 8.3                   | 0.0           | -30.7          | 24.31           | 24.5            | 54.0              | 29.7        | 29.5        | 1M          |

Sample Calculation :

RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + ATT + Duty Factor

Duty Factor calculation:  $20 \times \log(2.92[\text{ms}]/100[\text{ms}]) = -30.69[\text{dB}]$  See Appendix 4

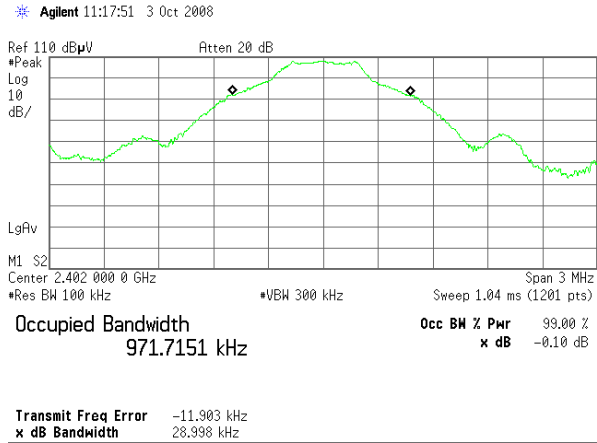
\* This noise is not plus emission

Occupied Bandwidth (99%) (Regulation: RSS-Gen 4.6.1)

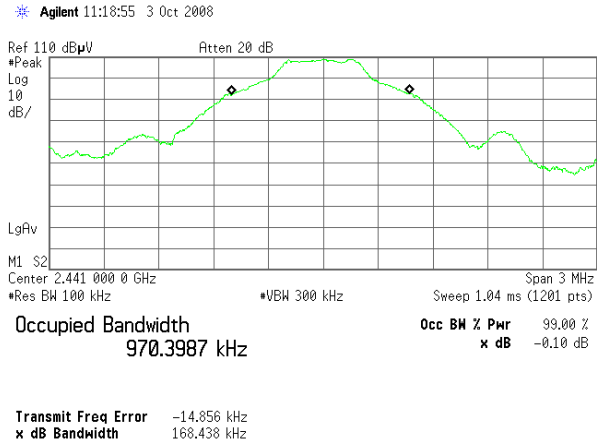
UL Japan, Inc. Yamakita EMC lab.  
Date:  
Temp./Humid.:  
Engineer:  
Test mode:

No.2 shielded room  
October 3, 2008  
24 deg. C. / 51 %  
Tatsuya Arai  
Transmitting

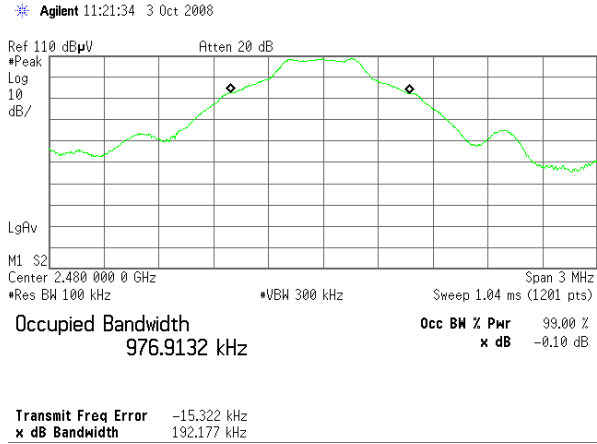
[Hopping off, DH5]  
1. ch : 2402MHz/Occupied Bandwidth:971.7kHz



2. ch : 2441MHz/Occupied Bandwidth:970.4kHz

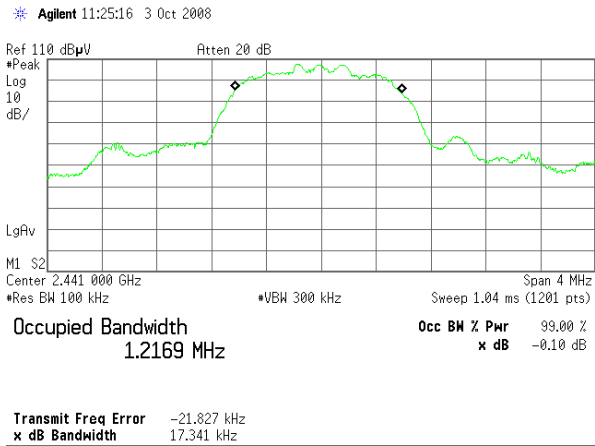


3. ch : 2480MHz/Occupied Bandwidth:976.9 kHz

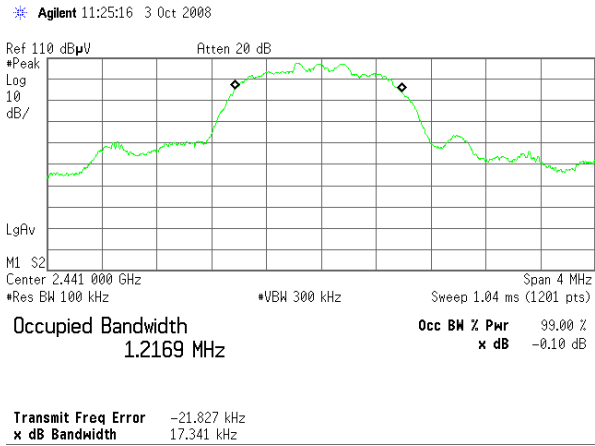


[Hopping off, 3DH5]

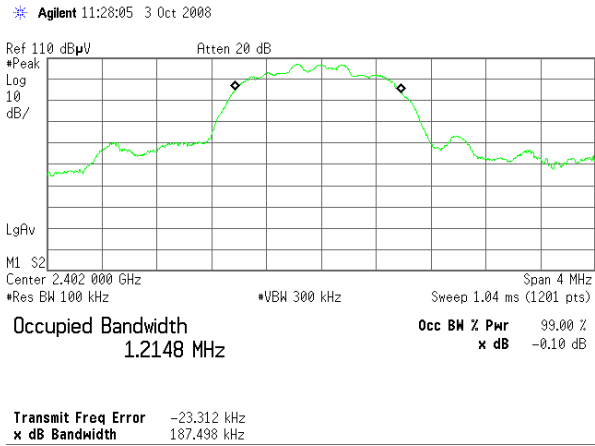
4. ch : 2402MHz/Occupied Bandwidth:1.2169MHz



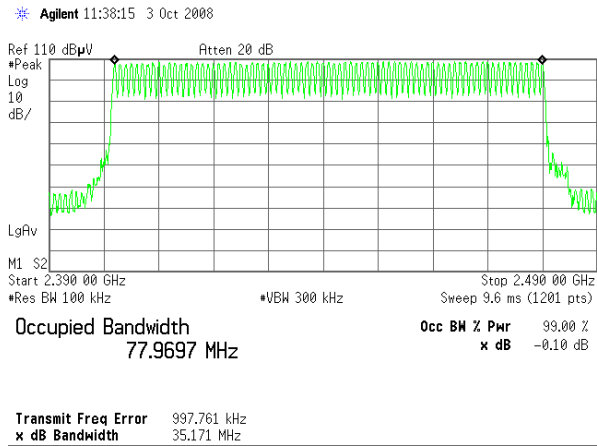
5. ch : 2441MHz/Occupied Bandwidth:1.2169MHz



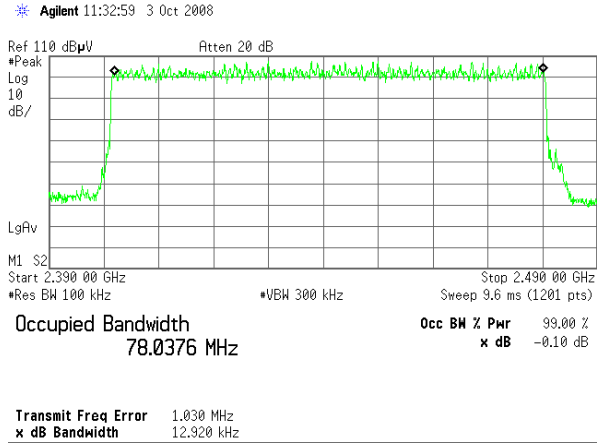
6. ch : 2480MHz/Occupied Bandwidth:1.2148MHz



7. Hopping, DH5/Occupied Bandwidth:78.0MHz



8. Hopping, 3DH5/Occupied Bandwidth:78.0MHz



### APPENDIX 3

#### Test Instruments

#### EMI test equipment

| Control No.                       | Instrument                                  | Manufacturer            | Model No                           | Test Item | Calibration Date *<br>Interval(month) |
|-----------------------------------|---------------------------------------------|-------------------------|------------------------------------|-----------|---------------------------------------|
| YA-RE                             | Radiated emission(software)                 | UL Japan                | RE(Ver.1.5)                        | RE        | -                                     |
| KAEC-01(NSA)                      | Anechoic Chamber                            | JSE                     | Semi 3m                            | RE        | 2008/08/06 * 12                       |
| KAF-08                            | Pre Amplifier                               | Anritsu                 | MH648A                             | RE        | 2008/06/03 * 12                       |
| KAT6-01                           | Attenuator                                  | INMET                   | 18N-6dB                            | RE        | 2008/03/17 * 12                       |
| KBA-03                            | Biconical Antenna                           | Schwarzbeck             | BBA9106                            | RE        | 2007/12/27 * 12                       |
| KLA-03                            | Logperiodic Antenna                         | Schwarzbeck             | USLP9143                           | RE        | 2007/12/27 * 12                       |
| KCC-30/31/32<br>/34/KRM-03        | Coaxial Cable/RF Relay Matrix               | Fujikura/Suhner/TSJ     | 5D-2W/S04272B/RFM-E421             | RE        | 2007/11/01 * 12                       |
| KSA-04                            | Spectrum Analyzer                           | Advantest               | R3271A                             | RE/CE     | 2008/09/29 * 12                       |
| KTR-01                            | Test Receiver                               | Rohde & Schwarz         | ES140                              | RE/CE     | 2008/04/18 * 12                       |
| KOS-02                            | Humidity Indicator                          | Custom                  | CTH-190                            | RE        | 2008/07/07 * 12                       |
| KJM-07                            | Measure                                     | KOMELON                 | KMC-36                             | RE        | -                                     |
| KAF-07                            | Pre Amplifier                               | Hewlett Packard         | 8449B                              | RE        | 2007/12/10 * 12                       |
| KCC-D16/D17                       | Coaxial Cable                               | INSULATED WIRE INC      | KPS-1501-200-KPS/KPS-1501-2000-KPS | RE        | 2008/02/21 * 12                       |
| KHA-01                            | Horn Antenna                                | A.H.Systems             | SAS-200/571                        | RE        | 2008/08/11 * 12                       |
| KHA-03                            | Horn Antenna                                | EMCO                    | 3160-09                            | RE        | 2008/04/30 * 12                       |
| YA-CE                             | Conducted emission(software)                | UL Japan                | CE(Ver.1.6)                        | CE        | -                                     |
| KCC-14/15/16<br>/18/KPL-01/KRM-01 | Coaxial Cable/Pulse Limiter/RF Relay Matrix | Fujikura/Suhner/PMM/TSJ | 5D-2W/8D-2W/S04272B/S04272B/PL01/- | CE        | 2008/05/15 * 12                       |
| KLS-06                            | LISN(AMN)                                   | Schwarzbeck             | NSLK8127                           | CE        | 2008/09/12 * 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 .

Test Item :

CE: Conducted emission ,  
RE: Radiated emission ,  
AT: Antenna terminal disturbance voltage

### APPENDIX 3 Test Instruments

#### EMI test equipment

| Control No. | Instrument               | Manufacturer | Model No    | Test Item    | Calibration Date *<br>Interval(month) |
|-------------|--------------------------|--------------|-------------|--------------|---------------------------------------|
| KPM-05      | Power meter              | Agilent      | E4417A      | AT5          | 2008/03/21 * 12                       |
| KPSS-01     | Power sensor             | Agilent      | E9327A      | AT5          | 2008/03/27 * 12                       |
| KCC-D20     | Coaxial Cable            | SUHNER       | SUCOFLEX102 | AT(full)     | 2008/07/09 * 12                       |
| KSA-08      | Spectrum Analyzer        | Agilent      | E4446A      | AT1,2,3,4,6  | 2008/01/11 * 12                       |
| KOSC-01     | Oscilloscope             | Tektronix    | TDS-2022B   | AT4          | 2008/05/07 * 12                       |
| KDT-01      | Coaxial Crystal Detector | Agilent      | 8473C       | AT4          | Pre Check                             |
| KOS-01      | Humidity Indicator       | Custom       | CTH-190     | AT 1,2,3,5,6 | 2008/07/14 * 12                       |
| KOS-07      | Humidity Indicator       | Custom       | CTH-190     | AT4          | 2008/10/21 * 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 .

Test Item :

Antenna terminal disturbance voltage

AT1: Carrier frequency separation

AT2: 20dB bandwidth & Occupied bandwidth (99%)

AT3: Number of hopping frequency

AT4: Dwell time

AT5: Maximum peak output power

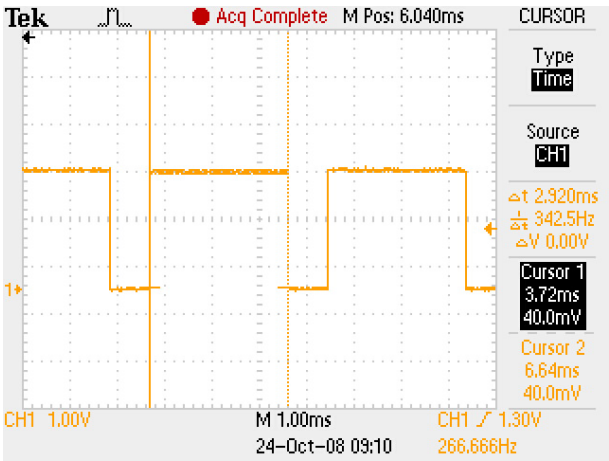
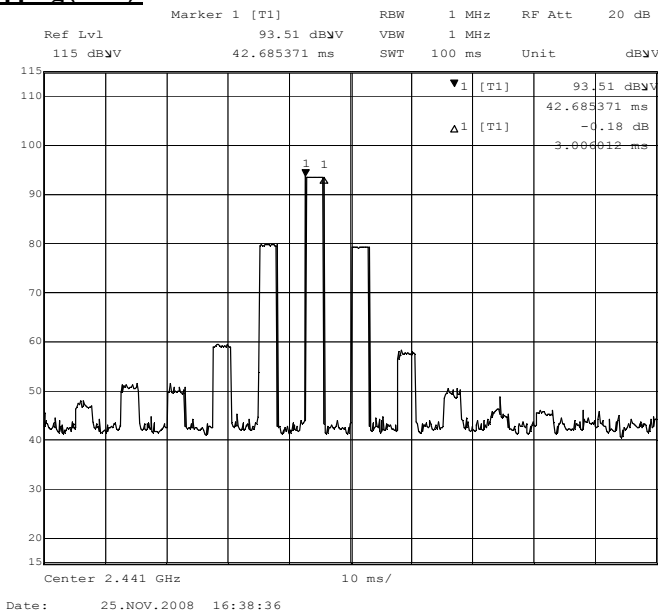
AT6: Out of band emissions (Antenna port conducted )

APPENDIX 4    Duty factor calculation: FCC 15.35C

COMPANY : SATO CORPORATION  
EQUIPMENT : BARCODE PRINTER  
MODEL NUMBER: MB410I-B2  
SERIAL NUMBER: ES0000007  
FCC ID : MMFMB4001-B2  
POWER : AC120V/60Hz

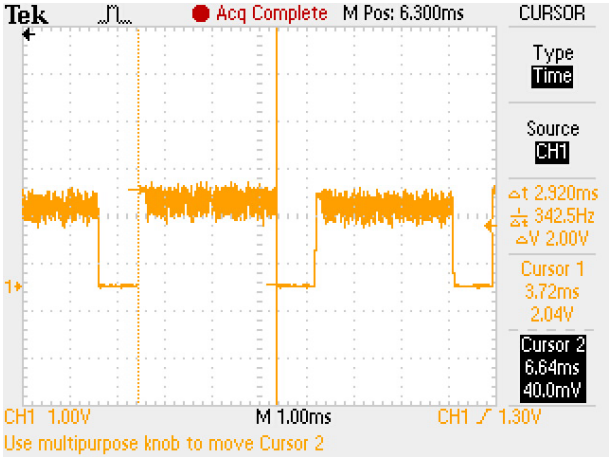
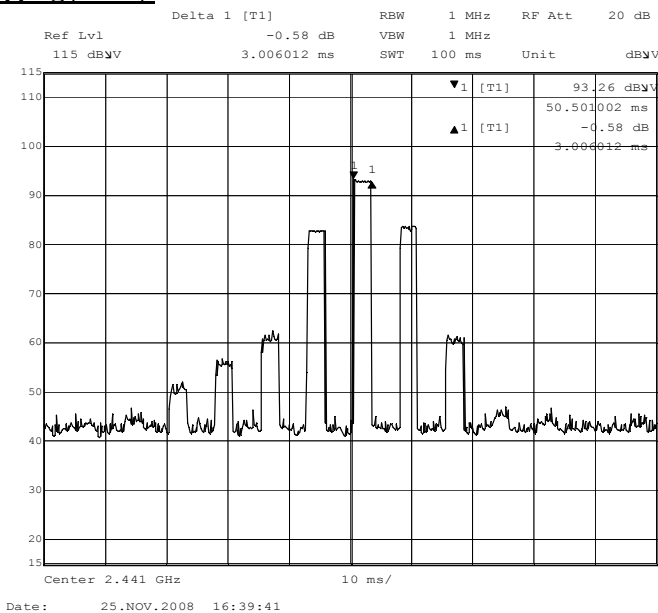
UL Japan, Inc. Yamakita No.4 Shielded Room  
REPORT NO : 29AE0053-YK-02-A-R2  
REGULATION : FCC Part15SubpartA 35(c)  
DATE : 2008.11.25  
TEMP/HUMI : 21deg.C/43%  
TEST MODE : Transmitting  
ENGINEER : Makoto Hosaka

Hopping (DH5):



Duty Factor calculation:  $20 \cdot \log(2.92[\text{ms}]/100[\text{ms}]) = -30.69[\text{dB}]$

Hopping (3DH5):



Duty Factor calculation:  $20 \cdot \log(2.92[\text{ms}]/100[\text{ms}]) = -30.69[\text{dB}]$