

APPENDIX 2: Data of EMI test

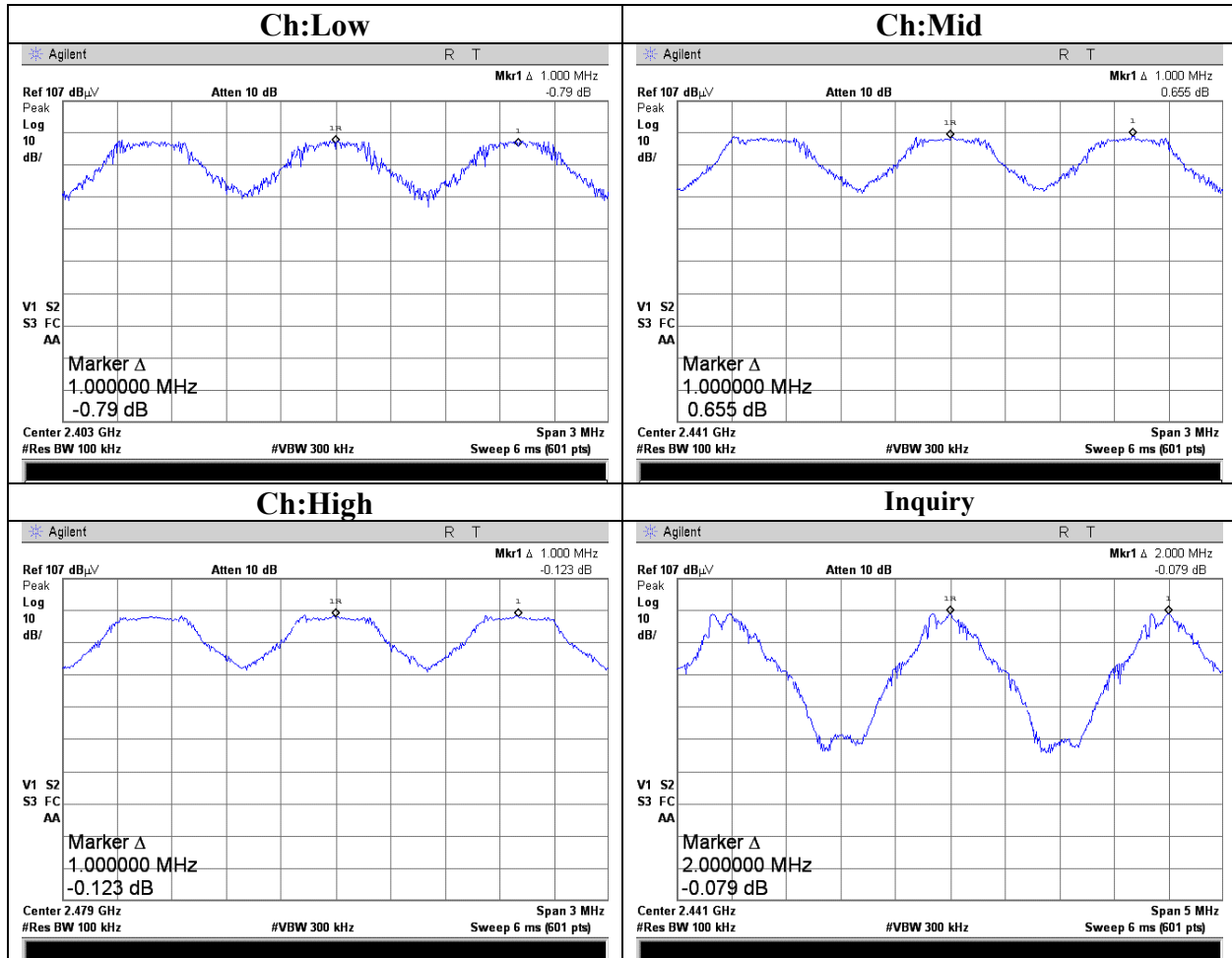
Carrier Frequency Separation

UL Japan, Inc.
Head Office EMC Lab. No.3 Shielded Room

COMPANY	: Matsushita Electric Industrial	REGULATION	: FCC15.247(a)(1)/RSS-210A8.1(b)
EQUIPMENT	: Bluetooth module	TEST DISTANCE	: -
MODEL	: C5ZZZ0000035	DATE	: 2007/05/10
S/ N	: A6BD	TEMPERATURE	: 23deg.C
POWER	: DC 3.3V/1.5V	HUMIDITY	: 35%
MODE	: Tx(Hopping on)/Inquiry	ENGINEER	: Makoto Kosaka

Ch	Freq. [MHz]	Channel separation [MHz]	Limit
Low	2402.0	1.000	>0.915[MHz](20dB Bandwidth) or 25[kHz](whichever is greater)
Mid	2441.0	1.000	>0.915[MHz](20dB Bandwidth) or 25[kHz](whichever is greater)
High	2480.0	1.000	>0.915[MHz](20dB Bandwidth) or 25[kHz](whichever is greater)
Inquiry	2441.0	2.000	>0.620[MHz](20dB Bandwidth) or 25[kHz](whichever is greater)

Carrier Frequency Separation



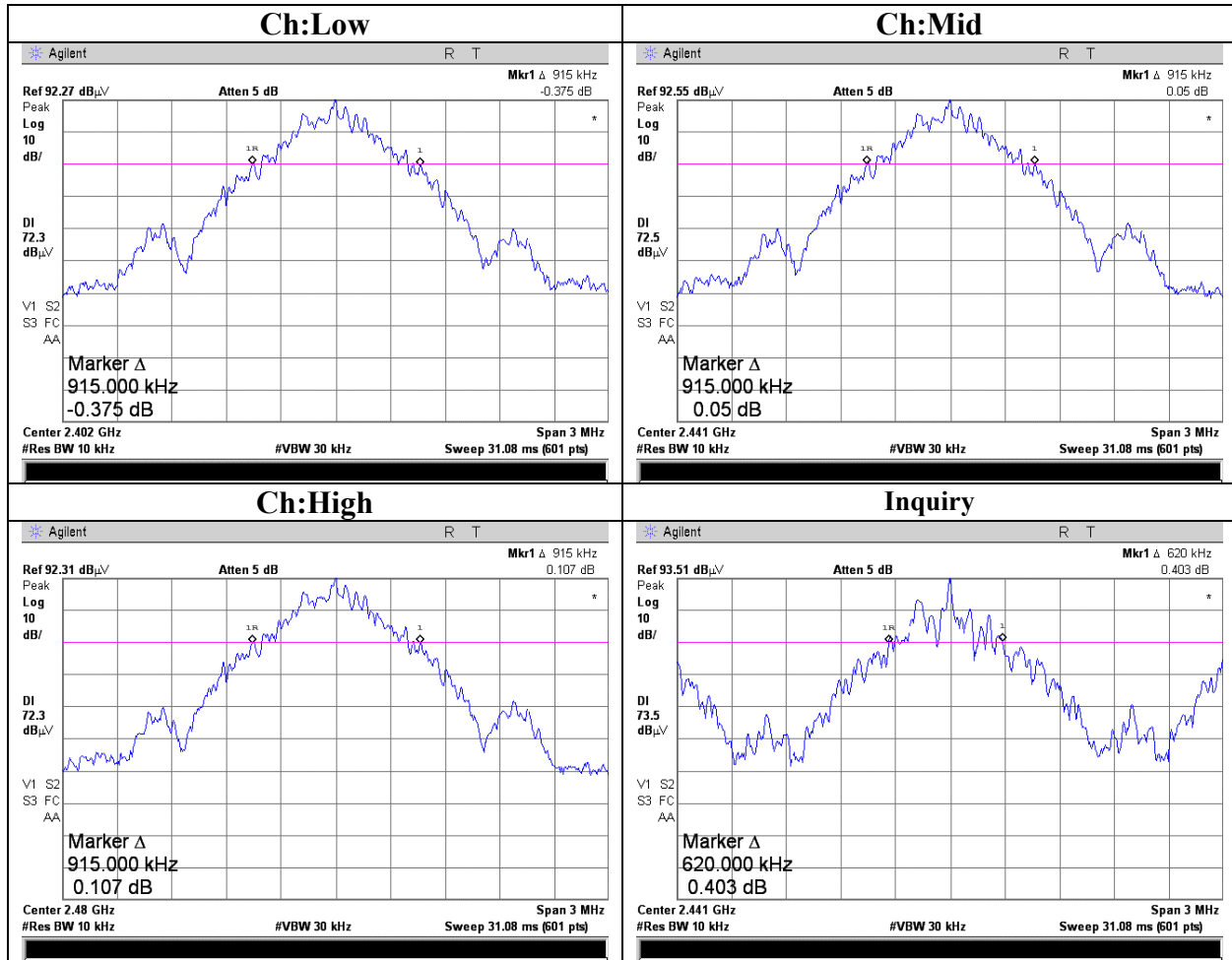
20dB Bandwidth

UL Japan, Inc.
Head Office EMC Lab. No.6 Shielded Room

COMPANY	: Matsushita Electric Industrial	REGULATION	: FCC15.247(a)(1)/RSS-210A8.1(a)
EQUIPMENT	: Bluetooth module	TEST DISTANCE	: -
MODEL	: C5ZZZ0000035	DATE	: 2007/05/23
S/ N	: A6BD	TEMPERATURE	: 22deg.C
POWER	: DC 3.3V/1.5V	HUMIDITY	: 56%
MODE	: Tx (Hopping off) /Inquiry	ENGINEER	: Makoto Kosaka

Ch	Freq.	20dB Bandwidth	Limit
	[MHz]	[MHz]	[MHz]
Low	2402.0	0.915	-
Mid	2441.0	0.915	-
High	2480.0	0.915	-
Inquiry	2441.0	0.620	-

20dB Bandwidth



Number of Hopping Frequency

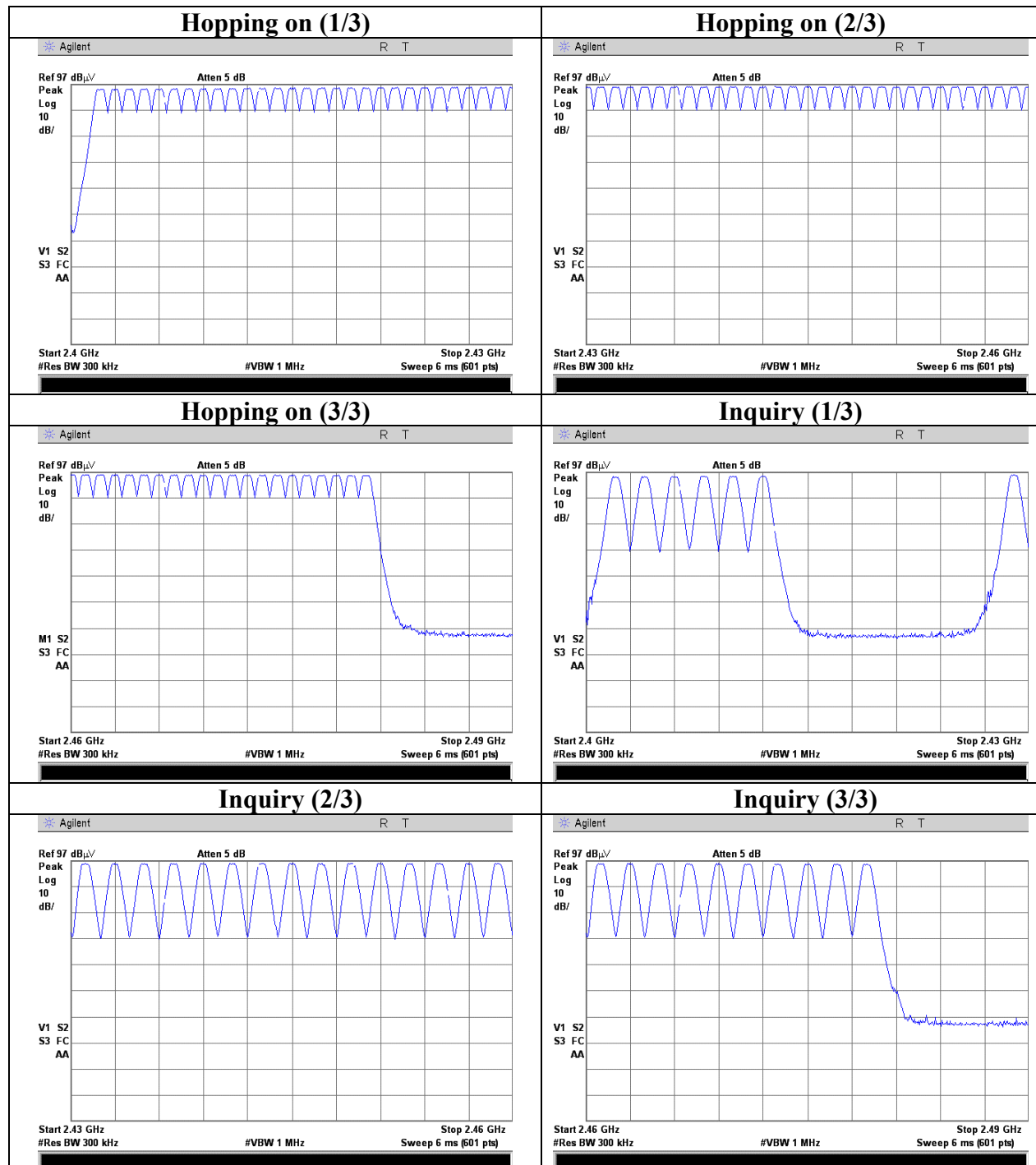
UL Japan, Inc.
Head Office EMC Lab. No.3 Shielded Room

COMPANY	: Matsushita Electric Industrial	REGULATION	: FCC15.247(a)(1)(iii)/RSS-210A8.1(d)
EQUIPMENT	: Bluetooth module	TEST DISTANCE	: -
MODEL	: C5ZZZ0000035	DATE	: 2007/05/10
S/ N	: A6BD	TEMPERATURE	: 23deg.C
POWER	: DC 3.3V/1.5V	HUMIDITY	: 35%
MODE	: Tx (Hopping on) /Inquiry	ENGINEER	: Makoto Kosaka

Mode	Number of channel	Limit
	[time]	[time]
Tx(Hoppng on)	79	≥ 15

Mode	Number of channel	Limit
	[time]	[time]
Inquiry	32	≥ 15

Number of Hopping Frequency



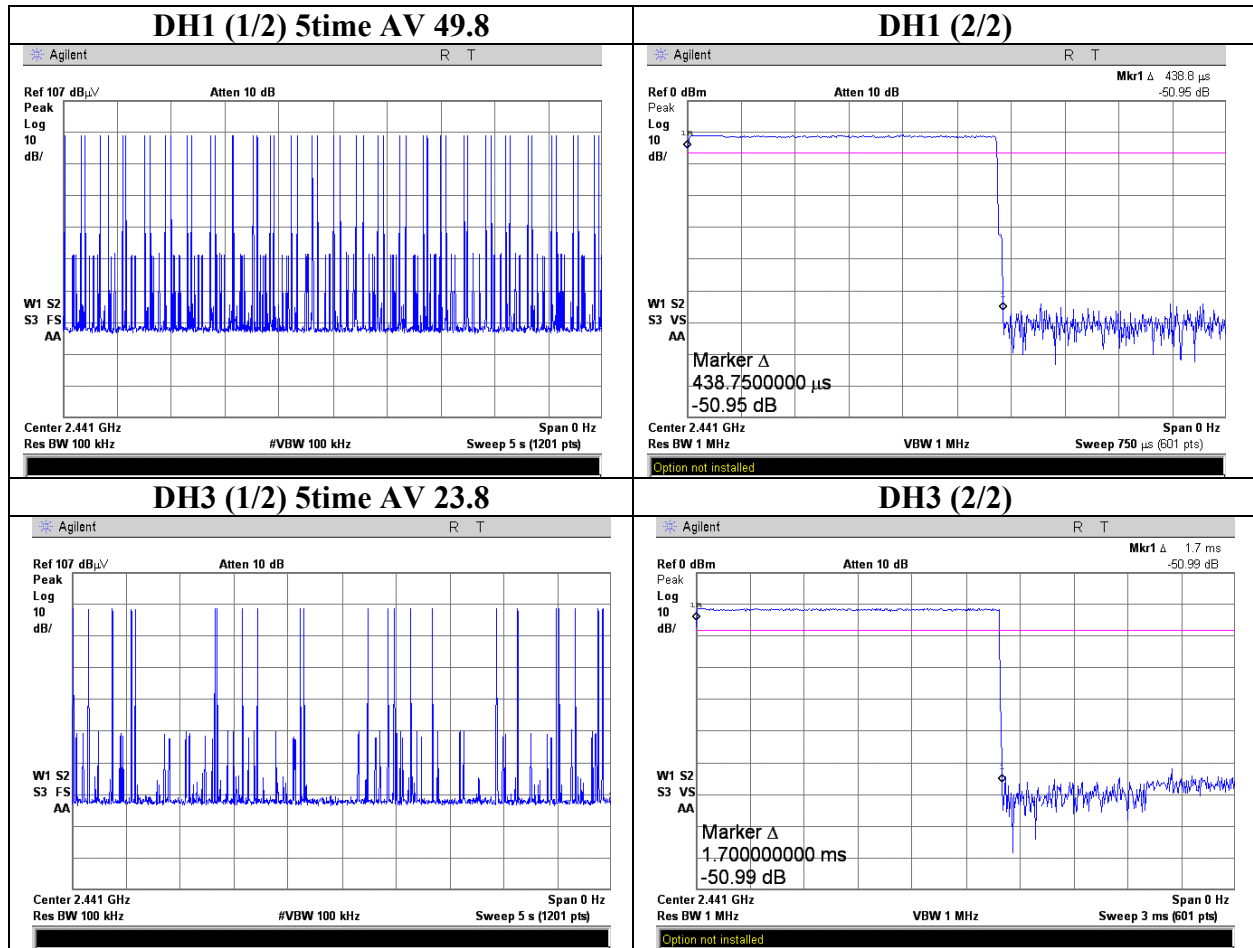
Dwell time

UL Japan, Inc.
Head Office EMC Lab. No.3 Shielded Room

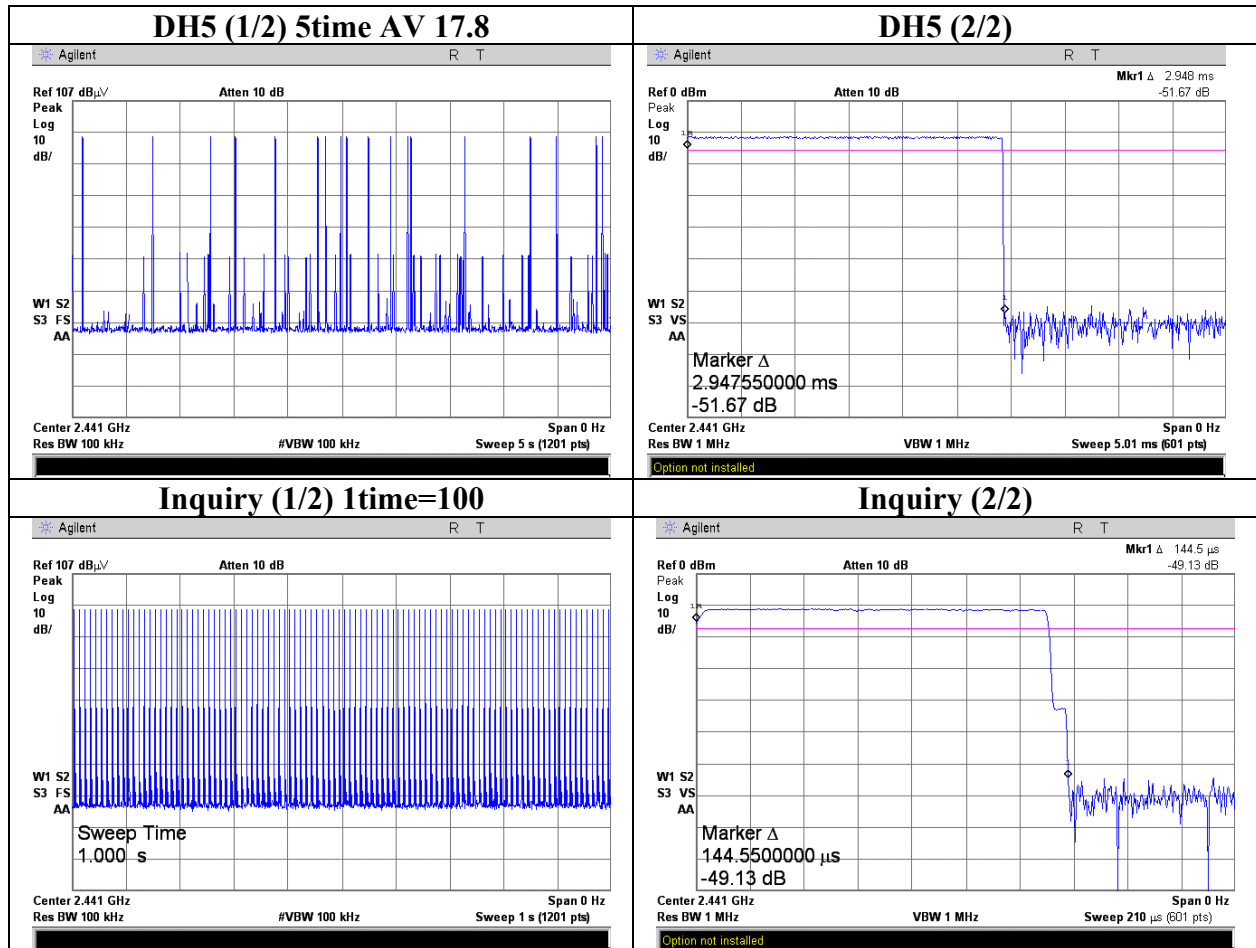
COMPANY	: Matsushita Electric Industrial	REGULATION	: FCC15.247(a)(1)(iii)/RSS-210A8.1(d)
EQUIPMENT	: Bluetooth module	TEST DISTANCE	: -
MODEL	: C5ZZZ0000035	DATE	: 2007/05/10
S/ N	: A6BD	TEMPERATURE	: 23deg.C
POWER	: DC 3.3V/1.5V	HUMIDITY	: 35%
MODE	: Tx (Hopping on) /Inquiry	ENGINEER	: Makoto Kosaka

Mode	Number of transmission in a 31.6(79 Hopping x 0.4) / 12.8(32 Hopping x 0.4)second period	Length of transmission time [msec]	Result [msec]	Limit [msec]
DH1	50 times / 5 sec. x 31.6 sec. = 315 times	0.439	138	400
DH3	24 times / 5 sec. x 31.6 sec. = 151 times	1.700	257	400
DH5	18 times / 5 sec. x 31.6 sec. = 113 times	2.948	333	400
Inquiry	100 times / 1 sec. x 12.8 sec. = 1280 times	0.145	185	400

Dwell time



Dwell time



Maximum Peak Output Power

UL Japan, Inc.
Head Office EMC Lab. No.3 Shielded Room

COMPANY	: Matsushita Electric Industrial	REGULATION	: FCC15.247(b)(1)/RSS-210A8.4(2)
EQUIPMENT	: Bluetooth module	TEST DISTANCE	: -
MODEL	: C5ZZZ0000035	DATE	: 2007/05/10
S/ N	: A6BD	TEMPERATURE	: 23deg.C
POWER	: DC 3.3V/1.5V	HUMIDITY	: 35%
MODE	: Tx(Hopping Off)/Inquiry	ENGINEER	: Makoto Kosaka

Ch	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2402.0	-11.47	1.25	10.07	-0.15	0.97	20.97	125	21.12
Mid	2441.0	-10.50	1.25	10.07	0.82	1.21	20.97	125	20.15
High	2480.0	-10.80	1.00	10.07	0.27	1.06	20.97	125	20.70
Inquiry	2441.0	-10.52	1.25	10.07	0.80	1.20	20.97	125	20.17

Sample Calculation:

Result = Reading + Cable Loss (supplied by customer) + Attenuator

* In the above table, factor 0.0dB represents no use of Atten. and/or Filter.

Radiated Spurious Emission (below 1GHz)
Tx, Ch. Low

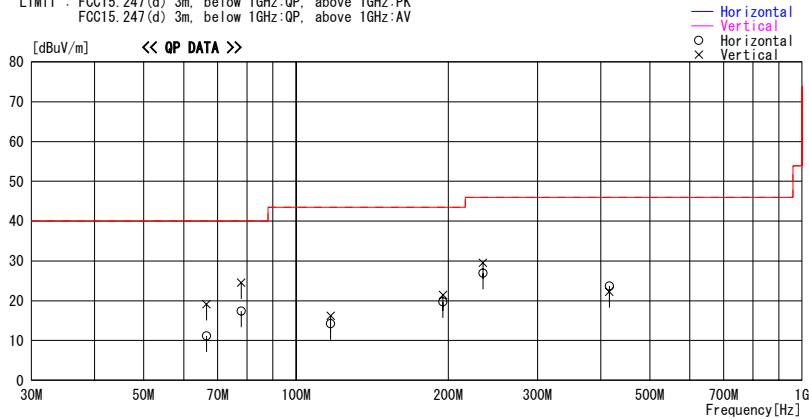
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2007/05/08

Company : Matsushita Electric Industrial
Kind of EUT : Bluetooth module
Model No. : C5ZZZ0000035
Serial No. : A6BD
Report No. : 27FE0246-HO
Power : DC 3.3V/1.5V
Temp./Humi. : 27deg.C. / 38%
Operator : Makoto Kosaka

Mode / Remarks : Tx 2402MHz (DH5) Hor & Ver Z-axis(worst)

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:AV



Frequency	Reading	DET	Antenna Factor	Loss & Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
66.540	25.3	QP	7.4	-21.6	11.1	256	400	Hori.	40.0	28.9	
66.540	33.3	QP	7.4	-21.6	19.1	212	100	Vert.	40.0	20.9	
77.850	32.1	QP	6.7	-21.4	17.4	183	236	Hori.	40.0	22.6	
77.850	39.2	QP	6.7	-21.4	24.5	253	100	Vert.	40.0	15.5	
117.000	22.9	QP	12.5	-21.1	14.3	0	303	Hori.	43.5	29.3	
117.000	24.8	QP	12.5	-21.1	16.2	359	100	Vert.	43.5	27.3	
195.160	22.6	QP	17.2	-20.1	19.7	148	400	Hori.	43.5	23.8	
195.160	24.4	QP	17.2	-20.1	21.5	359	100	Vert.	43.5	22.0	
234.000	29.7	QP	16.9	-19.7	26.9	278	343	Hori.	46.0	19.1	
234.000	32.4	QP	16.9	-19.7	29.6	359	100	Vert.	46.0	16.4	
416.000	25.1	QP	18.0	-19.4	23.7	225	100	Hori.	46.0	22.3	
416.000	23.7	QP	18.0	-19.4	22.3	192	100	Vert.	46.0	23.7	

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

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

Radiated Spurious Emission (below 1GHz)

Tx, Ch. Mid

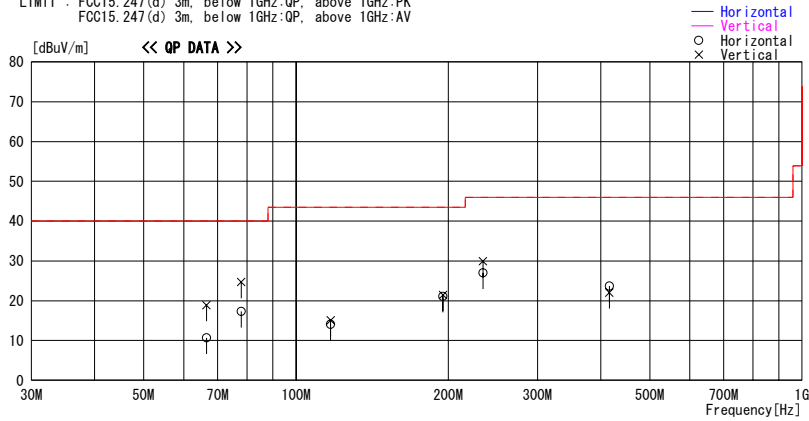
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2007/05/09

Company : Matsushita Electric Industrial Report No. : 27FE0246-HO
Kind of EUT : Bluetooth module Power : DC 3.3V/1.5V
Model No. : C5ZZ0000035 Temp./Humi. : 27deg.C. / 38%
Serial No. : A6BD Operator : Makoto Kosaka

Mode / Remarks : Tx 2441MHz (DH5) Hor & Ver Z-axis(worst)

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:AV



Frequency	Reading	DET	Antenna Factor	Loss & Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
66.540	24.9	QP	7.4	-21.6	10.7	257	382	Hori.	40.0	29.3	
66.540	33.1	QP	7.4	-21.6	18.9	207	100	Vert.	40.0	21.1	
77.850	32.0	QP	6.7	-21.4	17.3	182	204	Hori.	40.0	22.7	
77.850	39.4	QP	6.7	-21.4	24.7	267	100	Vert.	40.0	15.3	
117.000	22.7	QP	12.5	-21.1	14.1	359	235	Hori.	43.5	29.4	
117.000	23.7	QP	12.5	-21.1	15.1	162	100	Vert.	43.5	28.4	
195.160	24.0	QP	17.2	-20.1	21.1	260	400	Hori.	43.5	22.4	
195.160	24.4	QP	17.2	-20.1	21.5	0	100	Vert.	43.5	22.1	
234.000	29.9	QP	16.9	-19.7	27.0	249	339	Hori.	46.0	19.0	
234.000	32.8	QP	16.9	-19.7	30.0	11	100	Vert.	46.0	16.0	
416.000	25.1	QP	18.0	-19.4	23.7	247	100	Hori.	46.0	22.4	
416.000	23.4	QP	18.0	-19.4	22.0	166	100	Vert.	46.0	24.0	

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

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

Radiated Spurious Emission (below 1GHz) Tx, Ch. High

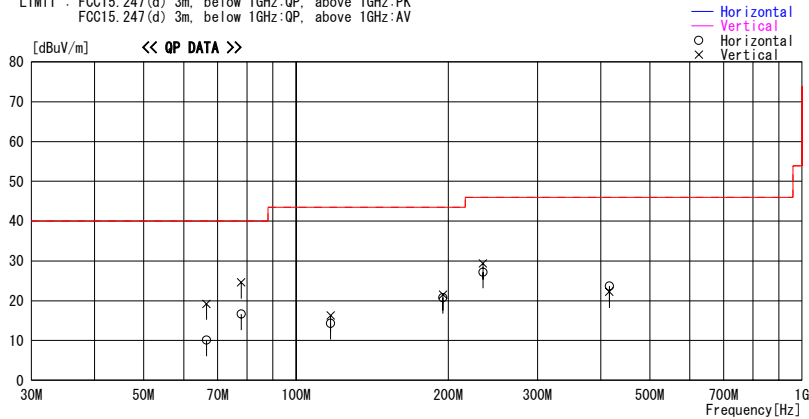
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2007/05/09

Company : Matsushita Electric Industrial
Kind of EUT : Bluetooth module
Model No. : C5ZZ0000035
Serial No. : A6BD
Report No. : 27FE0246-HO
Power : DC 3.3V/1.5V
Temp./Humi. : 27deg.C. / 38%
Operator : Makoto Kosaka

Mode / Remarks : Tx 2480MHz (DH5) Hor & Ver Z-axis(worst)

LIMIT : FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.247(d) 3m, below 1GHz:QP, above 1GHz:AV



Frequency	Reading	DET	Antenna Factor	Loss & Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
66.540	24.3	QP	7.4	-21.6	10.1	76	400	Hori.	40.0	29.9	
66.540	33.4	QP	7.4	-21.6	19.2	209	100	Vert.	40.0	20.8	
77.950	31.4	QP	6.7	-21.4	16.7	0	215	Hori.	40.0	23.3	
77.950	39.3	QP	6.7	-21.4	24.6	280	100	Vert.	40.0	15.4	
117.000	22.9	QP	12.5	-21.1	14.3	0	300	Hori.	43.5	29.2	
117.000	24.9	QP	12.5	-21.1	16.3	359	100	Vert.	43.5	27.2	
195.160	23.7	QP	17.2	-20.1	20.8	269	400	Hori.	43.5	22.7	
195.160	24.5	QP	17.2	-20.1	21.6	0	100	Vert.	43.5	21.9	
234.000	30.0	QP	16.9	-19.7	27.2	270	269	Hori.	46.0	18.8	
234.000	32.2	QP	16.9	-19.7	29.4	359	100	Vert.	46.0	16.6	
416.000	25.1	QP	18.0	-19.4	23.7	241	100	Hori.	46.0	22.3	
416.000	23.7	QP	18.0	-19.4	22.3	173	100	Vert.	46.0	23.7	

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

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

Radiated Spurious Emission (below 1GHz)
Rx, Ch. Mid

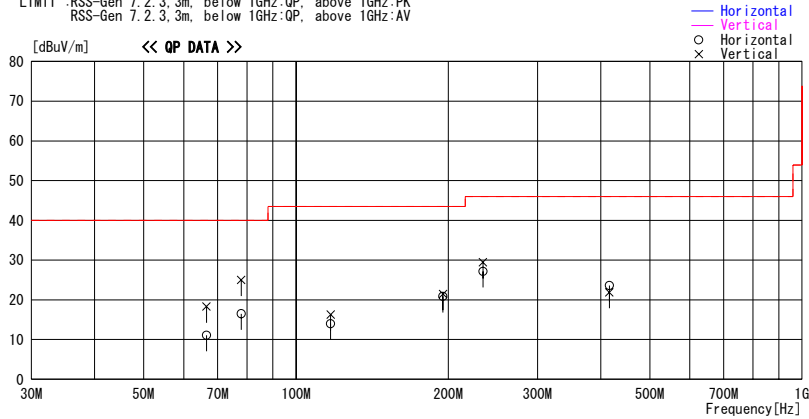
DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber
Date : 2007/05/09

Company : Matsushita Electric Industrial
Kind of EUT : Bluetooth module
Model No. : C5ZZZ0000035
Serial No. : A6BD
Report No. : 27FE0246-H0
Power : DC 3.3V/1.5V
Temp./Humi. : 27deg.C. / 38%
Operator : Makoto Kosaka

Mode / Remarks : Rx 2441MHz Hor & Ver Z-axis(worst)

LIMIT :RSS-Gen 7.2.3.3m, below 1GHz:QP, above 1GHz:PK
RSS-Gen 7.2.3.3m, below 1GHz:QP, above 1GHz:AV



Frequency	Reading	DET	Antenna Factor	Loss & Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
66.540	25.3	QP	7.4	-21.6	11.1	272	400	Hor.	40.0	28.9	
66.540	32.5	QP	7.4	-21.6	18.3	0	100	Vert.	40.0	21.7	
77.950	31.2	QP	6.7	-21.4	16.5	0	201	Hor.	40.0	23.5	
77.950	39.7	QP	6.7	-21.4	25.0	236	100	Vert.	40.0	15.0	
117.000	22.6	QP	12.5	-21.1	14.0	0	400	Hor.	43.5	29.5	
117.000	24.9	QP	12.5	-21.1	16.3	359	100	Vert.	43.5	27.2	
195.160	23.8	QP	17.2	-20.1	20.9	266	400	Hor.	43.5	22.6	
195.160	24.3	QP	17.2	-20.1	21.4	359	100	Vert.	43.5	22.1	
234.000	30.0	QP	16.9	-19.7	27.2	256	349	Hor.	46.0	18.9	
234.000	32.3	QP	16.9	-19.7	29.5	4	100	Vert.	46.0	16.5	
416.000	25.0	QP	18.0	-19.4	23.6	233	100	Hor.	46.0	22.4	
416.000	23.3	QP	18.0	-19.4	21.9	166	100	Vert.	46.0	24.1	

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

* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

Radiated Spurious Emission (above 1GHz)

Tx, Ch. Low

UL Japan, Inc.
Head Office EMC Lab. No.1Semi Anechoic Chamber

Company : Matsushita Electric Industrial Co.,Ltd Equipment : Bluetooth module Model : C5ZZZ0000035 Sample No. : A6BD Power : DC 3.3V/1.5V Mode : Tx 2402MHz (DH5) Remarks : Hor Z , Ver Z-axis	REPORT NO : 27FE0246-HO REGULATION : FCC15.247(d)/RSS-210A8.5 TEST DISTANCE : 3/1m DATE : 05/07&23/2007 TEMPERATURE : 24deg.C HUMIDITY : 42% ENGINEER : Makoto Kosaka
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PK DETECT (RBW: 1MHz, VBW: 1MHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	57.1	67.4	27.1	36.4	2.9	0.0	50.7	61.0	73.9	23.2	12.9
2	4804.0	46.0	46.4	31.3	36.3	3.7	0.9	45.6	46.0	73.9	28.3	27.9
3	7206.0	45.9	45.9	35.7	36.4	4.6	0.7	50.5	50.5	73.9	23.4	23.4
4	9608.0	46.8	46.5	38.5	36.6	5.3	0.5	54.5	54.2	73.9	19.4	19.7
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12010.0	NS	NS	-	-	-	-	-	-	73.9	-	-
6	14412.0	NS	NS	-	-	-	-	-	-	73.9	-	-
7	16814.0	NS	NS	-	-	-	-	-	-	73.9	-	-
8	19216.0	NS	NS	-	-	-	-	-	-	73.9	-	-
9	21618.0	NS	NS	-	-	-	-	-	-	73.9	-	-
10	24020.0	49.1	49.1	40.6	35.8	8.8	0.0	53.2	53.2	73.9	20.7	20.7

AV DETECT (RBW: 1MHz, VBW: 10Hz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	43.8	56.8	27.1	36.4	2.9	0.0	37.4	50.4	53.9	16.5	3.5
2	4804.0	32.2	31.7	31.3	36.3	3.7	0.9	31.8	31.3	53.9	22.1	22.6
3	7206.0	32.3	32.3	35.7	36.4	4.6	0.7	36.9	36.9	53.9	17.0	17.0
4	9608.0	33.1	33.1	38.5	36.6	5.3	0.5	40.8	40.8	53.9	13.1	13.1
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12010.0	NS	NS	-	-	-	-	-	-	53.9	-	-
6	14412.0	NS	NS	-	-	-	-	-	-	53.9	-	-
7	16814.0	NS	NS	-	-	-	-	-	-	53.9	-	-
8	19216.0	NS	NS	-	-	-	-	-	-	53.9	-	-
9	21618.0	NS	NS	-	-	-	-	-	-	53.9	-	-
10	24020.0	35.2	35.2	40.6	35.8	8.8	0.0	39.3	39.3	53.9	14.6	14.6

20dBc(Fundamental 2412MHz) (RBW: 100kHz, VBW: 300kHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit 20dBc [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER			
		[dBuV]										
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2402.0	103.8	104.9	27.1	36.4	2.9	0.0	97.4	98.5	-	-	-
2	2400.0	51.8	38.7	27.1	36.4	2.9	0.0	45.4	32.3	Funda-20dB	32.0	46.2

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

*Except for the above table : All other spurious emissions were less than 20dB for the limit.

*In the frequency over the fifth harmonic, the noise from the EUT was not seen. The data above is its base noise.

*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

*Hi-Pass Filter was not used for factor 0.0dB of the above table.

*NS:Non signal

Radiated Spurious Emission (above 1GHz)

Tx, Ch. Mid

UL Japan, Inc.
Head Office EMC Lab. No.1Semi Anechoic Chamber

Company : Matsushita Electric Industrial Co.,Ltd.
Equipment : Bluetooth module
Model : C5ZZZ0000035
Sample No. : A6BD
Power : DC 3.3V/1.5V
Mode : Tx 2441MHz (DH5)
Remarks : Hor Z, Ver Z-axis

REPORT NO : 27FE0246-HO
REGULATION : FCC15.247(d)/RSS-210A8.5
TEST DISTANCE : 3/1m
DATE : 05/07&23/2007
TEMPERATURE : 24deg.C
HUMIDITY : 42%
ENGINEER : Makoto Kosaka

PK DETECT (RBW: 1MHz, VBW: 1MHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	4882.0	45.2	44.6	31.4	36.3	3.8	1.0	45.1	44.5	73.9	28.8	29.4
2	7323.0	47.4	46.6	36.0	36.4	4.8	0.7	52.5	51.7	73.9	21.4	22.2
3	9764.0	47.6	46.5	38.7	36.7	5.3	0.5	55.4	54.3	73.9	18.6	19.6
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	12205.0	NS	NS	-	-	-	-	-	-	73.9	-	-
5	14646.0	NS	NS	-	-	-	-	-	-	73.9	-	-
6	17087.0	NS	NS	-	-	-	-	-	-	73.9	-	-
7	19528.0	NS	NS	-	-	-	-	-	-	73.9	-	-
8	21969.0	NS	NS	-	-	-	-	-	-	73.9	-	-
9	24410.0	48.0	47.6	40.7	35.5	8.9	0.0	52.6	52.2	73.9	21.3	21.7

AV DETECT (RBW: 1MHz, VBW: 10Hz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	4882.0	32.2	31.3	31.4	36.3	3.8	1.0	32.1	31.2	53.9	21.8	22.7
2	7323.0	32.5	32.7	36.0	36.4	4.8	0.7	37.6	37.8	53.9	16.3	16.1
3	9764.0	32.8	32.8	38.7	36.7	5.3	0.5	40.6	40.6	53.9	13.3	13.3
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	12205.0	NS	NS	-	-	-	-	-	-	53.9	-	-
5	14646.0	NS	NS	-	-	-	-	-	-	53.9	-	-
6	17087.0	NS	NS	-	-	-	-	-	-	53.9	-	-
7	19528.0	NS	NS	-	-	-	-	-	-	53.9	-	-
8	21969.0	NS	NS	-	-	-	-	-	-	53.9	-	-
9	24410.0	34.7	34.7	40.7	35.5	8.9	0.0	39.3	39.3	53.9	14.6	14.6

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

*Except for the above table : All other spurious emissions were less than 20dB for the limit.

*In the frequency over the fifth harmonic, the noise from the EUT was not seen. The data above is its base noise.

*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

*Hi-Pass Filter was not used for factor 0.0dB of the above table.

*NS:Non signal

Radiated Spurious Emission (above 1GHz)

Tx, Ch. High

UL Japan, Inc.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company : Matsushita Electric Industrial Co., Ltd.	REPORT NO : 27FE0246-HO	
Equipment : Bluetooth module	REGULATION : FCC15.247(d)/RSS-210A8.5	
Model : C5ZZZ000035	TEST DISTANCE : 3/1m	
Sample No. : A6BD	DATE : 05/07&23/2007	
Power : DC 3.3V/1.5V	TEMPERATURE : 24deg.C	
Mode : Tx 2480MHz (DH5)	HUMIDITY : 42%	
Remarks : Hor Z , Ver Z-axis	ENGINEER : Makoto Kosaka	

PK DETECT (RBW: 1MHz, VBW: 1MHz)

No.	FREQ	S/A READING		ANT	AMP	CABLE	Hi-Pass	RESULT		Limit	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
	[MHz]	[dBuV]		Factor	GAIN	LOSS	Filter	[dBuV/m]		PK	[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	56.7	58.1	27.2	36.4	2.9	0.0	50.4	51.8	73.9	23.5	22.1
2	4960.0	48.5	45.7	31.5	36.3	3.8	1.0	48.5	45.7	73.9	25.4	28.2
3	7440.0	46.3	46.8	36.2	36.4	4.8	0.7	51.6	52.1	73.9	22.3	21.8
4	9920.0	46.7	46.6	38.9	36.7	5.4	0.5	54.8	54.7	73.9	19.1	19.2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12400.0	NS	NS	-	-	-	-	-	-	73.9	-	-
6	14880.0	NS	NS	-	-	-	-	-	-	73.9	-	-
7	17360.0	NS	NS	-	-	-	-	-	-	73.9	-	-
8	19840.0	NS	NS	-	-	-	-	-	-	73.9	-	-
9	22320.0	NS	NS	-	-	-	-	-	-	73.9	-	-
10	24800.0	49.1	49.2	40.8	35.2	8.9	0.0	54.1	54.2	73.9	19.8	19.7

AV DETECT (RBW: 1MHz, VBW: 10Hz)

No.	FREQ	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
	[MHz]	[dBuV]		[dBuV/m]		[dBuV/m]		[dB]				
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	48.5	49.3	27.2	36.4	2.9	0.0	42.2	43.0	53.9	11.7	10.9
2	4960.0	37.6	32.3	31.5	36.3	3.8	1.0	37.6	32.3	53.9	16.3	21.6
3	7440.0	32.6	32.6	36.2	36.4	4.8	0.7	37.9	37.9	53.9	16.1	16.0
4	9920.0	32.9	32.9	38.9	36.7	5.4	0.5	41.0	41.0	53.9	12.9	12.9
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12400.0	NS	NS	-	-	-	-	-	-	53.9	-	-
6	14880.0	NS	NS	-	-	-	-	-	-	53.9	-	-
7	17360.0	NS	NS	-	-	-	-	-	-	53.9	-	-
8	19840.0	NS	NS	-	-	-	-	-	-	53.9	-	-
9	22320.0	NS	NS	-	-	-	-	-	-	53.9	-	-
10	24800.0	35.6	35.7	40.8	35.2	8.9	0.0	40.6	40.7	53.9	13.3	13.2

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.5dB

*Except for the above table : All other spurious emissions were less than 20dB for the limit.

*In the frequency over the fifth harmonic, the noise from the EUT was not seen. The data above is its base noise.

*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

*Hi-Pass Filter was not used for factor 0.0dB of the above table.

*NS:Non signal

Radiated Spurious Emission (above 1GHz)

Rx, Ch. Mid

UL Japan, Inc.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company : Matsushita Electric Industrial Co.,Ltd.	REPORT NO : 27FE0246-HO
Equipment : Bluetooth module	REGULATION : RSS-Gen 7.2.3
Model : CSZZZ0000035	TEST DISTANCE : 3m
Sample No. : A6BD	DATE : 05/07&23/2007
Power : DC 3.3V/1.5V	TEMPERATURE : 24deg.C
Mode : Rx 2441MHz	HUMIDITY : 42%
Remarks : Hor Z , Ver Z-axis	ENGINEER : Makoto Kosaka

PK DETECT (RBW: 1MHz, VBW: 1MHz)

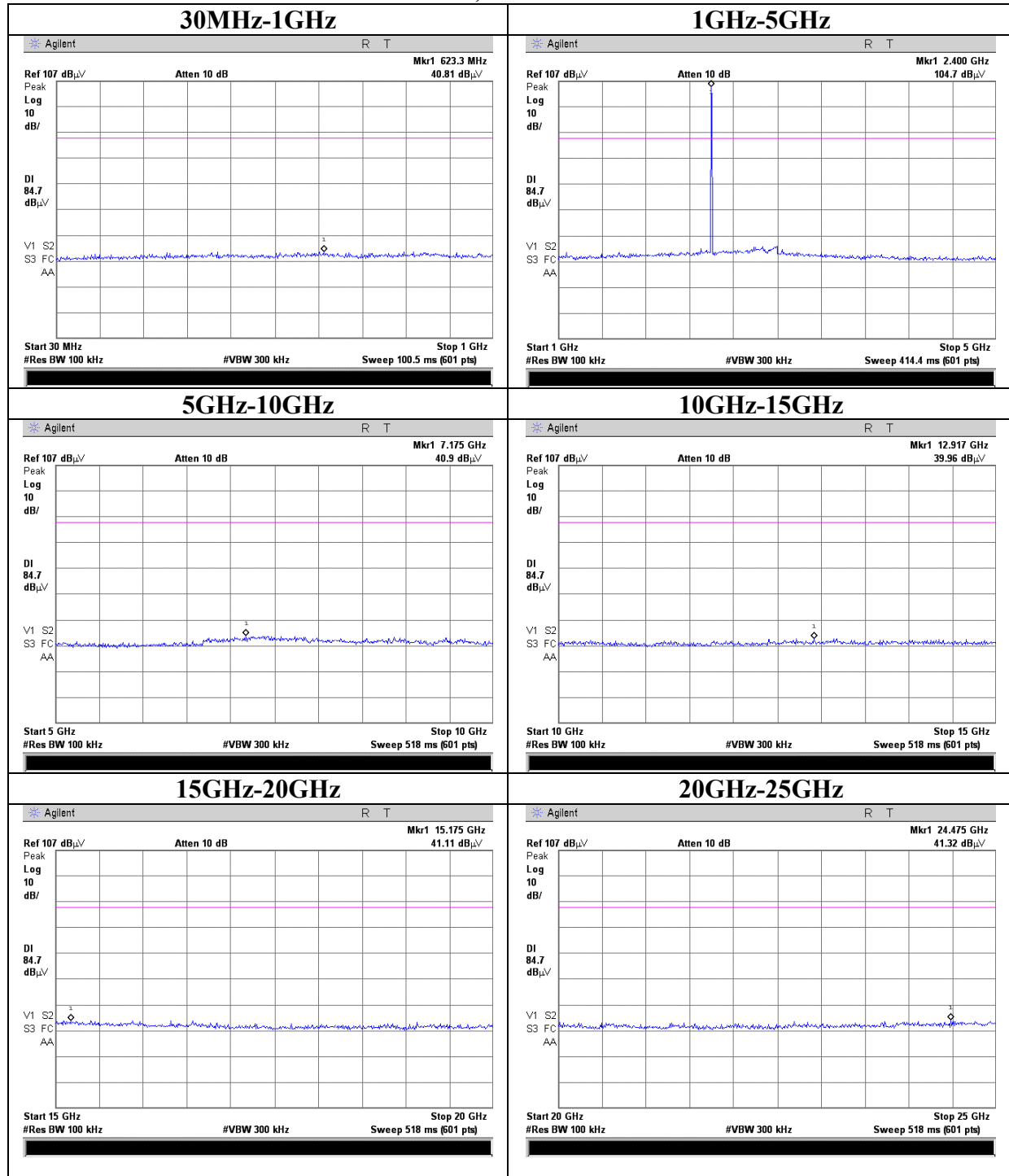
No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2441.0	46.0	46.2	27.2	36.4	2.9	0.0	39.7	39.9	73.9	34.2	34.0
2	4882.0	46.0	45.1	36.0	36.4	4.8	0.0	50.4	49.5	73.9	23.5	24.4
3	7323.0	46.7	46.7	38.7	36.7	5.3	0.0	54.0	54.0	73.9	19.9	19.9

AV DETECT (RBW: 1MHz, VBW: 10Hz)

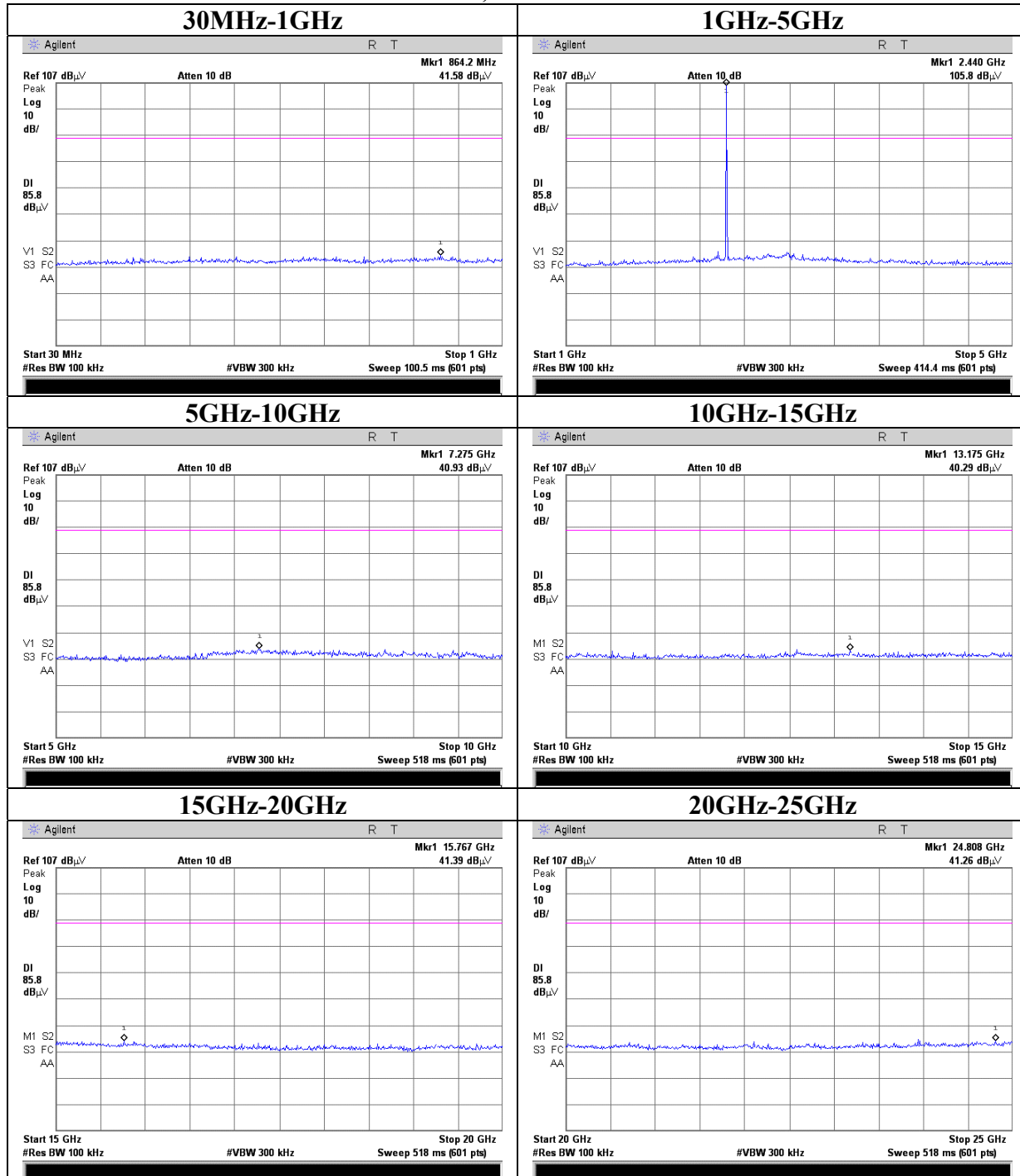
No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2441.0	32.9	32.6	27.2	36.4	2.9	0.0	26.6	26.3	53.9	27.3	27.6
2	4882.0	31.2	31.2	36.0	36.4	4.8	0.0	35.6	35.6	53.9	18.3	18.3
3	7323.0	32.5	32.5	38.7	36.7	5.3	0.0	39.8	39.8	53.9	14.1	14.1

*Except for the above table : All other spurious emissions were less than 20dB for the limit.
*In the frequency over the fifth harmonic, the noise from the EUT was not seen. The data above is its base noise.
*The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.
*Hi-Pass Filter was not used for factor 0.0dB of the above table.
*NS: Non signal

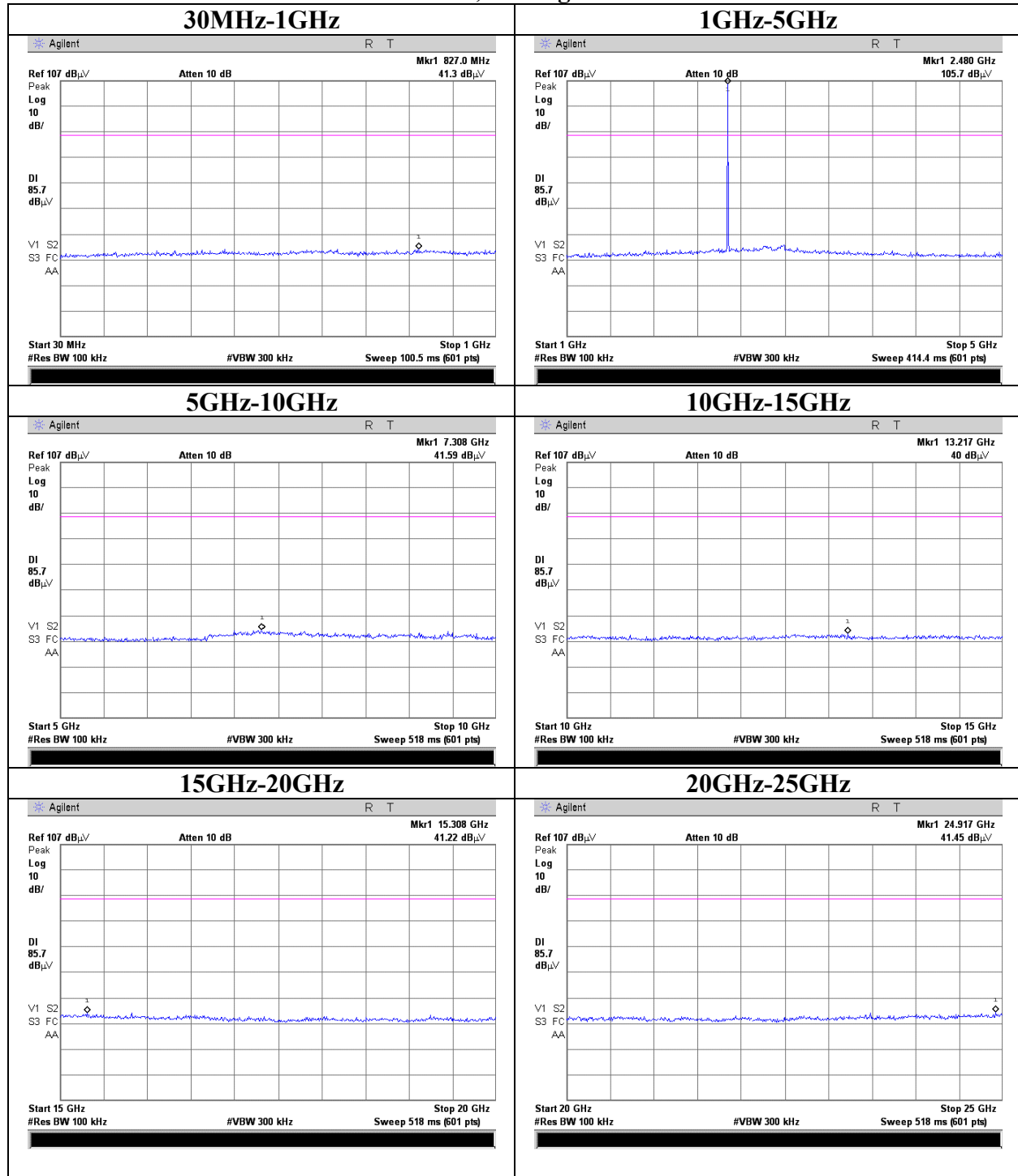
Conducted Spurious Emission
Tx, Ch:Low



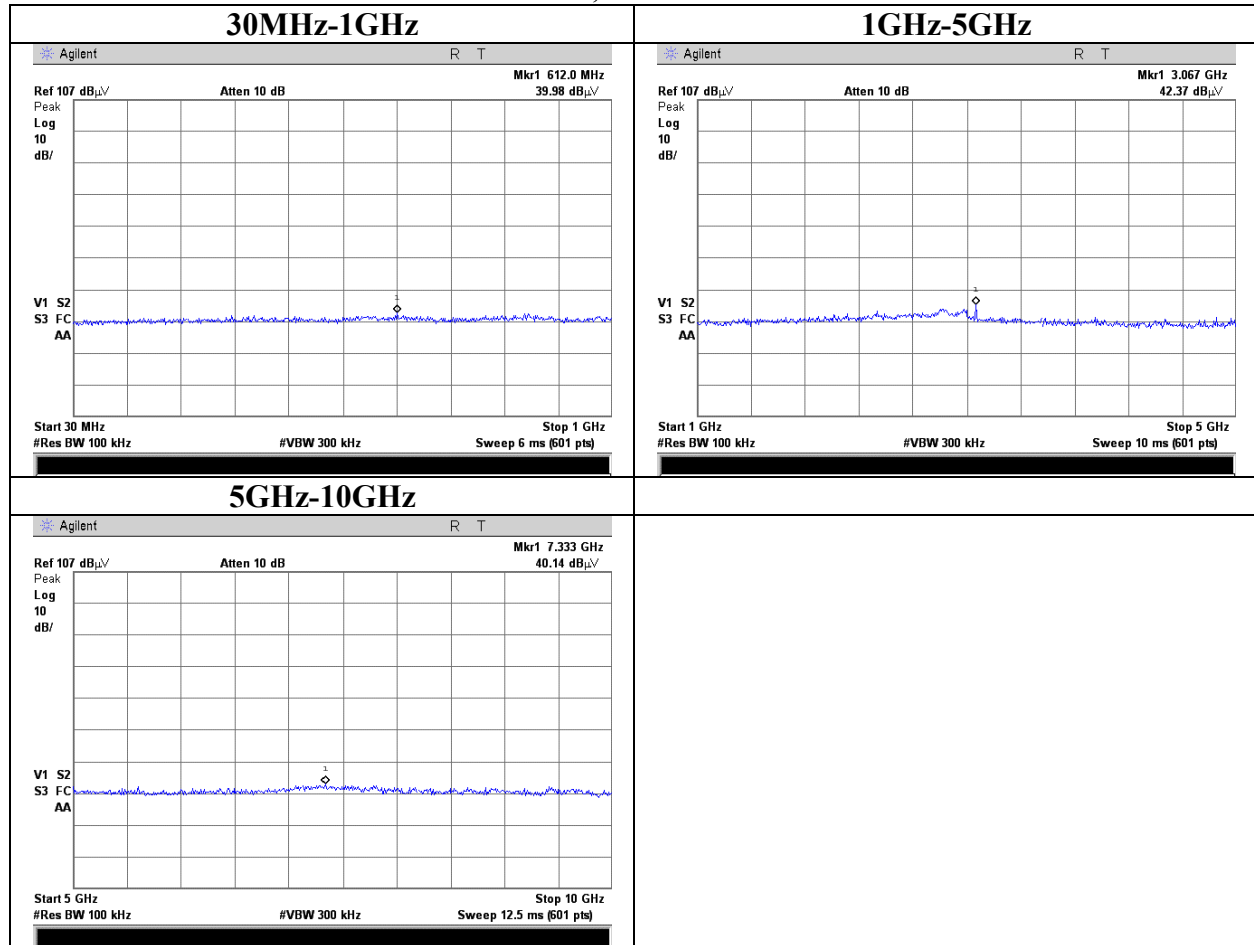
Conducted Spurious Emission
Tx, Ch:Mid



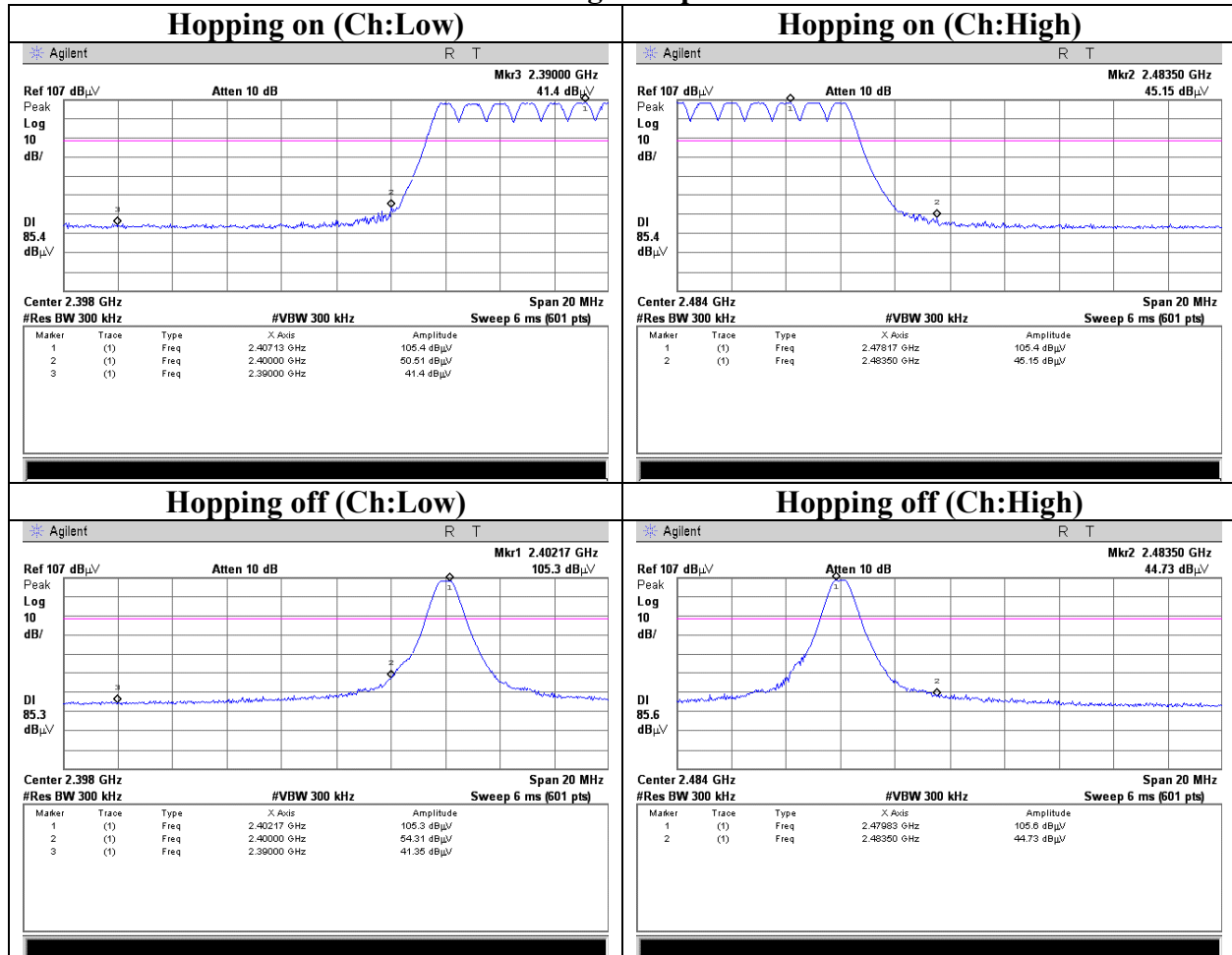
Conducted Spurious Emission
Tx, Ch:High



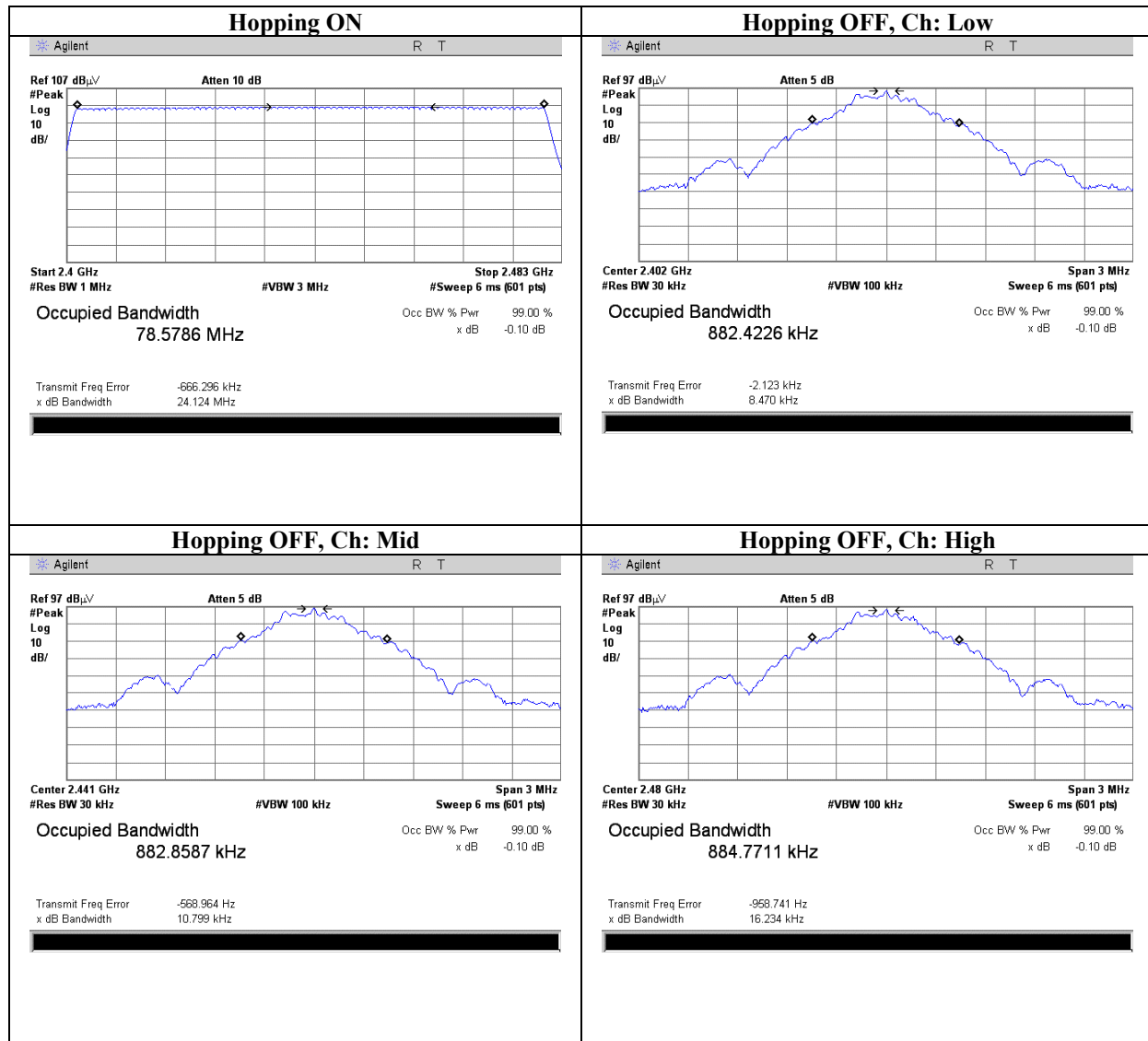
Conducted Spurious Emission
Rx, Ch:Mid



Conducted Spurious Emission Band Edge compliance



99% Occupied Bandwidth



APPENDIX 3:Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	RE	2006/11/01 * 12
MHA-05	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	RE	2007/01/30 * 12
MHA-01	Horn Antenna 18-26.5G	EMCO	3160-09	RE	2007/01/30 * 12
MCC-15	Microwave Cable 1G-26.5GHz 1m	Suhner	SUCOFLEX 104	RE	2007/02/22 * 12
MCC-18	Microwave Cable 1G-26.5GHz 5m	Suhner	SUCOFLEX 104	RE	2007/02/22 * 12
MPA-01	Pre Amplifier	Agilent	8449B	RE	2007/02/15 * 12
MHF-05	High Pass Filter 3.5-18GHz	Tokimec	TF323DCA	RE	2007/01/16 * 12
MTR-01	Test Receiver	Rohde & Schwarz	ESI40	RE	2006/10/14 * 12
MOS-01	Digital Humidity Indicator	N.T	NT-1800	RE	2006/11/27 * 12
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE	-
MJM-01	Measure	KDS	ES19-55	RE	-
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2007/04/02 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	RE	2006/10/07 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2006/10/07 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	RE	2006/12/27 * 12
MPA-09	Pre Amplifier	Agilent	8447D	RE	2006/09/07 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	RE	2007/02/27 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	RE	2007/03/01 * 12
MOS-02	Digital Humidity Indicator	N.T	NT-1800	RE	2006/11/27 * 12
MJM-05	Measure	PROMART	SEN1955	RE	-
MSA-06	Spectrum Analyzer	Agilent	E4407B	AT	2007/04/10 * 12
MPM-08	Power Meter	Anritsu	ML2495A	AT	2006/09/20 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	AT	2006/09/20 * 12
MAT-20	Attenuator(10dB)(above 1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-110	AT	2007/01/11 * 12
MCC-26	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	AT	2006/08/29 * 12
MOS-12	Thermo-Hygrometer	Custom	CTH-180	AT	2006/01/19 * 24

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: RE : Radiated Emission
AT : Antenna Terminal Conducted test

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