



RADIO TEST REPORT

Test Report No. : 27GE0231-HO-A-2

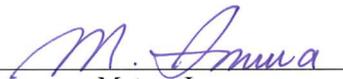
Applicant : Sharp Corporation
Type of Equipment : WCDMA & Tri-band (900/1800/1900) GSM Dual mode
Mobile Phone / Bluetooth enable
Model No. : 815SH
FCC ID : APYHRO00057
Test standard : FCC Part 15 Subpart C
Section 15.207, Section 15.247: 2007
Test Result : Complied

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This equipment is in compliance with the above regulation.
4. The test results in this report are traceable to the national or international standards.

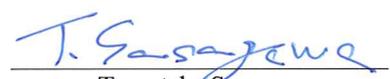
Date of test:

May 7 and 8 , 2007

Tested by:

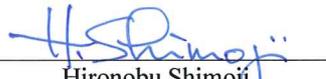


Motoya Imura
EMC Services



Tomotaka Sasagawa
EMC Services

Approved by :



Hironobu Shimoji
Assistant Manager of
EMC Services



NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
*As for the range of Accreditation in NVLAP, you may refer to the WEB address, <http://uljapan.co.jp/emc/nvlap.htm>

UL Japan, Inc.

Head Office EMC Lab.

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b (26.04.07)

CONTENTS	PAGE
SECTION 1: Client information	3
SECTION 2: Equipment under test (E.U.T.).....	3
SECTION 3: Test specification, procedures & results.....	4
SECTION 4: Operation of E.U.T. during testing	8
SECTION 5: Conducted Emission.....	9
SECTION 6: Spurious Emission	10
SECTION 7: Bandwidth	11
SECTION 8: Maximum Peak Output Power	11
SECTION 9: Carrier Frequency Separation	11
SECTION 10: Number of Hopping Frequency	11
SECTION 11: Dwell time	11
APPENDIX 1: Photographs of test setup	12
Conducted Emission	12
Spurious Emission (Radiated)	13
Worst Case Position (Horizontal: X-axis/ Vertical:Y-axis)	14
APPENDIX 2: Data of EMI test.....	15
Carrier Frequency Separation	20
20dB Bandwidth.....	22
Number of Hopping Frequency.....	24
Dwell time	26
Maximum Peak Output Power.....	29
Radiated Spurious Emission (below 1GHz)	30
Radiated Spurious Emission (above 1GHz)	34
Conducted Spurious Emission	38
99% Occupied Bandwidth	42
APPENDIX 3: Test instruments	43

SECTION 1: Client information

Company Name : Sharp Corporation
Address : 2-13-1 Iida Hachihonmatsu HigashiHiroshima-City, Hiroshima-pref.
739-0192 Japan
Telephone Number : +81-82-420-1936
Facsimile Number : +81-82-420-1852
Contact Person : Hirotaka Hamada

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment : WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone
/ Bluetooth enable
Model No. : 815SH
Serial No. : 004401/11/063370/4, 004401/11/063211/0
Rating : AC120V/60Hz
Country of Manufacture : Japan
Receipt Date of Sample : May 7, 2007
Condition of EUT : Production prototype
(Not for Sale: This sample is equivalent to mass-produced items.)
Modification of EUT : No modification by the test lab.

2.2 Product Description

Model No: 815SH (referred to as the EUT in this report) is the WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone/ Bluetooth enable.
The EUT has the function of Bluetooth wireless technology interface for establishing contact and transmitting data with certain devices.

Clock frequency(ies) in the system : 26MHz (CPU), 32.768kHz (RTC)
Equipment Type : Transceiver
Frequency range of Operation : 2402-2480MHz
Bandwidth & Channel spacing : 1MHz & 1MHz
Modulation : FHSS
Power Supply (inner) : DC 2.9V
Antenna Type : Internal Antenna
Antenna Connector Type : N/A
Antenna Gain : 0 dBi max

UL Japan, Inc.

Head Office EMC Lab.

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b (26.04.07)

SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part15 Subpart C : 2007
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits : 2007
Section 15.247 Operation within the bands 902-928MHz,
2400-2483.5MHz, and 5725-5850MHz : 2007

FCC 15.31 (e)

This EUT provides stable voltage(DC2.9V) constantly to RF Module regardless of input voltage. Therefore, this EUT complies with the requirement.

FCC Part 15.203 Antenna requirement

It is impossible for end users to replace the antenna, because the antenna is mounted inside of the EUT. Therefore, the equipment complies with the antenna requirement of Section 15.203.

UL Japan, Inc.

Head Office EMC Lab.

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b (26.04.07)

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin*0)	Results
1	Conducted emission	ANSI C63.4:2003 7. AC powerline conducted emission measurements	Section 15.207	-	N/A	25.6dB 0.39335 MHz QP,L	Complied
2	Carrier Frequency Separation	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(a)(1)	Conducted	N/A	See data.	Complied
3	20dB Bandwidth	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(a)(1)	Conducted	N/A		Complied
4	Number of Hopping Frequency	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(a)(1)(iii)	Conducted	N/A		Complied
5	Dwell time	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(a)(1)(iii)	Conducted	N/A		Complied
6	Maximum Peak Output Power	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(b)(1)	Conducted	N/A		Complied
7	Band Edge Compliance	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(d)	Conducted	N/A		Complied
8	Spurious Emission	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(d)	Conducted/ Radiated	N/A		<Tx> 8.2dB 30.270MHz, Ver, QP <Rx> 8.0dB, 30.010MHz, Ver, QP

Note: UL Japan, Inc.'s EMI Work Procedures No.QPM05 and QPM15.

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

*These tests were also referred to FCC Public Notice DA 00-705 "Guidance on Measurement for Frequency Hopping Spread Spectrum Systems".

*These tests were performed without any deviations from test procedure except for additions or exclusions.

UL Japan, Inc.

Head Office EMC Lab.

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b (26.04.07)

3.3 Additions or deviations to standards

No addition, deviation, nor exclusion has been made from standards.

3.4 Uncertainty

Conducted Emission

The measurement uncertainty (with a 95% confidence level) for this test is ± 2.66 dB.

The data listed in this report meets the limits unless the uncertainty is taken into consideration.

The data listed in this test report has enough margin, more than the site margin.

Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is ± 4.59 dB(3m).

The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is ± 4.62 dB(3m).

The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is ± 5.27 dB.

The data listed in this report meets the limits unless the uncertainty is taken into consideration.

The data listed in this test report has enough margin, more than the site margin.

Other test except Conducted Emission and Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test is ± 3.0 dB.

UL Japan, Inc.

Head Office EMC Lab.

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b (26.04.07)

3.5 Test Location

UL Japan, Inc. Head Office EMC Lab. *NVLAP Lab. code: 200572-0

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

Telephone : +81 596 24 8116 Facsimile : +81 596 24 8124

	FCC Registration Number	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	313583	IC4247A	19.2 x 11.2 x 7.7m	7.0 x 6.0m	Preparation room
No.2 semi-anechoic chamber	655103	IC4247A-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	IC4247A-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	
No.3 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	134570	IC4247A-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	-
No.4 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.5 semi-anechoic chamber	-	-	6.0 x 6.0 x 3.9m	N/A	-
No.6 shielded room	-	-	4.0 x 4.5 x 2.7m	4.75 x 5.4 m	-
No.6 measurement room	-	-	4.75 x 5.4 x 3.0m	4.75 x 4.15 m	-
No.7 shielded room	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.8 measurement room	-	-	3.1 x 5.0 x 2.7m	N/A	-

* Size of vertical conducting plane (for Conducted Emission test) : 2.0 x 2.0m for No.1, No.2, No.3, and No.4 semi-anechoic chambers and No.3 and No.4 shielded rooms.

3.6 Test set up, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

UL Japan, Inc.

Head Office EMC Lab.

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b (26.04.07)

SECTION 4: Operation of E.U.T. during testing

4.1 Operating Modes

The mode used for test : Transmitting mode (Packet size DH5, Data packet: PRBS9)

- Low Channel : 2402MHz
- Mid Channel : 2441MHz
- High Channel : 2480MHz

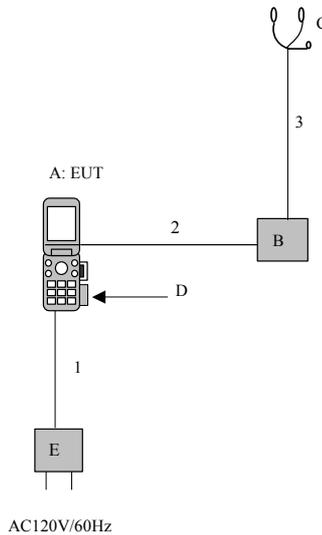
Receiving mode

- Mid Channel : 2441MHz

Inquiry mode

Remarks: Test was not performed at AFH mode, because the decrease of number of channel (min: 20ch) at AFH mode does not influence on the output power and bandwidth of the EUT. However, the limit level 125mWof AFH mode was used for the test.

4.2 Configuration and peripherals



Description of Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	WCDMA & Tri-band GSM Dual mode Mobile Phone/ Bluetooth enable	815SH	004401/11/063211/0 *1), 004401/11/063370/4 *2)	Sharp Corporation	EUT
B	Hands free Microphone Unit	XN-1HU90	-	Sharp Corporation	EUT
C	Stereo Headset	XN-1HS90	-	Sharp Corporation	EUT
D	Lithium-Ion Battery	SHBBB1	-	Sharp Corporation	EUT
E	AC Charger	SHCAA1	-	HOSIDEN	EUT

*1) Used for Conducted and radiated emission tests

*2) Used for Antenna Terminal tests

List of cables used

No.	Name	Length (m)	Shield	
			Cable	Connector
1	DC Cable	1.5	Unshielded	Unshielded
2	Cable for Hands free Microphone Unit	0.9	Unshielded	Unshielded
3	Stereo Headset Cable	0.75	Unshielded	Unshielded

UL Japan, Inc.

Head Office EMC Lab.

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b (26.04.07)

SECTION 5: Conducted Emission

Test Procedure and conditions

EUT was placed on a urethane platform of nominal size, 0.5m by 1.0m, raised 80cm above the conducting ground plane. The rear of tabletop was located 40cm to the vertical conducting plane. The rear of EUT, including peripherals aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80cm from any other grounded conducting surface. EUT was located 80cm from a Line Impedance Stabilization Network (LISN)/ Artificial mains Network (AMN) and excess AC cable was bundled in center.

1) For the tests on EUT with other peripherals (as a whole system)

I/O cable and AC cables that were connected to the peripherals were bundled in center. They were folded back and forth forming a bundle 30cm to 40cm long and were hanged at a 40cm height to the ground plane. All unused 50ohm connectors of the LISN(AMN) were resistivity terminated in 50ohm when not connected to the measuring equipment.

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT in a Semi Anechoic Chamber or a Measurement Room.

The EUT was connected to a LISN (AMN).

An overview sweep with peak detection has been performed.

Detector : CISPR quasi-peak and average detector (IF BW 9 kHz)
Measurement range : 0.15-30MHz
Test data : APPENDIX 2
Test result : Pass

UL Japan, Inc.

Head Office EMC Lab.

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b (26.04.07)

SECTION 6: Spurious Emission

[Conducted]

Test Procedure

The Out of Band Emission was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX 2

Test result : Pass

[Radiated]

Test Procedure

EUT was placed on a urethane platform of nominal size, 0.5m by 1.0m, raised 80cm above the conducting ground plane.

The Radiated Electric Field Strength intensity has been measured in a Semi Anechoic Chamber with a ground plane and at a distance of 3m(Below 10GHz) and 1m(Upper 10GHz).

The height of the measuring varied between 1 and 4m and EUT was rotated a full revolution in order to obtain the maximum value of the electric field intensity.

The measurements were performed for both vertical and horizontal antenna polarization with the Test Receiver, or the Spectrum Analyzer (in linear mode).

The test was made with the detector (RBW/VBW) in the following table.

When using Spectrum analyzer, the test was made with adjusting span to zero by using peak hold.

*** Marker Delta Method (Measurement for Band-edge)**

STEP 1) Perform an in-band field strength measurement of the fundamental emission using the RBW table below.

STEP 2) Choose a spectrum analyzer span that encompasses both the peak of the fundamental emission and the band-edge emission under investigation. Set the analyzer RBW to 1% of the total span, and measure the amplitude delta between the peak of the fundamental and the peak of the band-edge emission.

STEP 3) Subtract the delta measured in STEP 2) from the field strengths measured in STEP 1). The result is the field strength of band-edge.

In any 100kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator confirmed 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on a radiated measurement.

20dBc was applied to the frequency over the limit of FCC 15.209 and outside the restricted band of FCC15.205.

Frequency	Below 1GHz	Above 1GHz
Instrument used	Test Receiver / Spectrum Analyzer	Spectrum Analyzer
Detector	QP: BW 120kHz(T/R)	PK: RBW:1MHz/VBW: 1MHz
IF Bandwidth	20dBc : RBW: 100kHz VBW: 300kHz (S/A)	AV: RBW:1MHz/VBW:10Hz 20dBc : RBW:100kHz/VBW:300kHz

- The carrier level and noise levels were confirmed at each position of X, Y and Z axes of EUT to see the position of maximum noise, and the test was made at the position that has the maximum noise.

Test data : APPENDIX 2

Test result : Pass

UL Japan, Inc.

Head Office EMC Lab.

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b (26.04.07)

SECTION 7: Bandwidth

Test Procedure

The bandwidth was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX 2
Test result : Pass

SECTION 8: Maximum Peak Output Power

Test Procedure

The Maximum Peak Output Power was measured with a power meter (tested bandwidth: 50MHz) connected to the antenna port.

Test data : APPENDIX 2
Test result : Pass

SECTION 9: Carrier Frequency Separation

Test Procedure

The carrier frequency separation was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX 2
Test result : Pass

SECTION 10: Number of Hopping Frequency

Test Procedure

The Number of Hopping Frequency was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX 2
Test result : Pass

SECTION 11: Dwell time

Test Procedure

The Dwell time was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX 2
Test result : Pass

UL Japan, Inc.

Head Office EMC Lab.

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b (26.04.07)

APPENDIX 1: Photographs of test setup

Conducted Emission

This page has been submitted for a separate exhibit.

Test report No. : 27GE0231-HO-A-2
Page : 13 of 43
Issued date : May 18, 2007
Revised date : June 11, 2007
FCC ID : APYHRO00057

Spurious Emission (Radiated)

This page has been submitted for a separate exhibit.

UL Japan, Inc.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

MF060b (26.04.07)

Test report No. : 27GE0231-HO-A-2
Page : 14 of 43
Issued date : May 18, 2007
Revised date : June 11, 2007
FCC ID : APYHRO00057

Worst Case Position (Horizontal: X-axis/ Vertical:Y-axis)

This page has been submitted for a separate exhibit.

UL Japan, Inc.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

MF060b (26.04.07)

APPENDIX 2: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Japan Co., Ltd. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
 Date : 2007/05/08

Applicant	: Sharp Corporation	Report No.	: 27GE0231-H0
Kind of EUT	: See Clause 2.1	Power	: DC4.0V
Model No.	: 815SH	Temp/C/Humi%	: 24deg. C / 41%
Serial No.	: 004401/11/063211/0	Operator	: Motoya Imura

Mode / Remarks : Bluetooth Tx 2402MHz , DH5

LIMIT : FCC15.207 QP
 FCC15.207 AV

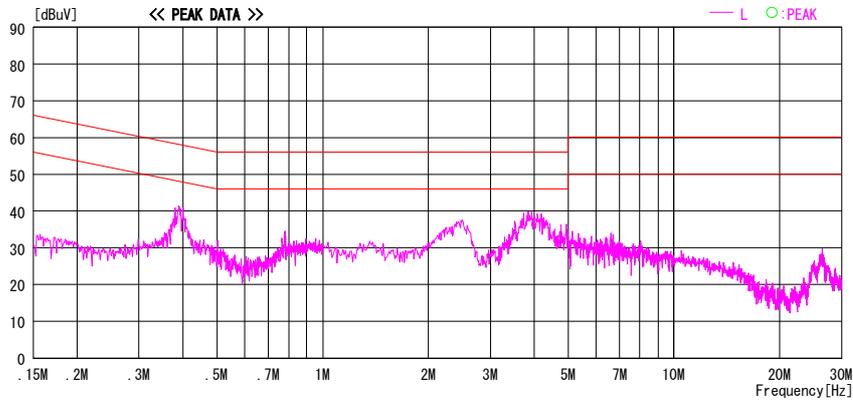
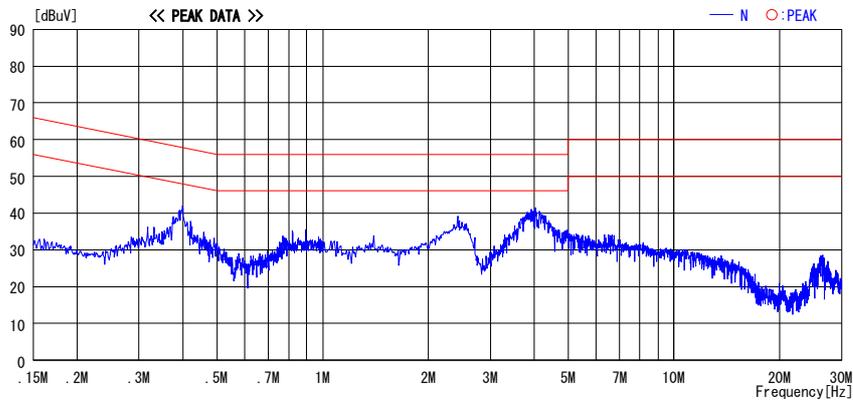


CHART: WITH FACTOR. Peak hold data. Data is uncorrected. CALCURATION: RESULT=READING+C. F (L ISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

Conducted Emission

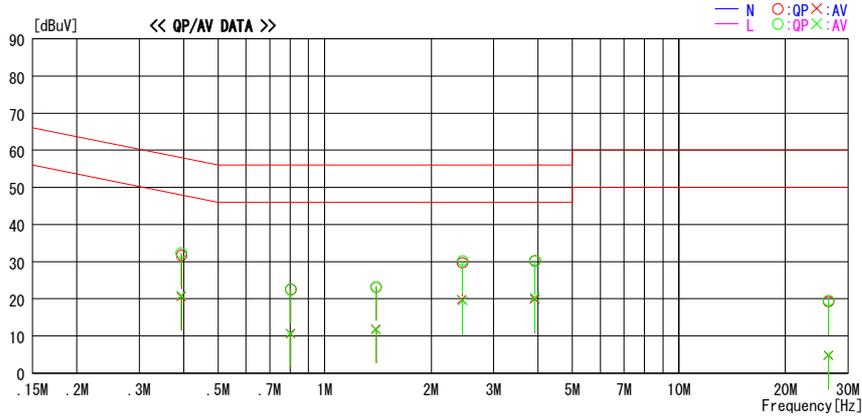
DATA OF CONDUCTED EMISSION TEST

UL Japan Co., Ltd. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
Date : 2007/05/08

Applicant : Sharp Corporation
 Kind of EUT : See Clause 2.1
 Model No. : 815SH
 Serial No. : 004401/11/063211/0
 Report No. : 27GE0231-HO
 Power : DC4.0V
 Temp°C/Humi% : 24deg. C / 41%
 Operator : Motoya Imura

Mode / Remarks : Bluetooth Tx 2402MHz , DH5

LIMIT : FCC15.207 QP
 FCC15.207 AV



Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]	
0.39420	31.4	20.3	0.3	31.7	20.6	58.0	48.0	26.3	27.4	N
0.39335	32.1	20.6	0.3	32.4	20.9	58.0	48.0	25.6	27.1	L
0.79971	22.3	10.4	0.3	22.6	10.7	56.0	46.0	33.4	35.3	L
0.80261	22.3	10.2	0.3	22.6	10.5	56.0	46.0	33.4	35.5	N
1.39720	22.8	11.3	0.4	23.2	11.7	56.0	46.0	32.8	34.3	L
1.39530	22.8	11.4	0.4	23.2	11.8	56.0	46.0	32.8	34.2	N
2.44270	29.2	19.3	0.5	29.7	19.8	56.0	46.0	26.3	26.2	N
2.45260	29.8	19.0	0.5	30.3	19.5	56.0	46.0	25.7	26.5	L
3.91860	29.7	19.3	0.6	30.3	19.9	56.0	46.0	25.7	26.1	N
3.91701	29.6	19.6	0.6	30.2	20.2	56.0	46.0	25.8	25.8	L
26.44210	17.6	2.9	2.0	19.6	4.9	60.0	50.0	40.4	45.1	L
26.44500	17.3	2.7	2.0	19.3	4.7	60.0	50.0	40.7	45.3	N

CHART: WITH FACTOR, Peak hold data. Data is uncorrected. CALCURATION: RESULT=READING+C.F.(LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Japan Co., Ltd. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
 Date : 2007/05/08

Applicant : Sharp Corporation Kind of EUT : See Clause 2.1 Model No. : 815SH Serial No. : 004401/11/063211/0	Report No. : 27GE0231-HO Power : DC4.0V Temp/C/Humi% : 24deg. C / 41% Operator : Motoya Imura
---	--

Mode / Remarks : Bluetooth Tx 2441MHz . DH5

LIMIT : FCC15.207 QP
FCC15.207 AV

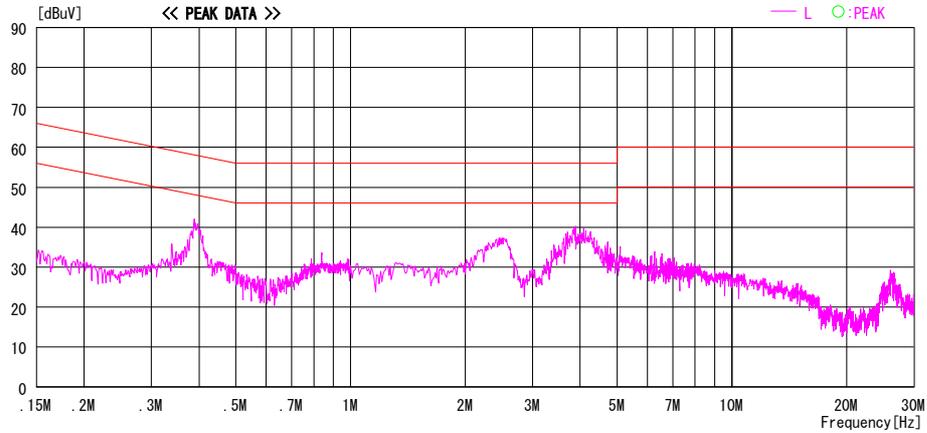
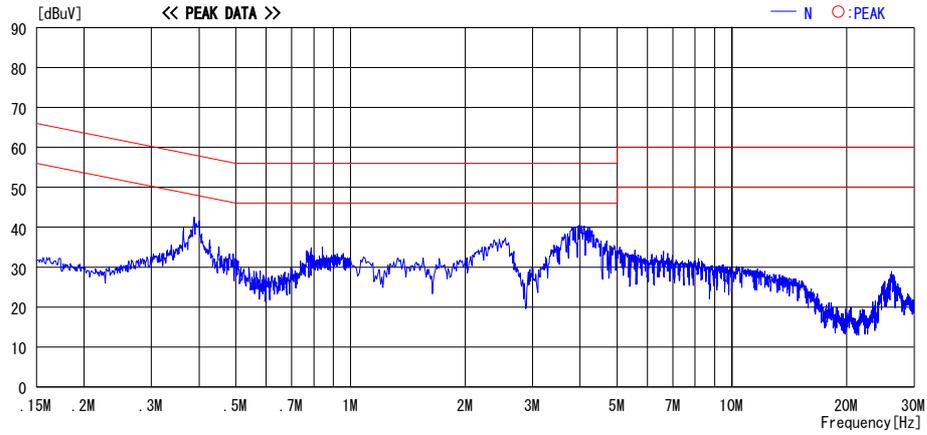


CHART: WITH FACTOR, Peak hold data. Data is uncorrected. CALCURATION: RESULT=READING+C.F (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Japan Co., Ltd. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
Date : 2007/05/08

Applicant : Sharp Corporation	Report No. : 27GE0231-HO
Kind of EUT : See Clause 2.1	Power : DC4.0V
Model No. : 815SH	Temp/C/Humi% : 24deg. C / 41%
Serial No. : 004401/11/063211/0	Operator : Motoya Imura

Mode / Remarks : Bluetooth Tx 2480MHz . DH5

LIMIT : FCC15.207 QP
FCC15.207 AV

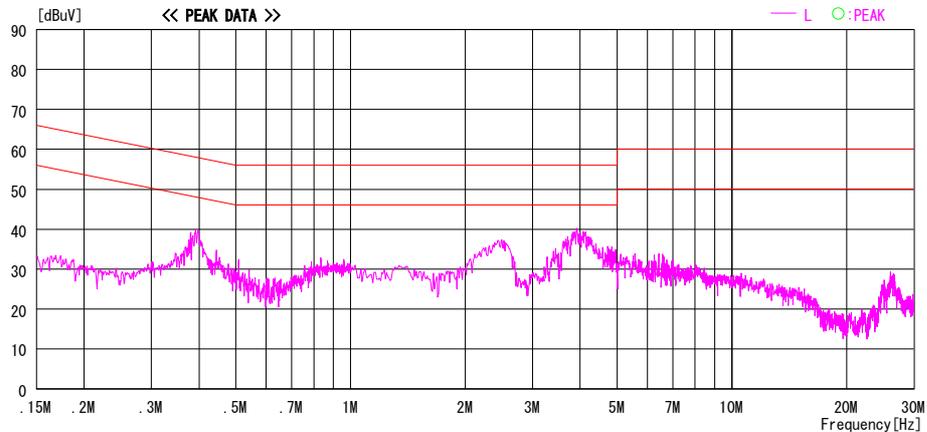
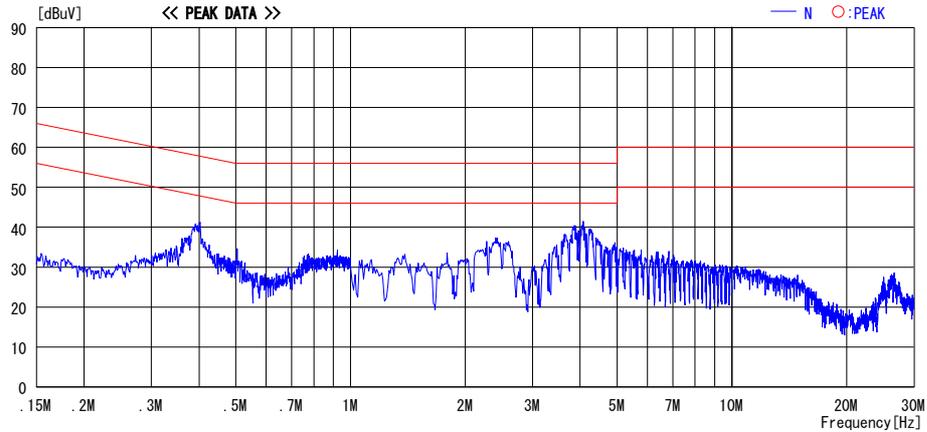


CHART: WITH FACTOR, Peak hold data. Data is uncorrected. CALCURATION: RESULT=READING+C.F(LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Japan Co., Ltd. Head Office EMC Lab. No. 4 Semi Anechoic Chamber
 Date : 2007/05/08

Applicant : Sharp Corporation Kind of EUT : See Clause 2.1 Model No. : 815SH Serial No. : 004401/11/063211/0	Report No. : 27GE0231-HO Power : DC4.0V Temp./Humi% : 24deg. C / 41% Operator : Motoya Imura
---	---

Mode / Remarks : Bluetooth Rx 2441MHz . DH5

LIMIT : FCC15.207 QP
FCC15.207 AV

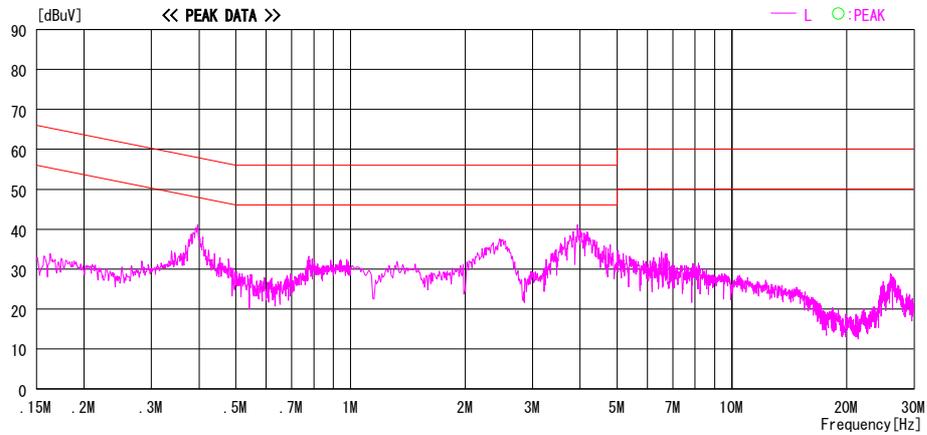
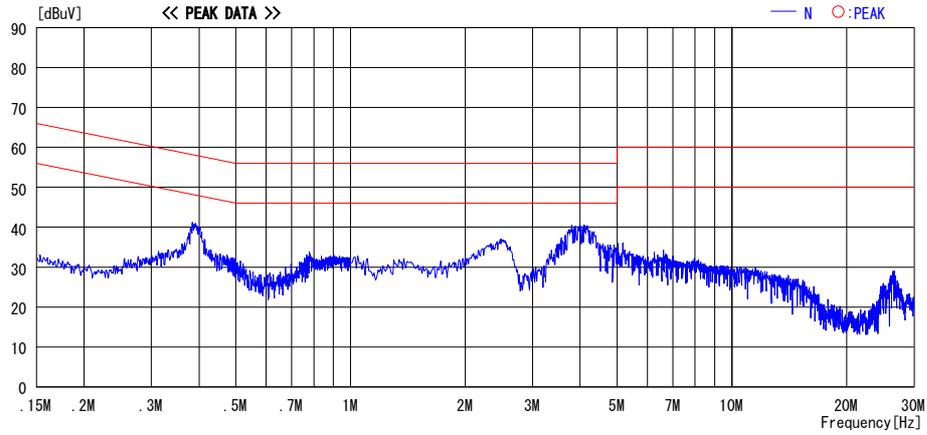


CHART: WITH FACTOR, Peak hold data. Data is uncorrected. CALCURATION: RESULT=READING+C.F (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

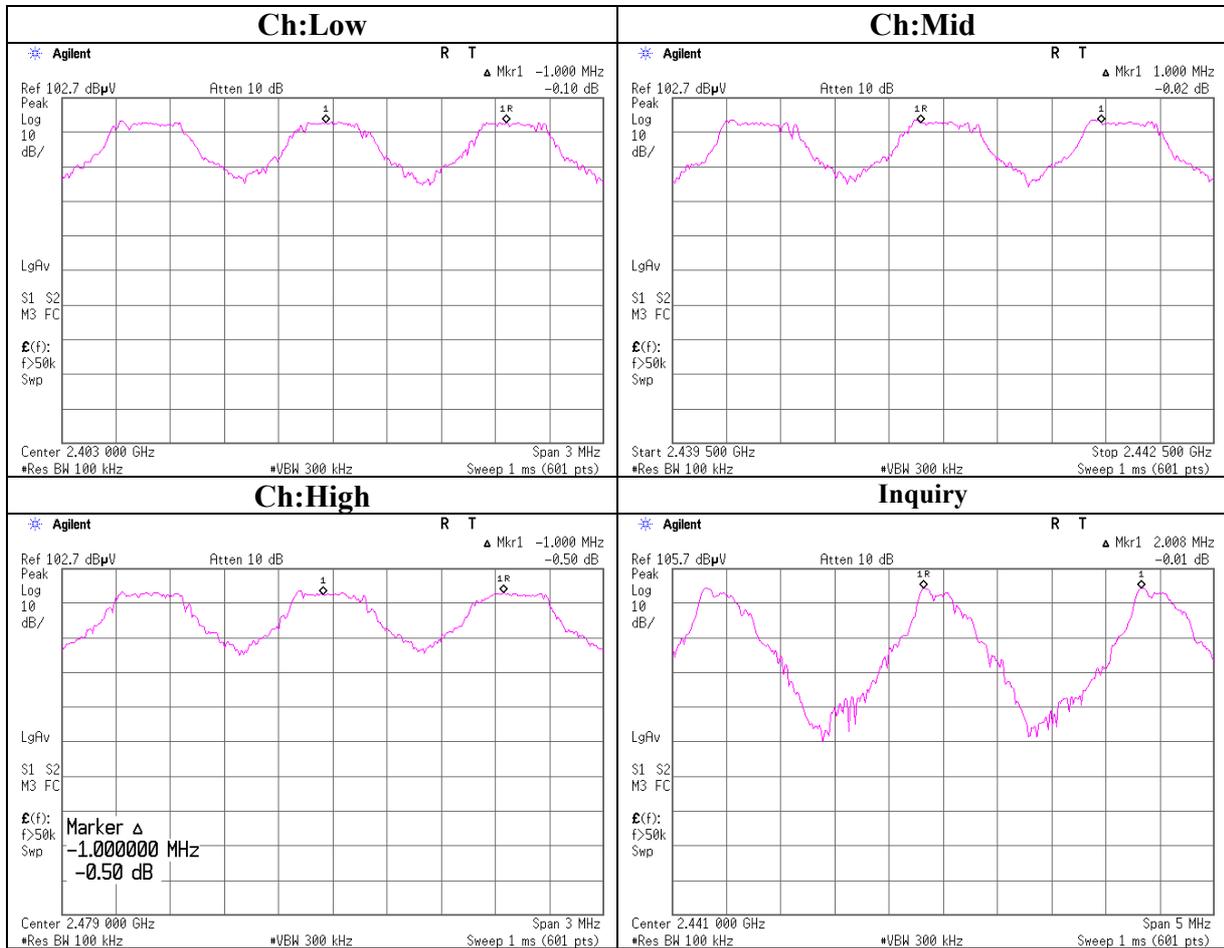
Carrier Frequency Separation

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

COMPANY	Sharp Corporation	REGULATION	: FCC15.247(a)(1)/RSS-210A8.1(2)
EQUIPMENT	WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable	TEST DISTANCE	: -
MODEL	815SH	DATE	: 05/07/2007
S/N	004401/11/063370/4	TEMPERATURE	: 25deg.C
POWER	DC 4.0V	HUMIDITY	: 34%
MODE	Bluetooth Tx Hopping On / Inquiry	ENGINEER	: Tomotaka Sasagawa

Ch	Freq. [MHz]	Channel separation [MHz]	Limit
Low	2402.0	1.000	0.640[MHz] (two-thirds of 20dB Bandwidth (0.960 [MHz])) or 25[kHz] (whichever is grater)
Mid	2441.0	1.000	0.646[MHz] (two-thirds of 20dB Bandwidth (0.970[MHz])) or 25[kHz] (whichever is grater)
High	2480.0	1.000	0.646 [MHz] (two-thirds of 20dB Bandwidth (0.970 [MHz])) or 25[kHz] (whichever is grater)
Inquiry	2441.0	2.008	0.570 [MHz] (two-thirds of 20dB Bandwidth (0.855 [MHz])) or 25[kHz] (whichever is grater)

Carrier Frequency Separation



20dB Bandwidth

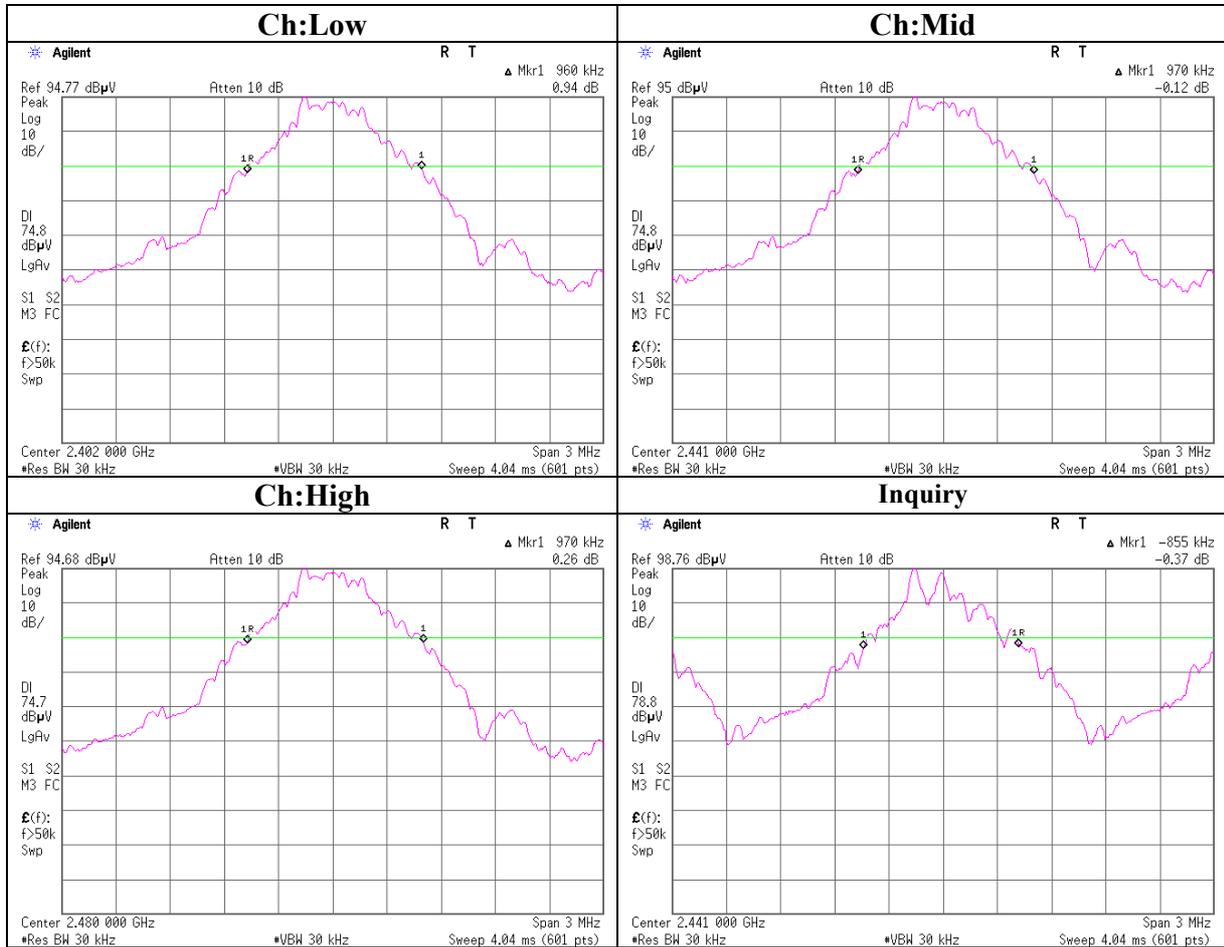
UL Japan Co., Ltd.
Head Office EMC Lab. No.6 Shielded Room

COMPANY Sharp Corporation
EQUIPMENT WCDMA & Tri-band (900/1800/1900) GSM
Dual mode Mobile Phone / Bluetooth enable
MODEL 815SH
S/ N 004401/11/063370/4
POWER DC 4.0V
MODE Bluetooth Tx Hopping On / Inquiry

REGULATION FCC Part15 Subpart C 15.247(a)(1) / RSS-210
TEST DISTANCE -
DATE : 05/07/2007
TEMPERATURE : 25deg.C
HUMIDITY : 34%
ENGINEER : Tomotaka Sasagawa

Ch	Freq. [MHz]	20dB Band width [MHz]	Limit [MHz]
Low	2402.0	0.960	-
Mid	2441.0	0.970	-
High	2480.0	0.970	-
Inquiry	2441.0	0.855	-

20dB Bandwidth



Number of Hopping Frequency

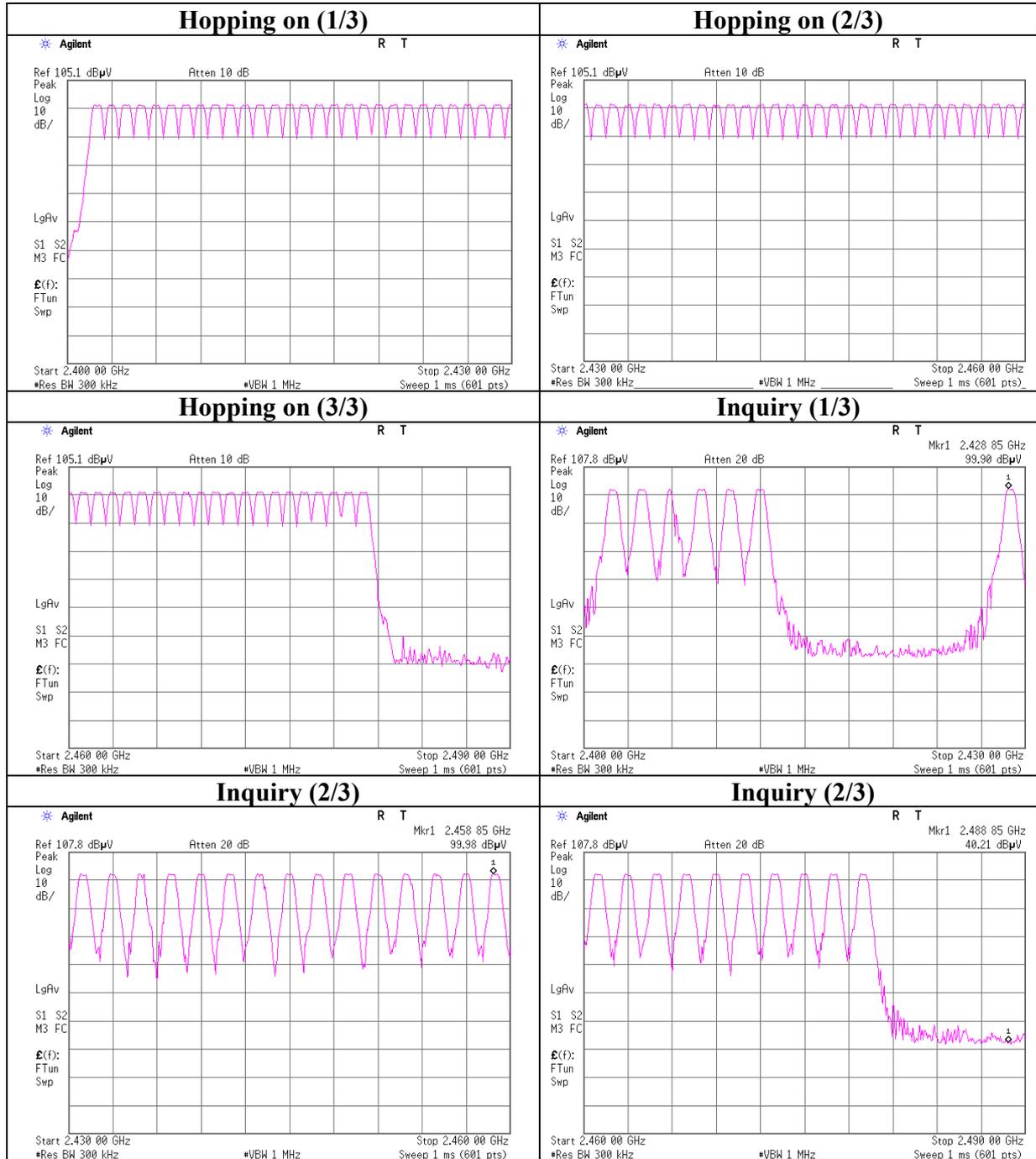
UL Japan Co., Ltd.
Head Office EMC Lab. No.6 Shielded Room

COMPANY	Sharp Corporation	REGULATION	: FCC15.247(a)(1)(iii)/RSS-210A8.1(4)
EQUIPMENT	WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable	TEST DISTANCE	: -
MODEL	815SH	DATE	: 05/07/2007
S/ N	004401/11/063370/4	TEMPERATURE	: 25deg.C
POWER	DC 4.0V	HUMIDITY	: 34%
MODE	Bluetooth Tx Hopping On / Inquiry	ENGINEER	: Tomotaka Sasagawa

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

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

Number of Hopping Frequency



Dwell time

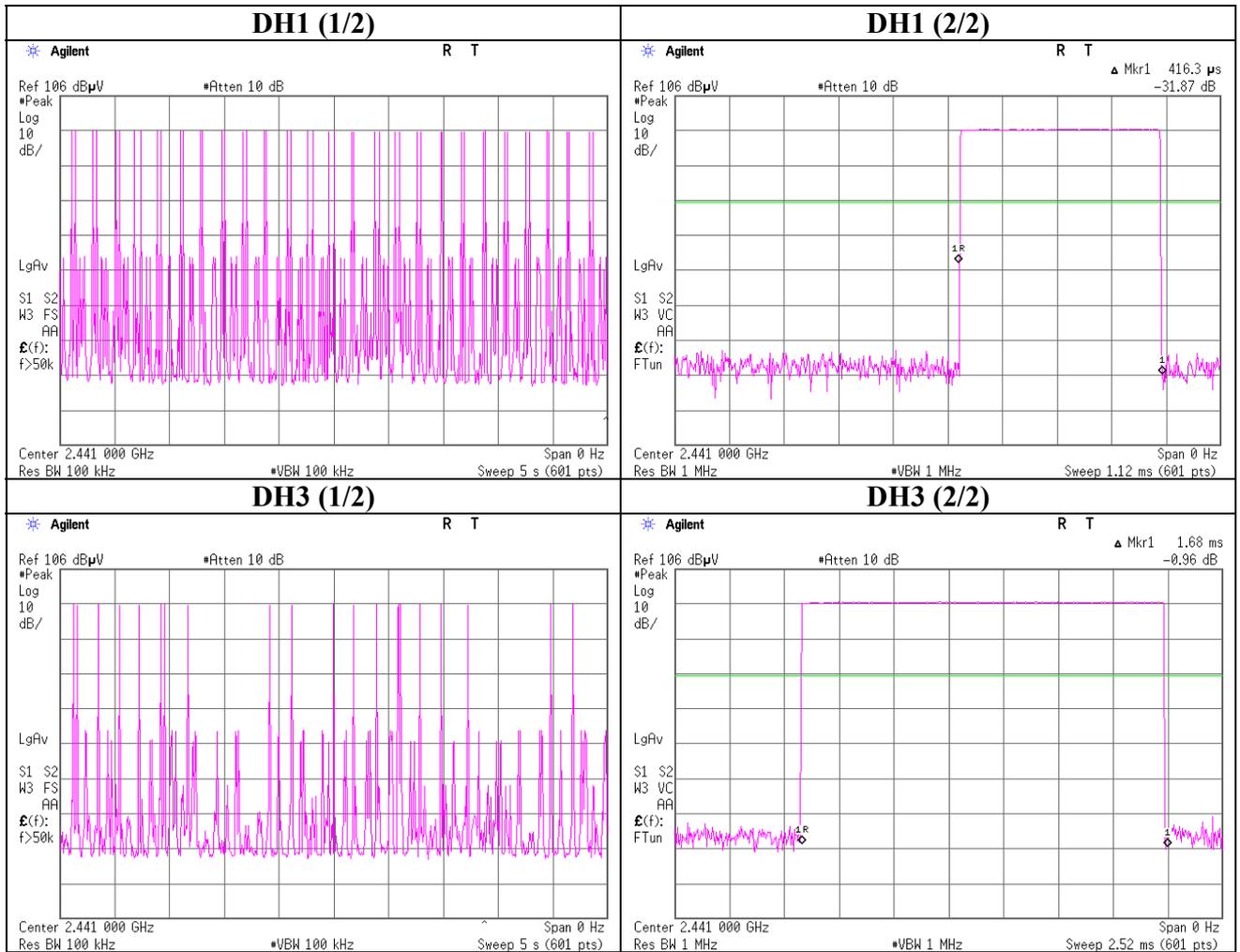
UL Japan Co., Ltd.
Head Office EMC Lab. No.6 Shielded Room

COMPANY : Sharp Corporation
EQUIPMENT : WCDMA & Tri-band (900/1800/1900) GSM
Dual mode Mobile Phone / Bluetooth enable
MODEL : 815SH
S/N : 004401/11/063370/4
POWER : DC 4.0V
MODE : Tx (Hopping on) /Inquiry

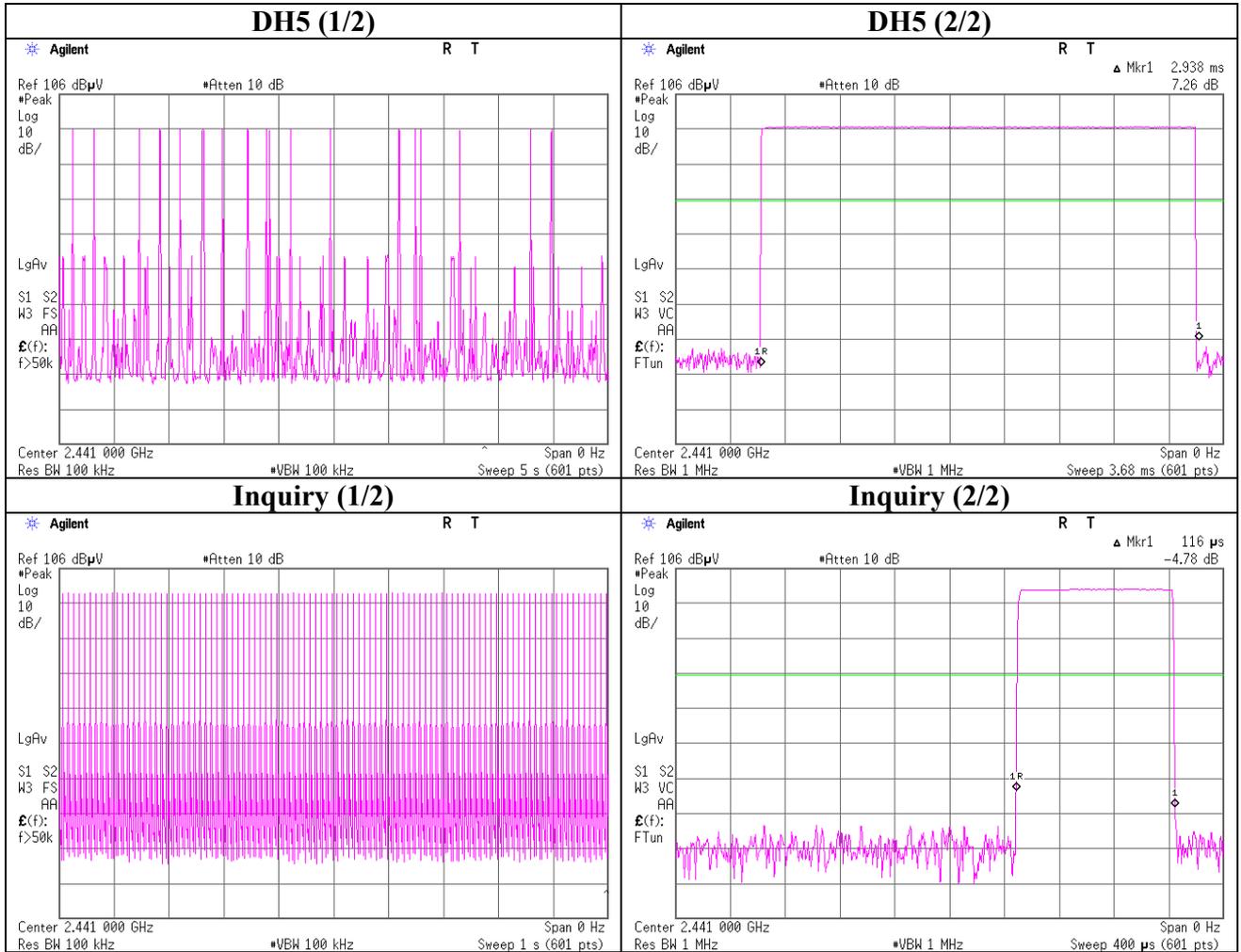
REGULATION : FCC15.247(a)(1)(iii)/RSS-210A8.1(4)
TEST DISTANCE : -
DATE : 05/07/2007
TEMPERATURE : 25deg.C
HUMIDITY : 34%
ENGINEER : Tomotaka Sasagawa

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	47 times / 5 sec. x 31.6 sec. = 298 times	0.416	124	400
DH3	23 times / 5 sec. x 31.6 sec. = 146 times	1.680	245	400
DH5	18 times / 5 sec. x 31.6 sec. = 114 times	2.938	335	400
Inquiry	100 times / 1 sec. x 12.8 sec. = 1280 times	0.116	148	400

Dwell time



Dwell time



Maximum Peak Output Power

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

COMPANY : Sharp Corporation
EQUIPMENT : WCDMA & Tri-band (900/1800/1900) GSM
Dual mode Mobile Phone / Bluetooth enable
MODEL : 815SH
S/ N : 004401/11/063370/4
POWER : DC 4.0V
MODE : Tx(Hopping Off)/Inquiry

REGULATION : FCC15.247(b)(1)/RSS-210A8.4(2)
TEST DISTANCE : -
DATE : 05/07/2007
TEMPERATURE : 25deg.C
HUMIDITY : 34%
ENGINEER : Tomotaka Sasagawa

Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2402.0	-10.12	1.25	10.01	1.14	1.30	20.97	125	19.83
Mid	2441.0	-10.02	1.25	10.01	1.24	1.33	20.97	125	19.73
High	2480.0	-10.15	1.00	10.02	0.87	1.22	20.97	125	20.10
Inquiry	2441.0	-10.33	1.25	10.01	0.93	1.24	20.97	125	20.04

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.

UL Japan, Inc.

Head Office EMC Lab.

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b (26.04.07)

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

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

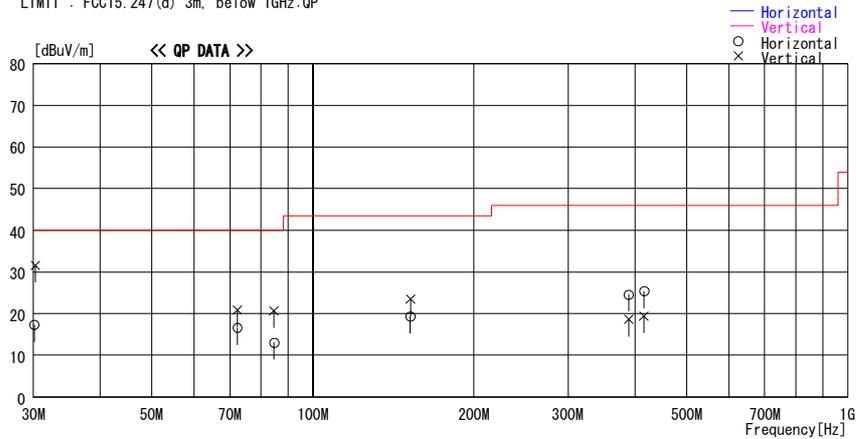
DATA OF RADIATED EMISSION TEST

UL Japan Co., Ltd. Head Office EMC Lab. No. 4 Semi Anechoic
 Date : 2007/05/08

Applicant : Sharp Corporation
 Kind of EUT : See Clause 2.1
 Model No. : 815SH
 Serial No. : 004401/11/063211/0
 Report No. : 27GE0231-HO
 Power : DC 4.0V
 Temp./Humi. : 24deg.C / 41%
 Operator : Motoya Imura

Mode / Remarks : Bluetooth Tx 2402MHz, DH5, PRBS9, EUT max-axis (H:X, V:Y)

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



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss & Gain [dB]	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
30.140	22.7	QP	19.5	-24.9	17.3	281	300	Hori.	40.0	22.7
30.270	37.1	QP	19.4	-24.9	31.6	277	120	Vert.	40.0	8.4
72.280	33.8	QP	7.1	-24.3	16.6	70	276	Hori.	40.0	23.4
72.281	38.1	QP	7.1	-24.3	20.9	180	120	Vert.	40.0	19.1
84.549	29.3	QP	7.8	-24.1	13.0	0	260	Hori.	40.0	27.0
84.553	36.9	QP	7.8	-24.1	20.6	330	110	Vert.	40.0	19.4
152.221	27.4	QP	15.2	-23.3	19.3	349	220	Hori.	43.5	24.2
152.310	31.6	QP	15.2	-23.3	23.5	120	100	Vert.	43.5	20.0
389.995	28.7	QP	17.4	-21.5	24.6	314	220	Hori.	46.0	21.4
389.922	22.7	QP	17.4	-21.5	18.6	170	100	Vert.	46.0	27.4
416.000	28.8	QP	17.9	-21.3	25.4	325	230	Hori.	46.0	20.6
416.000	22.8	QP	17.9	-21.3	19.4	350	100	Vert.	46.0	26.6

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

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

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

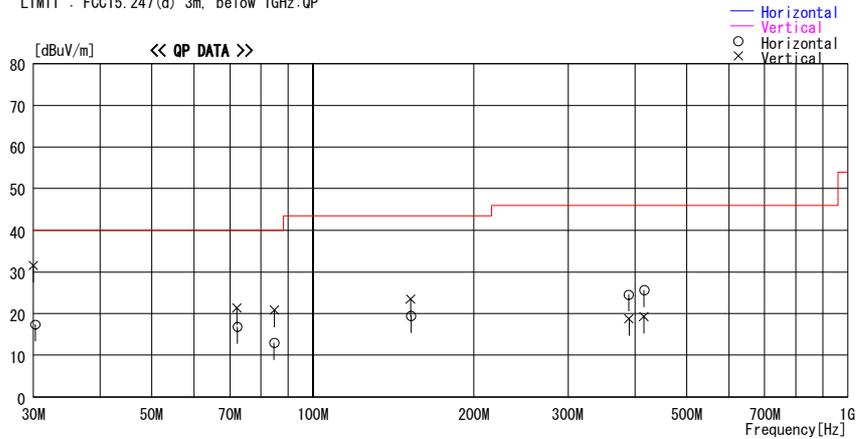
DATA OF RADIATED EMISSION TEST

UL Japan Co., Ltd. Head Office EMC Lab. No. 4 Semi Anechoic
 Date : 2007/05/08

Applicant : Sharp Corporation
 Kind of EUT : See Clause 2.1
 Model No. : 815SH
 Serial No. : 004401/11/063211/0
 Report No. : 27GE0231-HO
 Power : DC 4.0V
 Temp./Humi. : 24deg.C / 41%
 Operator : Motoya Imura

Mode / Remarks : Bluetooth Tx 2441MHz, DH5, PRBS9, EUT max-axis (H:X, V:Y)

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



Frequency	Reading	DET	Antenna Factor	Loss & Gain	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
30.020	37.0	QP	19.5	-24.9	31.6	280	120	Vert.	40.0	8.4
30.270	22.9	QP	19.4	-24.9	17.4	249	300	Hori.	40.0	22.6
72.120	38.6	QP	7.1	-24.3	21.4	266	110	Vert.	40.0	18.6
72.260	34.0	QP	7.1	-24.3	16.8	77	270	Hori.	40.0	23.2
84.770	37.1	QP	7.8	-24.1	20.8	35	100	Vert.	40.0	19.2
84.550	29.2	QP	7.8	-24.1	12.9	5	226	Hori.	40.0	27.1
152.310	31.5	QP	15.2	-23.3	23.4	332	165	Vert.	43.5	20.1
152.580	27.5	QP	15.2	-23.3	19.4	124	300	Hori.	43.5	24.1
389.602	28.7	QP	17.4	-21.5	24.6	314	190	Hori.	46.0	21.4
390.102	22.9	QP	17.4	-21.5	18.8	120	100	Vert.	46.0	27.2
416.012	29.0	QP	17.9	-21.3	25.6	353	230	Hori.	46.0	20.4
416.018	22.7	QP	17.9	-21.3	19.3	338	100	Vert.	46.0	26.7

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

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

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

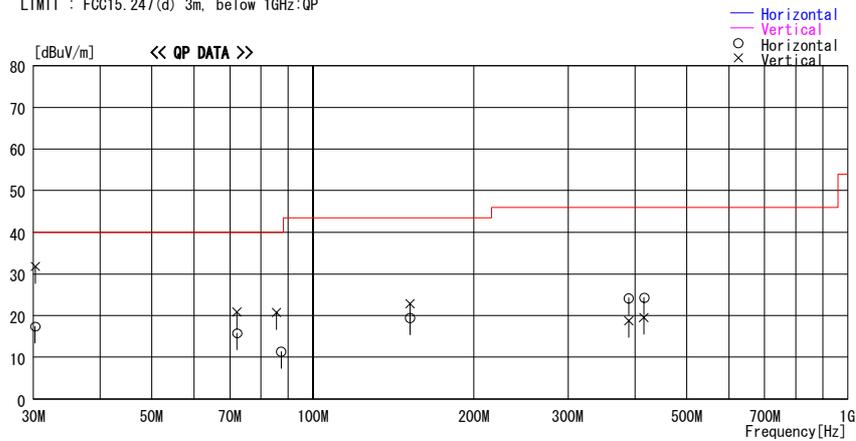
DATA OF RADIATED EMISSION TEST

UL Japan Co., Ltd. Head Office EMC Lab. No. 4 Semi Anechoic
 Date : 2007/05/09

Applicant : Sharp Corporation
 Kind of EUT : See Clause 2.1
 Model No. : 815SH
 Serial No. : 004401/11/063211/0
 Report No. : 27GE0231-HO
 Power : DC 4.0V
 Temp./Humi. : 24deg.C / 41%
 Operator : Motoya Imura

Mode / Remarks : Bluetooth Tx 2480MHz, DH5, PRBS9, EUT max-axis (H:X, V:Y)

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



Frequency [MHz]	Reading [dBuV]	DET	Antenna Factor [dB/m]	Loss & Gain [dB]	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
30.200	22.9	QP	19.4	-24.9	17.4	275	300	Hori.	40.0	22.6
30.270	37.3	QP	19.4	-24.9	31.8	274	120	Vert.	40.0	8.2
72.120	33.0	QP	7.1	-24.3	15.8	0	300	Hori.	40.0	24.2
72.120	38.0	QP	7.1	-24.3	20.8	81	120	Vert.	40.0	19.2
85.472	36.9	QP	7.9	-24.1	20.7	122	100	Vert.	40.0	19.3
87.240	27.2	QP	8.2	-24.1	11.3	280	270	Hori.	40.0	28.7
152.040	27.5	QP	15.2	-23.3	19.4	353	300	Hori.	43.5	24.1
152.042	30.9	QP	15.2	-23.3	22.8	113	100	Vert.	43.5	20.7
389.950	28.3	QP	17.4	-21.5	24.2	155	100	Hori.	46.0	21.8
390.000	22.9	QP	17.4	-21.5	18.8	99	100	Vert.	46.0	27.2
415.992	27.7	QP	17.9	-21.3	24.3	308	100	Hori.	46.0	21.7
416.010	22.9	QP	17.9	-21.3	19.5	357	100	Vert.	46.0	26.5

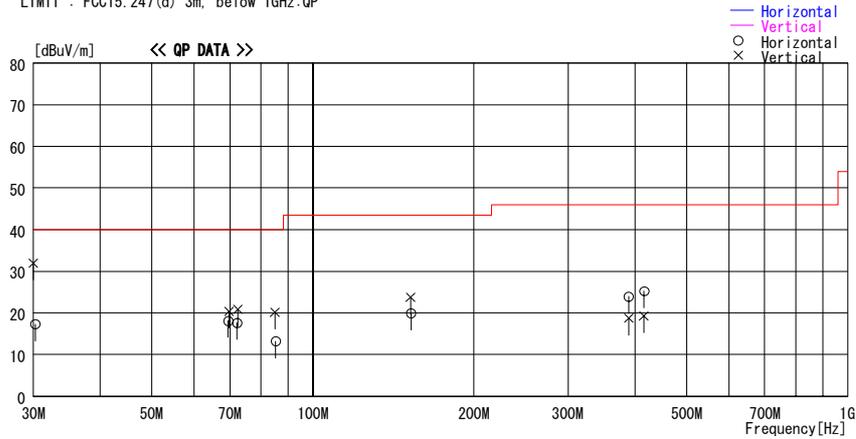
CHART: WITH FACTOR / ANT TYPE : -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN
 CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

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

DATA OF RADIATED EMISSION TEST

UL Japan Co., Ltd. Head Office EMC Lab. No. 4 Semi Anechoic
Date : 2007/05/09

Applicant : Sharp Corporation
Kind of EUT : See Clause 2.1
Model No. : 815SH
Serial No. : 004401/11/063211/0
Report No. : 27GE0231-HO
Power : DC 4.0V
Temp./Humi. : 24deg.C / 41%
Operator : Motoya Imura
Mode / Remarks : Bluetooth Rx 2441MHz, DH5, PRBS9, EUT max-axis (H:X, V:Y)
LIMIT : FCC15.247(d) 3m, below 1GHz-QP



Frequency [MHz]	Reading [dBuV]	DET	Antenna		Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Loss& Gain [dB]						
30.010	37.4	QP	19.5	-24.9	32.0	280	120	Vert.	40.0	8.0
30.270	22.8	QP	19.4	-24.9	17.3	348	300	Hori.	40.0	22.7
69.420	35.1	QP	7.3	-24.3	18.1	196	229	Hori.	40.0	21.9
69.690	37.5	QP	7.2	-24.3	20.4	19	116	Vert.	40.0	19.6
72.120	34.8	QP	7.1	-24.3	17.6	0	300	Hori.	40.0	22.4
72.390	38.0	QP	7.1	-24.3	20.8	173	115	Vert.	40.0	19.2
84.951	36.4	QP	7.8	-24.1	20.1	207	100	Vert.	40.0	19.9
85.220	29.4	QP	7.9	-24.1	13.2	356	300	Hori.	40.0	26.8
152.580	28.0	QP	15.2	-23.3	19.9	333	300	Hori.	43.5	23.6
152.310	31.8	QP	15.2	-23.3	23.7	86	100	Vert.	43.5	19.8
389.977	28.0	QP	17.4	-21.5	23.9	310	100	Hori.	46.0	22.1
390.000	22.8	QP	17.4	-21.5	18.7	180	100	Vert.	46.0	27.3
415.992	28.6	QP	17.9	-21.3	25.2	338	110	Hori.	46.0	20.8
416.002	22.7	QP	17.9	-21.3	19.3	220	100	Vert.	46.0	26.7

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

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

UL Japan, Inc.

Head Office EMC Lab. No.3 Semi Anechoic Chamber

Company : Sharp Corporation
Equipment : WCDMA & Tri-band (900/1800/1900) GSM
Dual mode Mobile Phone / Bluetooth enable
Model : 815SH
S/N : 004401/11/063211/0
Power : DC 4.0V
Mode : Tx 2402MHz
Eut-Axis : (Worst) H: X-axis, V: Y-axis

Regulation: FCC15.247(d) / RSS-210 A8.5
Test Distance: 3m(below 1GHz) / 1m(above 1GHz)
Date : 05/07/2007
Temperature: 24deg.C.
Humidity : 48%
Engineer : Motoya Imura

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
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2389.2	43.8	43.4	27.3	31.5	3.0	0.0	42.6	42.2	73.9	31.3	31.7
2	2400.0	71.6	69.2	27.3	31.5	3.0	0.0	70.4	68.0	73.9	-	-
3	4804.0	40.1	39.3	31.5	30.8	3.9	0.0	44.7	43.9	73.9	29.2	30.0
4	7206.0	41.1	41.0	37.7	31.3	4.5	0.0	52.0	51.9	73.9	21.9	22.0
5	9608.0	40.6	40.0	38.2	31.9	5.4	0.0	52.3	51.7	73.9	21.6	22.2
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
6	12010.0	-	-	-	-	-	-	-	-	73.9	-	-
7	14412.0	-	-	-	-	-	-	-	-	73.9	-	-
8	16814.0	-	-	-	-	-	-	-	-	73.9	-	-
9	19216.0	-	-	-	-	-	-	-	-	73.9	-	-
10	21618.0	-	-	-	-	-	-	-	-	73.9	-	-
11	24020.0	45.0	44.9	38.7	30.5	9.3	0.0	53.0	52.9	73.9	20.9	21.0

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
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2389.2	32.7	31.7	27.3	31.5	3.0	0.0	31.5	30.5	53.9	22.4	23.4
2	2400.0	60.7	58.2	27.3	31.5	3.0	0.0	59.5	57.0	53.9	-	-
3	4804.0	28.4	28.0	31.5	30.8	3.9	0.0	33.0	32.6	53.9	20.9	21.3
4	7206.0	29.2	29.0	37.7	31.3	4.5	0.0	40.1	39.9	53.9	13.8	14.0
5	9608.0	29.3	29.1	38.2	31.9	5.4	0.0	41.0	40.8	53.9	12.9	13.1
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
6	12010.0	-	-	-	-	-	-	-	-	53.9	-	-
7	14412.0	-	-	-	-	-	-	-	-	53.9	-	-
8	16814.0	-	-	-	-	-	-	-	-	53.9	-	-
9	19216.0	-	-	-	-	-	-	-	-	53.9	-	-
10	21618.0	-	-	-	-	-	-	-	-	53.9	-	-
11	24020.0	33.8	33.8	38.7	30.5	9.3	0.0	41.8	41.8	53.9	12.1	12.1

* Reference data

20dBc(Fundamental 2402MHz) (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		HOR	VER
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2402.0	96.2	93.2	27.3	31.5	3.0	0.0	95.0	92.0	-	-	-
2	2400.0	43.8	42.5	27.3	31.5	3.0	0.0	42.6	41.3	Funda-20dB	32.4	30.7

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 Fiter was not used for factor 0.0dB of the above table.

UL Japan, Inc.

Head Office EMC Lab.

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b (26.04.07)

Radiated Spurious Emission (above 1GHz)
Tx, Ch. Mid

UL Japan, Inc.
Head Office EMC Lab. No.3 Semi Anechoic Chamber
Regulation: FCC15.247(d) / RSS-210 A8.5
Test Distance: 3m(below 1GHz) / 1m(above 1GHz)
Date : 05/07/2007
Temperature: 24deg.C.
Humidity : 48%
Engineer : Motoya Imura

Company : Sharp Corporation
Equipment: WCDMA & Tri-band (900/1800/1900) GSM
Dual mode Mobile Phone / Bluetooth enable
Model : 815SH
S/N : 004401/11/063211/0
Power : DC 4.0V
Mode : Tx 2441MHz
Eut-Axis : (Worst) H: X-axis, V: Y-axis

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]		RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss									
Test distance 3meters													
1	4882.0	39.8	40.2	31.7	30.7	3.9	0.0	44.7	45.1	73.9	29.2	28.8	
2	7323.0	40.2	41.0	35.9	31.3	4.6	0.0	49.4	50.2	73.9	24.5	23.7	
3	9764.0	42.0	41.6	38.2	32.1	5.4	0.0	53.5	53.1	73.9	20.4	20.8	
Test distance 1meters													
RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
4	12205.0	-	-	-	-	-	-	-	-	73.9	-	-	
5	14646.0	-	-	-	-	-	-	-	-	73.9	-	-	
6	17087.0	-	-	-	-	-	-	-	-	73.9	-	-	
7	19528.0	-	-	-	-	-	-	-	-	73.9	-	-	
8	21969.0	-	-	-	-	-	-	-	-	73.9	-	-	
9	24441.0	45.0	45.2	38.8	30.3	9.4	0.0	53.4	53.6	73.9	20.5	20.3	

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]		RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss									
Test distance 3meters													
1	4882.0	32.7	31.7	31.7	30.7	3.9	0.0	37.6	36.6	53.9	16.3	17.3	
2	7323.0	29.5	29.5	35.9	31.3	4.6	0.0	38.7	38.7	53.9	15.2	15.2	
3	9764.0	30.7	30.8	38.2	32.1	5.4	0.0	42.2	42.3	53.9	11.7	11.6	
Test distance 1meters													
RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac													
4	12205.0	-	-	-	-	-	-	-	-	53.9	-	-	
5	14646.0	-	-	-	-	-	-	-	-	53.9	-	-	
6	17087.0	-	-	-	-	-	-	-	-	53.9	-	-	
7	19528.0	-	-	-	-	-	-	-	-	53.9	-	-	
8	21969.0	-	-	-	-	-	-	-	-	53.9	-	-	
9	24441.0	33.4	33.6	38.8	30.3	9.4	0.0	41.8	42.0	53.9	12.1	11.9	

* Reference data

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 Fiter was not used for factor 0.0dB of the above table.

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

UL Japan, Inc.
Head Office EMC Lab. No.3 Semi Anechoic Chamber
Regulation: FCC15.247(d) / RSS-210 A8.5
Test Distance: 3m(below 1GHz) / 1m(above 1GHz)
Date : 05/07/2007
Temperature: 24deg.C.
Humidity : 48%
Engineer : Motoya Imura

Company : Sharp Corporation
Equipment: WCDMA & Tri-band (900/1800/1900) GSM
Dual mode Mobile Phone / Bluetooth enable
Model : 815SH
S/N : 004401/11/063211/0
Power : DC 4.0V
Mode : Tx 2480MHz
Eut-Axis : (Worst) H: X-axis, V: Y-axis

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
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	55.0	51.3	27.4	31.5	3.1	0.0	54.0	50.3	73.9	-	-
2	4960.0	40.1	40.2	31.8	30.7	4.0	0.0	45.2	45.3	73.9	28.7	28.6
3	7440.0	41.0	41.0	36.1	31.3	4.7	0.0	50.5	50.5	73.9	23.4	23.4
4	9920.0	42.0	41.7	38.2	32.2	5.4	0.0	53.4	53.1	73.9	20.5	20.8
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12400.0	-	-	-	-	-	-	-	-	73.9	-	-
6	14880.0	-	-	-	-	-	-	-	-	73.9	-	-
7	17360.0	-	-	-	-	-	-	-	-	73.9	-	-
8	19840.0	-	-	-	-	-	-	-	-	73.9	-	-
9	22320.0	-	-	-	-	-	-	-	-	73.9	-	-
10	24800.0	46.0	46.1	38.9	30.1	9.4	0.0	54.7	54.8	73.9	19.2	19.1

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
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	49.0	46.0	27.4	31.5	3.1	0.0	48.0	45.0	53.9	-	-
2	4960.0	29.7	29.2	31.8	30.7	4.0	0.0	34.8	34.3	53.9	19.1	19.6
3	7440.0	29.7	29.8	36.1	31.3	4.7	0.0	39.2	39.3	53.9	14.7	14.6
4	9920.0	30.2	30.2	38.2	32.2	5.4	0.0	41.6	41.6	53.9	12.3	12.3
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12400.0	-	-	-	-	-	-	-	-	53.9	-	-
6	14880.0	-	-	-	-	-	-	-	-	53.9	-	-
7	17360.0	-	-	-	-	-	-	-	-	53.9	-	-
8	19840.0	-	-	-	-	-	-	-	-	53.9	-	-
9	22320.0	-	-	-	-	-	-	-	-	53.9	-	-
10	24800.0	34.6	34.9	38.9	30.1	9.4	0.0	43.3	43.6	53.9	10.6	10.3

* Reference data

Marker-Delta Method (Delta chart: RBW:100kHz (= SPAN / 100), VBW: 300kHz, SPAN: 10MHz)

No.	FREQ [MHz]	Carrier Level - delta S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	ATT LOSS [dB]	RESULT		Limit [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
Test distance 3meters RESULT=Carrier Reading - Delta + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	23.3	21.5	29.2	32.3	2.3	0.0	22.5	20.7	53.9	31.4	33.2

Hor.	Carrier PK :	95.7	dBuV	Chart Carrier level :	95.2	dBuV
	Carrier AV :	81.7	dBuV	Measured point level :	36.8	dBuV
Ver.	Carrier PK :	92.7	dBuV	Chart Carrier level :	91.5	dBuV
	Carrier AV :	78.9	dBuV	Measured point level :	34.1	dBuV

Test Distance 1.0m : Distance Factor(Dfac) = 20log(3/1.0) = 9.54 dB

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

*In the frequency over the Third 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.

Radiated Spurious Emission (above 1GHz)

Rx

Company:	Sharp Corporation	UL Japan, Inc.
Equipment:	WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable	Head Office EMC Lab. No.3 Semi Anechoic Chamber
Model :	815SH	Regulation: FCC15.247(d) / RSS-210 A8.5
S/N :	004401/11/063211/0	Test Distance: 3m(below 1GHz) / 1m(above 1GHz)
Power :	DC 4.0V	Date : 05/07/2007
Mode :	Rx 2441MHz	Temperature: 24deg.C.
Eut-Axis :	(Worst) H: X-axis, V: Y-axis	Humidity : 48%
		Engineer : Motoya Imura

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

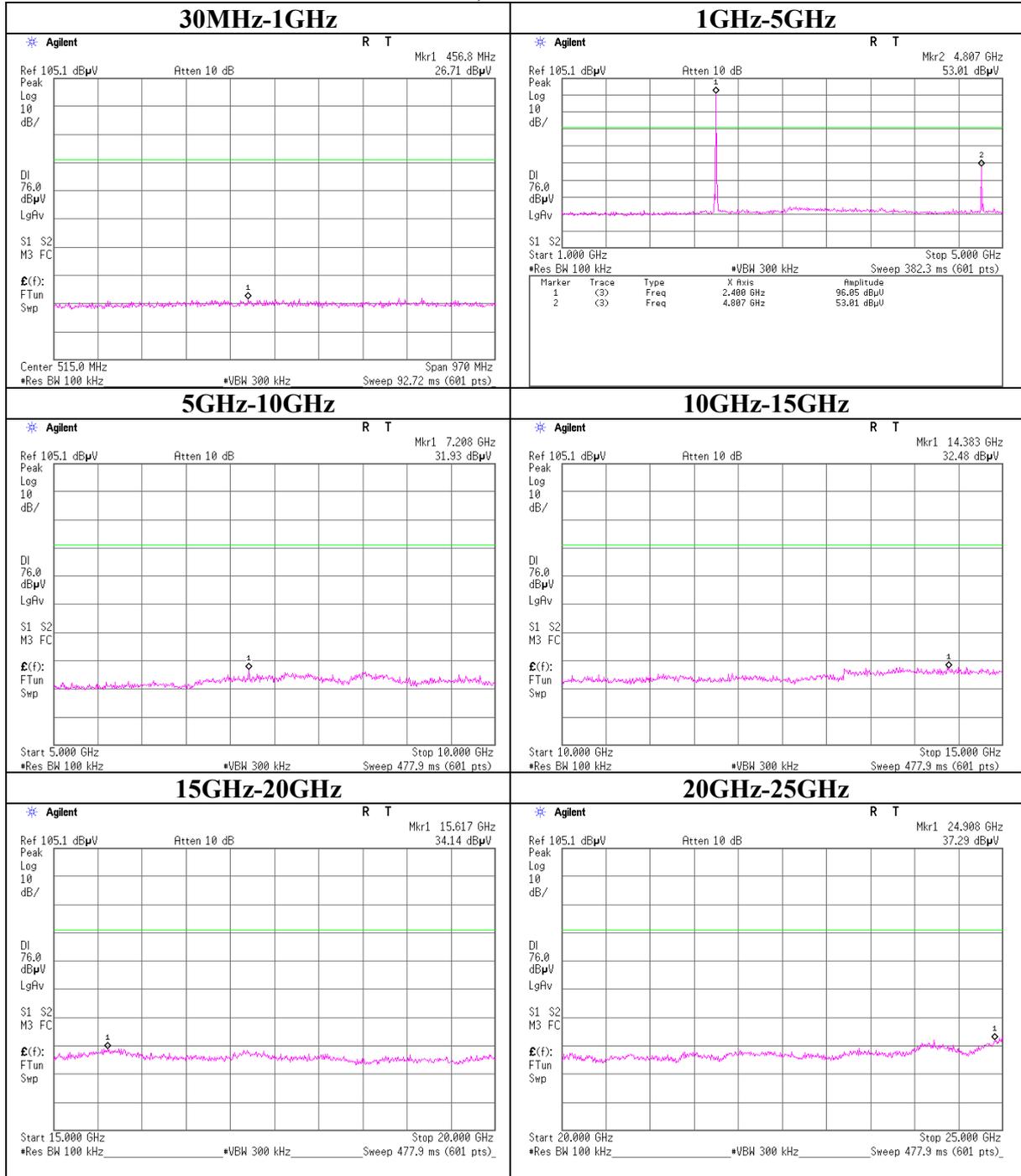
No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	7323.0	40.3	40.2	35.9	31.3	4.6	0.0	49.5	49.4	73.9	24.4	24.5

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

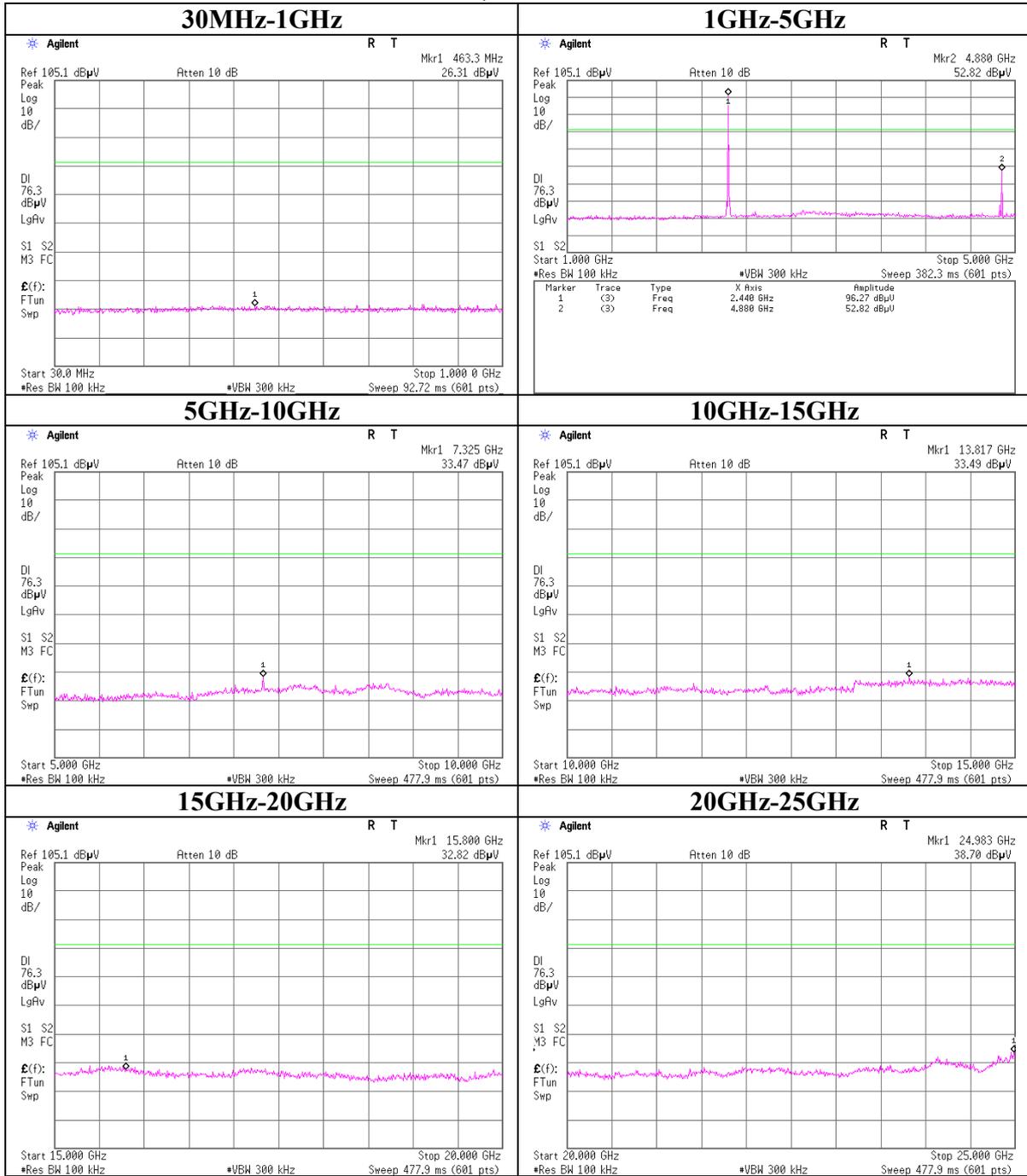
No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	7323.0	29.0	29.0	35.9	31.3	4.6	0.0	38.2	38.2	53.9	15.7	15.7

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

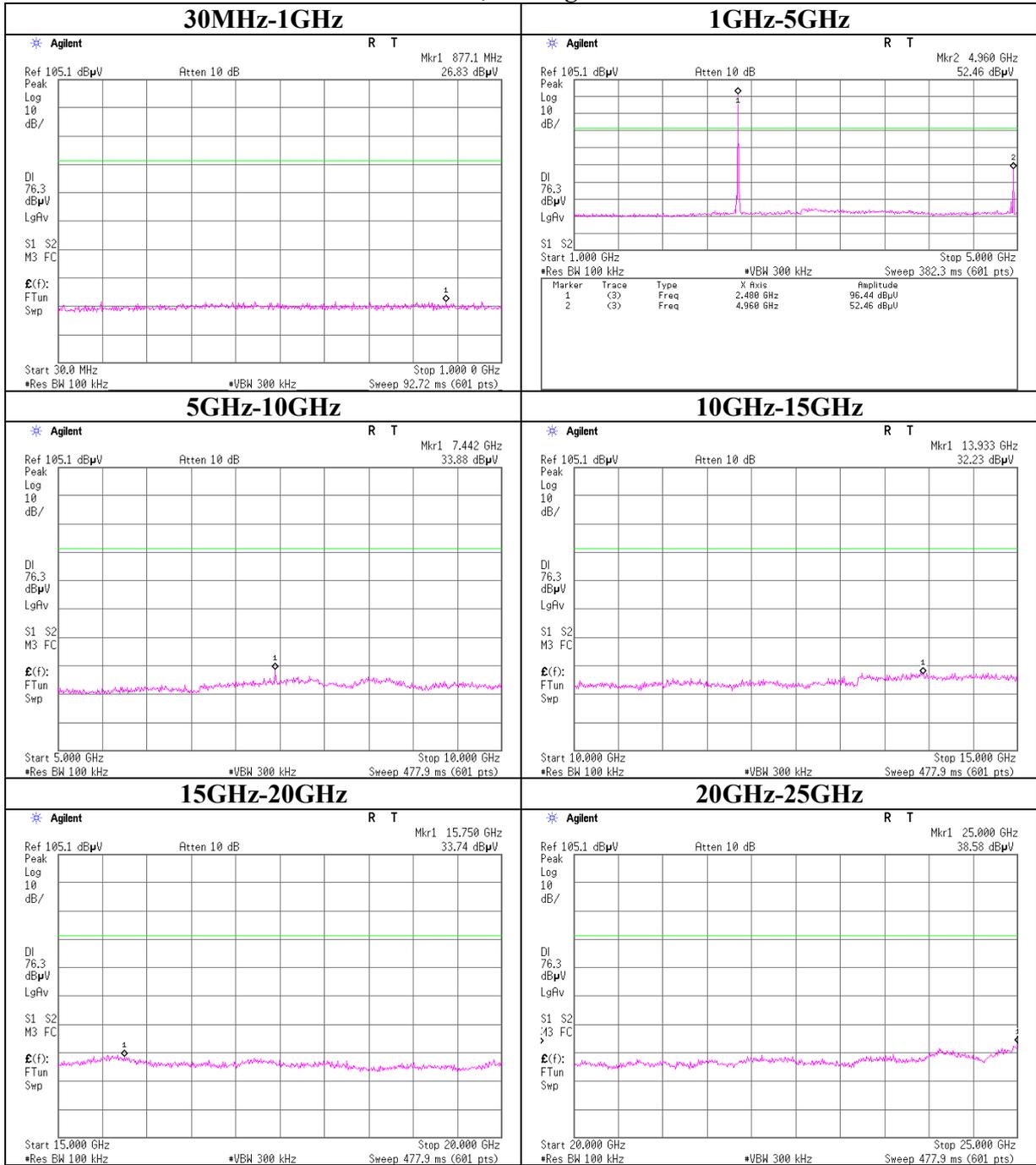
Conducted Spurious Emission
Tx, Ch:Low



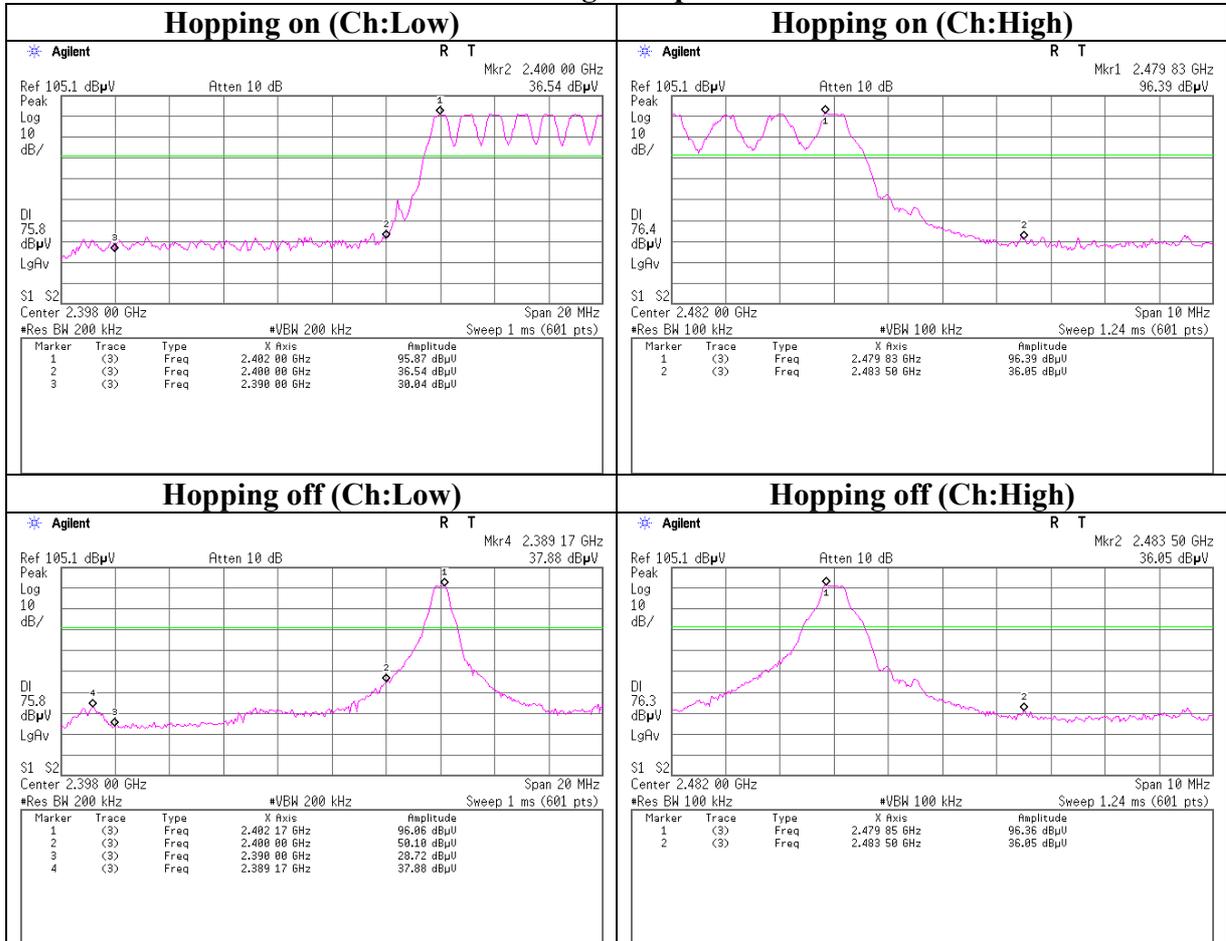
Conducted Spurious Emission
Tx, Ch:Mid



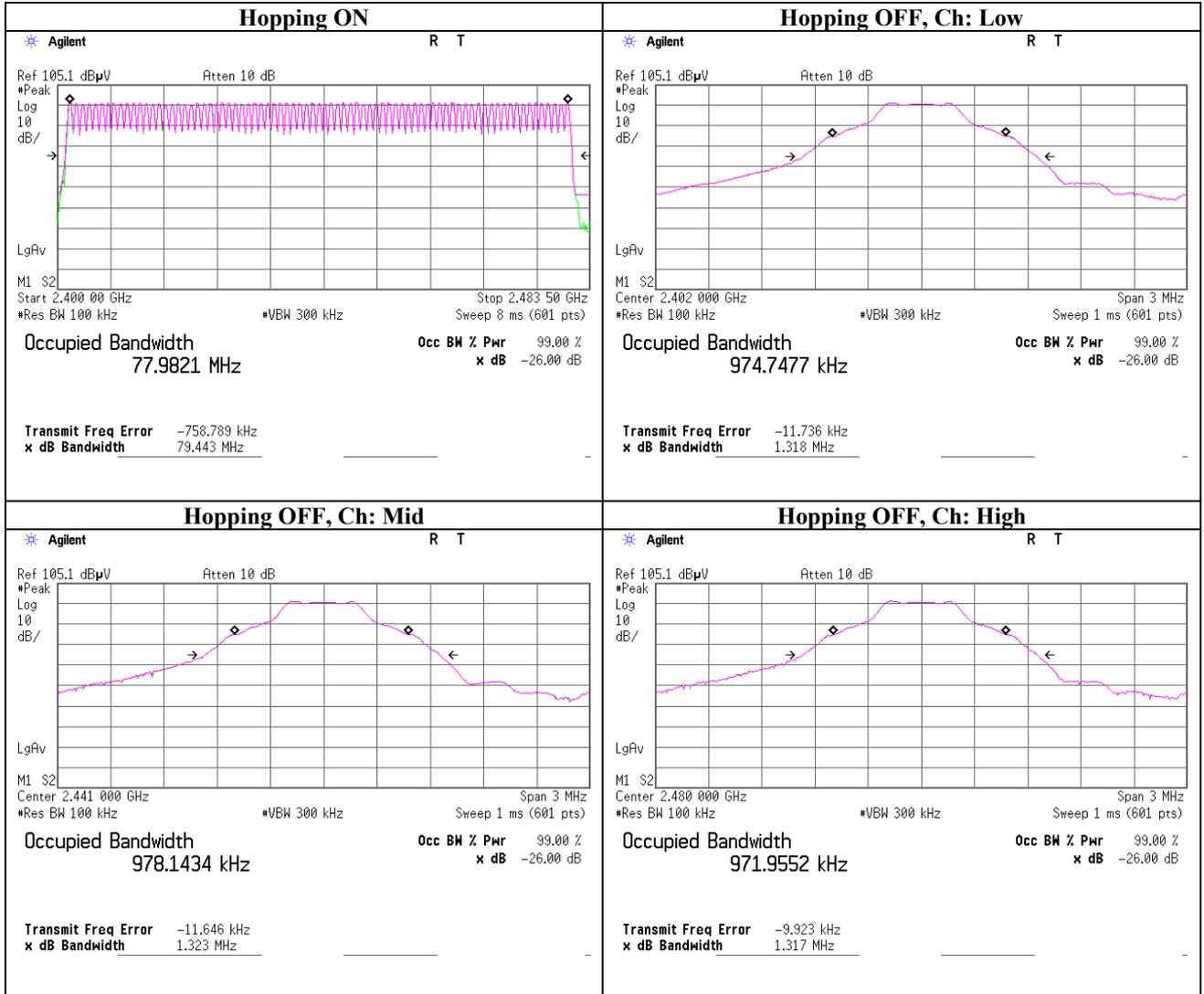
Conducted Spurious Emission
Tx, Ch:High



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)
MSA-04	Spectrum Analyzer	Agilent	E4448A	AT	2006/06/02 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	AT	2006/09/20 * 12
MPM-08	Power Meter	Anritsu	ML2495A	AT	2006/09/20 * 12
MCC-26	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	AT	2006/08/29 * 12
MAT-22	Attenuator(10dB) DC-18GHz	Orient Microwave	BX10-0476-00	AT	2007/03/07 * 12
MAEC-03	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE	2007/03/05 * 12
MSA-09	Spectrum Analyzer	Advantest	R3273	RE	2006/12/08 * 12
MCC-58	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2007/03/30 * 12
MPA-11	MicroWave System Amplifier	Agilent	83017A	RE	2007/03/02 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	RE	2007/04/14 * 12
MHA-16	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	RE	2007/04/06 * 12
MOS-12	Thermo-Hygrometer	Custom	CTH-180	RE	2006/01/19 * 24
MBM-07	Barometer	SATO	Aneroid(7610-20)	RE	2006/06/02 * 36
MJM-06	Measure	PROMART	SEN1955	RE	-
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE/CE	-
MAEC-04	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE / CE	2007/03/03 * 12
MSA-05	Spectrum Analyzer	Advantest	R3273	RE / CE	2006/05/20 * 12
MTR-06	Test Receiver	Rohde & Schwarz	ESCS30	RE / CE	2006/09/12 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	CE (EUT)	2007/02/22 * 12
MCC-50	Coaxial cable	UL Apex	-	RE /CE	2007/03/06 * 12
MAT-31	Attenuator(6dB)	TME	UFA-01	RE	2007/03/05 * 12
MPA-14	Pre Amplifier	SONOMA INSTRUMENT	310	RE	2007/03/12 * 12
MBA-05	Biconical Antenna	Schwarzbeck	BBA9106	RE	2007/01/19 * 12
MLA-08	Logperiodic Antenna	Schwarzbeck	UKLP9140-A	RE	2007/01/19 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	RE / CE	2006/01/19 * 24
MBM-03	Barometer	Sunoh	SBR121	RE / CE	2006/02/13 * 36
MJM-07	Measure	PROMART	SEN1955	RE / CE	-

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 Conducted test

UL Japan, Inc.

Head Office EMC Lab.

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b (26.04.07)