



## RADIO TEST REPORT

Test Report No. : 27GE0232-HO-A-2

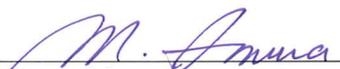
Applicant : Sharp Corporation  
Type of Equipment : WCDMA & Tri-band (900/1800/1900) GSM Dual mode  
Mobile Phone / Bluetooth enable  
Model No. : 814SH  
FCC ID : APYHRO00056  
Test standard : FCC Part 15 Subpart C  
Section 15.207, Section 15.247: 2007  
Test Result : Complied

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:

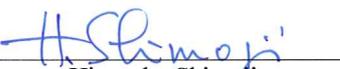


Motoya Imura  
EMC Services



Tomotaka Sasagawa  
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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>

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MF060b (26.04.07)

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## **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. : 814SH  
Serial No. : 004401/11/066084/8, 004401/11/066007/9  
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: 814SH (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 that 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

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### **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.

---

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3.2 Procedures and results

[FHSS]

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin*0)	Results
1	Conducted emission	FCC: ANSI C63.4:2003 7. AC powerline conducted emission measurements	FCC: Section 15.207	-	N/A	25.0dB 0.39905 MHz QP,N	Complied
2	Carrier Frequency Separation	FCC: ANSI C63.4:2003 13. Measurement of intentional radiators	FCC: Section 15.247(a)(1)	Conducted	N/A	See data.	Complied
3	20dB Bandwidth	FCC: ANSI C63.4:2003 13. Measurement of intentional radiators	FCC: Section 15.247(a)(1)	Conducted	N/A		Complied
4	Number of Hopping Frequency	FCC: ANSI C63.4:2003 13. Measurement of intentional radiators	FCC: Section 15.247(a)(1)(iii)	Conducted	N/A		Complied
5	Dwell time	FCC: ANSI C63.4:2003 13. Measurement of intentional radiators	FCC: Section 15.247(a)(1)(iii)	Conducted	N/A		Complied
6	Maximum Peak Output Power	FCC: ANSI C63.4:2003 13. Measurement of intentional radiators	FCC: Section 15.247(b)(1)	Conducted	N/A		Complied
7	Band Edge Compliance	FCC: ANSI C63.4:2003 13. Measurement of intentional radiators	FCC: Section 15.247(d)	Conducted	N/A		Complied
8	Spurious Emission	FCC: ANSI C63.4:2003 13. Measurement of intentional radiators	FCC: Section 15.247(d)	Conducted/ Radiated	N/A		<Tx> 8.3dB 30.255MHz, Ver, QP <Rx> 8.9dB, 30.091MHz, 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.

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### 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  $\pm 2.66$ 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  $\pm 4.59$ dB(3m).  
The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is  $\pm 4.62$ dB(3m).  
The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is  $\pm 5.27$ 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  $\pm 3.0$ dB.

### 3.5 Test Location

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	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.

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### 3.6 Test set up, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

## 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

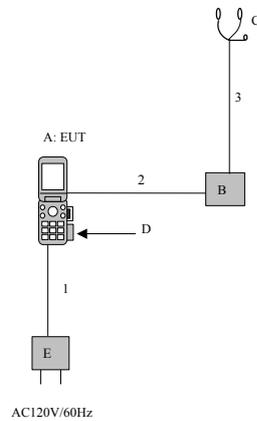
Receiving mode

- 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	814SH	004401/11/066007/9*1) , 004401/11/066084/8 *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

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## **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

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**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**

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## **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

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**APPENDIX 1: Photographs of test setup**

**Conducted Emission**

**This page has been submitted for a separate exhibit.**

**Spurious Emission (Radiated)**

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Test report No. : 27GE0232-HO-A-2  
Page : 14 of 43  
Issued date : May 18, 2007  
Revised date : June 12, 2007  
FCC ID : APYHRO00056

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

**This page has been submitted for a separate exhibit.**

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**APPENDIX 2: Data of EMI test**

**Conducted Emission**

**DATA OF CONDUCTED EMISSION TEST**

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

Applicant	: Sharp Corporation	Report No.	: 27GE0232-HO
Kind of EUT	: See Clause 2.1	Power	: DC4.0V
Model No.	: 814SH	Temp°C/Humi%	: 24deg. C / 41%
Serial No.	: 004401/11/066007/9	Operator	: Motoya Imura

Mode / Remarks : Bluetooth Tx 2402MHz , DH5

LIMIT : FCC15.207 QP  
 FCC15.207 AV

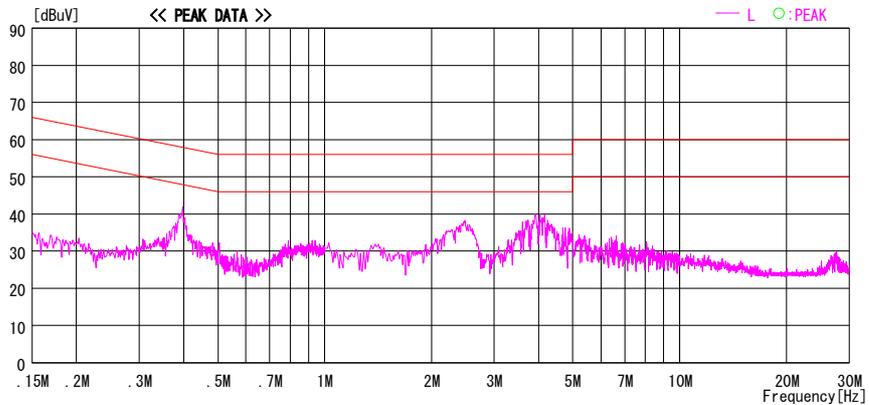
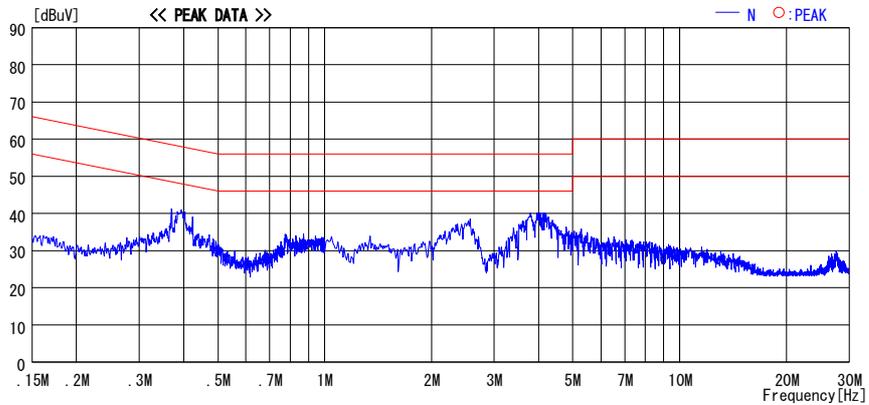


CHART: WITH FACTOR, Peak hold data. Data is uncorrected. CALCULATION: RESULT=READING+C.F (LISN LOSS+CABLE LOSS)  
 Except for the above table : adequate margin data below the limits.

### Conducted Emission

## DATA OF CONDUCTED EMISSION TEST

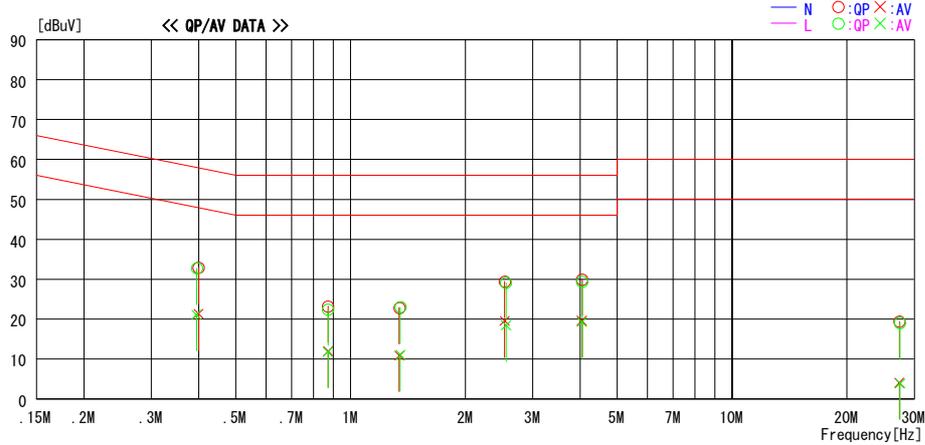
UL Japan, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber  
Date : 2007/05/08

Applicant : Sharp Corporation  
 Kind of EUT : See Clause 2.1  
 Model No. : 814SH  
 Serial No. : 004401/11/066007/9

Report No. : 27GE0232-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	AV		QP	AV	QP	AV	QP	AV	
	[dBuV]	[dBuV]		[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]	
0.39480	32.4	20.8	0.3	32.7	21.1	58.0	48.0	25.3	26.9	L
0.39905	32.6	21.0	0.3	32.9	21.3	57.9	47.9	25.0	26.6	N
0.87251	22.8	11.6	0.4	23.2	12.0	56.0	46.0	32.8	34.0	N
0.87244	22.1	11.4	0.4	22.5	11.8	56.0	46.0	33.5	34.2	L
1.34194	22.4	10.5	0.4	22.8	10.9	56.0	46.0	33.2	35.1	N
1.35100	22.6	10.7	0.4	23.0	11.1	56.0	46.0	33.0	34.9	L
2.55710	28.6	17.9	0.5	29.1	18.4	56.0	46.0	26.9	27.6	L
2.53320	29.0	19.0	0.5	29.5	19.5	56.0	46.0	26.5	26.5	N
4.04201	29.2	18.9	0.7	29.9	19.6	56.0	46.0	26.1	26.4	N
4.04191	28.7	18.5	0.7	29.4	19.2	56.0	46.0	26.6	26.8	L
27.46500	17.4	2.1	2.0	19.4	4.1	60.0	50.0	40.6	45.9	N
27.60040	17.1	1.9	2.0	19.1	3.9	60.0	50.0	40.9	46.1	L

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, Inc. Head Office EMC Lab. No. 4 Semi Anechoic Chamber  
 Date : 2007/05/08

Applicant	: Sharp Corporation	Report No.	: 27GE0232-HO
Kind of EUT	: See Clause 2.1	Power	: DC4, 0V
Model No.	: 814SH	Temp°C/Humi%	: 24deg. C / 41%
Serial No.	: 004401/11/066007/9	Operator	: Motoya Imura

Mode / Remarks : Bluetooth Tx 2441MHz , DH5

LIMIT : FCC15.207 QP  
 FCC15.207 AV

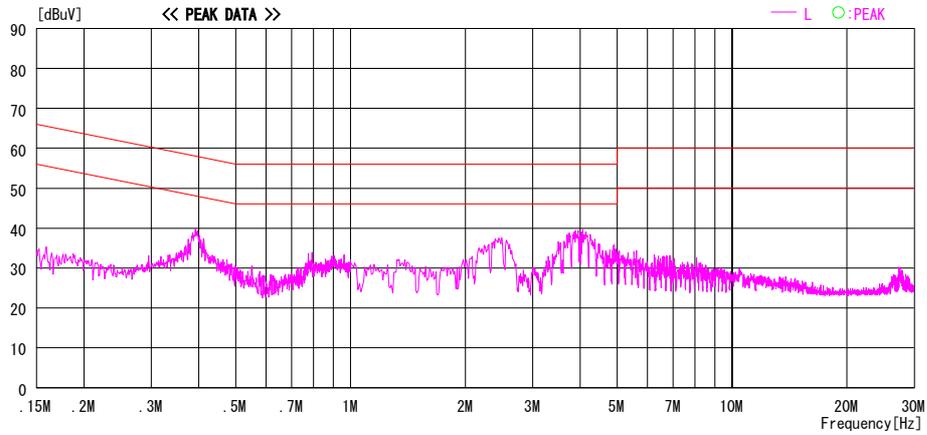
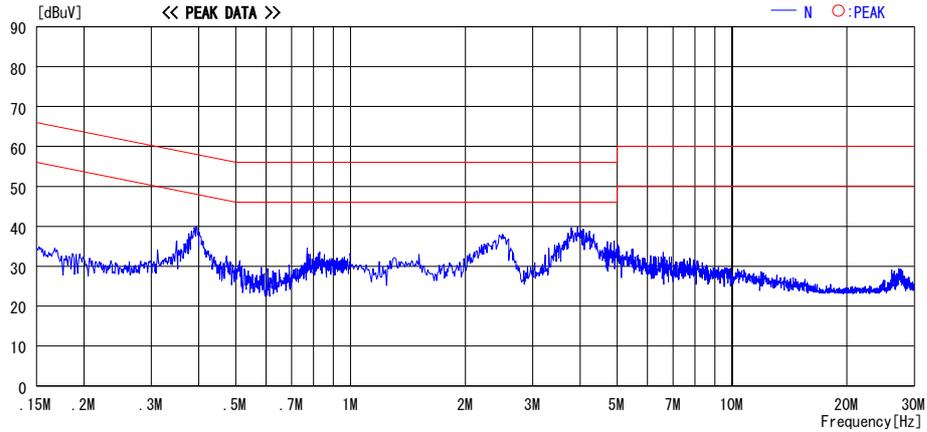


CHART: WITH FACTOR, Peak hold data. Data is uncorrected. CALCURATION: RESULT=READING+C.F (LISN LOSS+CABLE LOSS)  
 Except for the above table : adequate margin data below the limits.

## Conducted Emission

### DATA OF CONDUCTED EMISSION TEST

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

Applicant : Sharp Corporation	Report No. : 27GE0232-HO
Kind of EUT : See Clause 2.1	Power : DC4.0V
Model No. : 814SH	Temp°C/Humi% : 24deg. C / 41%
Serial No. : 004401/11/066007/9	Operator : Motoya Imura

Mode / Remarks : Bluetooth Tx 2480MHz , DH5

LIMIT : FCC15.207 QP  
FCC15.207 AV

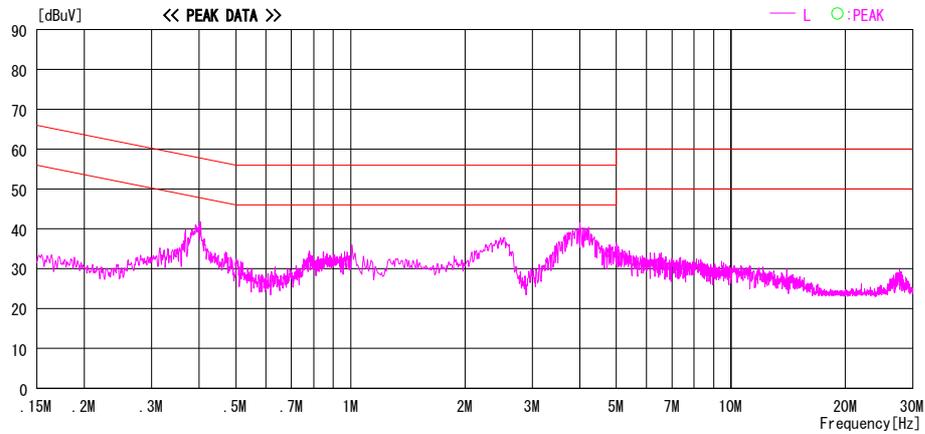
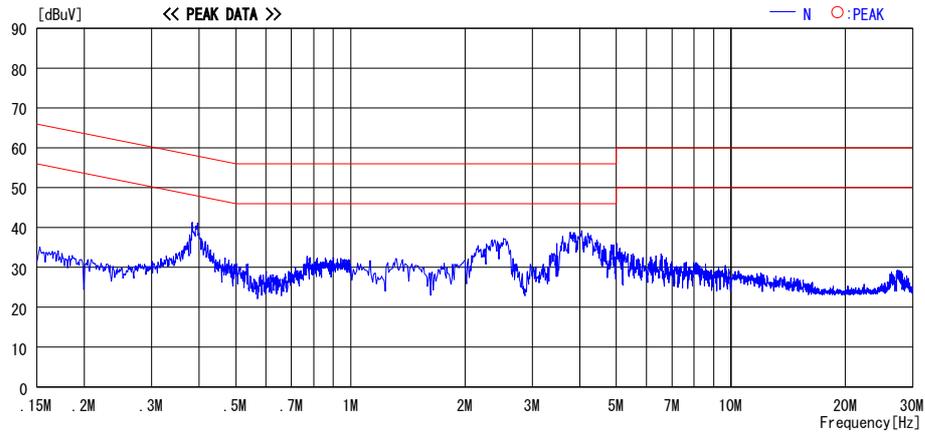


CHART:WITH FACTOR,Peak hold data.Data is uncorrected. CALOURATION:RESULT=READING+C.F(LISN LOSS+CABLE LOSS)  
 Except for the above table : adequate margin data below the limits.

## Conducted Emission

### DATA OF CONDUCTED EMISSION TEST

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

Applicant : Sharp Corporation	Report No. : 27GE0232-HO
Kind of EUT : See Clause 2.1	Power : DC4, 0V
Model No. : 814SH	Temp°C/Humi% : 24deg. C / 41%
Serial No. : 004401/11/066007/9	Operator : Motoya Imura

Mode / Remarks : Bluetooth Rx 2441MHz , DH5

LIMIT : FCC15.207 QP  
FCC15.207 AV

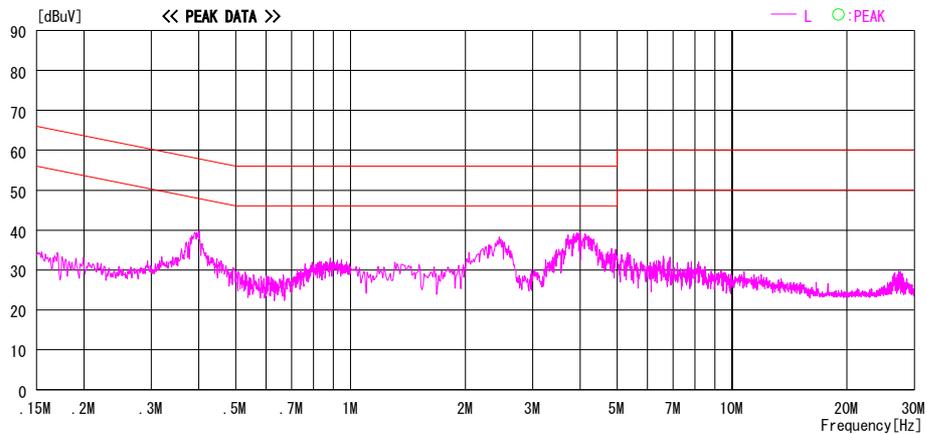
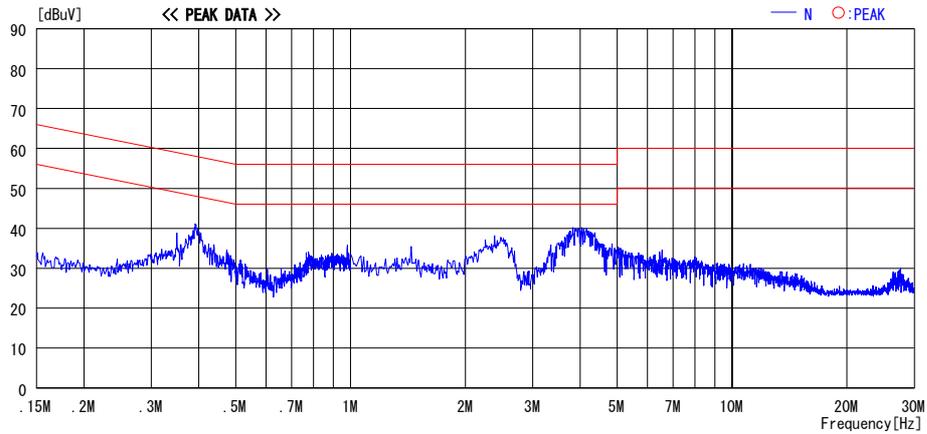


CHART: WITH FACTOR, Peak hold data. Data is uncorrected. CALCURATION: RESULT=READING+C.F (LISN LOSS+CABLE LOSS)  
 Except for the above table : adequate margin data below the limits.

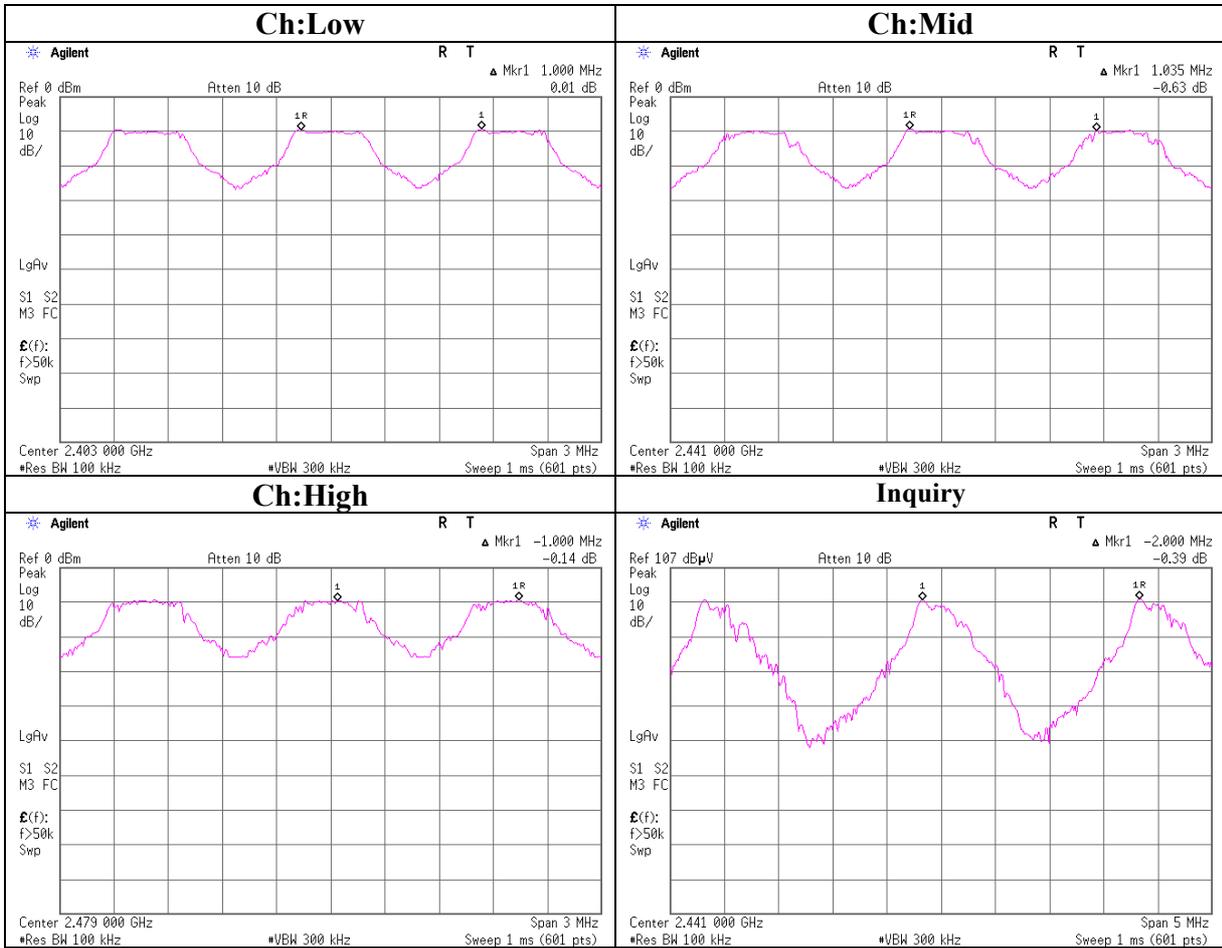
### Carrier Frequency Separation

UL Japan, Inc.  
 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	814SH	DATE	: 05/07/2007
S/N	004401/11/066084/8	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	1.035	0.640[MHz] (two-thirds of 20dB Bandwidth ( 0.960[MHz] ) ) or 25[kHz] (whichever is grater)
High	2480.0	1.000	0.640 [MHz] (two-thirds of 20dB Bandwidth ( 0.960 [MHz] ) ) or 25[kHz] (whichever is grater)
Inquiry	2441.0	2.000	0.547 [MHz] (two-thirds of 20dB Bandwidth ( 0.820 [MHz] ) ) or 25[kHz] (whichever is grater)

### Carrier Frequency Separation



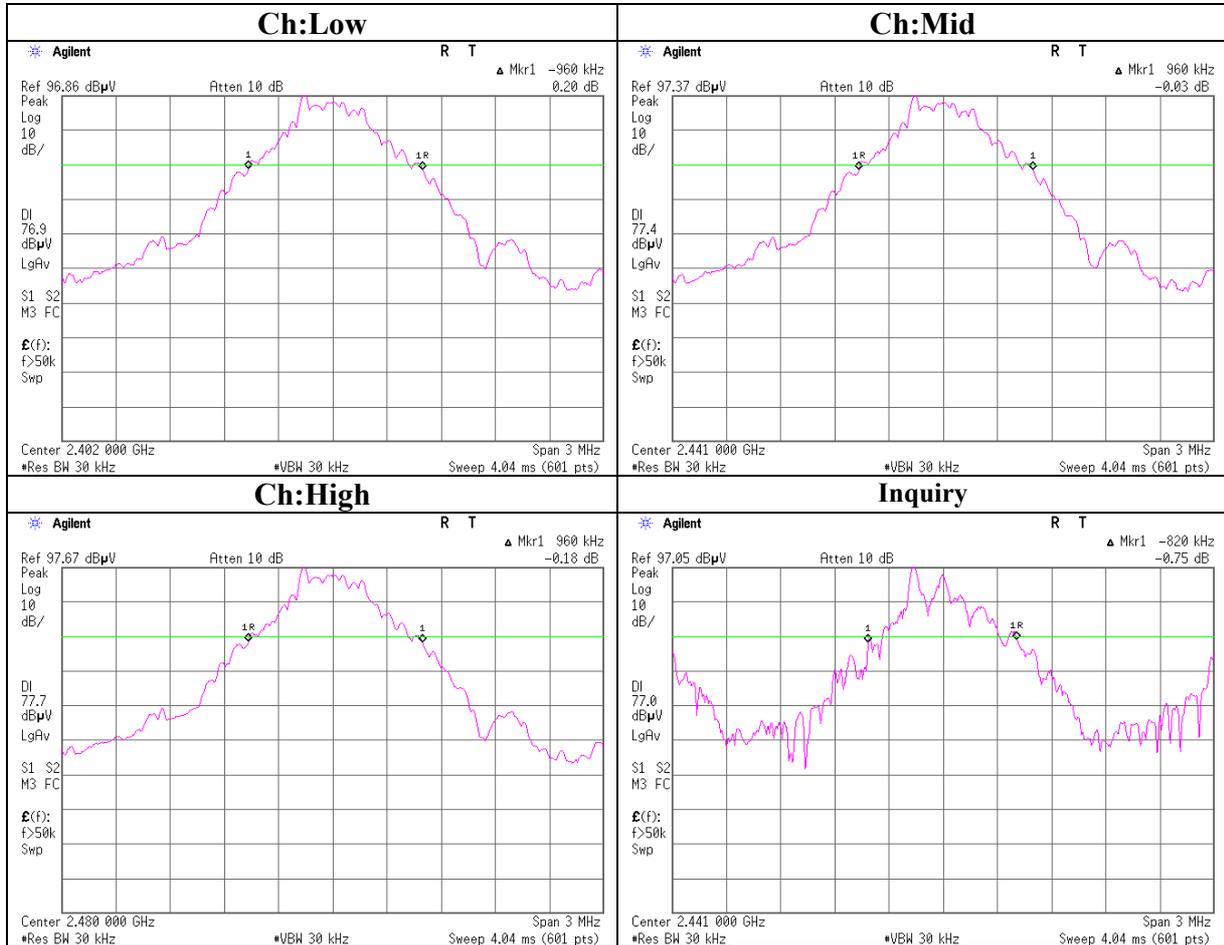
## 20dB Bandwidth

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

COMPANY	Sharp Corporation	REGULATION	FCC Part15 Subpart C 15.247(a)(1) / RSS-210
EQUIPMENT	WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable	TEST DISTANCE	-
MODEL	814SH	DATE	: 05/07/2007
S/ N	004401/11/066084/8	TEMPERATURE	: 25deg.C
POWER	DC 4.0V	HUMIDITY	: 34%
MODE	Bluetooth Tx Hopping On / Inquiry	ENGINEER	: Tomotaka Sasagawa

Ch	Freq. [MHz]	20dB Band width [MHz]	Limit [MHz]
Low	2402.0	0.960	-
Mid	2441.0	0.960	-
High	2480.0	0.960	-
Inquiry	2441.0	0.820	-

### 20dB Bandwidth



### Number of Hopping Frequency

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

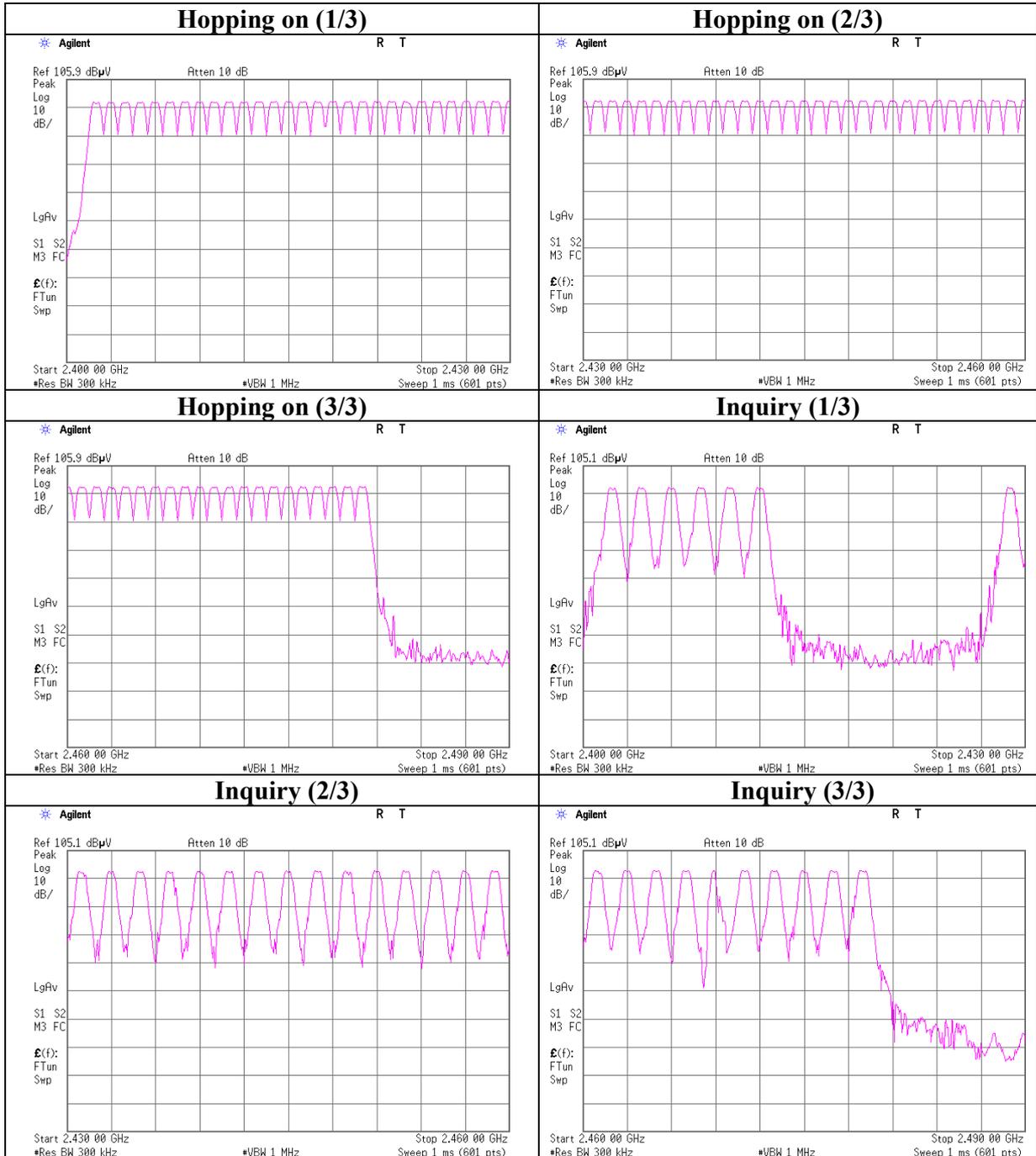
COMPANY Sharp Corporation  
EQUIPMENT WCDMA & Tri-band (900/1800/1900) GSM  
Dual mode Mobile Phone / Bluetooth enable  
MODEL 814SH  
S/N 004401/11/066084/8  
POWER DC 4.0V  
MODE Bluetooth Tx Hopping On / Inquiry

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 channel [time]	Limit [time]
Tx(Hopping on)	79	$\geq 15$

Mode	Number of channel [time]	Limit [time]
Inquiry	32	$\geq 15$

**Number of Hopping Frequency**



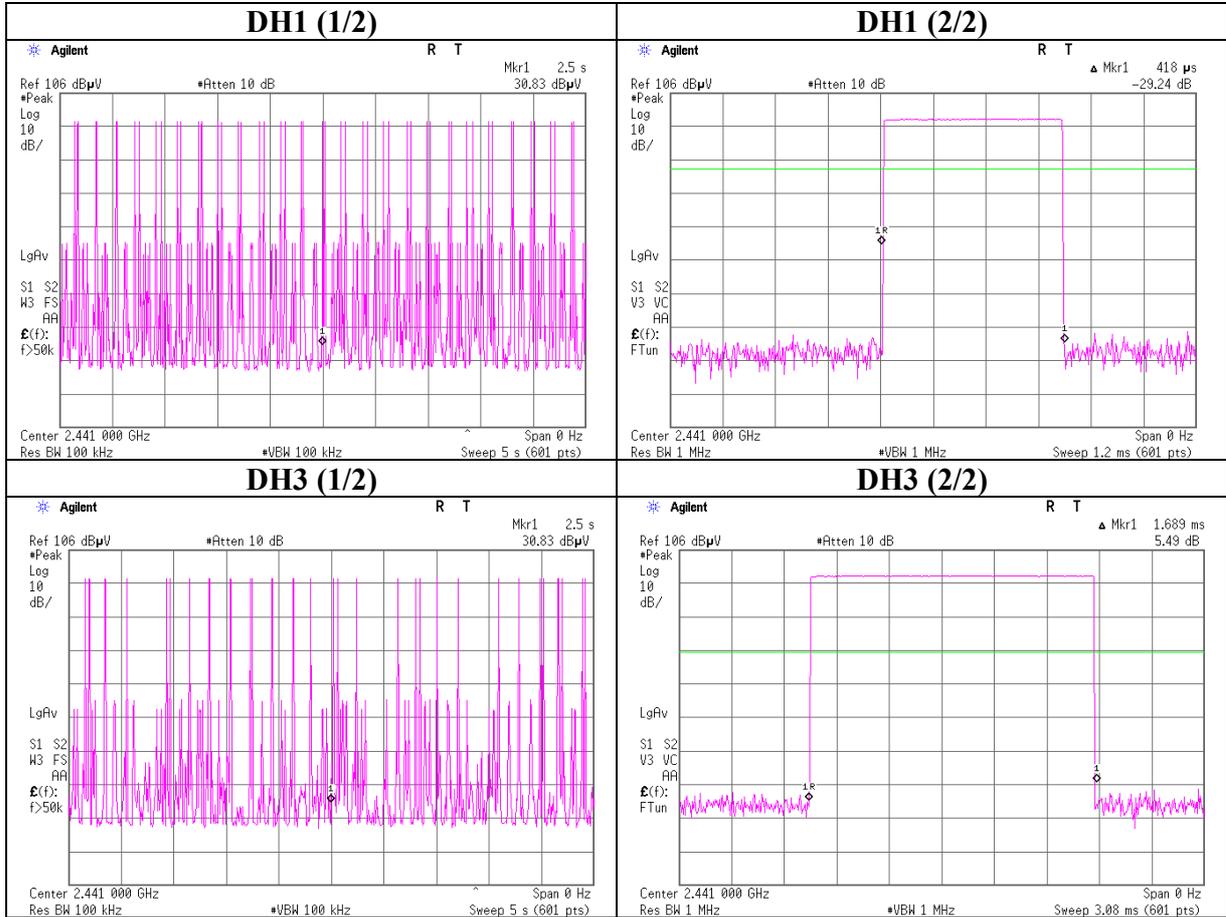
**Dwell time**

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

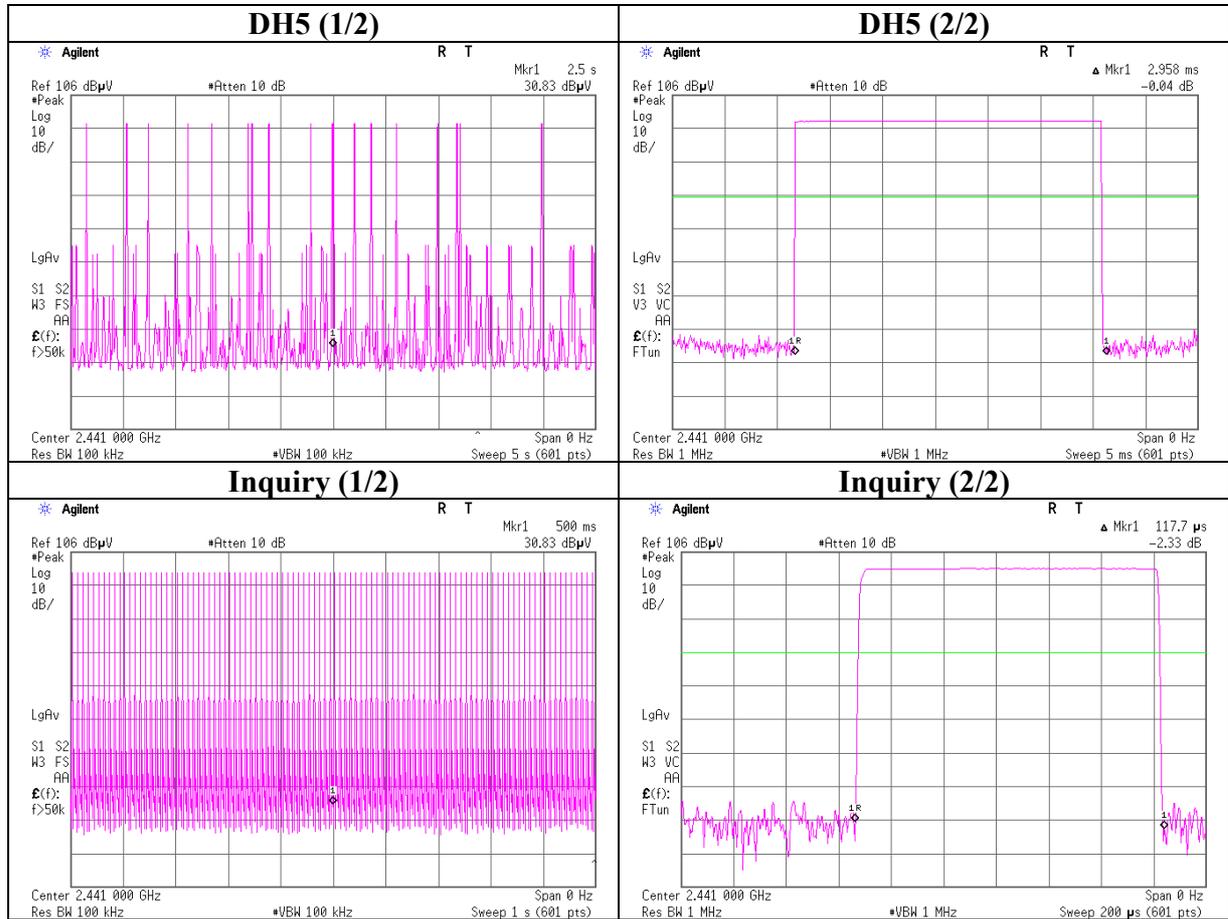
COMPANY	Sharp Corporation	REGULATION	FCC15.247(a)(1)(iii)/RSS-210A8.1(4)
EQUIPMENT	WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable	TEST DISTANCE	-
MODEL	814SH	DATE	05/07/2007
S/ N	004401/11/066084/8	TEMPERATURE	25deg.C
POWER	DC 4.0V	HUMIDITY	34%
MODE	Tx (Hopping on) /Inquiry	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	48 times / 5 sec. x 31.6 sec. = 304 times	0.418	127	400
DH3	29 times / 5 sec. x 31.6 sec. = 184 times	1.689	311	400
DH5	17 times / 5 sec. x 31.6 sec. = 108 times	2.958	319	400
Inquiry	100 times / 1 sec. x 12.8 sec. = 1280 times	0.118	151	400

**Dwell time**



**Dwell time**



### Maximum Peak Output Power

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

COMPANY	Sharp Corporation	REGULATION	FCC15.247(b)(1)/RSS-210A8.4(2)
EQUIPMENT	WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable	TEST DISTANCE	-
MODEL	814SH	DATE	05/07/2007
S/ N	004401/11/066084/8	TEMPERATURE	25deg.C
POWER	DC 4.0V	HUMIDITY	34%
MODE	Tx(Hopping Off)/Inquiry	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	-10.87	1.25	10.01	0.39	1.09	20.97	125	20.58
Mid	2441.0	-10.68	1.25	10.01	0.58	1.14	20.97	125	20.39
High	2480.0	-10.71	1.00	10.02	0.31	1.07	20.97	125	20.66
Inquiry	2441.0	-10.42	1.25	10.01	0.84	1.21	20.97	125	20.13

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**

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

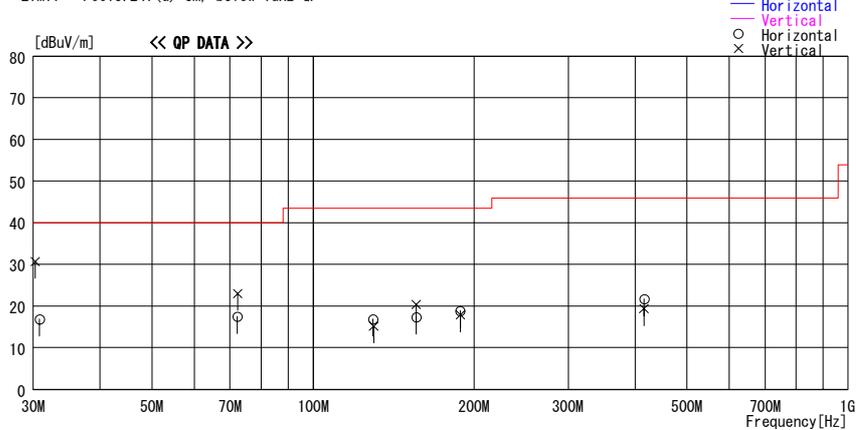
**DATA OF RADIATED EMISSION TEST**

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

Applicant : Sharp Corporation  
 Kind of EUT : See Clause 2.1  
 Model No. : 814SH  
 Serial No. : 004401/11/066007/9  
 Report No. : 27GE0232-H0  
 Power : DC 4.0V  
 Temp./Humi. : 24deg.C / 41%  
 Operator : Motoya Imura

Mode / Remarks : Bluetooth Tx 2402MHz, DHS, PRBS9, EUT max-axis (H:Y, 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]						
30.270	36.1	QP	19.4	-24.9	30.6	58	100	Vert.	40.0	9.4
30.810	22.6	QP	19.1	-24.9	16.8	149	300	Hori.	40.0	23.2
72.140	34.7	QP	7.1	-24.3	17.5	8	273	Hori.	40.0	22.5
72.281	40.2	QP	7.1	-24.3	23.0	180	120	Vert.	40.0	17.0
129.359	26.4	QP	13.9	-23.5	16.8	147	300	Hori.	43.5	26.7
129.899	24.7	QP	13.9	-23.5	15.1	44	115	Vert.	43.5	28.4
156.090	25.2	QP	15.4	-23.3	17.3	60	300	Hori.	43.5	26.2
155.954	28.2	QP	15.4	-23.3	20.3	220	100	Vert.	43.5	23.2
188.633	25.2	QP	16.5	-22.9	18.8	208	217	Hori.	43.5	24.7
188.634	24.2	QP	16.5	-22.9	17.8	142	100	Vert.	43.5	25.7
416.000	25.1	QP	17.9	-21.3	21.7	316	220	Hori.	46.0	24.3
416.002	22.7	QP	17.9	-21.3	19.3	201	166	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. Mid**

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

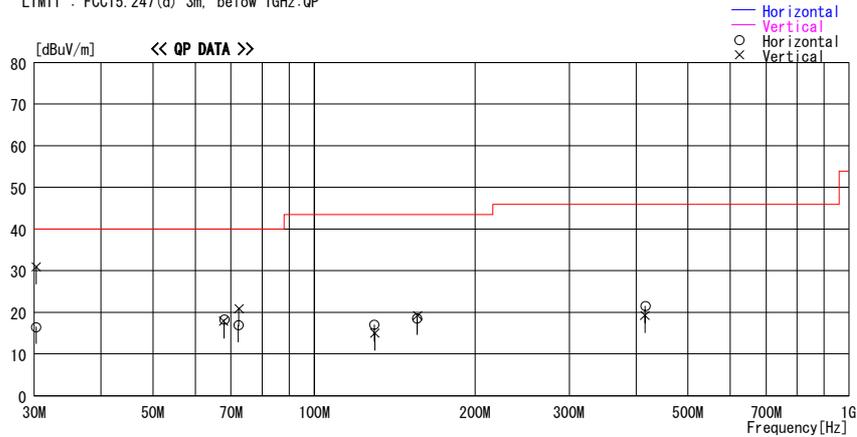
**DATA OF RADIATED EMISSION TEST**

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

Applicant : Sharp Corporation  
Kind of EUT : See Clause 2.1  
Model No. : 814SH  
Serial No. : 004401/11/066007/9  
Report No. : 27GE0232-H0  
Power : DC 4.0V  
Temp./Humi. : 24deg.C / 41%  
Operator : Motoya Imura

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

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



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Gain [dB]						
30.270	36.4	QP	19.4	-24.9	30.9	335	100	Vert.	40.0	9.1
30.210	22.0	QP	19.4	-24.9	16.5	165	300	Hori.	40.0	23.5
67.930	35.1	QP	7.5	-24.3	18.3	9	300	Hori.	40.0	21.7
67.945	34.6	QP	7.5	-24.3	17.8	83	100	Vert.	40.0	22.2
72.170	34.1	QP	7.1	-24.3	16.9	353	300	Hori.	40.0	23.1
72.370	38.0	QP	7.1	-24.3	20.8	71	100	Vert.	40.0	19.2
129.629	26.7	QP	13.9	-23.5	17.1	0	300	Hori.	43.5	26.4
129.996	24.6	QP	13.9	-23.5	15.0	261	120	Vert.	43.5	28.5
155.820	26.5	QP	15.4	-23.3	18.6	356	300	Hori.	43.5	24.9
156.090	27.1	QP	15.4	-23.3	19.2	287	100	Vert.	43.5	24.3
416.000	24.9	QP	17.9	-21.3	21.5	267	220	Hori.	46.0	24.5
416.000	22.6	QP	17.9	-21.3	19.2	49	160	Vert.	46.0	26.8

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

**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.

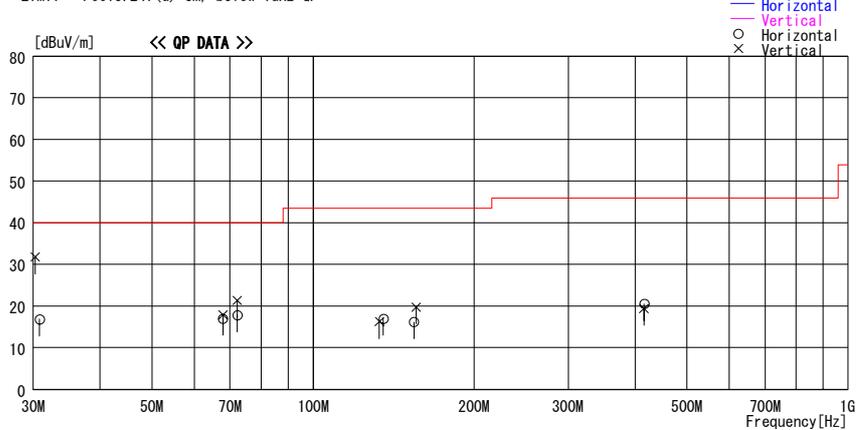
**DATA OF RADIATED EMISSION TEST**

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

Applicant : Sharp Corporation  
Kind of EUT : See Clause 2.1  
Model No. : 814SH  
Serial No. : 004401/11/066007/9  
Report No. : 27GE0232-H0  
Power : DC 4.0V  
Temp./Humi. : 24deg.C / 41%  
Operator : Motoya Imura

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

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



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Gain [dB]						
30.255	37.2	QP	19.4	-24.9	31.7	200	120	Vert.	40.0	8.3
30.810	22.6	QP	19.1	-24.9	16.8	354	220	Hori.	40.0	23.2
67.818	33.8	QP	7.5	-24.3	17.0	7	230	Hori.	40.0	23.0
67.892	34.6	QP	7.5	-24.3	17.8	263	100	Vert.	40.0	22.2
72.170	35.0	QP	7.1	-24.3	17.8	358	288	Hori.	40.0	22.2
72.174	38.5	QP	7.1	-24.3	21.3	283	100	Vert.	40.0	18.7
133.112	25.6	QP	14.1	-23.5	16.2	243	100	Vert.	43.5	27.3
135.299	26.2	QP	14.3	-23.5	17.0	328	300	Hori.	43.5	26.5
154.470	24.2	QP	15.3	-23.3	16.2	147	300	Hori.	43.5	27.3
155.820	27.6	QP	15.4	-23.3	19.7	68	100	Vert.	43.5	23.8
416.000	23.9	QP	17.9	-21.3	20.5	178	216	Hori.	46.0	25.5
416.100	22.8	QP	17.9	-21.3	19.4	35	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)**  
**Rx, Ch. Mid**

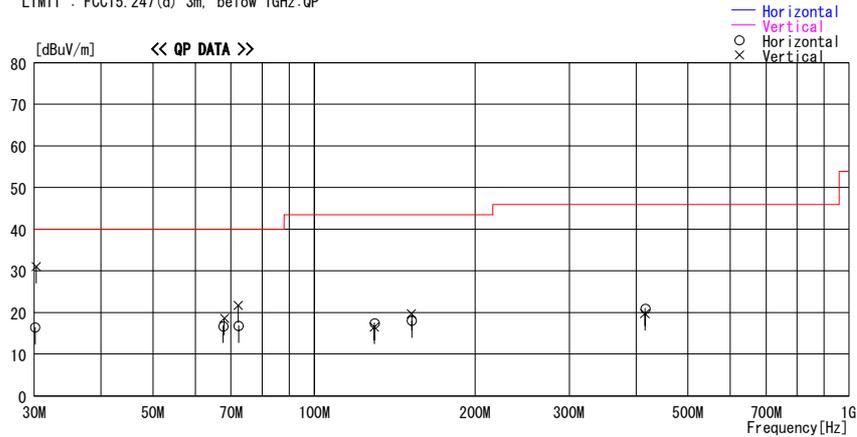
**DATA OF RADIATED EMISSION TEST**

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

Applicant : Sharp Corporation Report No. : 27GE0232-HO  
Kind of EUT : See Clause 2.1 Power : DC 4.0V  
Model No. : 814SH Temp./Humi. : 24deg.C / 41%  
Serial No. : 004401/11/066007/9 Operator : Motoya Imura

Mode / Remarks : Bluetooth Rx 2441MHz, DH5, PRBS9, EUT max-axis (H:Y, 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]						
30.091	21.8	QP	19.5	-24.9	16.4	356	300	Hori.	40.0	23.6
30.272	36.6	QP	19.4	-24.9	31.1	219	120	Vert.	40.0	8.9
67.660	33.6	QP	7.5	-24.4	16.7	14	300	Hori.	40.0	23.3
67.960	35.4	QP	7.5	-24.3	18.6	183	120	Vert.	40.0	21.4
72.182	38.9	QP	7.1	-24.3	21.7	224	100	Vert.	40.0	18.3
72.270	34.0	QP	7.1	-24.3	16.8	358	220	Hori.	40.0	23.2
129.700	26.1	QP	13.9	-23.5	16.5	290	100	Vert.	43.5	27.0
129.739	27.1	QP	13.9	-23.5	17.5	348	300	Hori.	43.5	26.0
152.310	26.1	QP	15.2	-23.3	18.0	141	300	Hori.	43.5	25.5
152.382	27.9	QP	15.2	-23.3	19.8	253	100	Vert.	43.5	23.7
416.000	24.3	QP	17.9	-21.3	20.9	93	219	Hori.	46.0	25.1
416.000	23.1	QP	17.9	-21.3	19.7	172	100	Vert.	46.0	26.3

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

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

Company : Sharp Corporation  
Equipment : WCDMA & Tri-band (900/1800/1900) GSM  
Model : 814SH  
S/N : 004401/11/066007/9  
Power : DC 4.0V  
Mode : Tx 2402MHz  
Eut-Axis : (Worst) H: Y-axis, V: Y-axis

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

**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	2389.3	43.3	42.1	27.3	31.5	3.0	0.0	42.1	40.9	73.9	31.8	33.0
2	2400.0	72.5	71.7	27.3	31.5	3.0	0.0	71.3	70.5	73.9	-	-
3	4804.0	40.4	40.5	31.5	30.8	3.9	0.0	45.0	45.1	73.9	28.9	28.8
4	7206.0	40.6	40.6	37.7	31.3	4.5	0.0	51.5	51.5	73.9	22.4	22.4
5	9608.0	42.1	41.5	38.2	31.9	5.4	0.0	53.8	53.2	73.9	20.1	20.7
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	45.1	38.7	30.5	9.3	0.0	53.0	53.1	73.9	20.9	20.8

**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	2389.3	31.0	31.2	27.3	31.5	3.0	0.0	29.8	30.0	53.9	24.1	23.9
2	2400.0	59.7	59.3	27.3	31.5	3.0	0.0	58.5	58.1	53.9	-	-
3	4804.0	28.7	29.6	31.5	30.8	3.9	0.0	33.3	34.2	53.9	20.6	19.7
4	7206.0	29.5	29.0	37.7	31.3	4.5	0.0	40.4	39.9	53.9	13.5	14.0
5	9608.0	29.8	29.8	38.2	31.9	5.4	0.0	41.5	41.5	53.9	12.4	12.4
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	33.9	34.0	38.7	30.5	9.3	0.0	41.9	42.0	53.9	12.0	11.9

\* 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	96.7	95.5	27.3	31.5	3.0	0.0	95.5	94.3	-	-	-
2	2400.0	43.4	43.2	27.3	31.5	3.0	0.0	42.2	42.0	Funda-20dB	33.3	32.3

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.

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

Company : Sharp Corporation  
Equipment : WCDMA & Tri-band (900/1800/1900) GSM  
Model : 814SH  
S/N : 004401/11/066007/9  
Power : DC 4.0V  
Mode : Tx 2441MHz  
Eut-Axis : (Worst) H: Y-axis, V: Y-axis

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

**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	4882.0	41.7	39.9	31.7	30.7	3.9	0.0	46.6	44.8	73.9	27.3	29.1
2	7323.0	40.8	39.9	35.9	31.3	4.6	0.0	50.0	49.1	73.9	23.9	24.8
3	9764.0	42.0	41.7	38.2	32.1	5.4	0.0	53.5	53.2	73.9	20.4	20.7
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	45.1	45.1	38.8	30.3	9.4	0.0	53.5	53.5	73.9	20.4	20.4

**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	4882.0	29.4	28.9	31.7	30.7	3.9	0.0	34.3	33.8	53.9	19.6	20.1
2	7323.0	29.4	29.1	35.9	31.3	4.6	0.0	38.6	38.3	53.9	15.3	15.6
3	9764.0	30.7	30.5	38.2	32.1	5.4	0.0	42.2	42.0	53.9	11.7	11.9
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	34.8	34.9	38.8	30.3	9.4	0.0	43.2	43.3	53.9	10.7	10.6

\* 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 Filter was not used for factor 0.0dB of the above table.

## Radiated Spurious Emission (above 1GHz)

### Tx, Ch. High

Company : Sharp Corporation  
Equipment : WCDMA & Tri-band (900/1800/1900) GSM  
Dual mode Mobile Phone / Bluetooth enable  
Model : 814SH  
S/N : 004401/11/066007/9  
Power : DC 4.0V  
Mode : Tx 2480MHz  
Eut-Axis : (Worst) H: Y-axis, V: Y-axis

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

#### 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	53.9	55.0	27.4	31.5	3.1	0.0	52.9	54.0	73.9	-	-
2	4960.0	39.9	40.3	31.8	30.7	4.0	0.0	45.0	45.4	73.9	28.9	28.5
3	7440.0	41.1	41.9	36.1	31.3	4.7	0.0	50.6	51.4	73.9	23.3	22.5
4	9920.0	42.0	41.9	38.2	32.2	5.4	0.0	53.4	53.3	73.9	20.5	20.6
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	48.8	49.3	27.4	31.5	3.1	0.0	47.8	48.3	53.9	-	-
2	4960.0	29.1	30.7	31.8	30.7	4.0	0.0	34.2	35.8	53.9	19.7	18.1
3	7440.0	29.7	29.5	36.1	31.3	4.7	0.0	39.2	39.0	53.9	14.7	14.9
4	9920.0	30.8	30.8	38.2	32.2	5.4	0.0	42.2	42.2	53.9	11.7	11.7
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	22.0	24.1	29.2	32.3	2.3	0.0	21.2	23.3	53.9	32.7	30.7

Hor.	Carrier PK :	95.0	dBuV	Chart Carrier level :	94.1	dBuV
	Carrier AV :	81.2	dBuV	Measured point level :	34.9	dBuV
Ver.	Carrier PK :	96.7	dBuV	Chart Carrier level :	96.2	dBuV
	Carrier AV :	82.4	dBuV	Measured point level :	37.8	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.

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MF060b (26.04.07)

**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 :	814SH	Regulation: FCC15.247(d) / RSS-210 A8.5
S/N :	004401/11/066007/9	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: Y-axis, V: Y-axis	Humidity : 48%
		Engineer : Motoya Imura

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

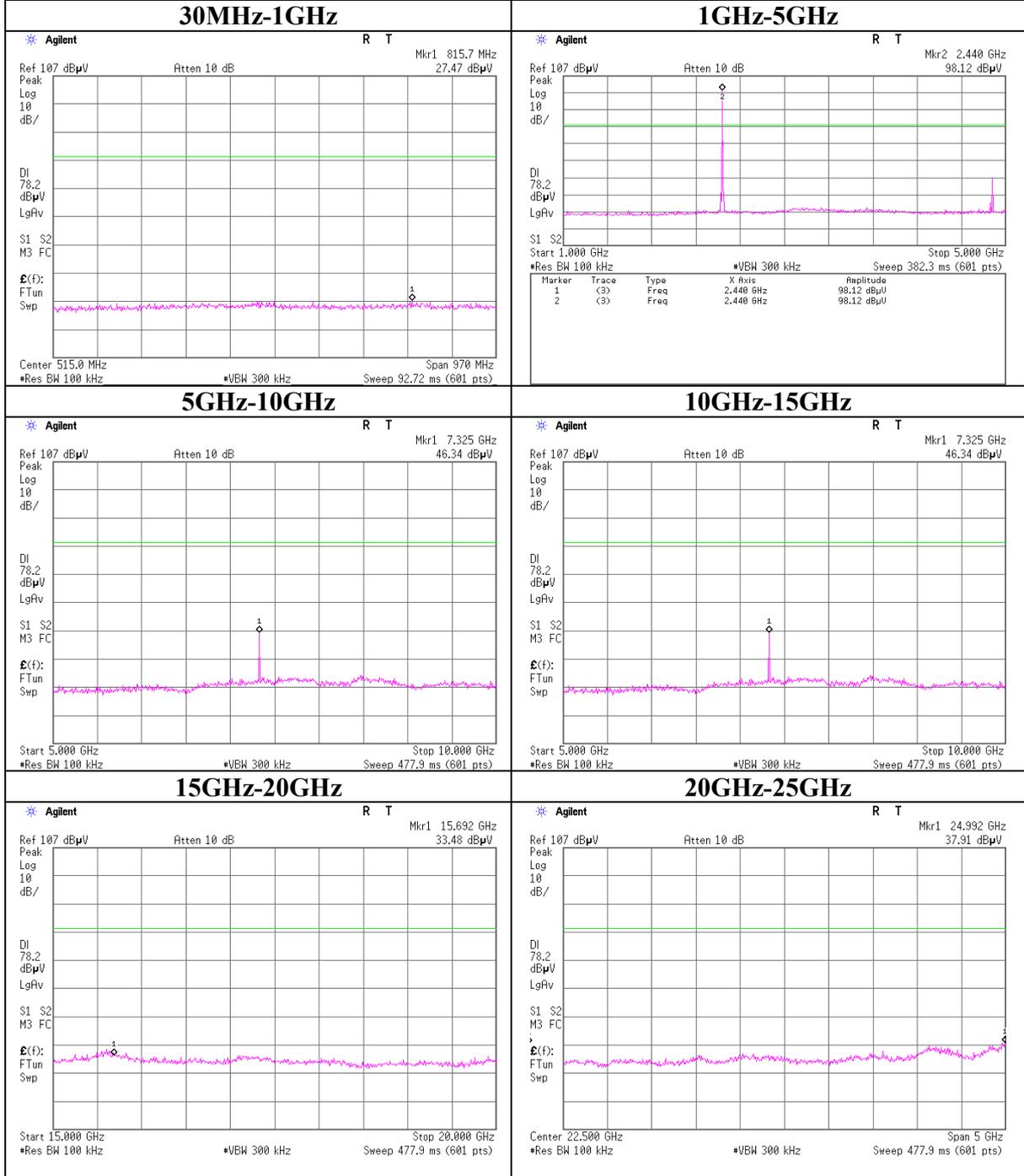
No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	7323.0	40.2	40.1	35.9	31.3	4.6	0.0	49.4	49.3	73.9	24.5	24.6

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

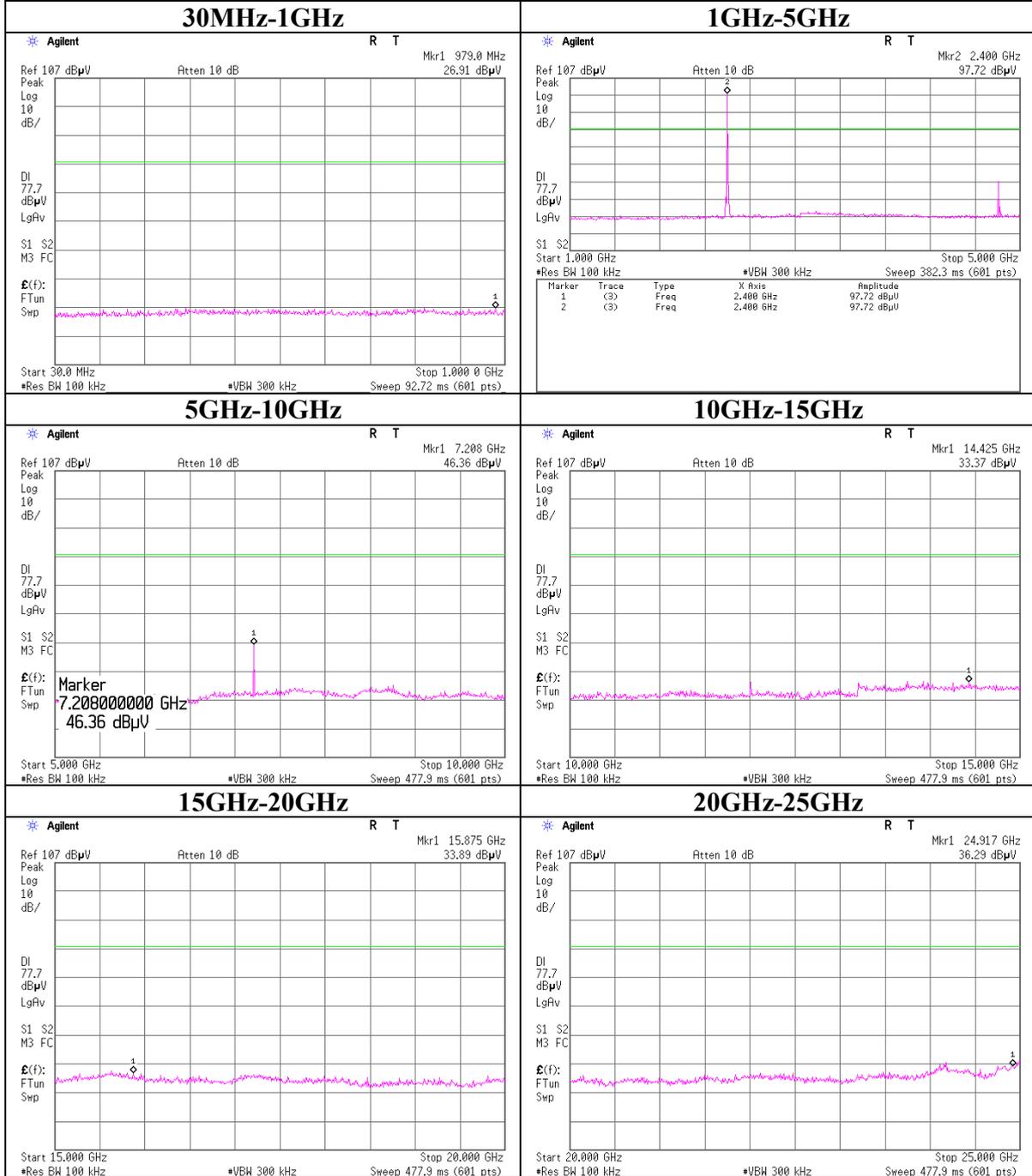
No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	7323.0	29.2	29.1	35.9	31.3	4.6	0.0	38.4	38.3	53.9	15.5	15.6

\*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.

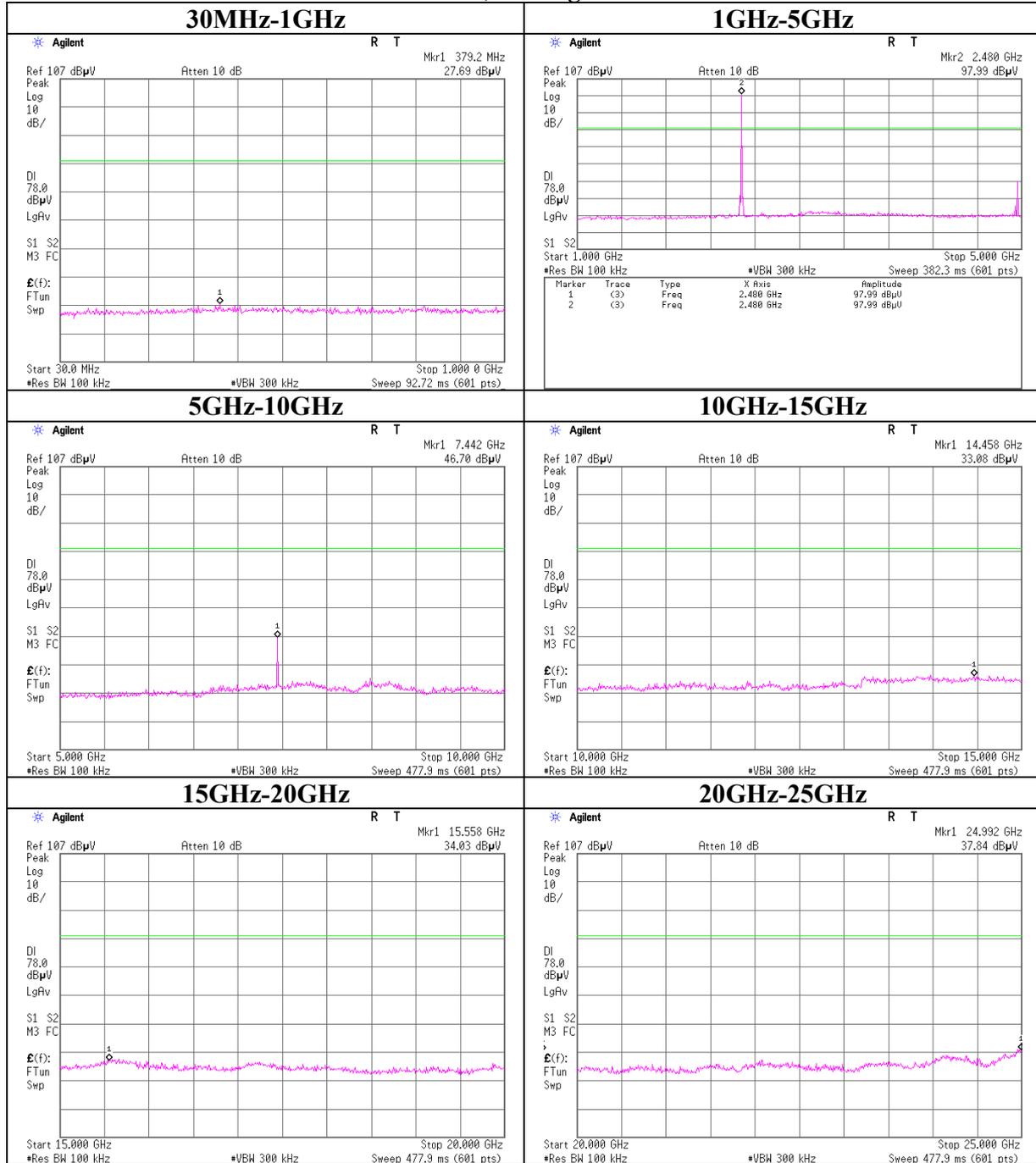
**Conducted Spurious Emission**  
**Tx, Ch:Low**



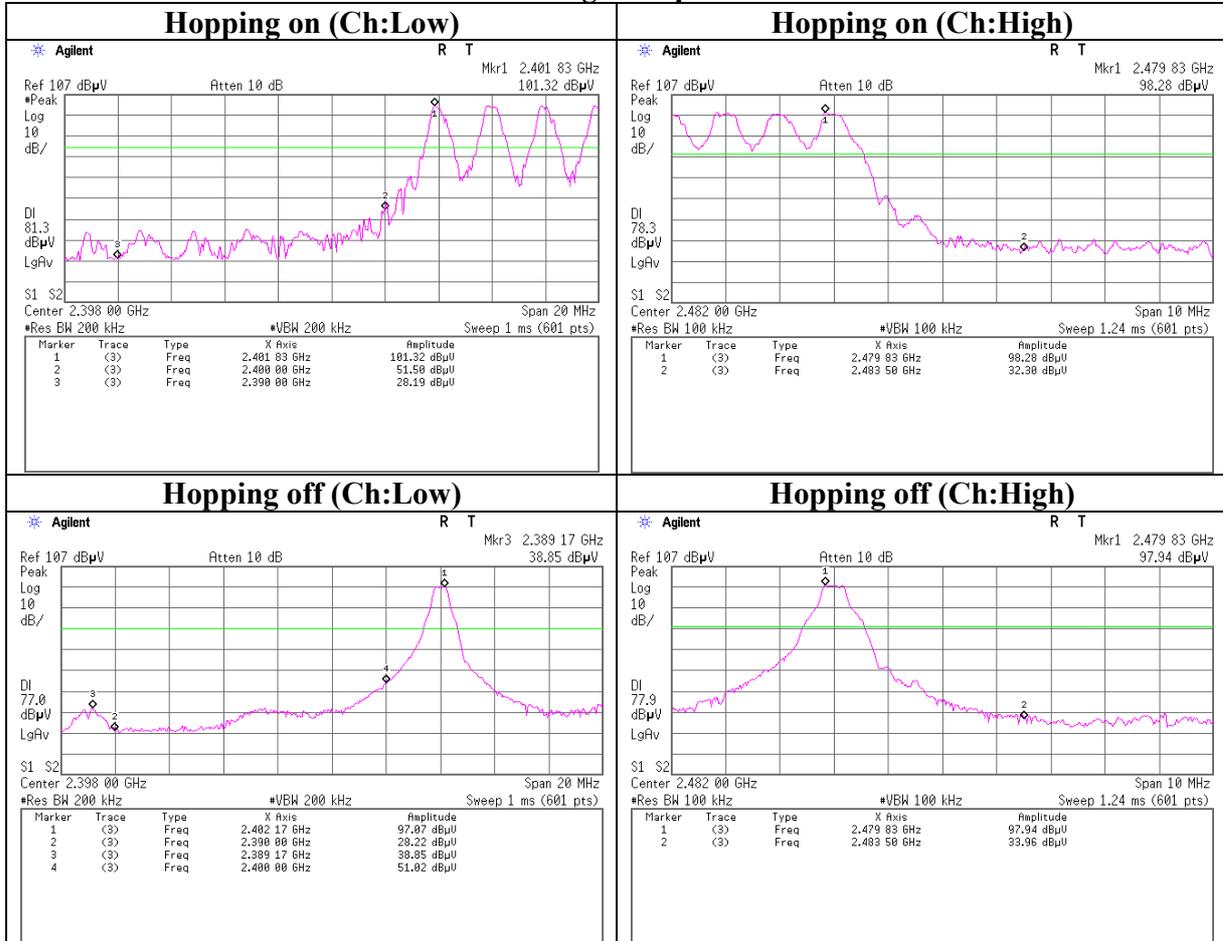
**Conducted Spurious Emission**  
**Tx, Ch:Mid**



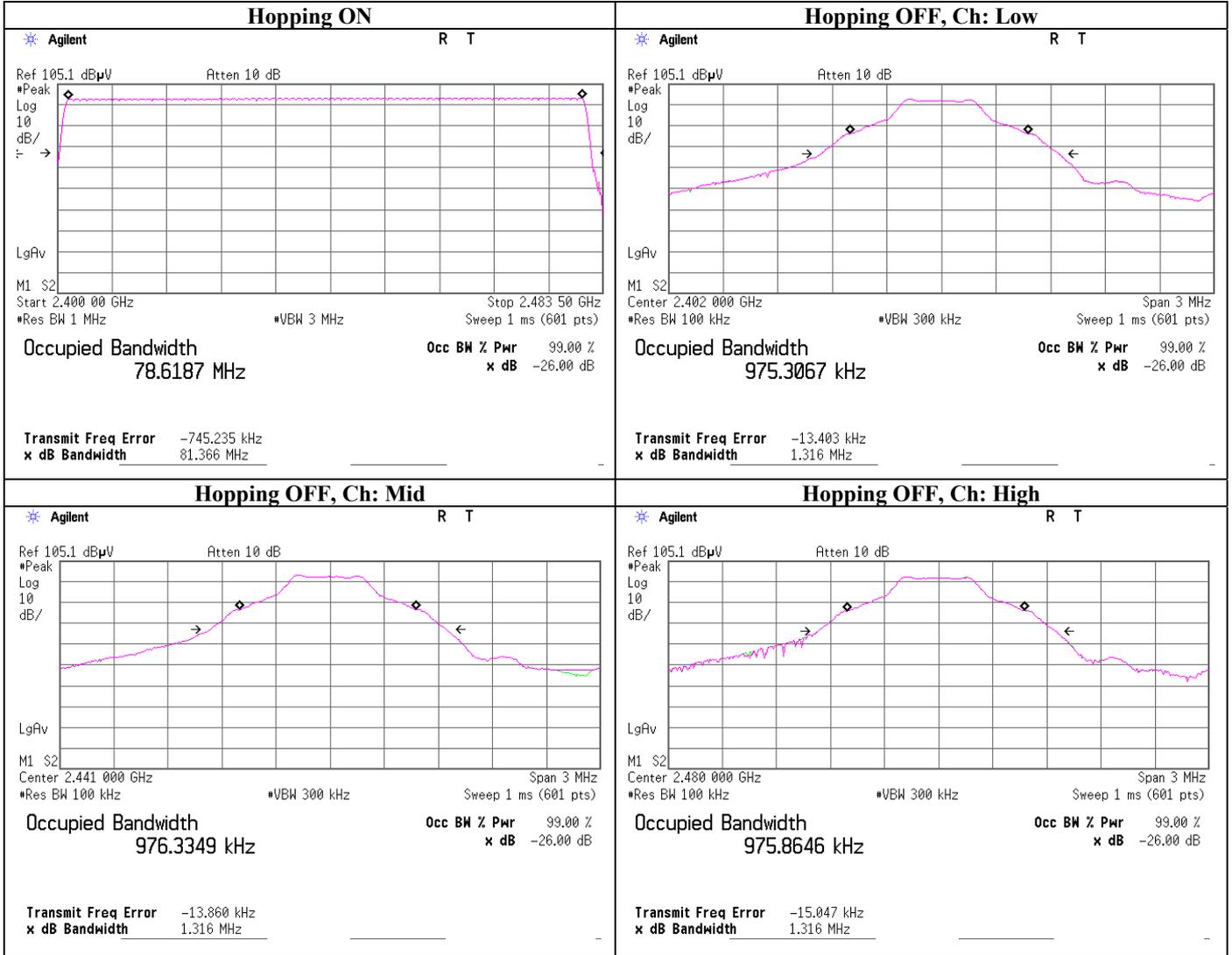
**Conducted Spurious Emission**  
**Tx, Ch:High**



**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**

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