



## RADIO TEST REPORT

Test Report No. : 29AE0093-HO

Applicant : Sharp Corporation, Communication Systems Group.  
Type of Equipment : Cellular Phone  
Model No. : SH9020C  
FCC ID : APYHRO00080  
Test regulation : FCC Part 15 Subpart C 2008  
Section 15.207, Section 15.247  
Test Result : Complied

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2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the above regulation.
4. The test results in this report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

Date of test:

August 26 and 27, 2008

Tested by:

  
Tomotaka Sasagawa  
EMC Services

Approved by :

  
Mitsuru Fujimura  
Assistant Manager of EMC Services



NVLAP LAB CODE: 200572-0

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\*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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## **SECTION 1: Customer information**

Company Name : Sharp Corporation, Communication Systems Group.  
Address : 2-13-1 Iida Hachihonmatsu, Higashihiroshima-City, Hiroshima, 739-0192,  
Japan  
Telephone Number : +81-82-420-1837  
Facsimile Number : +81-82-420-1654  
Contact Person : Tetsuya Maekawa

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

### **2.1 Identification of E.U.T.**

Type of Equipment : Cellular Phone  
Model No. : SH9020C  
Serial No. : 004401/11/154338/1 (Used for Antenna terminal conducted test)  
004401/11/154337/3 (Radiated emission and Conducted emission tests)  
Rating : AC 120V/60Hz, DC4.0V  
Receipt Date of Sample : August 26, 2008  
Country of Mass-production : Japan  
Condition of EUT : Engineering 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: SH9020C (referred to as the EUT in this report) is the Cellular Phone.

Clock frequency(ies) in the system : 26MHz

#### **[Bluetooth (Ver. 2.0 without EDR function)]**

Equipment Type : Transceiver  
Frequency of Operation : 2402-2480MHz  
Bandwidth & Channel Spacing : 1MHz & 1MHz / CH  
Modulation : FHSS  
Power Supply (inner) : DC 2.75V  
Antenna Type : Internal Antenna  
Antenna Gain : 0dBi  
Operating temperature range : -10 to +55 deg. C.

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### **SECTION 3: Test specification, procedures & results**

#### **3.1 Test Specification**

Test Specification : FCC Part15 Subpart C: 2008, final revised on May 19, 2008

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

#### **FCC 15.31 (e)**

This EUT provides stable voltage(DC2.75V) constantly to RF Module regardless of input voltage and Radiated Emission test was performed with the New Battery. 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

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin	Results			
1	Conducted emission	FCC: ANSI C63.4:2003 7. AC powerline conducted emission measurements	FCC: Section 15.207	-	N/A	[Tx] QP 21.9dB, 2.88851MHz, N AV 26.5dB, 0.40978MHz, L [Rx] QP 21.6dB, 2.87034MHz, N AV 25.8dB, 0.19010MHz, L	Complied			
		IC: RSS-Gen 7.2.2	IC: RSS-Gen 7.2.2							
2	Carrier Frequency Separation	FCC: FCC Public Notice DA 00-705	FCC: Section15.247(a)(1)	Conducted	N/A	See data.	Complied			
		IC: -	IC: RSS-210 A8.1 (b)							
3	20dB Bandwidth	FCC: FCC Public Notice DA 00-705	FCC: Section15.247(a)(1)	Conducted	N/A		See data.	Complied		
		IC: -	IC: RSS-210 A8.1 (a)							
4	Number of Hopping Frequency	FCC: FCC Public Notice DA 00-705	FCC: Section15.247(a)(1)(iii)	Conducted	N/A			See data.	Complied	
		IC: -	IC: RSS-210 A8.1 (d)							
5	Dwell time	FCC: FCC Public Notice DA 00-705	FCC: Section15.247(a)(1)(iii)	Conducted	N/A				See data.	Complied
		IC: -	IC: RSS-210 A8.1 (d)							
6	Maximum Peak Output Power	FCC: FCC Public Notice DA 00-705	FCC: Section15.247(b)(1)	Conducted	N/A	See data.				Complied
		IC: RSS-Gen 4.8	IC: RSS-210 A8.4 (2)							
7	Band Edge Compliance	FCC: FCC Public Notice DA 00-705	FCC: Section15.247(d)	Conducted	N/A		See data.			Complied
		IC: -	IC: RSS-210 A8.5							
8	Spurious Emission	FCC: FCC Public Notice DA 00-705	FCC: Section15.247(d)	Conducted/ Radiated	N/A			See data.		Complied
		IC: RSS-Gen 4.9 RSS-Gen 4.10	IC: RSS-210 A8.5 RSS-Gen 7.2.1 and 7.2.3							

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

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

\* In case any questions arise about test procedure, ANSI C63.4: 2003 is also referred.

### 3.3 Addition to standards

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99% Occupied Band Width	IC: RSS-Gen 4.6.1	IC: RSS-Gen 4.6.1	Conducted	N/A	N/A	N/A

### 3.4 Uncertainty

#### EMI

The following uncertainties have been calculated to provide a confidence level of 95% using a coverage factor k=2.

Test room	Conducted emission	Radiated emission (10m*)			Radiated emission (3m*)			Radiated emission (3m*)	
	150kHz-30MHz	9kHz-30MHz	30MHz-300MHz	300MHz-1GHz	9kHz-30MHz	30MHz-300MHz	300MHz-1GHz	1GHz-18GHz	18GHz-40GHz
No.1 semi-anechoic Chamber (±)	3.7dB	3.1dB	4.4dB	4.2dB	3.2dB	3.8dB	3.9dB	5.9dB	6.1dB
No.2 semi-anechoic chamber (±)	3.7dB	-	-	-	3.2dB	4.4dB	4.0dB	5.9dB	6.1dB
No.3 semi-anechoic chamber (±)	3.7dB	-	-	-	3.2dB	4.6dB	4.0dB	5.9dB	6.1dB
No.4 semi-anechoic chamber (±)	3.7dB	-	-	-	3.2dB	3.9dB	3.9dB	5.9dB	6.1dB

\*10m/3m = Measurement distance

#### Conducted emission test

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

#### Radiated emission test(3m)

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 for this test is 3.0dB.

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### 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	2973C-1	19.2 x 11.2 x 7.7m	7.0 x 6.0m	No.1 Power source room
No.2 semi-anechoic chamber	655103	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	148738	2973C-3	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.3 Preparation room
No.3 shielded room	-	-	4.0 x 6.0 x 2.7m	N/A	-
No.4 semi-anechoic chamber	134570	2973C-4	12.0 x 8.5 x 5.9m	6.8 x 5.75m	No.4 Preparation room
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	6.0 x 6.0m	-
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	-
No.9 measurement room	-	-	8.0 x 4.5 x 2.8m	2.0 x 2.0m	-
No.10 measurement room	-	-	2.6 x 2.8 x 2.5m	2.4 x 2.4m	-
No.11 measurement room	-	-	3.1 x 3.4 x 3.0m	2.4 x 3.4m	-

\* 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.

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

### **4.1 Operating Mode(s)**

<b>Test</b>	<b>Mode</b>	<b>Tested frequency</b>
Conducted Emission	Bluetooth(BT), Transmitting (Tx), Payload: PRBS9 -DH5	2402MHz 2441MHz 2480MHz
	Bluetooth(BT), Receiving (Rx)	2441MHz
Carrier Frequency Separation	Bluetooth(BT), Transmitting (Tx) (Hopping ON)/Inquiry, Payload: PRBS9 -DH5	2402MHz 2441MHz 2480MHz
20dB Bandwidth	Bluetooth(BT), Transmitting (Tx) (Hopping Off)/Inquiry, Payload: PRBS9 -DH5	2402MHz 2441MHz 2480MHz
Number of Hopping Frequency	Bluetooth(BT), Transmitting (Tx) (Hopping ON)/Inquiry, Payload: PRBS9 -DH5	-
Dwell time	Bluetooth(BT), Transmitting (Tx) (Hopping ON)/Inquiry, Payload: PRBS9 -DH1 -DH3 -DH5	-
Maximum Peak Output Power	Bluetooth(BT), Transmitting (Tx) (Hopping Off)/Inquiry, Payload: PRBS9 -DH5	2402MHz 2441MHz 2480MHz
Spurious Emission (Conducted/Radiated)	Bluetooth(BT), Transmitting (Tx), Payload: PRBS9 -DH5	2402MHz 2441MHz 2480MHz
	Bluetooth(BT), Receiving (Rx)	2441MHz
Band Edge Compliance (Conducted)	Bluetooth(BT), Transmitting (Tx), (Hopping ON)/(Hopping Off) Payload: PRBS9 -DH5	2402MHz 2480MHz
99% Occupied Bandwidth	Bluetooth(BT), Transmitting (Tx), (Hopping ON)/(Hopping Off)/Inquiry Payload: PRBS9 -DH5	2402MHz 2441MHz 2480MHz

\*As a result of preliminary test, the formal test was performed with the above modes, which had the maximum payload (except Dwell time test)

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 125mW of AFH mode was used for the test.

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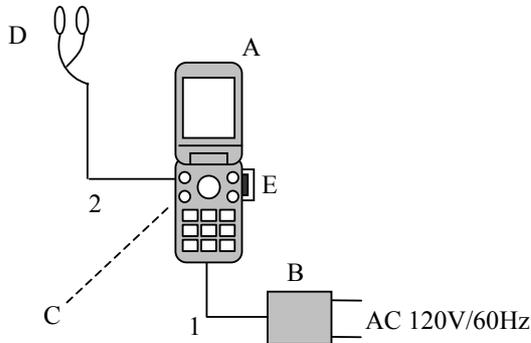
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#### 4.2 Configuration and peripherals



\* Cabling and setup(s) were taken into consideration and test data was taken under worse case conditions.

#### Description of EUT and Support equipment

No.	Item	Model number	Serial number	Manufacturer	Remarks
A	Cellular Phone	SH9020C	004401/11/154338/1 *1) 004401/11/154337/3 *2)	SHARP	EUT
B	AC Charger	ZTDAA1	QEA	KYUSHU MITSUMI	EUT
C	Rechargeable Lithium-ion Battery	XN-1BT94	RHA	SANYO	-
D	Stereo Handsfree	XN-1ER90	01	HOSIDEN	-
E	microSD Memory Card	SDSDQ-1024	01	SanDisk	-

\*1) Used for Antenna terminal conducted test

\*2) Used for Radiated emission test and Conducted emission test

#### List of cables used

No.	Name	Length (m)	Shield	
			Cable	Connector
1	AC Charger Cable	1.5	Unshielded	Unshielded
2	Stereo Handsfree Cable	1.7	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.

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

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** : 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.  
The following spectrum analyzer setting was used:

- RBW: 100kHz
- VBW: 300kHz
- Sweep: Auto
- Detector: Peak
- Trace: Max Hold

**Test data** : APPENDIX 2  
**Test result** : Pass

### **[Radiated]**

#### **Test Procedure**

EUT was placed on 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.

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.

The result also satisfied with the general limits specified in section FCC 15.209(a) / RSS-210 2.7 (IC).

Frequency	Below 1GHz	Above 1GHz
Instrument used	Test Receiver	Spectrum Analyzer
Detector	QP: BW 120kHz	PK: RBW:1MHz/VBW: 1MHz
IF Bandwidth		AV: RBW:1MHz/VBW:10Hz or RBW:1MHz/VBW:270Hz *1)

\*1) Used for the band edge of the carrier and the harmonics that can be measured. The VBW is based on the inverse of the duty cycle (see page 40).

- 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**

### **20dB Bandwidth**

#### **Test Procedure**

The bandwidth was measured with a spectrum analyzer connected to the antenna port.  
The following spectrum analyzer setting was used:

- Span: 3MHz
- RBW: 30kHz
- VBW: 100kHz
- Sweep: Auto
- Detector: Peak
- Trace: Max Hold

**Test data** : APPENDIX 2  
**Test result** : Pass

### **99% Occupied Bandwidth**

#### **Test Procedure**

The bandwidth was measured with a spectrum analyzer connected to the antenna port.  
The following spectrum analyzer setting was used:

- Span: Enough width to display 20dB Bandwidth
- RBW: as close to 1% of the Span as is possible without being below 1%
- VBW: Three times of RBW
- Sweep: Auto
- Detector: Peak
- Trace: Max Hold

**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. The following spectrum analyzer setting was used:

- Span: 3MHz and 5MHz
- RBW: 100kHz
- VBW: 300kHz
- Sweep: Auto
- Detector: Peak
- Trace: Max Hold

**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.  
The following spectrum analyzer setting was used:

- Span: 30MHz
- RBW: 300kHz
- VBW: 1MHz
- Sweep: Auto
- Detector: Peak
- Trace: Max Hold

**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.  
The following spectrum analyzer setting was used:

- Span: Zero Span
- RBW: 1MHz
- VBW: 3MHz
- Sweep: as necessary to capture the entire dwell time per hopping channel
- Detector: Peak
- Trace: Max Hold

**Test data** : APPENDIX 2  
**Test result** : Pass

**APPENDIX 1: Photographs of test setup**

**Conducted Emission**

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

**Spurious Emission (Radiated)**

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

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

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

**APPENDIX 2: Data of EMI test**

**Conducted Emission**  
**Tx, Ch:Low (DH5)**

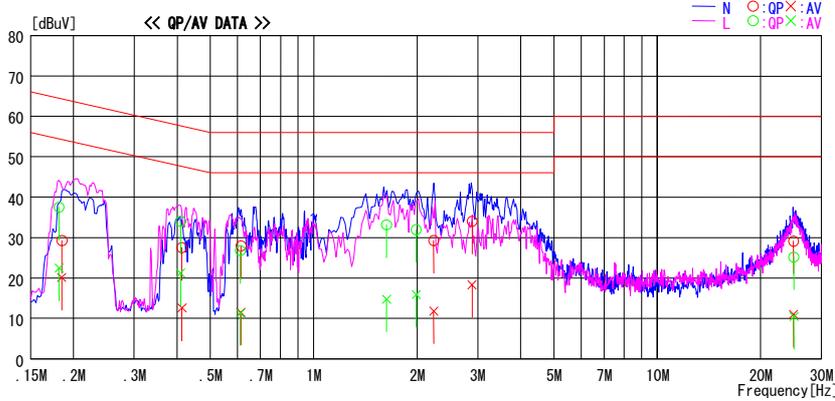
**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber  
Date : 2008/08/27

Company : Sharp Corporation  
Kind of EUT : Cellular Phone  
Model No. : SH9020C  
Serial No. : 004401/11/154337/3  
Report No. : 29AE0093-HO  
Power : DC 4.0V(AC Charger 120V / 60Hz)  
Temp./Humi. : 24deg.C / 62%  
Engineer : Tomotaka Sasagawa

Mode / Remarks : Transmitting 2402MHz

LIMIT : FCC15.207 QP  
FCC15.207 AV



Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]	
0.18487	29.0	19.8	0.3	29.3	20.1	64.3	54.3	35.1	34.2	N
0.41327	27.1	12.1	0.4	27.5	12.5	57.6	47.6	30.1	35.1	N
0.61377	27.5	11.0	0.5	28.0	11.5	56.0	46.0	28.0	34.5	N
2.23417	28.4	11.0	0.8	29.2	11.8	56.0	46.0	26.8	34.2	N
2.88851	33.2	17.4	0.9	34.1	18.3	56.0	46.0	21.9	27.7	N
24.89704	23.2	5.0	5.9	29.1	10.9	60.0	50.0	30.9	39.1	N
0.18138	37.2	22.1	0.3	37.5	22.4	64.4	54.4	26.9	32.0	L
0.40978	33.7	20.8	0.4	34.1	21.2	57.7	47.7	23.6	26.5	L
0.61203	26.2	10.8	0.5	26.7	11.3	56.0	46.0	29.3	34.7	L
1.63020	32.4	14.1	0.7	33.1	14.8	56.0	46.0	22.9	31.2	L
1.98762	31.2	15.2	0.7	31.9	15.9	56.0	46.0	24.1	30.1	L
24.97740	19.2	4.5	5.9	25.1	10.4	60.0	50.0	34.9	39.6	L

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

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

**Conducted Emission**  
**Tx, Ch:Mid (DH5)**

**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber  
 Date : 2008/08/27

Company : Sharp Corporation  
 Kind of EUT : Cellular Phone  
 Model No. : SH9020C  
 Serial No. : 004401/11/154337/3

Report No. : 29AE0093-HO  
 Power : DC 4.0V (AC Charger 120V / 60Hz)  
 Temp./Humi. : 24deg. C / 62%  
 Engineer : Tomotaka Sasagawa

Mode / Remarks : Transmitting 2441MHz

LIMIT : FCC15.207 QP  
 FCC15.207 AV

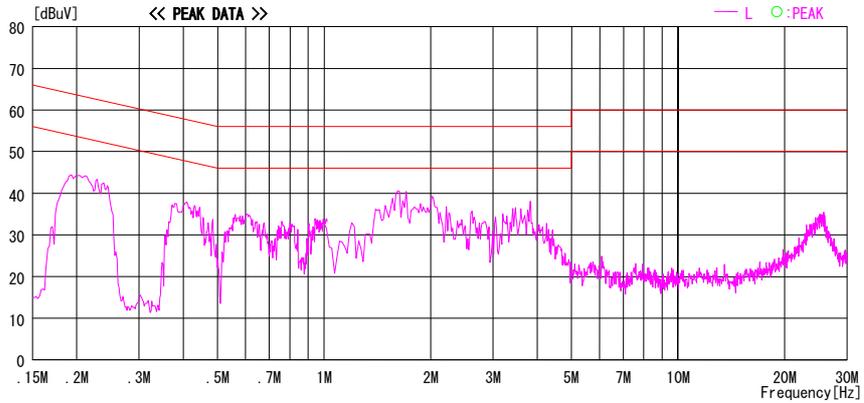
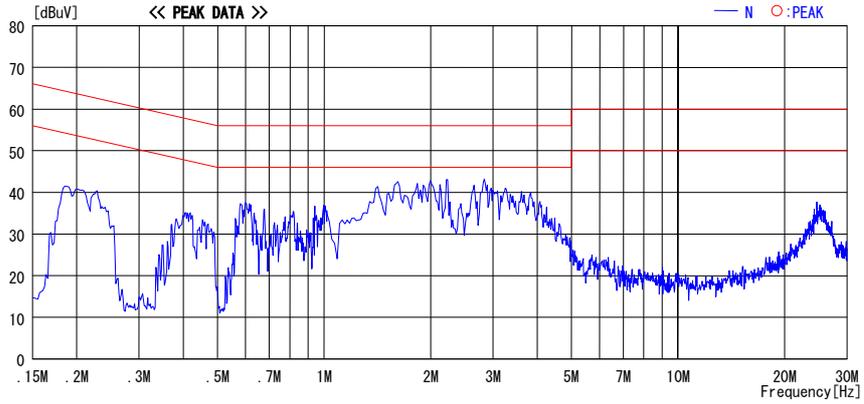


CHART: WITH FACTOR, Peak hold data. CALCURATION: RESULT [dBuV]=READING [dBuV]+C.F [dB] (LISN LOSS+CABLE LOSS)  
 Except for the above table : adequate margin data below the limits.

**Conducted Emission**  
**Tx, Ch:High (DH5)**

**DATA OF CONDUCTED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber  
 Date : 2008/08/27

Company : Sharp Corporation  
 Kind of EUT : Cellular Phone  
 Model No. : SH9020C  
 Serial No. : 004401/11/154337/3

Report No. : 29AE0093-HO  
 Power : DC 4.0V (AC Charger 120V / 60Hz)  
 Temp./Humi. : 24deg. C / 62%  
 Engineer : Tomotaka Sasagawa

Mode / Remarks : Transmitting 2480MHz

LIMIT : FCC15.207 QP  
 FCC15.207 AV

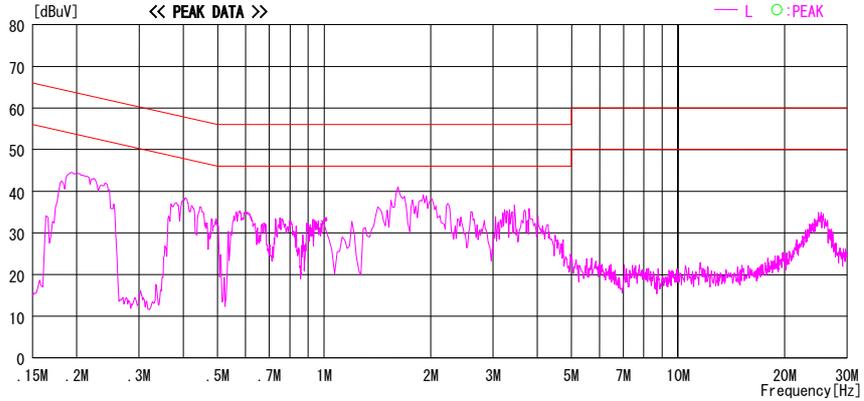
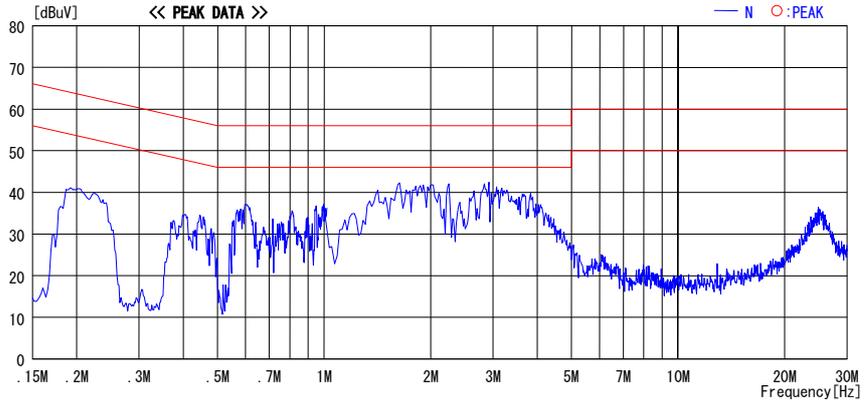


CHART: WITH FACTOR, Peak hold data. CALCURATION: RESULT [dBuV]=READING [dBuV]+C.F [dB] (LISN LOSS+CABLE LOSS)  
 Except for the above table : adequate margin data below the limits.

## Conducted Emission

### Rx, Ch:Mid

### DATA OF CONDUCTED EMISSION TEST

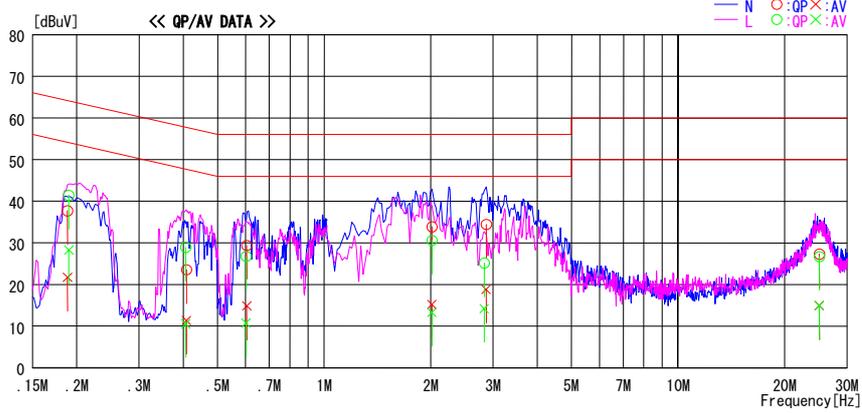
UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber  
Date : 2008/08/27

Company : Sharp Corporation  
 Kind of EUT : Cellular Phone  
 Model No. : SH9020C  
 Serial No. : 004401/11/154337/3

Report No. : 29AE0093-HO  
 Power : DC 4.0V (AC Charger 120V / 60Hz)  
 Temp./Humi. : 24deg. C / 62%  
 Engineer : Tomotaka Sasagawa

Mode / Remarks : Receiving 2441MHz

LIMIT : FCC15\_207 QP  
 FCC15\_207 AV



Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]	
0.18836	37.4	21.4	0.3	37.7	21.7	64.1	54.1	26.5	32.4	N
0.40804	23.1	11.0	0.4	23.5	11.4	57.7	47.7	34.2	36.3	N
0.60505	28.9	14.3	0.5	29.4	14.8	56.0	46.0	26.6	31.2	N
2.01605	33.2	14.5	0.7	33.9	15.2	56.0	46.0	22.2	30.8	N
2.87034	33.5	17.9	0.9	34.4	18.8	56.0	46.0	21.6	27.2	N
25.05776	21.4	9.0	5.9	27.3	14.9	60.0	50.0	32.7	35.1	N
0.19010	41.1	27.9	0.3	41.4	28.2	64.0	54.0	22.6	25.8	L
0.40629	28.6	10.2	0.4	29.0	10.6	57.7	47.7	28.8	37.1	L
0.60157	26.3	10.3	0.5	26.8	10.8	56.0	46.0	29.2	35.2	L
2.01605	29.8	12.6	0.7	30.5	13.3	56.0	46.0	25.5	32.7	L
2.83399	24.3	13.3	0.9	25.2	14.2	56.0	46.0	30.9	31.8	L
25.05776	20.8	9.0	5.9	26.7	14.9	60.0	50.0	33.3	35.1	L

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

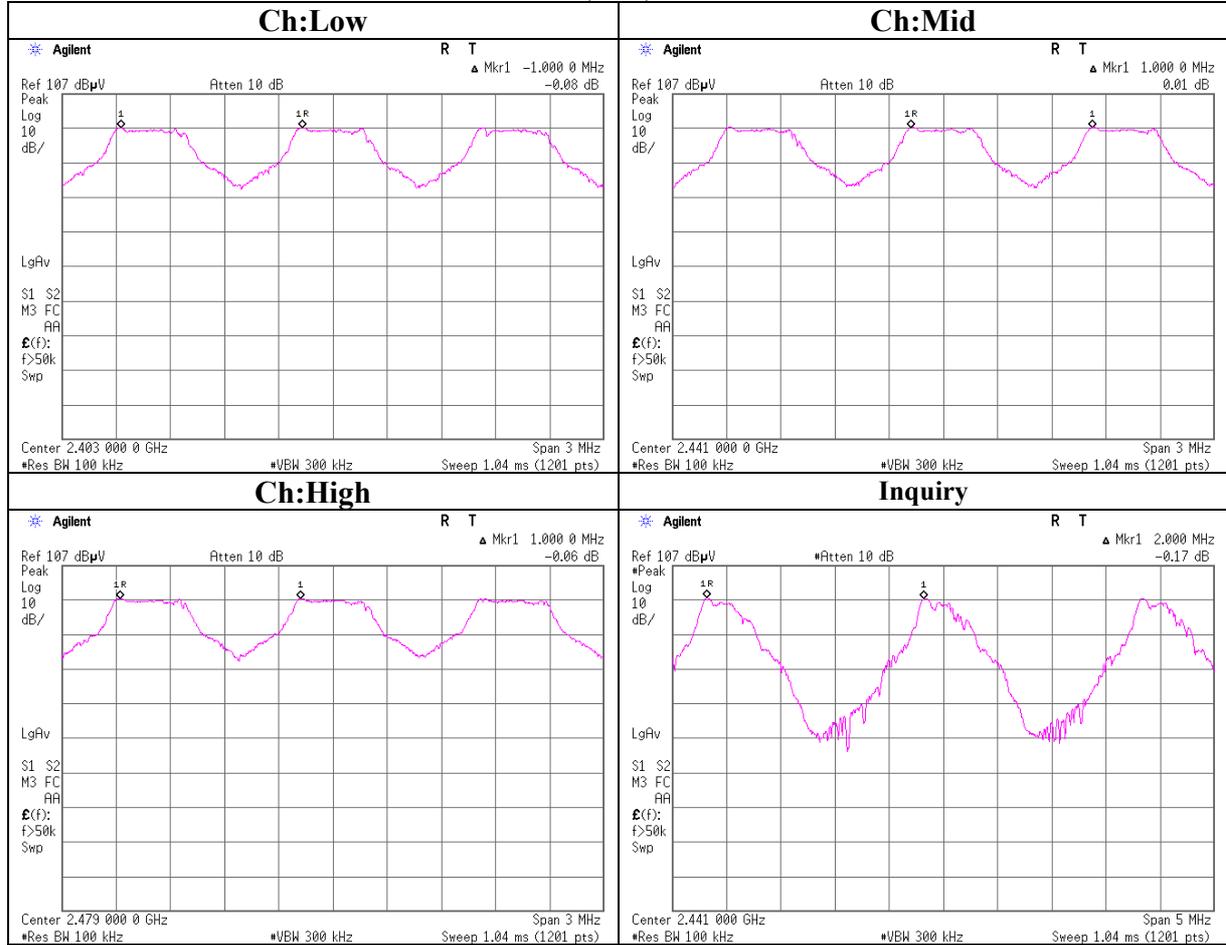
\*The test result is rounded off to one or two decimal places, so some differences might be observed.

**Carrier Frequency Separation**  
**(DH5)**

		UL Japan, Inc.	
		Head Office EMC Lab. No.3 Semi Anechoic Chamber	
Company	: Sharp Corporation	Test Report No.	: 29AE0093-HO
Equipment	: Cellular Phone	REGULATION	: FCC15.247(a)(1)/RSS-210A8.1(b)
Model No.	: SH9020C	TEST DISTANCE	: -
Serial No.	: 004401/11/154338/1	DATE	: 08/27/2008
Power	: DC4.0V (AC Charger 120V/60Hz)	TEMPERATURE	: 25 deg.C.
MODE	: BT DH5, Tx(Hopping on)/Inquiry	HUMIDITY	: 59 %
		ENGINEER	: Tomotaka Sasagawa

Ch	Freq. [MHz]	Channel separation [MHz]	Limit
Low	2402.0	1.000	0.637 [MHz] (two-thirds of 20dB Bandwidth ( 0.955 [MHz] )) or 25[kHz] (whichever is grater)
Mid	2441.0	1.000	0.645 [MHz] (two-thirds of 20dB Bandwidth ( 0.968 [MHz] )) or 25[kHz] (whichever is grater)
High	2480.0	1.000	0.650 [MHz] (two-thirds of 20dB Bandwidth ( 0.975 [MHz] )) or 25[kHz] (whichever is grater)
Inquiry	2441.0	2.000	0.567 [MHz] (two-thirds of 20dB Bandwidth ( 0.850 [MHz] )) or 25[kHz] (whichever is grater)

**Carrier Frequency Separation**  
**(DH5)**



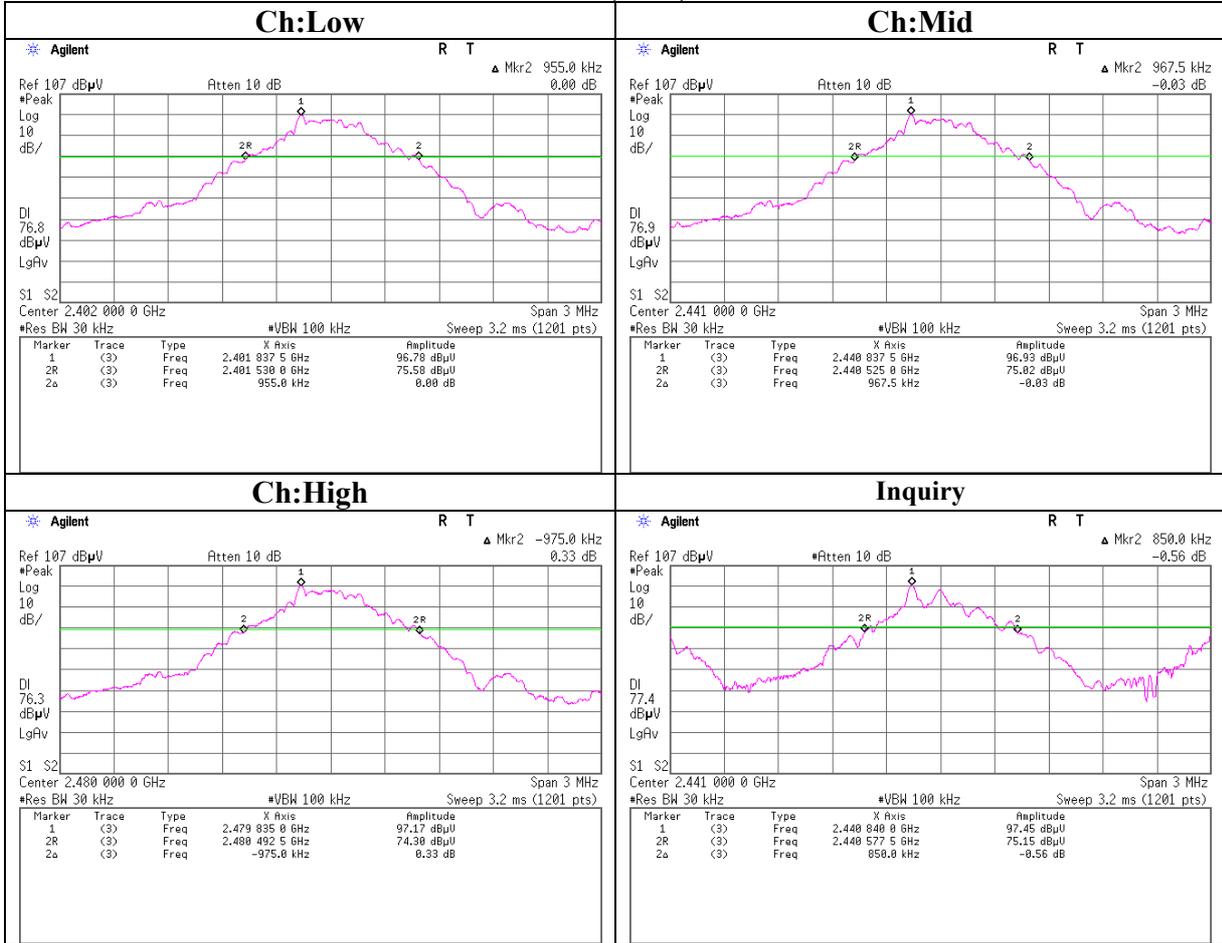
**20dB Bandwidth**  
**(DH5)**

Company : Sharp Corporation  
Equipment : Cellular Phone  
Model No. : SH9020C  
Serial No. : 004401/11/154338/1  
Power : DC4.0V (AC Charger 120V/60Hz)  
Mode : BT DH5, Tx (Hopping off) /Inquiry

UL Japan, Inc.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Test Report No. : 29AE0093-HO  
Regulation : FCC15.247(a)(1)/RSS-210A8.1(a)  
Test distance : -  
Date : 08/27/2008  
Temperature : 25 deg.C.  
Humidity : 59 %  
Engineer : Tomotaka Sasagawa

Ch	Freq. [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
Low	2402.0	0.955	-
Mid	2441.0	0.968	-
High	2480.0	0.975	-
Inquiry	2441.0	0.850	-

**20dB Bandwidth  
(DH5)**



### Number of Hopping Frequency

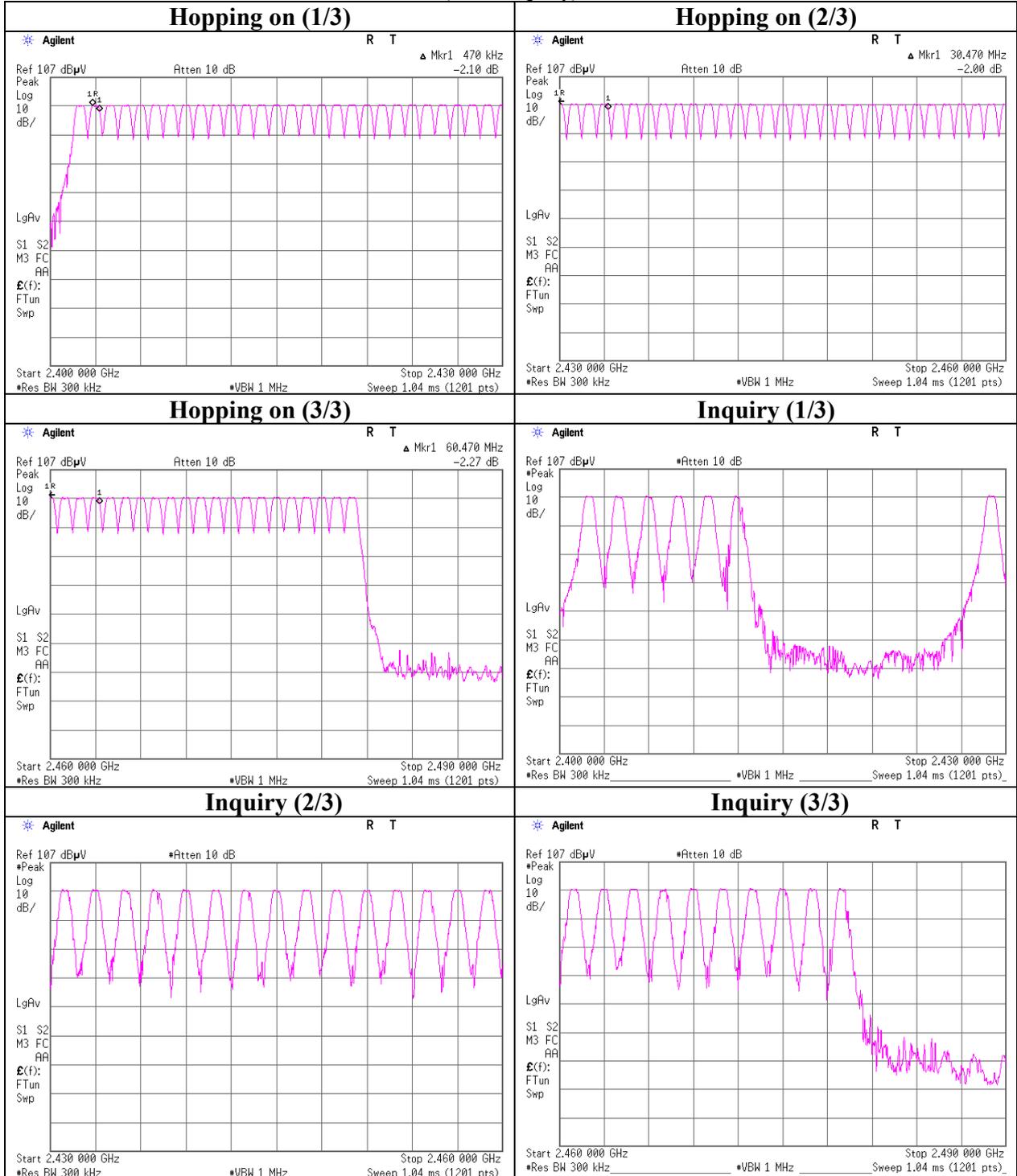
Company : Sharp Corporation  
Equipment : Cellular Phone  
Model No. : SH9020C  
Serial No. : 004401/11/154338/1  
Power : DC4.0V (AC Charger 120V/60Hz)  
Mode : BT DH5 Tx (Hopping on)/Inquiry

UL Japan, Inc.  
Head Office EMC Lab. No.3 Semi Anechoic Chamber  
Test Report No. : 29AE0093-HO  
Regulation : FCC15.247(a)(1)(iii)/RSS-210A8.1(d)  
Test distance : -  
Date : 08/27/2008  
Temperature : 25 deg.C.  
Humidity : 59 %  
Engineer : Tomotaka Sasagawa

Mode	Number of channel	Limit
	[number]	[number]
DH5	79	$\geq 15$

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

**Number of Hopping Frequency  
(DH5/Inquiry)**



### Dwell time

<p>Company : Sharp Corporation  Equipment : Cellular Phone  Model No. : SH9020C  Serial No. : 004401/11/154338/1  Power : DC4.0V (AC Charger 120V/60Hz)  Mode : BT, Tx (Hopping on)/Inquiry</p>	<p>UL Japan, Inc.  Head Office EMC Lab. No.3 Semi Anechoic Chamber  Test Report No. : 29AE0093-HO  Regulation : FCC15.247(a)(1)(iii)/RSS-210A8.1(d)  Test distance : -  Date : 08/27/2008  Temperature : 25 deg.C.  Humidity : 59 %  Engineer : Tomotaka Sasagawa</p>
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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	49.6 times / 5 sec. x 31.6 sec. = 314 times	0.412	129	400
DH3	28.2 times / 5 sec. x 31.6 sec. = 179 times	1.677	300	400
DH5	17.6 times / 5 sec. x 31.6 sec. = 112 times	2.922	327	400
Inquiry	100.0 times / 1 sec. x 12.8 sec. = 1280 times	0.136	174	400

\* Average data of 5 tests.(except Inquiry)

\*DH1 / 1:49, 2:50, 3:51, 4:49, 5:49 = 49.6 times

\*DH3 / 1:28, 2:27, 3:28, 4:29, 5:29 = 28.2 times

\*DH5 / 1:17, 2:18, 3:19, 4:17, 5:17 = 17.6 times

**UL Japan, Inc.**

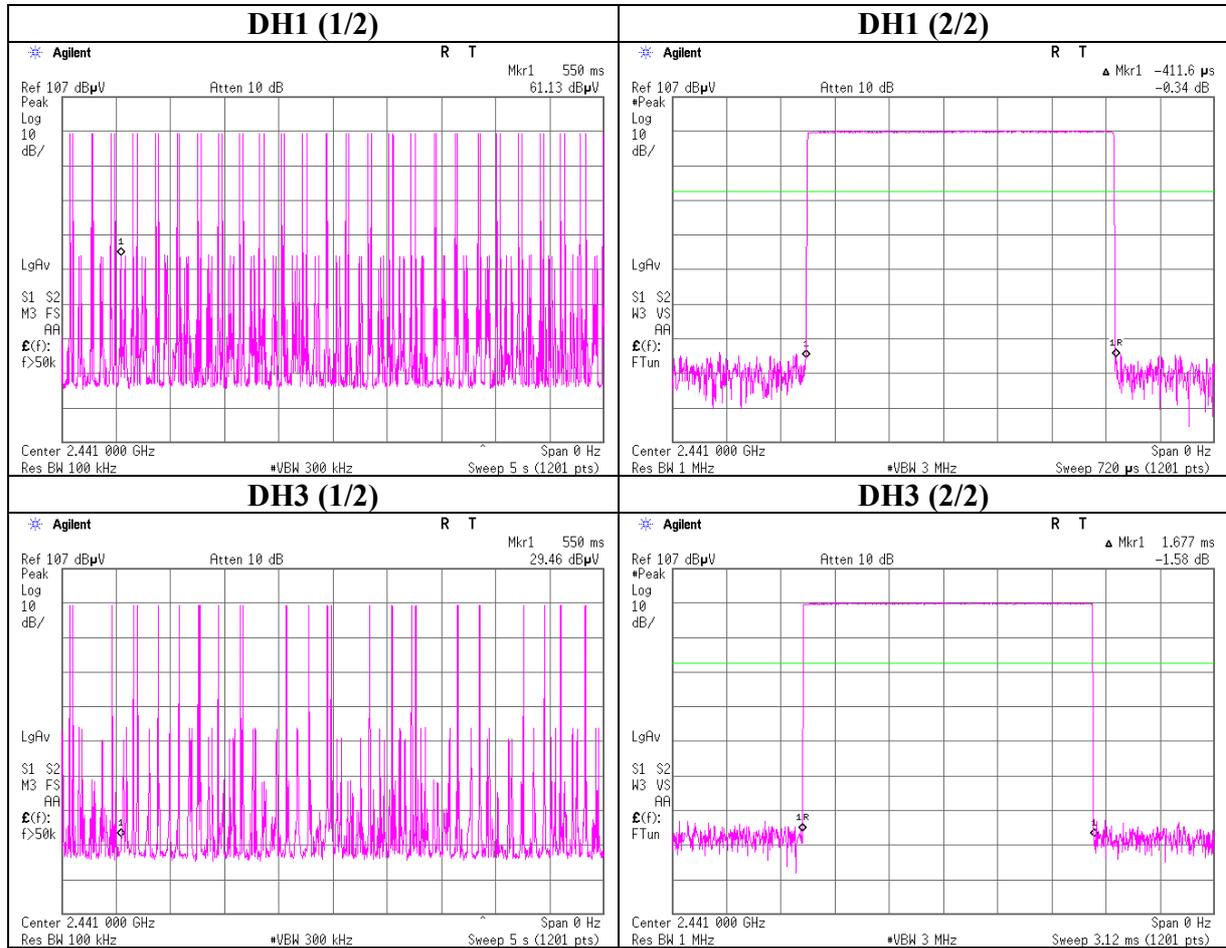
**Head Office EMC Lab.**

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

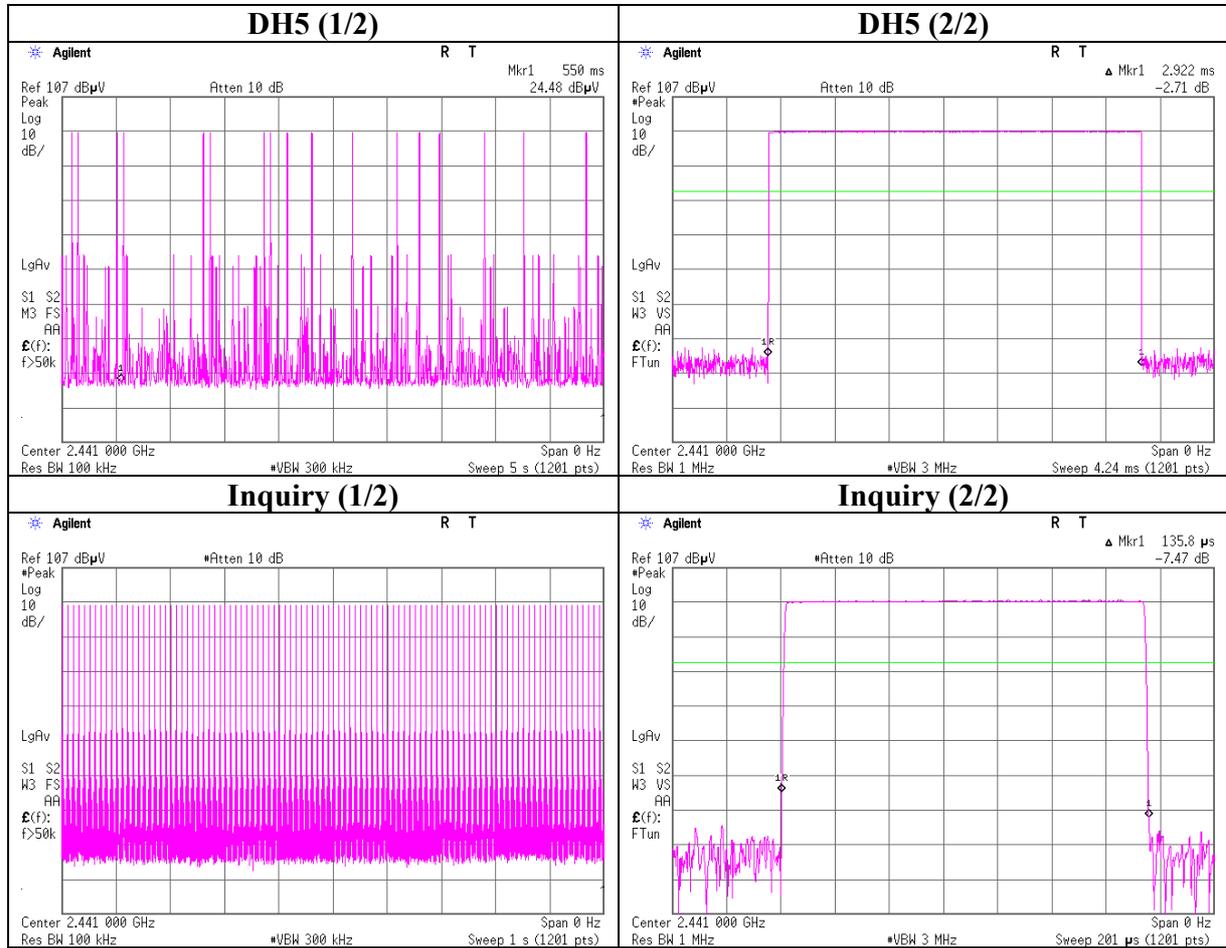
Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

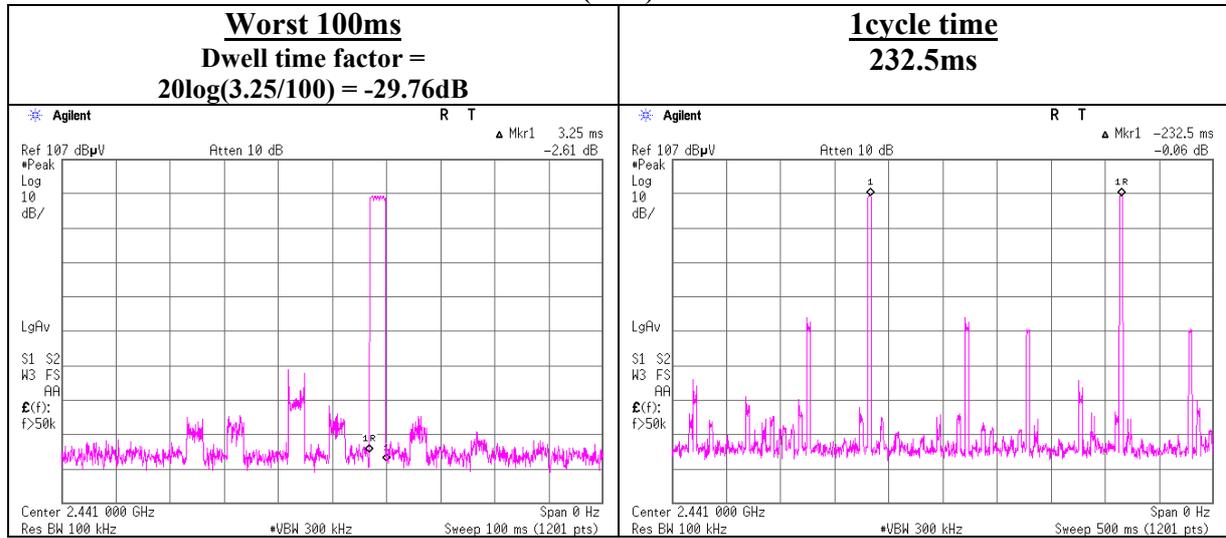
**Dwell time**



**Dwell time**



**Dwell time factor  
(DH5)**



**Maximum Peak Output Power  
(DH5)**

UL Japan, Inc.

Head Office EMC Lab. No.3 Semi Anechoic Chamber

Company : Sharp Corporation  
Equipment : Cellular Phone  
Model No. : SH9020C  
Serial No. : 004401/11/154338/1  
Power : DC4.0V (AC Charger 120V/60Hz)  
Mode : BT DH5, Tx(Hopping Off)/Inquiry

Test Report No. : 29AE0093-HO  
Regulation : FCC15.247(b)(1)/RSS-210A8.4(2)  
Test distance : -  
Date : 08/27/2008  
Temperature : 25 deg.C.  
Humidity : 59 %  
Engineer : Tomotaka Sasagawa

Ch	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2402.0	-8.15	0.15	10.09	2.09	1.62	20.97	125	18.88
Mid	2441.0	-7.98	0.15	10.09	2.26	1.68	20.97	125	18.71
High	2480.0	-7.96	0.15	10.09	2.28	1.69	20.97	125	18.69
Inquiry	2441.0	-7.98	0.15	10.09	2.26	1.68	20.97	125	18.71

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

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

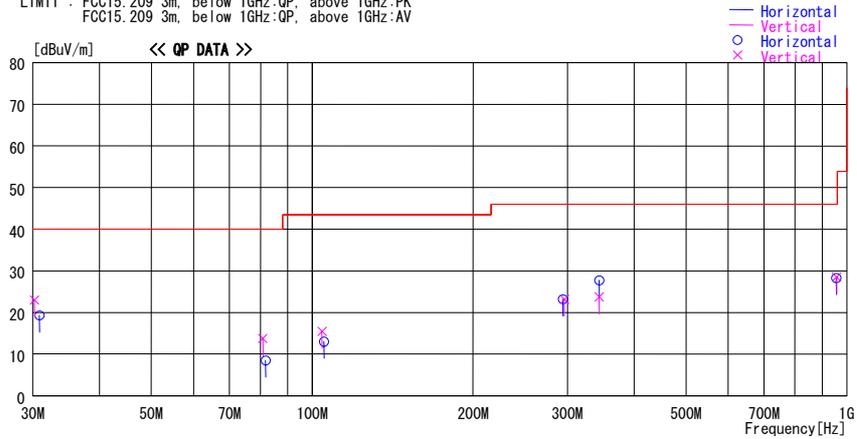
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No. 2 Semi Anechoic Chamber  
Date : 2008/08/26

Company : Shsrp Corporation  
Kind of EUT : Cellular Phone  
Model No. : SH9020C  
Serial No. : 004401/11/154337/3  
Report No. : 29AE0093-HO  
Power : DC 4.0V (AC Charger 120V / 60Hz)  
Temp./Humi. : 25deg. C. / 55%  
Engineer : Tomotaka Sasagawa

Mode / Remarks : Transmitting 2402MHz, Max-axis (Hor:Y Ver:Z)

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



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit	Margin	Comment
			Factor [dB/m]	Gain [dB]					[dBuV/m]	[dB]	
30.221	26.2	QP	18.8	-22.0	23.0	149	100	Vert.	40.0	17.0	
30.887	22.9	QP	18.4	-22.0	19.3	185	100	Hori.	40.0	20.7	
80.850	28.5	QP	6.5	-21.3	13.7	169	100	Vert.	40.0	26.3	
81.750	23.1	QP	6.7	-21.3	8.5	15	100	Hori.	40.0	31.5	
104.250	26.1	QP	10.4	-21.0	15.5	130	100	Vert.	43.5	28.0	
105.150	23.5	QP	10.5	-21.0	13.0	95	100	Hori.	43.5	30.5	
294.551	22.5	QP	19.7	-19.0	23.2	117	100	Hori.	46.0	22.8	
296.211	22.4	QP	19.8	-19.0	23.2	3	100	Vert.	46.0	22.8	
344.211	31.0	QP	15.8	-19.1	27.7	254	100	Hori.	46.0	18.3	
344.333	27.0	QP	15.8	-19.1	23.7	352	100	Vert.	46.0	22.3	
956.222	22.1	QP	22.5	-16.3	28.3	1	100	Hori.	46.0	17.7	
957.223	22.3	QP	22.5	-16.3	28.5	107	100	Vert.	46.0	17.5	

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

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

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

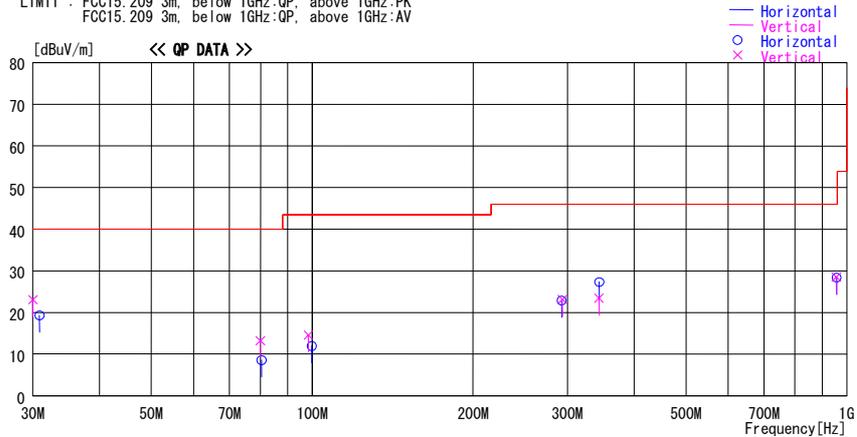
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber  
Date : 2008/08/26

Company : Shsrp Corporation  
Kind of EUT : Cellular Phone  
Model No. : SH9020C  
Serial No. : 004401/11/154337/3  
Report No. : 29AE0093-HO  
Power : DC 4.0V (AC Charger 120V / 60Hz)  
Temp./Humi. : 25deg. C. / 55%  
Engineer : Tomotaka Sasagawa

Mode / Remarks : Transmitting 2441MHz, Max-axis (Hor:Y Ver:Z)

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



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit	Margin	Comment
			Factor [dB/m]	Gain [dB]					[dBuV/m]	[dB]	
30.000	26.2	QP	18.9	-22.0	23.1	70	100	Vert.	40.0	16.9	
30.900	22.9	QP	18.4	-22.0	19.3	232	100	Hori.	40.0	20.7	
79.950	28.1	QP	6.4	-21.3	13.2	307	100	Vert.	40.0	26.8	
80.400	23.5	QP	6.4	-21.3	8.6	8	100	Hori.	40.0	31.4	
98.400	25.9	QP	9.7	-21.0	14.6	267	100	Vert.	43.5	28.9	
99.750	23.1	QP	9.9	-21.0	12.0	307	100	Hori.	43.5	31.5	
292.800	22.3	QP	19.6	-19.0	22.9	137	100	Hori.	46.0	23.1	
293.700	22.5	QP	19.7	-19.0	23.2	74	100	Vert.	46.0	22.8	
344.333	30.6	QP	15.8	-19.1	27.3	39	100	Hori.	46.0	18.7	
344.210	26.7	QP	15.8	-19.1	23.4	5	100	Vert.	46.0	22.6	
956.220	22.3	QP	22.5	-16.3	28.5	204	100	Vert.	46.0	17.5	
957.655	22.2	QP	22.5	-16.3	28.4	43	100	Hori.	46.0	17.6	

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

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

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

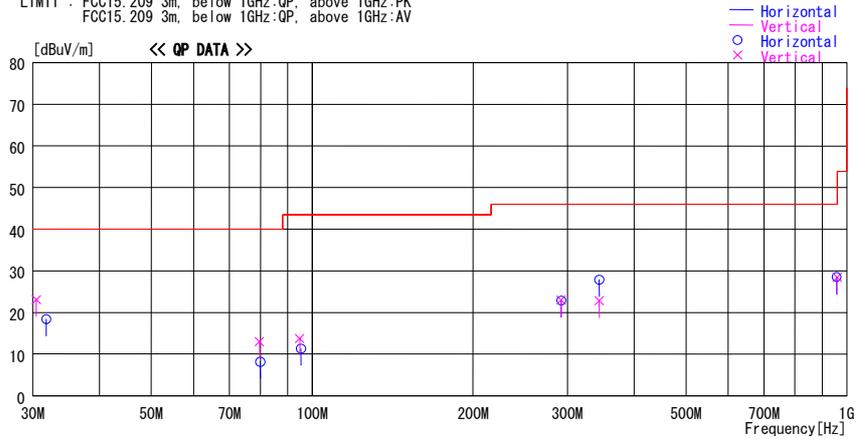
**DATA OF RADIATED EMISSION TEST**

UL Japan, Inc. Head Office EMC Lab. No.2 Semi Anechoic Chamber  
Date : 2008/08/26

Company : Shsrp Corporation  
Kind of EUT : Cellular Phone  
Model No. : SH9020C  
Serial No. : 004401/11/154337/3  
Report No. : 29AE0093-HO  
Power : DC 4.0V (AC Charger 120V / 60Hz)  
Temp./Humi. : 25deg. C. / 55%  
Engineer : Tomotaka Sasagawa

Mode / Remarks : Transmitting 2480MHz, Max-axis (Hor:Y Ver:Z)

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



Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]	Comment
			Factor [dB/m]	Gain [dB]							
30.450	26.4	QP	18.7	-22.0	23.1	0	100	Vert.	40.0	16.9	
31.800	22.4	QP	18.0	-22.0	18.4	179	100	Hori.	40.0	21.6	
79.655	27.9	QP	6.4	-21.3	13.0	281	100	Vert.	40.0	27.0	
79.950	23.1	QP	6.4	-21.3	8.2	246	100	Hori.	40.0	31.8	
94.800	25.9	QP	9.1	-21.2	13.8	142	100	Vert.	43.5	29.7	
95.250	23.4	QP	9.1	-21.2	11.3	199	100	Hori.	43.5	32.2	
291.900	22.4	QP	19.6	-19.0	23.0	224	100	Vert.	46.0	23.0	
292.350	22.3	QP	19.6	-19.0	22.9	102	100	Hori.	46.0	23.1	
344.222	31.2	QP	15.8	-19.1	27.9	287	100	Hori.	46.0	18.1	
344.511	26.1	QP	15.8	-19.1	22.8	186	100	Vert.	46.0	23.2	
958.760	22.2	QP	22.5	-16.3	28.4	309	100	Vert.	46.0	17.6	
957.640	22.3	QP	22.5	-16.3	28.5	314	100	Hori.	46.0	17.5	

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

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



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

UL Japan, Inc.  
Head Office EMC Lab. No.2Semi Anechoic Chamber

Company	: Sharp Corporation	REPORT NO	: 29AE0093-HO
Equipment	: Cellular Phone	REGULATION	: FCC15.247(d)/RSS-210A8.5
Model No.	: SH9020C	TEST DISTANCE	: 3/1m
Sample No.	: 004401/11/154337/3	DATE	: 08/26/2008
Power	: DC 4.0V (AC Charger 120 V / 60 Hz)	TEMPERATURE	: 25deg.C
Mode	: Transmitting 2402MHz	HUMIDITY	: 55%
Remarks	: Hor Y-axis , Ver Z-axis	ENGINEER	: Tomotaka Sasagawa

**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
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>													
1	2390.0	44.4	45.3	26.8	32.5	2.6	0.0	-	41.3	42.2	73.9	32.6	31.7
2	2400.0	69.6	70.8	26.8	32.5	2.6	0.0	-	66.5	67.7	73.9	7.4	6.2
3	4804.0	51.3	48.3	31.2	31.4	4.1	0.7	-	55.9	52.9	73.9	18.0	21.0
4	7206.0	41.8	42.1	35.5	31.0	4.4	0.6	-	51.3	51.6	73.9	22.6	22.3
5	9608.0	40.3	40.2	38.6	31.4	5.1	0.9	-	53.5	53.4	73.9	20.4	20.5
<b>Test distance 1meter RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>													
6	12010.0	NS	NS	-	-	-	-	-	-	-	73.9	-	-
7	14412.0	NS	NS	-	-	-	-	-	-	-	73.9	-	-
8	16814.0	NS	NS	-	-	-	-	-	-	-	73.9	-	-
9	19216.0	NS	NS	-	-	-	-	-	-	-	73.9	-	-
10	21618.0	NS	NS	-	-	-	-	-	-	-	73.9	-	-
11	24020.0	47.5	47.3	39.8	29.9	7.7	0.0	-	55.6	55.4	73.9	18.3	18.5

**AV DETECT** (RBW: 1MHz, VBW: 270Hz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	Dwell Factor [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>													
1	2390.0	31.0	31.6	26.8	32.5	2.6	0.0	-	27.9	28.5	53.9	26.0	25.4
2	2400.0	45.3	46.6	26.8	32.5	2.6	0.0	-29.7	12.5	13.8	53.9	41.4	40.1
3	4804.0	43.2	42.1	31.2	31.4	4.1	0.7	-29.7	18.1	17.0	53.9	35.8	36.9
4	7206.0	29.7	29.2	35.5	31.0	4.4	0.6	-29.7	9.5	9.0	53.9	44.4	44.9
5	9608.0	29.1	29.1	38.6	31.4	5.1	0.9	-29.7	12.6	12.6	53.9	41.3	41.3
<b>Test distance 1meter RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>													
6	12010.0	NS	NS	-	-	-	-	-29.7	-	-	53.9	-	-
7	14412.0	NS	NS	-	-	-	-	-29.7	-	-	53.9	-	-
8	16814.0	NS	NS	-	-	-	-	-29.7	-	-	53.9	-	-
9	19216.0	NS	NS	-	-	-	-	-29.7	-	-	53.9	-	-
10	21618.0	NS	NS	-	-	-	-	-29.7	-	-	53.9	-	-
11	24020.0	36.0	35.9	39.8	29.9	7.7	0.0	-29.7	14.4	14.3	53.9	39.5	39.6

\* 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.

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

UL Japan, Inc.  
Head Office EMC Lab. No.2Semi Anechoic Chamber

Company	: Sharp Corporation	REPORT NO	: 29AE0093-HO
Equipment	: Cellular Phone	REGULATION	: FCC15.247(d)/RSS-210A8.5
Model No.	: SH9020C	TEST DISTANCE	: 3/1m
Sample No.	: 004401/11/154337/3	DATE	: 08/26/2008
Power	: DC 4.0V (AC Charger 120 V / 60 Hz)	TEMPERATURE	: 25deg.C
Mode	: Transmitting 2441MHz	HUMIDITY	: 55%
Remarks	: Hor Y-axis, Ver Z-axis	ENGINEER	: Tomotaka Sasagawa

**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	
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>													
1	4882.0	48.1	51.1	31.4	31.4	4.1	0.7	-	52.9	55.9	73.9	21.0	18.0
2	7323.0	42.1	41.8	35.7	31.0	4.5	0.6	-	51.9	51.6	73.9	22.0	22.3
3	9764.0	40.2	40.2	38.7	31.4	5.2	0.9	-	53.6	53.6	73.9	20.3	20.3
<b>Test distance 1meter RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>													
4	12205.0	NS	NS	-	-	-	-	-	-	-	73.9	-	-
5	14646.0	NS	NS	-	-	-	-	-	-	-	73.9	-	-
6	17087.0	NS	NS	-	-	-	-	-	-	-	73.9	-	-
7	19528.0	NS	NS	-	-	-	-	-	-	-	73.9	-	-
8	21969.0	NS	NS	-	-	-	-	-	-	-	73.9	-	-
9	24410.0	47.2	47.5	40.1	30.0	7.9	0.0	-	55.7	56.0	73.9	18.2	17.9

**AV DETECT** (RBW: 1MHz, VBW: 270Hz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	Dwell Factor [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER						HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>													
1	4882.0	39.9	43.1	31.4	31.4	4.1	0.7	-29.7	15.0	18.2	53.9	38.9	35.7
2	7323.0	29.7	29.9	35.7	31.0	4.5	0.6	-29.7	9.8	10.0	53.9	44.1	43.9
3	9764.0	28.8	29.2	38.7	31.4	5.2	0.9	-29.7	12.5	12.9	53.9	41.4	41.0
<b>Test distance 1meter RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>													
4	12205.0	NS	NS	-	-	-	-	-29.7	-	-	53.9	-	-
5	14646.0	NS	NS	-	-	-	-	-29.7	-	-	53.9	-	-
6	17087.0	NS	NS	-	-	-	-	-29.7	-	-	53.9	-	-
7	19528.0	NS	NS	-	-	-	-	-29.7	-	-	53.9	-	-
8	21969.0	NS	NS	-	-	-	-	-29.7	-	-	53.9	-	-
9	24410.0	36.1	36.0	40.1	30.0	7.9	0.0	-29.7	14.9	14.8	53.9	39.0	39.1

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

\*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.2Semi Anechoic Chamber

Company	: Sharp Corporation	REPORT NO	: 29AE0093-HO
Equipment	: Cellular Phone	REGULATION	: FCC15.247(d)/RSS-210A8.5
Model No.	: SH9020C	TEST DISTANCE	: 3/1m
Sample No.	: 004401/11/154337/3	DATE	: 08/26/2008
Power	: DC 4.0V (AC Charger 120 V / 60 Hz)	TEMPERATURE	: 25deg.C
Mode	: Transmitting 2480MHz	HUMIDITY	: 55%
Remarks	: Hor Y-axis, Ver Z-axis	ENGINEER	: Tomotaka Sasagawa

**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 [dBuV]	VER						HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>													
1	2483.5	58.8	58.1	27.0	32.5	2.6	0.0	-	55.9	55.2	73.9	18.0	18.7
2	4960.0	50.7	48.1	31.5	31.4	4.2	0.7	-	55.7	53.1	73.9	18.2	20.8
3	7440.0	42.0	41.9	36.0	31.0	4.6	0.6	-	52.2	52.1	73.9	21.7	21.8
4	9920.0	40.0	40.0	38.9	31.4	5.2	0.9	-	53.6	53.6	73.9	20.3	20.3
<b>Test distance 1meter RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>													
5	12400.0	NS	NS	-	-	-	-	-	-	-	73.9	-	-
6	14880.0	NS	NS	-	-	-	-	-	-	-	73.9	-	-
7	17360.0	NS	NS	-	-	-	-	-	-	-	73.9	-	-
8	19840.0	NS	NS	-	-	-	-	-	-	-	73.9	-	-
9	22320.0	NS	NS	-	-	-	-	-	-	-	73.9	-	-
10	24800.0	47.5	47.7	40.4	30.1	8.0	0.0	-	56.3	56.5	73.9	17.6	17.4

**AV DETECT** (RBW: 1MHz, VBW: 270Hz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	Dwell Factor [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR [dBuV]	VER						HOR	VER		HOR	VER
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>													
1	2483.5	37.6	40.7	27.0	32.5	2.6	0.0	-29.7	5.0	8.1	53.9	48.9	45.8
2	4960.0	42.9	39.9	31.5	31.4	4.2	0.7	-29.7	18.2	15.2	53.9	35.7	38.7
3	7440.0	29.6	29.5	36.0	31.0	4.6	0.6	-29.7	10.1	10.0	53.9	43.8	43.9
4	9920.0	28.9	29.0	38.9	31.4	5.2	0.9	-29.7	12.8	12.9	53.9	41.1	41.0
<b>Test distance 1meter RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac</b>													
5	12400.0	NS	NS	-	-	-	-	-29.7	-	-	53.9	-	-
6	14880.0	NS	NS	-	-	-	-	-29.7	-	-	53.9	-	-
7	17360.0	NS	NS	-	-	-	-	-29.7	-	-	53.9	-	-
8	19840.0	NS	NS	-	-	-	-	-29.7	-	-	53.9	-	-
9	22320.0	NS	NS	-	-	-	-	-29.7	-	-	53.9	-	-
10	24800.0	35.9	36.0	40.4	30.1	8.0	0.0	-29.7	15.0	15.1	53.9	38.9	38.8

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

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

**Radiated Spurious Emission (above 1GHz)**  
**Rx, Ch: Mid**

UL Japan, Inc.  
Head Office EMC Lab. No.2Semi Anechoic Chamber

Company	: Sharp Corporation	REPORT NO	: 29AE0093-HO
Equipment	: Cellular Phone	REGULATION	: FCC15.247(d)/RSS-210A8.5
Model No.	: SH9020C	TEST DISTANCE	: 3/1m
Sample No.	: 004401/11/154337/3	DATE	: 08/26/2008
Power	: DC 4.0V (AC Charger 120 V / 60 Hz)	TEMPERATURE	: 25deg.C
Mode	: Receiving 2441MHz	HUMIDITY	: 55%
Remarks	: Hor Y-axis , Ver Z-axis	ENGINEER	: Tomotaka Sasagawa

**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 [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
1	2441.0	43.2	43.5	26.9	32.5	2.6	0.0	40.2	40.5	73.9	33.7	33.4
2	7323.0	42.0	41.9	35.7	31.0	3.9	0.0	50.6	50.5	73.9	23.3	23.4

**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 [dBuV]	VER [dBuV]					HOR [dBuV/m]	VER [dBuV/m]		HOR [dB]	VER [dB]
<b>Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss</b>												
1	2441.0	31.4	31.5	26.9	32.5	2.6	0.0	28.4	28.5	53.9	25.5	25.4
2	7323.0	29.8	29.8	35.7	31.0	3.9	0.0	38.4	38.4	53.9	15.5	15.5

\* Reference data

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

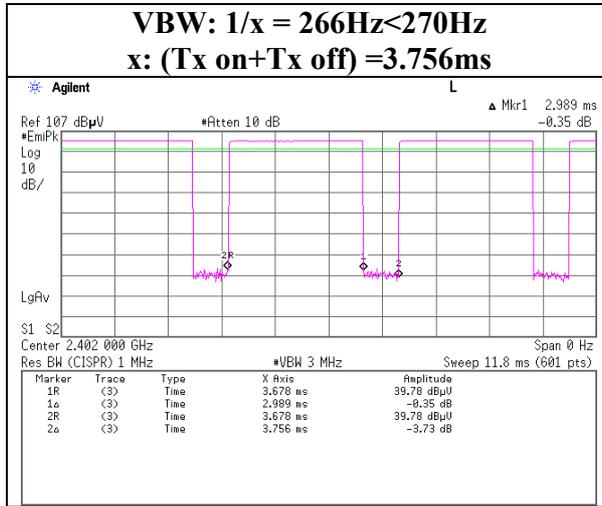
\*Except for the above table : All other spurious emissions were less than 20dB for the limit.

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

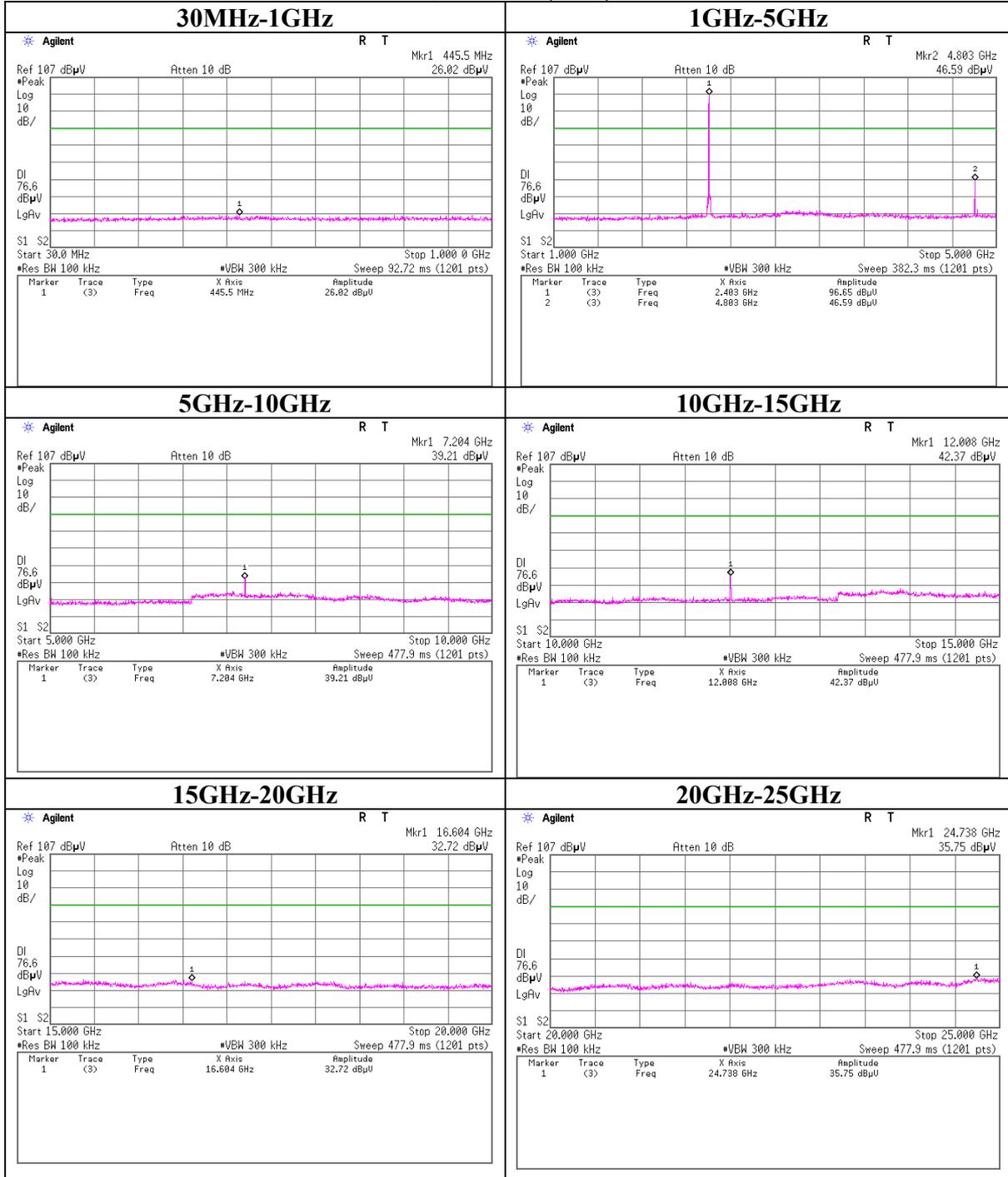
\*The test result is rounded off to one or two decimal places, so some differences might be observed.

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

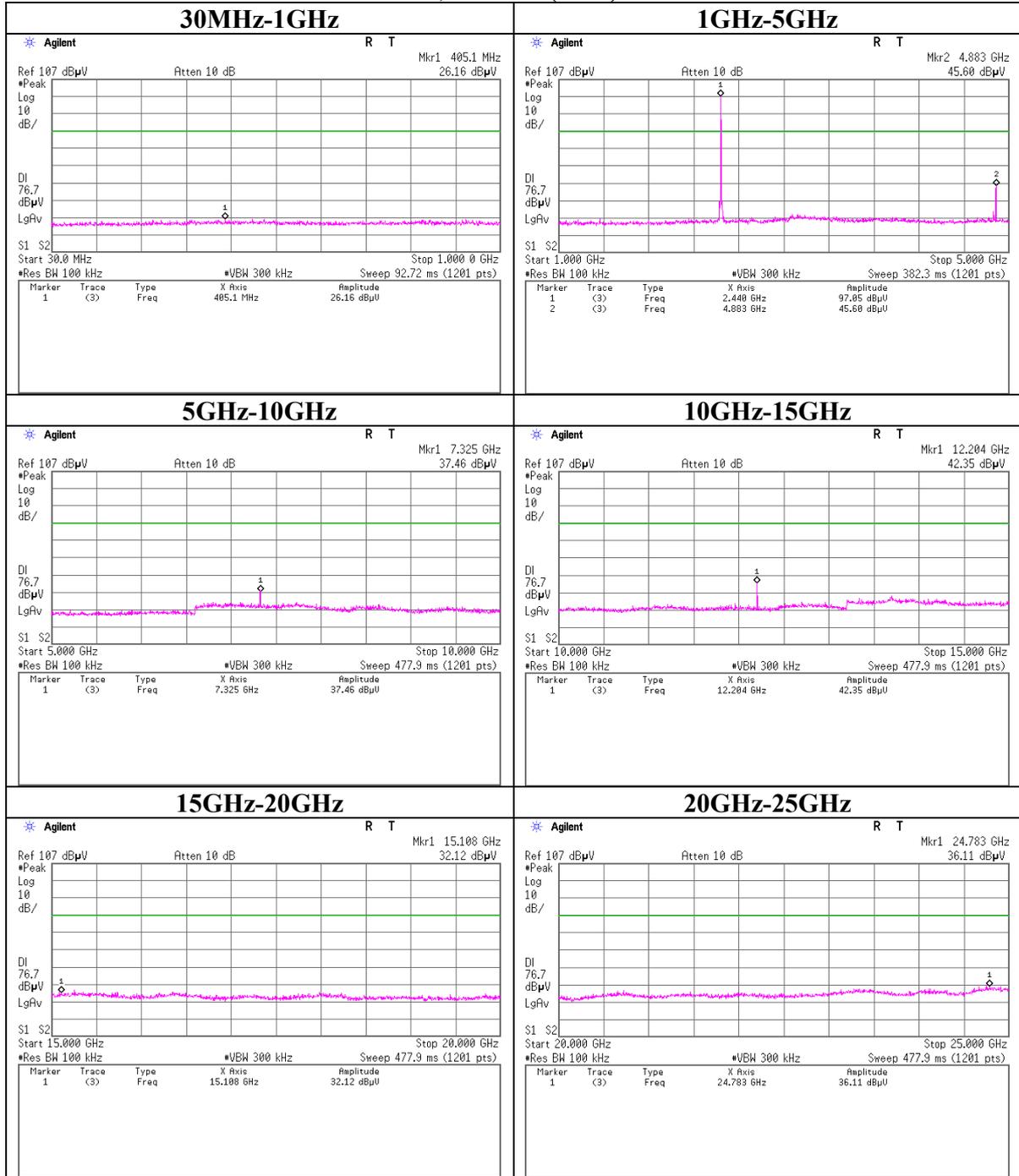
### VBW (AV) Calculation



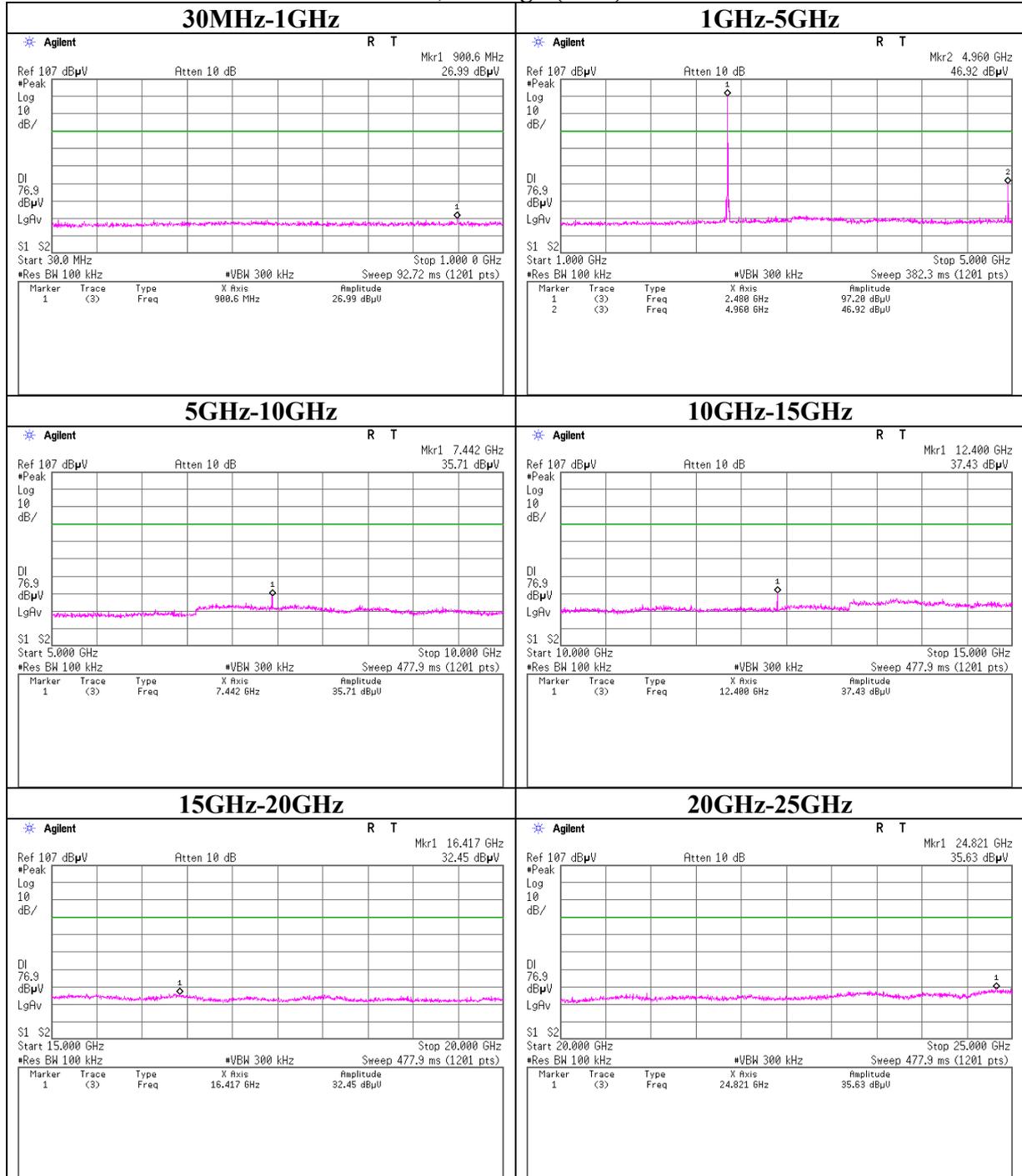
**Conducted Spurious Emission**  
**Tx, Ch:Low (DH5)**



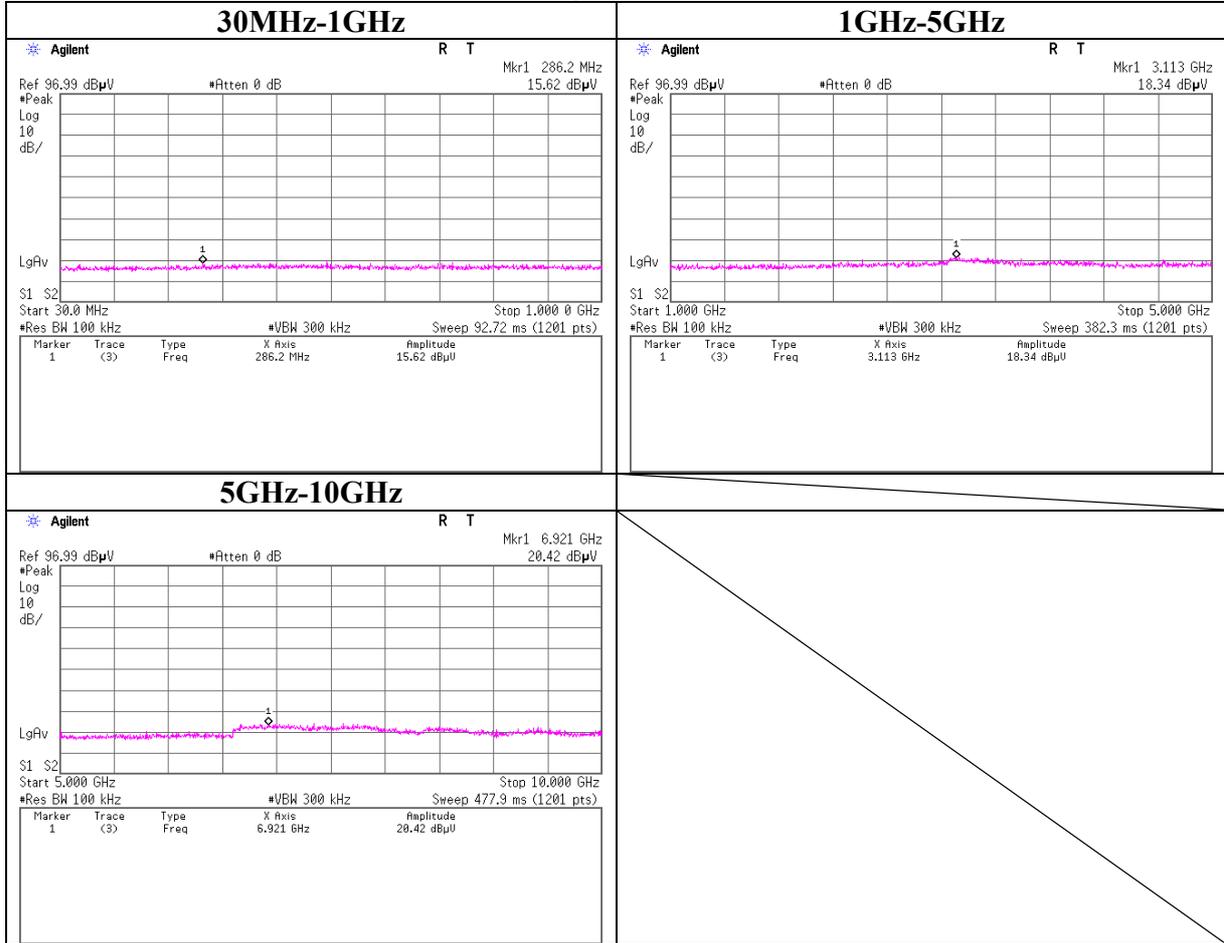
**Conducted Spurious Emission**  
**Tx, Ch:Mid (DH5)**



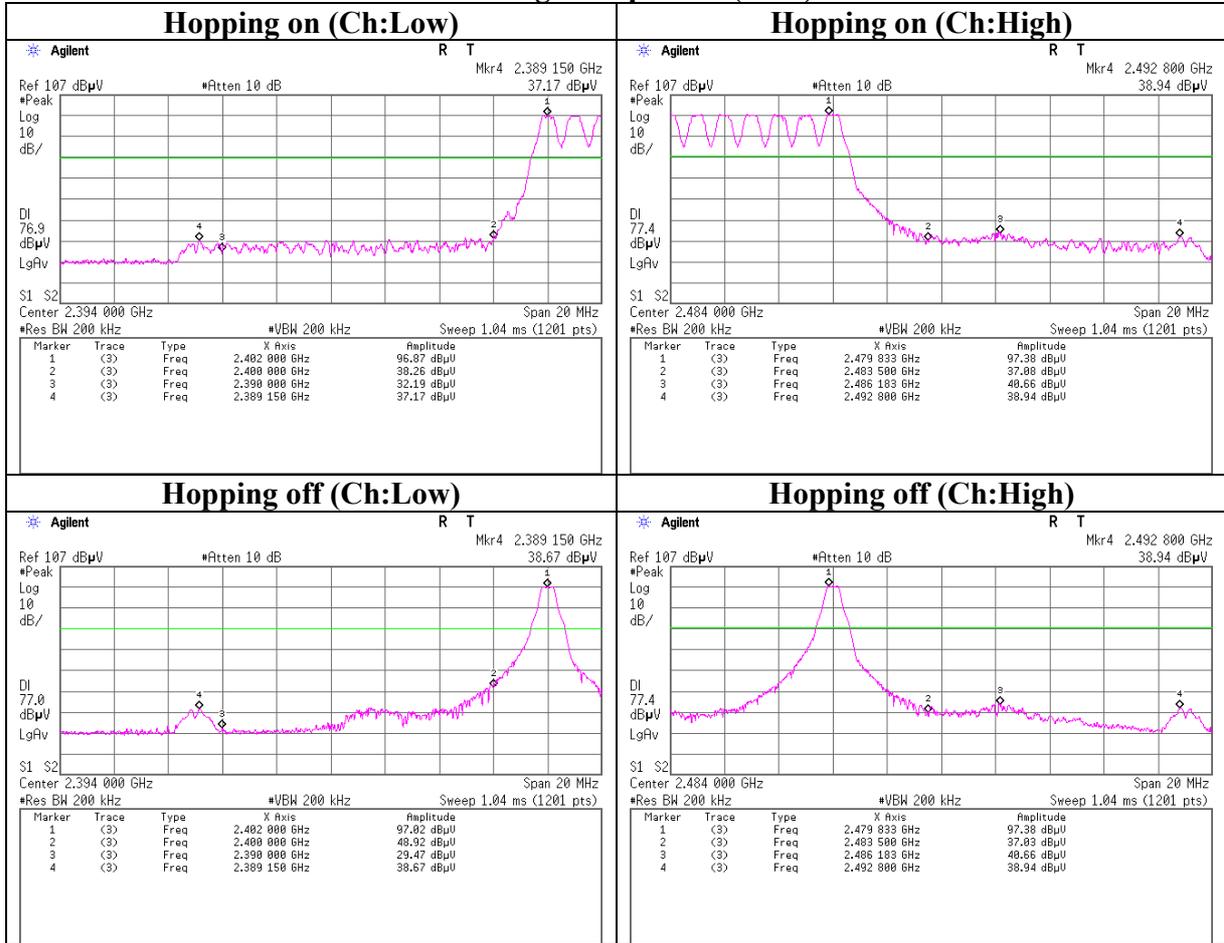
**Conducted Spurious Emission**  
**Tx, Ch:High (DH5)**



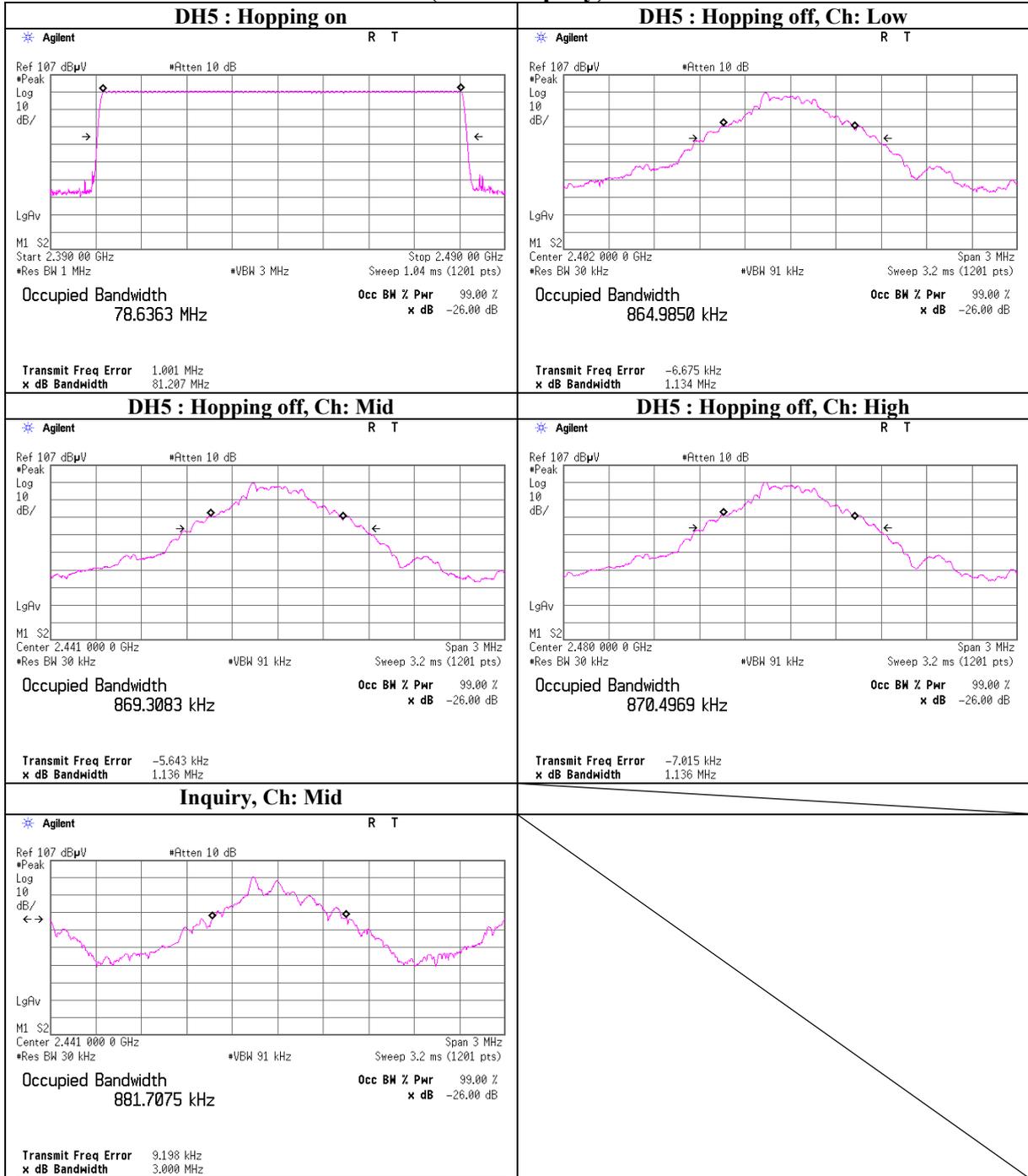
**Conducted Spurious Emission**  
**Rx, Ch:Mid**



**Conducted Spurious Emission**  
**Band Edge compliance (DH5)**



**99% Occupied Bandwidth  
 (DH5 / Inquiry)**



### **APPENDIX 3:Test instruments**

#### **EMI test equipment**

<b>Control No.</b>	<b>Instrument</b>	<b>Manufacturer</b>	<b>Model No</b>	<b>Test Item</b>	<b>Calibration Date * Interval(month)</b>
MAEC-02	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE / CE	2008/04/17 * 12
MOS-22	Thermo-Hygrometer	Custom	CTH-201	RE / CE	2007/12/27 * 12
MJM-05	Measure	PROMART	SEN1955	RE / CE	-
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE / CE	-
MRENT-62	Spectrum Analyzer	Agilent	E4448A	RE / CE	2007/11/27 * 12
MTR-03	Test Receiver	Rohde & Schwarz	ESCI	RE / CE	2008/04/02 * 12
MBA-02	Biconical Antenna	Schwarzbeck	BBA9106	RE	2007/10/21 * 12
MLA-02	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2007/10/21 * 12
MCC-12	Coaxial Cable	Fujikura/Agilent	-	RE	2008/02/15 * 12
MAT-07	Attenuator(6dB)	Weinschel Corp	2	RE	2007/11/13 * 12
MPA-09	Pre Amplifier	Agilent	8447D	RE	2007/09/13 * 12
MHA-06	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2008/01/19 * 12
MCC-47	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2008/05/12 * 12
MPA-10	Pre Amplifier	Agilent	8449B	RE	2007/09/27 * 12
MHA-02	Horn Antenna	EMCO	3160-09	RE	2008/01/19 * 12
MLS-06	LISN(AMN)	Schwarzbeck	NSLK8127	CE(EUT)	2008/02/19 * 12
MCC-13	Coaxial Cable	Fujikura/Agilent	-	CE	2008/02/15 * 12
MAT-22	Attenuator(10dB) DC-18GHz	Orient Microwave	BX10-0476-00	AT	2008/03/04 * 12
MCC-67	Microwave Cable 1G-40GHz	Schner	SUCOFLEX102	AT	2008/04/04 * 12
MPM-08	Power Meter	Anritsu	ML2495A	AT	2007/09/12 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	AT	2007/09/12 * 12
MSA-10	Spectrum Analyzer	Agilent	E4448A	AT	2008/02/27 * 12

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

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

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

**Test Item: CE: Conducted Emission  
RE: Radiated Emission  
AT: Antenna Terminal Conducted test**