



RADIO TEST REPORT

Test Report No. : 27DE0209-HO-A

Applicant : Sharp Corporation
Type of Equipment : WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable
Model No. : 813SH
FCC ID : APYHRO00055
Test standard : FCC Part 15 Subpart C
Section 15.207, Section 15.247: 2006
Test Result : Complied

1. This test report shall not be reproduced in full or partial, without the written approval of UL Apex Co., Ltd.
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:

December 11 to 12, 2006

Tested by:

Kenichi Adachi
EMC Services

Approved by :

Hironobu Shimoji
Group Leader 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://ulapex.jp/emc/nvlap.htm>

UL Apex Co., Ltd.

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

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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 : +81-82-420-1592
Facsimile Number : +81-82-420-1852
Contact Person : Yasushi Kodama

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. : 813SH
Serial No. : 004401/11/041423/8, 004401/11/041420/4
Rating : AC120V/60Hz
Country of Manufacture : Japan
Receipt Date of Sample : November 29, 2006
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: 813SH (referred to as the EUT in this report) is the WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone/ Bluetooth enable.

Clock frequency(ies) in the system : 13MHz (CPU), 32.768kHz (RTC)
Equipment Type : Transceiver
Frequency 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 : 2006
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits : 2006
Section 15.247 Operation within the bands 902-928MHz,
2400-2483.5MHz, and 5725-5850MHz : 2006

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.

3.2 Procedures and results

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	26.0dB, 4.22818MHz, QP, N	Complied
2	Carrier Frequency Separation	FCC: ANSI C63.4:2003 13. Measurement of intentional radiators	FCC: Section15.247(a)(1)	Conducted	N/A	See data.	Complied
3	20dB Bandwidth	FCC: ANSI C63.4:2003 13. Measurement of intentional radiators	FCC: Section15.247(a)(1)	Conducted	N/A		Complied
4	Number of Hopping Frequency	FCC: ANSI C63.4:2003 13. Measurement of intentional radiators	FCC: Section15.247(a)(1)(iii)	Conducted	N/A		Complied
5	Dwell time	FCC: ANSI C63.4:2003 13. Measurement of intentional radiators	FCC: Section15.247(a)(1)(iii)	Conducted	N/A		Complied
6	Maximum Peak Output Power	FCC: ANSI C63.4:2003 13. Measurement of intentional radiators	FCC: Section15.247(b)(1)	Conducted	N/A		Complied
7	Band Edge Compliance	FCC: ANSI C63.4:2003 13. Measurement of intentional radiators	FCC: Section15.247(d)	Conducted	N/A		Complied
8	Spurious Emission	FCC: ANSI C63.4:2003 13. Measurement of intentional radiators	FCC: Section15.247(d)	Conducted/ Radiated	N/A		<Tx> 10.1dB 30.795MHz, Ver, QP <Rx> 9.9dB, 30.779MHz, Ver, QP

Note: UL Apex'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 Addition to standards

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst margin	Results
1	99% Occupied Band Width	RSS-Gen 4.4.1	-	Conducted	N/A	N/A	N/A

3.4 Uncertainty

Conducted Emission

The measurement uncertainty (with a 95% confidence level) for this test is ± 2.66 dB.
The data listed in this test report has enough margin, more than the site margin.

Spurious Emission (Radiated)

The measurement uncertainty (with a 95% confidence level) for this test using Biconical antenna is ± 4.59 dB(3m)/ ± 4.58 dB(10m).

The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is ± 4.62 dB(3m)/ ± 4.60 dB(10m).

The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is ± 5.27 dB.
The data listed in this test report has enough margin, more than the site margin.

Other test except Conducted Emission and Spurious Emission (Radiated)

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

3.5 Test Location

UL Apex Co., Ltd. Head Office EMC Lab. *NVLAP Lab. code: 200572-0

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

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

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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 type DH5, Payload: PRBS9)

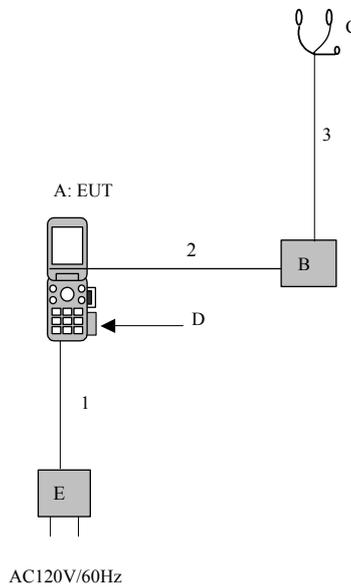
-Low Channel : 2402MHz
-Mid Channel : 2441MHz
-High Channel : 2480MHz

Receiving mode

-Mid Channel : 2441MHz

Inquiry mode

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	813SH	004401/11/041423/8 *1), 004401/11/041420/4 *2)	SHARP Corporation	EUT
B	Hands free Microphone Unit	XN-1HU90	-	SHARP Corporation	EUT
C	Stereo Headset	XN-1HS90	-	SHARP Corporation	EUT
D	Lithium-Ion Battery	SHBAY1	(PKA)	SHARP Corporation	EUT
E	AC Adapter	SHCAA1	(PJA)	HOSIDEN	EUT

*1) Used for Conducted and Radiated emission tests

*2) Used for Antenna terminal tests

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

Telephone : +81 596 24 8116

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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

SECTION 5: Conducted Emission

Test Procedure and conditions

EUT was placed on a wooden table of nominal size, 1.0m by 0.5m, 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)

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

Date: December 12, 2006

Test engineer: Kenichi Adachi

UL Apex Co., Ltd.

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

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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, 1.0m by 0.5m, 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.

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.

***Delta Marker 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.

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

Date: December 11 to 12, 2006

Test engineer: Kenichi Adachi

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Head Office EMC Lab.

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

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

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APPENDIX 1: Photographs of test setup

Conducted Emission

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Spurious Emission (Radiated)

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

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APPENDIX 2: Data of EMI test

Conducted Emission
DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
 Date : 2006/12/12 06:00:15

Company	: Sharp Corporation	Report No.	: 27DE0209-HO
Kind of EUT	: WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable	Power	: DC3.7V (AC Adapter : AC120V/60Hz)
		Temp./Humi.	: 24deg.C / 31%
Model No.	: 813SH	Operator	: Kenichi Adachi
Serial No.	: 004401/11/041423/8		
Mode / Remarks	: Bluetooth Tx 2402MHz, PRBS9, DH5		
LIMIT	: FCC15C § 15.207 (QP) / RSS-Gen / RSS-210		
	: FCC15C § 15.207 (AV) / RSS-Gen / RSS-210		

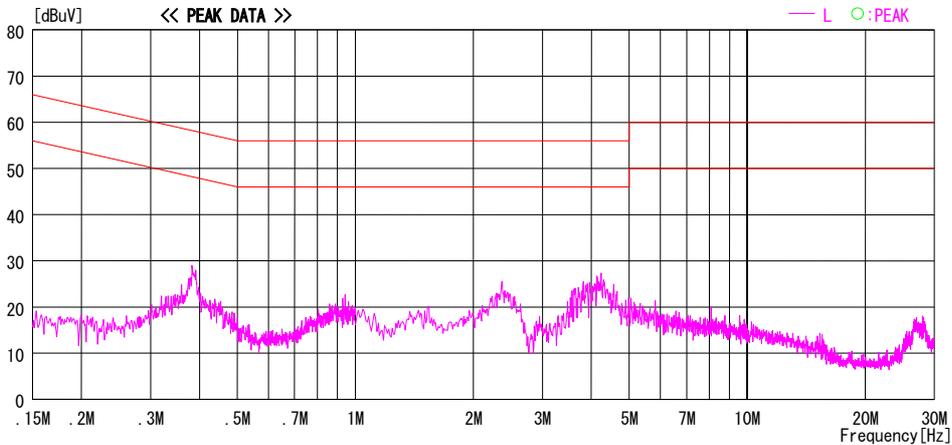
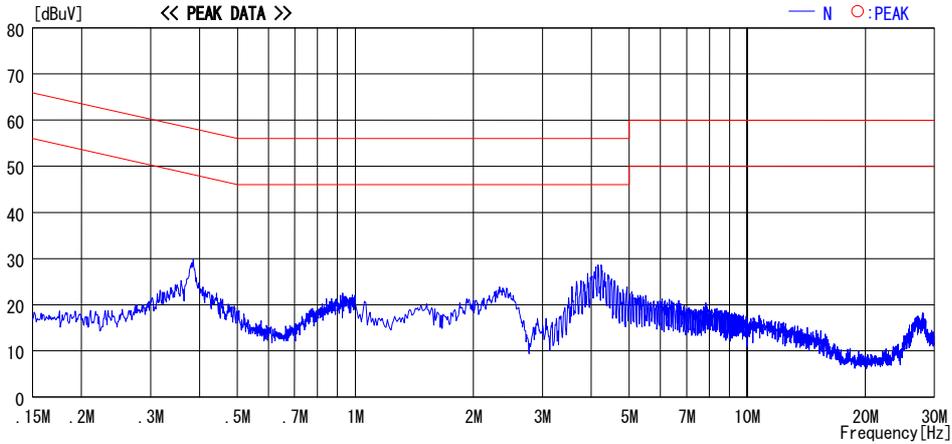


CHART: WITH FACTOR, Peak hold data. Data is uncorrected. CALCULATION: RESULT=READING+C.F (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

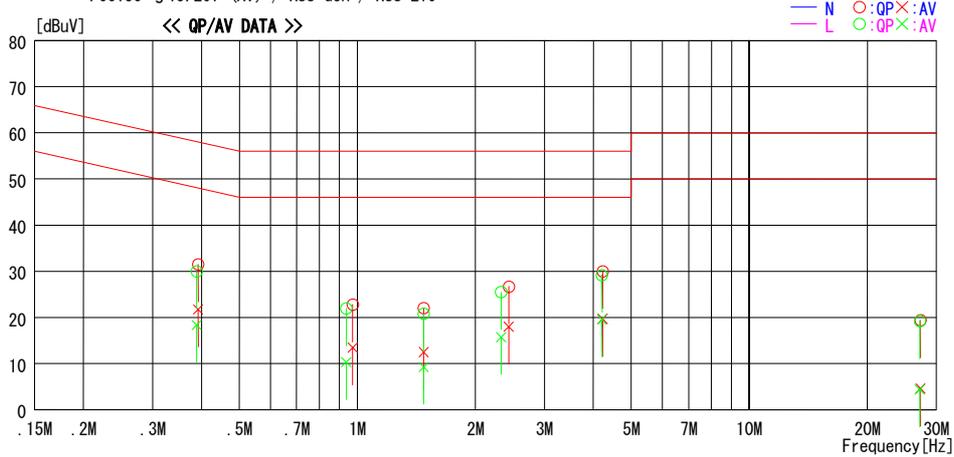
Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/12/12 06:00:15

Company : Sharp Corporation
Kind of EUT : WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable
Report No. : 27DE0209-H0
Power : DC3.7V (AC Adapter : AC120V/60Hz)
Temp./Humi. : 24deg.C / 31%
Operator : Kenichi Adachi

Model No. : 813SH
Serial No. : 004401/11/041423/8
Mode / Remarks : Bluetooth Tx 2402MHz, PRBS9, DH5
LIMIT : FCC15C § 15.207 (QP) / RSS-Gen / RSS-210
FCC15C § 15.207 (AV) / RSS-Gen / RSS-210



Frequency [MHz]	Reading Level		Corr. Factor [dB]	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.39231	31.3	21.5	0.2	31.5	21.7	58.0	48.0	26.5	26.3	N	
0.97273	22.5	13.2	0.3	22.8	13.5	56.0	46.0	33.2	32.5	N	
1.47550	21.7	12.2	0.3	22.0	12.5	56.0	46.0	34.0	33.5	N	
2.43400	26.3	17.6	0.4	26.7	18.0	56.0	46.0	29.3	28.0	N	
4.22818	29.4	19.1	0.6	30.0	19.7	56.0	46.0	26.0	26.3	N	*
27.36854	17.5	2.7	1.9	19.4	4.6	60.0	50.0	40.6	45.4	N	
0.38893	29.8	18.1	0.2	30.0	18.3	58.1	48.1	28.1	29.8	L	
0.93739	21.7	10.0	0.3	22.0	10.3	56.0	46.0	34.1	35.7	L	
1.47560	20.5	9.0	0.3	20.8	9.3	56.0	46.0	35.2	36.7	L	
2.32501	25.1	15.3	0.4	25.5	15.7	56.0	46.0	30.5	30.3	L	
4.20732	28.6	19.0	0.6	29.2	19.6	56.0	46.0	26.8	26.4	L	
27.22600	17.3	2.5	1.9	19.2	4.4	60.0	50.0	40.8	45.6	L	

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 Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
 Date : 2006/12/12 06:04:55

Company : Sharp Corporation Kind of EUT : WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable Model No. : 813SH Serial No. : 004401/11/041423/8 Mode / Remarks : Bluetooth Tx 2441MHz, PRBS9, DH5 LIMIT : FCC15C § 15.207 (QP) / RSS-Gen / RSS-210 FCC15C § 15.207 (AV) / RSS-Gen / RSS-210	Report No. : 27DE0209-HO Power : DC3.7V (AC Adapter : AC120V/60Hz) Temp./Humi. : 24deg. C / 31% Operator : Kenichi Adachi
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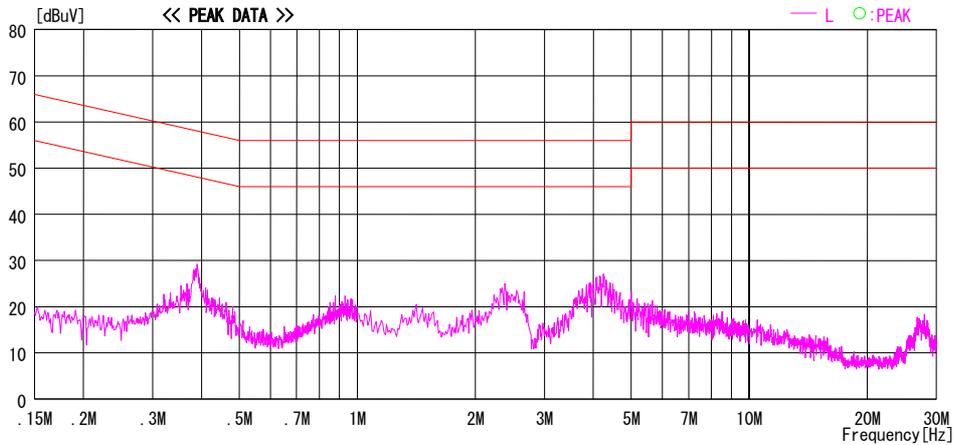
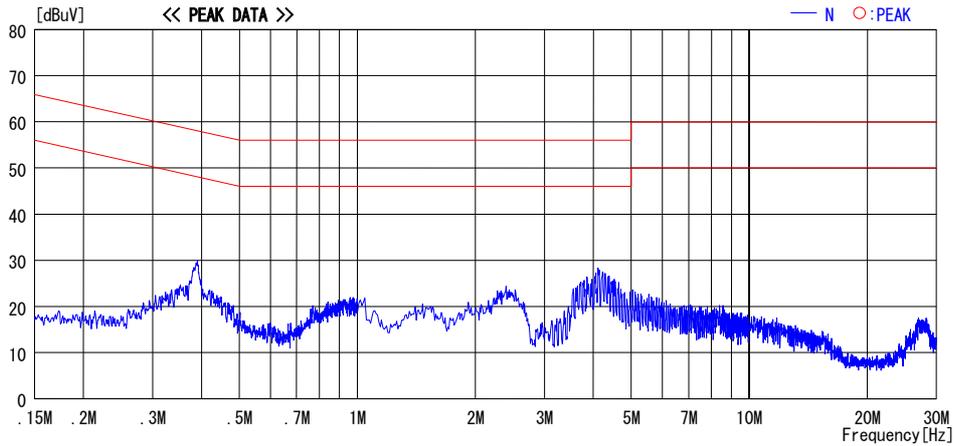


CHART: WITH FACTOR, Peak hold data. Data is uncorrected. CALCULATION: RESULT=READING+C.F (L IN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/12/12 06:09:50

Company : Sharp Corporation	Report No. : 27DE0209-HO
Kind of EUT : WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable	Power : DC3.7V (AC Adapter : AC120V/60Hz)
Model No. : 813SH	Temp./Humi. : 24deg. C / 31%
Serial No. : 004401/11/041423/8	Operator : Kenichi Adachi
Mode / Remarks : Bluetooth Tx 2480MHz, PRBS9, DH5	
LIMIT : FCC15C § 15.207 (QP) / RSS-Gen / RSS-210	
FCC15C § 15.207 (AV) / RSS-Gen / RSS-210	

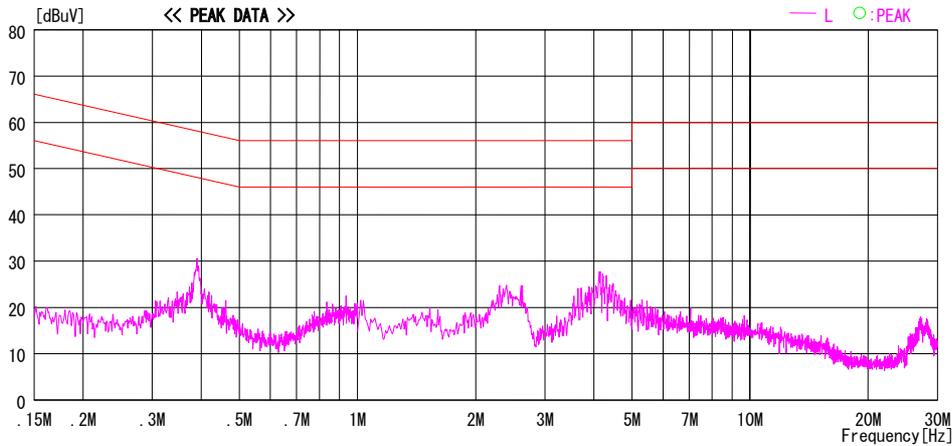
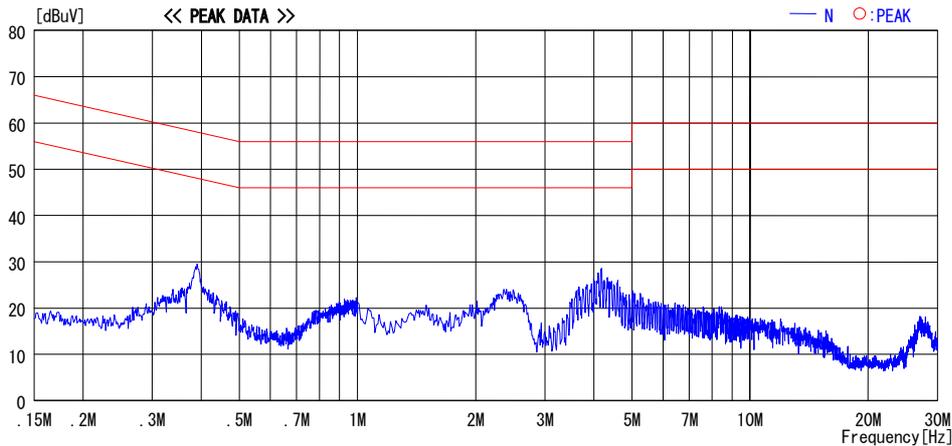


CHART: WITH FACTOR, Peak hold data. Data is uncorrected. CALCULATION: RESULT=READING+C. F (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/12/12 06:20:30

Company : Sharp Corporation	Report No. : 27DE0209-HO
Kind of EUT : WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable	Power : DC3.7V (AC Adapter : AC120V/60Hz)
Model No. : 813SH	Temp./Humi. : 24deg. C / 31%
Serial No. : 004401/11/041423/8	Operator : Kenichi Adachi
Mode / Remarks : Bluetooth Rx 2441MHz. (PRBS9). (DH5)	
LIMIT : FCC15B § 15.107 (QP) / RSS-Gen / RSS-210	
FCC15B § 15.107 (AV) / RSS-Gen / RSS-210	

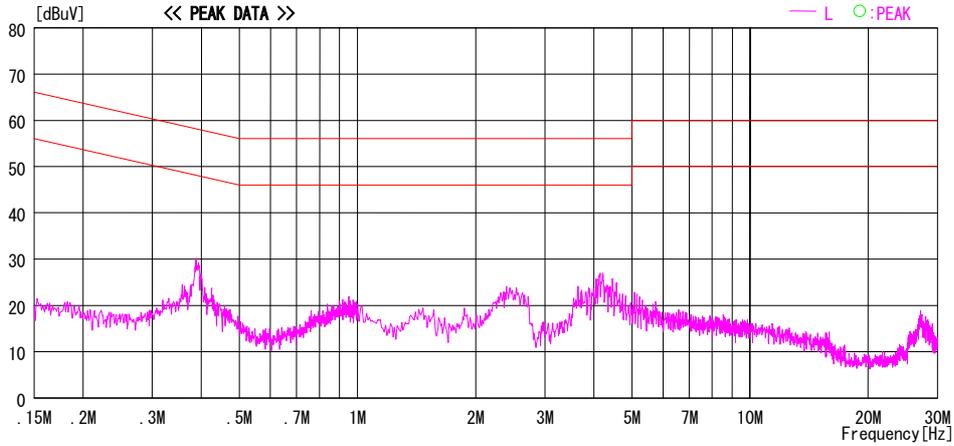
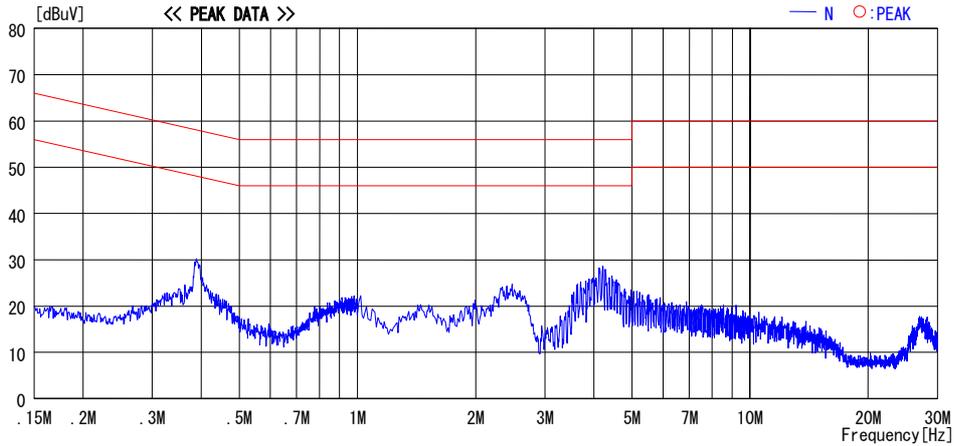


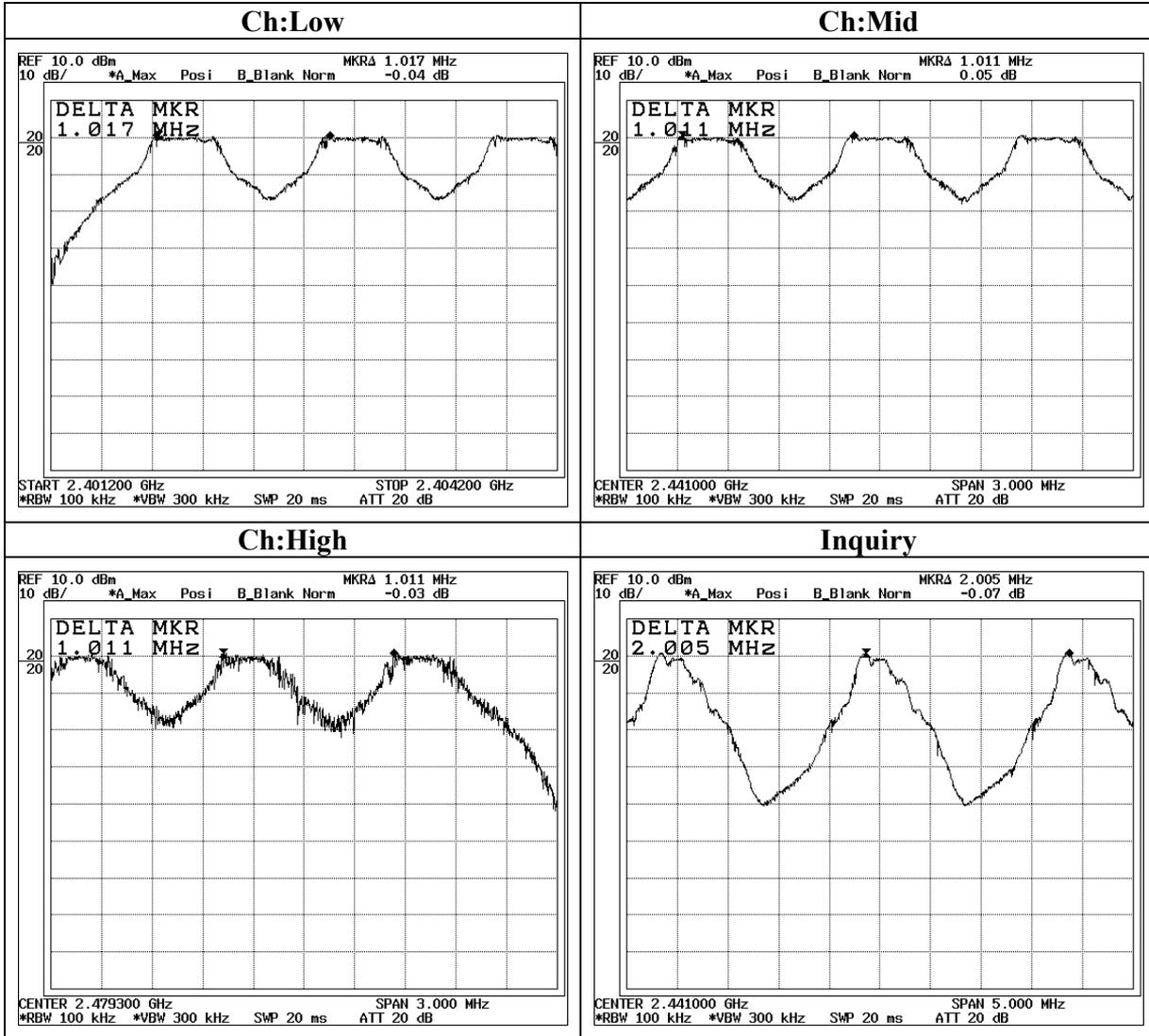
CHART: WITH FACTOR, Peak hold data. Data is uncorrected. CALCULATION: RESULT=READING+C. F (LISN LOSS+CABLE LOSS)
 Except for the above table : adequate margin data below the limits.

Carrier Frequency Separation

		UL-Apex Co.,Ltd.
Company	Sharp Corporation	Head Office EMC Lab. No.4 Measurement room
Equipment	WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable	Regulation FCC Part15 Subpart C 15.247(a)(1) / RSS-210
Model	813SH	Test Distance -
S/N	004401/11/041420/4	Date 12/12/2006
Power	DC 3.7V (AC Adapter input: AC 120V/60Hz)	Temperature 22 deg.C.
Mode	Bluetooth Tx Hopping On / Inquiry	Humidity 38 %
		Engineer Kenichi Adachi

Ch	Freq. [MHz]	Channel separation [MHz]	Limit
Low	2402.0	1.017	0.628 [MHz] (two-thirds of 20dB Bandwidth (0.942 [MHz])) or 25[kHz] (whichever is grater)
Mid	2441.0	1.011	0.630 [MHz] (two-thirds of 20dB Bandwidth (0.945 [MHz])) or 25[kHz] (whichever is grater)
High	2480.0	1.011	0.628 [MHz] (two-thirds of 20dB Bandwidth (0.942 [MHz])) or 25[kHz] (whichever is grater)
Inquiry	2441.0	2.005	0.545 [MHz] (two-thirds of 20dB Bandwidth (0.818 [MHz])) or 25[kHz] (whichever is grater)

Carrier Frequency Separation



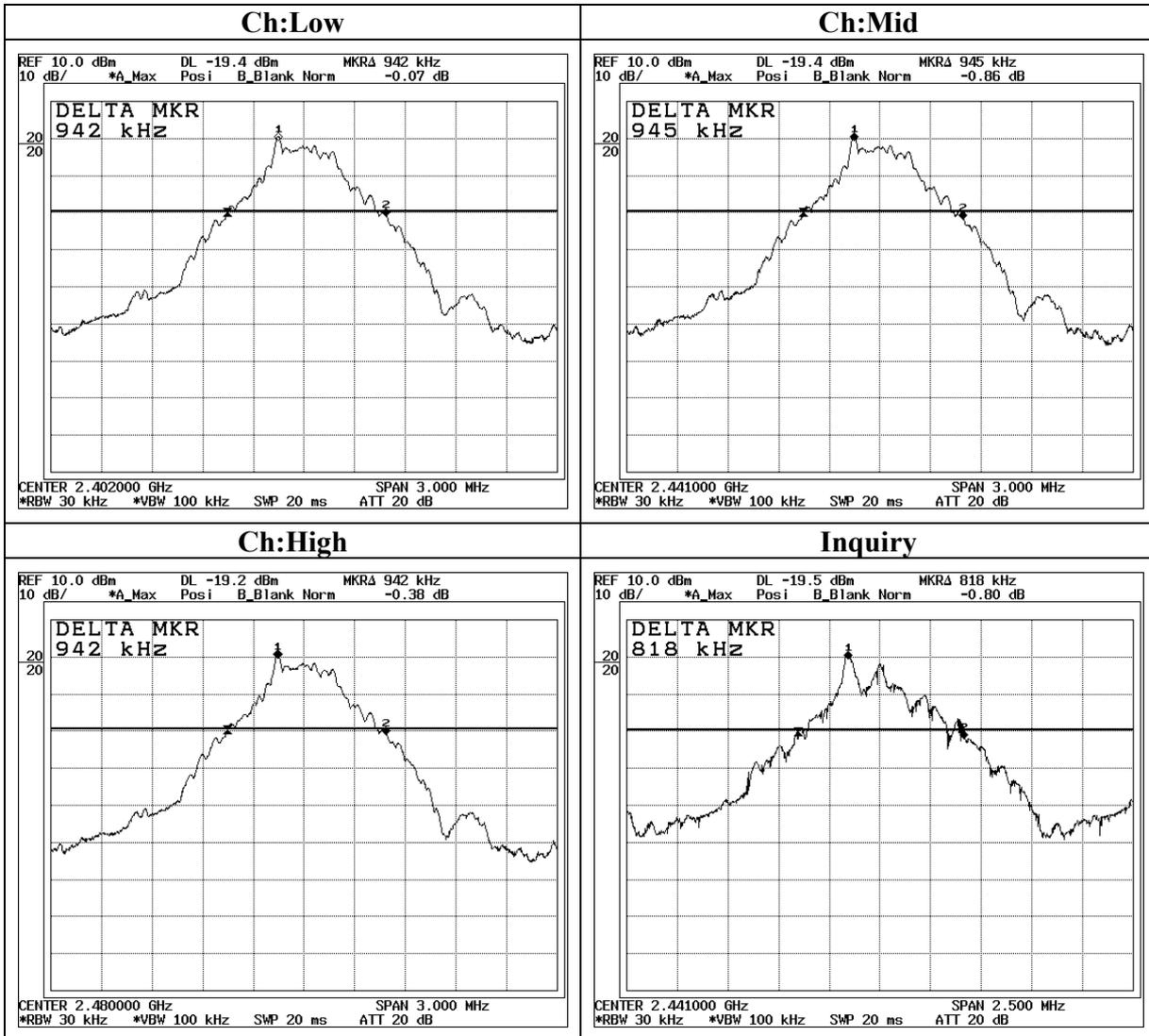
20dB Bandwidth

UL-Apex Co.,Ltd.
Head Office EMC Lab. No.4 Measurement 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	813SH	Date	12/12/2006
S/N	004401/11/041420/4	Temperature	22 deg.C.
Power	DC 3.7V (AC Adapter input: AC 120V/60Hz)	Humidity	38 %
Mode	Bluetooth Tx Hopping off / Inquiry	Engineer	Kenichi Adachi

Ch	Freq. [MHz]	20dB Bandwidth [MHz]	Limit [MHz]
Low	2402.0	0.942	-
Mid	2441.0	0.945	-
High	2480.0	0.942	-
Inquiry	2441.0	0.818	-

20dB Bandwidth



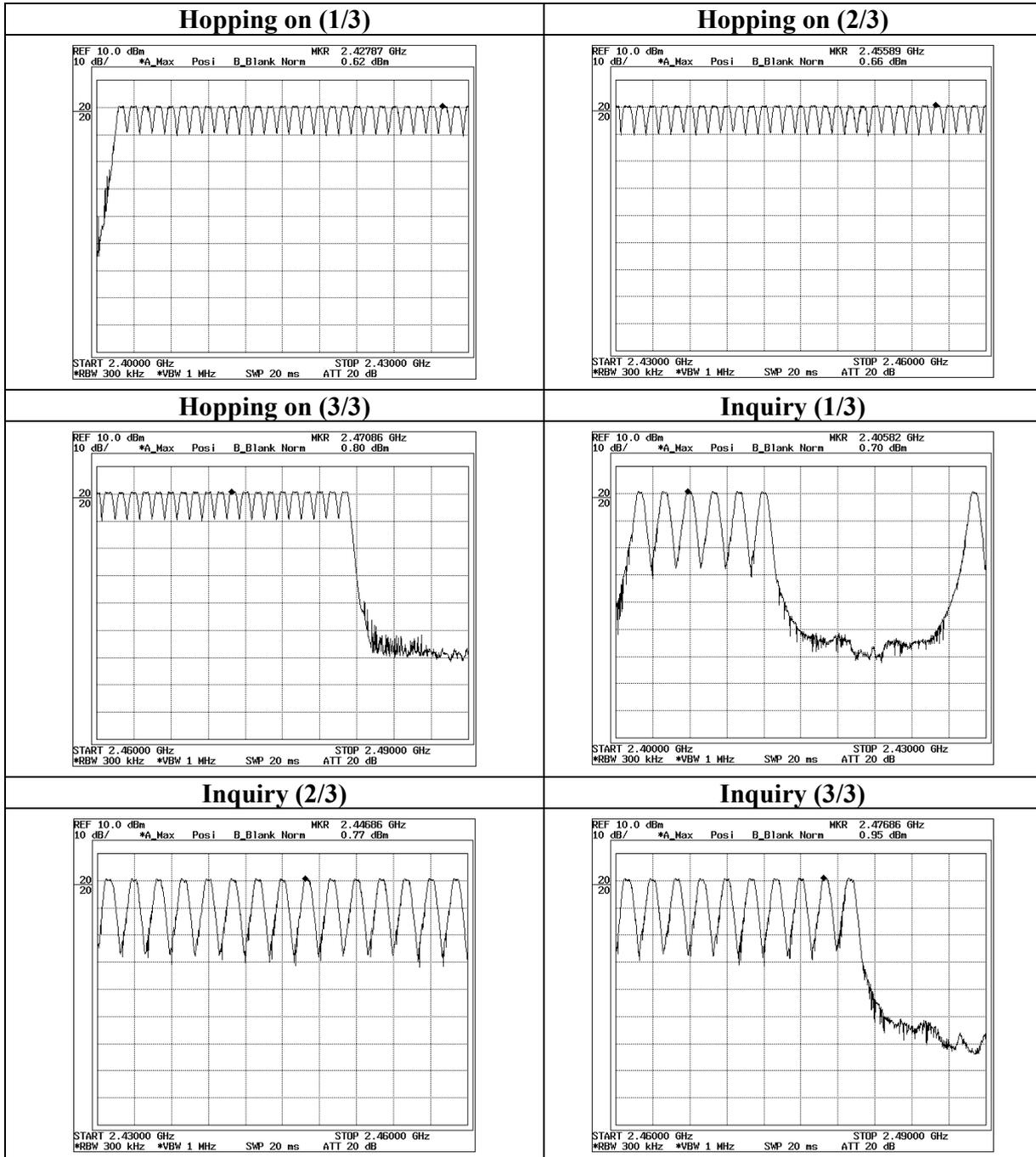
Number of Hopping Frequency

Company	Sharp Corporation	UL-Apex Co.,Ltd.	
Equipment	WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable	Head Office EMC Lab. No.4 Measurement room	
Model	813SH	Regulation	FCC Part15 Subpart C 15.247(a)(1)(iii) / RSS-210
S/N	004401/11/041420/4	Test Distance	-
Power	DC 3.7V (AC Adapter input: AC 120V/60Hz)	Date	12/12/2006
Mode	Bluetooth Tx Hopping On / Inquiry	Temperature	22 deg.C.
		Humidity	38 %
		Engineer	Kenichi Adachi

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

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

Number of Hopping Frequency



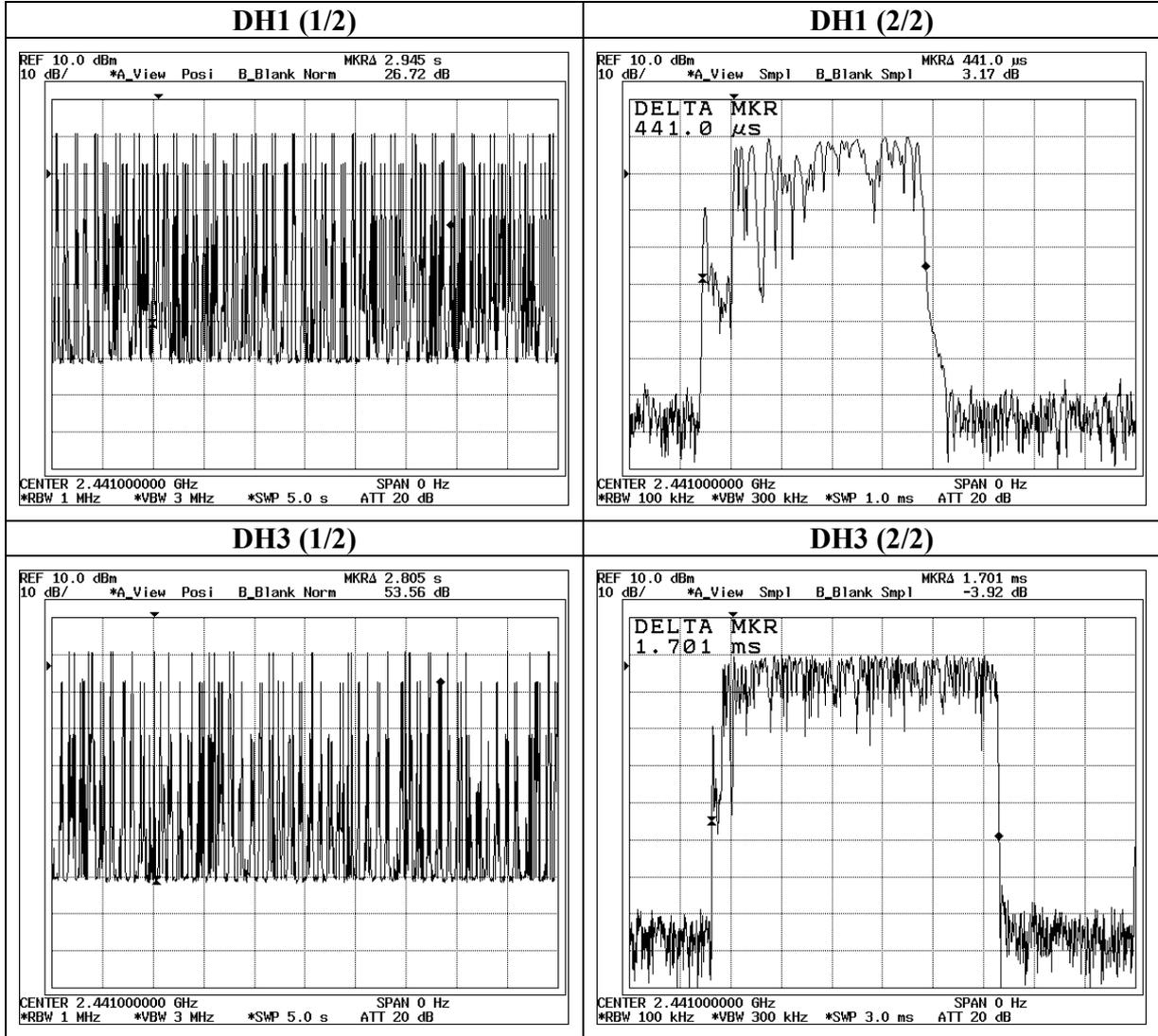
Dwell time

UL-Apex Co.,Ltd.
Head Office EMC Lab. No.4 Measurement room

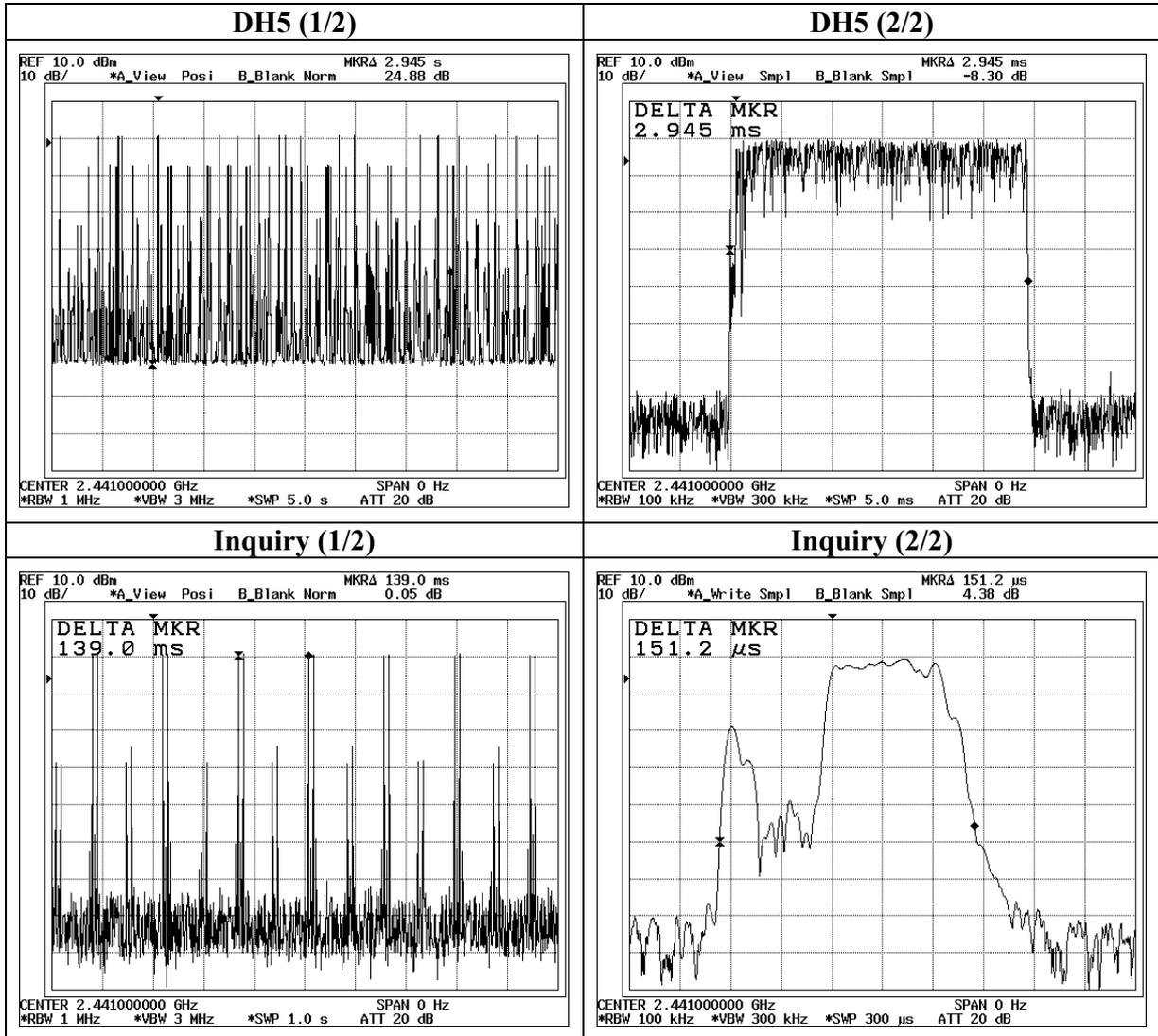
Company	Sharp Corporation	Regulation	FCC Part15 Subpart C 15.247(a)(1)(iii) / RSS-210
Equipment	WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable	Test Distance	-
Model	813SH	Date	12/12/2006
S/N	004401/11/041420/4	Temperature	22 deg.C.
Power	DC 3.7V (AC Adapter input: AC 120V/60Hz)	Humidity	38 %
Mode	Bluetooth Tx Hopping On / Inquiry	Engineer	Kenichi Adachi

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	52 times / 5 sec. x 31.6 = 329 times	0.441	144.9	400
DH3	31 times / 5 sec. x 31.6 = 196 times	1.701	333.3	400
DH5	20 times / 5 sec. x 31.6 = 126 times	2.945	372.2	400
Inquiry	14 times / 1 sec. x 12.8 = 179 times	0.151	27.1	400

Dwell time



Dwell time



Maximum Peak Output Power

		UL-Apex Co.,Ltd.	
		Head Office EMC Lab. No.4 Measurement room	
Company	Sharp Corporation	Regulation	FCC Part15 Subpart C 15.247(b)(1) / RSS-210
Equipment	WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable	Test Distance	-
Model	813SH	Date	12/12/2006
S/N	004401/11/041420/4	Temperature	22 deg.C.
Power	DC 3.7V (AC Adapter input: AC 120V/60Hz)	Humidity	38 %
Mode	Bluetooth Tx Hopping off / Inquiry	Engineer	Kenichi Adachi

Ch	Freq. [MHz]	P/M (PK) Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2402.0	1.03	0.00	0.00	1.03	1.27	20.97	125	19.94
Mid	2441.0	1.16	0.00	0.00	1.16	1.31	20.97	125	19.81
High	2480.0	1.25	0.00	0.00	1.25	1.33	20.97	125	19.72
Inquiry	2441.0	1.20	0.00	0.00	1.20	1.32	20.97	125	19.77

Sample Calculation:

Result = Reading + Cable Loss + Attenuator

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

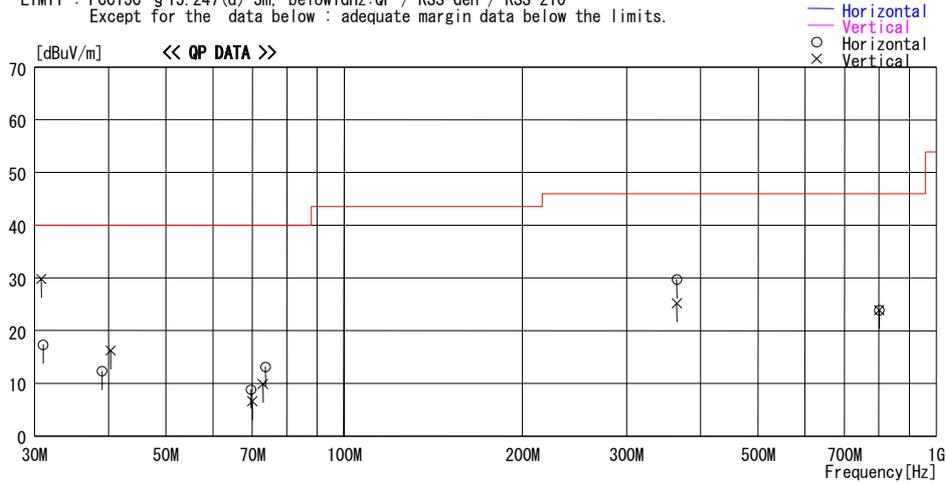
Radiated Spurious Emission

* 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 Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/12/12 04:26:02

Company : Sharp Corporation Report No. : 27DE0209-HO
Kind of EUT : WCDMA & Tri-band (900/1800/1900) GSM Dual Power : DC 3.7V (AC adapter: AC120V/60Hz)
mode Mobile Phone / Bluetooth enable Temp./Humi. : 24deg.C / 31%
Model No. : 813SH Operator : Kenichi Adachi
Serial No. : 004401/11/041423/8
Mode / Remarks : Bluetooth Tx 2402MHz, PRBS9, DH5, EUT max-axis (H:Y, V:Z)
LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-210
Except for the data below : adequate margin data below the limits.



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]						
31.007	22.9	QP	19.4	-25.0	17.3	83	251	Hor i.	40.0	22.7
30.799	35.3	QP	19.5	-25.0	29.8	0	100	Vert.	40.0	10.2
38.999	22.5	QP	14.7	-24.9	12.3	325	251	Hor i.	40.0	27.7
40.360	27.1	QP	14.0	-24.9	16.2	9	100	Vert.	40.0	23.8
69.608	26.1	QP	7.2	-24.5	8.8	79	241	Hor i.	40.0	31.2
69.990	23.9	QP	7.2	-24.5	6.6	129	100	Vert.	40.0	33.4
73.611	30.2	QP	7.2	-24.3	13.1	79	241	Hor i.	40.0	26.9
72.967	27.1	QP	7.2	-24.4	9.9	129	100	Vert.	40.0	30.1
364.459	34.8	QP	16.8	-21.9	29.7	100	100	Hor i.	46.0	16.3
364.467	30.3	QP	16.8	-21.9	25.2	69	162	Vert.	46.0	20.8
801.667	21.2	QP	21.9	-19.2	23.9	0	100	Hor i.	46.0	22.1
801.667	21.2	QP	21.9	-19.2	23.9	0	100	Vert.	46.0	22.1

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

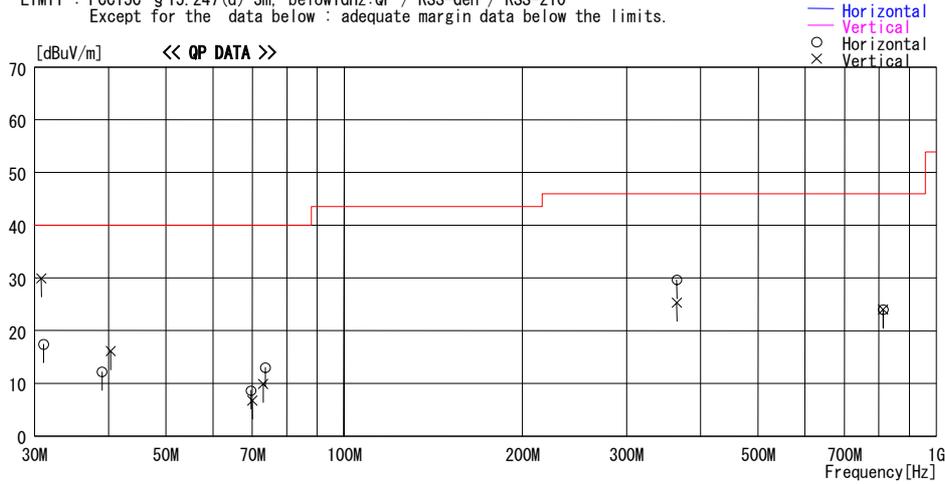
Radiated Spurious Emission

* 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 Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/12/12 04:08:35

Company : Sharp Corporation Report No. : 27DE0209-HO
Kind of EUT : WCDMA & Tri-band (900/1800/1900) GSM Dual Power : DC 3.7V (AC adapter: AC120V/60Hz)
mode Mobile Phone / Bluetooth enable Temp./Humi. : 24deg.C / 31%
Model No. : 813SH Operator : Kenichi Adachi
Serial No. : 004401/11/041423/8
Mode / Remarks : Bluetooth Tx 2441MHz, PRBS9, DH5, EUT max-axis (H:Y, V:Z)
LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-210
Except for the data below : adequate margin data below the limits.



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]						
31.054	23.1	QP	19.3	-25.0	17.4	86	250	Hor i.	40.0	22.6
30.795	35.4	QP	19.5	-25.0	29.9	0	100	Vert.	40.0	10.1
38.994	22.4	QP	14.7	-24.9	12.2	320	250	Hor i.	40.0	27.8
40.357	27.0	QP	14.0	-24.9	16.1	9	100	Vert.	40.0	23.9
69.609	25.9	QP	7.2	-24.5	8.6	84	242	Hor i.	40.0	31.4
69.989	24.0	QP	7.2	-24.5	6.7	125	100	Vert.	40.0	33.3
73.604	30.1	QP	7.2	-24.3	13.0	84	242	Hor i.	40.0	27.0
72.983	27.1	QP	7.2	-24.4	9.9	125	100	Vert.	40.0	30.1
364.469	34.7	QP	16.8	-21.9	29.6	96	100	Hor i.	46.0	16.4
364.479	30.4	QP	16.8	-21.9	25.3	65	161	Vert.	46.0	20.7
813.667	21.3	QP	21.8	-19.1	24.0	0	100	Hor i.	46.0	22.0
813.667	21.3	QP	21.8	-19.1	24.0	0	100	Vert.	46.0	22.0

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

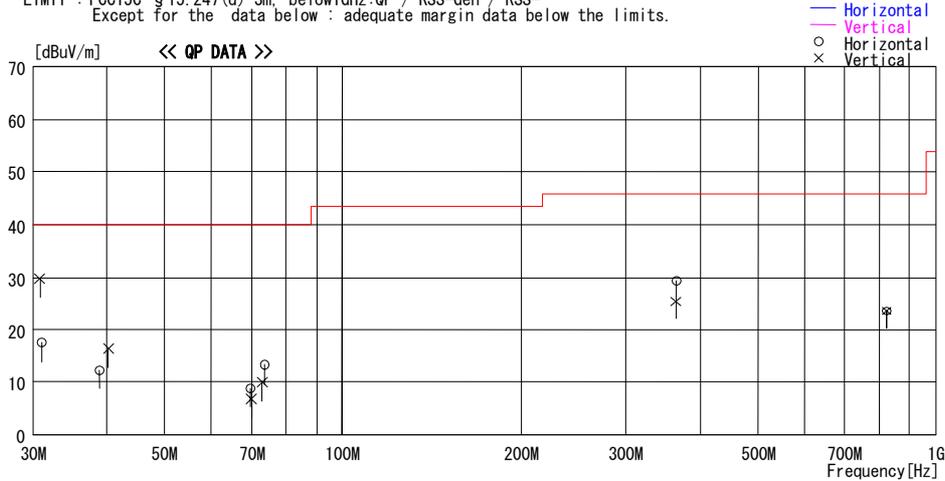
Radiated Spurious Emission

* 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 Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic
Date : 2006/12/12 03:05:42

Company : Sharp Corporation Report No. : 27DE0209-H0
Kind of EUT : WCDMA & Tri-band (900/1800/1900) GSM Dual Power : DC 3.7V (AC adapter: AC120V/60Hz)
mode Mobile Phone / Bluetooth enable Temp./Humi. : 24deg.C / 31%
Operator : Kenichi Adachi
Model No. : 813SH
Serial No. : 004401/11/041423/8
Mode / Remarks : Bluetooth Tx 2480MHz, PRBS9, DH5, EUT max-axis (H:Y, V:Z)
LIMIT : FCC15C § 15.247(d) 3m, below1GHz:QP / RSS-Gen / RSS-
Except for the data below : adequate margin data below the limits.



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]						
31.017	23.0	QP	19.4	-25.0	17.4	81	252	Hor i.	40.0	22.6
30.798	35.3	QP	19.5	-25.0	29.8	0	100	Vert.	40.0	10.2
38.989	22.5	QP	14.7	-24.9	12.3	325	252	Hor i.	40.0	27.7
40.355	27.2	QP	14.0	-24.9	16.3	8	100	Vert.	40.0	23.7
69.610	26.1	QP	7.2	-24.5	8.8	81	240	Hor i.	40.0	31.2
69.997	24.1	QP	7.2	-24.5	6.8	127	100	Vert.	40.0	33.2
73.610	30.3	QP	7.2	-24.3	13.2	81	240	Hor i.	40.0	26.8
72.969	27.2	QP	7.2	-24.4	10.0	127	100	Vert.	40.0	30.0
364.480	34.4	QP	16.8	-21.9	29.3	98	100	Hor i.	46.0	16.7
364.480	30.5	QP	16.8	-21.9	25.4	67	163	Vert.	46.0	20.6
826.667	20.8	QP	21.8	-19.0	23.6	0	100	Hor i.	46.0	22.4
826.667	20.8	QP	21.8	-19.0	23.6	0	100	Vert.	46.0	22.4

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

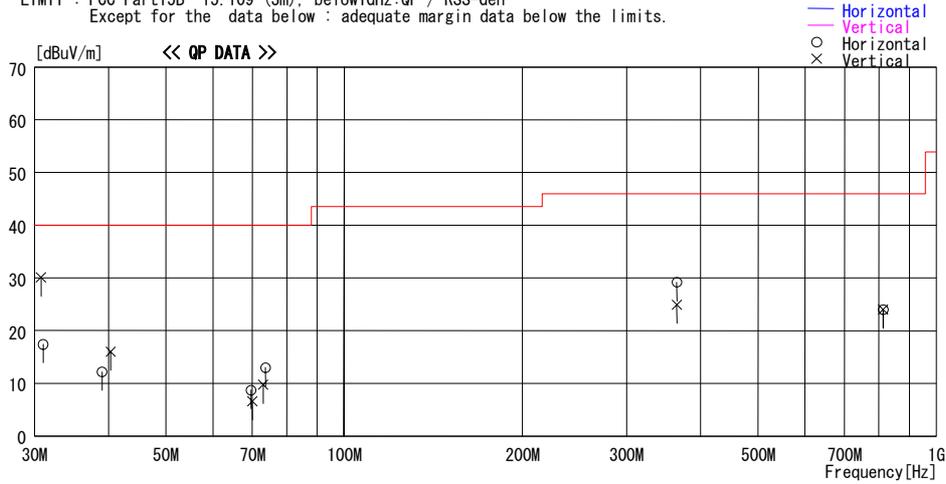
Radiated Spurious Emission

* 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 Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/12/12 04:47:09

Company : Sharp Corporation Report No. : 27DE0209-HO
Kind of EUT : WCDMA & Tri-band (900/1800/1900) GSM Dual Power : DC 3.7V (AC adapter: AC120V/60Hz)
mode Mobile Phone / Bluetooth enable Temp./Humi. : 24deg.C / 31%
Operator : Kenichi Adachi
Model No. : 813SH
Serial No. : 004401/11/041423/8
Mode / Remarks : Bluetooth Rx 2441MHz, (PRBS9), (DH5), EUT max-axis (H:Y, V:Z)
LIMIT : FCC Part15B 15.109 (3m), below1GHz:QP / RSS-Gen
Except for the data below : adequate margin data below the limits.



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]						
31.019	23.0	QP	19.4	-25.0	17.4	89	253	Hori.	40.0	22.6
30.779	35.6	QP	19.5	-25.0	30.1	50	100	Vert.	40.0	9.9
38.990	22.4	QP	14.7	-24.9	12.2	318	253	Hori.	40.0	27.8
40.356	26.9	QP	14.0	-24.9	16.0	96	100	Vert.	40.0	24.0
69.619	26.0	QP	7.2	-24.5	8.7	81	240	Hori.	40.0	31.3
69.990	23.9	QP	7.2	-24.5	6.6	124	100	Vert.	40.0	33.4
73.650	30.1	QP	7.2	-24.3	13.0	81	240	Hori.	40.0	27.0
72.993	26.9	QP	7.2	-24.4	9.7	124	100	Vert.	40.0	30.3
364.469	34.3	QP	16.8	-21.9	29.2	99	100	Hori.	46.0	16.9
364.468	30.0	QP	16.8	-21.9	24.9	135	158	Vert.	46.0	21.1
813.667	21.3	QP	21.8	-19.1	24.0	0	100	Hori.	46.0	22.0
813.667	21.3	QP	21.8	-19.1	24.0	0	100	Vert.	46.0	22.0

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

Radiated Spurious Emission

UL-Apex Co.,Ltd.

Head Office EMC Lab. No.3 Anechoic Chamber

Company : Sharp Corporation
Equipment : WCDMA & Tri-band (900/1800/1900) GSM
Dual mode Mobile Phone / Bluetooth enable
Model : 813SH
S/N : 004401/11/041423/8
Power : DC 3.7V (AC Adapter input: AC 120V/60Hz)
Mode : Bluetooth Tx 2402MHz (PRBS9, DH5(Worst))
EUT-Axis : (Worst) H: Y-axis, V: Z-axis

Regulation : FCC Part15 Subpart C 15.247(d) / RSS-210
Test Distance : 3m (below 10GHz), 1m (above 10GHz)

Date : 12/11/2006
Temperature : 24 deg.C.
Humidity : 31 %

Engineer : Kenichi Adachi

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	2389.1	45.5	45.8	29.1	32.3	2.2	0.0	44.5	44.8	73.9	29.4	29.1
2*	2400.0	72.6	73.3	29.1	32.3	2.2	0.0	71.6	72.3	73.9	-	-
3	4804.0	42.3	44.4	33.4	31.6	3.5	0.0	47.6	49.7	73.9	26.3	24.2
4	7206.0	40.6	40.4	37.3	31.4	4.3	0.0	50.8	50.6	73.9	23.1	23.3
5	9608.0	41.2	41.1	39.4	31.9	5.0	0.0	53.7	53.6	73.9	20.2	20.3
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	43.3	43.2	40.4	30.1	6.8	0.0	50.9	50.8	73.9	23.0	23.1
9	19216.0	-	-	-	-	-	-	-	-	73.9	-	-
10	21618.0	-	-	-	-	-	-	-	-	73.9	-	-
11	24020.0	44.3	44.2	38.8	30.7	8.1	0.0	51.0	50.9	73.9	22.9	23.0

* Reference data

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	2389.1	33.1	34.1	29.1	32.3	2.2	0.0	32.1	33.1	53.9	21.8	20.8
2*	2400.0	60.3	61.8	29.1	32.3	2.2	0.0	59.3	60.8	53.9	-	-
3	4804.0	30.4	33.7	33.4	31.6	3.5	0.0	35.7	39.0	53.9	18.2	14.9
4	7206.0	28.5	28.4	37.3	31.4	4.3	0.0	38.7	38.6	53.9	15.2	15.3
5	9608.0	29.3	29.3	39.4	31.9	5.0	0.0	41.8	41.8	53.9	12.1	12.1
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
6	12010.0	-	-	-	-	-	-	-	-	53.9	-	-
7	14412.0	-	-	-	-	-	-	-	-	53.9	-	-
8	16814.0	31.1	31.1	40.4	30.1	6.8	0.0	38.7	38.7	53.9	15.2	15.2
9	19216.0	-	-	-	-	-	-	-	-	53.9	-	-
10	21618.0	-	-	-	-	-	-	-	-	53.9	-	-
11	24020.0	32.2	32.2	38.8	30.7	8.1	0.0	38.9	38.9	53.9	15.0	15.0

* 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												
0	2402.0	96.9	99.0	29.1	32.3	2.2	0.0	95.9	98.0	-	-	-
2	2400.0	42.7	46.4	29.1	32.3	2.2	0.0	41.7	45.4	Funda-20dB	34.2	32.6

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.

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

UL Apex Co., Ltd.

Head Office EMC Lab.

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b(14.06.06)

Radiated Spurious Emission

<p>Company : Sharp Corporation Equipment : WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable Model : 813SH S/N : 004401/11/041423/8 Power : DC 3.7V (AC Adapter input: AC 120V/60Hz) Mode : Bluetooth Tx 2441MHz (PRBS9, DH5(Worst)) EUT-Axis : (Worst) H: Y-axis, V: Z-axis</p>	<p style="text-align: right;">UL-Apex Co.,Ltd. Head Office EMC Lab. No.3 Anechoic Chamber</p> <p>Regulation : FCC Part15 Subpart C 15.247(d) / RSS-210 Test Distance : 3m (below 10GHz), 1m (above 10GHz)</p> <p>Date : 12/11/2006 Temperature : 24 deg.C. Humidity : 31 %</p> <p>Engineer : Kenichi Adachi</p>
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PK DETECT (RBW: 1MHz, VBW: 1MHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR [dBuV]	VER					HOR [dBuV/m]	VER		HOR [dB]	VER
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	4882.0	43.2	44.4	33.6	31.6	3.5	0.0	48.7	49.9	73.9	25.2	24.0
2	7323.0	40.5	40.6	37.4	31.4	4.3	0.0	50.8	50.9	73.9	23.1	23.0
3	9764.0	42.0	41.9	39.6	32.0	5.0	0.0	54.6	54.5	73.9	19.3	19.4
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	43.9	43.9	41.3	30.0	6.8	0.0	52.5	52.5	73.9	21.4	21.4
7	19528.0	-	-	-	-	-	-	-	-	73.9	-	-
8	21969.0	-	-	-	-	-	-	-	-	73.9	-	-
9	24410.0	45.0	44.9	38.7	30.6	8.2	0.0	51.8	51.7	73.9	22.1	22.2

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					HOR [dBuV/m]	VER		HOR [dB]	VER
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	4882.0	31.6	34.5	33.6	31.6	3.5	0.0	37.1	40.0	53.9	16.8	13.9
2	7323.0	28.8	28.7	37.4	31.4	4.3	0.0	39.1	39.0	53.9	14.8	14.9
3	9764.0	29.9	29.8	39.6	32.0	5.0	0.0	42.5	42.4	53.9	11.4	11.5
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	31.4	31.3	41.3	30.0	6.8	0.0	40.0	39.9	53.9	13.9	14.0
7	19528.0	-	-	-	-	-	-	-	-	53.9	-	-
8	21969.0	-	-	-	-	-	-	-	-	53.9	-	-
9	24410.0	32.8	32.7	38.7	30.6	8.2	0.0	39.6	39.5	53.9	14.3	14.4

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.

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

Radiated Spurious Emission

		UL-Apex Co.,Ltd.
Company	Sharp Corporation	Head Office EMC Lab. No.3 Anechoic Chamber
Equipment	WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable	Regulation FCC Part15 Subpart C 15.247(d) / RSS-210 Test Distance 3m (below 10GHz), 1m (above 10GHz)
Model	813SH	Date 12/11/2006
S/N	004401/11/041423/8	Temperature 24 deg.C.
Power	DC 3.7V (AC Adapter input: AC 120V/60Hz)	Humidity 31 %
Mode	Bluetooth Tx 2480MHz (PRBS9, DH5(Worst))	Engineer Kenichi Adachi
EUT-Axis	(Worst) H: Y-axis, V: Z-axis	

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1 *	2483.5	55.9	56.5	29.2	32.3	2.3	0.0	55.1	55.7	73.9	-	-
2	4960.0	43.5	43.6	33.7	31.6	3.5	0.0	49.1	49.2	73.9	24.8	24.7
3	7440.0	41.4	41.4	37.6	31.4	4.3	0.0	51.9	51.9	73.9	22.0	22.0
4	9920.0	42.0	41.8	39.8	32.0	5.1	0.0	54.9	54.7	73.9	19.0	19.2
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	43.4	43.5	42.7	30.1	6.9	0.0	53.4	53.5	73.9	20.5	20.4
8	19840.0	-	-	-	-	-	-	-	-	73.9	-	-
9	22320.0	-	-	-	-	-	-	-	-	73.9	-	-
10	24800.0	44.7	44.7	38.7	30.5	8.3	0.0	51.7	51.7	73.9	22.2	22.2

* Reference data

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1 *	2483.5	49.0	48.8	29.2	32.3	2.3	0.0	48.2	48.0	53.9	-	-
2	4960.0	31.4	31.7	33.7	31.6	3.5	0.0	37.0	37.3	53.9	16.9	16.6
3	7440.0	28.4	28.5	37.6	31.4	4.3	0.0	38.9	39.0	53.9	15.0	14.9
4	9920.0	29.5	29.4	39.8	32.0	5.1	0.0	42.4	42.3	53.9	11.5	11.6
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	31.0	31.1	42.7	30.1	6.9	0.0	41.0	41.1	53.9	12.9	12.8
8	19840.0	-	-	-	-	-	-	-	-	53.9	-	-
9	22320.0	-	-	-	-	-	-	-	-	53.9	-	-
10	24800.0	32.5	32.6	38.7	30.5	8.3	0.0	39.5	39.6	53.9	14.4	14.3

* 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													
PK DETECT	1	2483.5	36.9	37.3	29.2	32.3	2.3	0.0	36.1	36.5	73.9	37.9	37.4
AV DETECT	1	2483.5	22.9	22.0	29.2	32.3	2.3	0.0	22.1	21.2	53.9	31.9	32.7

Hor.	Carrier PK :	97.1	dBuV	Chart Carrier level :	97.0	dBuV
	Carrier AV :	83.1	dBuV	Measured point level :	36.8	dBuV
Ver.	Carrier PK :	98.9	dBuV	Chart Carrier level :	98.7	dBuV
	Carrier AV :	83.6	dBuV	Measured point level :	37.1	dBuV

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

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

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

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

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

UL Apex Co., Ltd.

Head Office EMC Lab.

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

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b(14.06.06)

Radiated Spurious Emission

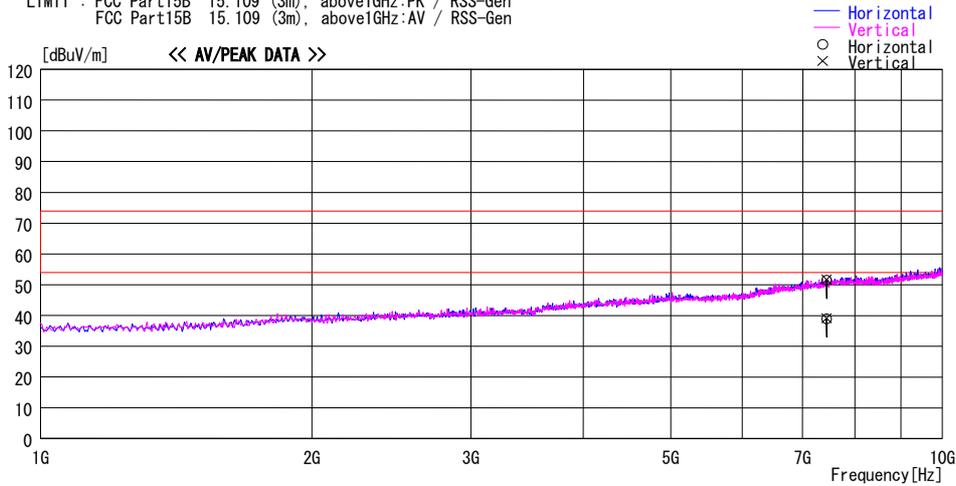
* The result is rounded off to the second decimal place. Therefore, there may be 0.1 difference for the result.

DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.3 Semi Anechoic Chamber
Date : 2006/12/12 01:17:01

Applicant : Sharp Corporation
Kind of EUT : WCDMA & Tri-band (900/1800/1900) GSM Dual mode Mobile Phone / Bluetooth enable
Model No. : 813SH
Serial No. : 004401/11/041423/8
Mode / Remarks : Bluetooth Rx 2441MHz, (PRBS9), (DH5), EUT max-axis (H:Y, V:Z)
LIMIT : FCG Part15B 15.109 (3m), above1GHz:PK / RSS-Gen
FCG Part15B 15.109 (3m), above1GHz:AV / RSS-Gen

Report No. : 27DE0209-HO
Power : DC 3.7V (AC adapter: AC120V/60Hz)
Temp./Humi. : 24deg.C / 31%
Operator : Kenichi Adachi

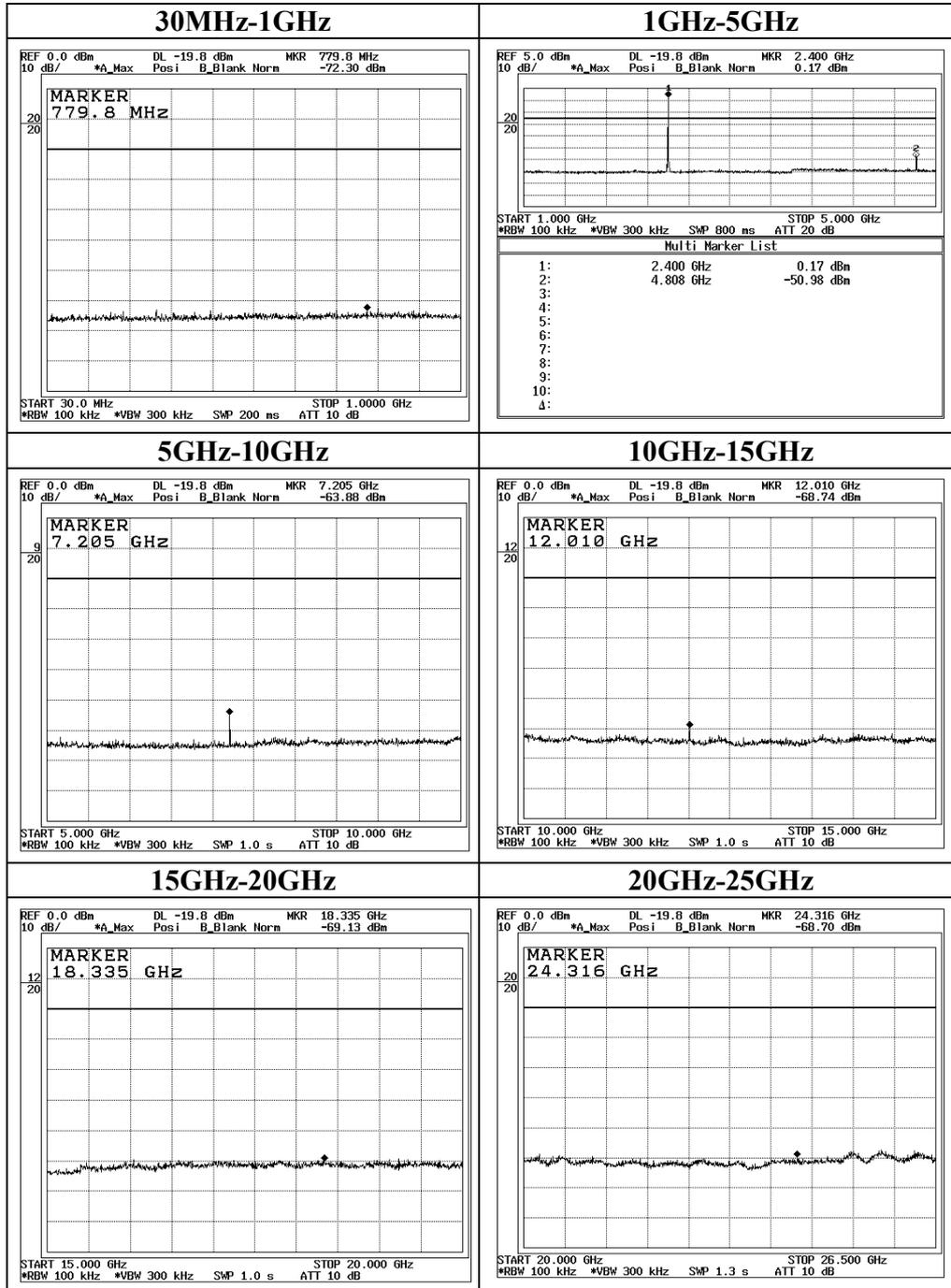


Frequency [MHz]	Reading [dBuV]	DET	Antenna	Loss&	Level [dBuV/m]	Angle [Deg]	Height [cm]	Polar.	Limit [dBuV/m]	Margin [dB]
			Factor [dB/m]	Gain [dB]						
7440.000	41.0	PK	37.6	-27.1	51.5	0	100	Hori.	73.9	22.4
7440.000	28.5	AV	37.6	-27.1	39.0	0	100	Hori.	53.9	14.9
7440.000	41.1	PK	37.6	-27.1	51.6	0	100	Vert.	73.9	22.3
7440.000	28.6	AV	37.6	-27.1	39.1	0	100	Vert.	53.9	14.8

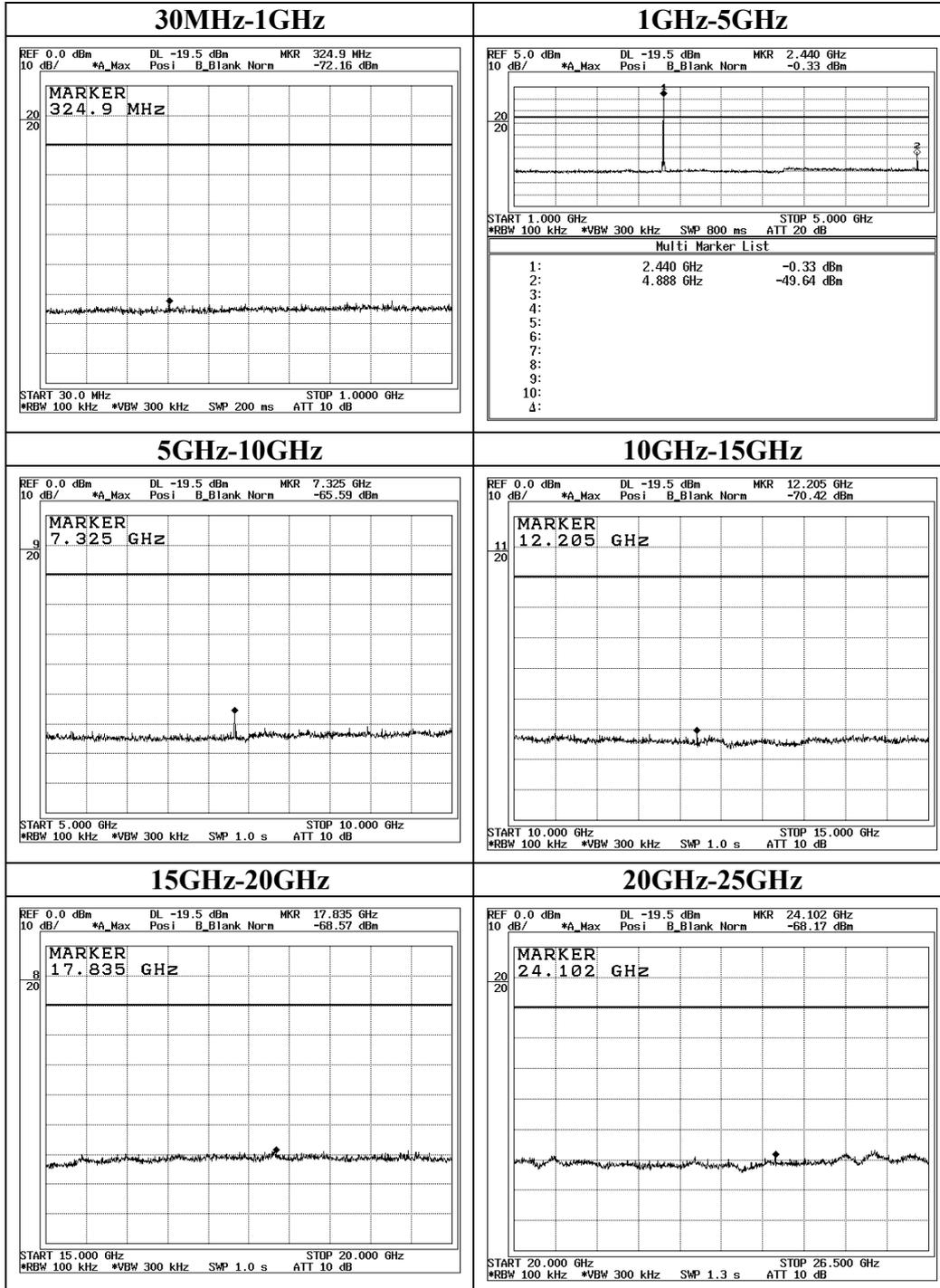
CHART: WITH FACTOR / ANT TYPE: -30MHz: LOOP, 30-300MHz: BICONICAL, 300MHz-1000MHz: LOGPERIODIC, 1000MHz-: HORN
CALCULATION: RESULT = READING + ANT FACTOR + LOSS (CABLE+ATTEN.) - GAIN (AMP)

* No spurious emission was detected above 1GHz.

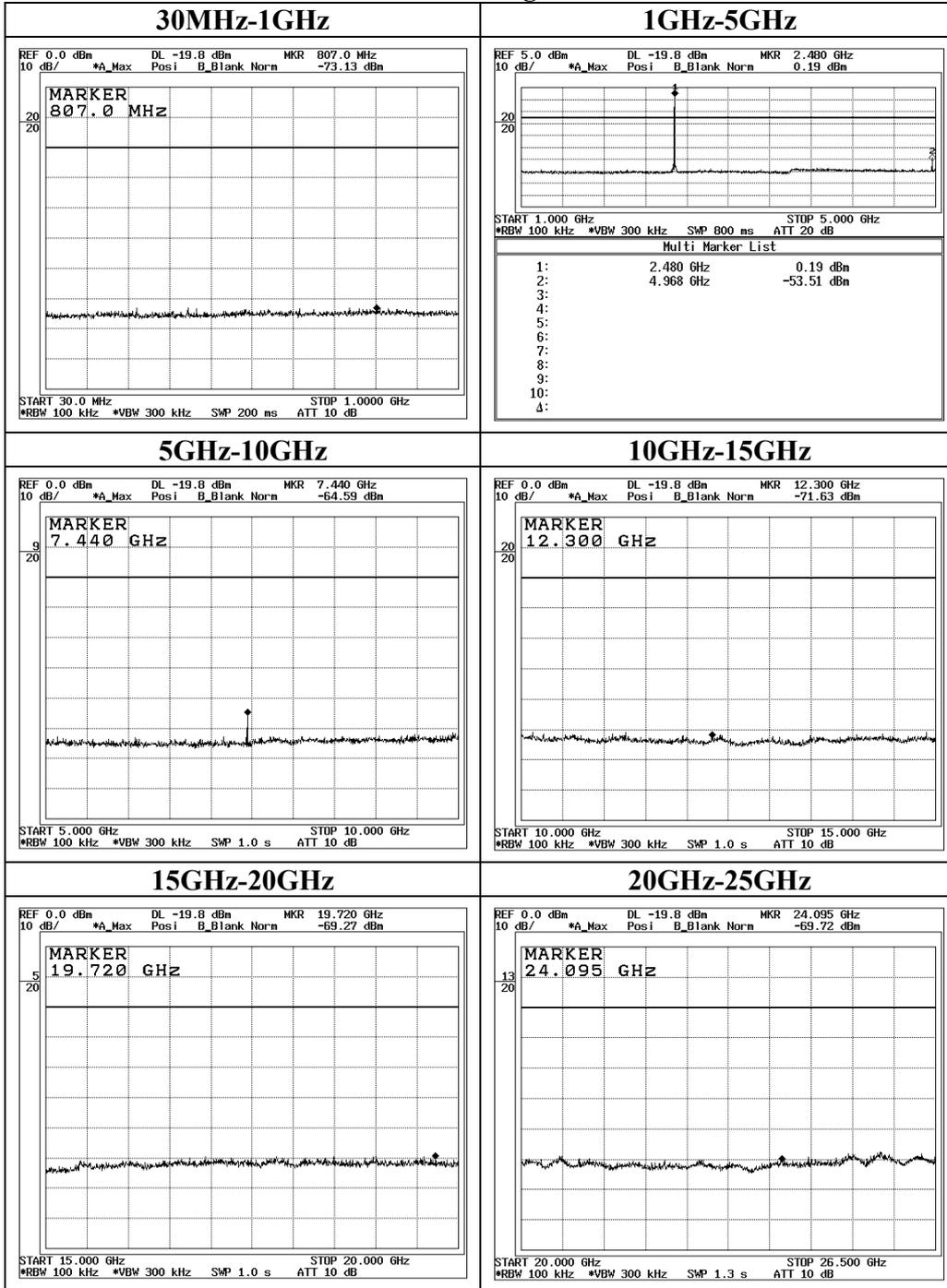
Conducted Spurious Emission
Ch:Low



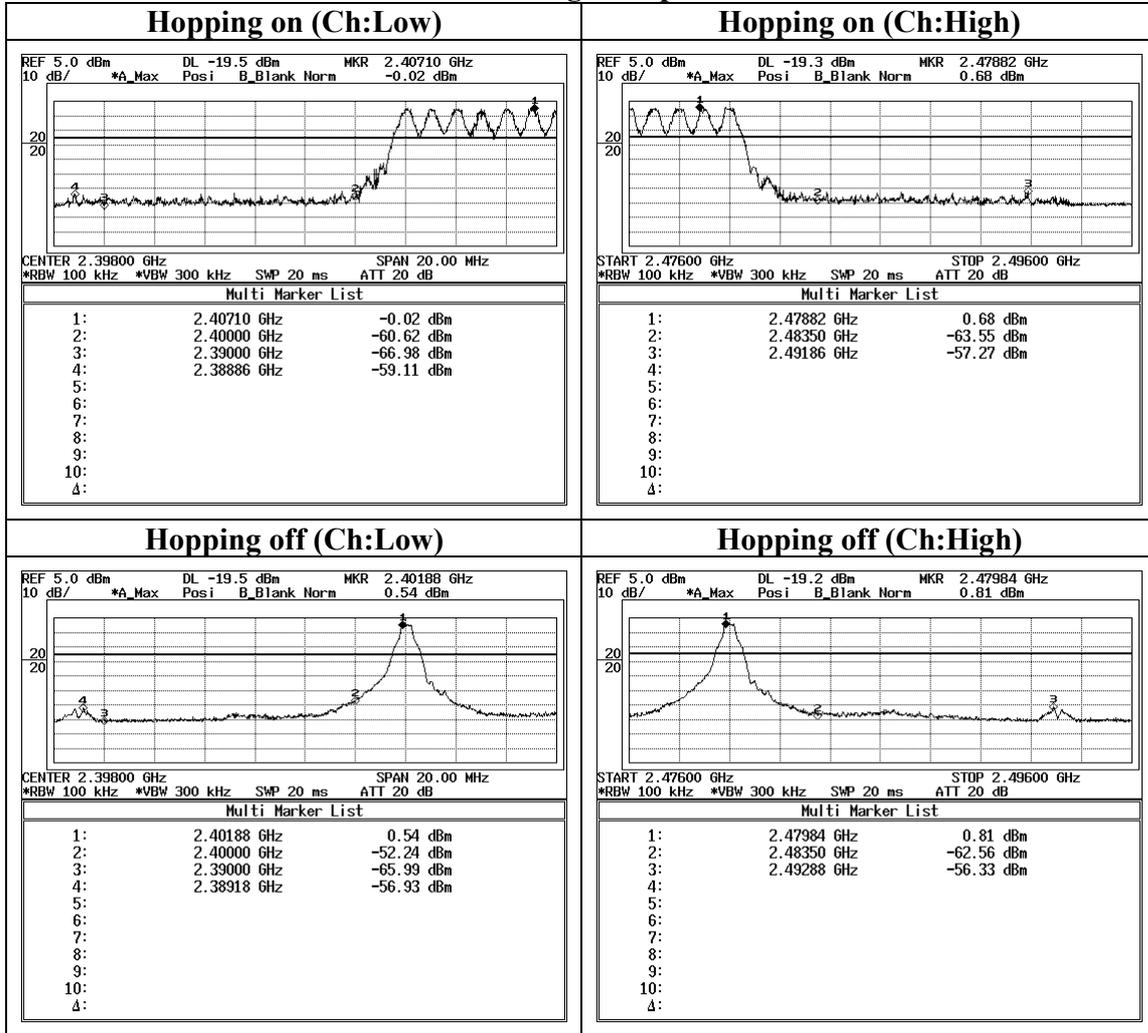
Conducted Spurious Emission
Ch:Mid



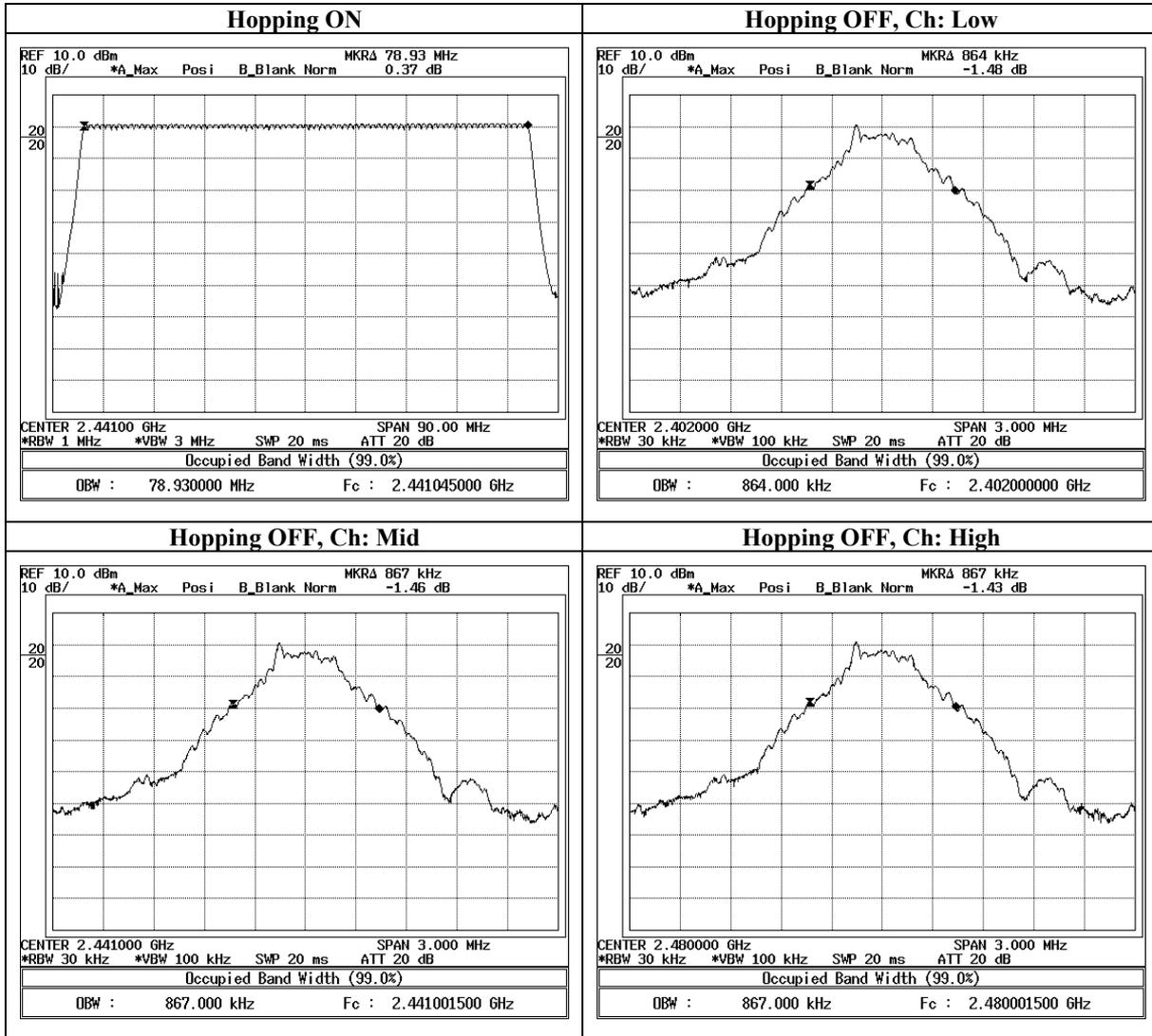
Conducted Spurious Emission
Ch:High



**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)
MAEC-03	Anechoic Chamber	TDK	Semi Anechoic Chamber 3m	RE / CE	2006/03/03 * 12
MRENT-39	Spectrum Analyzer	Advantest	R3273	RE / CE	2006/07/25 * 12
MCC-56	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX104	RE	2006/04/15 * 12
MPA-10	Pre Amplifier	Agilent	8449B	RE	2006/09/11 * 12
MHA-20	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	RE	2006/04/06 * 12
MHA-16	Horn Antenna 15-40GHz	Schwarzbeck	BBHA9170	RE	2006/04/15 * 12
TR-07	Test Receiver	Rohde & Schwarz	ESCS30	RE / CE	2006/09/12 * 12
MCC-51	Coaxial cable	UL Apex	-	RE / CE	2006/03/11 * 12
MPA-13	Pre Amplifier	SONOA INSTRUMENT	310	RE	2006/03/25 * 12
MAT-30	Attenuator(6dB)	TME	UFA-01	RE	2006/03/11 * 12
MBA-03	Biconical Antenna	Schwarzbeck	BBA9106	RE	2006/01/29 * 12
MLA-03	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2006/01/29 * 12
MLS-07	LISN(AMN)	Schwarzbeck	NSLK8127	CE (EUT)	2006/02/06 * 12
MJG-51	Conversion adapter	-	101 21	CE	-
MSTW-14	EMI measurement program	TSJ	TEPTO-DV	RE / CE	-
MOS-12	Thermo-Hygrometer	Custom	CTH-180	RE / CE	2006/01/19 * 24
MJM-06	Measure	PROMART	SEN1955	RE / CE	-
MPM-09	Power Meter	Anritsu	ML2495A	AT	2006/09/20 * 12
MPSE-12	Power sensor	Anritsu	MA2411B	AT	2006/09/20 * 12
MOS-15	Thermo-Hygrometer	Custom	CTH-180	AT	2006/01/19 * 24
MSA-05	Spectrum Analyzer	Advantest	R3273	AT	2006/05/20 * 12

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

Test Item:

CE: AC Main Conducted Emission

**AT: Antenna Terminal Conducted Spurious Emission, Maximum Peak Output Power,
Carrier Frequency Separation, 20dB Bandwidth, 99% Occupied Bandwidth,
Number of Hopping Frequency, Dwell time**

RE: Radiated Spurious Emission

UL Apex Co., Ltd.

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

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