



EMI TEST REPORT

Test Report No. : 26EE0220-HO-6

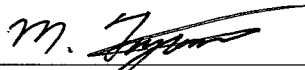
Applicant : Sharp Corporation
Type of Equipment : 3G(UMTS) / GSM 900/1800/1900
GPRS phone
Model No. : 550SH
FCC ID : APYHRO00047
Test standard : FCC Part 15 Subpart C
Section 15.207, Section 15.247: 2005
Test Result : Complied

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. We hereby certify that the data contain a true representation of the EMC profile.
4. The test results in this report are traceable to the national or international standards.

Date of test:

February 8 to 10, 2006

Tested by:


Mitsuaki Fujimura
EMC Services


Takumi Shimada
EMC Services

Approved by :


Hironobu Shimaji
Group Leader of EMC Services

UL Apex Co., Ltd.

Head Office EMC Lab.

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CONTENTS	PAGE
SECTION 1: Client information	3
SECTION 2: Equipment under test (E.U.T.)	3
SECTION 3: Test specification, procedures & results	5
SECTION 4: Operation of E.U.T. during testing	7
SECTION 5: Conducted Emission	8
SECTION 6: Spurious Emission	9
SECTION 7: Bandwidth	10
SECTION 8: Maximum Peak Output Power	10
SECTION 9: Carrier Frequency Separation	10
SECTION 10: Number of Hopping Frequency	10
SECTION 11: Dwell time	10
APPENDIX 1: Photographs of test setup	11
Conducted Emission	11
Spurious Emission (Radiated)	12
Worst Case Position (Y-axis:Horizontal / Z-axis:Vertical)	13
APPENDIX 2: Test instruments	14
APPENDIX 3: Data of EMI test	15
Conducted Emission	15
Carrier Frequency Separation	18
20dB Bandwidth	20
Number of Hopping Frequency	22
Dwell time	24
Maximum Peak Output Power	27
Radiated Spurious Emission	29
Conducted Spurious Emission	35
99% Occupied Bandwidth	39

SECTION 1: Client information

Company Name : Sharp Corporation
Brand Name : SHARP
Address : 2-13-1 Iida Hachihonmatsu HigashiHiroshima-City,Hiroshima 739-0192
Japan
Telephone Number : +81-82-420-1817
Facsimile Number : +81-82-420-1654
Contact Person : Masatsugu daijyu

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

2.1 Identification of E.U.T.

Type of Equipment : 3G(UMTS)/GSM900/1800/1900 GPRS phone
Model No. : 550SH
Serial No. : 004401/11/010726/1,
004401/11/010737/8
Power Supply : DC(nominal)4.0V
Country of Manufacture : Japan
Receipt Date of Sample : February 8, 2006
Condition of E.U.T. : Production prototype
(Not for Sale: This sample is equivalent to mass-produced items.)

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2.2 Product Description

Model: 550SH (referred to as the EUT in this report) is 3G(UMTS) / GSM 900/1800/1900 GPRS phone.
The EUT has the function of Bluetooth wireless technology interfaces for establishing contact and transmitting data with certain device.

Clock frequency(ies) in the system	:	13MHz
Equipment Type	:	Transceiver
Frequency band	:	Lower limit: 2402MHz Upper limit: 2480MHz
Bandwidth & Channel spacing	:	1MHz & 1MHz
Modulation	:	GFSK, FHSS
Mode of Operation	:	Duplex
ITU code	:	F1D/F1E/F1W
Power Supply	:	DC 3.7-4.0V (EUT input) DC 2.8V (BT RF Module input)
Antenna Type	:	Internal Antenna
Antenna Gain	:	2dBi(max)
Method of Frequency Generation	:	Synthesizer

FCC 15.31 (e)

The stable voltage (DC3.7-4.0V) is provided to the EUT and it is converted to DC2.8V and then constantly supplied to RF module part. 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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SECTION 3: Test specification, procedures & results

3.1 Test Specification

Test Specification : FCC Part15 Subpart C : 2005
Title : FCC 47CFR Part15 Radio Frequency Device Subpart C Intentional Radiators
Section 15.207 Conducted limits : 2005
Section 15.247 Operation within the bands 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz : 2005

3.2 Procedures and results

No.	Item	Test Procedure	Specification	Remarks	Deviation	Worst Margin*0)	Results
1	Conducted Emission *1)	ANSI C63.4:2003 7. AC powerline conducted emission measurements	Section 15.207	-	N/A	2.3dB 0.36821MHz, AV, L)	Complied
2	Carrier Frequency Separation	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(a)(1)	Conducted	N/A	*See data.	Complied
3	20dB Bandwidth	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(a)(1)	Conducted	N/A		Complied
4	Number of Hopping Frequency	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(a)(1)(iii)	Conducted	N/A		Complied
5	Dwell time	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(a)(1)(iii)	Conducted	N/A		Complied
6	Maximum Peak Output Power	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(b)(1)	Conducted	N/A		Complied
7	Band Edge Compliance	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(d)	Conducted	N/A		Complied
8	Spurious Emission	ANSI C63.4:2003 13. Measurement of intentional radiators	Section15.247(d)	Conducted/ Radiated	N/A	4.6dB (2483.5MHz, PK, Hor.)	Complied

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.

*1) There is no difference in output levels of 3 Channels (Low/Mid/High) at both QP/AV data, and all the levels complied with the limit. Therefore, only the representative channel (High: 2480MHz) was tested.

*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 $\pm 1.3\text{dB}$.
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 $\pm 4.5\text{dB}(3\text{m})/\pm 4.7\text{dB}(10\text{m})$.
The measurement uncertainty (with a 95% confidence level) for this test using Logperiodic antenna is $\pm 5.2\text{dB}(3\text{m})/\pm 3.8\text{dB}(10\text{m})$.
The measurement uncertainty (with a 95% confidence level) for this test using Horn antenna is $\pm 6.6\text{dB}$.
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 $\pm 3.0\text{dB}$.

3.5 Test Location

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	FCC Registration Number	IC Registration Number	Width x Depth x Height (m)	Size of reference ground plane (m) / horizontal conducting plane	Other rooms
No.1 semi-anechoic chamber	313583	IC4247A	19.2 x 11.2 x 7.7m	7.0 x 6.0m	Preparation room
No.2 semi-anechoic chamber	846015	IC4247A-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 shielded room	-	-	4.7 x 7.5 x 2.7m	4.7 x 7.5m	-
No.4 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 and No.2 semi-anechoic and No.3 shielded room.

3.6 Test set up, Test instruments and Data of EMI

Refer to APPENDIX 1 to 3.

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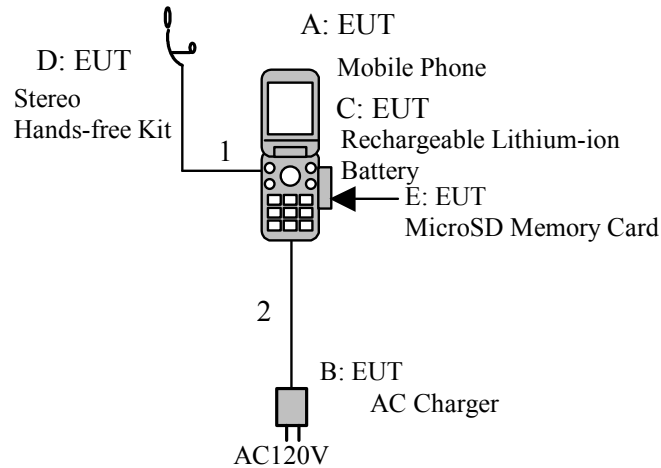
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SECTION 4: Operation of E.U.T. during testing

4.1 Operating Modes

The mode is used : Transmitting mode (PRBS9/ Packet size DH5)
Low Channel :2402MHz
Mid Channel :2441MHz
High Channel :2480MHz
Inquiry

4.2 Configuration and peripherals



*Cabling and test setup 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	FCC ID/Remarks
A	3G(UMTS) / GSM 900/1800/1900 GPRS phone	550SH	004401/11/010726/1 *1) 004401/11/010737/8 *2)	Sharp Corporation	APYHRO00047 (EUT)
B	AC Charger	XN-1QC43	-	HOSIDEN	EUT
C	Rechargeable Lithium-ion Battery	XN-1BT50	-	SANYO	EUT
D	Stereo Hands-free Kit	RPHOHA013AF	-	FOSTER	EUT
E	MicroSD Memory Card	UIMC-A022AF	-	SanDisk	EUT

*1) Used for Conducted and Radiated Spurious emission tests

*2) Used for other tests

List of cables used

No.	Name	Length (m)	Shield
1	Stereo Hands-free Kit	1.8	Y
2	AC Charger	1.8	N

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SECTION 5: Conducted Emission

Test Procedure and conditions

EUT was placed on a platform 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 itself (as a stand alone equipment)

Each EUT current-carrying power lead, except the ground (safety) lead, was individually connected through a LISN/(AMN) to the input power source. 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 3
Test result	: Pass

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SECTION 6: Spurious Emission

[Conducted]

Test Procedure

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

Test data : APPENDIX 3

Test result : Pass

[Radiated]

Test Procedure

EUT was placed on a platform of nominal size, 0.5m 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.

20dBc was applied to the frequency over the limit of FCC 15.209 and outside the restricted band of 15.205.

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 3

Test result : Pass

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SECTION 7: Bandwidth

Test Procedure

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

Test data : APPENDIX 3
Test result : Pass

SECTION 8: Maximum Peak Output Power

Test Procedure

The Maximum Peak Output Power was measured with a spectrum analyzer connected to the antenna port.

Test data : APPENDIX 3
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 3
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 3
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 3
Test result : Pass

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APPENDIX 1: Photographs of test setup

Conducted Emission

This page has been submitted for a separate exhibit.

Spurious Emission (Radiated)

This page has been submitted for a separate exhibit.

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

This page has been submitted for a separate exhibit.

APPENDIX 2:Test instruments

EMI test equipment

Control No.	Instrument	Manufacturer	Model No	Test Item	Calibration Date * Interval(month)
MAT-22	Attenuator(10dB) (above1GHz)	Orient Microwave	BX10-0476-00	AT	2005/03/16 * 12
MCC-05	Microwave Cable 1G-50GHz	Storm	421-011 (90- 1394-079)	AT	2006/01/04 * 12
MPA-04	Pre Amplifier	Agilent	8447D	AT	2005/05/24 * 12
MSA-04	Spectrum Analyzer	Agilent	E4448A	AT	2005/05/19 * 12
MOS-04	Digital Humidity Indicator	N.T	NT-1800	AT	2004/11/25 * 24
MAEC-01	Anechoic Chamber	TDK	Semi Anechoic Chamber 10m	RE / CE	2005/11/14 * 12
MOS-01	Digital Humidity Indicator	N.T	NT-1800	RE / CE	2004/11/25 * 24
MBA-01	Biconical Antenna	Schwarzbeck	BBA9106	RE	2005/10/10 * 12
MLA-01	Logperiodic Antenna	Schwarzbeck	USLP9143	RE	2005/10/14 * 12
MCC-01	Coaxial Cable 0.1- 3000MHz	Suhner/storm/Agilent/ TSJ	-	RE	2005/12/18 * 12
MAT-06	Attenuator(6dB)	Weinschel Corp	2	RE	2005/12/16 * 12
MPA-04	Pre Amplifier	Agilent	8447D	RE	2005/05/24 * 12
MHA-05	Horn Antenna	Schwarzbeck	BBHA9120D	RE	2006/01/09 * 12
MCC-18	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	RE	2006/02/02 * 12
MCC-15	Microwave Cable 1G-26.5GHz	Suhner	SUCOFLEX 104	RE	2006/02/02 * 12
MHF-05	High Pass Filter	Tokimec	TF323DCA	RE	2006/01/24 * 12
MPA-05	Pre Amplifier	TSJ	TSJ 1-26.5GHz PreAmp	RE	2005/07/08 * 12
MHA-01	Horn Antenna	EMCO	3160-09	RE	2006/01/09 * 12
MLS-02	LISN(AMN)	Schwarzbeck	NSLK8127	CE(EUT)	2005/11/09 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/Agile nt/TSJ	-	CE	2005/12/18 * 12
MPL-01	Pulse Limiter	Rohde & Schwarz	ESH3Z2	CE	2006/01/10 * 12

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

Test Item:

CE: Conducted emission

RE: Radiated emission,

AT: Antenna terminal tests

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APPENDIX 3: Data of EMI test

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2006/02/10 03:39:12

Company

Kind of EUT

Model No.

Serial No.

: Sharp Corporation

: 3G (UMTS) / GSM900/1800/1900 GPRS phone

: 550SH

: 004401/11/010726/1

Report No.

Power

Temp./Humi.

Operator

: 26EE0220-H0

: AC 120V / 60Hz

: 23deg. C / 32%

: Takumi Shimada

Mode / Remarks

: Bluetooth Tx 2402MHz

LIMIT : FCC15C §15.207 (QP)
FCC15C §15.207 (AV)

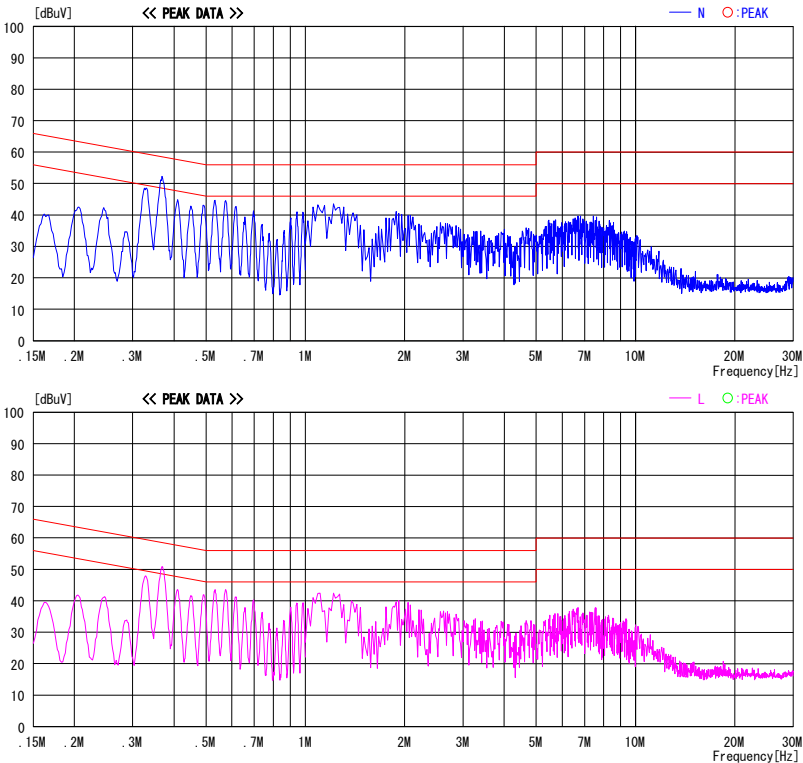


CHART: WITH FACTOR. Peak hold data. Data is uncorrected. CALCURATION: RESULT=READING+C.F (LISN LOSS+CABLE LOSS)
Except for the above table : adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2006/02/10 03:43:55

Company : Sharp Corporation
Kind of EUT : 3G (UMTS)/GSM900/1800/1900 GPRS phone
Model No. : 550SH
Serial No. : 004401/11/010726/1
Report No. : 26EE0220-H0
Power : AC 120V / 60Hz
Temp./Humi. : 23deg. C / 32%
Operator : Takumi Shimada

Mode / Remarks : Bluetooth Tx 2441MHz

LIMIT : FCC15C §15.207 (QP)
FCC15C §15.207 (AV)

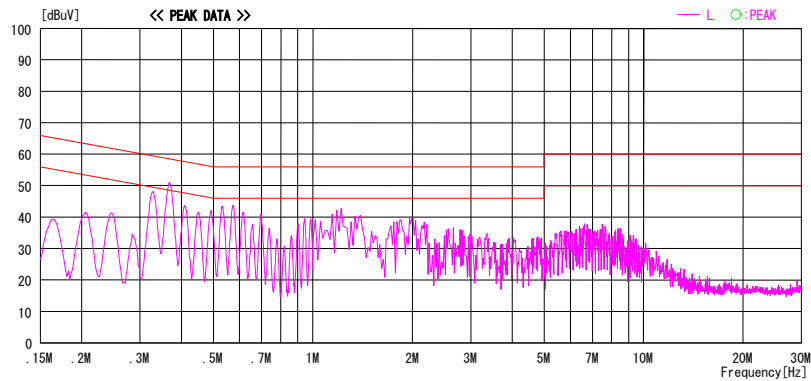
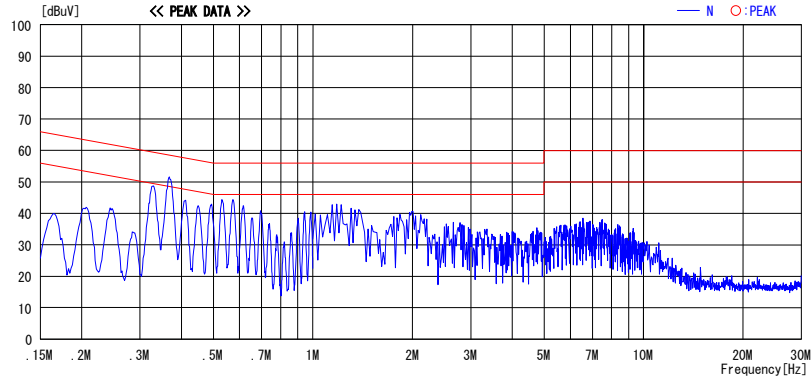


CHART: WITH FACTOR, Peak hold data. Data is uncorrected. CALCULATION: RESULT=READING+C.F (LISN LOSS+CABLE LOSS)
Except for the above table: adequate margin data below the limits.

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2006/02/10 03:49:49

Company : Sharp Corporation

Kind of EUT : 3G (UMTS) / GSM900/1800/1900 GPRS phone

Model No. : 550SH

Serial No. : 004401/11/010726/1

Report No. : 26EE0220-H0

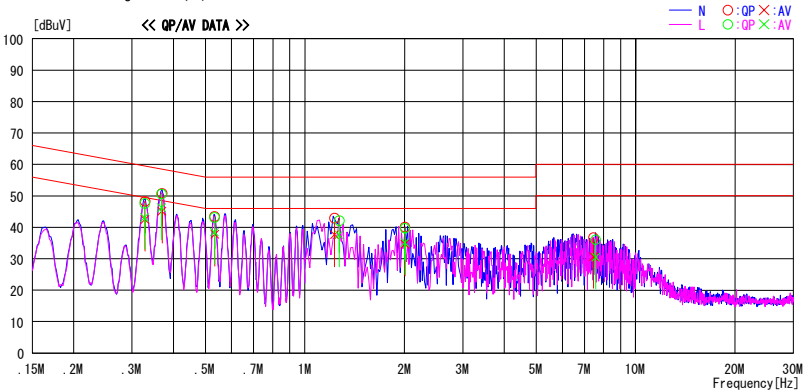
Power : AC 120V / 60Hz

Temp. /Humi. : 23deg. C / 32%

Operator : Takumi Shimada

Mode / Remarks : Bluetooth Tx 2480MHz

LIMIT : FCC15C §15.207 (QP)
FCC15C §15.207 (AV)



Frequency	Reading Level		Corr.	Results		Limit		Margin		Phase
	QP	AV		QP	AV	QP	AV	QP	AV	
[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]	
0.32721	37.7	33.2	9.9	47.6	43.1	59.5	49.5	11.9	6.4	L
0.32803	38.4	32.6	9.9	48.3	42.5	59.5	49.5	11.2	7.0	N
0.36821	40.7	36.3	9.9	50.6	46.2	58.5	48.5	7.9	2.3	L
0.36964	40.9	35.2	9.9	50.8	45.1	58.5	48.5	7.7	3.4	N
0.53304	33.1	28.4	10.0	43.1	38.4	56.0	46.0	12.9	7.6	L
0.53340	33.4	27.8	10.0	43.4	37.8	56.0	46.0	12.6	8.2	N
1.22868	32.8	27.5	10.1	42.9	37.6	56.0	46.0	13.1	8.4	N
1.26941	32.0	27.5	10.1	42.1	37.6	56.0	46.0	13.9	8.4	L
2.00649	29.5	24.9	10.2	39.7	35.1	56.0	46.0	16.3	10.9	L
2.00686	29.9	24.4	10.2	40.1	34.6	56.0	46.0	15.9	11.4	N
7.45254	25.9	19.9	10.8	36.7	30.7	60.0	50.0	23.3	19.3	N
7.57340	25.3	19.7	10.8	36.1	30.5	60.0	50.0	23.9	19.5	L

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

Carrier Frequency Separation

DATA OF CARRIER FREQUENCY SEPARATION

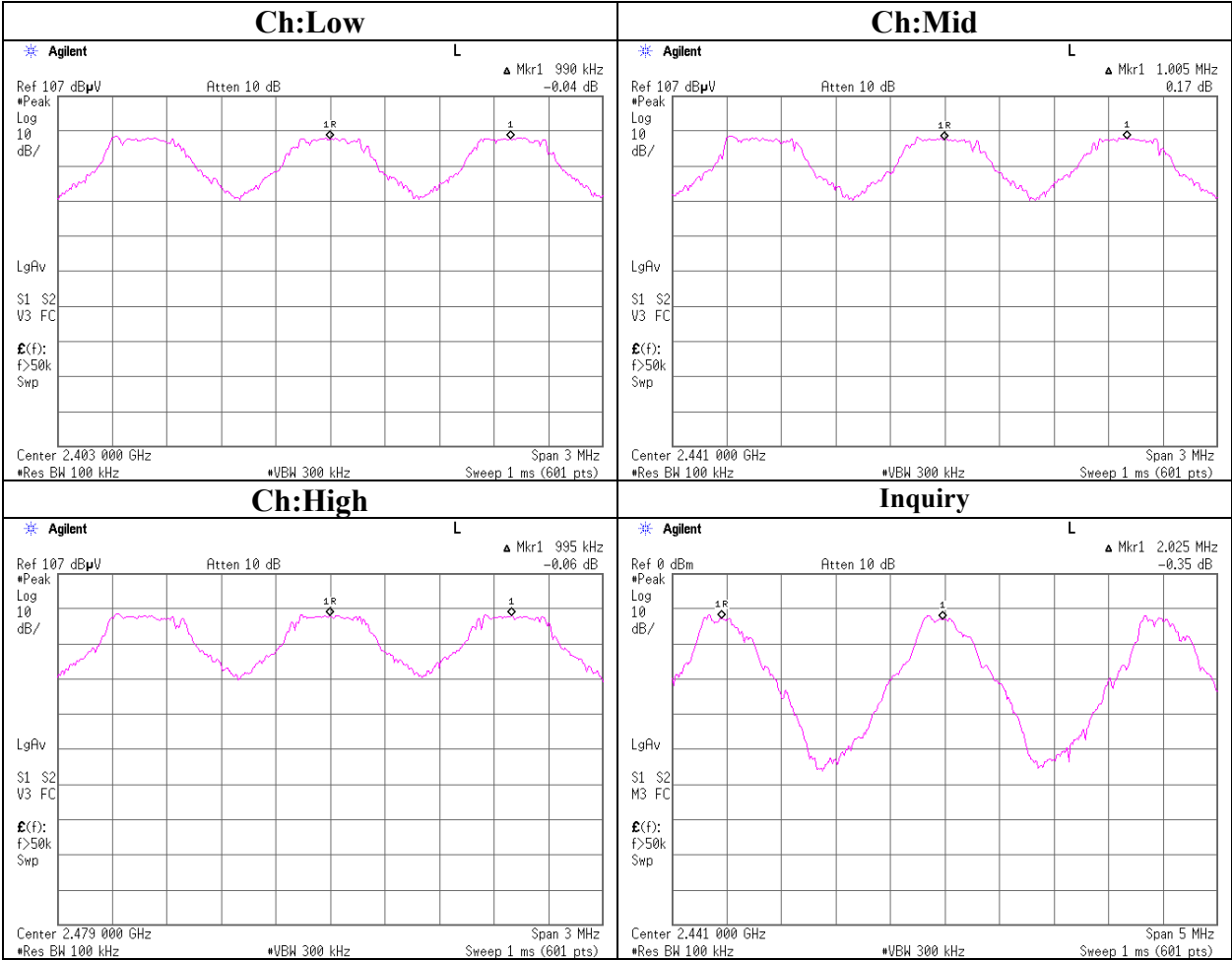
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COMPANY : Sharp Corporation
EQUIPMENT : 3G (UMTS) / GSM900/1800/1900 GPRS phone
MODEL : 550SH
S/ N : 004401110107378
POWER : DC4.0V
MODE : Tx(Hopping on)/Inquiry

REGULATION : FCC Part15 Subpart C 15.247(a)(1)
TEST DISTANCE : -
DATE : 02/08/2006
TEMPERATURE : 24deg.C
HUMIDITY : 35%
ENGINEER : Mitsuru Fujimura

Ch	Freq. [MHz]	Channel separation [MHz]	Limit
Low	2402.0	0.990	>20dB Bandwidth and 25[kHz]
Mid	2441.0	1.005	>20dB Bandwidth and 25[kHz]
High	2480.0	0.995	>20dB Bandwidth and 25[kHz]
Inquiry	2441.0	2.025	>20dB Bandwidth and 25[kHz]

Carrier Frequency Separation



20dB Bandwidth
DATA OF 20dB BANDWIDTH

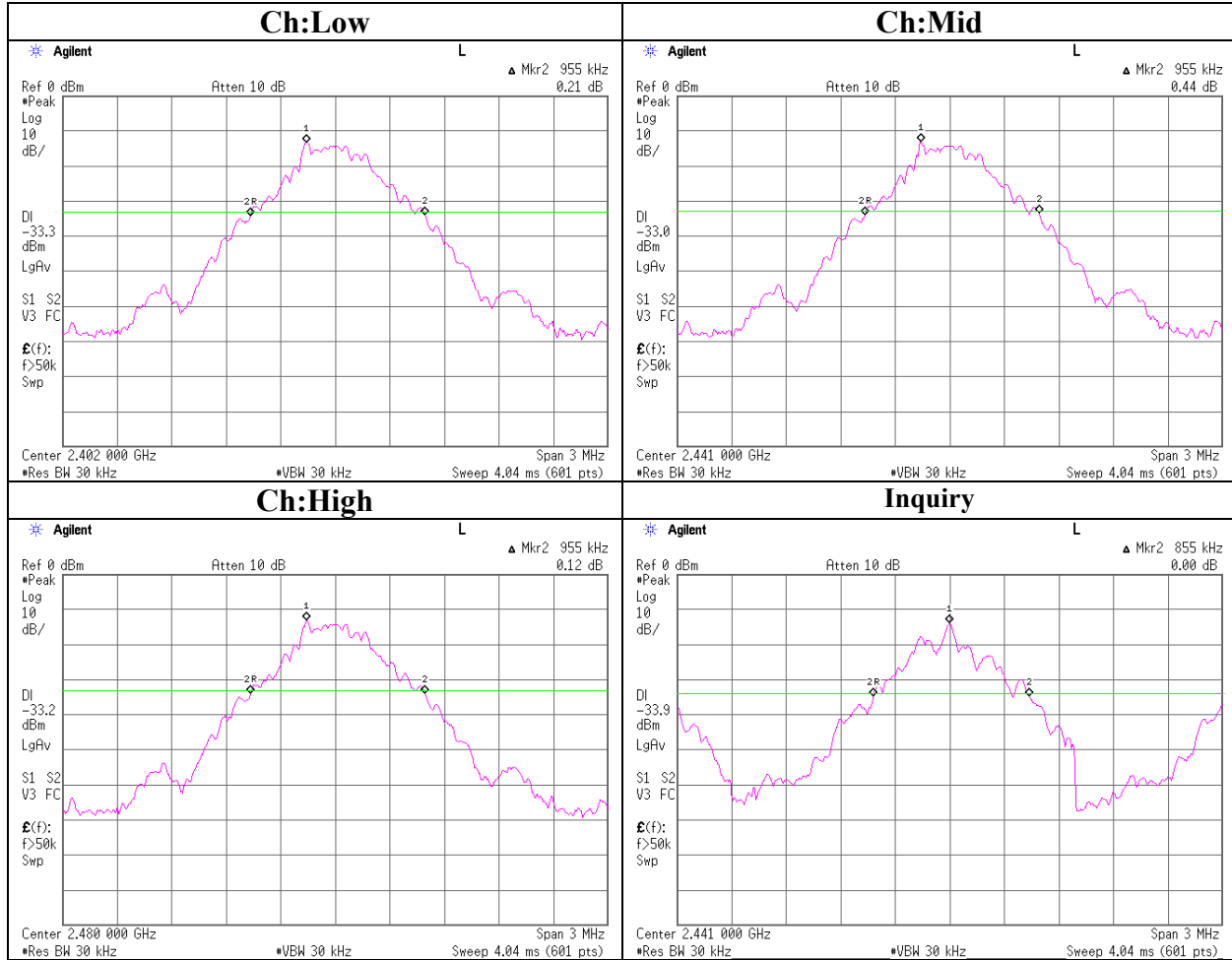
UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Shielded Room

COMPANY : Sharp Corportion
EQUIPMENT : 3G (UMTS) / GSM900/1800/1900 GPRS phone
MODEL : 550SH
S/ N : 004401110107378
POWER : DC4.0V
MODE : Tx (Hopping off) /Inquiry

REGULATION : FCC Part15 Subpart C 15.247(a)(1)
TEST DISTANCE : -
DATE : 02/08/2006
TEMPERATURE : 24deg.C
HUMIDITY : 35%
ENGINEER : Mitsuru Fujimura

Ch	Freq.	20dB Bandwidth	Limit
	[MHz]	[MHz]	[MHz]
Low	2402.0	0.955	-
Mid	2441.0	0.955	-
High	2480.0	0.955	-
Inquiry	2441.0	0.855	-

20dB Bandwidth



Number of Hopping Frequency

DATA OF NUMBER OF HOPPING FREQUENCY

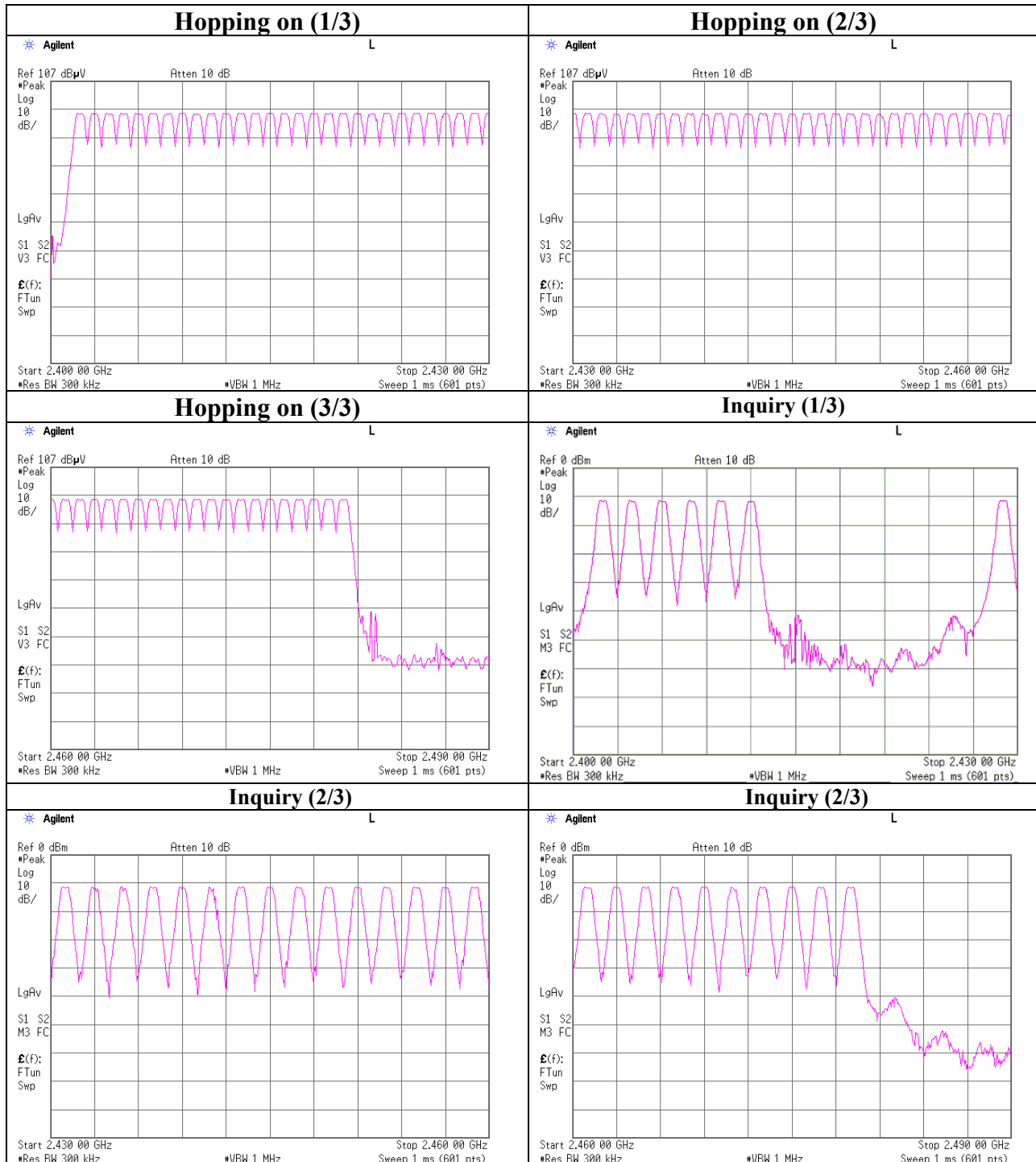
UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Shielded Room

COMPANY	: Sharp Corporation	REGULATION	: FCC Part15 Subpart C 15.247(a)(1)(iii)
EQUIPMENT	: 3G (UMTS) / GSM900/1800/1900 GPRS phone	TEST DISTANCE	: -
MODEL	: 550SH	DATE	: 02/08/2006
S/ N	: 004401/11/010737/8	TEMPERATURE	: 24deg.C
POWER	: DC4.0V	HUMIDITY	: 35%
MODE	: Tx(Hopping on)/Inquiry	ENGINEER	: Mitsuru Fujimura

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

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

Number of Hopping Frequency



Dwell time

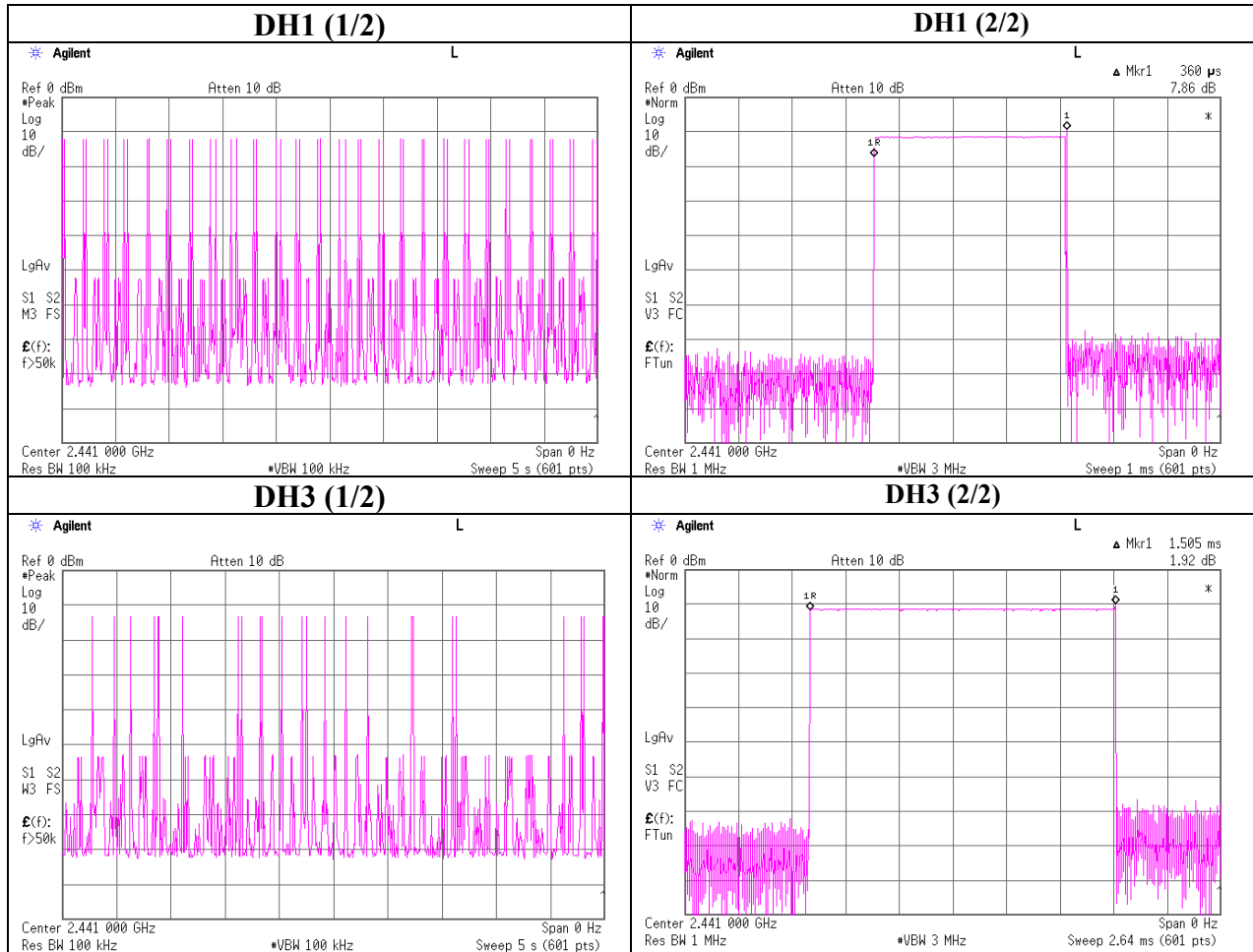
DATA OF DWELL TIME

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Shielded Room

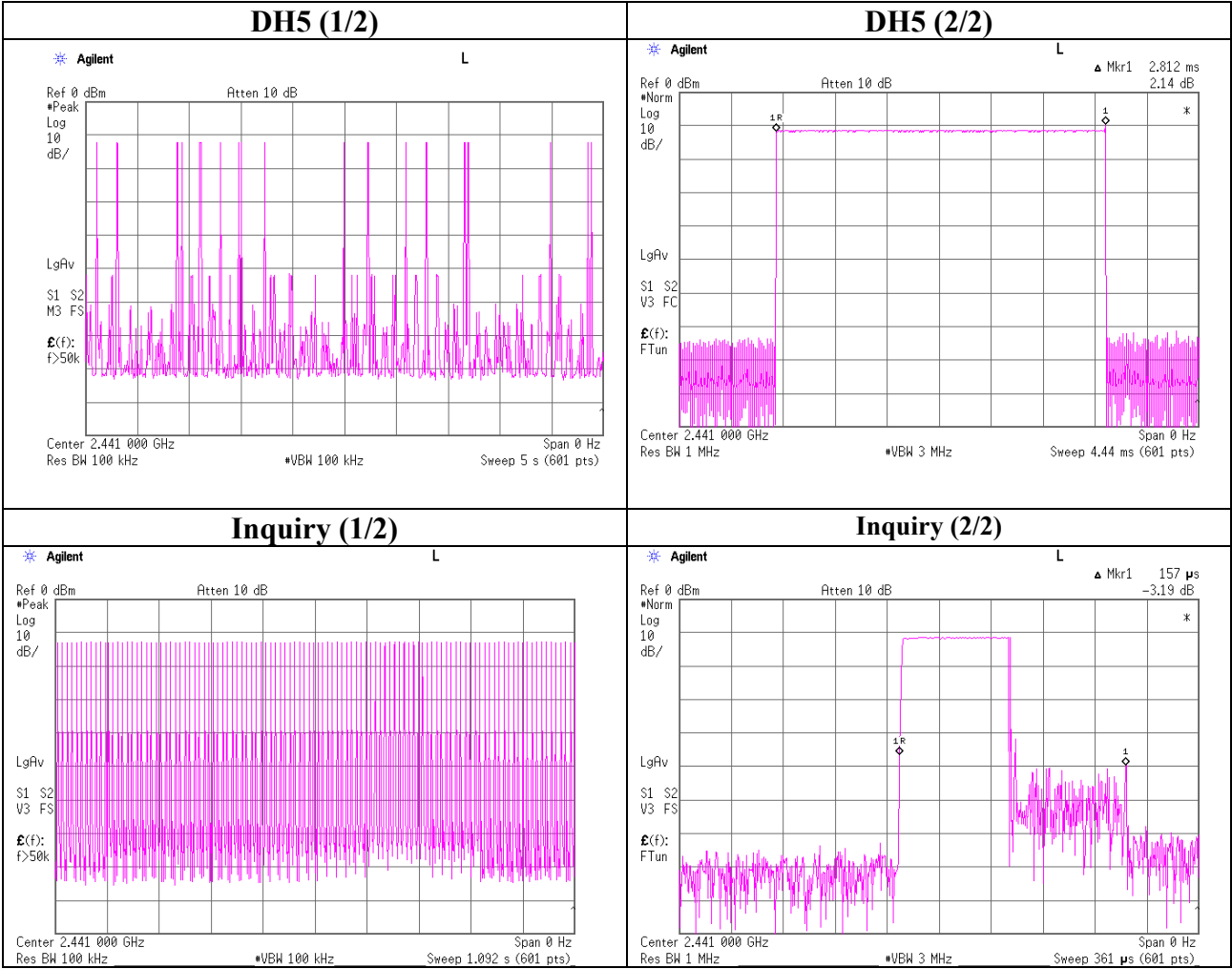
COMPANY	: Sharp Corportion	REGULATION	: FCC Part15 Subpart C 15.247(a)(1)(iii)
EQUIPMENT	: 3G (UMTS) / GSM900/1800/1900 GPRS phone	TEST DISTANCE	: -
MODEL	: 550SH	DATE	: 02/08/2006
S/ N	: 004401110107378	TEMPERATURE	: 24deg.C
POWER	: DC4.0V	HUMIDITY	: 35%
MODE	: Tx (Hopping on) /Inquiry	ENGINEER	: Mitsuru Fujimura

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 /5sec. x 31.6 = 329 times	0.360	118	400
DH3	24 times / 5sec. x 31.6 = 152 times	1.505	229	400
DH5	18 times / 5 sec. x 31.6 = 114 times	2.812	321	400
Inquiry	106 times / 1sec. x 12.8 = 1357 times	0.157	213	400

Dwell time



Dwell time



Maximum Peak Output Power

DATA OF PEAK OUTPUT POWER(CONDUCTED)

UL Apex Co., Ltd.
Head Office EMC Lab. No.3 Shielded Room

COMPANY	: Sharp Corportion	REGULATION	: FCC Part15 Subpart C 15.247(b)(1)
EQUIPMENT	: 3G (UMTS) / GSM900/1800/1900 GPRS phone	TEST DISTANCE	: -
MODEL	: 550SH	DATE	: 02/08/2006
S/N	: 004401110107378	TEMPERATURE	: 24deg.C
POWER	: DC4.0V	HUMIDITY	: 35%
MODE	: Tx (Hopping off) /Inquiry	ENGINEER	: Mitsuru Fujimura

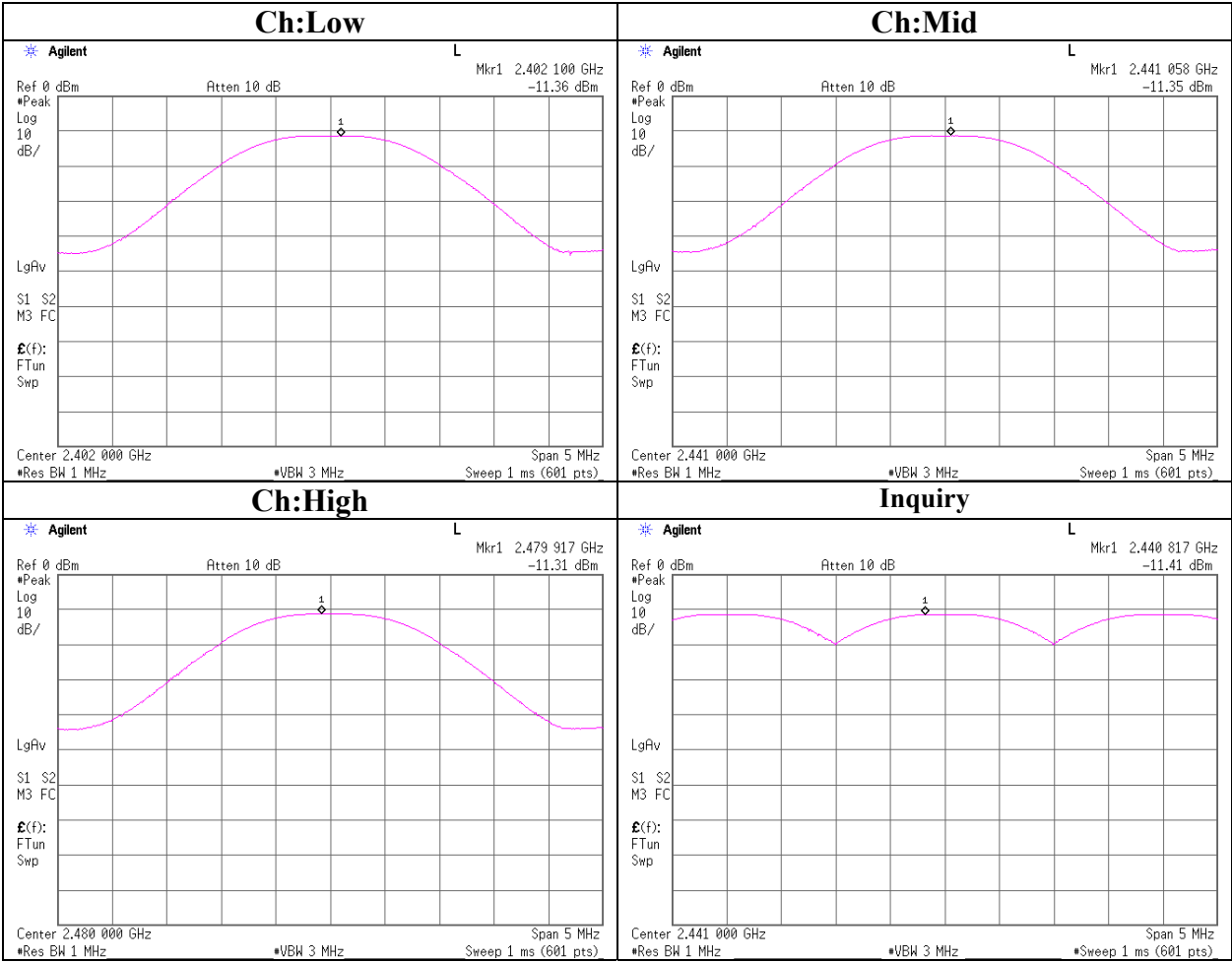
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result		Limit		Margin [dB]
					[dBm]	[mW]	[dBm]	[mW]	
Low	2402.0	-11.36	1.59	9.90	0.13	1.03	30.00	1000	29.87
Mid	2441.0	-11.35	1.52	9.90	0.07	1.02	30.00	1000	29.93
High	2480.0	-11.31	1.49	9.90	0.08	1.02	30.00	1000	29.92
Inquiry	2441.0	-11.41	1.52	9.90	0.01	1.00	20.97	125	20.96

Sample Calculation:

Result = Reading + Cable Loss

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

Maximum Peak Output Power



Radiated Spurious Emission

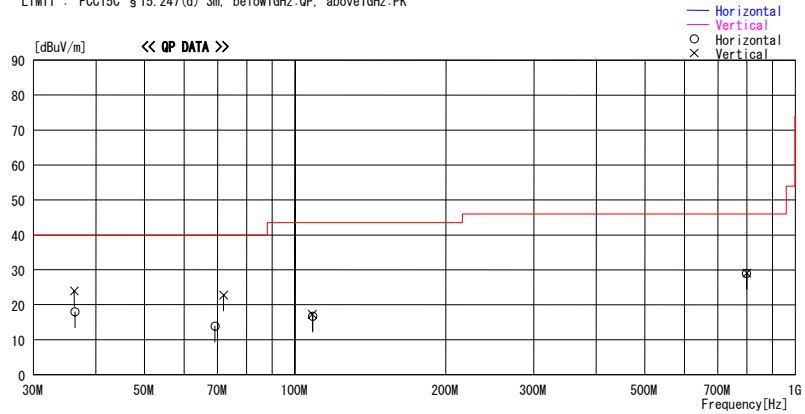
DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi-Anechoic Chamber
Date : 2006/02/10 01:55:35

Company : Sharp Corporation Report No. : 26EE0220-HO
Kind of EUT : 3G(UMTS)/GSM900/1800/1900 GPRS phone Power : AC 120V / 60Hz
Model No. : 550SH Temp./Humi. : 23deg. C. / 32%
Serial No. : 004401/11/010726/1 Operator : Takumi Shimada

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

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP, above1GHz:PK



Frequency	Reading	DET	Antenna Factor	Loss	Level	Angle	Height	Polar.	Limit	Margin
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]
36.323	22.9	QP	15.7	-20.6	18.0	94	299	Hori	40.0	22.0
36.220	28.8	QP	15.8	-20.6	24.0	352	100	Vert	40.0	16.0
69.163	26.8	QP	7.1	-20.0	13.9	346	272	Hori	40.0	26.1
72.002	35.8	QP	7.0	-20.0	22.8	130	100	Vert	40.0	17.2
108.357	25.1	QP	11.6	-19.4	17.3	174	130	Vert	43.5	26.2
108.492	24.4	QP	11.7	-19.4	16.7	89	324	Hori	43.5	26.8
798.858	23.1	QP	21.6	-15.7	29.0	276	100	Hori	46.0	17.0
799.692	23.2	QP	21.6	-15.7	29.1	359	100	Vert	46.0	16.9

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

DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2006/02/10 02:21:42

Company : Sharp Corporation

Report No. : 26EE0220-H0

Kind of EUT : 3G (UMTS)/GSM900/1800/1900 GPRS phone

Power : AC 120V / 60Hz

Model No. : 550SH

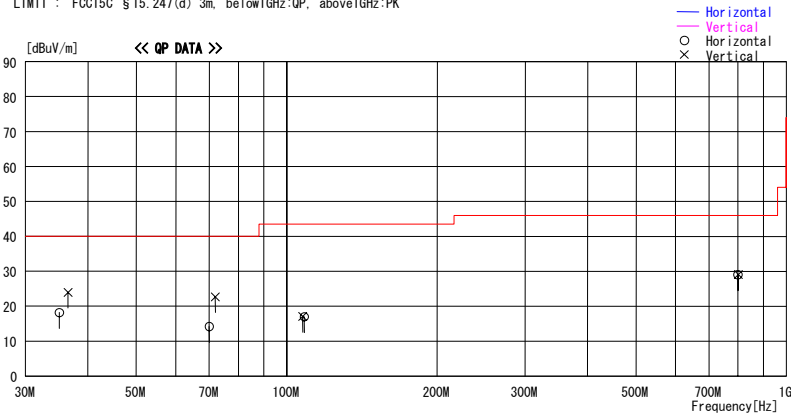
Temp./Humi. : 23deg. C. / 32%

Serial No. : 004401/11/010726/1

Operator : Takumi Shimada

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

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP, above1GHz:PK



Frequency	Reading	DET	Antenna	Loss &	Level	Angle	Height	Polar.	Limit	Margin
			Factor	Gain						
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg.]	[cm]		[dBuV/m]	[dB]
35.045	22.5	QP	16.4	-20.7	18.2	103	301	Hori.	40.0	21.8
36.901	29.0	QP	15.6	-20.6	24.0	359	100	Vert.	40.0	16.0
70.000	27.2	QP	7.0	-20.0	14.2	17	301	Hori.	40.0	25.8
71.977	35.7	QP	7.0	-20.0	22.7	61	100	Vert.	40.0	17.3
107.576	25.0	QP	11.5	-19.4	17.1	114	100	Vert.	43.5	26.4
108.517	24.7	QP	11.7	-19.4	17.0	135	286	Hori.	43.5	26.5
799.404	23.1	QP	21.6	-15.7	29.0	253	100	Hori.	46.0	17.0
801.132	23.2	QP	21.6	-15.7	29.1	201	100	Vert.	46.0	16.9

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

DATA OF RADIATED EMISSION TEST

UL Apex Co., Ltd. Head Office EMC Lab. No.1 Semi Anechoic Chamber
Date : 2006/02/10 02:48:47

Company : Sharp Corporation

Kind of EUT : 3G(UMTS)/GSM900/1800/1900 GPRS phone

Model No. : 550SH

Serial No. : 004401/11/010726/1

Report No. : 26EE0220-HO

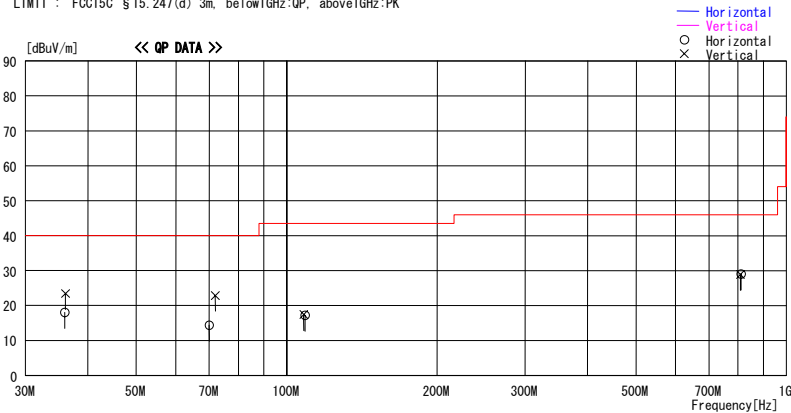
Power : AC 120V / 60Hz

Temp./Humi. : 23deg. C. / 32%

Operator : Takumi Shimada

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

LIMIT : FCC15C §15.247(d) 3m, below1GHz:QP, above1GHz:PK



Frequency	Reading	DET	Antenna	Loss &	Level	Angle	Height	Polar.	Limit	Margin
			Factor	Gain						
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg.]	[cm]		[dBuV/m]	[dB]
35.927	22.8	QP	15.9	-20.7	18.0	76	315	Hori.	40.0	22.0
36.066	28.2	QP	15.9	-20.7	23.4	176	100	Vert.	40.0	16.6
69.950	27.4	QP	7.0	-20.0	14.4	170	275	Hori.	40.0	25.6
71.978	35.9	QP	7.0	-20.0	22.9	150	100	Vert.	40.0	17.1
108.137	25.2	QP	11.6	-19.4	17.4	6	100	Vert.	43.5	26.1
108.760	24.9	QP	11.7	-19.4	17.2	126	315	Hori.	43.5	26.3
809.140	23.1	QP	21.5	-15.7	28.9	326	100	Vert.	46.0	17.1
811.320	23.2	QP	21.5	-15.7	29.0	279	100	Hori.	46.0	17.0

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.1Semi Anechoic Chamber

Company : Sharp Corporation Equipment : 3G(UMTS) / GSM 900/1800/1900 GPRS phone Model : S50SH Sample No. : 004401/11/010726/1 Power : DC 4.0V (AC 120 V / 60 Hz) Mode : Bluetooth Tx 2402MHz Remarks : Hor Y-axis , Ver Z-axis	REPORT NO : 26EE0220-HO REGULATION : Fcc Part15 Subpart C 15.247(d) TEST DISTANCE : 3/1m DATE : 02/09/2006 TEMPERATURE : 23deg.C HUMIDITY : 32% ENGINEER : Takumi Shimada
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PK DETECT (RBW: 1MHz, VBW: 1MHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	53.7	53.1	30.5	41.2	2.3	0.0	45.3	44.7	74.0	28.7	29.3
2*	2400.0	87.6	84.4	30.5	41.2	2.3	0.0	79.2	76.0	74.0	-5.2	-2.0
3	4804.0	51.3	51.9	35.3	42.5	3.4	1.4	48.9	49.5	74.0	25.1	24.5
4	7206.0	49.9	48.8	37.6	41.8	4.2	1.2	51.1	50.0	74.0	22.9	24.0
5	9608.0	52.5	47.2	36.6	40.8	4.7	1.0	54.0	48.7	74.0	20.0	25.3
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
6	12010.0	50.9	51.3	40.2	40.3	5.6	1.8	48.7	49.1	74.0	25.3	24.9
7	14412.0	48.8	51.0	42.7	42.1	6.1	0.9	46.9	49.1	74.0	27.1	24.9
8	16814.0	51.5	51.5	45.7	41.8	7.0	1.2	54.1	54.1	74.0	19.9	19.9
9	19216.0	49.3	48.5	39.4	40.2	7.3	0.0	46.3	45.5	74.0	27.7	28.5
10	21618.0	48.3	48.1	39.7	40.2	7.9	0.0	46.2	46.0	74.0	27.8	28.0
11	24020.0	47.5	46.8	39.7	39.1	8.2	0.0	46.8	46.1	74.0	27.2	27.9

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2390.0	42.2	40.8	30.5	41.2	2.3	0.0	33.8	32.4	54.0	20.2	21.6
2*	2400.0	72.0	70.0	30.5	41.2	2.3	0.0	63.6	61.6	54.0	-9.6	-7.6
3	4804.0	38.3	38.3	35.3	42.5	3.4	1.4	35.9	35.9	54.0	18.1	18.1
4	7206.0	36.5	36.5	37.6	41.8	4.2	1.2	37.7	37.7	54.0	16.3	16.3
5	9608.0	38.8	34.7	36.6	40.8	4.7	1.0	40.3	36.2	54.0	13.7	17.8
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
6	12010.0	36.4	38.8	40.2	40.3	5.6	1.8	34.2	36.6	54.0	19.8	17.4
7	14412.0	36.0	38.7	42.7	42.1	6.1	0.9	34.1	36.8	54.0	19.9	17.2
8	16814.0	39.5	39.5	45.7	41.8	7.0	1.2	42.1	42.1	54.0	11.9	11.9
9	19216.0	36.0	36.3	39.4	40.2	7.3	0.0	33.0	33.3	54.0	21.0	20.7
10	21618.0	36.3	36.3	39.7	40.2	7.9	0.0	34.2	34.2	54.0	19.8	19.8
11	24020.0	35.5	35.5	39.7	39.1	8.2	0.0	34.8	34.8	54.0	19.2	19.2

* 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]	ATT or Filter Loss [dB]	RESULT		Limit 20dBc [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
0	2402.0	110.9	108.4	30.5	41.2	2.3	0.0	102.5	100.0	-	-	-
2	2400.0	58.7	56.5	30.5	41.2	2.3	0.0	50.3	48.1	Funda-20dB	32.2	31.9

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

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

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

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

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

UL Apex Co., Ltd.

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MF060b(01.06.05)

Radiated Spurious Emission

UL Apex Co., Ltd.
Head Office EMC Lab. No.1Semi Anechoic Chamber

Company : Sharp Corporation	REPORT NO : 26EE0220-HO
Equipment : 3G(UMTS) / GSM 900/1800/1900 GPRS phone	REGULATION : Fcc Part15 Subpart C 15.247(d)
Model : 550SH	TEST DISTANCE : 3/1m
Sample No. : 004401/11/010726/1	DATE : 02/09/2006
Power : DC 4.0V (AC 120 V / 60 Hz)	TEMPERATURE : 23deg.C
Mode : Bluetooth Tx 2441MHz	HUMIDITY : 32%
Remarks : Hor Y-axis , Ver Z-axis	ENGINEER : Takumi Shimada

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	4882.0	51.1	51.1	35.6	42.5	3.4	1.4	49.0	49.0	74.0	25.0	25.0
2	7323.0	48.7	50.4	37.7	41.8	4.2	1.1	49.9	51.6	74.0	24.1	22.4
3	9764.0	48.3	48.4	36.5	40.7	4.8	1.1	50.0	50.1	74.0	24.0	23.9
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	12205.0	49.9	49.7	40.3	40.6	5.6	1.7	47.4	47.2	74.0	26.6	26.8
5	14646.0	48.4	48.0	42.8	41.8	6.2	0.8	46.9	46.5	74.0	27.1	27.5
6	17087.0	48.7	49.0	46.2	41.8	7.1	1.3	52.0	52.3	74.0	22.0	21.7
7	19528.0	46.9	45.8	39.6	40.1	7.4	0.0	44.3	43.2	74.0	29.7	30.8
8	21969.0	48.6	48.9	40.1	40.1	8.0	0.0	47.1	47.4	74.0	26.9	26.6
9	24410.0	45.8	44.6	39.8	39.7	8.3	0.0	44.7	43.5	74.0	29.3	30.5

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	4882.0	38.3	38.3	35.6	42.5	3.4	1.4	36.2	36.2	54.0	17.8	17.8
2	7323.0	36.6	36.6	37.7	41.8	4.2	1.1	37.8	37.8	54.0	16.2	16.2
3	9764.0	34.6	34.6	36.5	40.7	4.8	1.1	36.3	36.3	54.0	17.7	17.7
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
4	12205.0	36.6	36.6	40.3	40.6	5.6	1.7	34.1	34.1	54.0	19.9	19.9
5	14646.0	35.2	35.1	42.8	41.8	6.2	0.8	33.7	33.6	54.0	20.3	20.4
6	17087.0	35.5	35.5	46.2	41.8	7.1	1.3	38.8	38.8	54.0	15.2	15.2
7	19528.0	33.6	33.3	39.6	40.1	7.4	0.0	31.0	30.7	54.0	23.0	23.3
8	21969.0	35.5	35.6	40.1	40.1	8.0	0.0	34.0	34.1	54.0	20.0	19.9
9	24410.0	32.5	32.6	39.8	39.7	8.3	0.0	31.4	31.5	54.0	22.6	22.5

* 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 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.
Head Office EMC Lab. No.1 Semi Anechoic Chamber

Company : Sharp Corporation Equipment : 3G(UMTS) / GSM 900/1800/1900 GPRS phone Model : 550SH Sample No. : 004401/11/010726/1 Power : DC 4.0V (AC 120 V / 60 Hz) Mode : Bluetooth Tx 2480MHz Remarks : Hor Y-axis , Ver Z-axis	REPORT NO : 26EE0220-HO REGULATION : Fcc Part15 Subpart C 15.247(d) TEST DISTANCE : 3/1m DATE : 02/09/2006 TEMPERATURE : 23deg.C HUMIDITY : 32% ENGINEER : Takumi Shimada
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PK DETECT (RBW: 1MHz, VBW: 1MHz)

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit PK [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	78.0	75.4	30.3	41.3	2.4	0.0	69.4	66.8	74.0	4.6	7.2
2	4960.0	51.4	50.6	35.9	42.5	3.4	1.4	49.6	48.8	74.0	24.4	25.2
3	7440.0	49.2	50.3	37.8	51.8	4.3	1.1	40.6	41.7	74.0	33.4	32.3
4	9920.0	48.3	48.1	36.3	40.6	4.9	1.2	50.1	49.9	74.0	23.9	24.1
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12400.0	50.0	49.7	40.4	41.0	5.6	1.6	47.1	46.8	74.0	26.9	27.2
6	14880.0	48.5	48.7	43.0	41.5	6.3	0.9	47.7	47.9	74.0	26.3	26.1
7	17360.0	49.5	49.7	46.5	42.0	7.1	1.7	53.3	53.5	74.0	20.7	20.5
8	19840.0	45.8	46.9	39.4	40.0	7.3	0.0	43.0	44.1	74.0	31.0	29.9
9	22320.0	48.4	48.3	40.1	39.9	8.0	0.0	47.1	47.0	74.0	26.9	27.0
10	24800.0	46.6	47.4	40.0	40.2	8.4	0.0	45.3	46.1	74.0	28.7	27.9

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

No.	FREQ [MHz]	S/A READING		ANT Factor [dB/m]	AMP GAIN [dB]	CABLE LOSS [dB]	Hi-Pass Filter [dB]	RESULT		Limit AV [dBuV/m]	MARGIN	
		HOR	VER					HOR	VER		HOR	VER
		[dBuV]						[dBuV/m]			[dB]	
Test distance 3meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss												
1	2483.5	53.4	51.9	30.3	41.3	2.4	0.0	44.8	43.3	54.0	9.2	10.7
2	4960.0	38.1	38.2	35.9	42.5	3.4	1.4	36.3	36.4	54.0	17.7	17.6
3	7440.0	36.4	36.3	37.8	51.8	4.3	1.1	27.8	27.7	54.0	26.2	26.3
4	9920.0	35.3	35.3	36.3	40.6	4.9	1.2	37.1	37.1	54.0	16.9	16.9
Test distance 1meters RESULT=Reading + ANT Factor - Amp Gain + Cable Loss + Filter Loss - Dfac												
5	12400.0	36.8	36.8	40.4	41.0	5.6	1.6	33.9	33.9	54.0	20.1	20.1
6	14880.0	35.8	35.5	43.0	41.5	6.3	0.9	35.0	34.7	54.0	19.0	19.3
7	17360.0	36.3	36.2	46.5	42.0	7.1	1.7	40.1	40.0	54.0	13.9	14.0
8	19840.0	32.9	33.0	39.4	40.0	7.3	0.0	30.1	30.2	54.0	23.9	23.8
9	22320.0	35.4	35.4	40.1	39.9	8.0	0.0	34.1	34.1	54.0	19.9	19.9
10	24800.0	33.6	33.5	40.0	40.2	8.4	0.0	32.3	32.2	54.0	21.7	21.8

* 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 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.

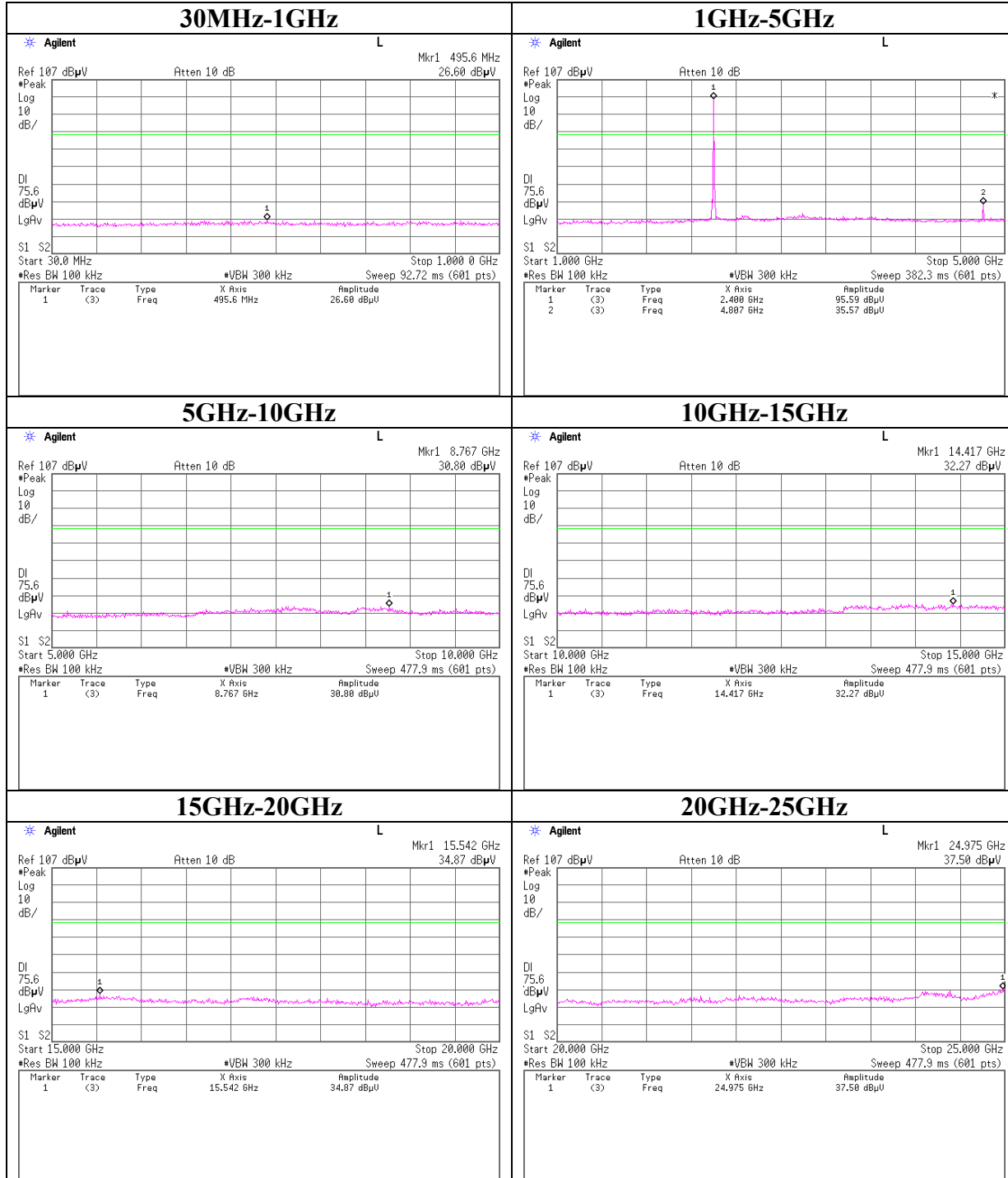
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

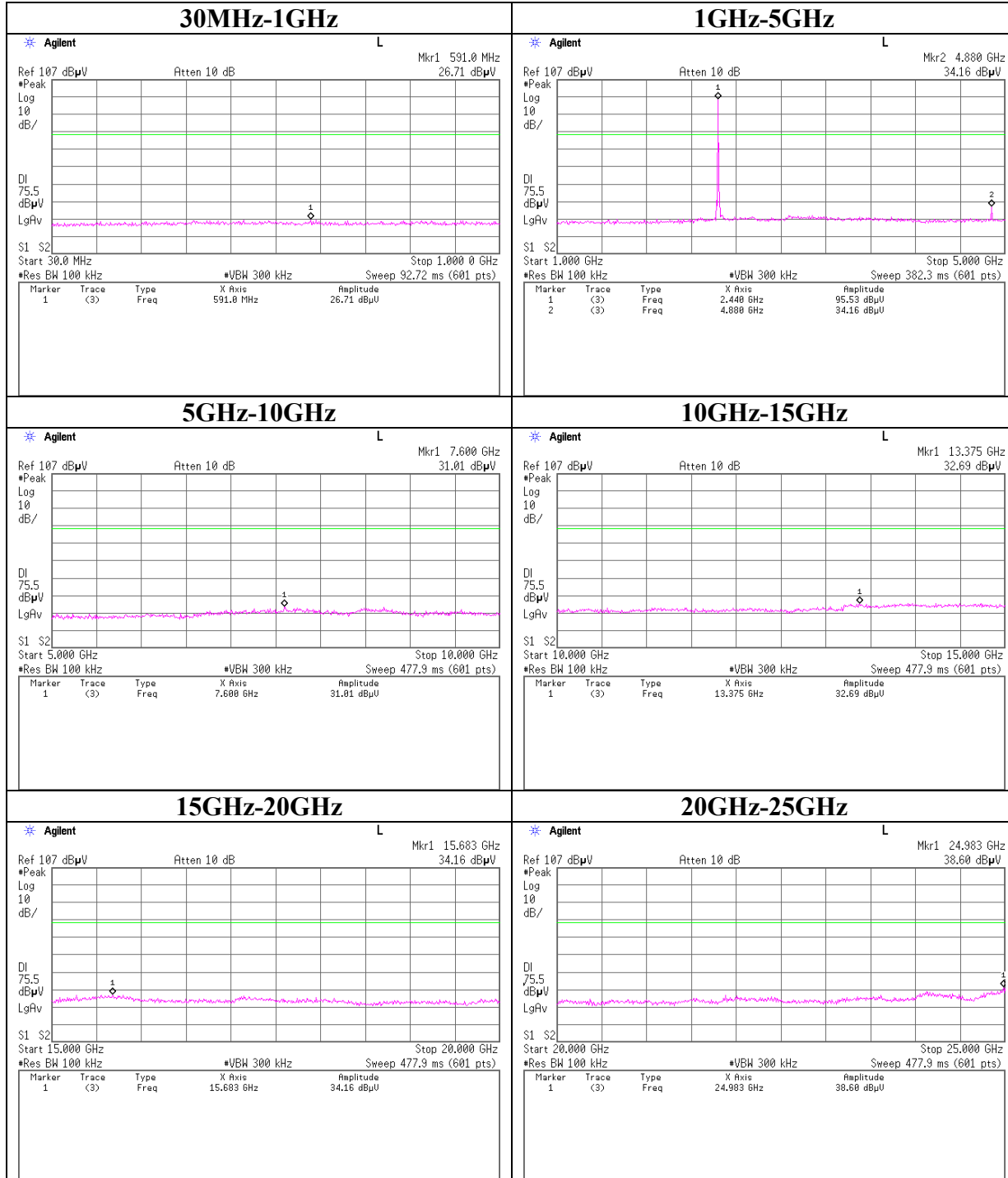
Facsimile : +81 596 24 8124

MF060b(01.06.05)

Conducted Spurious Emission
Ch:Low

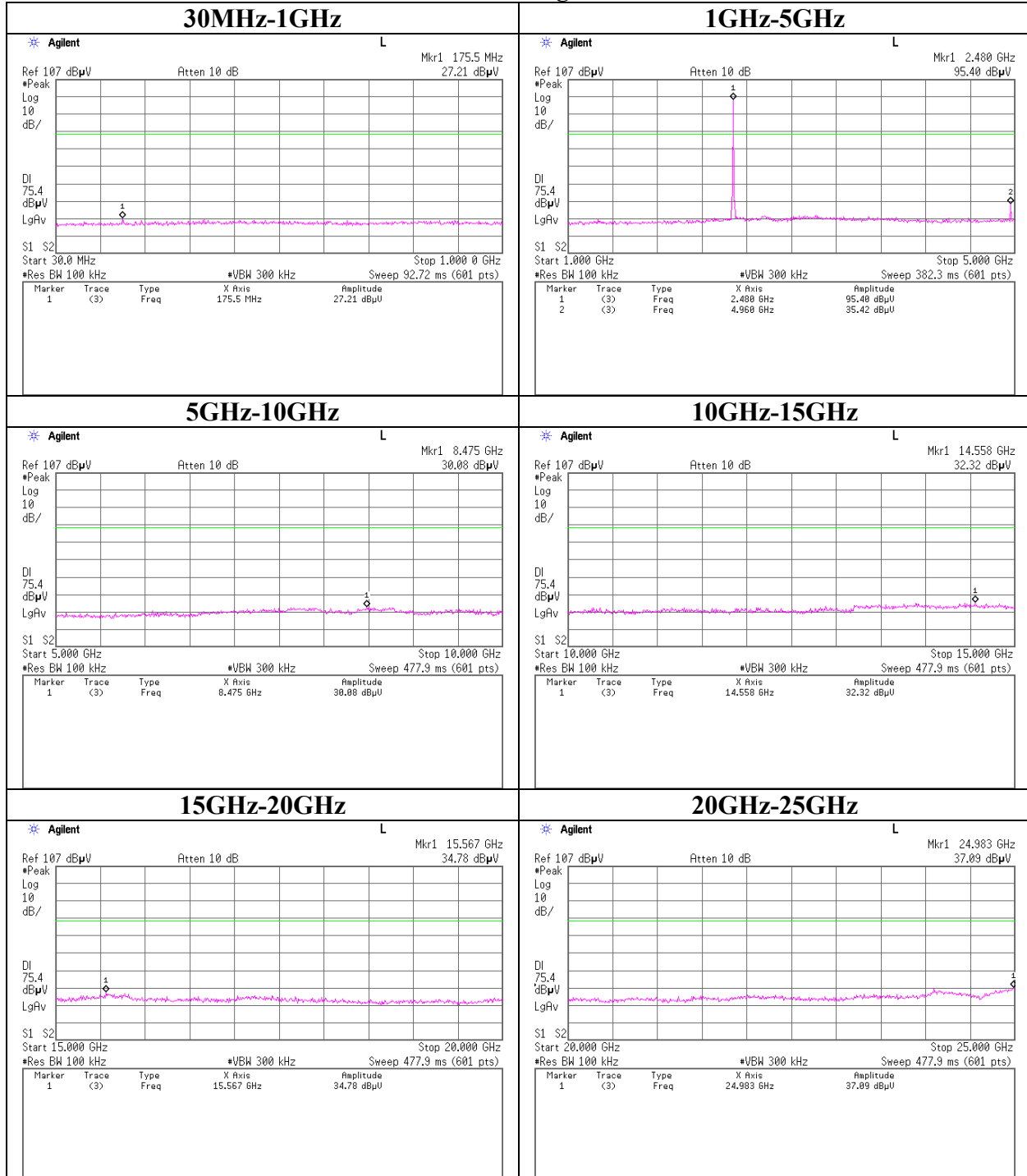


Conducted Spurious Emission
Ch:Mid

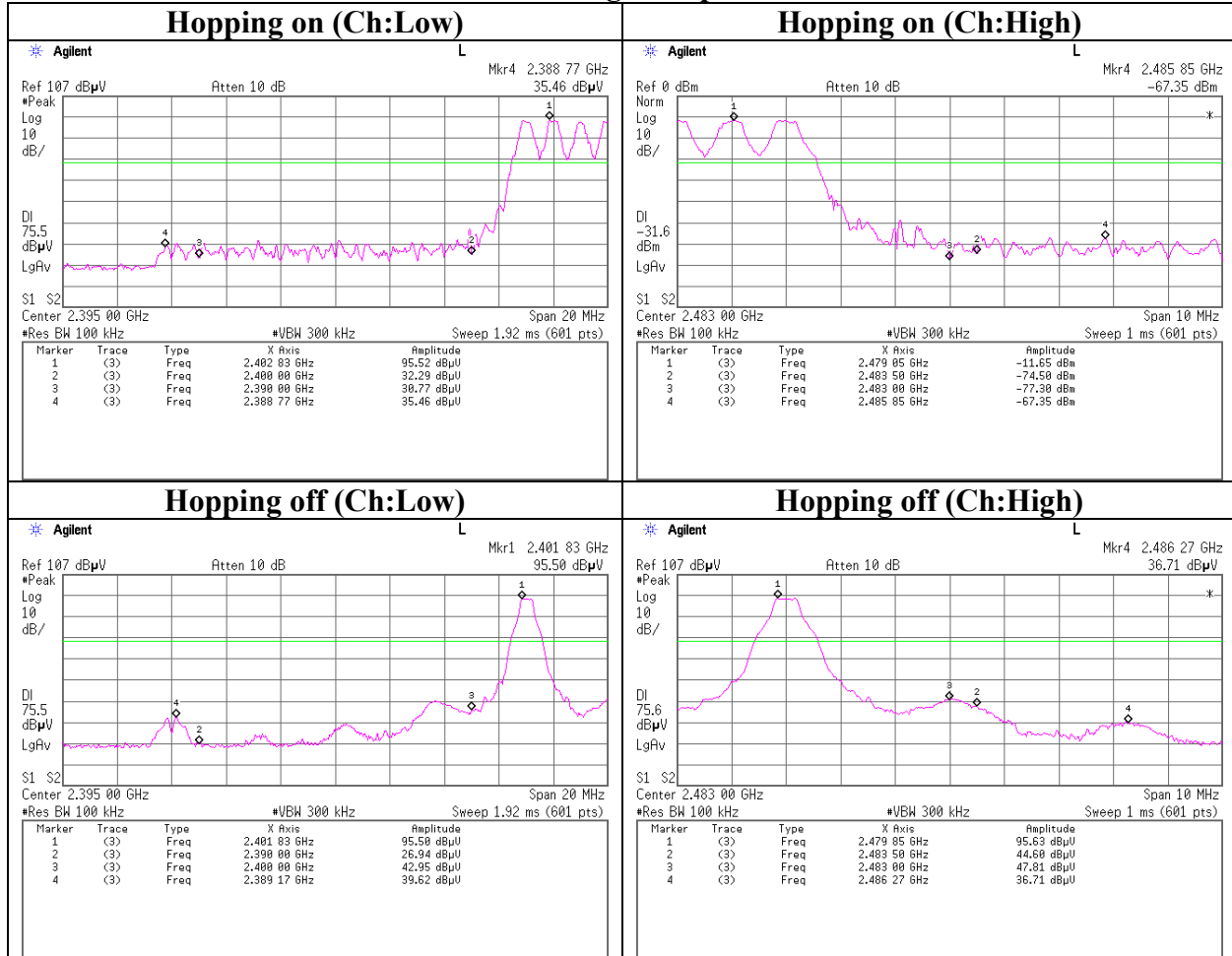


Conducted Spurious Emission

Ch:High



Conducted Spurious Emission Band Edge compliance



99% Occupied Bandwidth

