



EMI TEST REPORT

Test Report No. : 11366681H-B

Applicant : Sharp Corporation, Consumer Electronics Company,
Communication Systems Division

Type of Equipment : Smart Phone

Model No. : 509SH

FCC ID : APYHRO00239

Test standard : FCC Part 15 Subpart B 2016 Class B

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 product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
6. This test report covers EMC technical requirements. It does not cover administrative issues such as Manual or non-EMC test related Requirements. (if applicable)

Date of test:

July 11, 2016

**Representative
test engineer:**

Hiroyuki Furutaka
Engineer

Consumer Technology Division

Approved by :

Tsubasa Takayama
Engineer

Consumer Technology Division



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://japan.ul.com/resources/emc_accredited/

UL Japan, Inc.

Ise EMC Lab.

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13-EM-F0429

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SECTION 1: Customer information

Company Name : Sharp Corporation, Consumer Electronics Company, Communication Systems Division
Address : 2-13-1 Iida Hachihonmatsu HigashiHiroshima-City, Hiroshima, 739-0192 Japan
Telephone Number : +81-82-420-1552
Facsimile Number : +81-82-420-1555
Contact Person : Hiroyuki Uwatoko

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

2.1 Identification of E.U.T.

Type of Equipment : Smart Phone
Model No. : 509SH
Serial No. : Refer to Section 4, Clause 4.2
Receipt Date of Sample : July 11, 2016
Country of Mass-production : Japan
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

Feature of EUT : 509SH is AXGP, Tri-band LTE(Band 1 / 3 / SB specific), Dual-band WCDMA(FDD I / VIII) & Tri-band GSM(900 / 1800 / 1900) Multi-mode Smart Phone.
The EUT has the function that Bluetooth and Wireless-LAN technology interface for establishing contact and transmitting data with certain device.
Clock frequencies in the system : CPU: 1.5168GHz (max)
Source oscillation: 19.2MHz, 27MHz(DTV), 96MHz(BT/WLAN)
The maximum frequency for radio use : 2480 MHz (Bluetooth 79ch)

SECTION 3: Test specification, procedures & results

3.1 Test specification

Test specification : FCC Part 15 Subpart B
FCC part 15 final revised on April 6, 2016.

Title : FCC 47CFR Part15 Radio Frequency Device
Subpart B Unintentional Radiators

3.2 Procedures and results

Item	Test Procedure	Limits	Deviation	Worst margin	Result
Conducted emission	ANSI C63.4: 2014 7. AC power - line conducted emission measurements	Class B	N/A	[QP] 14.3 dB 0.17121 MHz, N [AV] 12.7 dB 0.17121 MHz, N	Complied
Radiated emission	ANSI C63.4: 2014 8. Radiated emission measurements	Class B	N/A	9.1 dB 60.328 MHz, Horizontal, QP	Complied

*Note: UL Japan, Inc's EMI Work Procedure 13-EM-W0420.

3.3 Addition to standard

No addition, exclusion nor deviation has been made from the standard.

3.4 Uncertainty

EMI

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

Frequency range	Conducted emission using AMN(LISN) (+dB)
0.009 – 0.15MHz	3.5 dB
0.15 – 30MHz	2.9 dB

Polarity	Radiated emission (Below 1GHz)			
	(3 m*)(+dB)		(10 m*)(+dB)	
	30 – 200 MHz	200 – 1000MHz	30 – 200 MHz	200 – 1000MHz
Horizontal	4.9 dB	5.2 dB	4.9 dB	5.0 dB
Vertical	4.6 dB	5.9 dB	5.0 dB	5.0 dB

Radiated emission				
(3 m*)(+dB)		(1 m*)(+dB)	(0.5 m*)(+dB)	(10 m*)(+dB)
1 – 6GHz	6 – 18GHz	10 – 26.5 GHz	26.5 – 40GHz	1 -18 GHz
5.1 dB	5.3 dB	5.1 dB	5.1 dB	5.3 dB

Conducted Emission test

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

Radiated emission test(3 m)

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

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3.5 Test Location

UL Japan, Inc. Ise EMC Lab. *NVLAP Lab. code: 200572-0
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Telephone : +81 596 24 8999 Facsimile : +81 596 24 8124

	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	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	2973C-2	7.5 x 5.8 x 5.2m	4.0 x 4.0m	-
No.3 semi-anechoic chamber	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	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	4.0 x 4.5 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	-	8.8 x 4.6 x 2.8m	2.4 x 2.4m	-
No.11 measurement room	-	6.2 x 4.7 x 3.0m	4.8 x 4.6m	-

* 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 data, Test instruments, and Test set up

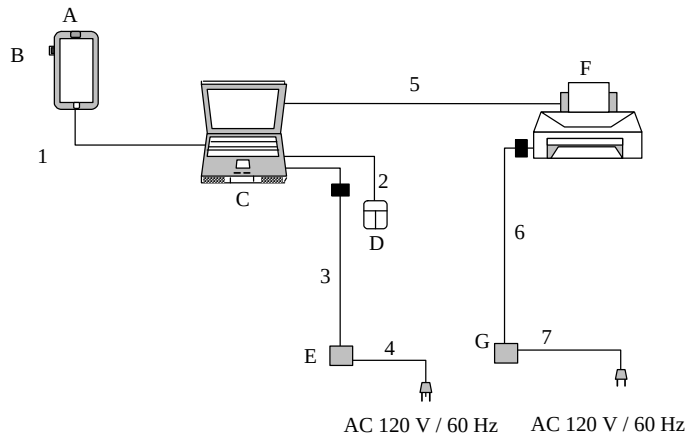
Refer to APPENDIX.

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

4.1 Operating modes

The mode(s) : 1) USB Data Com Mode
The USB data is communicated between EUT and Personal computer (Pair of EUT).
2) Standby Mode
Standby state for USB communication.

4.2 Configuration and peripherals



■ : Ferrite core which has been standard on support equipment.

*Cabling and 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	Remarks
A	Smart Phone	509SH	004401/11/585904/9	Sharp Corporation	EUT
B	microSD Memory Card	SD-MD008GA	None	TOSHIBA	-
C	Personal Computer	PP11L	CN-0D4571-48643-55V-1651	Dell	-
D	Mouse	M-BE55	LZE21450232	Logitech	-
E	AC Adapter(PC)	PA-1650-05D2	CN-0F7970-71615-561-14A1	Dell	-
F	Printer	895Cxi	SG8BL1W16V	Hewlett Packard	-
G	AC Adapter(Printer)	C4557-60004	C8K28B	Hewlett Packard	-

List of cables used

No.	Name	Length (m)	Shield		Remarks
			Cable	Connector	
1	USB Data Cable	0.95	Shielded	Shielded	-
2	Mouse Cable	0.72	Unshielded	Unshielded	-
3	AC Adapter Cable (PC)	1.76	Unshielded	Unshielded	-
4	AC Power Cable (PC)	1.20	Unshielded	Unshielded	-
5	Parallel Cable	1.65	Shielded	Shielded	-
6	AC Adapter Cable (printer)	2.00	Unshielded	Unshielded	-
7	AC Power Cable (printer)	1.75	Unshielded	Unshielded	-

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SECTION 5: Conducted Emission

5.1 Operating environment

Test place	: No. 1 semi anechoic chamber
Temperature	: See data
Humidity	: See data

5.2 Test configuration

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.

The rear of tabletop was located 40 cm to the vertical conducting plane. The rear of EUT and its peripherals was aligned and flushed with rear of tabletop. All other surfaces of tabletop were at least 80 cm from any other grounded conducting surface. EUT was located 80 cm from the LISN/AMN and excess AC cable was bundled in center. I/O cables that were connected to the other peripherals were bundled in center. They were folded back and forth forming a bundle 30 cm to 40 cm long and were hanged at a 40 cm height to the ground plane. 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 50 ohm connectors of the LISN/AMN were resistivity terminated in 50 ohm when not connected to the measuring equipment.

Photographs of the set up are shown in Appendix 3.

Frequency range	: 0.15 MHz - 30 MHz
EUT position	: Table top
EUT operation mode	: See Clause 4.1

5.3 Test procedure

The AC Mains Terminal Continuous disturbance Voltage has been measured with the EUT within a semi anechoic chamber. The EUT was connected to a Line Impedance Stabilization Network (LISN)/ Artificial Mains network (AMN). An overview sweep with peak detection has been performed. The measurements have been performed with a quasi-peak detector and if required, with an average detector.

The conducted emission measurements were made with the following detector function of the test receiver.

Detector Type	: Quasi-Peak and CISPR AV
IF Bandwidth	: 9 kHz

5.4 Test result

Summary of the test results: Pass

Date: July 11, 2016

Test engineer: Hiroyuki Furutaka

SECTION 6: Radiated Emission

6.1 Operating environment

Test place : No. 1 semi anechoic chamber
Temperature : See data
Humidity : See data

6.2 Test configuration

EUT was placed on a urethane platform of nominal size, 1.0 m by 1.5 m, raised 0.8 m above the conducting ground plane.

The EUT was set on the center of the tabletop.

Test was made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna was varied in height above the conducting ground plane to obtain the maximum signal strength.

Photographs of the set up are shown in Appendix 3.

6.3 Test conditions

Frequency range : 30 MHz - 200 MHz (Biconical antenna) / 200 MHz - 1000 MHz (Logperiodic antenna)
1000 MHz – 26.5 GHz (Horn antenna)
Test distance : 3 m
EUT position : Table top
EUT operation mode : See Clause 4.1

6.4 Test procedure

The height of the measuring antenna varied between 1 and 4 m 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.

The radiated emission measurements were made with the following detector function of the Test Receiver .

Frequency	Below 1 GHz	Above 1 GHz
Instrument used	Test Receiver	Test Receiver
IF Bandwidth	QP: BW 120 kHz	PK: BW 1 MHz, CISPR AV: BW 1 MHz

- 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.

6.5 Test result

Summary of the test results: Pass

Date: July 11, 2016

Test engineer: Hiroyuki Furutaka

APPENDIX 1: Test data

Conducted Emission

DATA OF CONDUCTED EMISSION TEST

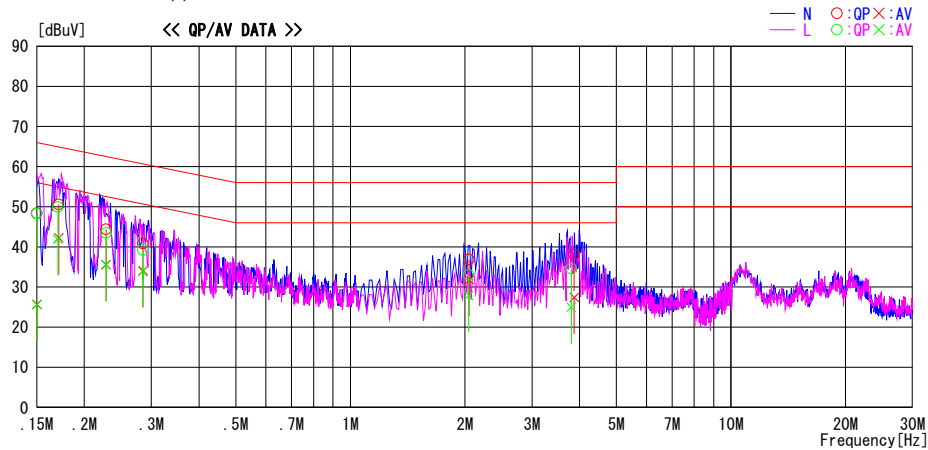
UL Japan, Inc. Ise EMC Lab. No.1 Semi Anechoic Chamber
Date : 2016/07/11

Report No. : 1136681H

Temp./Humi. : 24deg. C / 64% RH
Engineer : Hiroyuki Furutaka

Mode / Remarks : USB Data Com Mode

LIMIT : FCC15.107(a) QP ClassB
FCC15.107(a) AV ClassB



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]		
0.15000	35.2	12.5	13.2	48.4	25.7	66.0	56.0	17.6	30.3	N	
0.17121	37.4	29.0	13.2	50.6	42.2	64.9	54.9	14.3	12.7	N	
0.22804	31.2	22.4	13.2	44.4	35.6	62.5	52.5	18.1	16.9	N	
0.28503	27.5	20.8	13.3	40.8	34.1	60.7	50.7	19.9	16.6	N	
2.04944	23.2	18.2	13.6	36.8	31.8	56.0	46.0	19.2	14.2	N	
3.87155	24.3	13.6	13.8	38.1	27.4	56.0	46.0	17.9	18.6	N	
0.15000	35.1	12.4	13.2	48.3	25.6	66.0	56.0	17.7	30.4	L	
0.17034	36.7	28.7	13.2	49.9	41.9	64.9	54.9	15.0	13.0	L	
0.22821	30.3	22.3	13.2	43.5	35.5	62.5	52.5	19.0	17.0	L	
0.28486	25.9	20.6	13.3	39.2	33.9	60.7	50.7	21.5	16.8	L	
2.04650	19.4	14.3	13.6	33.0	27.9	56.0	46.0	23.0	18.1	L	
3.80873	20.8	11.2	13.8	34.6	25.0	56.0	46.0	21.4	21.0	L	

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

*The limit is rounded down to one decimal place.

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

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Conducted Emission

DATA OF CONDUCTED EMISSION TEST

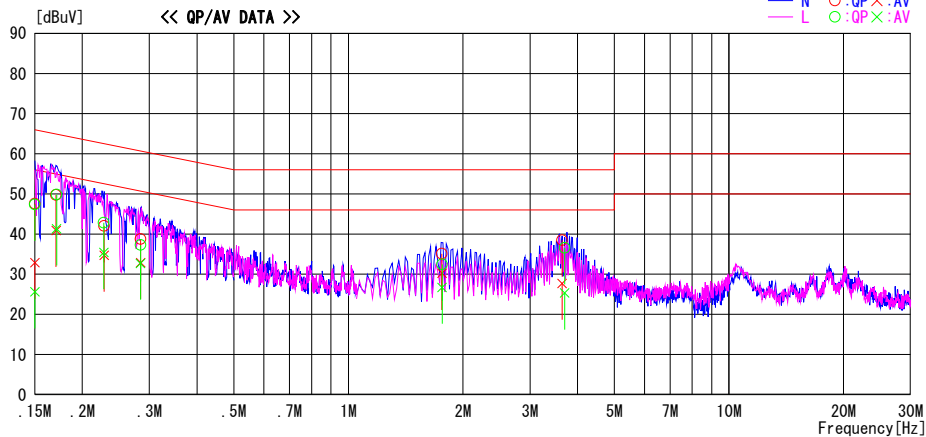
UL Japan, Inc. Ise EMC Lab. No.1 Semi Anechoic Chamber
Date : 2016/07/11

Report No. : 11366681H

Temp./Humi. : 24deg. C / 64% RH
Engineer : Hiroyuki Furutaka

Mode / Remarks : Standby Mode

LIMIT : FCC15.107(a) QP ClassB
FCC15.107(a) AV ClassB



Frequency [MHz]	Reading Level		Corr. Factor	Results		Limit		Margin		Phase	Comment
	QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dB]	AV [dB]		
0.15000	34.4	19.7	13.2	47.6	32.9	66.0	56.0	18.4	23.1	N	
0.17058	36.5	27.7	13.2	49.7	40.9	64.9	54.9	15.2	14.0	N	
0.22810	28.8	21.5	13.2	42.0	34.7	62.5	52.5	20.5	17.8	N	
0.28464	25.4	19.6	13.3	38.7	32.9	60.7	50.7	22.0	17.8	N	
1.76140	21.6	16.7	13.5	35.1	30.2	56.0	46.0	20.9	15.8	N	
3.64216	24.7	13.9	13.8	38.5	27.7	56.0	46.0	17.5	18.3	N	
0.15000	34.2	12.4	13.2	47.4	25.6	66.0	56.0	18.6	30.4	L	
0.17108	36.6	28.1	13.2	49.8	41.3	64.9	54.9	15.1	13.6	L	
0.22762	29.6	22.2	13.2	42.8	35.4	62.5	52.5	19.7	17.1	L	
0.28430	24.0	19.4	13.3	37.3	32.7	60.7	50.7	23.4	18.0	L	
1.76197	19.0	13.2	13.5	32.5	26.7	56.0	46.0	23.5	19.3	L	
3.69867	22.8	11.5	13.8	36.6	25.3	56.0	46.0	19.4	20.7	L	

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

*The limit is rounded down to one decimal place.

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

Radiated Emission (Below 1GHz)

DATA OF RADIATED EMISSION TEST

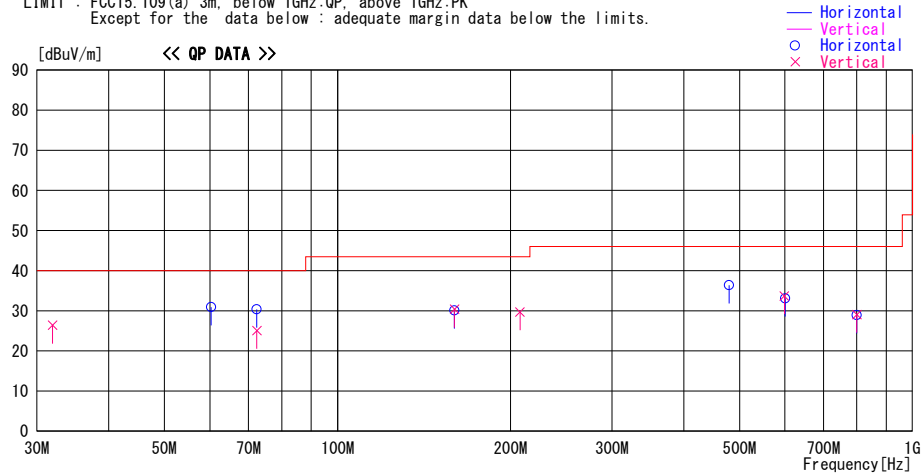
UL Japan, Inc. Ise EMC Lab. No.1 Semi Anechoic Chamber
Date : 2016/07/11

Report No. : 11366681H

Temp./Humi. : 24deg. C / 64% RH
Engineer : Hiroyuki Furutaka

Mode / Remarks : USB Data Com Mode Worst Axis Y

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
Except for the data below : adequate margin data below the limits.



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]	
31.954	41.6	QP	16.5	-31.7	26.4	140	100	Vert.	40.0	13.6	
60.328	54.7	QP	7.4	-31.2	30.9	239	315	Hori.	40.0	9.1	
72.393	50.0	QP	6.3	-31.2	25.1	265	102	Vert.	40.0	14.9	
72.391	55.3	QP	6.3	-31.2	30.4	288	242	Hori.	40.0	9.6	
159.774	45.2	QP	15.2	-30.0	30.4	143	100	Vert.	43.5	13.1	
159.772	44.9	QP	15.2	-30.0	30.1	110	196	Hori.	43.5	13.4	
207.703	47.6	QP	11.6	-29.5	29.7	327	100	Vert.	43.5	13.8	
479.304	45.9	QP	17.2	-26.7	36.4	121	137	Hori.	46.0	9.6	
598.594	40.5	QP	19.0	-25.8	33.7	344	100	Vert.	46.0	12.3	
600.487	39.9	QP	19.0	-25.8	33.1	192	151	Hori.	46.0	12.9	
799.990	32.8	QP	20.8	-24.7	28.9	43	197	Hori.	46.0	17.1	
799.990	33.0	QP	20.8	-24.7	29.1	257	124	Vert.	46.0	16.9	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-200MHz:BICONICAL, 200MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN
CALCULATION : RESULT = READING + ANT FACTOR + LOSS & GAIN(CABLE + ATTN - GAIN(AMP))

*The limit is rounded down to one decimal place.

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

Radiated Emission
(Below 1GHz)

DATA OF RADIATED EMISSION TEST

UL Japan, Inc. Ise EMC Lab. No.1 Semi Anechoic Chamber
Date : 2016/07/11

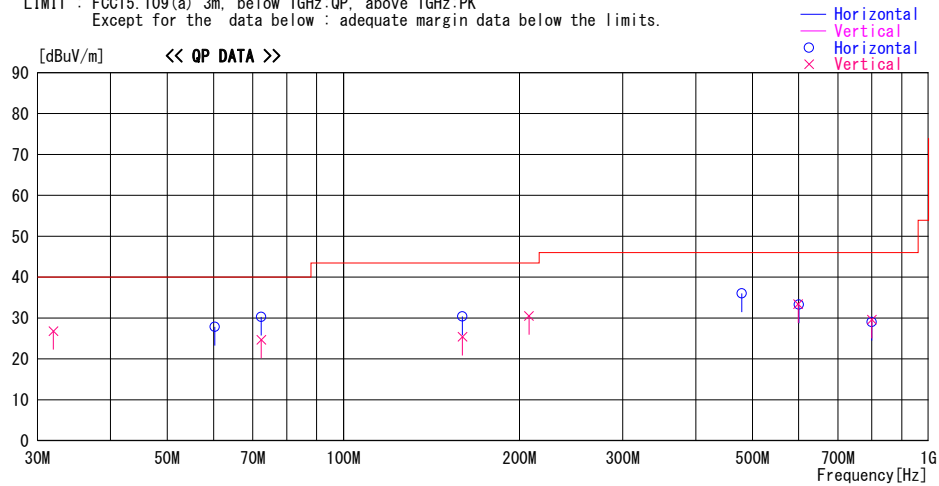
Report No. : 11366681H

Temp./Humi. : 24deg. C / 64% RH
Engineer : Hiroyuki Furutaka

Mode / Remarks : Standby Mode Worst Axis Y

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK

Except for the data below : adequate margin data below the limits.



Frequency	Reading	DET	Antenna Factor	Loss & Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
31.954	42.0	QP	16.5	-31.7	26.8	135	100	Vert.	40.0	13.2	
60.328	51.6	QP	7.4	-31.2	27.8	228	325	Hori.	40.0	12.2	
72.393	49.6	QP	6.3	-31.2	24.7	264	100	Vert.	40.0	15.3	
72.391	55.2	QP	6.3	-31.2	30.3	287	249	Hori.	40.0	9.7	
159.772	40.2	QP	15.2	-30.0	25.4	178	100	Vert.	43.5	18.1	
159.772	45.2	QP	15.2	-30.0	30.4	148	197	Hori.	43.5	13.1	
207.703	48.4	QP	11.6	-29.5	30.5	297	100	Vert.	43.5	13.0	
479.304	45.5	QP	17.2	-26.7	36.0	125	140	Hori.	46.0	10.0	
598.594	40.2	QP	19.0	-25.8	33.4	342	100	Vert.	46.0	12.6	
600.487	40.1	QP	19.0	-25.8	33.3	189	150	Hori.	46.0	12.7	
799.991	32.9	QP	20.8	-24.7	29.0	45	215	Hori.	46.0	17.0	
799.990	33.5	QP	20.8	-24.7	29.6	255	114	Vert.	46.0	16.4	

CHART:WITH FACTOR ANT TYPE:-30MHz:LOOP, 30-200MHz:BICONICAL, 200MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN
CALCULATION : RESULT = READING + ANT FACTOR + LOSS & GAIN(CABLE + ATTEN - GAIN(AMP))

*The limit is rounded down to one decimal place.

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

Radiated Emission (Above 1GHz)

DATA OF RADIATED EMISSION TEST

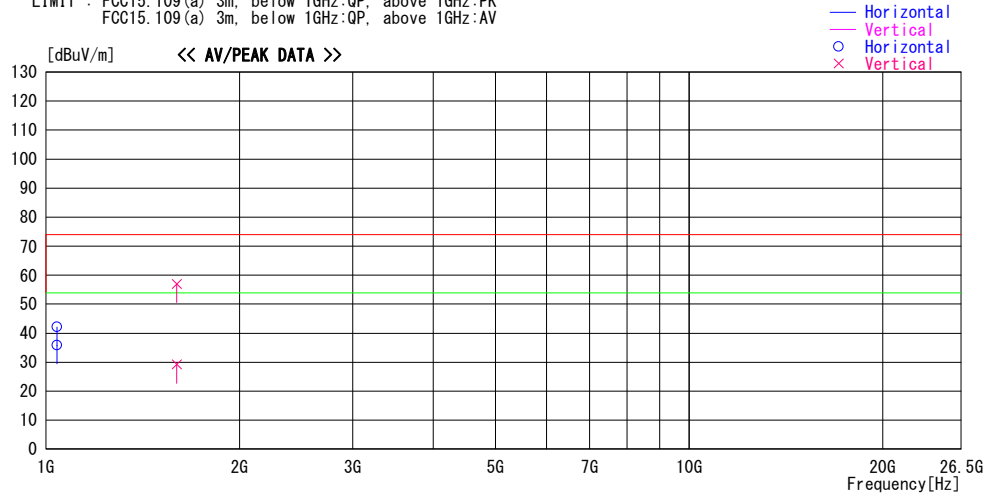
UL Japan, Inc. Ise EMC Lab. No.1 Semi Anechoic Chamber
Date : 2016/07/11

Report No. : 11366681H

Temp./Humi. : 24deg. C / 64% RH
Engineer : Hiroyuki Furutaka

Mode / Remarks : USB Data Com Mode

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 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]							
1040.000	51.6	PK	23.7	-33.1	42.2	186	123	Hori.	73.9	31.7	
1040.000	45.2	AV	23.7	-33.1	35.8	186	123	Hori.	53.9	18.1	
1596.921	64.0	PK	25.3	-32.3	57.0	45	309	Vert.	73.9	16.9	
1596.921	36.2	AV	25.3	-32.3	29.2	45	309	Vert.	53.9	24.7	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-200MHz:BICONICAL, 200MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN
CALCULATION : RESULT = READING + ANT FACTOR + LOSS & GAIN(CABLE + ATTEN - GAIN(AMP) + D.factor)

*The limit is rounded down to one decimal place.

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

Radiated Emission (Above 1GHz)

DATA OF RADIATED EMISSION TEST

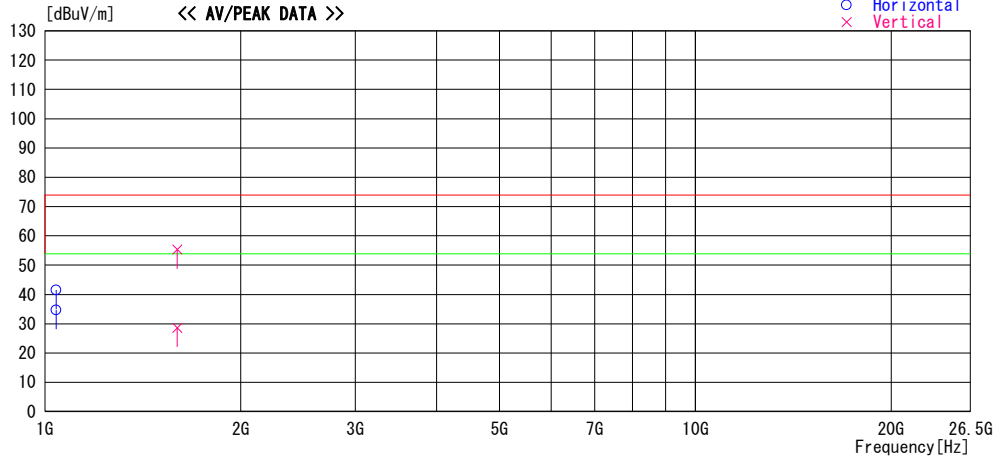
UL Japan, Inc. Ise EMC Lab. No.1 Semi Anechoic Chamber
Date : 2016/07/11

Report No. : 11366681H

Temp./Humi. : 24deg. C / 64% RH
Engineer : Hiroyuki Furutaka

Mode / Remarks : Standby Mode

LIMIT : FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:PK
FCC15.109(a) 3m, below 1GHz:QP, above 1GHz:AV



Frequency	Reading	DET	Antenna Factor	Loss& Gain	Level	Angle	Height	Polar.	Limit	Margin	Comment
[MHz]	[dBuV]		[dB/m]	[dB]	[dBuV/m]	[Deg]	[cm]		[dBuV/m]	[dB]	
1040.000	50.9	PK	23.7	-33.1	41.5	184	123	Hori.	73.9	32.4	
1040.000	44.1	AV	23.7	-33.1	34.7	184	123	Hori.	53.9	19.2	
1597.221	62.3	PK	25.3	-32.3	55.3	36	309	Vert.	73.9	18.6	
1597.221	35.6	AV	25.3	-32.3	28.6	36	309	Vert.	53.9	25.3	

CHART:WITH FACTOR ANT TYPE: -30MHz:LOOP, 30-200MHz:BICONICAL, 200MHz-1000MHz:LOGPERIODIC, 1000MHz-:HORN
CALCULATION : RESULT = READING + ANT FACTOR + LOSS & GAIN(CABLE + ATTEN - GAIN(AMP) + D.factor)

*The limit is rounded down to one decimal place.

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

APPENDIX 2: Test instruments

EMI Test Instruments

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MAEC-01	Semi Anechoic Chamber(NSA)	TDK	Semi Anechoic Chamber 10m	DA-06881	RE/CE	2015/09/19 * 12
MOS-27	Thermo-Hygrometer	CUSTOM	CTH-201	A08Q26	RE/CE	2016/01/21 * 12
MJM-25	Measure	KOMELON	KMC-36	-	RE/CE	-
COTS-MEMI	EMI measurement program	TSJ	TEPTO-DV	-	RE/CE	-
MTR-09	EMI Test Receiver	Rohde & Schwarz	ESU26	100412	RE/CE	2016/06/25 * 12
KBA-05	Biconical Antenna	Schwarzbeck	BBA9106	2513	RE	2015/11/02 * 12
MLA-20	Logperiodic Antenna(200-1000MHz)	Schwarzbeck	VUSLP9111B	911B-189	RE	2016/01/30 * 12
MAT-68	Attenuator(6dB)	Weinschel Corp	2	BK7971	RE	2015/11/10 * 12
MCC-02	Coaxial Cable	Suhner/storm/Agilent/T SJ	-	-	RE	2015/09/29 * 12
MPA-19	Pre Amplifier	MITEQ	MLA-10K01-B01-35	1237616	RE	2016/02/25 * 12
MMM-03	Digital Tester	Fluke	FLUKE 26-3	78030621	RE/CE	2015/08/19 * 12
MHA-05	Horn Antenna 1-18GHz	Schwarzbeck	BBHA9120D	253	RE	2016/05/29 * 12
MHA-01	Horn Antenna 18-26.5GHz	EMCO	3160-09	1266	RE	2016/06/24 * 12
MPA-01	Pre Amplifier	Agilent	8449B	3008A01671	RE	2016/02/26 * 12
MCC-165	Microwave Cable	Junkosha	MWX221	1203S213(1m) / 1311S166(5m)	RE	2015/11/10 * 12
MLS-25	LISN(AMN)	Schwarzbeck	NSLK8127	8127-731	CE(EUT)	2015/07/17 * 12
MLS-26	LISN(AMN)	Schwarzbeck	NSLK8127	8127-732	CE(AE)	2015/07/17 * 12
MTA-30	Terminator	TME	CT-01	-	CE	2016/01/15 * 12
MCC-03	Coaxial Cable	Fujikura/Suhner/TSJ	5D-2W(20m)/3D-2W(7.5m)/RG400u(1.5m)/RFM-E421(Switcher)	-/01068 (Switcher)	CE	2016/06/29 * 12
MAT-64	Attenuator(13dB)	JFW Industries, Inc.	50FP-013H2 N	-	CE	2016/01/14 * 12

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

All equipment is calibrated with valid calibrations. Each measurement data 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

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