

EMC TEST REPORT

Test item : Mobile Handset
Model No. : LG-D722p
Order No. : DEMC1408-03374
Date of receipt : 2014-08-11
Test duration : 2014-09-04
Date of Issue : 2014-09-11
Applicant : LG Electronics MobileComm U.S.A., Inc.
1000 Sylvan Avenue, Englewood Cliffs NJ 07632
Test laboratory : Dt&C Co., Ltd.
42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 449-935

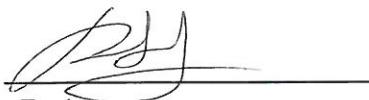
Test specification : ANSI C 63.4:2009
FCC Part 15 Subpart B
(Class B personal computers and peripherals)

Test environment : Temperature : (22 ~ 26) °C,
Humidity : (49 ~ 50) % R.H.

Test result : ☒ Comply ☐ Not Comply

The test results presented in this test report are limited only to the sample supplied by applicant and the use of this test report is inhibited other than its purpose.
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Tested by:



Engineer
JunHo Park

Reviewed by:



Manager
YoungKyu Shin

PRESIDENT OF Dt&C Co., Ltd.

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1. General Remarks

This report contains the result of tests performed by:

Dt&C Co., Ltd.

Address : 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 449-935

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Tel: +82-31-321-2664 Fax: +82-31-321-1664

2. Test Laboratory

Dt&C Co., Ltd. has been accredited / filed / authorized by the agencies listed in the following table;

Certificate	Nation	Agency	Code	Mark
Accreditation	Korea	KOLAS	393	ISO/IEC 17025
Site Filing	USA	FCC	KR0034 101842 678747 596748	Accredited 2.948 Listed
	Canada	IC	5740A-1 5740A-2	Registered
	Japan	VCCI	C-1427 R-1364, R-3385, R-4076, T-1442, G-338, G754	Registered
Certification	Korea	KC	KR0034	Designation
	Germany	TUV	CARAT 13 11 86721 001	ISO/IEC 17025

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the "General requirements for the competent of calibration and testing laboratory".

3. General Information of EUT

Kind of Equipment	Mobile Handset
Model No.	LG-D722p
Add Model No	LGD722p, D722p, LG-D722P, LGD722P, D722P, LG-D722AR, LGD722AR, D722AR, LG-D722ar, LGD722ar, D722ar, LG- D722pa, D722pa, LGD722pa, LG-D722PA, D722PA, LGD722PA ※ 18 models are same mechanical, electrical and functional. ※ The only difference is the model name, which are changed for marketing purpose.
Serial No	NONE
FCC ID	ZNFD722P
Supplied Power for Test	AC 120 V, 60 Hz
Operation Frequency	1.2 GHz
Applicant	LG Electronics MobileComm U.S.A., Inc. 1000 Sylvan Avenue, Englewood Cliffs NJ 07632
Manufacturer	LG Electronics MobileComm U.S.A., Inc. 1000 Sylvan Avenue, Englewood Cliffs NJ 07632

Related Submittal(s) / Grant(s)

Original submittal only.

4. Test Summary

4.1 Applied standards and test results

Test Items	Applied Standards	Results
Conducted Disturbance	ANSI C63.4:2009	C
Radiated Disturbance	ANSI C63.4:2009	C
C=Comply N/C=Not Comply N/T=Not Tested N/A=Not Applicable		

The data in this test report are traceable to the national or international standards.

4.2 Test environment and conditions

Test Items	Test date (YYYY-MM-DD)	Temp (°C)	Humidity (% R.H.)
Conducted Disturbance	2014-09-04	26	50
Radiated Disturbance	2014-09-04	22	49

4.3 Test result Summary

(1) Conducted Emission

Frequency [MHz]	Phase	Result [dBμV]	Detector	Limit [dBμV]	Margin [dB]
3.30680	L1	52.2	Quasi-Peak	56.0	3.8

(2) Radiated Emission

Frequency [MHz]	Pol.	Result [dB(μV/m)]	Detector	Limit [dB(μV/m)]	Margin [dB]
1496.318	V	42.6	Average	54.0	11.4

5. Test Set-up and operation mode

5.1 Principle of Configuration Selection

Emission : The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

5.2 Test Operation Mode

- PC link mode (The measurement was made of the maximized by : changing the data transmission speed; moving the cable.)

5.3 Support Equipment Used

Unit	Model No.	Serial No.	Manufacturer	CABLE				Back shell	FCC ID
				Connect type	Length (m)	shield	With Ferrite		
PC	DC8M	D8FQFBX	DELL INC.	Power	1.8	Non-shield	X	Plastic	DOC
				DVI	2.0	Shield	O (NOTE)		
				USB	1.7	Shield	X		
				USB	1.6	Shield	X		
				USB	1.2	Shield	X		
				USB	1.0	Shield	X		
				STEREO	2.0	Non-shield	X		
				PARALLEL	2.1	Shield	X		
				ETHERNET	20	Non-shield	X		
LCD MONITOR	U2312HMT	CN-036N7K-74445-199-358L	DELL INC.	Power	1.8	Non-shield	X	Plastic	DOC
				DVI	2.0	Shield	O (NOTE)		
PRINTER	SRP-770	NA	BIXOLON	Power	1.8	Non-shield	O (NOTE)	Plastic	DOC
				PARALLEL	2.1	Shield	X		
KEYBOARD	SKG-2500UW	TAKZ125009J	MONITEREY INTERNATIONAL CORP.	USB	1.7	Shield	X	Plastic	DOC
MOUSE	M-UAE96	NA	LOGITECH	USB	1.6	Shield	O (NOTE)	Plastic	DOC
HEADSET1	COV909	NA	COSY	STEREO	2.0	Non-shield	X	Plastic	-
HEADSET2	EAB 62209201	NA	I - SOUND	AUDIO	1.1	Non-shield	X	Plastic	-
EXTERNAL HDD	9ZR8N1-500	NA0H2L7Z	Seagate	USB	1.2	Shield	X	Plastic	DOC

* NOTE) The cable with ferrite core is provided by manufacturer.

6. Test Results : Emission

6.1 Conducted Disturbance

6.1.1 Measurement Procedure

In the range of 0.15 MHz to 30 MHz, the conducted disturbance was measured and set-up was made accordance with **ANSI C63.4**.

If the EUT is table top equipment, it was placed on a wooden table with a height of 0.8 m above the reference ground plane and 0.4 m from the conducting wall of the shielded room.

Also if the EUT is floor-standing equipment, it was placed on a non-conducted support with a height up to 0.15 m above the reference ground plane.

Connect the EUT's power source lines to the PC power through the LISN. All the other peripherals are connected to the 2nd LISN, if any.

Unused measuring port of the LISN was resistively terminated by 50 ohm terminator.

The measuring port of the LISN for EUT was connected to spectrum analyzer.

Using conducted emission test software, the emissions were scanned with peak detector mode.

After scanning over the frequency range, suspected emissions were selected to perform final measurement. When performing final measurement, the receiver was used which has Quasi-Peak detector and Average detector.

By varying the configuration of the test sample and the cable routing it was attempted to maximize the emission.

For further description of the configuration refer to the picture of the test set-up.

6.1.2 Limit for Conducted Disturbance

(1) Conducted disturbance at mains ports.

Frequency range (MHz)	Limits dB(μV)			
	Quasi-peak		Average	
	Class A	Class B	Class A	Class B
0.15 to 0.50	79	66 to 56	66	56 to 46
0.50 to 5	73	56	60	46
5 to 30		60		50
Note 1 The lower limit shall apply at the transition frequencies.				
Note 2 The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.				

Note) 1. Emission Level = Reading Value + Correction Factor.

2. Correction Factor = Cable Loss + Insertion Loss of LISN

3. Margin = Limit - Emission level

Test Result

Results of Conducted Emission

DT&C

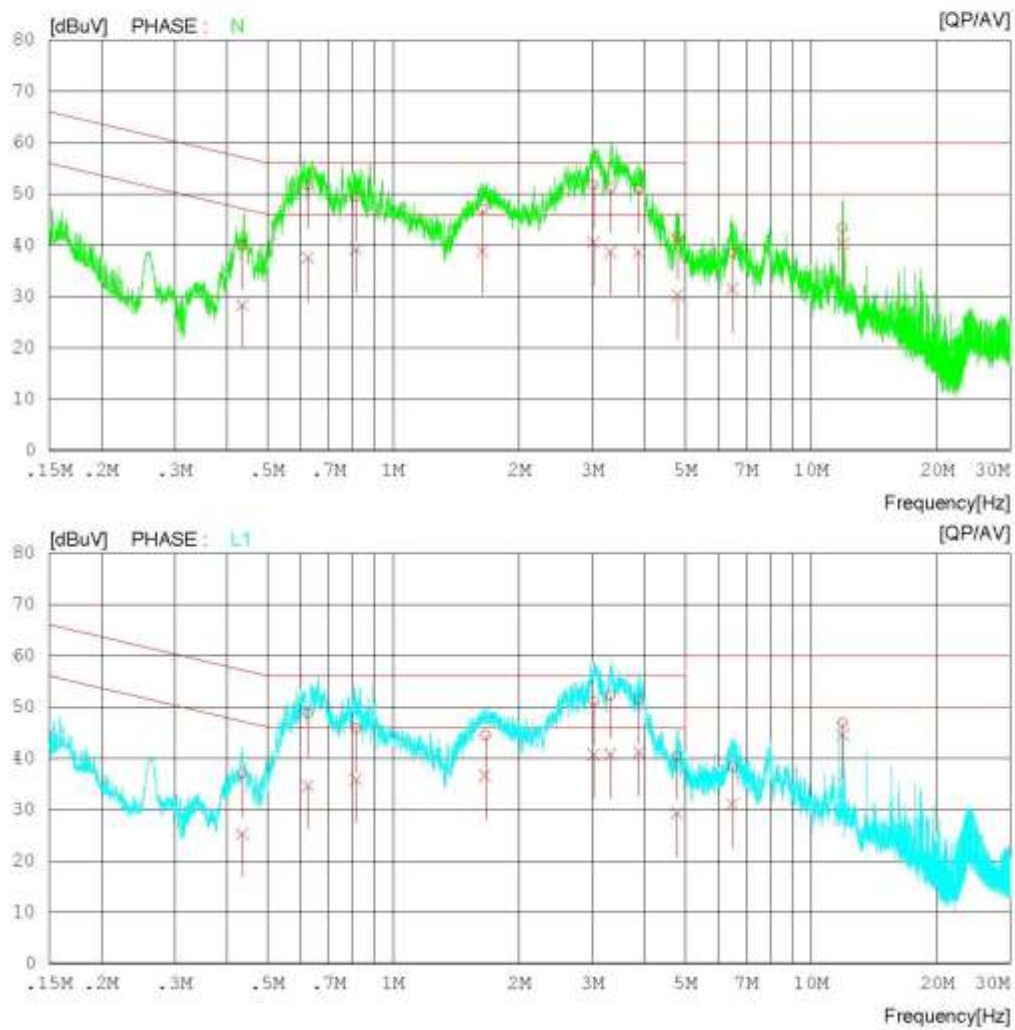
Date : 2014-09-04

Model No. : DEMC1408-03374
Type :
Serial No. :
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 26 °C 50 % R. H.
Operator :

Memo :

LIMIT : CISPR22_B QP
CISPR22_B AV



Results of Conducted Emission

DT&C

Date : 2014-09-04

Model No. : DEMC1408-03374
Type :
Serial No. :
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 26 °C 50 % R. H.
Operator :

Memo :

LIMIT : CISPR22_B QP
CISPR22_B AV

NO	FREQ [MHz]	READING		C.FACTOR [dB]	RESULT		LIMIT		MARGIN		PHASE
		QP [dBuV]	AV [dBuV]		QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	QP [dBuV]	AV [dBuV]	
1	0.43443	39.7	28.1	0.2	39.9	28.3	57.2	47.2	17.3	18.9	N
2	0.62428	51.4	37.3	0.2	51.6	37.5	56.0	46.0	4.4	8.5	N
3	0.81444	49.2	39.0	0.2	49.4	39.2	56.0	46.0	6.6	6.8	N
4	1.63800	46.7	38.6	0.3	47.0	38.9	56.0	46.0	9.0	7.1	N
5	3.01040	51.2	40.0	0.5	51.7	40.5	56.0	46.0	4.3	5.5	N
6	3.31360	50.6	38.1	0.5	51.1	38.6	56.0	46.0	4.9	7.4	N
7	3.86800	50.5	38.1	0.5	51.0	38.6	56.0	46.0	5.0	7.4	N
8	4.79440	41.2	29.7	0.5	41.7	30.2	56.0	46.0	14.3	15.8	N
9	6.48260	37.9	30.9	0.6	38.5	31.5	60.0	50.0	21.5	18.5	N
10	11.90200	42.8	39.6	0.6	43.4	40.2	60.0	50.0	16.6	9.8	N
11	0.43489	36.7	25.0	0.3	37.0	25.3	57.2	47.2	20.2	21.9	L1
12	0.62445	48.3	34.2	0.3	48.6	34.5	56.0	46.0	7.4	11.5	L1
13	0.81450	45.4	35.6	0.3	45.7	35.9	56.0	46.0	10.3	10.1	L1
14	1.66000	44.1	36.3	0.3	44.4	36.6	56.0	46.0	11.6	9.4	L1
15	3.01680	50.6	40.1	0.5	51.1	40.6	56.0	46.0	4.9	5.4	L1
16	3.30680	51.7	40.2	0.5	52.2	40.7	56.0	46.0	3.8	5.3	L1
17	3.87080	50.8	40.6	0.5	51.3	41.1	56.0	46.0	4.7	4.9	L1
18	4.77160	39.9	28.8	0.5	40.4	29.3	56.0	46.0	15.6	16.7	L1
19	6.48820	37.6	30.4	0.6	38.2	31.0	60.0	50.0	21.8	19.0	L1
20	11.89880	46.1	43.8	0.7	46.8	44.5	60.0	50.0	13.2	5.5	L1

6.2 Radiated Disturbance

6.2.1 Measurement Procedure

The radiated disturbance was measured and set-up was made accordance with **ANSI C63.4**.

If the EUT is tabletop equipment, it was placed on a wooden table with a height of 0.8 m above the reference ground plane and 3 m or 10 m away from the interference receiving antenna in the **10m semi-anechoic chamber**.

Also if the EUT is floor-standing equipment, it was placed on a non-conducted support with a height up to 0.15 m above the reference ground plane.

Rotate the EUT from (0 - 360)° and position the receiving antenna at heights from (1 - 4) m above the reference ground plane continuously to determine associated with higher emission levels and record them.

The measurement was made in both the vertical and horizontal polarization, and the maximum value is presented in the report.

For below 1 GHz frequency range, Quasi-Peak detector with 120 kHz RBW was used.

Peak detector with 1 MHz RBW and 1 MHz VBW were used for above 1 GHz frequency range, also used linear average detector with defined in CISPR 16-1-1.

For further description of the configuration refer to the picture of the test set-up.

6.2.2 Limit for Radiated Disturbance

- The test frequency range of Radiated Disturbance measurements are listed below.

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 108	1 000
108 – 500	2 000
500 – 1 000	5 000
Above 1 000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

(1) Limit for Radiated Emission below 1 000MHz

Frequency range (MHz)	Class A Equipment (10 m distance)	Class B Equipment (3 m distance)
	Quasi-peak (dBμV/m)	Quasi-peak (dBμV/m)
30 to 88	39.1	40
88 to 216	43.5	43.5
216 to 960	46.4	46
960 to 1 000	49.5	54

Note 1 The lower limit shall apply at the transition frequency.

Note 2 Additional provisions may be required for cases where interference occurs.

Note 3 According to 15.109(g), as an alternative to the radiated emission limit shown above, digital devices may be shown to comply with the standards(CISPR), Pub. 22 shown as below.

Frequency range (MHz)	Class A Equipment (10 m distance)	Class B Equipment (10 m distance)
	Quasi-peak (dBμV/m)	Quasi-peak (dBμV/m)
30 to 230	40	30
230 to 1 000	47	37

(2) Limits for Radiated Emission above 1 000MHz at a measuring distance of 3 m

Frequency (GHz)	Class A Equipment		Class B Equipment	
	Peak (dBμV/m)	Average (dBμV/m)	Peak (dBμV/m)	Average (dBμV/m)
1 to 40	80	60	74	54

Note)1. Emission Level = Reading Value + loss - gain + Ant Factor

2. Margin = Limit - Emission level

3. Loss = Cable loss, gain = Amp gain, Ant Factor = Antenna Factor

Test Result

< 30 MHz ~ 1 GHz >

RADIATED EMISSION

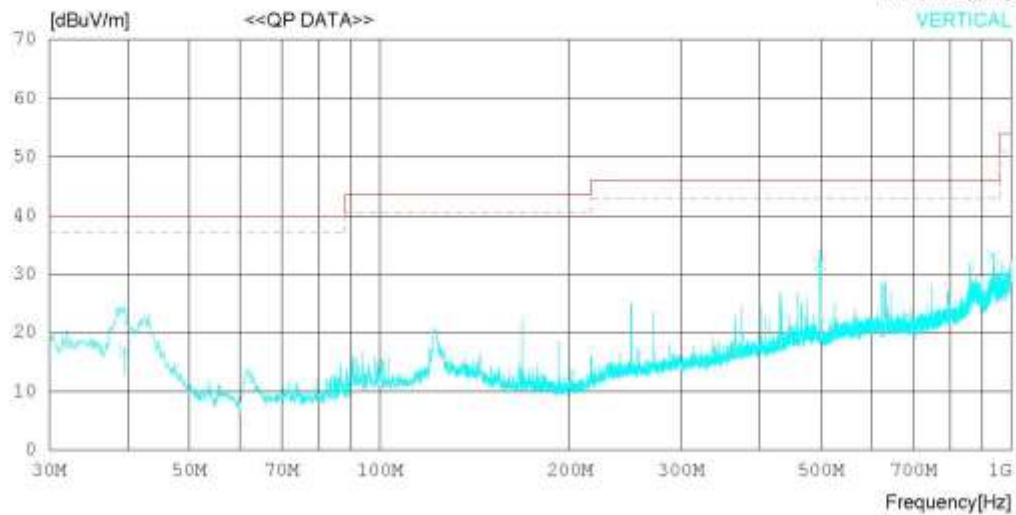
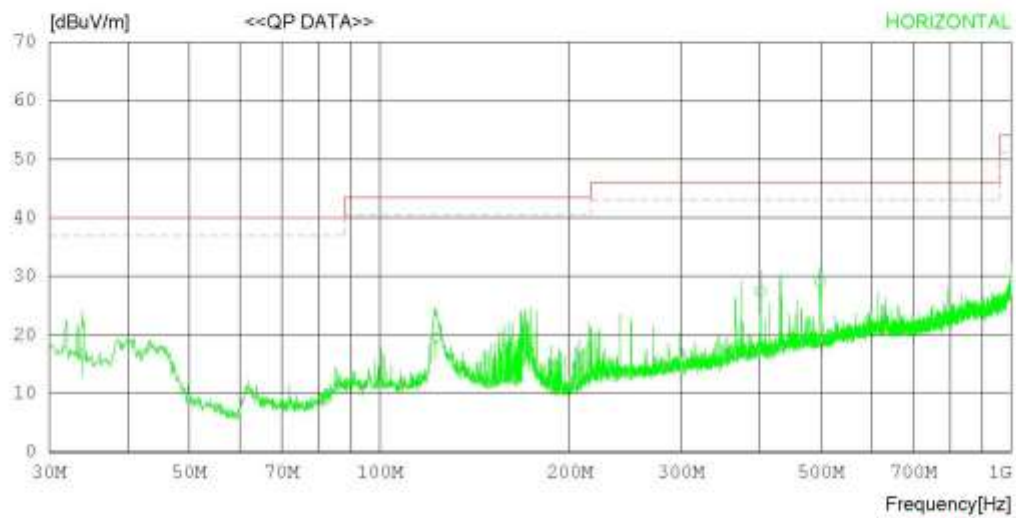
Date : 2014-09-04

Model Name : DEMC1408-03374
Model No. :
Serial No. :
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi : 22 °C 49 % R. H.
Operator :

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m)
MARGIN: 3 dB



RADIATED EMISSION

Date : 2014-09-04

Model Name : DEMC1408-03374
Model No. :
Serial No. :
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi : 22 °C 49 % R. H.
Operator :

Memo :

LIMIT : FCC Part15 Subpart B Class B (3m)
MARGIN: 3 dB

No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal -----										
1	33.759	22.4	15.9	0.9	22.6	16.6	40.0	23.4	400	163
2	122.533	28.9	11.7	1.6	22.7	19.5	43.5	24.0	385	65
3	400.888	32.9	16.1	2.7	24.2	27.5	46.0	18.5	100	71
4	497.738	33.1	17.3	3.1	24.4	29.1	46.0	16.9	224	345
----- Vertical -----										
5	39.458	25.4	13.1	1.0	22.6	16.9	40.0	23.1	100	58
6	497.774	35.7	17.3	3.1	24.4	31.7	46.0	14.3	152	73
7	935.200	30.1	21.3	4.2	22.6	33.0	46.0	13.0	212	333

< (1 ~ 6) GHz _ Peak >

RADIATED EMISSION

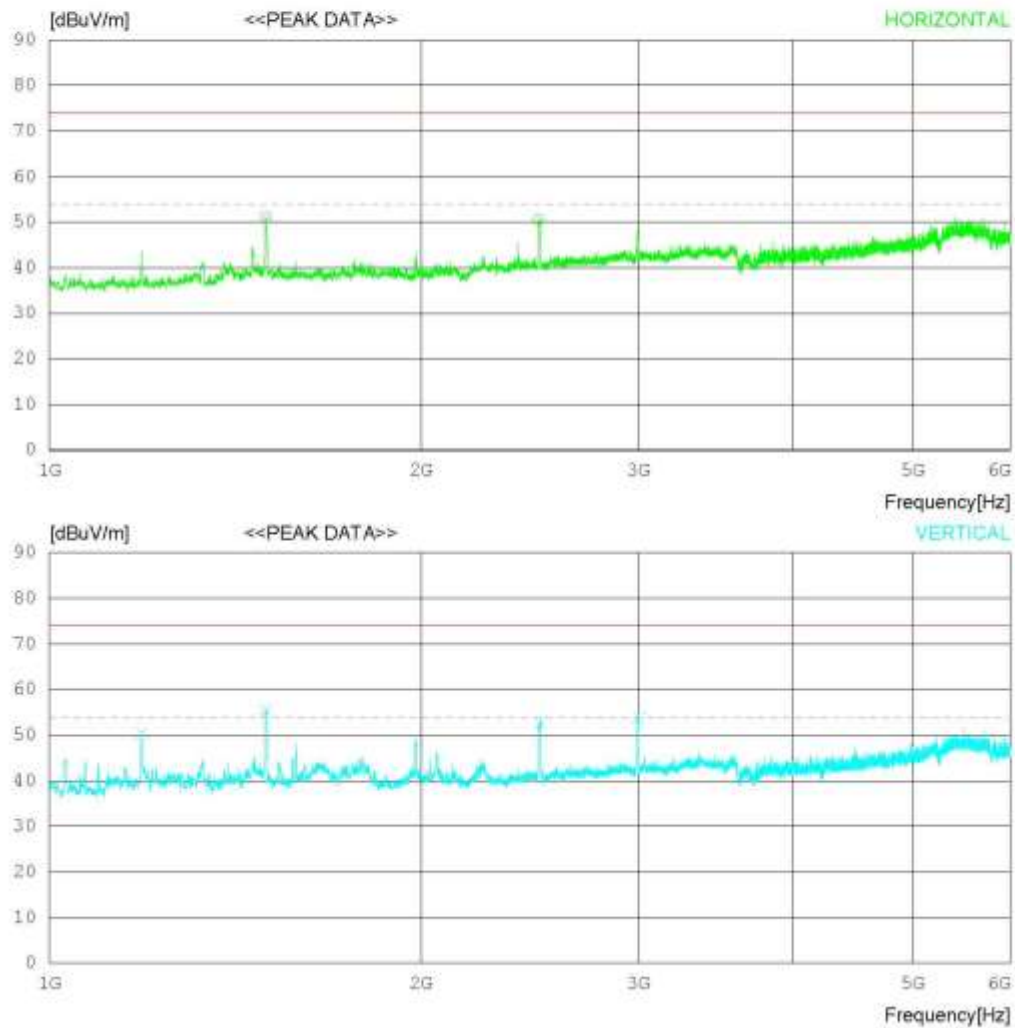
Date : 2014-09-04

Model Name : DEMC1408-03374
Model No. :
Serial No. :
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi : 22 °C 49 % R. H.
Operator :

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Peak)
FCC Part15 Subpart.B Class B (3m) - 18G(Avg)



RADIATED EMISSION

Date : 2014-09-04

Model Name : DEMC1408-03374
Model No. :
Serial No. :
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi : 22 °C 49 % R. H.
Operator :

Memo :

LIMIT : FCC Part15 Subpart B Class B (3m) - 18G(Peak)
FCC Part15 Subpart B Class B (3m) - 18G(Avg)

No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal -----										
1	1496.875	61.2	25.4	3.7	39.2	51.1	74.0	22.9	100	306
2	2488.750	56.3	27.7	5.0	38.4	50.6	74.0	23.4	100	61
----- Vertical -----										
3	1188.125	62.1	24.5	3.3	39.6	50.3	74.0	23.7	100	1
4	1497.500	65.7	25.4	3.7	39.2	55.6	74.0	18.4	100	277
5	2498.750	58.5	27.8	5.0	38.4	52.9	74.0	21.1	100	358
6	3000.000	57.9	29.0	5.5	38.5	53.9	74.0	20.1	100	29

< (1 ~ 6) GHz _ Average >

RADIATED EMISSION

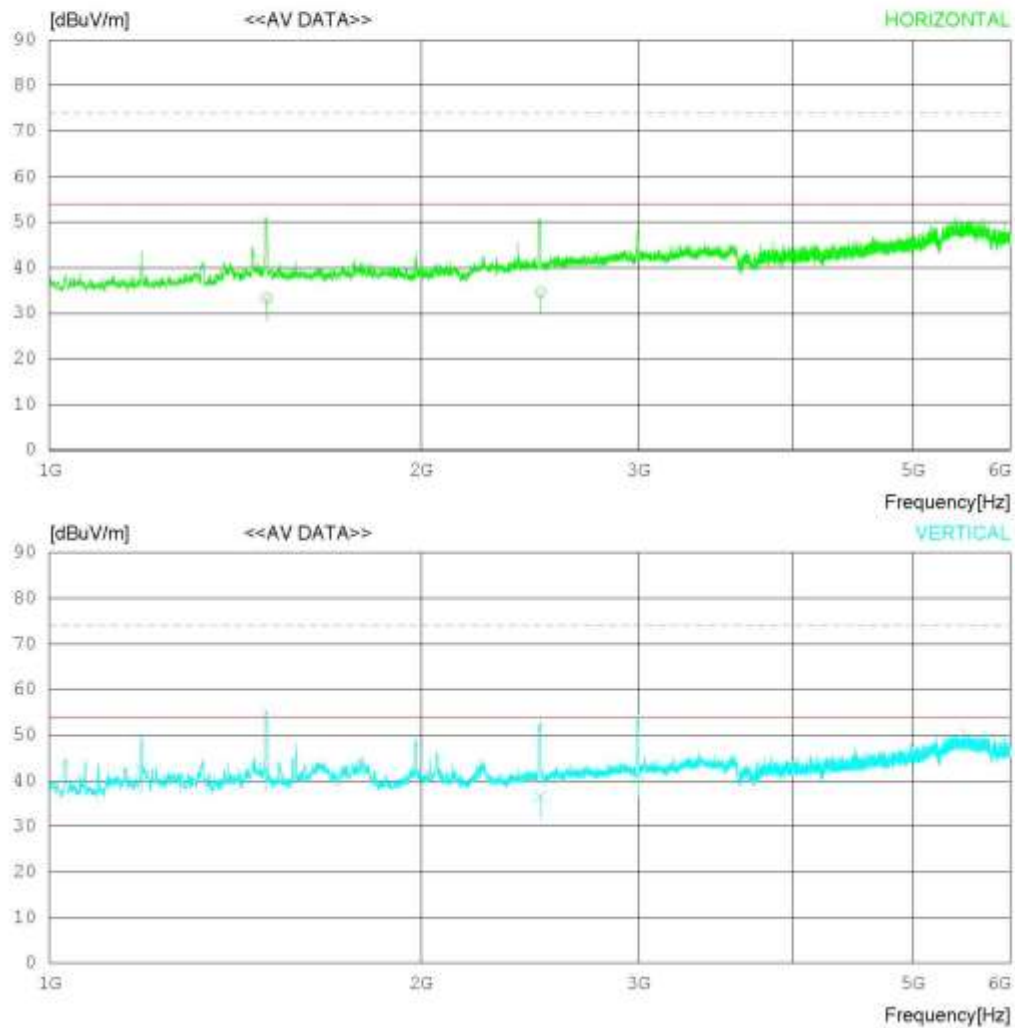
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Serial No. :
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi : 22 °C 49 % R. H.
Operator :

Memo :

LIMIT : FCC Part15 Subpart.B Class B (3m) - 18G(Avg)
FCC Part15 Subpart.B Class B (3m) - 18G(Peak)



RADIATED EMISSION

Date : 2014-09-04

Model Name : DEMC1408-03374
Model No. :
Serial No. :
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi : 22 °C 49 % R. H.
Operator :

Memo :

LIMIT : FCC Part15 Subpart B Class B (3m) - 18G(Avg)
FCC Part15 Subpart B Class B (3m) - 18G(Peak)

No.	FREQ [MHz]	READING AV [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal -----										
1	1500.080	43.4	25.4	3.7	39.2	33.3	54.0	20.7	100	306
2	2498.850	40.2	27.8	5.0	38.4	34.6	54.0	19.4	100	61
----- Vertical -----										
3	1187.988	54.1	24.5	3.3	39.6	42.3	54.0	11.7	100	215
4	1496.318	52.7	25.4	3.7	39.2	42.6	54.0	11.4	100	277
5	2498.833	42.1	27.8	5.0	38.4	36.5	54.0	17.5	100	350
6	3000.171	45.3	29.0	5.5	38.5	41.3	54.0	12.7	100	29

Appendix 1

List of Test and Measurement Instruments

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment is identified by the Test Laboratory.

1. Conducted Disturbance

Name of Instrument	Model No.	Manufacturer	Serial No.	Cal. Date	Next Cal. Date
☒ MEASUREMENT SOFTWARE	EMI-C VER. 2.00.0143	TSJ	N/A	N/A	N/A
☐ SPECTRUM ANALYZER	8591E	H/P	3649A05889	2014.02.27	2015.02.27
☐ LISN	KNW-407	KYORITSU	8-317-8	2014.01.08	2015.01.08
☐ ARTIFICIAL MAINS NETWORK	PMM L2-16B	NARDA S.T.S. / PMM	000WX20305	2014.06.26	2015.06.26
☐ 50 OHM TERMINATOR	CT-01	TME	N/A	2014.01.08	2015.01.08
☒ EMI TEST RECEIVER	ESCI	ROHDE & SCHWARZ	100364	2014.02.27	2015.02.27
☒ LISN	ESH2-Z5	ROHDE & SCHWARZ	828739/006	2013.09.12	2014.09.12
☒ LISN	LISN1600	TTI	197204	2014.06.27	2015.06.27
☒ 50 OHM TERMINATOR	CT-01	TME	N/A	2014.01.08	2015.01.08

2. Radiated Disturbance

Name of Instrument	Model No.	Manufacturer	Serial No.	Cal. Date	Next Cal. Date
☒ MEASUREMENT SOFTWARE	EMI-R VER. 2.00.0121	TSJ	N/A	N/A	N/A
☒ EMI TEST RECEIVER	ESU	ROHDE & SCHWARZ	100014	2014.01.08	2015.01.08
☒ BILOG ANTENNA	CBL6112B	SCHAFFNER	2737	2012.11.06	2014.11.06
☒ HORN ANTENNA	BBHA9120A	SCHWARZBECK	322	2014.05.12	2016.05.12
☒ AMPLIFIER	8447E	H/P	2945A02865	2014.01.08	2015.01.08
☒ AMPLIFIER	8449B	AGILENT	3008A01590	2014.02.27	2015.02.27
☐ EMI TEST RECEIVER	ESCI	ROHDE & SCHWARZ	100364	2014.02.27	2015.02.27
☐ BICONICAL ANT.	VHA 9103	SCHWARZBECK	91032789	2012.10.04	2014.10.04
☐ LOG-PERIODIC ANT.	UHALP 9108A	SCHWARZBECK	590	2012.10.04	2014.10.04
☐ AMPLIFIER	MLA-100K01-B01-26	TSJ	1252741	2014.02.28	2015.02.28

Appendix 2

Report Revision History

Revision Date	Description	Revised By	Revision Reviewed By
None	Original	N/A	N/A