

EMC TEST REPORT

Test item : Mobile Handset
Model No. : LG-D855V
Order No. : DTNC1411-04837
Date of receipt : 2014-11-05
Test duration : 2014-11-18
Date of Issue : 2014-11-19

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 : (21 ~ 26) °C,
Humidity : (38 ~ 42) % 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:



Technical 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, 804488, 165783	Accredited 2.948 Listed
	Canada	IC	5740A-1 5740A-2	Registered
	Japan	VCCI	C-1427 R-1364, R-3385, R-4076, R-4180, T-1442, G-338, G754, G-815	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-D855V
Add Model No	LGD855V, D855V, LG-D855v, LGD855v, D855v
Serial No	None
FCC ID	ZNFD855V
Supplied Power for Test	AC 120 V, 60 Hz
Operation Frequency	2.5 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	2014-11-18	21	38
Radiated Disturbance	2014-11-18	26	42

4.3 Test result Summary

(1) Conducted Emission

Frequency [MHz]	Phase	Result [dBμV]	Detector	Limit [dBμV]	Margin [dB]
5.555	N	31.9	Average	50.0	18.1

(2) Radiated Emission

Frequency [MHz]	Pol.	Result [dB(μV/m)]	Detector	Limit [dB(μV/m)]	Margin [dB]
12994.28	V	49.4	Average	54.0	4.6

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	0.5	Shield	X		
				PARALLEL	1.9	Shield	X		
				STEREO	2.0	Shield	X		
				MIC	2.0	Shield	X		
				LAN	10.0	Shield	X		
MONITOR	M2450D-PN	202KCYQ8Q586	LG	DC IN	2.1	Non-shield	O(NOTE)	Plastic	DOC
				DVI	2.0	Shield	O(NOTE)		
ADAPTER (MONITOR)	PA-1650-68	OBDDN6123140 35937	LITE-ON TECHNOLOGY	POWER	1.9	Non-shield	X	Plastic	-
				DCVOUT	2.1	Non-shield	X		
PRINTER	SRP-770	N/A	BIXOLON	DC IN	1.8	Non-shield	O(NOTE)	Plastic	DOC
				PARALLEL	1.9	Shield	X		
ADAPTER (PRINTER)	N60-240250-I1	N/A	JIANGSU LEADER ELECTRONICS INC.	POWER	1.8	Non-shield	X	Plastic	-
				DC OUT	1.8	Non-shield	X		
KEYBOARD	KB4021	N/A	DELL Inc.	USB	1.7	Shield	X	Plastic	DOC
MOUSE	MOC5UO	N/A	DELL Inc.	USB	1.6	Shield	X	Plastic	DOC
EXTERNAL HDD	9ZR8N1-500	NA0H2L7Z	Seagate	USB	0.5	Shield	X	Plastic	DOC
HEADSET 1	COV909	N/A	COSY	STEREO	2.0	Non-shield	X	Plastic	-
				MIC	2.0	Non-shield	X		
HEADSET 2	N/A	N/A	LG	AUDIO	1.1	Non-shield	X	Plastic	-

* 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

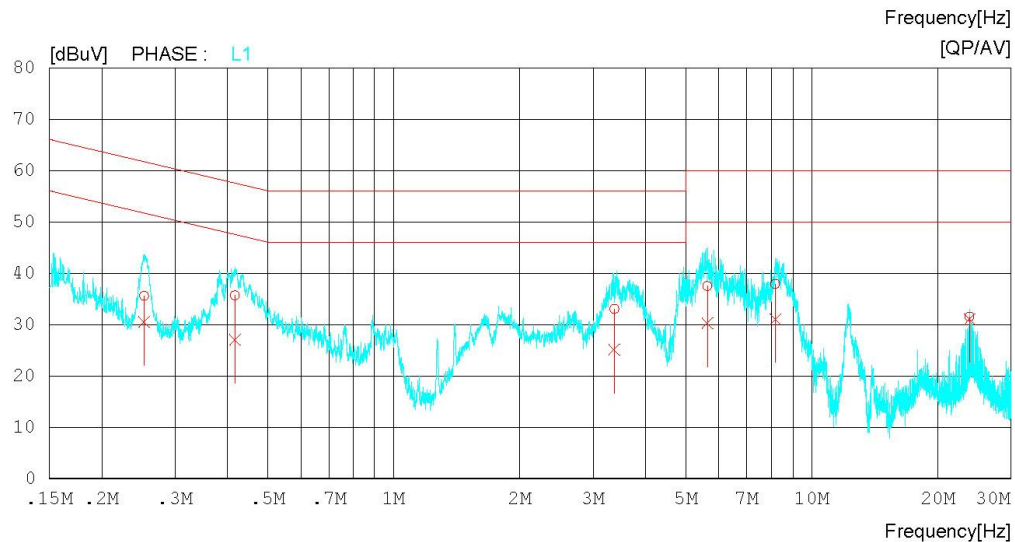
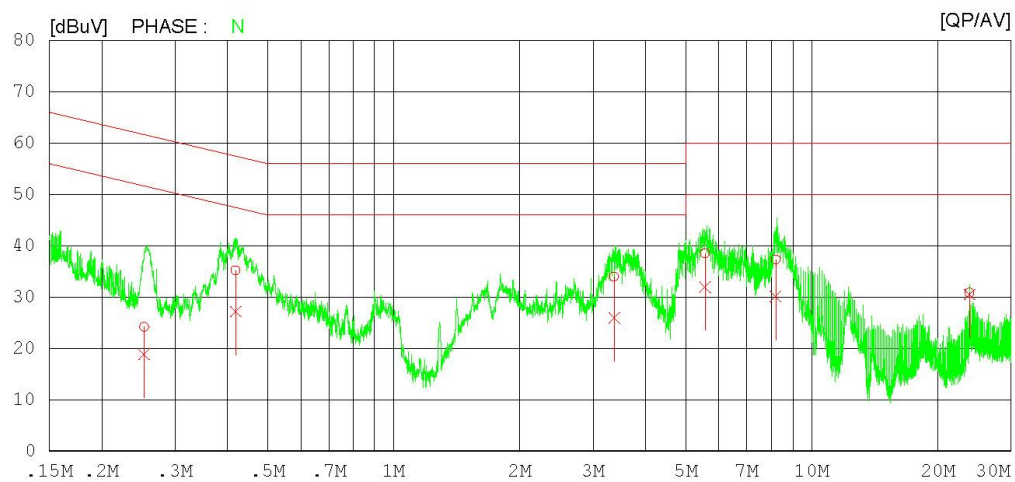
Date : 2014-11-18

Order No. : DTNC1411-04837
Model No. :
Serial No. :
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 21 °C 38 % R.H.
Operator :

Memo :

LIMIT : CISPR22_B QP
CISPR22_B AV



Results of Conducted Emission

DT&C

Date : 2014-11-18

Order No. : DTNC1411-04837
Model No. :
Serial No. :
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi. : 21 °C 38 % 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	0.25268	24.1	18.7	0.1	24.2	18.8	61.7	51.7	37.5	32.9	N
2	0.41877	35.0	27.0	0.2	35.2	27.2	57.5	47.5	22.3	20.3	N
3	3.36800	33.7	25.7	0.2	33.9	25.9	56.0	46.0	22.1	20.1	N
4	5.55500	38.2	31.6	0.3	38.5	31.9	60.0	50.0	21.5	18.1	N
5	8.19860	36.8	29.6	0.5	37.3	30.1	60.0	50.0	22.7	19.9	N
6	23.86820	29.9	29.6	0.9	30.8	30.5	60.0	50.0	29.2	19.5	N
7	0.25273	35.3	30.3	0.2	35.5	30.5	61.7	51.7	26.2	21.2	L1
8	0.41749	35.5	26.9	0.1	35.6	27.0	57.5	47.5	21.9	20.5	L1
9	3.37240	32.6	24.7	0.4	33.0	25.1	56.0	46.0	23.0	20.9	L1
10	5.63340	37.0	29.7	0.5	37.5	30.2	60.0	50.0	22.5	19.8	L1
11	8.18300	37.1	30.3	0.7	37.8	31.0	60.0	50.0	22.2	19.0	L1
12	23.86820	30.3	29.8	1.2	31.5	31.0	60.0	50.0	28.5	19.0	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 **10 m 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 1 000 MHz

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 1 000 MHz 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

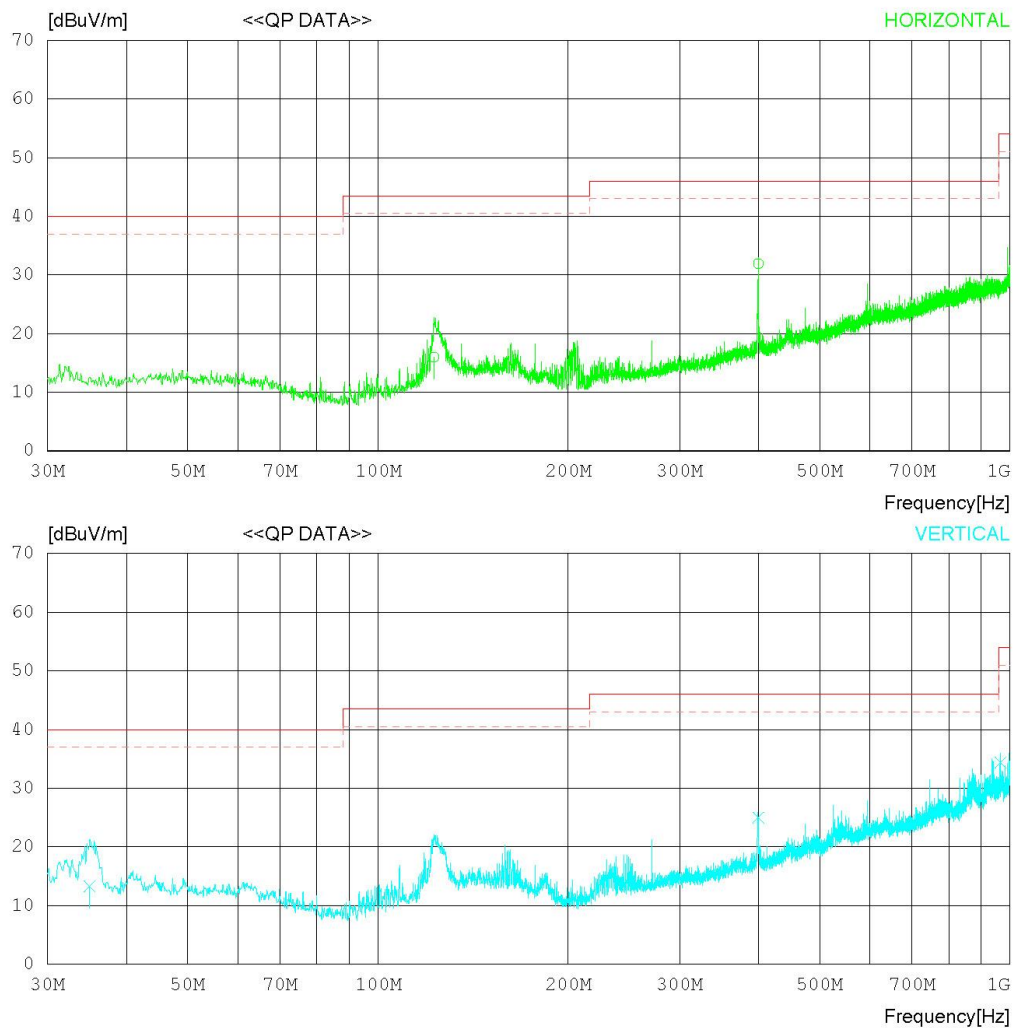
Date : 2014-11-18

Oder No. : DTNC1411-04837
Model No. :
Serial No. :
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi : 26 °C 42 % R.H.
Operator :

Memo :

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



RADIATED EMISSION

Date : 2014-11-18

Oder No. : DTNC1411-04837	Reference No. :
Model No. :	Power Supply : 120 V 60 Hz
Serial No. :	Temp/Humi : 26 °C 42 % R.H.
Test Condition :	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	122.512	25.2	11.9	1.6	22.7	16.0	43.5	27.5	306	262
2	399.802	37.5	15.9	2.7	24.2	31.9	46.0	14.1	205	210
----- Vertical -----										
3	34.971	23.4	11.6	0.9	22.6	13.3	40.0	26.7	100	163
4	399.624	30.6	15.9	2.7	24.2	25.0	46.0	21.0	100	2
5	966.171	28.2	24.4	4.3	22.5	34.4	54.0	19.6	199	343

< (1 ~ 13) GHz _ Peak >

RADIATED EMISSION

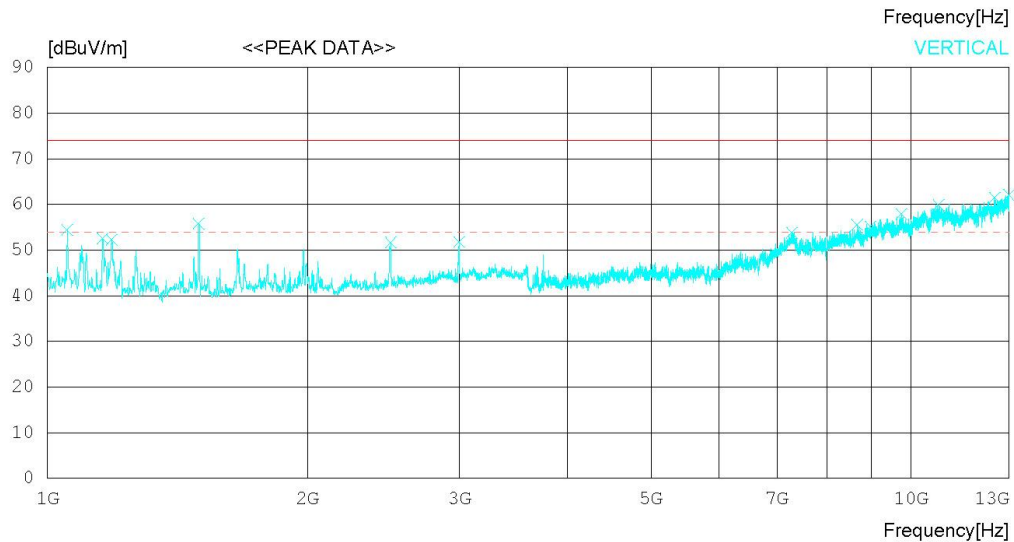
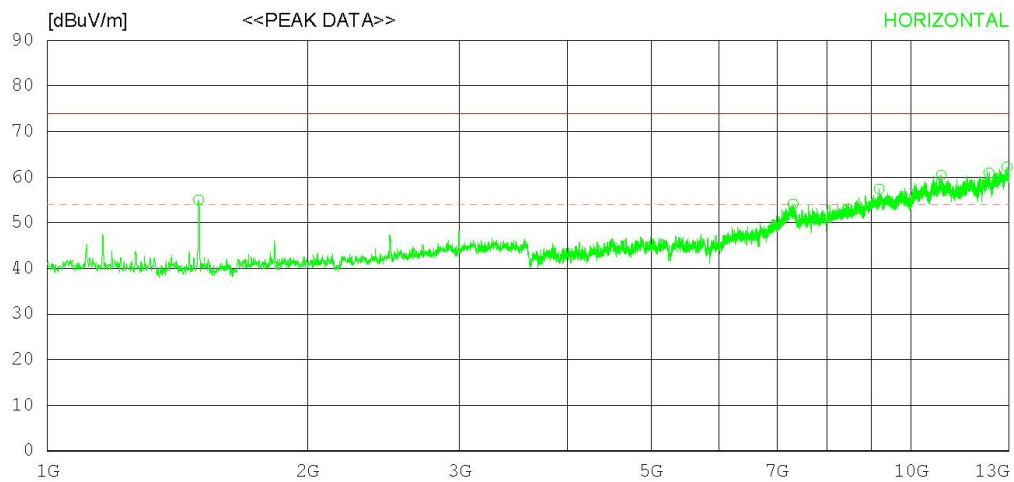
Date : 2014-11-18

Order No. : DTNC1411-04837
Model No. :
Serial No. :
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi : 26 °C 42 % R.H.
Operator :

Memo :

LIMIT : 1_FCC_1-18G_PK
1_FCC_1-18G_AV



RADIATED EMISSION

Date : 2014-11-18

Order No. : DTNC1411-04837
Model No. :
Serial No. :
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi : 26 °C 42 % R.H.
Operator :

Memo :

LIMIT : 1_FCC_1-18G_PK
1_FCC_1-18G_AV

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	1496.500	62.7	26.4	5.1	39.2	55.0	74.0	19	100	359
2	7304.500	45.1	35.8	11.5	38.3	54.1	74.0	19.9	100	14
3	9194.500	46.2	37.8	11.7	38.3	57.4	74.0	16.6	100	310
4	10847.500	46.0	39.7	12.2	37.5	60.4	74.0	13.6	100	270
5	12323.500	46.3	38.9	13.0	37.3	60.9	74.0	13.1	100	300
6	12922.000	45.1	39.1	14.2	36.2	62.2	74.0	11.8	100	145
----- Vertical -----										
7	1054.000	63.2	26.1	5.0	39.9	54.4	74.0	19.6	100	345
8	1159.000	60.8	26.1	5.3	39.7	52.5	74.0	21.5	100	0
9	1187.500	60.4	26.2	5.3	39.6	52.3	74.0	21.7	100	180
10	1496.500	63.5	26.4	5.1	39.2	55.8	74.0	18.2	100	8
11	2498.500	56.3	27.6	6.2	38.4	51.7	74.0	22.3	100	4
12	2996.500	54.8	28.9	6.6	38.5	51.8	74.0	22.2	100	0
13	7280.500	45.0	35.7	11.4	38.3	53.8	74.0	20.2	100	0
14	8671.000	45.5	37.4	10.8	38.1	55.6	74.0	18.4	100	0
15	8977.000	45.1	37.5	10.7	38.1	55.2	74.0	18.8	100	354
16	9763.000	46.6	38.4	11.3	38.4	57.9	74.0	16.1	100	165
17	10774.000	45.7	39.6	12.6	38.0	59.9	74.0	14.1	100	260
18	12523.000	46.0	39.0	13.5	37.0	61.5	74.0	12.5	100	0
19	12994.000	45.0	39.1	13.9	35.9	62.1	74.0	11.9	100	236

< (1 ~ 13) GHz _ Average >

RADIATED EMISSION

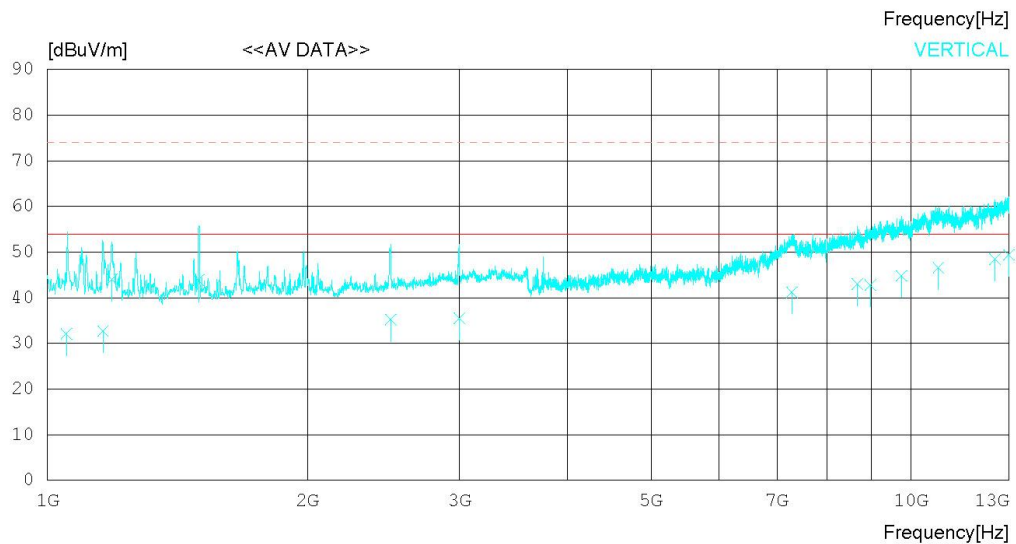
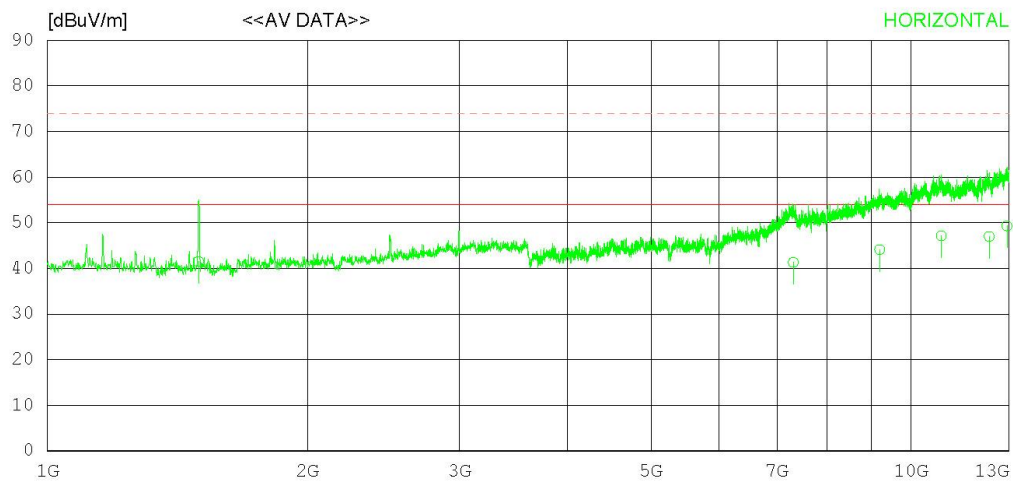
Date : 2014-11-18

Order No. : DTNC1411-04837
Model No. :
Serial No. :
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi : 26 °C 42 % R.H.
Operator :

Memo :

LIMIT : 1_FCC_1-18G_AV
1_FCC_1-18G_PK



RADIATED EMISSION

Date : 2014-11-18

Order No. : DTNC1411-04837
Model No. :
Serial No. :
Test Condition :

Reference No. :
Power Supply : 120 V 60 Hz
Temp/Humi : 26 °C 42 % R.H.
Operator :

Memo :

LIMIT : 1_FCC_1-18G_AV
1_FCC_1-18G_PK

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	1496.235	49.2	26.4	5.1	39.2	41.5	54.0	12.5	100	350
2	7310.320	32.5	35.8	11.3	38.3	41.3	54.0	12.7	100	14
3	9202.185	32.9	37.8	11.7	38.3	44.1	54.0	9.9	112	310
4	10848.670	32.7	39.7	12.2	37.5	47.1	54.0	6.9	100	270
5	12325.730	32.4	38.9	13.0	37.3	47.0	54.0	7.0	100	300
6	12925.460	32.2	39.1	14.2	36.2	49.3	54.0	4.7	125	145
----- Vertical -----										
7	1052.113	40.9	26.1	5.0	39.9	32.1	54.0	21.9	100	345
8	1159.253	41.0	26.1	5.3	39.7	32.7	54.0	21.3	100	163
9	1188.003	52.1	26.2	5.3	39.6	44.0	54.0	10.0	100	180
10	1496.365	51.6	26.4	5.1	39.2	43.9	54.0	10.1	106	8
11	2498.927	39.8	27.6	6.2	38.4	35.2	54.0	18.8	100	4
12	3000.177	38.5	28.9	6.6	38.5	35.5	54.0	18.5	100	163
13	7279.538	32.4	35.7	11.4	38.3	41.2	54.0	12.8	102	33
14	8673.985	32.9	37.4	10.8	38.1	43.0	54.0	11.0	100	356
15	8980.405	32.7	37.5	10.7	38.1	42.8	54.0	11.2	100	354
16	9762.115	33.5	38.4	11.3	38.4	44.8	54.0	9.2	100	165
17	10764.700	32.5	39.6	12.5	38.0	46.6	54.0	7.4	115	260
18	12523.560	33.0	39.0	13.5	37.0	48.5	54.0	5.5	100	7
19	12994.280	32.3	39.1	13.9	35.9	49.4	54.0	4.6	100	236

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
☐ ARTIFICIAL MAINS NETWORK	PMM L2-16B	NARDA S.T.S. / PMM	000WX20305	2014.06.26	2015.06.26
☐ LISN	KNW-407	KYORITSU	8-317-8	2014.01.08	2015.01.08
☐ 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
☒ ARTIFICIAL MAINS NETWORK	ESH2-Z5	ROHDE & SCHWARZ	828739/006	2014.09.11	2015.09.11
☒ 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
☒ TRILOG BROADBAND TEST-ANTENNA	VULB9160	SCHWARZBECK	9160-3362	2014.07.31	2016.07.31
☒ HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1014	2014.09.01	2016.09.01
☒ 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
☐ 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