

FCC TEST REPORT

Reference No. : G-45-2015-00362

Applicant : LG Electronics MobileComm U.S.A., Inc.

Equipment Under Test (EUT) :

Product Name : Cellular/PCS GSM/GPRS/EDGE
/WCDMA/HSDPA/HSUPA Smart Phone

Model Name : DM-01G

Applied Standards : FCC Part 15

Date of Receipt : February 03, 2015

Date of Test : February 13, 2015 ~ March 16, 2015

Date of Issue : March 16, 2015

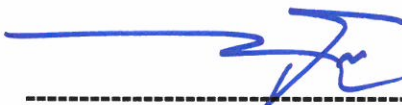
Test Results : Complied

Tested by :



Emily Lee

Reviewed by :



Paul Kang

Remarks :

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1. General Information

1.1 Client Information

Applicant : LG Electronics MobileComm U.S.A., Inc.
Address of Applicant : 10101 Old Grove Road, San Diego, CA92131

Manufacturer : LG Electronics MobileComm U.S.A., Inc.
Address of Manufacturer : 10101 Old Grove Road, San Diego, CA92131

1.2 Test Laboratory

Name and Address : SGS Korea Co., Ltd.
Giheung 1 Laboratory : 35, Giheungdanji-ro 121beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea
Giheung 2 Laboratory : 23, Giheungdanji-ro 24beon-gil, Giheung-gu, Yongin-si, Gyeonggi-do, Republic of Korea
Gunpo Laboratory : 4, LS-ro 182beon-gil, Gunpo-si, Gyeonggi-do, 435-040 Republic of Korea
Phone : + 82 31 428 5700
Fax : + 82 31 427 2370
e-mail : paul.kang@sgs.com

1.3 General Information of E.U.T.

Product Name	Cellular/PCS GSM/GPRS/EDGE/WCDMA/ HSDPA/ HSUPA Smart phone
Model Name	DM-01G
FCC ID	ZNFD01G
H/W Version	REV.A (Q1)
S/W Version	DS1402_LAMPLR150129
Serial No.	-
EMI Classification	Class B
Test Voltage	120 V _{a.c.} , 60 Hz
Highest Internal Frequency	CPU Clock : 2.45 GHz(Quad ARM Cortec-M3)

NOTE. This device contains the WLAN(Spec: 802. 11abgn/ac, Max 5.7 GHz)

1.4 Operating Modes and Conditions

Operating mode	Operating condition
USB data Communication (r I C ver)	PC Link USB Communication
USB data Communication (i C ver)	PC Link USB Communication

1.5 Auxiliary Equipments

Description	Model	Serial No.	Manufacturer	FCC ID
LCD Monitor	S2740Lb	CN-DP7D0G-74261-352-05CL	DELL Inc.	DOC
USB MOUSE	MO28UOL	-	lenovo	DOC
MULTIMEDIA KEYBOARD	K-300B	D11D0100665	PLEOMAX	DOC
Notebook Computer	7665-AH6	L3-E5323	Lenovo	DOC
Wireless Router	WG602v4	-	NETGEAR	PY3WG602V4

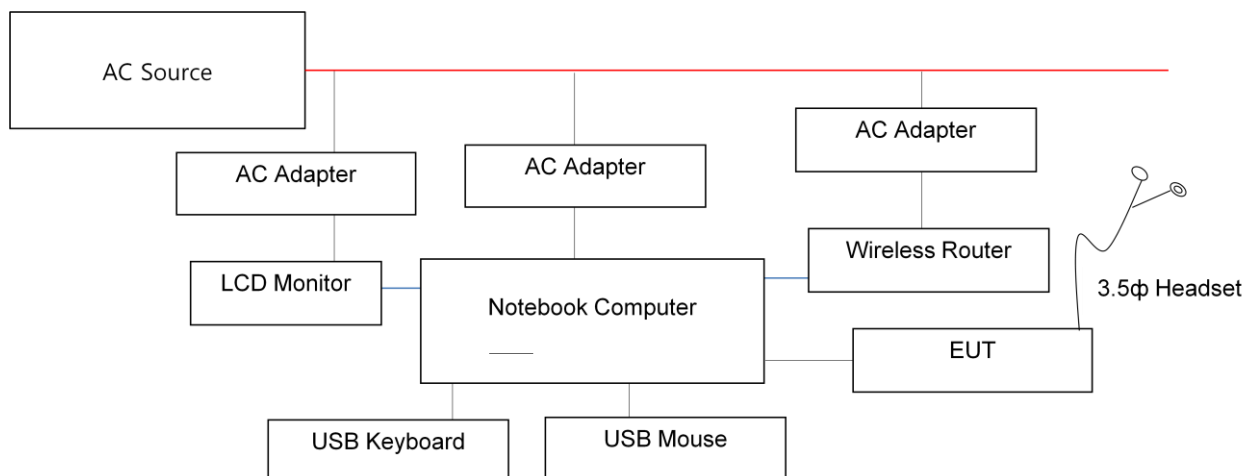
1.6 Cable List

Start		END		Cable Spec.		
Name	I/O Port	Name	I/O Port	Length	Shield	Core
EUT	Micro USB	Notebook Computer	USB	1.2	Shield	Not used
	3.5φ Headset	Headset	-	1.2	Shield	Not used
Notebook Computer	USB	USB Mouse	-	1.8	Shield	Not used
	USB	USB Keyboard	-	1.5	Shield	Not used
	USB	EUT	Micro USB	1.0	Shield	Not used
	DC IN	AC Adapter	DC OUT	1.8	Unshield	Molded*1ea
	RGB	LCD Monitor	RGB	1.5	Shield	Molded*1ea
	LAN	Wireless Router	LAN	3.0	Unshield	Not used
AC Adapter	AC IN	AC Source	-	1.5	Unshield	Molded*1ea
LCD Monitor	DC OUT	AC Adapter	DC IN	1.5	Unshield	Used*1ea
AC Adapter	AC IN	AC Source	-	1.0	Unshield	Not used
Wireless Router	DC IN	AC Adapter	DC OUT	1.0	Unshield	Used*1ea
AC Adapter	AC IN	AC Source	-	-	Unshield	Not used

1.7 System Configurations

Description	Model	Serial No.	Manufacturer
USB Cable	L03	-	LG
Earphone	LE530	EAB62910502	LG
Li-ion Battery	L24	EAC6223803	LG
Front Cover	DS1402 55 DU-1-01	-	-
Back Cover	DS1402 55 DU-1-02	-	-

1.8 Test System Layout



1.9 Modifications

- There was no modified item during the test.

1.10 Applicable Standards for Testing

Standards	Status	Deviation
FCC Part 15 Subpart B, Class B	Applicable	No Deviation

1.11 Summary of Test Results

Test Item	Basic Standards	Results
Conducted Emission	ANSI C63.4 : 2009	Complied
Radiated Emission	ANSI C63.4 : 2009	Complied

Note : Test methods of all test items are performed according to the basic standards in this table.

EMISSION

2.1 Test Results

Test Items	Basic Standards	Test Results
Conducted Emission	ANSI C63.4 : 2009 FCC Part 15 Subpart B	Complied
Radiated Emission	ANSI C63.4 : 2009 FCC Part 15 Subpart B	Complied

2.2 Test Method and Limits

2.2.1 Test Method

Test Items	Measuring Frequency Range	RBW	Measuring Distance
Conducted Emission	0.15 MHz ~ 30 MHz	9 kHz	-
Radiated Emission	30 MHz ~ 1 GHz	120 kHz	10 m & 3 m
	Above 1 GHz	1 MHz	3 m

Note : 10 m method of radiated emission measurement is only applied to Class A equipment over the frequency range of 30 MHz ~ 1 GHz. Except this, 3 m method is applied to Class B equipment over the frequency range of 30 MHz ~ 1 GHz and Class A and Class B equipment above 1 GHz.

2.2.2 Test Limits

-Conducted Emission Limits

Frequency Range	Limits(dB(μ V))		Class
	Quasi-peak	Average	
0.15 MHz ~ 0.5 MHz	79	66	Class A
0.5 MHz ~ 30 MHz	73	60	
0.15 MHz ~ 0.5 MHz	66 to 56	56 to 46	Class B
0.5 MHz ~ 5 MHz	56	46	
5 MHz ~ 30 MHz	60	50	

Note : The lower limit shall apply at the transition frequencies. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

-Radiated Emission Limits below 1 GHz

Frequency Range	Limits(dB(μ V/m))	Class
	Quasi-peak	
30 MHz ~ 88 MHz	39.1	Class A
88 MHz ~ 216 MHz	43.5	
216 MHz ~ 960 MHz	46.4	
960 MHz ~ 1 GHz	49.5	
30 MHz ~ 88 MHz	40	Class B
88 MHz ~ 216 MHz	43.5	
216 MHz ~ 960 MHz	46	
960 MHz ~ 1 GHz	54	

-Radiated Emission Limits above 1 GHz (3m method)

Frequency Range	Limits(dB(μ V/m))		Class
	Average	Peak	
Above 1 GHz	59.5	79.5	Class A
Above 1 GHz	54	74	Class B

2.3 Conducted Emission

The initial preliminary exploratory scans were performed over the measuring frequency range(0.15 MHz to 30 MHz) using a max hold mode incorporating a Peak detector and Average detector and using the software of EMC32(Version V9.12.00 from R&S). The final test data was measured using a Quasi-Peak detector and Average detector.

2.3.1 Test Equipments

Description	Model No.	Manufacturer	S/N	Last Cal. Date
Two-Line V-Network	ENV216	R & S	100190	2014.12.25
Artificial Mains Networks	ESH2-Z5	R & S	100280	2014.04.04
Test Receiver (RRA)	ESCI 7	R & S	100911	2014.12.24

Note : The calibration period of every equipment is 1 year.

2.3.2 Test Site

Shield Room in Gunpo Laboratory

2.3.3 Environment Conditions

Temperature: 23.1 °C ~ 23.5 °C

Humidity: 31.0 %R.H. ~ 32.0 %R.H.

Atmospheric Pressure: 101.9 kPa

Test Date: February 13, 2015

Freq. (MHz)	Line (H/N)	Level (dB μ V)		CL (dB)	LISN (dB)	Result (dB μ V)		Limit (dB μ V)		Margin (dB)	
		Q/P	A/V			Q/P	A/V	Q/P	A/V	Q/P	A/V
0.17	N	35.9	24.3	0.0	9.7	45.6	34.0	64.7	54.7	19.1	20.7
0.17	H	38.4	24.1	0.0	9.6	48.0	33.7	64.7	54.7	16.7	21.0
0.40	H	30.8	28.2	0.0	9.6	40.4	37.8	57.9	47.9	17.5	10.1
0.72	N	30.5	25.3	0.1	9.7	40.2	35.0	56.0	46.0	15.8	11.0
15.89	H	35.4	30.0	0.2	9.7	45.3	39.9	60.0	50.0	14.7	10.1
16.54	N	33.9	29.2	0.2	9.9	44.0	39.3	60.0	50.0	16.0	10.7

Measurement Uncertainty : ± 3.24 dB (The confidential level is about 95%, $k=2$)

Note : • Line (H) : Hot

• CL: Cable Loss

• Result = Level + CL + LISN

• Line (N) : Neutral

• LISN : LISN Factor

• Margin = Limit – Result

See Appendix A (Conducted Emission)

2.4 Radiated Emission

The initial preliminary exploratory scans were performed at 3 m distance over the measuring frequency range(30 MHz to 13 GHz) using a max hold mode incorporating a Peak detector and using the software of EP5RE(Version Ver3.10.20 from TOYO). The final test data was measured using a Quasi-Peak detector below 1 GHz at 3 m distance. Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m and the EUT was rotated 360° to find the maximum emitting point for each frequency.

2.4.1 Test Equipments

Description	Model No.	Manufacturer	S/N	Last Cal. Date
Horn Antenna (RRA)	HF906	R & S	100326	2013.04.10
Signal Conditioning Unit	SCU 18	R & S	10117	2014.12.26
Bilog Antenna (RRA)	VULB9163	SCHWARZBECK MESS- ELEKTRONIK	396	2014.06.16
Test Receiver (RRA)	ESU26	R & S	100109	2014.06.16
Amplifier	8447F	HP	2944A03909	2014.08.27

Note : Only the calibration period of Antennas is 2 years but the period of every equipment is 1 year.

2.4.2 Test Site

3 m Semi-Anechoic Chamber in Gunpo Laboratory

2.4.3 Environment Conditions

Below 1 GHz (3 m method)

Temperature : 27.1 °C ~ 28.1 °C

Humidity : 20.0 %R.H. ~ 21.0 %R.H.

Atmospheric Pressure : 100.9 kPa

Test Date : February 16, 2015

USB data Communication (Normal Cover)

Freq. (MHz)	Level (dB μ V)	Pol. (H/V)	A (°)	H (cm)	AF (dB)	CL (dB)	Amp. (dB)	F/S (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
36.39	45.0	V	78	300	13.1	0.8	27.7	31.2	40.0	8.8
44.55	42.6	V	178	100	14.1	0.9	27.7	29.9	40.0	10.1
60.43	45.5	V	195	100	12.4	1.0	27.8	31.1	40.0	9.0
94.38	42.8	V	87	100	10.7	1.3	27.8	27.0	43.5	16.5
111.36	47.1	H	51	300	10.4	1.4	27.5	31.4	43.5	12.1
799.45	39.9	H	101	200	22.2	3.8	29.2	36.7	46.0	9.3

Test Date : March 16, 2015

USB data Communication (Quick Cover)

Freq. (MHz)	Level (dB μ V)	Pol. (H/V)	A (°)	H (cm)	AF (dB)	CL (dB)	Amp. (dB)	F/S (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
30.81	44.2	V	299	100	11.8	0.8	27.8	29.0	40.0	11.0
40.43	43.7	V	302	100	14.3	0.9	27.7	31.2	40.0	8.8
43.01	43.0	V	202	100	14.2	0.9	27.7	30.4	40.0	9.6
61.81	41.4	V	252	100	11.8	1.0	27.8	26.4	40.0	13.6
67.75	41.0	V	271	200	9.3	1.0	27.8	23.5	40.0	16.5
158.12	44.7	V	261	100	8.2	1.7	27.5	27.0	43.5	16.5

Measurement Uncertainty (Horizontal) : ± 5.56 dB (The confidential level is about 95%, $k=2$)

Measurement Uncertainty (Vertical) : ± 5.92 dB (The confidential level is about 95%, $k=2$)

Note: • AF = Antenna Factor

• Pol.(H) = Horizontal

• Margin = Limit – F/S

• A : Angle

• H : Height

• CL = Cable Loss

• Pol.(V) = Vertical

• F/S = Level + AF + CL – Amp.

• F/S = Field Strength

• Amp. = Amplifier Gain

Above 1 GHz (3 m method)

Temperature : 28.2 °C ~ 28.5 °C

Humidity : 16.0 %R.H. ~ 17.0 %R.H.

Atmospheric Pressure : 101.5 kPa

Test Date : February 23, 2015

USB data Communication (Normal Cover)

Freq. (MHz)	Level (dB μ V)	Pol. (H/V)	A (°)	H (cm)	AF (dB)	CL (dB)	Amp. (dB)	F/S (dB μ V/m)	Limit (dB)	Margin (dB)
Peak										
1420.00	62.4	V	179	100	24.9	4.9	42.9	49.3	74.0	24.7
1991.67	55.6	V	27	200	27.9	11.1	42.9	51.7	74.0	22.3
9668.00	45.0	H	177	100	37.2	12.8	42.3	52.6	74.0	21.4
12161.46	48.5	H	175	100	38.6	13.9	42.3	58.8	74.0	15.2
Average										
1420.00	37.8	V	179	100	24.9	4.9	42.9	24.7	54.0	29.3
1991.67	35.0	V	27	200	27.9	11.1	42.9	31.1	54.0	22.9
9668.00	29.3	H	177	100	37.2	12.8	42.3	36.9	54.0	17.1
12161.46	29.2	H	175	100	38.6	13.9	42.3	39.5	54.0	14.5

Test Date : March 16, 2015

USB data Communication (Quick Cover)

Freq. (MHz)	Level (dB μ V)	Pol. (H/V)	A (°)	H (cm)	AF (dB)	CL (dB)	Amp. (dB)	F/S (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
Peak										
1459.79	58.8	V	216	100	25.0	5.1	42.9	46.0	74.0	28.0
2009.17	50.6	V	174	200	28.0	11.0	42.9	46.7	74.0	27.3
7545.25	43.2	V	263	100	35.8	16.5	42.3	53.2	74.0	20.8
12922.71	42.4	V	25	100	38.9	14.6	41.6	54.3	74.0	19.7
Average										
1459.79	36.4	V	216	100	25.0	5.1	42.9	23.6	54.0	30.4
2009.17	31.6	V	174	200	28.0	11.0	42.9	27.7	54.0	26.3
7545.25	29.3	V	263	100	35.8	16.5	42.3	39.3	54.0	14.7
12922.71	28.8	V	25	100	38.9	14.6	41.6	40.7	54.0	13.3

Measurement Uncertainty (Horizontal) : ± 4.99 dB (The confidential level is about 95%, $k=2$)

Measurement Uncertainty (Vertical) : ± 4.99 dB (The confidential level is about 95%, $k=2$)

Note: • AF = Antenna Factor

• CL = Cable Loss

• F/S = Field Strength

• Pol.(H) = Horizontal

• Pol.(V) = Vertical

• Amp. = Amplifier Gain

• Margin = Limit – F/S

• F/S = Level + AF + CL – Amp.

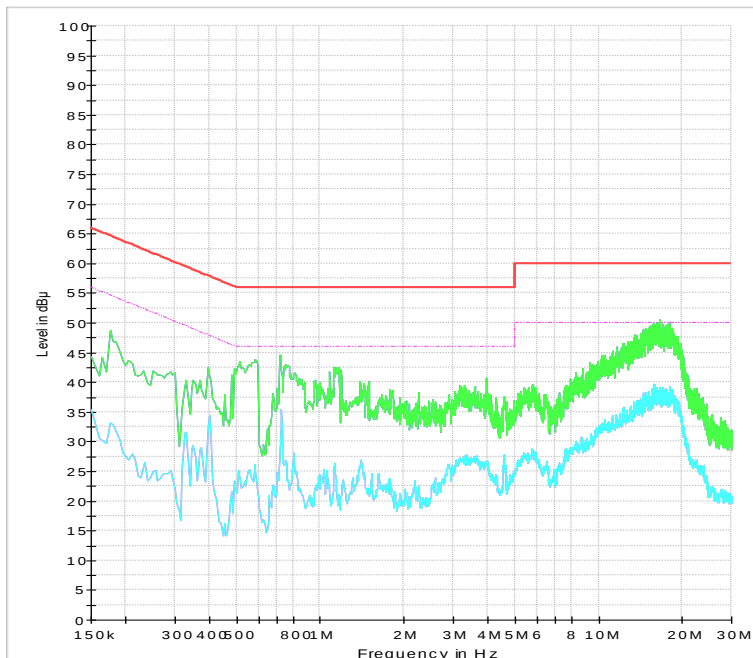
• A : Angle

• H : Height

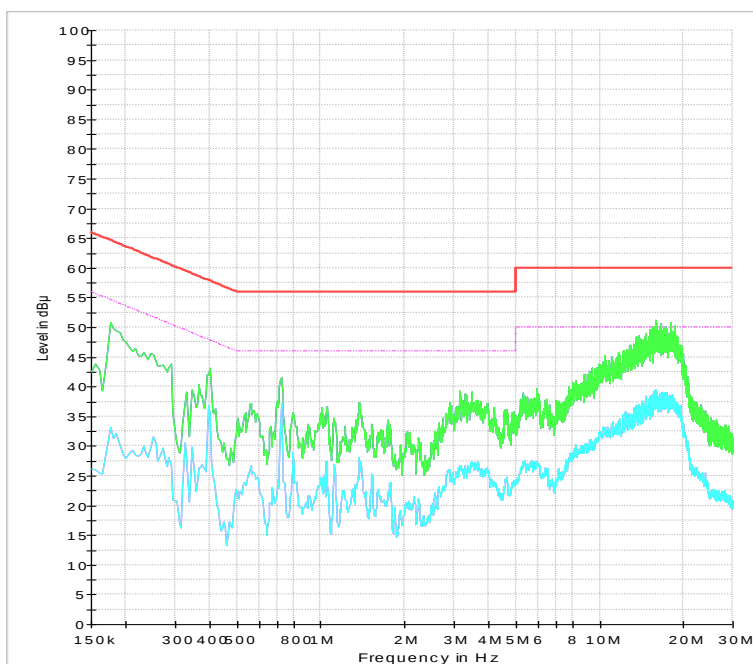
See Appendix B (Radiated Emission)

Appendix A : Conducted Emission

Neutral



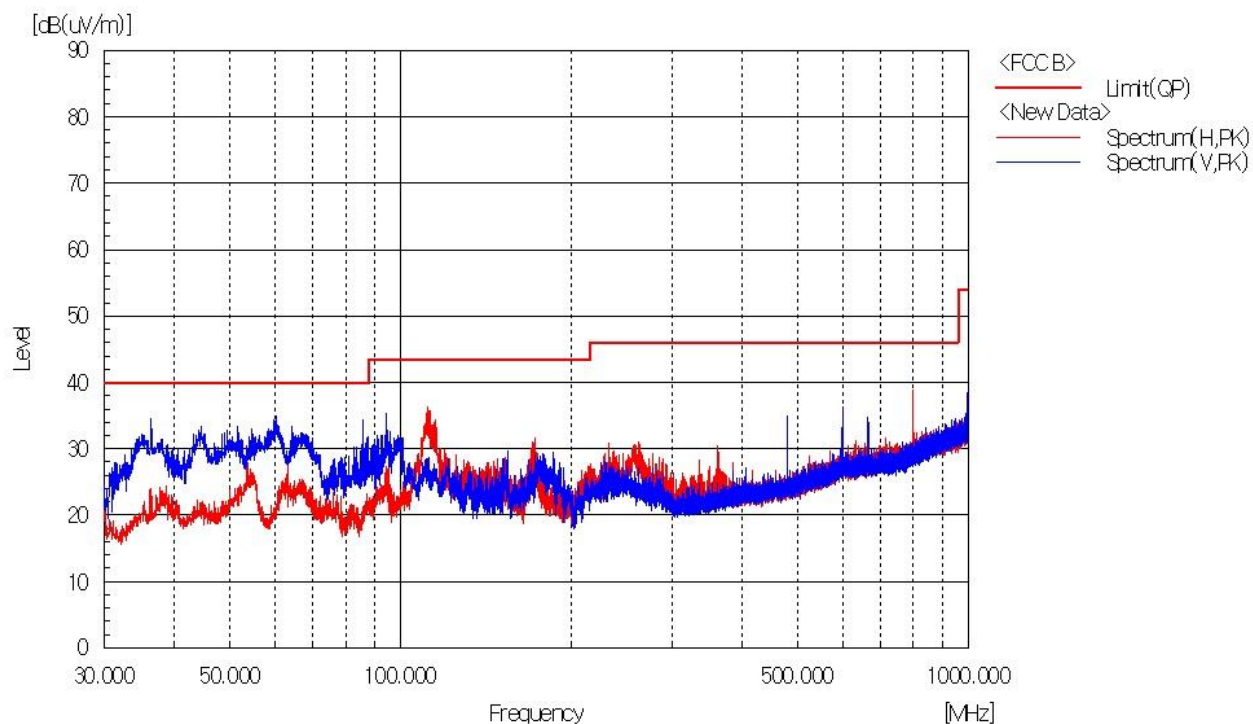
Hot



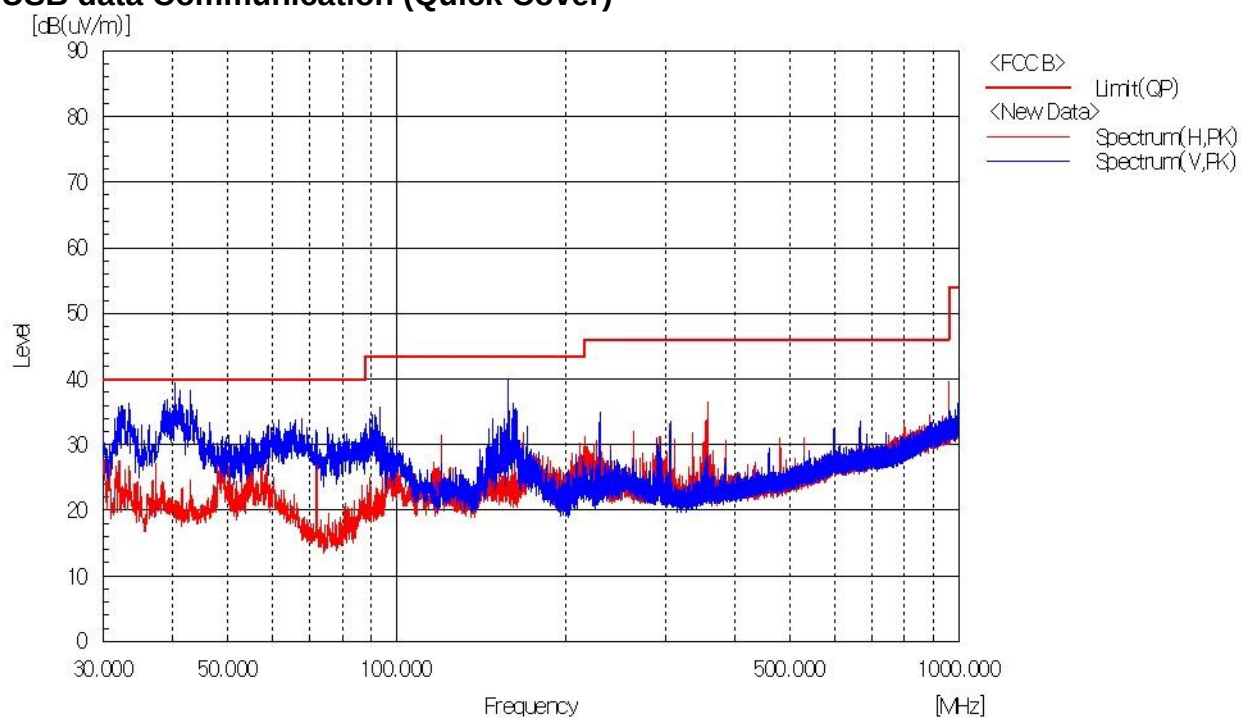
Appendix B : Radiated Emission (3 m Scan Data)

Below 1 GHz

USB data Communication (Normal Cover)



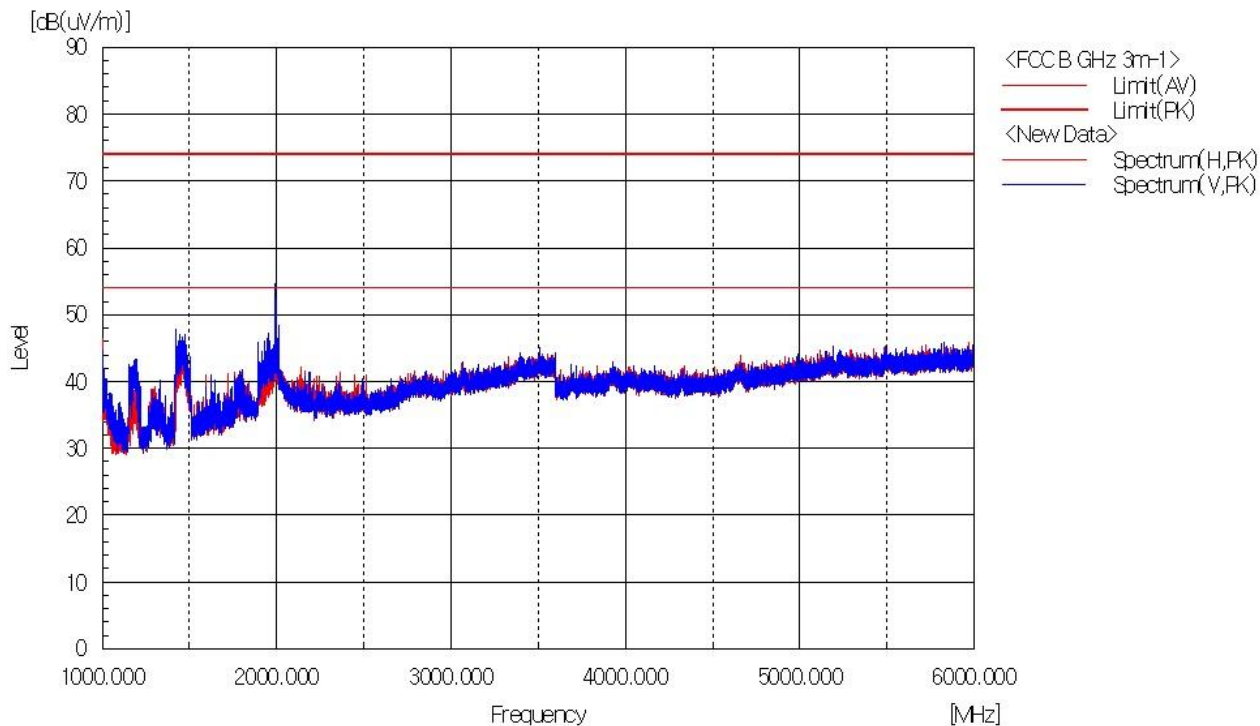
USB data Communication (Quick Cover)



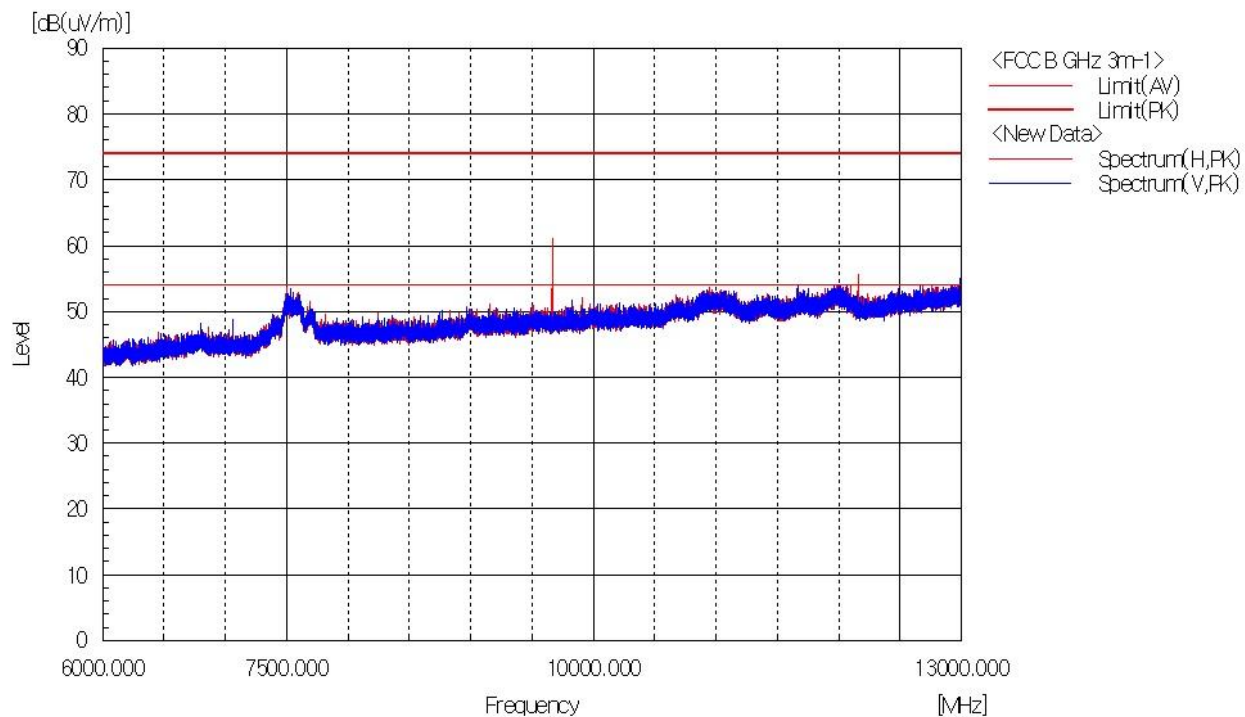
Above 1 GHz

USB data Communication (Normal Cover)

1GHz ~ 6GHZ

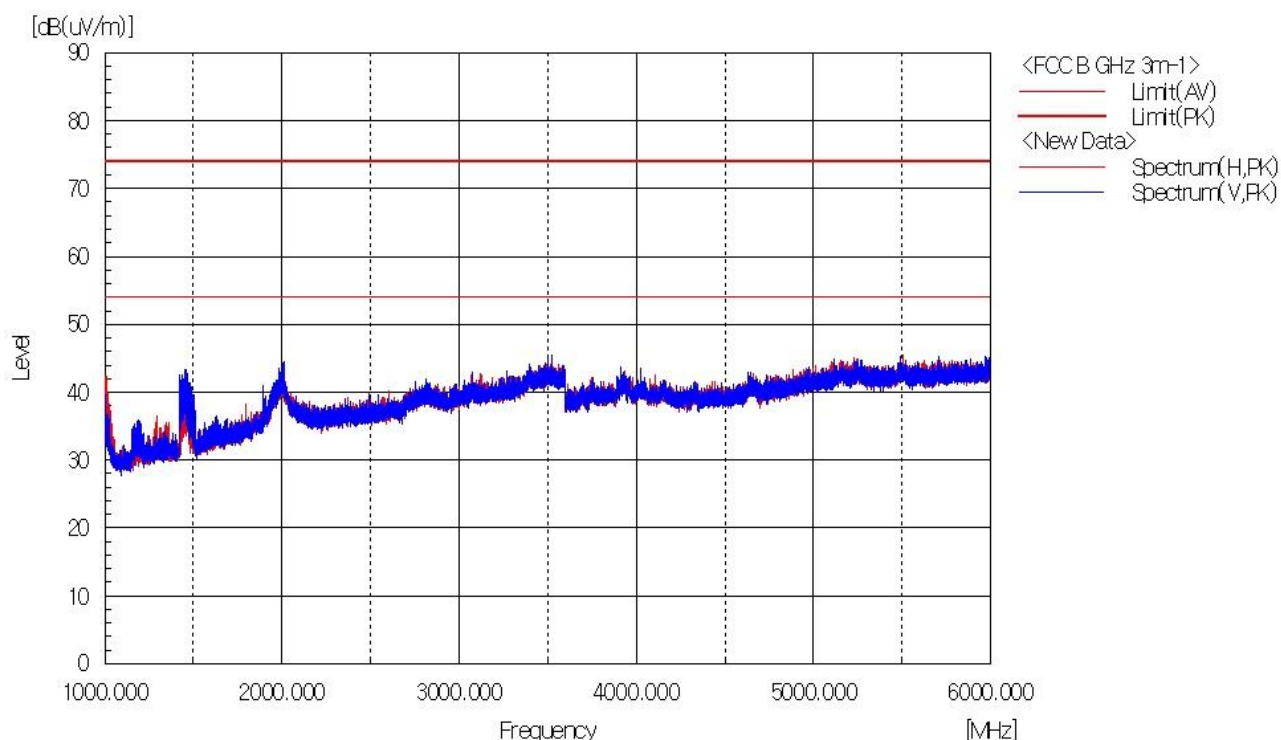


6GHz ~ 13GHZ



USB data Communication (Quick Cover)

1GHz ~ 6GHZ



6GHZ ~ 13GHZ

