



# FCC/IC TEST REPORT

Reference No. : G-45-2012-01128  
 Applicant : Ericsson-LG Co., Ltd.  
 Equipment Under Test (EUT) :

Product Name : Wireless IP Terminal  
 Model Name : WIT-400HE

Applied Standards : FCC Part 15 : 2010, Subpart B, Class B  
 ANSI C63.4 : 2003  
 CISPR 22 : 2008  
 ICES-003 Issue 4 : 2004

Date of Receipt : April 19, 2012  
 Date of Test : April 24, 2012 ~ April 25, 2012  
 Date of Issue : June 05, 2012  
 Test Results : Complied

<b>Tested by</b>	:	 ----- <b>Jinho Seo</b>
<b>Reviewed by</b>	:	 ----- <b>Forest Lee</b>

These Results are deemed satisfactory evidence of compliance with industry Canada interface causing Equipment standard ICES-003.

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# 1. General Information

## 1.1 Client Information

Applicant : Ericsson-LG Co., Ltd.  
 Address of Applicant : (Yeoksam-dong, GS Tower 7,8th Floor), 508, Nonhyeon-ro, Gangnam-gu Seoul 135-985 Korea, Republic of  
 Manufacturer : Ericsson-LG Co., Ltd.  
 Address of Manufacturer : (Yeoksam-dong, GS Tower 7,8th Floor), 508, Nonhyeon-ro, Gangnam-gu Seoul 135-985 Korea, Republic of

## 1.2 Test Laboratory

Name and Address : SGS Korea Co., Ltd. (Gunpo Laboratory)  
 18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea  
 435-040  
 FCC Registration No. : 367021  
 IC Company No. : 4620F  
 Phone : + 82 31 428 5700  
 Fax : + 82 31 427 2370  
 e-mail : forest.lee@sgs.com

## 1.3 General Information of E.U.T.

Product Name	Wireless IP Terminal
Model Name	WIT-400HE
Serial No.	-
EMI Classification	Class B
FCC ID	TUIWIT400HE
IC Number	6241A WIT400HE
Rated Voltage	Input (100~240) Va.c., 50/60 Hz, 0.15 A Output 5.1 Vd.c., 0.7 A
Test Voltage	120 Va.c., 60 Hz
Battery	3.7Vd.c., 1150 mAh (Li-Ion)
Operating Frequency	2.4 GHz

## 1.4 Operating Modes and Conditions

Operating mode	Operating condition
Charge+Idle Mode	Charge+Idle Mode

## 1.5 Auxiliary Equipments

Description	Model	Serial No.	Manufacturer
IP Telephone	LIP-7024D	608KCBD039941	LG-NORTEL
MEGA AP	HN-2204AP	2204AP1001P01270	Tellion
POE	I300POE8KDX	605KCEA046892	LG

Note: Auxiliary equipments are declared according to FCC procedure.

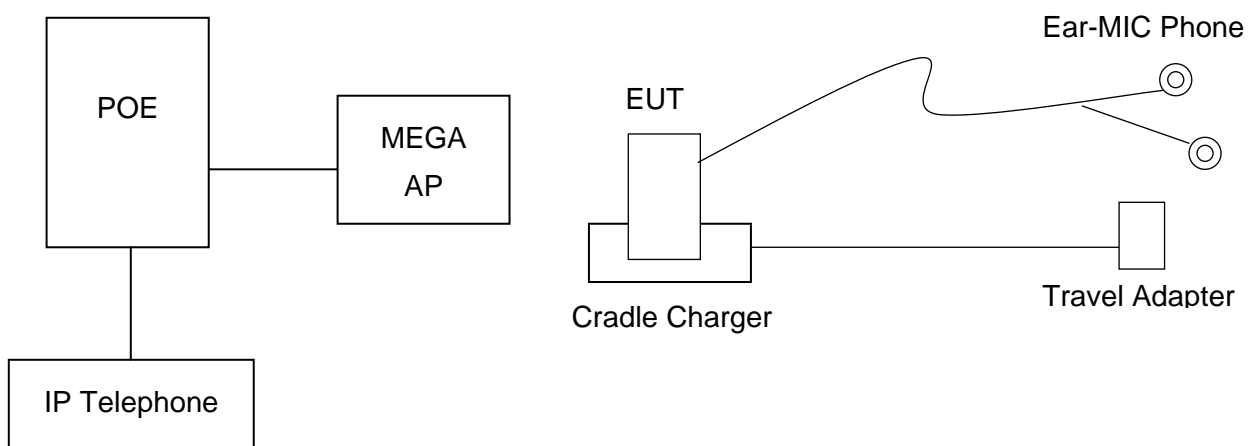
### 1.6 Cable List

Start		END		Cable Spec.	
Name	I/O Port	Name	I/O Port	Length	Shield
EUT	I/O	Ear-MIC Phone	-	1.0	Unshield
	-	Cradle Charger	-	-	-
Travel Adapter	AC IN	AC Source	-	1.5	-
Cradle Charger	USB Port	Travel Adapter	DC OUT	-	Shield

### 1.7 System Configurations

Description	Model	Serial No.	Manufacturer
Main Board	SPEY9054301-D	B40EDC281824	-
Travel Adapter	L5107U-USA	TPYMXXXXXX	LG-ERICSSON
Ear-MIC Phone	-	-	MIUS
Battery	ICP6/34/50	SPD2012/02	LG-ERICSSON
Cradle Charger	WIT-400HE	-	LG-ERICSSON

### 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 : 2010, Subpart B, Class B ICES-003 Issue 4 : 2004	Applicable	No Deviation

### 1.11 Summary of Test Results

Test Item	Basic Standards	Results
Conducted Emission	ANSI C63.4 : 2003 CAN/CSA-CEI/IEC CISPR 22 : 02	Complied
Radiated Emission	ANSI C63.4 : 2003 CAN/CSA-CEI/IEC CISPR 22 : 02	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 : 2003 CAN/CSA-CEI/IEC CISPR 22 : 02	<b>Complied</b>
Radiated Emission	ANSI C63.4 : 2003 CAN/CSA-CEI/IEC CISPR 22 : 02	<b>Complied</b>

## 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	N/A
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( $\mu$ V) )		Class
	Quasi-peak	Average	
0.15 MHz ~ 0.5 MHz	79	66	<b>Class A</b>
0.5 MHz ~ 30 MHz	73	60	
0.15 MHz ~ 0.5 MHz	66 to 56	56 to 46	<b>Class B</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( $\mu$ V/m) )		Class
	Quasi-peak		
30 MHz ~ 230 MHz	40		<b>Class A</b> (10m method)
230 MHz ~ 1 GHz	47		
30 MHz ~ 230 MHz	40.5		<b>Class B</b> (3m method)
230 MHz ~ 1 GHz	47.5		

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

Frequency Range	Limits( dB( $\mu$ V/m) )		Class
	Average	Peak	
Above 1 GHz	59.5	79.5	<b>Class A</b>
Above 1 GHz	54	74	<b>Class B</b>

Note : The limits of class A equipment is extrapolated using an extrapolation factor of 20 dB/decade because it was measured at 3m distance not 10m distance.

## 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 ES-K1(Version V1.71 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	2012.01.09
Artificial Mains Networks	ESH2-Z5	R & S	100280	2012.04.06
Test Receiver	ESHS10	R & S	863365/018	2011.07.07

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 : 21.6 ~ 21.9

Humidity : 42.0 %R.H.

Atmospheric Pressure : 100.6 kPa

Test Date : April 30, 2012

#### - Direct Charge Mode

Freq. ( MHz )	Line (H/N)	Level ( dB $\mu$ V )		CL ( dB )	LISN ( dB )	Result ( dB $\mu$ V )		Limit ( dB $\mu$ V )		Margin ( dB )	
		Q/P	A/V			Q/P	A/V	Q/P	A/V	Q/P	A/V
0.15	H	31.00	17.30	0.06	9.57	40.63	26.93	66.00	56.00	25.37	29.07
0.68	H	22.00	11.50	0.07	9.57	31.64	21.14	56.00	46.00	24.36	24.86
0.87	H	22.20	13.20	0.08	9.58	31.86	22.86	56.00	46.00	24.14	23.14
1.25	H	21.30	10.60	0.10	9.58	30.98	20.28	56.00	46.00	25.02	25.72
2.88	H	23.00	13.60	0.10	9.59	32.69	23.29	56.00	46.00	23.31	22.71
10.14	H	18.60	8.50	0.07	9.65	28.32	18.22	60.00	50.00	31.68	31.78

#### - Cradle Charge Mode

Freq. ( MHz )	Line (H/N)	Level ( dB $\mu$ V )		CL ( dB )	LISN ( dB )	Result ( dB $\mu$ V )		Limit ( dB $\mu$ V )		Margin ( dB )	
		Q/P	A/V			Q/P	A/V	Q/P	A/V	Q/P	A/V
0.26	N	29.10	20.10	0.03	9.65	38.78	29.78	61.43	51.43	22.65	21.65
0.27	H	33.60	25.20	0.03	9.57	43.20	34.80	61.27	51.27	18.07	16.47
0.72	H	28.70	18.20	0.02	9.57	38.29	27.79	56.00	46.00	17.71	18.21
0.82	N	27.20	15.00	0.02	9.65	36.87	24.67	56.00	46.00	19.13	21.33
2.57	N	27.10	18.00	0.01	9.66	36.77	27.67	56.00	46.00	19.23	18.33
2.65	H	28.40	19.10	0.01	9.58	37.99	28.69	56.00	46.00	18.01	17.31

Measurement Uncertainty :  $\pm$  4.12 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 12 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 and a Peak and Average detector above 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
Bilog Antenna	VULB9163	SCHWARZBEC K MESS- ELEKTRONIK	396	2011.05.12
Test Receiver	ESU26	R & S	100109	2011.05.04
Amplifier	8447F	HP	2944A03909	2011.07.04

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 : 23.8 ~ 24.1

Humidity : 39.0 %R.H.

Atmospheric Pressure : 99.7 kPa

Test Date : April 25, 2012

#### - Direct Charge Mode

Freq. ( MHz )	Level ( dB $\mu$ V )	Pol. (H/V)	A ( ° )	H ( m )	AF ( dB )	CL ( dB )	Amp. ( dB )	F/S ( dB $\mu$ V/m )	Limit ( dB $\mu$ V/m )	Margin ( dB )
160.02	34.60	V	237.1	1.00	8.94	1.30	27.02	17.82	40.50	22.68
276.02	47.30	H	178.9	1.00	12.63	1.72	26.55	35.10	47.50	12.40
320.03	42.70	H	178.9	1.00	12.85	1.86	26.66	30.75	47.50	16.75
480.04	28.40	V	259.1	1.00	15.52	2.24	27.70	18.46	47.50	29.04
518.52	38.80	V	259.1	1.00	16.26	2.38	27.84	29.60	47.50	17.90
560.02	47.50	V	259.1	1.00	16.94	2.50	27.92	39.02	47.50	8.48

#### - Cradle Charge Mode

Freq. ( MHz )	Level ( dB $\mu$ V )	Pol. (H/V)	A ( ° )	H ( m )	AF ( dB )	CL ( dB )	Amp. ( dB )	F/S ( dB $\mu$ V/m )	Limit ( dB $\mu$ V/m )	Margin ( dB )
183.99	36.80	H	172.0	1.00	10.23	1.42	26.83	21.62	40.50	18.88
275.98	39.90	H	172.0	1.00	12.63	1.72	26.55	27.70	47.50	19.80
319.99	41.00	H	151.0	1.00	12.85	1.86	26.66	29.05	47.50	18.45
480.00	32.00	V	182.9	1.01	15.52	2.24	27.70	22.06	47.50	25.44
521.55	46.20	V	182.9	1.01	16.31	2.39	27.84	37.06	47.50	10.44
559.98	35.70	H	172.0	1.00	16.94	2.50	27.92	27.22	47.50	20.28

Measurement Uncertainty (Horizontal) :  $\pm$  5.44 dB (The confidential level is about 95%, K=2)

Measurement Uncertainty (Vertical) :  $\pm$  5.81 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

**Above 1 GHz (3 m method)**

Temperature : 26.0 ~ 26.4

Humidity : 33.0 %R.H.

Atmospheric Pressure : 100.2 kPa

**Test Date** : April 25, 2012

**- Direct Charge Mode**

Freq. ( MHz )	Level ( dB $\mu$ V )	Pol. ( H/V )	A ( ° )	H ( m )	AF ( dB )	CL ( dB )	Amp. ( dB )	F/S ( dB $\mu$ V/m )	Limit ( dB $\mu$ V/m )	Margin ( dB )
Peak Detector										
2268.54	46.30	H	114.8	2.00	27.66	4.98	43.97	34.97	70.00	35.03
5730.42	41.20	V	159.3	2.00	34.15	8.13	44.15	39.33	74.00	34.67
9481.00	38.80	V	135.2	1.00	37.66	10.60	43.43	43.64	74.00	30.36
11526.00	37.50	V	60.4	1.00	38.48	11.63	43.92	43.69	74.00	30.31
Average Detector										
2268.54	27.80	H	114.8	2.00	27.66	4.98	43.97	16.47	50.00	33.53
5730.42	24.90	V	159.3	2.00	34.15	8.13	44.15	23.03	54.00	30.97
9481.00	20.30	V	135.2	1.00	37.66	10.60	43.43	25.14	54.00	28.86
11526.00	21.20	V	60.4	1.00	38.48	11.63	43.92	27.39	54.00	26.61

**- Cradle Charge Mode**

Freq. ( MHz )	Level ( dB $\mu$ V )	Pol. ( H/V )	A ( ° )	H ( m )	AF ( dB )	CL ( dB )	Amp. ( dB )	F/S ( dB $\mu$ V/m )	Limit ( dB $\mu$ V/m )	Margin ( dB )
Peak Detector										
3350.63	44.10	V	236.2	1.00	30.67	6.07	43.89	36.95	74.00	37.05
5232.92	39.80	V	159.8	1.00	33.86	7.74	44.23	37.18	74.00	36.82
9633.50	39.50	V	2.2	2.00	37.24	10.63	43.56	43.81	74.00	30.19
11770.75	39.30	V	142.5	2.00	38.36	11.55	44.22	44.98	74.00	29.02
Average Detector										
3350.63	25.90	V	236.2	1.00	30.67	6.07	43.89	18.75	54.00	35.25
5232.92	23.70	V	159.8	1.00	33.86	7.74	44.23	21.08	54.00	32.92
9633.50	21.40	V	2.2	2.00	37.24	10.63	43.56	25.71	54.00	28.29
11770.75	23.30	V	142.5	2.00	38.36	11.55	44.22	28.98	54.00	25.02

Measurement Uncertainty (Horizontal) :  $\pm$  4.80 dB (The confidential level is about 95%, K=2)

Measurement Uncertainty (Vertical) :  $\pm$  4.82 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)**

**2.5 Photographs of Conducted Emission**



**2.6 Photographs of Radiated Emission (3m method below 1 GHz)**



**2.7 Photographs of Radiated Emission (3m method above 1 GHz)**



### 3. Photographs of EUT

- Front View



- Rear View





● Travel Adapter



● Travel Adapter Label





● Top View of Main Board



● Bottom View of Main Board



● **Top View of Battery**



● **Bottom View of Battery**



● **Ear-MIC Phone**



● **Cradle Charger**

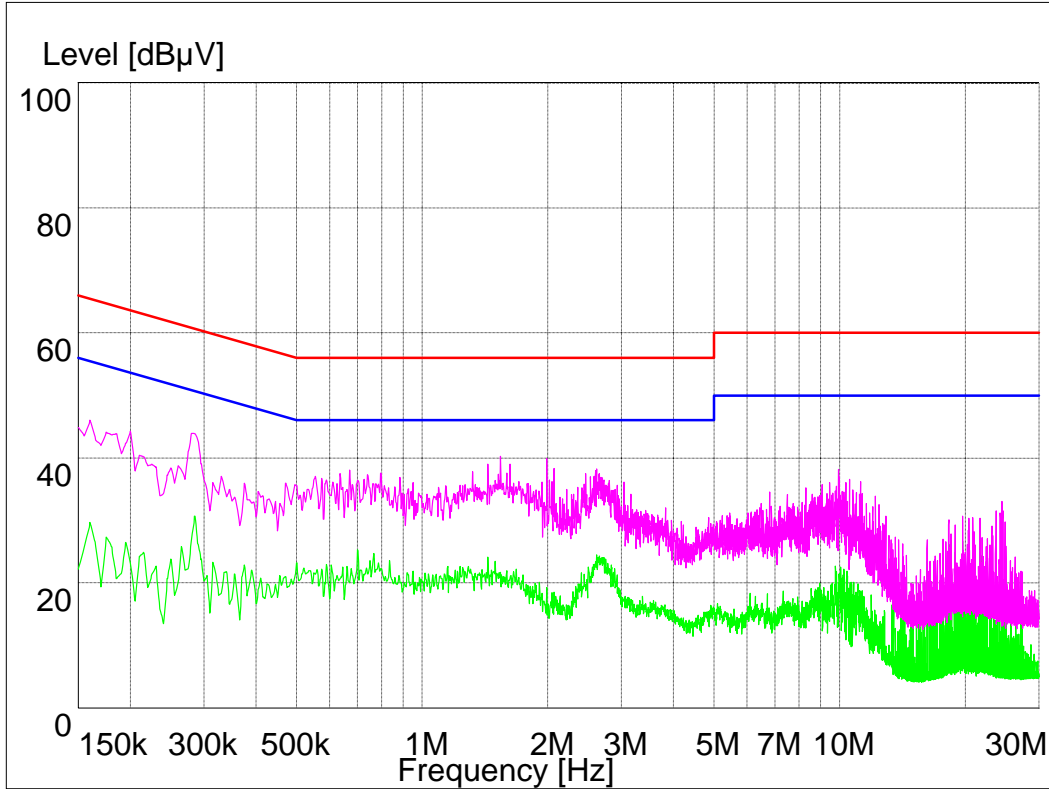


● Inside

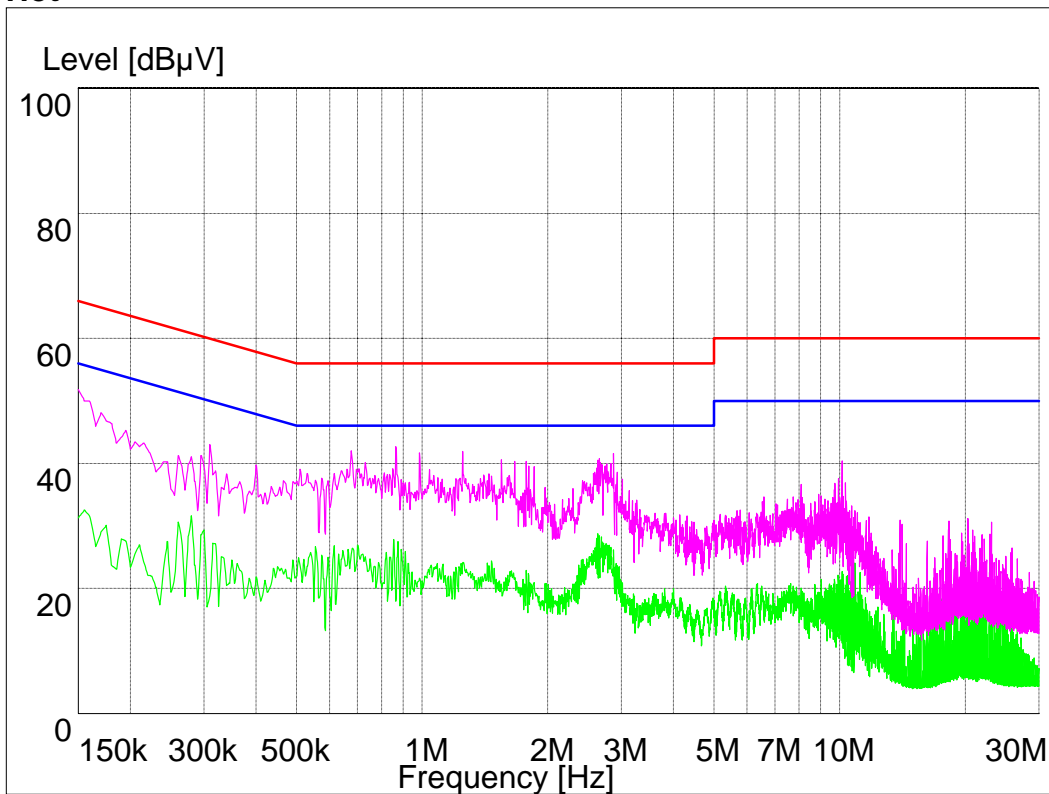


**Appendix A : Conducted Emission  
 - Direct Charge Mode**

**Neutral**

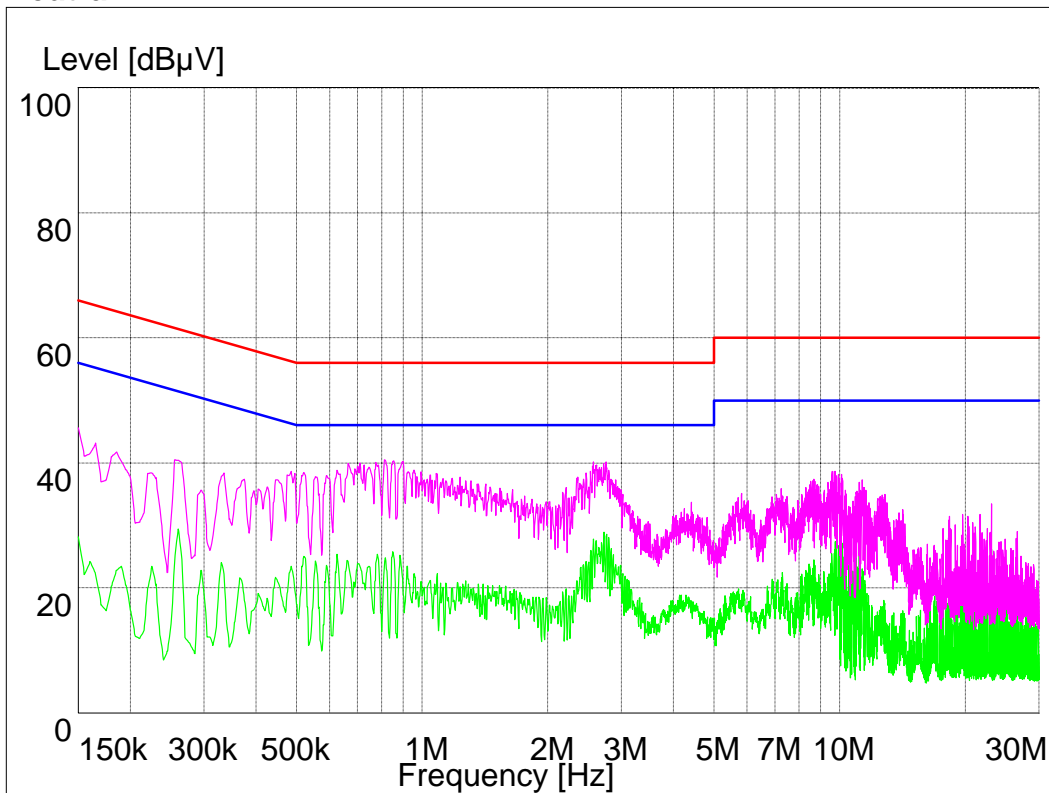


**Hot**

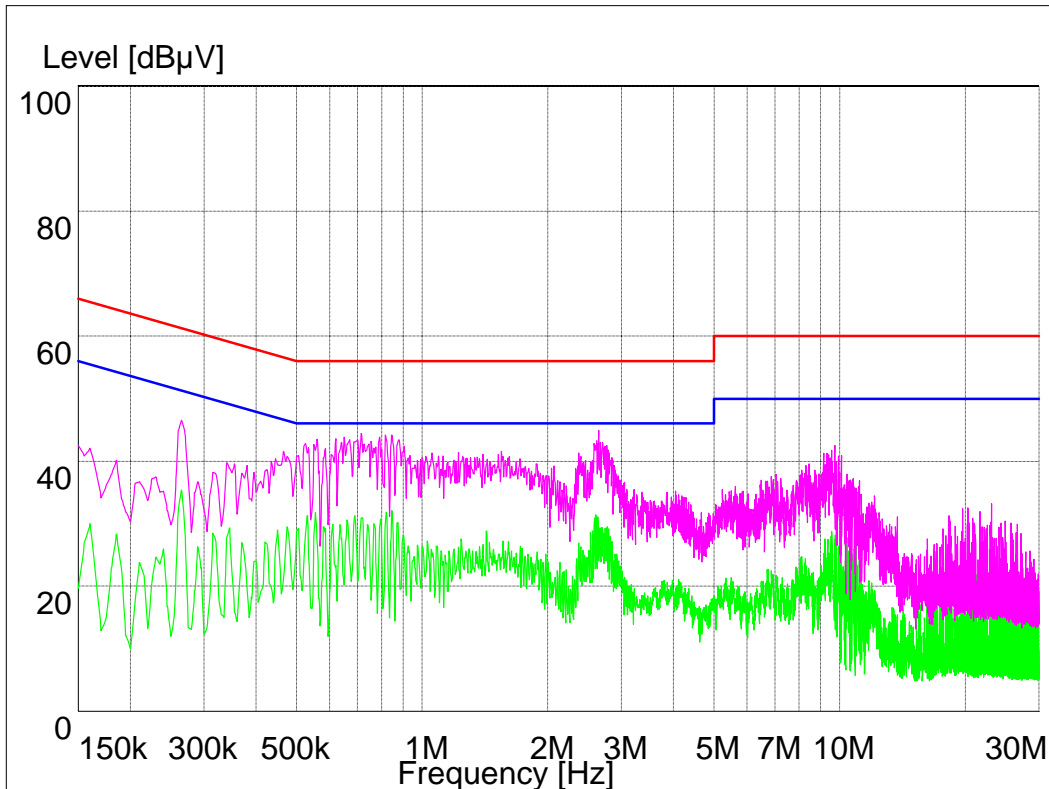


**- Cradle Charge Mode**

**Neutral**



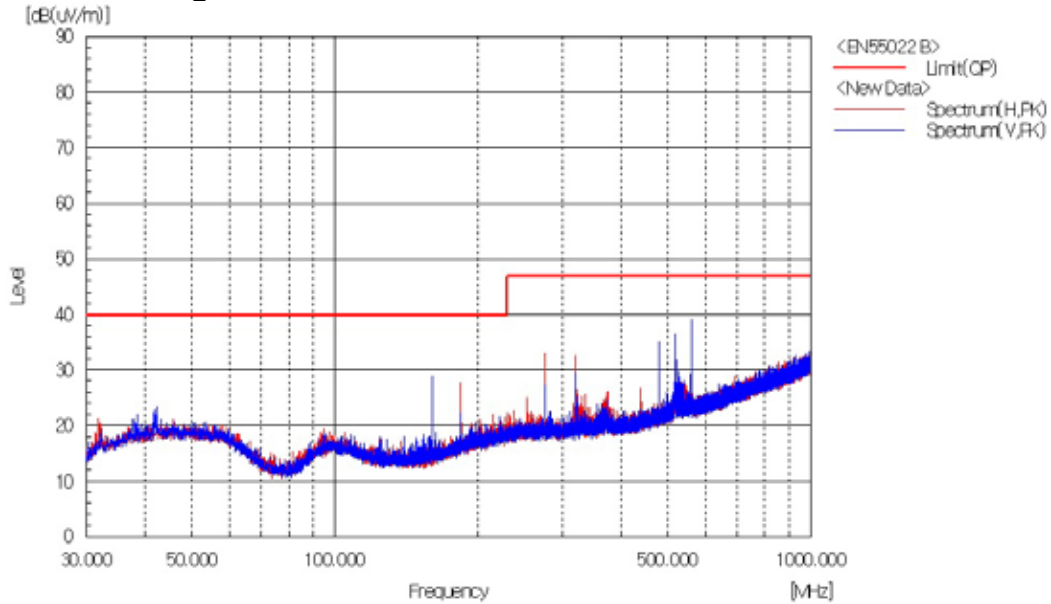
**Hot**



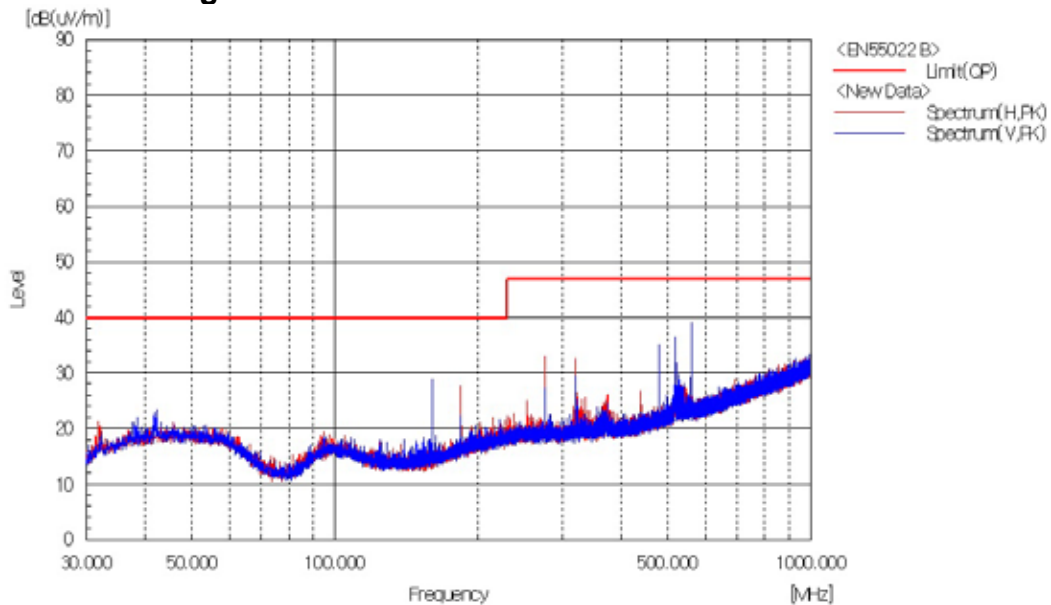
## Appendix B : Radiated Emission (3m Scan Data)

### Below 1 GHz

#### - Direct Charge Mode

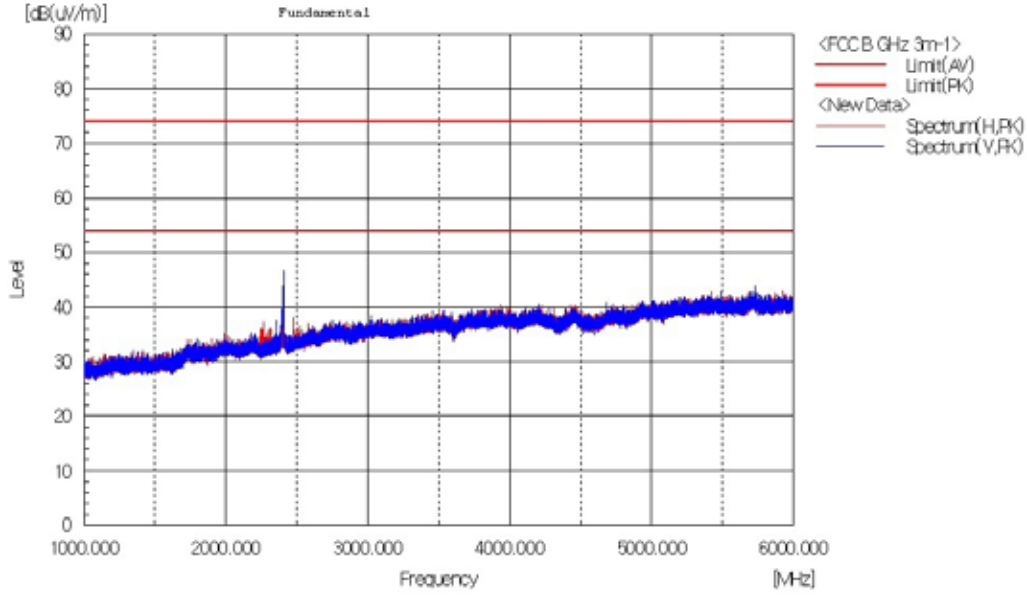


#### - Cradle Charge Mode

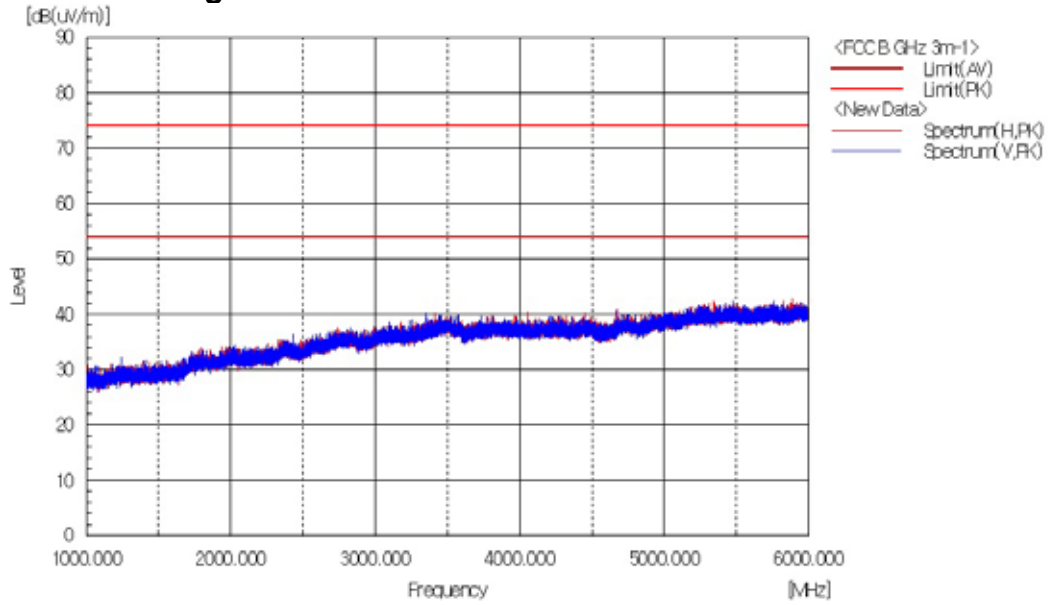


**Above 1 GHz**  
**(From 1 GHz ~ 6 GHz)**

**- Direct Charge Mode**



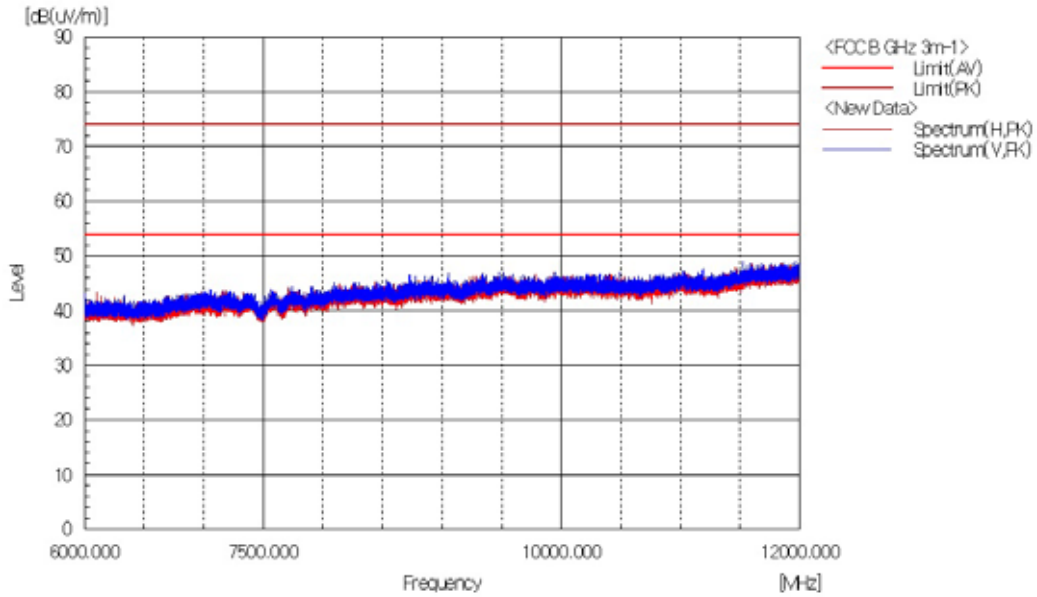
**- Cradle Charge Mode**





(From 6 GHz ~ 12 GHz)

**- Direct Charge Mode**



**- Cradle Charge Mode**

