

# **FCC RF Test Report**

APPLICANT	:	Sony Mobile Communications AB
EQUIPMENT	:	Smart phone
BRAND NAME	:	Sony
MODEL NAME	:	C2305
TYPE NAME	:	PM-0570-BV
FCC ID	:	PY7PM-0570
STANDARD	:	FCC 47 CFR Part 15 Subpart C
CLASSIFICATION	:	(DTS) Digital Transmission System

The product was received on Apr. 25, 2013 and completely tested on Jun. 07, 2013. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager



## SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1<sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.

**SPORTON INTERNATIONAL INC.** TEL : 886-3-327-3456 FAX : 886-3-328-4978 FCC ID : PY7PM-0570 Page Number: 1 of 61Report Issued Date: Jun. 11, 2013Report Version: Rev. 01



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## **REVISION HISTORY**

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR342505B	Rev. 01	Initial issue of report	Jun. 11, 2013



Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.2	15.247(b)(1)	Peak Output Power	≤ 30dBm	Pass	-
3.3	15.247(e)	Power Spectral Density	≤ 8dBm	Pass	-
3.4	15.247(d)	Conducted Band Edges and Spurious Emission	≤ 20dBc	Pass	-
3.5	15.247(d)	Radiated Band Edges and Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 10.71 dB at 78.600 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 16.10 dB at 2.694 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-

## SUMMARY OF TEST RESULT



## **1** General Description

## 1.1 Applicant

Sony Mobile Communications AB

Nya Vattentornet, 22188 Lund, Sweden

## 1.2 Manufacturer

#### Arima Communications Corp.

6F., No. 866, Jhongjheng Rd., Jhonghe Dist., New Taipei City 23586, Taiwan

## **1.3 Feature of Equipment Under Test**

The Equipment Under Test (hereafter called: EUT) is smart phone supporting, GSM / WCDMA / Wi-Fi 2.4GHz 802.11b/g/n, Bluetooth with FM Receiver, and GPS features, and below is details of information.

Product Feature					
Equipment	Smart phone				
Brand Name	Sony				
Model Name	C2305				
Type Name	PM-0570-BV				
FCC ID	PY7PM-0570				
GSM Operating Band(s)	GSM 900/1800/1900MHz				
WCDMA Operating Band(s)	FDD Band I / VIII				
WCDMA Rel. Version	Rel. 8				
GPRS / EGPRS Multi Slot Class	GPRS Class 12 , EGPRS Class 12				
Wi-Fi Specification	802.11b/g/n (HT20 / HT40)				
Bluetooth Version	V2.1 + EDR / V3.0 / 4.0LE				
Power Supply	Battery / AC Adapter / Car Charger				

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.



## 1.4 Details of Tested Sample (EUT) Information

Product Specification subjective to this standard					
Tx/Rx Frequency Range	2402 MHz ~ 2480 MHz				
Number of Channels	40				
Carrier Frequency of Each Channel	40 Channel(37 hopping + 3 advertising channel)				
Maximum Output Power to Antenna	4.39 dBm (0.0027 W)				
Antenna Type	IFA Antenna with gain -1.53 dBi				
Type of Modulation	Bluetooth 4.0 - LE : GFSK				
FUT #4	IMEI : 004402146643444				
EUT #1	S/N : WUJ0131F11				
FUT #0	IMEI : 004402146638030				
EUT #2	S/N : WUJ5864333				
H/W :	AP				
S/W :	16.0.A.0.14				
EUT Stage	Production Unit				

Accessory List				
AC Adoptor	Model No. : EP800			
AC Adapter	Type No. : AC-0300-CN			
Battery Model No. : N/A				
Earphone	Model No. : MH410c			
Laiphone	Type No. : AG-1100			
USB Cable	Model No. : EC450			
	Part No. : 1242-6715.2			

- 1. Above EUT list and accessory list used are electrically identical per declared by manufacturer.
- 2. Above the accessories list are used to exercise the EUT during test, and the serial number of each type of accessories is listed in each section of this report.
- 3. No modifications are made to the EUT during all test items.
- 4. For other wireless features of this EUT, test report will be issued separately.



## 1.5 Testing Facility

Test Site	SPORTON INT	ERNATIONAL I	NC.		
	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park,				
Test Site Location	Kwei-Shan Hsia	ang, Tao Yuan H	lsien, Taiwan, R.	O.C.	
	TEL: +886-3-3273456 / FAX: +886-3-3284978				
Toot Site No	Sporton Site No.			FCC/IC Registration No.	
Test Site No.	TH02-HY	CO05-HY	03CH07-HY	722060/4086B-1	

The test site complies with ANSI C63.4 2003 requirement.

## 1.6 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01
- ANSI C63.10-2009

#### Remark:

- **1.** All test items were verified and recorded according to the standards and without any deviation during the test.
- **2.** This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



## 2 Test Configuration of Equipment Under Test

## 2.1 Descriptions of Test Mode

	Frequency	Bluetooth 4.0 – LE RF Output Power	
Channel		Data Rate / Modulation	
Channel		GFSK	
		1Mbps	
Ch00	2402MHz	<mark>4.39</mark> dBm	
Ch19	2440MHz	4.17 dBm	
Ch39	2480MHz	3.89 dBm	

The RF output power was recorded in the following table:

- a. The EUT has been associated with peripherals pursuant to ANSI C63.10-2009 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 KHz to 30 MHz), radiation (9 KHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). Pre-scanned tests, X, Y, Z in three orthogonal panels to determine the final configuration (Z plane as worst plane) from all possible combinations.
- b. AC power line Conducted Emission was tested under maximum output power.



## 2.2 Test Mode

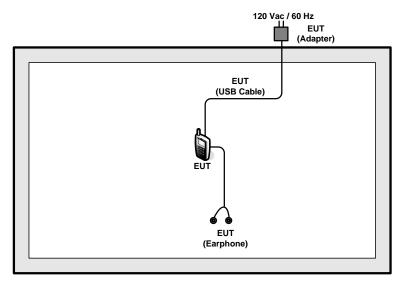
The following summary table is showing all test modes to demonstrate in compliance with the standard.

	Summary table of Test Cases						
Test Item	Data Rate / Modulation						
Test item	Bluetooth 4.0 – LE / GFSK						
Conducted	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps						
Test Cases	Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps						
Test Cases	Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps						
Radiated	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps						
	Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps						
Test Cases	Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps						
40	Mode 1 :GSM1900 Idle + WLAN Idle + Bluetooth Link + MP3 + Earphone + Battery +						
AC Conducted	USB Cable (Charging from Adapter) + SIM 2						
Conducted	Mode 2 : GSM1900 Idle + WLAN Link + Bluetooth Idle + MP3 + Earphone + Battery +						
Emission	USB Cable (Charging from Adapter) + SIM 2						
Remark: The S	SIM2 is tested based on the worst case of SIM for verification from Part 15B.						

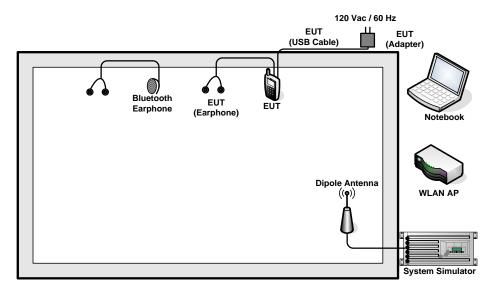


## 2.3 Connection Diagram of EUT Test Configurations

#### <Bluetooth 4.0 – LE Tx Mode>



<AC Conducted Emission Mode>





## 2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
3.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A
4.	Notebook	DELL	Latitude E6320	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
5.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m

## 2.5 Description of EUT Operation Test Setup

For Bluetooth function, enter "\* # \* # 3646633 # \* # \*" to the EUT for setting the EUT into engineering modes. Turn on Bluetooth function for continuous transmitting and receiving signals.

## 2.6 Measurement Results Explanation Example

#### For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Example : Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)



## 3 Test Result

## 3.1 6dB Bandwidth Measurement

#### 3.1.1 Limit of 6dB Bandwidth

The minimum 6 dB bandwidth shall be at least 500 KHz.

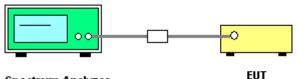
#### 3.1.2 Measuring Instruments

The section 4.0 of List of Measuring Equipment of this test report is used for test.

#### 3.1.3 Test Procedures

- 1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01.
- 2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 3. Set to the maximum power setting and enable the EUT transmit continuously.
- Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 KHz.
- 5. Measure and record the results in the test report.

#### 3.1.4 Test Setup



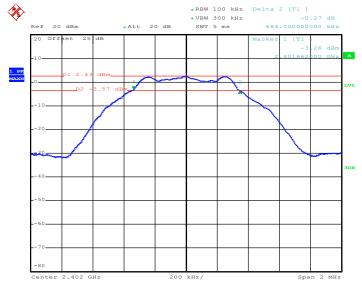
Spectrum Analyzer



#### 3.1.5 Test Result of 6dB Bandwidth

Test Mode	•:	Bluetoot	h 4.0 - LE	Temperature :	<b>22~25</b> ℃	
Test Engir	neer :	Coyote Lin		Relative Humidity :	<b>dity</b> : 51~55%	
Channel		equency (MHz) 6dB Band		lwidth (MHz)	6dB Bandwidth Min. Limit (MHz)	Pass/Fail
00	24	2402 0		).68	0.5	Pass
19	24	2440 0		).68	0.5	Pass
39	24	480	C	).69	0.5	Pass

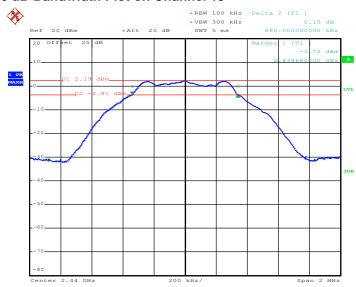
#### 6 dB Bandwidth Plot on Channel 00



Date: 7.JUN.2013 14:43:26

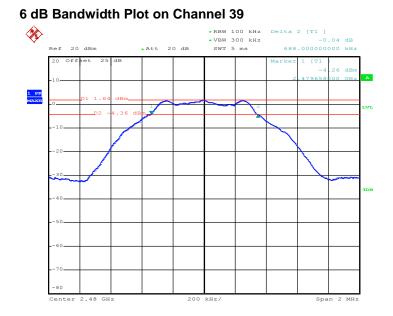
**Note:** The total loss is 25 dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer offset.





#### 6 dB Bandwidth Plot on Channel 19

Date: 7.JUN.2013 14:46:41



Date: 7.JUN.2013 14:49:22

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## 3.2 Peak Output Power Measurement

#### 3.2.1 Limit of Peak Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

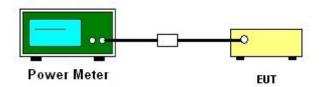
#### 3.2.2 Measuring Instruments

The section 4.0 of List of Measuring Equipment of this test report is used for test.

#### 3.2.3 Test Procedures

- The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v03r01.
- 2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 3. Set to the maximum power setting and enable the EUT transmit continuously.
- 4. Measure the conducted output power and record the results in the test report.

#### 3.2.4 Test Setup





## 3.2.5 Test Result of Peak Output Power

Test Mode :	Bluetooth 4.0 - LE		Temperature :		22~25℃		
Test Engineer :	Coyote Lin		Relative Hum	idity :	<b>/</b> : 51~55%		
	<b>F</b>		R	F Powe	er (dBm)		
Channel	Frequency	(	GFSK M		ax. Limits		
	(MHz)	1	Mbps		(dBm)	Pass/Fail	
00	2402		4.39		30.00	Pass	
19	2440		4.17		30.00	Pass	
39	2480		3.89		30.00	Pass	



## 3.3 Power Spectral Density Measurement

#### 3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3KHz band at any time interval of continuous transmission.

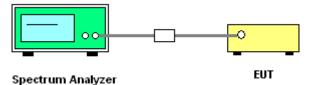
#### 3.3.2 Measuring Instruments

The section 4.0 of List of Measuring Equipment of this test report is used for test.

#### 3.3.3 Test Procedures

- The testing follows Measurement Procedure 10.2 Method PKPSD of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01
- 2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 3. Set to the maximum power setting and enable the EUT transmit continuously.
- Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz.
   Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
- 5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
- 6. Measure and record the results in the test report.
- 7. The Measured power density (dBm)/ 100KHz is a reference level and used as 20dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.

#### 3.3.4 Test Setup





#### 3.3.5 Test Result of Power Spectral Density

Test Mode : Bluetooth 4.0 - LE		Temperature :	<b>22~25</b> ℃					
Test Engineer : Coyote Lin Ro				Relative Humidity :	51~55%			
Frequency		ncy	Power I	Max. Limits	Dece/Feil			
Channel	(MHz)		PSD/100kHz (dBm)	PSD/3kHz (dBm)	(dBm/3kHz)	Pass/Fail		
00	2402		2.41	-11.81	8	Pass		
19	2440	40 2.18 -12.08		8	Pass			
39	2480		1.62	-12.63	8	Pass		

#### Note:

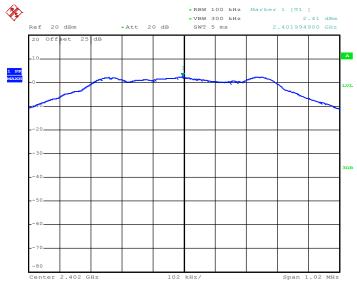
1. The total loss is 24.8 dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer offset.

2. Measured power density (dBm) has offset with cable loss.

3. The Measured power density (dBm)/ 100kHz is reference level and used as 20dBc down for Conducted Band Edges and Conducted Spurious Emission limit line.

#### 3.3.6 Test Result of Power Spectral Density Plots (100kHz)

#### PSD 100kHz Plot on Channel 00

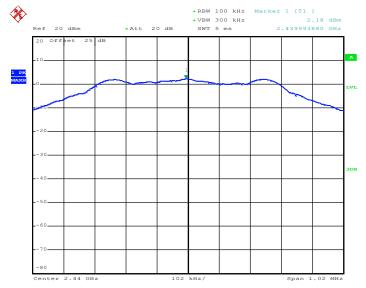


Date: 7.JUN.2013 14:44:12

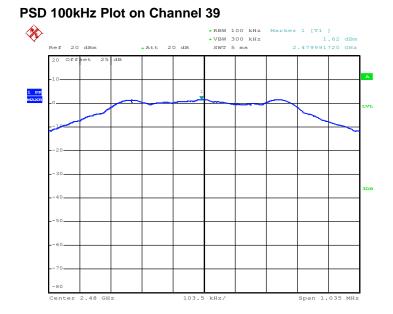
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PSD 100kHz Plot on Channel 19



Date: 7.JUN.2013 14:47:14

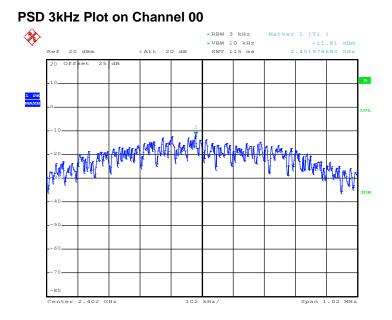


Date: 7.JUN.2013 14:49:57

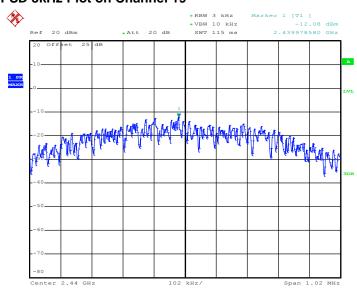
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### 3.3.7 Test Result of Power Spectral Density Plots (3kHz)



Date: 7.JUN.2013 14:43:47



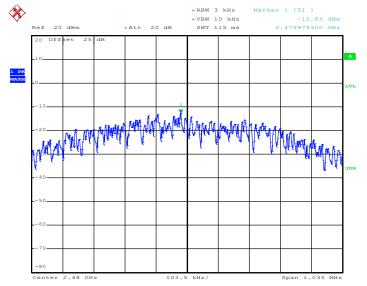
PSD 3kHz Plot on Channel 19

Date: 7.JUN.2013 14:47:01

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#### PSD 3kHz Plot on Channel 39



Date: 7.JUN.2013 14:49:43



## 3.4 Conducted Band Edges and Spurious Emission Measurement

#### 3.4.1 Limit of Conducted Band Edges and Spurious Emission

All harmonics/spurious must be at least 20 dB down from the highest emission level within the authorized band.

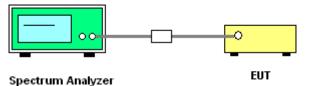
#### 3.4.2 Measuring Instruments

The section 4.0 of List of Measuring Equipment of this test report is used for test.

#### 3.4.3 Test Procedure

- 1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01.
- 2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 3. Set to the maximum power setting and enable the EUT transmit continuously.
- 4. Set RBW = 100 KHz, VBW=300 KHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
- 5. Measure and record the results in the test report.
- 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

#### 3.4.4 Test Setup

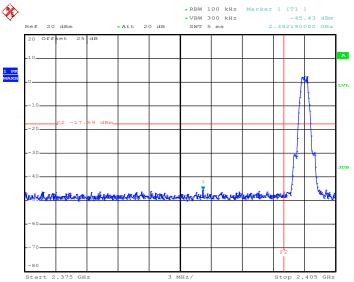




## 3.4.5 Test Result of Conducted Band Edges

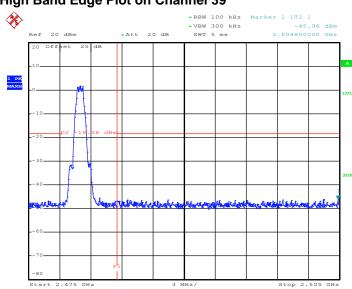
Test Mode :	Bluetooth 4.0 - LE	Temperature :	<b>22~25</b> ℃
Test Channel :	00 and 39	Relative Humidity :	51~55%
		Test Engineer :	Coyote Lin

#### Low Band Edge Plot on Channel 00



Date: 7.JUN.2013 14:45:11





High Band Edge Plot on Channel 39

Date: 7.JUN.2013 14:50:24

**Note:** The total loss is 25 dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer offset.

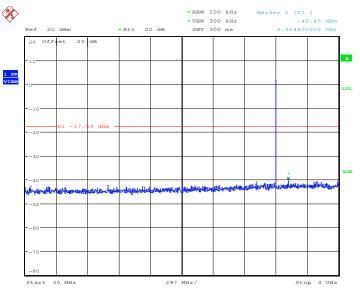


## 3.4.6 Test Result of Conducted Spurious Emission

Test Mode :	Bluetooth 4.0 - LE	Temperature :	<b>22~25</b> ℃
Test Channel :	00	Relative Humidity :	51~55%
		Test Engineer :	Coyote Lin

#### **Conducted Spurious Emission Plot on Bluetooth LE 1Mbps**

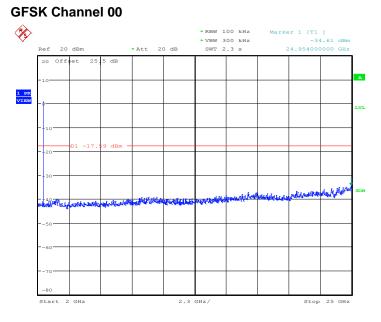
#### **GFSK Channel 00**



Date: 7.JUN.2013 16:41:22

- 1. The total loss is 25 dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer offset.
- 2. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.





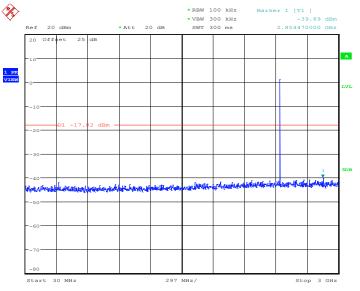
Date: 7.JUN.2013 16:41:40

- The total loss is 25.5 dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer offset.
- 2. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.



Test Mode :	Bluetooth 4.0 - LE	Temperature :	<b>22~25</b> ℃
Test Channel :	19	Relative Humidity :	51~55%
		Test Engineer :	Coyote Lin

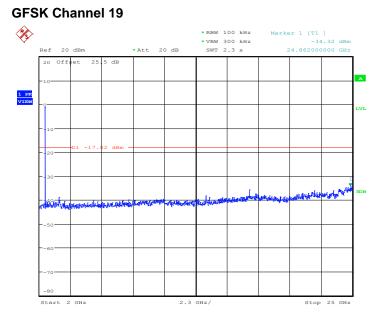
#### **GFSK Channel 19**



Date: 7.JUN.2013 15:10:18

- 1. The total loss is 25 dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer offset.
- 2. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.





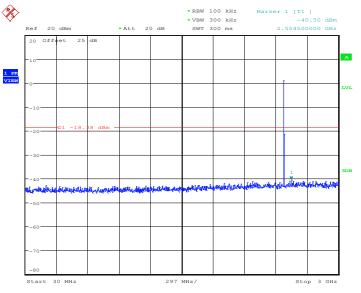
Date: 7.JUN.2013 15:10:36

- The total loss is 25.5 dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer offset.
- 2. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.



Test Mode :	Bluetooth 4.0 - LE	Temperature :	<b>22~25</b> ℃
Test Channel :	39	Relative Humidity :	51~55%
		Test Engineer :	Coyote Lin

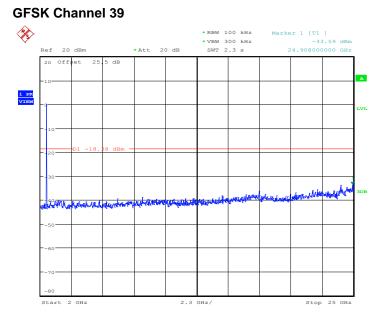
#### **GFSK Channel 39**



Date: 7.JUN.2013 15:09:23

- 1. The total loss is 25 dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer offset.
- 2. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.





Date: 7.JUN.2013 15:09:41

- 1. The total loss is 25.5 dB of the RF cable and attenuator, and has been compensated to the spectrum analyzer offset.
- 2. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.



## 3.5 Radiated Band Edges and Spurious Emission Measurement

#### 3.5.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 KHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency	Field Strength	Measurement Distance		
(MHz)	(microvolts/meter)	(meters)		
0.009 - 0.490	2400/F(kHz)	300		
0.490 – 1.705	24000/F(kHz)	30		
1.705 – 30.0	30	30		
30 – 88	100	3		
88 – 216	150	3		
216 - 960	200	3		
Above 960	500	3		

#### 3.5.2 Measuring Instruments

The section 4.0 of List of Measuring Equipment of this test report is used for test.



#### 3.5.3 Test Procedures

- 1. The testing follows the guidelines in ANSI C63.10-2009.
- 2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
- 3. The EUT was placed on a turntable with 0.8 meter above ground.
- 4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 5. Corrected Reading: Antenna Factor + Cable Loss + Read Level Preamp Factor = Level
- 6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
- 7. Use the following spectrum analyzer settings:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW=100 KHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;

## (3) Set RBW = 1 MHz, VBW= 3MHz for $f \ge 1$ GHz for peak measurement. For average measurement:

- VBW = 10 Hz, when duty cycle is no less than 98 percent.
- VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Band	Duty Cycle(%)	T(μs)	1/T(kHz)	VBW Setting
Bluetooth 4.0 - LE	65.19	412.000	2.427	3kHz

**Note:** For average measurement with duty cycle < 98%, use reduced VBW measurement method 4.2.3.2.3 in ANSI C63.10.

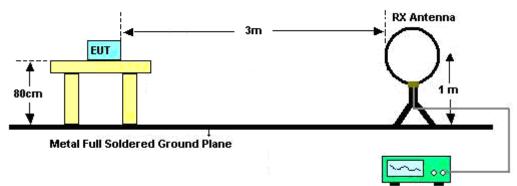


#### Marker-Delta method :

- (1) Set RBW = 1 MHz, VBW = 3 MHz, peak detector.
   Repeat the measurement with an average detector, use RBW = 1MHz
   VBW = 10 Hz, when duty cycle is no less than 98 percent.
   VBW ≥ 1/T, when duty cycle is less than 98 percent
- (2) Set span = 10MHz, that encompasses both the peak of the fundamental emission and the band-edge emission under investigation. Set RBW = 100KHz, 1% of the total span. Set VBW = 100KHz >= RBW.
- (3) Subtract the delta measured in step (2) from the field strengths measured in step (1). The resultant field strengths (peak/average) are then used to determine band-edge compliance as required by Section 15.205.

#### 3.5.4 Test Setup

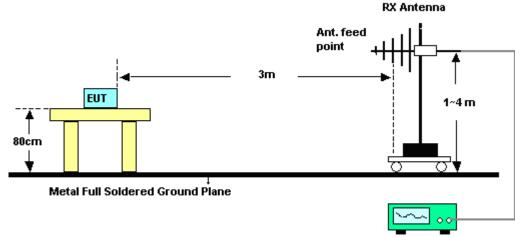
#### For radiated emissions below 30MHz



Spectrum Analyzer / Receiver

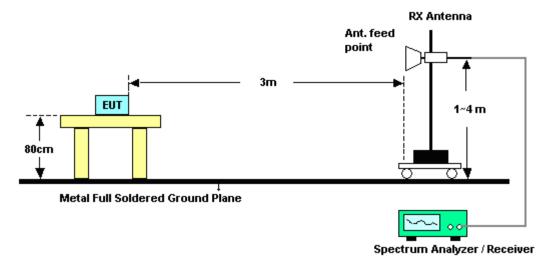


#### For radiated emissions from 30MHz to 1GHz



Spectrum Analyzer / Receiver

#### For radiated emissions above 1GHz



#### 3.5.5 Test Results of Radiated Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

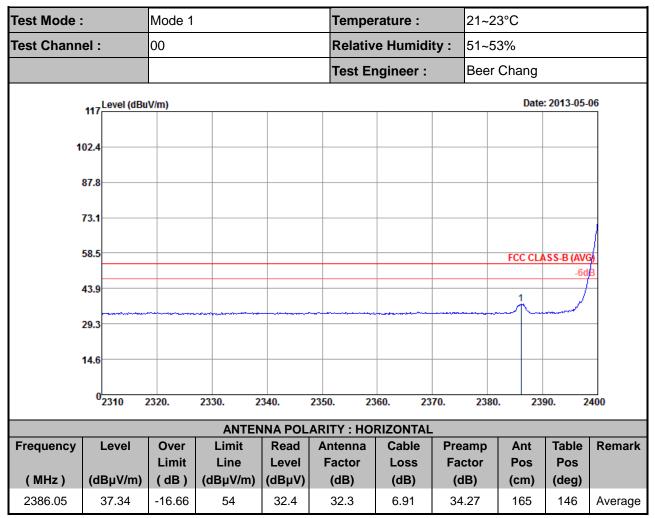


Test Mode :	:	Mode 1		Tempe	rature :	21	21~23°C			
Test Chann	el :	00			Relativ	e Humidi	<b>ty</b> : 51	51~53%		
					Test Er	ngineer :	Be	er Chang		
	117	iV/m)						Date	e: 2013-05-	06
1	02.4									_
	87.8									_
	73.1							F	CC CLASS- -6d	
	58.5									Ą
	43.9 tomationant	the and the second second	-where and a state of the state	adama dala fata mandri ta	p-interioration	an a	hannaltalahanna	a montration of the main	and Will	
	29.3									_
	14.6									_
	0 <mark></mark> 2310	2320.	2330. 2	340.	2350. 23	60. 23	70. 2	380. 23	90. 2	400
	2310	2320.			ARITY : HO			.300. 23	30. Z	400
Frequency	Level	Over	Limit	Read	Antenna	Cable	Pream	p Ant	Table	Remark
		Limit (dB)	Line (dBµV/m)	Level (dBµV)	Factor (dB)	Loss (dB)	Factor (dB)	•	Pos (deg)	
(MHz)	(dBµV/m)	1 ( 08 )			(08)	(08)		1 Cm	Idea	

## 3.5.6 Test Result of Radiated Band Edges

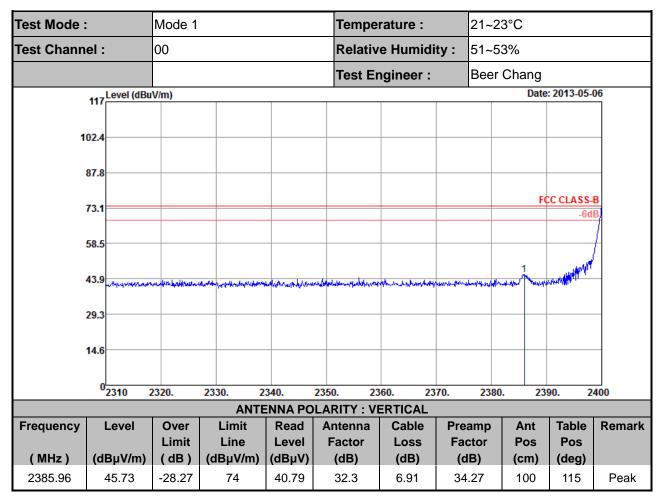
**Note:** Worst case measurement on 2386.05 MHz is compliance with 74/54 dBuV/m (peak/average) limit and Edge Measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.





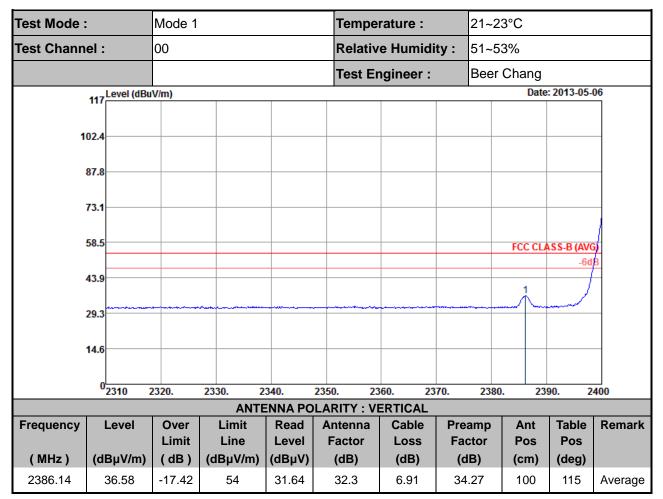
**Note:** Worst case measurement on 2386.05 MHz is compliance with 74/54 dBuV/m (peak/average) limit and Edge Measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.





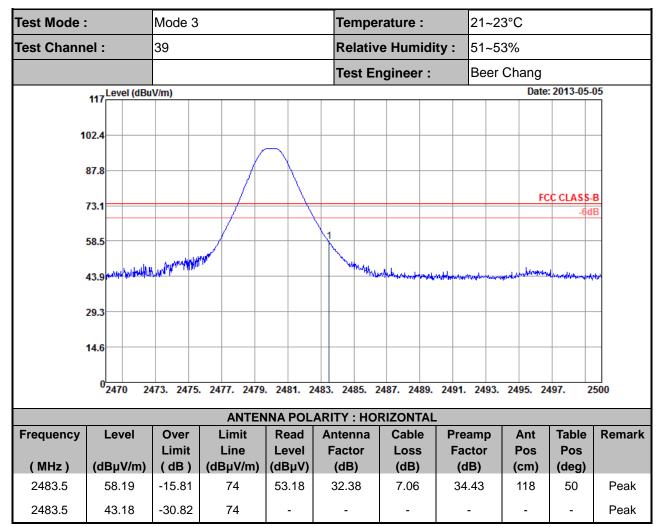
**Note:** Worst case measurement on 2385.96 MHz is compliance with 74/54 dBuV/m (peak/average) limit and Edge Measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.





**Note:** Worst case measurement on 2386.14 MHz is compliance with 74/54 dBuV/m (peak/average) limit and Edge Measurement in the restricted band 2310-2390MHz. And, 2390-2400 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.





**Note:** Worst case measurement on 2483.5 MHz is compliance with 74/54 dBuV/m (peak/average) limit and Edge Measurement in the restricted band 2483.5-2500 MHz. And, 2470-2483.5 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.

Summary results of marker-delta method:
---

Test mode	Maximum field strength of the fundamental emission (dBµV/m)	Delta Result (dB)	Measurement Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
Peak	96.89	53.71	43.18	74	-30.82	Pass
Average	96	53.71	42.29	54	-11.71	Pass

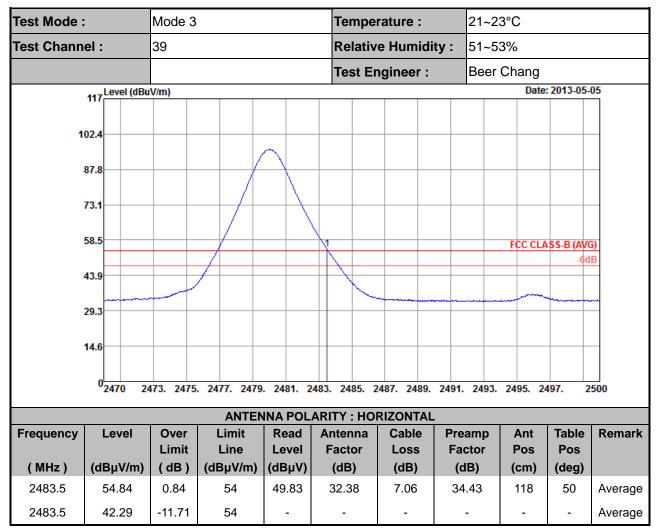
Note :

1. Measurement result = Maximum field strength – Delta result

2. Delta-Marker Method is used for the 2483.5MHz average measurement as described in the test procedure of this report and the test result is under 30.82dB.

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Note: Worst case measurement on 2483.5 MHz is compliance with 74/54 dBuV/m (peak/average) limit and Edge Measurement in the restricted band 2483.5-2500 MHz. And, 2470-2483.5 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line. Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBμV/m)	Delta Result (dB)	Measurement Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
Peak	96.89	53.71	43.18	74	-30.82	Pass
Average	96	53.71	42.29	54	-11.71	Pass

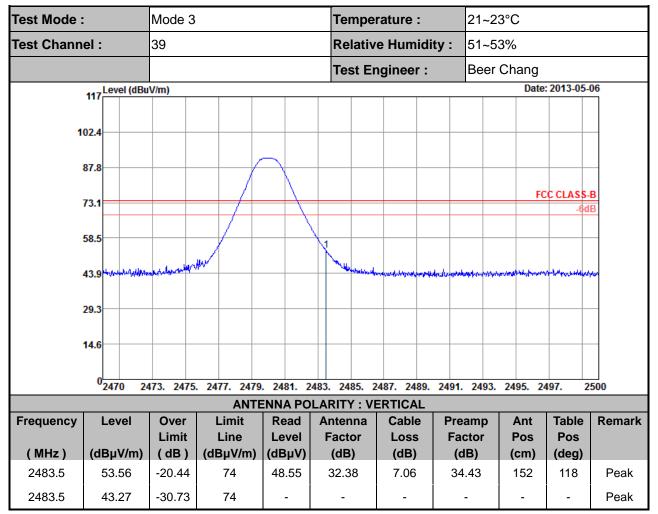
#### Note:

1. Measurement result = Maximum field strength – Delta result

 Delta-Marker Method is used for the 2483.5MHz average measurement as described in the test procedure of this report and the test result is under 11.71dB.

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**Note:** Worst case measurement on 2483.5 MHz is compliance with 74/54 dBuV/m (peak/average) limit and Edge Measurement in the restricted band 2483.5-2500 MHz. And, 2470-2483.5 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.

Test mode	Maximum field strength of the fundamental emission (dBμV/m)	Delta Result (dB)	Measurement Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
Peak	91.63	48.36	43.27	74	-30.73	Pass
Average	90.69	48.36	42.33	54	-11.67	Pass

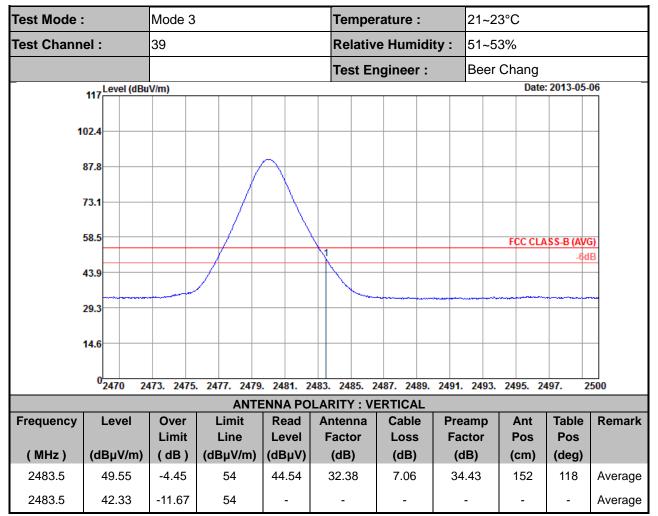
#### Note:

1. Measurement result = Maximum field strength – Delta result

 Delta-Marker Method is used for the 2483.5MHz average measurement as described in the test procedure of this report and the test result is under 30.73dB.

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**Note:** Worst case measurement on 2483.5 MHz is compliance with 74/54 dBuV/m (peak/average) limit and Edge Measurement in the restricted band 2483.5-2500 MHz. And, 2470-2483.5 MHz is non-restricted band which limit line is 20dB below the fundamental frequency emission level which is tested by conducted spurious emission. Both the test results are compliance with the FCC limit line.

#### Summary results of marker-delta method:

Test mode	Maximum field strength of the fundamental emission (dBμV/m)	Delta Result (dB)	Measurement Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Result
Peak	91.63	48.36	43.27	74	-30.73	Pass
Average	90.69	48.36	42.33	54	-11.67	Pass

#### Note:

1. Measurement result = Maximum field strength – Delta result

2. Delta-Marker Method is used for the 2483.5MHz average measurement as described in the test procedure of this report and the test result is under 11.67dB.



# 3.5.7 Test Result of Radiated Emission (30 MHz ~ 10<sup>th</sup> Harmonic)

Test Mode :	Mode 1		Те	mperature	e :	21~23°C	;				
Test Channel :	00		Re	lative Hu	midity :	51~53%					
Test Engineer :	Beer Chan	g									
	1. 2402	MHz is fund	amental	ntal signal which can be ignored.							
	2. 7206	MHz and 96	608 MHz	are not w	ithin a res	stricted b	and, ar	nd its lin	nit line is		
	20dB below the highest emission level. For example, 98.59 dB $\mu$ V/m - 20dB										
Domonic	= 78.59 dB μ V/m.										
Remark :	3. Avera	3. Average measurement was not performed if peak level went lower than the									
	avera	ge limit.									
	4. The	5 <sup>th</sup> ,6 <sup>th</sup> ,	7 <sup>th</sup> ,etc.)	and oth	ner spuri	ous ar	e not r	eported,			
	becau	because those levels are lower than average limit line and background noi									
117 Leve	l (dBuV/m)						Date	e: 2013-05-	06		
102.4	2										
87.8									_		
73.1							F	CC CLASS-			
								-6d	B		
58.5							FCC CL	ASS-B (AVG	-		
43.9	3	4	5					-6d	В		
29.3											
14.6									-		
0											
01000 Trace: (D		000. 8000.		000. 14000. equency (MHz)		8000. 2000	00. 2200	0. 25	000		
Site Condition	: 03CH07-	HY \SS-B 3m SHF-I	EHF HORIZ	ONTAL							
		1 1		ITY : HOR							
Frequency Lev	el Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark		
(MHz) (dBµ\		(dBµV/m )	(dBµV)	(dB)	(dB)	(dB)	( cm )	(deg)			
2402 97.6	65 -	-	92.74	32.3	6.91	34.3	165	146	Average		
2402 98.5	59 -	-	93.68	32.3	6.91	34.3	165	146	Peak		
4803 41.8	31 -32.19	74	56.55	33.98	8.75	57.47	100	0	Peak		
7206 41.7	76 -36.83	78.59	53.35	35.56	10.81	57.96	100	0	Peak		
9608 41.	8 -36.79	78.59	49.89	36.44	13.7	58.23	100	0	Peak		
Note: Other harm	onics are lo	wer than bac	ckground	noise.							

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FCC ID : PY7PM-0570



Test Mode :	Mode 1		Ter	mperature	:	21~23°C	;		
Test Channel :	00		Re	lative Hum	nidity :	51~53%			
Test Engineer :	Beer Chan	9							
	1. 2404	MHz is funda	amental	signal whic	ch can b	e ignored	ł.		
	2. 7206	MHz and 96	09 MHz	are not wit	thin a res	stricted b	and, a	nd its lin	nit line is
	20dB	below the hi	ghest er	nission lev	el.				
Remark :	3. Avera	ge measure	ment wa	as not perfe	ormed if	peak lev	vel wer	t lower	than the
	avera	ge limit.							
	4. The h	narmonic (5 <sup>t</sup>	<sup>h</sup> ,6 <sup>th</sup> ,	7 <sup>th</sup> ,etc.)	and oth	ner spuri	ous ar	e not r	eported,
	becau	se those lev	els are l	ower than a	average	limit line	and ba	ckgrour	id noise.
117 Level	(dBuV/m)						Dat	e: 2013-05-	06
102.4									
102.4	2								
87.8									_
73.1							F	CC CLASS-	
								-6d	<u>D</u>
58.5							FCC CL	ASS-B (AVC	-
43.9	3	4	5						_
29.3									
20.0									
14.6									-
0 <mark>0</mark>	4000. 6	000. 8000. 1	0000. 12	000. 14000.	16000. 1	8000. 200	00. 220	10 25	000
Trace: (Di	screte)			equency (MHz)	10000. 1	200	. 220	. 25	
Site Condition	: 03CH07-F : FCC CLA	1Y SS-B 3m SHF-E	HF VERTIC	CAL					
Fragman and Law				RITY : VER		Dreeman	A	Tabla	Domorik
Frequency Leve	el Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
(MHz) (dBµV		(dBµV/m)	(dBµV)	(dB)	(dB)	( dB )	( cm )	(deg)	
2404 96.7	9 -	-	91.87	32.31	6.91	34.3	100	115	Average
2404 97.8	3 -	-	92.88	32.31	6.91	34.3	100	115	Peak
4803 42.1	3 -31.87	74	56.87	33.98	8.75	57.47	100	0	Peak
7206 41.2	7 -36.53	77.8	52.86	35.56	10.81	57.96	100	0	Peak
9609 42.0	7 -35.73	77.8	50.16	36.44	13.7	58.23	100	0	Peak

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Test Mode :	Mode 2		Те	mperature	:	21~23°C	;		
Test Channel :	19		Re	lative Hum	nidity :	51~53%			
Test Engineer :	Beer Char	ng							
	1. 2440	MHz is fund	damental	signal whic	ch can b	e ignored	l.		
	2. 9765	MHz is not	within a	restricted b	and, an	d its limit	line is	20dB b	elow the
	high	est emission	level.						
Remark :	3. Aver	age measure	ement wa	as not perfe	ormed if	peak lev	vel wen	t lower	than the
	aver	age limit.							
	4. The	harmonic (	5 <sup>th</sup> ,6 <sup>th</sup> ,	7 <sup>th</sup> ,etc.)	and oth	ner spuri	ous ar	e not r	eported,
		use those le	vels are	lower than a	average	limit line		-	
117	(dBuV/m)						Date	e: 2013-05-	06
102.4									
	2								
87.8									_
73.1							F	CC CLASS-	
50.5									
58.5							FCC CL	ASS-B (AVC -6d	-
43.9	3	4	5						_
29.3									_
14.6									
0	4000.	6000. 8000.	10000. 12	2000. 14000.	16000. 1	8000. 200	00. 2200	0. 25	000
Trace: (Dis Site	screte) : 03CH07	-HY	Fn	equency (MHz)					
Condition		ASS-B 3m SHF-							
Fragman and Law		1	1	RITY : HORIZ		Dragman	Amt	Tabla	Domorik
Frequency Leve	el Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
(MHz) (dBµV			(dBµV)	(dB)	(dB)	(dB)	( cm )	(deg)	
2440 96.0	8 -	-	91.09	32.35	6.99	34.35	105	132	Average
2440 97.1	I -	-	92.11	32.35	6.99	34.35	105	132	Peak
4881 41.3	1 -32.69	74	55.99	33.95	8.85	57.48	100	0	Peak
7323 40.4	1 -33.59	74	52.01	35.53	10.91	58.04	100	0	Peak
9765 42.7	5 -34.35	5 77.1	50.61	36.69	13.69	58.24	100	0	Peak

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Test Mode :	Mode 2		Ter	nperature	:	21~23°C	;		
Test Channel :	19		Rel	ative Hun	nidity :	51~53%			
Test Engineer :	Beer Chan	3							
	1. 2441	MHz is fund	amental	signal whic	ch can b	e ignored	l.		
	2. 9765	MHz is not v	within a r	estricted b	and, and	d its limit	line is	20dB b	elow the
	highe	st emission l	level.						
Remark :	3. Avera	ge measure	ement wa	s not perf	ormed if	peak lev	el wen	t lower	than the
	avera	ge limit.							
	4. The ł	narmonic (5	<sup>th</sup> ,6 <sup>th</sup> ,	7 <sup>th</sup> ,etc.)	and oth	ner spuri	ous ar	e not r	eported,
	becau	se those lev	els are lo	ower than a	average	limit line	and ba	ckgrour	id noise.
117 Level	(dBuV/m)						Date	e: 2013-05-	06
402.4									
102.4	2								
87.8									_
73.1							F	CC CLASS-	
								-6d	<u> </u>
58.5							FCC CL	ASS-B (AVC	-
43.9	3	4	5						_
29.3									
20.0									
14.6									-
0 <mark>0</mark>	4000. 6	000. 8000.	10000. 120	000. 14000.	16000. 1	8000. 200	00. 220	00 25	000
Trace: (Di	screte)			quency (MHz)	10000. 1	200	. 220	50. 25	
Site Condition	: 03CH07-I : FCC CLA	1Y SS-B 3m SHF-E	HF VERTIC	AL					
				RITY : VER	TICAL Cable	Dreeman	A 4	Tabla	Domorik
Frequency Leve	el Over Limit	Limit Line	Read Level	Antenna Factor	Loss	Preamp Factor	Ant Pos	Table Pos	Remark
(MHz) (dBµV		(dBµV/m)	(dBµV)	(dB)	(dB)	( dB )	( cm )	(deg)	
2441 95.7	7 -	-	90.82	32.35	6.99	34.39	120	259	Average
2441 96.6	9 -	-	91.74	32.35	6.99	34.39	120	259	Peak
4881 41.3	3 -32.7	74	55.98	33.95	8.85	57.48	100	0	Peak
7323 40.1	6 -33.84	74	51.76	35.53	10.91	58.04	100	0	Peak
9765 42.7	1 -33.98	76.69	50.57	36.69	13.69	58.24	100	0	Peak

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Test Mode :	M	ode 3		Те	mperature		21~23°C			
Test Channe	<b>el:</b> 39	)		Re	lative Hun	nidity :	51~53%			
Test Engine	er: Be	er Chang	)							
	1.	2481 I	MHz is fund	amental	signal which	ch can b	e ignored	ł.		
	2.	9819	MHz is not	within a	restricted b	band, an	d its limit	line is	20dB b	elow the
		highes	st emission	level.						
Remark :	3.	Avera	ge measure	ement wa	as not perf	ormed if	peak lev	vel wen	t lower	than the
		avera	ge limit.							
	4.	The h	armonic (5	<sup>th</sup> ,6 <sup>th</sup> ,	7 <sup>th</sup> ,etc.)	and oth	ner spuri	ous ar	e not r	eported,
			se those lev	/els are l	ower than	average	limit line	and ba	ckgrour	nd noise.
11	7 Level (dB	uV/m)						Date	e: 2013-05-	06
402										
102.	4	\$								
87.	.8									_
73.	1							F	CC CLASS-	_
									6d	в
58.	5							FCC CL	ASS-B (AVC -6d	-
43.	.9		10	11					-00	
20	2									
29.	3 <sub>1345</sub> 6									
14.	6									-
	030	2000 50	7000 0		42000 4	E000 470	00 40000	24000	22000 25	
	-30 Ice: (Discr	3000. 50 ete)	00. 7000. 9	000. 1100 Fre	0. 13000. 1 equency (MHz)	5000. 170	00. 19000.	21000.	23000. 25	000
Site Con	dition	: 03CH07-H : FCC CLA	łY SS-B 3m SHF-E	EHF HORIZ	ONTAL					
1					ITY : HORI				I	
Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
(MHz) (	dBµV/m		(dBµV/m )	(dBµV)	(dB)	(dB)	(dB)	( cm )	(deg)	
50.79	25.03	-14.97	40	47.86	8.1	0.7	31.63	124	168	Peak
182.55	20.97	-22.53	43.5	42.01	8.92	1.26	31.22	-	-	Peak
275.43	25.46	-20.54	46	42.21	12.96	1.64	31.35	-	-	Peak
465.9	25.51	-20.49	46	36.9	17.37	2.34	31.1	-	-	Peak
100.0										
555.5	23.19	-22.81	46	32.77	19.04	2.57	31.19	-	-	Peak

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Report Version : Rev. 01

Report Template No.: BU5-FR15CBT4.0 Version 1.1



	ANTENNA POLARITY : HORIZONTAL													
Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark				
(MHz)	(dBµV/m)	( dB )	(dBµV/m )	(dBµV)	(dB)	( dB )	(dB)	( cm )	(deg)					
2481	96	-	-	90.99	32.38	7.06	34.43	118	50	Average				
2481	96.69	-	-	91.68	32.38	7.06	34.43	118	50	Peak				
4959	41.78	-32.22	74	56.44	33.91	8.92	57.49	100	0	Peak				
7440	40.31	-33.69	74	51.88	35.51	11.04	58.12	100	0	Peak				
9819	43.74	-32.95	76.69	51.54	36.76	13.69	58.25	100	0	Peak				



Test Mode :	Мо	de 3		Те	mperature	:	21~23°C	;		
Test Channe	I: 39			Re	lative Hun	nidity :	51~53%			
Test Enginee	er: Be	er Chang	)							
	1.	2482	MHz is fund	amental	ntal signal which can be ignored.					
	2.	9819	MHz is not v	within a	a restricted band, and its limit line is 20dB below the					
		highes	st emission	level.						
Remark :	3.	Avera	ge measure	ement wa	as not perf	ormed if	peak lev	vel wen	t lower	than the
		avera	ge limit.							
	4.	The h	narmonic (5	<sup>th</sup> ,6 <sup>th</sup> ,	7 <sup>th</sup> ,etc.)	and oth	ner spuri	ous ar	e not r	eported
		becau	se those lev	/els are l	ower than	average	limit line	and ba	ckgrour	nd noise
117	Level (dBu	V/m)						Date	: 2013-05-	06
102.4		8								
87.8										_
73.1								F	CC CLASS-	-
13.1									-6d	B
58.5	5							FCC CL	ASS-B (AVC	-
43.9	, <u> </u>		10	11					6d	Б
20.2	1									
29.3	256 3									
14.6	<b>3</b>									-
(	30	2000 50	7000 0		42000 4			24000	22222 25	
	-30 ce: (Discre	3000. 50 te)	00. 7000. 9	000. 1100 Fre	0. 13000. 1 equency (MHz)	5000. 170	00. 19000.	21000.	23000, 25	000
Site Cond	lition	: 03CH07-F : FCC CLA	HY SS-B 3m SHF-E	EHF VERTION	CAL					
			1		RITY : VER					
Frequency	Level	Over	Limit	Read	Antenna Factor	Cable	Preamp	Ant Pos	Table Pos	Remark
(MHz) (c	dBµV/m )	Limit (dB)	Line (dBµV/m)	Level (dBµV)	(dB)	Loss (dB)	Factor (dB)	(cm)	( deg )	
78.6	29.29	-10.71	40	52.7	7.45	0.87	31.73	162	235	Peak
183.9	14.34	-29.16	43.5	35.38	8.94	1.26	31.24	-	-	Peak
	17.71	-28.29	46	34.45	13	1.64	31.38	-	-	Peak
277.86	17.71									
277.86 372.1	21.64	-24.36	46	35.63	15.27	2.08	31.34	-	-	Peak
			46 46	35.63 35.76	15.27 17.25	2.08 2.32	31.34 31.17	-	-	Peak Peak

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	ANTENNA POLARITY : VERTICAL									
Frequency	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Ant Pos	Table Pos	Remark
(MHz)	( $dB\mu V/m$ )	( dB )	(dBµV/m )	(dBµV)	(dB)	(dB)	(dB)	( cm )	(deg)	
2482	91.68	-	-	86.67	32.38	7.06	34.43	152	118	Average
2482	92.34	-	-	87.33	32.38	7.06	34.43	152	118	Peak
4959	41	-33	74	55.66	33.91	8.92	57.49	100	0	Peak
7440	40.29	-33.71	74	51.86	35.51	11.04	58.12	100	0	Peak
9819	44.29	-28.05	72.34	52.09	36.76	13.69	58.25	100	0	Peak



# 3.6 AC Conducted Emission Measurement

## 3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of omission (MHz)	Conducted limit (dBµV)					
Frequency of emission (MHz)	Quasi-peak	Average				
0.15-0.5	66 to 56*	56 to 46*				
0.5-5	56	46				
5-30	60	50				

\*Decreases with the logarithm of the frequency.

### 3.6.2 Measuring Instruments

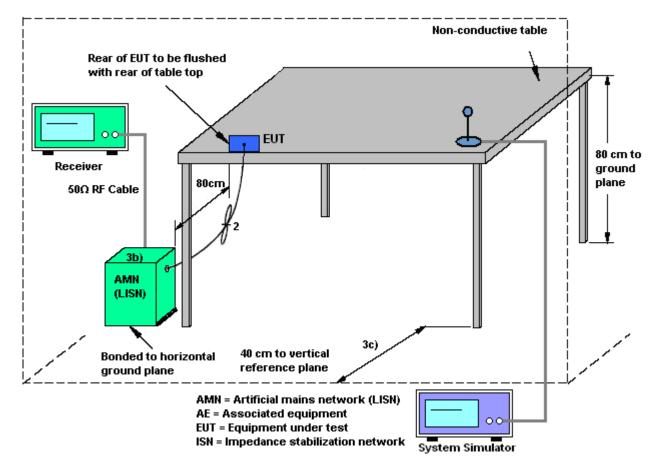
The section 4.0 of List of Measuring Equipment of this test report is used for test.

#### 3.6.3 Test Procedures

- 1. The testing follows the guidelines in ANSI C63.10-2009.
- 2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- 3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- 4. All the support units are connecting to the other LISN.
- 5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- 6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- 7. Both sides of AC line were checked for maximum conducted interference.
- 8. The frequency range from 150 kHz to 30 MHz was searched.
- 9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.



### 3.6.4 Test Setup





# 3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1			Tempe	erature :		<b>20~22</b> ℃	
Test Engineer :	Kyle Jhuang			Relati	ve Humi	idity :	45~47%	
Test Voltage :	120Vac / 60Hz			Phase	:		Line	
Function Type :	GSM1900 Idle + WLAN Idle Cable (Charging from Adapt					nk + MF	P3 + Earphon	ne + Battery + USB
100 90- 80- 70- 20- 10- 10- 10- 10- 10- 10-	0k 300 40050		11 01M	2N Freque	A 3M 4 ncy in Hz		PR 22-OP Limit R 22-Ave Limit 8 10M	
Final Resu Frequency (MHz) 2.238000 2.310000 2.390000 2.446000 2.446000 2.486000 2.558000 2.638000 2.694000 2.758000	It : Quasi-Peak (dBµV) 38.2 38.9 39.3 39.3 39.1 39.6 39.2 39.9 39.2 39.9 39.9 39.2	Filter Off Off Off Off Off Off Off Off Off	Line L1 L1 L1 L1 L1 L1 L1 L1 L1 L1	Corr. (dB) 19.5 19.6 19.6 19.6 19.6 19.6 19.6 19.6	Margin (dB) 17.8 17.1 17.1 16.7 16.9 16.4 16.8 16.1 18.6	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 56.0 56.0		



Test Mod	le :	Mode 1			Tempe	erature :		<b>20~22</b> ℃	
Test Engi	ineer :	Kyle Jhuang			Relati	ve Humi	idity :	45~47%	
Fest Volta	age :	120Vac / 60Hz			Phase	:		Line	
Function	Type :	GSM1900 Idle + WLAN Idle Cable (Charging from Adapt					nk + MF	P3 + Earphone + Battery + U	
	100 <sub>T</sub>			Î	1	1	1 1 1		
	90-								
	+								
	80-								
	70-								
	≧ 60						CIS	PR 22-QP Limit at Main Ports	
	Level in dBµV							12 D D 2 Ave Limit of Main Porth	
	.⊑ <u>50</u>							R22-Ave Limit at Main Ports	
	à 40	<u>, Д., .</u>				Num Para			
	+	- WAAA	۸ ۸۸۸	MMMM	MAY WINNIN			And the state of t	
	30-		1 UY YI						
	20-								
	10-								
	+								
	0+								
	-	1 1 1 0k 300 4005		01M	21	1 3M 4	M 5 M 6	8 10M 20M 30M	
	150	0k 300 4005		001M	2N Freque	1 3M 4 ncyin Hz	M 5M 6	8 10M 20M 30M	
	-	0k 300 4005	00 80	001M			M 5M 6	8 10M 20M 30M	
Fin	150	i i i i ok 300 4005	00 80	001M			M 5M 6	8 10M 20M 30M	
	150	It : Average					M 5M 6	8 10M 20M 30M	
	150 al Resu	It : Average	Filter	Line	Freque	ncy in Hz			
F	al Resu requency (MHz) 2.238000	It : Average Average (dBµV) 27.0	Filter	Line L1	Freque Corr. (dB) 19.5	Margin (dB) 19.0	Limit (dBµV) 46.0		
F	150 al Resu requency (MHz) 2.238000 2.310000	It : Average Average (dBμV) 27.0 28.3	Filter Off Off	Line L1 L1	Freque Corr. (dB) 19.5 19.6	Margin (dB) 19.0 17.7	Limit (dBµV) 46.0 46.0		
F	al Resu Frequency (MHz) 2.238000 2.310000 2.390000	It : Average Average (dBμV) 27.0 28.3 29.2	Filter Off Off	Line L1 L1 L1	Freque Corr. (dB) 19.5 19.6 19.6	Margin (dB) 19.0 17.7 16.8	Limit (dBµV) 46.0 46.0 46.0		
F	al Resu requency (MHz) 2.238000 2.310000 2.390000 2.446000	It : Average Average (dBμV) 27.0 28.3 29.2 29.8	Filter Off Off Off	Line L1 L1 L1 L1	Freque Corr. (dB) 19.5 19.6 19.6 19.6	Margin (dB) 19.0 17.7 16.8 16.2	Limit (dBµV) 46.0 46.0 46.0 46.0		
	al Resu requency (MHz) 2.238000 2.310000 2.390000 2.446000 2.486000	It : Average Average (dBμV) 27.0 28.3 29.2 29.8 29.5	Filter Off Off Off Off	Line L1 L1 L1 L1 L1 L1	Freque Corr. (dB) 19.5 19.6 19.6 19.6	Margin (dB) 19.0 17.7 16.8 16.2 16.5	Limit (dBµV) 46.0 46.0 46.0 46.0 46.0		
F	al Resu requency (MHz) 2.238000 2.310000 2.390000 2.446000 2.486000 2.558000	It : Average         Average         (dBμV)         27.0         28.3         29.2         29.8         29.5         29.6	Filter Off Off Off Off Off	Line L1 L1 L1 L1 L1 L1 L1	Freque Corr. (dB) 19.5 19.6 19.6 19.6 19.6	Margin (dB) 19.0 17.7 16.8 16.2 16.5 16.4	Limit (dBµV) 46.0 46.0 46.0 46.0 46.0		
F	al Resu requency (MHz) 2.238000 2.310000 2.390000 2.446000 2.486000	It : Average Average (dBμV) 27.0 28.3 29.2 29.8 29.5	Filter Off Off Off Off	Line L1 L1 L1 L1 L1 L1	Freque Corr. (dB) 19.5 19.6 19.6 19.6	Margin (dB) 19.0 17.7 16.8 16.2 16.5	Limit (dBµV) 46.0 46.0 46.0 46.0 46.0		



Test Mod	de :	Mode 1			Temp	erature :	:	<b>20~22</b> ℃	
Test Eng	gineer :	Kyle Jhuang			Relati	ve Humi	idity :	45~47%	
Test Volt	tage :	120Vac / 60H	Z		Phase	:		Neutral	
Function	n Type :	GSM1900 Idle + WI AN Idle					P3 + Earphone + Battery + USE		
	Level in dBµV	100 90 80 70 60 50 40 30	- Mirzyw		u) u) u) u) u)			PR22-QP Limit at Main Ports R22-Ave Limit at Main Ports	
		10							
	nal Resu Frequenc (MHz)	150k 300 4 JIt : Quasi-Pea y Quasi-Peak		800 1M	Freque Corr. (dB)	M 3M 4 ency in Hz Margin (dB)	Limit	8 10M 20M 30M	
F	Frequenc	ult : Quasi-Peak (dBµV)	k		Freque	ency in Hz Margin	Limit		
F	Frequenc (MHz)	0 150k 300 4 ult : Quasi-Peak (dBμV) 33.0	k Filter	Line	Freque Corr. (dB)	ency in Hz Margin (dB)	Limit (dBµV)		
-	Frequenc (MHz) 2.606000	0 150k 300 4 ult : Quasi-Peak (dBμV) 33.0 30.3	k Filter Off	Line N	Freque Corr. (dB) 19.6	ency in Hz Margin (dB) 23.0	Limit (dBµV) 56.0		
	Frequenc (MHz) 2.606000 2.678000	0 150k 300 4 ult : Quasi-Peak (dBμV) 33.0 30.3 29.8	k Filter Off Off	Line N N	Freque Corr. (dB) 19.6 19.6	Margin (dB) 23.0 25.7	Limit (dBµV) 56.0 56.0		
	Frequenc (MHz) 2.606000 2.678000 2.710000	0 150k 300 4 ult : Quasi-Peak (dBμV) 33.0 30.3 29.8 33.5	k Filter Off Off Off	Line N N N	Freque (dB) 19.6 19.6	Margin (dB) 23.0 25.7 26.2	Limit (dBµV) 56.0 56.0 56.0		
Fin	Frequence (MHz) 2.606000 2.678000 2.710000 2.726000 2.798000 2.926000 nal Resu	0       300 4         150k       300 4         y       Quasi-Peak (dBμV)         0       33.0         0       30.3         0       29.8         0       33.5         0       30.8         0       29.4	k Filter Off Off Off Off	Line N N N N	Freque Corr. (dB) 19.6 19.6 19.6 19.6 19.7 19.6	Margin (dB) 23.0 25.7 26.2 22.5 25.2 26.6	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0		
Fin	Frequence (MHz) 2.606000 2.678000 2.710000 2.726000 2.798000 2.926000 nal Rest Frequence	0       300 4         150k       300 4         μlt : Quasi-Peak (dBμV)         0       33.0         0       30.3         0       30.3         0       33.5         0       30.8         0       29.4         ult : Average       y         y       Average	k Filter Off Off Off Off Off	Line N N N N	Frequi Corr. (dB) 19.6 19.6 19.6 19.6 19.7 19.6 Corr.	Margin (dB) 23.0 25.7 26.2 22.5 25.2 26.6 Margin	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0		
Fin	Frequence (MHz) 2.606000 2.678000 2.710000 2.726000 2.798000 2.926000 nal Resu Frequence (MHz)	0         300 4           150k         300 4           μlt : Quasi-Peak (dBµV)         (dBµV)           0         33.0           0         30.3           0         29.8           0         33.5           0         30.8           0         29.4           ult : Average (dBµV)	k Filter Off Off Off Off Off Off Filter	Line N N N N N Line	Freque (dB) 19.6 19.6 19.6 19.6 19.7 19.6 19.7 (dB)	Margin (dB) 23.0 25.7 26.2 22.5 25.2 26.6 Margin (dB)	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 Limit (dBµV)		
Fin	Frequence (MHz) 2.606000 2.678000 2.710000 2.726000 2.798000 2.926000 nal Resu Frequence (MHz) 2.606000	0         300 4           150k         300 4           JIt : Quasi-Peak (dBµV)         (dBµV)           0         33.0           0         29.8           0         33.5           0         30.8           0         29.4           JIt : Average (dBµV)         Average (dBµV)           0         25.1	k Filter Off Off Off Off Off Off Filter	Line N N N N N Line N	Frequi (dB) 19.6 19.6 19.6 19.6 19.7 19.6 (dB) 19.6	Margin (dB) 23.0 25.7 26.2 22.5 25.2 26.6 Margin (dB) 20.9	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 56.0 Limit (dBµV) 46.0		
Fin	Frequence (MHz) 2.606000 2.678000 2.710000 2.726000 2.798000 2.926000 nal Resu Frequence (MHz) 2.606000 2.678000	0       300 4         150k       300 4         ult : Quasi-Peak (dBµV)       30.3         0       33.0         0       30.3         0       29.8         0       33.5         0       30.8         0       29.4         ult : Average (dBµV)       25.1         0       21.9	k Filter Off Off Off Off Off Off Filter Off Off	Line N N N N N Line N N	Freque (dB) 19.6 19.6 19.6 19.6 19.6 19.7 19.6 (dB) 19.6 19.6	Margin (dB) 23.0 25.7 26.2 22.5 25.2 26.6 Margin (dB) 20.9 24.1	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 56.0 Limit (dBµV) 46.0 46.0		
Fin	Frequence (MHz) 2.606000 2.678000 2.710000 2.726000 2.798000 2.926000 nal Resu Frequence (MHz) 2.606000 2.678000 2.710000	0         300 4           150k         300 4           JIt:         Quasi-Peak (dBμV)           0         33.0           0         30.3           0         29.8           0         33.5           0         30.8           0         29.4           JIt:         Average (dBμV)           0         25.1           0         23.1	k Filter Off Off Off Off Off Off Filter Off Off Off Off	Line N N N N N Line N N N N	Frequi Corr. (dB) 19.6 19.6 19.6 19.6 19.6 19.6 19.6 19.6 19.6 19.6	Margin (dB) 23.0 25.7 26.2 22.5 25.2 26.6 Margin (dB) 20.9 24.1 22.9	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 56.0 Limit (dBµV) 46.0 46.0		
Fin	Frequence (MHz) 2.606000 2.678000 2.710000 2.726000 2.798000 2.926000 mal Rest Frequence (MHz) 2.606000 2.678000 2.710000 2.726000	0         300 4           150k         300 4           y         Quasi-Peak (dBµV)           0         33.0           0         30.3           0         29.8           0         33.5           0         30.8           0         29.4           ult : Average (dBµV)         4           y         Average (dBµV)           0         25.1           0         23.1           0         23.1           0         21.6	k Filter Off Off Off Off Off Off Filter Off Off Off Off Off	Line N N N N N N N N N N N N N N N N N N N	Frequi (dB) 19.6 19.6 19.6 19.6 19.7 19.6 19.6 (dB) 19.6 19.6 19.6 19.6	Margin (dB) 23.0 25.7 26.2 22.5 25.2 26.6 Margin (dB) 20.9 24.1 22.9 24.4	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 56.0 Limit (dBµV) 46.0 46.0 46.0		
Fin	Frequence (MHz) 2.606000 2.678000 2.710000 2.726000 2.798000 2.926000 nal Resu Frequence (MHz) 2.606000 2.678000 2.710000	0         300 4           150k         300 4           μlt : Quasi-Peak (dBµV)         (dBµV)           0         33.0           0         30.3           0         30.3           0         30.3           0         30.3           0         30.3           0         29.8           0         33.5           0         30.8           0         29.4           ult : Average (dBµV)         25.1           0         25.1           0         23.1           0         21.6           0         22.8	k Filter Off Off Off Off Off Off Filter Off Off Off Off	Line N N N N N Line N N N N	Frequi Corr. (dB) 19.6 19.6 19.6 19.6 19.6 19.6 19.6 19.6 19.6 19.6	Margin (dB) 23.0 25.7 26.2 22.5 25.2 26.6 Margin (dB) 20.9 24.1 22.9	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 56.0 Limit (dBµV) 46.0 46.0		



Test Mode :	Mode 2			Tempe	erature :		<b>20~22</b> ℃
Test Engineer :	Kyle Jhuang			Relati	ve Humi	idity :	45~47%
Test Voltage :	120Vac / 60Hz			Phase	:		Line
Function Type :	GSM1900 Idle + WLAN Link + Bluetooth Idle + MI Cable (Charging from Adapter) + SIM 2						P3 + Earphone + Battery + USE
Level in dBµV	100 90 80 70 60 50 40 30	Autor w		un de un la constante de			R22-QP Limit at Main Ports
Final Res	10 10 150k 300 400 150k 300 400		H H 800 1 M	2M Freque	1 3M 4M ncy in Hz	и 5M 6	8 10M 20M 30M
Final Rest Frequenc (MHz)	10 0 150k 300 400		Line			и 5м 6	
Frequenc	10 150k 300 400 ult : Quasi-Peak (dBµV)	C		Freque	ncy in Hz Margin	Limit	
Frequenc (MHz)	10 150k 300 400 ult : Quasi-Peak (dBµV) 34.0	Filter	Line	Freque Corr. (dB)	mcy in Hz Margin (dB)	Limit (dBµV)	
Frequence (MHz) 2.414000	10 0 150k 300 400 ult : Quasi-Peak (dBµV) 0 34.0 0 33.5 0 32.7	Filter Off	Line L1 L1 L1	Freque Corr. (dB) 19.6 19.6	Margin (dB) 22.0 22.5 23.3	Limit (dBµV) 56.0 56.0 56.0	
Frequence (MHz) 2.414000 2.566000 2.590000 2.646000	10 0 150k 300 400 ult : Quasi-Peak (dBµV) 0 34.0 0 33.5 0 32.7 0 33.8	Filter Off Off Off Off	Line L1 L1 L1 L1	Freque Corr. (dB) 19.6 19.6 19.5	Margin (dB) 22.0 22.5 23.3 22.2	Limit (dBµV) 56.0 56.0 56.0 56.0	
Frequence (MHz) 2.414000 2.566000 2.590000 2.646000 2.694000	10 150k 300 400 ult : Quasi-Peak (dBµV) 0 34.0 0 33.5 0 32.7 0 33.8 0 33.8	Filter Off Off Off Off Off	Line L1 L1 L1 L1 L1 L1	Freque Corr. (dB) 19.6 19.6 19.5 19.5	Margin (dB) 22.0 22.5 23.3 22.2 22.2	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0	
Frequence (MHz) 2.414000 2.566000 2.590000 2.646000	10 150k 300 400 ult : Quasi-Peak (dBµV) 0 34.0 0 33.5 0 32.7 0 33.8 0 33.8	Filter Off Off Off Off	Line L1 L1 L1 L1	Freque Corr. (dB) 19.6 19.6 19.5	Margin (dB) 22.0 22.5 23.3 22.2	Limit (dBµV) 56.0 56.0 56.0 56.0	
Frequence (MHz) 2.414000 2.566000 2.590000 2.646000 2.694000 2.742000	10 150k 300 400 ult : Quasi-Peak (dBµV) 0 34.0 0 33.5 0 32.7 0 33.8 0 33.8	Filter Off Off Off Off Off	Line L1 L1 L1 L1 L1 L1	Freque Corr. (dB) 19.6 19.6 19.5 19.5	Margin (dB) 22.0 22.5 23.3 22.2 22.2	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0	
Frequence (MHz) 2.414000 2.566000 2.590000 2.646000 2.694000 2.742000	10 150k 300 400 ult : Quasi-Peak (dBµV) 33.5 33.5 33.8 33.8 33.8 33.9 ult : Average	Filter Off Off Off Off Off Off	Line L1 L1 L1 L1 L1 L1 L1	Freque Corr. (dB) 19.6 19.6 19.5 19.5	Margin (dB) 22.0 22.5 23.3 22.2 22.2	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0	
Frequence (MHz) 2.414000 2.566000 2.590000 2.646000 2.694000 2.742000 Final Rest	10	Filter Off Off Off Off Off	Line L1 L1 L1 L1 L1 L1	Freque (dB) 19.6 19.6 19.6 19.5 19.6 19.6	Margin (dB) 22.0 22.5 23.3 22.2 22.2 22.2 22.1	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0	
Frequence (MHz) 2.414000 2.566000 2.590000 2.646000 2.694000 2.742000 Final Rest	10 150k 300 400 ult : Quasi-Peak (dBµV) 0 34.0 0 33.5 0 32.7 0 33.8 0 33.8 0 33.9 ult : Average (dBµV)	Filter Off Off Off Off Off Off	Line L1 L1 L1 L1 L1 L1 L1	Freque (dB) 19.6 19.6 19.6 19.5 19.6 19.6 19.6 Corr.	Margin (dB) 22.0 22.5 23.3 22.2 22.2 22.2 22.1 Margin	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0	
Frequence (MHz) 2.414000 2.566000 2.590000 2.646000 2.694000 2.742000 Final Rest Frequence (MHz)	10 150k 300 400 ult : Quasi-Peak (dBµV) 0 34.0 0 33.5 0 33.5 0 33.8 0 33.8 0 33.9 ult : Average (dBµV) 0 24.0	Filter Off Off Off Off Off Off Off Filter	Line L1 L1 L1 L1 L1 L1 L1	Freque (dB) 19.6 19.6 19.6 19.5 19.6 19.6 19.6 (dB)	Margin (dB) 22.0 22.5 23.3 22.2 22.2 22.1 Margin (dB)	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 Limit (dBµV)	
Frequence (MHz) 2.414000 2.566000 2.590000 2.646000 2.694000 2.742000 Final Rest Frequence (MHz) 2.414000	10 150k 300 400 ult : Quasi-Peak (dBµV) 0 34.0 0 33.5 0 33.5 0 33.8 0 33.8 0 33.8 0 33.8 0 33.9 ult : Average (dBµV) 0 24.0 0 24.4	Filter Off Off Off Off Off Off Off Filter	Line L1 L1 L1 L1 L1 L1 L1	Freque (dB) 19.6 19.6 19.5 19.6 19.6 19.6 (dB) 19.6	Margin (dB) 22.0 22.5 23.3 22.2 22.2 22.1 Margin (dB) 22.0	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 56.0 Limit (dBµV) 46.0	
Frequence (MHz) 2.414000 2.566000 2.590000 2.646000 2.694000 2.742000 Final Rest Frequence (MHz) 2.414000 2.566000	10         300 400           150k         300 400           ult : Quasi-Peak         (dBμV)           0         33.5           0         33.5           0         33.8           0         33.8           0         33.8           0         33.8           0         33.9           ult : Average         (dBμV)           0         24.0           0         24.4           0         23.0	Filter Off Off Off Off Off Off Off Off Off Of	Line L1 L1 L1 L1 L1 L1 L1 L1 Line L1	Freque (dB) 19.6 19.6 19.5 19.6 19.6 19.6 (dB) 19.6 19.6	Margin (dB) 22.0 22.5 23.3 22.2 22.2 22.1 22.1 Margin (dB) 22.0 21.6	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 56.0 56.0	
Frequence (MHz) 2.414000 2.566000 2.590000 2.694000 2.694000 2.742000 Final Rest Frequence (MHz) 2.414000 2.566000 2.590000	10         300 400           150k         300 400           ult : Quasi-Peak         (dBμV)           0         33.5           0         33.5           0         33.8           0         33.8           0         33.8           0         33.8           0         33.9           ult : Average (dBμV)         (dBμV)           0         24.0           0         23.0           0         22.7	Filter Off Off Off Off Off Off Filter Off Off Off Off	Line L1 L1 L1 L1 L1 L1 L1 L1 L1 L1 L1	Freque (dB) 19.6 19.6 19.6 19.5 19.6 19.6 (dB) 19.6 19.6 19.6	Margin (dB) 22.0 22.5 23.3 22.2 22.2 22.1 22.1 Margin (dB) 22.0 21.6 23.0	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 56.0 Limit (dBµV) 46.0 46.0	



Test Mode	:	Mode 2			Temp	erature :		<b>20~22</b> ℃	
Test Engine	eer :	Kyle Jhuang			Relati	ve Humi	idity :	45~47%	
Fest Voltag		120Vac / 60Hz			Phase	):		Neutral	
Function T								P3 + Earphone + Battery + USB	
	Level in dBµV	100 90 80 70 60 50 40 30	с 		, , , , , , , , , , , , , , , , , , ,			PR22-QP Limit at Main Ports R22-Ave Limit at Main Ports	
		20 10 10 150k 300 40 150k 300 40 1t : Quasi-Peak		800 1M	Frequ	ency in Hz	1	8 10M 20M 30M	
Free	quenc	10 0 150k 300 40 150k 300 40		Line	Frequ Corr.	ency in Hz Margin	Limit		
Free (I		10 0 150k 300 40	<u>د</u>		Frequ	ency in Hz			
Free (1 2.3	quenc MHz)	10 150k 300 40 150k 300 40 11t : Quasi-Peak (dBµV)	Filter	Line	Frequ Corr. (dB)	ency in Hz Margin (dB)	Limit (dBµV)		
Free (1 2.3 2.3	quenc MHz) 310000	10 150k 300 40 150k 300 40 150k 200 400 150k 200 4000	Filter Off	Line N	Frequ Corr. (dB) 19.6 19.6	ency in Hz Margin (dB) 26.3 25.8	Limit (dBµV) 56.0 56.0		
Free (1 2.3 2.3 2.4	quenc MHz) 310000 350000 154000	10 150k 300 40 150k 300 40	Filter Off Off Off	Line N N N	Frequ Corr. (dB) 19.6 19.6	ency in Hz Margin (dB) 26.3 25.8 23.6	Limit (dBµV) 56.0 56.0 56.0		
Free (1 2.3 2.3 2.4 2.5	quenc MHz) 310000 350000	10 150k 300 40 150k 300 40 150k 200 400 150k 200 4000	Filter Off Off	Line N N	Frequ Corr. (dB) 19.6 19.6	ency in Hz Margin (dB) 26.3 25.8	Limit (dBµV) 56.0 56.0		
Free (1 2.3 2.3 2.4 2.5 2.8	quenc MHz) 310000 350000 154000 566000	10 150k 300 40 150k 300 40	Filter Off Off Off Off	Line N N N N	Frequ Corr. (dB) 19.6 19.6 19.6	ency in Hz Margin (dB) 26.3 25.8 23.6 22.8	Limit (dBµV) 56.0 56.0 56.0 56.0		
Free (1 2.3 2.3 2.4 2.5 2.8 3.0 Final	quenc MHz) 310000 350000 550000 566000 346000 986000 Resu	10 150k 300 40 It : Quasi-Peak (dBµV) 29.7 30.2 32.4 33.2 30.4 27.6 It : Average	Filter Off Off Off Off Off	Line N N N N	Frequ Corr. (dB) 19.6 19.6 19.6 19.6 19.6	ency in Hz Margin (dB) 26.3 25.8 23.6 22.8 25.6 28.4	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0		
Free (1) 2.3 2.3 2.4 2.5 2.8 3.0 Final Free	quenc MHz) 310000 350000 154000 346000 346000 86000 Resu quenc	10	C Filter Off Off Off Off Off Off	Line N N N N N	Frequ Corr. (dB) 19.6 19.6 19.6 19.6 19.6 19.6 Corr.	ency in Hz Margin (dB) 26.3 25.8 23.6 22.8 25.6 28.4 Margin	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0		
Free (1) 2.3 2.3 2.4 2.5 2.8 3.0 Final Free (1)	quenc MHz) 310000 350000 550000 566000 346000 346000 86000 Resu quenc MHz)	10 150k 300 40 It : Quasi-Peak (dBµV) 29.7 30.2 32.4 33.2 30.4 27.6 It : Average (dBµV)	Filter Off Off Off Off Off Off Off Filter	Line N N N N N Line	Frequ (dB) 19.6 19.6 19.6 19.6 19.6 19.6 19.6 (dB)	Margin (dB) 26.3 25.8 23.6 22.8 25.6 28.4 Margin (dB)	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 Limit (dBµV)		
Free (1) 2.3 2.3 2.4 2.5 2.8 3.0 Final Free (1) 2.3	quenc MHz) 310000 350000 550000 566000 346000 386000 86000 Resu quenc MHz) 310000	10 150k 300 40 Ilt : Quasi-Peak (dBµV) 29.7 30.2 32.4 33.2 32.4 33.2 30.4 27.6 Ilt : Average (dBµV) 21.2	Filter Off Off Off Off Off Off Off Filter	Line N N N N N Line N	Frequ Corr. (dB) 19.6 19.6 19.6 19.6 19.6 19.6 19.6 (dB) 19.6	Margin (dB) 26.3 25.8 23.6 22.8 25.6 28.4 Margin (dB) 24.8	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 56.0 (dBµV) 46.0		
Free (1) 2.3 2.3 2.4 2.5 2.8 3.0 Final Free (1) 2.3 2.3	quenc MHz) 310000 350000 550000 366000 346000 386000 86000 86000 86000 86000 350000 350000	10 150k 300 40 It : Quasi-Peak (dBµV) 29.7 30.2 32.4 33.2 30.4 27.6 It : Average (dBµV) 21.2 21.5	C Filter Off Off Off Off Off Off Filter Off Off	Line N N N N N Line N N	Frequ Corr. (dB) 19.6 19.6 19.6 19.6 19.6 19.6 (dB) 19.6 19.6	Margin (dB) 26.3 25.8 23.6 22.8 25.6 28.4 Margin (dB) 24.8 24.5	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 56.0 (dBµV) 46.0 46.0		
Free (1 2.3 2.3 2.4 2.5 2.8 3.0 Final Free (1 2.3 2.3 2.4	quenc MHz) 310000 350000 350000 346000 346000 346000 346000 346000 346000 340000 350000 350000 350000	10	Filter Off Off Off Off Off Off Filter Off Off Off Off	Line N N N N N Line N N N N	Frequ Corr. (dB) 19.6 19.6 19.6 19.6 19.6 19.6 19.6 19.6	Margin (dB) 26.3 25.8 23.6 22.8 25.6 28.4 Margin (dB) 24.8 24.5 23.3	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 56.0 Limit (dBµV) 46.0 46.0		
Free (1) 2.3 2.3 2.4 2.5 2.8 3.0 Final Free (1) 2.3 2.3 2.4 2.5	quenc MHz) 310000 350000 350000 346000 346000 3860000 360000 350000 350000 354000 366000	10         300 40           150k         300 40           It:         Quasi-Peak (dBµV)           29.7         30.2           32.4         33.2           30.4         27.6           It:         Average (dBµV)           21.2         21.5           22.7         22.1	Filter Off Off Off Off Off Off Filter Off Off Off Off Off Off	Line N N N N N N Line N N N N	Frequ Corr. (dB) 19.6 19.6 19.6 19.6 19.6 19.6 19.6 19.6	Margin (dB) 26.3 25.8 23.6 22.8 25.6 28.4 Margin (dB) 24.8 24.5 23.3 23.9	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 56.0 46.0 46.0 46.0 46.0		
Free (1) 2.3 2.3 2.4 2.5 2.8 3.0 Final Free (1) 2.3 2.3 2.4 2.5	quenc MHz) 310000 350000 350000 346000 346000 346000 346000 346000 346000 340000 350000 350000 350000	10         300 40           150k         300 40           Ilt : Quasi-Peak         (dBµV)           29.7         30.2           32.4         33.2           30.4         27.6           Ilt : Average         (dBµV)           21.2         21.2           21.5         22.7           22.1         22.1	Filter Off Off Off Off Off Off Filter Off Off Off Off	Line N N N N N Line N N N N	Frequ Corr. (dB) 19.6 19.6 19.6 19.6 19.6 19.6 19.6 19.6	Margin (dB) 26.3 25.8 23.6 22.8 25.6 28.4 Margin (dB) 24.8 24.5 23.3	Limit (dBµV) 56.0 56.0 56.0 56.0 56.0 56.0 56.0 Limit (dBµV) 46.0 46.0		



# 3.7 Antenna Requirements

#### 3.7.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

## 3.7.2 Antenna Connected Construction

Non-standard connector used.

### 3.7.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



# 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100057	9kHz~40GHz	Oct. 29, 2012	May 03, 2013~ Jun. 07, 2013	Oct. 28, 2013	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	1036004	300MHz~40GH z	Sep. 08, 2012	May 03, 2013~ Jun. 07, 2013	Sep. 07, 2013	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	1027253	300MHz~40GH z	Sep. 08, 2012	May 03, 2013~ Jun. 07, 2013	Sep. 07, 2013	Conducted (TH02-HY)
Thermometer	Wisewind	410	N/A	N/A	Nov. 20, 2012	May 03, 2013~ Jun. 07, 2013	Nov. 19, 2013	Conducted (TH02-HY)
RF cable	HONOVA	MF86	N/A	N/A	Nov. 26, 2012	May 03, 2013~ Jun. 07, 2013	Nov. 25, 2013	Conducted (TH02-HY)
RF cable	HONOVA	MF86	N/A	N/A	Nov. 26, 2012	May 03, 2013~ Jun. 07, 2013	Nov. 25, 2013	Conducted (TH02-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 06, 2012	May 05, 2013 ~ May 06, 2013	Oct. 05, 2013	Radiation (03CH07-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101067	9KHz ~ 30GHz	Nov. 30, 2012	May 05, 2013 ~ May 06, 2013	Nov. 29, 2013	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 22, 2012	May 05, 2013 ~ May 06, 2013	Aug. 21, 2013	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A0236 2	1GHz~ 26.5GHz	Dec. 01, 2012	May 05, 2013 ~ May 06, 2013	Nov. 30, 2013	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	159088	1GHz ~ 18GHz	Feb. 27, 2013	May 05, 2013 ~ May 06, 2013	Feb. 26, 2014	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10-1000MHz. 32dB.GAIN	Feb. 26, 2013	May 05, 2013 ~ May 06, 2013	Feb. 25, 2014	Radiation (03CH07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Sep. 03, 2012	May 05, 2013 ~ May 06, 2013	Sep. 02, 2013	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBE CK	BBHA 9170	BBHA9170 251	15GHz ~ 40GHz	Sep. 28, 2012	May 05, 2013 ~ May 06, 2013	Sep. 27, 2013	Radiation (03CH07-HY)
Test Software	N/A	E3	Version 6, 2009-08-24( k5)	N/A	N/A	May 05, 2013 ~ May 06, 2013	N/A	Radiation (03CH07-HY)
Filter	WAINWRIGHT	WLKS1500-8 SS	SN2	1.5G LPF	Dec. 28, 2012	May 05, 2013 ~ May 06, 2013	Dec. 27, 2013	Radiation (03CH07-HY)
Filter	WAINWRIGHT	WRCGV2400/ 2483-2390/24 93-35/10SS	N/A	2.4G Notch Filter	Dec.29 , 2012	May 05, 2013 ~ May 06, 2013	Dec. 28, 2013	Radiation (03CH07-HY)
Filter	Microwave	H3G018G1	SN279268	3G HPF	Nov. 26, 2012	May 05, 2013 ~ May 06, 2013	Nov. 25, 2013	Radiation (03CH07-HY)
Test Software	Audix	E3	Version 6.2009-8-24	N/A	N/A	May 05, 2013 ~ May 06, 2013	N/A	Radiation (03CH07-HY)
Thermometer	Wisewind	410	BU5004	N/A	Nov. 20, 2012	May 05, 2013 ~ May 06, 2013	Nov. 19, 2013	Radiation (03CH07-HY)
Loop Antenna	R&S	HFH2-Z2	860004/001	9KHz ~ 30MHz	Jul. 03, 2012	May 05, 2013 ~ May 06, 2013	Jul. 02, 2013	Radiation (03CH07-HY)

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Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Turn Table	HD	DS 420	420/650/00	0 ~ 360 degree	N/A	May 03, 2013	N/A	Radiation (03CH07-HY)
Antenna Mast	HD GmbH	MA 240	N/A	N/A	N/A	May 03, 2013	N/A	Radiation (03CH07-HY)
RF Cable	Huber+Suhner	RG 142	NA	30M~1G	Dec. 04, 2012	May 03, 2013	Dec. 03, 2013	Radiation (03CH07-HY)
RF Cable	Huber+Suhner	SF104	NA	1G~26.5G	Dec. 04, 2012	May 03, 2013	Dec. 03,2013	Radiation (03CH07-HY)
Antenna Mast	HD GmbH	MA 240	N/A	N/A	N/A	May 03, 2013	N/A	Radiation (03CH07-HY)
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9KHz – 2.75GHz	Nov. 13, 2012	May 08, 2013	Nov. 12, 2013	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100081	9KHz ~ 30MHz	Dec. 12, 2012	May 08, 2013	Dec. 11, 2013	Conduction (CO05-HY)
Two-LISN	Rohde & Schwarz	ENV216	100080	9KHz ~ 30MHz	Dec. 06, 2012	May 08, 2013	Dec. 05, 2013	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	May 08, 2013	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117995	N/A	Jul. 28, 2011	May 08, 2013	Jul. 27, 2013	Conduction (CO05-HY)
Test Software	N/A	EMC32	Version 8.40.0	N/A	N/A	May 08, 2013	N/A	Conduction (CO05-HY)
Thermometer	Testo	608-H1	34913912	N/A	Apr. 25, 2013,	May 08, 2013	Apr. 24, 2014	Conduction (CO05-HY)
LF Cable	Shuner	RG-402	N/A	N/A	Apr. 20, 2013	May 08, 2013	May 19, 2013	Conduction (CO05-HY)

Note: Test equipment calibration is traceable to the procedure of ISO17025.



# 5 Uncertainty of Evaluation

#### Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence	2.26
of 95% (U = 2Uc(y))	2.20

#### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence	
of 95% (U = 2Uc(y))	2.54

#### Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence	4.72
of 95% (U = 2Uc(y))	4.72