



FCC RF Test Report

APPLICANT : Hewlett-Packard Company
EQUIPMENT : Tablet PC
BRAND NAME : hp
MODEL NAME : HSTNN-C78C
FCC ID : B94HNC78BWTXN
STANDARD : 47 CFR Part 2, 22(H), 24(E), 27
CLASSIFICATION : PCS Licensed Transmitter (PCB)

The product was received on Sep. 27, 2013 and testing was completed on Jul. 21, 2014. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA / EIA-603-C-2004 and the testing has shown the tested sample to be in 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 1st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.



TABLE OF CONTENTS

REVISION HISTORY.....	3
SUMMARY OF TEST RESULT	4
1 GENERAL DESCRIPTION	5
1.1 Applicant.....	5
1.2 Manufacturer.....	5
1.3 Product Feature of Equipment Under Test.....	5
1.4 Product Specification subjective to this standard	6
1.5 Modification of EUT	6
1.6 Maximum ERP/EIRP Power	7
1.7 Testing Location	9
1.8 Applicable Standards.....	9
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST	10
2.1 Test Mode.....	10
2.2 Connection Diagram of Test System.....	11
2.3 Support Unit used in test configuration and system	11
3 TEST RESULT	12
3.1 Conducted Output Power Measurement and ERP/EIRP Measurement.....	12
3.2 Radiated Spurious Emission Measurement	31
4 LIST OF MEASURING EQUIPMENT	49
5 UNCERTAINTY OF EVALUATION	50



REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG392719-15B	Rev. 01	Initial issue of report	Jul. 30, 2014



SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	§2.1046	RSS-Gen (4.8) RSS-130 (4.4) RSS-132 (5.4) RSS-133 (6.4) RSS-139 (6.4)	Conducted Output Power	Reporting Only	PASS(*)	-
3.1	§22.913(a)(2)	RSS-132(5.4) SRSP-503(5.1.3)	Effective Radiated Power (Band 5)	ERP < 7 Watt	PASS(*)	-
	§27.50(b)(10) §27.50(c)(10)	N/A	Effective Radiated Power (Band 13) (Band 17)	ERP < 3 Watt		
	N/A	RSS-130(4.4)	Equivalent Isotropic Radiated Power (Band 13) (Band 17)	EIRP < 5 Watt		
	§24.232(c)	RSS-133 (6.4) SRSP-510(5.1.2)	Equivalent Isotropic Radiated Power (Band 2)(Band 25)	EIRP < 2Watt		
	§27.50(d)(4)	RSS-139 (6.4) SRSP-513(5.1.2)	Equivalent Isotropic Radiated Power (Band 4)	EIRP < 1Watt		
3.2	§2.1053 §22.917(a) §24.238(a) §27.53(c)(2) §27.53(f) §27.53(g) §27.53(h)	RSS-GEN(4.9) RSS-132 (5.5) RSS-133 (6.5.1) RSS-130(4.6) RSS-139 (6.5)	Radiated Spurious Emission (Band 2) (Band 4) (Band 5) (Band 13) (Band 17) (Band 25)	< 43+10log ₁₀ (P[Watts])	PASS(**)	Under limit 10.26 dB at 5580.000 MHz

Note :

1. The “*” means the FG392719-15B report data followed the certified FG392719B report.
2. The “**” means the FG392719-15B report data followed the certified FG392719B report but added re-testing data for Radiated Spurious Emission Band13.



1 General Description

1.1 Applicant

Hewlett-Packard Company

3000 Hanover Street, Palo Alto, California 94304, USA

1.2 Manufacturer

COMPAL ELECTRONICS, INC.

No. 581, Ruiguang Rd., Neihu District, Taipei City 11492, Taiwan (R.O.C.)

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Tablet PC
Brand Name	hp
Model Name	HSTNN-C78C
FCC ID	B94HNC78BWTXN
Integrated WWAN Module	Brand Name: SIERRA WIRELESS Model Name: EM7355
EUT supports Radios application	CDMA/EV-DO/GSM/EGPRS/WCDMA/HSPA/LTE
EUT Stage	Identical Prototype

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. There are two kinds of batteries for EUT, The Battery 1 (model name: HSTNN-IB5O) and Battery 2 (model name: HSTNN-LB5O) are identical on power rating. Differences between two kinds of batteries are only vendor and model name. All the tests were performed with Battery 1.

1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx Frequency	LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 5 : 824.7 MHz ~ 848.3 MHz LTE Band 13 : 779.5 MHz ~ 784.5 MHz LTE Band 17 : 706.5 MHz ~ 713.5 MHz LTE Band 25 : 1850.7MHz ~ 1914.3 MHz
Rx Frequency	LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 5 : 869.7 MHz ~ 893.3 MHz LTE Band 13 : 748.5 MHz ~ 753.5 MHz LTE Band 17 : 736.5 MHz ~ 743.5 MHz LTE Band 25 : 1930.7MHz ~ 1994.3 MHz
Bandwidth	LTE Band 2 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 4 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 5 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 13 : 5MHz / 10MHz LTE Band 17 : 5MHz / 10MHz LTE Band 25 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz
Maximum Output Power to Antenna	LTE Band 2 : 22.88 dBm / 0.19 W LTE Band 4 : 23.87 dBm / 0.24 W LTE Band 5 : 22.67 dBm / 0.18 W LTE Band 13 : 23.74 dBm / 0.24 W LTE Band 17 : 23.87 dBm / 0.24 W LTE Band 25 : 22.94 dBm / 0.20 W
Antenna Type	Main Antenna :PIFA Antenna Aux. Antenna :Coupling Type Antenna
Antenna Gain	LTE Band 2 : 0.25 dBi LTE Band 4 : 0.97 dBi LTE Band 5 : -1.16 dBi LTE Band 13 : 1.03 dBi LTE Band 17 : 0.20 dBi LTE Band 25 : 0.25 dBi
Type of Modulation	QPSK / 16QAM / 64QAM

1.5 Modification of EUT

No modifications are made to the EUT during all test items.



1.6 Maximum ERP/EIRP Power

FCC Rule	System	Type of Modulation	BW	Maximum ERP/EIRP
Part 22	LTE Band 5	QPSK	5 MHz	0.09 W
Part 22	LTE Band 5	16QAM	5 MHz	0.07 W
Part 22	LTE Band 5	QPSK	10 MHz	0.09 W
Part 22	LTE Band 5	16QAM	10 MHz	0.07 W
Part 24	LTE Band 2	QPSK	5 MHz	0.20 W
Part 24	LTE Band 2	16QAM	5 MHz	0.17 W
Part 24	LTE Band 2	QPSK	10 MHz	0.20 W
Part 24	LTE Band 2	16QAM	10 MHz	0.17 W
Part 24	LTE Band 2	QPSK	15 MHz	0.20 W
Part 24	LTE Band 2	16QAM	15 MHz	0.17 W
Part 24	LTE Band 2	QPSK	20 MHz	0.21 W
Part 24	LTE Band 2	16QAM	20 MHz	0.17 W



FCC Rule	System	Type of Modulation	BW	Maximum ERP/EIRP
Part 24	LTE Band 25	QPSK	5 MHz	0.21 W
Part 24	LTE Band 25	16QAM	5 MHz	0.17 W
Part 24	LTE Band 25	QPSK	10 MHz	0.21 W
Part 24	LTE Band 25	16QAM	10 MHz	0.17 W
Part 24	LTE Band 25	QPSK	15 MHz	0.21 W
Part 24	LTE Band 25	16QAM	15 MHz	0.17 W
Part 24	LTE Band 25	QPSK	20 MHz	0.21 W
Part 24	LTE Band 25	16QAM	20 MHz	0.17 W
Part 27	LTE Band 4	QPSK	5MHz	0.30 W
Part 27	LTE Band 4	16QAM	5MHz	0.24 W
Part 27	LTE Band 4	QPSK	10MHz	0.30 W
Part 27	LTE Band 4	16QAM	10MHz	0.25 W
Part 27	LTE Band 4	QPSK	15MHz	0.30 W
Part 27	LTE Band 4	16QAM	15MHz	0.24 W
Part 27	LTE Band 4	QPSK	20MHz	0.30 W
Part 27	LTE Band 4	16QAM	20MHz	0.24 W
Part 27	LTE Band 13	QPSK	5MHz	0.18 W
Part 27	LTE Band 13	16QAM	5MHz	0.15 W
Part 27	LTE Band 13	QPSK	10MHz	0.18 W
Part 27	LTE Band 13	16QAM	10MHz	0.15 W
Part 27	LTE Band 17	QPSK	5MHz	0.15 W
Part 27	LTE Band 17	16QAM	5MHz	0.12 W
Part 27	LTE Band 17	QPSK	10MHz	0.16 W
Part 27	LTE Band 17	16QAM	10MHz	0.13 W

1.7 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW1022 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	Sporton Site No.	
	TH02-HY	03CH07-HY

1.8 Applicable Standards

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

- ♦ 47 CFR Part 2, 22(H), 24(E), 27
- ♦ ANSI / TIA / EIA-603-C-2004
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v02r01
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.



2 Test Configuration of Equipment Under Test

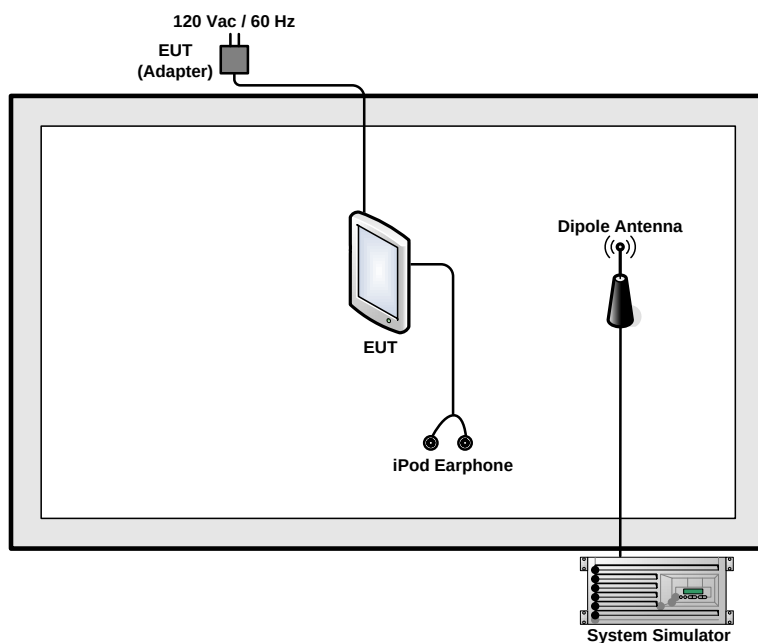
2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r01 with maximum output power.

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes to find the maximum emission.

Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Max. Output Power	2			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	4			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	5			✓	✓	-	-	✓	✓	✓	✓	✓	✓	✓	✓
	13	-	-	✓	✓	-	-	✓	✓	✓	✓	✓	✓	✓	✓
	17	-	-	✓	✓	-	-	✓	✓	✓	✓	✓	✓	✓	✓
	25			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
E.R.P./ E.I.R.P.	2			✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
	4			✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
	5			✓	✓	-	-	✓	✓	✓			✓	✓	✓
	13	-	-	✓	✓	-	-	✓	✓	✓			✓	✓	✓
	17	-	-	✓	✓	-	-	✓	✓	✓			✓	✓	✓
	25			✓	✓	✓	✓	✓	✓	✓			✓	✓	✓
Radiated Spurious Emission	2						✓	✓		✓			✓	✓	✓
	4						✓	✓		✓			✓	✓	✓
	5				✓	-	-	✓		✓			✓	✓	✓
	13	-	-		✓	-	-	✓		✓			✓	✓	✓
	17	-	-		✓	-	-	✓		✓			✓	✓	✓
	25						✓	✓		✓			✓	✓	✓
Note	1. The mark “✓” means that this configuration is chosen for testing														
	2. The mark “-” means that this bandwidth is not supported.														

2.2 Connection Diagram of Test System



2.3 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A

3 Test Result

3.1 Conducted Output Power Measurement and ERP/EIRP Measurement

3.1.1 Description of the Conducted Output Power Measurement and ERP/EIRP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to force the EUT transmitting at maximum output power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The ERP of mobile transmitters must not exceed 7 Watts for LTE Band 5.

The ERP of mobile transmitters must not exceed 3 Watts for LTE Band 13 and Band 17. (FCC Only)

The EIRP of mobile transmitters must not exceed 5 Watts for LTE Band 13 and Band 17. (IC Only)

The EIRP of mobile transmitters must not exceed 2 Watts for LTE Band 2 and Band 25.

The EIRP of mobile transmitters must not exceed 1 Watts for LTE Band 4.

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$, $ERP = EIRP - 2.15$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

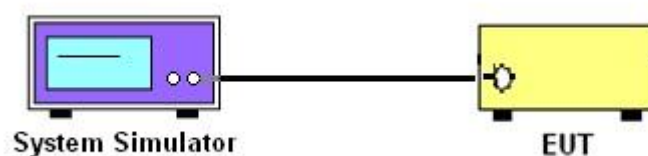
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through the system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.

3.1.4 Test Setup





3.1.5 Test Result of Conducted Output Power

<LTE Band 5 Conducted Power>

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				20450	20525	20600
Frequency (MHz)				829	836.5	844
10	QPSK	1	0	22.67	22.54	22.64
10	QPSK	1	24	22.50	22.50	22.53
10	QPSK	1	49	22.46	22.46	22.54
10	QPSK	25	0	21.71	21.55	21.54
10	QPSK	25	12	21.62	21.57	21.56
10	QPSK	25	24	21.57	21.39	21.58
10	QPSK	50	0	21.58	21.53	21.48
10	16QAM	1	0	21.48	21.57	21.65
10	16QAM	1	24	21.51	21.53	21.70
10	16QAM	1	49	21.46	21.46	21.58
10	16QAM	25	0	20.63	20.51	20.48
10	16QAM	25	12	20.55	20.51	20.49
10	16QAM	25	24	20.32	20.37	20.50
10	16QAM	50	0	20.43	20.47	20.42
Channel				20425	20525	20625
Frequency (MHz)				826.5	836.5	846.5
5	QPSK	1	0	22.56	22.44	22.41
5	QPSK	1	12	22.61	22.39	22.64
5	QPSK	1	24	22.49	22.39	22.54
5	QPSK	12	0	21.67	21.53	21.59
5	QPSK	12	6	21.68	21.59	21.64
5	QPSK	12	11	21.64	21.43	21.65
5	QPSK	25	0	21.50	21.53	21.57
5	16QAM	1	0	21.61	21.49	21.47
5	16QAM	1	12	21.59	21.45	21.64
5	16QAM	1	24	21.54	21.37	21.51
5	16QAM	12	0	20.60	20.55	20.65
5	16QAM	12	6	20.64	20.55	20.68
5	16QAM	12	11	20.63	20.41	20.61
5	16QAM	25	0	20.49	20.51	20.53



<LTE Band 2 Conducted Power>

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				18700	18900	19100
Frequency (MHz)				1860	1880	1900
20	QPSK	1	0	22.80	22.80	22.88
20	QPSK	1	49	22.81	22.76	22.71
20	QPSK	1	99	22.71	22.61	22.70
20	QPSK	50	0	21.77	21.54	21.52
20	QPSK	50	24	21.51	21.54	21.50
20	QPSK	50	49	21.41	21.54	21.54
20	QPSK	100	0	21.61	21.63	21.57
20	16QAM	1	0	21.78	21.94	21.84
20	16QAM	1	49	21.80	21.86	21.80
20	16QAM	1	99	21.77	21.76	21.90
20	16QAM	50	0	20.73	20.58	20.53
20	16QAM	50	24	20.45	20.56	20.39
20	16QAM	50	49	20.48	20.51	20.54
20	16QAM	100	0	20.50	20.58	20.51
Channel				18675	18900	19125
Frequency (MHz)				1857.5	1880	1902.5
15	QPSK	1	0	22.78	22.69	22.74
15	QPSK	1	37	22.83	22.76	22.84
15	QPSK	1	74	22.64	22.73	22.86
15	QPSK	36	0	21.73	21.67	21.61
15	QPSK	36	18	21.54	21.68	21.64
15	QPSK	36	37	21.55	21.53	21.64
15	QPSK	75	0	21.47	21.59	21.59
15	16QAM	1	0	21.76	21.79	21.76
15	16QAM	1	37	21.80	21.78	21.83
15	16QAM	1	74	21.75	21.88	21.93
15	16QAM	36	0	20.72	20.63	20.62
15	16QAM	36	18	20.57	20.55	20.63
15	16QAM	36	37	20.47	20.63	20.65
15	16QAM	75	0	20.44	20.52	20.61



BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				18650	18900	19150
Frequency (MHz)				1855	1880	1905
10	QPSK	1	0	22.80	22.78	22.73
10	QPSK	1	24	22.68	22.79	22.82
10	QPSK	1	49	22.67	22.76	22.84
10	QPSK	25	0	21.71	21.81	21.74
10	QPSK	25	12	21.75	21.70	21.70
10	QPSK	25	24	21.62	21.72	21.76
10	QPSK	50	0	21.42	21.45	21.60
10	16QAM	1	0	21.77	21.84	21.77
10	16QAM	1	24	21.66	21.91	21.87
10	16QAM	1	49	21.64	21.89	21.96
10	16QAM	25	0	20.73	20.74	20.72
10	16QAM	25	12	20.90	20.66	20.76
10	16QAM	25	24	20.66	20.58	20.76
10	16QAM	50	0	20.54	20.60	20.55
Channel				18625	18900	19175
Frequency (MHz)				1852.5	1880	1907.5
5	QPSK	1	0	22.72	22.80	22.82
5	QPSK	1	12	22.60	22.78	22.86
5	QPSK	1	24	22.68	22.80	22.86
5	QPSK	12	0	21.69	21.89	21.91
5	QPSK	12	6	21.57	21.82	21.84
5	QPSK	12	11	21.70	21.78	21.97
5	QPSK	25	0	21.46	21.67	21.77
5	16QAM	1	0	21.71	21.77	21.84
5	16QAM	1	12	21.57	21.86	21.94
5	16QAM	1	24	21.64	21.82	21.99
5	16QAM	12	0	20.78	20.96	20.92
5	16QAM	12	6	20.59	20.81	20.85
5	16QAM	12	11	20.73	20.93	20.97
5	16QAM	25	0	20.50	20.66	20.77



<LTE Band 25 Conducted Power>

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				26140	26365	26590
Frequency (MHz)				1860	1882.5	1905
20	QPSK	1	0	22.80	22.79	22.72
20	QPSK	1	49	22.84	22.69	22.83
20	QPSK	1	99	22.70	22.75	22.94
20	QPSK	50	0	21.51	21.68	21.70
20	QPSK	50	24	21.52	21.52	21.59
20	QPSK	50	49	21.46	21.62	21.62
20	QPSK	100	0	21.75	21.66	21.72
20	16QAM	1	0	21.83	21.88	21.84
20	16QAM	1	49	21.90	21.64	21.88
20	16QAM	1	99	21.79	21.76	21.98
20	16QAM	50	0	20.44	20.50	20.67
20	16QAM	50	24	20.60	20.46	20.64
20	16QAM	50	49	20.58	20.65	20.61
20	16QAM	100	0	20.82	20.65	20.71
Channel				26115	26365	26615
Frequency (MHz)				1857.5	1882.5	1907.5
15	QPSK	1	0	22.76	22.74	22.90
15	QPSK	1	37	22.91	22.60	22.84
15	QPSK	1	74	22.72	22.71	22.88
15	QPSK	36	0	21.55	21.56	21.79
15	QPSK	36	18	21.64	21.52	21.77
15	QPSK	36	37	21.52	21.78	21.86
15	QPSK	75	0	21.72	21.55	21.69
15	16QAM	1	0	21.79	21.85	22.02
15	16QAM	1	37	21.89	21.77	21.96
15	16QAM	1	74	21.74	21.75	21.98
15	16QAM	36	0	20.65	20.77	20.82
15	16QAM	36	18	20.65	20.56	20.78
15	16QAM	36	37	20.43	20.72	20.81
15	16QAM	75	0	20.67	20.64	20.76



BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				26090	26365	26640
Frequency (MHz)				1855	1882.5	1910
10	QPSK	1	0	22.70	22.81	22.90
10	QPSK	1	24	22.81	22.67	22.87
10	QPSK	1	49	22.63	22.81	22.91
10	QPSK	25	0	21.55	21.78	21.95
10	QPSK	25	12	21.62	21.54	21.86
10	QPSK	25	24	21.49	21.85	21.83
10	QPSK	50	0	21.69	21.57	21.81
10	16QAM	1	0	21.70	21.85	21.97
10	16QAM	1	24	21.90	21.64	21.92
10	16QAM	1	49	21.68	21.78	21.98
10	16QAM	25	0	20.62	20.76	20.93
10	16QAM	25	12	20.83	20.54	20.85
10	16QAM	25	24	20.59	20.80	20.91
10	16QAM	50	0	20.82	20.62	20.77
Channel				26065	26365	26665
Frequency (MHz)				1852.5	1882.5	1912.5
5	QPSK	1	0	22.70	22.77	22.93
5	QPSK	1	12	22.81	22.68	22.91
5	QPSK	1	24	22.69	22.88	22.92
5	QPSK	12	0	21.77	21.82	22.09
5	QPSK	12	6	21.67	21.79	22.05
5	QPSK	12	11	21.65	21.96	21.98
5	QPSK	25	0	21.78	21.89	22.03
5	16QAM	1	0	21.64	21.77	21.93
5	16QAM	1	12	21.73	21.78	21.98
5	16QAM	1	24	21.61	21.92	22.00
5	16QAM	12	0	20.80	20.89	21.15
5	16QAM	12	6	20.91	20.68	21.06
5	16QAM	12	11	20.81	21.01	21.05
5	16QAM	25	0	20.76	20.87	21.03



<LTE Band 4 Conducted Power>

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				20050	20175	20300
Frequency (MHz)				1720	1732.5	1745
20	QPSK	1	0	23.79	23.79	23.87
20	QPSK	1	49	23.84	23.75	23.77
20	QPSK	1	99	23.83	23.72	23.66
20	QPSK	50	0	22.47	22.59	22.52
20	QPSK	50	24	22.49	22.50	22.45
20	QPSK	50	49	22.51	22.38	22.51
20	QPSK	100	0	22.52	22.70	22.47
20	16QAM	1	0	22.83	22.90	22.84
20	16QAM	1	49	22.87	22.87	22.80
20	16QAM	1	99	22.84	22.82	22.71
20	16QAM	50	0	21.48	21.56	21.58
20	16QAM	50	24	21.45	21.41	21.56
20	16QAM	50	49	21.49	21.49	21.53
20	16QAM	100	0	21.51	21.57	21.48
Channel				20025	20175	20325
Frequency (MHz)				1717.5	1732.5	1747.5
15	QPSK	1	0	23.79	23.80	23.82
15	QPSK	1	37	23.86	23.77	23.86
15	QPSK	1	74	23.60	23.74	23.58
15	QPSK	36	0	22.53	22.67	22.51
15	QPSK	36	18	22.57	22.60	22.67
15	QPSK	36	37	22.49	22.53	22.50
15	QPSK	75	0	22.48	22.70	22.51
15	16QAM	1	0	22.76	22.85	22.80
15	16QAM	1	37	22.81	22.85	22.74
15	16QAM	1	74	22.62	22.82	22.64
15	16QAM	36	0	21.54	21.70	21.58
15	16QAM	36	18	21.50	21.61	21.65
15	16QAM	36	37	21.49	21.59	21.62
15	16QAM	75	0	21.44	21.57	21.52



BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				20000	20175	20350
Frequency (MHz)				1715	1732.5	1750
10	QPSK	1	0	23.80	23.85	23.78
10	QPSK	1	24	23.75	23.81	23.80
10	QPSK	1	49	23.84	23.74	23.67
10	QPSK	25	0	22.68	22.90	22.66
10	QPSK	25	12	22.64	22.69	22.70
10	QPSK	25	24	22.58	22.69	22.73
10	QPSK	50	0	22.43	22.68	22.40
10	16QAM	1	0	22.84	23.00	22.77
10	16QAM	1	24	22.82	22.78	22.78
10	16QAM	1	49	22.76	22.81	22.67
10	16QAM	25	0	21.67	21.77	21.75
10	16QAM	25	12	21.67	21.68	21.69
10	16QAM	25	24	21.63	21.58	21.73
10	16QAM	50	0	21.46	21.66	21.52
Channel				19975	20175	20375
Frequency (MHz)				1712.5	1732.5	1752.5
5	QPSK	1	0	23.76	23.83	23.70
5	QPSK	1	12	23.72	23.81	23.80
5	QPSK	1	24	23.75	23.82	23.65
5	QPSK	12	0	22.82	22.94	22.79
5	QPSK	12	6	22.80	22.86	22.84
5	QPSK	12	11	22.68	22.85	22.69
5	QPSK	25	0	22.57	22.78	22.60
5	16QAM	1	0	22.82	22.83	22.80
5	16QAM	1	12	22.83	22.86	22.72
5	16QAM	1	24	22.75	22.88	22.68
5	16QAM	12	0	21.70	21.99	21.75
5	16QAM	12	6	21.69	21.83	21.90
5	16QAM	12	11	21.68	21.76	21.79
5	16QAM	25	0	21.54	21.77	21.72



<LTE Band 13 Conducted Power>

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel					23230	
Frequency (MHz)					782	
10	QPSK	1	0		23.40	
10	QPSK	1	24		23.74	
10	QPSK	1	49		23.62	
10	QPSK	25	0		22.47	
10	QPSK	25	12		22.64	
10	QPSK	25	24		22.51	
10	QPSK	50	0		22.43	
10	16QAM	1	0		22.40	
10	16QAM	1	24		22.75	
10	16QAM	1	49		22.54	
10	16QAM	25	0		21.36	
10	16QAM	25	12		21.60	
10	16QAM	25	24		21.51	
10	16QAM	50	0		21.39	
Channel				23205	23230	23255
Frequency (MHz)				779.5	782	784.5
5	QPSK	1	0	23.45	23.33	23.63
5	QPSK	1	12	23.40	23.69	23.51
5	QPSK	1	24	23.61	23.54	23.38
5	QPSK	12	0	22.43	22.59	22.54
5	QPSK	12	6	22.45	22.69	22.58
5	QPSK	12	11	22.47	22.63	22.46
5	QPSK	25	0	22.38	22.54	22.42
5	16QAM	1	0	22.37	22.34	22.65
5	16QAM	1	12	22.43	22.75	22.52
5	16QAM	1	24	22.64	22.53	22.40
5	16QAM	12	0	21.42	21.65	21.53
5	16QAM	12	6	21.47	21.67	21.55
5	16QAM	12	11	21.60	21.66	21.53
5	16QAM	25	0	21.36	21.57	21.47



<LTE Band 17 Conducted Power>

BW [MHz]	Modulation	RB Size	RB Offset	Power (dBm) Low Ch. / Freq.	Power (dBm) Middle Ch. / Freq.	Power (dBm) High Ch. / Freq.
Channel				23780	23790	23800
Frequency (MHz)				709	710	711
10	QPSK	1	0	23.50	23.57	23.50
10	QPSK	1	24	23.76	23.87	23.66
10	QPSK	1	49	23.40	23.58	23.38
10	QPSK	25	0	22.60	22.84	22.76
10	QPSK	25	12	22.52	22.74	22.70
10	QPSK	25	24	22.52	22.64	22.49
10	QPSK	50	0	22.37	22.61	22.60
10	16QAM	1	0	22.46	22.60	22.70
10	16QAM	1	24	22.73	22.92	22.74
10	16QAM	1	49	22.38	22.56	22.45
10	16QAM	25	0	21.43	21.77	21.65
10	16QAM	25	12	21.51	21.69	21.57
10	16QAM	25	24	21.43	21.60	21.43
10	16QAM	50	0	21.34	21.58	21.55
Channel				23755	23790	23825
Frequency (MHz)				706.5	710	713.5
5	QPSK	1	0	23.45	23.72	23.68
5	QPSK	1	12	23.59	23.74	23.58
5	QPSK	1	24	23.71	23.69	23.55
5	QPSK	12	0	22.50	22.99	22.70
5	QPSK	12	6	22.64	22.90	22.62
5	QPSK	12	11	22.74	22.75	22.57
5	QPSK	25	0	22.46	22.77	22.54
5	16QAM	1	0	22.37	22.77	22.63
5	16QAM	1	12	22.55	22.78	22.54
5	16QAM	1	24	22.71	22.65	22.53
5	16QAM	12	0	21.50	21.91	21.54
5	16QAM	12	6	21.59	21.87	21.58
5	16QAM	12	11	21.69	21.73	21.50
5	16QAM	25	0	21.40	21.74	21.46

Note: maximum average power for LTE.

3.1.6 Test Result of Conducted Output Power and ERP/EIRP

Cellular Band ($G_T - L_C = -1.16$ dB)						
Modes	LTE Band 5 (QPSK, BW=5M)			LTE Band 5 (16QAM, BW=5M)		
Channel	20425 (Low)	20525 (Mid)	20625 (High)	20425 (Low)	20525 (Mid)	20625 (High)
Frequency (MHz)	826.5	836.5	846.5	826.5	836.5	846.5
Conducted Power (dBm)	22.61	22.44	22.64	21.61	21.49	21.64
Conducted Power (Watts)	0.18	0.18	0.18	0.14	0.14	0.15
ERP(dBm)	19.30	19.13	19.33	18.30	18.18	18.33
ERP(Watts)	0.09	0.08	0.09	0.07	0.07	0.07

Cellular Band ($G_T - L_C = -1.16$ dB)						
Modes	LTE Band 5 (QPSK, BW=10M)			LTE Band 5 (16QAM, BW=10M)		
Channel	20450 (Low)	20525 (Mid)	20600 (High)	20450 (Low)	20525 (Mid)	20600 (High)
Frequency (MHz)	829	836.5	844	829	836.5	844
Conducted Power (dBm)	22.67	22.54	22.64	21.51	21.57	21.7
Conducted Power (Watts)	0.18	0.18	0.18	0.14	0.14	0.15
ERP(dBm)	19.36	19.23	19.33	18.20	18.26	18.39
ERP(Watts)	0.09	0.08	0.09	0.07	0.07	0.07



PCS Band ($G_T - L_C = 0.25$ dB)						
Modes	LTE Band 2 (QPSK,BW=5M)			LTE Band 2 (16QAM,BW=5M)		
Channel	18625(Low)	18900 (Mid)	19175 (High)	18625(Low)	18900 (Mid)	19175 (High)
Frequency (MHz)	1852.5	1880	1907.5	1852.5	1880	1907.5
Conducted Power (dBm)	22.72	22.80	22.86	21.71	21.86	21.99
Conducted Power (Watts)	0.19	0.19	0.19	0.15	0.15	0.16
EIRP(dBm)	22.97	23.05	23.11	21.96	22.11	22.24
EIRP(Watts)	0.20	0.20	0.20	0.16	0.16	0.17

PCS Band ($G_T - L_C = 0.25$ dB)						
Modes	LTE Band 2 (QPSK,BW=10M)			LTE Band 2 (16QAM,BW=10M)		
Channel	18650(Low)	18900 (Mid)	19150 (High)	18650(Low)	18900 (Mid)	19150 (High)
Frequency (MHz)	1855	1880	1905	1855	1880	1905
Conducted Power (dBm)	22.80	22.79	22.84	21.77	21.91	21.96
Conducted Power (Watts)	0.19	0.19	0.19	0.15	0.16	0.16
EIRP(dBm)	23.05	23.04	23.09	22.02	22.16	22.21
EIRP(Watts)	0.20	0.20	0.20	0.16	0.16	0.17



PCS Band ($G_T - L_C = 0.25$ dB)						
Modes	LTE Band 2 (QPSK,BW=15M)			LTE Band 2 (16QAM,BW=15M)		
Channel	18675(Low)	18900 (Mid)	19125 (High)	18675(Low)	18900 (Mid)	19125 (High)
Frequency (MHz)	1857.5	1880	1902.5	1857.5	1880	1902.5
Conducted Power (dBm)	22.83	22.76	22.86	21.80	21.88	21.93
Conducted Power (Watts)	0.19	0.19	0.19	0.15	0.15	0.16
EIRP(dBm)	23.08	23.01	23.11	22.05	22.13	22.18
EIRP(Watts)	0.20	0.20	0.20	0.16	0.16	0.17

PCS Band ($G_T - L_C = 0.25$ dB)						
Modes	LTE Band 2 (QPSK,BW=20M)			LTE Band 2 (16QAM,BW=20M)		
Channel	18700(Low)	18900 (Mid)	19100 (High)	18700(Low)	18900 (Mid)	19100 (High)
Frequency (MHz)	1860	1880	1900	1860	1880	1900
Conducted Power (dBm)	22.81	22.80	22.88	21.80	21.94	21.90
Conducted Power (Watts)	0.19	0.19	0.19	0.15	0.16	0.15
EIRP(dBm)	23.06	23.05	23.13	22.05	22.19	22.15
EIRP(Watts)	0.20	0.20	0.21	0.16	0.17	0.16

PCS Band ($G_T - L_C = 0.25$ dB)						
Modes	LTE Band 25 (QPSK, BW=5M)			LTE Band 25 (16QAM, BW=5M)		
Channel	26065 (Low)	26365 (Mid)	26665 (High)	26065 (Low)	26365 (Mid)	26665 (High)
Frequency (MHz)	1852.5	1882.5	1912.5	1852.5	1882.5	1912.5
Conducted Power (dBm)	22.81	22.88	22.93	21.73	21.92	22.00
Conducted Power (Watts)	0.19	0.19	0.20	0.15	0.16	0.16
EIRP(dBm)	23.06	23.13	23.18	21.98	22.17	22.25
EIRP(Watts)	0.20	0.21	0.21	0.16	0.16	0.17

PCS Band ($G_T - L_C = 0.25$ dB)						
Modes	LTE Band 25 (QPSK, BW=10M)			LTE Band 25 (16QAM, BW=10M)		
Channel	26090 (Low)	26365 (Mid)	26640 (High)	26090 (Low)	26365 (Mid)	26640 (High)
Frequency (MHz)	1855	1882.5	1910	1855	1882.5	1910
Conducted Power (dBm)	22.81	22.81	22.91	21.90	21.85	21.98
Conducted Power (Watts)	0.19	0.19	0.20	0.15	0.15	0.16
EIRP(dBm)	23.06	23.06	23.16	22.15	22.10	22.23
EIRP(Watts)	0.20	0.20	0.21	0.16	0.16	0.17

PCS Band ($G_T - L_C = 0.25$ dB)						
Modes	LTE Band 25 (QPSK,BW=15M)			LTE Band 25 (16QAM,BW=15M)		
Channel	26115 (Low)	26365 (Mid)	26615 (High)	26115 (Low)	26365 (Mid)	26615 (High)
Frequency (MHz)	1857.5	1882.5	1907.5	1857.5	1882.5	1907.5
Conducted Power (dBm)	22.91	22.74	22.90	21.89	21.85	22.02
Conducted Power (Watts)	0.20	0.19	0.19	0.15	0.15	0.16
EIRP(dBm)	23.16	22.99	23.15	22.14	22.10	22.27
EIRP(Watts)	0.21	0.20	0.21	0.16	0.16	0.17

PCS Band ($G_T - L_C = 0.25$ dB)						
Modes	LTE Band 25 (QPSK,BW=20M)			LTE Band 25 (16QAM,BW=20M)		
Channel	26140 (Low)	26365 (Mid)	26590 (High)	26140 (Low)	26365 (Mid)	26590 (High)
Frequency (MHz)	1860	1882.5	1905	1860	1882.5	1905
Conducted Power (dBm)	22.84	22.79	22.94	21.90	21.88	21.98
Conducted Power (Watts)	0.19	0.19	0.20	0.15	0.15	0.16
EIRP(dBm)	23.09	23.04	23.19	22.15	22.13	22.23
EIRP(Watts)	0.20	0.20	0.21	0.16	0.16	0.17

PCS Band ($G_T - L_C = 0.97$ dB)						
Modes	LTE Band 4 (QPSK,BW=5M)			LTE Band 4 (16QAM,BW=5M)		
Channel	19975(Low)	20175 (Mid)	20375 (High)	19975(Low)	20175 (Mid)	20375 (High)
Frequency (MHz)	1712.5	1732.5	1752.5	1712.5	1732.5	1752.5
Conducted Power (dBm)	23.76	23.83	23.80	22.83	22.88	22.80
Conducted Power (Watts)	0.24	0.24	0.24	0.19	0.19	0.19
EIRP(dBm)	24.73	24.80	24.77	23.80	23.85	23.77
EIRP(Watts)	0.30	0.30	0.30	0.24	0.24	0.24

PCS Band ($G_T - L_C = 0.97$ dB)						
Modes	LTE Band 4 (QPSK,BW=10M)			LTE Band 4 (16QAM,BW=10M)		
Channel	20000 (Low)	20175 (Mid)	20350 (High)	20000 (Low)	20175 (Mid)	20350 (High)
Frequency (MHz)	1715	1732.5	1750	1715	1732.5	1750
Conducted Power (dBm)	23.84	23.85	23.80	22.84	23.00	22.78
Conducted Power (Watts)	0.24	0.24	0.24	0.19	0.20	0.19
EIRP(dBm)	24.81	24.82	24.77	23.81	23.97	23.75
EIRP(Watts)	0.30	0.30	0.30	0.24	0.25	0.24

PCS Band ($G_T - L_C = 0.97$ dB)						
Modes	LTE Band 4 (QPSK,BW=15M)			LTE Band 4 (16QAM,BW=15M)		
Channel	20025 (Low)	20175 (Mid)	20325 (High)	20025 (Low)	20175 (Mid)	20325 (High)
Frequency (MHz)	1717.5	1732.5	1747.5	1717.5	1732.5	1747.5
Conducted Power (dBm)	23.86	23.80	23.86	22.81	22.85	22.80
Conducted Power (Watts)	0.24	0.24	0.24	0.19	0.19	0.19
EIRP(dBm)	24.83	24.77	24.83	23.78	23.82	23.77
EIRP(Watts)	0.30	0.30	0.30	0.24	0.24	0.24

PCS Band ($G_T - L_C = 0.97$ dB)						
Modes	LTE Band 4 (QPSK,BW=20M)			LTE Band 4 (16QAM,BW=20M)		
Channel	20050 (Low)	20175 (Mid)	20300 (High)	20050 (Low)	20175 (Mid)	20300 (High)
Frequency (MHz)	1720	1732.5	1745	1720	1732.5	1745
Conducted Power (dBm)	23.84	23.79	23.87	22.87	22.90	22.84
Conducted Power (Watts)	0.24	0.24	0.24	0.19	0.19	0.19
EIRP(dBm)	24.81	24.76	24.84	23.84	23.87	23.81
EIRP(Watts)	0.30	0.30	0.30	0.24	0.24	0.24

Cellular Band ($G_T - L_C = 1.03$ dB)						
Modes	LTE Band 13 (QPSK,BW=5M)			LTE Band 13 (16QAM,BW=5M)		
Channel	23205 (Low)	23230 (Mid)	23255 (High)	23205 (Low)	23230 (Mid)	23255 (High)
Frequency (MHz)	779.5	782	784.5	779.5	782	784.5
Conducted Power (dBm)	23.61	23.69	22.63	22.64	22.75	22.65
Conducted Power (Watts)	0.23	0.23	0.18	0.18	0.19	0.18
ERP(dBm)	22.49	22.57	21.51	21.52	21.63	21.53
ERP(Watts)	0.18	0.18	0.14	0.14	0.15	0.14

Cellular Band ($G_T - L_C = 1.03$ dB)		
Modes	LTE Band 13 (QPSK,BW=10M)	LTE Band 13 (16QAM,BW=10M)
Channel	23230 (Mid)	23230 (Mid)
Frequency (MHz)	782	782
Conducted Power (dBm)	23.74	22.75
Conducted Power (Watts)	0.24	0.19
ERP(dBm)	22.62	21.63
ERP(Watts)	0.18	0.15

Cellular Band ($G_T - L_C = 0.20$ dB)						
Modes	LTE Band 17 (QPSK,BW=5M)			LTE Band 17 (16QAM,BW=5M)		
Channel	23755(Low)	23790 (Mid)	23825 (High)	23755(Low)	23790 (Mid)	23825 (High)
Frequency (MHz)	706.5	710	713.5	706.5	710	713.5
Conducted Power (dBm)	23.71	23.74	23.68	22.71	22.78	22.63
Conducted Power (Watts)	0.23	0.24	0.23	0.19	0.19	0.18
ERP(dBm)	21.76	21.79	21.73	20.76	20.83	20.68
ERP(Watts)	0.15	0.15	0.15	0.12	0.12	0.12

Cellular Band ($G_T - L_C = 0.20$ dB)						
Modes	LTE Band 17 (QPSK,BW=10M)			LTE Band 17 (16QAM,BW=10M)		
Channel	23780(Low)	23790 (Mid)	23800 (High)	23780(Low)	23790 (Mid)	23800 (High)
Frequency (MHz)	709	710	711	709	710	711
Conducted Power (dBm)	23.76	23.87	23.66	22.73	22.92	22.74
Conducted Power (Watts)	0.24	0.24	0.23	0.19	0.20	0.19
ERP(dBm)	21.81	21.92	21.71	20.78	20.97	20.79
ERP(Watts)	0.15	0.16	0.15	0.12	0.13	0.12



3.2 Radiated Spurious Emission Measurement

3.2.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P)$ dB.

For LTE Band 13,17

For operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

1. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)

$$= P(W) - [43 + 10\log(P)] \text{ (dB)}$$

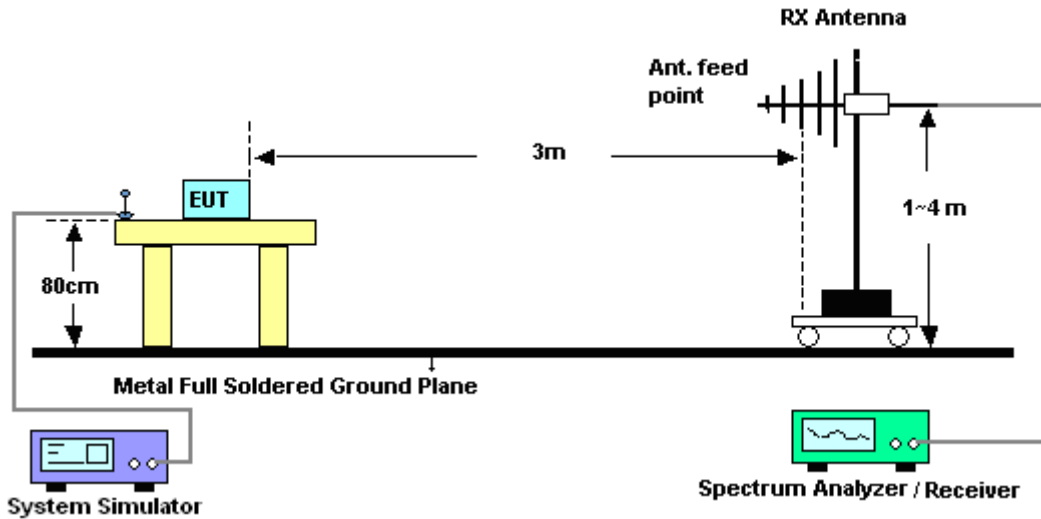
$$= [30 + 10\log(P)] \text{ (dBm)} - [43 + 10\log(P)] \text{ (dB)}$$

$$= -13\text{dBm.}$$

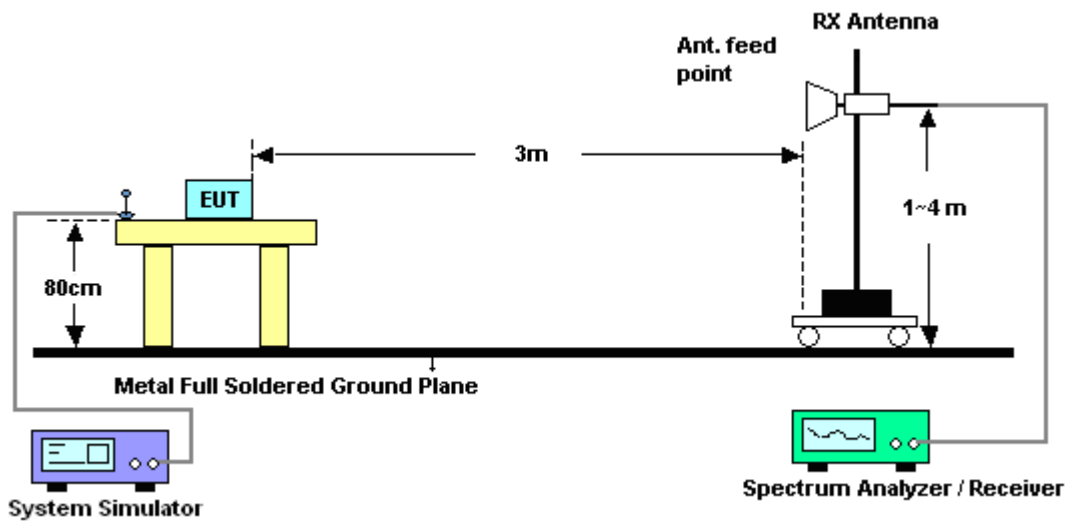
11. $\text{EIRP (dBm)} = \text{S.G. Power} - \text{Tx Cable Loss} + \text{Tx Antenna Gain}$
12. $\text{ERP (dBm)} = \text{EIRP} - 2.15$

3.2.4 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz





3.2.5 Test Result of Field Strength of Spurious Radiated

<Low Channel>

Band :	LTE Band 5					Temperature :	21~24°C		
Test Mode :	10MHz QPSK RB Size 1 Offset 0					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1648	-34.37	-13	-21.37	-41.5	-36.17	1.63	5.58	H	Pass
2473	-39.60	-13	-26.60	-50.63	-41.55	2.21	6.31	H	Pass
3298	-35.33	-13	-22.33	-47.37	-38.21	3.1	8.13	H	Pass
4120	-39.50	-13	-26.50	-53.85	-44.05	2.65	9.35	H	Pass
4945	-45.57	-13	-32.57	-60.97	-51.14	3.17	10.89	H	Pass
5770	-40.44	-13	-27.44	-59.62	-45.71	3.03	10.45	H	Pass

Band :	LTE Band 5					Temperature :	21~24°C		
Test Mode :	10MHz QPSK RB Size 1 Offset 0					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1648	-35.38	-13	-22.38	-44.45	-37.18	1.63	5.58	V	Pass
2473	-39.22	-13	-26.22	-50.88	-41.17	2.21	6.31	V	Pass
3298	-34.88	-13	-21.88	-48.52	-37.76	3.1	8.13	V	Pass
4120	-39.50	-13	-26.50	-54.53	-44.05	2.65	9.35	V	Pass
4945	-46.22	-13	-33.22	-62.02	-51.79	3.17	10.89	V	Pass
5770	-41.61	-13	-28.61	-60.64	-46.88	3.03	10.45	V	Pass



Band :	LTE Band 2					Temperature :	21~24℃		
Test Mode :	20MHz QPSK RB Size 1 Offset 49					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3720	-23.51	-13	-10.51	-38.8	-29.89	2.51	8.89	H	Pass
5580	-26.52	-13	-13.52	-46.97	-34.38	3.03	10.89	H	Pass
7440	-28.71	-13	-15.71	-56.27	-37.85	3.24	12.38	H	Pass

Band :	LTE Band 2					Temperature :	21~24°C		
Test Mode :	20MHz QPSK RB Size 1 Offset 49					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3720	-26.91	-13	-13.91	-43.23	-33.29	2.51	8.89	V	Pass
5580	-23.26	-13	-10.26	-44.01	-31.12	3.03	10.89	V	Pass
7440	-32.57	-13	-19.57	-59.79	-41.71	3.24	12.38	V	Pass



Band :	LTE Band 25					Temperature :	21~24℃		
Test Mode :	20MHz QPSK RB Size 1 Offset 49					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3700	-25.40	-13	-12.40	-40.72	-31.78	2.51	8.89	H	Pass
5556	-26.67	-13	-13.67	-47.35	-34.53	3.03	10.89	H	Pass
7404	-29.53	-13	-16.53	-56.88	-38.67	3.24	12.38	H	Pass

Band :	LTE Band 25					Temperature :	21~24°C		
Test Mode :	20MHz QPSK RB Size 1 Offset 49					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3700	-28.29	-13	-15.29	-44.66	-34.67	2.51	8.89	V	Pass
5556	-26.50	-13	-13.50	-47.02	-34.36	3.03	10.89	V	Pass
7404	-36.33	-13	-23.33	-63.58	-45.47	3.24	12.38	V	Pass



Band :	LTE Band 4	Temperature :	21~24°C						
Test Mode :	20MHz QPSK RB Size 1 Offset 49	Relative Humidity :	51~53%						
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3420	-37.32	-13	-24.32	-51.73	-41.1	4.62	8.40	H	Pass
5130	-44.47	-13	-31.47	-62.94	-49.1	5.45	10.08	H	Pass
6840	-42.86	-13	-29.86	-68.82	-48.1	6.18	11.42	H	Pass

Band :	LTE Band 4	Temperature :	21~24°C						
Test Mode :	20MHz QPSK RB Size 1 Offset 49	Relative Humidity :	51~53%						
Test Engineer :	Kyle Jhuang	Polarization :	Vertical						
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
			Limit	Reading	Power	loss	Gain		
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dBi)	(H/V)	
3420	-35.42	-13	-22.42	-51.09	-39.2	4.62	8.40	V	Pass
5130	-45.17	-13	-32.17	-63.81	-49.8	5.45	10.08	V	Pass
6840	-43.36	-13	-30.36	-68.99	-48.6	6.18	11.42	V	Pass



Band :	LTE Band 17					Temperature :	21~24°C		
Test Mode :	10MHz QPSK RB Size 1 Offset 24					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1417	-41.94	-13	-28.94	-45.01	-43.88	1.52	5.61	H	Pass
2125	-37.39	-13	-24.39	-46.63	-39.43	1.83	6.02	H	Pass
2836	-46.91	-13	-33.91	-58.24	-49.53	2.24	7.01	H	Pass
3547	-35.32	-13	-22.32	-47.64	-38.88	2.5	8.21	H	Pass
4250	-52.96	-13	-39.96	-67.03	-57.61	2.53	9.33	H	Pass
4960	-50.70	-13	-37.70	-66.28	-56.03	2.64	10.12	H	Pass
5670	-43.31	-13	-30.31	-62.18	-48.79	2.96	10.59	H	Pass

Band :	LTE Band 17					Temperature :	21~24℃		
Test Mode :	10MHz QPSK RB Size 1 Offset 24					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1417	-42.94	-13	-29.94	-51.25	-44.89	1.51	5.61	V	Pass
2128	-40.72	-13	-27.72	-52.25	-42.77	1.82	6.02	V	Pass
2836	-46.36	-13	-33.36	-59.26	-49.02	2.2	7.01	V	Pass
3547	-36.91	-13	-23.91	-50.77	-40.55	2.42	8.21	V	Pass
4260	-53.11	-13	-40.11	-52.04	-57.74	2.55	9.33	V	Pass
4960	-49.82	-13	-36.82	-48.75	-55.06	2.73	10.12	V	Pass
5670	-44.00	-13	-31.00	-42.86	-49.53	2.91	10.59	V	Pass



<Middle Channel>

Band :	LTE Band 5					Temperature :	21~24°C		
Test Mode :	10MHz QPSK RB Size 1 Offset 0					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1664	-32.38	-13	-19.38	-39.23	-34.1	1.62	5.49	H	Pass
2496	-41.53	-13	-28.53	-52.92	-43.5	2.1	6.22	H	Pass
3328	-36.81	-13	-23.81	-48.79	-39.7	3.03	8.07	H	Pass
4160	-38.26	-13	-25.26	-52.52	-42.8	2.52	9.21	H	Pass
4992	-45.65	-13	-32.65	-61.38	-51.1	3.1	10.70	H	Pass
5824	-38.66	-13	-25.66	-58.18	-43.9	2.92	10.31	H	Pass
6656	-41.48	-13	-28.48	-64.75	-47.1	3.38	11.15	H	Pass

Band :	LTE Band 5					Temperature :	21~24°C		
Test Mode :	10MHz QPSK RB Size 1 Offset 0					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1664	-36.38	-13	-23.38	-45.33	-38.1	1.62	5.49	V	Pass
2496	-39.53	-13	-26.53	-51.17	-41.5	2.1	6.22	V	Pass
3328	-32.31	-13	-19.31	-45.85	-35.2	3.03	8.07	V	Pass
4160	-41.36	-13	-28.36	-56.46	-45.9	2.52	9.21	V	Pass
4992	-47.55	-13	-34.55	-63.54	-53	3.1	10.70	V	Pass
5824	-39.56	-13	-26.56	-58.84	-44.8	2.92	10.31	V	Pass
6656	-43.18	-13	-30.18	-65.79	-48.8	3.38	11.15	V	Pass



Band :	LTE Band 2					Temperature :	21~24℃		
Test Mode :	20MHz QPSK RB Size 1 Offset 0					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency (MHz)	EIRP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)	Result
3742	-24.29	-13	-11.29	-39.58	-30.59	2.51	8.81	H	Pass
5611	-23.51	-13	-10.51	-44.09	-31.22	2.99	10.70	H	Pass
7487	-33.70	-13	-20.70	-60.85	-42.23	3.59	12.12	H	Pass

Band :	LTE Band 2					Temperature :	21~24℃		
Test Mode :	20MHz QPSK RB Size 1 Offset 0					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3742	-26.28	-13	-13.28	-43	-32.58	2.51	8.81	V	Pass
5611	-26.62	-13	-13.62	-46.79	-34.33	2.99	10.70	V	Pass
7487	-34.31	-13	-21.31	-62.08	-42.84	3.59	12.12	V	Pass



Band :	LTE Band 25					Temperature :	21~24℃		
Test Mode :	20MHz QPSK RB Size 1 Offset 0					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3745	-32.50	-13	-19.50	-48.14	-38.8	2.51	8.81	H	Pass
5618	-34.19	-13	-21.19	-54.95	-41.9	2.99	10.70	H	Pass
7490	-39.57	-13	-26.57	-67.46	-48.1	3.59	12.12	H	Pass

Band :	LTE Band 25					Temperature :	21~24°C		
Test Mode :	20MHz QPSK RB Size 1 Offset 0					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	loss (dB)	Gain (dBi)	(H/V)	
3745	-34.60	-13	-21.60	-51.15	-40.9	2.51	8.81	V	Pass
5618	-33.99	-13	-20.99	-54.6	-41.7	2.99	10.70	V	Pass
7490	-42.37	-13	-29.37	-69.83	-50.9	3.59	12.12	V	Pass



Band :	LTE Band 4					Temperature :	21~24°C		
Test Mode :	20MHz QPSK RB Size 1 Offset 0					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3445	-41.77	-13	-28.77	-56.29	-45.6	4.48	8.31	H	Pass
5168	-48.56	-13	-35.56	-67.51	-53.2	5.332	9.98	H	Pass
6890	-41.96	-13	-28.96	-68.11	-47.2	6.1	11.34	H	Pass

Band :	LTE Band 4				Temperature :	21~24°C			
Test Mode :	20MHz QPSK RB Size 1 Offset 0				Relative Humidity :	51~53%			
Test Engineer :	Kyle Jhuang				Polarization :	Vertical			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3445	-38.77	-13	-25.77	-54.35	-42.6	4.48	8.31	V	Pass
5168	-49.16	-13	-36.16	-68.38	-53.8	5.332	9.98	V	Pass
6890	-42.36	-13	-29.36	-67.92	-47.6	6.1	11.34	V	Pass



Band :	LTE Band 13					Temperature :	21~24°C		
Test Mode :	10MHz QPSK RB Size 1 Offset 24					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1554	-45.21	-13	-32.21	-48.94	-47.04	1.51	5.49	H	Pass
2334	-45.32	-13	-32.32	-53.26	-47.24	1.98	6.05	H	Pass
3112	-57.91	-13	-44.91	-67.1	-60.93	2.39	7.56	H	Pass

Band :	LTE Band 13					Temperature :	21~24°C		
Test Mode :	10MHz QPSK RB Size 1 Offset 24					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1554	-49.33	-13	-36.33	-55.25	-51.16	1.51	5.49	V	Pass
2334	-45.84	-13	-32.84	-54.78	-47.76	1.98	6.05	V	Pass
3112	-55.99	-13	-42.99	-67.18	-59.01	2.39	7.56	V	Pass



Band :	LTE Band 17					Temperature :	21~24℃		
Test Mode :	10MHz QPSK RB Size 1 Offset 24					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1420	-31.17	-13	-18.17	-37.61	-33.1	1.53	5.61	H	Pass
2130	-32.18	-13	-19.18	-41.39	-34.2	1.85	6.02	H	Pass
2840	-41.29	-13	-28.29	54.74	-43.9	2.24	7.00	H	Pass
3550	-31.95	-13	-18.95	-45.13	-35.6	2.46	8.26	H	Pass
4260	-46.21	-13	-33.21	-60.43	-50.8	2.59	9.33	H	Pass
4970	-45.36	-13	-32.36	-61.6	-50.6	2.75	10.14	H	Pass
5680	-37.26	-13	-24.26	-56.62	-42.8	2.95	10.64	H	Pass

Band :	LTE Band 17					Temperature :	21~24℃		
Test Mode :	10MHz QPSK RB Size 1 Offset 24					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1420	-38.27	-13	-25.27	-46.53	-40.2	1.53	5.61	V	Pass
2130	-34.18	-13	-21.18	-45.58	-36.2	1.85	6.02	V	Pass
2840	-42.29	-13	-29.29	-55.34	-44.9	2.24	7.00	V	Pass
3550	-34.95	-13	-21.95	-49.04	-38.6	2.46	8.26	V	Pass
4260	-47.81	-13	-34.81	-63.23	-52.4	2.59	9.33	V	Pass
4970	-48.66	-13	-35.66	-65.31	-53.9	2.75	10.14	V	Pass
5680	-41.06	-13	-28.06	-60.23	-46.6	2.95	10.64	V	Pass



<High Channel>

Band :	LTE Band 5					Temperature :	21~24℃		
Test Mode :	10MHz QPSK RB Size 1 Offset 0					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1680	-30.85	-13	-17.85	-37.83	-32.6	1.52	5.42	H	Pass
2520	-44.69	-13	-31.69	-56.11	-46.8	1.99	6.25	H	Pass
3360	-34.65	-13	-21.65	-46.86	-38.5	2.14	8.14	H	Pass
4200	-37.42	-13	-24.42	-51.61	-41.8	2.63	9.16	H	Pass
5040	-45.72	-13	-32.72	-61.81	-51.2	2.67	10.30	H	Pass
5880	-36.90	-13	-23.90	-56.62	-42.4	2.96	10.61	H	Pass
6720	-40.24	-13	-27.24	-63.39	-45.8	3.31	11.02	H	Pass

Band :	LTE Band 5					Temperature :	21~24℃		
Test Mode :	10MHz QPSK RB Size 1 Offset 0					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1680	-31.45	-13	-18.45	-40.92	-33.2	1.52	5.42	V	1680
2520	-38.39	-13	-25.39	-50.4	-40.5	1.99	6.25	V	2520
3360	-32.05	-13	-19.05	-45.67	-35.9	2.14	8.14	V	3360
4200	-39.52	-13	-26.52	-54.93	-43.9	2.63	9.16	V	4200
5040	-45.42	-13	-32.42	-61.75	-50.9	2.67	10.30	V	5040
5880	-38.30	-13	-25.30	-57.76	-43.8	2.96	10.61	V	5880
6720	-42.64	-13	-29.64	-65.25	-48.2	3.31	11.02	V	6720



Band :	LTE Band 2	Temperature :	21~24°C						
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	51~53%						
Test Engineer :	Kyle Jhuang	Polarization :	Horizontal						
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3784	-24.01	-13	-11.01	-39.64	-30.39	2.52	8.90	H	Pass
5674	-23.54	-13	-10.54	-44.8	-31.29	3.01	10.76	H	Pass
7564	-34.36	-13	-21.36	-61.32	-42.89	3.62	12.15	H	Pass

Band :	LTE Band 2	Temperature :	21~24°C						
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	51~53%						
Test Engineer :	Kyle Jhuang	Polarization :	Vertical						
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dB)	(dBi)		
3784	-26.47	-13	-13.47	-42.78	-32.85	2.52	8.90	V	Pass
5674	-25.46	-13	-12.46	-46.69	-33.21	3.01	10.76	V	Pass
7564	-37.86	-13	-24.86	-63.94	-46.39	3.62	12.15	V	Pass



Band :	LTE Band 25				Temperature :	21~24℃			
Test Mode :	20MHz QPSK RB Size 1 Offset 99				Relative Humidity :	51~53%			
Test Engineer :	Kyle Jhuang				Polarization :	Horizontal			
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3826	-34.83	-13	-21.83	-49.88	-41.21	2.52	8.90	H	Pass
5744	-33.64	-13	-20.64	-54.97	-41.39	3.01	10.76	H	Pass
7655	-42.75	-13	-29.75	-68.71	-51.28	3.62	12.15	H	Pass

Band :	LTE Band 25	Temperature :	21~24°C						
Test Mode :	20MHz QPSK RB Size 1 Offset 99	Relative Humidity :	51~53%						
Test Engineer :	Kyle Jhuang	Polarization :	Vertical						
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over Limit	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	(dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3826	-36.51	-13	-23.51	-52.79	-42.89	2.52	8.90	V	Pass
5744	-26.16	-13	-13.16	-48.55	-33.91	3.01	10.76	V	Pass
7655	-42.46	-13	-29.46	-68.66	-50.99	3.62	12.15	V	Pass



Band :	LTE Band 4					Temperature :	21~24°C		
Test Mode :	20MHz QPSK RB Size 1 Offset 0					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
3472	-39.44	-13	-26.44	-53.5	-43.53	4.28	8.37	H	Pass
5208	-46.83	-13	-33.83	-64.98	-51.64	5.22	10.03	H	Pass
6944	-45.10	-13	-32.10	-71.29	-50.23	6.23	11.36	H	Pass

Band :	LTE Band 4	Temperature :	21~24°C						
Test Mode :	20MHz QPSK RB Size 1 Offset 0	Relative Humidity :	51~53%						
Test Engineer :	Kyle Jhuang	Polarization :	Vertical						
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	EIRP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit	Reading	Power	loss	Gain	(H/V)	
(dB)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	(dB)	(dBi)		
3472	-37.49	-13	-24.49	-53.41	-41.58	4.28	8.37	V	Pass
5208	-48.35	-13	-35.35	-66.91	-53.16	5.22	10.03	V	Pass
6944	-46.15	-13	-33.15	-71.03	-51.28	6.23	11.36	V	Pass



Band :	LTE Band 17					Temperature :	21~24°C		
Test Mode :	10MHz QPSK RB Size 1 Offset 24					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Horizontal		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1422	-31.55	-13	-18.55	-37.98	-33.5	1.53	5.63	H	Pass
2133	-31.15	-13	-18.15	-40.47	-33.2	1.88	6.08	H	Pass
2844	-42.51	-13	-29.51	-54.23	-45.2	2.27	7.11	H	Pass
3555	-32.19	-13	-19.19	-44.96	-35.9	2.45	8.31	H	Pass
4266	-43.58	-13	-30.58	-58.01	-48.2	2.56	9.33	H	Pass
4977	-45.63	-13	-32.63	-61.44	-50.9	2.74	10.16	H	Pass
5688	-37.47	-13	-24.47	-56.59	-43.1	2.96	10.74	H	Pass

Band :	LTE Band 17					Temperature :	21~24°C		
Test Mode :	10MHz QPSK RB Size 1 Offset 24					Relative Humidity :	51~53%		
Test Engineer :	Kyle Jhuang					Polarization :	Vertical		
Remark :	Spurious emissions within 30-10th harmonic were found more than 20dB below limit line.								
Frequency	ERP	Limit	Over	SPA	S.G.	TX Cable	TX Antenna	Polarization	Result
(MHz)	(dBm)	(dBm)	Limit (dB)	Reading (dBm)	Power (dBm)	loss (dB)	Gain (dBi)	(H/V)	
1422	-37.55	-13	-24.55	-45.82	-39.5	1.53	5.63	V	Pass
2133	-33.15	-13	-20.15	-44.74	-35.2	1.88	6.08	V	Pass
2844	-40.21	-13	-27.21	-53.38	-42.9	2.27	7.11	V	Pass
3555	-35.79	-13	-22.79	-49.62	-39.5	2.45	8.31	V	Pass
4266	-47.08	-13	-34.08	-62.21	-51.7	2.56	9.33	V	Pass
4977	-48.63	-13	-35.63	-65.05	-53.9	2.74	10.16	V	Pass
5688	-41.07	-13	-28.07	-60.64	-46.7	2.96	10.74	V	Pass



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
LTE Base Station	Anritsu	MT8820C	6201026480	30MHz~2.7GHz SISO	Jan. 04, 2013	Oct. 22, 2013	Jan. 03, 2014	Conducted (TH02-HY)
Spectrum Analyzer	Rohde & Schwarz	FSP30	101067	9kHz~30GHz	Nov. 30, 2012	Oct. 12, 2013~ Oct. 13, 2013	Nov. 29, 2013	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 10, 2013	Oct. 12, 2013~ Oct. 13, 2013	Oct. 09, 2014	Radiation (03CH07-HY)
Bilog Antenna	Schaffner	CBL6111C	2726	30MHz ~ 1GHz	Oct. 10, 2013	Jul. 21, 2014	Oct. 09, 2014	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1GHz~18GHz	Aug. 22, 2013	Oct. 12, 2013~ Oct. 13, 2013	Aug. 21, 2014	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	75962	1GHz~18GHz	Aug. 22, 2013	Jul. 21, 2014	Aug. 21, 2014	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	30MHz~1GHz	Feb. 26, 2013	Oct. 12, 2013~ Oct. 13, 2013	Feb. 25, 2014	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	30MHz~1GHz	Mar. 17, 2014	Jul. 21, 2014	Mar. 16, 2015	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~26.5GHz	Dec. 01, 2012	Oct. 12, 2013~ Oct. 13, 2013	Nov. 30, 2013	Radiation (03CH07-HY)
Preamplifier	Agilent	8449B	3008A02362	1GHz~26.5GHz	Nov. 29, 2013	Jul. 21, 2014	Nov. 28, 2014	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	Oct. 12, 2013~ Oct. 13, 2013	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	ChainTek 3000	N/A	0 ~ 360 degree	N/A	Jul. 21, 2014	N/A	Radiation (03CH07-HY)
Antenna Mast	ChainTek	ChainTek 3000	N/A	N/A	N/A	Oct. 12, 2013~ Oct. 13, 2013	N/A	Radiation (03CH07-HY)
Antenna Mast	ChainTek	ChainTek 3000	N/A	N/A	N/A	Jul. 21, 2014	N/A	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 03, 2013	Oct. 12, 2013~ Oct. 13, 2013	Oct. 02, 2014	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	15GHz- 40GHz	Oct. 03, 2013	Jul. 21, 2014	Oct. 02, 2014	Radiation (03CH07-HY)



5 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	4.50
---	-------------