

FCC RF Test Report

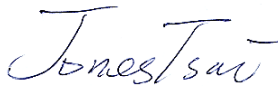
APPLICANT : Wistron NeWeb Corporation
EQUIPMENT : Zubie Key (LTE version): LTE single-mode
B13/B4 hotspot and GPS tracker
BRAND NAME : Wistron Neweb Corporation
MODEL NAME : D58U2
FCC ID : NKRGL700
STANDARD : 47 CFR Part 2, 27(L), 27(F)
CLASSIFICATION : PCS Licensed Transmitter (PCB)

The product was received on Sep. 14, 2015 and completely tested on Sep. 18, 2015. We, SPORTON INTERNATIONAL (KUNSHAN) 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 (KUNSHAN) INC., the test report shall not be reproduced except in full.



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL (KUNSHAN) INC.
No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG591404	Rev. 01	Initial issue of report	Oct. 07, 2015

**SUMMARY OF TEST RESULT**

Report Section	FCC Rule	Description	Limit	Result	Remark
3.3	§2.1046	Conducted Output Power	Reporting Only	PASS	-
3.4	N/A	Peak-to-Average Ratio	<13 dB	PASS	Note 1
3.5	§2.1049	99% Occupied Bandwidth and 26dB Bandwidth	Reporting Only	PASS	Note 1
3.6	§2.1051 §27.53(c)(2)(4) §27.53(h)	Conducted Band Edge Measurement (Band 4) (Band 13)	$< 43 + 10\log_{10}(P[\text{Watts}])$	PASS	Note 1
3.7	§2.1051 §27.53(c)(2) §27.53(h)	Conducted Spurious Emission (Band 4) (Band 13)	$< 43 + 10\log_{10}(P[\text{Watts}])$	PASS	Note 1
3.8	§2.1055 §27.54	Frequency Stability Temperature & Voltage	Within Authorized Band	PASS	Note 1
4.4	§27.50(b)(10)	Effective Radiated Power (Band 13)	ERP < 3 Watt	PASS	-
	§27.50(d)(4)	Equivalent Isotropic Radiated Power (Band 4)	EIRP < 1Watt		
4.5	§2.1053 §27.53(c)(2) §27.53(f) §27.53(h)	Radiated Spurious Emission (Band 4) (Band 13)	$< 43 + 10\log_{10}(P[\text{Watts}])$	PASS	Under limit 27.41 dB at 5184.000 MHz

Note 1: Please refer to report (Report No. : "FG370901B4" for LTE Band 4 and "FG370901B13" for LTE Band 13 from module report)



1 General Description

1.1 Applicant

Wistron NeWeb Corporation

20 Park Avenue II, Hsinchu Science Park, Hsinchu 308, Taiwan, R.O.C

1.2 Manufacturer

Wistron NeWeb Corporation

20 Park Avenue II, Hsinchu Science Park, Hsinchu 308, Taiwan, R.O.C

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Zubie Key (LTE version): LTE single-mode B13/B4 hotspot and GPS tracker
Brand Name	Wistron Neweb Corporation
Model Name	D58U2
FCC ID	NKRGL700
EUT supports Radios application	LTE/WLAN2.4GHz 802.11b/g/n HT20/HT40
IMEI Code	Radiation: 354170070008837 EIRP/ERP:354170070008852
HW Version	GL700 V2.0
SW Version	3.3.3.0
EUT Stage	Production Unit

1.4 Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx Frequency	LTE Band 4 : 1712.5 MHz ~ 1752.5 MHz LTE Band 13 : 779.5 MHz ~ 784.5 MHz
Rx Frequency	LTE Band 4 : 2112.5 MHz ~ 2152.5 MHz LTE Band 13 : 748.5 MHz ~ 753.5 MHz
Bandwidth	LTE Band 4 : 5MHz / 10MHz / 15MHz / 20MHz LTE Band 13 : 5MHz / 10MHz
Maximum Output Power to Antenna	LTE Band 4 : 22.59 dBm LTE Band 13 : 22.23 dBm
Type of Modulation	QPSK / 16QAM

1.5 Modification of EUT

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



1.6 Maximum Emission Designator, Frequency Tolerance, and ERP/EIRP Power

Please refer to report (Report No. : “FG370901B4” for LTE Band 4 and “FG370901B13” for LTE Band 13 from module report)

LTE Band 4	QPSK			16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum EIRP(W)
5	-	-	0.1046	-	-	0.0952
10	-	-	0.0901	-	-	0.0933
15	-	-	0.0897	-	-	0.0944
20	-	-	0.0966	-	-	0.0954

LTE Band 13	QPSK			16QAM		
BW(MHz)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)	Emission Designator (99%OBW)	Frequency Tolerance (ppm)	Maximum ERP(W)
5	-	-	0.0959	-	-	0.0983
10	-	-	0.0777	-	-	0.0814



1.7 Testing Location

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.	
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P. R. China TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958	
Test Site No.	Sporton Site No.	FCC Registration No.
	03CH02-KS	418269

Note: The test site complies with ANSI C63.4 2009 requirement.

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, 27(L), 27(F)
- ♦ ANSI / TIA / EIA-603-C-2004
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02

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.



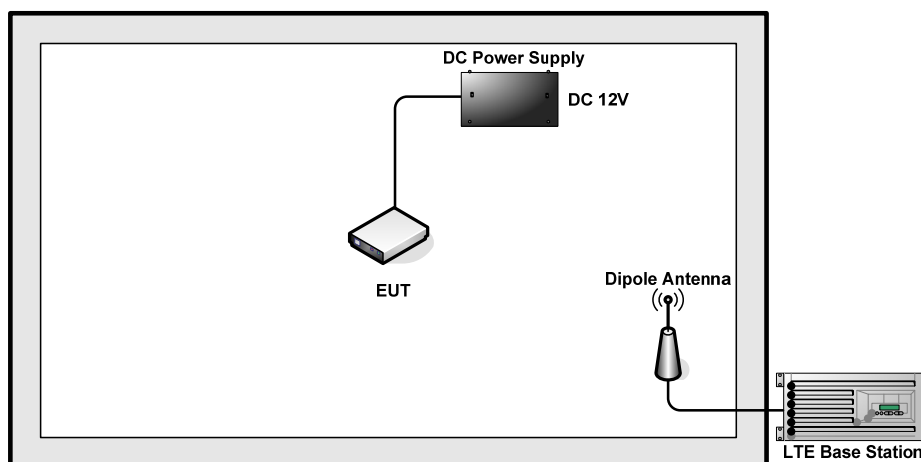
2 Test Configuration of Equipment Under Test

2.1 Test Mode

Antenna port conducted and radiated test items listed below are performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r02 with maximum output power.

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	4	-	-	v	v	v	v	v	v	v	v	v	v	v	v
	13	-	-	v		-	-	v	v	v	v	v	v	v	v
	13	-	-		v	-	-	v	v		v			v	
E.R.P./ E.I.R.P.	4	-	-	v	v	v	v	v	v	v	v		v	v	v
	13	-	-	v		-	-	v	v	v			v	v	v
	13	-	-		v	-	-	v	v	v				v	
Radiated Spurious Emission	4	-	-	v	v	v	v	v		v				v	
	13	-	-	v	v	-	-	v		v				v	
Note	- The mark "v" means that this configuration is chosen for testing - The mark "-" means that this bandwidth is not supported. - The device is investigated from 30MHz to 10 times of fundamental signal for radiated spurious emission test under different RB size/offset and modulations in exploratory test. Subsequently, only the worst case emissions are reported.														

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.	DC Power Supply	N/A	N/A	N/A	N/A	N/A
2.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m

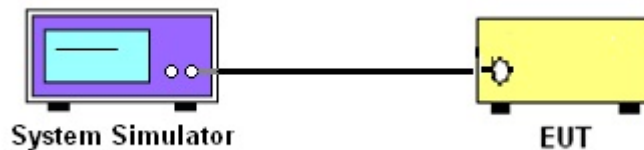
3 Conducted Test Items

3.1 Measuring Instruments

See list of measuring instruments of this test report.

3.2 Test Setup

3.2.1 Conducted Output Power



3.3 Conducted Output Power

3.3.1 Description of the Conducted Output Power 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.

3.3.2 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.

3.3.3 Test Result of Conducted Output Power Test

Please refer to Appendix A.



3.4 Peak-to-Average Ratio

Please refer to report (Report No. : “FG370901B4” for LTE Band 4 and “FG370901B13” for LTE Band 13 from module report)

3.5 99% Occupied Bandwidth and 26dB Bandwidth Measurement

Please refer to report (Report No. : “FG370901B4” for LTE Band 4 and “FG370901B13” for LTE Band 13 from module report)

3.6 Conducted Band Edge

Please refer to report (Report No. : “FG370901B4” for LTE Band 4 and “FG370901B13” for LTE Band 13 from module report)

3.7 Conducted Spurious Emission

Please refer to report (Report No. : “FG370901B4” for LTE Band 4 and “FG370901B13” for LTE Band 13 from module report)

3.8 Frequency Stability

Please refer to report (Report No. : “FG370901B4” for LTE Band 4 and “FG370901B13” for LTE Band 13 from module report)

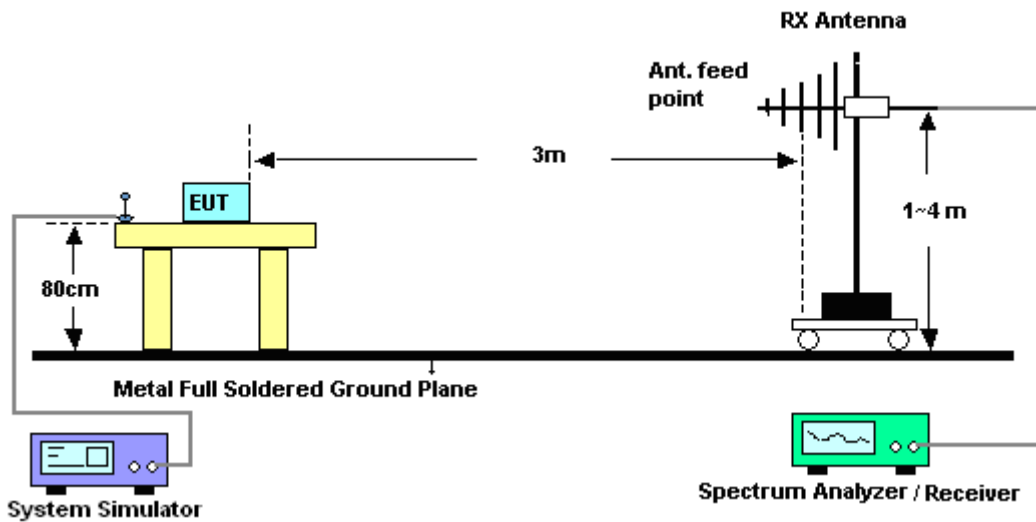
4 Radiated Test Items

4.1 Measuring Instruments

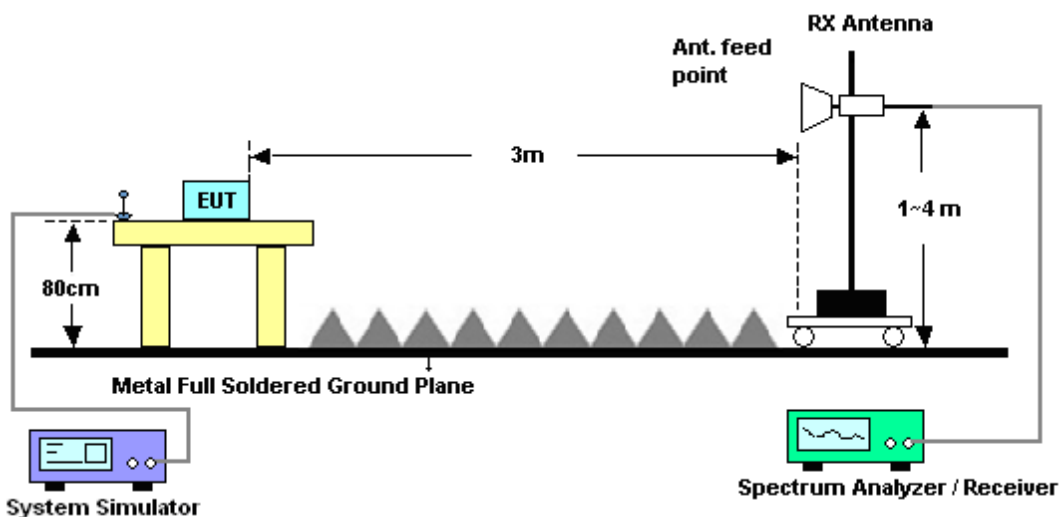
See list of measuring instruments of this test report.

4.2 Test Setup

4.2.1 For radiated test from 30MHz to 1GHz



4.2.2 For radiated test above 1GHz



4.3 Test Result of Radiated Test

Please refer to Appendix B.

4.4 Effective Radiated Power and Effective Isotropic Radiated Power

4.4.1 Description of the ERP/EIRP Measurement

Effective radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r02. Mobile and portable (hand-held) stations operating are limited to average ERP of 3 watts with LTE band13.

Equivalent isotropic radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v02r02. Mobile and portable (hand-held) stations operating are limited to average EIRP of 1 watt with LTE band 4.

4.4.2 Test Procedures

1. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01.
1. During the measurement, the system simulator parameters were set to force the EUT transmitting at maximum output power. The maximum emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
2. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by the substitution antenna at same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor, $EIRP = LVL + \text{Correction factor}$ and $ERP = EIRP - 2.15$. Take the record of the output power at substitution antenna.



	LTE Average					
LTE BW	1.4M	3M	5M	10M	15M	20M
Span	3MHz	6MHz	10MHz	20MHz	30MHz	40MHz
RBW	30kHz	100kHz	100kHz	300kHz	300kHz	300kHz
VBW	100kHz	300kHz	300kHz	1MHz	1MHz	1MHz
Detector	RMS	RMS	RMS	RMS	RMS	RMS
Trace	Average	Average	Average	Average	Average	Average
Average Type	Power	Power	Power	Power	Power	Power
Sweep Count	100	100	100	100	100	100

4.5 Radiated Spurious Emission

4.5.1 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

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.

4.5.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-C-2004 Section 2.2.12.
2. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
5. 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.
6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
9. Taking the record of output power at antenna port.
10. Repeat step 7 to step 8 for another polarization.
11. 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)

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

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

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

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



5 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	R&S	ESR7	101403	9kHz~7GHz;Max 30dBm	Sep. 10, 2015	Sep. 18, 2015	Sep. 09, 2016	Radiation (03CH02-KS)
Spectrum Analyzer	R&S	FSV40	101040	10kHz~40GHz;Max 30dBm	Sep. 10, 2015	Sep. 18, 2015	Sep. 09, 2016	Radiation (03CH02-KS)
Bilog Antenna	TeseQ	CBL6112D	37879	30MHz-2GHz	Sep. 12, 2015	Sep. 18, 2015	Sep. 11, 2016	Radiation (03CH02-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Nov. 08, 2014	Sep. 18, 2015	Nov. 07, 2015	Radiation (03CH02-KS)
Active Horn Antenna	com-power	AHA-118	701030	1GHz~18GHz	Nov. 08, 2014	Sep. 18, 2015	Nov. 07, 2015	Radiation (03CH02-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	BBHA170249	15GHz ~40GHz	Mar. 03, 2015	Sep. 18, 2015	Mar. 02, 2016	Radiation (03CH02-KS)
Amplifier	com-power	PA-103A	161069	1kHz ~1000MHz / 32 dB	May 04, 2015	Sep. 18, 2015	May 03, 2016	Radiation (03CH02-KS)
Amplifier	Agilent	8449B	3008A02384	1-26.5GHz Gain 30dB	Oct. 28, 2014	Sep. 18, 2015	Oct. 27, 2015	Radiation (03CH02-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Sep. 18, 2015	NCR	Radiation (03CH02-KS)
Turn Table	MF	MF7802	N/A	0~360 degree	NCR	Sep. 18, 2015	NCR	Radiation (03CH02-KS)
Antenna Mast	MF	MF7802	N/A	1 m~4 m	NCR	Sep. 18, 2015	NCR	Radiation (03CH02-KS)



6 Uncertainty of Evaluation

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$)	5.1dB
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Appendix A. Test Results of Conducted Test

Conducted Output Power(Average power)

LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	21.63	22.35	21.89
5	1	12		21.43	22.15	21.75
5	1	24		21.36	22.34	21.56
5	12	0		20.45	21.20	20.69
5	12	7		20.32	21.19	20.60
5	12	13		20.28	21.17	20.55
5	25	0		20.35	21.24	20.60
5	1	0	16-QAM	20.84	21.66	21.09
5	1	12		20.64	21.37	21.05
5	1	24		20.66	21.60	20.77
5	12	0		19.55	20.35	19.84
5	12	7		19.50	20.29	19.75
5	12	13		19.41	20.25	19.68
5	25	0		19.52	20.36	19.76
10	1	0	QPSK	21.71	22.38	22.23
10	1	25		21.48	22.20	21.93
10	1	49		21.47	22.33	21.55
10	25	0		20.49	21.32	21.07
10	25	12		20.39	21.26	20.87
10	25	25		20.43	21.25	20.64
10	50	0		20.46	21.28	20.90
10	1	0	16-QAM	21.01	21.66	21.49
10	1	25		20.65	21.48	21.19
10	1	49		20.79	21.60	20.84
10	25	0		19.60	20.39	20.21
10	25	12		19.56	20.38	20.01
10	25	25		19.56	20.37	19.79
10	50	0		19.57	20.37	20.02



LTE Band 4 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
15	1	0	QPSK	21.90	22.35	22.47
15	1	37		21.71	22.26	22.19
15	1	74		21.63	22.27	21.79
15	36	0		20.63	21.34	21.38
15	36	20		20.57	21.30	21.11
15	36	39		20.56	21.29	20.82
15	75	0		20.61	21.26	21.08
15	1	0	16-QAM	21.06	21.67	21.73
15	1	37		20.92	21.53	21.49
15	1	74		20.77	21.57	20.85
15	36	0		19.76	20.42	20.48
15	36	20		19.73	20.39	20.26
15	36	39		19.68	20.37	19.99
15	75	0		19.69	20.35	20.18
20	1	0	QPSK	22.00	22.47	22.59
20	1	49		21.79	22.40	22.41
20	1	99		21.75	22.25	21.93
20	50	0		20.75	21.31	21.47
20	50	24		20.71	21.35	21.30
20	50	50		20.71	21.32	20.92
20	100	0		20.74	21.32	21.21
20	1	0	16-QAM	21.23	21.68	21.87
20	1	49		21.02	21.66	21.64
20	1	99		21.01	21.48	20.93
20	50	0		19.85	20.42	20.55
20	50	24		19.81	20.42	20.42
20	50	50		19.81	20.38	20.08
20	100	0		19.87	20.39	20.30



LTE Band 13 Maximum Average Power [dBm]						
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest
5	1	0	QPSK	22.01	22.00	21.96
5	1	12		22.15	22.07	22.03
5	1	24		22.19	22.11	21.78
5	12	0		20.93	20.76	20.75
5	12	7		20.87	20.67	20.72
5	12	13		20.91	20.68	20.71
5	25	0		20.88	20.79	20.74
5	1	0	16-QAM	21.14	21.17	21.13
5	1	12		21.31	21.23	21.23
5	1	24		21.32	21.29	20.97
5	12	0		19.93	19.80	19.74
5	12	7		19.92	19.79	19.73
5	12	13		19.98	19.79	19.68
5	25	0		19.94	19.84	19.73
10	1	0	QPSK		21.75	
10	1	25			22.23	
10	1	49			21.96	
10	25	0			20.74	
10	25	12			20.80	
10	25	25			20.80	
10	50	0			20.73	
10	1	0	16-QAM		20.97	
10	1	25			21.30	
10	1	49			21.11	
10	25	0			19.79	
10	25	12			19.81	
10	25	25			19.84	
10	50	0			19.81	



Appendix B. Test Results of Radiated Test

ERP/EIRP

LTE Band 4 / 5MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	19.31	0.0853	19.05	0.0803
Middle		1	0	20.20	0.1046	19.53	0.0898
Highest		1	0	18.15	0.0653	17.66	0.0583
Lowest	16QAM	1	0	19.53	0.0898	18.72	0.0745
Middle		1	0	19.79	0.0952	19.24	0.0839
Highest		1	0	18.43	0.0696	17.75	0.0596
Limit	EIRP < 1W			Result		PASS	

LTE Band 4 / 10MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	19.50	0.0892	18.84	0.0766
Middle		1	0	19.55	0.0901	18.86	0.0770
Highest		1	0	18.82	0.0762	18.27	0.0672
Lowest	16QAM	1	0	19.70	0.0933	18.91	0.0778
Middle		1	0	19.32	0.0855	18.93	0.0782
Highest		1	0	18.89	0.0774	18.61	0.0726
Limit	EIRP < 1W			Result		PASS	



LTE Band 4 / 15MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	19.35	0.0861	18.95	0.0785
Middle		1	0	19.26	0.0843	18.91	0.0779
Highest		1	0	19.53	0.0897	19.43	0.0877
Lowest	16QAM	1	0	19.45	0.0882	19.05	0.0803
Middle		1	0	19.60	0.0913	19.12	0.0817
Highest		1	0	19.75	0.0944	19.53	0.0897
Limit	EIRP < 1W			Result		PASS	

LTE Band 4 / 20MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	EIRP(dBm)	EIRP(W)	EIRP(dBm)	EIRP(W)
Lowest	QPSK	1	0	19.57	0.0905	19.10	0.0813
Middle		1	0	19.65	0.0923	19.20	0.0832
Highest		1	0	19.85	0.0966	19.41	0.0874
Lowest	16QAM	1	0	19.40	0.0871	18.87	0.0770
Middle		1	0	19.80	0.0954	19.45	0.0882
Highest		1	0	19.25	0.0841	18.94	0.0783
Limit	EIRP < 1W			Result		PASS	



LTE Band 13 / 5MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	QPSK	1	24	17.46	0.0557	19.82	0.0959
Middle		1	24	17.94	0.0623	19.18	0.0828
Highest		1	12	18.06	0.0640	19.45	0.0881
Lowest	16QAM	1	24	19.22	0.0835	19.93	0.0983
Middle		1	24	18.28	0.0673	19.52	0.0895
Highest		1	12	18.21	0.0662	19.72	0.0937
Limit	ERP < 3W			Result		PASS	

LTE Band 13 / 10MHz (Average)							
Channel	Modulation	RB		Horizontal		Vertical	
		Size	Offset	ERP(dBm)	ERP(W)	ERP(dBm)	ERP(W)
Lowest	QPSK	-	-	-	-	-	-
Middle		1	25	17.28	0.0534	18.91	0.0777
Highest		-	-	-	-	-	-
Lowest	16QAM	-	-	-	-	-	-
Middle		1	25	17.52	0.0565	19.11	0.0814
Highest		-	-	-	-	-	-
Limit	ERP < 3W			Result		PASS	



Radiated Spurious Emission

LTE Band 4 / 5MHz / QPSK / RB Size 1 Offset 0									
Channel	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)
Middle	3459	-47.52	-13	-34.52	-61.65	-51.89	3.12	7.49	H
	5193	-44.42	-13	-31.42	-57.57	-50.22	3.65	9.45	H
	6921	-43.82	-13	-30.82	-60.68	-51.02	4.15	11.35	H
	3462	-50.88	-13	-37.88	-63.7	-55.25	3.12	7.49	V
	5193	-41.85	-13	-28.85	-55.97	-47.65	3.65	9.45	V
	6921	-44.83	-13	-31.83	-60.08	-52.03	4.15	11.35	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 4 / 10MHz / QPSK / RB Size 1 Offset 0									
Channel	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)
Middle	3456	-48.76	-13	-35.76	-62.89	-53.13	3.12	7.49	H
	5184	-45.19	-13	-32.19	-58.34	-50.99	3.65	9.45	H
	6912	-43.66	-13	-30.66	-60.52	-50.86	4.15	11.35	H
	3456	-50.94	-13	-37.94	-63.76	-55.31	3.12	7.49	V
	5184	-40.41	-13	-27.41	-55.35	-46.21	3.65	9.45	V
	6912	-43.84	-13	-30.84	-59.09	-51.04	4.15	11.35	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 4 / 15MHz / QPSK / RB Size 1 Offset 0									
Channel	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)
Middle	3450	-46.48	-13	-33.48	-60.61	-50.85	3.12	7.49	H
	5178	-46.97	-13	-33.97	-60.12	-52.77	3.65	9.45	H
	6906	-44.11	-13	-31.11	-60.97	-51.31	4.15	11.35	H
	3450	-50.40	-13	-37.40	-63.22	-54.77	3.12	7.49	V
	5178	-43.59	-13	-30.59	-57.6	-49.39	3.65	9.45	V
	6906	-46.51	-13	-33.51	-61.76	-53.71	4.15	11.35	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.



LTE Band 4 / 20MHz / QPSK / RB Size 1 Offset 0									
Channel	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)
Middle	3447	-45.26	-13	-32.26	-59.83	-49.63	3.12	7.49	H
	5172	-45.24	-13	-32.24	-58.39	-51.04	3.65	9.45	H
	6894	-44.32	-13	-31.32	-61.18	-51.52	4.15	11.35	H
	3447	-47.50	-13	-34.50	-60.67	-51.87	3.12	7.49	V
	5172	-42.74	-13	-29.74	-56.75	-48.54	3.65	9.45	V
	6894	-44.57	-13	-31.57	-59.82	-51.77	4.15	11.35	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 13 / 5MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1560	-61.96	-13	-48.96	-58.38	-62.94	1.75	4.88	H
	2340	-56.98	-13	-43.98	-62.99	-58.60	2.16	5.93	H
	3120	-54.82	-13	-41.82	-65.24	-56.85	2.48	6.66	H
	1560	-59.55	-13	-46.55	-58.02	-60.53	1.75	4.88	V
	2340	-54.58	-13	-41.58	-62.56	-56.20	2.16	5.93	V
	3120	-52.69	-13	-39.69	-64.2	-54.72	2.48	6.66	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

LTE Band 13 / 10MHz / QPSK / RB Size 1 Offset 0									
Channel	Frequency (MHz)	ERP (dBm)	Limit (dBm)	Over Limit (dB)	SPA Reading (dBm)	S.G. Power (dBm)	TX Cable loss (dB)	TX Antenna Gain (dBi)	Polarization (H/V)
Middle	1556	-60.61	-13	-47.61	-57.03	-61.59	1.75	4.88	H
	2333	-54.99	-13	-41.99	-61.00	-56.61	2.16	5.93	H
	3111	-54.03	-13	-41.03	-64.45	-56.06	2.48	6.66	H
	1555	-58.55	-13	-45.55	-57.02	-59.53	1.75	4.88	V
	2332	-54.23	-13	-41.23	-62.21	-55.85	2.16	5.93	V
	3111	-53.47	-13	-40.47	-64.98	-55.50	2.48	6.66	V

Remark: Spurious emissions within 30-1000MHz were found more than 20dB below limit line.