FCC RF Test Report

APPLICANT	**:**	**LC Future Center Limited Taiwan Branch**
EQUIPMENT	**:**	**Notebook**
BRAND NAME	**:**	**Lenovo**
MODEL NAME	**:**	**TP00086A**
FCC ID	**:**	**2AJN7-TP00086AUC**
STANDARD	**:**	**47 CFR Part 2, 22(H), 24(E), 27**
CLASSIFICATION	**:**	**PCS Licensed Transmitter (PCB)**

Equipment: AirPrime EM7455 and Intel 8260NGW tested inside of Lenovo Notebook.

This is a variant report which is only valid together with the original test report. The product was received on Nov. 18, 2016 and completely tested on Dec. 12, 2016. 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-D-2010 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

Testing Laboratory
1190

SPORTON INTERNATIONAL INC.
No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FG6N0822-08B	Rev. 01	Initial issue of report	Jan. 04, 2017

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.4	§2.1053 §22.917(a) §24.238(a) §27.53(c)(2) §27.53(f) §27.53(g) §27.53(h)	Radiated Spurious Emission (Band 4) (Band 12) (Band 13) (Band 25) (Band 26)	< 43+10log10(P[Watts])	PASS	Under limit 2.47 dB at 8046.000 MHz
	§2.1053 §27.53(m)(4)	Radiated Spurious Emission (Band 41)	< 55+10log10(P[Watts])		

1 General Description

1.1 Applicant

LC Future Center Limited Taiwan Branch
7F., No. 780, Beian Rd., Zhongshan Dist., Taipei City 104, Taiwan (R.O.C.)

1.2 Manufacturer

LC Future Center Limited Taiwan Branch
7F., No. 780, Beian Rd., Zhongshan Dist., Taipei City 104, Taiwan (R.O.C.)

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Notebook
Brand Name	Lenovo
Model Name	TP00086A
FCC ID	2AJN7-TP00086AUC
Sample 1	EUT with Antenna 1
Sample 2	EUT with Antenna 2
Integrated WWAN Module	Manufacturer: Sierra Wireles Brand Name: AirPrime Model Name: EM7455
Integrated WLAN Module	Brand Name: Intel Model Name: 8260NGW
EUT supports Radios application	WCDMA/HSPA/LTE WLAN 11a/b/g/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
EUT Stage	Production Unit

Remark: This is a variant report by TP00086A (FCC ID: 2AJN7-TP00086A) change WLAN module from Intel 8265NGW to Intel 8260NGW. WWAN RSE spot check has been performed on 2AJN7-TP00086AUC (model: TP00086A). Other test cases were performed on original report which can be referred to Sporton Report Number FG6N0822B. Based on the original report, only worst case was verified.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
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 7 : 2502.5 MHz ~ 2567.5 MHz LTE Band 12 : 699.7 MHz ~ 715.3 MHz LTE Band 13 : 779.5 MHz ~ 784.5 MHz LTE Band 25 : 1850.7MHz ~ 1914.3 MHz LTE Band 26 : 824.7MHz ~ 848.3 MHz LTE Band 41 : 2498.5 MHz ~ 2687.5 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 7 : 2622.5MHz ~ 2687.5 MHz LTE Band 12 : 729.7 MHz ~ 745.3 MHz LTE Band 13 : 748.5 MHz ~ 753.5 MHz LTE Band 25 : 1930.7MHz ~ 1994.3 MHz LTE Band 26 : 869.7MHz ~ 893.3MHz LTE Band 41 : 2498.5 MHz ~ 2687.5 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 7 : 5MHz/ 10MHz / 15MHz / 20MHz LTE Band 12 : 1.4MHz / 3MHz / 5MHz / 10MHz LTE Band 13 : 5MHz / 10MHz LTE Band 25 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz LTE Band 26 : 1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz LTE Band 41 : 5MHz / 10MHz / 15MHz / 20MHz
Type of Modulation	QPSK / 16QAM

1.5 Modification of EUT

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

1.6 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 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	**Sporton Site No.**
	03CH07-HY

1.7 Applicable Standards

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

- 47 CFR Part 2, 24(E), 27
- ANSI / TIA / EIA-603-D-2010
- FCC KDB 971168 D01 Power Meas. License Digital Systems v02r02

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

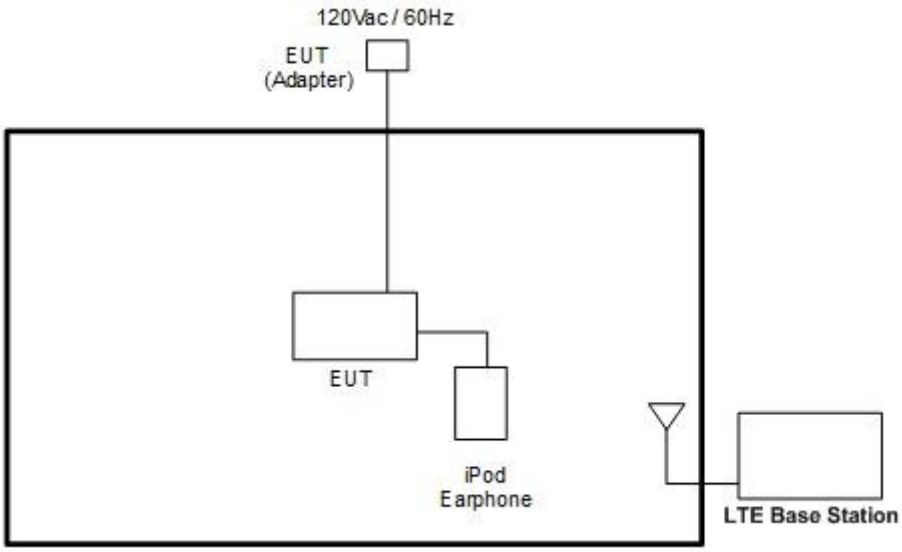
2 Test Configuration of Equipment Under Test

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 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
Radiated Spurious Emission	4						v	v		v			v	v	v
	12	v				-	-	v		v			v	v	v
	13	-	-		v	-	-	v		v				v	
	25				v			v		v					v
	26				v		-	v		v			v	v	v
	41	-	-		v			v		v			v	v	v
Note	1. The mark "v " means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported. 3. All the test cases were performed with Sample 1. 4. 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.	LTE Base Station	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	iPod Earphone	Apple	N/A	Verification	Unshielded, 1.0 m	N/A

2.4 Frequency List of Low/Middle/High Channels

LTE Band 4 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	20050	20175	20300
	Frequency	1720	1732.5	1745
15	Channel	20025	20175	20325
	Frequency	1717.5	1732.5	1747.5
10	Channel	20000	20175	20350
	Frequency	1715	1732.5	1750
5	Channel	19975	20175	20375
	Frequency	1712.5	1732.5	1752.5
3	Channel	19965	20175	20385
	Frequency	1711.5	1732.5	1753.5
1.4	Channel	19957	20175	20393
	Frequency	1710.7	1732.5	1754.3

LTE Band 12 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
10	Channel	23060	23095	23130
	Frequency	704	707.5	711
5	Channel	23035	23095	23155
	Frequency	701.5	707.5	713.5
3	Channel	23025	23095	23165
	Frequency	700.5	707.5	714.5
1.4	Channel	23017	23095	23173
	Frequency	699.7	707.5	715.3

LTE Band 13 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
10	Channel	-	23230	-
	Frequency	-	782	-
5	Channel	23205	23230	23255
	Frequency	779.5	782	784.5

LTE Band 25 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
20	Channel	26140	26340	26590
	Frequency	1860	1880	1905
15	Channel	26115	26340	26615
	Frequency	1857.5	1880	1907.5
10	Channel	26090	26340	26640
	Frequency	1855	1880	1910
5	Channel	26065	26340	26665
	Frequency	1852.5	1880	1912.5
3	Channel	26055	26340	26675
	Frequency	1851.5	1880	1913.5
1.4	Channel	26047	26340	26683
	Frequency	1850.7	1880	1914.3

LTE Band 26 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
15	Channel	26865	26915	26965
	Frequency	831.5	836.5	841.5
10	Channel	26840	26915	26990
	Frequency	829	836.5	844
5	Channel	26815	26915	27015
	Frequency	826.5	836.5	846.5
3	Channel	26805	26915	27025
	Frequency	825.5	836.5	847.5
1.4	Channel	26797	26915	27033
	Frequency	824.7	836.5	848.3

LTE Band 41 Channel and Frequency List				
BW [MHz]	**Channel/Frequency(MHz)**	**Lowest**	**Middle**	**Highest**
20	Channel	39750	40620	41490
	Frequency	2506	2593	2680
15	Channel	39725	40620	41515
	Frequency	2503.5	2593	2682.5
10	Channel	39700	40620	41540
	Frequency	2501	2593	2685
5	Channel	39675	40620	41565
	Frequency	2498.5	2593	2687.5

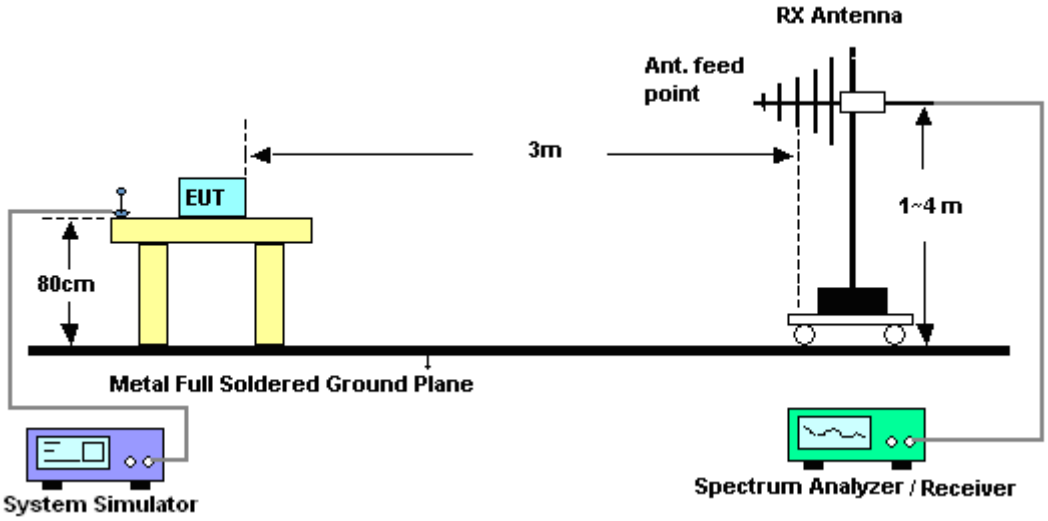
3 Radiated Test Items

3.1 Measuring Instruments

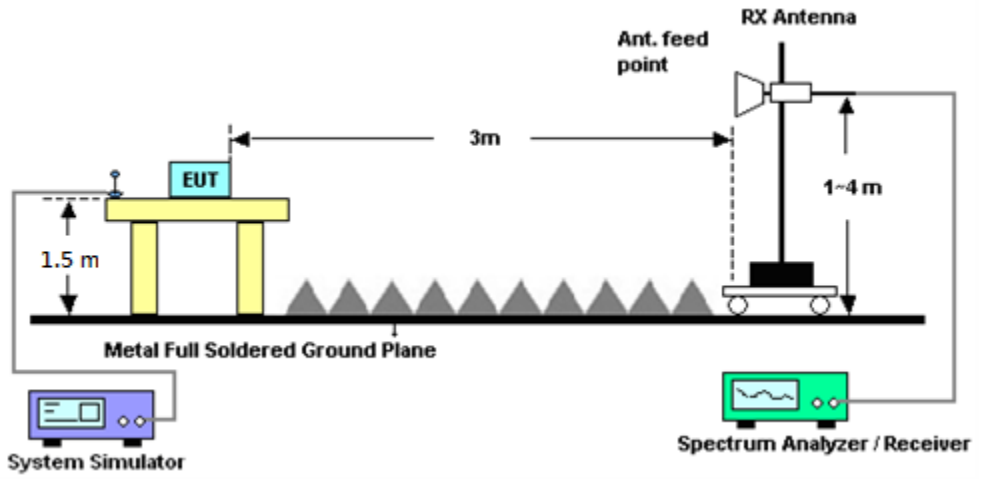
See list of measuring instruments of this test report.

3.2 Test Setup

3.2.1 For radiated test from 30MHz to 1GHz



3.2.2 For radiated test above 1GHz



3.3 Test Result of Radiated Test

Please refer to Appendix A.

3.4 Radiated Spurious Emission

3.4.1 Description of Radiated Spurious Emission

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-D-2010. 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 Band 41

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 55 + 10 log (P) dB.

For LTE Band 12,13

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.

3.4.2 Test Procedures

1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12.
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively 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 + 10log(P)dB below the transmitter power P(Watts)
    = P(W)- [43 + 10log(P)] (dB)
    = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)
    = -13dBm.
12. For Band 41:
    The limit line is derived from 55 + 10log(P)dB below the transmitter power P(Watts)

EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain
ERP (dBm) = EIRP - 2.15

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Bilog Antenna	TESEQ	CBL 6111D&00800N	35419&03	30MHz to 1GHz	Jan. 13, 2016	Dec. 12, 2016	Jan. 12, 2017	Radiation (03CH07-HY)
Double Ridge Horn Antenna	ESCO	3117	00075962	1GHz ~ 18GHz	Aug. 19, 2016	Dec. 12, 2016	Aug. 18, 2017	Radiation (03CH07-HY)
EMI Test Receiver	Keysight	N9038A(MXE)	MY54130085	20Hz ~ 8.4GHz	Oct. 26, 2016	Dec. 12, 2016	Oct. 25, 2017	Radiation (03CH07-HY)
Preamplifier	MITEQ	AMF-7D-00101 800-30-10P	1590075	1GHz ~ 18GHz	Apr. 15, 2016	Dec. 12, 2016	Apr. 14, 2017	Radiation (03CH07-HY)
Preamplifier	COM-POWER	PA-103A	161241	10MHz-1GHz	Mar. 18, 2016	Dec. 12, 2016	Mar. 17, 2017	Radiation (03CH07-HY)
Spectrum Analyzer	Agilent	N9010A	MY53470118	10Hz~44GHz	Feb. 27, 2016	Dec. 12, 2016	Feb. 26, 2017	Radiation (03CH07-HY)
Antenna Mast	Max-Full	MFA520BS	N/A	1m~4m	N/A	Dec. 12, 2016	N/A	Radiation (03CH07-HY)
Turn Table	ChainTek	Chaintek 3000	N/A	0~360 Degree	N/A	Dec. 12, 2016	N/A	Radiation (03CH07-HY)
Preamplifier	MITEQ	JS44-18004000 -33-8P	1840917	18GHz ~ 40GHz	Jun. 14, 2016	Dec. 12, 2016	Jun. 13, 2017	Radiation (03CH07-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170251	18GHz ~ 40GHz	Oct. 07, 2016	Dec. 12, 2016	Oct. 06, 2017	Radiation (03CH07-HY)
Horn Antenna	ESCO	3117	00066584	1GHz~18GHz	Sep. 02, 2016	Dec. 12, 2016	Sep. 01, 2017	Radiation (03CH07-HY)
Signal Generator	Rohde & Schwarz	SMF100A	101107	100kHz~40GHz	May 19, 2016	Dec. 12, 2016	May 18, 2017	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))	**5.7**

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.5**

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**5.2**

Appendix A. Test Results of Radiated Test

LTE Band 25

LTE Band 25 / 10MHz / QPSK									
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)
Highest	3810	-63.81	-13	-50.81	-59.5	-70.48	1.70	8.37	H
	5715	-62.56	-13	-49.56	-66	-69.6	2.75	9.79	H
	7620	-64.25	-13	-51.25	-68.81	-73.73	2.39	11.87	H
									H
									H
									H
									H
	3810	-61.95	-13	-48.95	-57.69	-68.62	1.70	8.37	V
	5715	-62.83	-13	-49.83	-66.27	-69.87	2.75	9.79	V
	7620	-63.82	-13	-50.82	-68.64	-73.3	2.39	11.87	V
									V
									V
									V
									V

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

LTE Band 26

LTE Band 26 / 10MHz / QPSK									
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)
Lowest	1680	-66.74	-13	-53.74	-54.82	-68.39	0.99	4.80	H
	2517	-57.58	-13	-44.58	-50.86	-59.55	1.30	5.41	H
	3356	-65.67	-13	-52.67	-61.13	-69.33	1.56	7.37	H
									H
									H
									H
									H
	1680	-67.64	-13	-54.64	-56.16	-69.29	0.99	4.80	V
	2517	-55.74	-13	-42.74	-49.39	-57.71	1.30	5.41	V
	3356	-65.75	-13	-52.75	-61.43	-69.41	1.56	7.37	V
									V
									V
									V
									V
Middle	1664	-65.35	-13	-52.35	-53.11	-67.06	0.98	4.84	H
	2496	-58.76	-13	-45.76	-52.01	-60.71	1.29	5.39	H
	3328	-65.61	-13	-52.61	-61.01	-69.15	1.55	7.24	H
									H
									H
									H
									H
	1664	-68.05	-13	-55.05	-56.41	-69.76	0.98	4.84	V
	2496	-56.26	-13	-43.26	-49.97	-58.21	1.29	5.39	V
	3328	-65.47	-13	-52.47	-61.03	-69.01	1.55	7.24	V
									V
									V
									V
Highest	1680	-67.03	-13	-54.03	-55.12	-68.68	0.99	4.80	H
	2520	-58.47	-13	-45.47	-51.77	-60.44	1.30	5.42	H
	3356	-65.56	-13	-52.56	-61.06	-69.22	1.56	7.37	H
									H
									H
									H
									H
	1680	-67.57	-13	-54.57	-56.07	-69.22	0.99	4.80	V
	2520	-55.54	-13	-42.54	-49.26	-57.51	1.30	5.42	V
	3356	-66.03	-13	-53.03	-61.65	-69.69	1.56	7.37	V
									V
									V
									V

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

LTE Band 4

LTE Band 4 / 20MHz / QPSK									
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)
Lowest	3420	-56.33	-13	-43.33	-52.14	-62.4	1.58	7.65	H
	5130	-63.00	-13	-50.00	-63.58	-70.29	2.41	9.70	H
	6840	-63.19	-13	-50.19	-67.92	-71.16	2.64	10.61	H
	8556	-62.00	-13	-49.00	-68.37	-72.14	2.39	12.52	H
	10270	-58.35	-13	-45.35	-66.81	-67.96	2.69	12.31	H
									H
									H
	3420	-55.05	-13	-42.05	-50.91	-61.12	1.58	7.65	V
	5130	-62.01	-13	-49.01	-62.43	-69.3	2.41	9.70	V
	6840	-61.91	-13	-48.91	-66.59	-69.88	2.64	10.61	V
	8556	-57.01	-13	-44.01	-63.72	-67.15	2.39	12.52	V
	10270	-56.55	-13	-43.55	-64.89	-66.16	2.69	12.31	V
									V
									V
Middle	3450	-54.68	-13	-41.68	-50.63	-60.87	1.59	7.78	H
	5175	-63.16	-13	-50.16	-63.99	-70.42	2.44	9.70	H
	6900	-63.63	-13	-50.63	-68.28	-71.69	2.62	10.68	H
									H
									H
									H
									H
	3450	-54.64	-13	-41.64	-50.56	-60.83	1.59	7.78	V
	5175	-63.13	-13	-50.13	-63.82	-70.39	2.44	9.70	V
	6900	-63.99	-13	-50.99	-68.63	-72.05	2.62	10.68	V
									V
									V
									V
Highest	3474	-62.08	-13	-49.08	-58.17	-68.37	1.60	7.89	H
	5211	-62.89	-13	-49.89	-63.89	-70.13	2.46	9.70	H
	6948	-63.49	-13	-50.49	-68.26	-71.62	2.61	10.74	H
	8682	-62.04	-13	-49.04	-68.39	-72.2	2.41	12.57	H
	10417	-60.29	-13	-47.29	-69.09	-69.96	2.69	12.37	H
									H
									H
	3474	-59.80	-13	-46.80	-55.78	-66.09	1.60	7.89	V
	5211	-63.16	-13	-50.16	-64.03	-70.4	2.46	9.70	V
	6948	-63.72	-13	-50.72	-68.31	-71.85	2.61	10.74	V
	8682	-58.58	-13	-45.58	-65.3	-68.74	2.41	12.57	V
	10417	-58.29	-13	-45.29	-66.94	-67.96	2.69	12.37	V
									V

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

LTE Band 12

LTE Band 12 / 1.4MHz / QPSK									
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)
Lowest	1400	-65.67	-13.00	-52.67	-51.52	-67.33	0.87	4.68	H
	2096	-64.46	-13.00	-51.46	-55.58	-65.33	1.16	4.19	H
	2800	-66.94	-13.00	-53.94	-60.60	-69.05	1.38	5.64	H
									H
									H
									H
									H
	1400	-61.37	-13.00	-48.37	-47.71	-63.03	0.87	4.68	V
	2096	-64.27	-13.00	-51.27	-55.68	-65.14	1.16	4.19	V
	2800	-66.34	-13.00	-53.34	-60.63	-68.45	1.38	5.64	V
									V
									V
									V
									V
Middle	1416	-67.46	-13.00	-54.46	-53.35	-69.21	0.87	4.78	H
	2120	-64.59	-13.00	-51.59	-55.85	-65.53	1.17	4.26	H
	2832	-66.98	-13.00	-53.98	-60.61	-69.10	1.39	5.67	H
									H
									H
									H
									H
	1416	-62.72	-13.00	-49.72	-49.06	-64.47	0.87	4.78	V
	2120	-65.08	-13.00	-52.08	-56.70	-66.02	1.17	4.26	V
	2832	-66.37	-13.00	-53.37	-60.79	-68.49	1.39	5.67	V
									V
									V
									V
Highest	1432	-61.39	-13.00	-48.39	-47.36	-63.24	0.88	4.88	H
	2144	-63.66	-13.00	-50.66	-55.03	-64.66	1.18	4.33	H
	2864	-67.11	-13.00	-54.11	-60.80	-69.25	1.40	5.69	H
									H
									H
									H
									H
	1432	-57.26	-13.00	-44.26	-43.73	-59.11	0.88	4.88	V
	2144	-63.58	-13.00	-50.58	-55.28	-64.58	1.18	4.33	V
	2864	-66.46	-13.00	-53.46	-60.97	-68.60	1.40	5.69	V
									V
									V
									V

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

LTE Band 13

LTE Band 13 / 10MHz / QPSK									
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	1552	-67.01	-13	-54.01	-53.92	-69.08	0.94	5.15	H
	2336	-61.52	-13	-48.52	-54.03	-63.04	1.24	4.91	H
	3128	-65.96	-13	-52.96	-60.52	-68.69	1.49	6.36	H
									H
									H
									H
									H
	1552	-62.54	-13	-49.54	-49.93	-64.61	0.94	5.15	V
	2336	-61.53	-13	-48.53	-54.37	-63.05	1.24	4.91	V
	3128	-65.28	-13	-52.28	-60.41	-68.01	1.49	6.36	V
									V
									V
									V
									V

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

LTE Band 41

LTE Band 41 / 10MHz / QPSK									
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)
Lowest	4992	-50.98	-25	-25.98	-50.75	-58.33	2.33	9.68	H
	7488	-61.47	-25	-36.47	-65.37	-70.81	2.43	11.78	H
	10008	-61.30	-25	-36.30	-69.06	-70.81	2.70	12.20	H
									H
									H
									H
									H
	5004	-48.35	-25	-23.35	-47.74	-55.71	2.34	9.70	V
	7503	-55.65	-25	-30.65	-59.77	-65.02	2.43	11.80	V
	10008	-61.31	-25	-36.31	-69	-70.82	2.70	12.20	V
									V
									V
									V
									V
Middle	5178	-50.76	-25	-25.76	-51.51	-58.02	2.44	9.70	H
	7764	-60.41	-25	-35.41	-65.2	-70.02	2.34	11.96	H
	10368	-61.36	-25	-36.36	-69.92	-71.01	2.69	12.35	H
									H
									H
									H
									H
	5178	-48.76	-25	-23.76	-49.21	-56.02	2.44	9.70	V
	7764	-58.27	-25	-33.27	-63.47	-67.88	2.34	11.96	V
	10368	-61.01	-25	-36.01	-69.38	-70.66	2.69	12.35	V
									V
									V
									V
Highest	5364	-27.66	-25	-2.66	-29.29	-34.81	2.55	9.70	H
	8040	-28.85	-25	-3.85	-34.63	-38.71	2.28	12.13	H
	10728	-35.76	-25	-10.76	-45.47	-45.52	2.69	12.45	H
	13410	-40.51	-25	-15.51	-53.11	-51.05	3.03	13.57	H
	16092	-44.37	-25	-19.37	-58.31	-53.71	4.00	13.34	H
									H
									H
	5358	-28.51	-25	-3.51	-29.95	-35.67	2.54	9.70	V
	8046	-27.47	-25	-2.47	-33.64	-37.33	2.28	12.14	V
	10728	-30.99	-25	-5.99	-40.49	-40.75	2.69	12.45	V
	13410	-31.12	-25	-6.12	-43.44	-41.66	3.03	13.57	V
	16092	-37.22	-25	-12.22	-52.25	-46.56	4.00	13.34	V
									V

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

Appendix C. Antenna Information

EM7455				3G&LTE
Antenna 1	Manufacturer	Amphenol	Peak gain	2.97
	P/N	LX-7845-16-000-C	Type	PIFA
Antenna 2	Manufacturer	Speedwire	Peak gain	2.94
	P/N	F.0G.ZV-0006-001-00	Type	PIFA