FCC Test Report

APPLICANT	:	Bullitt Group
EQUIPMENT	:	Rugged Smart Phone
BRAND NAME	:	CAT
MODEL NAME	:	S30
FCC ID	:	ZL5S30
STANDARD	:	FCC 47 CFR FCC Part 15 Subpart B
CLASSIFICATION	:	Certification

The product was received on Jul. 01, 2015 and testing was completed on Jul. 25, 2015. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI C63.4-2009 and has been 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.

Louis Wu

Reviewed by: Louis Wu / Manager

Jones Tsai

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.

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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FC570160	Rev. 01	Initial issue of report	Aug. 11, 2015

SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.107	ICES003 Section 6.1	AC Conducted Emission	< 15.107 limits < ICES003 6.1 limits	PASS	Under limit 8.90 dB at 0.190 MHz
3.2	15.109	ICES003 Section 6.2	Radiated Emission	< 15.109 limits < ICES003 6.2 limits	PASS	Under limit 9.03 dB at 201.180 MHz

1. General Description

1.1. Applicant

Bullitt Group
One Valpy, Valpy Street, Reading, Berkshire, RG1 1AR. United Kingdom

1.2. Manufacturer

Compal Electronics, INC.
No. 385, Yangguang St. Neihu District, Taipei City 11491, Taiwan, R.O.C

1.3. Product Feature of Equipment Under Test

Product Feature	
Equipment	Rugged Smart Phone
Brand Name	CAT
Model Name	S30
FCC ID	ZL5S30
EUT supports Radios application	GSM/EGPRS/WCDMA/HSPA/LTE WLAN 11b/g/n HT20 Bluetooth v4.1 EDR/LE
EUT Stage	Identical Prototype

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

<Sample Information>

S30 has 2 different Variant	
Sample 1	Dual SIM
Sample 2	Single SIM
The HW difference is SIM holder	

1.4. Product Specification subjective to this standard

Product Specification subjective to this standard	
Tx Frequency	GSM850: 824.2 MHz ~ 848.8 MHz GSM1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band IV : 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz LTE Band 2 : 1850.7 MHz ~ 1909.3 MHz LTE Band 4 : 1710.7 MHz ~ 1754.3 MHz LTE Band 7 : 2502.5 MHz ~ 2567.5 MHz LTE Band 17 : 706.5 MHz ~ 713.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz
Rx Frequency	GSM850: 869.2 MHz ~ 893.8 MHz GSM1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band IV : 2112.4 MHz ~ 2152.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz LTE Band 2 : 1930.7 MHz ~ 1989.3 MHz LTE Band 4 : 2110.7 MHz ~ 2154.3 MHz LTE Band 7 : 2622.5 MHz ~ 2687.5 MHz LTE Band 17 : 736.5 MHz ~ 743.5 MHz 802.11b/g/n: 2412 MHz ~ 2462 MHz Bluetooth: 2402 MHz ~ 2480 MHz GPS : 1.57542 GHz
Antenna Type	WWAN : PIFA + Coupling type (LDS) Antenna WLAN : PIFA Antenna Bluetooth : PIFA Antenna GPS : PIFA Antenna
Type of Modulation	GSM: GMSK GPRS: GMSK EDGE(MCS 0-4): GMSK / (MCS 5-9): 8PSK WCDMA: QPSK (Uplink) HSDPA: 64QAM (Downlink) HSUPA: QPSK (Uplink) LTE: QPSK / 16QAM / 64QAM 802.11b : DSSS (DBPSK / DQPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) Bluetooth LE : GFSK Bluetooth (1Mbps) : GFSK Bluetooth (2Mbps) : π/4-DQPSK Bluetooth (3Mbps) : 8-DPSK GPS : BPSK

1.5. Modification of EUT

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

1.6. Test 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.**	
	CO05-HY	03CH06-HY

1.7. Applicable Standards

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

- FCC 47 CFR FCC Part 15 Subpart B
- ANSI C63.4-2009

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

The EUT has been associated with peripherals pursuant to ANSI C63.4-2009 and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

Frequency range investigated: conduction (150 kHz to 30 MHz), radiation (30MHz to the 5th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The following tables are showing the test modes as the worst cases and recorded in this report.

Item	EUT Configuration	Test Condition		
		EMI AC	EMI RE<1G	EMI RE≥1G
1.	Charging Mode (EUT with adapter)	☒	☒	Note 1
2.	Data application transferred mode (EUT with notebook)	☒	☒	☒

Abbreviations:

- EMI AC: AC conducted emissions
- EMI RE ≥ 1G: EUT radiated emissions ≥ 1GHz
- EMI RE < 1G: EUT radiated emissions < 1GHz

Note 1: Testing for this mode is not required or not the worst case.

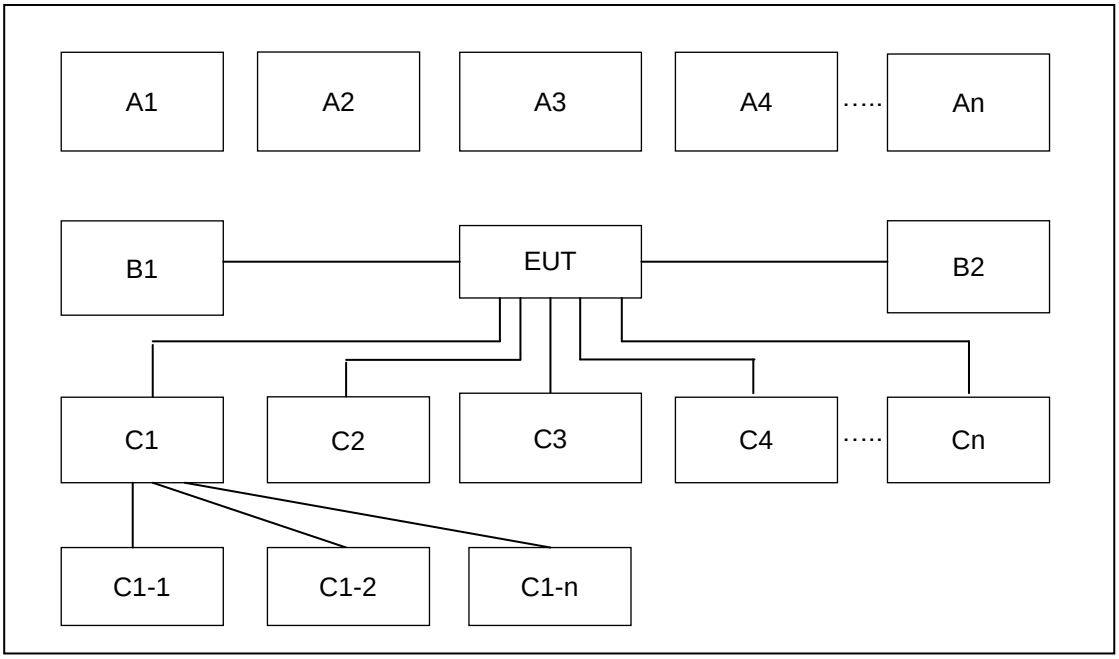
Remark: For signal above 1GHz, the worst case was test item 2.

Test Items	EUT Configure Mode	Function Type
AC Conducted Emission	1/2	Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle + MP3 + Earphone 1 + Battery + USB Cable (Charging from Adapter 1) + SIM 1for Sample 1 Mode 2: WCDMA Band II Idle + Bluetooth Idle + WLAN Idle + Camera + Earphone 1 + Battery + USB Cable (Charging from Adapter 2) + SIM 1for Sample 1 Mode 3: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone 1 + Battery + USB Cable (Data Link with Notebook) + SIM 1for Sample 1 Mode 4: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone 1 + Battery + USB Cable (Data Link with Notebook) + SIM 2 for Sample 1 Mode 5: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone 2 + Battery + USB Cable (Data Link with Notebook) + SIM 1 for Sample 1
Radiated Emissions < 1GHz	1/2	Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle + MP3 + Earphone 1 + Battery + USB Cable (Charging from Adapter 1) + SIM 1 for Sample 1 Mode 2: WCDMA Band II Idle + Bluetooth Idle + WLAN Idle + Camera + Earphone 1 + Battery + USB Cable (Charging from Adapter 2) + SIM 1 for Sample 1 Mode 3: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone 1 + Battery + USB Cable (Data Link with Notebook) + SIM 1 for Sample 1 Mode 4: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone 1 + Battery + USB Cable (Data Link with Notebook) + SIM 2 for Sample 1 Mode 5: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone2 + Battery + USB Cable (Data Link with Notebook) + SIM 1 for Sample 1
Radiated Emissions ≥ 1GHz	2	Mode 1: LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone2 + Battery + USB Cable (Data Link with Notebook) + SIM 1 for Sample 1

Remark:

1. The worst case of AC is mode 3; only the test data of this mode was reported.
2. The worst case of RE < 1G is mode 5; only the test data of this mode was reported.
3. Data Link with Notebook means data application transferred mode between EUT and Notebook.

2.2. Connection Diagram of Test System



Conduction Test Setup									
No.	**Wireless Station**	**Connection Type**	**Test Mode**						
			1	**2**	**3**	**4**	**5**	**-**	**-**
A1	BT Earphone	Bluetooth	**X**	**X**	**X**	**X**	**X**		
A2	System Simulator	GSM/WCDMA/LTE	**X**	**X**	**X**	**X**	**X**		
A3	GPS Station	GPS			**X**	**X**	**X**		
A4	AP router	WiFi	**X**	**X**	**X**	**X**	**X**		
No.	**Power Source**	**Connection Type**	**1**	**2**	**3**	**4**	**5**	**-**	**-**
B1	AC : 120V/60Hz	AC Power Cable	**X**	**X**					
No.	**Setup Peripherals**	**Connection Type**	**1**	**2**	**3**	**4**	**5**	**-**	**-**
C1	Notebook	USB cable			**X**	**X**	**X**		
C1-1	IPod	USB Cable to C1			**X**	**X**	**X**		
C1-2	AP router	RJ-45 Cable to C1			**X**	**X**	**X**		
C2	Earphone	Earphone jack	**X**	**X**	**X**	**X**	**X**		
C3	SD card	SD I/O interface without cable	**X**	**X**	**X**	**X**	**X**		

Radiation Test Setup									
No.	Wireless Station	Connection Type	Test Mode						
			1	2	3	4	5	-	-
A1	BT Earphone	Bluetooth	X	X	X	X	X		
A2	GPS Station	GPS			X	X	X		
A3	System Simulator	GSM/WCDMA/LTE	X	X	X	X	X		
A4	AP router	WiFi	X	X	X	X	X		
No.	**Power Source**	**Connection Type**	**1**	**2**	**3**	**4**	**5**	**-**	**-**
B1	AC : 120V/60Hz	AC Power Cable	X	X					
No.	**Setup Peripherals**	**Connection Type**	**1**	**2**	**3**	**4**	**5**	**-**	**-**
C1	Notebook	USB cable			X	X	X		
C1-1	IPod	USB Cable to C1			X	X	X		
C1-2	WLAN AP	RJ-45 Cable to C1			X	X	X		
C2	Earphone	Earphone jack	X	X	X	X	X		
C3	SD card	SD I/O interface without cable	X	X	X	X	X		

2.3. Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	System Simulator	R&S	CMW 500	N/A	N/A	Unshielded, 1.8 m
3.	System Simulator	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
4.	GPS station	Pendulum	GSG-54	N/A	N/A	Unshielded, 1.8 m
5.	WLAN AP	D-Link	DIR-865L	KA2IR865LA1	N/A	Unshielded, 1.8 m
6.	WLAN AP	D-Link	DIR-628	KA2DIR628A2	N/A	Unshielded, 1.8 m
7.	Notebook	DELL	Latitude E6320	FCC DoC/ Contains FCC ID: QDS-BRCM1054	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
8.	iPod	Apple	A1199	FCC DoC	Shielded, 1.0 m	N/A
9.	iPod	Apple	A1285	FCC DoC	Shielded, 1.0 m	N/A
10.	Bluetooth Earphone	Sony Ericsson	MW600	PY7DDA-2029	N/A	N/A
11.	SD Card	SanDisk	MicroSD HC	FCC DoC	N/A	N/A

2.4. EUT Operation Test Setup

The EUT was in GSM, WCDMA, and LTE idle mode during the testing. The EUT was synchronized to the BCCH, and is in continuous receiving mode by setting system simulator's paging reorganization.

At the same time, the EUT was attached to the Bluetooth earphone or WLAN AP, and the following programs installed in the EUT were programmed during the test.

1. Data application is transferred between Laptop and EUT via USB cable.
2. Execute "GPS Test" to make the EUT receive continuous signals from GPS station.
3. Execute "Music Player" to play MP3 file.
4. Turn on camera to capture images.

3. Test Result

3.1. Test of AC Conducted Emission Measurement

3.1.1 Limits of AC Conducted Emission

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

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

*Decreases with the logarithm of the frequency.

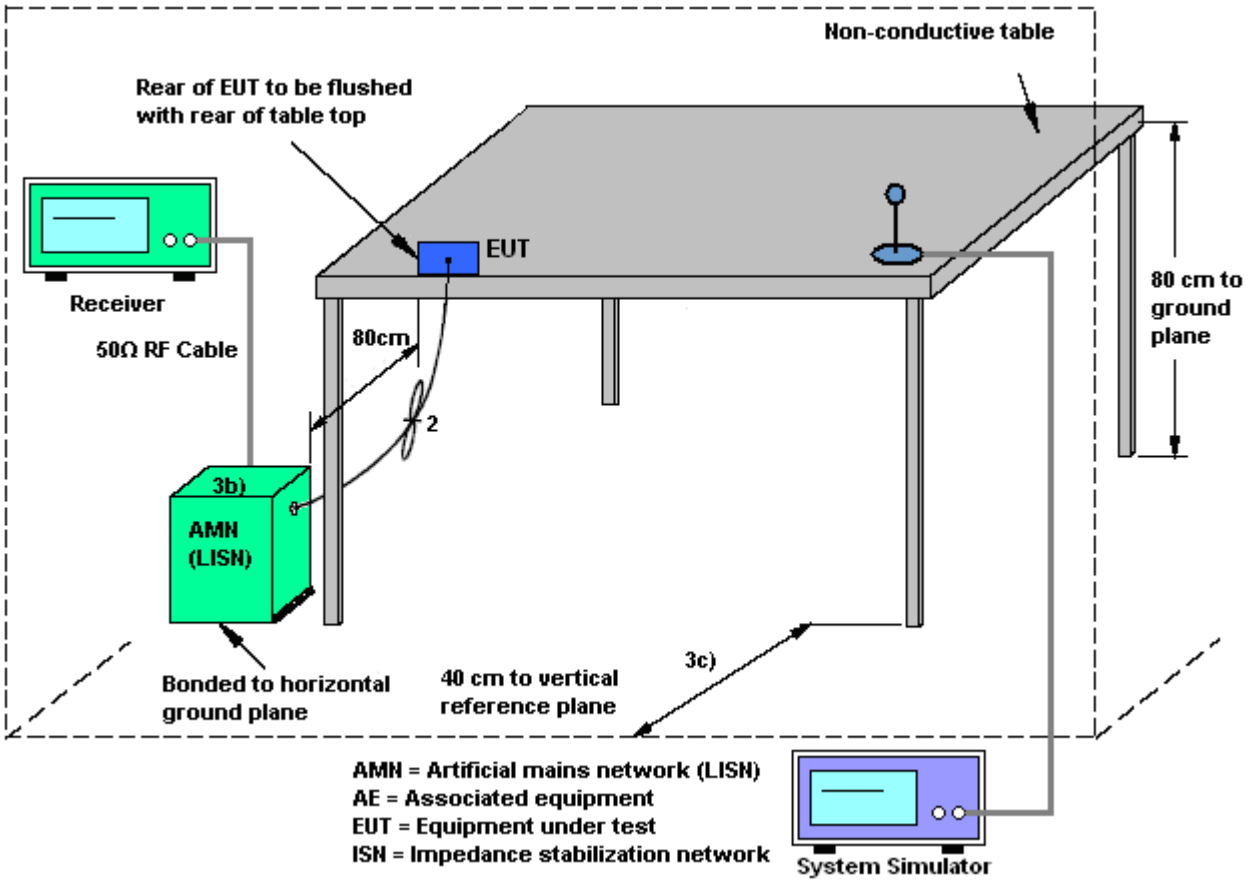
3.1.2 Measuring Instruments

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

3.1.3 Test Procedure

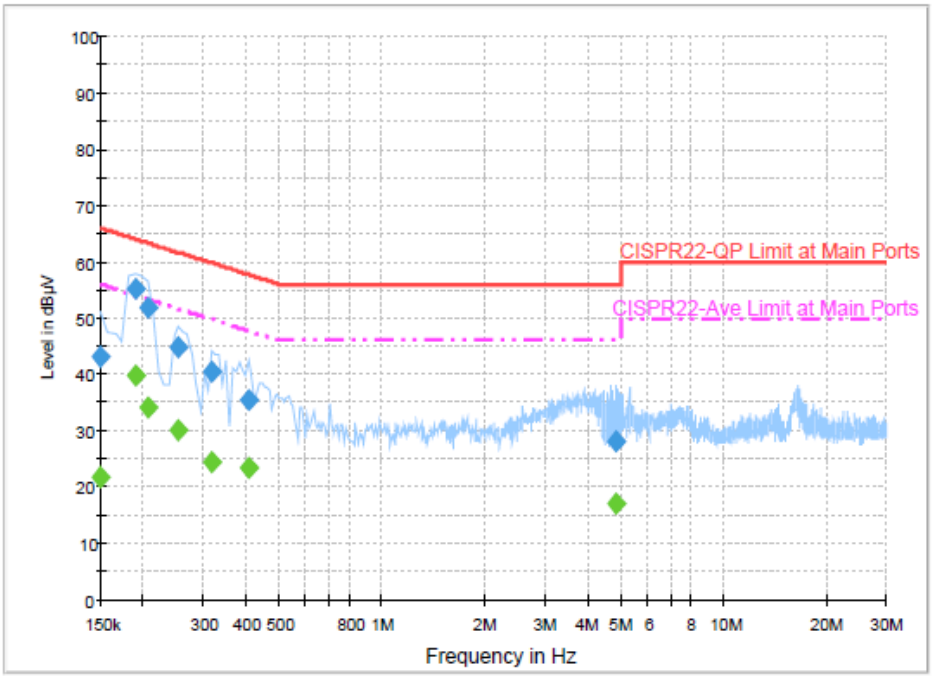
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.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

3.1.4 Test Setup



3.1.5 Test Result of AC Conducted Emission

Test Mode :	Mode 3	**Temperature :**	23~25℃
Test Engineer :	Eric Jeng	**Relative Humidity :**	56~60%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone 1 + Battery + USB Cable (Data Link with Notebook) + SIM 1for Sample 1		



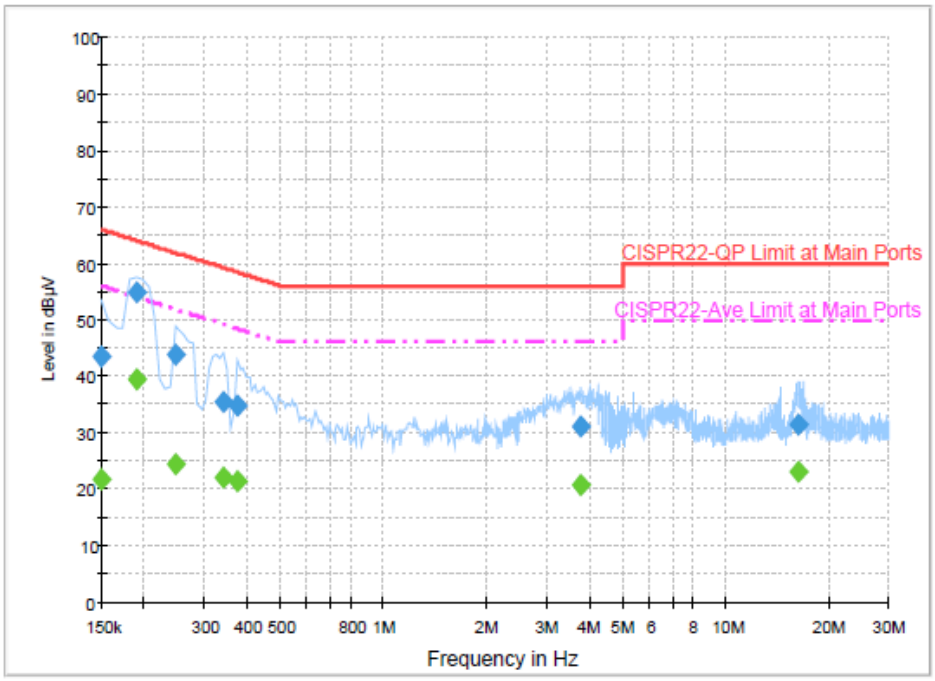
Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	43.0	Off	L1	19.5	23.0	66.0
0.190000	55.1	Off	L1	19.5	8.9	64.0
0.206000	51.9	Off	L1	19.4	11.5	63.4
0.254000	44.7	Off	L1	19.4	16.9	61.6
0.318000	40.4	Off	L1	19.5	19.4	59.8
0.406000	35.6	Off	L1	19.6	22.1	57.7
4.862000	27.9	Off	L1	19.8	28.1	56.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	21.7	Off	L1	19.5	34.3	56.0
0.190000	39.7	Off	L1	19.5	14.3	54.0
0.206000	34.2	Off	L1	19.4	19.2	53.4
0.254000	30.0	Off	L1	19.4	21.6	51.6
0.318000	24.5	Off	L1	19.5	25.3	49.8
0.406000	23.2	Off	L1	19.6	24.5	47.7
4.862000	17.2	Off	L1	19.8	28.8	46.0

Test Mode :	Mode 3	Temperature :	23~25℃
Test Engineer :	Eric Jeng	Relative Humidity :	56~60%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone 1 + Battery + USB Cable (Data Link with Notebook) + SIM 1for Sample 1		



Final Result : Quasi-Peak

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	43.6	Off	N	19.5	22.4	66.0
0.190000	54.7	Off	N	19.5	9.3	64.0
0.246000	43.9	Off	N	19.5	18.0	61.9
0.342000	35.4	Off	N	19.5	23.8	59.2
0.374000	34.9	Off	N	19.5	23.5	58.4
3.774000	31.2	Off	N	19.7	24.8	56.0
16.366000	31.3	Off	N	20.0	28.7	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	21.7	Off	N	19.5	34.3	56.0
0.190000	39.5	Off	N	19.5	14.5	54.0
0.246000	24.3	Off	N	19.5	27.6	51.9
0.342000	22.0	Off	N	19.5	27.2	49.2
0.374000	21.6	Off	N	19.5	26.8	48.4
3.774000	20.9	Off	N	19.7	25.1	46.0
16.366000	23.1	Off	N	20.0	26.9	50.0

3.2. Test of Radiated Emission Measurement

3.2.1. Limit of Radiated Emission

The emissions from an unintentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

3.2.2. Measuring Instruments

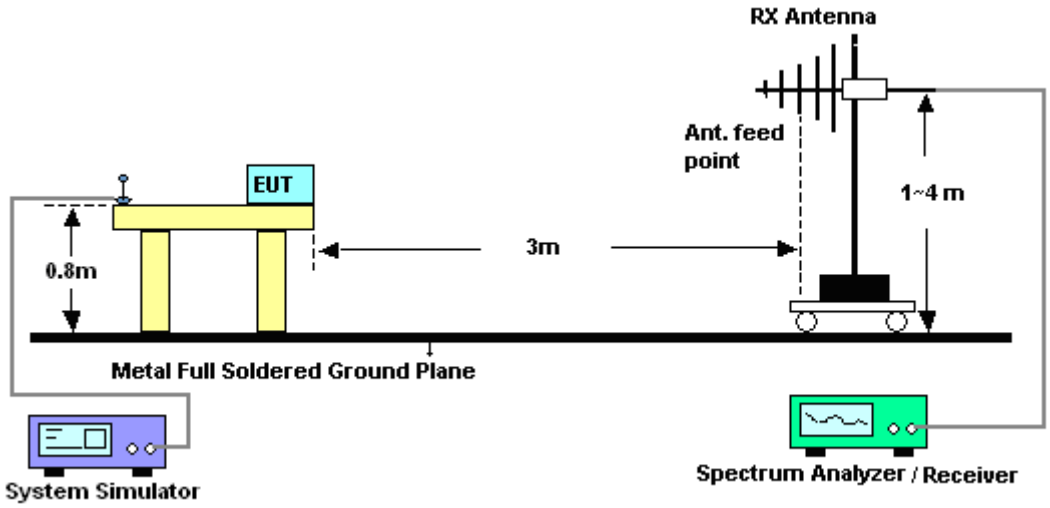
The measuring equipment is listed in the section 4 of this test report.

3.2.3. Test Procedures

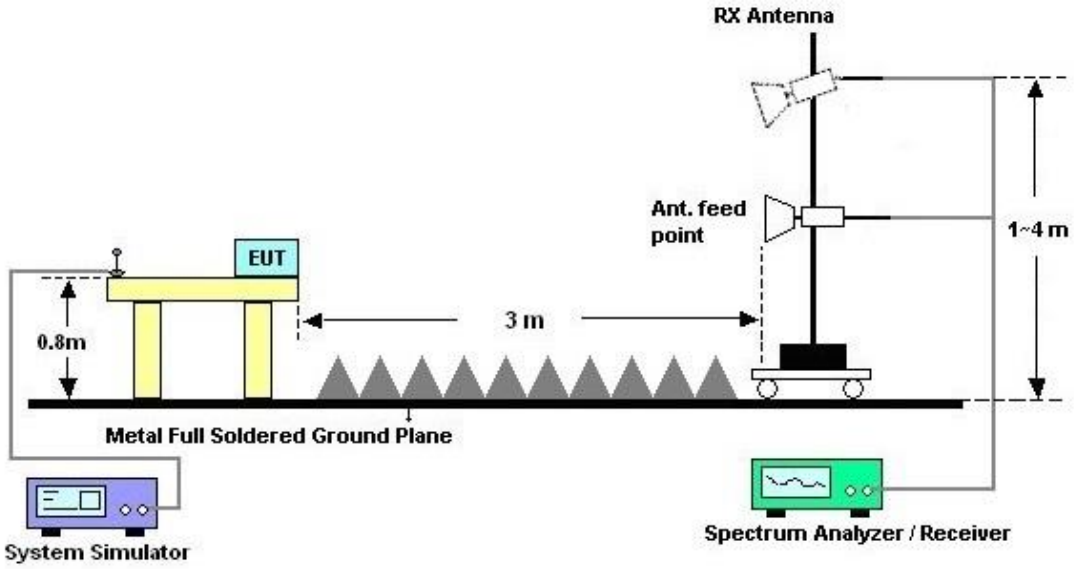
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna is a Bi-Log antenna and its height is adjusted between one to four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode (RBW=120kHz/VBW=300kHz for frequency below 1GHz; RBW=1MHz VBW=3MHz (Peak), RBW=1MHz/VBW=10Hz (Average) for frequency above 1GHz).
7. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, peak values of EUT will be reported. Otherwise, the emission will be repeated by using the quasi-peak method and reported.
8. Emission level (dBμV/m) = 20 log Emission level (μV/m)
9. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz

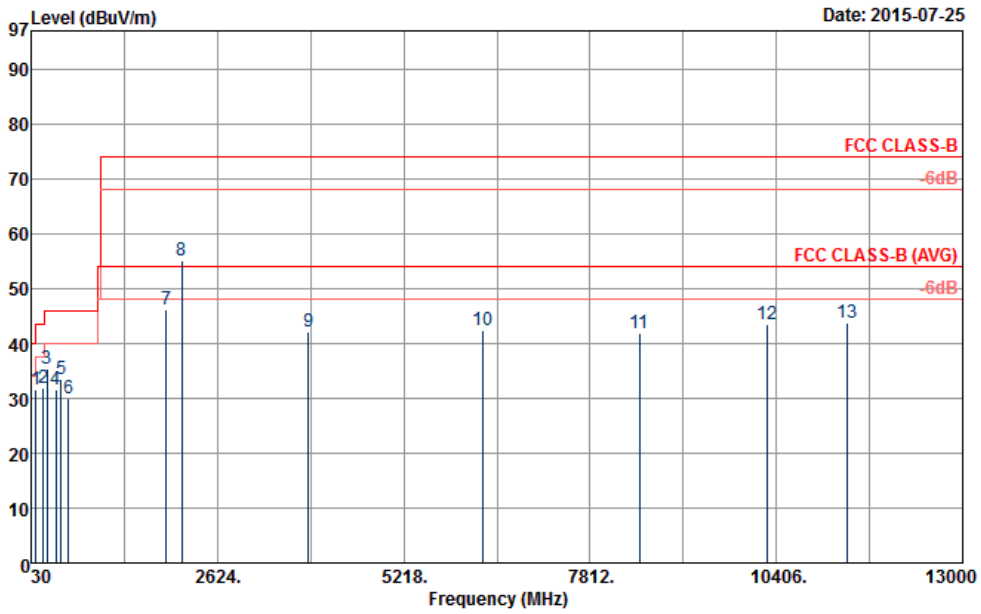


For radiated emissions above 1GHz



3.2.5. Test Result of Radiated Emission

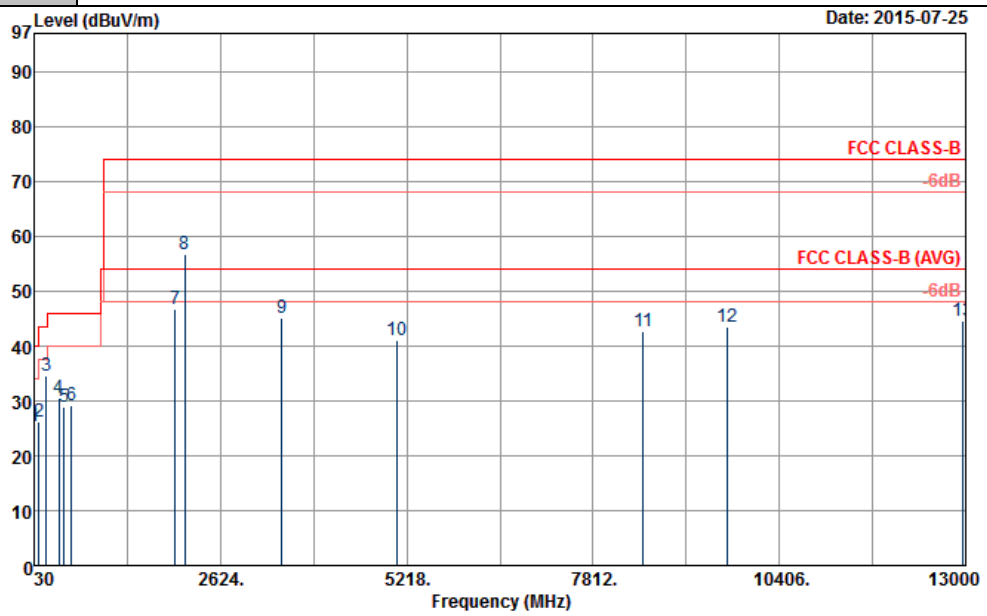
Test Mode :	Mode 5	**Temperature :**	20~23°C
Test Engineer :	Daniel Lee and Hayden Wu	**Relative Humidity :**	50~53%
Test Distance :	3m	**Polarization :**	Horizontal
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone2 + Battery + USB Cable (Data Link with Notebook) + SIM 1 for Sample 1		
Remark :	#8 is system simulator signal which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_584_150714 HORIZONTAL
Project : 570160
Power : From System
Mode : Mode 5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	93.72	31.69	-11.81	43.50	52.61	9.74	1.08	31.74	---	---	Peak
2	202.26	31.95	-11.55	43.50	52.90	9.23	1.55	31.73	---	---	Peak
3	253.29	35.52	-10.48	46.00	52.76	12.72	1.75	31.71	112	248	Peak
4	379.80	31.60	-14.40	46.00	46.25	15.00	2.13	31.78	---	---	Peak
5	449.80	33.56	-12.44	46.00	46.30	16.80	2.31	31.85	---	---	Peak
6	549.90	30.04	-15.96	46.00	40.70	18.80	2.54	32.00	---	---	Peak
7	1914.00	46.32	-27.68	74.00	68.25	32.62	5.95	60.50	100	0	Peak
8	2132.50	55.20			76.05	33.33	6.32	60.50	---	---	Peak
9	3886.00	42.03	-31.97	74.00	62.05	32.57	8.87	61.46	---	---	Peak
10	6318.00	42.43	-31.57	74.00	57.35	33.67	11.63	60.22	---	---	Peak
11	8500.00	41.84	-32.16	74.00	52.68	35.20	13.36	59.40	---	---	Peak
12	10288.00	43.40	-30.60	74.00	52.66	36.56	15.00	60.82	---	---	Peak
13	11396.00	43.83	-30.17	74.00	50.20	36.14	16.03	58.54	---	---	Peak

Test Mode :	Mode 5	Temperature :	20~23°C
Test Engineer :	Daniel Lee and Hayden Wu	Relative Humidity :	50~53%
Test Distance :	3m	Polarization :	Vertical
Function Type :	LTE Band 4 Idle + Bluetooth Idle + WLAN Idle + GPS Rx + Earphone2 + Battery + USB Cable (Data Link with Notebook) + SIM 1 for Sample 1		
Remark :	#8 is system simulator signal which can be ignored.		



Site : 03CH06-HY
Condition : FCC CLASS-B 3m HF-ANT_584_150714 VERTICAL
Project : 570160
Power : From System
Mode : Mode 5

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	30.54	25.47	-14.53	40.00	38.58	18.02	0.65	31.78	---	---	Peak
2	95.07	26.18	-17.32	43.50	46.84	10.00	1.08	31.74	---	---	Peak
3	201.18	34.47	-9.03	43.50	55.45	9.21	1.54	31.73	100	235	Peak
4	379.80	30.58	-15.42	46.00	45.23	15.00	2.13	31.78	---	---	Peak
5	449.80	28.87	-17.13	46.00	41.61	16.80	2.31	31.85	---	---	Peak
6	549.90	29.06	-16.94	46.00	39.72	18.80	2.54	32.00	---	---	Peak
7	1994.00	46.82	-27.18	74.00	67.90	33.32	6.10	60.50	100	0	Peak
8	2132.50	56.74			77.59	33.33	6.32	60.50	---	---	Peak
9	3474.00	45.09	-28.91	74.00	65.04	33.16	8.18	61.29	---	---	Peak
10	5076.00	41.19	-32.81	74.00	57.02	32.72	10.28	58.83	---	---	Peak
11	8514.00	42.69	-31.31	74.00	53.44	35.23	13.45	59.43	---	---	Peak
12	9680.00	43.48	-30.52	74.00	54.05	36.13	14.40	61.10	---	---	Peak
13	12962.00	44.57	-29.43	74.00	50.28	37.85	16.61	60.17	---	---	Peak

4. List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	Rohde & Schwarz	ESCS 30	100356	9kHz – 2.75GHz	Dec. 01, 2014	Jul. 15, 2015 ~ Jul. 21, 2015	Nov. 30, 2015	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Dec. 02, 2014	Jul. 15, 2015 ~ Jul. 21, 2015	Dec. 01, 2015	Conduction (CO05-HY)
AC Power Source	ChainTek	APC-1000W	N/A	N/A	N/A	Jul. 15, 2015 ~ Jul. 21, 2015	N/A	Conduction (CO05-HY)
LISN (for auxiliary equipment)	Rohde & Schwarz	ENV216	100081	9kHz~30MHz	Dec. 08, 2014	Jul. 15, 2015 ~ Jul. 21, 2015	Dec. 07, 2015	Conduction (CO05-HY)
Horn Antenna	ESCO	3117	00066584	1GHz~18GHz	Aug. 30, 2014	Jul. 15, 2015 ~ Jul. 25, 2015	Aug. 29, 2015	Radiation (03CH06-HY)
Bilog Antenna	Teseq GmbH	CBL6112D	35379	30MHz~2GHz	Sep. 27, 2014	Jul. 15, 2015 ~ Jul. 25, 2015	Sep. 26, 2015	Radiation (03CH06-HY)
EMI Test Receiver	Rohde & Schwarz	ESU26	100472	20Hz~26.5GHz	Jan. 19, 2015	Jul. 15, 2015 ~ Jul. 25, 2015	Jan. 18, 2016	Radiation (03CH06-HY)
Preamplifier	SONOMA	310N	186713	9kHz~1GHz	Apr. 20, 2015	Jul. 15, 2015 ~ Jul. 25, 2015	Apr. 19, 2016	Radiation (03CH06-HY)
Preamplifier	MITEQ	AMF-7D-0010 1800-30-10P	1850117	1GHz ~ 18GHz	Jul. 01, 2015	Jul. 15, 2015 ~ Jul. 25, 2015	Jun. 30, 2016	Radiation (03CH06-HY)
Antenna Mast	MF	MF-7802	MF780208212	1m~4m	N/A	Jul. 15, 2015 ~ Jul. 25, 2015	N/A	Radiation (03CH06-HY)
Turn Table	EMEC	TT 2000	N/A	0-360 degree	N/A	Jul. 15, 2015 ~ Jul. 25, 2015	N/A	Radiation (03CH06-HY)

5. Uncertainty of Evaluation

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.0**