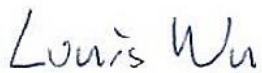


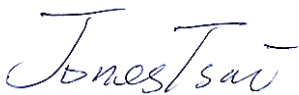
FCC Test Report

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.



Reviewed by: Louis Wu / Manager

Approved by: Jones Tsai / Manager

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 |
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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) : $\pi/4$ -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 1 st 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:

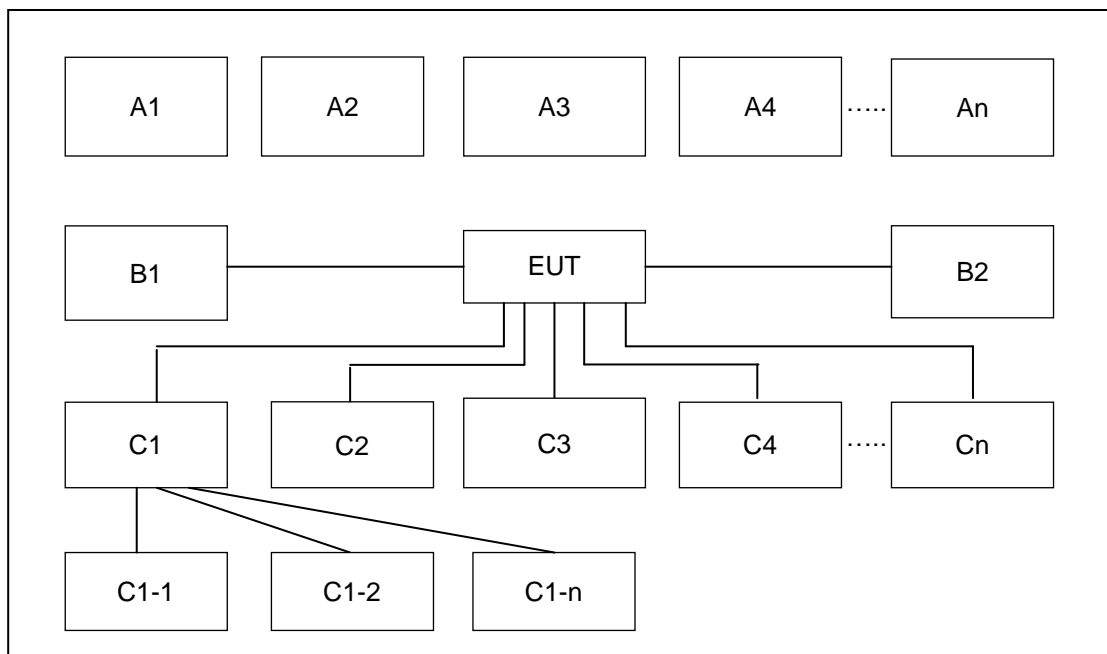
- EMI AC: AC conducted emissions
- EMI RE ≥ 1G: EUT radiated emissions ≥ 1GHz
- EMI RE < 1G: EUT radiated emissions < 1GHz

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 | <p>Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle + MP3 + Earphone 1 + Battery + USB Cable (Charging from Adapter 1) + SIM 1 for Sample 1</p> <p>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</p> <p>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</p> <p>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</p> <p>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</p> |
| Radiated Emissions < 1GHz | 1/2 | <p>Mode 1: GSM850 Idle + Bluetooth Idle + WLAN Idle + MP3 + Earphone 1 + Battery + USB Cable (Charging from Adapter 1) + SIM 1 for Sample 1</p> <p>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</p> <p>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</p> <p>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</p> <p>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</p> |
| Radiated Emissions ≥ 1GHz | 2 | <p>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</p> |
| Remark: <ol style="list-style-type: none"> The worst case of AC is mode 3; only the test data of this mode was reported. The worst case of RE < 1G is mode 5; only the test data of this mode was reported. 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.

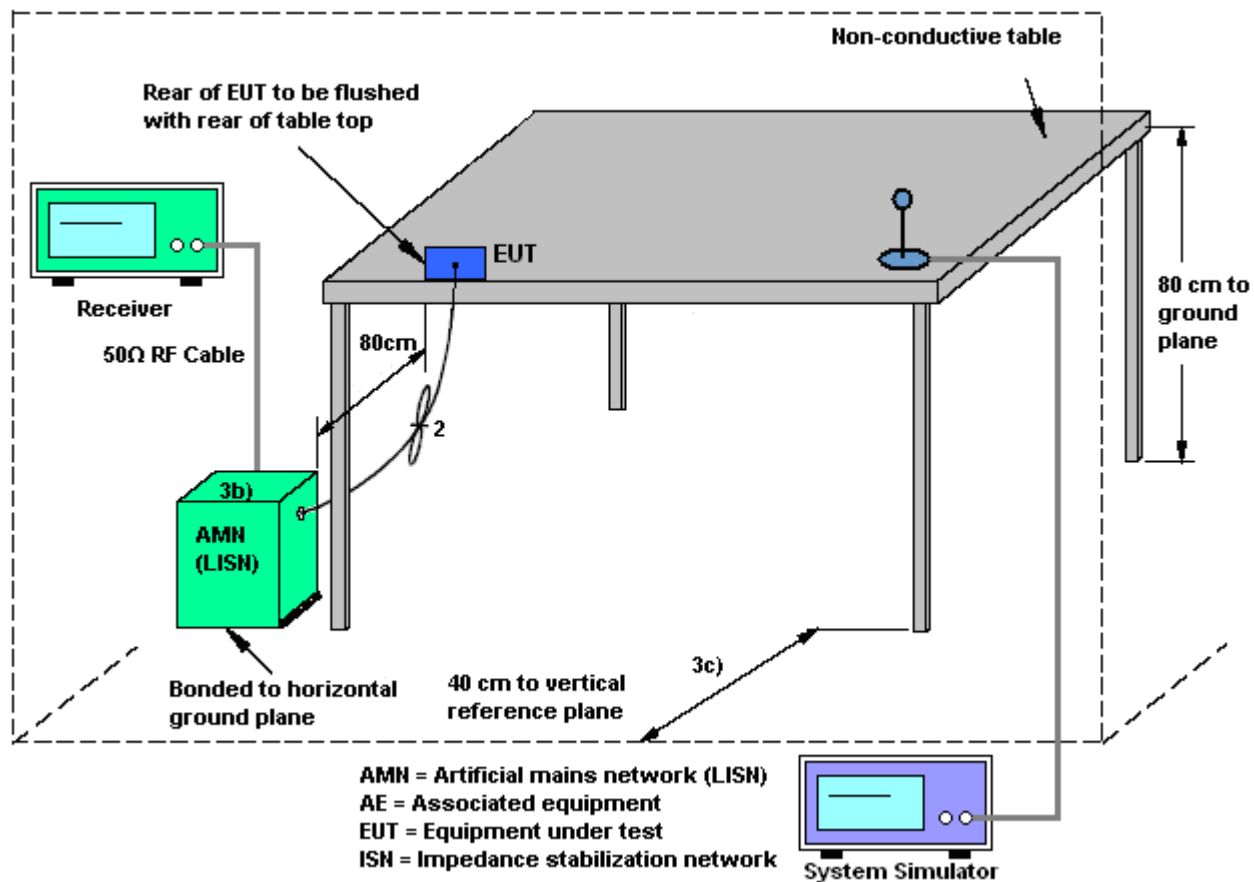
3.1.2 Measuring Instruments

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

3.1.3 Test Procedure

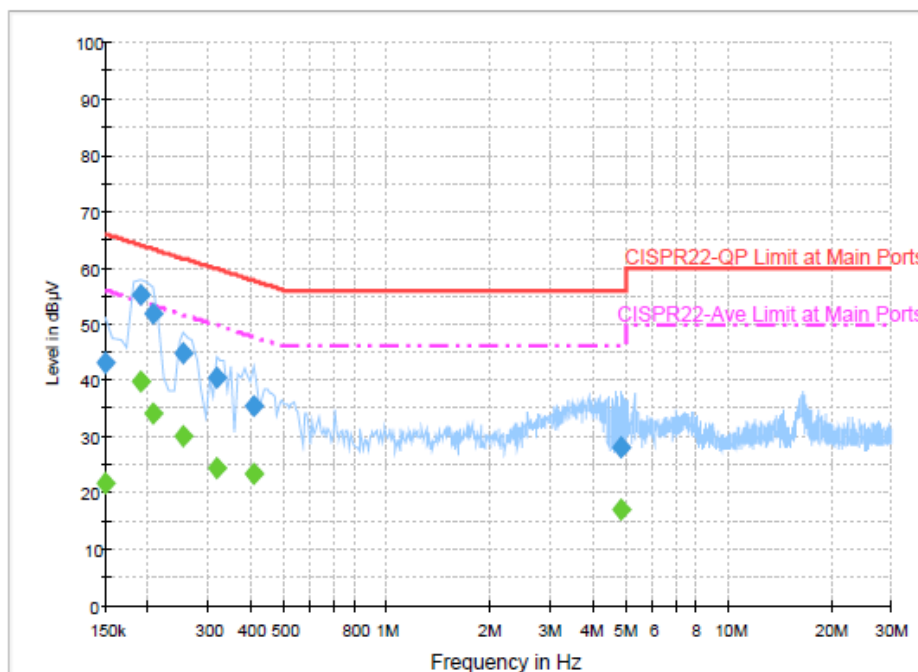
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
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°C |
| 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 | | |



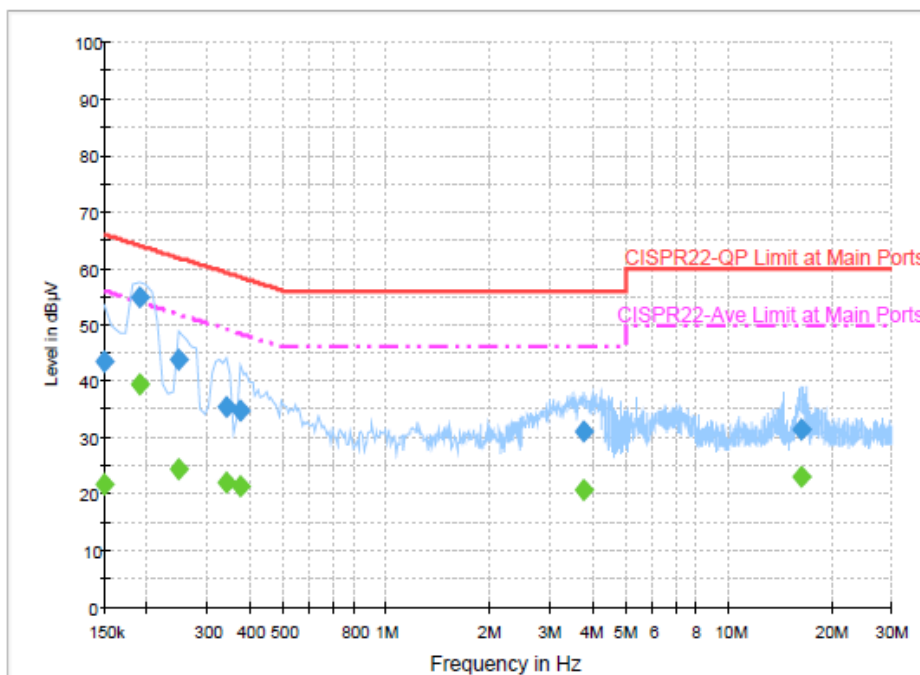
Final Result : Quasi-Peak

| 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°C |
| 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

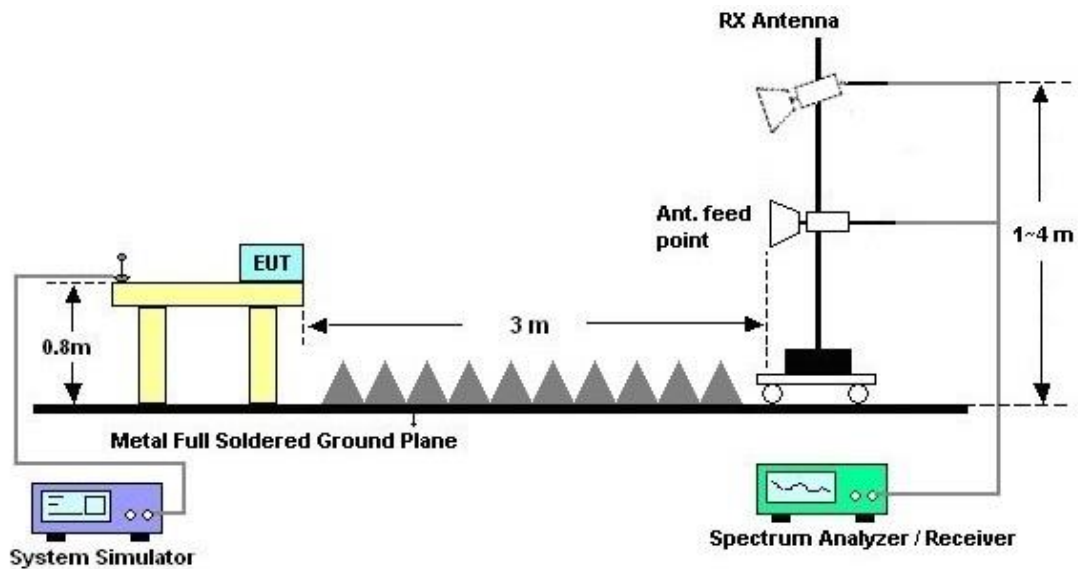
1. The EUT was placed on a turntable with 0.8 meter above ground.
2. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest radiation.
4. The antenna 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 - Preamplifier Factor = Level

3.2.4. Test Setup of Radiated Emission

For radiated emissions from 30MHz to 1GHz

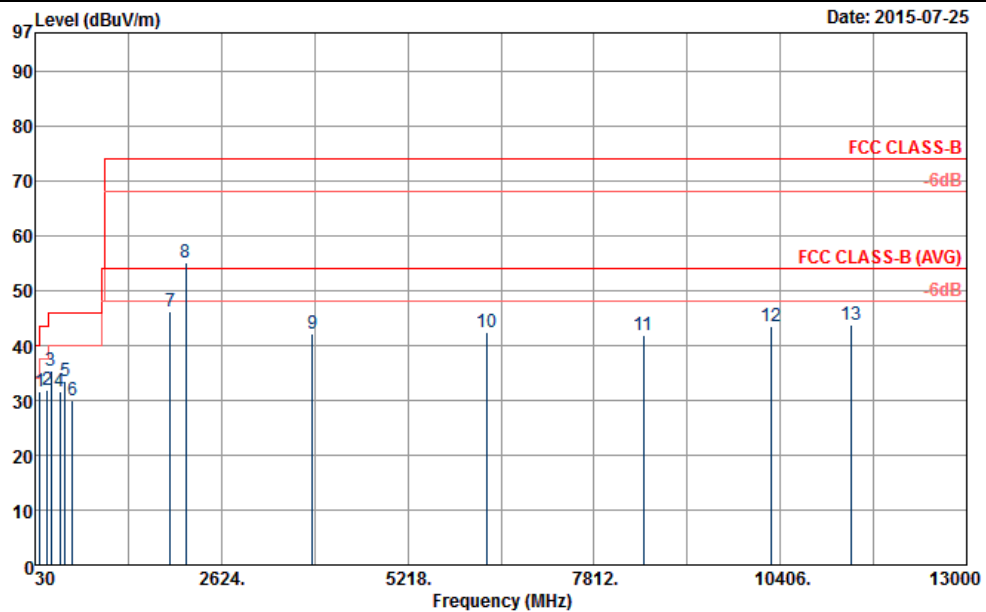


For radiated emissions above 1GHz



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. | | |

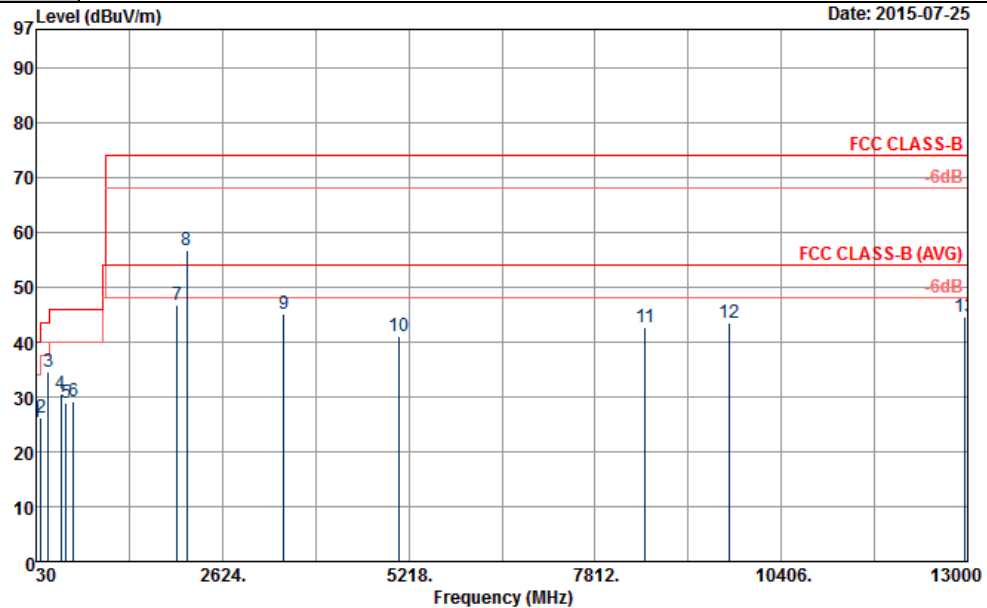


Site : 03CH06-HY
 Condition : FCC CLASS-B 3m HF-ANT_584_150714 HORIZONTAL
 Project : 570160
 Power : From System
 Mode : Mode 5

| | Freq | Level | Over Limit | Limit Line | ReadAntenna Level | 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 | ReadAntenna Level | Cable Factor | Preamp Loss | 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 | MF78020821 2 | 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% ($U = 2U_c(y)$) | 2.26 |
|--|------|

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

| | |
|--|-----|
| Measuring Uncertainty for a Level of Confidence of 95% ($U = 2U_c(y)$) | 4.0 |
|--|-----|