

TEST REPORT

Date: 2013-08-08 Report No.: 60.870.13.027.03F

| Applicant: | Binatone Electronics International Ltd. Floor 23A, 9 Des Voeux Road West, Sheung Wan, Hong Kong | | | | |
|--------------------------|---|--|--|--|--|
| Description of Samples: | Model name: Brand name: Model no.: FCCID: | Wireless Monitoring System (Monitor Unit) MOTOROLA SCOUT1000MU VLJ-SC1000MU | | | |
| Date Samples Received: | 2013-07-03 | | | | |
| Date Tested: | 2013-07-03 to 2013-08-07 | | | | |
| Investigation Requested: | FCC Part 15 S | ubpart C, Section 15.247 | | | |
| Conclusions: | The submitted product <u>COMPLIED</u> with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report. | | | | |
| Remarks: | | | | | |
| Checked by: | Approved by:- | | | | |

Ray Cheung Project Engineer Wireless & Telecom Department Jeff Pong Operation Manager Wireless & Telecom Department



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1.0 General Details

1.1 Test Laboratory

Global United Technology Services Co. Ltd. 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District Registration Number: 600491

Tested by:

Ampli John Zhi

1.2 Applicant Details

Applicant

Binatone Electronics International Ltd. Floor 23A, 9 Des Voeux Road West, Sheung Wan Hong Kong

Manufacturer

Alford Industries Ltd Unit 02, 6th Floor, Yen Sheng Centre, 64 Hoi Yuen Road, Kwun Tong, Hong Kong



1.3 Equipment Under Test [EUT]

Description of EUT

| Product Description: | Wireless Monitoring System (Monitor Unit) |
|---------------------------------------|---|
| Model No.: | SCOUT1000MU |
| Brand Name: | MOTOROLA |
| FCCID: | VLJ-SC1000MU |
| Rating: | DC6.0V, 500mA powered by AC/DC power adaptor or |
| | - DC 3.6V, 900mAh Ni-MH Rechargeable Battery |
| Operated Frequency: | 2410.875 -2471.625 MHz |
| No. of Operated Channel: | 19 |
| Accessories and Auxiliary Equipments: | Nil |
| Antonna Tyroc: | Integral |

Antenna Type: Manufacture of Antenna: Antenna Gain: Antenna Model: Integral Alford. 0dBi N/A

General Operation of EUT

The Equipment Under Test (EUT) is a Monitor of Wireless Monitoring System.

FHSS Operation Principle:

This module is controlled by microchip to generate Pseudorandom Frequency Hopping Sequence, this module support 19 hopping channels. Refer to section 4.5 of this report to have more detail of Pseudorandom Hopping Algorithm.

1.4 Related Submittal(s) Grants

This is a signal application subjected to Certificate Authorization.



2.0 <u>Technical Details</u>

2.1 Investigations Requested

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 and ANSI C63.4: 2003

2.2 Test Standards and Results Summary Tables

| Test Condition | Test Requirement | Test Re | sult |
|---|-----------------------|-----------------|------|
| | | Pass | N/A |
| Number of Frequency Hopping | Section 15.247 (a1) | | |
| 20dB Bandwidth Measurement | Section 15.247 (a1) | | |
| Hopping Channel Carrier Frequency Separation | Section 15.247 (a1) | | |
| Average Time of Occupancy | Section 15.247 (a1) | | |
| Pseudorandom Hopping Algorithm | Section 15.247 (a1) | | |
| Band Edge Measurement | Section 15.247 | | |
| Maximum Output Power | Section 15.247 (b1) | | |
| Out of Band Emission | Section 15.247 (d) | | |
| Radiated Emission in Restricted Band | Section 15.247 (d) | | |
| Conducted Emission on AC Mains | Section 15.207 | | |
| RF Exposure | Section 15.247 (i) | | |
| Antenna Requirement | Section 15.203 | ⊠ See note 1 | |

Note 1 : The EUT uses a permanently attached antenna, which in accordance to Section 15.203, is considered sufficient to comply with the provisions of this section.

Remark: N/A - Not Applicable



3.0 Test Methodology

3.1 Radiated Emission

The sample was placed 0.8m above the ground plane on a standard emission test site *. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

3.2 Field Strength Calculation

The field strength at 3 m was established by adding the meter reading of the spectrum analyzer to the factors associated with antenna correction factor, cable loss, preamplifiers and filter attenuation.

The equation is expressed as follow:

FS = R + System Factor System Factor = AF + CF + FA – PA

Where FS = Net Field Strength in dBuV/m at 3 meters.

- R = Reading of Spectrum Analyzer / Test Receiver in dBuV.
- AF = Antenna Factor in dB.

CF = Cable Attenuation Factor in dB.

- FA = Filter Attenuation Factor in dB.
- PA = Preamplifier Factor in dB.

FA and PA are only be used for the measuring frequency above 1 GHz.

3.3 Conducted Emissions

The test was performed in accordance with ANSI C63.4: 2003, with the following: initial measurements were performed in peak and average detection modes on the live line of personal computer, any emissions recorded within 30dB of the relevant limit lines were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.



4.0 Test Results

4.1 Number of Hopping Frequency

Test Requirement: Test Date: Mode of Operation: Detector Function: FCC part 15 section 15.247 (a1)(iii) 2013-07-17 Transmitting mode. Max Hold

Result: PASS

Measured Result :

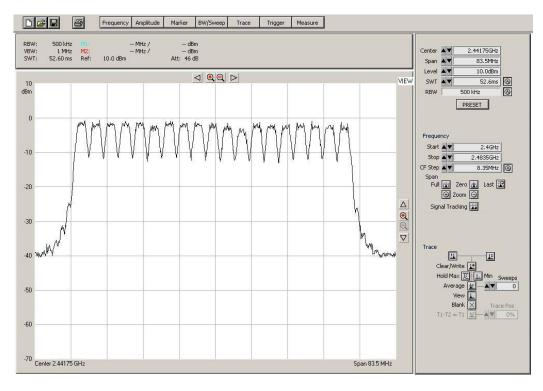
Operating Channel Frequency in sequence (MHz):

2410.875 ; 2414.25 ; 2417.625 ; 2421 ; 2424.375 ; 2427.75 ; 2431.125 ; 2434.5 ; 2437.875 ; 2441.25 ; 2444.625 ; 2448 ; 2451.375 ; 2454.75 ; 2458.125 ; 2461.5 ; 2464.875 ; 2468.25 ; 2471.625

Limit for Number of Hopping Channel [Section 15.247 (a1)(iii)]

At least 15 non-overlapping channels of each sequence for 2400-2483.5MHz.

Result data graph shows the number of operation channels:





4.2 20dB Bandwidth Measurement

Test Requirement: Test Date: Mode of Operation: Detector Function: FCC part 15 section 15.247 (a1) 2013-07-17 Transmitting mode. Max Hold

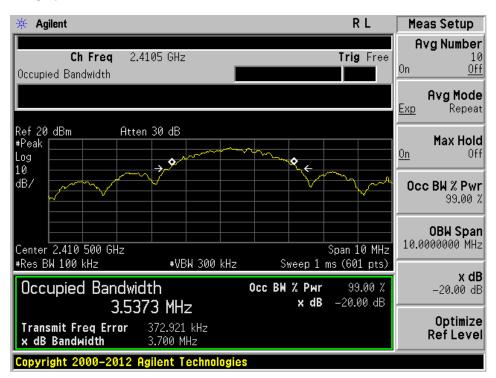
Test Setup:

The bandwidth is measured at an amplitude level reduced from the reference level by a specified ratio. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.

| Channel | Measured frequency (MHz) | 20dB Bandwidth (MHz) |
|---------|-----------------------------|-------------------------|
| Lowest | 2.410.875 | 3.700 |
| Middle | 2.444.625 | 3.790 |
| Highest | 2.471.625 | 3.617 |

This result is used for checking the hopping channel carrier frequencies separation.

Result data graph shows 20 dB bandwidth, CF = 2410.875MHz, BW = 3.700MHz

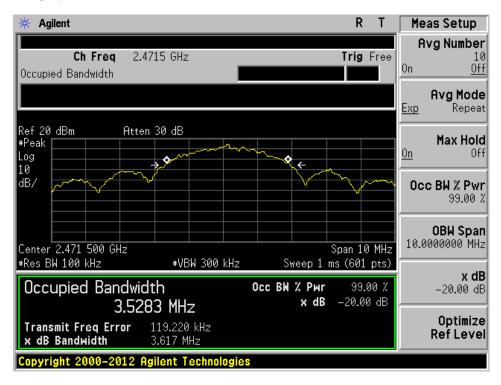




Agilent R Т Meas Setup Avg Number Ch Freq 2.4445 GHz Trig Free 10 0n Off Occupied Bandwidth Avg Mode <u>Exp</u> Repeat Ref 20 dBm Atten 30 dB Max Hold #Peak <u>0n</u> Off Log ¢ 10 dB7 Occ BW % Pwr 99.00 % **OBW Span** 10.0000000 MHz Center 2.444 500 GHz Span 10 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1 ms (601 pts) x dB Occupied Bandwidth Occ BW % Pwr 99.00 % -20.00 dB -20.00 dB x dB 3.5329 MHz Optimize 119.868 kHz **Transmit Freq Error** Ref Level x dB Bandwidth 3.790 MHz Copyright 2000–2012 Agilent Technologies

Result data graph shows 20 dB bandwidth, CF = 2444.625MHz, BW = 3.790MHz

Result data graph shows 20 dB bandwidth, CF = 2471.625MHz, BW = 3.617MHz





4.3 Hopping Channel Carrier Frequency Separation

Test Requirement: Test Date: Mode of Operation: Detector Function: FCC part 15 section 15.247 (a1) 2013-07-17 Transmitting mode. Max Hold

Result: PASS

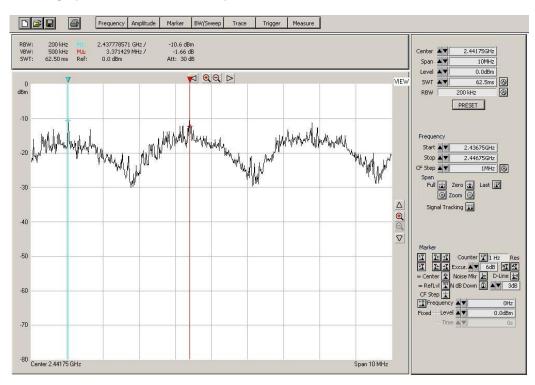
Measured Result :

Refer to the delta marker, the frequency separation between two adjacent channels is 3.37 MHz, therefore, the requirement of channel separated by a minimum of 25kHz of the hopping channel is applied.

Limits for Hopping Channel Separation [Section 15.247 (a1)]:

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel carrier frequencies that are separated by 25KHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater.

Result data graph shows the channel separation:





4.4 Average Time of Channel Occupancy

Test Requirement: Test Date: Mode of Operation: Detector Function: FCC part 15 section 15.247 (a1)(iii) 2013-07-17 Transmitting mode. Zero span, Sweep time 1s

Result : PASS

Measured Result :

Each transmission only 19 channels will be used.

Observe time = 19 channels x 0.4s =7.6s

There are 14 pulses within 760ms

And one set of pulses = 2.643ms

Therefore, the average channel occupancy times (ms)

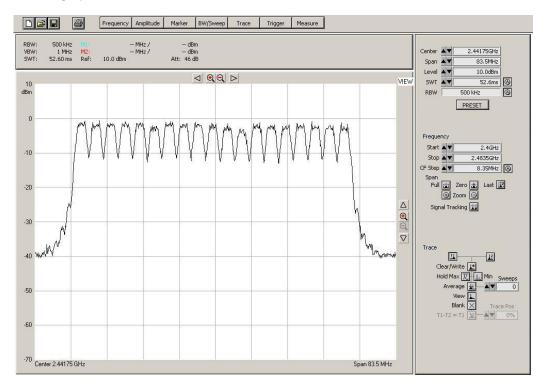
= 2.643ms x 14 x 10

So, total transmitting time is 0.370s. (<0.4s).

Limits for Average Time of Occupancy [Section 15.247 (a1)(iii)]:

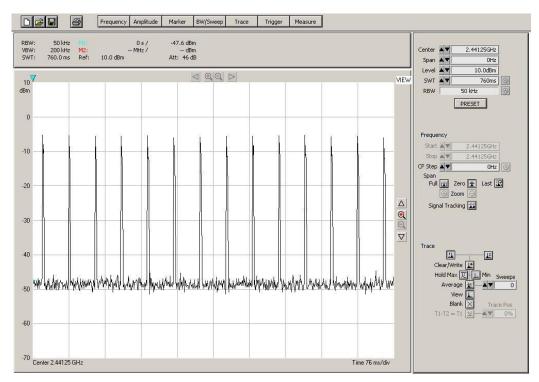
The average time of occupancy on any channel shall not be greater than 0.4 second within a period of 0.4 seconds multiplied by the number of hopping channels employed.



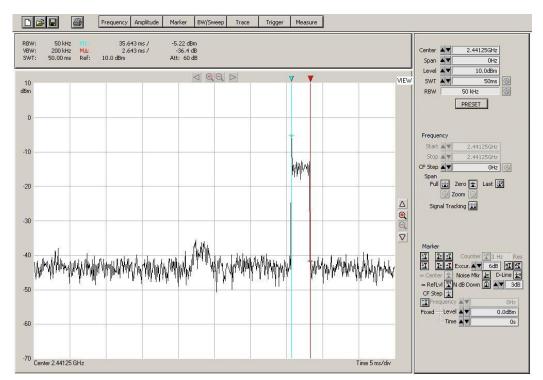


Result data graph shows total 19 channels are used.

Result data graph shows total 14 pulses with 760ms.







Result data graph zooms into detail, one pulse period is 2.643ms.



4.5 Pseudorandom Hopping Algorithm

Pseudorandom Frequency Hopping

SCOUT1000MU uses FHSS technology with 19 hopping frequencies. Each channel frequency is selected from a pseudorandom ordered list of hopping frequencies, from 2410.875 MHz to 2471.625MHz. A single data frame is transmitted on each frequency location before skipping to the next hopping frequency in the list.

Pseudorandom Frequency Hopping Sequence

2410.875 ; 2414.25 ; 2417.625 ; 2421 ; 2424.375 ; 2427.75 ; 2431.125 ; 2434.5 ; 2437.875 ; 2441.25 ; 2444.625 ; 2448 ; 2451.375 ; 2454.75 ; 2458.125 ; 2461.5 ; 2464.875 ; 2468.25 ; 2471.625

Requirement for Pseudorandom Hopping Algorithm [Section 15.247 (a1)]:

The channel frequencies shall be selected from a pseudorandom ordered list of hopping frequencies. Each frequency must be used equally on average by the transmitter.



4.6 Band Edge Measurement

Test Requirement: Test Date: Mode of Operation: Detector Function: FCC part 15 section 15.247 2013-07-17 Transmitting mode. Max Hold

Result: PASS

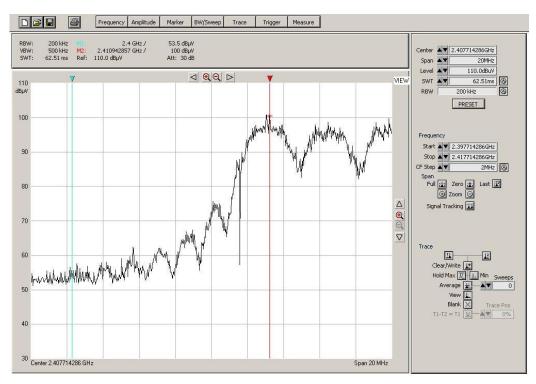
Measured Result :

Refer to the figure, it shows the frequency of lower band edge and upper band edge separately.

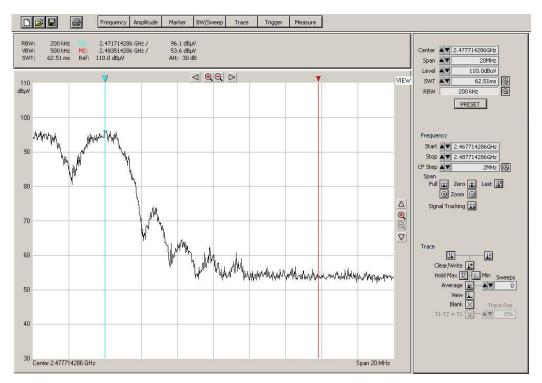
Limits of Band Edge for Carrier Frequencies Operated within the Bands [Section 15.247]:

The carrier frequencies should operate within 2400-2483.5MHz.

Result data graph shows the frequency of lowest channel.







Result data graph shows the frequency of highest channel.



4.7 Maximum Output Power

Test Requirement: Test Method: Test Date: Mode of Operation: Detector Function: Measurement BW: FCC part 15 section 15.247 (a1) ANSI C63.4:2003 2013-07-17 Transmitting mode. Peak RBW 1MHz ; VBW 1MHz

Test Setup:



Result : PASS

| Frequency | Peak Output Power | | Limit | |
|-------------------------------|-------------------|-------|-------|-------|
| (MHz) | (dBm) | (W) | (dBm) | (W) |
| Lowest Channel : 2410.875 | 16.60 | 0.046 | 21 | 0.125 |
| Middle Channel : 2444.625 | 17.12 | 0.052 | 21 | 0.125 |
| Highest Channel : 2471.625 | 17.43 | 0.055 | 21 | 0.125 |

Limits for Maximum Output Power [Section 15.247 (a1)(iii)]:

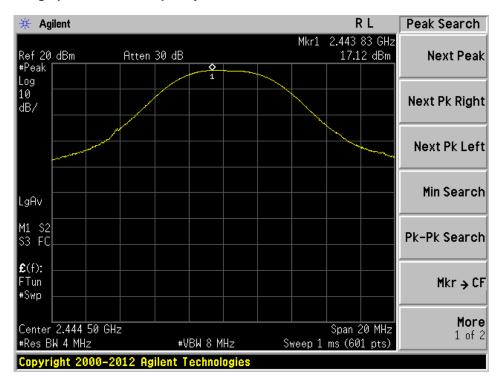
For frequency hopping systems employing at least 75 hopping channels: 1 Watt For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 Watts



| 🔆 Agilent | | | | RL | Peak Search |
|------------------------------------|--------------|--------------|---------|-----------------------------|----------------|
| Ref 20 dBm #Peak | Atten 30 dB | ♦ | Mkr1 | 2.410 17 GHz 16.60 dBm | Next Peak |
| Log 10 dB/ | | 1 | | | Next Pk Right |
| | | | | | Next Pk Left |
| LgAv | | | | | Min Search |
| M1 S2 S3 FC | | | | | Pk-Pk Search |
| €(f): FTun #Swp | | | | | Mkr → CF |
| Center 2.410 50 G #Res BW 4 MHz | | VBW 8 MHz | Sweep 1 | Span 20 MHz ms (601 pts) | More 1 of 2 |
| Copyright 2000- | 2012 Agilent | lechnologies | | | |

Result data graph shows the frequency of lowest channel

Result data graph shows the frequency of middle channel





| 🔆 Agilent | | | | RL | Peak Search |
|----------------------------------|------------|------------|---------|-----------------------------|----------------|
| Ref 20 dBm #Peak | Atten 30 d | | Mkr1 | 2.470 90 GHz 17.43 dBm | Next Peak |
| Log 10 dB/ | | 1 | | | Next Pk Right |
| | | | | | Next Pk Left |
| LgAv | | | | | Min Search |
| M1 S2 S3 FC | | | | | Pk-Pk Search |
| £ (f): FTun | | | | | Mkr → CF |
| Center 2.471 50 #Res BW 4 MHz | | #VBW 8 MHz | Sweep 1 | Span 20 MHz ms (601 pts) | More 1 of 2 |
| Copyright 2000 | | | | no (001 pto) | |

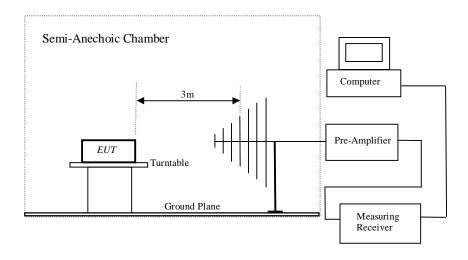
Result data graph shows the frequency of highest channel



4.8 Out of Band Emissions and Emissions in Restricted Bands

Test Requirement: Test Method: Test Date: Mode of Operation: Detector Function: Measurement BW: FCC part 15 section 15.247 (d) ANSI C63.4:2003 2013-07-17 Transmitting mode. Peak RBW 100KHz ; VBW 300KHz

Test Setup:





Result : PASS

Out of Frequency Band Emissions:

For out of band emissions that are close to or exceed 20dB attenuation requirement, and emission falls into restricted band, radiated emission was performed in order to show compliance with the general radiated emission requirement.

Result Summary:

Refer to the emission data graph, result shows that the significant emissions detected are with more than 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

Limits for Out of Frequency Band Emission [Section 15.247 (d)]:

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power. Attenuation below the general limits specified in Section 15.209(a) is not required.

| Frequency (MHz) | Field Strength [µV/m] | Field Strength [dBµV/m] |
|-----------------|--------------------------|----------------------------|
| 30-88 | 100 | 40.0 |
| 88-216 | 150 | 43.5 |
| 216-960 | 200 | 46.0 |
| Above 960 | 500 | 54.0 |

Limit for Radiated Emission Falling in Restricted Bands [Section 15.209]:

Radiated emissions, which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209.

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.



Result : PASS

All Emission and Emissions Fall into Restricted Band were recorded as below:

| | Radiated Emissions | | | | | | | | |
|----|------------------------|---------------------|---------|------------------|----------------------------|--------|-------------------|--|--|
| | Emissions Frequency | E-Field Polarity | Reading | System Factor | Field strength at 3m | Limit | Delta to Limit | | |
| | MHz | | dBuV/m | dB | dBuV/m | dBuV/m | dBuV/m | | |
| | Lowest Chann | hel | | | | | | | |
| PK | 4825.00 | V | 48.42 | 8.31 | 56.73 | 74.00 | -17.27 | | |
| PK | 7225.00 | V | 39.40 | 15.86 | 55.26 | 74.00 | -18.74 | | |
| PK | 4825.00 | Н | 48.66 | 8.31 | 56.97 | 74.00 | -17.03 | | |
| PK | 7240.00 | Н | 39.30 | 15.90 | 55.20 | 74.00 | -18.80 | | |
| | | | | | | | | | |
| | Middle Chann | el | | | | | | | |
| PK | 4885.00 | V | 47.90 | 8.40 | 56.30 | 74.00 | -17.70 | | |
| PK | 7345.00 | V | 38.95 | 16.27 | 55.22 | 74.00 | -18.78 | | |
| PK | 4885.00 | Н | 47.95 | 8.40 | 56.35 | 74.00 | -17.65 | | |
| PK | 7345.00 | Н | 38.87 | 16.27 | 55.14 | 74.00 | -18.86 | | |
| | | | | | | | | | |
| | Highest Chan | nel | | | | | | | |
| PK | 4945.00 | V | 47.81 | 8.46 | 56.27 | 74.00 | -17.73 | | |
| PK | 7420.00 | V | 38.45 | 16.53 | 54.98 | 74.00 | -19.02 | | |
| PK | 4945.00 | Н | 47.56 | 8.46 | 56.02 | 74.00 | -17.98 | | |
| PK | 7420.00 | Н | 38.29 | 16.53 | 54.82 | 74.00 | -19.18 | | |
| | | | | | | | | | |
| | Spurious Emis | ssions | | | | | | | |
| QP | 54.03 | V | 45.55 | -16.09 | 29.46 | 40.00 | -10.54 | | |
| QP | 60.92 | V | 47.69 | -16.63 | 31.06 | 40.00 | -8.94 | | |
| QP | 95.09 | V | 47.87 | -15.75 | 32.12 | 43.50 | -11.38 | | |
| QP | 138.87 | V | 51.59 | -20.20 | 31.39 | 43.50 | -12.11 | | |
| QP | 191.75 | V | 48.06 | -16.67 | 31.39 | 43.50 | -12.11 | | |
| QP | 287.99 | V | 42.65 | -15.03 | 27.62 | 46.00 | -18.38 | | |
| QP | 60.28 | Н | 39.26 | -16.39 | 22.87 | 40.00 | -17.13 | | |
| QP | 95.43 | Н | 53.95 | -15.71 | 38.24 | 43.50 | -5.26 | | |
| QP | 108.65 | Н | 43.46 | -16.14 | 27.32 | 43.50 | -16.18 | | |
| QP | 143.33 | Н | 46.11 | -20.21 | 25.90 | 43.50 | -17.60 | | |
| QP | 191.75 | Н | 45.45 | -17.76 | 27.69 | 43.50 | -15.81 | | |
| QP | 287.99 | Н | 39.35 | -15.03 | 24.32 | 46.00 | -21.68 | | |

Refer to Figures shows the worst case channel's emission data graph from 30MHz-26GHz.



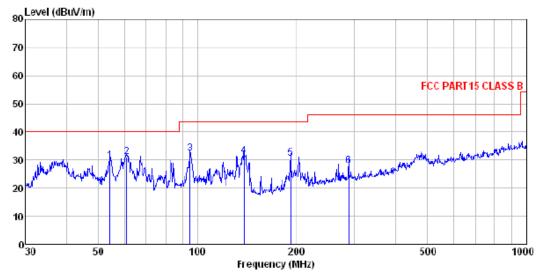
Result Summary:

- 1) Communication mode: All other emissions are more than 20dB below FCC part 15.209 limit.
- 2) No further spurious emissions found between 30 MHz and lowest internal used/generated frequency and from 30MHz to 1GHz.

Remarks:

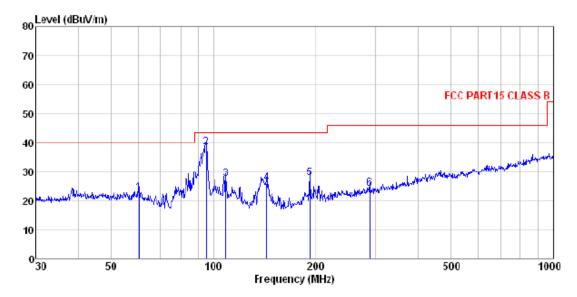
- 1. "*" Radiated emissions which fall in the restricted bands as defined in Section 15.205(a).
- 2. Emission level with more than 20dB below the FCC required limit is not mentioned in table.
- 3. Delta to Limit = Field strength $(dB\mu V/m) Limit (dB\mu V/m)$.
- 4. Calculated measurement uncertainty: 9kHz -30MHz: 1.8dB. 30MHz -1GHz: 5.2dB. 1GHz -18GHz: 5.1dB.





Radiated emission data graph (Vertical polarization, 30MHz-1GHz)

Remark: Only background noise was measured from 1GHz-26GHz excluding the operation frequency relational.



Radiated emission data graph (Horizontal polarization, 30MHz-1GHz)

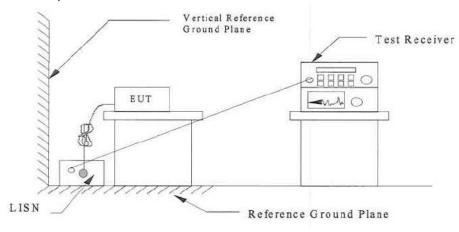
Remark: Only background noise was measured from 1GHz-26GHz excluding the operation frequency relational.



4.9 Conducted Emissions (0.15MHz to 30MHz)

Test Requirement: Test Method: Test Date: Mode of Operation: Detector Function: Measurement BW: Worst Case Channel: FCC part 15 Section 15.207 Class B ANSI C63.4:2003 2013-07-10 -Transmitting mode CISPR Quasi Peak 100 kHz 1

Test Setup:



Results: PASS

- Refer Figures and tables for the result.

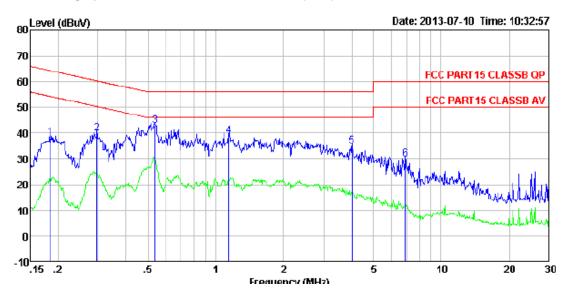
Limits for Conducted Emission [Section 15.207]:

| Frequency Range | Quasi-Peak Limit | Average Limit |
|-----------------|------------------|---------------|
| [MHz] | [dBµV] | [dBµV] |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5.0 | 56 | 46 |
| 5.0-30.0 | 60 | 50 |

* Decreases with the logarithm of the frequency.

Remarks: Calculated measurement uncertainty: ±2.8dB



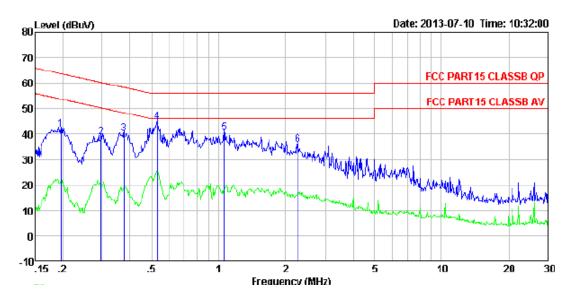


Result data graph shows the conducted emission (Line).

Refer to the following table for the result details:

| Conducted Emission | | | | | | |
|--------------------|---------------------|-------|------------------|-----------------|--------|--|
| Frequency (MHz) | Detector (QP/AV) | Phase | Result (dBµV) | Limit (dBµV) | Margin | |
| 0.183 | QP | L | 38.23 | 64.33 | -26.10 | |
| 0.297 | QP | L | 39.67 | 60.32 | -20.65 | |
| 0.538 | QP | L | 42.78 | 56.00 | -13.22 | |
| 1.141 | QP | L | 38.96 | 56.00 | -17.04 | |
| 4.006 | QP | Ĺ | 34.77 | 56.00 | -21.23 | |
| 6.914 | QP | L | 29.87 | 60.00 | -30.13 | |





Result data graph shows the conducted emission (Neutral).

Refer to the following table for the result details:

| Conducted Emission | | | | | |
|--------------------|---------------------|-------|------------------|-----------------|--------|
| Frequency (MHz) | Detector (QP/AV) | Phase | Result (dBµV) | Limit (dBµV) | Margin |
| 0.197 | QP | Ν | 41.92 | 63.76 | -21.84 |
| 0.297 | QP | Ν | 38.83 | 60.32 | -21.49 |
| 0.375 | QP | Ν | 40.10 | 58.39 | -18.29 |
| 0.532 | QP | Ν | 44.75 | 56.00 | -11.25 |
| 1.054 | QP | Ν | 40.63 | 56.00 | -15.37 |
| 2.273 | QP | Ν | 35.76 | 56.00 | -20.24 |



5.0 RF Exposure Compliance Requirement

Test Requirement: Test Method: FCC part 15 section 15.247 (i) FCC part 15 section 1.1307 (b1) OET Bulletin 65, Edition 01-01

Results: PASS

Systems operation under the provision of this section shall be operated in a manner that ensures the public is not exposed to radio frequency energy levels in excess of the Commission's guideline,

The EUT is considered as a mobile device according to OET Bulletin 65, Edition 01-01, therefore distance to human body of min. 20cm is determined.

| Frequency Band: | 2410.875MHz ~2471.625MHz | |
|--------------------------|---|--|
| Device Category: | Portable (< 20cm separation) Mobile (>20cm separation) Others : | |
| Exposure Classification: | Occupational/ Controlled exposure General Population / Uncontrolled exposure | |
| Max. Output Power | 0.055 W | |
| Antenna Gain | 0dBi (Numeric gain:1) | |
| Evaluation Applied: | ☑ MPE Evaluation ☑ SAR Evaluation | |

MPE calculation:

The radiated (EIRP) = 55 mW

The power density at 20cm from the antenna : = EIRP / 4π R^2 = 0.0109 mW / cm^2

Limits for General Population/Uncontrolled Exposure [OET Bulletin 65, Edition 01-01]:

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm ²) | Averaging Time $ E ^2$, $ H ^2$ or S (minutes) |
|-----------------------------|---|---|---|---|
| 0.3-1.34 | 614 | 1.63 | (100)* | 30 |
| 1.34-30 | 824/f | 2.19/f | $(180/f^2)^*$ | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | | | f/1500 | 30 |
| 1500-100,000 | | | 1.0 | 30 |



6.0 List of Measurement Equipment

| Description | Manufacturer | Model no. | Serial no. | CAL due | |
|--|------------------------------------|--------------------------|------------|-------------|--|
| 3m Semi-Anechoic Chamber | ZhongYu Electron | 9.2(L)*6.2(W)* 6.4(H) | GTS250 | 29 May 2014 | |
| EMI Test Receiver | Rohde & Schwarz | ESU26 | GTS203 | 03 Jul 2014 | |
| BiConiLog Antenna | SCHWARZBECK MESS- ELEKTRONIK | VULB9163 | GTS214 | 04 Feb 2043 | |
| Double-ridged waveguide horn | SCHWARZBECK MESS- ELEKTONIK | 3160 | GTS217 | 29 Mar 2014 | |
| Horn Antenna | ETS-LINDGREN | 3160 | GTS217 | 29 Mar 2014 | |
| Amplifier (100kHz – 3GHz) | HP | 8347A | GTS204 | 03 Jul 2014 | |
| Amplifier (2GHz – 20GHz) | HP | 8349B | GTS206 | 03 Jul 2014 | |
| Band filter | Amindeon | 82346 | GTS219 | 30 Mar 2014 | |
| Constant temperature and humidity box | Oregon Scientific | BA-888 | GTS248 | 09 May 2014 | |
| DC Power Supply | Instek | PS-3030 | GTS232 | 09 May 2014 | |
| Spectrum Analyzer | R&S | FS300 | 101335 | 02 Aug 2014 | |

Radiated Emission and Bandwidth Emissions

Conducted Emissions

| Description | Manufacturer | Model no. | Serial no. | CAL due |
|-------------------|------------------------------------|---------------------------|------------|-------------|
| SHIELDING ROOM | ZhongYu Electron | 7.0(L)X3.0(W) X 3.0(H) | GTS252 | 07 Sep 2013 |
| EMI Test Receiver | Rohde & Schwarz | ESCS30 | GTS223 | 02 Jul 2014 |
| 10dB Pulse Limita | Rohde & Schwarz | N/A | GTS224 | 02 Jul 2014 |
| Coaxial Switch | ANRITSU CORP | MP59B | GTS225 | 02 Jul 2014 |
| LISN | SCHWARZBECK MESS- ELEKTRONIK | NSLK 8127 | GTS226 | 02 Jul 2014 |
| Coaxial Cable | GTS | N/A | GTS227 | 02 Jul 2014 |
| Thermo meter | KTJ | TA328 | GTS233 | 05 Jul 2014 |

N/A Not Applicable or Not Available



Appendix A

Date: 2013-08-08 Report No.: 60.870.13.027.03F Model No.: SCOUT1000MU

Radiated Emission





Appendix A

Date: 2013-08-08 Report No.: 60.870.13.027.03F Model No.: SCOUT1000MU

Conducted Emission























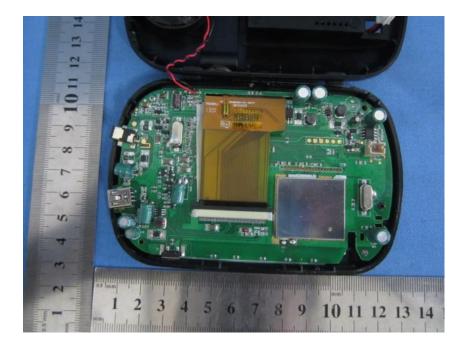
Date: 2013-08-08 Report No.: 60.870.13.027.03F Model No.: SCOUT1000MU



AC/DC Adaptor



Appendix C







Appendix C

