

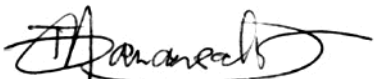

# RF TEST REPORT



Report No.: FCC\_IC\_RF\_SL15041401-LHS-001\_Co-location (HA7040)\_Rev1.0  
Supersede Report No.: FCC\_IC\_RF\_SL15041401-LHS-001\_Co-location (HA7040)

|                                                     |   |                                                                                   |
|-----------------------------------------------------|---|-----------------------------------------------------------------------------------|
| Applicant                                           | : | Pass & Seymour, Inc. d/b/a Legrand                                                |
| Product Name                                        | : | 802.11 b/g/n Wi-Fi Module & Z-Wave Transceiver Device (host)                      |
| Model No.                                           | : | CU-282 & HA7040(host)                                                             |
| Test Standard                                       | : | 47 CRF 15.247: 2013<br>RSS-210 Issue 8: 2010                                      |
| Test Method                                         | : | ANSI C63.10: 2013<br>RSS GEN Issue 4: 2014<br>558074 D01 DTS Meas Guidance v03r02 |
| FCC ID                                              | : | WIFI Module: YV8-CU282<br>ZWAVE Module: YV8-HA7040                                |
| IC ID                                               | : | WIFI Module: 9922A-CU282<br>ZWAVE Module: 9922A-HA7040                            |
| Dates of test                                       | : | June 16, 2015                                                                     |
| Issue Date                                          | : | July 22, 2015                                                                     |
| Test Result                                         | : | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail            |
| Equipment complied with the specification [X]       |   |                                                                                   |
| Equipment did not comply with the specification [ ] |   |                                                                                   |

This Test Report is Issued Under the Authority of:

|                                                                                     |                                                                                      |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |
| <b>Teody Manansala</b>                                                              | <b>Chen Ge</b>                                                                       |
| Test Engineer                                                                       | Engineer Reviewer                                                                    |

Issued By:  
SIEMIC Laboratories  
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## Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

### Accreditations for Conformity Assessment

| Country/Region | Accreditation Body     | Scope                             |
|----------------|------------------------|-----------------------------------|
| USA            | FCC, A2LA              | EMC, RF/Wireless, Telecom         |
| Canada         | IC, A2LA, NIST         | EMC, RF/Wireless, Telecom         |
| Taiwan         | BSMI, NCC, NIST        | EMC, RF, Telecom, Safety          |
| Hong Kong      | OFTA, NIST             | RF/Wireless, Telecom              |
| Australia      | NATA, NIST             | EMC, RF, Telecom, Safety          |
| Korea          | KCC/RRA, NIST          | EMI, EMS, RF, Telecom, Safety     |
| Japan          | VCCI, JATE, TELEC, RFT | EMI, RF/Wireless, Telecom,        |
| Mexico         | NOM, COFETEL, Caniety  | EMC, RF/Wireless, Telecom, Safety |
| Europe         | A2LA, NIST             | EMC, RF, Telecom, Safety          |
| Israel         | MOC, NIST              | EMC, RF, Telecom, Safety          |

### Accreditations for Product Certifications

| Country   | Accreditation Body | Scope                 |
|-----------|--------------------|-----------------------|
| USA       | FCC TCB, NIST      | EMC, RF, Telecom      |
| Canada    | IC FCB, NIST       | EMC, RF, Telecom      |
| Singapore | iDA, NIST          | EMC, RF, Telecom      |
| EU        | NB                 | EMC & R&TTE Directive |
| Japan     | MIC (RCB 208)      | RF, Telecom           |
| Hong Kong | OFTA (US002)       | RF, Telecom           |

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## 1 Report Revision History

| Report No.                                                | Report Version | Description         | Issue Date |
|-----------------------------------------------------------|----------------|---------------------|------------|
| FCC_IC_RF_ SL15041401-LHS-001_Co-location (HA7040)        | None           | Original            | 06/26/2015 |
| FCC_IC_RF_ SL15041401-LHS-001_Co-location (HA7040)_Rev1.0 | 1.0            | Update product name | 07/22/2015 |
|                                                           |                |                     |            |
|                                                           |                |                     |            |
|                                                           |                |                     |            |

## 2 Executive Summary

The purpose of this test program was to demonstrate compliance of following product

Company: Pass & Seymour, Inc. d/b/a Legrand  
Product: 802.11 b/g/n Wi-Fi Module & Z-Wave Transceiver Device (host)  
Model: CU-282 & HA7040(host)

against the current Stipulated Standards. The specified model product stated above has demonstrated compliance with the Stipulated Standard listed on 1<sup>st</sup> page.

## 3 Customer information

|                      |   |                                                        |
|----------------------|---|--------------------------------------------------------|
| Applicant Name       | : | Pass & Seymour, Inc. d/b/a Legrand                     |
| Applicant Address    | : | 301 Fulling Mill Rd, Suite G, Middletown, PA 17057 USA |
| Manufacturer Name    | : | Pass & Seymour, Inc. d/b/a Legrand                     |
| Manufacturer Address | : | 301 Fulling Mill Rd, Suite G, Middletown, PA 17057 USA |

## 4 Test site information

|                      |                                             |
|----------------------|---------------------------------------------|
| Lab performing tests | SIEMIC Laboratories                         |
| Lab Address          | 775 Montague Expressway, Milpitas, CA 95035 |
| FCC Test Site No.    | 881796                                      |
| IC Test Site No.     | 4842D-2                                     |
| VCCI Test Site No.   | A0133                                       |

## 5 Modification

| Index | Item | Description | Note |
|-------|------|-------------|------|
| -     | -    | -           | -    |
|       |      |             |      |
|       |      |             |      |
|       |      |             |      |
|       |      |             |      |
|       |      |             |      |

## 6 EUT Information

### 6.1 EUT Description

|                           |   |                                                              |
|---------------------------|---|--------------------------------------------------------------|
| Product Name              | : | 802.11 b/g/n Wi-Fi Module & Z-Wave Transceiver Device (host) |
| Model No.                 | : | CU-282 & HA7040(host)                                        |
| Trade Name                | : | Pass & Seymour, Inc. d/b/a Legrand                           |
| Serial No.                | : | N/A                                                          |
| Input Power               | : | 3.3VDC                                                       |
| Power Adapter Manu/Model  | : | EPSA050250U-P5P-EJ                                           |
| Power Adapter SN          | : | N/A                                                          |
| Hardware version          | : | N/A                                                          |
| Software version          | : | N/A                                                          |
| Date of EUT received      | : | 06/15/2015                                                   |
| Equipment Class/ Category | : | Class B, DTS                                                 |
| Clock Frequencies         | : | N/A                                                          |
| Port/Connectors           | : | Ethernet                                                     |

### 6.2 Radio Description

#### Spec for Z-Wave

| Radio Type             | Description         |
|------------------------|---------------------|
| Operating Frequency    | 908.40MHz/916.00MHz |
| Modulation             | 2FSK/2GFSK          |
| Number of Channels     | 2                   |
| Antenna Type           | Embedded antenna    |
| Antenna Gain           | 3.48 dBi            |
| Antenna Connector Type | On Board            |

#### Specs for WLAN

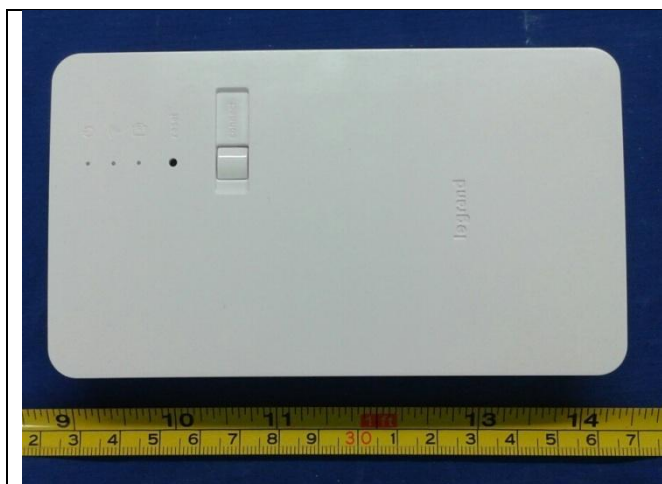
| Radio Type             | 802.11b                        | 802.11g                                  | 802.11n-20M                        | 802.11n-40M                           |
|------------------------|--------------------------------|------------------------------------------|------------------------------------|---------------------------------------|
| Operating Frequency    | 2412-2462MHz                   | 2412-2462MHz                             | 2412-2462MHz                       | 2422-2452MHz                          |
| Modulation             | DSSS<br>(CCK, DQPSK,<br>DBPSK) | OFDM-CCK (BPSK,<br>QPSK,<br>16QAM,64QAM) | OFDM (BPSK, QPSK,<br>16QAM, 64QAM) | OFDM (BPSK,<br>QPSK, 16QAM,<br>64QAM) |
| Channel Spacing        | 5MHz                           | 5MHz                                     | 5MHz                               | 5MHz                                  |
| Number of Channels     | 11                             | 11                                       | 11                                 | 7                                     |
| Antenna Type           | Chip                           |                                          |                                    |                                       |
| Antenna Gain (Peak)    | 0.53dBi (for 2.4GHz)           |                                          |                                    |                                       |
| Antenna Connector Type | On Board, U.FL                 |                                          |                                    |                                       |

### 6.3 EUT test modes/configuration Description

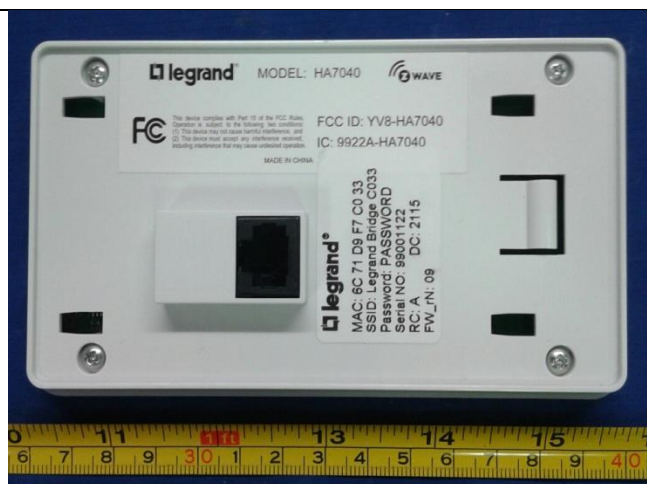
| Final Test Mode   |                                                               | Note                                   |
|-------------------|---------------------------------------------------------------|----------------------------------------|
| Final_test_mode_1 | EUT set to continuous transmit Z-wave and Wifi simultaneously | Radiated spurious emissions below 1GHz |
| Final_test_mode_2 | EUT set to continuous transmit Z-wave and Wifi simultaneously | Radiated spurious emissions above 1GHz |
| Remarks:          |                                                               |                                        |



## 6.4 EUT Photos – External



EUT – Top View



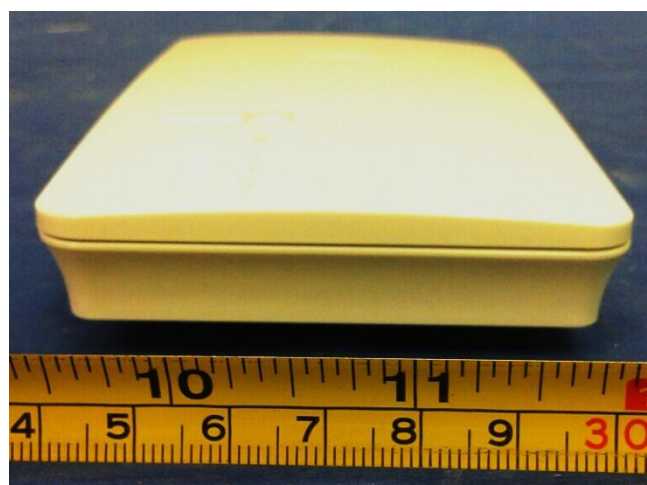
EUT – Bottom View



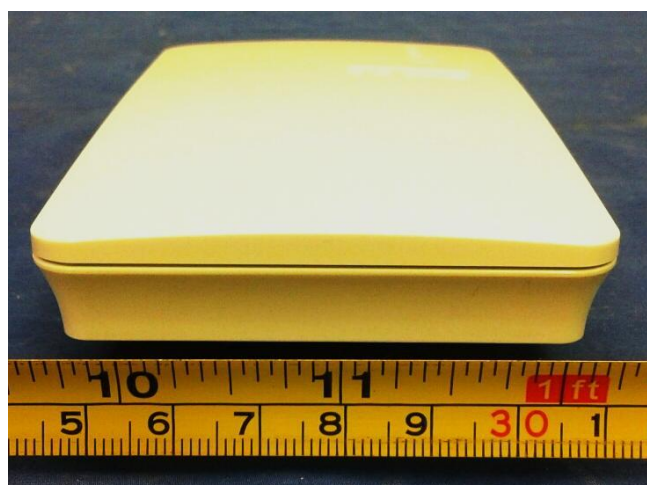
EUT – Left Side View



EUT – Right Side View



EUT – Top View

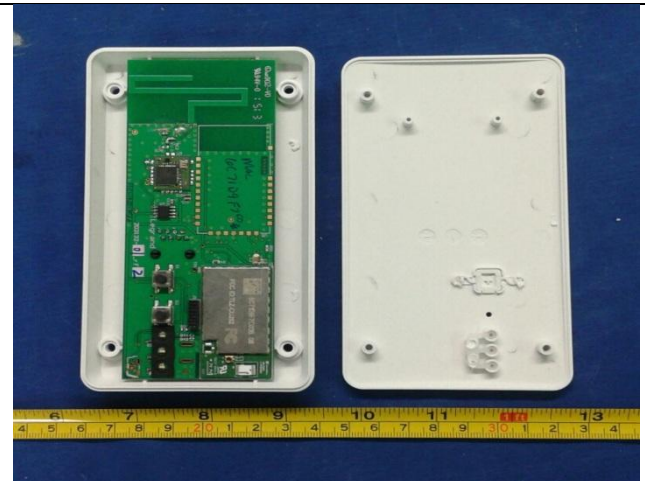


EUT – Bottom View

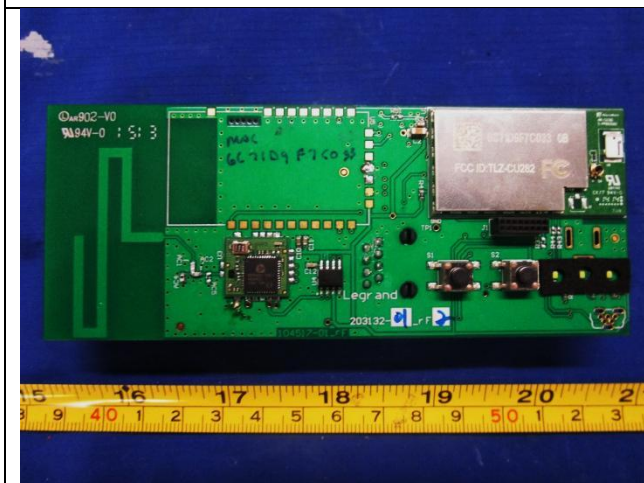
## 6.5 EUT Photos – Internal



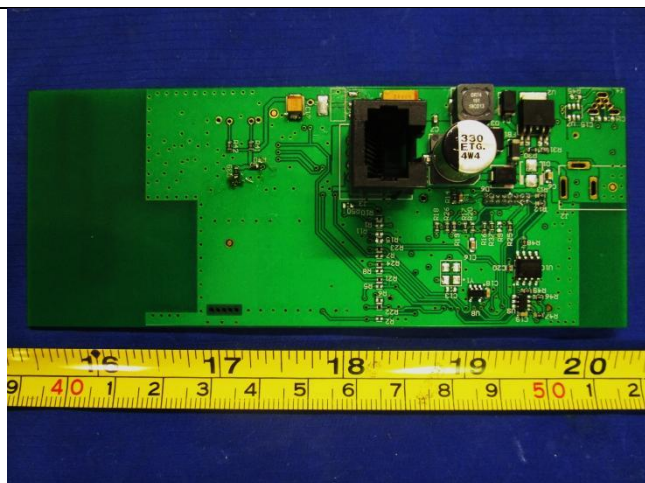
EUT-with cov



EUT-without cover

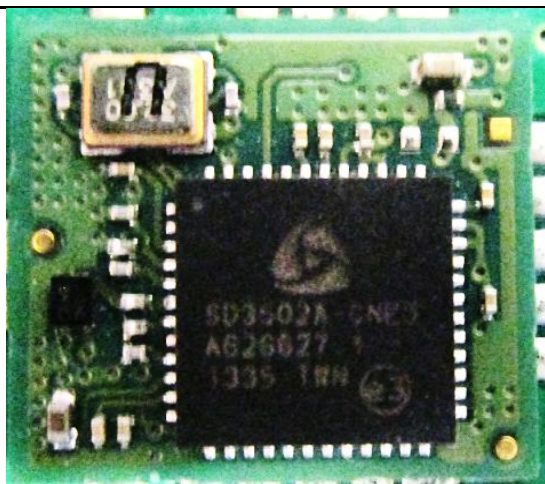


EUT - Top View

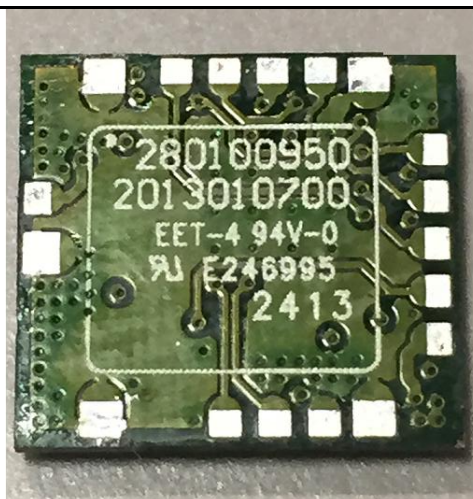


EUT - Bottom View





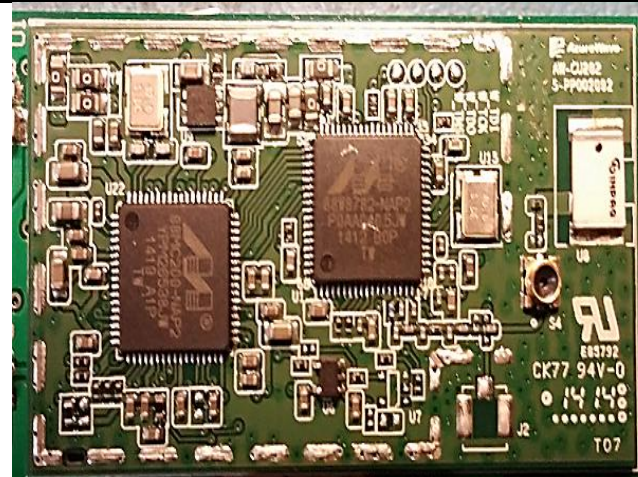
Z-Wave Module Top View



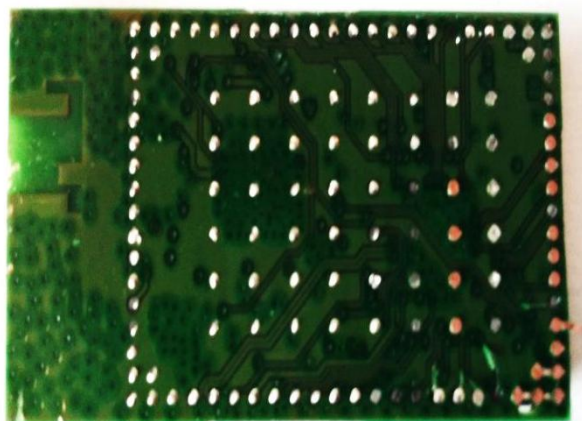
ZWave Module Bottom View



WLAN Module With Shielding



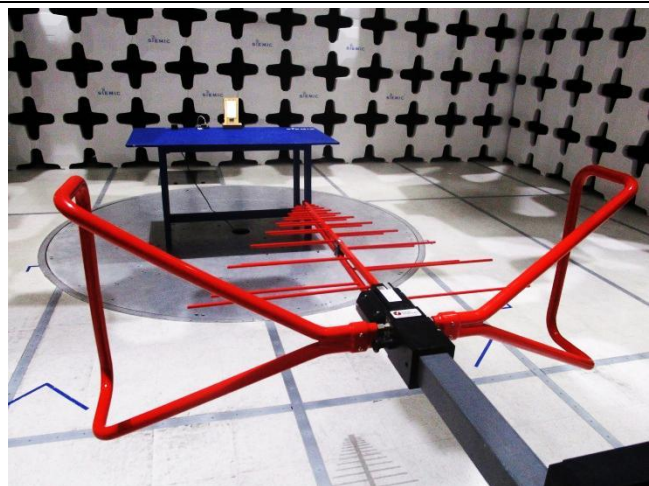
WLAN Module Without Shielding



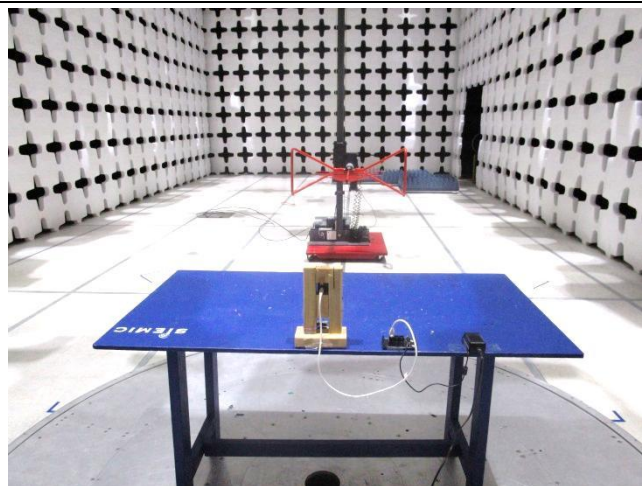
WLAN Bottom View



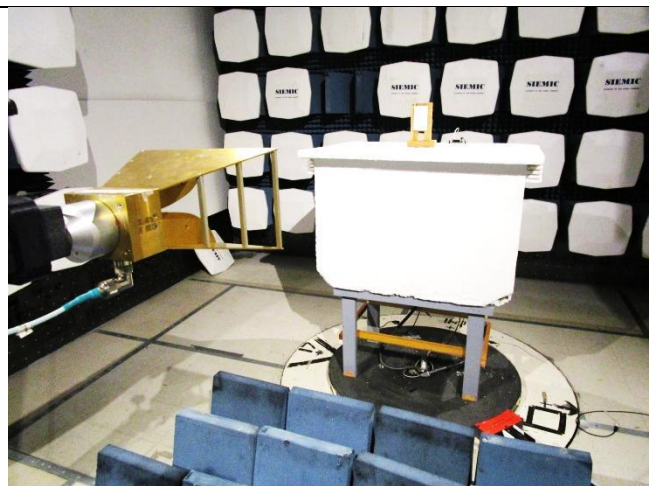
## 6.6 EUT Test Setup Photos



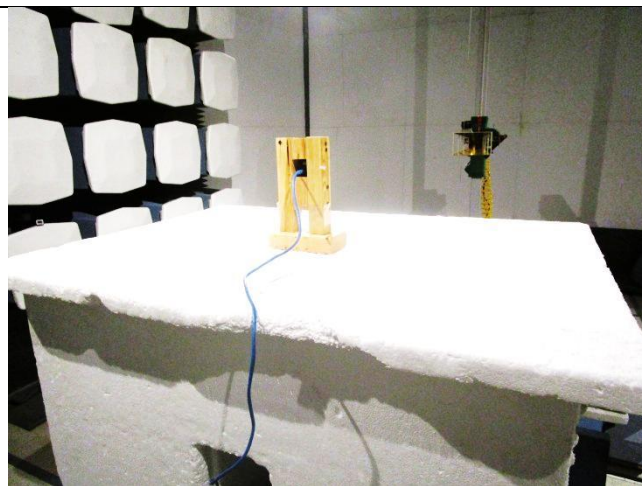
**Spurious Emissions (30MHz-1GHz) – Front View**



**Spurious Emissions (30MHz-1GHz) – Rear View**



**Spurious Emissions (>1GHz) – Front View**



**Spurious Emissions (>1GHz) – Rear View**

## 7 Supporting Equipment/Software and cabling Description

### 7.1 Supporting Equipment

| Item | Supporting Equipment Description | Model  | Serial Number | Manufacturer | Note |
|------|----------------------------------|--------|---------------|--------------|------|
| 1    | Laptop                           | ES420  | 30437961985   | Dell         | -    |
| 2    | Debug Adapter                    | 203133 | -             | Legrand      | -    |
|      |                                  |        |               |              |      |

### 7.2 Cabling Description

| Name | Connection Start |          | Connection Stop |          | Length / shielding Info |           | Note |
|------|------------------|----------|-----------------|----------|-------------------------|-----------|------|
|      | From             | I/O Port | To              | I/O Port | Length (m)              | Shielding |      |
| RJ45 | Power module     | J1       | EUT             | J3       | 1                       | No        | -    |
| -    | -                | -        | -               | -        | -                       | -         | -    |

### 7.3 Test Software Description

| Test Item  | Software             | Description                                         |
|------------|----------------------|-----------------------------------------------------|
| RF Testing | Marvel W8782 Labtool | Set the EUT to transmit continuously in WIFI mode   |
| RF Testing | Sigma RF-Link        | Set the EUT to transmit continuously in Z-Wave mode |
|            |                      |                                                     |

## 8 Test Summary

| Test Item                                 | Test standard                                                                                                                                                                                                                                                                                        |                           | Test Method/Procedure |                                                           | Pass / Fail                                                              |
|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------|-----------------------------------------------------------|--------------------------------------------------------------------------|
| Band Edge and Radiated Spurious Emissions | FCC/IC                                                                                                                                                                                                                                                                                               | 15.247(d)<br>RSS210(A8.5) | FCC/IC                | ANSI C63.10 – 2013<br>558074 D01 DTS Meas Guidance v03r02 | <input checked="" type="checkbox"/> Pass<br><input type="checkbox"/> N/A |
| Remark                                    | 1. All measurement uncertainties do not take into consideration for all presented test results.<br>2. The applicant shall ensure frequency stability by showing that an emission is maintained within the band of operation under all normal operating conditions as specified in the user's manual. |                           |                       |                                                           |                                                                          |

## 9 Measurement Uncertainty

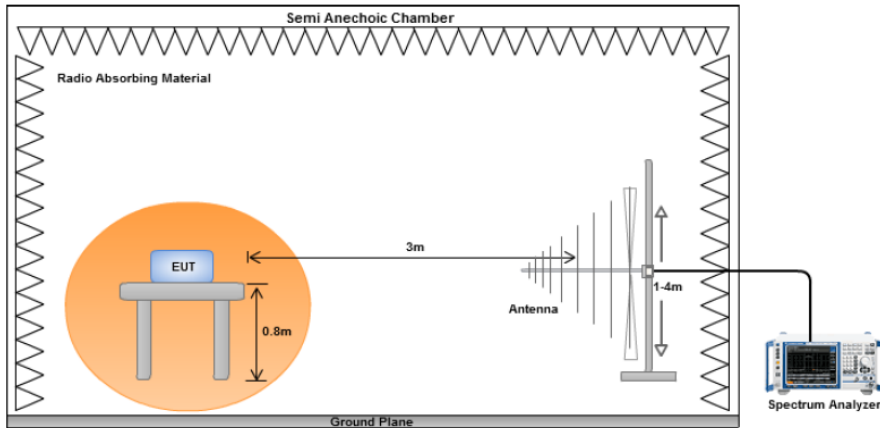
| Emissions                                 |                 |                                                                                                                                                 |               |
|-------------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| Test Item                                 | Frequency Range | Description                                                                                                                                     | Uncertainty   |
| Band Edge and Radiated Spurious Emissions | 30MHz – 1GHz    | Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m) | +5.6dB/-4.5dB |
| Band Edge and Radiated Spurious Emissions | 1GHz – 40GHz    | Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2 (for EUTs < 0.5m X 0.5m X 0.5m) | +4.3dB/-4.1dB |



## 10 Measurements, Examination and Derived Results

### 10.1 Radiated Emissions below 1GHz

#### Requirement(s):

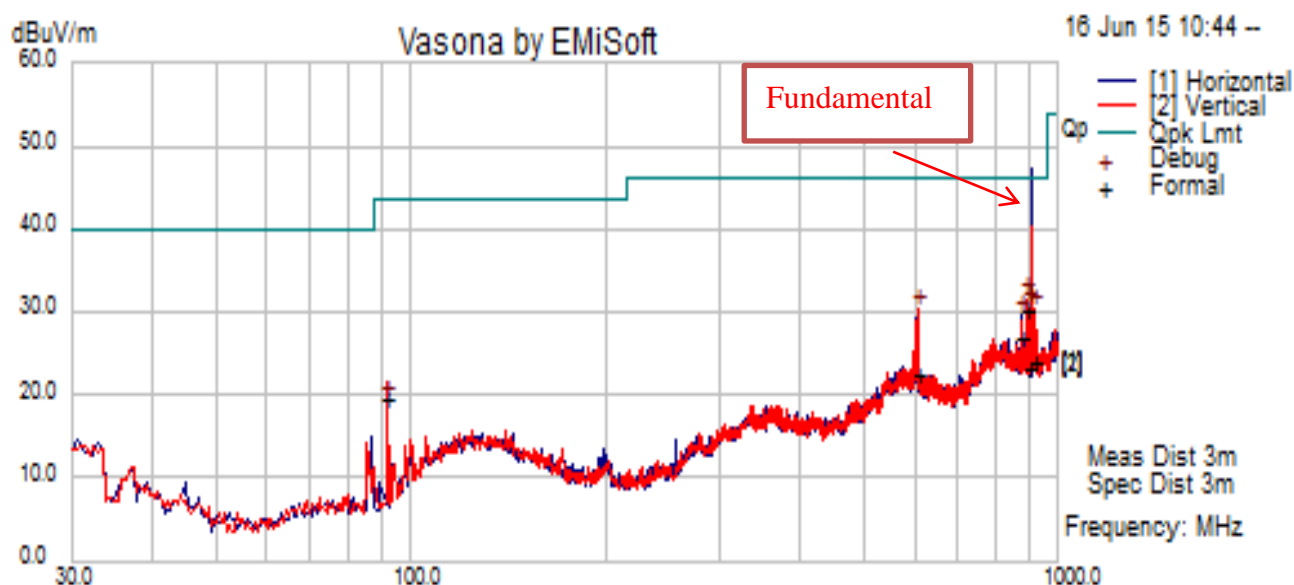
| Spec                             | Item | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Applicable |                       |                       |         |     |          |     |         |     |           |     |
|----------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------------------|-----------------------|---------|-----|----------|-----|---------|-----|-----------|-----|
| 47CFR§15.247(d),<br>RSS210(A8.5) | a)   | Except higher limit as specified elsewhere in other section, the emissions from the low-power radio-frequency devices shall not exceed the field strength levels specified in the following table and the level of any unwanted emissions shall not exceed the level of the fundamental emission. The tighter limit applies at the band edges                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | ☒          |                       |                       |         |     |          |     |         |     |           |     |
|                                  |      | <table><tr><th>Frequency range (MHz)</th><th>Field Strength (uV/m)</th></tr><tr><td>30 – 88</td><td>100</td></tr><tr><td>88 – 216</td><td>150</td></tr><tr><td>216 960</td><td>200</td></tr><tr><td>Above 960</td><td>500</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |            | Frequency range (MHz) | Field Strength (uV/m) | 30 – 88 | 100 | 88 – 216 | 150 | 216 960 | 200 | Above 960 | 500 |
|                                  |      | Frequency range (MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |            | Field Strength (uV/m) |                       |         |     |          |     |         |     |           |     |
|                                  |      | 30 – 88                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |            | 100                   |                       |         |     |          |     |         |     |           |     |
|                                  |      | 88 – 216                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |            | 150                   |                       |         |     |          |     |         |     |           |     |
| 216 960                          | 200  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                       |                       |         |     |          |     |         |     |           |     |
| Above 960                        | 500  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                       |                       |         |     |          |     |         |     |           |     |
|                                  |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                       |                       |         |     |          |     |         |     |           |     |
|                                  |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                       |                       |         |     |          |     |         |     |           |     |
|                                  |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |                       |                       |         |     |          |     |         |     |           |     |
| Test Setup                       |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |            |                       |                       |         |     |          |     |         |     |           |     |
| Procedure                        |      | <div>1. The EUT was switched on and allowed to warm up to its normal operating condition.</div> <div>2. The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:<div>a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.</div><div>b. The EUT was then rotated to the direction that gave the maximum emission.</div><div>c. Finally, the antenna height was adjusted to the height that gave the maximum emission.</div></div> <div>3. A Quasi-peak measurement was then made for that frequency point.</div> <div>4. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.</div> |            |                       |                       |         |     |          |     |         |     |           |     |
| Remark                           |      | The EUT was scanned up to 1GHz. Both horizontal and vertical polarities were investigated. The results show only the worst case.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |            |                       |                       |         |     |          |     |         |     |           |     |
| Result                           |      | <div>☒ Pass</div> <div>☐ Fail</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |                       |                       |         |     |          |     |         |     |           |     |

Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

### Radiated Emission Test Results (Below 1GHz)

|                           |                                             |      |        |      |
|---------------------------|---------------------------------------------|------|--------|------|
| Test specification        | Below 1GHz                                  |      |        |      |
| Environmental Conditions: | Temp (°C):                                  | 26.1 | Result | Pass |
|                           | Humidity (%)                                | 47.5 |        |      |
|                           | Atmospheric (mbar):                         | 1020 |        |      |
| Mains Power:              | 110VAC, 60Hz                                |      |        |      |
| Tested by:                | Teody Manansala                             |      |        |      |
| Test Date:                | June 16, 2015                               |      |        |      |
| Remarks:                  | Z-Wave and WLAN transmitting simultaneously |      |        |      |



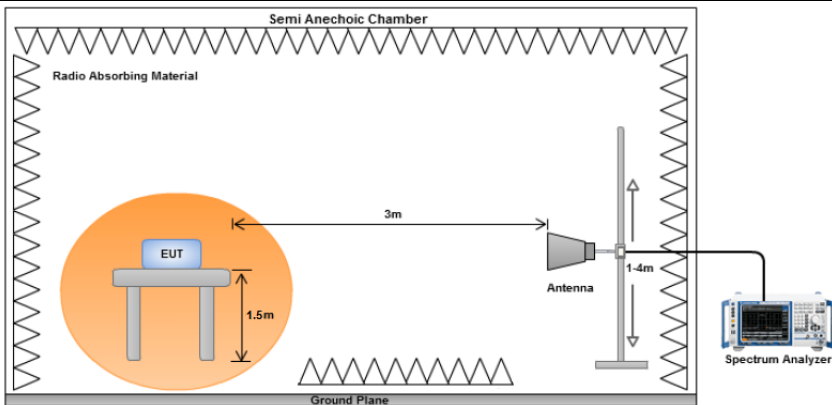
### Quasi Max Measurement

| Frequency MHz | Raw dBuV | Cable Loss | AF dB  | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail |
|---------------|----------|------------|--------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|
| 45.28         | 47.54    | 1.10       | -26.78 | 21.86        | Quasi Max        | V   | 138.00 | 339.00  | 40.00        | -18.14    | Pass       |
| 82.25         | 48.75    | 1.60       | -30.74 | 19.61        | Quasi Max        | V   | 124.00 | 306.00  | 40.00        | -20.39    | Pass       |
| 52.56         | 45.47    | 1.18       | -30.14 | 16.50        | Quasi Max        | V   | 100.00 | 151.00  | 40.00        | -23.50    | Pass       |
| 65.85         | 43.19    | 1.39       | -30.05 | 14.53        | Quasi Max        | H   | 356.00 | 204.00  | 40.00        | -25.47    | Pass       |
| 33.15         | 33.41    | 1.01       | -20.84 | 13.58        | Quasi Max        | V   | 187.00 | 255.00  | 40.00        | -26.42    | Pass       |
| 100.34        | 41.28    | 1.79       | -28.26 | 14.82        | Quasi Max        | V   | 207.00 | 104.00  | 43.52        | -28.70    | Pass       |

Note: Both horizontal and vertical polarities were investigated. The results above show only the worst case.

## 10.2 Radiated Spurious Emissions above 1GHz

### Requirement(s):

| Spec                             | Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Applicable                          |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| 47CFR§15.247(d),<br>RSS210(A8.5) | a)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | For non-restricted band, In any 100 kHz 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 or 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, determined by the measurement method on output power to be used. Attenuation below the general limits specified in § 15.209(a) is not required<br><input checked="" type="checkbox"/> 20 dB down <input type="checkbox"/> 30 dB down | <input checked="" type="checkbox"/> |
|                                  | b)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | or restricted band, emission must also comply with the radiated emission limits specified in 15.209                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <input checked="" type="checkbox"/> |
| Test Setup                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                     |
| Procedure                        | <ol style="list-style-type: none"> <li>The EUT was switched on and allowed to warm up to its normal operating condition.</li> <li>The test was carried out at the selected frequency points obtained from the EUT characterisation. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner: <ol style="list-style-type: none"> <li>Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen.</li> <li>The EUT was then rotated to the direction that gave the maximum emission.</li> <li>Finally, the antenna height was adjusted to the height that gave the maximum emission.</li> </ol> </li> <li>An average measurement was then made for that frequency point.</li> <li>Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.</li> </ol> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                     |
| Remark                           | The EUT was scanned up to 25GHz. Both horizontal and vertical polarities were investigated. The results show only the worst case.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                     |
| Result                           | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                     |

### Equipment Setting

| TEST                       | RBW  | VBW  | SPAN          | Detector | SWEEP | Trace    | NOTES           |
|----------------------------|------|------|---------------|----------|-------|----------|-----------------|
| Radiated Spurious Emission | 1MHz | 3MHz | 1GHz - 18 GHz | Peak     | Auto  | Max hold | PK Measurement  |
| Radiated Spurious Emission | 1MHz | 10Hz | 1GHz - 18 GHz | Peak     | Auto  | Max hold | Ave Measurement |

**Test Data**    ☒ Yes (See below)    ☐ N/A

**Test Plot**    ☐ Yes (See below)    ☒ N/A

|                           |                                             |      |        |      |
|---------------------------|---------------------------------------------|------|--------|------|
| Test specification        | Above 1GHz                                  |      |        |      |
| Environmental Conditions: | Temp (°C):                                  | 26.7 | Result | Pass |
|                           | Humidity (%)                                | 46.8 |        |      |
|                           | Atmospheric (mbar):                         | 1020 |        |      |
| Mains Power:              | 110VAC, 60Hz                                |      |        |      |
| Tested by:                | Teody Manansala                             |      |        |      |
| Test Date:                | June 16, 2015                               |      |        |      |
| Remarks:                  | Z-Wave and WLAN transmitting simultaneously |      |        |      |

### Above 1GHz-18GHz- Z-Wave and WIFI transmitting simultaneously

| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|
| 1034.51       | 44.75    | 2.46       | 9.62  | 56.83        | Peak Max         | H   | 258.00 | 29.00   | 74.00        | -17.17    | Pass       |
| 4117.09       | 40.79    | 5.93       | 11.71 | 58.43        | Peak Max         | H   | 151.00 | 92.00   | 74.00        | -15.57    | Pass       |
| 2057.03       | 42.66    | 3.55       | 11.30 | 57.51        | Peak Max         | H   | 168.00 | 48.00   | 74.00        | -16.49    | Pass       |
| 17846.18      | 39.74    | 13.00      | 10.75 | 63.49        | Peak Max         | V   | 141.00 | 324.00  | 74.00        | -10.51    | Pass       |
| 13145.00      | 42.13    | 12.10      | 8.16  | 62.39        | Peak Max         | V   | 168.00 | 40.00   | 74.00        | -11.61    | Pass       |
| 1034.51       | 31.83    | 2.46       | 9.62  | 43.92        | Average Max      | H   | 258.00 | 29.00   | 54.00        | -10.08    | Pass       |
| 4117.09       | 26.91    | 5.93       | 11.71 | 44.55        | Average Max      | H   | 151.00 | 92.00   | 54.00        | -9.45     | Pass       |
| 2057.03       | 29.87    | 3.55       | 11.30 | 44.71        | Average Max      | H   | 168.00 | 48.00   | 54.00        | -9.29     | Pass       |
| 17846.18      | 26.76    | 13.00      | 10.75 | 50.51        | Average Max      | V   | 141.00 | 324.00  | 54.00        | -3.49     | Pass       |
| 13145.00      | 28.76    | 12.10      | 8.16  | 49.02        | Average Max      | V   | 168.00 | 40.00   | 54.00        | -4.98     | Pass       |

## Annex A. TEST INSTRUMENT
















| Instrument                         | Model     | Serial #   | Cal Date   | Cal Cycle | Cal Due    | In use                              |
|------------------------------------|-----------|------------|------------|-----------|------------|-------------------------------------|
| <b>Conducted Emissions</b>         |           |            |            |           |            |                                     |
| Spectrum Analyzer                  | N9010A    | MY50210206 | 08/13/2014 | 1 Year    | 08/13/2015 |                                     |
| V-LISN (150 kHz – 30 MHz)          | NNLK 8129 | 8129-190   | 08/11/2014 | 1 Year    | 08/11/2015 | <input type="checkbox"/>            |
| LISN (9 kHz – 30 MHz)              | MN2050B   | 1018       | 07/31/2014 | 1 Year    | 07/31/2015 | <input type="checkbox"/>            |
| <b>Radiated Emissions</b>          |           |            |            |           |            |                                     |
| Bi-Log antenna (30MHz~2GHz)        | JB1       | A030702    | 08/12/2014 | 1 Year    | 08/12/2015 | <input checked="" type="checkbox"/> |
| Horn Antenna (1-18GHz)             | 3115      | 10SL0059   | 08/11/2014 | 1 Year    | 08/11/2015 | <input checked="" type="checkbox"/> |
| Horn Antenna (18-40 GHz)           | AH-840    | 101013     | 08/11/2014 | 1 Year    | 08/11/2015 | <input type="checkbox"/>            |
| Pre-Amplifier                      | LPA-6-30  | 11140711   | 02/19/2015 | 1 Year    | 02/19/2016 | <input checked="" type="checkbox"/> |
| Microwave Preamplifier (18-40 GHz) | PA-840    | 181251     | 02/19/2015 | 1 Year    | 02/19/2016 | <input type="checkbox"/>            |
| 3 Meters SAC                       | 3M        | N/A        | 08/29/2014 | 1 Year    | 08/29/2015 | <input checked="" type="checkbox"/> |
| 10 Meters SAC                      | 10M       | N/A        | 09/05/2014 | 1 Year    | 09/05/2015 | <input checked="" type="checkbox"/> |
| EMI Test Receiver                  | ESIB 40   | 100179     | 06/03/2015 | 1 Year    | 06/03/2016 | <input checked="" type="checkbox"/> |







## Test Software Version


| Test Item                  | Vendor  | Software       | Version | In Use                              |
|----------------------------|---------|----------------|---------|-------------------------------------|
| Radiated Emission          | EMISoft | EMISoft Vasona | V5.0    | <input checked="" type="checkbox"/> |
| Conducted Emission EMISoft |         | EMISoft Vasona | V5.0    | <input type="checkbox"/>            |



## Annex B. SIEMIC Accreditation

| Accreditations                          | Document                                                                            | Scope / Remark                                                                                                                                                            |
|-----------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ISO 17025 (A2LA)                        |    | Please see the documents for the detailed scope                                                                                                                           |
| ISO Guide 65 (A2LA)                     |    | Please see the documents for the detailed scope                                                                                                                           |
| TCB Designation                         |                                                                                     | <a href="#">A1</a> , <a href="#">A2</a> , <a href="#">A3</a> , <a href="#">A4</a> , <a href="#">B1</a> , <a href="#">B2</a> , <a href="#">B3</a> , <a href="#">B4</a> , C |
| FCC DoC Accreditation                   |    | FCC Declaration of Conformity Accreditation                                                                                                                               |
| FCC Site Registration                   |    | 3 meter site                                                                                                                                                              |
| FCC Site Registration                   |    | 10 meter site                                                                                                                                                             |
| IC Site Registration                    |    | 3 meter site                                                                                                                                                              |
| IC Site Registration                    |    | 10 meter site                                                                                                                                                             |
| EU NB                                   |    | <b>Radio &amp; Telecommunications Terminal Equipment:</b><br>EN45001 – EN ISO/IEC 17025                                                                                   |
|                                         |  | <b>Electromagnetic Compatibility:</b><br>EN45001 – EN ISO/IEC 17025                                                                                                       |
| Singapore iDA<br>CB(Certification Body) |  | <a href="#">Phase I</a> , <a href="#">Phase II</a>                                                                                                                        |
| Vietnam MIC<br>CAB Accreditation        |  | Please see the document for the detailed scope                                                                                                                            |
| Hong Kong OFCA                          |  | <b>(Phase II)</b> OFCA Foreign Certification Body for Radio and Telecom                                                                                                   |
|                                         |  | <b>(Phase I)</b> Conformity Assessment Body for Radio and Telecom                                                                                                         |
| Industry Canada CAB                     |  | <b>Radio:</b> Scope A – All Radio Standard Specification in Category I                                                                                                    |
|                                         |  | <b>Telecom:</b> CS-03 Part I, II, V, VI, VII, VIII                                                                                                                        |

|                                                 |                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Japan Recognized Certification Body Designation |    | <p><b>Radio:</b> A1. Terminal equipment for purpose of calling</p> <p><b>Telecom:</b> B1. Specified radio equipment specified in Article 38-2, Paragraph 1, Item 1 of the Radio Law</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Korea CAB Accreditation                         |    | <p><b>EMI:</b> KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI</p> <p>KN22: Test Method for EMI</p> <p><b>EMS:</b> KCC Notice 2008-38, RRL Notice 2008-4: CA Procedures for EMS</p> <p>KN24, KN61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11: Test Method for EMS</p> <p><b>Radio:</b> RRL Notice 2008-26, RRL Notice 2008-2, RRL Notice 2008-10, RRL Notice 2007-49, RRL Notice 2007-20, RRL Notice 2007-21, RRL Notice 2007-80, RRL Notice 2004-68</p> <p><b>Telecom:</b> President Notice 20664, RRL Notice 2007-30, RRL Notice 2008-7 with attachments 1, 3, 5, 6; President Notice 20664, RRL Notice 2008-7 with attachment 4</p> |
| Taiwan NCC CAB Recognition                      |  | LP0002, PSTN01, ADSL01, ID0002, IS6100, CNS14336, PLMN07, PLMN01, PLMN08                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Taiwan BSMI CAB Recognition                     |  | CNS 13438                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Japan VCCI                                      |  | <p>R-3083: Radiation 3 meter site</p> <p>C-3421: Main Ports Conducted Interference Measurement</p> <p>T-1597: Telecommunication Ports Conducted Interference Measurement</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Australia CAB Recognition                       |  | <p><b>EMC:</b> AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR22, AS/NZS 61000.6.3, AS/NZS 61000.6.4</p> <p><b>Radio communications:</b> AS/NZS 4281, AS/NZS 4268, AS/NZS 4280.1, AS/NZS 4280.2, AS/NZS 4295, AS/NZS 4582, AS/NZS 4583, AS/NZS 4769.1, AS/NZS 4769.2, AS/NZS 4770, AS/NZS 4771</p>                                                                                                                                                                                                                                                                                                                                                  |

|                               |                                                                                   |                                                                                                                                                                                                                                       |
|-------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                               |                                                                                   | <b>Telecommunications:</b> AS/ACIF S002:05, AS/ACIF S003:06,<br>AS/ACIF S004:06<br>AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF<br>S038:01,<br>AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/ACIF<br>S60950.1 |
| Australia NATA<br>Recognition |  | AS/ACIF S002, AS/ACIF S003, AS/ACIF S004, AS/ACIF S006,<br>AS/ACIF S016, AS/ACIF S031, AS/ACIF S038, AS/ACIF S040,<br>AS/ACIF S041, AS/ACIF S043.2                                                                                    |