

RF TEST REPORT



Report No.: FCC IC_RF_SL17050501-AVE-010
Supersede Report No.: None

| | | |
|---|---|---|
| Applicant | : | Avery Dennison Retail Information Service LLC |
| Host Model No. | : | ADTP2 |
| Module Name | : | LMA UHF RFID Module |
| Module Model No. | : | RS500GX |
| Test Standard | : | 47 CFR 15.247 RSS-247 Issue 2, February 2017 |
| Test Method | : | ANSI C63.10: 2013 RSS-Gen Issue 4, Nov 2014 FCC Public Notice DA 00-705 |
| FCC ID | : | GU6-RS500GX |
| IC ID | : | 1502A-RS500GX |
| Dates of test | : | 06/19/2017 – 06/28/2017 |
| Issue Date | : | 06/28/2017 |
| Test Result | : | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail |
| Equipment complied with the specification <input checked="" type="checkbox"/> | | |
| Equipment did not comply with the specification <input type="checkbox"/> | | |

| This Test Report is Issued Under the Authority of: | |
|--|-------------------|
| | |
| Shuo Zhang | Chen Ge |
| Test Engineer | Engineer Reviewer |

Issued By:
SIEMIC Laboratories
775 Montague Expressway, Milpitas, 95035 CA



775 Montague Expressway, Milpitas, CA 95035, USA • Phone: (+1) 408 526 1188 • Facsimile (+1) 408 526 1088

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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 | Safety, EMC, RF/Wireless, Telecom |
| 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_SL17050501-AVE-010 | None | Original | 06/28/2017 |
| | | | |
| | | | |
| | | | |

2 Executive Summary

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

Company: Avery Dennison Retail Information Service LLC
Product: LMA UHF RFID Module
Model: RS500GX

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

3 Customer information

| | |
|----------------------|---|
| Applicant Name | Avery Dennison Retail Information Service LLC |
| Applicant Address | 170 Monarch Lane Miamisburg, OH 45342 USA |
| Manufacturer Name | Avery Dennison Retail Information Service LLC |
| Manufacturer Address | 170 Monarch Lane Miamisburg, OH 45342 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

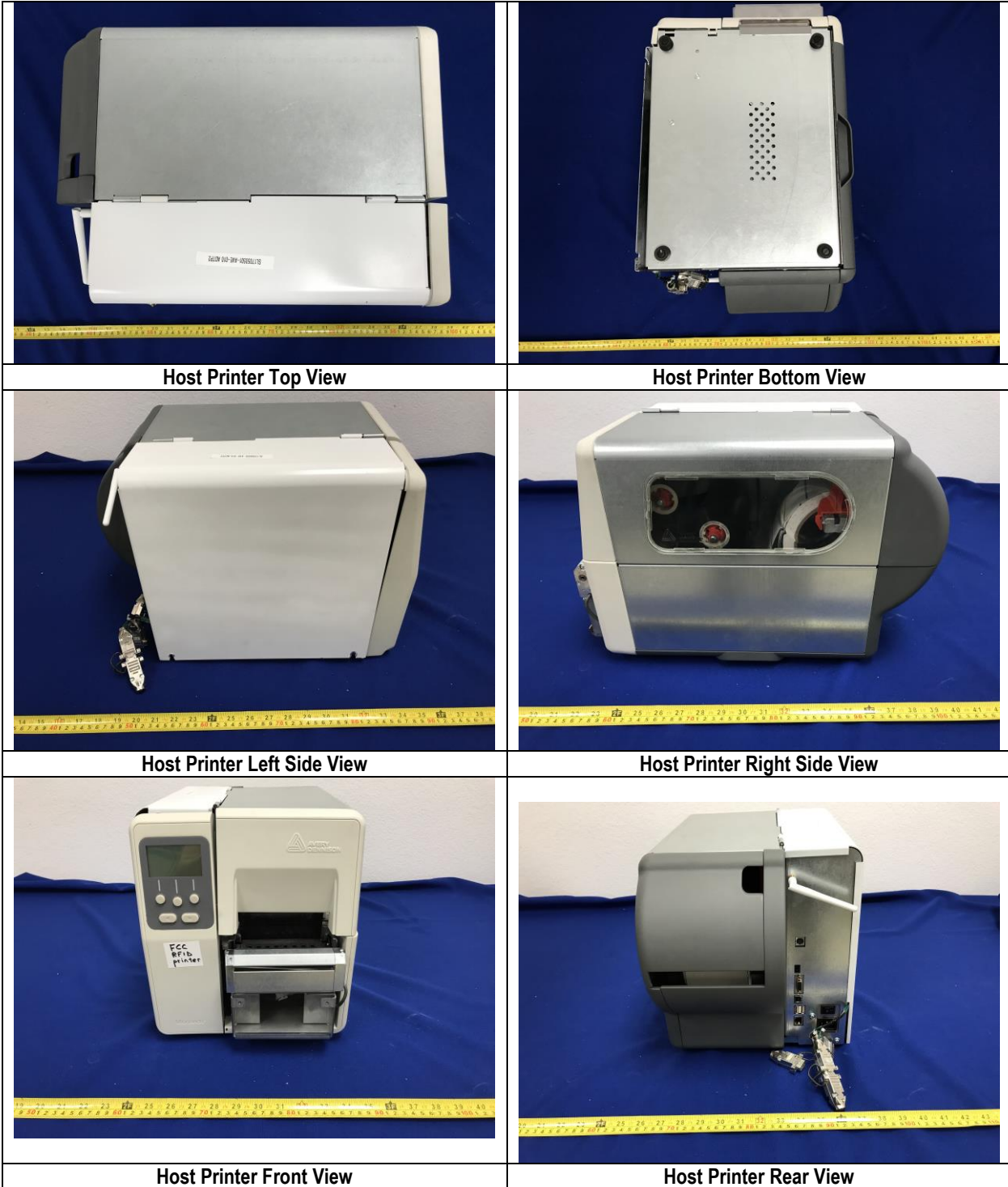
| | |
|------------------------------|-----------------------|
| Host Product Name | Table Top Printer |
| Host Model No. | ADTP2 |
| Trade Name | Avery Dennison |
| Serial No. | N/A |
| Module Model Name | LMA UHF RFID Module |
| Module Model Number | GU6-RS500GX |
| Input Power | 100-240VAC,50-60Hz |
| Poe Power Adapter Manu/Model | N/A |
| PoE Power Adapter SN | N/A |
| Product Hardware version | N/A |
| Product Software version | N/A |
| Radio Hardware version | N/A |
| Radio Software version | N/A |
| Date of EUT received | 06/01/2017 |
| Equipment Class/ Category | DSS |
| Port/Connectors | USB, Serial, Ethernet |

6.2 Radio Description

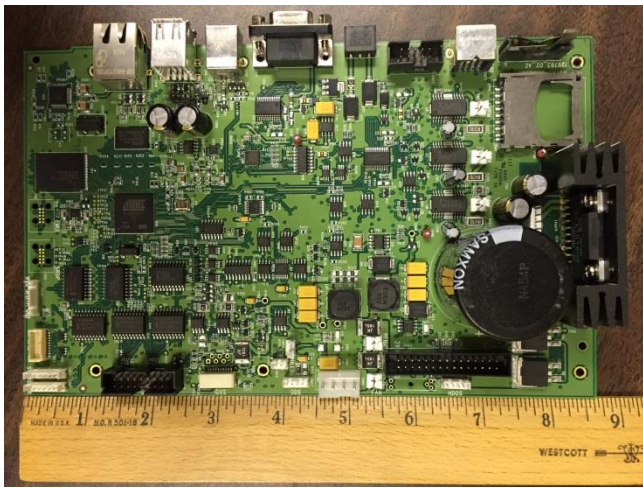
Spec for UHF RFID -

| Radio Type | UHF RFID |
|---------------------|-------------------|
| Operating Frequency | 902.75-927.25 MHz |
| Modulation | ASK |
| Antenna Type | PCB antenna |
| Antenna Gain | -12dBi |
| Channel Separation | 500 KHz |
| Number of Channels | 50 |

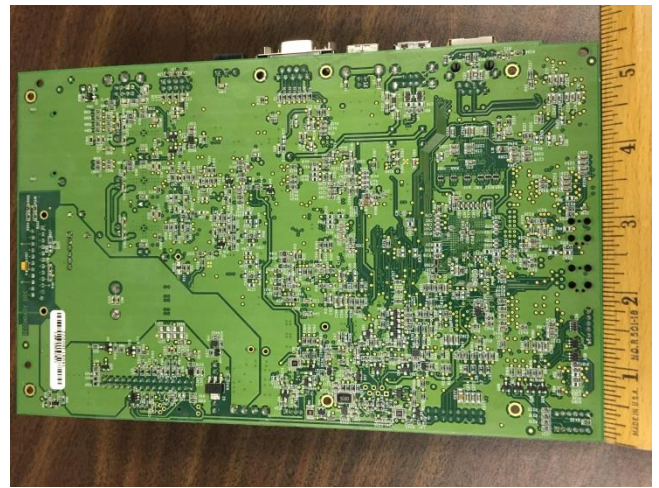
6.3 Host Printer Photos - External



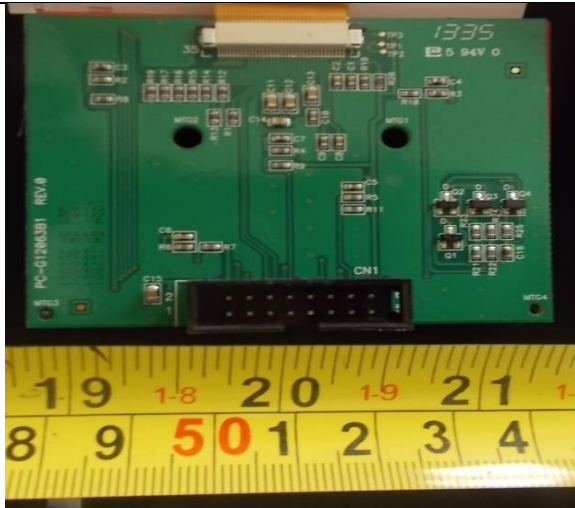
6.4 Host Printer Photos – Internal



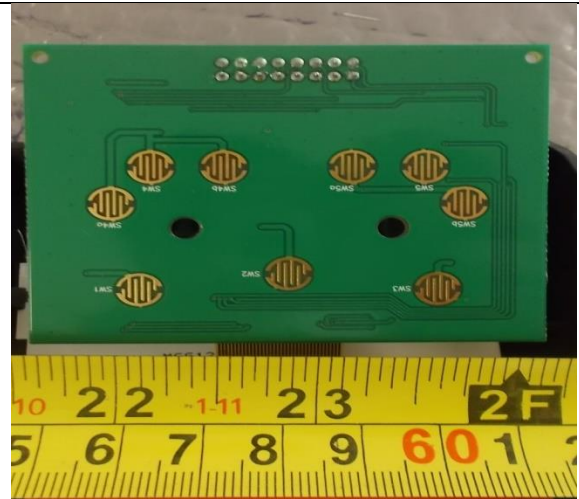
Main PCBA Board - Top View



Main PCBA Board - Bottom View



Keypad PCBA - Top View



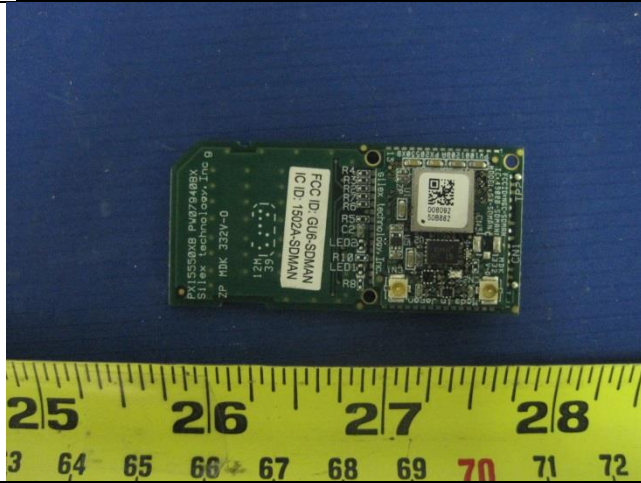
Keypad PCBA - Bottom View



RF Module Board Top View



RF Module Board Bottom View



WLAN RF Module Board Top View



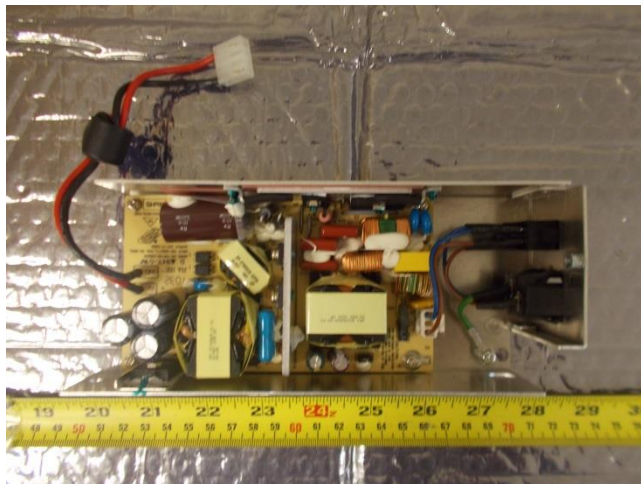
WLAN RF Module Board Bottom View



WLAN Antenna Top View



WLAN Antenna Port View



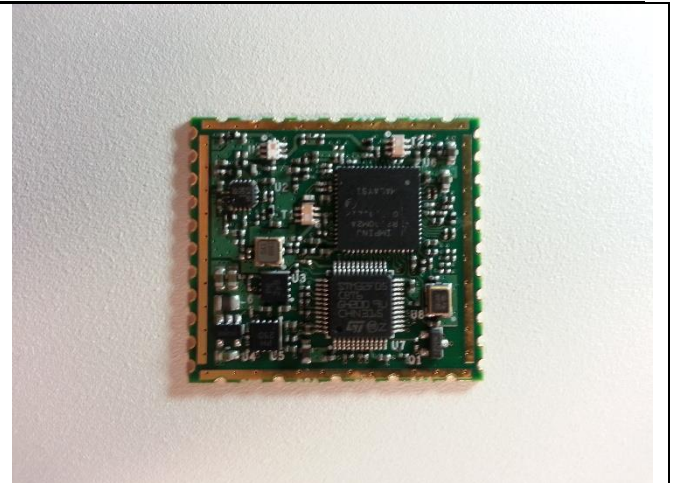
Internal Power Supply 140W - Top View



Internal Power Supply 140W - Bottom View



Radio module Top view with shielding View



Radio module without shielding

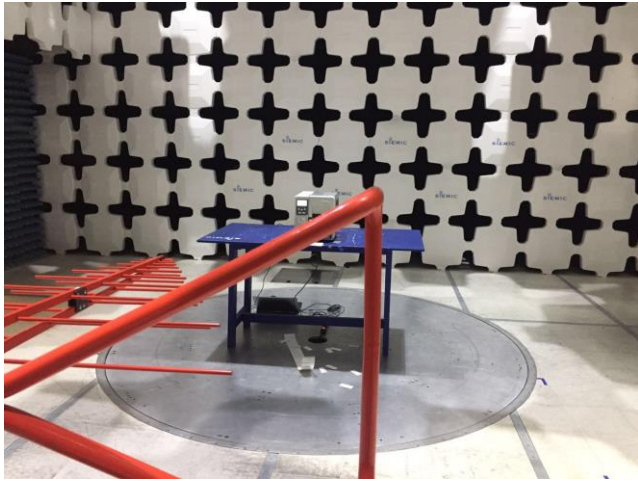


Antenna top View



Antenna Bottom View

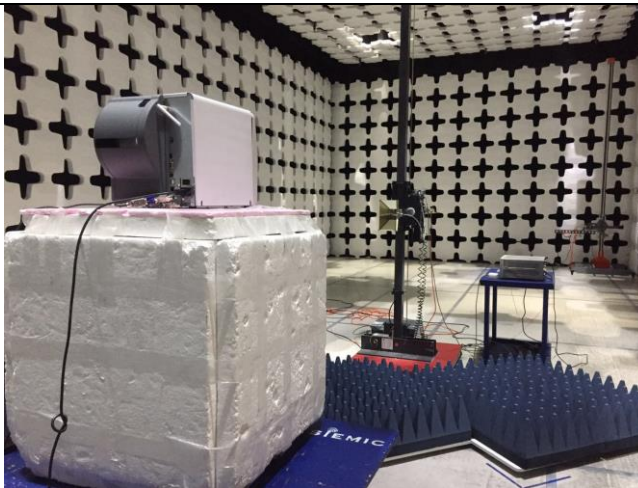
6.5 EUT Test Setup Photos



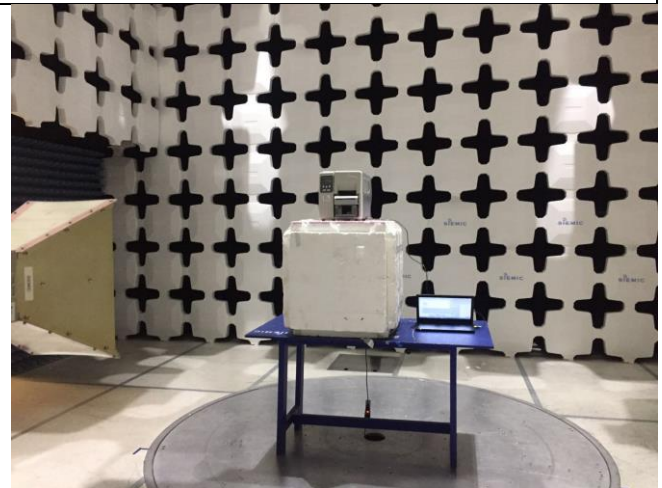
Radiated Emissions (<1GHz) – Front View



Radiated Emissions (<1GHz) – Rear View



Radiated Emissions (>1GHz) – Front View



Radiated 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 | ThinkPad T420s | N/A | Lenovo | - |
| | | | | | |
| | | | | | |

7.2 Cabling Description

| Name | Connection Start | | Connection Stop | | Length / shielding Info | | Note |
|------|------------------|------------------|-----------------|----------|-------------------------|------------|------|
| | From | I/O Port | To | I/O Port | Length (m) | Shielding | |
| USB | EUT | 232TTL converter | Laptop | USB | 2 | Unshielded | - |
| | | | | | | | |

7.3 Test Software Description

| Test Item | Software | Description |
|------------|----------------------------|--|
| RF Testing | ADTP1 RFID Regulatory test | Set the EUT to transmit continuously in diferent test mode |
| | | |
| | | |

8 Test Summary

| Test Item | Test standard | | Test Method/Procedure | | Pass / Fail |
|--------------------------------|---------------|--------------|-----------------------|--|--|
| Restricted Band of Operation | FCC | 15.205 | FCC | ANSI C63.10: 2013 Public Notice DA 00-705 | <input type="checkbox"/> Pass <input checked="" type="checkbox"/> N/A |
| | IC | RSS Gen 8.10 | | RSS Gen Issue 4: 2014 | |
| AC Conducted Emissions Voltage | FCC | 15.207(a) | FCC | ANSI C63.10: 2013 | <input type="checkbox"/> Pass <input checked="" type="checkbox"/> N/A |
| | IC | RSS Gen 8.8 | | RSS Gen Issue 4: 2014 | |

| Test Item | Test standard | | Test Method/Procedure | | Pass / Fail |
|---|---------------|----------------|-----------------------|-------------------------|--|
| Channel Separation | FCC | 15.247 (a)(1) | FCC | Public Notice DA 00-705 | <input type="checkbox"/> Pass <input checked="" type="checkbox"/> N/A |
| | IC | RSS247 (5.1.5) | IC | - | |
| 20dB Occupied Bandwidth | FCC | 15.247(a)(1) | FCC | Public Notice DA 00-705 | <input type="checkbox"/> Pass <input checked="" type="checkbox"/> N/A |
| | IC | RSS247 (5.1.2) | IC | - | |
| 99% Occupied Bandwidth | FCC | 15.247(a)(2) | FCC | | <input type="checkbox"/> Pass <input checked="" type="checkbox"/> N/A |
| | IC | RSS Gen 6.6 | IC | RSS Gen Issue 4: 2014 - | |
| Number of Hopping Channels | FCC | 15.247(a)(1) | FCC | Public Notice DA 00-705 | <input type="checkbox"/> Pass <input checked="" type="checkbox"/> N/A |
| | IC | RSS247 (5.1.5) | IC | - | |
| Band Edge and Radiated Spurious Emissions | FCC | 15.247(d) | FCC | Public Notice DA 00-705 | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> N/A |
| | IC | RSS247(5.5) | IC | - | |
| Time of Occupancy | FCC | 15.247(a)(1) | FCC | Public Notice DA 00-705 | <input type="checkbox"/> Pass <input checked="" type="checkbox"/> N/A |
| | IC | RSS247 (5.1.5) | IC | - | |
| Output Power | FCC | 15.247(b) | FCC | Public Notice DA 00-705 | <input type="checkbox"/> Pass <input checked="" type="checkbox"/> N/A |
| | IC | RSS247 (5.4.2) | IC | - | |
| Receiver Spurious Emissions | FCC | 15.247(d) | FCC | - | <input type="checkbox"/> Pass <input checked="" type="checkbox"/> N/A |
| | IC | RSS Gen (7.1) | IC | RSS Gen (7.1) | |
| Antenna Gain > 6 dBi | FCC | 15.247(e) | FCC | Public Notice DA 00-705 | <input type="checkbox"/> Pass <input checked="" type="checkbox"/> N/A |
| | IC | RSS247 (5.4.6) | IC | - | |
| Power Spectral Density | FCC | 15.247(e) | FCC | Public Notice DA 00-705 | <input type="checkbox"/> Pass <input checked="" type="checkbox"/> N/A |
| | IC | RSS247 (5.2.2) | IC | - | |
| Hybrid System Requirement | FCC | 15.247(f) | FCC | Public Notice DA 00-705 | <input type="checkbox"/> Pass <input checked="" type="checkbox"/> N/A |
| | IC | RSS247 (5.3) | IC | - | |
| Hopping Capability | FCC | 15.247(g) | FCC | Public Notice DA 00-705 | <input type="checkbox"/> Pass <input checked="" type="checkbox"/> N/A |
| | IC | RSS247 (5.1.5) | IC | - | |
| RF Exposure requirement | FCC | 15.247(i) | FCC | Public Notice DA 00-705 | <input type="checkbox"/> Pass <input checked="" type="checkbox"/> N/A |
| | IC | RSS Gen(3.2) | IC | - | |

Remark

- All measurement uncertainties are not taken into consideration for all presented test result.
- 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.

Note

Only Radiated Spurious Emissions was tested for ADTP2. Please refer to the FCC ID: GU6-RS500GX for rest of the items.

9 Measurement Uncertainty

9.1 Radiated Emissions (30MHz to 1GHz)

The test is to measure the radiated emissions of the EUT.

Some error sources that can contribute to the total uncertainty:

- Uncertainty of the receiver
- Uncertainty of the antenna
- Uncertainty of cables
- Uncertainty due to the mismatches
- NSA Calibration
- Etc., details see the below table

| Source of Uncertainty | Value (dB) | Probability Distribution | Division | Sensitivity Coefficient | Expanded Uncertainty |
|-----------------------------------|------------|--------------------------|----------|-------------------------|----------------------|
| Receiver Reading | 0.12 | Rectangular | 1.732 | 1 | 0.069284 |
| Cable Insertion Loss | 0.21 | Normal | 2 | 1 | 0.105 |
| Filter Insertion Loss | 0.25 | Normal | 2 | 1 | 0.125 |
| Antenna Factor | 0.65 | Normal | 2 | 1 | 0.325 |
| Receiver CW accuracy | 0.5 | Rectangular | 1.732 | 1 | 0.2886836 |
| Pulse Amplitude Response | 1.5 | Rectangular | 1.732 | 1 | 0.86605081 |
| PRF Response | 1.5 | Rectangular | 1.732 | 1 | 0.86605081 |
| Mismatch Filter - Receiver | 0.25 | U-Shape | 1.414 | 1 | 0.1768033 |
| NSA Calibration | 4.0 | U-Shape | 1.414 | 1 | 2.8288543 |
| Combined Standard Uncertainty | | | | | 3.0059131 |
| Expanded Uncertainty (K=2) | | | | | 6.0118262 |

The total derived measurement uncertainty is +/- 6.00 dB.

9.2 Radiated Emissions (1GHz to 40GHz)

The test is to measure the radiated emissions of the EUT.

Some error sources that can contribute to the total uncertainty:

- Uncertainty of the receiver
- Uncertainty of the antenna
- Uncertainty of cables
- Uncertainty due to the mismatches
- VSWR Calibration
- Etc., details see the below table

| Source of Uncertainty | Value (dB) | Probability Distribution | Division | Sensitivity Coefficient | Expanded Uncertainty |
|-----------------------------------|------------|--------------------------|----------|-------------------------|----------------------|
| Receiver Reading | 0.12 | Rectangular | 1.732 | 1 | 0.0692840 |
| Cable Insertion Loss | 0.21 | Normal | 2 | 1 | 0.1050000 |
| Filter Insertion Loss | 0.25 | Normal | 2 | 1 | 0.1250000 |
| Antenna Factor | 0.65 | Normal | 2 | 1 | 0.3250000 |
| Receiver CW accuracy | 0.5 | Rectangular | 1.732 | 1 | 0.2886836 |
| Pulse Amplitude Response | 1.5 | Rectangular | 1.732 | 1 | 0.8660508 |
| PRF Response | 1.5 | Rectangular | 1.732 | 1 | 0.8660508 |
| Mismatch Filter - Receiver | 0.25 | U-Shape | 1.414 | 1 | 0.1768033 |
| VSWR Calibration | 2.0 | U-Shape | 1.414 | 1 | 1.4144272 |
| Combined Standard Uncertainty | | | | | 4.2363 |
| Expanded Uncertainty (K=2) | | | | | 8.4726 |

The total derived measurement uncertainty is +/- 8.47 dB.

9.3 RF conducted measurement

The test is to measure the RF output power from the EUT.

Some error sources that can contribute to the total uncertainty:

- Uncertainty of the Reference Level Uncertainty
- Uncertainty of variable attenuators
- Uncertainty of cables
- Uncertainty due to the mismatches

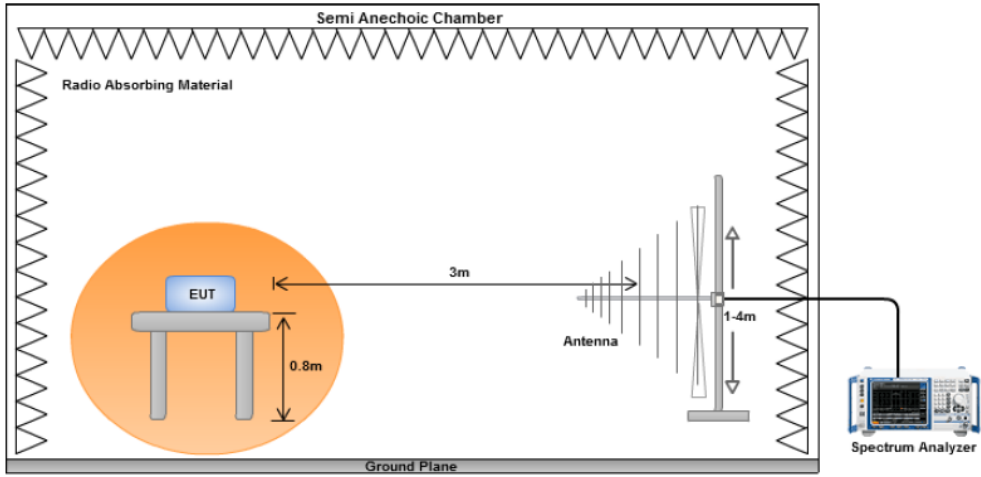
| Source of Uncertainty | Value (dB) | Probability Distribution | Division | Sensitivity Coefficient | Expanded Uncertainty |
|-----------------------------------|------------|--------------------------|----------|-------------------------|----------------------|
| Reference Level | 0.12 | Rectangular | 1.732 | 1 | 0.069284 |
| Cable Insertion Loss | 0.21 | Normal | 2 | 1 | 0.105 |
| Attenuator | 0.25 | Normal | 2 | 1 | 0.125 |
| Mismatch | 0.25 | U-Shape | 1.414 | 1 | 0.1768033 |
| Combined Standard Uncertainty | | | | | 0.476087 |
| Expanded Uncertainty (K=2) | | | | | 0.952174 |

The total derived measurement uncertainty is +/- 0.95 dB.

10 Measurements, Examination and Derived Results

10.1 Radiated Spurious Emissions below 1GHz

Requirement(s):

| Spec | Item | Requirement | Applicable | | | | | | | | | | |
|---------------------------------|--|--|-----------------------|-----------------------|---------|-----|----------|-----|---------|-----|-----------|-----|---|
| 47CFR§15.247(d) RSS247 (5.5) | a) | <p>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</p> <table border="1"> <thead> <tr> <th>Frequency range (MHz)</th> <th>Field Strength (uV/m)</th> </tr> </thead> <tbody> <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> </tbody> </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 | <ol style="list-style-type: none"> The EUT was switched on and allowed to warm up to its normal operating condition. 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"> Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen. The EUT was then rotated to the direction that gave the maximum emission. Finally, the antenna height was adjusted to the height that gave the maximum emission. A Quasi-peak measurement was then made for that frequency point. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured. | | | | | | | | | | | | |
| Remark | The EUT was scanned up to 1GHz. Both horizontal and vertical polarities were investigated. The results show only the worst case. | | | | | | | | | | | | |
| Result | ☒ Pass ☐ Fail | | | | | | | | | | | | |

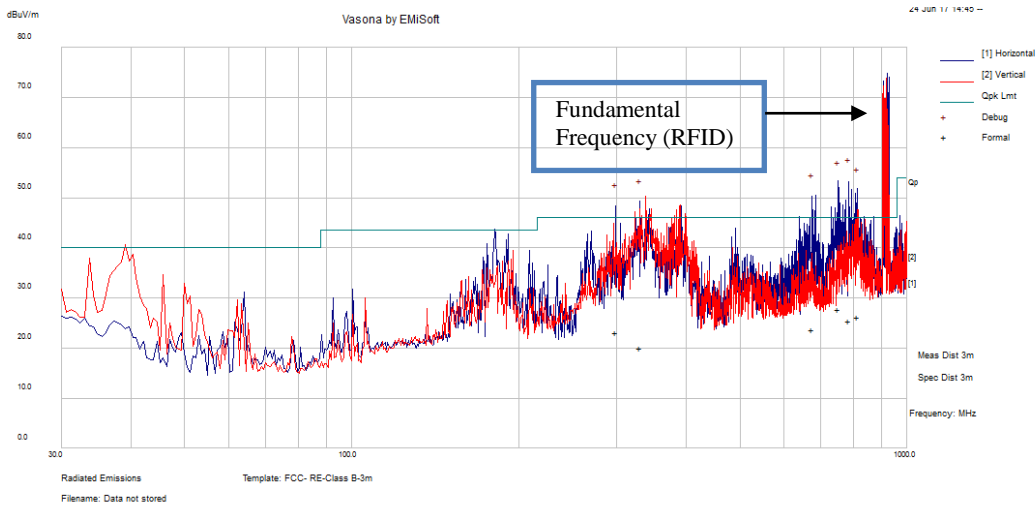
Test Data ☒ Yes (See below) ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test was done by *Shuo Zhang* at 10m Chamber.

Radiated Emission Test Results (Below 1GHz)

| | | | | | |
|---------------------------|---------------------|------|--|--------|------|
| Test specification | below 1GHz | | | Result | Pass |
| Environmental Conditions: | Temp (°C): | 21 | | | |
| | Humidity (%) | 45 | | | |
| | Atmospheric (mbar): | 1011 | | | |
| Mains Power: | 120VAC, 60Hz | | | | |
| Tested by: | Shuo Zhang | | | | |
| Test Date: | 06/24/2017 | | | | |
| Remarks: | RFID at Mid Channel | | | | |

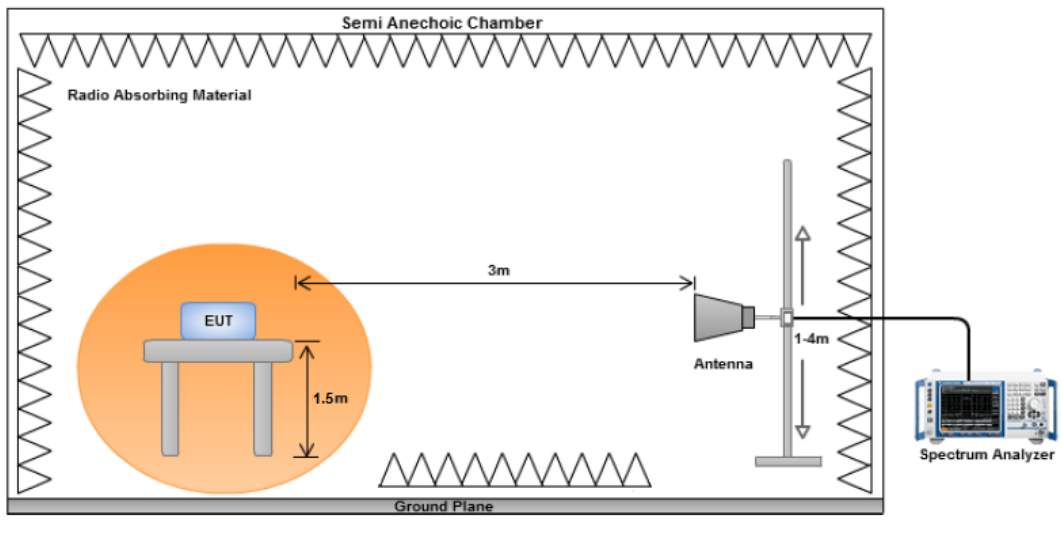


| Frequency MHz | Raw dBuV | Cable Loss | AF dB | Level dBuV/m | Measurement Type | Pol | Hgt cm | Azt Deg | Limit dBuV/m | Margin dB | Pass /Fail |
|---------------|----------|------------|--------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|
| 784.5907 | 25.27 | 14.54 | -14.4 | 25.4 | Quasi Max | H | 355 | 351 | 46 | -20.6 | Pass |
| 752.0326 | 28.13 | 14.46 | -14.79 | 27.8 | Quasi Max | H | 105 | 278 | 46 | -18.2 | Pass |
| 814.092 | 25.56 | 14.61 | -13.94 | 26.23 | Quasi Max | H | 261 | 250 | 46 | -19.77 | Pass |
| 674.9437 | 25.53 | 14.24 | -15.96 | 23.81 | Quasi Max | H | 307 | 202 | 46 | -22.19 | Pass |
| 330.1514 | 29.37 | 12.98 | -22.26 | 20.09 | Quasi Max | H | 306 | 46 | 46 | -25.91 | Pass |
| 299.1576 | 33.24 | 12.89 | -23.01 | 23.12 | Quasi Max | H | 155 | 244 | 46 | -22.88 | 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), RSS247(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 <input type="checkbox"/> 20 dB down <input checked="" 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 type="checkbox"/> |
| Test Setup |  | | |
| Procedure | <ol style="list-style-type: none"> 1. The EUT was switched on and allowed to warm up to its normal operating condition. 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: <ol style="list-style-type: none"> a. Vertical or horizontal polarisation (whichever gave the higher emission level over a full rotation of the EUT) was chosen. b. The EUT was then rotated to the direction that gave the maximum emission. c. Finally, the antenna height was adjusted to the height that gave the maximum emission. 3. An average measurement was then made for that frequency point. 4. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured. | | |
| Remark | The EUT was scanned up to 40GHz. Both horizontal and vertical polarities were investigated. The results show only the worst case. There isn't outstanding emission found at the edge of restricted frequency. | | |
| Result | <input checked="" type="checkbox"/> Pass <input type="checkbox"/> Fail | | |

Test Data Yes (See below) N/A

Test Plot Yes (See below) N/A

Test was done by Shuo Zhang at 10m Chamber.

Radiated Emission Test Results (Above 1GHz)

Low Channel Continus TX @ 902.75MHz

| 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 |
|---------------|----------|------------|--------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|
| 2430.801 | 74.52 | 6.52 | -11.54 | 69.5 | Peak Max | V | 101 | 121 | 74 | -4.5 | Pass |
| 5820.534 | 33.99 | 4.43 | -3.31 | 35.1 | Peak Max | H | 183 | 68 | 74 | -38.9 | Pass |
| 4901.764 | 33.47 | 5.41 | -5.14 | 33.74 | Peak Max | V | 396 | 84 | 74 | -40.26 | Pass |
| 2430.801 | 38.93 | 6.52 | -11.54 | 33.91 | Average Max | V | 101 | 121 | 54 | -20.09 | Pass |
| 5820.534 | 22.56 | 4.43 | -3.31 | 23.67 | Average Max | H | 183 | 68 | 54 | -30.33 | Pass |
| 4901.764 | 21.29 | 5.41 | -5.14 | 21.56 | Average Max | V | 396 | 84 | 54 | -32.44 | Pass |

Mid Channel Continus TX @ 915.25MHz

| 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 |
|---------------|----------|------------|--------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|
| 2423.243 | 45.81 | 6.52 | -11.58 | 40.75 | Peak Max | V | 107 | 49 | 74 | -33.25 | Pass |
| 5205.928 | 34.37 | 5.11 | -4.49 | 34.99 | Peak Max | V | 230 | 155 | 74 | -39.01 | Pass |
| 2461.471 | 34.67 | 6.5 | -11.37 | 29.8 | Peak Max | V | 333 | 227 | 74 | -44.2 | Pass |
| 2423.243 | 33.2 | 6.52 | -11.58 | 28.14 | Average Max | V | 107 | 49 | 54 | -25.86 | Pass |
| 5205.928 | 21.29 | 5.11 | -4.49 | 21.91 | Average Max | V | 230 | 155 | 54 | -32.09 | Pass |
| 2461.471 | 37.09 | 6.5 | -11.37 | 32.22 | Average Max | V | 333 | 227 | 54 | -21.78 | Pass |

















High Channel Continus TX @ 927.25MHz








| 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 |
|---------------|----------|------------|-------|--------------|------------------|-----|--------|---------|--------------|-----------|------------|
| 5220.622 | 34.67 | 5.08 | -4.44 | 35.31 | Peak Max | H | 116 | 119 | 74 | -38.69 | Pass |
| 4885.836 | 33.27 | 5.39 | -5.11 | 33.55 | Peak Max | H | 162 | 356 | 74 | -40.45 | Pass |
| 7281.262 | 33.55 | 4.1 | 0.08 | 37.73 | Peak Max | H | 320 | 84 | 74 | -36.27 | Pass |
| 5220.622 | 22.06 | 5.08 | -4.44 | 22.7 | Average Max | H | 116 | 119 | 54 | -31.3 | Pass |
| 4885.836 | 21.2 | 5.39 | -5.11 | 21.48 | Average Max | H | 162 | 356 | 54 | -32.53 | Pass |
| 7281.262 | 20.64 | 4.1 | 0.08 | 24.82 | Average Max | H | 320 | 84 | 54 | -29.18 | Pass |

Annex A. TEST INSTRUMENT

| Instrument | Model | Manufacturer | Serial # | Cal Date | Cal Cycle | Cal Due | In use |
|-----------------------------|----------|-----------------|------------|------------|-----------|------------|-------------------------------------|
| Radiated Emissions | | | | | | | |
| R & S Receiver | ESIB 40 | Rohde & Schwarz | 100179 | 06/08/2017 | 1 Year | 06/08/2018 | <input checked="" type="checkbox"/> |
| Spectrum Analyzer | N9010A | Keysight | 10SL0219 | 10/27/2016 | 1 Year | 10/27/2017 | <input checked="" type="checkbox"/> |
| Pre-Amplifier (1-26.5GHz) | 8449B | Hewlett Packard | 3008A00715 | 03/30/2017 | 1 Year | 03/30/2018 | <input checked="" type="checkbox"/> |
| Preamplifier (100KHz-7GHz) | LPA-6-30 | RF Bay, Inc. | 11140711 | 02/10/2017 | 1 Year | 02/10/2018 | <input checked="" type="checkbox"/> |
| ETS-Lingren Loop Antenna | 6512 | ETS-Lingren | 00049120 | 07/14/2016 | 1 Year | 07/14/2017 | <input type="checkbox"/> |
| Bi-Log antenna (30MHz~2GHz) | JB1 | Sunol Sciences | A030702 | 07/08/2016 | 1 Year | 07/08/2017 | <input checked="" type="checkbox"/> |
| Horn Antenna (1-26.5GHz) | 3115 | EMCO | 10SL0059 | 08/11/2016 | 1 Year | 08/11/2017 | <input checked="" type="checkbox"/> |
| 10 Meters SAC | 10M | ETS-Lingren | N/A | 07/06/2016 | 1 Year | 07/06/2017 | <input checked="" 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 | | A1 , A2 , A3 , A4 , B1 , B2 , B3 , B4 , 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 |  | Radio & Telecommunications Terminal Equipment: EN45001 – EN ISO/IEC 17025 |
| |  | Electromagnetic Compatibility: EN45001 – EN ISO/IEC 17025 |
| Singapore iDA CB(Certification Body) |   | Phase I , Phase II |
| Vietnam MIC CAB Accreditation |  | Please see the document for the detailed scope |
| Hong Kong OFCA |  | (Phase II) OFCA Foreign Certification Body for Radio and Telecom |
| |  | (Phase I) Conformity Assessment Body for Radio and Telecom |
| Industry Canada CAB |  | Radio: Scope A – All Radio Standard Specification in Category I |
| |  | Telecom: CS-03 Part I, II, V, VI, VII, VIII |

| | | |
|---|---|--|
| Japan Recognized Certification Body Designation |  | <p>Radio: A1. Terminal equipment for purpose of calling</p> <p>Telecom: B1. Specified radio equipment specified in Article 38-2, Paragraph 1, Item 1 of the Radio Law</p> |
| Korea CAB Accreditation |  | <p>EMI: KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI KN22: Test Method for EMI</p> <p>EMS: KCC Notice 2008-38, RRL Notice 2008-4: CA Procedures for EMS KN24, KN61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11: Test Method for EMS</p> |
| | | <p>Radio: 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>Telecom: 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>EMC: AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR22, AS/NZS 61000.6.3, AS/NZS 61000.6.4</p> |
| | | <p>Radio communications: 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> |
| | | <p>Telecommunications: AS/ACIF S002:05, AS/ACIF S003:06, AS/ACIF S004:06 AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF S038:01, AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/ACIF S60950.1</p> |
| Australia NATA Recognition |  | AS/ACIF S002, AS/ACIF S003, AS/ACIF S004, AS/ACIF S006, AS/ACIF S016, AS/ACIF S031, AS/ACIF S038, AS/ACIF S040, AS/ACIF S041, AS/ACIF S043.2 |