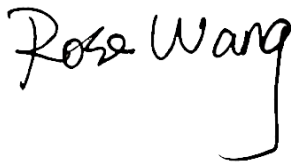


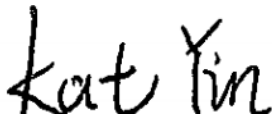
RF Exposure Evaluation Report

APPLICANT : Suzhou Aquila Solutions Inc.
EQUIPMENT : LTE Module
BRAND NAME : AQUILA
MODEL NAME : MG401
FCC ID : 2ASRY-MG401
STANDARD : 47 CFR Part 2.1091
FCC KDB 447498 D01 v06

We, Sporton International (Kunshan) Inc., would like to declare that the device has been evaluated in accordance with 47 CFR Part 2.1091 and FCC KDB 447498 D01 v06, and pass the limit. Without written approval of Sporton International (Kunshan) Inc., the test report shall not be reproduced except in full.



Reviewed by: Rose Wang / Supervisor



Approved by: Kat Yin / Manager



Sporton International (Kunshan) Inc.

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province
215300 People's Republic of China



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Revision History

| REPORT NO. | VERSION | DESCRIPTION | ISSUED DATE |
|------------|---------|-------------------------|--------------|
| FA022705 | Rev. 01 | Initial issue of report | May 13, 2020 |
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1. Administration Data

1.1. Testing Laboratory

Sporton International (Kunshan) Inc. is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

| Testing Laboratory | | |
|--------------------|--|--------------------------------|
| Test Firm | Sporton International (Kunshan) Inc. | |
| Test Site Location | No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158 FAX : +86-512-57900958 | |
| Test Site No. | FCC Designation No. | FCC Test Firm Registration No. |
| | CN1257 | 314309 |

| Applicant | |
|--------------|---|
| Company Name | Suzhou Aquila Solutions Inc. |
| Address | Room 201, Building 3, 18 Dongchang Road,Suzhou Industry ParkSuzhou, 215000 China |

| Manufacturer | |
|--------------|---|
| Company Name | Suzhou Aquila Solutions Inc. |
| Address | Room 201, Building 3, 18 Dongchang Road,Suzhou Industry ParkSuzhou, 215000 China |



2. Description of Equipment Under Test (EUT)

| Product Feature & Specification | |
|---|---|
| EUT Type | LTE Module |
| Brand Name | AQUILA |
| Model Name | MG401 |
| FCC ID | 2ASRY-MG401 |
| Wireless Technology and Frequency Range | LTE Band 2: 1850.7 MHz ~ 1909.3 MHz LTE Band 4: 1710.7 MHz ~ 1754.3 MHz LTE Band 5: 824.7 MHz ~ 848.3 MHz LTE Band 12: 699 MHz ~ 716 MHz LTE Band 13: 777 MHz ~ 787 MHz LTE Band 14: 790.5 MHz ~ 795.5 MHz LTE Band 17: 706.5 MHz ~ 713.5 MHz LTE Band 25: 1850.7 MHz ~ 1914.3 MHz LTE Band 26: 814.7 MHz ~ 848.3 MHz LTE Band 41: 2498.5 MHz ~ 2687.5 MHz LTE Band 42: 3552.5 MHz ~ 3597.5 MHz LTE Band 43: 3602.5 MHz ~ 3697.5 MHz LTE Band 48: 3552.5 MHz ~ 3697.5 MHz LTE Band 66: 1710.7 MHz ~ 1779.3 MHz |
| Mode | LTE: QPSK, 16QAM |
| Antenna Type | PCB Antenna |
| HW Version | V1.2 |
| SW Version | CAT4_GS_BYPASS_0.3.3.2_V1.4 |
| EUT Stage | Identical Prototype |

Remark:

1. This is a variant report, the difference is to open LTE Band 42, Band 43 and Band 48 by software. According to the difference, added LTE Band 42/43/48 evaluation based on original report FA8N3015.
2. LTE band 42/43 covered by LTE band 48 with the same power level, so only chose LTE band 48 to perform standalone power density calculation.



3. Maximum RF average output power among production units

| Mode | | Maximum Average power(dBm) |
|---------|---------|----------------------------|
| LTE | Band 2 | 25.00 |
| | Band 4 | 25.00 |
| | Band 5 | 24.00 |
| | Band 12 | 24.00 |
| | Band 13 | 25.00 |
| | Band 14 | 25.00 |
| | Band 17 | 24.00 |
| | Band 25 | 25.00 |
| | Band 26 | 22.00 |
| | Band 41 | 25.00 |
| | Band 42 | 24.00 |
| | Band 43 | 24.00 |
| | Band 48 | 24.00 |
| Band 66 | 25.00 | |



4. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm ²) | Averaging time (minutes) |
|--|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| (A) Limits for Occupational/Controlled Exposures | | | | |
| 0.3-3.0 | 614 | 1.63 | *(100) | 6 |
| 3.0-30 | 1842/f | 4.89/f | *(900/f ²) | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | | | f/300 | 6 |
| 1500-100,000 | | | 5 | 6 |
| (B) Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34-30 | 824/f | 2.19/f | *(180/f ²) | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | | | f/1500 | 30 |
| 1500-100,000 | | | 1.0 | 30 |

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:

S = Power Density

P = Output Power at Antenna Terminals

G = Gain of Transmit Antenna (linear gain)

R = Distance from Transmitting Antenna



5. Radio Frequency Radiation Exposure Evaluation

5.1. Standalone Power Density Calculation

| Band | Frequency (MHz) | Antenna Gain (dBi) | Maximum Power (dBm) | Maximum EIRP (dBm) | Average EIRP (mW) | Power Density at 20cm (mW/cm ²) | Limit (mW/cm ²) |
|-------------|-----------------|--------------------|---------------------|--------------------|-------------------|---|-----------------------------|
| LTE Band 2 | 1850.7 | 8.00 | 25.00 | 33.00 | 1995.26 | 0.397 | 1.000 |
| LTE Band 4 | 1710.7 | 5.00 | 25.00 | 30.00 | 1000.00 | 0.199 | 1.000 |
| LTE Band 5 | 824.7 | 6.00 | 24.00 | 30.00 | 1000.00 | 0.199 | 0.550 |
| LTE Band 12 | 699.7 | 5.00 | 24.00 | 29.00 | 794.33 | 0.158 | 0.466 |
| LTE Band 13 | 779.5 | 5.00 | 25.00 | 30.00 | 1000.00 | 0.199 | 0.520 |
| LTE Band 14 | 790.5 | 5.00 | 25.00 | 30.00 | 1000.00 | 0.199 | 0.527 |
| LTE Band 17 | 706.5 | 5.00 | 24.00 | 29.00 | 794.33 | 0.158 | 0.471 |
| LTE Band 25 | 1850.7 | 8.00 | 25.00 | 33.00 | 1995.26 | 0.397 | 1.000 |
| LTE Band 26 | 814.7 | 6.00 | 22.00 | 28.00 | 630.96 | 0.126 | 0.543 |
| LTE Band 41 | 2498.5 | 5.00 | 25.00 | 30.00 | 1000.00 | 0.199 | 1.000 |
| LTE Band 48 | 3552.5 | 6.00 | 24.00 | 30.00 | 1000.00 | 0.199 | 1.000 |
| LTE Band 66 | 1710.7 | 5.00 | 25.00 | 30.00 | 1000.00 | 0.199 | 1.000 |

Note:

- LTE band 42/43 covered by LTE band 48 with the same power level, so only chose LTE band 48 to perform standalone power density calculation.



5.2. Collocated Power Density Calculation

General Note:

- 1. This MPE analysis is applicable to any collocated transmitters with EIRP for WLAN is less than or equal to 28.0dBm and EIRP for Bluetooth is less than or equal to 20.0dBm.
- 2. A maximum antenna gain of 5dBi for WLAN/BT has been assumed for all collocated antennas.

| Band | Frequency (MHz) | Antenna Gain (dBi) | Maximum Power (dBm) | Maximum EIRP (dBm) | Average EIRP (mW) | Power Density at 20cm (mW/cm ²) | Limit (mW/cm ²) | Power Density / Limit |
|-----------------|-----------------|--------------------|---------------------|--------------------|-------------------|---|-----------------------------|-----------------------|
| LTE Band 2 | 1850.7 | 7.00 | 25.00 | 32.00 | 1584.89 | 0.315 | 1.000 | 0.315 |
| LTE Band 4 | 1710.7 | 5.00 | 25.00 | 30.00 | 1000.00 | 0.199 | 1.000 | 0.199 |
| LTE Band 5 | 824.7 | 5.00 | 24.00 | 29.00 | 794.33 | 0.158 | 0.550 | 0.288 |
| LTE Band 12 | 699.7 | 3.00 | 24.00 | 27.00 | 501.19 | 0.100 | 0.466 | 0.214 |
| LTE Band 13 | 779.5 | 3.00 | 25.00 | 28.00 | 630.96 | 0.126 | 0.520 | 0.242 |
| LTE Band 14 | 790.5 | 3.00 | 25.00 | 28.00 | 630.96 | 0.126 | 0.527 | 0.238 |
| LTE Band 17 | 706.5 | 3.00 | 24.00 | 27.00 | 501.19 | 0.100 | 0.471 | 0.212 |
| LTE Band 25 | 1850.7 | 7.00 | 25.00 | 32.00 | 1584.89 | 0.315 | 1.000 | 0.315 |
| LTE Band 26 | 814.7 | 5.00 | 22.00 | 27.00 | 501.19 | 0.100 | 0.543 | 0.184 |
| LTE Band 41 | 2498.5 | 5.00 | 25.00 | 30.00 | 1000.00 | 0.199 | 1.000 | 0.199 |
| LTE Band 48 | 3552.5 | 6.00 | 24.00 | 30.00 | 1000.00 | 0.199 | 1.000 | 0.199 |
| LTE Band 66 | 1710.7 | 5.00 | 25.00 | 30.00 | 1000.00 | 0.199 | 1.000 | 0.199 |
| WLNA2.4GHz Band | 2412 | 5.00 | 23.00 | 28.00 | 630.96 | 0.126 | 1.000 | 0.126 |
| WLNA5GHz Band | 5180 | 5.00 | 23.00 | 28.00 | 630.96 | 0.126 | 1.000 | 0.126 |
| Bluetooth | 2402 | 5.00 | 15.00 | 20.00 | 100.00 | 0.020 | 1.000 | 0.020 |



<Collocated analysis>

General Note:

1. For collocation analysis, LTE Band 2 is chosen for summation due to the highest (power density/limit) among all WWAN wireless modes.
2. Σ (Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for WWAN + WLAN + Bluetooth
3. Considering the WWAN module collocation with the other transmitters of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 3 collocated transmitters is compliant.

| Max WWAN Power Density / Limit | Max WLAN Power Density / Limit | Max Bluetooth Power Density / Limit | Σ (Power Density / Limit) of WWAN + WLAN + Bluetooth |
|--------------------------------|--------------------------------|-------------------------------------|---|
| 0.315 | 0.126 | 0.020 | 0.461 |



Conclusion:

Based on 47 CFR §2.1091 and FCC KDB 447498 D01 v06, the analysis concludes that this product when transmitting in standalone within a host device, is compliant with the FCC RF exposure requirements in mobile exposure condition, provided the conducted power and antenna gain do not exceed the limits for each given frequency band per wireless technology as follow table:

| Device | Technology | Frequency (MHz) | Maximum Conducted Power (dBm) | Stanalone Maximum Antenna Gain (dBi) | Collocated Maximum Antenna Gain (dBi) |
|-------------------------|------------------|-----------------|-------------------------------|--------------------------------------|---------------------------------------|
| MG401 | LTE Band 2 | 1850.7 | 25.00 | 8.00 | 7.00 |
| | LTE Band 4 | 1710.7 | 25.00 | 5.00 | 5.00 |
| | LTE Band 5 | 824.7 | 24.00 | 6.00 | 5.00 |
| | LTE Band 12 | 699.7 | 24.00 | 5.00 | 3.00 |
| | LTE Band 13 | 779.5 | 25.00 | 5.00 | 3.00 |
| | LTE Band 14 | 790.5 | 25.00 | 5.00 | 3.00 |
| | LTE Band 17 | 706.5 | 24.00 | 5.00 | 3.00 |
| | LTE Band 25 | 1850.7 | 25.00 | 8.00 | 7.00 |
| | LTE Band 26 | 814.7 | 22.00 | 6.00 | 5.00 |
| | LTE Band 41 | 2498.5 | 25.00 | 5.00 | 5.00 |
| | LTE Band 48 | 3552.5 | 24.00 | 6.00 | 6.00 |
| | LTE Band 66 | 1710.7 | 25.00 | 5.00 | 5.00 |
| Collocated Transmitters | WLNA 2.4GHz Band | 2412 | 23.00 | / | 5.00 |
| | WLNA 5GHz Band | 5180 | 23.00 | | 5.00 |
| | Bluetooth | 2402 | 15.00 | | 5.00 |