



# Test Report

## FCC Part15 Subpart C& RSS-247 Issue 2

Product Name : REALMAX-QIAN  
Model No. : ME835-A01  
FCC ID : 2AR5WME835A01

Applicant : Tapu Yihai (Shanghai) Intelligent Technology Co.,  
Ltd.  
Address : Rm412, Tower 5, No.1082 Huyi Rd, Jiading District,  
Shanghai

Date of Receipt : Jan. 15, 2019  
Test Date : Jan. 16, 2019~ Mar. 29, 2019  
Issued Date : Apr. 11, 2019  
Report No. : 1912082R-RF-US-P06V03  
Report Version : V 1.1

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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# Test Report Certification

Issued Date : Apr. 11, 2019

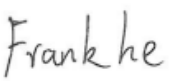
Report No. : 1912082R-RF-US-P06V03



Product Name : REALMAX-QIAN  
Applicant : Tapu Yihai (Shanghai) Intelligent Technology Co., Ltd.  
Address : Rm412, Tower 5, No.1082 Huyi Rd, Jiading District, Shanghai  
Manufacturer : Tapu Yihai (Shanghai) Intelligent Technology Co., Ltd.  
Address : Rm412, Tower 5, No.1082 Huyi Rd, Jiading District, Shanghai  
Model No. : ME835-A01  
FCC ID : 2AR5WME835A01  
EUT Voltage : 5 V dc, 3A  
Test Voltage : AC120V/60Hz  
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C  
KDB 558074 D01 v05r01  
ANSI C63.10: 2013

Test Result : Complied  
Performed Location : DEKRA Testing & Certification (Suzhou) Co., Ltd.  
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FCC Designation Number: CN1199;

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## History of This Test Report

| REPORT NO.            | VERSION | DESCRIPTION                                                                                                                                                                                                                                                         | ISSUED DATE   |
|-----------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 1912082R-RF-US-P06V03 | V1.0    | Initial Issued Report                                                                                                                                                                                                                                               | Mar. 29, 2019 |
| 1912082R-RF-US-P06V03 | V1.1    | 1. P2, update the applicable standard version of KDB558074;<br>2. P14, update performed test item of summary of test result;<br>3. P43-44, add the test data of the worst case of simultaneous radiated emission;<br>4. P94, update antenna connector construction. | Apr. 11, 2019 |
|                       |         |                                                                                                                                                                                                                                                                     |               |
|                       |         |                                                                                                                                                                                                                                                                     |               |

## 1. General Information

### 1.1. EUT Description

|                         |                                                    |
|-------------------------|----------------------------------------------------|
| Product Name            | REALMAX-QIAN                                       |
| Model No.               | ME835-A01                                          |
| Working Voltage         | 5 V dc, 3A                                         |
| Test Voltage            | AC120V/60Hz                                        |
| Bluetooth Specification | V3.0                                               |
| Frequency Range         | 2402- 2480 MHz                                     |
| Channel Number          | V3.0: 79                                           |
| Channel Separation      | V3.0: 1MHz                                         |
| Type of Modulation      | V3.0: GFSK, Pi/4 DQPSK, 8DPSK                      |
| Data Rate               | V3.0: 1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps(8DPSK) |
| Antenna Type            | Reference to Antenna List                          |
| Peak Antenna Gain       | Reference to Antenna List                          |

| Bluetooth Working Frequency of Each Channel: (For V3.0) |           |         |           |         |           |         |           |
|---------------------------------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel                                                 | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 00                                                      | 2402 MHz  | 01      | 2403 MHz  | 02      | 2404 MHz  | 03      | 2405 MHz  |
| 04                                                      | 2406 MHz  | 05      | 2407 MHz  | 06      | 2408 MHz  | 07      | 2409 MHz  |
| 08                                                      | 2410 MHz  | 09      | 2411 MHz  | 10      | 2412 MHz  | 11      | 2413 MHz  |
| 12                                                      | 2414 MHz  | 13      | 2415 MHz  | 14      | 2416 MHz  | 15      | 2417 MHz  |
| 16                                                      | 2418 MHz  | 17      | 2419 MHz  | 18      | 2420 MHz  | 19      | 2421 MHz  |
| 20                                                      | 2422 MHz  | 21      | 2423 MHz  | 22      | 2424 MHz  | 23      | 2425 MHz  |
| 24                                                      | 2426 MHz  | 25      | 2427 MHz  | 26      | 2428 MHz  | 27      | 2429 MHz  |
| 28                                                      | 2430 MHz  | 29      | 2431 MHz  | 30      | 2432 MHz  | 31      | 2433 MHz  |
| 32                                                      | 2434 MHz  | 33      | 2435 MHz  | 34      | 2436 MHz  | 35      | 2437 MHz  |
| 36                                                      | 2438 MHz  | 37      | 2439 MHz  | 38      | 2440 MHz  | 39      | 2441 MHz  |
| 40                                                      | 2442 MHz  | 41      | 2443 MHz  | 42      | 2444 MHz  | 43      | 2445 MHz  |
| 44                                                      | 2446 MHz  | 45      | 2447 MHz  | 46      | 2448 MHz  | 47      | 2449 MHz  |
| 48                                                      | 2450 MHz  | 49      | 2451 MHz  | 50      | 2452 MHz  | 51      | 2453 MHz  |
| 52                                                      | 2454 MHz  | 53      | 2455 MHz  | 54      | 2456 MHz  | 55      | 2457 MHz  |
| 56                                                      | 2458 MHz  | 57      | 2459 MHz  | 58      | 2460 MHz  | 59      | 2461 MHz  |
| 60                                                      | 2462 MHz  | 61      | 2463 MHz  | 62      | 2464 MHz  | 63      | 2465 MHz  |
| 64                                                      | 2466 MHz  | 65      | 2467 MHz  | 66      | 2468 MHz  | 67      | 2469 MHz  |
| 68                                                      | 2470 MHz  | 69      | 2471 MHz  | 70      | 2472 MHz  | 71      | 2473 MHz  |
| 72                                                      | 2474 MHz  | 73      | 2475 MHz  | 74      | 2476 MHz  | 75      | 2477 MHz  |
| 76                                                      | 2478 MHz  | 77      | 2479 MHz  | 78      | 2480 MHz  | N/A     | N/A       |



## 1.2 Antenna information

|                                          |                                     |           |                                     |                      |                          |           |
|------------------------------------------|-------------------------------------|-----------|-------------------------------------|----------------------|--------------------------|-----------|
| Model No.                                | N/A                                 |           |                                     |                      |                          |           |
| Antenna manufacturer                     | N/A                                 |           |                                     |                      |                          |           |
| Antenna Delivery                         | <input checked="" type="checkbox"/> | 1*TX+1*RX | <input type="checkbox"/>            | 2*TX+2*RX            | <input type="checkbox"/> | 3*TX+3*RX |
| Antenna technology                       | <input checked="" type="checkbox"/> | SISO      |                                     |                      |                          |           |
|                                          | <input type="checkbox"/>            | MIMO      | <input type="checkbox"/>            | Basic                |                          |           |
|                                          |                                     |           | <input type="checkbox"/>            | CDD                  |                          |           |
|                                          |                                     |           | <input type="checkbox"/>            | Sectorized           |                          |           |
|                                          |                                     |           | <input type="checkbox"/>            | Beam-forming         |                          |           |
| Antenna Type                             | <input type="checkbox"/>            | External  | <input type="checkbox"/>            | Dipole               |                          |           |
|                                          |                                     |           | <input type="checkbox"/>            | Sectorized           |                          |           |
|                                          | <input checked="" type="checkbox"/> | Internal  | <input checked="" type="checkbox"/> | PIFA                 |                          |           |
|                                          |                                     |           | <input type="checkbox"/>            | PCB                  |                          |           |
|                                          |                                     |           | <input type="checkbox"/>            | Ceramic Chip Antenna |                          |           |
|                                          |                                     |           | <input type="checkbox"/>            | Monopole Antenna     |                          |           |
| Antenna Technology                       | Ant Gain (dBi)                      |           |                                     |                      |                          |           |
| <input checked="" type="checkbox"/> SISO | Ant1:0                              |           |                                     |                      |                          |           |

### 1.3 Mode of Operation

DEKRA has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

| Test Mode                                 |
|-------------------------------------------|
| Mode 1: Transmitter-1Mbps(GFSK_DH5)       |
| Mode 2: Transmitter-2Mbps(Pi/4 DQPSK_DH5) |
| Mode 3: Transmitter-3Mbps(8DPSK_DH5)      |
| Mode 4: Transmitter-Hopping               |

Note:

1. For portable device, radiated spurious emission was verified over X, Y, Z Axis, and shown the worst case on this report.
2. Regards to the frequency band operation for systems using FHSS modulation: normal operation (hopping) was selected to test for conducted spurious test.
3. The extreme test condition for voltage and temperature were declared by the manufacturer.
4. The reading values of all the test items contain cable loss.

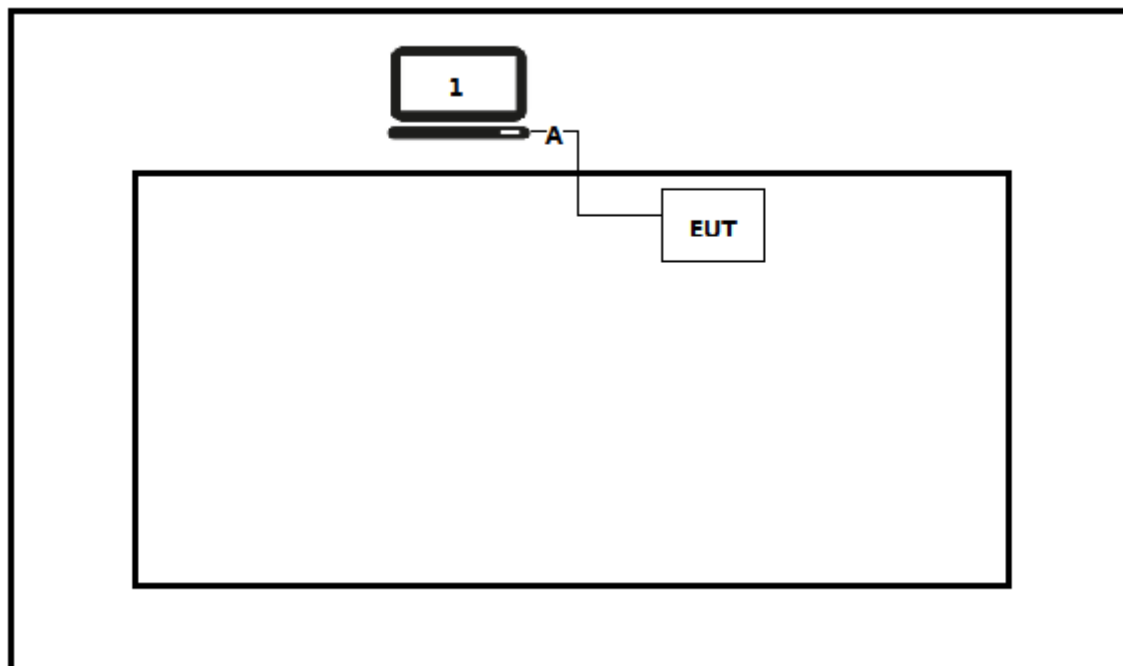
#### 1.4 Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

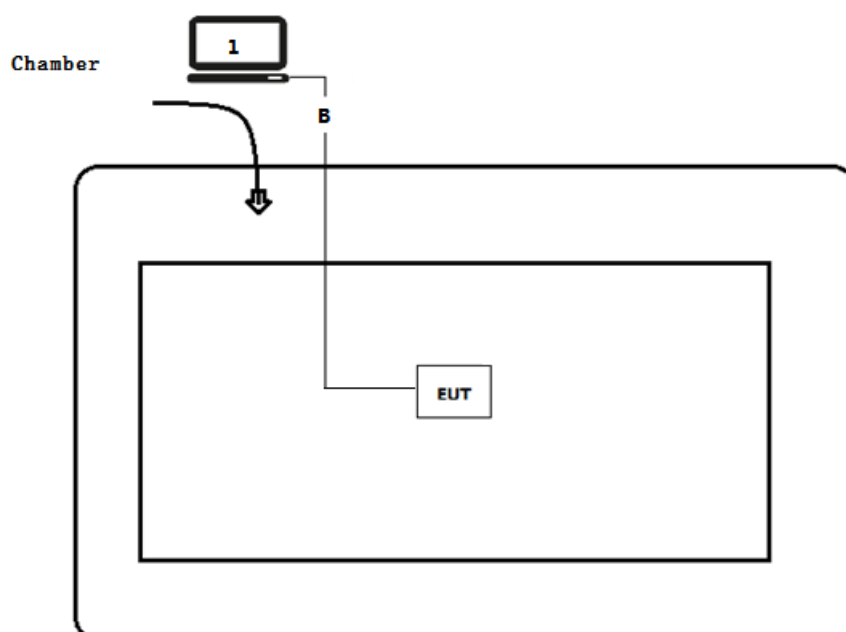
| Product |           | Manufacturer | Model No. | Serial No. | Power Cord       |
|---------|-----------|--------------|-----------|------------|------------------|
| 1       | Notebook  | Think Pad    | 2526      | LV-A3285   | Power by adapter |
| A       | USB Cable | N/A          | N/A       | N/A        | Shield, 0.75m    |
| B       | USB Cable | N/A          | N/A       | N/A        | Shield, 10m      |

## 1.5 Configuration of Tested System

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



## 1.6 EUT Exercise Software

|   |                                                                                                         |
|---|---------------------------------------------------------------------------------------------------------|
| 1 | Setup the EUT and simulators as shown on above.                                                         |
| 2 | Turn on the power of all equipment.                                                                     |
| 3 | Run RF software [QRCT], and set the test mode and channel, then press OK to start to continue transmit. |

## 2. Technical Test

### 2.1. Summary of Test Result

- ☒ No deviations from the test standards
- ☐ Deviations from the test standards as below description:

| Performed Test Item                         | Normative References                                                     | Test Performed | Deviation |
|---------------------------------------------|--------------------------------------------------------------------------|----------------|-----------|
| Conducted Emission                          | FCC CFR Title 47 Part 15 Subpart C: 2015<br>Section 15.207               | Yes            | No        |
| Emissions in restricted frequency bands     | FCC CFR Title 47 Part 15 Subpart C: 2015<br>Section 15.209               | Yes            | No        |
| 20dB Bandwidth                              | FCC CFR Title 47 Part 15 Subpart C: 2015<br>Section 15.247(a)(1)         | Yes            | No        |
| Carrier Frequency Separation                | FCC CFR Title 47 Part 15 Subpart C: 2015<br>Section 15.247(a)(1)         | Yes            | No        |
| Number of Hopping Frequencies               | FCC CFR Title 47 Part 15 Subpart C: 2015<br>Section 15.247(a)(1)(iii)    | Yes            | No        |
| Time of Occupancy (Dwell Time)              | FCC CFR Title 47 Part 15 Subpart C: 2015<br>Section 15.247(a)(1)(iii)    | Yes            | No        |
| Peak Output Power                           | FCC CFR Title 47 Part 15 Subpart C: 2015<br>Section 15.247(b)(1)         | Yes            | No        |
| Emissions in non-restricted frequency bands | FCC CFR Title 47 Part 15 Subpart C: 2015<br>Section 15.215(c), 15.247(d) | Yes            | No        |
| Conducted Band Edge                         | FCC CFR Title 47 Part 15 Subpart C: 2015<br>Section 15.209               | Yes            | No        |
| Antenna Requirement                         | FCC CFR Title 47 Part 15 Subpart C: 2015<br>Section 15.203               | Yes            | No        |

## 2.2. Test Environment

| Items                      | Required (IEC 68-1) | Actual   |
|----------------------------|---------------------|----------|
| Temperature (°C)           | 15-35               | 21       |
| Humidity (%RH)             | 25-75               | 50       |
| Barometric pressure (mbar) | 860-1060            | 950-1000 |

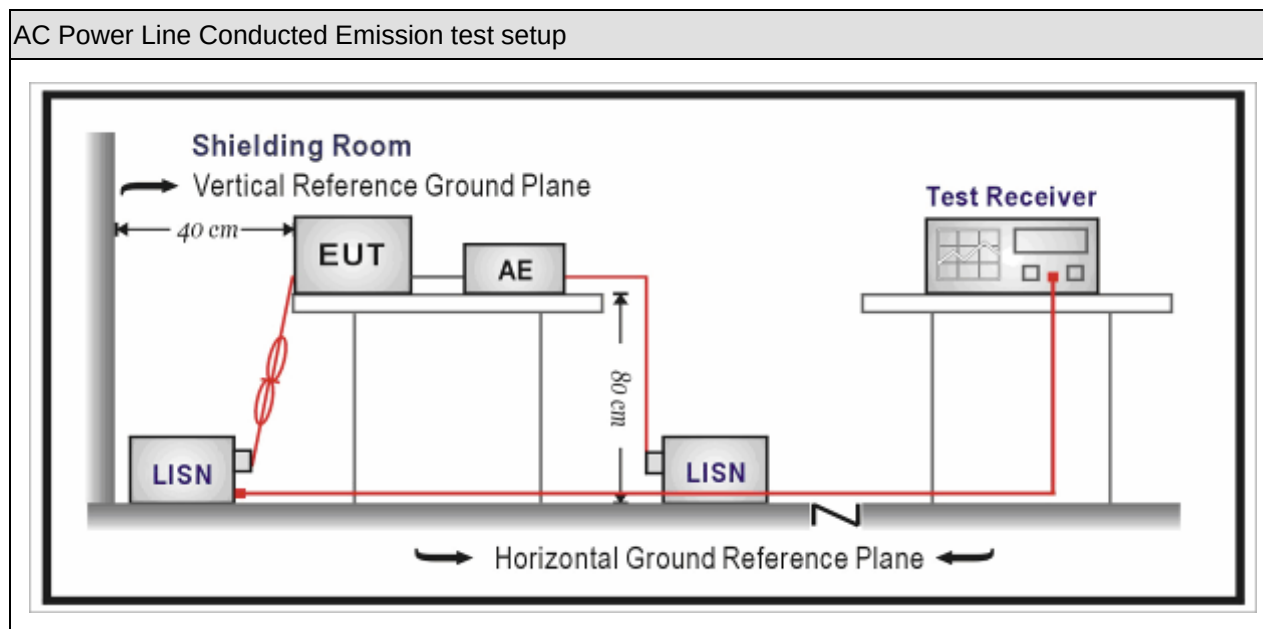
### 3. Conducted Emission

#### 3.1. Test Equipment

| AC Power Line Conducted Emission / TR-1 |              |          |            |            |               |
|-----------------------------------------|--------------|----------|------------|------------|---------------|
| Instrument                              | Manufacturer | Type No. | Serial No. | Cal. Date  | Cal. Due Date |
| EMI Test Receiver                       | R&S          | ESCI     | 100906     | 2019.03.05 | 2020.03.04    |
| Two-Line V-Network                      | R&S          | ENV 216  | 101189     | 2018.07.16 | 2019.07.15    |
| Two-Line V-Network                      | R&S          | ENV 216  | 101044     | 2018.09.16 | 2019.09.15    |
| 50ohm Coaxial Switch                    | Anritsu      | MP59B    | 6200464462 | N/A        | N/A           |
| 50ohm Termination                       | SHX          | TF2      | 07081402   | 2018.09.16 | 2019.09.15    |
| Temperature/Humidity Meter              | Zhichen      | ZC1-2    | TR1-TH     | 2019.01.04 | 2020.01.03    |
| Quietek EMI V3(test software)           | Quietek      | N/A      | N/A        | N/A        | N/A           |

Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

#### 3.2. Test Setup





### 3.3. Limit

| Frequency of Emission<br>(MHz)                                                                             | Conducted Limit         |                      |
|------------------------------------------------------------------------------------------------------------|-------------------------|----------------------|
|                                                                                                            | Quasi-peak (dB $\mu$ V) | Average (dB $\mu$ V) |
| 0.15-0.5                                                                                                   | 66 to 56                | 56 to 46             |
| 0.5-5                                                                                                      | 56                      | 46                   |
| 5-30                                                                                                       | 60                      | 50                   |
| Note 1: The lower limit shall apply at the transition frequencies.                                         |                         |                      |
| Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz. |                         |                      |

### 3.4. Test Procedure

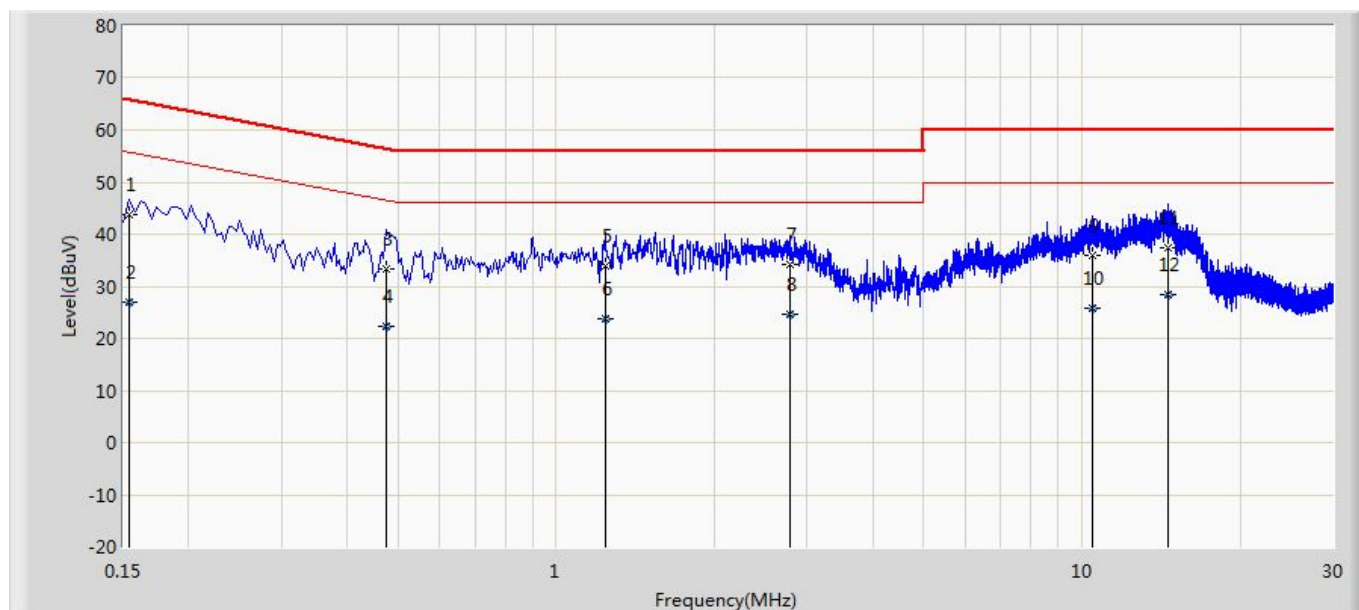
| Test Method                         |                  |         |                                                                                             |
|-------------------------------------|------------------|---------|---------------------------------------------------------------------------------------------|
|                                     | References Rule  | Chapter | Item                                                                                        |
| <input checked="" type="checkbox"/> | ANSI C63.10-2013 | 6.2     | Standard test method for ac power-line conducted emissions from unlicensed wireless devices |

### 3.5. Uncertainty

The measurement uncertainty is defined as  $\pm 2.02$  dB

### 3.6. Test Result

|                                   |                     |
|-----------------------------------|---------------------|
| Engineer: Samuel                  |                     |
| Site: TR1                         | Time: 2019/01/28    |
| Limit: FCC_Part15.207_CE_AC Power | Margin: 0           |
| Probe: ENV216_101190(0.009-30MHz) | Polarity: Line      |
| EUT: REALMAX-QIAN                 | Power: AC 120V/60Hz |
| Note: Mode 1                      |                     |

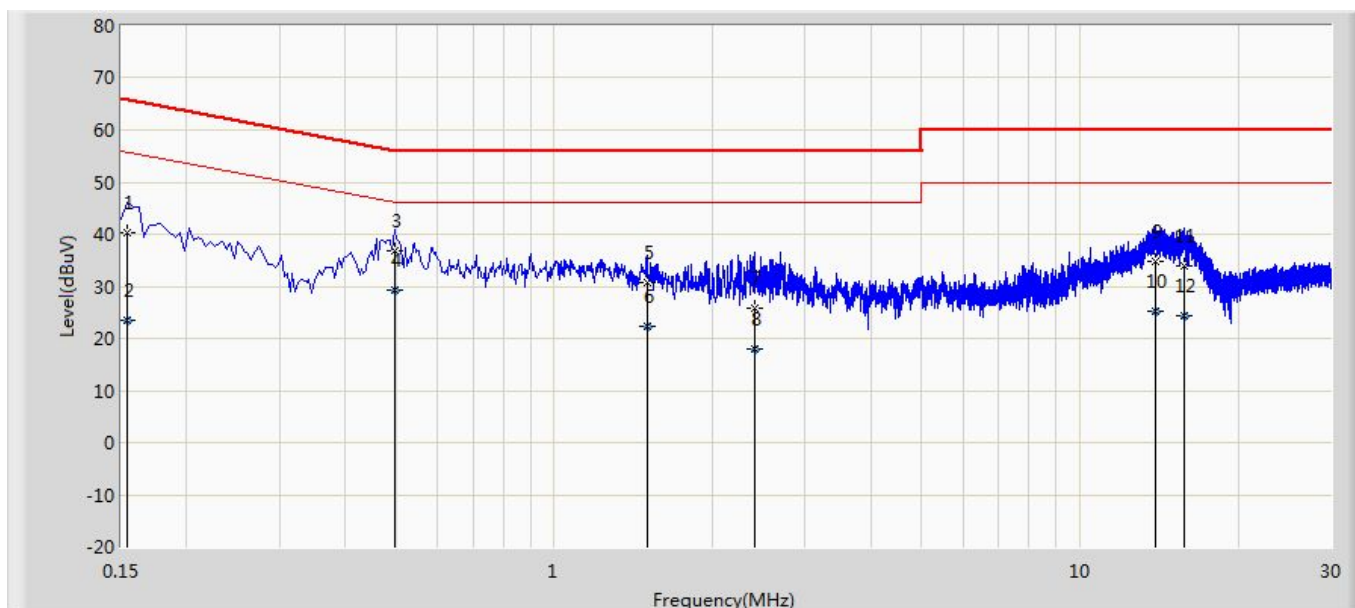


| No | Mark | Frequency (MHz) | Measure Level (dBuV) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV) | Probe (dB) | Cable (dB) | Amp (dB) | Type |
|----|------|-----------------|----------------------|----------------------|-----------------|--------------|------------|------------|----------|------|
| 1  |      | 0.154           | 43.654               | 34.016               | -22.128         | 65.781       | 9.609      | 0.029      | 0.000    | QP   |
| 2  |      | 0.154           | 27.057               | 17.419               | -28.725         | 55.781       | 9.609      | 0.029      | 0.000    | AV   |
| 3  |      | 0.474           | 33.455               | 23.814               | -22.989         | 56.444       | 9.600      | 0.041      | 0.000    | QP   |
| 4  |      | 0.474           | 22.398               | 12.757               | -24.046         | 46.444       | 9.600      | 0.041      | 0.000    | AV   |
| 5  |      | 1.238           | 33.794               | 24.118               | -22.206         | 56.000       | 9.610      | 0.066      | 0.000    | QP   |
| 6  |      | 1.238           | 23.877               | 14.201               | -22.123         | 46.000       | 9.610      | 0.066      | 0.000    | AV   |
| 7  |      | 2.782           | 34.227               | 24.500               | -21.773         | 56.000       | 9.623      | 0.104      | 0.000    | QP   |
| 8  | *    | 2.782           | 24.610               | 14.882               | -21.390         | 46.000       | 9.623      | 0.104      | 0.000    | AV   |
| 9  |      | 10.462          | 35.849               | 25.861               | -24.151         | 60.000       | 9.782      | 0.206      | 0.000    | QP   |
| 10 |      | 10.462          | 25.932               | 15.944               | -24.068         | 50.000       | 9.782      | 0.206      | 0.000    | AV   |
| 11 |      | 14.606          | 37.324               | 27.189               | -22.676         | 60.000       | 9.890      | 0.245      | 0.000    | QP   |
| 12 |      | 14.606          | 28.484               | 18.349               | -21.516         | 50.000       | 9.890      | 0.245      | 0.000    | AV   |

Note:

1. " \* ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

|                                   |                     |
|-----------------------------------|---------------------|
| Engineer: Samuel                  |                     |
| Site: TR1                         | Time: 2019/01/28    |
| Limit: FCC_Part15.207_CE_AC Power | Margin: 0           |
| Probe: ENV216_101190(0.009-30MHz) | Polarity: Neutral   |
| EUT: REALMAX-QIAN                 | Power: AC 120V/60Hz |
| Note: Mode 1                      |                     |



| No | Mark | Frequency (MHz) | Measure Level (dBuV) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV) | Probe (dB) | Cable (dB) | Amp (dB) | Type |
|----|------|-----------------|----------------------|----------------------|-----------------|--------------|------------|------------|----------|------|
| 1  |      | 0.154           | 40.412               | 30.791               | -25.369         | 65.781       | 9.593      | 0.029      | 0.000    | QP   |
| 2  |      | 0.154           | 23.362               | 13.740               | -32.419         | 55.781       | 9.593      | 0.029      | 0.000    | AV   |
| 3  |      | 0.498           | 36.840               | 27.206               | -19.194         | 56.033       | 9.590      | 0.044      | 0.000    | QP   |
| 4  | *    | 0.498           | 29.140               | 19.506               | -16.893         | 46.033       | 9.590      | 0.044      | 0.000    | AV   |
| 5  |      | 1.502           | 30.633               | 20.959               | -25.367         | 56.000       | 9.600      | 0.074      | 0.000    | QP   |
| 6  |      | 1.502           | 22.460               | 12.785               | -23.540         | 46.000       | 9.600      | 0.074      | 0.000    | AV   |
| 7  |      | 2.410           | 25.871               | 16.160               | -30.129         | 56.000       | 9.615      | 0.097      | 0.000    | QP   |
| 8  |      | 2.410           | 18.067               | 8.355                | -27.933         | 46.000       | 9.615      | 0.097      | 0.000    | AV   |
| 9  |      | 13.930          | 34.916               | 24.754               | -25.084         | 60.000       | 9.923      | 0.239      | 0.000    | QP   |
| 10 |      | 13.930          | 25.178               | 15.015               | -24.822         | 50.000       | 9.923      | 0.239      | 0.000    | AV   |
| 11 |      | 15.742          | 33.980               | 23.733               | -26.020         | 60.000       | 9.993      | 0.255      | 0.000    | QP   |
| 12 |      | 15.742          | 24.239               | 13.992               | -25.761         | 50.000       | 9.993      | 0.255      | 0.000    | AV   |

Note:

1. " \* ", means this data is the worst emission level.

2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

## 4. Emissions in restricted frequency bands

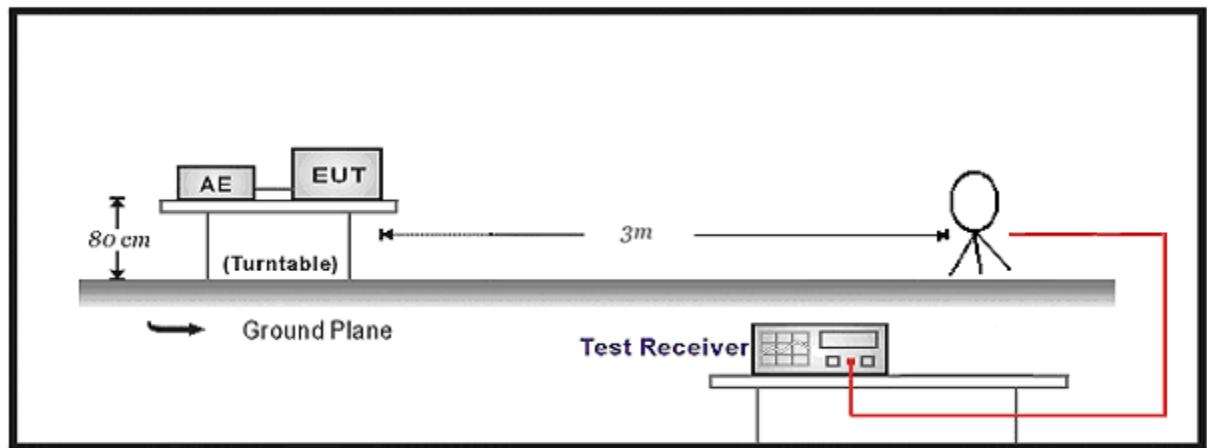
### 4.1. Test Equipment

| Radiated Emission(Below 1GHz) / AC-2                                                                                                     |              |              |            |            |               |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|------------|------------|---------------|
| Instrument                                                                                                                               | Manufacturer | Type No.     | Serial No. | Cal. Date  | Cal. Due Date |
| EMI Test Receiver                                                                                                                        | R&S          | ESCI         | 100573     | 2019.03.29 | 2020.03.28    |
| Loop Antenna                                                                                                                             | R&S          | HFH2-Z2      | 833799/003 | 2018.11.16 | 2019.11.15    |
| Bilog Antenna                                                                                                                            | Teseq GmbH   | CBL6112D     | 27611      | 2018.10.16 | 2019.10.15    |
| Coaxial Cable                                                                                                                            | Huber+Suhner | SUCOFLEX 106 | AC2-C      | 2019.03.02 | 2020.03.01    |
| Temperature/Humidity Meter                                                                                                               | Zhichen      | ZC1-2        | AC2-TH     | 2019.01.03 | 2020.01.02    |
| Quietek EMI V3(test software)                                                                                                            | Quietek      | N/A          | N/A        | N/A        | N/A           |
| Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. |              |              |            |            |               |

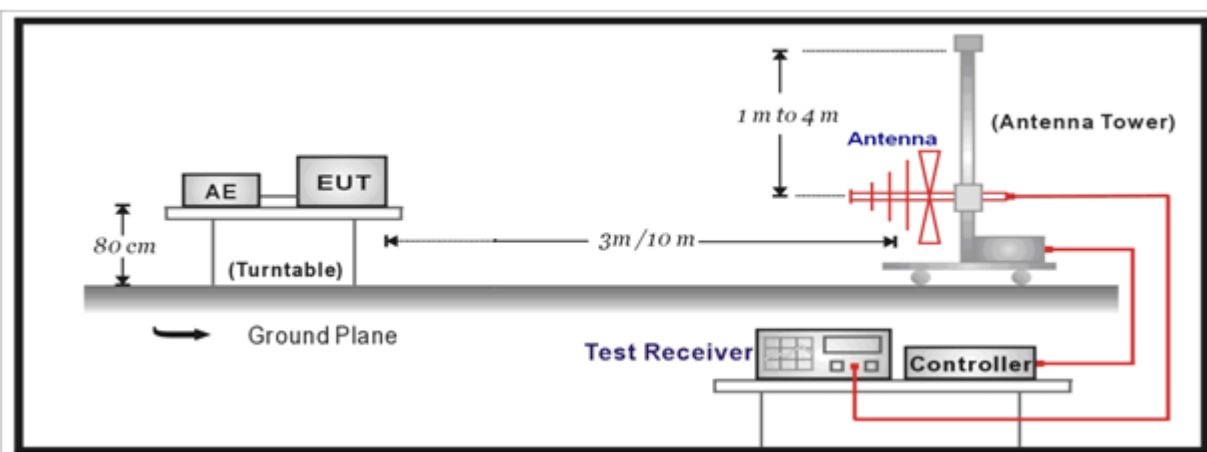
| Radiated Emission(Above 1GHz) / AC-5                                                                                                     |              |              |             |            |               |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|-------------|------------|---------------|
| Instrument                                                                                                                               | Manufacturer | Type No.     | Serial No.  | Cal. Date  | Cal. Due Date |
| Spectrum Analyzer                                                                                                                        | Agilent      | E4446A       | MY45300103  | 2019.01.04 | 2020.01.03    |
| Preamplifier                                                                                                                             | Miteq        | NSP1800-25   | 1364185     | 2018.05.06 | 2019.05.05    |
| Preamplifier                                                                                                                             | QuieTek      | AP-040G      | CHM-0906001 | 2018.05.06 | 2019.05.05    |
| DRG Horn                                                                                                                                 | ETS-Lindgren | 3117         | 00123988    | 2019.01.22 | 2020.01.21    |
| Broad-Band Horn Antenna                                                                                                                  | Schwarzbeck  | BBHA9170     | 294         | 2018.11.25 | 2019.11.24    |
| Coaxial Cable                                                                                                                            | Huber+Suhner | SUCOFLEX 106 | AC5-C1      | 2019.03.02 | 2020.03.01    |
| Coaxial Cable                                                                                                                            | Huber+Suhner | SUCOFLEX 106 | AC5-C2      | 2019.03.02 | 2020.03.01    |
| Coaxial Cable                                                                                                                            | Huber+Suhner | SUCOFLEX 102 | AC5-C3      | 2019.03.02 | 2020.03.01    |
| EMI Receiver                                                                                                                             | Agilent      | N9038A       | MY51210196  | 2018.06.10 | 2019.06.09    |
| Temperature/Humidity Meter                                                                                                               | Zhichen      | ZC1-2        | AC5-TH      | 2019.01.04 | 2020.01.03    |
| Quietek EMI V3(test software)                                                                                                            | Quietek      | N/A          | N/A         | N/A        | N/A           |
| Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. |              |              |             |            |               |

## 4.2. Test Setup

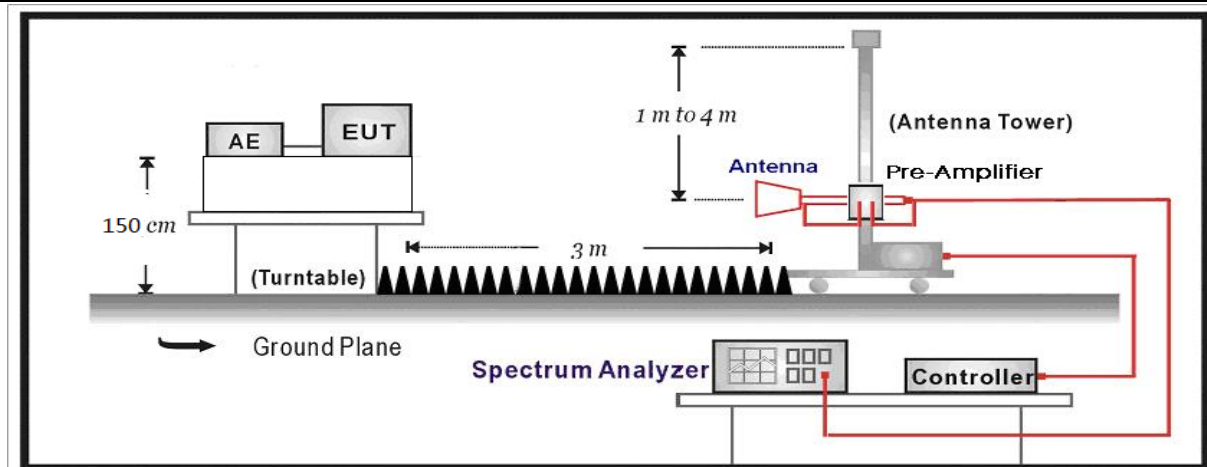
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



### 4.3. Limit

| Restricted Bands of operation |                       |                 |                 |
|-------------------------------|-----------------------|-----------------|-----------------|
| Frequency (MHz)               | Frequency (MHz)       | Frequency (MHz) | Frequency (GHz) |
| 0.090 – 0.110                 | 16.42 – 16.423        | 399.9 – 410     | 4.5 – 5.15      |
| 0.495 – 0.505                 | 16.69475 – 16.69525   | 608 – 614       | 5.35 – 5.46     |
| 2.1735 – 2.1905               | 16.80425 – 16.80475   | 960 – 1240      | 7.25 – 7.75     |
| 4.125 – 4.128                 | 25.5 – 25.67          | 1300 – 1427     | 8.025 – 8.5     |
| 4.17725 – 4.17775             | 37.5 – 38.25          | 1435 – 1626.5   | 9.0 – 9.2       |
| 4.20725 – 4.20775             | 73 – 74.6             | 1645.5 – 1646.5 | 9.3 – 9.5       |
| 6.215 – 6.218                 | 74.8 – 75.2           | 1660 – 1710     | 10.6 – 12.7     |
| 6.26775 – 6.26825             | 108 – 121.94          | 1718.8 – 1722.2 | 13.25 – 13.4    |
| 6.31175 – 6.31225             | 123 – 138             | 2200 – 2300     | 14.47 – 14.5    |
| 8.291 – 8.294                 | 149.9 – 150.05        | 2310 – 2390     | 15.35 – 16.2    |
| 8.362 – 8.366                 | 156.52475 – 156.52525 | 2483.5 – 2500   | 17.7 – 21.4     |
| 8.37625 – 8.38675             | 156.7 – 156.9         | 2690 – 2900     | 22.01 – 23.12   |
| 8.81425 – 8.81475             | 162.0125 – 167.17     | 3260 – 3267     | 23.6 – 24.0     |
| 12.29 – 12.293                | 167.72 – 173.2        | 3332 – 3339     | 31.2 – 31.8     |
| 12.51975 – 12.52025           | 240 – 285             | 3345.8 – 3358   | 36.43 – 36.5    |
| 12.57675 – 12.57725           | 322 – 335.4           | 3600 – 4400     |                 |
| 13.36 – 13.41                 |                       |                 |                 |

| Restricted Band Emissions Limit |                             |                               |                          |
|---------------------------------|-----------------------------|-------------------------------|--------------------------|
| Frequency (MHz)                 | Field strength ( $\mu$ V/m) | Field strength (dB $\mu$ V/m) | Measurement distance (m) |
| 0.009 - 0.49                    | 2400/F(kHz)                 | 48.5 – 13.8                   | 300 <sub>(Note 1)</sub>  |
| 0.49 - 1.705                    | 24000/F(kHz)                | 33.8 - 23                     | 30 <sub>(Note 1)</sub>   |
| 1.705 - 30                      | 30                          | 29.5                          | 30 <sub>(Note 1)</sub>   |
| 30 - 88                         | 100                         | 40                            | 3 <sub>(Note 2)</sub>    |
| 88 - 216                        | 150                         | 43.5                          | 3 <sub>(Note 2)</sub>    |
| 216 - 960                       | 200                         | 46                            | 3 <sub>(Note 2)</sub>    |
| Above 960                       | 500                         | 54                            | 3 <sub>(Note 2)</sub>    |

Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

#### 4.4. Test Procedure

| Test Method                         |                 |         |                                                                                                  |
|-------------------------------------|-----------------|---------|--------------------------------------------------------------------------------------------------|
|                                     | References Rule | Chapter | Description                                                                                      |
| <input checked="" type="checkbox"/> | ANSI C63.10     | 6.4     | Radiated emissions from unlicensed wireless devices below 30 MHz                                 |
| <input checked="" type="checkbox"/> | ANSI C63.10     | 6.5     | Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz |
| <input checked="" type="checkbox"/> | ANSI C63.10     | 6.6     | Radiated emissions from unlicensed wireless devices above 1 GHz                                  |

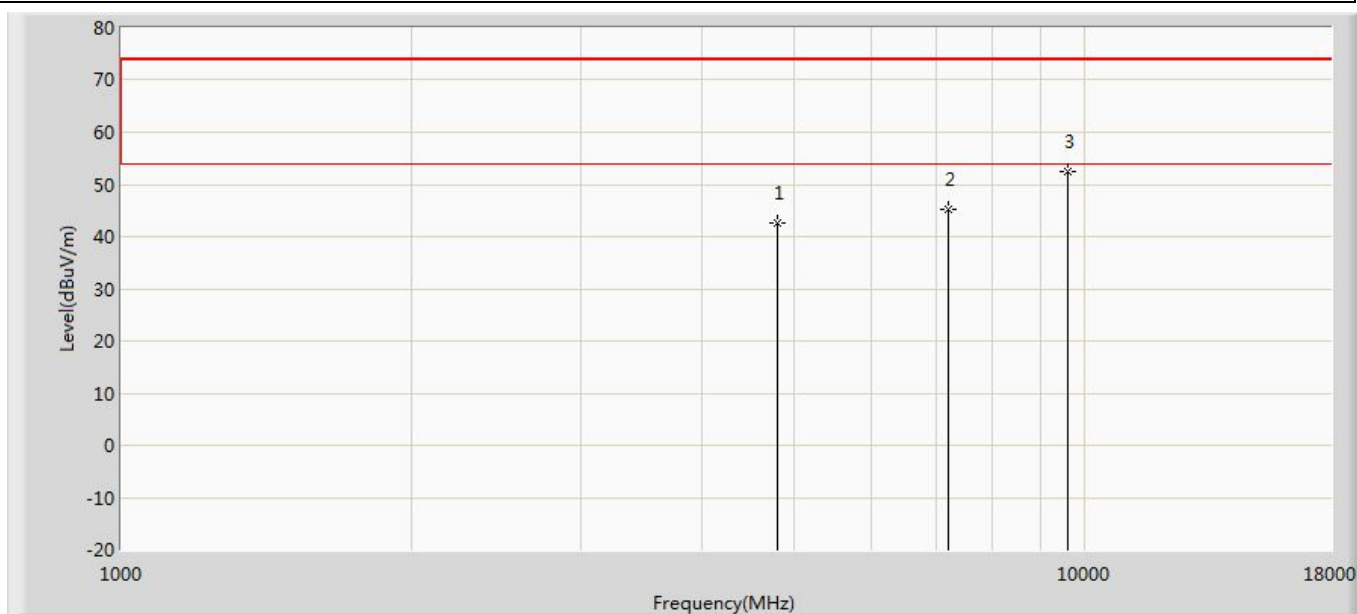
#### 4.5. Uncertainty

The measurement uncertainty above 1G is defined as  $\pm 3.9$  dB  
below 1G is defined as  $\pm 3.8$  dB



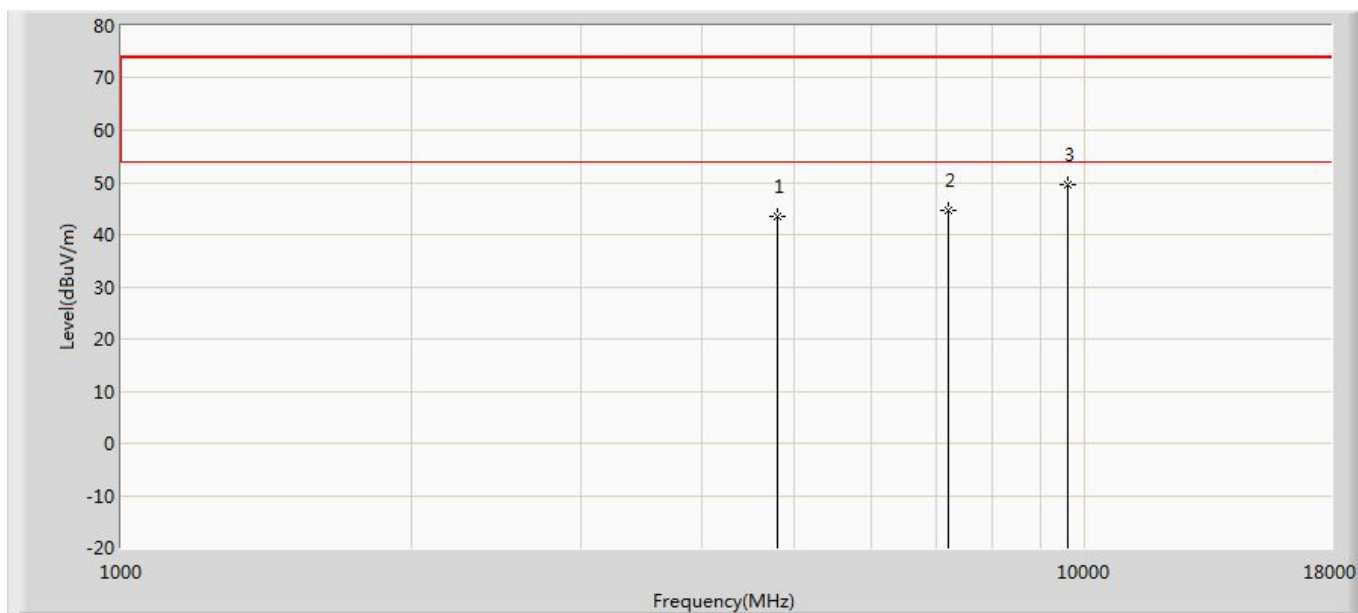
## 4.6. Test Result

|                                          |                          |
|------------------------------------------|--------------------------|
| Engineer: Pawn                           |                          |
| Site: AC5                                | Time: 2019/03/27 - 10:14 |
| Limit: FCC_Part15.209_RE(3m)             | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)       | Polarity: Horizontal     |
| EUT: REALMAX-QIAN                        | Power: AC 120V/60Hz      |
| Note: Mode 1: Transmit at 2402MHz by DH5 |                          |



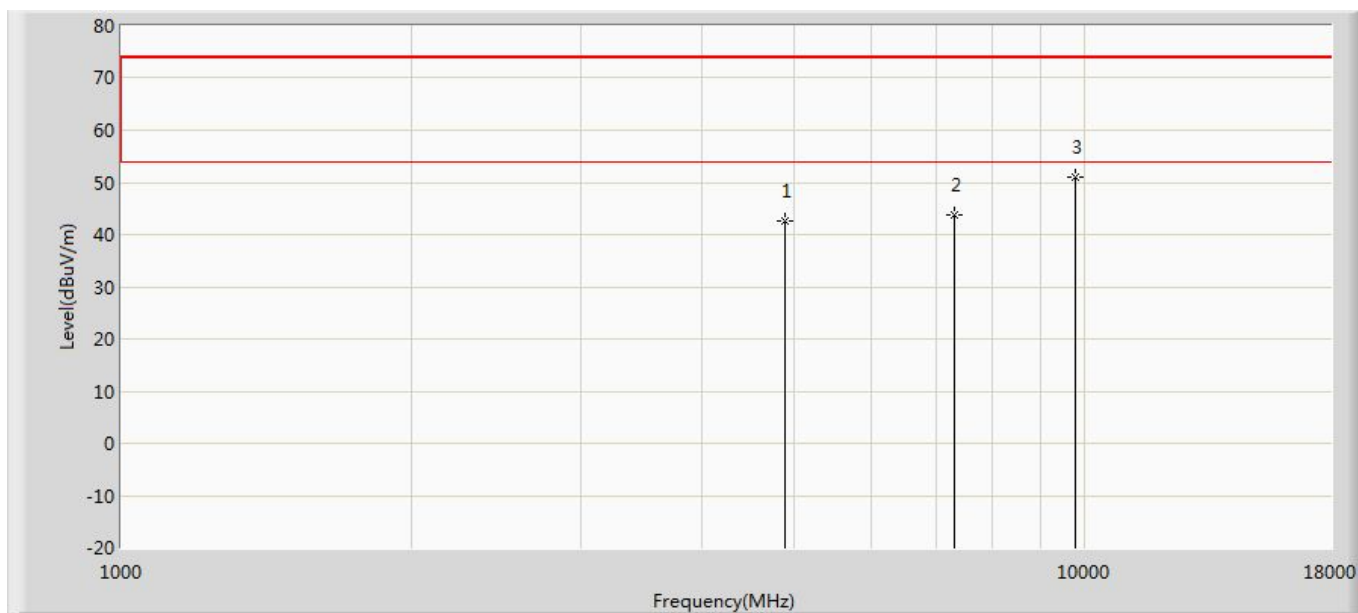
| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4804.000        | 42.705                 | 42.476               | -31.295         | 74.000         | 0.229       | PK   |
| 2  |      | 7206.000        | 45.310                 | 41.884               | -28.690         | 74.000         | 3.426       | PK   |
| 3  | *    | 9608.000        | 52.492                 | 43.972               | -21.508         | 74.000         | 8.519       | PK   |

|                                          |                          |
|------------------------------------------|--------------------------|
| Engineer: Pawn                           |                          |
| Site: AC5                                | Time: 2019/03/27 - 10:14 |
| Limit: FCC_Part15.209_RE(3m)             | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)       | Polarity: Vertical       |
| EUT: REALMAX-QIAN                        | Power: AC 120V/60Hz      |
| Note: Mode 1: Transmit at 2402MHz by DH5 |                          |



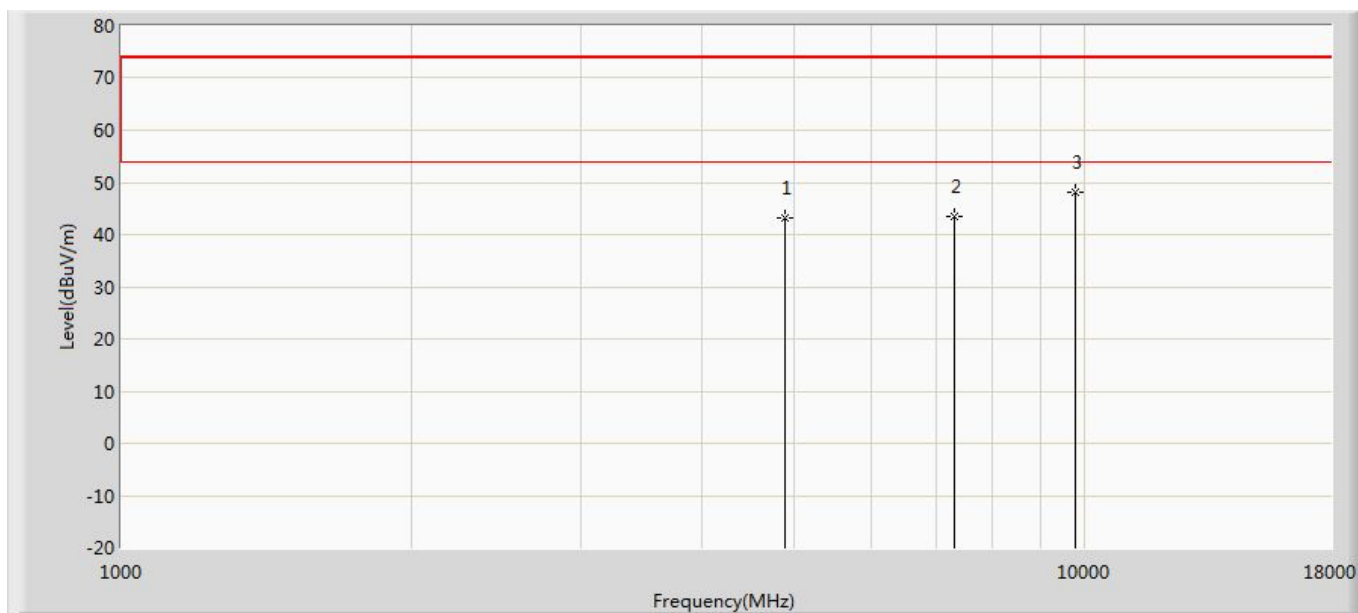
| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4804.000        | 43.529                 | 43.300               | -30.471         | 74.000         | 0.229       | PK   |
| 2  |      | 7206.000        | 44.745                 | 41.319               | -29.255         | 74.000         | 3.426       | PK   |
| 3  | *    | 9608.000        | 49.509                 | 40.989               | -24.491         | 74.000         | 8.519       | PK   |

|                                          |                          |
|------------------------------------------|--------------------------|
| Engineer: Pawn                           |                          |
| Site: AC5                                | Time: 2019/03/27 - 10:14 |
| Limit: FCC_Part15.209_RE(3m)             | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)       | Polarity: Horizontal     |
| EUT: REALMAX-QIAN                        | Power: AC 120V/60Hz      |
| Note: Mode 1: Transmit at 2441MHz by DH5 |                          |



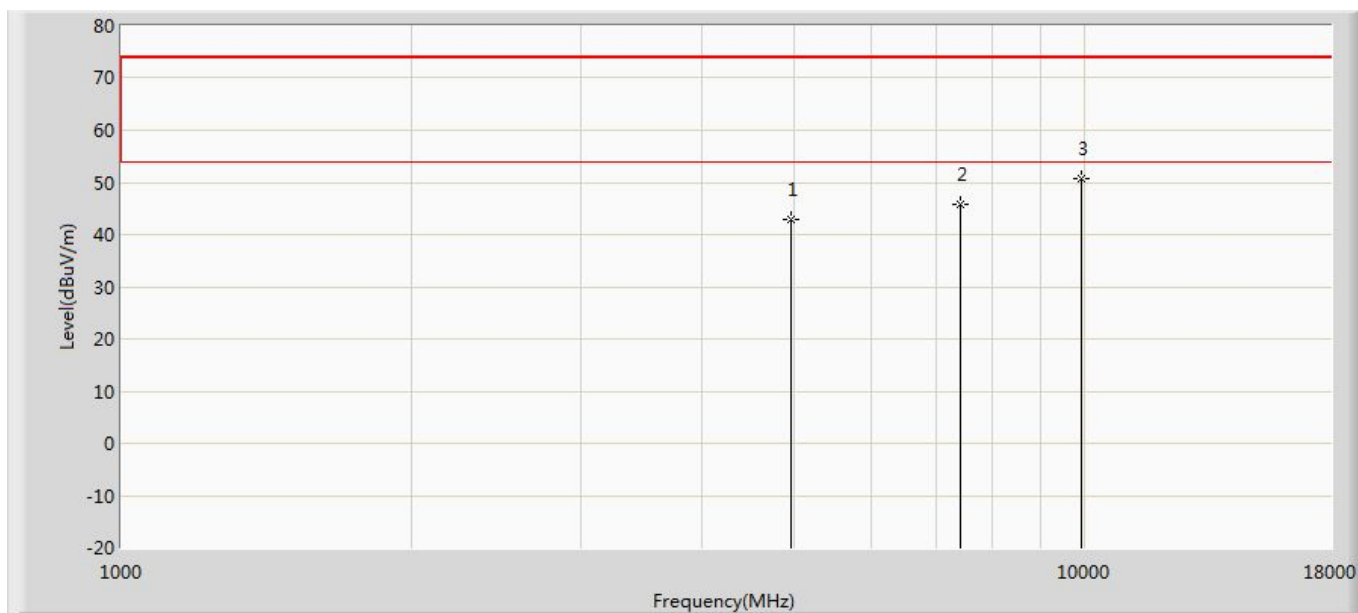
| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4882.000        | 42.656                 | 42.196               | -31.344         | 74.000         | 0.460       | PK   |
| 2  |      | 7323.000        | 43.867                 | 40.278               | -30.133         | 74.000         | 3.590       | PK   |
| 3  | *    | 9764.000        | 51.053                 | 41.689               | -22.947         | 74.000         | 9.365       | PK   |

|                                          |                          |
|------------------------------------------|--------------------------|
| Engineer: Pawn                           |                          |
| Site: AC5                                | Time: 2019/03/27 - 10:14 |
| Limit: FCC_Part15.209_RE(3m)             | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)       | Polarity: Vertical       |
| EUT: REALMAX-QIAN                        | Power: AC 120V/60Hz      |
| Note: Mode 1: Transmit at 2441MHz by DH5 |                          |



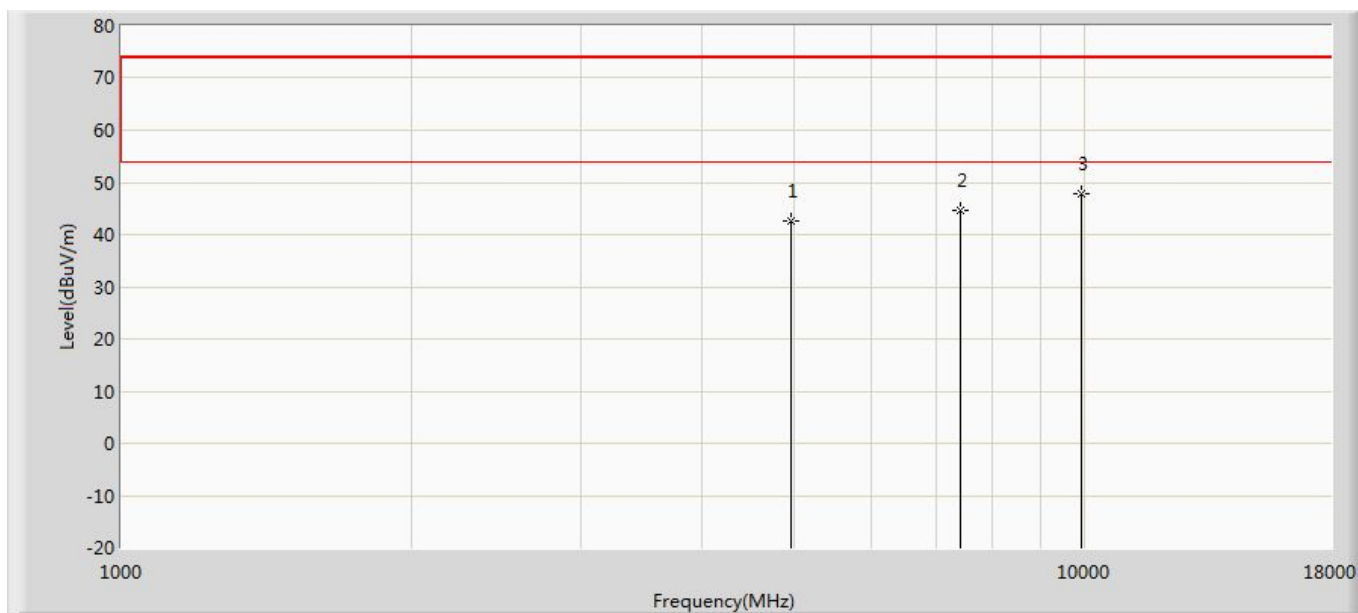
| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4882.000        | 43.299                 | 42.839               | -30.701         | 74.000         | 0.460       | PK   |
| 2  |      | 7323.000        | 43.528                 | 39.939               | -30.472         | 74.000         | 3.590       | PK   |
| 3  | *    | 9764.000        | 48.087                 | 38.723               | -25.913         | 74.000         | 9.365       | PK   |

|                                          |                          |
|------------------------------------------|--------------------------|
| Engineer: Pawn                           |                          |
| Site: AC5                                | Time: 2019/03/27 - 10:15 |
| Limit: FCC_Part15.209_RE(3m)             | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)       | Polarity: Horizontal     |
| EUT: REALMAX-QIAN                        | Power: AC 120V/60Hz      |
| Note: Mode 1: Transmit at 2480MHz by DH5 |                          |



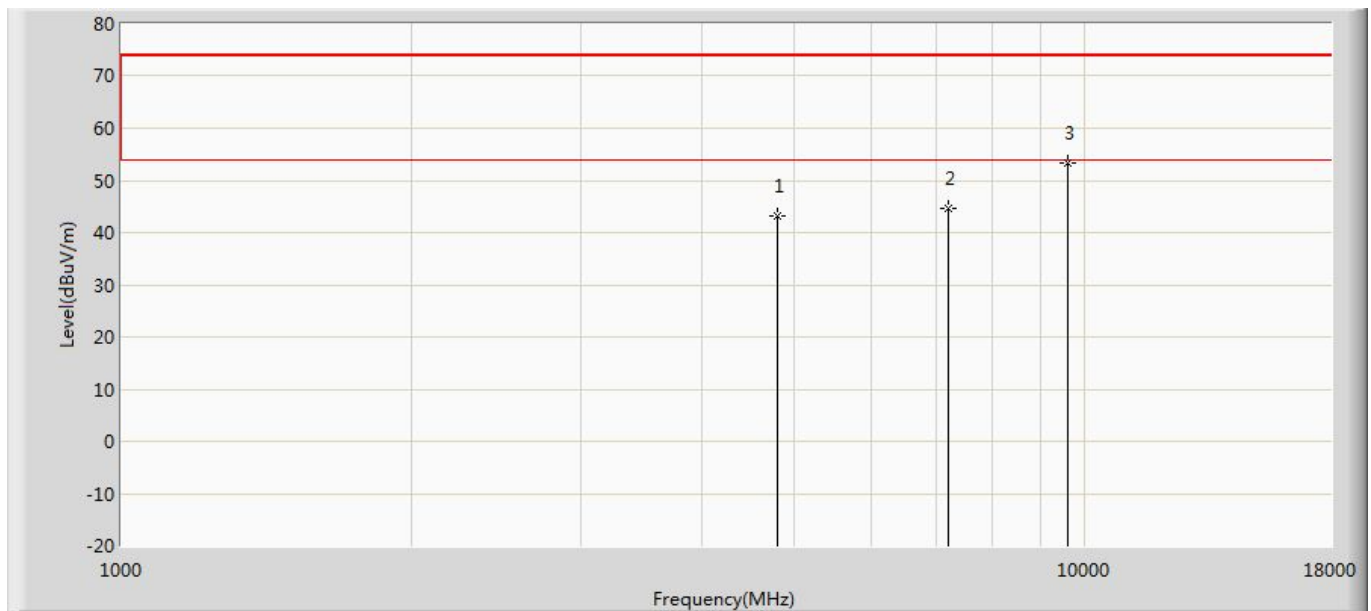
| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4960.000        | 42.895                 | 42.224               | -31.105         | 74.000         | 0.671       | PK   |
| 2  |      | 7440.000        | 45.774                 | 41.047               | -28.226         | 74.000         | 4.727       | PK   |
| 3  | *    | 9920.000        | 50.657                 | 42.256               | -23.343         | 74.000         | 8.401       | PK   |

|                                          |                          |
|------------------------------------------|--------------------------|
| Engineer: Pawn                           |                          |
| Site: AC5                                | Time: 2019/03/27 - 10:15 |
| Limit: FCC_Part15.209_RE(3m)             | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)       | Polarity: Vertical       |
| EUT: REALMAX-QIAN                        | Power: AC 120V/60Hz      |
| Note: Mode 1: Transmit at 2480MHz by DH5 |                          |



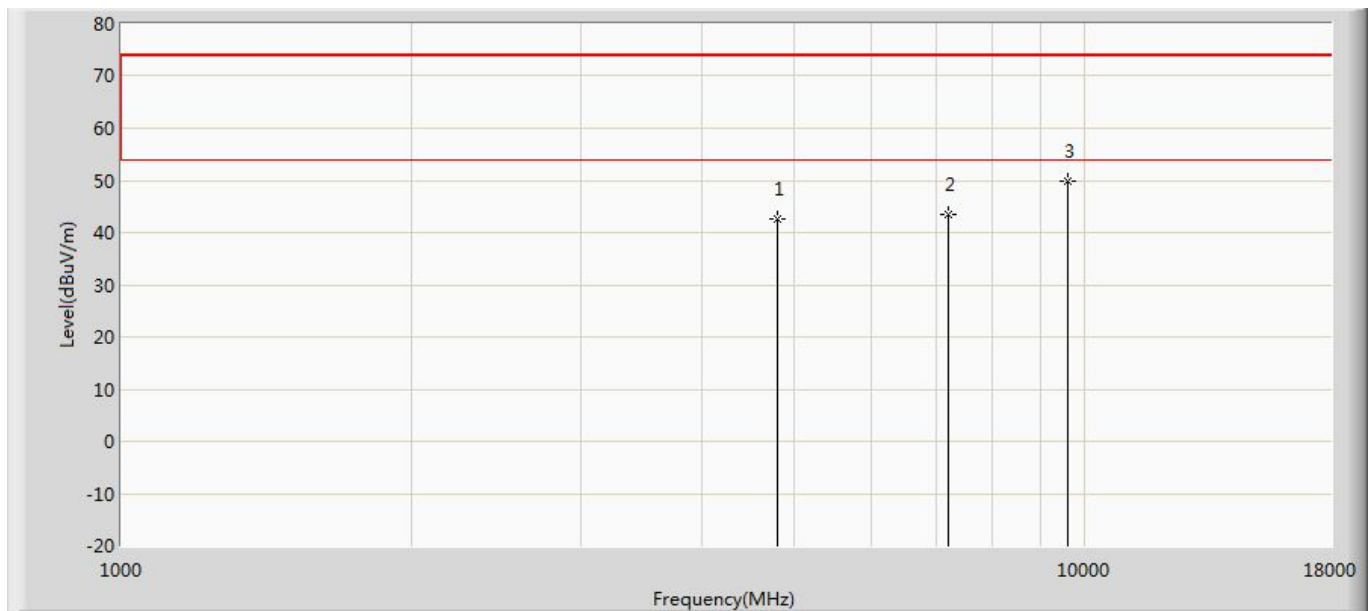
| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4960.000        | 42.533                 | 41.862               | -31.467         | 74.000         | 0.671       | PK   |
| 2  |      | 7440.000        | 44.529                 | 39.802               | -29.471         | 74.000         | 4.727       | PK   |
| 3  | *    | 9920.000        | 47.756                 | 39.355               | -26.244         | 74.000         | 8.401       | PK   |

|                                           |                          |
|-------------------------------------------|--------------------------|
| Engineer: Pawn                            |                          |
| Site: AC5                                 | Time: 2019/03/27 - 10:15 |
| Limit: FCC_Part15.209_RE(3m)              | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)        | Polarity: Horizontal     |
| EUT: REALMAX-QIAN                         | Power: AC 120V/60Hz      |
| Note: Mode 2: Transmit at 2402MHz by 2DH5 |                          |



| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4804.000        | 43.100                 | 42.871               | -30.900         | 74.000         | 0.229       | PK   |
| 2  |      | 7206.000        | 44.674                 | 41.248               | -29.326         | 74.000         | 3.426       | PK   |
| 3  | *    | 9610.500        | 53.229                 | 44.739               | -20.771         | 74.000         | 8.491       | PK   |

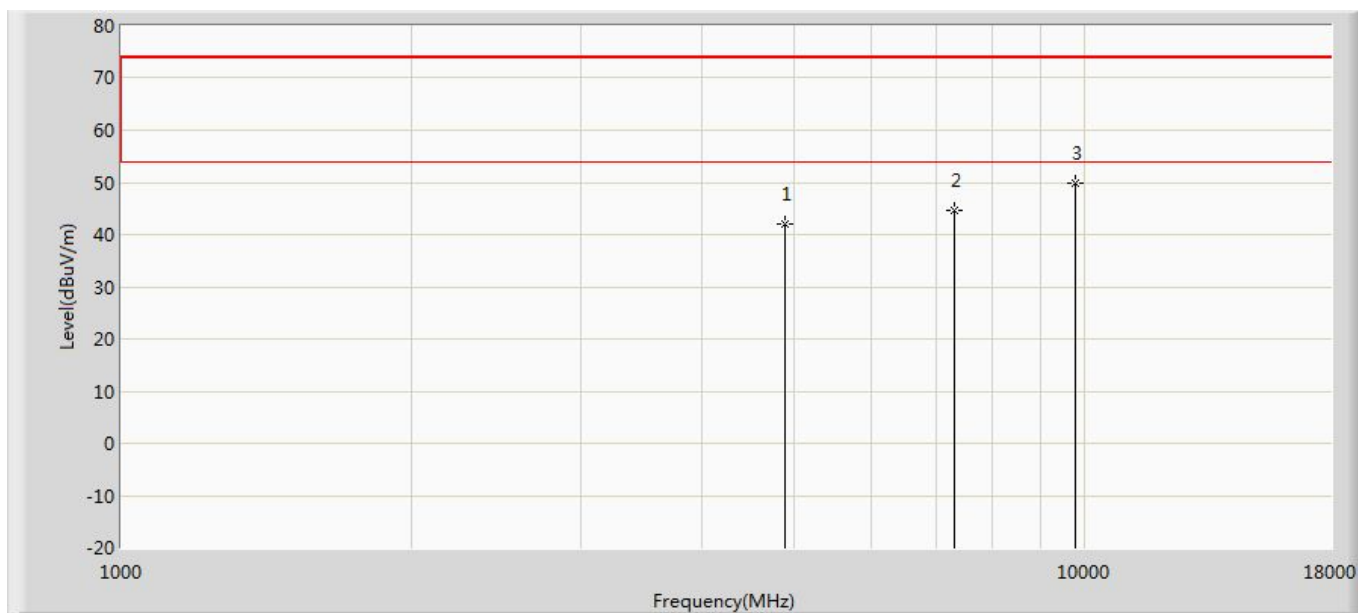
|                                           |                          |
|-------------------------------------------|--------------------------|
| Engineer: Pawn                            |                          |
| Site: AC5                                 | Time: 2019/03/27 - 10:15 |
| Limit: FCC_Part15.209_RE(3m)              | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)        | Polarity: Vertical       |
| EUT: REALMAX-QIAN                         | Power: AC 120V/60Hz      |
| Note: Mode 2: Transmit at 2402MHz by 2DH5 |                          |



| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4804.000        | 42.693                 | 42.464               | -31.307         | 74.000         | 0.229       | PK   |
| 2  |      | 7206.000        | 43.607                 | 40.181               | -30.393         | 74.000         | 3.426       | PK   |
| 3  | *    | 9608.000        | 49.852                 | 41.332               | -24.148         | 74.000         | 8.519       | PK   |

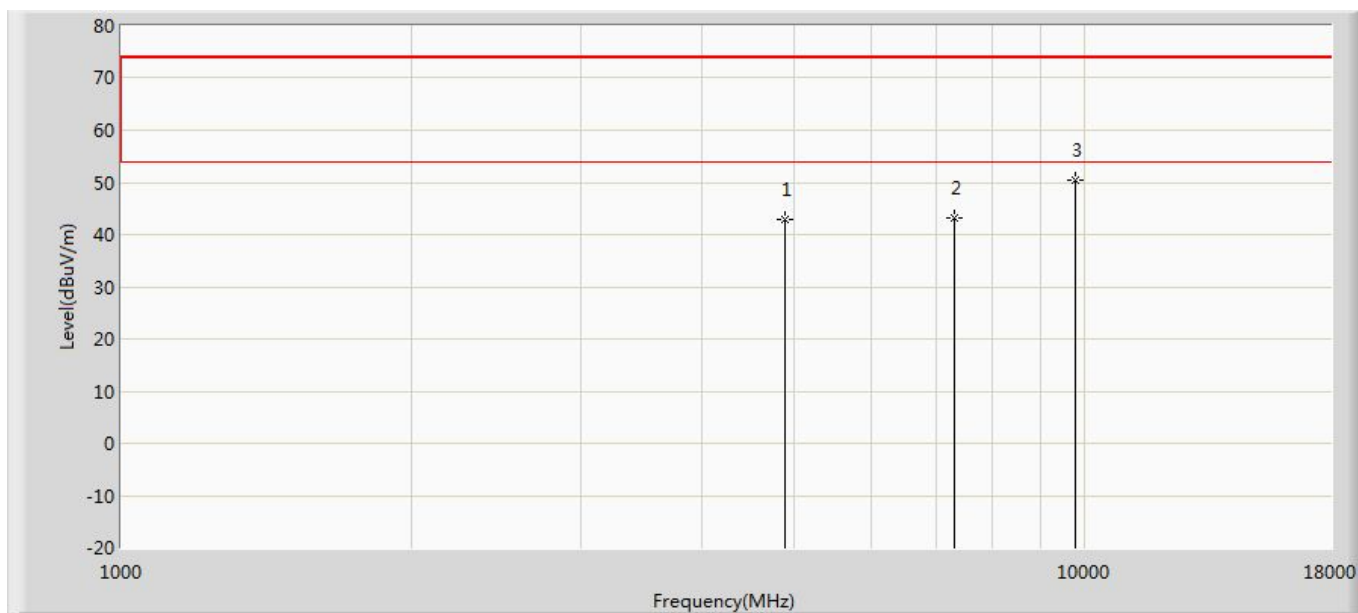


|                                           |                          |
|-------------------------------------------|--------------------------|
| Engineer: Pawn                            |                          |
| Site: AC5                                 | Time: 2019/03/27 - 10:15 |
| Limit: FCC_Part15.209_RE(3m)              | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)        | Polarity: Horizontal     |
| EUT: REALMAX-QIAN                         | Power: AC 120V/60Hz      |
| Note: Mode 2: Transmit at 2441MHz by 2DH5 |                          |



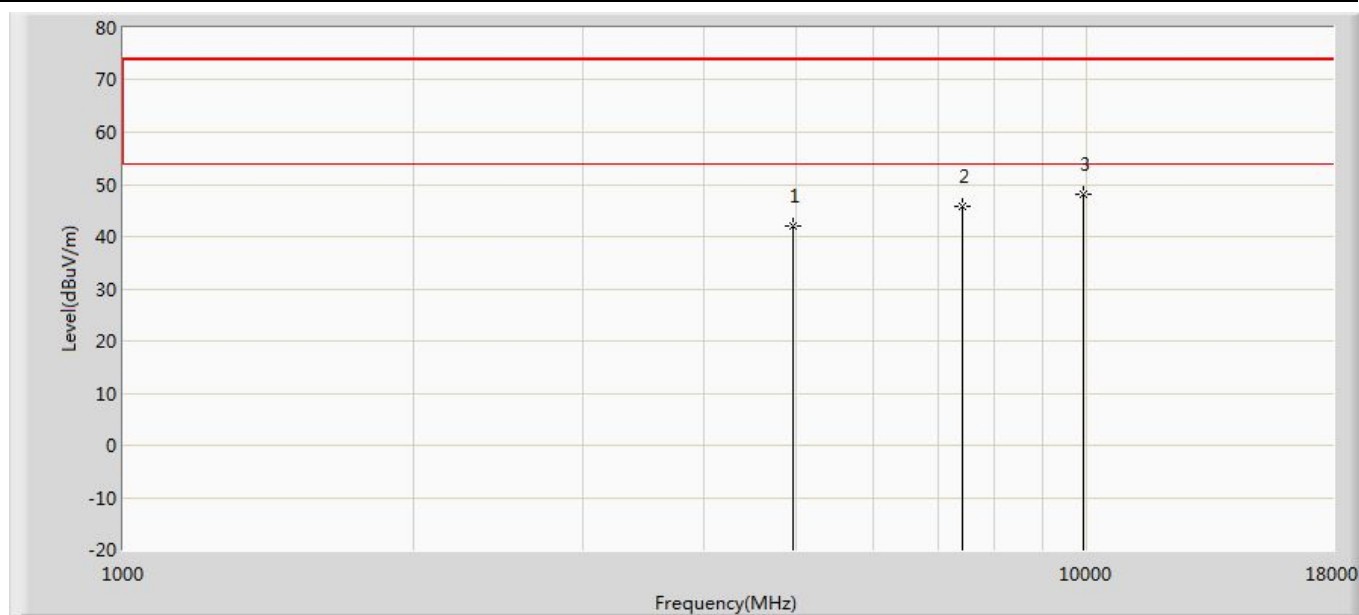
| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4882.000        | 42.149                 | 41.689               | -31.851         | 74.000         | 0.460       | PK   |
| 2  |      | 7323.000        | 44.596                 | 41.007               | -29.404         | 74.000         | 3.590       | PK   |
| 3  | *    | 9764.000        | 49.919                 | 40.555               | -24.081         | 74.000         | 9.365       | PK   |

|                                           |                          |
|-------------------------------------------|--------------------------|
| Engineer: Pawn                            |                          |
| Site: AC5                                 | Time: 2019/03/27 - 10:15 |
| Limit: FCC_Part15.209_RE(3m)              | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)        | Polarity: Vertical       |
| EUT: REALMAX-QIAN                         | Power: AC 120V/60Hz      |
| Note: Mode 2: Transmit at 2441MHz by 2DH5 |                          |



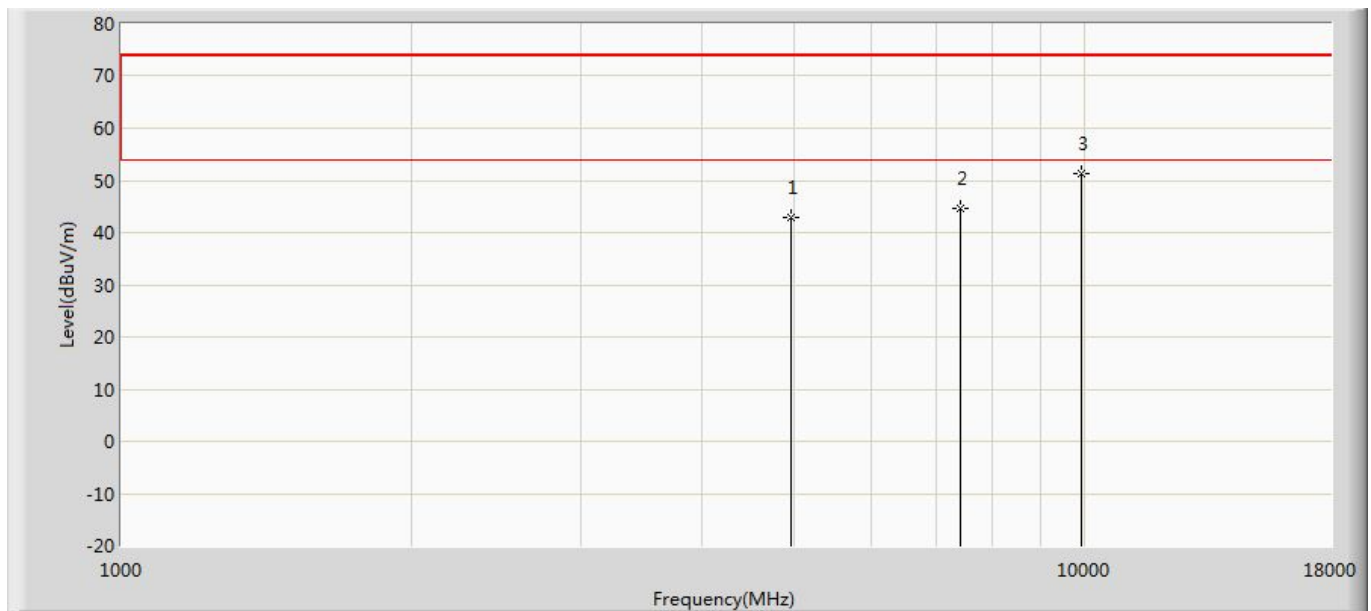
| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4882.000        | 42.839                 | 42.379               | -31.161         | 74.000         | 0.460       | PK   |
| 2  |      | 7323.000        | 43.241                 | 39.652               | -30.759         | 74.000         | 3.590       | PK   |
| 3  | *    | 9764.000        | 50.357                 | 40.993               | -23.643         | 74.000         | 9.365       | PK   |

|                                           |                          |
|-------------------------------------------|--------------------------|
| Engineer: Pawn                            |                          |
| Site: AC5                                 | Time: 2019/03/27 - 10:15 |
| Limit: FCC_Part15.209_RE(3m)              | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)        | Polarity: Horizontal     |
| EUT: REALMAX-QIAN                         | Power: AC 120V/60Hz      |
| Note: Mode 2: Transmit at 2480MHz by 2DH5 |                          |



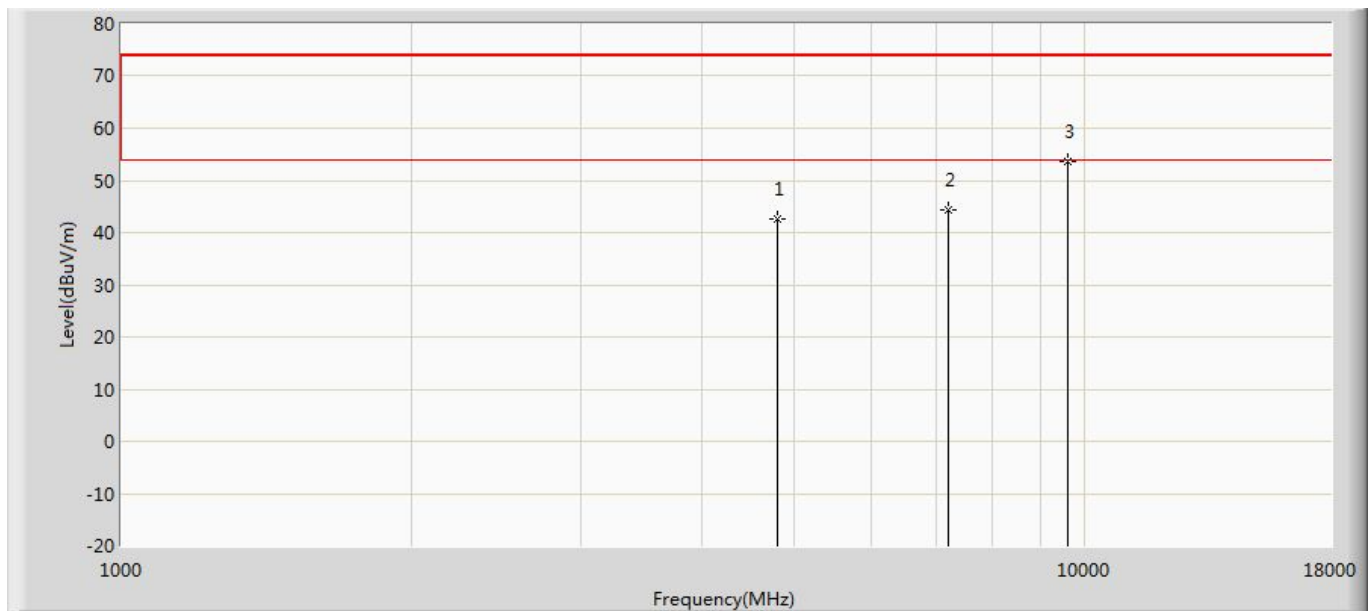
| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4960.000        | 42.122                 | 41.451               | -31.878         | 74.000         | 0.671       | PK   |
| 2  |      | 7440.000        | 45.774                 | 41.047               | -28.226         | 74.000         | 4.727       | PK   |
| 3  | *    | 9920.000        | 48.251                 | 39.850               | -25.749         | 74.000         | 8.401       | PK   |

|                                           |                          |
|-------------------------------------------|--------------------------|
| Engineer: Pawn                            |                          |
| Site: AC5                                 | Time: 2019/03/27 - 10:15 |
| Limit: FCC_Part15.209_RE(3m)              | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)        | Polarity: Vertical       |
| EUT: REALMAX-QIAN                         | Power: AC 120V/60Hz      |
| Note: Mode 2: Transmit at 2480MHz by 2DH5 |                          |



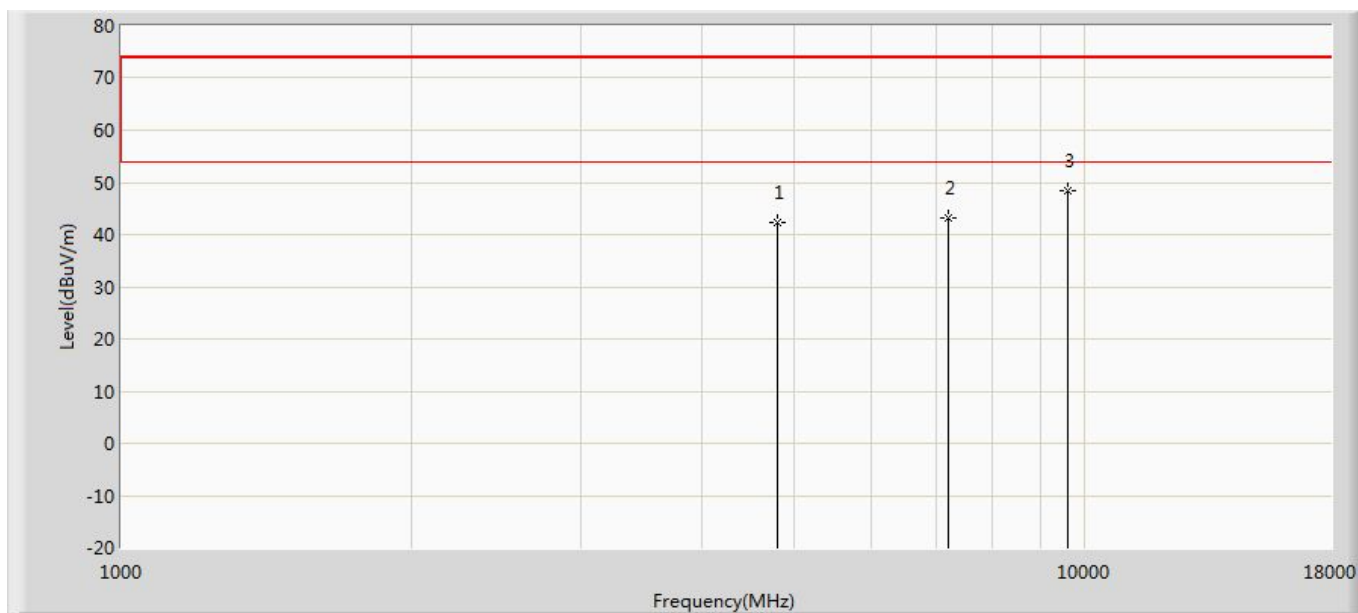
| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4960.000        | 42.911                 | 42.240               | -31.089         | 74.000         | 0.671       | PK   |
| 2  |      | 7440.000        | 44.683                 | 39.956               | -29.317         | 74.000         | 4.727       | PK   |
| 3  | *    | 9920.000        | 51.224                 | 42.823               | -22.776         | 74.000         | 8.401       | PK   |

|                                           |                          |
|-------------------------------------------|--------------------------|
| Engineer: Pawn                            |                          |
| Site: AC5                                 | Time: 2019/03/27 - 10:15 |
| Limit: FCC_Part15.209_RE(3m)              | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)        | Polarity: Horizontal     |
| EUT: REALMAX-QIAN                         | Power: AC 120V/60Hz      |
| Note: Mode 3: Transmit at 2402MHz by 3DH5 |                          |



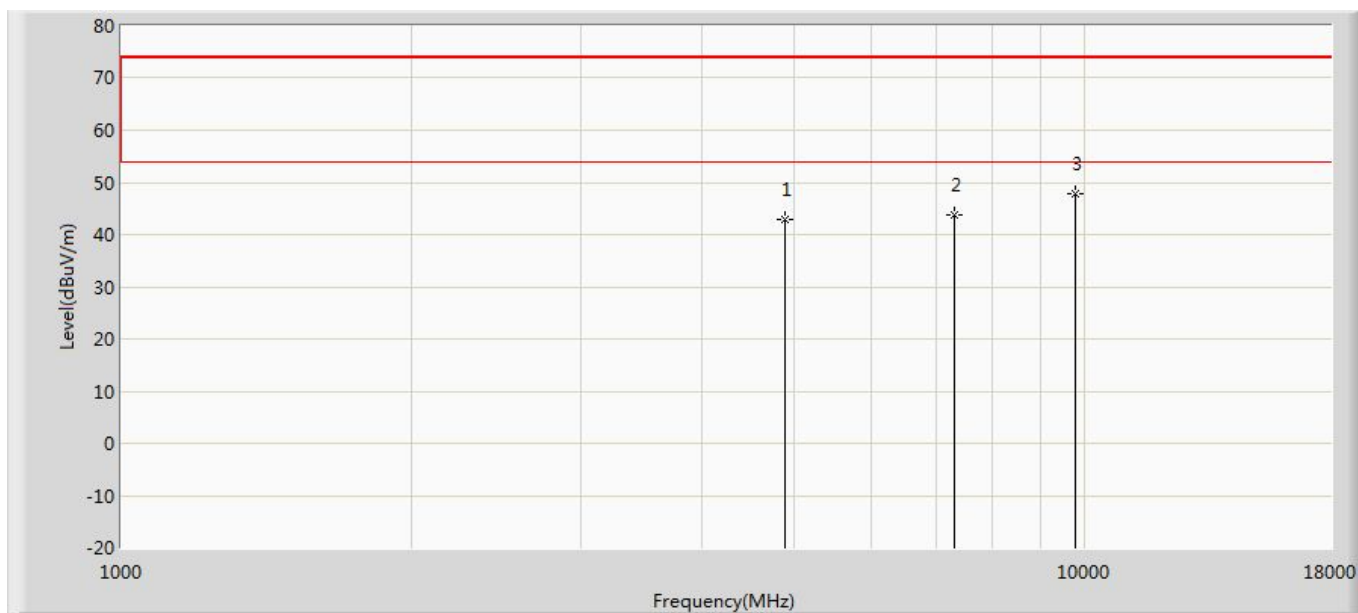
| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4804.000        | 42.470                 | 42.241               | -31.530         | 74.000         | 0.229       | PK   |
| 2  |      | 7206.000        | 44.353                 | 40.927               | -29.647         | 74.000         | 3.426       | PK   |
| 3  | *    | 9610.500        | 53.584                 | 45.093               | -20.416         | 74.000         | 8.491       | PK   |

|                                           |                          |
|-------------------------------------------|--------------------------|
| Engineer: Pawn                            |                          |
| Site: AC5                                 | Time: 2019/03/27 - 10:15 |
| Limit: FCC_Part15.209_RE(3m)              | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)        | Polarity: Vertical       |
| EUT: REALMAX-QIAN                         | Power: AC 120V/60Hz      |
| Note: Mode 3: Transmit at 2402MHz by 3DH5 |                          |



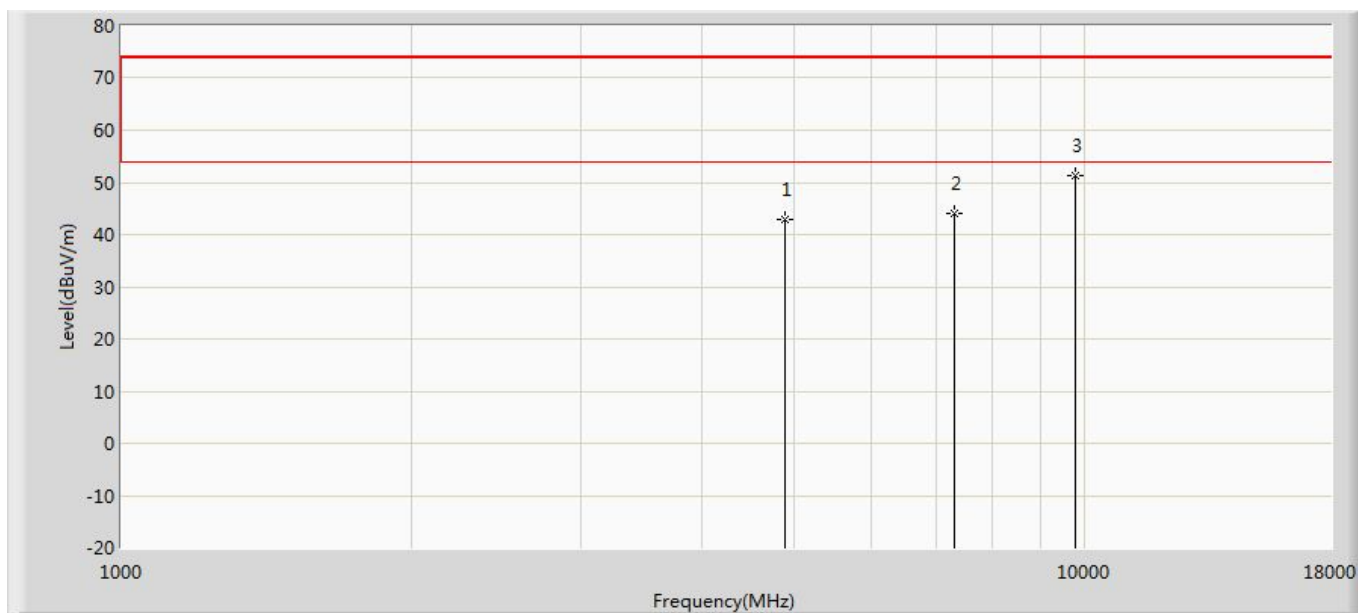
| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4804.000        | 42.448                 | 42.219               | -31.552         | 74.000         | 0.229       | PK   |
| 2  |      | 7206.000        | 43.192                 | 39.766               | -30.808         | 74.000         | 3.426       | PK   |
| 3  | *    | 9608.000        | 48.530                 | 40.010               | -25.470         | 74.000         | 8.519       | PK   |

|                                           |                          |
|-------------------------------------------|--------------------------|
| Engineer: Pawn                            |                          |
| Site: AC5                                 | Time: 2019/03/27 - 10:15 |
| Limit: FCC_Part15.209_RE(3m)              | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)        | Polarity: Horizontal     |
| EUT: REALMAX-QIAN                         | Power: AC 120V/60Hz      |
| Note: Mode 3: Transmit at 2441MHz by 3DH5 |                          |



| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4882.000        | 42.836                 | 42.376               | -31.164         | 74.000         | 0.460       | PK   |
| 2  |      | 7323.000        | 43.649                 | 40.060               | -30.351         | 74.000         | 3.590       | PK   |
| 3  | *    | 9764.000        | 47.799                 | 38.435               | -26.201         | 74.000         | 9.365       | PK   |

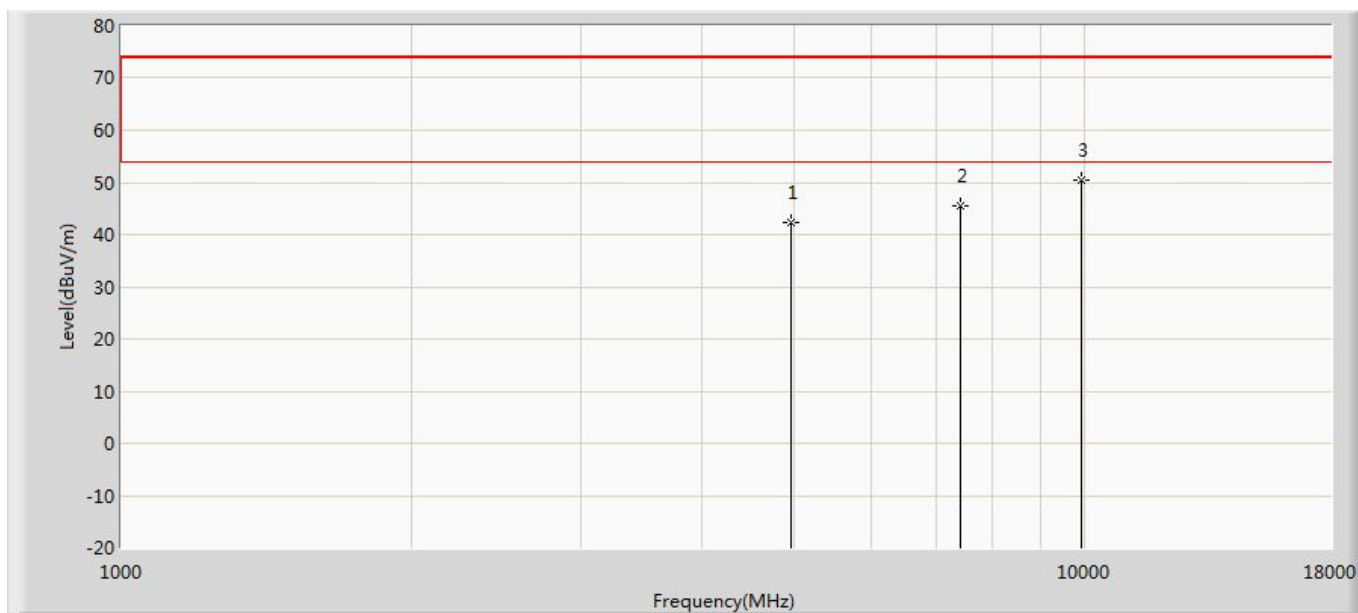
|                                           |                          |
|-------------------------------------------|--------------------------|
| Engineer: Pawn                            |                          |
| Site: AC5                                 | Time: 2019/03/27 - 10:15 |
| Limit: FCC_Part15.209_RE(3m)              | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)        | Polarity: Vertical       |
| EUT: REALMAX-QIAN                         | Power: AC 120V/60Hz      |
| Note: Mode 3: Transmit at 2441MHz by 3DH5 |                          |



| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4882.000        | 42.913                 | 42.453               | -31.087         | 74.000         | 0.460       | PK   |
| 2  |      | 7323.000        | 43.953                 | 40.364               | -30.047         | 74.000         | 3.590       | PK   |
| 3  | *    | 9764.000        | 51.216                 | 41.852               | -22.784         | 74.000         | 9.365       | PK   |

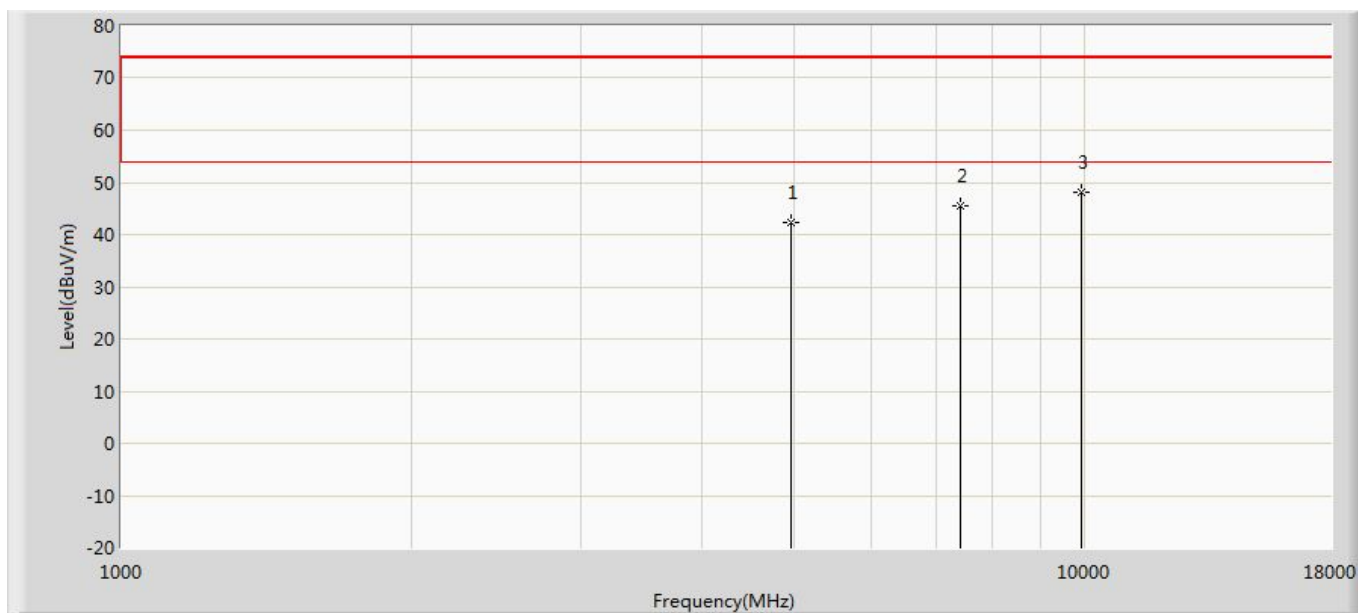


|                                           |                          |
|-------------------------------------------|--------------------------|
| Engineer: Pawn                            |                          |
| Site: AC5                                 | Time: 2019/03/27 - 10:15 |
| Limit: FCC_Part15.209_RE(3m)              | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)        | Polarity: Horizontal     |
| EUT: REALMAX-QIAN                         | Power: AC 120V/60Hz      |
| Note: Mode 3: Transmit at 2480MHz by 3DH5 |                          |



| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4960.000        | 42.340                 | 41.669               | -31.660         | 74.000         | 0.671       | PK   |
| 2  |      | 7440.000        | 45.574                 | 40.847               | -28.426         | 74.000         | 4.727       | PK   |
| 3  | *    | 9920.000        | 50.297                 | 41.896               | -23.703         | 74.000         | 8.401       | PK   |

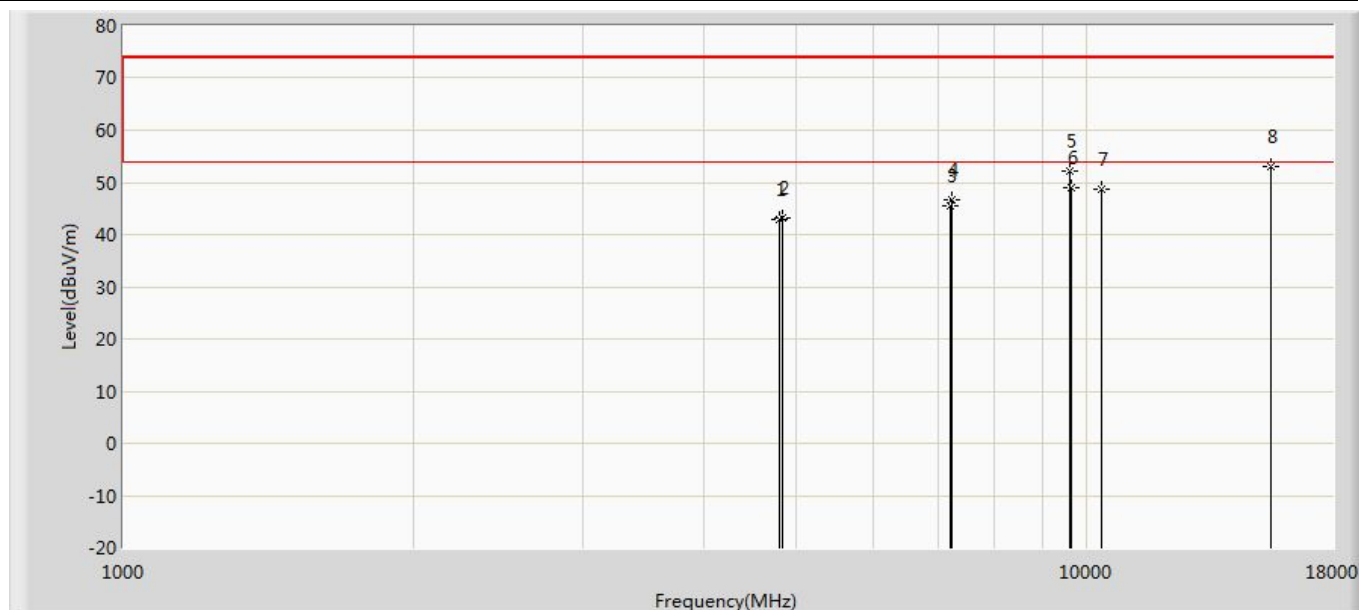
|                                           |                          |
|-------------------------------------------|--------------------------|
| Engineer: Pawn                            |                          |
| Site: AC5                                 | Time: 2019/03/27 - 10:15 |
| Limit: FCC_Part15.209_RE(3m)              | Margin: 0                |
| Probe: Horn_3117_00167055(1-18GHz)        | Polarity: Vertical       |
| EUT: REALMAX-QIAN                         | Power: AC 120V/60Hz      |
| Note: Mode 3: Transmit at 2480MHz by 3DH5 |                          |



| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4960.000        | 42.392                 | 41.721               | -31.608         | 74.000         | 0.671       | PK   |
| 2  |      | 7440.000        | 45.393                 | 40.666               | -28.607         | 74.000         | 4.727       | PK   |
| 3  | *    | 9920.000        | 48.091                 | 39.690               | -25.909         | 74.000         | 8.401       | PK   |

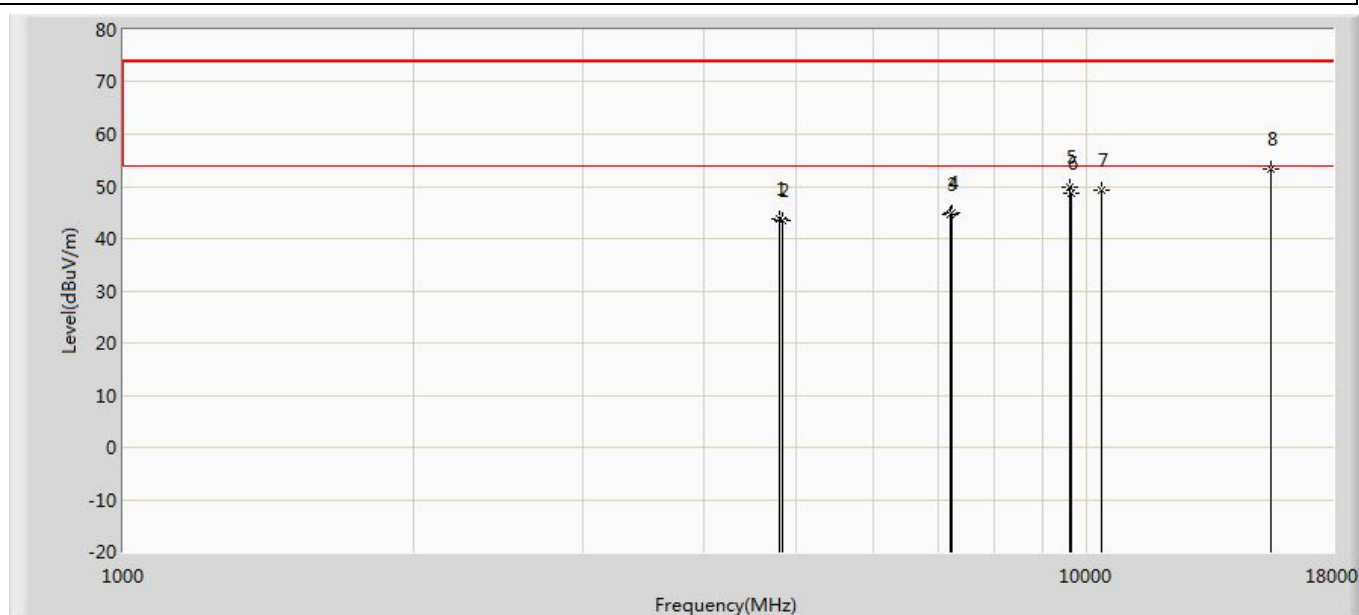
### The worst case of Simultaneous Radiated Emission:

|                                                                            |                      |
|----------------------------------------------------------------------------|----------------------|
| Site: AC5                                                                  | Time: 2019/04/10     |
| Limit: FCC_Part15.209_RE(3m)                                               | Margin: 0            |
| Probe: Horn_3117_00167055(1-18GHz)                                         | Polarity: Horizontal |
| EUT: REALMAX-QIAN                                                          | Power: AC 120V/60Hz  |
| Note: Transmit at 2402MHz by BT3.0&2412MHz by 2.4G WIFI&5180MHz by 5G WIFI |                      |



| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4804.000        | 42.817                 | 39.124               | -31.183         | 74.000         | 3.693       | PK   |
| 2  |      | 4824.000        | 43.257                 | 39.965               | -30.743         | 74.000         | 3.292       | PK   |
| 3  |      | 7206.000        | 45.629                 | 38.867               | -28.371         | 74.000         | 6.762       | PK   |
| 4  |      | 7236.000        | 46.634                 | 39.266               | -27.366         | 74.000         | 7.368       | PK   |
| 5  |      | 9608.000        | 52.230                 | 41.741               | -21.770         | 74.000         | 10.489      | PK   |
| 6  |      | 9648.000        | 48.881                 | 37.697               | -25.119         | 74.000         | 11.184      | PK   |
| 7  |      | 10360.000       | 48.674                 | 37.460               | -25.326         | 74.000         | 11.214      | PK   |
| 8  | *    | 15540.000       | 53.057                 | 36.297               | -20.943         | 74.000         | 16.760      | PK   |

|                                                                            |                     |
|----------------------------------------------------------------------------|---------------------|
| Site: AC5                                                                  | Time: 2019/04/10    |
| Limit: FCC_Part15.209_RE(3m)                                               | Margin: 0           |
| Probe: Horn_3117_00167055(1-18GHz)                                         | Polarity: Vertical  |
| EUT: REALMAX-QIAN                                                          | Power: AC 120V/60Hz |
| Note: Transmit at 2402MHz by BT3.0&2412MHz by 2.4G WIFI&5180MHz by 5G WIFI |                     |



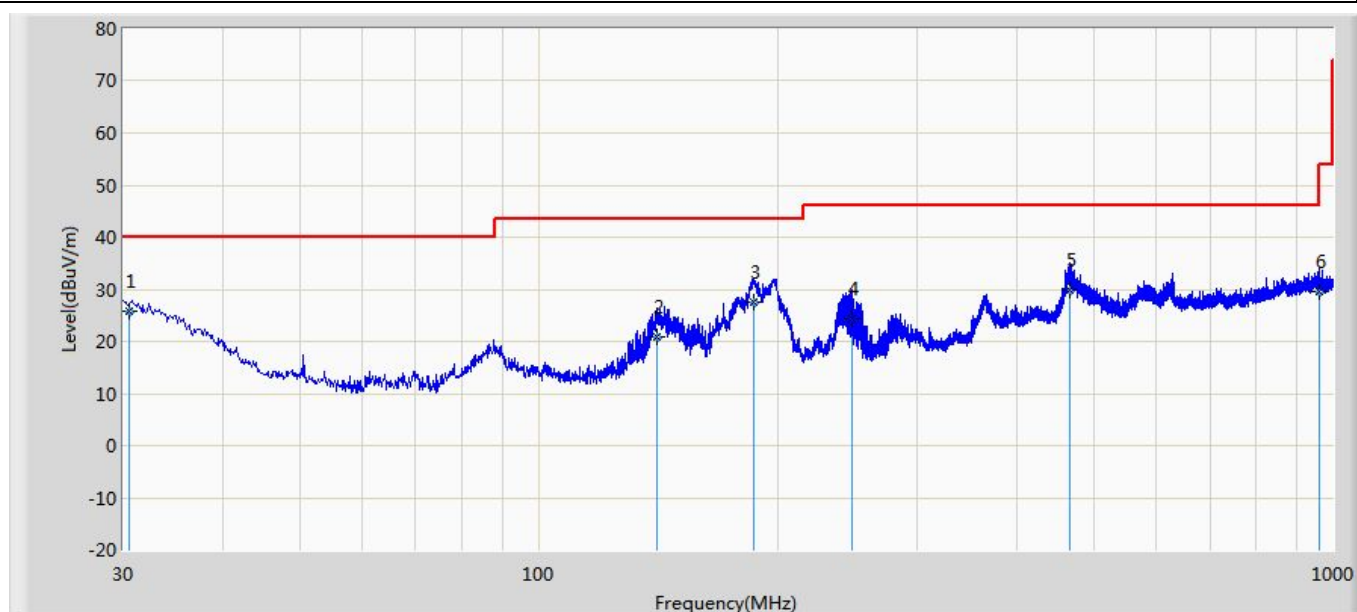
| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Factor (dB) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|-------------|------|
| 1  |      | 4804.000        | 43.763                 | 40.070               | -30.237         | 74.000         | 3.693       | PK   |
| 2  |      | 4824.000        | 43.497                 | 40.205               | -30.503         | 74.000         | 3.292       | PK   |
| 3  |      | 7206.000        | 44.629                 | 37.867               | -29.371         | 74.000         | 6.762       | PK   |
| 4  |      | 7236.000        | 45.071                 | 37.703               | -28.929         | 74.000         | 7.368       | PK   |
| 5  |      | 9608.000        | 49.834                 | 39.345               | -24.166         | 74.000         | 10.489      | PK   |
| 6  |      | 9648.000        | 48.556                 | 37.372               | -25.444         | 74.000         | 11.184      | PK   |
| 7  |      | 10360.000       | 49.192                 | 37.978               | -24.808         | 74.000         | 11.214      | PK   |
| 8  | *    | 15540.000       | 53.238                 | 36.478               | -20.762         | 74.000         | 16.760      | PK   |

Note:

1. Measured Level = Reading Level + Factor.
2. The test frequency range, 9kHz~30MHz, 18GHz~26GHz, both of the worst case are at least 20dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.
4. As the radiated emission was performed, so conducted emission was not tested.

### The worst case of Radiated Emission below 1GHz:

|                              |                      |
|------------------------------|----------------------|
| Engineer: Barlow             |                      |
| Site: AC3                    | Time: 2019/01/25     |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0            |
| Probe: AC3_3m (30-1000MHz)   | Polarity: Horizontal |
| EUT: REALMAX-QIAN            | Power: AC 120V/60Hz  |
| Note: Mode 1                 |                      |

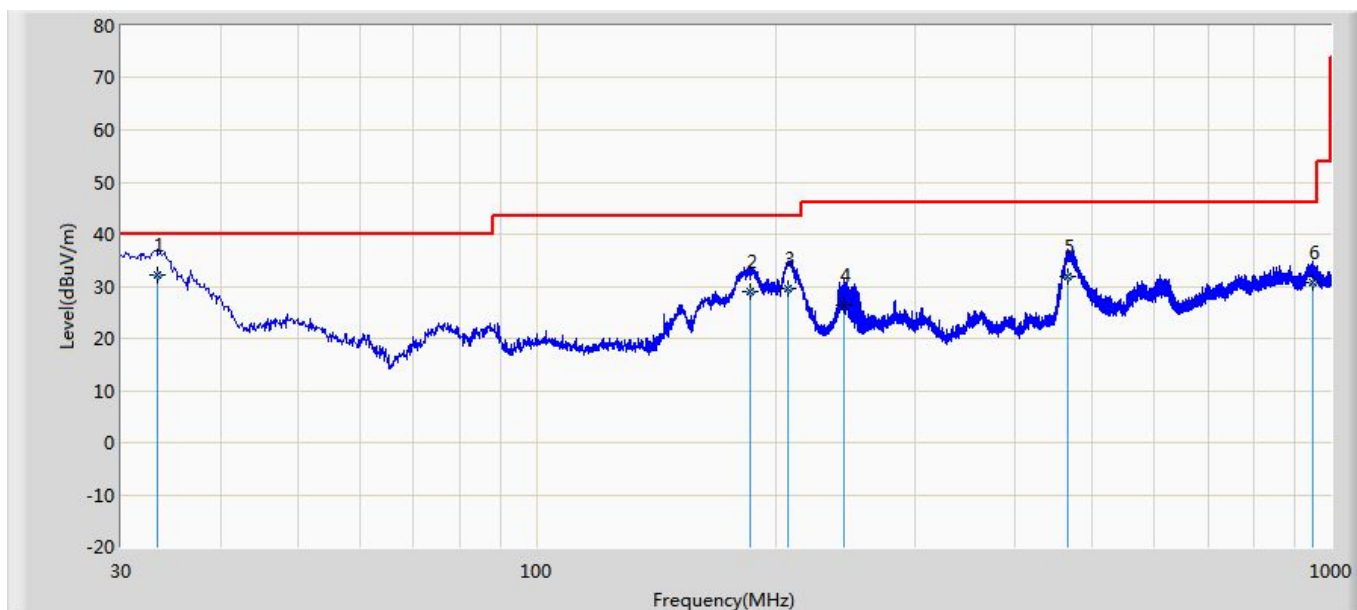


| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Probe (dB/m) | Cable (dB) | Amp (dB) | Ant Pos (cm) | Table Pos (deg) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|--------------|------------|----------|--------------|-----------------|------|
| 1  | *    | 30.500          | 25.678                 | -2.000               | -14.322         | 40.000         | 21.221       | 6.457      | 0.000    | 100          | 8               | QP   |
| 2  |      | 141.158         | 20.842                 | 3.200                | -22.658         | 43.500         | 10.599       | 7.043      | 0.000    | 100          | 254             | QP   |
| 3  |      | 186.536         | 27.585                 | 10.244               | -15.915         | 43.500         | 10.112       | 7.228      | 0.000    | 100          | 7               | QP   |
| 4  |      | 247.788         | 24.291                 | 6.200                | -21.709         | 46.000         | 10.637       | 7.454      | 0.000    | 200          | 77              | QP   |
| 5  |      | 466.259         | 29.912                 | 3.300                | -16.088         | 46.000         | 18.534       | 8.078      | 0.000    | 100          | 78              | QP   |
| 6  |      | 961.459         | 29.658                 | -3.000               | -24.342         | 54.000         | 23.431       | 9.227      | 0.000    | 200          | 96              | QP   |

Note:

1. " \* ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

|                              |                     |
|------------------------------|---------------------|
| Engineer: Barlow             |                     |
| Site: AC3                    | Time: 2019/01/25    |
| Limit: FCC_Part15.209_RE(3m) | Margin: 0           |
| Probe: AC3_3m (30-1000MHz)   | Polarity: Vertical  |
| EUT: REALMAX-QIAN            | Power: AC 120V/60Hz |
| Note: Mode 1                 |                     |



| No | Mark | Frequency (MHz) | Measure Level (dBuV/m) | Reading Level (dBuV) | Over Limit (dB) | Limit (dBuV/m) | Probe (dB/m) | Cable (dB) | Amp (dB) | Ant Pos (cm) | Table Pos (deg) | Type |
|----|------|-----------------|------------------------|----------------------|-----------------|----------------|--------------|------------|----------|--------------|-----------------|------|
| 1  | *    | 33.300          | 32.239                 | 9.200                | -7.761          | 40.000         | 16.564       | 6.474      | 0.000    | 100          | 78              | QP   |
| 2  |      | 185.458         | 28.912                 | 8.200                | -14.588         | 43.500         | 13.486       | 7.226      | 0.000    | 200          | 9               | QP   |
| 3  |      | 207.659         | 29.543                 | 6.300                | -13.957         | 43.500         | 15.935       | 7.309      | 0.000    | 300          | 14              | QP   |
| 4  |      | 243.658         | 26.439                 | 3.200                | -19.561         | 46.000         | 15.802       | 7.437      | 0.000    | 100          | 8               | QP   |
| 5  |      | 466.437         | 31.787                 | 6.200                | -14.213         | 46.000         | 17.508       | 8.079      | 0.000    | 200          | 7               | QP   |
| 6  |      | 947.457         | 30.850                 | -4.000               | -15.150         | 46.000         | 25.653       | 9.197      | 0.000    | 200          | 56              | QP   |

Note:

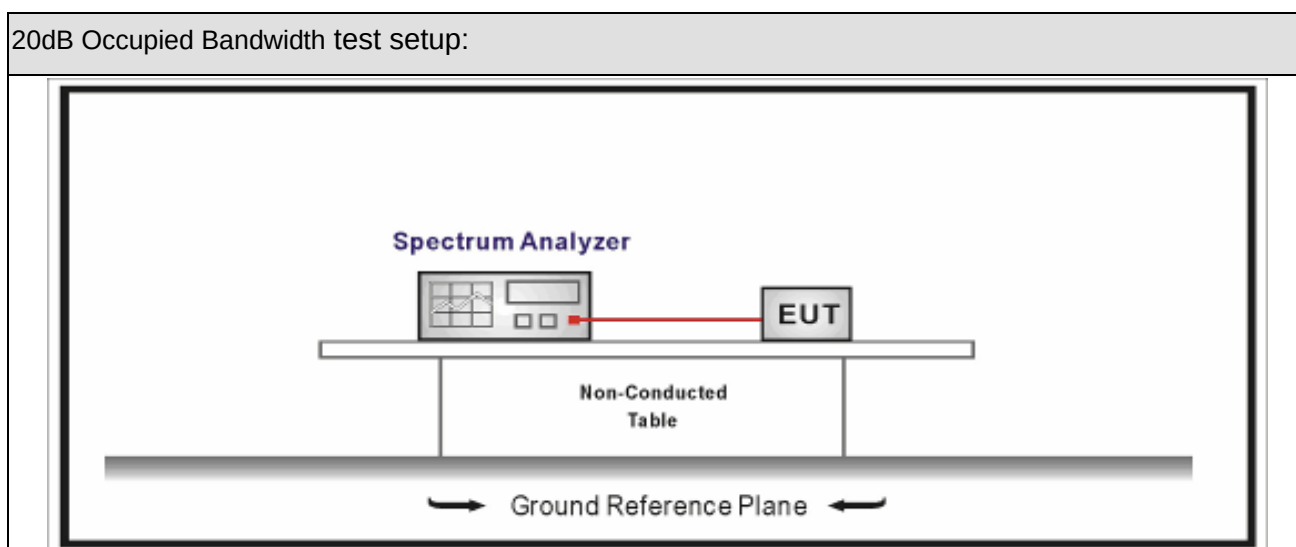
1. " \* ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

## 5. 20dB Bandwidth

### 5.1 Test Equipment

| 20dB Occupied Bandwidth / TR-8                                                                                                           |              |          |            |            |               |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|------------|------------|---------------|
| Instrument                                                                                                                               | Manufacturer | Type No. | Serial No. | Cal. Date  | Cal. Due Date |
| Spectrum Analyzer                                                                                                                        | Agilent      | N9010A   | MY48030494 | 2019.02.04 | 2020.02.03    |
| EXA Spectrum Analyzer                                                                                                                    | Keysight     | N9010A   | MY55370495 | 2018.04.09 | 2019.04.08    |
| MXA Signal Analyzer                                                                                                                      | Keysight     | N9020A   | MY56060147 | 2018.04.09 | 2019.04.08    |
| Temperature/Humidity Meter                                                                                                               | zhichen      | ZC1-2    | TR8-TH     | 2018.04.10 | 2019.04.09    |
| Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. |              |          |            |            |               |

### 5.2 Test Setup



### 5.3 Limit

| Carrier Frequency Separation        |                                                                                                                                     |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | For frequency hopping systems operating in 2400-2483.5 MHz band, within frequency range.                                            |
| <input type="checkbox"/>            | For frequency hopping systems operating in 902-928 MHz band, the maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz. |
| <input type="checkbox"/>            | For frequency hopping systems operating in 5725-5850 MHz band, the maximum 20 dB bandwidth of the hopping channel is 1 MHz.         |

## 5.4 Test Procedure

| Test Method                         |                 |         |                          |
|-------------------------------------|-----------------|---------|--------------------------|
|                                     | References Rule | Chapter | Description              |
| <input checked="" type="checkbox"/> | ANSI C63.10     | 6.9.2   | Occupied bandwidth tests |

## 5.5 Uncertainty

The measurement uncertainty is defined as  $\pm 1$  kHz

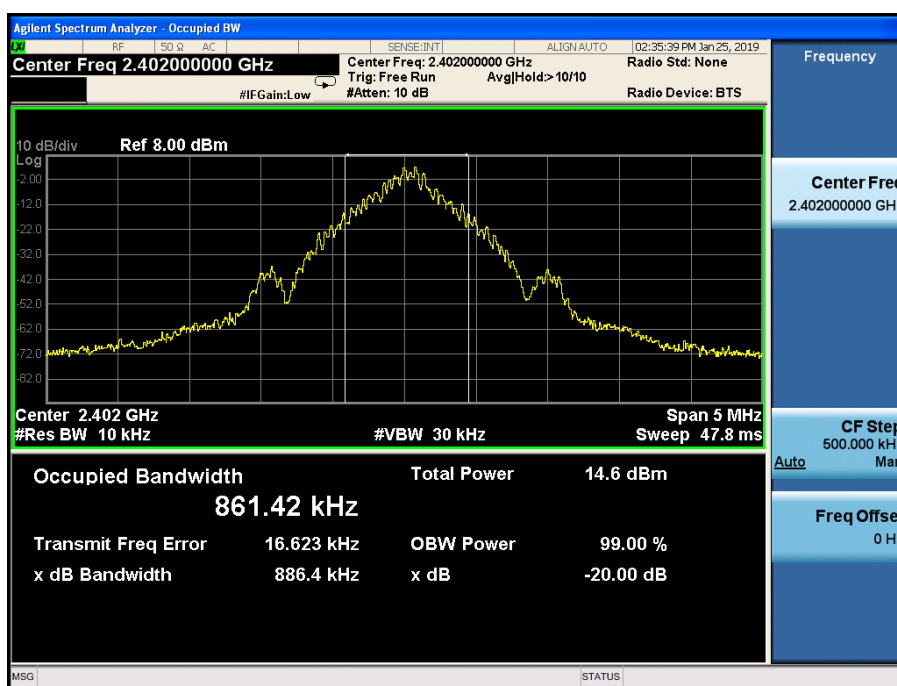


## 5.6 Test Result

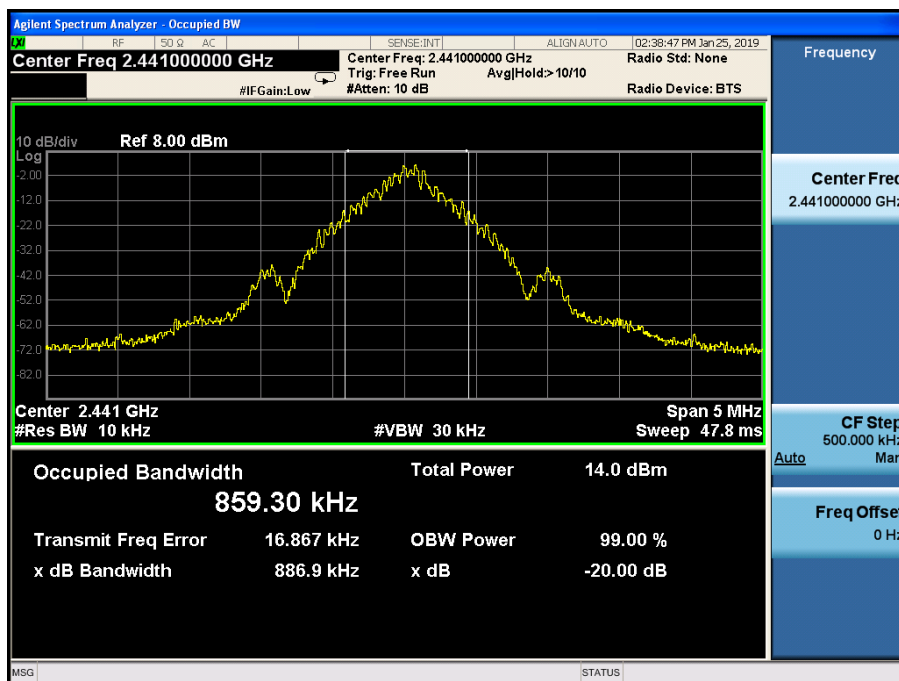
|              |                |               |                |
|--------------|----------------|---------------|----------------|
| Product Name | : REALMAX-QIAN | Power         | : AC 120V/60Hz |
| Test Mode    | : Mode 1       | Test Site     | : TR-8         |
| Test Date    | : 2019.01.25   | Test Engineer | : Simon        |

| Channel No. | Frequency<br>(MHz) | 20dB Bandwidth<br>(kHz) | 99% Bandwidth<br>(kHz) |
|-------------|--------------------|-------------------------|------------------------|
| 00          | 2402               | 886.4                   | 861.42                 |
| 39          | 2441               | 886.9                   | 859.30                 |
| 78          | 2480               | 885.9                   | 859.40                 |

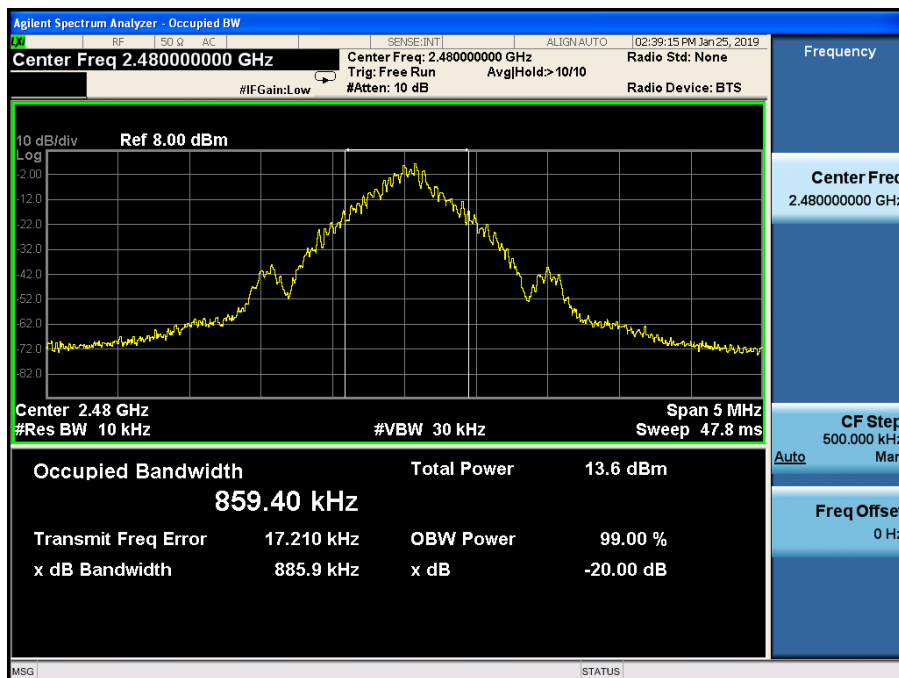
### Channel 00 (2402MHz)



## Channel 39 (2441MHz)



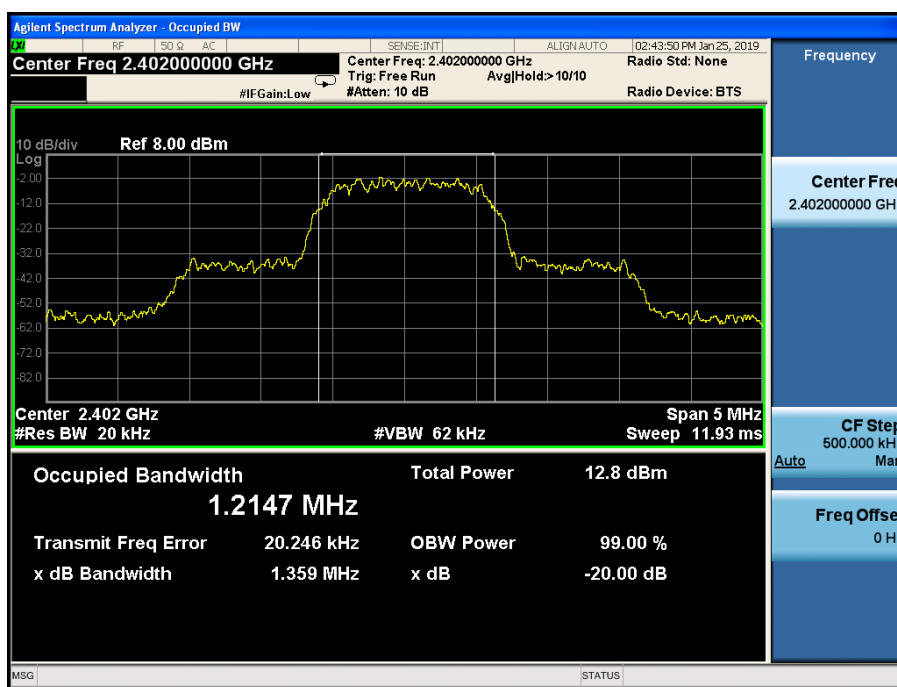
## Channel 78 (2480MHz)



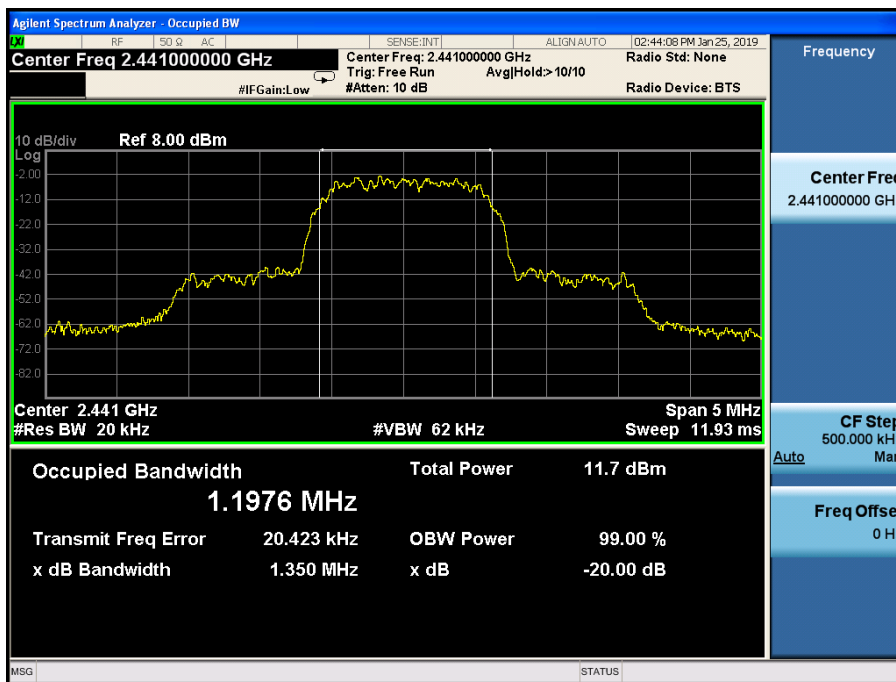
|              |                |               |                |
|--------------|----------------|---------------|----------------|
| Product Name | : REALMAX-QIAN | Power         | : AC 120V/60Hz |
| Test Mode    | : Mode 2       | Test Site     | : TR-8         |
| Test Date    | : 2019.01.25   | Test Engineer | : Simon        |

| Channel No. | Frequency (MHz) | 20dB Bandwidth (kHz) | 99% Bandwidth (kHz) |
|-------------|-----------------|----------------------|---------------------|
| 00          | 2402            | 1359                 | 1214.7              |
| 39          | 2441            | 1350                 | 1197.6              |
| 78          | 2480            | 1353                 | 1202.5              |

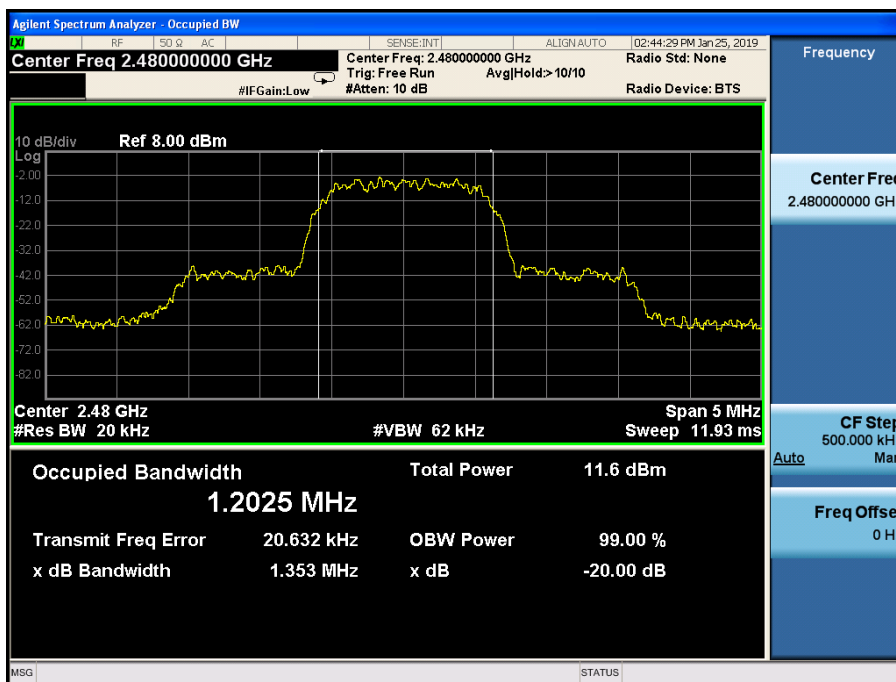
### Channel 00 (2402MHz)



## Channel 39 (2441MHz)



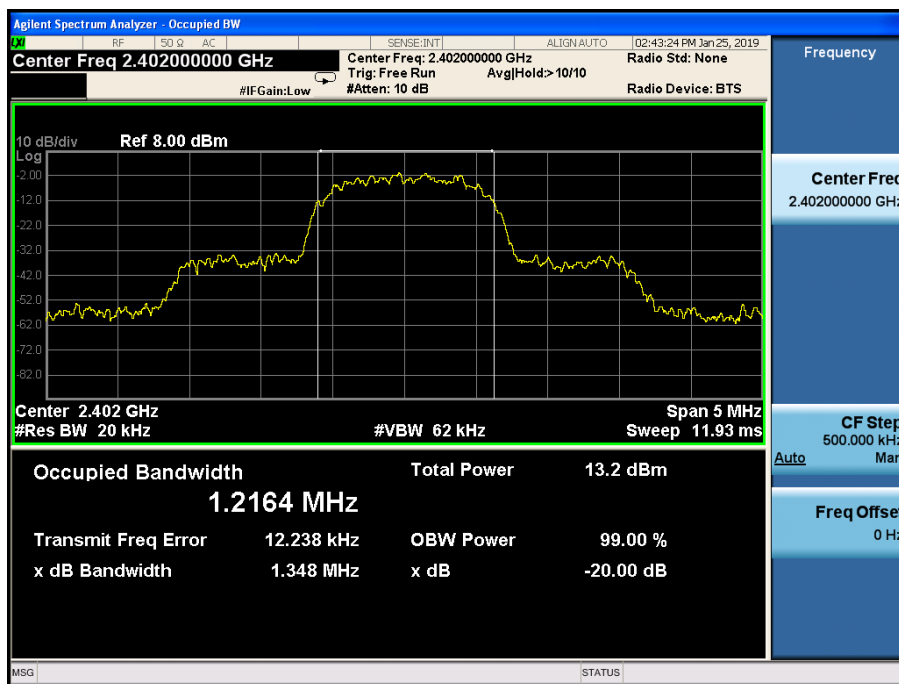
## Channel 78 (2480MHz)



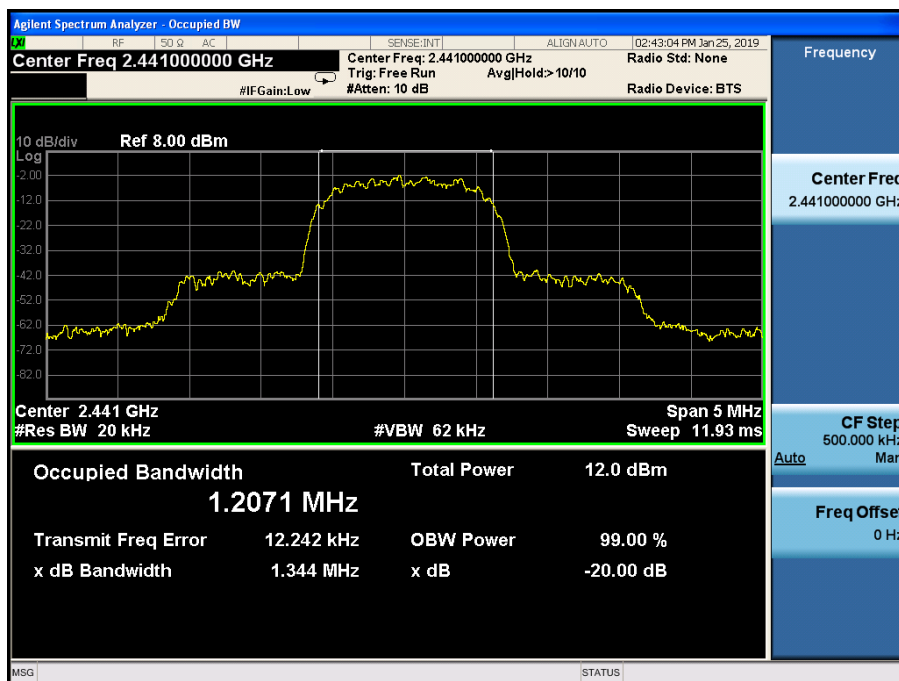
|              |                |               |                |
|--------------|----------------|---------------|----------------|
| Product Name | : REALMAX-QIAN | Power         | : AC 120V/60Hz |
| Test Mode    | : Mode 3       | Test Site     | : TR-8         |
| Test Date    | : 2019.01.25   | Test Engineer | : Simon        |

| Channel No. | Frequency (MHz) | 20dB Bandwidth (kHz) | 99% Bandwidth (kHz) |
|-------------|-----------------|----------------------|---------------------|
| 00          | 2402            | 1348                 | 1216.4              |
| 39          | 2441            | 1344                 | 1207.1              |
| 78          | 2480            | 1347                 | 1210.6              |

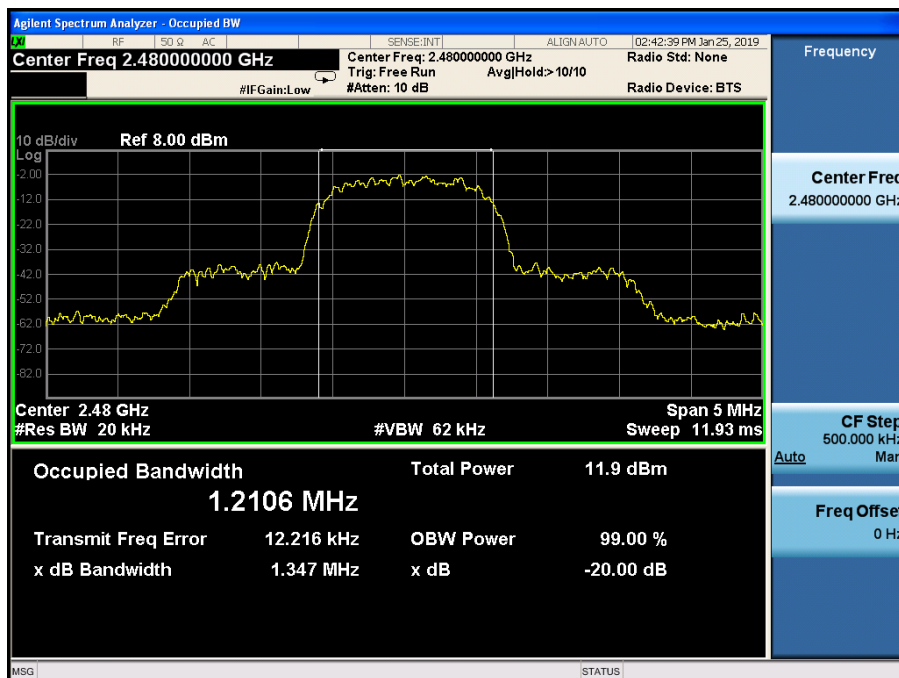
### Channel 00 (2402MHz)



## Channel 39 (2441MHz)



## Channel 78 (2480MHz)



## 6. Carrier Frequency Separation

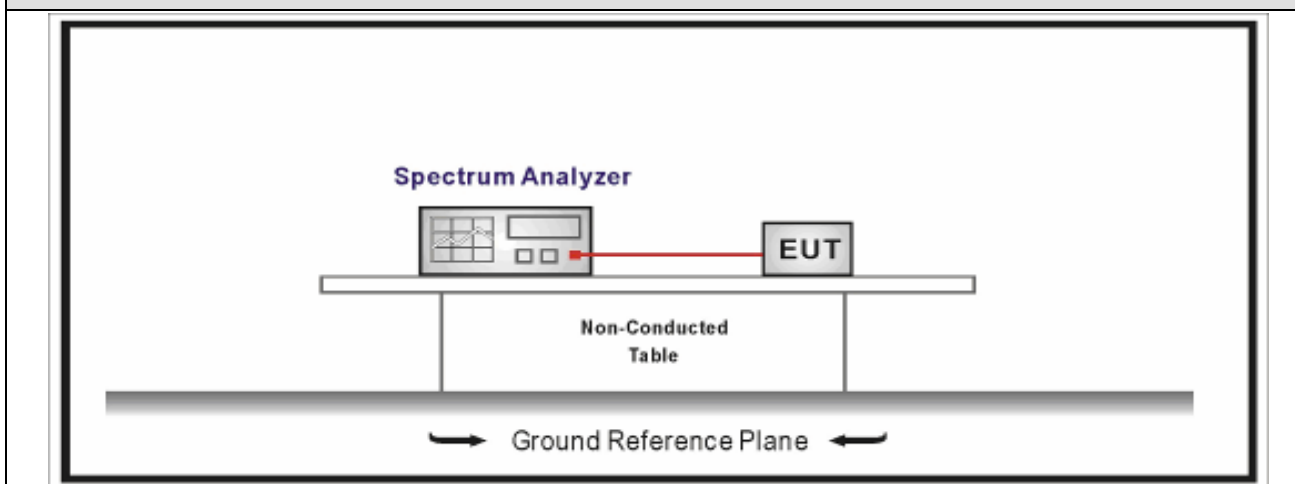
### 6.1. Test Equipment

| Carrier Frequency Separation / TR-8 |              |          |            |            |               |
|-------------------------------------|--------------|----------|------------|------------|---------------|
| Instrument                          | Manufacturer | Type No. | Serial No. | Cal. Date  | Cal. Due Date |
| Spectrum Analyzer                   | Agilent      | N9010A   | MY48030494 | 2019.02.04 | 2020.02.03    |
| EXA Spectrum Analyzer               | Keysight     | N9010A   | MY55370495 | 2018.04.09 | 2019.04.08    |
| MXA Signal Analyzer                 | Keysight     | N9020A   | MY56060147 | 2018.04.09 | 2019.04.08    |
| Temperature/Humidity Meter          | zhichen      | ZC1-2    | TR8-TH     | 2018.04.10 | 2019.04.09    |

Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

### 6.2. Test Setup

Carrier Frequency Separation test setup:



### 6.3. Limit

| Carrier Frequency Separation        |                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.                                                                                                                                    |
| <input checked="" type="checkbox"/> | Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel.                                                                                                            |
| <input type="checkbox"/>            | The 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period;                                                                         |
| <input type="checkbox"/>            | The 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz. |
| <input type="checkbox"/>            | Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.                                                                                                                                             |

### 6.4. Test Procedure

| Test Method                         |                 |         |                              |
|-------------------------------------|-----------------|---------|------------------------------|
|                                     | References Rule | Chapter | Description                  |
| <input checked="" type="checkbox"/> | ANSI C63.10     | 7.8.2   | Carrier frequency separation |

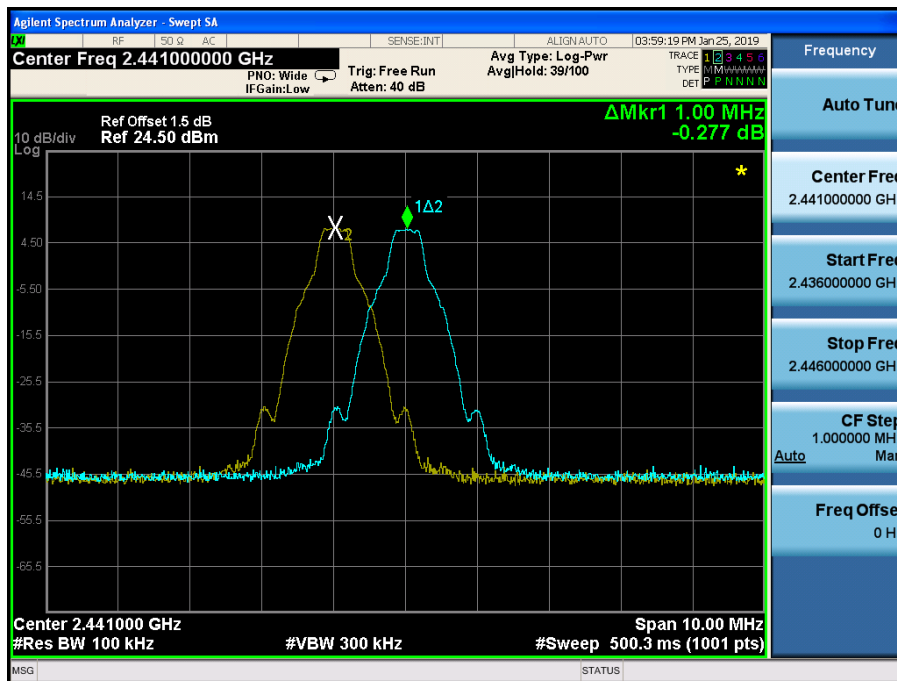
### 6.5. Uncertainty

The measurement uncertainty is defined as  $\pm 1$  kHz





## Channel 39 (2441MHz)



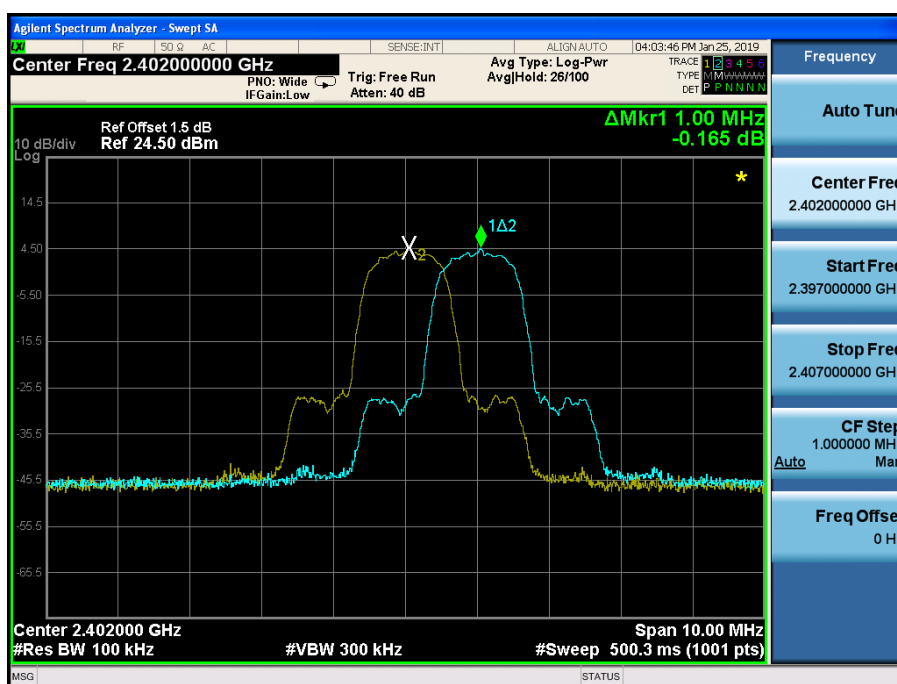
## Channel 78 (2480MHz)



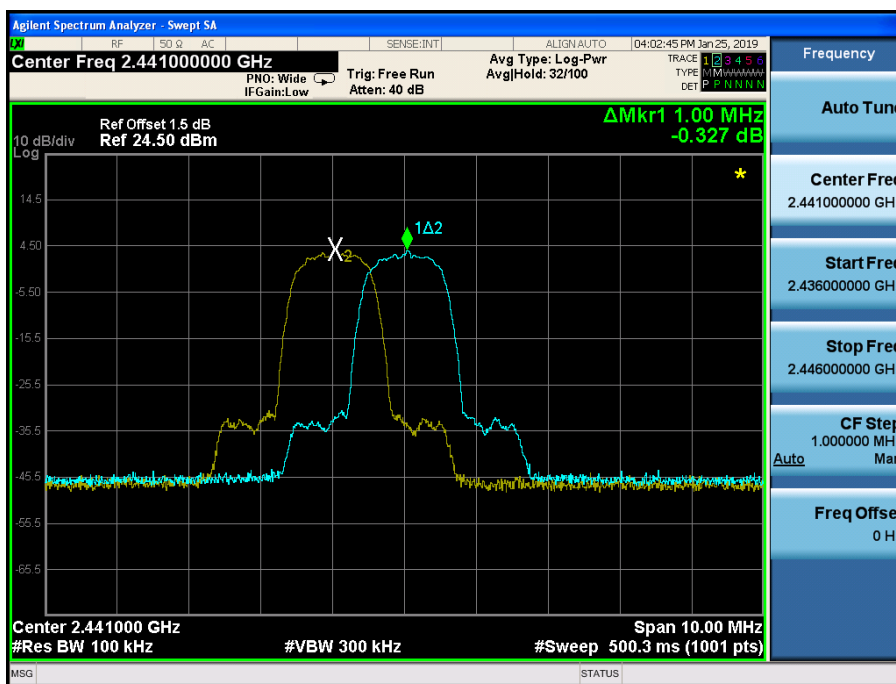
|              |                |               |                |
|--------------|----------------|---------------|----------------|
| Product Name | : REALMAX-QIAN | Power         | : AC 120V/60Hz |
| Test Mode    | : Mode 2       | Test Site     | : TR-8         |
| Test Date    | : 2019.01.25   | Test Engineer | : Simon        |

| Channel No. | Frequency (MHz) | Carrier Frequency Separation (kHz) | Limit (kHz) | Result |
|-------------|-----------------|------------------------------------|-------------|--------|
| 00          | 2402            | 1000                               | 906.0       | Pass   |
| 39          | 2441            | 1000                               | 900.0       | Pass   |
| 78          | 2480            | 1000                               | 902.0       | Pass   |

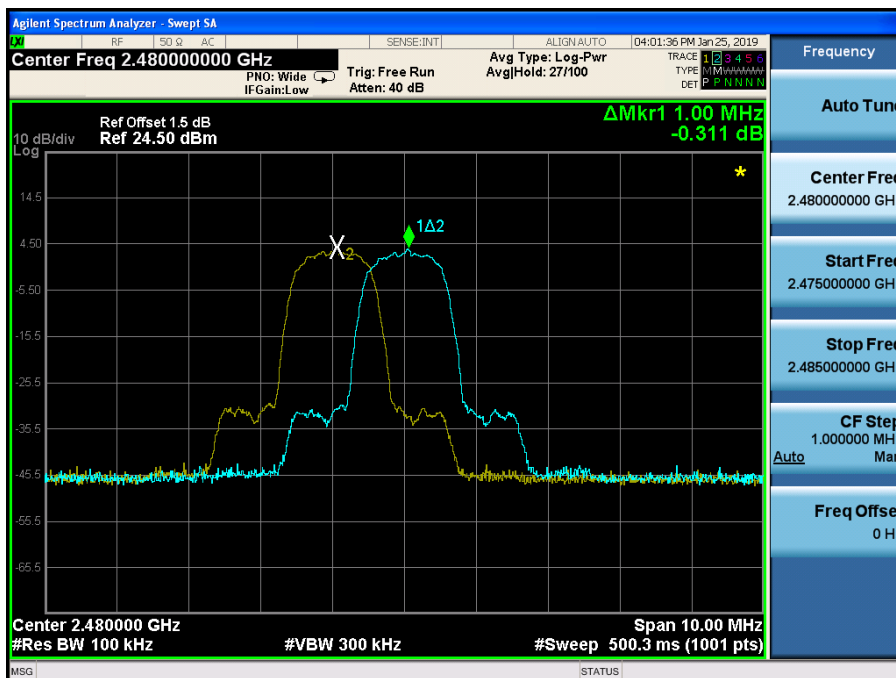
### Channel 00 (2402MHz)



## Channel 39 (2441MHz)



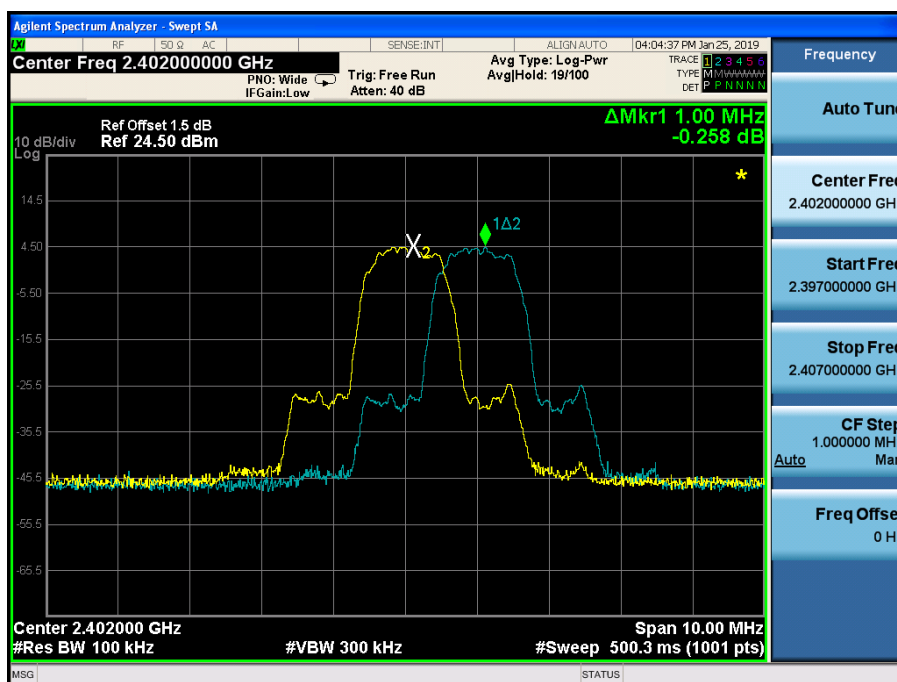
## Channel 78 (2480MHz)



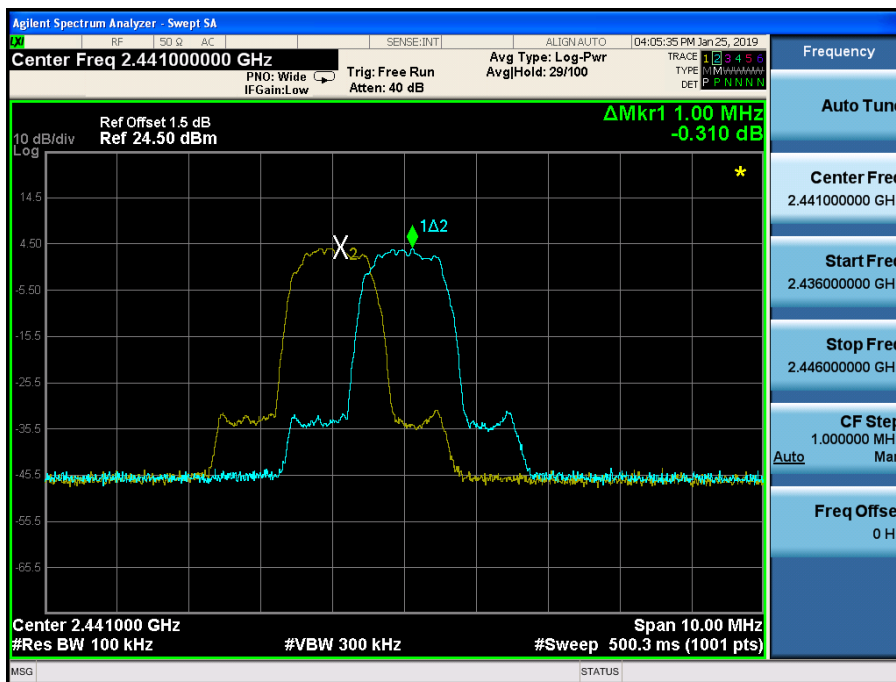
|              |                |               |                |
|--------------|----------------|---------------|----------------|
| Product Name | : REALMAX-QIAN | Power         | : AC 120V/60Hz |
| Test Mode    | : Mode 3       | Test Site     | : TR-8         |
| Test Date    | : 2019.01.25   | Test Engineer | : Simon        |

| Channel No. | Frequency (MHz) | Carrier Frequency Separation (kHz) | Limit (kHz) | Result |
|-------------|-----------------|------------------------------------|-------------|--------|
| 00          | 2402            | 1000                               | 898.7       | Pass   |
| 39          | 2441            | 1000                               | 896.0       | Pass   |
| 78          | 2480            | 1000                               | 898.0       | Pass   |

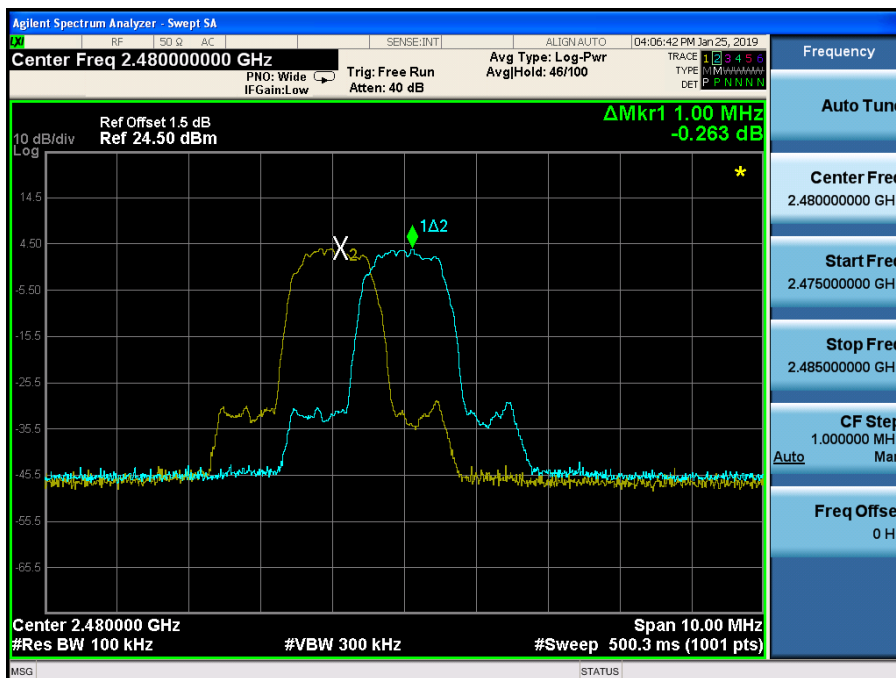
### Channel 00 (2402MHz)



## Channel 39 (2441MHz)



## Channel 78 (2480MHz)

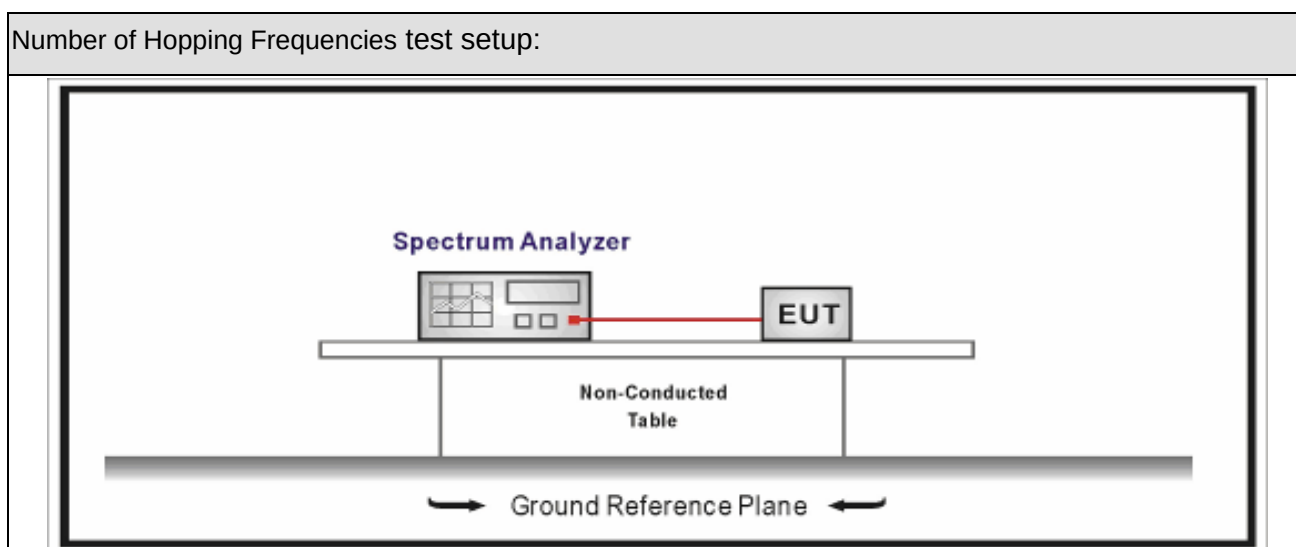


## 7. Number of Hopping Frequencies

### 7.1. Test Equipment

| Number of Hopping Frequencies / TR-8                                                                                                     |              |          |            |            |               |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|------------|------------|---------------|
| Instrument                                                                                                                               | Manufacturer | Type No. | Serial No. | Cal. Date  | Cal. Due Date |
| Spectrum Analyzer                                                                                                                        | Agilent      | N9010A   | MY48030494 | 2019.02.04 | 2020.02.03    |
| EXA Spectrum Analyzer                                                                                                                    | Keysight     | N9010A   | MY55370495 | 2018.04.09 | 2019.04.08    |
| MXA Signal Analyzer                                                                                                                      | Keysight     | N9020A   | MY56060147 | 2018.04.09 | 2019.04.08    |
| Temperature/Humidity Meter                                                                                                               | zhichen      | ZC1-2    | TR8-TH     | 2018.04.10 | 2019.04.09    |
| Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. |              |          |            |            |               |

### 7.2. Test Setup



### 7.3. Limit

| Carrier Frequency Separation        |                                                                                                                                                                               |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | For frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies.                                                                |
| <input type="checkbox"/>            | For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is less than 250 kHz, shall use at least 50 hopping frequencies.   |
| <input type="checkbox"/>            | For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is higher than 250 kHz, shall use at least 25 hopping frequencies. |
| <input type="checkbox"/>            | For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.                                                                  |

## 7.4. Test Procedure

| Test Method                         |                 |         |                               |
|-------------------------------------|-----------------|---------|-------------------------------|
|                                     | References Rule | Chapter | Description                   |
| <input checked="" type="checkbox"/> | ANSI C63.10     | 7.8.3   | Number of Hopping Frequencies |

## 7.5. Uncertainty

The measurement uncertainty is defined as  $\pm 1$  kHz

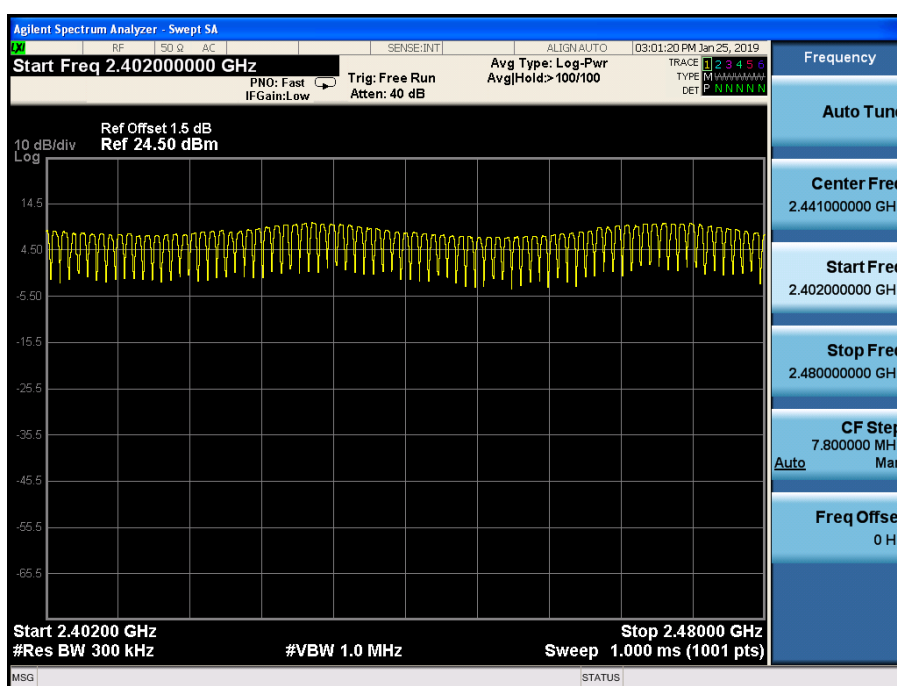


## 7.6. Test Result

|              |                |               |                |
|--------------|----------------|---------------|----------------|
| Product Name | : REALMAX-QIAN | Power         | : AC 120V/60Hz |
| Test Mode    | : Mode 1       | Test Site     | : TR-8         |
| Test Date    | : 2019.01.25   | Test Engineer | : Simon        |

| Frequency Band<br>(MHz) | Number of Hopping Frequencies | Limit | Result |
|-------------------------|-------------------------------|-------|--------|
| 2400 - 2483.5           | 79                            | >15   | Pass   |

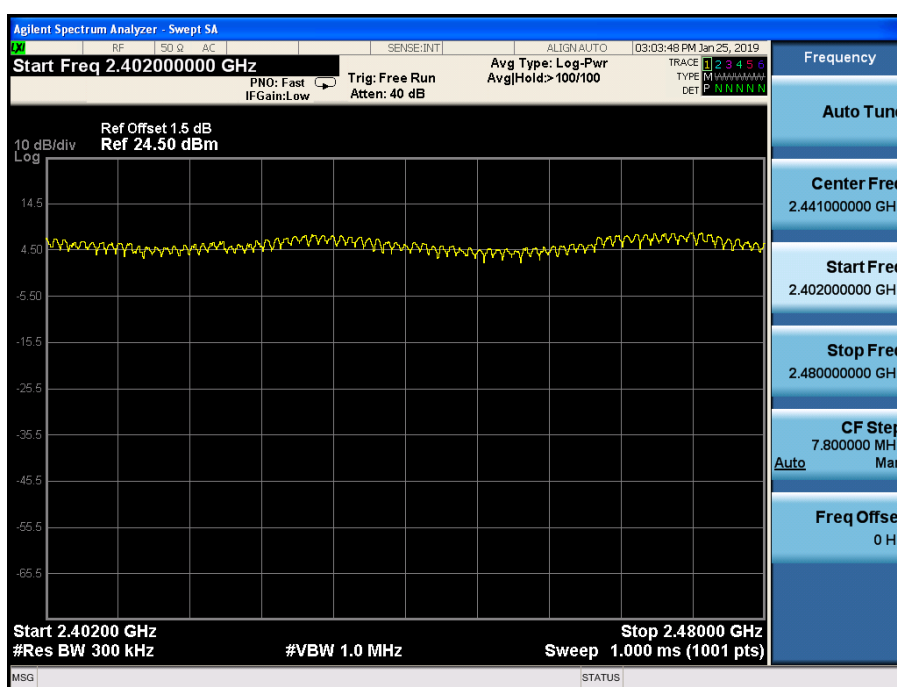
### 2402 - 2480MHz



|              |                |               |                |
|--------------|----------------|---------------|----------------|
| Product Name | : REALMAX-QIAN | Power         | : AC 120V/60Hz |
| Test Mode    | : Mode 2       | Test Site     | : TR-8         |
| Test Date    | : 2019.01.25   | Test Engineer | : Simon        |

| Frequency Band (MHz) | Number of Hopping Frequencies | Limit | Result |
|----------------------|-------------------------------|-------|--------|
| 2400 - 2483.5        | 79                            | >15   | Pass   |

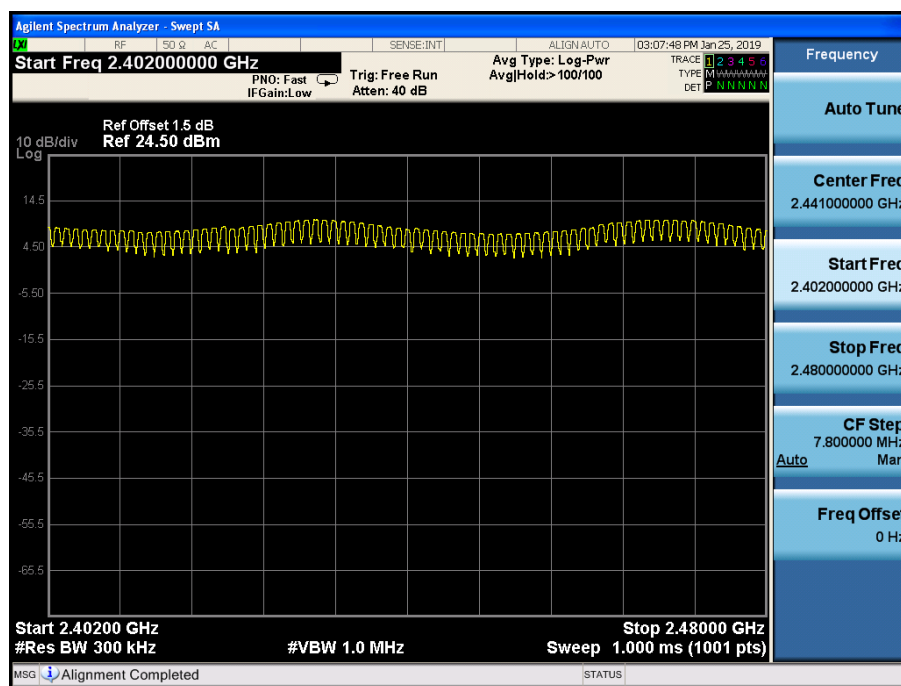
### 2402 - 2480 MHz



|              |                |               |                |
|--------------|----------------|---------------|----------------|
| Product Name | : REALMAX-QIAN | Power         | : AC 120V/60Hz |
| Test Mode    | : Mode 3       | Test Site     | : TR-8         |
| Test Date    | : 2019.01.25   | Test Engineer | : Simon        |

| Frequency Band (MHz) | Number of Hopping Frequencies | Limit | Result |
|----------------------|-------------------------------|-------|--------|
| 2400 - 2483.5        | 79                            | >15   | Pass   |

### 2402 - 2480 MHz

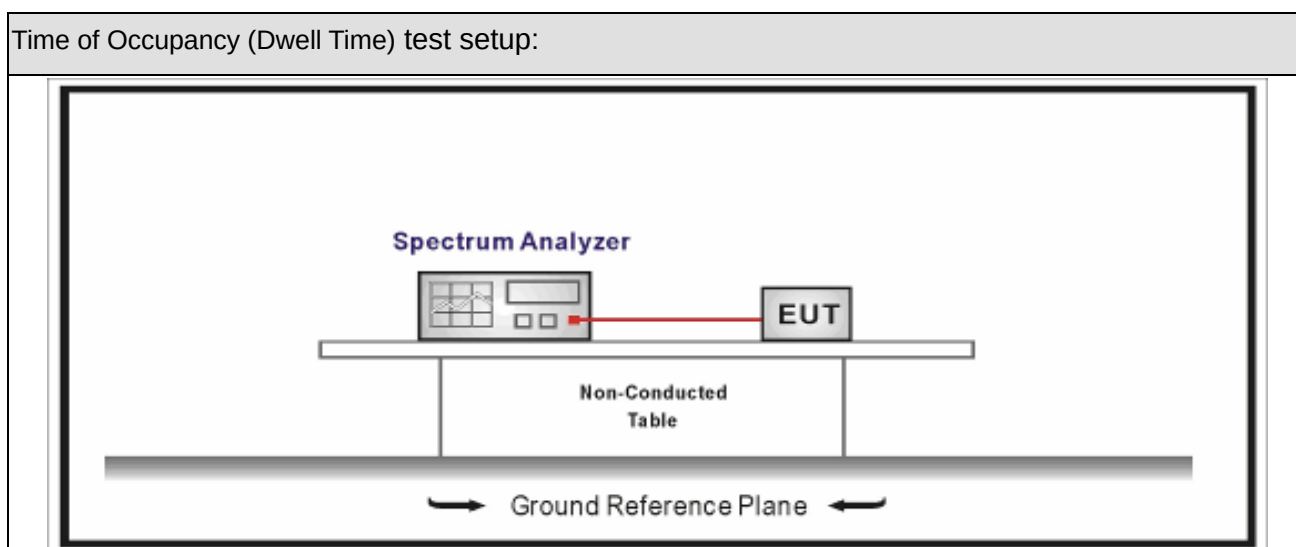


## 8. Time of Occupancy (Dwell Time)

### 8.1. Test Equipment

| Time of Occupancy (Dwell Time) / TR-8                                                                                                    |              |          |            |            |               |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|------------|------------|---------------|
| Instrument                                                                                                                               | Manufacturer | Type No. | Serial No. | Cal. Date  | Cal. Due Date |
| Spectrum Analyzer                                                                                                                        | Agilent      | N9010A   | MY48030494 | 2019.02.04 | 2020.02.03    |
| EXA Spectrum Analyzer                                                                                                                    | Keysight     | N9010A   | MY55370495 | 2018.04.09 | 2019.04.08    |
| MXA Signal Analyzer                                                                                                                      | Keysight     | N9020A   | MY56060147 | 2018.04.09 | 2019.04.08    |
| Temperature/Humidity Meter                                                                                                               | zhichen      | ZC1-2    | TR8-TH     | 2018.04.10 | 2019.04.09    |
| Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. |              |          |            |            |               |

### 8.2. Test Setup



### 8.3. Limit

| Time of Occupancy (Dwell Time)      |                                                                                                                                                                                                                                                                                                              |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.                                               |
| <input type="checkbox"/>            | For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period |
| <input type="checkbox"/>            | For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping                                                                                                                               |

|                          |                                                                                                                                                                                                                                                                                       |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                          | frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.                                                                                                                                                       |
| <input type="checkbox"/> | Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period. |

#### 8.4. Test Procedure

| Test Method                         |                 |         |                                |
|-------------------------------------|-----------------|---------|--------------------------------|
|                                     | References Rule | Chapter | Description                    |
| <input checked="" type="checkbox"/> | ANSI C63.10     | 7.8.4   | Time of Occupancy (Dwell Time) |

#### 8.5. Uncertainty

The measurement uncertainty is defined as  $\pm 0.1 \text{ us}$

## 8.6. Test Result

|              |                    |               |                |
|--------------|--------------------|---------------|----------------|
| Product Name | : REALMAX-QIAN     | Test Voltage  | : AC 120V/60Hz |
| Test Mode    | : Mode 1(GFSK_DH1) | Test Site     | : TR-8         |
| Test Date    | : 2019.03.26       | Test Engineer | : Simon        |

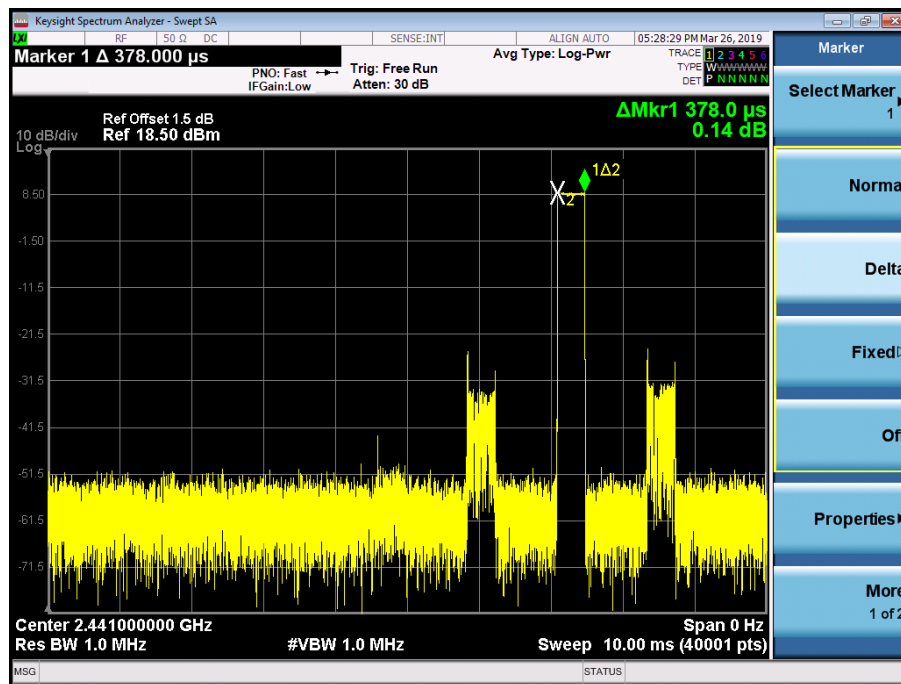
| Channel No. | Frequency (MHz) | Time of Occupancy (ms) | Limit (ms) | Result |
|-------------|-----------------|------------------------|------------|--------|
| 39          | 2441            | 117.18                 | < 400      | Pass   |

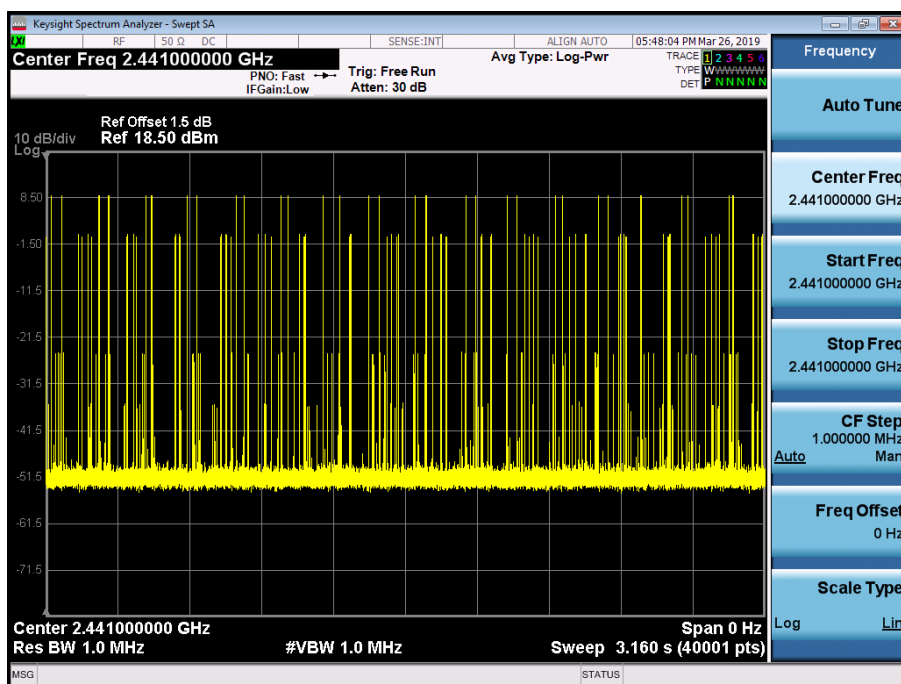
Note1: Test Time Period:  $0.4 \times 79 = 31.6 \text{ sec}$

Note2: Time of Occupancy =  $0.378 \times 31 \times 31.6 / 3.16 = 117.18 \text{ ms}$

Note3: We have evaluated different packet type, shown in the report is the worst data.

### Channel 39 (2441MHz) - (DH1)





|              |                    |               |                |
|--------------|--------------------|---------------|----------------|
| Product Name | : REALMAX-QIAN     | Test Voltage  | : AC 120V/60Hz |
| Test Mode    | : Mode 1(GFSK_DH3) | Test Site     | : TR-8         |
| Test Date    | : 2019.03.26       | Test Engineer | : Simon        |

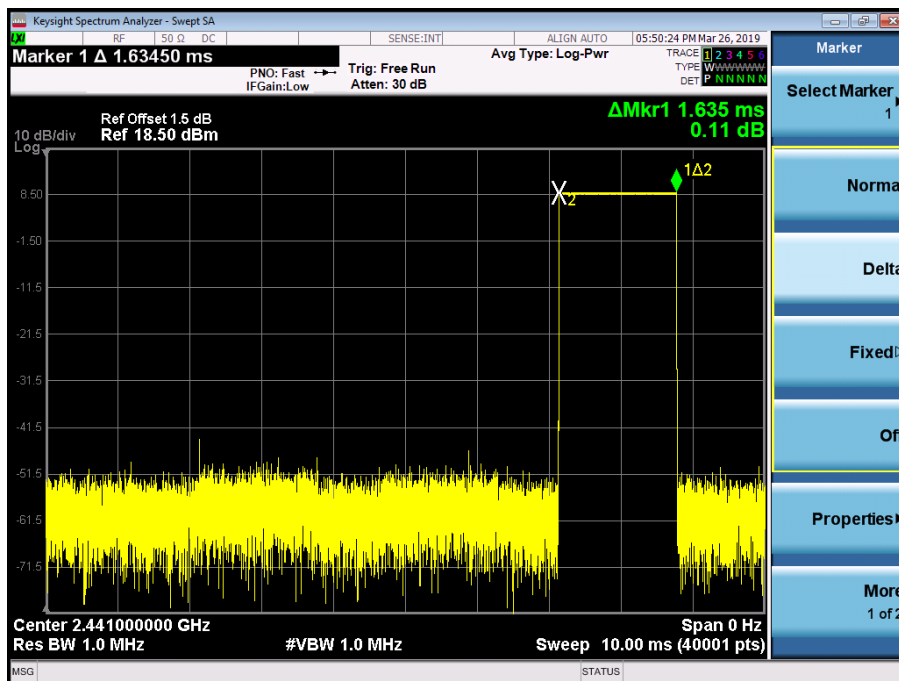
| Channel No. | Frequency (MHz) | Time of Occupancy (ms) | Limit (ms) | Result |
|-------------|-----------------|------------------------|------------|--------|
| 39          | 2441            | 294.30                 | < 400      | Pass   |

Note1: Test Time Period:  $0.4 \times 79 = 31.6 \text{ sec}$

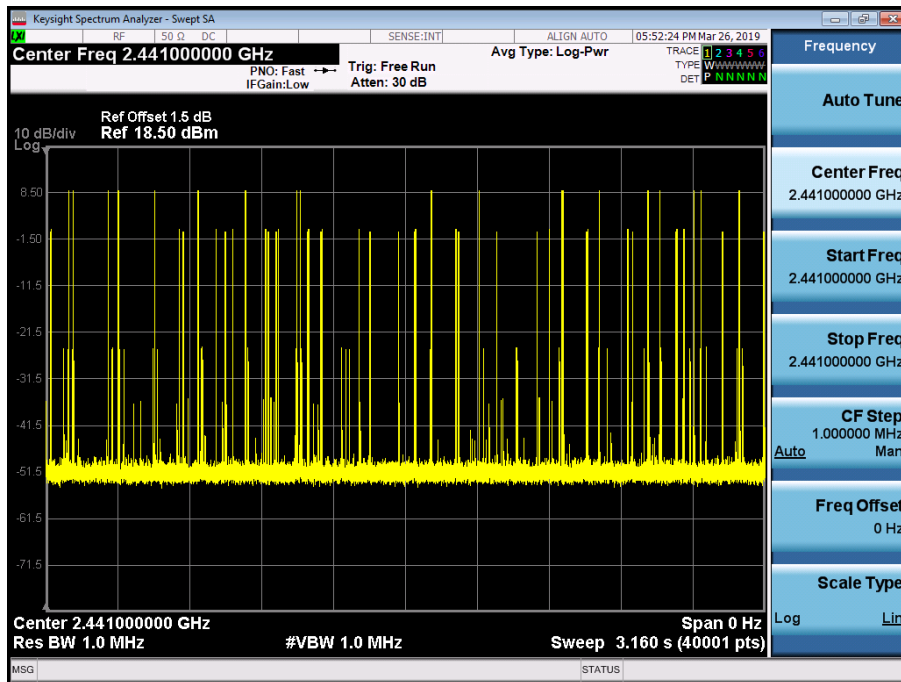
Note2: Time of Occupancy =  $1.635 \times 18 \times 31.6 / 3.16 = 294.30 \text{ ms}$

Note3: We have evaluated different packet type, shown in the report is the worst data.

### Channel 39 (2441MHz) - (DH3)







|              |                    |               |                |
|--------------|--------------------|---------------|----------------|
| Product Name | : REALMAX-QIAN     | Test Voltage  | : AC 120V/60Hz |
| Test Mode    | : Mode 1(GFSK_DH5) | Test Site     | : TR-8         |
| Test Date    | : 2019.03.26       | Test Engineer | : Simon        |

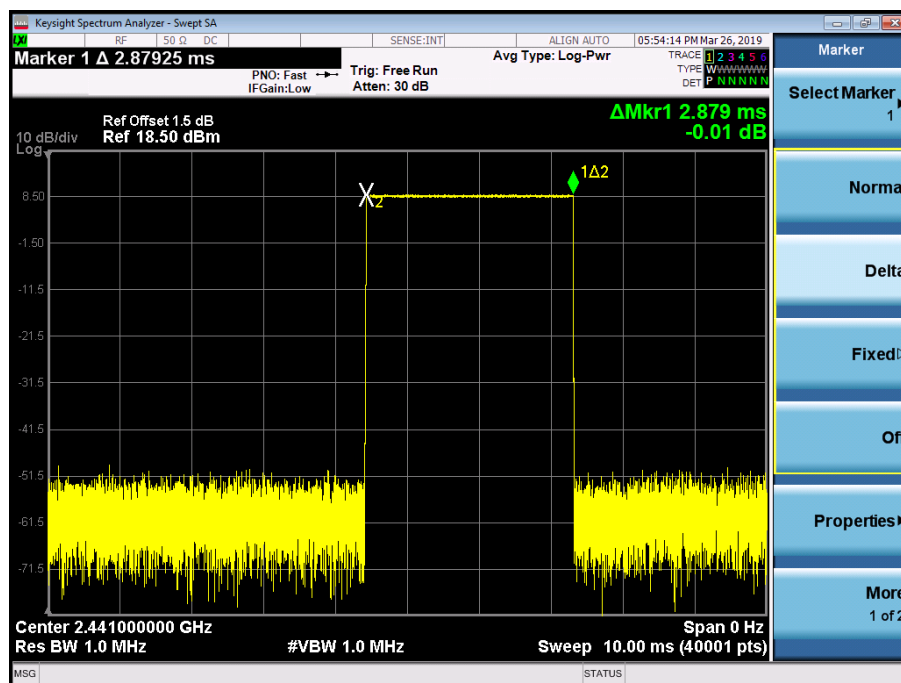
| Channel No. | Frequency (MHz) | Time of Occupancy (ms) | Limit (ms) | Result |
|-------------|-----------------|------------------------|------------|--------|
| 39          | 2441            | 374.27                 | < 400      | Pass   |

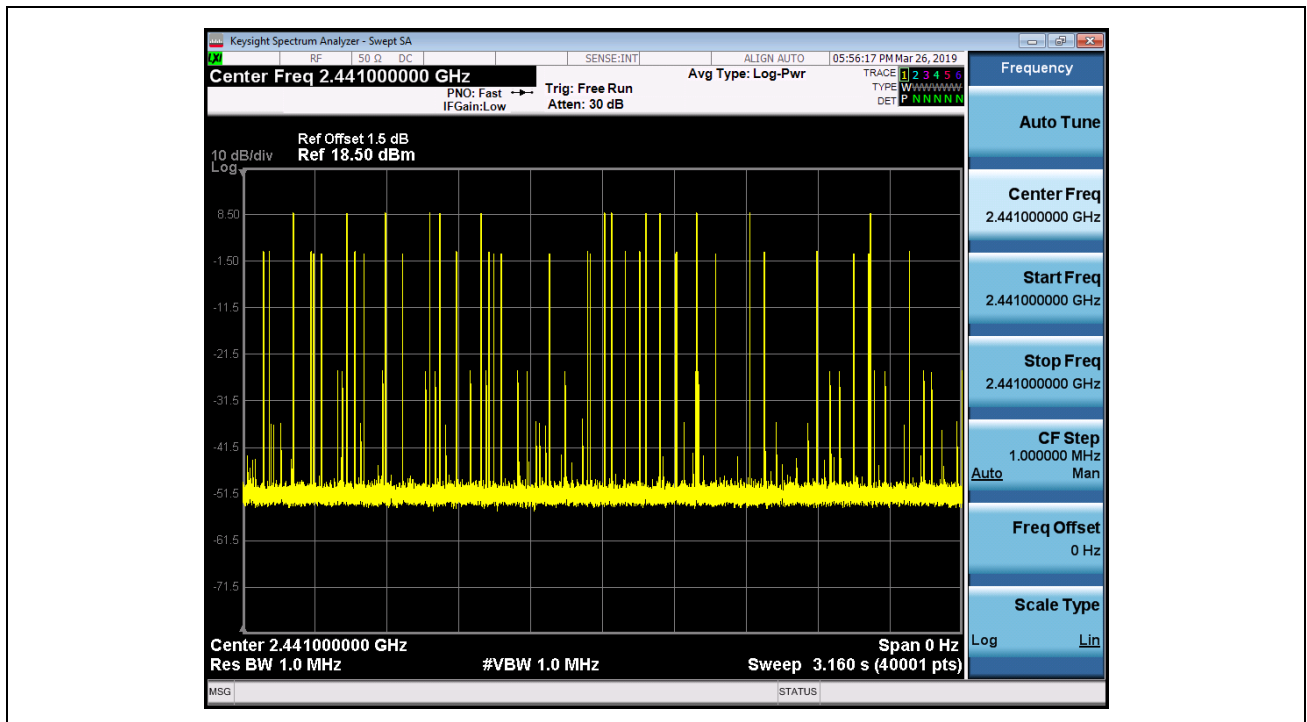
Note1: Test Time Period:  $0.4 \times 79 = 31.6 \text{ sec}$

Note2: Time of Occupancy =  $2.879 \times 13 \times 31.6 / 3.16 = 374.27 \text{ ms}$

Note3: We have evaluated different packet type, shown in the report is the worst data.

### Channel 39 (2441MHz) - (DH5)





Note: The packet time of AFH mode is same as normal mode, due to the packet time of AFH mode multiply with lesser factor is dwell time of  $0.4 \times 20 = 8S$ , the dwell time of AFH mode comply with the limit.

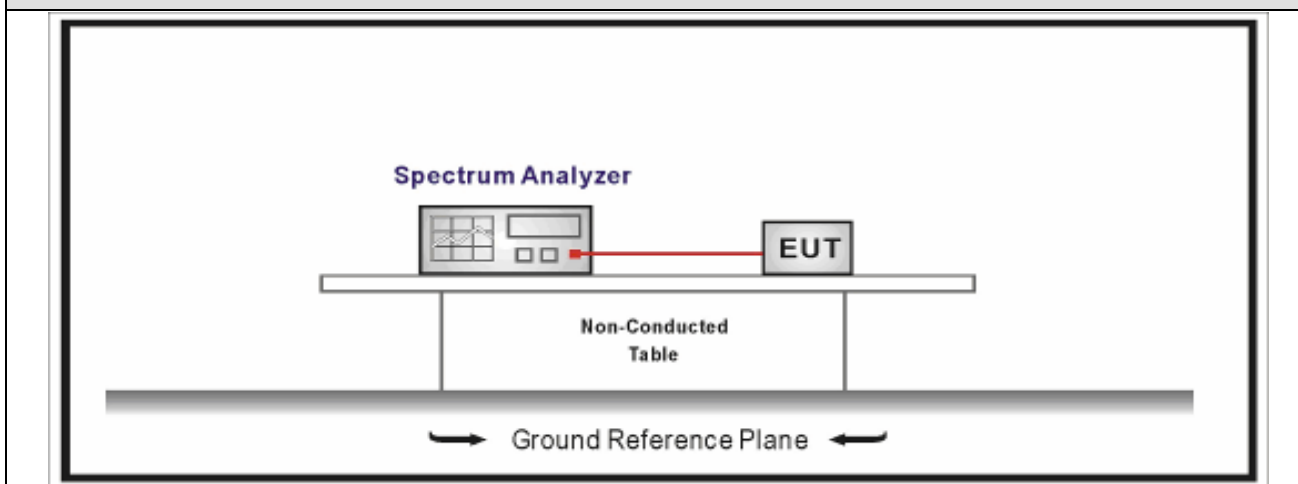
## 9. Peak Output Power

### 9.1. Test Equipment

| Fundamental emission output power/ TR-8                                                                                                  |              |          |            |            |               |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|------------|------------|---------------|
| Instrument                                                                                                                               | Manufacturer | Type No. | Serial No. | Cal. Date  | Cal. Due Date |
| Spectrum Analyzer                                                                                                                        | Agilent      | E4446A   | MY45300103 | 2019.01.04 | 2020.01.03    |
| Spectrum Analyzer                                                                                                                        | Agilent      | N9010A   | MY48030494 | 2019.02.04 | 2020.02.03    |
| Wideband Peak Power Meter                                                                                                                | Anritsu      | ML2495A  | 0905006    | 2018.10.14 | 2019.10.13    |
| Power Sensor                                                                                                                             | Anritsu      | MA2411B  | 0846014    | 2018.10.14 | 2019.10.13    |
| Temperature/Humidity Meter                                                                                                               | zhicheng     | ZC1-2    | TR8-TH     | 2018.04.10 | 2019.04.09    |
| Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. |              |          |            |            |               |

### 9.2. Test Setup

Peak Output Power test setup:



### 9.3. Limit

| Peak Output Power                   |                                                                                                                                                                                                                                                                                                        |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | Frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.                         |
| <input checked="" type="checkbox"/> | Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. |
| <input type="checkbox"/>            | For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels                                                                      |

### 9.4. Test Procedure

| Test Method                         |                 |         |                                                                                  |
|-------------------------------------|-----------------|---------|----------------------------------------------------------------------------------|
|                                     | References Rule | Chapter | Description                                                                      |
| <input checked="" type="checkbox"/> | ANSI C63.10     | 7.8.5   | Output power test procedure for frequency-hopping spread-spectrum (FHSS) devices |

### 9.5. Uncertainty

The measurement uncertainty is defined as  $\pm 1.0$  dB

## 9.6. Test Result

|              |   |              |               |   |              |
|--------------|---|--------------|---------------|---|--------------|
| Product Name | : | REALMAX-QIAN | Power         | : | AC 120V/60Hz |
| Test Mode    | : | Mode 1       | Test Site     | : | TR-8         |
| Test Date    | : | 2019.01.25   | Test Engineer | : | Simon        |

| Channel No. | Frequency<br>(MHz) | Measurement Power Output<br>(dBm) | Limit<br>(dBm) | Result |
|-------------|--------------------|-----------------------------------|----------------|--------|
| 00          | 2402               | 8.08                              | 30.00          | Pass   |
| 39          | 2441               | 8.44                              | 30.00          | Pass   |
| 78          | 2480               | 7.90                              | 30.00          | Pass   |

|              |   |              |               |   |              |
|--------------|---|--------------|---------------|---|--------------|
| Product Name | : | REALMAX-QIAN | Power         | : | AC 120V/60Hz |
| Test Mode    | : | Mode 2       | Test Site     | : | TR-8         |
| Test Date    | : | 2019.01.25   | Test Engineer | : | Simon        |

| Channel No. | Frequency<br>(MHz) | Measurement Power Output<br>(dBm) | Limit<br>(dBm) | Result |
|-------------|--------------------|-----------------------------------|----------------|--------|
| 00          | 2402               | 7.93                              | 21.00          | Pass   |
| 39          | 2441               | 8.42                              | 21.00          | Pass   |
| 78          | 2480               | 7.86                              | 21.00          | Pass   |

|              |   |              |               |   |              |
|--------------|---|--------------|---------------|---|--------------|
| Product Name | : | REALMAX-QIAN | Power         | : | AC 120V/60Hz |
| Test Mode    | : | Mode 3       | Test Site     | : | TR-8         |
| Test Date    | : | 2019.01.25   | Test Engineer | : | Simon        |

| Channel No. | Frequency<br>(MHz) | Measurement Power Output<br>(dBm) | Limit<br>(dBm) | Result |
|-------------|--------------------|-----------------------------------|----------------|--------|
| 00          | 2402               | 8.04                              | 21.00          | Pass   |
| 39          | 2441               | 8.53                              | 21.00          | Pass   |
| 78          | 2480               | 7.84                              | 21.00          | Pass   |

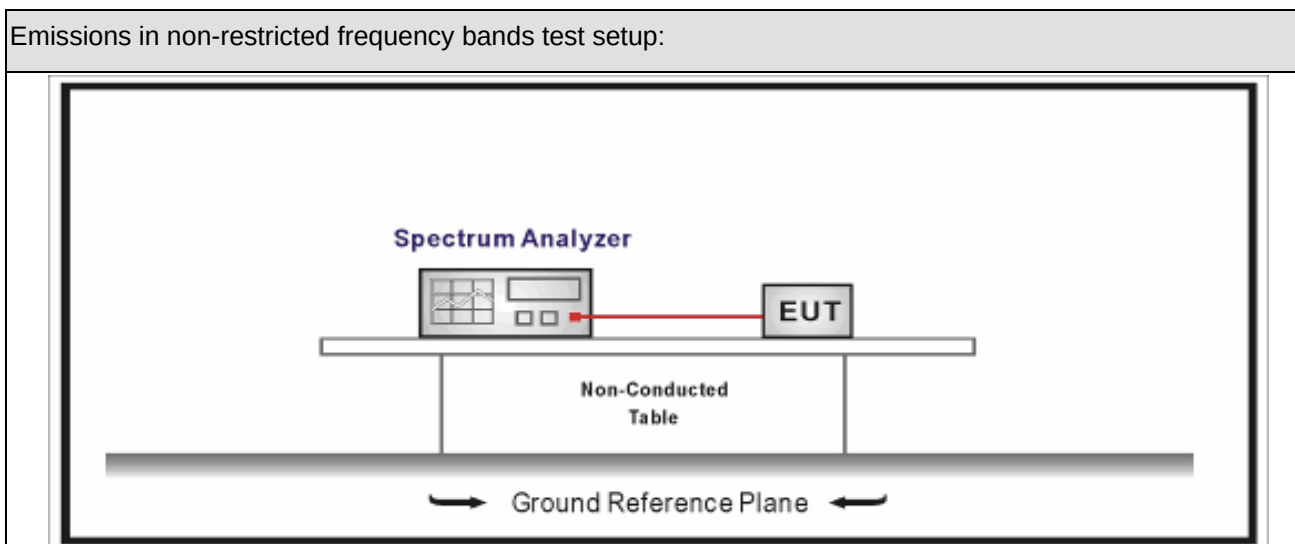


## 10. Emissions in non-restricted frequency bands

### 10.1. Test Equipment

| Emissions in non-restricted frequency bands / TR-8                                                                                       |              |          |            |            |               |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|------------|------------|---------------|
| Instrument                                                                                                                               | Manufacturer | Type No. | Serial No. | Cal. Date  | Cal. Due Date |
| Spectrum Analyzer                                                                                                                        | Agilent      | N9010A   | MY48030494 | 2019.02.04 | 2020.02.03    |
| EXA Spectrum Analyzer                                                                                                                    | Keysight     | N9010A   | MY55370495 | 2018.04.09 | 2019.04.08    |
| MXA Signal Analyzer                                                                                                                      | Keysight     | N9020A   | MY56060147 | 2018.04.09 | 2019.04.08    |
| Temperature/Humidity Meter                                                                                                               | zhichen      | ZC1-2    | TR8-TH     | 2018.04.10 | 2019.04.09    |
| Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. |              |          |            |            |               |

### 10.2. Test Setup



### 10.3. Limit

| Un-Restricted Band Emissions Limit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| RF Output power (Detection methods)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Limit(dB)  |
| RF Output power(Average detector)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 30c(Note1) |
| RF Output power(PK detector)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 20c(Note2) |
| <p>Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc).</p> <p>Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).</p> |            |

### 10.4. Test Procedure

| Test Method                         |                 |         |                                                |
|-------------------------------------|-----------------|---------|------------------------------------------------|
|                                     | References Rule | Chapter | Description                                    |
| <input checked="" type="checkbox"/> | ANSI C63.10     | 7.8.6   | Band-edge Compliance of RF Conducted Emissions |

### 10.5. Uncertainty

The measurement uncertainty is defined as  $\pm 1.0$  dB

## 10.6. Test Result

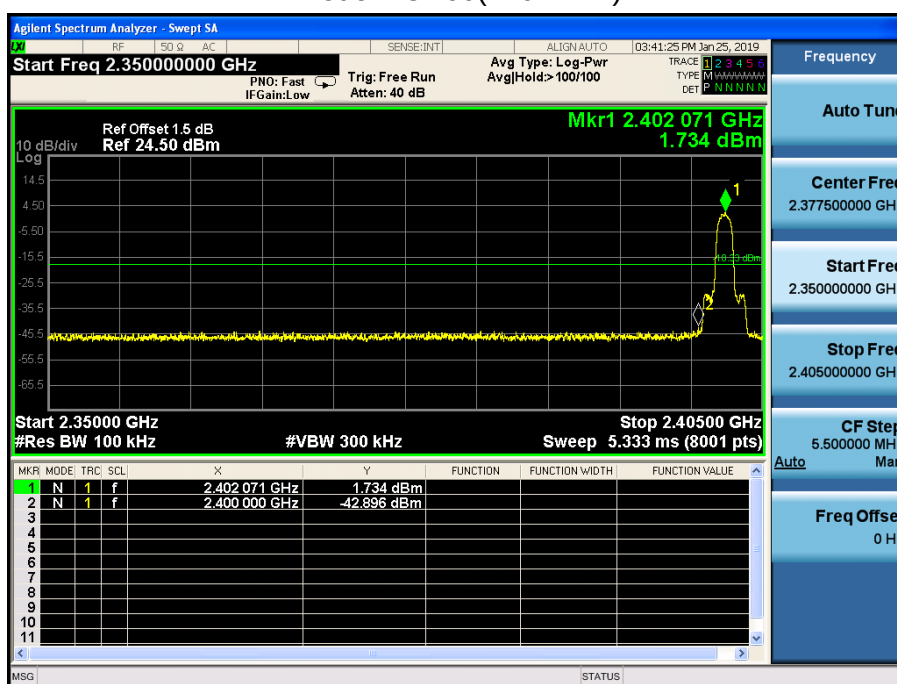
|              |                |               |                |
|--------------|----------------|---------------|----------------|
| Product Name | : REALMAX-QIAN | Power         | : AC 120V/60Hz |
| Test Mode    | : Mode 1~4     | Test Site     | : TR-8         |
| Test Date    | : 2019.01.25   | Test Engineer | : Simon        |

| Mode | Channel | Test Frequency (MHz) | In-Band PSD[a] (dBm/100kHz) | Frequency (MHz) | Out-Band PSD[b] (dBm/100kHz) | [a]-[b] (dB) | Limit (dB) | Result |
|------|---------|----------------------|-----------------------------|-----------------|------------------------------|--------------|------------|--------|
| 1    | 00      | 2402                 | 5.136                       | 2400.00         | -45.336                      | 50.472       | >20        | Pass   |
| 1    | 78      | 2480                 | 4.240                       | 2500.00         | -46.326                      | 50.566       | >20        | Pass   |
| 2    | 00      | 2402                 | 1.734                       | 2400.00         | -42.896                      | 44.630       | >20        | Pass   |
| 2    | 78      | 2480                 | 0.365                       | 2500.00         | -46.769                      | 47.134       | >20        | Pass   |
| 3    | 00      | 2402                 | 1.798                       | 2400.00         | -45.755                      | 47.553       | >20        | Pass   |
| 3    | 78      | 2480                 | 0.323                       | 2500.00         | -45.741                      | 46.064       | >20        | Pass   |
| 4    | 00~78   | 00~78                | 2.797                       | 2400.00         | -46.100                      | 48.897       | >20        | Pass   |

Note1: The worst case of Emissions in non-restricted frequency bands as below:

2: Mode 1-3, The In-Band PSD is the highest PSD of All channels.

Mode 2 CH00(2402MHz)

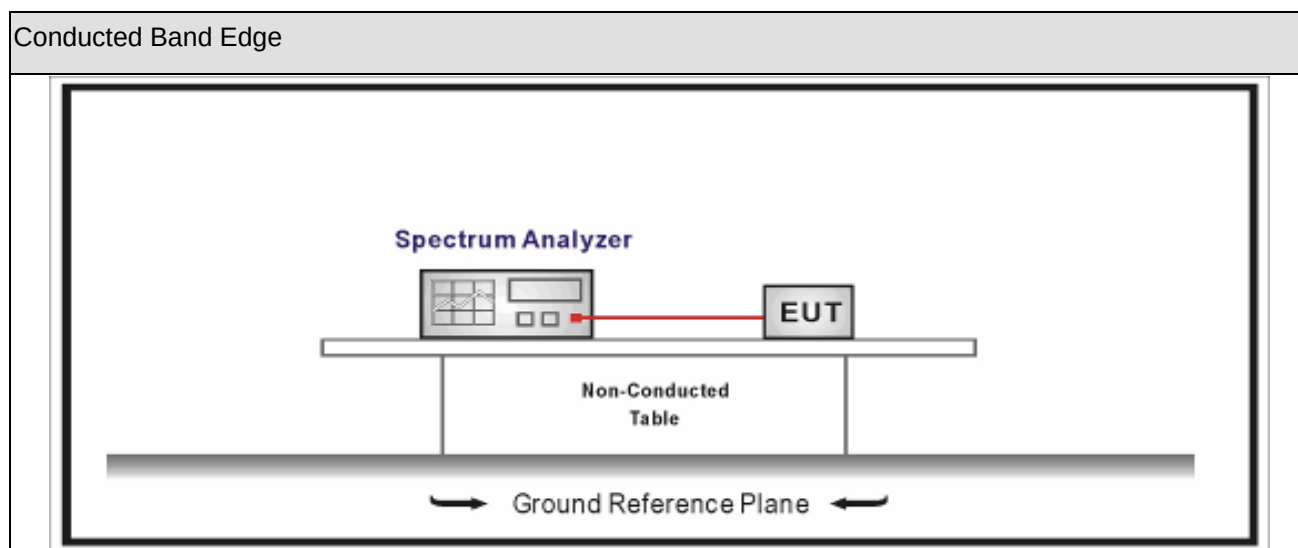


## 11. Conducted Band Edge

### 11.1. Test Equipment

| Conducted Band Edge / TR-8                                                                                                               |              |          |            |            |               |
|------------------------------------------------------------------------------------------------------------------------------------------|--------------|----------|------------|------------|---------------|
| Instrument                                                                                                                               | Manufacturer | Type No. | Serial No. | Cal. Date  | Cal. Due Date |
| Spectrum Analyzer                                                                                                                        | Agilent      | N9010A   | MY48030494 | 2019.02.04 | 2020.02.03    |
| EXA Spectrum Analyzer                                                                                                                    | Keysight     | N9010A   | MY55370495 | 2018.04.09 | 2019.04.08    |
| MXA Signal Analyzer                                                                                                                      | Keysight     | N9020A   | MY56060147 | 2018.04.09 | 2019.04.08    |
| Temperature/Humidity Meter                                                                                                               | zhichen      | ZC1-2    | TR8-TH     | 2018.04.10 | 2019.04.09    |
| Note: All equipment is calibrated with traceable calibrations. Each calibration is traceable to the national or international standards. |              |          |            |            |               |

## 11.2. Test Setup



## 11.3. Limit

| Band edge Limit       |          |                      |           |              |
|-----------------------|----------|----------------------|-----------|--------------|
| Frequency bands (MHz) | Detector | Limit (dB $\mu$ V/m) | RBW (MHz) | Distance (m) |
| 2310-2390             | PK       | 74                   | 1         | 3            |
| 2483.5-2500           | AV       | 54                   | 1         | 3            |

Note: The field strength of emissions appearing within these frequency bands shall not exceed the limits.

#### 11.4. Test Procedure

| Test Method                         |                 |         |                                                                                                  |
|-------------------------------------|-----------------|---------|--------------------------------------------------------------------------------------------------|
|                                     | References Rule | Chapter | Description                                                                                      |
| <input type="checkbox"/>            | ANSI C63.10     | 6.4     | Radiated emissions from unlicensed wireless devices below 30 MHz                                 |
| <input type="checkbox"/>            | ANSI C63.10     | 6.5     | Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz |
| <input type="checkbox"/>            | ANSI C63.10     | 6.6     | Radiated emissions from unlicensed wireless devices above 1 GHz                                  |
| <input checked="" type="checkbox"/> | ANSI C63.10     | 6.7     | Antenna-port conducted emission measurements                                                     |

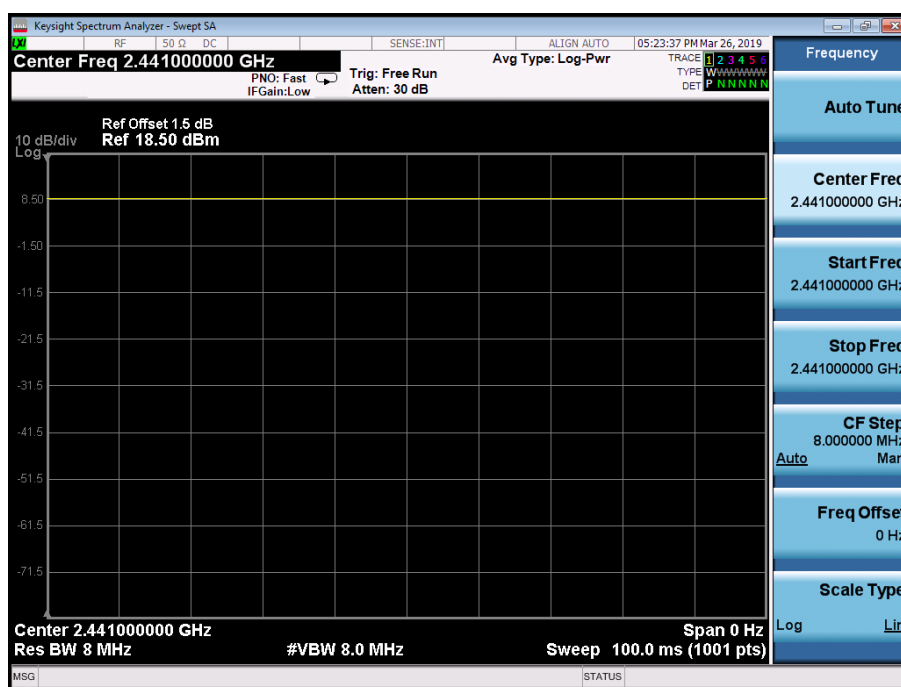
#### 11.5. Uncertainty

The measurement uncertainty is defined as  $\pm 1.27$  dB

## 11.6. Duty Cycle

| Test Mode | Tx On (ms) | Tx Off (ms) | Reduced VBW (Hz) | Tx On + Tx Off (ms) | Duty Cycle |
|-----------|------------|-------------|------------------|---------------------|------------|
| DH5       | N/A        | N/A         | 10               | N/A                 | 100%       |

DH5

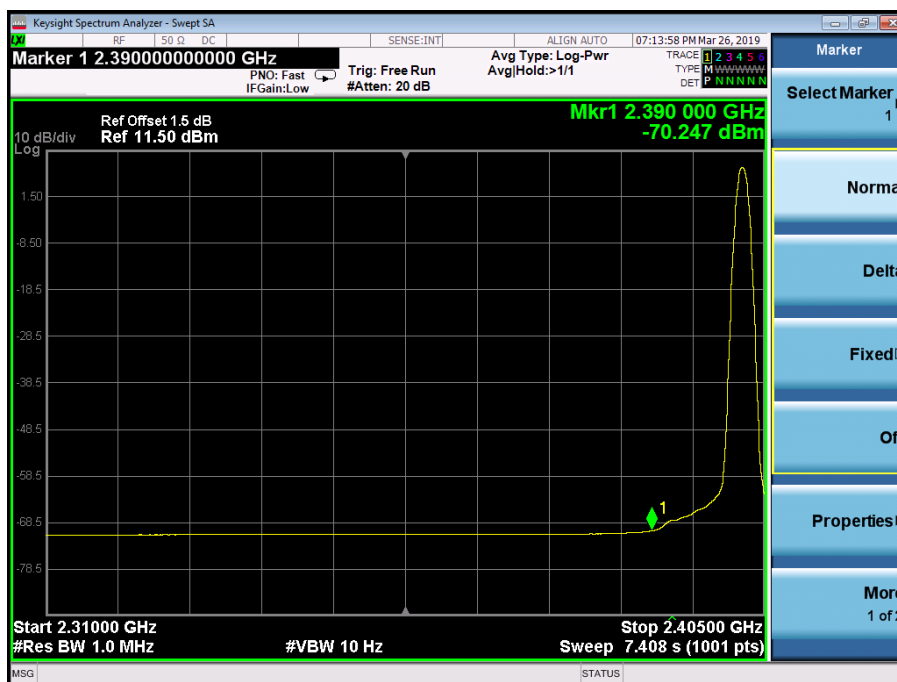
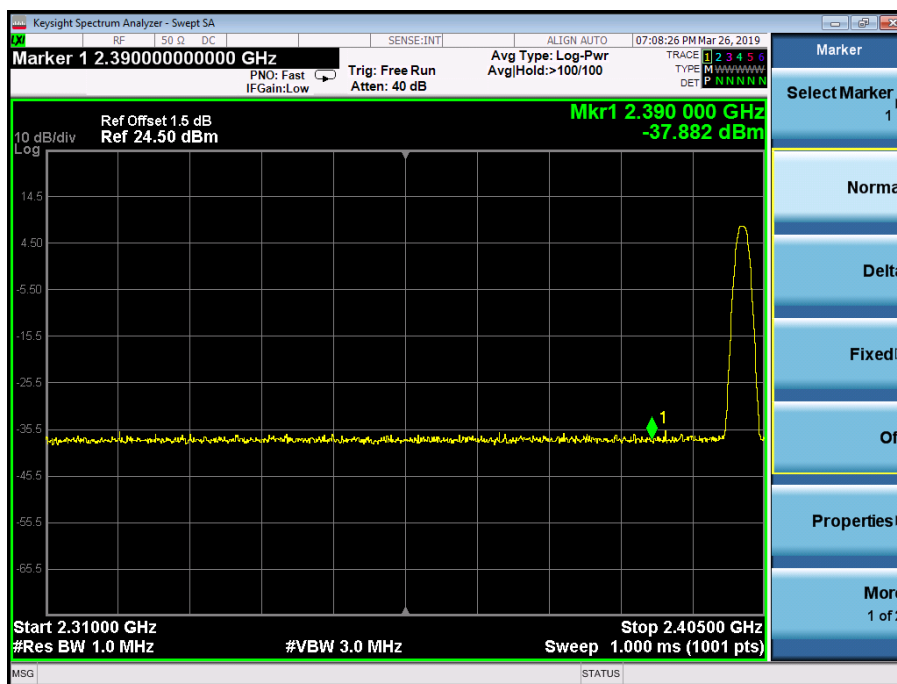


## 11.7. Test Result

PK Limit=74dBuV/m-95.2-0(Antenna Gain) = -21.2dbm

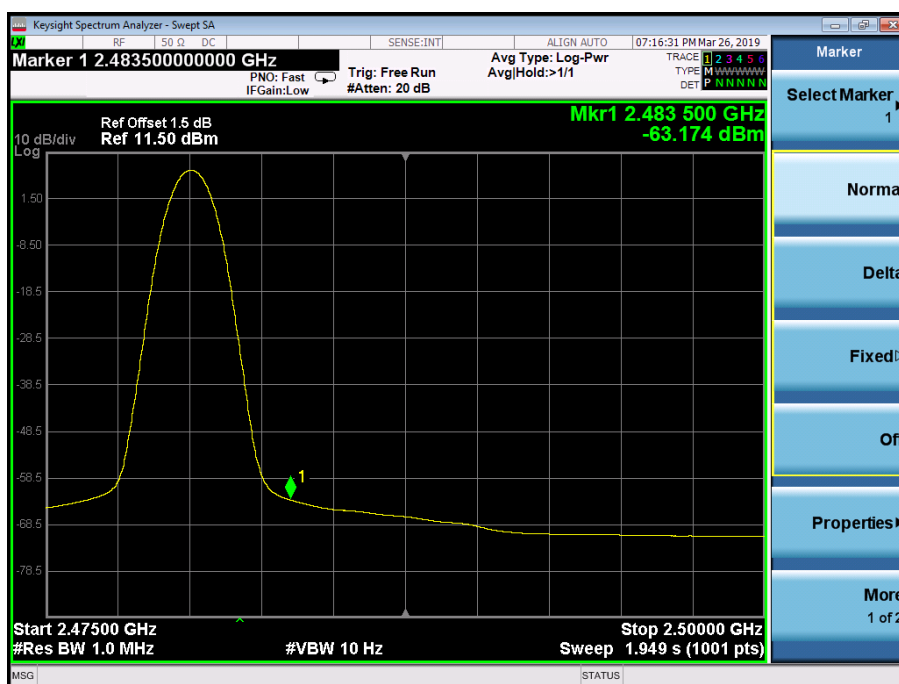
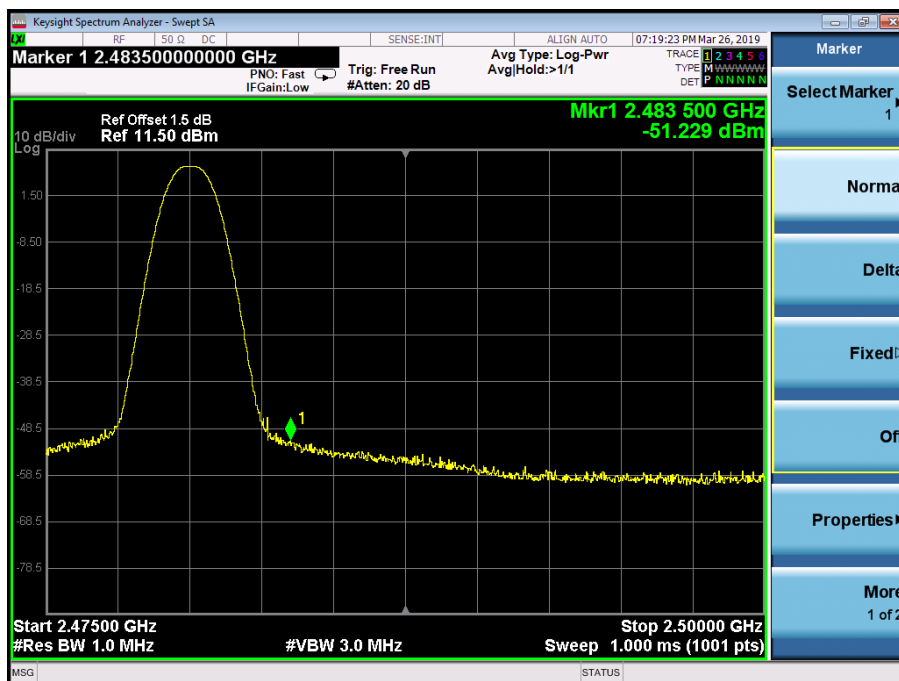
AV Limit=54dBuV/m-95.2-0(Antenna Gain) = -41.2dbm

DH5-2402MHz:

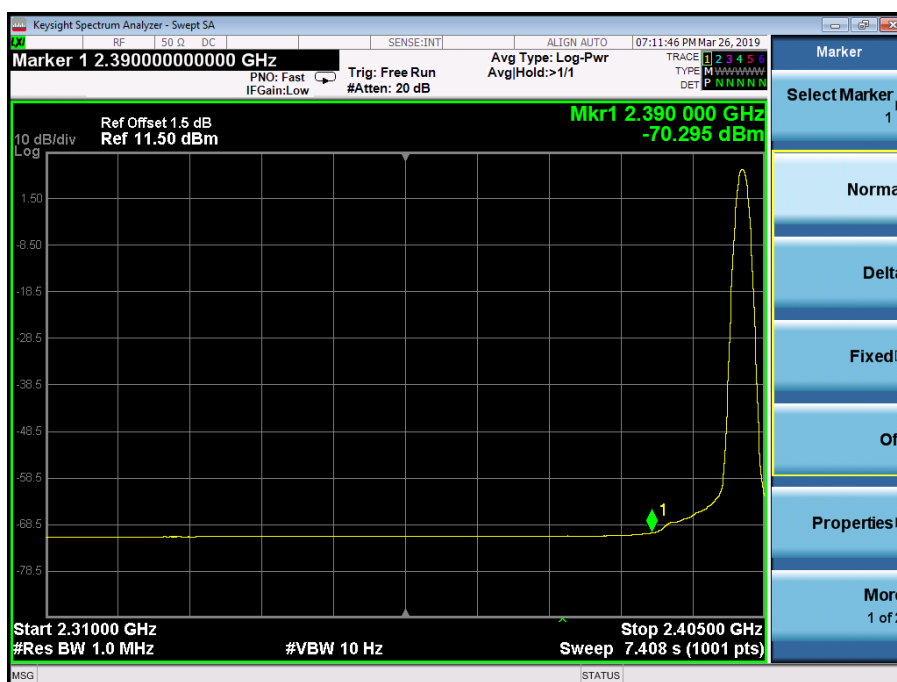
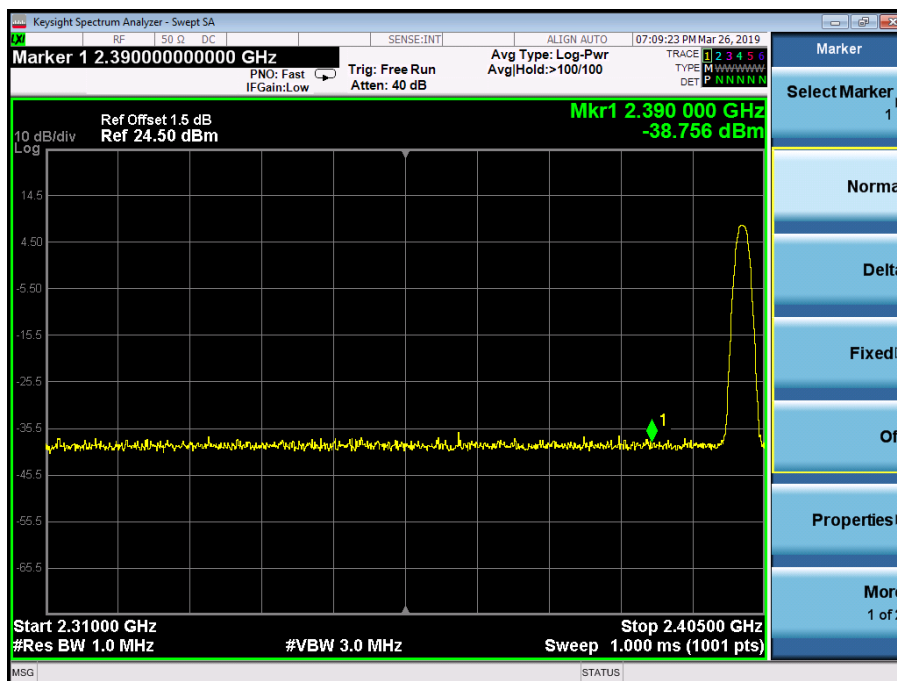




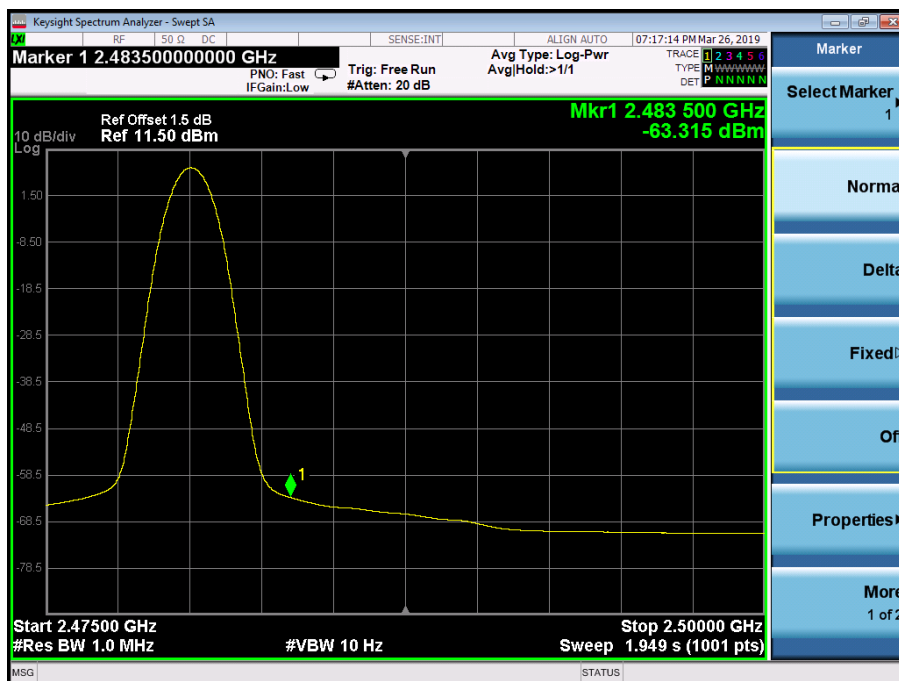
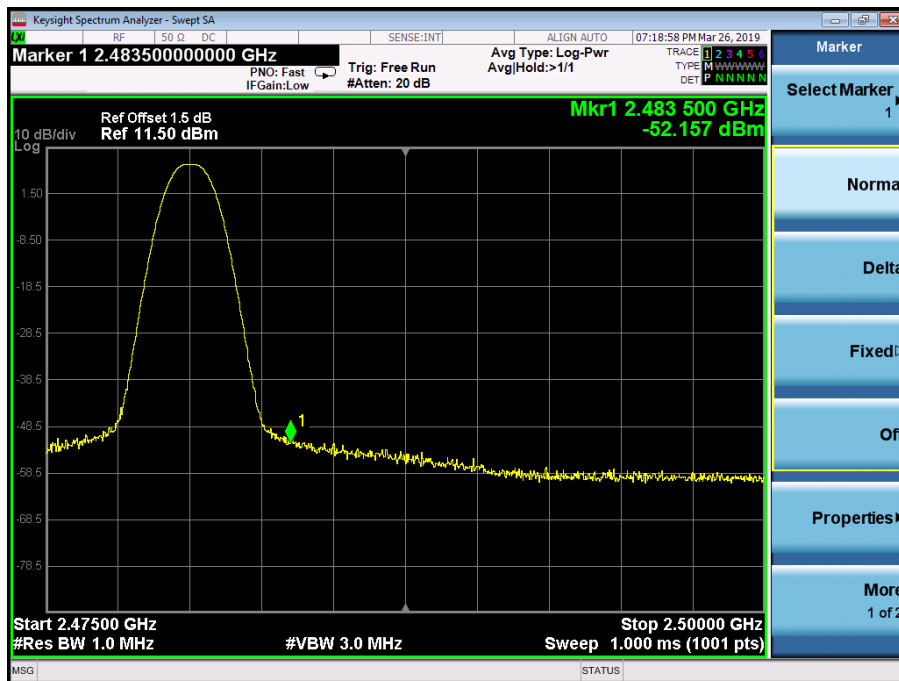
DH5-2480MHz:



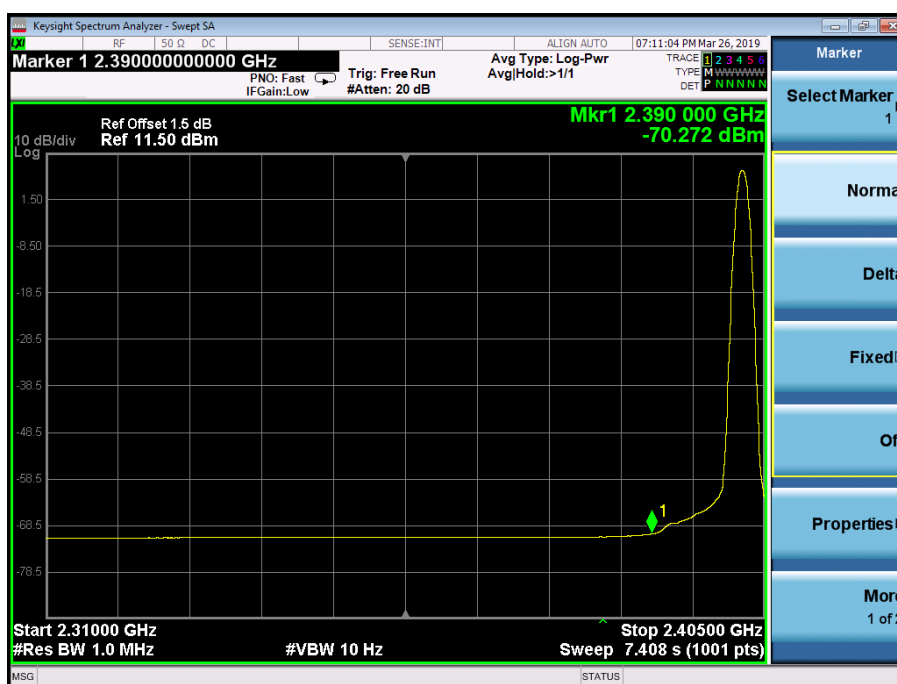
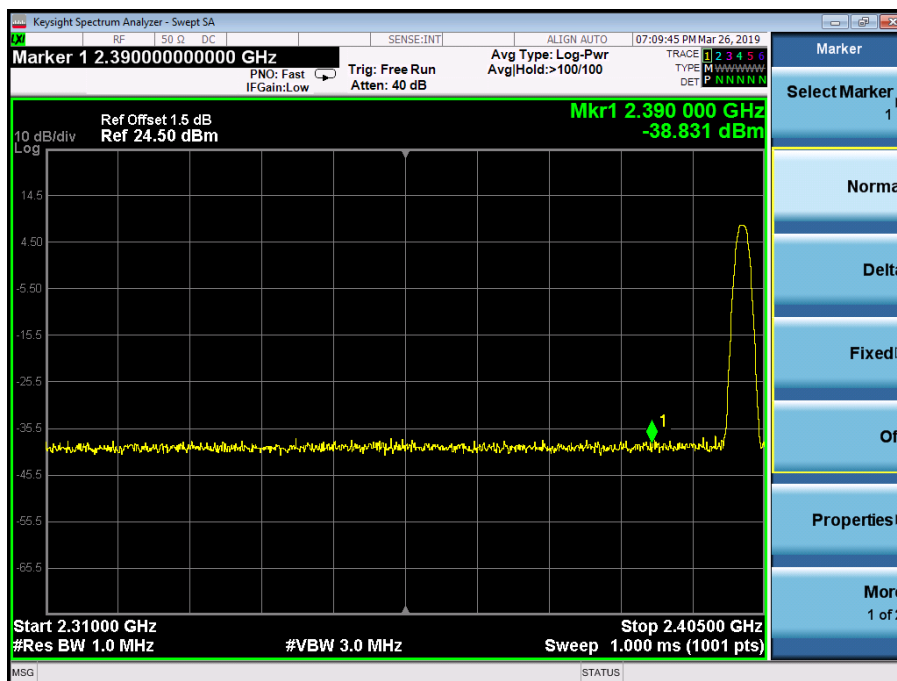
2DH5-2402MHz:



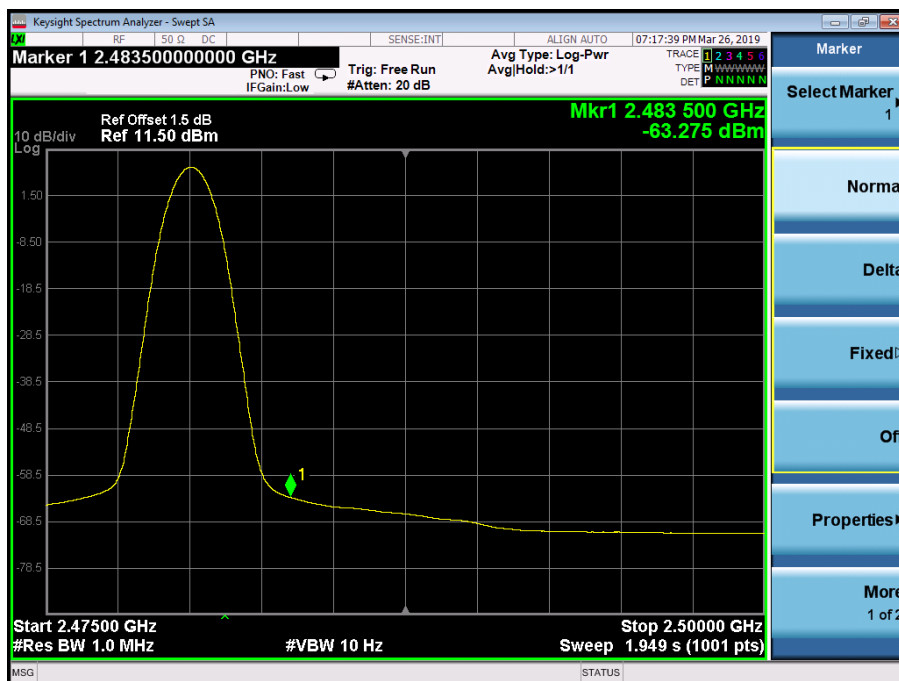
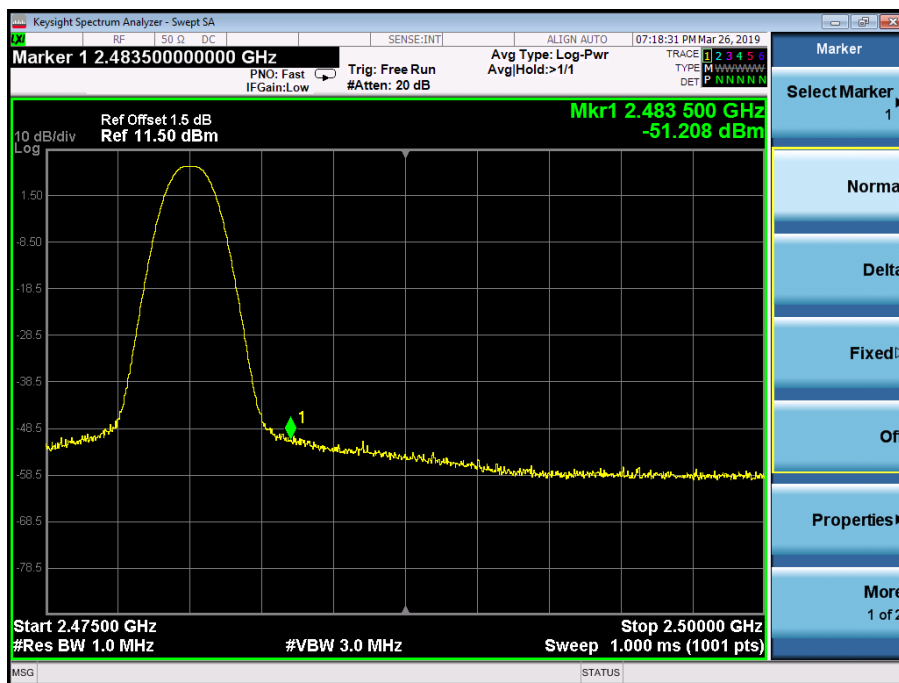
2DH5-2480MHz:



3DH5-2402MHz:



3DH5-2480MHz:



## 12. Antenna Requirement

### 12.1. Limit

| Antenna Requirement Limit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <p>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.</p> |  |

### 12.2. Antenna Connector Construction

| Antenna Connector Construction                                                             |                                                                  |
|--------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| <input checked="" type="checkbox"/>                                                        | The use of a permanently attached antenna                        |
| <input type="checkbox"/>                                                                   | The antenna use of a unique coupling to the intentional radiator |
| <input type="checkbox"/>                                                                   | The use of a nonstandard antenna jack or electrical connector    |
| Please refer to the attached document "Internal Photograph" to show the antenna connector. |                                                                  |

\_\_\_\_\_ The End \_\_\_\_\_