

# **RADIO TEST REPORT**

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## Report No.:STS2301112W04

Issued for

GODOX PHOTO EQUIPMENT CO., LTD

1st to 4th Floor, Building 2/1st to 4th Floor, Building 4, Yaochuan Industrial Zone, Tangwei Community, Fuhai Street, Baoan District, Shenzhen 518103, China

| Product Name:    | KNOWLED RGBWW Pixel Tube Light |
|------------------|--------------------------------|
| Brand:           | Godox                          |
| Model Number:    | TP2R                           |
| Series Model(s): | N/A                            |
| FCC ID:          | 2ABYN084                       |
| Test Standard:   | FCC Part 15.247                |

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APPROV

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## **TEST RESULT CERTIFICATION**

| Applicant's Name:    | GODOX PHOTO EQUIPMENT CO.,LTD   |
|----------------------|---|
| Address              | 1st to 4th Floor, Building 2/1st to 4th Floor, Building 4, Yaochuan<br>Industrial Zone, Tangwei Community, Fuhai Street, Baoan<br>District, Shenzhen 518103, China  |
| Manufacturer's Name: | GODOX Photo Equipment Co.,Ltd.  |
| Address              | 4th Floor of Building 1, 1st to 4th Floor of Building 2, 4th Floor of<br>Building 3, 1st to 4th Floor of Building 4, Yaochuan Industrial<br>Zone, Tangwei Community, Fuhai Street, Bao'an District,<br>Shenzhen 518103, China |
| Product Description  |   |
| Product Name:        | KNOWLED RGBWW Pixel Tube Light  |
| Brand:               | Godox   |
| Model Number:        | TP2R  |
| Series Model(s):     | N/A   |

| Test Procedure: | ANSI C63.10-2013 |
|-----------------|------------------|

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

FCC Part15,247

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Date of Test.....

Test Standards.....

Date of receipt of test item.....: 13 Feb. 2023

Date (s) of performance of tests .: 13 Feb. 2023 ~ 21 Apr. 2023

Date of Issue ..... 21 Apr. 2023

Test Result ..... Pass

Testing Engineer

(Chris Chen)

Technical Manager :

(Sean she)

Authorized Signatory :

(Bovey Yang)

Shenzhen STS Test Services Co., Ltd.

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## **Revision History**

| Rev. | Issue Date   | Report NO.    | Effect Page | Contents      |
|------|--------------|---------------|-------------|---------------|
| 00   | 21 Apr. 2023 | STS2301112W04 | ALL         | Initial Issue |
|      |              |               |             |               |

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## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards: KDB 558074 D01 15.247 Meas Guidance v05r02.

| FCC Part 15.247,Subpart C        |  |          |        |  |
|----------------------------------|--|----------|--------|--|
| Standard<br>Section              | Test Item                                  | Judgment | Remark |  |
| 15.207                           | Conducted Emission                         | PASS     |        |  |
| 15.247(a)(1)                     | Hopping Channel Separation                 | PASS     |        |  |
| 15.247(a)(1)&(b)(1)              | Output Power                               | PASS     |        |  |
| 15.209                           | Radiated Spurious Emission                 | PASS     |        |  |
| 15.247(d)                        | Conducted Spurious & Band Edge<br>Emission | PASS     |        |  |
| 15.247(a)(1)(iii)                | Number of Hopping Frequency                | PASS     |        |  |
| 15.247(a)(1)(iii)                | Dwell Time                                 | PASS     |        |  |
| 15.247(a)(1)                     | Bandwidth                                  | PASS     |        |  |
| 15.205                           | Restricted bands of operation              | PASS     |        |  |
| Part 15.247(d)/part<br>15.209(a) | Band Edge Emission                         | PASS     |        |  |
| 15.203                           | Antenna Requirement                        | PASS     |        |  |

NOTE:

(1) 'N/A' denotes test is not applicable in this Test Report.

(2) All tests are according to ANSI C63.10-2013.



#### 1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD Add. : A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China FCC test Firm Registration Number: 625569 IC test Firm Registration Number: 12108A A2LA Certificate No.: 4338.01

#### 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

| No. | Item                              | Uncertainty |
|-----|-----------------------------------|-------------|
| 1   | RF output power, conducted        | ±1.197dB    |
| 2   | Unwanted Emissions, conducted     | ±2.896dB    |
| 3   | All emissions, radiated 9K-30MHz  | ±3.84dB     |
| 4   | All emissions, radiated 30M-1GHz  | ±3.94dB     |
| 5   | All emissions, radiated 1G-6GHz   | ±4.59dB     |
| 6   | All emissions, radiated>6G        | ±5.22dB     |
| 7   | Conducted Emission (9KHz-150KHz)  | ±2.14dB     |
| 8   | Conducted Emission (150KHz-30MHz) | ±2.54dB     |



## 2. GENERAL INFORMATION

## 2.1 GENERAL DESCRIPTION OF THE EUT

| Product Name            | KNOWLED RGBWW Pixel Tube Light                                 |               |
|-------------------------|--|---------------|
| Brand                   | Godox  |               |
| Model Number            | TP2R   |               |
| Series Model(s)         | N/A  |               |
| Model Difference        | N/A  |               |
|                         | The EUT is a KNOWLED RGBWW Pixel Tube Light                    |               |
|                         | Operation<br>Frequency:  | 2402~2480 MHz |
|                         | Modulation Type:   | GFSK          |
| Product Description     | Number Of<br>Channel:  | 79            |
|                         | Antenna Type:  | FPC           |
|                         | Antenna Gain (dBi)   | 3.77dBi       |
| Channel List            | Please refer to the Note 3.                                    |               |
| Adapter                 | Input: 100-240V~50/60Hz, 1.5A Max<br>Output: DC 20V, 2.4V, 48W |               |
| Battery                 | Rated Voltage: DC 14.4V<br>Charge Limit Voltage: DC 16.8V      |               |
| Dattery                 | Capacity: 3000mAh  |               |
| Hardware version number | 20220907FA01   |               |
| Software version number | V1.0   |               |
| Connecting I/O Port(s)  | Please refer to the Note 1.                                    |               |

Note:

- 1. For a more detailed features description, please refer to the manufacturer's specifications or the User Manual.
- 2. The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report. Due to the incorrect antenna information, a series of problems such as the accuracy of the test results will be borne by the customer.





3.

| Channel List |                    |         |                    |         |                    |
|--------------|--------------------|---------|--------------------|---------|--------------------|
| Channel      | Frequency<br>(MHz) | Channel | Frequency<br>(MHz) | Channel | Frequency<br>(MHz) |
| 01           | 2402               | 28      | 2429               | 55      | 2456               |
| 02           | 2403               | 29      | 2430               | 56      | 2457               |
| 03           | 2404               | 30      | 2431               | 57      | 2458               |
| 04           | 2405               | 31      | 2432               | 58      | 2459               |
| 05           | 2406               | 32      | 2433               | 59      | 2460               |
| 06           | 2407               | 33      | 2434               | 60      | 2461               |
| 07           | 2408               | 34      | 2435               | 61      | 2462               |
| 08           | 2409               | 35      | 2436               | 62      | 2463               |
| 09           | 2410               | 36      | 2437               | 63      | 2464               |
| 10           | 2411               | 37      | 2438               | 64      | 2465               |
| 11           | 2412               | 38      | 2439               | 65      | 2466               |
| 12           | 2413               | 39      | 2440               | 66      | 2467               |
| 13           | 2414               | 40      | 2441               | 67      | 2468               |
| 14           | 2415               | 41      | 2442               | 68      | 2469               |
| 15           | 2416               | 42      | 2443               | 69      | 2470               |
| 16           | 2417               | 43      | 2444               | 70      | 2471               |
| 17           | 2418               | 44      | 2445               | 71      | 2472               |
| 18           | 2419               | 45      | 2446               | 72      | 2473               |
| 19           | 2420               | 46      | 2447               | 73      | 2474               |
| 20           | 2421               | 47      | 2448               | 74      | 2475               |
| 21           | 2422               | 48      | 2449               | 75      | 2476               |
| 22           | 2423               | 49      | 2450               | 76      | 2477               |
| 23           | 2424               | 50      | 2451               | 77      | 2478               |
| 24           | 2425               | 51      | 2452               | 78      | 2479               |
| 25           | 2426               | 52      | 2453               | 79      | 2480               |
| 26           | 2427               | 53      | 2454               |         |                    |
| 27           | 2428               | 54      | 2455               |         |                    |



#### 2.2 DESCRIPTION OF THE TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Worst Mode | Description      | Data/Modulation |
|------------|------------------|-----------------|
| Mode 1     | TX CH01(2402MHz) | 1 Mbps/GFSK     |
| Mode 2     | TX CH39(2440MHz) | 1 Mbps/GFSK     |
| Mode 3     | TX CH79(2480MHz) | 1 Mbps/GFSK     |

Note:

(1) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported.

(2) We tested for all available U.S. voltage and frequencies (For 120V, 50/60Hz and 240V, 50/60Hz) for which the device is capable of operation, and the worst case of 120V/ 60Hz is shown in the report.

(3) The battery is fully-charged during the radiated and RF conducted test.

For AC Conducted Emission

|                       | Test Case                |
|-----------------------|--------------------------|
| AC Conducted Emission | Mode 4 : Keeping 2.4G TX |

#### 2.3 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING

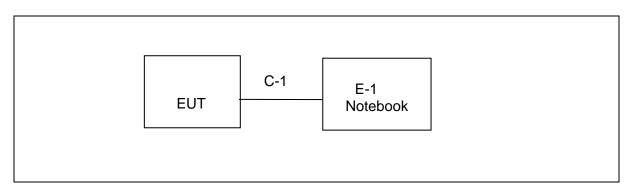
During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of FHSS.

| RF Function | Туре | Mode Or<br>Modulation type | ANT<br>Gain(dBi) | Power<br>Class | Software For Testing  |
|-------------|------|----------------------------|------------------|----------------|---|
| Other SRD   | 2.4G | GFSK                       | 3.77             | Default_6      | The EUT has signal<br>transmission when it is<br>powered on |

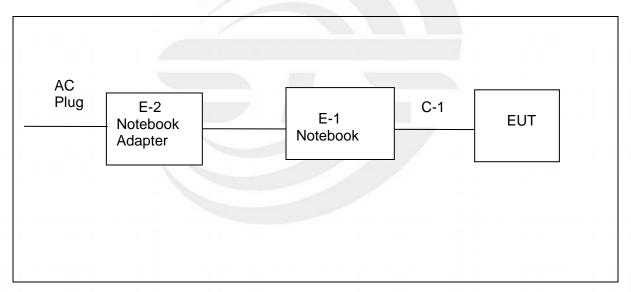


## 2.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

## Radiated Spurious Emission Test



#### **Conducted Emission Test**





#### 2.5 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment | Mfr/Brand | Model/Type No. | Length | Note |
|------|-----------|-----------|----------------|--------|------|
| N/A  | N/A       | N/A       | N/A            | N/A    | N/A  |
|      |           |           |                |        |      |
|      |           |           |                |        |      |
|      |           |           |                |        |      |

#### Support units

| Item | Equipment        | Mfr/Brand | Model/Type No. | Length | Note |
|------|------------------|-----------|----------------|--------|------|
| E-2  | Notebook Adapter | LENOVO    | ADLX45DLC3A    | N/A    | N/A  |
| E-1  | Notebook         | LENOVO    | Think Pad E470 | N/A    | N/A  |
| C-1  | USB Cable        | N/A       | N/A            | 150cm  | NO   |
|      |                  |           |                |        |      |

Note:

- (1) For detachable type I/O cable should be specified the length in cm in <sup>[]</sup>Length<sub>.</sub> column.
- (2) "YES" is means "with core"; "NO" is means "without core".



## 2.6 EQUIPMENTS LIST

|                                   |                     | RF Radiation Tes | t Equipment     |                     |                     |
|-----------------------------------|---------------------|------------------|-----------------|---------------------|---------------------|
| Kind of Equipment                 | Manufacturer        | Type No.         | Serial No.      | Last<br>Calibration | Calibrated<br>Until |
| Temperature &<br>Humidity         | SW-108              | SuWei            | N/A             | 2023.03.03          | 2024.03.02          |
| Pre-Amplifier<br>(0.1M-3GHz)      | EM                  | EM330            | 060665          | 2022.07.04          | 2023.07.03          |
| Pre-Amplifier<br>(1G-18GHz)       | SKET                | LNPA-01018G-45   | SK2018080901    | 2022.09.29          | 2023.09.28          |
| 18GHz-40GHz<br>Filter             | XINGBO              | XBLBQ-GTA44      | 22062003-1      | 2023.03.06          | 2024.03.05          |
| Pre-mplifier<br>(18G-40G)         | SKET                | LNPA_1840-50     | SK2018101801    | 2023.03.06          | 2024.03.05          |
| Positioning<br>Controller         | MF                  | MF-7802          | MF-780208587    | N/A                 | N/A                 |
| Signal Analyzer                   | R&S                 | FSV 40-N         | 101823          | 2022.09.29          | 2023.09.28          |
| Switch Control Box                | N/A                 | N/A              | N/A             | N/A                 | N/A                 |
| Filter Box                        | BALUN<br>Technology | SU319E           | BL-SZ1530051    | N/A                 | N/A                 |
| Active loop<br>Antenna            | ZHINAN              | ZN30900C         | 16035           | 2023.02.28          | 2024.02.27          |
| Bilog Antenna                     | TESEQ               | CBL6111D         | 34678           | 2022.09.30          | 2024.09.29          |
| Horn Antenna                      | SCHWARZBE<br>CK     | BBHA 9120D       | 02014           | 2021.10.11          | 2023.10.10          |
| Horn Antenna                      | A-INFOMW            | LB-180400-KF     | J211020657      | 2021.09.28          | 2023.09.27          |
| Antenna Mast                      | MF                  | MFA-440H         | N/A             | N/A                 | N/A                 |
| Turn Table                        | MF                  | SC100_1          | 60531           | N/A                 | N/A                 |
| AC Power Source                   | APC                 | KDF-11010G       | F214050035      | N/A                 | N/A                 |
| DC Power Supply                   | Zhaoxin             | RXN 605D         | 20R605D11010081 | N/A                 | N/A                 |
| Test SW                           | EZ-EMC              |                  | Ver.STSLAB-03A  | 1 RE                |                     |
|                                   |                     | Conduction Test  | equipment       |                     |                     |
| Kind of Equipment                 | Manufacturer        | Type No.         | Serial No.      | Last calibration    | Calibrated<br>until |
| Test Receiver                     | R&S                 | ESCI             | 101427          | 2022.09.29          | 2023.09.28          |
| LISN                              | R&S                 | ENV216           | 101242          | 2022.09.28          | 2023.09.27          |
| LISN                              | EMCO                | 3810/2NM         | 23625           | 2022.09.28          | 2023.09.27          |
| Temperature &<br>Humidity         | HH660               | Mieo             | N/A             | 2022.09.30          | 2023.09.29          |
| Test SW EZ-EMC Ver.STSLAB-03A1 CE |                     |                  |                 |                     |                     |
|                                   |                     | RF Connect       | ed Test         |                     |                     |
| Kind of Equipment                 | Manufacturer        | Type No.         | Serial No.      | Last calibration    | Calibrated<br>until |
| Signal Analyzer                   | Agilent             | N9020A           | MY51510623      | 2023.03.01          | 2024.02.28          |
| Switch control box                | MW                  | MW100-RFCB       | N/A             | N/A                 | N/A                 |
| Temperature &<br>Humidity         | HH660               | Mieo             | N/A             | 2022.09.30          | 2023.09.29          |
| Test SW                           | MW                  |                  | MTS 8310_2.0    | .0.0                |                     |

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#### 3. EMC EMISSION TEST

## 3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table.

|                 | Conducted Emissionlimit (dBuV) |           |  |
|-----------------|--------------------------------|-----------|--|
| FREQUENCY (MHz) | Quasi-peak                     | Average   |  |
| 0.15 -0.5       | 66 - 56 *                      | 56 - 46 * |  |
| 0.50 -5.0       | 56.00                          | 46.00     |  |
| 5.0 -30.0       | 60.00                          | 50.00     |  |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of "\*" marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

#### The following table is the setting of the receiver

| Receiver Parameters | Setting  |
|---------------------|----------|
| Attenuation         | 10 dB    |
| Start Frequency     | 0.15 MHz |
| Stop Frequency      | 30 MHz   |
| IF Bandwidth        | 9 kHz    |



#### 3.1.2 TEST PROCEDURE

- a. The EUT is 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments are powered from additional LISN(s). The LISN provides 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN is at least 80 cm from the nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.
  - Vertical Reference Ground Plane EUT 40cm EUT 80cm N Horizontal Reference Ground Plane

#### 3.1.3 TEST SETUP

Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm

from other units and other metal planes support units.

#### 3.1.4 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



## 3.1.5 TEST RESULT

| Temperature:  | 21.7(C)      | Relative Humidity: | 42%RH |
|---------------|--------------|--------------------|-------|
| Test Voltage: | AC 120V/60Hz | Phase:             | L     |
| Test Mode:    | Mode 4       |                    |       |

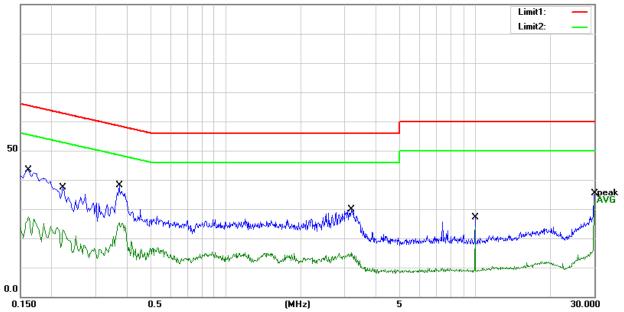
| No. | Frequency | Reading | Correct    | Result | Limit  | Margin | Remark |
|-----|-----------|---------|------------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV)  | Factor(dB) | (dBuV) | (dBuV) | (dB)   |        |
| 1   | 0.1620    | 33.15   | 10.33      | 43.48  | 65.36  | -21.88 | QP     |
| 2   | 0.1620    | 17.09   | 10.33      | 27.42  | 55.36  | -27.94 | AVG    |
| 3   | 0.2220    | 27.03   | 10.41      | 37.44  | 62.74  | -25.30 | QP     |
| 4   | 0.2220    | 13.83   | 10.41      | 24.24  | 52.74  | -28.50 | AVG    |
| 5   | 0.3740    | 27.60   | 10.59      | 38.19  | 58.41  | -20.22 | QP     |
| 6   | 0.3740    | 14.84   | 10.59      | 25.43  | 48.41  | -22.98 | AVG    |
| 7   | 3.1740    | 19.46   | 10.36      | 29.82  | 56.00  | -26.18 | QP     |
| 8   | 3.1740    | 4.86    | 10.36      | 15.22  | 46.00  | -30.78 | AVG    |
| 9   | 9.9980    | 15.86   | 11.20      | 27.06  | 60.00  | -32.94 | QP     |
| 10  | 9.9980    | 12.75   | 11.20      | 23.95  | 50.00  | -26.05 | AVG    |
| 11  | 30.0000   | 22.55   | 12.94      | 35.49  | 60.00  | -24.51 | QP     |
| 12  | 30.0000   | 20.03   | 12.94      | 32.97  | 50.00  | -17.03 | AVG    |

#### Remark:

1. All readings are Quasi-Peak and Average values

2. Margin = Result (Result = Reading + Factor )-Limit

3. Factor=LISN factor+Cable loss+Limiter (10dB)



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| Temperature:  | 21.7(C)      | Relative Humidity: | 42%RH |
|---------------|--------------|--------------------|-------|
| Test Voltage: | AC 120V/60Hz | Phase:             | Ν     |
| Test Mode:    | Mode 4       |                    |       |

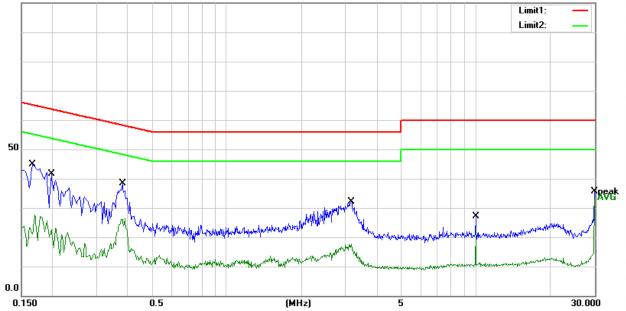
| No. | Frequency | Reading | Correct    | Result | Limit  | Margin | Remark |
|-----|-----------|---------|------------|--------|--------|--------|--------|
|     | (MHz)     | (dBuV)  | Factor(dB) | (dBuV) | (dBuV) | (dB)   |        |
| 1   | 0.1660    | 34.53   | 10.33      | 44.86  | 65.16  | -20.30 | QP     |
| 2   | 0.1660    | 17.32   | 10.33      | 27.65  | 55.16  | -27.51 | AVG    |
| 3   | 0.1980    | 31.11   | 10.40      | 41.51  | 63.69  | -22.18 | QP     |
| 4   | 0.1980    | 12.68   | 10.40      | 23.08  | 53.69  | -30.61 | AVG    |
| 5   | 0.3820    | 27.73   | 10.61      | 38.34  | 58.24  | -19.90 | QP     |
| 6   | 0.3820    | 15.88   | 10.61      | 26.49  | 48.24  | -21.75 | AVG    |
| 7   | 3.1620    | 21.75   | 10.45      | 32.20  | 56.00  | -23.80 | QP     |
| 8   | 3.1620    | 7.23    | 10.45      | 17.68  | 46.00  | -28.32 | AVG    |
| 9   | 9.9980    | 16.29   | 10.92      | 27.21  | 60.00  | -32.79 | QP     |
| 10  | 9.9980    | 12.14   | 10.92      | 23.06  | 50.00  | -26.94 | AVG    |
| 11  | 29.9980   | 22.47   | 13.18      | 35.65  | 60.00  | -24.35 | QP     |
| 12  | 29.9980   | 20.17   | 13.18      | 33.35  | 50.00  | -16.65 | AVG    |

#### Remark:

1. All readings are Quasi-Peak and Average values

- 2. Margin = Result (Result = Reading + Factor )–Limit
- 3. Factor=LISN factor+Cable loss+Limiter (10dB)

100.0 dBu¥



Shenzhen STS Test Services Co., Ltd.



#### 3.2 RADIATED EMISSION MEASUREMENT

#### 3.2.1 RADIATED EMISSION LIMITS

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205 (a)&209(a) limit in the table and according to ANSI C63.10-2013 below has to be followed.

#### LIMITS OF RADIATED EMISSION MEASUREMENT (0.009MHz - 1000MHz)

| Frequencies | Field Strength     | Measurement Distance |
|-------------|--------------------|----------------------|
| (MHz)       | (micorvolts/meter) | (meters)             |
| 0.009~0.490 | 2400/F(KHz)        | 300                  |
| 0.490~1.705 | 24000/F(KHz)       | 30                   |
| 1.705~30.0  | 30                 | 30                   |
| 30~88       | 100                | 3                    |
| 88~216      | 150                | 3                    |
| 216~960     | 200                | 3                    |
| Above 960   | 500                | 3                    |

LIMITS OF RADIATED EMISSION MEASUREMENT (1GHz-25 GHz)

| FREQUENCY (MHz) | (dBuV/m) (at 3M) |         |  |
|-----------------|------------------|---------|--|
|                 | PEAK             | AVERAGE |  |
| Above 1000      | 74               | 54      |  |

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

#### LIMITS OF RESTRICTED FREQUENCY BANDS

| FREQUENCY (MHz)     | FREQUENCY (MHz)   | FREQUENCY (GHz)   |
|---------------------|---|---|
| 16.42-16.423        | 399.9-410   | 4.5-5.15  |
| 16.69475-16.69525   | 608-614   | 5.35-5.46   |
| 16.80425-16.80475   | 960-1240  | 7.25-7.75   |
| 25.5-25.67          | 1300-1427   | 8.025-8.5   |
| 37.5-38.25          | 1435-1626.5   | 9.0-9.2   |
| 73-74.6             | 1645.5-1646.5   | 9.3-9.5   |
| 74.8-75.2           | 1660-1710   | 10.6-12.7   |
| 108-121.94          | 1718.8-1722.2   | 13.25-13.4  |
| 123-138             | 2200-2300   | 14.47-14.5  |
| 149.9-150.05        | 2310-2390   | 15.35-16.2  |
| 156.52475-156.52525 | 2483.5-2500   | 17.7-21.4   |
| 156.7-156.9         | 2690-2900   | 22.01-23.12   |
| 162.0125-167.17     | 3260-3267   | 23.6-24.0   |
| 167.72-173.2        | 3332-3339   | 31.2-31.8   |
| 240-285             | 3345.8-3358   | 36.43-36.5  |
| 322-335.4           | 3600-4400   | Above 38.6  |
|                     |   |   |
|                     | 16.42-16.423           16.69475-16.69525           16.80425-16.80475           25.5-25.67           37.5-38.25           73-74.6           74.8-75.2           108-121.94           123-138           149.9-150.05           156.52475-156.52525           162.0125-167.17           167.72-173.2           240-285 | 16.42-16.423399.9-41016.69475-16.69525608-61416.80425-16.80475960-124025.5-25.671300-142737.5-38.251435-1626.573-74.61645.5-1646.574.8-75.21660-1710108-121.941718.8-1722.2123-1382200-2300149.9-150.052310-2390156.52475-156.525252483.5-2500156.7-156.92690-2900162.0125-167.173260-3267167.72-173.23332-3339240-2853345.8-3358 |

Shenzhen STS Test Services Co., Ltd.



For Radiated Emission

| Spectrum Parameter              | Setting                       |
|---------------------------------|-------------------------------|
| Attenuation                     | Auto                          |
| Detector                        | Peak/QP/AV                    |
| Start Frequency                 | 9 KHz/150KHz(Peak/QP/AV)      |
| Stop Frequency                  | 150KHz/30MHz(Peak/QP/AV)      |
|                                 | 200Hz (From 9kHz to 0.15MHz)/ |
| RB / VB (emission in restricted | 9KHz (From 0.15MHz to 30MHz); |
| band)                           | 200Hz (From 9kHz to 0.15MHz)/ |
|                                 | 9KHz (From 0.15MHz to 30MHz)  |

| Spectrum Parameter              | Setting            |
|---------------------------------|--------------------|
| Attenuation                     | Auto               |
| Detector                        | Peak/QP            |
| Start Frequency                 | 30 MHz(Peak/QP)    |
| Stop Frequency                  | 1000 MHz (Peak/QP) |
| RB / VB (emission in restricted | 120 KHz / 300 KHz  |
| band)                           |                    |

| Spectrum Parameter              | Setting                       |
|---------------------------------|-------------------------------|
| Attenuation                     | Auto                          |
| Detector                        | Peak/AV                       |
| Start Frequency                 | 1000 MHz(Peak/AV)             |
| Stop Frequency                  | 10th carrier hamonic(Peak/AV) |
| RB / VB (emission in restricted | 1 MHz / 3 MHz(Peak)           |
| band)                           | 1 MHz/1/T MHz(AVG)            |

#### For Restricted band

| Spectrum Parameter   | Setting                           |  |  |  |
|----------------------|-----------------------------------|--|--|--|
| Detector             | Peak/AV                           |  |  |  |
| Start/Stan Fraguanay | Lower Band Edge: 2310 to 2410 MHz |  |  |  |
| Start/Stop Frequency | Upper Band Edge: 2476 to 2500 MHz |  |  |  |
|                      | 1 MHz / 3 MHz(Peak)               |  |  |  |
| RB / VB              | 1 MHz/1/T MHz(AVG)                |  |  |  |

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| Receiver Parameter     | Setting                              |
|------------------------|--------------------------------------|
| Attenuation            | Auto                                 |
| Start ~ Stop Frequency | 9kHz~90kHz / RB 200Hz for PK & AV    |
| Start ~ Stop Frequency | 90kHz~110kHz / RB 200Hz for QP       |
| Start ~ Stop Frequency | 110kHz~490kHz / RB 200Hz for PK & AV |
| Start ~ Stop Frequency | 490kHz~30MHz / RB 9kHz for QP        |
| Start ~ Stop Frequency | 30MHz~1000MHz / RB 120kHz for QP     |

#### 3.2.2 TEST PROCEDURE

- a. The measuring distance at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
- b. The EUT was placed on the top of a rotating table 0.8 m (above 1GHz is 1.5 m) above the ground at a 3 m anechoic chamber test site. The table was rotated 360 degree to determine the position of the highest radiation.
- c. The height of the equipment shall be 0.8 m (above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. Horizontal and vertical polarization of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and QuasiPeak detector mode will be re-measured.
- e. If the Peak Mode measured value is compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and no additional QP Mode measurement was performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos. Note:

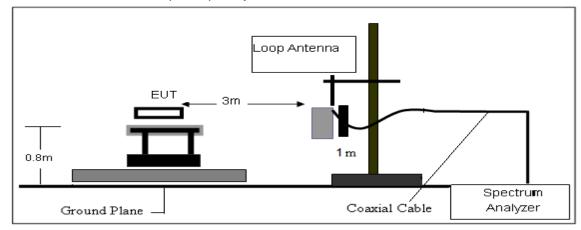
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

## 3.2.3 DEVIATION FROM TEST STANDARD No deviation.

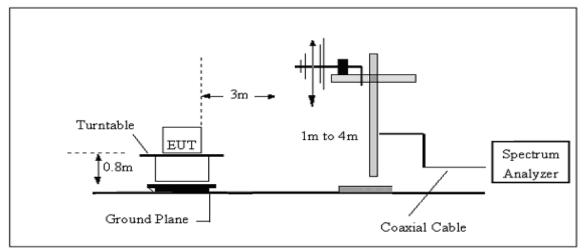


## 3.2.4 TESTSETUP

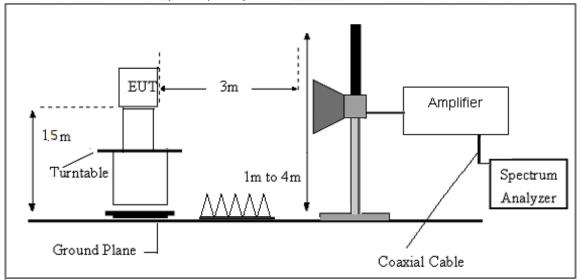
(A) Radiated Emission Test-Up Frequency Below 30MHz

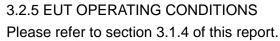


#### (B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz







#### 3.2.6 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG Where FS = Field Strength CL = Cable Attenuation Factor (Cable Loss) RA = Reading Amplitude AG = Amplifier Gain AF = Antenna Factor

For example

| Frequency | FS       | RA       | AF   | CL   | AG   | Factor |
|-----------|----------|----------|------|------|------|--------|
| (MHz)     | (dBµV/m) | (dBµV/m) | (dB) | (dB) | (dB) | (dB)   |
| 300       | 40       | 58.1     | 12.2 | 1.6  | 31.9 | -18.1  |

Factor=AF+CL-AG





#### 3.2.7 TEST RESULTS

#### (9KHz-30MHz)

| Temperature:  | 23.1(C)  | Relative Humidtity: | 60%RH |
|---------------|----------|---------------------|-------|
| Test Voltage: | DC 14.4V | Polarization:       |       |
| Test Mode:    | TX Mode  |                     |       |

| Freq. | Reading  | Limit    | Margin | State | Toot Dooult |
|-------|----------|----------|--------|-------|-------------|
| (MHz) | (dBuV/m) | (dBuV/m) | (dB)   | P/F   | Test Result |
|       |          |          |        |       | PASS        |
|       |          |          |        |       | PASS        |

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =40 log (specific distance/test distance)(dB);

Limit line = specific limits (dBuv) + distance extrapolation factor.



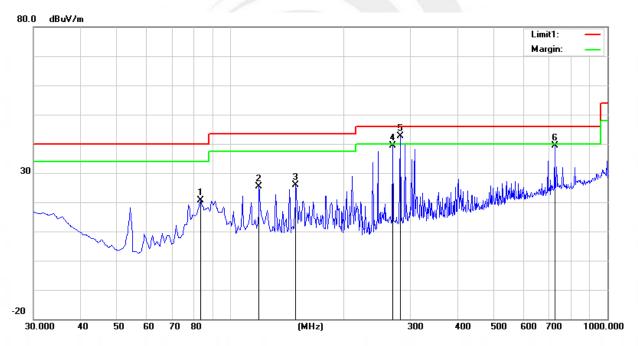
(30MHz-1000MHz)

| Temperature:  | 23.1(C)                        | Relative Humidity: | 60%RH      |  |  |
|---------------|--------------------------------|--------------------|------------|--|--|
| Test Voltage: | DC 14.4V                       | Phase:             | Horizontal |  |  |
| Test Mode:    | Mode 1/2/3 (Mode 3 worst mode) |                    |            |  |  |

| No. | Frequency | Reading | Correct      | Result   | Limit    | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
|     | (MHz)     | (dBuV)  | Factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB)   |        |
| 1   | 83.3500   | 43.24   | -22.52       | 20.72    | 40.00    | -19.28 | peak   |
| 2   | 119.2400  | 43.72   | -18.38       | 25.34    | 43.50    | -18.16 | peak   |
| 3   | 149.3100  | 44.38   | -18.49       | 25.89    | 43.50    | -17.61 | peak   |
| 4   | 269.5900  | 54.69   | -15.29       | 39.40    | 46.00    | -6.60  | peak   |
| 5   | 282.2000  | 58.24   | -15.53       | 42.71    | 46.00    | -3.29  | peak   |
| 6   | 726.4600  | 42.22   | -2.74        | 39.48    | 46.00    | -6.52  | peak   |

Remark:

- 1. Margin = Result (Result = Reading + Factor )-Limit
- 2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain





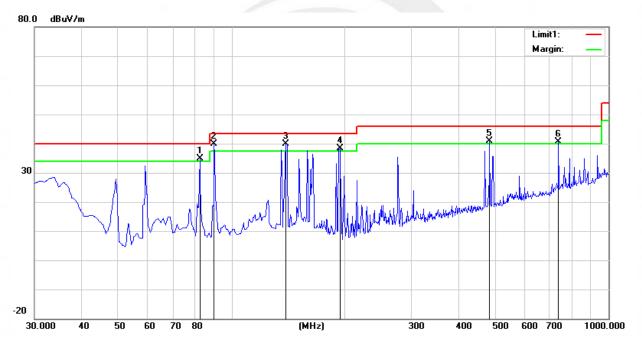
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| Temperature:  | 23.1(C)                        | Relative Humidity: | 60%RH    |  |  |
|---------------|--------------------------------|--------------------|----------|--|--|
| Test Voltage: | DC 14.4V                       | Phase:             | Vertical |  |  |
| Test Mode:    | Mode 1/2/3 (Mode 3 worst mode) |                    |          |  |  |

| No. | Frequency | Reading | Correct      | Result   | Limit    | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
|     | (MHz)     | (dBuV)  | Factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB)   |        |
| 1   | 82.3800   | 57.56   | -22.68       | 34.88    | 40.00    | -5.12  | peak   |
| 2   | 90.1400   | 61.23   | -21.42       | 39.81    | 43.50    | -3.69  | peak   |
| 3   | 139.6100  | 57.96   | -18.02       | 39.94    | 43.50    | -3.56  | peak   |
| 4   | 193.9300  | 59.48   | -21.11       | 38.37    | 43.50    | -5.13  | peak   |
| 5   | 484.9300  | 49.39   | -8.44        | 40.95    | 46.00    | -5.05  | peak   |
| 6   | 737.1300  | 42.91   | -2.22        | 40.69    | 46.00    | -5.31  | peak   |

Remark:

- 1. Margin = Result (Result = Reading + Factor )-Limit
- 2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain



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## (1GHz~25GHz) Spurious emission Requirements

| Frequency | Meter<br>Reading | Amplifier | Loss  | Antenna<br>Factor | Corrected<br>Factor | Emission<br>Level | Limits   | Margin | Detector | Comment    |
|-----------|------------------|-----------|-------|-------------------|---------------------|-------------------|----------|--------|----------|------------|
| (MHz)     | (dBµV)           | (dB)      | (dB)  | (dB/m)            | (dB)                | (dBµV/m)          | (dBµV/m) | (dB)   | Туре     |            |
|           |                  |           |       | Low C             | hannel (MSK/2       | 402 MHz)          |          |        |          |            |
| 3264.80   | 60.95            | 44.70     | 6.70  | 28.20             | -9.80               | 51.15             | 74.00    | -22.85 | PK       | Vertical   |
| 3264.80   | 50.42            | 44.70     | 6.70  | 28.20             | -9.80               | 40.62             | 54.00    | -13.38 | AV       | Vertical   |
| 3264.71   | 61.46            | 44.70     | 6.70  | 28.20             | -9.80               | 51.66             | 74.00    | -22.34 | PK       | Horizontal |
| 3264.71   | 50.82            | 44.70     | 6.70  | 28.20             | -9.80               | 41.02             | 54.00    | -12.98 | AV       | Horizontal |
| 4804.44   | 58.97            | 44.20     | 9.04  | 31.60             | -3.56               | 55.41             | 74.00    | -18.59 | PK       | Vertical   |
| 4804.44   | 49.94            | 44.20     | 9.04  | 31.60             | -3.56               | 46.38             | 54.00    | -7.62  | AV       | Vertical   |
| 4804.38   | 58.82            | 44.20     | 9.04  | 31.60             | -3.56               | 55.26             | 74.00    | -18.74 | PK       | Horizontal |
| 4804.38   | 49.49            | 44.20     | 9.04  | 31.60             | -3.56               | 45.93             | 54.00    | -8.07  | AV       | Horizontal |
| 5359.60   | 48.67            | 44.20     | 9.86  | 32.00             | -2.34               | 46.32             | 74.00    | -27.68 | PK       | Vertical   |
| 5359.60   | 40.32            | 44.20     | 9.86  | 32.00             | -2.34               | 37.98             | 54.00    | -16.02 | AV       | Vertical   |
| 5359.82   | 48.36            | 44.20     | 9.86  | 32.00             | -2.34               | 46.02             | 74.00    | -27.98 | PK       | Horizontal |
| 5359.82   | 38.10            | 44.20     | 9.86  | 32.00             | -2.34               | 35.75             | 54.00    | -18.25 | AV       | Horizontal |
| 7205.71   | 54.67            | 43.50     | 11.40 | 35.50             | 3.40                | 58.07             | 74.00    | -15.93 | PK       | Vertical   |
| 7205.71   | 44.22            | 43.50     | 11.40 | 35.50             | 3.40                | 47.62             | 54.00    | -6.38  | AV       | Vertical   |
| 7205.95   | 53.63            | 43.50     | 11.40 | 35.50             | 3.40                | 57.03             | 74.00    | -16.97 | PK       | Horizontal |
| 7205.95   | 44.17            | 43.50     | 11.40 | 35.50             | 3.40                | 47.57             | 54.00    | -6.43  | AV       | Horizontal |
|           |                  |           |       | Middle            | Channel (MSK/       | 2440 MHz)         |          |        |          |            |
| 3264.64   | 61.68            | 44.70     | 6.70  | 28.20             | -9.80               | 51.88             | 74.00    | -22.12 | PK       | Vertical   |
| 3264.64   | 50.62            | 44.70     | 6.70  | 28.20             | -9.80               | 40.82             | 54.00    | -13.18 | AV       | Vertical   |
| 3264.63   | 61.36            | 44.70     | 6.70  | 28.20             | -9.80               | 51.56             | 74.00    | -22.44 | PK       | Horizontal |
| 3264.63   | 50.41            | 44.70     | 6.70  | 28.20             | -9.80               | 40.61             | 54.00    | -13.39 | AV       | Horizontal |
| 4882.36   | 59.48            | 44.20     | 9.04  | 31.60             | -3.56               | 55.92             | 74.00    | -18.08 | PK       | Vertical   |
| 4882.36   | 50.33            | 44.20     | 9.04  | 31.60             | -3.56               | 46.77             | 54.00    | -7.23  | AV       | Vertical   |
| 4882.50   | 59.45            | 44.20     | 9.04  | 31.60             | -3.56               | 55.89             | 74.00    | -18.11 | PK       | Horizontal |
| 4882.50   | 49.82            | 44.20     | 9.04  | 31.60             | -3.56               | 46.26             | 54.00    | -7.74  | AV       | Horizontal |
| 5359.69   | 48.18            | 44.20     | 9.86  | 32.00             | -2.34               | 45.83             | 74.00    | -28.17 | PK       | Vertical   |
| 5359.69   | 39.06            | 44.20     | 9.86  | 32.00             | -2.34               | 36.72             | 54.00    | -17.28 | AV       | Vertical   |
| 5359.81   | 47.73            | 44.20     | 9.86  | 32.00             | -2.34               | 45.39             | 74.00    | -28.61 | PK       | Horizontal |
| 5359.81   | 38.78            | 44.20     | 9.86  | 32.00             | -2.34               | 36.44             | 54.00    | -17.56 | AV       | Horizontal |
| 7323.82   | 53.84            | 43.50     | 11.40 | 35.50             | 3.40                | 57.24             | 74.00    | -16.76 | PK       | Vertical   |
| 7323.82   | 43.74            | 43.50     | 11.40 | 35.50             | 3.40                | 47.14             | 54.00    | -6.86  | AV       | Vertical   |
| 7323.83   | 54.73            | 43.50     | 11.40 | 35.50             | 3.40                | 58.13             | 74.00    | -15.87 | PK       | Horizontal |
| 7323.83   | 44.20            | 43.50     | 11.40 | 35.50             | 3.40                | 47.60             | 54.00    | -6.40  | AV       | Horizontal |



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|         |       |       |       | High Cha | nnel (MSK/2 | 480 MHz) |       |        |    |            |
|---------|-------|-------|-------|----------|-------------|----------|-------|--------|----|------------|
| 3264.80 | 61.48 | 44.70 | 6.70  | 28.20    | -9.80       | 51.68    | 74.00 | -22.32 | PK | Vertical   |
| 3264.80 | 50.12 | 44.70 | 6.70  | 28.20    | -9.80       | 40.32    | 54.00 | -13.68 | AV | Vertical   |
| 3264.63 | 62.23 | 44.70 | 6.70  | 28.20    | -9.80       | 52.43    | 74.00 | -21.57 | PK | Horizontal |
| 3264.63 | 51.10 | 44.70 | 6.70  | 28.20    | -9.80       | 41.30    | 54.00 | -12.70 | AV | Horizontal |
| 4960.32 | 59.15 | 44.20 | 9.04  | 31.60    | -3.56       | 55.59    | 74.00 | -18.41 | PK | Vertical   |
| 4960.32 | 50.12 | 44.20 | 9.04  | 31.60    | -3.56       | 46.56    | 54.00 | -7.44  | AV | Vertical   |
| 4960.52 | 59.56 | 44.20 | 9.04  | 31.60    | -3.56       | 56.00    | 74.00 | -18.00 | PK | Horizontal |
| 4960.52 | 49.84 | 44.20 | 9.04  | 31.60    | -3.56       | 46.28    | 54.00 | -7.72  | AV | Horizontal |
| 5359.67 | 49.06 | 44.20 | 9.86  | 32.00    | -2.34       | 46.71    | 74.00 | -27.29 | PK | Vertical   |
| 5359.67 | 39.98 | 44.20 | 9.86  | 32.00    | -2.34       | 37.64    | 54.00 | -16.36 | AV | Vertical   |
| 5359.77 | 47.23 | 44.20 | 9.86  | 32.00    | -2.34       | 44.89    | 74.00 | -29.11 | PK | Horizontal |
| 5359.77 | 39.34 | 44.20 | 9.86  | 32.00    | -2.34       | 36.99    | 54.00 | -17.01 | AV | Horizontal |
| 7439.77 | 54.91 | 43.50 | 11.40 | 35.50    | 3.40        | 58.31    | 74.00 | -15.69 | PK | Vertical   |
| 7439.77 | 43.79 | 43.50 | 11.40 | 35.50    | 3.40        | 47.19    | 54.00 | -6.81  | AV | Vertical   |
| 7439.79 | 53.70 | 43.50 | 11.40 | 35.50    | 3.40        | 57.10    | 74.00 | -16.90 | PK | Horizontal |
| 7439.79 | 43.74 | 43.50 | 11.40 | 35.50    | 3.40        | 47.14    | 54.00 | -6.86  | AV | Horizontal |

Note:

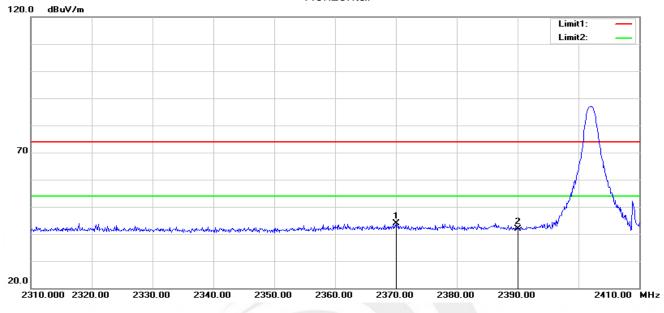
- 1) Factor = Antenna Factor + Cable Loss Pre-amplifier.
- Emission Level = Reading + Factor
- 2) The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.



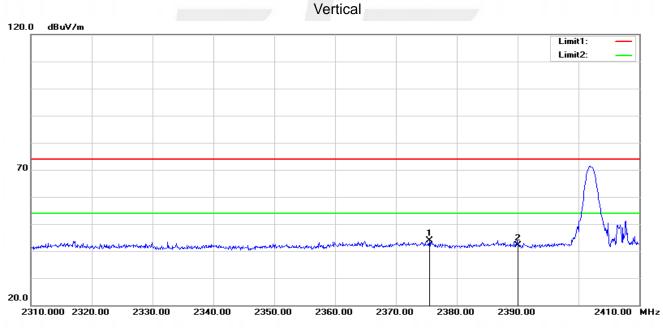


#### Restricted band Requirements

#### **GFSK-Low** Horizontal



| No. | Frequency | Reading | Correct      | Result   | Limit    | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
|     | (MHz)     | (dBuV)  | Factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB)   |        |
| 1   | 2370.000  | 39.90   | 4.04         | 43.94    | 74.00    | -30.06 | peak   |
| 2   | 2390.000  | 37.47   | 4.34         | 41.81    | 74.00    | -32.19 | peak   |



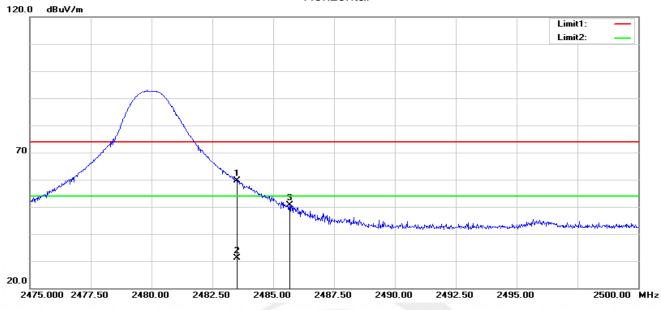
| No. | Frequency | Reading | Correct      | Result   | Limit    | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
|     | (MHz)     | (dBuV)  | Factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB)   |        |
| 1   | 2375.500  | 39.84   | 4.13         | 43.97    | 74.00    | -30.03 | peak   |
| 2   | 2390.000  | 37.67   | 4.34         | 42.01    | 74.00    | -31.99 | peak   |



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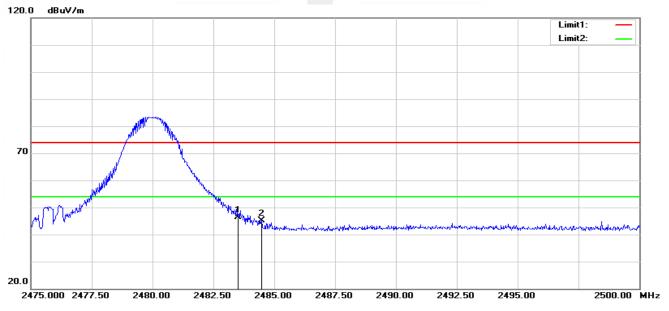
Report No.: STS2301112W04

#### **GFSK-High** Horizontal



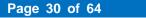
| No. | Frequency | Reading | Correct      | Result   | Limit    | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
|     | (MHz)     | (dBuV)  | Factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB)   |        |
| 1   | 2483.500  | 54.95   | 4.60         | 59.55    | 74.00    | -14.45 | peak   |
| 2   | 2483.500  | 26.63   | 4.60         | 31.23    | 54.00    | -22.77 | AVG    |
| 3   | 2485.675  | 45.99   | 4.61         | 50.60    | 74.00    | -23.40 | peak   |

Vertical



| No. | Frequency | Reading | Correct      | Result   | Limit    | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
|     | (MHz)     | (dBuV)  | Factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB)   |        |
| 1   | 2483.500  | 41.81   | 4.60         | 46.41    | 74.00    | -27.59 | peak   |
| 2   | 2484.475  | 40.54   | 4.61         | 45.15    | 74.00    | -28.85 | peak   |

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## 4. CONDUCTED SPURIOUS & BAND EDGE EMISSION

#### 4.1 LIMIT

According to FCC section 15.247(d), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

#### 4.2 TEST PROCEDURE

| Spectrum Parameter                    | Setting                         |  |  |
|---------------------------------------|---------------------------------|--|--|
| Detector                              | Peak                            |  |  |
| Start/Stop Frequency                  | 30 MHz to 10th carrier harmonic |  |  |
| RB / VB (emission in restricted band) | 100 KHz/300 KHz                 |  |  |
| Trace-Mode:                           | Max hold                        |  |  |

#### For Band edge

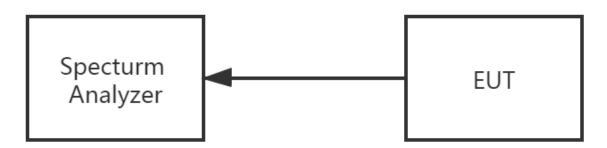
| Spectrum Parameter                    | Setting                          |  |  |  |
|---------------------------------------|----------------------------------|--|--|--|
| Detector                              | Peak                             |  |  |  |
| Start/Stop Eraguanau                  | Lower Band Edge: 2300 – 2407 MHz |  |  |  |
| Start/Stop Frequency                  | Upper Band Edge: 2475 – 2500 MHz |  |  |  |
| RB / VB (emission in restricted band) | 100 KHz/300 KHz                  |  |  |  |
| Trace-Mode:                           | Max hold                         |  |  |  |

#### For Hopping Band edge

| Spectrum Parameter                    | Setting                          |
|---------------------------------------|----------------------------------|
| Detector                              | Peak                             |
| Stort/Stop Frequency                  | Lower Band Edge: 2300– 2403 MHz  |
| Start/Stop Frequency                  | Upper Band Edge: 2479 – 2500 MHz |
| RB / VB (emission in restricted band) | 100 KHz/300 KHz                  |
| Trace-Mode:                           | Max hold                         |







The EUT is connected to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. Tune the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, the span is set to be greater than RBW.

#### 4.4 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

#### 4.5 TEST RESULTS

Note: The test data please refer to APPENDIX 1.



## 5. NUMBER OF HOPPING CHANNEL

5.1 LIMIT

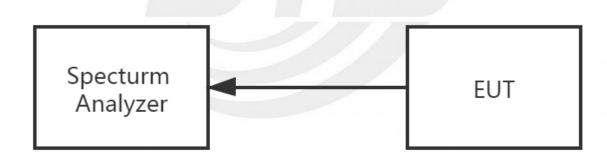
|                       | FCC Part 15.247,Subpart C    |       |                         |        |  |  |
|-----------------------|------------------------------|-------|-------------------------|--------|--|--|
| Section               | Test Item                    | Limit | FrequencyRange<br>(MHz) | Result |  |  |
| 15.247<br>(a)(1)(iii) | Number of Hopping<br>Channel | ≥15   | 2400-2483.5             | PASS   |  |  |

| Spectrum Parameters | Setting                    |
|---------------------|----------------------------|
| Attenuation         | Auto                       |
| Span Frequency      | > Operating FrequencyRange |
| RB                  | 300KHz                     |
| VB                  | 300KHz                     |
| Detector            | Peak                       |
| Trace               | Max Hold                   |
| Sweep Time          | Auto                       |

#### 5.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting: RBW= 300KHz, VBW=300KHz, Sweep time = Auto.

#### 5.3 TEST SETUP



#### 5.4 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

## 5.5 TEST RESULTS

Note: The test data please refer to APPENDIX 1.



## 6. AVERAGE TIME OF OCCUPANCY

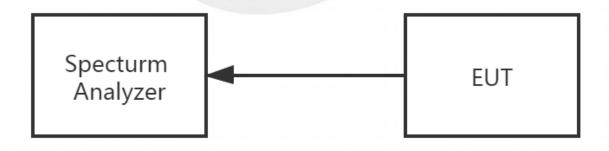
#### 6.1 LIMIT

| FCC Part 15.247,Subpart C |                              |        |                         |        |  |
|---------------------------|------------------------------|--------|-------------------------|--------|--|
| Section                   | Test Item                    | Limit  | FrequencyRange<br>(MHz) | Result |  |
| 15.247<br>(a)(1)(iii)     | Average Time<br>of Occupancy | 0.4sec | 2400-2483.5             | PASS   |  |

#### 6.2 TEST PROCEDURE

- a. The transmitter output (antenna port) was connected to the spectrum analyzer.
- b. Set RBW =1MHz/VBW =3MHz.
- c. Use a video trigger with the trigger level set to enable triggering only on full pulses.
- d. Sweep Time is more than once pulse time.
- Set the center frequency on any frequency would be measure and set the frequency span to e. zero span.
- f. Measure the maximum time duration of one single pulse.
- g. Set the EUT for DH5, DH3 and DH1 packet transmitting.
- $\tilde{h}$ . Measure the maximum time duration of one single pulse.
- i. DH5 Packet permit maximum 1600/ 79 / 6 = 3.37 hops per second in each channel (5 time slots RX, 1 time slot TX). So the number of pulses in the observation period of 31.6 seconds is  $3.37 \times 31.6 = 106.6$ .
- j. DH3 Packet permit maximum 1600 / 79 / 4 = 5.06 hops per second in each channel (3 time slots RX, 1 time slot TX). So the number of pulses in the observation period of 31.6 seconds is  $5.06 \times 31.6 = 160$ .
- k. DH1 Packet permit maximum 1600 / 79 / 2 = 10.12 hops per second in each channel (1 time slot RX, 1 time slot TX). So the number of pulses in the observation period of 31.6 seconds is  $10.12 \times 31.6 = 320$ .

6.3 TEST SETUP



#### 6.4 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

#### 6.5 TEST RESULTS

Note: The test data please refer to APPENDIX 1.

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## 7. HOPPING CHANNEL SEPARATION MEASUREMEN

7.1 LIMIT

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. Alternatively, 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.

| Spectrum Parameter | Setting   |  |  |
|--------------------|---|--|--|
| Attenuation        | Auto  |  |  |
| Span Frequency     | > 20 dB Bandwidth or Channel Separation                 |  |  |
| RB                 | 30 kHz (20dB Bandwidth) / 30 kHz (Channel Separation)   |  |  |
| VB                 | 100 kHz (20dB Bandwidth) / 100 kHz (Channel Separation) |  |  |
| Detector           | Peak  |  |  |
| Trace              | Max Hold  |  |  |
| Sweep Time Auto    |   |  |  |

#### 7.2 TEST PROCEDURE

- a. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
- b. The resolution bandwidth of 30 kHz and the video bandwidth of 100 kHz were utilised for 20 dB bandwidth measurement.
- c. The resolution bandwidth of 30 kHz and the video bandwidth of 100 kHz were utilised for channel separation measurement.

#### 7.3 TEST SETUP



#### 7.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

#### 7.5 TEST RESULTS

Note: The test data please refer to APPENDIX 1.



## 8. BANDWIDTH TEST

## 8.1 LIMIT

| FCC Part15 15.247,Subpart C |           |       |                         |        |  |
|-----------------------------|-----------|-------|-------------------------|--------|--|
| Section                     | Test Item | Limit | FrequencyRange<br>(MHz) | Result |  |
| 15.247 (a)(1)               | Bandwidth | N/A   | 2400-2483.5             | PASS   |  |

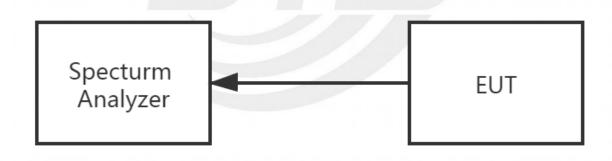
| Spectrum Parameter | Setting   |  |
|--------------------|---|--|
| Attenuation        | Auto  |  |
| Span Frequency     | > Measurement Bandwidth or Channel Separation           |  |
| RB                 | 30 kHz (20dB Bandwidth) / 30 kHz (Channel Separation)   |  |
| VB                 | 100 kHz (20dB Bandwidth) / 100 kHz (Channel Separation) |  |
| Detector           | Peak  |  |
| Trace              | Max Hold  |  |
| Sweep Time         | Auto  |  |

#### 8.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

b. Spectrum Setting: RBW= 30KHz, VBW=100KHz, Sweep time = Auto.

8.3 TEST SETUP



#### 8.4 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

#### 8.5 TEST RESULTS

Note: The test data please refer to APPENDIX 1.



## 9. OUTPUT POWER TEST

#### 9.1 LIMIT

| FCC Part 15.247,Subpart C |                 |  |                       |        |  |
|---------------------------|-----------------|--|-----------------------|--------|--|
| Section                   | Test Item       | Limit  | Frequency Range (MHz) | Result |  |
| 15.247<br>(a)(1)&(b)(1)   | Output<br>Power | 1 W or 0.125W  |                       |        |  |
|                           |                 | if channel separation ><br>2/3 bandwidthprovided<br>thesystems operatewith an<br>output power no greater<br>than125 mW(20.97dBm) | 2400-2483.5           | PASS   |  |

#### 9.2 TEST PROCEDURE

This is an RF-conducted test to evaluate maximum peak output power. Use a direct connection between the antenna port of the unlicensed wireless device and the spectrum analyzer, through suitable attenuation. The hopping shall be disabled for this test:

a) Use the following spectrum analyzer settings:

1) Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel.

2) RBW > 20 dB bandwidth of the emission being measured.

3) VBW  $\geq$  RBW.

4) Sweep: Auto.

5) Detector function: Peak.

6) Trace: Max hold.

b) Allow trace to stabilize.

c) Use the marker-to-peak function to set the marker to the peak of the emission.

d) The indicated level is the peak output power, after any corrections for external attenuators and cables.

e) A plot of the test results and setup description shall be included in the test report.

NOTE—A peak responding power meter may be used, where the power meter and sensor system video bandwidth is greater than the occupied bandwidth of the unlicensed wireless device, rather than a spectrum analyzer.

PKPM1 Peak power meter method:

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DSS bandwidth and shall use a fast-responding diode detector.

#### 9.3 TEST SETUP



#### 9.4 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

#### 9.5 TEST RESULTS

Note: The test data please refer to APPENDIX 1.

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### 10. ANTENNA REQUIREMENT

### **10.1 STANDARD REQUIREMENT**

15.203 requirement: For intentional device, according to 15.203: 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.

### 10.2 EUT ANTENNA

The EUT antenna is FPC Antenna. It comply with the standard requirement.

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# APPENDIX 1-TEST DATA

# 1. Dwell Time

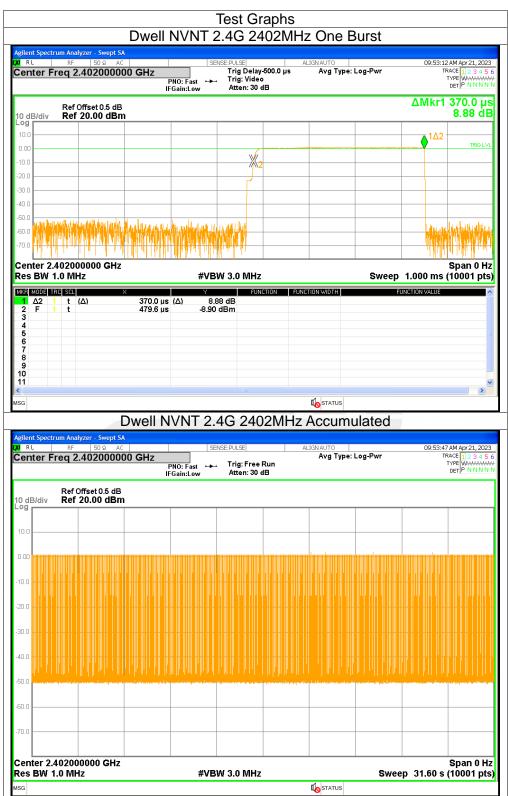
| Condition | Mode | Frequency<br>(MHz) | Pulse<br>Time (ms) | Total Dwell<br>Time (ms) | Burst<br>Count | Period<br>Time (ms) | Limit<br>(ms) | Verdict |
|-----------|------|--------------------|--------------------|--------------------------|----------------|---------------------|---------------|---------|
| NVNT      | 2.4G | 2402               | 0.37               | 185.37                   | 501            | 31600               | <=400         | Pass    |





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# 2. Maximum Average Conducted Output Power

| Condition | Mode | Frequency<br>(MHz) | Conducted Power<br>(dBm) | Limit<br>(dBm) | Verdict |
|-----------|------|--------------------|--------------------------|----------------|---------|
| NVNT      | 2.4G | 2402               | -1.62                    | <=20.97        | Pass    |
| NVNT      | 2.4G | 2440               | -1.41                    | <=20.97        | Pass    |
| NVNT      | 2.4G | 2480               | -1.43                    | <=20.97        | Pass    |

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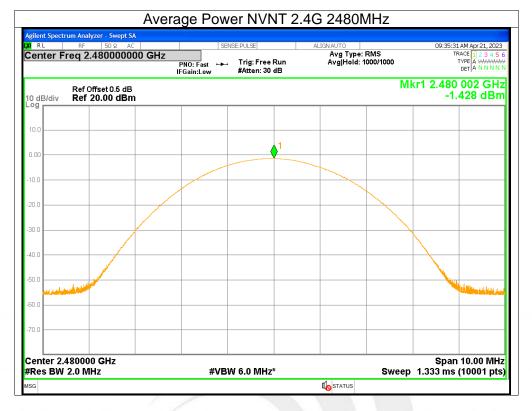


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# 3. Maximum Peak Conducted Output Power

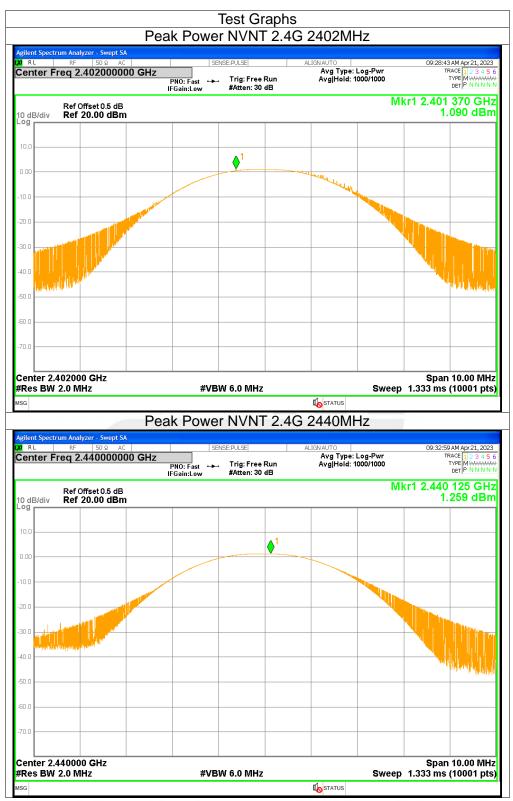
| Condition | Mode | Frequency (MHz) | Conducted Power (dBm) | Limit (dBm) | Verdict |
|-----------|------|-----------------|-----------------------|-------------|---------|
| NVNT      | 2.4G | 2402            | 1.09                  | <=20.97     | Pass    |
| NVNT      | 2.4G | 2440            | 1.26                  | <=20.97     | Pass    |
| NVNT      | 2.4G | 2480            | 1.75                  | <=20.97     | Pass    |

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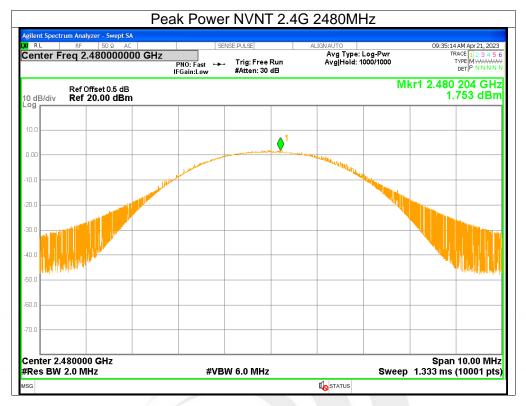
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# 4. -20dB Bandwidth

| Condition | Mode | Frequency (MHz) | -20 dB Bandwidth (MHz) | Verdict |
|-----------|------|-----------------|------------------------|---------|
| NVNT      | 2.4G | 2402            | 0.8358                 | Pass    |
| NVNT      | 2.4G | 2440            | 0.8373                 | Pass    |
| NVNT      | 2.4G | 2480            | 0.8315                 | Pass    |

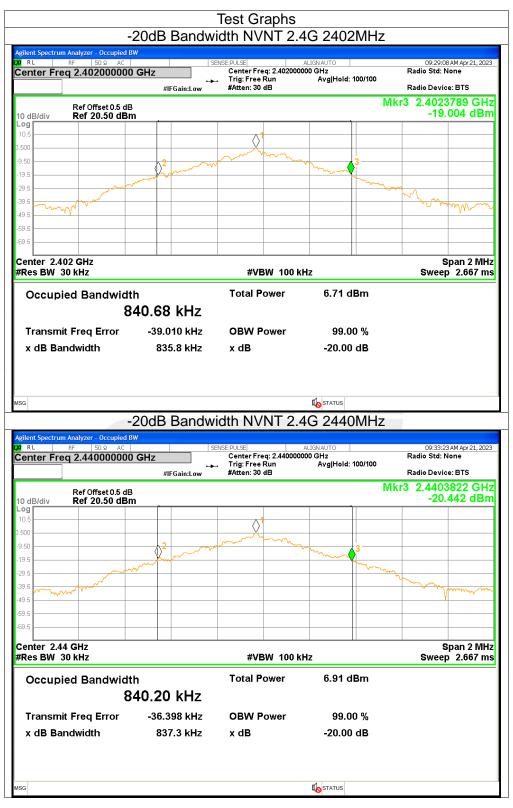


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# 5. Carrier Frequencies Separation

| Condition | Mode | Hopping Freq1 (MHz) | Hopping Freq2 (MHz) | HFS (MHz) | Limit (MHz) | Verdict |
|-----------|------|---------------------|---------------------|-----------|-------------|---------|
| NVNT      | 2.4G | 2401.962            | 2402.974            | 1.012     | >=0.557     | Pass    |
| NVNT      | 2.4G | 2439.962            | 2440.966            | 1.004     | >=0.687     | Pass    |
| NVNT      | 2.4G | 2478.962            | 2479.966            | 1.004     | >=0.554     | Pass    |

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| RL   |   | wept SA<br>Ω AC 500000 GHz   | SENS                   | E:PULSE                                 |            | IGNAUTO<br>Avg Type: L                       | .og-Pwr   | 09:3           | 7:53 AM Apr 21, 202<br>TRACE 1 2 3 4 5<br>TYPE M WWWW  |
|--|---|--|------------------------|---|------------|--|---|----------------|--|
|  |   | PI   | NO: Wide 😱<br>Gain:Low | Trig: Free R<br>#Atten: 30 d            | lun<br>IB  | Avg Hold:>1                                  |   |                | DET   P N N N N  |
| 0 dB/div   | Ref Offset (<br>Ref 20.00                                     |  |                        |   |            |  | Μ   |                | 01 962 GH<br>0.237 dBr   |
| .og  |   | x1   |                        |   |            |  |   |                |  |
| 0.00   |   |  |                        |   |            |  |   |                |  |
| 10.0   | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~                       | man  | mon                    | ~                                       |            | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~       | 2   | hor            | um.  |
| 20.0 <mark></mark>   |   |  |                        | ww                                      |            |  |   |                | The second   |
| 40.0   |   |  |                        |   |            |  |   |                |  |
| 50.0<br>60.0   |   |  |                        |   |            |  |   |                |  |
| 70.0   |   |  |                        |   |            |  |   |                |  |
|  | 402500 GH   | z  |                        |   |            |  |   |                | an 2.000 MH  |
| Res BW   |   |  | #VBW                   | í 100 kHz                               |            |  |   | -              | ms (1001 pts   |
| 1 N 1  | f   | ×<br>2.401 962 GHz   | 0.237 d                | FUNC<br>Bm                              | TION FUNCT | ION WIDTH                                    |   | FUNCTION VALU  | JE   |
| 2 N 1<br>3   | f   | 2.402 974 GHz  | -1.690 d               | m                                       |            |  |   |                |  |
| 4<br>5   |   |  |                        |   |            |  |   |                |  |
| 6  |   |  |                        |   |            |  |   |                |  |
| 7  |   |  |                        |   |            |  |   |                |  |
| 6<br>7<br>8  |   |  |                        |   |            |  |   |                |  |
| 9<br>10  |   |  |                        |   |            |  |   |                |  |
| 9<br>10<br>11  |   |  |                        |   |            |  |   |                |  |
| 9<br>10<br>11  |   |  |                        |   |            |  |   |                |  |
| 9<br>10<br>11  |   |  | CES NV                 | NT 2 4                                  | G 2441     | Kostatus<br>MH7                              |   | _              |  |
| 9<br>10<br>11<br>SG  | rum Analyzer - S  |  |                        | NT 2.4                                  | G 2441     | -  |   |                |  |
| 9<br>10<br>11<br>SG<br>gilent Spectr<br>RL   |   | wept SA<br>Ω AC  |                        | NT 2.4                                  |            | IGNAUTO                                      | _oq-Pwr   | 09:4           | 13:41 AM Apr 21, 202   |
| 9<br>10<br>11<br>SG<br>gilent Spectr<br>RL   | RF 50   | wept SA<br>Ω AC    <br>500000 GHz<br>Pt                                  | SENS                   |   | AL<br>Run  | MHz  | _og-P₩r<br>00/100   | 09:4           | 3:41.AM Apr 21, 202<br>TRACE 12 3 4 5  |
| 9<br>10<br>11<br>SG<br>gilent Spectr<br>RL   | RF 50<br>req 2.4405<br>Ref Offset (                           | wept.SA<br>Ω AC    <br>5000000 GHz<br>PP<br>IF4<br>D.5 dB                | SENS                   | E:PULSE                                 | AL<br>Run  | IGNAUTO<br>Avg Type: L                       | 00/100  |                | 13:41 AM Apr 21, 202<br>TRACE 1 2 3 4 5<br>TYPE MWWWW<br>DET P N N N<br>39 962 GH  |
| 9<br>10<br>11<br>sg<br>gjlent Spectr<br>R L  | RF 50<br>req 2.4405   | wept.SA<br>Ω AC    <br>5000000 GHz<br>PP<br>IF4<br>D.5 dB                | SENS                   | E:PULSE                                 | AL<br>Run  | IGNAUTO<br>Avg Type: L                       | 00/100  |                | 3:41 AM Apr 21, 202<br>TRACE 12:34 5<br>TYPE MWWWW<br>DET P NNNN<br>39 962 GH:<br>0.370 dBn  |
| 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9  | RF 50<br>req 2.4405<br>Ref Offset (                           | wept.SA<br>Ω AC    <br>5000000 GHz<br>PP<br>IF4<br>D.5 dB                | SENS                   | E:PULSE                                 | AL<br>Run  | IGNAUTO<br>Avg Type: L                       | 00/100  |                | 13:41 AM Apr 21, 202<br>TRACE 1 2 3 4 5<br>TYPE MWWWW<br>DET P N N N<br>39 962 GH  |
| 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9  | RF 50<br>req 2.4405<br>Ref Offset (                           | wept.SA<br>Ω AC    <br>5000000 GHz<br>PP<br>IF4<br>D.5 dB                | SENS                   | E:PULSE                                 | AL<br>Run  | IGNAUTO<br>Avg Type: L                       | 00/100  |                | 13:41 AM Apr 21, 202<br>TRACE 1 2 3 4 5<br>TYPE MWWWW<br>DET P N N N<br>39 962 GH  |
| 9<br>9<br>10<br>11<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>9  | RF 50<br>req 2.4405<br>Ref Offset (                           | wept.SA<br>Ω AC    <br>5000000 GHz<br>PP<br>IF4<br>D.5 dB                | SENS                   | E:PULSE                                 | AL<br>Run  | IGNAUTO<br>Avg Type: L                       | 00/100  |                | 13:41 AM Apr 21, 202<br>TRACE 1 2 3 4 5<br>TYPE MWWWW<br>DET P N N N<br>39 962 GH  |
| 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9  | RF 50<br>req 2.4405<br>Ref Offset (                           | wept.SA<br>Ω AC    <br>5000000 GHz<br>PP<br>IF4<br>D.5 dB                | SENS                   | E:PULSE                                 | AL<br>Run  | IGNAUTO<br>Avg Type: L                       | 00/100  |                | 13:41 AM Apr 21, 202<br>TRACE 1 2 3 4 5<br>TYPE MWWWW<br>DET P N N N<br>39 962 GH  |
| 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9  | RF 50<br>req 2.4405<br>Ref Offset (                           | wept.SA<br>Ω AC    <br>5000000 GHz<br>PP<br>IF4<br>D.5 dB                | SENS                   | E:PULSE                                 | AL<br>Run  | IGNAUTO<br>Avg Type: L                       | 00/100  |                | 13:41 AM Apr 21, 202<br>TRACE 1 2 3 4 5<br>TYPE MWWWW<br>DET P N N N<br>39 962 GH  |
| 9 9 9 10 10 11 9 9 9 10 10 11 9 9 9 9 9  | RF 50<br>req 2.4405<br>Ref Offset (                           | wept.SA<br>Ω AC    <br>5000000 GHz<br>PP<br>IF4<br>D.5 dB                | SENS                   | E:PULSE                                 | AL<br>Run  | IGNAUTO<br>Avg Type: L                       | 00/100  |                | 13:41 AM Apr 21, 2021<br>TRACE 1 2 3 4 5<br>TYPE MWWWW<br>DET P N N N<br>39 962 GH   |
| 9 9 9 10 10 11 9 9 9 10 10 11 9 9 9 9 9  | RF 50<br>req 2.4405<br>Ref Offset (                           | wept.SA<br>Ω AC    <br>5000000 GHz<br>PP<br>IF4<br>D.5 dB                | SENS                   | E:PULSE                                 | AL<br>Run  | IGNAUTO<br>Avg Type: L                       | 00/100  |                | 13:41 AM Apr 21, 2021<br>TRACE 1 2 3 4 5<br>TYPE MWWWW<br>DET P N N N<br>39 962 GH   |
| 9 9 9 10 10 11 9 9 9 10 10 11 9 9 9 9 9  | RF 50<br>req 2.4405<br>Ref Offset (                           | wept.SA<br>Ω AC    <br>5000000 GHz<br>PP<br>IF4<br>D.5 dB                | SENS                   | E:PULSE                                 | AL<br>Run  | IGNAUTO<br>Avg Type: L                       | 00/100  | lkr1 2.43      | 13:41 AM Apr 21, 202<br>TRACE 11 2 3 4 5<br>TYPE MMWWW<br>DET P NNNN<br>39 962 GH<br>0.370 dBn   |
| 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9  | Ref Offset (<br>Ref 20.00                                     | wept SA<br>Ω AC P<br>P<br>P<br>IFI<br>D.5 dB<br>D dBm                    | VO: Wide<br>Gain:Low   | E:PULSE<br>Trig: Free R<br>#Atten: 30 d | AL<br>Run  | IGNAUTO<br>Avg Type: L                       |   | lkr1 2.43      | 13:41 AM Apr 21, 202<br>TRACE 12:3 + 5<br>TYPE M MWANN<br>39 962 GH<br>0.370 dBr   |
| 9<br>9<br>0<br>0<br>11<br>11<br>12<br>13<br>14<br>14<br>15<br>14<br>15<br>14<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15<br>15 | Ref Offset (<br>Ref 20.00                                     | wept SA<br>Ω AC P<br>P<br>P<br>IFI<br>D.5 dB<br>D dBm                    | VO: Wide<br>Gain:Low   | E:PULSE<br>Trig: Free R<br>#Atten: 30 d |            | IMHZ<br>IGNAUTO<br>Avg Type: L<br>Avg Hold>1 | 00/100<br>M<br>2<br>2<br>2<br>2<br>2<br>2<br>3<br>5<br>Weet | Sp<br>pp 2.133 | 13:41 AM Apr 21, 202<br>TRACE [] 2 3 4 5<br>TYPE [MININN<br>39 962 GH<br>0.370 dBn<br>0.370 |
| 9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10   | Ref Offset (<br>Ref 20.00<br>Ref 20.00<br>440500 GH<br>30 kHz | x AC                                 | IO: Wide Gain:Low      | E:PULSE<br>Trig: Free R<br>#Atten: 30 d |            | IGNAUTO<br>Avg Type: L                       | 00/100<br>M<br>2<br>2<br>2<br>2<br>2<br>2<br>3<br>5<br>Weet | lkr1 2.43      | 13:41 AM Apr 21, 202<br>TRACE [] 2 3 4 5<br>TYPE [MININN<br>39 962 GH<br>0.370 dBn<br>0.370 |
| 9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>10<br>10<br>11<br>11<br>12<br>11<br>12<br>11<br>12<br>11<br>12<br>11<br>12<br>12                 | Ref Offset (<br>Ref 20.00<br>Ref 20.00<br>440500 GH<br>30 kHz | wept SA<br>Ω AC PP<br>PP<br>PP<br>PP<br>PP<br>PP<br>PP<br>PP<br>PP<br>PP | VO: Wide<br>Gain:Low   | E:PULSE<br>Trig: Free R<br>#Atten: 30 d |            | IMHZ<br>IGNAUTO<br>Avg Type: L<br>Avg Hold>1 | 00/100<br>M<br>2<br>2<br>2<br>2<br>2<br>2<br>3<br>5<br>Weet | Sp<br>pp 2.133 | 13:41 AM Apr 21, 202<br>TRACE [] 2 3 4 5<br>TYPE [MININN<br>39 962 GH<br>0.370 dBn<br>0.370 |
| 9<br>9<br>9<br>9<br>9<br>9<br>9<br>9<br>10<br>10<br>11<br>11<br>12<br>11<br>12<br>11<br>12<br>11<br>12<br>11<br>12<br>12                 | Ref Offset (<br>Ref 20.00<br>Ref 20.00<br>440500 GH<br>30 kHz | x AC                                 | IO: Wide Gain:Low      | E:PULSE<br>Trig: Free R<br>#Atten: 30 d |            | IMHZ<br>IGNAUTO<br>Avg Type: L<br>Avg Hold>1 | 00/100<br>M<br>2<br>2<br>2<br>2<br>2<br>2<br>3<br>5<br>Weet | Sp<br>pp 2.133 | 13:41 AM Apr 21, 202<br>TRACE [1 2 3 4 5<br>TYPE MAXIMUM<br>0ET [P INNIN<br>39 962 GH<br>0.370 dBn   |
| 9<br>9<br>10<br>10<br>11<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20<br>20                                   | Ref Offset (<br>Ref 20.00<br>Ref 20.00<br>440500 GH<br>30 kHz | x AC                                 | IO: Wide Gain:Low      | E:PULSE<br>Trig: Free R<br>#Atten: 30 d |            | IMHZ<br>IGNAUTO<br>Avg Type: L<br>Avg Hold>1 | 00/100<br>M<br>2<br>2<br>2<br>2<br>2<br>2<br>3<br>5<br>Weet | Sp<br>pp 2.133 | 13:41 AM Apr 21, 202<br>TRACE [1 2 3 4 5<br>TYPE MAXWAN<br>0 507 P MINN N<br>39 962 GH<br>0.370 dBn<br>0.370 dB   |

A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China Tel: +86-755 3688 6288 Fax:+86-755 3688 6277 Http://www.stsapp.com E-mail: sts@stsapp.com

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| ilent Spectrum A         | Analyzer - Swept SA              |                                |                                   |                              |                 |  |
|--------------------------|----------------------------------|--------------------------------|-----------------------------------|------------------------------|-----------------|--|
|                          | RF 50 Ω AC                       |                                | ENSE:PULSE                        | ALIGNAUTO                    |                 | 9:47:26 AM Apr 21, 202                         |
| enter Freq               | 2.479500000 GHz                  | Z<br>PNO: Wide 🗣<br>IFGain:Low | ⊃ Trig: Free Run<br>#Atten: 30 dB | Avg Type: Lo<br>Avg Hold:>10 | ∙g-Pwr<br>0/100 | TRACE 1 2 3 4 5<br>TYPE MWWWM<br>DET P N N N N |
|                          | ef Offset 0.5 dB<br>ef 20.00 dBm |                                |                                   |                              | Mkr1 2.4        | 478 962 GH<br>-0.186 dBr                       |
| og                       |                                  |                                |                                   |                              |                 |  |
| 0.0                      |                                  |                                |                                   |                              | $\chi^2$        |  |
| 0.0                      |                                  | - Vn                           |                                   | - mm                         | m               | <u>^</u>                                       |
|                          | ~~~                              | - m                            |                                   |                              |                 | m  |
| 0.0                      |                                  |                                | - mari                            |                              |                 | 1.2  |
| 0.0                      |                                  |                                |                                   |                              |                 |  |
|                          |                                  |                                |                                   |                              |                 |  |
| 0.0                      |                                  |                                |                                   |                              |                 |  |
| 0.0                      |                                  |                                |                                   |                              |                 |  |
| 0.0                      |                                  |                                |                                   |                              |                 |  |
|                          |                                  |                                |                                   |                              |                 |  |
| enter 2.479<br>Res BW 30 |                                  | #VE                            | 3W 100 kHz                        |                              | Sweep 2.13      | 6pan 2.000 MH<br>3 ms (1001 pt                 |
| KR MODE TRC S            | CL X                             | Y                              | FUNCTION                          | FUNCTION WIDTH               | FUNCTION V      | ALUE   |
| 1 N 1 1<br>2 N 1 1       |                                  |                                | 3 dBm<br>1 dBm                    |                              |                 |  |
| 2 N 1 1<br>3             | f 2.479 966                      | GHZ 0.04                       | IdBm                              |                              |                 |  |
| 4                        |                                  |                                |                                   |                              |                 |  |
| 5                        |                                  |                                |                                   |                              |                 |  |
| 6<br>7                   |                                  |                                |                                   |                              |                 |  |
| 8                        |                                  |                                |                                   |                              |                 |  |
| 0<br>0                   |                                  |                                |                                   |                              |                 |  |
| 9<br>0                   |                                  |                                |                                   |                              |                 |  |
| 9                        |                                  |                                |                                   |                              |                 | >  |

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# 6. Number of Hopping Channel

| Condition | Mode | Hopping Number | Limit | Verdict |
|-----------|------|----------------|-------|---------|
| NVNT      | 2.4G | 79             | >=15  | Pass    |



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| dB/div Re<br>9<br>1.0<br>1.0  | ef Offset 0.5 d<br>ef 20.00 dB | в                                   | Gain:Low        | #Atten: 30 | dB          |            | Mke   | 1 2.402 0     | DET P N N N       |
|---|--------------------------------|-------------------------------------|-----------------|------------|-------------|------------|-------|---------------|-------------------|
| 1<br>00<br>1.0<br>1.0   | ባለአለለለስስ                       |                                     |                 |            |             |            | IVIKI |               | 04 0 GI<br>028 dB |
| 1.0<br>1.0<br>1.0<br>1.0<br>1.0<br>2.0<br>2.0<br>2.0<br>2.0<br>2.0<br>2.0<br>2.0<br>2.0<br>2.0<br>2   |                                |                                     |                 |            |             |            |       | Stop 2        | 48350 G           |
| ant 2.40000<br>Res BW 100   |                                |                                     | #VB             | W 300 kHz  | :           |            | Swee  | p 8.000 m     |                   |
| MODE         TRC         SQ           I         N         1         f           2         N         1         f           3         -         -         -           5         -         -         -           6         -         -         -         -           7         -         -         -         -           9         -         -         -         - | 2.                             | X<br>402 004 0 GHz<br>479 993 0 GHz | 0.028<br>-0.312 | dBm        | ICTION FUNC | TION WIDTH | F     | UNCTION VALUE |                   |

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# 7. Band Edge

| Condition | Mode | Frequency (MHz) | Hopping Mode | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|------|-----------------|--------------|-----------------|-------------|---------|
| NVNT      | 2.4G | 2402            | No-Hopping   | -42.1           | <=-20       | Pass    |
| NVNT      | 2.4G | 2480            | No-Hopping   | -51.45          | <=-20       | Pass    |

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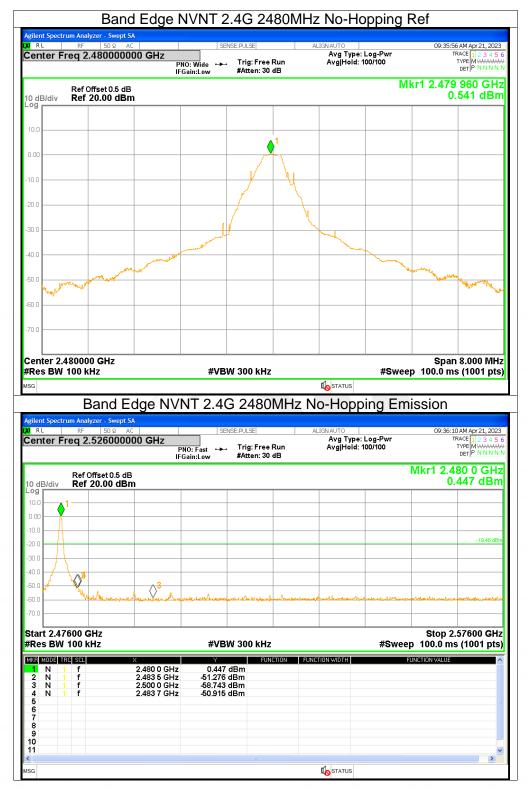
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|  | 50 Ω AC  | SENS                       | E:PULSE                              | ALIGN AUTO                          |                          | 09:29:24 AM Apr 21, 202  |
|--|--|----------------------------|--------------------------------------|-------------------------------------|--------------------------|--|
| Center Freq 2.40   |  | PNO: Wide ↔→<br>IFGain:Low | Trig: Free Run<br>#Atten: 30 dB      | Avg Type:<br>Avg Hold: 1            | Log-Pwr<br>100/100       | TRACE 1 2 3 4 5<br>TYPE MWWWW<br>DET P N N N N   |
| Ref Offse<br>0 dB/div Ref 20.  |  |                            |                                      |                                     | Mkr1                     | 2.401 960 GH<br>0.591 dBr  |
| .og  |  |                            |                                      |                                     |                          |  |
| 10.0   |  |                            |                                      |                                     |                          |  |
| 0.00   |  |                            |                                      |                                     |                          |  |
| 10.0   |  |                            |                                      |                                     |                          |  |
| 20.0   |  |                            |                                      | 5                                   |                          |  |
| 20.0   |  |                            |                                      |                                     |                          |  |
| 30.0   |  |                            |                                      |                                     |                          |  |
| 40.0   |  |                            |                                      |                                     | -                        |  |
| 50.0   | magna and mark   |                            |                                      |                                     |                          | many many where where  |
| 60.0   |  |                            |                                      |                                     |                          |  |
|  |  |                            |                                      |                                     |                          |  |
| 70.0   |  |                            |                                      |                                     |                          |  |
|  |  |                            |                                      |                                     |                          |  |
| Res BW 100 kHz   | GHz  | #VBW                       | / 300 kHz                            | <b>I</b> A STATUS                   | #Sweep 1                 |  |
| Res BW 100 kHz<br><sup>sg</sup> Ba   | nd Edge N\   |                            |                                      | Kostatus<br>z No-Hopp               |                          | 00.0 ms (1001 pt   |
| Res BW 100 kHz G G Ba G G G G G G G G G G G G G G G G  | nd Edge N\<br>- Swept SA<br>50 Q AC  | /NT 2.4G                   |                                      | z No-Hopp                           | ing Emiss                | 00.0 ms (1001 pt<br>SiON<br>09:29:37 AM Apr 21, 202  |
| Res BW 100 kHz G G Ba G G G G G G G G G G G G G G G G  | nd Edge N\<br>- Swept SA<br>50 Ω AC  <br>60000000 GHz                      | /NT 2.4G                   | 2402MH2<br>E:PUISE<br>Trig: Free Run | z No-Hopp                           | ing Emiss                | 00.0 ms (1001 pt<br>SiON<br>09:29:37 AM Apr 21, 202<br>TRACE 123 4 5<br>TRACE 123 4 5  |
| Res BW 100 kHz   | nd Edge NV<br>- Swept SA<br>50 Q AC<br>60000000 GHz                        | /NT 2.4G                   | 6 2402MH2                            | Z NO-HOPP<br>Alignauto<br>Avg Type: | Log-Pwr<br>100/100       | 00.0 ms (1001 pt<br>09:29:37 AM Apr 21, 200<br>TRACE [] 2:3 4<br>TRACE [] 3:3 4<br>TRA   |
| Res BW 100 kHz<br>Ba<br>gilent Spectrum Analyzer<br>RL RF<br>enter Freq 2.35<br>Ref Offs<br>0 dB/div Ref 20  | nd Edge NV<br>- Swept SA<br>50 Q AC<br>60000000 GHz                        | /NT 2.4G                   | 2402MH2<br>E:PUISE<br>Trig: Free Run | Z NO-HOPP<br>Alignauto<br>Avg Type: | Log-Pwr<br>100/100       | 00.0 ms (1001 pt<br>09:29:37 AM Apr 21,202<br>TRACE [] 23 4 5<br>TRACE [] 24 5<br>TRACE [] 24 5<br>TRACE [] 24 5<br>TRACE [] 24 5<br>TRACE [] 25 7<br>TRACE [] 25   |
| Res BW 100 kHz Ba  | nd Edge N\<br>Swept SA<br>50 Ω AC<br>60000000 GHz<br>et 0.5 dB             | /NT 2.4G                   | 2402MH2<br>E:PUISE<br>Trig: Free Run | Z NO-HOPP<br>Alignauto<br>Avg Type: | Log-Pwr<br>100/100       | 00.0 ms (1001 pt<br>09:29:37 AM Apr 21,202<br>TRACE [] 23 4 5<br>TRACE [] 24 5<br>TRACE [] 24 5<br>TRACE [] 24 5<br>TRACE [] 24 5<br>TRACE [] 25 7<br>TRACE [] 25   |
| Res BW 100 kHz SG Bal SG Bal SG Bal SECTOM Analyzer R R Ref Offs: O dB/div Ref 20. O 0.00 Bal SC Ref Offs: C Ref O   | nd Edge N\<br>Swept SA<br>50 Ω AC<br>60000000 GHz<br>et 0.5 dB             | /NT 2.4G                   | 2402MH2<br>E:PUISE<br>Trig: Free Run | Z NO-HOPP<br>Alignauto<br>Avg Type: | Log-Pwr<br>100/100       | 00:0 ms (1001 pt<br>5iON<br>09:29:37 AM Apr 21, 202<br>TRACE 12:3 4 E<br>TYPE M WWWW<br>DET P NNN<br>cr1 2.402 0 GH<br>0.549 dBr   |
| Res BW 100 kHz Ba  | nd Edge N\<br>Swept SA<br>50 Ω AC<br>60000000 GHz<br>et 0.5 dB             | /NT 2.4G                   | 2402MH2<br>E:PUISE<br>Trig: Free Run | Z NO-HOPP<br>Alignauto<br>Avg Type: | Log-Pwr<br>100/100       | 00:0 ms (1001 pt<br>5iON<br>09:29:37 AM Apr 21, 202<br>TRACE 12:3 4 E<br>TYPE M WWWW<br>DET P NNN<br>cr1 2.402 0 GH<br>0.549 dBr   |
| Res BW 100 kHz           sa           Ball           gilent Spectrum Analyzer           RL         RF           center Freq 2.35           0 dB/div         Ref Offs:           0 dB/div         Ref 20.   | nd Edge N\<br>Swept SA<br>50 Ω AC<br>60000000 GHz<br>et 0.5 dB             | /NT 2.4G                   | 2402MH2<br>E:PUISE<br>Trig: Free Run | Z NO-HOPP<br>Alignauto<br>Avg Type: | Log-Pwr<br>100/100       | 00:0 ms (1001 pt<br>5iON<br>09:29:37 AM Apr 21, 202<br>TRACE 12:3 4 E<br>TYPE M WWWW<br>DET P NNN<br>cr1 2.402 0 GH<br>0.549 dBr   |
| Res BW 100 kHz           sa           Ball           gilent Spectrum Analyzer           RL         RF           center Freq 2.35           0 dB/div         Ref Offs:           0 dB/div         Ref 20.  | nd Edge N\<br>Swept SA<br>50 Ω AC<br>60000000 GHz<br>et 0.5 dB             | /NT 2.4G                   | 2402MH2<br>E:PUISE<br>Trig: Free Run | Z NO-HOPP<br>Alignauto<br>Avg Type: | Log-Pwr<br>100/100       | 00:0 ms (1001 pt<br>5iON<br>09:29:37 AM Apr 21, 202<br>TRACE 12:3 4 E<br>TYPE M WWWW<br>DET P NNN<br>cr1 2.402 0 GH<br>0.549 dBr   |
| Res         BW         100 kHz           sc         Bail           gilent Spectrum Analyzer         Ref Offs:           center Freq 2.35         Ref Offs:           0         Bail           0         Bail           0         Ref Offs:           0         Bail           0         Bail<  | nd Edge N\<br>Swept SA<br>50 Ω AC<br>60000000 GHz<br>et 0.5 dB             | /NT 2.4G                   | 2402MH2<br>E:PUISE<br>Trig: Free Run | Z NO-HOPP<br>Alignauto<br>Avg Type: | Log-Pwr<br>100/100       | Span 8.000 MH<br>00.0 ms (1001 pt<br>SiON<br>09:29:37 AM Apr 21,202<br>TRACE [1:2:3:4 5<br>TYPE M WHOM<br>DET P NNNN<br>cr1 2.402 0 GH<br>0.549 dBr  |
| Res         BW         100 kHz           sq         Bai           gilent Spectrum Analyzer         R           RL         RF           Center Freq 2.35         Ref Offs           0 dB/div         Ref 20.  | nd Edge N\<br>Swept SA<br>50 Ω AC<br>6000000 GHz<br>et 0.5 dB<br>00 dBm    | /NT 2.4G                   | 2402MH2<br>E:PUISE<br>Trig: Free Run | Z NO-HOPP<br>Alignauto<br>Avg Type: | Log-Pwr<br>100/100       | 00.0 ms (1001 pt<br>00:09:37AM Apr 21,202<br>TRACE 12:345<br>TRACE 12:345<br>TRA             |
| Res         BW         100 kHz           sa         Bai           glient Spectrum Analyzer         R           RL<   | nd Edge N\<br>Swept SA<br>50 Ω AC<br>6000000 GHz<br>et 0.5 dB<br>00 dBm    | /NT 2.4G                   | 2402MH2<br>E:PUISE<br>Trig: Free Run | Z NO-HOPP<br>Alignauto<br>Avg Type: | Log-Pwr<br>100/100<br>Mk | 00.0 ms (1001 pt:<br>SiON<br>09:29:37 AM Apr 21,202<br>TRACE 12:3 - 5<br>TYPE<br>MWWW<br>MULTING<br>0.549 dBr<br>0.549 dBr<br>1-<br>   |
| Res         BW         100 kHz           36         Bal           gilent Spectrum Analyzer         R           RL<   | nd Edge NV<br>- Swept SA<br>50 Q AC<br>6000000 GHz<br>et 0.5 dB<br>00 dBm  | /NT 2.4G                   | 2402MHz                              | Z NO-HOPP<br>Alignauto<br>Avg Type: | Log-Pwr<br>100/100<br>Mk | 00.0 ms (1001 pt<br>09:29:37 AM Apr 21, 202<br>TRACE 12:3 4 5<br>TYPE M WWWW<br>DET P NNN<br>cr1 2.402 0 GH<br>0.549 dBr   |
| Res         BW         100 kHz           ss         Bal           gilent Spectrum Analyzer         Ref           RL         RF           center Freq 2.35         Ref Offs:           0 dB/div         Ref 20.           0 dB/div         Ref 20.           0 dB/div         Ref 0ffs:           0 dB/div         Ref 20.  | nd Edge NV<br>- Swept SA<br>50 Q AC<br>6000000 GHz<br>et 0.5 dB<br>00 dBm  | /NT 2.4G                   | 2402MHz                              | ALIGNAUTO                           | Log-Pwr<br>100/100<br>Mk | 00.0 ms (1001 pt:<br>5iON<br>09:29:37 AM Apr 21,202<br>TRACE [1:2:3:45<br>TYPE M WHAT<br>0.549 dBr<br>0.549 dBr<br>1-<br>1-<br>1-<br>1-<br>1-<br>1-<br>1-<br>1-<br>1-<br>1-  |
| Res         BW         100 kHz           sa         Bal           glient Spectrum Analyzer         Ref           center Freq 2.35         Ref Offs:           0 dB/div         Ref 20.           0 dB/div         Ref 20. <td>nd Edge NV<br/>- Swept SA<br/>50 Ω AC<br/>60000000 GHz<br/>et 0.5 dB<br/>00 dBm</td> <td>/NT 2.4G</td> <td>3 2402MHz</td> <td>ALIGNAUTO</td> <td>Log-Pwr<br/>100/100<br/>Mk</td> <td>00.0 ms (1001 pt<br/>00:0 ms (1001 pt<br/>00:29:37 AM Apr 21,202<br/>TRACE 12:34<br/>00:29:37 AM Apr 21,202<br/>TRACE 12:34<br/>TRACE 1</td>   | nd Edge NV<br>- Swept SA<br>50 Ω AC<br>60000000 GHz<br>et 0.5 dB<br>00 dBm | /NT 2.4G                   | 3 2402MHz                            | ALIGNAUTO                           | Log-Pwr<br>100/100<br>Mk | 00.0 ms (1001 pt<br>00:0 ms (1001 pt<br>00:29:37 AM Apr 21,202<br>TRACE 12:34<br>00:29:37 AM Apr 21,202<br>TRACE 12:34<br>TRACE 1 |
| glient Spectrum Analyzer           RL         RF         Ref         Status         Ref         Offs:           Center Freq 2.35         Ref Offs:         Ref Offs: <td>nd Edge NV<br/>- swept SA<br/>50 Ω AC<br/>6000000 GHz<br/>et 0.5 dB<br/>00 dBm</td> <td>/NT 2.4G</td> <td>3 2402MHz</td> <td>ALIGNAUTO</td> <td>Log-Pwr<br/>100/100<br/>Mk</td> <td>00.0 ms (1001 pt<br/>00:0 ms (1001 pt<br/>00:29:37 AM Apr 21,200<br/>TRACE [] 2 3 4<br/>TRACE [] 3 4</td> | nd Edge NV<br>- swept SA<br>50 Ω AC<br>6000000 GHz<br>et 0.5 dB<br>00 dBm  | /NT 2.4G                   | 3 2402MHz                            | ALIGNAUTO                           | Log-Pwr<br>100/100<br>Mk | 00.0 ms (1001 pt<br>00:0 ms (1001 pt<br>00:29:37 AM Apr 21,200<br>TRACE [] 2 3 4<br>TRACE [] 3 4   |



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# 8. Band Edge(Hopping)

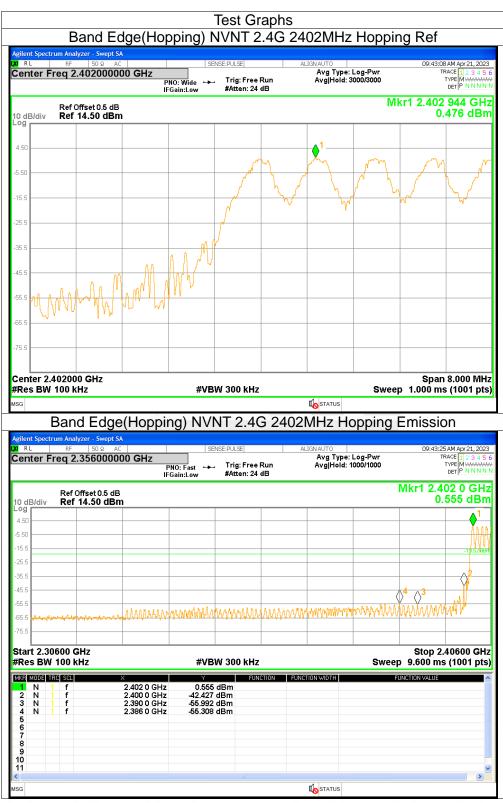
| Condition | Mode | Frequency (MHz) | Hopping Mode | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|------|-----------------|--------------|-----------------|-------------|---------|
| NVNT      | 2.4G | 2402            | Hopping      | -55.78          | <=-20       | Pass    |
| NVNT      | 2.4G | 2480            | Hopping      | -54.35          | <=-20       | Pass    |

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# 9. Conducted RF Spurious Emission

| Condition | Mode | Frequency (MHz) | Max Value (dBc) | Limit (dBc) | Verdict |
|-----------|------|-----------------|-----------------|-------------|---------|
| NVNT      | 2.4G | 2402            | -47.92          | <=-20       | Pass    |
| NVNT      | 2.4G | 2440            | -47.4           | <=-20       | Pass    |
| NVNT      | 2.4G | 2480            | -47.79          | <=-20       | Pass    |





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| <mark>gilent Spectrum Analyzer - Swep</mark><br>RL RF 50 Ω  | AC   | SENSE  | :PULSE                         | ALIGNAUTO  | 09:29:42 AM Apr 21, 202  |
|---|--|--|--------------------------------|--|--|
| enter Freq 2.402000   | PI   | NO: Wide +   | Trig: Free Run<br>Atten: 30 dB | Avg Type: Log-Pwr<br>Avg Hold: 100/100   | TRACE 1 2 3 4 5<br>TYPE MWWWM<br>DET P N N N N   |
| Ref Offset 0.5 o<br>D dB/div Ref 20.00 dB   |  |  |                                | Mk   | r1 2.401 968 5 GH<br>0.567 dBr   |
| og  |  |  |                                |  |  |
| 10.0  |  |  |                                |  |  |
| 0.00  |  | malina   | ~~~~                           | m  |  |
| 0.0   | man www.   |  |                                | - Month March Marc |  |
| 20.0 mmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmmm  |  |  |                                |  | Monorm   |
| 30.0 m  |  |  |                                |  | www.h  |
| 0.0   |  |  |                                |  |  |
| 50.0  |  |  |                                |  |  |
| 60.0  |  |  |                                |  |  |
| 0.0   |  |  |                                |  |  |
|   |  |  |                                |  |  |
|   |  |  |                                |  | Cnon 1 600 MH  |
| enter 2.4020000 GHz<br>Res BW 100 kHz   |  | #VBW   | 300 kHz                        | Swee   |  |
| Res BW 100 kHz  |  |  |                                | STATUS   | Span 1.500 MH<br>ep 1.000 ms (1001 pts   |
| Res BW 100 kHz  |  |  |                                |  | ep 1.000 ms (1001 pt   |
| Res BW 100 kHz           3G           gilent Spectrum Analyzer - Swep           RL         RF         50 Ω  | t SA<br>AC   | ous NVN  |                                | 02MHz Emission   | ep 1.000 ms (1001 pt<br>)<br>09:30:18 AM Apr 21, 202   |
| Res BW 100 kHz  | t SA<br>AC    <br>00000 GHz<br>P   | DUS NVN  | T 2.4G 24                      | 02MHz Emission   | ep 1.000 ms (1001 pt:<br>0:30:18AM Apr 21,202<br>TRACE [1 2 3 4 5<br>TYPE [W 3 4 5   |
| Res BW 100 kHz<br>glient Spectrum Analyzer - Swep<br>RL RF 500<br>enter Freq 13.26500<br>Ref Offset 0.5 d   | t SA<br>AC 00000 GHz<br>P<br>IF1<br>dB   |  | T 2.4G 24                      | O2MHz Emission   | 09:30:18 AM Apr 21, 202<br>TRACE [1 2 3 4 5<br>TYPE [<br>MKr1 2.401 7 GH   |
| Res BW 100 kHz<br>I<br>I<br>I<br>I<br>I<br>I<br>I<br>I<br>I<br>I<br>I<br>I<br>I   | t SA<br>AC 00000 GHz<br>P<br>IF1<br>dB   |  | T 2.4G 24                      | O2MHz Emission   | 09:30:18 AM Apr 21, 202<br>TRACE [1 2 3 4 5<br>TYPE [<br>MKr1 2.401 7 GH   |
| Res BW 100 kHz           sg           glient Spectrum Analyzer - Sweptrawe (Sector)           RL         RF           sg           enter Freq 13.26500           0 dB/div           Ref Offset 0.5 or Ref 20.00 dl           0 dB/div   | t SA<br>AC 00000 GHz<br>P<br>IF1<br>dB   |  | T 2.4G 24                      | O2MHz Emission   | 09:30:18 AM Apr 21, 202<br>TRACE [1 2 3 4 5<br>TYPE [<br>MKr1 2.401 7 GH   |
| Res BW 100 kHz<br>gilent Spectrum Analyzer - Swep<br>RL RF 50 0<br>enter Freq 13.26500<br>0 dB/div Ref Offset 0.5 -<br>Ref Offset 0.5 -<br>1  | t SA<br>AC 00000 GHz<br>P<br>IF1<br>dB   |  | T 2.4G 24                      | O2MHz Emission   | ep 1.000 ms (1001 pt:<br>09:30:18AM Apr 21, 202<br>TRACE 12:3 4 5<br>TYPE MWWWW<br>Der P NNNN<br>Mkr1 2.401 7 GH<br>0.298 dBr  |
| Res BW 100 kHz<br>g<br>g<br>RL RF 50 0<br>enter Freq 13.26500<br>Ref Offset 0.5<br>Ref 2000 dl<br>g<br>1<br>0 dB/div<br>Ref 2000 dl<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1  | t SA<br>AC 00000 GHz<br>P<br>IF1<br>dB   |  | T 2.4G 24                      | O2MHz Emission   | ep 1.000 ms (1001 pt:<br>09:30:18AM Apr 21, 202<br>TRACE 12:3 4 5<br>TYPE MWWWW<br>Der P NNNN<br>Mkr1 2.401 7 GH<br>0.298 dBr  |
| Res BW 100 kHz           sg           glient Spectrum Analyzer - Swep           RL         RF           Ref Offset 0.5 c           o dB/div           Ref 2000 dl           9           10.0           20           0.00           0.00           0.00           0.00           0.00           0.00   | t SA<br>AC 00000 GHz<br>P<br>IF1<br>dB   |  | T 2.4G 24                      | O2MHz Emission   | ep 1.000 ms (1001 pt   |
| Res BW 100 kHz           sg           glient Spectrum Analyzer - Swep           RL         RF           Rt         RF           Ref Offset 0.5 -           0 dB/div         Ref 2000 dl           9         1           0.00         1           0.00         1           0.00         1  | t SA<br>AC 00000 GHz<br>P<br>IF1<br>dB   |  | T 2.4G 24                      | ALIGNAUTO<br>AVIG Type: Log-Pwr<br>AvigHold: 10/10   | ep 1.000 ms (1001 pt:<br>09:30:18AM Apr 21, 202<br>TRACE 12:3 4 5<br>TYPE MWWWW<br>Der P NNNN<br>Mkr1 2.401 7 GH<br>0.298 dBr  |
| Res BW 100 kHz           sg           glient Spectrum Analyzer - Swep           RL         RF           Ref Offset0.5           0 dB/div           Ref Offset0.5           0 dB/div           Ref Offset0.5           0 dB/div           Ref Offset0.5           0 dB/div           0 dB/div <tr< td=""><td>t SA<br/>AC 00000 GHz<br/>P<br/>IF1<br/>dB</td><td>NO: Fast</td><td>T 2.4G 24</td><td>ALIGNAUTO<br/>AVIG Type: Log-Pwr<br/>AvigHold: 10/10</td><td>ep 1.000 ms (1001 pt:<br/>09:30:18 AM Apr 21,202<br/>TRACE [1 2 3 4 5<br/>TYPE [MVNNN<br/>Mkr1 2.401 7 GH<br/>0.298 dBn<br/>-19:43 dB<br/>-19:43 dB<br/>-19:43 dB<br/>-19:43 dB</td></tr<>  | t SA<br>AC 00000 GHz<br>P<br>IF1<br>dB   | NO: Fast   | T 2.4G 24                      | ALIGNAUTO<br>AVIG Type: Log-Pwr<br>AvigHold: 10/10   | ep 1.000 ms (1001 pt:<br>09:30:18 AM Apr 21,202<br>TRACE [1 2 3 4 5<br>TYPE [MVNNN<br>Mkr1 2.401 7 GH<br>0.298 dBn<br>-19:43 dB<br>-19:43 dB<br>-19:43 dB<br>-19:43 dB   |
| Res BW 100 kHz           ag           glient Spectrum Analyzer - Swep           RL         RF           so a           enter Freq 13.26500           AB/div           Ref Offset 0.5 d           adb/div           Ref 20.00 dl           ado   | t SA<br>AC 00000 GHz<br>P<br>IF1<br>dB   | NO: Fast   | T 2.4G 24                      | ALIGNAUTO<br>AVIG TYPE: Log-Pwr<br>AvigHold: 10/10   | ep 1.000 ms (1001 pt:<br>09:30:18 AM Apr 21,202<br>TRACE [1 2 3 4 5<br>TYPE [<br>NNNN<br>Mkr1 2.401 7 GH<br>0.298 dBr<br>-1943 dB  |
| Res BW 100 kHz           ag           genet Spectrum Analyzer - Swep           RL         RF           so a           center Freq 13.26500           0 dB/div         Ref Offset 0.5           0 dB/div         Ref 20.00 dl           90         1   | ESA<br>AC P<br>P<br>P<br>P<br>P<br>P<br>P<br>P<br>P<br>P<br>P<br>P<br>P<br>P                                     | NO: Fast<br>NO: Fast<br>SENSE<br>NO: Fast<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE<br>SENSE | T 2.4G 24                      | ALIGNAUTO<br>Avg Type: Log-Pwr<br>Avg Hold: 10/10  | ep 1.000 ms (1001 pt:<br>09:30:18 AM Apr 21,202<br>TRACE [1 2 3 4 5<br>TVPE [<br>VPE [<br>NNNN<br>Mkr1 2.401 7 GH<br>0.298 dBr<br>-19.43 dB<br>-19.43 dB |
| Res BW 100 kHz           sg           sg           RL         RF           RL         RF           enter Freq 13.26500           0 dB/div         Ref Offset 0.5 c           0 dB/div         Ref 2000 dI           0 dB/div         Ref 2000 dI           0 dB/div         Ref 20.00 dI           0 dB/div         Image: State 10.00 dI           0 dI         Image: State 10.00 dI           0 dI         Image: State 10.00 dI           0 dI         Image: State 10.00 dI  | ESA<br>AC P<br>P<br>IFI<br>dB<br>3m<br>↓<br>2.401 7 GHz<br>25.215 3 GHz<br>4.933 1 GHz<br>7.185 7 GHz            | DUS NVN<br>SENSE<br>NO: Fast →<br>Gain:Low   | T 2.4G 24                      | ALIGNAUTO<br>AVIG TYPE: Log-Pwr<br>AvigHold: 10/10   | ep 1.000 ms (1001 pt:<br>09:30:18 AM Apr 21,202<br>TRACE [1 2 3 4 5<br>TVPE [<br>VPE [<br>NNNN<br>Mkr1 2.401 7 GH<br>0.298 dBr<br>-19.43 dB<br>-19.43 dB |
| Res BW 100 kHz           Set in the set of the s | ESA<br>AC<br>D00000 GHz<br>P<br>IFI<br>dB<br>Bm<br>↓<br>↓<br>↓<br>↓<br>↓<br>↓<br>↓<br>↓<br>↓<br>↓<br>↓<br>↓<br>↓ | DUS NVN<br>SENSE<br>NO: Fast<br>Gain:Low<br>#VBW<br>20298 dE<br>-47.356 dE<br>-57.918 dE   | T 2.4G 24                      | ALIGNAUTO<br>AVIG TYPE: Log-Pwr<br>AvigHold: 10/10   | ep 1.000 ms (1001 pt:<br>09:30:18 AM Apr 21,202<br>TRACE [1 2 3 4 5<br>TVPE [<br>VPE [<br>NNNN<br>Mkr1 2.401 7 GH<br>0.298 dBr<br>-19.43 dB<br>-19.43 dB |

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|  |   |  | puniouo                          |  | G 2440MH2  | . 1 (01                   |                                     |  |
|--|---|--|----------------------------------|--|--|---------------------------|-------------------------------------|--|
| Agilent Spect  | trum Analyzer - Sw<br>RF 50 Ω   | AC   |                                  | SENSE:PULSE                                  | ALIGNAUTO  |                           | 09:33:39                            | AM Apr 21, 2023  |
| Center F   | req 2.44000   | 00000 GHz  |                                  | 🛏 Trig: Free Run                             | Avg Type:<br>Avg Hold: 1                           | Log-Pwr                   | TF                                  | ACE 1 2 3 4 5 (  |
|  |   |  | PNO: Wide ↔<br>IFGain:Low        | Atten: 30 dB                                 | Avginoid.  | 007100                    |                                     | DET P N N N N  |
|  | Ref Offset 0.5  | 5 dB   |                                  |  |  | Mkr                       | 1 2.439 9                           |  |
| 10 dB/div  | Ref 20.00 (   |  |                                  |  |  |                           | 0.                                  | 728 dBm  |
|  |   |  |                                  |  |  |                           |                                     |  |
| 10.0   |   |  |                                  |  |  |                           |                                     |  |
|  |   |  |                                  | ↓ <sup>1</sup>                               |  |                           |                                     |  |
| 0.00   |   |  |                                  |  |  |                           |                                     |  |
|  |   |  |                                  |  | The second   |                           |                                     |  |
| -10.0  |   |  |                                  |  |  |                           |                                     |  |
|  | and the second  |  |                                  |  |  |                           |                                     |  |
| 20.0   | mar and a second se            |  |                                  |  |  |                           | - Clarkana                          |  |
| 30.0   |   |  |                                  |  |  |                           |                                     | and the second sec |
| 00.0   |   |  |                                  |  |  |                           |                                     |  |
| -40.0  |   |  |                                  |  |  |                           |                                     |  |
|  |   |  |                                  |  |  |                           |                                     |  |
| -50.0  |   |  |                                  |  |  |                           |                                     |  |
|  |   |  |                                  |  |  |                           |                                     |  |
| -60.0  |   |  |                                  |  |  |                           |                                     |  |
| -70.0  |   |  |                                  |  |  |                           |                                     |  |
| 70.0   |   |  |                                  |  |  |                           |                                     |  |
|  |   |  |                                  |  |  |                           | _                                   |  |
|  | .4400000 GH:<br>/ 100 kHz   | Z  | #V                               | BW 300 kHz                                   |  | #Swee                     | Span<br>p 100.0 ms                  | 1.500 MHz  |
| ISG  |   |  | <i>n</i> <b>v</b>                | 500 KH2                                      | <b>STATUS</b>                                      | #ONCC                     | p 100.0 ma                          | (1001 pts)   |
| 100  |   |  |                                  |  |  |                           |                                     |  |
|  |   | T. 0   |                                  |  | -  |                           |                                     |  |
|  |   |  | ious N\                          | /NT 2.4G 2                                   | 2440MHz E  | missior                   | )                                   |  |
|  | trum Analyzer - Sw  | ept SA   |                                  |  | 2440MHz E  | missior                   |                                     | AM Apr 21 2023   |
| RL   | trum Analyzer - Sw<br>RF 50 ຊ<br>Freq 13.2650   | ept SA<br>AC   |                                  | GENSE:PULSE                                  | 2440MHz Ei<br>Alignauto<br>Avg Type:               | Log-Pwr                   | 09:33:45                            | AM Apr 21, 2023  |
| RL   | RF 50 Ω   | ept SA<br>AC   |                                  |  | 2440MHz Ei   | Log-Pwr                   | 09:33:45                            | AM Apr 21, 2023<br>ACE 1 2 3 4 5 (<br>TYPE M WWWWW<br>DET P N N N N  |
| RL   | RF 50 Ω<br>Freq 13.2650   | ept SA<br>AC  <br>DOOOOO GHZ                             | PNO: Fast ↔                      | EENSE:PULSE<br>⊶ Trig: Free Run              | 2440MHz Ei<br>Alignauto<br>Avg Type:               | Log-Pwr<br>0/10           | 09:33:45                            | TYPE MWWWW<br>DET P N N N N  |
| Center F   | RF 50 Ω   | ept SA<br>AC<br>000000 GHz<br>5 dB                       | PNO: Fast ↔                      | EENSE:PULSE<br>⊶ Trig: Free Run              | 2440MHz Ei<br>Alignauto<br>Avg Type:               | Log-Pwr<br>0/10           | 09:33:45<br>TF<br>Mkr1 2.44         |  |
| Center F   | RF 50 Ω<br>Freq 13.2650<br>Ref Offset 0.5   | ept SA<br>AC<br>000000 GHz<br>5 dB                       | PNO: Fast ↔                      | EENSE:PULSE<br>⊶ Trig: Free Run              | 2440MHz Ei<br>Alignauto<br>Avg Type:               | Log-Pwr<br>0/10           | 09:33:45<br>TF<br>Mkr1 2.44         |  |
| Center F   | RF 50 Ω<br>Freq 13.2650<br>Ref Offset 0.5   | ept SA<br>AC<br>000000 GHz<br>5 dB                       | PNO: Fast ↔                      | EENSE:PULSE<br>⊶ Trig: Free Run              | 2440MHz Ei<br>Alignauto<br>Avg Type:               | Log-Pwr<br>0/10           | 09:33:45<br>TF<br>Mkr1 2.44         |  |
| Center F   | RF 50 Ω<br>Freq 13.2650<br>Ref Offset 0.5   | ept SA<br>AC<br>000000 GHz<br>5 dB                       | PNO: Fast ↔                      | EENSE:PULSE<br>⊶ Trig: Free Run              | 2440MHz Ei<br>Alignauto<br>Avg Type:               | Log-Pwr<br>0/10           | 09:33:45<br>TF<br>Mkr1 2.44         |  |
| RL     Center F     OdB/div     Og     O     O     O     O   | RF 50 Ω<br>Freq 13.2650<br>Ref Offset 0.5   | ept SA<br>AC<br>000000 GHz<br>5 dB                       | PNO: Fast ↔                      | EENSE:PULSE<br>⊶ Trig: Free Run              | 2440MHz Ei<br>Alignauto<br>Avg Type:               | Log-Pwr<br>0/10           | 09:33:45<br>TF<br>Mkr1 2.44         | ACE 1 2 3 4 5<br>TYPE M WWWWW<br>DET P N N N<br>41 4 GHz<br>834 dBm  |
| RL           O dB/div           •9           10.0           0.00           10.0           20.0   | RF 50 Ω<br>Freq 13.2650<br>Ref Offset 0.5   | ept SA<br>AC<br>000000 GHz<br>5 dB                       | PNO: Fast ↔                      | EENSE:PULSE<br>⊶ Trig: Free Run              | 2440MHz Ei<br>Alignauto<br>Avg Type:               | Log-Pwr<br>0/10           | 09:33:45<br>TF<br>Mkr1 2.44         | ACE 123451<br>TYPE MANAGEM<br>DET P NNN<br>41 4 GHz<br>834 dBm   |
| Center F<br>Center F<br>Cod B/div<br>Cod Cod<br>Cod Cod<br>Cod<br>Cod Cod<br>Cod<br>Cod Cod<br>Cod<br>Cod Cod<br>Cod<br>Cod Cod<br>Cod<br>Cod Cod<br>Cod<br>Cod<br>Cod<br>Cod<br>Cod<br>Cod<br>Cod<br>Cod<br>Cod  | RF 50 Ω<br>Freq 13.2650<br>Ref Offset 0.5   | ept SA<br>AC<br>000000 GHz<br>5 dB                       | PNO: Fast ↔                      | EENSE:PULSE<br>⊶ Trig: Free Run              | 2440MHz Ei<br>Alignauto<br>Avg Type:               | Log-Pwr<br>0/10           | 09:33:45<br>TF<br>Mkr1 2.44         | ACE 123451<br>TYPE MANAGEM<br>DET P NNN<br>41 4 GHz<br>834 dBm   |
| 0 dB/div<br>0 dB/div<br>0 dB/div<br>0 dB<br>0 dB<br>0 dV<br>0 dV | RF 50 Ω<br>Freq 13.2650<br>Ref Offset 0.5   | ept SA<br>AC<br>000000 GHz<br>5 dB                       | PNO: Fast ↔                      | EENSE:PULSE<br>⊶ Trig: Free Run              | ALIGNAUTO<br>AVIG TYPE:<br>AVIGHOID: 1             | Log-Pwr<br>0/10           | 09:33:45                            | ACE 123451<br>TYPE MANAGEM<br>DET P NNN<br>41 4 GHz<br>834 dBm   |
| 0 dB/div<br>0 dB/div<br>0 dB/div<br>0 dD<br>0 dD | RF 50 Ω<br>Freq 13.2650<br>Ref Offset 0.5   | ept SA<br>AC<br>000000 GHz<br>5 dB                       | PNO: Fast ↔                      | ENSE-PULSE                                   | ALIGNAUTO<br>AVg Type:<br>Avg Hold: 1              | Log-Pwr<br>0/10           | 09:33:45                            | ACE 1 2 3 4 5<br>TYPE M WWWWW<br>DET P N N N<br>41 4 GHz<br>834 dBm  |
| 0         BJ           2enter F           10         0           9         0           10.0         0           10.0         0           10.0         0           30.0         0           40.0         0           50.0         0   | RF 50 Ω<br>Freq 13.2650<br>Ref Offset 0.5   | ept SA<br>AC<br>000000 GHz<br>5 dB                       | PNO: Fast ↔                      | ENSE-PULSE<br>Trig: Free Run<br>Atten: 30 dB | ALIGNAUTO<br>AVIG TYPE:<br>AVIGHOID: 1             | Log-Pwr<br>0/10           | 09:33:45                            | ACE 1 2 3 4 5<br>TYPE M WWWWW<br>DET P N N N<br>41 4 GHz<br>834 dBm  |
| 0         dE/div           0         dE/div           0         0           0         0           0         0           10.0         0           10.0         0           10.0         0           10.0         0           10.0         0           10.0         0           10.0         0           10.0         0           10.0         0           10.0         0           -20.0  | RF 50 Ω<br>Freq 13.265(<br>Ref Offset 0.6<br>Ref 20.00 6  | ept SA<br>AC<br>000000 GHz<br>5 dB                       | PNO: Fast ↔                      | ENSE:PULSE                                   | ALIGNAUTO<br>AVIG TYPE:<br>AVIGHOID: 1             | Log-Pwr<br>0/10           | 09:33:45                            | 4ACE 1 2 3 4 5<br>DET P N N N<br>DET P N N N<br>41 4 GHz<br>834 dBm<br>19.27 dBm<br>2  |
| 0         dB/div           0         0           0         0           0         0           10.0         0           10.0         0           20.0         0           -20.0         0           -30.0         0           -50.0         0           -60.0         0           -70.0         0           Start 30         10  | RF 50 Q<br>Freq 13.2650<br>Ref 20.00 (  | ept SA<br>AC<br>000000 GHz<br>5 dB                       | PNO: Fast HEGain:Low             | Trig: Free Run<br>Atten: 30 dB               | ALIGNAUTO<br>AVIG TYPE:<br>AVIGHOID: 1             | Log-Pwr<br>0/10           | 09:33:45                            | 4ACE 1 2 3 4 5<br>TYPE M WANNAME<br>DET P N N N<br>41 4 GHz<br>834 dBm<br>-1927 dBm<br>2<br>2<br>26.50 GHz   |
| 10 dB/div           0 gg           10.0           0.00           .10.0           .20.0<  | RF 50 Ω<br>Freq 13.265(<br>Ref 20.00 (<br>1<br>1<br>MHz<br>100 kHz  | ept SA<br>AC<br>000000 GHz<br>5 dB                       | PNO: Fast HEGain:Low             | ENSEPUSE                                     | ALIGNAUTO<br>AUGUNAUTO<br>Avg Type:<br>Avg Hold: 1 | Log-Pwr<br>0/10<br>#Sweep | 09:33:45<br>TF<br>Mkr1 2.44<br>-3.1 | 26.50 GHz  |
| 0         dB/div           -0         dB/div           -0  | RF 50 Ω<br>Freq 13.265(<br>Ref 0ffset 0.6<br>Ref 20.00 (<br>1<br>1<br>MHz<br>↓ 100 kHz<br>TFIG SCL                        | 2.441 4 GH   | PNO: Fast H<br>IFGain:Low        | ENSE-PULSE                                   | ALIGNAUTO<br>AVIG TYPE:<br>AVIGHOID: 1             | Log-Pwr<br>0/10<br>#Sweep | 09:33:45                            | 4ACE 1 2 3 4 5<br>TYPE M WANNAME<br>DET P N N N<br>41 4 GHz<br>834 dBm<br>-1927 dBm<br>2<br>2<br>26.50 GHz   |
| 0         dB/div           -og         -og           10.0         -og           -000         -og  | RF 50 Ω<br>Freq 13.265(<br>Ref 0ffset 0.5<br>Ref 20.00 (<br>1<br>1<br>MHz<br>100 kHz<br>1<br>1<br>1<br>1<br>1<br>1        | AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC | PNO: Fast →<br>IFGain:Low<br>#V  | ENSEPULSE                                    | ALIGNAUTO<br>AUGUNAUTO<br>Avg Type:<br>Avg Hold: 1 | Log-Pwr<br>0/10<br>#Sweep | 09:33:45<br>TF<br>Mkr1 2.44<br>-3.1 | 4ACE 1 2 3 4 5<br>TYPE M WANNAME<br>DET P N N N<br>41 4 GHz<br>834 dBm<br>-1927 dBm<br>2<br>2<br>26.50 GHz   |
| 0         dE/div           0g  | RF 50 Ω<br>Freq 13.265(<br>Ref 20.00 6<br>1<br>1<br>MHz<br>1 1<br>1 5<br>1 5<br>1 5<br>1 5<br>1 5<br>1 5<br>1 5           | AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC | PNO: Fast →<br>IFGain:Low<br>#VI | ENSEPULSE<br>Trig: Free Run<br>Atten: 30 dB  | ALIGNAUTO<br>AUGUNAUTO<br>Avg Type:<br>Avg Hold: 1 | Log-Pwr<br>0/10<br>#Sweep | 09:33:45<br>TF<br>Mkr1 2.44<br>-3.1 | 26.50 GHz  |
| 10 dB/div           0 g           0 g           10 dD/div           0 g           10 dD/div           0 g           10 dD/div  | RF 50 2<br>Freq 13.2650<br>Ref Offset 0.6<br>Ref 20.00 6<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1 | AC A                 | PNO: Fast →<br>IFGain:Low<br>#VI | ENSE-PULSE                                   | ALIGNAUTO<br>AUGUNAUTO<br>Avg Type:<br>Avg Hold: 1 | Log-Pwr<br>0/10<br>#Sweep | 09:33:45<br>TF<br>Mkr1 2.44<br>-3.1 | 26.50 GHz  |
| 10 dB/div           0 g           0 g           10 dD/div           0 g           10 dD/div           0 g           10 dD/div  | RF 50 Ω<br>Freq 13.265(<br>Ref 20.00 6<br>1<br>1<br>MHz<br>1 1<br>1 5<br>1 5<br>1 5<br>1 5<br>1 5<br>1 5<br>1 5           | AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC | PNO: Fast →<br>IFGain:Low<br>#VI | ENSEPULSE<br>Trig: Free Run<br>Atten: 30 dB  | ALIGNAUTO<br>AUGUNAUTO<br>Avg Type:<br>Avg Hold: 1 | Log-Pwr<br>0/10<br>#Sweep | 09:33:45<br>TF<br>Mkr1 2.44<br>-3.1 | -19.27 dBm   |
| 0         dB/div           0g  | RF 50 Ω<br>Freq 13.265(<br>Ref 20.00 6<br>1<br>1<br>MHz<br>1 1<br>1 5<br>1 5<br>1 5<br>1 5<br>1 5<br>1 5<br>1 5           | AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC | PNO: Fast →<br>IFGain:Low<br>#VI | ENSEPULSE<br>Trig: Free Run<br>Atten: 30 dB  | ALIGNAUTO<br>AUGUNAUTO<br>Avg Type:<br>Avg Hold: 1 | Log-Pwr<br>0/10<br>#Sweep | 09:33:45<br>TF<br>Mkr1 2.44<br>-3.1 | 26.50 GHz  |
| 0         dB/div           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           10.0         0           20.0         0           30.0         0           30.0         0           30.0         0           31.0         0           31.0         0           31.0         0           31.0         0  | RF 50 Ω<br>Freq 13.265(<br>Ref 20.00 6<br>1<br>1<br>MHz<br>1 1<br>1 5<br>1 5<br>1 5<br>1 5<br>1 5<br>1 5<br>1 5           | AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC<br>AC | PNO: Fast →<br>IFGain:Low<br>#VI | ENSEPULSE<br>Trig: Free Run<br>Atten: 30 dB  | ALIGNAUTO<br>AUGUNAUTO<br>Avg Type:<br>Avg Hold: 1 | Log-Pwr<br>0/10<br>#Sweep | 09:33:45<br>TF<br>Mkr1 2.44<br>-3.1 | 26.50 GHz  |

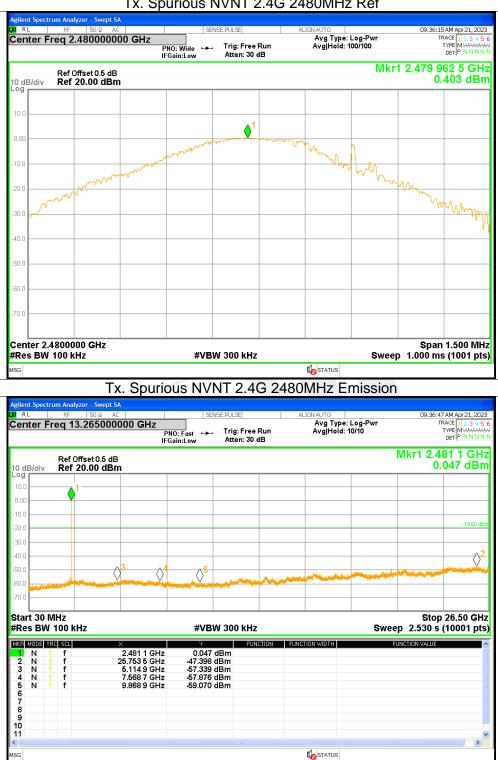
Ty Sourious NI/NT 2 AC 2440MU- Dof

Shenzhen STS Test Services Co., Ltd.

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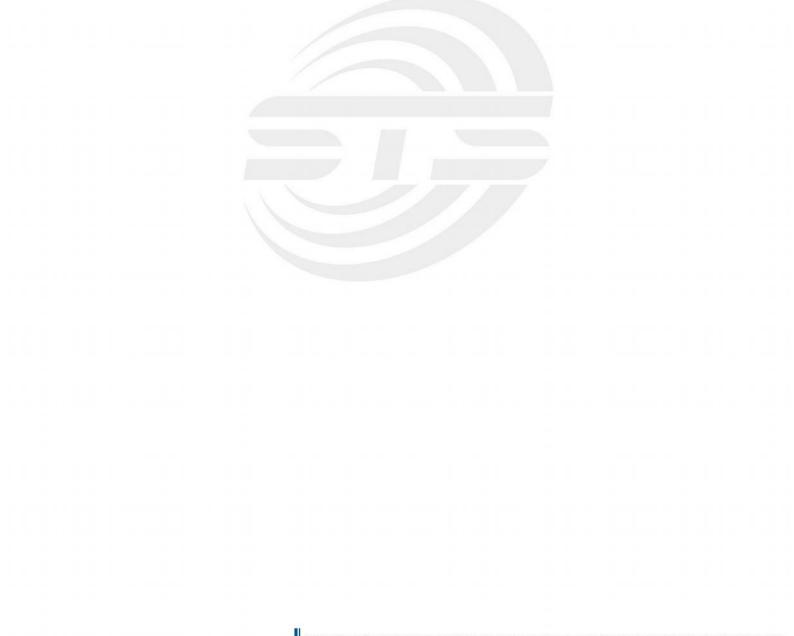
Tx. Spurious NVNT 2.4G 2480MHz Ref



### **APPENDIX 2-PHOTOS OF TEST SETUP**

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

\* \* \* \* \* END OF THE REPORT \* \* \* \* \*



Shenzhen STS Test Services Co., Ltd.