



# TEST REPORT

Product Name: tablet computer  
FCC ID: 2BK3H-12SPRO  
Trademark: N/A  
Model Number: 12S Pro, Mi Pad 5, Pad i14 Pro, Pro11 Max, Pro12 Max, Pro14 Max, Pro10 Max, Pad 6 Pro, Pad 6 Ultra, 16 Pro, Pad 5 Pro, S7  
Prepared For: Shenzhen Saiwei International Trade Co., Ltd  
Address: 211, Jinyun Century Building, 6033 Shennan Avenue, Tian'an Community, Shatou Street, Futian District, Shenzhen  
Manufacturer: Shenzhen Shengchuan Industrial Co., Ltd  
Address: 2nd Floor, Building 4, Hongdu Industrial Park, Lezhujiao, Xixiang, Shenzhen  
Prepared By: Shenzhen CTB Testing Technology Co., Ltd.  
Address: 1&2/F., Building A, No.26, Xinhe Road, Xinqiao, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, China  
Sample Received Date: Aug. 12, 2024  
Sample tested Date: Aug. 12, 2024 to Aug. 19, 2024  
Issue Date: Aug. 19, 2024  
Report No.: CTB240819079RFX  
Test Standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247  
ANSI C63.10:2013  
Test Results: PASS  
Remark: This is Bluetooth radio test report.

Compiled by:

Reviewed by:

Approved by:

Zhou kui

Arron Liu



Zhou Kui

Arron Liu

Bin Mei / Director

Note: If there is any objection to the inspection results in this report, please submit a written report to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen CTB Testing Technology Co., Ltd. this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client. "\*" indicates the testing items were fulfilled by subcontracted lab. "#" indicates the items are not in CNAS accreditation scope.

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(Note: N/A means not applicable)



1. VERSION

| Report No.      | Issue Date    | Description | Approved |
|-----------------|---------------|-------------|----------|
| CTB240819079RFX | Aug. 19, 2024 | Original    | Valid    |

## 2. TEST SUMMARY

The Product has been tested according to the following specifications:

| Test Item                                     | Test Requirement                                                            | Test method      | Result |
|-----------------------------------------------|-----------------------------------------------------------------------------|------------------|--------|
| AC Power Line Conducted Emission              | 47 CFR Part 15 Subpart C Section 15.207                                     | ANSI C63.10-2013 | PASS   |
| Radiated Spurious emissions                   | 47 CFR Part 15 Subpart C Section 15.205/15.209                              | ANSI C63.10-2013 | PASS   |
| Band edge and RF Conducted Spurious Emissions | 47 CFR Part 15 Subpart C Section 15.247(d)/15.205(a)                        | ANSI C63.10-2013 | PASS   |
| Conducted Peak Output Power                   | 47 CFR Part 15 Subpart C Section 15.247 (b)(1)                              | ANSI C63.10-2013 | PASS   |
| 20dB Occupied Bandwidth                       | 47 CFR Part 15 Subpart C Section 15.247 (a)(1)                              | ANSI C63.10-2013 | PASS   |
| Carrier Frequencies Separation                | 47 CFR Part 15 Subpart C Section 15.247 (a)(1)                              | ANSI C63.10-2013 | PASS   |
| Hopping Channel Number                        | 47 CFR Part 15 Subpart C Section 15.247 (b)                                 | ANSI C63.10-2013 | PASS   |
| Dwell Time                                    | 47 CFR Part 15 Subpart C Section 15.247 (a)(1)                              | ANSI C63.10-2013 | PASS   |
| Pseudorandom Frequency Hopping Sequence       | 47 CFR Part 15 Subpart C Section 15.247(a)&TCB Exclusion List (7 July 2002) | ANSI C63.10-2013 | PASS   |
| Antenna Requirement                           | 47 CFR Part 15 Subpart C Section 15.203/15.247 (b)                          | /                | PASS   |
| RF Exposure Evaluation                        | 47 CFR Part 15 Subpart C Section 15.247 (i)/1.1310/2.1093                   | KDB447498D01v06  | PASS   |

Remark:

Test according to ANSI C63.10-2013.

### 3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

| Item                                               | Uncertainty        |
|----------------------------------------------------|--------------------|
| Occupancy bandwidth                                | 54.3kHz            |
| Conducted output power Above 1G                    | 0.9dB              |
| Conducted output power below 1G                    | 0.9dB              |
| Power Spectral Density , Conduction                | 0.9dB              |
| Conduction spurious emissions                      | 2.0dB              |
| Out of band emission                               | 2.0dB              |
| 3m chamber Radiated spurious emission(9KHz-30MHz)  | 4.8dB              |
| 3m chamber Radiated spurious emission(30MHz-1GHz)  | 4.6dB              |
| 3m chamber Radiated spurious emission(1GHz-18GHz)  | 5.1dB              |
| 3m chamber Radiated spurious emission(18GHz-40GHz) | 3.4dB              |
| humidity uncertainty                               | 5.5%               |
| Temperature uncertainty                            | 0.63℃              |
| frequency                                          | 1×10 <sup>-7</sup> |
| Conducted Emission (150KHz-30MHz)                  | 3.2 dB             |
| Radiated Emission(30MHz ~ 1000MHz)                 | 4.8 dB             |
| Radiated Emission(1GHz ~6GHz)                      | 4.9 dB             |

#### 4. PRODUCT INFORMATION AND TEST SETUP

##### 4.1 Product Information

|                       |                                                                                                                           |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------|
| Model(s):             | 12S Pro, Mi Pad 5, Pad i14 Pro, Pro11 Max, Pro12 Max, Pro14 Max, Pro10 Max, Pad 6 Pro, Pad 6 Ultra, 16 Pro, Pad 5 Pro, S7 |
| Model Description:    | All the model are the same circuit and RF module, only the color of the shell is different. Test sample model: 12S Pro    |
| Bluetooth Version:    | Bluetooth 5.0                                                                                                             |
| Hardware Version:     | V1.0                                                                                                                      |
| Software Version:     | V1.0                                                                                                                      |
| Operation Frequency:  | Bluetooth: 2402-2480MHz                                                                                                   |
| Max. RF output power: | Bluetooth: 4.733dBm                                                                                                       |
| Type of Modulation:   | Bluetooth: GFSK, $\pi/4$ DQPSK, 8DPSK                                                                                     |
| Antenna installation: | Bluetooth: FPC antenna                                                                                                    |
| Antenna Gain:         | Bluetooth: 0.17dBi                                                                                                        |
| Ratings:              | DC 5V charging from adapter<br>DC 3.7V by battery                                                                         |

##### 4.2 Test Setup Configuration

See test photographs attached in EUT TEST SETUP PHOTOGRAPHS for the actual connections between Product and support equipment.

##### 4.3 Support Equipment

| Item | Equipment | Mfr/Brand | Model/Type No. | Series No. | Note |
|------|-----------|-----------|----------------|------------|------|
| 1    | Adapter   | JYIN      | JY-05100C      | /          | AE   |

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

#### 4.4 Channel List

| CH | Frequency (MHz) | CH | Frequency (MHz) | CH | Frequency (MHz) | CH | Frequency (MHz) |
|----|-----------------|----|-----------------|----|-----------------|----|-----------------|
| 0  | 2402            | 1  | 2403            | 2  | 2404            | 3  | 2405            |
| 4  | 2406            | 5  | 2407            | 6  | 2408            | 7  | 2409            |
| 8  | 2410            | 9  | 2411            | 10 | 2412            | 11 | 2413            |
| 12 | 2414            | 13 | 2415            | 14 | 2416            | 15 | 2417            |
| 16 | 2418            | 17 | 2419            | 18 | 2420            | 19 | 2421            |
| 20 | 2422            | 21 | 2423            | 22 | 2424            | 23 | 2425            |
| 24 | 2426            | 25 | 2427            | 26 | 2428            | 27 | 2429            |
| 28 | 2430            | 29 | 2431            | 30 | 2432            | 31 | 2433            |
| 32 | 2434            | 33 | 2435            | 34 | 2436            | 35 | 2437            |
| 36 | 2438            | 37 | 2439            | 38 | 2440            | 39 | 2441            |
| 40 | 2442            | 41 | 2443            | 42 | 2444            | 43 | 2445            |
| 44 | 2446            | 45 | 2447            | 46 | 2448            | 47 | 2449            |
| 48 | 2450            | 49 | 2451            | 50 | 2452            | 51 | 2453            |
| 52 | 2454            | 53 | 2455            | 54 | 2456            | 55 | 2457            |
| 56 | 2458            | 57 | 2459            | 58 | 2460            | 59 | 2461            |
| 60 | 2462            | 61 | 2463            | 62 | 2464            | 63 | 2465            |
| 64 | 2466            | 65 | 2467            | 66 | 2468            | 67 | 2469            |
| 68 | 2470            | 69 | 2471            | 70 | 2472            | 71 | 2473            |
| 72 | 2474            | 73 | 2475            | 74 | 2476            | 75 | 2477            |
| 76 | 2478            | 77 | 2479            | 78 | 2480            | 79 | /               |

#### 4.5 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

| Test mode                                    | Low channel | Middle channel | High channel |
|----------------------------------------------|-------------|----------------|--------------|
| Transmitting<br>(GFSK, $\pi/4$ DQPSK, 8DPSK) | 2402MHz     | 2441MHz        | 2480MHz      |
| Receiving<br>(GFSK, $\pi/4$ DQPSK, 8DPSK)    | 2402MHz     | 2441MHz        | 2480MHz      |

#### 4.6 Test Environment

|                                          |      |
|------------------------------------------|------|
| Humidity(%):                             | 54   |
| Atmospheric Pressure(kPa):               | 101  |
| Normal Voltage(DC):                      | 3.7V |
| Normal Temperature( $^{\circ}\text{C}$ ) | 23   |
| Low Temperature( $^{\circ}\text{C}$ )    | 0    |
| High Temperature( $^{\circ}\text{C}$ )   | 40   |

## 5. TEST FACILITY AND TEST INSTRUMENT USED

### 5.1 Test Facility

All measurement facilities used to collect the measurement data are located at 1&2F., Building A, No. 26, Xinh Road, Xinqiao, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4 and CISPR 16-1-1 other equivalent standards.

### 5.2 Test Instrument Used

| No. | Equipment                                 | Manufacturer | Type No.                  | Serial No.   | Firmware Version           | Calibrated until |
|-----|-------------------------------------------|--------------|---------------------------|--------------|----------------------------|------------------|
| 1   | Spectrum Analyzer                         | Agilent      | N9020A                    | MY52090073   | A.14.16                    | 2025/6/28        |
| 2   | Power Sensor                              | Agilent      | U2021XA                   | MY56120032   | /                          | 2025/6/28        |
| 3   | Power Sensor                              | Agilent      | U2021XA                   | MY56120034   | /                          | 2025/6/28        |
| 4   | Communication test set                    | R&S          | CMW500                    | 108058       | V3.5.80                    | 2025/6/28        |
| 5   | Spectrum Analyzer                         | KEYSIGHT     | N9020A                    | MY51289897   | A.14.16                    | 2025/6/28        |
| 6   | Signal Generator                          | Agilent      | N5181A                    | MY50140365   | A.01.60                    | 2025/6/28        |
| 7   | Vector signal generator                   | Agilent      | N5182A                    | MY47420195   | A.01.87                    | 2025/6/28        |
| 8   | Communication test set                    | Agilent      | E5515C                    | MY50102567   | B.19.07<br>(E1962B)        | 2025/6/28        |
| 9   | 2.4 GHz Filter                            | Shenxiang    | MSF2400-24<br>83.5MS-1154 | 20181015001  | /                          | 2025/6/30        |
| 10  | 5 GHz Filter                              | Shenxiang    | MSF5150-58<br>50MS-1155   | 20181015001  | /                          | 2025/6/30        |
| 11  | Filter                                    | Xingbo       | XBLBQ-DZA<br>120          | 190821-1-1   | /                          | 2025/6/30        |
| 12  | BT&WI-FI Automatic test software          | Microwave    | MTS8310                   | Ver. 2.0.0.0 | /                          | /                |
| 13  | Rohde & Schwarz SFU Broadcast Test System | R&S          | SFU                       | 101017       | /                          | 2025/6/28        |
| 14  | Temperature humidity chamber              | Hongjing     | TH-80CH                   | DG-15174     | /                          | 2025/6/28        |
| 15  | 234G Automatic test software              | Microwave    | MTS8200                   | Ver. 2.0.0.0 | /                          | /                |
| 16  | 966 chamber                               | C.R.T.       | 966                       | /            | /                          | 2027/6/21        |
| 17  | Receiver                                  | R&S          | ESPI                      | 100362       | RF_ATTEN_7<br>(104489/003) | 2025/6/28        |
| 18  | Amplifier                                 | HP           | 8447E                     | 2945A02747   | /                          | 2025/6/28        |
| 19  | Amplifier                                 | Agilent      | 8449B                     | 3008A01838   | /                          | 2025/6/28        |
| 20  | TRILOG Broadband Antenna                  | Schwarzbeck  | VULB 9168                 | 00869        | /                          | 2025/6/28        |
| 21  | Double Ridged Broadband Horn Antenna      | Schwarzbeck  | BBHA9120D                 | 01911        | /                          | 2025/6/28        |

|    |                   |             |            |            |         |           |
|----|-------------------|-------------|------------|------------|---------|-----------|
| 22 | EMI test software | Fala        | EZ-EMC     | FA-03A2 RE | /       | /         |
| 23 | Loop Antenna      | Schwarzbeck | FMZB 1519B | 1519B-224  | /       | 2025/6/28 |
| 24 | loop antenna      | ZHINAN      | ZN30900A   | GTS534     | /       | /         |
| 25 | 40G Horn antenna  | A/H/System  | SAS-574    | 588        | /       | 2025/6/28 |
| 26 | Amplifier         | AEROFLEX    | Aeroflex   | 097        | /       | 2025/6/28 |
| 27 | Power Metter      | KEYSIGHT    | N1912AP    | N/A        | A.05.00 | 2025/6/28 |

| Continuous disturbance |                        |               |              |            |                     |                  |
|------------------------|------------------------|---------------|--------------|------------|---------------------|------------------|
| No.                    | Equipment              | Manufacturer  | Model No.    | Serial No. | Firmware version    | Calibrated until |
| 1                      | 843 Shield Room        | C/ R/ T       | 843          | /          | /                   | 2027/6/21        |
| 2                      | AMN                    | ROHDE&SCHWARZ | ESH3-Z5      | 831551852  | /                   | 2025/6/30        |
| 3                      | Pulse limiter          | ROHDE&SCHWARZ | ESH3Z2       | 357881052  | /                   | 2025/6/28        |
| 4                      | EMI TEST RECEIVER      | ROHDE&SCHWARZ | ESCI         | 100428     | V4.42.SP3           | 2025/6/30        |
| 5                      | Coaxial cable          | ZDECL         | Z302S        | 18091904   | /                   | 2025/6/30        |
| 6                      | ISN                    | Schwarzbeck   | NTFM8158     | 183        | /                   | 2025/6/30        |
| 7                      | Voltage sensor         | Schwarzbeck   | TK 9420      | 01189      | /                   | 2024/11/16       |
| 8                      | EZ-EMC                 | Frad          | EMC-con3A1.1 | /          | /                   | /                |
| 9                      | Current Probe          | FCC           | F-52B        | 199453     | /                   | 2025/5/27        |
| 10                     | Communication test set | R&S           | CMW500       | 108058     | B.19.07<br>(E1962B) | 2025/6/28        |
| 11                     | Communication test set | Agilent       | E5515C       | MY50102567 | V3.5.80             | 2025/6/28        |

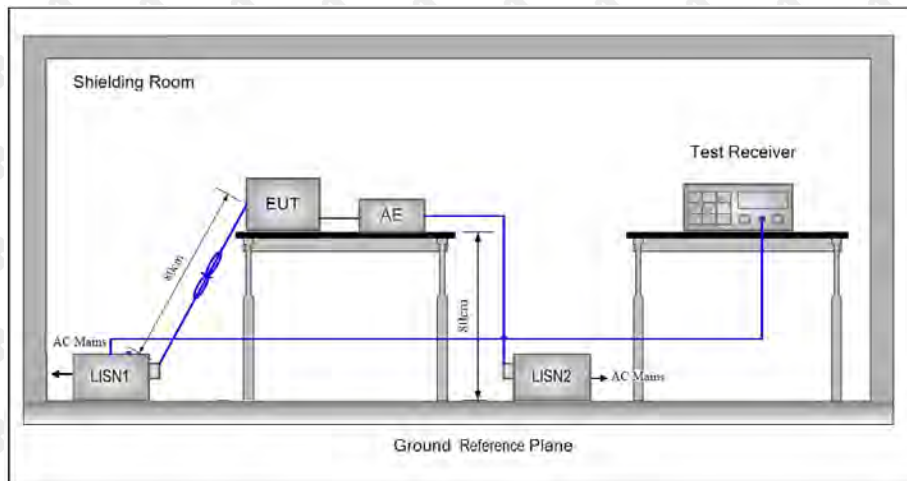
| Radiated emission(No.2 Chamber) |                                      |              |             |            |                  |                  |
|---------------------------------|--------------------------------------|--------------|-------------|------------|------------------|------------------|
| No.                             | Equipment                            | Manufacturer | Model No.   | Serial No. | Firmware version | Calibrated until |
| 1                               | 966 Chamber                          | C/ R/ T      | 966         | /          | /                | 2026/11/14       |
| 2                               | Double Ridged Broadband Horn Antenna | Schwarzbeck  | BBHA 9120 D | 01911      | /                | 2026/7/07        |
| 3                               | Broadband Antenna                    | Schwarzbeck  | VULB 9168   | 1471       | /                | 2025/7/06        |
| 4                               | Amplifier                            | Agilent      | 8449B       | 3008A01838 | /                | 2025/6/30        |
| 5                               | Preamplifier                         | Schwarzbeck  | BBV 9743 B  | 00500      | /                | 2025/5/23        |
| 6                               | EMI TEST RECEIVER                    | R&S          | ESCI7       | 100861     | /                | 2024/11/27       |
| 7                               | Spectrum Analyzer                    | KEYSIGHT     | N9020A      | MY51289897 | A.14.16          | 2025/6/28        |
| 8                               | EMI test software                    | Farad        | EZ-EMC      | /          | Ver. FARAD-3A1+  | /                |
| 9                               | Coaxial cable                        | Rosenberg    | 8m          | /          | /                | 2024/11/27       |
| 10                              | Coaxial cable                        | Times        | 2m          | /          | /                | 2024/11/27       |



|    |                        |             |            |            |                     |            |
|----|------------------------|-------------|------------|------------|---------------------|------------|
| 11 | Coaxial cable          | Times       | 2m         | /          | /                   | 2024/11/27 |
| 12 | Coaxial cable          | Times       | 1m         | /          | /                   | 2024/11/27 |
| 13 | loop antenna           | Schwarzbeck | FMZB 1519B | 1519B-224  | /                   | 2025/6/29  |
| 14 | Communication test set | R&S         | CMW500     | 108058     | B.19.07<br>(E1962B) | 2025/6/28  |
| 15 | Communication test set | Agilent     | E5515C     | MY50102567 | V3.5.80             | 2025/6/28  |

## 6. AC POWER LINE CONDUCTED EMISSION

### 6.1 Block Diagram Of Test Setup



### 6.2 Limit

Table 4 – AC power-line conducted emissions limits

| Frequency (MHz) | Conducted limit (dB $\mu$ V) |                            |
|-----------------|------------------------------|----------------------------|
|                 | Quasi-peak                   | Average                    |
| 0.15 - 0.5      | 66 to 56 <sup>Note 1</sup>   | 56 to 46 <sup>Note 1</sup> |
| 0.5 - 5         | 56                           | 46                         |
| 5 - 30          | 60                           | 50                         |

**Note 1:** The level decreases linearly with the logarithm of the frequency.

\* Decreasing linearly with the logarithm of the frequency

### 6.3 Test procedure

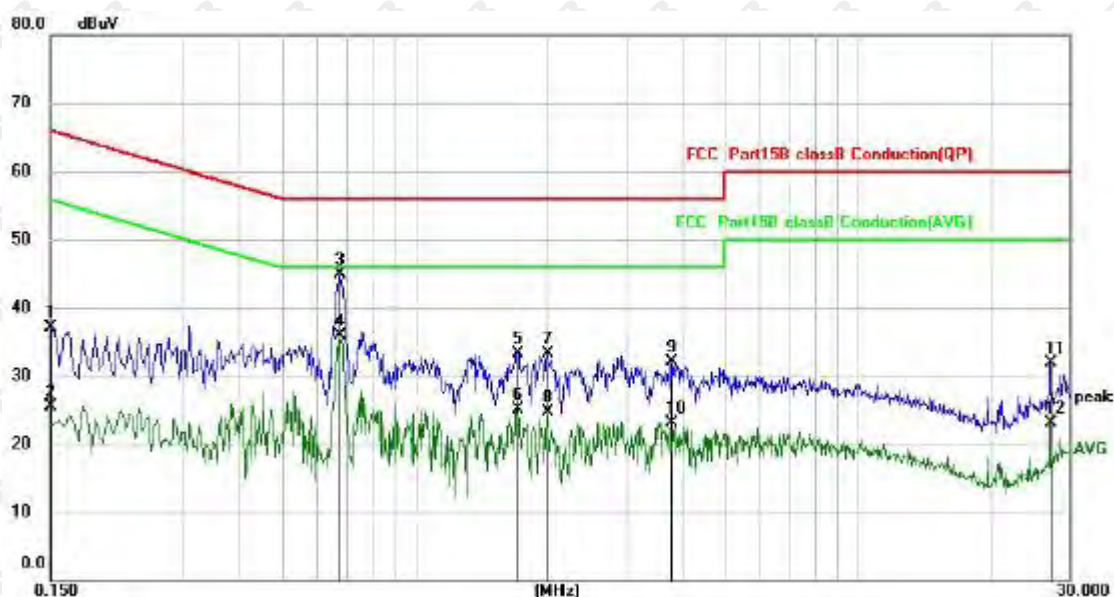
- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50 $\Omega$ /50 $\mu$ H + 5 $\Omega$  linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane.

This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.
- 6) All modes were tested at AC 120V and 240V, only the worst result of AC 120V 60Hz was reported.
- 7) If a EUT received DC power from the USB Port of Notebook PC, the PC's adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.

## 6.4 Test Result

### L: Worst case-GFSK(low channel)

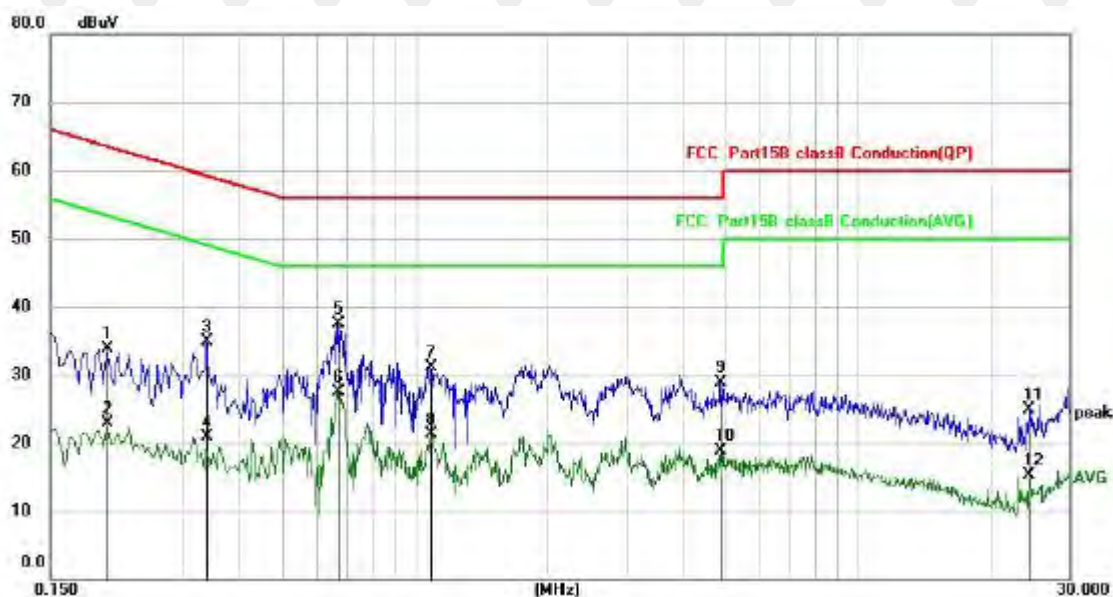


| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|
| 1   |     | 0.1500       | 26.21                    | 10.89                   | 37.10                    | 66.00         | -28.90     | QP       |
| 2   |     | 0.1500       | 14.62                    | 10.89                   | 25.51                    | 56.00         | -30.49     | AVG      |
| 3   |     | 0.6780       | 34.29                    | 10.70                   | 44.99                    | 56.00         | -11.01     | QP       |
| 4   | *   | 0.6780       | 25.29                    | 10.70                   | 35.99                    | 46.00         | -10.01     | AVG      |
| 5   |     | 1.7020       | 21.85                    | 11.39                   | 33.24                    | 56.00         | -22.76     | QP       |
| 6   |     | 1.7020       | 13.72                    | 11.39                   | 25.11                    | 46.00         | -20.89     | AVG      |
| 7   |     | 1.9940       | 21.64                    | 11.58                   | 33.22                    | 56.00         | -22.78     | QP       |
| 8   |     | 1.9940       | 13.07                    | 11.58                   | 24.65                    | 46.00         | -21.35     | AVG      |
| 9   |     | 3.7980       | 20.18                    | 11.98                   | 32.16                    | 56.00         | -23.84     | QP       |
| 10  |     | 3.7980       | 11.07                    | 11.98                   | 23.05                    | 46.00         | -22.95     | AVG      |
| 11  |     | 27.1620      | 17.72                    | 14.22                   | 31.94                    | 60.00         | -28.06     | QP       |
| 12  |     | 27.1620      | 8.81                     | 14.22                   | 23.03                    | 50.00         | -26.97     | AVG      |

Remark:

Factor = Cable loss + LISN factor, Margin = Measurement – Limit

N: Worst case-GFSK(low channel)



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|
| 1   |     | 0.2020       | 23.28                    | 10.71                   | 33.99                    | 63.53         | -29.54     | QP       |
| 2   |     | 0.2020       | 12.13                    | 10.71                   | 22.84                    | 53.53         | -30.69     | AVG      |
| 3   |     | 0.3379       | 24.29                    | 10.61                   | 34.90                    | 59.25         | -24.35     | QP       |
| 4   |     | 0.3379       | 10.23                    | 10.61                   | 20.84                    | 49.25         | -28.41     | AVG      |
| 5   |     | 0.6700       | 26.72                    | 10.69                   | 37.41                    | 56.00         | -18.59     | QP       |
| 6   | *   | 0.6700       | 16.75                    | 10.69                   | 27.44                    | 46.00         | -18.56     | AVG      |
| 7   |     | 1.0859       | 20.20                    | 11.00                   | 31.20                    | 56.00         | -24.80     | QP       |
| 8   |     | 1.0859       | 10.23                    | 11.00                   | 21.23                    | 46.00         | -24.77     | AVG      |
| 9   |     | 4.8739       | 16.64                    | 12.21                   | 28.85                    | 56.00         | -27.15     | QP       |
| 10  |     | 4.8739       | 6.65                     | 12.21                   | 18.86                    | 46.00         | -27.14     | AVG      |
| 11  |     | 24.3500      | 10.89                    | 13.96                   | 24.85                    | 60.00         | -35.15     | QP       |
| 12  |     | 24.3500      | 1.37                     | 13.96                   | 15.33                    | 50.00         | -34.67     | AVG      |

Remark:

Factor = Cable loss + LISN factor, Margin = Measurement – Limit

## 7. RADIATED SPURIOUS EMISSION

### 7.1 Block Diagram Of Test Setup

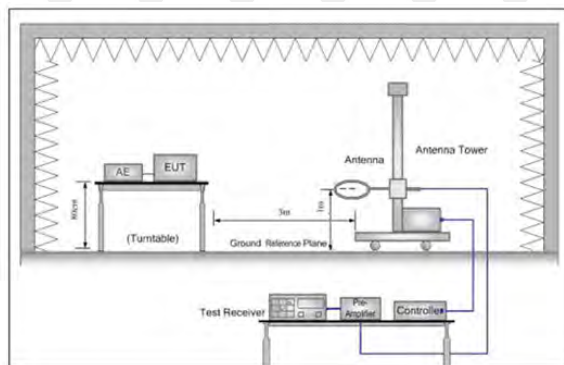


Figure 1. Below 30MHz

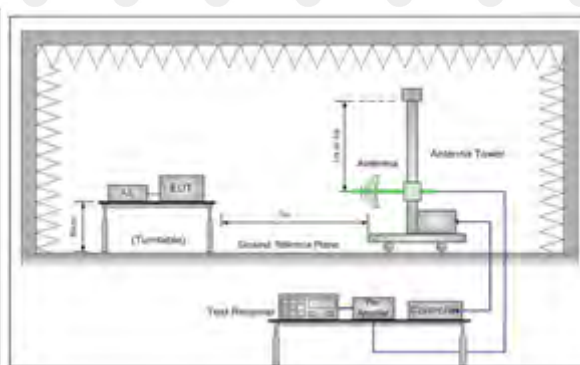


Figure 2. 30MHz to 1GHz

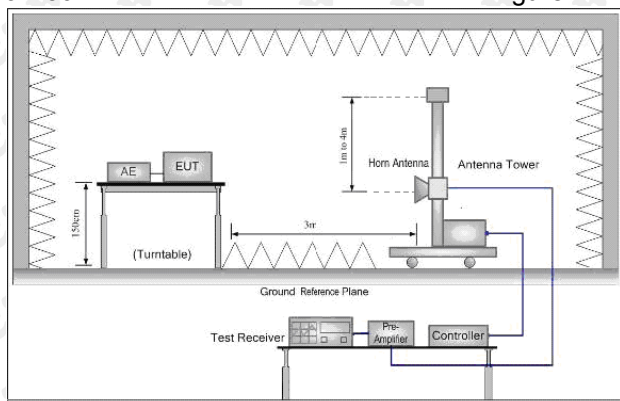


Figure 3. Above 1GHz

### 7.2 Limit

Spurious Emissions:

| Frequency         | Field strength (microvolt/meter) | Limit (dB $\mu$ V/m ) | Remark     | Measurement distance (m) |
|-------------------|----------------------------------|-----------------------|------------|--------------------------|
| 0.009MHz-0.490MHz | 2400/F (kHz)                     | -                     | -          | 300                      |
| 0.490MHz-1.705MHz | 24000/F (kHz)                    | -                     | -          | 30                       |
| 1.705MHz-30MHz    | 30                               | -                     | -          | 30                       |
| 30MHz-88MHz       | 100                              | 40.0                  | Quasi-peak | 3                        |
| 88MHz-216MHz      | 150                              | 43.5                  | Quasi-peak | 3                        |
| 216MHz-960MHz     | 200                              | 46.0                  | Quasi-peak | 3                        |
| 960MHz-1GHz       | 500                              | 54.0                  | Quasi-peak | 3                        |
| Above 1GHz        | 500                              | 54.0                  | Average    | 3                        |

Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.

### 7.3 Test procedure

#### Below 1GHz test procedure as below:

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rota table table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

#### Above 1GHz test procedure as below:

- g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter( Above 18GHz the distance is 1 meter and table is 1.5 meter).
- h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel
- i. Repeat above procedures until all frequencies measured was complete.
- j. Full battery is used during test

Receiver set:

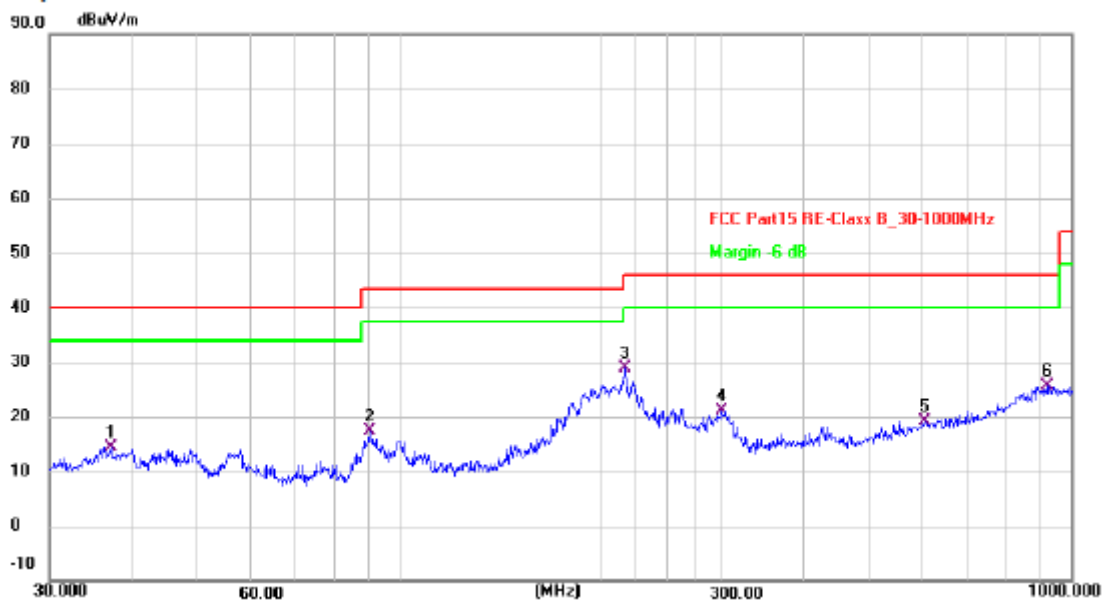
| Frequency         | Detector   | RBW     | VBW    | Remark     |
|-------------------|------------|---------|--------|------------|
| 0.009MHz-0.090MHz | Peak       | 10kHz   | 30KHz  | Peak       |
| 0.009MHz-0.090MHz | Average    | 10kHz   | 30KHz  | Average    |
| 0.090MHz-0.110MHz | Quasi-peak | 10kHz   | 30KHz  | Quasi-peak |
| 0.110MHz-0.490MHz | Peak       | 10kHz   | 30KHz  | Peak       |
| 0.110MHz-0.490MHz | Average    | 10kHz   | 30KHz  | Average    |
| 0.490MHz -30MHz   | Quasi-peak | 10kHz   | 30kHz  | Quasi-peak |
| 30MHz-1GHz        | Quasi-peak | 120 kHz | 300KHz | Quasi-peak |
| Above 1GHz        | Peak       | 1MHz    | 3MHz   | Peak       |
|                   | Peak       | 1MHz    | 10Hz   | Average    |

## 7.4 Test Result

Below 1GHz Test Results:

Antenna polarity: H

Worst case-GFSK(low channel)



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1   | 37.0250         | 27.27          | -12.96        | 14.31          | 40.00          | -25.69      | QP       |
| 2   | 90.2204         | 35.79          | -18.43        | 17.36          | 43.50          | -26.14      | QP       |
| 3 * | 216.0240        | 45.60          | -16.84        | 28.76          | 46.00          | -17.24      | QP       |
| 4   | 301.4223        | 35.00          | -13.76        | 21.24          | 46.00          | -24.76      | QP       |
| 5   | 603.5391        | 25.65          | -6.43         | 19.22          | 46.00          | -26.78      | QP       |
| 6   | 919.2865        | 26.10          | -0.37         | 25.73          | 46.00          | -20.27      | QP       |

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Measurement- Limit

Antenna polarity: V  
Worst case-GFSK(low channel)



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|----------|
| 1 * | 44.5868         | 40.27          | -13.51        | 26.76          | 40.00          | -13.24      | QP       |
| 2   | 83.5221         | 43.20          | -18.41        | 24.79          | 40.00          | -15.21      | QP       |
| 3   | 139.3611        | 34.30          | -14.39        | 19.91          | 43.50          | -23.59      | QP       |
| 4   | 215.2678        | 40.89          | -16.86        | 24.03          | 43.50          | -19.47      | QP       |
| 5   | 576.6443        | 27.67          | -7.12         | 20.55          | 46.00          | -25.45      | QP       |
| 6   | 952.0937        | 29.85          | -0.49         | 29.36          | 46.00          | -16.64      | QP       |

Remark: Factor = Cable lose + Antenna factor - Pre-amplifier; Margin = Measurement- Limit

### Above 1 GHz Test Results:

CH Low (2402MHz)  
Horizontal:

| Frequency                                                                                                                                | Reading Result | Factor | Emission Level | Limits   | Margin | Detector Type |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|----------------|----------|--------|---------------|
| (MHz)                                                                                                                                    | (dBμV)         | (dB)   | (dBμV/m)       | (dBμV/m) | (dB)   |               |
| 4804                                                                                                                                     | 57.29          | -3.65  | 53.64          | 74.00    | -20.36 | peak          |
| 4804                                                                                                                                     | 50.01          | -3.65  | 46.36          | 54.00    | -7.64  | AVG           |
| 7206                                                                                                                                     | 59.63          | -0.95  | 58.68          | 74.00    | -15.32 | peak          |
| 7206                                                                                                                                     | 40.72          | -0.95  | 39.77          | 54.00    | -14.23 | AVG           |
| Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits |                |        |                |          |        |               |

Vertical:

| Frequency                                                                                                                                | Reading Result | Factor | Emission Level | Limits   | Margin | Detector Type |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|----------------|----------|--------|---------------|
| (MHz)                                                                                                                                    | (dBμV)         | (dB)   | (dBμV/m)       | (dBμV/m) | (dB)   |               |
| 4804                                                                                                                                     | 56.42          | -3.65  | 52.77          | 74.00    | -21.23 | peak          |
| 4804                                                                                                                                     | 48.75          | -3.65  | 45.10          | 54.00    | -8.90  | AVG           |
| 7206                                                                                                                                     | 58.72          | -0.95  | 57.77          | 74.00    | -16.23 | peak          |
| 7206                                                                                                                                     | 42.94          | -0.95  | 41.99          | 54.00    | -12.01 | AVG           |
| Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits |                |        |                |          |        |               |

CH Middle (2441MHz)

Horizontal:

| Frequency                                                                                                                                | Reading Result | Factor | Emission Level | Limits   | Margin | Detector Type |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|----------------|----------|--------|---------------|
| (MHz)                                                                                                                                    | (dBμV)         | (dB)   | (dBμV/m)       | (dBμV/m) | (dB)   |               |
| 4882.00                                                                                                                                  | 59.83          | -3.54  | 56.29          | 74.00    | -17.71 | peak          |
| 4882.00                                                                                                                                  | 46.95          | -3.54  | 43.41          | 54.00    | -10.59 | AVG           |
| 7323.00                                                                                                                                  | 55.76          | -0.81  | 54.95          | 74.00    | -19.05 | peak          |
| 7323.00                                                                                                                                  | 43.46          | -0.81  | 42.65          | 54.00    | -11.35 | AVG           |
| Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits |                |        |                |          |        |               |

Vertical:

| Frequency                                                                                                                                | Reading Result | Factor | Emission Level | Limits   | Margin | Detector Type |
|------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|----------------|----------|--------|---------------|
| (MHz)                                                                                                                                    | (dBμV)         | (dB)   | (dBμV/m)       | (dBμV/m) | (dB)   |               |
| 4882.00                                                                                                                                  | 57.70          | -3.54  | 54.16          | 74.00    | -19.84 | peak          |
| 4882.00                                                                                                                                  | 50.89          | -3.54  | 47.35          | 54.00    | -6.65  | AVG           |
| 7323.00                                                                                                                                  | 58.47          | -0.81  | 57.66          | 74.00    | -16.34 | peak          |
| 7323.00                                                                                                                                  | 43.04          | -0.81  | 42.23          | 54.00    | -11.77 | AVG           |
| Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits |                |        |                |          |        |               |

CH High (2480MHz)  
Horizontal:

| Frequency | Reading Result | Factor | Emission Level | Limits   | Margin | Detector Type |
|-----------|----------------|--------|----------------|----------|--------|---------------|
| (MHz)     | (dBμV)         | (dB)   | (dBμV/m)       | (dBμV/m) | (dB)   |               |
| 4960      | 58.29          | -3.43  | 54.86          | 74.00    | -19.14 | peak          |
| 4960      | 50.16          | -3.44  | 46.72          | 54.00    | -7.28  | AVG           |
| 7440      | 59.90          | -0.77  | 59.13          | 74.00    | -14.87 | peak          |
| 7440      | 41.20          | -0.77  | 40.43          | 54.00    | -13.57 | AVG           |

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits

Vertical:

| Frequency | Reading Result | Factor | Emission Level | Limits   | Margin | Detector Type |
|-----------|----------------|--------|----------------|----------|--------|---------------|
| (MHz)     | (dBμV)         | (dB)   | (dBμV/m)       | (dBμV/m) | (dB)   |               |
| 4960      | 57.92          | -3.43  | 54.49          | 74.00    | -19.51 | peak          |
| 4960      | 48.46          | -3.44  | 45.02          | 54.00    | -8.98  | AVG           |
| 7440      | 59.93          | -0.77  | 59.16          | 74.00    | -14.84 | peak          |
| 7440      | 41.54          | -0.77  | 40.77          | 54.00    | -13.23 | AVG           |

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits

The test range is 9K ~10 times the main wave, and other spurious below the limit of 20dB will not be reflected in the report

### Restricted bands around fundamental frequency (Radiated)

hopping

Operation Mode: TX CH Low (2402MHz)

Horizontal (Worst case-GFSK)

| Frequency<br>(MHz) | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Detector<br>Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------------|
| 2310.00            | 58.29                   | -5.81          | 52.48                      | 74.00              | -21.52         | peak             |
| 2310.00            | /                       | -5.81          | /                          | 54.00              | /              | AVG              |
| 2390.00            | 55.47                   | -5.84          | 49.63                      | 74.00              | -24.37         | peak             |
| 2390.00            | /                       | -5.84          | /                          | 54.00              | /              | AVG              |

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits

Vertical:

| Frequency<br>(MHz) | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Detector<br>Type |
|--------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------------|
| 2310.00            | 55.66                   | -5.81          | 49.85                      | 74.00              | -24.15         | peak             |
| 2310.00            | /                       | -5.81          | /                          | 54.00              | /              | AVG              |
| 2390.00            | 56.34                   | -5.84          | 50.50                      | 74.00              | -23.50         | peak             |
| 2390.00            | /                       | -5.84          | /                          | 54.00              | /              | AVG              |

Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits

When the peak value is smaller than the AVG limit, AVG is not reflected.

Operation Mode: TX CH High (2480MHz)  
Horizontal (Worst case-GFSK)

| Frequency                                                                                                                                | Meter Reading | Factor | Emission Level | Limits   | Margin | Detector Type |
|------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|----------------|----------|--------|---------------|
| (MHz)                                                                                                                                    | (dBμV)        | (dB)   | (dBμV/m)       | (dBμV/m) | (dB)   |               |
| 2483.50                                                                                                                                  | 55.41         | -5.81  | 49.60          | 74.00    | -24.40 | peak          |
| 2483.50                                                                                                                                  | /             | -5.81  | /              | 54.00    | /      | AVG           |
| 2500.00                                                                                                                                  | 53.68         | -6.06  | 47.62          | 74.00    | -26.38 | peak          |
| 2500.00                                                                                                                                  | /             | -6.06  | /              | 54.00    | /      | AVG           |
| Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits |               |        |                |          |        |               |

Vertical:

| Frequency                                                                                                                                | Meter Reading | Factor | Emission Level | Limits   | Margin | Detector Type |
|------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|----------------|----------|--------|---------------|
| (MHz)                                                                                                                                    | (dBμV)        | (dB)   | (dBμV/m)       | (dBμV/m) | (dB)   |               |
| 2483.50                                                                                                                                  | 56.54         | -5.81  | 50.73          | 74.00    | -23.27 | peak          |
| 2483.50                                                                                                                                  | /             | -5.81  | /              | 54.00    | /      | AVG           |
| 2500.00                                                                                                                                  | 54.38         | -6.06  | 48.32          | 74.00    | -25.68 | peak          |
| 2500.00                                                                                                                                  | /             | -6.06  | /              | 54.00    | /      | AVG           |
| Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits |               |        |                |          |        |               |
| Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.                                   |               |        |                |          |        |               |

When the peak value is smaller than the AVG limit, AVG is not reflected.

NO hopping

Operation Mode: TX CH Low (2402MHz)  
Horizontal (Worst case-GFSK)

| Frequency<br>(MHz)                                                                                                                       | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Detector<br>Type |
|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------------|
| 2310.00                                                                                                                                  | 55.82                   | -5.81          | 50.01                      | 74.00              | -23.99         | peak             |
| 2310.00                                                                                                                                  | /                       | -5.81          | /                          | 54.00              | /              | AVG              |
| 2390.00                                                                                                                                  | 53.46                   | -5.84          | 47.62                      | 74.00              | -26.38         | peak             |
| 2390.00                                                                                                                                  | /                       | -5.84          | /                          | 54.00              | /              | AVG              |
| Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits |                         |                |                            |                    |                |                  |

Vertical:

| Frequency<br>(MHz)                                                                                                                       | Meter Reading<br>(dBμV) | Factor<br>(dB) | Emission Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Detector<br>Type |
|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------|----------------------------|--------------------|----------------|------------------|
| 2310.00                                                                                                                                  | 56.80                   | -5.81          | 50.99                      | 74.00              | -23.01         | peak             |
| 2310.00                                                                                                                                  | /                       | -5.81          | /                          | 54.00              | /              | AVG              |
| 2390.00                                                                                                                                  | 54.77                   | -5.84          | 48.93                      | 74.00              | -25.07         | peak             |
| 2390.00                                                                                                                                  | /                       | -5.84          | /                          | 54.00              | /              | AVG              |
| Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits |                         |                |                            |                    |                |                  |

When the peak value is smaller than the AVG limit, AVG is not reflected.

Operation Mode: TX CH High (2480MHz)  
Horizontal (Worst case-GFSK)

| Frequency                                                                                                                                | Meter Reading | Factor | Emission Level | Limits   | Margin | Detector Type |
|------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|----------------|----------|--------|---------------|
| (MHz)                                                                                                                                    | (dBμV)        | (dB)   | (dBμV/m)       | (dBμV/m) | (dB)   |               |
| 2483.50                                                                                                                                  | 55.69         | -5.81  | 49.88          | 74.00    | -24.12 | peak          |
| 2483.50                                                                                                                                  | /             | -5.81  | /              | 54.00    | /      | AVG           |
| 2500.00                                                                                                                                  | 56.93         | -6.06  | 50.87          | 74.00    | -23.13 | peak          |
| 2500.00                                                                                                                                  | /             | -6.06  | /              | 54.00    | /      | AVG           |
| Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits |               |        |                |          |        |               |

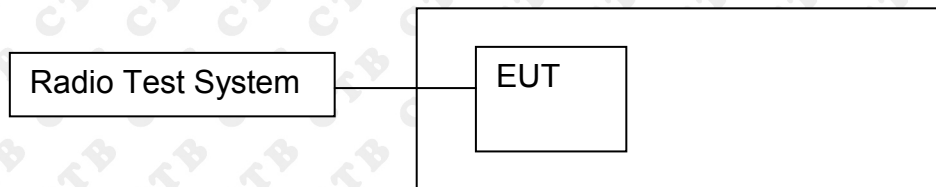
Vertical:

| Frequency                                                                                                                                | Meter Reading | Factor | Emission Level | Limits   | Margin | Detector Type |
|------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|----------------|----------|--------|---------------|
| (MHz)                                                                                                                                    | (dBμV)        | (dB)   | (dBμV/m)       | (dBμV/m) | (dB)   |               |
| 2483.50                                                                                                                                  | 55.94         | -5.81  | 50.13          | 74.00    | -23.87 | peak          |
| 2483.50                                                                                                                                  | /             | -5.81  | /              | 54.00    | /      | AVG           |
| 2500.00                                                                                                                                  | 54.07         | -6.06  | 48.01          | 74.00    | -25.99 | peak          |
| 2500.00                                                                                                                                  | /             | -6.06  | /              | 54.00    | /      | AVG           |
| Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier. Emission level = Reading Result + Factor, Margin = Emission level - Limits |               |        |                |          |        |               |
| Remark: All the other emissions not reported were too low to read and deemed to comply with FCC limit.                                   |               |        |                |          |        |               |

When the peak value is smaller than the AVG limit, AVG is not reflected.

## 8. BAND EDGE AND RF CONDUCTED SPURIOUS EMISSIONS

### 8.1 Block Diagram Of Test Setup



### 8.2 Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

### 8.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer:

Below 30MHz:

RBW = 100kHz, VBW = 300kHz, Sweep = auto

Detector function = peak, Trace = max hold

Above 30MHz:

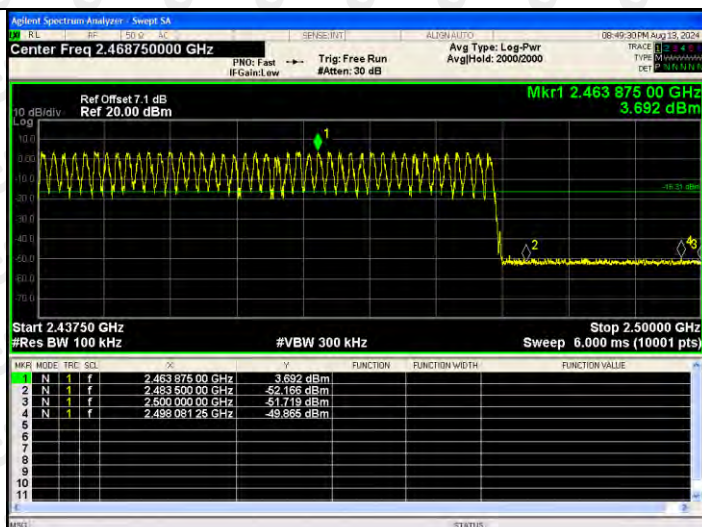
RBW = 100KHz, VBW = 300KHz, Sweep = auto

Detector function = peak, Trace = max hold

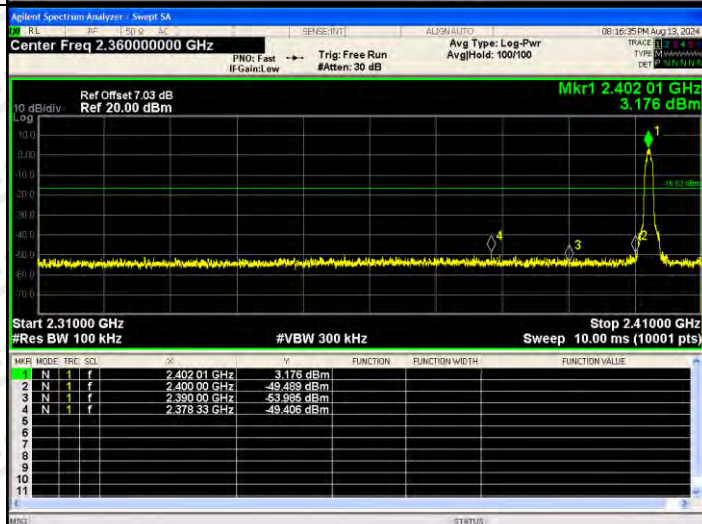
## 8.4 Test Result



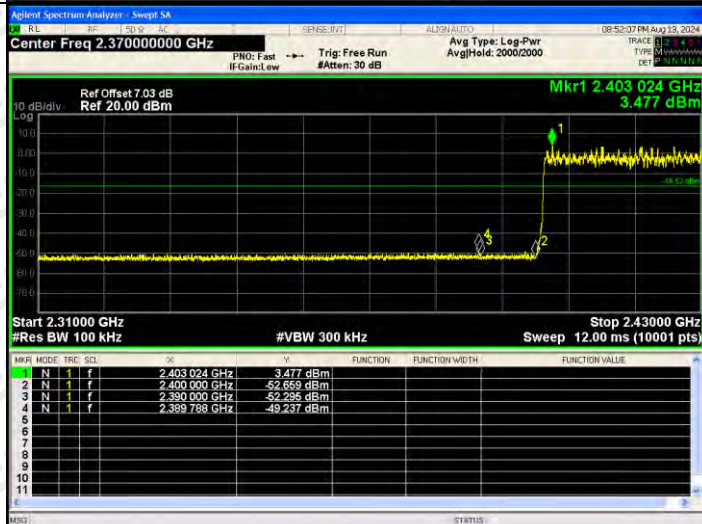
GFSK/HCH/  
Hop



$\pi/4$ DQPSK/LCH/  
No Hop

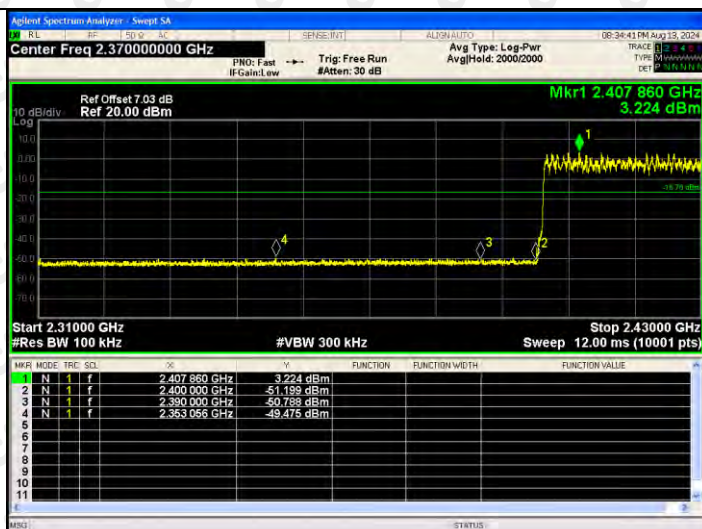


$\pi/4$ DQPSK/LCH/  
Hop

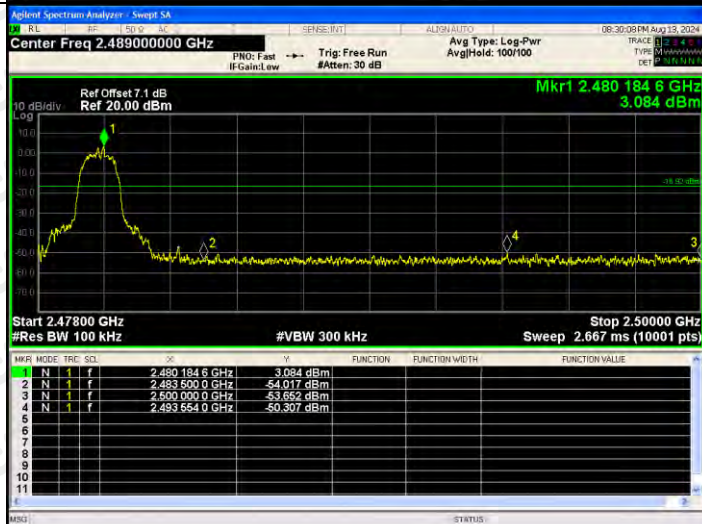


| $\pi/4$ DQPSK/HCH/<br>No Hop | <div><div>Agilent Spectrum Analyzer - Sweep SA</div><div>Center Freq 2.489000000 GHz</div><div><div>Ref Offset 7.1 dB<br/>Ref 20.00 dBm</div><div>Mkr1 2.480 054 8 GHz<br/>2.775 dBm</div></div><div><div>Start 2.47800 GHz<br/>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Stop 2.50000 GHz<br/>Sweep 2.667 ms (10001 pts)</div></div><table><thead><tr><th>MNR</th><th>MODE</th><th>TRC</th><th>SQL</th><th>FC</th><th>V</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr></thead><tbody><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.480 054 8 GHz</td><td>2.775 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.483 500 0 GHz</td><td>-53.248 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.500 000 0 GHz</td><td>-53.783 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.495 490 0 GHz</td><td>-50.693 dBm</td><td></td><td></td><td></td></tr><tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table></div>    | MNR | MODE | TRC              | SQL         | FC       | V              | FUNCTION       | FUNCTION WIDTH | FUNCTION VALUE | 1 | N | 1 | f | 2.480 054 8 GHz  | 2.775 dBm |  |  |  | 2 | N | 1 | f | 2.483 500 0 GHz | -53.248 dBm |  |  |  | 3 | N | 1 | f | 2.500 000 0 GHz | -53.783 dBm |  |  |  | 4 | N | 1 | f | 2.495 490 0 GHz  | -50.693 dBm |  |  |  | 5 |  |  |  |  |  |  |  |  | 6 |  |  |  |  |  |  |  |  | 7 |  |  |  |  |  |  |  |  | 8 |  |  |  |  |  |  |  |  | 9 |  |  |  |  |  |  |  |  | 10 |  |  |  |  |  |  |  |  | 11 |  |  |  |  |  |  |  |  |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|------------------|-------------|----------|----------------|----------------|----------------|----------------|---|---|---|---|------------------|-----------|--|--|--|---|---|---|---|-----------------|-------------|--|--|--|---|---|---|---|-----------------|-------------|--|--|--|---|---|---|---|------------------|-------------|--|--|--|---|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|
| MNR                          | MODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | TRC | SQL  | FC               | V           | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 1                            | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1   | f    | 2.480 054 8 GHz  | 2.775 dBm   |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 2                            | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1   | f    | 2.483 500 0 GHz  | -53.248 dBm |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 3                            | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1   | f    | 2.500 000 0 GHz  | -53.783 dBm |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 4                            | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1   | f    | 2.495 490 0 GHz  | -50.693 dBm |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 5                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 6                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 7                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 8                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 9                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 10                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 11                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| $\pi/4$ DQPSK/HCH/<br>Hop    | <div><div>Agilent Spectrum Analyzer - Sweep SA</div><div>Center Freq 2.468750000 GHz</div><div><div>Ref Offset 7.1 dB<br/>Ref 20.00 dBm</div><div>Mkr1 2.458 193 75 GHz<br/>3.472 dBm</div></div><div><div>Start 2.43750 GHz<br/>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Stop 2.50000 GHz<br/>Sweep 6.000 ms (10001 pts)</div></div><table><thead><tr><th>MNR</th><th>MODE</th><th>TRC</th><th>SQL</th><th>FC</th><th>V</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr></thead><tbody><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.458 193 75 GHz</td><td>3.472 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.483 500 0 GHz</td><td>-51.803 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.500 000 0 GHz</td><td>-51.918 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.493 718 75 GHz</td><td>-49.224 dBm</td><td></td><td></td><td></td></tr><tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table></div> | MNR | MODE | TRC              | SQL         | FC       | V              | FUNCTION       | FUNCTION WIDTH | FUNCTION VALUE | 1 | N | 1 | f | 2.458 193 75 GHz | 3.472 dBm |  |  |  | 2 | N | 1 | f | 2.483 500 0 GHz | -51.803 dBm |  |  |  | 3 | N | 1 | f | 2.500 000 0 GHz | -51.918 dBm |  |  |  | 4 | N | 1 | f | 2.493 718 75 GHz | -49.224 dBm |  |  |  | 5 |  |  |  |  |  |  |  |  | 6 |  |  |  |  |  |  |  |  | 7 |  |  |  |  |  |  |  |  | 8 |  |  |  |  |  |  |  |  | 9 |  |  |  |  |  |  |  |  | 10 |  |  |  |  |  |  |  |  | 11 |  |  |  |  |  |  |  |  |
| MNR                          | MODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | TRC | SQL  | FC               | V           | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 1                            | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1   | f    | 2.458 193 75 GHz | 3.472 dBm   |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 2                            | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1   | f    | 2.483 500 0 GHz  | -51.803 dBm |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 3                            | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1   | f    | 2.500 000 0 GHz  | -51.918 dBm |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 4                            | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1   | f    | 2.493 718 75 GHz | -49.224 dBm |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 5                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 6                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 7                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 8                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 9                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 10                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 11                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 8DPSK/LCH/No<br>Hop          | <div><div>Agilent Spectrum Analyzer - Sweep SA</div><div>Center Freq 2.360000000 GHz</div><div><div>Ref Offset 7.03 dB<br/>Ref 20.00 dBm</div><div>Mkr1 2.402 19 GHz<br/>3.536 dBm</div></div><div><div>Start 2.31000 GHz<br/>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Stop 2.41000 GHz<br/>Sweep 10.00 ms (10001 pts)</div></div><table><thead><tr><th>MNR</th><th>MODE</th><th>TRC</th><th>SQL</th><th>FC</th><th>V</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr></thead><tbody><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.402 19 GHz</td><td>3.536 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>2.400 00 GHz</td><td>-53.027 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>2.390 00 GHz</td><td>-52.646 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>2.324 44 GHz</td><td>-50.264 dBm</td><td></td><td></td><td></td></tr><tr><td>5</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table></div>                  | MNR | MODE | TRC              | SQL         | FC       | V              | FUNCTION       | FUNCTION WIDTH | FUNCTION VALUE | 1 | N | 1 | f | 2.402 19 GHz     | 3.536 dBm |  |  |  | 2 | N | 1 | f | 2.400 00 GHz    | -53.027 dBm |  |  |  | 3 | N | 1 | f | 2.390 00 GHz    | -52.646 dBm |  |  |  | 4 | N | 1 | f | 2.324 44 GHz     | -50.264 dBm |  |  |  | 5 |  |  |  |  |  |  |  |  | 6 |  |  |  |  |  |  |  |  | 7 |  |  |  |  |  |  |  |  | 8 |  |  |  |  |  |  |  |  | 9 |  |  |  |  |  |  |  |  | 10 |  |  |  |  |  |  |  |  | 11 |  |  |  |  |  |  |  |  |
| MNR                          | MODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | TRC | SQL  | FC               | V           | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 1                            | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1   | f    | 2.402 19 GHz     | 3.536 dBm   |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 2                            | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1   | f    | 2.400 00 GHz     | -53.027 dBm |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 3                            | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1   | f    | 2.390 00 GHz     | -52.646 dBm |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 4                            | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1   | f    | 2.324 44 GHz     | -50.264 dBm |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 5                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 6                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 7                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 8                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 9                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 10                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 11                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |      |                  |             |          |                |                |                |                |   |   |   |   |                  |           |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                 |             |  |  |  |   |   |   |   |                  |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |

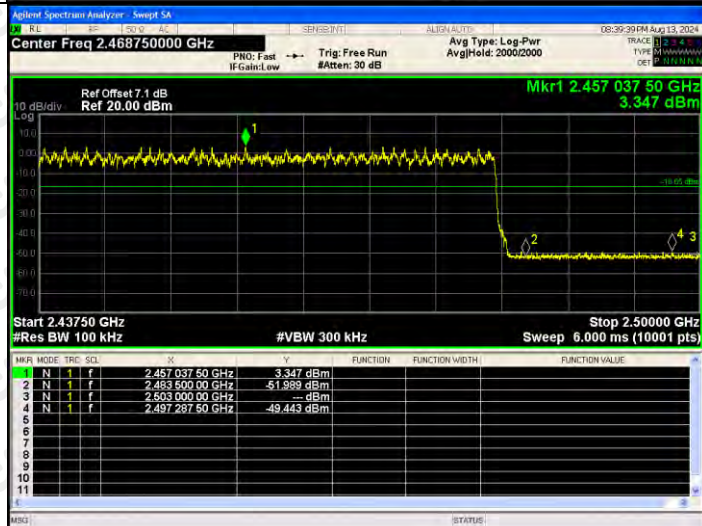
8DPSK  
/LCH/Hop



8DPSK /HCH/No  
Hop

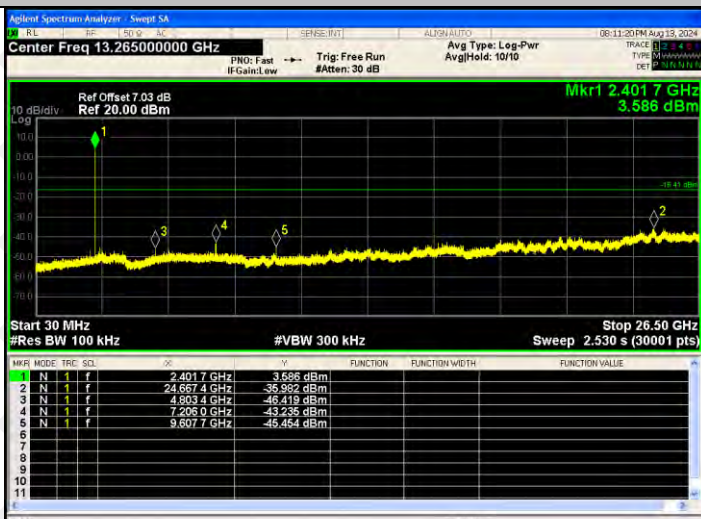


8DPSK  
/HCH/Hop

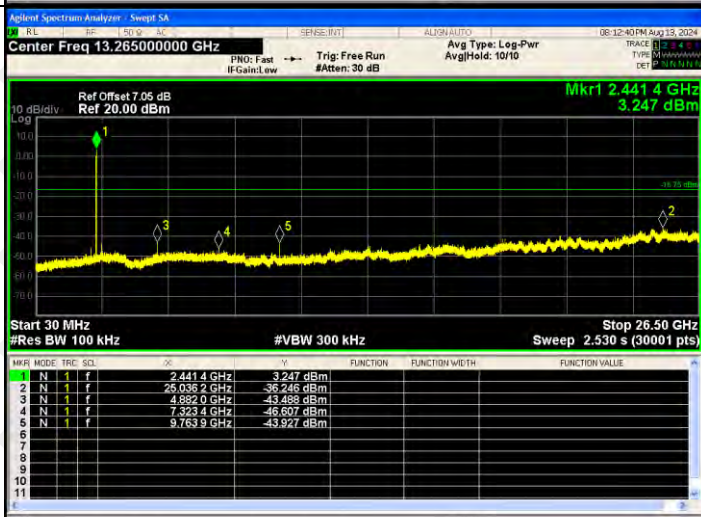


## RF Conducted Spurious Emissions Graphs

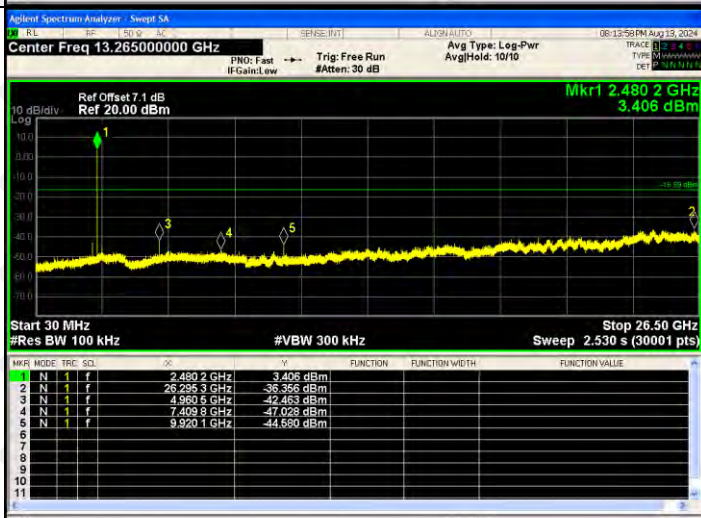
GFSK/LCH



GFSK/MCH

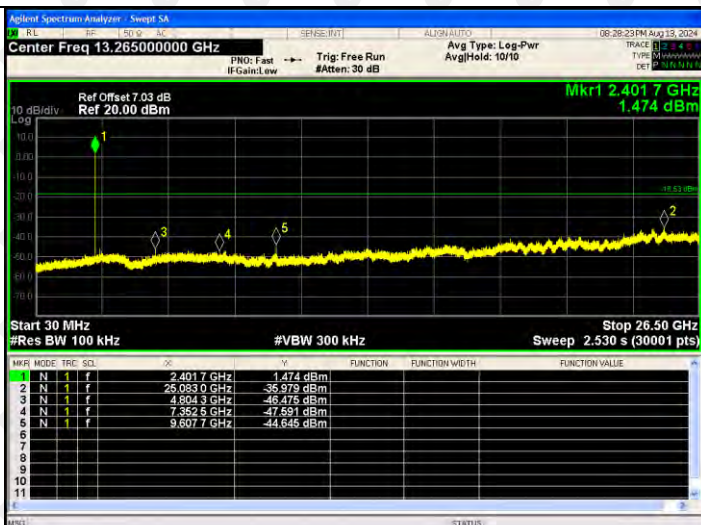


GFSK/HCH

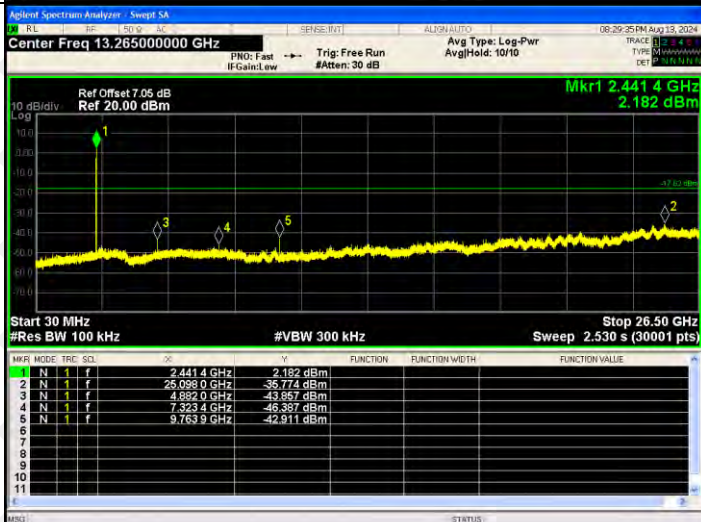


| $\pi/4$ DQPSK /LCH | <div><div>Agilent Spectrum Analyzer / Sweep SA</div><div>Center Freq 13.26500000 GHz</div><div>Ref Offset 7.03 dB<br/>Ref 20.00 dBm</div><div>Mkr1 2.401 7 GHz<br/>1.424 dBm</div><div>Start 30 MHz<br/>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Stop 26.50 GHz<br/>Sweep 3.0001 pts</div><table><thead><tr><th>Mkr</th><th>MODE</th><th>TRG</th><th>SOL</th><th>F</th><th>V</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr></thead><tbody><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.401 7 GHz</td><td>1.424 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>24.715 0 GHz</td><td>-35.243 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>4.804 3 GHz</td><td>-45.743 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>7.080 4 GHz</td><td>-47.212 dBm</td><td></td><td></td><td></td></tr><tr><td>5</td><td>N</td><td>1</td><td>f</td><td>9.607 7 GHz</td><td>-45.667 dBm</td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table></div>          | Mkr | MODE | TRG          | SOL         | F        | V              | FUNCTION       | FUNCTION WIDTH | FUNCTION VALUE | 1 | N | 1 | f | 2.401 7 GHz | 1.424 dBm |  |  |  | 2 | N | 1 | f | 24.715 0 GHz | -35.243 dBm |  |  |  | 3 | N | 1 | f | 4.804 3 GHz | -45.743 dBm |  |  |  | 4 | N | 1 | f | 7.080 4 GHz | -47.212 dBm |  |  |  | 5 | N | 1 | f | 9.607 7 GHz | -45.667 dBm |  |  |  | 6 |  |  |  |  |  |  |  |  | 7 |  |  |  |  |  |  |  |  | 8 |  |  |  |  |  |  |  |  | 9 |  |  |  |  |  |  |  |  | 10 |  |  |  |  |  |  |  |  | 11 |  |  |  |  |  |  |  |  |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|--------------|-------------|----------|----------------|----------------|----------------|----------------|---|---|---|---|-------------|-----------|--|--|--|---|---|---|---|--------------|-------------|--|--|--|---|---|---|---|-------------|-------------|--|--|--|---|---|---|---|-------------|-------------|--|--|--|---|---|---|---|-------------|-------------|--|--|--|---|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|----|--|--|--|--|--|--|--|--|
| Mkr                | MODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | TRG | SOL  | F            | V           | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 1                  | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1   | f    | 2.401 7 GHz  | 1.424 dBm   |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 2                  | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1   | f    | 24.715 0 GHz | -35.243 dBm |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 3                  | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1   | f    | 4.804 3 GHz  | -45.743 dBm |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 4                  | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1   | f    | 7.080 4 GHz  | -47.212 dBm |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 5                  | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1   | f    | 9.607 7 GHz  | -45.667 dBm |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 6                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 7                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 8                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 9                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 10                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 11                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| $\pi/4$ DQPSK/MCH  | <div><div>Agilent Spectrum Analyzer / Sweep SA</div><div>Center Freq 13.26500000 GHz</div><div>Ref Offset 7.05 dB<br/>Ref 20.00 dBm</div><div>Mkr1 2.440 5 GHz<br/>1.919 dBm</div><div>Start 30 MHz<br/>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Stop 26.50 GHz<br/>Sweep 2.530 s (30001 pts)</div><table><thead><tr><th>Mkr</th><th>MODE</th><th>TRG</th><th>SOL</th><th>F</th><th>V</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr></thead><tbody><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.440 5 GHz</td><td>1.919 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>25.123 6 GHz</td><td>-35.888 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>4.882 0 GHz</td><td>-45.294 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>7.322 5 GHz</td><td>-47.579 dBm</td><td></td><td></td><td></td></tr><tr><td>5</td><td>N</td><td>1</td><td>f</td><td>9.763 9 GHz</td><td>-43.313 dBm</td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table></div> | Mkr | MODE | TRG          | SOL         | F        | V              | FUNCTION       | FUNCTION WIDTH | FUNCTION VALUE | 1 | N | 1 | f | 2.440 5 GHz | 1.919 dBm |  |  |  | 2 | N | 1 | f | 25.123 6 GHz | -35.888 dBm |  |  |  | 3 | N | 1 | f | 4.882 0 GHz | -45.294 dBm |  |  |  | 4 | N | 1 | f | 7.322 5 GHz | -47.579 dBm |  |  |  | 5 | N | 1 | f | 9.763 9 GHz | -43.313 dBm |  |  |  | 6 |  |  |  |  |  |  |  |  | 7 |  |  |  |  |  |  |  |  | 8 |  |  |  |  |  |  |  |  | 9 |  |  |  |  |  |  |  |  | 10 |  |  |  |  |  |  |  |  | 11 |  |  |  |  |  |  |  |  |
| Mkr                | MODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | TRG | SOL  | F            | V           | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 1                  | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1   | f    | 2.440 5 GHz  | 1.919 dBm   |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 2                  | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1   | f    | 25.123 6 GHz | -35.888 dBm |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 3                  | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1   | f    | 4.882 0 GHz  | -45.294 dBm |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 4                  | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1   | f    | 7.322 5 GHz  | -47.579 dBm |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 5                  | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1   | f    | 9.763 9 GHz  | -43.313 dBm |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 6                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 7                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 8                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 9                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 10                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 11                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| $\pi/4$ DQPSK/HCH  | <div><div>Agilent Spectrum Analyzer / Sweep SA</div><div>Center Freq 13.26500000 GHz</div><div>Ref Offset 7.1 dB<br/>Ref 20.00 dBm</div><div>Mkr1 2.480 2 GHz<br/>1.160 dBm</div><div>Start 30 MHz<br/>#Res BW 100 kHz</div><div>#VBW 300 kHz</div><div>Stop 26.50 GHz<br/>Sweep 2.530 s (30001 pts)</div><table><thead><tr><th>Mkr</th><th>MODE</th><th>TRG</th><th>SOL</th><th>F</th><th>V</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr></thead><tbody><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.480 2 GHz</td><td>1.160 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>25.042 4 GHz</td><td>-35.353 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>f</td><td>4.990 5 GHz</td><td>-45.245 dBm</td><td></td><td></td><td></td></tr><tr><td>4</td><td>N</td><td>1</td><td>f</td><td>7.439 8 GHz</td><td>-45.627 dBm</td><td></td><td></td><td></td></tr><tr><td>5</td><td>N</td><td>1</td><td>f</td><td>9.920 1 GHz</td><td>-43.208 dBm</td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></tbody></table></div>  | Mkr | MODE | TRG          | SOL         | F        | V              | FUNCTION       | FUNCTION WIDTH | FUNCTION VALUE | 1 | N | 1 | f | 2.480 2 GHz | 1.160 dBm |  |  |  | 2 | N | 1 | f | 25.042 4 GHz | -35.353 dBm |  |  |  | 3 | N | 1 | f | 4.990 5 GHz | -45.245 dBm |  |  |  | 4 | N | 1 | f | 7.439 8 GHz | -45.627 dBm |  |  |  | 5 | N | 1 | f | 9.920 1 GHz | -43.208 dBm |  |  |  | 6 |  |  |  |  |  |  |  |  | 7 |  |  |  |  |  |  |  |  | 8 |  |  |  |  |  |  |  |  | 9 |  |  |  |  |  |  |  |  | 10 |  |  |  |  |  |  |  |  | 11 |  |  |  |  |  |  |  |  |
| Mkr                | MODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | TRG | SOL  | F            | V           | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 1                  | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1   | f    | 2.480 2 GHz  | 1.160 dBm   |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 2                  | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1   | f    | 25.042 4 GHz | -35.353 dBm |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 3                  | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1   | f    | 4.990 5 GHz  | -45.245 dBm |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 4                  | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1   | f    | 7.439 8 GHz  | -45.627 dBm |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 5                  | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1   | f    | 9.920 1 GHz  | -43.208 dBm |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 6                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 7                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 8                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 9                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 10                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |
| 11                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |      |              |             |          |                |                |                |                |   |   |   |   |             |           |  |  |  |   |   |   |   |              |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |   |   |   |             |             |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |   |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |    |  |  |  |  |  |  |  |  |

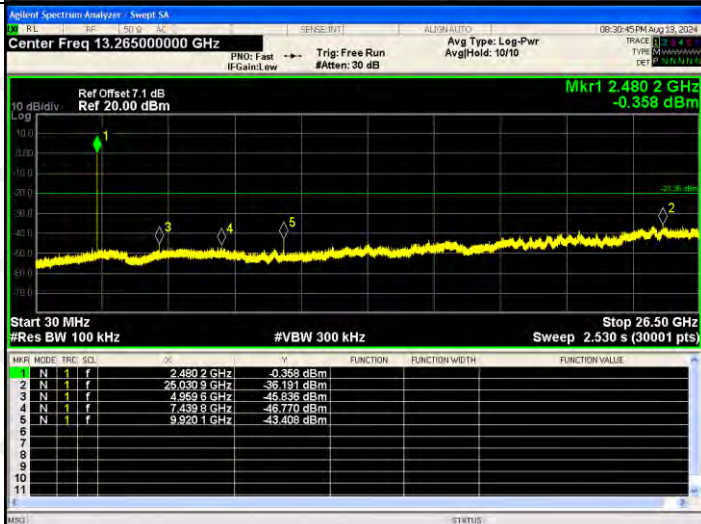
8DPSK /LCH



8DPSK /MCH

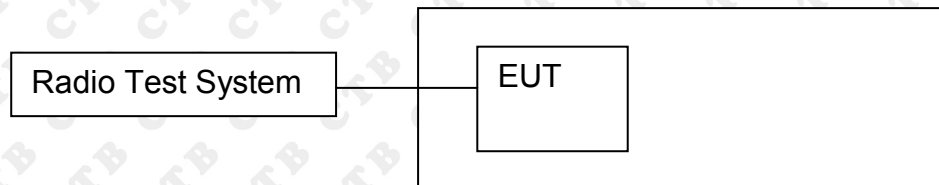


8DPSK /HCH



## 9. COUDUCTED PEAK OUTPUT POWER

### 9.1 Block Diagram Of Test Setup



### 9.2 Limit

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

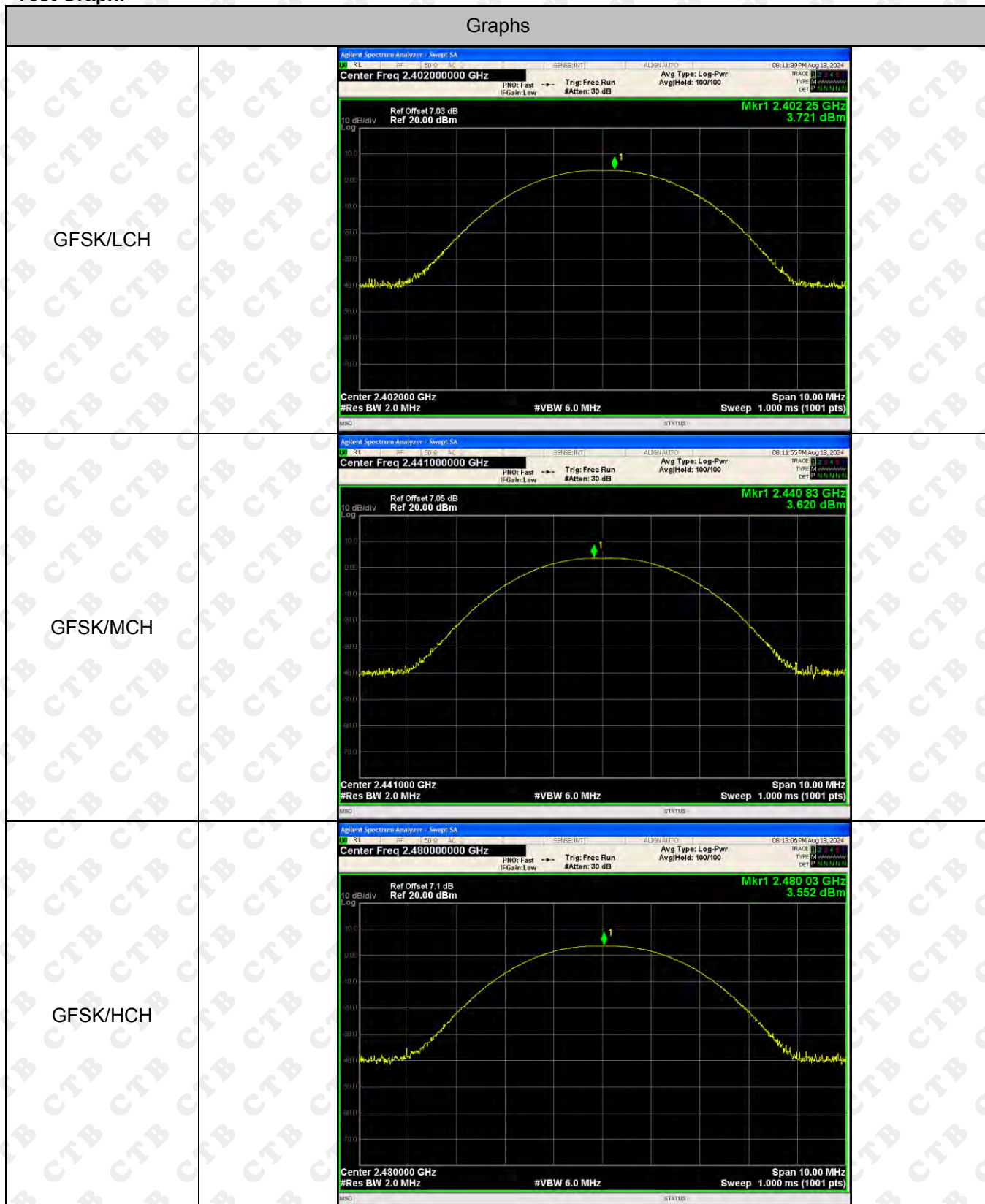
### 9.3 Test procedure

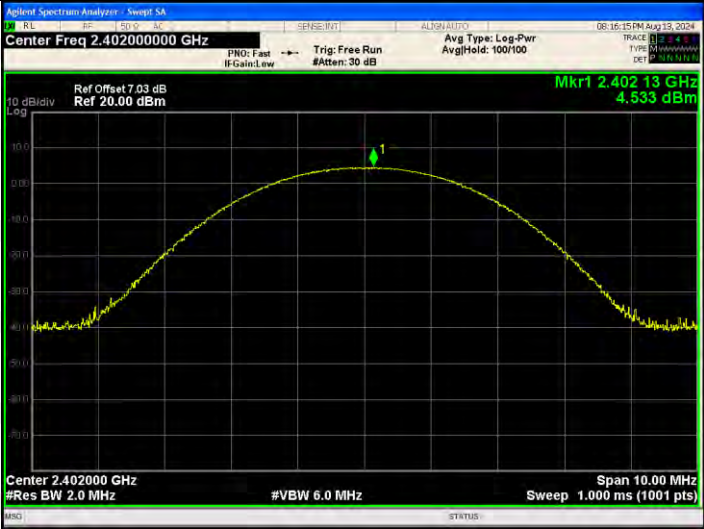
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 2MHz. VBW = 6MHz. Sweep = auto; Detector Function = Peak.
3. Keep the EUT in transmitting at lowest, middle and highest channel individually. Record the max value.

### 9.4 Test Result

| Mode                      | Channel. | Maximum Peak Output Power [dBm] | Limit [dBm] | Verdict |
|---------------------------|----------|---------------------------------|-------------|---------|
| EDR mode (GFSK)           | LCH      | 3.721                           | 20.97       | PASS    |
|                           | MCH      | 3.62                            | 20.97       | PASS    |
|                           | HCH      | 3.552                           | 20.97       | PASS    |
| EDR mode ( $\pi/4$ DQPSK) | LCH      | 4.533                           | 20.97       | PASS    |
|                           | MCH      | 4.342                           | 20.97       | PASS    |
|                           | HCH      | 4.266                           | 20.97       | PASS    |
| EDR mode (8DPSK)          | LCH      | 4.733                           | 20.97       | PASS    |
|                           | MCH      | 4.594                           | 20.97       | PASS    |
|                           | HCH      | 4.419                           | 20.97       | PASS    |

## Test Graph:

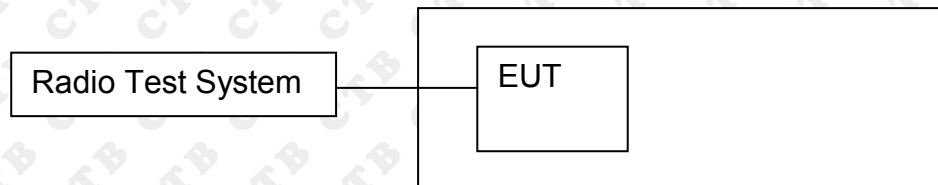


|                   |                                                                                                                                                                                                                                                                                                                                                           |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\pi/4$ DQPSK/LCH |  <p>Agilent Spectrum Analyzer - Sweep SA<br/>Center Freq 2.40200000 GHz<br/>Ref Offset 7.03 dB<br/>Ref 20.00 dBm<br/>Mkr1 2.402 13 GHz<br/>4.533 dBm<br/>Center 2.402000 GHz<br/>#Res BW 2.0 MHz<br/>#VBW 6.0 MHz<br/>Span 10.00 MHz<br/>Sweep 1.000 ms (1001 pts)</p>  |
| $\pi/4$ DQPSK/MCH |  <p>Agilent Spectrum Analyzer - Sweep SA<br/>Center Freq 2.44100000 GHz<br/>Ref Offset 7.05 dB<br/>Ref 20.00 dBm<br/>Mkr1 2.440 89 GHz<br/>4.342 dBm<br/>Center 2.441000 GHz<br/>#Res BW 2.0 MHz<br/>#VBW 6.0 MHz<br/>Span 10.00 MHz<br/>Sweep 1.000 ms (1001 pts)</p> |
| $\pi/4$ DQPSK/HCH |  <p>Agilent Spectrum Analyzer - Sweep SA<br/>Center Freq 2.48000000 GHz<br/>Ref Offset 7.1 dB<br/>Ref 20.00 dBm<br/>Mkr1 2.479 96 GHz<br/>4.266 dBm<br/>Center 2.480000 GHz<br/>#Res BW 2.0 MHz<br/>#VBW 6.0 MHz<br/>Span 10.00 MHz<br/>Sweep 1.000 ms (1001 pts)</p> |

|            |                                                                                                                                                                                                                                                                                                                                               |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8DPSK/LCH  |  <p>Agilent Spectrum Analyzer - Sweep SA<br/> Center Freq: 2.40200000 GHz<br/> Ref Offset: 7.03 dB<br/> Ref: 20.00 dBm<br/> Mkr1: 2.40190 GHz, 4.733 dBm<br/> #Res BW: 2.0 MHz<br/> #VBW: 6.0 MHz<br/> Span: 10.00 MHz<br/> Sweep: 1.000 ms (1001 pts)</p>  |
| 8DPSK /MCH |  <p>Agilent Spectrum Analyzer - Sweep SA<br/> Center Freq: 2.44100000 GHz<br/> Ref Offset: 7.05 dB<br/> Ref: 20.00 dBm<br/> Mkr1: 2.44096 GHz, 4.594 dBm<br/> #Res BW: 2.0 MHz<br/> #VBW: 6.0 MHz<br/> Span: 10.00 MHz<br/> Sweep: 1.000 ms (1001 pts)</p> |
| 8DPSK /HCH |  <p>Agilent Spectrum Analyzer - Sweep SA<br/> Center Freq: 2.48000000 GHz<br/> Ref Offset: 7.1 dB<br/> Ref: 20.00 dBm<br/> Mkr1: 2.47996 GHz, 4.419 dBm<br/> #Res BW: 2.0 MHz<br/> #VBW: 6.0 MHz<br/> Span: 10.00 MHz<br/> Sweep: 1.000 ms (1001 pts)</p> |

## 10. 20DB OCCUPIED BANDWIDTH

### 10.1 Block Diagram Of Test Setup



### 10.2 Limit

Alternatively, frequency hopping systems operating in the 2400-2483.5MHz band may have hopping channel carrier frequencies that are separated by 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125mw.

### 10.3 Test procedure

1. Rem1. Set RBW = 30 kHz.
2. Set the video bandwidth (VBW)  $\geq 3 \times$  RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### 10.4 Test Result

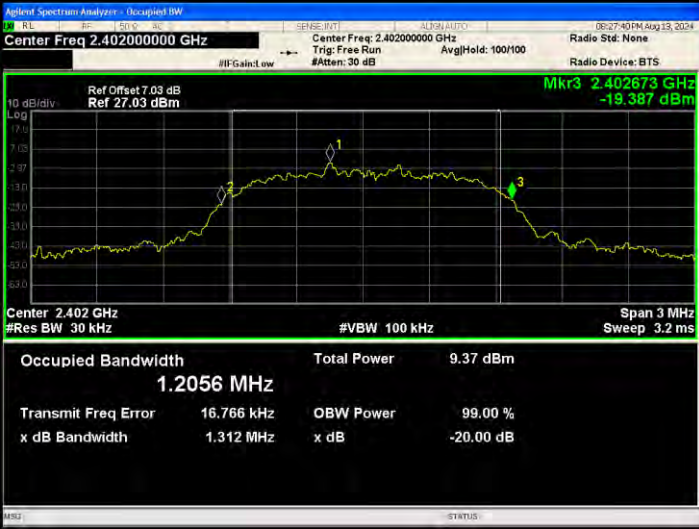
| Test Mode     | Frequency    | 20dB Bandwidth (MHz) | Result |
|---------------|--------------|----------------------|--------|
| GFSK          | Low channel  | 0.866                | PASS   |
|               | Mid channel  | 0.868                | PASS   |
|               | High channel | 0.853                | PASS   |
| $\pi/4$ DQPSK | Low channel  | 1.28                 | PASS   |
|               | Mid channel  | 1.306                | PASS   |
|               | High channel | 1.278                | PASS   |
| 8DPSK         | Low channel  | 1.312                | PASS   |
|               | Mid channel  | 1.28                 | PASS   |
|               | High channel | 1.31                 | PASS   |

Note: All modes of operation were Pre-scan and the worst-case emissions are reported.

## Test Graph:

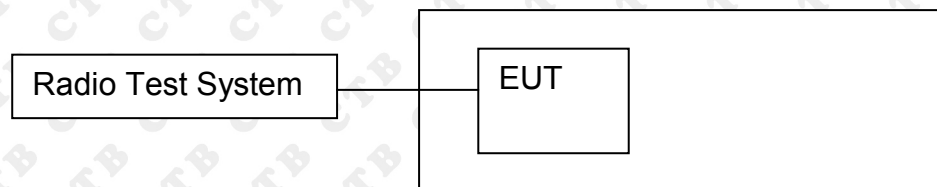
|                              |                                                                                      |
|------------------------------|--------------------------------------------------------------------------------------|
| <p>GFSK<br/>Low channel</p>  |    |
| <p>GFSK<br/>Mid channel</p>  |   |
| <p>GFSK<br/>High channel</p> |  |

|                                                  |                                                                                      |
|--------------------------------------------------|--------------------------------------------------------------------------------------|
| <p><math>\pi/4</math>-DQPSK<br/>Low channel</p>  |    |
| <p><math>\pi/4</math>-DQPSK<br/>Mid channel</p>  |   |
| <p><math>\pi/4</math>-DQPSK<br/>High channel</p> |  |

|                               |                                                                                      |
|-------------------------------|--------------------------------------------------------------------------------------|
| <p>8DPSK<br/>Low channel</p>  |    |
| <p>8DPSK<br/>Mid channel</p>  |   |
| <p>8DPSK<br/>High channel</p> |  |

## 11. CARRIER FREQUENCIES SEPARATION

### 11.1 Block Diagram Of Test Setup



### 11.2 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 0.125W.

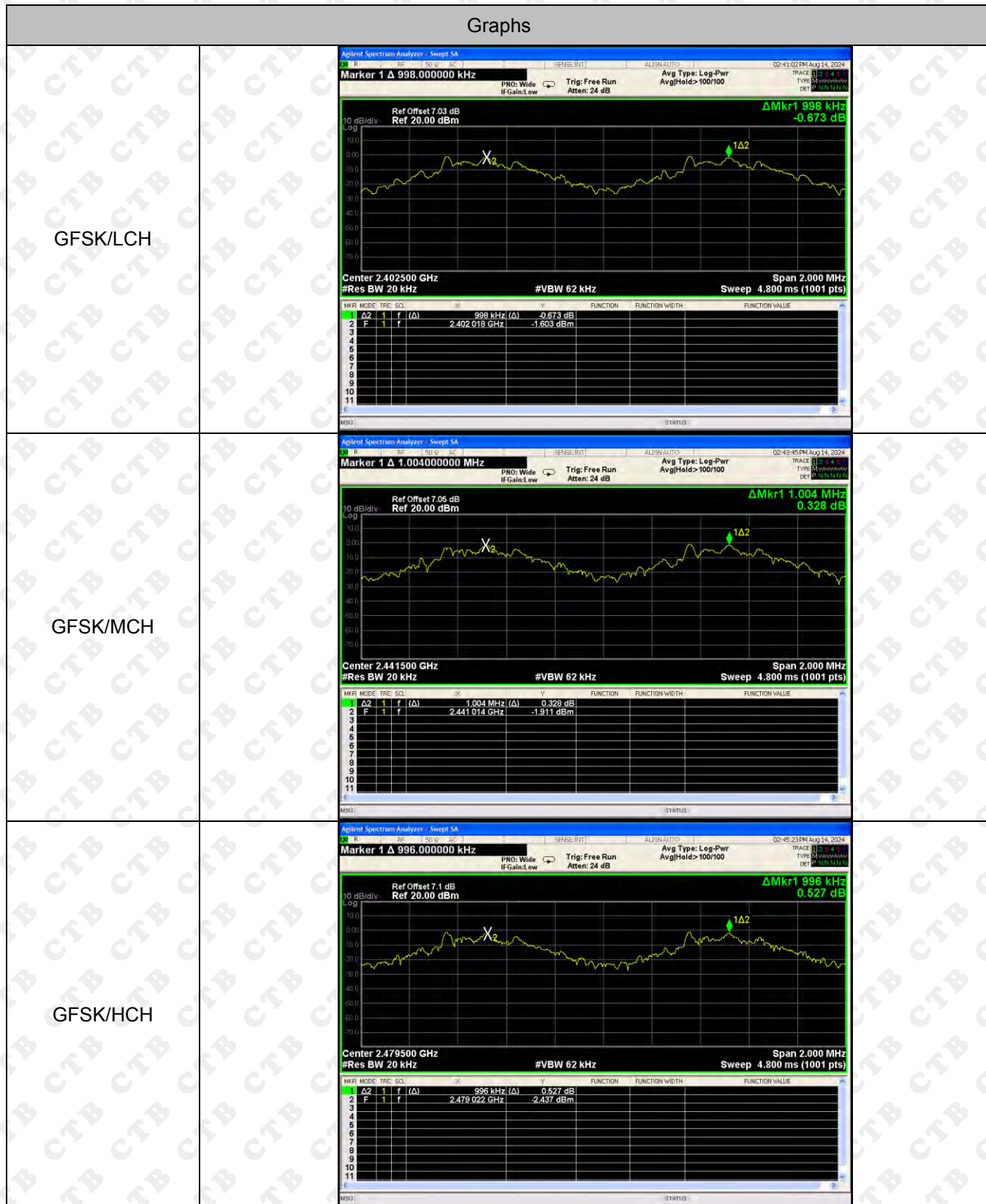
### 11.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 100kHz. VBW = 300kHz , Span = 2MHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

### 11.4 Test Result

| Mode          | Channel. | Carrier Frequency Separation [MHz] | Limit(2/3 of the 20dB bandwidth MHz) | Verdict |
|---------------|----------|------------------------------------|--------------------------------------|---------|
| GFSK          | LCH      | 0.998                              | 0.577                                | PASS    |
| GFSK          | MCH      | 1.004                              | 0.579                                | PASS    |
| GFSK          | HCH      | 0.996                              | 0.569                                | PASS    |
| $\pi/4$ DQPSK | LCH      | 0.998                              | 0.853                                | PASS    |
| $\pi/4$ DQPSK | MCH      | 1.000                              | 0.871                                | PASS    |
| $\pi/4$ DQPSK | HCH      | 1.002                              | 0.852                                | PASS    |
| 8DPSK         | LCH      | 1.000                              | 0.875                                | PASS    |
| 8DPSK         | MCH      | 1.002                              | 0.853                                | PASS    |
| 8DPSK         | HCH      | 1.004                              | 0.873                                | PASS    |

## Test Graph



| $\pi/4$ DQPSK/LCH | <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Marker 1 <math>\Delta</math> 998.000000 kHz</p> <p>Ref Offset 7.03 dB<br/>Ref 20.00 dBm</p> <p><math>\Delta</math>Mkr1 998 kHz<br/>0.239 dB</p> <p>Center 2.402500 GHz<br/>#Res BW 20 kHz<br/>#VBW 62 kHz<br/>Sweep 4.800 ms (1001 pts)</p> <table><tr><th>MNR</th><th>MODE</th><th>TRC</th><th>SOL</th><th>OK</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>A2</td><td>1</td><td>f</td><td>(A)</td><td>998 kHz (A)</td><td>0.239 dB</td><td></td><td></td></tr><tr><td>2</td><td>F</td><td>1</td><td>f</td><td></td><td>2.402 024 GHz</td><td>-2.076 dBm</td><td></td><td></td></tr></table>       | MNR | MODE | TRC | SOL           | OK         | Y              | FUNCTION       | FUNCTION WIDTH | FUNCTION VALUE | 1 | A2 | 1 | f | (A) | 998 kHz (A)   | 0.239 dB  |  |  | 2 | F | 1 | f |  | 2.402 024 GHz | -2.076 dBm |  |  |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|-----|---------------|------------|----------------|----------------|----------------|----------------|---|----|---|---|-----|---------------|-----------|--|--|---|---|---|---|--|---------------|------------|--|--|
| MNR               | MODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | TRC | SOL  | OK  | Y             | FUNCTION   | FUNCTION WIDTH | FUNCTION VALUE |                |                |   |    |   |   |     |               |           |  |  |   |   |   |   |  |               |            |  |  |
| 1                 | A2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1   | f    | (A) | 998 kHz (A)   | 0.239 dB   |                |                |                |                |   |    |   |   |     |               |           |  |  |   |   |   |   |  |               |            |  |  |
| 2                 | F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1   | f    |     | 2.402 024 GHz | -2.076 dBm |                |                |                |                |   |    |   |   |     |               |           |  |  |   |   |   |   |  |               |            |  |  |
| $\pi/4$ DQPSK/MCH | <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Marker 1 <math>\Delta</math> 1.000000000 MHz</p> <p>Ref Offset 7.05 dB<br/>Ref 20.00 dBm</p> <p><math>\Delta</math>Mkr1 1.000 MHz<br/>0.458 dB</p> <p>Center 2.441500 GHz<br/>#Res BW 20 kHz<br/>#VBW 62 kHz<br/>Sweep 4.800 ms (1001 pts)</p> <table><tr><th>MNR</th><th>MODE</th><th>TRC</th><th>SOL</th><th>OK</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>A2</td><td>1</td><td>f</td><td>(A)</td><td>1.000 MHz (A)</td><td>0.458 dB</td><td></td><td></td></tr><tr><td>2</td><td>F</td><td>1</td><td>f</td><td></td><td>2.441 010 GHz</td><td>-1.986 dBm</td><td></td><td></td></tr></table>  | MNR | MODE | TRC | SOL           | OK         | Y              | FUNCTION       | FUNCTION WIDTH | FUNCTION VALUE | 1 | A2 | 1 | f | (A) | 1.000 MHz (A) | 0.458 dB  |  |  | 2 | F | 1 | f |  | 2.441 010 GHz | -1.986 dBm |  |  |
| MNR               | MODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | TRC | SOL  | OK  | Y             | FUNCTION   | FUNCTION WIDTH | FUNCTION VALUE |                |                |   |    |   |   |     |               |           |  |  |   |   |   |   |  |               |            |  |  |
| 1                 | A2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1   | f    | (A) | 1.000 MHz (A) | 0.458 dB   |                |                |                |                |   |    |   |   |     |               |           |  |  |   |   |   |   |  |               |            |  |  |
| 2                 | F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1   | f    |     | 2.441 010 GHz | -1.986 dBm |                |                |                |                |   |    |   |   |     |               |           |  |  |   |   |   |   |  |               |            |  |  |
| $\pi/4$ DQPSK/HCH | <p>Agilent Spectrum Analyzer - Swept SA</p> <p>Marker 1 <math>\Delta</math> 1.002000000 MHz</p> <p>Ref Offset 7.1 dB<br/>Ref 20.00 dBm</p> <p><math>\Delta</math>Mkr1 1.002 MHz<br/>-0.211 dB</p> <p>Center 2.479500 GHz<br/>#Res BW 20 kHz<br/>#VBW 62 kHz<br/>Sweep 4.800 ms (1001 pts)</p> <table><tr><th>MNR</th><th>MODE</th><th>TRC</th><th>SOL</th><th>OK</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>A2</td><td>1</td><td>f</td><td>(A)</td><td>1.002 MHz (A)</td><td>-0.211 dB</td><td></td><td></td></tr><tr><td>2</td><td>F</td><td>1</td><td>f</td><td></td><td>2.479 020 GHz</td><td>-1.777 dBm</td><td></td><td></td></tr></table> | MNR | MODE | TRC | SOL           | OK         | Y              | FUNCTION       | FUNCTION WIDTH | FUNCTION VALUE | 1 | A2 | 1 | f | (A) | 1.002 MHz (A) | -0.211 dB |  |  | 2 | F | 1 | f |  | 2.479 020 GHz | -1.777 dBm |  |  |
| MNR               | MODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | TRC | SOL  | OK  | Y             | FUNCTION   | FUNCTION WIDTH | FUNCTION VALUE |                |                |   |    |   |   |     |               |           |  |  |   |   |   |   |  |               |            |  |  |
| 1                 | A2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1   | f    | (A) | 1.002 MHz (A) | -0.211 dB  |                |                |                |                |   |    |   |   |     |               |           |  |  |   |   |   |   |  |               |            |  |  |
| 2                 | F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1   | f    |     | 2.479 020 GHz | -1.777 dBm |                |                |                |                |   |    |   |   |     |               |           |  |  |   |   |   |   |  |               |            |  |  |

8DPSK/LCH



8DPSK /MCH

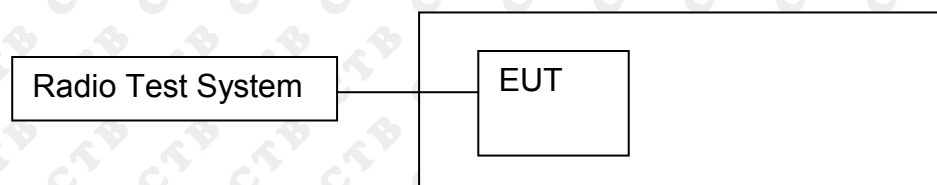


8DPSK /HCH



## 12. HOPPING CHANNEL NUMBER

### 12.1 Block Diagram Of Test Setup



### 12.2 Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

### 12.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 100kHz. VBW = 300kHz. Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. It may prove necessary to break the span up to sections. in order to clearly show all of the hopping frequencies. The limit is specified in one of the subparagraphs of this Section.
4. Set the spectrum analyzer: Start Frequency = 2.4GHz, Stop Frequency = 2.4835GHz. Sweep=auto;

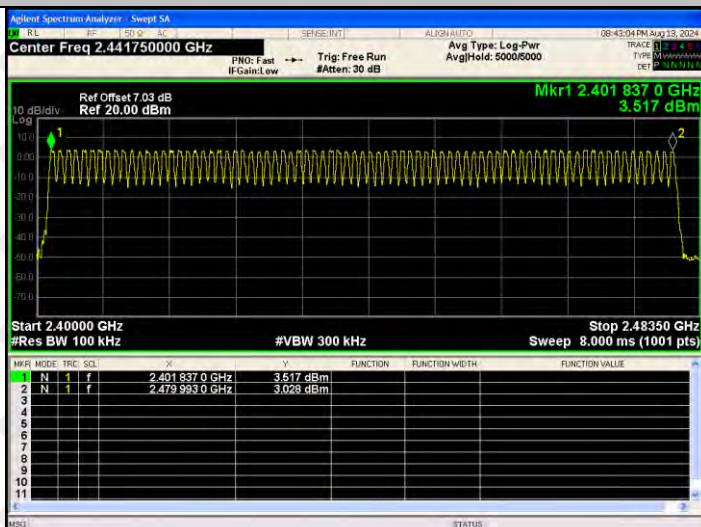
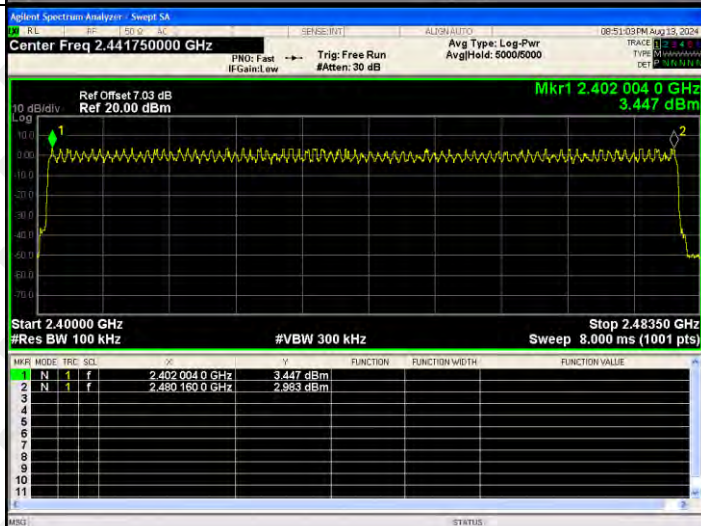
### 12.4 Test Result

| Mode          | Channel. | Number of Hopping Channel | Limit     | Verdict |
|---------------|----------|---------------------------|-----------|---------|
| GFSK          | Hop      | 79                        | $\geq 15$ | PASS    |
| $\pi/4$ DQPSK | Hop      | 79                        | $\geq 15$ | PASS    |
| 8DPSK         | Hop      | 79                        | $\geq 15$ | PASS    |

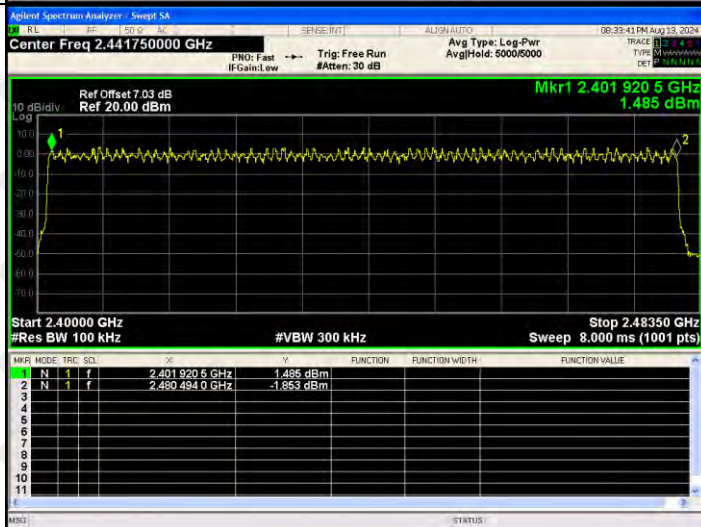
## Test Graph

## Graphs

GFSK/Hop

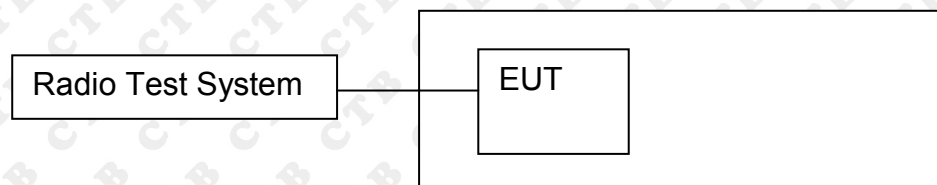

 $\pi/4$ DQPSK/Hop


8DPSK/Hop



### 13. DWELL TIME

#### 13.1 Block Diagram Of Test Setup



#### 13.2 Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

#### 13.3 Test procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set spectrum analyzer span = 0. Centred on a hopping channel;
3. Set RBW = 1MHz and VBW = 3MHz. Sweep = as necessary to capture the entire dwell time per hopping channel. Set the EUT for DH5, DH3 and DH1 packet transmitting.
4. Use the marker-delta function to determine the dwell time. If this value varies with different modes of operation (e.g.. data rate, modulation format, etc.), repeat this test for each variation. The limit is specified in one of the subparagraphs of this Section. Submit this plot(s).

#### 13.4 Test Result

Worst case-GFSK:

| Mode | Packet | Channel | Pulse Time (ms) | Total Dwell Time (ms) | Limit (ms) | Verdict |
|------|--------|---------|-----------------|-----------------------|------------|---------|
| GFSK | DH1    | LCH     | 0.383           | 122.56                | 400        | PASS    |
|      | DH1    | MCH     | 0.382           | 122.24                | 400        | PASS    |
|      | DH1    | HCH     | 0.383           | 122.56                | 400        | PASS    |
|      | DH3    | LCH     | 1.644           | 263.04                | 400        | PASS    |
|      | DH3    | MCH     | 1.644           | 263.04                | 400        | PASS    |
|      | DH3    | HCH     | 1.643           | 262.88                | 400        | PASS    |
|      | DH5    | LCH     | 2.893           | 308.587               | 400        | PASS    |
|      | DH5    | MCH     | 2.893           | 308.587               | 400        | PASS    |
|      | DH5    | HCH     | 2.894           | 308.693               | 400        | PASS    |

Remark: DH5 Packet permit maximum 1600 / 79 / 6 hops per second in each channel (5 time slots RX, 1 time slot TX).

DH3 Packet permit maximum 1600 / 79 / 4 hops per second in each channel (3 time slots RX, 1 time slot TX).

DH1 Packet permit maximum 1600 / 79 / 2 hops per second in each channel (1 time slot RX, 1 time slot TX). So, the Dwell Time can be calculated as follows:

DH5:  $1600/79/6 \times 0.4 \times 79 \times (\text{MkrDelta})/1000$

DH3:  $1600/79/4 \times 0.4 \times 79 \times (\text{MkrDelta})/1000$

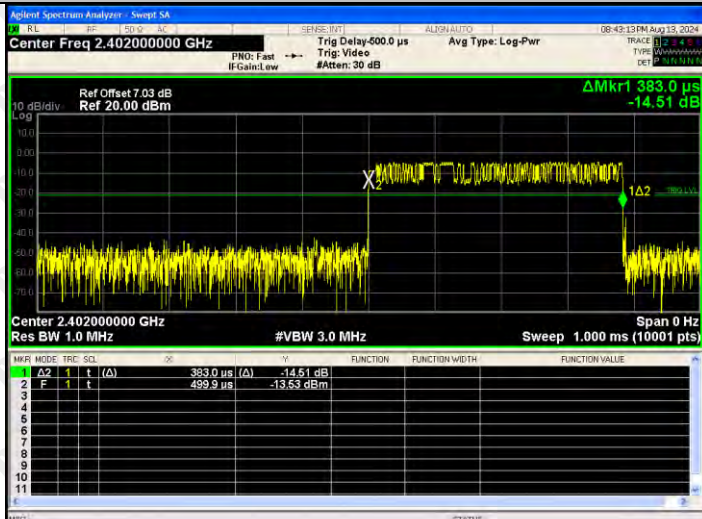
DH1:  $1600/79/2 \times 0.4 \times 79 \times (\text{MkrDelta})/1000$

Remark: Mkr Delta is once pulse time.

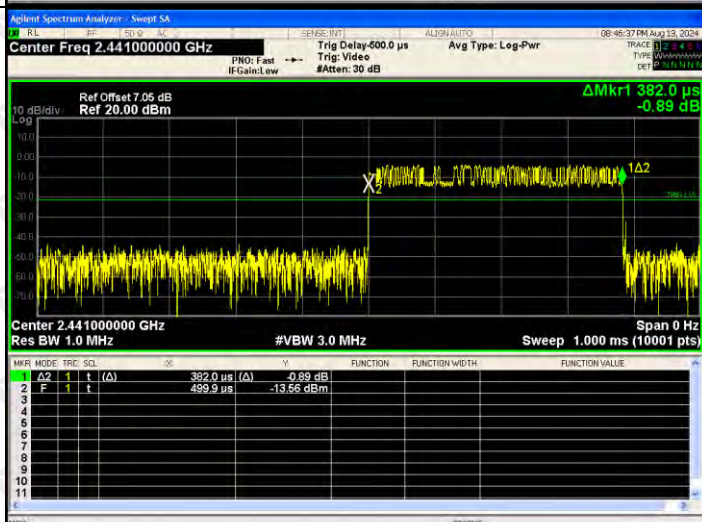
# Test Graph

## Graphs

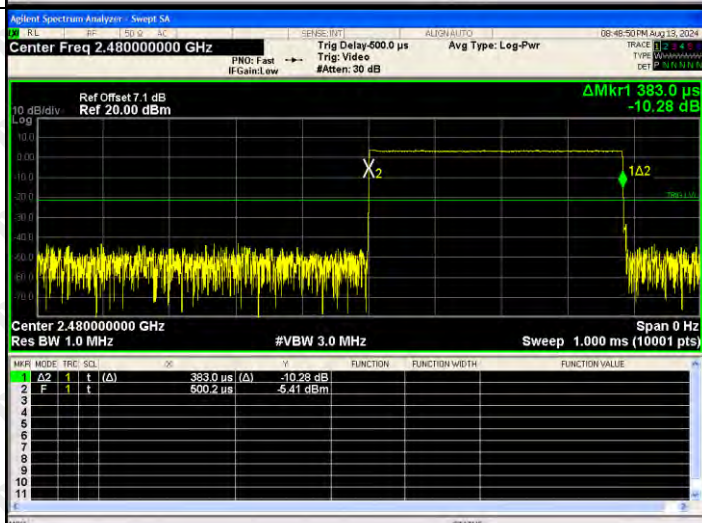
GFSK\_DH1/LCH



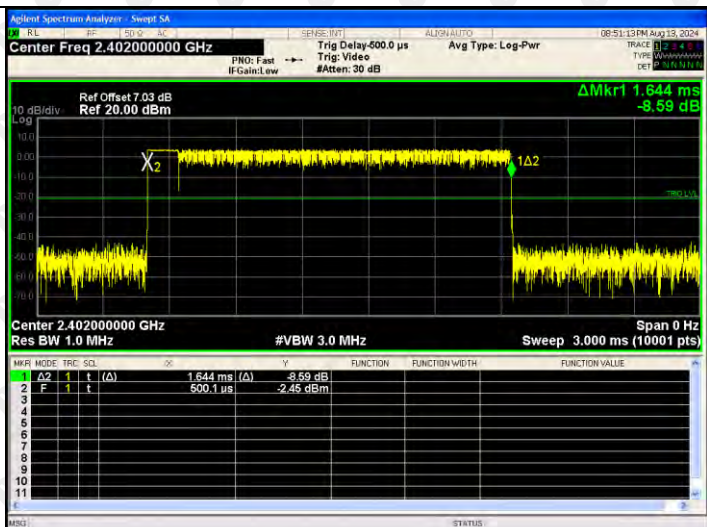
GFSK\_DH1/MCH



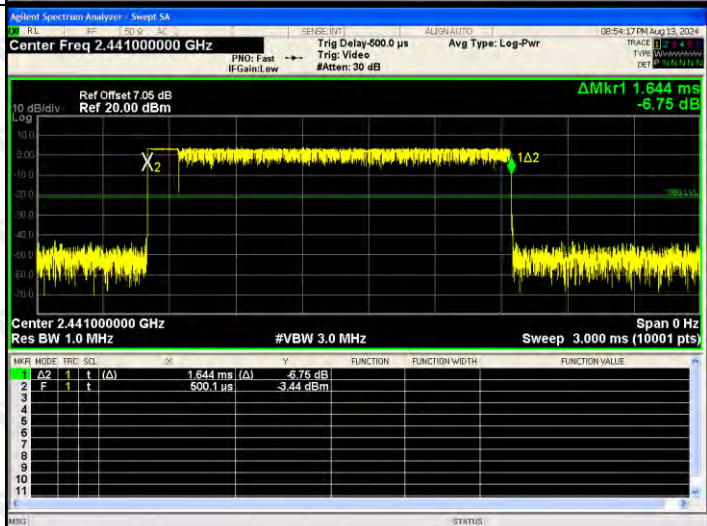
GFSK\_DH1/HCH



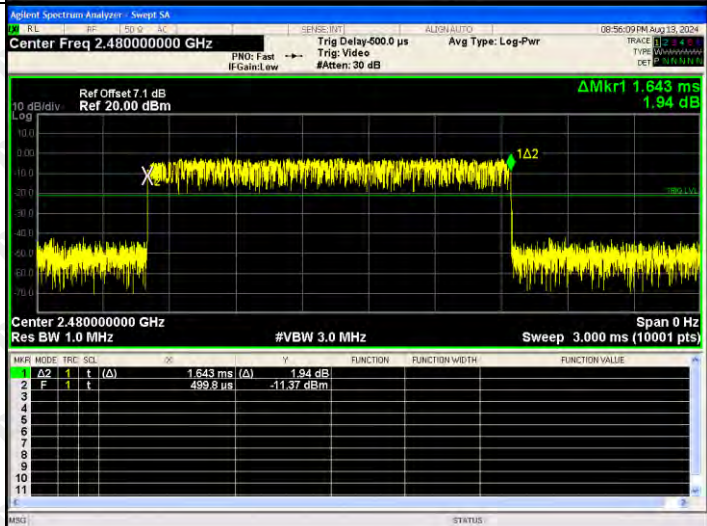
GFSK\_DH3/LCH



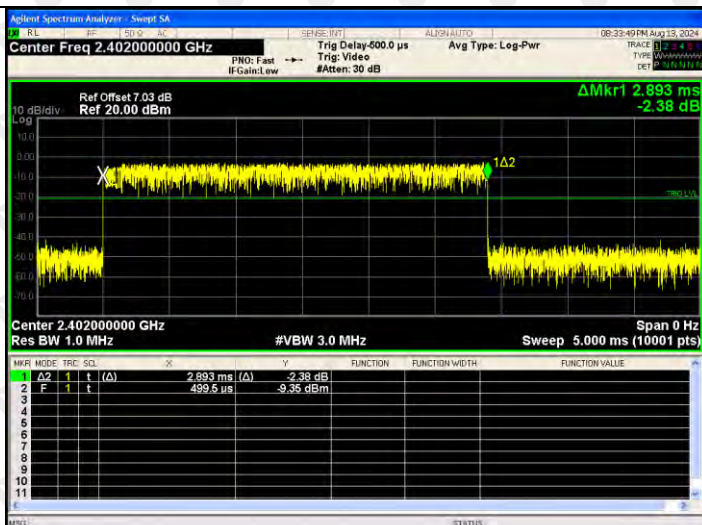
GFSK\_DH3/MCH



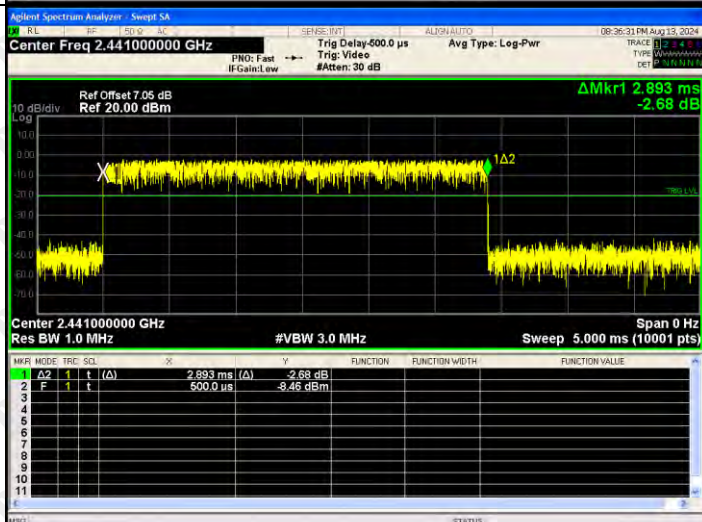
GFSK\_DH3/HCH



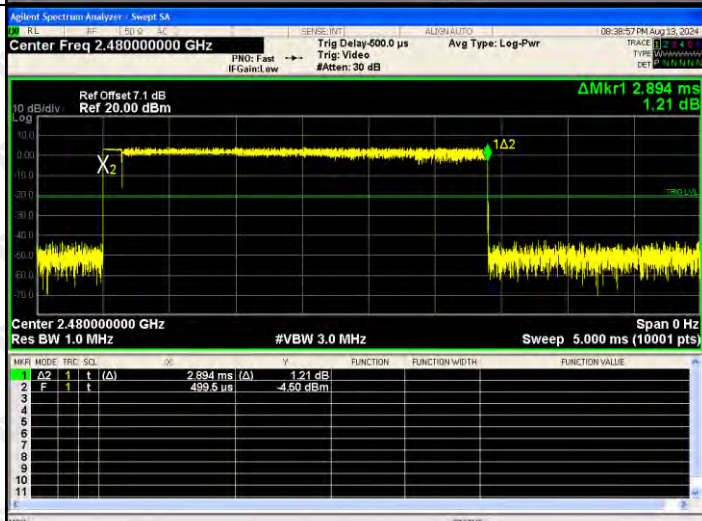
GFSK\_DH5/LCH



GFSK\_DH5/MCH



GFSK\_DH5/HCH



## 14. PSEUDORANDOM FREQUENCY

### 14.1 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. The system shall hop to channel frequencies that are selected at the system hopping rate from a Pseudorandom ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

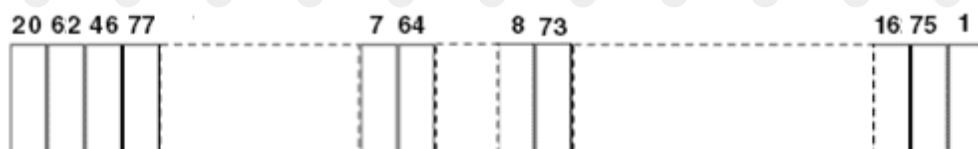
### 14.2 Test procedure

The pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONES; i.e. the shift register is initialized with nine ones.

- Number of shift register stages: 9
- Length of pseudo-random sequence:  $2^9 - 1 = 511$  bits
- Longest sequence of zeros: 8 (non-inverted signal)



An example of Pseudorandom Frequency Hopping Sequence as follow:



Each frequency used equally on the average by each transmitter.

The system receivers have input bandwidths that match the hopping channel bandwidths of their Corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

### 14.3 Test Result

The device does not have the ability to be coordinated with other FHSS systems in an effort to avoid the simultaneous occupancy of individual hopping frequencies by multiple transmitters.

## 15. ANTENNA REQUIREMENT

### 15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

### 15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

### EUT Antenna:

The antenna is FPC antenna. The best case gain of the antenna is 0.17dBi.

## 16. EUT PHOTOGRAPHS

External Photos

Main test model

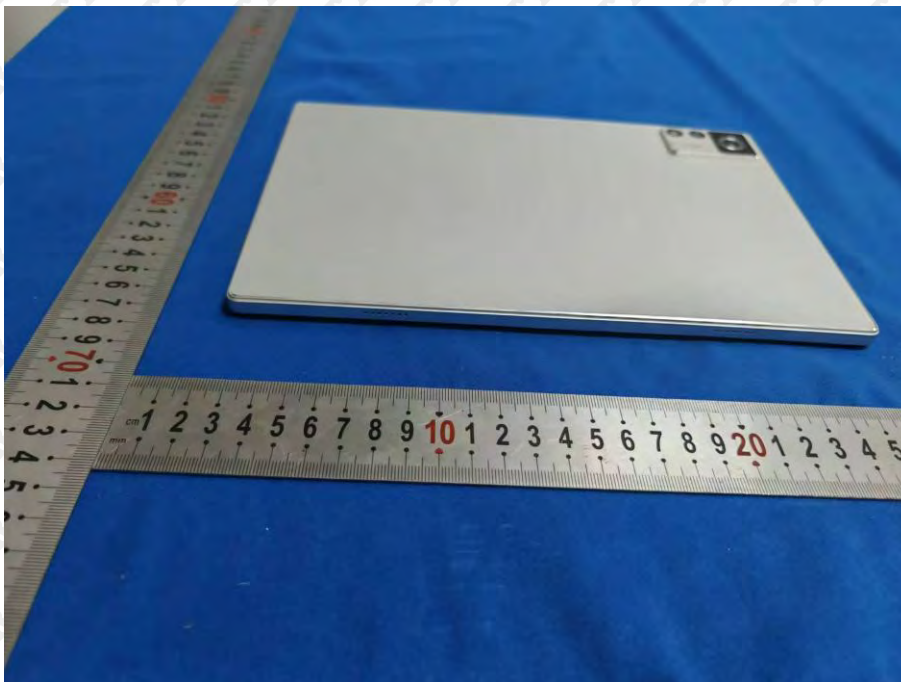
EUT Photo 1



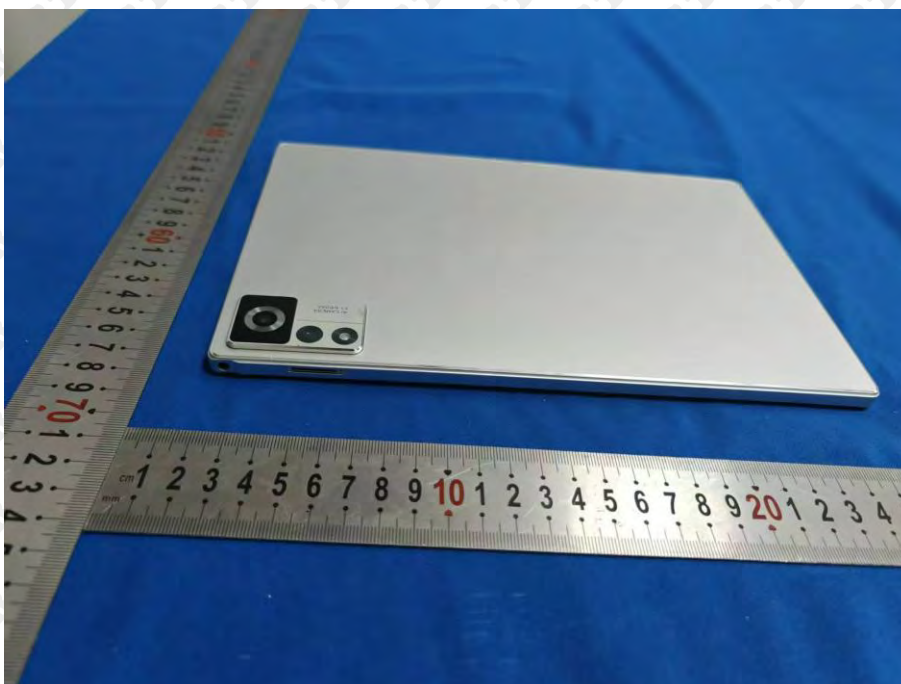
EUT Photo 2



EUT Photo 3



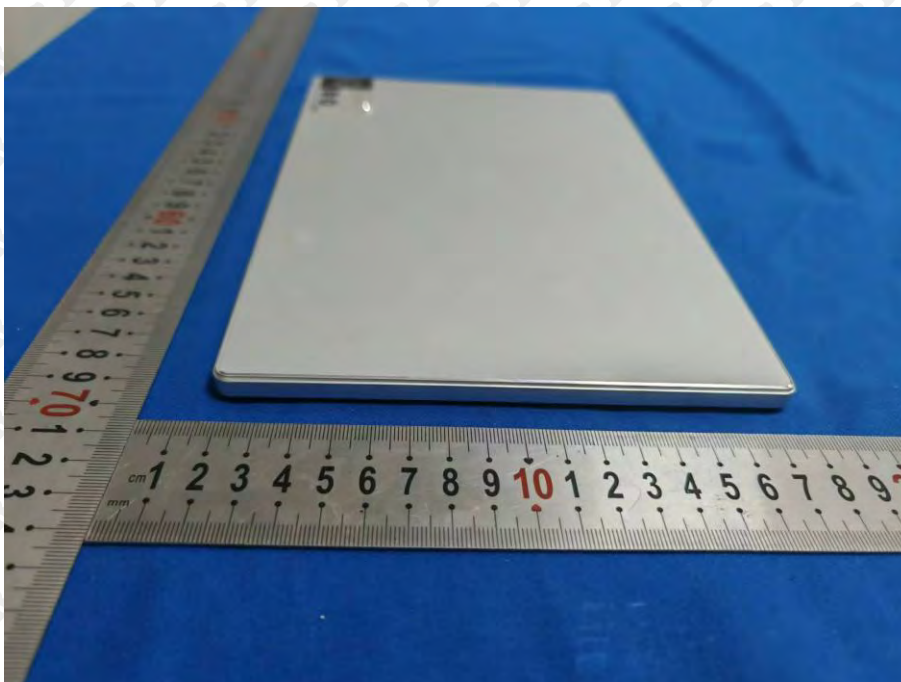
EUT Photo 4



EUT Photo 5



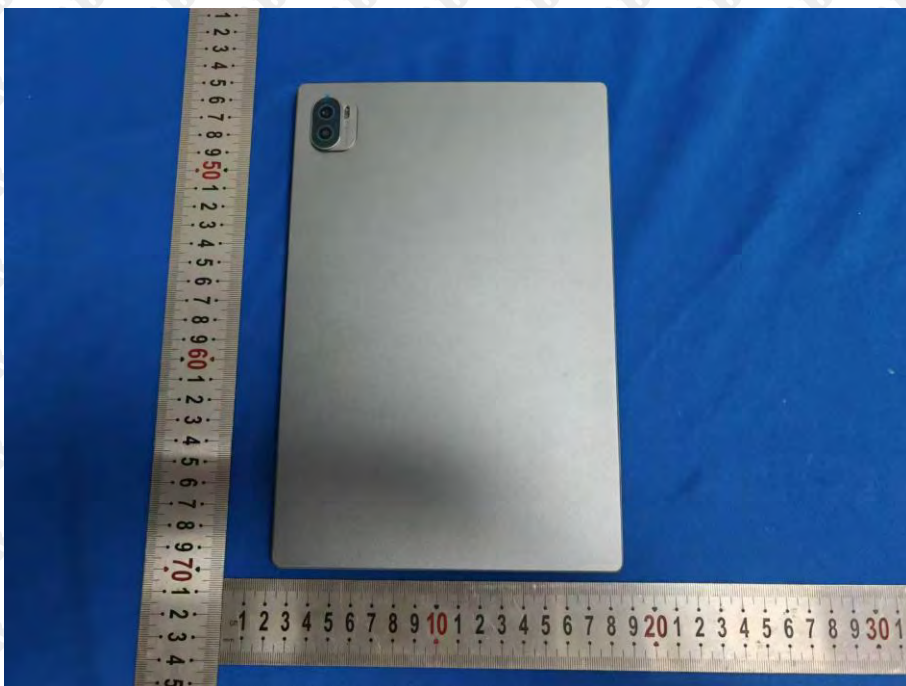
EUT Photo 6



Serial model No.:  
EUT Photo 1



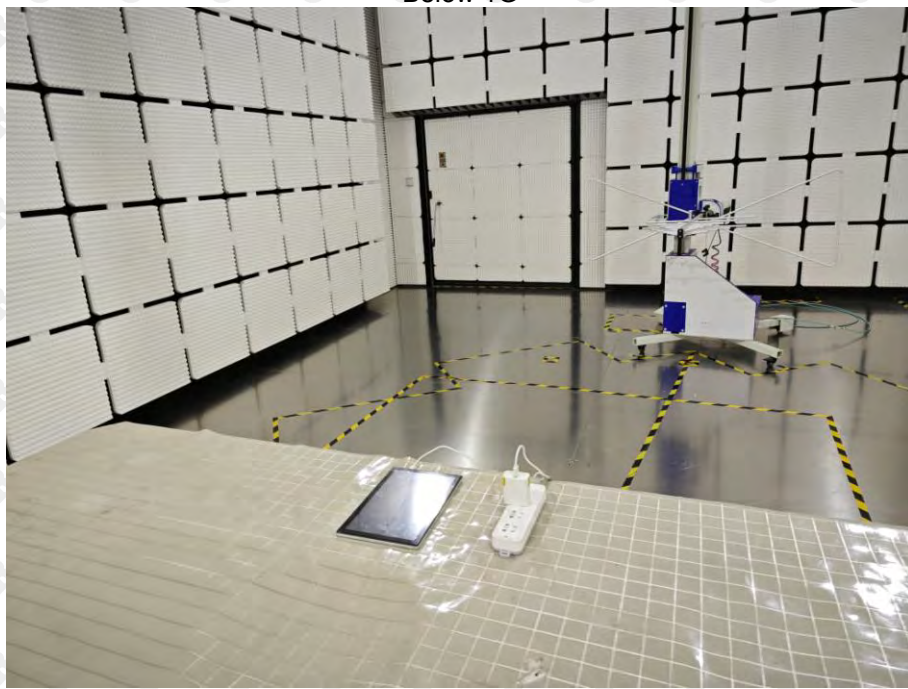
EUT Photo 2



## 17. EUT TEST SETUP PHOTOGRAPHS

### Radiated Emission

Below 1G



Above 1G



## Conducted emissions



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