

# TEST REPORT

**Applicant:** DALS Lighting, Inc

**Address of Applicant:** 80 De La Seigneurie East, Blainville, Quebec, J7C 4N1, Canada

**Manufacturer:** Meko Lighting Company Limited

**Address of Manufacturer:** No.2, Songlin East Road, Zeng Tian Village, Xin An District, Chang An Town Dongguan Guangdong 523883 China (Peoples Republic Of)

**Equipment Under Test (EUT)**

Product Name: Axis Digital Stick

Model No.: SM-STTL20-XX, SM-STFL50-XX  
(XX stands for color finishes)

Trade Mark: DALS

**FCC ID:** 2AQSN-SMSTKD

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.247

**Date of sample receipt:** March 6, 2023

**Date of Test:** March 17~29, 2023

**Date of report issued:** March 29, 2023

**Test Result :** PASS \*

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



The stamp is a red circular seal. The outer ring contains the text 'Global United Technology Services Co., Ltd.' in English and '環球聯合科技服務有限公司' in Chinese. The inner part of the seal features a red star and the text '檢驗檢測專用章' (Inspection and Testing Special Seal) and 'Inspection/Testing Services'.

Robinson Luo

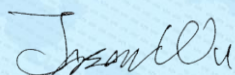
Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

## 2 Version

| Version No. | Date      | Description |
|-------------|-----------|-------------|
| 00          | 2023-3-29 | Original    |
|             |           |             |
|             |           |             |
|             |           |             |
|             |           |             |

Prepared By:



Project Engineer

Date:

2023-3-29

Check By:



Reviewer

Date:

2023-3-29

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## 4 Test Summary

| Test Item                        | Section                    | Result |
|----------------------------------|----------------------------|--------|
| Antenna requirement              | FCC part 15.203/15.247 (c) | Pass   |
| AC Power Line Conducted Emission | FCC part 15.207            | Pass   |
| Conducted Peak Output Power      | FCC part 15.247 (b)(3)     | Pass   |
| Channel Bandwidth & 99% OCB      | FCC part 15.247 (a)(2)     | Pass   |
| Power Spectral Density           | FCC part 15.247 (e)        | Pass   |
| Band Edge                        | FCC part 15.247(d)         | Pass   |
| Spurious Emission                | FCC part 15.205/15.209     | Pass   |

Remark: Test according to ANSI C63.10:2013

Pass: The EUT complies with the essential requirements in the standard.

### Measurement Uncertainty

| No. | Item                             | Measurement Uncertainty  |
|-----|----------------------------------|--------------------------|
| 1   | Radio Frequency                  | $1 \times 10^{-7}$       |
| 2   | Duty cycle                       | 0.37%                    |
| 3   | Occupied Bandwidth               | 3%                       |
| 4   | RF conducted power               | 0.75dB                   |
| 5   | RF power density                 | 3dB                      |
| 6   | Conducted Spurious emissions     | 2.58dB                   |
| 7   | AC Power Line Conducted Emission | 3.44dB (0.15MHz ~ 30MHz) |
| 8   | Radiated Spurious emission test  | 3.1dB (9kHz-30MHz)       |
|     |                                  | 3.8039dB (30MHz-200MHz)  |
|     |                                  | 3.9679dB (200MHz-1GHz)   |
|     |                                  | 4.29dB (1GHz-18GHz)      |
|     |                                  | 3.30dB (18GHz-40GHz)     |

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

## 5 General Information

### 5.1 General Description of EUT

|                        |                                                                                                                                                                                                                              |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:          | Axis Digital Stick                                                                                                                                                                                                           |
| Model No.:             | SM-STTL20-XX, SM-STFL50-XX (XX stands for color finishes)                                                                                                                                                                    |
| Test Model No.:        | SM-STTL20-BK, SM-STFL50-BK                                                                                                                                                                                                   |
| Test sample(s) ID:     | GTSL2023030488-1(SM-STTL20-BK),<br>GTSL2023030488-2(SM-STFL50-BK)                                                                                                                                                            |
| Serial No.:            | N/A                                                                                                                                                                                                                          |
| Hardware Version:      | V1.0                                                                                                                                                                                                                         |
| Software Version:      | 1.0.18                                                                                                                                                                                                                       |
| Sample(s) Status       | Engineer sample                                                                                                                                                                                                              |
| Operation Frequency:   | 802.11b/802.11g/802.11n(H20): 2412MHz~2462MHz<br>802.11n(HT40): 2422MHz~2452MHz                                                                                                                                              |
| Channel separation:    | 5MHz                                                                                                                                                                                                                         |
| Modulation technology: | 802.11b: Direct Sequence Spread Spectrum (DSSS)<br>802.11g/802.11n(H20)/802.11n(HT40):<br>Orthogonal Frequency Division Multiplexing (OFDM)                                                                                  |
| Antenna Type:          | Internal antenna                                                                                                                                                                                                             |
| Antenna gain:          | 0dBi                                                                                                                                                                                                                         |
| Power supply:          | DC 12V (Powered by adapter)                                                                                                                                                                                                  |
| Adapter Information    | Manufacturer: XING YUAN ELECTRONICS CO., LTD<br>MODEL NO.: XY24SE-120150VQ-UW<br>INPUT: 100-240V~ 50/60Hz 0.5A Max<br>OUTPUT: 12.0V  1.5A |

| Operation Frequency each of channel |           |         |           |         |           |         |           |
|-------------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel                             | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 1                                   | 2412MHz   | 4       | 2427MHz   | 7       | 2442MHz   | 10      | 2457MHz   |
| 2                                   | 2417MHz   | 5       | 2432MHz   | 8       | 2447MHz   | 11      | 2462MHz   |
| 3                                   | 2422MHz   | 6       | 2437MHz   | 9       | 2452MHz   |         |           |

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

| Test channel    | Frequency (MHz)               |               |
|-----------------|-------------------------------|---------------|
|                 | 802.11b/802.11g/802.11n(HT20) | 802.11n(HT40) |
| Lowest channel  | 2412MHz                       | 2422MHz       |
| Middle channel  | 2437MHz                       | 2437MHz       |
| Highest channel | 2462MHz                       | 2452MHz       |

## 5.2 Test mode

|                                                                                                                                                                                                                                                                     |                                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Transmitting mode                                                                                                                                                                                                                                                   | Keep the EUT in continuously transmitting mode |
| <i>Remark: During the test, the dutycycle &gt;98%, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.</i> |                                                |

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

|           |         |         |               |               |
|-----------|---------|---------|---------------|---------------|
| Mode      | 802.11b | 802.11g | 802.11n(HT20) | 802.11n(HT40) |
| Data rate | 1Mbps   | 6Mbps   | 6.5Mbps       | 13Mbps        |

## 5.3 Description of Support Units

None.

## 5.4 Deviation from Standards

None.

## 5.5 Abnormalities from Standard Conditions

None.

## 5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC—Registration No.: 381383**

Designation Number: CN5029

Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files.

- **IC —Registration No.: 9079A**

CAB identifier: CN0091

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

- **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

## 5.7 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

## 5.8 Additional Instructions

|                   |                                                       |
|-------------------|-------------------------------------------------------|
| Test Software     | Beken Wi-Fi Test Tool V1.6.0                          |
| Power level setup | 802.11b: 12<br>802.11g/802.11n(H20)/ 802.11n(H40): 30 |

## 6 Test Instruments list

| Radiated Emission: |                                     |                                |                             |               |                     |                         |
|--------------------|-------------------------------------|--------------------------------|-----------------------------|---------------|---------------------|-------------------------|
| Item               | Test Equipment                      | Manufacturer                   | Model No.                   | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                  | 3m Semi- Anechoic Chamber           | ZhongYu Electron               | 9.2(L)*6.2(W)* 6.4(H)       | GTS250        | July 02, 2020       | July 01, 2025           |
| 2                  | Control Room                        | ZhongYu Electron               | 6.2(L)*2.5(W)* 2.4(H)       | GTS251        | N/A                 | N/A                     |
| 3                  | EMI Test Receiver                   | Rohde & Schwarz                | ESU26                       | GTS203        | April 22, 2022      | April 21, 2023          |
| 4                  | BiConiLog Antenna                   | SCHWARZBECK<br>MESS-ELEKTRONIK | VULB9168                    | GTS640        | March 20, 2023      | March 19, 2025          |
| 5                  | Double -ridged waveguide horn       | SCHWARZBECK<br>MESS-ELEKTRONIK | BBHA 9120 D                 | GTS208        | June 12, 2022       | June 11, 2023           |
| 6                  | Horn Antenna                        | ETS-LINDGREN                   | 3160                        | GTS217        | June 23, 2022       | June 22, 2023           |
| 7                  | EMI Test Software                   | AUDIX                          | E3                          | N/A           | N/A                 | N/A                     |
| 8                  | Coaxial Cable                       | GTS                            | N/A                         | GTS213        | April 22, 2022      | April 21, 2023          |
| 9                  | Coaxial Cable                       | GTS                            | N/A                         | GTS211        | April 22, 2022      | April 21, 2023          |
| 10                 | Coaxial cable                       | GTS                            | N/A                         | GTS210        | April 22, 2022      | April 21, 2023          |
| 11                 | Coaxial Cable                       | GTS                            | N/A                         | GTS212        | April 22, 2022      | April 21, 2023          |
| 12                 | Amplifier(100kHz-3GHz)              | HP                             | 8347A                       | GTS204        | April 22, 2022      | April 21, 2023          |
| 13                 | Amplifier (18-26GHz)                | Rohde & Schwarz                | AFS33-18002<br>650-30-8P-44 | GTS218        | June 23, 2022       | June 22, 2023           |
| 14                 | Band filter                         | Amindeon                       | 82346                       | GTS219        | June 23, 2022       | June 22, 2023           |
| 15                 | Power Meter                         | Anritsu                        | ML2495A                     | GTS540        | June 23, 2022       | June 22, 2023           |
| 16                 | Power Sensor                        | Anritsu                        | MA2411B                     | GTS541        | June 23, 2022       | June 22, 2023           |
| 17                 | Wideband Radio Communication Tester | Rohde & Schwarz                | CMW500                      | GTS575        | April 22, 2022      | April 21, 2023          |
| 18                 | Splitter                            | Agilent                        | 11636B                      | GTS237        | June 23, 2022       | June 22, 2023           |
| 19                 | Loop Antenna                        | ZHINAN                         | ZN30900A                    | GTS534        | Nov. 29, 2022       | Nov. 28, 2023           |
| 20                 | Broadband Preamplifier              | SCHWARZBECK                    | BBV9718                     | GTS535        | April 22, 2022      | April 21, 2023          |
| 21                 | Breitband hornantenna               | SCHWARZBECK                    | BBHA 9170                   | GTS579        | Oct. 16, 2022       | Oct. 15, 2023           |
| 22                 | Amplifier                           | TDK                            | PA-02-02                    | GTS574        | Oct. 16, 2022       | Oct. 15, 2023           |
| 23                 | Amplifier                           | TDK                            | PA-02-03                    | GTS576        | Oct. 16, 2022       | Oct. 15, 2023           |
| 24                 | PSA Series Spectrum Analyzer        | Rohde & Schwarz                | FSP                         | GTS578        | June 23, 2022       | June 22, 2023           |
| 25                 | Amplifier(1GHz-26.5GHz)             | HP                             | 8449B                       | GTS601        | April 22, 2022      | April 21, 2023          |

| Conducted Emission |                           |                         |                      |               |                     |                         |
|--------------------|---------------------------|-------------------------|----------------------|---------------|---------------------|-------------------------|
| Item               | Test Equipment            | Manufacturer            | Model No.            | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                  | Shielding Room            | ZhongYu Electron        | 7.3(L)x3.1(W)x2.9(H) | GTS252        | May 14, 2022        | May 13, 2025            |
| 2                  | EMI Test Receiver         | R&S                     | ESCI 7               | GTS552        | April 24, 2022      | April 23, 2023          |
| 3                  | Coaxial Switch            | ANRITSU CORP            | MP59B                | GTS225        | June 23, 2022       | June 22, 2023           |
| 4                  | ENV216 2-L-V-NETZNACHB.DE | ROHDE&SCHWARZ           | ENV216               | GTS226        | April 22, 2022      | April 21, 2023          |
| 5                  | Coaxial Cable             | GTS                     | N/A                  | GTS227        | N/A                 | N/A                     |
| 6                  | EMI Test Software         | AUDIX                   | E3                   | N/A           | N/A                 | N/A                     |
| 7                  | Thermo meter              | JINCHUANG               | GSP-8A               | GTS639        | April 28, 2022      | April 27, 2023          |
| 8                  | Absorbing clamp           | Elektronik-Feinmechanik | MDS21                | GTS229        | April 15, 2022      | April 14, 2023          |
| 9                  | ISN                       | SCHWARZBECK             | NTFM 8158            | GTS565        | April 22, 2022      | April 21, 2023          |
| 10                 | High voltage probe        | SCHWARZBECK             | TK9420               | GTS537        | April 22, 2022      | April 21, 2023          |

| RF Conducted Test: |                                                |              |                  |            |                     |                         |
|--------------------|------------------------------------------------|--------------|------------------|------------|---------------------|-------------------------|
| Item               | Test Equipment                                 | Manufacturer | Model No.        | Serial No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                  | MXA Signal Analyzer                            | Agilent      | N9020A           | GTS566     | April 22, 2022      | April 21, 2023          |
| 2                  | EMI Test Receiver                              | R&S          | ESCI 7           | GTS552     | April 22, 2022      | April 21, 2023          |
| 3                  | Spectrum Analyzer                              | Agilent      | E4440A           | GTS536     | April 22, 2022      | April 21, 2023          |
| 4                  | MXG vector Signal Generator                    | Agilent      | N5182A           | GTS567     | April 22, 2022      | April 21, 2023          |
| 5                  | ESG Analog Signal Generator                    | Agilent      | E4428C           | GTS568     | April 22, 2022      | April 21, 2023          |
| 6                  | USB RF Power Sensor                            | DARE         | RPR3006W         | GTS569     | April 22, 2022      | April 21, 2023          |
| 7                  | RF Switch Box                                  | Shongyi      | RFSW3003328      | GTS571     | April 22, 2022      | April 21, 2023          |
| 8                  | Programmable Constant Temp & Humi Test Chamber | WEWON        | WHTH-150L-40-880 | GTS572     | April 22, 2022      | April 21, 2023          |

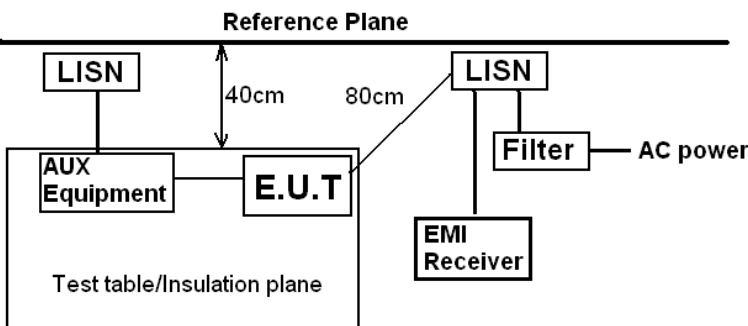
| General used equipment: |                                 |              |           |               |                     |                         |
|-------------------------|---------------------------------|--------------|-----------|---------------|---------------------|-------------------------|
| Item                    | Test Equipment                  | Manufacturer | Model No. | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                       | Humidity/ Temperature Indicator | KTJ          | TA328     | GTS243        | April 25, 2022      | April 24, 2023          |
| 2                       | Barometer                       | KUMAO        | SF132     | GTS647        | July 26, 2022       | July 25, 2023           |

## 7 Test results and Measurement Data

### 7.1 Antenna requirement

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| <b>Standard requirement:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                     | FCC Part15 C Section 15.203 /247(c) |
| <b>15.203 requirement:</b><br>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. |                                     |
| <b>15.247(c) (1)(i) requirement:</b><br>(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.                                                                                |                                     |
| <b>EUT Antenna:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |
| The antennas are Internal antenna, the best case gain of the antennas are 0dBi, reference to the appendix II for details                                                                                                                                                                                                                                                                                                                                                         |                                     |

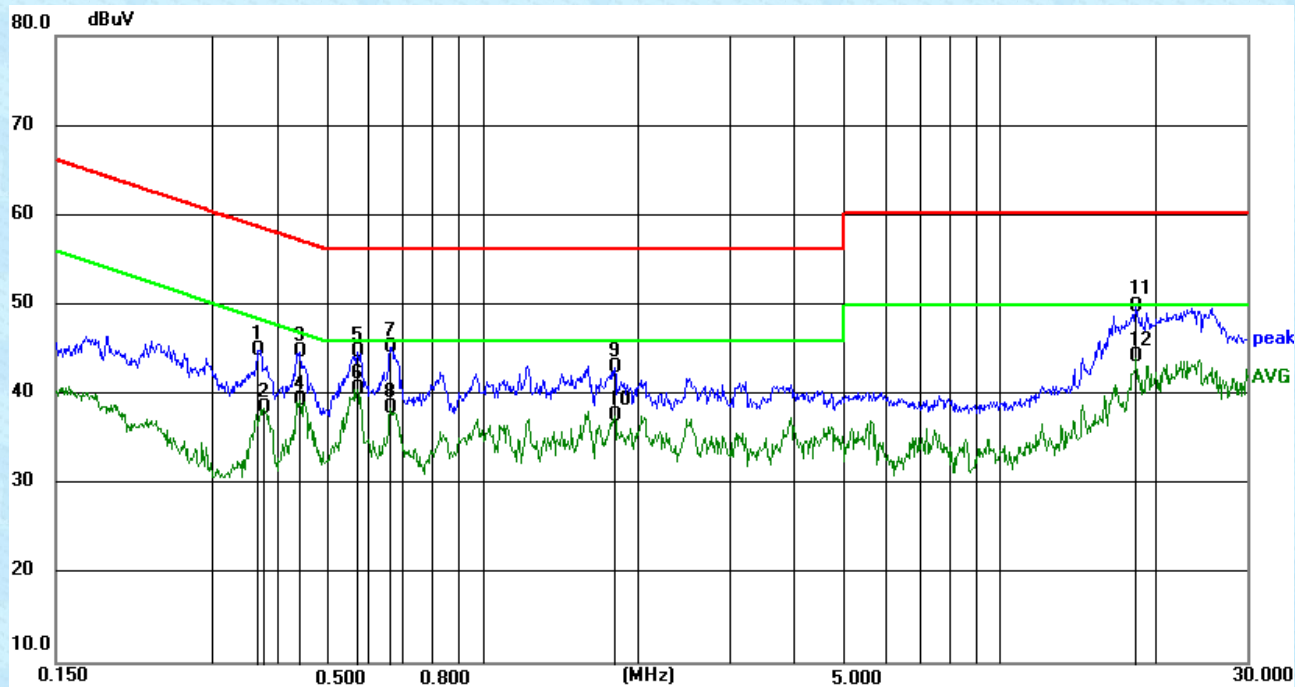
## 7.2 Conducted Emissions

|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |              |     |           |          |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------|-----|-----------|----------|
| Test Requirement:                                | FCC Part15 C Section 15.207                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |              |     |           |          |
| Test Method:                                     | ANSI C63.10:2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |              |     |           |          |
| Test Frequency Range:                            | 150kHz to 30MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |              |     |           |          |
| Receiver setup:                                  | RBW=9kHz, VBW=30kHz, Sweep time=auto                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |              |     |           |          |
| Limit:                                           | Frequency range (MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       | Limit (dBuV) |     |           |          |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       | Quasi-peak   |     | Average   |          |
|                                                  | 0.15-0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       | 66 to 56*    |     | 56 to 46* |          |
|                                                  | 0.5-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |       | 56           |     | 46        |          |
|                                                  | 5-30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       | 60           |     | 50        |          |
| * Decreases with the logarithm of the frequency. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |              |     |           |          |
| Test setup:                                      | <div><p style="text-align: center;"><b>Reference Plane</b></p><p>Remark:<br/>E.U.T: Equipment Under Test<br/>LISN: Line Impedance Stabilization Network<br/>Test table height=0.1m</p></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |              |     |           |          |
| Test procedure:                                  | <div><div>1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.</div><div>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</div><div>3. Both sides of A.C. line are checked for maximum conducted interference. 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.</div></div> |       |              |     |           |          |
| Test Instruments:                                | Refer to section 6.0 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |              |     |           |          |
| Test mode:                                       | Refer to section 5.2 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |       |              |     |           |          |
| Test environment:                                | Temp.:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 25 °C | Humid.:      | 52% | Press.:   | 1012mbar |
| Test voltage:                                    | AC 120V, 60Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |       |              |     |           |          |
| Test results:                                    | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |              |     |           |          |

## Measurement data

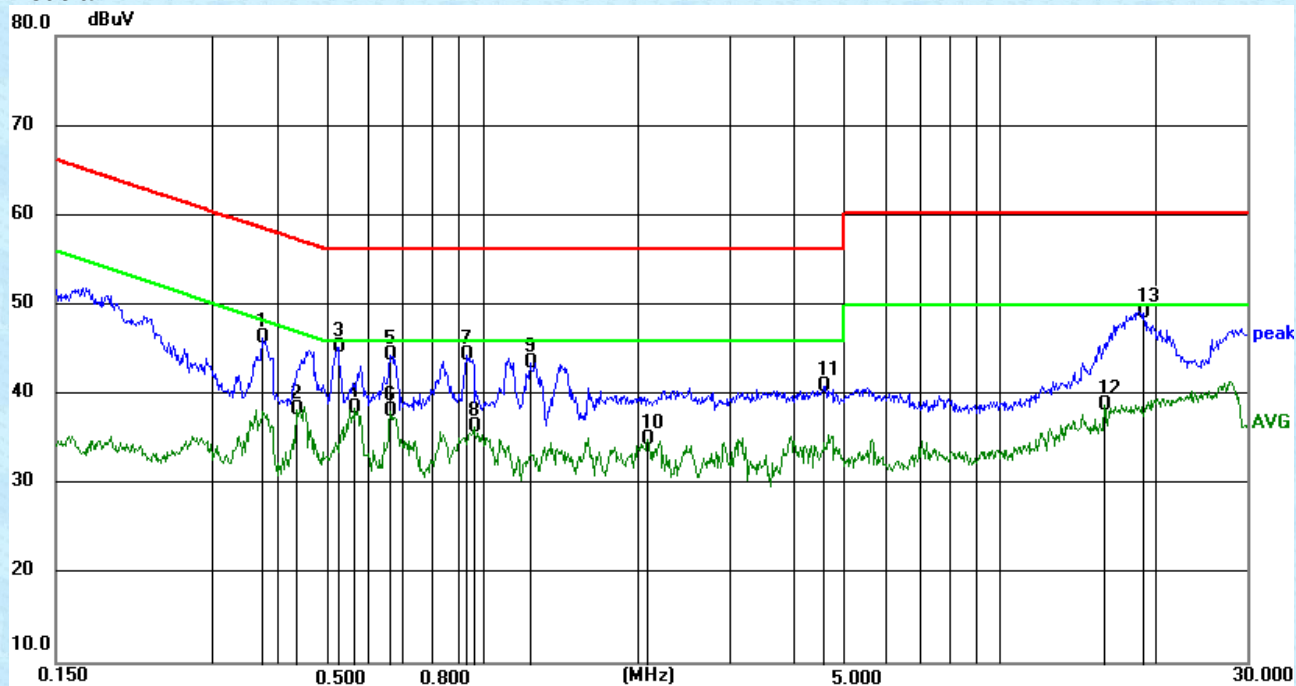
SM-STTL20-BK

Line:



| Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|-----------------|----------------|-------------|--------------|--------------|-------------|--------|
| 0.3689          | 34.92          | 10.01       | 44.93        | 58.53        | 13.6        | QP     |
| 0.379           | 28.47          | 10.01       | 38.48        | 48.3         | 9.82        | AVG    |
| 0.4444          | 34.8           | 10.01       | 44.81        | 56.98        | 12.17       | QP     |
| 0.4444          | 29.33          | 10.01       | 39.34        | 46.98        | 7.64        | AVG    |
| 0.5731          | 34.76          | 10.02       | 44.78        | 56           | 11.22       | QP     |
| 0.5731          | 30.54          | 10.02       | 40.56        | 46           | 5.44        | AVG    |
| 0.6643          | 35.31          | 10.02       | 45.33        | 56           | 10.67       | QP     |
| 0.6643          | 28.52          | 10.02       | 38.54        | 46           | 7.46        | AVG    |
| 1.8             | 32.9           | 10.05       | 42.95        | 56           | 13.05       | QP     |
| 1.8             | 27.51          | 10.05       | 37.56        | 46           | 8.44        | AVG    |
| 18.3277         | 39.4           | 10.45       | 49.85        | 60           | 10.15       | QP     |
| 18.3277         | 33.68          | 10.45       | 44.13        | 50           | 5.87        | AVG    |

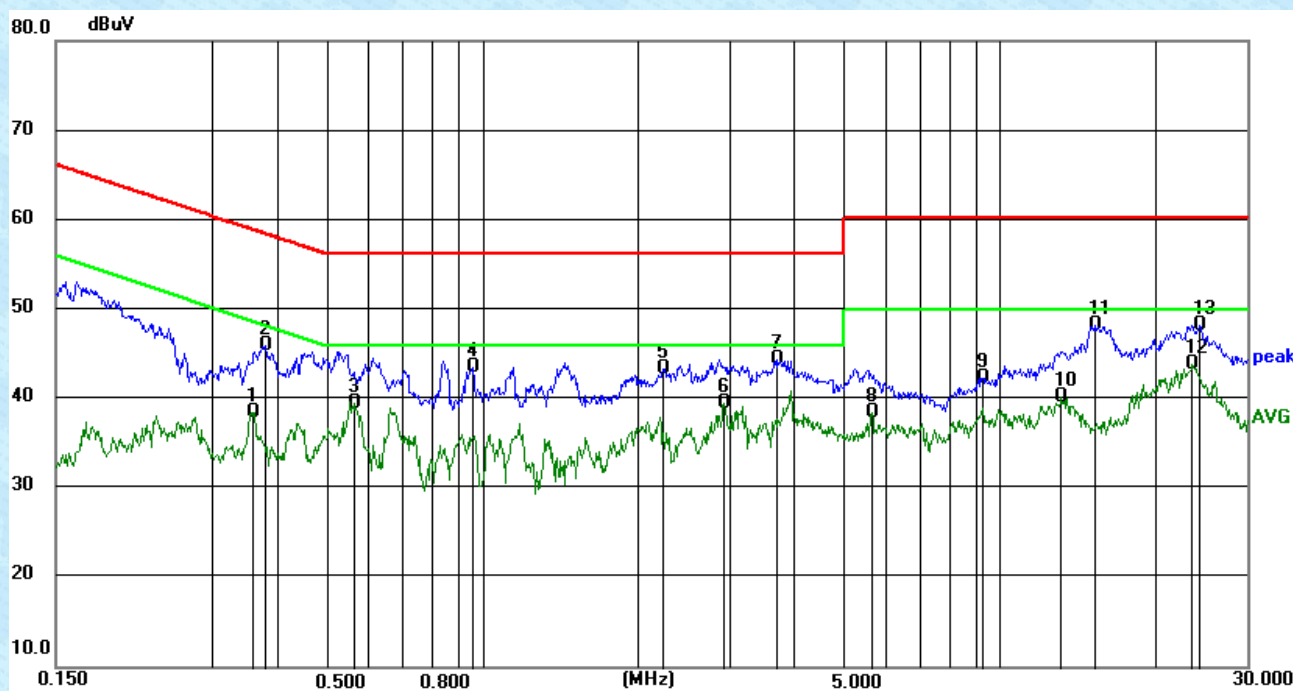
Neutral:



| Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|-----------------|----------------|-------------|--------------|--------------|-------------|--------|
| 0.375           | 36.24          | 10.01       | 46.25        | 58.39        | 12.14       | QP     |
| 0.4374          | 28.24          | 10.01       | 38.25        | 47.11        | 8.86        | AVG    |
| 0.5262          | 35.3           | 10.02       | 45.32        | 56           | 10.68       | QP     |
| 0.5664          | 28.45          | 10.02       | 38.47        | 46           | 7.53        | AVG    |
| 0.6643          | 34.31          | 10.02       | 44.33        | 56           | 11.67       | QP     |
| 0.6643          | 28.02          | 10.02       | 38.04        | 46           | 7.96        | AVG    |
| 0.9331          | 34.41          | 10.03       | 44.44        | 56           | 11.56       | QP     |
| 0.9627          | 26.42          | 10.03       | 36.45        | 46           | 9.55        | AVG    |
| 1.2356          | 33.45          | 10.04       | 43.49        | 56           | 12.51       | QP     |
| 2.0878          | 24.86          | 10.06       | 34.92        | 46           | 11.08       | AVG    |
| 4.5734          | 30.77          | 10.14       | 40.91        | 56           | 15.09       | QP     |
| 15.8853         | 28.44          | 10.4        | 38.84        | 50           | 11.16       | AVG    |
| 18.9204         | 38.59          | 10.46       | 49.05        | 60           | 10.95       | QP     |

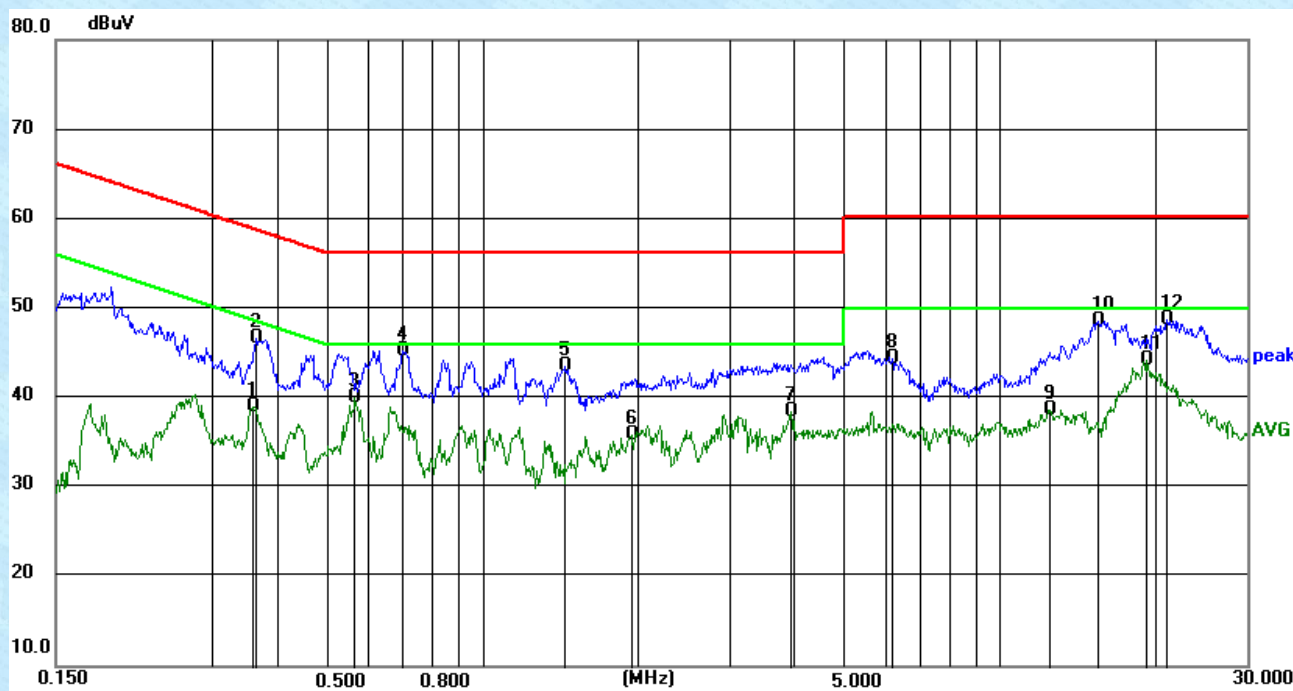
## SM-STFL50-BK

Line:



| Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|-----------------|----------------|-------------|--------------|--------------|-------------|--------|
| 0.3613          | 28.54          | 10.01       | 38.55        | 48.7         | 10.15       | AVG    |
| 0.381           | 35.92          | 10.01       | 45.93        | 58.26        | 12.33       | QP     |
| 0.5664          | 29.45          | 10.02       | 39.47        | 46           | 6.53        | AVG    |
| 0.9576          | 33.41          | 10.03       | 43.44        | 56           | 12.56       | QP     |
| 2.2366          | 33.33          | 10.07       | 43.4         | 56           | 12.6        | QP     |
| 2.9305          | 29.51          | 10.09       | 39.6         | 46           | 6.4         | AVG    |
| 3.7197          | 34.26          | 10.11       | 44.37        | 56           | 11.63       | QP     |
| 5.6531          | 28.26          | 10.17       | 38.43        | 50           | 11.57       | AVG    |
| 9.253           | 32.1           | 10.28       | 42.38        | 60           | 17.62       | QP     |
| 13.1265         | 29.78          | 10.35       | 40.13        | 50           | 9.87        | AVG    |
| 15.2261         | 37.89          | 10.39       | 48.28        | 60           | 11.72       | QP     |
| 23.5106         | 33.34          | 10.54       | 43.88        | 50           | 6.12        | AVG    |
| 24.27           | 37.69          | 10.55       | 48.24        | 60           | 11.76       | QP     |

## Neutral:

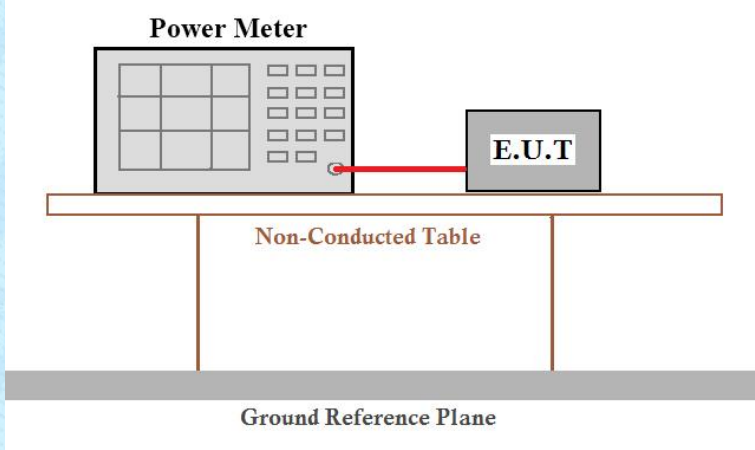


| Frequency (MHz) | Reading (dBuV) | Factor (dB) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Remark |
|-----------------|----------------|-------------|--------------|--------------|-------------|--------|
| 0.3613          | 29.04          | 10.01       | 39.05        | 48.7         | 9.65        | AVG    |
| 0.3653          | 36.69          | 10.01       | 46.7         | 58.61        | 11.91       | QP     |
| 0.5664          | 29.95          | 10.02       | 39.97        | 46           | 6.03        | AVG    |
| 0.7006          | 35.18          | 10.02       | 45.2         | 56           | 10.8        | QP     |
| 1.4475          | 33.42          | 10.04       | 43.46        | 56           | 12.54       | QP     |
| 1.9386          | 25.83          | 10.06       | 35.89        | 46           | 10.11       | AVG    |
| 3.9428          | 28.3           | 10.12       | 38.42        | 46           | 7.58        | AVG    |
| 6.1859          | 34.2           | 10.19       | 44.39        | 60           | 15.61       | QP     |
| 12.5152         | 28.36          | 10.34       | 38.7         | 50           | 11.3        | AVG    |
| 15.47           | 38.14          | 10.4        | 48.54        | 60           | 11.46       | QP     |
| 19.1219         | 33.73          | 10.46       | 44.19        | 50           | 5.81        | AVG    |
| 20.9237         | 38.21          | 10.49       | 48.7         | 60           | 11.3        | QP     |

### Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

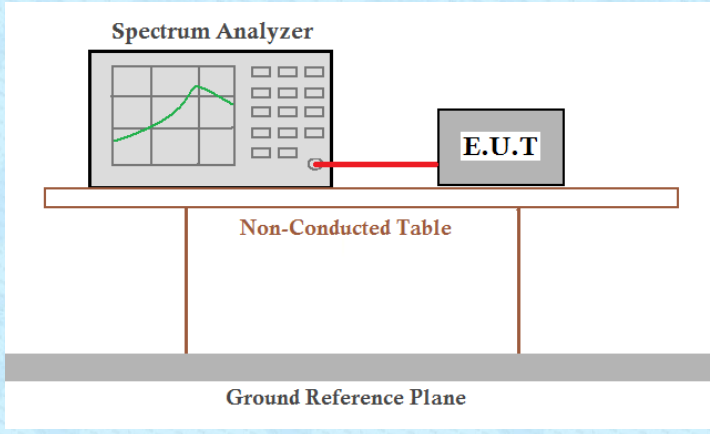
## 7.3 Conducted Peak Output Power

|                   |                                                                                                                                                                                                                                                                                                     |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC Part15 C Section 15.247 (b)(3)                                                                                                                                                                                                                                                                  |
| Test Method:      | KDB558074 D01 15.247 Meas Guidance v05r02                                                                                                                                                                                                                                                           |
| Limit:            | 30dBm                                                                                                                                                                                                                                                                                               |
| Test setup:       |  <p>The diagram illustrates the test setup. A Power Meter is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which sits on a Ground Reference Plane.</p> |
| Test Instruments: | Refer to section 6.0 for details                                                                                                                                                                                                                                                                    |
| Test mode:        | Refer to section 5.2 for details                                                                                                                                                                                                                                                                    |
| Test results:     | Pass                                                                                                                                                                                                                                                                                                |

### Measurement Data

| Test CH | Peak Output Power (dBm) |         |               |               | Limit(dBm) | Result |
|---------|-------------------------|---------|---------------|---------------|------------|--------|
|         | 802.11b                 | 802.11g | 802.11n(HT20) | 802.11n(HT40) |            |        |
| Lowest  | 14.99                   | 14.464  | 14.488        | 13.2          | 30.00      | Pass   |
| Middle  | 14.879                  | 14.182  | 14.253        | 12.699        |            |        |
| Highest | 13.91                   | 13.151  | 13.359        | 12.08         |            |        |

## 7.4 Channel Bandwidth & 99% Occupy Bandwidth

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement : | FCC Part15 C Section 15.247 (a)(2)                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Test Method :      | KDB558074 D01 15.247 Meas Guidance v05r02                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Limit:             | >500kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Test setup:        |  <p>The diagram illustrates the test setup. A Spectrum Analyzer, showing a frequency spectrum on its screen, is connected to an Equipment Under Test (E.U.T.) by a red cable. Both the Spectrum Analyzer and the E.U.T. are positioned on a Non-Conducted Table. This table is supported by a Ground Reference Plane, which is represented by a thick grey bar at the bottom of the setup.</p> |
| Test Instruments:  | Refer to section 6.0 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Test mode:         | Refer to section 5.2 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Test results:      | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

## Measurement Data

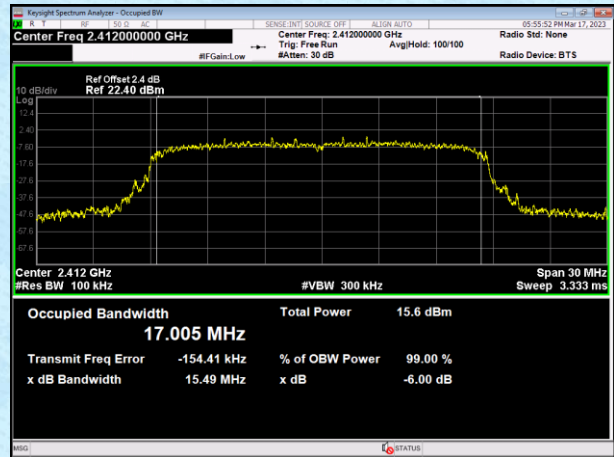
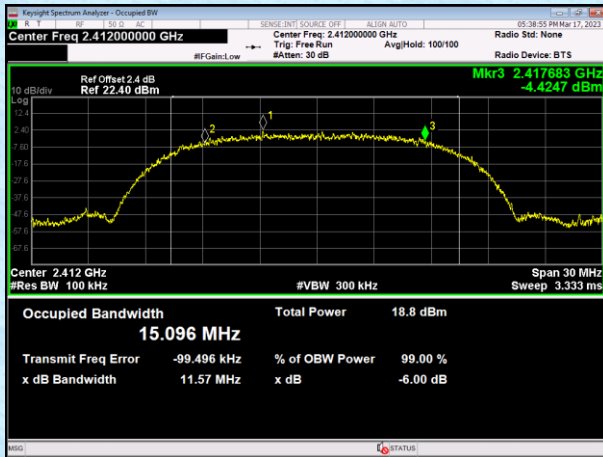
| Test CH | Channel Bandwidth (MHz) |         |               |               | Limit (kHz) | Result |
|---------|-------------------------|---------|---------------|---------------|-------------|--------|
|         | 802.11b                 | 802.11g | 802.11n(HT20) | 802.11n(HT40) |             |        |
| Lowest  | 11.57                   | 15.49   | 15.02         | 35.05         | >500        | Pass   |
| Middle  | 11.75                   | 15.32   | 15.06         | 35.05         |             |        |
| Highest | 12.7                    | 15.57   | 13.22         | 32.55         |             |        |

| Test CH | 99% Occupy Bandwidth (MHz) |         |               |               | Result |
|---------|----------------------------|---------|---------------|---------------|--------|
|         | 802.11b                    | 802.11g | 802.11n(HT20) | 802.11n(HT40) |        |
| Lowest  | 15.277                     | 17.112  | 17.983        | 35.655        | Pass   |
| Middle  | 15.196                     | 17.118  | 17.967        | 35.586        |        |
| Highest | 15.2                       | 17.005  | 17.99         | 35.618        |        |

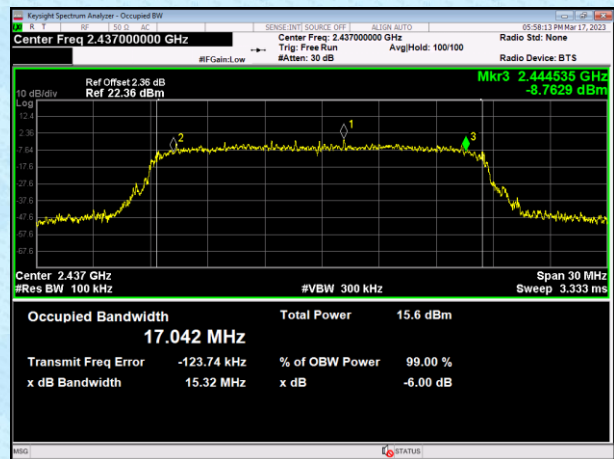
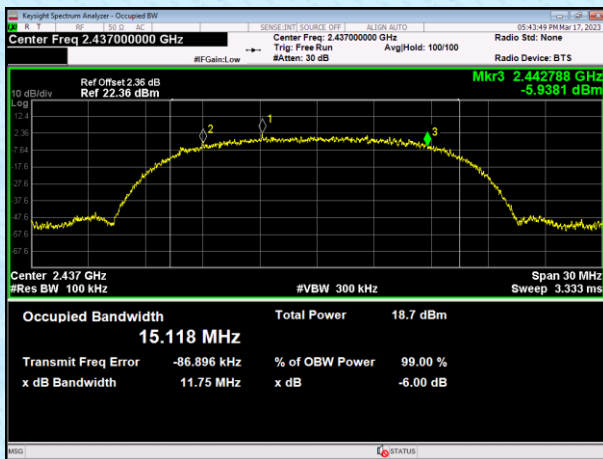
Test plot as follows:

-6dB BW

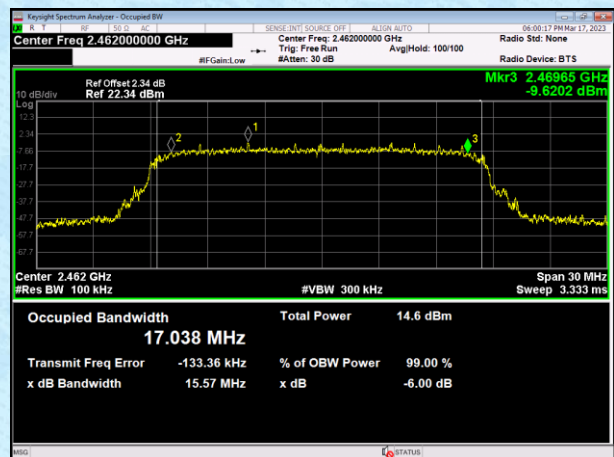
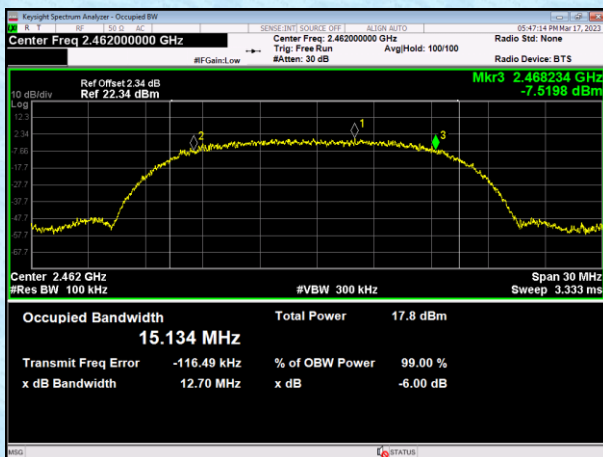
|         |  |         |  |
|---------|--|---------|--|
| 802.11b |  | 802.11g |  |
|---------|--|---------|--|



Lowest channel

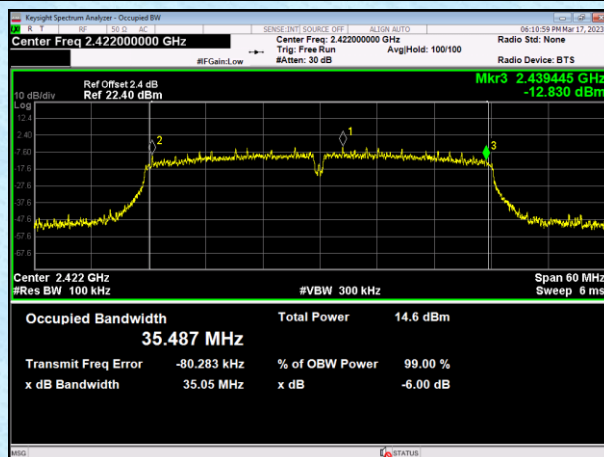
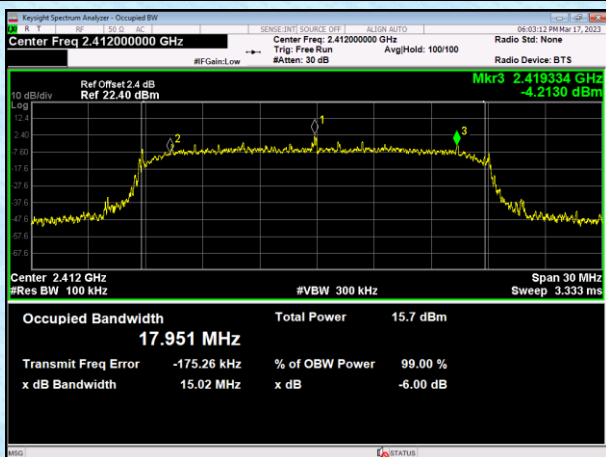


Middle channel

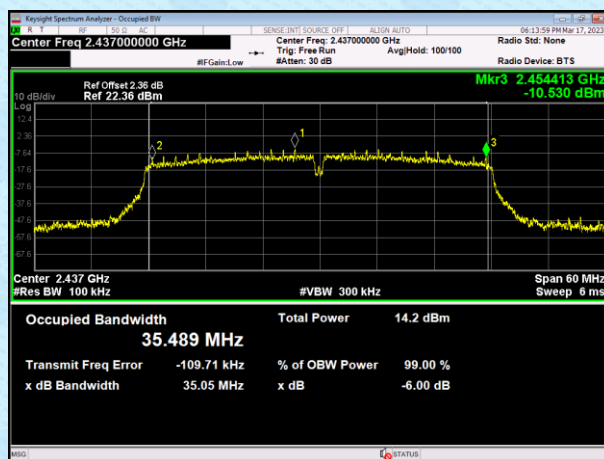
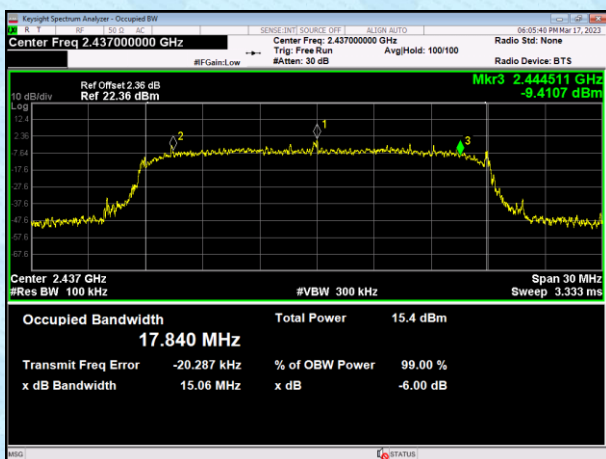


Highest channel

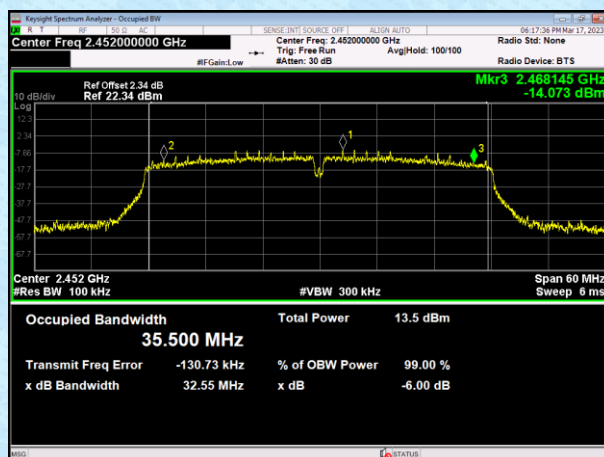
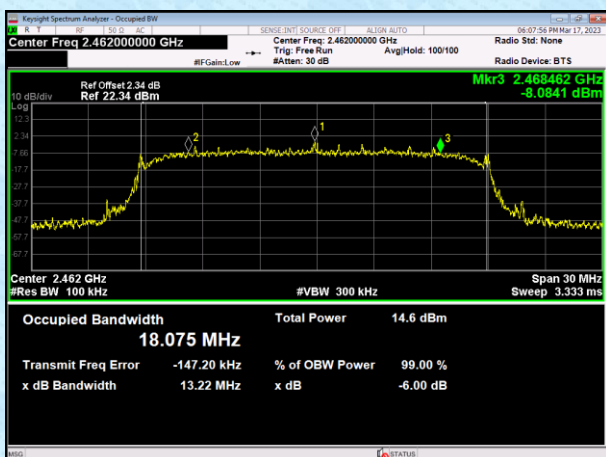
|               |  |               |  |
|---------------|--|---------------|--|
| 802.11n(HT20) |  | 802.11n(HT40) |  |
|---------------|--|---------------|--|



Lowest channel



Middle channel

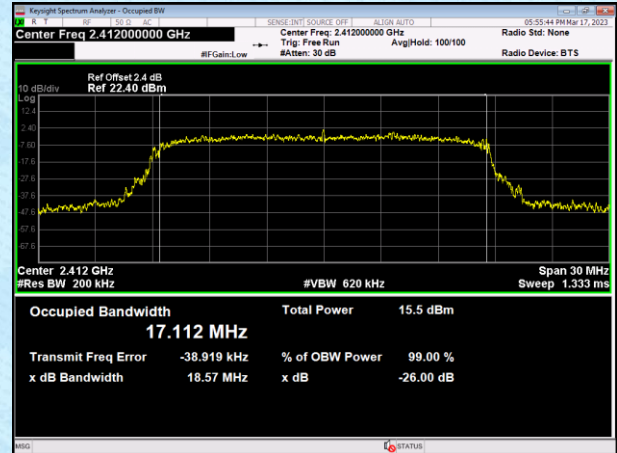
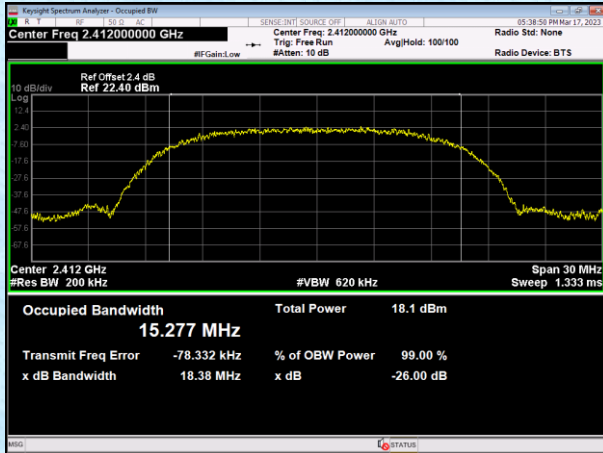


Highest channel

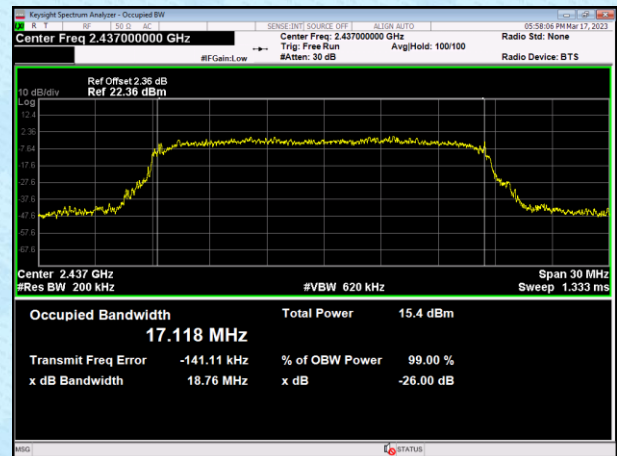
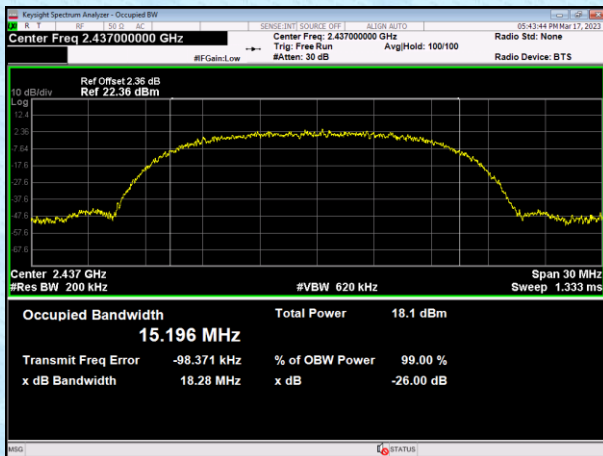
99% BW

802.11b

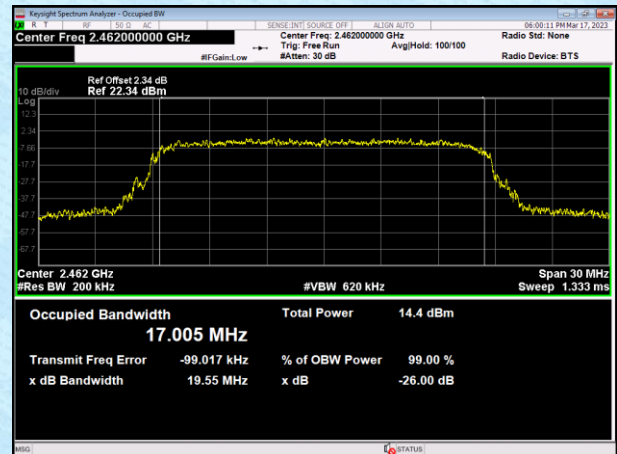
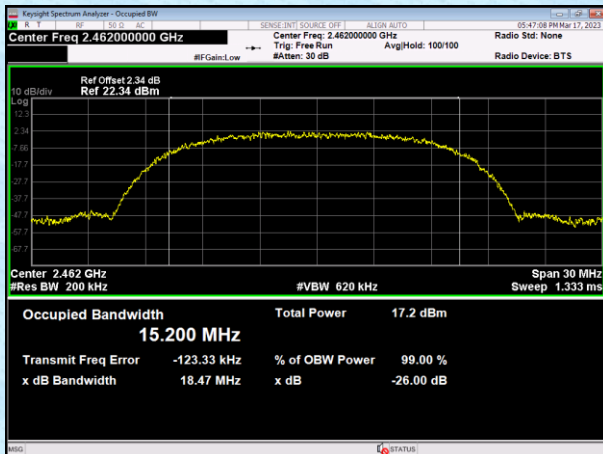
802.11g



Lowest channel

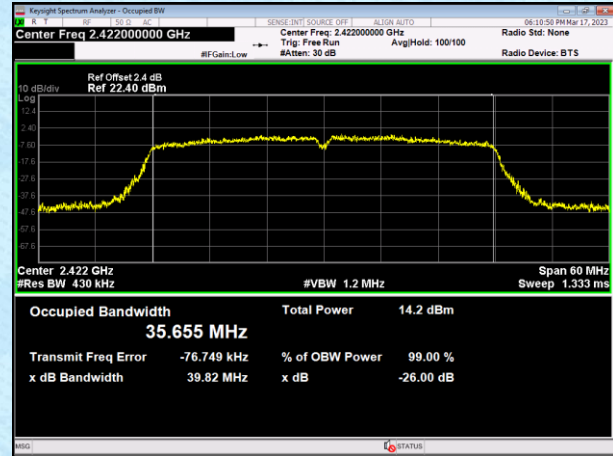
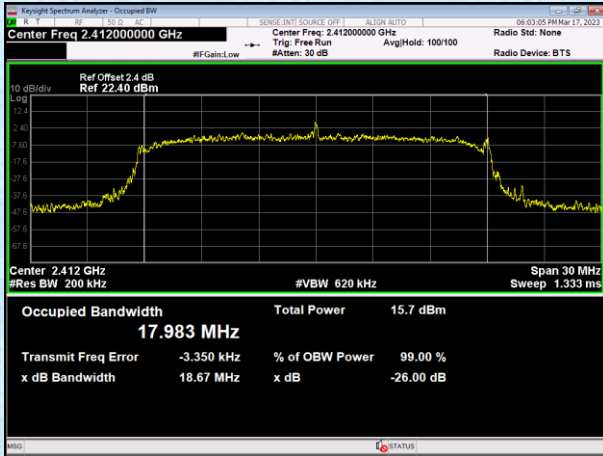


Middle channel

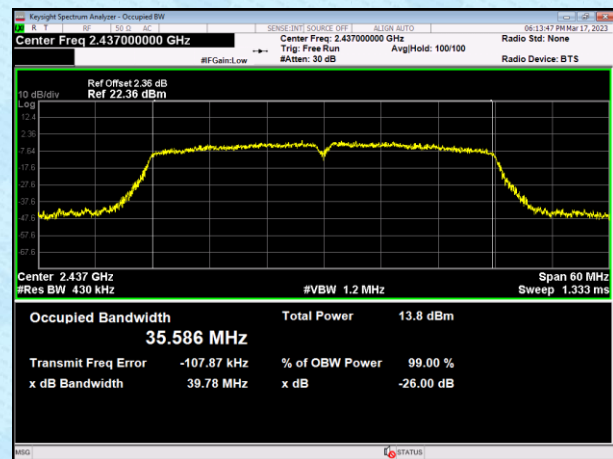
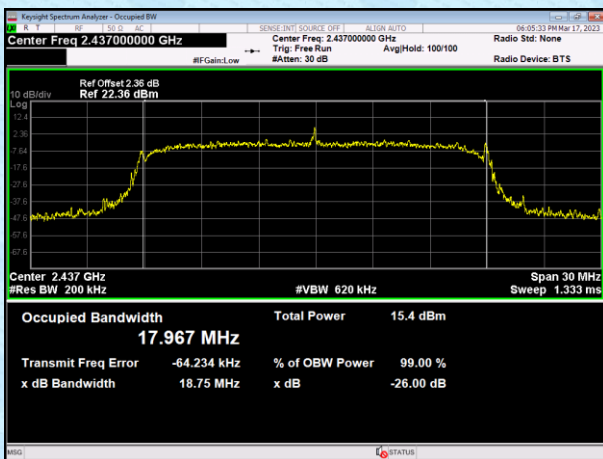


Highest channel

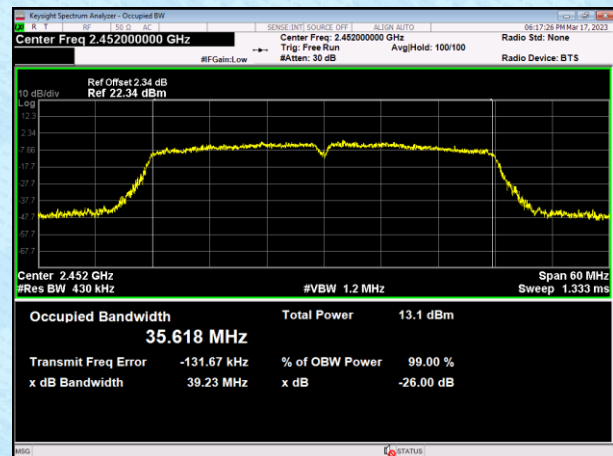
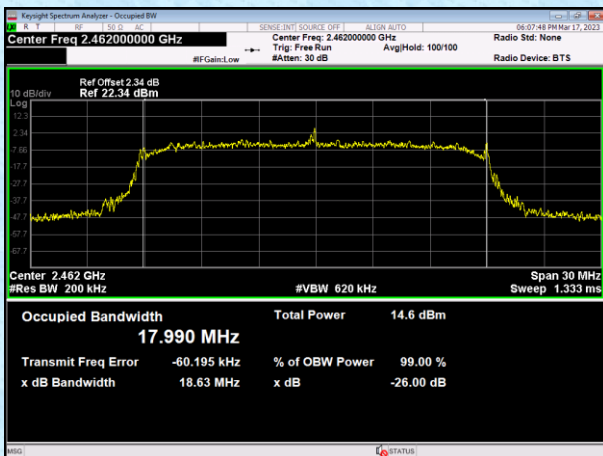
|               |  |               |  |
|---------------|--|---------------|--|
| 802.11n(HT20) |  | 802.11n(HT40) |  |
|---------------|--|---------------|--|



Lowest channel

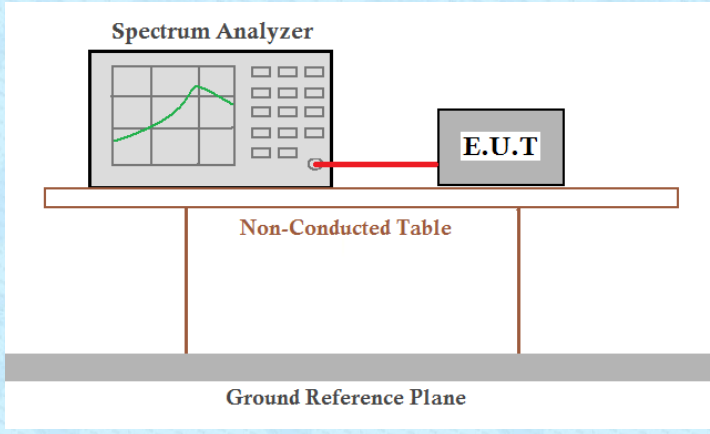


Middle channel



Highest channel

## 7.5 Power Spectral Density

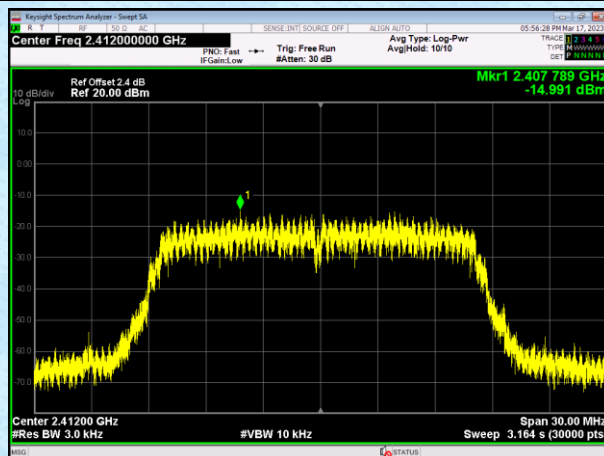
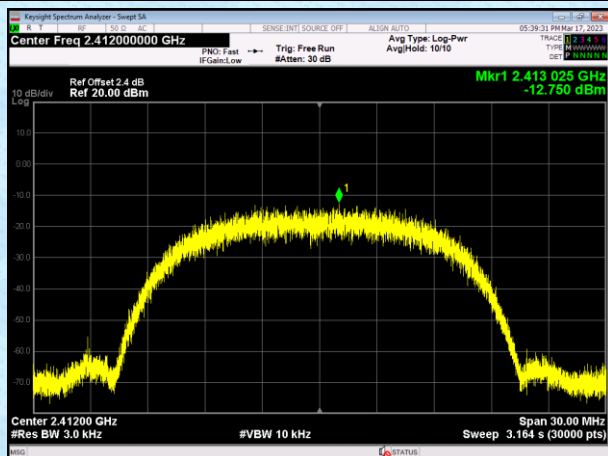
|                   |                                                                                    |
|-------------------|------------------------------------------------------------------------------------|
| Test Requirement: | FCC Part15 C Section 15.247 (e)                                                    |
| Test Method:      | KDB558074 D01 15.247 Meas Guidance v05r02                                          |
| Limit:            | 8dBm/3kHz                                                                          |
| Test setup:       |  |
| Test Instruments: | Refer to section 6.0 for details                                                   |
| Test mode:        | Refer to section 5.2 for details                                                   |
| Test results:     | Pass                                                                               |

### Measurement Data

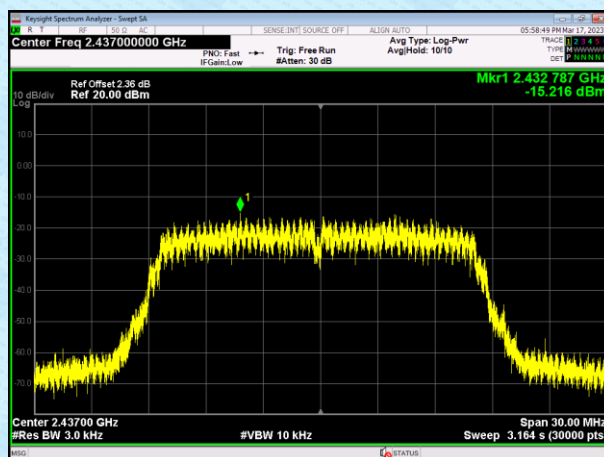
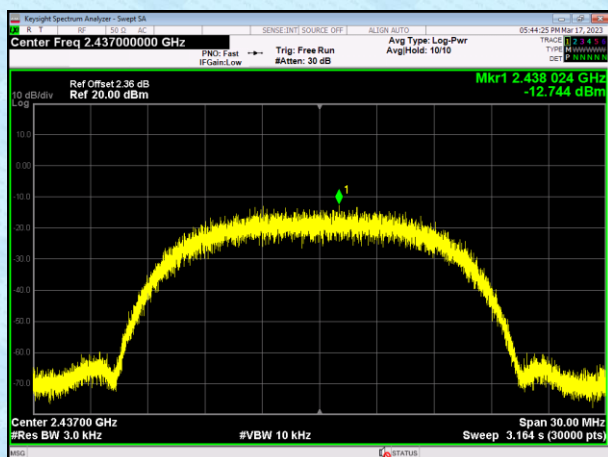
| Test CH | Power Spectral Density (dBm/3kHz) |         |               |               | Limit<br>(dBm/3kHz) | Result |
|---------|-----------------------------------|---------|---------------|---------------|---------------------|--------|
|         | 802.11b                           | 802.11g | 802.11n(HT20) | 802.11n(HT40) |                     |        |
| Lowest  | -12.75                            | -14.991 | -14.508       | -17.84        | 8.00                | Pass   |
| Middle  | -12.744                           | -15.216 | -14.746       | -19.225       |                     |        |
| Highest | -13.967                           | -15.526 | -15.477       | -19.889       |                     |        |

Test plot as follows:

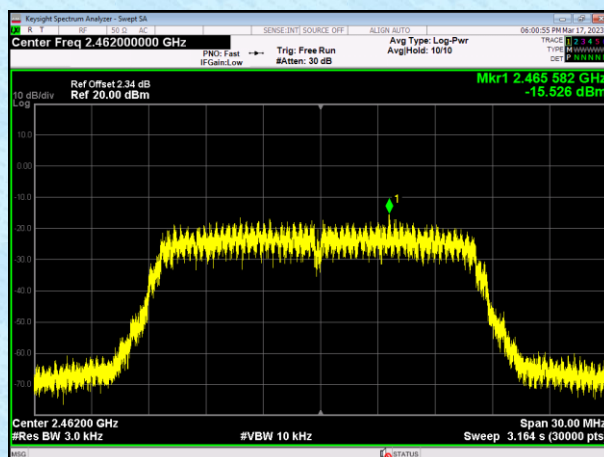
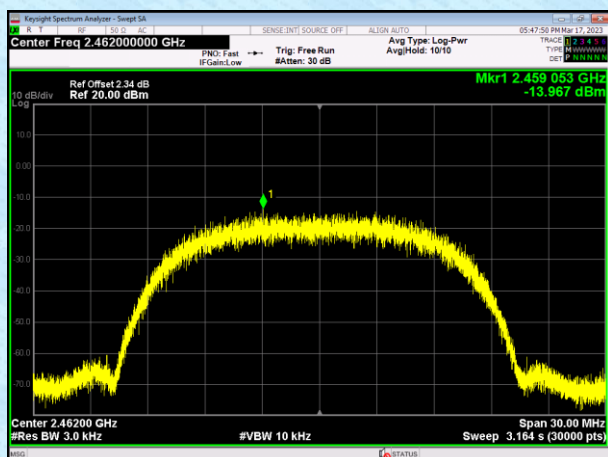
|         |  |         |  |
|---------|--|---------|--|
| 802.11b |  | 802.11g |  |
|---------|--|---------|--|



Lowest channel

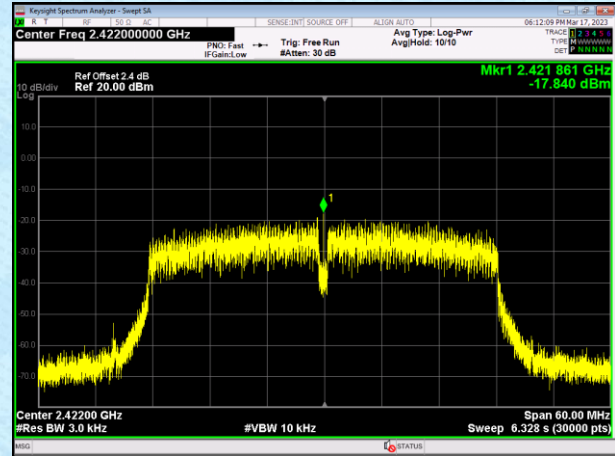
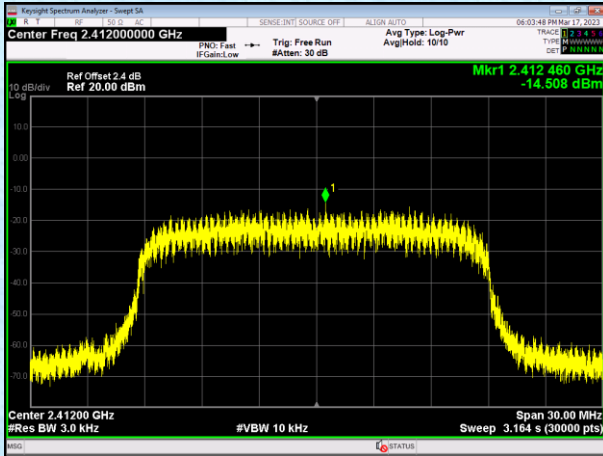


Middle channel

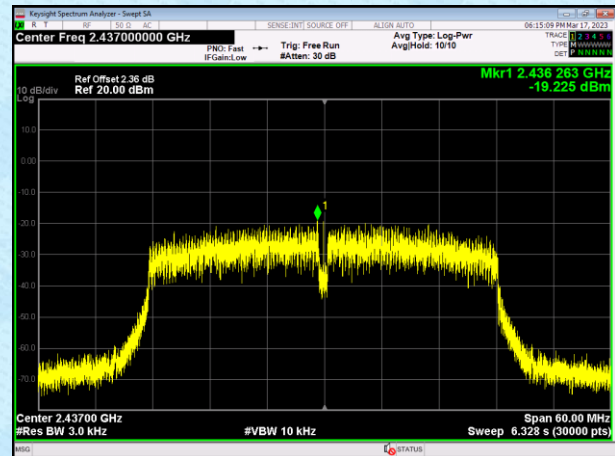
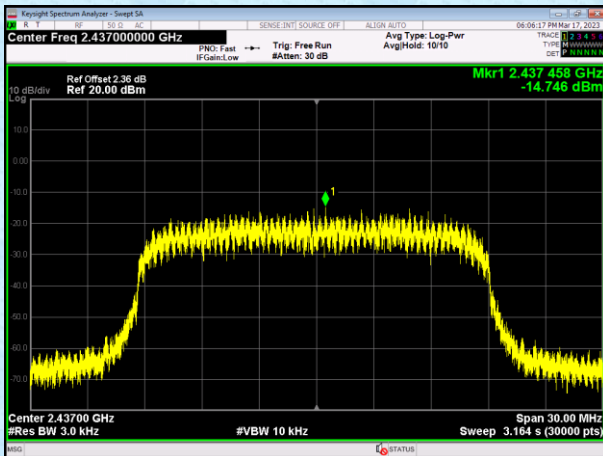


Highest channel

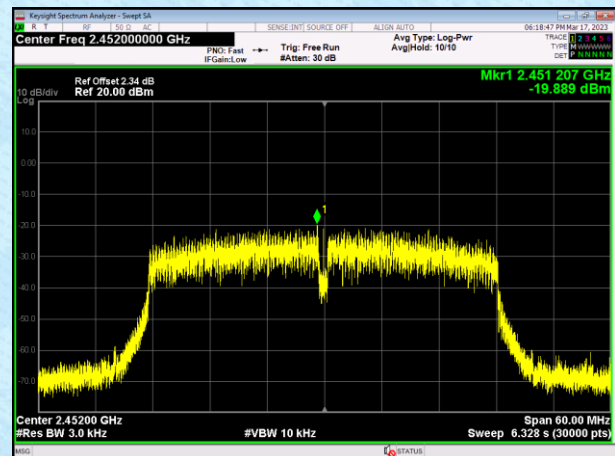
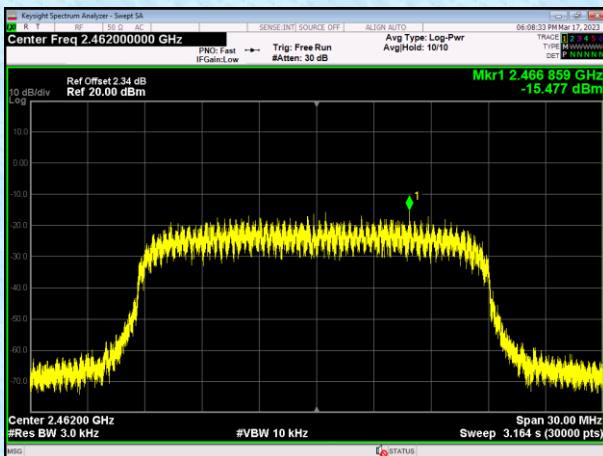
|               |  |               |  |
|---------------|--|---------------|--|
| 802.11n(HT20) |  | 802.11n(HT40) |  |
|---------------|--|---------------|--|



Lowest channel



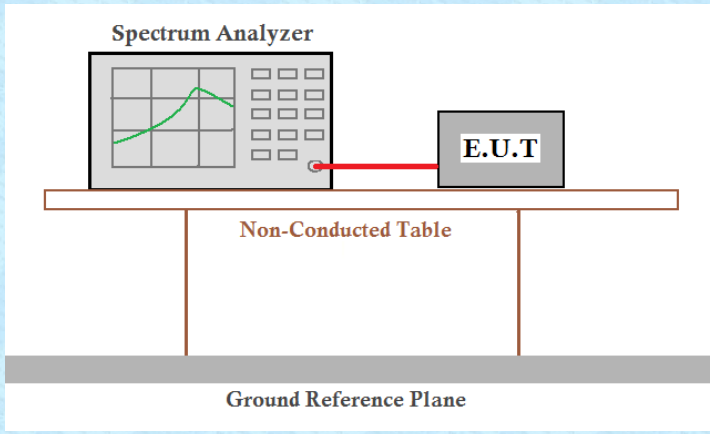
Middle channel



Highest channel

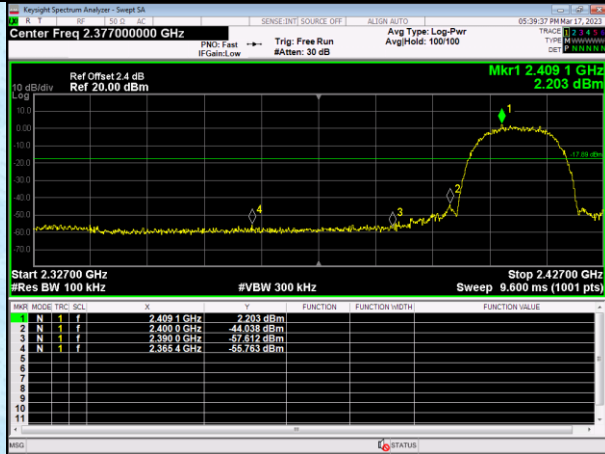
## 7.6 Band edges

### 7.6.1 Conducted Emission Method

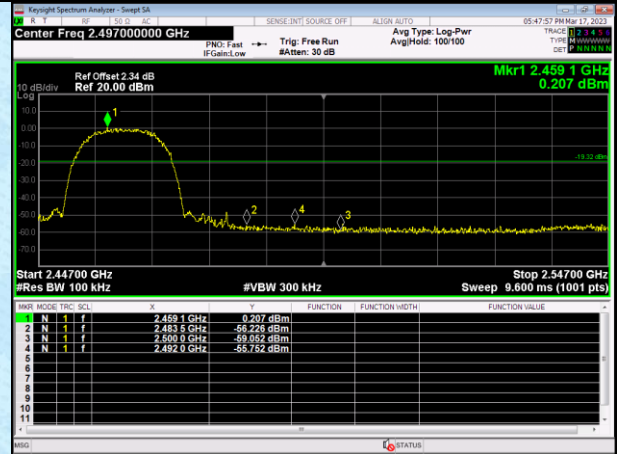
|                   |                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC Part15 C Section 15.247 (d)                                                                                                                                                                                                                                                                                                                                                         |
| Test Method:      | KDB558074 D01 15.247 Meas Guidance v05r02                                                                                                                                                                                                                                                                                                                                               |
| Limit:            | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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. |
| Test setup:       |  <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T. are placed on a Non-Conducted Table. The table is supported by a Ground Reference Plane.</p>                             |
| Test Instruments: | Refer to section 6.0 for details                                                                                                                                                                                                                                                                                                                                                        |
| Test mode:        | Refer to section 5.2 for details                                                                                                                                                                                                                                                                                                                                                        |
| Test results:     | Pass                                                                                                                                                                                                                                                                                                                                                                                    |

Test plot as follows:

Test mode: 802.11b

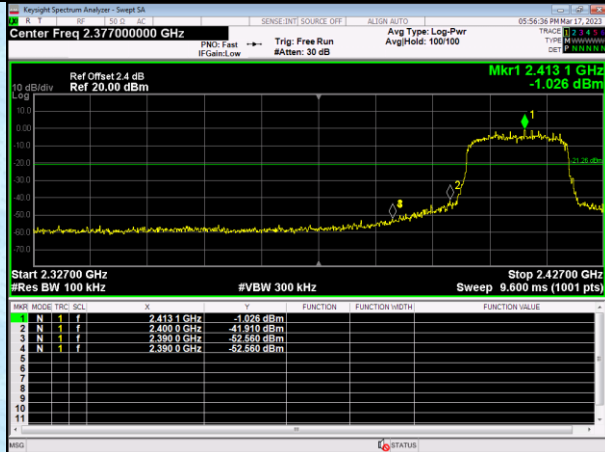


Lowest channel

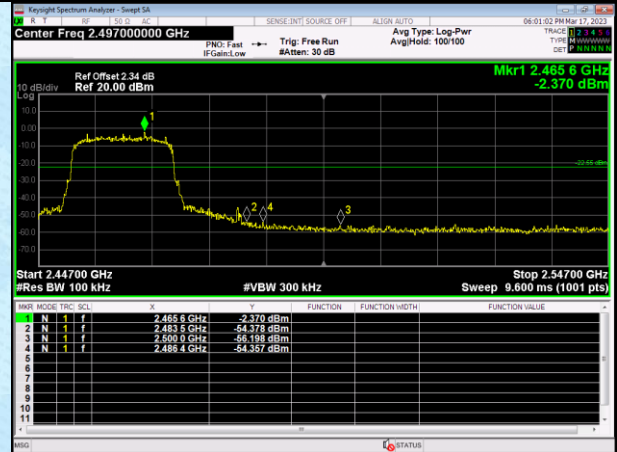


Highest channel

Test mode: 802.11g



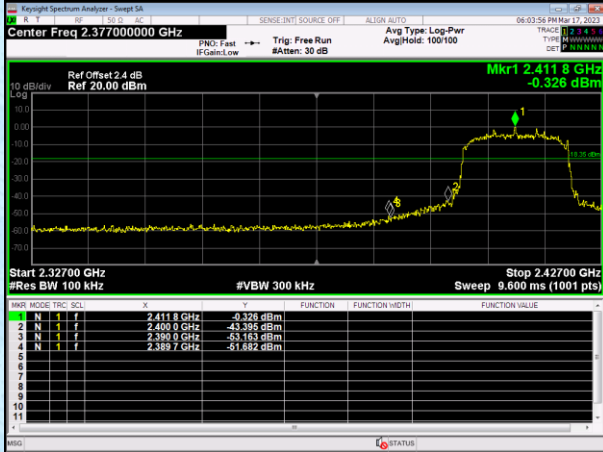
Lowest channel



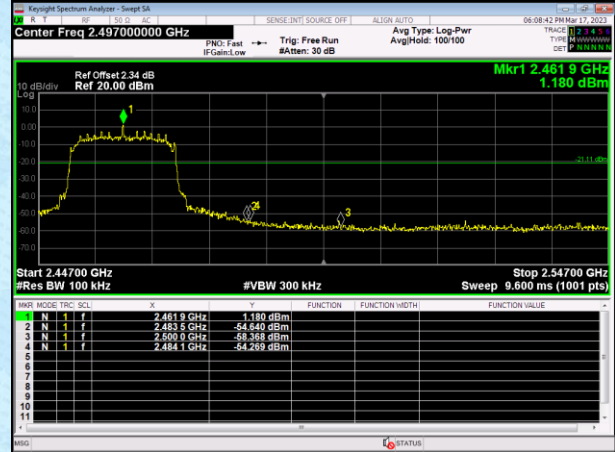
Highest channel

Test mode:

802.11n(HT20)



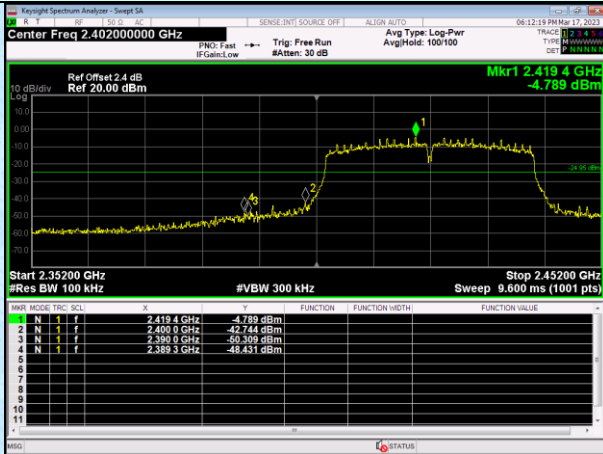
Lowest channel



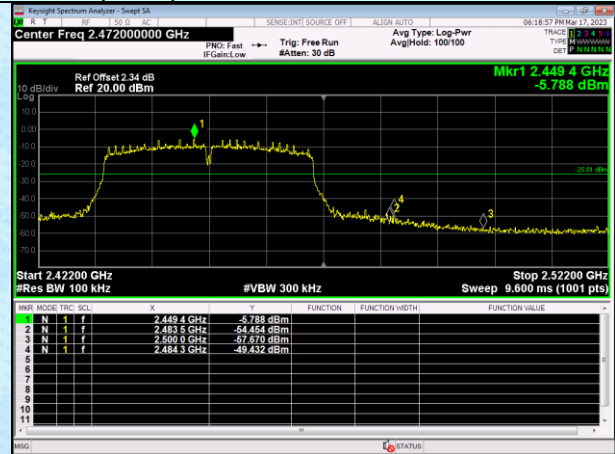
Highest channel

Test mode:

802.11n(HT40)

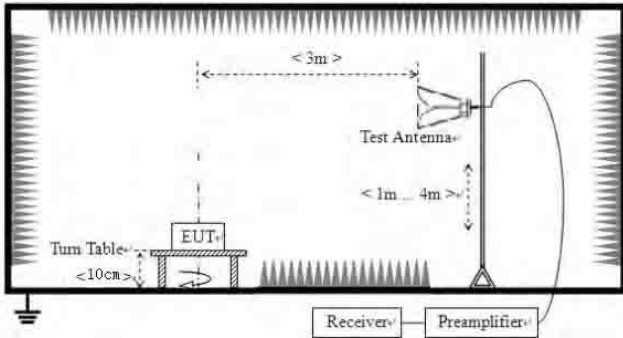


Lowest channel



Highest channel

## 7.6.2 Radiated Emission Method

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          |                    |      |         |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|------|---------|
| Test Requirement:     | FCC Part15 C Section 15.209 and 15.205                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |          |                    |      |         |
| Test Method:          | ANSI C63.10: 2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |          |                    |      |         |
| Test Frequency Range: | All of the restrict bands were tested, only the worst band's (2310MHz to 2500MHz) data was showed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |                    |      |         |
| Test site:            | Measurement Distance: 3m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |          |                    |      |         |
| Receiver setup:       | Frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Detector | RBW                | VBW  | Value   |
|                       | Above 1GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Peak     | 1MHz               | 3MHz | Peak    |
|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Average  | 1MHz               | 3MHz | Average |
| Limit:                | Frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |          | Limit (dBuV/m @3m) |      | Value   |
|                       | Above 1GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |          | 54.00              |      | Average |
|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |          | 74.00              |      | Peak    |
| Test setup:           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |          |                    |      |         |
| Test Procedure:       | <ol style="list-style-type: none"><li>1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li><li>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li><li>3. 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.</li><li>4. 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 and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</li><li>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li><li>6. 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.</li><li>7. The radiation measurements are performed in X, Y, Z axis positioning. And found the Y axis positioning which it is worse case, only the test worst case mode is recorded in the report.</li></ol> |          |                    |      |         |
| Test Instruments:     | Refer to section 6.0 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |                    |      |         |
| Test mode:            | Refer to section 5.2 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |          |                    |      |         |
| Test results:         | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |          |                    |      |         |

**Measurement data:**
**■ SM-STTL20-BK**

|            |         |               |        |
|------------|---------|---------------|--------|
| Test mode: | 802.11b | Test channel: | Lowest |
|------------|---------|---------------|--------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 2310            | 48.91             | 27.14                 | 6.19            | 42.04              | 40.2           | 74                  | -33.8           | Horizontal   |
| 2390            | 51.41             | 27.37                 | 6.31            | 42.11              | 42.98          | 74                  | -31.02          | Horizontal   |
| 2310            | 48.42             | 27.14                 | 6.19            | 42.04              | 39.71          | 74                  | -34.29          | Vertical     |
| 2390            | 60.58             | 27.37                 | 6.31            | 42.11              | 52.15          | 74                  | -21.85          | Vertical     |

|            |         |               |         |
|------------|---------|---------------|---------|
| Test mode: | 802.11b | Test channel: | Highest |
|------------|---------|---------------|---------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 2483.5          | 52.32             | 27.66                 | 6.45            | 42.01              | 44.42          | 74                  | -29.58          | Horizontal   |
| 2500            | 48                | 27.7                  | 6.47            | 42                 | 40.17          | 74                  | -33.83          | Horizontal   |
| 2483.5          | 58.47             | 27.66                 | 6.45            | 42.01              | 50.57          | 74                  | -23.43          | Vertical     |
| 2500            | 48.96             | 27.7                  | 6.47            | 42                 | 41.13          | 74                  | -32.87          | Vertical     |

|            |         |               |        |
|------------|---------|---------------|--------|
| Test mode: | 802.11g | Test channel: | Lowest |
|------------|---------|---------------|--------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 2310            | 49.31             | 27.14                 | 6.19            | 42.04              | 40.6           | 74                  | -33.4           | Horizontal   |
| 2390            | 51.68             | 27.37                 | 6.31            | 42.11              | 43.25          | 74                  | -30.75          | Horizontal   |
| 2310            | 48.89             | 27.14                 | 6.19            | 42.04              | 40.18          | 74                  | -33.82          | Vertical     |
| 2390            | 60.79             | 27.37                 | 6.31            | 42.11              | 52.36          | 74                  | -21.64          | Vertical     |

|            |         |               |         |
|------------|---------|---------------|---------|
| Test mode: | 802.11g | Test channel: | Highest |
|------------|---------|---------------|---------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 2483.5          | 52.93             | 27.66                 | 6.45            | 42.01              | 45.03          | 74                  | -28.97          | Horizontal   |
| 2500            | 48.8              | 27.7                  | 6.47            | 42                 | 40.97          | 74                  | -33.03          | Horizontal   |
| 2483.5          | 58.87             | 27.66                 | 6.45            | 42.01              | 50.97          | 74                  | -23.03          | Vertical     |
| 2500            | 49.67             | 27.7                  | 6.47            | 42                 | 41.84          | 74                  | -32.16          | Vertical     |

|            |               |               |        |
|------------|---------------|---------------|--------|
| Test mode: | 802.11n(HT20) | Test channel: | Lowest |
|------------|---------------|---------------|--------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2310            | 49.54             | 27.14                 | 6.19            | 42.04                    | 40.83          | 74                  | -33.17          | Horizontal   |
| 2390            | 51.61             | 27.37                 | 6.31            | 42.11                    | 43.18          | 74                  | -30.82          | Horizontal   |
| 2310            | 48.18             | 27.14                 | 6.19            | 42.04                    | 39.47          | 74                  | -34.53          | Vertical     |
| 2390            | 61.26             | 27.37                 | 6.31            | 42.11                    | 52.83          | 74                  | -21.17          | Vertical     |

|            |               |               |         |
|------------|---------------|---------------|---------|
| Test mode: | 802.11n(HT20) | Test channel: | Highest |
|------------|---------------|---------------|---------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2483.5          | 52.59             | 27.66                 | 6.45            | 42.01                    | 44.69          | 74                  | -29.31          | Horizontal   |
| 2500            | 47.86             | 27.7                  | 6.47            | 42                       | 40.03          | 74                  | -33.97          | Horizontal   |
| 2483.5          | 57.97             | 27.66                 | 6.45            | 42.01                    | 50.07          | 74                  | -23.93          | Vertical     |
| 2500            | 49.38             | 27.7                  | 6.47            | 42                       | 41.55          | 74                  | -32.45          | Vertical     |

|            |               |               |        |
|------------|---------------|---------------|--------|
| Test mode: | 802.11n(HT40) | Test channel: | Lowest |
|------------|---------------|---------------|--------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2310            | 48.64             | 27.14                 | 6.19            | 42.04                    | 39.93          | 74                  | -34.07          | Horizontal   |
| 2390            | 50.61             | 27.37                 | 6.31            | 42.11                    | 42.18          | 74                  | -31.82          | Horizontal   |
| 2310            | 48.16             | 27.14                 | 6.19            | 42.04                    | 39.45          | 74                  | -34.55          | Vertical     |
| 2390            | 61.05             | 27.37                 | 6.31            | 42.11                    | 52.62          | 74                  | -21.38          | Vertical     |

|            |               |               |         |
|------------|---------------|---------------|---------|
| Test mode: | 802.11n(HT40) | Test channel: | Highest |
|------------|---------------|---------------|---------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2483.5          | 52.38             | 27.66                 | 6.45            | 42.01                    | 44.48          | 74                  | -29.52          | Horizontal   |
| 2500            | 47.09             | 27.7                  | 6.47            | 42                       | 39.26          | 74                  | -34.74          | Horizontal   |
| 2483.5          | 57.54             | 27.66                 | 6.45            | 42.01                    | 49.64          | 74                  | -24.36          | Vertical     |
| 2500            | 48.8              | 27.7                  | 6.47            | 42                       | 40.97          | 74                  | -33.03          | Vertical     |

**Remarks:**

- The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.
- Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- The emission levels of other frequencies are very lower than the limit and not show in test report.

## ■ SM-STFL50-BK

|            |         |               |        |
|------------|---------|---------------|--------|
| Test mode: | 802.11b | Test channel: | Lowest |
|------------|---------|---------------|--------|

### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2310            | 49.33             | 27.14                 | 6.19            | 42.04                    | 40.62          | 74                  | -33.38          | Horizontal   |
| 2390            | 52.12             | 27.37                 | 6.31            | 42.11                    | 43.69          | 74                  | -30.31          | Horizontal   |
| 2310            | 48.58             | 27.14                 | 6.19            | 42.04                    | 39.87          | 74                  | -34.13          | Vertical     |
| 2390            | 61.46             | 27.37                 | 6.31            | 42.11                    | 53.03          | 74                  | -20.97          | Vertical     |

|            |         |               |         |
|------------|---------|---------------|---------|
| Test mode: | 802.11b | Test channel: | Highest |
|------------|---------|---------------|---------|

### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2483.5          | 52.82             | 27.66                 | 6.45            | 42.01                    | 44.92          | 74                  | -29.08          | Horizontal   |
| 2500            | 48.47             | 27.7                  | 6.47            | 42                       | 40.64          | 74                  | -33.36          | Horizontal   |
| 2483.5          | 59.33             | 27.66                 | 6.45            | 42.01                    | 51.43          | 74                  | -22.57          | Vertical     |
| 2500            | 49.21             | 27.7                  | 6.47            | 42                       | 41.38          | 74                  | -32.62          | Vertical     |

|            |         |               |        |
|------------|---------|---------------|--------|
| Test mode: | 802.11g | Test channel: | Lowest |
|------------|---------|---------------|--------|

### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2310            | 48.83             | 27.14                 | 6.19            | 42.04                    | 40.12          | 74                  | -33.88          | Horizontal   |
| 2390            | 50.99             | 27.37                 | 6.31            | 42.11                    | 42.56          | 74                  | -31.44          | Horizontal   |
| 2310            | 48.29             | 27.14                 | 6.19            | 42.04                    | 39.58          | 74                  | -34.42          | Vertical     |
| 2390            | 60.21             | 27.37                 | 6.31            | 42.11                    | 51.78          | 74                  | -22.22          | Vertical     |

|            |         |               |         |
|------------|---------|---------------|---------|
| Test mode: | 802.11g | Test channel: | Highest |
|------------|---------|---------------|---------|

### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2483.5          | 52.28             | 27.66                 | 6.45            | 42.01                    | 44.38          | 74                  | -29.62          | Horizontal   |
| 2500            | 48.68             | 27.7                  | 6.47            | 42                       | 40.85          | 74                  | -33.15          | Horizontal   |
| 2483.5          | 58.37             | 27.66                 | 6.45            | 42.01                    | 50.47          | 74                  | -23.53          | Vertical     |
| 2500            | 49.67             | 27.7                  | 6.47            | 42                       | 41.84          | 74                  | -32.16          | Vertical     |

|            |               |               |        |
|------------|---------------|---------------|--------|
| Test mode: | 802.11n(HT20) | Test channel: | Lowest |
|------------|---------------|---------------|--------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2310            | 49.32             | 27.14                 | 6.19            | 42.04                    | 40.61          | 74                  | -33.39          | Horizontal   |
| 2390            | 50.82             | 27.37                 | 6.31            | 42.11                    | 42.39          | 74                  | -31.61          | Horizontal   |
| 2310            | 48.09             | 27.14                 | 6.19            | 42.04                    | 39.38          | 74                  | -34.62          | Vertical     |
| 2390            | 60.69             | 27.37                 | 6.31            | 42.11                    | 52.26          | 74                  | -21.74          | Vertical     |

|            |               |               |         |
|------------|---------------|---------------|---------|
| Test mode: | 802.11n(HT20) | Test channel: | Highest |
|------------|---------------|---------------|---------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2483.5          | 61.76             | 27.66                 | 6.45            | 52.01                    | 43.86          | 74                  | -30.14          | Horizontal   |
| 2500            | 47.02             | 27.7                  | 6.47            | 42                       | 39.19          | 74                  | -34.81          | Horizontal   |
| 2483.5          | 57.75             | 27.66                 | 6.45            | 42.01                    | 49.85          | 74                  | -24.15          | Vertical     |
| 2500            | 48.68             | 27.7                  | 6.47            | 42                       | 40.85          | 74                  | -33.15          | Vertical     |

|            |               |               |        |
|------------|---------------|---------------|--------|
| Test mode: | 802.11n(HT40) | Test channel: | Lowest |
|------------|---------------|---------------|--------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2310            | 47.78             | 27.14                 | 6.19            | 42.04                    | 39.07          | 74                  | -34.93          | Horizontal   |
| 2390            | 49.84             | 27.37                 | 6.31            | 42.11                    | 41.41          | 74                  | -32.59          | Horizontal   |
| 2310            | 47.55             | 27.14                 | 6.19            | 42.04                    | 38.84          | 74                  | -35.16          | Vertical     |
| 2390            | 60.94             | 27.37                 | 6.31            | 42.11                    | 52.51          | 74                  | -21.49          | Vertical     |

|            |               |               |         |
|------------|---------------|---------------|---------|
| Test mode: | 802.11n(HT40) | Test channel: | Highest |
|------------|---------------|---------------|---------|

**Peak value:**

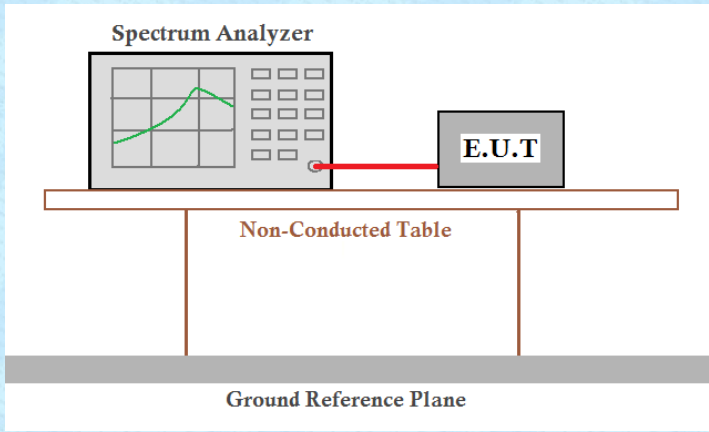
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 2483.5          | 51.41             | 27.66                 | 6.45            | 42.01                    | 43.51          | 74                  | -30.49          | Horizontal   |
| 2500            | 46.91             | 27.7                  | 6.47            | 42                       | 39.08          | 74                  | -34.92          | Horizontal   |
| 2483.5          | 57.36             | 27.66                 | 6.45            | 42.01                    | 49.46          | 74                  | -24.54          | Vertical     |
| 2500            | 48.06             | 27.7                  | 6.47            | 42                       | 40.23          | 74                  | -33.77          | Vertical     |

**Remarks:**

- The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.
- Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- The emission levels of other frequencies are very lower than the limit and not show in test report.

## 7.7 Spurious Emission

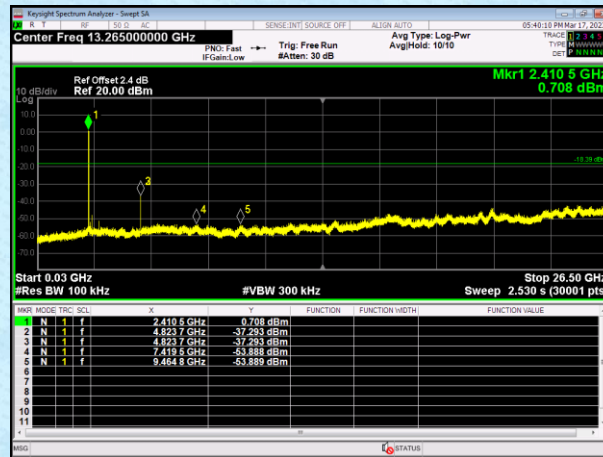
### 7.7.1 Conducted Emission Method

|                   |                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Requirement: | FCC Part15 C Section 15.247 (d)                                                                                                                                                                                                                                                                                                                                                         |
| Test Method:      | KDB558074 D01 15.247 Meas Guidance v05r02                                                                                                                                                                                                                                                                                                                                               |
| Limit:            | In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 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. |
| Test setup:       |  <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T (Equipment Under Test) via a red cable. Both the Spectrum Analyzer and the E.U.T are placed on a Non-Conducted Table. The table is supported by two vertical legs and sits on a Ground Reference Plane.</p> |
| Test Instruments: | Refer to section 6.0 for details                                                                                                                                                                                                                                                                                                                                                        |
| Test mode:        | Refer to section 5.2 for details                                                                                                                                                                                                                                                                                                                                                        |
| Test results:     | Pass                                                                                                                                                                                                                                                                                                                                                                                    |

Test plot as follows:

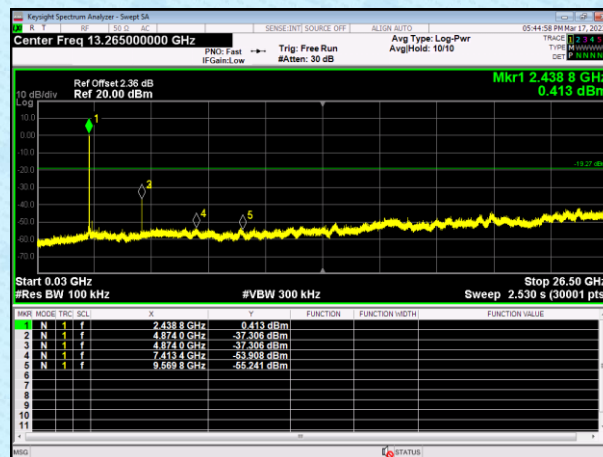
802.11b

Lowest channel



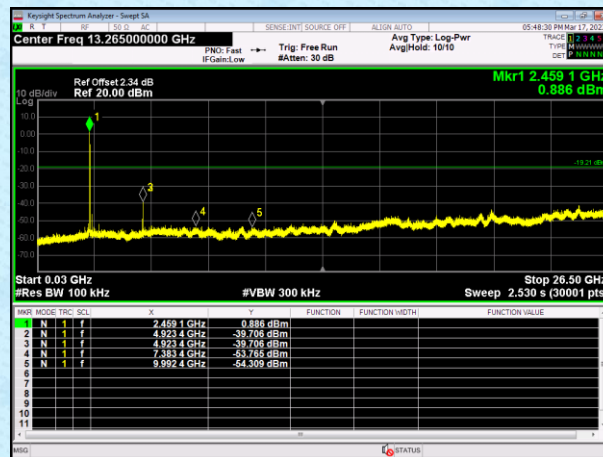
30MHz~25GHz

Middle channel



30MHz~25GHz

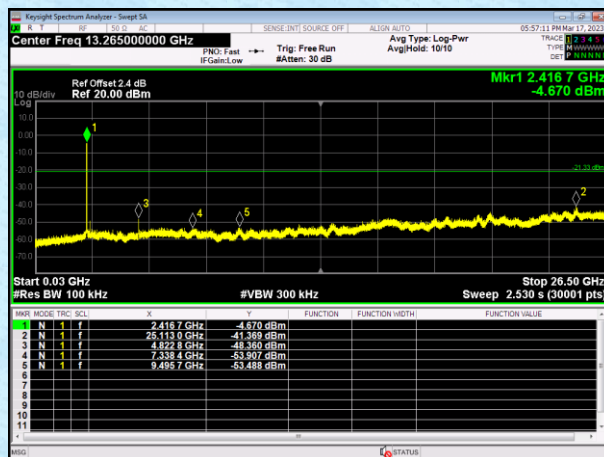
Highest channel



30MHz~25GHz

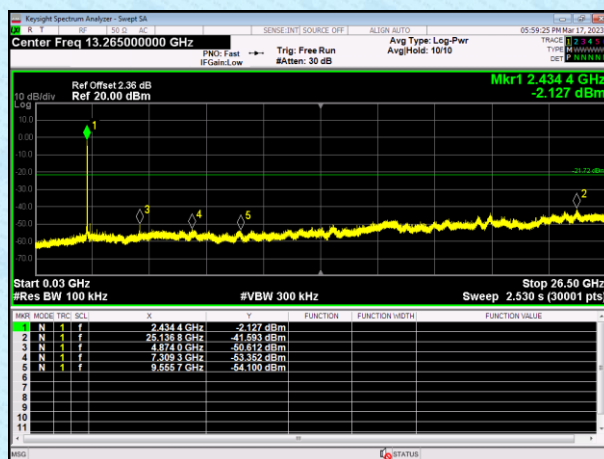
802.11g

Lowest channel



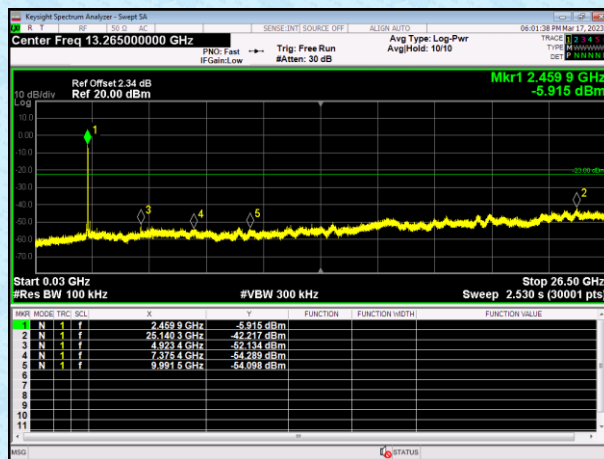
30MHz~25GHz

Middle channel



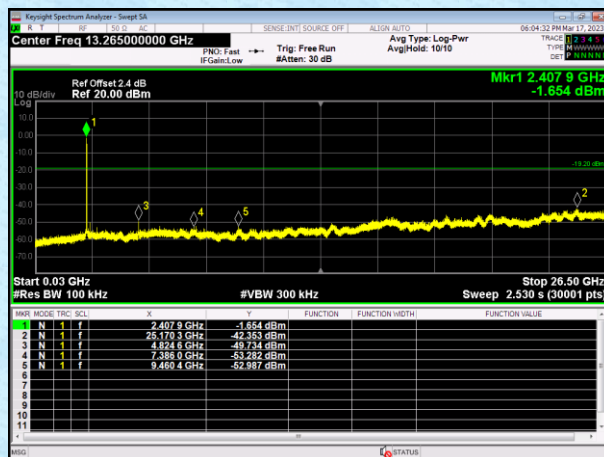
30MHz~25GHz

Highest channel



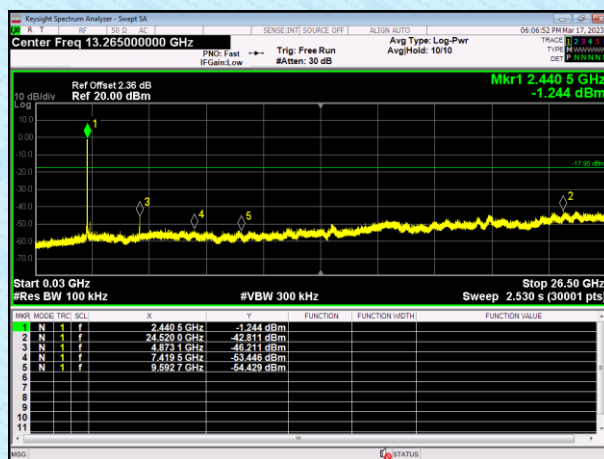
30MHz~25GHz

802.11n(HT20)  
Lowest channel



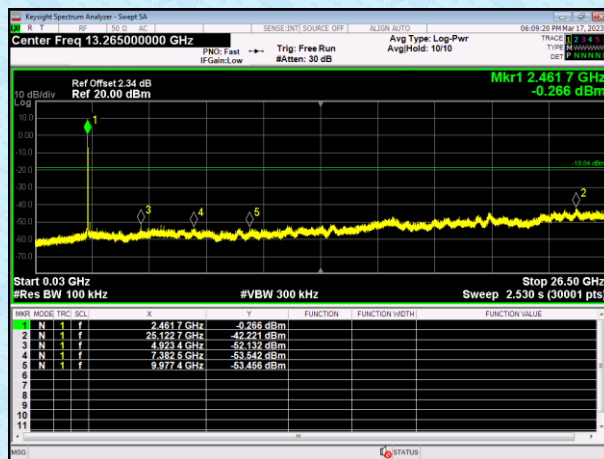
30MHz~25GHz

Middle channel



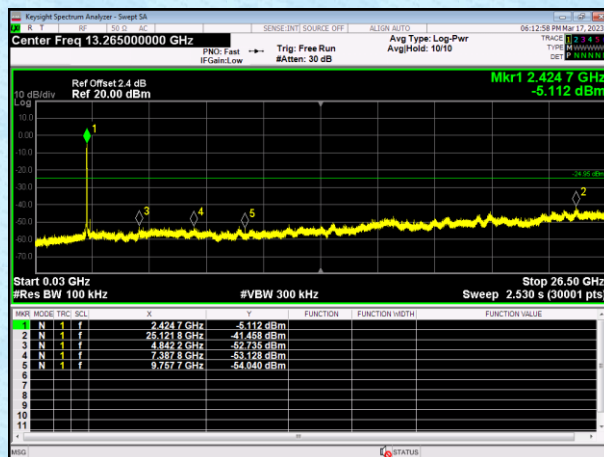
30MHz~25GHz

Highest channel



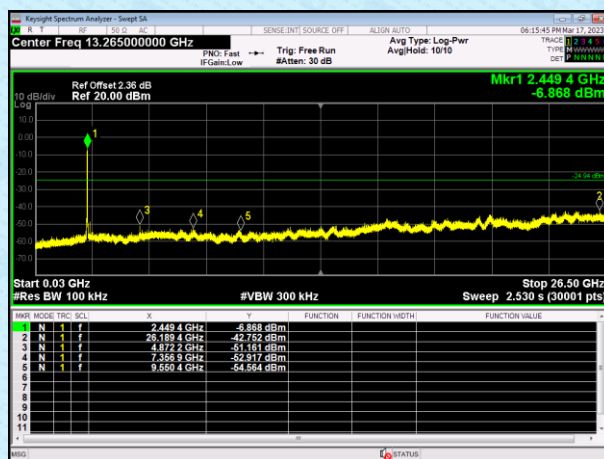
30MHz~25GHz

802.11n(HT40)  
Lowest channel



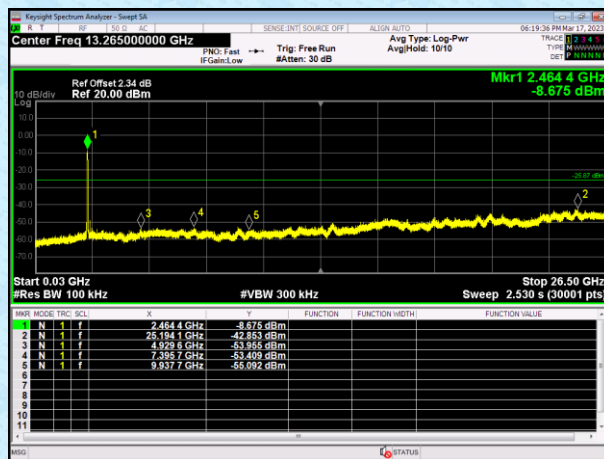
30MHz~25GHz

Middle channel



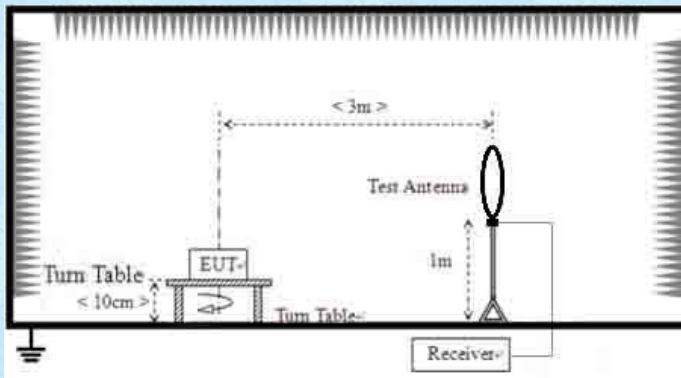
30MHz~25GHz

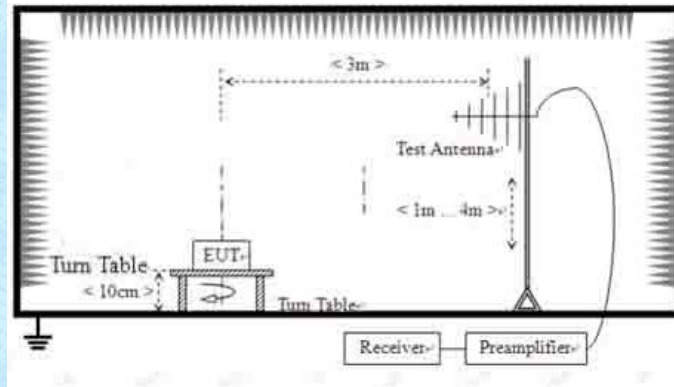
Highest channel



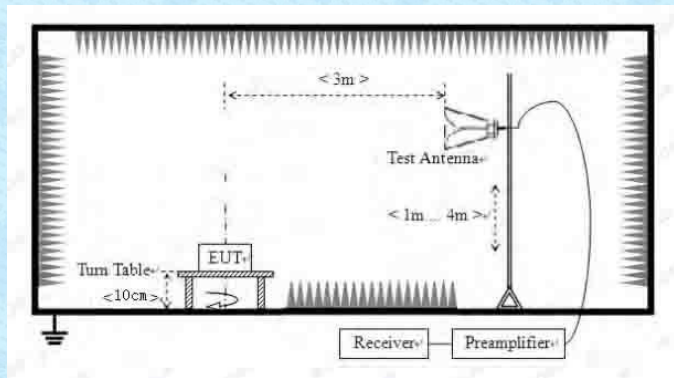
30MHz~25GHz

## 7.7.2 Radiated Emission Method

|                       |                                                                                                 |              |        |         |                      |
|-----------------------|-------------------------------------------------------------------------------------------------|--------------|--------|---------|----------------------|
| Test Requirement:     | FCC Part15 C Section 15.209                                                                     |              |        |         |                      |
| Test Method:          | ANSI C63.10: 2013                                                                               |              |        |         |                      |
| Test Frequency Range: | 9kHz to 25GHz                                                                                   |              |        |         |                      |
| Test site:            | Measurement Distance: 3m                                                                        |              |        |         |                      |
| Receiver setup:       | Frequency                                                                                       | Detector     | RBW    | VBW     | Value                |
|                       | 9kHz-150kHz                                                                                     | Quasi-peak   | 200Hz  | 600Hz   | Quasi-peak           |
|                       | 150kHz-30MHz                                                                                    | Quasi-peak   | 9kHz   | 30kHz   | Quasi-peak           |
|                       | 30MHz-1GHz                                                                                      | Quasi-peak   | 120kHz | 300kHz  | Quasi-peak           |
|                       | Above 1GHz                                                                                      | Peak         | 1MHz   | 3MHz    | Peak                 |
|                       |                                                                                                 | Peak         | 1MHz   | 10Hz    | Average              |
| Limit:                | Frequency                                                                                       | Limit (uV/m) |        | Value   | Measurement Distance |
|                       | 0.009MHz-0.490MHz                                                                               | 2400/F(kHz)  |        | QP      | 300m                 |
|                       | 0.490MHz-1.705MHz                                                                               | 24000/F(kHz) |        | QP      | 300m                 |
|                       | 1.705MHz-30MHz                                                                                  | 30           |        | QP      | 30m                  |
|                       | 30MHz-88MHz                                                                                     | 100          |        | QP      | 3m                   |
|                       | 88MHz-216MHz                                                                                    | 150          |        | QP      |                      |
|                       | 216MHz-960MHz                                                                                   | 200          |        | QP      |                      |
|                       | 960MHz-1GHz                                                                                     | 500          |        | QP      |                      |
|                       | Above 1GHz                                                                                      | 500          |        | Average |                      |
|                       |                                                                                                 | 5000         |        | Peak    |                      |
| Test setup:           | For radiated emissions from 9kHz to 30MHz                                                       |              |        |         |                      |
|                       | <div></div> |              |        |         |                      |
|                       | For radiated emissions from 30MHz to1GHz                                                        |              |        |         |                      |



For radiated emissions above 1GHz



## Test Procedure:

1. The EUT was placed on the top of a rotating table (0.1m) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. 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.
4. 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 and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. 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.

## Test Instruments:

Refer to section 6.0 for details

## Test mode:

Refer to section 5.2 for details

|                   |               |       |         |     |         |          |
|-------------------|---------------|-------|---------|-----|---------|----------|
| Test environment: | Temp.:        | 25 °C | Humid.: | 52% | Press.: | 1012mbar |
| Test voltage:     | AC 120V, 60Hz |       |         |     |         |          |
| Test results:     | Pass          |       |         |     |         |          |

*Remarks:*

1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

**Measurement data:**

■ **9kHz~30MHz**

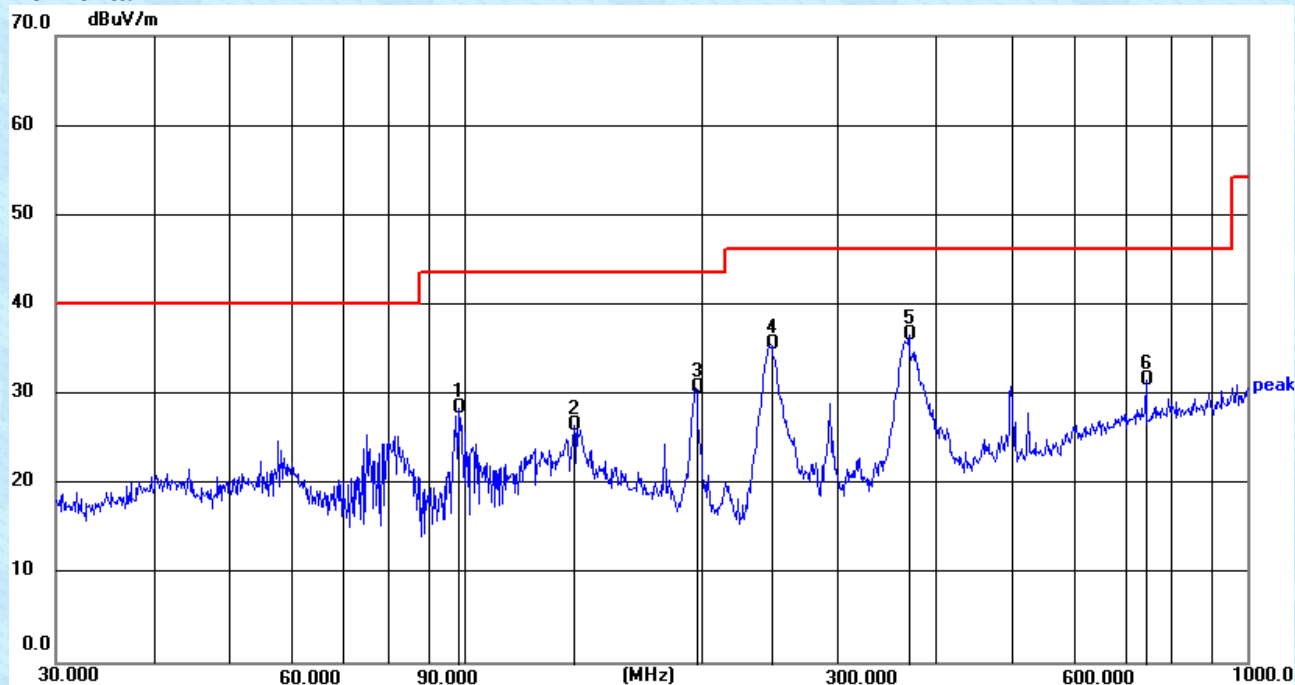
The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

■ SM-STTL20-BK

**Below 1GHz**

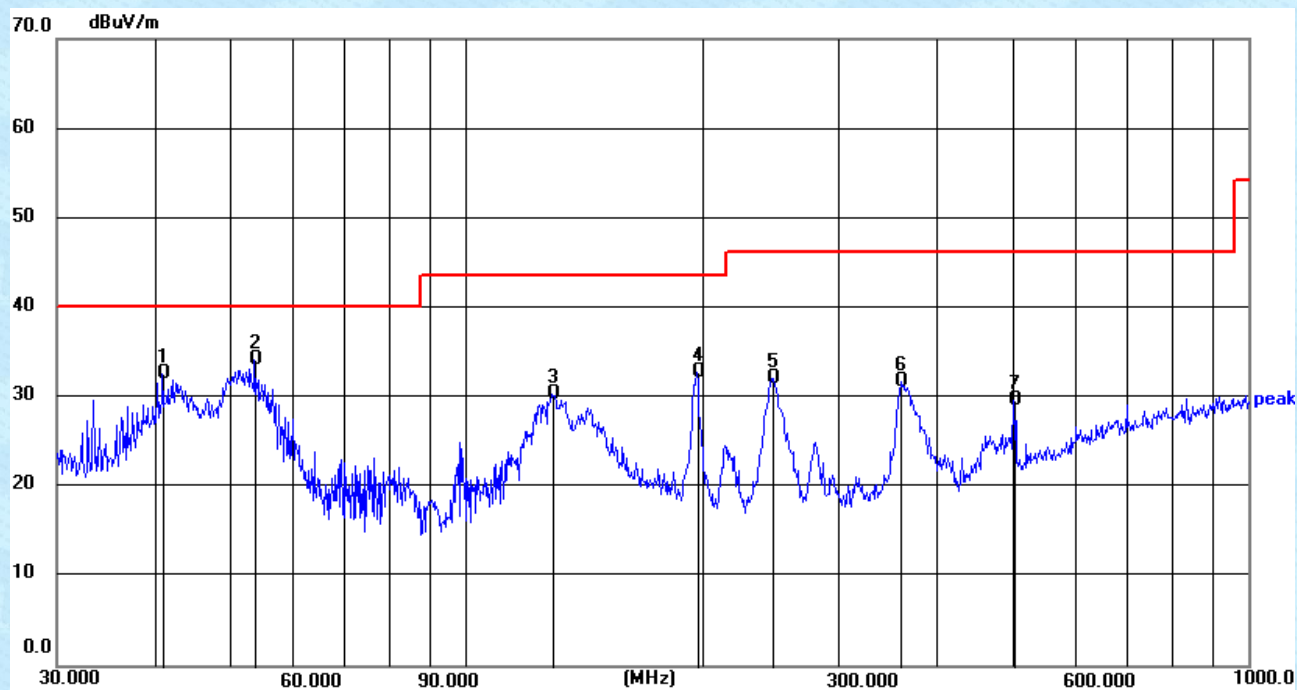
Pre-scan all test modes, found worst case at 802.11b 2462MHz, and so only show the test result of 802.11b 2462MHz

**Horizontal:**



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|--------|
| 1   | 98.1419         | 16.66          | 11.79         | 28.45          | 43.50          | 15.05       | QP     |
| 2   | 137.9028        | 12.48          | 14.00         | 26.48          | 43.50          | 17.02       | QP     |
| 3   | 197.2001        | 18.73          | 11.94         | 30.67          | 43.50          | 12.83       | QP     |
| 4   | 245.9509        | 22.14          | 13.45         | 35.59          | 46.00          | 10.41       | QP     |
| 5   | 369.4047        | 20.43          | 16.22         | 36.65          | 46.00          | 9.35        | QP     |
| 6   | 742.2587        | 9.20           | 22.47         | 31.67          | 46.00          | 14.33       | QP     |

Vertical:



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|--------|
| 1   | 40.9881         | 18.65          | 14.02         | 32.67          | 40.00          | 7.33        | QP     |
| 2   | 53.6932         | 19.92          | 14.31         | 34.23          | 40.00          | 5.77        | QP     |
| 3   | 129.0146        | 15.87          | 14.56         | 30.43          | 43.50          | 13.07       | QP     |
| 4   | 197.2001        | 20.84          | 11.94         | 32.78          | 43.50          | 10.72       | QP     |
| 5   | 245.9509        | 18.68          | 13.45         | 32.13          | 46.00          | 13.87       | QP     |
| 6   | 360.4476        | 15.70          | 16.03         | 31.73          | 46.00          | 14.27       | QP     |
| 7   | 501.1790        | 11.07          | 18.64         | 29.71          | 46.00          | 16.29       | QP     |

## ■ Above 1GHz

|            |         |               |        |
|------------|---------|---------------|--------|
| Test mode: | 802.11b | Test channel: | Lowest |
|------------|---------|---------------|--------|

### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4824            | 39.79             | 31.79                 | 8.62            | 32.1                     | 48.1           | 74                  | -25.9           | Vertical     |
| 4824            | 39.39             | 31.79                 | 8.62            | 32.1                     | 47.7           | 74                  | -26.3           | Horizontal   |

|            |         |               |        |
|------------|---------|---------------|--------|
| Test mode: | 802.11b | Test channel: | Middle |
|------------|---------|---------------|--------|

### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4874            | 37.02             | 31.85                 | 8.66            | 32.12                    | 45.41          | 74                  | -28.59          | Vertical     |
| 4874            | 36.134            | 31.85                 | 8.66            | 32.12                    | 44.524         | 74                  | -29.47          | Horizontal   |

|            |         |               |         |
|------------|---------|---------------|---------|
| Test mode: | 802.11b | Test channel: | Highest |
|------------|---------|---------------|---------|

### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4924            | 36.36             | 31.9                  | 8.7             | 32.15                    | 44.81          | 74                  | -29.19          | Vertical     |
| 4924            | 35.38             | 31.9                  | 8.7             | 32.15                    | 43.83          | 74                  | -30.17          | Horizontal   |

|            |         |               |        |
|------------|---------|---------------|--------|
| Test mode: | 802.11g | Test channel: | lowest |
|------------|---------|---------------|--------|

### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4824            | 39.62             | 31.79                 | 8.62            | 32.1                     | 47.93          | 74                  | -26.07          | Vertical     |
| 4824            | 38.67             | 31.79                 | 8.62            | 32.1                     | 46.98          | 74                  | -27.02          | Horizontal   |

|            |         |               |        |
|------------|---------|---------------|--------|
| Test mode: | 802.11g | Test channel: | Middle |
|------------|---------|---------------|--------|

### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4874            | 36.93             | 31.85                 | 8.66            | 32.12                    | 45.32          | 74                  | -28.68          | Vertical     |
| 4874            | 35.35             | 31.85                 | 8.66            | 32.12                    | 43.74          | 74                  | -30.26          | Horizontal   |

|            |         |               |         |
|------------|---------|---------------|---------|
| Test mode: | 802.11g | Test channel: | Highest |
|------------|---------|---------------|---------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4924            | 35.79             | 31.9                  | 8.7             | 32.15                    | 44.24          | 74                  | -29.76          | Vertical     |
| 4924            | 34.9              | 31.9                  | 8.7             | 32.15                    | 43.35          | 74                  | -30.65          | Horizontal   |

|            |               |               |        |
|------------|---------------|---------------|--------|
| Test mode: | 802.11n(HT20) | Test channel: | Lowest |
|------------|---------------|---------------|--------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4824            | 38.83             | 31.79                 | 8.62            | 32.1                     | 47.14          | 74                  | -26.86          | Vertical     |
| 4824            | 38.36             | 31.79                 | 8.62            | 32.1                     | 46.67          | 74                  | -27.33          | Horizontal   |

|            |               |               |        |
|------------|---------------|---------------|--------|
| Test mode: | 802.11n(HT20) | Test channel: | Middle |
|------------|---------------|---------------|--------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4874            | 36.86             | 31.85                 | 8.66            | 32.12                    | 45.25          | 74                  | -28.75          | Vertical     |
| 4874            | 34.91             | 31.85                 | 8.66            | 32.12                    | 43.3           | 74                  | -30.7           | Horizontal   |

|            |               |               |         |
|------------|---------------|---------------|---------|
| Test mode: | 802.11n(HT20) | Test channel: | Highest |
|------------|---------------|---------------|---------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4924            | 35.03             | 31.9                  | 8.7             | 32.15                    | 43.48          | 74                  | -30.52          | Vertical     |
| 4924            | 34.81             | 31.9                  | 8.7             | 32.15                    | 43.26          | 74                  | -30.74          | Horizontal   |

|            |               |               |        |
|------------|---------------|---------------|--------|
| Test mode: | 802.11n(HT40) | Test channel: | Lowest |
|------------|---------------|---------------|--------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4844            | 38.19             | 31.81                 | 8.63            | 32.11                    | 46.52          | 74                  | -27.48          | Vertical     |
| 4844            | 37.77             | 31.81                 | 8.63            | 32.11                    | 46.1           | 74                  | -27.9           | Horizontal   |

|            |               |               |        |
|------------|---------------|---------------|--------|
| Test mode: | 802.11n(HT40) | Test channel: | Middle |
|------------|---------------|---------------|--------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 4874            | 36.1              | 31.85                 | 8.66            | 32.12              | 44.49          | 74                  | -29.51          | Vertical     |
| 4874            | 34.82             | 31.85                 | 8.66            | 32.12              | 43.21          | 74                  | -30.79          | Horizontal   |

|            |               |               |         |
|------------|---------------|---------------|---------|
| Test mode: | 802.11n(HT40) | Test channel: | Highest |
|------------|---------------|---------------|---------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 4904            | 34.1              | 31.88                 | 8.68            | 32.13              | 42.53          | 74                  | -31.47          | Vertical     |
| 4904            | 34.79             | 31.88                 | 8.68            | 32.13              | 43.22          | 74                  | -30.78          | Horizontal   |

**Remark:**

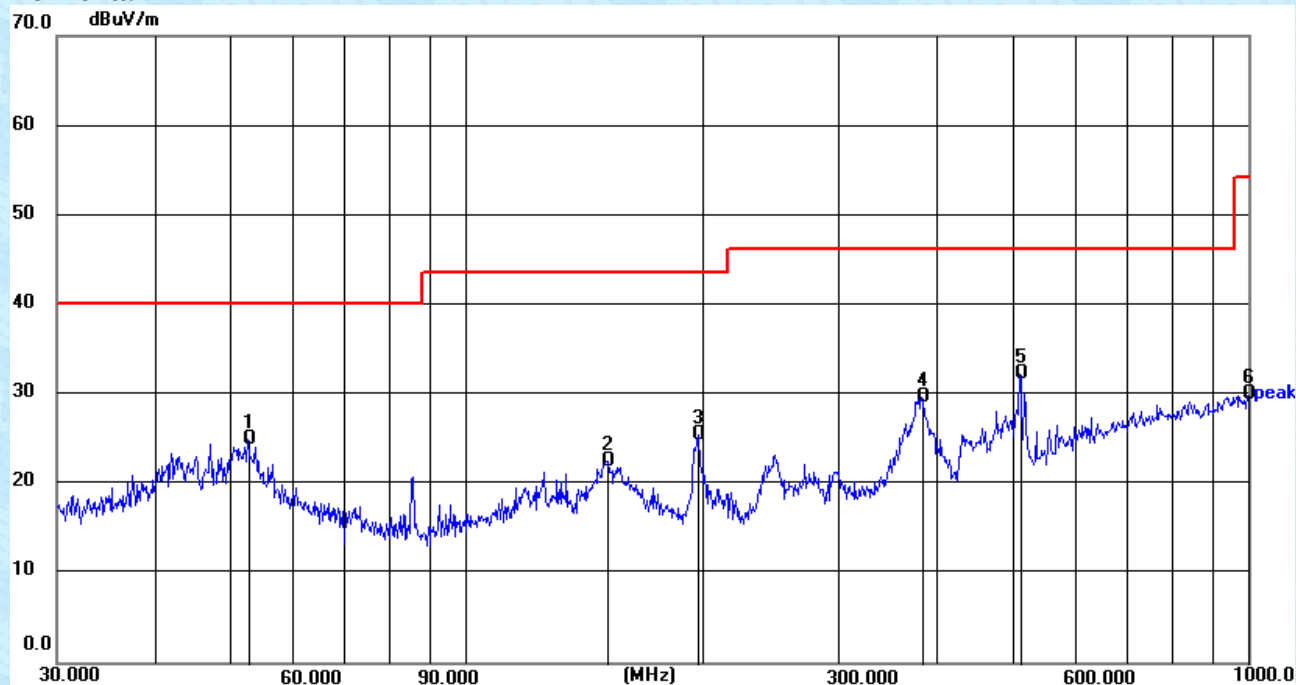
- 1 Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- 2 other emissions are attenuated 20dB below the limits, so it does not reported.

## ■ SM-STFL50-BK

### Below 1GHz

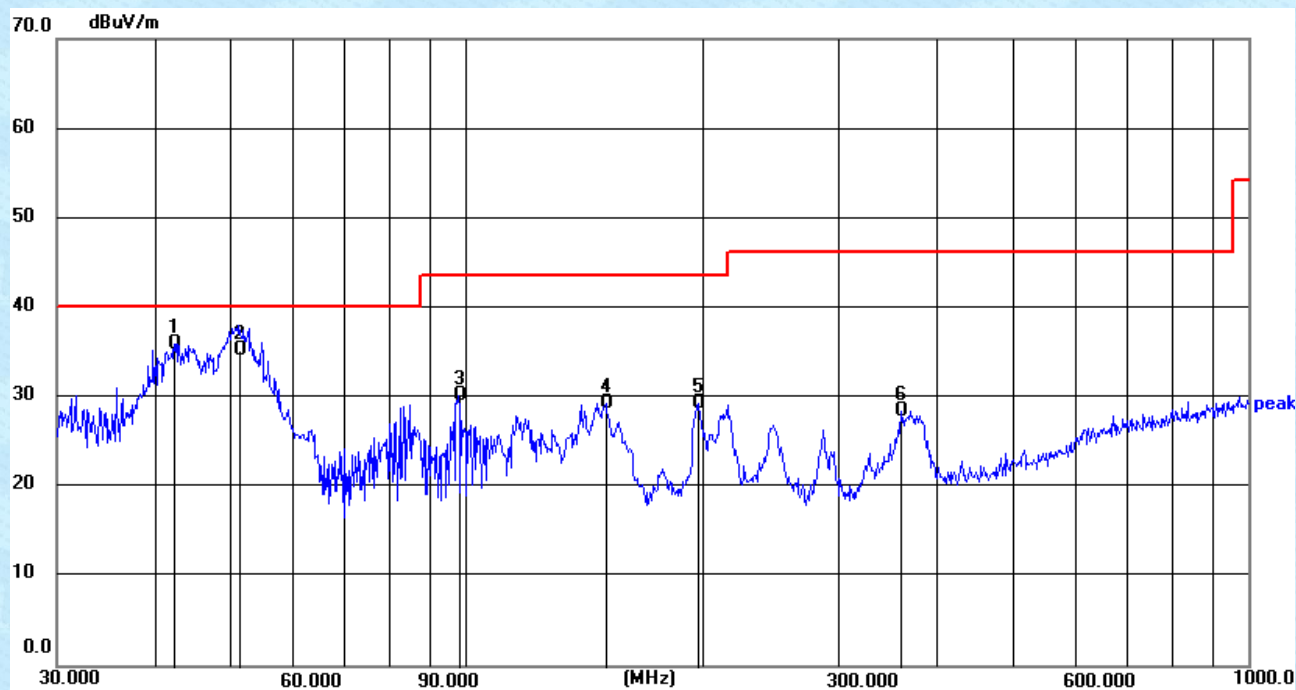
Pre-scan all test modes, found worst case at 802.11b 2462MHz, and so only show the test result of 802.11b 2462MHz

#### Horizontal:



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|--------|
| 1   | 52.5753         | 10.59          | 14.38         | 24.97          | 40.00          | 15.03       | QP     |
| 2   | 151.5972        | 6.62           | 16.00         | 22.62          | 43.50          | 20.88       | QP     |
| 3   | 197.8928        | 13.66          | 11.90         | 25.56          | 43.50          | 17.94       | QP     |
| 4   | 382.5879        | 13.14          | 16.47         | 29.61          | 46.00          | 16.39       | QP     |
| 5   | 510.0436        | 13.48          | 18.81         | 32.29          | 46.00          | 13.71       | QP     |
| 6   | 1000.0000       | 5.27           | 24.73         | 30.00          | 54.00          | 24.00       | QP     |

Vertical:



| No. | Frequency (MHz) | Reading (dBuV) | Factor (dB/m) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|-----------------|----------------|---------------|----------------|----------------|-------------|--------|
| 1   | 42.4508         | 21.78          | 14.22         | 36.00          | 40.00          | 4.00        | QP     |
| 2   | 51.3005         | 20.74          | 14.46         | 35.20          | 40.00          | 4.80        | QP     |
| 3   | 97.7983         | 18.49          | 11.75         | 30.24          | 43.50          | 13.26       | QP     |
| 4   | 151.0666        | 13.42          | 16.00         | 29.42          | 43.50          | 14.08       | QP     |
| 5   | 197.8928        | 17.43          | 11.90         | 29.33          | 43.50          | 14.17       | QP     |
| 6   | 360.4476        | 12.51          | 16.03         | 28.54          | 46.00          | 17.46       | QP     |

## ■ Above 1GHz

|            |         |               |        |
|------------|---------|---------------|--------|
| Test mode: | 802.11b | Test channel: | Lowest |
|------------|---------|---------------|--------|

### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4824            | 39.01             | 31.79                 | 8.62            | 32.1                     | 47.32          | 74                  | -26.68          | Vertical     |
| 4824            | 39.24             | 31.79                 | 8.62            | 32.1                     | 47.55          | 74                  | -26.45          | Horizontal   |

|            |         |               |        |
|------------|---------|---------------|--------|
| Test mode: | 802.11b | Test channel: | Middle |
|------------|---------|---------------|--------|

### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4874            | 36.33             | 31.85                 | 8.66            | 32.12                    | 44.72          | 74                  | -29.28          | Vertical     |
| 4874            | 35.42             | 31.85                 | 8.66            | 32.12                    | 43.81          | 74                  | -30.19          | Horizontal   |

|            |         |               |         |
|------------|---------|---------------|---------|
| Test mode: | 802.11b | Test channel: | Highest |
|------------|---------|---------------|---------|

### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4924            | 35.44             | 31.9                  | 8.7             | 32.15                    | 43.89          | 74                  | -30.11          | Vertical     |
| 4924            | 34.95             | 31.9                  | 8.7             | 32.15                    | 43.4           | 74                  | -30.6           | Horizontal   |

|            |         |               |        |
|------------|---------|---------------|--------|
| Test mode: | 802.11g | Test channel: | lowest |
|------------|---------|---------------|--------|

### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4824            | 39.34             | 31.79                 | 8.62            | 32.1                     | 47.65          | 74                  | -26.35          | Vertical     |
| 4824            | 38.05             | 31.79                 | 8.62            | 32.1                     | 46.36          | 74                  | -27.64          | Horizontal   |

|            |         |               |        |
|------------|---------|---------------|--------|
| Test mode: | 802.11g | Test channel: | Middle |
|------------|---------|---------------|--------|

### Peak value:

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4874            | 36.08             | 31.85                 | 8.66            | 32.12                    | 44.47          | 74                  | -29.53          | Vertical     |
| 4874            | 34.4              | 31.85                 | 8.66            | 32.12                    | 42.79          | 74                  | -31.21          | Horizontal   |

|            |         |               |         |
|------------|---------|---------------|---------|
| Test mode: | 802.11g | Test channel: | Highest |
|------------|---------|---------------|---------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4924            | 36.32             | 31.9                  | 8.7             | 32.15                    | 44.77          | 74                  | -29.23          | Vertical     |
| 4924            | 34.59             | 31.9                  | 8.7             | 32.15                    | 43.04          | 74                  | -30.96          | Horizontal   |

|            |               |               |        |
|------------|---------------|---------------|--------|
| Test mode: | 802.11n(HT20) | Test channel: | Lowest |
|------------|---------------|---------------|--------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4824            | 39.3              | 31.79                 | 8.62            | 32.1                     | 47.61          | 74                  | -26.39          | Vertical     |
| 4824            | 37.94             | 31.79                 | 8.62            | 32.1                     | 46.25          | 74                  | -27.75          | Horizontal   |

|            |               |               |        |
|------------|---------------|---------------|--------|
| Test mode: | 802.11n(HT20) | Test channel: | Middle |
|------------|---------------|---------------|--------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4874            | 36.36             | 31.85                 | 8.66            | 32.12                    | 44.75          | 74                  | -29.25          | Vertical     |
| 4874            | 34.57             | 31.85                 | 8.66            | 32.12                    | 42.96          | 74                  | -31.04          | Horizontal   |

|            |               |               |         |
|------------|---------------|---------------|---------|
| Test mode: | 802.11n(HT20) | Test channel: | Highest |
|------------|---------------|---------------|---------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4924            | 35.2              | 31.9                  | 8.7             | 32.15                    | 43.65          | 74                  | -30.35          | Vertical     |
| 4924            | 34.66             | 31.9                  | 8.7             | 32.15                    | 43.11          | 74                  | -30.89          | Horizontal   |

|            |               |               |        |
|------------|---------------|---------------|--------|
| Test mode: | 802.11n(HT40) | Test channel: | Lowest |
|------------|---------------|---------------|--------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 4844            | 37.84             | 31.81                 | 8.63            | 32.11                    | 46.17          | 74                  | -27.83          | Vertical     |
| 4844            | 37.6              | 31.81                 | 8.63            | 32.11                    | 45.93          | 74                  | -28.07          | Horizontal   |

|            |               |               |        |
|------------|---------------|---------------|--------|
| Test mode: | 802.11n(HT40) | Test channel: | Middle |
|------------|---------------|---------------|--------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 4874            | 35.83             | 31.85                 | 8.66            | 32.12              | 44.22          | 74                  | -29.78          | Vertical     |
| 4874            | 34.4              | 31.85                 | 8.66            | 32.12              | 42.79          | 74                  | -31.21          | Horizontal   |

|            |               |               |         |
|------------|---------------|---------------|---------|
| Test mode: | 802.11n(HT40) | Test channel: | Highest |
|------------|---------------|---------------|---------|

**Peak value:**

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------|----------------|---------------------|-----------------|--------------|
| 4904            | 33.51             | 31.88                 | 8.68            | 32.13              | 41.94          | 74                  | -32.06          | Vertical     |
| 4904            | 34.7              | 31.88                 | 8.68            | 32.13              | 43.13          | 74                  | -30.87          | Horizontal   |

**Remark:**

- 1 Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- 2 other emissions are attenuated 20dB below the limits, so it does not reported.

## 8 Test Setup Photo

Reference to the **appendix I** for details.

## 9 EUT Constructional Details

Reference to the **appendix II** for details.

-----End-----