

# FCC Radio Test Report

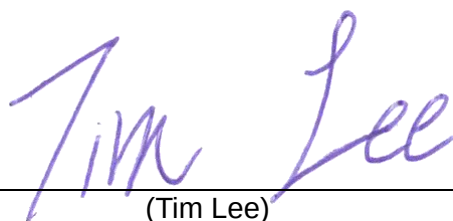
## FCC ID: 2ANC3PHYCF001

Project No. : 1905T139  
Equipment : Phyn Smart Water Assistant  
Test Model : PHYCF001  
Series Model : N/A  
Applicant : Phyn LLC  
Address : 1855 Del Amo Blvd Torrance CA United States 90501

Date of Receipt : 2019/5/31  
Date of Test : 2019/5/31 ~ 2019/7/4  
Issued Date : 2019/7/22  
Tested by : BTL Inc.

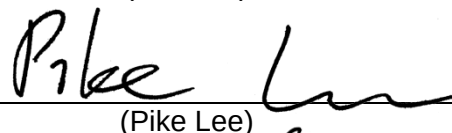
Testing Engineer

:

  
(Tim Lee)

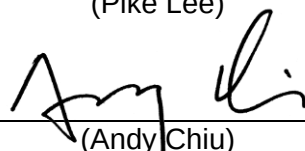
Technical Manager

:

  
(Pike Lee)

Authorized Signatory

:

  
(Andy Chiu)

# B T L I N C .

No.18, Ln. 171, Sec. 2, Jiuzong Rd.,  
Neihu Dist., Taipei City 114, Taiwan (R.O.C.)  
TEL:+886-2-2657-3299 FAX: +886-2- 2657-3331



### **Declaration**

**BTL** represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

**BTL's** reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

The report must not be used by the client to claim product certification, approval, or endorsement by NIST, A2LA, or any agency of the U.S. Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

**BTL's** laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

**BTL** is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

### **Limitation**

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

## CONTENTS

|                                                              |    |
|--------------------------------------------------------------|----|
| REPORT ISSUED HISTORY                                        | 5  |
| 1 CERTIFICATION                                              | 6  |
| 2 SUMMARY OF TEST RESULTS                                    | 7  |
| 2.1 TEST FACILITY                                            | 8  |
| 2.2 MEASUREMENT UNCERTAINTY                                  | 8  |
| 3 GENERAL INFORMATION                                        | 10 |
| 3.1 DESCRIPTION OF EUT                                       | 10 |
| 3.2 TEST MODES                                               | 11 |
| 3.3 PARAMETERS OF TEST SOFTWARE                              | 12 |
| 3.4 DUTY CYCLE                                               | 13 |
| 3.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED | 14 |
| 3.6 SUPPORT UNITS                                            | 15 |
| 4 AC POWER LINE CONDUCTED EMISSIONS TEST                     | 16 |
| 4.1 LIMIT                                                    | 16 |
| 4.2 TEST PROCEDURE                                           | 16 |
| 4.3 DEVIATION FROM TEST STANDARD                             | 16 |
| 4.4 TEST SETUP                                               | 17 |
| 4.5 EUT OPERATING CONDITIONS                                 | 17 |
| 4.6 TEST RESULT                                              | 17 |
| 5 RADIATED EMISSIONS TEST                                    | 18 |
| 5.1 LIMIT                                                    | 18 |
| 5.2 TEST PROCEDURE                                           | 19 |
| 5.3 DEVIATION FROM TEST STANDARD                             | 19 |
| 5.4 TEST SETUP                                               | 20 |
| 5.5 EUT OPERATING CONDITIONS                                 | 21 |
| 5.6 TEST RESULT – 9 KHZ TO 30 MHZ                            | 21 |
| 5.7 TEST RESULT – 30MHZ TO 1000 MHZ                          | 21 |
| 5.8 TEST RESULT – ABOVE 1000 MHZ                             | 22 |
| 6 BANDWIDTH TEST                                             | 23 |
| 6.1 LIMIT                                                    | 23 |
| 6.2 TEST PROCEDURE                                           | 23 |
| 6.3 DEVIATION FROM TEST STANDARD                             | 23 |
| 6.4 TEST SETUP                                               | 23 |
| 6.5 EUT OPERATING CONDITIONS                                 | 23 |
| 6.6 TEST RESULT                                              | 23 |
| 7 PEAK OUTPUT POWER TEST                                     | 24 |
| 7.1 LIMIT                                                    | 24 |
| 7.2 TEST PROCEDURE                                           | 24 |
| 7.3 DEVIATION FROM TEST STANDARD                             | 24 |
| 7.4 TEST SETUP                                               | 24 |
| 7.5 EUT OPERATING CONDITIONS                                 | 24 |

|            |                                           |    |
|------------|-------------------------------------------|----|
| 7.6        | TEST RESULT                               | 24 |
| 8          | ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST | 25 |
| 8.1        | LIMIT                                     | 25 |
| 8.2        | TEST PROCEDURE                            | 25 |
| 8.3        | DEVIATION FROM TEST STANDARD              | 25 |
| 8.4        | TEST SETUP                                | 25 |
| 8.5        | EUT OPERATING CONDITIONS                  | 25 |
| 8.6        | TEST RESULT                               | 25 |
| 9          | POWER SPECTRAL DENSITY                    | 26 |
| 9.1        | LIMIT                                     | 26 |
| 9.2        | TEST PROCEDURE                            | 26 |
| 9.3        | DEVIATION FROM TEST STANDARD              | 26 |
| 9.4        | TEST SETUP                                | 26 |
| 9.5        | EUT OPERATING CONDITIONS                  | 26 |
| 9.6        | TEST RESULT                               | 26 |
| 10         | LIST OF MEASURING EQUIPMENTS              | 27 |
| 11         | EUT TEST PHOTO                            | 28 |
| APPENDIX A | AC POWER LINE CONDUCTED EMISSIONS         | 32 |
| APPENDIX B | RADIATED EMISSIONS - 9 KHZ TO 30 MHZ      | 35 |
| APPENDIX C | RADIATED EMISSIONS - 30 MHZ TO 1000 MHZ   | 40 |
| APPENDIX D | RADIATED EMISSIONS - ABOVE 1000 MHZ       | 43 |
| APPENDIX E | BANDWIDTH                                 | 76 |
| APPENDIX F | PEAK OUTPUT POWER                         | 81 |
| APPENDIX G | ANTENNA CONDUCTED SPURIOUS EMISSIONS      | 83 |
| APPENDIX H | POWER SPECTRAL DENSITY                    | 88 |

## REPORT ISSUED HISTORY

| Report Version | Description     | Issued Date |
|----------------|-----------------|-------------|
| R00            | Original Issue. | 2019/7/22   |

## 1 CERTIFICATION

Equipment : Phyn Smart Water Assistant  
Brand Name : Phyn  
Test Model : PHYCF001  
Series Model : N/A  
Applicant : Phyn LLC  
Manufacturer : Phyn LLC  
Address : 1855 Del Amo Blvd Torrance CA United States 90501  
Date of Test : 2019/5/31 ~ 2019/7/4  
Test Sample : Engineering Sample  
Standard(s) : FCC Part15, Subpart C (§15.247)  
ANSI C63.10-2013

The above equipment has been tested and found in compliance with the requirement of the relative standards by BTL Inc.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-1-1905T139) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO/IEC 17025 quality assessment standard and technical standard(s).

## 2 SUMMARY OF TEST RESULTS

Test procedures according to the technical standards.

| FCC Part15, Subpart C (§15.247)  |                                      |                                        |           |        |
|----------------------------------|--------------------------------------|----------------------------------------|-----------|--------|
| FCC Clause No                    | Description                          | Test Result                            | Judgement | Remark |
| §15.207                          | AC Power Line Conducted Emissions    | APPENDIX A                             | Pass      | -----  |
| §15.205<br>§15.209<br>§15.247(d) | Radiated Emissions                   | APPENDIX B<br>APPENDIX C<br>APPENDIX D | Pass      | -----  |
| §15.247(a)                       | Bandwidth                            | APPENDIX E                             | Pass      | -----  |
| §15.247(b)                       | Peak Output Power                    | APPENDIX F                             | Pass      | -----  |
| §15.247(d)                       | Antenna Conducted Spurious Emissions | APPENDIX G                             | Pass      | -----  |
| §15.247(e)                       | Power Spectral Density               | APPENDIX H                             | Pass      | -----  |
| §15.203                          | Antenna Requirement                  | -----                                  | Pass      | -----  |

NOTE:

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

## 2.1 TEST FACILITY

The test facilities used to collect the test data in this report:

**C03:** (VCCI RN: C-20022; FCC RN: 325517; FCC DN: TW1115)

No.18, Ln. 171, Sec. 2, Jiuzong Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

**CB15:** (VCCI RN: R-20020; FCC RN:674415; FCC DN:TW0659; ISED Assigned Code:20088-5)

No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)

## 2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2  $U_{\text{CISPR}}$  requirement.

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

### A. AC power line conducted emissions test:

| Test Site | Method | Measurement Frequency Range | U (dB) |
|-----------|--------|-----------------------------|--------|
| C03       | CISPR  | 150 kHz ~ 30MHz             | 2.30   |

### B. Radiated emissions below 1 GHz test:

| Test Site    | Method | Measurement Frequency Range | Ant. H / V | U (dB) |
|--------------|--------|-----------------------------|------------|--------|
| CB15<br>(3m) | CISPR  | 30 MHz ~ 200 MHz            | V          | 4.20   |
|              |        | 30 MHz ~ 200 MHz            | H          | 3.64   |
|              |        | 200 MHz ~ 1,000 MHz         | V          | 4.56   |
|              |        | 200 MHz ~ 1,000 MHz         | H          | 3.90   |

### C. Radiated emissions above 1 GHz test:

| Test Site    | Method | Measurement Frequency Range | Ant. H / V | U (dB) |
|--------------|--------|-----------------------------|------------|--------|
| CB15<br>(3m) | CISPR  | 1 GHz ~ 6 GHz               | V          | 4.46   |
|              |        | 1 GHz ~ 6 GHz               | H          | 4.40   |
|              |        | 6 GHz ~18 GHz               | V          | 3.88   |
|              |        | 6 GHz ~18 GHz               | H          | 4.00   |

| Test Site    | Method | Measurement Frequency Range | U (dB) |
|--------------|--------|-----------------------------|--------|
| CB15<br>(1m) | CISPR  | 18 GHz ~ 26.5 GHz           | 4.62   |
|              |        | 26.5 GHz ~ 40 GHz           | 5.12   |

**NOTE:**

Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

Our calculated Measurement Instrumentation Uncertainty is shown in the tables above. These are our  $U_{lab}$  values in CISPR 16-4-2 terminology.

Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called  $U_{CISPR}$ , as follows:

Conducted Disturbance (mains port) – 150 kHz – 30 MHz : 3.6 dB

Radiated Disturbance (electric field strength on an open area test site or alternative test site) – 30 MHz – 1000 MHz : 5.2 dB

### 3 GENERAL INFORMATION

#### 3.1 DESCRIPTION OF EUT

|                         |                                                                                                                                                                    |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Equipment               | Phyn Smart Water Assistant                                                                                                                                         |
| Brand Name              | Phyn                                                                                                                                                               |
| Test Model              | PHYCF001                                                                                                                                                           |
| Series Model            | N/A                                                                                                                                                                |
| Model Difference        | N/A                                                                                                                                                                |
| Power Source            | DC voltage supplied from AC/DC Adapter.                                                                                                                            |
| Power Rating            | I/P: DC5V 2.4A                                                                                                                                                     |
| Products Covered        | 1 * AC/DC Adapter : PHYN / F8J040PHY                                                                                                                               |
| Operation Frequency     | 2412 MHz to 2462 MHz                                                                                                                                               |
| Modulation Type         | IEEE 802.11b: DSSS<br>IEEE 802.11g: OFDM<br>IEEE 802.11n: OFDM                                                                                                     |
| Bit Rate of Transmitter | IEEE 802.11b: 11/5.5/2/1 Mbps<br>IEEE 802.11g: 54/48/36/24/18/12/9/6 Mbps<br>IEEE 802.11n: up to 150 Mbps                                                          |
| Maximum Output Power    | IEEE 802.11b: 20.77 dBm (0.1194 W)<br>IEEE 802.11g: 24.63 dBm (0.2904 W)<br>IEEE 802.11n (HT20): 24.56 dBm (0.2858 W)<br>IEEE 802.11n (HT40): 24.12 dBm (0.2582 W) |

NOTE:

(1) For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

(2) Channel List:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|---------|-----------------|
| 01      | 2412            | 05      | 2432            | 09      | 2452            |
| 02      | 2417            | 06      | 2437            | 10      | 2457            |
| 03      | 2422            | 07      | 2442            | 11      | 2462            |
| 04      | 2427            | 08      | 2447            |         |                 |

(3) Table for Filed Antenna:

| Ant. | Brand | Test Model | Antenna Type | Connector | Gain (dBi) |
|------|-------|------------|--------------|-----------|------------|
| 1    | Phyn  | MT7688AN   | PCB          | I-PEX     | 1.3        |

### 3.2 TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

| Pretest Mode | Description                       |
|--------------|-----------------------------------|
| 1            | TX B MODE CHANNEL 01/06/11        |
| 2            | TX G MODE CHANNEL 01/06/11        |
| 3            | TX N (HT20) MODE CHANNEL 01/06/11 |
| 4            | TX N (HT40) MODE CHANNEL 03/06/09 |
| 5            | Normal Operation                  |

Following mode(s) as (were) found to be the worst case(s) and selected for the final test.

| AC power line conducted emissions test |                  |
|----------------------------------------|------------------|
| Test Mode                              | Description      |
| 5                                      | Normal Operation |

| Radiated emissions test for Bandedge |                                |
|--------------------------------------|--------------------------------|
| Test Mode                            | Description                    |
| 1                                    | TX B MODE CHANNEL 01/11        |
| 2                                    | TX G MODE CHANNEL 01/11        |
| 3                                    | TX N (HT20) MODE CHANNEL 01/11 |
| 4                                    | TX N (HT40) MODE CHANNEL 03/09 |

| Radiated emissions test for Harmonic |                                   |
|--------------------------------------|-----------------------------------|
| Test Mode                            | Description                       |
| 1                                    | TX B MODE CHANNEL 01/06/11        |
| 2                                    | TX G MODE CHANNEL 01/06/11        |
| 3                                    | TX N (HT20) MODE CHANNEL 01/06/11 |
| 4                                    | TX N (HT40) MODE CHANNEL 03/06/09 |

| Conducted test |                                   |
|----------------|-----------------------------------|
| Test Mode      | Description                       |
| 1              | TX B MODE CHANNEL 01/06/11        |
| 2              | TX G MODE CHANNEL 01/06/11        |
| 3              | TX N (HT20) MODE CHANNEL 01/06/11 |
| 4              | TX N (HT40) MODE CHANNEL 03/06/09 |

**NOTE:**

- (1) The measurements are performed at the low, middle and high available channels.
- (2) For radiated emission tests, the highest output powers were set for final test.
- (3) For radiated emission below 1 GHz test, the IEEE 802.11N (HT40) was found to be the worst case and recorded.
- (4) For radiated emission band edge test, both Vertical and Horizontal are evaluated, but only the worst case (Horizontal) is recorded.

### 3.3 PARAMETERS OF TEST SOFTWARE

| Test Software Version | QA Tool (Version 0.0.0.96) |      |      |
|-----------------------|----------------------------|------|------|
| Frequency (MHz)       | 2412                       | 2442 | 2462 |
| IEEE 802.11b          | 1C                         | 1C   | 1D   |
| IEEE 802.11g          | 1F                         | 1F   | 1F   |
| IEEE 802.11n (HT20)   | 1F                         | 1F   | 20   |
| Frequency (MHz)       | 2422                       | 2442 | 2452 |
| IEEE 802.11n (HT40)   | 1B                         | 1E   | 19   |

### 3.4 DUTY CYCLE

If duty cycle is  $\geq 98\%$ , duty factor is not required.  
If duty cycle is  $< 98\%$ , duty factor shall be considered.

|                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>IEEE 802.11b</b></p> <p>Ref 20 dBm *Att 30 dB RBW 1 MHz Delta 2 [T1] 0.03 dB<br/>*VBW 1 MHz SWT 15 ms 8.660000 ms<br/>Marker 1 [T1] -10.03 dBm<br/>Delta 1 [T1] 100.000000 us<br/>Delta 2 [T1] -0.19 dB<br/>8.420000 ms<br/>Center 2.412 GHz 1.5 ms/<br/>Date: 5.JUN.2019 17:33:36</p> <p>Duty cycle = 8.42 ms / 8.66 ms = 97.23 %<br/>Duty Factor = <math>10 * \log(1 / 0.9723) = 0.12</math></p>      | <p><b>IEEE 802.11g</b></p> <p>Ref 20 dBm *Att 30 dB RBW 1 MHz Delta 2 [T1] 1.86 dB<br/>*VBW 1 MHz SWT 5 ms 1.660000 ms<br/>Marker 1 [T1] -8.76 dBm<br/>Delta 1 [T1] 100.000000 us<br/>Delta 2 [T1] -3.62 dB<br/>1.390000 ms<br/>Center 2.412 GHz 500 us/<br/>Date: 5.JUN.2019 17:48:16</p> <p>Duty cycle = 1.39 ms / 1.66 ms = 83.73 %<br/>Duty Factor = <math>10 * \log(1 / 0.8373) = 0.77</math></p>             |
| <p><b>IEEE 802.11n (HT20)</b></p> <p>Ref 20 dBm *Att 30 dB RBW 1 MHz Delta 2 [T1] 0.91 dB<br/>*VBW 1 MHz SWT 5 ms 1.580000 ms<br/>Marker 1 [T1] -9.17 dBm<br/>Delta 1 [T1] 100.000000 us<br/>Delta 2 [T1] -0.43 dB<br/>1.300000 ms<br/>Center 2.412 GHz 500 us/<br/>Date: 5.JUN.2019 17:50:06</p> <p>Duty cycle = 1.30 ms / 1.58 ms = 82.28 %<br/>Duty Factor = <math>10 * \log(1 / 0.8228) = 0.85</math></p> | <p><b>IEEE 802.11n (HT40)</b></p> <p>Ref 20 dBm *Att 30 dB RBW 1 MHz Delta 2 [T1] 0.03 dB<br/>*VBW 1 MHz SWT 2 ms 778.000000 us<br/>Marker 1 [T1] -10.10 dBm<br/>Delta 1 [T1] 100.000000 us<br/>Delta 2 [T1] -1.45 dB<br/>0.654000 ms<br/>Center 2.422 GHz 200 us/<br/>Date: 5.JUN.2019 17:53:09</p> <p>Duty cycle = 0.654 ms / 0.778 ms = 84.06 %<br/>Duty Factor = <math>10 * \log(1 / 0.8406) = 0.75</math></p> |

#### NOTE:

For IEEE 802.11b, IEEE 802.11g and IEEE 802.11n (HT20):  
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 1 kHz (Duty cycle  $< 98\%$ ).

For IEEE 802.11n (HT40):

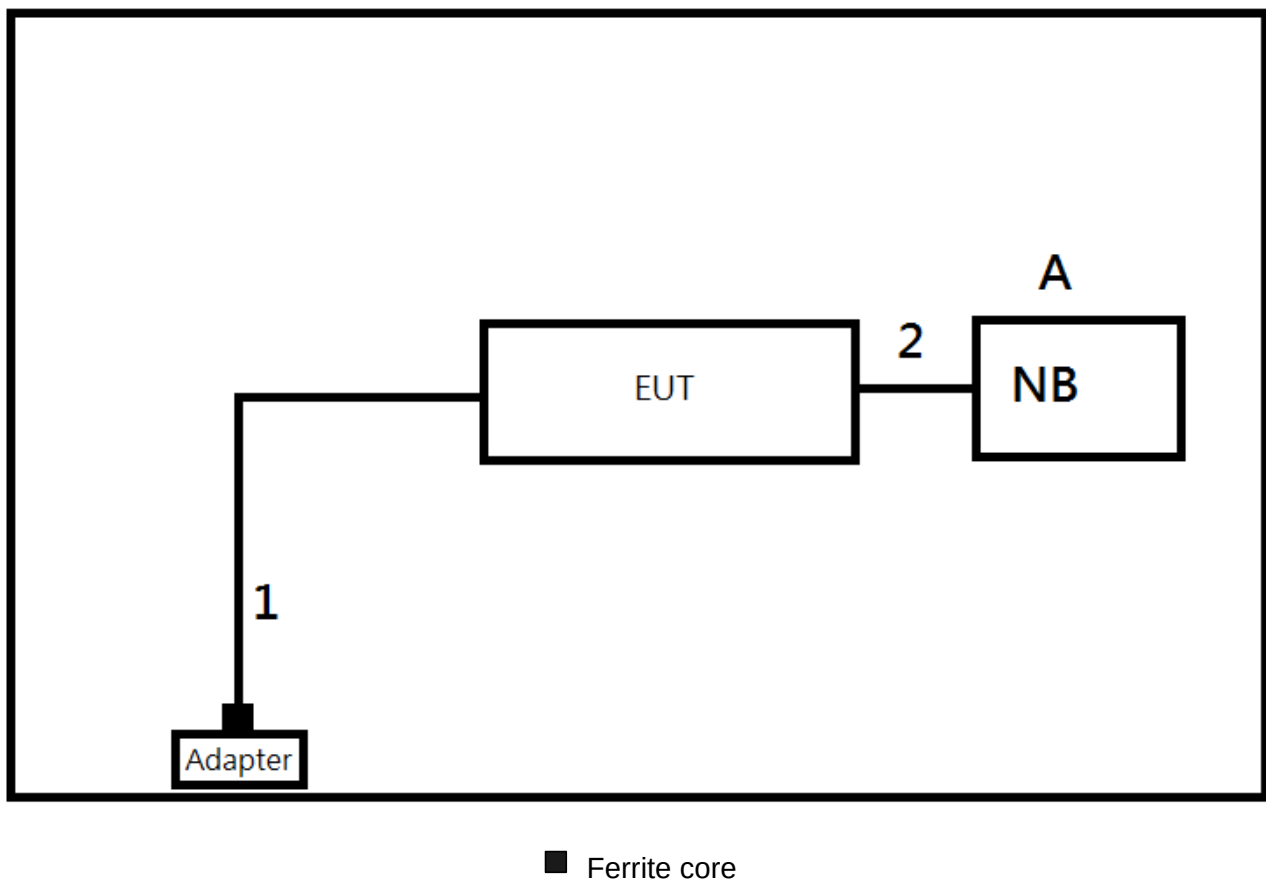
For radiated emissions frequency above 1 GHz, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 2 kHz (Duty cycle  $< 98\%$ ).

### 3.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

For AC Power Line Conducted Emissions



For Radiated Emissions



### 3.6 SUPPORT UNITS

#### For AC Power Line Conducted Emissions

| Item | Equipment   | Mfr/Brand | Model/Type No. | FCC ID | Series No.      |
|------|-------------|-----------|----------------|--------|-----------------|
| A    | Notebook PC | ASUS      | X555L          | DOC    | EAN0CV31122642B |

| Item | Shielded Type | Ferrite Core | Length | Note        |
|------|---------------|--------------|--------|-------------|
| 1    | No            | Yes          | 1.2m   | Power Cable |
| 2    | No            | No           | 1.2m   | Data Cable  |
| 3    | No            | No           | 1.2m   | Data Cable  |

#### For Radiated Emissions

| Item | Equipment   | Mfr/Brand | Model/Type No. | FCC ID | Series No. |
|------|-------------|-----------|----------------|--------|------------|
| A    | Notebook PC | HP        | TPN-I119       | N/A    | N/A        |
| B    | Adapter     | Apple     | A1385          | N/A    | N/A        |

| Item | Shielded Type | Ferrite Core | Length | Note        |
|------|---------------|--------------|--------|-------------|
| 1    | No            | Yes          | 1.2m   | Power Cable |
| 2    | No            | No           | 1m     | RJ45        |

| Item | Equipment    | Mfr/Brand                         | Model/Type No.       | SPEC.                                            | Note |
|------|--------------|-----------------------------------|----------------------|--------------------------------------------------|------|
| -    | Ferrite Core | KING CORE<br>ELECTRONI<br>CS INC. | K5B RC<br>13x23x7-MB | 17.0±1.0mm*15.0±1.0 mm*<br>7.0±1.0 mm*30.0±1.0mm | N/A  |

## 4 AC POWER LINE CONDUCTED EMISSIONS TEST

### 4.1 LIMIT

| Frequency (MHz) | Class A (dB $\mu$ V) |         | Class B (dB $\mu$ V) |           |
|-----------------|----------------------|---------|----------------------|-----------|
|                 | Quasi-peak           | Average | Quasi-peak           | Average   |
| 0.15 - 0.5      | 79                   | 66      | 66 - 56 *            | 56 - 46 * |
| 0.50 - 5.0      | 73                   | 60      | 56                   | 46        |
| 5.0 - 30.0      | 73                   | 60      | 60                   | 50        |

NOTE:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
- (3) The test result calculated as following:  
 Measurement Value = Reading Level + Correct Factor  
 Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor (if use)  
 Margin Level = Measurement Value – Limit Value

The following table is the setting of the receiver.

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

### 4.2 TEST PROCEDURE

- a. The EUT was placed 0.8 m above the horizontal ground plane with the EUT being connected to the power mains through a line impedance stabilization network (LISN).  
 All other support equipment were powered from an additional LISN(s).  
 The LISN provides 50 Ohm/50uH of impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle to keep the cable above 40 cm.
- c. Excess I/O cables that are not connected to a peripheral shall be bundled in the center.  
 The end of the cable will be terminated, using the correct terminating impedance.  
 The overall length shall not exceed 1 m.
- d. The LISN is spaced at least 80 cm from the nearest part of the EUT chassis.
- e. For the actual test configuration, please refer to the related Item - EUT Test Photos.

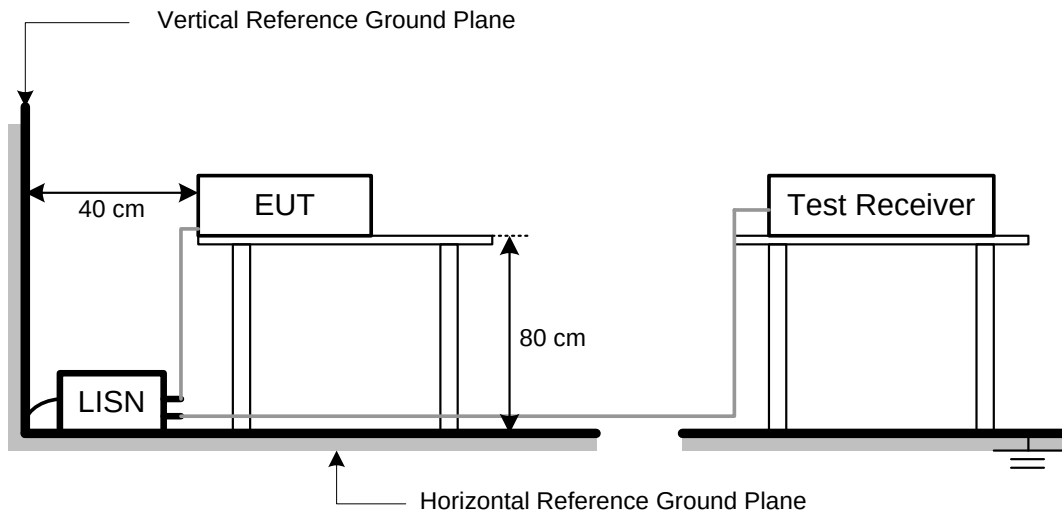
NOTE:

- (1) In the results, each reading is marked as Peak, QP or AVG per the detector used.  
 BW=9 kHz (6 dB Bandwidth)
- (2) All readings are Peak unless otherwise stated QP or AVG in column of Note. Both the QP and the AVG readings must be less than the limit for compliance.

### 4.3 DEVIATION FROM TEST STANDARD

No deviation.

#### 4.4 TEST SETUP



#### 4.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in normal link mode.

#### 4.6 TEST RESULT

Temperature: 25 °C    Relative Humidity: 45 %    Test Voltage: AC 120V/60Hz

Please refer to the APPENDIX A.

## 5 RADIATED EMISSIONS TEST

### 5.1 LIMIT

In case the emission fall within the restricted band specified on §15.205, then the §15.209 limit in the table below has to be followed.

#### LIMITS OF RADIATED EMISSIONS MEASUREMENT (9 kHz to 1000 MHz)

| Frequency (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|-----------------|-----------------------------------|-------------------------------|
| 0.009~0.490     | 2400/F(KHz)                       | 300                           |
| 0.490~1.705     | 24000/F(KHz)                      | 30                            |
| 1.705~30.0      | 30                                | 30                            |
| 30~88           | 100                               | 3                             |
| 88~216          | 150                               | 3                             |
| 216~960         | 200                               | 3                             |
| 960~1000        | 500                               | 3                             |

#### LIMITS OF RADIATED EMISSIONS MEASUREMENT (Above 1000 MHz)

| Frequency (MHz) | Radiated Emissions (dBuV/m) |         | Measurement Distance (meters) |
|-----------------|-----------------------------|---------|-------------------------------|
|                 | Peak                        | Average |                               |
| Above 1000      | 74                          | 54      | 3                             |

#### NOTE:

- (1) The limit for radiated test was performed according to FCC Part 15, Subpart C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).
- (4) The test result calculated as following:  
 Measurement Value = Reading Level + Correct Factor  
 Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)  
 Margin Level = Measurement Value - Limit Value

| Spectrum Parameter                         | Setting                                         |
|--------------------------------------------|-------------------------------------------------|
| Attenuation                                | Auto                                            |
| Start Frequency                            | 1000 MHz                                        |
| Stop Frequency                             | 10th carrier harmonic                           |
| RBW / VBW<br>(Emission in restricted band) | 1MHz / 3MHz for Peak,<br>1MHz / 1/T for Average |

| Spectrum Parameter     | Setting                           |
|------------------------|-----------------------------------|
| Attenuation            | Auto                              |
| Start ~ Stop Frequency | 9KHz~90KHz for PK/AVG detector    |
| Start ~ Stop Frequency | 90KHz~110KHz for QP detector      |
| Start ~ Stop Frequency | 110KHz~490KHz for PK/AVG detector |
| Start ~ Stop Frequency | 490KHz~30MHz for QP detector      |
| Start ~ Stop Frequency | 30MHz~1000MHz for QP detector     |

## 5.2 TEST PROCEDURE

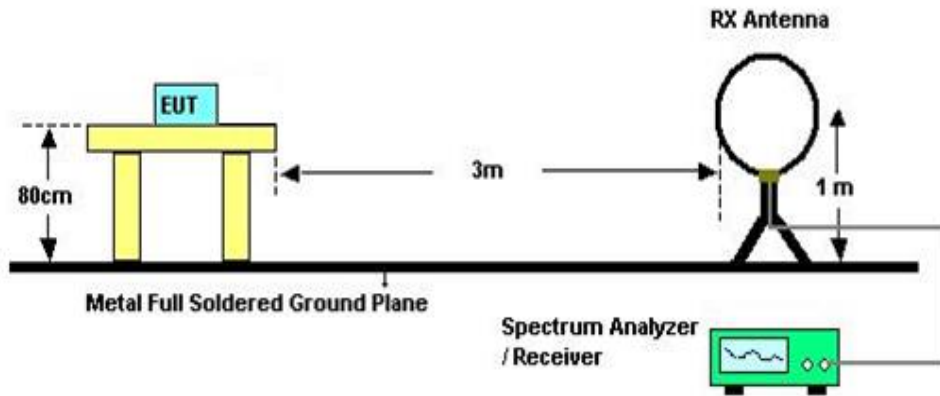
- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
- b. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8 m or 1.5 m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights find the maximum reading (used Bore sight function).
- e. The receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1GHz.
- f. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- g. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1GHz)
- h. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform. (above 1GHz)
- i. For the actual test configuration, please refer to the related Item –EUT Test Photos.

## 5.3 DEVIATION FROM TEST STANDARD

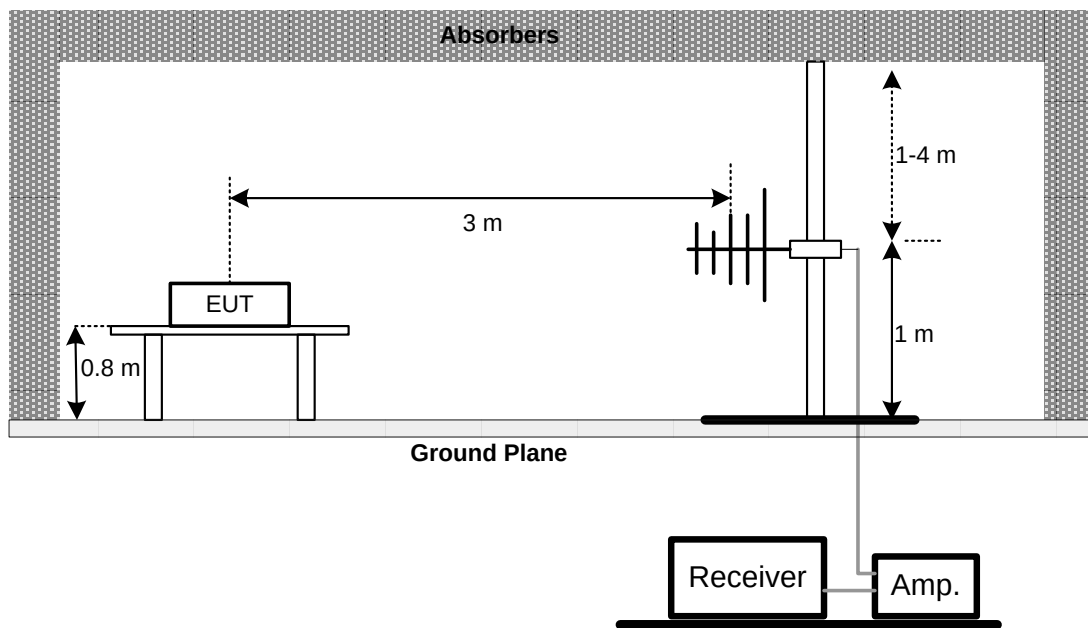
No deviation.

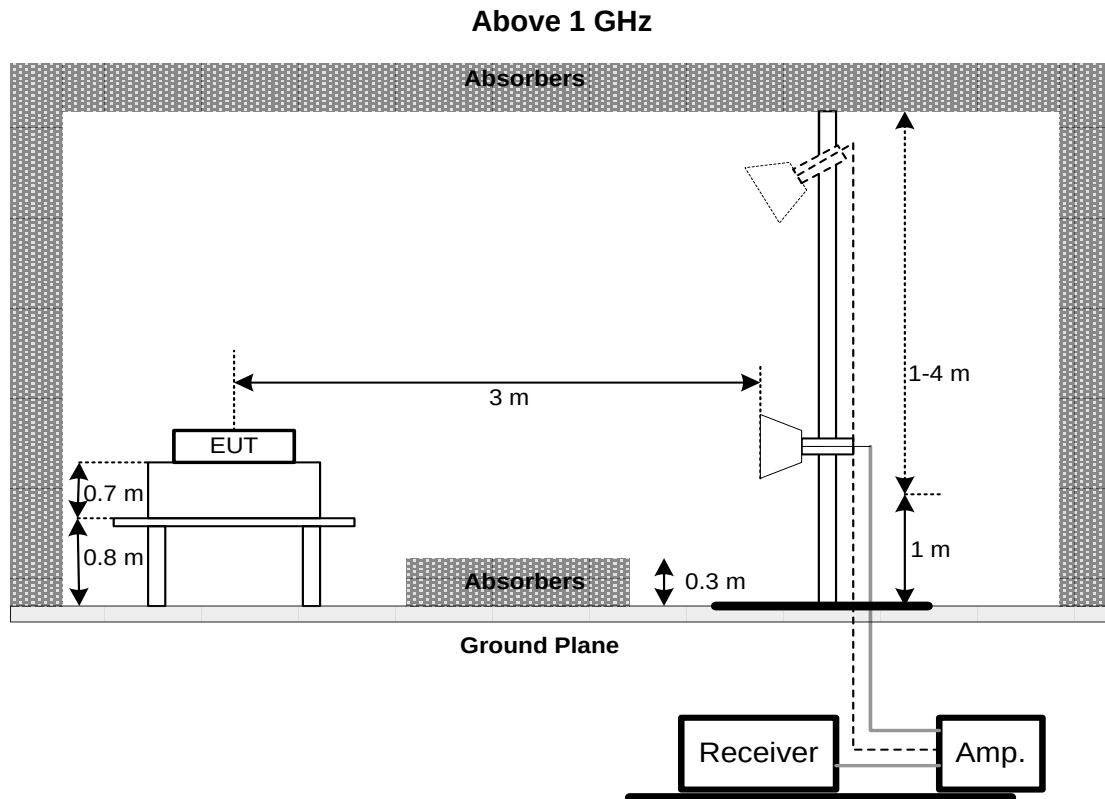
## 5.4 TEST SETUP

### Below 30 MHz



### 30 MHz to 1 GHz





## 5.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

## 5.6 TEST RESULT – 9 KHZ TO 30 MHZ

Temperature: 23 °C    Relative Humidity: 70 %    Test Voltage: AC 120V/60Hz

Please refer to the APPENDIX B.

### NOTE:

- (1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
- (2) Distance extrapolation factor =  $40 \log (\text{specific distance} / \text{test distance})$  (dB).
- (3) Limit line = specific limits (dBuV) + distance extrapolation factor.

## 5.7 TEST RESULT – 30MHZ TO 1000 MHZ

Temperature: 21°C    Relative Humidity: 65 %    Test Voltage: AC 120V/60Hz

Please refer to the APPENDIX C.

## 5.8 TEST RESULT – ABOVE 1000 MHZ

Temperature: 23 °C    Relative Humidity: 70 %    Test Voltage: AC 120V/60Hz

Please refer to the APPENDIX D.

### NOTE:

- (1) No limit: This is fundamental signal, the judgment is not applicable.  
For fundamental signal judgment was referred to Peak output test.

## 6 BANDWIDTH TEST

### 6.1 LIMIT

| FCC Part15, Subpart C (§15.247) |                |         |
|---------------------------------|----------------|---------|
| Section                         | Test Item      | Limit   |
| §15.247(a)                      | 6 dB Bandwidth | 500 kHz |

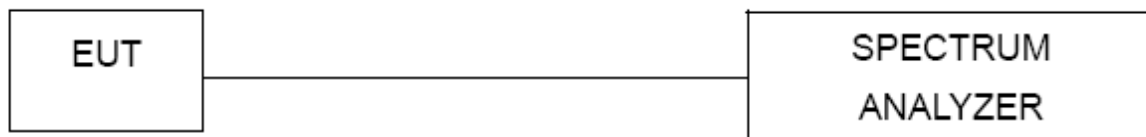
### 6.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting: RBW= 100KHz, VBW=300KHz, Sweep time = 2.5 ms.

### 6.3 DEVIATION FROM TEST STANDARD

No deviation.

### 6.4 TEST SETUP



### 6.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 6.6 TEST RESULT

Please refer to the APPENDIX E.

## 7 PEAK OUTPUT POWER TEST

### 7.1 LIMIT

| FCC Part15, Subpart C (§15.247) |                      |                 |
|---------------------------------|----------------------|-----------------|
| Section                         | Test Item            | Limit           |
| §15.247(b)                      | Maximum Output Power | 1 Watt or 30dBm |

### 7.2 TEST PROCEDURE

- The EUT was directly connected to the power meter and antenna output port as show in the block diagram below.
- The maximum peak conducted output power was performed in accordance with method 9.1.2 of FCC KDB 558074 D01 DTS Meas Guidance.

### 7.3 DEVIATION FROM TEST STANDARD

No deviation.

### 7.4 TEST SETUP



### 7.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 7.6 TEST RESULT

Please refer to the APPENDIX F.

## 8 ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST

### 8.1 LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits.

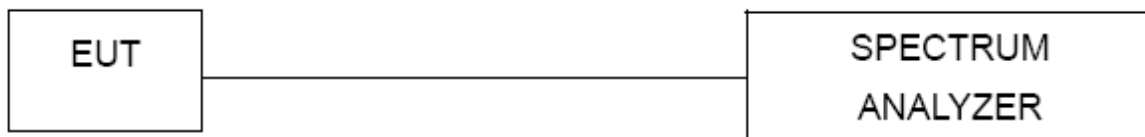
### 8.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting: RBW = 100 kHz, VBW=300 kHz, Sweep time = Auto.
- Offset = antenna gain + cable loss.

### 8.3 DEVIATION FROM TEST STANDARD

No deviation.

### 8.4 TEST SETUP



### 8.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 8.6 TEST RESULT

Please refer to the APPENDIX G.

## 9 POWER SPECTRAL DENSITY

### 9.1 LIMIT

| FCC Part15, Subpart C (§15.247) |                        |                         |
|---------------------------------|------------------------|-------------------------|
| Section                         | Test Item              | Limit                   |
| §15.247(e)                      | Power Spectral Density | 8 dBm<br>(in any 3 kHz) |

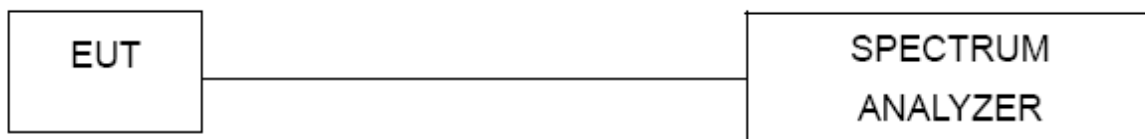
### 9.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- Spectrum Setting: RBW = 3 kHz, VBW = 10 kHz, Sweep time = Auto.

### 9.3 DEVIATION FROM TEST STANDARD

No deviation.

### 9.4 TEST SETUP



### 9.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 9.6 TEST RESULT

Please refer to the APPENDIX H.

## 10 LIST OF MEASURING EQUIPMENTS

### AC Power Line Conducted Emissions

| Item | Kind of Equipment    | Manufacturer | Type No.                 | Serial No. | Calibrated until |
|------|----------------------|--------------|--------------------------|------------|------------------|
| 1    | TWO-LINE V-NETWORK   | R&S          | ENV216                   | 101339     | 2020/2/27        |
| 2    | Test Cable           | EMCI         | EMCCFD300-BM-BMR-6000    | 170714     | 2019/8/7         |
| 3    | EMI Test Receiver    | R&S          | ESR                      | 101854     | 2019/12/24       |
| 4    | Measurement Software | Farad        | EZ_EMC (Ver. NB-03A1-01) | N/A        | N/A              |

### Radiated Emissions

| Item | Kind of Equipment        | Manufacturer | Type No.           | Serial No. | Calibrated until |
|------|--------------------------|--------------|--------------------|------------|------------------|
| 1    | Preamplifier             | EMCI         | 012645B            | 980267     | 2020/4/11        |
| 2    | Preamplifier             | EMCI         | EMC02325           | 980217     | 2020/4/11        |
| 3    | Preamplifier             | EMCI         | EMC2654045         | 980030     | 2020/4/11        |
| 4    | Test Cable               | EMCI         | EMC104-SM-SM-8000  | 8m         | 2020/4/11        |
| 5    | Test Cable               | EMCI         | EMC104-SM-SM-800   | 150207     | 2020/4/11        |
| 6    | Test Cable               | EMCI         | EEMC104-SM-SM-3000 | 151205     | 2020/4/11        |
| 7    | MXE EMI Receiver         | Agilent      | N9038A             | MY55420127 | 2020/3/25        |
| 8    | Signal Analyzer          | Agilent      | N9010A             | MY52220990 | 2020/6/5         |
| 9    | Loop Ant                 | EMCO         | 6502               | 274        | 2020/5/30        |
| 10   | Horn Ant                 | SCHWARZBECK  | BBHA 9120D         | 9120D-1342 | 2020/6/9         |
| 11   | Trilog-Broadband Antenna | Schwarzbeck  | VULB 9168          | 9168-548   | 2020/1/20        |
| 12   | 5dB Attenuator           | EMCI         | EMCI-N-6-05        | AT-N0623   | 2020/1/20        |
| 13   | Preamplifier             | EMCI         | 012645B            | 980267     | 2020/4/11        |

### Bandwidth

| Item | Kind of Equipment | Manufacturer | Type No.  | Serial No. | Calibrated until |
|------|-------------------|--------------|-----------|------------|------------------|
| 1    | Spectrum Analyzer | R&S          | R&S/FSP40 | 101139     | 2019/11/29       |

### Peak Output Power

| Item | Kind of Equipment | Manufacturer | Type No. | Serial No. | Calibrated until |
|------|-------------------|--------------|----------|------------|------------------|
| 1    | Power Meter       | Anritsu      | ML2495A  | 1128008    | 2019/12/6        |
| 2    | Power Sensor      | Anritsu      | MA2411B  | 1126001    | 2019/12/6        |

### Antenna Conducted Spurious Emissions

| Item | Kind of Equipment | Manufacturer | Type No.  | Serial No. | Calibrated until |
|------|-------------------|--------------|-----------|------------|------------------|
| 1    | Spectrum Analyzer | R&S          | R&S/FSP40 | 101139     | 2019/11/29       |

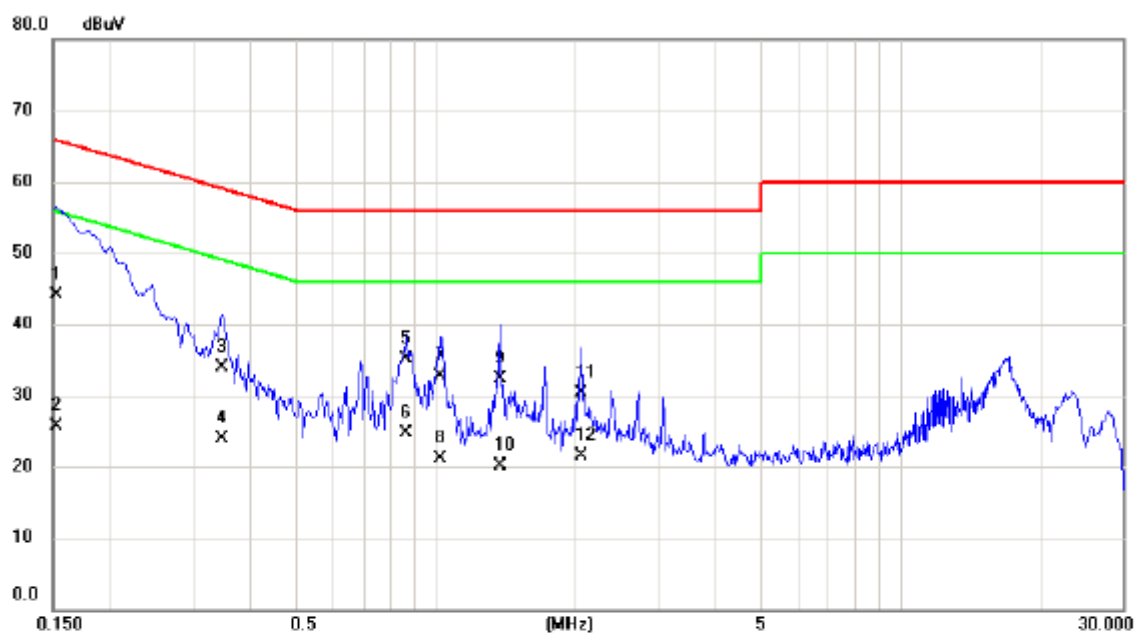
### Power Spectral Density

| Item | Kind of Equipment | Manufacturer | Type No.  | Serial No. | Calibrated until |
|------|-------------------|--------------|-----------|------------|------------------|
| 1    | Spectrum Analyzer | R&S          | R&S/FSP40 | 101139     | 2019/11/29       |

Remark: "N/A" denotes no model name, no serial no. or no calibration specified.  
All calibration period of equipment list is one year.

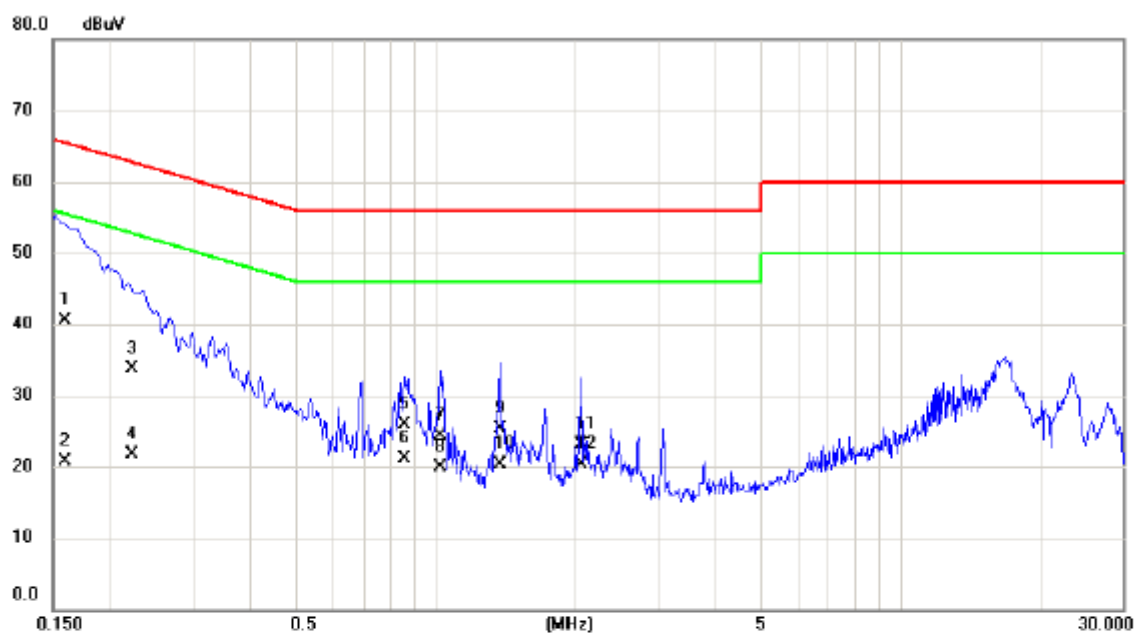
## APPENDIX A AC POWER LINE CONDUCTED EMISSIONS

|           |                  |       |      |
|-----------|------------------|-------|------|
| Test Mode | Normal Operation | Phase | Line |
|-----------|------------------|-------|------|



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Margin<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|--------------|----------|---------|
| 1   |     | 0.1522       | 34.50                    | 9.69                    | 44.19                    | 65.88         | -21.69       | QP       |         |
| 2   |     | 0.1522       | 16.10                    | 9.69                    | 25.79                    | 55.88         | -30.09       | AVG      |         |
| 3   |     | 0.3457       | 24.30                    | 9.68                    | 33.98                    | 59.07         | -25.09       | QP       |         |
| 4   |     | 0.3457       | 14.20                    | 9.68                    | 23.88                    | 49.07         | -25.19       | AVG      |         |
| 5   | *   | 0.8632       | 25.40                    | 9.70                    | 35.10                    | 56.00         | -20.90       | QP       |         |
| 6   |     | 0.8632       | 15.00                    | 9.70                    | 24.70                    | 46.00         | -21.30       | AVG      |         |
| 7   |     | 1.0207       | 22.90                    | 9.71                    | 32.61                    | 56.00         | -23.39       | QP       |         |
| 8   |     | 1.0207       | 11.40                    | 9.71                    | 21.11                    | 46.00         | -24.89       | AVG      |         |
| 9   |     | 1.3717       | 22.50                    | 9.73                    | 32.23                    | 56.00         | -23.77       | QP       |         |
| 10  |     | 1.3717       | 10.30                    | 9.73                    | 20.03                    | 46.00         | -25.97       | AVG      |         |
| 11  |     | 2.0580       | 20.50                    | 9.77                    | 30.27                    | 56.00         | -25.73       | QP       |         |
| 12  |     | 2.0580       | 11.70                    | 9.77                    | 21.47                    | 46.00         | -24.53       | AVG      |         |

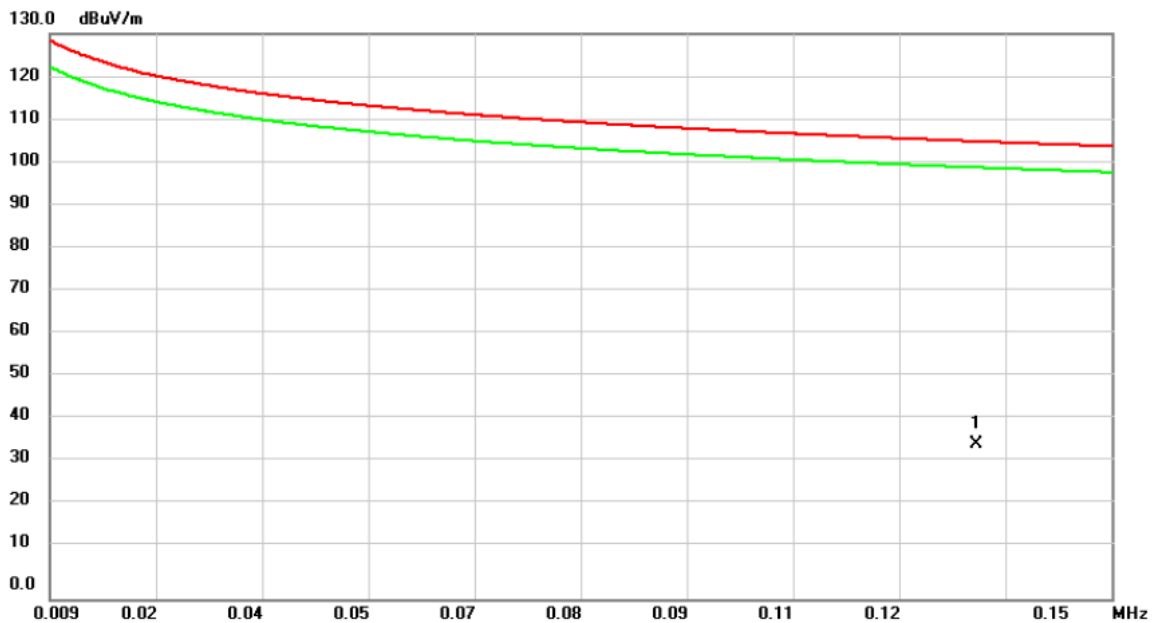
|           |                  |       |         |
|-----------|------------------|-------|---------|
| Test Mode | Normal Operation | Phase | Neutral |
|-----------|------------------|-------|---------|



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Margin<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|--------------|----------|---------|
| 1   |     | 0.1598       | 30.80                    | 9.69                    | 40.49                    | 65.47         | -24.98       | QP       |         |
| 2   |     | 0.1598       | 11.00                    | 9.69                    | 20.69                    | 55.47         | -34.78       | AVG      |         |
| 3   |     | 0.2220       | 24.10                    | 9.68                    | 33.78                    | 62.74         | -28.96       | QP       |         |
| 4   |     | 0.2220       | 12.00                    | 9.68                    | 21.68                    | 52.74         | -31.06       | AVG      |         |
| 5   |     | 0.8565       | 16.20                    | 9.70                    | 25.90                    | 56.00         | -30.10       | QP       |         |
| 6   | *   | 0.8565       | 11.50                    | 9.70                    | 21.20                    | 46.00         | -24.80       | AVG      |         |
| 7   |     | 1.0230       | 14.60                    | 9.71                    | 24.31                    | 56.00         | -31.69       | QP       |         |
| 8   |     | 1.0230       | 10.10                    | 9.71                    | 19.81                    | 46.00         | -26.19       | AVG      |         |
| 9   |     | 1.3695       | 15.50                    | 9.72                    | 25.22                    | 56.00         | -30.78       | QP       |         |
| 10  |     | 1.3695       | 10.50                    | 9.72                    | 20.22                    | 46.00         | -25.78       | AVG      |         |
| 11  |     | 2.0580       | 13.40                    | 9.76                    | 23.16                    | 56.00         | -32.84       | QP       |         |
| 12  |     | 2.0580       | 10.60                    | 9.76                    | 20.36                    | 46.00         | -25.64       | AVG      |         |

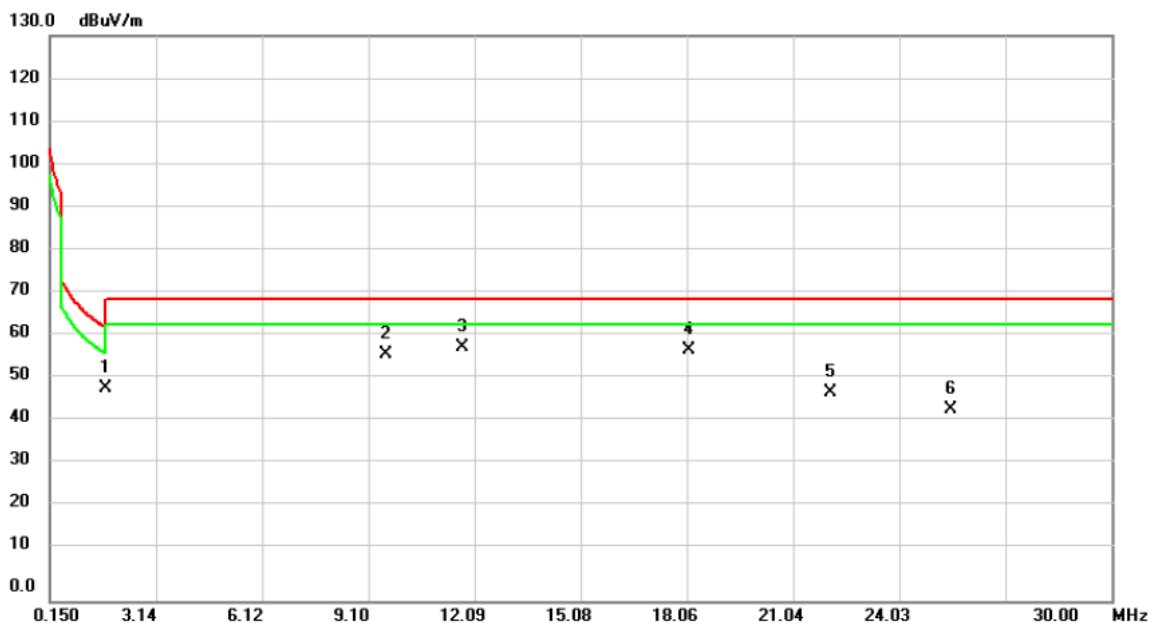
## APPENDIX B    RADIATED EMISSIONS - 9 KHZ TO 30 MHZ

|           |                          |               |     |
|-----------|--------------------------|---------------|-----|
| Test Mode | TX N (HT40) Mode_2437MHz | Azimuth Angle | 90° |
|-----------|--------------------------|---------------|-----|



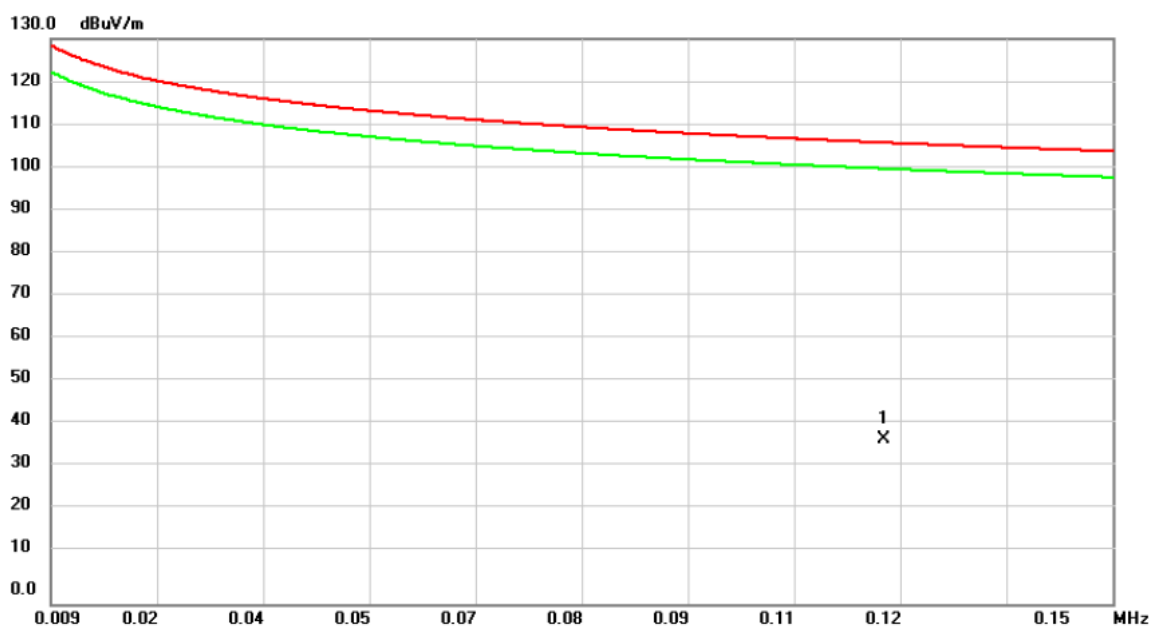
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   | *   | 0.1320       | 21.38                    | 14.21                   | 35.59                      | 105.19          | -69.60     | AVG      |         |

|           |                          |               |     |
|-----------|--------------------------|---------------|-----|
| Test Mode | TX N (HT40) Mode_2437MHz | Azimuth Angle | 90° |
|-----------|--------------------------|---------------|-----|



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 1.7022       | 50.96                    | -2.17                   | 48.79                      | 62.98           | -14.19     | QP       |         |
| 2   |     | 9.6125       | 61.49                    | -4.71                   | 56.78                      | 69.54           | -12.76     | QP       |         |
| 3   | *   | 11.7318      | 63.27                    | -4.82                   | 58.45                      | 69.54           | -11.09     | QP       |         |
| 4   |     | 18.1197      | 63.97                    | -6.25                   | 57.72                      | 69.54           | -11.82     | QP       |         |
| 5   |     | 22.0897      | 54.75                    | -6.69                   | 48.06                      | 69.54           | -21.48     | QP       |         |
| 6   |     | 25.4628      | 52.76                    | -8.80                   | 43.96                      | 69.54           | -25.58     | QP       |         |

|           |                          |               |    |
|-----------|--------------------------|---------------|----|
| Test Mode | TX N (HT40) Mode_2437MHz | Azimuth Angle | 0° |
|-----------|--------------------------|---------------|----|



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   | *   | 0.1197       | 23.03                    | 14.91                   | 37.94                      | 106.04          | -68.10     | AVG      |         |

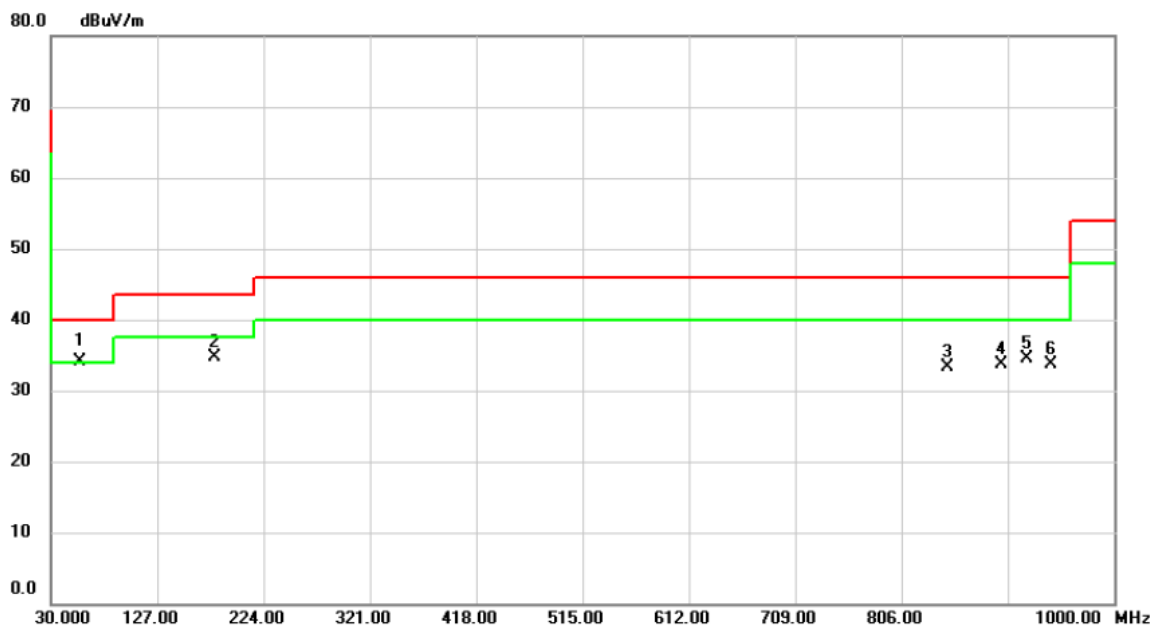
|           |                          |               |    |
|-----------|--------------------------|---------------|----|
| Test Mode | TX N (HT40) Mode_2437MHz | Azimuth Angle | 0° |
|-----------|--------------------------|---------------|----|



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 0.7171       | 52.55                    | 1.18                    | 53.73                      | 70.49           | -16.76     | QP       |         |
| 2   | *   | 1.4633       | 49.91                    | -1.55                   | 48.36                      | 64.30           | -15.94     | QP       |         |
| 3   |     | 2.2395       | 46.88                    | -3.11                   | 43.77                      | 69.54           | -25.77     | QP       |         |
| 4   |     | 2.9558       | 46.74                    | -3.63                   | 43.11                      | 69.54           | -26.43     | QP       |         |
| 5   |     | 4.4484       | 38.55                    | -3.85                   | 34.70                      | 69.54           | -34.84     | QP       |         |
| 6   |     | 18.1496      | 41.85                    | -6.26                   | 35.59                      | 69.54           | -33.95     | QP       |         |

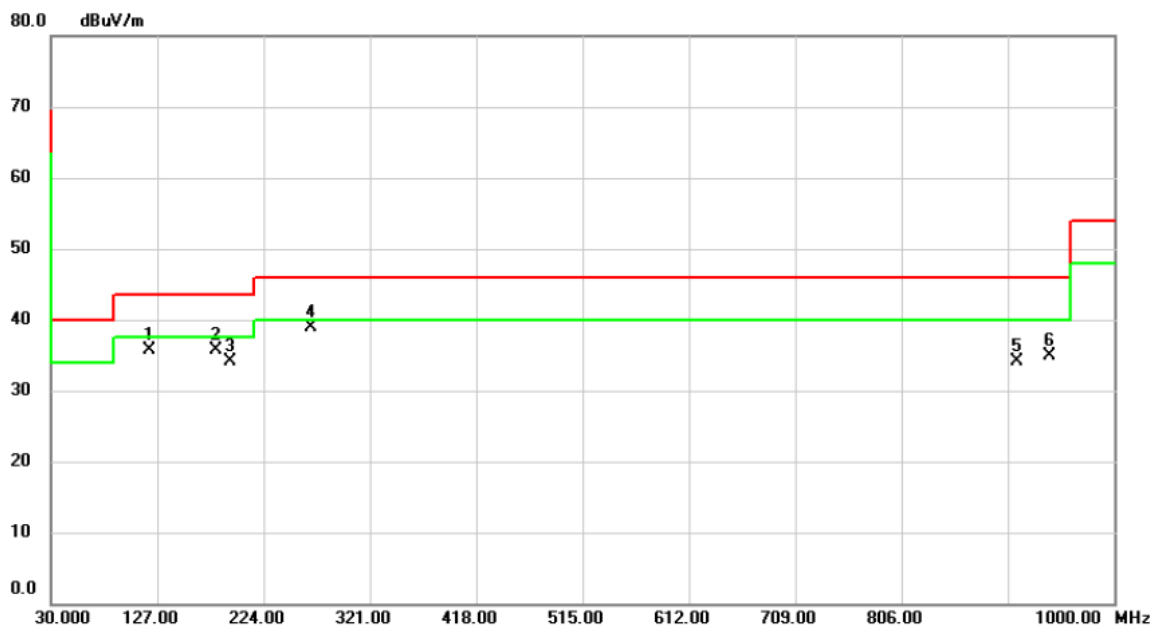
## APPENDIX C    RADIATED EMISSIONS - 30 MHZ TO 1000 MHZ

|           |                          |              |          |
|-----------|--------------------------|--------------|----------|
| Test Mode | TX N (HT40) Mode_2437MHz | Polarization | Vertical |
|-----------|--------------------------|--------------|----------|



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   | *   | 56.1900      | 42.55                    | -8.50                   | 34.05                      | 40.00           | -5.95      | QP       |         |
| 2   |     | 179.3800     | 44.11                    | -9.34                   | 34.77                      | 43.50           | -8.73      | peak     |         |
| 3   |     | 847.7100     | 29.57                    | 3.67                    | 33.24                      | 46.00           | -12.76     | peak     |         |
| 4   |     | 897.1800     | 29.40                    | 4.40                    | 33.80                      | 46.00           | -12.20     | peak     |         |
| 5   |     | 920.4600     | 29.76                    | 4.72                    | 34.48                      | 46.00           | -11.52     | peak     |         |
| 6   |     | 942.7700     | 28.59                    | 5.02                    | 33.61                      | 46.00           | -12.39     | peak     |         |

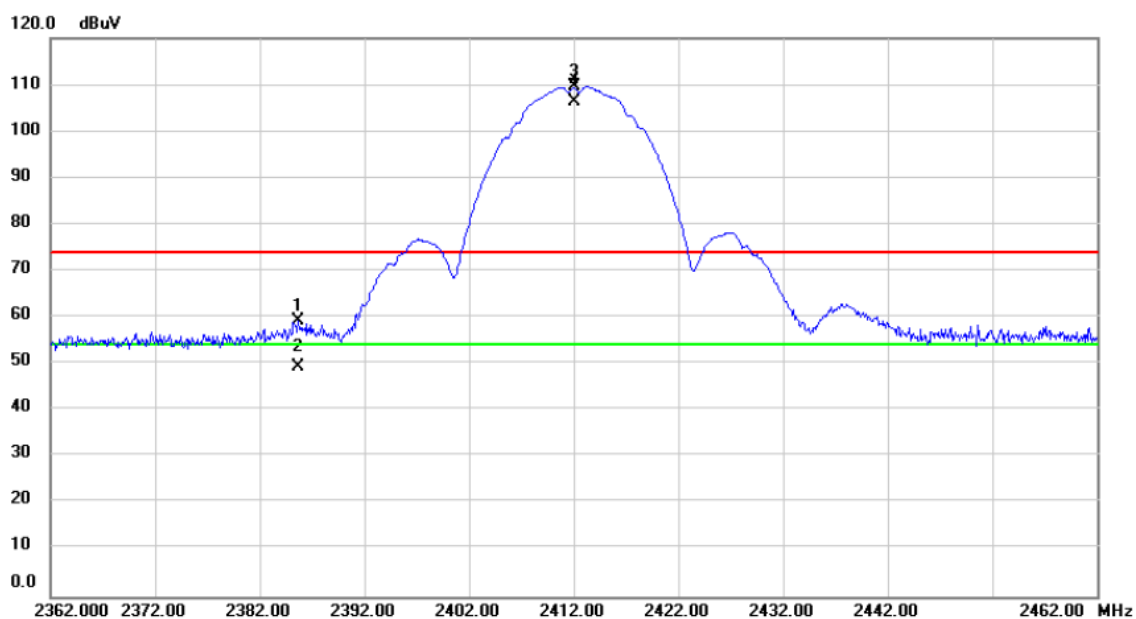
|           |                          |              |            |
|-----------|--------------------------|--------------|------------|
| Test Mode | TX N (HT40) Mode_2437MHz | Polarization | Horizontal |
|-----------|--------------------------|--------------|------------|



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 120.2100     | 46.90                    | -11.25                  | 35.65                      | 43.50           | -7.85      | peak     |         |
| 2   |     | 180.3500     | 45.19                    | -9.42                   | 35.77                      | 43.50           | -7.73      | peak     |         |
| 3   |     | 192.9600     | 44.23                    | -10.15                  | 34.08                      | 43.50           | -9.42      | peak     |         |
| 4   | *   | 267.6500     | 47.05                    | -8.20                   | 38.85                      | 46.00           | -7.15      | peak     |         |
| 5   |     | 910.7600     | 29.49                    | 4.60                    | 34.09                      | 46.00           | -11.91     | peak     |         |
| 6   |     | 940.8300     | 30.01                    | 4.99                    | 35.00                      | 46.00           | -11.00     | peak     |         |

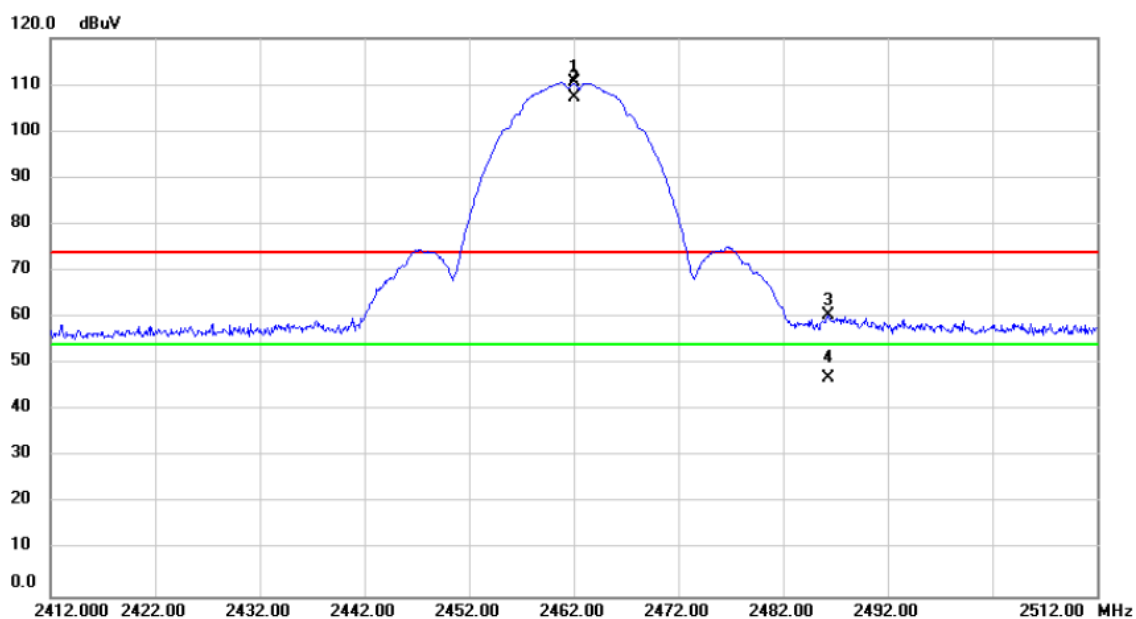
## APPENDIX D    RADIATED EMISSIONS - ABOVE 1000 MHZ

|           |                   |              |            |
|-----------|-------------------|--------------|------------|
| Test Mode | TX B Mode_2412MHz | Polarization | Horizontal |
|-----------|-------------------|--------------|------------|



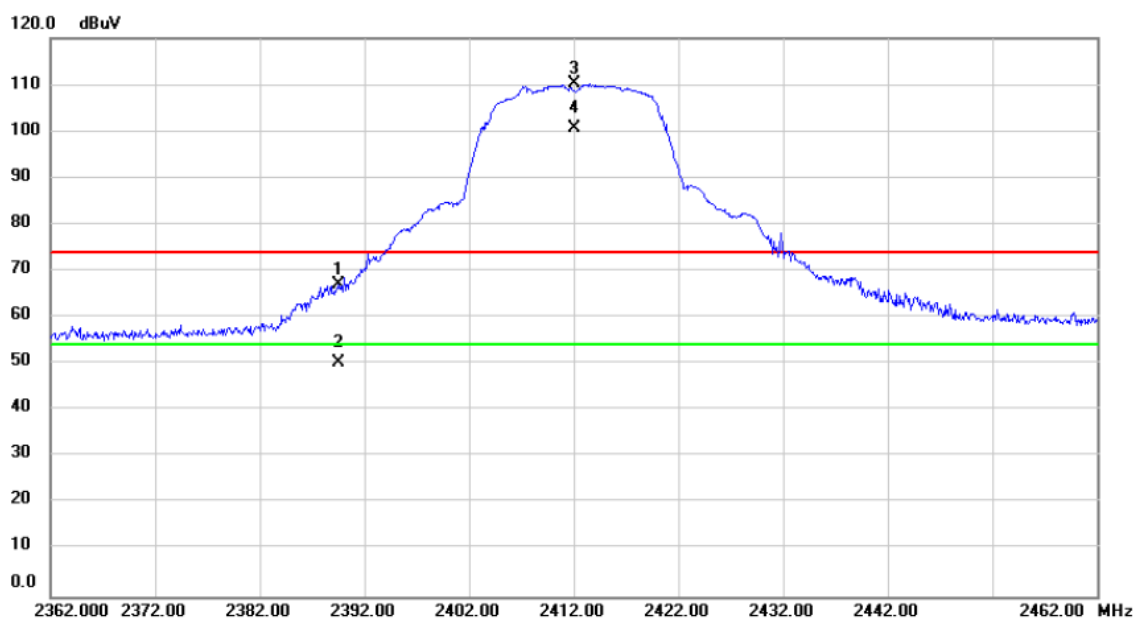
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment  |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|----------|
| 1   |     | 2385.700     | 28.23                    | 31.02                   | 59.25                    | 74.00         | -14.75     | peak     |          |
| 2   |     | 2385.700     | 18.44                    | 31.02                   | 49.46                    | 54.00         | -4.54      | AVG      |          |
| 3   | X   | 2412.000     | 78.45                    | 31.14                   | 109.59                   | 74.00         | 35.59      | peak     | No Limit |
| 4   | *   | 2412.000     | 75.15                    | 31.14                   | 106.29                   | 54.00         | 52.29      | AVG      | No Limit |

|           |                   |              |            |
|-----------|-------------------|--------------|------------|
| Test Mode | TX B Mode_2462MHz | Polarization | Horizontal |
|-----------|-------------------|--------------|------------|



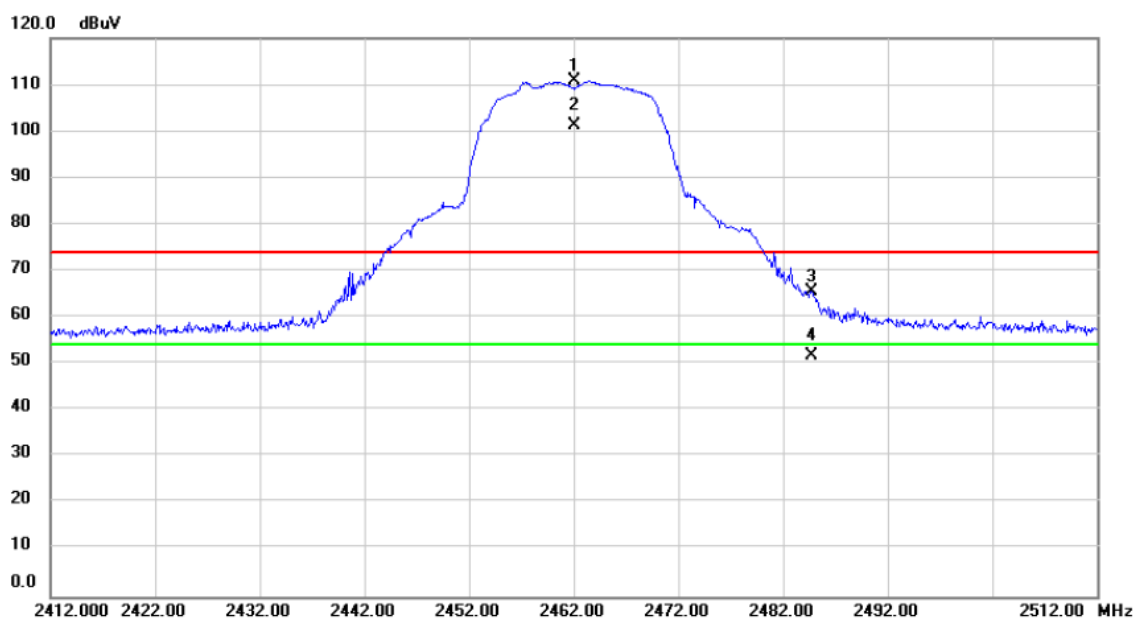
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment  |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|----------|
| 1   | X   | 2462.000     | 79.07                    | 31.36                   | 110.43                   | 74.00         | 36.43      | peak     | No Limit |
| 2   | *   | 2462.000     | 75.85                    | 31.36                   | 107.21                   | 54.00         | 53.21      | AVG      | No Limit |
| 3   |     | 2486.300     | 28.90                    | 31.47                   | 60.37                    | 74.00         | -13.63     | peak     |          |
| 4   |     | 2486.300     | 15.58                    | 31.47                   | 47.05                    | 54.00         | -6.95      | AVG      |          |

|           |                   |              |            |
|-----------|-------------------|--------------|------------|
| Test Mode | TX G Mode_2412MHz | Polarization | Horizontal |
|-----------|-------------------|--------------|------------|



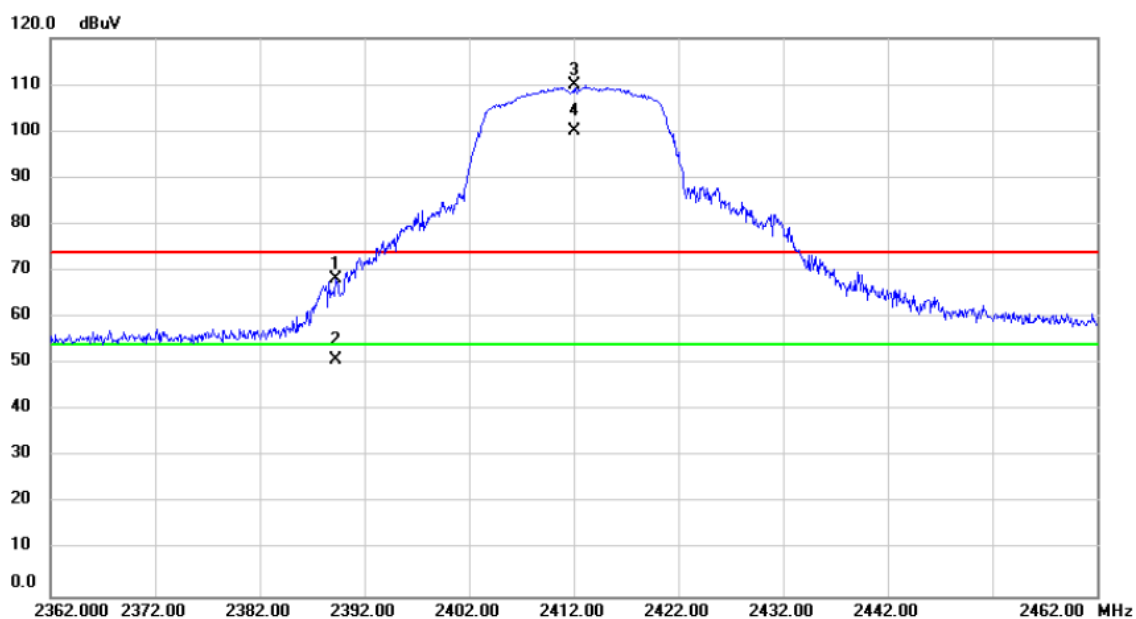
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment  |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|----------|
| 1   |     | 2389.500     | 35.89                    | 31.03                   | 66.92                    | 74.00         | -7.08      | peak     |          |
| 2   |     | 2389.500     | 19.12                    | 31.03                   | 50.15                    | 54.00         | -3.85      | AVG      |          |
| 3   | X   | 2412.000     | 79.08                    | 31.14                   | 110.22                   | 74.00         | 36.22      | peak     | No Limit |
| 4   | *   | 2412.000     | 69.57                    | 31.14                   | 100.71                   | 54.00         | 46.71      | AVG      | No Limit |

|           |                   |              |            |
|-----------|-------------------|--------------|------------|
| Test Mode | TX G Mode_2462MHz | Polarization | Horizontal |
|-----------|-------------------|--------------|------------|



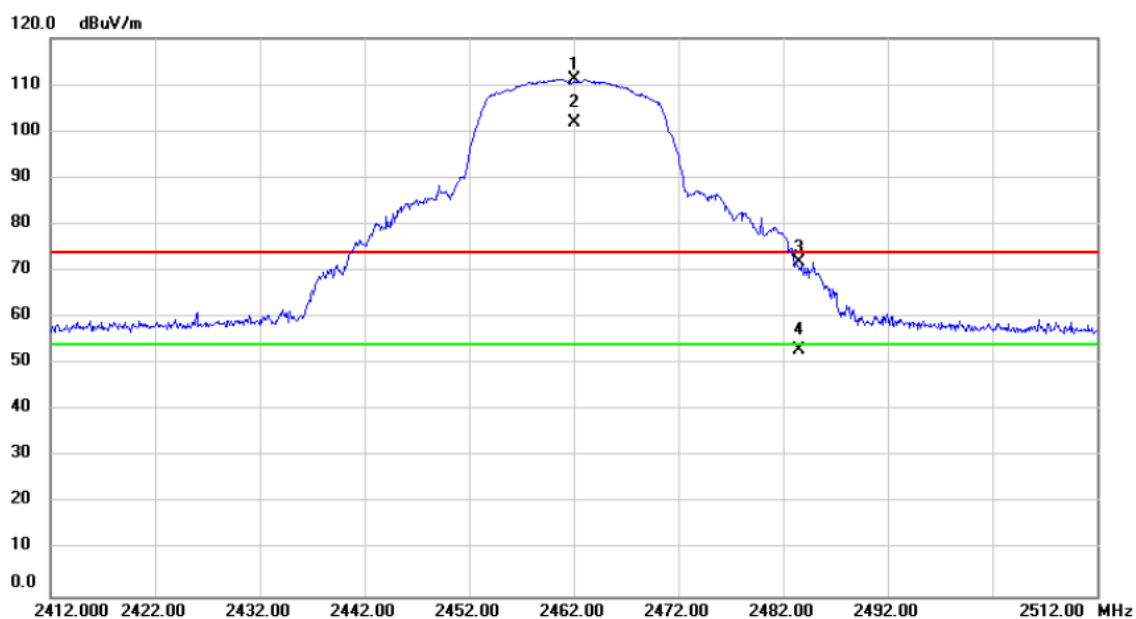
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment  |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|----------|
| 1   | X   | 2462.000     | 79.50                    | 31.36                   | 110.86                   | 74.00         | 36.86      | peak     | No Limit |
| 2   | *   | 2462.000     | 70.03                    | 31.36                   | 101.39                   | 54.00         | 47.39      | AVG      | No Limit |
| 3   |     | 2484.700     | 34.21                    | 31.46                   | 65.67                    | 74.00         | -8.33      | peak     |          |
| 4   |     | 2484.700     | 20.39                    | 31.46                   | 51.85                    | 54.00         | -2.15      | AVG      |          |

|           |                          |              |            |
|-----------|--------------------------|--------------|------------|
| Test Mode | TX N (HT20) Mode_2412MHz | Polarization | Horizontal |
|-----------|--------------------------|--------------|------------|



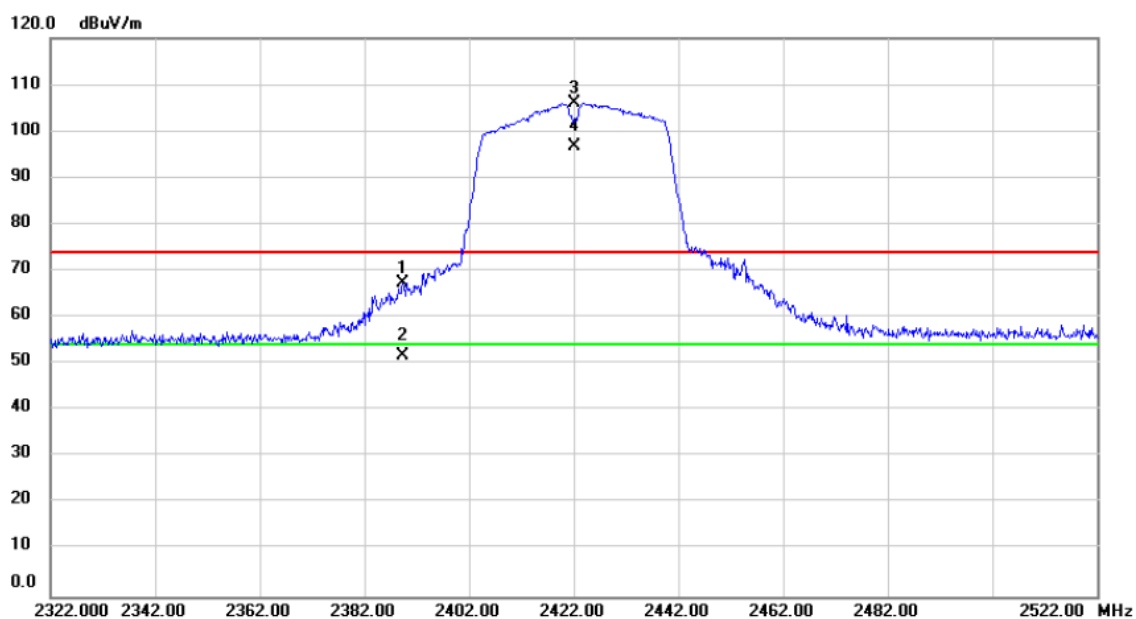
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Over<br>dB | Detector | Comment  |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|------------|----------|----------|
| 1   |     | 2389.300     | 37.11                    | 31.03                   | 68.14                    | 74.00         | -5.86      | peak     |          |
| 2   |     | 2389.300     | 19.69                    | 31.03                   | 50.72                    | 54.00         | -3.28      | AVG      |          |
| 3   | X   | 2412.000     | 78.68                    | 31.14                   | 109.82                   | 74.00         | 35.82      | peak     | No Limit |
| 4   | *   | 2412.000     | 68.83                    | 31.14                   | 99.97                    | 54.00         | 45.97      | AVG      | No Limit |

|           |                          |              |            |
|-----------|--------------------------|--------------|------------|
| Test Mode | TX N (HT20) Mode_2462MHz | Polarization | Horizontal |
|-----------|--------------------------|--------------|------------|



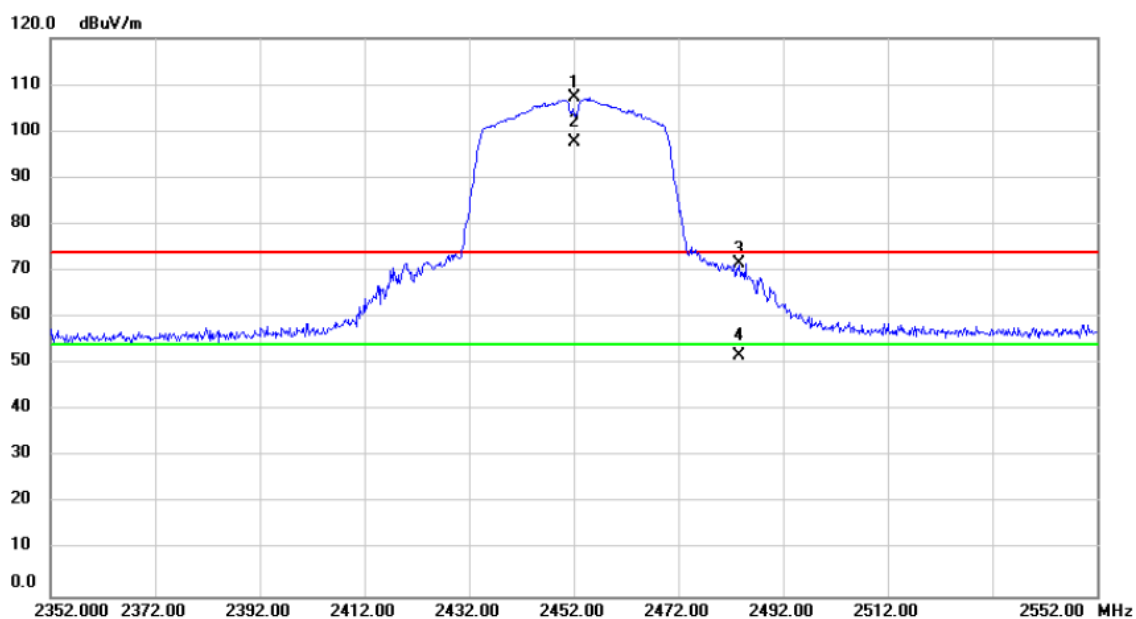
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment  |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|----------|
| 1   | X   | 2462.000     | 79.93                    | 31.36                   | 111.29                     | 74.00           | 37.29      | peak     | No Limit |
| 2   | *   | 2462.000     | 70.52                    | 31.36                   | 101.88                     | 54.00           | 47.88      | AVG      | No Limit |
| 3   |     | 2483.500     | 40.34                    | 31.46                   | 71.80                      | 74.00           | -2.20      | peak     |          |
| 4   |     | 2483.500     | 21.47                    | 31.46                   | 52.93                      | 54.00           | -1.07      | AVG      |          |

|           |                          |              |            |
|-----------|--------------------------|--------------|------------|
| Test Mode | TX N (HT40) Mode_2422MHz | Polarization | Horizontal |
|-----------|--------------------------|--------------|------------|



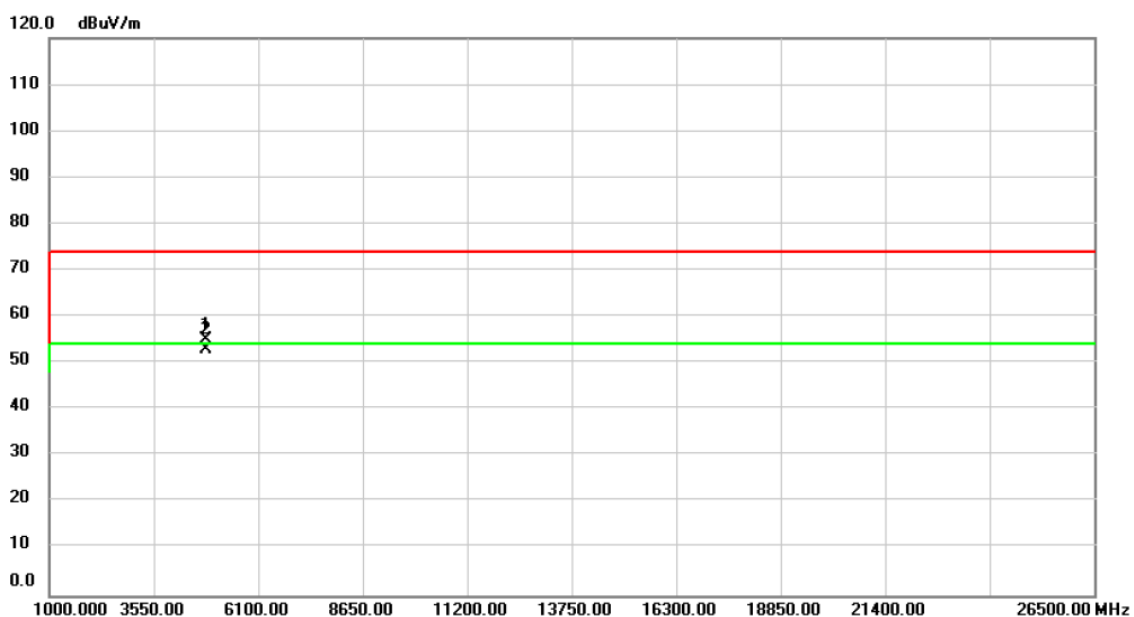
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment  |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|----------|
| 1   |     | 2389.400     | 36.42                    | 31.03                   | 67.45                      | 74.00           | -6.55      | peak     |          |
| 2   |     | 2389.400     | 20.87                    | 31.03                   | 51.90                      | 54.00           | -2.10      | AVG      |          |
| 3   | X   | 2422.000     | 74.92                    | 31.18                   | 106.10                     | 74.00           | 32.10      | peak     | No Limit |
| 4   | *   | 2422.000     | 65.68                    | 31.18                   | 96.86                      | 54.00           | 42.86      | AVG      | No Limit |

|           |                          |              |            |
|-----------|--------------------------|--------------|------------|
| Test Mode | TX N (HT40) Mode_2452MHz | Polarization | Horizontal |
|-----------|--------------------------|--------------|------------|



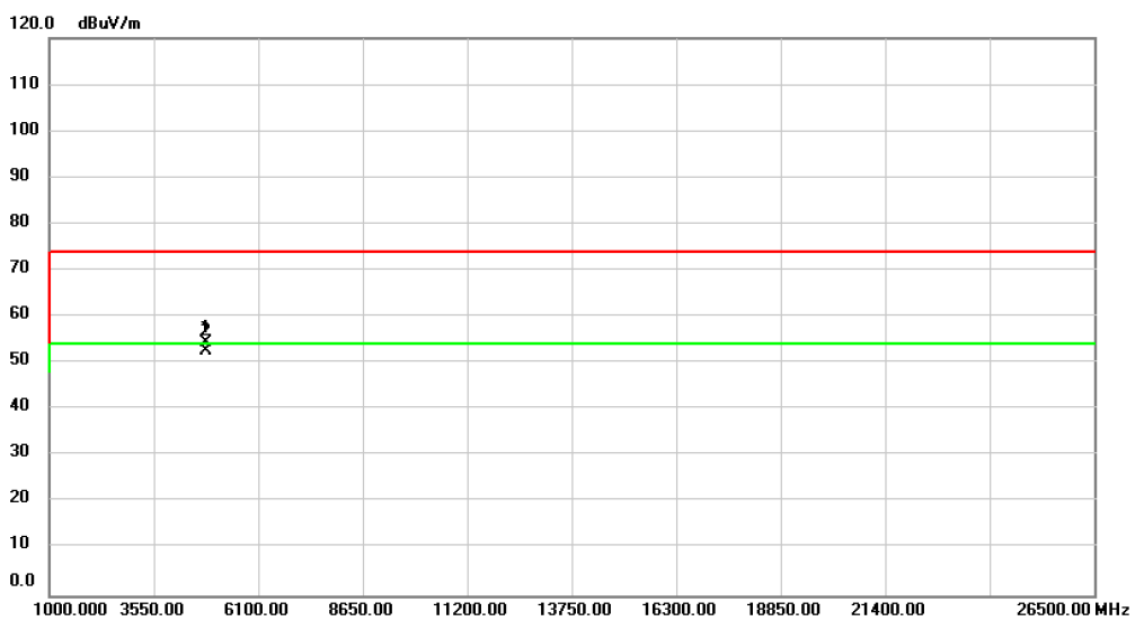
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment  |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|----------|
| 1   | X   | 2452.000     | 75.94                    | 31.32                   | 107.26                     | 74.00           | 33.26      | peak     | No Limit |
| 2   | *   | 2452.000     | 66.41                    | 31.32                   | 97.73                      | 54.00           | 43.73      | AVG      | No Limit |
| 3   |     | 2483.500     | 40.03                    | 31.46                   | 71.49                      | 74.00           | -2.51      | peak     |          |
| 4   |     | 2483.500     | 20.32                    | 31.46                   | 51.78                      | 54.00           | -2.22      | AVG      |          |

|           |                     |              |          |
|-----------|---------------------|--------------|----------|
| Test Mode | TX B MODE _2412 MHz | Polarization | Vertical |
|-----------|---------------------|--------------|----------|



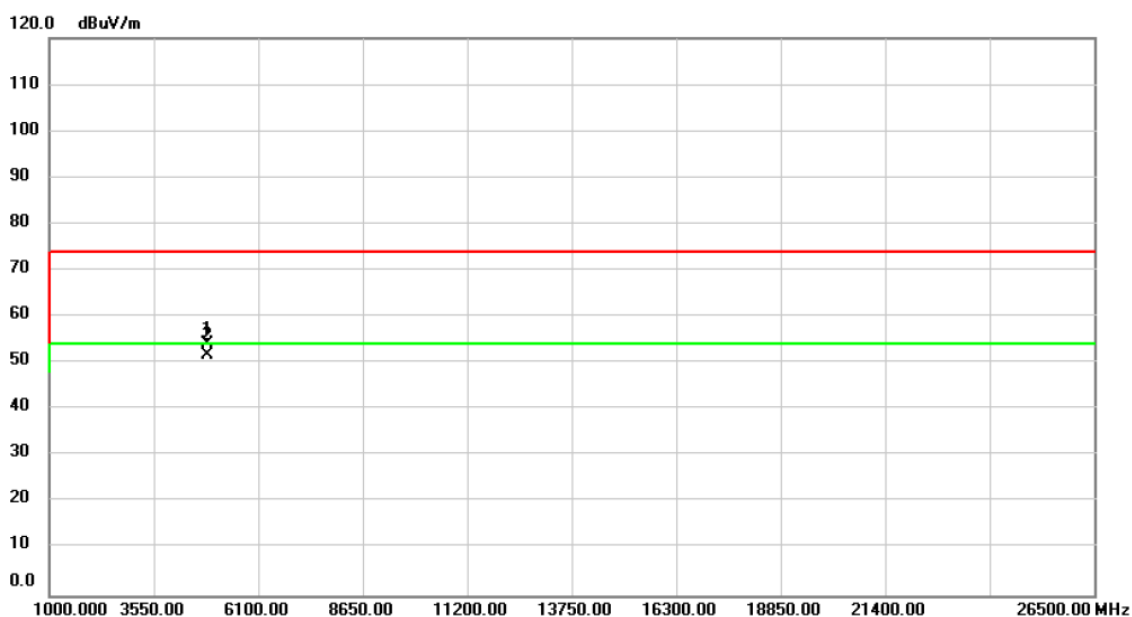
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4824.000     | 66.50                    | -11.48                  | 55.02                      | 74.00           | -18.98     | peak     |         |
| 2   | *   | 4824.000     | 64.48                    | -11.48                  | 53.00                      | 54.00           | -1.00      | AVG      |         |

|           |                     |              |            |
|-----------|---------------------|--------------|------------|
| Test Mode | TX B MODE _2412 MHz | Polarization | Horizontal |
|-----------|---------------------|--------------|------------|



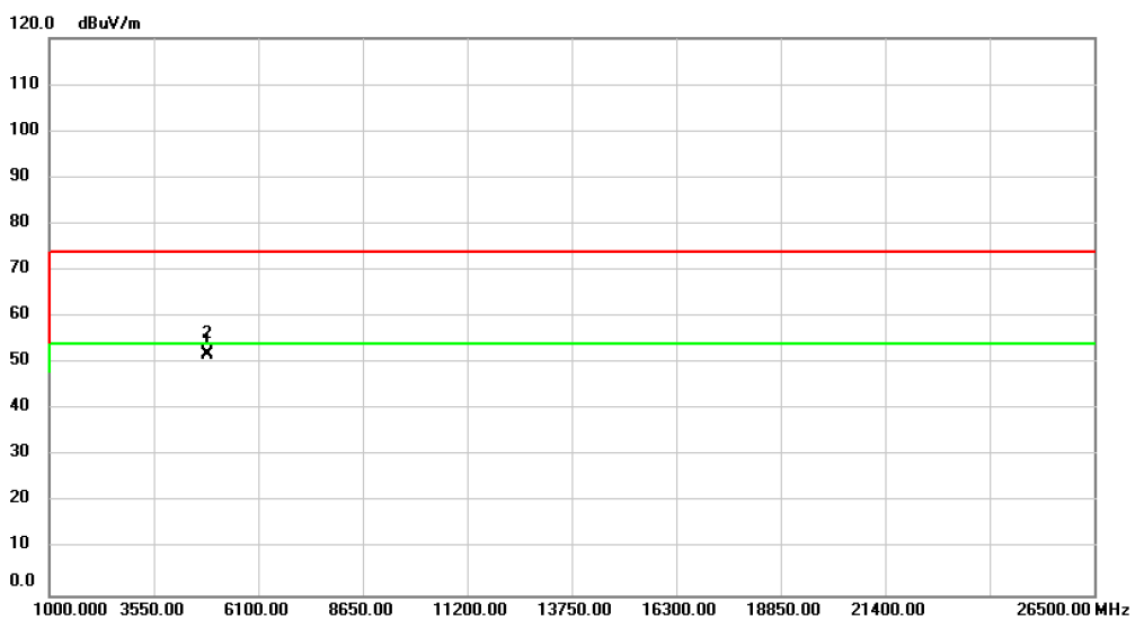
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4824.000     | 65.90                    | -11.48                  | 54.42                      | 74.00           | -19.58     | peak     |         |
| 2   | *   | 4824.000     | 64.07                    | -11.48                  | 52.59                      | 54.00           | -1.41      | AVG      |         |

|           |                     |              |          |
|-----------|---------------------|--------------|----------|
| Test Mode | TX B MODE _2437 MHz | Polarization | Vertical |
|-----------|---------------------|--------------|----------|



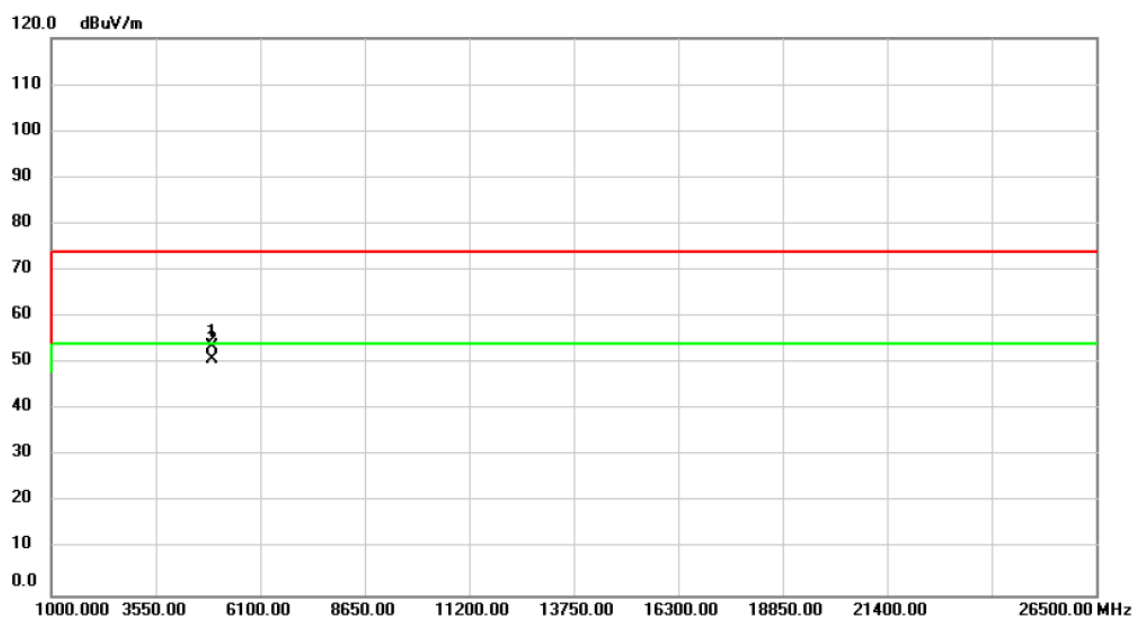
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4874.000     | 65.70                    | -11.42                  | 54.28                      | 74.00           | -19.72     | peak     |         |
| 2   | *   | 4874.000     | 63.20                    | -11.42                  | 51.78                      | 54.00           | -2.22      | AVG      |         |

|           |                     |              |            |
|-----------|---------------------|--------------|------------|
| Test Mode | TX B MODE _2437 MHz | Polarization | Horizontal |
|-----------|---------------------|--------------|------------|



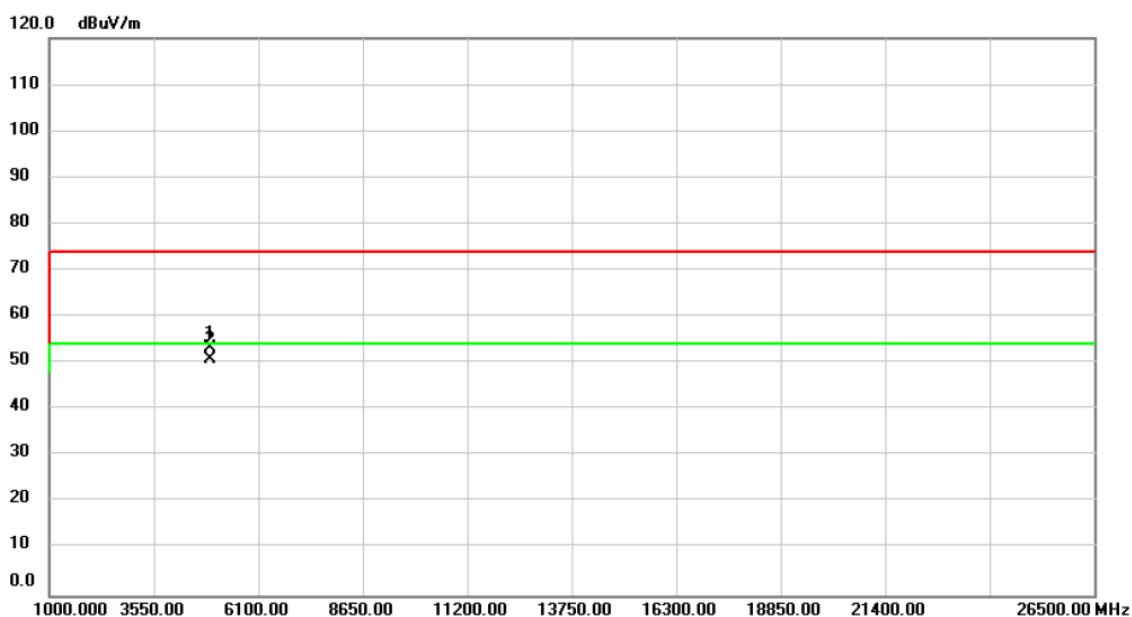
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4874.000     | 63.28                    | -11.42                  | 51.86                      | 74.00           | -22.14     | peak     |         |
| 2   | *   | 4874.000     | 63.53                    | -11.42                  | 52.11                      | 54.00           | -1.89      | AVG      |         |

|           |                     |              |          |
|-----------|---------------------|--------------|----------|
| Test Mode | TX B MODE _2462 MHz | Polarization | Vertical |
|-----------|---------------------|--------------|----------|



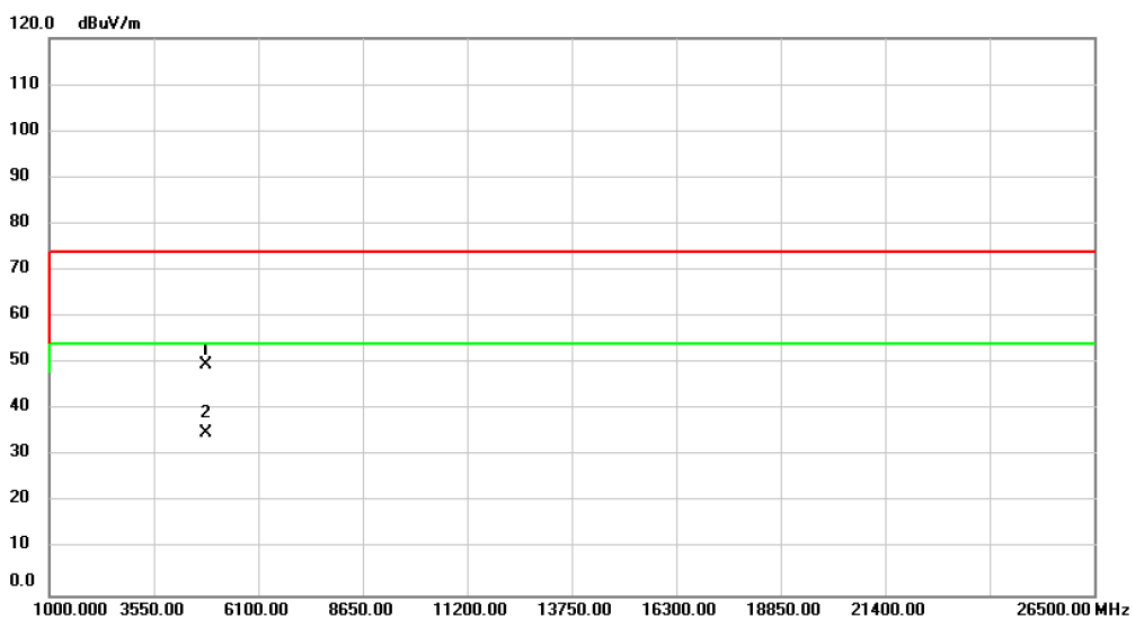
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4924.000     | 64.83                    | -11.37                  | 53.46                      | 74.00           | -20.54     | peak     |         |
| 2   | *   | 4924.000     | 62.17                    | -11.37                  | 50.80                      | 54.00           | -3.20      | AVG      |         |

|           |                     |              |            |
|-----------|---------------------|--------------|------------|
| Test Mode | TX B MODE _2462 MHz | Polarization | Horizontal |
|-----------|---------------------|--------------|------------|



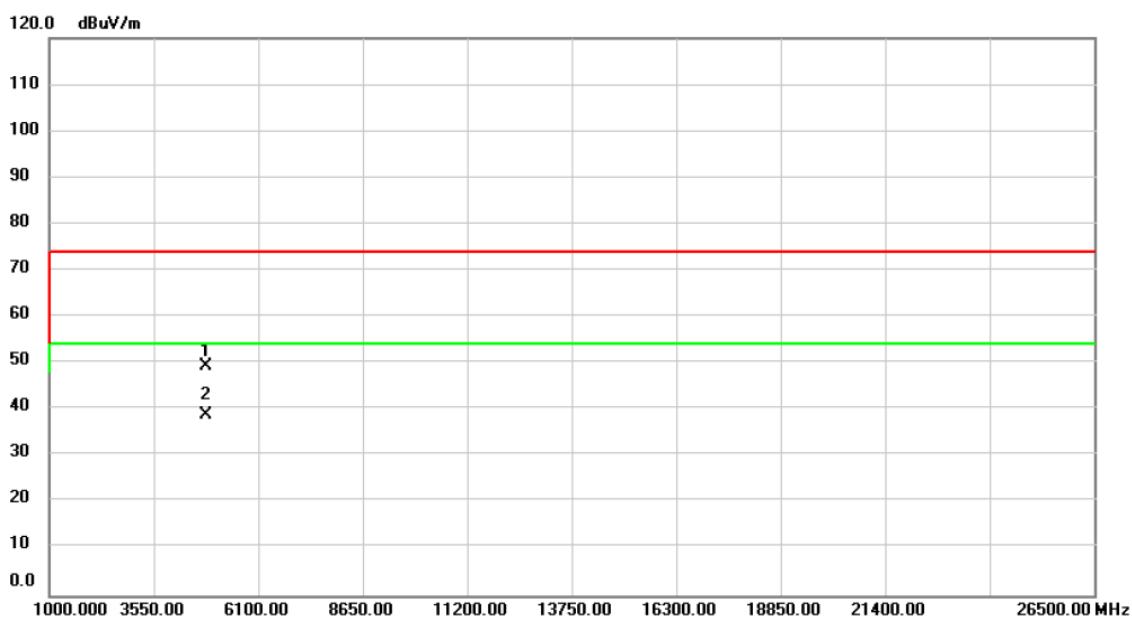
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   |     | 4924.000 | 64.51         | -11.37         | 53.14       | 74.00  | -20.86 | peak     |         |
| 2   | *   | 4924.000 | 62.30         | -11.37         | 50.93       | 54.00  | -3.07  | AVG      |         |

|           |                     |              |          |
|-----------|---------------------|--------------|----------|
| Test Mode | TX G MODE _2412 MHz | Polarization | Vertical |
|-----------|---------------------|--------------|----------|



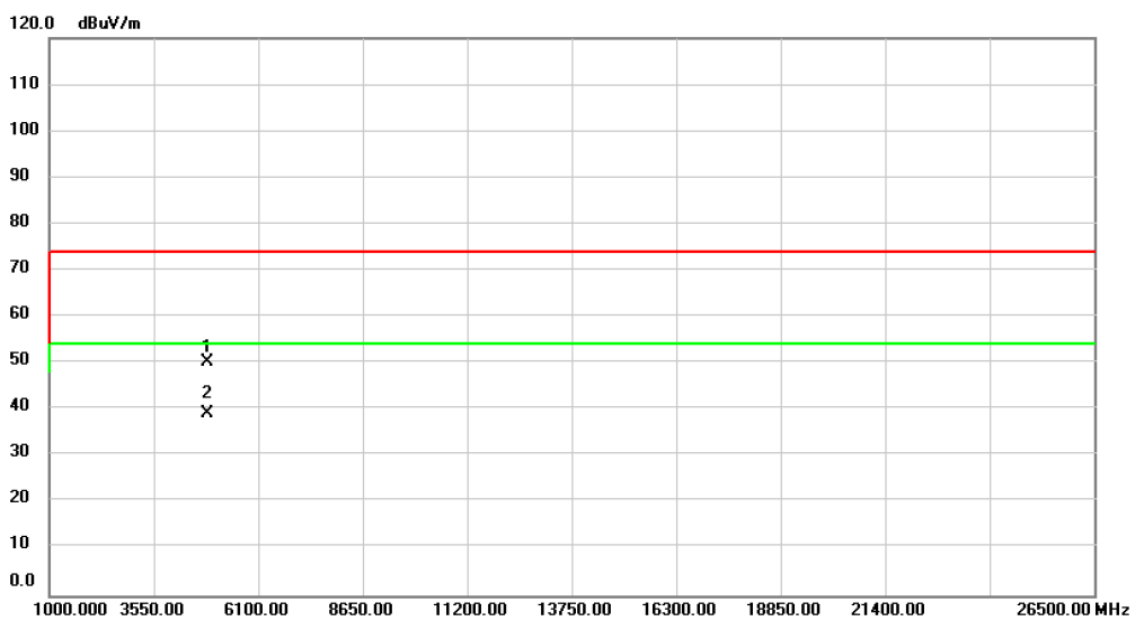
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4824.000     | 61.08                    | -11.48                  | 49.60                      | 74.00           | -24.40     | peak     |         |
| 2   | *   | 4824.000     | 46.41                    | -11.48                  | 34.93                      | 54.00           | -19.07     | AVG      |         |

|           |                     |              |            |
|-----------|---------------------|--------------|------------|
| Test Mode | TX G MODE _2412 MHz | Polarization | Horizontal |
|-----------|---------------------|--------------|------------|



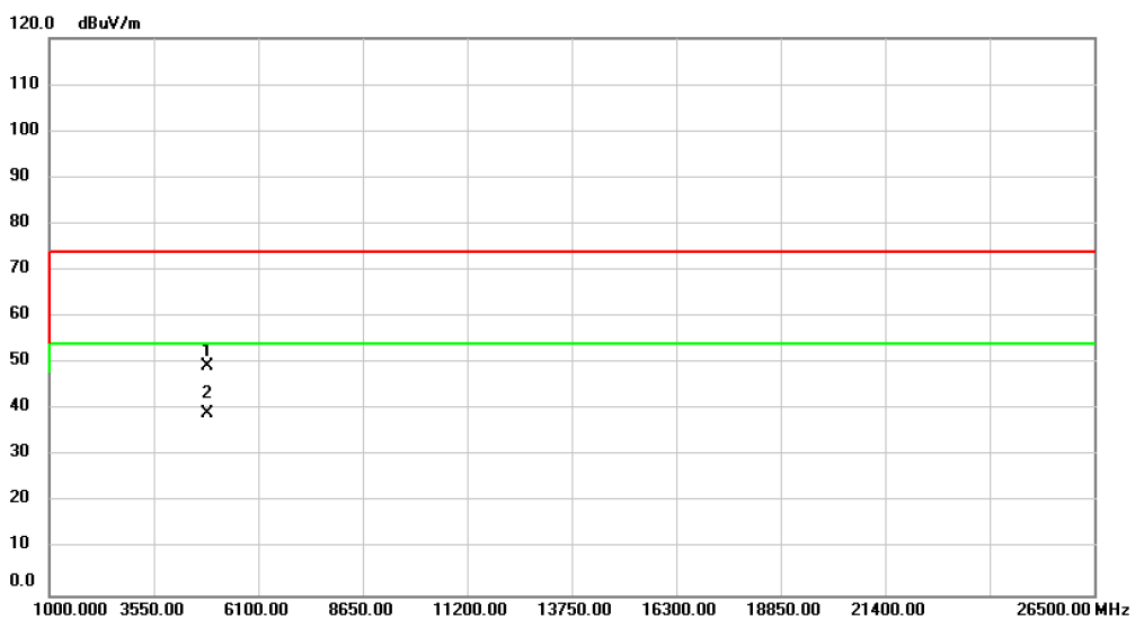
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4823.810     | 60.74                    | -11.48                  | 49.26                      | 74.00           | -24.74     | peak     |         |
| 2   | *   | 4826.260     | 50.23                    | -11.48                  | 38.75                      | 54.00           | -15.25     | AVG      |         |

|           |                     |              |          |
|-----------|---------------------|--------------|----------|
| Test Mode | TX G MODE _2437 MHz | Polarization | Vertical |
|-----------|---------------------|--------------|----------|



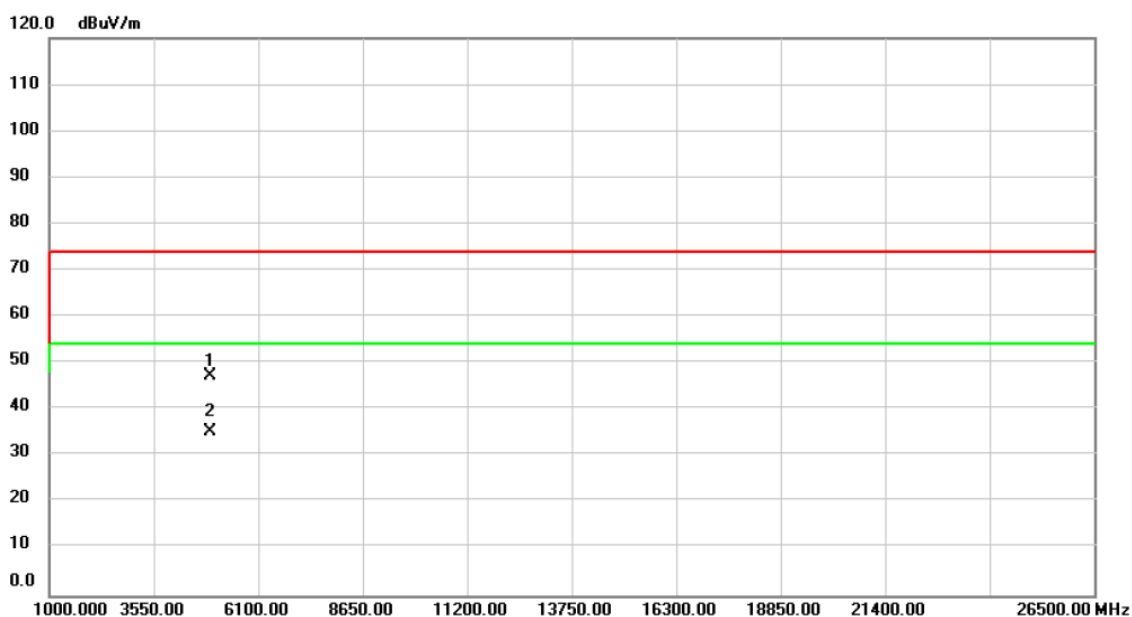
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4874.000     | 61.55                    | -11.42                  | 50.13                      | 74.00           | -23.87     | peak     |         |
| 2   | *   | 4874.000     | 50.48                    | -11.42                  | 39.06                      | 54.00           | -14.94     | AVG      |         |

|           |                     |              |            |
|-----------|---------------------|--------------|------------|
| Test Mode | TX G MODE _2437 MHz | Polarization | Horizontal |
|-----------|---------------------|--------------|------------|



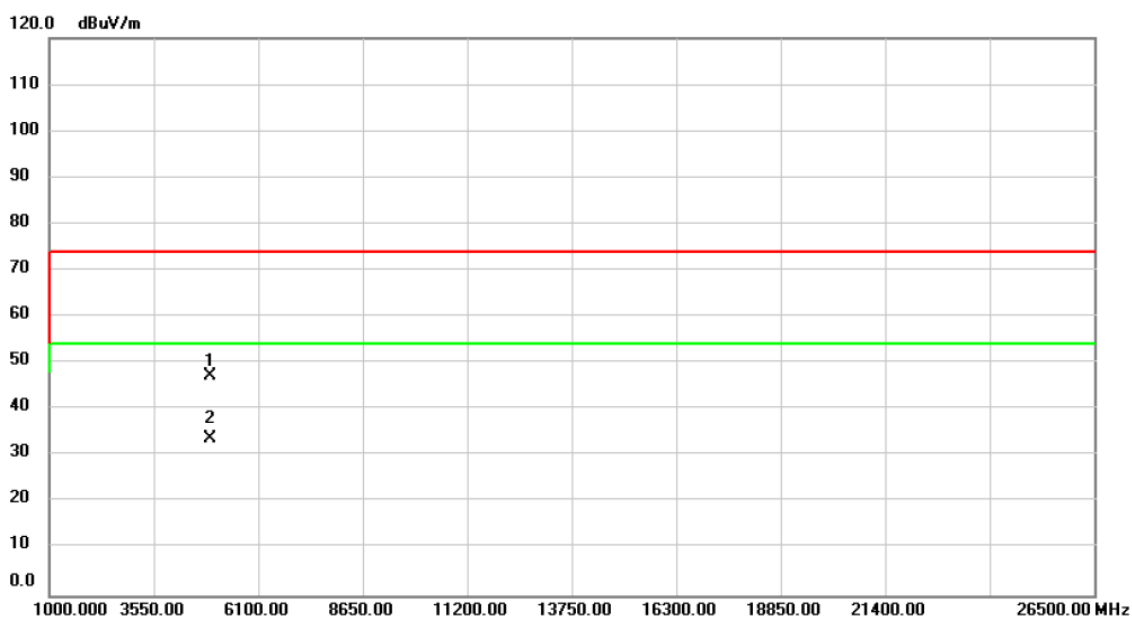
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4874.000     | 60.79                    | -11.42                  | 49.37                      | 74.00           | -24.63     | peak     |         |
| 2   | *   | 4874.000     | 50.57                    | -11.42                  | 39.15                      | 54.00           | -14.85     | AVG      |         |

|           |                     |              |          |
|-----------|---------------------|--------------|----------|
| Test Mode | TX G MODE _2462 MHz | Polarization | Vertical |
|-----------|---------------------|--------------|----------|



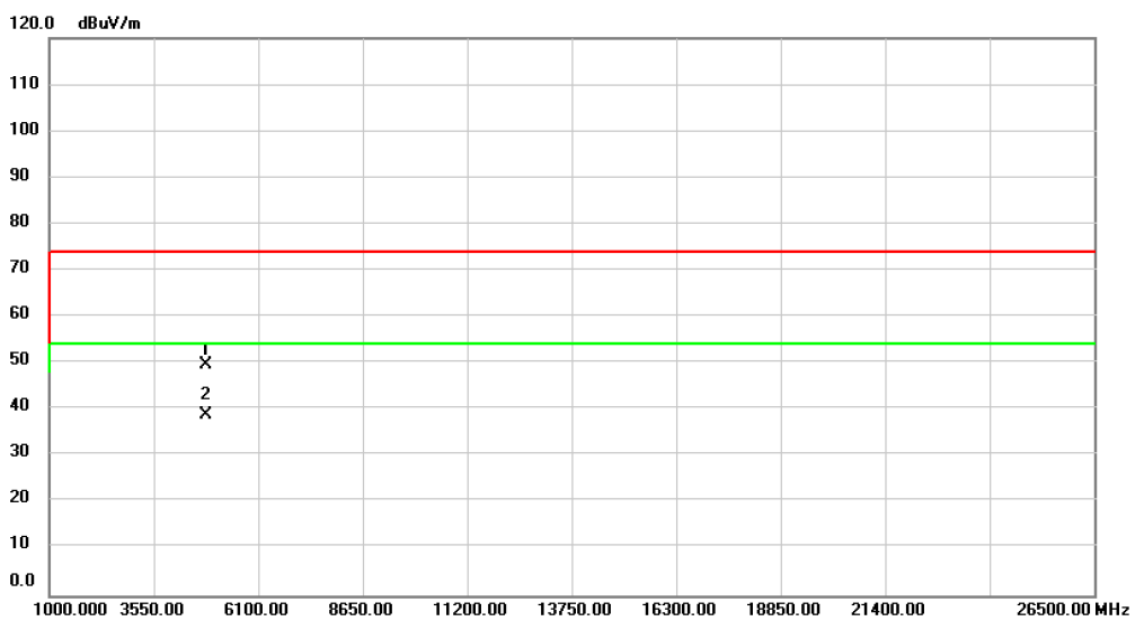
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4924.000     | 58.64                    | -11.37                  | 47.27                      | 74.00           | -26.73     | peak     |         |
| 2   | *   | 4924.000     | 46.63                    | -11.37                  | 35.26                      | 54.00           | -18.74     | AVG      |         |

|           |                     |              |            |
|-----------|---------------------|--------------|------------|
| Test Mode | TX G MODE _2462 MHz | Polarization | Horizontal |
|-----------|---------------------|--------------|------------|



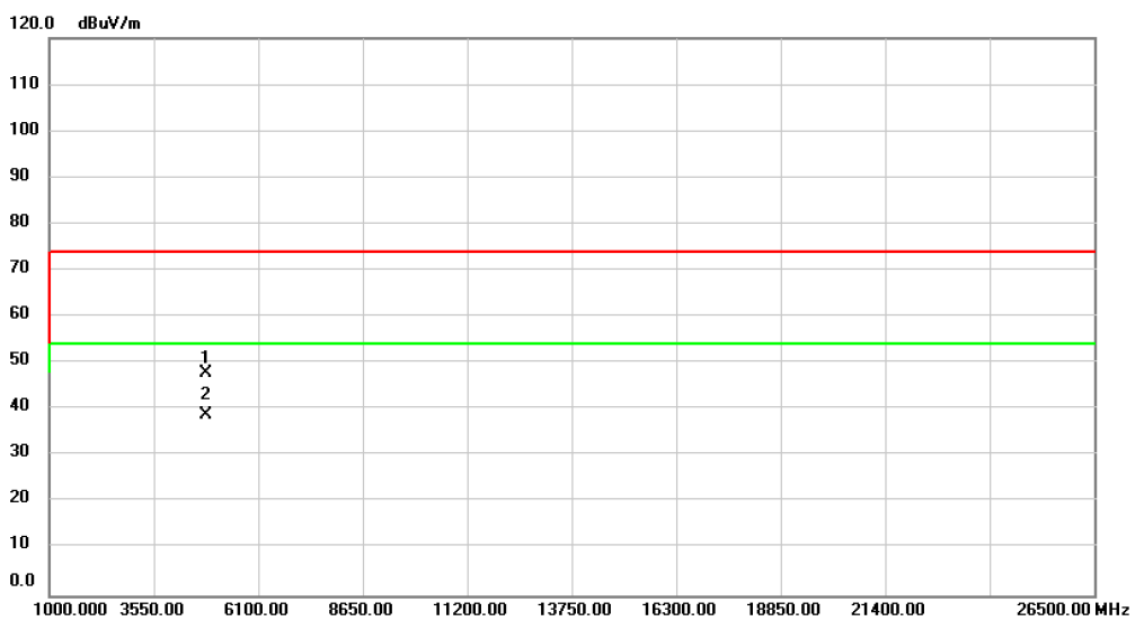
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   |     | 4924.000 | 58.49         | -11.37         | 47.12       | 74.00  | -26.88 | peak     |         |
| 2   | *   | 4924.000 | 45.01         | -11.37         | 33.64       | 54.00  | -20.36 | AVG      |         |

|           |                          |              |          |
|-----------|--------------------------|--------------|----------|
| Test Mode | TX N (HT20) MODE 2412MHz | Polarization | Vertical |
|-----------|--------------------------|--------------|----------|



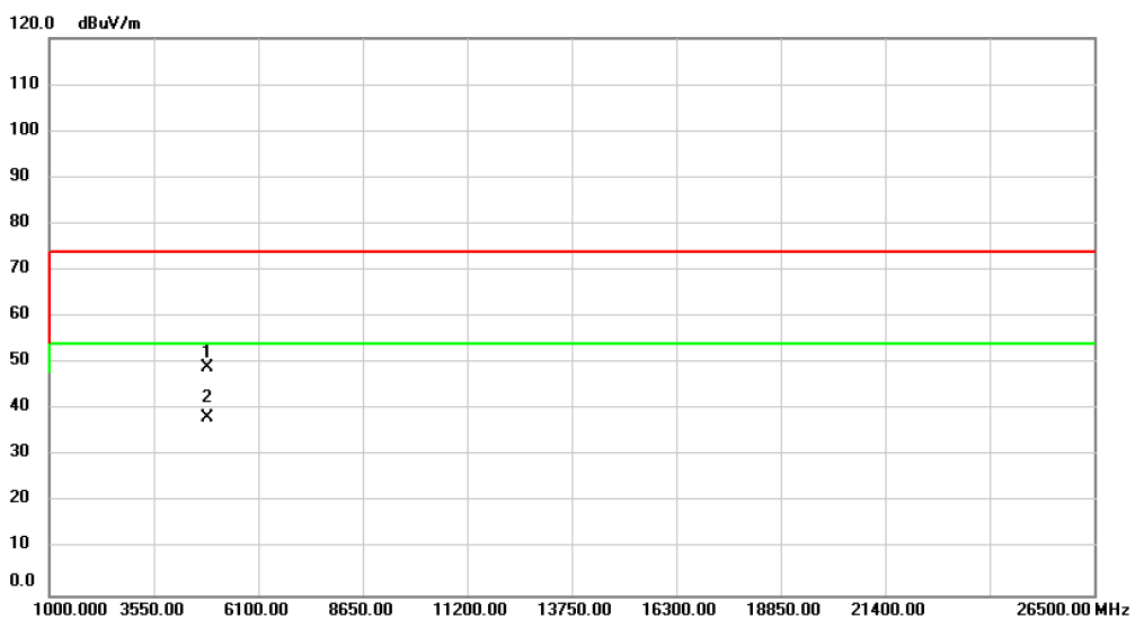
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   |     | 4824.000 | 61.17         | -11.48         | 49.69       | 74.00  | -24.31 | peak     |         |
| 2   | *   | 4824.000 | 50.44         | -11.48         | 38.96       | 54.00  | -15.04 | AVG      |         |

|           |                          |              |            |
|-----------|--------------------------|--------------|------------|
| Test Mode | TX N (HT20) MODE 2412MHz | Polarization | Horizontal |
|-----------|--------------------------|--------------|------------|



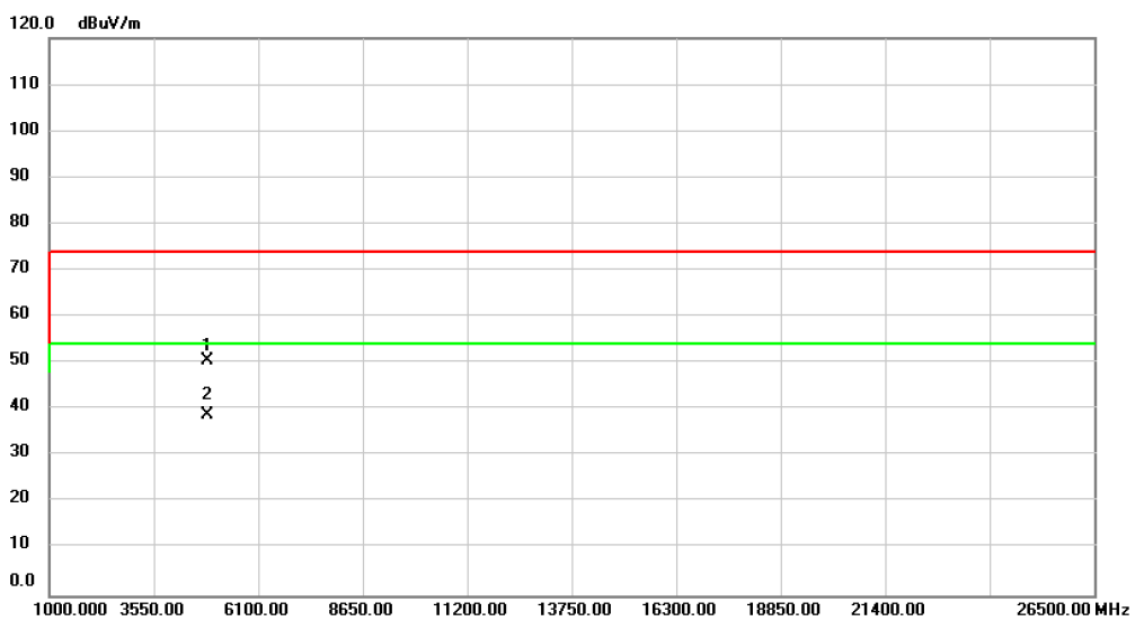
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   |     | 4824.000 | 59.30         | -11.48         | 47.82       | 74.00  | -26.18 | peak     |         |
| 2   | *   | 4824.000 | 50.28         | -11.48         | 38.80       | 54.00  | -15.20 | AVG      |         |

|           |                          |              |          |
|-----------|--------------------------|--------------|----------|
| Test Mode | TX N (HT20) MODE 2437MHz | Polarization | Vertical |
|-----------|--------------------------|--------------|----------|



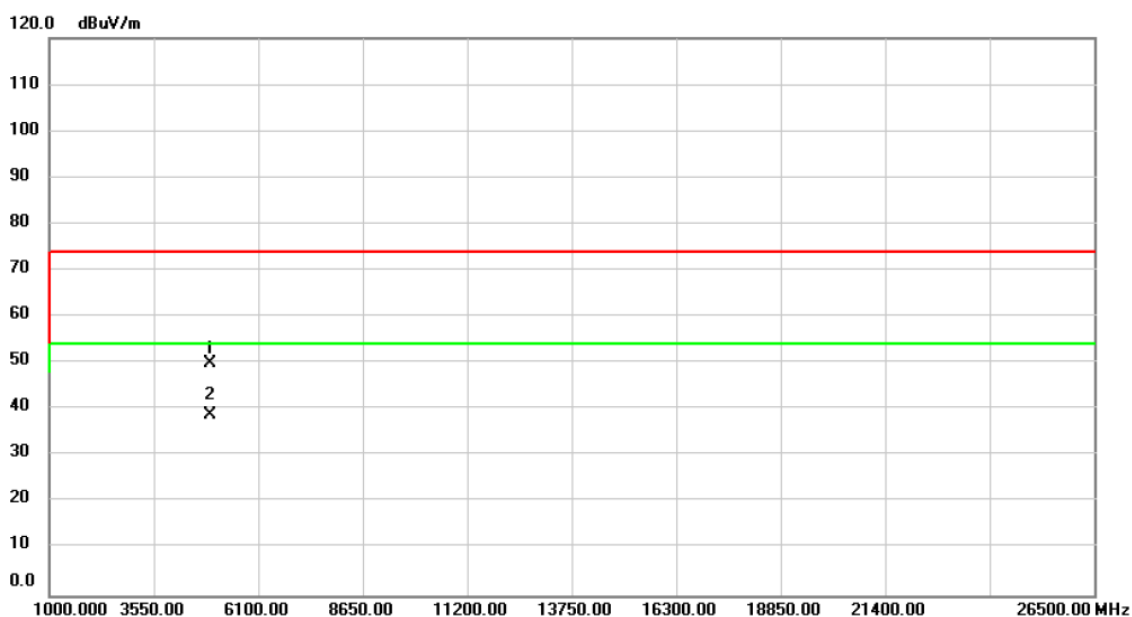
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4874.000     | 60.52                    | -11.42                  | 49.10                      | 74.00           | -24.90     | peak     |         |
| 2   | *   | 4874.000     | 49.55                    | -11.42                  | 38.13                      | 54.00           | -15.87     | AVG      |         |

|           |                          |              |            |
|-----------|--------------------------|--------------|------------|
| Test Mode | TX N (HT20) MODE 2437MHz | Polarization | Horizontal |
|-----------|--------------------------|--------------|------------|



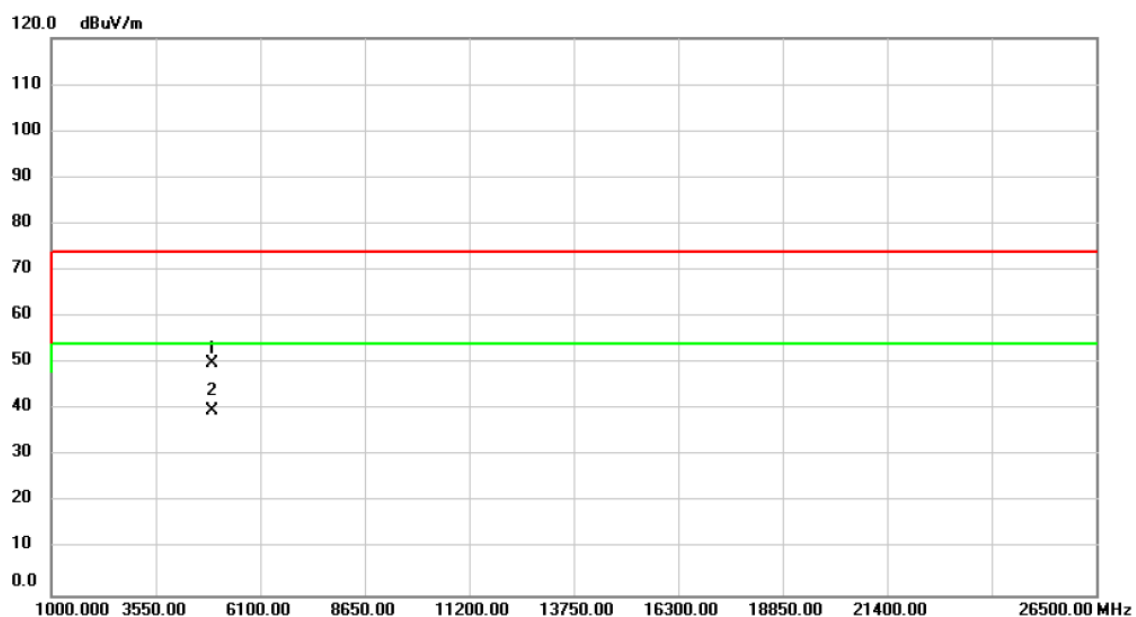
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4874.000     | 61.93                    | -11.42                  | 50.51                      | 74.00           | -23.49     | peak     |         |
| 2   | *   | 4874.000     | 50.22                    | -11.42                  | 38.80                      | 54.00           | -15.20     | AVG      |         |

|           |                          |              |          |
|-----------|--------------------------|--------------|----------|
| Test Mode | TX N (HT20) MODE 2462MHz | Polarization | Vertical |
|-----------|--------------------------|--------------|----------|



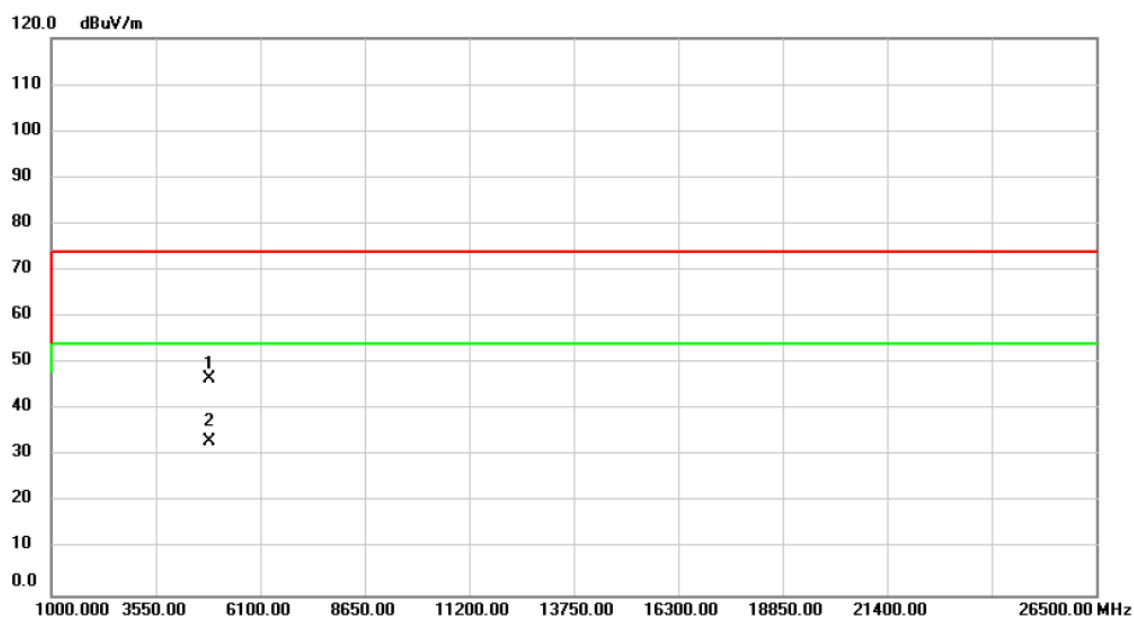
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4924.000     | 61.30                    | -11.37                  | 49.93                      | 74.00           | -24.07     | peak     |         |
| 2   | *   | 4924.000     | 50.27                    | -11.37                  | 38.90                      | 54.00           | -15.10     | AVG      |         |

|           |                          |              |            |
|-----------|--------------------------|--------------|------------|
| Test Mode | TX N (HT20) MODE 2462MHz | Polarization | Horizontal |
|-----------|--------------------------|--------------|------------|



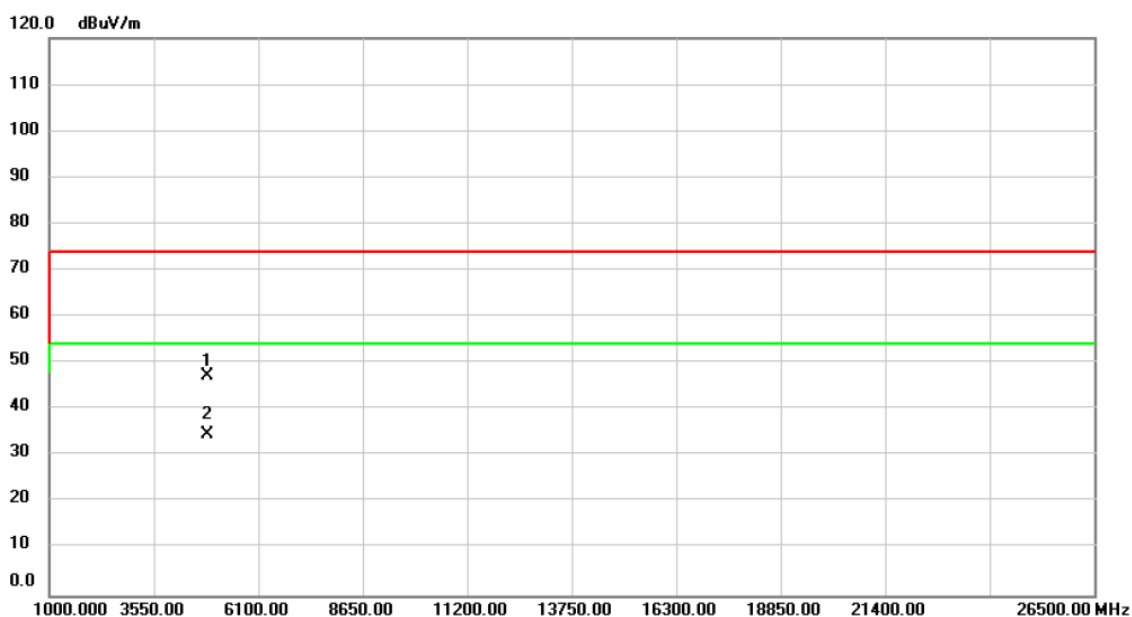
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   |     | 4924.000 | 61.44         | -11.37         | 50.07       | 74.00  | -23.93 | peak     |         |
| 2   | *   | 4924.000 | 51.20         | -11.37         | 39.83       | 54.00  | -14.17 | AVG      |         |

|           |                          |              |          |
|-----------|--------------------------|--------------|----------|
| Test Mode | TX N (HT40) MODE 2422MHz | Polarization | Vertical |
|-----------|--------------------------|--------------|----------|



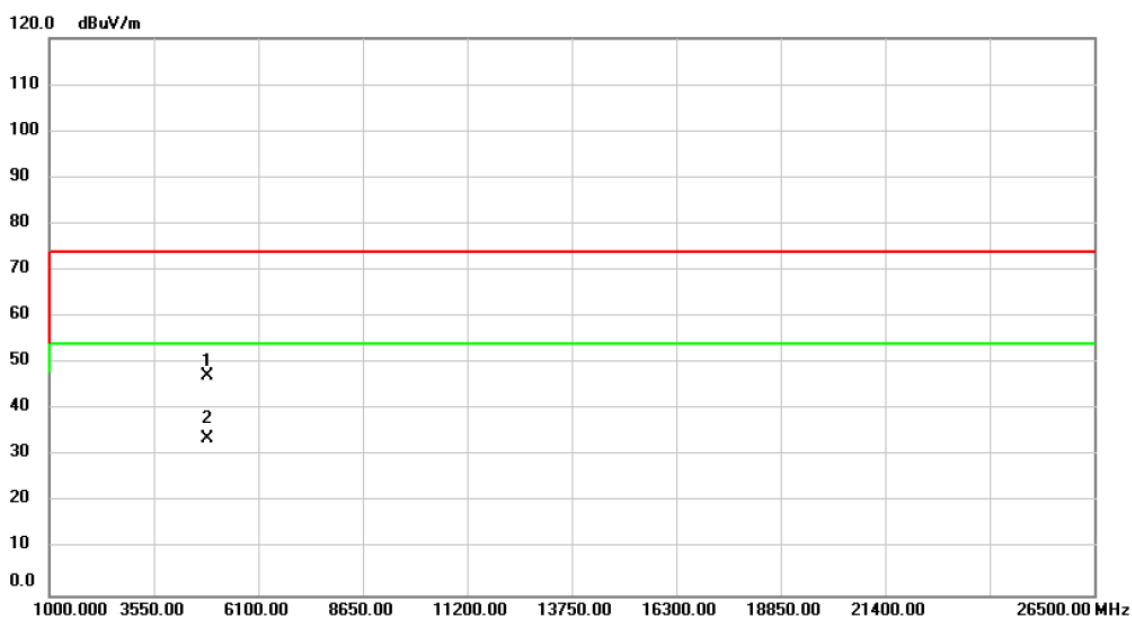
| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4844.000     | 58.03                    | -11.46                  | 46.57                      | 74.00           | -27.43     | peak     |         |
| 2   | *   | 4844.000     | 44.73                    | -11.46                  | 33.27                      | 54.00           | -20.73     | AVG      |         |

|           |                          |              |            |
|-----------|--------------------------|--------------|------------|
| Test Mode | TX N (HT40) MODE 2422MHz | Polarization | Horizontal |
|-----------|--------------------------|--------------|------------|



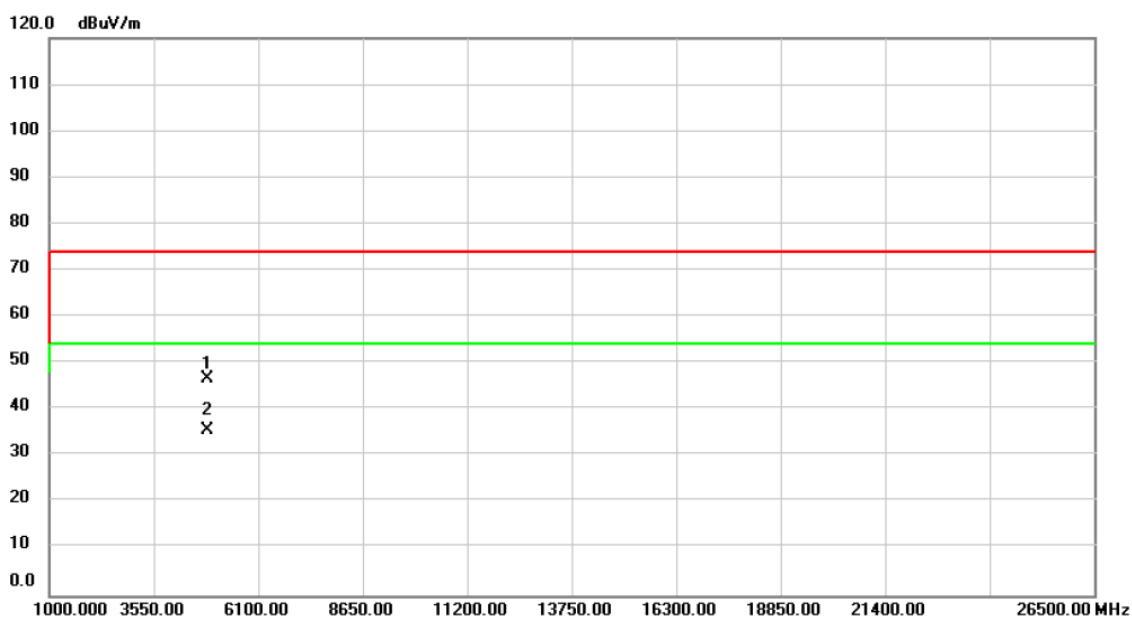
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   |     | 4844.000 | 58.58         | -11.46         | 47.12       | 74.00  | -26.88 | peak     |         |
| 2   | *   | 4844.000 | 46.11         | -11.46         | 34.65       | 54.00  | -19.35 | AVG      |         |

|           |                          |              |          |
|-----------|--------------------------|--------------|----------|
| Test Mode | TX N (HT40) MODE 2437MHz | Polarization | Vertical |
|-----------|--------------------------|--------------|----------|



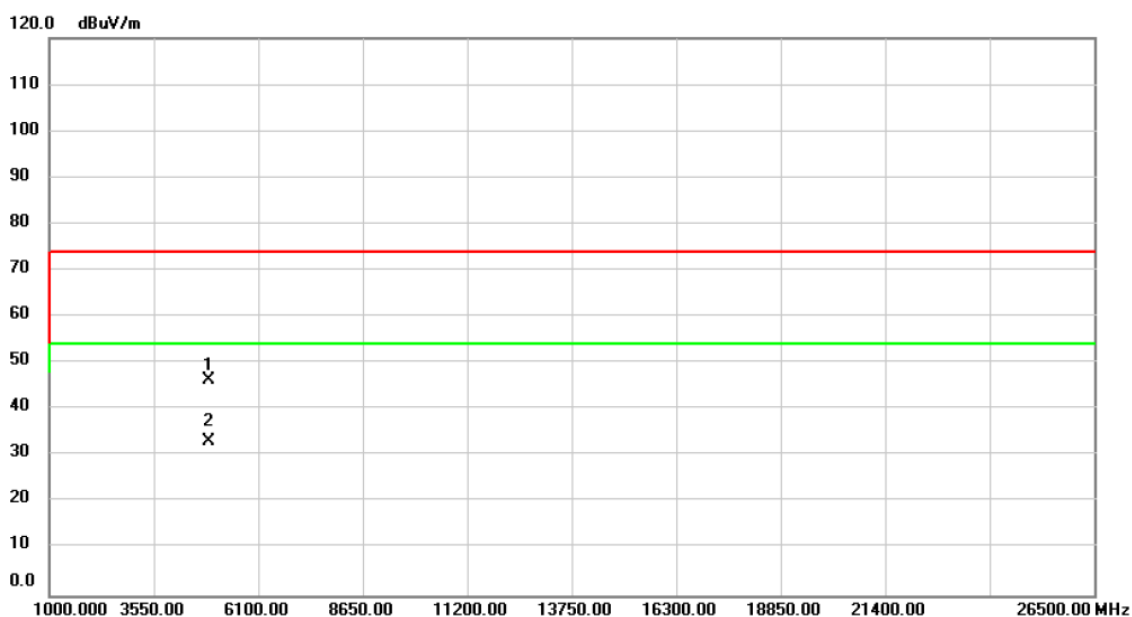
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   |     | 4874.000 | 58.70         | -11.42         | 47.28       | 74.00  | -26.72 | peak     |         |
| 2   | *   | 4874.000 | 45.02         | -11.42         | 33.60       | 54.00  | -20.40 | AVG      |         |

|           |                          |              |            |
|-----------|--------------------------|--------------|------------|
| Test Mode | TX N (HT40) MODE 2437MHz | Polarization | Horizontal |
|-----------|--------------------------|--------------|------------|



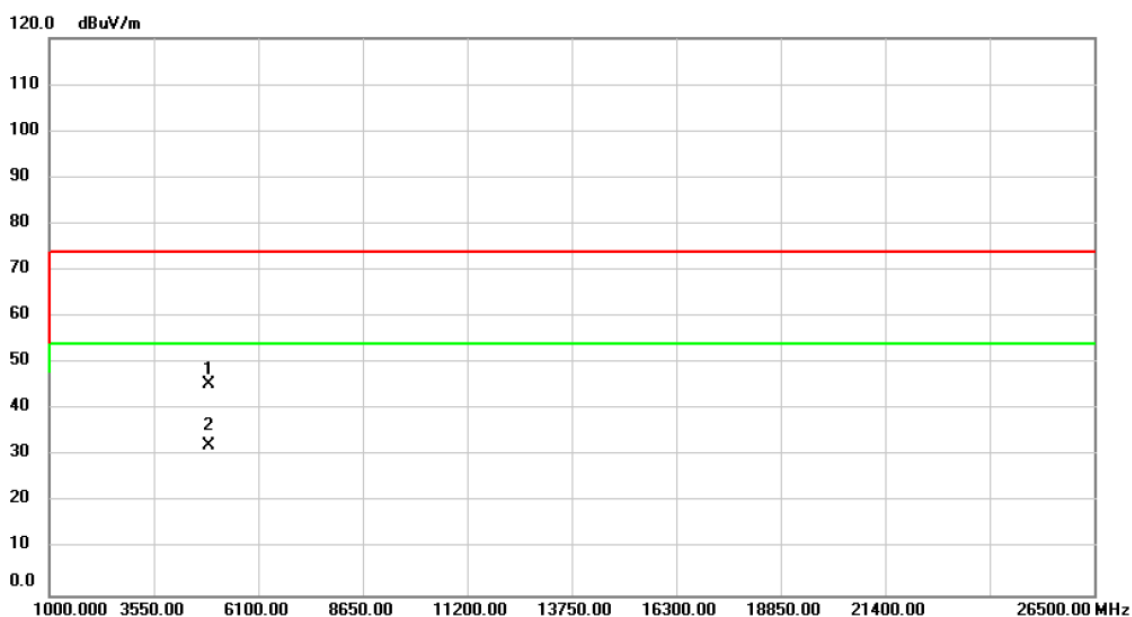
| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   |     | 4874.000 | 57.94         | -11.42         | 46.52       | 74.00  | -27.48 | peak     |         |
| 2   | *   | 4874.000 | 46.85         | -11.42         | 35.43       | 54.00  | -18.57 | AVG      |         |

|           |                          |              |          |
|-----------|--------------------------|--------------|----------|
| Test Mode | TX N (HT40) MODE 2452MHz | Polarization | Vertical |
|-----------|--------------------------|--------------|----------|



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|---------|
| 1   |     | 4904.000     | 57.66                    | -11.39                  | 46.27                      | 74.00           | -27.73     | peak     |         |
| 2   | *   | 4904.000     | 44.57                    | -11.39                  | 33.18                      | 54.00           | -20.82     | AVG      |         |

|           |                          |              |            |
|-----------|--------------------------|--------------|------------|
| Test Mode | TX N (HT40) MODE 2452MHz | Polarization | Horizontal |
|-----------|--------------------------|--------------|------------|

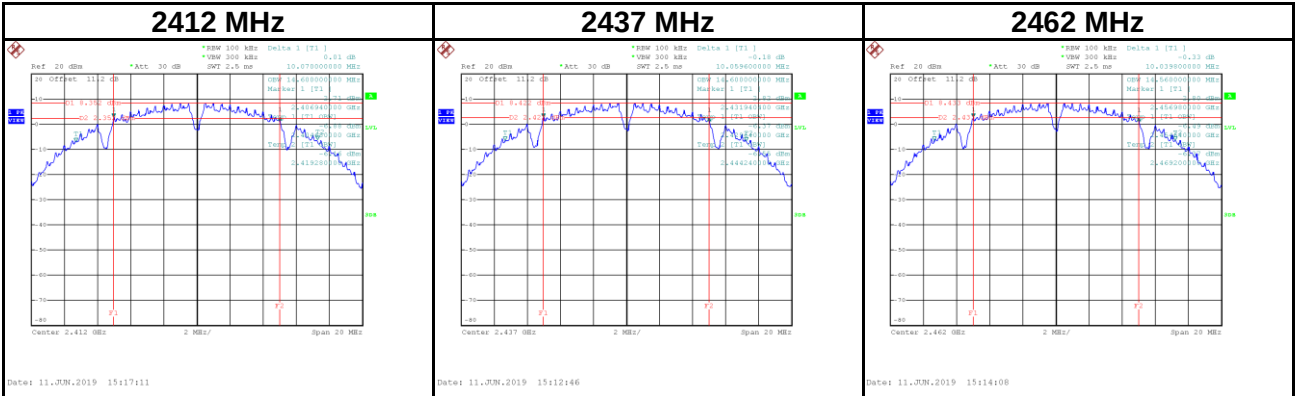


| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measurement | Limit  | Over   |          |         |
|-----|-----|----------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   |     | 4904.000 | 56.83         | -11.39         | 45.44       | 74.00  | -28.56 | peak     |         |
| 2   | *   | 4904.000 | 43.59         | -11.39         | 32.20       | 54.00  | -21.80 | AVG      |         |

## APPENDIX E BANDWIDTH

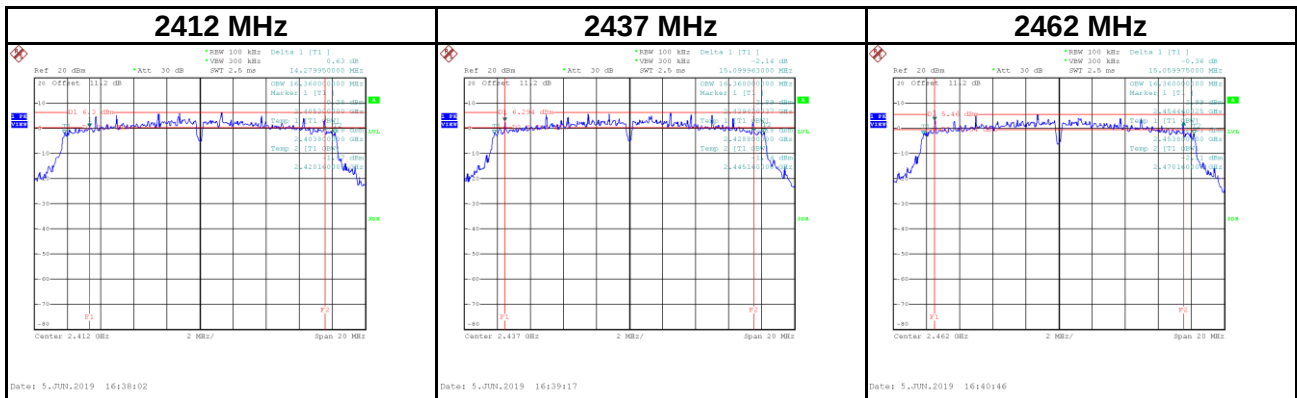
|           |              |
|-----------|--------------|
| Test Mode | IEEE 802.11b |
|-----------|--------------|

| Frequency (MHz) | 6 dB Bandwidth (MHz) | 99 % Occupied Bandwidth (MHz) | Limit (kHz) | Result   |
|-----------------|----------------------|-------------------------------|-------------|----------|
| 2412            | 10.07                | 14.60                         | 500.00      | Complies |
| 2437            | 10.06                | 14.60                         | 500.00      | Complies |
| 2462            | 10.04                | 14.56                         | 500.00      | Complies |



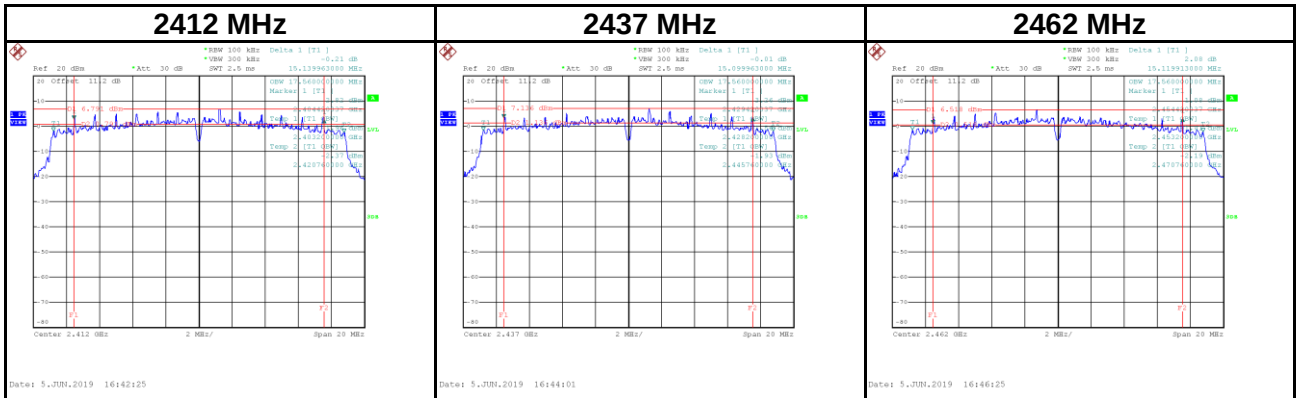
|           |              |
|-----------|--------------|
| Test Mode | IEEE 802.11g |
|-----------|--------------|

| Frequency (MHz) | 6 dB Bandwidth (MHz) | 99 % Occupied Bandwidth (MHz) | Limit (kHz) | Result   |
|-----------------|----------------------|-------------------------------|-------------|----------|
| 2412            | 14.28                | 16.36                         | 500.00      | Complies |
| 2437            | 15.10                | 16.36                         | 500.00      | Complies |
| 2462            | 15.06                | 16.36                         | 500.00      | Complies |



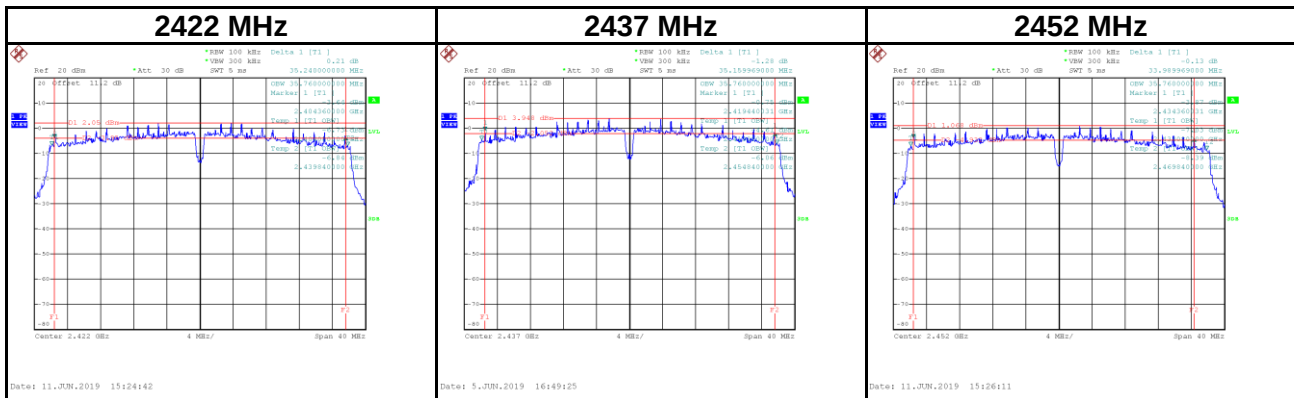
|           |                     |
|-----------|---------------------|
| Test Mode | IEEE 802.11n (HT20) |
|-----------|---------------------|

| Frequency (MHz) | 6 dB Bandwidth (MHz) | 99 % Occupied Bandwidth (MHz) | Limit (kHz) | Result   |
|-----------------|----------------------|-------------------------------|-------------|----------|
| 2412            | 15.14                | 17.56                         | 500.00      | Complies |
| 2437            | 15.10                | 17.56                         | 500.00      | Complies |
| 2462            | 15.12                | 17.56                         | 500.00      | Complies |



|           |                     |
|-----------|---------------------|
| Test Mode | IEEE 802.11n (HT40) |
|-----------|---------------------|

| Frequency (MHz) | 6 dB Bandwidth (MHz) | 99 % Occupied Bandwidth (MHz) | Limit (kHz) | Result   |
|-----------------|----------------------|-------------------------------|-------------|----------|
| 2422            | 35.24                | 35.76                         | 500.00      | Complies |
| 2437            | 35.16                | 35.76                         | 500.00      | Complies |
| 2452            | 33.99                | 35.76                         | 500.00      | Complies |



## APPENDIX F    PEAK OUTPUT POWER

|           |              |
|-----------|--------------|
| Test Mode | IEEE 802.11b |
|-----------|--------------|

| Frequency (MHz) | Conducted Power (dBm) | Conducted Power (W) | Limit (dBm) | Limit (W) | Result   |
|-----------------|-----------------------|---------------------|-------------|-----------|----------|
| 2412            | 20.68                 | 0.1169              | 30.00       | 1.0000    | Complies |
| 2437            | 20.73                 | 0.1183              | 30.00       | 1.0000    | Complies |
| 2462            | 20.77                 | 0.1194              | 30.00       | 1.0000    | Complies |

|           |              |
|-----------|--------------|
| Test Mode | IEEE 802.11g |
|-----------|--------------|

| Frequency (MHz) | Conducted Power (dBm) | Conducted Power (W) | Limit (dBm) | Limit (W) | Result   |
|-----------------|-----------------------|---------------------|-------------|-----------|----------|
| 2412            | 24.63                 | 0.2904              | 30.00       | 1.0000    | Complies |
| 2437            | 24.53                 | 0.2838              | 30.00       | 1.0000    | Complies |
| 2462            | 24.29                 | 0.2685              | 30.00       | 1.0000    | Complies |

|           |                     |
|-----------|---------------------|
| Test Mode | IEEE 802.11n (HT20) |
|-----------|---------------------|

| Frequency (MHz) | Conducted Power (dBm) | Conducted Power (W) | Limit (dBm) | Limit (W) | Result   |
|-----------------|-----------------------|---------------------|-------------|-----------|----------|
| 2412            | 24.56                 | 0.2858              | 30.00       | 1.0000    | Complies |
| 2437            | 24.49                 | 0.2812              | 30.00       | 1.0000    | Complies |
| 2462            | 24.44                 | 0.2780              | 30.00       | 1.0000    | Complies |

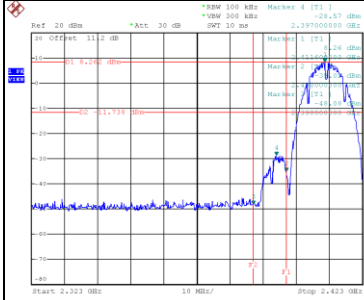
|           |                     |
|-----------|---------------------|
| Test Mode | IEEE 802.11n (HT40) |
|-----------|---------------------|

| Frequency (MHz) | Conducted Power (dBm) | Conducted Power (W) | Limit (dBm) | Limit (W) | Result   |
|-----------------|-----------------------|---------------------|-------------|-----------|----------|
| 2422            | 23.22                 | 0.2099              | 30.00       | 1.0000    | Complies |
| 2437            | 24.12                 | 0.2582              | 30.00       | 1.0000    | Complies |
| 2452            | 22.48                 | 0.1770              | 30.00       | 1.0000    | Complies |

## APPENDIX G ANTENNA CONDUCTED SPURIOUS EMISSIONS

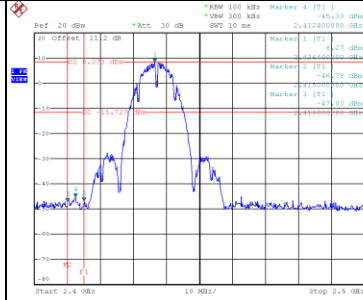
Test Mode IEEE 802.11b

### Bandedge-2412 MHz



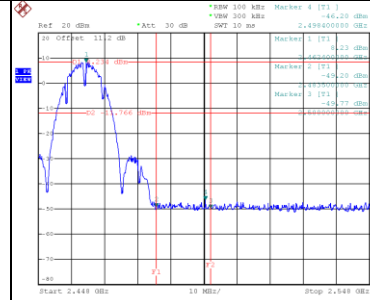
Date: 11.JUN.2019 15:11:20

### Bandedge-2437 MHz



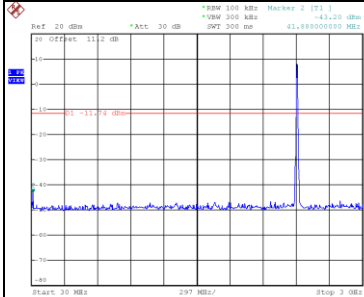
Date: 11.JUN.2019 15:12:54

### Bandedge-2462 MHz

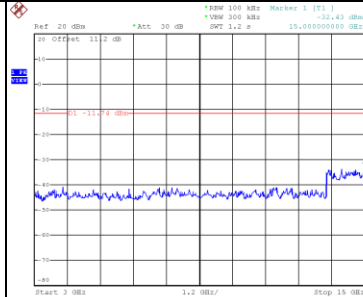


Date: 11.JUN.2019 15:14:15

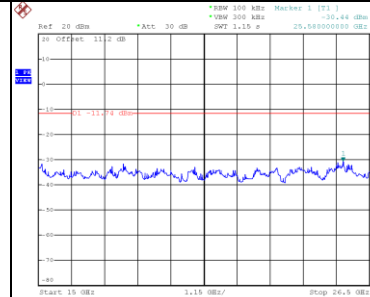
### 2412 MHz – 10 Harmonics



Date: 11.JUN.2019 15:11:33

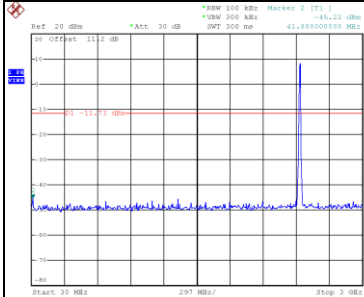


Date: 11.JUN.2019 15:11:40

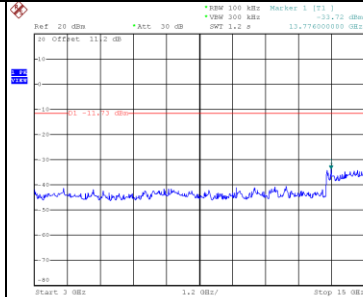


Date: 11.JUN.2019 15:11:46

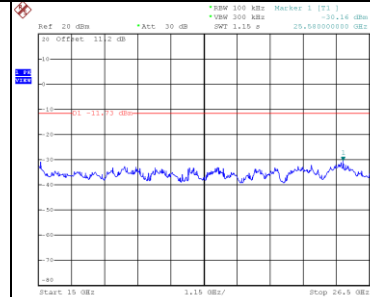
### 2437 MHz – 10 Harmonics



Date: 11.JUN.2019 15:13:06

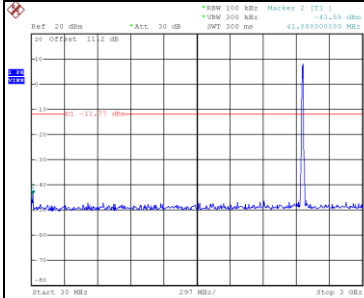


Date: 11.JUN.2019 15:13:13

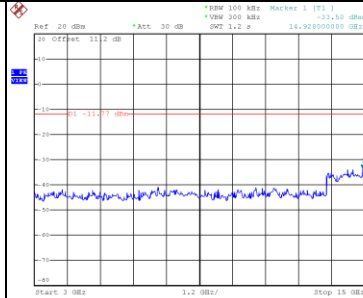


Date: 11.JUN.2019 15:13:20

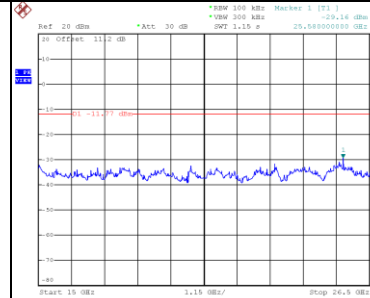
### 2462 MHz – 10 Harmonics



Date: 11.JUN.2019 15:14:28



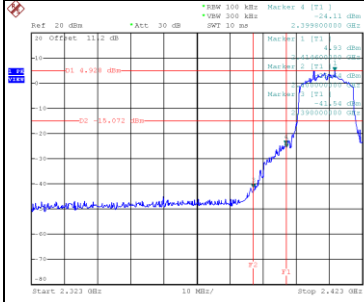
Date: 11.JUN.2019 15:14:35



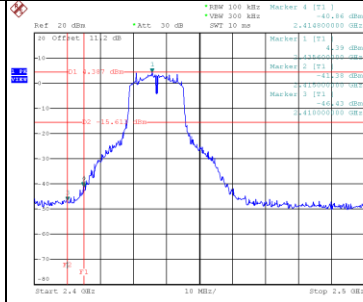
Date: 11.JUN.2019 15:14:42

Test Mode IEEE 802.11g

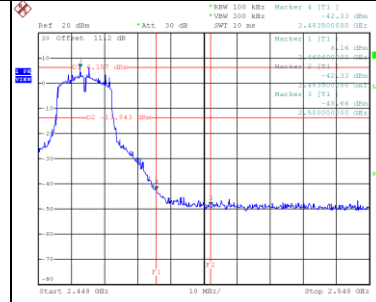
### Bandedge-2412 MHz



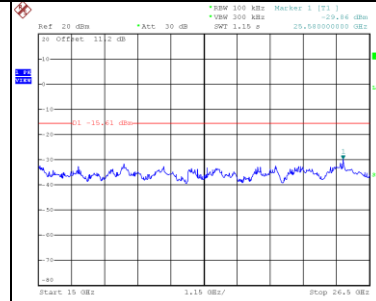
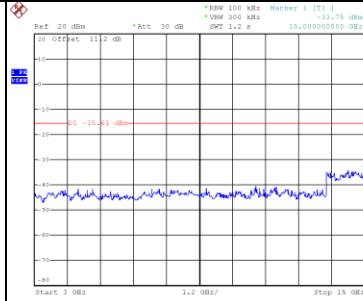
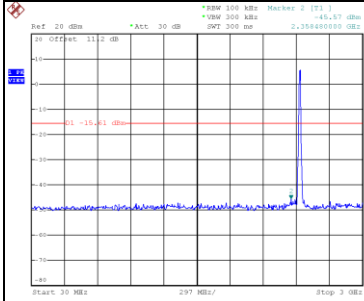
### Bandedge-2437 MHz



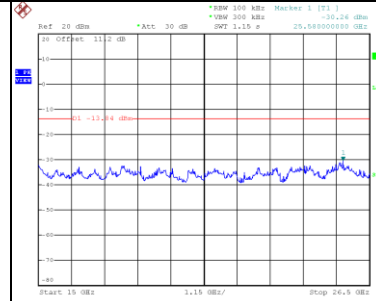
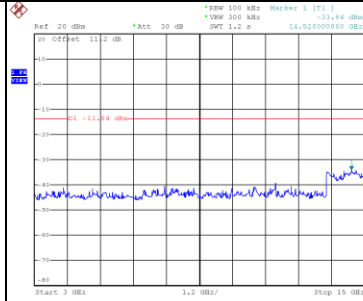
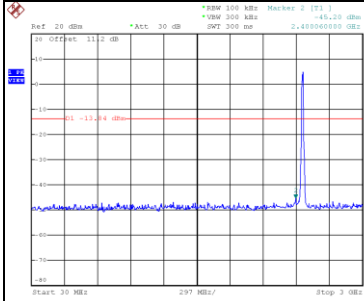
### Bandedge-2462 MHz



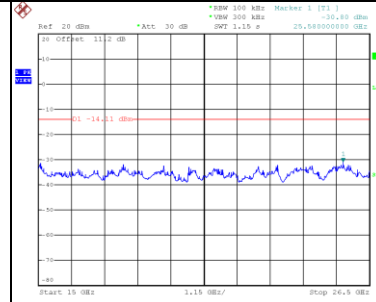
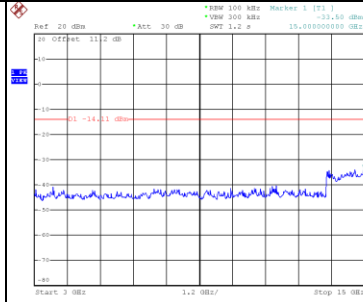
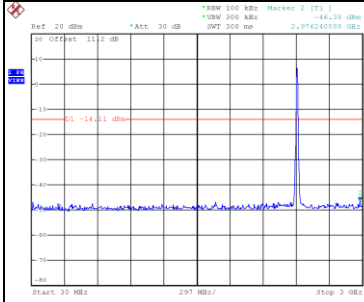
### 2412 MHz – 10 Harmonics



### 2437 MHz – 10 Harmonics

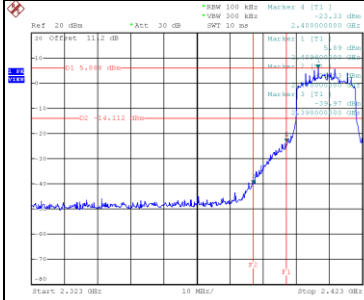


### 2462 MHz – 10 Harmonics

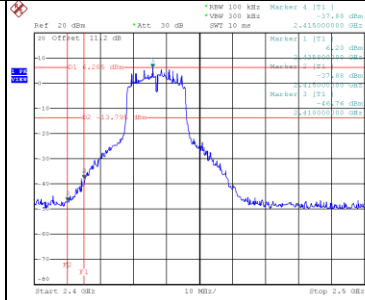


Test Mode IEEE 802.11n (HT20)

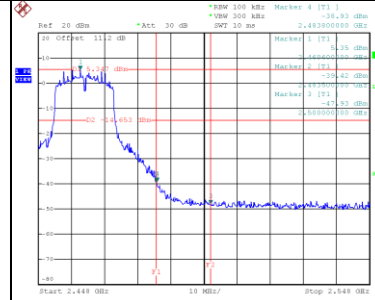
### Bandedge-2412 MHz



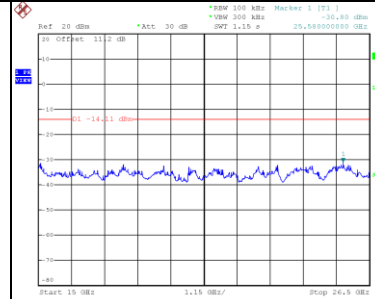
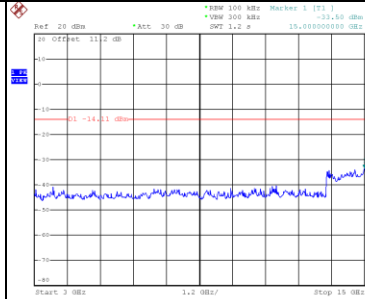
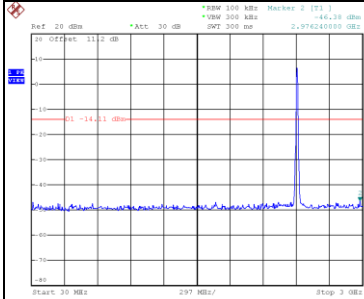
### Bandedge-2437 MHz



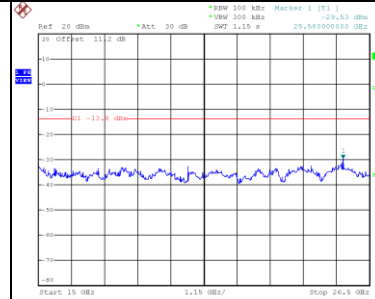
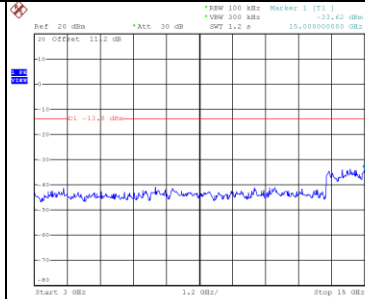
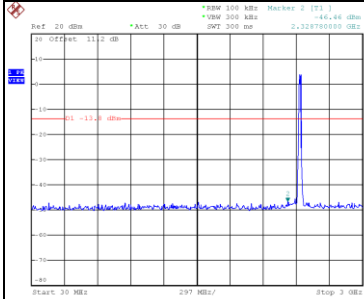
### Bandedge-2462 MHz



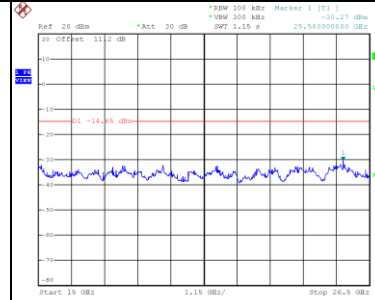
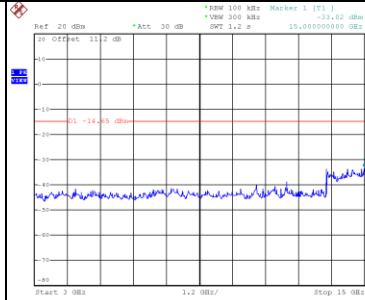
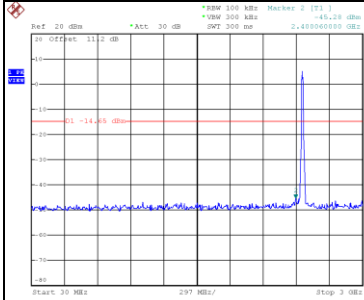
### 2412 MHz – 10 Harmonics



### 2437 MHz – 10 Harmonics

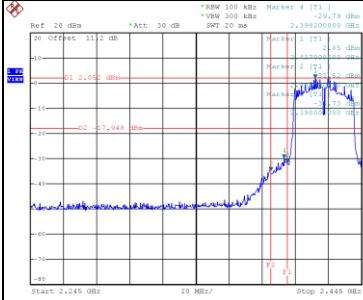


### 2462 MHz – 10 Harmonics

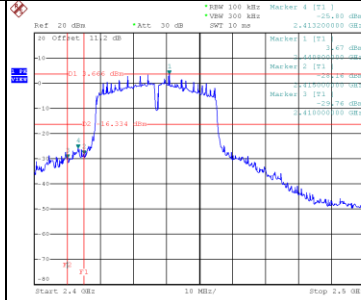


Test Mode IEEE 802.11n (HT40)

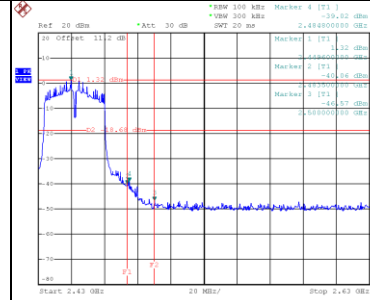
### Bandedge-2422 MHz



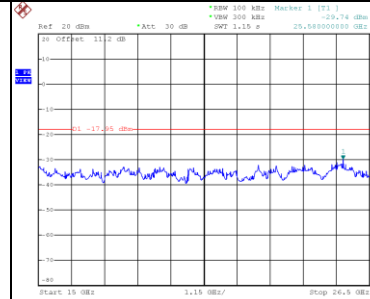
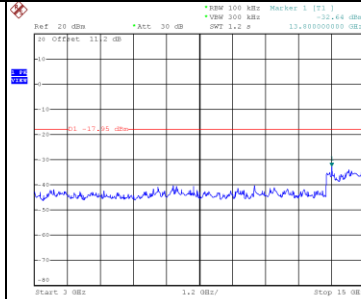
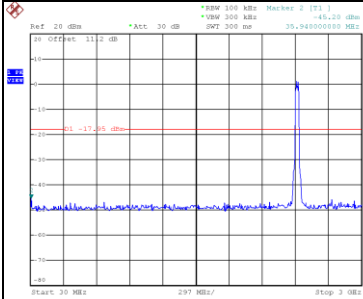
### Bandedge-2437 MHz



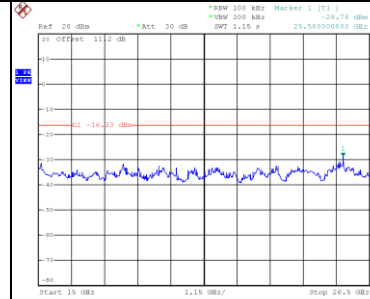
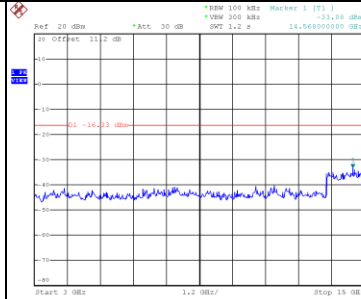
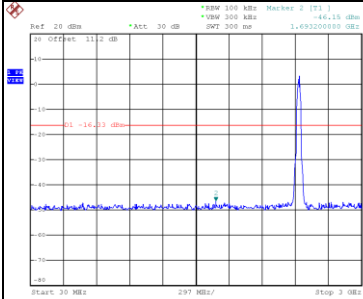
### Bandedge-2452 MHz



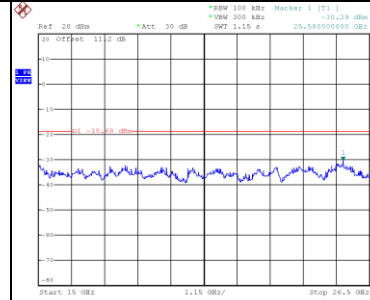
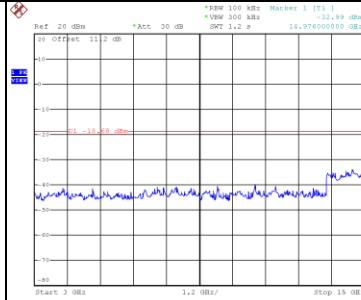
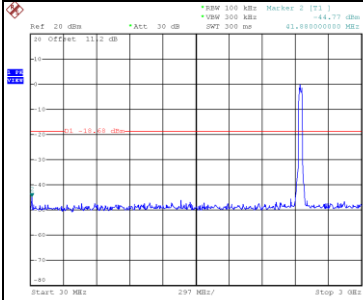
### 2422 MHz – 10 Harmonics



### 2437 MHz – 10 Harmonics



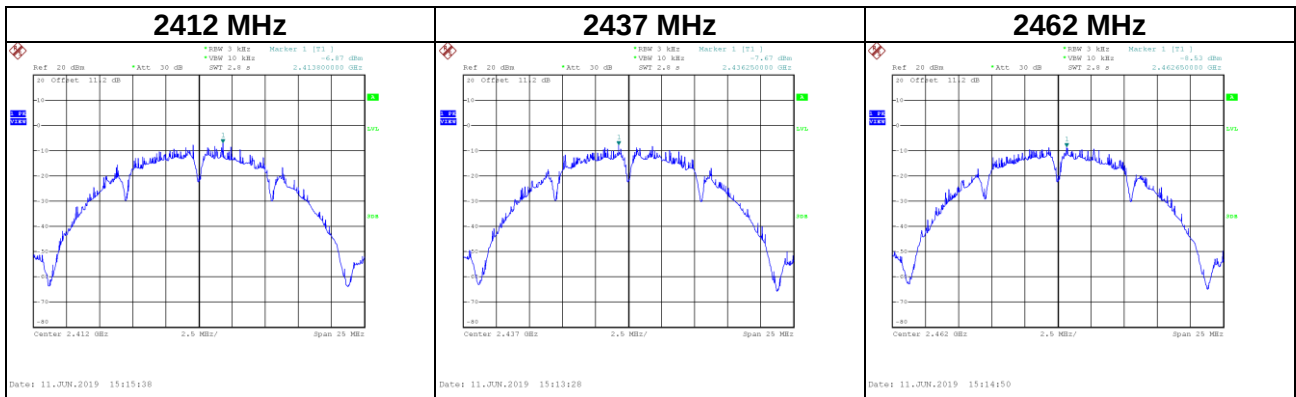
### 2452 MHz – 10 Harmonics



## APPENDIX H POWER SPECTRAL DENSITY

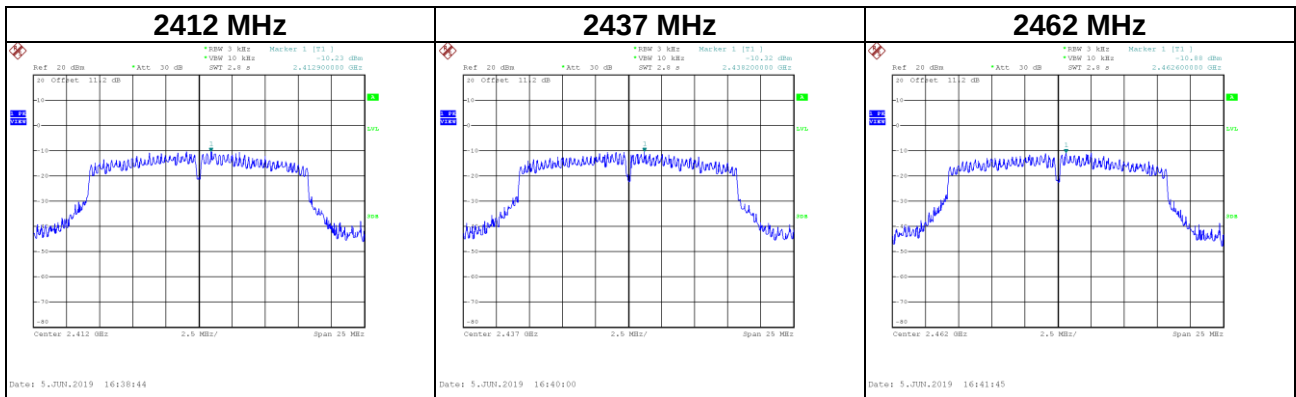
|           |              |
|-----------|--------------|
| Test Mode | IEEE 802.11b |
|-----------|--------------|

| Frequency (MHz) | Power Spectral Density (dBm/3 kHz) | Limit (dBm/3 kHz) | Result   |
|-----------------|------------------------------------|-------------------|----------|
| 2412            | -6.87                              | 8.00              | Complies |
| 2437            | -7.67                              | 8.00              | Complies |
| 2462            | -8.53                              | 8.00              | Complies |



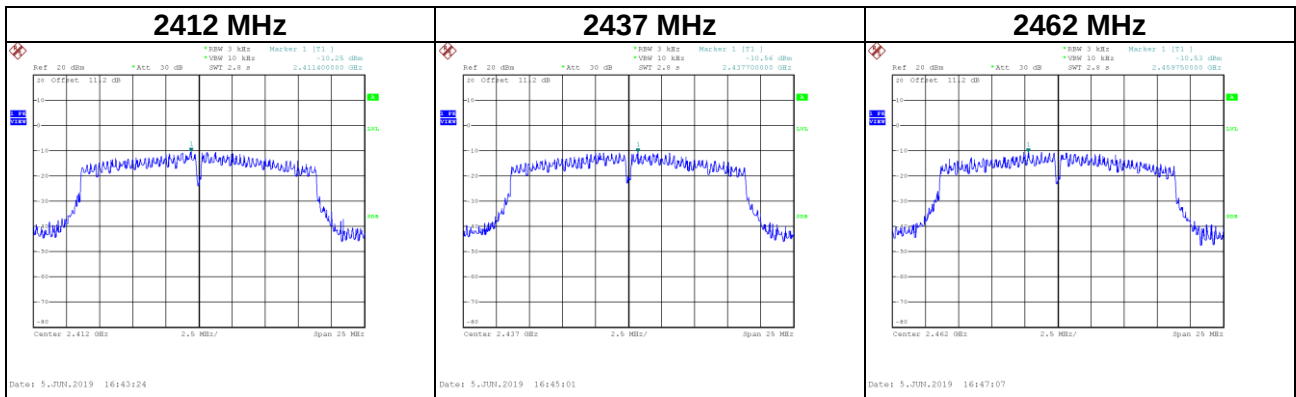
|           |              |
|-----------|--------------|
| Test Mode | IEEE 802.11g |
|-----------|--------------|

| Frequency (MHz) | Power Spectral Density (dBm/3 kHz) | Limit (dBm/3 kHz) | Result   |
|-----------------|------------------------------------|-------------------|----------|
| 2412            | -10.23                             | 8.00              | Complies |
| 2437            | -10.32                             | 8.00              | Complies |
| 2462            | -10.88                             | 8.00              | Complies |



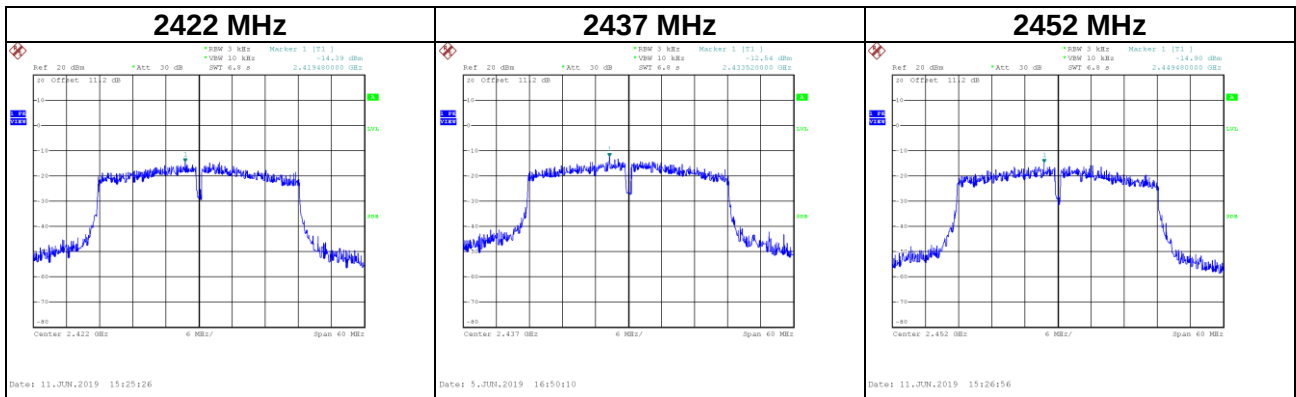
|           |                     |
|-----------|---------------------|
| Test Mode | IEEE 802.11n (HT20) |
|-----------|---------------------|

| Frequency (MHz) | Power Spectral Density (dBm/3 kHz) | Limit (dBm/3 kHz) | Result   |
|-----------------|------------------------------------|-------------------|----------|
| 2412            | -10.25                             | 8.00              | Complies |
| 2437            | -10.56                             | 8.00              | Complies |
| 2462            | -10.53                             | 8.00              | Complies |



|           |                     |
|-----------|---------------------|
| Test Mode | IEEE 802.11n (HT40) |
|-----------|---------------------|

| Frequency (MHz) | Power Spectral Density (dBm/3 kHz) | Limit (dBm/3 kHz) | Result   |
|-----------------|------------------------------------|-------------------|----------|
| 2422            | -14.39                             | 8.00              | Complies |
| 2437            | -12.54                             | 8.00              | Complies |
| 2452            | -14.90                             | 8.00              | Complies |



**End of Test Report**