

# FCC ID: EROTSW1070

| Report No.<br>Equipment<br>Model Name<br>Brand Name<br>Applicant<br>Address | <ul> <li>BTL-FCCP-3-1911T046</li> <li>10.1 inch Touch Screen wall mount</li> <li>M201923003, TSW-1070-B-S, TSW-1070-W-S, TSW-1070P-B-S, TSW-1070P-W-S, TSS-1070-B-S, TSS-1070-W-S</li> <li>CRESTRON</li> <li>Crestron Electronics, Inc.</li> <li>15 Volvo Drive, Rockleigh, NJ 07647</li> </ul> |
|---|---|
| Radio Function  | : WLAN 2.4 GHz  |
| FCC Rule Part(s)<br>Measurement<br>Procedure(s)                             | : FCC Part15, Subpart C (15.247)<br>: ANSI C63.10-2013  |
| Date of Receipt<br>Date of Test<br>Issued Date                              | : 2018/11/28<br>: 2018/11/28 ~ 2020/1/5<br>: 2020/3/24  |

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

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### 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).

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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 SUMMARY OF TEST RESULTS 6 1.1 **TEST FACILITY** 7 MEASUREMENT UNCERTAINTY 1.2 7 1.3 TEST ENVIRONMENT CONDITIONS 8 1.4 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING 8 1.5 DUTY CYCLE 9 **GENERAL INFORMATION** 2 10 2.1 DESCRIPTION OF EUT 10 2.2 **TEST MODES** 11 2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED 12 2.4 SUPPORT UNITS 12 3 RADIATED EMISSIONS TEST 13 13 3.1 LIMIT 3.2 **TEST PROCEDURE** 14 **DEVIATION FROM TEST STANDARD** 3.3 14 TEST SETUP 3.4 14 EUT OPERATING CONDITIONS 3.5 15 3.6 TEST RESULT - 9 KHZ TO 30 MHZ 16 3.7 TEST RESULT - 30 MHZ TO 1 GHZ 16 3.8 **TEST RESULT – ABOVE 1 GHZ** 16 **BANDWIDTH TEST** 4 17 4.1 LIMIT 17 4.2 **TEST PROCEDURE** 17 4.3 **DEVIATION FROM TEST STANDARD** 17 4.4 TEST SETUP 17 4.5 EUT OPERATING CONDITIONS 17 4.6 TEST RESULT 17 OUTPUT POWER TEST 18 5 18 5.1 LIMIT 5.2 **TEST PROCEDURE** 18 5.3 **DEVIATION FROM TEST STANDARD** 18 TEST SETUP 5.4 18 EUT OPERATING CONDITIONS 5.5 18 5.6 TEST RESULT 18 POWER SPECTRAL DENSITY 6 19 LIMIT 19 6.1 **TEST PROCEDURE** 6.2 19 **DEVIATION FROM TEST STANDARD** 6.3 19 TEST SETUP 19 6.4 6.5 EUT OPERATING CONDITIONS 19 6.6 TEST RESULT 19 7 ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST 20 7.1 LIMIT 20 7.2 **TEST PROCEDURE** 20 **DEVIATION FROM TEST STANDARD** 20 7.3 7.4 TEST SETUP 20

7.5

EUT OPERATING CONDITIONS

20





| 7.6TEST RESULT28LIST OF MEASURING EQUIPMENTS29EUT TEST PHOTO210EUT PHOTOS2                           |              |   |                      |
|--|--------------|---|----------------------|
| APPEND<br>APPEND<br>APPEND<br>APPEND   | IX B<br>IX C | RADIATED EMISSIONS - 9 KHZ TO 30 MHZ<br>RADIATED EMISSIONS - 30 MHZ TO 1 GHZ<br>RADIATED EMISSIONS - ABOVE 1 GHZ<br>BANDWIDTH | 23<br>28<br>31<br>64 |
| APPENDIX EOUTPUT POWERAPPENDIX FPOWER SPECTRAL DENSITYAPPENDIX GANTENNA CONDUCTED SPURIOUS EMISSIONS |              | 69<br>71<br>74  |                      |



## **REPORT ISSUED HISTORY**

|                | REPORT ISSUED HISTORY                     |             |
|----------------|---|-------------|
| Report Version | Description                               | Issued Date |
| R00            | Original Issue.                           | 2020/1/21   |
| R01            | Revised report to address TCB's comments. | 2020/3/24   |
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### SUMMARY OF TEST RESULTS 1

Test procedures according to the technical standards.

| FCC Part 15, Subpart C (15.247) |                                     |  |        |         |  |  |
|---------------------------------|-------------------------------------|--|--------|---------|--|--|
| Standard(s) Section             | Test Result                         | Judgement                              | Remark |         |  |  |
| 15.207                          | AC Power Line Conducted Emissions   |  | N/A    | NOTE(3) |  |  |
| 15.205<br>15.209<br>15.247(d)   | Radiated Emissions                  | APPENDIX A<br>APPENDIX B<br>APPENDIX C | Pass   |         |  |  |
| 15.247(a)                       | Bandwidth                           | APPENDIX D                             | Pass   |         |  |  |
| 15.247(b)                       | Output Power                        | APPENDIX E                             | Pass   |         |  |  |
| 15.247(e)                       | Power Spectral Density              | APPENDIX F                             | Pass   |         |  |  |
| 15.247(d)                       | Antenna conducted Spurious Emission | APPENDIX G                             | Pass   |         |  |  |
| 15.203                          | Antenna Requirement                 |  | Pass   |         |  |  |

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report.(2) The report format version is TP.1.1.1.

(3) Input power is supplied by POE.



### 1.1 **TEST FACILITY** The test facilities used to collect the test data in this report: No. 68-1, Ln. 169, Sec. 2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan The test sites and facilities are covered under FCC RN: 355421 and DN: TW1099. CB08 □ CB11 $\boxtimes$ C05 CB15 □ CB16 **SR06** $\boxtimes$ No.18, Ln. 171, Sec. 2, Jiuzong Rd., Neihu Dist., Taipei City 114, Taiwan The test sites and facilities are covered under FCC RN: 325517 and DN: TW1115. ⊠ CB18 C03 □ CB19 **MEASUREMENT UNCERTAINTY** 1.2 The reported uncertainty of measurement $\mathbf{y} \pm \mathbf{U}$ , where expanded uncertainty $\mathbf{U}$ is based on a standard uncertainty multiplied by a coverage factor of $\mathbf{k} = 2$ , providing a level of confidence of approximately 95 %. The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2. The BTL measurement uncertainty is less than the CISPR 16-4-2 U<sub>cispr</sub> requirement. A. Radiated emissions below 1 GHz test :

| Test Site | Method | Measurement Frequency Range | Ant.<br>H / V | U,(dB) |
|-----------|--------|-----------------------------|---------------|--------|
|           | CISPR  | 30MHz ~ 200MHz              | V             | 4.20   |
| CB18      |        | 30MHz ~ 200MHz              | Н             | 3.64   |
| (3m)      |        | 200MHz ~ 1,000MHz           | V             | 4.56   |
|           |        | 200MHz ~ 1,000MHz           | H             | 3.90   |

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

| Test Site | Method | Measurement Frequency Range | Ant.<br>H / V | U,(dB) |
|-----------|--------|-----------------------------|---------------|--------|
|           |        | 1GHz ~ 6GHz                 | V             | 4.46   |
| CB18      |        | 1GHz ~ 6GHz                 | Н             | 4.40   |
| (3m)      | CISPR  | 6GHz ~ 18GHz                | V             | 3.88   |
|           |        | 6GHz ~ 18GHz                | Н             | 4.00   |

| Test Site | Method | Measurement Frequency Range | U,(dB) |
|-----------|--------|-----------------------------|--------|
| CB18      |        | 18 ~ 26.5 GHz               | 4.62   |
| (1m)      | CISPR  | 26.5 ~ 40 GHz               | 5.12   |

### C. Conducted test :

| Test Item                    | U,(dB) |
|------------------------------|--------|
| Bandwidth                    | 1.13   |
| Output power                 | 1.06   |
| Power Spectral Density       | 1.20   |
| Conducted Spurious emissions | 1.14   |
| Conducted Band edges         | 1.13   |

NOTE:

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



## 1.3 TEST ENVIRONMENT CONDITIONS

| Test Item                           | Environment Condition | Tested by     |  |
|-------------------------------------|-----------------------|---------------|--|
| Radiated emissions below 1 GHz      | 23 °C, 65 %           | Hunter Chiang |  |
| Radiated emissions above 1 GHz      | 23 °C, 65 %           | Hunter Chiang |  |
| Bandwidth                           | 24.8 °C, 59.5 %       | Jay Kao       |  |
| Output Power                        | 24.8 °C, 59.5 %       | Jay Kao       |  |
| Power Spectral Density              | 24.8 °C, 59.5 %       | Jay Kao       |  |
| Antenna conducted Spurious Emission | 24.8 °C, 59.5 %       | Jay Kao       |  |

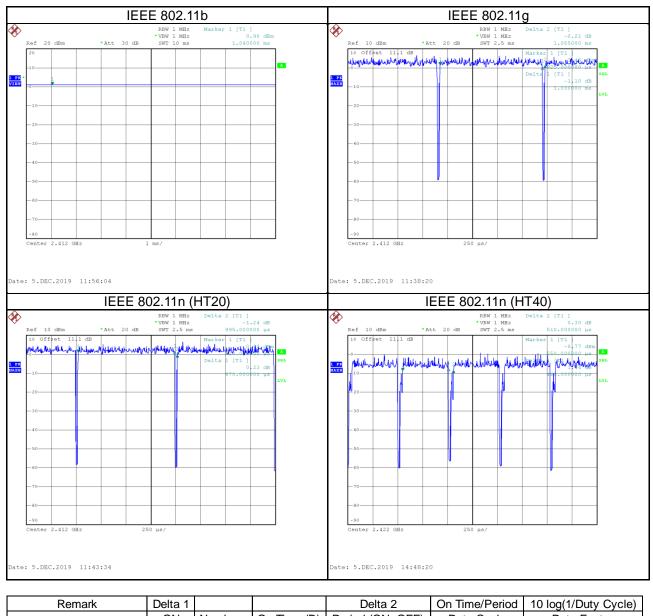
### 1.4 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

| Test Software       | QRCT 4   |                                      |          |           |  |
|---------------------|----------|--------------------------------------|----------|-----------|--|
| Mode                | 2412 MHz | 2412 MHz 2437 MHz 2462 MHz Data Rate |          |           |  |
| IEEE 802.11b        | 16       | 16                                   | 16       | 1 Mbps    |  |
| IEEE 802.11g        | 12       | 13                                   | 12       | 6 Mbps    |  |
| IEEE 802.11n (HT20) | 12       | 13                                   | 12       | MCS 0     |  |
| Mode                | 2422 MHz | 2437 MHz                             | 2452 MHz | Data Rate |  |
| IEEE 802.11n (HT40) | 11       | 12                                   | 11       | MCS 0     |  |



### 1.5 DUTY CYCLE

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



| Remark              | Delta 1 |         |             | Delta 2         | On Time/Period | 10 log(1/Duty Cycle) |
|---------------------|---------|---------|-------------|-----------------|----------------|----------------------|
| Mode                | ON      | Numbers | On Time (B) | Period (ON+OFF) | Duty Cycle     | Duty Factor          |
| lviode              | (ms)    | (ON)    | (ms)        | (ms)            | (%)            | (dB)                 |
| IEEE 802.11b        | 1.000   | 1       | 1.000       | 1.000           | 100.00%        | 0.00                 |
| IEEE 802.11g        | 1.030   | 1       | 1.030       | 1.055           | 97.63%         | 0.10                 |
| IEEE 802.11n (HT20) | 0.970   | 1       | 0.970       | 0.995           | 97.49%         | 0.11                 |
| IEEE 802.11n (HT40) | 0.460   | 1       | 0.460       | 0.510           | 90.20%         | 0.45                 |

# 2 GENERAL INFORMATION

### 2.1 DESCRIPTION OF EUT

| E en sie ee e et      | 40.4 in the Towell Common well as such                                   |  |  |  |
|-----------------------|--|--|--|--|
| Equipment             | 10.1 inch Touch Screen wall mount  |  |  |  |
| Model Name            | M201923003, TSW-1070-B-S, TSW-1070-W-S, TSW-1070P-B-S,                   |  |  |  |
|                       | TSW-1070P-W-S, TSS-1070-B-S, TSS-1070-W-S                                |  |  |  |
| Brand Name            |  |  |  |  |
|                       | M201923003 includes six series: TSW-1070-B-S, TSW-1070-W-S,              |  |  |  |
| Model Difference      | TSW-1070P-B-S, TSW-1070P-W-S, TSS-1070-B-S, TSS-1070-W-S                 |  |  |  |
|                       | All modes are identical to each other except below:                      |  |  |  |
|                       | B: Black, W: White, P: Portrait, S: Smooth, TSS: Touch Screen Scheduling |  |  |  |
| Power Source          | DC voltage supplied from POE.  |  |  |  |
| Power Rating          | I/P: 48 VDC 350mA (802.3at type 1), 48 VDC 600mA (802.3at type 2)        |  |  |  |
| Products Covered      | N/A  |  |  |  |
| Frequency Range       | 2400 MHz ~ 2483.5 MHz  |  |  |  |
| Operation Frequency   | 2412 MHz ~ 2462 MHz  |  |  |  |
|                       | IEEE 802.11b: DSSS   |  |  |  |
| Modulation Technology | IEEE 802.11g: OFDM   |  |  |  |
|                       | IEEE 802.11n: OFDM   |  |  |  |
|                       | IEEE 802.11b: 11/5.5/2/1 Mbps  |  |  |  |
| Transfer Rate         | IEEE 802.11g: 54/48/36/24/18/12/9/6 Mbps                                 |  |  |  |
|                       | IEEE 802.11n: up to 150 Mbps   |  |  |  |
|                       | IEEE 802.11b: 19.04 dBm (0.0802 W)                                       |  |  |  |
| Output Bower Mey      | IEEE 802.11g: 19.72 dBm (0.0938 W)                                       |  |  |  |
| Output Power Max.     | IEEE 802.11n (HT20): 19.54 dBm (0.0899 W)                                |  |  |  |
|                       | IEEE 802.11n (HT40): 19.02dBm (0.0798 W)                                 |  |  |  |
| Test Model            | M201923003   |  |  |  |
| Sample Status         | Engineering Sample   |  |  |  |
| EUT Modification(s)   | N/A  |  |  |  |

### 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<br>(MHz) | Channel | Frequency<br>(MHz) | Channel | Frequency<br>(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 | Model Name    | Antenna Type | Connector | Gain (dBi) |
|------|-------|---------------|--------------|-----------|------------|
| 1    | YAGEO | TSW WLAN MAIN | PIFA         | IPEX      | -3.92      |



### 2.2 TEST MODES

| Test Items                                     | Test mode                   | Channel  | Note     |
|--|-----------------------------|----------|----------|
| AC power line conducted emissions              | TX Mode_IEEE 802.11b        | 01       | -        |
| Transmitter Radiated Emissions<br>(below 1GHz) | TX Mode_IEEE 802.11b        | 01       | -        |
|  | TX Mode_IEEE 802.11b        |          |          |
|  | TX Mode_IEEE 802.11g        |          | Bandedge |
|  | TX Mode_IEEE 802.11n (HT20) |          | Danueuge |
| Transmitter Radiated Emissions                 | TX Mode_IEEE 802.11n (HT40) | 03/09    |          |
| (above 1GHz)                                   | TX Mode_IEEE 802.11b        |          |          |
|  | TX Mode_IEEE 802.11g        | 01/06/11 | Harmonic |
|  | TX Mode_IEEE 802.11n (HT20) |          |          |
|  | TX Mode_IEEE 802.11n (HT40) | 03/06/09 |          |
|  | TX Mode_IEEE 802.11b        |          |          |
| Bandwidth                                      | TX Mode_IEEE 802.11g        | 01/06/11 |          |
| Bandwidth                                      | TX Mode_IEEE 802.11n (HT20) |          | -        |
|  | TX Mode_IEEE 802.11n (HT40) | 03/06/09 |          |
|  | TX Mode_IEEE 802.11b        |          |          |
| Output Power                                   | TX Mode_IEEE 802.11g        | 01/06/11 |          |
|  | TX Mode_IEEE 802.11n (HT20) |          |          |
|  | TX Mode_IEEE 802.11n (HT40) | 03/06/09 |          |
|  | TX Mode_IEEE 802.11b        |          |          |
| Power Spectral Density                         | TX Mode_IEEE 802.11g        | 01/06/11 | _        |
| r ower opectial Density                        | TX Mode_IEEE 802.11n (HT20) |          |          |
|  | TX Mode_IEEE 802.11n (HT40) | 03/06/09 |          |
|  | TX Mode_IEEE 802.11b        |          |          |
| Antenna conducted Spurious Emission            | TX Mode_IEEE 802.11g        | 01/06/11 | -        |
|  | TX Mode_IEEE 802.11n (HT20) |          |          |
|  | TX Mode_IEEE 802.11n (HT40) | 03/06/09 |          |

NOTE:

(1) The Radiated emissions test was verified based on the worst conducted power and Bandwidth test results reported in the original report.

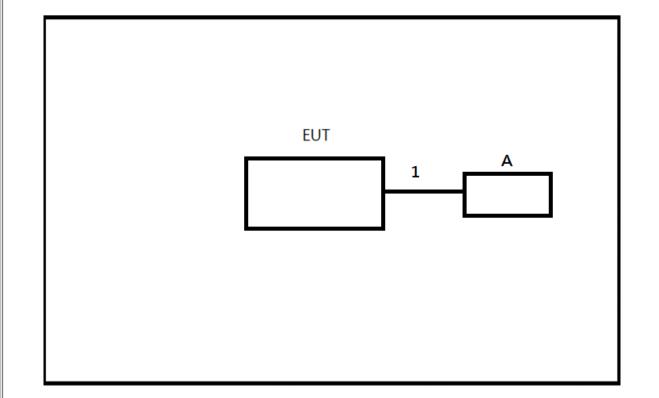
(2) For radiated emission band edge test, both Vertical and Horizontal are evaluated, but only the worst case (Vertical) is recorded.

(3) All X, Y and Z axes are evaluated, but only the worst case (Y axis) is recorded.



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

Equipment letters and Cable numbers refer to item numbers described in the tables of clause 2.4.



### 2.4 SUPPORT UNITS

| Item | Equipment             | Brand        | Model No.    | Series No. | Remarks |
|------|-----------------------|--------------|--------------|------------|---------|
| A    | MANAGED POE<br>SWITCH | CRESTRON     | CEN-SWPOE-16 | N/A        | -       |
|      |                       |              |              |            |         |
| Item | Shielded              | Ferrite Core | Length       | Cable Type | Remarks |
| 1    | NO                    | NO           | 3m           | LAN Cable  | -       |



# 3 RADIATED EMISSIONS TEST

### 3.1 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<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(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  | Radiated I<br>(dBu | Measurement Distance |          |
|------------|--------------------|----------------------|----------|
| (MHz)      | Peak               | Average              | (meters) |
| 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

Calculation example:

| Reading Level |   | Correct Factor |   | Measurement Value |
|---------------|---|----------------|---|-------------------|
| 19.11         | + | 2.11           | Π | 21.22             |

| Measurement Value |   | Limit Value |   | Margin Level |
|-------------------|---|-------------|---|--------------|
| 21.22             | - | 54          | = | -32.78       |

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



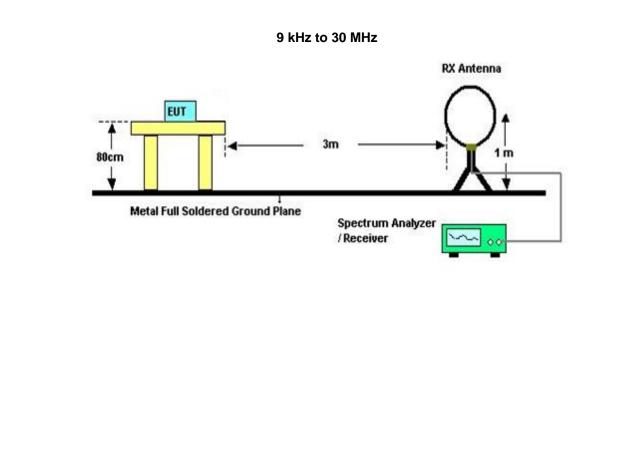
### 3.2 TEST PROCEDURE

- 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)
- 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 PHOTO.

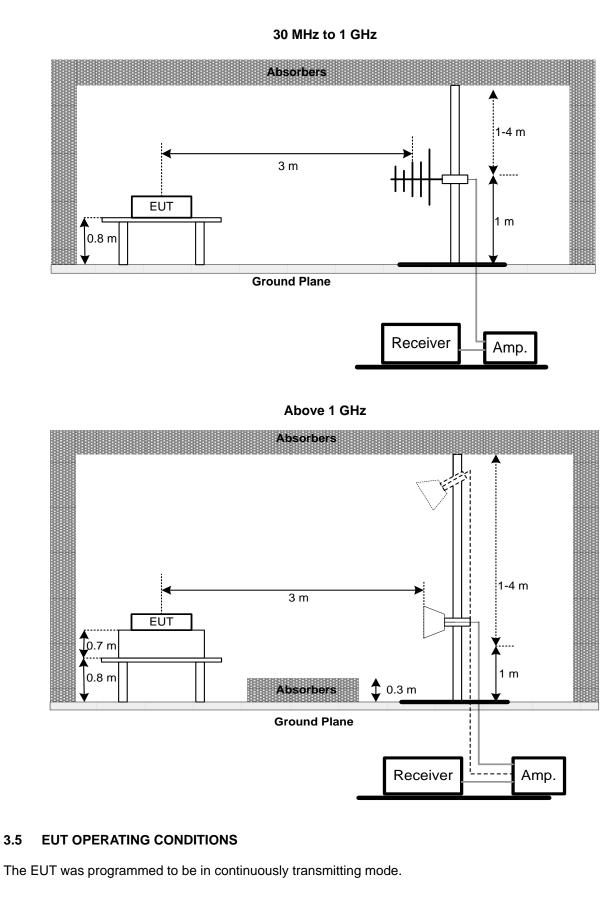
### 3.3 DEVIATION FROM TEST STANDARD

No deviation.

### 3.4 TEST SETUP









### 3.6 TEST RESULT – 9 KHZ TO 30 MHZ

Please refer to the APPENDIX A.

### 3.7 TEST RESULT – 30 MHZ TO 1 GHZ

Please refer to the APPENDIX B.

### 3.8 TEST RESULT – ABOVE 1 GHZ

Please refer to the APPENDIX C.

### NOTE:

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



# 4 BANDWIDTH TEST

### 4.1 LIMIT

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

### 4.2 TEST PROCEDURE

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

### 4.3 DEVIATION FROM TEST STANDARD

No deviation.

### 4.4 TEST SETUP



### 4.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 4.6 TEST RESULT

Please refer to the APPENDIX D.



# 5 OUTPUT POWER TEST

### 5.1 LIMIT

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

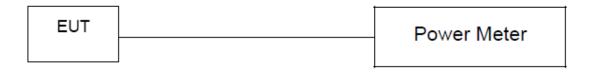
### 5.2 TEST PROCEDURE

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

### 5.3 DEVIATION FROM TEST STANDARD

No deviation.

### 5.4 TEST SETUP



### 5.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

### 5.6 TEST RESULT

Please refer to the APPENDIX E.



# 6 POWER SPECTRAL DENSITY

### 6.1 LIMIT

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

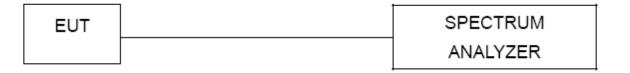
### 6.2 TEST PROCEDURE

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

### 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 F.





# 7 ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST

### 7.1 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.

### 7.2 TEST PROCEDURE

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

### 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 G.



# 8 LIST OF MEASURING EQUIPMENTS

| Dedicted Emissions |                             |              |                       |            |                    |                     |  |  |  |  |
|--------------------|-----------------------------|--------------|-----------------------|------------|--------------------|---------------------|--|--|--|--|
|                    |                             |              | Radiated Emission     | ons        | -                  |                     |  |  |  |  |
| Item               | Kind of<br>Equipment        | Manufacturer | Type No.              | Serial No. | Calibrated<br>Date | Calibrated<br>Until |  |  |  |  |
| 1                  | Preamplifier                | EMCI         | EMC001340             | 980555     | 2019/4/12          | 2020/4/11           |  |  |  |  |
| 2                  | Preamplifier                | EMCI         | EMC02325B             | 980217     | 2019/4/12          | 2020/4/11           |  |  |  |  |
| 3                  | Preamplifier                | EMCI         | EMC012645B            | 980267     | 2019/4/12          | 2020/4/11           |  |  |  |  |
| 4                  | Test Cable                  | EMCI         | EMC104-SM-SM-<br>800  | 150207     | 2019/4/12          | 2020/4/11           |  |  |  |  |
| 5                  | Test Cable                  | EMCI         | EMC104-SM-SM-<br>3000 | 151205     | 2019/4/12          | 2020/4/11           |  |  |  |  |
| 6                  | Test Cable                  | EMCI         | EMC-SM-SM-700<br>0    | 180408     | 2019/4/12          | 2020/4/11           |  |  |  |  |
| 7                  | MXE EMI<br>Receiver         | Agilent      | N9038A                | MY55420127 | 2019/3/26          | 2020/3/25           |  |  |  |  |
| 8                  | Signal Analyzer             | Agilent      | N9010A                | MY56480554 | 2019/6/6           | 2020/6/5            |  |  |  |  |
| 9                  | Loop Ant                    | EMCO         | EMCI-LPA600           | 274        | 2019/5/31          | 2020/5/30           |  |  |  |  |
| 10                 | Horm Ant                    | SCHWARZBECK  | BBHA 9120D            | 9120D-1342 | 2019/6/10          | 2020/6/9            |  |  |  |  |
| 11                 | Trilog-Broadband<br>Antenna | Schwarzbeck  | VULB 9168             | 000992     | 2019/5/29          | 2020/5/28           |  |  |  |  |
| 12                 | 5dB Attenuator              | EMCI         | EMCI-N-6-05           | AT-N0508   | 2019/5/29          | 2020/5/28           |  |  |  |  |

|      | Bandwidth            |              |          |            |                    |                     |  |  |  |  |  |  |
|------|----------------------|--------------|----------|------------|--------------------|---------------------|--|--|--|--|--|--|
| Item | Kind of<br>Equipment | Manufacturer | Type No. | Serial No. | Calibrated<br>Date | Calibrated<br>Until |  |  |  |  |  |  |
| 1    | Spectrum<br>Analyzer | R&S          | FSP40    | 100129     | 2019/5/23          | 2020/5/22           |  |  |  |  |  |  |

|      | Output Power         |              |          |            |                    |                     |  |  |  |  |  |  |
|------|----------------------|--------------|----------|------------|--------------------|---------------------|--|--|--|--|--|--|
| Item | Kind of<br>Equipment | Manufacturer | Type No. | Serial No. | Calibrated<br>Date | Calibrated<br>Until |  |  |  |  |  |  |
| 1    | Power Meter          | Anritsu      | ML2487A  | 6K00004714 | 2019/6/20          | 2020/6/18           |  |  |  |  |  |  |
| 2    | Power Sensor         | Anritsu      | MA2491A  | 1725282    | 2019/6/20          | 2020/6/18           |  |  |  |  |  |  |

|     | Power Spectral Density |                      |              |          |            |                    |                     |  |  |  |  |  |  |
|-----|------------------------|----------------------|--------------|----------|------------|--------------------|---------------------|--|--|--|--|--|--|
| lte | em                     | Kind of<br>Equipment | Manufacturer | Type No. | Serial No. | Calibrated<br>Date | Calibrated<br>Until |  |  |  |  |  |  |
|     | 1                      | Spectrum<br>Analyzer | R&S          | FSP40    | 100129     | 2019/5/23          | 2020/5/22           |  |  |  |  |  |  |

|      | Antenna conducted Spurious Emission |              |          |            |                    |                     |  |  |  |  |  |  |  |
|------|-------------------------------------|--------------|----------|------------|--------------------|---------------------|--|--|--|--|--|--|--|
| Item | Kind of<br>Equipment                | Manufacturer | Type No. | Serial No. | Calibrated<br>Date | Calibrated<br>Until |  |  |  |  |  |  |  |
| 1    | Spectrum<br>Analyzer                | R&S          | FSP40    | 100129     | 2019/5/23          | 2020/5/22           |  |  |  |  |  |  |  |

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



# 9 EUT TEST PHOTO

Please refer to document Appendix No.: TP-1911T046-FCCP-1 (APPENDIX-TEST PHOTOS).

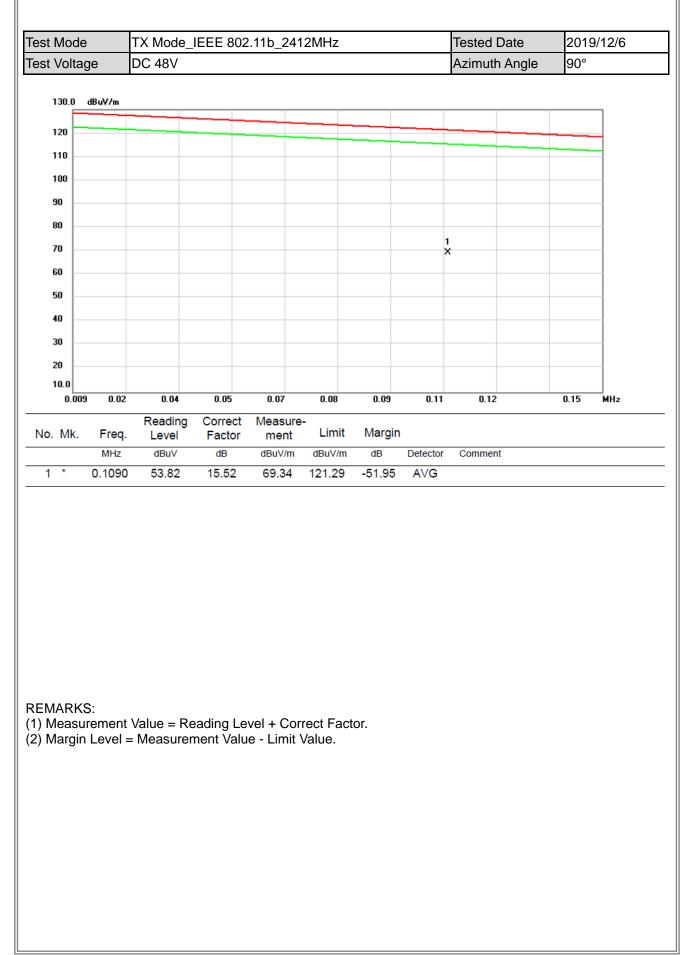
# 10 EUT PHOTOS

Please refer to document Appendix No.: EP-1911T046-1 (APPENDIX-EUT PHOTOS).



# APPENDIX A RADIATED EMISSIONS - 9 KHZ TO 30 MHZ



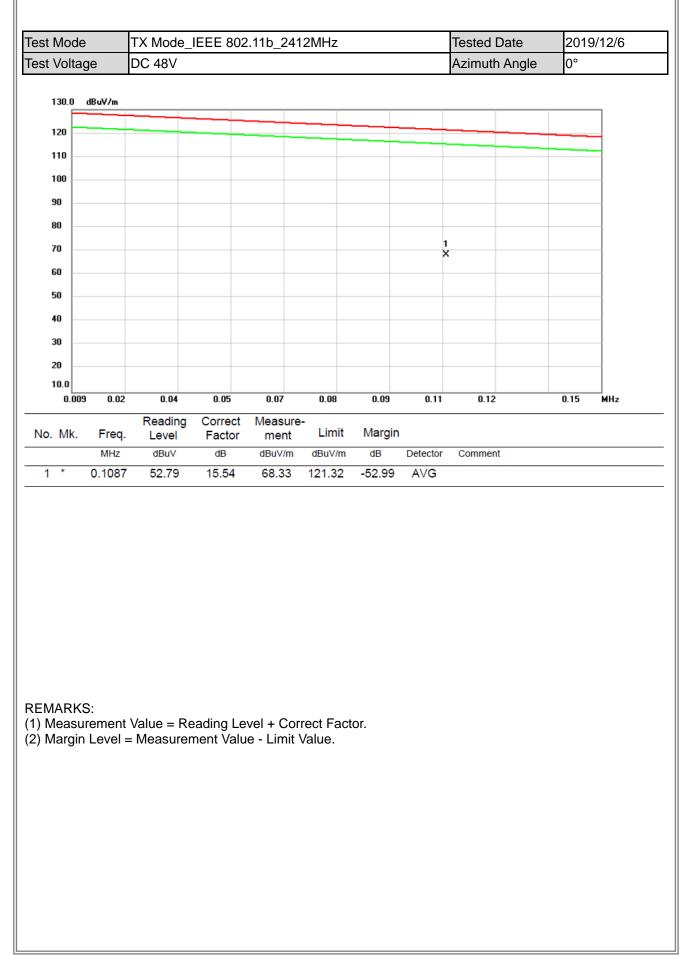




| Fest Mod   | е       | TX Mode_ | IEEE 802 | 2.11b_2412 | 2MHz   |        |          | Tested Date | 20     | 019/12/6 |  |
|------------|---------|----------|----------|------------|--------|--------|----------|-------------|--------|----------|--|
| Fest Volta | age     | DC 48V   |          |            |        |        |          | Azimuth Ang | le 90  | )°       |  |
| 130.0      | dBu∀/m  |          |          |            |        |        |          |             |        |          |  |
| 120        |         |          |          |            |        |        |          |             |        |          |  |
| 110        |         |          |          |            |        |        |          |             |        |          |  |
| 100        |         |          |          |            |        |        |          |             |        |          |  |
| 90         |         |          |          |            |        |        |          |             |        |          |  |
| 80 -       |         |          |          |            |        |        |          |             |        |          |  |
| 70         |         |          |          |            |        |        |          |             |        |          |  |
| 60         |         |          |          |            |        |        |          |             |        |          |  |
| 50         |         |          |          |            |        |        |          |             |        |          |  |
| 40         |         |          |          | 2 X<br>X   |        |        |          |             |        |          |  |
| 30         |         | 1<br>X   |          | ^          |        | 4<br>× |          | 5           | 6<br>X |          |  |
| 20         |         |          |          |            |        | ^      |          | x           |        |          |  |
| 10.0       | 50 3.14 | 6.12     | 9.10     | 12.09      | 15.08  | 18.06  | 21.04    | 24.03       | 30.0   | DO MHz   |  |
| 0.13       | JU J.14 | Reading  | Correct  | Measure-   | 15.00  | 10.00  | 21.04    | 24.03       | 30.0   | DU MH2   |  |
| No. Mk.    | Freq.   | Level    | Factor   | ment       | Limit  | Margin |          |             |        |          |  |
|            | MHz     | dBuV     | dB       | dBuV/m     | dBuV/m | dB     | Detector | Comment     |        |          |  |
| 1          | 3.7917  |          | -3.77    | 29.96      | 73.32  | -43.36 | QP       |             |        |          |  |
| 2          | 10.2094 |          | -4.73    | 37.24      | 72.40  | -35.16 | QP       |             |        |          |  |
| 3 *        | 12.2691 |          | -4.82    | 40.57      | 72.10  | -31.53 | QP       |             |        |          |  |
| 4          | 16.7764 |          | -5.72    | 26.59      | 71.45  | -44.86 | QP       |             |        |          |  |
| 5          | 22.9255 |          | -7.20    | 23.30      | 70.56  | -47.26 | QP       |             |        |          |  |
| 6          | 27.1343 | 36.26    | -8.12    | 28.14      | 69.95  | -41.81 | QP       |             |        |          |  |

- Measurement Value = Reading Level + Correct Factor.
   Margin Level = Measurement Value Limit Value.

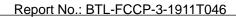






| est Mod    | de                 | TX Mc       | ode | EEE 80            | )2.11b_24      | 112MHz |                  |          | Tested Date   | 2019  | 9/12/6 |
|------------|--------------------|-------------|-----|-------------------|----------------|--------|------------------|----------|---------------|-------|--------|
| est Volt   |                    | DC 48       |     |                   |                |        |                  |          | Azimuth Angle |       |        |
| 130.0<br>Г | dBuV/m             |             |     |                   |                |        |                  |          |               |       | _      |
| 120        |                    |             |     |                   |                |        |                  |          |               |       |        |
| 110        |                    |             | _   |                   |                |        |                  |          |               |       | _      |
| 100        |                    |             | _   |                   |                |        |                  |          |               |       | _      |
| 90         |                    |             | _   |                   |                |        |                  |          |               |       | _      |
| 80         |                    |             |     |                   |                |        |                  |          |               |       | _      |
| 70         |                    |             |     |                   |                |        |                  |          |               | _     |        |
| 60         |                    |             |     |                   |                |        |                  |          |               |       | -      |
| 50         |                    |             |     |                   |                |        |                  |          |               |       | _      |
| 40         |                    |             |     |                   | 5              |        |                  |          |               |       |        |
| 30         |                    | 1           | 2   |                   | 34×<br>××      |        | 6<br>X           |          |               |       |        |
| 20         |                    | ×           | ×   | {                 | ^              |        |                  |          |               |       |        |
| 10.0       |                    |             |     |                   |                |        |                  |          |               |       |        |
| 0.1        | 150 3.14           |             | 12  | 9.10              | 12.09          | 15.08  | 18.06            | 21.04    | 24.03         | 30.00 | MHz    |
| No. Mk     | . Freq.            | Read<br>Lev |     | Correct<br>Factor |                |        | Margin           | I        |               |       |        |
|            | MHz                | dBu         |     | dB                | dBuV/m         |        | dB               | Detector | Comment       |       |        |
| 1          | 3.5530             |             |     | -3.74             | 25.64          |        | -47.72           | QP       |               |       |        |
| 2          | 7.0155             |             |     | -4.12             | 27.33          |        | -45.53           | QP       |               |       |        |
| 3          | 10.2094<br>11.0751 |             |     | -4.73<br>-4.81    | 28.69<br>30.16 |        | -43.71<br>-42.11 |          |               |       |        |
| 5 *        | 11.9706            |             |     | -4.82             | 34.31          | 72.14  | -42.11           |          |               |       |        |
| 6          | 16.7466            |             |     | -5.70             | 30.05          |        | -41.40           | QP       |               |       |        |

- Measurement Value = Reading Level + Correct Factor.
   Margin Level = Measurement Value Limit Value.





# APPENDIX B RADIATED EMISSIONS - 30 MHZ TO 1 GHZ



| est Mod    | de       | TX Mode          | _IEEE 802         | 2.11b_241        | 2MHz   |        |          | Tested Date  | 2019/12/6   |  |
|------------|----------|------------------|-------------------|------------------|--------|--------|----------|--------------|-------------|--|
| Fest Volt  | age      | DC 48V           |                   |                  |        |        |          | Polarization | Vertical    |  |
| 80.0       | dBuV/m   |                  |                   |                  |        |        |          |              |             |  |
| 70         |          |                  |                   |                  |        |        |          |              |             |  |
| 60         |          |                  |                   |                  |        |        |          |              |             |  |
| 50         |          |                  |                   |                  |        |        |          |              |             |  |
| 40         |          |                  |                   |                  |        |        |          |              |             |  |
| 30         | ¥        | 2<br>X           |                   | 4<br>X           | 5<br>X |        | 6<br>X   |              |             |  |
| 20         |          |                  | 3<br>X            |                  |        |        |          |              |             |  |
| 10         |          |                  |                   |                  |        |        |          |              |             |  |
| 0.0<br>30. | 000 127. | 00 224.00        | 321.00            | 418.00           | 515.00 | 612.00 | 709.0    | 0 806.00     | 1000.00 MHz |  |
| No. Mk     | . Freq.  | Reading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit  | Margin |          |              |             |  |
|            | MHz      | dBuV             | dB                | dBuV/m           | dBuV/m | dB     | Detector | Comment      |             |  |
| 1 *        | 80.4400  | 44.40            | -15.86            | 28.54            | 40.00  | -11.46 | peak     |              |             |  |
| 2          | 157.0700 | 39.04            | -11.35            | 27.69            | 43.50  | -15.81 | peak     |              |             |  |
| 3          | 250.1900 | 33.40            | -12.92            | 20.48            | 46.00  | -25.52 | peak     |              |             |  |

46.00 -22.12

46.00 -14.31

-18.61

46.00

peak

peak

peak

**REMARKS**:

4

5

6

415.0900

500.4500

666.3200

- Measurement Value = Reading Level + Correct Factor.
   Margin Level = Measurement Value Limit Value.

31.77

37.81

30.52

-7.89

-6.12

-3.13

23.88

31.69

27.39



| Fest Mod   | 10        | TX Mod        |          | 802.11b_2 | 0/12MH-    |          |          | Tested Date  | 2019/12/6   |
|------------|-----------|---------------|----------|-----------|------------|----------|----------|--------------|-------------|
| Fest Volt  |           | DC 48         |          | 002.110_2 | .412101112 |          |          | Polarization | Horizontal  |
| 80.0       | dBuV/m    |               |          |           |            |          |          |              |             |
| 70         |           |               |          |           |            |          |          |              |             |
| 60         |           |               |          |           |            |          |          |              |             |
| 50 -       |           |               |          |           |            |          |          |              |             |
| 40         |           |               |          |           | 5          |          |          |              |             |
| 30         | 1<br>X    | 2<br>X        | 3<br>X   | 4         | 5X         | ŝ        |          |              |             |
| 20         | ×         |               | <u>^</u> | Ŷ         |            |          |          |              |             |
| 10         |           |               |          |           |            |          |          |              |             |
| 0.0<br>30. | 000 127.0 | 00 224        | .00 321  | .00 418.0 | )0 515.0   | 0 612.00 | 709.00   | ) 806.00     | 1000.00 MHz |
| No. Mk     | . Freq.   | Readi<br>Leve |          |           |            | t Margin |          |              |             |
|            | MHz       | dBu∖          | dB       | dBuV/     | m dBuV/r   | n dB     | Detector | Comment      |             |
| 1          | 85.2900   | 40.8          | 5 -16.6  | 6 24.1    | 9 40.00    | ) -15.81 | peak     |              |             |
| 2          | 158.0400  | 39.3          | 5 -11.3  | 1 28.0    | 4 43.50    | -15.46   | peak     |              |             |

46.00 -20.71

46.00 -20.77

46.00 -12.03

-17.47

46.00

peak

peak

peak

peak

**REMARKS**:

3

4

6

5 \*

236.6100

399.5700

500.4500

624.6100

- Measurement Value = Reading Level + Correct Factor.
   Margin Level = Measurement Value Limit Value.

38.86

33.59

40.09

32.07

-13.57

-8.36

-6.12

-3.54

25.29

25.23

33.97

28.53



# APPENDIX C RADIATED EMISSIONS - ABOVE 1 GHZ



| est Mode    | TXI        | Node_                                    | IEEE 8 | 302.1        | 1b_2       | 412 N | ИНz    |        |                    |          | Teste        | d Date           | 2020/1/                       | 5   |
|-------------|------------|--|--------|--------------|------------|-------|--------|--------|--------------------|----------|--------------|------------------|-------------------------------|-----|
| est Voltage | DC ·       | 48V                                      |        |              |            |       |        |        |                    |          | Polarization |                  | Vertical                      |     |
|             |            |  |        |              |            |       |        |        |                    |          |              |                  |                               |     |
|             |            |  |        |              |            |       |        |        |                    |          |              |                  |                               |     |
| 120.0 dBu∀  | /m         |  |        |              |            |       |        |        |                    |          |              |                  |                               | 1   |
| 110         |            |  |        |              |            |       |        |        | _                  |          |              |                  |                               |     |
| 100         |            |  |        | _            |            |       | 34     | ~      |                    |          |              |                  |                               |     |
| 90          |            |  |        |              |            | کم    |        | - Y    |                    |          |              |                  |                               |     |
| 80          |            |  |        |              |            | /     |        |        |                    |          |              |                  |                               |     |
| 70          |            |  |        |              | $\sim$     | /     |        |        | $\left< - \right>$ | $\sim$   |              |                  |                               | -   |
|             |            |  | 1      | r            | · V        |       |        |        | V                  | M        |              |                  |                               | 1   |
| 60          |            |  | ×2     |              |            |       |        |        |                    | 1        | -            | ~                |                               | 1   |
| 50          | handqubull | an a | x      |              |            |       |        |        | -                  |          | -            | - Manifelder Min | ym-fudinalisiaitfeitfaliaethi | 1   |
| 40          |            |  |        |              |            |       |        |        | -                  |          |              |                  |                               | 1   |
| 30          |            |  |        |              |            |       |        |        | -                  |          |              |                  |                               | {   |
| 20          |            |  |        |              |            |       |        |        | _                  |          |              |                  |                               |     |
| 10          |            |  |        | _            |            |       |        |        |                    |          |              |                  |                               |     |
| 0.0         |            |  |        |              |            |       |        |        |                    |          |              |                  |                               |     |
| 2362.000    |            | 2382                                     |        | 392.00       |            | 2.00  | 2412   | .00 24 | 22.00              | 2432     | 2.00 2       | 2442.00          | 2462.00                       | MHz |
| No. Mk. F   | req.       | Readin<br>Level                          |        | rect<br>ctor | Meas<br>me |       | Limi   | t Ove  | er                 |          |              |                  |                               |     |
| M           | Hz         | dBuV                                     | d      | В            | dBuV       | /m    | dBuV/ı | m dB   |                    | Detector | Con          | nment            |                               |     |

| 1   | 2385.800   | 31.58 | 27.13 | 58.71  | 74.00 | -15.29 | peak |          |
|-----|------------|-------|-------|--------|-------|--------|------|----------|
| 2   | 2385.800   | 23.15 | 27.13 | 50.28  | 54.00 | -3.72  | AVG  |          |
| 3)  | X 2410.800 | 74.48 | 27.21 | 101.69 | 74.00 | 27.69  | peak | No Limit |
| 4 ' | 2412.000   | 70.81 | 27.22 | 98.03  | 54.00 | 44.03  | AVG  | No Limit |

- Measurement Value = Reading Level + Correct Factor.
   Margin Level = Measurement Value Limit Value.



| t Mode TX Mode_IEEE 802.11b_2462 MHz |                     |            |                 |           |                 |                  |          | Date               | 2020/1/5           |  |
|--------------------------------------|---------------------|------------|-----------------|-----------|-----------------|------------------|----------|--------------------|--------------------|--|
| Voltage                              | DC 48V              |            |                 | Polariza  | ation           | Vertical         |          |                    |                    |  |
|                                      |                     |            |                 |           |                 |                  |          |                    | -                  |  |
| 120.0 dBu¥/                          | m                   |            |                 |           |                 |                  |          |                    |                    |  |
|                                      |                     |            |                 |           |                 |                  |          |                    |                    |  |
| 110                                  |                     |            |                 |           |                 |                  |          |                    |                    |  |
| 100                                  |                     |            |                 |           |                 |                  |          |                    |                    |  |
| 90                                   |                     |            |                 | 1         | - \_            |                  |          |                    |                    |  |
| 80                                   |                     |            |                 | /         | $ \rightarrow $ |                  |          |                    |                    |  |
| 70                                   |                     |            | $\sim$          | /         |                 | $\left( \right)$ |          |                    |                    |  |
| 60                                   |                     |            | $\gamma$ $\vee$ |           |                 | Vh               | 3        |                    |                    |  |
| 50 Manufacture                       | Mr. Hernonglowelant | warmen and |                 |           |                 |                  | × ×      | had many marked as | การสารสารสารสารสาร |  |
| 40                                   |                     |            |                 |           |                 |                  |          |                    |                    |  |
| 30                                   |                     |            |                 |           |                 |                  |          |                    |                    |  |
| 20                                   |                     |            |                 |           |                 |                  |          |                    |                    |  |
| 10                                   |                     |            |                 |           |                 |                  |          |                    |                    |  |
| 0.0                                  |                     |            |                 |           |                 |                  |          |                    |                    |  |
| 2412.000 2                           | 422.00 243          | 2.00 244   | 2.00 2452       | 2.00 2462 | 2.00 247        | 2.00 2482        | 2.00 249 | 2.00               | 2512.00 MHz        |  |

|   | No. | Mł | . Freq.  | Reading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit  | Over   |          |          |
|---|-----|----|----------|------------------|-------------------|------------------|--------|--------|----------|----------|
| _ |     |    | MHz      | dBuV             | dB                | dBuV/m           | dBuV/m | dB     | Detector | Comment  |
| - | 1   | Х  | 2462.000 | 72.63            | 27.38             | 100.01           | 74.00  | 26.01  | peak     | No Limit |
| - | 2   | *  | 2462.000 | 69.12            | 27.38             | 96.50            | 54.00  | 42.50  | AVG      | No Limit |
| _ | 3   |    | 2487.100 | 29.61            | 27.46             | 57.07            | 74.00  | -16.93 | peak     |          |
| _ | 4   |    | 2487.100 | 21.25            | 27.46             | 48.71            | 54.00  | -5.29  | AVG      |          |



| Mode       | TX Mode       | _IEEE 80    |               |                 | Tested Date |            | 2020/1/5   |                |  |
|------------|---------------|-------------|---------------|-----------------|-------------|------------|------------|----------------|--|
| Voltage    | DC 48V        |             |               | Polariza        | ation       | Vertical   |            |                |  |
|            |               |             |               |                 |             |            |            |                |  |
| 120.0 dBu∀ | /m            |             |               |                 |             |            |            |                |  |
| 110        |               |             |               |                 |             |            |            |                |  |
| 100        |               |             |               | potentian and a | 3           |            |            |                |  |
| 90         |               |             |               | <i>(</i>        | × \         |            |            |                |  |
| 80         |               |             |               |                 |             | Mary       |            |                |  |
| 70         |               | *. <b>*</b> | All Martinger |                 |             | Noveluluin | Wa i       |                |  |
| 60         |               | . All       |               |                 |             |            | WWW WICH A |                |  |
| 50 ******  | mannephanetel | 2<br>X      |               |                 |             |            | , at least | Helicklyrouted | the work was the first and a second start of |
| 40         |               |             |               |                 |             |            |            |                |  |
| 30         |               |             |               |                 |             |            |            |                |  |
| 20         |               |             |               |                 |             |            |            |                |  |
| 10         |               |             |               |                 |             |            |            |                |  |
| 2362.000   | 2222.00 220   | 2.00 2393   | 2.00 2402     | 00 241          | 2.00 242    | 2.00 2433  | 2.00 244   | 2.00           | 2462.00 MHz                                  |

| No. | Mk. | Freq.    | Reading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit  | Over  |          |          |
|-----|-----|----------|------------------|-------------------|------------------|--------|-------|----------|----------|
|     |     | MHz      | dBuV             | dB                | dBuV/m           | dBuV/m | dB    | Detector | Comment  |
| 1   |     | 2388.700 | 39.07            | 27.14             | 66.21            | 74.00  | -7.79 | peak     |          |
| 2   |     | 2388.700 | 19.77            | 27.14             | 46.91            | 54.00  | -7.09 | AVG      |          |
| 3   | Х   | 2412.000 | 71.37            | 27.22             | 98.59            | 74.00  | 24.59 | peak     | No Limit |
| 4   | *   | 2412.000 | 61.15            | 27.22             | 88.37            | 54.00  | 34.37 | AVG      | No Limit |



| t Mode         | TX Mode |             | Tested                                  | Date          | 2020/1/5 |                |           |                  |                  |
|----------------|---------|-------------|---|---------------|----------|----------------|-----------|------------------|------------------|
| t Voltage      | DC 48V  |             |   | Polariz       | ation    | Vertical       |           |                  |                  |
|                |         |             |   |               |          |                |           |                  |                  |
| 120.0 dBu∀/r   | n       |             |   |               |          |                |           |                  |                  |
| 110            |         |             |   |               |          |                |           |                  |                  |
| 100            |         |             |   | analysis of a | <        |                |           |                  |                  |
| 90             |         |             |   | 1             | many     |                |           |                  |                  |
| 80             |         |             | 1                                       | (             | <b>}</b> | u.             |           |                  |                  |
| 70             |         |             | Mar |               |          | M. Mary Marthe | 12        |                  |                  |
| 60             |         | A Mart      | ALIAN                                   |               |          |                | 12 Martin | #Northerades.com |                  |
| 50 Junimensing | minuman | whether AN' |   |               |          |                | 4 ×       | Muslindersport   | which the second |
| 40             |         |             |   |               |          |                | <u>^</u>  |                  |                  |
| 30             |         |             |   |               |          |                |           |                  |                  |
| 20             |         |             |   |               |          |                |           |                  |                  |
| 10             |         |             |   |               |          |                |           |                  |                  |
| 0.0            |         |             |   |               |          |                |           |                  |                  |

| No. | Mł | ٢.  | Freq. | Reading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit  | Over   |          |          |
|-----|----|-----|-------|------------------|-------------------|------------------|--------|--------|----------|----------|
|     |    |     | MHz   | dBuV             | dB                | dBuV/m           | dBuV/m | dB     | Detector | Comment  |
| 1   | Х  | 246 | 2.000 | 69.44            | 27.38             | 96.82            | 74.00  | 22.82  | peak     | No Limit |
| 2   | *  | 246 | 2.000 | 60.31            | 27.38             | 87.69            | 54.00  | 33.69  | AVG      | No Limit |
| 3   |    | 248 | 3.500 | 35.63            | 27.45             | 63.08            | 74.00  | -10.92 | peak     |          |
| 4   |    | 248 | 3.500 | 20.49            | 27.45             | 47.94            | 54.00  | -6.06  | AVG      |          |



| st Mode                   | TX Mode_                      | IEEE 80  | 2.11n (H     | T20)_24  | 12 MHz   |             | Tested   | Date        | 2019/12/4                 |
|---------------------------|-------------------------------|----------|--------------|----------|----------|-------------|----------|-------------|---------------------------|
| st Voltage                | DC 48V                        |          | Polariza     | ation    | Vertical |             |          |             |                           |
|                           |                               |          |              |          |          |             |          |             |                           |
| 120.0 dBu¥                | //m                           |          |              |          |          |             |          |             |                           |
| 110                       |                               |          |              |          |          |             |          |             |                           |
| 100                       |                               |          |              | house    | 3<br>X   |             |          |             |                           |
| 90                        |                               |          |              | /        | × 1      | 1           |          |             |                           |
| 80                        |                               |          |              |          |          | <u>\</u> .  |          |             |                           |
| 70                        |                               |          | Mar Marthand |          |          | Muniter Ann | ANNU .   |             | tur fan open twinter open |
| 60<br><u>\/~~~~~~~~~~</u> | an manager and a state of the | how the  |              |          |          |             | What     | unally ward | www.www.                  |
| 50                        |                               | 2<br>X   |              |          |          |             |          |             |                           |
| 40                        |                               |          |              |          |          |             |          |             |                           |
| 30                        |                               |          |              |          |          |             |          |             |                           |
| 20                        |                               |          |              |          |          |             |          |             |                           |
| 10                        |                               |          |              |          |          |             |          |             |                           |
| 0.0                       |                               |          |              |          |          |             |          |             |                           |
| 2362.000                  | 2372.00 2382                  | .00 2392 | .00 2402     | 2.00 241 | 2.00 242 | 2.00 243    | 2.00 244 | 42.00       | 2462.00 MH:               |

|   | No. | Mk | . Freq.  | Level | Factor | ment   | Limit  | Margin |          |          |
|---|-----|----|----------|-------|--------|--------|--------|--------|----------|----------|
| _ |     |    | MHz      | dBu∨  | dB     | dBuV/m | dBuV/m | dB     | Detector | Comment  |
| _ | 1   |    | 2389.400 | 37.87 | 31.25  | 69.12  | 74.00  | -4.88  | peak     |          |
| _ | 2   |    | 2389.400 | 16.49 | 31.25  | 47.74  | 54.00  | -6.26  | AVG      |          |
| _ | 3   | Х  | 2412.000 | 69.48 | 31.34  | 100.82 | 74.00  | 26.82  | peak     | No Limit |
|   | 4   | *  | 2412.000 | 59.34 | 31.34  | 90.68  | 54.00  | 36.68  | AVG      | No Limit |



| est Mode    | TX Mode                | LEEE 80               | )2.11n (H      | T20)_240 | 62 MHz    |                   | Tested           | Date           | 2019/12/4   |
|-------------|------------------------|-----------------------|----------------|----------|-----------|-------------------|------------------|----------------|-------------|
| est Voltage | DC 48V                 |                       |                |          |           |                   | Polariza         | ation          | Vertical    |
| 120.0 dBu\  | //m                    |                       | 1              | Ì        | 1         |                   |                  |                |             |
| 110         |                        |                       |                |          |           |                   |                  |                |             |
| 100         |                        |                       |                |          | 1         |                   |                  |                |             |
| 90          |                        |                       |                |          | ×         |                   |                  |                |             |
| 80          |                        |                       | p f            |          |           |                   |                  |                |             |
| 70          |                        |                       | A what we have |          |           | Ward Marine Agent | . 3              |                |             |
| 60          | rapantehananghahananga | marker marker weekend | MANU           |          |           | , H               | My July May 1944 | ently monorial | mannahara   |
| 50          |                        |                       |                |          |           |                   | 4<br>×           |                |             |
| 40          |                        |                       |                |          |           |                   |                  |                |             |
| 30          |                        |                       |                |          |           |                   |                  |                |             |
| 20          |                        |                       |                |          |           |                   |                  |                |             |
| 10<br>0.0   |                        |                       |                |          |           |                   |                  |                |             |
| 2412.000    | 2422.00 243            | 32.00 244             | 2.00 245       | 2.00 246 | 2.00 2472 | 2.00 2482         | 2.00 249         | )2.00          | 2512.00 MHz |

|   | No. | Mk | . Freq.  | Level | Factor | ment   | Limit  | Margin |          |          |
|---|-----|----|----------|-------|--------|--------|--------|--------|----------|----------|
| - |     |    | MHz      | dBu∨  | dB     | dBuV/m | dBuV/m | dB     | Detector | Comment  |
| - | 1   | Х  | 2462.000 | 66.62 | 31.56  | 98.18  | 74.00  | 24.18  | peak     | No Limit |
| - | 2   | *  | 2462.000 | 57.33 | 31.56  | 88.89  | 54.00  | 34.89  | AVG      | No Limit |
| - | 3   |    | 2485.100 | 32.89 | 31.66  | 64.55  | 74.00  | -9.45  | peak     |          |
|   | 4   |    | 2485.100 | 15.16 | 31.66  | 46.82  | 54.00  | -7.18  | AVG      |          |



| t Mode                         | TX Mode   | _IEEE 80       | 2.11n (H  | T40)_242               | 22 MHz         |           | Tested      | Date                    | 2019/12       | /4  |
|--------------------------------|---|----------------|-----------|------------------------|----------------|-----------|-------------|-------------------------|---------------|-----|
| st Voltage                     | DC 48V  |                |           |                        |                |           | Polariza    | ation                   | Vertical      |     |
|                                |   |                |           |                        |                |           |             |                         |               |     |
| 120.0 dBu¥                     | /m  |                |           |                        |                |           | 1           | 1                       |               | I   |
| 110                            |   |                |           |                        |                |           |             |                         |               |     |
| 100                            |   |                |           |                        | 3              |           |             |                         |               |     |
| 90                             |   |                |           | $f \rightarrow \gamma$ | and the second |           |             |                         |               |     |
| 80                             |   |                |           |                        | (              |           |             |                         |               |     |
| 70                             | that the second seco |                | -         |                        |                | Willow    |             | E                       |               |     |
| 60<br><u>Лића, то</u> ри<br>50 | the Municipality  | Vermen and WWW | 2         |                        |                | Ju who w  | thermouster | - and the second second | mananaphanaph |     |
| 40                             |   |                | X         |                        |                |           |             |                         |               |     |
| 30                             |   |                |           |                        |                |           |             | 6<br>X                  |               |     |
| 20                             |   |                |           |                        |                |           |             |                         |               |     |
| 10                             |   |                |           |                        |                |           |             |                         |               |     |
| 0.0                            |   |                |           |                        |                |           |             |                         |               |     |
| 2322.000                       | 2342.00 236   | 2.00 2382      | 2.00 2403 | 2.00 2423              | 2.00 2442      | 2.00 2462 | 2.00 248    | 2.00                    | 2522.00       | MHz |

| No. | Mk | . Freq.  | Level | Factor | measure-<br>ment | Limit  | Margin |          |          |
|-----|----|----------|-------|--------|------------------|--------|--------|----------|----------|
|     |    | MHz      | dBu∨  | dB     | dBuV/m           | dBuV/m | dB     | Detector | Comment  |
| 1   |    | 2388.800 | 34.45 | 31.24  | 65.69            | 74.00  | -8.31  | peak     |          |
| 2   |    | 2388.800 | 17.61 | 31.24  | 48.85            | 54.00  | -5.15  | AVG      |          |
| 3   | Х  | 2422.000 | 63.77 | 31.39  | 95.16            | 74.00  | 21.16  | peak     | No Limit |
| 4   | *  | 2422.000 | 53.96 | 31.39  | 85.35            | 54.00  | 31.35  | AVG      | No Limit |
| 5   |    | 2491.800 | 26.54 | 31.69  | 58.23            | 74.00  | -15.77 | peak     |          |
| 6   |    | 2491.800 | 3.80  | 31.69  | 35.49            | 54.00  | -18.51 | AVG      |          |

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



| Mode       | TX Mod               | e_IEEE 80  | 2.11n (H       | T40)_24   | 52 MHz              |           | Tested D  | ate            | 2019/12/4                    |
|------------|----------------------|--|----------------|-----------|---------------------|-----------|-----------|----------------|------------------------------|
| Voltage    | DC 48V               |  |                |           |                     |           | Polarizat | ion            | Vertical                     |
| 120.0 dBu\ | //m                  |  |                |           |                     |           |           |                |                              |
| 110        |                      |  |                |           |                     |           |           |                |                              |
| 100        |                      |  |                | į         | }                   |           |           |                |                              |
| 90         |                      |  |                |           | $ \longrightarrow $ |           |           |                |                              |
| BO         |                      |  |                |           |                     |           |           |                |                              |
| 70         |                      |  | . Ja why       |           |                     | MM .      |           |                | notional generations and the |
| 60 1<br>   | unalisti and the set | and the second of the second | h-H-rollyppine |           |                     |           | whitering | north work the | whompy me the section        |
| 50         |                      |  |                |           |                     | ×         |           |                |                              |
| 40 2<br>X  |                      |  |                |           |                     |           |           |                |                              |
| 30         |                      |  |                |           |                     |           |           |                |                              |
| 20         |                      |  |                |           |                     |           |           |                |                              |
| 10         |                      |  |                |           |                     |           |           |                |                              |
| 0.0        |                      |  |                |           |                     |           |           |                |                              |
| 2352.000   | 2372.00 23           | 392.00 2412  | 2.00 2432      | 2.00 2452 | 2.00 2472           | 2.00 2492 | 2.00 2512 | 00             | 2552.00 MHz                  |

|   | No. | Mk | . Freq.  | Level | Factor | ment   | Limit  | Margin |          |          |
|---|-----|----|----------|-------|--------|--------|--------|--------|----------|----------|
|   |     |    | MHz      | dBu∨  | dB     | dBuV/m | dBuV/m | dB     | Detector | Comment  |
|   | 1   |    | 2354.000 | 26.12 | 31.08  | 57.20  | 74.00  | -16.80 | peak     |          |
| _ | 2   |    | 2354.000 | 4.13  | 31.08  | 35.21  | 54.00  | -18.79 | AVG      |          |
|   | 3   | Х  | 2452.000 | 62.67 | 31.52  | 94.19  | 74.00  | 20.19  | peak     | No Limit |
|   | 4   | *  | 2452.000 | 52.92 | 31.52  | 84.44  | 54.00  | 30.44  | AVG      | No Limit |
| _ | 5   |    | 2484.600 | 35.24 | 31.66  | 66.90  | 74.00  | -7.10  | peak     |          |
|   | 6   |    | 2484.600 | 17.50 | 31.66  | 49.16  | 54.00  | -4.84  | AVG      |          |

- (1) Measurement Value = Reading Level + Correct Factor.(2) Margin Level = Measurement Value Limit Value.



| est Mode    | TX Mode_IE           | EE 802.1          | 1b_2412          | MHz      |          |          | Tested Date             | 2020/1/5     |
|-------------|----------------------|-------------------|------------------|----------|----------|----------|-------------------------|--------------|
| est Voltage | DC 48V               |                   |                  |          |          |          | Polarization            | Vertical     |
| 120.0 dBuV  | /m                   |                   |                  |          |          |          |                         |              |
| 110         |                      |                   |                  |          |          |          |                         |              |
| 100         |                      |                   |                  |          |          |          |                         |              |
| 90          |                      |                   |                  |          |          |          |                         |              |
| 80          |                      |                   |                  |          |          |          |                         |              |
| 70          |                      |                   |                  |          |          |          |                         |              |
| 60          |                      |                   |                  |          |          |          |                         |              |
| 50          | 1                    |                   |                  |          |          |          |                         |              |
| 40          | 1<br>2<br>X          |                   |                  |          |          |          |                         |              |
| 30          |                      |                   |                  |          |          |          |                         |              |
| 20          |                      |                   |                  |          |          |          |                         |              |
| 10          |                      |                   |                  |          |          |          |                         |              |
| 0.0         | 3550.00 6100.00      | ) 8650.00         | 11200.00         | 13750.00 | ) 16300. | 00 1885  | i0.00 21 <b>4</b> 00.00 | 26500.00 MHz |
| No. Mk. Fr  | Reading<br>eq. Level | Correct<br>Factor | Measure-<br>ment | Limit    | Over     |          |                         |              |
|             | Hz dBuV              | dB                | dBuV/m           | dBuV/m   | dB       | Detector | Comment                 |              |
| 1 4824.     |                      | -10.52            | 45.10            | 74.00    | -28.90   | peak     |                         |              |
| 2 * 4824.   | 000 48.26            | -10.52            | 37.74            | 54.00    | -16.26   | AVG      |                         |              |



| est Mode           | TX Mode_IE            | EE 802.1          | 1b_2412          | MHz            |          | Tes         | sted Date | 2020/1/5     |
|--------------------|-----------------------|-------------------|------------------|----------------|----------|-------------|-----------|--------------|
| est Voltage        | DC 48V                |                   |                  |                |          | Pol         | arization | Horizontal   |
| 120.0 dBu\         | '/m                   |                   |                  |                |          |             |           |              |
| 110                |                       |                   |                  |                |          |             |           |              |
| 100                |                       |                   |                  |                |          |             |           |              |
| 90                 |                       |                   |                  |                |          |             |           |              |
| 80                 |                       |                   |                  |                |          |             |           |              |
| 70                 |                       |                   |                  |                |          |             |           |              |
| 60                 |                       |                   |                  |                |          |             |           |              |
| 50                 | 1<br>Ž                |                   |                  |                |          |             |           |              |
| 40                 | ×                     |                   |                  |                |          |             |           |              |
| 30                 |                       |                   |                  |                |          |             |           |              |
| 20                 |                       |                   |                  |                |          |             |           |              |
| 10<br>0.0          |                       |                   |                  |                |          |             |           |              |
| 1000.000           | 3550.00 6100.00       | 8650.00           | 11200.00         | 13750.00       | 16300.00 | 18850.00    | 21400.00  | 26500.00 MHz |
| No. Mk. F          | Reading<br>req. Level | Correct<br>Factor | Measure-<br>ment | Limit          | Over     |             |           |              |
|                    | 1Hz dBuV              | dB                | dBuV/m           | dBuV/m         |          |             | Comment   |              |
| 1 4824<br>2 * 4824 |                       | -10.52            | 47.37            | 74.00<br>54.00 |          | peak<br>AVG |           |              |



| est Mode                            | TX Mode              | _IEEE 802.                 | 11b_2437             | MHz             |            |          | Tested Date   | 2020/1/5     |
|-------------------------------------|----------------------|----------------------------|----------------------|-----------------|------------|----------|---------------|--------------|
| est Voltage                         | DC 48V               |                            |                      |                 |            |          | Polarization  | Vertical     |
| 120.0 dBu<br>110<br>100<br>90<br>80 | ۷/m                  |                            |                      |                 |            |          |               |              |
| 70<br>60                            |                      |                            |                      |                 |            |          |               |              |
| 50<br>40                            | 1<br>8<br>×          |                            |                      |                 |            |          |               |              |
| 30<br>20                            |                      |                            |                      |                 |            |          |               |              |
| 10                                  |                      |                            |                      |                 |            |          |               |              |
| 1000.000                            | 3550.00 610<br>Readi | 0.00 8650.00<br>ng Correct | 11200.00<br>Measure- | 13750.00        | D 16300    | .00 1885 | 0.00 21400.00 | 26500.00 MHz |
|                                     | Freq. Leve           | Factor                     | ment<br>dBuV/m       | Limit<br>dBuV/m | Over<br>dB | Detector | Comment       |              |
| 1 4874                              |                      |                            | 48.44                | 74.00           | -25.56     | peak     | Comment       |              |
| 2 * 4874                            | .000 54.4            | 2 -10.40                   | 44.02                | 54.00           | -9.98      | AVG      |               |              |



| st Mode  | TX Mode_I             | EEE 802.1         | 1b_2437          | MHz      |         |          | Tested Date   | 2020/1/5     |
|--|-----------------------|-------------------|------------------|----------|---------|----------|---------------|--------------|
| est Voltage  | DC 48V                |                   |                  |          |         |          | Polarization  | Horizontal   |
| 120.0 dBuV<br>110<br>100<br>90<br>80<br>70<br>60<br>50<br>40<br>30<br>20 |                       |                   |                  |          |         |          |               |              |
| 10   |                       |                   |                  |          |         |          |               |              |
| 1000.000   | 3550.00 6100.0        | 0 8650.00         | 11200.00         | 13750.00 | ) 16300 | .00 1885 | 0.00 21400.00 | 26500.00 MHz |
|  | Reading<br>req. Level | Correct<br>Factor | Measure-<br>ment | Limit    | Over    |          |               |              |
|  | IHz dBuV              | dB                | dBuV/m           | dBuV/m   | dB      | Detector | Comment       |              |
| 1 4874.  |                       | -10.40            | 51.72            | 74.00    | -22.28  | peak     |               |              |
| 2 * 4874.  | 000 59.07             | -10.40            | 48.67            | 54.00    | -5.33   | AVG      |               |              |



| est Mode                      | TX Mode_IE             | EE 802.1          | 1b_2462          | MHz      |         |          | Tested I  | Date  | 2020/1/5     |
|-------------------------------|------------------------|-------------------|------------------|----------|---------|----------|-----------|-------|--------------|
| est Voltage                   | DC 48V                 |                   |                  |          |         |          | Polariza  | ation | Vertical     |
| 120.0 dBu<br>110<br>100<br>90 | V/m                    |                   |                  |          |         |          |           |       |              |
| 80                            |                        |                   |                  |          |         |          |           |       |              |
| 70                            |                        |                   |                  |          |         |          |           |       |              |
| 60                            |                        |                   |                  |          |         |          |           |       |              |
| 50                            | 1<br>\$<br>X           |                   |                  |          |         |          |           |       |              |
| 40                            |                        |                   |                  |          |         |          |           |       |              |
| 30                            |                        |                   |                  |          |         |          |           |       |              |
| 20                            |                        |                   |                  |          |         |          |           |       |              |
| 0.0                           |                        |                   |                  |          |         |          |           |       |              |
| 1000.000                      |                        |                   | 11200.00         | 13750.00 | 16300.0 | 00 1885  | 50.00 214 | 00.00 | 26500.00 MHz |
| No. Mk. F                     | Reading<br>Freq. Level | Correct<br>Factor | Measure-<br>ment | Limit    | Over    |          |           |       |              |
|                               | MHz dBuV               | dB                | dBuV/m           | dBuV/m   | dB      | Detector | Comme     | nt    |              |
| 1 4924                        |                        | -10.28            | 51.31            | 74.00    | -22.69  | peak     |           |       |              |
| 2 * 4924                      | .000 57.71             | -10.28            | 47.43            | 54.00    | -6.57   | AVG      |           |       |              |



| est Mo               | ode   | ΤX               | Mode_IE          | EE 802.1          | 1b_2462          | MHz            |         |             | Tested Date   | 2020/1/5     |
|----------------------|-------|------------------|------------------|-------------------|------------------|----------------|---------|-------------|---------------|--------------|
| est Vo               | ltage | DC               | 48V              |                   |                  |                |         |             | Polarization  | Horizontal   |
| 110<br>100<br>90     |       | luV/m            |                  |                   |                  |                |         |             |               |              |
| 80<br>70<br>60<br>50 |       |                  | 1<br>X           |                   |                  |                |         |             |               |              |
| 40<br>30<br>20<br>10 |       |                  |                  |                   |                  |                |         |             |               |              |
| 0.0                  |       | 0 3550.00        | 6100.00          | 8650.00           | 11200.00         | 13750.00       | ) 16300 | .00 1885    | 0.00 21400.00 | 26500.00 MHz |
| No. N                | /lk.  | Freq.            | Reading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit          | Over    |             |               |              |
|                      |       | MHz              | dBuV             | dB                | dBuV/m           | dBuV/m         | dB      | Detector    | Comment       |              |
| 1 2 *                |       | 24.000<br>24.000 | 64.22<br>61.04   | -10.28            | 53.94<br>50.76   | 74.00<br>54.00 | -20.06  | peak<br>AVG |               |              |



| Fest Mode  | e TX        | K Mode_IE        | EE 802.1          | 1g_2412          | MHz      |         |          | Tested D   | ate | 2020/1/5     |
|------------|-------------|------------------|-------------------|------------------|----------|---------|----------|------------|-----|--------------|
| Fest Volta | age D       | C 48V            |                   |                  |          |         |          | Polarizat  | ion | Vertical     |
| 120.0      | dBuV/m      |                  |                   |                  |          |         |          |            |     |              |
| 110        |             |                  |                   |                  |          |         |          |            |     |              |
| 100 -      |             |                  |                   |                  |          |         |          |            |     |              |
| 90         |             |                  |                   |                  |          |         |          |            |     |              |
| 80         |             |                  |                   |                  |          |         |          |            |     |              |
| 70         |             |                  |                   |                  |          |         |          |            |     |              |
| 60         |             |                  |                   |                  |          |         |          |            |     |              |
| 50         |             | 1<br>X           |                   |                  |          |         |          |            |     |              |
| 40         |             | 2<br>2           |                   |                  |          |         |          |            |     |              |
| 30         |             | x                |                   |                  |          |         |          |            |     |              |
| 20         |             |                  |                   |                  |          |         |          |            |     |              |
| 10<br>0.0  |             |                  |                   |                  |          |         |          |            |     |              |
|            | 0.000 3550. | 00 6100.00       | 8650.00           | 11200.00         | 13750.00 | 16300.0 | 00 1885  | 0.00 21400 | .00 | 26500.00 MHz |
| No. Mk.    | Freq.       | Reading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit    | Over    |          |            |     |              |
|            | MHz         | dBuV             | dB                | dBuV/m           | dBuV/m   | dB      | Detector | Commen     |     |              |
|            | 4824.000    | 53.47            | -10.52            | 42.95            | 74.00    | -31.05  | peak     |            |     |              |
| 2 * 4      | 4824.000    | 40.35            | -10.52            | 29.83            | 54.00    | -24.17  | AVG      |            |     |              |



| Fest Mode                      | TX Mode_IE            | EE 802.1          | 1g_2412          | MHz      |        |          | Tested Date   | 2020/1/5     |
|--------------------------------|-----------------------|-------------------|------------------|----------|--------|----------|---------------|--------------|
| Fest Voltage                   | DC 48V                |                   |                  |          |        |          | Polarization  | Horizontal   |
| 120.0 dBuV<br>110<br>100<br>90 | /m                    |                   |                  |          |        |          |               |              |
| 80<br>70<br>60                 |                       |                   |                  |          |        |          |               |              |
| 50                             | 1<br>X                |                   |                  |          |        |          |               |              |
| 30                             | 2<br>X                |                   |                  |          |        |          |               |              |
| 10                             |                       |                   |                  |          |        |          |               |              |
| 1000.000                       | 3550.00 6100.00       | 8650.00           | 11200.00         | 13750.00 | 16300. | .00 1885 | 0.00 21400.00 | 26500.00 MHz |
| No. Mk. Fi                     | Reading<br>req. Level | Correct<br>Factor | Measure-<br>ment | Limit    | Over   |          |               |              |
| M                              | IHz dBuV              | dB                | dBuV/m           | dBuV/m   | dB     | Detector | Comment       |              |
| 1 4824.                        | 000 53.56             | -10.52            | 43.04            | 74.00    | -30.96 | peak     |               |              |
| 2 * 4824.                      | 000 41.23             | -10.52            | 30.71            | 54.00    | -23.29 | AVG      |               |              |



| est Mode                       | TX Mode_IE            | EEE 802.1         | 1g_2437          | MHz      |        |          | Tested Date             | 2020/1/5     |
|--------------------------------|-----------------------|-------------------|------------------|----------|--------|----------|-------------------------|--------------|
| est Voltage                    | DC 48V                |                   |                  |          |        |          | Polarization            | Vertical     |
| 120.0 dBuV<br>110<br>100<br>90 | //m                   |                   |                  |          |        |          |                         |              |
| 80<br>70<br>60                 |                       |                   |                  |          |        |          |                         |              |
| 50                             | 1<br>X                |                   |                  |          |        |          |                         |              |
| 30                             | 2<br>X                |                   |                  |          |        |          |                         |              |
| 20                             |                       |                   |                  |          |        |          |                         |              |
| 10                             |                       |                   |                  |          |        |          |                         |              |
| 0.0                            | 3550.00 6100.00       | ) 8650.00         | 11200.00         | 13750.00 | 16300. | 00 1885  | i0.00 21 <b>4</b> 00.00 | 26500.00 MHz |
|                                | Reading<br>req. Level | Correct<br>Factor | Measure-<br>ment | Limit    | Over   | 00 1000  | 0.00 21400.00           | 20300.00 MHZ |
|                                | 1Hz dBuV              | dB                | dBuV/m           | dBuV/m   | dB     | Detector | Comment                 |              |
| 1 4874.                        | 000 53.17             | -10.40            | 42.77            | 74.00    | -31.23 | peak     |                         |              |
| 2 * 4874.                      | 000 40.45             | -10.40            | 30.05            | 54.00    | -23.95 | AVG      |                         |              |



| Fest Mode  | ТX         | Mode_IE          | EE 802.1          | 1g_2437          | MHz      |        |          | Tested D  | Date | 2020/1/5     |
|------------|------------|------------------|-------------------|------------------|----------|--------|----------|-----------|------|--------------|
| est Voltag | je DC      | 248V             |                   |                  |          |        |          | Polariza  | tion | Horizontal   |
| 120.0      | dBu∀/m     |                  |                   |                  |          |        |          |           |      |              |
| 110        |            |                  |                   |                  |          |        |          |           |      |              |
| 100        |            |                  |                   |                  |          |        |          |           |      |              |
| 90         |            |                  |                   |                  |          |        |          |           |      |              |
| 80         |            |                  |                   |                  |          |        |          |           |      |              |
| 70         |            |                  |                   |                  |          |        |          |           |      |              |
| 60         |            |                  |                   |                  |          |        |          |           |      |              |
| 50         |            | 1<br>X           |                   |                  |          |        |          |           |      |              |
| 40         |            | 2<br>X           |                   |                  |          |        |          |           |      |              |
| 30         |            | ×                |                   |                  |          |        |          |           |      |              |
| 20         |            |                  |                   |                  |          |        |          |           |      |              |
| 10<br>0.0  |            |                  |                   |                  |          |        |          |           |      |              |
|            | 000 3550.0 | 0 6100.00        | 8650.00           | 11200.00         | 13750.00 | 16300. | 00 1885  | 0.00 2140 | 0.00 | 26500.00 MHz |
| No. Mk.    | Freq.      | Reading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit    | Over   |          |           |      |              |
|            | MHz        | dBuV             | dB                | dBuV/m           | dBuV/m   | dB     | Detector | Comme     | nt   |              |
|            | 374.000    | 54.49            | -10.40            | 44.09            | 74.00    | -29.91 | peak     |           |      |              |
| 2 * 48     | 374.000    | 41.66            | -10.40            | 31.26            | 54.00    | -22.74 | AVG      |           |      |              |



| est Mode    | TX Mode_IE      | EE 802.1 | 1g_2462  | MHz      |          | Tes      | sted Date | 2020/1/5     |
|-------------|-----------------|----------|----------|----------|----------|----------|-----------|--------------|
| est Voltage | DC 48V          |          |          |          |          | Pol      | arization | Vertical     |
|             |                 |          |          |          |          |          |           |              |
| 120.0 dBu∀  |                 |          |          |          |          |          |           |              |
|             | /m              |          |          |          |          |          |           |              |
| 110         |                 |          |          |          |          |          |           |              |
| 100         |                 |          |          |          |          |          |           |              |
| 90          |                 |          |          |          |          |          |           |              |
| 80          |                 |          |          |          |          |          |           |              |
| 70          |                 |          |          |          |          |          |           |              |
| 60          |                 |          |          |          |          |          |           |              |
| 50          |                 |          |          |          |          |          |           |              |
| 40          | 1<br>X          |          |          |          |          |          |           |              |
| 30          | 2<br>X          |          |          |          |          |          |           |              |
|             | ^               |          |          |          |          |          |           |              |
| 20          |                 |          |          |          |          |          |           |              |
| 10<br>0.0   |                 |          |          |          |          |          |           |              |
| 1000.000    | 3550.00 6100.00 | 8650.00  | 11200.00 | 13750.00 | 16300.00 | 18850.00 | 21400.00  | 26500.00 MHz |
|             | Reading         | Correct  | Measure- |          |          |          |           |              |
|             | req. Level      | Factor   | ment     | Limit    | Over     |          |           |              |
|             | 1Hz dBuV        | dB       | dBuV/m   | dBuV/m   |          |          | Comment   |              |
| 1 4924.     |                 | -10.28   | 44.13    | 74.00    |          | peak     |           |              |
| 2 * 4924.   | 000 41.28       | -10.28   | 31.00    | 54.00    | -23.00   | AVG      |           |              |



| est Mode      | ΤX         | Mode_IE          | EE 802.1          | 1g_2462          | MHz      |        |          | Tested Date   | 2020/1/5     |
|---------------|------------|------------------|-------------------|------------------|----------|--------|----------|---------------|--------------|
| est Voltage   | e DC       | 48V              |                   |                  |          |        |          | Polarization  | Horizontal   |
| 120.0 d       | Bu¥/m      |                  |                   |                  |          |        |          |               |              |
| 110           |            |                  |                   |                  |          |        |          |               |              |
| 100           |            |                  |                   |                  |          |        |          |               |              |
| 90            |            |                  |                   |                  |          |        |          |               |              |
| 80            |            |                  |                   |                  |          |        |          |               |              |
| 70            |            |                  |                   |                  |          |        |          |               |              |
| 60            |            |                  |                   |                  |          |        |          |               |              |
| 50            |            | 1<br>X           |                   |                  |          |        |          |               |              |
| 40            |            |                  |                   |                  |          |        |          |               |              |
| 30            |            | 2<br>X           |                   |                  |          |        |          |               |              |
| 20            |            |                  |                   |                  |          |        |          |               |              |
| 10            |            |                  |                   |                  |          |        |          |               |              |
| 0.0<br>1000.0 | 00 3550.00 | ) 6100.00        | 8650.00           | 11200.00         | 13750.00 | 16300  | .00 1885 | 0.00 21400.00 | 26500.00 MHz |
| No. Mk.       | Freq.      | Reading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit    | Over   |          |               |              |
|               | MHz        | dBuV             | dB                | dBuV/m           | dBuV/m   | dB     | Detector | Comment       |              |
|               | 24.000     | 54.38            | -10.28            | 44.10            | 74.00    | -29.90 | peak     |               |              |
| 2 * 493       | 24.000     | 41.13            | -10.28            | 30.85            | 54.00    | -23.15 | AVG      |               |              |



| t Mode  | T              | X Mode               | _IEEI | E 802       | .11n (H      | T20)_  | _2412           | MHz          |                 | Teste | d Date   | 2019/1   | 12/6 |
|---------|----------------|----------------------|-------|-------------|--------------|--------|-----------------|--------------|-----------------|-------|----------|----------|------|
| t Volta | ge D           | DC 48V               |       |             |              |        |                 |              |                 | Polar | ization  | Vertica  | al   |
|         |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
| 120.0   | dBuV/m         |                      |       |             |              |        |                 |              |                 |       |          |          | _    |
| 110     |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
| 100     |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
| 90 -    |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
| 80      |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
| 70      |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
| 60 -    |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
| 50      |                | 1                    |       |             |              |        |                 |              |                 |       |          |          |      |
| 40      |                | 1<br>X               |       |             |              |        |                 |              |                 |       |          |          |      |
| 30 -    |                | 2<br>X               |       |             |              |        |                 |              |                 |       |          |          |      |
| 20      |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
| 10      |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
| 0.0     | .000 3550      | 100 610              | 0.00  | 8650.0      | 0 112        | DO. 00 | 13750.0         | 0 1630       | 0 00 188        | 50.00 | 21400.00 | 26500.00 | MH7  |
|         |                | Readir               |       | Correct     |              | ure-   |                 |              |                 |       |          |          |      |
| . Mk.   | Freq.          |                      |       | Factor      |              |        | Limit           | Margi        |                 | . 0   |          |          |      |
| 4       | MHz<br>824.000 | dBuV<br>) 54.61      |       | dB<br>10.52 | dBu∨<br>44.( |        | dBuV/m<br>74.00 | dB<br>-29.91 | Detecto<br>peak | r Com | ment     |          |      |
|         | 824.000        |                      |       | 10.52       | 30.8         |        | 54.00           | -23.11       | •               |       |          |          |      |
|         |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
|         |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
|         |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
|         |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
|         |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
|         |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
|         |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
|         |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
|         |                |                      |       |             |              |        |                 |              |                 |       |          |          |      |
| MARK    | S:             |                      |       |             |              |        |                 |              |                 |       |          |          |      |
|         | iremen         | t Value =            |       |             |              |        |                 | ctor.        |                 |       |          |          |      |
| Measu   | iremen         | t Value =<br>= Measu |       |             |              |        |                 | ctor.        |                 |       |          |          |      |



| 1200       d8uV/m         110       100         90       100         90       100         90       100         90       100         90       100         90       100         90       100         90       100         90       100         100       100         100       100         100       100         100       100         100       100         100       100         100       100         100       100         100       100         100       100         100       1000         100       1000         100       1000         100       1000         1000       1000         1000       1000         1000       1000         1000       1000         1000       1000       1000         1000       1000       1000         1000       1000       1000       1000         1000       1000       10000       1000 <t< th=""><th>t Mode</th><th>TX Mode_I</th><th>EEE 802.1</th><th>1n (HT20</th><th>)_2412</th><th>MHz</th><th></th><th>Tested Date</th><th>2019/12/6</th></t<>  | t Mode     | TX Mode_I | EEE 802.1 | 1n (HT20 | )_2412            | MHz     |          | Tested Date   | 2019/12/6    |
|--|------------|-----------|-----------|----------|-------------------|---------|----------|---------------|--------------|
| 110       10 <t< th=""><th>t Voltage</th><th>DC 48V</th><th></th><th></th><th></th><th></th><th></th><th>Polarization</th><th>Horizontal</th></t<>   | t Voltage  | DC 48V    |           |          |                   |         |          | Polarization  | Horizontal   |
| 110       10 <t< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>  |            |           |           |          |                   |         |          |               |              |
| 100       1  | 120.0 dBuV | //m       |           |          |                   |         |          |               |              |
| 100       1  |            |           |           |          |                   |         |          |               |              |
| 30   |            |           |           |          |                   |         |          |               |              |
| 80   |            |           |           |          |                   |         |          |               |              |
| 70       1   | 90         |           |           |          |                   |         |          |               |              |
| 60       1   | 80         |           |           |          |                   |         |          |               |              |
| 50       1   | 70         |           |           |          |                   |         |          |               |              |
| 40       3       3       1   | 60         |           |           |          |                   |         |          |               |              |
| 40       2       X       Image: Contract Measure-<br>ment       Image: Contract Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Measure-<br>Mea   | 50         | 1         |           |          |                   |         |          |               |              |
| 30         X         Image: Contract of the solution | 40         |           |           |          |                   |         |          |               |              |
| 10         10         10         10         1000.000         3550.00         6100.00         8650.00         11200.00         13750.00         16300.00         18850.00         21400.00         26500.00 MHz           M.K.         Freq.         Level         Factor         Measure-<br>ment         Limit         Margin         Margin           MHz         dBuV         dB         dBuV/m         dBuV/m         dB         Detector         Comment           4824.000         54.80         -10.52         44.28         74.00         -29.72         peak           *         4824.000         41.51         -10.52         30.99         54.00         -23.01         AVG   | 30         | ×         |           |          |                   |         |          |               |              |
| 0.0         1000.000         3550.00         6100.00         8650.00         11200.00         13750.00         16300.00         18850.00         21400.00         26500.00 MHz           MK.         Freq.         Reading<br>Level         Correct<br>Factor         Measure-<br>ment         Limit         Margin         Vertice  | 20         |           |           |          |                   |         |          |               |              |
| NK.         Freq.         Level         Factor         Measure-<br>ment         Margin           MHz         dBuV         dB         dBuV/m         dBuV/m         dB         Detector         Comment           4824.000         54.80         -10.52         44.28         74.00         -23.01         AVG           *         4824.000         41.51         -10.52         30.99         54.00         -23.01         AVG   | 10         |           |           |          |                   |         |          |               |              |
| Reading<br>Level       Correct<br>Factor       Measure-<br>ment       Limit       Margin         MHz       dBuV       dB       dBuV/m       dB       Detector       Comment         4824.000       54.80       -10.52       44.28       74.00       -29.72       peak         2       * 4824.000       41.51       -10.52       30.99       54.00       -23.01       AVG   |            |           |           |          |                   |         |          |               |              |
| Mk.         Freq.         Level         Factor         ment         Limit         Margin           MHz         dBuV         dB         dBuV/m         dBuV/m         dB         Detector         Comment           4824.000         54.80         -10.52         44.28         74.00         -29.72         peak           *         4824.000         41.51         -10.52         30.99         54.00         -23.01         AVG  | 1000.000   |           |           |          |                   | 0 16300 | .00 188: | 0.00 21400.00 | 26500.00 MHz |
| MHz         dBuV         dB         dBuV/m         dB         Detector         Comment           4824.000         54.80         -10.52         44.28         74.00         -29.72         peak           2         *         4824.000         41.51         -10.52         30.99         54.00         -23.01         AVG  | . Mk. Fi   |           |           |          | Limit             | Margin  | 1        |               |              |
| ARKS:           Marks:           Measurement Value = Reading Level + Correct Factor.   | M          |           |           |          | dBuV/m            | dB      | Detector | Comment       |              |
| MARKS:<br>Measurement Value = Reading Level + Correct Factor.  | 4824.      | 000 54.80 | -10.52    | 44.28    | 74.00             | -29.72  | peak     |               |              |
| Measurement Value = Reading Level + Correct Factor.  | 2 * 4824.  | 000 41.51 | -10.52    | 30.99    | 54.00             | -23.01  | AVG      |               |              |
| Measurement Value = Reading Level + Correct Factor.  |            |           |           |          |                   |         |          |               |              |
| Measurement Value = Reading Level + Correct Factor.  |            |           |           |          |                   |         |          |               |              |
| Measurement Value = Reading Level + Correct Factor.  |            |           |           |          |                   |         |          |               |              |
| Measurement Value = Reading Level + Correct Factor.  |            |           |           |          |                   |         |          |               |              |
| Measurement Value = Reading Level + Correct Factor.  |            |           |           |          |                   |         |          |               |              |
| Measurement Value = Reading Level + Correct Factor.  |            |           |           |          |                   |         |          |               |              |
| Measurement Value = Reading Level + Correct Factor.  |            |           |           |          |                   |         |          |               |              |
|  |            |           |           |          |                   |         |          |               |              |
|  |            |           | Zooding   |          | rroot <b>F</b> oo | tor     |          |               |              |
|  | Measurem   |           |           |          |                   | ctor.   |          |               |              |
|  |            |           |           |          |                   | ctor.   |          |               |              |

Project No.: 1911T046



| st Mode    | TX Mode_IE      | EE 802.1 | 1n (HT20 | )_2437 <b> </b> | MHz    |          | Tested Date   | 2020/1/5     |
|------------|-----------------|----------|----------|-----------------|--------|----------|---------------|--------------|
| st Voltage | DC 48V          |          |          |                 |        |          | Polarization  | Vertical     |
|            |                 |          |          |                 |        |          |               |              |
| 120.0 dBuV | Im.             |          |          |                 |        |          |               |              |
|            |                 |          |          |                 |        |          |               |              |
| 110        |                 |          |          |                 |        |          |               |              |
| 100        |                 |          |          |                 |        |          |               |              |
| 90         |                 |          |          |                 |        |          |               |              |
| 80         |                 |          |          |                 |        |          |               |              |
| 70         |                 |          |          |                 |        |          |               |              |
| 60         |                 |          |          |                 |        |          |               |              |
| 50         |                 |          |          |                 |        |          |               |              |
| 40         | 1<br>X          |          |          |                 |        |          |               |              |
|            | 2<br>X          |          |          |                 |        |          |               |              |
| 30         | ×               |          |          |                 |        |          |               |              |
| 20         |                 |          |          |                 |        |          |               |              |
| 10         |                 |          |          |                 |        |          |               |              |
| 0.0        | 3550.00 6100.00 | 8650.00  | 11200.00 | 13750.00        | 16300. | 00 1885  | 0.00 21400.00 | 26500.00 MHz |
|            | Reading         | Correct  | Measure  |                 |        |          |               |              |
| No. Mk. Fr | req. Level      | Factor   | ment     | Limit           | Over   |          |               |              |
|            | Hz dBuV         | dB       | dBuV/m   | dBuV/m          | dB     | Detector | Comment       |              |
| 1 4874.    |                 | -10.40   | 43.37    | 74.00           | -30.63 | peak     |               |              |
| 2 * 4874.  | 000 40.62       | -10.40   | 30.22    | 54.00           | -23.78 | AVG      |               |              |



| est Mode  | TX           | Mode_IE          | EE 802.1          | 1n (HT20         | )_2437 <b> </b> | ИНz     |          | Tested I | Date  | 2020/1/5     |
|-----------|--------------|------------------|-------------------|------------------|-----------------|---------|----------|----------|-------|--------------|
| est Volta | ge DC        | ; 48V            |                   |                  |                 |         |          | Polariza | ation | Horizontal   |
| 120.0     | dBu∀/m       |                  |                   |                  |                 |         |          |          |       |              |
| 110       |              |                  |                   |                  |                 |         |          |          |       |              |
| 100       |              |                  |                   |                  |                 |         |          |          |       |              |
| 90        |              |                  |                   |                  |                 |         |          |          |       |              |
| 80        |              |                  |                   |                  |                 |         |          |          |       |              |
| 70        |              |                  |                   |                  |                 |         |          |          |       |              |
| 60        |              |                  |                   |                  |                 |         |          |          |       |              |
| 50        |              | 1                |                   |                  |                 |         |          |          |       |              |
| 40        |              | 1<br>X<br>2      |                   |                  |                 |         |          |          |       |              |
| 30        |              | ×                |                   |                  |                 |         |          |          |       |              |
| 20<br>10  |              |                  |                   |                  |                 |         |          |          |       |              |
| 0.0       |              |                  |                   |                  |                 |         |          |          |       |              |
| 1000      | .000 3550.00 | 0 6100.00        | 8650.00           | 11200.00         | 13750.00        | 16300.0 | )0 1885  | 0.00 214 | 00.00 | 26500.00 MHz |
| No. Mk.   | Freq.        | Reading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit           | Over    |          |          |       |              |
|           | MHz          | dBu∨             | dB                | dBuV/m           | dBuV/m          | dB      | Detector | Comme    | ent   |              |
|           | 874.000      | 51.44            | -10.40            | 41.04            | 74.00           | -32.96  | peak     |          |       |              |
| 2 * 4     | 874.000      | 40.51            | -10.40            | 30.11            | 54.00           | -23.89  | AVG      |          |       |              |



| St Voltage     D       120.0     dBuV/m       110 | DC 48V          |              |                 |                 |              |                  | Polariza |        | Vertical     |
|---|-----------------|--------------|-----------------|-----------------|--------------|------------------|----------|--------|--------------|
| 110       100       90       80       70       60 |                 |              |                 |                 |              |                  |          |        |              |
| 110       100       90       80       70       60 |                 |              |                 |                 |              |                  |          |        |              |
| 100       90       80       70       60           |                 |              |                 |                 |              |                  |          |        |              |
| 100       90       80       70       60           |                 |              |                 |                 |              |                  |          |        |              |
| 90<br>80<br>70<br>60                              |                 |              |                 |                 |              |                  |          |        |              |
| 80<br>70<br>60                                    |                 |              |                 |                 |              |                  |          |        |              |
| 70<br>60  |                 |              |                 |                 |              |                  |          |        |              |
| 60  |                 |              |                 |                 |              |                  |          |        |              |
|   |                 |              |                 |                 |              |                  |          |        |              |
|   | 1               |              |                 |                 |              |                  |          |        |              |
| 40  | X               |              |                 |                 |              |                  |          |        |              |
| 30  | 2<br>X          |              |                 |                 |              |                  |          |        |              |
| 20  |                 |              |                 |                 |              |                  |          |        |              |
| 10  |                 |              |                 |                 |              |                  |          |        |              |
| 0.0   | ).00 6100.0     | 0 8650.00    | 11200.00        | 13750.00        | 0 16300.     | .00 1885         | 0.00 214 | DO. 00 | 26500.00 MHz |
| 1000.000 0000                                     | Reading         |              | Measure-        |                 |              |                  |          |        |              |
| lo. Mk. Freq.                                     | Level           | Factor       | ment            | Limit           | Margin       |                  |          |        |              |
| MHz<br>1 4924.000                                 | dBu∨<br>) 55.55 | dB<br>-10.28 | dBuV/m<br>45.27 | dBuV/m<br>74.00 | dB<br>-28.73 | Detector<br>peak | Comme    | nt     |              |
| 2 * 4924.000                                      |                 | -10.28       | 31.78           | 54.00           | -22.22       | AVG              |          |        |              |
|   |                 |              |                 |                 |              |                  |          |        |              |
|   |                 |              |                 |                 |              |                  |          |        |              |
|   |                 |              |                 |                 |              |                  |          |        |              |
|   |                 |              |                 |                 |              |                  |          |        |              |
|   |                 |              |                 |                 |              |                  |          |        |              |
|   |                 |              |                 |                 |              |                  |          |        |              |
|   |                 |              |                 |                 |              |                  |          |        |              |



|   | TX M    | lode_II          | EEE 802.          | 11n (HT20        | )_2462         | ИНz              |             | Tested    | Date   | 2019/12/6    |
|---|---------|------------------|-------------------|------------------|----------------|------------------|-------------|-----------|--------|--------------|
| st Voltage  | DC 4    | ·8V              |                   |                  |                |                  |             | Polariza  | ation  | Horizontal   |
| 120.0 dBu<br>110<br>100<br>90<br>80<br>70<br>60<br>50 |         |                  |                   |                  |                |                  |             |           |        |              |
| 40  |         | 2<br>X           |                   |                  |                |                  |             |           |        |              |
| 20  |         |                  |                   |                  |                |                  |             |           |        |              |
| 0.0   | 3550.00 | 6100.0           | 0 8650.0          | 0 11200.00       | 13750.00       | 16300.           | .00 188     | 50.00 214 | 100.00 | 26500.00 MHz |
| p. Mk. – F  |         | ≀eading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit          | Margin           |             |           |        |              |
| 1   | MHz     | dBu∨             | dB                | dBuV/m           | dBuV/m         | dB               | Detector    | r Comme   | ent    |              |
|   |         |                  |                   |                  |                |                  |             |           |        |              |
| 1 4924<br>2 * 4924                                    | .000    | 55.30<br>42.11   | -10.28<br>-10.28  | 45.02<br>31.83   | 74.00<br>54.00 | -28.98<br>-22.17 | peak<br>AVG |           |        |              |
| 1 4924<br>2 * 4924<br>MARKS:                          | .000    | 42.11            | -10.28            |                  | 54.00          | -22.17           |             |           |        |              |



| st Mode                              | TX Mode_I             | EEE 802.1           | 1n (HT40)        | )_2422 🛚 | ИНz       |          | Testec  | l Date | 2019/12/6    |
|--------------------------------------|-----------------------|---------------------|------------------|----------|-----------|----------|---------|--------|--------------|
| st Voltage                           | DC 48V                |                     |                  |          |           |          | Polariz | zation | Vertical     |
| 120.0 dBuv<br>110<br>100<br>90<br>80 | //m                   |                     |                  |          |           |          |         |        |              |
| 70<br>60<br>50                       | <u>1</u>              |                     |                  |          |           |          |         |        |              |
| 40<br>30<br>20                       | 2<br>X                |                     |                  |          |           |          |         |        |              |
| 10<br>0.0<br>1000.000                | 3550.00 6100.0        | DO 8650.00          | 11200.00         | 13750.00 | ) 16300.0 | 00 1885  | 0.00 21 | 400.00 | 26500.00 MHz |
| lo. Mk. F                            | Reading<br>req. Level | ) Correct<br>Factor | Measure-<br>ment | Limit    | Margin    |          |         |        |              |
| N                                    | MHz dBu∨              | dB                  | dBuV/m           | dBu//m   | dB        | Detector | Comm    | ient   |              |
| 1 4844.                              | .000 54.05            | -10.47              | 43.58            | 74.00    | -30.42    | peak     |         |        |              |
|                                      |                       |                     |                  |          |           |          |         |        |              |



| t Mode                           | TX Mode_                    | IEEE 802.              | 11n (HT40                | )_2422             | MHz          |                  | Tested I  | Date  | 2019/12/6    |
|----------------------------------|-----------------------------|------------------------|--------------------------|--------------------|--------------|------------------|-----------|-------|--------------|
| t Voltage                        | DC 48V                      |                        |                          |                    |              |                  | Polariza  | ation | Horizontal   |
|                                  |                             |                        |                          |                    |              |                  |           |       |              |
| 120.0 dBuV                       | 7m                          |                        |                          |                    |              |                  |           |       |              |
| 110                              |                             |                        |                          |                    |              |                  |           |       |              |
| 100                              |                             |                        |                          |                    |              |                  |           |       |              |
| 90                               |                             |                        |                          |                    |              |                  |           |       |              |
| 80                               |                             |                        |                          |                    |              |                  |           |       |              |
| 70                               |                             |                        |                          |                    |              |                  |           |       |              |
| 60                               |                             |                        |                          |                    |              |                  |           |       |              |
| 50                               | 1                           |                        |                          |                    |              |                  |           |       |              |
| 40                               | 1<br>X                      |                        |                          |                    |              |                  |           |       |              |
| 30                               | 2<br>X                      |                        |                          |                    |              |                  |           |       |              |
| 20                               |                             |                        |                          |                    |              |                  |           |       |              |
| 10                               |                             |                        |                          |                    |              |                  |           |       |              |
| 0.0                              | 3550.00 6100                | .00 8650.00            | ) 11200.00               | ) 13750.0          | )0 16300     | .00 1885         | 50.00 214 | 00.00 | 26500.00 MHz |
|                                  | Readin                      | g Correct              | Measure                  | -                  |              |                  |           |       |              |
|                                  | req. Level                  | Factor                 | ment                     | Limit              | Margin       |                  | 0.000     | -+    |              |
|                                  | 1Hz dBu∨<br>000 54.53       |                        | dBuV/m<br>44.06          | dBuV/m<br>74.00    | dB<br>-29.94 | Detector<br>peak | Comme     | ſ IL  |              |
| 2 * 4844.                        |                             |                        | 30.75                    | 54.00              | -23.25       | AVG              |           |       |              |
|                                  |                             |                        |                          |                    |              |                  |           |       |              |
|                                  |                             |                        |                          |                    |              |                  |           |       |              |
|                                  |                             |                        |                          |                    |              |                  |           |       |              |
|                                  |                             |                        |                          |                    |              |                  |           |       |              |
|                                  |                             |                        |                          |                    |              |                  |           |       |              |
|                                  |                             |                        |                          |                    |              |                  |           |       |              |
|                                  |                             |                        |                          |                    |              |                  |           |       |              |
|                                  |                             |                        |                          |                    |              |                  |           |       |              |
|                                  |                             |                        |                          |                    |              |                  |           |       |              |
| -                                |                             |                        |                          |                    |              |                  |           |       |              |
| MARKS:<br>Measurem<br>Margin Ley | nent Value =                | Reading L              | evel + Co                | rrect Fa           | ctor.        |                  |           |       |              |
| Measurem                         | nent Value =<br>vel = Measu | Reading L<br>rement Va | evel + Co<br>lue - Limit | rrect Fa<br>Value. | ctor.        |                  |           |       |              |
| Measurem                         | ient Value =<br>vel = Measu | Reading L<br>rement Va | evel + Co<br>ue - Limit  | rrect Fa<br>Value. | ctor.        |                  |           |       |              |



| est Mode  | e TX                 | Mode_IE          | EE 802.1          | 1n (HT40         | )_2437 I       | MHz              |             | Tested D  | ate  | 2020/1/5     |
|-----------|----------------------|------------------|-------------------|------------------|----------------|------------------|-------------|-----------|------|--------------|
| est Volta | ge DC                | 48V              |                   |                  |                |                  |             | Polarizat | ion  | Vertical     |
| 120.0     | dBu∀/m               |                  |                   |                  |                |                  |             |           |      |              |
| 110       |                      |                  |                   |                  |                |                  |             |           |      |              |
| 100       |                      |                  |                   |                  |                |                  |             |           |      |              |
| 90        |                      |                  |                   |                  |                |                  |             |           |      |              |
| 80        |                      |                  |                   |                  |                |                  |             |           |      |              |
| 70        |                      |                  |                   |                  |                |                  |             |           |      |              |
| 60        |                      |                  |                   |                  |                |                  |             |           |      |              |
| 50        |                      | 1<br>X           |                   |                  |                |                  |             |           |      |              |
| 40<br>30  |                      | 2                |                   |                  |                |                  |             |           |      |              |
| 20        |                      | ×                |                   |                  |                |                  |             |           |      |              |
| 10        |                      |                  |                   |                  |                |                  |             |           |      |              |
| 0.0       | 0.000 3550.00        | ) 6100.00        | 8650.00           | 11200.00         | 13750.00       | ) 16300.0        | 00 1885     | D.00 2140 | 0.00 | 26500.00 MHz |
| No. Mk.   | Freq.                | Reading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit          | Over             |             |           |      |              |
|           | MHz                  | dBuV             | dB                | dBuV/m           | dBuV/m         | dB               | Detector    | Commen    | t    |              |
|           | 1874.000<br>1874.000 | 52.66<br>40.25   | -10.40            | 42.26<br>29.85   | 74.00<br>54.00 | -31.74<br>-24.15 | peak<br>AVG |           |      |              |



| est Mode    | ΤX         | Mode_IE          | EE 802.1          | 1n (HT40         | )_2437 I | MHz    |          | Tested I | Date  | 2020/1/5     |
|-------------|------------|------------------|-------------------|------------------|----------|--------|----------|----------|-------|--------------|
| est Voltage | e DC       | 48V              |                   |                  |          |        |          | Polariza | ation | Horizontal   |
| 120.0 d     | BuV/m      |                  |                   |                  |          |        |          |          |       |              |
| 110         |            |                  |                   |                  |          |        |          |          |       |              |
| 100         |            |                  |                   |                  |          |        |          |          |       |              |
| 90          |            |                  |                   |                  |          |        |          |          |       |              |
| 80          |            |                  |                   |                  |          |        |          |          |       |              |
| 70          |            |                  |                   |                  |          |        |          |          |       |              |
| 60          |            |                  |                   |                  |          |        |          |          |       |              |
| 50          |            | 1<br>X           |                   |                  |          |        |          |          |       |              |
| 40          |            |                  |                   |                  |          |        |          |          |       |              |
| 30          |            | 2<br>X           |                   |                  |          |        |          |          |       |              |
| 20          |            |                  |                   |                  |          |        |          |          |       |              |
| 10<br>0.0   |            |                  |                   |                  |          |        |          |          |       |              |
|             | 00 3550.00 | ) 6100.00        | 8650.00           | 11200.00         | 13750.00 | 16300. | 00 1885  | 0.00 214 | 00.00 | 26500.00 MHz |
| No. Mk.     | Freq.      | Reading<br>Level | Correct<br>Factor | Measure-<br>ment | Limit    | Over   |          |          |       |              |
|             | MHz        | dBuV             | dB                | dBuV/m           | dBuV/m   | dB     | Detector | Comme    | ent   |              |
|             | 74.000     | 54.12            | -10.40            | 43.72            | 74.00    | -30.28 | peak     |          |       |              |
| 2 * 48      | 74.000     | 40.90            | -10.40            | 30.50            | 54.00    | -23.50 | AVG      |          |       |              |



| st Mode    | ТХ        | < Mode_          | IEEE 802            | .11n (HT40  | )_2452 l | MHz      |          | Teste | ed Date  | 2020/1/5     |
|------------|-----------|------------------|---------------------|-------------|----------|----------|----------|-------|----------|--------------|
| st Voltage | )D        | C 48V            |                     |             |          |          |          | Polar | ization  | Vertical     |
|            |           |                  |                     |             |          |          |          |       |          |              |
| 120.0 dl   | BuW/m     |                  |                     |             |          |          |          |       |          |              |
| 120.0 0    | 547711    |                  |                     |             |          |          |          |       |          |              |
| 110        |           |                  |                     |             |          |          |          |       |          |              |
| 100        |           |                  |                     |             |          |          |          |       |          |              |
| 90         |           |                  |                     |             |          |          |          |       |          |              |
| 80         |           |                  |                     |             |          |          |          |       |          |              |
| 70         |           |                  |                     |             |          |          |          |       |          |              |
| 60         |           |                  |                     |             |          |          |          |       |          |              |
| 50         |           |                  |                     |             |          |          |          |       |          |              |
| 40         |           | 1<br>X           |                     |             |          |          |          |       |          |              |
| 30         |           | 2<br>X           |                     |             |          |          |          |       |          |              |
| 20         |           |                  |                     |             |          |          |          |       |          |              |
| 10         |           |                  |                     |             |          |          |          |       |          |              |
| 0.0        |           |                  |                     |             |          |          |          |       |          |              |
| 1000.00    | 00 3550.0 | 00 6100.         | .00 8650.0          | 00 11200.00 | 13750.00 | ) 16300. | .00 1885 | 60.00 | 21400.00 | 26500.00 MHz |
| lo. Mk.    | Freq.     | Reading<br>Level | g Correct<br>Factor |             | Limit    | Margin   |          |       |          |              |
|            | MHz       | dBuV             |                     | dBuV/m      | dBuV/m   | dB       | Detector | Com   | ment     |              |
| 1 490      | 04.000    | 54.31            | -10.32              | 43.99       | 74.00    | -30.01   | peak     |       |          |              |
| 2 * 490    | 04.000    | 41.62            | -10.32              | 31.30       | 54.00    | -22.70   | AVG      |       |          |              |
|            |           |                  |                     |             |          |          |          |       |          |              |



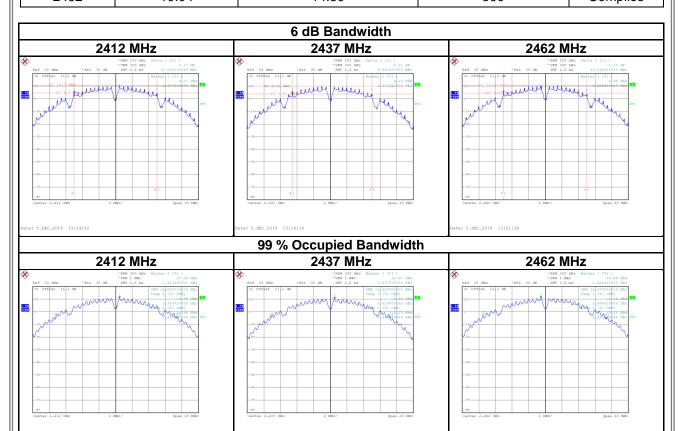
| st Voltage  |                      | EEE 802.1         | 1n (HT40)        | )_2452 N       | ЛНz              |             | Tested  | Date   | 2020/1/5     |
|---|----------------------|-------------------|------------------|----------------|------------------|-------------|---------|--------|--------------|
|   | DC 48V               |                   |                  |                |                  |             | Polariz | ation  | Horizontal   |
| 120.0 dBuV/<br>110<br>100<br>90<br>80<br>70<br>60<br>50<br>40 |                      |                   |                  |                |                  |             |         |        |              |
| 30  | 2<br>X               |                   |                  |                |                  |             |         |        |              |
| 20  |                      |                   |                  |                |                  |             |         |        |              |
| 10<br>0.0   |                      |                   |                  |                |                  |             |         |        |              |
| 1000.000 3  | 3550.00 6100.0       | 0 8650.00         | 11200.00         | 13750.00       | 16300.0          | 00 1885     | 0.00 21 | 400.00 | 26500.00 MHz |
| No. Mk. Fr  | Reading<br>eq. Level | Correct<br>Factor | Measure-<br>ment | Limit          | Margin           |             |         |        |              |
| M   |                      | dB                | dBuV/m           | dBuV/m         | dB               | Detector    | Comm    | ent    |              |
| 1 4904.0<br>2 * 4904.0  |                      | -10.32            | 44.12<br>31.34   | 74.00<br>54.00 | -29.88<br>-22.66 | peak<br>AVG |         |        |              |
|   |                      |                   |                  |                |                  |             |         |        |              |



# APPENDIX D BANDWIDTH



| Test Mode          | IEEE 802.11b           |                                  |                               |          |
|--------------------|------------------------|----------------------------------|-------------------------------|----------|
| Test Voltage       | DC 48V                 |                                  |                               |          |
|                    |                        |                                  | 1                             |          |
| Frequency<br>(MHz) | 6dB Bandwidth<br>(MHz) | 99 % Occupied Bandwidth<br>(MHz) | 6 dB Bandwidth Limit<br>(kHz) | Result   |
| 2412               | 10.00                  | 14.68                            | 500                           | Complies |
| 2437               | 9.56                   | 14.40                            | 500                           | Complies |
| 2462               | 10.04                  | 14.80                            | 500                           | Complies |



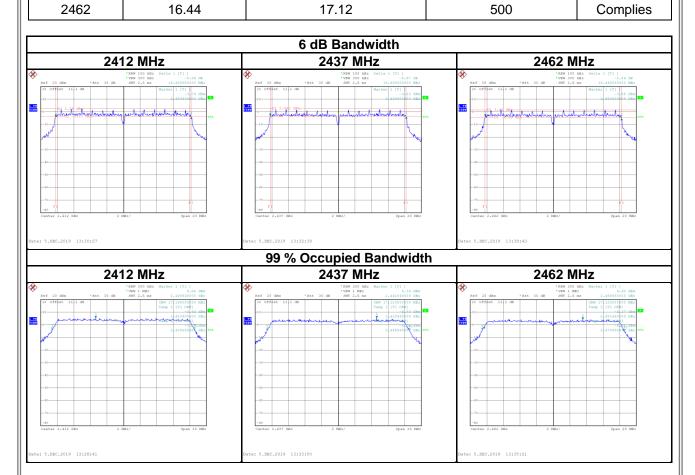
Date: 5.DEC.2019 13:16:56

te: 5.DEC.2019 13:17:54

te: 5.DEC.2019 13:23:07

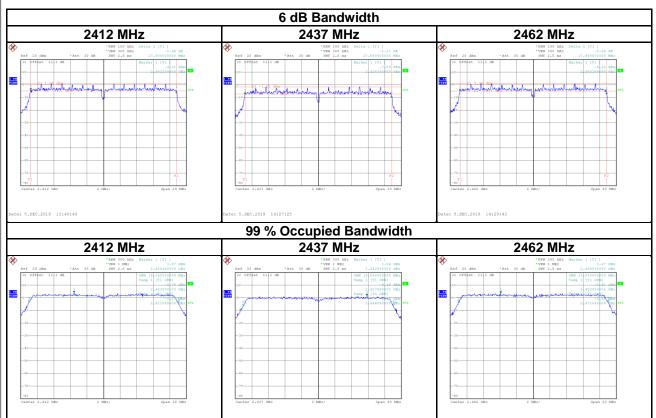


| lŀ | Test Mode          | IEEE 802.11g           |                                  |                               |            |
|----|--------------------|------------------------|----------------------------------|-------------------------------|------------|
|    | Test Voltage       | DC 48V                 |                                  |                               |            |
|    |                    |                        |                                  |                               |            |
|    | Frequency<br>(MHz) | 6dB Bandwidth<br>(MHz) | 99 % Occupied Bandwidth<br>(MHz) | 6 dB Bandwidth Limit<br>(kHz) | Result     |
|    | 2412               | 16.40                  | 17.16                            | 500                           | Complies   |
|    | 2437               | 16.40                  | 17.12                            | 500                           | Complies   |
| 1  | 0.100              | 10.11                  | 17.10                            |                               | <b>o</b> " |





| Test Mode          | IEEE 802.11n (HT20)    |                                  |                               |          |  |  |  |
|--------------------|------------------------|----------------------------------|-------------------------------|----------|--|--|--|
| Test Voltage       | DC 48V                 |                                  |                               |          |  |  |  |
|                    |                        |                                  |                               |          |  |  |  |
| Frequency<br>(MHz) | 6dB Bandwidth<br>(MHz) | 99 % Occupied Bandwidth<br>(MHz) | 6 dB Bandwidth Limit<br>(kHz) | Result   |  |  |  |
| 2412               | 17.60                  | 18.04                            | 500                           | Complies |  |  |  |
| 2437               | 17.68                  | 18.08                            | 500                           | Complies |  |  |  |
| 2462               | 17.68                  | 18.04                            | 500                           | Complies |  |  |  |



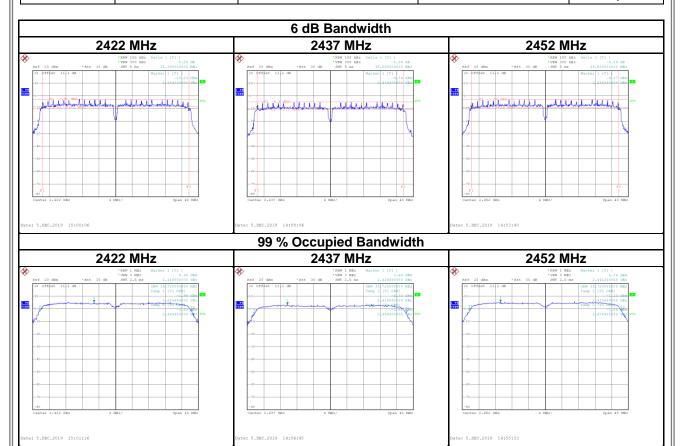
Date: 5.DEC.2019 13:41:44

te: 5.DEC.2019 14:25:27

te: 5.DEC.2019 14:34:28



| Test Mode          | IEEE 802.11n (HT4      | EEE 802.11n (HT40)               |                               |          |  |  |  |  |
|--------------------|------------------------|----------------------------------|-------------------------------|----------|--|--|--|--|
| Test Voltage       | DC 48V                 |                                  |                               |          |  |  |  |  |
|                    | •                      |                                  |                               |          |  |  |  |  |
| Frequency<br>(MHz) | 6dB Bandwidth<br>(MHz) | 99 % Occupied Bandwidth<br>(MHz) | 6 dB Bandwidth Limit<br>(kHz) | Result   |  |  |  |  |
| 2422               | 35.36                  | 36.72                            | 500                           | Complies |  |  |  |  |
| 2437               | 35.28                  | 36.72                            | 500                           | Complies |  |  |  |  |
| 2452               | 35.52                  | 36.72                            | 500                           | Complies |  |  |  |  |



# APPENDIX E OUTPUT POWER

**BIL** 



| Teat March         |                          |                     |                |              | 040/40/5    |  |
|--------------------|--------------------------|---------------------|----------------|--------------|-------------|--|
| Test Mode          | IEEE 802.11b             |                     | le             | sted Date 20 | 019/12/5    |  |
| Test Voltage       | DC 48V                   |                     |                |              |             |  |
| Frequency<br>(MHz) | Conducted Power<br>(dBm) | Conducted Power (W) | Limit<br>(dBm) | Limit<br>(W) | Result      |  |
| 2412               | 18.50                    | 0.0708              | 30.00          | 1.0000       | Complies    |  |
| 2437               | 19.04                    | 0.0802              | 30.00          | 1.0000       | Complies    |  |
| 2462               | 18.45                    | 0.0700              | 30.00          | 1.0000       | Complies    |  |
|                    |                          |                     |                |              |             |  |
| Test Mode          | IEEE 802.11g             |                     | Tes            | sted Date 2  | 019/12/5    |  |
| Test Voltage       | DC 48V                   |                     |                |              |             |  |
| _                  |                          |                     |                |              |             |  |
| Frequency          | Conducted Power          | Conducted Power (W) | Limit          | Limit        | Result      |  |
| (MHz)              | (dBm)                    | 0.0755              | (dBm)          | (W)          | O a marking |  |
| 2412               | 18.78                    | 0.0755              | 30.00          | 1.0000       | Complies    |  |
| 2437               | 19.72                    | 0.0938              | 30.00          | 1.0000       | Complies    |  |
| 2462               | 18.78                    | 0.0755              | 30.00          | 1.0000       | Complies    |  |
|                    |                          |                     |                |              |             |  |
| Test Mode          | IEEE 802.11n (HT2        | 20)                 | Te             | sted Date 20 | 019/12/5    |  |
| Test Voltage       | DC 48V                   |                     |                |              |             |  |
| Frequency          | Conducted Power          |                     | Limit          | Limit        |             |  |
| (MHz)              | (dBm)                    | Conducted Power (W) | (dBm)          | (W)          | Result      |  |
| 2412               | 19.17                    | 0.0826              | 30.00          | 1.0000       | Complies    |  |
| 2437               | 19.54                    | 0.0899              | 30.00          | 1.0000       | Complies    |  |
| 2462               | 19.04                    | 0.0802              | 30.00          | 1.0000       | Complies    |  |
|                    |                          |                     |                |              |             |  |
| Test Mode          | IEEE 802.11n (HT4        | 0)                  | Tes            | sted Date 2  | 019/12/5    |  |
| Test Voltage       | DC 48V                   |                     |                |              |             |  |
|                    | Conductor d D            |                     | 1.1            | 1.1          |             |  |
| Frequency          | Conducted Power          | Conducted Power (W) | Limit          | Limit        | Result      |  |
| (MHz)              | (dBm)                    | 0.0040              | (dBm)          | (W)          | Osmalias    |  |
| 2422               | 18.08                    | 0.0643              | 30.00          | 1.0000       | Complies    |  |
| 2437               | 19.02                    | 0.0798              | 30.00          | 1.0000       | Complies    |  |
| 2452               | 17.84                    | 0.0608              | 30.00          | 1.0000       | Complies    |  |
|                    |                          |                     |                |              |             |  |
|                    |                          |                     |                |              |             |  |
|                    |                          |                     |                |              |             |  |
|                    |                          |                     |                |              |             |  |





| APPENDIX F | POWER SPECTRAL DENSITY |
|------------|------------------------|
|            |                        |
|            |                        |
|            |                        |
|            |                        |
|            |                        |
|            |                        |
|            |                        |
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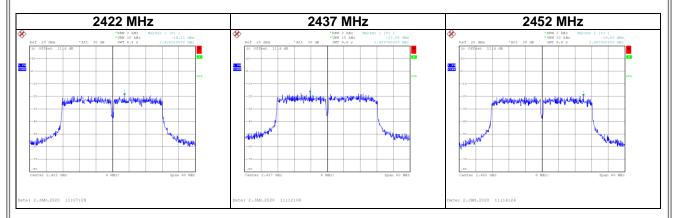
| est Mode                           | IEEE 802           | 11b   |                       |   |   |
|------------------------------------|--------------------|---|-----------------------|---|---|
| est Voltage                        | DC 48V             |   |                       |   |   |
| Frequer<br>(MHz                    | -                  | Power Density<br>(dBm/3kHz)   | Limit<br>(dBm)        |   | Result  |
| 2412                               |                    | -7.06   | 8.00                  |   | Complies  |
| 2437                               | ,                  | -7.07   | 8.00                  |   | Complies  |
| 2462                               |                    | -6.24   | 8.00                  |   | Complies  |
| 241                                | 2437               | ′ MHz   |                       | 2462 MHz  |   |
|                                    |                    | 1     1 <td></td> <td>Part         20         Sector           20         07594         31.6 m           40        </td> <td>- 2.5 MEZ MALE MALE MALE MALE MALE MALE MALE MALE</td> |                       | Part         20         Sector           20         07594         31.6 m           40 | - 2.5 MEZ MALE MALE MALE MALE MALE MALE MALE MALE |
| est Mode<br>est Voltage<br>Frequer | IEEE 802<br>DC 48V | Power Density   | Limit                 |   |   |
| (MHz                               |                    |   |                       |   | Result  |
|                                    |                    | (dBm/3kHz)  | (dBm)                 |   |   |
| 2412                               | ·<br>·             | (dBm/3kHz)<br>-14.87  | (dBm)<br>8.00         |   | Complies  |
| 2412<br>2437                       | ·<br>·             | (dBm/3kHz)<br>-14.87<br>-13.21  | (dBm)<br>8.00<br>8.00 |   | Complies<br>Complies                              |
| 2412<br>2437<br>2462               | ·<br>·             | (dBm/3kHz)<br>-14.87<br>-13.21<br>-14.53  | (dBm)<br>8.00         |   | Complies  |



| Test Mode IEE   | E 802.11n (HT  | 20)                 |  |  |  |
|-----------------|--|---------------------|--|--|--|
| Test Voltage DC | 48V  |                     |  |  |  |
| Frequency       |  | ower Density        | Limit  |  | Result   |
| (MHz)<br>2412   | ()   | dBm/3kHz)<br>-14.70 | (dBm)<br>8.00  |  | Complies   |
| 2437            |  | -13.75              | 8.00   |  | Complies   |
| 2462            |  | -15.29              | 8.00   |  | Complies   |
| 2412 MHz        |  | 2437 MHz            |  | 2462 MHz   |  |
|                 | And a second sec | • V254              | 3 MB Mischer 1 (Tr.)<br>2 J Au 2000 Otto<br>2 J Au 2000 Otto<br>2 J Au 2000 Otto<br>2 J Au 2000 Otto<br>2 J Au 2000 Otto<br>4 J Au 2 | PE         20 GBB           R0         0.00 (Sec. 1).14 G           10 | - 2.6 MEZ  - 2.6 MEZ - 2.6 |

| Test Mode    | IEEE 802.11n (HT20) |  |
|--------------|---------------------|--|
| Test Voltage | DC 48V              |  |

| Frequency | Power Density | Limit | Result   |
|-----------|---------------|-------|----------|
| (MHz)     | (dBm/3kHz)    | (dBm) | Rooun    |
| 2422      | -19.11        | 8.00  | Complies |
| 2437      | -17.06        | 8.00  | Complies |
| 2452      | -19.83        | 8.00  | Complies |





# APPENDIX G ANTENNA CONDUCTED SPURIOUS EMISSIONS



