

Report No.: SZEM191102047201

Page: 1 of 163

# TEST REPORT

Application No.: SZEM1911020472CR

Applicant: Chongqing YEASN Science-Technology Co., Ltd.

Address of Applicant: No.5 Danlong Road, Nan'an District, Chongqing, 400060, P.R.China

Manufacturer: Chongging YEASN Science-Technology Co., Ltd.

Address of Manufacturer: No.5 Danlong Road, Nan'an District, Chongqing, 400060, P.R.China

**Factory:** Chongqing YEASN Science-Technology Co., Ltd.

Address of Factory: No.5 Danlong Road, Nan'an District, Chongqing, 400060, P.R.China

**Equipment Under Test (EUT):** 

EUT Name: Printer

Model No.: YPA-2100

Trade mark: YEASN

**FCC ID**: 2APEY11J04000101

Standard(s): 47 CFR Part 15, Subpart C 15.247

**Date of Receipt:** 2019-11-22

**Date of Test:** 2019-11-22 to 2019-11-04

**Date of Issue:** 2019-12-05

Test Result: Pass\*

Keny Xu EMC Laboratory Manager

Ceny. Ku



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<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified above.



Report No.: SZEM191102047201

Page: 2 of 163

| Revision Record |         |            |          |          |  |
|-----------------|---------|------------|----------|----------|--|
| Version         | Chapter | Date       | Modifier | Remark   |  |
| 01              |         | 2019-12-05 |          | Original |  |
|                 |         |            |          |          |  |
|                 |         |            |          |          |  |

| Authorized for issue by: |                             |   |
|--------------------------|-----------------------------|---|
|                          | Robsonti                    |   |
|                          | Edison Li /Project Engineer | - |
|                          | EvicFu                      |   |
|                          | Eric Fu /Reviewer           | - |



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Report No.: SZEM191102047201

Page: 3 of 163

# **Test Summary**

| Radio Spectrum Technical Requirement |                                     |        |   |        |  |  |
|--------------------------------------|-------------------------------------|--------|---|--------|--|--|
| Item                                 | Standard                            | Method | Requirement                                     | Result |  |  |
| Antenna Requirement                  | 47 CFR Part 15,<br>Subpart C 15.247 | N/A    | 47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4) | Pass   |  |  |

| Radio Spectrum Matter Part                                  |                                     |   |   |        |  |  |
|---|-------------------------------------|---|---|--------|--|--|
| Item  | Standard                            | Method                                    | Requirement                                     | Result |  |  |
| Conducted Emissions<br>at AC Power Line<br>(150kHz-30MHz)   | 47 CFR Part 15,<br>Subpart C 15.247 | ANSI C63.10 (2013)<br>Section 6.2         | 47 CFR Part 15, Subpart<br>C 15.207             | Pass   |  |  |
| Minimum 6dB<br>Bandwidth                                    | 47 CFR Part 15,<br>Subpart C 15.247 | ANSI C63.10 (2013)<br>Section 11.8.1      | 47 CFR Part 15, Subpart<br>C 15.247a(2)         | Pass   |  |  |
| Conducted Peak Output Power                                 | 47 CFR Part 15,<br>Subpart C 15.247 | ANSI C63.10 (2013)<br>Section 11.9.1      | 47 CFR Part 15, Subpart<br>C 15.247(b)(3)       | Pass   |  |  |
| Power Spectrum Density                                      | 47 CFR Part 15,<br>Subpart C 15.247 | ANSI C63.10 (2013)<br>Section 11.10.2     | 47 CFR Part 15, Subpart<br>C 15.247(e)          | Pass   |  |  |
| Conducted Band<br>Edges Measurement                         | 47 CFR Part 15,<br>Subpart C 15.247 | ANSI C63.10 (2013)<br>Section 11.13.3.2   | 47 CFR Part 15, Subpart<br>C 15.247(d)          | Pass   |  |  |
| Conducted Spurious<br>Emissions                             | 47 CFR Part 15,<br>Subpart C 15.247 | ANSI C63.10 (2013)<br>Section 11.11       | 47 CFR Part 15, Subpart<br>C 15.247(d)          | Pass   |  |  |
| Radiated Emissions<br>which fall in the<br>restricted bands | 47 CFR Part 15,<br>Subpart C 15.247 | ANSI C63.10 (2013)<br>Section 6.10.5      | 47 CFR Part 15, Subpart<br>C 15.209 & 15.247(d) | Pass   |  |  |
| Radiated Spurious<br>Emissions                              | 47 CFR Part 15,<br>Subpart C 15.247 | ANSI C63.10 (2013)<br>Section 6.4,6.5,6.6 | 47 CFR Part 15, Subpart<br>C 15.209 & 15.247(d) | Pass   |  |  |



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Report No.: SZEM191102047201

Page: 4 of 163

## **Contents**

|   |                |   | Page |
|---|----------------|---|------|
| 1 | COV            | /ER PAGE  | 1    |
| 2 | TES            | T SUMMARY   | 3    |
| 3 | CON            | NTENTS  | Δ    |
| • | 00.            |   |      |
| 4 | GEN            | IERAL INFORMATION                                   | 6    |
|   | 4.1            | DETAILS OF E.U.T.                                   | 6    |
|   | 4.2            | DESCRIPTION OF SUPPORT UNITS                        | 6    |
|   | 4.3            | MEASUREMENT UNCERTAINTY                             | 7    |
|   | 4.4            | TEST LOCATION                                       |      |
|   | 4.5            | TEST FACILITY                                       |      |
|   | 4.6            | DEVIATION FROM STANDARDS                            |      |
|   | 4.7            | ABNORMALITIES FROM STANDARD CONDITIONS              | 8    |
| 5 | EQU            | JIPMENT LIST  | 9    |
|   |                |   |      |
| 6 | RAD            | DIO SPECTRUM TECHNICAL REQUIREMENT                  | 11   |
|   | 6.1            | ANTENNA REQUIREMENT                                 | 11   |
|   | 6.1.1          |   |      |
|   | 6.1.2          | 2 Conclusion  | 11   |
| 7 | RΔD            | DIO SPECTRUM MATTER TEST RESULTS                    | 12   |
| • |                |   |      |
|   | 7.1            | CONDUCTED EMISSIONS AT AC POWER LINE (150kHz-30MHz) |      |
|   | 7.1.1<br>7.1.2 |   |      |
|   | 7.1.2<br>7.1.3 | ·   |      |
|   | 7.7.           | MINIMUM 6DB BANDWIDTH                               |      |
|   | 7.2.1          |   |      |
|   | 7.2.2          |   |      |
|   | 7.2.3          | 3 Measurement Procedure and Data                    | 16   |
|   | 7.3            | CONDUCTED PEAK OUTPUT POWER                         | 17   |
|   | <i>7.3.</i> 1  | 1   |      |
|   | 7.3.2          |   |      |
|   | 7.3.3          |   |      |
|   | 7.4            | POWER SPECTRUM DENSITY                              |      |
|   | 7.4.1<br>7.4.2 | · ·   |      |
|   | 7.4.3          |   |      |
|   | 7.5            | CONDUCTED BAND EDGES MEASUREMENT                    |      |
|   | 7.5.1          |   |      |
|   | 7.5.2          |   |      |
|   | 7.5.3          | 3 Measurement Procedure and Data                    | 21   |
|   | 7.6            | CONDUCTED SPURIOUS EMISSIONS                        |      |
|   | 7.6.1          |   |      |
|   | 7.6.2          | 1 6   | 22   |
|   | 7.6.3          | 3 Measurement Procedure and Data                    | 23   |
|   |                |   |      |



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Report No.: SZEM191102047201

Page: 5 of 163

|   | 7.7   | RADIATED EMISSIONS WHICH FALL IN THE RESTRICTED BANDS |        |
|---|-------|---|--------|
|   | 7.7.1 | E.U.T. Operation                                      | 24     |
|   | 7.7.2 | Test Setup Diagram                                    | 24     |
|   | 7.7.3 | Measurement Procedure and Data                        | 25     |
|   | 7.8   | RADIATED SPURIOUS EMISSIONS                           | 58     |
|   | 7.8.1 | E.U.T. Operation                                      |        |
|   | 7.8.2 | Test Setup Diagram                                    | 59     |
|   | 7.8.3 | Measurement Procedure and Data                        | 60     |
| 8 | РНО   | TOGRAPHS  | 87     |
|   | 8.1   | TEST SETUP  | 87     |
|   | 8.2   | EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)               | 87     |
| 9 | APP   | ENDIX   | 88     |
|   | 9.1   | Appendix 15.247                                       | 88-163 |



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Report No.: SZEM191102047201

Page: 6 of 163

## **General Information**

#### Details of E.U.T.

| AC/DC Adapter                            |
|--|
| Model: GSM60A15                          |
| Input: AC 100-240V, 50/60Hz, 1.4-0.7A    |
| Output: DC 15V,4.0A, 60W Max             |
|  |
| DC15V                                    |
| AC cable: 180cm unshielded               |
| DC cable: 120cm unshielded               |
| DC cable: 600cm unshielded               |
| 802.11b: DSSS (CCK, DQPSK, DBPSK)        |
| 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) |
| 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) |
| 802.11b/g/n(HT20): 2412MHz to 2462MHz    |
| 802.11n(HT40): 2422MHz to 2452MHz        |
| 802.11b/g/11n(HT20): 11 Channels         |
| 802.11n(HT40):7 Channels                 |
| Channels with 5MHz step                  |
| Fixed production                         |
| Integral                                 |
| Antenna1: 0dBi                           |
| Antenna2: 0dBi                           |
| Note: MIMO for 802.11n.                  |
|  |

### 4.2 Description of Support Units

The EUT has been tested as an independent unit.



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Report No.: SZEM191102047201

Page: 7 of 163

### 4.3 Measurement Uncertainty

| No. | Item                            | Measurement Uncertainty   |
|-----|---------------------------------|---------------------------|
| 1   | Radio Frequency                 | ± 7.25 x 10 <sup>-8</sup> |
| 2   | Duty cycle                      | ± 0.37%                   |
| 3   | Occupied Bandwidth              | ± 3%                      |
| 4   | Conduction emission             | ± 3.0dB (150kHz to 30MHz) |
| 5   | RF conducted power              | ± 0.75dB                  |
| 6   | RF power density                | ± 2.84dB                  |
| 7   | Conducted Spurious emissions    | ± 0.75dB                  |
| 8   | DE Dadiated naver               | ± 4.5dB (Below 1GHz)      |
| 8   | RF Radiated power               | ± 4.8dB (Above 1GHz)      |
| 0   | Dedicted Couriers emission test | ± 4.5dB (Below 1GHz)      |
| 9   | Radiated Spurious emission test | ± 4.8dB (Above 1GHz)      |
| 10  | Temperature test                | ± 1 ℃                     |
| 11  | Humidity test                   | ± 3%                      |
| 12  | Supply voltages                 | ± 1.5%                    |
| 13  | Time                            | ± 3%                      |



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Report No.: SZEM191102047201

Page: 8 of 163

#### 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

#### 4.5 Test Facility

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

#### A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

#### FCC –Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

#### Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

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IC#: 4620C.

#### 4.6 Deviation from Standards

#### 4.7 Abnormalities from Standard Conditions

None



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Page: 9 of 163

## **Equipment List**

| Conducted Emissions at AC Power Line (150kHz-30MHz) |                  |                     |              |            |              |  |  |
|---|------------------|---------------------|--------------|------------|--------------|--|--|
| Equipment   | Manufacturer     | Model No            | Inventory No | Cal Date   | Cal Due Date |  |  |
| Shielding Room                                      | ZhongYu Electron | GB-88               | SEM001-06    | 2019-06-13 | 2022-06-12   |  |  |
| Measurement Software                                | AUDIX            | e3 V8.2014-6-<br>27 | N/A          | N/A        | N/A          |  |  |
| Coaxial Cable                                       | SGS              | N/A                 | SEM024-01    | 2019-07-11 | 2020-07-10   |  |  |
| LISN  | Rohde & Schwarz  | ENV216              | SEM007-01    | 2019-09-24 | 2020-09-23   |  |  |
| LISN  | ETS-LINDGREN     | 3816/2              | SEM007-02    | 2019-04-01 | 2020-03-31   |  |  |
| EMI Test Receiver                                   | Rohde & Schwarz  | ESCI                | SEM004-02    | 2019-04-01 | 2020-03-31   |  |  |

| RF Conducted Test                       |                        |                         |              |            |              |
|---|------------------------|-------------------------|--------------|------------|--------------|
| Equipment                               | Manufacturer           | Model No                | Inventory No | Cal Date   | Cal Due Date |
| Shielding Room                          | SAEMC                  | MSR733                  | SEM001-09    | 2019-06-13 | 2022-06-12   |
| DC Power Supply                         | Zhao Xin               | KXN-6020D               | SEM011-08    | 2019-09-24 | 2020-09-23   |
| Spectrum Analyzer                       | Rohde & Schwarz        | FSP                     | SEM004-06    | 2019-09-24 | 2020-09-23   |
| Measurement Software                    | JS Tonscend            | JS1120-2<br>BT/WIFI V2. | N/A          | N/A        | N/A          |
| Coaxial Cable                           | SGS                    | N/A                     | SEM031-02    | 2019-07-11 | 2020-07-10   |
| Attenuator                              | Weinschel Associates   | WA41                    | SEM021-09    | N/A        | N/A          |
| Signal Generator                        | KEYSIGHT               | N5173B                  | SEM006-05    | 2019-09-24 | 2020-09-23   |
| Power Meter                             | Rohde & Schwarz        | NRVS                    | SEM014-02    | 2019-09-24 | 2020-09-23   |
| Power Sensor                            | KEYSIGHT               | U2021XA                 | SEM009-13    | 2019-04-12 | 2020-04-11   |
| Electric and Magnetic<br>Field Analyzer | Narda                  | NBM-<br>550/EHP-50F     | EMC2143      | 2018-02-07 | 2020-02-06   |
| Electric Field<br>Probe(100KHz-3GHz)    | WANDEL &<br>GOLTERMANN | EMR-20                  | EMC0907      | 2019-05-21 | 2020-05-20   |
| EMF Tester                              | Narda                  | ELT-400                 | SZE039-4     | 2019-07-08 | 2020-07-07   |

| RE in Chamber                     |                      |                     |               |            |               |
|-----------------------------------|----------------------|---------------------|---------------|------------|---------------|
| Test Equipment                    | Manufacturer         | Model No.           | Inventory No. | Cal. Date  | Cal. Due date |
| 3m Semi-Anechoic<br>Chamber       | ETS-LINDGREN         | N/A                 | SEM001-01     | 2017-08-05 | 2020-08-04    |
| MXE EMI Receiver<br>(20Hz-8.4GHz) | Agilent Technologies | N9038A              | SEM004-05     | 2019-09-24 | 2020-09-23    |
| BiConiLog Antenna<br>(26-3000MHz) | ETS-LINDGREN         | 3142C               | SEM003-01     | 2017-06-27 | 2020-06-26    |
| Pre-amplifier<br>(0.1-1300MHz)    | Agilent Technologies | 8447D               | SEM005-01     | 2019-04-01 | 2020-03-31    |
| Measurement Software              | AUDIX                | e3 V8.2014-6-<br>27 | N/A           | N/A        | N/A           |
| Coaxial Cable                     | SGS                  | N/A                 | SEM025-01     | 2019-07-11 | 2020-07-10    |



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Report No.: SZEM191102047201

Page: 10 of 163

| Radiated Emissions which fall in the restricted bands/ Radiated Spurious Emissions |  |                     |              |            |              |  |
|--|--|---------------------|--------------|------------|--------------|--|
| Equipment  | Manufacturer                             | Model No            | Inventory No | Cal Date   | Cal Due Date |  |
| 3m Semi-Anechoic<br>Chamber  | AUDIX                                    | N/A                 | SEM001-02    | 2018-03-13 | 2021-03-12   |  |
| Measurement Software   | AUDIX                                    | e3 V8.2014-6-<br>27 | N/A          | N/A        | N/A          |  |
| Coaxial Cable  | SGS                                      | N/A                 | SEM026-01    | 2019-07-11 | 2020-07-10   |  |
| EXA Spectrum Analyzer  | AgilentTechnologies Inc                  | N9010A              | SEM004-12    | 2019-04-12 | 2020-04-11   |  |
| Horn Antenna (1-<br>18GHz)   | Rohde & Schwarz                          | HF907               | SEM003-07    | 2018-04-13 | 2021-04-12   |  |
| Horn Antenna(15GHz-<br>40GHz)  | Schwarzbeck                              | BBHA 9170           | SEM003-15    | 2017-10-17 | 2020-10-16   |  |
| Pre-Amplifier(0.1-<br>26.5GHz)   | Compliance<br>Directions Systems<br>Inc. | PAP-0126            | SEM004-11    | 2019-09-24 | 2020-09-23   |  |
| Pre-amplifier(18-26GHz)  | Rohde & Schwarz                          | CH14-H052           | SEM005-17    | 2019-04-01 | 2020-03-31   |  |
| Pre-amplifier(26GHz-<br>40GHz)   | Compliance<br>Directions Systems<br>Inc. | PAP-2640-50         | SEM005-08    | 2019-04-01 | 2020-03-31   |  |
| DC Power Supply  | Zhao Xin                                 | KXN-6020D           | SEM011-08    | 2019-09-24 | 2020-09-23   |  |
| Active Loop Antenna  | ETS-Lindgren                             | 6502                | SEM003-08    | 2017-08-22 | 2020-08-21   |  |

| General used equipment             |   |          |              |            |              |  |  |  |
|------------------------------------|---|----------|--------------|------------|--------------|--|--|--|
| Equipment                          | Manufacturer                                    | Model No | Inventory No | Cal Date   | Cal Due Date |  |  |  |
| Humidity/ Temperature<br>Indicator | Shanghai<br>Meteorological<br>Industry Factory  | ZJ1-2B   | SEM002-03    | 2019-09-26 | 2020-09-25   |  |  |  |
| Humidity/ Temperature<br>Indicator | Shanghai<br>Meteorological<br>Industry Factory  | ZJ1-2B   | SEM002-04    | 2019-09-26 | 2020-09-25   |  |  |  |
| Humidity/ Temperature Indicator    | Mingle  | N/A      | SEM002-08    | 2019-09-26 | 2020-09-25   |  |  |  |
| Barometer                          | Changchun<br>Meteorological<br>Industry Factory | DYM3     | SEM002-01    | 2019-04-04 | 2020-04-03   |  |  |  |



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Report No.: SZEM191102047201

11 of 163 Page:

#### Radio Spectrum Technical Requirement 6

#### **Antenna Requirement**

#### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)

#### 6.1.2 Conclusion

#### Standard Requirement:

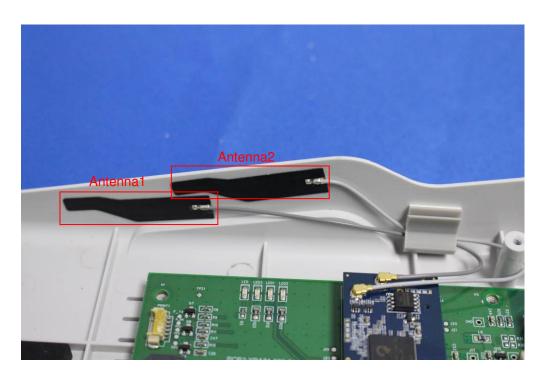
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit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

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

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

#### **EUT Antenna:**

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 0dBi.





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Report No.: SZEM191102047201

Page: 12 of 163

## 7 Radio Spectrum Matter Test Results

#### 7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207 Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

| Frequency of                                    | Conducted limit(dBµV) |           |  |  |  |  |  |
|---|-----------------------|-----------|--|--|--|--|--|
| emission(MHz)                                   | Quasi-peak            | Average   |  |  |  |  |  |
| 0.15-0.5  | 66 to 56*             | 56 to 46* |  |  |  |  |  |
| 0.5-5   | 56                    | 46        |  |  |  |  |  |
| 5-30  | 60                    | 50        |  |  |  |  |  |
| *Decreases with the logarithm of the frequency. |                       |           |  |  |  |  |  |

#### 7.1.1 E.U.T. Operation

Operating Environment:

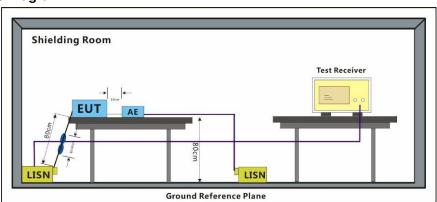
Temperature: 22.4 °C Humidity: 53.1 % RH Atmospheric Pressure: 1015 mbar

Test mode: a:TX mode\_Keep the EUT in continuously transmitting mode with all modulation

types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40).

Only the data of worst case is recorded in the report.

#### 7.1.2 Test Setup Diagram





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Report No.: SZEM191102047201

Page: 13 of 163

#### 7.1.3 Measurement Procedure and Data

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50µH + 50hm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: LISN=Read Level+ Cable Loss+ LISN Factor

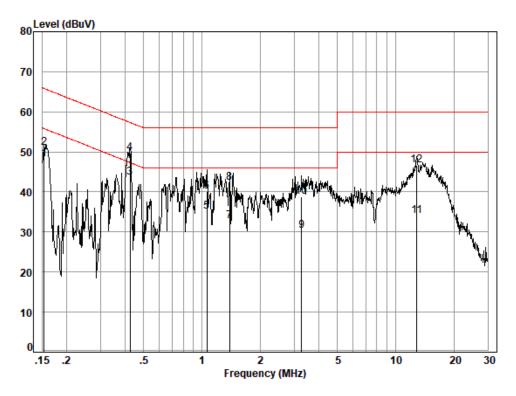




Report No.: SZEM191102047201

Page: 14 of 163

Mode:a; Line:Live Line



: Shielding Room

Condition: Line Job No. : 20472CR

Test mode: a

| 1030 | mouc. a |       |        |       |       |       |        |         |
|------|---------|-------|--------|-------|-------|-------|--------|---------|
|      |         | Cable | LISN   | Read  |       | Limit | 0ver   |         |
|      | Freq    | Loss  | Factor | Level | Level | Line  | Limit  | Remark  |
|      |         |       |        |       |       |       |        |         |
|      | MHz     | dB    | dB     | dBuV  | dBuV  | dBuV  | dB     |         |
|      |         |       |        |       |       |       |        |         |
| 1    | 0.15    | 0.01  | 9.59   | 38.57 | 48.17 | 55.82 | -7.65  | Average |
| 2    | 0.15    | 0.01  | 9.59   | 41.35 | 50.95 | 65.82 | -14.87 | QP      |
| 3    | 0.43    | 0.05  | 9.59   | 34.06 | 43.70 | 47.33 | -3.63  | Average |
| 4    | 0.43    | 0.05  | 9.59   | 39.97 | 49.61 | 57.33 | -7.72  | QP      |
| 5    | 1.06    | 0.10  | 9.60   | 25.32 | 35.02 | 46.00 | -10.98 | Average |
| 6    | 1.06    | 0.10  | 9.60   | 30.51 | 40.21 | 56.00 | -15.79 | QP      |
| 7    | 1.39    | 0.12  | 9.61   | 23.07 | 32.80 | 46.00 | -13.20 | Average |
| 8    | 1.39    | 0.12  | 9.61   | 32.51 | 42.24 | 56.00 | -13.76 | QP      |
| 9    | 3.28    | 0.16  | 9.66   | 20.43 | 30.25 | 46.00 | -15.75 | Average |
| 10   | 3.28    | 0.16  | 9.66   | 28.90 | 38.72 | 56.00 | -17.28 | QP      |
| 11   | 12.85   | 0.19  | 9.99   | 23.80 | 33.98 | 50.00 | -16.02 | Average |
| 12   | 12.85   | 0.19  | 9.99   | 36.42 | 46.60 | 60.00 | -13.40 | QP      |



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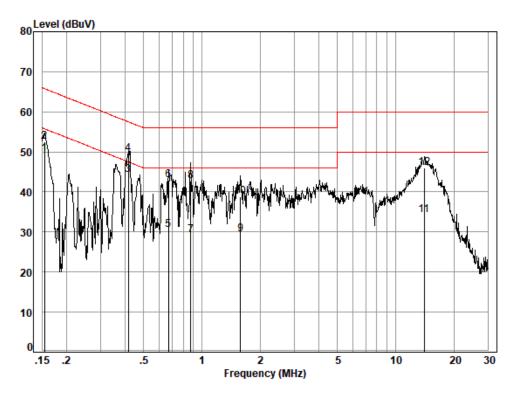
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Report No.: SZEM191102047201

Page: 15 of 163

Mode:a; Line:Neutral Line



: Shielding Room

Condition: Neutral Job No. : 20472CR

Test mode: a

| 1030 | mouc. a |       |        |       |       |       |        |         |
|------|---------|-------|--------|-------|-------|-------|--------|---------|
|      |         | Cable | LISN   | Read  |       | Limit | 0ver   |         |
|      | Freq    | Loss  | Factor | Level | Level | Line  | Limit  | Remark  |
|      |         |       |        |       |       |       |        |         |
|      | MHz     | dB    | dB     | dBuV  | dBuV  | dBuV  | dB     |         |
|      |         |       |        |       |       |       |        |         |
| 1    | 0.15    | 0.01  | 9.63   | 39.76 | 49.40 | 55.78 | -6.38  | Average |
| 2    | 0.15    | 0.01  | 9.63   | 42.90 | 52.54 | 65.78 | -13.24 | QP      |
| 3    | 0.42    | 0.05  | 9.55   | 34.59 | 44.19 | 47.51 | -3.32  | Average |
| 4    | 0.42    | 0.05  | 9.55   | 39.83 | 49.43 | 57.51 | -8.08  | QP      |
| 5    | 0.67    | 0.07  | 9.55   | 20.93 | 30.55 | 46.00 | -15.45 | Average |
| 6    | 0.67    | 0.07  | 9.55   | 33.26 | 42.88 | 56.00 | -13.12 | QP      |
| 7    | 0.88    | 0.08  | 9.55   | 19.53 | 29.16 | 46.00 | -16.84 | Average |
| 8    | 0.88    | 0.08  | 9.55   | 33.01 | 42.64 | 56.00 | -13.36 | QP      |
| 9    | 1.59    | 0.14  | 9.56   | 19.64 | 29.34 | 46.00 | -16.66 | Average |
| 10   | 1.59    | 0.14  | 9.56   | 29.09 | 38.79 | 56.00 | -17.21 | QP      |
| 11   | 14.06   | 0.20  | 10.22  | 23.81 | 34.23 | 50.00 | -15.77 | Average |
| 12   | 14.06   | 0.20  | 10.22  | 35.50 | 45.92 | 60.00 | -14.08 | QP      |
|      |         |       |        |       |       |       |        |         |



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Page: 16 of 163

#### 7.2 Minimum 6dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.247a(2)
Test Method: ANSI C63.10 (2013) Section 11.8.1

Limit: ≥500 kHz

#### 7.2.1 E.U.T. Operation

Operating Environment:

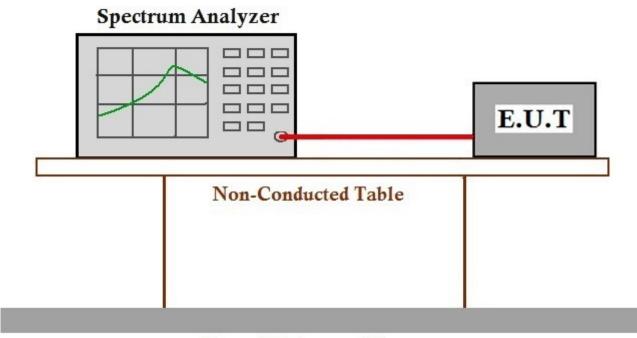
Temperature: 22.6 °C Humidity: 59.6 % RH Atmospheric Pressure: 1015 mbar

Test mode: a:TX mode\_Keep the EUT in continuously transmitting mode with all modulation

types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40).

Only the data of worst case is recorded in the report.

#### 7.2.2 Test Setup Diagram



#### Ground Reference Plane

#### 7.2.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247



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Report No.: SZEM191102047201

Page: 17 of 163

#### 7.3 Conducted Peak Output Power

**Test Requirement** 47 CFR Part 15, Subpart C 15.247(b)(3) Test Method: ANSI C63.10 (2013) Section 11.9.1

Limit:

| Frequency range(MHz) | Output power of the intentional radiator(watt)         |
|----------------------|--|
|                      | 1 for ≥50 hopping channels                             |
| 902-928              | 0.25 for 25≤ hopping channels <50                      |
|                      | 1 for digital modulation                               |
|                      | 1 for ≥75 non-overlapping hopping channels             |
| 2400-2483.5          | 0.125 for all other frequency hopping systems          |
|                      | 1 for digital modulation                               |
| 5725-5850            | 1 for frequency hopping systems and digital modulation |

#### 7.3.1 E.U.T. Operation

Operating Environment:

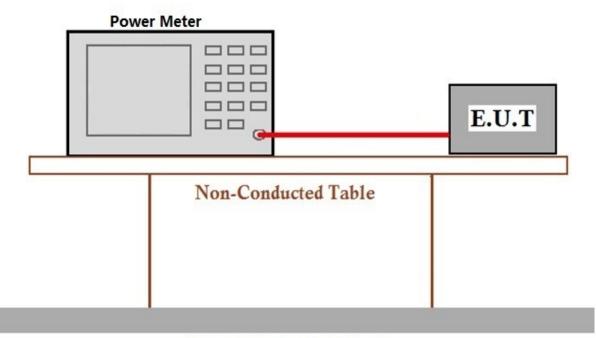
Atmospheric Pressure: 1015 mbar Temperature: 22.6 °C Humidity: 59.6 % RH

Test mode: a:TX mode\_Keep the EUT in continuously transmitting mode with all modulation

types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40).

Only the data of worst case is recorded in the report.

#### 7.3.2 Test Setup Diagram



#### Ground Reference Plane



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Report No.: SZEM191102047201

Page: 18 of 163

#### 7.3.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247



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Report No.: SZEM191102047201

Page: 19 of 163

#### 7.4 Power Spectrum Density

Test Requirement 47 CFR Part 15, Subpart C 15.247(e)
Test Method: ANSI C63.10 (2013) Section 11.10.2

Limit: ≤8dBm in any 3 kHz band during any time interval of continuous

transmission

#### 7.4.1 E.U.T. Operation

Operating Environment:

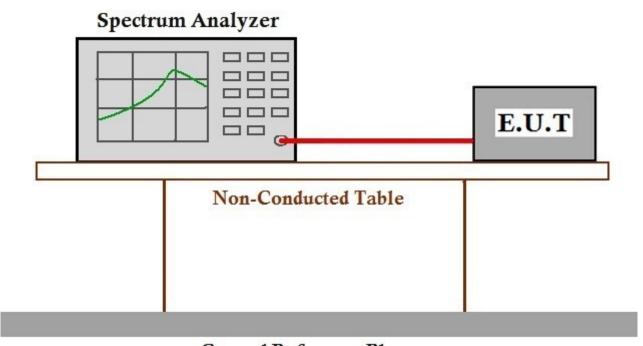
Temperature: 22.6 °C Humidity: 59.7 % RH Atmospheric Pressure: 1015 mbar

Test mode: a:TX mode\_Keep the EUT in continuously transmitting mode with all modulation

types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40).

Only the data of worst case is recorded in the report.

#### 7.4.2 Test Setup Diagram



## **Ground Reference Plane**

#### 7.4.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247



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Report No.: SZEM191102047201

Page: 20 of 163

#### 7.5 Conducted Band Edges Measurement

**Test Requirement** 47 CFR Part 15, Subpart C 15.247(d) Test Method: ANSI C63.10 (2013) Section 11.13.3.2

Limit: In any 100 kHz bandwidth outside the frequency band in which the spread

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

§15.205(a), must also comply with the radiated emission limits specified in

§15.209(a) (see §15.205(c)

#### 7.5.1 E.U.T. Operation

Operating Environment:

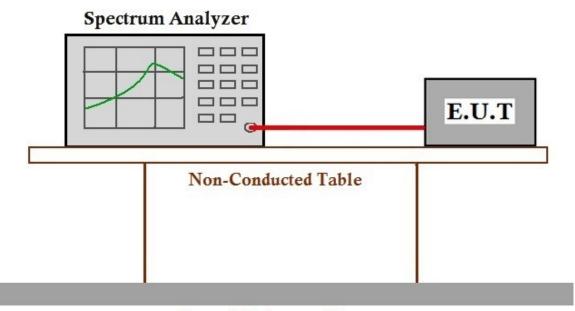
Temperature: Humidity: 59.9 % RH Atmospheric Pressure: 1015 mbar

Test mode: a:TX mode Keep the EUT in continuously transmitting mode with all modulation

types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40).

Only the data of worst case is recorded in the report.

#### 7.5.2 Test Setup Diagram



#### Ground Reference Plane



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Page: 21 of 163

#### 7.5.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247



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Report No.: SZEM191102047201

Page: 22 of 163

### 7.6 Conducted Spurious Emissions

**Test Requirement** 47 CFR Part 15, Subpart C 15.247(d) Test Method: ANSI C63.10 (2013) Section 11.11

Limit: In any 100 kHz bandwidth outside the frequency band in which the spread

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

§15.205(a), must also comply with the radiated emission limits specified in

§15.209(a) (see §15.205(c)

#### 7.6.1 E.U.T. Operation

Operating Environment:

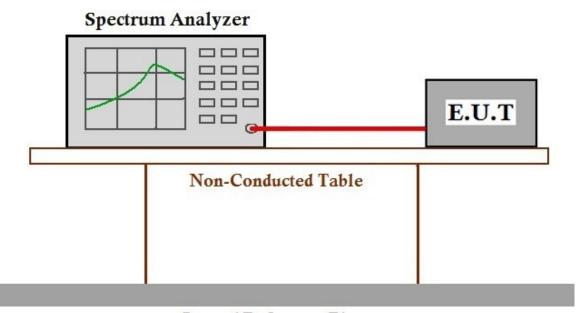
Temperature: Humidity: 59.9 % RH Atmospheric Pressure: 1015 mbar

Test mode: a:TX mode Keep the EUT in continuously transmitting mode with all modulation

types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40).

Only the data of worst case is recorded in the report.

#### 7.6.2 Test Setup Diagram



#### Ground Reference Plane



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Page: 23 of 163

#### 7.6.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247



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Report No.: SZEM191102047201

Page: 24 of 163

#### 7.7 Radiated Emissions which fall in the restricted bands

**Test Requirement** 47 CFR Part 15, Subpart C 15.209 & 15.247(d)

Test Method: ANSI C63.10 (2013) Section 6.10.5

Measurement Distance: 3m

Limit:

| Frequency(MHz) | Field strength(microvolts/meter) | Measurement distance(meters) |
|----------------|----------------------------------|------------------------------|
| 0.009-0.490    | 2400/F(kHz)                      | 300                          |
| 0.490-1.705    | 24000/F(kHz)                     | 30                           |
| 1.705-30.0     | 30                               | 30                           |
| 30-88          | 100                              | 3                            |
| 88-216         | 150                              | 3                            |
| 216-960        | 200                              | 3                            |
| Above 960      | 500                              | 3                            |

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

#### 7.7.1 E.U.T. Operation

Operating Environment:

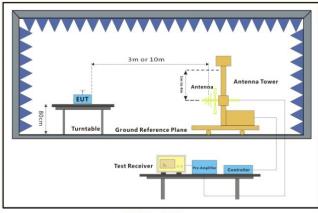
Temperature: 21.5 °C Humidity: 62.6 % RH Atmospheric Pressure: 1015 mbar

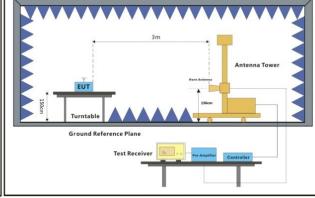
Test mode: a:TX mode Keep the EUT in continuously transmitting mode with all modulation

types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40).

Only the data of worst case is recorded in the report.

#### 7.7.2 Test Setup Diagram





Above 1GHz 30MHz-1GHz



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Report No.: SZEM191102047201

Page: 25 of 163

#### 7.7.3 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

Remark 3: Pretest the EUT at antenna 1 and antenna 2, found the antenna 2 which is worst case for 802.11b/g mode; Pretest the EUT at antenna 1, antenna 2 and MIMO mode, found the MIMO mode which is worst case for 802.11n HT20 and 802.11n HT40 mode; So, Only the worst test data is recorded in the report.



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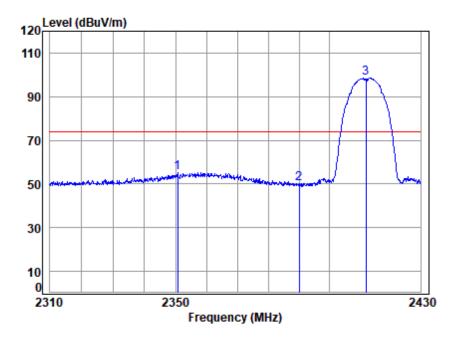
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Report No.: SZEM191102047201

Page: 26 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11b; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL

Job No : 20472CR

1 2 3

Mode : 2412 Band edge : 2.4G WIFI 11B Note

|   |          | Cable | Ant    | Preamp | Read   |        | Limit  | 0ver   |        |
|---|----------|-------|--------|--------|--------|--------|--------|--------|--------|
|   | Freq     | Loss  | Factor | Factor | Level  | Level  | Line   | Limit  | Remark |
|   |          |       |        |        |        |        |        |        |        |
|   | MHz      | dB    | dB/m   | dB     | dBuV   | dBuV/m | dBuV/m | dB     |        |
|   |          |       |        |        |        |        |        |        |        |
|   | 2350.715 | 5.42  | 28.45  | 40.96  | 62.45  | 55.36  | 74.00  | -18.64 | peak   |
|   | 2390.000 | 5.47  | 28.52  | 40.97  | 57.08  | 50.10  | 74.00  | -23.90 | peak   |
| * | 2412.000 | 5.50  | 28.56  | 40.98  | 105.42 | 98.50  | 74.00  | 24.50  | peak   |



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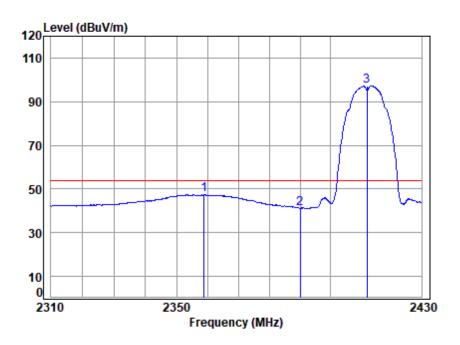
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Report No.: SZEM191102047201

Page: 27 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11b; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL

Job No : 20472CR

Mode : 2412 Band edge : 2.4G WIFI 11B Note

|     |          | Cable | Ant    | Preamp | Read   |        | Limit  | 0ver   |         |  |
|-----|----------|-------|--------|--------|--------|--------|--------|--------|---------|--|
|     | Freq     | Loss  | Factor | Factor | Level  | Level  | Line   | Limit  | Remark  |  |
|     |          |       |        |        |        |        |        |        |         |  |
|     | MHz      | dB    | dB/m   | dB     | dBuV   | dBuV/m | dBuV/m | dB     |         |  |
|     |          |       |        |        |        |        |        |        |         |  |
| 1   | 2358.944 | 5.43  | 28.47  | 40.96  | 54.48  | 47.42  | 54.00  | -6.58  | Average |  |
| 2   | 2390.000 | 5.47  | 28.52  | 40.97  | 48.26  | 41.28  | 54.00  | -12.72 | Average |  |
| 3 * | 2412.000 | 5.50  | 28.56  | 40.98  | 103.99 | 97.07  | 54.00  | 43.07  | Average |  |



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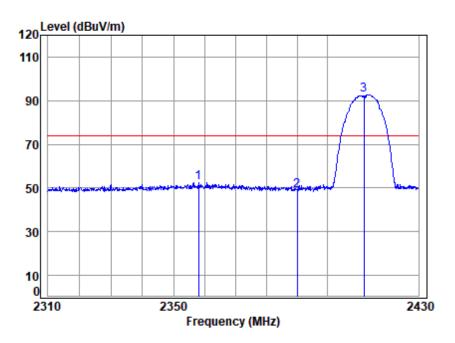
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Report No.: SZEM191102047201

Page: 28 of 163

Mode:a; Polarization:Vertical; Modulation:802.11b; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL Job No : 20472CR

Mode : 2412 Band edge : 2.4G WIFI 11B Note

|   | Frea     |      |         | Preamp<br>Factor |       |        |        |        |           |
|---|----------|------|---------|------------------|-------|--------|--------|--------|-----------|
|   | 11.04    | 2033 | , accor | , ac coi         | LCVCI | LCVCI  | Line   | LIMIT  | Kelliul K |
|   | MHz      | dB   | dB/m    | dB               | dBuV  | dBuV/m | dBuV/m | dB     |           |
|   |          |      |         |                  |       |        |        |        |           |
|   | 2358.108 | 5.43 | 28.46   | 40.96            | 59.74 | 52.6/  | /4.00  | -21.33 | Peak      |
|   | 2390.000 | 5.47 | 28.52   | 40.97            | 55.79 | 48.81  | 74.00  | -25.19 | Peak      |
| * | 2412.000 | 5.50 | 28.56   | 40.98            | 99.67 | 92.75  | 74.00  | 18.75  | Peak      |



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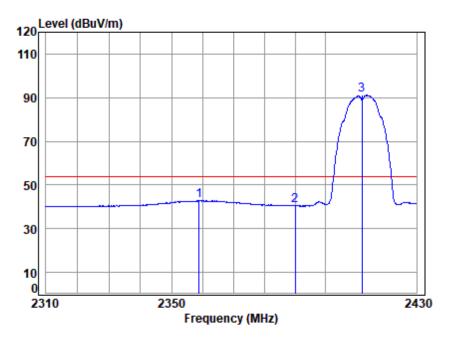
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Report No.: SZEM191102047201

Page: 29 of 163

Mode:a; Polarization:Vertical; Modulation:802.11b; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL Job No : 20472CR

Mode : 2412 Band edge : 2.4G WIFI 11B Note

| Freq                               |      |       | Preamp<br>Factor |       |        |        |        |   |
|------------------------------------|------|-------|------------------|-------|--------|--------|--------|---|
| MHz                                | dB   | dB/m  | dB               | dBuV  | dBuV/m | dBuV/m | ——dB   |   |
| 2358.944<br>2390.000<br>* 2412.000 | 5.47 | 28.52 | 40.97            | 47.41 | 40.43  | 54.00  | -13.57 | _ |



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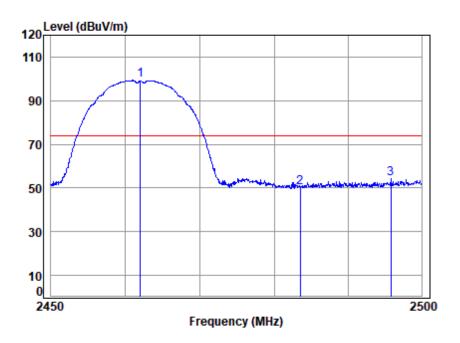
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Report No.: SZEM191102047201

Page: 30 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11b; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

Mode : 2462 Band edge : 2.4G WIFI 11B Note

| Freq                 |    |      |    |      | Level  |        |    | Remark |
|----------------------|----|------|----|------|--------|--------|----|--------|
| MHz                  | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |        |
| 2462.000             |    |      |    |      |        |        |    | •      |
| 2483.500<br>2495.812 |    |      |    |      |        |        |    | •      |



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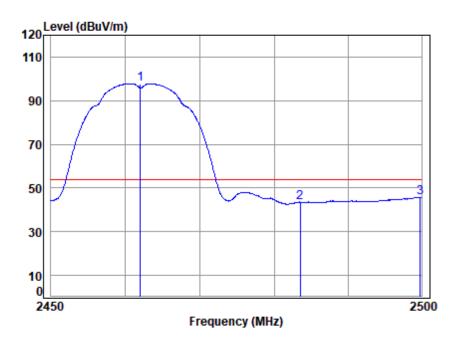
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Report No.: SZEM191102047201

Page: 31 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11b; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

1 2 3

Mode : 2462 Band edge · 2.4G WTFT 11B Note

| e | : Z.4    | 4G MTL | T TID  |        |        |        |        |       |         |   |
|---|----------|--------|--------|--------|--------|--------|--------|-------|---------|---|
|   |          | Cable  | Ant    | Preamp | Read   |        | Limit  | 0ver  |         |   |
|   | Freq     | Loss   | Factor | Factor | Level  | Level  | Line   | Limit | Remark  |   |
|   |          |        |        |        |        | ID 1// | ID 1// |       |         | _ |
|   | MHz      | ав     | dB/m   | ав     | dBuV   | dBuV/m | aBuV/m | dB    |         |   |
| * | 2462.000 | 5.57   | 28.64  | 41.00  | 104.63 | 97.84  | 54.00  | 43.84 | Average |   |
|   | 2483.500 |        |        |        |        |        |        |       | _       |   |
|   | 2499.798 |        |        |        |        |        |        |       | _       |   |



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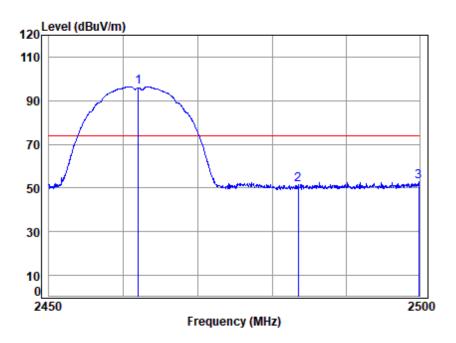
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Report No.: SZEM191102047201

Page: 32 of 163

Mode:a; Polarization: Vertical; Modulation: 802.11b; bandwidth: 20MHz; Channel: High



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2462 Band edge : 2.4G WIFI 11B Note

|   | Freq       |      | Ant<br>Factor |       |        |        |        |        | Remark |
|---|------------|------|---------------|-------|--------|--------|--------|--------|--------|
|   | MHz        | dB   | dB/m          | dB    | dBuV   | dBuV/m | dBuV/m | dB     |        |
| 1 | * 2462.000 | 5.57 | 28.64         | 41.00 | 103.05 | 96.26  | 74.00  | 22.26  | Peak   |
| 2 | 2483.500   | 5.60 | 28.67         | 41.01 | 58.25  | 51.51  | 74.00  | -22.49 | Peak   |
| 3 | 2499,899   | 5.62 | 28.70         | 41.02 | 59.68  | 52.98  | 74.00  | -21.02 | Peak   |



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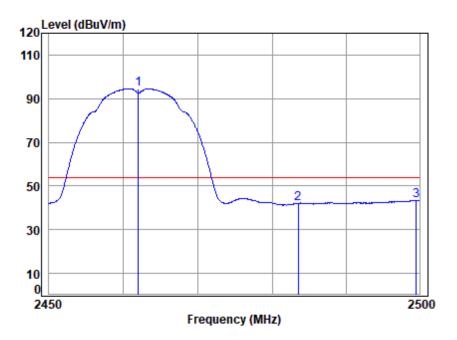
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Report No.: SZEM191102047201

Page: 33 of 163

Mode:a; Polarization: Vertical; Modulation: 802.11b; bandwidth: 20MHz; Channel: High



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2462 Band edge · 2.4G WTFT 11B Note

| ote | : Z.     | 4G WIF | T TID  |        |        |        |        |        |         |   |
|-----|----------|--------|--------|--------|--------|--------|--------|--------|---------|---|
|     |          | Cable  | Ant    | Preamp | Read   |        | Limit  | 0ver   |         |   |
|     | Freq     | Loss   | Factor | Factor | Level  | Level  | Line   | Limit  | Remark  |   |
| _   |          |        |        |        |        |        |        |        |         | _ |
|     | MHz      | dB     | dB/m   | dB     | dBuV   | dBuV/m | dBuV/m | dB     |         |   |
|     |          |        |        |        |        |        |        |        |         |   |
| 1 * | 2462.000 | 5.57   | 28.64  | 41.00  | 101.27 | 94.48  | 54.00  | 40.48  | Average |   |
| 2   | 2483.500 | 5.60   | 28.67  | 41.01  | 48.79  | 42.05  | 54.00  | -11.95 | Average |   |
| 3   | 2499.545 | 5.62   | 28.70  | 41.02  | 50.13  | 43.43  | 54.00  | -10.57 | Average |   |



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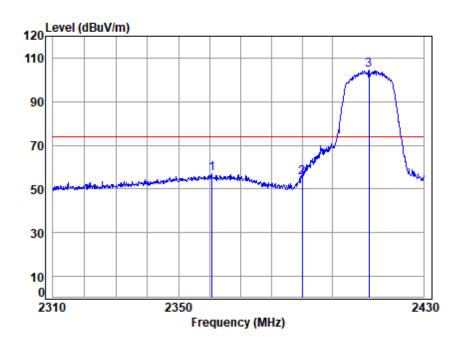
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Report No.: SZEM191102047201

Page: 34 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11g; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL

Job No : 20472CR

1 2 3

Mode : 2412 Band edge : 2.4G WIFI 11G Note

|   | Enoa     |      |        |        |        |        | Limit<br>Line |        |          |
|---|----------|------|--------|--------|--------|--------|---------------|--------|----------|
|   | rreq     | LUSS | ractor | ractor | rever  | rever  | Line          | LIMIT  | Kelliark |
|   | MHz      | dB   | dB/m   | dB     | dBuV   | dBuV/m | dBuV/m        | dB     |          |
|   | 2360.737 | 5.44 | 28.47  | 40.96  | 64.26  | 57.21  | 74.00         | -16.79 | neak     |
|   | 2390.000 |      |        |        |        |        |               |        | •        |
| * | 2412.000 | 5.50 | 28.56  | 40.98  | 111.48 | 104.56 | 74.00         | 30.56  | peak     |



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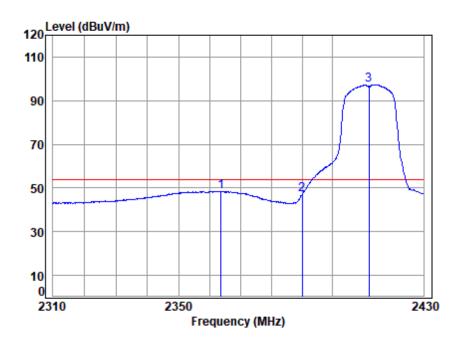
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Report No.: SZEM191102047201

Page: 35 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11g; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL

Job No : 20472CR

1 2 3

Mode : 2412 Band edge : 2.4G WIFI 11G Note

|   | Freq     |      |       |       |        |        | Limit<br>Line |       |         |   |
|---|----------|------|-------|-------|--------|--------|---------------|-------|---------|---|
|   | MHz      | dB   | dB/m  | dB    | dBuV   | dBuV/m | dBuV/m        | dB    |         | _ |
|   | 2363.727 |      |       |       |        |        |               |       | _       |   |
|   | 2390.000 | 5.47 | 28.52 | 40.97 | 53.88  | 46.90  | 54.00         | -7.10 | Average |   |
| * | 2412.000 | 5.50 | 28.56 | 40.98 | 104.32 | 97.40  | 54.00         | 43.40 | Average |   |



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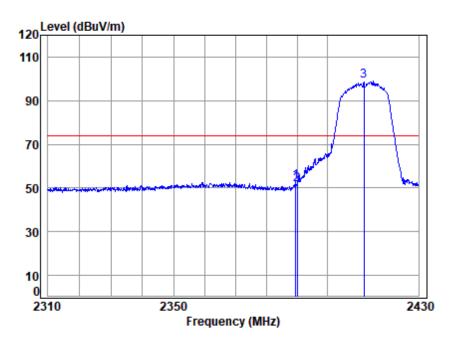
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Report No.: SZEM191102047201

Page: 36 of 163

Mode:a; Polarization:Vertical; Modulation:802.11g; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL Job No : 20472CR

Mode : 2412 Band edge : 2.4G WIFI 11G Note

|            | Cable | Ant    | Preamp | Read   |        | Limit  | 0ver   |        |
|------------|-------|--------|--------|--------|--------|--------|--------|--------|
| Freq       | Loss  | Factor | Factor | Level  | Level  | Line   | Limit  | Remark |
| MHz        | dB    | dB/m   | dB     | dBuV   | dBuV/m | dBuV/m | dB     |        |
| 2389.605   | 5.47  | 28.52  | 40.97  | 59.78  | 52.80  | 74.00  | -21.20 | Peak   |
| 2390.000   | 5.47  | 28.52  | 40.97  | 58.38  | 51.40  | 74.00  | -22.60 | Peak   |
| * 2412 000 | 5 50  | 28 56  | 40 98  | 106 05 | 99 13  | 74 00  | 25 13  | Peak   |



1 2 3

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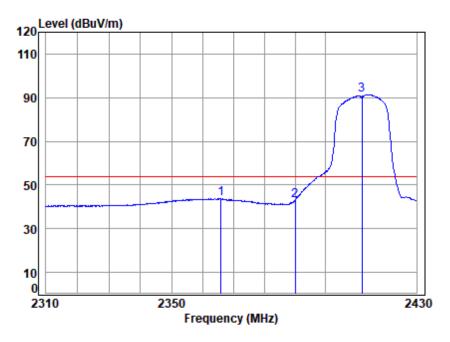
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Report No.: SZEM191102047201

Page: 37 of 163

Mode:a; Polarization:Vertical; Modulation:802.11g; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL Job No : 20472CR

Mode : 2412 Band edge : 2.4G WIFI 11G Note

| Freq                               |      |       | Preamp<br>Factor |       |        |        |        |   |
|------------------------------------|------|-------|------------------|-------|--------|--------|--------|---|
| MHz                                | dB   | dB/m  | dB               | dBuV  | dBuV/m | dBuV/m | dB     |   |
| 2365.883<br>2390.000<br>* 2412.000 | 5.47 | 28.52 | 40.97            | 49.88 | 42.90  | 54.00  | -11.10 | _ |



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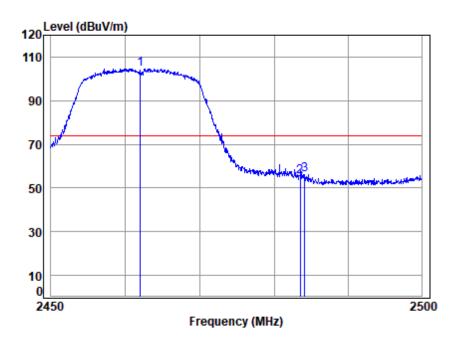
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Report No.: SZEM191102047201

Page: 38 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11g; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

Mode : 2462 Band edge : 2.4G WIFI 11G Note

| Freq                 |    |      |    |      | Level  |        |    | Remark |
|----------------------|----|------|----|------|--------|--------|----|--------|
| MHz                  | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |        |
| 2462.000<br>2483.500 |    |      |    |      |        |        |    | •      |
| 2484.141             |    |      |    |      |        |        |    | •      |



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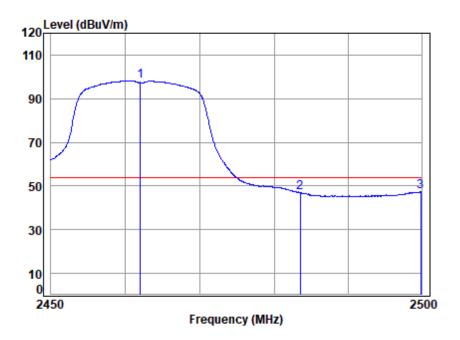
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Report No.: SZEM191102047201

Page: 39 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11g; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

1 2 3

Mode : 2462 Band edge : 2.4G WIFI 11G Note

|   | Freq                 |      |       |       |       |        | Limit<br>Line |       |         |   |
|---|----------------------|------|-------|-------|-------|--------|---------------|-------|---------|---|
|   | MHz                  | dB   | dB/m  | dB    | dBuV  | dBuV/m | dBuV/m        | dB    |         | _ |
| * | 2462.000<br>2483.500 | 5.60 | 28.67 | 41.01 | 53.65 | 46.91  | 54.00         | -7.09 | Average |   |
|   | 2499.899             | 5.62 | 28.70 | 41.02 | 54.07 | 47.37  | 54.00         | -6.63 | Average |   |



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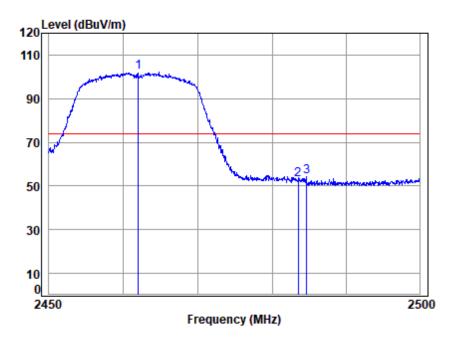
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Report No.: SZEM191102047201

Page: 40 of 163

Mode:a; Polarization: Vertical; Modulation: 802.11g; bandwidth: 20MHz; Channel: High



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2462 Band edge : 2.4G WIFI 11G Note

| Freq                   |      |       |       |       |        | Limit<br>Line |        |      |
|------------------------|------|-------|-------|-------|--------|---------------|--------|------|
| MHz                    | dB   | dB/m  | dB    | dBuV  | dBuV/m | dBuV/m        | dB     |      |
| * 2462.000<br>2483.500 |      |       |       |       |        |               |        |      |
| 2484.643               | 5.60 | 28.68 | 41.01 | 60.86 | 54.13  | 74.00         | -19.87 | Peak |



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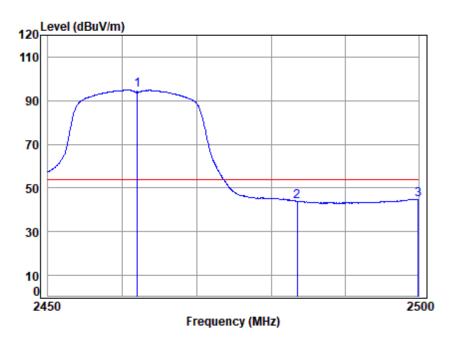
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Report No.: SZEM191102047201

Page: 41 of 163

Mode:a; Polarization: Vertical; Modulation: 802.11g; bandwidth: 20MHz; Channel: High



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2462 Band edge · 2.4G WTFT 11G Note

| e | . Z.     | 4G MIL | 1 110  |        |        |        |        |        |         |   |
|---|----------|--------|--------|--------|--------|--------|--------|--------|---------|---|
|   |          | Cable  | Ant    | Preamp | Read   |        | Limit  | 0ver   |         |   |
|   | Freq     | Loss   | Factor | Factor | Level  | Level  | Line   | Limit  | Remark  |   |
|   |          |        |        |        |        |        |        |        |         | _ |
|   | MHz      | dB     | dB/m   | dB     | dBuV   | dBuV/m | dBuV/m | dB     |         |   |
|   |          |        |        |        |        |        |        |        |         |   |
| * | 2462.000 | 5.57   | 28.64  | 41.00  | 101.61 | 94.82  | 54.00  | 40.82  | Average |   |
|   | 2483.500 | 5.60   | 28.67  | 41.01  | 50.73  | 43.99  | 54.00  | -10.01 | Average |   |
|   | 2499.949 | 5.62   | 28.70  | 41.02  | 51.59  | 44.89  | 54.00  | -9.11  | Average |   |



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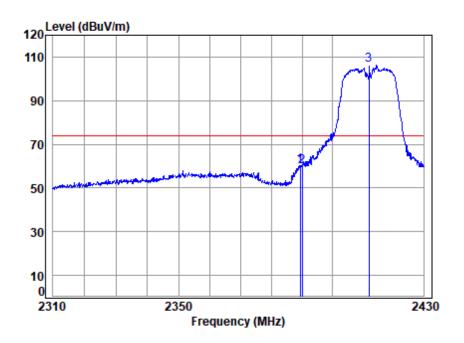
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Report No.: SZEM191102047201

Page: 42 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11n; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

1 2 3

Mode : 2412 Band edge : 2.4G WIFI 11N20 Note

| Freq                 |    |      |    |      |        | Limit<br>Line |    | Remark |
|----------------------|----|------|----|------|--------|---------------|----|--------|
| MHz                  | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m        | dB |        |
| 2389.363<br>2390.000 |    |      |    |      |        |               |    | •      |
| * 2412.000           |    |      |    |      |        |               |    | •      |



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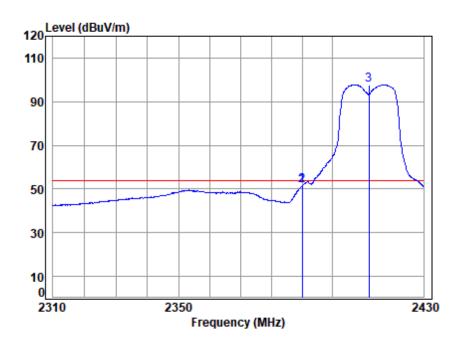
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Report No.: SZEM191102047201

Page: 43 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11n; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL

Job No : 20472CR

1 2 3

Mode : 2412 Band edge : 2.4G WIFI 11N20 Note

|   |          |       |        | _      |        |        |        |       |         |  |
|---|----------|-------|--------|--------|--------|--------|--------|-------|---------|--|
|   |          | Cable | Ant    | Preamp | Read   |        | Limit  | 0ver  |         |  |
|   | Freq     | Loss  | Factor | Factor | Level  | Level  | Line   | Limit | Remark  |  |
|   |          |       |        |        |        |        |        |       |         |  |
|   | MHz      | dB    | dB/m   | dB     | dBuV   | dBuV/m | dBuV/m | dB    |         |  |
|   |          |       |        |        |        |        |        |       |         |  |
|   | 2389.968 | 5.47  | 28.52  | 40.97  | 58.46  | 51.48  | 54.00  | -2.52 | Average |  |
|   | 2390.000 | 5.47  | 28.52  | 40.97  | 58.46  | 51.48  | 54.00  | -2.52 | Average |  |
| * | 2412.000 | 5.50  | 28.56  | 40.98  | 104.61 | 97.69  | 54.00  | 43.69 | Average |  |



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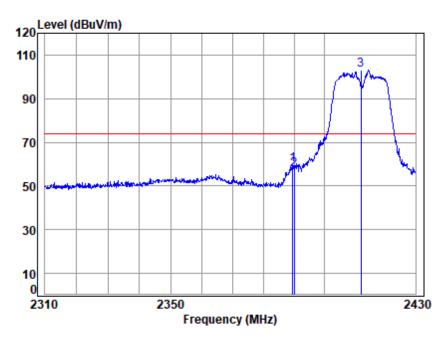
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Report No.: SZEM191102047201

Page: 44 of 163

Mode:a; Polarization:Vertical; Modulation:802.11n; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL Job No : 20472CR

Mode : 2412 Band edge : 2.4G WIFI 11N20 Note

| Freq                 |      |       |       |        |        | Limit<br>Line |       | Remark |
|----------------------|------|-------|-------|--------|--------|---------------|-------|--------|
| MHz                  | dB   | dB/m  | dB    | dBuV   | dBuV/m | dBuV/m        | dB    |        |
| 2389.484<br>2390.000 |      |       |       |        |        |               |       |        |
| * 2412.000           | 5.50 | 28.56 | 40.98 | 109.84 | 102.92 | 74.00         | 28.92 | Peak   |



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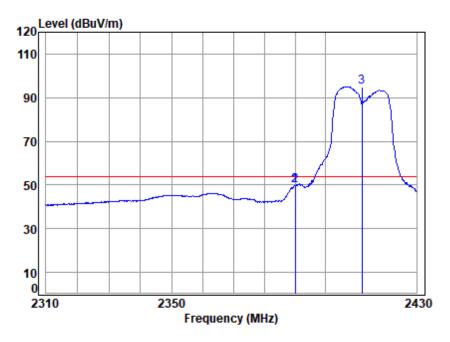
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Report No.: SZEM191102047201

Page: 45 of 163

Mode:a; Polarization:Vertical; Modulation:802.11n; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL Job No : 20472CR

Mode : 2412 Band edge : 2.4G WIFI 11N20 Note

| Freq                 |    |      |    |      |        | Limit<br>Line |    |   |
|----------------------|----|------|----|------|--------|---------------|----|---|
| MHz                  | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m        | dB |   |
| 2389.968<br>2390.000 |    |      |    |      |        |               |    | _ |
| * 2412.000           |    |      |    |      |        |               |    | _ |



1 2 3

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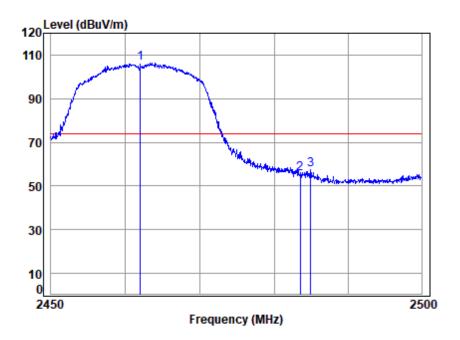
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Report No.: SZEM191102047201

Page: 46 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11n; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

1 2 3

Mode : 2462 Band edge : 2.4G WIFI 11N20 Note

|   |                      |    |      | _  |      |        |               |      |   |   |
|---|----------------------|----|------|----|------|--------|---------------|------|---|---|
|   | Freq                 |    |      |    |      |        | Limit<br>Line |      |   |   |
|   | MHz                  | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m        | ——dB |   | - |
| * | 2462.000             |    |      |    |      |        |               |      | • |   |
|   | 2483.500<br>2484.944 |    |      |    |      |        |               |      | • |   |



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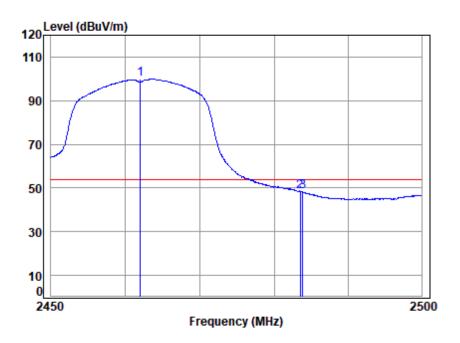
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Report No.: SZEM191102047201

Page: 47 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11n; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

1 2 3

Mode : 2462 Band edge : 2.4G WIFI 11N20 Note

| _ |          |       |        | _      |        |        |        |       |         |  |
|---|----------|-------|--------|--------|--------|--------|--------|-------|---------|--|
|   |          | Cable | Ant    | Preamp | Read   |        | Limit  | 0ver  |         |  |
|   | Freq     | Loss  | Factor | Factor | Level  | Level  | Line   | Limit | Remark  |  |
|   |          |       |        |        |        |        |        |       |         |  |
|   | MHz      | dB    | dB/m   | dB     | dBuV   | dBuV/m | dBuV/m | dB    |         |  |
|   |          |       |        |        |        |        |        |       |         |  |
| * | 2462.000 | 5.57  | 28.64  | 41.00  | 106.61 | 99.82  | 54.00  | 45.82 | Average |  |
|   | 2483.500 | 5.60  | 28.67  | 41.01  | 55.14  | 48.40  | 54.00  | -5.60 | Average |  |
|   | 2483.840 | 5.60  | 28.67  | 41.01  | 54.93  | 48.19  | 54.00  | -5.81 | Average |  |



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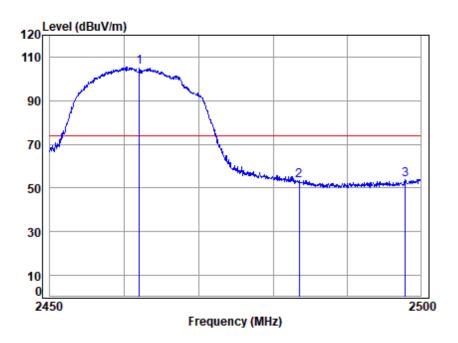
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Report No.: SZEM191102047201

Page: 48 of 163

Mode:a; Polarization: Vertical; Modulation: 802.11n; bandwidth: 20MHz; Channel: High



Site : chamber Condition: 3m VERTICAL Job No : 20472CR

Mode : 2462 Band edge : 2.4G WTFT 11N20 Note

| _ |          |       |        | _      |        |        |        |        |        |  |
|---|----------|-------|--------|--------|--------|--------|--------|--------|--------|--|
|   |          | Cable | Ant    | Preamp | Read   |        | Limit  | 0ver   |        |  |
|   | Freq     | Loss  | Factor | Factor | Level  | Level  | Line   | Limit  | Remark |  |
|   |          |       |        |        |        |        |        |        |        |  |
|   | MHz      | dB    | dB/m   | dB     | dBuV   | dBuV/m | dBuV/m | dB     |        |  |
|   |          |       |        |        |        |        |        |        |        |  |
| * | 2462.000 | 5.57  | 28.64  | 41.00  | 112.09 | 105.30 | 74.00  | 31.30  | Peak   |  |
|   | 2483.500 | 5.60  | 28.67  | 41.01  | 60.00  | 53.26  | 74.00  | -20.74 | Peak   |  |
|   | 2497.930 | 5.62  | 28.70  | 41.02  | 60.73  | 54.03  | 74.00  | -19.97 | Peak   |  |



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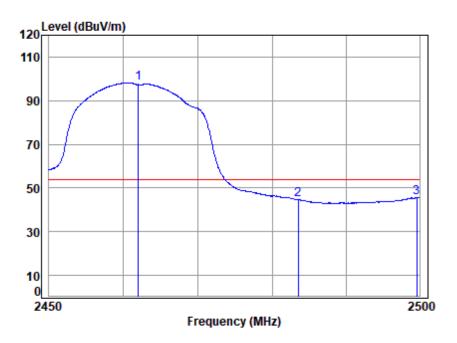
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Report No.: SZEM191102047201

Page: 49 of 163

Mode:a; Polarization: Vertical; Modulation: 802.11n; bandwidth: 20MHz; Channel: High



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2462 Band edge : 2.4G WIFI 11N20 Note

| Freq                                     |      |       |       |       |        | Limit<br>Line |       | Remark  |
|--|------|-------|-------|-------|--------|---------------|-------|---------|
| MHz                                      | dB   | dB/m  | dB    | dBuV  | dBuV/m | dBuV/m        | dB    |         |
| 1 * 2462.000<br>2 2483.500<br>3 2499.646 | 5.60 | 28.67 | 41.01 | 51.54 | 44.80  | 54.00         | -9.20 | Average |



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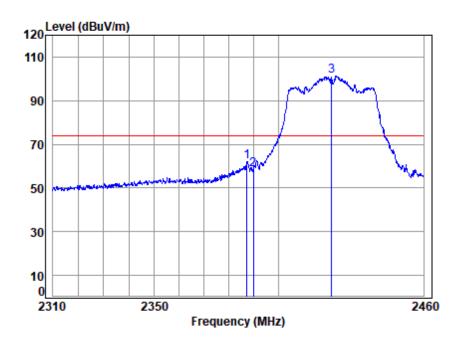
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Report No.: SZEM191102047201

Page: 50 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11n; bandwidth:40MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

1 2 3

Mode : 2422 Band edge : 2.4G WIFI 11N40 Note

|   |          |       |        | _      |        |        |        |        |        |
|---|----------|-------|--------|--------|--------|--------|--------|--------|--------|
|   |          | Cable | Ant    | Preamp | Read   |        | Limit  | 0ver   |        |
|   | Freq     | Loss  | Factor | Factor | Level  | Level  | Line   | Limit  | Remark |
|   |          |       |        |        |        |        |        |        |        |
|   | MHz      | dB    | dB/m   | dB     | dBuV   | dBuV/m | dBuV/m | dB     |        |
|   |          |       |        |        |        |        |        |        |        |
|   | 2387.423 | 5.47  | 28.51  | 40.97  | 69.14  | 62.15  | 74.00  | -11.85 | peak   |
| 2 | 2390.000 | 5.47  | 28.52  | 40.97  | 65.51  | 58.53  | 74.00  | -15.47 | peak   |
| * | 2422.000 | 5.52  | 28.57  | 40.99  | 108.27 | 101.37 | 74.00  | 27.37  | peak   |



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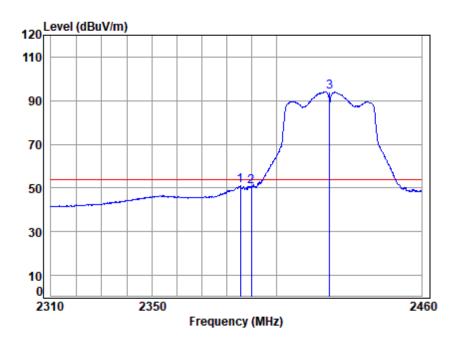
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Report No.: SZEM191102047201

Page: 51 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11n; bandwidth:40MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

1 2 3

Mode : 2422 Band edge : 2.4G WIFI 11N40 Note

| _ |          |       |        |        |        |        |        |       |         |  |
|---|----------|-------|--------|--------|--------|--------|--------|-------|---------|--|
|   |          | Cable | Ant    | Preamp | Read   |        | Limit  | 0ver  |         |  |
|   | Freq     | Loss  | Factor | Factor | Level  | Level  | Line   | Limit | Remark  |  |
|   |          |       |        |        |        |        |        |       |         |  |
|   | MHz      | dB    | dB/m   | dB     | dBuV   | dBuV/m | dBuV/m | dB    |         |  |
|   |          |       |        |        |        |        |        |       |         |  |
|   | 2385.621 | 5.47  | 28.51  | 40.97  | 57.96  | 50.97  | 54.00  | -3.03 | Average |  |
|   | 2390.000 | 5.47  | 28.52  | 40.97  | 57.47  | 50.49  | 54.00  | -3.51 | Average |  |
| * | 2422.000 | 5.52  | 28.57  | 40.99  | 100.79 | 93.89  | 54.00  | 39.89 | Average |  |



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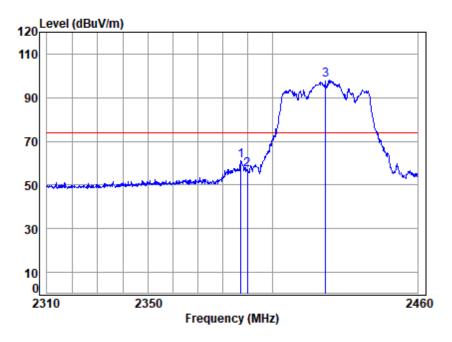
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Report No.: SZEM191102047201

Page: 52 of 163

Mode:a; Polarization:Vertical; Modulation:802.11n; bandwidth:40MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2422 Band edge : 2.4G WIFI 11N40 Note

| Freq                 |      |       |       |        |        | Limit<br>Line |       | Remark |
|----------------------|------|-------|-------|--------|--------|---------------|-------|--------|
| MHz                  | dB   | dB/m  | dB    | dBuV   | dBuV/m | dBuV/m        | dB    |        |
| 2387.272<br>2390.000 |      |       |       |        |        |               |       |        |
| * 2422.000           | 5.52 | 28.57 | 40.99 | 104.78 | 97.88  | 74.00         | 23.88 | Peak   |



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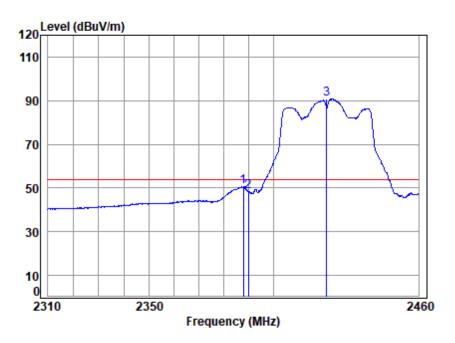
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Report No.: SZEM191102047201

Page: 53 of 163

Mode:a; Polarization:Vertical; Modulation:802.11n; bandwidth:40MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL Job No : 20472CR

Mode : 2422 Band edge : 2.4G WIFI 11N40 Note

|     |          |      |       | _     |       |        |               |       |         |
|-----|----------|------|-------|-------|-------|--------|---------------|-------|---------|
|     | Freq     |      |       |       |       |        | Limit<br>Line |       | Remark  |
| -   | MHz      | dB   | dB/m  | dB    | dBuV  | dBuV/m | dBuV/m        | dB    |         |
| 1   | 2387.873 | 5.47 | 28.51 | 40.97 | 57.86 | 50.87  | 54.00         | -3.13 | Average |
| 2   | 2390.000 | 5.47 | 28.52 | 40.97 | 55.29 | 48.31  | 54.00         | -5.69 | Average |
| 3 * | 2422.000 | 5.52 | 28.57 | 40.99 | 97.67 | 90.77  | 54.00         | 36.77 | Average |



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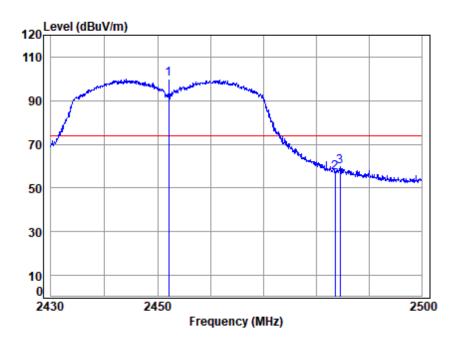
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Report No.: SZEM191102047201

Page: 54 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11n; bandwidth:40MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

Mode : 2452 Band edge : 2.4G WTFT 11N40 Note

| OLE | . 2      | +O MII | T TTIM+4 | •      |        |        |        |        |        |   |
|-----|----------|--------|----------|--------|--------|--------|--------|--------|--------|---|
|     |          | Cable  | Ant      | Preamp | Read   |        | Limit  | 0ver   |        |   |
|     | Freq     | Loss   | Factor   | Factor | Level  | Level  | Line   | Limit  | Remark |   |
| _   |          |        |          |        |        |        |        |        |        | _ |
|     | MHz      | dB     | dB/m     | dB     | dBuV   | dBuV/m | dBuV/m | dB     |        |   |
|     |          |        |          |        |        |        |        |        |        |   |
| 1 * | 2452.000 | 5.56   | 28.62    | 41.00  | 106.88 | 100.06 | 74.00  | 26.06  | peak   |   |
| 2   | 2483.500 | 5.60   | 28.67    | 41.01  | 63.88  | 57.14  | 74.00  | -16.86 | peak   |   |
| 3   | 2484.429 | 5.60   | 28.67    | 41.01  | 66.57  | 59.83  | 74.00  | -14.17 | peak   |   |



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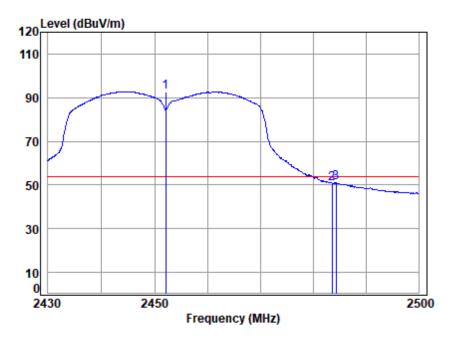
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Report No.: SZEM191102047201

Page: 55 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11n; bandwidth:40MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

1 2 3

Mode : 2452 Band edge : 2.4G WIFI 11N40 Note

| _ |          |       |        | -      |       |        |        |       |         |  |
|---|----------|-------|--------|--------|-------|--------|--------|-------|---------|--|
|   |          | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver  |         |  |
|   | Freq     | Loss  | Factor | Factor | Level | Level  | Line   | Limit | Remark  |  |
|   |          |       |        |        |       |        |        |       |         |  |
|   | MHz      | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB    |         |  |
|   |          |       |        |        |       |        |        |       |         |  |
| * | 2452.000 | 5.56  | 28.62  | 41.00  | 99.61 | 92.79  | 54.00  | 38.79 | Average |  |
|   | 2483.500 | 5.60  | 28.67  | 41.01  | 57.56 | 50.82  | 54.00  | -3.18 | Average |  |
|   | 2484.217 | 5.60  | 28.67  | 41.01  | 57.74 | 51.00  | 54.00  | -3.00 | Average |  |



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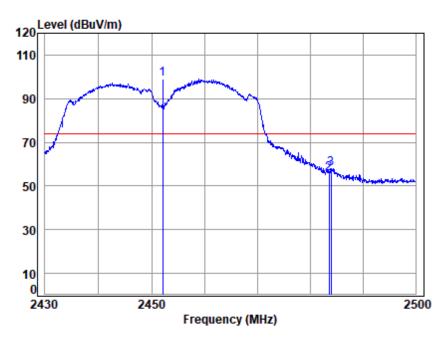
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Report No.: SZEM191102047201

Page: 56 of 163

Mode:a; Polarization: Vertical; Modulation: 802.11n; bandwidth: 40MHz; Channel: High



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2452 Band edge : 2.4G WIFI 11N40 Note

| Freq                 |    |      |    |      |        | Limit<br>Line |    | Remark |
|----------------------|----|------|----|------|--------|---------------|----|--------|
| MHz                  | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m        | dB |        |
| * 2452.000           |    |      |    |      |        |               |    |        |
| 2483.500<br>2483.865 |    |      |    |      |        |               |    |        |



1 2 3

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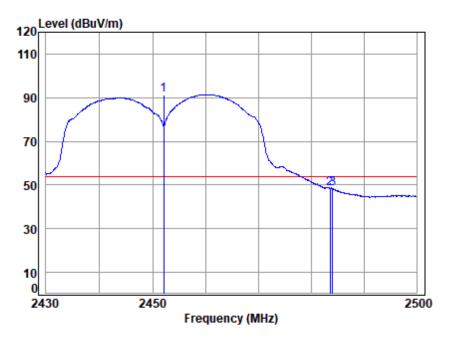
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Report No.: SZEM191102047201

Page: 57 of 163

Mode:a; Polarization: Vertical; Modulation: 802.11n; bandwidth: 40MHz; Channel: High



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2452 Band edge : 2.4G WIFI 11N40 Note

| Freq                               |      |       |       |       |        | Limit<br>Line |       | Remark  |
|------------------------------------|------|-------|-------|-------|--------|---------------|-------|---------|
| MHz                                | dB   | dB/m  | dB    | dBuV  | dBuV/m | dBuV/m        | dB    |         |
| * 2452.000<br>2483.500<br>2484.006 | 5.60 | 28.67 | 41.01 | 55.23 | 48.49  | 54.00         | -5.51 | Average |



1 2 3

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Report No.: SZEM191102047201

Page: 58 of 163

#### 7.8 Radiated Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.247(d)

Test Method: ANSI C63.10 (2013) Section 6.4,6.5,6.6

Measurement Distance: 3m

Limit:

| Frequency(MHz) | Field strength(microvolts/meter) | Measurement distance(meters) |
|----------------|----------------------------------|------------------------------|
| 0.009-0.490    | 2400/F(kHz)                      | 300                          |
| 0.490-1.705    | 24000/F(kHz)                     | 30                           |
| 1.705-30.0     | 30                               | 30                           |
| 30-88          | 100                              | 3                            |
| 88-216         | 150                              | 3                            |
| 216-960        | 200                              | 3                            |
| Above 960      | 500                              | 3                            |

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.



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Report No.: SZEM191102047201

Page: 59 of 163

#### 7.8.1 E.U.T. Operation

Operating Environment:

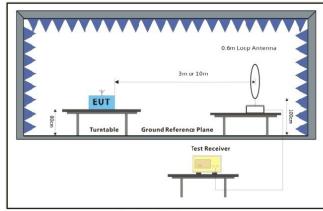
Humidity: 54 % RH Atmospheric Pressure: 1015 mbar Temperature: 25 °C

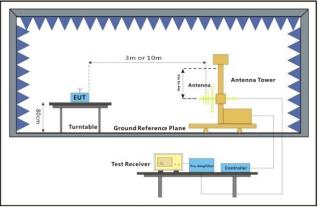
Test mode: a:TX mode\_Keep the EUT in continuously transmitting mode with all modulation

types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40).

Only the data of worst case is recorded in the report.

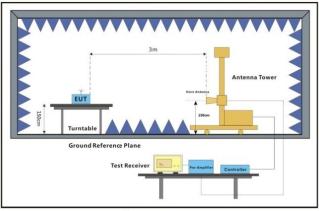
#### 7.8.2 Test Setup Diagram





Below 30MHz

30MHz-1GHz



Above 1GHz



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Report No.: SZEM191102047201

Page: 60 of 163

#### 7.8.3 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

#### Remark:

- 1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.
- 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor

- 3) Scan from 9kHz to 25GHz, the disturbance above 18GHz and below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- 4) For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.
- 5) Pretest the EUT at antenna 1 and antenna 2, found the antenna 2 which is worst case for 802.11b/g mode; Pretest the EUT at antenna 1, antenna 2 and MIMO mode, found the MIMO mode which is worst case for 802.11n HT20 and 802.11n HT40 mode; So, Only the worst test data is recorded in the report.



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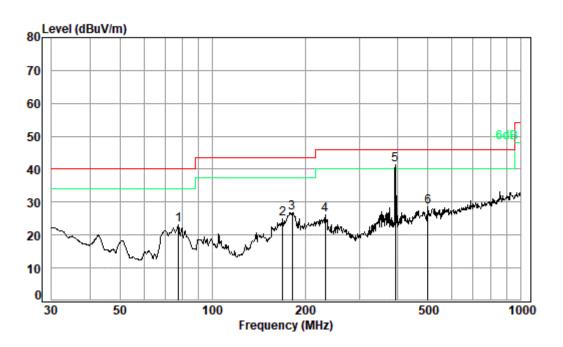


Report No.: SZEM191102047201

Page: 61 of 163

#### Radiated emission below 1GHz

Mode:a; Polarization:Horizontal



Condition: 3m HORIZONTAL

Job No. : 20472CR

Test mode: a

|      | F      |      |        | Preamp |       |        |        |        | Romank |
|------|--------|------|--------|--------|-------|--------|--------|--------|--------|
|      | Freq   |      | -actor | Factor | rever | revei  | LINE   |        |        |
|      | MHz    | dB   | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1    | 77.59  | 1.03 | 12.18  | 27.66  | 37.58 | 23.13  | 40.00  | -16.87 | peak   |
| 2    | 169.01 | 1.35 | 15.69  | 27.28  | 35.29 | 25.05  | 43.50  | -18.45 | peak   |
| 3    | 181.28 | 1.37 | 15.94  | 27.23  | 36.78 | 26.86  | 43.50  | -16.64 | peak   |
| 4    | 232.53 | 1.59 | 18.22  | 27.06  | 33.55 | 26.30  | 46.00  | -19.70 | peak   |
| 5 pp | 392.10 | 2.18 | 22.21  | 27.38  | 44.41 | 41.42  | 46.00  | -4.58  | peak   |
| 6    | 501.18 | 2.60 | 24.63  | 27.84  | 29.15 | 28.54  | 46.00  | -17.46 | peak   |



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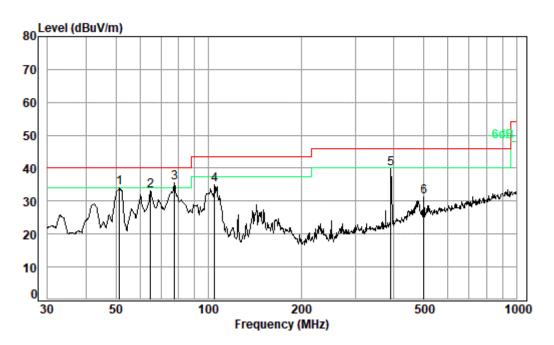
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Report No.: SZEM191102047201

Page: 62 of 163

Mode:a; Polarization:Vertical



Condition: 3m VERTICAL

Job No. : 20472CR

Test mode: a

|      |        | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |   |
|------|--------|-------|--------|--------|-------|--------|--------|--------|--------|---|
|      | Freq   | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark |   |
| _    |        |       |        |        |       |        |        |        |        | _ |
|      | MHz    | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |   |
|      | F4 30  | 0.00  | 44.06  | 27.60  | 46.75 | 22.00  | 40.00  |        |        |   |
| 1    | 51.30  | 0.80  | 14.06  | 27.69  | 46.75 | 33.92  | 40.00  | -6.08  | реак   |   |
| 2    | 64.89  | 0.80  | 13.00  | 27.67  | 47.16 | 33.29  | 40.00  | -6.71  | peak   |   |
| 3 pp | 77.59  | 1.03  | 12.18  | 27.66  | 49.94 | 35.49  | 40.00  | -4.51  | peak   |   |
| 4    | 104.54 | 1.21  | 13.78  | 27.61  | 47.69 | 35.07  | 43.50  | -8.43  | peak   |   |
| 5    | 390.72 | 2.17  | 22.17  | 27.38  | 42.79 | 39.75  | 46.00  | -6.25  | peak   |   |
| 6    | 501.18 | 2.60  | 24.63  | 27.84  | 31.81 | 31.20  | 46.00  | -14.80 | peak   |   |



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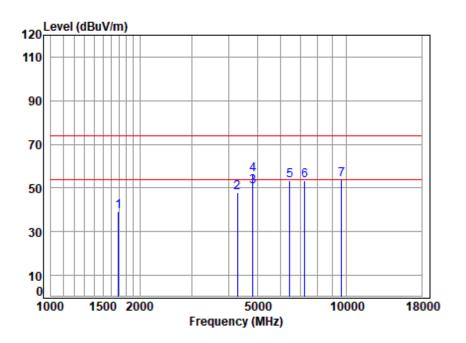


Report No.: SZEM191102047201

Page: 63 of 163

#### Transmitter emission above 1GHz

Mode:a; Polarization:Horizontal; Modulation:802.11b; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL

Job No : 20472CR

Mode : 2412 TX RSE Note : 2.4G WIFI 11B

|   |          | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |         |
|---|----------|-------|--------|--------|-------|--------|--------|--------|---------|
|   | Freq     | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark  |
|   |          |       |        |        |       |        |        |        |         |
|   | MHz      | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |         |
|   |          |       |        |        |       |        |        |        |         |
| 1 | 1692.231 | 5.24  | 26.64  | 40.63  | 47.82 | 39.07  | 74.00  | -34.93 | peak    |
| 2 | 4291.977 | 7.33  | 33.24  | 42.39  | 49.68 | 47.86  | 74.00  | -26.14 | peak    |
| 3 | 4824.000 | 7.91  | 34.00  | 42.78  | 51.30 | 50.43  | 54.00  | -3.57  | Average |
| 4 | 4824.000 | 7.91  | 34.00  | 42.78  | 56.78 | 55.91  | 74.00  | -18.09 | peak    |
| 5 | 6451.353 | 11.45 | 35.55  | 41.98  | 48.38 | 53.40  | 74.00  | -20.60 | peak    |
| 6 | 7236.000 | 10.07 | 36.09  | 41.56  | 48.67 | 53.27  | 74.00  | -20.73 | peak    |
| 7 | 9648.000 | 10.77 | 37.69  | 38.51  | 43.66 | 53.61  | 74.00  | -20.39 | peak    |



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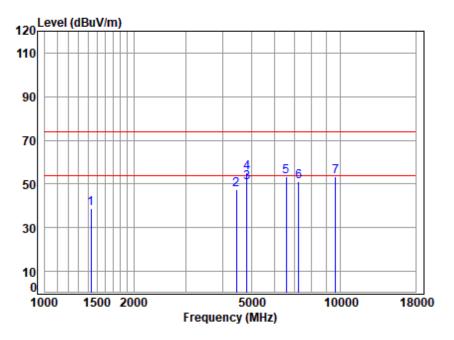
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Report No.: SZEM191102047201

Page: 64 of 163

Mode:a; Polarization:Vertical; Modulation:802.11b; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2412 TX RSE Note : 2.4G WIFI 11B

|   | Freq     |       |       | Preamp<br>Factor |       |        |        |        | Remark  |
|---|----------|-------|-------|------------------|-------|--------|--------|--------|---------|
|   | MHz      | dB    | dB/m  | dB               | dBuV  | dBuV/m | dBuV/m | dB     |         |
| 1 | 1431.047 | 5.26  | 25.54 | 40.46            | 48.38 | 38.72  | 74.00  | -35.28 | peak    |
| 2 | 4456.315 | 7.51  | 33.53 | 42.52            | 48.98 | 47.50  | 74.00  | -26.50 | peak    |
| 3 | 4824.000 | 7.91  | 34.00 | 42.78            | 51.72 | 50.85  | 54.00  | -3.15  | Average |
| 4 | 4824.000 | 7.91  | 34.00 | 42.78            | 56.14 | 55.27  | 74.00  | -18.73 | peak    |
| 5 | 6564.209 | 11.35 | 35.64 | 41.92            | 48.54 | 53.61  | 74.00  | -20.39 | peak    |
| 6 | 7236.000 | 10.07 | 36.09 | 41.56            | 46.43 | 51.03  | 74.00  | -22.97 | peak    |
| 7 | 9648.000 | 10.77 | 37.69 | 38.51            | 43.43 | 53.38  | 74.00  | -20.62 | peak    |



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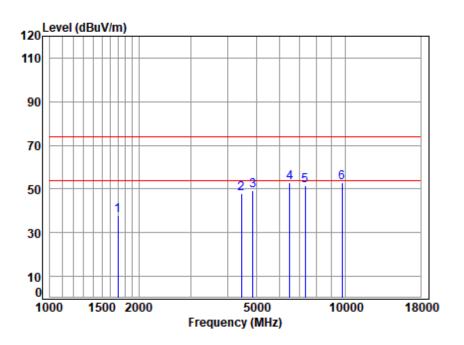
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Report No.: SZEM191102047201

Page: 65 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11b; bandwidth:20MHz; Channel:middle



Site : chamber

Condition: 3m HORIZONTAL

Job No : 20472CR

Mode : 2437 TX RSE Note : 2.4G WIFI 11B

|   | . 2      | TO WILL | 1 110  |        |       |        |        |        |        |
|---|----------|---------|--------|--------|-------|--------|--------|--------|--------|
|   |          | Cable   | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |
|   | Freq     | Loss    | Factor | Factor | Level | Level  | Line   | Limit  | Remark |
|   |          |         |        |        |       |        |        |        |        |
|   | MHz      | dB      | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
|   |          |         |        |        |       |        |        |        |        |
| 1 | 1702.042 | 5.23    | 26.68  | 40.63  | 46.48 | 37.76  | 74.00  | -36.24 | peak   |
| 2 | 4456.315 | 7.51    | 33.60  | 42.52  | 49.31 | 47.90  | 74.00  | -26.10 | peak   |
| 3 | 4874.000 | 7.96    | 34.28  | 42.82  | 50.02 | 49.44  | 74.00  | -24.56 | peak   |
| 4 | 6488.754 | 11.52   | 35.09  | 41.96  | 48.38 | 53.03  | 74.00  | -20.97 | peak   |
| 5 | 7311.000 | 10.05   | 36.37  | 41.53  | 46.59 | 51.48  | 74.00  | -22.52 | peak   |
| 6 | 9748.000 | 10.82   | 37.55  | 38.37  | 42.81 | 52.81  | 74.00  | -21.19 | peak   |



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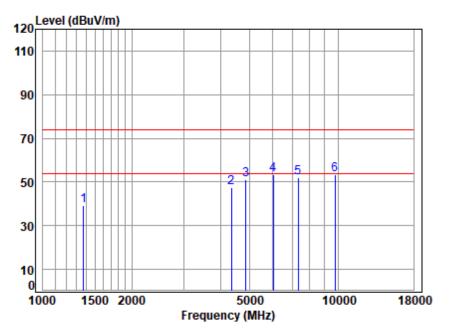
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Report No.: SZEM191102047201

Page: 66 of 163

Mode:a; Polarization:Vertical; Modulation:802.11b; bandwidth:20MHz; Channel:middle



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2437 TX RSE : 2.4G WIFI 11B Note

|   |          | 10 111 | 1 110  |        |       |        |        |        |        |  |
|---|----------|--------|--------|--------|-------|--------|--------|--------|--------|--|
|   |          | Cable  | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |  |
|   | Freq     | Loss   | Factor | Factor | Level | Level  | Line   | Limit  | Remark |  |
|   |          |        |        |        |       |        |        |        |        |  |
|   | MHz      | dB     | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |  |
|   |          |        |        |        |       |        |        |        |        |  |
| 1 | 1370.328 | 5.05   | 25.26  | 40.42  | 49.23 | 39.12  | 74.00  | -34.88 | peak   |  |
| 2 | 4354.454 | 7.40   | 33.60  | 42.44  | 48.87 | 47.43  | 74.00  | -26.57 | peak   |  |
| 3 | 4874.000 | 7.96   | 34.28  | 42.82  | 51.50 | 50.92  | 74.00  | -23.08 | peak   |  |
| 4 | 6036.421 | 10.64  | 34.73  | 42.22  | 50.20 | 53.35  | 74.00  | -20.65 | peak   |  |
| 5 | 7311.000 | 10.05  | 36.37  | 41.53  | 46.96 | 51.85  | 74.00  | -22.15 | peak   |  |
| 6 | 9748.000 | 10.82  | 37.55  | 38.37  | 43.28 | 53.28  | 74.00  | -20.72 | peak   |  |



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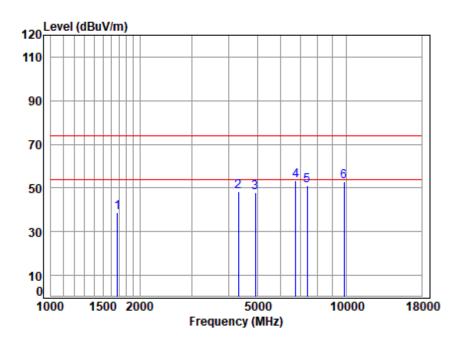
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Report No.: SZEM191102047201

Page: 67 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11b; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

Mode : 2462 TX RSE : 2.4G WIFI 11B Note

|   |          | 10 111 | 1 110  |        |       |        |        |        |        |
|---|----------|--------|--------|--------|-------|--------|--------|--------|--------|
|   |          | Cable  | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |
|   | Freq     | Loss   | Factor | Factor | Level | Level  | Line   | Limit  | Remark |
|   |          |        |        |        |       |        |        |        |        |
|   | MHz      | dB     | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
|   |          |        |        |        |       |        |        |        |        |
| 1 | 1677.621 | 5.25   | 26.58  | 40.62  | 47.49 | 38.70  | 74.00  | -35.30 | peak   |
| 2 | 4316.859 | 7.36   | 33.60  | 42.41  | 49.84 | 48.39  | 74.00  | -25.61 | peak   |
| 3 | 4924.000 | 8.01   | 34.37  | 42.85  | 48.52 | 48.05  | 74.00  | -25.95 | peak   |
| 4 | 6737.207 | 10.86  | 35.78  | 41.82  | 48.73 | 53.55  | 74.00  | -20.45 | peak   |
| 5 | 7386.000 | 10.03  | 36.34  | 41.49  | 46.38 | 51.26  | 74.00  | -22.74 | peak   |
| 6 | 9848.000 | 10.87  | 37.57  | 38.22  | 42.78 | 53.00  | 74.00  | -21.00 | peak   |



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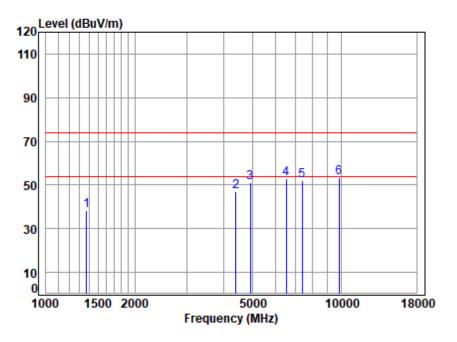
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Report No.: SZEM191102047201

Page: 68 of 163

Mode:a; Polarization: Vertical; Modulation: 802.11b; bandwidth: 20MHz; Channel: High



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2462 TX RSE : 2.4G WTFT 11B Note

| oce | . 2      | +C MII | 1 110  |        |       |        |        |        |        |
|-----|----------|--------|--------|--------|-------|--------|--------|--------|--------|
|     |          | Cable  | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |
|     | Freq     | Loss   | Factor | Factor | Level | Level  | Line   | Limit  | Remark |
|     |          |        |        |        |       |        |        |        |        |
|     | MHz      | dB     | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
|     |          |        |        |        |       |        |        |        |        |
| 1   | 1370.328 | 5.05   | 25.26  | 40.42  | 48.31 | 38.20  | 74.00  | -35.80 | peak   |
| 2   | 4405.090 | 7.46   | 33.60  | 42.48  | 48.57 | 47.15  | 74.00  | -26.85 | peak   |
| 3   | 4924.000 | 8.01   | 34.37  | 42.85  | 51.77 | 51.30  | 74.00  | -22.70 | peak   |
| 4   | 6507.536 | 11.52  | 35.12  | 41.95  | 48.31 | 53.00  | 74.00  | -21.00 | peak   |
| 5   | 7386.000 | 10.03  | 36.34  | 41.49  | 46.97 | 51.85  | 74.00  | -22.15 | peak   |
| 6   | 9848.000 | 10.87  | 37.57  | 38.22  | 43.11 | 53.33  | 74.00  | -20.67 | peak   |



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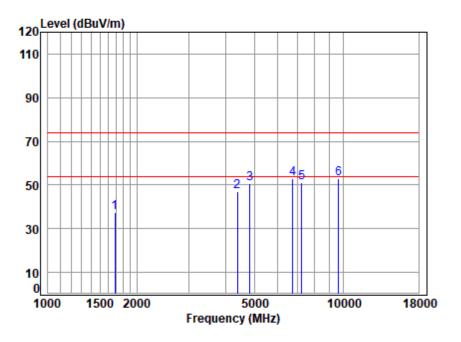
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Report No.: SZEM191102047201

Page: 69 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11g; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

Mode : 2412 TX RSE Note : 2.4G WIFI 11G

|   |          | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |  |
|---|----------|-------|--------|--------|-------|--------|--------|--------|--------|--|
|   | Freq     | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark |  |
|   |          |       |        |        |       |        |        |        |        |  |
|   | MHz      | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |  |
|   |          |       |        |        |       |        |        |        |        |  |
| 1 | 1687.347 | 5.24  | 26.62  | 40.62  | 46.29 | 37.53  | 74.00  | -36.47 | peak   |  |
| 2 | 4392.376 | 7.44  | 33.60  | 42.47  | 48.33 | 46.90  | 74.00  | -27.10 | peak   |  |
| 3 | 4824.000 | 7.91  | 34.19  | 42.78  | 51.43 | 50.75  | 74.00  | -23.25 | peak   |  |
| 4 | 6737.207 | 10.86 | 35.78  | 41.82  | 47.90 | 52.72  | 74.00  | -21.28 | peak   |  |
| 5 | 7236.000 | 10.07 | 36.40  | 41.56  | 46.27 | 51.18  | 74.00  | -22.82 | peak   |  |
| 6 | 9648.000 | 10.77 | 37.53  | 38.51  | 43.28 | 53.07  | 74.00  | -20.93 | peak   |  |



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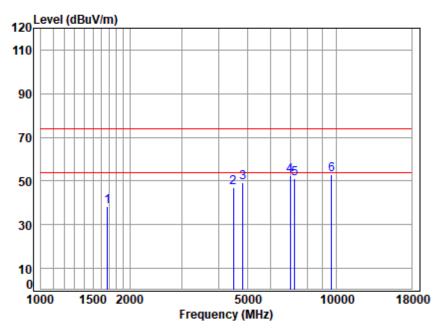
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Report No.: SZEM191102047201

Page: 70 of 163

Mode:a; Polarization:Vertical; Modulation:802.11g; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2412 TX RSE : 2.4G WTFT 11G Note

| ,,,, | . 2      | +C MII | 1 110  |        |       |        |        |        |        |
|------|----------|--------|--------|--------|-------|--------|--------|--------|--------|
|      |          | Cable  | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |
|      | Freq     | Loss   | Factor | Factor | Level | Level  | Line   | Limit  | Remark |
|      |          |        |        |        |       |        |        |        |        |
|      | MHz      | dB     | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
|      |          |        |        |        |       |        |        |        |        |
| 1    | 1682.477 | 5.25   | 26.60  | 40.62  | 46.90 | 38.13  | 74.00  | -35.87 | peak   |
| 2    | 4482.150 | 7.54   | 33.60  | 42.54  | 48.62 | 47.22  | 74.00  | -26.78 | peak   |
| 3    | 4824.000 | 7.91   | 34.19  | 42.78  | 50.00 | 49.32  | 74.00  | -24.68 | peak   |
| 4    | 6974.982 | 10.20  | 36.43  | 41.70  | 47.70 | 52.63  | 74.00  | -21.37 | peak   |
| 5    | 7236.000 | 10.07  | 36.40  | 41.56  | 46.38 | 51.29  | 74.00  | -22.71 | peak   |
| 6    | 9648.000 | 10.77  | 37.53  | 38.51  | 42.94 | 52.73  | 74.00  | -21.27 | peak   |



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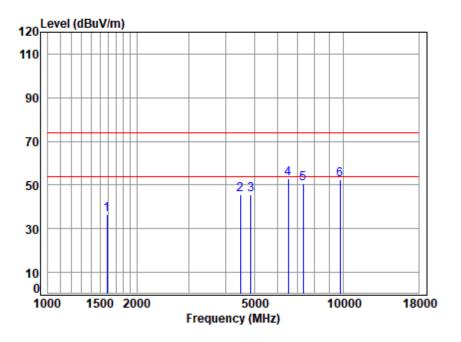
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Report No.: SZEM191102047201

Page: 71 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11g; bandwidth:20MHz; Channel:middle



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

Mode : 2437 TX RSE : 2.4G WTFT 11G Note

| oce | . 2      | +C MII | 1 110  |        |       |        |        |        |        |
|-----|----------|--------|--------|--------|-------|--------|--------|--------|--------|
|     |          | Cable  | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |
|     | Freq     | Loss   | Factor | Factor | Level | Level  | Line   | Limit  | Remark |
|     |          |        |        |        |       |        |        |        |        |
|     | MHz      | dB     | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
|     |          |        |        |        |       |        |        |        |        |
| 1   | 1583.392 | 5.37   | 26.18  | 40.56  | 45.50 | 36.49  | 74.00  | -37.51 | peak   |
| 2   | 4482.150 | 7.54   | 33.60  | 42.54  | 47.22 | 45.82  | 74.00  | -28.18 | peak   |
| 3   | 4874.000 | 7.96   | 34.28  | 42.82  | 46.25 | 45.67  | 74.00  | -28.33 | peak   |
| 4   | 6526.373 | 11.46  | 35.18  | 41.94  | 48.25 | 52.95  | 74.00  | -21.05 | peak   |
| 5   | 7311.000 | 10.05  | 36.37  | 41.53  | 45.63 | 50.52  | 74.00  | -23.48 | peak   |
| 6   | 9748.000 | 10.82  | 37.55  | 38.37  | 42.62 | 52.62  | 74.00  | -21.38 | peak   |



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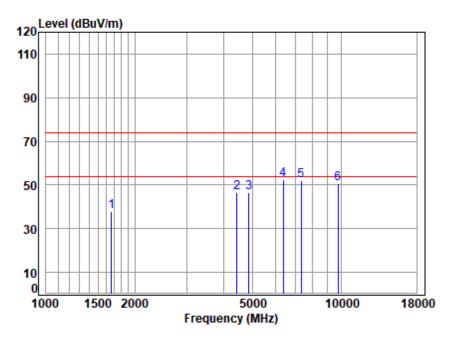
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Report No.: SZEM191102047201

Page: 72 of 163

Mode:a; Polarization:Vertical; Modulation:802.11g; bandwidth:20MHz; Channel:middle



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2437 TX RSE : 2.4G WIFI 11G Note

| ,,,, | . 2      | TO WILL | 1 110  |        |       |        |        |        |        |
|------|----------|---------|--------|--------|-------|--------|--------|--------|--------|
|      |          | Cable   | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |
|      | Freq     | Loss    | Factor | Factor | Level | Level  | Line   | Limit  | Remark |
|      |          |         |        |        |       |        |        |        |        |
|      | MHz      | dB      | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
|      |          |         |        |        |       |        |        |        |        |
| 1    | 1667.951 | 5.27    | 26.54  | 40.61  | 46.66 | 37.86  | 74.00  | -36.14 | peak   |
| 2    | 4430.628 | 7.48    | 33.60  | 42.50  | 48.10 | 46.68  | 74.00  | -27.32 | peak   |
| 3    | 4874.000 | 7.96    | 34.28  | 42.82  | 47.22 | 46.64  | 74.00  | -27.36 | peak   |
| 4    | 6358.789 | 11.27   | 34.99  | 42.03  | 48.36 | 52.59  | 74.00  | -21.41 | peak   |
| 5    | 7311.000 | 10.05   | 36.37  | 41.53  | 46.95 | 51.84  | 74.00  | -22.16 | peak   |
| 6    | 9748.000 | 10.82   | 37.55  | 38.37  | 40.85 | 50.85  | 74.00  | -23.15 | peak   |



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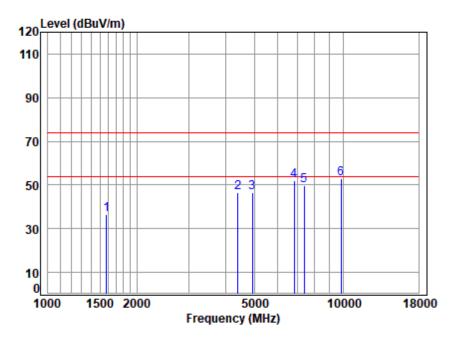
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Report No.: SZEM191102047201

Page: 73 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11g; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL

Job No : 20472CR

Mode : 2462 TX RSE Note : 2.4G WIFI 11G

| 0.00 |          | 10 111 | 1 110  |        |       |        |        |        |        |  |
|------|----------|--------|--------|--------|-------|--------|--------|--------|--------|--|
|      |          | Cable  | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |  |
|      | Freq     | Loss   | Factor | Factor | Level | Level  | Line   | Limit  | Remark |  |
|      |          |        |        |        |       |        |        |        |        |  |
|      | MHz      | dB     | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |  |
|      |          |        |        |        |       |        |        |        |        |  |
| 1    | 1578.822 | 5.38   | 26.16  | 40.56  | 45.61 | 36.59  | 74.00  | -37.41 | peak   |  |
| 2    | 4405.090 | 7.46   | 33.60  | 42.48  | 48.06 | 46.64  | 74.00  | -27.36 | peak   |  |
| 3    | 4924.000 | 8.01   | 34.37  | 42.85  | 46.95 | 46.48  | 74.00  | -27.52 | peak   |  |
| 4    | 6835.278 | 10.58  | 36.05  | 41.77  | 47.13 | 51.99  | 74.00  | -22.01 | peak   |  |
| 5    | 7386.000 | 10.03  | 36.34  | 41.49  | 44.87 | 49.75  | 74.00  | -24.25 | peak   |  |
| 6    | 9848.000 | 10.87  | 37.57  | 38.22  | 42.59 | 52.81  | 74.00  | -21.19 | peak   |  |



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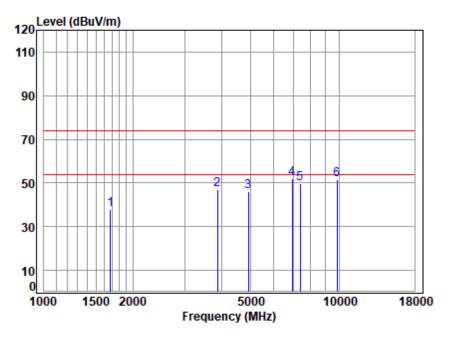
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Report No.: SZEM191102047201

Page: 74 of 163

Mode:a; Polarization: Vertical; Modulation: 802.11g; bandwidth: 20MHz; Channel: High



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2462 TX RSE Note : 2.4G WIFI 11G

|   |          | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |
|---|----------|-------|--------|--------|-------|--------|--------|--------|--------|
|   | Freq     | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark |
|   |          |       |        |        |       |        |        |        |        |
|   | MHz      | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 4 | 4602 477 | F 2F  | 26.60  | 40.60  | 46.60 | 37.03  | 74.00  | 36.00  |        |
| 1 | 1682.477 |       |        |        |       |        |        |        | •      |
| 2 | 3879.027 | 6.86  | 33.28  | 42.06  | 48.85 | 46.93  | 74.00  | -27.07 | peak   |
| 3 | 4924.000 | 8.01  | 34.37  | 42.85  | 46.62 | 46.15  | 74.00  | -27.85 | peak   |
| 4 | 6934.778 | 10.31 | 36.32  | 41.72  | 47.29 | 52.20  | 74.00  | -21.80 | peak   |
| 5 | 7386.000 | 10.03 | 36.34  | 41.49  | 44.69 | 49.57  | 74.00  | -24.43 | peak   |
| 6 | 9848.000 | 10.87 | 37.57  | 38.22  | 41.44 | 51.66  | 74.00  | -22.34 | peak   |



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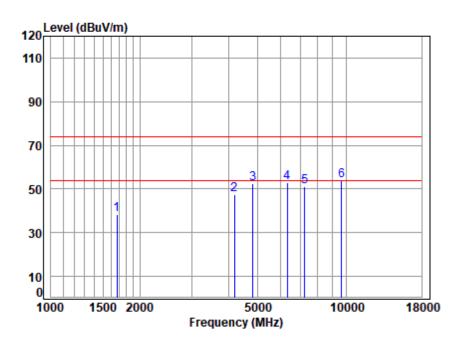
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Report No.: SZEM191102047201

Page: 75 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11n; bandwidth:20MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL

Job No : 20472CR

Mode : 2412 TX RSE

Note : 2.4G WIFI 11N20

|   |          |       |        | _      |       |        |        |        |        |
|---|----------|-------|--------|--------|-------|--------|--------|--------|--------|
|   |          | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |
|   | Freq     | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark |
|   |          |       |        |        |       |        |        |        |        |
|   | MHz      | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
|   |          |       |        |        |       |        |        |        |        |
| 1 | 1672.779 | 5.26  | 26.56  | 40.62  | 47.00 | 38.20  | 74.00  | -35.80 | peak   |
| 2 | 4181.768 | 7.20  | 33.60  | 42.31  | 48.96 | 47.45  | 74.00  | -26.55 | peak   |
| 3 | 4824.000 | 7.91  | 34.19  | 42.78  | 53.17 | 52.49  | 74.00  | -21.51 | peak   |
| 4 | 6322.136 | 11.20 | 34.96  | 42.05  | 48.78 | 52.89  | 74.00  | -21.11 | peak   |
| 5 | 7236.000 | 10.07 | 36.40  | 41.56  | 46.09 | 51.00  | 74.00  | -23.00 | peak   |
| 6 | 9648,000 | 10.77 | 37.53  | 38.51  | 43.93 | 53.72  | 74.00  | -20.28 | peak   |



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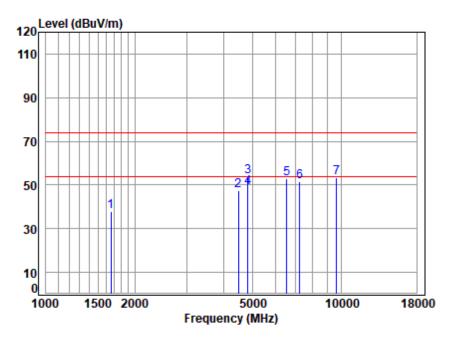
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Report No.: SZEM191102047201

Page: 76 of 163

Mode:a; Polarization:Vertical; Modulation:802.11n; bandwidth:20MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2412 TX RSE

Note : 2.4G WIFI 11N20

|   |          |       |        | -      |       |        |        |        |         |
|---|----------|-------|--------|--------|-------|--------|--------|--------|---------|
|   |          | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |         |
|   | Freq     | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark  |
|   |          |       |        |        |       |        |        |        |         |
|   | MHz      | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |         |
|   |          |       |        |        |       |        |        |        |         |
| 1 | 1663.137 | 5.27  | 26.52  | 40.61  | 46.92 | 38.10  | 74.00  | -35.90 | peak    |
| 2 | 4482.150 | 7.54  | 33.60  | 42.54  | 49.00 | 47.60  | 74.00  | -26.40 | peak    |
| 3 | 4824.000 | 7.91  | 34.19  | 42.78  | 54.74 | 54.06  | 74.00  | -19.94 | peak    |
| 4 | 4831.962 | 7.92  | 34.21  | 42.79  | 49.50 | 48.84  | 54.00  | -5.16  | Average |
| 5 | 6545.263 | 11.41 | 35.23  | 41.93  | 48.12 | 52.83  | 74.00  | -21.17 | peak    |
| 6 | 7236.000 | 10.07 | 36.40  | 41.56  | 46.57 | 51.48  | 74.00  | -22.52 | peak    |
| 7 | 9648.000 | 10.77 | 37.53  | 38.51  | 43.62 | 53.41  | 74.00  | -20.59 | peak    |



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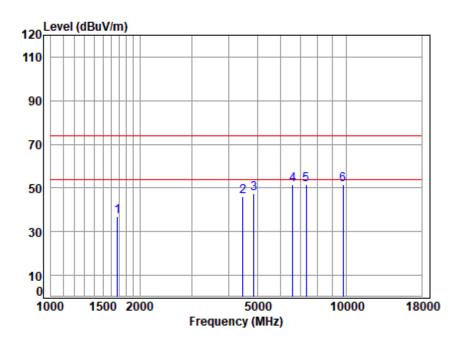
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Report No.: SZEM191102047201

Page: 77 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11n; bandwidth:20MHz; Channel:middle



Site : chamber

Condition: 3m HORIZONTAL

Job No : 20472CR

Mode : 2437 TX RSE

Note : 2.4G WIFI 11N20

|   | Freq     |       |       | Preamp<br>Factor |       |        |        |        | Remark |
|---|----------|-------|-------|------------------|-------|--------|--------|--------|--------|
|   | MHz      | dB    | dB/m  | dB               | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1 | 1682.477 | 5.25  | 26.60 | 40.62            | 45.53 | 36.76  | 74.00  | -37.24 | peak   |
| 2 | 4469.214 | 7.53  | 33.60 | 42.53            | 47.69 | 46.29  | 74.00  | -27.71 | peak   |
| 3 | 4874.000 | 7.96  | 34.28 | 42.82            | 48.15 | 47.57  | 74.00  | -26.43 | peak   |
| 4 | 6602.265 | 11.24 | 35.39 | 41.89            | 46.85 | 51.59  | 74.00  | -22.41 | peak   |
| 5 | 7311.000 | 10.05 | 36.37 | 41.53            | 46.72 | 51.61  | 74.00  | -22.39 | peak   |
| 6 | 9748,000 | 10.82 | 37.55 | 38.37            | 41.73 | 51.73  | 74.00  | -22.27 | neak   |



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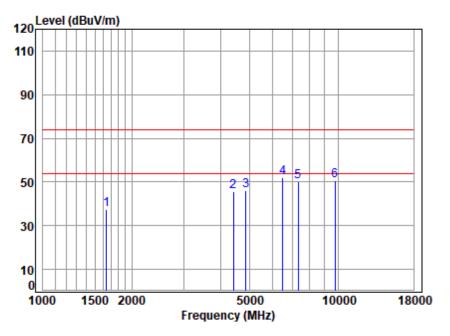
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Report No.: SZEM191102047201

Page: 78 of 163

Mode:a; Polarization:Vertical; Modulation:802.11n; bandwidth:20MHz; Channel:middle



Site : chamber Condition: 3m VERTICAL Job No : 20472CR

Mode : 2437 TX RSE

Note : 2.4G WIFI 11N20

|   |          |       |        | _      |       |        |        |        |        |
|---|----------|-------|--------|--------|-------|--------|--------|--------|--------|
|   |          | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |
|   | Freq     | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark |
|   |          |       |        |        |       |        |        |        |        |
|   | MHz      | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
|   |          |       |        |        |       |        |        |        |        |
| 1 | 1639.274 | 5.30  | 26.42  | 40.59  | 46.06 | 37.19  | 74.00  | -36.81 | peak   |
| 2 | 4417.841 | 7.47  | 33.60  | 42.49  | 47.04 | 45.62  | 74.00  | -28.38 | peak   |
| 3 | 4874.000 | 7.96  | 34.28  | 42.82  | 46.54 | 45.96  | 74.00  | -28.04 | peak   |
| 4 | 6488.754 | 11.52 | 35.09  | 41.96  | 47.46 | 52.11  | 74.00  | -21.89 | peak   |
| 5 | 7311.000 | 10.05 | 36.37  | 41.53  | 45.46 | 50.35  | 74.00  | -23.65 | peak   |
| 6 | 9748.000 | 10.82 | 37.55  | 38.37  | 40.44 | 50.44  | 74.00  | -23.56 | peak   |



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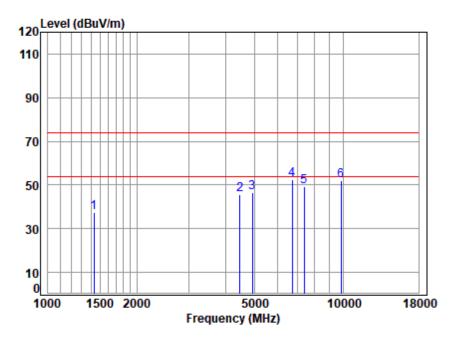
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Report No.: SZEM191102047201

Page: 79 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11n; bandwidth:20MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

Mode : 2462 TX RSE

Note : 2.4G WIFI 11N20

|   |          |       |        | _      |       |        |        |        |        |
|---|----------|-------|--------|--------|-------|--------|--------|--------|--------|
|   |          | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |
|   | Freq     | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark |
|   |          |       |        |        |       |        |        |        |        |
|   | MHz      | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
|   |          |       |        |        |       |        |        |        |        |
| 1 | 1435.189 | 5.27  | 25.54  | 40.46  | 46.93 | 37.28  | 74.00  | -36.72 | peak   |
| 2 | 4469.214 | 7.53  | 33.60  | 42.53  | 46.98 | 45.58  | 74.00  | -28.42 | peak   |
| 3 | 4924.000 | 8.01  | 34.37  | 42.85  | 47.04 | 46.57  | 74.00  | -27.43 | peak   |
| 4 | 6717.762 | 10.91 | 35.72  | 41.83  | 47.45 | 52.25  | 74.00  | -21.75 | peak   |
| 5 | 7386.000 | 10.03 | 36.34  | 41.49  | 44.26 | 49.14  | 74.00  | -24.86 | peak   |
| 6 | 9848.000 | 10.87 | 37.57  | 38.22  | 42.02 | 52.24  | 74.00  | -21.76 | peak   |



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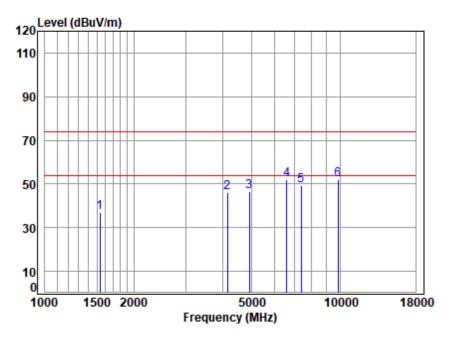
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Report No.: SZEM191102047201

Page: 80 of 163

Mode:a; Polarization: Vertical; Modulation: 802.11n; bandwidth: 20MHz; Channel: High



Site : chamber Condition: 3m VERTICAL

Job No : 20472CR

Mode : 2462 TX RSE : 2.4G WIFI 11N20 Note

Cable Ant Preamp Read Limit 0ver Loss Factor Factor Level Line Limit Remark Freq Level MHz dΒ dΒ dBuV dBuV/m dBuV/m dB dB/m 1538.281 25.98 40.53 45.90 1 5.43 36.78 74.00 -37.22 peak 4157.664 7.17 33.60 42.29 47.62 46.10 74.00 -27.90 peak 3 4924.000 8.01 34.37 42.85 47.03 46.56 74.00 -27.44 peak 4 11.24 35.39 41.89 47.47 52.21 74.00 -21.79 peak 6602.265 5 7386.000 10.03 36.34 41.49 44.42 49.30 74.00 -24.70 peak 9848.000 10.87 37.57 38.22 41.62 51.84 74.00 -22.16 peak



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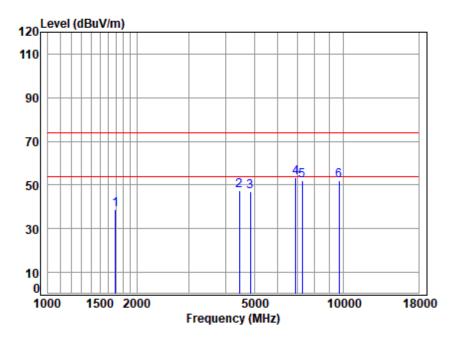
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Report No.: SZEM191102047201

Page: 81 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11n; bandwidth:40MHz; Channel:Low



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

Mode : 2422 TX RSE

Note : 2.4G WIFI 11N40

|   | Freq     |       |       | Preamp<br>Factor |       |        |        |        | Remark |
|---|----------|-------|-------|------------------|-------|--------|--------|--------|--------|
|   | MHz      | dB    | dB/m  | dB               | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1 | 1692.231 | 5.24  | 26.64 | 40.63            | 47.64 | 38.89  | 74.00  | -35.11 | peak   |
| 2 | 4456.315 | 7.51  | 33.60 | 42.52            | 48.70 | 47.29  | 74.00  | -26.71 | peak   |
| 3 | 4844.000 | 7.93  | 34.23 | 42.79            | 47.79 | 47.16  | 74.00  | -26.84 | peak   |
| 4 | 6894.806 | 10.42 | 36.21 | 41.74            | 48.34 | 53.23  | 74.00  | -20.77 | peak   |
| 5 | 7266.000 | 10.06 | 36.39 | 41.55            | 47.33 | 52.23  | 74.00  | -21.77 | peak   |
|   | 9688,000 |       |       |                  |       |        |        |        | •      |



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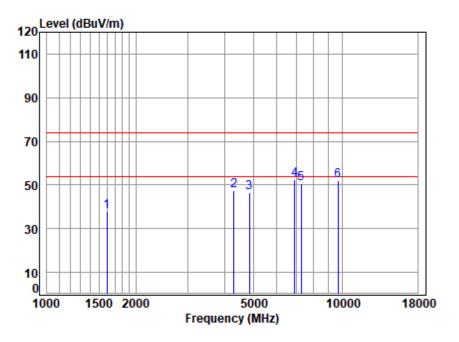
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Report No.: SZEM191102047201

Page: 82 of 163

Mode:a; Polarization:Vertical; Modulation:802.11n; bandwidth:40MHz; Channel:Low



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2422 TX RSE

Note : 2.4G WIFI 11N40

|   | Freq     |       |       | Preamp<br>Factor |       |        |        |        | Remark |
|---|----------|-------|-------|------------------|-------|--------|--------|--------|--------|
|   | MHz      | dB    | dB/m  | dB               | dBuV  | dBuV/m | dBuV/m | dB     |        |
| 1 | 1597.181 | 5.35  | 26.24 | 40.57            | 46.82 | 37.84  | 74.00  | -36.16 | peak   |
| 2 | 4304.400 | 7.34  | 33.60 | 42.40            | 48.72 | 47.26  | 74.00  | -26.74 | peak   |
| 3 | 4844.000 | 7.93  | 34.23 | 42.79            | 47.19 | 46.56  | 74.00  | -27.44 | peak   |
| 4 | 6894.806 | 10.42 | 36.21 | 41.74            | 47.50 | 52.39  | 74.00  | -21.61 | peak   |
| 5 | 7266.000 | 10.06 | 36.39 | 41.55            | 45.54 | 50.44  | 74.00  | -23.56 | peak   |
| 6 | 9688,000 | 10.79 | 37.54 | 38.45            | 42.29 | 52.17  | 74.00  | -21.83 | neak   |



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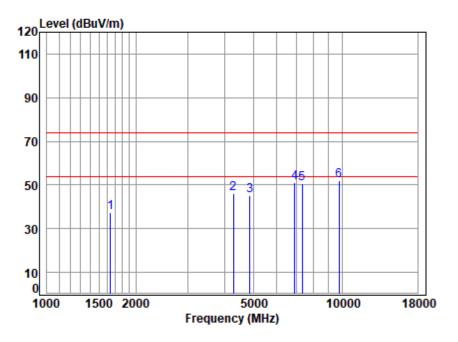
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Report No.: SZEM191102047201

Page: 83 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11n; bandwidth:40MHz; Channel:middle



Site : chamber

Condition: 3m HORIZONTAL

: 20472CR Job No

Mode : 2437 TX RSE

Note : 2.4G WIFI 11N40

|   |          | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |
|---|----------|-------|--------|--------|-------|--------|--------|--------|--------|
|   | Freq     | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark |
|   |          |       |        |        |       |        |        |        |        |
|   | MHz      | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
|   |          |       |        |        |       |        |        |        |        |
| 1 | 1644.019 | 5.30  | 26.44  | 40.60  | 46.15 | 37.29  | 74.00  | -36.71 | peak   |
| 2 | 4291.977 | 7.33  | 33.60  | 42.39  | 47.50 | 46.04  | 74.00  | -27.96 | peak   |
| 3 | 4874.000 | 7.96  | 34.28  | 42.82  | 45.68 | 45.10  | 74.00  | -28.90 | peak   |
| 4 | 6914.763 | 10.36 | 36.27  | 41.73  | 46.37 | 51.27  | 74.00  | -22.73 | peak   |
| 5 | 7311.000 | 10.05 | 36.37  | 41.53  | 45.69 | 50.58  | 74.00  | -23.42 | peak   |
| 6 | 9748,000 | 10.82 | 37.55  | 38.37  | 42.22 | 52.22  | 74.00  | -21.78 | peak   |



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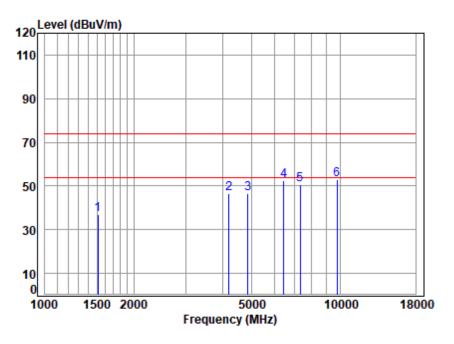
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Report No.: SZEM191102047201

Page: 84 of 163

Mode:a; Polarization:Vertical; Modulation:802.11n; bandwidth:40MHz; Channel:middle



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2437 TX RSE

Note : 2.4G WIFI 11N40

|   |          |       |        | _      |       |        |        |        |        |
|---|----------|-------|--------|--------|-------|--------|--------|--------|--------|
|   |          | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |
|   | Freq     | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark |
|   |          |       |        |        |       |        |        |        |        |
|   | MHz      | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
|   |          |       |        |        |       |        |        |        |        |
| 1 | 1511.833 | 5.46  | 25.85  | 40.51  | 46.16 | 36.96  | 74.00  | -37.04 | peak   |
| 2 | 4193.872 | 7.21  | 33.60  | 42.31  | 47.83 | 46.33  | 74.00  | -27.67 | peak   |
| 3 | 4874.000 | 7.96  | 34.28  | 42.82  | 46.97 | 46.39  | 74.00  | -27.61 | peak   |
| 4 | 6451.353 | 11.45 | 35.06  | 41.98  | 47.95 | 52.48  | 74.00  | -21.52 | peak   |
| 5 | 7311.000 | 10.05 | 36.37  | 41.53  | 45.91 | 50.80  | 74.00  | -23.20 | peak   |
| 6 | 9748.000 | 10.82 | 37.55  | 38.37  | 42.84 | 52.84  | 74.00  | -21.16 | peak   |



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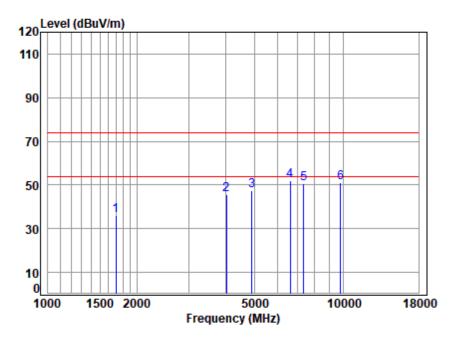
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Report No.: SZEM191102047201

Page: 85 of 163

Mode:a; Polarization:Horizontal; Modulation:802.11n; bandwidth:40MHz; Channel:High



Site : chamber

Condition: 3m HORIZONTAL

Job No : 20472CR

Mode : 2452 TX RSE

Note : 2.4G WIFI 11N40

|   |          |       |        | _      |       |        |        |        |        |
|---|----------|-------|--------|--------|-------|--------|--------|--------|--------|
|   |          | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |
|   | Freq     | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark |
|   |          |       |        |        |       |        |        |        |        |
|   | MHz      | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |
|   |          |       |        |        |       |        |        |        |        |
| 1 | 1697.129 | 5.23  | 26.66  | 40.63  | 44.96 | 36.22  | 74.00  | -37.78 | peak   |
| 2 | 4027.554 | 7.01  | 33.60  | 42.18  | 47.28 | 45.71  | 74.00  | -28.29 | peak   |
| 3 | 4904.000 | 7.99  | 34.33  | 42.84  | 47.98 | 47.46  | 74.00  | -26.54 | peak   |
| 4 | 6621.375 | 11.19 | 35.45  | 41.88  | 47.37 | 52.13  | 74.00  | -21.87 | peak   |
| 5 | 7356.000 | 10.04 | 36.36  | 41.50  | 45.65 | 50.55  | 74.00  | -23.45 | peak   |
| 6 | 9808,000 | 10.85 | 37.56  | 38.28  | 41.14 | 51.27  | 74.00  | -22.73 | peak   |



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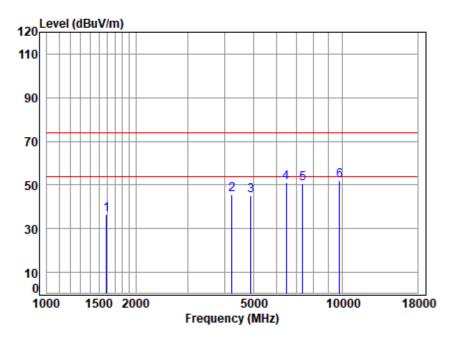
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Report No.: SZEM191102047201

Page: 86 of 163

Mode:a; Polarization: Vertical; Modulation: 802.11n; bandwidth: 40MHz; Channel: High



Site : chamber Condition: 3m VERTICAL : 20472CR Job No

Mode : 2452 TX RSE

Note : 2.4G WIFI 11N40

|   |          |       |        | _      |       |        |        |        |        |  |
|---|----------|-------|--------|--------|-------|--------|--------|--------|--------|--|
|   |          | Cable | Ant    | Preamp | Read  |        | Limit  | 0ver   |        |  |
|   | Freq     | Loss  | Factor | Factor | Level | Level  | Line   | Limit  | Remark |  |
|   |          |       |        |        |       |        |        |        |        |  |
|   | MHz      | dB    | dB/m   | dB     | dBuV  | dBuV/m | dBuV/m | dB     |        |  |
|   |          |       |        |        |       |        |        |        |        |  |
| 1 | 1592.571 | 5.36  | 26.22  | 40.57  | 45.57 | 36.58  | 74.00  | -37.42 | peak   |  |
| 2 | 4230.396 | 7.26  | 33.60  | 42.34  | 47.01 | 45.53  | 74.00  | -28.47 | peak   |  |
| 3 | 4904.000 | 7.99  | 34.33  | 42.84  | 45.88 | 45.36  | 74.00  | -28.64 | peak   |  |
| 4 | 6470.026 | 11.48 | 35.08  | 41.97  | 46.69 | 51.28  | 74.00  | -22.72 | peak   |  |
| 5 | 7356.000 | 10.04 | 36.36  | 41.50  | 45.57 | 50.47  | 74.00  | -23.53 | peak   |  |
| 6 | 9808.000 | 10.85 | 37.56  | 38.28  | 41.85 | 51.98  | 74.00  | -22.02 | peak   |  |



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Page: 87 of 163

#### 8 **Photographs**

#### 8.1 Test Setup

Please refer to setup photos.

#### 8.2 EUT Constructional Details (EUT Photos)

Please Refer to external and internal photos for details.



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Page: 88 of 163

#### **Appendix** 9

### Appendix 15.247

#### 1.6dB Bandwidth

| Test mode: | Test Channel | Ant  | EBW[MHz] | Limit[MHz] | Verdict |
|------------|--------------|------|----------|------------|---------|
| 11B        | 2412         | Ant1 | 10.080   | >=0.5      | PASS    |
| 11B        | 2412         | Ant2 | 9.630    | >=0.5      | PASS    |
| 11B        | 2437         | Ant1 | 10.110   | >=0.5      | PASS    |
| 11B        | 2437         | Ant2 | 10.110   | >=0.5      | PASS    |
| 11B        | 2462         | Ant1 | 9.630    | >=0.5      | PASS    |
| 11B        | 2462         | Ant2 | 10.110   | >=0.5      | PASS    |
| 11G        | 2412         | Ant1 | 15.180   | >=0.5      | PASS    |
| 11G        | 2412         | Ant2 | 15.150   | >=0.5      | PASS    |
| 11G        | 2437         | Ant1 | 15.180   | >=0.5      | PASS    |
| 11G        | 2437         | Ant2 | 15.180   | >=0.5      | PASS    |
| 11G        | 2462         | Ant1 | 15.090   | >=0.5      | PASS    |
| 11G        | 2462         | Ant2 | 15.150   | >=0.5      | PASS    |
| 11N20SISO  | 2412         | Ant1 | 15.180   | >=0.5      | PASS    |
| 11N20SISO  | 2412         | Ant2 | 15.180   | >=0.5      | PASS    |
| 11N20SISO  | 2437         | Ant1 | 15.120   | >=0.5      | PASS    |
| 11N20SISO  | 2437         | Ant2 | 15.180   | >=0.5      | PASS    |
| 11N20SISO  | 2462         | Ant1 | 15.090   | >=0.5      | PASS    |
| 11N20SISO  | 2462         | Ant2 | 15.090   | >=0.5      | PASS    |
| 11N40SISO  | 2422         | Ant1 | 33.960   | >=0.5      | PASS    |
| 11N40SISO  | 2422         | Ant2 | 33.960   | >=0.5      | PASS    |
| 11N40SISO  | 2437         | Ant1 | 33.960   | >=0.5      | PASS    |
| 11N40SISO  | 2437         | Ant2 | 33.960   | >=0.5      | PASS    |
| 11N40SISO  | 2452         | Ant1 | 33.960   | >=0.5      | PASS    |
| 11N40SISO  | 2452         | Ant2 | 32.760   | >=0.5      | PASS    |



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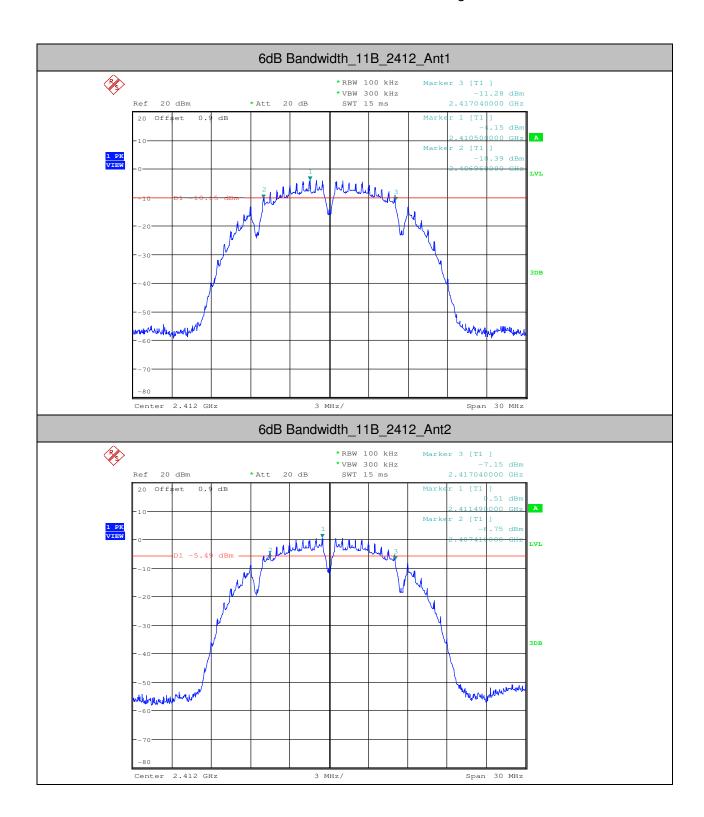
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Page: 89 of 163





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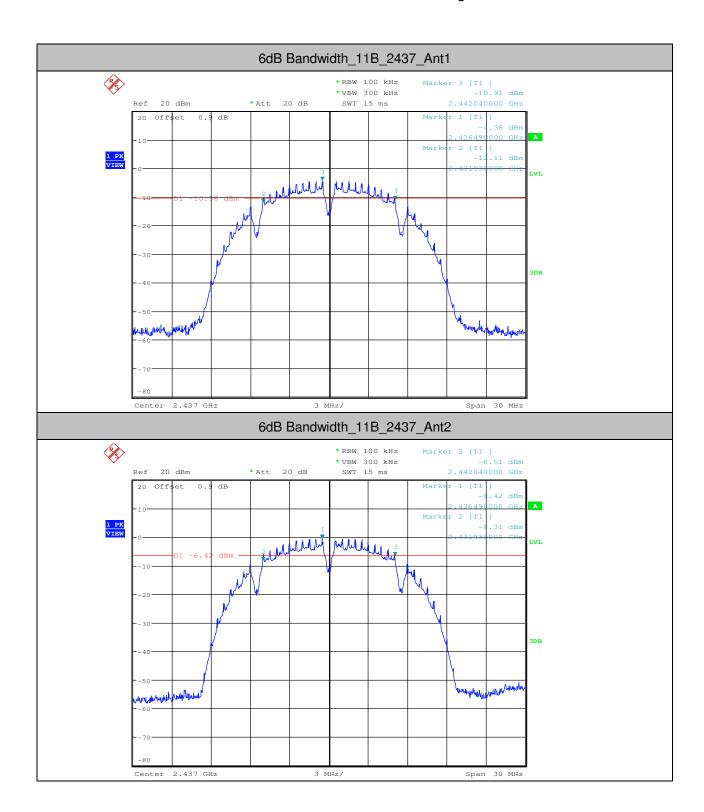
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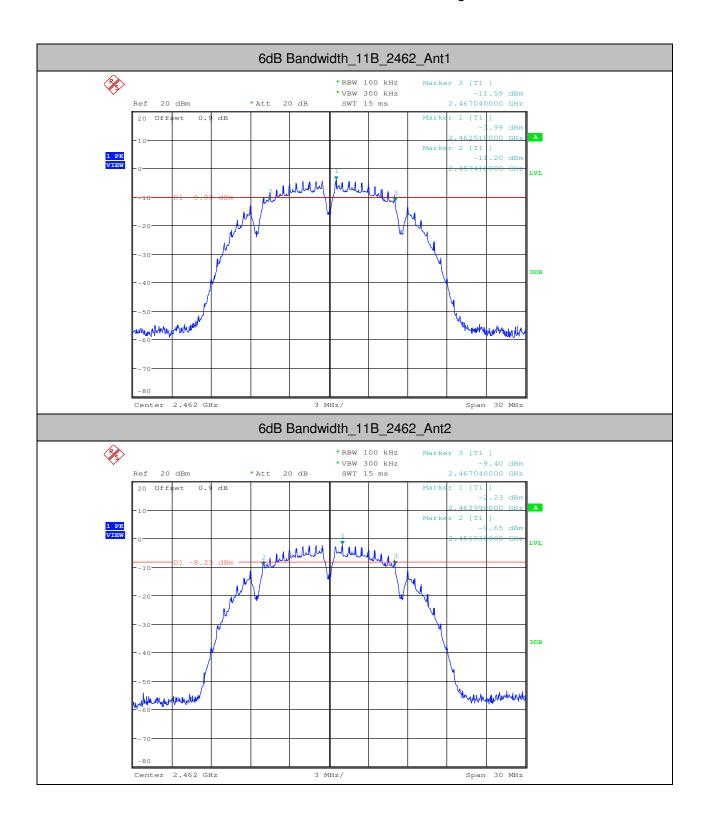
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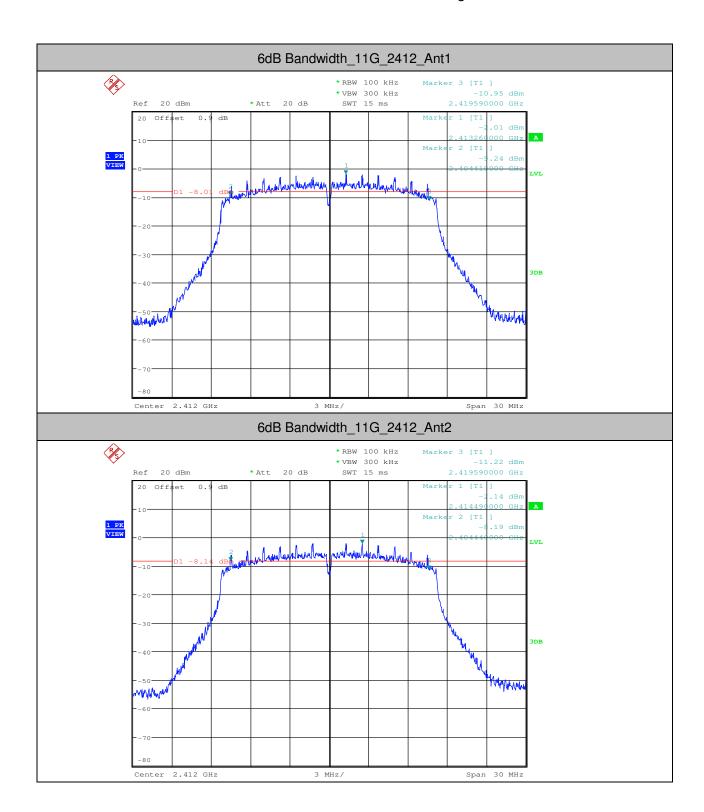
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Page: 92 of 163





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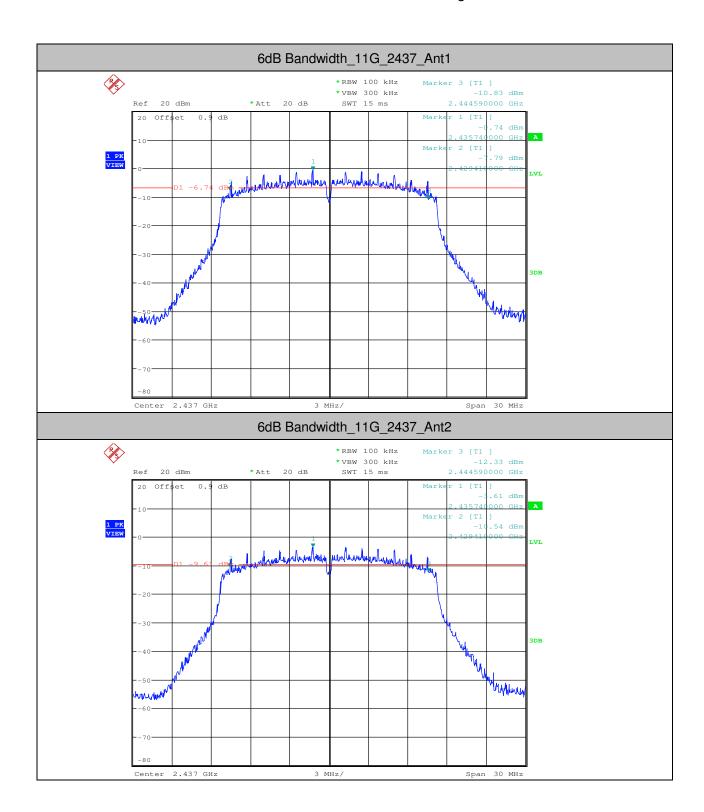
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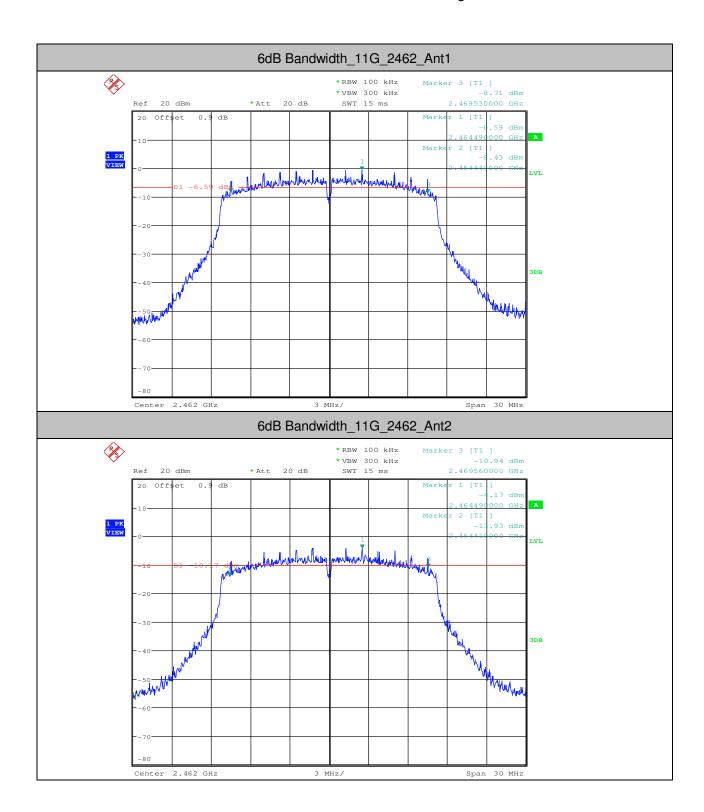
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Page: 94 of 163





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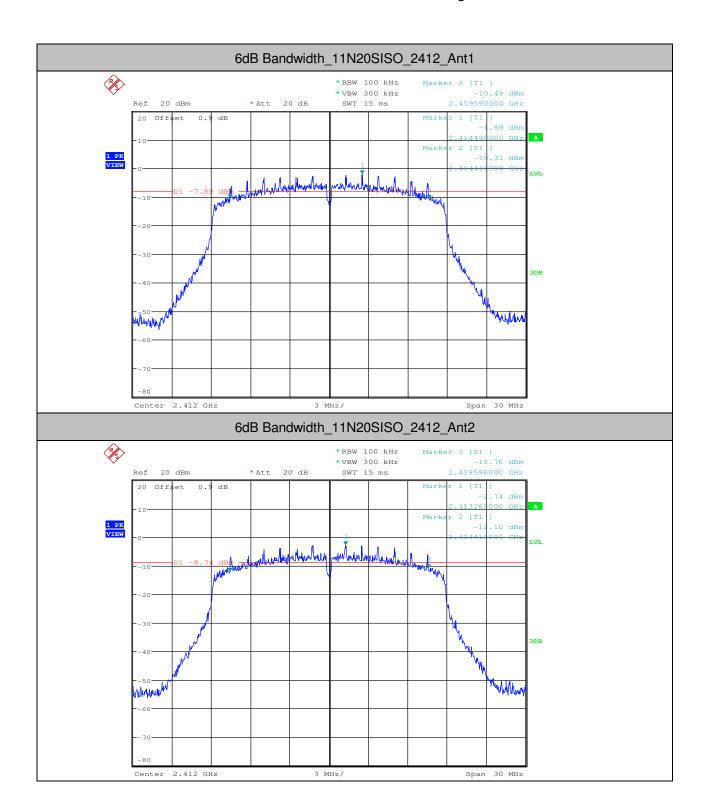
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Page: 95 of 163





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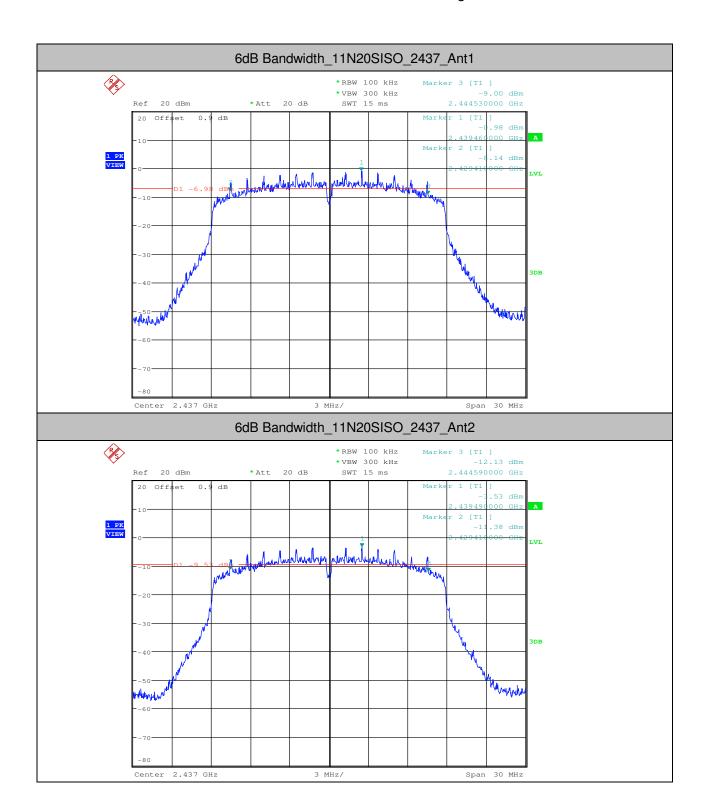
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Page: 96 of 163





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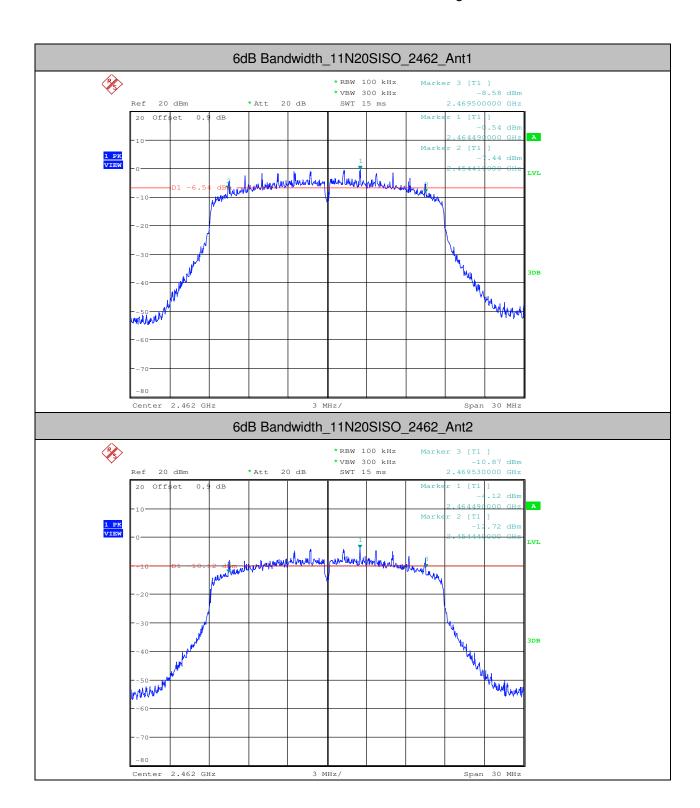
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Report No.: SZEM191102047201

Page: 97 of 163





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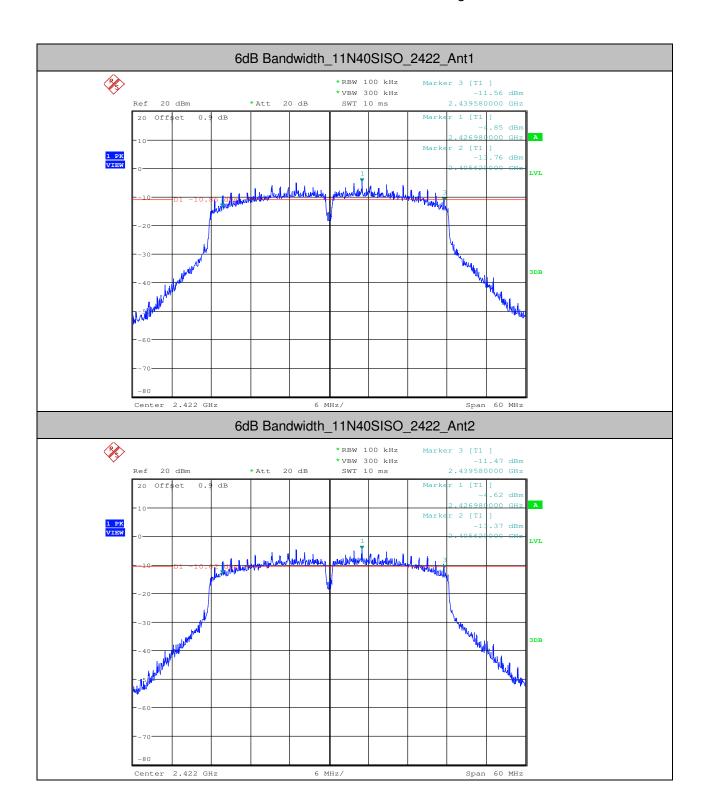
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Report No.: SZEM191102047201

Page: 98 of 163





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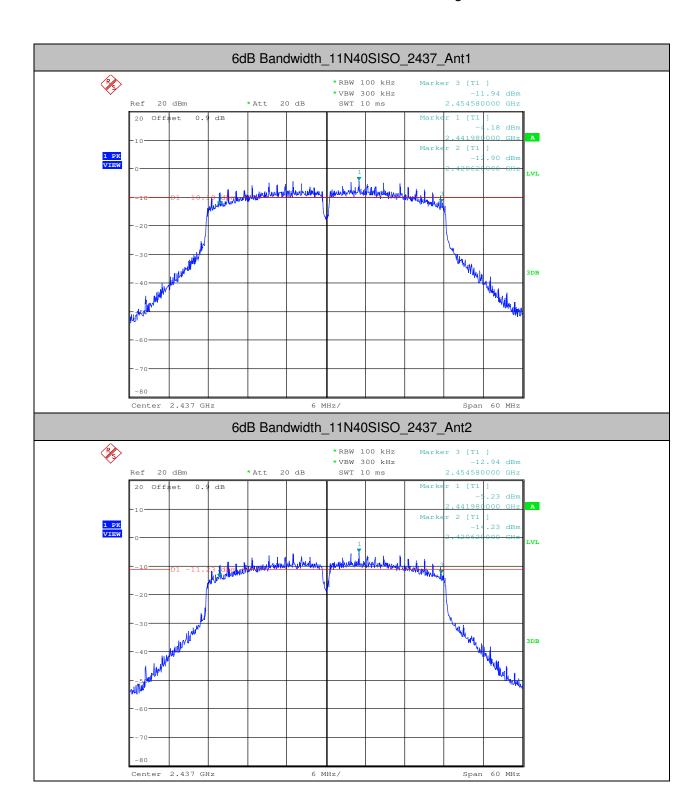
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Report No.: SZEM191102047201

Page: 99 of 163





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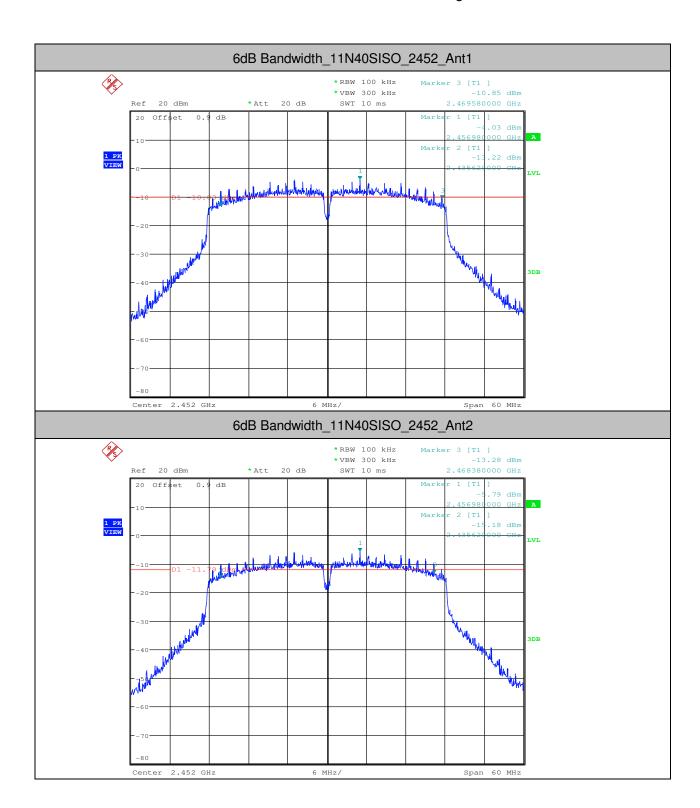
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Page: 100 of 163





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Report No.: SZEM191102047201

Page: 101 of 163

#### 2. Maximum peak conducted output power

| Test mode: | Test Channel | Ant  | Power[dBm] | Limit[dBm] | Verdict |
|------------|--------------|------|------------|------------|---------|
| 11B        | 2412         | Ant1 | 8.57       | <30        | PASS    |
| 11B        | 2412         | Ant2 | 13.41      | <30        | PASS    |
| 11B        | 2437         | Ant1 | 8.69       | <30        | PASS    |
| 11B        | 2437         | Ant2 | 12.8       | <30        | PASS    |
| 11B        | 2462         | Ant1 | 9.15       | <30        | PASS    |
| 11B        | 2462         | Ant2 | 10.87      | <30        | PASS    |
| 11G        | 2412         | Ant1 | 17.65      | <30        | PASS    |
| 11G        | 2412         | Ant2 | 17.37      | <30        | PASS    |
| 11G        | 2437         | Ant1 | 18.76      | <30        | PASS    |
| 11G        | 2437         | Ant2 | 15.98      | <30        | PASS    |
| 11G        | 2462         | Ant1 | 18.96      | <30        | PASS    |
| 11G        | 2462         | Ant2 | 15.33      | <30        | PASS    |
| 11N20SISO  | 2412         | Ant1 | 17.33      | <30        | PASS    |
| 11N20SISO  | 2412         | Ant2 | 16.58      | <30        | PASS    |
| 11N20SISO  | 2437         | Ant1 | 18.4       | <30        | PASS    |
| 11N20SISO  | 2437         | Ant2 | 15.7       | <30        | PASS    |
| 11N20SISO  | 2462         | Ant1 | 18.7       | <30        | PASS    |
| 11N20SISO  | 2462         | Ant2 | 15.13      | <30        | PASS    |
| 11N40SISO  | 2422         | Ant1 | 18.09      | <30        | PASS    |
| 11N40SISO  | 2422         | Ant2 | 18.14      | <30        | PASS    |
| 11N40SISO  | 2437         | Ant1 | 18.62      | <30        | PASS    |
| 11N40SISO  | 2437         | Ant2 | 17.48      | <30        | PASS    |
| 11N40SISO  | 2452         | Ant1 | 18.84      | <30        | PASS    |
| 11N40SISO  | 2452         | Ant2 | 16.89      | <30        | PASS    |



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Report No.: SZEM191102047201

Page: 102 of 163

#### MIMO:

| Test mode | Test Channel | Ant    | Power[dBm] | Limit[dBm] | Verdict |
|-----------|--------------|--------|------------|------------|---------|
| 11N20MIMO | 2412         | Ant1+2 | 19.97      | <30        | PASS    |
| 11N20MIMO | 2437         | Ant1+2 | 20.16      | <30        | PASS    |
| 11N20MIMO | 2462         | Ant1+2 | 20.11      | <30        | PASS    |
| 11N40MIMO | 2422         | Ant1+2 | 21.13      | <30        | PASS    |
| 11N40MIMO | 2437         | Ant1+2 | 21.08      | <30        | PASS    |
| 11N40MIMO | 2452         | Ant1+2 | 20.93      | <30        | PASS    |

Note: Since the number of transmit antennas is less than 4, Array gain=0dB.



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Report No.: SZEM191102047201

Page: 103 of 163

#### 3. Maximum Peak power spectral density

| Test mode: | Test Channel | Ant  | PSD[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|------------|--------------|------|---------------|-----------------|---------|
| 11B        | 2412         | Ant1 | -18.46        | <8.00           | PASS    |
| 11B        | 2412         | Ant2 | -13.83        | <8.00           | PASS    |
| 11B        | 2437         | Ant1 | -18.46        | <8.00           | PASS    |
| 11B        | 2437         | Ant2 | -14.71        | <8.00           | PASS    |
| 11B        | 2462         | Ant1 | -18.34        | <8.00           | PASS    |
| 11B        | 2462         | Ant2 | -16.26        | <8.00           | PASS    |
| 11G        | 2412         | Ant1 | -16.24        | <8.00           | PASS    |
| 11G        | 2412         | Ant2 | -15.78        | <8.00           | PASS    |
| 11G        | 2437         | Ant1 | -14.83        | <8.00           | PASS    |
| 11G        | 2437         | Ant2 | -17.04        | <8.00           | PASS    |
| 11G        | 2462         | Ant1 | -15.17        | <8.00           | PASS    |
| 11G        | 2462         | Ant2 | -18.25        | <8.00           | PASS    |
| 11N20SISO  | 2412         | Ant1 | -17.04        | <8.00           | PASS    |
| 11N20SISO  | 2412         | Ant2 | -16.23        | <8.00           | PASS    |
| 11N20SISO  | 2437         | Ant1 | -15.43        | <8.00           | PASS    |
| 11N20SISO  | 2437         | Ant2 | -18.36        | <8.00           | PASS    |
| 11N20SISO  | 2462         | Ant1 | -15.99        | <8.00           | PASS    |
| 11N20SISO  | 2462         | Ant2 | -18.4         | <8.00           | PASS    |
| 11N40SISO  | 2422         | Ant1 | -17.67        | <8.00           | PASS    |
| 11N40SISO  | 2422         | Ant2 | -17.97        | <8.00           | PASS    |
| 11N40SISO  | 2437         | Ant1 | -17           | <8.00           | PASS    |
| 11N40SISO  | 2437         | Ant2 | -19.23        | <8.00           | PASS    |
| 11N40SISO  | 2452         | Ant1 | -17.4         | <8.00           | PASS    |
| 11N40SISO  | 2452         | Ant2 | -20.2         | <8.00           | PASS    |



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Report No.: SZEM191102047201

Page: 104 of 163

#### MIMO:

| Test mode | Test Channel | Ant    | PSD[dBm/3kHz] | Limit[dBm/3kHz] | Verdict |
|-----------|--------------|--------|---------------|-----------------|---------|
| 11N20MIMO | 2412         | Ant1+2 | -13.62        | <8.00           | PASS    |
| 11N20MIMO | 2437         | Ant1+2 | -13.76        | <8.00           | PASS    |
| 11N20MIMO | 2462         | Ant1+2 | -14.10        | <8.00           | PASS    |
| 11N40MIMO | 2422         | Ant1+2 | -14.81        | <8.00           | PASS    |
|           |              |        |               |                 |         |
| 11N40MIMO | 2437         | Ant1+2 | -15.03        | <8.00           | PASS    |
| 11N40MIMO | 2452         | Ant1+2 | -15.68        | <8.00           | PASS    |



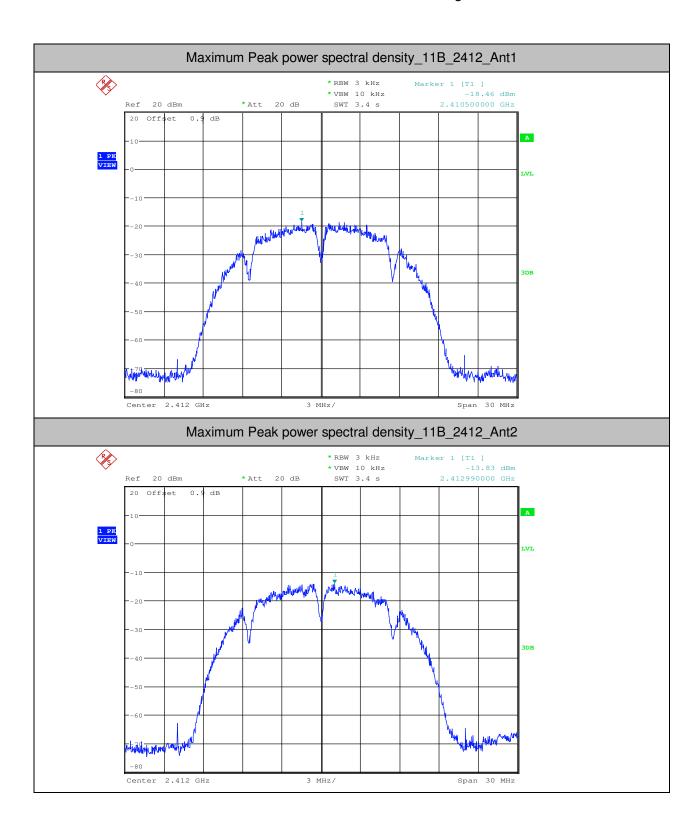
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Report No.: SZEM191102047201

Page: 105 of 163





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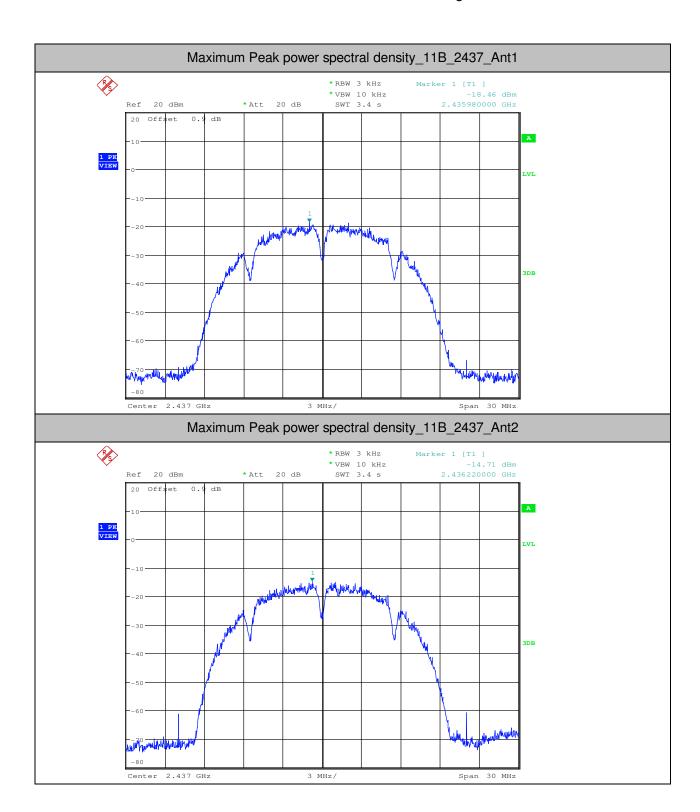
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Report No.: SZEM191102047201

Page: 106 of 163





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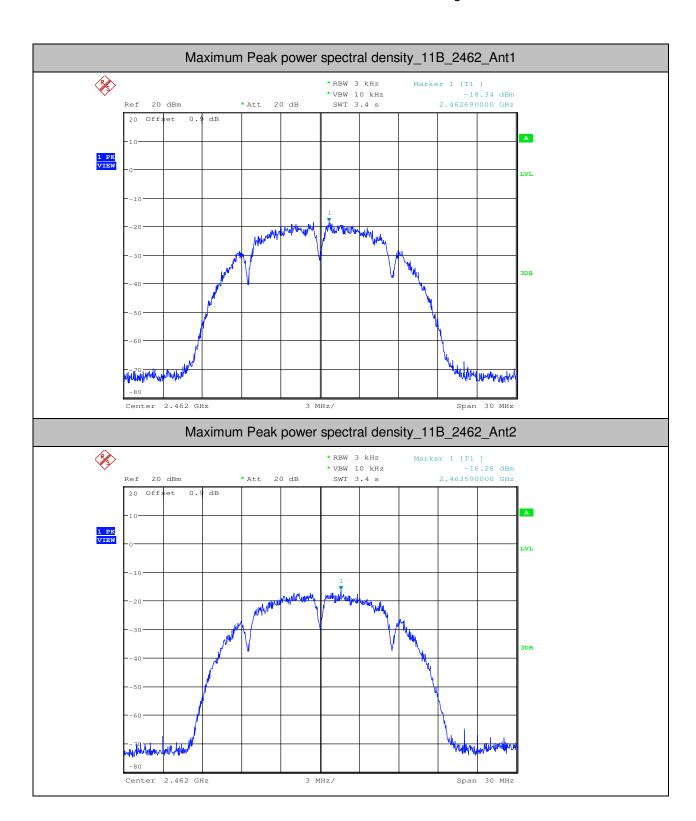
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Report No.: SZEM191102047201

Page: 107 of 163





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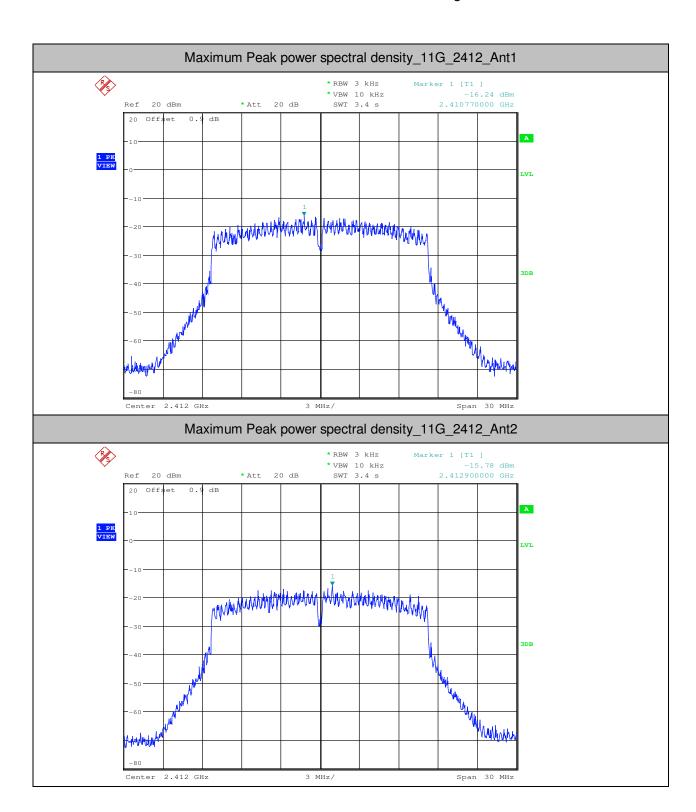
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Report No.: SZEM191102047201

Page: 108 of 163





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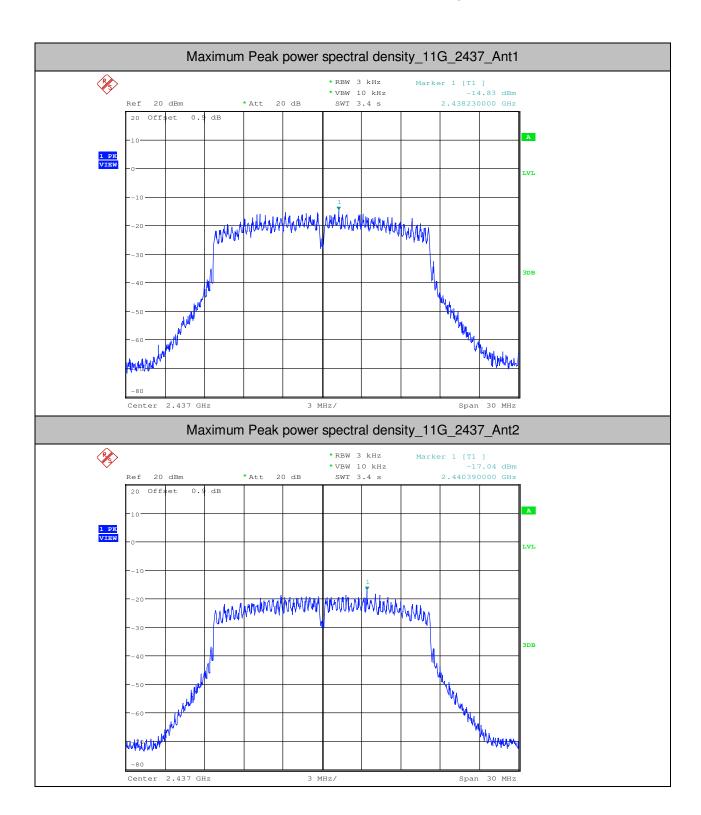
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Report No.: SZEM191102047201

Page: 109 of 163





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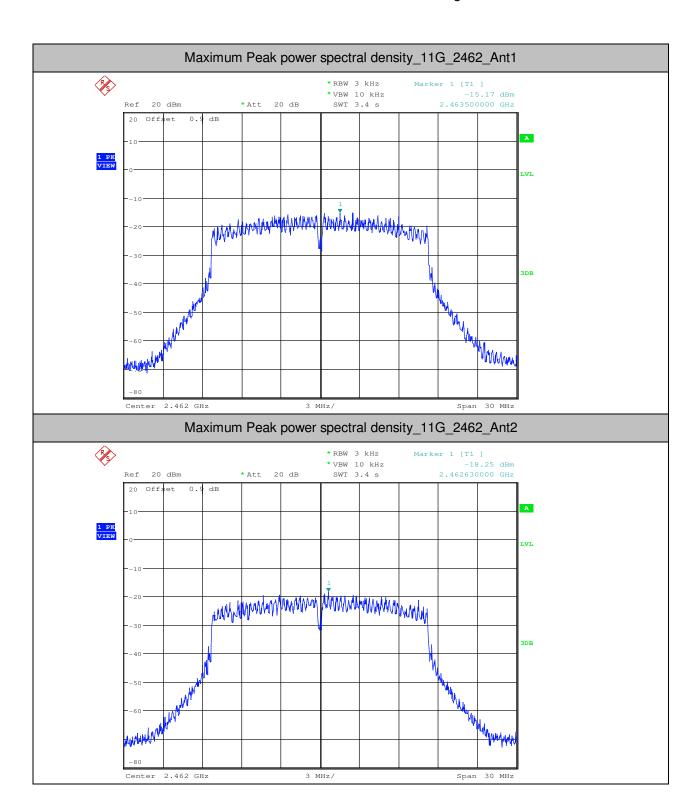
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Report No.: SZEM191102047201

Page: 110 of 163





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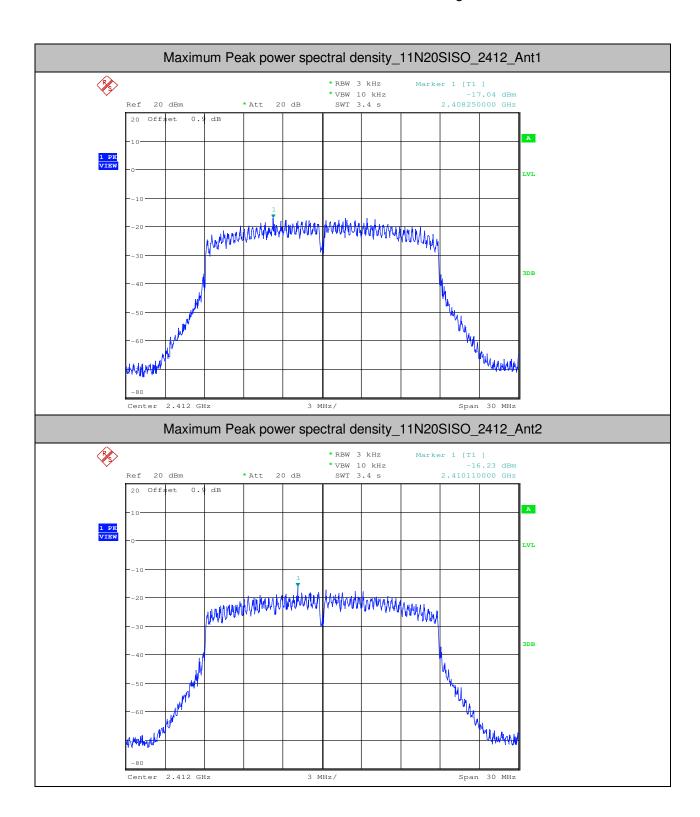
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Report No.: SZEM191102047201

Page: 111 of 163





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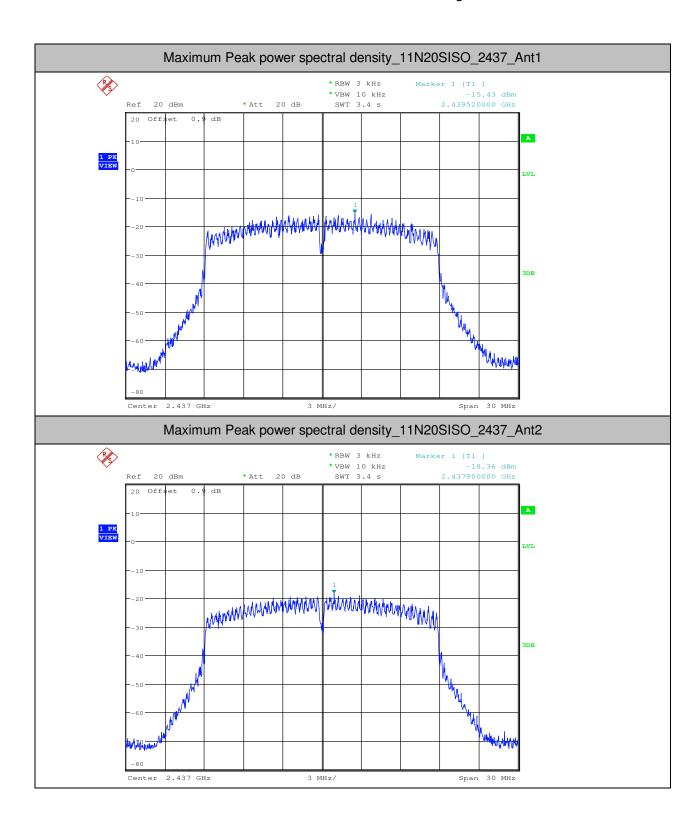
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Page: 112 of 163





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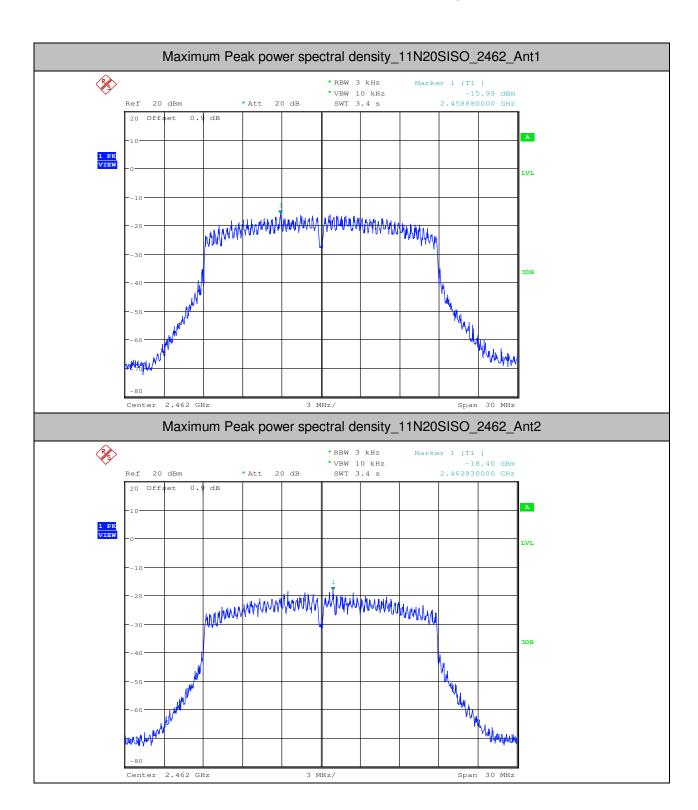
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Page: 113 of 163





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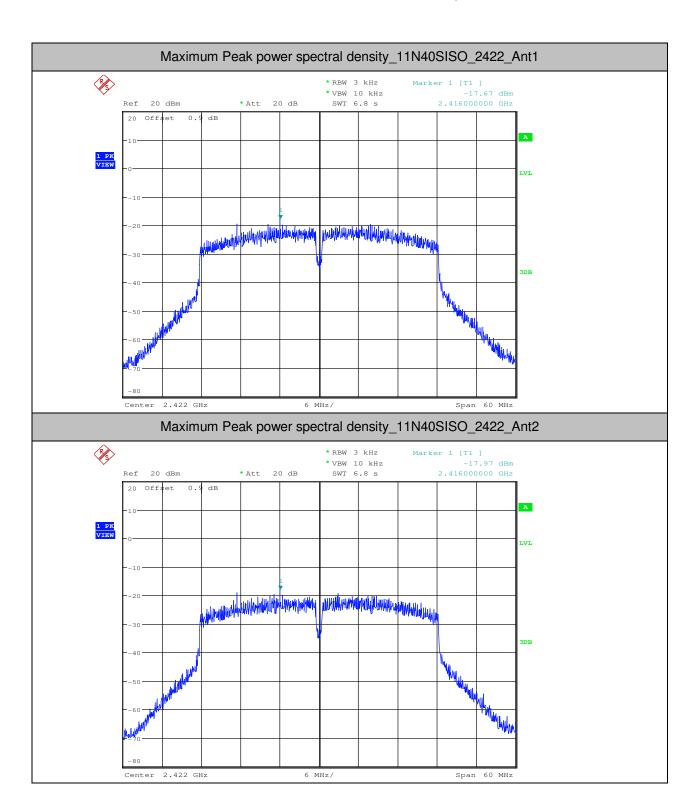
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Page: 114 of 163





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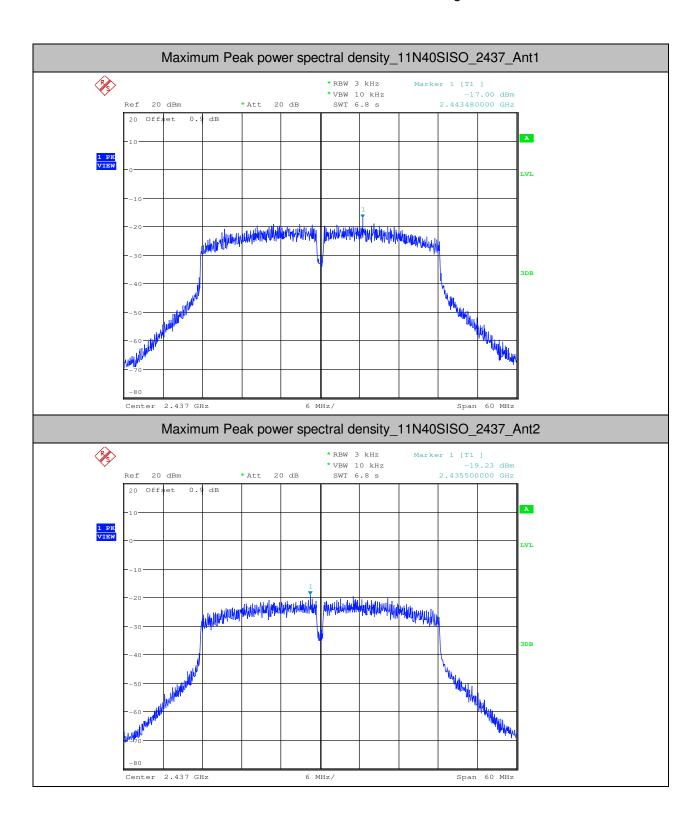
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Page: 115 of 163





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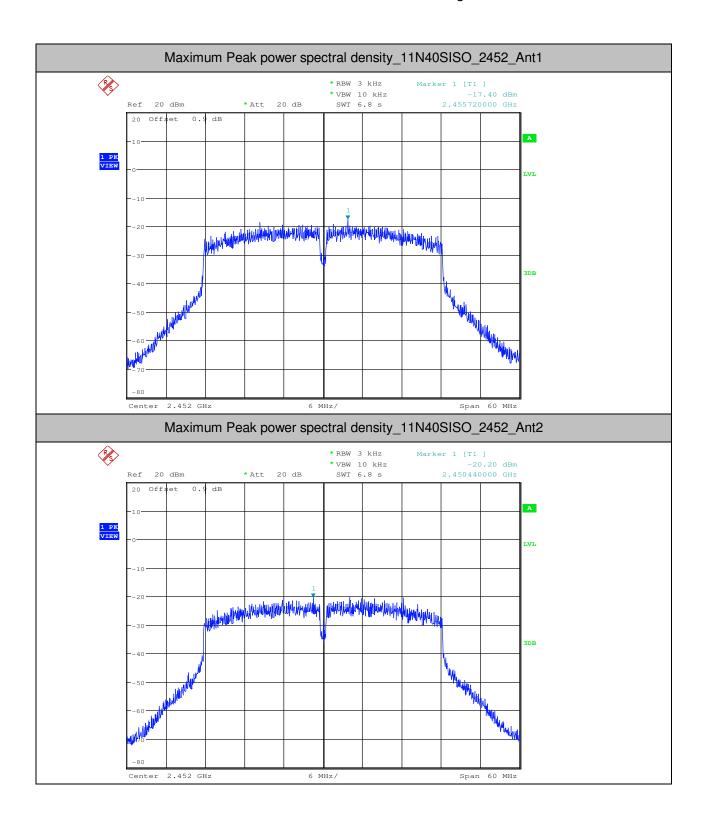
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Page: 116 of 163





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Report No.: SZEM191102047201

Page: 117 of 163

#### 4. Band-edge for RF Conducted Emissions

| Test<br>Mode | Test<br>Channel | Ant  | Carrier |         | Limit<br>[dBm] | Verdict |
|--------------|-----------------|------|---------|---------|----------------|---------|
| 11B          | 2412            | Ant1 | 3.500   | -51.815 | <-16.5         | PASS    |
| 11B          | 2412            | Ant2 | 4.350   | -48.375 | <-15.65        | PASS    |
| 11B          | 2462            | Ant1 | 3.580   | -53.700 | <-16.42        | PASS    |
| 11B          | 2462            | Ant2 | 2.560   | -53.223 | <-17.44        | PASS    |
| 11G          | 2412            | Ant1 | 5.030   | -49.955 | <-14.97        | PASS    |
| 11G          | 2412            | Ant2 | 6.260   | -49.334 | <-13.74        | PASS    |
| 11G          | 2462            | Ant1 | 4.670   | -50.592 | <-15.33        | PASS    |
| 11G          | 2462            | Ant2 | 4.920   | -52.762 | <-15.08        | PASS    |
| 11N20SISO    | 2412            | Ant1 | 4.680   | -50.762 | <-15.32        | PASS    |
| 11N20SISO    | 2412            | Ant2 | 5.760   | -49.857 | <-14.24        | PASS    |
| 11N20SISO    | 2462            | Ant1 | 5.390   | -51.273 | <-14.61        | PASS    |
| 11N20SISO    | 2462            | Ant2 | 4.520   | -53.064 | <-15.48        | PASS    |
| 11N40SISO    | 2422            | Ant1 | -1.260  | -50.407 | <-21.26        | PASS    |
| 11N40SISO    | 2422            | Ant2 | -0.520  | -49.800 | <-20.52        | PASS    |
| 11N40SISO    | 2452            | Ant1 | -0.810  | -46.814 | <-20.81        | PASS    |
| 11N40SISO    | 2452            | Ant2 | -0.910  | -49.777 | <-20.91        | PASS    |



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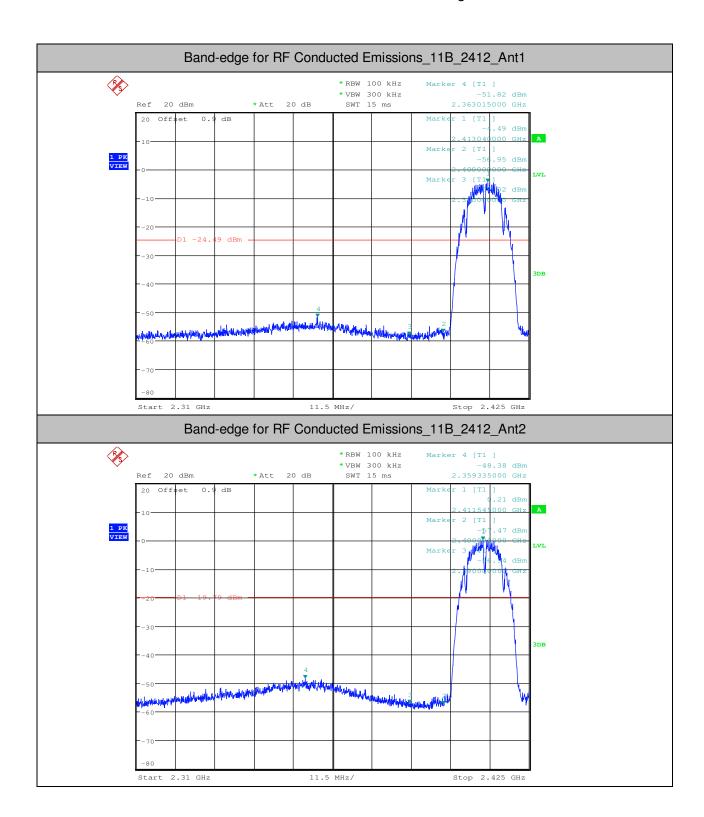
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Report No.: SZEM191102047201

Page: 118 of 163





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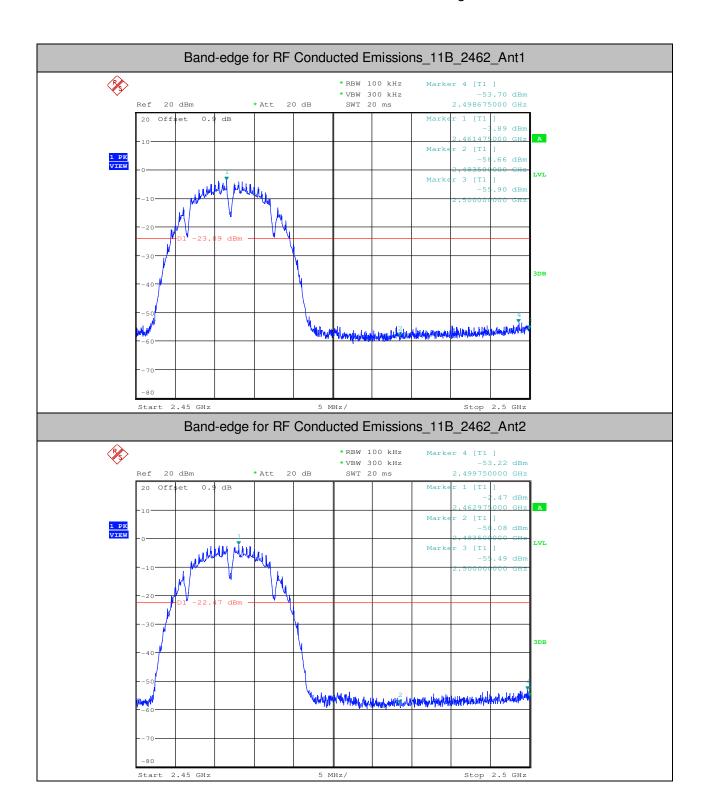
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Report No.: SZEM191102047201

Page: 119 of 163





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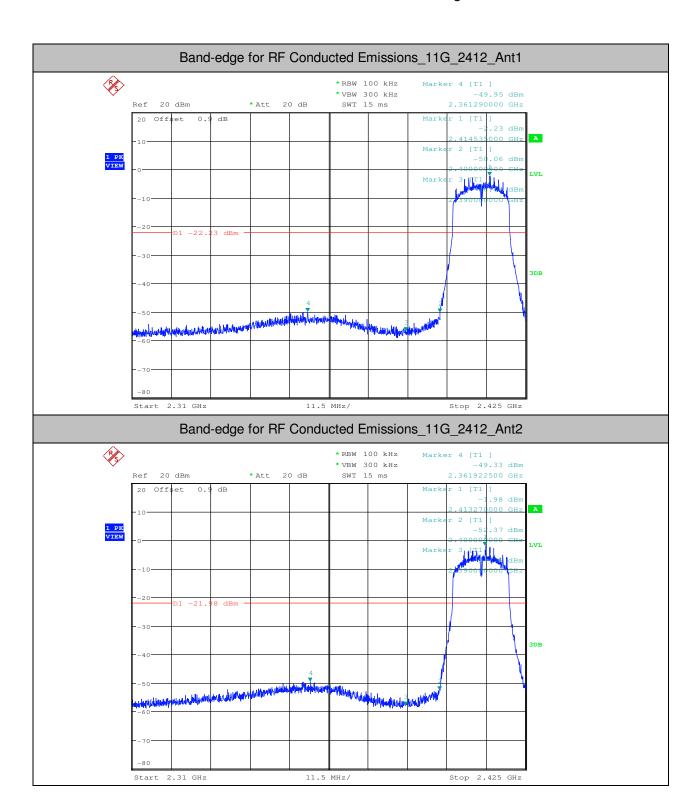
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Report No.: SZEM191102047201

Page: 120 of 163





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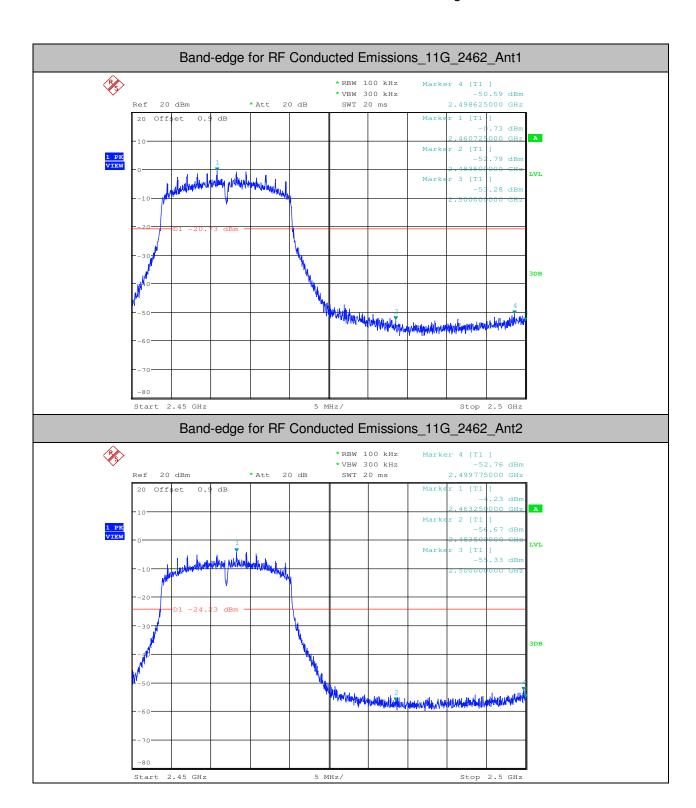
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Page: 121 of 163





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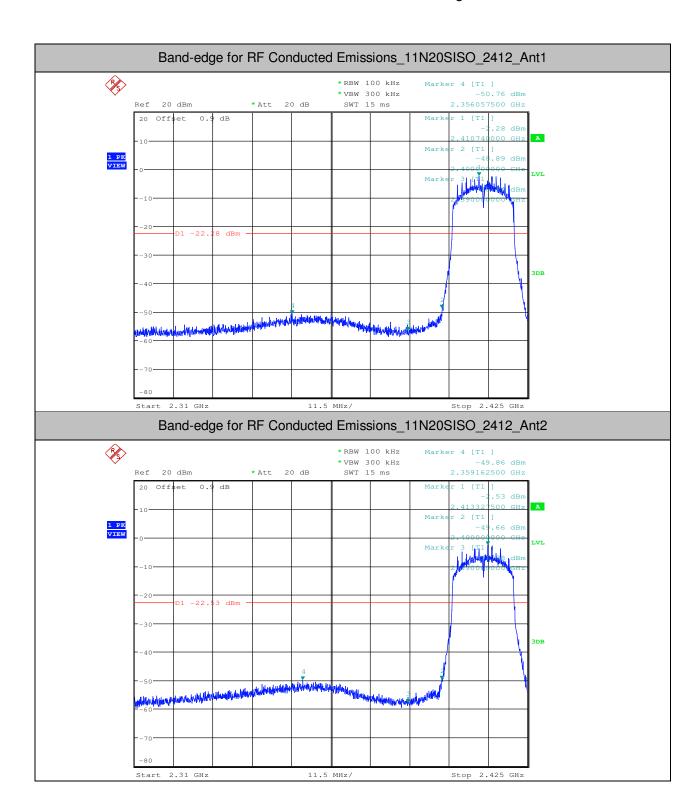
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Report No.: SZEM191102047201

Page: 122 of 163





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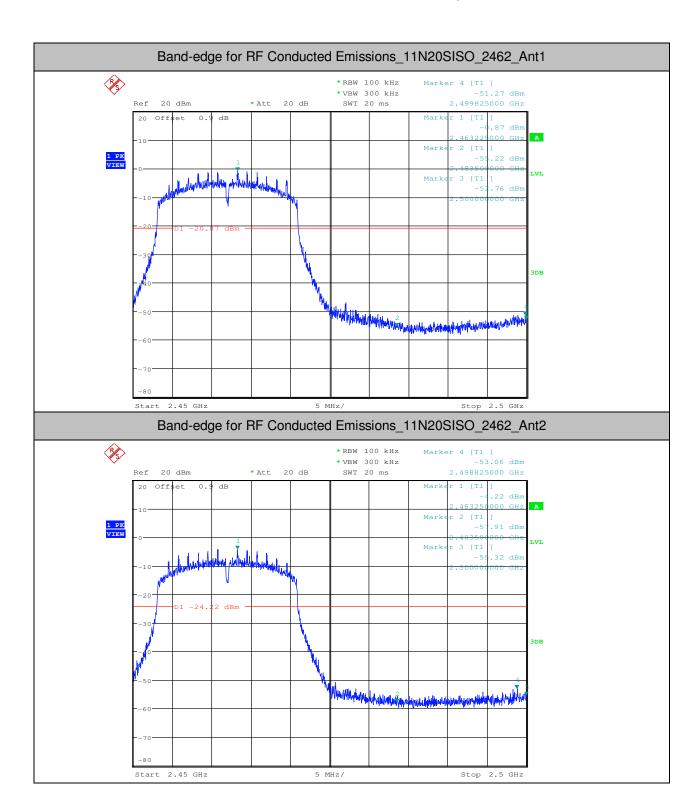
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Report No.: SZEM191102047201

Page: 123 of 163





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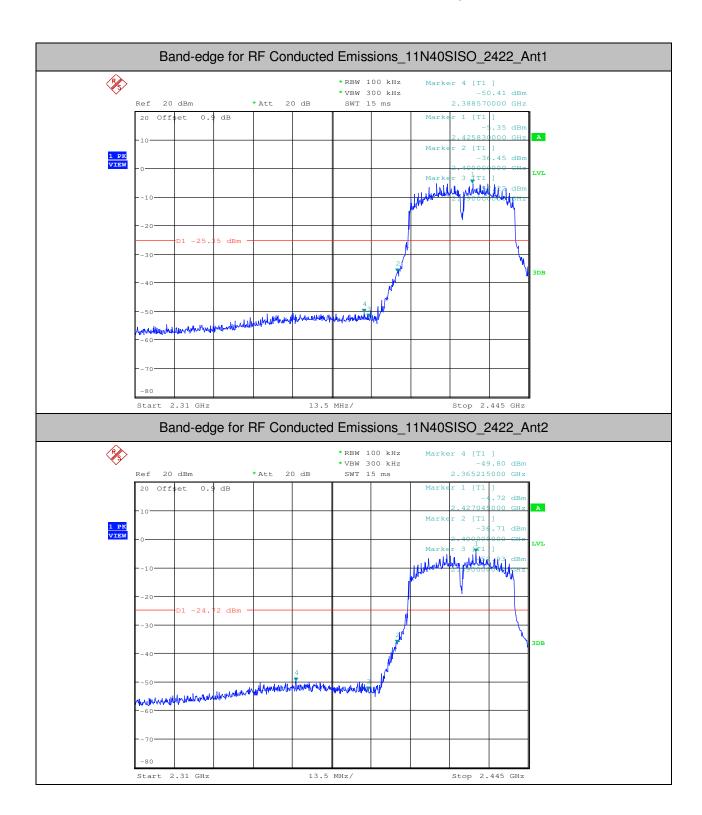
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Page: 124 of 163





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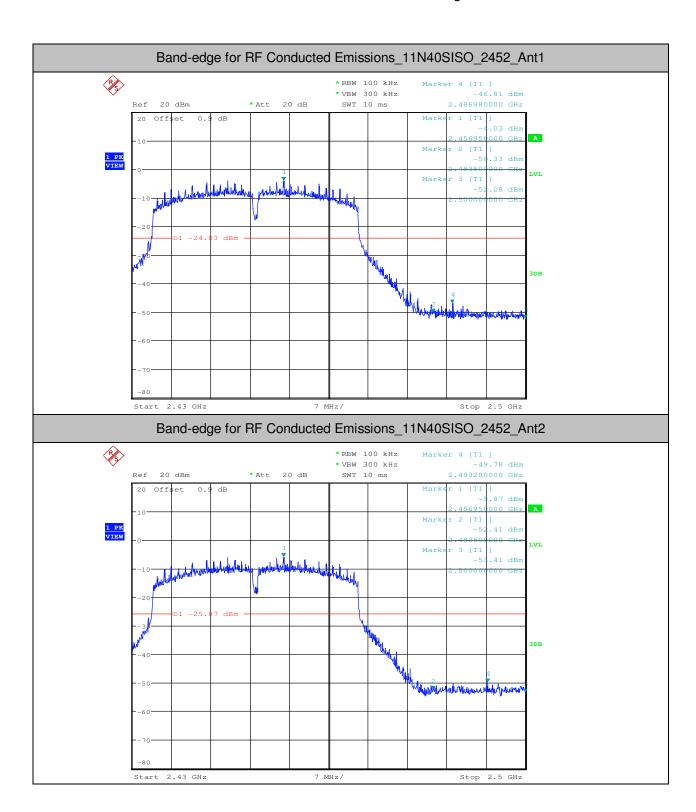
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Page: 125 of 163





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Report No.: SZEM191102047201

Page: 126 of 163

#### 5. RF Conducted Spurious Emissions

| Test mode: | Test<br>Channel | StartFre [MHz] | StopFre [MHz] | RBW<br>[kHz] | VBW<br>[kHz] | Pref[dBm] | Max.<br>Level<br>[dBm] | Limit<br>[dBm] | Verdict |
|------------|-----------------|----------------|---------------|--------------|--------------|-----------|------------------------|----------------|---------|
| 11B        | 2412            | 30             | 10000         | 100          | 300          | 3.85      | -38.610                | <-16.15        | PASS    |
| 11B        | 2412            | 10000          | 25000         | 100          | 300          | 3.85      | -55.440                | <-16.15        | PASS    |
| 11B        | 2412            | 30             | 10000         | 100          | 300          | 4.13      | -37.110                | <-15.87        | PASS    |
| 11B        | 2412            | 10000          | 25000         | 100          | 300          | 4.13      | -56.000                | <-15.87        | PASS    |
| 11B        | 2437            | 30             | 10000         | 100          | 300          | 3.68      | -38.680                | <-16.32        | PASS    |
| 11B        | 2437            | 10000          | 25000         | 100          | 300          | 3.68      | -55.970                | <-16.32        | PASS    |
| 11B        | 2437            | 30             | 10000         | 100          | 300          | 3.18      | -40.250                | <-16.82        | PASS    |
| 11B        | 2437            | 10000          | 25000         | 100          | 300          | 3.18      | -54.480                | <-16.82        | PASS    |
| 11B        | 2462            | 30             | 10000         | 100          | 300          | 3.9       | -38.300                | <-16.1         | PASS    |
| 11B        | 2462            | 10000          | 25000         | 100          | 300          | 3.9       | -56.040                | <-16.1         | PASS    |
| 11B        | 2462            | 30             | 10000         | 100          | 300          | 2.59      | -40.530                | <-17.41        | PASS    |
| 11B        | 2462            | 10000          | 25000         | 100          | 300          | 2.59      | -56.220                | <-17.41        | PASS    |
| 11G        | 2412            | 30             | 10000         | 100          | 300          | 4.48      | -43.530                | <-15.52        | PASS    |
| 11G        | 2412            | 10000          | 25000         | 100          | 300          | 4.48      | -55.490                | <-15.52        | PASS    |
| 11G        | 2412            | 30             | 10000         | 100          | 300          | 5.69      | -40.230                | <-14.31        | PASS    |
| 11G        | 2412            | 10000          | 25000         | 100          | 300          | 5.69      | -55.430                | <-14.31        | PASS    |
| 11G        | 2437            | 30             | 10000         | 100          | 300          | 5.69      | -42.330                | <-14.31        | PASS    |
| 11G        | 2437            | 10000          | 25000         | 100          | 300          | 5.69      | -55.900                | <-14.31        | PASS    |
| 11G        | 2437            | 30             | 10000         | 100          | 300          | 5.17      | -39.310                | <-14.83        | PASS    |
| 11G        | 2437            | 10000          | 25000         | 100          | 300          | 5.17      | -55.840                | <-14.83        | PASS    |
| 11G        | 2462            | 30             | 10000         | 100          | 300          | 5.6       | -41.620                | <-14.4         | PASS    |
| 11G        | 2462            | 10000          | 25000         | 100          | 300          | 5.6       | -55.720                | <-14.4         | PASS    |
| 11G        | 2462            | 30             | 10000         | 100          | 300          | 4.75      | -42.470                | <-15.25        | PASS    |
| 11G        | 2462            | 10000          | 25000         | 100          | 300          | 4.75      | -56.020                | <-15.25        | PASS    |
| 11N20SISO  | 2412            | 30             | 10000         | 100          | 300          | 5.17      | -44.100                | <-14.83        | PASS    |
| 11N20SISO  | 2412            | 10000          | 25000         | 100          | 300          | 5.17      | -55.410                | <-14.83        | PASS    |
| 11N20SISO  | 2412            | 30             | 10000         | 100          | 300          | 5.4       | -41.420                | <-14.6         | PASS    |
| 11N20SISO  | 2412            | 10000          | 25000         | 100          | 300          | 5.4       | -55.550                | <-14.6         | PASS    |
| 11N20SISO  | 2437            | 30             | 10000         | 100          | 300          | 5.04      | -42.650                | <-14.96        | PASS    |



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Report No.: SZEM191102047201

Page: 127 of 163

| 11N20SISO | 2437 | 10000 | 25000 | 100 | 300 | 5.04  | -55.510 | <-14.96 | PASS |
|-----------|------|-------|-------|-----|-----|-------|---------|---------|------|
| 11N20SISO | 2437 | 30    | 10000 | 100 | 300 | 5.12  | -42.880 | <-14.88 | PASS |
| 11N20SISO | 2437 | 10000 | 25000 | 100 | 300 | 5.12  | -55.870 | <-14.88 | PASS |
| 11N20SISO | 2462 | 30    | 10000 | 100 | 300 | 5.8   | -39.600 | <-14.2  | PASS |
| 11N20SISO | 2462 | 10000 | 25000 | 100 | 300 | 5.8   | -55.980 | <-14.2  | PASS |
| 11N20SISO | 2462 | 30    | 10000 | 100 | 300 | 4.72  | -43.950 | <-15.28 | PASS |
| 11N20SISO | 2462 | 10000 | 25000 | 100 | 300 | 4.72  | -55.980 | <-15.28 | PASS |
| 11N40SISO | 2422 | 30    | 10000 | 100 | 300 | -1.74 | -50.330 | <-21.74 | PASS |
| 11N40SISO | 2422 | 10000 | 25000 | 100 | 300 | -1.74 | -55.670 | <-21.74 | PASS |
| 11N40SISO | 2422 | 30    | 10000 | 100 | 300 | -0.48 | -46.790 | <-20.48 | PASS |
| 11N40SISO | 2422 | 10000 | 25000 | 100 | 300 | -0.48 | -55.910 | <-20.48 | PASS |
| 11N40SISO | 2437 | 30    | 10000 | 100 | 300 | -1.37 | -50.310 | <-21.37 | PASS |
| 11N40SISO | 2437 | 10000 | 25000 | 100 | 300 | -1.37 | -55.720 | <-21.37 | PASS |
| 11N40SISO | 2437 | 30    | 10000 | 100 | 300 | -1    | -50.790 | <-21    | PASS |
| 11N40SISO | 2437 | 10000 | 25000 | 100 | 300 | -1    | -55.630 | <-21    | PASS |
| 11N40SISO | 2452 | 30    | 10000 | 100 | 300 | -0.83 | -49.780 | <-20.83 | PASS |
| 11N40SISO | 2452 | 10000 | 25000 | 100 | 300 | -0.83 | -55.900 | <-20.83 | PASS |
| 11N40SISO | 2452 | 30    | 10000 | 100 | 300 | -1.26 | -51.770 | <-21.26 | PASS |
| 11N40SISO | 2452 | 10000 | 25000 | 100 | 300 | -1.26 | -55.870 | <-21.26 | PASS |



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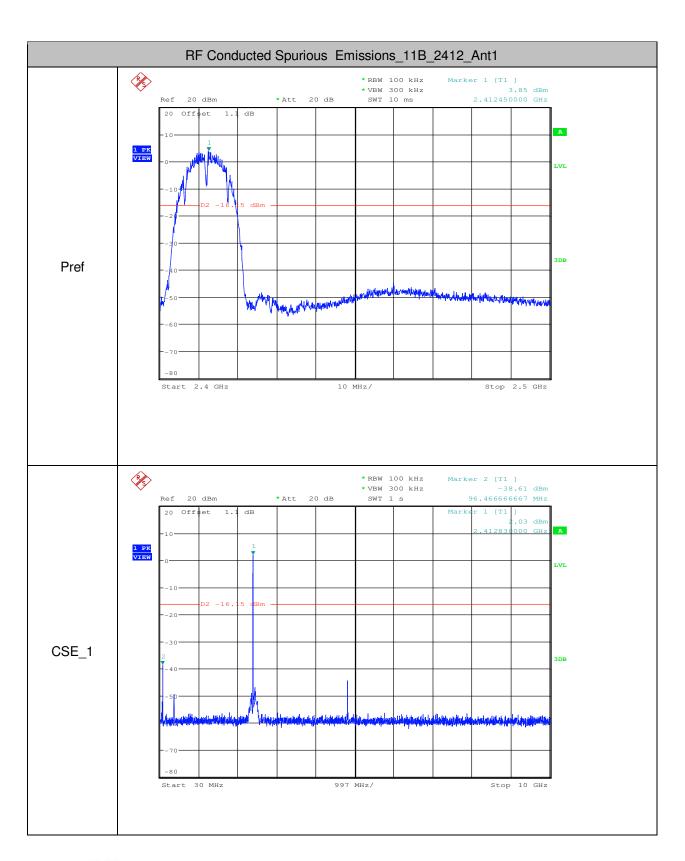
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Page: 128 of 163





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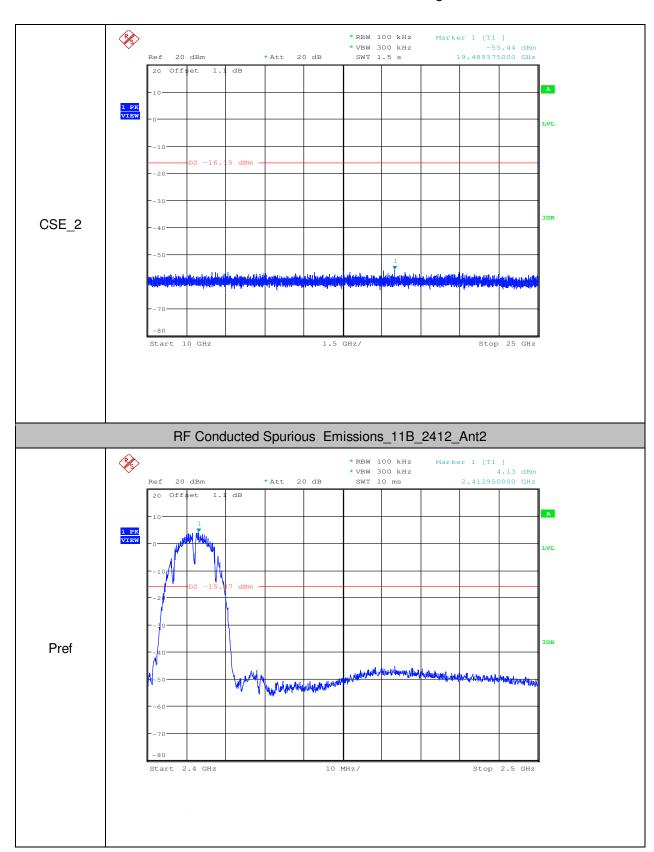
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Report No.: SZEM191102047201

Page: 129 of 163





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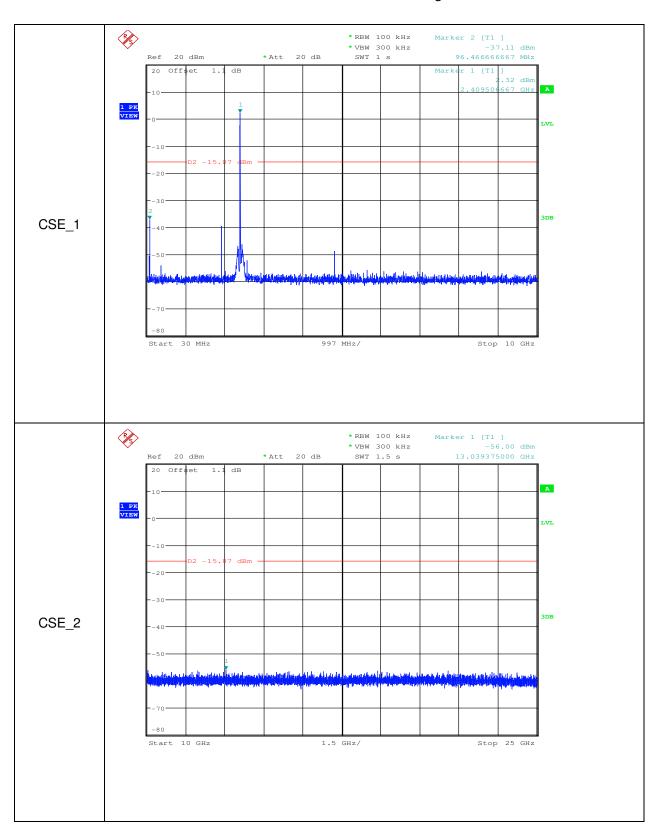
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Report No.: SZEM191102047201

Page: 130 of 163





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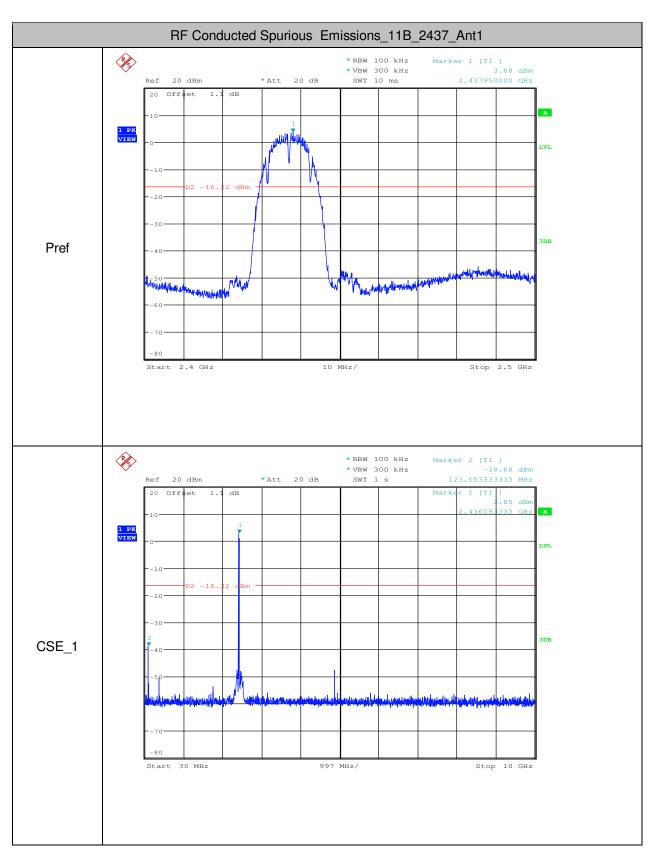
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Report No.: SZEM191102047201

Page: 131 of 163





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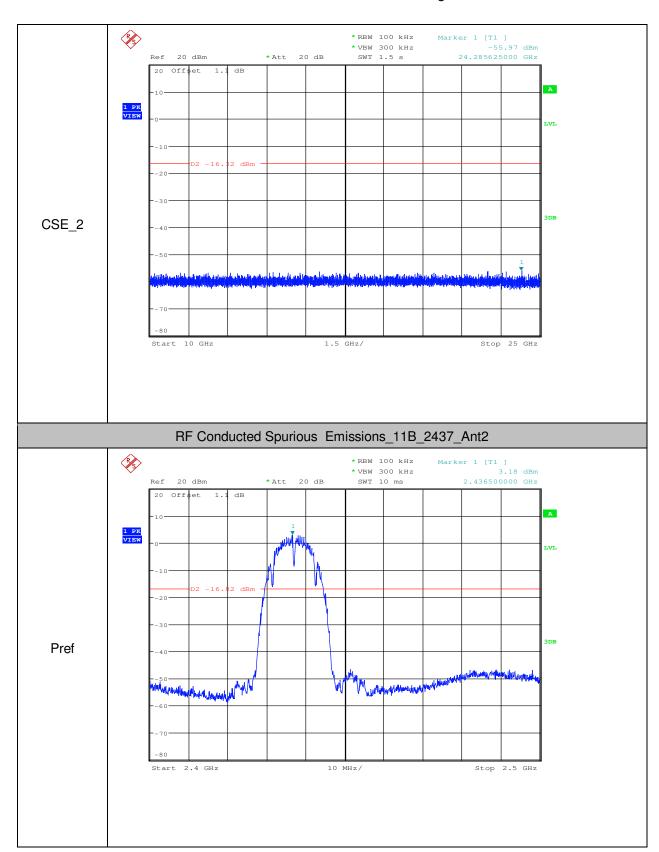
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Report No.: SZEM191102047201

Page: 132 of 163





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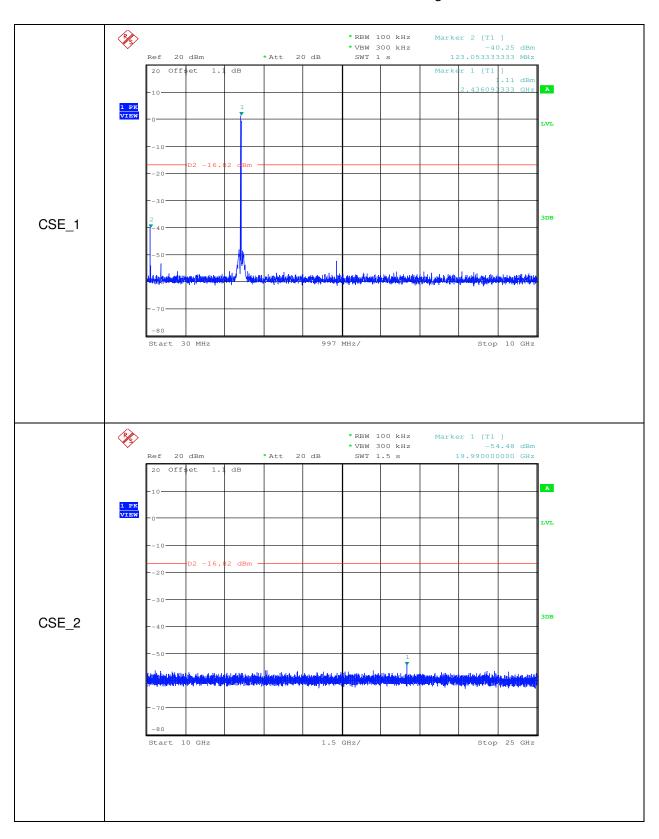
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Report No.: SZEM191102047201

Page: 133 of 163





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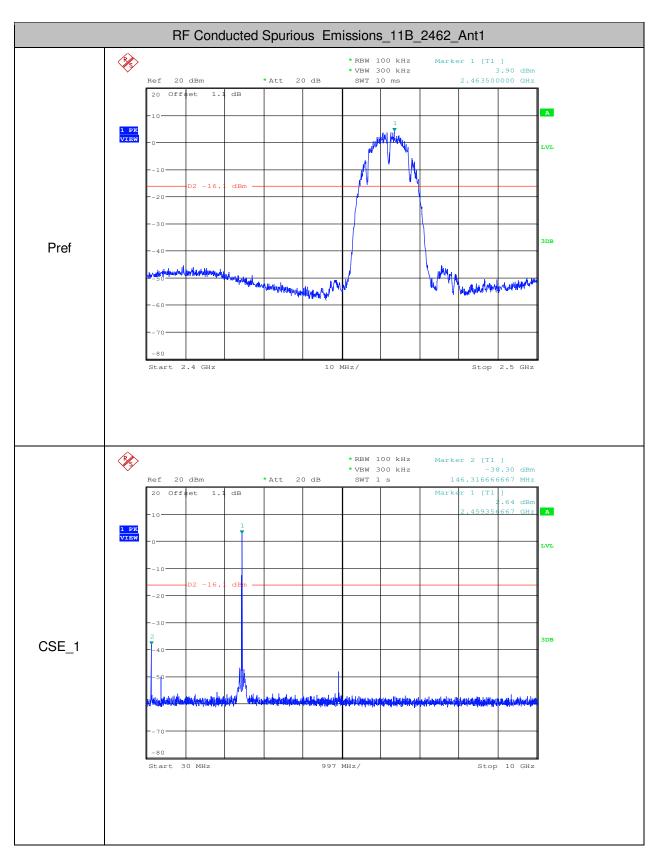
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Report No.: SZEM191102047201

Page: 134 of 163





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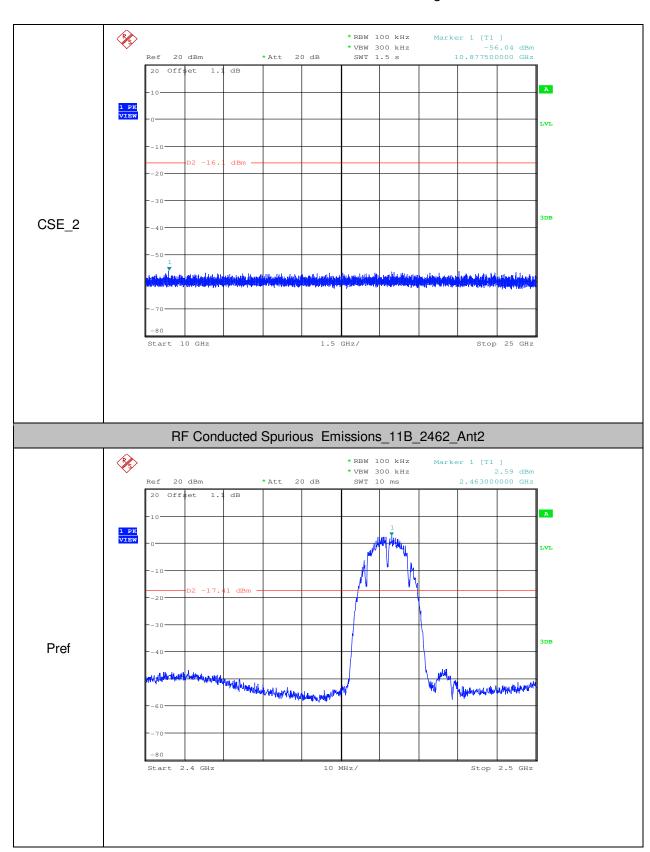
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Report No.: SZEM191102047201

Page: 135 of 163





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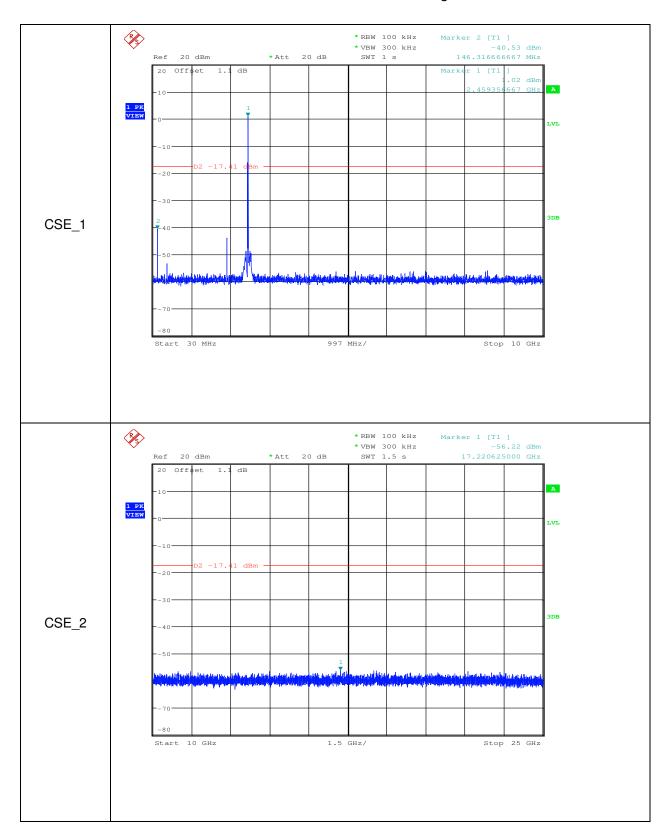
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Page: 136 of 163





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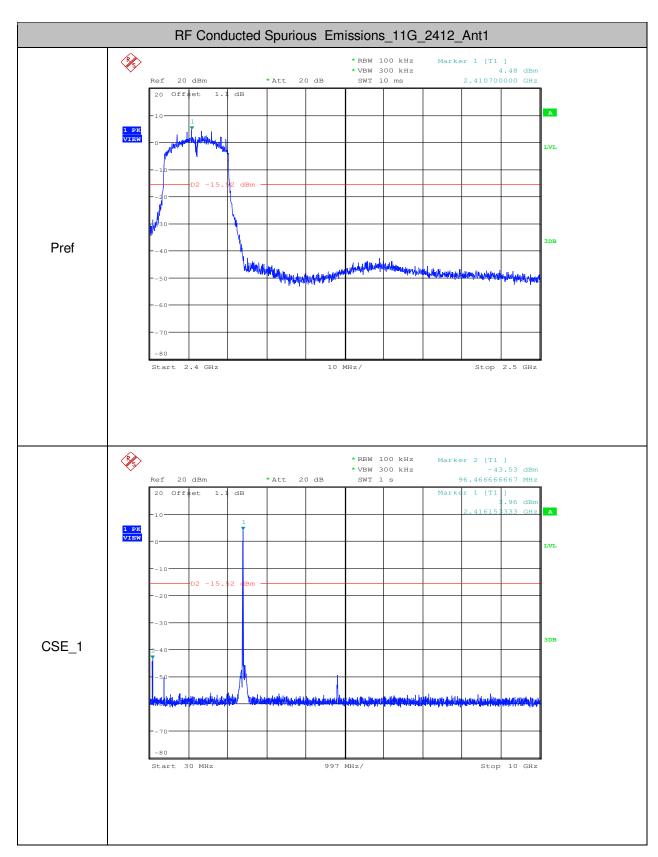
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Page: 137 of 163





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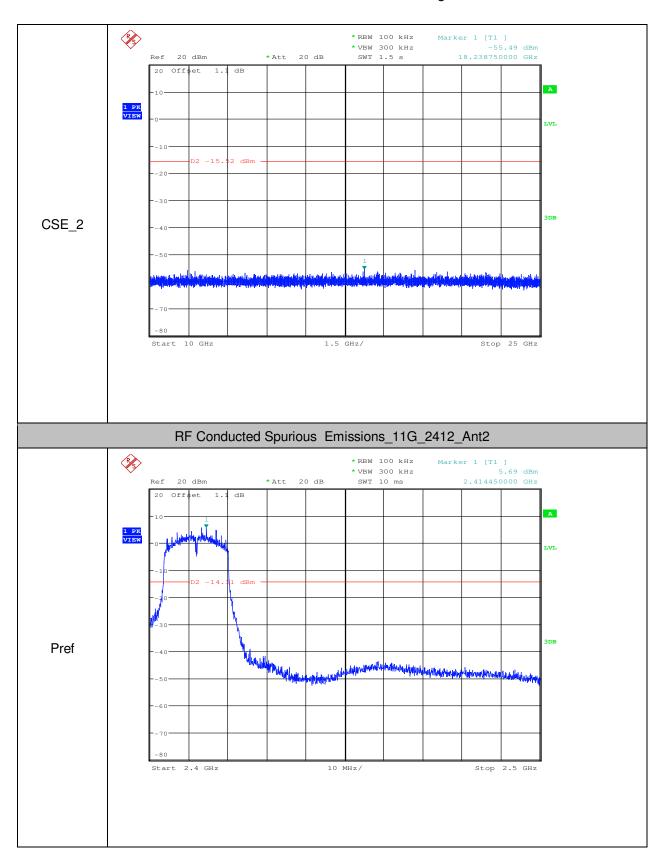
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Page: 138 of 163





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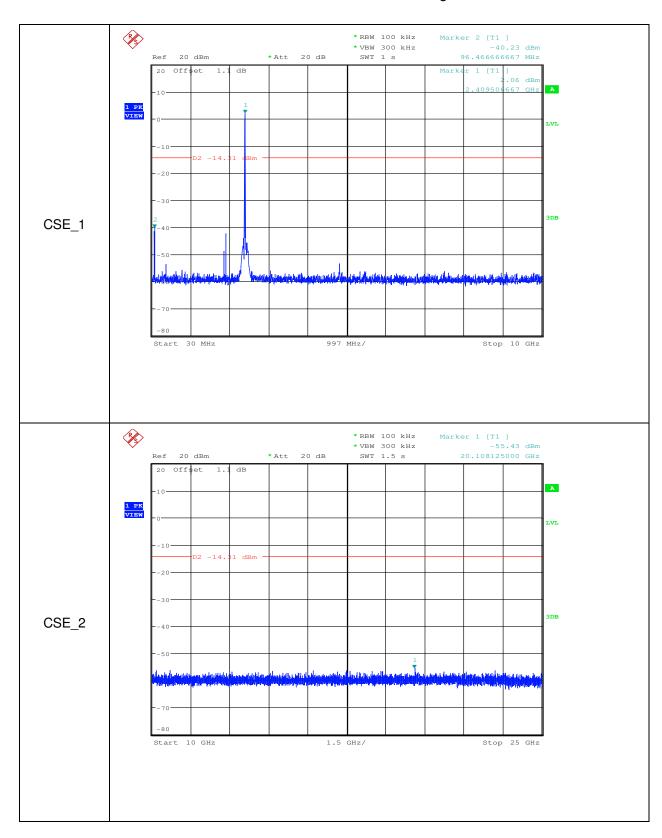
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Page: 139 of 163





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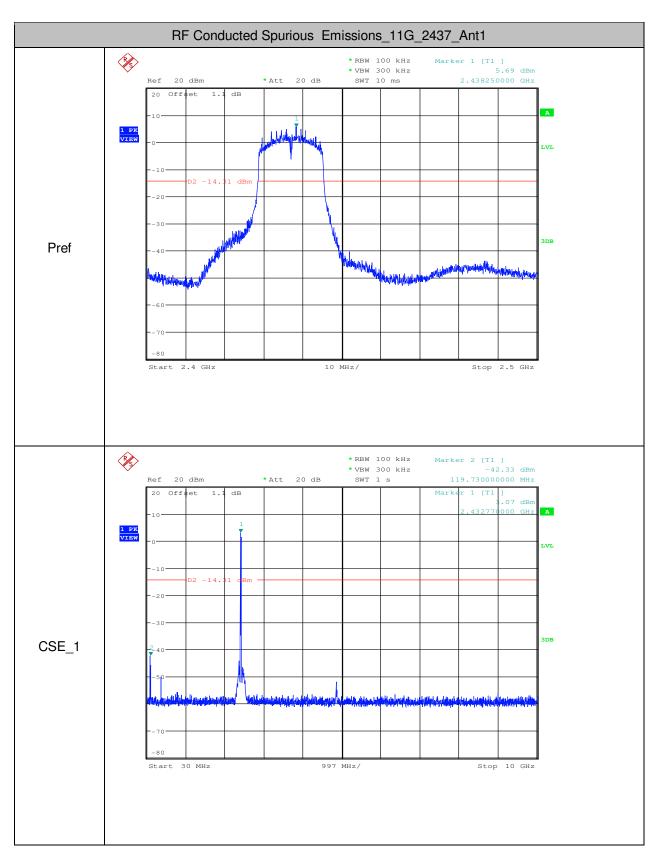
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Report No.: SZEM191102047201

Page: 140 of 163





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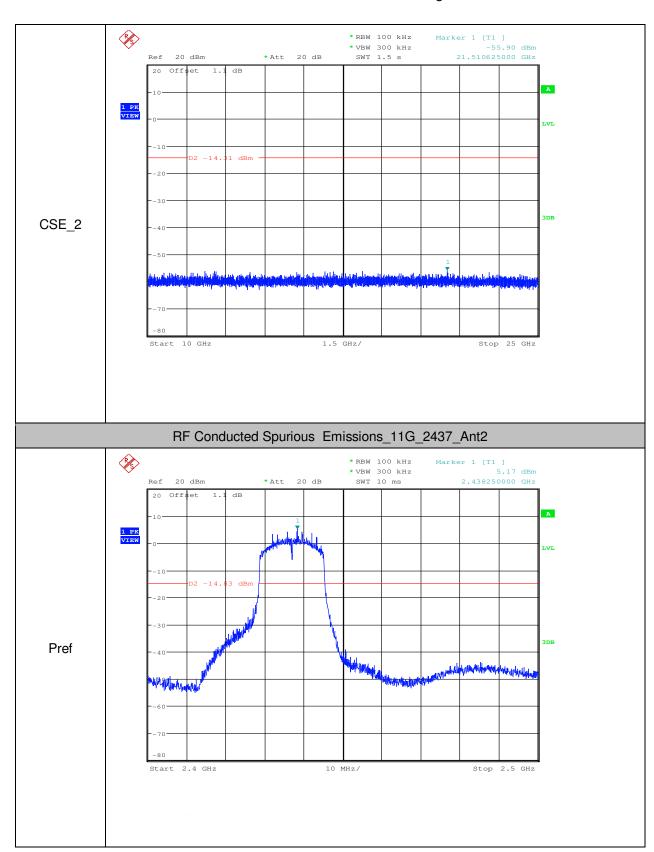
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Report No.: SZEM191102047201

Page: 141 of 163





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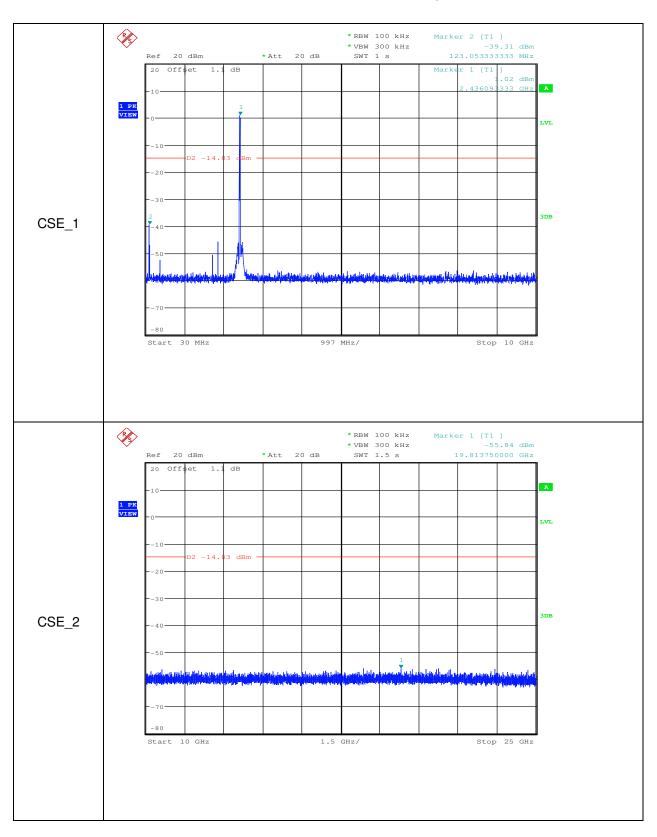
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Report No.: SZEM191102047201

Page: 142 of 163





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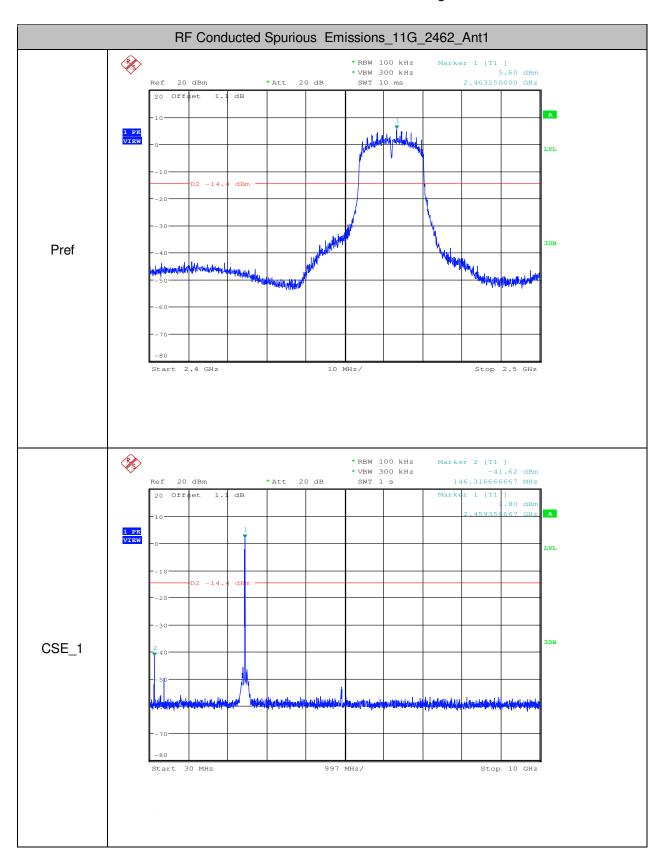
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Report No.: SZEM191102047201

Page: 143 of 163





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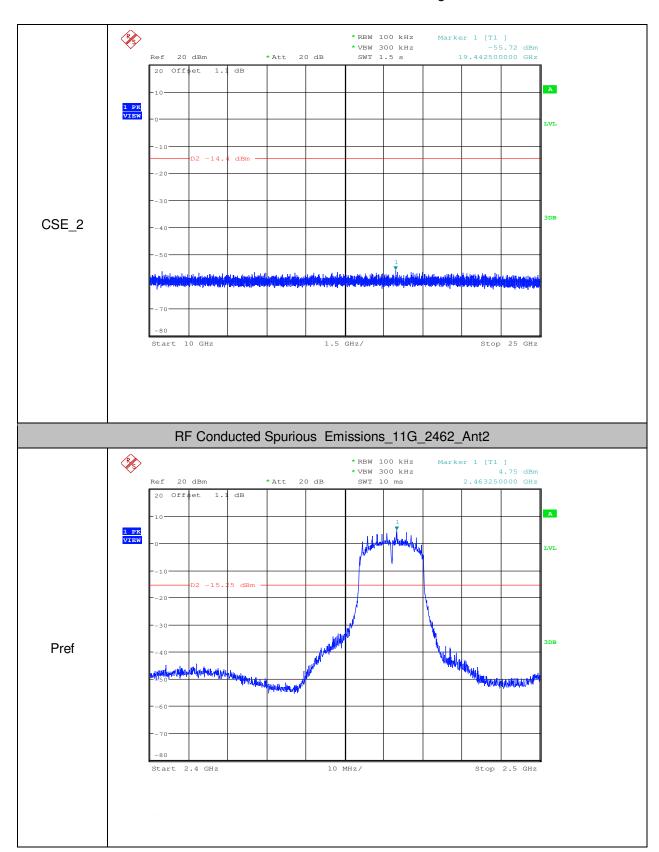
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Report No.: SZEM191102047201

Page: 144 of 163





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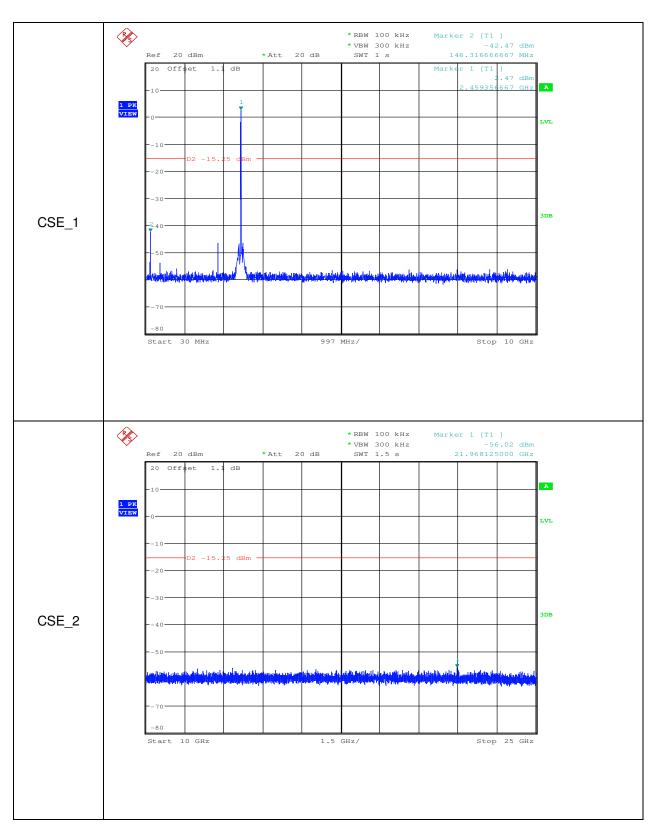
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Report No.: SZEM191102047201

Page: 145 of 163





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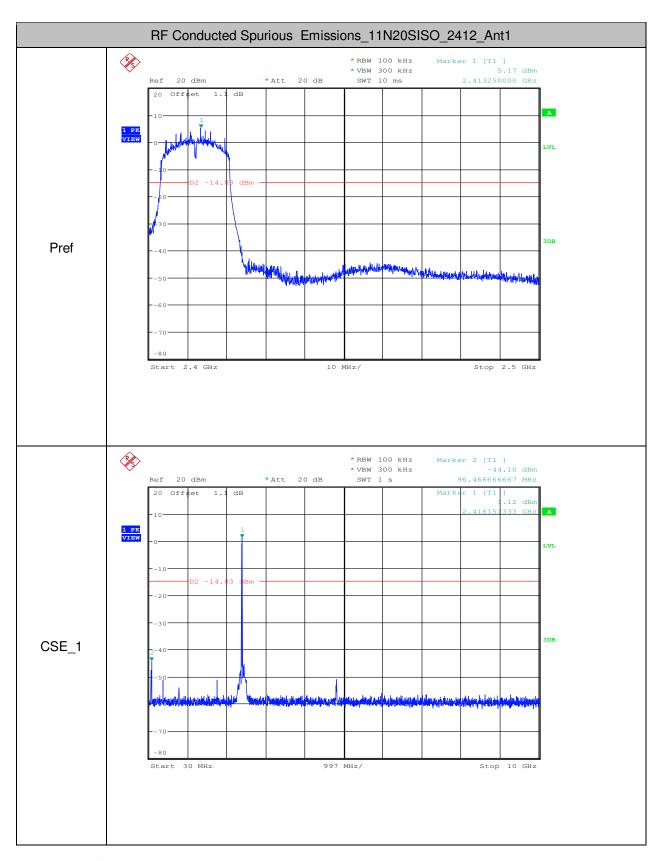
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Page: 146 of 163





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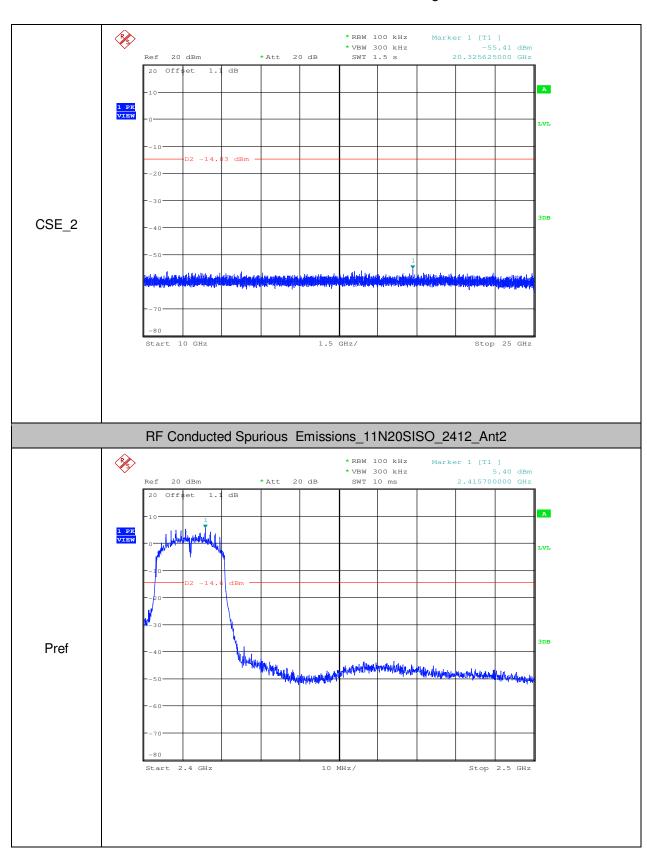
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Report No.: SZEM191102047201

Page: 147 of 163





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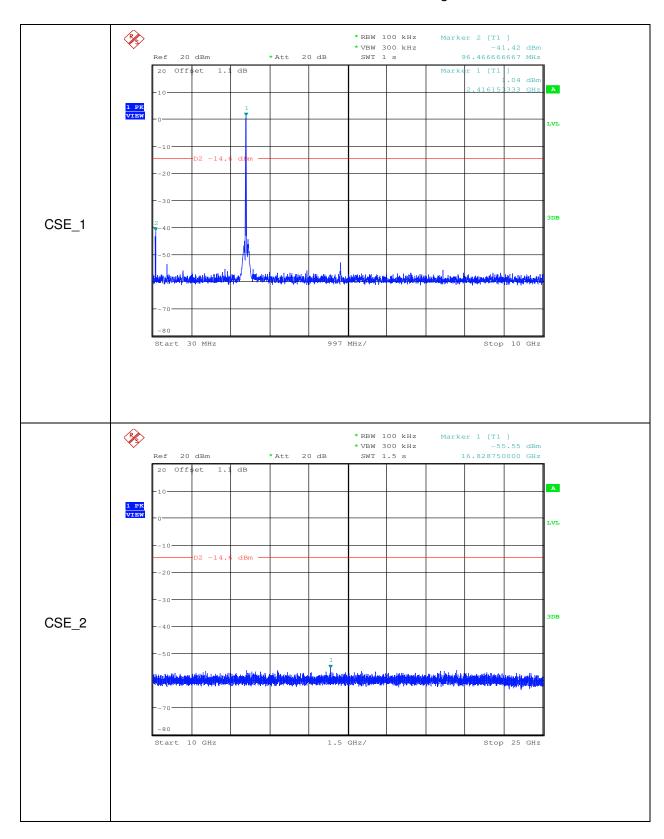
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Report No.: SZEM191102047201

Page: 148 of 163





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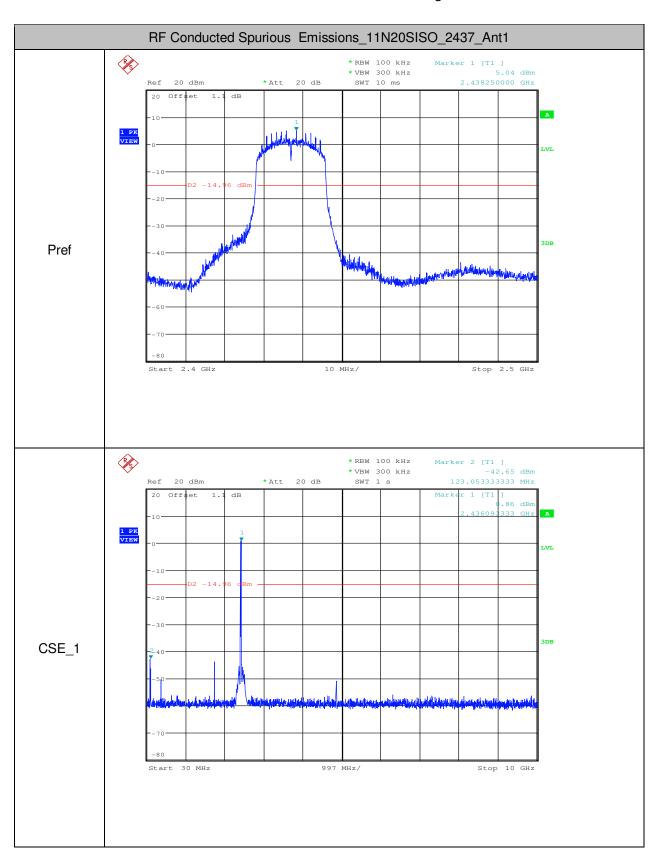
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Page: 149 of 163





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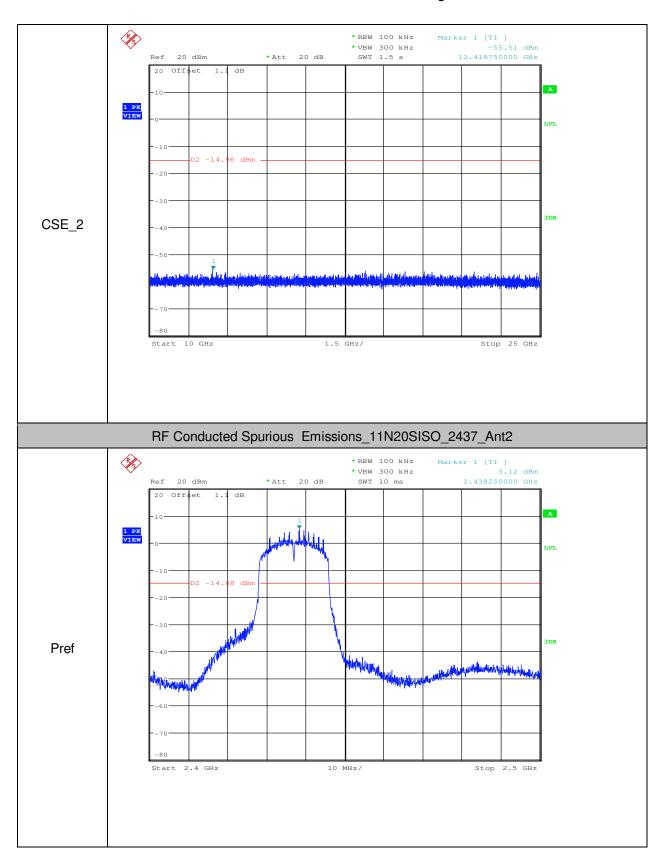
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Page: 150 of 163





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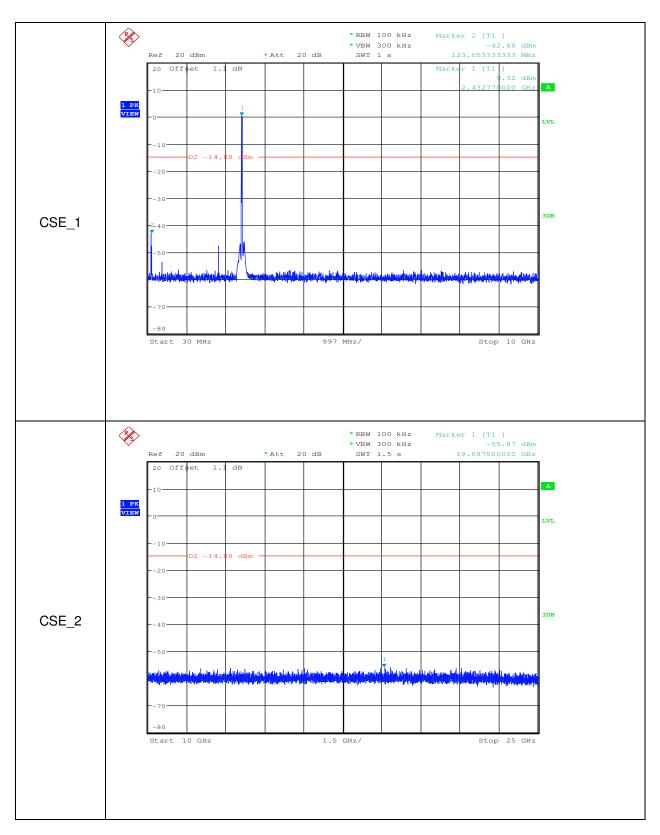
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Page: 151 of 163





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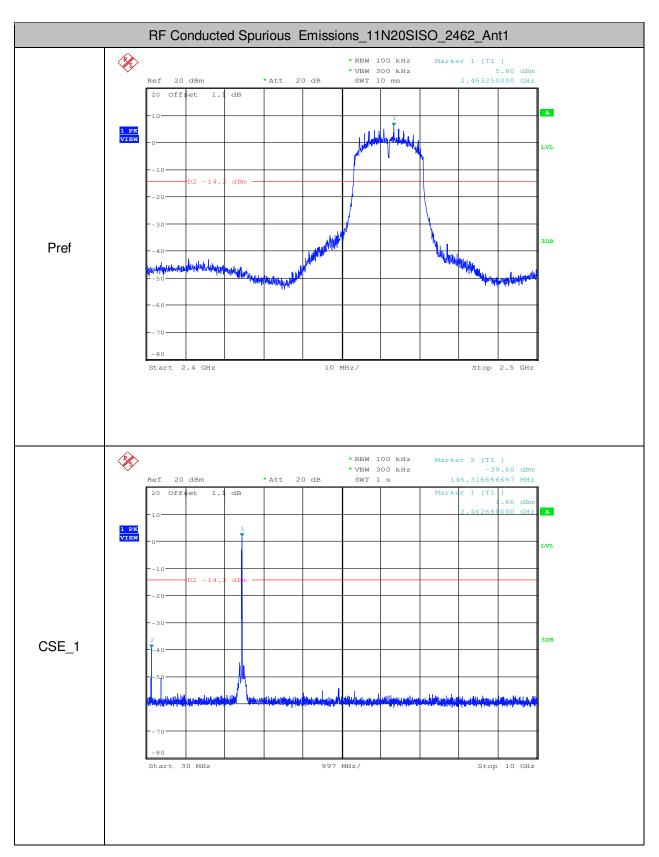
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Page: 152 of 163





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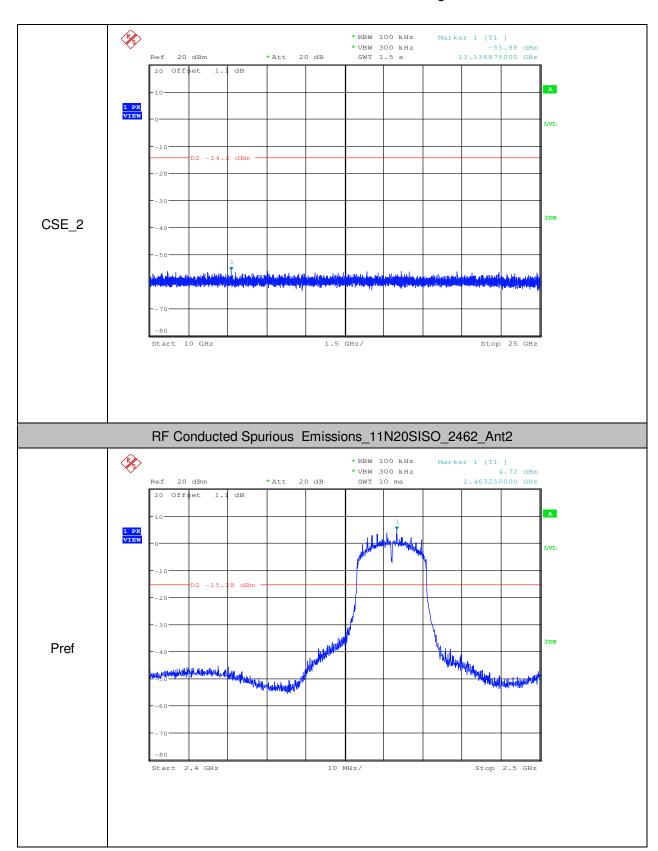
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Page: 153 of 163





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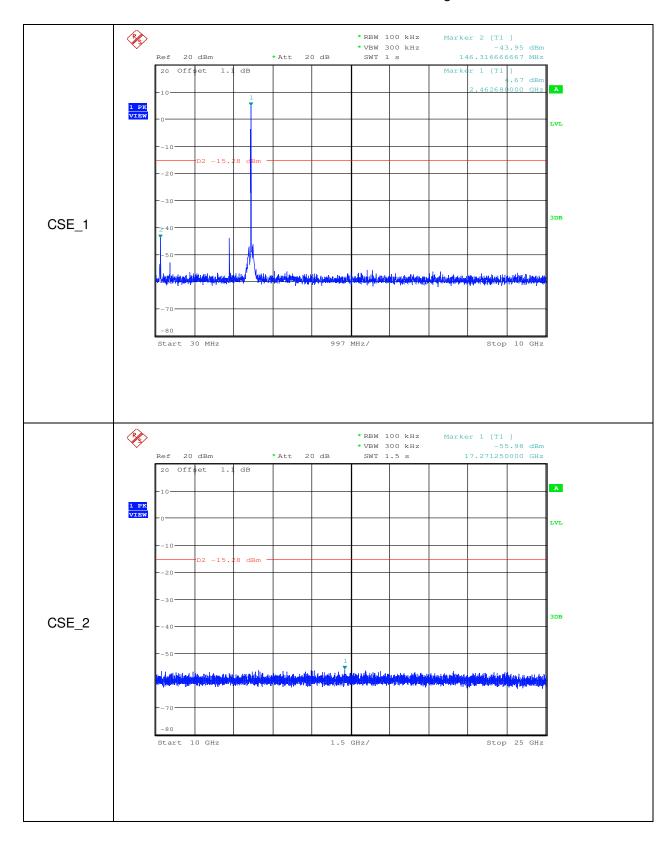
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Page: 154 of 163





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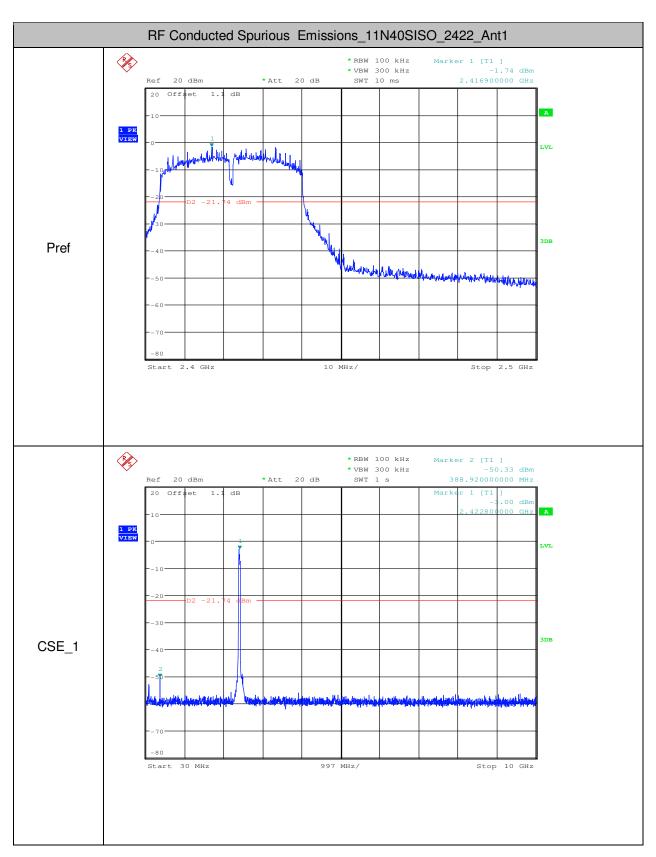
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Report No.: SZEM191102047201

Page: 155 of 163





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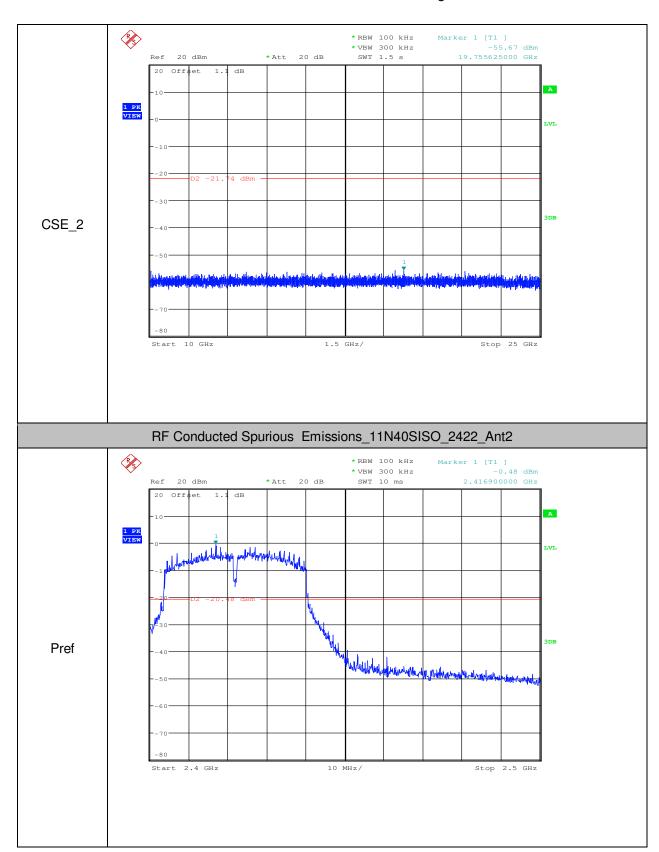
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Report No.: SZEM191102047201

Page: 156 of 163





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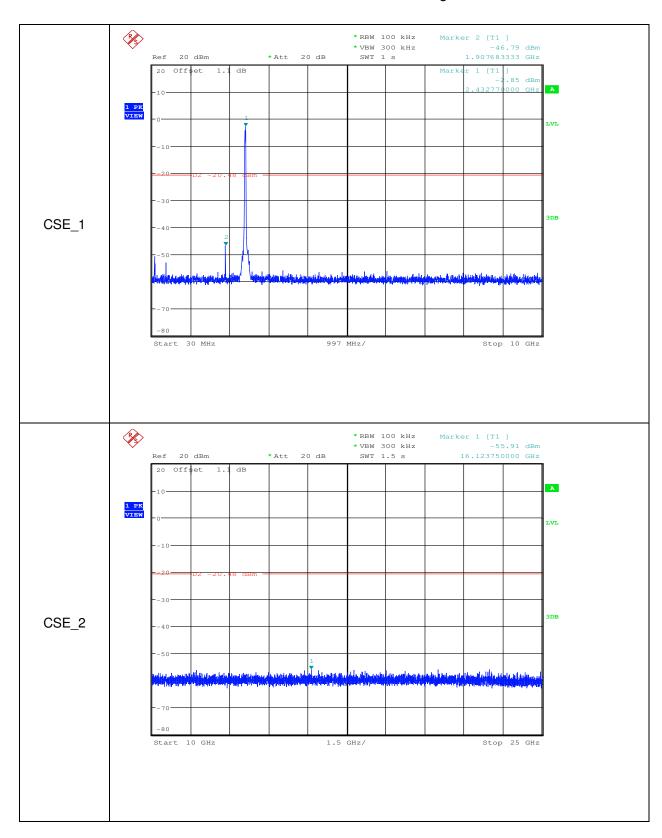
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Report No.: SZEM191102047201

Page: 157 of 163





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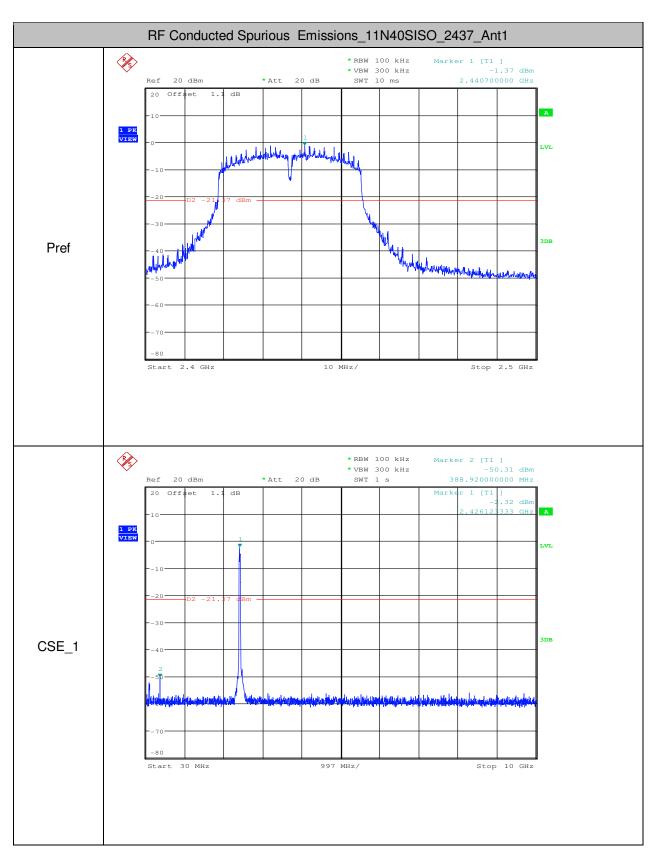
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Report No.: SZEM191102047201

Page: 158 of 163





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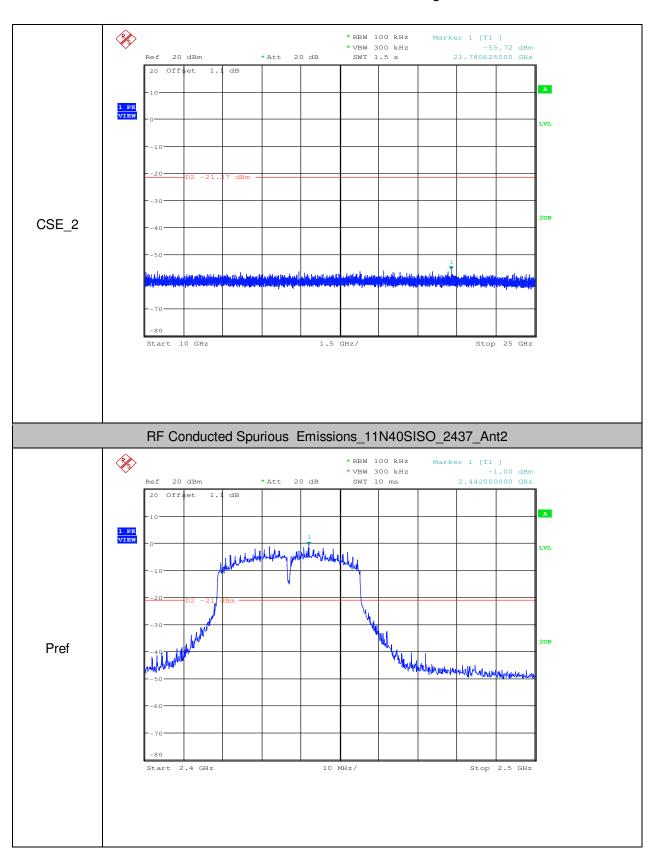
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Report No.: SZEM191102047201

Page: 159 of 163





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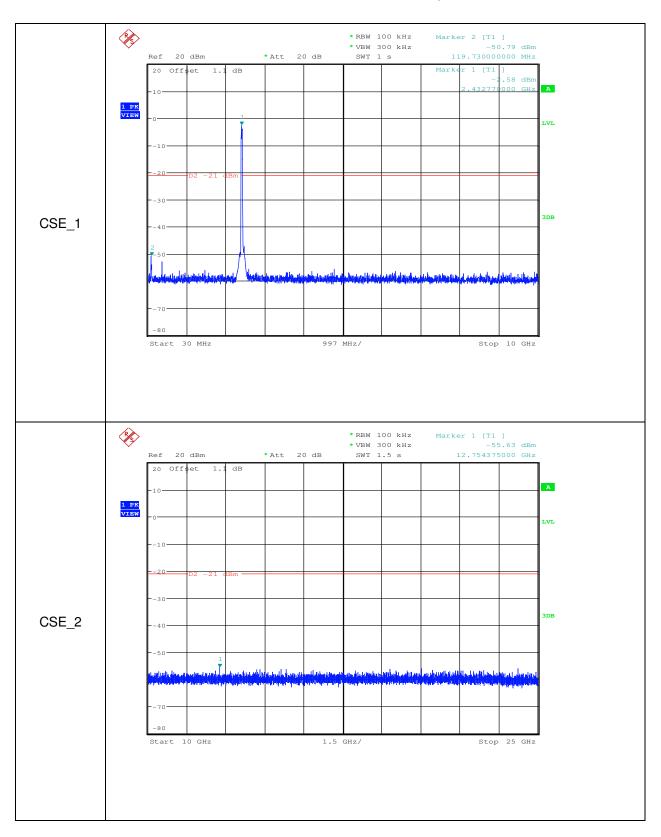
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Report No.: SZEM191102047201

Page: 160 of 163





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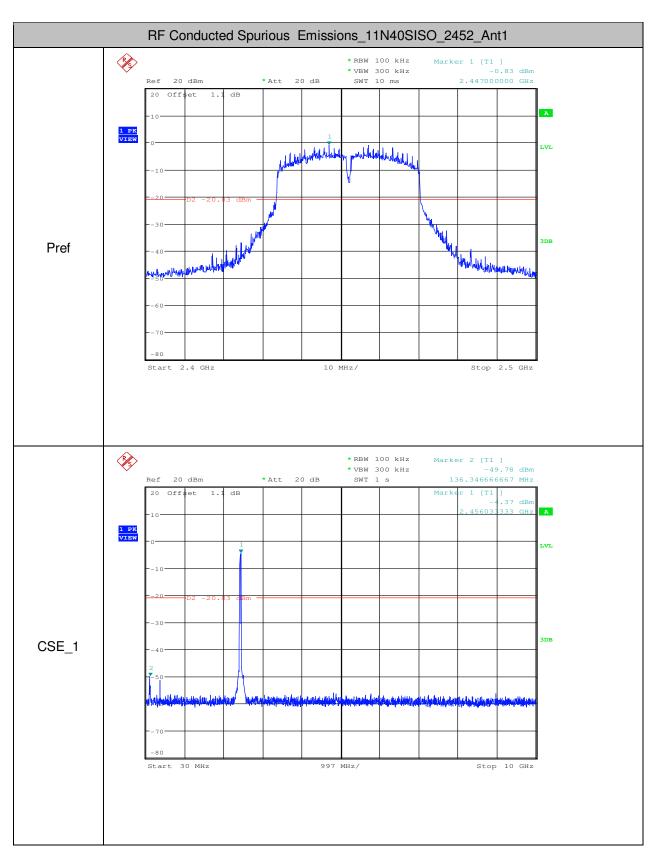
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Report No.: SZEM191102047201

Page: 161 of 163





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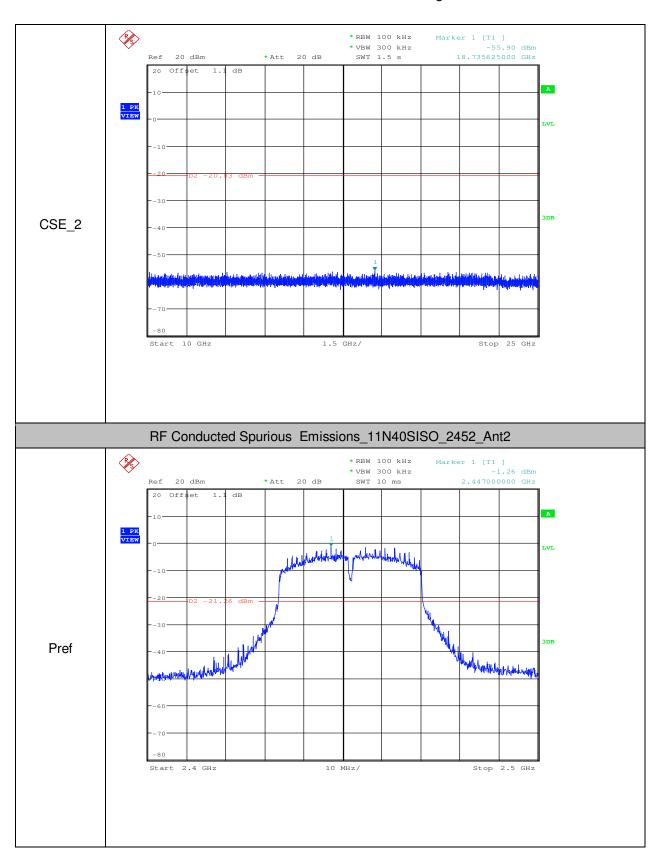
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Page: 162 of 163





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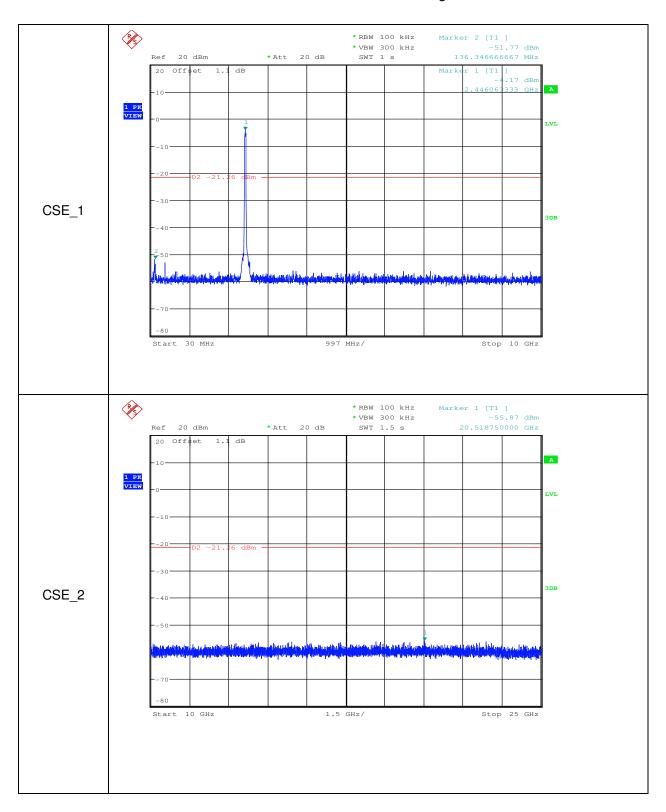
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Page: 163 of 163



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