



FCC TEST REPORT

Application No: HR/2019/10024
Applicant: Huawei Technologies Co., Ltd.
Address of Applicant: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Manufacturer: Huawei Technologies Co., Ltd.
Address of Manufacturer: Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
EUT Description: Smart Phone
Model No.: ELE-L04
Trade Mark: HUAWEI
FCC ID: QISELE-L04
Standards: 47 CFR FCC Part 2, Subpart J
 47 CFR FCC Part 15, Subpart C
 47 CFR FCC Part 15, Subpart E
 KDB 789033 D02 General UNII Test Procedures New Rules v02
 FCC KDB 558074 D01 DTS Meas Guidance v05
 KDB 662911 D01 Multiple Transmitter Output v02r01
Test Method: KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02
 KDB 905462 D03 Client Without DFS New Rules v01r02
 ANSI C63.10-2013, American National Standard for Testing Unlicensed Wireless Devices
Date of Receipt: 2019/1/18
Date of Test: 2019/1/18 to 2019/3/6
Date of Issue: 2019/3/6

| | |
|---------------------|---------------|
| Test Result: | PASS * |
|---------------------|---------------|

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

Derek Yang
Wireless Laboratory Manager



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1 Version

| Revision Record | | | | |
|-----------------|---------|----------|----------|----------|
| Version | Chapter | Date | Modifier | Remark |
| 00 | | 2019/3/6 | | Original |
| | | | | |
| | | | | |

| | | | |
|--------------------------|--|---|----------|
| Authorized for issue by: | | | |
| Tested By | |  _____ (Mike Hu) /Project Engineer | 2019/3/6 |
| | | | _____ |
| Checked By | |  _____ (David Chen) /Reviewer | 2019/3/6 |
| | | | _____ |

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2 Test Summary

| Test Item | Band | FCC Rule | Requirements | Test Result | Verdict |
|--|-----------|--|---|-------------|---------|
| Unwanted Emissions that fall Outside of the Restricted Bands(Radiated) | 5150-5250 | 15.407(b)(1) 15.407(b)(6) 15.407(b)(7) 15.209 | F<1GHz: §15.209/§7.2.5 limit (QP). F≥1GHz & out-restricted: <-27dBm/MHz PK e.i.r.p. (exl. 5.15-5.35 GHz). F≥1GHz & in-restricted: §15.209/§7.2.5 limit (AV&PK). | Clause 4.4 | Pass |
| | 5250-5350 | 15.407(b)(2) 15.407(b)(6) 15.407(b)(7) 15.209 | F<1GHz: §15.209/§7.2.5 limit (QP). F≥1GHz & out-restricted: <-27dBm/MHz PK e.i.r.p. (exl. 5.25-5.35 GHz). F≥1GHz & in-restricted: §15.209/§7.2.5 limit (AV&PK). | | |
| | 5470-5725 | 15.407(b)(3) 15.407(b)(6) 15.407(b)(7) 15.209 | F<1GHz: §15.209/§7.2.5 limit (QP). F≥1GHz & out-restricted: <-27dBm/MHz PK e.i.r.p. (exl. 5.47-5.725 GHz). F≥1GHz & in-restricted: §15.209/§7.2.5 limit (AV&PK). | | |
| | 5725-5850 | 15.407(b)(4) 15.407(b)(6) 15.407(b)(7) 15.209 | F<1GHz: §15.209/§7.2.5 limit (QP) F≥1GHz & out-restricted:(QP) a) 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges; b) 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges; c) 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and d) -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges. F≥1GHz & in-restricted: §15.209/§7.2.5 limit (AV&PK). | | |



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| Test Item | Band | FCC Rule | Requirements | Test Result | Verdict |
|---|--|----------|--------------|-------------|---------|
| AC Power Line Conducted Emissions | 5150-5250 5250-5350 5470-5725 5725-5850 | 15.207 | --- | Clause 4.2 | Pass |
| Unwanted Emissions in the Restricted Bands (Radiated) | 5150-5250 5250-5350 5470-5725 5725-5850 | 15.209 | --- | Clause 4.3 | Pass |

Remark:

Only the worst case CE and RSE data were retested with the wireless charging case and the data displayed in this report, other data can refer to the original report (Report No.: HR/2018/C000501)

Wireless charging case:

| | |
|-------------------------|-------------------------------|
| Wireless charging case | C-ELE Wireless charging case |
| Manufacturer | Huawei Technologies Co., Ltd. |
| Wireless charging power | 10W max |
| Connector rating | 5A max |
| Rated operating voltage | 9V |
| Charging efficiency | >75% |
| Operating temperature | -10 °C~40 °C |
| Storage temperature | -40 °C~70 °C |



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3 General Information

3.1 Client Information

| | |
|--------------------------|---|
| Applicant: | Huawei Technologies Co., Ltd. |
| Address of Applicant: | Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C |
| Manufacturer: | Huawei Technologies Co., Ltd. |
| Address of Manufacturer: | Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C |

3.2 Test Location

| | |
|------------|---|
| Company: | SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch |
| Address: | No. 1 Workshop, M-10, Middle section, Science & Technology Park, Shenzhen, Guangdong, China |
| Post code: | 518057 |
| Telephone: | +86 (0) 755 2601 2053 |
| Fax: | +86 (0) 755 2671 0594 |
| E-mail: | ee.shenzhen@sgs.com |

3.3 Test Facility

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

• **CNAS (No. CNAS L2929)**

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• **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.

• **VCCI**

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.

• **Industry Canada (IC)**

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.



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3.4 General Description of EUT

| | |
|---------------------------------|---|
| EUT Description:: | Smart Phone |
| Model No.: | ELE-L04 |
| Trade Mark: | HUAWEI |
| Hardware Version: | HL1ELLEM |
| Software Version: | 5.0.1.43 (C792E8R1P7log) |
| IEEE 802.11 WLAN Mode Supported | <input checked="" type="checkbox"/> 802.11a (20 MHz channel bandwidth) ; <input checked="" type="checkbox"/> 802.11n (20 MHz channel bandwidth); <input checked="" type="checkbox"/> 802.11n (40 MHz channel bandwidth); <input checked="" type="checkbox"/> 802.11ac (20 MHz channel bandwidth); <input checked="" type="checkbox"/> 802.11ac (40 MHz channel bandwidth); <input checked="" type="checkbox"/> 802.11ac (80 MHz channel bandwidth) ; <input checked="" type="checkbox"/> 802.11ac (160 MHz channel bandwidth) |
| Operation Frequency: | IEEE 802.11a/ n(HT20/40)/ ac(HT20/40/80/160): 5150MHz to 5250MHz IEEE 802.11a/ n(HT20/40)/ ac(HT20/40/80/160): 5250MHz to 5350MHz IEEE 802.11a/ n(HT20/40)/ ac(HT20/40/80/160): 5470MHz to 5725MHz IEEE 802.11a/ n(HT20/40)/ ac(HT20/40/80): 5725MHz to 5850MHz |
| Type of Modulation: | OFDM |
| DFS mode: | <input type="checkbox"/> Master <input type="checkbox"/> Slave with radar detection <input checked="" type="checkbox"/> Slave without radar detection |
| Sample Type: | <input checked="" type="checkbox"/> Portable Device, <input type="checkbox"/> Module |
| Antenna Type: | <input type="checkbox"/> External, <input checked="" type="checkbox"/> Integrated |
| Antenna Ports | <input checked="" type="checkbox"/> Ant 1, <input checked="" type="checkbox"/> Ant 2, <input type="checkbox"/> Ant 3 |
| Smart System | <input checked="" type="checkbox"/> SISO (for 802.11a/n/ac), <input checked="" type="checkbox"/> MIMO (for 802.11n/ac), <input type="checkbox"/> Diversity (for 802.11a) : Tx & Rx |
| Antenna Gain: | ANT1:-2.12dBi, ANT2:-2.01dBi |
| Power Supply | <input checked="" type="checkbox"/> AC/DC Adapter; <input type="checkbox"/> PoE; <input type="checkbox"/> Other: |
| EUT Power Supply: | Battery Model: HB436380ECW Rated capacity: 3550mAh Nominal Voltage: <input checked="" type="checkbox"/> +3.85V Charging Voltage: <input checked="" type="checkbox"/> +4.43V |
| AC adaptor: | Model: HW-050450B00 Manufacturer: Huawei Technologies Co., Ltd. Input: 100V-240V~50/60Hz, 0.75A Output: 5V <input checked="" type="checkbox"/> 2A OR 4.5V <input checked="" type="checkbox"/> 5A OR 5V <input checked="" type="checkbox"/> 4.5A Model: HW-050450E00 Manufacturer: Huawei Technologies Co., Ltd. Input: 100V-240V~50/60Hz, 0.75A Output: 5V <input checked="" type="checkbox"/> 2A OR 4.5V <input checked="" type="checkbox"/> 5A OR 5V <input checked="" type="checkbox"/> 4.5A |



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| | |
|--|---|
| | <p>Model: HW-050450U00 Manufacturer: Huawei Technologies Co., Ltd. Input: 100V-240V~50/60Hz, 0.75A</p> <p>Output: 5V === 2A OR 4.5V === 5A OR 5V === 4.5A</p> <p>Model: HW-050450A00 Manufacturer: Huawei Technologies Co., Ltd. Input: 100V-240V~50/60Hz, 0.75A</p> <p>Output: 5V === 2A OR 4.5V === 5A OR 5V === 4.5A</p> <p>Model: HW-050450E01 Manufacturer: Huawei Technologies Co., Ltd. Input: 100V-240V~50/60Hz, 0.75A</p> <p>Output: 5V === 2A OR 9V === 2A</p> <p>Model: HW-050450A01 Manufacturer: Huawei Technologies Co., Ltd. Input: 100V-240V~50/60Hz, 0.75A</p> <p>Output: 5V === 2A OR 4.5V === 5A OR 5V === 4.5A</p> |
|--|---|

Remark:

In FCC 15.31, for each band in which the device can be operated with the device operating at the number of frequencies in each band specified in the following table, and the selected channel to perform the test as below:

| Frequency Range of Operation Operating Frequency Range (in each Band) | Number of Measurement Frequencies Required | Location of Measurement Frequency in Band of Operation |
|--|---|---|
| 1 MHz or less | 1 | centre |
| 1 MHz to 10 MHz | 2 | 1 near high end, 1 near low end |
| Greater than 10 MHz | 3 | 1 near high end, 1 near centre |

For UNII Band I:

| Mode | Channel | Frequency(MHz) |
|-------------------------|---------------------|----------------|
| IEEE 802.11a/n/ac 20MHz | The Lowest channel | 5180 |
| | The Middle channel | 5200 |
| | The Highest channel | 5240 |
| IEEE 802.11n/ac 40MHz | The Lowest channel | 5190 |
| | The Highest channel | 5230 |
| IEEE 802.11ac 80MHz | The Middle channel | 5210 |

For UNII Band II-A:

| Mode | Channel | Frequency(MHz) |
|-------------------------|---------------------|----------------|
| IEEE 802.11a/n/ac 20MHz | The Lowest channel | 5260 |
| | The Middle channel | 5280 |
| | The Highest channel | 5320 |



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| | | |
|-----------------------|---------------------|------|
| IEEE 802.11n/ac 40MHz | The Lowest channel | 5270 |
| | The Highest channel | 5310 |
| IEEE 802.11ac 80MHz | The Middle channel | 5290 |
| IEEE 802.11ac 160MHz | The Middle channel | 5250 |

For UNII Band II-C:

| Mode | Channel | Frequency(MHz) |
|-------------------------|---------------------|----------------|
| IEEE 802.11a/n/ac 20MHz | The Lowest channel | 5500 |
| | The Middle channel | 5580 |
| | The Highest channel | 5700 |
| IEEE 802.11n/ac 40MHz | The Lowest channel | 5510 |
| | The Middle channel | 5500 |
| | The Highest channel | 5670 |
| IEEE 802.11ac 80MHz | The Lowest channel | 5500 |
| | The Highest channel | 5580 |
| IEEE 802.11ac 160MHz | The Middle channel | 5570 |

For UNII Band III:

| Mode | Channel | Frequency(MHz) |
|-------------------------|---------------------|----------------|
| IEEE 802.11a/n/ac 20MHz | The Lowest channel | 5745 |
| | The Middle channel | 5785 |
| | The Highest channel | 5825 |
| IEEE 802.11n/ac 40MHz | The Lowest channel | 5755 |
| | The Highest channel | 5795 |
| IEEE 802.11ac 80MHz | The Middle channel | 5775 |

3.5 Test Environment and Mode

| Operating Environment: | |
|------------------------|--|
| Temperature: | 25.0 °C |
| Humidity: | 55 % RH |
| Atmospheric Pressure: | 101.32 KPa |
| Test mode: | |
| Transmitting mode: | Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate. |



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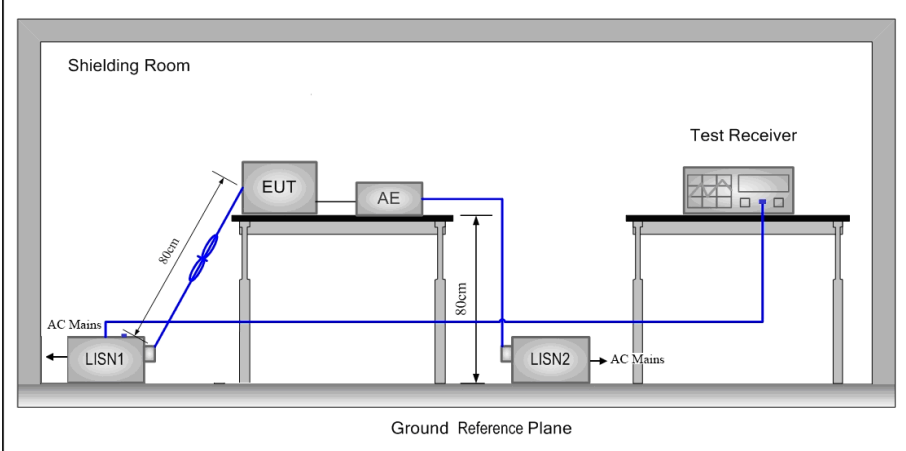


4 Test results and Measurement Data

4.1 Conducted Emissions

| | | | |
|--|---|--------------|-----------|
| Test Requirement: | 47 CFR Part 15 Section 15.407(b) | | |
| Test Method: | ANSI C63.10: 2013 | | |
| Test Frequency Range: | 150kHz to 30MHz | | |
| Limit: | Frequency range (MHz) | Limit (dBuV) | |
| | | Quasi-peak | Average |
| | 0.15-0.5 | 66 to 56* | 56 to 46* |
| | 0.5-5 | 56 | 46 |
| | 5-30 | 60 | 50 |
| * Decreases with the logarithm of the frequency. | | | |
| Test Procedure: | <ol style="list-style-type: none">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 50Ω/50μH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement. | | |



| | |
|--------------------------|--|
| <p>Test Setup:</p> |  |
| <p>Exploratory Mode:</p> | <p>Test Transmitting with all kind of modulations, data rates at lowest, middle and highest channel.</p> |
| <p>Final Test Mode:</p> | <p>Through Pre-scan, find the 6Mbps of rate of 802.11a at lowest channel is the worst case. Only the worst case is recorded in the report.</p> |
| <p>Instruments Used:</p> | <p>Refer to section 5.10 for details</p> |
| <p>Test Results:</p> | <p>Pass</p> |

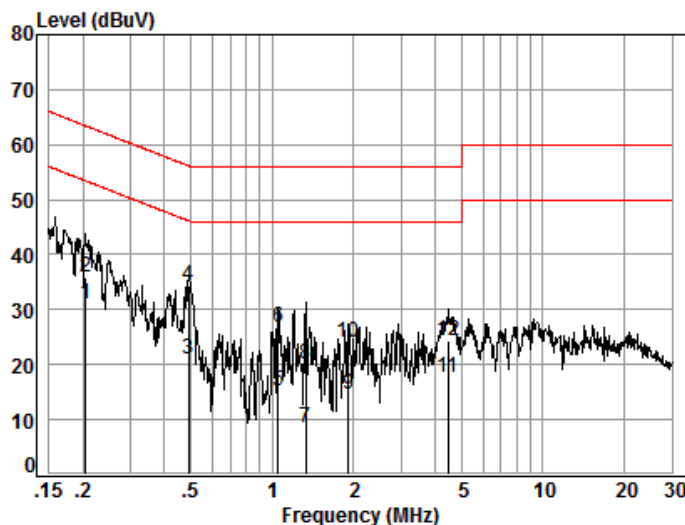
Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.



Wireless charging case Live Line:



Site : Shielding Room

Condition: Line

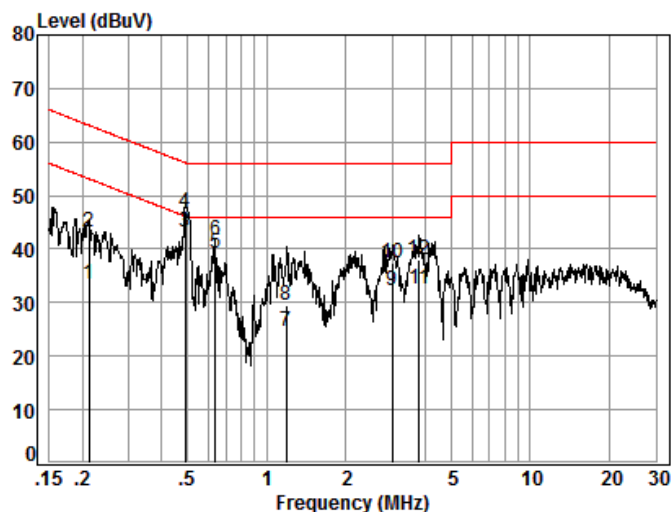
Job No. : 10958

Test mode: a

| | Freq | Cable Loss | LISN Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|----|------|------------|-------------|------------|-------|------------|------------|---------|
| | MHz | dB | dB | dBuV | dBuV | dBuV | dB | |
| 1 | 0.20 | 0.02 | 9.66 | 21.38 | 31.06 | 53.45 | -22.39 | Average |
| 2 | 0.20 | 0.02 | 9.66 | 26.26 | 35.94 | 63.45 | -27.51 | QP |
| 3 | 0.49 | 0.06 | 9.67 | 11.31 | 21.04 | 46.14 | -25.10 | Average |
| 4 | 0.49 | 0.06 | 9.67 | 24.77 | 34.50 | 56.14 | -21.64 | QP |
| 5 | 1.05 | 0.09 | 9.74 | 5.44 | 15.27 | 46.00 | -30.73 | Average |
| 6 | 1.05 | 0.09 | 9.74 | 16.89 | 26.72 | 56.00 | -29.28 | QP |
| 7 | 1.33 | 0.12 | 9.73 | -1.28 | 8.57 | 46.00 | -37.43 | Average |
| 8 | 1.33 | 0.12 | 9.73 | 10.22 | 20.07 | 56.00 | -35.93 | QP |
| 9 | 1.92 | 0.16 | 9.72 | 4.64 | 14.52 | 46.00 | -31.48 | Average |
| 10 | 1.92 | 0.16 | 9.72 | 14.10 | 23.98 | 56.00 | -32.02 | QP |
| 11 | 4.48 | 0.16 | 9.73 | 7.82 | 17.71 | 46.00 | -28.29 | Average |
| 12 | 4.48 | 0.16 | 9.73 | 14.30 | 24.19 | 56.00 | -31.81 | QP |



Wireless charging case Neutral Line:



Site : Shielding Room

Condition: Neutral

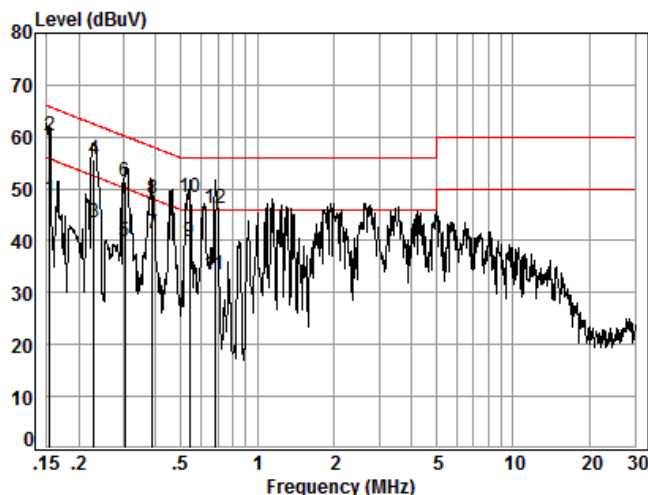
Job No. : 10958

Test mode: a

| | Freq | Cable Loss | LISN Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|----|------|------------|-------------|------------|-------|------------|------------|---------|
| | MHz | dB | dB | dBuV | dBuV | dBuV | dB | |
| 1 | 0.21 | 0.02 | 9.64 | 23.80 | 33.46 | 53.14 | -19.68 | Average |
| 2 | 0.21 | 0.02 | 9.64 | 33.64 | 43.30 | 63.14 | -19.84 | QP |
| 3 | 0.49 | 0.06 | 9.64 | 33.60 | 43.30 | 46.14 | -2.84 | Average |
| 4 | 0.49 | 0.06 | 9.64 | 37.00 | 46.70 | 56.14 | -9.44 | QP |
| 5 | 0.64 | 0.07 | 9.64 | 29.59 | 39.30 | 46.00 | -6.70 | Average |
| 6 | 0.64 | 0.07 | 9.64 | 31.95 | 41.66 | 56.00 | -14.34 | QP |
| 7 | 1.19 | 0.11 | 9.70 | 14.83 | 24.64 | 46.00 | -21.36 | Average |
| 8 | 1.19 | 0.11 | 9.70 | 19.59 | 29.40 | 56.00 | -26.60 | QP |
| 9 | 2.99 | 0.16 | 9.68 | 22.28 | 32.12 | 46.00 | -13.88 | Average |
| 10 | 2.99 | 0.16 | 9.68 | 27.46 | 37.30 | 56.00 | -18.70 | QP |
| 11 | 3.80 | 0.16 | 9.69 | 22.62 | 32.47 | 46.00 | -13.53 | Average |
| 12 | 3.80 | 0.16 | 9.69 | 28.11 | 37.96 | 56.00 | -18.04 | QP |



Wireless charging case + USB Cable charging Live Line:



Site : Shielding Room

Condition: Line

Job No. : 10958

Test mode: b

| | Freq | Cable Loss | LISN Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|----|------|------------|-------------|------------|-------|------------|------------|---------|
| | MHz | dB | dB | dBuV | dBuV | dBuV | dB | |
| 1 | 0.15 | 0.01 | 9.66 | 38.49 | 48.16 | 55.78 | -7.62 | Average |
| 2 | 0.15 | 0.01 | 9.66 | 50.49 | 60.16 | 65.78 | -5.62 | QP |
| 3 | 0.23 | 0.03 | 9.67 | 33.72 | 43.42 | 52.48 | -9.06 | Average |
| 4 | 0.23 | 0.03 | 9.67 | 46.08 | 55.78 | 62.48 | -6.70 | QP |
| 5 | 0.30 | 0.04 | 9.67 | 30.22 | 39.93 | 50.15 | -10.22 | Average |
| 6 | 0.30 | 0.04 | 9.67 | 41.75 | 51.46 | 60.15 | -8.69 | QP |
| 7 | 0.39 | 0.05 | 9.67 | 31.79 | 41.51 | 48.12 | -6.61 | Average |
| 8 | 0.39 | 0.05 | 9.67 | 38.23 | 47.95 | 58.12 | -10.17 | QP |
| 9 | 0.54 | 0.06 | 9.67 | 30.09 | 39.82 | 46.00 | -6.18 | Average |
| 10 | 0.54 | 0.06 | 9.67 | 38.59 | 48.32 | 56.00 | -7.68 | QP |
| 11 | 0.68 | 0.07 | 9.68 | 23.67 | 33.42 | 46.00 | -12.58 | Average |
| 12 | 0.68 | 0.07 | 9.68 | 36.46 | 46.21 | 56.00 | -9.79 | QP |



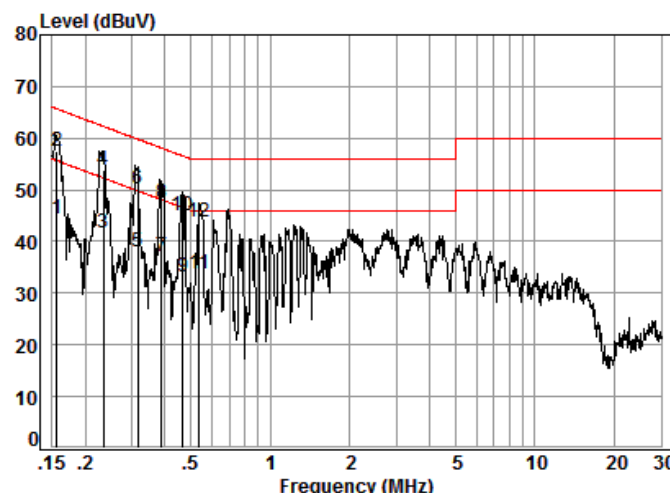
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Wireless charging case + USB Cable charging Neutral Line:



Site : Shielding Room

Condition: Neutral

Job No. : 10958

Test mode: b

| | Freq | Cable | LISN | Read | Limit | Over | |
|----|------|-------|--------|-------|-------|-------|----------------|
| | MHz | Loss | Factor | Level | Line | Limit | Remark |
| | MHz | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.16 | 0.01 | 9.63 | 34.90 | 44.54 | 55.69 | -11.15 Average |
| 2 | 0.16 | 0.01 | 9.63 | 47.86 | 57.50 | 65.69 | -8.19 QP |
| 3 | 0.23 | 0.03 | 9.64 | 31.86 | 41.53 | 52.30 | -10.77 Average |
| 4 | 0.23 | 0.03 | 9.64 | 44.19 | 53.86 | 62.30 | -8.44 QP |
| 5 | 0.31 | 0.04 | 9.64 | 28.25 | 37.93 | 49.84 | -11.91 Average |
| 6 | 0.31 | 0.04 | 9.64 | 40.46 | 50.14 | 59.84 | -9.70 QP |
| 7 | 0.39 | 0.05 | 9.65 | 27.34 | 37.04 | 48.08 | -11.04 Average |
| 8 | 0.39 | 0.05 | 9.65 | 37.63 | 47.33 | 58.08 | -10.75 QP |
| 9 | 0.47 | 0.06 | 9.64 | 23.45 | 33.15 | 46.58 | -13.43 Average |
| 10 | 0.47 | 0.06 | 9.64 | 35.30 | 45.00 | 56.58 | -11.58 QP |
| 11 | 0.54 | 0.06 | 9.64 | 23.94 | 33.64 | 46.00 | -12.36 Average |
| 12 | 0.54 | 0.06 | 9.64 | 34.24 | 43.94 | 56.00 | -12.06 QP |

Notes:

1. The following Quasi-Peak and Average measurements were performed on the EUT:

2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.



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4.2 Radiated Spurious Emissions

| | |
|-------------------|---|
| Test Requirement: | 47 CFR Part 15 Section 15.407(b) |
| Test Method: | ANSI C63.10: 2013 |
| Test Site: | Measurement Distance: 3m or 10m (Semi-Anechoic Chamber) |
| Test Setup: | |

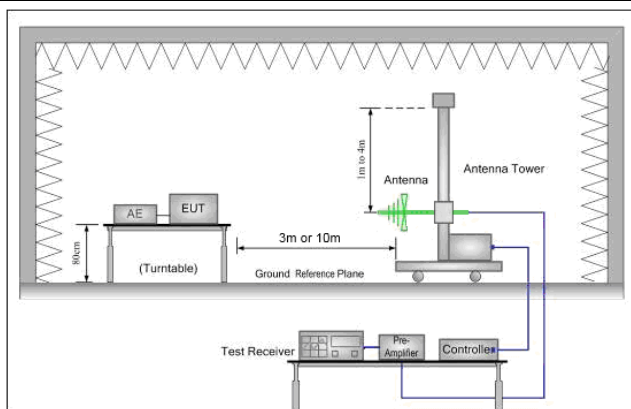


Figure 1. 30MHz to 1GHz

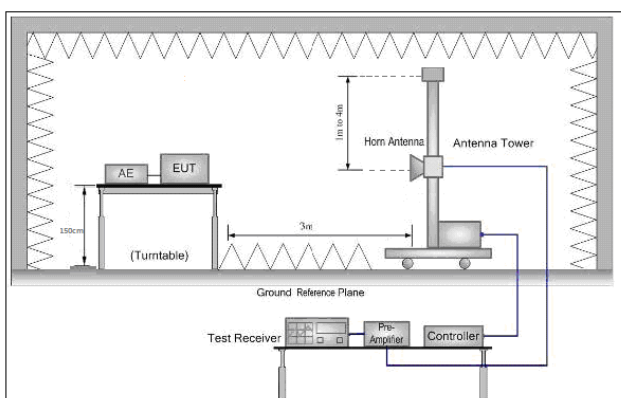


Figure 2. Above 1 GHz

| | |
|-----------------|--|
| Test Procedure: | <ol style="list-style-type: none"> For below 1GHz test, 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. For above 1GHz test, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. 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. 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. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. Test the EUT in the outermost channels. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is worse case. |
|-----------------|--|



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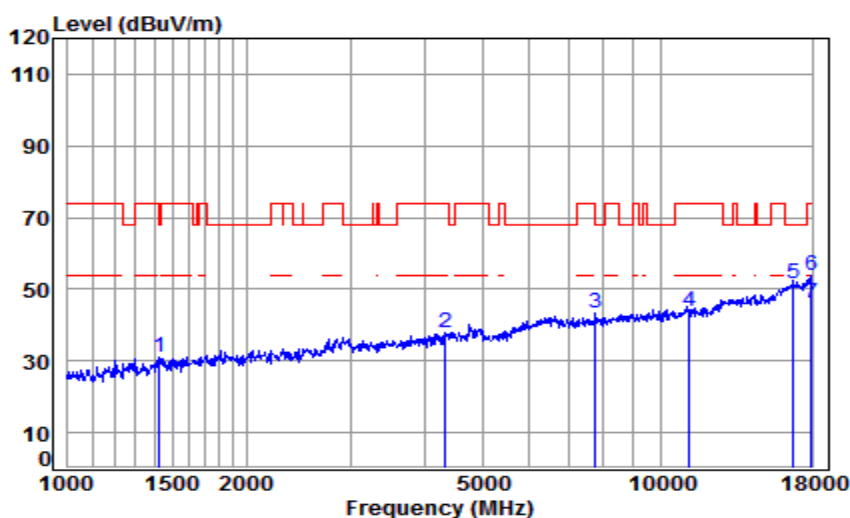


| | |
|------------------------|--|
| | i. Repeat above procedures until all frequencies measured was complete. |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates. |
| Final Test Mode: | Through Pre-scan, find the 6Mbps of rate is the worst case of 802.11a; MCS0 of rate is the worst case of 802.11n(HT20); MCS0 of rate is the worst case of 802.11n(HT40); MCSAC0 of rate is the worst case of 802.11ac(HT20); MCSAC0 of rate is the worst case of 802.11ac(HT40); MCSAC0 of rate is the worst case of 802.11ac(HT80); MCSAC0 of rate is the worst case of 802.11ac(HT160) For below 1GHz, through Pre-scan, find the 1Mbps of rate of 802.11a at lowest channel is the worst case. Only the worst case is recorded in the report. |
| Instruments Used: | Refer to section 6 for details |
| Test Results: | Pass |



4.2.1 Transmitter emission above 1GHz (CDD & MIMO) Wireless charging case + USB Cable charging

4.2.1.1 11A20_CDD_116_Vertical

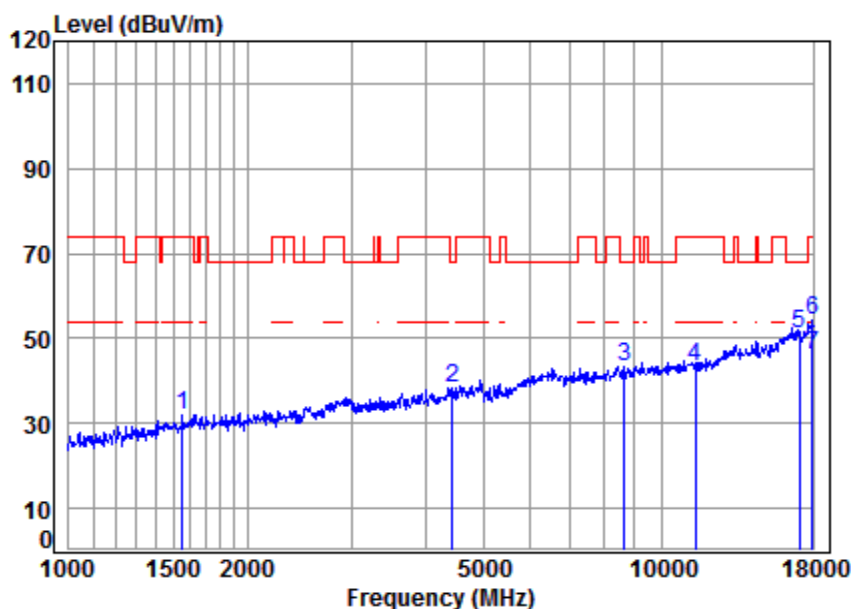


Site : chamber
Condition: 3m VERTICAL
Job No : 10985CR
Mode : 5580 TX RSE
Note : 5G WIFI 11A

| | | Cable | Ant | Preamp | Read | Limit | Over | |
|------|-----------|-------|--------|--------|-------|--------|--------|---------------|
| Freq | | Loss | Factor | Factor | Level | Level | Limit | Remark |
| MHz | | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 | 1426.916 | 5.24 | 25.53 | 40.66 | 41.03 | 31.14 | 74.00 | -42.86 peak |
| 2 | 4341.886 | 7.38 | 33.33 | 43.14 | 40.30 | 37.87 | 74.00 | -36.13 peak |
| 3 | 7762.260 | 9.97 | 36.51 | 41.46 | 38.14 | 43.16 | 68.20 | -25.04 peak |
| 4 | 11160.000 | 11.80 | 37.83 | 38.34 | 32.32 | 43.61 | 74.00 | -30.39 peak |
| 5 | 16740.000 | 15.57 | 42.39 | 40.40 | 33.82 | 51.38 | 68.20 | -16.82 peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 34.71 | 54.02 | 74.00 | -19.98 Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 26.61 | 45.92 | 54.00 | -8.08 Average |



4.2.1.2 11A20_CDD_140_Vertical

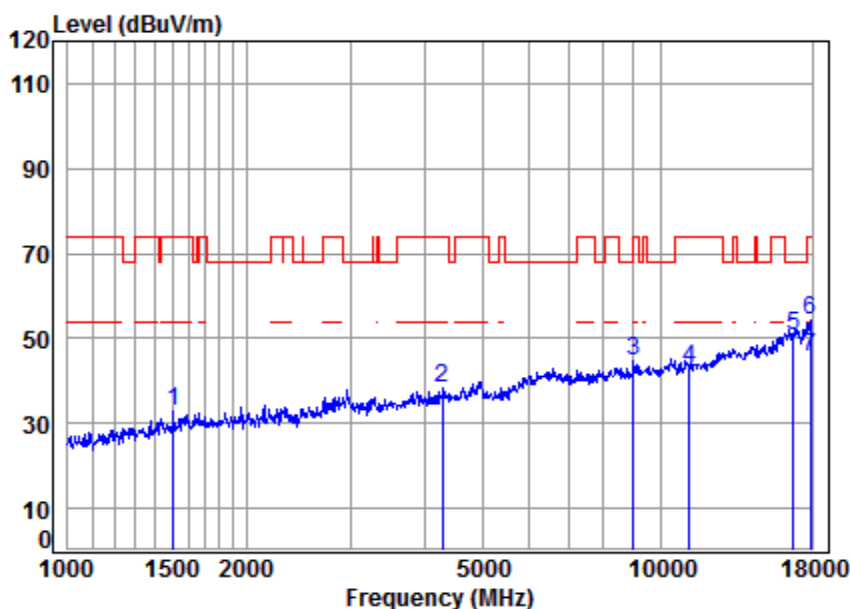


Site : chamber
 Condition: 3m VERTICAL
 Job No : 10985CR
 Mode : 5700 TX RSE
 Note : 5G WIFI 11A

| | | Cable | Ant | Preamp | Read | Limit | Over | |
|---|-----------|-------|--------|--------|-------|--------|--------|---------------|
| | Freq | Loss | Factor | Factor | Level | Level | Line | Limit Remark |
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 | 1556.169 | 5.41 | 26.06 | 40.74 | 41.10 | 31.83 | 74.00 | -42.17 peak |
| 2 | 4430.628 | 7.48 | 33.48 | 43.23 | 40.49 | 38.22 | 68.20 | -29.98 peak |
| 3 | 8638.399 | 10.31 | 37.06 | 40.10 | 36.20 | 43.47 | 68.20 | -24.73 peak |
| 4 | 11400.000 | 12.04 | 37.88 | 38.45 | 31.91 | 43.38 | 74.00 | -30.62 peak |
| 5 | 17100.000 | 16.49 | 42.66 | 40.34 | 32.19 | 51.00 | 68.20 | -17.20 peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 35.14 | 54.45 | 74.00 | -19.55 Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 26.64 | 45.95 | 54.00 | -8.05 Average |



4.2.1.3 11A20_CDD_116 _ Horizontal

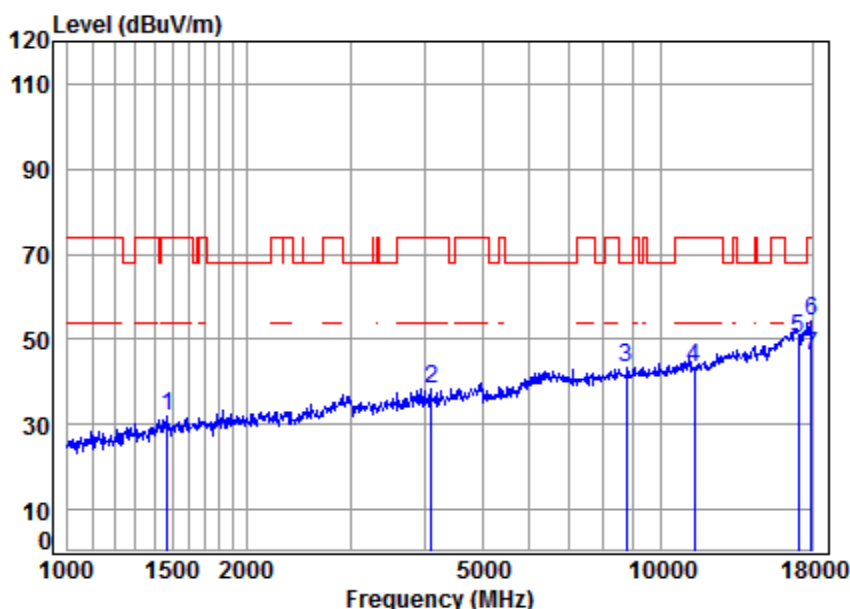


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10985CR
Mode : 5580TX RSE
Note : 5G WIFI 11A

| | | Cable | Ant | Preamp | Read | Limit | Over | |
|---|-----------|-------|--------|--------|-------|--------|--------|---------------|
| | Freq | Loss | Factor | Factor | Level | Level | Line | Limit Remark |
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 | 1507.470 | 5.47 | 25.83 | 40.71 | 42.14 | 32.73 | 74.00 | -41.27 peak |
| 2 | 4291.977 | 7.33 | 33.24 | 43.08 | 40.63 | 38.12 | 74.00 | -35.88 peak |
| 3 | 8995.123 | 10.40 | 37.20 | 39.46 | 36.63 | 44.77 | 68.20 | -23.43 peak |
| 4 | 11160.000 | 11.80 | 37.83 | 38.34 | 31.58 | 42.87 | 74.00 | -31.13 peak |
| 5 | 16740.000 | 15.57 | 42.39 | 40.40 | 33.08 | 50.64 | 68.20 | -17.56 peak |
| 6 | 17896.250 | 16.02 | 43.38 | 40.22 | 34.89 | 54.07 | 74.00 | -19.93 Peak |
| 7 | 17896.250 | 16.02 | 43.38 | 40.22 | 26.67 | 45.85 | 54.00 | -8.15 Average |



4.2.1.4 11A20_CDD_140 _ Horizontal

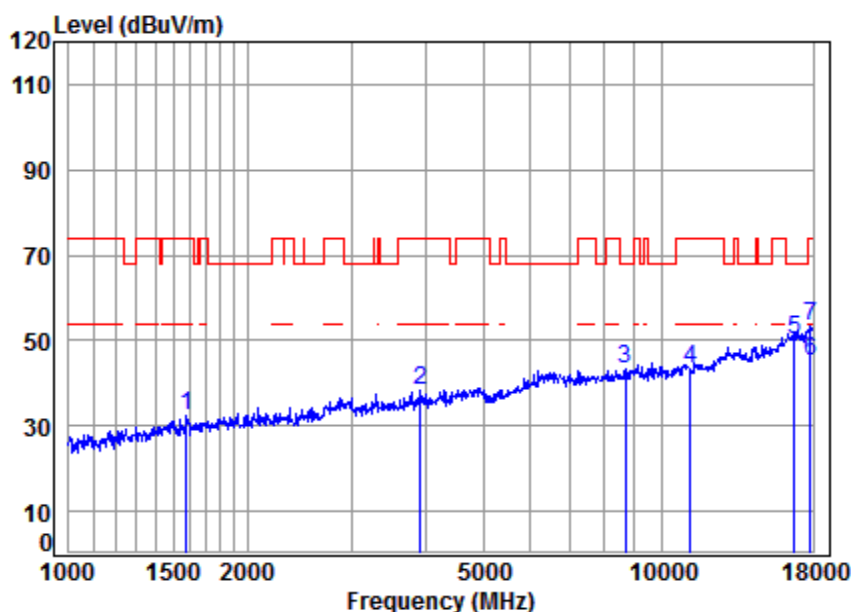


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10985CR
Mode : 5700 TX RSE
Note : 5G WIFI 11A

| | | Cable | Ant | Preamp | Read | Limit | Over | |
|---|-----------|-------|--------|--------|-------|--------|--------|---------------|
| | Freq | Loss | Factor | Factor | Level | Level | Line | Limit Remark |
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 | 1473.013 | 5.39 | 25.70 | 40.69 | 41.76 | 32.16 | 74.00 | -41.84 peak |
| 2 | 4098.010 | 7.10 | 32.88 | 42.87 | 41.28 | 38.39 | 74.00 | -35.61 peak |
| 3 | 8764.146 | 10.34 | 37.11 | 39.87 | 35.67 | 43.25 | 68.20 | -24.95 peak |
| 4 | 11400.000 | 12.04 | 37.88 | 38.45 | 31.88 | 43.35 | 74.00 | -30.65 peak |
| 5 | 17100.000 | 16.49 | 42.66 | 40.34 | 31.57 | 50.38 | 68.20 | -17.82 peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 35.01 | 54.32 | 74.00 | -19.68 Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 26.81 | 46.12 | 54.00 | -7.88 Average |



4.2.1.5 11N20_MIMO_116_Vertical

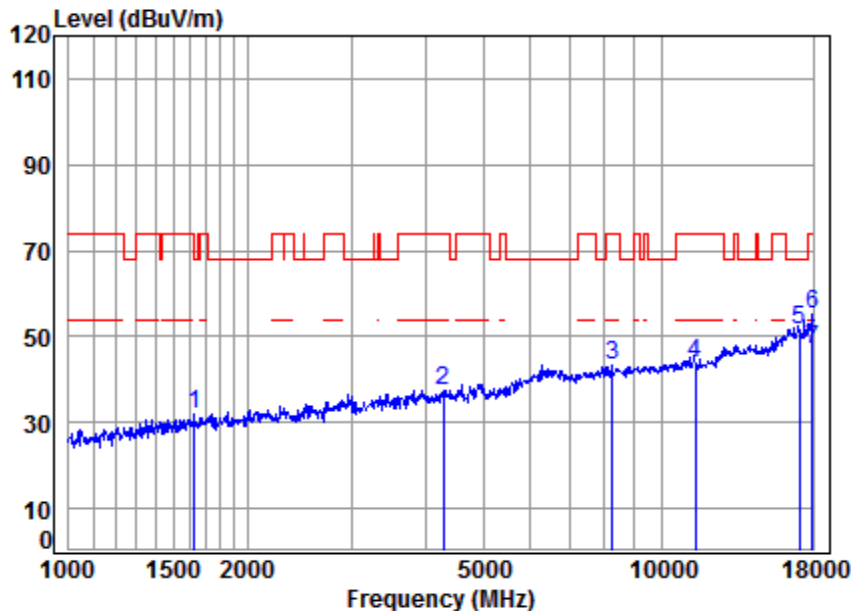


Site : chamber
Condition: 3m VERTICAL
Job No : 10985CR
Mode : 5580 TX RSE
Note : 5G WIFI 11N20

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|-----------|------------|------------|---------------|------------|--------|------------|------------|---------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1578.822 | 5.38 | 26.16 | 40.76 | 41.40 | 32.18 | 74.00 | -41.82 | peak |
| 2 | 3924.135 | 6.91 | 32.56 | 42.66 | 41.70 | 38.51 | 74.00 | -35.49 | peak |
| 3 | 8688.480 | 10.32 | 37.08 | 40.01 | 35.75 | 43.14 | 68.20 | -25.06 | peak |
| 4 | 11160.000 | 11.80 | 37.83 | 38.34 | 32.24 | 43.53 | 74.00 | -30.47 | peak |
| 5 | 16740.000 | 15.57 | 42.39 | 40.40 | 32.61 | 50.17 | 68.20 | -18.03 | peak |
| 6 | 17793.090 | 15.91 | 43.25 | 40.23 | 26.19 | 45.12 | 54.00 | -8.88 | Average |
| 7 | 17793.090 | 15.91 | 43.25 | 40.23 | 34.45 | 53.38 | 74.00 | -20.62 | Peak |



4.2.1.6 11N20_MIMO_140_Vertical

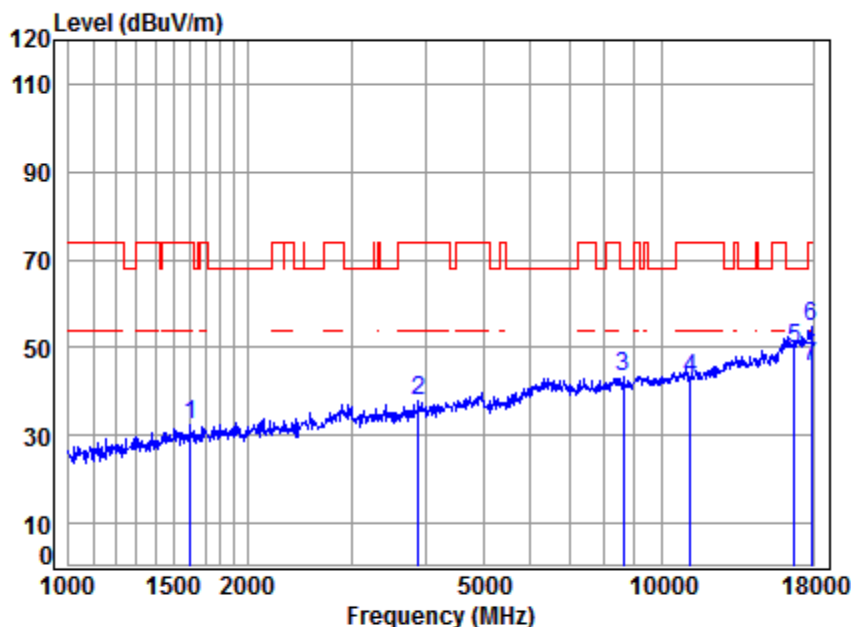


Site : chamber
Condition: 3m VERTICAL
Job No : 10985CR
Mode : 5700 TX RSE
Note : 5G WIFI 11N20

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit | Over Limit | Remark |
|---|-----------|------------|------------|---------------|------------|--------|--------|------------|---------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1629.825 | 5.31 | 26.38 | 40.79 | 41.14 | 32.04 | 68.20 | -36.16 | peak |
| 2 | 4279.589 | 7.31 | 33.22 | 43.07 | 40.06 | 37.52 | 74.00 | -36.48 | peak |
| 3 | 8248.005 | 10.11 | 36.85 | 40.82 | 37.33 | 43.47 | 74.00 | -30.53 | peak |
| 4 | 11400.000 | 12.04 | 37.88 | 38.45 | 32.36 | 43.83 | 74.00 | -30.17 | peak |
| 5 | 17100.000 | 16.49 | 42.66 | 40.34 | 32.66 | 51.47 | 68.20 | -16.73 | peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 36.08 | 55.39 | 74.00 | -18.61 | Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 27.58 | 46.89 | 54.00 | -7.11 | Average |



4.2.1.7 11N20_MIMO_116 _ Horizontal

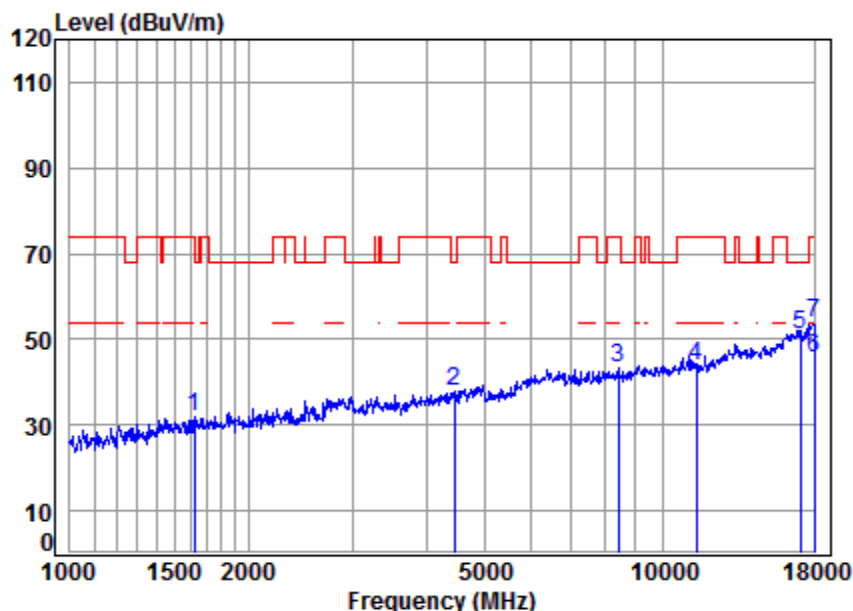


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10985CR
Mode : 5580 TX RSE
Note : 5G WIFI 11N20

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|-----------|------------|------------|---------------|------------|--------|------------|------------|---------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1601.804 | 5.35 | 26.26 | 40.77 | 41.60 | 32.44 | 74.00 | -41.56 | peak |
| 2 | 3890.255 | 6.87 | 32.49 | 42.62 | 40.98 | 37.72 | 74.00 | -36.28 | peak |
| 3 | 8613.468 | 10.30 | 37.05 | 40.14 | 36.29 | 43.50 | 68.20 | -24.70 | peak |
| 4 | 11160.000 | 11.80 | 37.83 | 38.34 | 31.66 | 42.95 | 74.00 | -31.05 | peak |
| 5 | 16740.000 | 15.57 | 42.39 | 40.40 | 32.02 | 49.58 | 68.20 | -18.62 | peak |
| 6 | 17896.250 | 16.02 | 43.38 | 40.22 | 35.39 | 54.57 | 74.00 | -19.43 | Peak |
| 7 | 17896.250 | 16.02 | 43.38 | 40.22 | 26.66 | 45.84 | 54.00 | -8.16 | Average |



4.2.1.8 11N20_MIMO_140 _ Horizontal

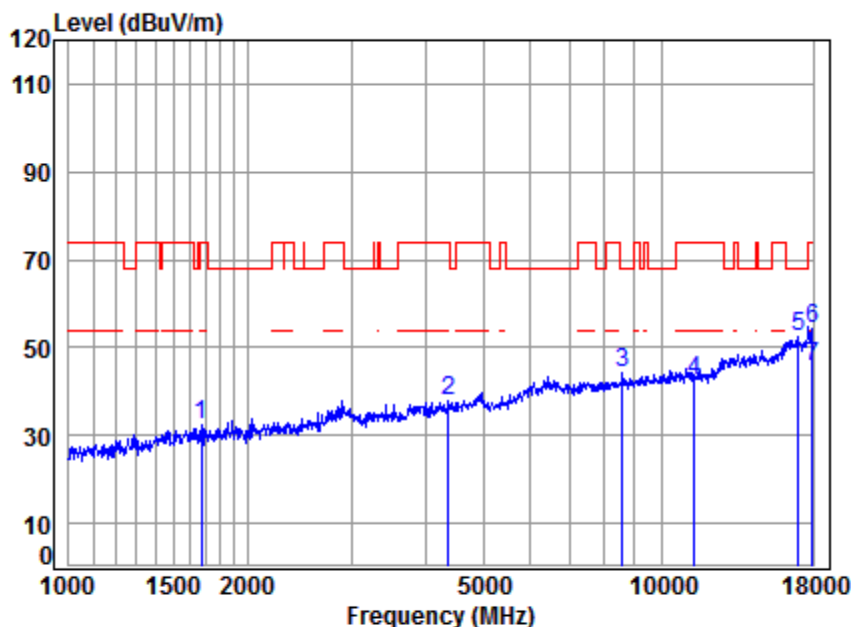


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10985CR
Mode : 5700 TX RSE
Note : 5G WIFI 11N20

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|-----------|------------|------------|---------------|------------|--------|------------|------------|---------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1620.431 | 5.32 | 26.34 | 40.78 | 41.09 | 31.97 | 74.00 | -42.03 | peak |
| 2 | 4456.315 | 7.51 | 33.53 | 43.26 | 39.94 | 37.72 | 68.20 | -30.48 | peak |
| 3 | 8416.584 | 10.22 | 36.95 | 40.50 | 36.75 | 43.42 | 74.00 | -30.58 | peak |
| 4 | 11400.000 | 12.04 | 37.88 | 38.45 | 32.41 | 43.88 | 74.00 | -30.12 | peak |
| 5 | 17100.000 | 16.49 | 42.66 | 40.34 | 32.16 | 50.97 | 68.20 | -17.23 | peak |
| 6 | 18000.000 | 16.13 | 43.50 | 40.20 | 26.08 | 45.51 | 54.00 | -8.49 | Average |
| 7 | 18000.000 | 16.13 | 43.50 | 40.20 | 34.18 | 53.61 | 74.00 | -20.39 | Peak |



4.2.1.9 11N40_MIMO_134_Vertical

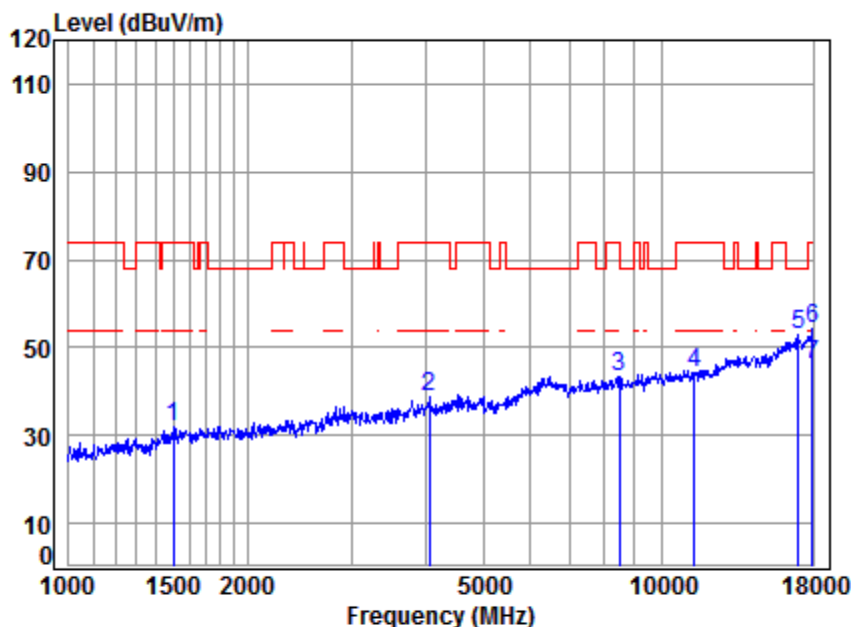


Site : chamber
Condition: 3m VERTICAL
Job No : 10985CR
Mode : 5670 TX RSE
Note : 5G WIFI 11N40

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|-----------|------------|------------|---------------|------------|--------|------------|------------|---------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1672.779 | 5.26 | 26.56 | 40.82 | 41.47 | 32.47 | 74.00 | -41.53 | peak |
| 2 | 4367.058 | 7.41 | 33.37 | 43.16 | 40.05 | 37.67 | 74.00 | -36.33 | peak |
| 3 | 8588.607 | 10.29 | 37.04 | 40.19 | 36.94 | 44.08 | 68.20 | -24.12 | peak |
| 4 | 11340.000 | 11.98 | 37.87 | 38.42 | 30.96 | 42.39 | 74.00 | -31.61 | peak |
| 5 | 17010.000 | 16.69 | 42.61 | 40.36 | 33.31 | 52.25 | 68.20 | -15.95 | peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 34.76 | 54.07 | 74.00 | -19.93 | Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 26.51 | 45.82 | 54.00 | -8.18 | Average |



4.2.1.10 11N40_MIMO_134 _ Horizontal

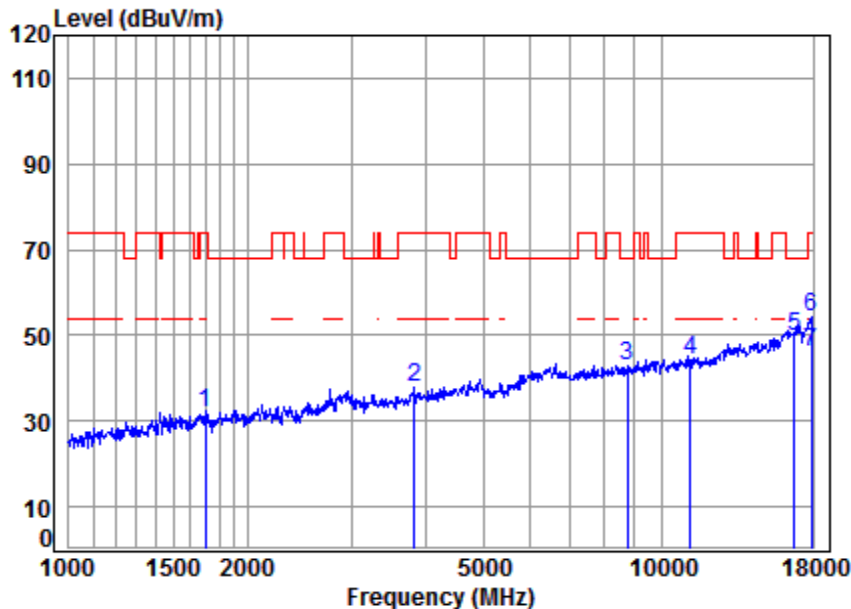


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10985CR
Mode : 5670 TX RSE
Note : 5G WIFI 11N40

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|-----------|------------|------------|---------------|------------|--------|------------|------------|---------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1498.781 | 5.48 | 25.80 | 40.71 | 41.53 | 32.10 | 74.00 | -41.90 | peak |
| 2 | 4062.629 | 7.06 | 32.82 | 42.82 | 41.84 | 38.90 | 74.00 | -35.10 | peak |
| 3 | 8489.882 | 10.26 | 36.99 | 40.37 | 36.37 | 43.25 | 74.00 | -30.75 | peak |
| 4 | 11340.000 | 11.98 | 37.87 | 38.42 | 32.93 | 44.36 | 74.00 | -29.64 | peak |
| 5 | 17010.000 | 16.69 | 42.61 | 40.36 | 34.13 | 53.07 | 68.20 | -15.13 | peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 35.15 | 54.46 | 74.00 | -19.54 | Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 26.79 | 46.10 | 54.00 | -7.90 | Average |



4.2.1.11 11AC20_MIMO_116_Vertical

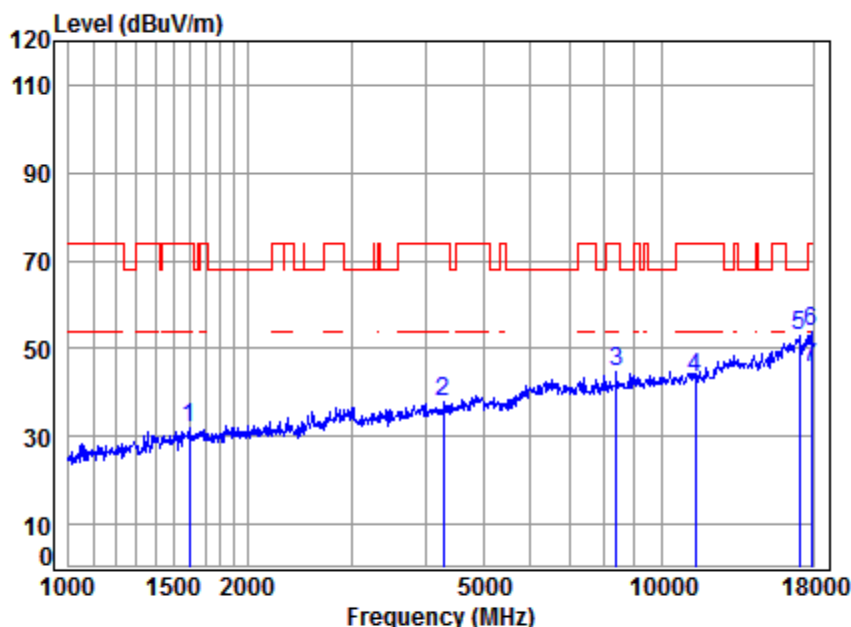


Site : chamber
Condition: 3m VERTICAL
Job No : 10985CR
Mode : 5580 TX RSE
Note : 5G WIFI 11AC20

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|-----------|------------|------------|---------------|------------|--------|------------|------------|---------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1697.129 | 5.23 | 26.66 | 40.83 | 41.00 | 32.06 | 74.00 | -41.94 | peak |
| 2 | 3834.438 | 6.82 | 32.38 | 42.55 | 41.07 | 37.72 | 74.00 | -36.28 | peak |
| 3 | 8738.852 | 10.33 | 37.10 | 39.91 | 35.49 | 43.01 | 68.20 | -25.19 | peak |
| 4 | 11160.000 | 11.80 | 37.83 | 38.34 | 33.18 | 44.47 | 74.00 | -29.53 | peak |
| 5 | 16740.000 | 15.57 | 42.39 | 40.40 | 32.38 | 49.94 | 68.20 | -18.26 | peak |
| 6 | 17896.250 | 16.02 | 43.38 | 40.22 | 35.08 | 54.26 | 74.00 | -19.74 | Peak |
| 7 | 17896.250 | 16.02 | 43.38 | 40.22 | 26.86 | 46.04 | 54.00 | -7.96 | Average |



4.2.1.12 11AC20_MIMO_140_Vertical

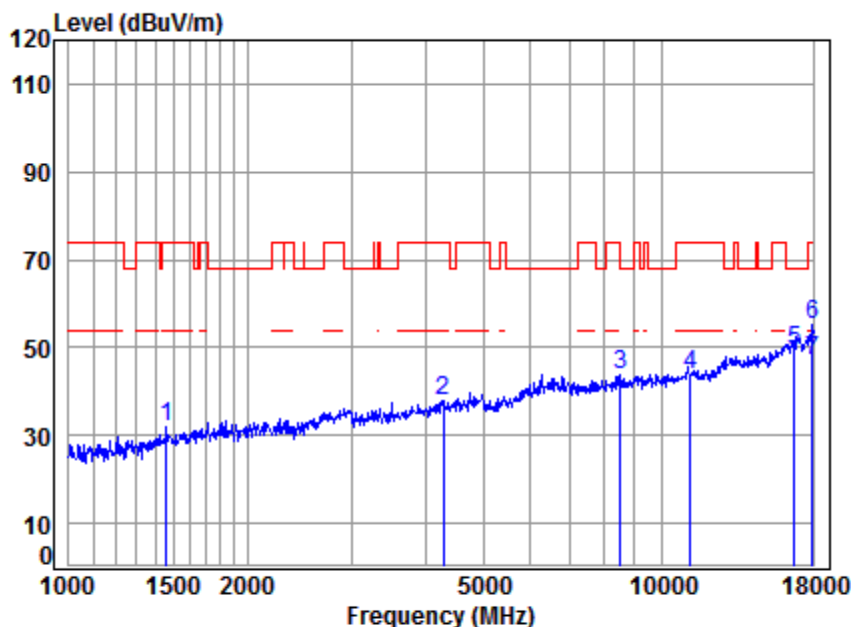


Site : chamber
Condition: 3m VERTICAL
Job No : 10985CR
Mode : 5700 TX RSE
Note : 5G WIFI 11AC20

| | | Cable | Ant | Preamp | Read | Limit | Over | |
|---|-----------|-------|--------|--------|-------|--------|--------|---------------|
| | Freq | Loss | Factor | Factor | Level | Level | Line | Limit Remark |
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 | 1597.181 | 5.35 | 26.24 | 40.77 | 41.15 | 31.97 | 74.00 | -42.03 peak |
| 2 | 4291.977 | 7.33 | 33.24 | 43.08 | 40.31 | 37.80 | 74.00 | -36.20 peak |
| 3 | 8392.292 | 10.20 | 36.94 | 40.55 | 38.16 | 44.75 | 74.00 | -29.25 peak |
| 4 | 11400.000 | 12.04 | 37.88 | 38.45 | 32.07 | 43.54 | 74.00 | -30.46 peak |
| 5 | 17100.000 | 16.49 | 42.66 | 40.34 | 33.96 | 52.77 | 68.20 | -15.43 peak |
| 6 | 17896.250 | 16.02 | 43.38 | 40.22 | 34.72 | 53.90 | 74.00 | -20.10 Peak |
| 7 | 17896.250 | 16.02 | 43.38 | 40.22 | 26.27 | 45.45 | 54.00 | -8.55 Average |



4.2.1.13 11AC20_MIMO_116 _ Horizontal

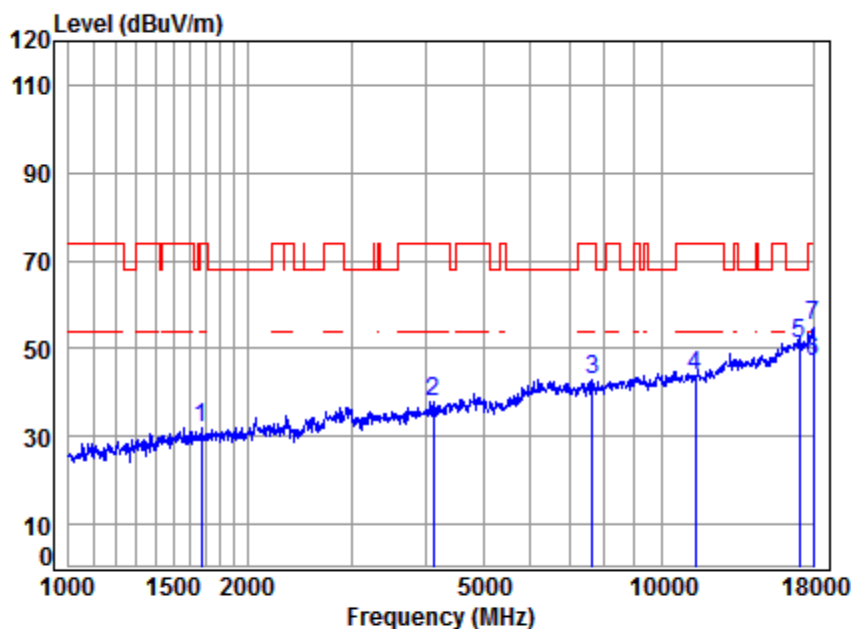


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10985CR
Mode : 5580 TX RSE
Note : 5G WIFI 11AC20

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|-----------|------------|------------|---------------|------------|--------|------------|------------|---------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1460.295 | 5.35 | 25.65 | 40.68 | 41.76 | 32.08 | 74.00 | -41.92 | peak |
| 2 | 4291.977 | 7.33 | 33.24 | 43.08 | 40.45 | 37.94 | 74.00 | -36.06 | peak |
| 3 | 8514.456 | 10.27 | 37.01 | 40.32 | 36.74 | 43.70 | 68.20 | -24.50 | peak |
| 4 | 11160.000 | 11.80 | 37.83 | 38.34 | 32.73 | 44.02 | 74.00 | -29.98 | peak |
| 5 | 16740.000 | 15.57 | 42.39 | 40.40 | 31.83 | 49.39 | 68.20 | -18.81 | peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 35.96 | 55.27 | 74.00 | -18.73 | Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 27.60 | 46.91 | 54.00 | -7.09 | Average |



4.2.1.14 11AC20_MIMO_140 _ Horizontal



Site : chamber

Condition: 3m HORIZONTAL

Job No : 10985CR

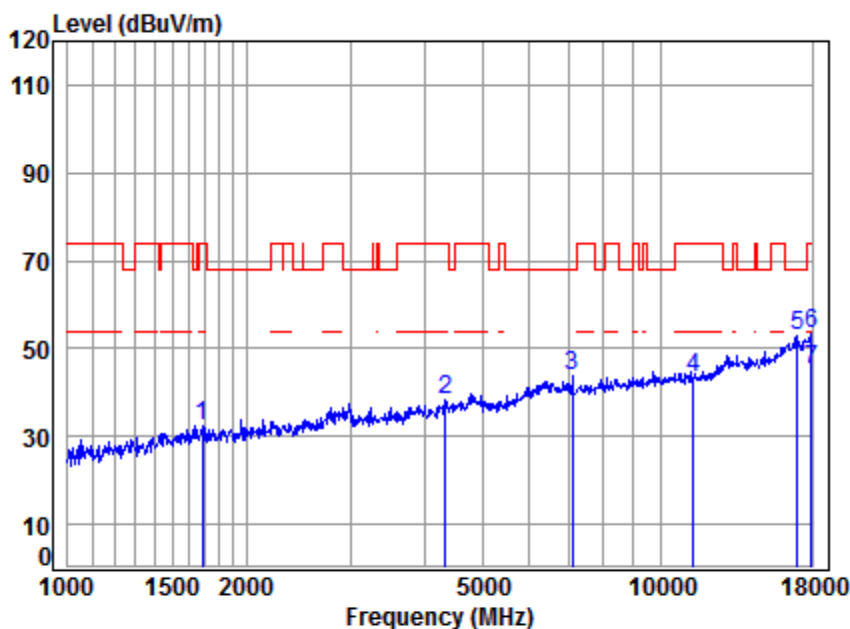
Mode : 5700 TX RSE

Note : 5G WIFI 11AC20

| | | Cable | Ant | Preamp | Read | | Limit | Over | |
|---|-----------|-------|--------|--------|-------|--------|--------|--------|---------|
| | 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 | 40.82 | 40.91 | 31.91 | 74.00 | -42.09 | peak |
| 2 | 4121.768 | 7.13 | 32.93 | 42.89 | 40.50 | 37.67 | 74.00 | -36.33 | peak |
| 3 | 7628.806 | 9.99 | 36.41 | 41.55 | 38.14 | 42.99 | 74.00 | -31.01 | peak |
| 4 | 11400.000 | 12.04 | 37.88 | 38.45 | 32.41 | 43.88 | 74.00 | -30.12 | peak |
| 5 | 17100.000 | 16.49 | 42.66 | 40.34 | 32.38 | 51.19 | 68.20 | -17.01 | peak |
| 6 | 18000.000 | 16.13 | 43.50 | 40.20 | 27.40 | 46.83 | 54.00 | -7.17 | Average |
| 7 | 18000.000 | 16.13 | 43.50 | 40.20 | 35.78 | 55.21 | 74.00 | -18.79 | Peak |



4.2.1.15 11AC40_MIMO_134_Vertical

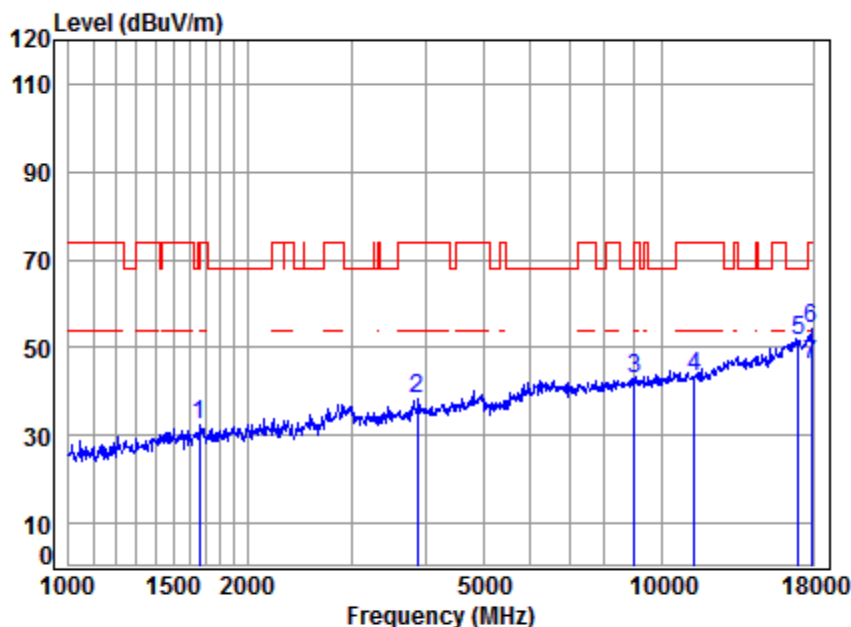


Site : chamber
Condition: 3m VERTICAL
Job No : 10985CR
Mode : 5670 TX RSE
Note : 5G WIFI 11AC40

| | | Cable | Ant | Preamp | Read | | Limit | Over | |
|---|-----------|-------|--------|--------|-------|--------|--------|--------|---------|
| | 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 | 40.82 | 41.18 | 32.22 | 74.00 | -41.78 | peak |
| 2 | 4341.886 | 7.38 | 33.33 | 43.14 | 40.64 | 38.21 | 74.00 | -35.79 | peak |
| 3 | 7096.999 | 10.10 | 35.98 | 41.94 | 39.83 | 43.97 | 68.20 | -24.23 | peak |
| 4 | 11340.000 | 11.98 | 37.87 | 38.42 | 31.88 | 43.31 | 74.00 | -30.69 | peak |
| 5 | 17010.000 | 16.69 | 42.61 | 40.36 | 33.92 | 52.86 | 68.20 | -15.34 | peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 34.21 | 53.52 | 74.00 | -20.48 | Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 26.04 | 45.35 | 54.00 | -8.65 | Average |



4.2.1.16 11AC40_MIMO_134_Horizontal



Site : chamber
Condition: 3m HORIZONTAL
Job No : 10985CR
Mode : 5670 TX RSE
Note : 5G WIFI 11AC40

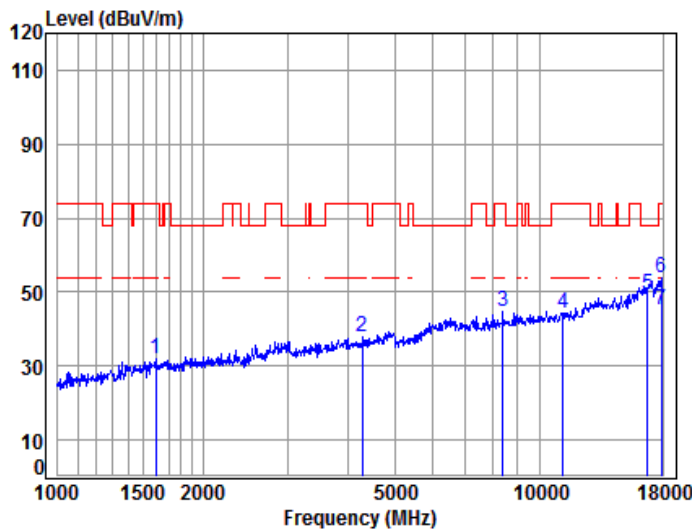
| | | Cable | Ant | Preamp | Read | | Limit | Over | |
|---|-----------|-------|--------|--------|-------|--------|--------|--------|---------|
| | Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1663.137 | 5.27 | 26.52 | 40.81 | 41.35 | 32.33 | 74.00 | -41.67 | peak |
| 2 | 3879.027 | 6.86 | 32.47 | 42.61 | 41.40 | 38.12 | 74.00 | -35.88 | peak |
| 3 | 8995.123 | 10.40 | 37.20 | 39.46 | 34.80 | 42.94 | 68.20 | -25.26 | peak |
| 4 | 11340.000 | 11.98 | 37.87 | 38.42 | 32.03 | 43.46 | 74.00 | -30.54 | peak |
| 5 | 17010.000 | 16.69 | 42.61 | 40.36 | 32.82 | 51.76 | 68.20 | -16.44 | peak |
| 6 | 17896.250 | 16.02 | 43.38 | 40.22 | 35.17 | 54.35 | 74.00 | -19.65 | Peak |
| 7 | 17896.250 | 16.02 | 43.38 | 40.22 | 27.11 | 46.29 | 54.00 | -7.71 | Average |



2121

4.2.2 Transmitter emission above 1GHz (CDD & MIMO) Wireless charging case

4.2.2.1 11A20_CDD_116_Verical

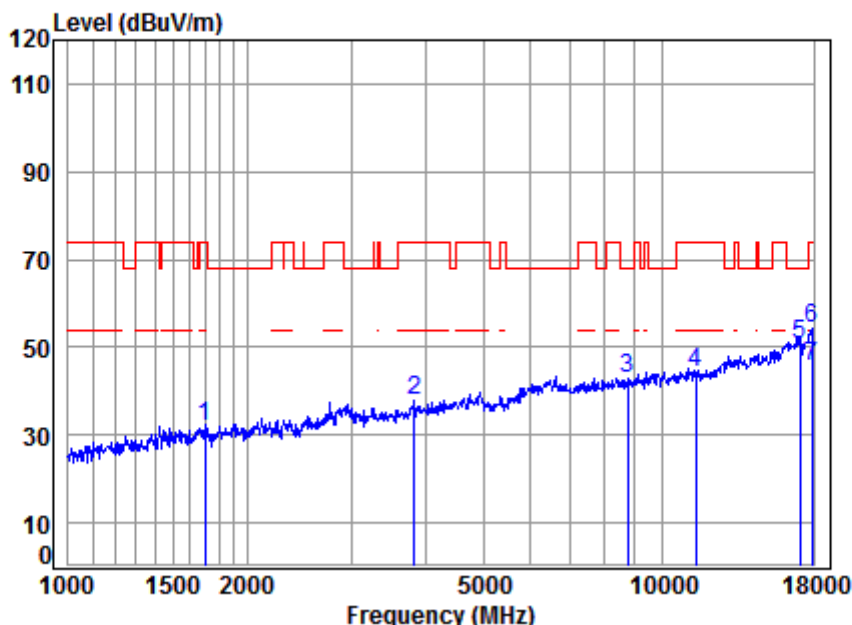


Site : chamber
Condition: 3m VERTICAL
Job No : 10024
Mode : 5580 TX RSE
Note : 5G WIFI 11A

| | | Cable | Ant | Preamp | Read | | Limit | Over | |
|---|-----------|-------|--------|--------|-------|--------|--------|--------|---------|
| | Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1597.181 | 5.35 | 26.24 | 40.77 | 41.15 | 31.97 | 74.00 | -42.03 | peak |
| 2 | 4291.977 | 7.33 | 33.24 | 43.08 | 40.31 | 37.80 | 74.00 | -36.20 | peak |
| 3 | 8392.292 | 10.20 | 36.94 | 40.55 | 38.16 | 44.75 | 74.00 | -29.25 | peak |
| 4 | 11160.000 | 11.80 | 37.83 | 38.34 | 32.94 | 44.23 | 74.00 | -29.77 | peak |
| 5 | 16740.000 | 15.57 | 42.39 | 40.40 | 31.80 | 49.36 | 68.20 | -18.84 | peak |
| 6 | 17896.250 | 16.02 | 43.38 | 40.22 | 34.72 | 53.90 | 74.00 | -20.10 | Peak |
| 7 | 17896.250 | 16.02 | 43.38 | 40.22 | 25.86 | 45.04 | 54.00 | -8.96 | Average |



4.2.2.2 11A20_CDD_140_Vertical

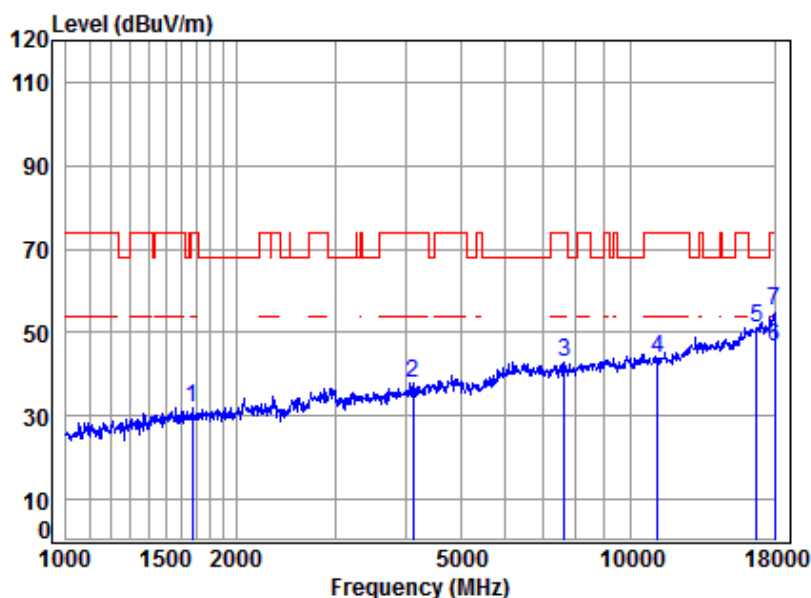


Site : chamber
Condition: 3m VERTICAL
Job No : 10024
Mode : 5700 TX RSE
Note : 5G WIFI 11A

| | | Cable | Ant | Preamp | Read | | Limit | Over | |
|---|-----------|-------|--------|--------|-------|--------|--------|--------|---------|
| | 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 | 40.83 | 41.00 | 32.06 | 74.00 | -41.94 | peak |
| 2 | 3834.438 | 6.82 | 32.38 | 42.55 | 41.07 | 37.72 | 74.00 | -36.28 | peak |
| 3 | 8738.852 | 10.33 | 37.10 | 39.91 | 35.49 | 43.01 | 68.20 | -25.19 | peak |
| 4 | 11400.000 | 12.04 | 37.88 | 38.45 | 32.67 | 44.14 | 74.00 | -29.86 | peak |
| 5 | 17100.000 | 16.49 | 42.66 | 40.34 | 31.77 | 50.58 | 68.20 | -17.62 | peak |
| 6 | 17896.250 | 16.02 | 43.38 | 40.22 | 35.08 | 54.26 | 74.00 | -19.74 | Peak |
| 7 | 17896.250 | 16.02 | 43.38 | 40.22 | 26.62 | 45.80 | 54.00 | -8.20 | Average |



4.2.2.3 11A20_CDD_116 _ Horizontal

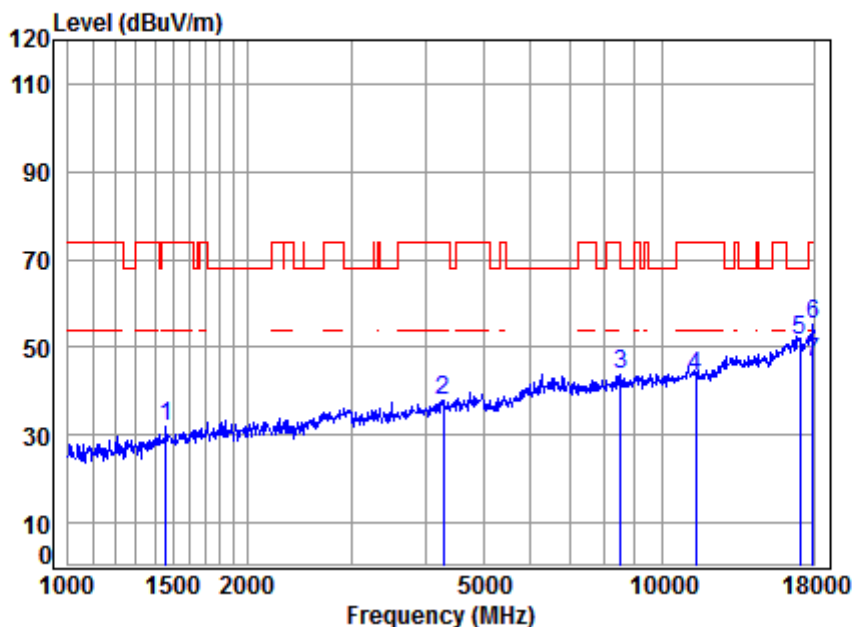


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10024
Mode : 5580 TX RSE
Note : 5G WIFI 11A

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|-----------|------------|------------|---------------|------------|--------|------------|------------|---------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1672.779 | 5.26 | 26.56 | 40.82 | 40.91 | 31.91 | 74.00 | -42.09 | peak |
| 2 | 4121.768 | 7.13 | 32.93 | 42.89 | 40.50 | 37.67 | 74.00 | -36.33 | peak |
| 3 | 7628.806 | 9.99 | 36.41 | 41.55 | 38.14 | 42.99 | 74.00 | -31.01 | peak |
| 4 | 11160.000 | 11.80 | 37.83 | 38.34 | 32.37 | 43.66 | 74.00 | -30.34 | peak |
| 5 | 16740.000 | 15.57 | 42.39 | 40.40 | 33.45 | 51.01 | 68.20 | -17.19 | peak |
| 6 | 18000.000 | 16.13 | 43.50 | 40.20 | 27.03 | 46.46 | 54.00 | -7.54 | Average |
| 7 | 18000.000 | 16.13 | 43.50 | 40.20 | 35.78 | 55.21 | 74.00 | -18.79 | Peak |



4.2.2.4 11A20_CDD_140 _ Horizontal

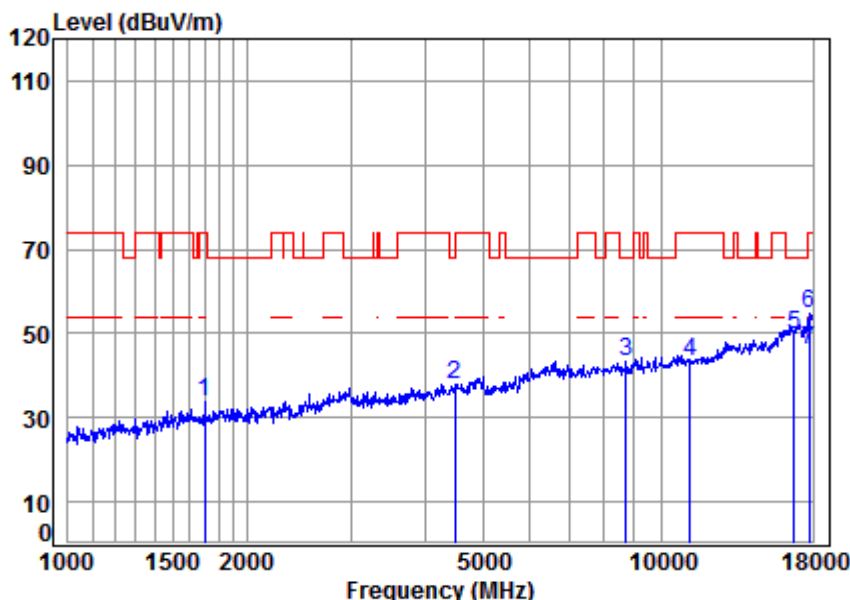


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10024
Mode : 5700 TX RSE
Note : 5G WIFI 11A

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|-----------|------------|------------|---------------|------------|--------|------------|------------|---------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1460.295 | 5.35 | 25.65 | 40.68 | 41.76 | 32.08 | 74.00 | -41.92 | peak |
| 2 | 4291.977 | 7.33 | 33.24 | 43.08 | 40.45 | 37.94 | 74.00 | -36.06 | peak |
| 3 | 8514.456 | 10.27 | 37.01 | 40.32 | 36.74 | 43.70 | 68.20 | -24.50 | peak |
| 4 | 11400.000 | 12.04 | 37.88 | 38.45 | 31.93 | 43.40 | 74.00 | -30.60 | peak |
| 5 | 17100.000 | 16.49 | 42.66 | 40.34 | 32.56 | 51.37 | 68.20 | -16.83 | peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 35.96 | 55.27 | 74.00 | -18.73 | Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 27.40 | 46.71 | 54.00 | -7.29 | Average |



4.2.2.5 11N20_MIMO_116_Vertical

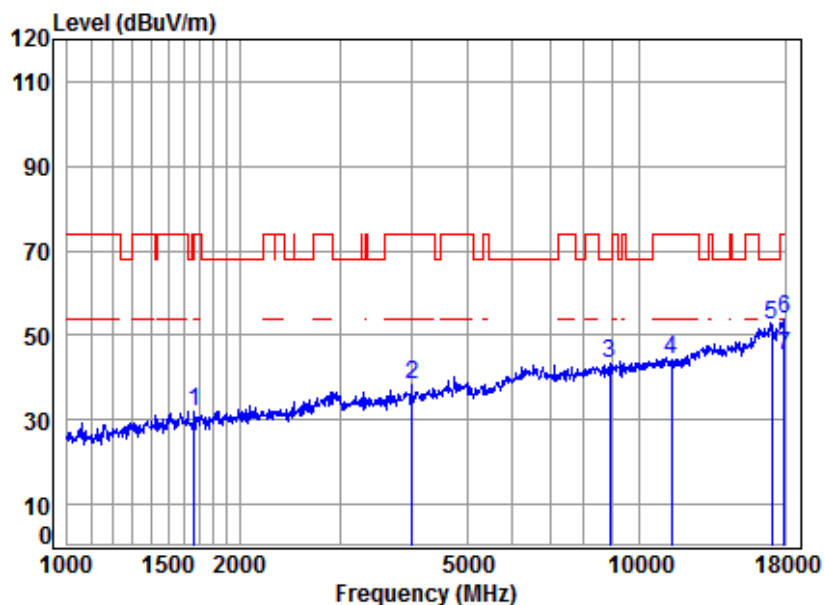


Site : chamber
Condition: 3m VERTICAL
Job No : 10024
Mode : 5580 TX RSE
Note : 5G WIFI 11N20

| | Cable | Ant | Preamp | Read | Limit | Over | | |
|-------------|-------|--------|--------|-------|--------|--------|--------|---------|
| 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 | 40.83 | 42.54 | 33.62 | 74.00 | -40.38 | peak |
| 2 4482.150 | 7.54 | 33.57 | 43.29 | 40.06 | 37.88 | 68.20 | -30.32 | peak |
| 3 8713.630 | 10.33 | 37.09 | 39.96 | 35.90 | 43.36 | 68.20 | -24.84 | peak |
| 4 11160.000 | 11.80 | 37.83 | 38.34 | 32.19 | 43.48 | 74.00 | -30.52 | peak |
| 5 16740.000 | 15.57 | 42.39 | 40.40 | 32.16 | 49.72 | 68.20 | -18.48 | peak |
| 6 17741.740 | 15.86 | 43.19 | 40.24 | 35.73 | 54.54 | 74.00 | -19.46 | Peak |
| 7 17741.740 | 15.86 | 43.19 | 40.24 | 27.11 | 45.92 | 54.00 | -8.08 | Average |



4.2.2.6 11N20_MIMO_140_Vertical

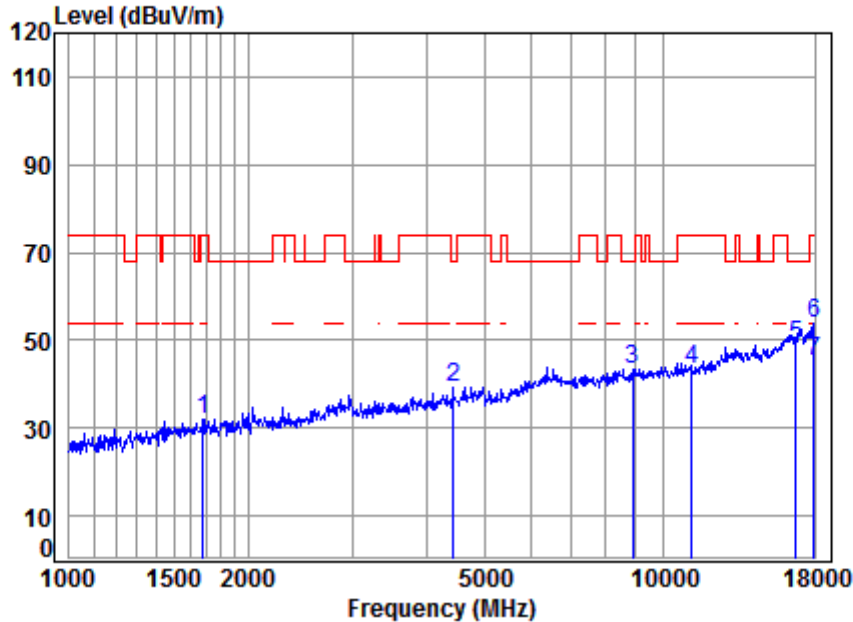


Site : chamber
 Condition: 3m VERTICAL
 Job No : 10024
 Mode : 5700 TX RSE
 Note : 5G WIFI 11N20

| | | Cable | Ant | Preamp | Read | | Limit | Over | |
|---|-----------|-------|--------|--------|-------|--------|--------|--------|---------|
| | 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 | 40.81 | 40.97 | 31.97 | 74.00 | -42.03 | peak |
| 2 | 4004.339 | 6.99 | 32.71 | 42.76 | 41.47 | 38.41 | 74.00 | -35.59 | peak |
| 3 | 8891.725 | 10.37 | 37.16 | 39.64 | 35.24 | 43.13 | 68.20 | -25.07 | peak |
| 4 | 11400.000 | 12.04 | 37.88 | 38.45 | 32.59 | 44.06 | 74.00 | -29.94 | peak |
| 5 | 17100.000 | 16.49 | 42.66 | 40.34 | 33.83 | 52.64 | 68.20 | -15.56 | peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 34.35 | 53.66 | 74.00 | -20.34 | Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 25.93 | 45.24 | 54.00 | -8.76 | Average |



4.2.2.7 11N20_MIMO_116 _ Horizontal

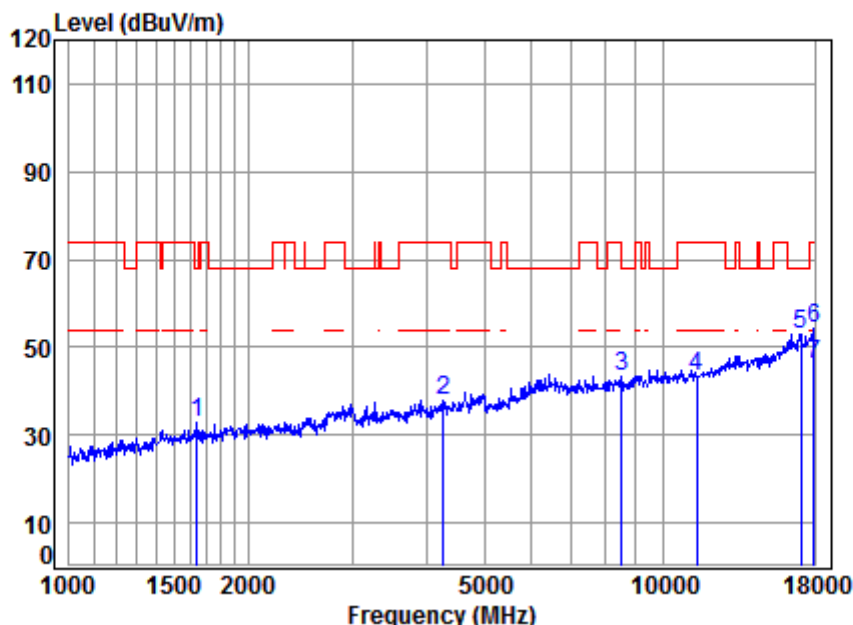


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10024
Mode : 5580 TX RSE
Note : 5G WIFI 11N20

| | | Cable | Ant | Preamp | Read | | Limit | Over | |
|---|-----------|-------|--------|--------|-------|--------|--------|--------|---------|
| | 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 | 40.82 | 41.15 | 32.16 | 74.00 | -41.84 | peak |
| 2 | 4430.628 | 7.48 | 33.48 | 43.23 | 41.39 | 39.12 | 68.20 | -29.08 | peak |
| 3 | 8891.725 | 10.37 | 37.16 | 39.64 | 35.66 | 43.55 | 68.20 | -24.65 | peak |
| 4 | 11160.000 | 11.80 | 37.83 | 38.34 | 32.01 | 43.30 | 74.00 | -30.70 | peak |
| 5 | 16740.000 | 15.57 | 42.39 | 40.40 | 31.47 | 49.03 | 68.20 | -19.17 | peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 34.35 | 53.66 | 74.00 | -20.34 | Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 25.86 | 45.17 | 54.00 | -8.83 | Average |



4.2.2.8 11N20_MIMO_140 _ Horizontal



Site : chamber
Condition: 3m HORIZONTAL
Job No : 10024
Mode : 5700 TX RSE
Note : 5G WIFI 11N20

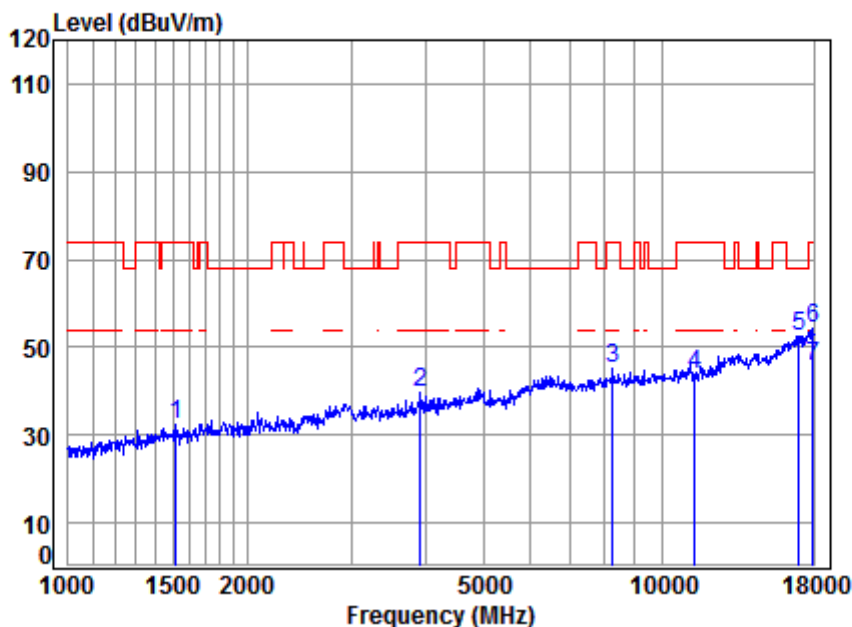
| | Cable | Ant | Preamp | Read | Limit | Over | | |
|------|-------|--------|--------|-------|--------|--------|--------|---------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 5.30 | 26.44 | 40.80 | 41.80 | 32.74 | 68.20 | -35.46 | peak |
| 2 | 7.30 | 33.19 | 43.06 | 40.23 | 37.66 | 74.00 | -36.34 | peak |
| 3 | 10.27 | 37.01 | 40.32 | 36.48 | 43.44 | 68.20 | -24.76 | peak |
| 4 | 12.04 | 37.88 | 38.45 | 31.83 | 43.30 | 74.00 | -30.70 | peak |
| 5 | 16.49 | 42.66 | 40.34 | 34.03 | 52.84 | 68.20 | -15.36 | peak |
| 6 | 16.08 | 43.44 | 40.21 | 35.02 | 54.33 | 74.00 | -19.67 | Peak |
| 7 | 16.08 | 43.44 | 40.21 | 26.64 | 45.95 | 54.00 | -8.05 | Average |



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4.2.2.9 11N40_MIMO_134_Vertical

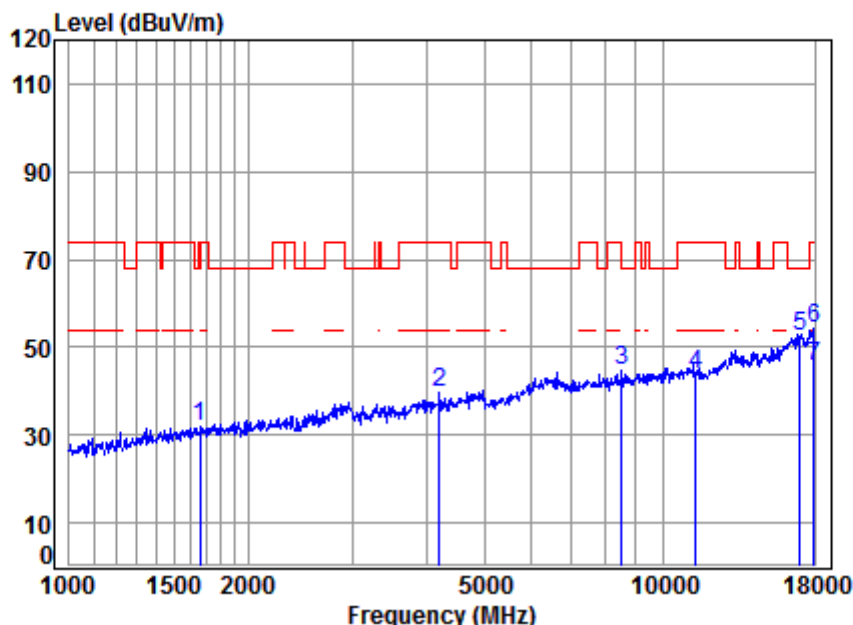


Site : chamber
Condition: 3m VERTICAL
Job No : 10024
Mode : 5670 TX RSE
Note : 5G WIFI 11N40

| | | Cable | Ant | Preamp | Read | | Limit | Over | |
|---|-----------|-------|--------|--------|-------|--------|--------|--------|---------|
| | Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1520.598 | 5.45 | 25.89 | 40.72 | 41.96 | 32.58 | 74.00 | -41.42 | peak |
| 2 | 3912.809 | 6.89 | 32.53 | 42.65 | 42.74 | 39.51 | 74.00 | -34.49 | peak |
| 3 | 8271.880 | 10.13 | 36.87 | 40.78 | 38.84 | 45.06 | 74.00 | -28.94 | peak |
| 4 | 11340.000 | 11.98 | 37.87 | 38.42 | 32.51 | 43.94 | 74.00 | -30.06 | peak |
| 5 | 17010.000 | 16.69 | 42.61 | 40.36 | 33.70 | 52.64 | 68.20 | -15.56 | peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 34.87 | 54.18 | 74.00 | -19.82 | Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 26.15 | 45.46 | 54.00 | -8.54 | Average |



4.2.2.10 11N40_MIMO_134 _ Horizontal



Site : chamber
Condition: 3m HORIZONTAL
Job No : 10024
Mode : 5670 TX RSE
Note : 5G WIFI 11N40

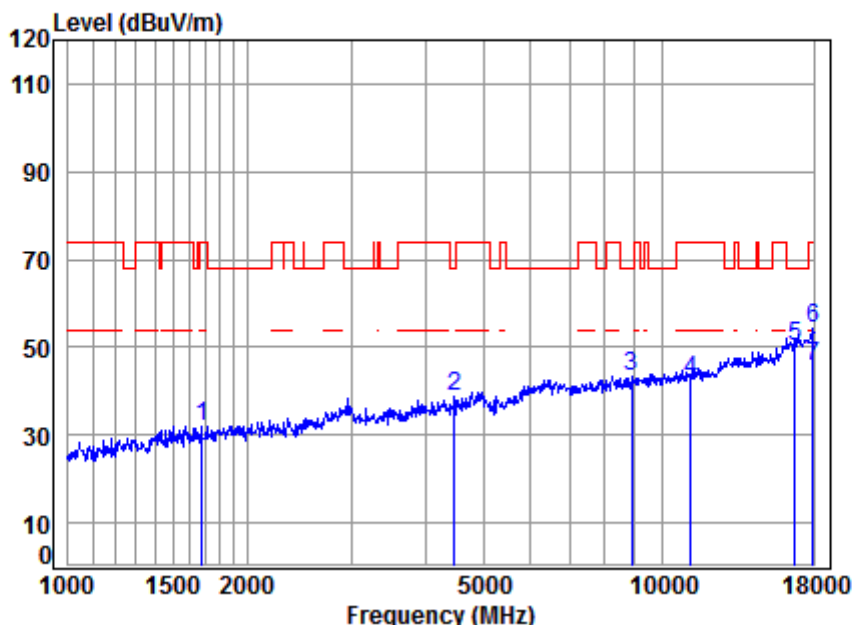
| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|-----------|------------|------------|---------------|------------|--------|------------|------------|---------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1663.137 | 5.27 | 26.52 | 40.81 | 40.84 | 31.82 | 74.00 | -42.18 | peak |
| 2 | 4206.011 | 7.23 | 33.08 | 42.99 | 42.17 | 39.49 | 74.00 | -34.51 | peak |
| 3 | 8514.456 | 10.27 | 37.01 | 40.32 | 37.86 | 44.82 | 68.20 | -23.38 | peak |
| 4 | 11340.000 | 11.98 | 37.87 | 38.42 | 32.53 | 43.96 | 74.00 | -30.04 | peak |
| 5 | 17010.000 | 16.69 | 42.61 | 40.36 | 33.70 | 52.64 | 68.20 | -15.56 | peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 35.09 | 54.40 | 74.00 | -19.60 | Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 26.45 | 45.76 | 54.00 | -8.24 | Average |



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4.2.2.11 11AC20_MIMO_116_Vertical

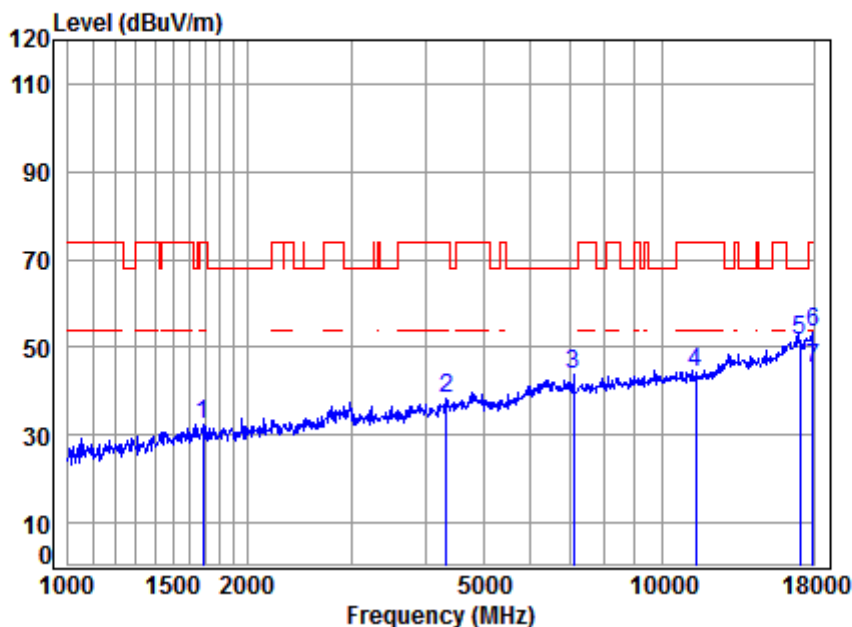


Site : chamber
Condition: 3m VERTICAL
Job No : 10024
Mode : 5580 TX RSE
Note : 5G WIFI 11AC20

| | | Cable | Ant | Preamp | Read | | Limit | Over | |
|---|-----------|-------|--------|--------|-------|--------|--------|--------|---------|
| | 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 | 40.82 | 41.09 | 32.10 | 74.00 | -41.90 | peak |
| 2 | 4469.214 | 7.53 | 33.55 | 43.27 | 40.88 | 38.69 | 68.20 | -29.51 | peak |
| 3 | 8891.725 | 10.37 | 37.16 | 39.64 | 35.39 | 43.28 | 68.20 | -24.92 | peak |
| 4 | 11160.000 | 11.80 | 37.83 | 38.34 | 31.03 | 42.32 | 74.00 | -31.68 | peak |
| 5 | 16740.000 | 15.57 | 42.39 | 40.40 | 32.81 | 50.37 | 68.20 | -17.83 | peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 35.08 | 54.39 | 74.00 | -19.61 | Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 26.44 | 45.75 | 54.00 | -8.25 | Average |



4.2.2.12 11AC20_MIMO_140_Vertical

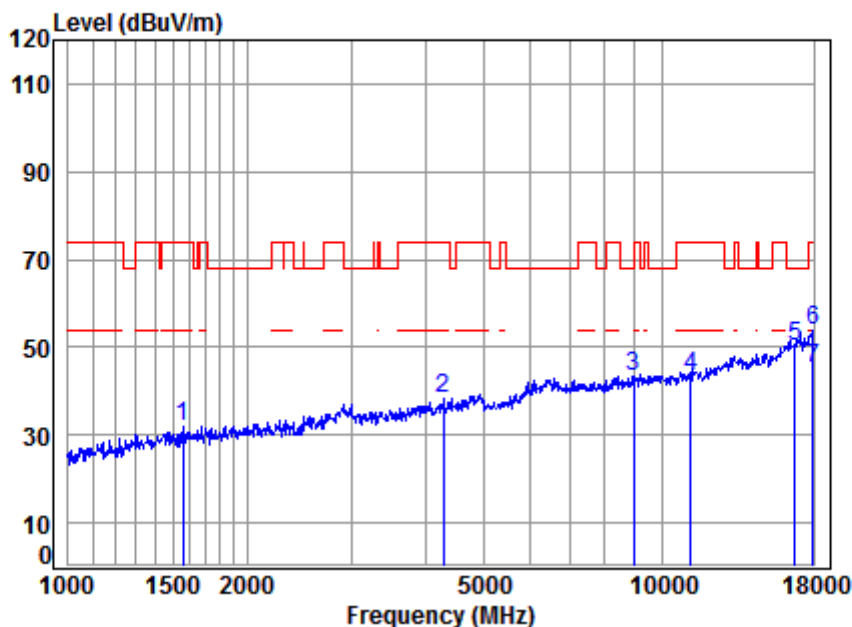


Site : chamber
Condition: 3m VERTICAL
Job No : 10024
Mode : 5700 TX RSE
Note : 5G WIFI 11AC20

| | | Cable | Ant | Preamp | Read | | Limit | Over | |
|---|-----------|-------|--------|--------|-------|--------|--------|--------|---------|
| | 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 | 40.82 | 41.18 | 32.22 | 74.00 | -41.78 | peak |
| 2 | 4341.886 | 7.38 | 33.33 | 43.14 | 40.64 | 38.21 | 74.00 | -35.79 | peak |
| 3 | 7096.999 | 10.10 | 35.98 | 41.94 | 39.83 | 43.97 | 68.20 | -24.23 | peak |
| 4 | 11400.000 | 12.04 | 37.88 | 38.45 | 32.99 | 44.46 | 74.00 | -29.54 | peak |
| 5 | 17100.000 | 16.49 | 42.66 | 40.34 | 32.65 | 51.46 | 68.20 | -16.74 | peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 34.21 | 53.52 | 74.00 | -20.48 | Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 25.97 | 45.28 | 54.00 | -8.72 | Average |



4.2.2.13 11AC20_MIMO_116 _ Horizontal

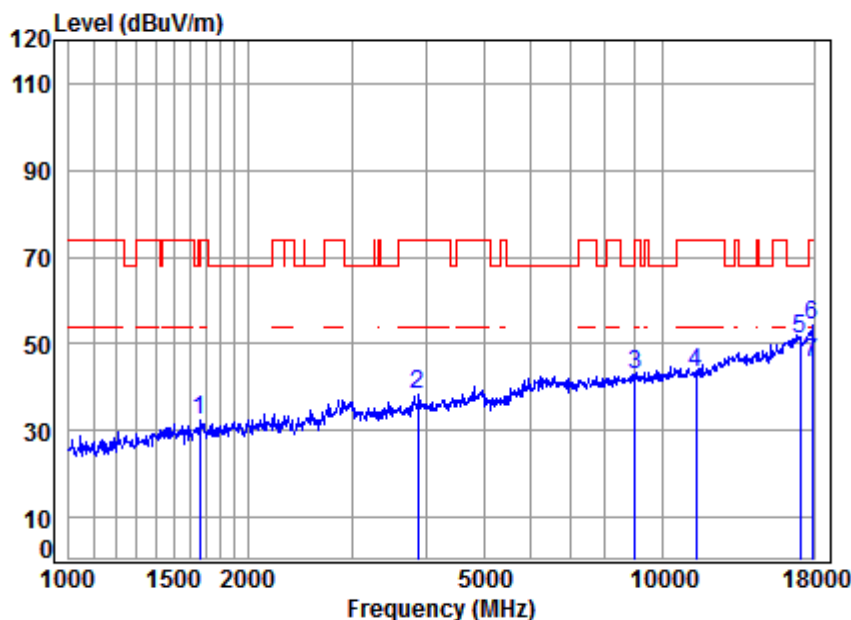


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10024
Mode : 5580 TX RSE
Note : 5G WIFI 11AC20

| | | Cable | Ant | Preamp | Read | | Limit | Over | |
|------|-----------|--------|--------|--------|--------|--------|-------|--------|---------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark | |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | | |
| 1 | 1560.673 | 5.40 | 26.08 | 40.75 | 41.15 | 31.88 | 74.00 | -42.12 | peak |
| 2 | 4291.977 | 7.33 | 33.24 | 43.08 | 40.98 | 38.47 | 74.00 | -35.53 | peak |
| 3 | 8969.161 | 10.39 | 37.19 | 39.51 | 35.48 | 43.55 | 68.20 | -24.65 | peak |
| 4 | 11160.000 | 11.80 | 37.83 | 38.34 | 32.07 | 43.36 | 74.00 | -30.64 | peak |
| 5 | 16740.000 | 15.57 | 42.39 | 40.40 | 32.81 | 50.37 | 68.20 | -17.83 | peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 34.74 | 54.05 | 74.00 | -19.95 | Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 26.00 | 45.31 | 54.00 | -8.69 | Average |



4.2.2.14 11AC20_MIMO_140 _ Horizontal

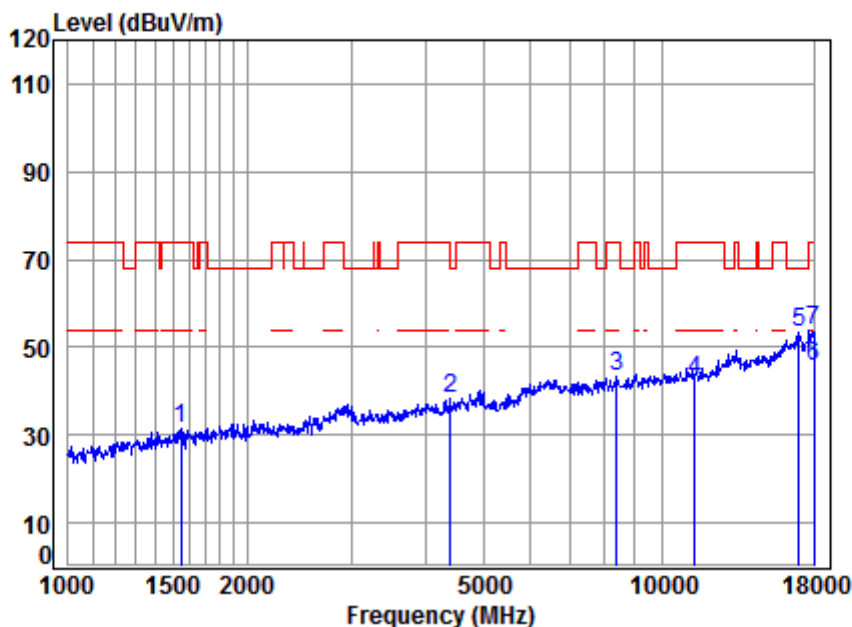


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10024
Mode : 5700 TX RSE
Note : 5G WIFI 11AC20

| | | Cable | Ant | Preamp | Read | | Limit | Over | |
|------|-----------|-------|--------|--------|-------|--------|--------|--------|---------|
| 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 | 40.81 | 41.35 | 32.33 | 74.00 | -41.67 | peak |
| 2 | 3879.027 | 6.86 | 32.47 | 42.61 | 41.40 | 38.12 | 74.00 | -35.88 | peak |
| 3 | 8995.123 | 10.40 | 37.20 | 39.46 | 34.80 | 42.94 | 68.20 | -25.26 | peak |
| 4 | 11400.000 | 12.04 | 37.88 | 38.45 | 31.76 | 43.23 | 74.00 | -30.77 | peak |
| 5 | 17100.000 | 16.49 | 42.66 | 40.34 | 32.26 | 51.07 | 68.20 | -17.13 | peak |
| 6 | 17896.250 | 16.02 | 43.38 | 40.22 | 35.17 | 54.35 | 74.00 | -19.65 | Peak |
| 7 | 17896.250 | 16.02 | 43.38 | 40.22 | 26.60 | 45.78 | 54.00 | -8.22 | Average |



4.2.2.15 11AC40_MIMO_134_Vertical

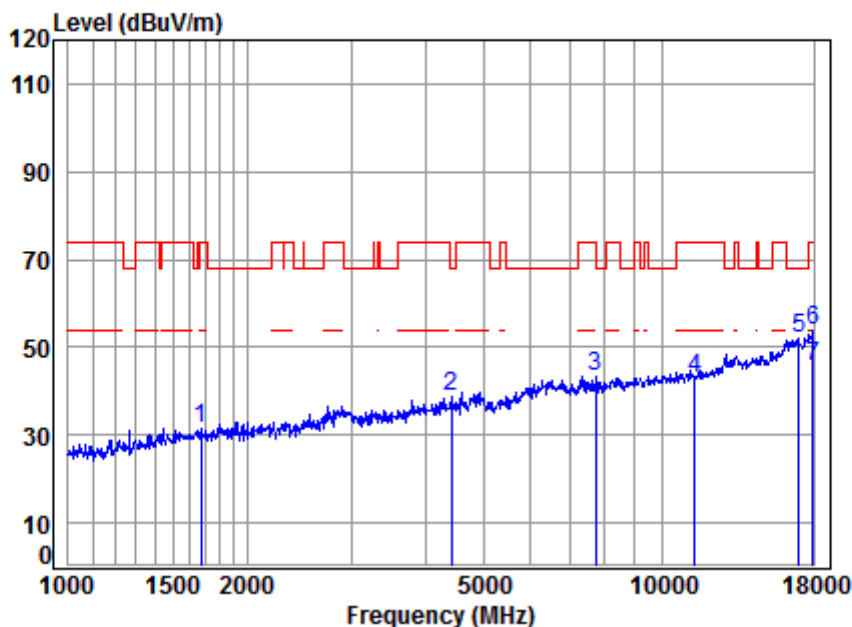


Site : chamber
Condition: 3m VERTICAL
Job No : 10024
Mode : 5670 TX RSE
Note : 5G WIFI 11AC40

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|---|-----------|------------|------------|---------------|------------|--------|------------|------------|---------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 | 1547.199 | 5.42 | 26.02 | 40.74 | 40.98 | 31.68 | 74.00 | -42.32 | peak |
| 2 | 4405.090 | 7.46 | 33.44 | 43.20 | 40.44 | 38.14 | 68.20 | -30.06 | peak |
| 3 | 8392.292 | 10.20 | 36.94 | 40.55 | 36.83 | 43.42 | 74.00 | -30.58 | peak |
| 4 | 11340.000 | 11.98 | 37.87 | 38.42 | 31.13 | 42.56 | 74.00 | -31.44 | peak |
| 5 | 17010.000 | 16.69 | 42.61 | 40.36 | 34.36 | 53.30 | 68.20 | -14.90 | peak |
| 6 | 18000.000 | 16.13 | 43.50 | 40.20 | 26.04 | 45.47 | 54.00 | -8.53 | Average |
| 7 | 18000.000 | 16.13 | 43.50 | 40.20 | 34.25 | 53.68 | 74.00 | -20.32 | Peak |



4.2.2.16 11AC40_MIMO_134_Horizontal



Site : chamber
Condition: 3m HORIZONTAL
Job No : 10024
Mode : 5670 TX RSE
Note : 5G WIFI 11AC40

| | | Cable | Ant | Preamp | Read | | Limit | Over | |
|---|-----------|-------|--------|--------|-------|--------|--------|--------|---------|
| | 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 | 40.82 | 40.55 | 31.55 | 74.00 | -42.45 | peak |
| 2 | 4417.841 | 7.47 | 33.46 | 43.22 | 41.17 | 38.88 | 68.20 | -29.32 | peak |
| 3 | 7739.857 | 9.98 | 36.50 | 41.48 | 38.38 | 43.38 | 74.00 | -30.62 | peak |
| 4 | 11340.000 | 11.98 | 37.87 | 38.42 | 31.66 | 43.09 | 74.00 | -30.91 | peak |
| 5 | 17010.000 | 16.69 | 42.61 | 40.36 | 33.09 | 52.03 | 68.20 | -16.17 | peak |
| 6 | 17948.050 | 16.08 | 43.44 | 40.21 | 34.40 | 53.71 | 74.00 | -20.29 | Peak |
| 7 | 17948.050 | 16.08 | 43.44 | 40.21 | 26.24 | 45.55 | 54.00 | -8.45 | Average |





Remark:

1) 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

2) Scan from 9kHz to 40GHz, The disturbance between 9kHz to 30MHz and 18GHz to 40GHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

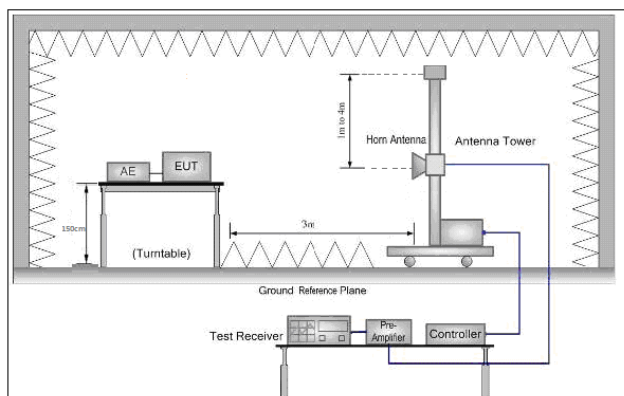
3) As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.

4) All modes have been tested, but only the worst case data displayed in this report.



4.3 Restricted bands around fundamental frequency

| | | | |
|-------------------|--|--------------------|------------------|
| Test Requirement: | 47 CFR Part 15 Section 15.407(b) | | |
| Test Method: | ANSI C63.10: 2013 | | |
| Test Site: | Measurement Distance: 3m (Semi-Anechoic Chamber) | | |
| Limit: | Frequency | Limit (dBuV/m @3m) | Remark |
| | 30MHz-88MHz | 40.0 | Quasi-peak Value |
| | 88MHz-216MHz | 43.5 | Quasi-peak Value |
| | 216MHz-960MHz | 46.0 | Quasi-peak Value |
| | 960MHz-1GHz | 54.0 | Quasi-peak Value |
| | Above 1GHz | 54.0 | Average Value |
| | | 74.0 | Peak Value |
| Test Setup: | | | |

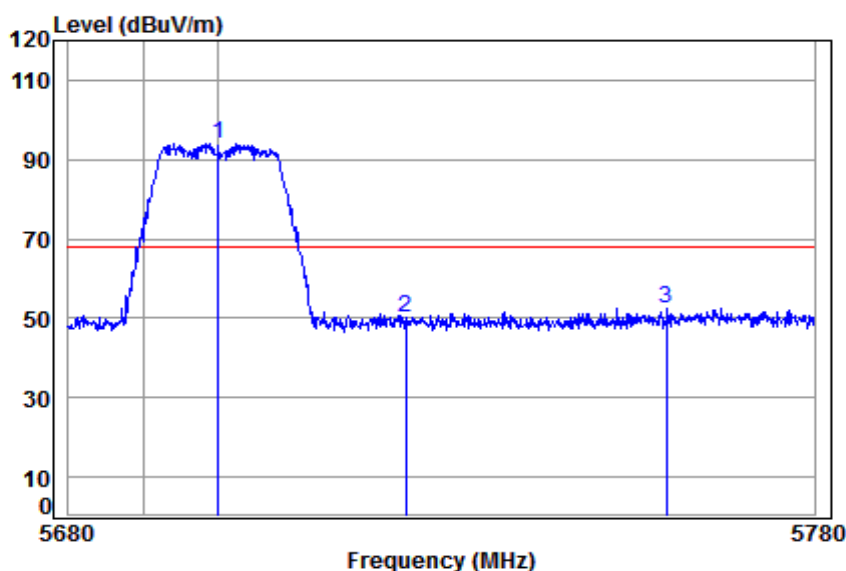


| | |
|------------------------|---|
| Test Procedure: | <ul style="list-style-type: none"> a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel g. Test the EUT in the outermost channels. h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case. i. Repeat above procedures until all frequencies measured was complete. |
| Exploratory Test Mode: | Transmitting with all kind of modulations, data rates. |
| Final Test Mode: | <p>Through Pre-scan, find the</p> <p>6Mbps of rate is the worst case of 802.11a;</p> <p>MCS0 of rate is the worst case of 802.11n(HT20);</p> <p>MCS0 of rate is the worst case of 802.11n(HT40);</p> <p>MCSAC0 of rate is the worst case of 802.11ac(HT20);</p> <p>MCSAC0 of rate is the worst case of 802.11ac(HT40);</p> <p>MCSAC0 of rate is the worst case of 802.11ac(HT80);</p> <p>MCSAC0 of rate is the worst case of 802.11ac(HT160)</p> <p>Only the worst case is recorded in the report.</p> |
| Instruments Used: | Refer to section 6 for details |
| Test Results: | Pass |



4.3.1 Test plots (CDD & MIMO) Wireless charging case + USB Cable charging

4.3.1.1 11A20_CDD_140 _ Horizontal

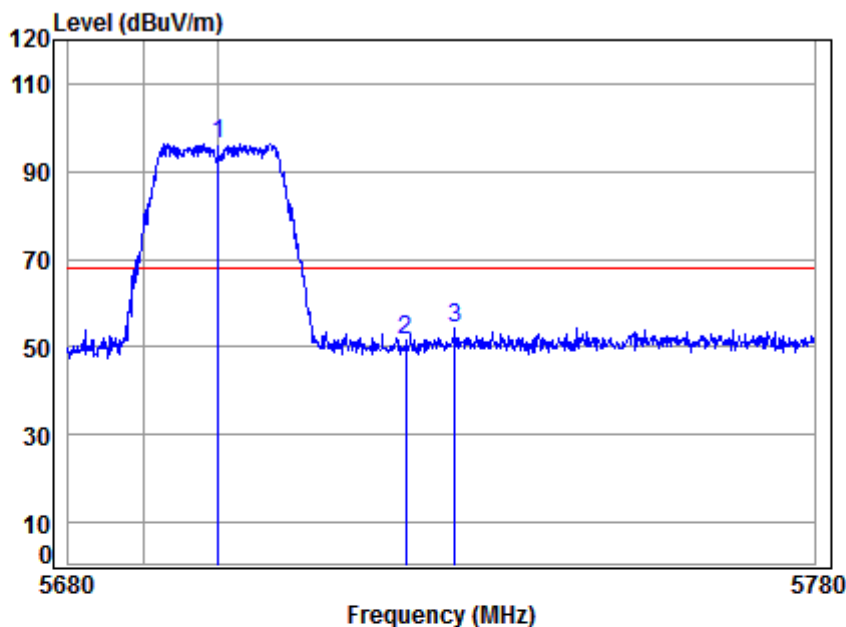


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10958CR
Mode : 5700 Band edge
: 5G WIFI 11A

| | | Cable | Ant | Preamp | Read | Limit | Over | |
|------|----------|-------|--------|--------|-------|--------|--------|-------------|
| Freq | | Loss | Factor | Factor | Level | Level | Limit | Remark |
| MHz | | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 * | 5700.000 | 9.56 | 34.81 | 43.10 | 92.76 | 94.03 | 68.20 | 25.83 peak |
| 2 | 5725.000 | 9.64 | 34.83 | 43.08 | 48.86 | 50.25 | 68.20 | -17.95 peak |
| 3 | 5760.061 | 9.76 | 34.87 | 43.05 | 50.71 | 52.29 | 68.20 | -15.91 peak |



4.3.1.2 11A20_CDD_140 _ Vertical

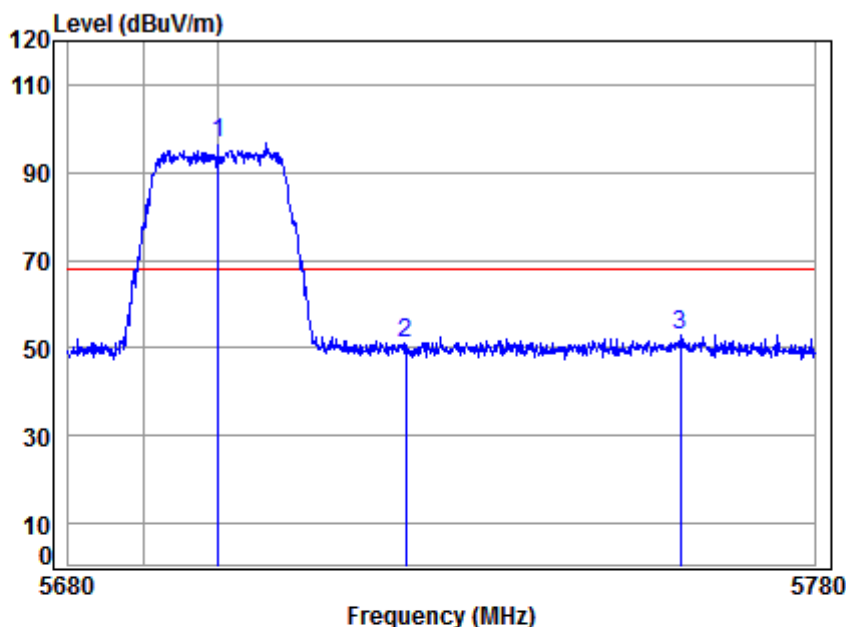


Site : chamber
Condition: 3m VERTICAL
Job No : 10958CR
Mode : 5700 Band edge
: 5G WIFI 11A

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|--------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5700.000 | 9.56 | 34.81 | 43.10 | 95.11 | 96.38 | 68.20 | 28.18 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 49.98 | 51.37 | 68.20 | -16.83 | peak |
| 3 5731.582 | 9.67 | 34.84 | 43.07 | 52.79 | 54.23 | 68.20 | -13.97 | peak |



4.3.1.3 11N20_MIMO_140 _ Horizontal

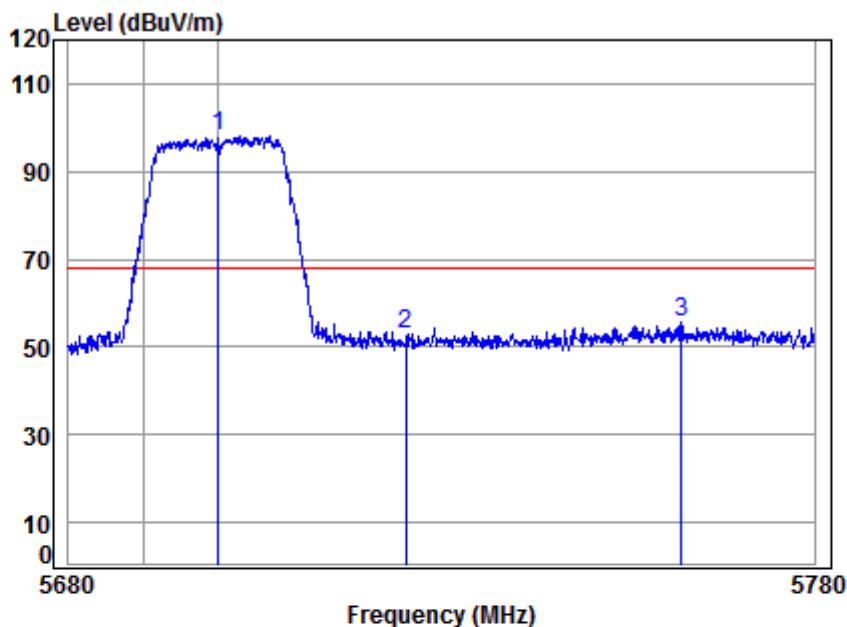


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10958CR
Mode : 5700 Band edge
: 5G WIFI 11N20

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|--------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5700.000 | 9.56 | 34.81 | 43.10 | 95.38 | 96.65 | 68.20 | 28.45 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 49.83 | 51.22 | 68.20 | -16.98 | peak |
| 3 5761.871 | 9.77 | 34.87 | 43.05 | 51.55 | 53.14 | 68.20 | -15.06 | peak |



4.3.1.4 11N20_MIMO_140_Vertical

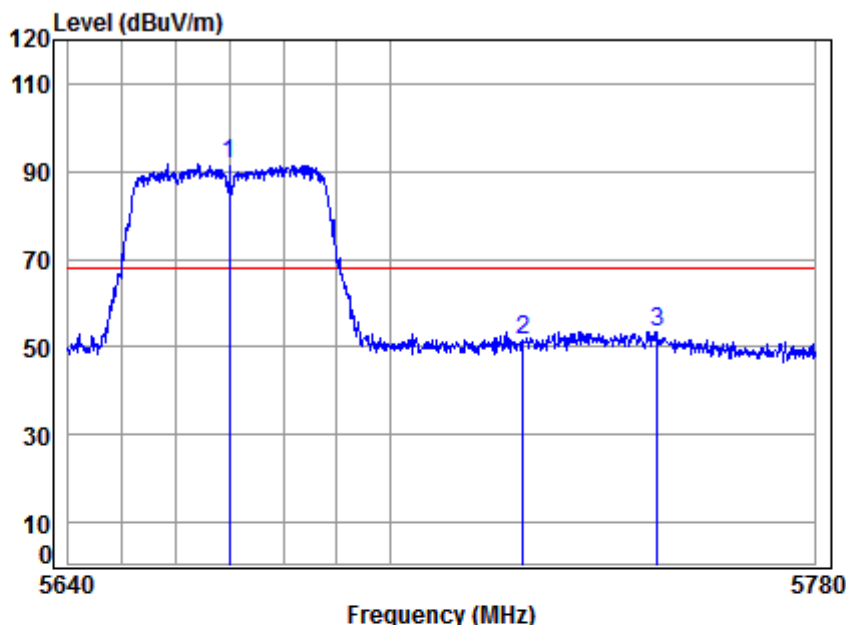


Site : chamber
Condition: 3m VERTICAL
Job No : 10958CR
Mode : 5700 Band edge
: 5G WIFI 11N20

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|--------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5700.000 | 9.56 | 34.81 | 43.10 | 96.63 | 97.90 | 68.20 | 29.70 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 51.57 | 52.96 | 68.20 | -15.24 | peak |
| 3 5762.072 | 9.77 | 34.87 | 43.05 | 53.89 | 55.48 | 68.20 | -12.72 | peak |



4.3.1.5 11N40_MIMO_134 _ Horizontal

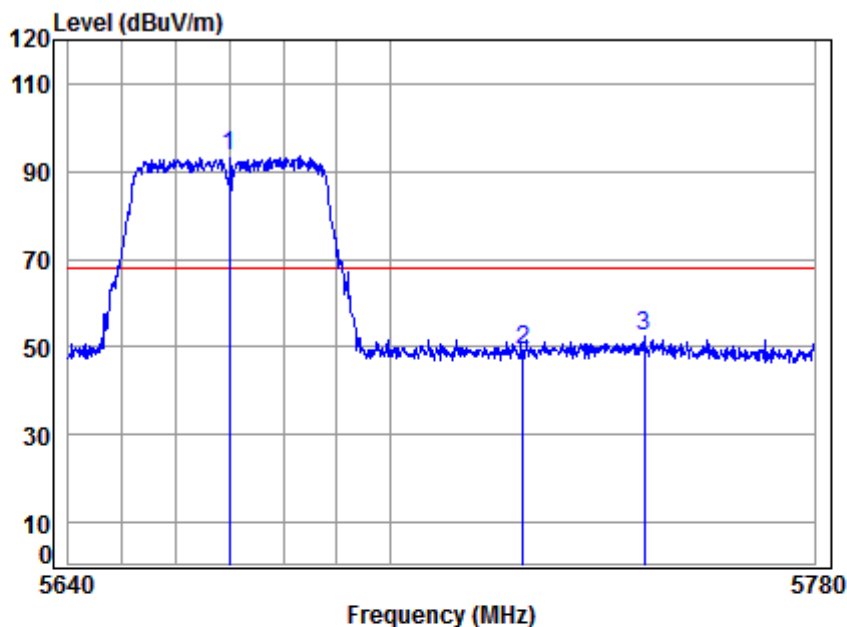


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10958CR
Mode : 5670 Band edge
: 5G WIFI 11N40

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|--------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5670.000 | 9.45 | 34.77 | 43.13 | 90.75 | 91.84 | 68.20 | 23.64 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 50.03 | 51.42 | 68.20 | -16.78 | peak |
| 3 5750.174 | 9.73 | 34.86 | 43.06 | 51.98 | 53.51 | 68.20 | -14.69 | peak |



4.3.1.6 11N40_MIMO_134_Vertical

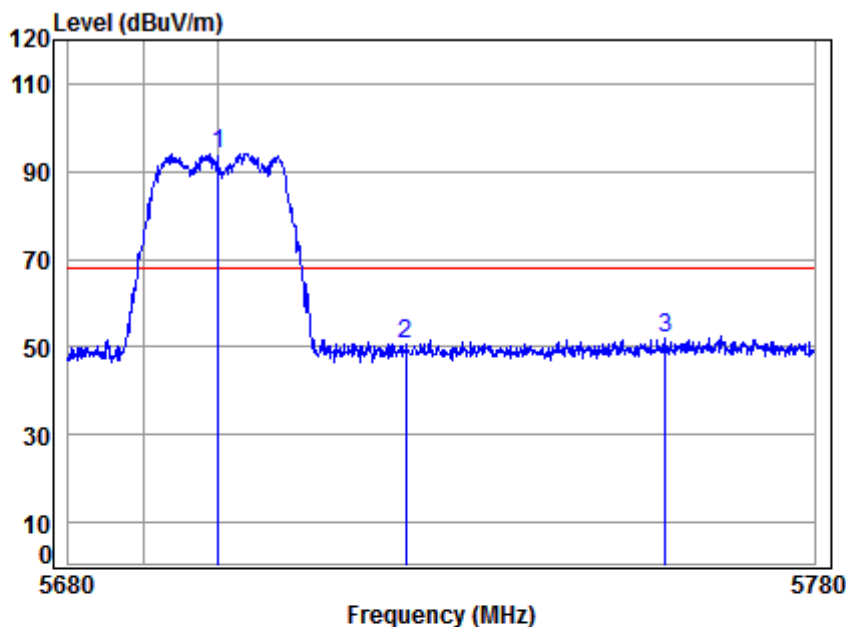


Site : chamber
Condition: 3m VERTICAL
Job No : 10958CR
Mode : 5670 Band edge
: 5G WIFI 11N40

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|--------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5670.000 | 9.45 | 34.77 | 43.13 | 92.35 | 93.44 | 68.20 | 25.24 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 47.97 | 49.36 | 68.20 | -18.84 | peak |
| 3 5747.777 | 9.72 | 34.85 | 43.06 | 50.99 | 52.50 | 68.20 | -15.70 | peak |



4.3.1.7 11AC20_MIMO_140 _ Horizontal

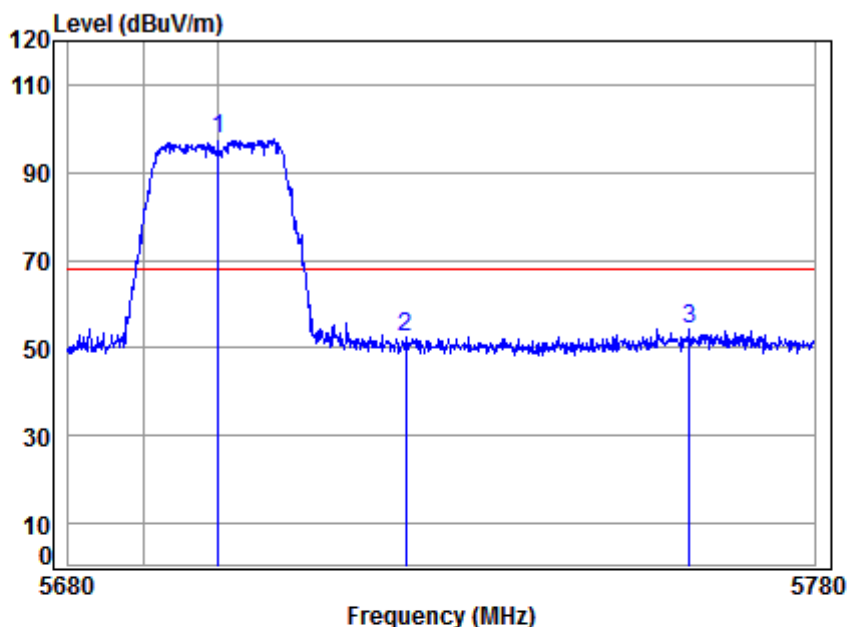


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10958CR
Mode : 5700 Band edge
: 5G WIFI 11AC20

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|--------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5700.000 | 9.56 | 34.81 | 43.10 | 92.89 | 94.16 | 68.20 | 25.96 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 49.15 | 50.54 | 68.20 | -17.66 | peak |
| 3 5759.860 | 9.76 | 34.87 | 43.05 | 50.55 | 52.13 | 68.20 | -16.07 | peak |



4.3.1.8 11AC20_MIMO_140_Vertical

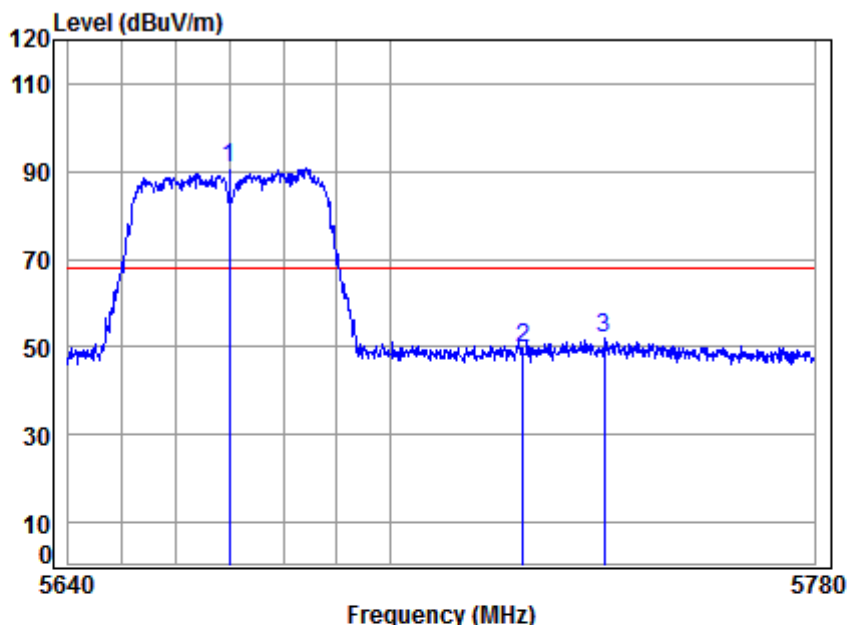


Site : chamber
Condition: 3m VERTICAL
Job No : 10958CR
Mode : 5700 Band edge
: 5G WIFI 11AC20

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|--------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5700.000 | 9.56 | 34.81 | 43.10 | 96.20 | 97.47 | 68.20 | 29.27 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 50.88 | 52.27 | 68.20 | -15.93 | peak |
| 3 5763.178 | 9.77 | 34.87 | 43.04 | 52.88 | 54.48 | 68.20 | -13.72 | peak |



4.3.1.9 11AC40_MIMO_134_Horizontal

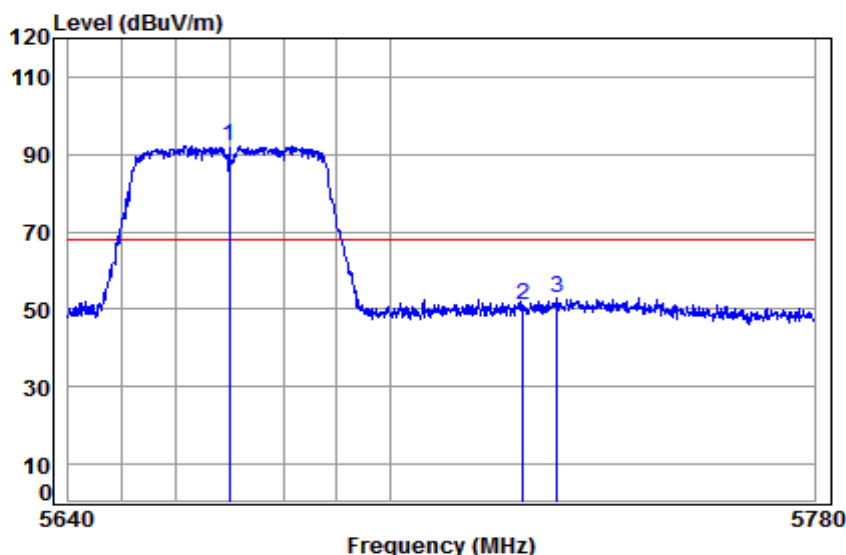


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10958CR
Mode : 5670 Band edge
: 5G WIFI 11AC40

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|--------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5670.000 | 9.45 | 34.77 | 43.13 | 89.84 | 90.93 | 68.20 | 22.73 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 48.43 | 49.82 | 68.20 | -18.38 | peak |
| 3 5740.172 | 9.69 | 34.85 | 43.07 | 50.52 | 51.99 | 68.20 | -16.21 | peak |



4.3.1.10 11AC40_MIMO_134_Vertical



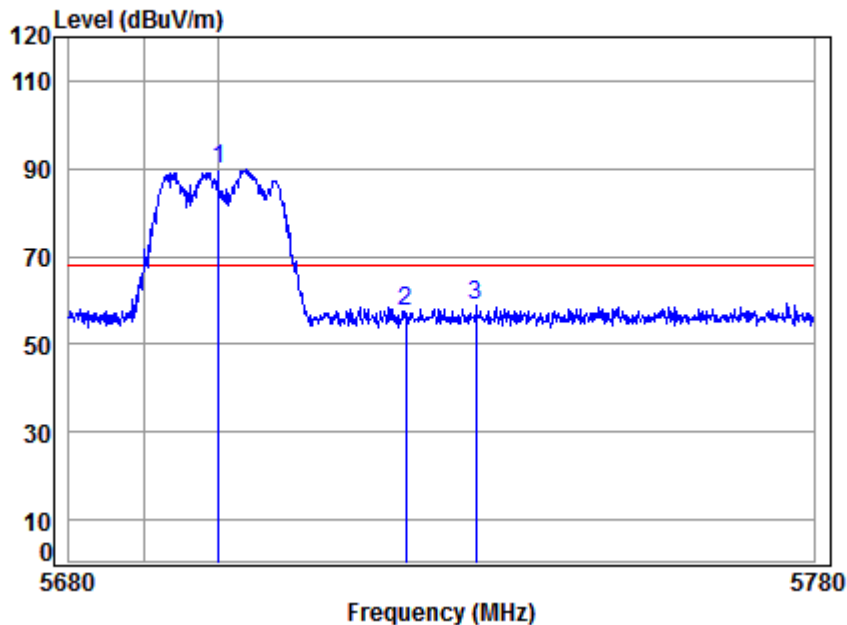
Site : chamber
Condition: 3m VERTICAL
Job No : 10958CR
Mode : 5670 Band edge
: 5G WIFI 11AC40

| | | Cable | Ant | Preamp | Read | Limit | Over | |
|------|----------|-------|--------|--------|-------|--------|--------|-------------|
| Freq | | Loss | Factor | Factor | Level | Line | Limit | Remark |
| MHz | | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 * | 5670.000 | 9.45 | 34.77 | 43.13 | 91.07 | 92.16 | 68.20 | 23.96 peak |
| 2 | 5725.000 | 9.64 | 34.83 | 43.08 | 49.74 | 51.13 | 68.20 | -17.07 peak |
| 3 | 5731.312 | 9.66 | 34.84 | 43.07 | 51.58 | 53.01 | 68.20 | -15.19 peak |



4.3.2 Test plots (CDD & MIMO) Wireless charging case

4.3.2.1 11A20_CDD_140 _ Horizontal

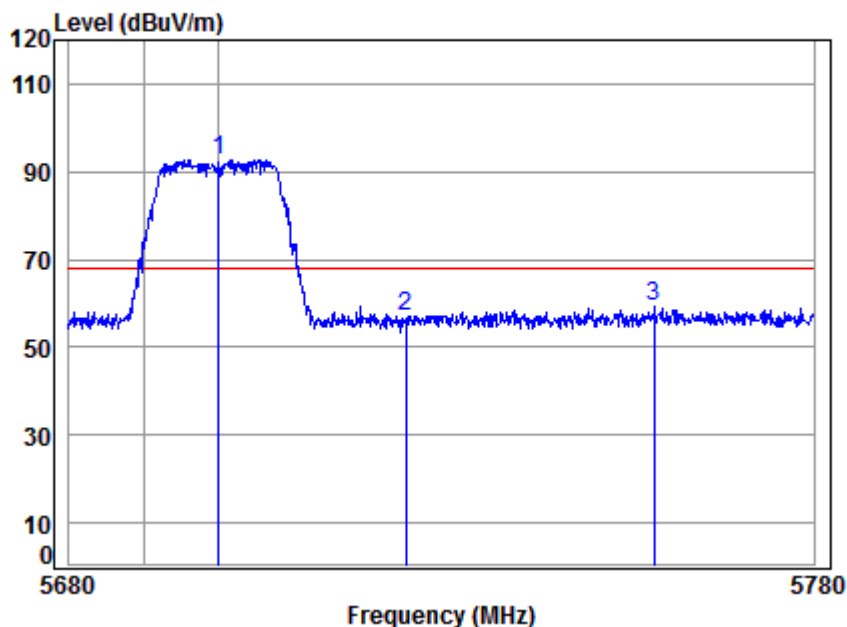


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10024
Mode : 5700 Band edge
: 5G WIFI 11A

| | | Cable | Ant | Preamp | Read | Limit | Over | |
|------|----------|-------|--------|--------|-------|--------|--------|-------------|
| Freq | | Loss | Factor | Factor | Level | Level | Limit | Remark |
| MHz | | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB |
| 1 * | 5700.000 | 9.56 | 34.81 | 43.10 | 88.40 | 89.67 | 68.20 | 21.47 peak |
| 2 | 5725.000 | 9.64 | 34.83 | 43.08 | 55.98 | 57.37 | 68.20 | -10.83 peak |
| 3 | 5734.484 | 9.68 | 34.84 | 43.07 | 57.34 | 58.79 | 68.20 | -9.41 peak |



4.3.2.2 11A20_CDD_140 _ Vertical

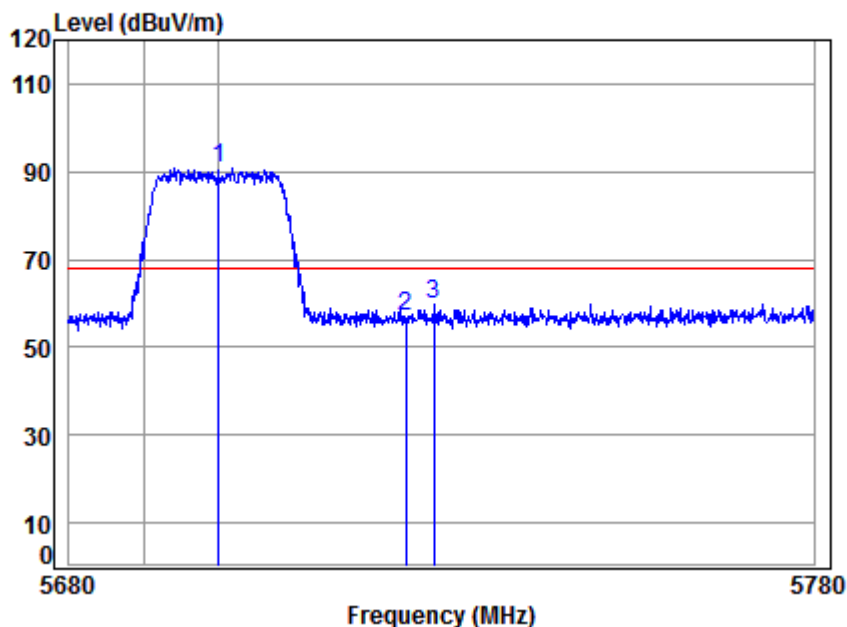


Site : chamber
Condition: 3m VERTICAL
Job No : 10024
Mode : 5700 Band edge
: 5G WIFI 11A

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|--------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5700.000 | 9.56 | 34.81 | 43.10 | 91.41 | 92.68 | 68.20 | 24.48 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 55.82 | 57.21 | 68.20 | -10.99 | peak |
| 3 5758.453 | 9.76 | 34.86 | 43.05 | 57.69 | 59.26 | 68.20 | -8.94 | peak |



4.3.2.3 11N20_MIMO_140 _ Horizontal

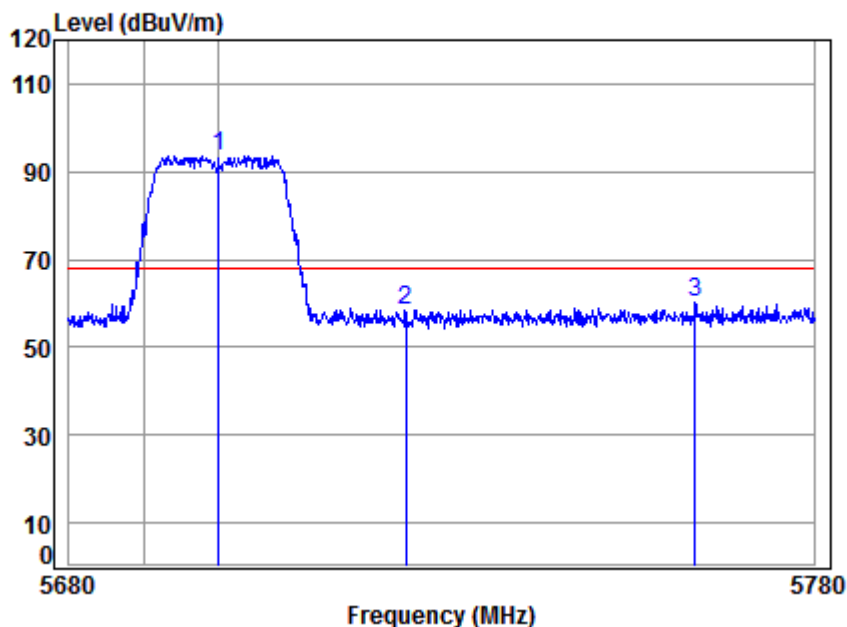


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10024
Mode : 5700 Band edge
: 5G WIFI 11N20

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|--------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5700.000 | 9.56 | 34.81 | 43.10 | 89.72 | 90.99 | 68.20 | 22.79 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 55.65 | 57.04 | 68.20 | -11.16 | peak |
| 3 5728.782 | 9.66 | 34.83 | 43.08 | 58.37 | 59.78 | 68.20 | -8.42 | peak |



4.3.2.4 11N20_MIMO_140_Vertical

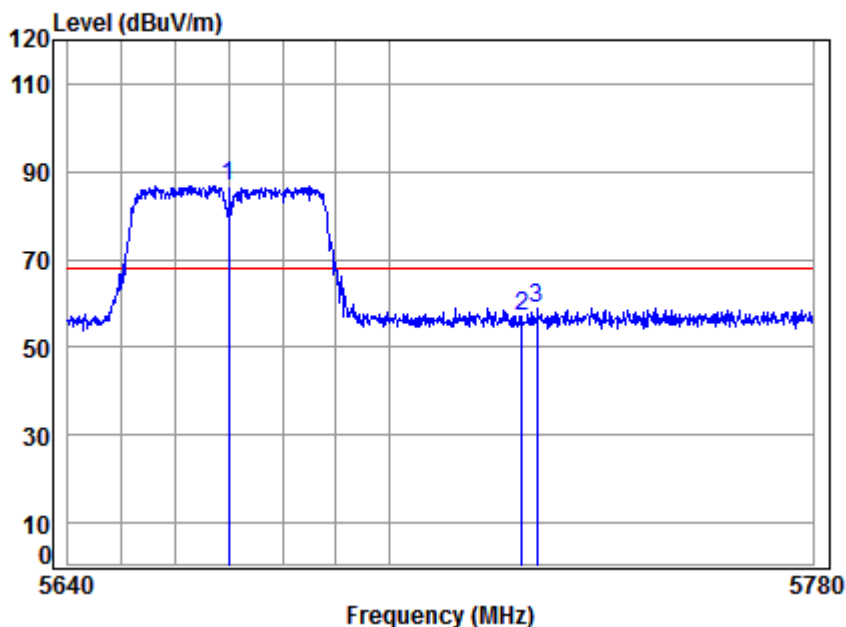


Site : chamber
Condition: 3m VERTICAL
Job No : 10024
Mode : 5700 Band edge
: 5G WIFI 11N20

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|-------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5700.000 | 9.56 | 34.81 | 43.10 | 92.25 | 93.52 | 68.20 | 25.32 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 57.00 | 58.39 | 68.20 | -9.81 | peak |
| 3 5763.882 | 9.78 | 34.87 | 43.04 | 58.63 | 60.24 | 68.20 | -7.96 | peak |



4.3.2.5 11N40_MIMO_134 _ Horizontal

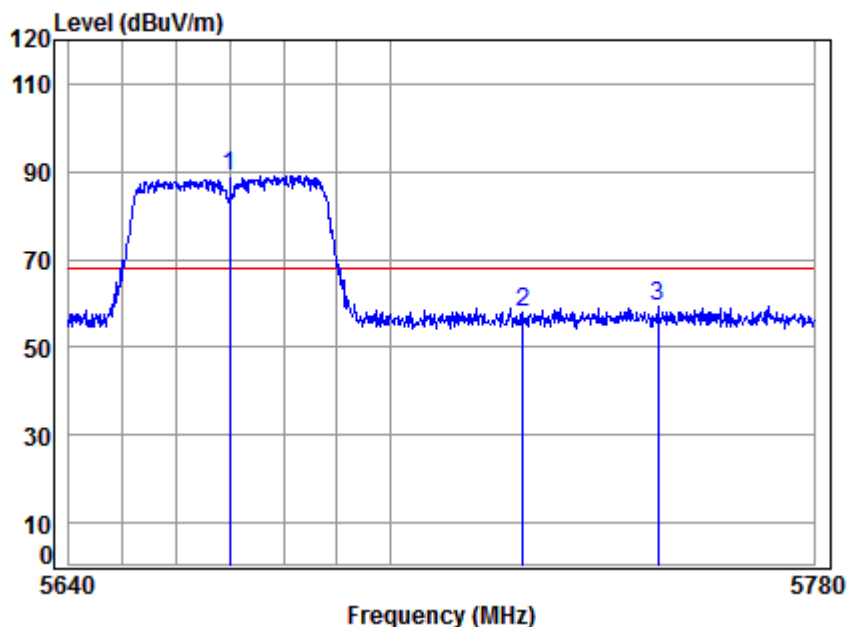


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10024
Mode : 5670 Band edge
: 5G WIFI 11N40

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|--------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5670.000 | 9.45 | 34.77 | 43.13 | 85.76 | 86.85 | 68.20 | 18.65 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 55.67 | 57.06 | 68.20 | -11.14 | peak |
| 3 5727.799 | 9.65 | 34.83 | 43.08 | 57.63 | 59.03 | 68.20 | -9.17 | peak |



4.3.2.6 11N40_MIMO_134_Vertical

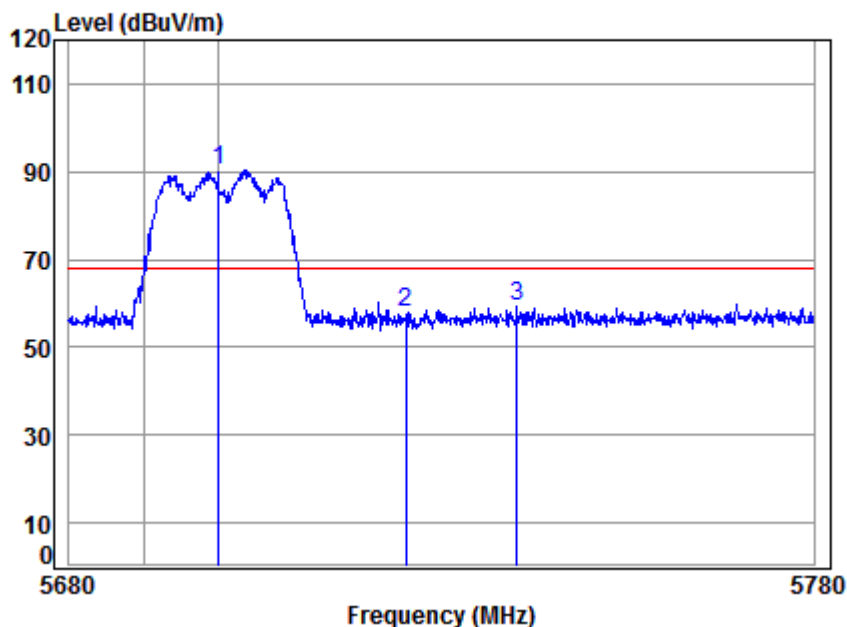


Site : chamber
Condition: 3m VERTICAL
Job No : 10024
Mode : 5670 Band edge
: 5G WIFI 11N40

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|--------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5670.000 | 9.45 | 34.77 | 43.13 | 88.05 | 89.14 | 68.20 | 20.94 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 56.74 | 58.13 | 68.20 | -10.07 | peak |
| 3 5750.456 | 9.73 | 34.86 | 43.06 | 57.60 | 59.13 | 68.20 | -9.07 | peak |



4.3.2.7 11AC20_MIMO_140 _ Horizontal

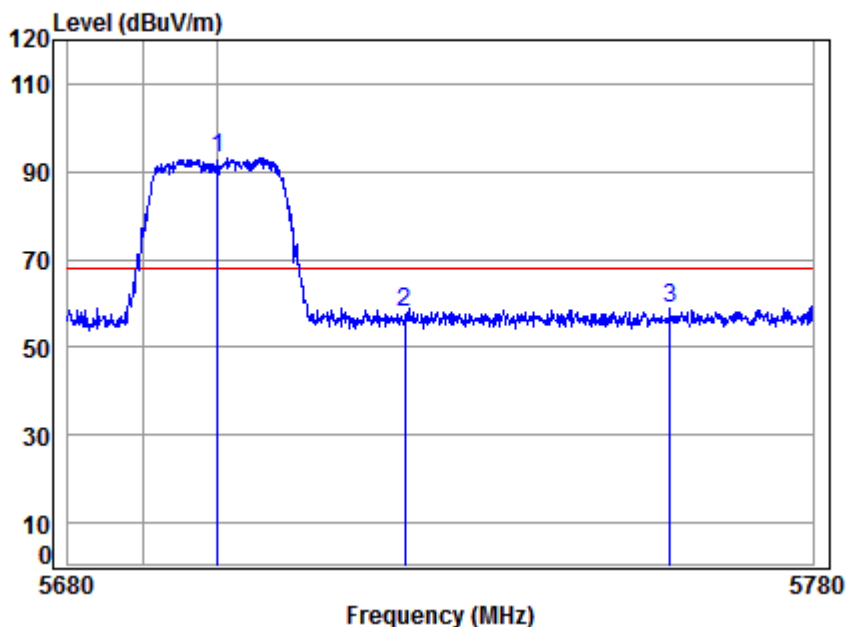


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10024
Mode : 5700 Band edge
: 5G WIFI 11AC20

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|--------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5700.000 | 9.56 | 34.81 | 43.10 | 89.05 | 90.32 | 68.20 | 22.12 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 56.44 | 57.83 | 68.20 | -10.37 | peak |
| 3 5739.991 | 9.69 | 34.85 | 43.07 | 57.81 | 59.28 | 68.20 | -8.92 | peak |



4.3.2.8 11AC20 MIMO 140 Vertical



```
Site      : chamber
Condition: 3m VERTICAL
Job No    : 10024
Mode      : 5700 Band edge
           : 5G WIFI 11AC20
```

| | Freq | Cable Loss | Ant Factor | Preamp Factor | Read Level | Level | Limit Line | Over Limit | Remark |
|-----|----------|---------------|---------------|------------------|---------------|--------|---------------|---------------|--------|
| | MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * | 5700.000 | 9.56 | 34.81 | 43.10 | 91.83 | 93.10 | 68.20 | 24.90 | peak |
| 2 | 5725.000 | 9.64 | 34.83 | 43.08 | 56.77 | 58.16 | 68.20 | -10.04 | peak |
| 3 | 5760.765 | 9.77 | 34.87 | 43.05 | 57.19 | 58.78 | 68.20 | -9.42 | peak |



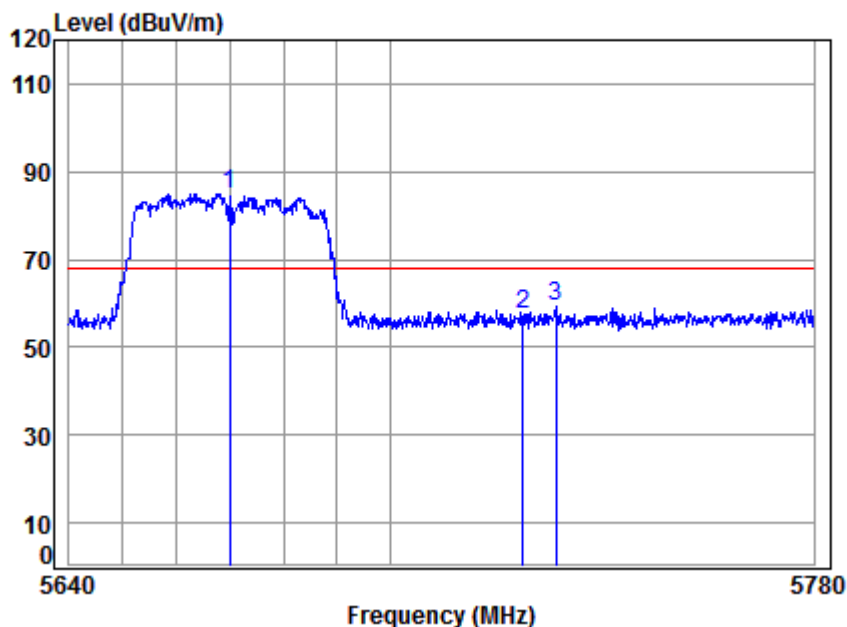
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Shenzhen Branch Testing Center EEC Laboratory.

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4.3.2.9 11AC40_MIMO_134_Horizontal

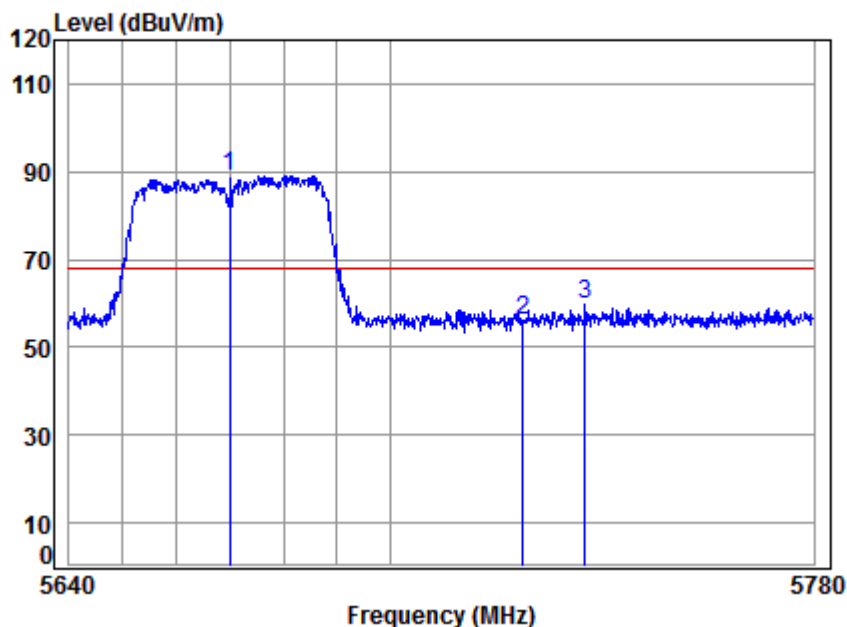


Site : chamber
Condition: 3m HORIZONTAL
Job No : 10024
Mode : 5670 Band edge
: 5G WIFI 11AC40

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|--------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5670.000 | 9.45 | 34.77 | 43.13 | 83.82 | 84.91 | 68.20 | 16.71 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 56.31 | 57.70 | 68.20 | -10.50 | peak |
| 3 5731.171 | 9.66 | 34.84 | 43.07 | 57.90 | 59.33 | 68.20 | -8.87 | peak |



4.3.2.10 11AC40_MIMO_134_Vertical



Site : chamber
Condition: 3m VERTICAL
Job No : 10024
Mode : 5670 Band edge
: 5G WIFI 11AC40

| | Cable | Ant | Preamp | Read | | Limit | Over | |
|--------------|-------|--------|--------|-------|--------|--------|--------|--------|
| Freq | Loss | Factor | Factor | Level | Level | Line | Limit | Remark |
| MHz | dB | dB/m | dB | dBuV | dBuV/m | dBuV/m | dB | |
| 1 * 5670.000 | 9.45 | 34.77 | 43.13 | 87.95 | 89.04 | 68.20 | 20.84 | peak |
| 2 5725.000 | 9.64 | 34.83 | 43.08 | 54.88 | 56.27 | 68.20 | -11.93 | peak |
| 3 5736.654 | 9.68 | 34.84 | 43.07 | 58.12 | 59.57 | 68.20 | -8.63 | peak |





Remark:

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

All modes have been tested, but only the worst case data displayed in this report.



5 Measurement Uncertainty (95% confidence levels, k=2)

| No. | Item | Measurement Uncertainty |
|-----|---------------------------------|-------------------------|
| 1 | Radiated Spurious emission test | ±4.5dB (30MHz-1GHz) |
| | | ±4.8dB (1GHz-25GHz) |
| 2 | Conduct emission test | ±3.12 dB(9KHz- 30MHz) |
| 3 | Temperature test | ±1°C |
| 4 | Humidity test | ±3% |
| 5 | DC and low frequency voltages | ±0.5% |





6 Equipment List

| Conducted Emission | | | | | |
|-------------------------------------|------------------------------------|-------------------|---------------|---------------------------|-------------------------------|
| Test Equipment | Manufacturer | Model No. | Inventory No. | Cal. Date (yyyy-mm-dd) | Cal. Due date (yyyy-mm-dd) |
| Shielding Room | ZhongYu Electron | GB-88 | SEM001-06 | 2017/5/10 | 2020/5/9 |
| LISN | Rohde & Schwarz | ENV216 | SEM007-01 | 2018/9/2 | 2019/9/2 |
| LISN | ETS-LINDGREN | Feb-16 | SEM007-02 | 2018/4/2 | 2019/4/1 |
| Measurement Software | AUDIX | e3 V5.4.1221d | N/A | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM024-01 | 2018/7/12 | 2019/7/11 |
| 8 Line ISN | Fischer Custom Communications Inc. | FCC-TLISN-T8-02 | EMC0120 | 2019/2/11 | 2020/2/10 |
| 4 Line ISN | Fischer Custom Communications Inc. | FCC-TLISN-T4-02 | EMC0121 | 2019/2/11 | 2020/2/10 |
| 2 Line ISN | Fischer Custom Communications Inc. | FCC-TLISN-T2-02 | EMC0122 | 2019/2/11 | 2020/2/10 |
| EMI Test Receiver | Rohde & Schwarz | ESCI | SEM004-02 | 2018/4/2 | 2019/4/1 |
| RE in Chamber | | | | | |
| Test Equipment | Manufacturer | Model No. | Inventory No. | Cal. Date (yyyy-mm-dd) | Cal. Due date (yyyy-mm-dd) |
| 3m Semi-Anechoic Chamber | ETS-LINDGREN | N/A | SEM001-01 | 2017/8/5 | 2020/8/4 |
| Measurement Software | AUDIX | e3 V8.2014-6-27 | N/A | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM025-01 | 2018/7/12 | 2019/7/11 |
| MXE EMI Receiver (20Hz-8.4GHz) | Agilent Technologies | N9038A | SEM004-05 | 2018/9/2 | 2019/9/2 |
| BiConiLog Antenna (26-3000MHz) | ETS-LINDGREN | 3142C | SEM003-01 | 2017/6/27 | 2020/6/26 |
| Pre-amplifier (0.1-1.3GHz) | Agilent Technologies | 8447D | SEM005-01 | 2018/4/2 | 2019/4/1 |
| RE in Chamber | | | | | |
| Test Equipment | Manufacturer | Model No. | Inventory No. | Cal. Date (yyyy-mm-dd) | Cal. Due date (yyyy-mm-dd) |
| 10m Semi-Anechoic Chamber | SAEMC | FSAC1018 | SEM001-03 | 2018/3/31 | 2021/3/30 |
| EMI Test Receiver (9K-7GHz) | Rohde & Schwarz | ESR | SEM004-03 | 2018/4/2 | 2019/4/1 |
| Trilog-Broadband Antenna (25M-2GHz) | Schwarzbeck | VULB9168 | SEM003-18 | 2016/6/29 | 2019/6/28 |
| Pre-amplifier (9K-1GHz) | Sonoma Instrument Co | 310N | SEM005-03 | 2018/4/13 | 2019/4/12 |
| Loop Antenna (9kHz-30MHz) | ETS-Lindgren | 6502 | SEM003-08 | 2017/8/22 | 2020/8/21 |
| Measurement Software | AUDIX | e3 V8.2014-6-27 | N/A | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM029-01 | 2018/7/12 | 2019/7/11 |
| RE in Chamber | | | | | |
| Test Equipment | Manufacturer | Model No. | Inventory No. | Cal. Date (yyyy-mm-dd) | Cal. Due date (yyyy-mm-dd) |
| 3m Semi-Anechoic Chamber | AUDIX | N/A | SEM001-02 | 2018/3/13 | 2021/3/12 |
| Spectrum Analyzer (20Hz-43GHz) | Rohde & Schwarz | FSU43 | SEM004-08 | 2018/4/2 | 2019/4/1 |
| BiConiLog Antenna (26-3000MHz) | ETS-Lindgren | 3142C | SEM003-01 | 2017/6/27 | 2020/6/26 |
| Horn Antenna (800MHz-18GHz) | Rohde & Schwarz | HF907 | SEM003-07 | 2018/4/13 | 2021/4/12 |
| Horn Antenna (15-40GHz) | Schwarzbeck | BBHA 9170 | SEM003-15 | 2017/10/17 | 2020/10/16 |
| Amplifier(0.1-1300MHz) | HP | 8447D | SEM005-02 | 2018/9/2 | 2019/9/2 |
| Low Noise Amplifier (100MHz-18GHz) | Black Diamond Series | BDLNA-0118-352810 | SEM005-05 | 2018/9/2 | 2019/9/2 |
| Pre-Amplifier(0.1-26.5GHz) | Compliance Directions Systems Inc. | PAP-0126 | EMC2063 | 2018/11/20 | 2019/11/19 |
| Pre-amplifier(26-40GHz) | Compliance Directions Systems Inc. | PAP-2640-50 | SEM005-08 | 2018/4/2 | 2019/4/1 |
| Band filter | N/A | N/A | N/A | N/A | N/A |
| Measurement Software | AUDIX | e3 V8.2014-6-27 | N/A | N/A | N/A |
| Coaxial Cable | SGS | N/A | SEM026-01 | 2018/7/12 | 2019/7/11 |





7 Photographs - EUT Test Setup Details

Refer to Appendix A - Photographs of EUT Test Setup Details for HR/2019/10024.

The End

