

Report No.: SHEM210700793202

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TEST REPORT

Application No.: SHEM2107007932CR **FCC ID:** 2APV2-CSC68C4

Applicant: Hangzhou Ezviz Software Co., Ltd.

Address of Applicant: Room 302, Unit B, Building 2,399 Danfeng Road, Binjiang District,

Hangzhou, Zhejiang

Manufacturer: Hangzhou Ezviz Software Co., Ltd.

Address of Manufacturer: Room 302, Unit B, Building 2,399 Danfeng Road, Binjiang District,

Hangzhou, Zhejiang

Equipment Under Test (EUT):

EUT Name: Smart Home Camera

Model No.: CS-C6, CS-C6 (4MP, W2),CS-C6 (3MP, W2)¤

Please refer to section 2 of this report which indicates which model was

actually tested and which were electrically identical.

Trade mark: EZVIZ

Standard(s): 47 CFR Part 15, Subpart E 15.407

Date of Receipt: 2021-07-21

Date of Test: 2021-07-21 to 2021-08-13

Date of Issue: 2021-08-14

Test Result: Pass*

parlan shan

Parlam Zhan Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

检验检测专用章 Services Jechnical Services Tacting Canter Fine Application & Testing Services Tacting Canter Fine Applications (Application Canter Fine Application Canter Fine Appl

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



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| Revision Record | | | | |
|------------------------------|----------|------------|---|--|
| Version Description Date Ren | | | | |
| 00 | Original | 2021-08-14 | 1 | |
| | | | | |
| | | | | |

| Authorized for issue by: | | |
|--------------------------|--------------------------------|--|
| | Michael Nil | |
| | Micheal Niu / Project Engineer | |
| | Parlam Zhan | |
| | Parlam Zhan / Reviewer | |



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2 Test Summary

| Radio Spectrum Technical Requirement | | | | | | |
|--------------------------------------|-------------------------------------|--------|--|--------|--|--|
| Item | Standard | Method | Requirement | Result | | |
| Antenna Requirement | 47 CFR Part 15, Subpart E 15.407 | N/A | 47 CFR Part 15, Subpart C 15.203 | Pass | | |
| Transmission in the Absence of Data | 47 CFR Part 15, Subpart E 15.407 | N/A | 47 CFR Part 15, Subpart C 15.407 (c) | Pass | | |

N/A: Not applicable

| Radio Spectrum Matter Part | | | | | |
|---|-------------------------------------|-----------------------------------|--|--------|--|
| Item | Standard | Method | Requirement | Result | |
| Conducted Emissions at AC Power Line (150kHz-30MHz) | 47 CFR Part 15, Subpart E 15.407 | ANSI C63.10 (2013) Section 6.2 | 47 CFR Part 15, Subpart C 15.207 & 15.407 b(6) | Pass | |
| 99% Bandwidth | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 II D | N/A | Pass | |
| 26dB Emission bandwidth | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 D02 II C 1 | 47 CFR Part 15, Subpart C 15.407 (a) | Pass | |
| Minimum 6 dB bandwidth (5.725- 5.85 GHz band) | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 D02 II C 2 | 47 CFR Part 15, Subpart C 15.407 (e) | Pass | |
| Maximum Conducted output power | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 D02 II E | 47 CFR Part 15, Subpart C 15.407 (a) | Pass | |
| Peak Power spectrum density | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 D02 II F | 47 CFR Part 15, Subpart C 15.407 (a) | Pass | |
| Radiated Emissions | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 D02 II G | 47 CFR Part 15, Subpart C 15.209 & 15.407(b) | Pass | |
| Radiated Emissions which fall in the restricted bands | 47 CFR Part 15, Subpart E 15.407 | KDB 789033 D02 II G | 47 CFR Part 15, Subpart C 15.209 & 15.407(b) | Pass | |
| Frequency Stability | 47 CFR Part 15, Subpart E 15.407 | ANSI C63.10 (2013) Section 6.8 | 47 CFR Part 15, Subpart C 15.407 (g) | Pass | |

Note: "N/A" means there is no requirement for this test item.

Declaration of EUT Family Grouping:

Note: There are series models mentioned in this report, and they are the similar in electrical and electronic characters. Only the model CS-C6 was tested since their differences were the model number and appearance.



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4 General Information

4.1 Details of E.U.T.

Power supply: DC 5V by Adapter Test voltage: AC 120V/60Hz

| Operation Frequency: | Band | Mode | Frequency Range(MHz) | Number of channels | |
|----------------------|--|-----------------|-------------------------|--------------------|--|
| | UNII Band I | 802.11a/n(HT20) | 5180-5240 | 4 | |
| | | 802.11n(HT40) | 5190-5230 | 2 | |
| | UNII Band III | 802.11a/n(HT20) | 5745-5825 | 5 | |
| | | 802.11n(HT40) | 5755-5795 | 2 | |
| Modulation Type: | 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) | | | | |
| | 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) | | | | |
| Date Rate: | 802.11a:6/9/12/18/24/36/48/54Mbps | | | | |
| | 802.11n: MCS0-MCS7 | | | | |
| Channel Spacing: | 802.11a/n(HT20): 20MHz | | | | |
| | 802.11n(HT40): 40MHz | | | | |
| Antenna Gain: | 3.39dBi (Provided by manufacturer) | | | | |
| Antenna Type: | PCB Antenna | | | | |



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4.2 Power level setting using in test:

| Channel | 802.11a | 802.11n(HT20) |
|---------|---------------|---------------|
| | Ant 1 | Ant 1 |
| 36 | -25 | -20 |
| 40 | -25 | -20 |
| 48 | -25 | -20 |
| 149 | -20 | -20 |
| 157 | -20 | -20 |
| 165 | -20 | -20 |
| Channal | 802.11n(HT40) | |
| Channel | Ant 1 | |
| 38 | -15 | |
| 46 | -15 | |
| 151 | -15 | |
| 159 | -15 | |

4.3 Description of Support Units

| Description | Manufacturer | Model No. | Serial No. |
|-------------|--|---------------|---------------------|
| Adapter | Sichuan Jiuzhou Electronic Technology Co., Ltd | DYS05100CP-U | / |
| Note Book | LENOVO | ThinkPad E550 | N/A |
| Note Book | LENOVO | Y510P | SZSMT55INP141501639 |



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4.4 Measurement Uncertainty

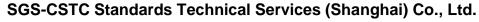
| No. | Item | Measurement Uncertainty |
|-----|---------------------------------|-------------------------|
| 1 | Radio Frequency | 8.4 x 10 ⁻⁸ |
| 2 | Timeout | 2s |
| 3 | Duty Cycle | 0.37% |
| 4 | Occupied Bandwidth | 3% |
| 5 | RF Conducted Power | 0.6dB |
| 6 | RF Power Density | 2.9dB |
| 7 | Conducted Spurious Emissions | 0.75dB |
| 0 | DE Dadiated Dawer | 5.2dB (Below 1GHz) |
| 8 | RF Radiated Power | 5.9dB (Above 1GHz) |
| | | 4.2dB (Below 30MHz) |
| 0 | Dedicted Courieus Emissies Test | 4.5dB (30MHz-1GHz) |
| 9 | Radiated Spurious Emission Test | 5.1dB (1GHz-18GHz) |
| | | 5.4dB (Above 18GHz) |
| 10 | Temperature Test | 1°C |
| 11 | Humidity Test | 3% |
| 12 | Supply Voltages | 1.5% |
| 13 | Time | 3% |

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



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4.5 Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888 Fax: +86 512 5737 0818

No tests were sub-contracted.

4.6 Test Facility

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

• CNAS (No. CNAS L4354)

CNAS has accredited Compliance Certification Services (Kunshan) Inc. to ISO/IEC 17025:2017 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. 2541.01)

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• FCC (Designation Number: CN1172)

Compliance Certification Services Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

• ISED (CAB identifier: CN0072)

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory.

Company Number: 2324E

• VCCI (Member No.: 1938)

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600,C-11707, T-11499, G-10216 respectively.

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None



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5 Equipment List

| Item | Equipment | Manufacturer | Model | Serial Number | Cal Date | Cal. Due Date |
|------|---|---------------|-------------|-------------------|------------|---------------|
| | ducted Emission at Mains Terminals (150 | | | | | |
| 1 | EMI Test Receive | R&S | ESCI | 100781 | 02/01/2021 | 01/31/2022 |
| 2 | LISN | R&S | ENV216 | 101604 | 10/19/2020 | 10/18/2021 |
| 3 | LISN | Schwarzbeck | NNLK 8129 | 8129-143 | 10/19/2020 | 10/18/2021 |
| 4 | Pulse Limiter | R&S | ESH3-Z2 | 100609 | 02/01/2021 | 01/31/2022 |
| 5 | CE test Cable | Thermax | / | 14 | 10/17/2020 | 10/16/2021 |
| 6 | Test Software | Farad | EZ-EMC | CCS-03A1 | N.C.R | N.C.R |
| RF (| Conducted Test | | | • | | |
| 1 | Spectrum Analyzer | Agilent | E4446A | MY44020154 | 04/16/2021 | 04/15/2022 |
| 2 | Spectrum Analyzer | Keysight | N9020A | MY55370209 | 12/02/2020 | 12/01/2021 |
| 3 | Spectrum Analyzer | Keysight | N9010A | MY56480443 | 02/01/2021 | 01/31/2022 |
| 4 | Signal Generator | Agilent | N5182A | MY50142015 | 09/25/2020 | 09/24/2021 |
| 5 | Radio Communication Test Station | Anritsu | MT8000A | 6262012849 | N/A | N/A |
| 6 | Radio Communication Analyzer | Anritsu | MT8821C | 6201692222 | N/A | N/A |
| 7 | Universal Radio Communication Tester | R&S | CMW500 | 159275 | 10/19/2020 | 10/18/2021 |
| 8 | Universal Radio Communication Tester | R&S | CMW500 | 167239 | 04/16/2021 | 04/15/2022 |
| 9 | Power Meter | Anritsu | ML2495A | 1445010 | 04/15/2021 | 04/14/2022 |
| 10 | Switcher | CCSRF | FY562 | KUS2001M001 -3 | 10/19/2020 | 10/18/2021 |
| 11 | AC Power Source | EXTECH | 6605 | 1570106 | N.C.R | N.C.R |
| 12 | DC Power Supply | Aglient | E3632A | MY50340053 | N.C.R | N.C.R |
| 13 | 6dB Attenuator | Mini-Circuits | NAT-6-2W | 15542-1 | N.C.R | N.C.R |
| 14 | Power Divider | AISI | IOWOPE2068 | PE2068 | N.C.R | N.C.R |
| 15 | Filter | MICRO-TRONICS | BRM50701 | 5 | N.C.R | N.C.R |
| 16 | Conducted test cable | / | RF01-RF04 | / | 04/15/2021 | 04/14/2022 |
| 17 | Software | BST | TST-PASS | N/A | N/A | N/A |
| 18 | Temp. / Humidity Chamber | TERCHY | MHK-120AK | X30109 | 04/15/2021 | 04/14/2022 |
| 19 | Thermometer | Anymetre | TH603 | CCS007 | 10/16/2020 | 10/15/2021 |
| RF R | adiated Test | . | | | | |
| 1 | Spectrum Analyzer | R&S | FSV40 | 101493 | 10/19/2020 | 10/18/2021 |
| 2 | Signal Generator | Agilent | E8257C | MY43321570 | 10/19/2020 | 10/18/2021 |
| 3 | Loop Antenna | Schwarzbeck | HXYZ9170 | 9170-108 | 02/22/2021 | 02/21/2022 |
| 4 | Bilog Antenna | TESEQ | CBL 6112D | 35403 | 06/21/2021 | 06/20/2023 |
| 5 | Bilog Antenna | SCHWARZBECK | VULB9160 | 9160-3342 | 04/13/2021 | 04/12/2023 |
| 6 | Horn-antenna(1-18GHz) | Schwarzbeck | BBHA9120D | 267 | 10/26/2020 | 10/25/2022 |
| 7 | Horn-antenna(1-18GHz) | ETS-LINDGREN | 3117 | 00143290 | 02/22/2021 | 02/21/2023 |
| 8 | Horn Antenna(18-40GHz) | Schwarzbeck | BBHA9170 | BBHA9170171 | 02/22/2021 | 02/21/2022 |
| 9 | Pre-Amplifier(30MHz~18GHz) | LNA | / | / | 04/15/2021 | 04/14/2022 |
| 10 | Amplifier(18~40GHz) | COM-POWER | PAM-840A | 461332 | 10/23/2020 | 10/22/2021 |
| 11 | Low Pass Filter | MICRO-TRONICS | VLFX-950 | RV142900829 | N.C.R | N.C.R |
| 12 | High Pass Filter | Mini-Circuits | VHF-1200 | 15542 | N.C.R | N.C.R |
| 13 | Filter (5450MHz~5770 MHz) | MICRO-TRONICS | BRC50704-01 | 2 | N.C.R | N.C.R |
| 14 | Filter (5690 MHz~5930 MHz) | MICRO-TRONICS | BRC50705-01 | 4 | N.C.R | N.C.R |
| 15 | Filter (5150 MHz~5350 MHz) | MICRO-TRONICS | BRC50703-01 | 2 | N.C.R | N.C.R |



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| 16 | Filter (885 MHz~915 MHz) | MICRO-TRONICS | BRM14698 | 1 | N.C.R | N.C.R |
|----|-----------------------------------|---------------|--------------|-----|------------|------------|
| 17 | Filter (815 MHz~860 MHz) | MICRO-TRONICS | BRM14697 | 1 | N.C.R | N.C.R |
| 18 | Filter (1745 MHz \sim 1910 MHz) | MICRO-TRONICS | BRM14700 | 1 | N.C.R | N.C.R |
| 19 | Filter (1922 MHz \sim 1977 MHz) | MICRO-TRONICS | BRM50715 | 1 | N.C.R | N.C.R |
| 20 | Filter (2550 MHz) | MICRO-TRONICS | HPM13362 | 5 | N.C.R | N.C.R |
| 21 | Filter (1532 MHz \sim 1845 MHz) | MICRO-TRONICS | BRM50713 | 1 | N.C.R | N.C.R |
| 22 | Filter (2.4GHz) | MICRO-TRONICS | BRM50701 | 5 | N.C.R | N.C.R |
| 23 | RE test cable | / | RE01-RE04 | / | 04/15/2021 | 04/14/2022 |
| 24 | Software | Faratronic | EZ_EMC-v 3A1 | N/A | N/A | N/A |



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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

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 antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is PCB antenna on the main PCB and no consideration of replacement. The best case gain of the antenna is 3.39dBi.

Antenna location: Refer to Appendix(Internal Photos)



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6.2 Transmission in the Absence of Data

6.2.1 Test Requirement:

47 CFR Part 15, Subpart C 15.407 (c)

6.2.2 Conclusion

Standard Requirement:

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

Applicants shall include in their application for equipment authorization a description of how this requirement is met.

EUT Details:

WIFI chip (RTL8731BU) support automatically discontinue transmission in case of either absence of information to transmit or operational failure, if the chip detect absence of information to transmit or operational failure, it will be automatically shut off.



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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 & 15.407 b(6)

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

| Fraguency of amission(MU=) | Conducted limit(dBμV) | | |
|---|-----------------------|-----------|--|
| Frequency of 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. | | | |



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7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 48 % RH Atmospheric Pressure: 1010 mbar

Pretest these modes to find the worst case:

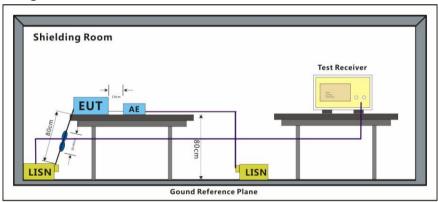
b:TX mode (Band 1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

c:TX mode (Band 3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

The worst case for final test:

b:TX mode (Band 1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 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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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 $50 \text{ohm}/50 \mu\text{H} + 5 \text{ohm}$ 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



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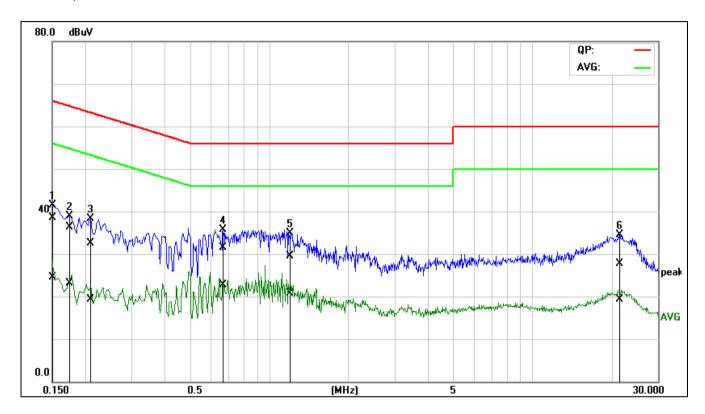
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Mode:b; Line:Live Line



| No. | Frequency | QuasiPeak | Average | Correction | QuasiPeak | Average | QuasiPeak | Average | QuasiPeak | Average | Remark |
|-----|-----------|-----------|---------|------------|-----------|---------|-----------|---------|-----------|---------|--------|
| | | reading | reading | factor | result | result | limit | limit | margin | margin | |
| | (MHz) | (dBuV) | (dBuV) | (dB) | (dBuV) | (dBuV) | (dBuV) | (dBuV) | (dB) | (dB) | |
| 1 | 0.1500 | 19.08 | 5.14 | 19.46 | 38.54 | 24.60 | 65.99 | 56.00 | -27.45 | -31.40 | Pass |
| 2 | 0.1760 | 16.79 | 3.65 | 19.46 | 36.25 | 23.11 | 64.67 | 54.67 | -28.42 | -31.56 | Pass |
| 3 | 0.2097 | 13.14 | -0.20 | 19.46 | 32.60 | 19.26 | 63.21 | 53.22 | -30.61 | -33.96 | Pass |
| 4* | 0.6705 | 11.99 | 3.26 | 19.53 | 31.52 | 22.79 | 56.00 | 46.00 | -24.48 | -23.21 | Pass |
| 5 | 1.1969 | 9.90 | 1.16 | 19.56 | 29.46 | 20.72 | 56.00 | 46.00 | -26.54 | -25.28 | Pass |
| 6 | 21.4994 | 7.51 | -0.97 | 20.28 | 27.79 | 19.31 | 60.00 | 50.00 | -32.21 | -30.69 | Pass |



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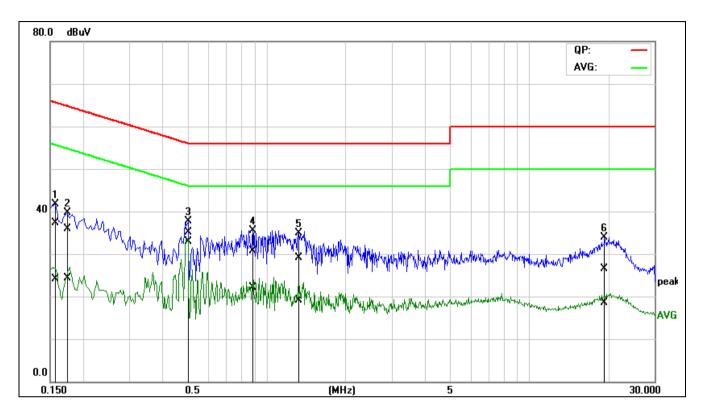
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Mode:b; Line:Neutral Line



| No. | Frequency | QuasiPeak | Average | Correction | QuasiPeak | Average | QuasiPeak | Average | QuasiPeak | Average | Remark |
|-----|-----------|-----------|---------|------------|-----------|---------|-----------|---------|-----------|---------|--------|
| | | reading | reading | factor | result | result | limit | limit | margin | margin | |
| | (MHz) | (dBuV) | (dBuV) | (dB) | (dBuV) | (dBuV) | (dBuV) | (dBuV) | (dB) | (dB) | |
| 1 | 0.1562 | 17.98 | 4.75 | 19.42 | 37.40 | 24.17 | 65.66 | 55.66 | -28.26 | -31.49 | Pass |
| 2 | 0.1746 | 16.44 | 4.81 | 19.42 | 35.86 | 24.23 | 64.73 | 54.74 | -28.87 | -30.51 | Pass |
| 3* | 0.4961 | 15.54 | 13.47 | 19.51 | 35.05 | 32.98 | 56.07 | 46.07 | -21.02 | -13.09 | Pass |
| 4 | 0.8900 | 11.19 | 2.62 | 19.53 | 30.72 | 22.15 | 56.00 | 46.00 | -25.28 | -23.85 | Pass |
| 5 | 1.3284 | 9.47 | -0.42 | 19.54 | 29.01 | 19.12 | 56.00 | 46.00 | -26.99 | -26.88 | Pass |
| 6 | 19.4303 | 6.38 | -1.77 | 20.22 | 26.60 | 18.45 | 60.00 | 50.00 | -33.40 | -31.55 | Pass |



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7.2 99% Bandwidth

Test Requirement N/A

Test Method: KDB 789033 II D

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Pretest these modes to find the worst case:

b:TX mode (Band 1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

c:TX mode (Band 3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the

report.

The worst case for final test:

b:TX mode (Band 1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

c:TX mode (Band 3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.



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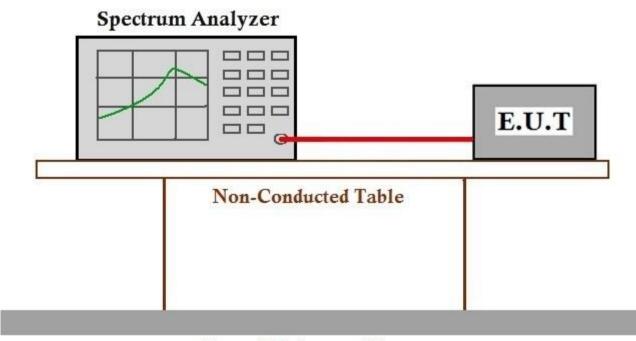
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7.2.2 Test Setup Diagram



Ground Reference Plane

7.2.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210700793202



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7.3 26dB Emission bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.407 (a)

Test Method: KDB 789033 D02 II C 1

7.3.1 E.U.T. Operation

Operating Environment:

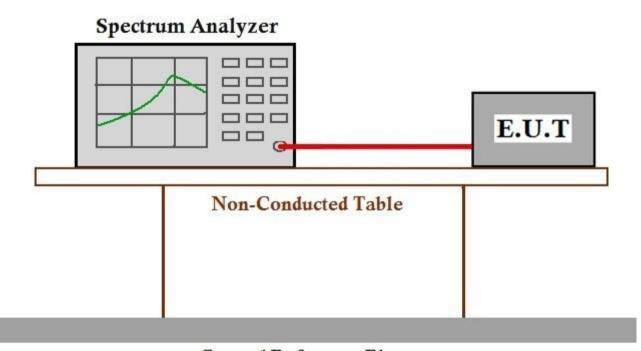
Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode c:TX mode (Band 3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the

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7.3.2 Test Setup Diagram



Ground Reference Plane

7.3.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210700793202



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7.4 Minimum 6 dB bandwidth (5.725-5.85 GHz band)

Test Requirement 47 CFR Part 15, Subpart C 15.407 (e)

Test Method: KDB 789033 D02 II C 2

Limit: ≥500 kHz

7.4.1 E.U.T. Operation

Operating Environment:

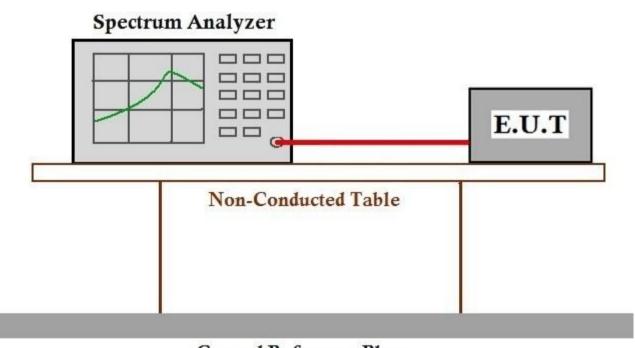
Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Test mode c:TX mode (Band 3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the

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7.4.2 Test Setup Diagram



Ground Reference Plane

7.4.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210700793202



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7.5 Maximum Conducted output power

Test Requirement 47 CFR Part 15, Subpart C 15.407 (a)

Test Method: KDB 789033 D02 II E

Limit:

| Frequenc | y band(MHz) | Limit | | | | |
|----------|--|--|--|--|--|--|
| E1E0 E | 2250 | ≤1W(30dBm) for master device | | | | |
| 5150-5 | 0250 | ≤250mW(24dBm) for client device | | | | |
| 5250-5 | 350 | ≤250mW(24dBm) for client device or 11dBm+10logB* | | | | |
| 5470-5 | 725 | ≤250mW(24dBm) for client device or 11dBm+10logB* | | | | |
| 5725-5 | 850 | ≤1W(30dBm) | | | | |
| Remark: | * Where B is the 26dB emission bandwidth in MHz. | | | | | |
| | The maximum conducted output power must be measured over any int continuous transmission using instrumentation calibrated in terms of an rms-ed voltage. | | | | | |



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7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Pretest these modes to find the worst case:

b:TX mode (Band 1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

c:TX mode (Band 3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

The worst case for final test:

b:TX mode (Band 1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

c:TX mode (Band 3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.



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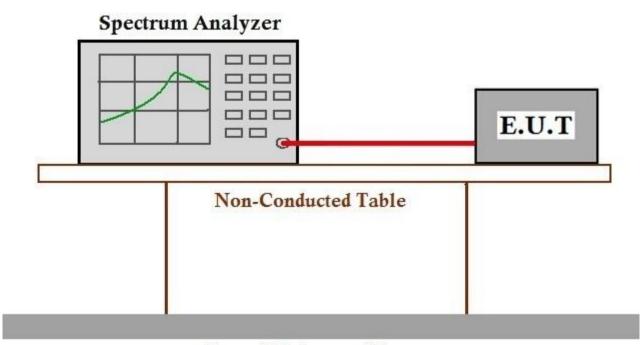
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7.5.2 Test Setup Diagram



Ground Reference Plane

7.5.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210700793202



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7.6 Peak Power spectrum density

Test Requirement 47 CFR Part 15, Subpart C 15.407 (a)

Test Method: KDB 789033 D02 II F

Limit:

| Frequenc | y band(MHz) | Limit | | | | | |
|----------|-------------|--|--|--|--|--|--|
| E1E0 E | 250 | ≤17dBm in 1MHz for master device | | | | | |
| 5150-5 | 250 | ≤11dBm in 1MHz for client device | | | | | |
| 5250-5 | 350 | ≤11dBm in 1MHz for client device | | | | | |
| 5470-5 | 725 | ≤11dBm in 1MHz for client device | | | | | |
| 5725-5 | 850 | ≤30dBm in 500 kHz | | | | | |
| Remark: | | n power spectral density is measured as a conducted emission by direct a calibrated test instrument to the equipment under test. | | | | | |



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Atmospheric Pressure: 1010 mbar

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7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 24

Pretest these modes to find the worst case:

b:TX mode (Band 1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the

% RH

Humidity:

50

report.

c:TX mode (Band 3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

The worst case for final test:

b:TX mode (Band 1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

c:TX mode (Band 3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.



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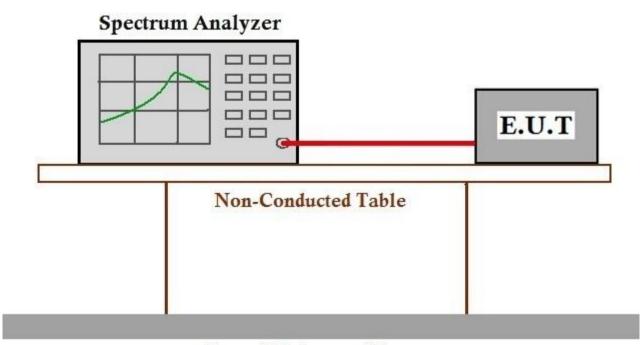
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7.6.2 Test Setup Diagram



Ground Reference Plane

7.6.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210700793202



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7.7 Radiated Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.407(b)

Test Method: KDB 789033 D02 II G

Limit:

Limit:

For transmitters operating in the 5.15-5.25 GHz band:

For transmitters operating in the 5.25-5.35 GHz band:

For transmitters operating in the 5.47-5.725 GHz band:

For transmitters operating in the 5.725-5.85 GHz band:

All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz (68.2dBuV/m).

All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz (68.2dBuV/m).

All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz (68.2dBuV/m).

(i) All emissions shall be limited to a level of −27 dBm/MHz (68.2dBuV/m) at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz (105.2dBuV/m) at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz (110.8dBuV/m) at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz (122.2dBuV/m) at the band edge.



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7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Pretest these modes to find the worst case:

b:TX mode (Band 1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

c:TX mode (Band 3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

The worst case for final test:

b:TX mode (Band 1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

c:TX mode (Band 3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.



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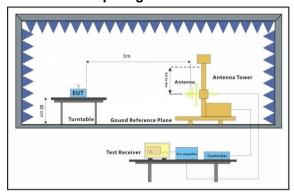
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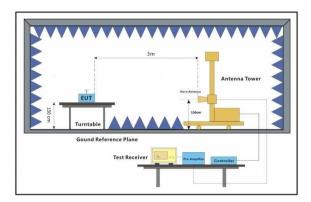


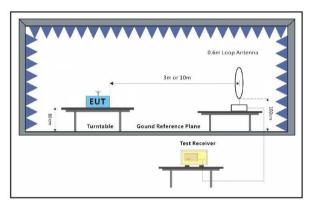


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7.7.2 Test Setup Diagram









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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
- 2. For emission below 1GHz, through the pre-scan found the worst case is the lowest channel of 802.11a. Only the worst case is recorded in the report.
- 3. Scan from 9kHz to 40GHz, 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. 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. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.



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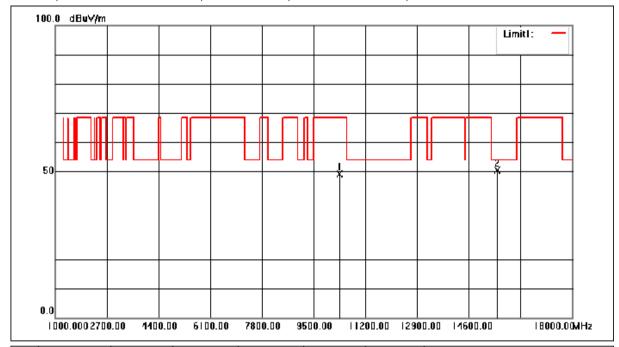
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Mode:b; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 10360.000 | 49.01 | 0.16 | 49.17 | 68.30 | -19.13 | peak |
| 2 | 15540.000 | 44.53 | 5.73 | 50.26 | 54.00 | -3.74 | peak |



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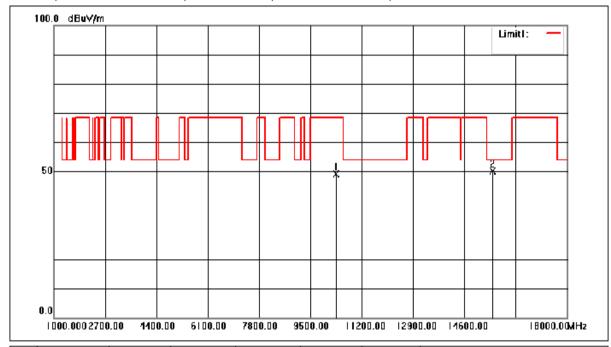
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Mode:b; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:Low



| | No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|---|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| | 1 | 10360.000 | 49.06 | 0.16 | 49.22 | 68.30 | -19.08 | peak |
| Ī | 2 | 15540.000 | 44.40 | 5.73 | 50.13 | 54.00 | -3.87 | peak |



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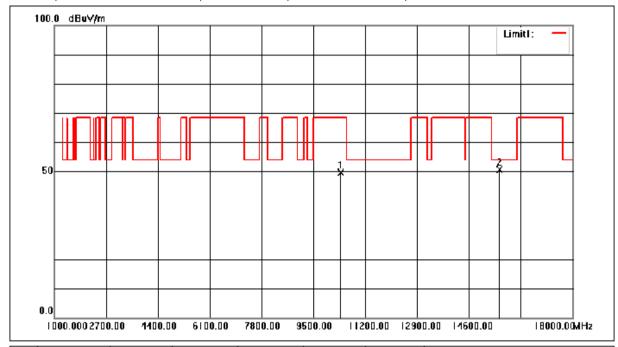
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Mode:b; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:middle



| | No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|---|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| | 1 | 10400.000 | 49.51 | 0.24 | 49.75 | 68.30 | -18.55 | peak |
| - | 2 | 15600.000 | 44.68 | 5.85 | 50.53 | 54.00 | -3.47 | peak |



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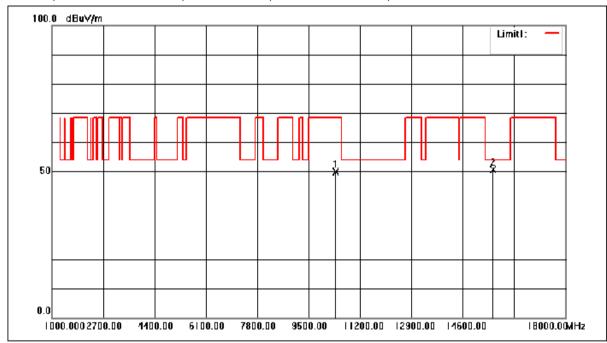
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Mode:b; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:middle



| No | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 10400.000 | 49.57 | 0.24 | 49.81 | 68.30 | -18.49 | peak |
| 2 | 15600.000 | 44.87 | 5.85 | 50.72 | 54.00 | -3.28 | peak |



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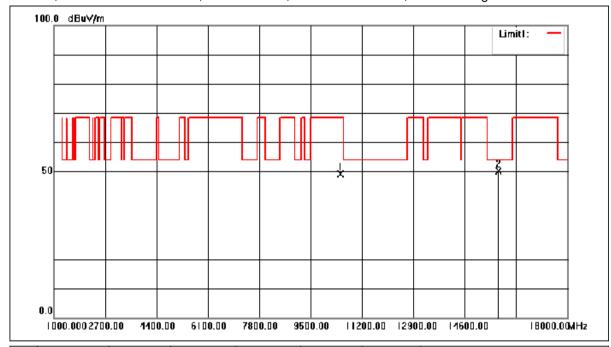
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Mode:b; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:High



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 10480.000 | 48.65 | 0.40 | 49.05 | 68.30 | -19.25 | peak |
| 2 | 15720.000 | 44.14 | 6.10 | 50.24 | 54.00 | -3.76 | peak |



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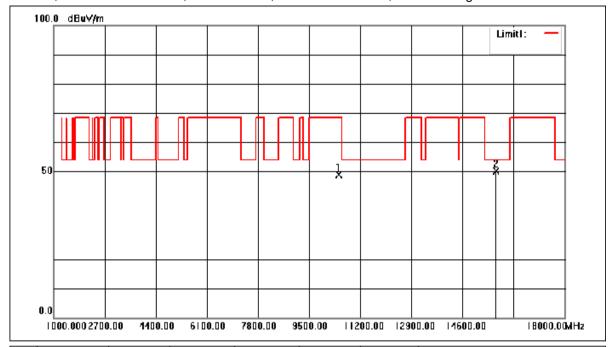
NO.588 West Jindu Road, Songjiang District, Shanghai, China 201612 中国・上海・松江区金都西路588号 邮编: 201612 $\begin{array}{lll} t(86\text{-}21)\, 61915666 & f(86\text{-}21)61915678 & \text{www.sgsgroup.com.cn} \\ t(86\text{-}21)\, 61915666 & f(86\text{-}21)61915678 & \text{e.sgs.china@sgs.com} \end{array}$





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



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 10480.000 | 48.47 | 0.40 | 48.87 | 68.30 | -19.43 | peak |
| 2 | 15720.000 | 43.96 | 6.10 | 50.06 | 54.00 | -3.94 | peak |



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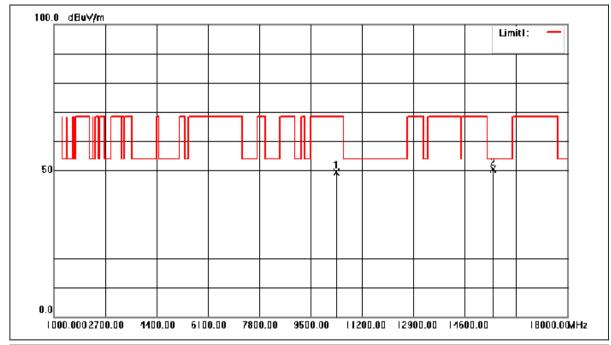
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Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low



| No. | Frequency (MHz) | | Correction factor(dB/m) | | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|-------|-------------------------|-------|-------------------|----------------|--------|
| 1 | 10360.000 | 49.19 | 0.16 | 49.35 | 68.30 | -18.95 | peak |
| 2 | 15540.000 | 44.58 | 5.73 | 50.31 | 54.00 | -3.69 | peak |



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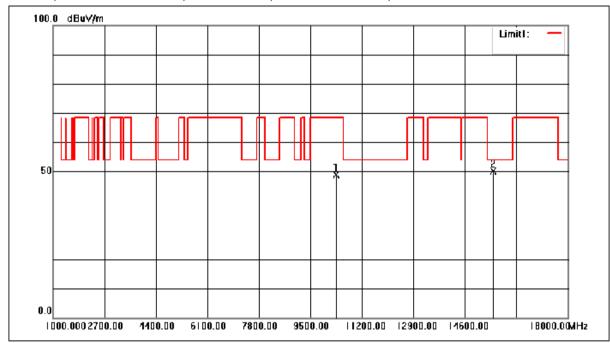
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Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 10360.000 | 48.82 | 0.16 | 48.98 | 68.30 | -19.32 | peak |
| 2 | 15540.000 | 44.30 | 5.73 | 50.03 | 54.00 | -3.97 | peak |



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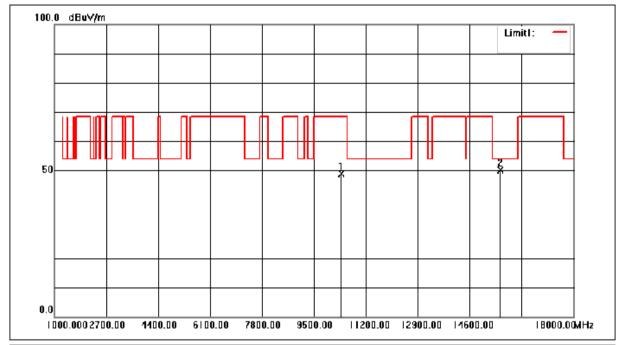
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Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:middle



| No. | Frequency (MHz) | | Correction factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|-------|-------------------------|--------------------|-------------------|----------------|--------|
| 1 | 10400.000 | 48.73 | 0.24 | 48.97 | 68.30 | -19.33 | peak |
| 2 | 15600.000 | 44.17 | 5.85 | 50.02 | 54.00 | -3.98 | peak |



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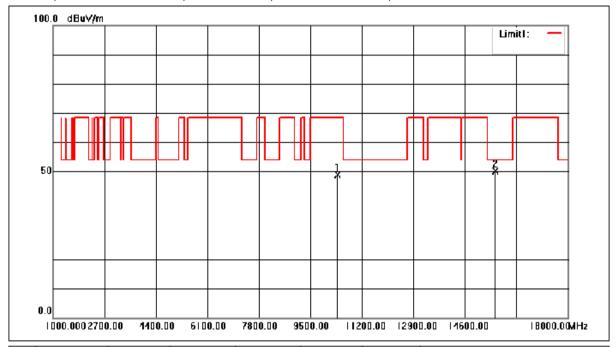
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Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:middle



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 10400.000 | 48.62 | 0.24 | 48.86 | 68.30 | -19.44 | peak |
| 2 | 15600.000 | 44.28 | 5.85 | 50.13 | 54.00 | -3.87 | peak |



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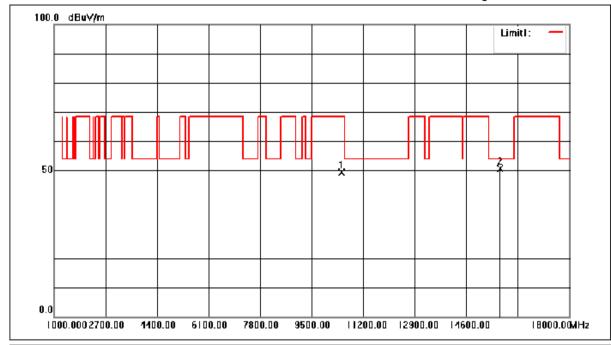
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Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 10480.000 | 48.99 | 0.40 | 49.39 | 68.30 | -18.91 | peak |
| 2 | 15720.000 | 44.45 | 6.10 | 50.55 | 54.00 | -3.45 | peak |



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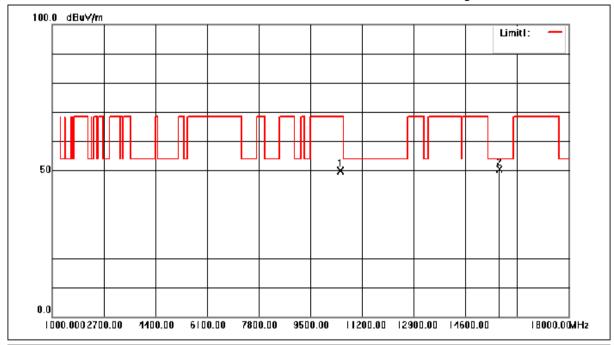
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Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High



| V | lo. | Frequency (MHz) | | Correction factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|---|-----|--------------------|-------|-------------------------|--------------------|-------------------|----------------|--------|
| 1 | | 10480.000 | 49.40 | 0.40 | 49.80 | 68.30 | -18.50 | peak |
| 2 | | 15720.000 | 44.34 | 6.10 | 50.44 | 54.00 | -3.56 | peak |



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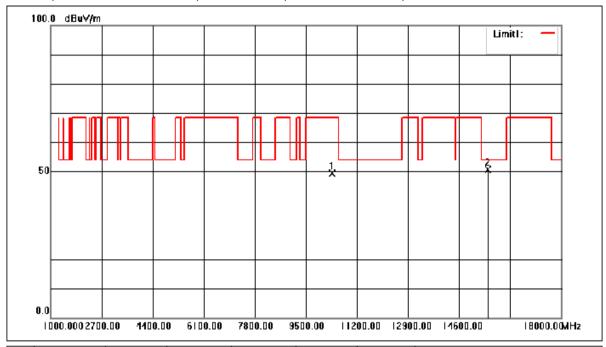
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Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 10380.000 | 49.17 | 0.20 | 49.37 | 68.30 | -18.93 | peak |
| 2 | 15570.000 | 44.88 | 5.79 | 50.67 | 54.00 | -3.33 | peak |



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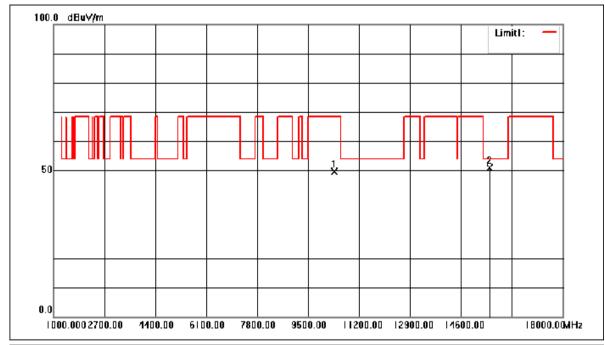
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Mode:b; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:Low



| No. | Frequency (MHz) | Reading (dBuV) | Correction factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1 | 10380.000 | 49.37 | 0.20 | 49.57 | 68.30 | -18.73 | peak |
| 2 | 15570.000 | 45.01 | 5.79 | 50.80 | 54.00 | -3.20 | peak |



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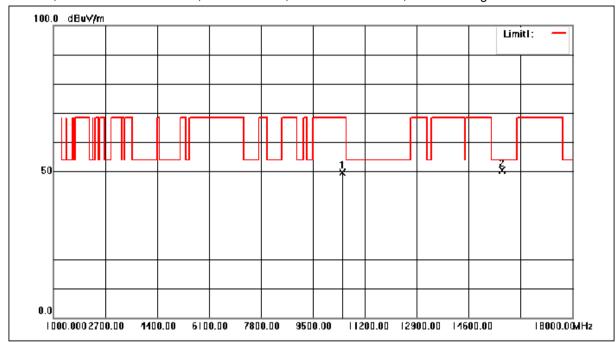
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Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:High



| No. | Frequency (MHz) | | Correction factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|-------|-------------------------|--------------------|-------------------|----------------|--------|
| 1 | 10460.000 | 49.33 | 0.36 | 49.69 | 68.30 | -18.61 | peak |
| 2 | 15690.000 | 44.28 | 6.04 | 50.32 | 54.00 | -3.68 | peak |



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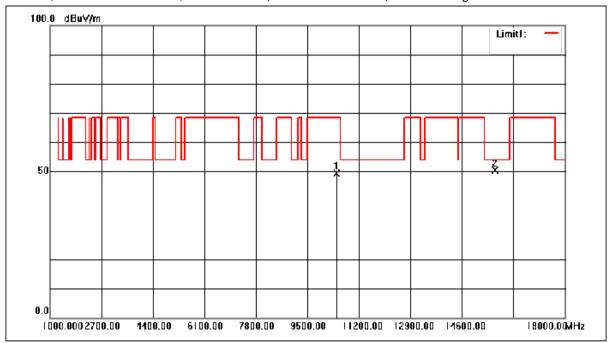
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Mode:b; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:High



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 10460.000 | 49.10 | 0.36 | 49.46 | 68.30 | -18.84 | peak |
| 2 | 15690.000 | 44.36 | 6.04 | 50.40 | 54.00 | -3.60 | peak |



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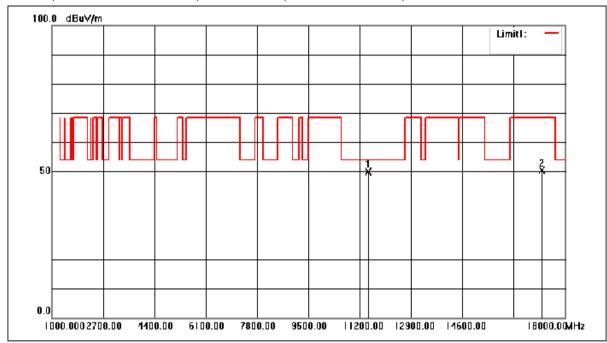
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Mode:c; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 11490.000 | 48.85 | 0.94 | 49.79 | 54.00 | -4.21 | peak |
| 2 | 17235.000 | 41.27 | 9.05 | 50.32 | 68.30 | -17.98 | peak |



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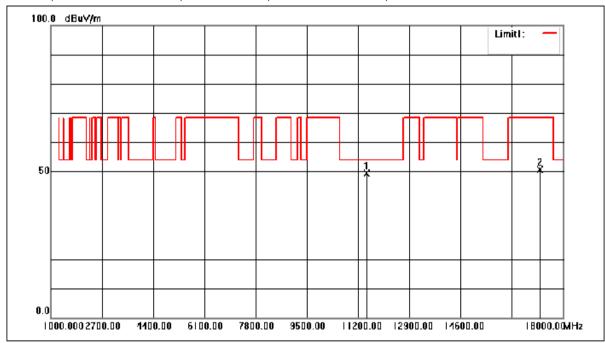
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Mode:c; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:Low



| No. | Frequency (MHz) | Reading (dBuV) | Correction factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1 | 11490.000 | 48.41 | 0.94 | 49.35 | 54.00 | -4.65 | peak |
| 2 | 17235.000 | 41.52 | 9.05 | 50.57 | 68.30 | -17.73 | peak |



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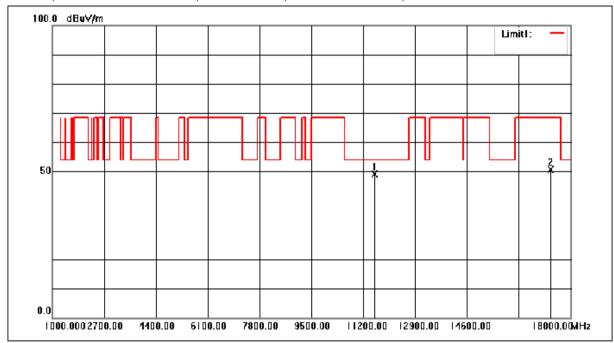
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Mode:c; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:middle



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 11570.000 | 48.04 | 1.18 | 49.22 | 54.00 | -4.78 | peak |
| 2 | 17355.000 | 41.53 | 8.98 | 50.51 | 68.30 | -17.79 | peak |



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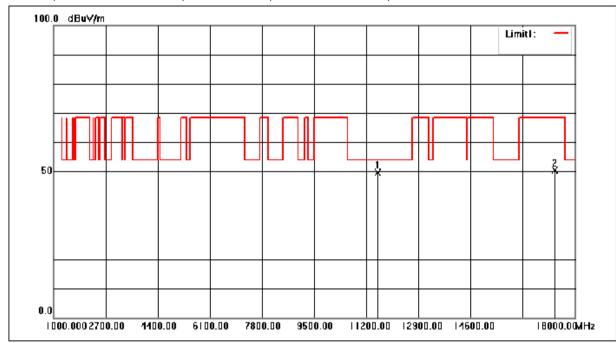
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Mode:c; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:middle



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 11570.000 | 48.55 | 1.18 | 49.73 | 54.00 | -4.27 | peak |
| 2 | 17355.000 | 41.44 | 8.98 | 50.42 | 68.30 | -17.88 | peak |



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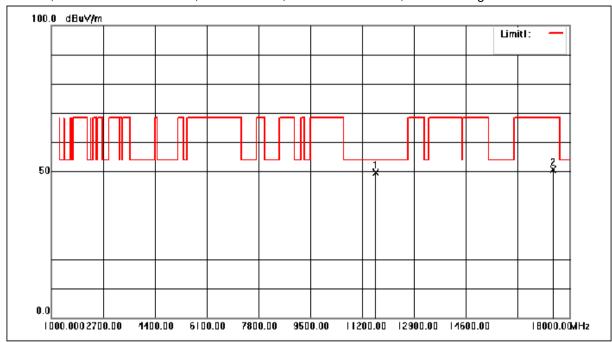
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Mode:c; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:High



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 11650.000 | 48.28 | 1.45 | 49.73 | 54.00 | -4.27 | peak |
| 2 | 17475.000 | 41.68 | 8.90 | 50.58 | 68.30 | -17.72 | peak |



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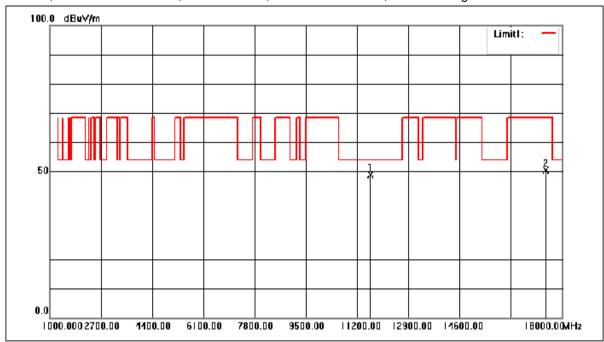
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Mode:c; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:High



| No. | Frequency (MHz) | Reading (dBuV) | Correction factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1 | 11650.000 | 47.39 | 1.45 | 48.84 | 54.00 | -5.16 | peak |
| 2 | 17475.000 | 41.48 | 8.90 | 50.38 | 68.30 | -17.92 | peak |



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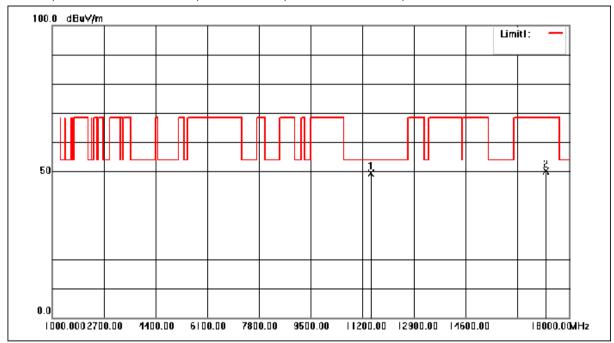
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Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 11490.000 | 48.36 | 0.94 | 49.30 | 54.00 | -4.70 | peak |
| 2 | 17235.000 | 41.19 | 9.05 | 50.24 | 68.30 | -18.06 | peak |



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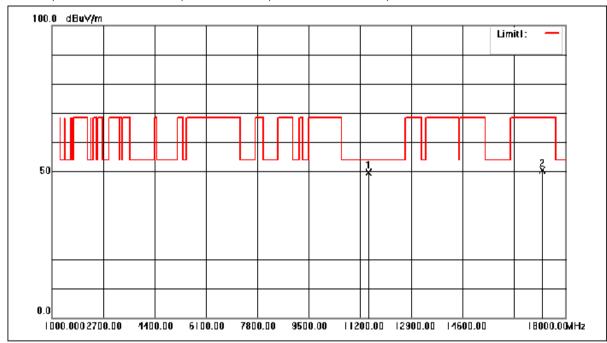
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Mode:c; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 11490.000 | 48.57 | 0.94 | 49.51 | 54.00 | -4.49 | peak |
| 2 | 17235.000 | 41.29 | 9.05 | 50.34 | 68.30 | -17.96 | peak |



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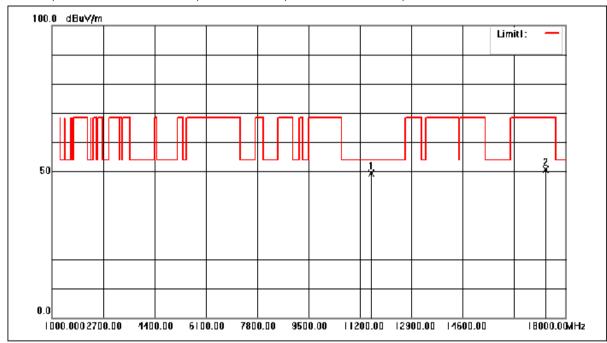
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Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:middle



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 11570.000 | 48.29 | 1.18 | 49.47 | 54.00 | -4.53 | peak |
| 2 | 17355.000 | 41.74 | 8.98 | 50.72 | 68.30 | -17.58 | peak |



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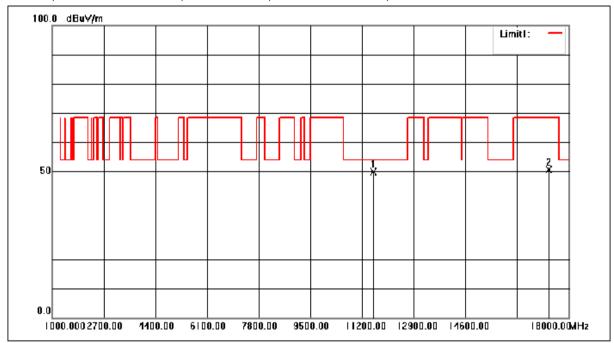
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Mode:c; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:middle



| No. | Frequency (MHz) | | Correction factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|-------|-------------------------|--------------------|-------------------|----------------|--------|
| 1 | 11570.000 | 48.70 | 1.18 | 49.88 | 54.00 | -4.12 | peak |
| 2 | 17355.000 | 41.66 | 8.98 | 50.64 | 68.30 | -17.66 | peak |



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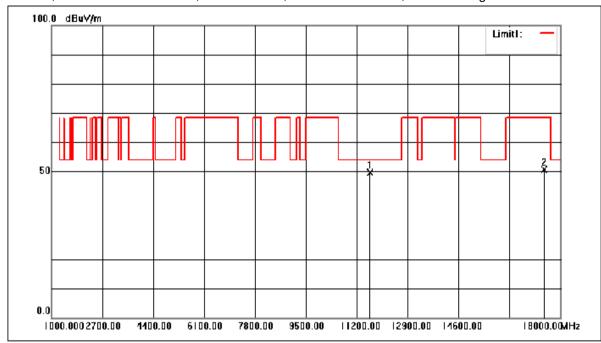
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Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High



| No. | Frequency (MHz) | | Correction factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|-------|-------------------------|--------------------|-------------------|----------------|--------|
| | \···· | \ | lactor(dD/III) | 1 | | | |
| 1 | 11650.000 | 48.10 | 1.45 | 49.55 | 54.00 | -4.45 | peak |
| 2 | 17475.000 | 41.71 | 8.90 | 50.61 | 68.30 | -17.69 | peak |



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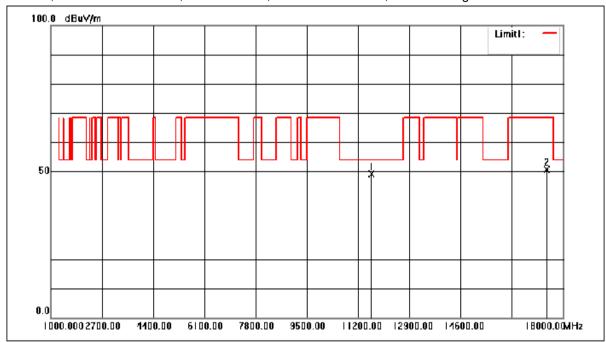
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Mode:c; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High



| No. | Frequency (MHz) | Reading (dBuV) | Correction factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1 | 11650.000 | 47.80 | 1.45 | 49.25 | 54.00 | -4.75 | peak |
| 2 | 17475.000 | 41.79 | 8.90 | 50.69 | 68.30 | -17.61 | peak |



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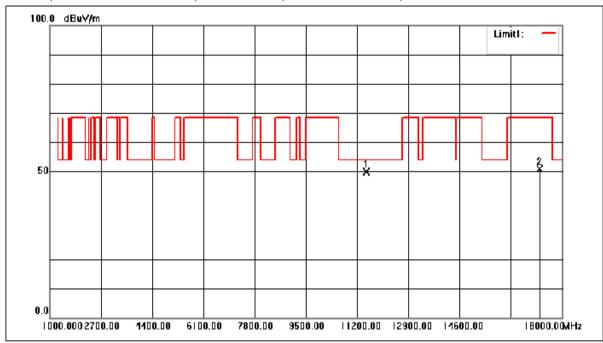
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Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:Low



| No | . Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|----|-------------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 11510.000 | 49.00 | 0.99 | 49.99 | 54.00 | -4.01 | peak |
| 2 | 17265.000 | 41.82 | 9.03 | 50.85 | 68.30 | -17.45 | peak |



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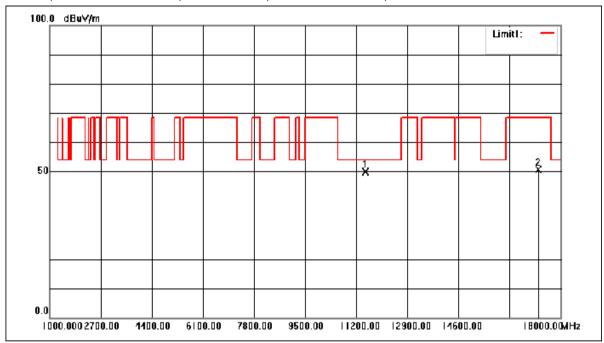
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Mode:c; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:Low



| No. | Frequency | | Correction | | Limit | Margin | Remark |
|-----|-----------|--------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 11510.000 | 48.83 | 0.99 | 49.82 | 54.00 | -4.18 | peak |
| 2 | 17265.000 | 41.71 | 9.03 | 50.74 | 68.30 | -17.56 | peak |



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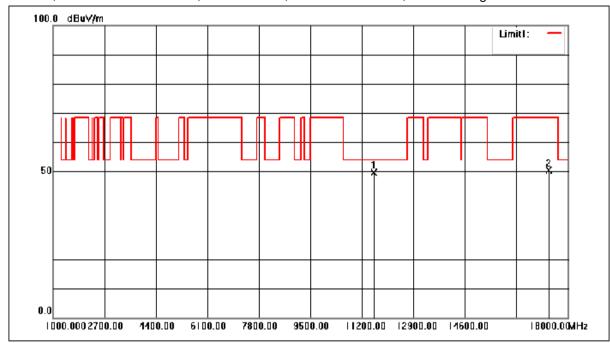
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Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:High



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 11590.000 | 48.39 | 1.25 | 49.64 | 54.00 | -4.36 | peak |
| 2 | 17385.000 | 41.41 | 8.96 | 50.37 | 68.30 | -17.93 | peak |



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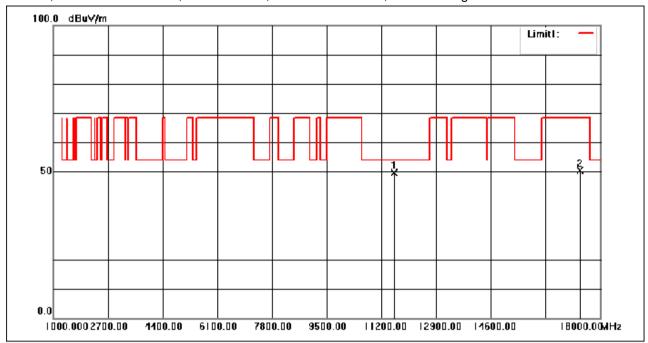
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Mode:c; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:High



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 11590.000 | 48.50 | 1.25 | 49.75 | 54.00 | -4.25 | peak |
| 2 | 17385.000 | 41.34 | 8.96 | 50.30 | 68.30 | -18.00 | peak |



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7.8 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.407(b)

Test Method: KDB 789033 D02 II G

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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7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH Atmospheric Pressure: 1010 mbar

Pretest these modes to find the worst case:

b:TX mode (Band 1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

c:TX mode (Band 3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

The worst case for final test:

b:TX mode (Band 1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

c:TX mode (Band 3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.



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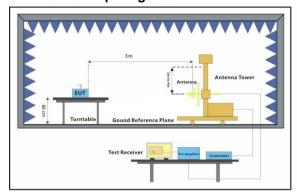
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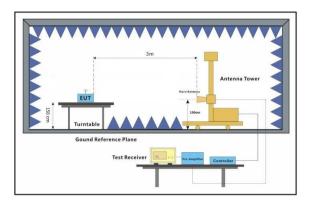


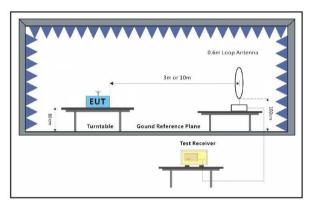


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7.8.2 Test Setup Diagram









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



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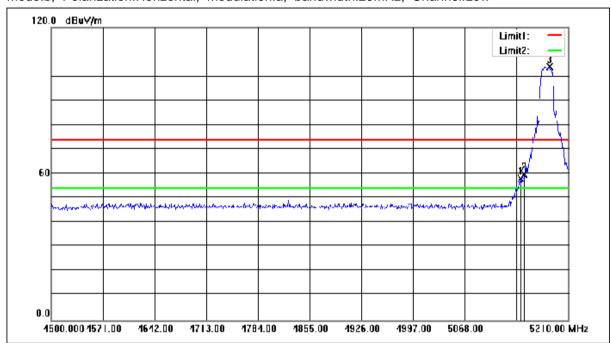
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Mode:b; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:Low



| No. | Frequency | | Correction | Result | Limit | Margin | Remark |
|-----|-----------|--------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5144.680 | 65.88 | -7.85 | 58.03 | 74.00 | -15.97 | peak |
| 2 | 5150.000 | 67.64 | -7.84 | 59.80 | 74.00 | -14.20 | peak |
| 3 | 5184.440 | 111.84 | -7.76 | 104.08 | 74.00 | 30.08 | peak |



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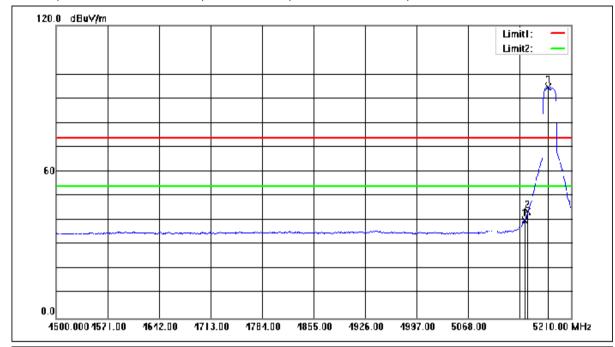
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Mode:b; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5146.100 | 47.99 | -7.85 | 40.14 | 54.00 | -13.86 | AVG |
| 2 | 5150.000 | 51.44 | -7.84 | 43.60 | 54.00 | -10.40 | AVG |
| 3 | 5178.050 | 102.58 | -7.78 | 94.80 | 54.00 | 40.80 | AVG |



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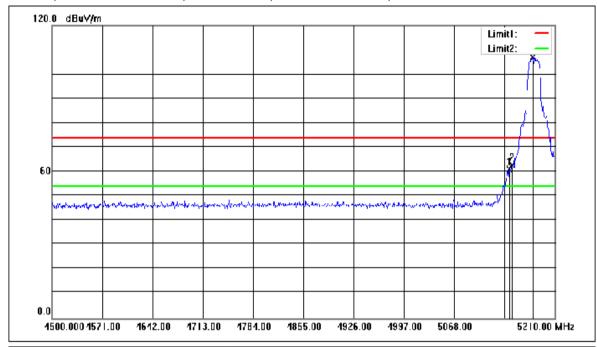
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Mode:b; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5146.100 | 68.76 | -7.85 | 60.91 | 74.00 | -13.09 | peak |
| 2 | 5150.000 | 70.65 | -7.84 | 62.81 | 74.00 | -11.19 | peak |
| 3 | 5179.470 | 114.61 | -7.77 | 106.84 | 74.00 | 32.84 | peak |



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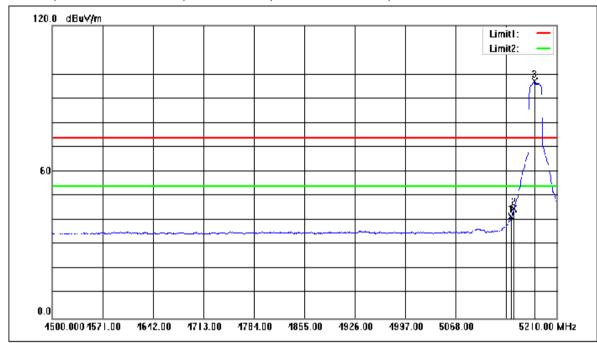
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Mode:b; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5146.100 | 49.35 | -7.85 | 41.50 | 54.00 | -12.50 | AVG |
| 2 | 5150.000 | 52.81 | -7.84 | 44.97 | 54.00 | -9.03 | AVG |
| 3 | 5179.470 | 104.70 | -7.77 | 96.93 | 54.00 | 42.93 | AVG |



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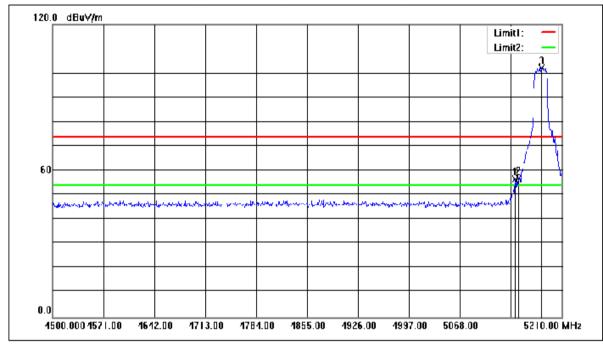
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Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5144.680 | 64.37 | -7.85 | 56.52 | 74.00 | -17.48 | peak |
| 2 | 5150.000 | 64.65 | -7.84 | 56.81 | 74.00 | -17.19 | peak |
| 3 | 5182.310 | 109.97 | -7.77 | 102.20 | 74.00 | 28.20 | peak |



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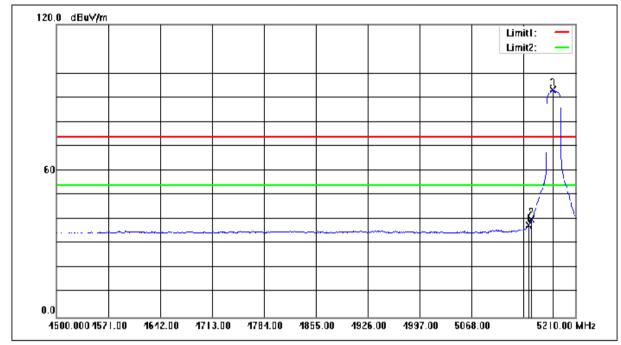
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Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low



| 1 | No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|---|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| | 1 | 5146.100 | 45.47 | -7.85 | 37.62 | 54.00 | -16.38 | AVG |
| | 2 | 5150.000 | 47.87 | -7.84 | 40.03 | 54.00 | -13.97 | AVG |
| , | 3 | 5178.760 | 100.95 | -7.78 | 93.17 | 54.00 | 39.17 | AVG |



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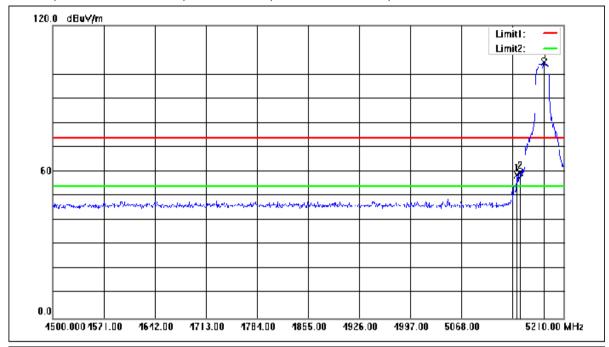
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Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5145.390 | 66.52 | -7.85 | 58.67 | 74.00 | -15.33 | peak |
| 2 | 5150.000 | 67.41 | -7.84 | 59.57 | 74.00 | -14.43 | peak |
| 3 | 5183.020 | 112.70 | -7.76 | 104.94 | 74.00 | 30.94 | peak |



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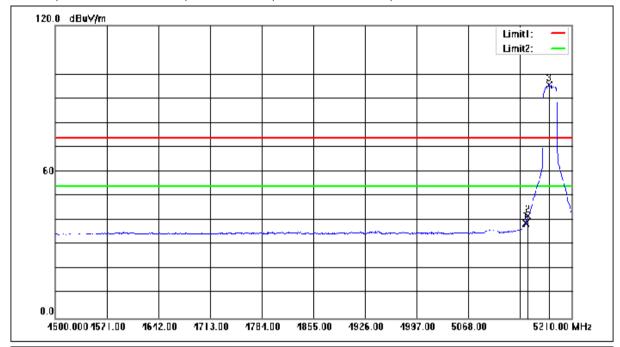
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Mode:b; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5146.810 | 46.61 | -7.85 | 38.76 | 54.00 | -15.24 | AVG |
| 2 | 5150.000 | 49.60 | -7.84 | 41.76 | 54.00 | -12.24 | AVG |
| 3 | 5179.470 | 103.33 | -7.77 | 95.56 | 54.00 | 41.56 | AVG |



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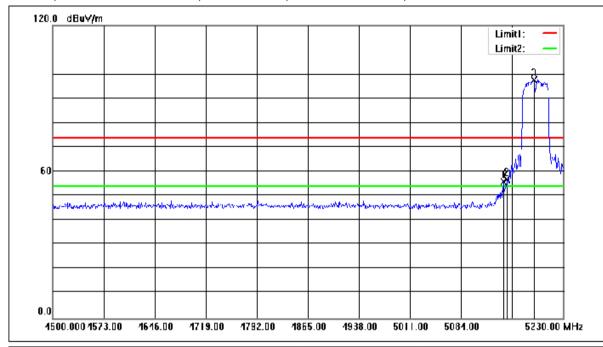
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Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5144.590 | 63.78 | -7.85 | 55.93 | 74.00 | -18.07 | peak |
| 2 | 5150.000 | 64.67 | -7.84 | 56.83 | 74.00 | -17.17 | peak |
| 3 | 5188.390 | 105.50 | -7.76 | 97.74 | 74.00 | 23.74 | peak |



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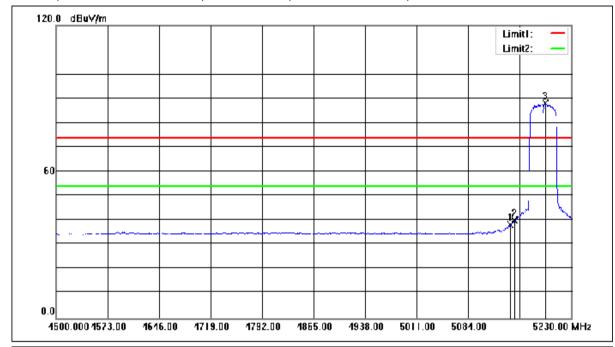
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Mode:b; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5143.860 | 46.19 | -7.86 | 38.33 | 54.00 | -15.67 | AVG |
| 2 | 5150.000 | 47.79 | -7.84 | 39.95 | 54.00 | -14.05 | AVG |
| 3 | 5193.500 | 95.74 | -7.75 | 87.99 | 54.00 | 33.99 | AVG |



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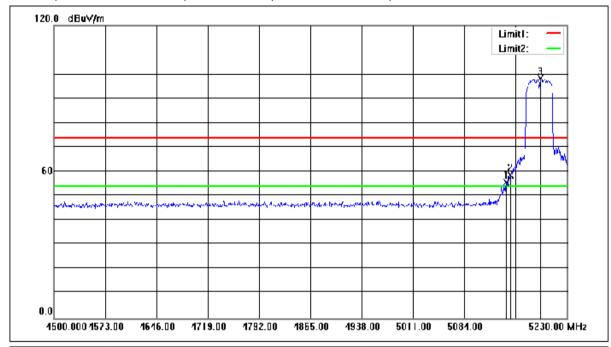
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Mode:b; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5143.860 | 63.64 | -7.86 | 55.78 | 74.00 | -18.22 | peak |
| 2 | 5150.000 | 66.50 | -7.84 | 58.66 | 74.00 | -15.34 | peak |
| 3 | 5192.770 | 106.02 | -7.75 | 98.27 | 74.00 | 24.27 | peak |



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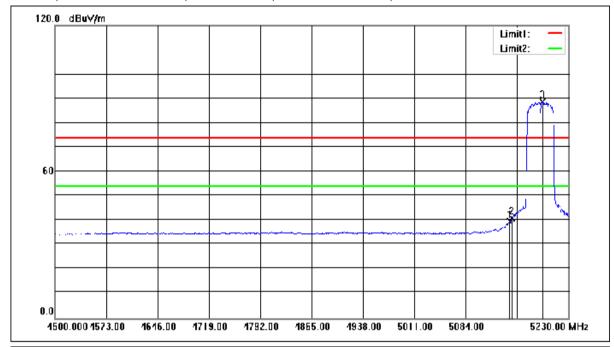
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Mode:b; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5146.780 | 47.35 | -7.85 | 39.50 | 54.00 | -14.50 | AVG |
| 2 | 5150.000 | 48.67 | -7.84 | 40.83 | 54.00 | -13.17 | AVG |
| 3 | 5193.500 | 96.46 | -7.75 | 88.71 | 54.00 | 34.71 | AVG |



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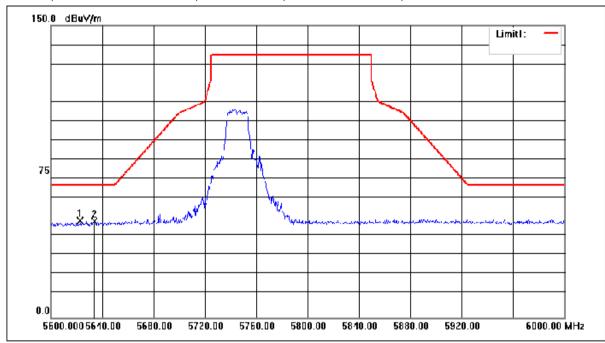
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Mode:c; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:Low



| No. | Frequency (MHz) | | Correction factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|-------|----------------------------|--------------------|-------------------|----------------|--------|
| 1 | 5622.800 | 56.54 | -6.92 | 49.62 | 68.20 | -18.58 | peak |
| 2 | 5633.600 | 56.12 | -6.88 | 49.24 | 68.20 | -18.96 | peak |



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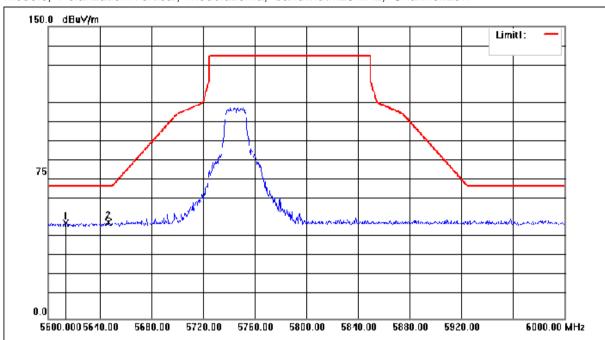
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Mode:c; Polarization:Vertical; Modulation:a; bandwidth:20MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5613.600 | 55.73 | -6.94 | 48.79 | 68.20 | -19.41 | peak |
| 2 | 5646.800 | 56.12 | -6.85 | 49.27 | 68.20 | -18.93 | peak |



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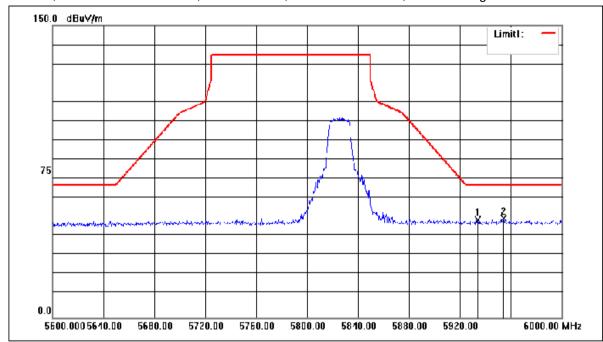
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Mode:c; Polarization:Horizontal; Modulation:a; bandwidth:20MHz; Channel:High



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5934.000 | 55.61 | -5.73 | 49.88 | 68.20 | -18.32 | peak |
| 2 | 5954.400 | 56.27 | -5.62 | 50.65 | 68.20 | -17.55 | peak |



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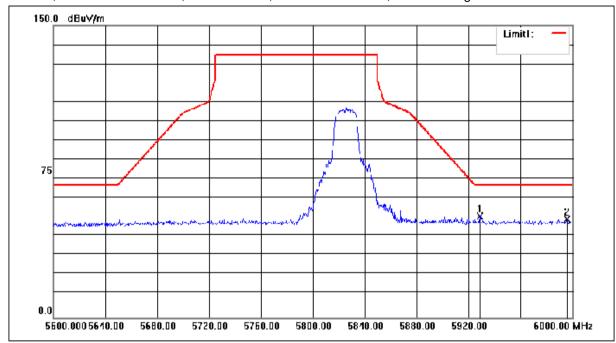
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Mode:c; Polarization: Vertical; Modulation:a; bandwidth: 20MHz; Channel: High



| No. | Frequency (MHz) | | Correction factor(dB/m) | | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|-------|-------------------------|-------|-------------------|----------------|--------|
| 1 | 5928.800 | 57.73 | -5.75 | 51.98 | 68.20 | -16.22 | peak |
| 2 | 5996.000 | 55.84 | -5.38 | 50.46 | 68.20 | -17.74 | peak |



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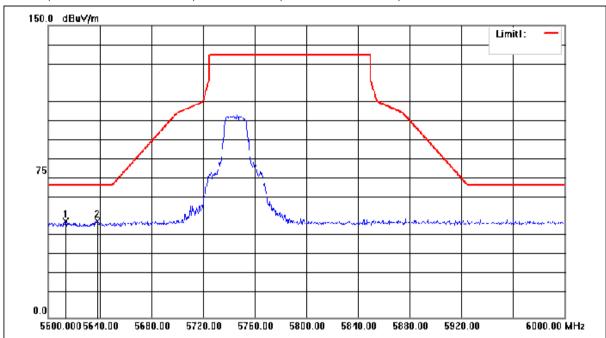
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Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5613.600 | 56.24 | -6.94 | 49.30 | 68.20 | -18.90 | peak |
| 2 | 5638.000 | 56.13 | -6.87 | 49.26 | 68.20 | -18.94 | peak |



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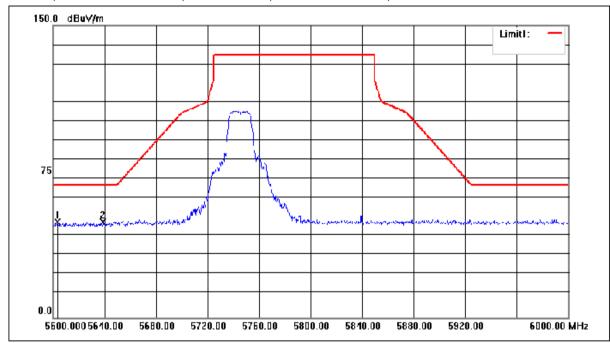
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Mode:c; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5603.600 | 55.98 | -6.96 | 49.02 | 68.20 | -19.18 | peak |
| 2 | 5638.800 | 55.80 | -6.87 | 48.93 | 68.20 | -19.27 | peak |



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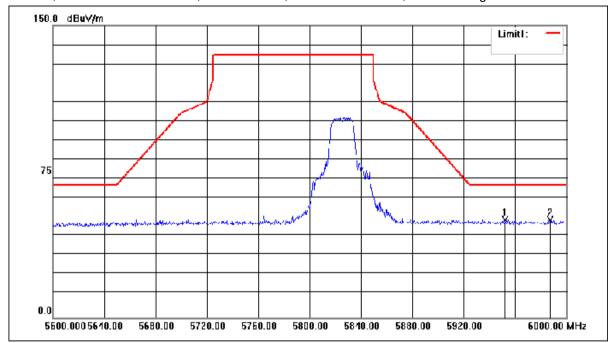
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Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:20MHz; Channel:High



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5952.400 | 55.75 | -5.62 | 50.13 | 68.20 | -18.07 | peak |
| 2 | 5987.600 | 55.53 | -5.43 | 50.10 | 68.20 | -18.10 | peak |



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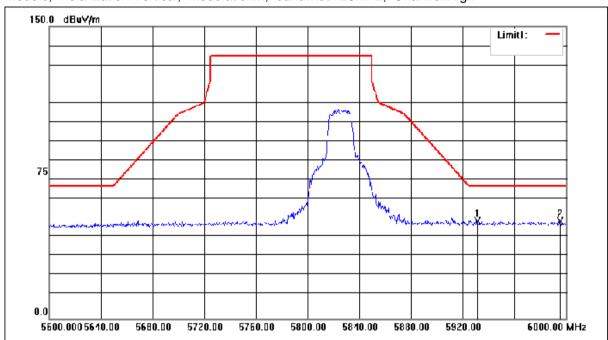
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Mode:c; Polarization:Vertical; Modulation:n; bandwidth:20MHz; Channel:High



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5931.200 | 55.95 | -5.74 | 50.21 | 68.20 | -17.99 | peak |
| 2 | 5995.600 | 55.29 | -5.38 | 49.91 | 68.20 | -18.29 | peak |



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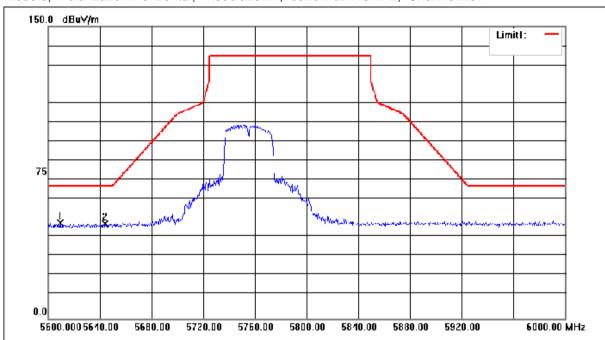
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Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:Low



| No. | Frequency | Reading | Correction | Result | Limit | Margin | Remark |
|-----|-----------|---------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5609.200 | 55.74 | -6.95 | 48.79 | 68.20 | -19.41 | peak |
| 2 | 5644.000 | 55.56 | -6.85 | 48.71 | 68.20 | -19.49 | peak |



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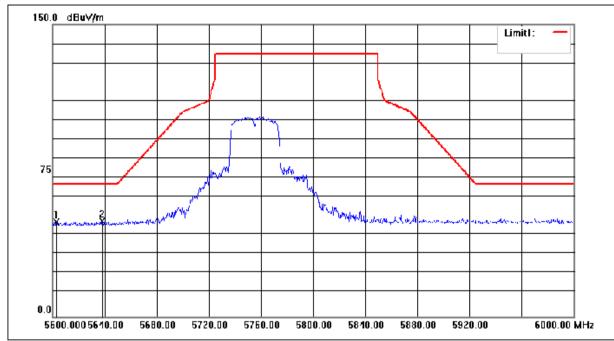
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Mode:c; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:Low



| No. | Frequency (MHz) | Reading (dBuV) | Correction factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1 | 5602.800 | 55.71 | -6.97 | 48.74 | 68.20 | -19.46 | peak |
| 2 | 5638.000 | 55.68 | -6.87 | 48.81 | 68.20 | -19.39 | peak |



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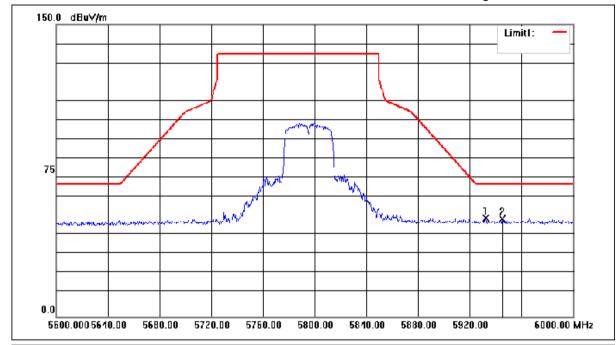
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Mode:c; Polarization:Horizontal; Modulation:n; bandwidth:40MHz; Channel:High



| No. | Frequency (MHz) | | Correction factor(dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Remark |
|-----|--------------------|-------|----------------------------|--------------------|-------------------|----------------|--------|
| 1 | 5932.400 | 56.03 | -5.73 | 50.30 | 68.20 | -17.90 | peak |
| 2 | 5945.200 | 55.85 | -5.66 | 50.19 | 68.20 | -18.01 | peak |



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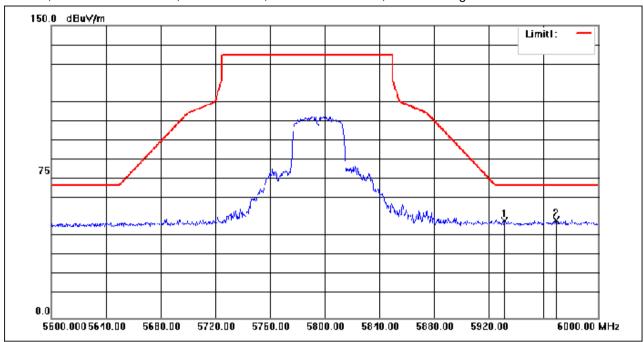
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Mode:c; Polarization:Vertical; Modulation:n; bandwidth:40MHz; Channel:High



| No. | Frequency | | Correction | Result | Limit | Margin | Remark |
|-----|-----------|--------|--------------|----------|----------|--------|--------|
| | (MHz) | (dBuV) | factor(dB/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 5931.200 | 55.48 | -5.74 | 49.74 | 68.20 | -18.46 | peak |
| 2 | 5969.200 | 55.52 | -5.53 | 49.99 | 68.20 | -18.21 | peak |



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SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Report No.: SHEM210700793202

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7.9 Frequency Stability

Test Requirement 47 CFR Part 15, Subpart C 15.407 (g)
Test Method: ANSI C63.10 (2013) Section 6.8

Limit: The frequency tolerance shall be maintained within the band of operation

frequency over a temperature variation of 0 degrees to 35 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C.



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7.9.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 50 % RH At

Atmospheric Pressure: 1010 mbar

Pretest these modes to find the worst case:

b:TX mode (Band 1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the

report.

c:TX mode (Band 3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

The worst case for final test:

b:TX mode (Band 1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

c:TX mode (Band 3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.



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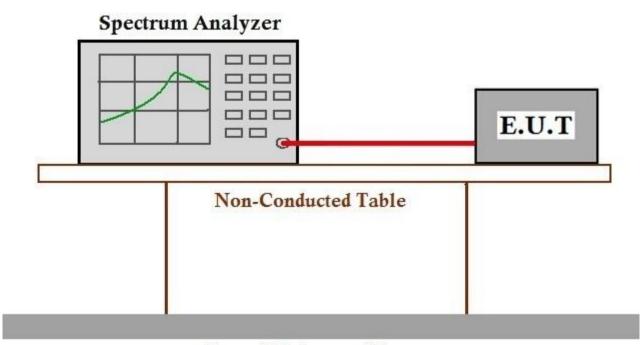
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7.9.2 Test Setup Diagram



Ground Reference Plane

7.9.3 Measurement Procedure and Data

The detailed test data see: Appendix B for SHEM210700793202



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8 Test Setup Photographs

Refer to the < Test Setup photos-FCC>.

9 EUT Constructional Details

Refer to the < External Photos > & < Internal Photos >.

- End of the Report -



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