



FCC RADIO TEST REPORT

Applicant : ViewSonic Corporation

Address : 10 Pointe Dr. Suite 200. Brea, CA 92821, USA

Equipment : RF Module

Model No. : VS17803

Trade Name : ViewSonic

FCC ID : GSS-VS17337

I HEREBY CERTIFY THAT :

The sample was received on Apr. 24, 2019 and the testing was completed on June. 03, 2019 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Mark Liao / Supervisor

Laboratory Accreditation:

CerpPASS Technology Corporation Test Laboratory





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1. Summary of Test Procedure and Test Results

1.1. Applicable Standards

ANSI C63.4:2014

ANSI C63.10:2013

FCC Rules and Regulations Part 15 Subpart E §15.407

First R&O 14-30

KDB662911

KDB789033

KDB644545

| FCC Rule | Description of Test | Result |
|------------------------|--|--------|
| 15.203 | Antenna Requirement | PASS |
| 15.207(a) | AC Power Line Conducted Emission | PASS |
| 15.407(b) 15.209 | Radiated Spurious Emission | PASS |
| 15.407(a) | 26 dB & Occupied Bandwidth | PASS |
| 15.407 | 6 dB Bandwidth | PASS |
| 15.407 (a) & (a)(3) | Average Power | PASS |
| 15.407(a) | Power Spectral Density | PASS |
| 15.407(g) | Frequency Stability | PASS |
| 15.407(c) | Automatically Discontinue Transmission | PASS |
| 2.1091 | Radio Frequency Exposure | PASS |

*The principle of judgment is made according to the laboratory's reporting control and measurement uncertainty standard procedures.

*This EUT has been also tested and compiled with the requirement of FCC Part 15, Subpart B, recorded in a separate test report(DEFD1801064).



2. Test Configuration of Equipment under Test

2.1. Feature of Equipment under Test

| | |
|-----------------------|--|
| Frequency Range | BT / BLE: 2400-2483.5MHz 802.11b/g/n/ac: 2400-2483.5MHz 802.11a/n/ac: 5150-5250MHz, 5725-5850MHz |
| Modulation Type | BT: GFSK, $\pi/4$ -DQPSK, 8DPSK BLE: GFSK 802.11b: CCK, DQPSK, DBPSK 802.11g/n/a: BPSK, QPSK, 16QAM, 64QAM 802.11ac: BPSK, QPSK, 16QAM, 64QAM, 256QAM |
| Modulation Technology | DSSS, OFDM, FHSS, DTS |
| Data Rate | BT: GFSK: 1Mbps, $\pi/4$ -DQPSK: 2Mbps, 8DPSK: 3Mbps BLE: GFSK: 1Mbps WLAN: 2.4GHz: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS7, HT20/40 802.11ac: MCS0 – MCS9, VHT20/40 5GHz: 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS7, HT20/40 802.11ac: MCS0 – MCS9, VHT20/40/80 |
| Antenna Type | FPC Antenna |
| Antenna Gain | 2400-2480MHz: 2.1dBi For BT/BLE For WLAN: 2400-2483.5MHz: 2.1dBi 5150-5250MHz: 2.2dBi 5725-5850MHz: 2.2dBi |



2.2. Carrier Frequency of Channels

Band: 5150MHz-5250MHz

802.11a, 802.11n HT20, 802.11ac VHT20

| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
|------------|----------------|------------|----------------|
| *36 | 5180 | *44 | 5220 |
| 40 | 5200 | *48 | 5240 |

802.11n HT40, 802.11ac VHT40

| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
|------------|----------------|------------|----------------|
| *38 | 5190 | *46 | 5230 |

802.11ac VHT80

| Channel | Frequency(MHz) |
|------------|----------------|
| *42 | 5210 |

Band: 5725MHz -5850MHz

802.11a, 802.11n HT20, 802.11ac VHT20

| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
|-------------|----------------|-------------|----------------|
| *149 | 5745 | 161 | 5805 |
| 153 | 5765 | *165 | 5825 |
| *157 | 5785 | | |

802.11n HT40, 802.11ac VHT40

| Channel | Frequency(MHz) | Channel | Frequency(MHz) |
|-------------|----------------|-------------|----------------|
| *151 | 5755 | *159 | 5795 |

802.11ac VHT80

| Channel | Frequency(MHz) |
|-------------|----------------|
| *155 | 5775 |

Note: Channels remarked * are selected to perform test.



2.3. Test Mode and Test Software

- a. During testing, the interface cables and equipment positions were varied according to ANSI C63.10.
- b. The complete test system included remote workstation and EUT for RF test. The remote workstation included Notebook.
An executive program, "RTL11ac_8821CU_USB v0.22_20170519" under WIN 7 was executed to transmit and receive data via WLAN.
- c. The following test modes were performed for the test:

| Conducted Emissions from the AC mains power ports | |
|--|---------------------------|
| Test Mode | Operating Description |
| 1 | 802.11a (6Mbps) |
| 2 | 802.11ac VHT20 (6.5Mbps) |
| 3 | 802.11ac VHT40 (13.5Mbps) |
| 4 | 802.11ac VHT80 (29.3Mbps) |
| caused "Test Mode 4" generated the worst case, it was reported as the final data. | |
| Radiation Emissions (30MHz ~ 1GHz) | |
| 1 | 802.11a (6Mbps) |
| 2 | 802.11ac VHT20 (6.5Mbps) |
| 3 | 802.11ac VHT40 (13.5Mbps) |
| 4 | 802.11ac VHT80 (29.3Mbps) |
| caused "Test Mode 4" generated the worst case, they were reported as the final data. | |
| Radiation Emissions (1GHz ~ 40GHz) | |
| Test Mode | Operating Description |
| 1 | 802.11a (6Mbps) |
| 2 | 802.11ac VHT20 (6.5Mbps) |
| 3 | 802.11ac VHT40 (13.5Mbps) |
| 4 | 802.11ac VHT80 (29.3Mbps) |
| caused "Test Mode 1~4" generated the worst case, they were reported as the final data. | |

2.4. Description of Test System

| RF Conducted | | | | |
|----------------------------------|-------|----------------|-------------|------------------------|
| Equipment | Brand | Model | Length/Type | Power cord/Length/Type |
| Notebook | ASUS | P2430U | N/A | Adapter / 1.8m / NS |
| Radiated Emissions | | | | |
| Equipment | Brand | Model | Length/Type | Power cord/Length/Type |
| Notebook | ASUS | P2430U | N/A | Adapter / 1.8m / NS |
| AC Power Line Conducted Emission | | | | |
| Equipment | Brand | Model | Length/Type | Power cord/Length/Type |
| Notebook | DELL | Latitude E5470 | N/A | Adapter / 1.8m / NS |

**2.5. General Information of Test**

| | | |
|-------------------------------|--|--|
| Test Site | Cerpass Technology Corporation Test Laboratory Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel:+886-3-3226-888 Fax:+886-3-3226-881 Address: No.68-1, Shihbachongsi, Shihding Township, New Taipei City 223, Taiwan, R.O.C. Tel: +886-2-2663-8582 | |
| | FCC | TW1079, TW1061, TW1439 |
| | IC | 4934E-1, 4934E-2 |
| | VCCI | T-2205 for Telecommunication Test C-4663 for Conducted emission test R-4399, R-4218 for Radiated emission test G-10812, G-10813 for radiated disturbance above 1GHz |
| Frequency Range Investigated: | Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 40,000MHz | |
| Test Distance: | The test distance of radiated emission from antenna to EUT is 3 M. | |

| Test Item | Test Site | Tested Date | Environmental Conditions | Tested By |
|--------------------|------------|-------------|--------------------------|-----------|
| RF Conducted | RFCON01-NK | 2019/06/03 | 24°C / 61% | Vic Yeh |
| Radiated Emissions | 3M02-NK | 2019/05/31 | 23°C / 51% | Spree Yeh |
| RF Conduction | CON01-NK | 2019/05/31 | 22°C / 43% | Spree Yeh |



2.6. Measurement Uncertainty

| Measurement Item | Uncertainty |
|--|-------------|
| Radiated Spurious Emission(9KHz~30MHz) | ±3.405dB |
| Radiated Spurious Emission(30MHz~1GHz) | ±5.326dB |
| Radiated Spurious Emission(1GHz~40GHz) | ±5.011dB |
| 6dB Bandwidth | ±4.407% |
| 26dB Bandwidth | ±4.459% |
| Occupied Bandwidth | ±4.403% |
| Peak Output Power(Conducted Power Meter) | ±1.31dB |
| Power Spectral Density | ±2.106dB |
| Duty Cycle | ±0.17% |
| Frequency Stability | ±156.543Hz |
| Temperature | ±1.2°C |
| Humidity | ±2.7% |



3. Test Equipment and Ancillaries Used for Tests

| Test Item | Radiated Emissions | | | | |
|---------------------|-----------------------------|-------------|-----------------|------------------|------------|
| Test Site | Semi Anechoic Room(3M02-NK) | | | | |
| Instrument | Manufacturer | Model No | Serial No | Calibration Date | Valid Date |
| Bilog Antenna | Schwarzbeck | VULB9168 | 275 | 2018/09/17 | 2019/09/16 |
| Active Loop Antenna | EMCO | 6507 | 40855 | 2019/05/24 | 2020/05/23 |
| Horn Antenna | EMCO | 3115 | 31589 | 2019/04/01 | 2020/03/31 |
| Horn Antenna | EMCO | 3116 | 31974 | 2018/09/07 | 2019/09/06 |
| EMI Receiver | ROHDE & SCHWARZ | ESCI | 101423 | 2018/06/11 | 2019/06/10 |
| Spectrum Analyzer | ROHDE & SCHWARZ | FSP 40 | 100219 | 2018/07/03 | 2019/07/02 |
| Preamplifier | EM Electronics corp. | EM330 | 60660 | 2019/03/11 | 2020/03/10 |
| Preamplifier | EMC INSTRUMENTS | EMC051845SE | 980333 | 2018/09/18 | 2019/09/17 |
| Bluetooth Tester | ROHDE & SCHWARZ | CBT | 101133 | 2019/04/07 | 2020/04/06 |
| Cable-3in1(30M-1G) | HARBOUR INDUSTRIES | LL142 | CCE1316 | 2018/09/12 | 2019/09/11 |
| Cable-0.5m(1G-40G) | Rapidtek | 40GHZ 50CM | 38MS-38MS50314 | 2019/04/09 | 2020/04/08 |
| Cable-3m(1G-40G) | Rapidtek | 40GHZ 300CM | 38MS-38MS300314 | 2019/04/09 | 2020/04/08 |
| Cable-8m(1G-40G) | Rapidtek | 40GHZ 800CM | 38MS-38MS800314 | 2019/04/10 | 2020/04/09 |
| E3 | AUDIX | v8.2014-8-6 | RK-000529 | NA | NA |

| Test Item | RF Conducted | | | | |
|-------------------------|-----------------|----------|-------------|------------------|------------|
| Test Site | RFCON01-NK | | | | |
| Instrument | Manufacturer | Model No | Serial No | Calibration Date | Valid Date |
| Spectrum Analyzer | ROHDE & SCHWARZ | FSP 40 | 100219 | 2018/07/03 | 2019/07/02 |
| Bluetooth Tester | ROHDE & SCHWARZ | CBT | 101133 | 2019/04/07 | 2020/04/06 |
| Attenuator | KEYSIGHT | 8491B | MY39250705 | 2018/09/04 | 2019/09/03 |
| TEMP & HUMIDITY CHAMBER | T-MACHINE | TMJ-9712 | T-12-040111 | 2018/08/30 | 2019/08/29 |
| Power Sensor | Anritsu | MA2411B | 1207295 | 2019/04/11 | 2020/04/10 |

| Test Item | AC Power Line Conducted Emission | | | | |
|--------------------------------------|----------------------------------|-------------|-----------|------------------|------------|
| Test Site | CON01-NK | | | | |
| Instrument | Manufacturer | Model No | Serial No | Calibration Date | Valid Date |
| EMI Receiver | ROHDE & SCHWARZ | ESCI | 100821 | 2018/9/12 | 2019/09/11 |
| Line Impedance Stabilization Network | Schwarzbeck | NSLK 8127 | 8127-740 | 2018/6/13 | 2019/06/12 |
| Pulse Limiter | ROHDE & SCHWARZ | ESH3-Z2 | 101933 | 2018/9/4 | 2019/09/03 |
| E3 | AUDIX | v8.2014-8-6 | RK-000531 | NA | NA |



4. Antenna Requirements

4.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, 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.

And according to FCC 47 CFR Section 15.407 (a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.2. Antenna Construction and Directional Gain

| | |
|--------------|---|
| Antenna Type | FPC Antenna |
| Antenna Gain | 2400-2483.5MHz: 2.1dBi 5150MHz-5250MHz: 2.2dBi 5725MHz -5850MHz: 2.2dBi |

| |
|---|
| 2400-2483.5MHz |
| For Power directional gain= $G_{ant}= 2.1$ dBi For PSD directional gain = $G_{ant}= 2.1$ dBi |
| 5150MHz -5250MHz |
| For Power directional gain= $G_{ant}= 2.2$ dBi For PSD directional gain = $G_{ant}= 2.2$ dBi |
| 5725MHz -5850MHz |
| For Power directional gain= $G_{ant}= 2.2$ dBi For PSD directional gain = $G_{ant}= 2.2$ dBi |



5. Test of AC Power Line Conducted Emission

5.1. Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz, according to the methods defined in ANSI C63.4-2014. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

| Frequency (MHz) | Quasi Peak (dB μ V) | Average (dB μ V) |
|-----------------|-------------------------|----------------------|
| 0.15 – 0.5 | 66-56* | 56-46* |
| 0.5 – 5.0 | 56 | 46 |
| 5.0 – 30.0 | 60 | 50 |

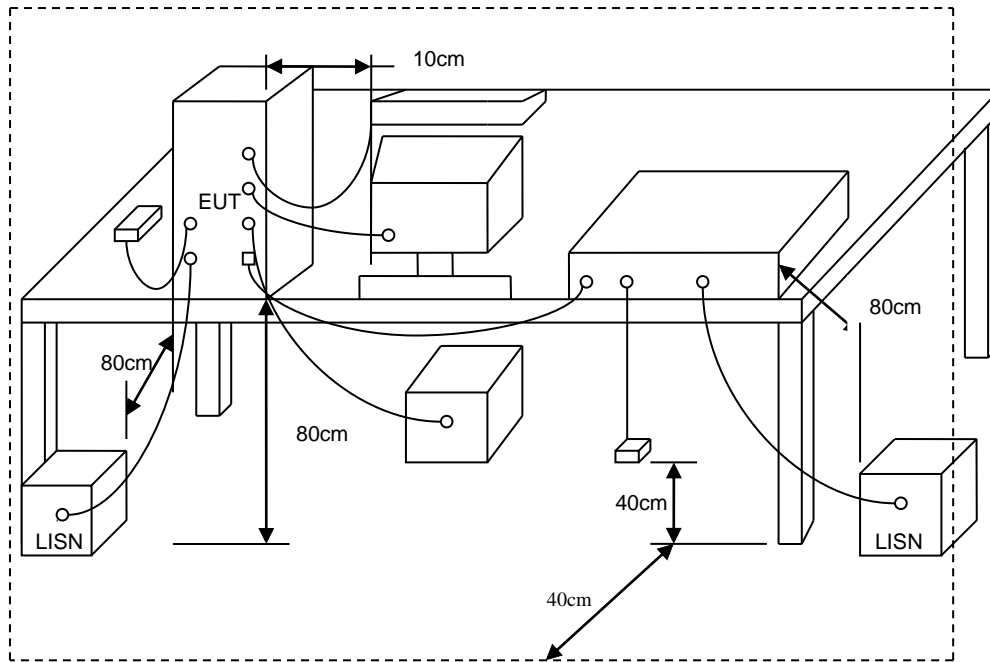
*Decreases with the logarithm of the frequency.

5.2. Test Procedures

- a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- c. All the support units are connecting to the other LISN.
- d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- f. Both sides of AC line were checked for maximum conducted interference.
- g. The frequency range from 150 kHz to 30 MHz was searched.
- h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.



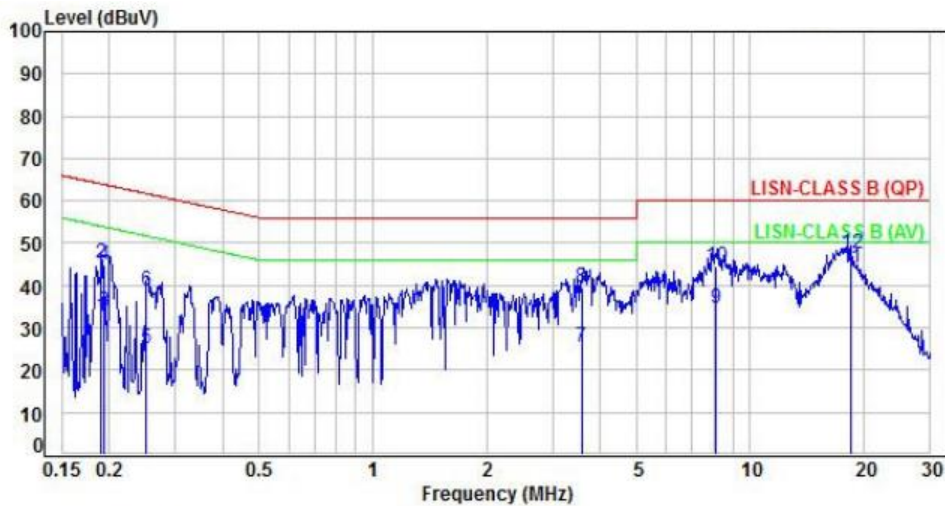
5.3. Typical Test Setup





5.4. Test Result and Data

| | | | |
|-----------|---------------------|-----------|--------|
| Power | : DC 5V from system | Pol/Phase | : LINE |
| Test Mode | : Mode 4, Band1 | | : |

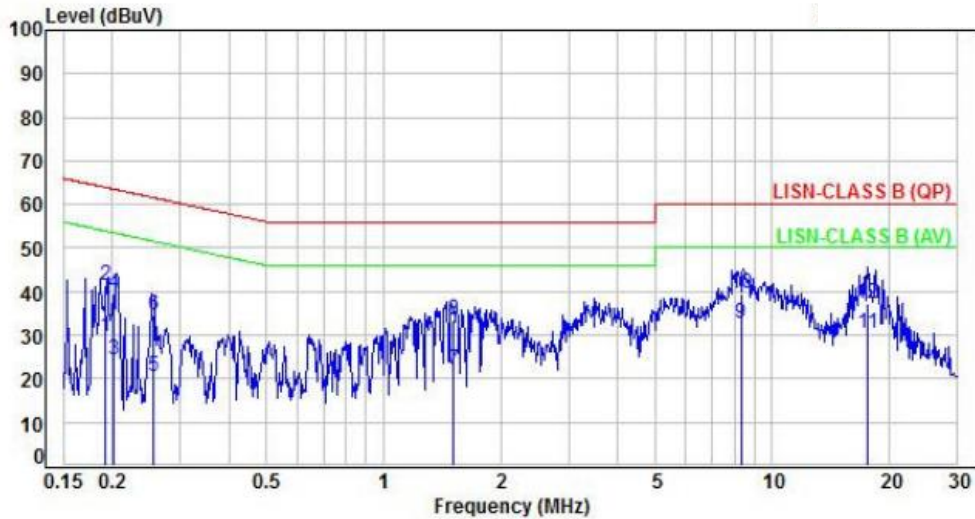


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F |
|-----|-----------------|-------------|----------------|--------------|--------------|-------------|----------|-----|
| 1 | 0.19 | 9.92 | 22.72 | 32.64 | 54.06 | -21.42 | Average | P |
| 2 | 0.19 | 9.92 | 35.43 | 45.35 | 64.06 | -18.71 | QP | P |
| 3 | 0.19 | 9.92 | 23.84 | 33.76 | 53.83 | -20.07 | Average | P |
| 4 | 0.19 | 9.92 | 34.98 | 44.90 | 63.83 | -18.93 | QP | P |
| 5 | 0.25 | 9.92 | 15.10 | 25.02 | 51.73 | -26.71 | Average | P |
| 6 | 0.25 | 9.92 | 28.90 | 38.82 | 61.73 | -22.91 | QP | P |
| 7 | 3.57 | 10.08 | 15.37 | 25.45 | 46.00 | -20.55 | Average | P |
| 8 | 3.57 | 10.08 | 29.57 | 39.65 | 56.00 | -16.35 | QP | P |
| 9 | 8.08 | 10.22 | 24.23 | 34.45 | 50.00 | -15.55 | Average | P |
| 10 | 8.08 | 10.22 | 34.30 | 44.52 | 60.00 | -15.48 | QP | P |
| 11 | 18.49 | 10.55 | 33.47 | 44.02 | 50.00 | -5.98 | Average | P |
| 12 | 18.49 | 10.55 | 37.07 | 47.62 | 60.00 | -12.38 | QP | P |

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



| | | | |
|-----------|---------------------|-----------|-----------|
| Power | : DC 5V from system | Pol/Phase | : NEUTRAL |
| Test Mode | : Mode 4, Band1 | | |

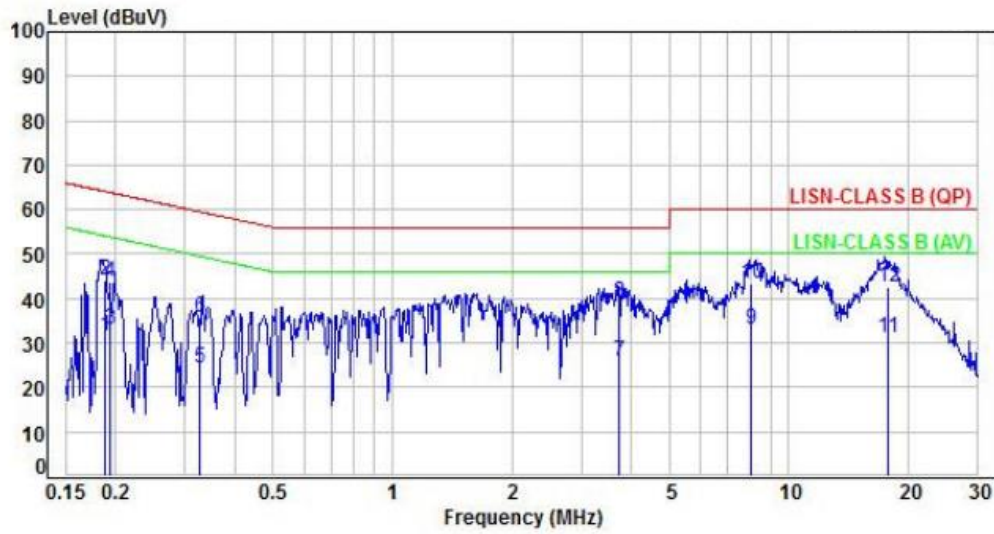


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F |
|-----|-----------------|-------------|----------------|--------------|--------------|-------------|----------|-----|
| 1 | 0.19 | 9.95 | 19.90 | 29.85 | 53.93 | -24.08 | Average | P |
| 2 | 0.19 | 9.95 | 31.66 | 41.61 | 63.93 | -22.32 | QP | P |
| 3 | 0.20 | 9.95 | 14.20 | 24.15 | 53.51 | -29.36 | Average | P |
| 4 | 0.20 | 9.95 | 29.43 | 39.38 | 63.51 | -24.13 | QP | P |
| 5 | 0.25 | 9.95 | 10.75 | 20.70 | 51.61 | -30.91 | Average | P |
| 6 | 0.25 | 9.95 | 24.50 | 34.45 | 61.61 | -27.16 | QP | P |
| 7 | 1.51 | 10.00 | 11.94 | 21.94 | 46.00 | -24.06 | Average | P |
| 8 | 1.51 | 10.00 | 23.58 | 33.58 | 56.00 | -22.42 | QP | P |
| 9 | 8.31 | 10.25 | 22.32 | 32.57 | 50.00 | -17.43 | Average | P |
| 10 | 8.31 | 10.25 | 29.44 | 39.69 | 60.00 | -20.31 | QP | P |
| 11 | 17.54 | 10.57 | 19.69 | 30.26 | 50.00 | -19.74 | Average | P |
| 12 | 17.54 | 10.57 | 26.63 | 37.20 | 60.00 | -22.80 | QP | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



| | | | |
|-----------|---------------------|-----------|--------|
| Power | : DC 5V from system | Pol/Phase | : LINE |
| Test Mode | : Mode 4, Band4 | | : |

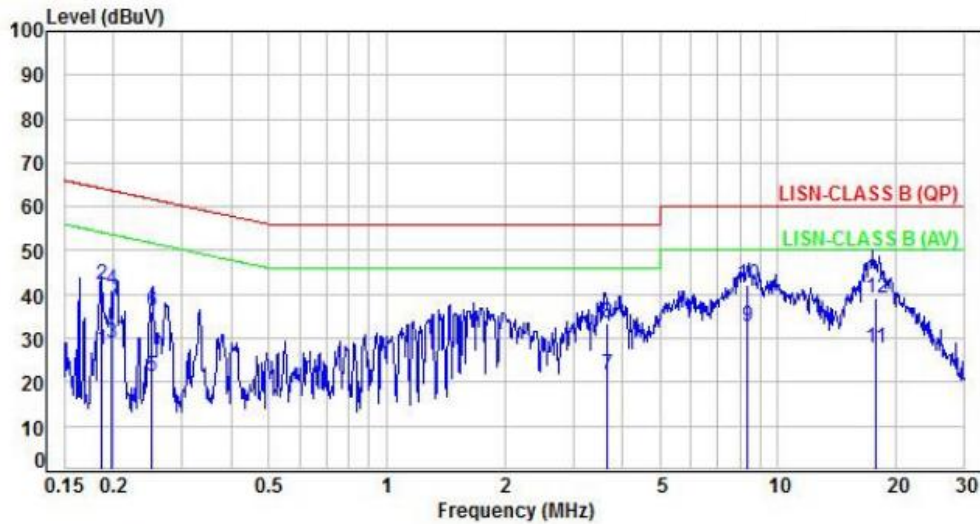


| No. | Frequency (MHz) | Factor (dB) | Reading (dBUV) | Level (dBUV) | Limit (dBUV) | Margin (dB) | Detector | P/F |
|-----|-----------------|-------------|----------------|--------------|--------------|-------------|----------|-----|
| 1 | 0.19 | 9.92 | 21.57 | 31.49 | 54.10 | -22.61 | Average | P |
| 2 | 0.19 | 9.92 | 34.35 | 44.27 | 64.10 | -19.83 | QP | P |
| 3 | 0.19 | 9.92 | 23.26 | 33.18 | 53.84 | -20.66 | Average | P |
| 4 | 0.19 | 9.92 | 33.94 | 43.86 | 63.84 | -19.98 | QP | P |
| 5 | 0.33 | 9.94 | 14.37 | 24.31 | 49.55 | -25.24 | Average | P |
| 6 | 0.33 | 9.94 | 25.73 | 35.67 | 59.55 | -23.88 | QP | P |
| 7 | 3.72 | 10.09 | 15.69 | 25.78 | 46.00 | -20.22 | Average | P |
| 8 | 3.72 | 10.09 | 29.07 | 39.16 | 56.00 | -16.84 | QP | P |
| 9 | 8.03 | 10.22 | 22.85 | 33.07 | 50.00 | -16.93 | Average | P |
| 10 | 8.03 | 10.22 | 33.31 | 43.53 | 60.00 | -16.47 | QP | P |
| 11 | 17.75 | 10.54 | 20.68 | 31.22 | 50.00 | -18.78 | Average | P |
| 12 | 17.75 | 10.54 | 32.13 | 42.67 | 60.00 | -17.33 | QP | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



| | | | |
|-----------|---------------------|-----------|-----------|
| Power | : DC 5V from system | Pol/Phase | : NEUTRAL |
| Test Mode | : Mode 4, Band4 | | |



| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F |
|-----|-----------------|-------------|----------------|--------------|--------------|-------------|----------|-----|
| 1 | 0.19 | 9.95 | 17.39 | 27.34 | 54.18 | -26.84 | Average | P |
| 2 | 0.19 | 9.95 | 32.37 | 42.32 | 64.18 | -21.86 | QP | P |
| 3 | 0.20 | 9.95 | 19.09 | 29.04 | 53.67 | -24.63 | Average | P |
| 4 | 0.20 | 9.95 | 31.10 | 41.05 | 63.67 | -22.62 | QP | P |
| 5 | 0.25 | 9.95 | 11.18 | 21.13 | 51.76 | -30.63 | Average | P |
| 6 | 0.25 | 9.95 | 26.24 | 36.19 | 61.76 | -25.57 | QP | P |
| 7 | 3.65 | 10.10 | 11.75 | 21.85 | 46.00 | -24.15 | Average | P |
| 8 | 3.65 | 10.10 | 23.46 | 33.56 | 56.00 | -22.44 | QP | P |
| 9 | 8.35 | 10.25 | 22.30 | 32.55 | 50.00 | -17.45 | Average | P |
| 10 | 8.35 | 10.25 | 32.04 | 42.29 | 60.00 | -17.71 | QP | P |
| 11 | 17.74 | 10.57 | 17.29 | 27.86 | 50.00 | -22.14 | Average | P |
| 12 | 17.74 | 10.57 | 28.45 | 39.02 | 60.00 | -20.98 | QP | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=(LISN or ISN or Current Probe)Factor + Cable Loss



6. Test of Spurious Emission (Radiated)

6.1. Test Limit

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 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.
- (2) For transmitters operating in the 5.25-5.35 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.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band:
All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz 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 27dBm/MHz at the band edge.
- (5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- (6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.
- (7) The provisions of §15.205 apply to intentional radiators operating under this section.
- (8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

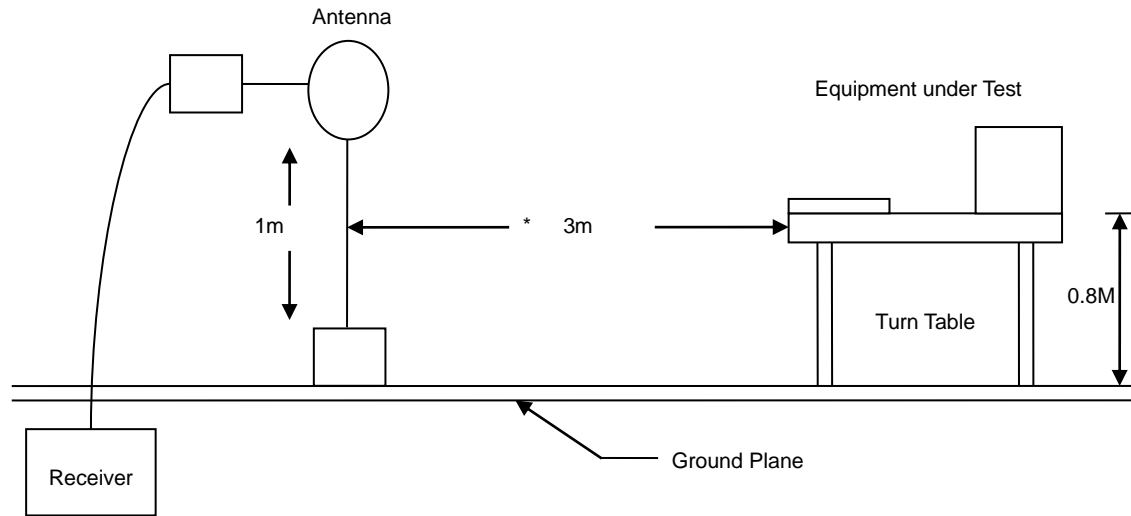
6.2. Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- i. "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.

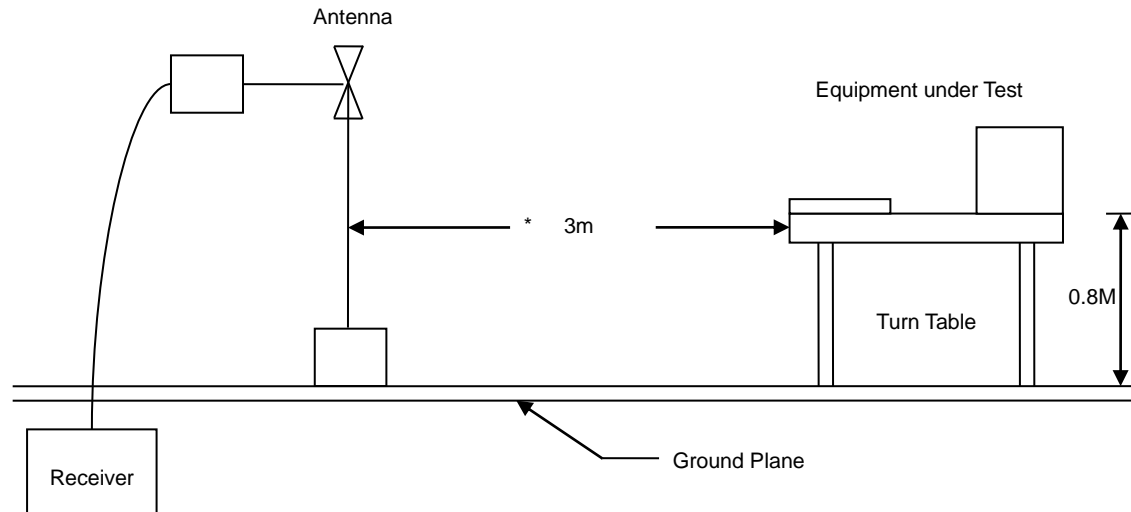


6.3. Typical Test Setup

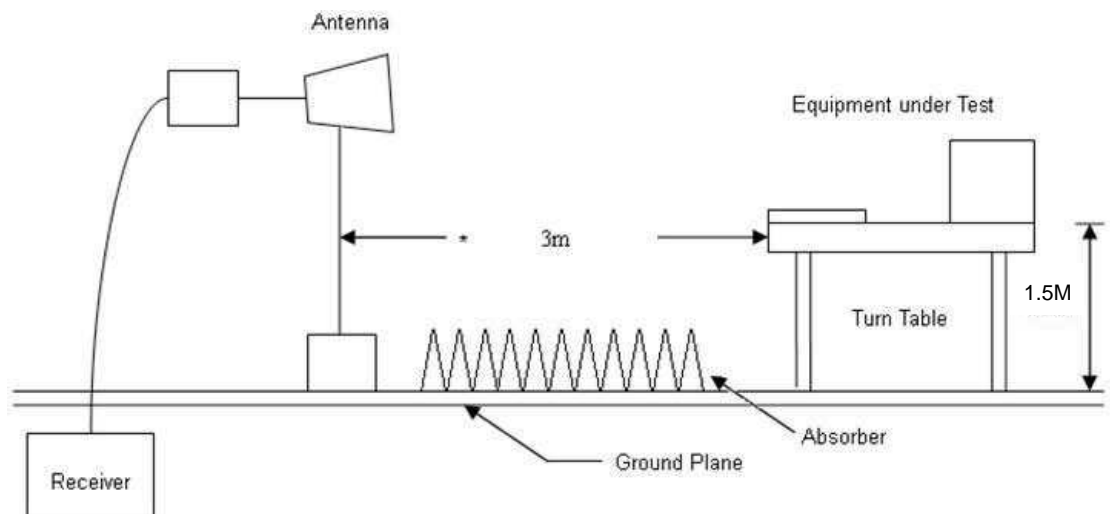
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup



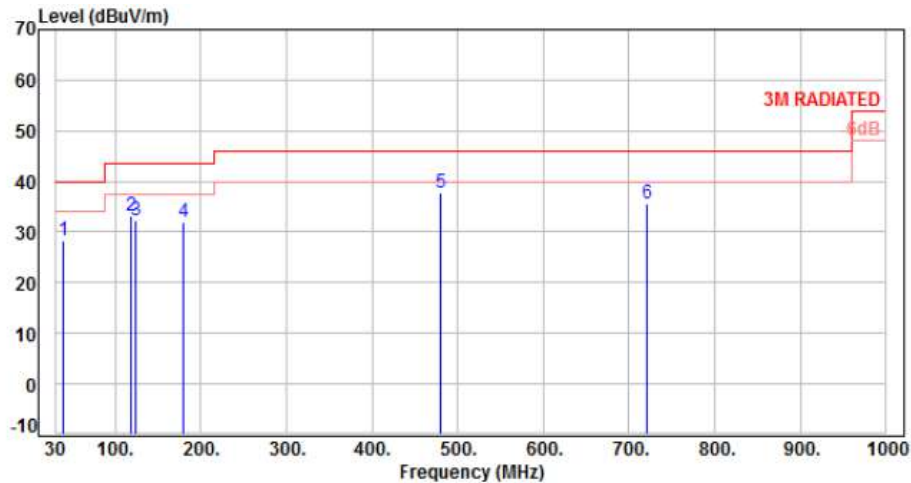


6.4. Test Result and Data (9kHz ~ 30MHz)

The 9kHz - 30MHz spurious emission is under limit 20dB more.

6.5. Test Result and Data (30MHz ~ 1GHz)

| | | | |
|-----------|---------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 4, Band 1 | | : |

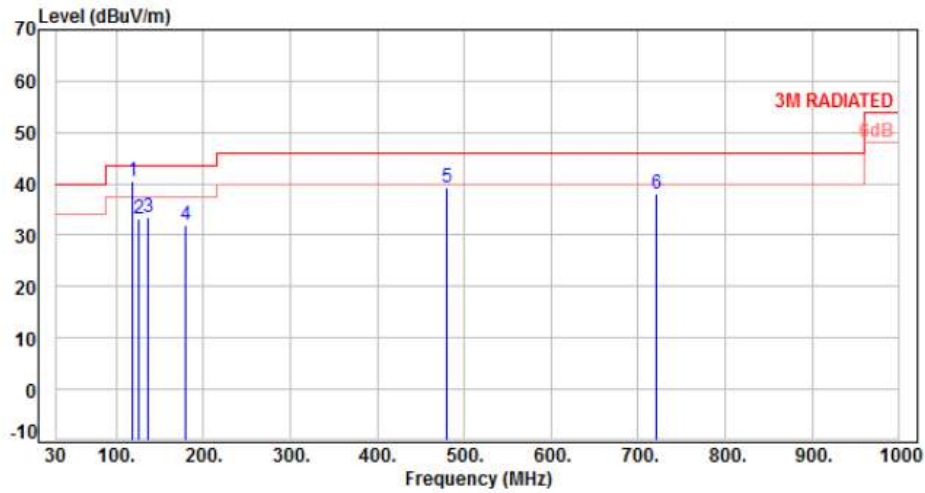


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 38.73 | -9.81 | 38.25 | 28.44 | 40.00 | -11.56 | Peak | 400 | 0 | P |
| 2 | 119.24 | -11.93 | 45.11 | 33.18 | 43.50 | -10.32 | Peak | 400 | 0 | P |
| 3 | 124.09 | -11.44 | 43.64 | 32.20 | 43.50 | -11.30 | Peak | 400 | 0 | P |
| 4 | 179.38 | -10.85 | 42.91 | 32.06 | 43.50 | -11.44 | Peak | 400 | 0 | P |
| 5 | 480.08 | -4.28 | 42.13 | 37.85 | 46.00 | -8.15 | Peak | 400 | 0 | P |
| 6 | 720.64 | 0.00 | 35.51 | 35.51 | 46.00 | -10.49 | Peak | 400 | 0 | P |

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|---------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 4, Band 1 | | : |

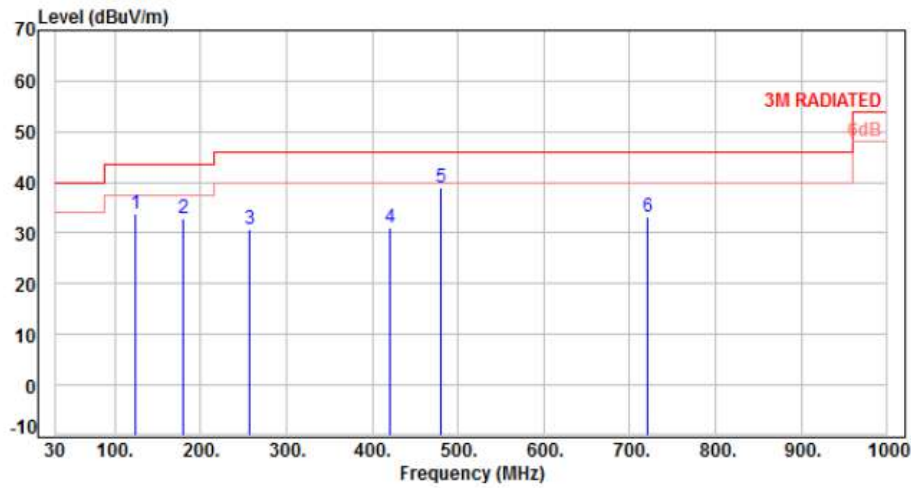


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 119.24 | -11.93 | 52.30 | 40.37 | 43.50 | -3.13 | Peak | 100 | 0 | P |
| 2 | 125.06 | -11.34 | 44.52 | 33.18 | 43.50 | -10.32 | QP | 166 | 30 | P |
| 3 | 135.73 | -10.23 | 43.70 | 33.47 | 43.50 | -10.03 | QP | 158 | 19 | P |
| 4 | 179.38 | -10.85 | 42.74 | 31.89 | 43.50 | -11.61 | QP | 107 | 352 | P |
| 5 | 480.08 | -4.28 | 43.57 | 39.29 | 46.00 | -6.71 | Peak | 100 | 0 | P |
| 6 | 721.61 | 0.02 | 38.14 | 38.16 | 46.00 | -7.84 | Peak | 100 | 0 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|---------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 4, Band 4 | | : |

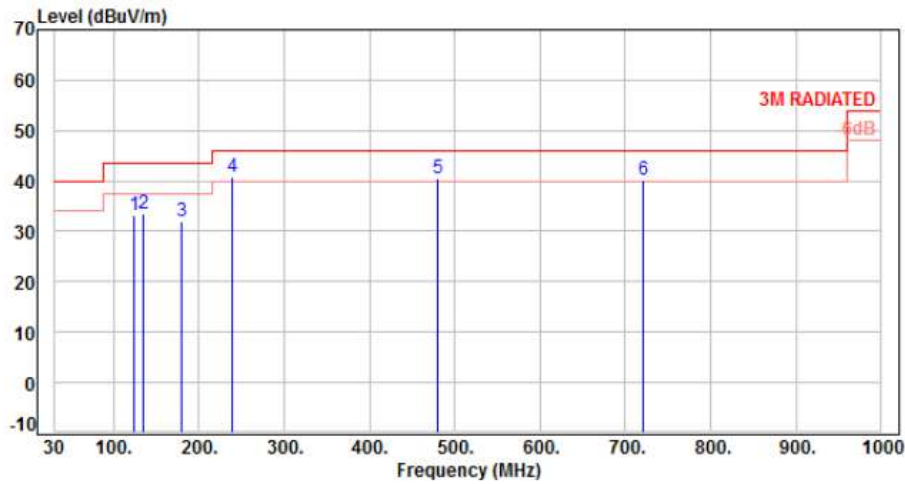


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 123.12 | -11.54 | 45.37 | 33.83 | 43.50 | -9.67 | Peak | 400 | 0 | P |
| 2 | 179.38 | -10.85 | 43.61 | 32.76 | 43.50 | -10.74 | Peak | 400 | 0 | P |
| 3 | 256.98 | -10.10 | 40.71 | 30.61 | 46.00 | -15.39 | Peak | 400 | 0 | P |
| 4 | 419.94 | -5.48 | 36.66 | 31.18 | 46.00 | -14.82 | Peak | 400 | 0 | P |
| 5 | 480.08 | -4.28 | 43.19 | 38.91 | 46.00 | -7.09 | Peak | 400 | 0 | P |
| 6 | 721.61 | 0.02 | 33.02 | 33.04 | 46.00 | -12.96 | Peak | 400 | 0 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|---------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 4, Band 4 | | : |



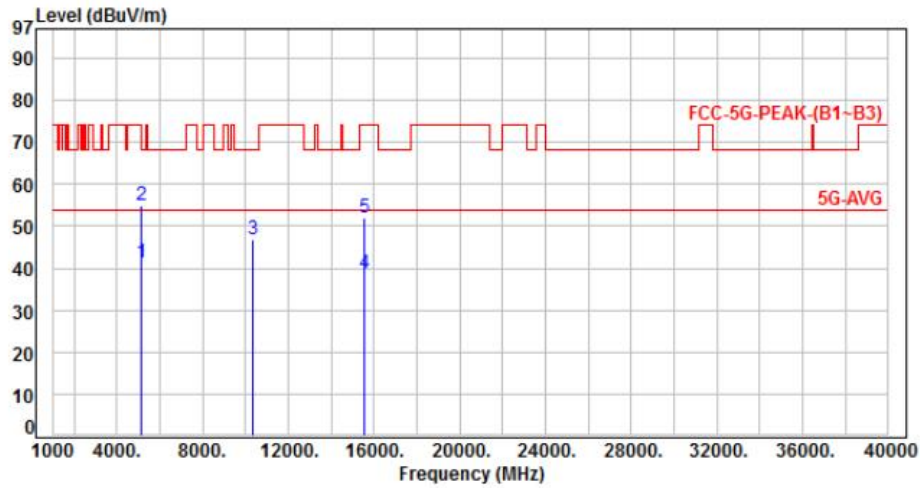
| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 123.12 | -11.54 | 44.59 | 33.05 | 43.50 | -10.45 | QP | 165 | 26 | P |
| 2 | 134.76 | -10.29 | 43.71 | 33.42 | 43.50 | -10.08 | QP | 157 | 42 | P |
| 3 | 179.38 | -10.85 | 42.93 | 32.08 | 43.50 | -11.42 | QP | 112 | 314 | P |
| 4 | 239.52 | -10.74 | 51.47 | 40.73 | 46.00 | -5.27 | Peak | 100 | 0 | P |
| 5 | 480.08 | -4.28 | 44.66 | 40.38 | 46.00 | -5.62 | Peak | 100 | 0 | P |
| 6 | 721.61 | 0.02 | 40.30 | 40.32 | 46.00 | -5.68 | Peak | 100 | 0 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



6.6. Test Result and Data (1GHz ~ 40GHz)

| | | | |
|-----------|------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 1, Band 1, CH36 | | : |

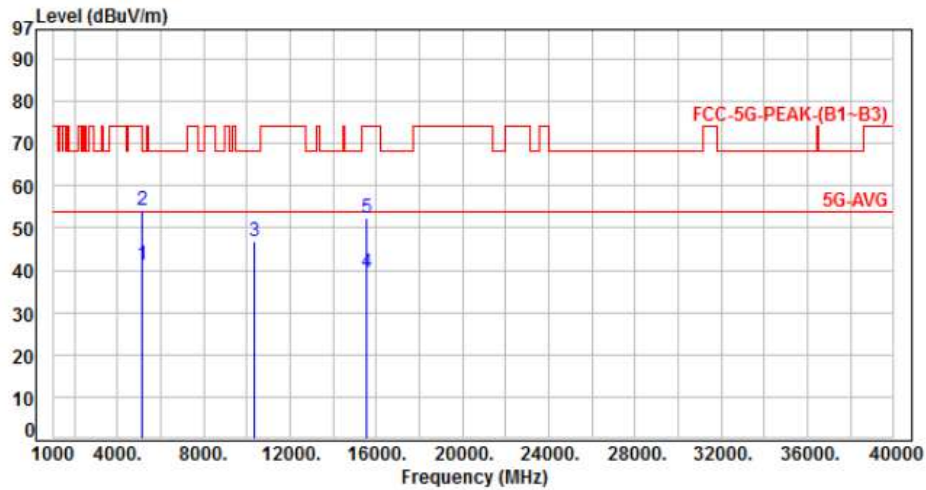


| No. | Frequency (MHz) | Factor (dB) | Reading (dBUV) | Level (dBUV/m) | Limit (dBUV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 47.30 | 41.44 | 54.00 | -12.56 | Average | 378 | 341 | P |
| 2 | 5150.00 | -5.86 | 60.70 | 54.84 | 74.00 | -19.16 | Peak | 378 | 341 | P |
| 3 | 10360.00 | 2.36 | 44.30 | 46.66 | 68.20 | -21.54 | Peak | 368 | 15 | P |
| 4 | 15540.00 | 8.79 | 30.12 | 38.91 | 54.00 | -15.09 | Average | 100 | 84 | P |
| 5 | 15540.00 | 8.79 | 43.25 | 52.04 | 74.00 | -21.96 | Peak | 100 | 84 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 1, Band 1, CH36 | | : |

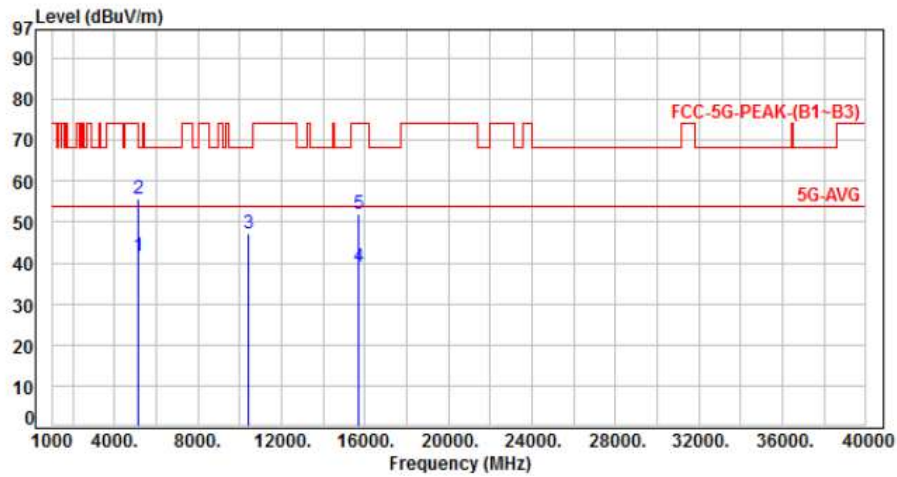


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 47.20 | 41.34 | 54.00 | -12.66 | Average | 390 | 307 | P |
| 2 | 5150.00 | -5.86 | 60.10 | 54.24 | 74.00 | -19.76 | Peak | 390 | 307 | P |
| 3 | 10360.00 | 2.36 | 44.50 | 46.86 | 68.20 | -21.34 | Peak | 400 | 302 | P |
| 4 | 15540.00 | 8.79 | 30.50 | 39.29 | 54.00 | -14.71 | Average | 100 | 311 | P |
| 5 | 15540.00 | 8.79 | 43.40 | 52.19 | 74.00 | -21.81 | Peak | 100 | 311 | P |

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 1, Band 1, CH44 | | : |

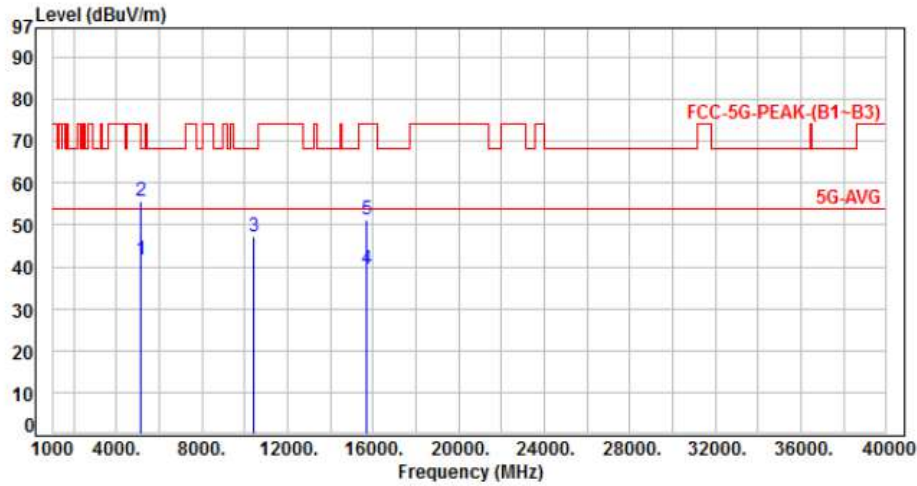


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 47.58 | 41.72 | 54.00 | -12.28 | Average | 377 | 351 | P |
| 2 | 5150.00 | -5.86 | 61.50 | 55.64 | 74.00 | -18.36 | Peak | 377 | 351 | P |
| 3 | 10440.00 | 2.49 | 44.70 | 47.19 | 68.20 | -21.01 | Peak | 380 | 12 | P |
| 4 | 15660.00 | 8.49 | 30.62 | 39.11 | 54.00 | -14.89 | Average | 117 | 58 | P |
| 5 | 15660.00 | 8.49 | 43.64 | 52.13 | 74.00 | -21.87 | Peak | 117 | 58 | P |

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 1, Band 1, CH44 | | : |

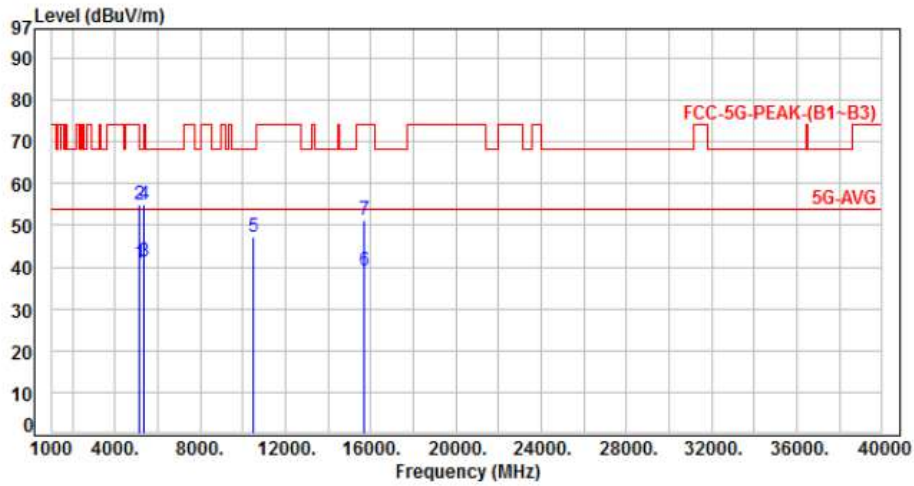


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 47.55 | 41.69 | 54.00 | -12.31 | Average | 386 | 325 | P |
| 2 | 5150.00 | -5.86 | 61.40 | 55.54 | 74.00 | -18.46 | Peak | 386 | 325 | P |
| 3 | 10440.00 | 2.49 | 44.81 | 47.30 | 68.20 | -20.90 | Peak | 395 | 321 | P |
| 4 | 15660.00 | 8.49 | 30.84 | 39.33 | 54.00 | -14.67 | Average | 100 | 351 | P |
| 5 | 15660.00 | 8.49 | 42.77 | 51.26 | 74.00 | -22.74 | Peak | 100 | 351 | P |

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 1, Band 1, CH48 | | : |

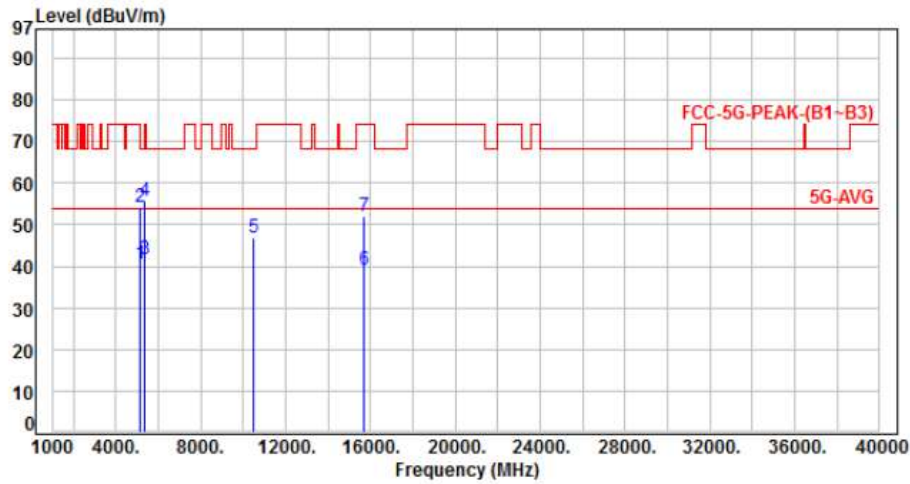


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 46.85 | 40.99 | 54.00 | -13.01 | Average | 358 | 349 | P |
| 2 | 5150.00 | -5.86 | 60.88 | 55.02 | 74.00 | -18.98 | Peak | 358 | 349 | P |
| 3 | 5350.00 | -5.50 | 46.81 | 41.31 | 54.00 | -12.69 | Average | 358 | 349 | P |
| 4 | 5350.00 | -5.50 | 60.46 | 54.96 | 74.00 | -19.04 | Peak | 358 | 349 | P |
| 5 | 10480.00 | 2.58 | 44.74 | 47.32 | 68.20 | -20.88 | Peak | 377 | 20 | P |
| 6 | 15720.00 | 8.50 | 30.69 | 39.19 | 54.00 | -14.81 | Average | 100 | 55 | P |
| 7 | 15720.00 | 8.50 | 42.85 | 51.35 | 74.00 | -22.65 | Peak | 100 | 55 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 1, Band 1, CH48 | | : |

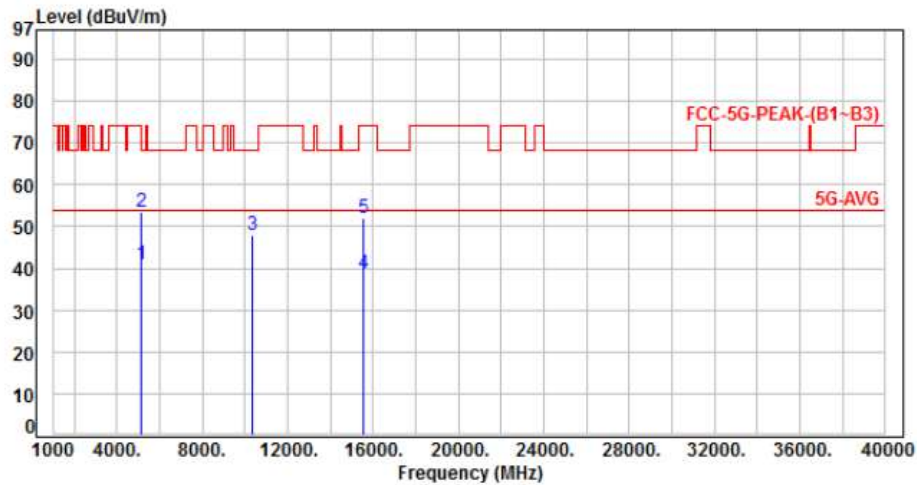


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 46.58 | 40.72 | 54.00 | -13.28 | Average | 369 | 345 | P |
| 2 | 5150.00 | -5.86 | 60.22 | 54.36 | 74.00 | -19.64 | Peak | 369 | 345 | P |
| 3 | 5350.00 | -5.50 | 47.34 | 41.84 | 54.00 | -12.16 | Average | 369 | 345 | P |
| 4 | 5350.00 | -5.50 | 61.30 | 55.80 | 74.00 | -18.20 | Peak | 369 | 345 | P |
| 5 | 10480.00 | 2.58 | 44.22 | 46.80 | 68.20 | -21.40 | Peak | 384 | 360 | P |
| 6 | 15720.00 | 8.50 | 30.77 | 39.27 | 54.00 | -14.73 | Average | 100 | 318 | P |
| 7 | 15720.00 | 8.50 | 43.35 | 51.85 | 74.00 | -22.15 | Peak | 100 | 318 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 2, Band 1, CH36 | | : |

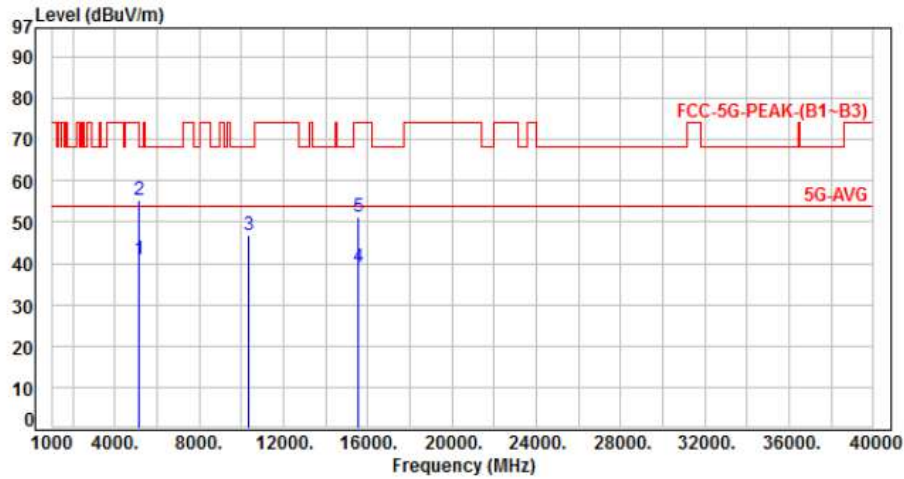


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 46.80 | 40.94 | 54.00 | -13.06 | Average | 379 | 351 | P |
| 2 | 5150.00 | -5.86 | 59.22 | 53.36 | 74.00 | -20.64 | Peak | 379 | 351 | P |
| 3 | 10360.00 | 2.36 | 45.44 | 47.80 | 68.20 | -20.40 | Peak | 398 | 23 | P |
| 4 | 15540.00 | 8.79 | 29.88 | 38.67 | 54.00 | -15.33 | Average | 100 | 73 | P |
| 5 | 15540.00 | 8.79 | 43.36 | 52.15 | 74.00 | -21.85 | Peak | 100 | 73 | P |

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 2, Band 1, CH36 | | : |

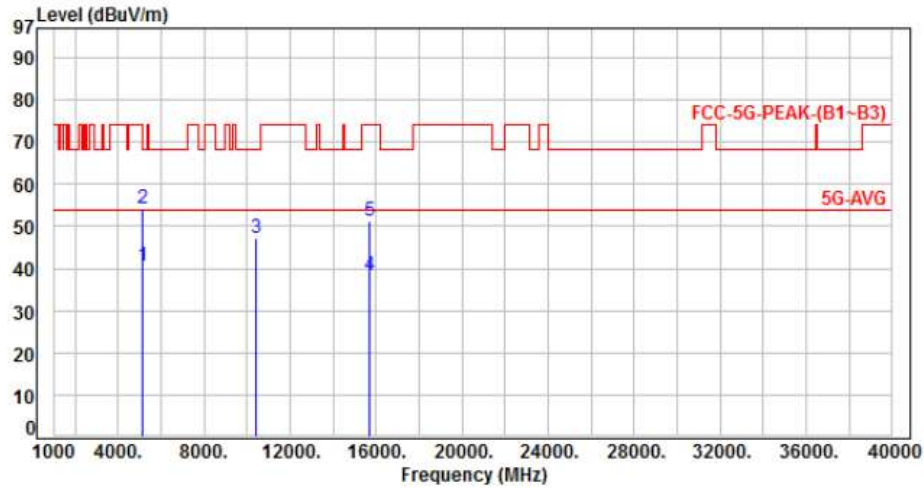


| No. | Frequency (MHz) | Factor (dB) | Reading (dBUV) | Level (dBUV/m) | Limit (dBUV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 46.85 | 40.99 | 54.00 | -13.01 | Average | 400 | 313 | P |
| 2 | 5150.00 | -5.86 | 61.30 | 55.44 | 74.00 | -18.56 | Peak | 400 | 313 | P |
| 3 | 10360.00 | 2.36 | 44.49 | 46.85 | 68.20 | -21.35 | Peak | 366 | 351 | P |
| 4 | 15540.00 | 8.79 | 30.30 | 39.09 | 54.00 | -14.91 | Average | 100 | 298 | P |
| 5 | 15540.00 | 8.79 | 42.47 | 51.26 | 74.00 | -22.74 | Peak | 100 | 298 | P |

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 2, Band 1, CH44 | | |

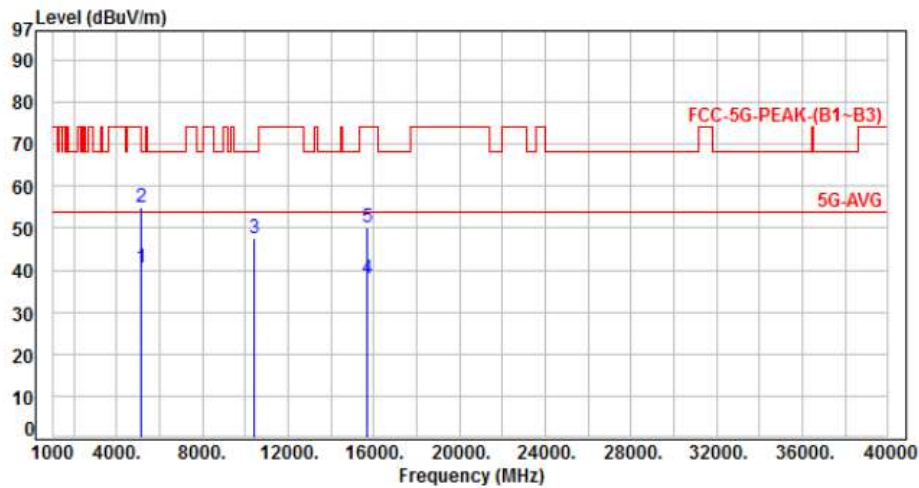


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 46.36 | 40.50 | 54.00 | -13.50 | Average | 378 | 349 | P |
| 2 | 5150.00 | -5.86 | 60.25 | 54.39 | 74.00 | -19.61 | Peak | 378 | 349 | P |
| 3 | 10440.00 | 2.49 | 44.75 | 47.24 | 68.20 | -20.96 | Peak | 382 | 26 | P |
| 4 | 15660.00 | 8.49 | 29.75 | 38.24 | 54.00 | -15.76 | Average | 100 | 58 | P |
| 5 | 15660.00 | 8.49 | 42.87 | 51.36 | 74.00 | -22.64 | Peak | 100 | 58 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 2, Band 1, CH44 | | : |

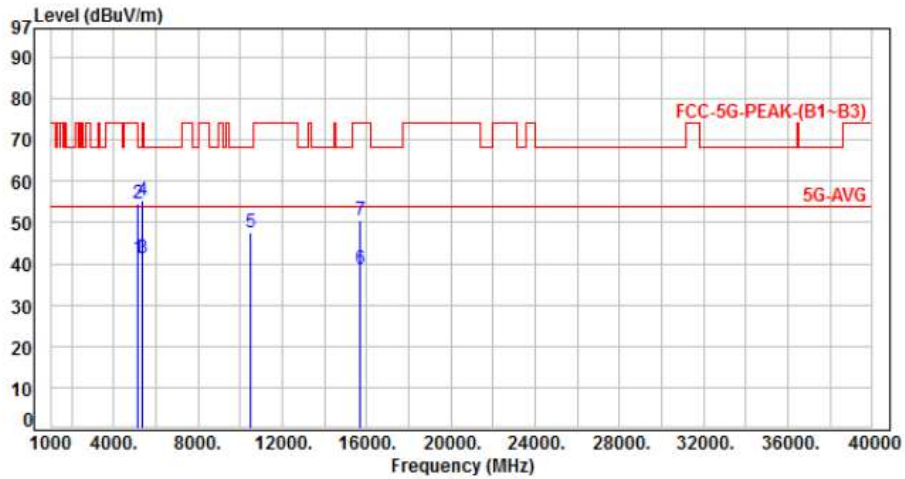


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 46.55 | 40.69 | 54.00 | -13.31 | Average | 385 | 336 | P |
| 2 | 5150.00 | -5.86 | 60.78 | 54.92 | 74.00 | -19.08 | Peak | 385 | 336 | P |
| 3 | 10440.00 | 2.49 | 45.10 | 47.59 | 68.20 | -20.61 | Peak | 356 | 360 | P |
| 4 | 15660.00 | 8.49 | 29.66 | 38.15 | 54.00 | -15.85 | Average | 100 | 321 | P |
| 5 | 15660.00 | 8.49 | 41.57 | 50.06 | 74.00 | -23.94 | Peak | 100 | 321 | P |

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 2, Band 1, CH48 | | : |

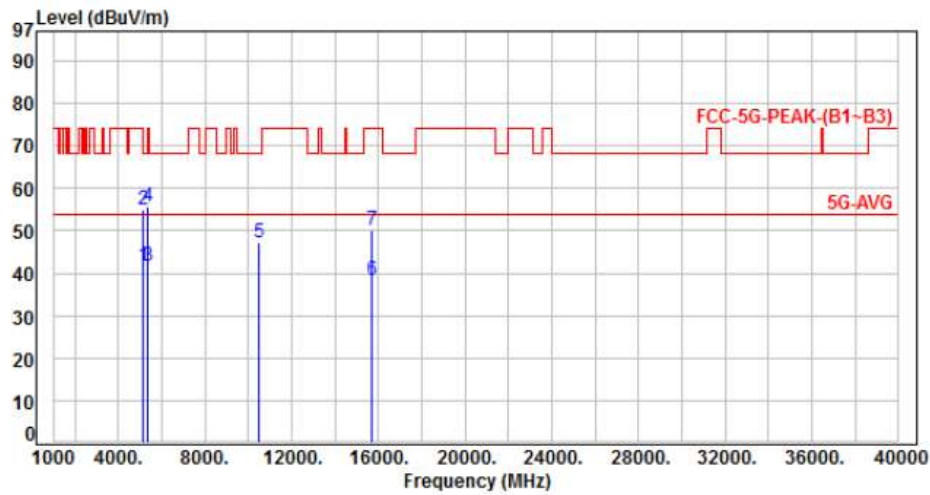


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 47.22 | 41.36 | 54.00 | -12.64 | Average | 376 | 355 | P |
| 2 | 5150.00 | -5.86 | 60.49 | 54.63 | 74.00 | -19.37 | Peak | 376 | 355 | P |
| 3 | 5350.00 | -5.50 | 46.92 | 41.42 | 54.00 | -12.58 | Average | 376 | 355 | P |
| 4 | 5350.00 | -5.50 | 60.88 | 55.38 | 74.00 | -18.62 | Peak | 376 | 355 | P |
| 5 | 10480.00 | 2.58 | 45.05 | 47.63 | 68.20 | -20.57 | Peak | 384 | 33 | P |
| 6 | 15720.00 | 8.50 | 30.32 | 38.82 | 54.00 | -15.18 | Average | 100 | 78 | P |
| 7 | 15720.00 | 8.50 | 42.15 | 50.65 | 74.00 | -23.35 | Peak | 100 | 78 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 2, Band 1, CH48 | | : |

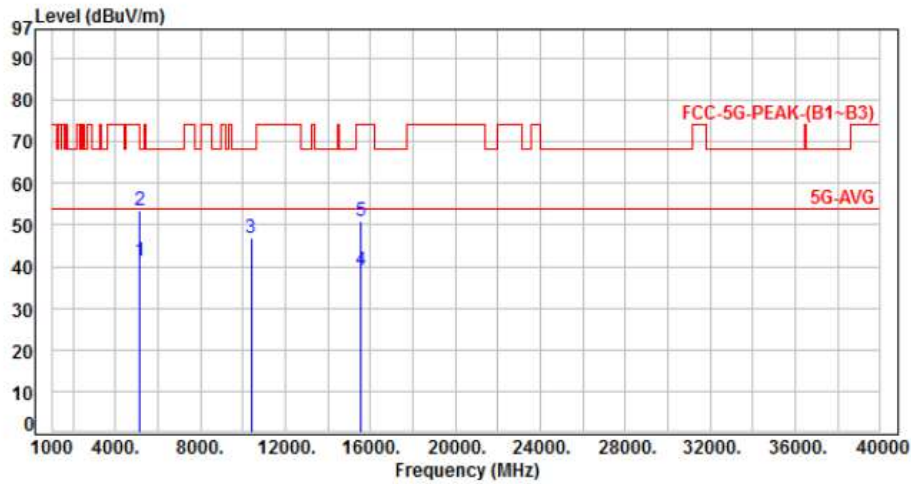


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 47.46 | 41.60 | 54.00 | -12.40 | Average | 400 | 347 | P |
| 2 | 5150.00 | -5.86 | 60.84 | 54.98 | 74.00 | -19.02 | Peak | 400 | 347 | P |
| 3 | 5350.00 | -5.50 | 47.16 | 41.66 | 54.00 | -12.34 | Average | 400 | 347 | P |
| 4 | 5350.00 | -5.50 | 61.03 | 55.53 | 74.00 | -18.47 | Peak | 400 | 347 | P |
| 5 | 10480.00 | 2.58 | 44.77 | 47.35 | 68.20 | -20.85 | Peak | 361 | 328 | P |
| 6 | 15720.00 | 8.50 | 29.73 | 38.23 | 54.00 | -15.77 | Average | 100 | 351 | P |
| 7 | 15720.00 | 8.50 | 41.51 | 50.01 | 74.00 | -23.99 | Peak | 100 | 351 | P |

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 3, Band 1, CH38 | | : |

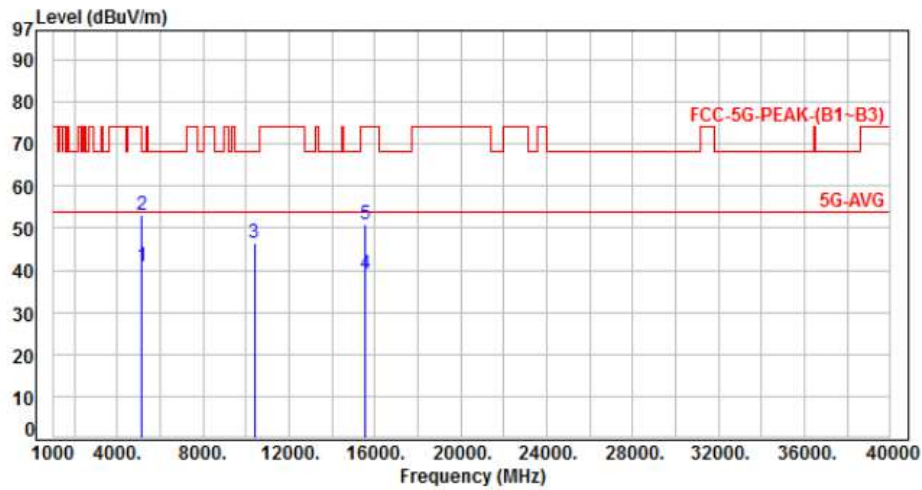


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 47.35 | 41.49 | 54.00 | -12.51 | Average | 378 | 360 | P |
| 2 | 5150.00 | -5.86 | 59.24 | 53.38 | 74.00 | -20.62 | Peak | 378 | 360 | P |
| 3 | 10380.00 | 2.37 | 44.63 | 47.00 | 68.20 | -21.20 | Peak | 355 | 15 | P |
| 4 | 15570.00 | 8.66 | 30.53 | 39.19 | 54.00 | -14.81 | Average | 100 | 87 | P |
| 5 | 15570.00 | 8.66 | 42.35 | 51.01 | 74.00 | -22.99 | Peak | 100 | 87 | P |

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 3, Band 1, CH38 | | : |

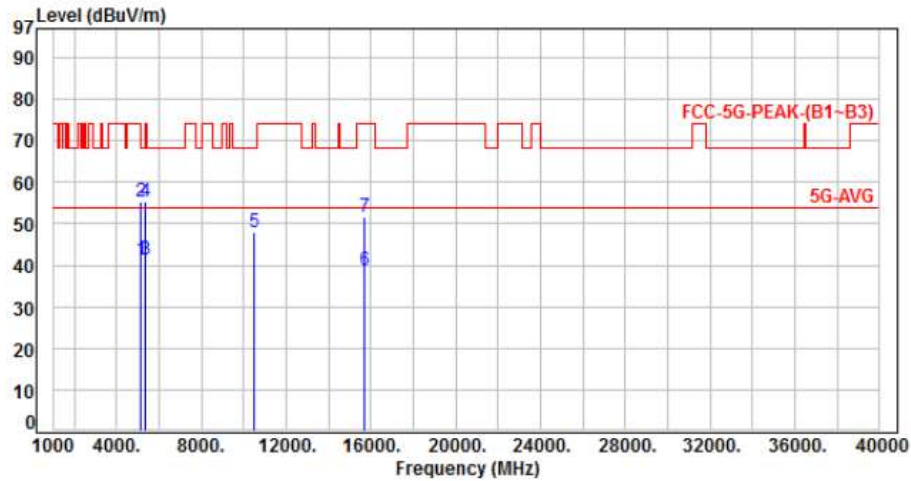


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 46.82 | 40.96 | 54.00 | -13.04 | Average | 341 | 300 | P |
| 2 | 5150.00 | -5.86 | 58.99 | 53.13 | 74.00 | -20.87 | Peak | 341 | 300 | P |
| 3 | 10380.00 | 2.37 | 44.11 | 46.48 | 68.20 | -21.72 | Peak | 352 | 336 | P |
| 4 | 15570.00 | 8.66 | 30.42 | 39.08 | 54.00 | -14.92 | Average | 100 | 302 | P |
| 5 | 15570.00 | 8.66 | 42.20 | 50.86 | 74.00 | -23.14 | Peak | 100 | 302 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 3, Band 1, CH46 | | : |

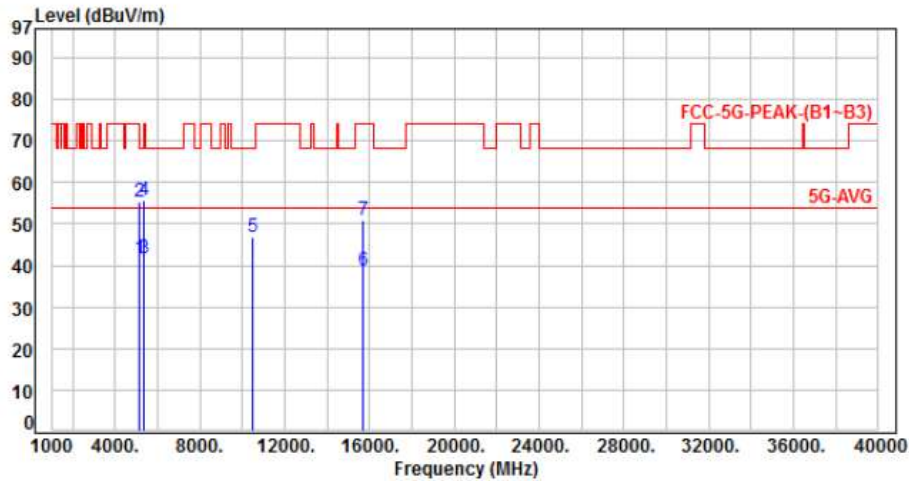


| No. | Frequency (MHz) | Factor (dB) | Reading (dBUV) | Level (dBUV/m) | Limit (dBUV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 47.11 | 41.25 | 54.00 | -12.75 | Average | 359 | 360 | P |
| 2 | 5150.00 | -5.86 | 61.24 | 55.38 | 74.00 | -18.62 | Peak | 359 | 360 | P |
| 3 | 5350.00 | -5.50 | 46.87 | 41.37 | 54.00 | -12.63 | Average | 359 | 360 | P |
| 4 | 5350.00 | -5.50 | 60.67 | 55.17 | 74.00 | -18.83 | Peak | 359 | 360 | P |
| 5 | 10460.00 | 2.53 | 45.26 | 47.79 | 68.20 | -20.41 | Peak | 400 | 13 | P |
| 6 | 15690.00 | 8.47 | 30.25 | 38.72 | 54.00 | -15.28 | Average | 100 | 67 | P |
| 7 | 15690.00 | 8.47 | 43.12 | 51.59 | 74.00 | -22.41 | Peak | 100 | 67 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 3, Band 1, CH46 | | : |

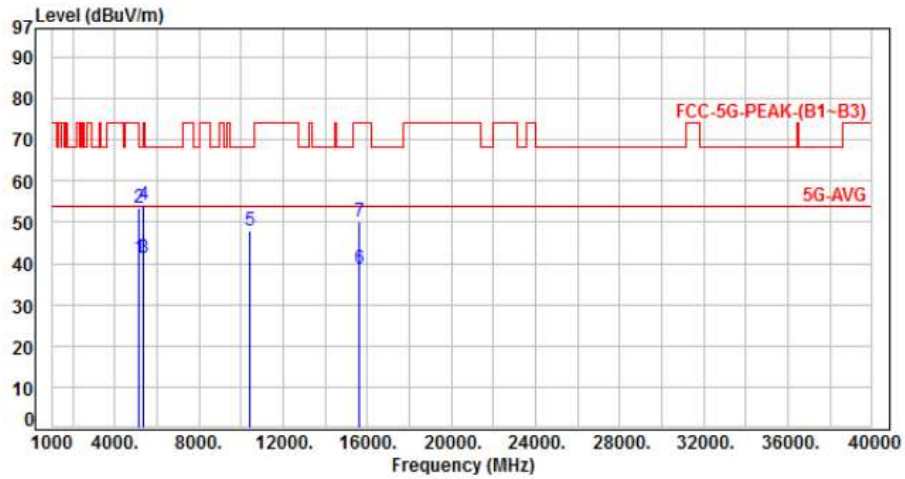


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 47.46 | 41.60 | 54.00 | -12.40 | Average | 335 | 317 | P |
| 2 | 5150.00 | -5.86 | 61.25 | 55.39 | 74.00 | -18.61 | Peak | 335 | 317 | P |
| 3 | 5350.00 | -5.50 | 47.08 | 41.58 | 54.00 | -12.42 | Average | 335 | 317 | P |
| 4 | 5350.00 | -5.50 | 61.36 | 55.86 | 74.00 | -18.14 | Peak | 335 | 317 | P |
| 5 | 10460.00 | 2.53 | 44.25 | 46.78 | 68.20 | -21.42 | Peak | 358 | 346 | P |
| 6 | 15690.00 | 8.47 | 30.37 | 38.84 | 54.00 | -15.16 | Average | 100 | 308 | P |
| 7 | 15690.00 | 8.47 | 42.51 | 50.98 | 74.00 | -23.02 | Peak | 100 | 308 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 4, Band 1, CH42 | | : |

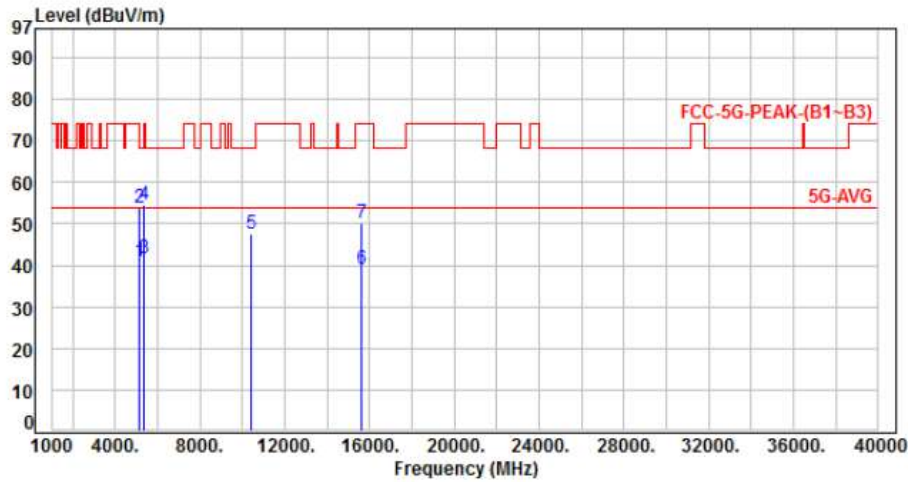


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 47.12 | 41.26 | 54.00 | -12.74 | Average | 356 | 348 | P |
| 2 | 5150.00 | -5.86 | 59.36 | 53.50 | 74.00 | -20.50 | Peak | 356 | 348 | P |
| 3 | 5350.00 | -5.50 | 46.88 | 41.38 | 54.00 | -12.62 | Average | 356 | 348 | P |
| 4 | 5350.00 | -5.50 | 59.87 | 54.37 | 74.00 | -19.63 | Peak | 356 | 348 | P |
| 5 | 10420.00 | 2.43 | 45.36 | 47.79 | 68.20 | -20.41 | Peak | 377 | 14 | P |
| 6 | 15630.00 | 8.50 | 30.26 | 38.76 | 54.00 | -15.24 | Average | 100 | 84 | P |
| 7 | 15630.00 | 8.50 | 41.52 | 50.02 | 74.00 | -23.98 | Peak | 100 | 84 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 4, Band 1, CH42 | | : |

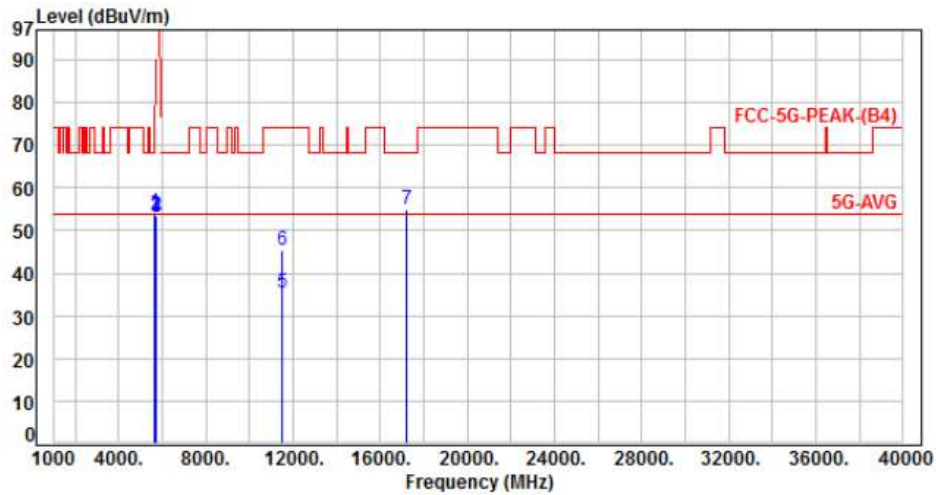


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5150.00 | -5.86 | 46.95 | 41.09 | 54.00 | -12.91 | Average | 320 | 354 | P |
| 2 | 5150.00 | -5.86 | 59.78 | 53.92 | 74.00 | -20.08 | Peak | 320 | 354 | P |
| 3 | 5350.00 | -5.50 | 47.23 | 41.73 | 54.00 | -12.27 | Average | 320 | 354 | P |
| 4 | 5350.00 | -5.50 | 60.21 | 54.71 | 74.00 | -19.29 | Peak | 320 | 354 | P |
| 5 | 10420.00 | 2.43 | 45.14 | 47.57 | 68.20 | -20.63 | Peak | 359 | 346 | P |
| 6 | 15630.00 | 8.50 | 30.57 | 39.07 | 54.00 | -14.93 | Average | 100 | 321 | P |
| 7 | 15630.00 | 8.50 | 41.52 | 50.02 | 74.00 | -23.98 | Peak | 100 | 321 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 1, Band 4, CH149 | | : |

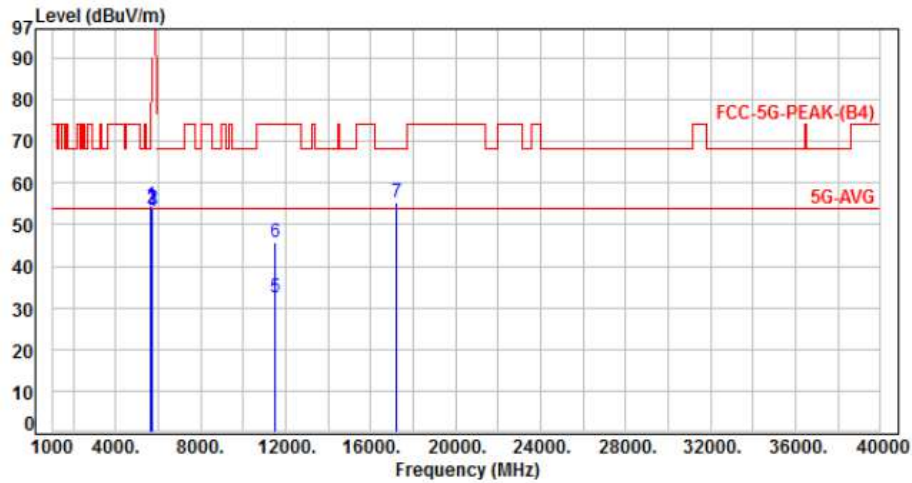


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5650.00 | -5.36 | 59.70 | 54.34 | 68.20 | -13.86 | Peak | 320 | 10 | P |
| 2 | 5700.00 | -5.46 | 58.90 | 53.44 | 105.20 | -51.76 | Peak | 320 | 10 | P |
| 3 | 5720.00 | -5.47 | 58.70 | 53.23 | 110.80 | -57.57 | Peak | 320 | 10 | P |
| 4 | 5725.00 | -5.46 | 58.52 | 53.06 | 122.20 | -69.14 | Peak | 320 | 10 | P |
| 5 | 11490.00 | 3.91 | 31.50 | 35.41 | 54.00 | -18.59 | Average | 162 | 14 | P |
| 6 | 11490.00 | 3.91 | 41.60 | 45.51 | 74.00 | -28.49 | Peak | 162 | 14 | P |
| 7 | 17235.00 | 14.91 | 40.20 | 55.11 | 68.20 | -13.09 | Peak | 100 | 95 | P |

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 1, Band 4, CH149 | | : |

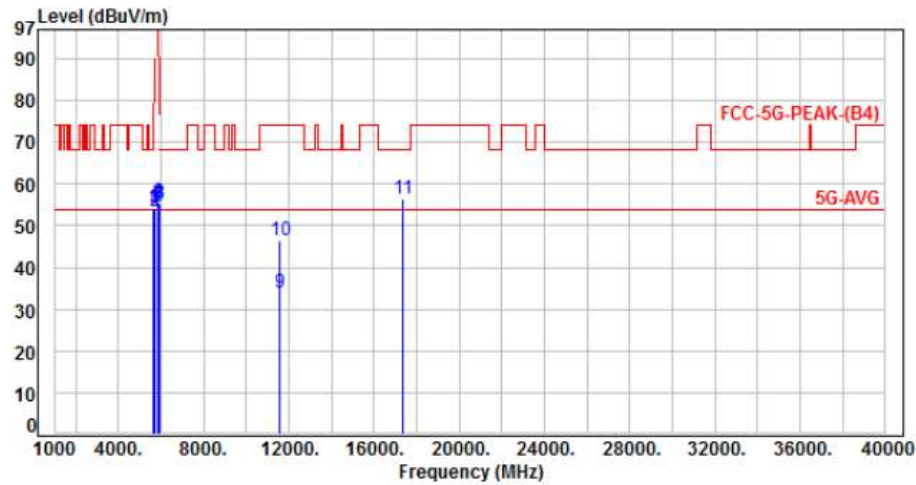


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5650.00 | -5.36 | 59.90 | 54.54 | 68.20 | -13.66 | Peak | 385 | 304 | P |
| 2 | 5700.00 | -5.46 | 59.40 | 53.94 | 105.20 | -51.26 | Peak | 385 | 304 | P |
| 3 | 5720.00 | -5.47 | 58.97 | 53.50 | 110.80 | -57.30 | Peak | 385 | 304 | P |
| 4 | 5725.00 | -5.46 | 58.44 | 52.98 | 122.20 | -69.22 | Peak | 385 | 304 | P |
| 5 | 11490.00 | 3.91 | 28.65 | 32.56 | 54.00 | -21.44 | Average | 122 | 20 | P |
| 6 | 11490.00 | 3.91 | 41.81 | 45.72 | 74.00 | -28.28 | Peak | 122 | 20 | P |
| 7 | 17235.00 | 14.91 | 40.53 | 55.44 | 68.20 | -12.76 | Peak | 100 | 285 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 1, Band 4, CH157 | | : |

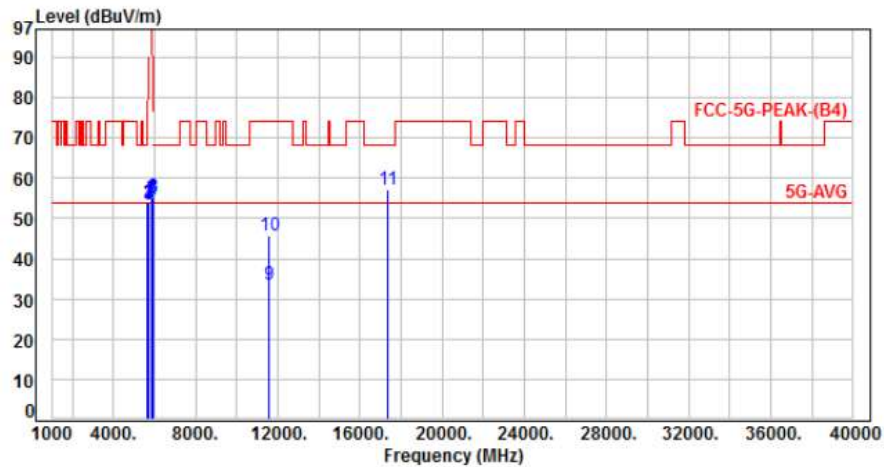


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5650.00 | -5.36 | 59.60 | 54.24 | 68.20 | -13.96 | Peak | 351 | 348 | P |
| 2 | 5700.00 | -5.46 | 58.96 | 53.50 | 105.20 | -51.70 | Peak | 351 | 348 | P |
| 3 | 5720.00 | -5.47 | 59.51 | 54.04 | 110.80 | -56.76 | Peak | 351 | 348 | P |
| 4 | 5725.00 | -5.46 | 59.44 | 53.98 | 122.20 | -68.22 | Peak | 351 | 348 | P |
| 5 | 5850.00 | -5.36 | 60.10 | 54.74 | 122.20 | -67.46 | Peak | 351 | 348 | P |
| 6 | 5855.00 | -5.33 | 61.19 | 55.86 | 110.80 | -54.94 | Peak | 351 | 348 | P |
| 7 | 5875.00 | -5.26 | 60.30 | 55.04 | 105.20 | -50.16 | Peak | 351 | 348 | P |
| 8 | 5925.00 | -5.15 | 60.52 | 55.37 | 68.20 | -12.83 | Peak | 351 | 348 | P |
| 9 | 11570.00 | 4.26 | 29.68 | 33.94 | 54.00 | -20.06 | Average | 148 | 57 | P |
| 10 | 11570.00 | 4.26 | 42.35 | 46.61 | 74.00 | -27.39 | Peak | 148 | 57 | P |
| 11 | 17355.00 | 15.64 | 40.85 | 56.49 | 68.20 | -11.71 | Peak | 100 | 93 | P |

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 1, Band 4, CH157 | | : |

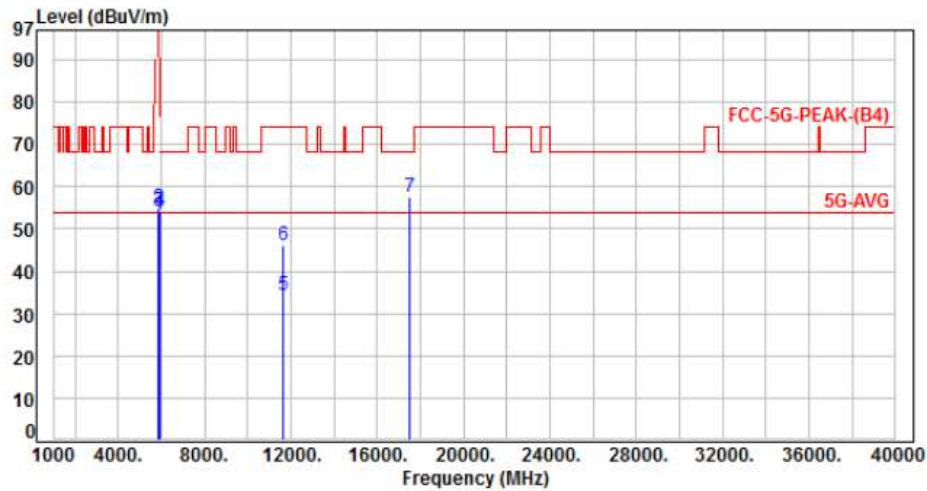


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5650.00 | -5.36 | 59.40 | 54.04 | 68.20 | -14.16 | Peak | 372 | 306 | P |
| 2 | 5700.00 | -5.46 | 59.23 | 53.77 | 105.20 | -51.43 | Peak | 372 | 306 | P |
| 3 | 5720.00 | -5.47 | 58.97 | 53.50 | 110.80 | -57.30 | Peak | 372 | 306 | P |
| 4 | 5725.00 | -5.46 | 59.12 | 53.66 | 122.20 | -68.54 | Peak | 372 | 306 | P |
| 5 | 5850.00 | -5.36 | 60.40 | 55.04 | 122.20 | -67.16 | Peak | 372 | 306 | P |
| 6 | 5855.00 | -5.33 | 59.63 | 54.30 | 110.80 | -56.50 | Peak | 372 | 306 | P |
| 7 | 5875.00 | -5.26 | 59.70 | 54.44 | 105.20 | -50.76 | Peak | 372 | 306 | P |
| 8 | 5925.00 | -5.15 | 60.40 | 55.25 | 68.20 | -12.95 | Peak | 372 | 306 | P |
| 9 | 11570.00 | 4.26 | 29.31 | 33.57 | 54.00 | -20.43 | Average | 105 | 33 | P |
| 10 | 11570.00 | 4.26 | 41.62 | 45.88 | 74.00 | -28.12 | Peak | 105 | 33 | P |
| 11 | 17355.00 | 15.64 | 41.63 | 57.27 | 68.20 | -10.93 | Peak | 100 | 326 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 1, Band 4, CH165 | | : |

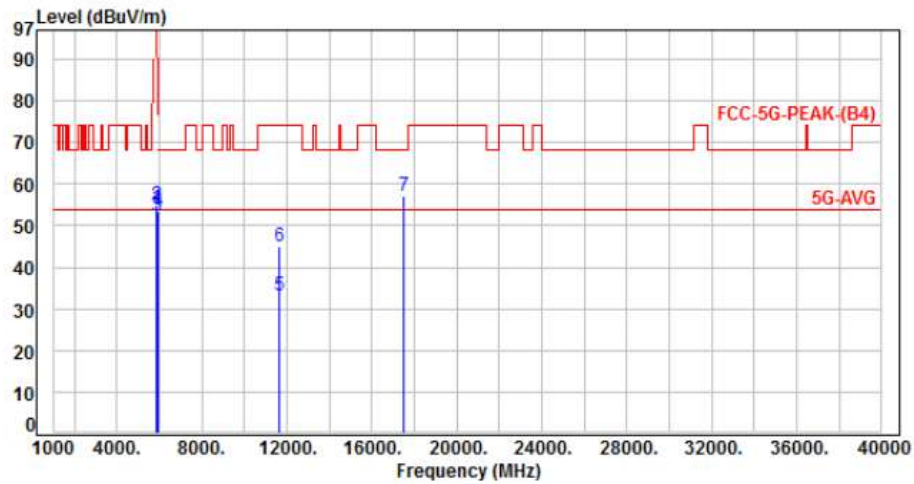


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5850.00 | -5.36 | 58.76 | 53.40 | 122.20 | -68.80 | Peak | 356 | 344 | P |
| 2 | 5855.00 | -5.33 | 60.13 | 54.80 | 110.80 | -56.00 | Peak | 356 | 344 | P |
| 3 | 5875.00 | -5.26 | 59.30 | 54.04 | 105.20 | -51.16 | Peak | 356 | 344 | P |
| 4 | 5925.00 | -5.15 | 59.49 | 54.34 | 68.20 | -13.86 | Peak | 356 | 344 | P |
| 5 | 11650.00 | 4.47 | 29.85 | 34.32 | 54.00 | -19.68 | Average | 146 | 37 | P |
| 6 | 11650.00 | 4.47 | 41.52 | 45.99 | 74.00 | -28.01 | Peak | 146 | 37 | P |
| 7 | 17475.00 | 16.59 | 40.91 | 57.50 | 68.20 | -10.70 | Peak | 100 | 65 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 1, Band 4, CH165 | | : |

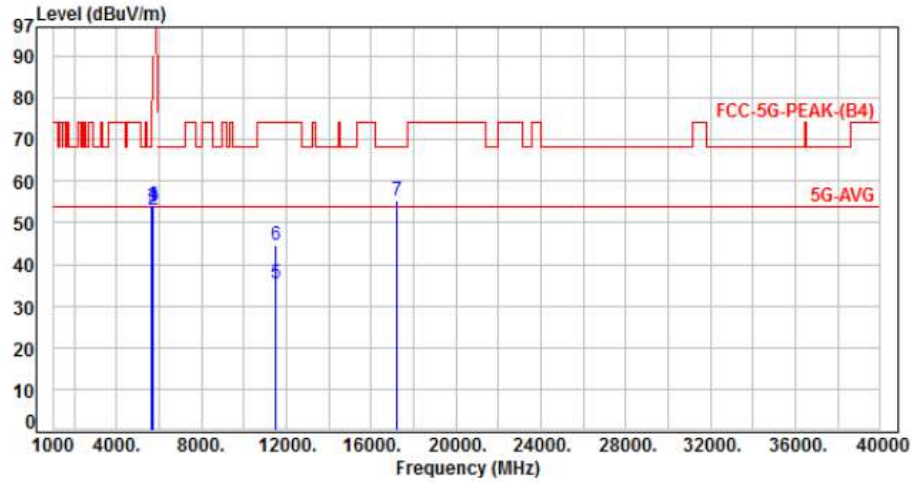


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5850.00 | -5.36 | 59.75 | 54.39 | 122.20 | -67.81 | Peak | 381 | 310 | P |
| 2 | 5855.00 | -5.33 | 60.29 | 54.96 | 110.80 | -55.84 | Peak | 381 | 310 | P |
| 3 | 5875.00 | -5.26 | 57.61 | 52.35 | 105.20 | -52.85 | Peak | 381 | 310 | P |
| 4 | 5925.00 | -5.15 | 58.70 | 53.55 | 68.20 | -14.65 | Peak | 381 | 310 | P |
| 5 | 11650.00 | 4.47 | 28.73 | 33.20 | 54.00 | -20.80 | Average | 114 | 82 | P |
| 6 | 11650.00 | 4.47 | 40.53 | 45.00 | 74.00 | -29.00 | Peak | 114 | 82 | P |
| 7 | 17475.00 | 16.59 | 40.62 | 57.21 | 68.20 | -10.99 | Peak | 100 | 300 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 2, Band 4, CH149 | | |

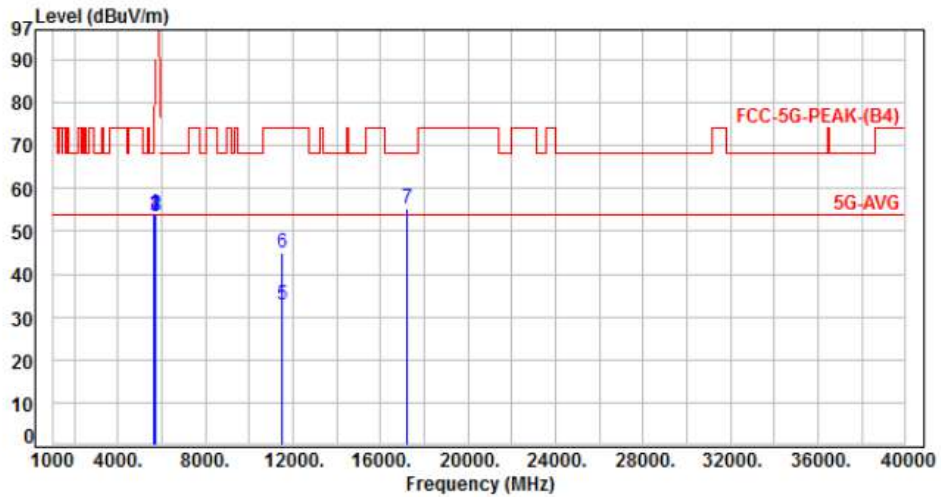


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5650.00 | -5.36 | 59.71 | 54.35 | 68.20 | -13.85 | Peak | 338 | 24 | P |
| 2 | 5700.00 | -5.46 | 58.68 | 53.22 | 105.20 | -51.98 | Peak | 338 | 24 | P |
| 3 | 5720.00 | -5.47 | 59.34 | 53.87 | 110.80 | -56.93 | Peak | 338 | 24 | P |
| 4 | 5725.00 | -5.46 | 59.60 | 54.14 | 122.20 | -68.06 | Peak | 338 | 24 | P |
| 5 | 11490.00 | 3.91 | 31.66 | 35.57 | 54.00 | -18.43 | Average | 170 | 16 | P |
| 6 | 11490.00 | 3.91 | 40.88 | 44.79 | 74.00 | -29.21 | Peak | 170 | 16 | P |
| 7 | 17235.00 | 14.91 | 40.58 | 55.49 | 68.20 | -12.71 | Peak | 100 | 72 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 2, Band 4, CH149 | | : |

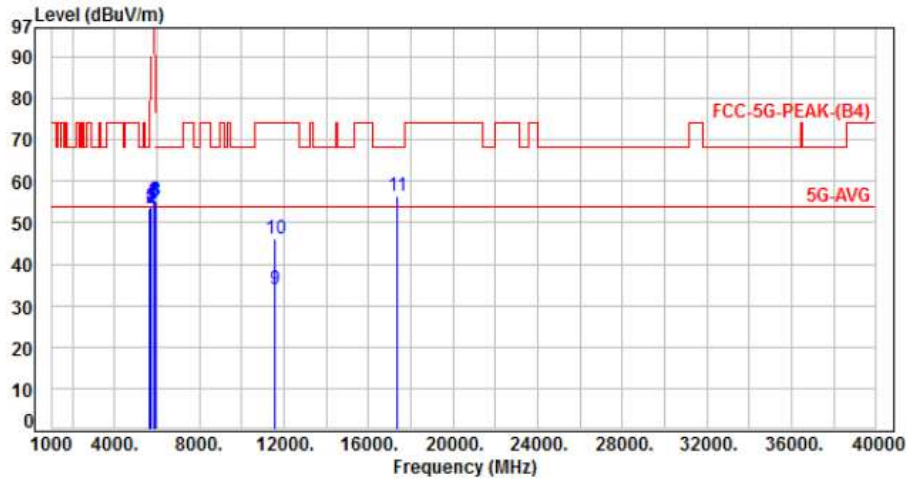


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5650.00 | -5.36 | 59.52 | 54.16 | 68.20 | -14.04 | Peak | 352 | 310 | P |
| 2 | 5700.00 | -5.46 | 59.41 | 53.95 | 105.20 | -51.25 | Peak | 352 | 310 | P |
| 3 | 5720.00 | -5.47 | 59.00 | 53.53 | 110.80 | -57.27 | Peak | 352 | 310 | P |
| 4 | 5725.00 | -5.46 | 59.49 | 54.03 | 122.20 | -68.17 | Peak | 352 | 310 | P |
| 5 | 11490.00 | 3.91 | 29.02 | 32.93 | 54.00 | -21.07 | Average | 142 | 66 | P |
| 6 | 11490.00 | 3.91 | 41.15 | 45.06 | 74.00 | -28.94 | Peak | 142 | 66 | P |
| 7 | 17235.00 | 14.91 | 40.44 | 55.35 | 68.20 | -12.85 | Peak | 100 | 349 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 2, Band 4, CH157 | | : |

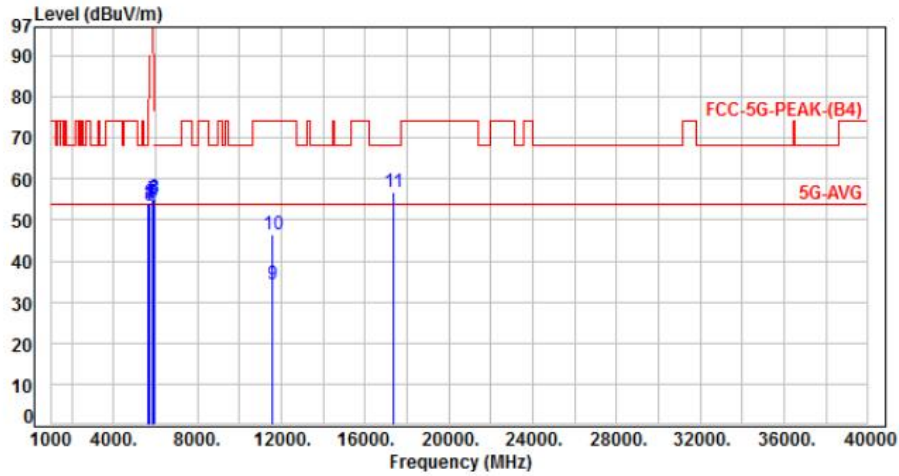


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5650.00 | -5.36 | 58.99 | 53.63 | 68.20 | -14.57 | Peak | 348 | 359 | P |
| 2 | 5700.00 | -5.46 | 58.92 | 53.46 | 105.20 | -51.74 | Peak | 348 | 359 | P |
| 3 | 5720.00 | -5.47 | 59.45 | 53.98 | 110.80 | -56.82 | Peak | 348 | 359 | P |
| 4 | 5725.00 | -5.46 | 59.36 | 53.90 | 122.20 | -68.30 | Peak | 348 | 359 | P |
| 5 | 5850.00 | -5.36 | 60.23 | 54.87 | 122.20 | -67.33 | Peak | 348 | 359 | P |
| 6 | 5855.00 | -5.33 | 60.59 | 55.26 | 110.80 | -55.54 | Peak | 348 | 359 | P |
| 7 | 5875.00 | -5.26 | 59.87 | 54.61 | 105.20 | -50.59 | Peak | 348 | 359 | P |
| 8 | 5925.00 | -5.15 | 60.39 | 55.24 | 68.20 | -12.96 | Peak | 348 | 359 | P |
| 9 | 11570.00 | 4.26 | 29.77 | 34.03 | 54.00 | -19.97 | Average | 150 | 66 | P |
| 10 | 11570.00 | 4.26 | 41.87 | 46.13 | 74.00 | -27.87 | Peak | 150 | 66 | P |
| 11 | 17355.00 | 15.64 | 40.69 | 56.33 | 68.20 | -11.87 | Peak | 100 | 102 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 2, Band 4, CH157 | | : |

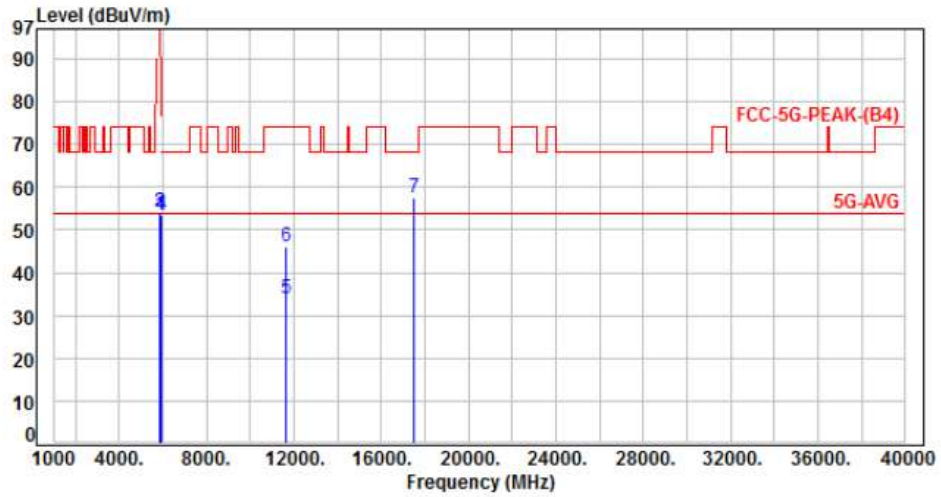


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5650.00 | -5.36 | 59.36 | 54.00 | 68.20 | -14.20 | Peak | 380 | 312 | P |
| 2 | 5700.00 | -5.46 | 59.81 | 54.35 | 105.20 | -50.85 | Peak | 380 | 312 | P |
| 3 | 5720.00 | -5.47 | 58.92 | 53.45 | 110.80 | -57.35 | Peak | 380 | 312 | P |
| 4 | 5725.00 | -5.46 | 59.63 | 54.17 | 122.20 | -68.03 | Peak | 380 | 312 | P |
| 5 | 5850.00 | -5.36 | 60.32 | 54.96 | 122.20 | -67.24 | Peak | 380 | 312 | P |
| 6 | 5855.00 | -5.33 | 59.62 | 54.29 | 110.80 | -56.51 | Peak | 380 | 312 | P |
| 7 | 5875.00 | -5.26 | 60.14 | 54.88 | 105.20 | -50.32 | Peak | 380 | 312 | P |
| 8 | 5925.00 | -5.15 | 60.54 | 55.39 | 68.20 | -12.81 | Peak | 380 | 312 | P |
| 9 | 11570.00 | 4.26 | 30.22 | 34.48 | 54.00 | -19.52 | Average | 163 | 52 | P |
| 10 | 11570.00 | 4.26 | 42.12 | 46.38 | 74.00 | -27.62 | Peak | 163 | 52 | P |
| 11 | 17355.00 | 15.64 | 41.02 | 56.66 | 68.20 | -11.54 | Peak | 163 | 52 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 2, Band 4, CH165 | | |

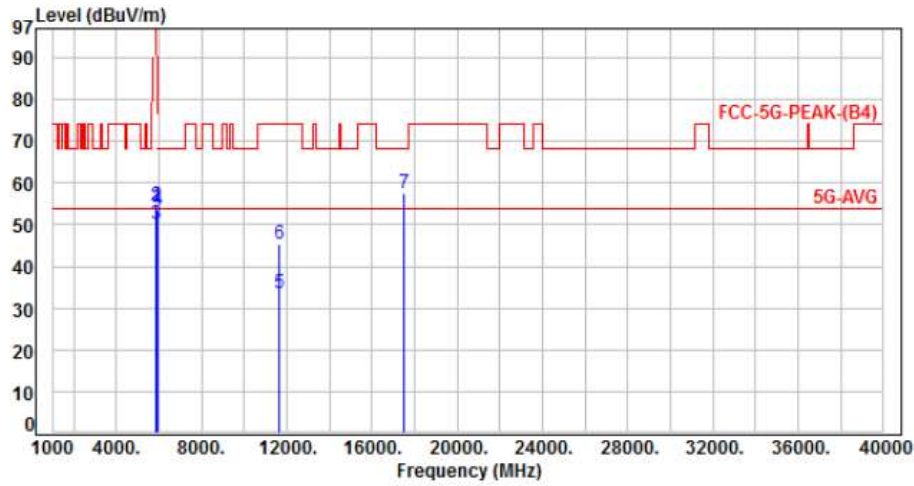


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5850.00 | -5.36 | 58.87 | 53.51 | 122.20 | -68.69 | Peak | 355 | 360 | P |
| 2 | 5855.00 | -5.33 | 59.65 | 54.32 | 110.80 | -56.48 | Peak | 355 | 360 | P |
| 3 | 5875.00 | -5.26 | 59.54 | 54.28 | 105.20 | -50.92 | Peak | 355 | 360 | P |
| 4 | 5925.00 | -5.15 | 58.79 | 53.64 | 68.20 | -14.56 | Peak | 355 | 360 | P |
| 5 | 11650.00 | 4.47 | 29.42 | 33.89 | 54.00 | -20.11 | Average | 132 | 50 | P |
| 6 | 11650.00 | 4.47 | 41.66 | 46.13 | 74.00 | -27.87 | Peak | 132 | 50 | P |
| 7 | 17475.00 | 16.59 | 41.04 | 57.63 | 68.20 | -10.57 | Peak | 100 | 86 | P |

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 2, Band 4, CH165 | | : |

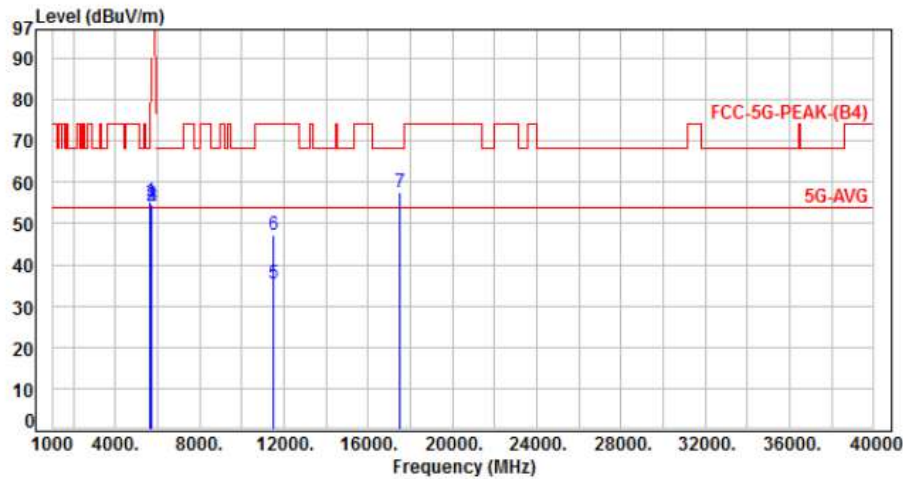


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5850.00 | -5.36 | 59.63 | 54.27 | 122.20 | -67.93 | Peak | 374 | 300 | P |
| 2 | 5855.00 | -5.33 | 59.87 | 54.54 | 110.80 | -56.26 | Peak | 374 | 300 | P |
| 3 | 5875.00 | -5.26 | 55.59 | 50.33 | 105.20 | -54.87 | Peak | 374 | 300 | P |
| 4 | 5925.00 | -5.15 | 58.47 | 53.32 | 68.20 | -14.88 | Peak | 374 | 300 | P |
| 5 | 11650.00 | 4.47 | 28.96 | 33.43 | 54.00 | -20.57 | Average | 100 | 73 | P |
| 6 | 11650.00 | 4.47 | 40.82 | 45.29 | 74.00 | -28.71 | Peak | 100 | 73 | P |
| 7 | 17475.00 | 16.59 | 41.02 | 57.61 | 68.20 | -10.59 | Peak | 100 | 324 | P |

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 3, Band 4, CH151 | | |

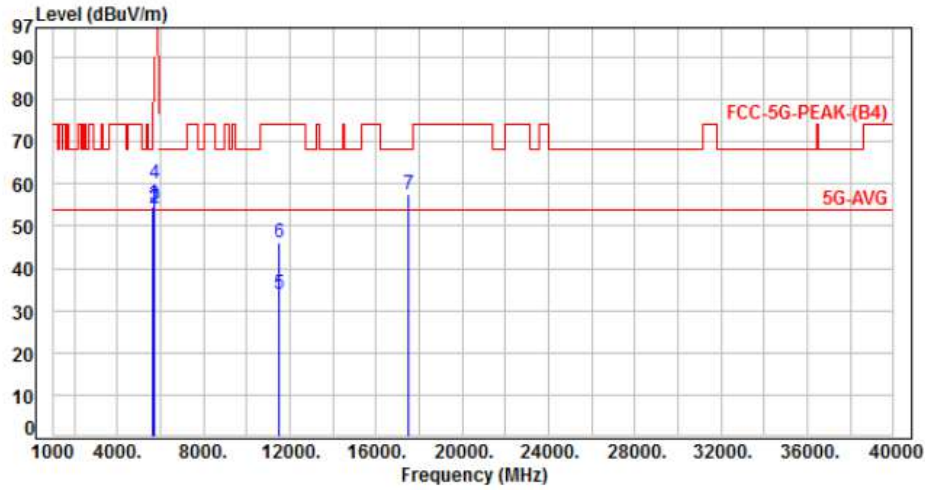


| No. | Frequency (MHz) | Factor (dB) | Reading (dBUV) | Level (dBUV/m) | Limit (dBUV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5650.00 | -5.36 | 60.55 | 55.19 | 68.20 | -13.01 | Peak | 389 | 305 | P |
| 2 | 5700.00 | -5.46 | 59.67 | 54.21 | 105.20 | -50.99 | Peak | 389 | 305 | P |
| 3 | 5720.00 | -5.47 | 59.61 | 54.14 | 110.80 | -56.66 | Peak | 389 | 305 | P |
| 4 | 5725.00 | -5.46 | 59.99 | 54.53 | 122.20 | -67.67 | Peak | 389 | 305 | P |
| 5 | 11510.00 | 3.98 | 31.33 | 35.31 | 54.00 | -18.69 | Average | 162 | 24 | P |
| 6 | 11510.00 | 3.98 | 43.21 | 47.19 | 74.00 | -26.81 | Peak | 162 | 24 | P |
| 7 | 17475.00 | 16.59 | 41.02 | 57.61 | 68.20 | -10.59 | Peak | 100 | 59 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 3, Band 4, CH151 | | : |

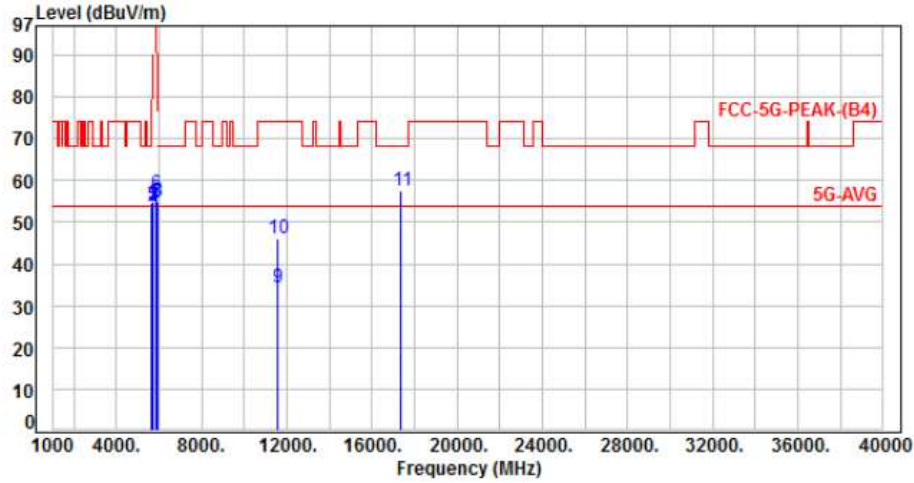


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5650.00 | -5.36 | 60.11 | 54.75 | 68.20 | -13.45 | Peak | 377 | 293 | P |
| 2 | 5700.00 | -5.46 | 59.85 | 54.39 | 105.20 | -50.81 | Peak | 377 | 293 | P |
| 3 | 5720.00 | -5.47 | 60.51 | 55.04 | 110.80 | -55.76 | Peak | 377 | 293 | P |
| 4 | 5725.00 | -5.46 | 65.49 | 60.03 | 122.20 | -62.17 | Peak | 377 | 293 | P |
| 5 | 11510.00 | 3.98 | 30.03 | 34.01 | 54.00 | -19.99 | Average | 105 | 99 | P |
| 6 | 11510.00 | 3.98 | 41.98 | 45.96 | 74.00 | -28.04 | Peak | 105 | 99 | P |
| 7 | 17475.00 | 16.59 | 40.83 | 57.42 | 68.20 | -10.78 | Peak | 105 | 311 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 3, Band 4, CH159 | | : |

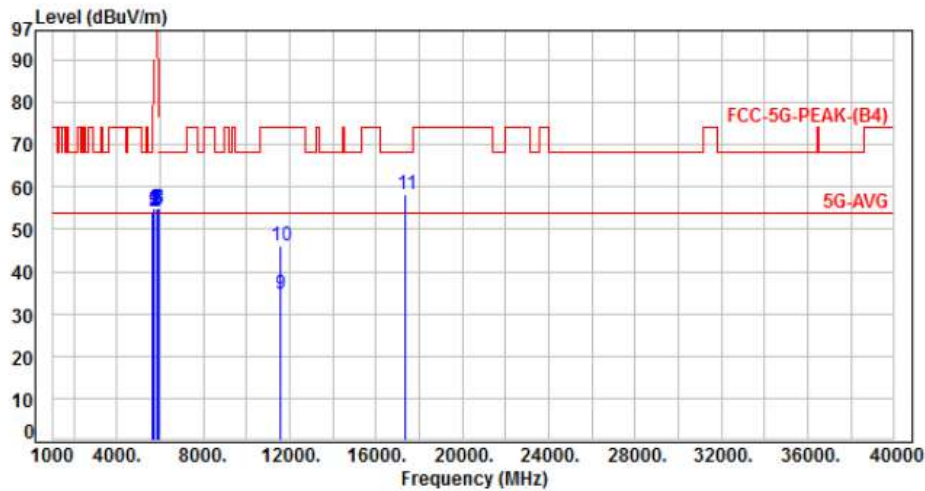


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5650.00 | -5.36 | 59.99 | 54.63 | 68.20 | -13.57 | Peak | 348 | 330 | P |
| 2 | 5700.00 | -5.46 | 59.20 | 53.74 | 105.20 | -51.46 | Peak | 348 | 330 | P |
| 3 | 5720.00 | -5.47 | 59.68 | 54.21 | 110.80 | -56.59 | Peak | 348 | 330 | P |
| 4 | 5725.00 | -5.46 | 60.26 | 54.80 | 122.20 | -67.40 | Peak | 348 | 330 | P |
| 5 | 5850.00 | -5.36 | 60.11 | 54.75 | 122.20 | -67.45 | Peak | 348 | 330 | P |
| 6 | 5855.00 | -5.33 | 62.23 | 56.90 | 110.80 | -53.90 | Peak | 348 | 330 | P |
| 7 | 5875.00 | -5.26 | 59.88 | 54.62 | 105.20 | -50.58 | Peak | 348 | 330 | P |
| 8 | 5925.00 | -5.15 | 60.03 | 54.88 | 68.20 | -13.32 | Peak | 348 | 330 | P |
| 9 | 11590.00 | 4.34 | 30.12 | 34.46 | 54.00 | -19.54 | Average | 152 | 65 | P |
| 10 | 11590.00 | 4.34 | 41.69 | 46.03 | 74.00 | -27.97 | Peak | 152 | 65 | P |
| 11 | 17385.00 | 15.86 | 41.58 | 57.44 | 68.20 | -10.76 | Peak | 100 | 76 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 3, Band 4, CH159 | | : |

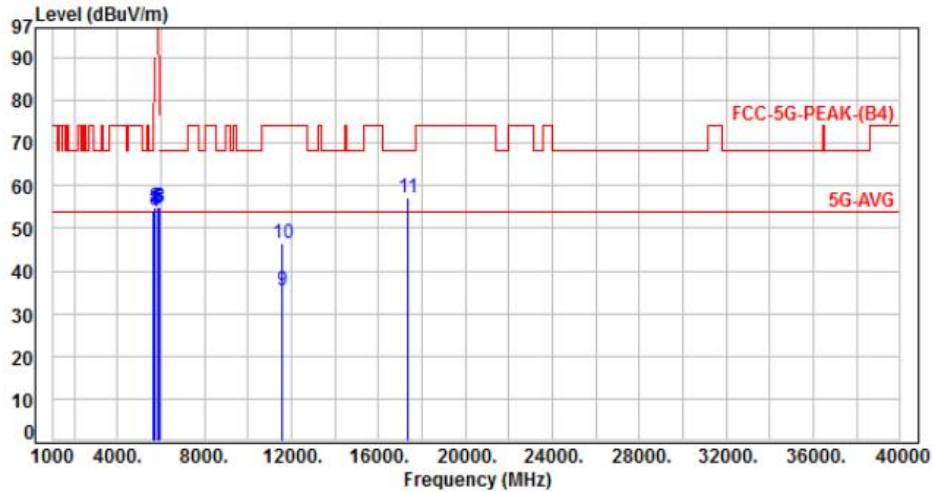


| No. | Frequency (MHz) | Factor (dB) | Reading (dBUV) | Level (dBUV/m) | Limit (dBUV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5650.00 | -5.36 | 59.76 | 54.40 | 68.20 | -13.80 | Peak | 381 | 325 | P |
| 2 | 5700.00 | -5.46 | 59.64 | 54.18 | 105.20 | -51.02 | Peak | 381 | 325 | P |
| 3 | 5720.00 | -5.47 | 60.23 | 54.76 | 110.80 | -56.04 | Peak | 381 | 325 | P |
| 4 | 5725.00 | -5.46 | 60.41 | 54.95 | 122.20 | -67.25 | Peak | 381 | 325 | P |
| 5 | 5850.00 | -5.36 | 59.88 | 54.52 | 122.20 | -67.68 | Peak | 381 | 325 | P |
| 6 | 5855.00 | -5.33 | 59.72 | 54.39 | 110.80 | -56.41 | Peak | 381 | 325 | P |
| 7 | 5875.00 | -5.26 | 60.03 | 54.77 | 105.20 | -50.43 | Peak | 381 | 325 | P |
| 8 | 5925.00 | -5.15 | 60.12 | 54.97 | 68.20 | -13.23 | Peak | 381 | 325 | P |
| 9 | 11590.00 | 4.34 | 30.22 | 34.56 | 54.00 | -19.44 | Average | 109 | 46 | P |
| 10 | 11590.00 | 4.34 | 41.78 | 46.12 | 74.00 | -27.88 | Peak | 109 | 46 | P |
| 11 | 17385.00 | 15.86 | 42.32 | 58.18 | 68.20 | -10.02 | Peak | 100 | 345 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|------------|
| Power | : DC 5V from system | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 4, Band 4, CH155 | | : |

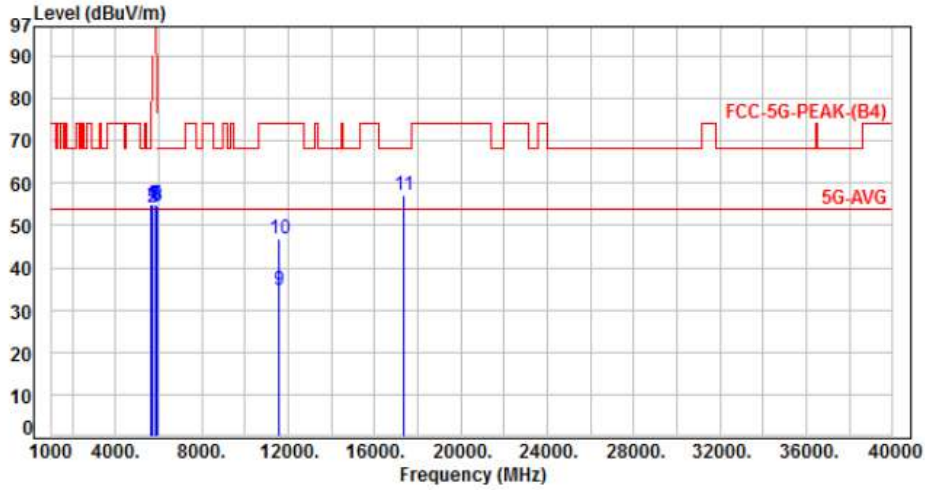


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5650.00 | -5.36 | 59.48 | 54.12 | 68.20 | -14.08 | Peak | 350 | 358 | P |
| 2 | 5700.00 | -5.46 | 60.36 | 54.90 | 105.20 | -50.30 | Peak | 350 | 358 | P |
| 3 | 5720.00 | -5.47 | 59.85 | 54.38 | 110.80 | -56.42 | Peak | 350 | 358 | P |
| 4 | 5725.00 | -5.46 | 59.96 | 54.50 | 122.20 | -67.70 | Peak | 350 | 358 | P |
| 5 | 5850.00 | -5.36 | 60.12 | 54.76 | 122.20 | -67.44 | Peak | 350 | 358 | P |
| 6 | 5855.00 | -5.33 | 60.19 | 54.86 | 110.80 | -55.94 | Peak | 350 | 358 | P |
| 7 | 5875.00 | -5.26 | 58.98 | 53.72 | 105.20 | -51.48 | Peak | 350 | 358 | P |
| 8 | 5925.00 | -5.15 | 60.28 | 55.13 | 68.20 | -13.07 | Peak | 350 | 358 | P |
| 9 | 11550.00 | 4.16 | 31.32 | 35.48 | 54.00 | -18.52 | Average | 152 | 47 | P |
| 10 | 11550.00 | 4.16 | 42.21 | 46.37 | 74.00 | -27.63 | Peak | 152 | 47 | P |
| 11 | 17325.00 | 15.43 | 41.58 | 57.01 | 68.20 | -11.19 | Peak | 100 | 61 | P |

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor



| | | | |
|-----------|-------------------------|-----------|--------------|
| Power | : DC 5V from system | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 4, Band 4, CH155 | | : |



| No. | Frequency (MHz) | Factor (dB) | Reading (dBUV) | Level (dBUV/m) | Limit (dBUV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 5650.00 | -5.36 | 60.24 | 54.88 | 68.20 | -13.32 | Peak | 384 | 307 | P |
| 2 | 5700.00 | -5.46 | 59.55 | 54.09 | 105.20 | -51.11 | Peak | 384 | 307 | P |
| 3 | 5720.00 | -5.47 | 59.68 | 54.21 | 110.80 | -56.59 | Peak | 384 | 307 | P |
| 4 | 5725.00 | -5.46 | 60.36 | 54.90 | 122.20 | -67.30 | Peak | 384 | 307 | P |
| 5 | 5850.00 | -5.36 | 60.44 | 55.08 | 122.20 | -67.12 | Peak | 384 | 307 | P |
| 6 | 5855.00 | -5.33 | 60.31 | 54.98 | 110.80 | -55.82 | Peak | 384 | 307 | P |
| 7 | 5875.00 | -5.26 | 60.11 | 54.85 | 105.20 | -50.35 | Peak | 384 | 307 | P |
| 8 | 5925.00 | -5.15 | 59.87 | 54.72 | 68.20 | -13.48 | Peak | 384 | 307 | P |
| 9 | 11550.00 | 4.16 | 30.61 | 34.77 | 54.00 | -19.23 | Average | 102 | 91 | P |
| 10 | 11550.00 | 4.16 | 42.57 | 46.73 | 74.00 | -27.27 | Peak | 102 | 91 | P |
| 11 | 17325.00 | 15.43 | 41.66 | 57.09 | 68.20 | -11.11 | Peak | 100 | 325 | P |

Note: Level=Reading+Factor
 Margin=Level-Limit
 Factor=Antenna Factor + cable loss - Amplifier Factor



6.7. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

| MHz | MHz | MHz | GHz |
|---------------------|-----------------------|-----------------|-----------------|
| 0.09000 – 0.11000 | 16.42000 – 16.42300 | 399.9 – 410.0 | 4.500 – 5.150 |
| 0.49500 – 0.505** | 16.69475 – 16.69525 | 608.0 – 614.0 | 5.350 – 5.460 |
| 2.17350 – 2.19050 | 16.80425 – 16.80475 | 960.0 – 1240.0 | 7.250 – 7.750 |
| 4.12500 – 4.12800 | 25.50000 – 25.67000 | 1300.0 – 1427.0 | 8.025 – 8.500 |
| 4.17725 – 4.17775 | 37.50000 – 38.25000 | 1435.0 – 1626.5 | 9.000 – 9.200 |
| 4.20725 – 4.20775 | 73.00000 – 74.60000 | 1645.5 – 1646.5 | 9.300 – 9.500 |
| 6.21500 – 6.21800 | 74.80000 – 75.20000 | 1660.0 – 1710.0 | 10.600 – 12.700 |
| 6.26775 – 6.26825 | 108.00000 – 121.94000 | 1718.8 – 1722.2 | 13.250 – 13.400 |
| 6.31175 – 6.31225 | 123.00000 – 138.00000 | 2200.0 – 2300.0 | 14.470 – 14.500 |
| 8.29100 – 8.29400 | 149.90000 – 150.05000 | 2310.0 – 2390.0 | 15.350 – 16.200 |
| 8.36200 – 8.36600 | 156.52475 – 156.52525 | 2483.5 – 2500.0 | 17.700 – 21.400 |
| 8.37625 – 8.38675 | 156.70000 – 156.90000 | 2655.0 – 2900.0 | 22.010 – 23.120 |
| 8.41425 – 8.41475 | 162.01250 – 167.17000 | 3260.0 – 3267.0 | 23.600 – 24.000 |
| 12.29000 – 12.29300 | 167.72000 – 173.20000 | 3332.0 – 3339.0 | 31.200 – 31.800 |
| 12.51975 – 12.52025 | 240.00000 – 285.00000 | 3345.8 – 3358.0 | 36.430 – 36.500 |
| 12.57675 – 12.57725 | 322.00000 – 335.40000 | 3600.0 – 4400.0 | Above 38.6 |
| 13.36000 – 13.41000 | | | |

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz



7. On Time, Duty Cycle and Measurement methods

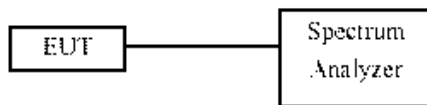
7.1. Test Limit

None; for reporting purposes only.

7.2. Test Procedure

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.3. Test Setup Layout



7.4. Test Result and Data

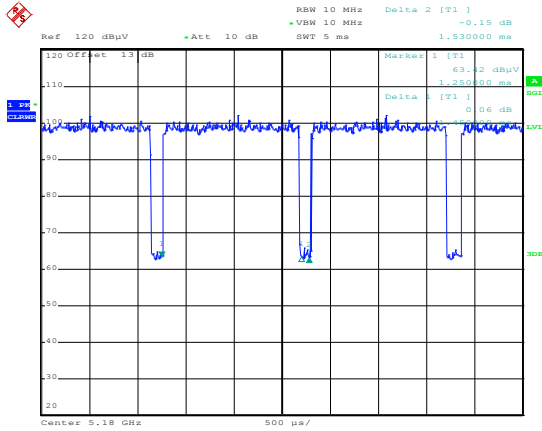
| Modulation Type | On Time (msec) | Period Time (msec) | Duty Cycle (%) |
|-----------------|----------------|--------------------|----------------|
| 802.11a | 1.45 | 1.53 | 94.77% |
| 802.11ac VHT20 | 1.35 | 1.42 | 95.07% |
| 802.11ac VHT40 | 0.68 | 1.41 | 48.23% |
| 802.11ac VHT80 | 0.37 | 1.41 | 26.10% |

7.5. Measurement Methods

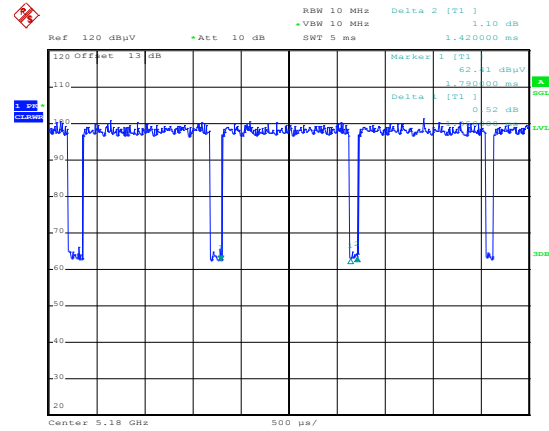
| | |
|--|--|
| 26 dB and 6dB Emission BW | KDB 789033 D02 v02r01, Section C |
| 99% Occupied BW | KDB 789033 D02 v02r01, Section D |
| Conducted Output Power | KDB 789033 D02 v02r01, Section E.2.d and E.3.b (Method PM-G) |
| Power Spectral Density | KDB 789033 D02 v02r01, Section F |
| Unwanted emissions in restricted bands | KDB 789033 D02 v02r01, Sections G and H |
| Unwanted emissions in non-restricted bands | KDB 789033 D02 v02r01, Sections G and H |



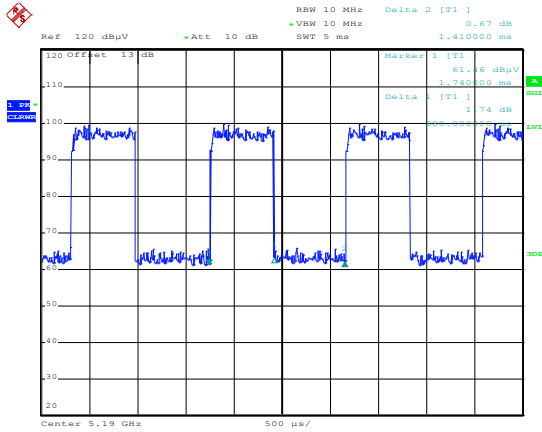
Modulation Type: 802.11a (6Mbps)



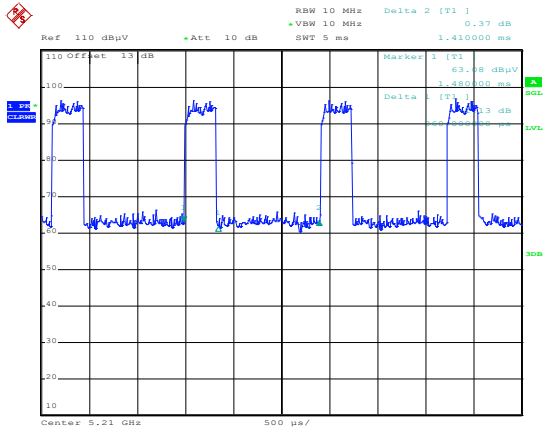
Modulation Type: 802.11ac VHT20 (6.5Mbps)



Modulation Type: 802.11ac VHT40 (13.5Mbps)



Modulation Type: 802.11ac VHT80 (29.3Mbps)





8. 6dB Bandwidth & 99% Occupied Bandwidth

8.1. Test Limit

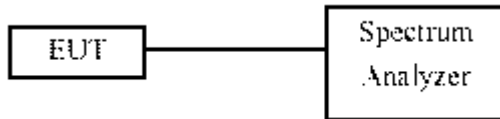
FCC §15.407

The minimum 6 dB bandwidth shall be at least 500 kHz.

8.2. Test Procedure

Reference to 789033 D02 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW set to 100KHz, the VBW >= 3 x RBW, peak detector and max hold.

8.3. Test Setup Layout



8.4. Test Result and Data (6dB Bandwidth)

In the 5.8G Band

| Modulation Type | Channel | Frequency (MHz) | 6dB Bandwidth (MHz) | Minimum Limit (MHz) |
|-----------------|---------|-----------------|---------------------|---------------------|
| 802.11a | 149 | 5745 | 16.40 | 0.50 |
| | 157 | 5785 | 16.30 | 0.50 |
| | 165 | 5825 | 16.40 | 0.50 |
| 802.11ac VHT20 | 149 | 5745 | 17.50 | 0.50 |
| | 157 | 5785 | 17.30 | 0.50 |
| | 165 | 5825 | 17.10 | 0.50 |
| 802.11ac VHT40 | 151 | 5755 | 36.00 | 0.50 |
| | 159 | 5795 | 35.60 | 0.50 |
| 802.11ac VHT80 | 155 | 5775 | 75.52 | 0.50 |



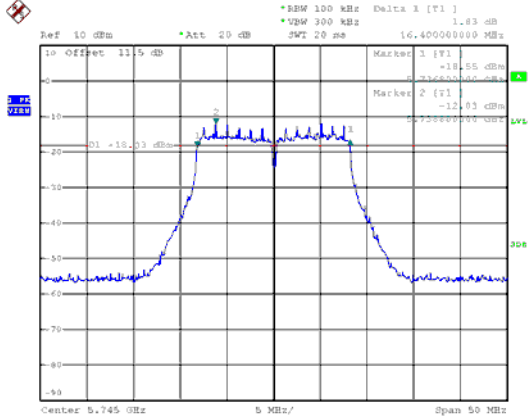
8.5. Test Result and Data (99% Occupied Bandwidth)

In the 5.8G Band

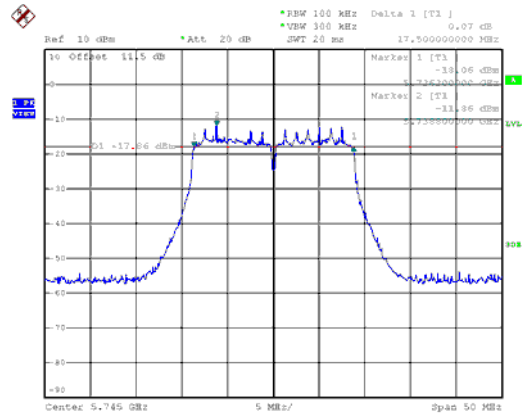
| Modulation Type | Channel | Frequency (MHz) | 99% Bandwidth (MHz) |
|-----------------|---------|-----------------|---------------------|
| 802.11a | 149 | 5745 | 16.80 |
| | 157 | 5785 | 16.80 |
| | 165 | 5825 | 16.80 |
| 802.11ac VHT20 | 149 | 5745 | 17.90 |
| | 157 | 5785 | 17.90 |
| | 165 | 5825 | 17.80 |
| 802.11ac VHT40 | 151 | 5755 | 36.60 |
| | 159 | 5795 | 36.60 |
| 802.11ac VHT80 | 155 | 5775 | 75.52 |



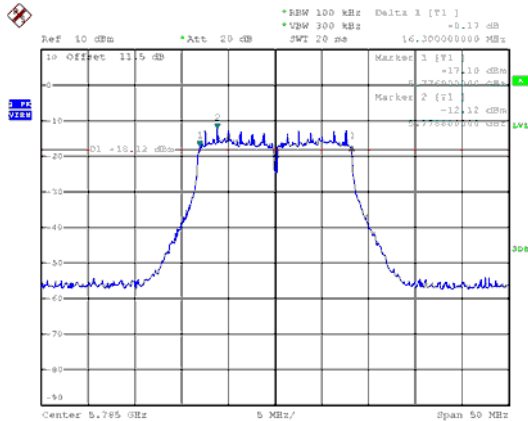
6dB Bandwidth
Modulation Type: 802.11a (6Mbps)
CH149



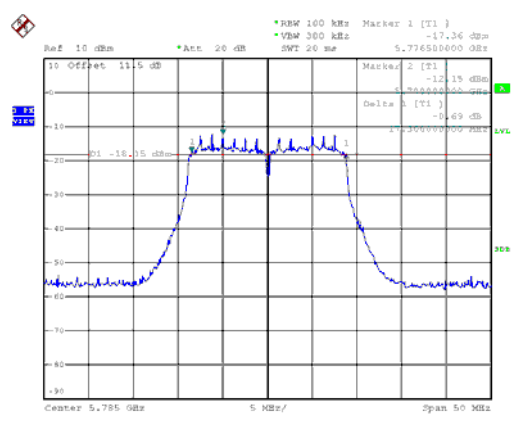
Modulation Type: 802.11ac, VHT20 (6.5Mbps)
CH149



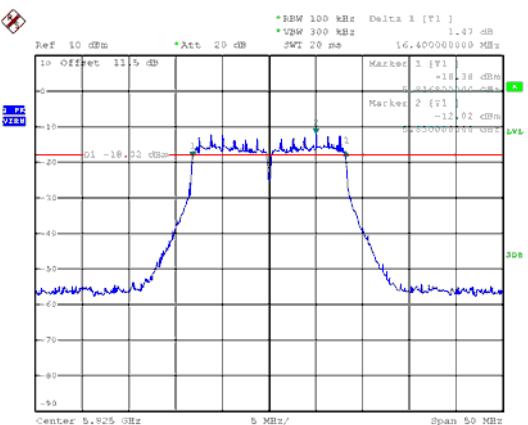
CH157



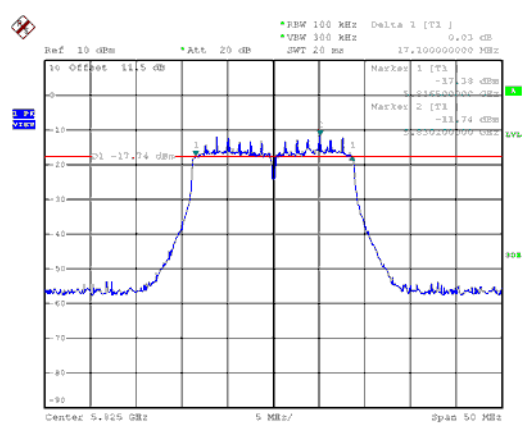
CH157



CH165

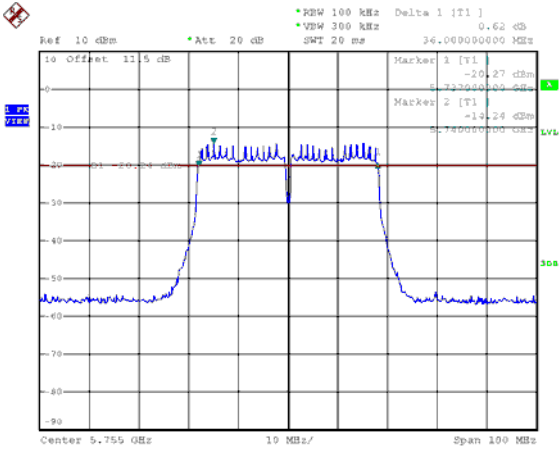


CH165

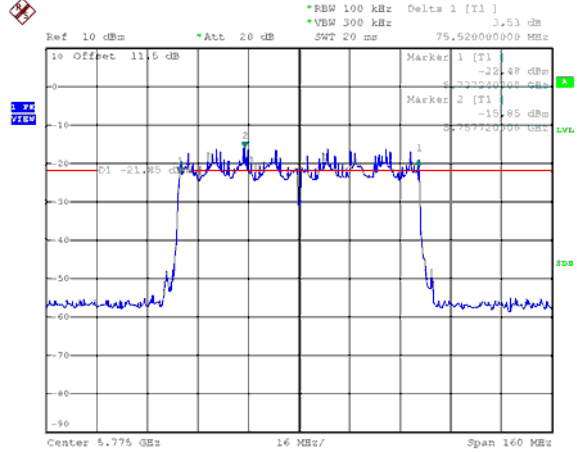




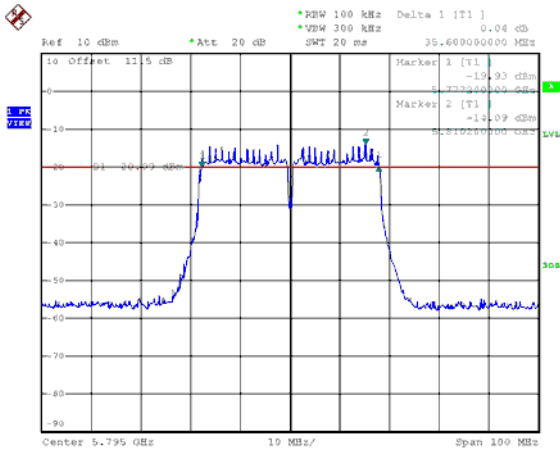
6dB Bandwidth
Modulation Type: 802.11ac, VHT40 (13.5Mbps)
CH151



Modulation Type: 802.11ac, VHT80 (29.3Mbps)
CH155

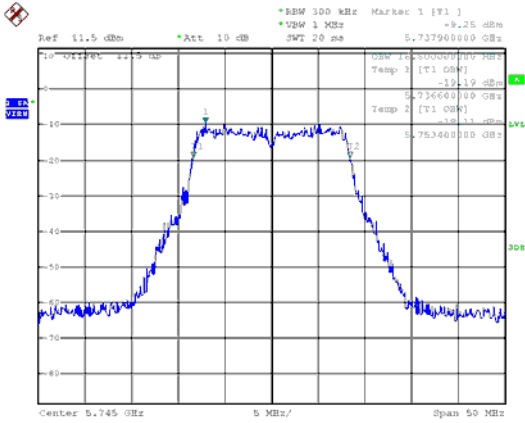


CH159

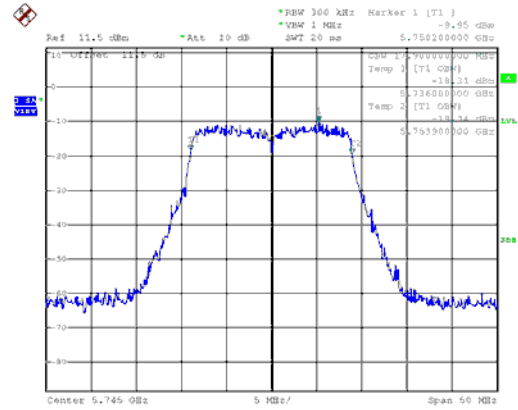




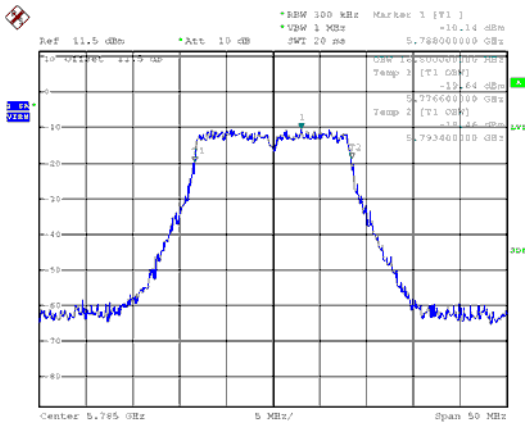
99% Occupied Bandwidth
Modulation Type: 802.11a (6Mbps)
CH149



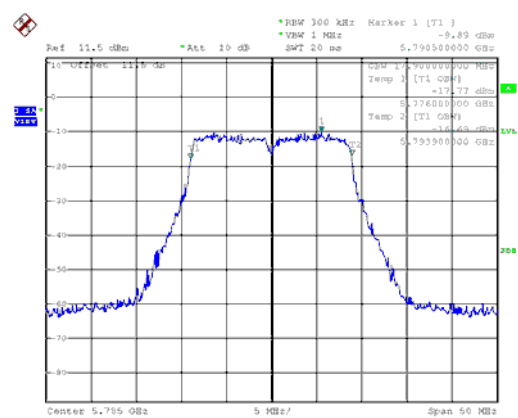
Modulation Type: 802.11ac, VHT20 (6.5Mbps)
CH149



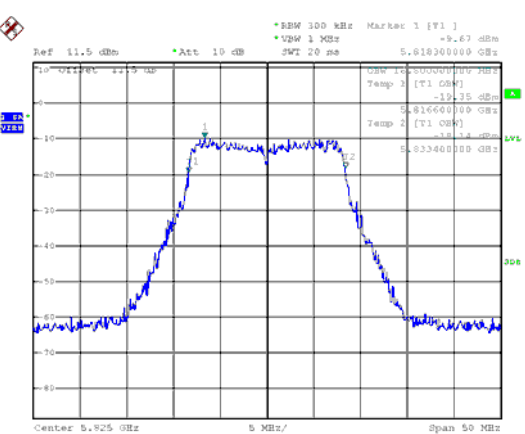
CH157



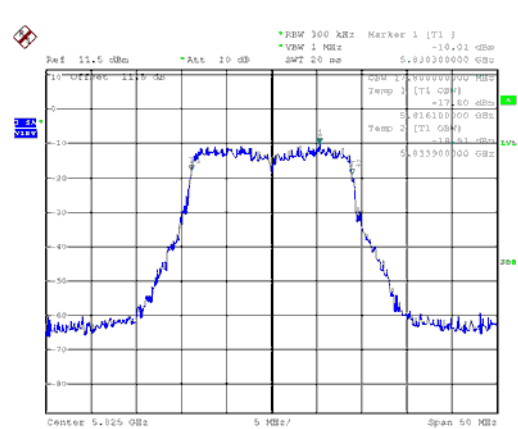
CH157



CH165

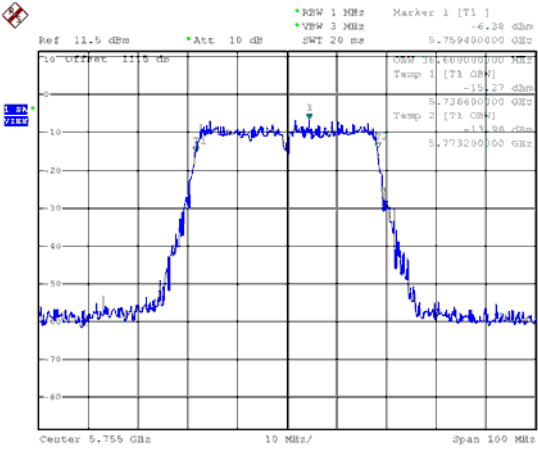


CH165

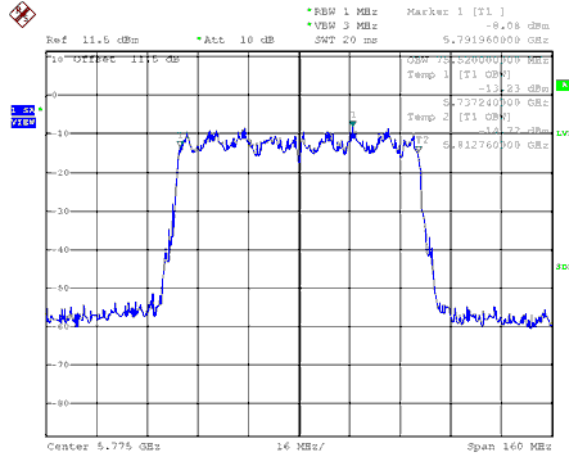




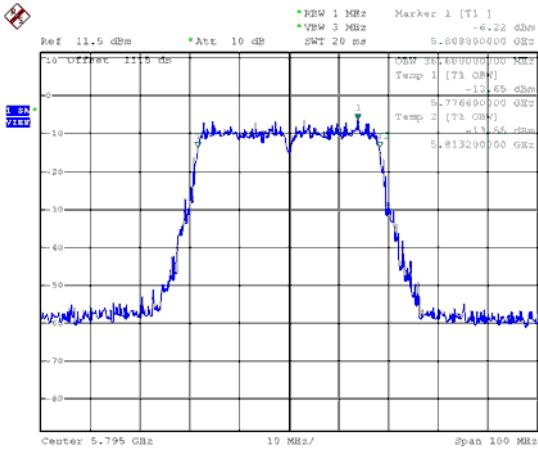
99% Occupied Bandwidth
Modulation Type: 802.11ac, VHT40 (13.5Mbps)
CH151



Modulation Type: 802.11ac, VHT80 (29.3Mbps)
CH155



CH159





9. 26dB Bandwidth & 99% Occupied Bandwidth

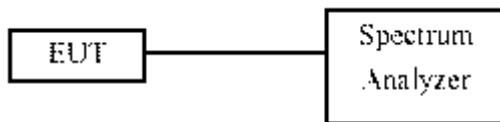
9.1. Test Limit

None; for reporting purposes only.

9.2. Test Procedure

Reference to 789033 D02 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW = approximately 1% of the emission bandwidth, the VBW >= 3 x RBW, peak detector and max hold.

9.3. Test Setup Layout



9.4. Test Result and Data (26dB Bandwidth)

In the 5.2G Band

| Modulation Type | Channel | Frequency (MHz) | 26dB Bandwidth (MHz) |
|-----------------|---------|-----------------|----------------------|
| 802.11a | 36 | 5180 | 21.80 |
| | 44 | 5220 | 21.70 |
| | 48 | 5240 | 21.70 |
| 802.11ac VHT20 | 36 | 5180 | 22.30 |
| | 44 | 5220 | 22.40 |
| | 48 | 5240 | 22.20 |
| 802.11ac VHT40 | 38 | 5190 | 44.00 |
| | 46 | 5230 | 44.20 |
| 802.11ac VHT80 | 42 | 5210 | 81.92 |



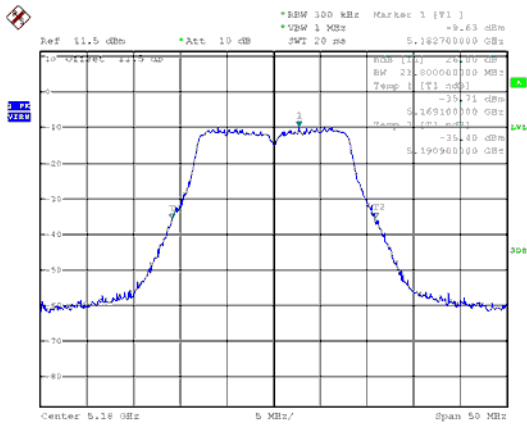
9.5. Test Result and Data (99% Occupied Bandwidth)

In the 5.2G Band

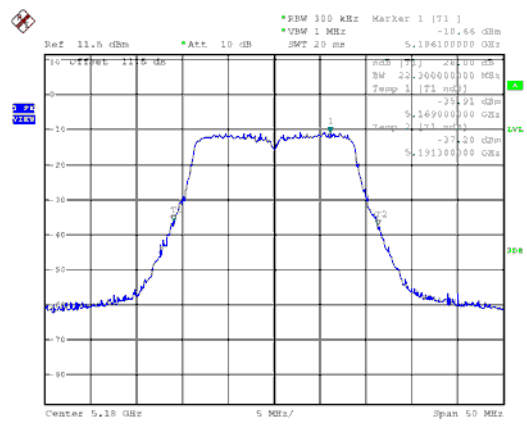
| Modulation Type | Channel | Frequency (MHz) | 99% Bandwidth (MHz) |
|-----------------|---------|-----------------|---------------------|
| 802.11a | 36 | 5180 | 16.80 |
| | 44 | 5220 | 16.90 |
| | 48 | 5240 | 16.90 |
| 802.11ac VHT20 | 36 | 5180 | 17.80 |
| | 44 | 5220 | 17.80 |
| | 48 | 5240 | 17.80 |
| 802.11ac VHT40 | 38 | 5190 | 36.60 |
| | 46 | 5230 | 36.80 |
| 802.11ac VHT80 | 42 | 5210 | 75.84 |



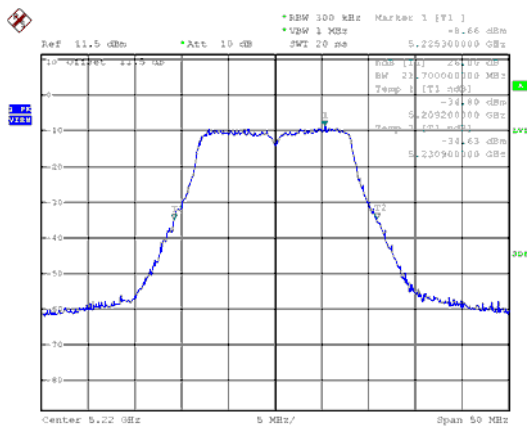
26dB Bandwidth Band 1
Modulation Type: 802.11a (6Mbps)
CH36



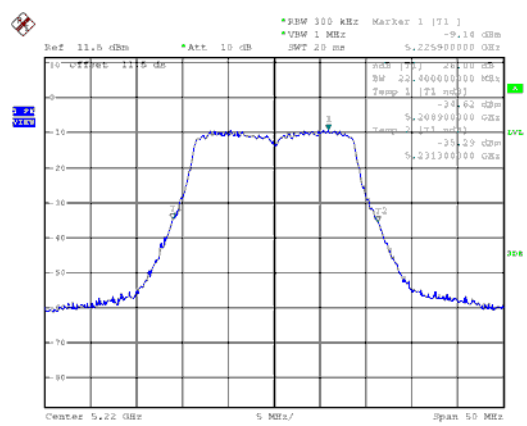
Modulation Type: 802.11ac VHT20 (6.5Mbps)
CH36



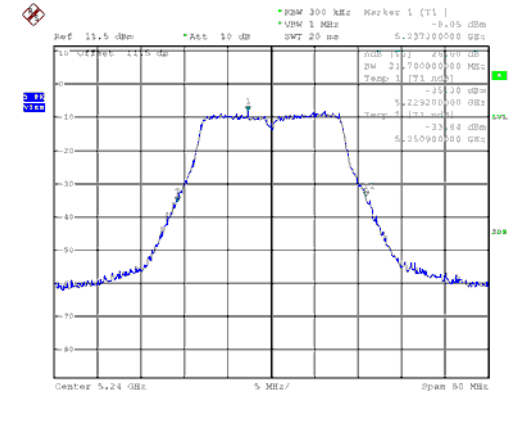
CH44



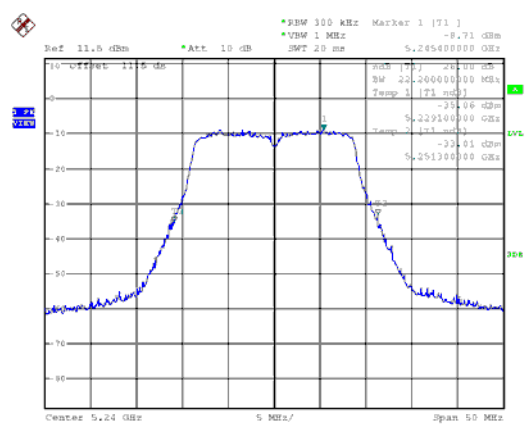
CH44



CH48

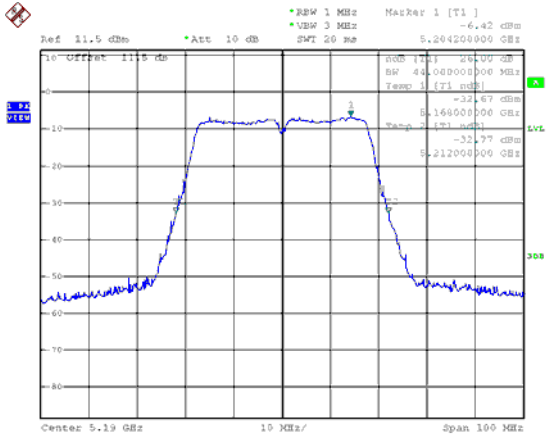


CH48

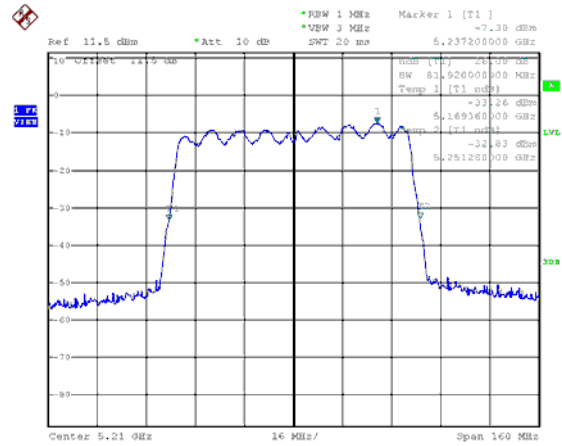




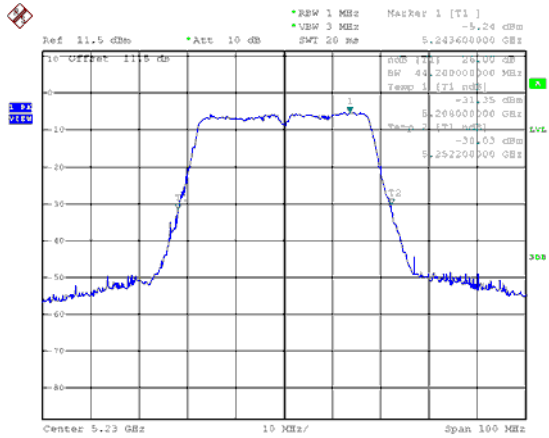
26dB Bandwidth Band 1
Modulation Type: 802.11ac VHT40 (6.5Mbps)
CH38



Modulation Type: 802.11ac VHT80 (13.5Mbps)
CH42

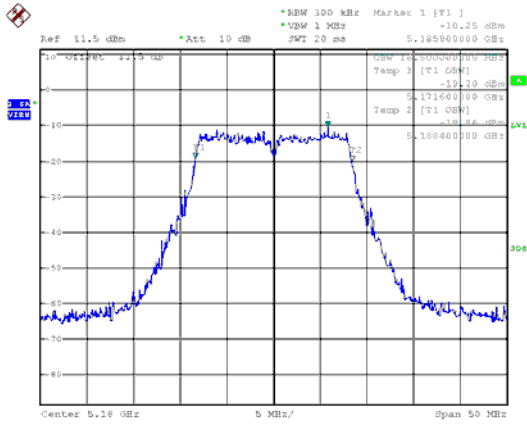


CH46

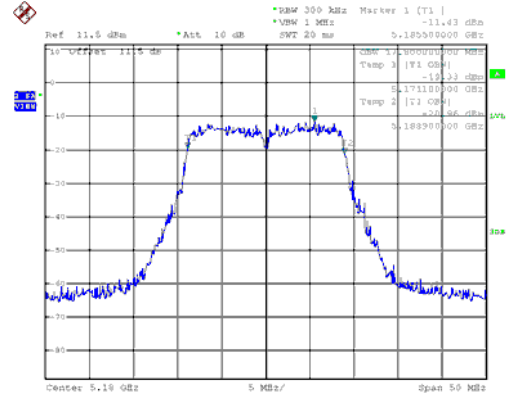




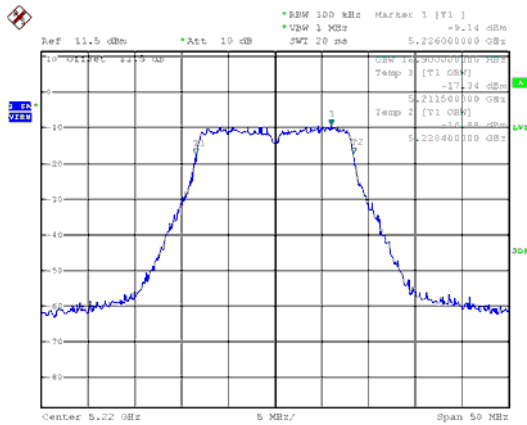
99% Bandwidth Band 1
Modulation Type: 802.11a (6Mbps)
CH36



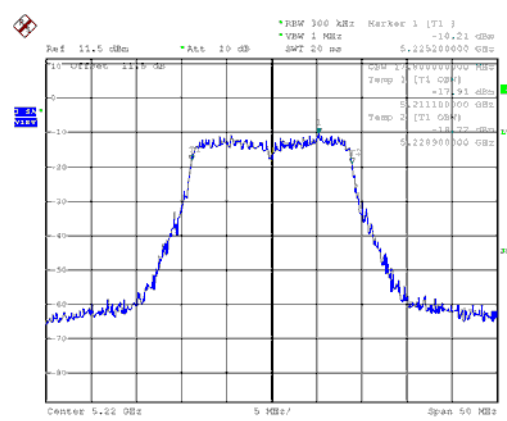
Modulation Type: 802.11ac VHT20 (6.5Mbps)
CH36



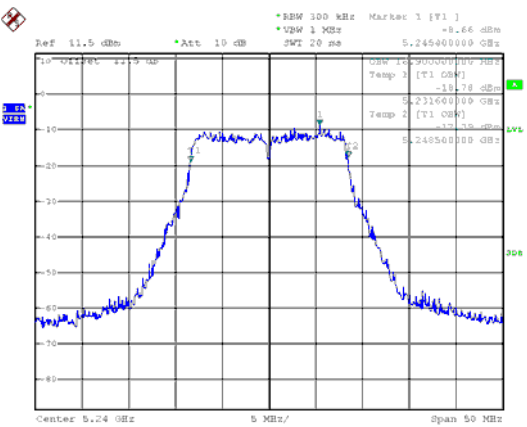
CH44



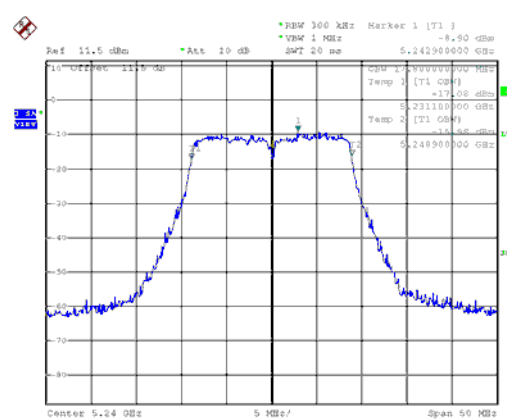
CH44



CH48

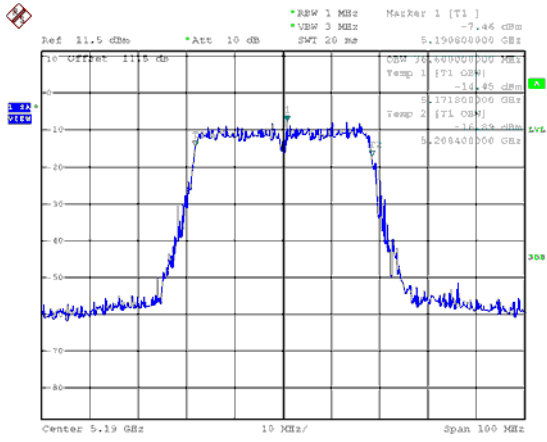


CH48

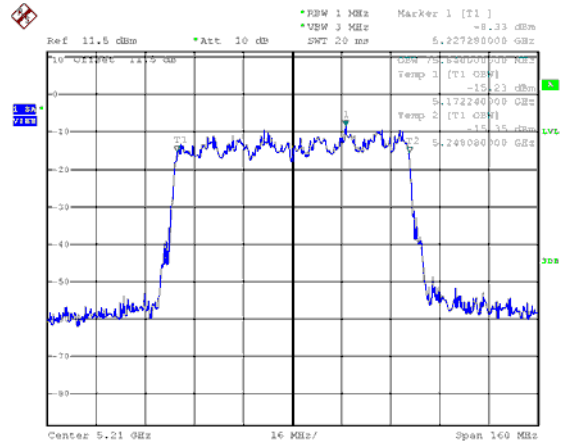




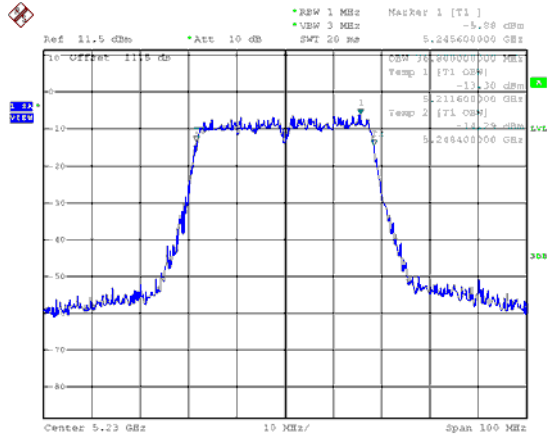
99% Bandwidth Band 1
Modulation Type: 802.11ac VHT40 (6.5Mbps)
CH38



Modulation Type: 802.11ac VHT80 (13.5Mbps)
CH42



CH46





10. Average Power

10.1. Test Limit

Output Power:

| Frequency Band | Limit | |
|--|------------------------------------|---|
| <input checked="" type="checkbox"/> 5.15~5.25GHz | | |
| Operating Mode | | |
| <input type="checkbox"/> | Outdoor access point | The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30degrees as measured from the horizon must not exceed 125 mW (21 dBm). |
| <input type="checkbox"/> | Indoor access point | The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. |
| <input type="checkbox"/> | Fixed point-to-point access points | The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. |
| <input checked="" type="checkbox"/> | client devices | The maximum conducted output power over the frequency band of operation shall not exceed 250 mW (24dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. |



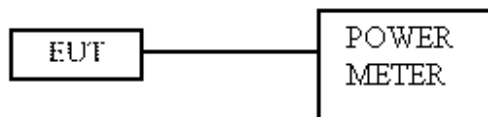
| Frequency Band | | Limit |
|-------------------------------------|-----------------|--|
| <input type="checkbox"/> | 5.25-5.35 GHz | The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. |
| <input type="checkbox"/> | 5.470-5.725 GHz | |
| <input checked="" type="checkbox"/> | 5.725~5.85 GHz | |

10.2. Test Procedure

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.5 dB (including 10 dB pad and 1.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

10.3. Test Setup Layout



**10.4. Test Result and Data****In the 5.2G Band**

| Modulation Type | Channel | Frequency (MHz) | Avg Power Output (dBm) | Total Power (dBm) | Total Power (mW) | Power Limit (dBm) |
|-------------------------------|---------|-----------------|------------------------|-------------------|------------------|-------------------|
| 802.11a (6Mbps) | 36 | 5180 | -1.87 | -1.87 | 0.650 | 24.00 |
| | 44 | 5220 | -1.03 | -1.03 | 0.789 | 24.00 |
| | 48 | 5240 | -0.61 | -0.61 | 0.869 | 24.00 |
| 802.11an HT20 (MCS0) | 36 | 5180 | -2.21 | -2.21 | 0.601 | 24.00 |
| | 44 | 5220 | -1.13 | -1.13 | 0.771 | 24.00 |
| | 48 | 5240 | -1.13 | -1.13 | 0.771 | 24.00 |
| 802.11an HT40 (MCS0) | 38 | 5190 | -1.61 | -1.61 | 0.690 | 24.00 |
| | 46 | 5230 | -0.65 | -0.65 | 0.861 | 24.00 |
| 802.11ac VHT20 (NSS1-MCS0) | 36 | 5180 | -1.83 | -1.83 | 0.656 | 24.00 |
| | 44 | 5220 | -0.86 | -0.86 | 0.820 | 24.00 |
| | 48 | 5240 | -0.57 | -0.57 | 0.877 | 24.00 |
| 802.11ac VHT40 (NSS1-MCS0) | 38 | 5190 | -1.52 | -1.52 | 0.705 | 24.00 |
| | 46 | 5230 | -0.46 | -0.46 | 0.899 | 24.00 |
| 802.11ac VHT80 (NSS1-MCS0) | 42 | 5210 | -0.14 | -0.14 | 0.968 | 24.00 |

In the 5.8G Band

| Modulation Type | Channel | Frequency (MHz) | Avg Power Output (dBm) | Total Power (dBm) | Total Power (mW) | Power Limit (dBm) |
|-------------------------------|---------|-----------------|------------------------|-------------------|------------------|-------------------|
| 802.11a (6Mbps) | 149 | 5745 | -1.91 | -1.91 | 0.644 | 30.00 |
| | 157 | 5785 | -1.61 | -1.61 | 0.690 | 30.00 |
| | 165 | 5825 | -2.26 | -2.26 | 0.594 | 30.00 |
| 802.11an HT20 (MCS0) | 149 | 5745 | -1.85 | -1.85 | 0.653 | 30.00 |
| | 157 | 5785 | -2.82 | -2.82 | 0.522 | 30.00 |
| | 165 | 5825 | -2.72 | -2.72 | 0.535 | 30.00 |
| 802.11an HT40 (MCS0) | 151 | 5755 | -1.98 | -1.98 | 0.634 | 30.00 |
| | 159 | 5795 | -2.34 | -2.34 | 0.583 | 30.00 |
| 802.11ac VHT20 (NSS1-MCS0) | 149 | 5745 | -1.62 | -1.62 | 0.689 | 30.00 |
| | 157 | 5785 | -2.46 | -2.46 | 0.568 | 30.00 |
| | 165 | 5825 | -2.64 | -2.64 | 0.545 | 30.00 |
| 802.11ac VHT40 (NSS1-MCS0) | 151 | 5755 | -1.64 | -1.64 | 0.685 | 30.00 |
| | 159 | 5795 | -2.12 | -2.12 | 0.614 | 30.00 |
| 802.11ac VHT80 (NSS1-MCS0) | 155 | 5775 | -1.13 | -1.13 | 0.771 | 30.00 |



11. Power Spectral Density

11.1. Test Limit

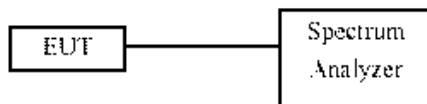
PSD:

| Frequency Band | | Limit |
|-------------------------------------|------------------------------------|---------------|
| <input checked="" type="checkbox"/> | 5.15~5.25GHz | |
| | Operating Mode | |
| <input type="checkbox"/> | Outdoor access point | 17 dBm/MHz |
| <input type="checkbox"/> | Indoor access point | 17 dBm/MHz |
| <input type="checkbox"/> | Fixed point-to-point access points | 17 dBm/MHz |
| <input checked="" type="checkbox"/> | Mobile and portable client devices | 11 dBm/MHz |
| <input type="checkbox"/> | 5.725~5.85 GHz | 11 dBm/MHz |
| <input type="checkbox"/> | 5.470-5.725 GHz | 11 dBm/MHz |
| <input checked="" type="checkbox"/> | 5.725~5.85 GHz | 30 dBm/500kHz |

11.2. Test Procedure

Reference to KDB789033 D02 General UNII Test Procedures New Rules v02r01

11.3. Test Setup Layout





11.4. Test Result and Data

In the 5.2G Band

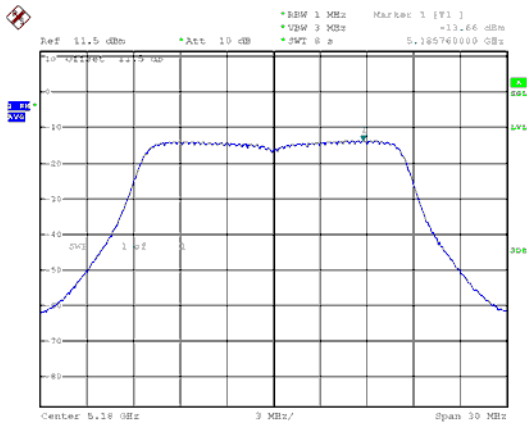
| Modulation Type | CH | Freq. (MHz) | Meas PSD (dBm/MHz) | Sum chain (dBm) | Duty Cycle CF(dB) | Total Corr'd PSD (dBm/MHz) | PSD Limit (dBm/MHz) |
|-----------------|----|-------------|--------------------|-----------------|-------------------|----------------------------|---------------------|
| 802.11a | 36 | 5180 | -13.66 | -13.66 | 0.23 | -13.43 | 11.00 |
| | 44 | 5220 | -12.43 | -12.43 | 0.23 | -12.20 | 11.00 |
| | 48 | 5240 | -11.52 | -11.52 | 0.23 | -11.29 | 11.00 |
| 802.11ac VHT20 | 36 | 5180 | -13.48 | -13.48 | 0.22 | -13.26 | 11.00 |
| | 44 | 5220 | -12.30 | -12.30 | 0.22 | -12.08 | 11.00 |
| | 48 | 5240 | -11.63 | -11.63 | 0.22 | -11.41 | 11.00 |
| 802.11ac VHT40 | 38 | 5190 | -17.90 | -17.90 | 3.17 | -14.73 | 11.00 |
| | 46 | 5230 | -16.51 | -16.51 | 3.17 | -13.34 | 11.00 |
| 802.11ac VHT80 | 42 | 5210 | -21.79 | -21.79 | 5.83 | -15.96 | 11.00 |

In the 5.8G Band

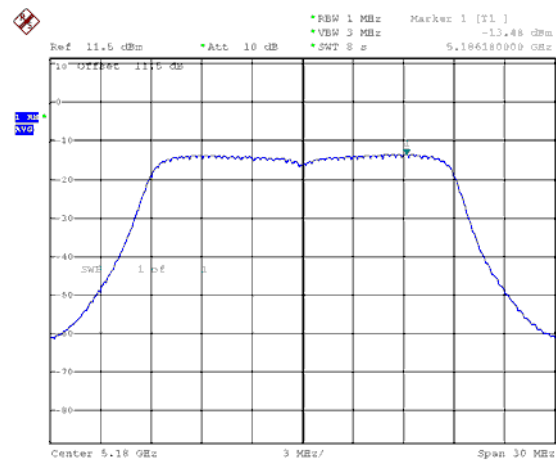
| Modulation Type | CH | Freq. (MHz) | Meas PSD (dBm/MHz) | Sum chain (dBm) | Duty Cycle CF(dB) | 10log(500KHz /RBW) CF (dB) | Total Corr'd PSD (dBm/500kHz) | PSD Limit (dBm/500kHz) |
|-----------------|-----|-------------|--------------------|-----------------|-------------------|----------------------------|-------------------------------|------------------------|
| 802.11a | 149 | 5745 | -12.77 | -12.77 | 0.23 | -3.01 | -15.55 | 30.00 |
| | 157 | 5785 | -12.65 | -12.65 | 0.23 | -3.01 | -15.43 | 30.00 |
| | 165 | 5825 | -12.56 | -12.56 | 0.23 | -3.01 | -15.34 | 30.00 |
| 802.11ac VHT20 | 149 | 5745 | -12.53 | -12.53 | 0.22 | -3.01 | -15.32 | 30.00 |
| | 157 | 5785 | -12.63 | -12.63 | 0.22 | -3.01 | -15.42 | 30.00 |
| | 165 | 5825 | -12.64 | -12.64 | 0.22 | -3.01 | -15.43 | 30.00 |
| 802.11ac VHT40 | 151 | 5755 | -17.14 | -17.14 | 3.17 | -3.01 | -16.98 | 30.00 |
| | 159 | 5795 | -17.22 | -17.22 | 3.17 | -3.01 | -17.06 | 30.00 |
| 802.11ac VHT80 | 155 | 5775 | -22.20 | -22.20 | 5.83 | -3.01 | -19.38 | 30.00 |



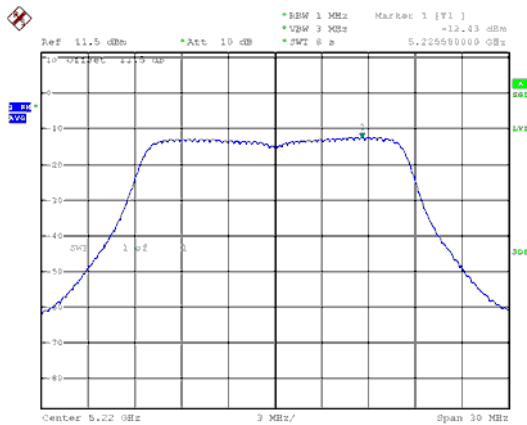
Band 1
Modulation Type: 802.11a (6Mbps)
CH36



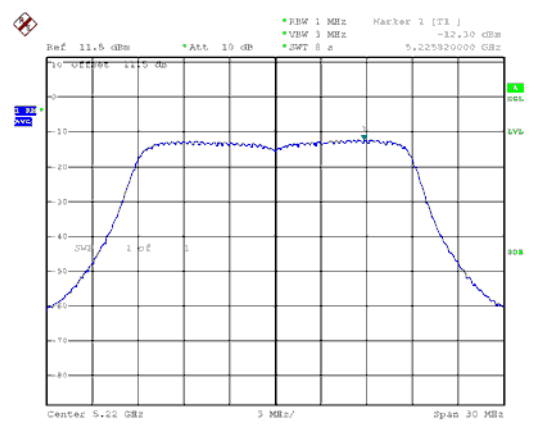
Modulation Type: 802.11ac VHT20 (6.5Mbps)
CH36



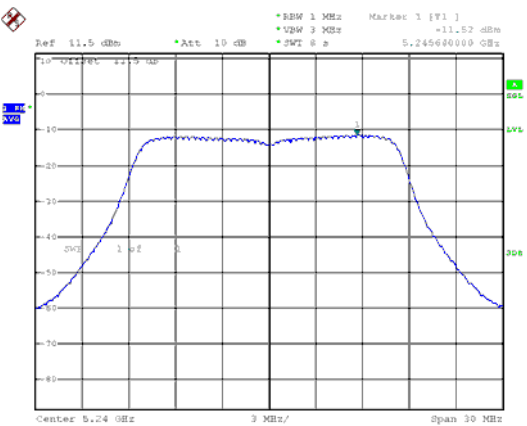
CH44



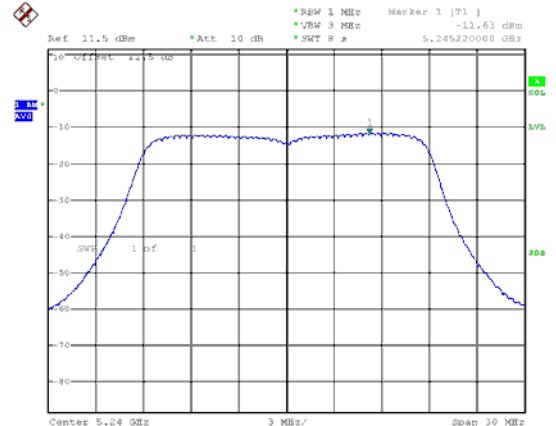
CH44



CH48

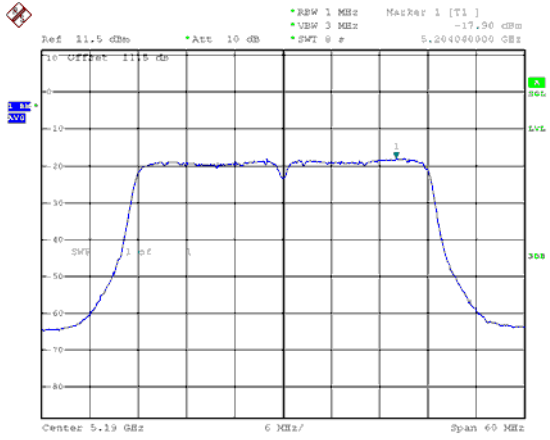


CH48

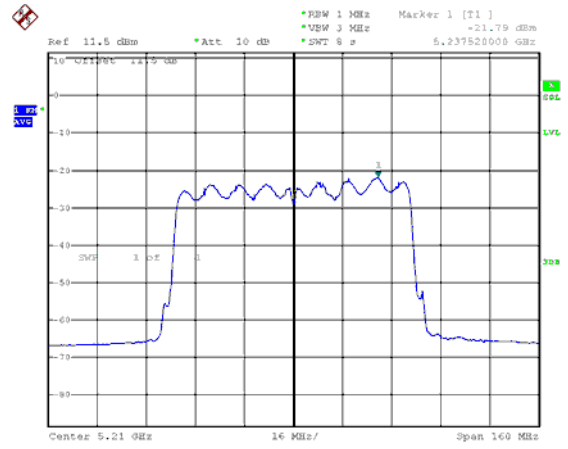




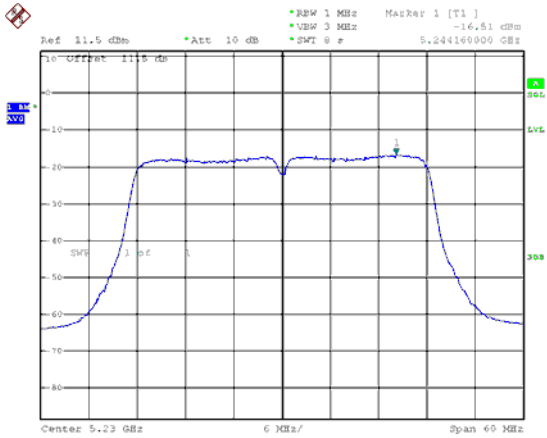
Band 1
Modulation Type: 802.11ac VHT40 (6.5Mbps)
CH38



Modulation Type: 802.11ac VHT80 (13.5Mbps)
CH42

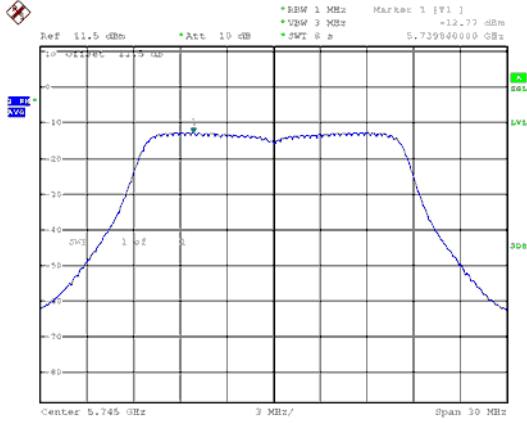


CH46

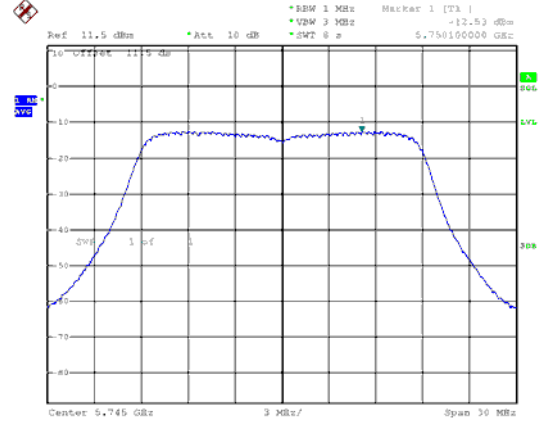




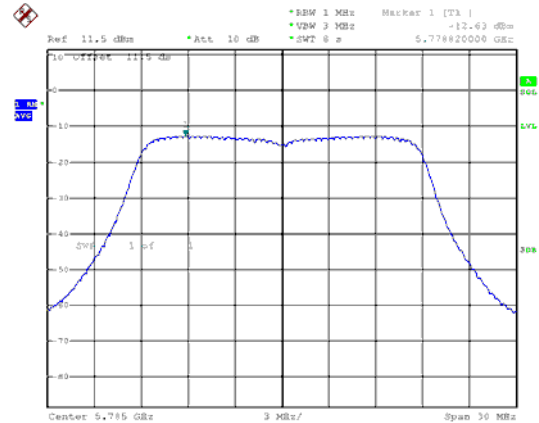
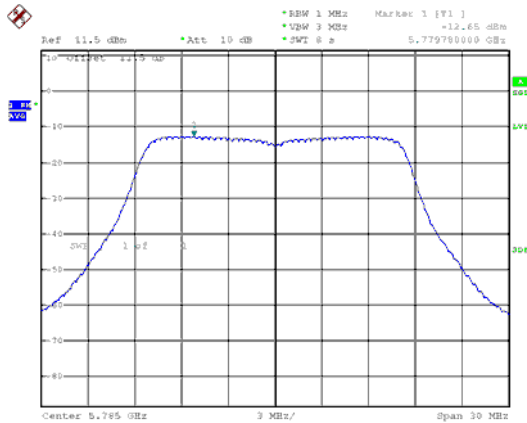
Band 4
Modulation Type: 802.11a (6Mbps)
CH149



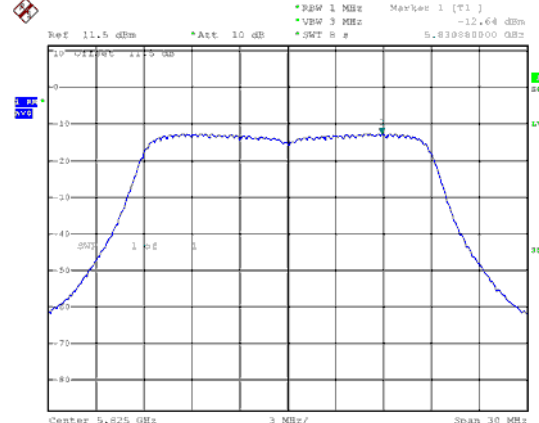
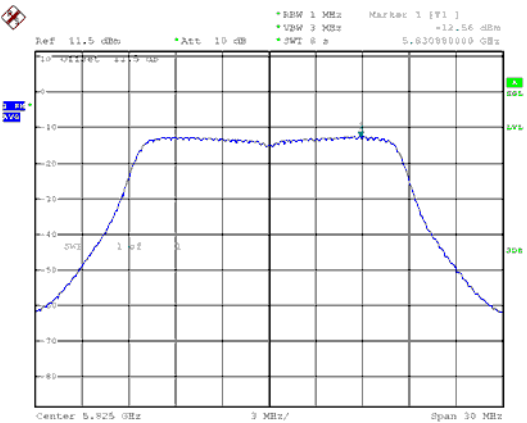
Modulation Type: 802.11ac VHT20 (6.5Mbps)
CH149



CH157

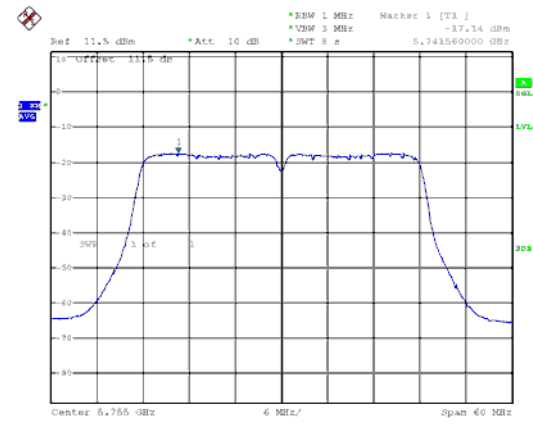


CH165

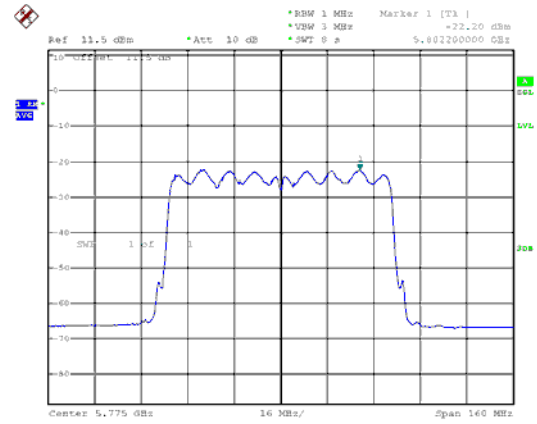




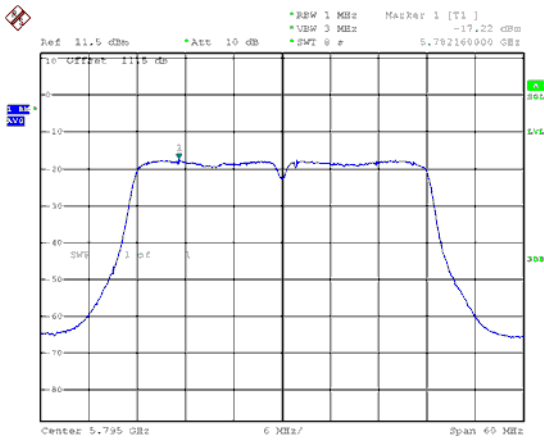
Band 4
Modulation Type: 802.11ac VHT40 (6.5Mbps)
CH151



Modulation Type: 802.11ac VHT80 (13.5Mbps)
CH155



CH159



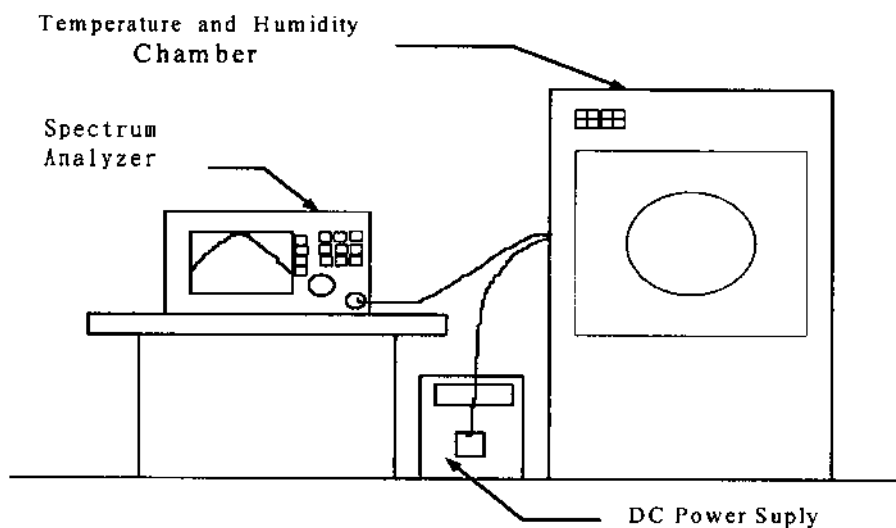


12. Frequency Stability

12.1. Test Procedure

1. The EUT was placed inside the Temperature and Humidity chamber.
2. The transmitter output was connected to spectrum analyzer.
3. Turn the EUT on and couple its output to a spectrum analyzer.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
6. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
7. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

12.2. Test Setup Layout



**12.3. Test Result and Data**

| Operating frequency: 5180 MHz | | | | | | | |
|-------------------------------|--------------|-----------|-----------|-----------|-----------|-----------|-----------|
| Temp | Power supply | 2 minute | | 5 minute | | 10 minute | |
| (°C) | (V) | (MHz) | (%) | (MHz) | (%) | (MHz) | (%) |
| 50 | 102 | 5179.9244 | -0.001459 | 5180.0707 | 0.001364 | 5179.9843 | -0.000304 |
| | 120 | 5179.9297 | -0.001357 | 5180.0099 | 0.000190 | 5180.0917 | 0.001770 |
| | 138 | 5180.0720 | 0.001390 | 5179.9456 | -0.001051 | 5179.9974 | -0.000050 |
| 40 | 102 | 5179.9740 | -0.000502 | 5179.9225 | -0.001496 | 5179.9160 | -0.001621 |
| | 120 | 5179.9909 | -0.000175 | 5179.9740 | -0.000502 | 5179.9758 | -0.000467 |
| | 138 | 5179.9933 | -0.000128 | 5179.9518 | -0.000931 | 5180.0137 | 0.000264 |
| 30 | 102 | 5180.0262 | 0.000507 | 5179.9015 | -0.001901 | 5179.9820 | -0.000347 |
| | 120 | 5179.9424 | -0.001113 | 5180.0743 | 0.001434 | 5179.9155 | -0.001632 |
| | 138 | 5179.9627 | -0.000719 | 5179.9345 | -0.001265 | 5180.0352 | 0.000680 |
| 20 | 102 | 5180.0965 | 0.001864 | 5179.9959 | -0.000079 | 5179.9235 | -0.001477 |
| | 120 | 5179.9029 | -0.001875 | 5180.0610 | 0.001177 | 5180.0223 | 0.000430 |
| | 138 | 5179.9232 | -0.001483 | 5179.9122 | -0.001696 | 5180.0646 | 0.001246 |
| 10 | 102 | 5180.0791 | 0.001527 | 5180.0861 | 0.001661 | 5179.9167 | -0.001609 |
| | 120 | 5179.9990 | -0.000019 | 5179.9048 | -0.001838 | 5179.9538 | -0.000891 |
| | 138 | 5180.0612 | 0.001182 | 5180.0502 | 0.000969 | 5180.0470 | 0.000908 |
| 0 | 102 | 5179.9980 | -0.000039 | 5180.0665 | 0.001283 | 5180.0316 | 0.000611 |
| | 120 | 5180.0101 | 0.000194 | 5180.0104 | 0.000201 | 5179.9474 | -0.001015 |
| | 138 | 5179.9163 | -0.001616 | 5180.0421 | 0.000813 | 5179.9228 | -0.001490 |
| -10 | 102 | 5179.9377 | -0.001203 | 5180.0495 | 0.000955 | 5180.0720 | 0.001390 |
| | 120 | 5179.9967 | -0.000064 | 5179.9567 | -0.000836 | 5179.9613 | -0.000746 |
| | 138 | 5179.9447 | -0.001067 | 5179.9101 | -0.001735 | 5179.9360 | -0.001235 |
| -20 | 102 | 5179.9613 | -0.000748 | 5180.0784 | 0.001513 | 5179.9462 | -0.001038 |
| | 120 | 5179.9273 | -0.001403 | 5179.9936 | -0.000124 | 5180.0471 | 0.000908 |
| | 138 | 5179.9868 | -0.000255 | 5180.0775 | 0.001497 | 5180.0220 | 0.000425 |
| -30 | 102 | 5180.0229 | 0.000442 | 5179.9681 | -0.000616 | 5179.9642 | -0.000691 |
| | 120 | 5180.0373 | 0.000721 | 5180.0857 | 0.001654 | 5180.0733 | 0.001416 |
| | 138 | 5179.9464 | -0.001034 | 5179.9531 | -0.000906 | 5180.0574 | 0.001108 |

Limit:

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.