



FCC RADIO TEST REPORT

Applicant : Ubiquiti Inc.
Address : 685 Third Avenue, New York, New York 10017, USA
Equipment : UniFi Connect Cast
Model No. : UC-Cast
Trade Name : UBIQUITI
FCC ID : SWX-UCCAST

I HEREBY CERTIFY THAT :

The sample was received on Jan. 04, 2022 and the testing was completed on Jan. 20, 2022 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 C63.10:2013

| Description of Test | Result |
|---------------------|--------|
| CO-LOCATION | PASS |

*The lab has reduced the uncertainty risk factor from test equipment, environment and staff technicians which according to the standard on contract. Therefore, the test result will only be determined by standard requirement.

*This EUT has been also tested and compiled with the requirement of FCC Part 15, Subpart B, recorded in a separate test report(21120307-TEFV01).



2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

| | |
|---------------------------|--|
| Operation Frequency Range | BT / BLE: 2400-2483.5MHz 802.11b/g/n: 2400-2483.5MHz 802.11a/n/ac: 5150-5250MHz, 5250-5350MHz, 5470-5725MHz, 5725-5850MHz |
| Center Frequency Range | BT / BLE: 2402MHz-2480MHz 802.11b/g/n: 2412MHz-2462MHz 802.11a/n/ac: 5180-5240MHz, 5260-5320MHz, 5500-5700MHz, 5745-5825MHz |
| Modulation Type | BT: GFSK, $\pi/4$ -DQPSK, 8DPSK BLE: GFSK WLAN: 2.4GHz: 802.11b: CCK, DQPSK, DBPSK 802.11g/n: BPSK, QPSK, 16QAM, 64QAM 5GHz: 802.11n/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, GFSK: 2Mbps 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 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 | PIFA Antenna |
| Antenna Gain | For BT / BLE: 2400-2480MHz: 0.3dBi For WLAN: 2400-2483.5MHz: 0.3dBi 5150-5250MHz: 5.4dBi 5250-5350MHz: 5.4dBi 5470-5725MHz: 5.4dBi 5725-5850MHz: 5.4dBi |
| Adapter | Brand: UBIQUITI Model: E005-11050100VU |
| HDMI cable | Brand: YUQIU ELECTRONICS CO., LTD. Model: 680-00265 |

Note:

1. EUT support TPC Function.
2. WLAN 5GHz and BT can simultaneously transmission.
3. EUT support DFS Client Mode, without radar detection.
4. For more details, please refer to the User's manual of the EUT.



2.2 Test Mode and Test Software

- a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
- b. The complete test system included Notebook and EUT for RF test.
- c. An executive program, "wl command" under Windows OS system was executed to transmit and receive data via WLAN.
- d. An executive program, "RFTestTool ver.1" under Windows OS system was executed to transmit and receive data via Bluetooth.
- e. The following test modes were performed for the test:

| Conducted Emissions from the AC mains power ports | |
|---|--|
| Test Mode | Operating Description |
| 1 | BT GFSK CH78 + 5G 11ac20 CH40 With Adapter |
| 2 | BT GFSK CH78 + 5G 11ac20 CH40 With PoE |
| caused "Test Mode 2" generated the worst case, it was reported as the final data. | |
| Radiation Emissions (9KHz ~30MHz & 30MHz ~ 1GHz) | |
| Test Mode | Operating Description |
| 1 | BT GFSK CH78 + 5G 11ac20 CH40 With Adapter |
| 2 | BT GFSK CH78 + 5G 11ac20 CH40 With PoE |
| caused "Test Mode 1" generated the worst case, it was reported as the final data. | |
| Radiation Emissions (1GHz ~ 25GHz) | |
| Test Mode | Operating Description |
| 1 | BT GFSK CH78 + 5G 11ac20 CH40 With Adapter |
| 2 | BT GFSK CH78 + 5G 11ac20 CH40 With PoE |
| caused "Test Mode 1" generated the worst case, it was reported as the final data. | |

Note:

There are two kinds of test voltage: AC 120V / 60Hz and AC 240V / 60Hz.
 For AC Power Line Conducted Emission, AC 120V / 60Hz is worst case.
 For Radiated Spurious Emission, (9KHz ~30MHz & 30MHz ~ 1GHz), AC 240V / 60Hz is worst case.



2.3 Description of Test System

| RF Conducted | | | | |
|----------------------------------|-----------------|--------------|-------------|------------------------|
| Equipment | Brand | Model | Length/Type | Power cord/Length/Type |
| Notebook | lenovo | S1GL2W | N/A | N/A |
| Type C Cable | kolin | KEX-DLCP07 | 1m / NS | N/A |
| RJ45 Cable | TE CONNECTIVITY | Cat5e | 1.2m / NS | N/A |
| POE | UBIQUITI | GP-H480-050G | N/A | 0.6m / NS |
| Radiated Emissions | | | | |
| Equipment | Brand | Model | Length/Type | Power cord/Length/Type |
| Notebook | ASUS | P2430U | N/A | Adapter / 1.8m / NS |
| Type C Cable | kolin | KEX-DLCP07 | 1m / NS | N/A |
| RJ45 Cable | TE CONNECTIVITY | Cat5e | 1.2m / NS | N/A |
| POE | UBIQUITI | GP-H480-050G | N/A | 0.6m / NS |
| Monitor | DELL | U2410f | NA | N/A |
| AC Power Line Conducted Emission | | | | |
| Equipment | Brand | Model | Length/Type | Power cord/Length/Type |
| Notebook | ASUS | P2430U | N/A | Adapter / 1.8m / NS |
| Type C Cable | kolin | KEX-DLCP07 | 1m / NS | N/A |
| RJ45 Cable | TE CONNECTIVITY | Cat5e | 1.2m / NS | N/A |
| POE | UBIQUITI | GP-H480-050G | N/A | 0.6m / NS |
| Monitor | DELL | U2410f | NA | N/A |



2.4 General Information of Test

| | | |
|-------------------------------|---|--|
| Test Site | CerpPASS 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 | |
| | FCC | TW1439, TW1079 |
| | IC | 4934E-1, 4934E-2 |
| | VCCI | T-2205 for Telecommunication test C-4663 for Conducted emission test 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 25,000MHz | |
| Test Distance: | The test distance of radiated emission from antenna to EUT is 3 M. | |

| Test Item | Test Site | Test period | Environmental Conditions | Tested By |
|----------------------------------|------------|-----------------------|--------------------------|-----------|
| RF Conducted | RFCON01-NK | 2022/01/20 | 22°C / 43% | Dian Chen |
| Radiated Emissions | 3M02-NK | 2022/01/18~2022/01/19 | 20~21°C / 52%~53% | Dian Chen |
| AC Power Line Conducted Emission | CON01-NK | 2022/01/13~2022/01/19 | 19~20°C / 47~53% | Dian Chen |



2.5 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

| Measurement Item | Uncertainty |
|--|-------------|
| AC Power Line Conduction(150K~30MHz) | ±3.12dB |
| Radiated Spurious Emission(9KHz~30MHz) | ±3.4dB |
| Radiated Spurious Emission(30MHz~1GHz) | ±5.6dB |
| Radiated Spurious Emission(1GHz~25GHz) | ±6.6dB |
| Conducted Spurious Emission | ±1.8dB |



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 | 2021/11/05 | 2022/11/04 |
| Active Loop Antenna | EMCO | 6507 | 40855 | 2021/06/10 | 2022/06/09 |
| Horn Antenna | EMCO | 3115 | 31601 | 2021/10/14 | 2022/10/13 |
| EMI Receiver | ROHDE & SCHWARZ | ESCI | 101402 | 2021/03/12 | 2022/03/11 |
| Spectrum Analyzer | ROHDE & SCHWARZ | FSV 40-N | 102151 | 2021/08/06 | 2022/08/05 |
| Preamplifier | EM Electronics corp. | EM330 | 60658 | 2021/10/13 | 2022/10/12 |
| Preamplifier | Agilent | 8449B | 3008A01954 | 2021/03/22 | 2022/03/21 |
| Bluetooth Tester | ROHDE & SCHWARZ | CBT | 101133 | 2021/04/19 | 2022/04/18 |
| Cable-3in1(30M-1G) | HARBOUR INDUSTRIES | LL142 | CCE1315 | 2021/04/12 | 2022/04/11 |
| Cable-0.5m(1G-18G) | E MEC | EM104-SMSM-0.5M | CCE1354 | 2021/05/06 | 2022/05/05 |
| Cable-3m(1G-18G) | E MEC | EM104-SMSM-3M | CCE1355 | 2021/05/06 | 2022/05/05 |
| Cable-8m(1G-18G) | E MEC | EM104-SMSM-8M | CCE1356 | 2021/05/06 | 2022/05/05 |
| Cable-0.5m(30M-40G) | HUBER SUHNER | SUCOFLEX 102 | 28420/2 | 2021/04/03 | 2022/04/02 |
| Cable-3m(30M-40G) | HUBER SUHNER | SUCOFLEX 102 | MY2608/2 | 2021/04/09 | 2022/04/08 |
| Cable-0.5m(1G-40G) | Rapidtek | 40GHZ 50CM | 38MS-38MS50 314 | 2021/04/08 | 2022/04/07 |
| Cable-6m(9k~300M) | NA | EMC5D-BM-BM-6 | 130605 | 2021/09/22 | 2022/09/21 |
| 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 |
| Bluetooth Tester | ROHDE & SCHWARZ | CBT | 101133 | 2021/04/19 | 2022/04/18 |
| CAX Signal Analyzer | KEYSIGHT | N9000B | MY57100339 | 2022/01/10 | 2023/01/09 |
| Attenuator | KEYSIGHT | 8491B | MY39250703 | 2021/04/09 | 2022/04/08 |
| TEMP & HUMI CHAMBER | T-MACHINE | TMJ-9712 | T-12-040111 | 2021/08/27 | 2022/08/26 |
| Cable-0.5m(1G-26.5G) | HUBER SUHNER | SUCOFLEX 102 | 28422/2 | 2021/04/08 | 2022/04/07 |
| Power Meter | Anritsu | ML2495A | 1224005 | 2021/04/14 | 2022/04/13 |
| Power Sensor | Anritsu | MA2411B | 1207295 | 2021/04/14 | 2022/04/13 |
| Switch Box | Theda | 1-4 | TW5451159 | NA | NA |
| MXG-B RF Vector Signal Generator | KEYSIGHT | N5182B | MY53051383 | 2021/06/30 | 2022/06/29 |



| | | | | | |
|--------------------------------------|----------------------------------|-----------------|------------------|-------------------------|-------------------|
| 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 | 101200 | 2021/08/30 | 2022/08/29 |
| Line Impedance Stabilization Network | Schwarzbeck | NSLK 8127 | 8127-568 | 2021/06/02 | 2022/06/01 |
| Pulse Limiter | ROHDE & SCHWARZ | ESH3-Z2 | 101934 | 2021/03/10 | 2022/03/09 |
| Cable-6m(9k~300M) | NA | EMC5D-BM-BM-6 | 130606 | 2021/03/15 | 2022/03/14 |
| E3 | AUDIX | v8.2014-8-6 | RK-000531 | NA | NA |



4. Test of AC Power Line Conducted Emission

4.1 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 C63.10-2013. 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 |

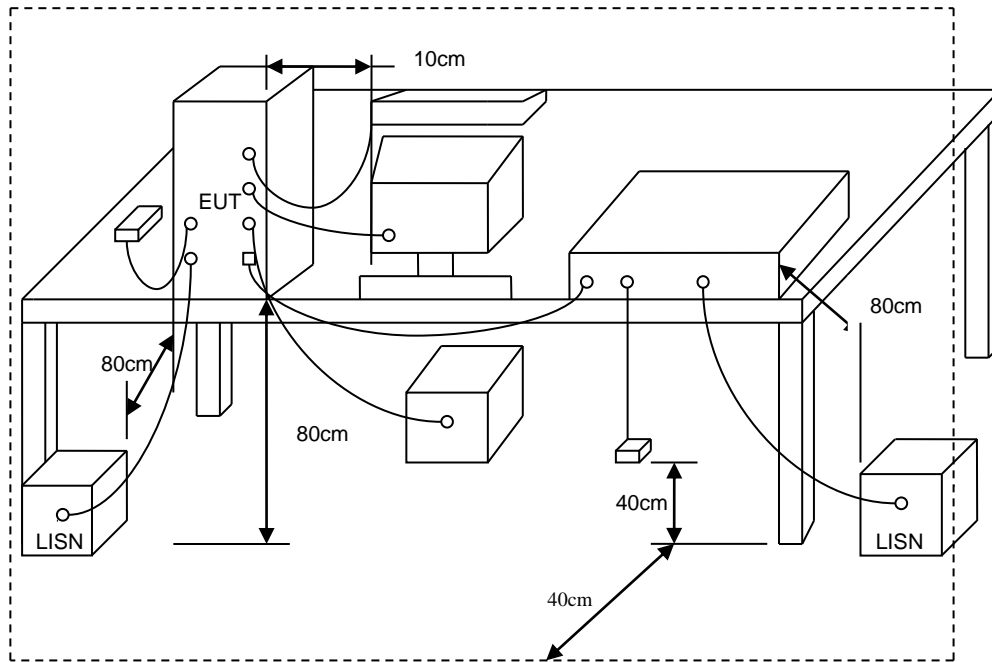
*Decreases with the logarithm of the frequency.

4.2 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.



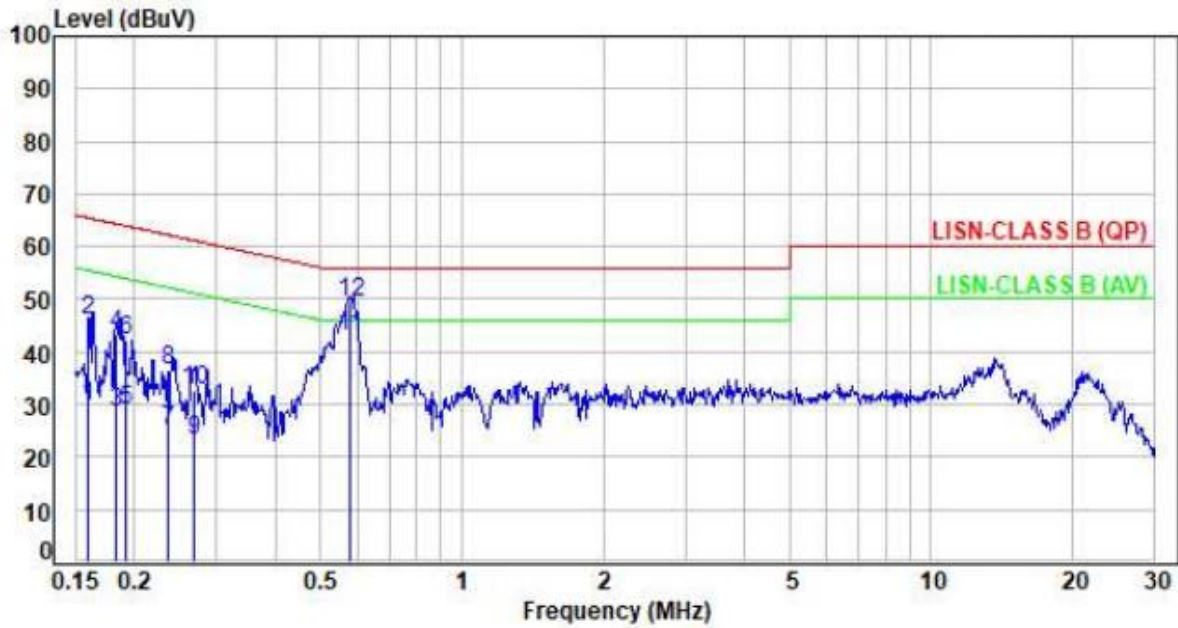
4.3 Typical Test Setup





4.4 Test Result and Data

| | | | |
|-----------|------------------|-----------|--------|
| Power | : AC 120V / 60Hz | Pol/Phase | : LINE |
| Test Mode | : Mode 2 | | : |

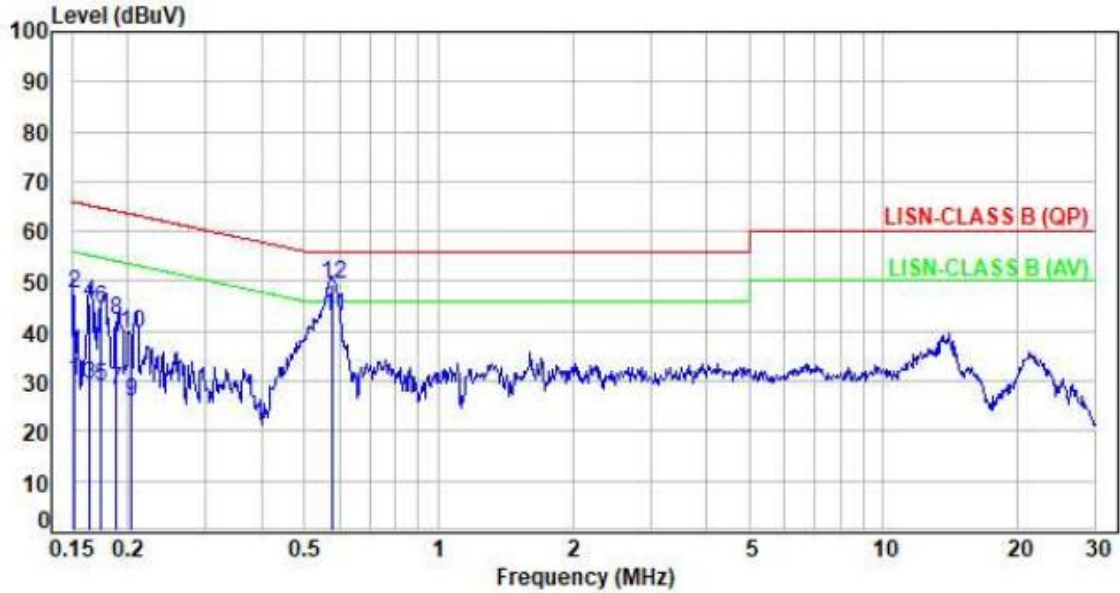


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F |
|-----|-----------------|-------------|----------------|--------------|--------------|-------------|----------|-----|
| 1 | 0.16 | 9.92 | 19.67 | 29.59 | 55.49 | -25.90 | Average | P |
| 2 | 0.16 | 9.92 | 36.25 | 46.17 | 65.49 | -19.32 | QP | P |
| 3 | 0.18 | 9.92 | 18.73 | 28.65 | 54.34 | -25.69 | Average | P |
| 4 | 0.18 | 9.92 | 33.40 | 43.32 | 64.34 | -21.02 | QP | P |
| 5 | 0.19 | 9.92 | 18.91 | 28.83 | 53.93 | -25.10 | Average | P |
| 6 | 0.19 | 9.92 | 32.23 | 42.15 | 63.93 | -21.78 | QP | P |
| 7 | 0.24 | 9.92 | 14.99 | 24.91 | 52.26 | -27.35 | Average | P |
| 8 | 0.24 | 9.92 | 26.58 | 36.50 | 62.26 | -25.76 | QP | P |
| 9 | 0.27 | 9.91 | 13.28 | 23.19 | 51.20 | -28.01 | Average | P |
| 10 | 0.27 | 9.91 | 22.76 | 32.67 | 61.20 | -28.53 | QP | P |
| 11 | 0.58 | 9.92 | 32.87 | 42.79 | 46.00 | -3.21 | Average | P |
| 12 | 0.58 | 9.92 | 39.57 | 49.49 | 56.00 | -6.51 | QP | P |

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



| | | | |
|-----------|------------------|-----------|-----------|
| Power | : AC 120V / 60Hz | Pol/Phase | : NEUTRAL |
| Test Mode | : Mode 2 | | |



| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV) | Limit (dBuV) | Margin (dB) | Detector | P/F |
|-----|-----------------|-------------|----------------|--------------|--------------|-------------|----------|-----|
| 1 | 0.15 | 9.92 | 20.21 | 30.13 | 55.93 | -25.80 | Average | P |
| 2 | 0.15 | 9.92 | 37.49 | 47.41 | 65.93 | -18.52 | QP | P |
| 3 | 0.16 | 9.92 | 19.39 | 29.31 | 55.28 | -25.97 | Average | P |
| 4 | 0.16 | 9.92 | 35.84 | 45.76 | 65.28 | -19.52 | QP | P |
| 5 | 0.17 | 9.92 | 18.86 | 28.78 | 54.79 | -26.01 | Average | P |
| 6 | 0.17 | 9.92 | 34.49 | 44.41 | 64.79 | -20.38 | QP | P |
| 7 | 0.19 | 9.92 | 18.03 | 27.95 | 54.12 | -26.17 | Average | P |
| 8 | 0.19 | 9.92 | 32.43 | 42.35 | 64.12 | -21.77 | QP | P |
| 9 | 0.20 | 9.92 | 16.04 | 25.96 | 53.41 | -27.45 | Average | P |
| 10 | 0.20 | 9.92 | 29.79 | 39.71 | 63.41 | -23.70 | QP | P |
| 11 | 0.58 | 9.91 | 33.20 | 43.11 | 46.00 | -2.89 | Average | P |
| 12 | 0.58 | 9.91 | 39.41 | 49.32 | 56.00 | -6.68 | QP | P |

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



5. Test of Spurious Emission (Radiated)

5.1 Test Limit

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

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



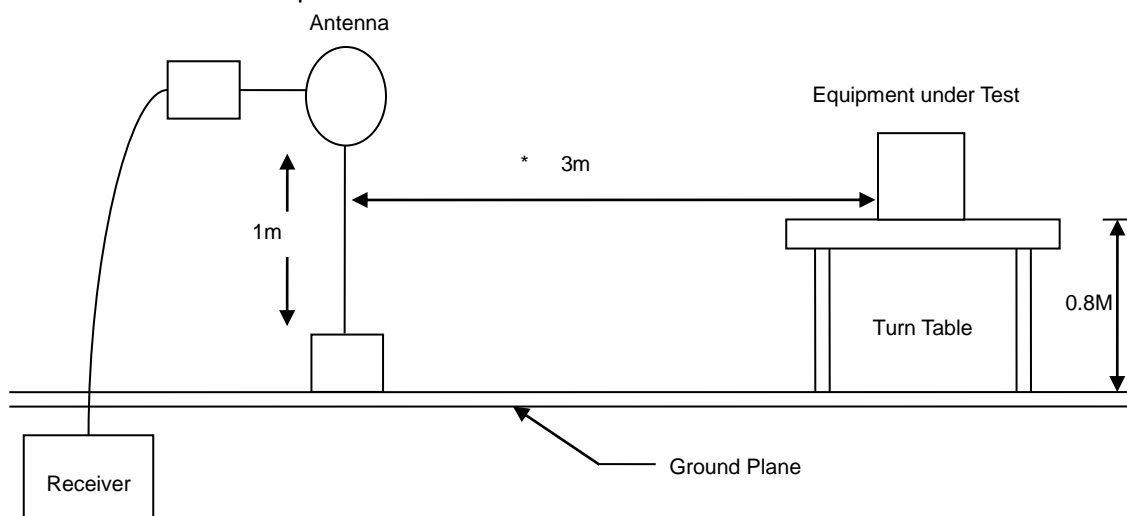
5.2 Test Procedures

- 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.

Note: The supporting fixture shall permit orientation of the EUT in each of three orthogonal axis positions such that emissions from the EUT are maximized. (Z-AXIS is the worst.)

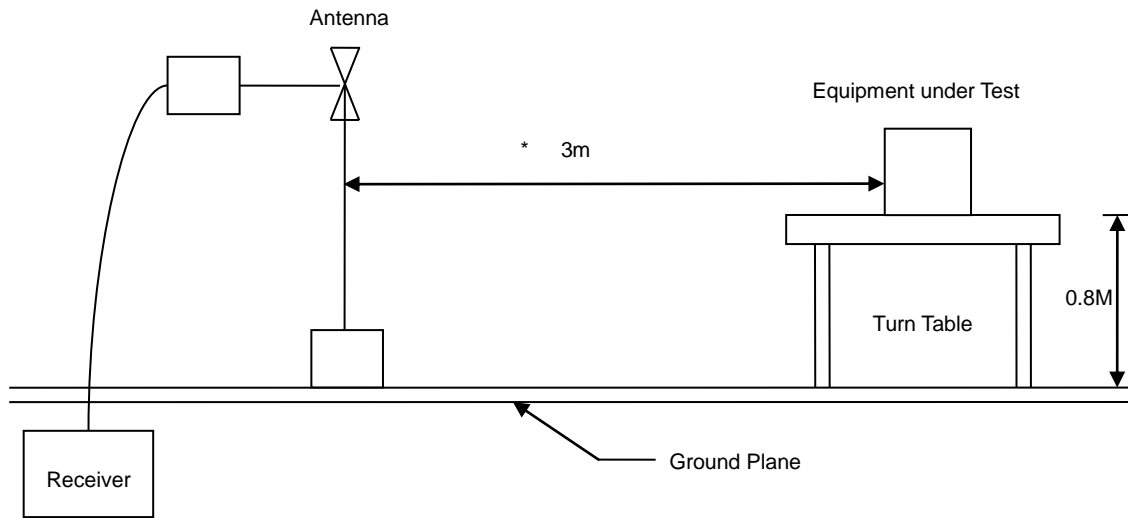
5.3 Typical Test Setup

Below 30MHz test setup

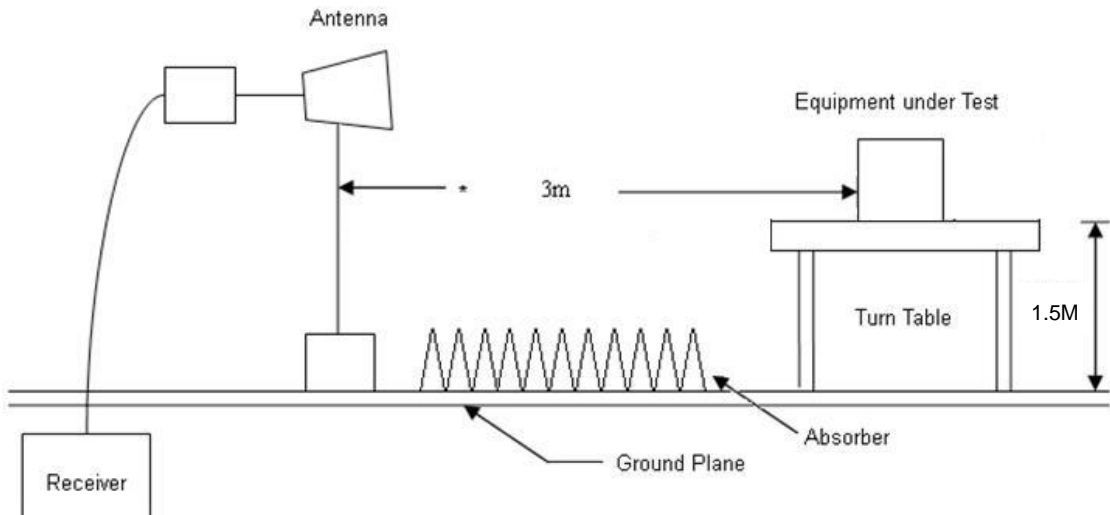




30MHz- 1GHz Test Setup



Above 1GHz Test Setup



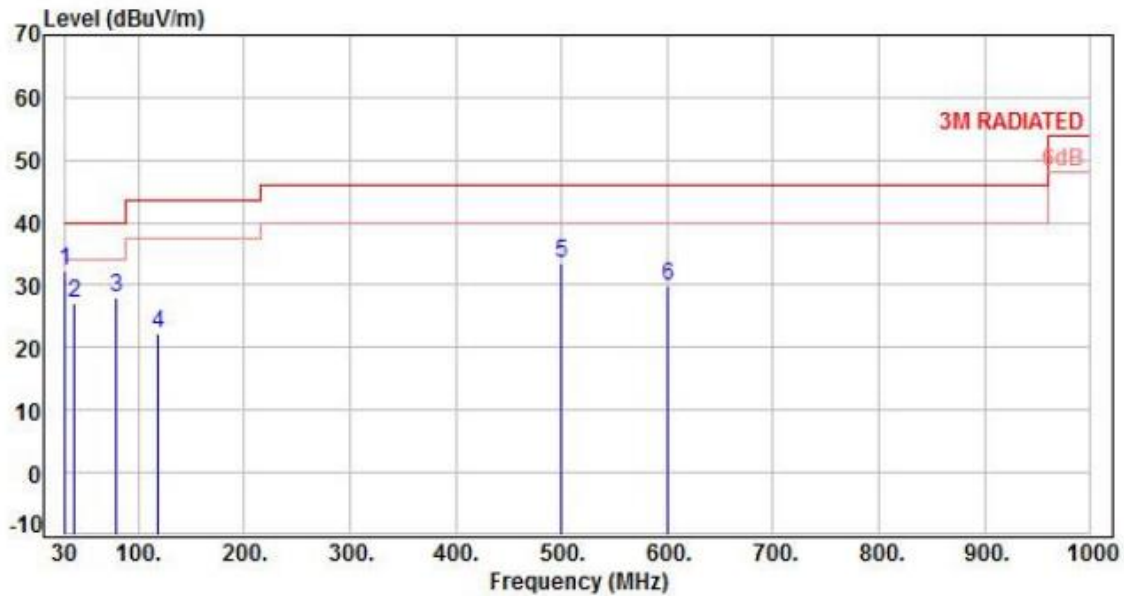


5.4 Test Result and Data (9kHz ~ 30MHz)

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

5.5 Test Result and Data (30MHz ~ 1GHz)

| | | | |
|-----------|------------------|-----------|------------|
| Power | : AC 240V / 60Hz | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 1 | | : |

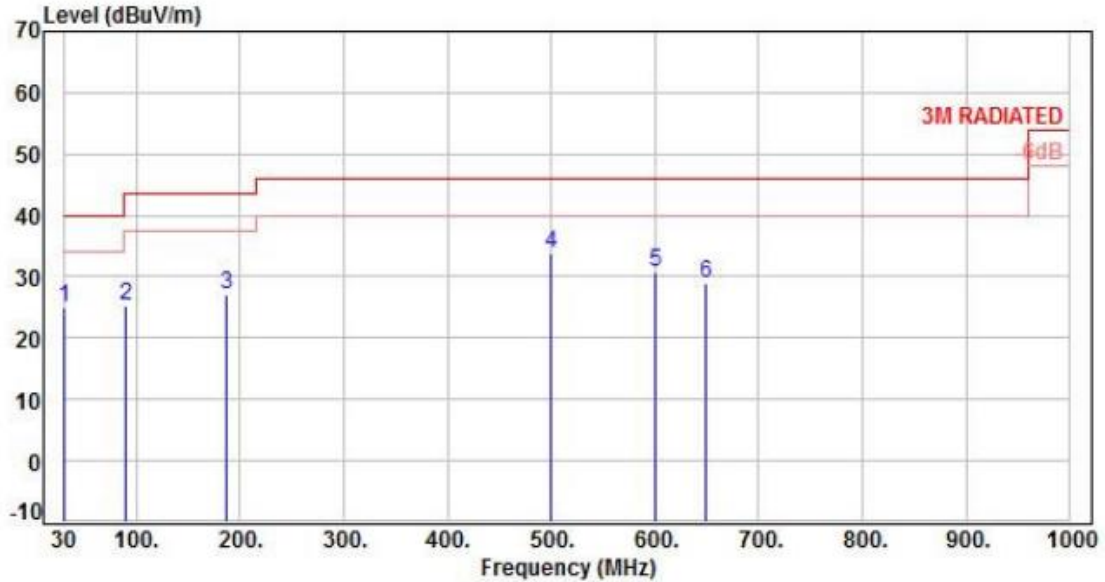


| No. | Frequency (MHz) | Factor (dB) | Reading (dBUV) | Level (dBUV/m) | Limit (dBUV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 30.00 | -12.63 | 44.82 | 32.19 | 40.00 | -7.81 | Peak | 400 | 360 | P |
| 2 | 39.70 | -11.86 | 39.12 | 27.26 | 40.00 | -12.74 | Peak | 400 | 360 | P |
| 3 | 78.50 | -15.51 | 43.44 | 27.93 | 40.00 | -12.07 | Peak | 400 | 360 | P |
| 4 | 119.24 | -13.82 | 35.92 | 22.10 | 43.50 | -21.40 | Peak | 400 | 360 | P |
| 5 | 499.48 | -5.46 | 39.05 | 33.59 | 46.00 | -12.41 | Peak | 400 | 360 | P |
| 6 | 600.36 | -2.94 | 32.93 | 29.99 | 46.00 | -16.01 | Peak | 400 | 360 | P |

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



| | | | |
|-----------|------------------|-----------|--------------|
| Power | : AC 240V / 60Hz | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 1 | | : |



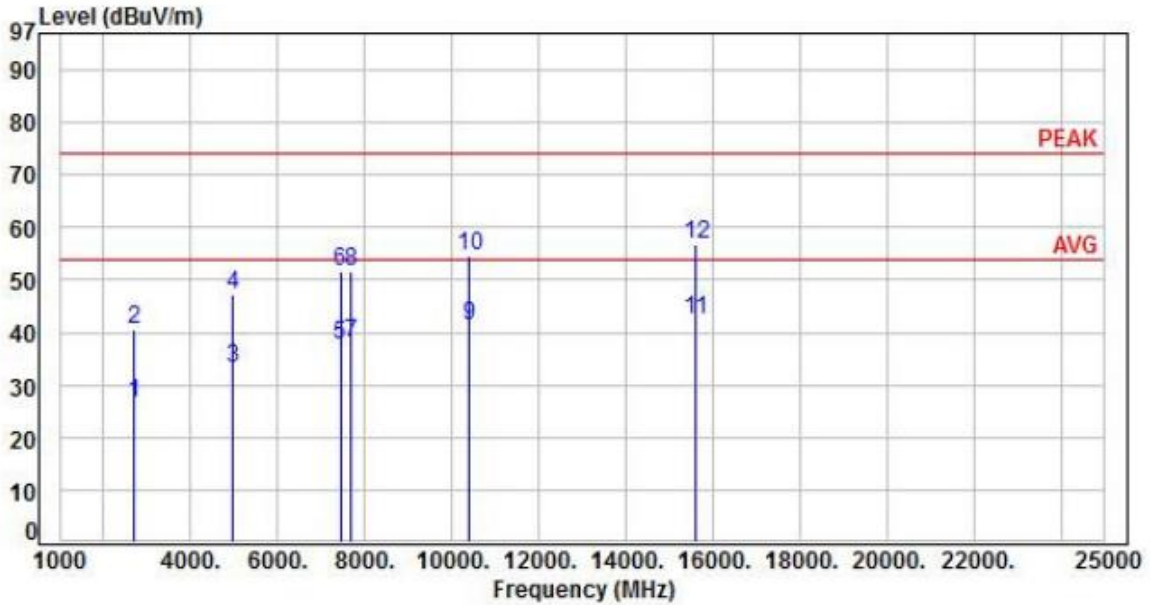
| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 30.00 | -12.63 | 37.55 | 24.92 | 40.00 | -15.08 | Peak | 400 | 0 | P |
| 2 | 90.14 | -16.64 | 41.83 | 25.19 | 43.50 | -18.31 | Peak | 400 | 0 | P |
| 3 | 187.14 | -13.30 | 40.45 | 27.15 | 43.50 | -16.35 | Peak | 400 | 0 | P |
| 4 | 499.48 | -5.46 | 39.16 | 33.70 | 46.00 | -12.30 | Peak | 400 | 0 | P |
| 5 | 600.36 | -2.94 | 33.72 | 30.78 | 46.00 | -15.22 | Peak | 400 | 0 | P |
| 6 | 648.86 | -2.16 | 31.02 | 28.86 | 46.00 | -17.14 | Peak | 400 | 0 | P |

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



5.6 Test Result and Data (1GHz ~ 25GHz)

| | | | |
|-----------|------------------|-----------|------------|
| Power | : AC 120V / 60Hz | Pol/Phase | : VERTICAL |
| Test Mode | : Mode 1 | | : |

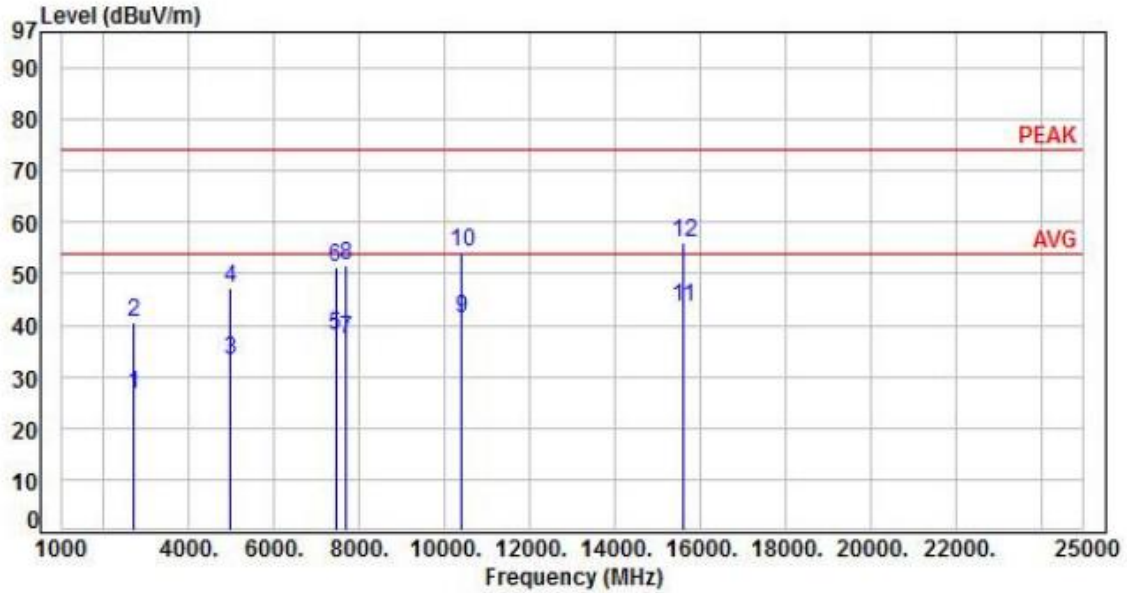


| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 2720.00 | -2.77 | 29.34 | 26.57 | 54.00 | -27.43 | Average | 100 | 194 | P |
| 2 | 2720.00 | -2.77 | 43.21 | 40.44 | 74.00 | -33.56 | Peak | 100 | 194 | P |
| 3 | 4960.00 | 4.35 | 28.77 | 33.12 | 54.00 | -20.88 | Average | 100 | 76 | P |
| 4 | 4960.00 | 4.35 | 42.74 | 47.09 | 74.00 | -26.91 | Peak | 100 | 76 | P |
| 5 | 7440.00 | 8.79 | 28.76 | 37.55 | 54.00 | -16.45 | Average | 100 | 176 | P |
| 6 | 7440.00 | 8.79 | 42.98 | 51.77 | 74.00 | -22.23 | Peak | 100 | 176 | P |
| 7 | 7680.00 | 8.67 | 29.15 | 37.82 | 54.00 | -16.18 | Average | 100 | 168 | P |
| 8 | 7680.00 | 8.67 | 42.95 | 51.62 | 74.00 | -22.38 | Peak | 100 | 168 | P |
| 9 | 10400.00 | 11.57 | 29.68 | 41.25 | 54.00 | -12.75 | Average | 100 | 108 | P |
| 10 | 10400.00 | 11.57 | 42.91 | 54.48 | 74.00 | -19.52 | Peak | 100 | 108 | P |
| 11 | 15600.00 | 13.65 | 28.74 | 42.39 | 54.00 | -11.61 | Average | 100 | 187 | P |
| 12 | 15600.00 | 13.65 | 43.11 | 56.76 | 74.00 | -17.24 | Peak | 100 | 187 | P |

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



| | | | |
|-----------|------------------|-----------|--------------|
| Power | : AC 120V / 60Hz | Pol/Phase | : HORIZONTAL |
| Test Mode | : Mode 1 | | |



| No. | Frequency (MHz) | Factor (dB) | Reading (dBuV) | Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Azimuth (deg) | P/F |
|-----|-----------------|-------------|----------------|----------------|----------------|-------------|----------|-------------|---------------|-----|
| 1 | 2720.00 | -2.77 | 29.14 | 26.37 | 54.00 | -27.63 | Average | 100 | 138 | P |
| 2 | 2720.00 | -2.77 | 43.31 | 40.54 | 74.00 | -33.46 | Peak | 100 | 138 | P |
| 3 | 4960.00 | 4.35 | 28.76 | 33.11 | 54.00 | -20.89 | Average | 100 | 147 | P |
| 4 | 4960.00 | 4.35 | 42.68 | 47.03 | 74.00 | -26.97 | Peak | 100 | 147 | P |
| 5 | 7440.00 | 8.79 | 29.24 | 38.03 | 54.00 | -15.97 | Average | 100 | 124 | P |
| 6 | 7440.00 | 8.79 | 42.48 | 51.27 | 74.00 | -22.73 | Peak | 100 | 124 | P |
| 7 | 7680.00 | 8.67 | 28.67 | 37.34 | 54.00 | -16.66 | Average | 100 | 169 | P |
| 8 | 7680.00 | 8.67 | 42.97 | 51.64 | 74.00 | -22.36 | Peak | 100 | 169 | P |
| 9 | 10400.00 | 11.57 | 29.85 | 41.42 | 54.00 | -12.58 | Average | 100 | 265 | P |
| 10 | 10400.00 | 11.57 | 42.59 | 54.16 | 74.00 | -19.84 | Peak | 100 | 265 | P |
| 11 | 15600.00 | 13.65 | 29.78 | 43.43 | 54.00 | -10.57 | Average | 100 | 143 | P |
| 12 | 15600.00 | 13.65 | 42.58 | 56.23 | 74.00 | -17.77 | Peak | 100 | 143 | P |

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



5.7 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 – 5.250 |
| 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



6. Test of Conducted Spurious Emission

6.1 Test Limit

According to the methods defined in ANSI C63.10-2013 Section 11.11.1

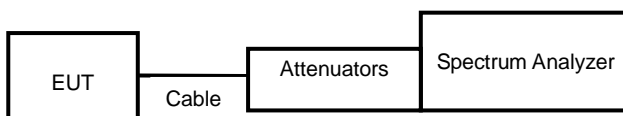
Below -20dB of the highest emission level of operating band (In 100 kHz Resolution Bandwidth)

6.2 Test Procedure

According to the methods defined in ANSI C63.10-2013 Section 11.11.2 & 11.11.3

- a. The transmitter output was connected to the spectrum analyzer via a low loss cable.
- b. Set RBW of spectrum analyzer to 100 KHz and VBW of spectrum analyzer to 300 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
- c. Peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20dB relative to the maximum measured in-band peak PSD level.
- d. The band edges was measured and recorded.

6.3 Test Setup Layout

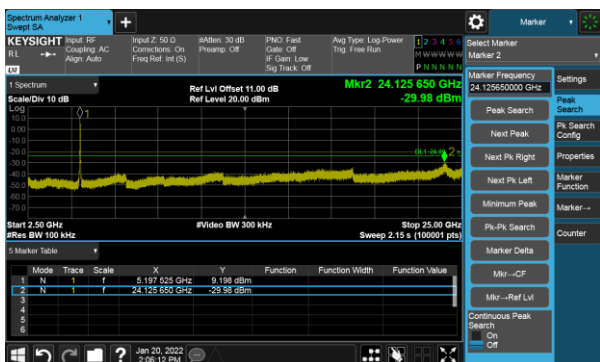
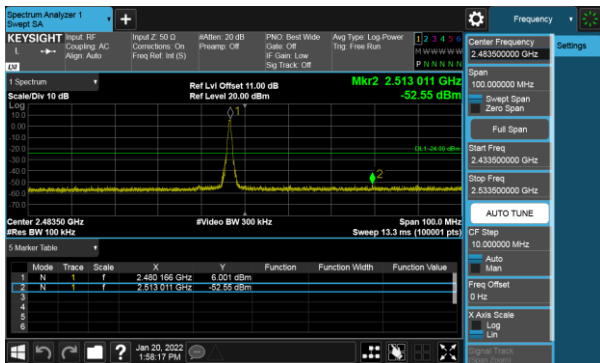
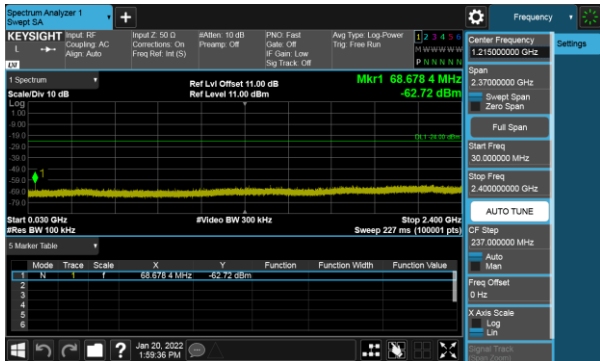


6.4 Test Result and Data

Note: Test plots refers to the following pages.



BT GFSK CH78 + 5G 11ac20 CH40



-----THE END OF REPORT-----