

Partial FCC Test Report

Report No.: RFBEDW-WTW-P21040354

FCC ID: O57AX200NGW

Test Model: AX200NGW

Received Date: Apr. 21, 2021

Test Date: Apr. 21 ~ Apr. 29, 2021

Issued Date: May 21, 2021

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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

| Issue No. | Description | Date Issued |
|----------------------|-------------------|--------------|
| RFBEDW-WTW-P21040354 | Original release. | May 21, 2021 |

1 Certificate of Conformity

Product: WLAN and BT , 2x2 Pcle M.2 2230 adapter card

Brand: Intel® Wi-Fi 6 AX200

Test Model: AX200NGW

Sample Status: Engineering sample


Applicant: Lenovo(Shanghai) Electronics Technology Co., Ltd.

Test Date: Apr. 21 ~ Apr. 29, 2021

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by :  , **Date:** May 21, 2021
Polly Chien / Specialist

Approved by :  , **Date:** May 21, 2021
Bruce Chen / Senior Project Engineer

2 Summary of Test Results

| 47 CFR FCC Part 15, Subpart C (SECTION 15.247) | | | |
|--|---|--------|--|
| FCC Clause | Test Item | Result | Remarks |
| 15.207 | AC Power Conducted Emission | Pass | Meet the requirement of limit. Minimum passing margin is -17.04dB at 0.15400MHz. |
| 15.247(a)(1)(iii) | Number of Hopping Frequency Used | N/A | Refer to Note |
| 15.247(a)(1)(iii) | Dwell Time on Each Channel | N/A | Refer to Note |
| 15.247(a)(1) | 1. Hopping Channel Separation 2. Spectrum Bandwidth of a Frequency Hopping Sequence Spread Spectrum System | N/A | Refer to Note |
| 15.247(a)(1) | Maximum Peak Output Power | Pass | Meet the requirement of limit. |
| 15.205 / 15.209 / 15.247(d) | Radiated Emissions and Band Edge Measurement | Pass | Meet the requirement of limit. Minimum passing margin is -5.14dB at 2390.00MHz. |
| 15.247(d) | Antenna Port Emission | N/A | Refer to Note |
| 15.203 | Antenna Requirement | Pass | Antenna connector is MHF-B13-N-01 not a standard connector. |

Note:

- This report is a partial report, only test item of AC Power Conducted Emission, Radiated Emissions and Maximum Peak Output Power were performed for this report. Other testing data please refer to Intel report no.: 181210-03.TR04 for module (Brand: Intel® Wi-Fi 6 AX200 , Model: AX200NGW).
- For 2.4G band compliance with rule 15.247(d) of the band-edge items, the test plots were recorded in Annex A. Test Procedures refer to report 4.1.3.
- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| Measurement | Frequency | Expanded Uncertainty (k=2) (±) |
|------------------------------------|------------------|--------------------------------|
| Conducted Emissions at mains ports | 150kHz ~ 30MHz | 2.94 dB |
| Radiated Emissions up to 1 GHz | 9kHz ~ 30MHz | 3.04 dB |
| | 30MHz ~ 200MHz | 3.86 dB |
| | 200MHz ~ 1000MHz | 3.87 dB |
| Radiated Emissions above 1 GHz | 1GHz ~ 18GHz | 2.29 dB |
| | 18GHz ~ 40GHz | 2.29 dB |

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

| | |
|-----------------------|--|
| Product | WLAN and BT , 2x2 Pcle M.2 2230 adapter card |
| Brand | Intel® Wi-Fi 6 AX200 |
| Test Model | AX200NGW |
| Status of EUT | Engineering sample |
| Power Supply Rating | 3.3Vdc (from host equipment) |
| Modulation Type | GFSK, $\pi/4$ -DQPSK, 8DPSK |
| Modulation Technology | FHSS |
| Transfer Rate | 1/2/3Mbps |
| Operating Frequency | 2402 ~ 2480MHz |
| Number of Channel | 79 |
| Output Power | 11.143mW |
| Antenna Type | Refer to Note |
| Antenna Connector | Refer to Note |
| Accessory Device | NA |
| Data Cable Supplied | NA |

Note:

- The EUT is authorized for use in specific End-product. Please refer to below table for more details.

| Product | Brand | Model |
|-------------------|--------|------------------------------------|
| Notebook Computer | Lenovo | Lenovo 100e Chromebook Gen 3 ***** |

Note: *=0~9,A-Z,a~z,"-" or blank, for marketing use only, with no impact on RF compliance of the product.

- The EUT contains following accessory devices.

| Product | Brand | Model | Description |
|-----------|--------|-------------|---|
| Adapter 1 | Lenovo | ADLX45YLC3D | I/P: 100-240Vac, 50-60Hz, 1.3A O/P: 20.0V===2.25A, 45.0W 1.75M / 0core |
| Adapter 2 | Lenovo | ADLX65YLC3D | I/P: 100-240Vac, 50-60Hz, 1.8A O/P: 20.0V===3.25A, 65.0W 1.77M / 0core |
| Adapter 3 | Lenovo | ADLX45YLC3D | I/P: 100-240Vac, 50-60Hz, 1.3A O/P: 20.0V ===2.25A, 45.0W 1.55M / 1core |
| Battery | Lenovo | L20C3PG0 | 11.52 Vdc, 3994 mAh, 46Wh |

*After pretesting, the adapter 2 was the worst case and chose for final test.

3. The following antennas were provided to the EUT.

| Ant. Type | Brand | Ant. | Model | Antenna Peak Gain (dBi) | | | | Connector | |
|-----------|------------|------|------------------------------------|-------------------------|--------------|--------------|--------------|-----------|--------------|
| | | | | BT | 2400-2500MHz | 5150-5350MHz | 5470-5725MHz | | 5725-5850MHz |
| PIFA | MAGLAYERS | Main | DC33002K420 (PCA-4010-25GC7-A1) | - | -2.77 | -3.79 | -3.51 | -4.58 | - |
| | | Aux. | DC33002K420 (PCA-4010-25GC7-A1) | -3.97 | -3.97 | -4.83 | -5.91 | -6.62 | |
| | South Star | Main | DC33002IZ20 (N12-7697-R0A) | - | -2.92 | -3.92 | -3.87 | -4.77 | MHF-B13-N-01 |
| | | Aux. | DC33002IZ20 (N12-7697-R0A) | -4.11 | -4.11 | -4.99 | -6.02 | -6.71 | |

* The Max antenna gain was chosen for final test.

*For Bluetooth was fixed on Aux. antenna.

*The antenna with the maximum gain was chosen for the final tests.

4. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

3.2 Description of Test Modes

79 channels are provided to this EUT:

| Channel | Freq. (MHz) | Channel | Freq. (MHz) | Channel | Freq. (MHz) | Channel | Freq. (MHz) |
|---------|-------------|---------|-------------|---------|-------------|---------|-------------|
| 0 | 2402 | 20 | 2422 | 40 | 2442 | 60 | 2462 |
| 1 | 2403 | 21 | 2423 | 41 | 2443 | 61 | 2463 |
| 2 | 2404 | 22 | 2424 | 42 | 2444 | 62 | 2464 |
| 3 | 2405 | 23 | 2425 | 43 | 2445 | 63 | 2465 |
| 4 | 2406 | 24 | 2426 | 44 | 2446 | 64 | 2466 |
| 5 | 2407 | 25 | 2427 | 45 | 2447 | 65 | 2467 |
| 6 | 2408 | 26 | 2428 | 46 | 2448 | 66 | 2468 |
| 7 | 2409 | 27 | 2429 | 47 | 2449 | 67 | 2469 |
| 8 | 2410 | 28 | 2430 | 48 | 2450 | 68 | 2470 |
| 9 | 2411 | 29 | 2431 | 49 | 2451 | 69 | 2471 |
| 10 | 2412 | 30 | 2432 | 50 | 2452 | 70 | 2472 |
| 11 | 2413 | 31 | 2433 | 51 | 2453 | 71 | 2473 |
| 12 | 2414 | 32 | 2434 | 52 | 2454 | 72 | 2474 |
| 13 | 2415 | 33 | 2435 | 53 | 2455 | 73 | 2475 |
| 14 | 2416 | 34 | 2436 | 54 | 2456 | 74 | 2476 |
| 15 | 2417 | 35 | 2437 | 55 | 2457 | 75 | 2477 |
| 16 | 2418 | 36 | 2438 | 56 | 2458 | 76 | 2478 |
| 17 | 2419 | 37 | 2439 | 57 | 2459 | 77 | 2479 |
| 18 | 2420 | 38 | 2440 | 58 | 2460 | 78 | 2480 |
| 19 | 2421 | 39 | 2441 | 59 | 2461 | | |

3.2.1 Test Mode Applicability and Tested Channel Detail

| EUT CONFIGURE MODE | APPLICABLE TO | | | | DESCRIPTION |
|--------------------|---------------|-------|-----|-------|-------------|
| | RE \geq 1G | RE<1G | PLC | Power | |
| - | √ | √ | √ | √ | - |

Where RE \geq 1G: Radiated Emission above 1GHz & Bandedge Measurement
 RE<1G: Radiated Emission below 1GHz
 PLC: Power Line Conducted Emission
 Power: Maximum Output Power Measurement

Note:

- The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on X-plane.

Radiated Emission Test (Above 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| EUT CONFIGURE MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | PACKET TYPE |
|--------------------|-------------------|----------------|-----------------------|-----------------|-------------|
| - | 0 to 78 | 0, 39, 78 | FHSS | GFSK | DH5 |
| - | 0 to 78 | 0, 39, 78 | FHSS | 8DPSK | 3DH5 |

Radiated Emission Test (Below 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| EUT CONFIGURE MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | PACKET TYPE |
|--------------------|-------------------|----------------|-----------------------|-----------------|-------------|
| - | 0 to 78 | 78 | FHSS | GFSK | DH5 |

Power Line Conducted Emission Test:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| EUT CONFIGURE MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | PACKET TYPE |
|--------------------|-------------------|----------------|-----------------------|-----------------|-------------|
| - | 0 to 78 | 78 | FHSS | GFSK | DH5 |

Maximum Output Power Measurement:

- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

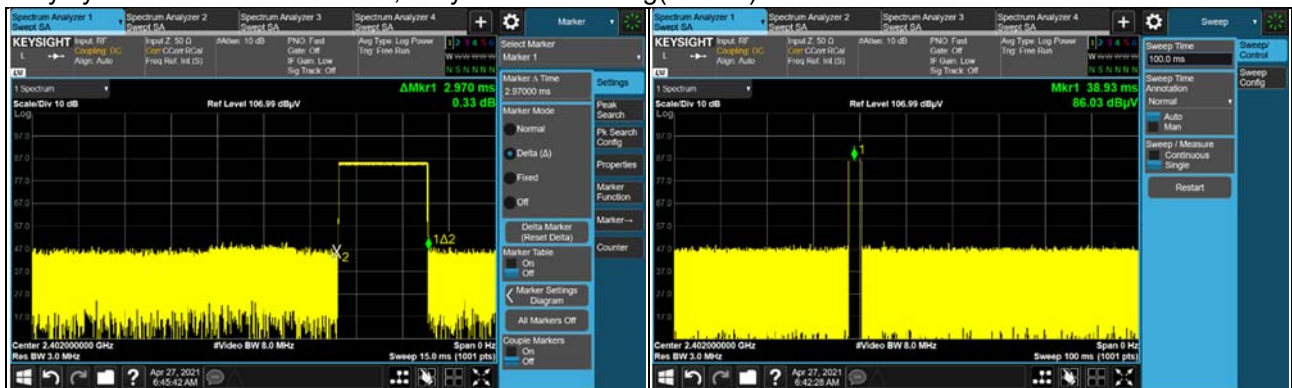
| EUT CONFIGURE MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | PACKET TYPE |
|--------------------|-------------------|----------------|-----------------------|-----------------|-------------|
| - | 0 to 78 | 0, 39, 78 | FHSS | GFSK | DH5 |
| - | 0 to 78 | 0, 39, 78 | FHSS | 8DPSK | 3DH5 |

Test Condition:

| APPLICABLE TO | ENVIRONMENTAL CONDITIONS | INPUT POWER (SYSTEM) | TESTED BY |
|---------------|--------------------------|----------------------|------------|
| RE≥1G | 23deg. C, 67%RH | 120Vac, 60Hz | Adair Peng |
| RE<1G | 23deg. C, 67%RH | 120Vac, 60Hz | Adair Peng |
| PLC | 25deg. C, 75%RH | 120Vac, 60Hz | Edison Lee |
| Power | 23deg. C, 67%RH | 120Vac, 60Hz | Adair Peng |

3.3 Duty Cycle of Test Signal

Duty cycle = $2.97 \times 1/100 = 0.0297$, Duty factor = $20 \times \log(0.0297) = -30.54$



3.4 Description of Support Units

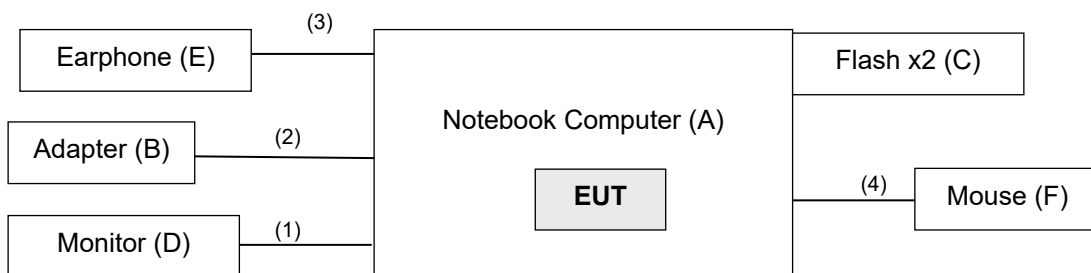
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| ID | Product | Brand | Model No. | Serial No. | FCC ID | Remarks |
|----|-------------------|-----------|---|----------------------------------|------------------|--------------------|
| A. | Notebook Computer | Lenovo | Lenovo 100e Chromebook Gen3 ***** | NA | NA | Provided by Client |
| B. | Adapter | Lenovo | ADLX65YLC3D | NA | NA | - |
| C. | Flash | HP | v250W | 05 | NA | - |
| | Flash | HP | v250W | 09 | NA | - |
| D. | Monitor | DELL | SE2416Hc | CN-OWJKMC-641 80-66D-013B-A00 | FCC DoC Approved | - |
| E. | Earphone | NA | NA | NA | NA | - |
| F. | Mouse | Microsoft | ITE78CJ | NA | FCC DoC Approved | - |

Note: All power cords of the above support units are non-shielded (1.8m).

| ID | Descriptions | Qty. | Length (m) | Shielding (Yes/No) | Cores (Qty.) | Remarks |
|----|--------------|------|------------|--------------------|--------------|--|
| 1. | HDMI cable | 1 | 1.0 | N | 0 | Provided by Lab (Brand: Amber, Model: HDMI-AA120) |
| 2. | Power cable | 1 | 1.75 | N | 0 | Provided by Client |
| 3. | Audio cable | 1 | 1.2 | N | 0 | - |
| 4. | USB cable | 1 | 1.8 | N | 0 | - |

3.4.1 Configuration of System under Test



3.5 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test Standard:

FCC Part 15, Subpart C (15.247)

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 558074 D01 15.247 Meas Guidance v05r02

All test items have been performed as a reference to the above KDB test guidance.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB below the highest level of the desired power:

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

Note:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.1.2 Test Instruments

| Description & Manufacturer | Model No. | Serial No. | Cal. Date | Cal. Due |
|---|---------------------------------------|---|---------------|---------------|
| Test Receiver ROHDE & SCHWARZ | ESR3 | 102579 | Jul. 07, 2020 | Jul. 06, 2021 |
| Spectrum Analyzer ROHDE & SCHWARZ | FSP40 | 100269 | Jun. 09, 2020 | Jun. 08, 2021 |
| BILOG Antenna SCHWARZBECK | VULB9168 | 9168-171 | Nov. 04, 2020 | Nov. 03, 2021 |
| HORN Antenna SCHWARZBECK | 9120D | 209 | Nov. 22, 2020 | Nov. 21, 2021 |
| HORN Antenna SCHWARZBECK | BBHA 9170 | BBHA9170241 | Nov. 22, 2020 | Nov. 21, 2021 |
| Loop Antenna TESEQ | HLA 6121 | 45745 | Jul. 06, 2020 | Jul. 05, 2021 |
| Preamplifier Agilent (Below 1GHz) | 8447D | 2944A10738 | Aug. 16, 2020 | Aug. 15, 2021 |
| Preamplifier Agilent (Above 1GHz) | 8449B | 3008A02465 | Mar. 22, 2021 | Mar. 21, 2022 |
| RF Coaxial Cable WOKEN With 5dB PAD | 8D-FB | Cable-CH3-01 | Aug. 16, 2020 | Aug. 15, 2021 |
| RF signal cable HUBER+SUHNER | SUCOFLEX 104 | Cable-CH3-03 (223653/4) | Aug. 16, 2020 | Aug. 15, 2021 |
| RF signal cable HUBER+SUHNER& EMCI | SUCOFLEX 104&EMC104-SM- SM-8000 | Cable-CH3-03 (309224+170907) | Aug. 16, 2020 | Aug. 15, 2021 |
| Software BV ADT | ADT_Radiated_ V7.6.15.9.5 | NA | NA | NA |
| Antenna Tower inn-co GmbH | MA 4000 | 013303 | NA | NA |
| Antenna Tower Controller BV ADT | AT100 | AT93021702 | NA | NA |
| Turn Table BV ADT | TT100 | TT93021702 | NA | NA |
| Turn Table Controller BV ADT | SC100 | SC93021702 | NA | NA |
| Boresight Antenna Fixture | FBA-01 | FBA-SIP01 | NA | NA |
| USB Wideband Power Sensor KEYSIGHT | U2021XA | MY55050005/MY55 190004/MY5519000 7/MY55210005 | Jul. 13, 2020 | Jul. 12, 2021 |

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 3.

4.1.3 Test Procedures

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

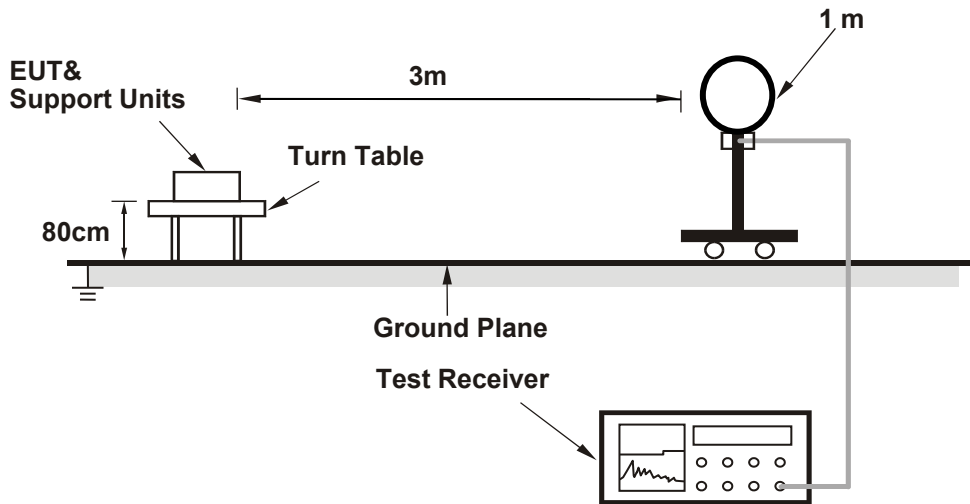
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) and Average detection (AV) at frequency above 1 GHz. For fundamental and harmonic signal measurement, according to ANSI C63.10 section 7.5, the average value = peak value + duty cycle correction factor. The duty cycle correction factor refer to Chapter 3.3 of this report.
3. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

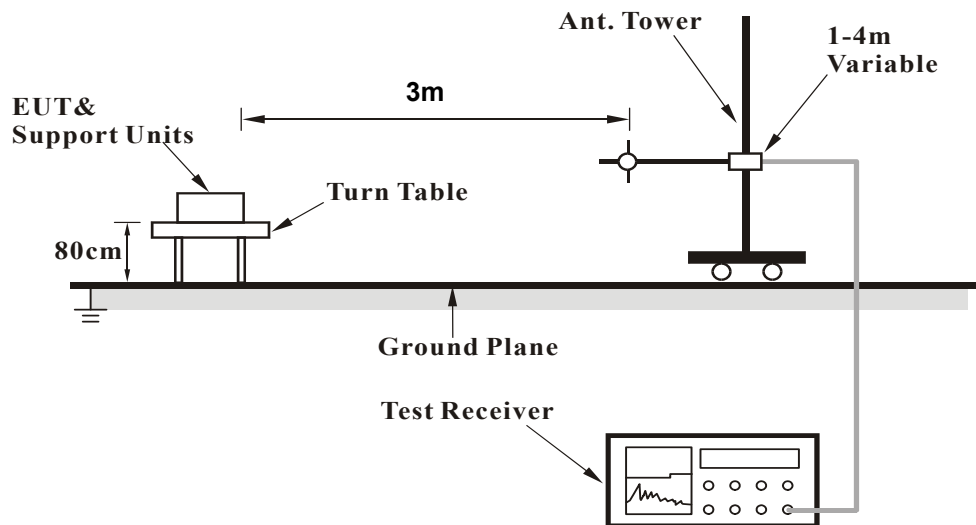
No deviation.

4.1.5 Test Set Up

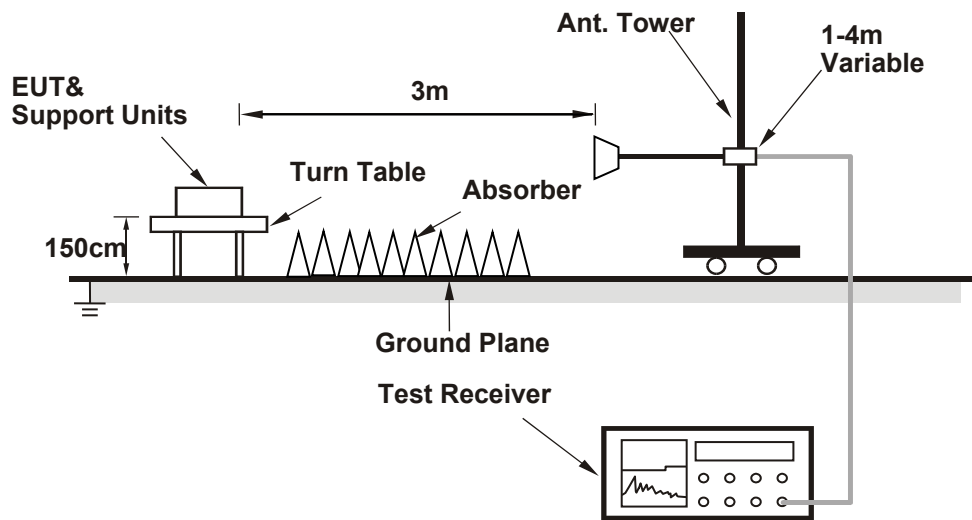
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



4.1.6 EUT Operating Conditions

- a. Installed the EUT into the Portable Computer which is placed on the testing table.
- b. Controlling software (provided by manufacturer) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

Above 1GHz Data:

| | | | |
|-----------------|--------------|-------------------|---------------------------|
| RF Mode | TX BT_GFSK | Channel | CH 0 : 2402 MHz |
| Frequency Range | 1GHz ~ 25GHz | Detector Function | Peak (PK) Average (AV) |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|--|-----------------|-------------------------|----------------|--------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 2390.00 | 60.16 PK | 74.00 | -13.84 | 2.43 H | 37 | 25.70 | 34.46 |
| 2 | 2390.00 | 48.86 AV | 54.00 | -5.14 | 2.43 H | 37 | 14.40 | 34.46 |
| 3 | *2402.00 | 105.94 PK | | | 2.43 H | 37 | 71.50 | 34.44 |
| 4 | *2402.00 | 75.40 AV | | | 2.43 H | 37 | 40.96 | 34.44 |
| 5 | 4804.00 | 47.06 PK | 74.00 | -26.94 | 2.15 H | 166 | 44.70 | 2.36 |
| 6 | 4804.00 | 16.52 AV | 54.00 | -37.48 | 2.15 H | 166 | 14.16 | 2.36 |
| Antenna Polarity & Test Distance : Vertical at 3 m | | | | | | | | |
| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 2390.00 | 59.86 PK | 74.00 | -14.14 | 1.95 V | 216 | 25.40 | 34.46 |
| 2 | 2390.00 | 48.56 AV | 54.00 | -5.44 | 1.95 V | 216 | 14.10 | 34.46 |
| 3 | *2402.00 | 102.04 PK | | | 1.95 V | 216 | 67.60 | 34.44 |
| 4 | *2402.00 | 71.50 AV | | | 1.95 V | 216 | 37.06 | 34.44 |
| 5 | 4804.00 | 46.96 PK | 74.00 | -27.04 | 1.79 V | 305 | 44.60 | 2.36 |
| 6 | 4804.00 | 16.42 AV | 54.00 | -37.58 | 1.79 V | 305 | 14.06 | 2.36 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. for Fundamental frequency and bandedge & harmonic:
The average value of fundamental frequency is :average = peak value + 20log(Duty cycle)
where the duty factor is calculated from following formula:
 $20\text{Log}(\text{Duty cycle}) = 20 \log (2.97\text{ms} \times 1/100) = -30.54\text{dB}$ please refer to the plotted duty (see section 3.3)

| | | | |
|-----------------|--------------|-------------------|---------------------------|
| RF Mode | TX BT_GFSK | Channel | CH 39 : 2441 MHz |
| Frequency Range | 1GHz ~ 25GHz | Detector Function | Peak (PK) Average (AV) |

Antenna Polarity & Test Distance : Horizontal at 3 m

| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|----|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *2441.00 | 106.39 PK | | | 2.47 H | 39 | 72.00 | 34.39 |
| 2 | *2441.00 | 75.85 AV | | | 2.47 H | 39 | 41.46 | 34.39 |
| 3 | 4882.00 | 47.44 PK | 74.00 | -26.56 | 2.20 H | 171 | 44.90 | 2.54 |
| 4 | 4882.00 | 16.90 AV | 54.00 | -37.10 | 2.20 H | 171 | 14.36 | 2.54 |

Antenna Polarity & Test Distance : Vertical at 3 m

| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|----|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *2441.00 | 102.39 PK | | | 2.01 V | 217 | 68.00 | 34.39 |
| 2 | *2441.00 | 71.85 AV | | | 2.01 V | 217 | 37.46 | 34.39 |
| 3 | 4882.00 | 47.24 PK | 74.00 | -26.76 | 1.81 V | 301 | 44.70 | 2.54 |
| 4 | 4882.00 | 16.70 AV | 54.00 | -37.30 | 1.81 V | 301 | 14.16 | 2.54 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. for Fundamental frequency and bandedge & harmonic:
 The average value of fundamental frequency is :average = peak value + 20log(Duty cycle)
 where the duty factor is calculated from following formula:
 $20\text{Log}(\text{Duty cycle}) = 20 \log (2.97\text{ms} \cdot 1/100) = -30.54\text{dB}$ please refer to the plotted duty
 (see section 3.3)

| | | | |
|-----------------|--------------|-------------------|---------------------------|
| RF Mode | TX BT_GFSK | Channel | CH 78 : 2480 MHz |
| Frequency Range | 1GHz ~ 25GHz | Detector Function | Peak (PK) Average (AV) |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|--|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | *2480.00 | 109.44 PK | | | 2.25 H | 36 | 75.10 | 34.34 |
| 2 | *2480.00 | 78.90 AV | | | 2.25 H | 36 | 44.56 | 34.34 |
| 3 | 2483.50 | 56.80 PK | 74.00 | -17.20 | 2.25 H | 36 | 58.70 | -1.90 |
| 4 | 2483.50 | 26.26 AV | 54.00 | -27.74 | 2.25 H | 36 | 28.16 | -1.90 |
| 5 | 4960.00 | 47.79 PK | 74.00 | -26.21 | 2.22 H | 168 | 45.10 | 2.69 |
| 6 | 4960.00 | 17.25 AV | 54.00 | -36.75 | 2.22 H | 168 | 14.56 | 2.69 |

| Antenna Polarity & Test Distance : Vertical at 3 m | | | | | | | | |
|--|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | *2480.00 | 104.44 PK | | | 1.90 V | 213 | 70.10 | 34.34 |
| 2 | *2480.00 | 73.90 AV | | | 1.90 V | 213 | 39.56 | 34.34 |
| 3 | 2483.50 | 53.30 PK | 74.00 | -20.70 | 1.90 V | 213 | 55.20 | -1.90 |
| 4 | 2483.50 | 22.76 AV | 54.00 | -31.24 | 1.90 V | 213 | 24.66 | -1.90 |
| 5 | 4960.00 | 47.49 PK | 74.00 | -26.51 | 1.75 V | 297 | 44.80 | 2.69 |
| 6 | 4960.00 | 16.95 AV | 54.00 | -37.05 | 1.75 V | 297 | 14.26 | 2.69 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * " : Fundamental frequency.
6. for Fundamental frequency and bandedge & harmonic:
 The average value of fundamental frequency is :average = peak value + 20log(Duty cycle)
 where the duty factor is calculated from following formula:
 $20\text{Log}(\text{Duty cycle}) = 20 \log (2.97\text{ms} \times 1/100) = -30.54\text{dB}$ please refer to the plotted duty (see section 3.3)

| | | | |
|-----------------|--------------|-------------------|---------------------------|
| RF Mode | TX BT_8DPSK | Channel | CH 0 : 2402 MHz |
| Frequency Range | 1GHz ~ 25GHz | Detector Function | Peak (PK) Average (AV) |

| Antenna Polarity & Test Distance : Horizontal at 3 m | | | | | | | | |
|--|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 2390.00 | 59.76 PK | 74.00 | -14.24 | 2.41 H | 40 | 25.30 | 34.46 |
| 2 | 2390.00 | 48.76 AV | 54.00 | -5.24 | 2.41 H | 40 | 14.30 | 34.46 |
| 3 | *2402.00 | 105.34 PK | | | 2.41 H | 40 | 70.90 | 34.44 |
| 4 | *2402.00 | 74.80 AV | | | 2.41 H | 40 | 40.36 | 34.44 |
| 5 | 4804.00 | 47.16 PK | 74.00 | -26.84 | 2.24 H | 175 | 44.80 | 2.36 |
| 6 | 4804.00 | 16.62 AV | 54.00 | -37.38 | 2.24 H | 175 | 14.26 | 2.36 |

| Antenna Polarity & Test Distance : Vertical at 3 m | | | | | | | | |
|--|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1 | 2390.00 | 59.36 PK | 74.00 | -14.64 | 2.00 V | 214 | 24.90 | 34.46 |
| 2 | 2390.00 | 48.66 AV | 54.00 | -5.34 | 2.00 V | 214 | 14.20 | 34.46 |
| 3 | *2402.00 | 101.14 PK | | | 2.00 V | 214 | 66.70 | 34.44 |
| 4 | *2402.00 | 70.60 AV | | | 2.00 V | 214 | 36.16 | 34.44 |
| 5 | 4804.00 | 46.86 PK | 74.00 | -27.14 | 1.83 V | 303 | 44.50 | 2.36 |
| 6 | 4804.00 | 16.32 AV | 54.00 | -37.68 | 1.83 V | 303 | 13.96 | 2.36 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * " : Fundamental frequency.
6. for Fundamental frequency and bandedge & harmonic:
The average value of fundamental frequency is :average = peak value + 20log(Duty cycle)
where the duty factor is calculated from following formula:
 $20\text{Log}(\text{Duty cycle}) = 20 \log (2.97\text{ms} \times 1/100) = -30.54\text{dB}$ please refer to the plotted duty (see section 3.3)

| | | | |
|-----------------|--------------|-------------------|---------------------------|
| RF Mode | TX BT_8DPSK | Channel | CH 39 : 2441 MHz |
| Frequency Range | 1GHz ~ 25GHz | Detector Function | Peak (PK) Average (AV) |

Antenna Polarity & Test Distance : Horizontal at 3 m

| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|----|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *2441.00 | 105.89 PK | | | 2.45 H | 39 | 71.50 | 34.39 |
| 2 | *2441.00 | 75.35 AV | | | 2.45 H | 39 | 40.96 | 34.39 |
| 3 | 4882.00 | 47.54 PK | 74.00 | -26.46 | 2.15 H | 171 | 45.00 | 2.54 |
| 4 | 4882.00 | 17.00 AV | 54.00 | -37.00 | 2.15 H | 171 | 14.46 | 2.54 |

Antenna Polarity & Test Distance : Vertical at 3 m

| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|----|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *2441.00 | 101.89 PK | | | 2.05 V | 211 | 67.50 | 34.39 |
| 2 | *2441.00 | 71.35 AV | | | 2.05 V | 211 | 36.96 | 34.39 |
| 3 | 4882.00 | 47.14 PK | 74.00 | -26.86 | 1.90 V | 299 | 44.60 | 2.54 |
| 4 | 4882.00 | 16.60 AV | 54.00 | -37.40 | 1.90 V | 299 | 14.06 | 2.54 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. for Fundamental frequency and bandedge & harmonic:
The average value of fundamental frequency is :average = peak value + 20log(Duty cycle)
where the duty factor is calculated from following formula:
 $20\text{Log}(\text{Duty cycle}) = 20 \log (2.97\text{ms} \cdot 1/100) = -30.54\text{dB}$ please refer to the plotted duty (see section 3.3)

| | | | |
|-----------------|--------------|-------------------|---------------------------|
| RF Mode | TX BT_8DPSK | Channel | CH 78 : 2480 MHz |
| Frequency Range | 1GHz ~ 25GHz | Detector Function | Peak (PK) Average (AV) |

Antenna Polarity & Test Distance : Horizontal at 3 m

| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|----|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *2480.00 | 108.54 PK | | | 2.27 H | 34 | 74.20 | 34.34 |
| 2 | *2480.00 | 78.00 AV | | | 2.27 H | 34 | 43.66 | 34.34 |
| 3 | 2483.50 | 68.10 PK | 74.00 | -5.90 | 2.27 H | 34 | 70.00 | -1.90 |
| 4 | 2483.50 | 37.56 AV | 54.00 | -16.44 | 2.27 H | 34 | 39.46 | -1.90 |
| 5 | 4960.00 | 47.89 PK | 74.00 | -26.11 | 2.09 H | 175 | 45.20 | 2.69 |
| 6 | 4960.00 | 17.35 AV | 54.00 | -36.65 | 2.09 H | 175 | 14.66 | 2.69 |

Antenna Polarity & Test Distance : Vertical at 3 m

| No | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
|----|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| 1 | *2480.00 | 104.34 PK | | | 3.01 V | 204 | 70.00 | 34.34 |
| 2 | *2480.00 | 73.80 AV | | | 3.01 V | 204 | 39.46 | 34.34 |
| 3 | 2483.50 | 64.30 PK | 74.00 | -9.70 | 3.01 V | 204 | 66.20 | -1.90 |
| 4 | 2483.50 | 33.76 AV | 54.00 | -20.24 | 3.01 V | 204 | 35.66 | -1.90 |
| 5 | 4960.00 | 47.49 PK | 74.00 | -26.51 | 1.78 V | 297 | 44.80 | 2.69 |
| 6 | 4960.00 | 16.95 AV | 54.00 | -37.05 | 1.78 V | 297 | 14.26 | 2.69 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission Level – Limit value
5. " * ": Fundamental frequency.
6. for Fundamental frequency and bandedge & harmonic:
 The average value of fundamental frequency is :average = peak value + 20log(Duty cycle)
 where the duty factor is calculated from following formula:
 $20\text{Log}(\text{Duty cycle}) = 20 \log (2.97\text{ms} \cdot 1/100) = -30.54\text{dB}$ please refer to the plotted duty
 (see section 3.3)

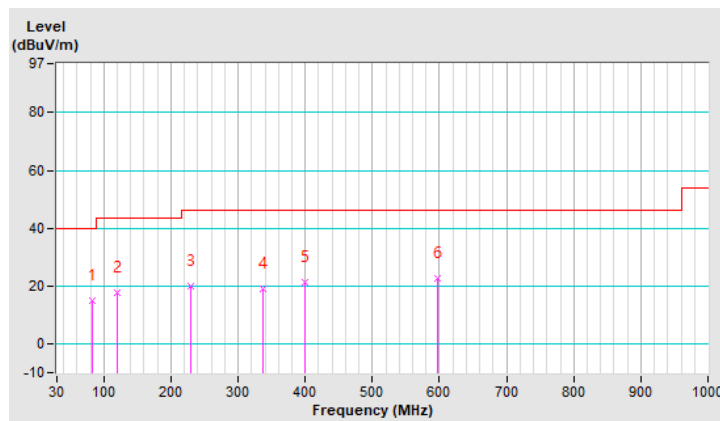
Below 1GHz worst-case data:

| | | | |
|-----------------|-------------|-------------------|------------------|
| RF Mode | TX BT_GFSK | Channel | CH 78 : 2480 MHz |
| Frequency Range | 9kHz ~ 1GHz | Detector Function | Quasi-Peak (QP) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | |
|---|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 82.38 | 15.1 QP | 40.0 | -24.9 | 2.00 H | 214 | 38.7 | -23.6 |
| 2 | 119.24 | 17.7 QP | 43.5 | -25.8 | 1.51 H | 203 | 38.2 | -20.5 |
| 3 | 228.85 | 19.8 QP | 46.0 | -26.2 | 1.51 H | 276 | 40.8 | -21.0 |
| 4 | 337.49 | 19.2 QP | 46.0 | -26.8 | 1.01 H | 220 | 35.8 | -16.6 |
| 5 | 399.57 | 21.4 QP | 46.0 | -24.6 | 1.01 H | 20 | 36.7 | -15.3 |
| 6 | 597.45 | 22.8 QP | 46.0 | -23.2 | 1.51 H | 305 | 33.1 | -10.3 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz.

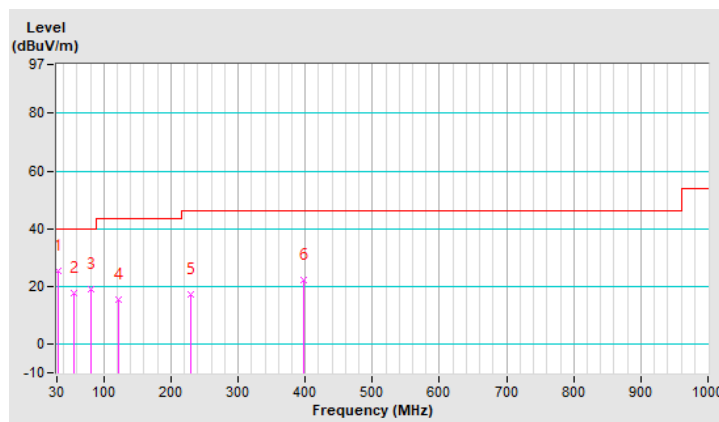


| | | | |
|-----------------|-------------|-------------------|------------------|
| RF Mode | TX BT_GFSK | Channel | CH 78 : 2480 MHz |
| Frequency Range | 9kHz ~ 1GHz | Detector Function | Quasi-Peak (QP) |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | |
|---|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1 | 31.94 | 25.4 QP | 40.0 | -14.6 | 1.00 V | 208 | 44.8 | -19.4 |
| 2 | 56.19 | 17.8 QP | 40.0 | -22.2 | 1.00 V | 252 | 36.2 | -18.4 |
| 3 | 81.41 | 19.1 QP | 40.0 | -20.9 | 1.49 V | 311 | 42.6 | -23.5 |
| 4 | 121.18 | 15.4 QP | 43.5 | -28.1 | 1.49 V | 145 | 35.7 | -20.3 |
| 5 | 228.85 | 17.1 QP | 46.0 | -28.9 | 1.00 V | 2 | 38.1 | -21.0 |
| 6 | 398.60 | 22.3 QP | 46.0 | -23.7 | 1.49 V | 165 | 37.6 | -15.3 |

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz.



4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

| Frequency (MHz) | Conducted Limit (dBuV) | |
|-----------------|------------------------|---------|
| | Quasi-peak | Average |
| 0.15 - 0.5 | 66 - 56 | 56 - 46 |
| 0.50 - 5.0 | 56 | 46 |
| 5.0 - 30.0 | 60 | 50 |

- Note:** 1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

| Description & Manufacturer | Model No. | Serial No. | Date Of Calibration | Due Date Of Calibration |
|---|--------------------------|----------------|---------------------|-------------------------|
| Test Receiver ROHDE & SCHWARZ | ESCI | 100613 | Dec. 04, 2020 | Dec. 03, 2021 |
| RF signal cable Woken | 5D-FB | Cable-cond1-01 | Jan. 16, 2021 | Jan. 15, 2022 |
| LISN/AMN ROHDE & SCHWARZ (EUT) | ENV216 | 101826 | Feb. 25, 2021 | Feb. 24, 2022 |
| LISN/AMN ROHDE & SCHWARZ (Peripheral) | ESH3-Z5 | 100311 | Aug. 28, 2020 | Aug. 27, 2021 |
| Software ADT | BV ADT_Cond_ V7.3.7.4 | NA | NA | NA |

- Note:** 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The test was performed in HwaYa Shielded Room 1 (Conduction 1).
 3. The VCCI Site Registration No. is C-12040.

4.2.3 Test Procedures

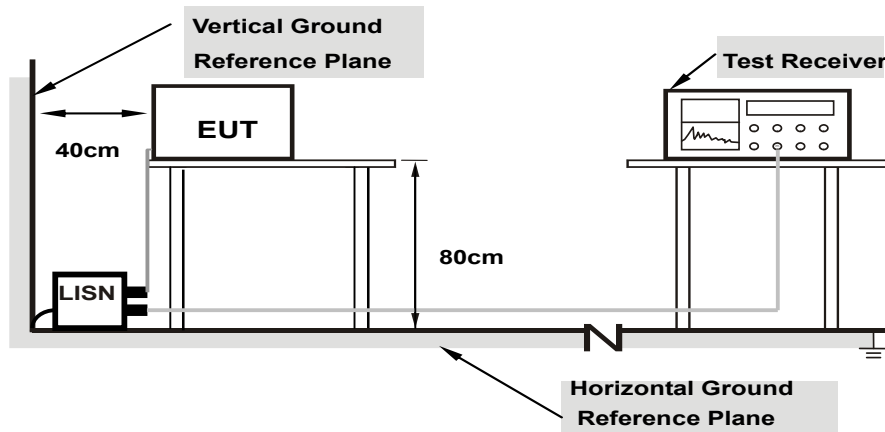
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT Operating Conditions

Same as 4.1.6.

4.2.7 Test Results

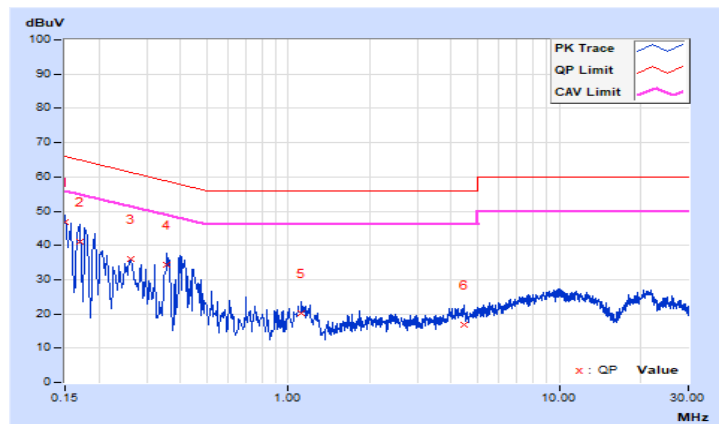
GFSK

| | | | |
|---------|------------|-------------------|--------------------------------|
| Phase | Line (L) | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Channel | Channel 78 | | |

| No | Freq. [MHz] | Corr. Factor (dB) | Reading Value [dB (uV)] | | Emission Level [dB (uV)] | | Limit [dB (uV)] | | Margin (dB) | |
|----|----------------|-------------------------|----------------------------|---------|-----------------------------|-------|--------------------|-------|----------------|--------|
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| | | | 1 | 0.15000 | 9.71 | 37.22 | 19.17 | 46.93 | 28.88 | 66.00 |
| 2 | 0.16977 | 9.71 | 31.33 | 14.21 | 41.04 | 23.92 | 64.97 | 54.97 | -23.93 | -31.05 |
| 3 | 0.26083 | 9.72 | 26.40 | 20.49 | 36.12 | 30.21 | 61.40 | 51.40 | -25.28 | -21.19 |
| 4 | 0.35800 | 9.73 | 24.77 | 20.59 | 34.50 | 30.32 | 58.77 | 48.77 | -24.27 | -18.45 |
| 5 | 1.11800 | 9.76 | 10.32 | 5.65 | 20.08 | 15.41 | 56.00 | 46.00 | -35.92 | -30.59 |
| 6 | 4.46600 | 9.80 | 6.99 | 1.01 | 16.79 | 10.81 | 56.00 | 46.00 | -39.21 | -35.19 |

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

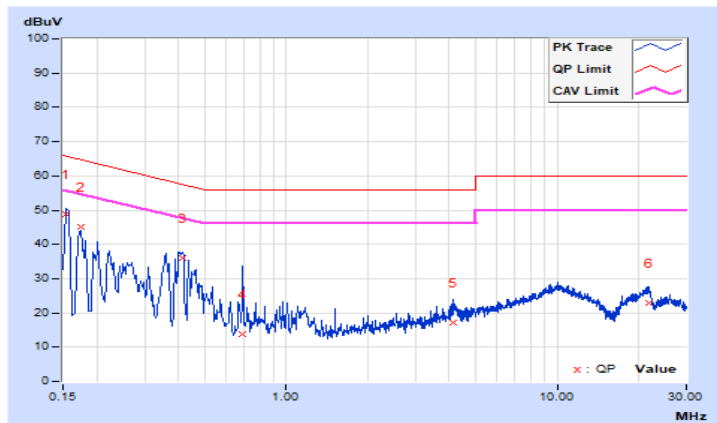


| | | | |
|---------|-------------|-------------------|--------------------------------|
| Phase | Neutral (N) | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Channel | Channel 78 | | |

| No | Freq. [MHz] | Corr. Factor (dB) | Reading Value [dB (uV)] | | Emission Level [dB (uV)] | | Limit [dB (uV)] | | Margin (dB) | |
|----|----------------|----------------------|----------------------------|----------------|-----------------------------|--------------|--------------------|--------------|----------------|--------------|
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| | | | 1 | 0.15400 | 9.77 | 38.97 | 20.68 | 48.74 | 30.45 | 65.78 |
| 2 | 0.17384 | 9.77 | 35.36 | 16.35 | 45.13 | 26.12 | 64.77 | 54.77 | -19.64 | -28.65 |
| 3 | 0.41361 | 9.79 | 26.22 | 18.13 | 36.01 | 27.92 | 57.58 | 47.58 | -21.57 | -19.66 |
| 4 | 0.69000 | 9.80 | 4.05 | 2.31 | 13.85 | 12.11 | 56.00 | 46.00 | -42.15 | -33.89 |
| 5 | 4.12600 | 9.85 | 7.42 | 0.12 | 17.27 | 9.97 | 56.00 | 46.00 | -38.73 | -36.03 |
| 6 | 21.70200 | 9.99 | 12.94 | 8.14 | 22.93 | 18.13 | 60.00 | 50.00 | -37.07 | -31.87 |

REMARKS:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



4.3 Maximum Output Power

4.3.1 Limits of Maximum Output Power Measurement

Refer to Regulation 15.247 (a)(1), the Maximum Output Power Measurement is 125mW.

4.3.2 Test Setup



4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

4.3.4 Test Procedure

A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value

4.3.5 Deviation from Test Standard

No deviation.

4.3.6 EUT Operating Condition

The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.

4.3.7 Test Results

Peak Power

| Channel | Frequency (MHz) | Output Power (mW) | | Output Power (dBm) | | Power Limit (mW) | Pass / Fail |
|---------|-----------------|-------------------|--------|--------------------|-------|------------------|-------------|
| | | GFSK | 8DPSK | GFSK | 8DPSK | | |
| 0 | 2402 | 9.376 | 7.112 | 9.72 | 8.52 | 125 | Pass |
| 39 | 2441 | 10.069 | 9.333 | 10.03 | 9.70 | 125 | Pass |
| 78 | 2480 | 11.143 | 10.471 | 10.47 | 10.20 | 125 | Pass |

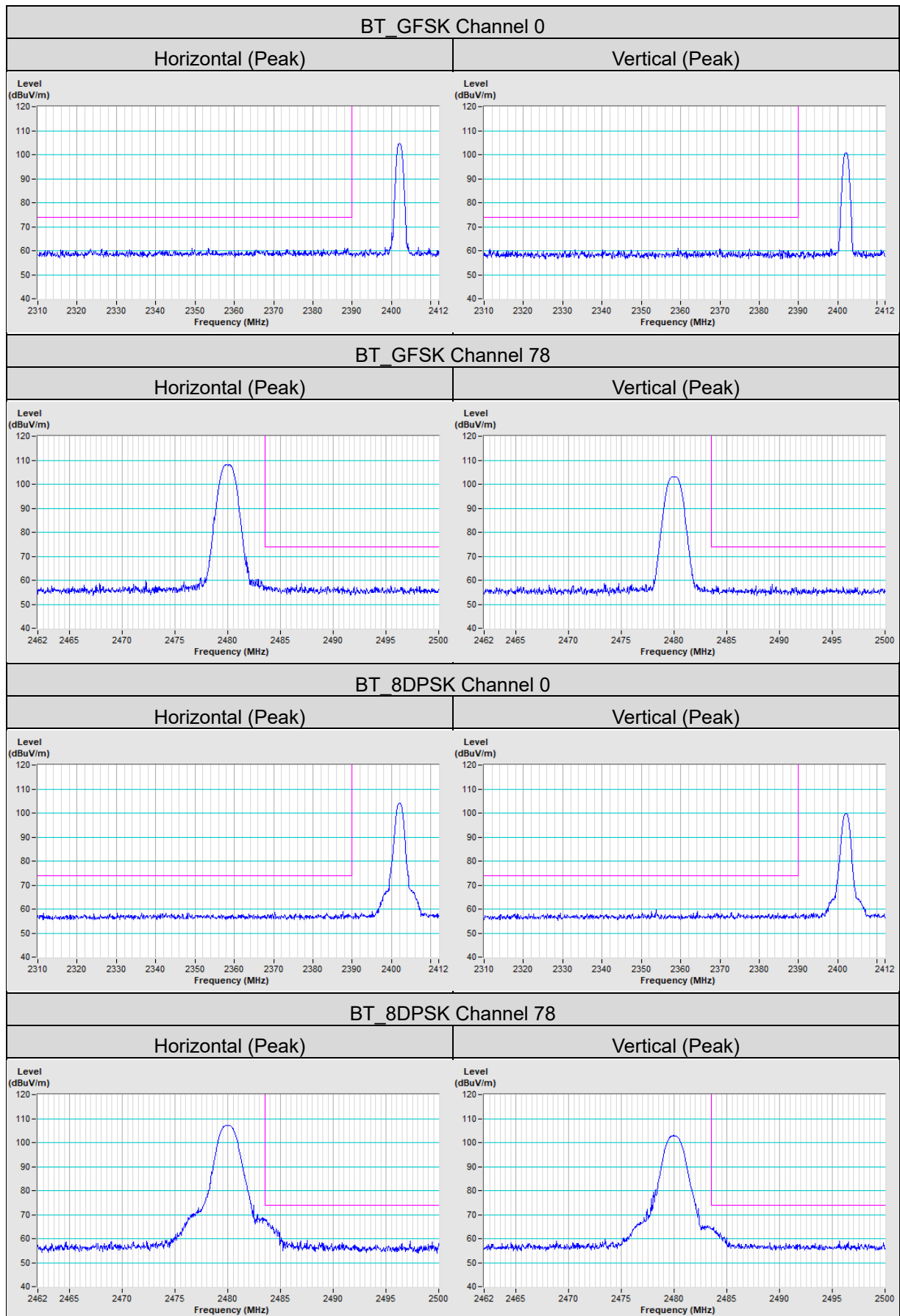
Average Power

| Channel | Frequency (MHz) | Average Power Output (mW) | | Average Power Output (dBm) | |
|---------|-----------------|---------------------------|-------|----------------------------|-------|
| | | GFSK | 8DPSK | GFSK | 8DPSK |
| 0 | 2402 | 9.247 | 6.998 | 9.66 | 8.45 |
| 39 | 2441 | 9.954 | 7.031 | 9.98 | 8.47 |
| 78 | 2480 | 11.041 | 7.852 | 10.43 | 8.95 |

5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Annex A- Band Edge Measurement



Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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The address and road map of all our labs can be found in our web site also.

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