

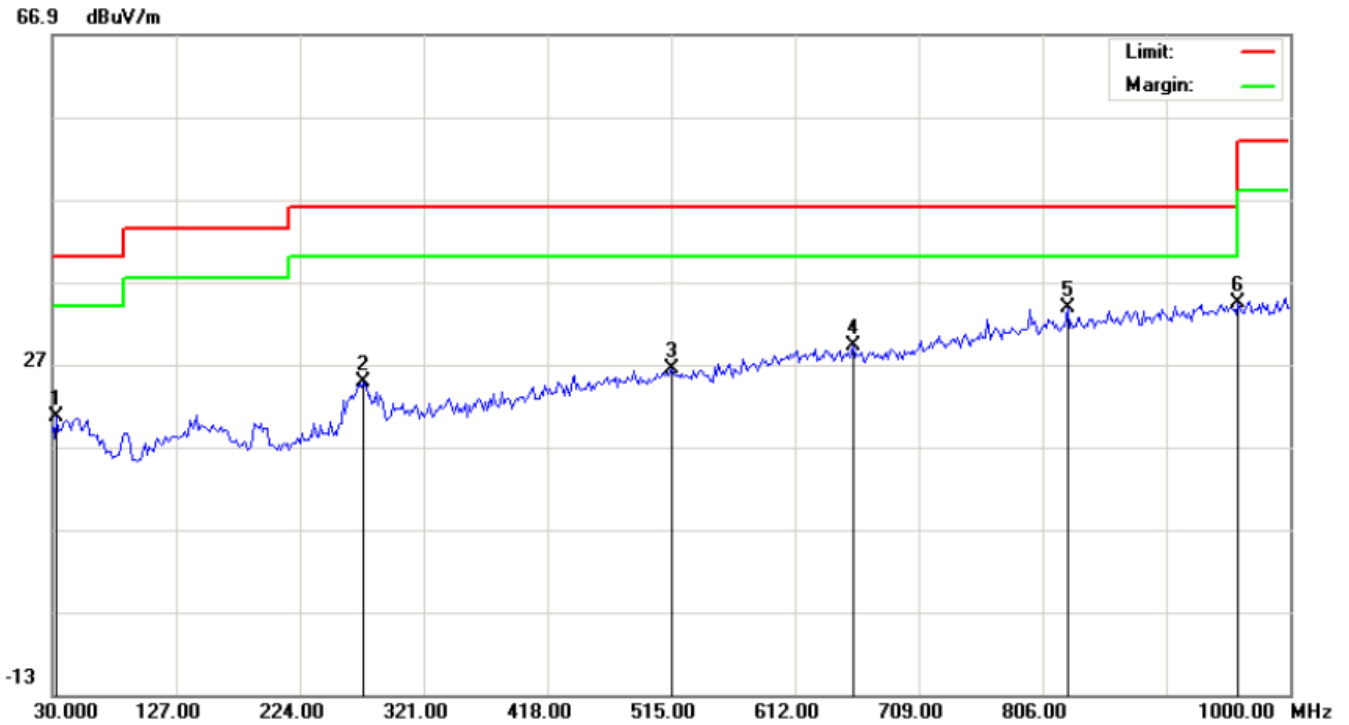
11.4. TEST RESULT

RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

RADIATED EMISSION BELOW 1GHZ

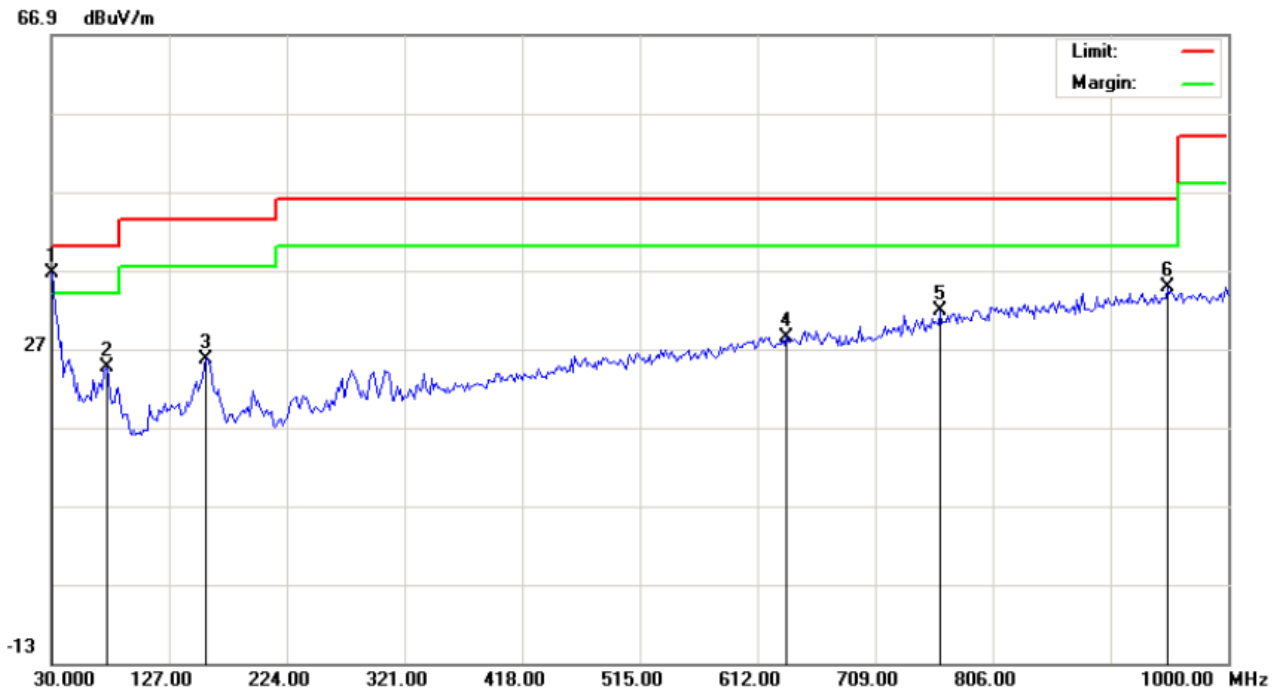
RADIATED EMISSION TEST- (30MHZ-1GHZ) -HORIZONTAL



| No. | Mk | Freq. | Reading | Factor | Measurement | Limit | Over | Detector | Antenna Height | Table Degree | Comment |
|-----|----|----------|---------|--------|-------------|--------|--------|----------|----------------|--------------|---------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | cm | degree | |
| 1 | | 33.2333 | 2.33 | 18.27 | 20.60 | 40.00 | -19.40 | peak | | | |
| 2 | | 274.1167 | 5.27 | 19.46 | 24.73 | 46.00 | -21.27 | peak | | | |
| 3 | | 515.0000 | 1.21 | 25.28 | 26.49 | 46.00 | -19.51 | peak | | | |
| 4 | | 657.2667 | 1.65 | 27.64 | 29.29 | 46.00 | -16.71 | peak | | | |
| 5 | | 825.4000 | 3.14 | 30.74 | 33.88 | 46.00 | -12.12 | peak | | | |
| 6 | * | 959.5833 | 2.16 | 32.21 | 34.37 | 46.00 | -11.63 | peak | | | |

RESULT: PASS

RADIATED EMISSION TEST- (30MHZ-1GHZ) -VERTICAL



| No. | Mk | Freq. | Reading | Factor | Measurement | Limit | Over | Detector | Antenna Height | Table Degree | Comment |
|-----|----|----------|---------|--------|-------------|--------|--------|----------|----------------|--------------|---------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | cm | degree | |
| 1 | * | 30.0000 | 18.44 | 18.17 | 36.61 | 40.00 | -3.39 | peak | | | |
| 2 | | 75.2667 | 8.66 | 15.97 | 24.63 | 40.00 | -15.37 | peak | | | |
| 3 | | 157.7167 | 6.44 | 19.19 | 25.63 | 43.50 | -17.87 | peak | | | |
| 4 | | 636.2500 | 1.12 | 27.38 | 28.50 | 46.00 | -17.50 | peak | | | |
| 5 | | 762.3500 | 2.20 | 29.56 | 31.76 | 46.00 | -14.24 | peak | | | |
| 6 | | 949.8833 | 2.58 | 32.13 | 34.71 | 46.00 | -11.29 | peak | | | |

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin= Result -Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

3. All test modes had been pre-tested. The 802.11b at low channel is the worst case and recorded in the report.

RADIATED EMISSION ABOVE 1GHZ

| Frequency (MHz) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Detector Type | Comment |
|--------------------|----------------------------|--------------------|----------------|------------------|------------|
| TX 11b 2412MHz | | | | | |
| 4824 | 49.51 | 74 | -24.49 | Pk | Horizontal |
| 4824 | 35.64 | 54 | -18.36 | AV | Horizontal |
| 7236 | 51.24 | 74 | -22.76 | pk | Horizontal |
| 7236 | 33.16 | 54 | -20.84 | AV | Horizontal |
| 4824 | 51.42 | 74 | -22.58 | Pk | Vertical |
| 4824 | 33.78 | 54 | -20.22 | AV | Vertical |
| 7236 | 48.60 | 74 | -25.40 | Pk | Vertical |
| 7236 | 38.44 | 54 | -15.56 | AV | Vertical |
| TX 11b 2437MHz | | | | | |
| 4874 | 50.10 | 74 | -23.9 | Pk | Horizontal |
| 4874 | 31.86 | 54 | -22.14 | AV | Horizontal |
| 7311 | 47.64 | 74 | -26.36 | Pk | Horizontal |
| 7311 | 33.49 | 54 | -20.51 | AV | Horizontal |
| 4874 | 49.76 | 74 | -24.24 | Pk | Vertical |
| 4874 | 39.72 | 54 | -14.28 | AV | Vertical |
| 7311 | 45.73 | 74 | -28.27 | Pk | Vertical |
| 7311 | 38.11 | 54 | -15.89 | AV | Vertical |
| TX 11b 2462MHz | | | | | |
| 4924 | 49.51 | 74 | -24.49 | Pk | Horizontal |
| 4924 | 31.78 | 54 | -22.22 | AV | Horizontal |
| 7386 | 47.74 | 74 | -26.26 | Pk | Horizontal |
| 7386 | 33.24 | 54 | -20.76 | AV | Horizontal |
| 4924 | 50.88 | 74 | -23.12 | Pk | Vertical |
| 4924 | 38.85 | 54 | -15.15 | AV | Vertical |
| 7386 | 45.95 | 74 | -28.05 | Pk | Vertical |
| 7386 | 37.13 | 54 | -16.87 | AV | Vertical |

RESULT: PASS

Note:

1. Margin = Emission Level - Limit

2.1GHz-25GHz(All test modes had been pre-tested. The 802.11b mode is the worst case and recorded in the report. No recording in the test report at least have 20dB margin).

12. BAND EDGE EMISSION

12.1. MEASUREMENT PROCEDURE

1) Radiated restricted band edge measurements

The radiated restricted band edge measurements are measured with an EMI test receiver connected to the receive antenna while the EUT is transmitting

2) Conducted Emissions at the bang edge

- a) The transmitter output was connected to the spectrum analyzer
- b) Set RBW=1MHz, VBW=3MHz
- c) Suitable frequency span including 100kHz bandwidth from band edge

12.2. TEST SET-UP

Radiated same as 11.2

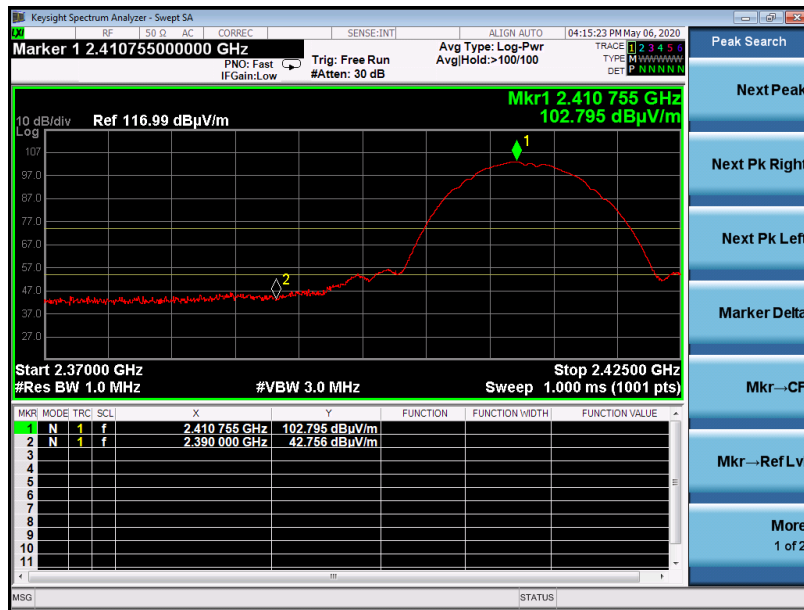
Note:

1. Factor=Antenna Factor + Cable loss - Amplifier gain. Field Strength=Factor + Reading level
2. The factor had been edited in the "Input Correction" of the Spectrum Analyzer. So the Amplitude of test plots is equal to Reading level plus the Factor in dB. Use the A dB(μ V) to represent the Amplitude. Use the F dB(μ V/m) to represent the Field Strength. So A=F.

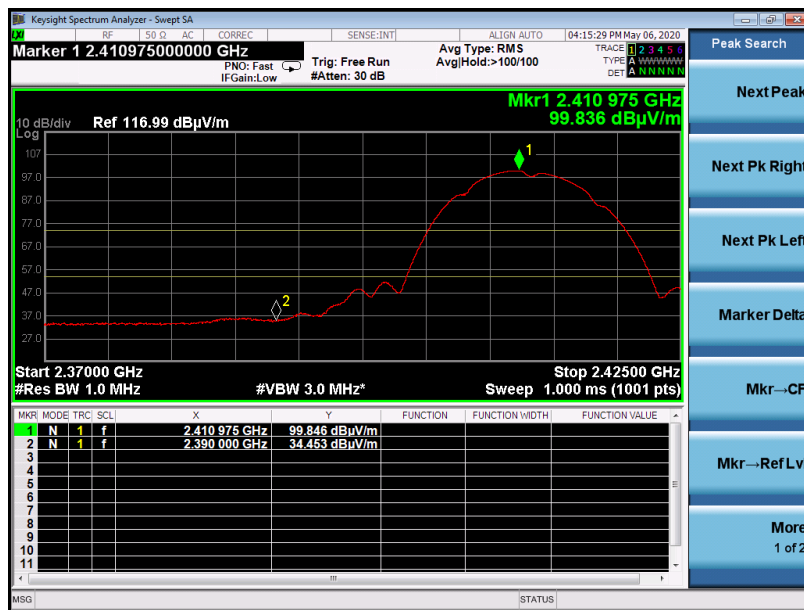
12.3. TEST RESULT

| | | | |
|-------------|-------------------------------------|-------------------|----------------|
| EUT | Mara Phones X1 | Model Name | Mara Phones X1 |
| Temperature | 25°C | Relative Humidity | 55.4% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11b with data rate 1 2412MHZ | Antenna | Horizontal |

PK



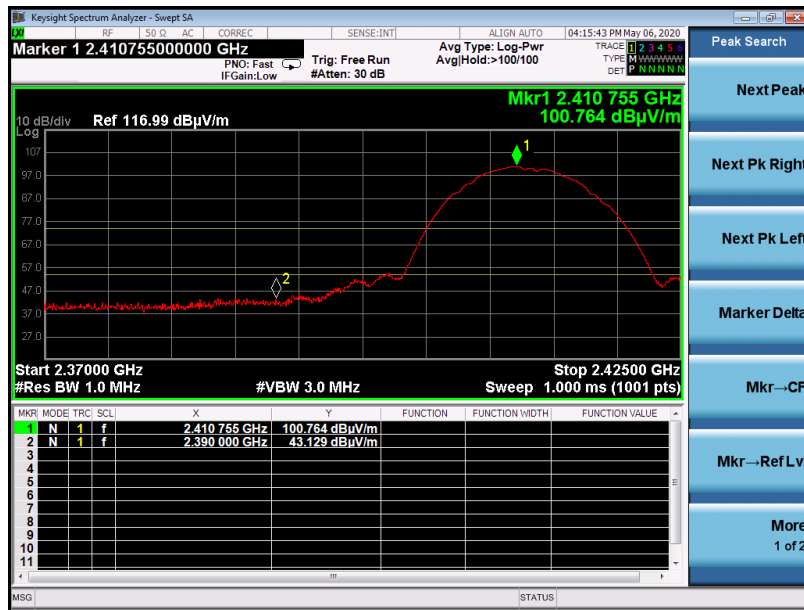
AV



RESULT: PASS

| | | | |
|-------------|-------------------------------------|-------------------|----------------|
| EUT | Mara Phones X1 | Model Name | Mara Phones X1 |
| Temperature | 25°C | Relative Humidity | 55.4% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11b with data rate 1 2412MHZ | Antenna | Vertical |

PK



AV



RESULT: PASS

| | | | |
|-------------|-------------------------------------|-------------------|----------------|
| EUT | Mara Phones X1 | Model Name | Mara Phones X1 |
| Temperature | 25°C | Relative Humidity | 55.4% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11b with data rate 1 2462MHZ | Antenna | Horizontal |

PK



AV



RESULT: PASS

| | | | |
|-------------|-------------------------------------|-------------------|----------------|
| EUT | Mara Phones X1 | Model Name | Mara Phones X1 |
| Temperature | 25°C | Relative Humidity | 55.4% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11b with data rate 1 2462MHZ | Antenna | Vertical |

PK



AV



RESULT: PASS

| | | | |
|-------------|-------------------------------------|-------------------|----------------|
| EUT | Mara Phones X1 | Model Name | Mara Phones X1 |
| Temperature | 25°C | Relative Humidity | 55.4% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11g with data rate 6 2412MHZ | Antenna | Horizontal |

PK



AV



RESULT: PASS

| | | | |
|-------------|-------------------------------------|-------------------|----------------|
| EUT | Mara Phones X1 | Model Name | Mara Phones X1 |
| Temperature | 25°C | Relative Humidity | 55.4% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11g with data rate 6 2412MHZ | Antenna | Vertical |

PK



AV



RESULT: PASS

| | | | |
|-------------|-------------------------------------|-------------------|----------------|
| EUT | Mara Phones X1 | Model Name | Mara Phones X1 |
| Temperature | 25°C | Relative Humidity | 55.4% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11g with data rate 6 2462MHZ | Antenna | Horizontal |

PK



AV



RESULT: PASS

| | | | |
|-------------|-------------------------------------|-------------------|----------------|
| EUT | Mara Phones X1 | Model Name | Mara Phones X1 |
| Temperature | 25°C | Relative Humidity | 55.4% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11g with data rate 6 2462MHZ | Antenna | Vertical |

PK



AV



RESULT: PASS

| | | | |
|-------------|--|-------------------|----------------|
| EUT | Mara Phones X1 | Model Name | Mara Phones X1 |
| Temperature | 25°C | Relative Humidity | 55.4% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11n 20 with data rate 6.5 2412MHZ | Antenna | Horizontal |

PK



AV



RESULT: PASS

| | | | |
|-------------|--|-------------------|----------------|
| EUT | Mara Phones X1 | Model Name | Mara Phones X1 |
| Temperature | 25°C | Relative Humidity | 55.4% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11n 20 with data rate 6.5 2412MHZ | Antenna | Vertical |

PK



AV



RESULT: PASS

| | | | |
|-------------|--|-------------------|----------------|
| EUT | Mara Phones X1 | Model Name | Mara Phones X1 |
| Temperature | 25°C | Relative Humidity | 55.4% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11n 20 with data rate 6.5 2462MHZ | Antenna | Horizontal |

PK



AV



RESULT: PASS

| | | | |
|-------------|--|-------------------|----------------|
| EUT | Mara Phones X1 | Model Name | Mara Phones X1 |
| Temperature | 25°C | Relative Humidity | 55.4% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11n 20 with data rate 6.5 2462MHZ | Antenna | Vertical |

PK



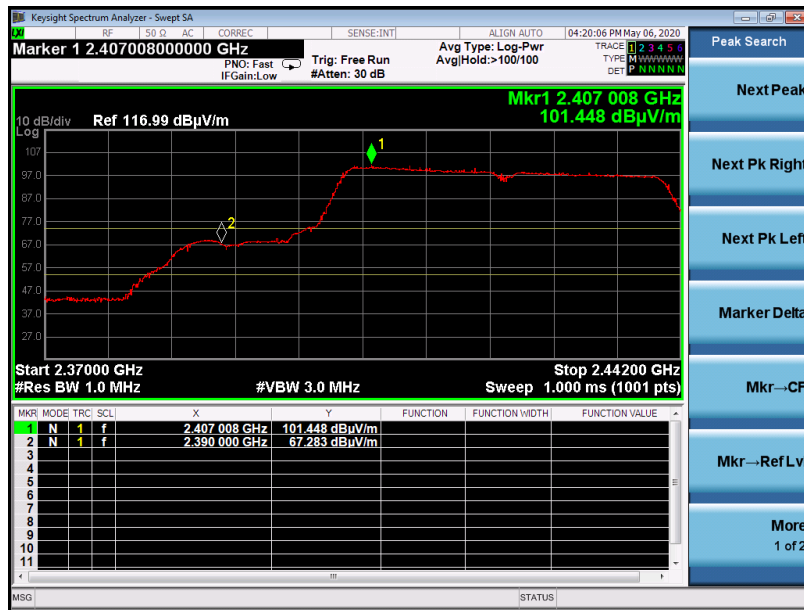
AV



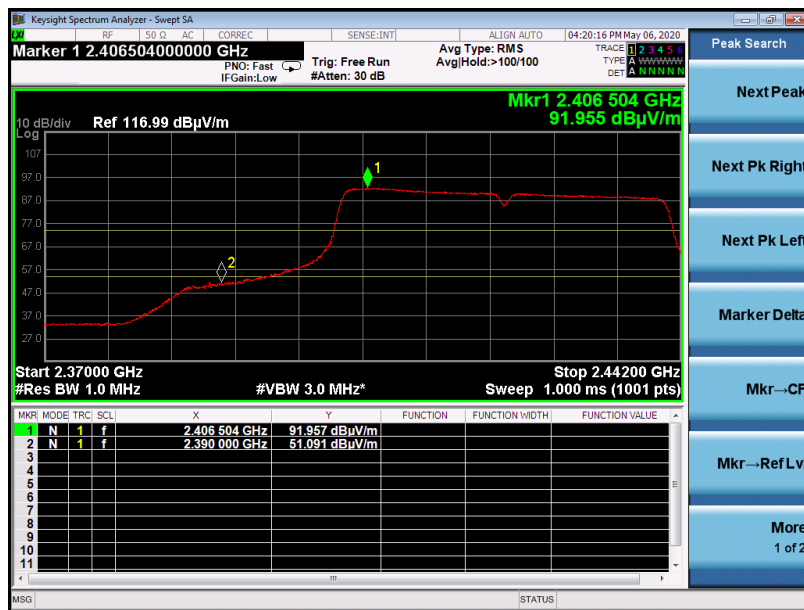
RESULT: PASS

| | | | |
|-------------|---|-------------------|----------------|
| EUT | Smart phone | Model Name | X2 |
| Temperature | 25°C | Relative Humidity | 52% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11n 40 with data rate 13.5 2422MHZ | Antenna | Horizontal |

PK



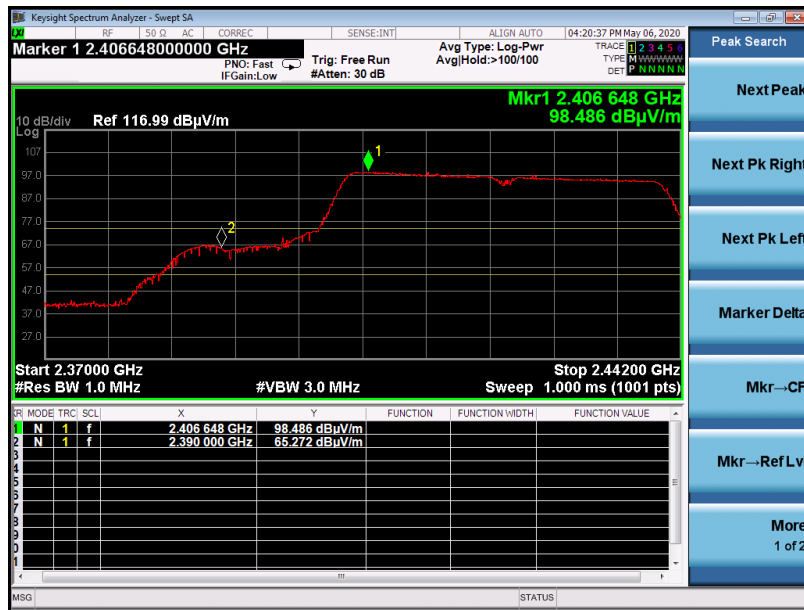
AV



RESULT: PASS

| | | | |
|-------------|---|-------------------|----------------|
| EUT | Smart phone | Model Name | X2 |
| Temperature | 25°C | Relative Humidity | 52% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11n 40 with data rate 13.5 2422MHZ | Antenna | Vertical |

PK



AV



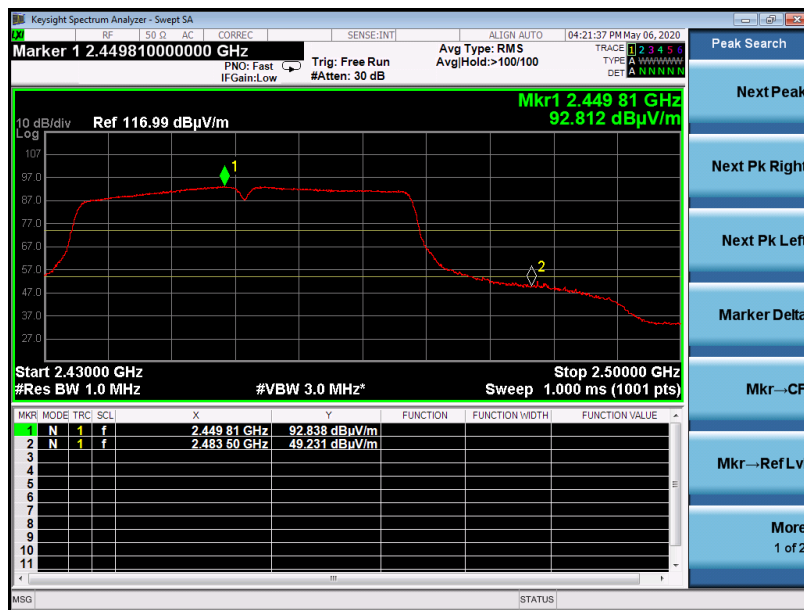
RESULT: PASS

| | | | |
|-------------|--|-------------------|----------------|
| EUT | Smart phone | Model Name | X2 |
| Temperature | 25°C | Relative Humidity | 52% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11n 40with data rate 13.5 2452MHZ | Antenna | Horizontal |

PK



AV



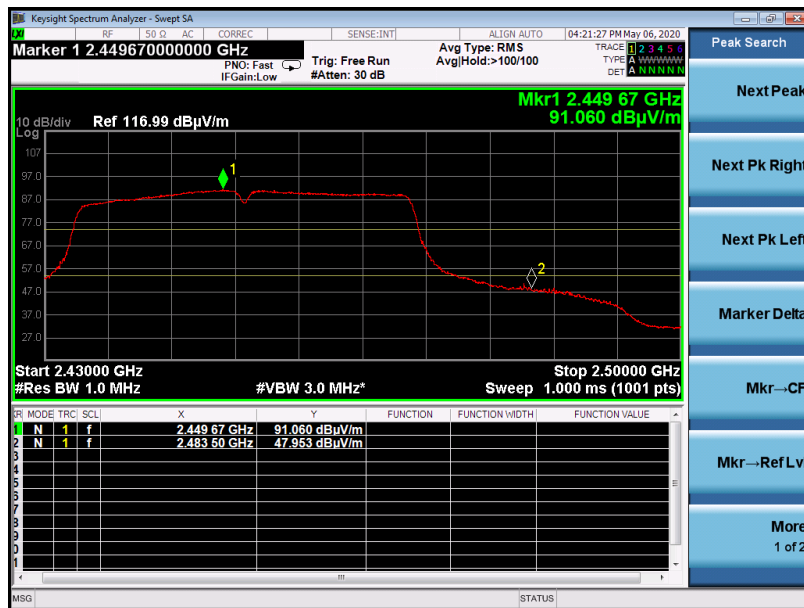
RESULT: PASS

| | | | |
|-------------|---|-------------------|----------------|
| EUT | Smart phone | Model Name | X2 |
| Temperature | 25°C | Relative Humidity | 52% |
| Pressure | 960hPa | Test Voltage | Normal Voltage |
| Test Mode | 802.11n 40 with data rate 13.5 2452MHZ | Antenna | Vertical |

PK



AV



RESULT: PASS

13. FCC LINE CONDUCTED EMISSION TEST

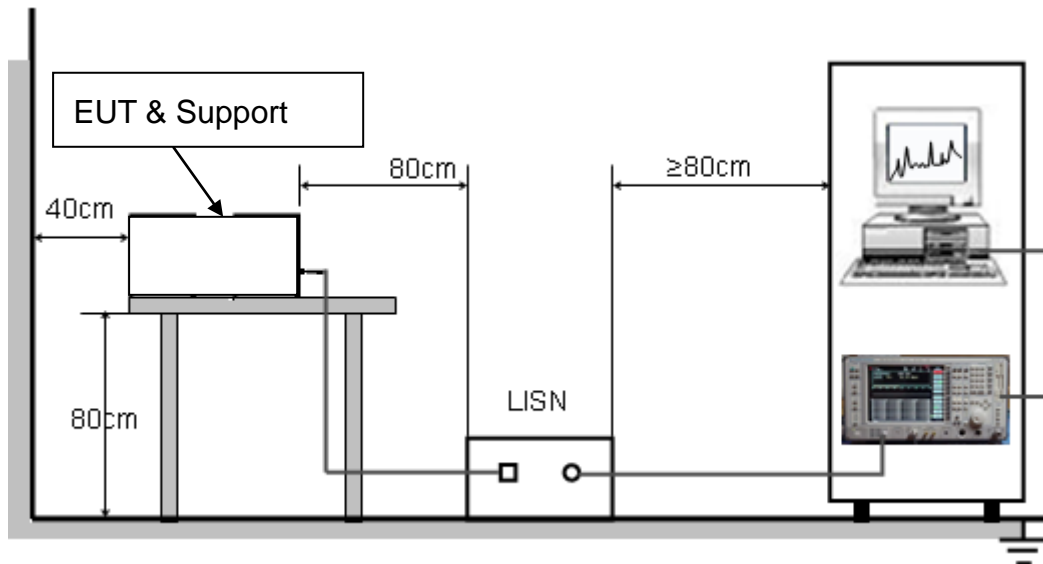
13.1. LIMITS OF LINE CONDUCTED EMISSION TEST

| Frequency | Maximum RF Line Voltage | |
|---------------|-------------------------|----------------|
| | Q.P.(dBuV) | Average(dBuV) |
| 150kHz~500kHz | 66-56 | 56-46 |
| 500kHz~5MHz | 56 | 46 |
| 5MHz~30MHz | 60 | 50 |

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

13.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



13.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a Mara Phones X1 op system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. All support equipments received AC120V/60Hz power from a LISN, if any.
5. The EUT received charging voltage by adapter which received 120V/60Hzpower by a LISN..
6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.
9. The test mode(s) were scanned during the preliminary test.

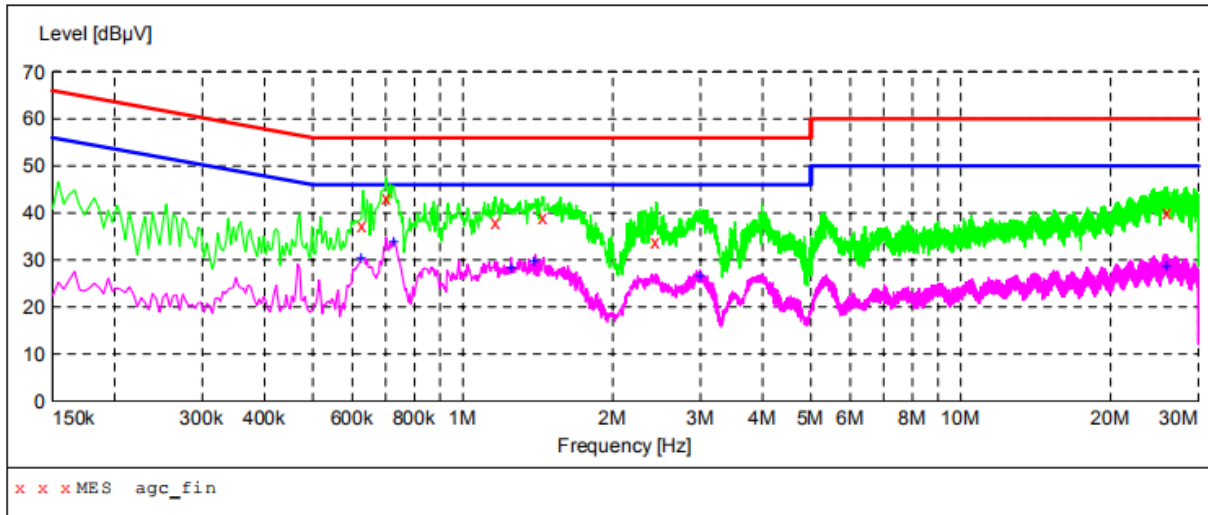
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

13.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
3. The test data of the worst case condition(s) was reported on the Summary Data page.

13.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

LINE CONDUCTED EMISSION TEST LINE 1-L



MEASUREMENT RESULT: "agc_fin"

2020/4/16 19:42

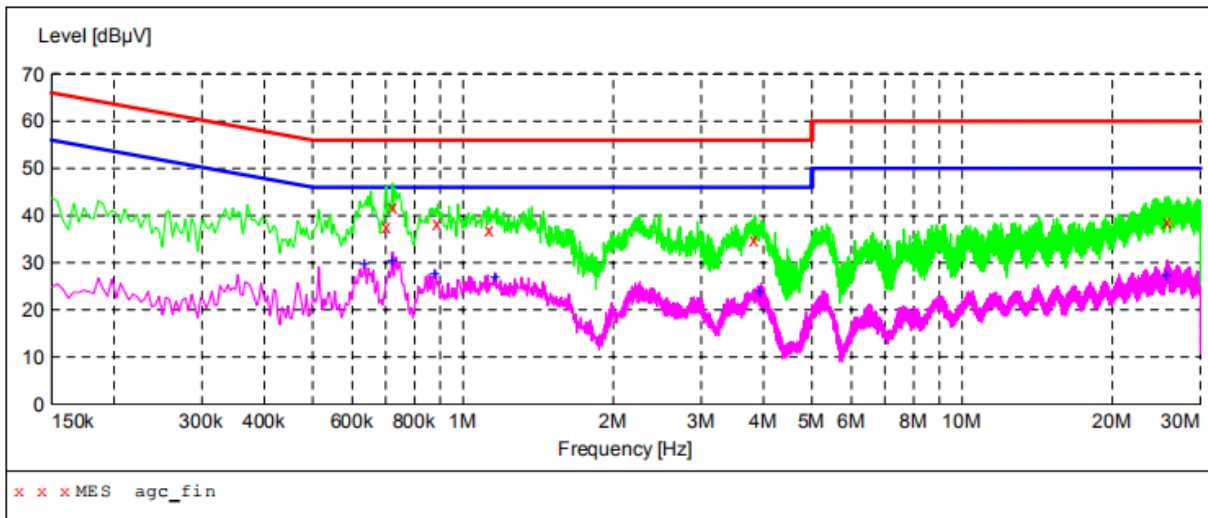
| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.630000 | 37.30 | 11.3 | 56 | 18.7 | QP | L1 | FLO |
| 0.702000 | 43.20 | 11.3 | 56 | 12.8 | QP | L1 | FLO |
| 1.162000 | 38.00 | 11.3 | 56 | 18.0 | QP | L1 | FLO |
| 1.454000 | 39.10 | 11.3 | 56 | 16.9 | QP | L1 | FLO |
| 2.446000 | 33.90 | 11.4 | 56 | 22.1 | QP | L1 | FLO |
| 25.962000 | 39.90 | 12.6 | 60 | 20.1 | QP | L1 | FLO |

MEASUREMENT RESULT: "agc_fin2"

2020/4/16 19:42

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.626000 | 30.20 | 11.3 | 46 | 15.8 | AV | L1 | FLO |
| 0.726000 | 33.80 | 11.3 | 46 | 12.2 | AV | L1 | FLO |
| 1.250000 | 28.40 | 11.3 | 46 | 17.6 | AV | L1 | FLO |
| 1.398000 | 29.50 | 11.3 | 46 | 16.5 | AV | L1 | FLO |
| 2.994000 | 26.40 | 11.4 | 46 | 19.6 | AV | L1 | FLO |
| 25.902000 | 28.70 | 12.6 | 50 | 21.3 | AV | L1 | FLO |

Line Conducted Emission Test Line 2-N



MEASUREMENT RESULT: "agc_fin"

2020/4/16 19:45

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.702000 | 37.70 | 11.3 | 56 | 18.3 | QP | N | FLO |
| 0.722000 | 41.60 | 11.3 | 56 | 14.4 | QP | N | FLO |
| 0.890000 | 38.30 | 11.3 | 56 | 17.7 | QP | N | FLO |
| 1.130000 | 36.90 | 11.3 | 56 | 19.1 | QP | N | FLO |
| 3.846000 | 34.90 | 11.4 | 56 | 21.1 | QP | N | FLO |
| 25.774000 | 38.50 | 12.6 | 60 | 21.5 | QP | N | FLO |

MEASUREMENT RESULT: "agc_fin2"

2020/4/16 19:45

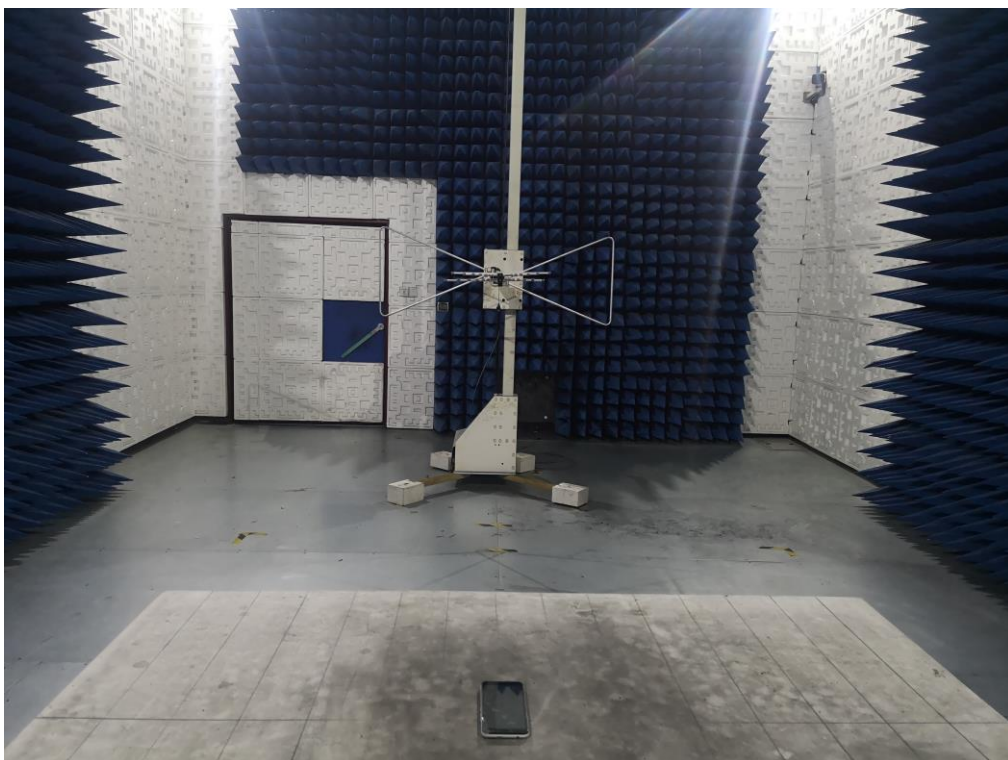
| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.634000 | 29.70 | 11.3 | 46 | 16.3 | AV | N | FLO |
| 0.722000 | 30.50 | 11.3 | 46 | 15.5 | AV | N | FLO |
| 0.882000 | 27.50 | 11.3 | 46 | 18.5 | AV | N | FLO |
| 1.162000 | 26.80 | 11.3 | 46 | 19.2 | AV | N | FLO |
| 3.954000 | 23.70 | 11.4 | 46 | 22.3 | AV | N | FLO |
| 25.774000 | 27.30 | 12.6 | 50 | 22.7 | AV | N | FLO |

APPENDIX A: PHOTOGRAPHS OF TEST SETUP

LINE CONDUCTED EMISSION TEST SETUP



RADIATED EMISSION TEST SETUP



RADIATED EMISSION ABOVE 1G TEST SETUP



----END OF REPORT----