





FCC RADIO TEST REPORT

| FCC ID | : IHDT56XS1 |
|--------------|---|
| Equipment | : Mobile Cellular Phone |
| Brand Name | : Motorola |
| Model Name | : XT1980-4 |
| Applicant | : Motorola Mobility LLC |
| | 222 W, Merchandise Mart Plaza, Chicago IL 60654 USA |
| Manufacturer | : Motorola Mobility LLC |
| | 222 W, Merchandise Mart Plaza, Chicago IL 60654 USA |
| Standard | : FCC Part 15 Subpart C §15.225 |

The product was received on Mar. 05, 2019 and testing was started from Mar. 23, 2019 and completed on Apr. 17, 2019. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Jones Tsai SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



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History of this test report

| Version | Description | Issued Date |
|---------|-------------------------|---------------|
| 01 | Initial issue of report | Apr. 19, 2019 |
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Summary of Test Result

| Report Clause | Ref Std. Clause | Test Items | Result (PASS/FAIL) | Remark |
|------------------|---------------------|--|-----------------------|--|
| 3.1 | 15.207 | AC Power Line Conducted Emissions | Pass | Under limit 4.10 dB at 13.560MHz |
| 3.2 | 15.225(a)(b)(c) | Field Strength of Fundamental Emissions | Pass | Max level 28.24 dBµV/m at 13.560 MHz |
| 3.3 | 15.225(d) 15.209 | Radiated Spurious Emissions | Pass | Under limit 7.75 dB at 67.800MHz |
| 3.4 | 15.203 | Antenna Requirements | Pass | - |

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: Wii Chang

Report Producer: Maggie Chiang



1. General Description

1.1 Product Feature of Equipment Under Test

| Product Feature | | | |
|---------------------|---|-----------------|--|
| Equipment | Mobile Cellular Phone | | |
| Brand Name | Motorola | | |
| Model Name | XT1980-4 | | |
| FCC ID | IHDT56XS1 | | |
| IMEI Code | Conduction : | 352157100008509 | |
| INIELCODE | Radiation : | 352157100011156 | |
| | CDMA/EV-DO/GSM/EGPRS/WCDMA/HSPA/LTE/GNSS/NFC/FM/WPC | | |
| EUT supports Radios | WLAN 11a/b/g/n HT20/HT40 | | |
| application | WLAN 11ac VHT20/VHT40/VHT80 | | |
| | Bluetooth BR/EDR/LE | | |
| HW Version | DVT2 | | |
| EUT Stage | Identical Prototype | | |

Remark: The above EUT's information was declared by manufacturer.

| Accessory List | | |
|----------------|--------------|----------|
| | Brand Name : | Motorola |
| WPC Cover | Model Name : | MD100W |

1.2 Product Specification of Equipment Under Test

| Standards-related Product Specification | | |
|---|----------|--|
| Tx/Rx Frequency | 13.56MHz | |
| Channel Number | 1 | |
| Antenna Type Loop Antenna | | |
| Type of Modulation ASK | | |

Remark: The above EUT's information was declared by manufacturer.

1.3 Modification of EUT

No modifications are made to the EUT during all test items.



1.4 Testing Location

| Test Site | SPORTON INTERNATIONAL INC. | | |
|--------------------|---|--|--|
| Test Site Location | No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978 | | |
| Test Site No. | Sporton Site No. | | |
| | CO05-HY | | |
| Test Engineer | Jimmy Chang | | |
| Temperature | 24~26 ℃ | | |
| Relative Humidity | 51~53% | | |

Note: The test site complies with ANSI C63.4 2014 requirement.

| Test Site | SPORTON INTERNATIONAL INC. | |
|-----------------------|---|--|
| Test Site Location | No.58, Aly. 75, Ln. 564, Wenhua 3rd, Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855 | |
| Test Site No. | Sporton Site No. | |
| | 03CH11-HY | |
| Test Engineer | Hao Hsu | |
| Temperature | 21~26 ℃ | |
| Relative Humidity | 52~57% | |

Note: The test site complies with ANSI C63.4 2014 requirement.

FCC Designation No.: TW1190 and TW0007

1.5 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.225
- FCC KDB 414788 D01 Radiated Test Site v01r01
- ANSI C63.10-2013

2. Test Configuration of Equipment Under Test

2.1 Descriptions of Test Mode

Investigation has been done on all the possible configurations.

The following table is a list of the test modes shown in this test report.

| Test Items | | |
|-----------------------------------|---|--|
| AC Power Line Conducted Emissions | Field Strength of Fundamental Emissions | |
| Radiated Emissions 9kHz~30MHz | Radiated Emissions 30MHz~1GHz | |

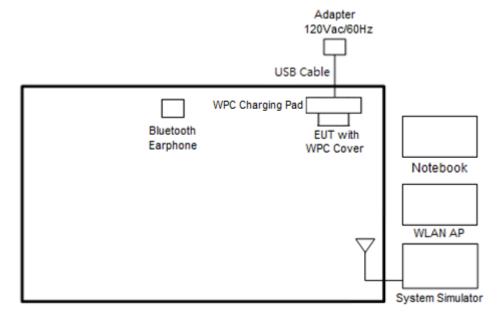
The EUT pre-scanned in four NFC type, A, B, F, V. The worst type (type F) was recorded in this report.

| Test Cases | | |
|---|---|--|
| | Mode 1: GSM850 Idle + Bluetooth Link + WLAN Link + NFC Tx + Battery + WPC | |
| AC | Back Cover + WPC Charging Pad + USB Cable (Charging from Adapter) | |
| Conducted | + SIM 1 | |
| Emission | Mode 2: GSM850 Idle + Bluetooth Link + WLAN Link + NFC Tx + Battery + WPC | |
| | Back Cover + PMA Charging Pad + Adapter + SIM 1 | |
| Remark: The worst case of conducted emission is mode 1; only the test data of it was reported. | | |

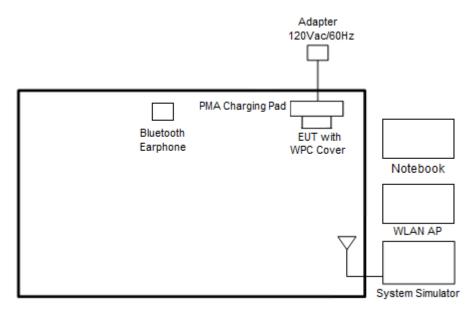


2.2 Connection Diagram of Test System

<AC Conducted Emission with Samsung Charging Mode>

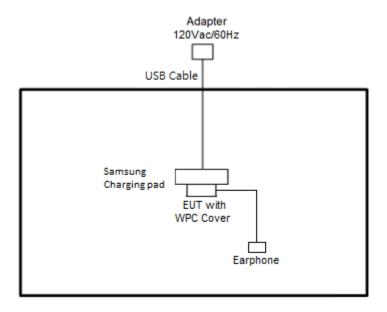


<AC Conducted Emissions with PMA Charging Mode>

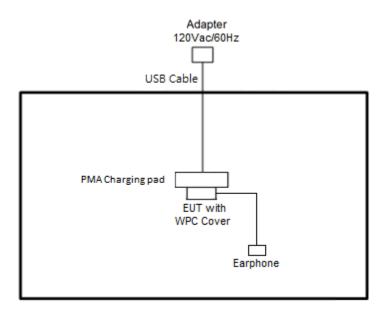




<For Fundamental Emissions and Mask and Radiated Emissions Measurement with Samsung Charging Mode>



<For Fundamental Emissions and Mask and Radiated Emissions Measurement with PMA Charging Mode>



| TEL : 886-3-327-3456 | Page Number | : 9 of 20 |
|---|----------------|-----------------|
| FAX : 886-3-328-4978 | Issued Date | : Apr. 19, 2019 |
| Report Template No.: BU5-FR15CNFC Version 2.4 | Report Version | : 01 |



2.3 Table for Supporting Units

| ltem | Equipment | Trade Name | Model Name | FCC ID | Data Cable | Power Cord |
|------|--------------------|------------------|-------------------|--|-------------------|--|
| 1. | System Simulator | Anritsu | MT8820C | N/A | N/A | Unshielded, 1.8m |
| 2. | Bluetooth Earphone | Sony Ericsson | MW600 | PY7DDA-2029 | N/A | N/A |
| 3. | WLAN AP | ASUS | RT-AC66U | MSQ-RTAC66U | N/A | Unshielded, 1.8m |
| 4. | Notebook | DELL | Latitude E6320 | FCC DoC/ Contains FCC ID: QDS-BRCM1054 | N/A | AC I/P: Unshielded, 1.2m DC O/P: Shielded, 1.8m |
| 5. | NFC Card | N/A | N/A | N/A | N/A | N/A |
| 6. | Samsung Wireless | Samsung | EP-NG930 | N/A | N/A | N/A |
| 7. | WPC Charging Pad | YU-live | K8 | FCC DoC | N/A | N/A |
| 8. | PMA Charging Pad | DURACELL | M-018B518A | FCC DoC | N/A | N/A |
| 9. | USB Cable | N/A | N/A | N/A | N/A | N/A |
| 10. | Adapter | N/A | N/A | N/A | N/A | N/A |
| 11. | Earphone | Moto | SH38C16618 | FCC DoC | Unshielded, 1.0 m | N/A |

2.4 EUT Operation Test Setup

The EUT was programmed to be in continuously transmitting mode.

The ancillary equipment, NFC card, is used to make the EUT (NFC) continuously transmit at 13.56MHz and is placed around 3 cm gap to the EUT.

3. Test Results

3.1 AC Power Line Conducted Emissions Measurement

3.1.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

| Frequency of Emission | Conducted Limit (dBµV) | | | |
|-----------------------|------------------------|-----------|--|--|
| (MHz) | Quasi-Peak | Average | | |
| 0.15-0.5 | 66 to 56* | 56 to 46* | | |
| 0.5-5 | 56 | 46 | | |
| 5-30 | 60 | 50 | | |

*Decreases with the logarithm of the frequency.

3.1.2 Measuring Instruments

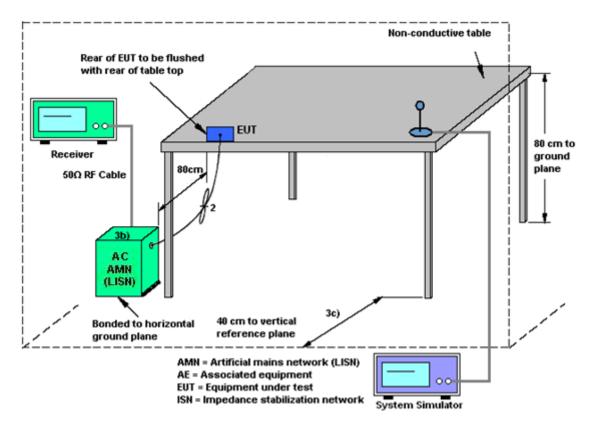
See list of measuring equipment of this test report.

3.1.3 Test Procedures

- 1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
- 2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
- 3. All the support units are connecting to the other LISN.
- 4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
- 5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
- 6. Both sides of AC line were checked for maximum conducted interference.
- 7. The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and specified bandwidth (IF Bandwidth = 9kHz) with Maximum Hold Mode. Then measurement is also conducted by Average Detector and Quasi-Peak Detector Function respectively.



3.1.4 Test setup



3.1.5 Test Result of AC Conducted Emission

Please refer to Appendix A.



3.2 Field Strength of Fundamental Emissions and Mask Measurement

3.2.1 Limit

| Rules and specifications | FCC CFR 47 Part 15 section 15.225 | | | | | | | |
|--------------------------|-----------------------------------|---|-----------------|----------------|--|--|--|--|
| Description | Compliance with th | Compliance with the spectrum mask is tested with RBW set to 9kHz. | | | | | | |
| | Field Strength | Field Strength | Field Strength | Field Strength | | | | |
| Freq. of Emission (MHz) | (µV/m) at 30m | (dBµV/m) at 30m | (dBµV/m) at 10m | (dBµV/m) at 3m | | | | |
| 1.705~13.110 | 30 | 29.5 | 48.58 | 69.5 | | | | |
| 13.110~13.410 | 106 | 40.5 | 59.58 | 80.5 | | | | |
| 13.410~13.553 | 334 | 50.5 | 69.58 | 90.5 | | | | |
| 13.553~13.567 | 15848 | 84.0 | 103.08 | 124.0 | | | | |
| 13.567~13.710 | 334 | 50.5 | 69.58 | 90.5 | | | | |
| 13.710~14.010 | 106 | 40.5 | 59.58 | 80.5 | | | | |
| 14.010~30.000 | 30 | 29.5 | 48.58 | 69.5 | | | | |

3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

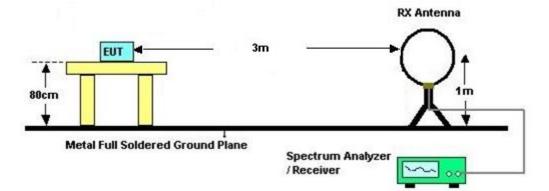


3.2.3 Test Procedures

- Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the loop receiving antenna mounted antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the receiving antenna was fixed at one meter above ground to find the maximum emissions field strength.
- 4. For Fundamental emissions, use the receiver to measure QP reading.
- 5. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
- 6. Compliance with the spectrum mask is tested with RBW set to 9kHz. Note: Emission level (dB μ V/m) = 20 log Emission level (μ V/m).

3.2.4 Test Setup

For radiated emissions below 30MHz



3.2.5 Test Result of Field Strength of Fundamental Emissions and Mask

Please refer to Appendix B.



3.3 Radiated Emissions Measurement

3.3.1 Limit

The field strength of any emissions which appear outside of 13.110 ~14.010MHz band shall not exceed the general radiated emissions limits.

| Frequencies | Field Strength | Measurement Distance | | |
|-------------|----------------|----------------------|--|--|
| (MHz) | (μV/m) | (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 | | |

3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Measuring Instrument Setting

The following table is the setting of receiver:

| Receiver Parameter | Setting |
|--------------------------------|---------------------|
| Attenuation | Auto |
| Frequency Range: 9kHz~150kHz | RBW 200Hz for QP |
| Frequency Range: 150kHz~30MHz | RBW 9kHz for QP |
| Frequency Range: 30MHz~1000MHz | RBW 120kHz for Peak |

Note: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz and 110-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.



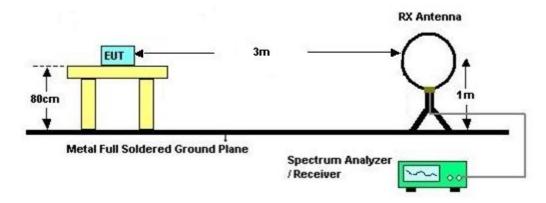
3.3.4 Test Procedures

- Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
- 7. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver.

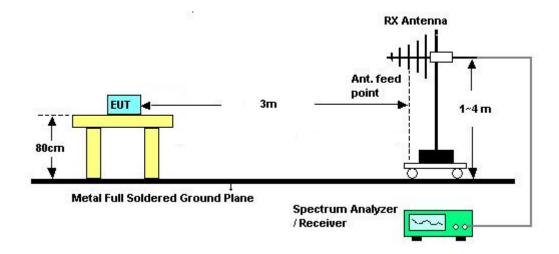


3.3.5 Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz



3.3.6 Test Result of Radiated Emissions Measurement

Please refer to Appendix B.

Remark: There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.



3.4 Antenna Requirements

3.4.1 Standard Applicable

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited.

The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the rule.

3.4.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.



4. List of Measuring Equipment

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Test Date | Due Date | Remark |
|----------------------|--------------------|-----------------------|--------------------|-----------------|---------------------|---------------------------------|---------------|--------------------------|
| AC Power Source | ChainTek | APC-1000W | N/A | N/A | N/A | Apr. 12, 2019 | N/A | Conduction (CO05-HY) |
| EMI Test Receiver | Rohde & Schwarz | ESR3 | 102388 | 9KHz~3.6GHz | Nov. 12, 2018 | Apr. 12, 2019 | Nov. 11, 2019 | Conduction (CO05-HY) |
| LISN | Rohde & Schwarz | ENV216 | 100080 | 9kHz~30MHz | Nov. 14, 2018 | Apr. 12, 2019 | Nov. 13, 2019 | Conduction (CO05-HY) |
| LISN | Rohde & Schwarz | ENV216 | 100081 | 9kHz~30MHz | Nov. 09, 2018 | Apr. 12, 2019 | Nov. 08, 2019 | Conduction (CO05-HY) |
| Software | Rohde & Schwarz | EMC32 V10.30 | N/A | N/A | N/A | Apr. 12, 2019 | N/A | Conduction (CO05-HY) |
| LF Cable | HUBER + SUHNER | RG-214/U | LF01 | N/A | Dec. 31, 2018 | Apr. 12, 2019 | Dec. 30, 2019 | Conduction (CO05-HY) |
| Pulse Limiter | Rohde & Schwarz | ESH3-Z2 | 100851 | N/A | Dec. 31, 2018 | Apr. 12, 2019 | Dec. 30, 2019 | Conduction (CO05-HY) |
| Software | Audix | E3 6.2009-8-24 | RK-001042 | N/A | N/A | Mar. 23, 2019~ Apr. 17, 2019 | N/A | Radiation (03CH11-HY) |
| Amplifier | SONOMA | 310N | 187312 | 9kHz~1GHz | Dec. 04, 2018 | Mar. 23, 2019~ Apr. 17, 2019 | Dec. 03, 2019 | Radiation (03CH11-HY) |
| Bilog Antenna | TESEQ | CBL 6111D&N-6-06 | 35414&AT-N0 602 | 30MHz~1GHz | Oct. 13, 2018 | Mar. 23, 2019~ Apr. 17, 2019 | Oct. 12, 2019 | Radiation (03CH11-HY) |
| Spectrum Analyzer | Keysight | N9010A | MY54200486 | 10Hz ~ 44GHz | Oct. 19, 2018 | Mar. 23, 2019~ Apr. 17, 2019 | Oct. 18, 2019 | Radiation (03CH11-HY) |
| Antenna Mast | EMEC | AM-BS-4500-B | N/A | 1~4m | N/A | Mar. 23, 2019~ Apr. 17, 2019 | N/A | Radiation (03CH11-HY) |
| Turn Table | EMEC | TT 2000 | N/A | 0~360 Degree | N/A | Mar. 23, 2019~ Apr. 17, 2019 | N/A | Radiation (03CH11-HY) |
| EMI Test Receiver | Keysight | N9038A (MXE) | MY53290045 | N/A | Jan. 19, 2019 | Mar. 23, 2019~ Apr. 17, 2019 | Jan. 18, 2020 | Radiation (03CH11-HY) |
| Filter | Wainwright | WHK20/1000C 7/40SS | SN2 | 20M High Pass | Sep. 16, 2018 | Mar. 23, 2019~ Apr. 17, 2019 | Sep. 15, 2019 | Radiation (03CH11-HY) |
| RF Cable | HUBER + SUHNER | SUCOFLEX 104 | MY9837/4PE | 9kHz-30MHz | Mar. 14, 2018 | Mar. 23, 2019~ Apr. 17, 2019 | Mar. 12, 2020 | Radiation (03CH11-HY) |
| RF Cable | HUBER + SUHNER | SUCOFLEX 104 | MY9837/4PE | 30M-18G | Mar. 14, 2018 | Mar. 23, 2019~ Apr. 17, 2019 | Mar. 12, 2020 | Radiation (03CH11-HY) |
| RF Cable | HUBER + SUHNER | SUCOFLEX 102 | MY2859/2 | 30MHz-40GHz | Mar. 14, 2018 | Mar. 23, 2019~ Apr. 17, 2019 | Mar. 12, 2020 | Radiation (03CH11-HY) |
| Loop Antenna | Rohde & Schwarz | HFH2-Z2 | 100488 | 9 kHz~30 MHz | Jan. 07, 2019 | Mar. 23, 2019~ Apr. 17, 2019 | Jan. 06, 2020 | Radiation (03CH11-HY) |



5. Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

| Measuring Uncertainty for a Level of Confidence | 2.20 |
|---|------|
| of 95% (U = 2Uc(y)) | 2.20 |

Uncertainty of Radiated Emission Measurement (9 kHz ~ 30 MHz)

| Measuring Uncertainty for a Level of Confidence | 3.45 |
|---|------|
| of 95% (U = 2Uc(y)) | 5.45 |

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

| Measuring Uncertainty for a Level of Confidence | 5.20 |
|---|------|
| of 95% (U = 2Uc(y)) | 5.20 |

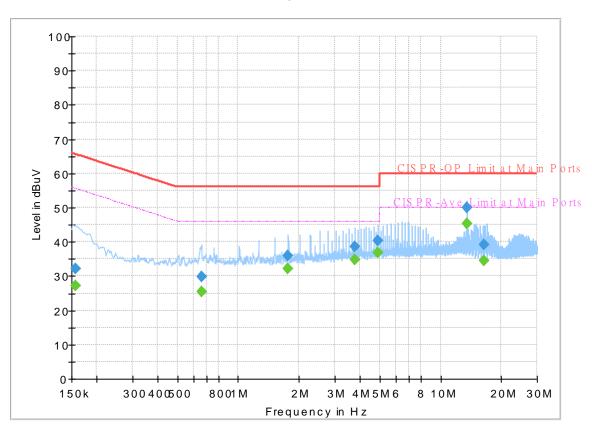


Appendix A. Test Results of Conducted Emission Test

| Test Engineer : | limmy Chang | Temperature : | 24~26 ℃ |
|-----------------|-------------|---------------------|----------------|
| | | Relative Humidity : | 51~53% |

EUT Information

Report NO : Test Mode : Test Voltage : Phase : 940415-06 Mode 1 120Vac/60Hz Line



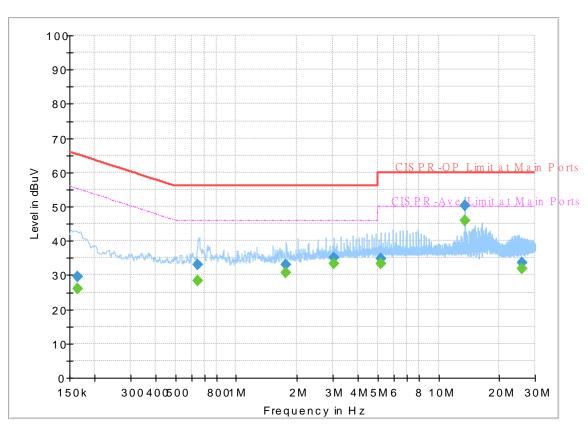
Full Spectrum

Final_Result

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Limit (dBuV) | Margin (dB) | Line | Filter | Corr. (dB) |
|--------------------|---------------------|--------------------|-----------------|----------------|------|--------|---------------|
| 0.156750 | | 27.14 | 55.63 | 28.49 | L1 | OFF | 19.5 |
| 0.156750 | 32.15 | | 65.63 | 33.48 | L1 | OFF | 19.5 |
| 0.656250 | | 25.32 | 46.00 | 20.68 | L1 | OFF | 19.6 |
| 0.656250 | 29.86 | | 56.00 | 26.14 | L1 | OFF | 19.6 |
| 1.767750 | | 32.23 | 46.00 | 13.77 | L1 | OFF | 19.6 |
| 1.767750 | 36.06 | | 56.00 | 19.94 | L1 | OFF | 19.6 |
| 3.786000 | | 34.93 | 46.00 | 11.07 | L1 | OFF | 19.7 |
| 3.786000 | 38.74 | | 56.00 | 17.26 | L1 | OFF | 19.7 |
| 4.920000 | | 36.71 | 46.00 | 9.29 | L1 | OFF | 19.7 |
| 4.920000 | 40.40 | | 56.00 | 15.60 | L1 | OFF | 19.7 |
| 13.560000 | | 45.35 | 50.00 | 4.65 | L1 | OFF | 20.0 |
| 13.560000 | 49.87 | | 60.00 | 10.13 | L1 | OFF | 20.0 |
| 16.401750 | | 34.53 | 50.00 | 15.47 | L1 | OFF | 20.1 |
| 16.401750 | 39.18 | | 60.00 | 20.82 | L1 | OFF | 20.1 |

EUT Information

Report NO : Test Mode : Test Voltage : Phase : 940415-06 Mode 1 120Vac/60Hz Neutral



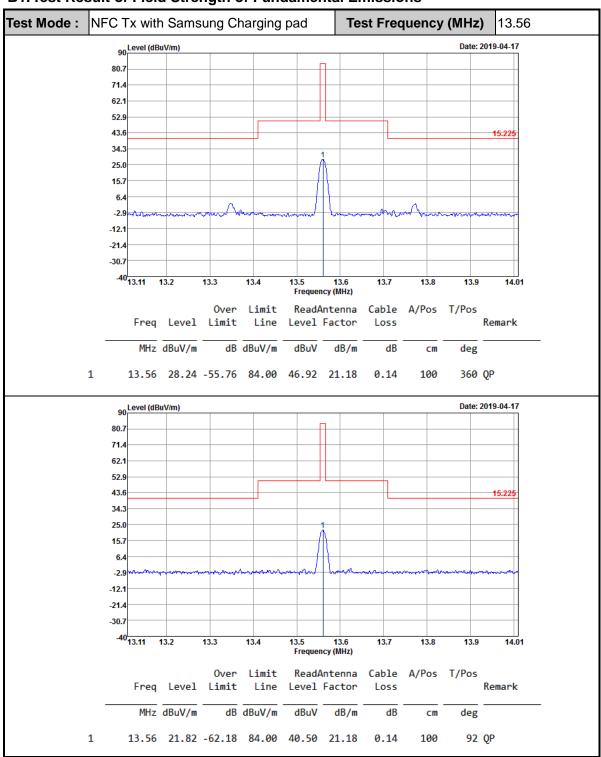
Full Spectrum

Final_Result

| Frequency | QuasiPeak | CAverage | Limit | Margin | Line | Filter | Corr. |
|-----------|-----------|----------|--------|--------|------|--------|-------|
| (MHz) | (dBuV) | (dBuV) | (dBuV) | (dB) | | | (dB) |
| 0.163500 | | 25.94 | 55.28 | 29.34 | Ν | OFF | 19.5 |
| 0.163500 | 29.57 | | 65.28 | 35.71 | Ν | OFF | 19.5 |
| 0.645000 | | 28.38 | 46.00 | 17.62 | Ν | OFF | 19.6 |
| 0.645000 | 33.12 | - | 56.00 | 22.88 | Ν | OFF | 19.6 |
| 1.767750 | | 30.84 | 46.00 | 15.16 | Ν | OFF | 19.6 |
| 1.767750 | 32.91 | | 56.00 | 23.09 | Ν | OFF | 19.6 |
| 3.027750 | | 33.33 | 46.00 | 12.67 | Ν | OFF | 19.6 |
| 3.027750 | 34.98 | | 56.00 | 21.02 | Ν | OFF | 19.6 |
| 5.176500 | | 33.34 | 50.00 | 16.66 | Ν | OFF | 19.7 |
| 5.176500 | 34.88 | | 60.00 | 25.12 | Ν | OFF | 19.7 |
| 13.560000 | | 45.90 | 50.00 | 4.10 | Ν | OFF | 20.1 |
| 13.560000 | 50.42 | | 60.00 | 9.58 | Ν | OFF | 20.1 |
| 25.865250 | | 31.76 | 50.00 | 18.24 | Ν | OFF | 20.5 |
| 25.865250 | 33.59 | | 60.00 | 26.41 | Ν | OFF | 20.5 |

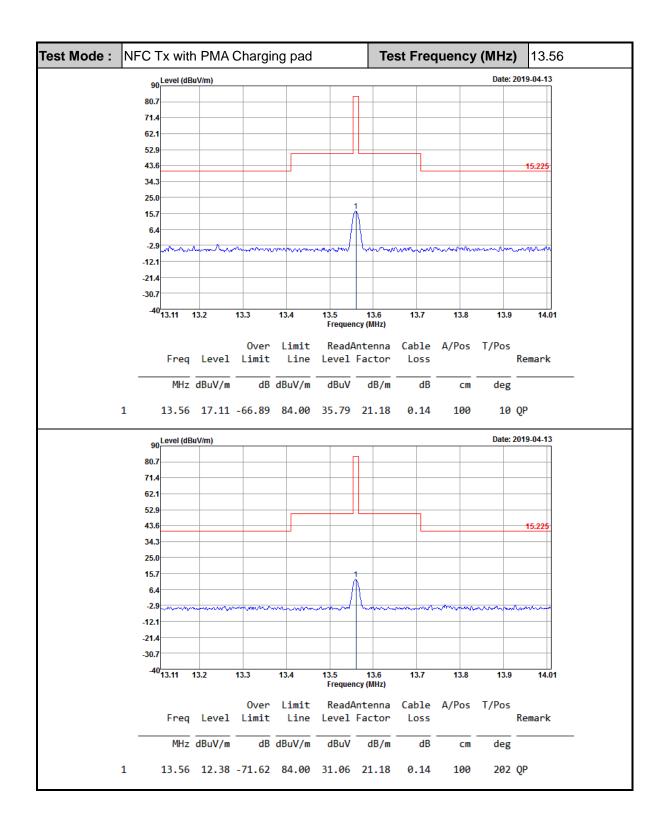


Appendix B. Test Results of Radiated Test Items



B1. Test Result of Field Strength of Fundamental Emissions

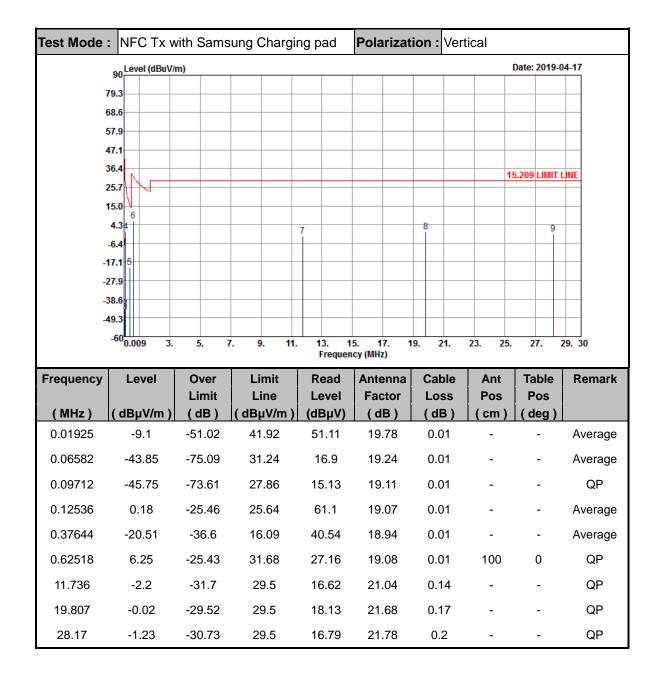




| Test Mode | NFC Tx w | ith Sams | sung Chargir | ng pad | Polarization : Horizontal | | | | | |
|-------------------|---------------------------|----------------|---------------------|------------------|---------------------------|--------------|-------------|--------------|---------|--|
| | 90 Level (dBuV/i | m) | | Date: 2019-04-17 | | | | | | |
| | 79.3 | | | | | | | | | |
| | 68.6 | | | | | | | | | |
| | 57.9 | | | | | | | | | |
| | 47.1 | | | | | | | | | |
| | 36.4 | | | | | | 15 | .209 LIMIT L | INE | |
| | 25.7 15.0 | | | | | | | | | |
| | 4.3 | | | 7 | | 8 | 9 | | | |
| | -6.4 5 | | | | | | | | | |
| | 17.1 | | | | | | | | | |
| | 27.9 | | | | | | | | | |
| | 38.6 49.3 | | | | | | | | | |
| | -60 <mark>0.009 3.</mark> | 5. | 7. 9. 11. | 13. 1 | 5. 17. 1 | 9. 21. | 23. 25. | 27. 2 | 9. 30 | |
| | | | | Frequen | | | | | | |
| Frequency | Level | Over | Limit | Read | Antenna | Cable | Ant | Table | Remark | |
| (MLI | (dBµV/m) | Limit | Line | | Factor | Loss | Pos | Pos | | |
| (MHz) 0.0193 | -5.99 | (dB) -47.88 | (dBµV/m) 41.89 | (dBµV) 54.22 | (dB) 19.78 | (dB) 0.01 | (cm) - | (deg) | Average | |
| | | | | | | 0.01 | | | - | |
| 0.06249 | -28.62 | -60.31 | 31.69 | 32.12 | 19.25 | | - | - | Average | |
| 0.0934 | -33.07 | -61.27 | 28.2 | 27.79 | 19.13 | 0.01 | - | - | QP | |
| 0.12508 | 6.63 | -19.03 | 25.66 | 67.55 | 19.07 | 0.01 | - | - | Average | |
| 0.37542 | -10.99 | -27.1 | 16.11 | 50.06 | 18.94 | 0.01 | - | - | Average | |
| 0.62518 | 14.15 | -17.53 | 31.68 | 35.06 | 19.08 | 0.01 | 100 | 0 | QP | |
| 13.784 | -2.07 | -31.57 | 29.5 | 16.58 | 21.2 | 0.15 | - | - | QP | |
| 21.589 | -2.13 | -31.63 | 29.5 | 15.97 | 21.72 | 0.18 | - | - | QP | |
| 25.335 | | | | | | | | | | |

B2. Results of Radiated Spurious Emissions (9 kHz~30MHz)







| Test Mode | : NFC Tx w | ith PMA (| Charging pa | d | Polarizat | ion : Ho | orizontal | | |
|-----------------|---------------------------|---------------|-------------------------|------------------|----------------------|--------------|-----------|---------------|---------|
| | 90 Level (dBuV/r | n) | | | | | | Date: 2019-0 | 4-13 |
| - | 79.3 | | | | | | | | |
| | 68.6 | | | | | | | | |
| | 57.9 | | | | | | | | |
| | 47.1 | | | | | | | | |
| | 36.4 | | | | | | 1 | 5.209 LIMIT I | INE |
| | 25.7 | | | | | | | | |
| | 4.3 6 | | 7 | | | | _ | 9 | |
| | -6.45 | | | | | | 8 | | |
| - | 17.1 | | | | | | | | |
| | 27.9 | | | | | | | | |
| | 38.6 | | | | | | | | |
| | 49.3 | | | | | | | | |
| | -60 <mark>0.009 3.</mark> | 5. 7 | 7. <mark>9</mark> . 11. | 13. 1 Frequen | 5. 17. 1 cy (MHz) | 9. 21. | 23. 25. | 27. 2 | 29. 30 |
| Frequency | Level | Over | Limit | Read | Antenna | Cable | Ant | Table | Remark |
| | (.ID.)// | Limit | Line | Level | Factor | Loss | Pos | Pos | |
| (MHz) 0.0192 | (dBµV/m) | (dB) -52.8 | (dBµV/m) 41.94 | (dBµV) 49.35 | (dB) 19.78 | (dB) 0.01 | (cm) | (deg) | Average |
| | | | | | | | - | - | - |
| 0.06009 | -19.01 | -51.04 | 32.03 | 41.72 | 19.26 | 0.01 | - | - | Average |
| 0.0938 | -27.81 | -55.97 | 28.16 | 33.06 | 19.12 | 0.01 | - | - | QP |
| 0.11896 | -29.14 | -55.24 | 26.1 | 31.77 | 19.08 | 0.01 | - | - | Average |
| 0.23806 | -12.52 | -32.59 | 20.07 | 48.51 | 18.96 | 0.01 | - | - | Average |
| 1.444 | 7.76 | -16.65 | 24.41 | 28.45 | 19.3 | 0.01 | 100 | 0 | QP |
| 8.592 | -1.58 | -31.08 | 29.5 | 17.77 | 20.53 | 0.12 | - | - | QP |
| 22.084 | -2.66 | -32.16 | 29.5 | 15.44 | 21.72 | 0.18 | - | - | QP |
| 27.93 | -1.71 | -31.21 | 29.5 | 16.31 | 21.78 | 0.2 | - | - | QP |



| rest wode | : NFC Tx w | ith PMA | Polarization : Vertical | | | | | | |
|--|---|--|--|--|--|--|---------------------------------------|---------------------------------------|---|
| | 90 Level (dBuV/ | m) | | | | | | Date: 2019-0 | 4-13 |
| | 79.3 | | | | | | | | |
| | 68.6 | | | | | | | | |
| 4 | 57.9 | | | | | | | | |
| | 47.1 | | | | | | | | |
| | 36.4 | | | | | | · · · · · · · · · · · · · · · · · · · | 15.209 LIMIT I | INE |
| | 15.0 | | | | | | | | |
| | 4.3 6 | | 7 | | 8 | | | | 9 |
| | -6.4 | | | | | | | | |
| | 17.1 | | | | | | | | |
| | 27.9 38.6 | | | | | | | | |
| | 49.3 | | | | | | | | |
| | -60 <mark>0.009 3.</mark> | 5. 7 | v. 9. 11. | 13. 1 | 5. 17. 1 | 9. 21. | 23. 25 | 5. 27. 2 | 29. 30 |
| | | | | | cy (MHz) | | | | |
| Frequency | Level | Over | Limit | Read | Antenna | Cable | Ant | Table | Remark |
| | | | | | | | | | |
| (MHz) | (dBuV/m) | Limit (dB) | Line (dBuV/m) | Level (dBuV) | Factor | Loss (dB) | Pos (cm) | Pos (deg) | |
| (MHz) 0.0192 | (dBµV/m) -19.19 | Limit (dB) -61.13 | Line (dBµV/m) 41.94 | Level (dBµV) 41.02 | | Loss (dB) 0.01 | Pos (cm) | Pos (deg) | Average |
| | | (dB) | (dBµV/m) | (dBµV) | Factor (dB) | (dB) | | | Average Average |
| 0.0192 | -19.19 | (dB) -61.13 | (dBμV/m) 41.94 | (dBμV) 41.02 | Factor (dB) 19.78 | (dB) 0.01 | | | - |
| 0.0192 | -19.19 -22.84 | (dB) -61.13 -54.86 | (dBμV/m) 41.94 32.02 | (dBµV) 41.02 37.89 | Factor (dB) 19.78 19.26 | (dB) 0.01 0.01 | | (deg) - - | Average |
| 0.0192 0.06012 0.10654 | -19.19 -22.84 -32.69 | (dB) -61.13 -54.86 -59.74 | (dBµV/m) 41.94 32.02 27.05 | (dBμV) 41.02 37.89 28.21 | Factor (dB) 19.78 19.26 19.09 | (dB) 0.01 0.01 0.01 | | (deg) - - | Average QP |
| 0.0192 0.06012 0.10654 0.1152 | -19.19 -22.84 -32.69 -33.59 | (dB) -61.13 -54.86 -59.74 -59.97 | (dBµV/m) 41.94 32.02 27.05 26.38 | (dBµV) 41.02 37.89 28.21 27.32 | Factor (dB) 19.78 19.26 19.09 19.08 | (dB) 0.01 0.01 0.01 0.01 | | (deg) - - - | Average QP Average |
| 0.0192 0.06012 0.10654 0.1152 0.21222 | -19.19 -22.84 -32.69 -33.59 -14.41 | (dB) -61.13 -54.86 -59.74 -59.97 -35.48 | (dBµV/m) 41.94 32.02 27.05 26.38 21.07 | (dBµV) 41.02 37.89 28.21 27.32 46.59 | Factor (dB) 19.78 19.26 19.09 19.08 18.99 | (dB) 0.01 0.01 0.01 0.01 0.01 | (cm) - - - - | (deg) - - - - - - | Average QP Average Average |
| 0.0192 0.06012 0.10654 0.1152 0.21222 1.466 | -19.19 -22.84 -32.69 -33.59 -14.41 -0.33 | (dB) -61.13 -54.86 -59.74 -59.97 -35.48 -24.61 | (dBµV/m) 41.94 32.02 27.05 26.38 21.07 24.28 | (dBµV) 41.02 37.89 28.21 27.32 46.59 20.36 | Factor (dB) 19.78 19.26 19.09 19.08 18.99 19.3 | (dB) 0.01 0.01 0.01 0.01 0.01 0.01 | (cm) - - - - | (deg) - - - - - - | Average QP Average Average QP |

Note:

1. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

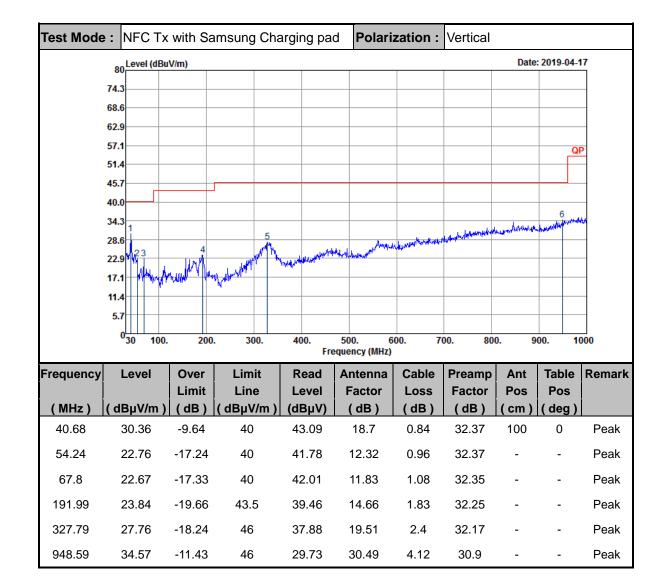
2. Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

3. Limit line = specific limits $(dB\mu V)$ + distance extrapolation factor.

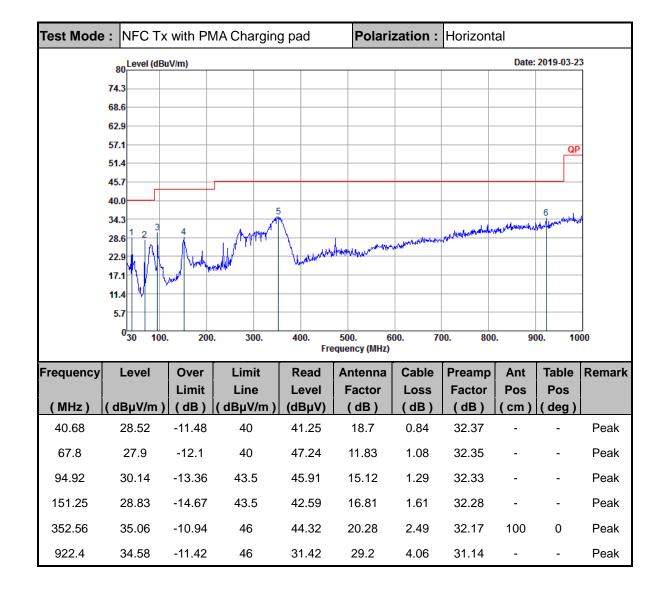
| Test Mode | : NFC Tx | with Sa | msung Cha | arging pao | d Polari | zation : | Horizon | tal | | | |
|------------------------------------|------------------------|---------------|------------------|-----------------|-----------------|---------------------|---------------|--------------------|--------------------------|--------|--|
| 80_Level (dBuV/m) Date: 2019-04-17 | | | | | | | | | | | |
| | 74.3 | | | | | | | | | | |
| | 68.6 | | | | | | | | | _ | |
| | 62.9 | | | | | | | | | _ | |
| | 57.1 | | | | | | | | Q | 5 | |
| | 51.4 | | | | | | | | | - | |
| | 45.7 | | | | | | | | | _ | |
| | 40.0 | 4 | 5 | | | | | | 6, 1 | - | |
| | 34.3 | | | | | | - | K-hadellastering.M | and the formation of the | 3 | |
| | 28.6 3 1 22.9 | Month | | he weeks | - Jacob Martine | data and the second | | | | | |
| | 22.9 17.1 | / | MAN . | Manahan | | | | | | _ | |
| | 11.4 | | | | | | | | | _ | |
| | 5.7 | | | | | | | | | _ | |
| | 0 <mark>30 100.</mark> | 200. | . 300. | 400. | 500. 6 | 00. 7 | 00. 80 | 0. 9 | 00. 10 | 000 | |
| | | | | Fre | quency (MHz) | | r | - | - | | |
| Frequency | Level | Over | Limit | Read | Antenna | Cable | Preamp | Ant | Table | Remark | |
| (MHz) | (dBµV/m) | Limit (dB) | Line | | Factor (dB) | Loss (dB) | Factor | Pos | Pos | | |
| 40.68 | 24.18 | -15.82 | (dBμV/m) 40 | (dBµV) 36.91 | (ub) 18.7 | <u>(ub)</u> 0.84 | (dB) 32.37 | (cm) | (deg) | Peak | |
| | | | | | | | | - | - | | |
| 67.8 | 18.53 | -21.47 | 40 | 37.87 | 11.83 | 1.08 | 32.35 | - | - | Peak | |
| 97.9 | 27.91 | -15.59 | 43.5 | 43.34 | 15.45 | 1.3 | 32.32 | - | - | Peak | |
| 177.44 | 33.61 | -9.89 | 43.5 | 49.04 | 14.93 | 1.77 | 32.26 | - | - | Peak | |
| 324.88 | 36.86 | -9.14 | 46 | 47.08 | 19.43 | 2.38 | 32.18 | 100 | 0 | Peak | |
| 948.59 | 34.28 | -11.72 | 46 | 29.44 | 30.49 | 4.12 | 30.9 | - | - | Peak | |

B3. Results of Radiated Spurious Emissions (30MHz~1GHz)

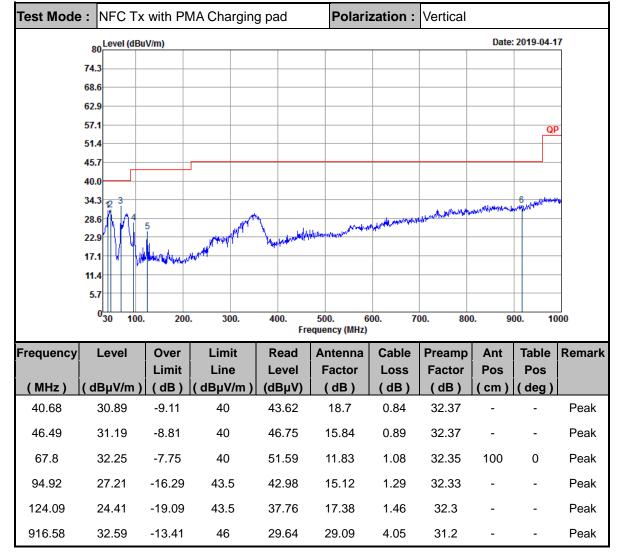












Note:

- 1. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
- 2. Emission level (dB μ V/m) = 20 log Emission level (μ V/m).
- 3. Corrected Reading: Antenna Factor + Cable Loss + Read Level Preamp Factor= Level.

