



# FCC RF Test Report

**APPLICANT** : Motorola Mobility, LLC  
**EQUIPMENT** : Mobile Cellular Phone  
**BRAND NAME** : Motorola  
**MODEL NAME** : 10720  
**FCC ID** : IHDT56WB2  
**STANDARD** : FCC Part 15 Subpart C §15.225  
**CLASSIFICATION** : (DXX) Low Power Communication Device Transmitter

This is a variant report which is only valid together with the original test report. The testing was completed on Jun. 28, 2017. We, SPORTON INTERNATIONAL INC., 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 test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager



**SPORTON INTERNATIONAL INC.**

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





### SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C				
Part	FCC Rule	Description of Test	Result	Under Limit
3.1	15.207	AC Power Line Conducted Emissions	Complies	5.80 dB at 0.246MHz
3.2	15.225(a)(b)(c)	Field Strength of Fundamental Emissions	Complies	58.63 dB at 13.560 MHz
3.3	15.225(d) 15.209	Radiated Emissions	Complies	1.68 dB at 94.800 MHz for Quasi-Peak
3.4	15.203	Antenna Requirements	Complies	-

Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.70dB	Confidence levels of 95%
Radiated Emissions (30MHz~1000MHz)	±5.20dB	Confidence levels of 95%



# 1. GENERAL INFORMATION

## 1.1 Applicant

Motorola Mobility, LLC

222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

## 1.2 Manufacturer

Motorola Mobility, LLC

222 W Merchandise Mart Plaza, Suite 1800, Chicago, IL 60654, United States

## 1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	10720
FCC ID	IHDT56WB2
IMEI Code	For Radiation : 990007530007308 For Conduction : 990007530003398
EUT supports Radios application	CDMA/GSM/EGPRS/WCDMA/HSPA/LTE/NFC WLAN 11b/g/n HT20 WLAN 11a/n HT20/HT40 WLAN 11ac VHT20/VHT40/VHT80 Bluetooth BR/EDR/LE
EUT Stage	Identical Prototype

**Remark:**

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. This is a variant report by adding WPC Back cover. All the test cases were performed on original report which can be referred to Sporton Report Number FR733129-04D. Based on the original report, only worst case was verified.

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



### 1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	13.553 ~ 13.567MHz
Channel Number	1
Antenna Type	Fixed Internal Antenna
Type of Modulation	ASK

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

### 1.5 Modification of EUT

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



### 1.6 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

<b>Test Site</b>	SPORTON INTERNATIONAL INC.
<b>Test Site Location</b>	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978
<b>Test Site No.</b>	<b>Sporton Site No.</b> CO05-HY
<b>Test Engineer</b>	Eric Jeng
<b>Temperature</b>	21~24°C
<b>Relative Humidity</b>	52~55%

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

<b>Test Site</b>	SPORTON INTERNATIONAL INC.
<b>Test Site Location</b>	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
<b>Test Site No.</b>	<b>Sporton Site No.</b> 03CH11-HY
<b>Test Engineer</b>	J.C. Liang and Jacky Hung
<b>Temperature</b>	21~24°C
<b>Relative Humidity</b>	51~54%

### 1.7 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
- ♦ 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 for searching the worst cases.

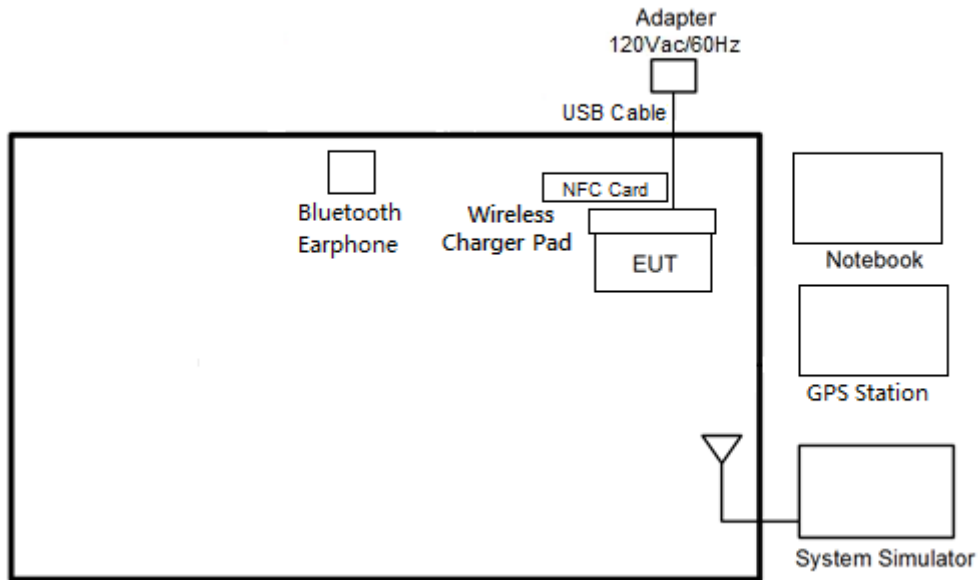
The following table is a list of the test modes shown in this test report.

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

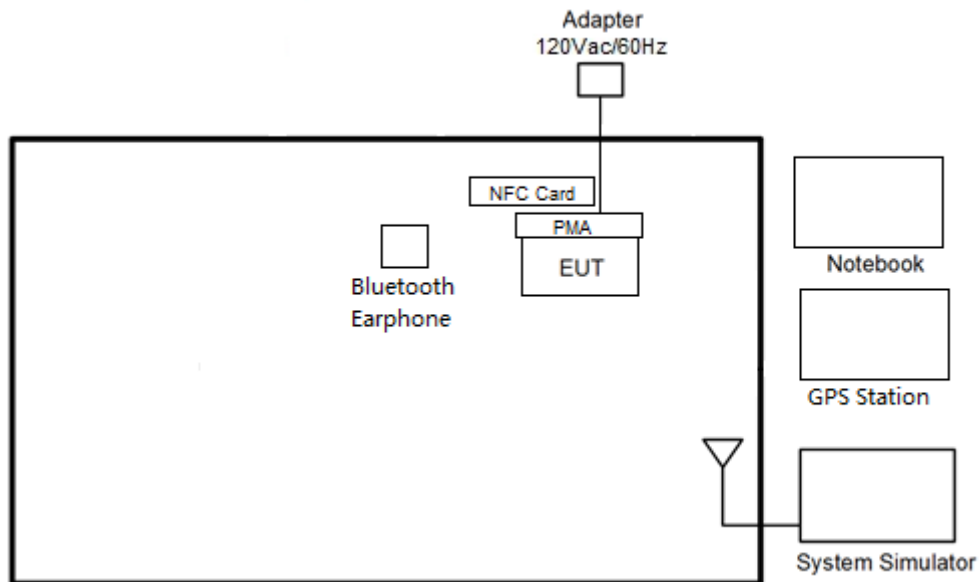
The EUT pre-scanned in four NFC type, A, B, F, V. The worst type (type F) was recorded in this report.

## 2.2 Connection Diagram of Test System

### <AC Conducted Emissions with WPC Charging Mode>

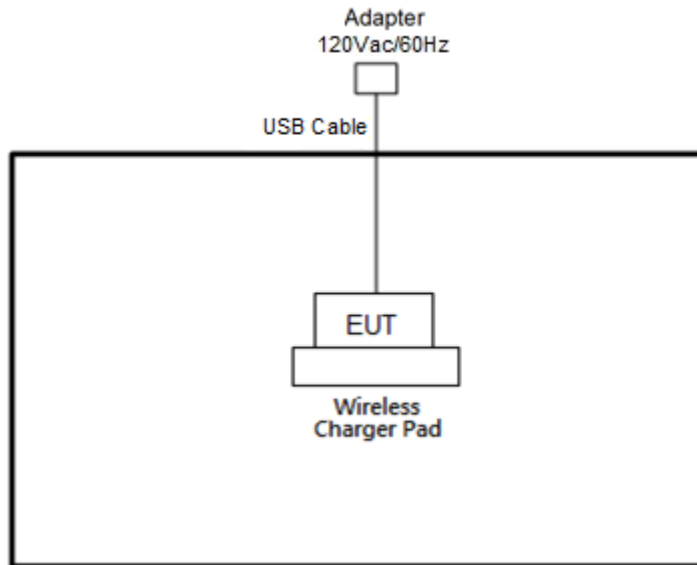


### <AC Conducted Emissions with PAM Charging Mode>

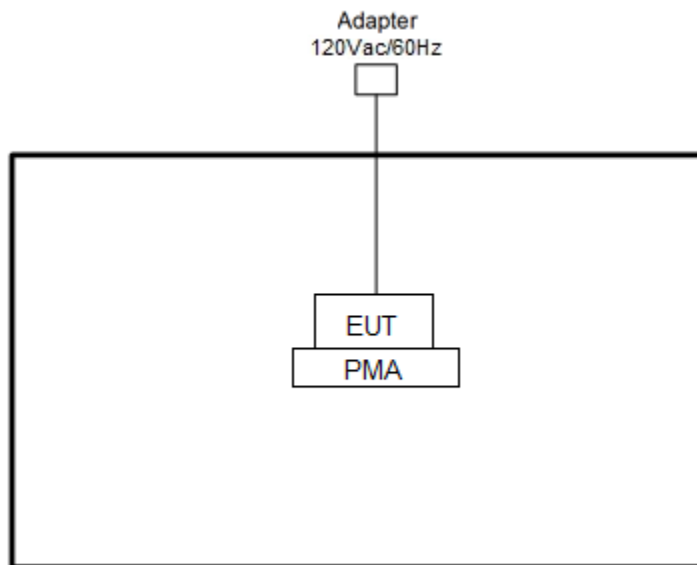


< For Fundamental Emissions and Mask and Radiated Emissions Measurement >

<WPC Charging Mode>



<PMA Charging Mode>



## 2.3 Table for Supporting Units

Support Unit	Manufacturer	Model	FCC ID
Base Station	Anritsu	MT8820C	N/A
Bluetooth Earphone	SonyEricsson	MW600	PY700A2029
WLAN AP	ASUS	RT-AC66U	MSQ-RTAC66U
SD Card	Transcend	MicroSD HC 16G	FCC DoC
Adapter	HUAWEI	HW-059200UHQ	FCC DoC
USB Cable	HUAWEI	N/A	FCC DoC
WPC Pad	LG	WCD-100	FCC DoC
PMA Pad	DURACELL	M-018B-518A	FCC DoC
NOTE BOOK	Dell	Latitude E6320	FCC DoC
NFC Card	Metro Taipei	Easy Card (A)	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 1 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 (MHz)	Conducted Limit (dB $\mu$ V)	
	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.

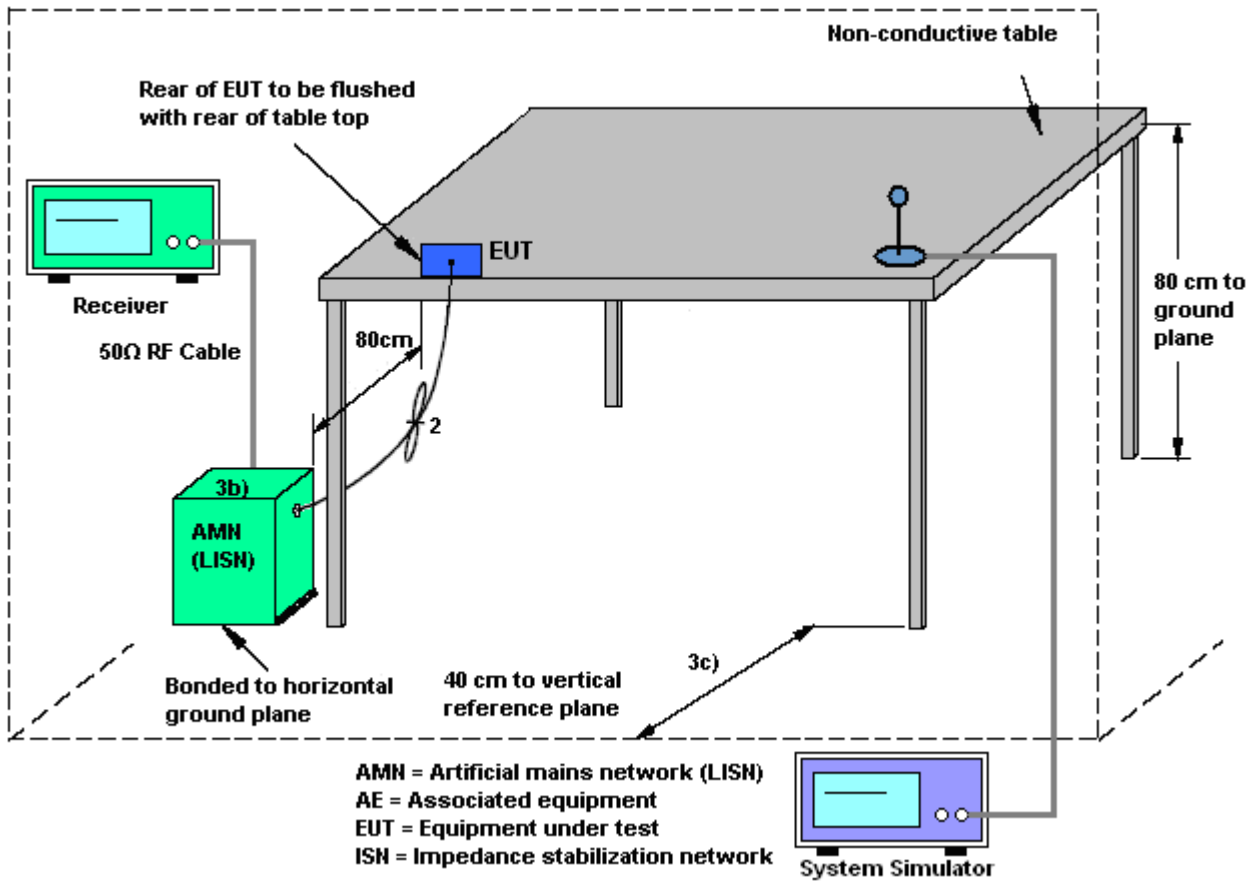
##### 3.1.2 Measuring Instruments

See list of measuring instruments 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.
8. 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 the spectrum mask is tested with RBW set to 9kHz.			
Freq. of Emission (MHz)	Field Strength (μV/m) at 30m	Field Strength (dBμV/m) at 30m	Field Strength (dBμV/m) at 10m	Field Strength (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

1. 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.

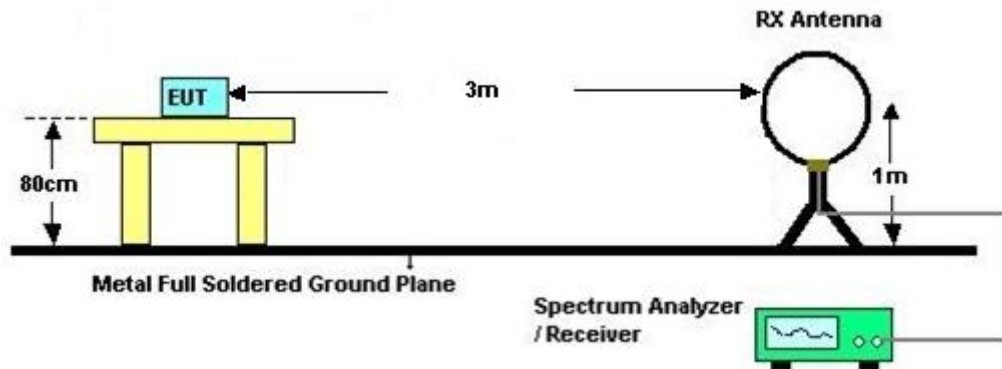
5. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 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 $\mu$ V/m) = 20 log Emission level ( $\mu$ 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 (MHz)	Field Strength (µV/m)	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

#### 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, 110-490 kHz. Radiated emission limits in these two bands are based on measurements employing an average detector.

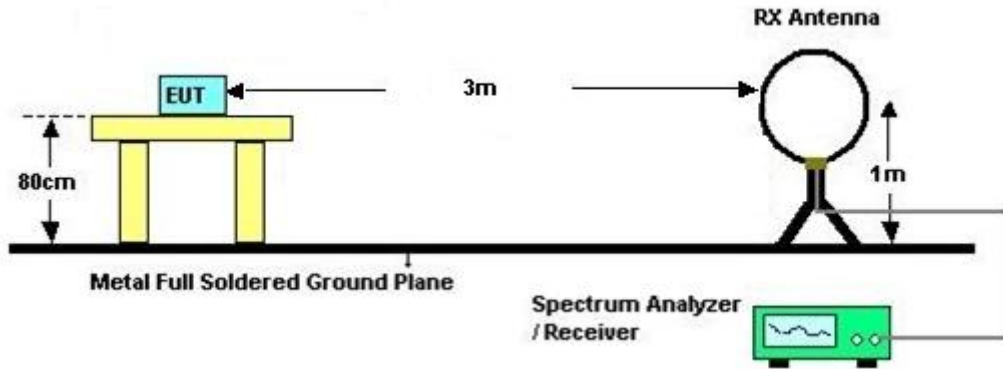


### **3.3.4 Test Procedures**

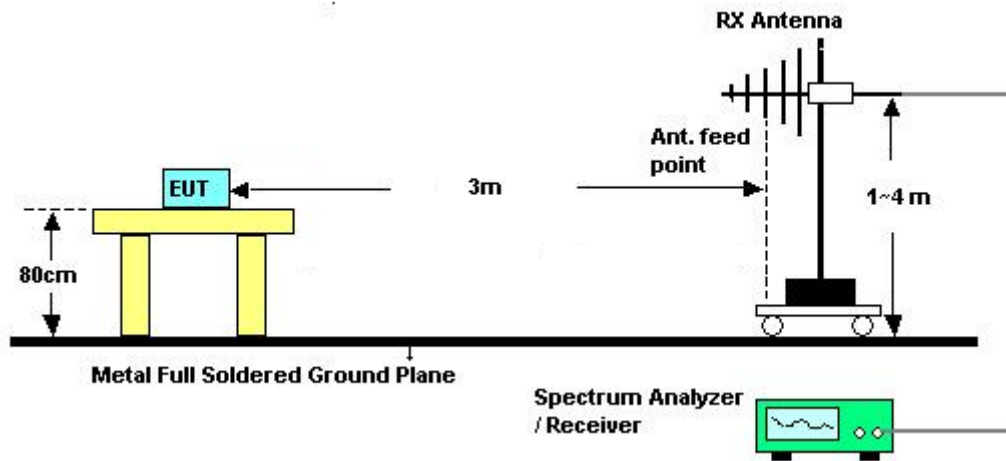
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
1. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
2. 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.
3. 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.
4. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
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. 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. Antenna Requirements

### 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.



## **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 FCC rule.

### **3.4.2 Antenna Anti-Replacement Construction**

An embedded-in antenna design is used.



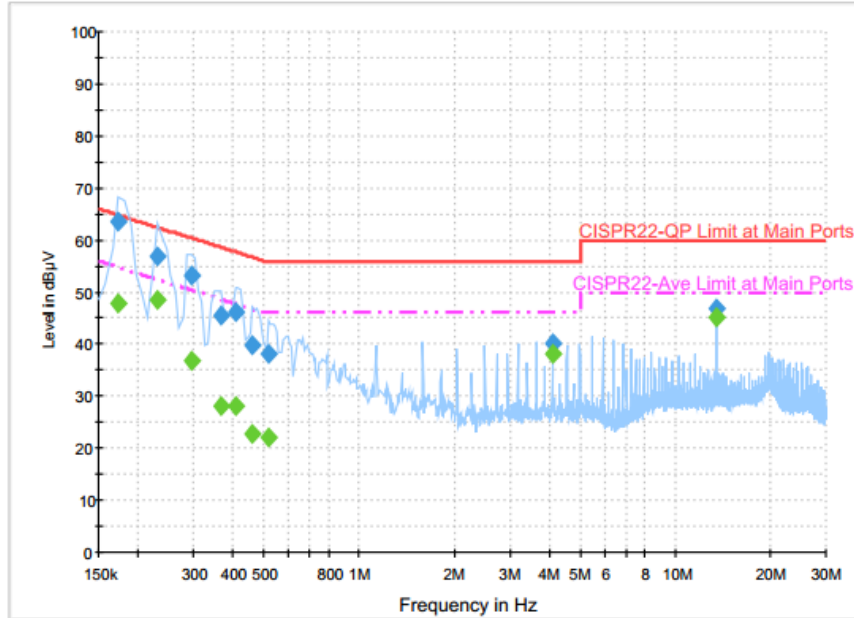
### 4. LIST OF MEASURING EQUIPMENT

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	Jun. 18, 2017	N/A	Conduction (CO05-HY)
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100724	9kHz~7GHz	Aug. 30, 2016	Jun. 18, 2017	Aug. 29, 2017	Conduction (CO05-HY)
LISN	Rohde & Schwarz	ENV216	100080	9kHz~30MHz	Nov. 29, 2016	Jun. 18, 2017	Nov. 28, 2017	Conduction (CO05-HY)
Amplifier	SONOMA	310N	187312	9kHz~1GHz	Nov. 10, 2016	Jun. 27, 2017~ Jun. 28, 2017	Nov. 09, 2017	Radiation (03CH11-HY)
Bilog Antenna	TESEQ	CBL 6111D&N-6-06	35414&AT-N0602	30MHz~1GHz	Oct. 15, 2016	Jun. 27, 2017~ Jun. 28, 2017	Oct. 14, 2017	Radiation (03CH11-HY)
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100488	9 kHz~30 MHz	Oct. 20, 2016	Jun. 27, 2017~ Jun. 28, 2017	Oct. 19, 2018	Radiation (03CH11-HY)
Spectrum Analyzer	Keysight	N9010A	MY54200486	10Hz ~ 44GHz	Oct. 12, 2016	Jun. 27, 2017~ Jun. 28, 2017	Oct. 11, 2017	Radiation (03CH11-HY)
Antenna Mast	EMEC	AM-BS-4500-B	N/A	1~4m	N/A	Jun. 27, 2017~ Jun. 28, 2017	N/A	Radiation (03CH11-HY)
Turn Table	EMEC	TT 2000	N/A	0~360 Degree	N/A	Jun. 27, 2017~ Jun. 28, 2017	N/A	Radiation (03CH11-HY)
EMI Test Receiver	Agilent	N9038A(MXE)	MY53290053	20Hz to 26.5GHz	Jan. 12, 2017	Jun. 27, 2017~ Jun. 28, 2017	Jan. 11, 2018	Radiation (03CH11-HY)



## Appendix A. Test Results of Conducted Emission Test

Test Mode :	NFC Tx	Test Voltage :	120Vac / 60Hz
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + NFC Tx + WPC Back cover + Battery + PMA Charging pad + Adapter		



### Final Result : Quasi-Peak

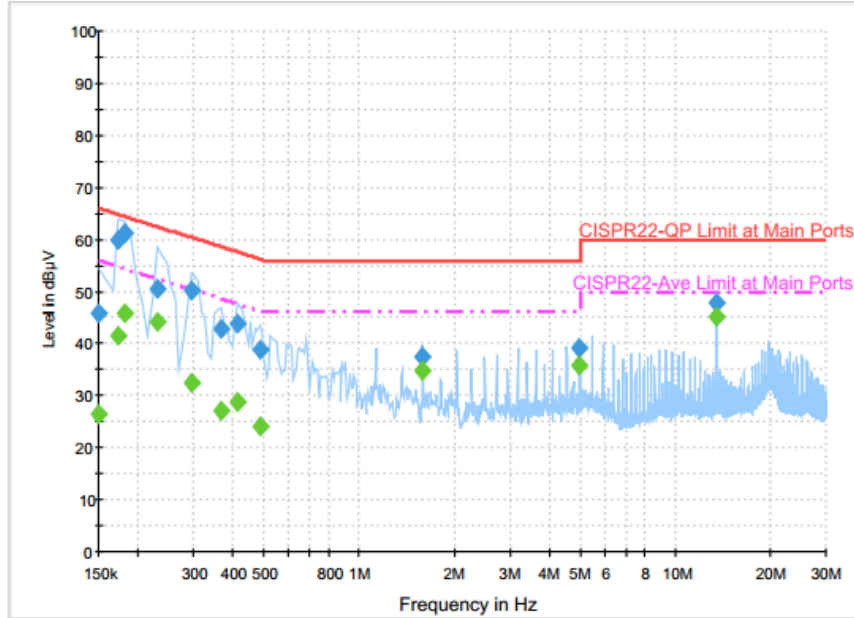
Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	57.1	Off	L1	19.6	8.1	65.2
0.222000	49.4	Off	L1	19.6	13.3	62.7
0.246000	50.3	Off	L1	19.6	11.6	61.9
0.286000	40.3	Off	L1	19.6	20.3	60.6
0.334000	41.3	Off	L1	19.6	18.1	59.4
0.406000	36.5	Off	L1	19.6	21.2	57.7
0.734000	40.4	Off	L1	19.6	15.6	56.0
1.718000	40.7	Off	L1	19.6	15.3	56.0
13.558000	45.3	Off	L1	20.2	14.7	60.0

### Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	35.2	Off	L1	19.6	20.0	55.2
0.222000	33.4	Off	L1	19.6	19.3	52.7
0.246000	46.1	Off	L1	19.6	5.8	51.9
0.286000	27.3	Off	L1	19.6	23.3	50.6
0.334000	26.9	Off	L1	19.6	22.5	49.4
0.406000	21.9	Off	L1	19.6	25.8	47.7
0.734000	37.3	Off	L1	19.6	8.7	46.0
1.718000	37.6	Off	L1	19.6	8.4	46.0
13.558000	43.3	Off	L1	20.2	6.7	50.0



Test Mode :	NFC Tx	Test Voltage :	120Vac / 60Hz
Function Type :	GSM850 Idle + Bluetooth Link + WLAN Link + NFC Tx + WPC Back cover + Battery + PMA Charging pad + Adapter		



**Final Result : Quasi-Peak**

Frequency (MHz)	Quasi-Peak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	55.7	Off	N	19.5	9.5	65.2
0.222000	48.8	Off	N	19.5	13.9	62.7
0.246000	47.7	Off	N	19.5	14.2	61.9
0.286000	42.4	Off	N	19.5	18.2	60.6
0.326000	42.8	Off	N	19.5	16.8	59.6
0.406000	38.4	Off	N	19.5	19.3	57.7
4.446000	39.0	Off	N	19.7	17.0	56.0
13.558000	46.6	Off	N	19.7	13.4	60.0

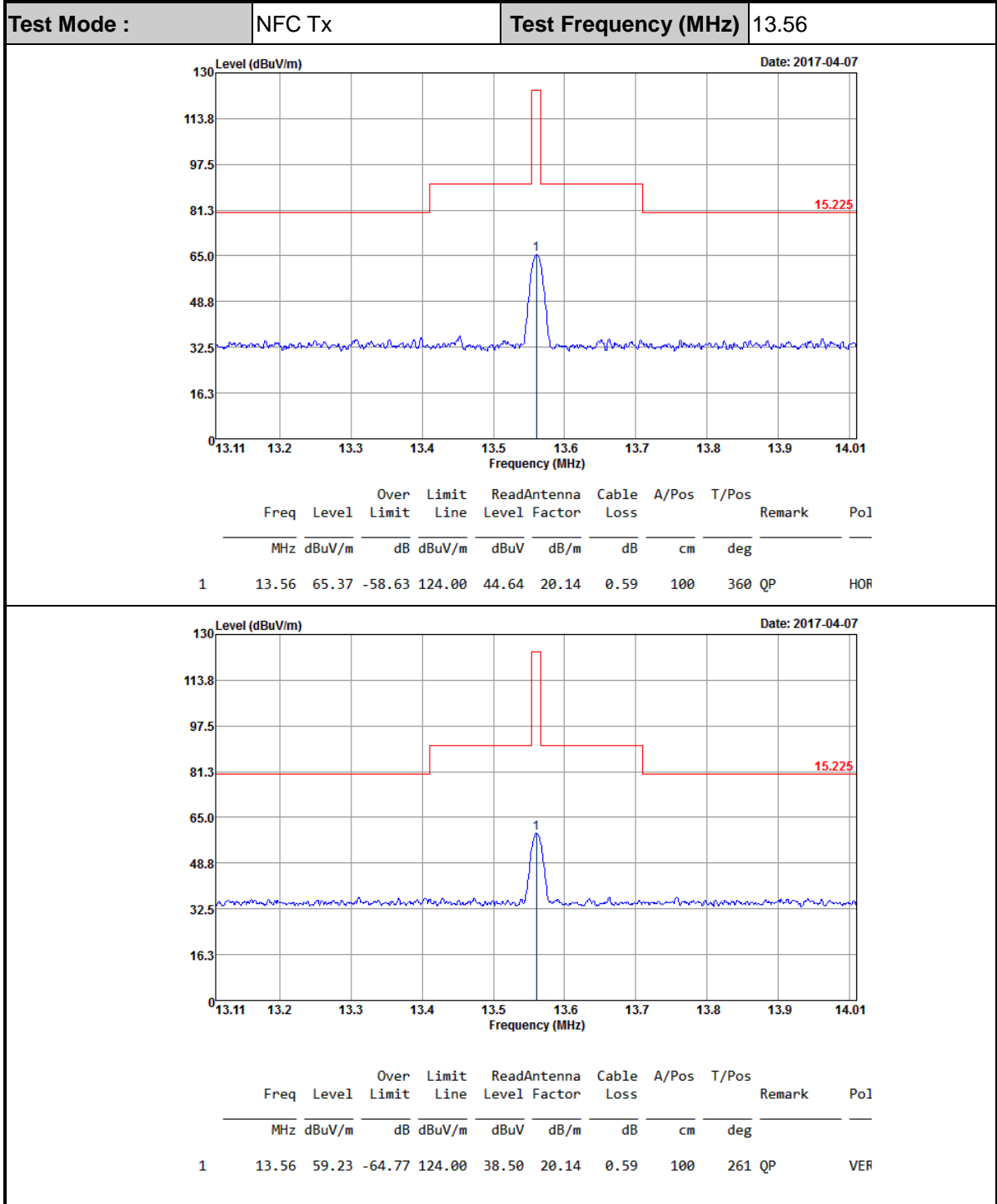
**Final Result : Average**

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	37.7	Off	N	19.5	17.5	55.2
0.222000	32.0	Off	N	19.5	20.7	52.7
0.246000	44.1	Off	N	19.5	7.8	51.9
0.286000	25.4	Off	N	19.5	25.2	50.6
0.326000	27.5	Off	N	19.5	22.1	49.6
0.406000	21.8	Off	N	19.5	25.9	47.7
4.446000	33.7	Off	N	19.7	12.3	46.0
13.558000	43.7	Off	N	19.7	6.3	50.0



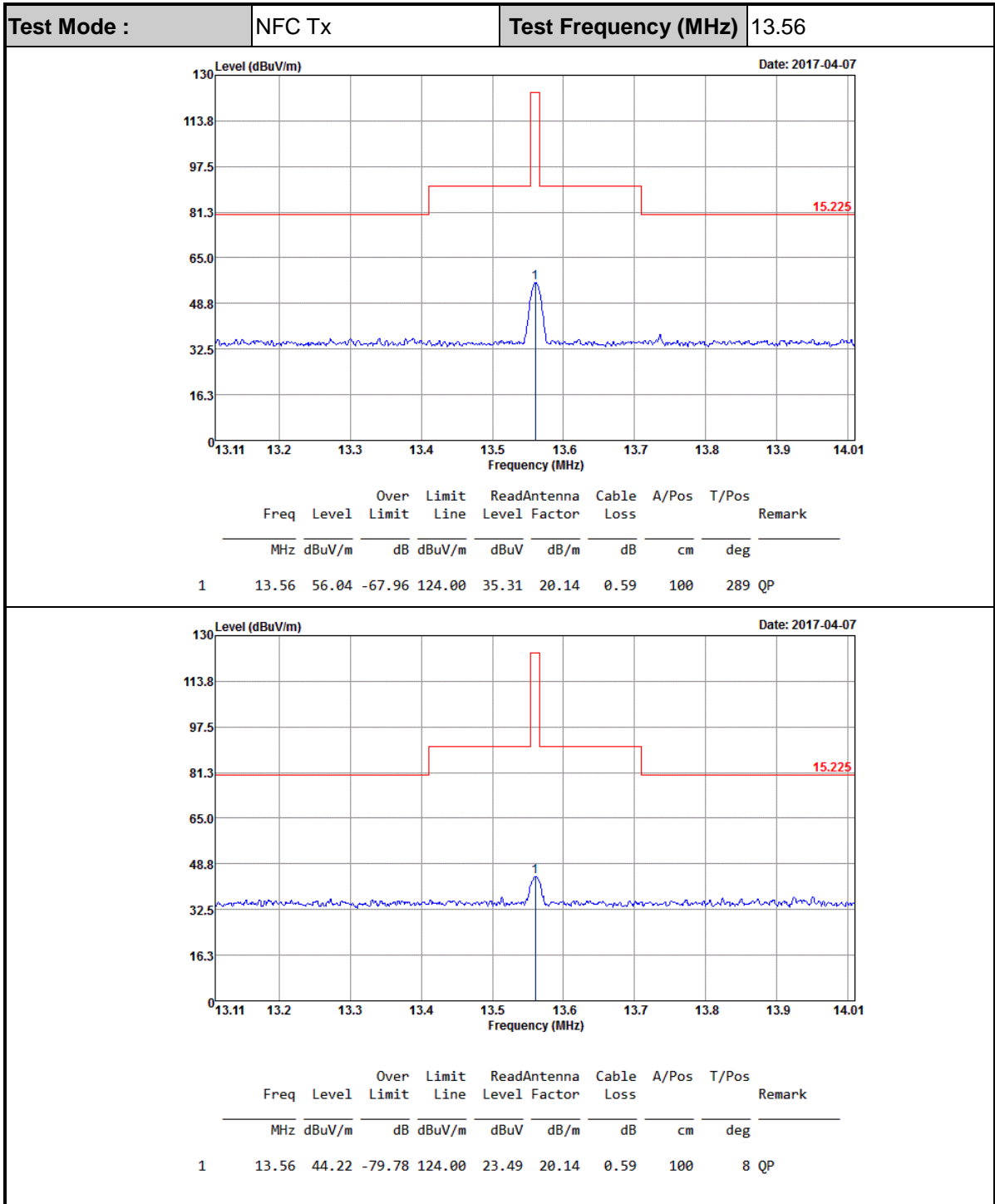
# Appendix B. Test Results of Radiated Test Items

## B1. Test Result of Field Strength of Fundamental Emissions <WPC Charging Mode>





<PMA Charging Mode>





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

**<WPC Charging Mode>**

<b>Test Mode :</b>	NFC Tx	<b>Polarization :</b>	Horizontal
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Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
0.01925	51.08	-70.84	121.92	31.02	20.05	0.01	-	-	Average
0.06363	53.31	-58.22	111.53	33.24	20.06	0.01	-	-	Average
0.09384	47.56	-60.6	108.16	27.54	20.01	0.01	-	-	QP
0.1384	60.8	-43.98	104.78	40.79	20	0.01	-	-	Average
0.41384	58.32	-36.95	95.27	38.19	19.97	0.16	-	-	Average
1.647	53.43	-9.84	63.27	33.07	20.02	0.34	100	0	QP
11.608	50.02	-19.48	69.5	29.43	20.13	0.46	-	-	QP
13.56	65.14	-4.36	69.5	44.41	20.14	0.59	-	-	QP
22.021	38.19	-31.31	69.5	17.06	20.51	0.62	-	-	QP
27.97	36.98	-32.52	69.5	16.09	20.27	0.62	-	-	QP

<b>Test Mode :</b>	NFC Tx	<b>Polarization :</b>	Vertical
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Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
0.0192	42.85	-79.09	121.94	22.79	20.05	0.01	-	-	Average
0.06255	45.32	-66.36	111.68	25.25	20.06	0.01	-	-	Average
0.0938	40.92	-67.24	108.16	20.9	20.01	0.01	-	-	QP
0.13152	55.85	-49.37	105.22	35.84	20	0.01	-	-	Average
0.39616	53.06	-42.59	95.65	32.93	19.97	0.16	-	-	Average
1.669	41.14	-22.01	63.15	20.78	20.02	0.34	100	0	QP
9.664	35.7	-33.8	69.5	15.22	20.12	0.36	-	-	QP
13.56	59.08	-10.42	69.5	38.35	20.14	0.59	-	-	QP
23.065	35.54	-33.96	69.5	14.38	20.53	0.63	-	-	QP
27	35.66	-33.84	69.5	14.65	20.38	0.63	-	-	QP

**Note:**

1. 13.56 MHz is fundamental signal which can be ignored.
2. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
3. Distance extrapolation factor = 40 log (specific distance / test distance) (dB);
4. Limit line = specific limits (dBμV) + distance extrapolation factor.



<PMA Charging Mode>

Test Mode :	NFC Tx	Polarization :	Horizontal
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Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
0.01925	50.32	-71.6	121.92	30.26	20.05	0.01	-	-	Average
0.06021	52.04	-59.97	112.01	31.97	20.06	0.01	-	-	Average
0.0925	47.96	-60.32	108.28	27.94	20.01	0.01	-	-	QP
0.11276	46.84	-59.72	106.56	26.83	20	0.01	-	-	Average
0.22412	50.61	-49.98	100.59	30.6	19.98	0.03	-	-	Average
1.632	52.4	-10.95	63.35	32.04	20.02	0.34	100	0	QP
9.76	41.31	-28.19	69.5	20.83	20.12	0.36	-	-	QP
13.56	56.16	-13.34	69.5	35.43	20.14	0.59	-	-	QP
23.974	37.42	-32.08	69.5	16.25	20.54	0.63	-	-	QP
25.695	37.02	-32.48	69.5	15.89	20.5	0.63	-	-	QP

Test Mode :	NFC Tx	Polarization :	Vertical
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Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
0.01925	42.52	-79.4	121.92	22.46	20.05	0.01	-	-	Average
0.07518	40.42	-69.66	110.08	20.4	20.01	0.01	-	-	Average
0.10938	44.24	-62.59	106.83	24.22	20.01	0.01	-	-	QP
0.11332	41.68	-64.84	106.52	21.67	20	0.01	-	-	Average
0.23296	39.93	-60.33	100.26	19.93	19.97	0.03	-	-	Average
1.617	41.62	-21.81	63.43	21.26	20.02	0.34	100	0	QP
12.536	35.55	-33.95	69.5	14.9	20.13	0.52	-	-	QP
13.56	45.04	-24.46	69.5	24.31	20.14	0.59	-	-	QP
19.663	36.31	-33.19	69.5	15.34	20.36	0.61	-	-	QP
25.91	36.19	-33.31	69.5	15.07	20.49	0.63	-	-	QP

Note:

- 13.56 MHz is fundamental signal which can be ignored.
- The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
- Distance extrapolation factor = 40 log (specific distance / test distance) (dB);
- Limit line = specific limits (dBμV) + distance extrapolation factor.



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

<WPC Charging Mode>

Test Mode :	NFC Tx	Polarization :	Horizontal
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Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
40.8	31.31	-8.69	40	44.03	18.83	0.94	32.49	-	-	Peak
94.8	41.82	-1.68	43.5	57.71	15.32	1.27	32.48	179	113	QP
94.8	43.96	0.46	43.5	59.85	15.32	1.27	32.48	179	113	Peak
206.04	29.01	-14.49	43.5	44.58	15.02	1.8	32.39	-	-	Peak
568.8	28.34	-17.66	46	31.72	26.04	3.02	32.44	-	-	Peak
864.9	32.28	-13.72	46	31.08	29.37	3.67	31.84	-	-	Peak
944	32.95	-13.05	46	29.86	30.53	3.82	31.26	-	-	Peak

Test Mode :	NFC Tx	Polarization :	Vertical
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Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
40.53	36.88	-3.12	40	49.6	18.83	0.94	32.49	-	-	Peak
94.8	40.82	-2.68	43.5	56.71	15.32	1.27	32.48	100	115	QP
94.8	43.98	0.48	43.5	59.87	15.32	1.27	32.48	100	115	Peak
198.75	29.16	-14.34	43.5	44.91	14.92	1.72	32.39	-	-	Peak
764.1	30.28	-15.72	46	30.84	28.25	3.47	32.28	-	-	Peak
874	32.48	-13.52	46	31.27	29.28	3.73	31.8	-	-	Peak
929.3	32.9	-13.1	46	30.54	29.94	3.81	31.39	-	-	Peak

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 (dBμV/m) = 20 log Emission level (μV/m).
3. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor= Level.



<PMA Charging Mode>

Test Mode :	NFC Tx	Polarization :	Horizontal
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Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
40.8	26.25	-13.75	40	38.97	18.83	0.94	32.49	-	-	Peak
94.8	37	-6.5	43.5	52.89	15.32	1.27	32.48	100	0	Peak
158.25	24.36	-19.14	43.5	38.66	16.52	1.61	32.43	-	-	Peak
710.2	29.49	-16.51	46	31.62	26.93	3.38	32.44	-	-	Peak
811	33.65	-12.35	46	33.94	28.3	3.53	32.12	-	-	Peak
913.9	32.71	-13.29	46	31	29.44	3.8	31.53	-	-	Peak

Test Mode :	NFC Tx	Polarization :	Vertical
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Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
54.84	31.5	-8.5	40	50.8	12.25	0.94	32.49	100	0	Peak
82.65	29.3	-10.7	40	47.02	13.54	1.22	32.48	-	-	Peak
94.8	25.05	-18.45	43.5	40.94	15.32	1.27	32.48	-	-	Peak
787.2	30.48	-15.52	46	30.89	28.31	3.5	32.22	-	-	Peak
839.7	31.48	-14.52	46	30.87	28.95	3.63	31.97	-	-	Peak
958.7	34.54	-11.46	46	30.65	31.14	3.87	31.12	-	-	Peak

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 (dBμV/m) = 20 log Emission level (μV/m).
3. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor= Level.