MEASUREMENT REPORT

FCC PART 15.225 NFC

FCC ID:	MQT-AT17017U
APPLICANT:	XAC Automation Corporation
Application Type:	Certification
Product:	Terminal
Model No.:	xCL_AT-170-17U
Brand Name:	XAC
FCC Classification:	Part 15 Low Power Communication Device Transmitter (DXX)
FCC Rule Part(s):	Part 15 Subpart C (Section 15.225)
Test Procedure(s):	ANSI C63.10-2013
Test Date:	December 25, 2017 ~ March 11, 2018

Reviewed By : Sunny Sun
(Sunny Sun)

Approved By : Marlin Chen
(Marlin Chen)

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date	Note
1802RSU006-U4	Rev. 01	Initial Report	04-13-2018	Valid

CONTENTS

Description Page

§2.1033 General Information 5

1. INTRODUCTION 6

1.1. Scope 6
1.2. MRT Test Location 6

2. PRODUCT INFORMATION 7

2.1. Equipment Description 7
2.2. Test Mode 7
2.3. Device Capabilities 7
2.4. Test Configuration 7
2.5. EMI Suppression Device(s)/Modifications 7
2.6. Labeling Requirements 8

3. DESCRIPTION OF TEST 9

3.1. Evaluation Procedure 9
3.2. AC Line Conducted Emissions 9
3.3. Radiated Emissions 10

4. ANTENNA REQUIREMENTS 11

5. TEST EQUIPMENT CALIBRATION DATA 12

6. MEASUREMENT UNCERTAINTY 13

7. TEST RESULT 14

7.1. Summary 14
7.2. In-band Emission 15
7.2.1. Test Limit 15
7.2.2. Test Procedure Used 15
7.2.3. Test Setup 16
7.2.4. Test Result 17
7.3. Out-band Emission 18
7.3.1. Test Limit 18
7.3.2. Test Procedure Used 18
7.3.3. Test Setup 19
7.3.4. Test Result 20
7.4. 20dB Bandwidth 21
7.4.1. Test Limit 21
7.4.2. Test Procedure Used 21

7.4.3. Test Setup 21
7.4.4. Test Result 22
7.5. Frequency Tolerence 23
7.5.1. Test Limit 23
7.5.2. Test Procedure Used 23
7.5.3. Test Setup 23
7.5.4. Test Result 24
7.6. AC Conducted Emissions Measurement 25
7.6.1. Test Limit 25
7.6.2. Test Setup 25
7.6.3. Test Result 26
8. CONCLUSION 29

§2.1033 General Information

Applicant:	XAC Automation Corporation
Applicant Address:	4F., No. 30 Industry E. Road IX,Science-Based Industrial Park Hsin-Chu, 300, Taiwan, ROC
Manufacturer:	XAC Automation Corporation
Manufacturer Address:	4F., No. 30 Industry E. Road IX,Science-Based Industrial Park Hsin-Chu, 300, Taiwan, ROC
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
MRT FCC Registration No.:	893164
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- **MRT facility is a FCC registered (MRT Reg. No. 893164) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.**
- **MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.**
- **MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.**
- **MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, EU and TELEC Rules.**

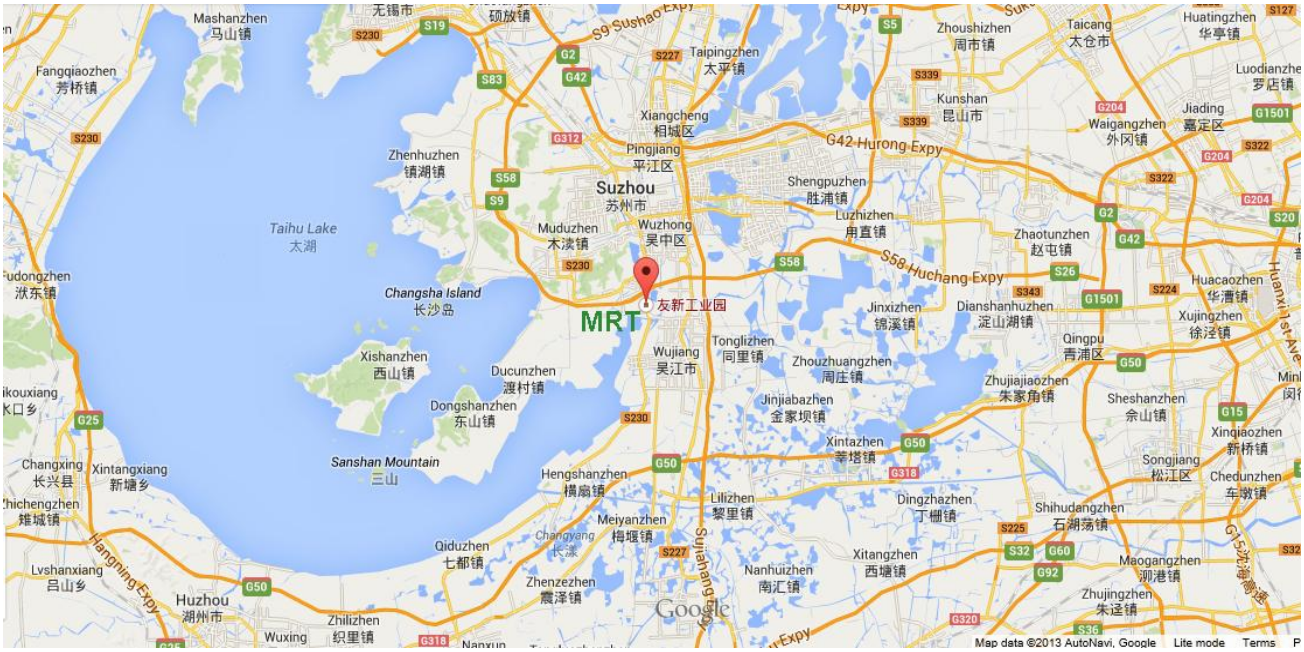
1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on September 30, 2013.



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name:	Terminal
Model No.:	xCL_AT-170-17U
Brand Name:	XAC
Wi-Fi Specification:	802.11b/g/n
Bluetooth Specification:	v4.2 dual mode
WCDMA Operation Band (s):	Band II / V (with Module approval)
NFC:	13.56MHz
Test Accessories	
Adapter	M/N: NBS10B050200VUU INPUT: 100-240V ~ 50/60Hz, 21-33VA 0.3A OUTPUT: 5Vdc, 2.0A
Battery:	Type: Li-ion Rechargeable Battery Model: J601/ICP567086P Capacity: 3.8V=19.76Wh 5200mAh

2.2. Test Mode

Test Mode
Mode 1: Transmit by NFC

□

2.3. Device Capabilities

This device contains the following capabilities:
2.4GHz WLAN (DTS), Bluetooth (v4.2 dual mode), NFC and WCDMA(with Module Approval).

2.4. Test Configuration

The device was set to continuous transmission. This was performance using manufacturer software loaded on the terminal to allow for continuous transmission. This device was tested in accordance with the guidance of ANSI C63.10-2013. ANSI C63.4-2014 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

2.5. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

2.6. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

3. DESCRIPTION OF TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013) was used in the measurement.

Deviation from measurement procedure…….....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions are used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013 at Clause 4.3.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. A MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.
For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 0.8 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.
Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 antenna of the Terminal is **permanently attached.**
- There are no provisions for connection to an external antenna.

Conclusion:

The unit complies with the requirement of §15.203.

5. TEST EQUIPMENT CALIBRATION DATA

Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2018/08/18
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2018/06/21
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2018/06/21
Thermohygrometer	Testo	608-H1	MRTSUE06404	1 year	2018/08/14
Shielding Anechoic Chamber	Mikebang	Chamber-SR2	MRTSUE06215	1 year	2018/05/10

Radiated Emission - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
MXE EMI Receiver	Agilent	N9038A	MRTSUE06125	1 year	2018/08/03
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2019/03/28
Loop Antenna	Schwarzbeck	FMZB1519	MRTSUE06025	1 year	2018/11/21
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2018/11/19
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06023	1 year	2018/10/22
Broadband Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06024	1 year	2019/01/04
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2018/08/14
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2018/05/10

Software	Version	Function
e3	V8.3.5	EMI Test Software

6. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

AC Conducted Emission Measurement - SR2
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 150kHz~30MHz: 3.46dB
Radiated Emission Measurement - AC1
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz ~ 1GHz: 4.18dB 1GHz ~ 25GHz: 4.76dB

7. TEST RESULT

7.1. Summary

Company Name: **XAC Automation Corporation**

FCC ID: **MQT-AT17017U**

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.225(a), (b), (c)	In-Band Emission	15.848uV/m @ 30m 13.553 ~ 13.567 MHz 334uV/m @ 30m 13.410 ~ 13.553 MHz 13.567 ~ 13.710 MHz 106uV/m @ 30m 13.110 ~ 13.410 MHz 13.710 ~ 14.010 MHz	Radiated	Pass	Section 7.2
15.225(d)	Out-Band Emission	Emissions outside of the specified band (13.110~14.010 MHz) must meet the radiated limits detailed in 15.209		Pass	Section 7.3
2.1049	20dB Bandwidth	N/A		Pass	Section 7.4
15.225(e)	Frequency Stability Tolerance	±0.01% of operating frequency		Pass	Section 7.5
15.207	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 7.6

Notes:

1) All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.
2) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.

7.2. In-band Emission

7.2.1.Test Limit

FCC Part 15 Subpart C Paragraph 15.225		
Frequency (MHz)	Distance (m)	Level (uV/m)
13.553 ~13.567	30	15,848
13.410 ~13.553 13.567 ~13.710	30	334.5
13.110 ~13.410 13.710 ~14.010	30	106
Note 1: The lower limit shall apply at the transition frequency. Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system. Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m)		

7.2.2.Test Procedure Used

The EUT was setup according to ANSI C63.4, 2014 and tested according to ANSI C63.10: 2013 for compliance to FCC 47CFR 15.247 requirements.

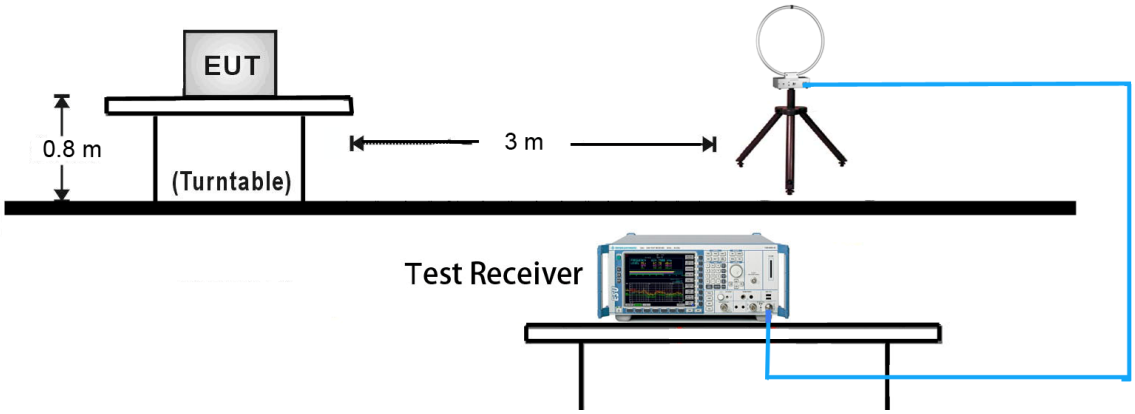
The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2014 on radiated measurement.

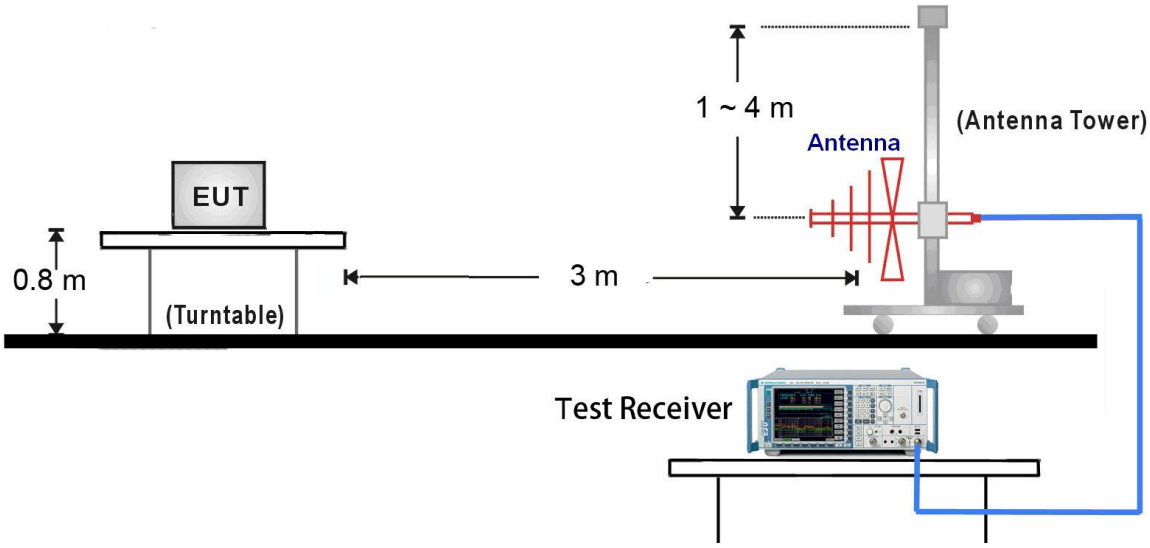
The EUT should be operated in transmission mode.

7.2.3.Test Setup

9kHz ~ 30MHz Test Setup:



30MHz ~ 1GHz Test Setup:



7.2.4.Test Result

Test Engineer	Snake Ni	Temperature	25°C
Test Time	2018/02/28	Relative Humidity	52%
Test Mode	Mode1	Test Site	AC1

Frequency	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (3m) [dBuV/m]	Margin [dB]
Face On					
13.40	38.45	19.85	58.30	80.51	-22.21
13.49	42.15	19.87	62.02	90.47	-28.45
13.56	61.10	19.87	80.97	123.99	-43.02
13.70	40.68	19.87	60.55	90.47	-29.92
13.78	39.28	19.88	59.16	80.51	-21.35
Face Off					
13.25	13.21	19.86	33.07	80.51	-47.44
13.49	37.18	19.87	57.05	90.47	-33.42
13.56	55.65	19.87	75.52	123.99	-48.47
13.64	37.72	19.86	57.58	90.47	-32.89
13.78	34.17	19.88	54.05	80.51	-26.46

Note 1: All measurements were performed using a loop antenna. The antenna was positioned in two orthogonal (face on and face off) and the position with the highest emission level was recorded.

Note 2: Measurements were tested at 3m and the data was extrapolated to the specified measurement distance of 30m using the square of an inverse linear extrapolation factor (40 dB/decade) as specified in &15.31(f)(2).

Extrapolation Factor = $40*\text{Log}_{10}(30/3) = 40$ dB

Note 3: All measurements were recorded using a EMI test receiver employing a quasi-peak detector.

7.3. Out-band Emission

7.3.1.Test Limit

FCC Part 15 Subpart C Paragraph 15.209		
Frequency [MHz]	Field Strength [uV/m]	Measured Distance [Meters]
0.009 ~ 0.490	2400/F (kHz)	300
0.490 ~ 1.705	24000/F (kHz)	30
1.705 ~ 30	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 frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

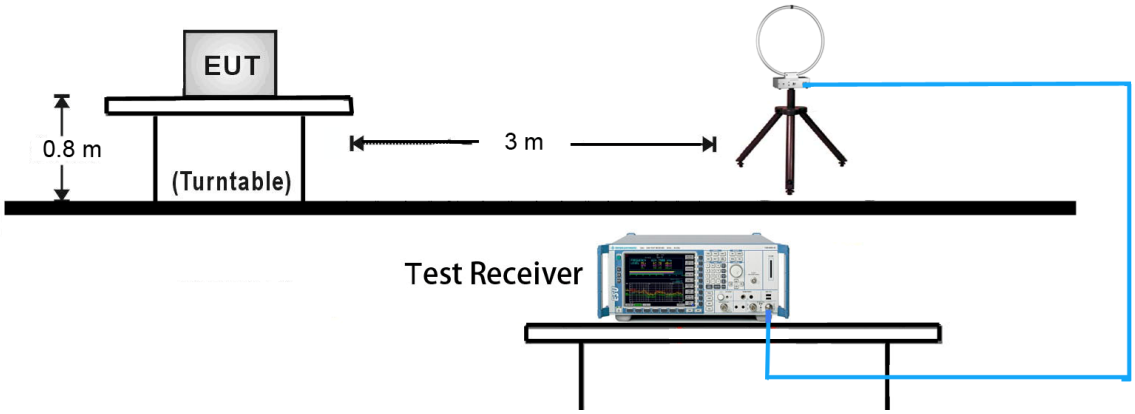
Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m)

7.3.2.Test Procedure Used

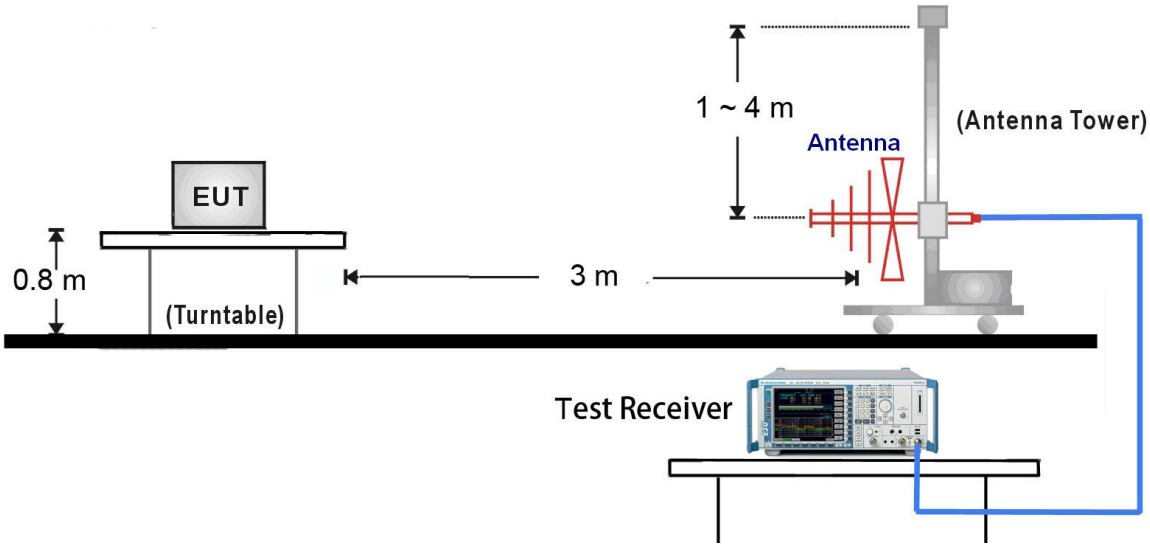
The EUT was tested from 9kHz up to the 1GHz excluding the band 13.110-14.010 MHz. All measurements were recorded with a spectrum analyzer employing an average detector for emissions below 30MHz. Above 30MHz a Quasi-peak detector was used. All out-of-band emissions must not exceed the limits shown as stated per Section 15.209. A loop antenna was used for searching for emissions below 30MHz.

7.3.3.Test Setup

9kHz ~ 30MHz Test Setup:



30MHz ~ 1GHz Test Setup:



7.3.4.Test Result

Test Engineer	Snake Ni	Temperature	25°C
Test Time	2018/02/28	Relative Humidity	52%
Test Mode	Mode1	Test Site	AC1

Out-Band Emission Below 30MHz						
Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
Face On						
27.12	3.70	19.51	23.21	69.54	-46.33	QP
Face Off						
27.12	3.00	19.51	22.51	69.54	-47.03	QP

Out-Band Emission Above 30MHz							
Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
H	131.37	11.05	13.94	24.99	43.50	-18.51	QP
H	146.40	9.61	15.03	24.64	43.50	-18.86	QP
H	253.10	11.88	13.09	24.97	46.00	-21.03	QP
H	274.44	12.88	13.74	26.62	46.00	-19.38	QP
H	455.83	7.01	18.00	25.01	46.00	-20.99	QP
H	480.08	8.93	18.28	27.21	46.00	-18.79	QP
V	60.56	13.97	13.33	27.30	40.00	-12.70	QP
V	76.56	14.20	10.62	24.82	40.00	-15.18	QP
V	114.88	15.13	12.65	27.78	43.50	-15.72	QP
V	240.01	11.38	12.87	24.25	46.00	-21.75	QP
V	480.08	6.08	18.28	24.36	46.00	-21.64	QP
V	556.71	9.09	19.68	28.77	46.00	-17.23	QP

Note 1: All measurements were performed using a loop antenna. The antenna was positioned in two orthogonal (face on and face off) and the position with the highest emission level was recorded.

Note 2: Measurements were tested at 3m and the data was extrapolated to the specified measurement distance of 30m using the square of an inverse linear extrapolation factor (40 dB/decade) as specified in &15.31(f)(2).

Extrapolation Factor = $40*\text{Log}_{10}$ (30/3) = 40 dB

Note 3: All measurements were recorded using a EMI test receiver employing a quasi-peak detector.

7.4. 20dB Bandwidth

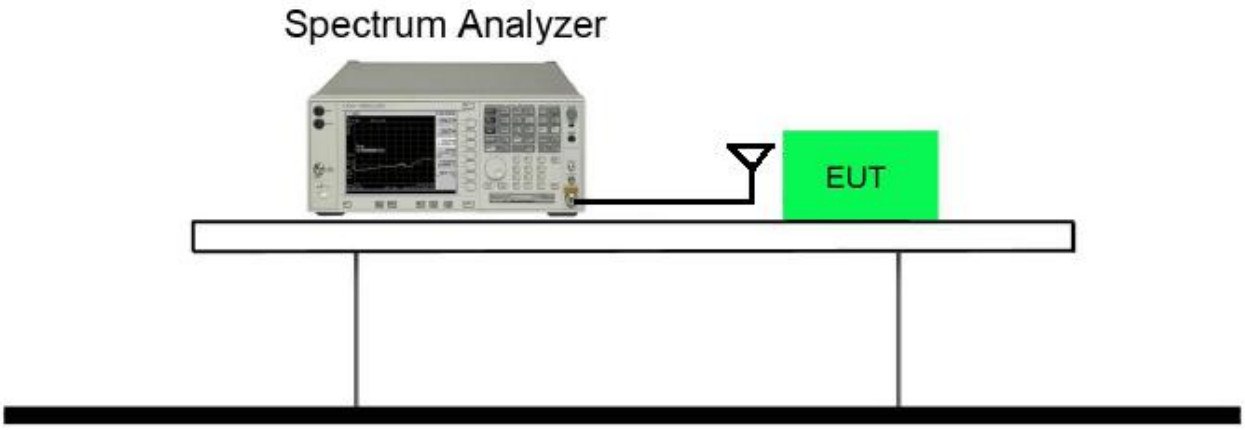
7.4.1.Test Limit

N/A

7.4.2.Test Procedure Used

The 20dB bandwidth is measured with a spectrum analyzer connected via a receive antenna placed near the EUT while the EUT is operating in transmission mode.

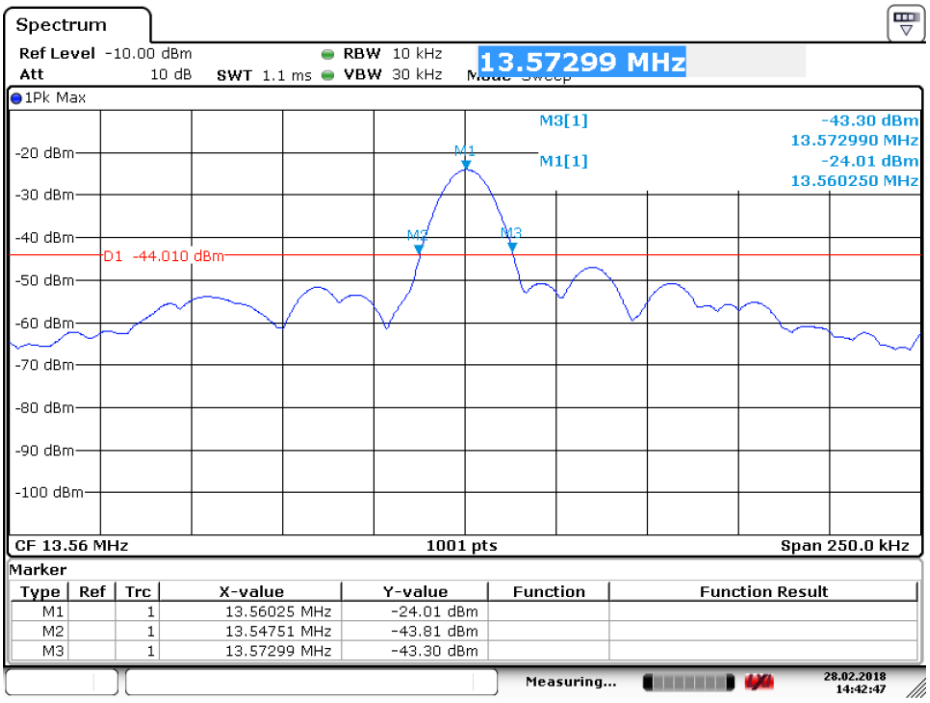
7.4.3.Test Setup



7.4.4.Test Result

Test Engineer	Snake Ni	Temperature	25°C
Test Time	2018/02/28	Relative Humidity	52%
Test Mode	Mode1	Test Site	AC1

Frequency (MHz)	Occupied Bandwidth (kHz)
13.56	25.48



Date: 28.FEB.2018 14:42:47

7.5. Frequency Tolerence

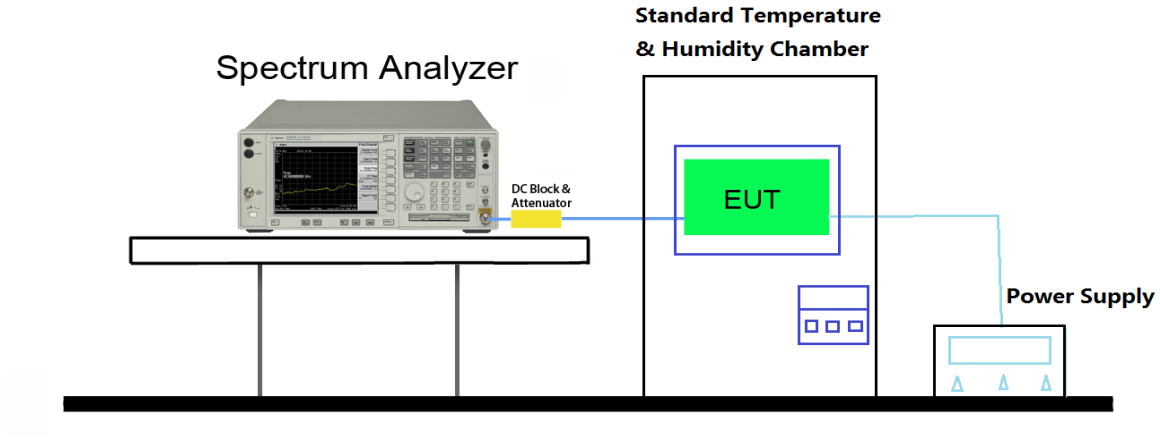
7.5.1.Test Limit

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency.

7.5.2.Test Procedure Used

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to highest. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C decreased per stage until the lowest temperature reached.

7.5.3.Test Setup



7.5.4.Test Result

Test Engineer	Snake Ni	Temperature	25°C
Test Time	2018/02/28	Relative Humidity	52%
Test Mode	Mode1	Test Site	AC1

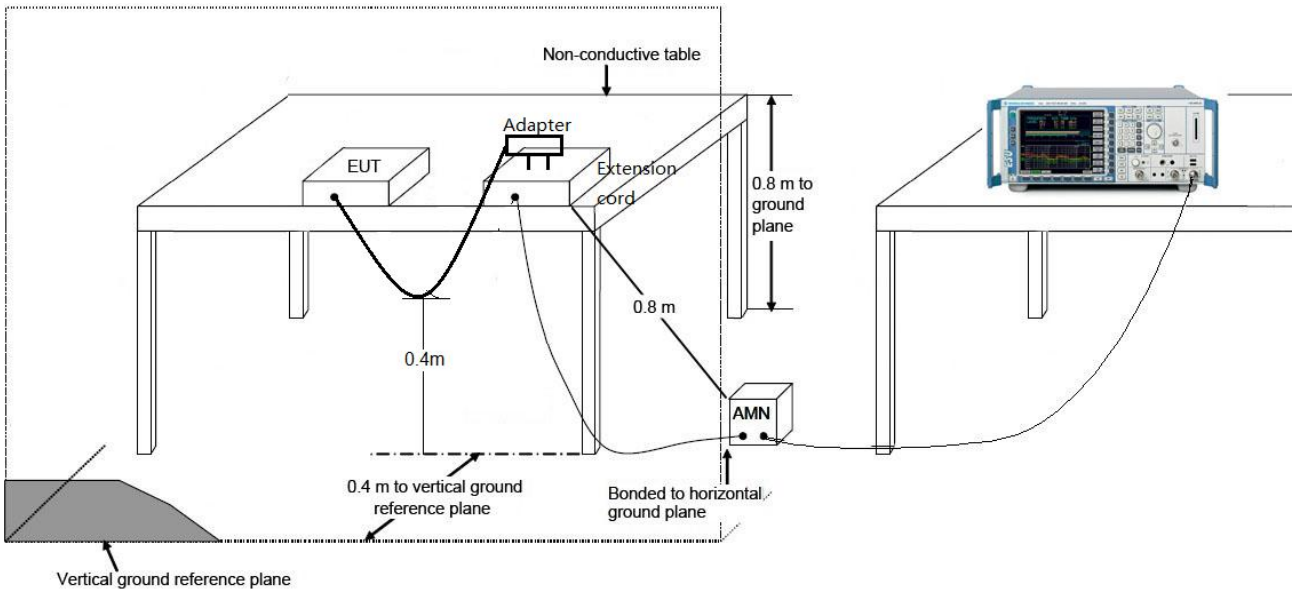
Operating Frequency: 13.56MHz					
Reference Voltage: 3.8Vdc					
Deviation Limit: +/- 0.01% = 1356Hz					
Voltage (%)	Power Battery (V)	TEMP (°C)	FREQ. (Hz)	FREQ. Dev. (Hz)	Limit FREQ. Dev. (Hz)
100%	3.80	+20(Ref)	13,561,022	1,022	-1356 ~ +1356
100%		-20	13,560,773	773	-1356 ~ +1356
100%		-10	13,560,824	824	-1356 ~ +1356
100%		0	13,559,636	-364	-1356 ~ +1356
100%		+10	13,559,732	-268	-1356 ~ +1356
100%		+20	13,559,784	-216	-1356 ~ +1356
100%		+30	13,560,785	785	-1356 ~ +1356
100%		+40	13,559,895	-105	-1356 ~ +1356
100%		+50	13,561,134	1,134	-1356 ~ +1356
Battery End Point	3.40	+20	13,560,895	895	-1356 ~ +1356
115%	4.37	+20	13,560,662	662	-1356 ~ +1356

7.6. AC Conducted Emissions Measurement

7.6.1.Test Limit

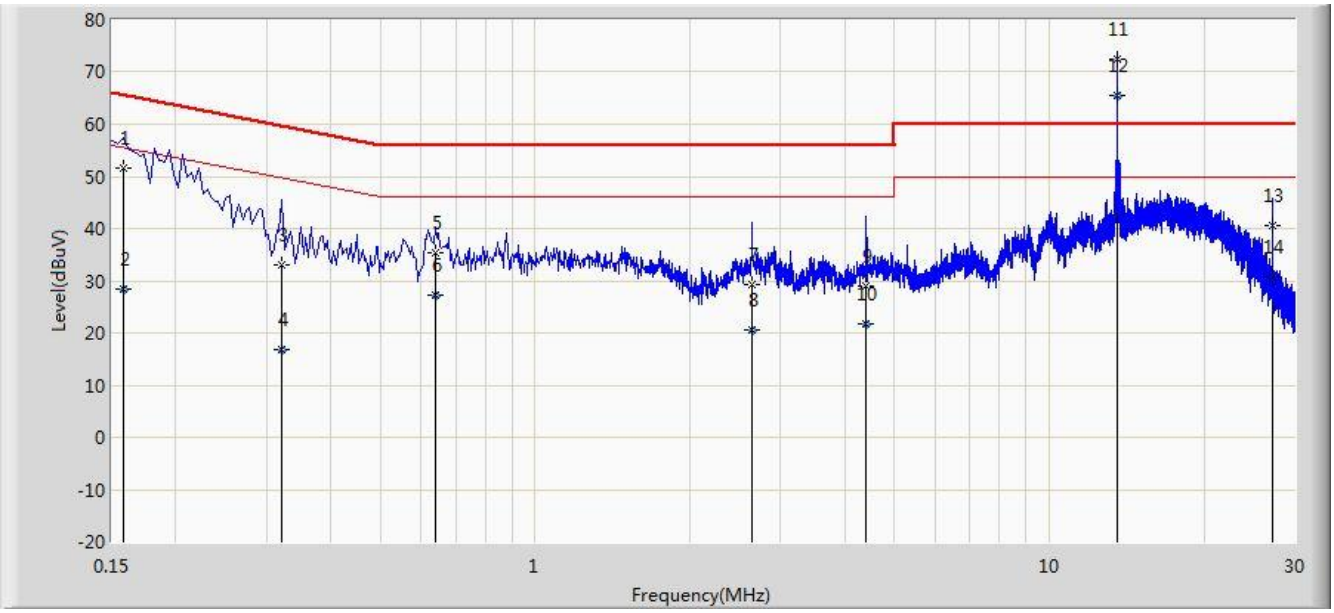
FCC 15.207 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 ~ 0.50	66 ~ 56	56 ~ 46
0.50 ~ 5.0	56	46
5.0 ~ 30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.		

7.6.2.Test Setup



7.6.3.Test Result

Site: SR2	Time: 2018/02/26 - 17:04
Limit: FCC_Part15.207_CE_AC Power	Engineer: Andy Zhu
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Terminal	Power: AC 120V/60Hz
Test Mode: Mode 1	



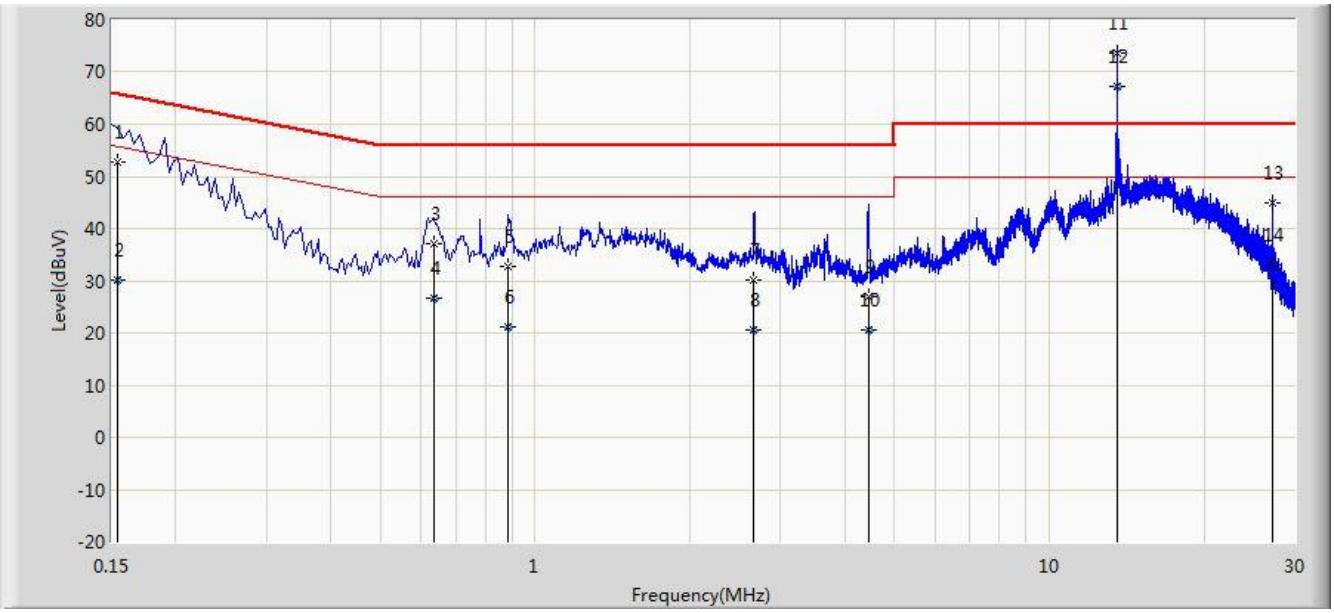
No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.158	51.576	41.265	-13.992	65.568	10.311	QP
2			0.158	28.512	18.201	-27.057	55.568	10.311	AV
3			0.322	33.144	23.122	-26.511	59.655	10.022	QP
4			0.322	16.706	6.684	-32.949	49.655	10.022	AV
5			0.638	35.418	25.323	-20.582	56.000	10.095	QP
6			0.638	27.172	17.077	-18.828	46.000	10.095	AV
7			2.638	29.217	19.365	-26.783	56.000	9.852	QP
8			2.638	20.555	10.703	-25.445	46.000	9.852	AV
9			4.402	28.966	18.982	-27.034	56.000	9.984	QP
10			4.402	21.772	11.788	-24.228	46.000	9.984	AV
11			13.562	72.460	62.402	N/A	N/A	10.058	QP
12		*	13.562	65.530	55.472	N/A	N/A	10.058	AV
13			27.122	40.700	30.455	-19.300	60.000	10.245	QP
14			27.122	30.661	20.416	-19.339	50.000	10.245	AV

Note 1: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Note 2: 13.56MHz (Point 11 & 12) is the NFC RF fundamental signal.

Site: SR2	Time: 2018/02/26 - 17:08
Limit: FCC_Part15.207_CE_AC Power	Engineer: Andy Zhu
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Terminal	Power: AC 120V/60Hz
Test Mode: Mode 1	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.154	52.789	42.073	-12.992	65.781	10.716	QP
2			0.154	30.266	19.550	-25.516	55.781	10.716	AV
3			0.634	37.212	27.100	-18.788	56.000	10.112	QP
4			0.634	26.573	16.461	-19.427	46.000	10.112	AV
5			0.886	32.609	22.637	-23.391	56.000	9.972	QP
6			0.886	21.144	11.172	-24.856	46.000	9.972	AV
7			2.662	30.237	20.381	-25.763	56.000	9.856	QP
8			2.662	20.588	10.732	-25.412	46.000	9.856	AV
9			4.462	26.856	16.860	-29.144	56.000	9.997	QP
10			4.462	20.667	10.671	-25.333	46.000	9.997	AV
11			13.562	73.566	63.466	N/A	N/A	10.100	QP
12		*	13.562	67.183	57.084	N/A	N/A	10.100	AV
13			27.122	44.985	34.616	-15.015	60.000	10.369	QP
14			27.122	33.130	22.760	-16.870	50.000	10.369	AV

Note 1: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Note 2: 13.56MHz (Point 11 & 12) is the NFC RF fundamental signal.

8. CONCLUSION

The data collected relate only the item(s) tested and show that the **Terminal** is in compliance with Part 15C of the FCC Rules.

The End