

MEASUREMENT REPORT

FCC PART 15.225 / NFC 13.56MHz

FCC ID: HD5-EDA520

Applicant: Honeywell International Inc
Honeywell Safety and Productivity Solutions

Application Type: Certification

Product: Mobile Computer

Model No.: EDA52-0

Brand Name: Honeywell

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

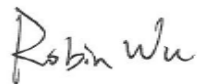
Test Date: April 19 ~ 25, 2021

Reviewed By:



Jame Yuan

Approved By:



Robin Wu



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 C63.10-2013. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2102RSU043-U6	Rev. 01	Initial Report	04-27-2021	Valid

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1. General Information

1.1. Applicant

Honeywell International Inc
Honeywell Safety and Productivity Solutions
9680 Old Baires Road, Fort Mill, SC 29707 United States

1.2. Manufacturer

Honeywell International Inc
Honeywell Safety and Productivity Solutions
9680 Old Bailes Road, Fort Mill, SC 29707 United States

1.3. Testing Facility

☒	Test Site – MRT Suzhou Laboratory
	Laboratory Location (Suzhou – Wuzhong) D8 Building, No.2 Tian’edang Rd., Wuzhong Economic Development Zone, Suzhou, China
	Laboratory Location (Suzhou – SIP) 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China
	Laboratory Accreditations
	A2LA: 3628.01 FCC: CN1166 VCCI: R-20025, G-20034, C-20020, T-20020
	CNAS: L10551 ISED: CN0001
☐	Test Site – MRT Shenzhen Laboratory
	Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China
	Laboratory Accreditations
	A2LA: 3628.02 FCC: CN1284
	CNAS: L10551 ISED: CN0105
☐	Test Site – MRT Taiwan Laboratory
	Laboratory Location (Taiwan) No. 38, Fuxing 2 nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)
	Laboratory Accreditations
	TAF: L3261-190725 FCC: 291082, TW3261
	ISED: TW3261

2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name	Mobile Computer
Model No.	EDA52-0
Test Device Label No.	Conducted Sample: 20210209Sample#01
	Radiated Sample: 20210209Sample#02
Wi-Fi Specification	802.11a/b/g/n/ac
Bluetooth Version	v5.0 dual mode
Antenna Delivery	1*T _x + 1*R _x
NFC Specification	Active, 13.56MHz
Accessories	
USB Adapter	Model No.: ADS-12B-06 05010E Input Power: 100 - 240V ~ 50/60Hz, Max. 0.3A Output Power: 5VDC 2.0A
Rechargeable Li-ion Battery	Model No.: BAT-EDA52 Capacitance: 4500mAh Rated Voltage: 3.8V

2.2. Radio Specification

Frequency Range	13.56MHz
Channel Number	1
Type of modulation	ASK
Antenna Type	Loop Antenna

Note 1: For other features of this EUT, test report will be issued separately.

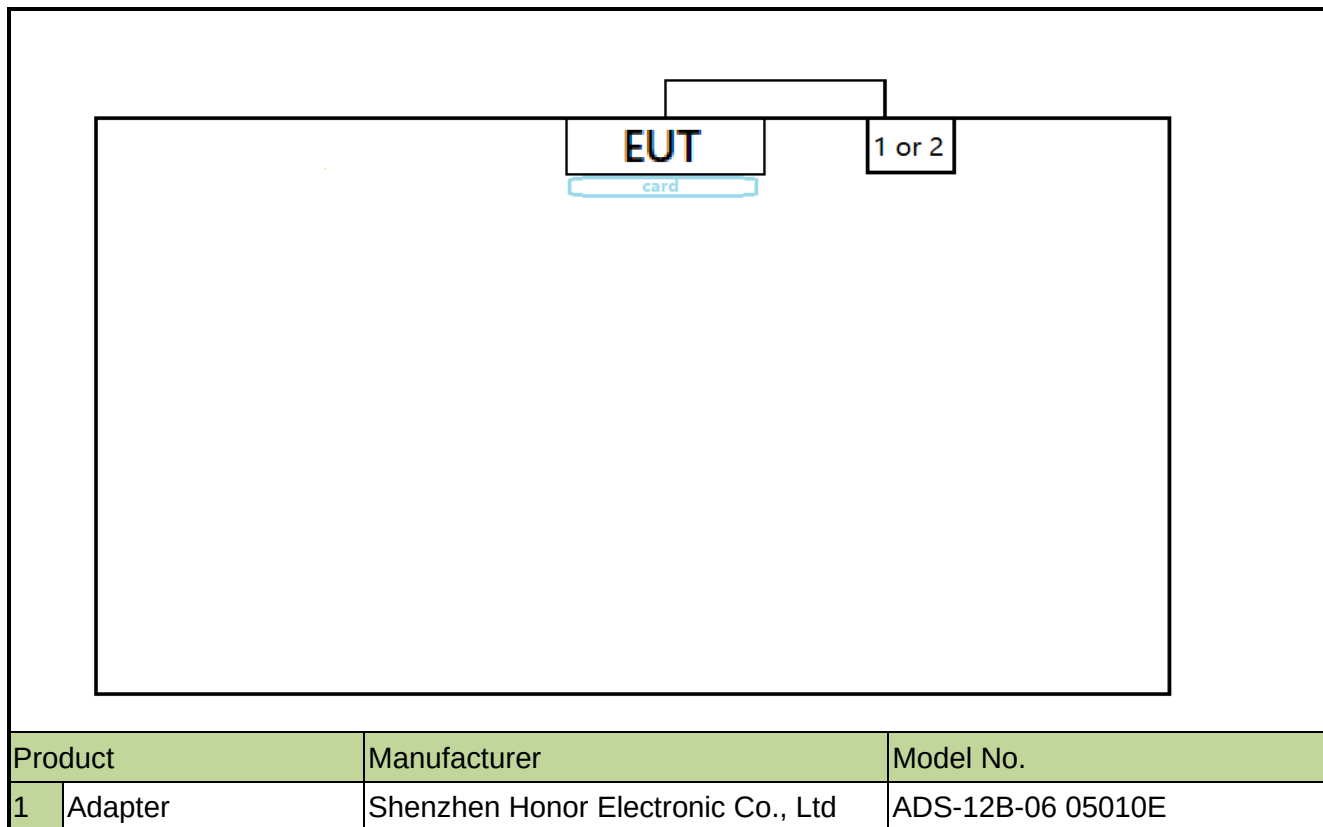
Note 2: All product information is provided by the manufacturer.

2.3. Test Mode

Test Mode
Mode 1: Transmit by NFC

2.4. Test Configuration and Software

The device was tested per the guidance ANSI C63.10-2013 that was used to reference the appropriate EUT setup for radiated spurious emissions and AC line conducted emission 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. Test Environment Condition

Ambient Temperature	15 ~ 35 °C
Relative Humidity	20 ~75 %RH

3. 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 **Mobile Computer** is **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The unit complies with the requirement of §15.203.

4. TEST EQUIPMENT CALIBRATION DATE

Conducted Emission - (WZ-SR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2022/01/12
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2021/09/09
Thermal Hygrometer	testo	608-H1	MRTSUE06404	1 year	2021/07/26
Shielding Room	MIX-BEP	Chamber-SR2	MRTSUE06215	N/A	N/A

Conducted Emission - (SIP-SR2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2021/07/02
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2021/09/09
Thermal Hygrometer	testo	608-H1	MRTSUE06621	1 year	2021/12/03

Radiated Emission - (WZ-AC1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2022/01/12
PXA Signal Analyzer	Keysight	N9030B	MRTSUE06395	1 year	2021/08/30
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/10/22
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2021/08/08
Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2021/09/27
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06597	1 year	2021/12/14
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2021/11/14
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2021/06/11
EMC Cable	HUBER SUHNER	SF106	MRTSUE11034	1 year	2021/12/12
Thermal Hygrometer	testo	608-H1	MRTSUE06403	1 year	2021/07/26
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2021/04/30
				1 year	2022/04/29

Radiated Emission - (WZ-AC2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
MXE EMI Receiver	Keysight	N9038A	MRTSUE06125	1 year	2021/07/02
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/10/22
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2021/05/26
Broad-Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06171	1 year	2021/10/25
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06597	1 year	2021/12/14
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2021/11/14
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2021/06/11
Thermal Hygrometer	Minggao	ETH529	MRTSUE06170	1 year	2021/12/08
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2021/04/30
				1 year	2022/04/29

Radiated Emission - (SIP-AC1)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2021/07/02
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2021/07/23
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/10/22
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06645	1 year	2021/08/30
Double Ridged Horn Antenna	R&S	HF907	MRTSUE06610	1 year	2021/08/30
Preamplifier	EMCI	EMC051845SE	MRTSUE06600	1 year	2021/11/09
Thermal Hygrometer	testo	608-H1	MRTSUE06620	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC1	MRTSUE06554	1 year	2021/12/24

Radiated Emission - (SIP-AC2)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06613	1 year	2021/07/02
MXA Signal Analyzer	Keysight	N9020B	MRTSUE06604	1 year	2021/09/26
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/10/22
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06646	1 year	2021/08/30
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06648	1 year	2021/11/26
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06599	1 year	2021/11/26
Preamplifier	EMCI	EMC051845SE	MRTSUE06644	1 year	2021/11/09
Preamplifier	EMCI	EMC184045SE	MRTSUE06602	1 year	2021/10/12
Thermal Hygrometer	testo	608-H1	MRTSUE06624	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC2	MRTSUE06781	1 year	2021/12/24

Radiated Emission - (SIP-AC3)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06612	1 year	2021/07/02
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06559	1 year	2021/07/23
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2021/10/22
Bilog Period Antenna	Schwarzbeck	VULB9168	MRTSUE06647	1 year	2021/08/08
Double Ridged Horn Antenna	R&S	HF907	MRTSUE06611	1 year	2021/09/13
Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06598	1 year	2021/11/26
Preamplifier	EMCI	EMC012645SE	MRTSUE06642	1 year	2022/01/15
Preamplifier	EMCI	EMC184045SE	MRTSUE06641	1 year	2022/01/15
Thermal Hygrometer	testo	608-H1	MRTSUE06622	1 year	2021/12/03
Anechoic Chamber	RIKEN	SIP-AC3	MRTSUE06782	1 year	2021/12/24

Conducted Test Equipment - (WZ-TR3)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2022/04/13
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06607	1 year	2022/01/07
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2022/04/13
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2021/10/22
USB wideband power sensor	Keysight	U2021XA	MRTSUE06446	1 year	2021/08/30
USB wideband power sensor	Keysight	U2021XA	MRTSUE06447	1 year	2021/08/08
Bluetooth Test Set	Anritsu	MT8852B-042	MRTSUE06389	1 year	2021/06/11
Audio Analyzer	Agilent	U8903B	MRTSUE06143	1 year	2021/06/11
Modulation Analyzer	HP	HP8901A	MRTSUE06098	1 year	2021/09/26
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2021/10/20
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2021/10/22
Thermal Hygrometer	testo	608-H1	MRTSUE06401	1 year	2021/07/26

Conducted Test Equipment - (SIP-SR5)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2022/04/13
PXA Signal Analyzer	Keysight	N9030B	MRTSUE06395	1 year	2021/08/30
USB wideband power sensor	Agilent	U2021XA	MRTSUE06595	1 year	2021/09/26
USB wideband power sensor	Agilent	U2021XA	MRTSUE06596	1 year	2021/09/26
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2021/10/20
Bluetooth Test Set	Anritsu	MT8852B-042	MRTSUE06389	1 year	2021/06/11
Temperature Chamber	BAOYT	BYG-408CS	MRTSUE06847	1 year	2022/02/23
Thermal Hygrometer	testo	622	MRTSUE06629	1 year	2021/11/25

Software	Version	Function
EMI Software	V3	EMI Test Software

5. 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
Measurement Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 9kHz~150kHz: 3.74dB 150kHz~30MHz: 3.44dB
Radiated Disturbance
Measurement Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): Horizontal: 9kHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~40GHz: 6.40dB Vertical: 9kHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB
Spurious Emissions, Conducted
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 1.13dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.28%

6. TEST RESULT

6.1. Summary

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.225 (a), (b), (c)	In-Band Emission	15.848 μ V/m @ 30m 13.553 ~ 13.567 MHz 334 μ V/m @ 30m 13.410 ~ 13.553 MHz 13.567 ~ 13.710 MHz 106 μ V/m @ 30m 13.110 ~ 13.410 MHz 13.710 ~ 14.010 MHz	Radiated	Pass	Section 6.2
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 6.3
2.1049	20dB Bandwidth 99% Bandwidth	N/A		Pass	Section 6.4
15.225(e)	Frequency Stability Tolerance	$\pm 0.01\%$ of operating frequency		Pass	Section 6.5
15.207	AC Conducted Emissions 150kHz - 30MHz	< FCC 15.207 limits	Line Conducted	Pass	Section 6.6

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.

6.2. In-band Emission

6.2.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.225		
Frequency (MHz)	Distance (m)	Level (μ V/m)
13.553 ~13.567	30	15848
13.410 ~13.553, 13.567 ~13.710	30	334
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 (dB μ V/m) = 20 log E field strength (μ V/m)		

6.2.2. Test Procedure Used

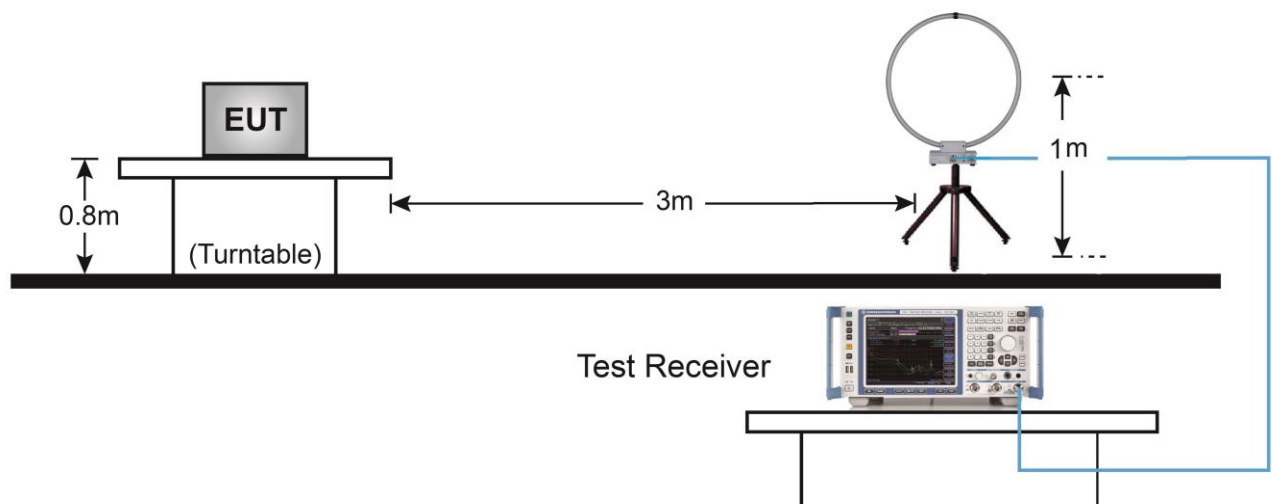
ANSI C63.10-2013 - Section 6.4.7

6.2.3. Test Setting

1. RBW = 9kHz
2. VBW = 3 * RBW
3. Detector = Peak
4. Trace mode = Max hold
5. Sweep = Auto couple
6. Allow the trace to stabilize

6.2.4. Test Setup

9kHz ~ 30MHz Test Setup:



6.2.5. Test Result

Test Engineer	Buter Shi	Test Date	2021/04/23
Test Mode	Mode1	Test Site	WZ-AC1

Frequency (MHz)	Reading Level (dBμV/m)	Factor (dB)	Measure Level (dBμV/m)	Limit (@3m) (dBμV/m)	Margin [dB]
Face On					
13.35	17.78	20.56	38.34	80.51	-42.17
13.55	29.78	20.63	50.41	90.47	-40.06
13.56	33.76	20.63	54.39	123.99	-69.60
13.57	26.69	20.63	47.32	90.47	-43.15
13.77	15.45	20.69	36.14	80.51	-44.37
Face Off					
13.35	13.95	20.56	34.51	80.51	-46.00
13.55	25.07	20.63	45.70	90.47	-44.77
13.56	28.93	20.63	49.56	123.99	-74.43
13.57	22.49	20.63	43.12	90.47	-47.35
13.77	13.74	20.70	34.44	80.51	-46.07

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 = $20 \cdot \log(30/3)^2 = 40$ dB

For example, Limit (@3m) = $20 \cdot \log(106) + 40 = 80.51$ dBμV/m

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

6.3. Out-band Emission

6.3.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Distance (m)	Level (μV/m)
0.009 - 0.490	300	2400/F (kHz)
0.490 - 1.705	30	24000/F (kHz)
1.705 - 30	30	30
30 - 88	3	100
88 - 216	3	150
216 - 960	3	200
Above 960	3	500

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 (dBμV/m) = 20 log E field strength (μV/m)

6.3.2. Test Procedure Used

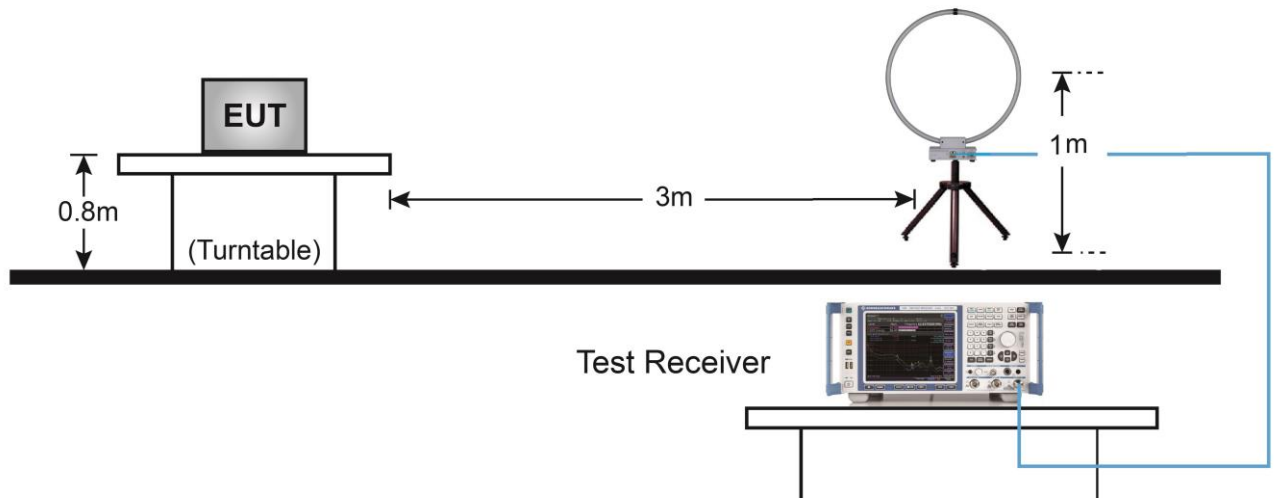
ANSI C63.10-2013 - Section 6.5.4

6.3.3. Test Setting

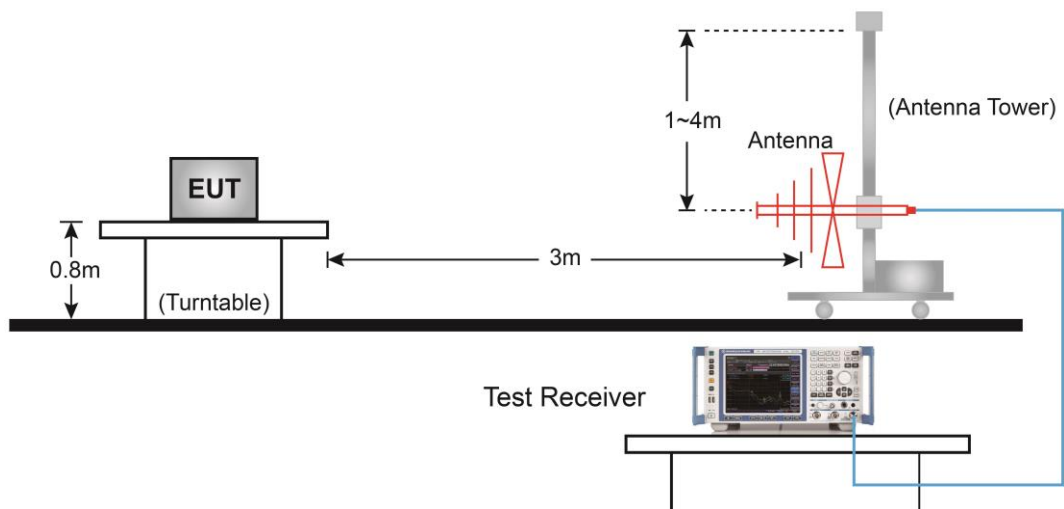
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 9kHz for emission below 30MHz and 100kHz for emission between 30MHz and 1GHz
3. VBW = 3 * RBW
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace to stabilize

6.3.4. Test Setup

9kHz ~ 30MHz Test Setup:



30MHz ~ 1GHz Test Setup:



6.3.5. Test Result

Test Engineer	Buter Shi	Test Date	2021/04/23
Test Mode	Mode1	Test Site	WZ-AC1

Out-Band Emission Below 30MHz						
Frequency (MHz)	Reading Level (dBμV/m)	Factor (dB)	Measure Level (dBμV/m)	Limit(@3m) (dBμV/m)	Margin (dB)	Detector
Face On						
27.12	8.74	20.35	29.09	69.54	-40.45	QP
Face Off						
27.12	8.44	20.35	28.79	69.54	-40.75	QP

Out-Band Emission Above 30MHz							
Polarization	Frequency (MHz)	Reading Level (dBμV/m)	Factor (dB)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
H	40.67	6.73	17.04	23.77	40.00	-16.23	QP
H	176.47	10.65	15.94	26.59	43.50	-16.91	QP
H	257.95	18.21	15.76	33.97	46.00	-12.03	QP
H	285.11	18.72	16.97	35.69	46.00	-10.31	QP
H	312.27	17.60	17.59	35.19	46.00	-10.81	QP
H	855.96	6.86	26.66	33.52	46.00	-12.48	QP
V	40.67	17.79	17.04	34.83	40.00	-5.17	QP
V	67.83	11.14	15.78	26.92	40.00	-13.08	QP
V	176.47	11.09	15.94	27.03	43.50	-16.47	QP
V	584.36	10.84	23.17	34.01	46.00	-11.99	QP
V	638.68	9.88	24.14	34.02	46.00	-11.98	QP
V	855.96	7.97	26.66	34.63	46.00	-11.37	QP

Note 1: Below 30MHz measurement was 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 = $40 \cdot \log^{(30/3)} = 40$ dB

For example, Limit (@3m) = $20 \cdot \log(30) + 40 = 69.54$ dBμV/m

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

6.4. Occupied Bandwidth

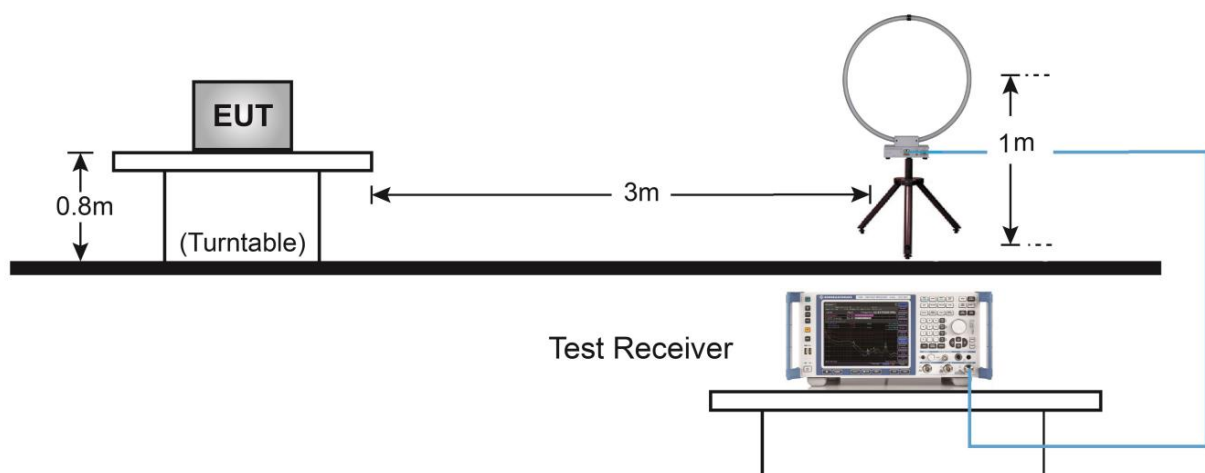
6.4.1. Test Limit

The occupied bandwidth is measured with a spectrum analyzer connected to the receive antenna while the EUT is operating in transmission mode at the appropriate frequency.

6.4.2. Test Setting

1. Spectrum analyzer frequency is set to the nominal EUT channel center frequency.
2. RBW = 1kHz
3. VBW = 3kHz
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace to stabilize
8. Using 99% power bandwidth function of the instrument and report the measured bandwidth

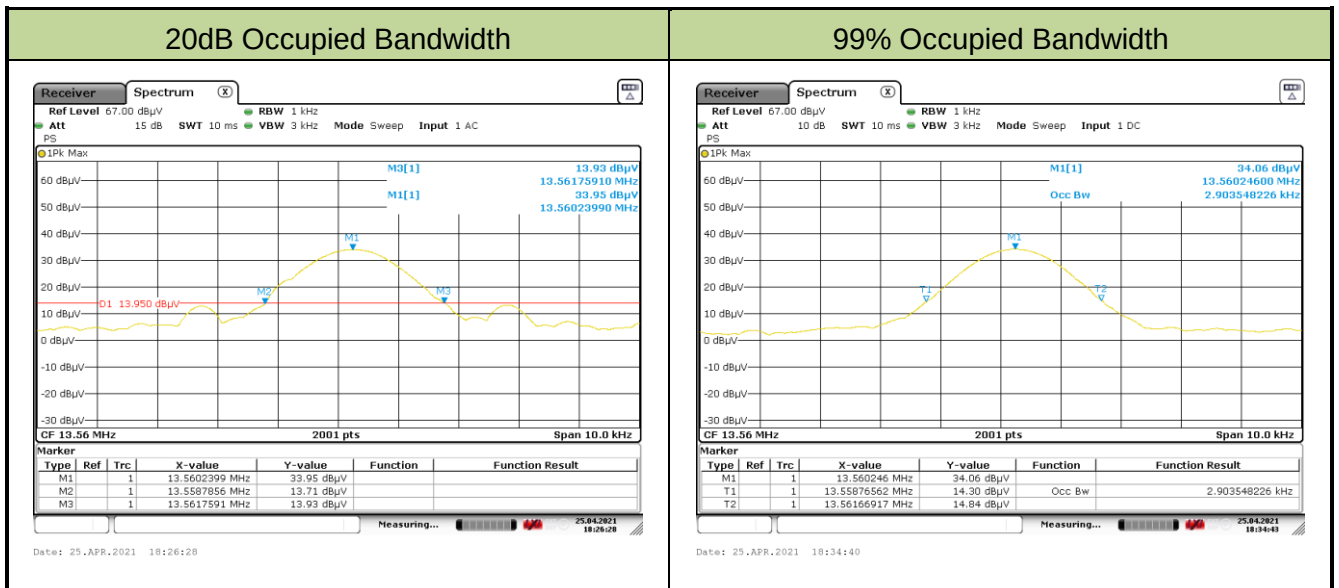
6.4.3. Test Setup



6.4.4. Test Result

Test Engineer	Buter Shi	Test Date	2021/04/25
Test Mode	Mode1	Test Site	WZ-AC1

Frequency (MHz)	20dB Occupied Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
13.56	2.97	2.90



Note: Because the measured signal is CW adjusting the RBW per C63.10 would not be practical since measured bandwidth will always follow the RBW and the result will be approximately twice the RBW.

6.5. Frequency Tolerance

6.5.1. Test Limit

The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency.

6.5.2. Test Procedure Used

ANSI C63.10-2013 - Section 6.8

6.5.3. Test Setting

Frequency Stability Under Temperature Variations:

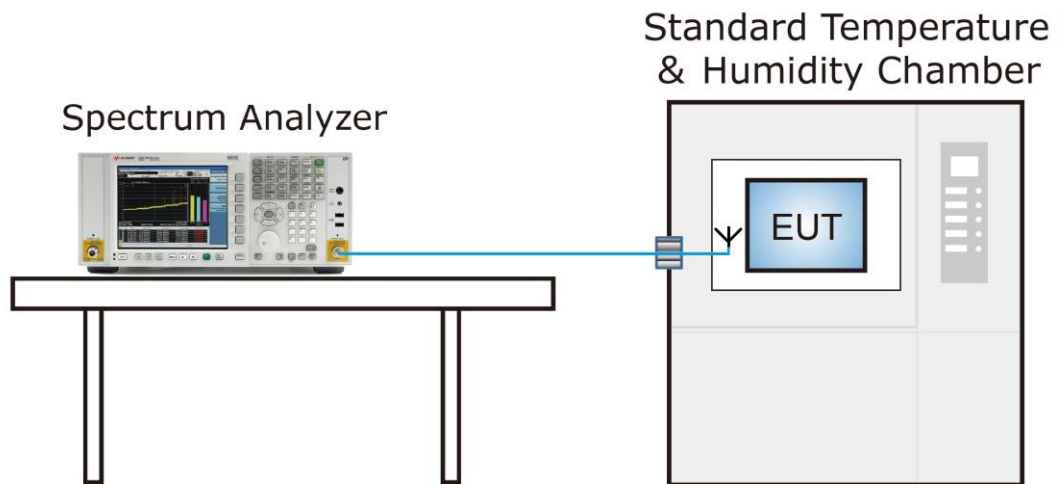
The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain 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.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C . Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change. For hand-carried battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

6.5.4. Test Setup



6.5.5. Test Result

Test Engineer	Buter Shi	Test Date	2021/04/25
Test Mode	Mode1	Test Site	WZ-TR3

Reference Voltage: 3.80Vdc						
Deviation Limit: +/- 0.01% = 1356Hz						
Voltage (%)	Power Battery	Temp (°C)	Frequency Tolerance (%)			
			0 minutes	2 minutes	5 minutes	10 minutes
100%	3.80	-20	-0.000076	-0.000078	-0.000081	-0.000088
		-10	-0.000095	-0.000100	-0.000105	-0.000103
		0	-0.000106	-0.000108	-0.000102	-0.000103
		+10	-0.000103	-0.000105	-0.000108	-0.000111
		+20	-0.000098	-0.000100	-0.000106	-0.000111
		+30	-0.000102	-0.000101	-0.000119	-0.000111
		+40	-0.000112	-0.000121	-0.000117	-0.000118
		+50	-0.000118	-0.000118	-0.000118	-0.000118
Battery Upper	4.35	+ 20	-0.000118	-0.000121	-0.000126	-0.000125
Battery Endpoint	3.45	+ 20	-0.000135	-0.000141	-0.000143	-0.000140

Note 1: Frequency Tolerance (ppm) = {[Measured Frequency (MHz) - Declared Frequency (MHz)] / Declared Frequency (MHz)} * 10⁶.

Note 2: Battery upper voltage is 4.35Vdc, battery endpoint voltage is 3.45Vdc, which are declared by the manufacturer.

6.6. AC Conducted Emissions Measurement

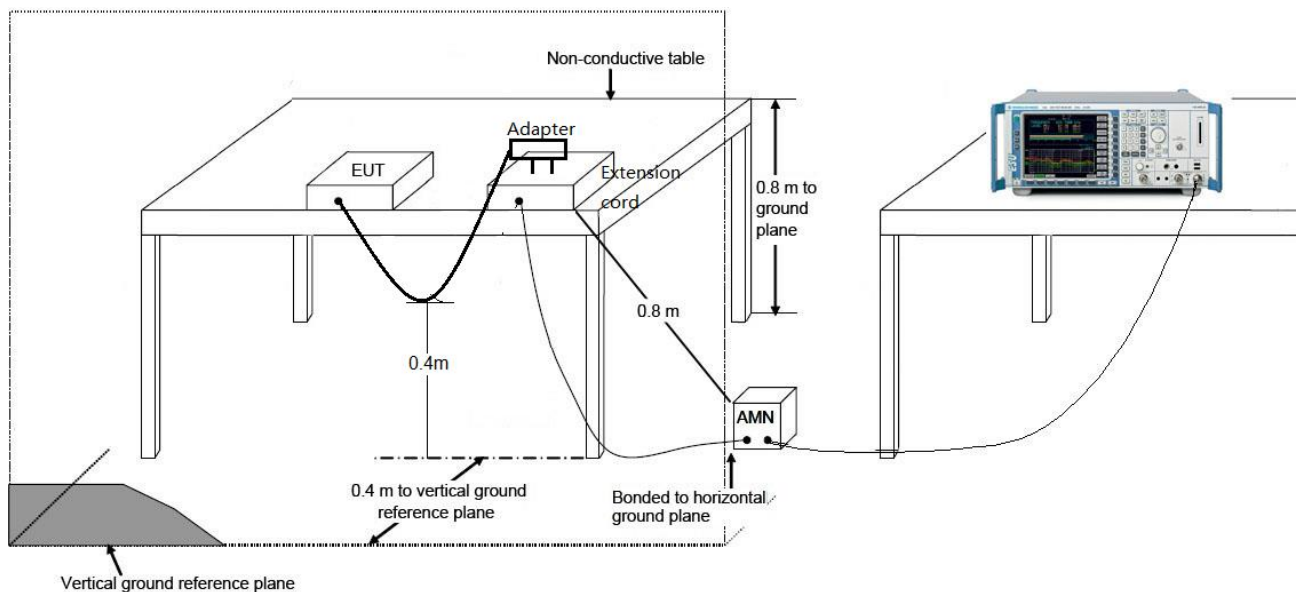
6.6.1. Test Limit

FCC Part 15 Subpart C Paragraph 15.207		
Frequency (MHz)	QP (dB μ V)	AV (dB μ V)
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.

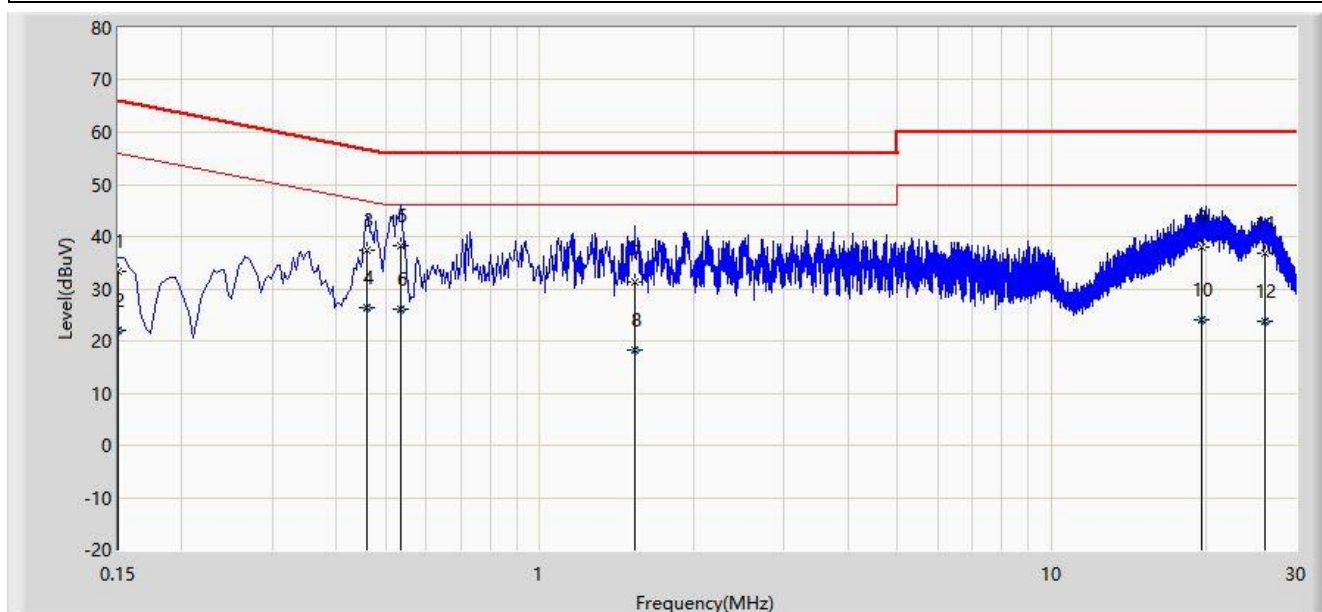
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

6.6.2. Test Setup



6.6.3.Test Result

Site: WZ-SR2	Time: 2021/04/19 - 16:32
Limit: FCC_Part15.207_CE_AC Power	Engineer: Helen Han
Probe: ENV216_101683_Filter Off_Without Adapter	Polarity: Line
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: NFC	

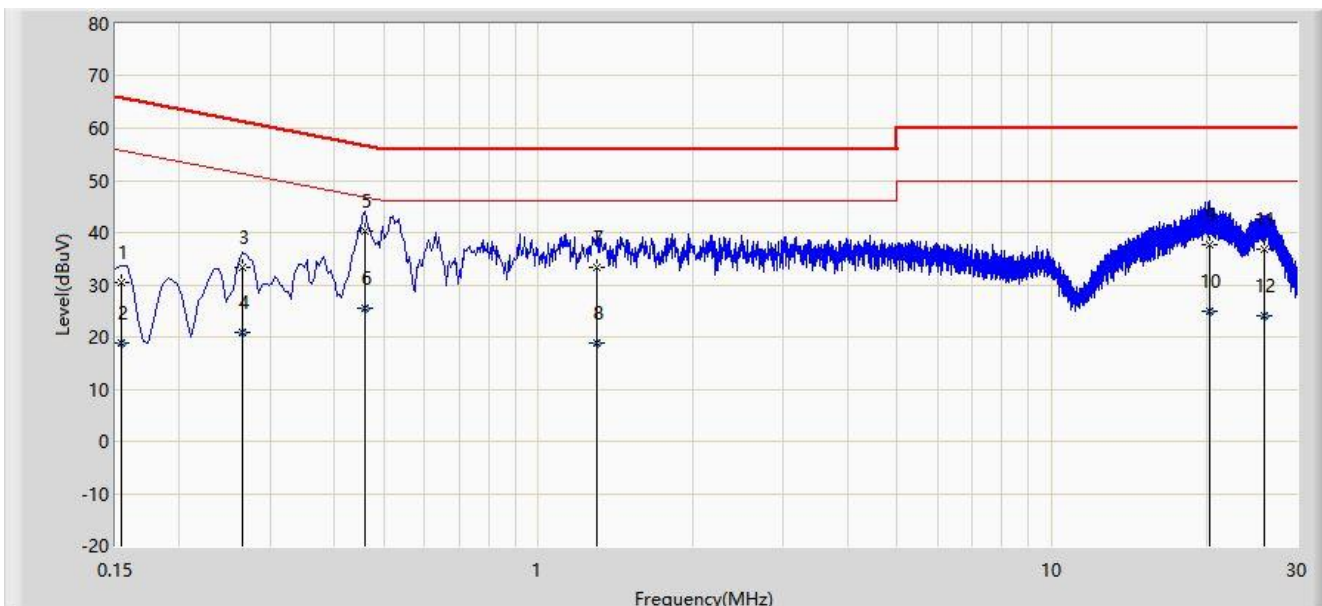


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV)	Reading Level (dBμV)	Over Limit (dB)	Limit (dBμV)	Factor	Type
1			0.150	33.194	23.396	-32.806	66.000	9.798	QP
2			0.150	22.092	12.294	-33.908	56.000	9.798	AV
3			0.458	37.262	27.399	-19.467	56.729	9.863	QP
4			0.458	26.345	16.482	-20.384	46.729	9.863	AV
5		*	0.534	38.378	28.505	-17.622	56.000	9.874	QP
6			0.534	26.114	16.241	-19.886	46.000	9.874	AV
7			1.530	31.355	21.455	-24.645	56.000	9.900	QP
8			1.530	18.348	8.448	-27.652	46.000	9.900	AV
9			19.594	37.889	27.080	-22.111	60.000	10.809	QP
10			19.594	24.180	13.371	-25.820	50.000	10.809	AV
11			26.086	36.882	25.996	-23.118	60.000	10.885	QP
12			26.086	23.773	12.887	-26.227	50.000	10.885	AV

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

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

Site: WZ-SR2	Time: 2021/04/19 - 16:37
Limit: FCC_Part15.207_CE_AC Power	Engineer: Helen Han
Probe: ENV216_101683_Filter Off_Without Adapter	Polarity: Neutral
EUT: Mobile Computer	Power: AC 120V/60Hz
Test Mode: NFC	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV)	Reading Level (dBμV)	Over Limit (dB)	Limit (dBμV)	Factor	Type
1			0.154	30.342	20.552	-35.439	65.781	9.790	QP
2			0.154	18.880	9.090	-36.901	55.781	9.790	AV
3			0.266	33.204	23.383	-28.038	61.242	9.821	QP
4			0.266	20.779	10.959	-30.462	51.242	9.821	AV
5		*	0.458	40.183	30.330	-16.545	56.729	9.853	QP
6			0.458	25.576	15.723	-21.153	46.729	9.853	AV
7			1.302	33.301	23.408	-22.699	56.000	9.893	QP
8			1.302	18.913	9.020	-27.087	46.000	9.893	AV
9			20.250	37.638	26.899	-22.362	60.000	10.739	QP
10			20.250	25.040	14.301	-24.960	50.000	10.739	AV
11			25.998	36.862	25.944	-23.138	60.000	10.918	QP
12			25.998	24.150	13.232	-25.850	50.000	10.918	AV

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

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

7. CONCLUSION

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

The End

Appendix A - Test Setup Photograph

Refer to “2102RSU043-UT” file.

Appendix B - EUT Photograph

Refer to "2102RSU043-UE" file.