



## FCC Part 15.225

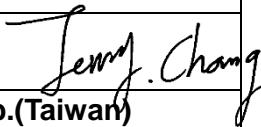
## TEST REPORT

For

**AAEON Technology Inc.**

5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien Dist., New Taipei City 23145, Taiwan, R.O.C

**FCC ID: OHBRTC1010**

<b>Report Type</b> Original Report	<b>Product Type:</b> Rugged Tablet Computer
<b>Report Producer :</b>	Himiko Chen 
<b>Report Number :</b>	RLK1803004-00D
<b>Report Date :</b>	2018/10/14
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**Note:** This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Taiwan)

## Revision History

Revision	Report Number	Issue Date	Description	Author/Revised by
1.0	RLK1803004-00D	2018/10/14	Original Report	Himiko Chen

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## 1 General Information

### 1.1 Product Description for Equipment under Test (EUT)

<b>Application</b>	<b>AAEON Technology Inc.</b> 5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien Dist., New Taipei City 23145, Taiwan, R.O.C
<b>Manufacturer</b>	<b>AAEON Technology Inc.</b> 5F, No. 135, Lane 235, Pao Chiao Rd., Hsin-Tien Dist., New Taipei City 23145, Taiwan, R.O.C
<b>Brand(Trade) Name</b>	AAEON
<b>Product (Equipment)</b>	Rugged Tablet Computer
<b>Model Name</b>	RTC-1010
<b>Serial Model Name</b>	xRTC-1010x(x - Where x may be any combination of alphanumeric characters or "-" or blank.)
<b>Model Discrepancy</b>	For marketing purpose
<b>EUT Function</b>	NFC
<b>Frequency Range</b>	13.56 MHz
<b>Number of Channels</b>	1 Channel
<b>Received Date</b>	Aug. 14, 2018.
<b>Date of Test</b>	Aug. 24, 2018 ~ Sep. 22, 2018
<b>Related Submittal(s)/Grant(s)</b>	FCC Part 15.247 DSS with FCC ID : OHBRTC1010 FCC Part 15.247 DTS with FCC ID : OHBRTC1010
<b>Modulation Type</b>	NFC: ASK

\*All measurement and test data in this report was gathered from production sample serial number: 1803004

(Assigned by BACL, Taiwan).

\*Model Discrepancy,

The major electrical and mechanical constructions of series models are identical to the basic model, except different Market segmentation. The model, RTC-1010 is the testing sample, and the final test data are shown on this test report.

## 1.2 Operation Condition of EUT

<b>Power Operation (Voltage Range)</b>	<input checked="" type="checkbox"/> AC 120V/60Hz
	<input checked="" type="checkbox"/> Adapter <i>Brand Name: FSP  Model: FSP036-DHAN3  I/P: 100-240Vac, 1.2A  O/P: 12Vdc, 3A</i>
	<input type="checkbox"/> By Power Core
	<input type="checkbox"/> DC Type <input type="checkbox"/> DC Power Supply <input checked="" type="checkbox"/> Battery : (1) <i>Rechargeable Li-polymer Battery  Brand Name: Getac  Model: RTC600S  7.4V = 1530mAh</i> (2) <i>Rechargeable Li-polymer Battery  Brand Name: AAEON  Model: RTC1200  14.4V = 2270mAh</i> <input type="checkbox"/> External from USB Cable <input type="checkbox"/> External DC Adapter
	<input type="checkbox"/> Host System

\*The worst was Adapter mode

## 1.3 Objective and Test Methodology

***The Objective of this Test Report was to document the compliance of the AAEON Technology Inc. Displays (Model: RTC-1010, xRTC-1010x(x - Where x may be any combination of alphanumeric characters or "-" or blank.)) to the requirements of the following Standards:***

***-Part 2, Subpart J, Part 15, Subparts A and C, section 15.247 of the Federal Communication Commission's rules.***

***- ANSI C63.10-2013 of the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.***

## 1.4 Measurement Uncertainty

Parameter	Expanded Measurement uncertainty
Occupied Channel Bandwidth	± 4.45 %
RF Conducted test with Spectrum	± 1.45 dB
AC Power Line Conducted Emission	± 4.64 dB
Radiated Below 1G	± 5.83 dB

## 1.5 Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Taiwan) to collect test data is located on

- 70, Lane 169, Sec. 2, Datong Road, Xizhi Dist., New Taipei City 22183, Taiwan, R.O.C.
- 68-3, Lane 169, Sec. 2, Datong Road, Xizhi Dist., New Taipei City 22183, Taiwan, R.O.C.

## 2 System Test Configuration

### 2.1 Description of Test Configuration

The system was configured for testing in testing mode which was provided by manufacturer.

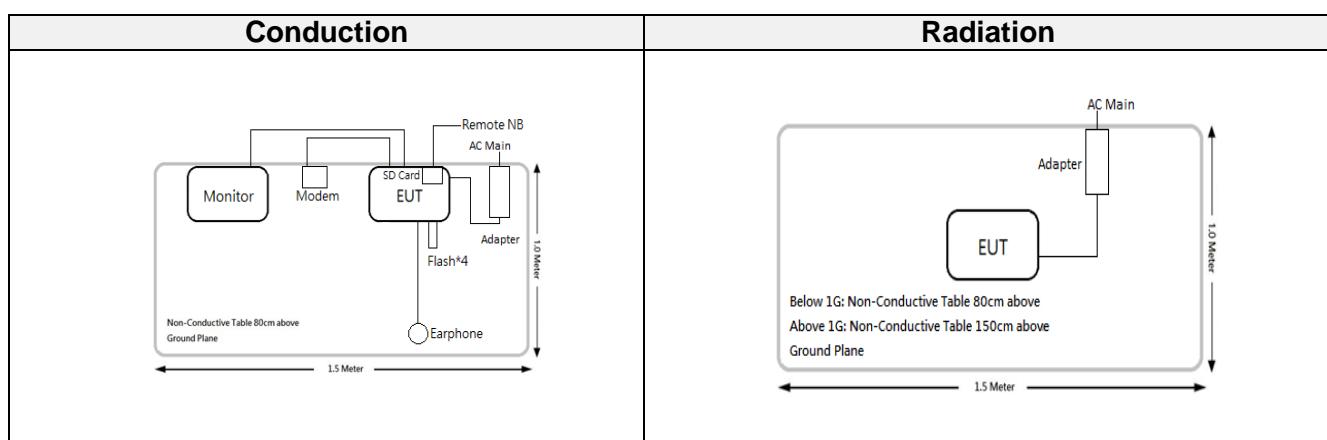
No special accessory, No modification was made to the EUT and No special equipment used during test.

### 2.2 Support Equipment List and Cable List

No.	Description	Manufacturer	Model Number	BSMI	FCC ID
A	monitor	DELL	P2415Q	N/A	NA
B	Adapter	FSP	FSP036-DHAN3	NA	NA
C	Modem	NA	TY5600	NA	NA
D	SD Card	Transcend	4GB	NA	NA
E	NB	DELL	Latitude E5470	R33002	DoC
F	Flash drive*4	Transcend	64G	NA	NA
G	Earphone	NA	NA	NA	NA

No.	Description	Shielded Type	Ferrite Core	Length (M)
1	HDIM to Micro Cable	Non-Shielded	No	1.5
2	DC Cable	Non-Shielded	No	1.8
3	COM Cable	Non-Shielded	No	1.8
4	LAN Cable	Non-Shielded	No	10
5	Earphone Cable	Non-Shielded	No	1.8

### 2.3 Block Diagram of Test Setup



### 3 Summary of Test Results

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.207(a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209, §15.225(d)	Spurious Emissions	Compliance
§15.225(e)	Frequency Stability	Compliance
§15.215(c)	20 dB Emission Bandwidth	Compliance

## 4 FCC §15.203 – Antenna Requirements

### 4.1 Applicable Standard

According to § 15.203,

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 a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

### 4.2 Antenna List and Details

Manufacturer	Model	Antenna Type	Antenna Gain	Result
MAX ECHO	NFEC1073	Loop Antenna	N/A	Compliance

*The EUT has an internal antenna arrangement, fulfill the requirement of this section.*

## 5 FCC §15.207 - AC Line Conducted Emissions

### 5.1 Applicable Standard

According to FCC §15.207

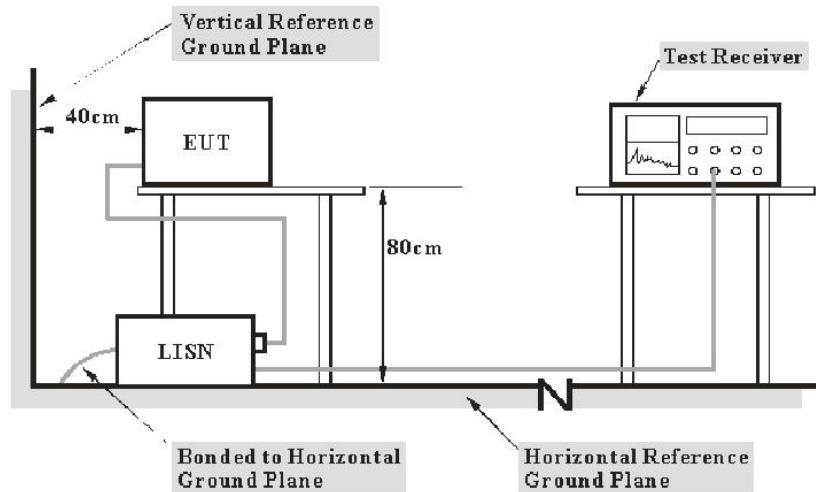
For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56 Note 1	56 to 46 Note 2
0.5-5	56	46
5-30	60	50

Note 1: Decreases with the logarithm of the frequency.

Note 2: A linear average detector is required

### 5.2 EUT Setup and Test Procedure



Note: 1. Support units were connected to second LISN.  
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz. During the conducted emission test, the EMI test receiver was set with the following configurations

Frequency Range	Receiver RBW
150 kHz - 30 MHz	9 kHz

During the conducted emission test, the adapter was connected to the outlet of the LISN. Maximizing procedure was performed on the six (6) highest emissions of the EUT. All data was recorded in the Quasi-peak and average detection mode.

### 5.3 Test Equipment List and Details

Manufacturers	Descriptions	Models	Serial Numbers	Calibration Date	Calibration Due Date
LISN	Rohde & Schwarz	ENV216	101612	2018/02/22	2019/02/21
LISN	Rohde & Schwarz	ENV216	101248	2018/06/27	2019/06/26
EMI Test Receiver	Rohde & Schwarz	ESR7	101419	2017/11/06	2018/11/05
Pulse Limiter	Rohde & Schwarz	ESH3Z2	TXZEM104	2018/08/03	2019/08/02
RF Cable	EMEC	EM-CB5D	001	2018/07/02	2019/07/01
Software	AUDIX	E3	V9.150826k	N.C.R	N.C.R

**\*Statement of Traceability:** The testing equipment's listed above have finished the calibration by Electronics Testing Center, Taiwan (ETC) or other laboratories which were accredited by TAF or equivalent organizations. The calibration result could be traceable to the International System of Units (SI).

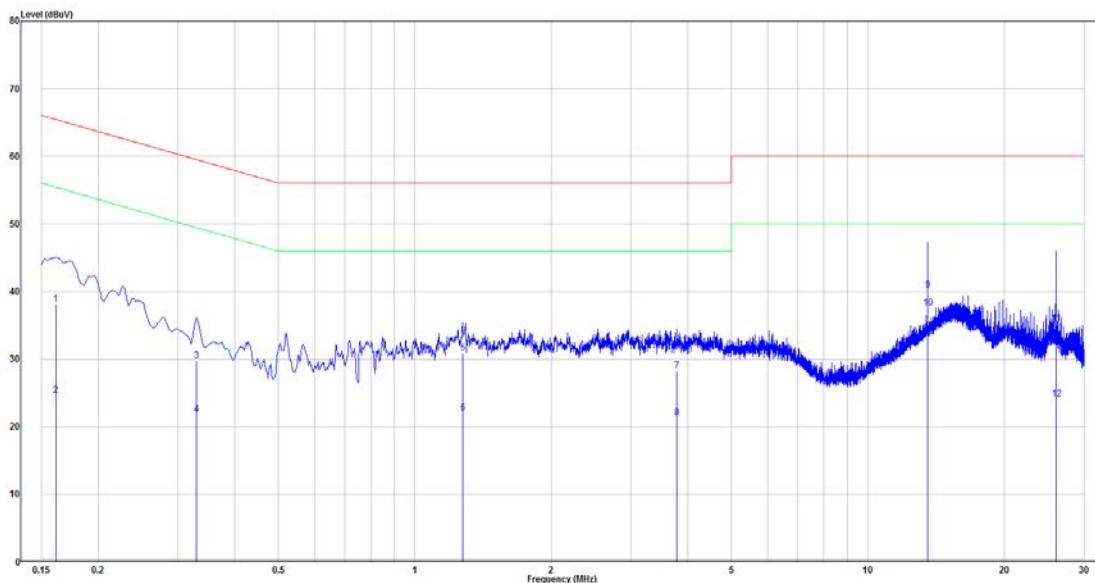
### 5.4 Test Environmental Conditions

Temperature:	25 °C
Relative Humidity:	58 %
ATM Pressure:	1010 hPa

The testing was performed by Ian from 2018-09-20 to 2018-09-22.

## 5.5 AC Line Conducted Emission Test Plot and Data

Mode: AC 120V/60 Hz, NFC mode, Line



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Over limit (dB)	Remark
1	0.161	18.66	19.45	38.11	65.40	-27.29	QP
2	0.161	5.23	19.45	24.68	55.40	-30.72	Average
3	0.330	10.30	19.47	29.77	59.45	-29.68	QP
4	0.330	2.35	19.47	21.82	49.45	-27.63	Average
5	1.275	11.39	19.51	30.90	56.00	-25.10	QP
6	1.275	2.53	19.51	22.04	46.00	-23.96	Average
7	3.790	8.66	19.58	28.24	56.00	-27.76	QP
8	3.790	1.69	19.58	21.28	46.00	-24.72	Average
9	13.560	20.48	19.74	40.22	60.00	-19.78	QP
10	13.560	17.85	19.74	37.59	50.00	-12.41	Average
11	26.036	15.38	19.89	35.28	60.00	-24.72	QP
12	26.036	4.13	19.89	24.02	50.00	-25.98	Average

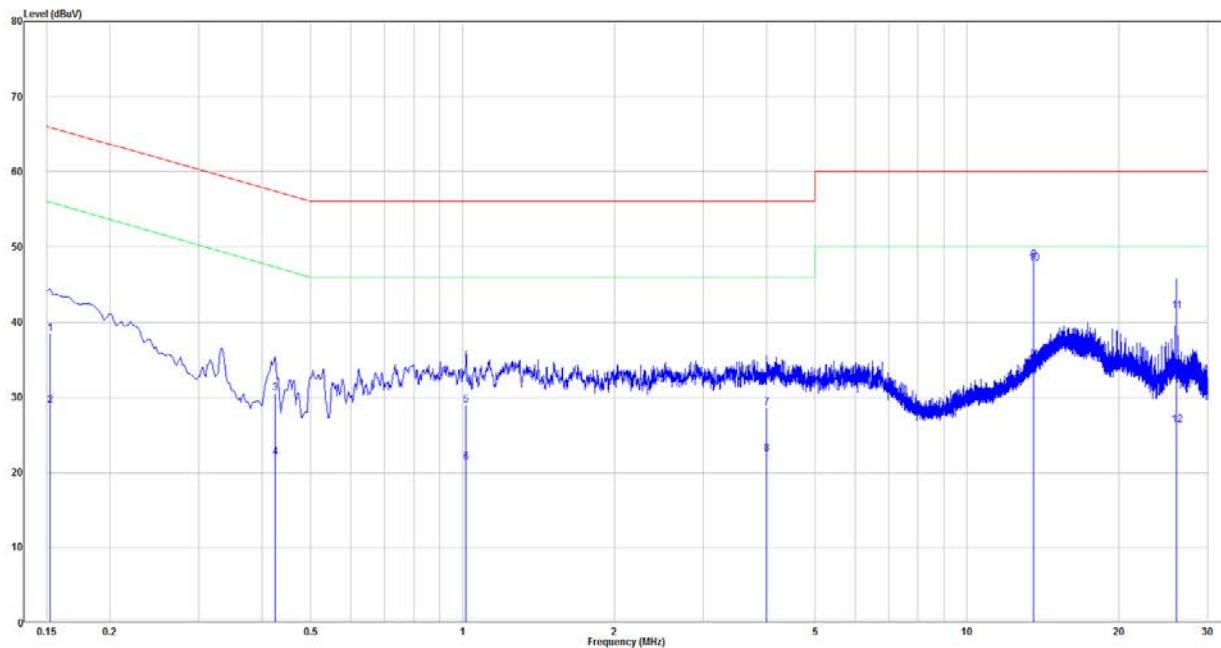
Note:

Level = Read Level + Factor

Over Limit (Margin) = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

## Mode: AC 120V/60 Hz, NFC mode, Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Over limit (dB)	Remark
1	0.152	19.06	19.44	38.50	65.88	-27.38	QP
2	0.152	9.50	19.44	28.94	55.88	-26.94	Average
3	0.424	11.09	19.46	30.55	57.36	-26.81	QP
4	0.424	2.61	19.46	22.07	47.36	-25.29	Average
5	1.016	9.47	19.48	28.96	56.00	-27.04	QP
6	1.016	1.88	19.48	21.36	46.00	-24.64	Average
7	4.011	9.04	19.58	28.61	56.00	-27.39	QP
8	4.011	2.91	19.58	22.49	46.00	-23.51	Average
9	13.560	28.43	19.75	48.18	60.00	-11.82	QP
10	13.560	27.99	19.75	47.74	50.00	-2.26	Average
11	26.033	21.46	19.95	41.41	60.00	-18.59	QP
12	26.033	6.32	19.95	26.28	50.00	-23.72	Average

Note:

Level = Read Level + Factor

Over Limit (Margin) = Level – Limit Line

Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss + Attenuator

## 6 FCC §15.209, §15.205, §15.225 – Spurious Emissions

### 6.1 Applicable Standard

As Per FCC §15.205(a) except as show in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	960 – 1240	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	1300 – 1427	5.35 – 5.46
2.1735 – 2.1905	25.5 – 25.67	1435 – 1626.5	7.25 – 7.75
4.125 – 4.128	37.5 – 38.25	1645.5 – 1646.5	8.025 – 8.5
4.17725 – 4.17775	73 – 74.6	1660 – 1710	9.0 – 9.2
4.20725 – 4.20775	74.8 – 75.2	1718.8 – 1722.2	9.3 – 9.5
6.215 – 6.218	108 – 121.94	2200 – 2300	10.6 – 12.7
6.26775 – 6.26825	123 – 138	2310 – 2390	13.25 – 13.4
6.31175 – 6.31225	149.9 – 150.05	2483.5 – 2500	14.47 – 14.5
8.291 – 8.294	156.52475 – 156.52525	2690 – 2900	15.35 – 16.2
8.362 – 8.366	156.7 – 156.9	3260 – 3267	17.7 – 21.4
8.37625 – 8.38675	162.0125 – 167.17	3.332 – 3.339	22.01 – 23.12
8.41425 – 8.41475	167.72 – 173.2	3.3458 – 3.358	23.6 – 24.0
12.29 – 12.293	240 – 285	3.600 – 4.400	31.2 – 31.8
12.51975 – 12.52025	322 – 335.4		36.43 – 36.5
12.57675 – 12.57725	399.9 – 410		Above 38.6
13.36 – 13.41	608 – 614		

As per FCC §15.209(a): Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (micro volts/meter)	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

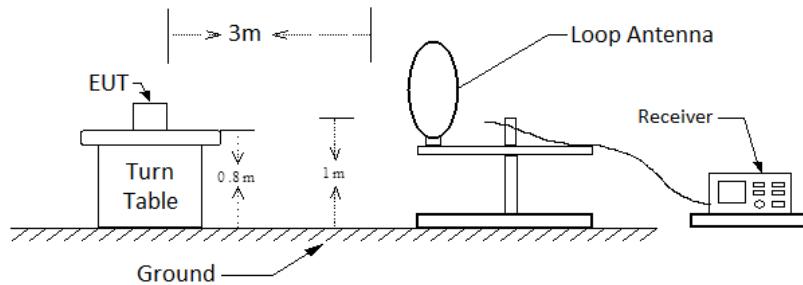
\*\* Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

As per FCC §15.225,

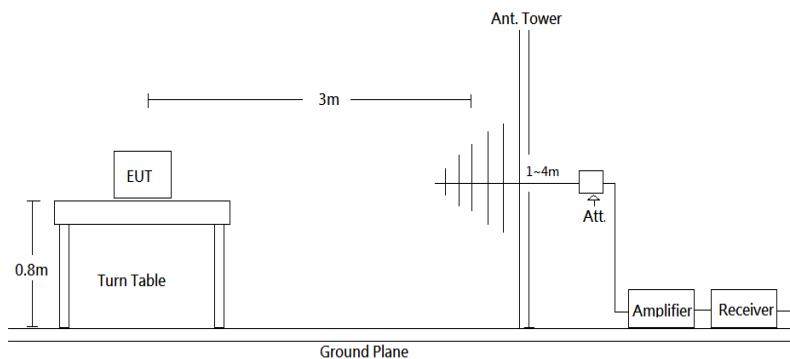
- (a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.
- (b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- (c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.
- (d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

## 6.2 EUT Setup and Test Procedure

### 9 kHz to 30 MHz



### 30 MHz to 1 GHz:



Radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC Part 15.209 and FCC 15.225 Limits.

The system was investigated from 9 kHz to 1 GHz. During the radiated emission test, the EMI test receiver was set with the following configurations measurement method 6.3 in ANSI C63.10.

Frequency Range	RBW	VBW	Detector	Measurement method
Below 150 kHz	200 Hz	1 kHz	QP	QP
150 kHz-30 MHz	9 kHz	30 kHz	QP	QP
30-1000 MHz	120 kHz	/	QP	QP

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detector mode from 9 kHz to 1 GHz.

### 6.3 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Bilog Antenna	Sunol & Mini-Circuits	JB6/UNAT-6+	A050115 / 15542_01	2017/11/10	2018/11/09
Active Loop Antenna	ETS-Lindgren	6502	00035796	2018/03/13	2019/03/12
Preamplifier	Sonoma	310N	130602	2017/07/03	2018/07/02
EMI Test Receiver	Rohde & Schwarz	ESR7	101419	2017/11/01	2018/10/31
Spectrum Analyzer	Rohde & Schwarz	FSV40	101203	2017/07/13	2018/07/12
Microflex Cable(8M)	UTIFLEX	UFA210B-1-3149-70U70U	228332-001	2017/09/28	2018/09/27
Microflex Cable(6M)	UTIFLEX	UFA210B-1-2362-70U70U	228331-001	2017/09/28	2018/09/27
Microflex Cable(6M)	UTIFLEX	UFA210B-1-2362-70U70U	228331-002	2017/09/28	2018/09/27
Microflex Cable(6M)	UTIFLEX	UFA210B-1-2362-70U70U	228331-003	2017/09/28	2018/09/27
20 dB Attenuator	NCL	BW-S20W5+	ATT-20-01	Each Use	/
Turn Table	Champro	TT-2000	060772-T	N.C.R	N.C.R
Antenna Tower	Champro	AM-BS-4500-B	060772-A	N.C.R	N.C.R
Controller	Champro	EM1000	060772	N.C.R	N.C.R
Software	Audix	e3	E3LK-01	N.C.R	N.C.R

**\*Statement of Traceability:** The testing equipment's listed above have finished the calibration by Electronics Testing Center, Taiwan (ETC) or other laboratories which were accredited by TAF or equivalent organizations. The calibration result could be traceable to the International System of Units (SI).

### 6.4 Test Environmental Conditions

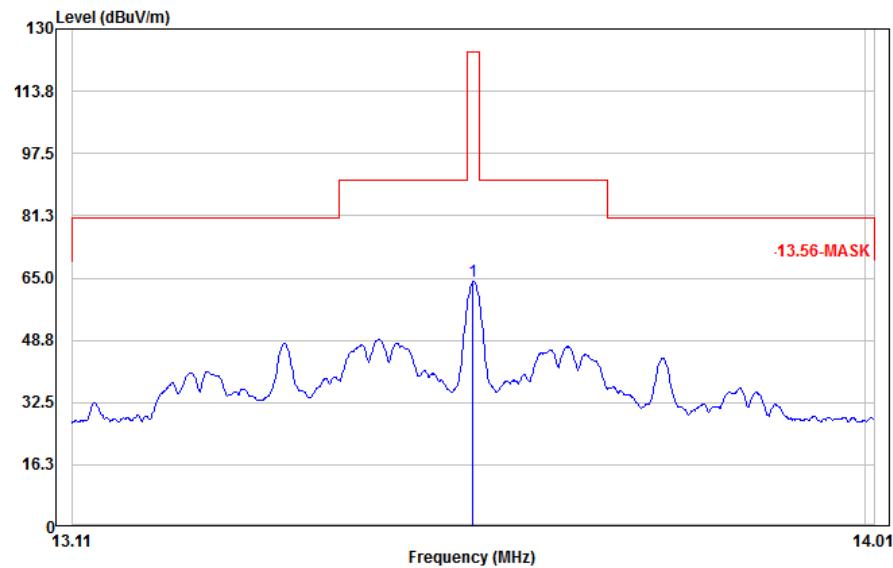
Temperature:	23.5 °C
Relative Humidity:	55.4 %
ATM Pressure:	1015 hPa

The testing was performed by Ian from 2018-09-20 to 2018-09-22.

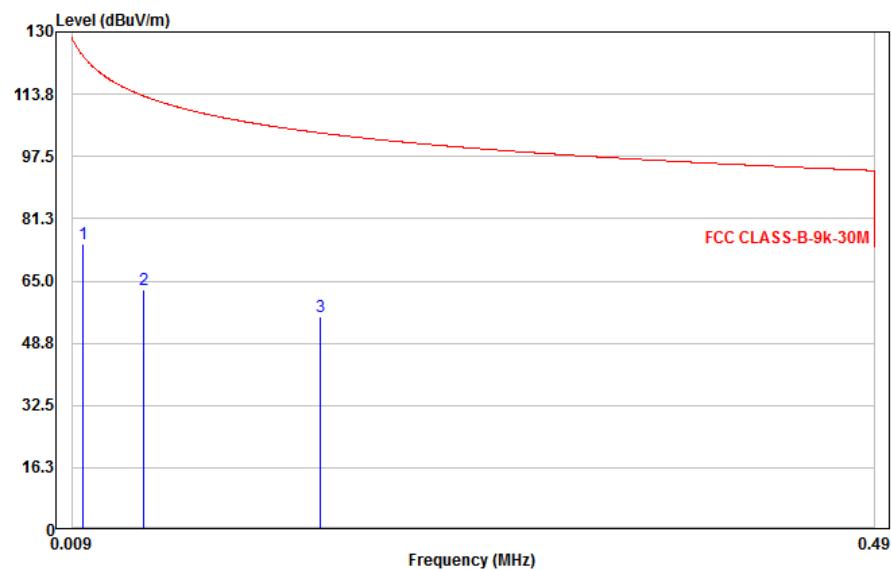
## 6.5 Radiated Emission Test Plot and Data

**NFC 13.56 MHz Mode:** Transmitting Mode (*Pre-scan with three orthogonal axis, and worse case as Y axis*)

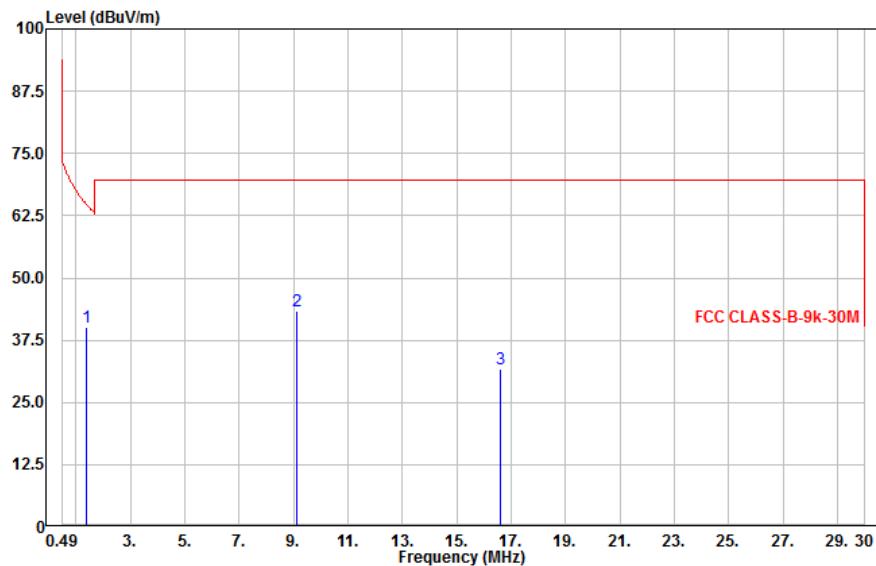
### Fundamental:



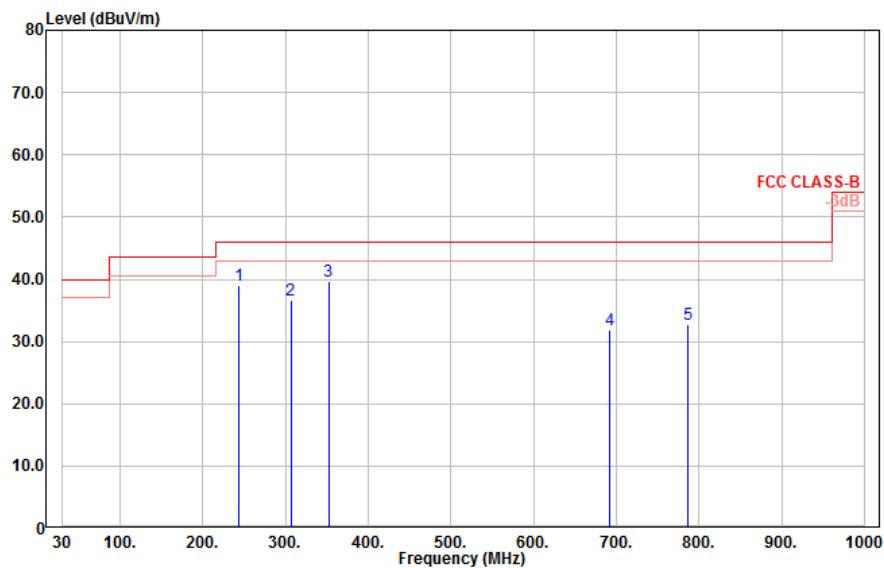
	Freq	Level	Limit	Over	Read	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m
1	13.560	64.12	124.00	-59.88	52.78	11.34 Peak

**9 kHz to 490 kHz:**

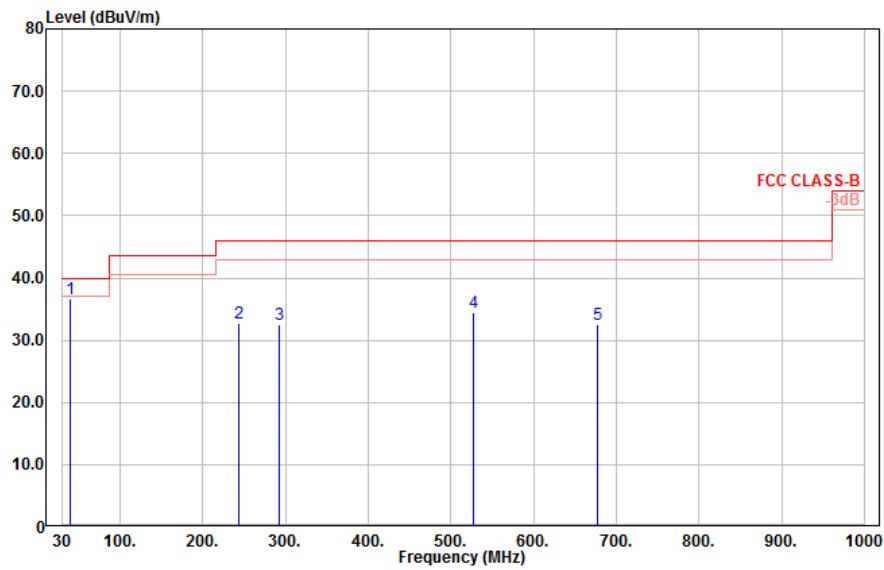
Freq	Level	Limit		Over Limit	Read		Remark
		MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m
1	0.015	74.66	123.94	-49.28	56.68	17.98	Peak
2	0.052	62.85	113.32	-50.47	49.35	13.50	Peak
3	0.158	55.79	103.62	-47.83	43.59	12.20	Peak

**490 kHz to 30 MHz**

Freq	Level	Limit	Over	Read	Remark	
		Line	Limit	Level		
1	1.375	40.09	64.84	-24.75	28.70	11.39 Peak
2	9.136	43.35	69.54	-26.19	31.88	11.47 Peak
3	16.602	31.61	69.54	-37.93	20.46	11.15 Peak

**30 MHz to 1 GHz****Horizontal**

	Freq	Level	Limit	Over	Read	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m
1	243.400	39.06	46.00	-6.94	58.82	-19.76 Peak
2	306.450	36.73	46.00	-9.27	54.83	-18.10 Peak
3	352.040	39.58	46.00	-6.42	56.67	-17.09 Peak
4	691.540	31.97	46.00	-14.03	43.24	-11.27 Peak
5	786.600	32.72	46.00	-13.28	42.76	-10.04 Peak

**Vertical**

Freq	Level	Limit		Over	Read	Factor	Remark
		MHz	dBuV/m	Line	Limit	Level	Factor
1	40.670	36.72	40.00	-3.28	52.01	-15.29	QP
2	243.400	32.72	46.00	-13.28	52.48	-19.76	Peak
3	292.870	32.53	46.00	-13.47	50.75	-18.22	Peak
4	527.610	34.41	46.00	-11.59	48.23	-13.82	Peak
5	676.990	32.57	46.00	-13.43	43.99	-11.42	Peak

## 7 FCC §15.225(e) – FREQUENCY STABILITY

### 7.1 Applicable Standard

According to FCC §15.225(e),

The frequency tolerance of the carrier signal shall be maintained within  $\pm 0.01\%$  of the operating frequency over a temperature variation of  $-20$  degrees to  $+ 50$  degrees C at normal supply voltage, and for a variation in the primary supply voltage from  $85\%$  to  $115\%$  of the rated supply voltage at a temperature of  $20$  degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery

### 7.2 Test Equipment List and Details

Descriptions	Manufacturers	Models	Serial Numbers	Calibration Date	Calibration Due Date
Temp & Humidity Chamber	BACL	BTH-150	30028	2017/12/18	2018/12/17
Spectrum Analyzer	Rohde & Schwarz	FSV40	101140	2017/11/15	2018/11/14
Cable	WOKEN	SFL402	S02-160323-07	2018/02/21	2019/02/20
Regulated DC Power Supply	KIKUSUI	PMC35-2	MK002127	N.C.R	N.C.R
Multimeter	Fluke	114	28810152WS	2018/02/09	2019/02/08

**\*Statement of Traceability:** The testing equipment's listed above have finished the calibration by Electronics Testing Center, Taiwan (ETC) or other laboratories which were accredited by TAF or equivalent organizations. The calibration result could be traceable to the International System of Units (SI).

### 7.3 Test Environmental Conditions

Temperature:	-20 °C ~ 50 °C
Relative Humidity:	50.1 % ~ 55.4 %

The testing was performed by Ian on 2018-08-29 to 2018-08-30.

## 7.4 Frequency Stability Test Plot and Data

### Test Frequency

Condition		Frequency (MHz)			
Extreme	Test Freq	0 min	2 min	5 min	10 min
T <sub>20°C</sub> Vmax	13.56	13.560430	13.560430	13.560430	13.560430
T <sub>20°C</sub> Vmin	13.56	13.560430	13.560430	13.560430	13.560430
T <sub>50°C</sub> Vnom	13.56	13.560870	13.560870	13.560870	13.560870
T <sub>40°C</sub> Vnom	13.56	13.560430	13.560870	13.560870	13.560870
T <sub>30°C</sub> Vnom	13.56	13.560430	13.560430	13.560430	13.560430
T <sub>20°C</sub> Vnom	13.56	13.560430	13.560430	13.560430	13.560430
T <sub>10°C</sub> Vnom	13.56	13.560430	13.560430	13.560430	13.560430
T <sub>0°C</sub> Vnom	13.56	13.560430	13.560430	13.560430	13.560430
T <sub>-10°C</sub> Vnom	13.56	13.560430	13.560430	13.560430	13.560430
T <sub>-20°C</sub> Vnom	13.56	13.560430	13.560430	13.560430	13.560430

\*Vnom = 7.4Vdc, Vmin = 6.29Vdc, Vmax = 8.51Vdc

### Frequency Error

Condition		Freq. Error (ppm)			
Extreme	Test Freq	0 min	2 min	5 min	10 min
T <sub>20°C</sub> Vmax	13.56	31.71	31.71	31.71	31.71
T <sub>20°C</sub> Vmin	13.56	31.71	31.71	31.71	31.71
T <sub>50°C</sub> Vnom	13.56	64.16	64.16	64.16	64.16
T <sub>40°C</sub> Vnom	13.56	31.71	64.16	64.16	64.16
T <sub>30°C</sub> Vnom	13.56	31.71	31.71	31.71	31.71
T <sub>20°C</sub> Vnom	13.56	31.71	31.71	31.71	31.71
T <sub>10°C</sub> Vnom	13.56	31.71	31.71	31.71	31.71
T <sub>0°C</sub> Vnom	13.56	31.71	31.71	31.71	31.71
T <sub>-10°C</sub> Vnom	13.56	31.71	31.71	31.71	31.71
T <sub>-20°C</sub> Vnom	13.56	31.71	31.71	31.71	31.71
Limit (ppm) = ±100 ppm					

\*Vnom = 7.4Vdc, Vmin = 6.29Vdc, Vmax = 8.51Vdc

## 8 FCC §15.215(c) – 20 dB Bandwidth

### 8.1 Applicable Standard

According to FCC §15.215(c)

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. In the case of intentional radiators operating under the provisions of subpart E, the emission bandwidth may span across multiple contiguous frequency bands identified in that subpart. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If a frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation.

### 8.2 Test Procedure

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to measuring equipment.

### 8.3 Test Equipment List and Details

Descriptions	Manufacturers	Models	Serial Numbers	Calibration Date	Calibration Due Date
Spectrum Analyzer	Rohde & Schwarz	FSV40	101140	2017/11/15	2018/11/14
Cable	WOKEN	SFL402	S02-160323-07	2018/02/21	2019/02/20

**\*Statement of Traceability:** The testing equipment's listed above have finished the calibration by Electronics Testing Center, Taiwan (ETC) or other laboratories which were accredited by TAF or equivalent organizations. The calibration result could be traceable to the International System of Units (SI).

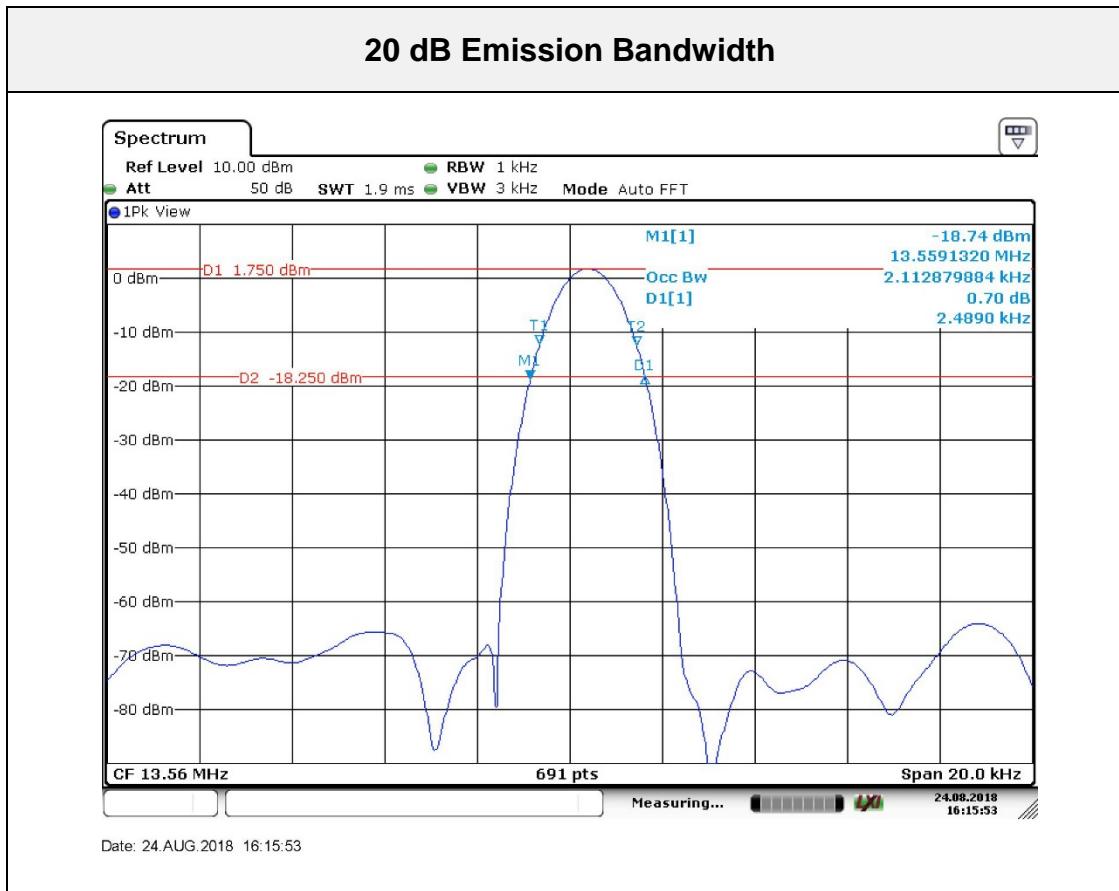
### 8.4 Test Environmental Conditions

Temperature:	23.5 °C
Relative Humidity:	55.4 %
ATM Pressure:	1015 hPa

The testing was performed by Ian on 2018-08-24

## 8.5 20dB Emission Bandwidth Test Plot and Data

Frequency (MHz)	20dB Bandwidth (kHz)	99% Occupied BW (kHz)	FL > 13.553 (MHz)	FH < 13.567 (MHz)	Result
13.56	2.4890	2.1129	13.559132	13.561621	Compliance



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