



中认信通

CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)



TEST REPORT

Applicant: AKUVOX (XIAMEN) NETWORKS CO., LTD.

Address: 10/F, No.56, Software Park II , Xiamen, China

FCC ID: 2AHCR-E18CV1

Product Name: Door Phone

Model Number: E18C

**Standard(s): 47 CFR Part 15, Subpart C(15.225)
ANSI C63.10-2013**

The above equipment has been tested and found compliance with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: CR22030053-00B

Date Of Issue: 2022-05-30

Reviewed By: Sun Zhong

Sun Zhong

Title: Manager

Test Laboratory: China Certification ICT Co., Ltd (Dongguan)

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Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol “▲”. Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Door Phone
EUT Model:	E18C
Operation Frequency:	13.56 MHz
Modulation Type:	ASK
Rated Input Voltage:	DC 12V from Adapter or DC 48V from POE
Serial Number:	CR22030053-RF-S1
EUT Received Date:	2022.4.20
EUT Received Status:	Good
The adapter power mode was reported for Radiation test, since adapter and POE power mode were proved to be compliance with 15.209 emission requirements in BT report CR22030053-00A, and the worst is adapter power mode.	

Operation Frequency Detail:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	13.56	/	/

Antenna Information Detail ▲:

Antenna Manufacturer	Antenna Type	input impedance (Ohm)	Antenna Gain /Frequency Range	§15.203 Requirement
AKUVOX (XIAMEN) NETWORKS CO., LTD.	PCB	50	Unknow	Compliance
The Method of §15.203 Compliance: <input checked="" type="checkbox"/> Antenna must be permanently attached to the unit. <input type="checkbox"/> Antenna must use a unique type of connector to attach to the EUT. <input type="checkbox"/> Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.				

Accessory Information:

No.

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition:

EUT Operation Mode:	The system was configured for testing in Engineering Mode, which was provided by the manufacturer.	
Equipment Modifications:	No	
EUT Exercise Software:	No	
Engineering Mode was provided by manufacturer▲. The maximum power was configured default setting.		
Channel	Frequency (MHz)	Power Level Setting
1	13.56	Default

1.2.2 Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Huntkey	Adapter	HKA01105021-XE	0D1805002143
TP-link	Adapter(POE)	TL-SF1005P	1167604001685
DELL	Laptop	E6410	GMLGPM1
TOTOLINK	Wireless Router	LR1200	LR1200155P00167
AKUVOX	Card Reader	N5632	MN52P0024
Unknown	Load	Unknown	Load1

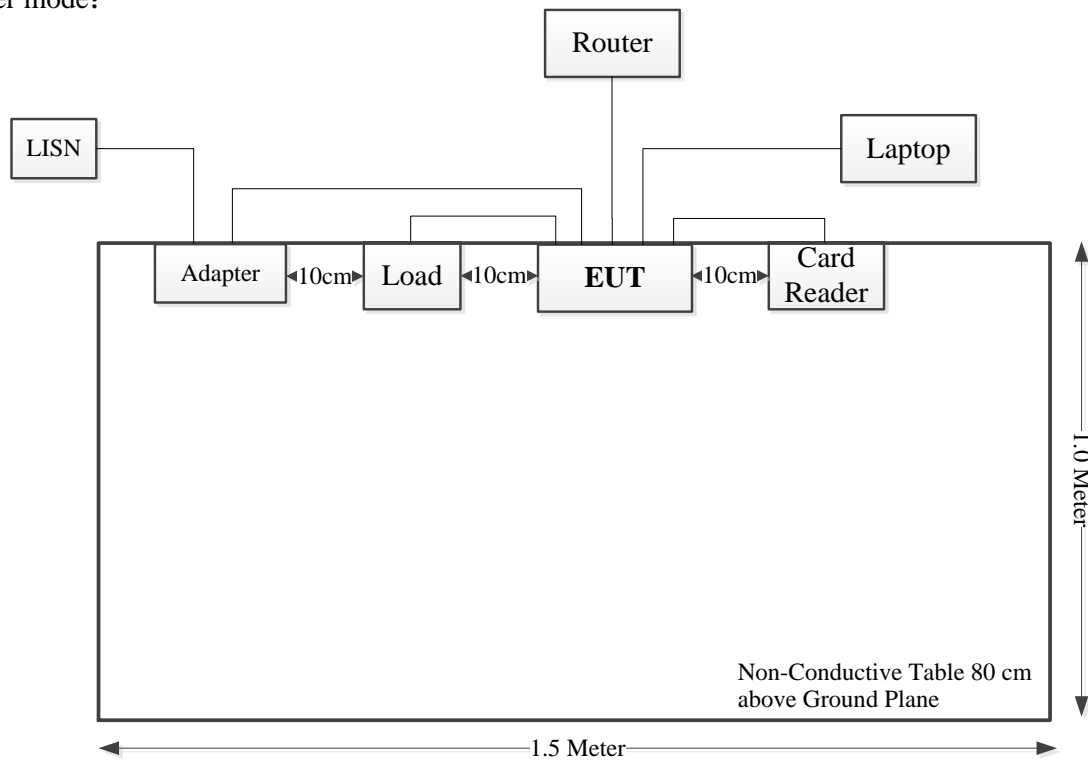
1.2.3 Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
RJ45 Cable	No	Yes	3	EUT	Router
RJ45 Cable	No	Yes	3	POE	Router
Power Cable	No	No	1.2	EUT	Adapter
RJ45 Cable	No	No	1	EUT	POE
Serial Cable	No	No	3	EUT	Laptop
Cable	No	No	0.3	EUT	Load
Cable	No	No	0.3	EUT	Card Reader

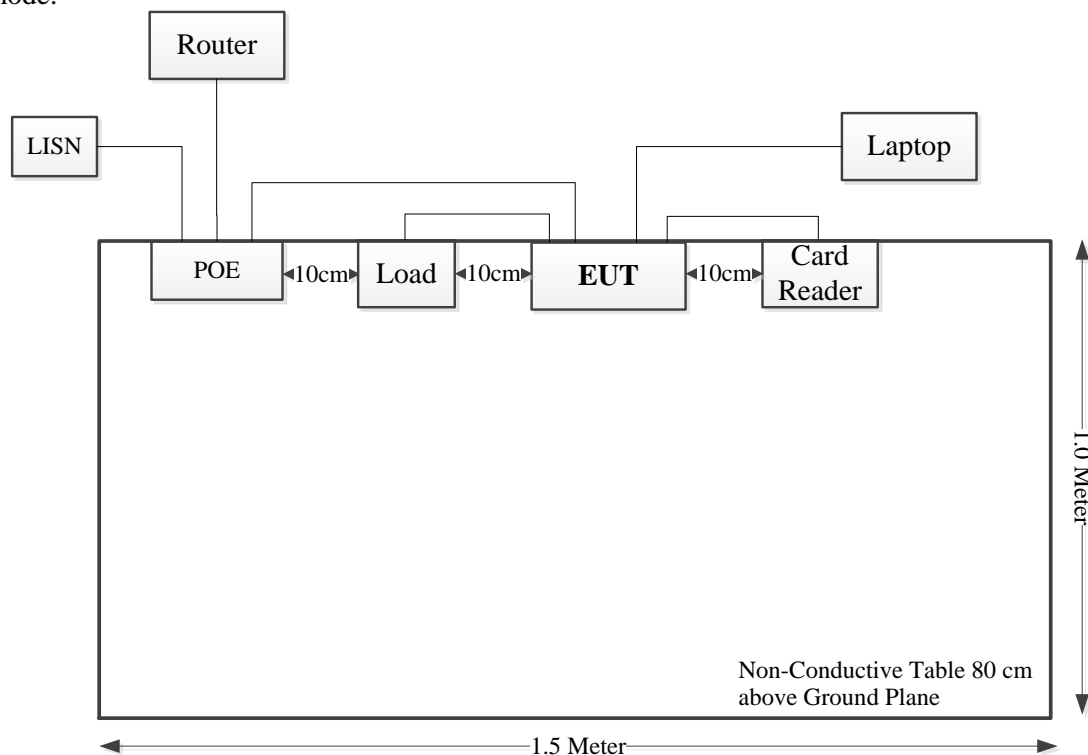
1.2.4 Block Diagram of Test Setup

Conducted Emissions:

Adapter mode:



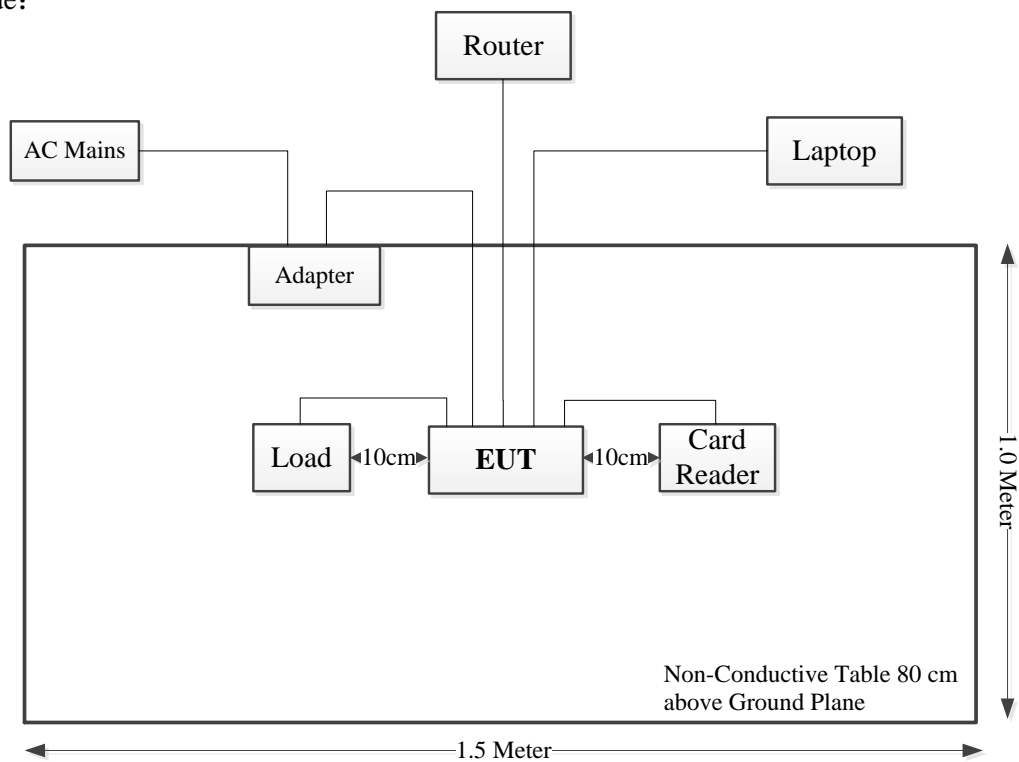
POE mode:



Radiated Emission:

Below 1GHz:

Adapter mode:



1.3 Measurement Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	$\pm 5\%$
Unwanted Emissions, radiated	9kHz~30MHz: 4.12dB 30M~200MHz: 4.15 dB, 200M~1GHz: 5.61 dB, 1G~6GHz: 5.14 dB, 6G~18GHz: 5.93 dB, 18G~26.5G: 5.47 dB, 26.5G~40G: 5.63 dB
Temperature	$\pm 1^{\circ}\text{C}$
Humidity	$\pm 5\%$
DC and low frequency voltages	$\pm 0.4\%$
Duty Cycle	1%
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §15.203	Antenna Requirement	Compliant
FCC §15.207 (a)	Conducted Emissions	Compliant
§15.225 §15.209 §15.205	Radiated Emission Test	Compliant
§15.225(e)	Frequency Stability	Compliant
§15.215(c)	20 dB Bandwidth	Compliant

3. REQUIREMENTS AND TEST PROCEDURES

3.1 AC Line Conducted Emissions

3.1.1 Applicable Standard

FCC §15.207(a).

(a) Except as shown in paragraphs (b) and (c) of this section, 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 μ 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 frequency ranges.

Frequency of emission (MHz)	Conducted limit (dB μ 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.

(b) The limit shown in paragraph (a) of this section shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

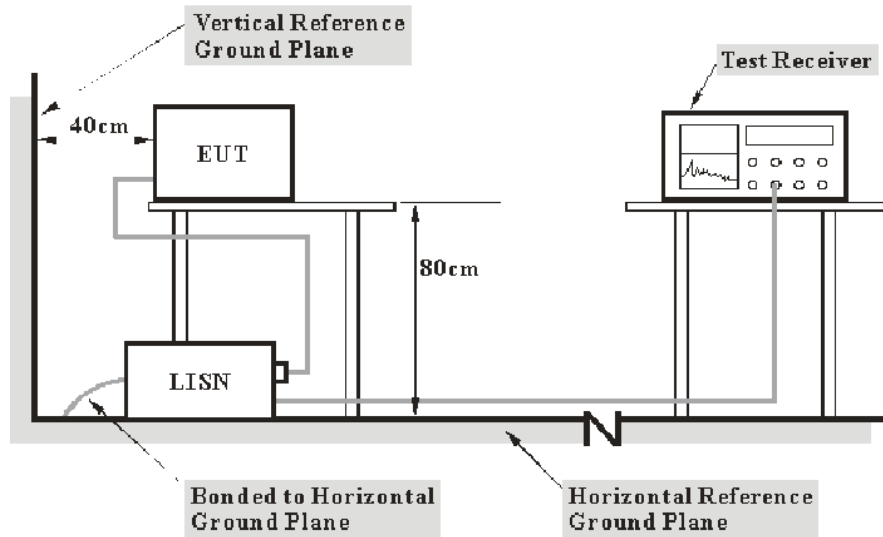
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000 μ V within the frequency band 535-1705 kHz, as measured using a 50 μ H/50 ohms LISN.

(3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits in §15.205, §15.209, §15.221, §15.223, or §15.227, as appropriate.

(c) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

3.1.2 EUT Setup



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 spacing between the peripherals was 10 cm.

The adapter or EUT was connected to the main LISN with a 120 V/60 Hz AC power source.

3.1.3 EMI Test Receiver Setup

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	IF B/W
150 kHz – 30 MHz	9 kHz

3.1.4 Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

The frequency and amplitude of the six highest ac power-line conducted emissions relative to the limit, measured over all the current-carrying conductors of the EUT power cords, and the operating frequency or frequency to which the EUT is tuned (if appropriate), should be reported, unless such emissions are more than 20 dB below the limit. AC power-line conducted emissions measurements are to be separately carried out only on each of the phase (“hot”) line(s) and (if used) on the neutral line(s), but not on the ground [protective earth] line(s). If less than six emission frequencies are within 20 dB of the limit, then the noise level of the measuring instrument at representative frequencies should be reported. The specific conductor of the power-line cord for each of the reported emissions should be identified. Measure the six highest emissions with respect to the limit on each current-carrying conductor of each power cord associated with the EUT (but not the power cords of associated or peripheral equipment that are part of the test configuration). Then, report the six highest emissions with respect to the limit from among all the measurements identifying the frequency and specific current-carrying conductor identified with the emission. The six highest emissions should be reported for each of the current-carrying conductors, or the six highest emissions may be reported over all the current-carrying conductors.

According FCC publication number 174176, for a device with a permanent antenna operating at or below 30 MHz, the measurements done with a suitable dummy load, in lieu of the permanent antenna under the following conditions: (1) perform the AC line conducted tests with the permanent antenna to determine compliance with the Section 15.207 limits outside the transmitter's fundamental emission band; (2) retest with a dummy load in lieu of the permanent antenna to determine compliance with the Section 15.207 limits within the transmitter's fundamental emission band.

3.1.5 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor

Factor = attenuation caused by cable loss + voltage division factor of AMN

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

3.2 Radiated Emissions

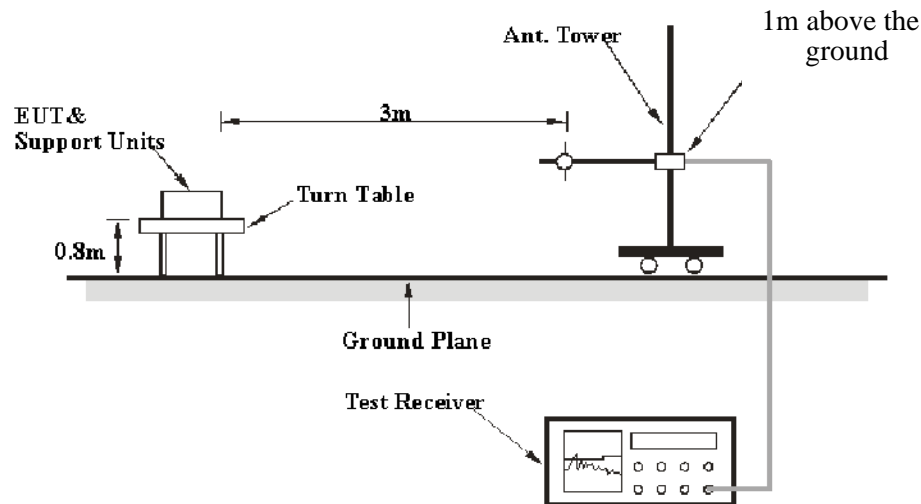
3.2.1 Applicable Standard

As per FCC Part 15.225

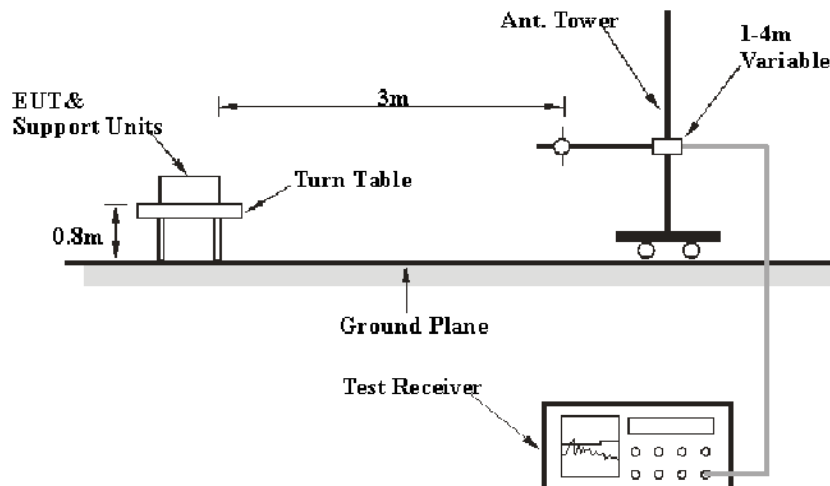
- (a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.
- (b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- (c) Within the bands 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.

3.2.2 EUT Setup

9kHz-30MHz:



30MHz-1GHz:



The radiated emission tests were performed in the 3-meter chamber test site, using the setup accordance with the ANSI C63.10-2013.

The spacing between the peripherals was 10 cm.

For 9kHz-30MHz test, the lowest height of the magnetic antenna shall be 1 m above the ground and three antenna orientations (parallel, perpendicular, and ground-parallel) shall be measured.

3.2.3 EMI Test Receiver & Spectrum Analyzer Setup

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:

Frequency Range	RBW	Video B/W	Detector
9 kHz – 150 kHz	200 Hz	1 kHz	QP
150 kHz – 30 MHz	9 kHz	30 kHz	QP
30 MHz – 1000 MHz	120 kHz	300 kHz	QP

If the maximized peak measured value complies with the limit, then it is unnecessary to perform an QP measurement

3.2.4 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor

Factor = Antenna Factor + Cable Loss- Amplifier Gain

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

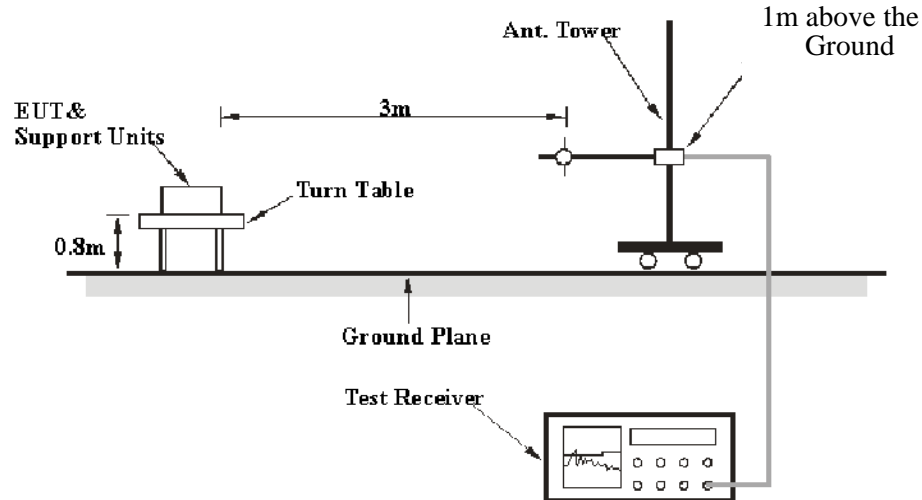
3.3 20 dB Emission Bandwidth:

3.3.1 Applicable Standard

FCC §15.215

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. 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.

3.3.2 EUT Setup



3.3.3 Test Procedure

1. Position the EUT on the test table without connection to measurement instrument. Turn on the EUT. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
2. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.

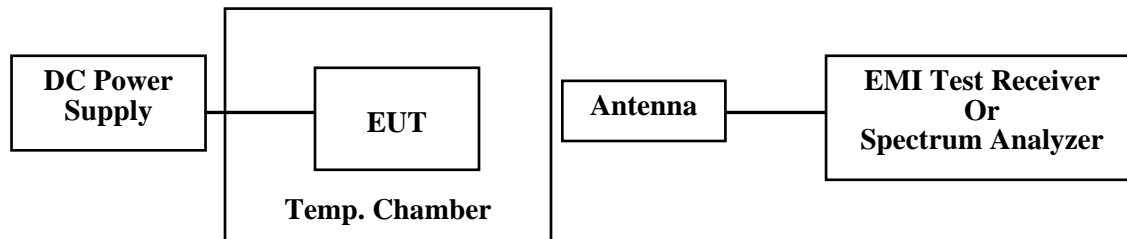
3.4 Frequency Stability

3.4.1 Applicable Standard

As per FCC Part 15.225:

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.

3.4.2 EUT Setup



3.4.3 Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power.

The EUT was placed inside the temperature chamber.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the Spectrum Analyzer.

Frequency Stability vs. Voltage: An external variable DC power supply Source. The voltage was set to the end point of the battery. The output frequency was recorded for each voltage.

3.5 Antenna Requirement

3.5.1 Applicable Standard

FCC §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 user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.
- c. Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

3.5.2 Judgment

Please refer to the Antenna Information detail in Section 1.

4. TEST DATA AND RESULTS

4.1 AC Line Conducted Emissions

Serial Number:	CR22030053-RF-S1	Test Date:	2022-05-12~2022-05-13
Test Site:	CE	Test Mode:	Transmitting
Tester:	Nick Tang	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	24~25.8	Relative Humidity: (%)	68~71	ATM Pressure: (kPa)	100.5~100.9
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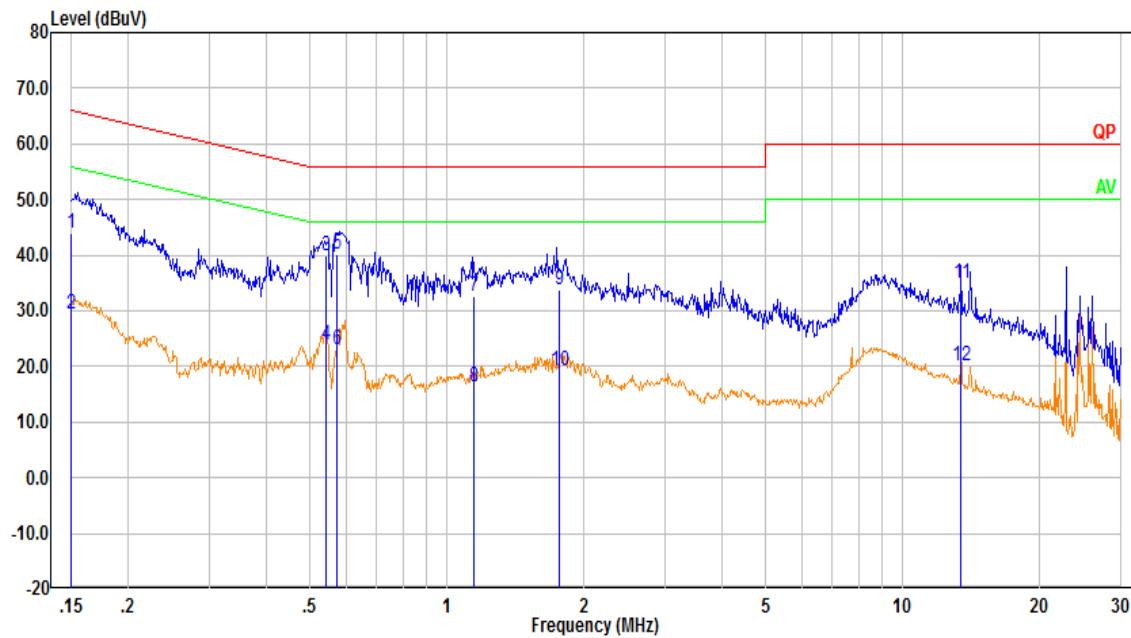
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2022-04-01	2023-03-31
R&S	EMI Test Receiver	ESR3	102726	2021-07-22	2022-07-21
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2021-08-08	2022-08-07
Audix	Test Software	E3	190306 (V9)	N/A	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

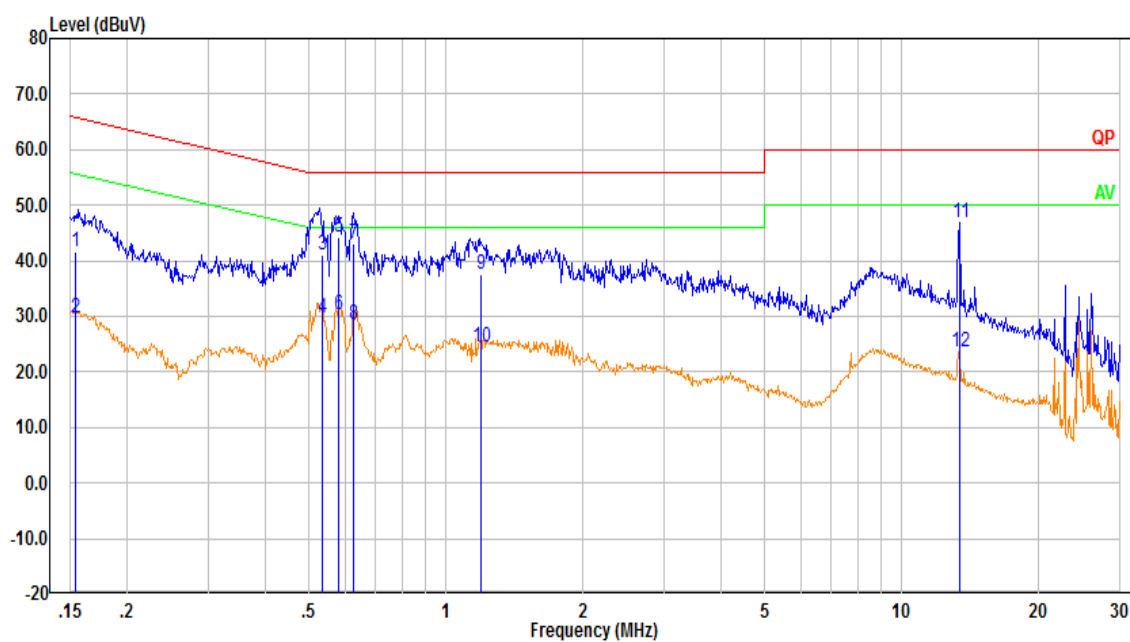
Adapter Mode:

Line:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.150	34.29	9.61	43.90	66.00	22.10	QP
2	0.150	19.93	9.61	29.54	56.00	26.46	Average
3	0.541	30.15	9.61	39.76	56.00	16.24	QP
4	0.541	14.40	9.61	24.01	46.00	21.99	Average
5	0.574	30.51	9.62	40.13	56.00	15.87	QP
6	0.574	13.28	9.62	22.90	46.00	23.10	Average
7	1.146	22.92	9.62	32.54	56.00	23.46	QP
8	1.146	6.63	9.62	16.25	46.00	29.75	Average
9	1.763	24.13	9.63	33.76	56.00	22.24	QP
10	1.763	9.50	9.63	19.13	46.00	26.87	Average
11	13.447	25.32	9.68	35.00	60.00	25.00	QP
12	13.447	10.45	9.68	20.13	50.00	29.87	Average

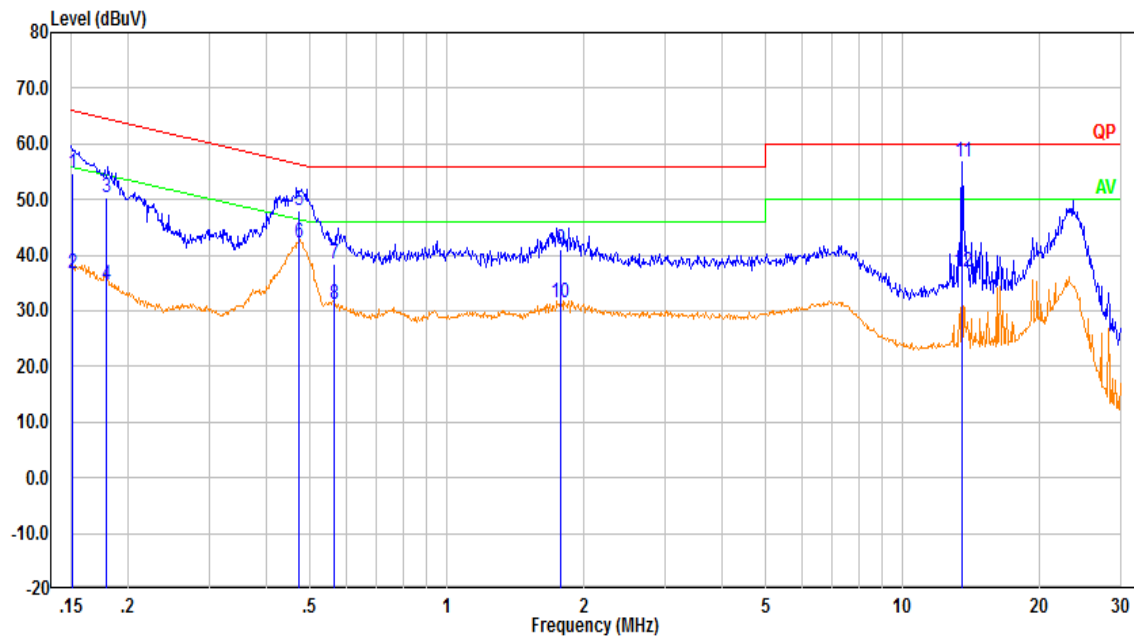
Neutral:



No.	Frequency (MHz)	Reading (dBUV)	Factor (dB)	Result (dBUV)	Limit (dBUV)	Margin (dB)	Detector
1	0.154	32.11	9.61	41.72	65.77	24.05	QP
2	0.154	20.06	9.61	29.67	55.77	26.10	Average
3	0.536	31.50	9.61	41.11	56.00	14.89	QP
4	0.536	20.11	9.61	29.72	46.00	16.28	Average
5	0.579	34.51	9.62	44.13	56.00	11.87	QP
6	0.579	20.60	9.62	30.22	46.00	15.78	Average
7	0.628	33.38	9.62	43.00	56.00	13.00	QP
8	0.628	19.00	9.62	28.62	46.00	17.38	Average
9	1.190	27.85	9.62	37.47	56.00	18.53	QP
10	1.190	14.73	9.62	24.35	46.00	21.65	Average
11	13.447	37.24	9.68	46.92	60.00	13.08	QP
12	13.447	13.99	9.68	23.67	50.00	26.33	Average

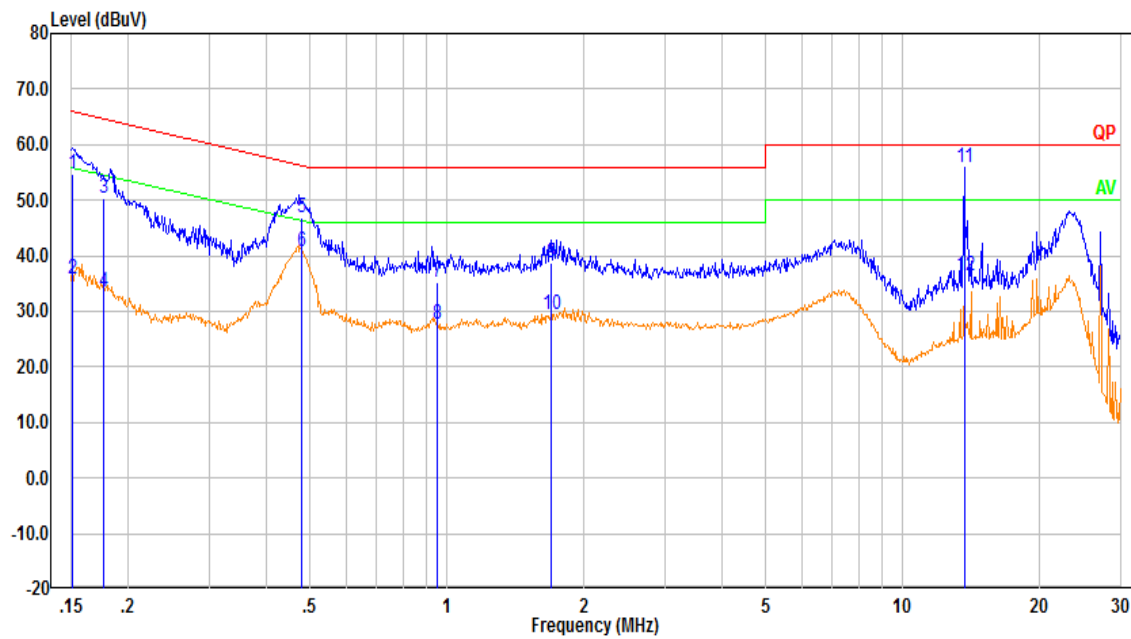
POE Mode:

Line:



No.	Frequency (MHz)	Reading (dBUV)	Factor (dB)	Result (dBUV)	Limit (dBUV)	Margin (dB)	Detector
1	0.151	45.10	9.61	54.71	65.97	11.26	QP
2	0.151	27.11	9.61	36.72	55.97	19.25	Average
3	0.178	40.61	9.61	50.22	64.57	14.35	QP
4	0.178	24.93	9.61	34.54	54.57	20.03	Average
5	0.474	38.42	9.61	48.03	56.45	8.42	QP
6	0.474	32.48	9.61	42.09	46.45	4.36	Average
7	0.565	28.78	9.62	38.40	56.00	17.60	QP
8	0.565	21.51	9.62	31.13	46.00	14.87	Average
9	1.770	31.31	9.63	40.94	56.00	15.06	QP
10	1.770	21.92	9.63	31.55	46.00	14.45	Average
11	13.514	47.09	9.68	56.77	60.00	3.23	QP
12	13.514	27.44	9.68	37.12	50.00	12.88	Average

Neutral:



No.	Frequency (MHz)	Reading (dBUV)	Factor (dB)	Result (dBUV)	Limit (dBUV)	Margin (dB)	Detector
1	0.151	45.04	9.61	54.65	65.95	11.30	QP
2	0.151	26.06	9.61	35.67	55.95	20.28	Average
3	0.177	40.87	9.61	50.48	64.64	14.16	QP
4	0.177	23.99	9.61	33.60	54.64	21.04	Average
5	0.481	37.17	9.61	46.78	56.33	9.55	QP
6	0.481	31.14	9.61	40.75	46.33	5.58	Average
7	0.952	25.52	9.62	35.14	56.00	20.86	QP
8	0.952	18.06	9.62	27.68	46.00	18.32	Average
9	1.697	29.13	9.63	38.76	56.00	17.24	QP
10	1.697	19.79	9.63	29.42	46.00	16.58	Average
11	13.649	46.31	9.68	55.99	60.00	4.01	QP
12	13.649	26.77	9.68	36.45	50.00	13.55	Average

4.2 Radiation Spurious Emissions

Serial Number:	CR22030053-RF-S1	Test Date:	2022-05-21
Test Site:	966-2	Test Mode:	Transmitting
Tester:	Gary Ling	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	23.2	Relative Humidity: (%)	64	ATM Pressure: (kPa)	100.3
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Test Equipment List and Details:

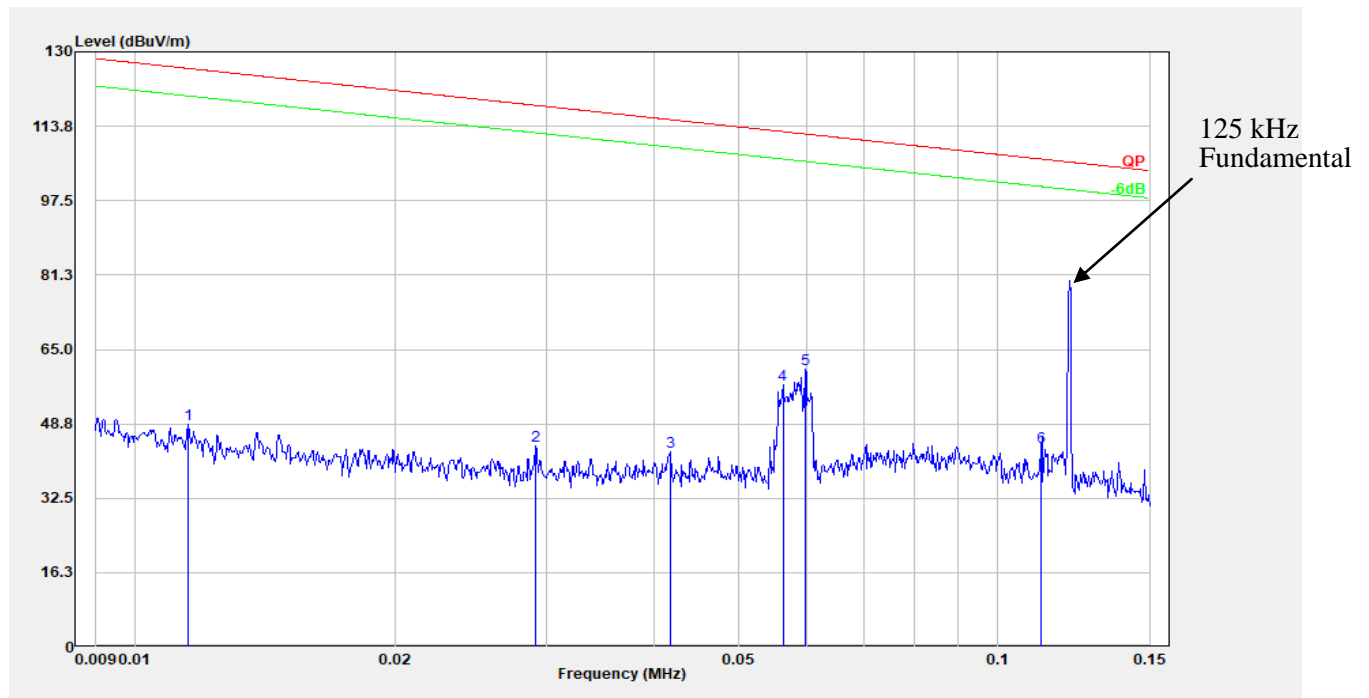
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
TESEQ	HF Loop Antenna	HLA6120	33561	2021-02-03	2024-02-02
Sunol Sciences	Antenna	JB6	A082520-5	2020-10-19	2023-10-18
R&S	EMI Test Receiver	ESR3	102724	2021-07-22	2022-07-21
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2021-07-18	2022-07-17
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2021-07-18	2022-07-17
Sonoma	Amplifier	310N	186165	2021-07-18	2022-07-17
Audix	Test Software	E3	201021 (V9)	N/A	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

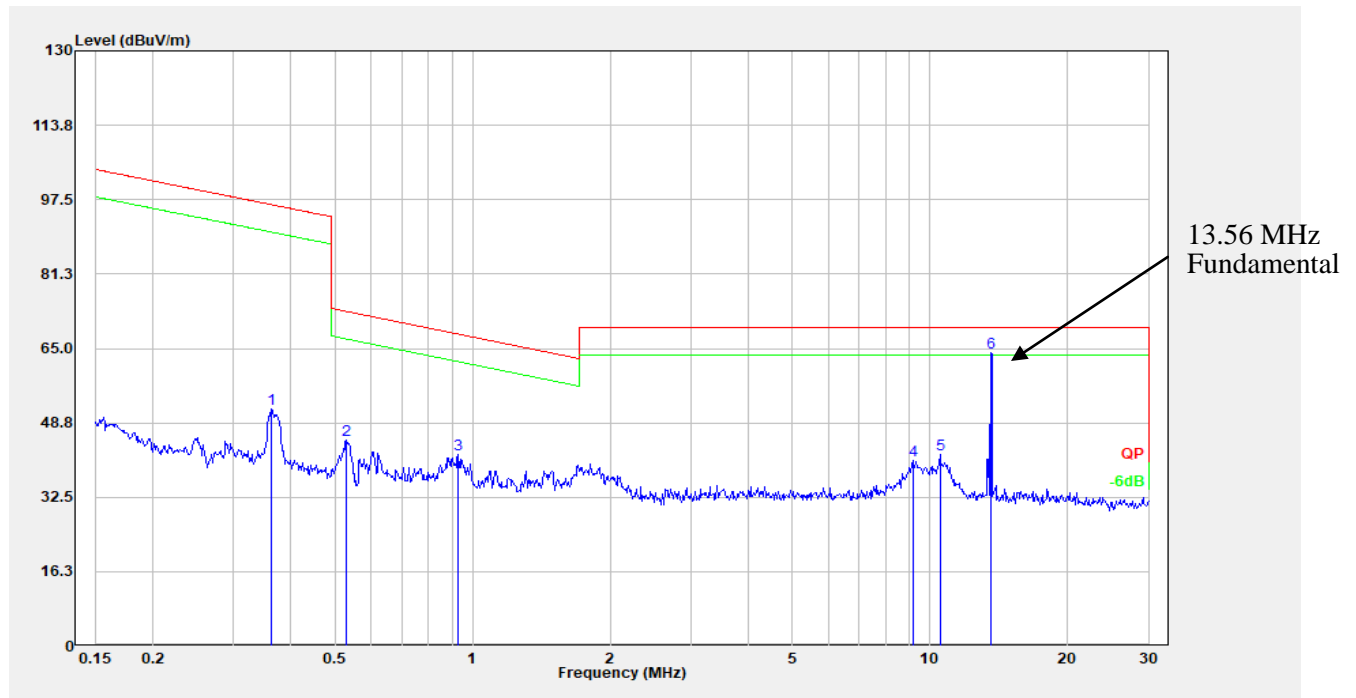
Test Data:**Adapter mode:**

1) 9 kHz~30MHz:

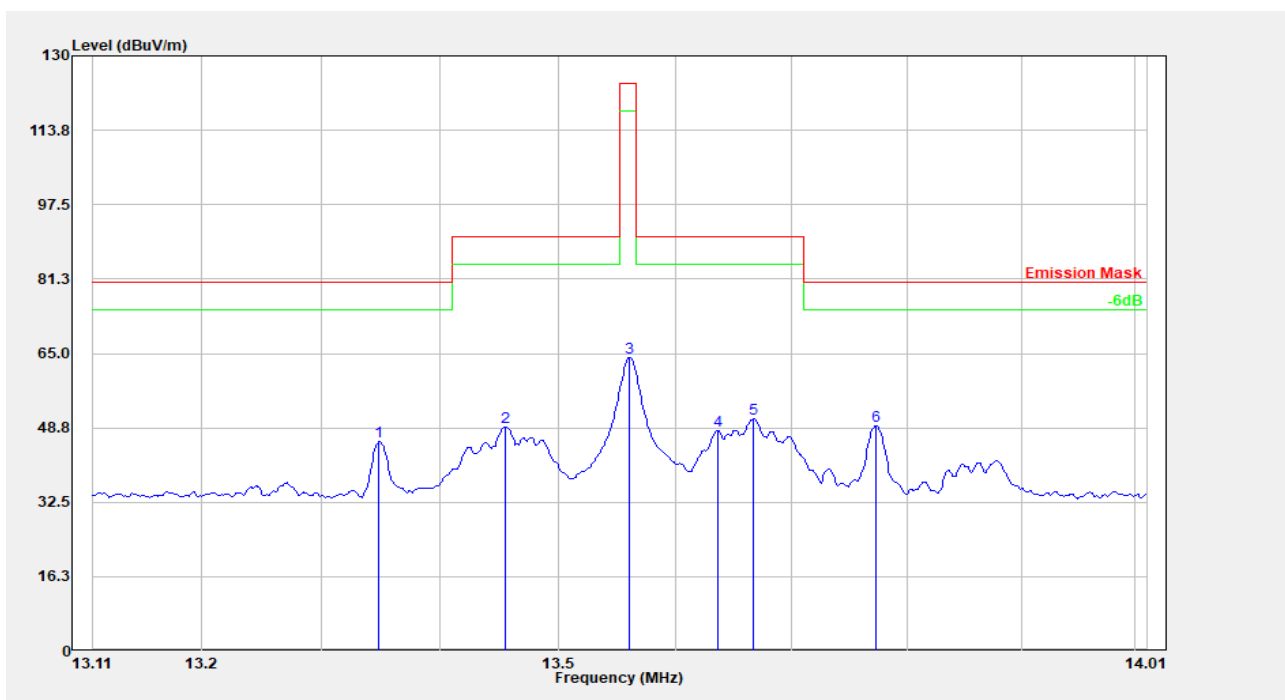
Parallel:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.011	28.23	20.51	48.74	126.39	77.65	Peak
2	0.029	23.60	20.41	44.01	118.33	74.32	Peak
3	0.042	22.27	20.41	42.68	115.20	72.53	Peak
4	0.056	36.85	20.41	57.26	112.59	55.32	Peak
5	0.060	40.38	20.41	60.79	112.07	51.29	Peak
6	0.112	23.54	20.22	43.76	106.60	62.83	Peak

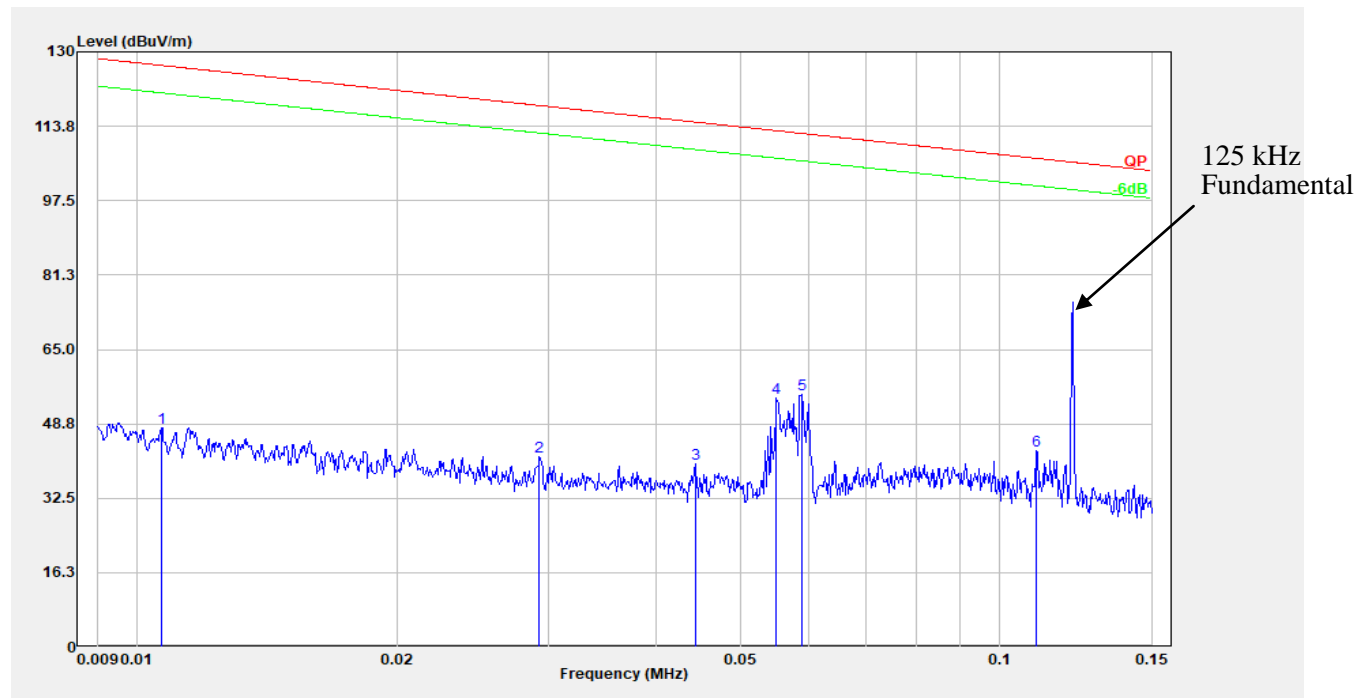


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.361	31.59	20.09	51.68	96.44	44.76	Peak
2	0.529	24.85	20.02	44.87	73.12	28.25	Peak
3	0.928	21.93	20.03	41.96	68.13	26.17	Peak
4	9.156	20.40	20.23	40.63	69.54	28.91	Peak
5	10.508	21.59	20.31	41.90	69.54	27.64	Peak
6	13.551	43.65	20.39	64.04	69.54	5.50	Peak

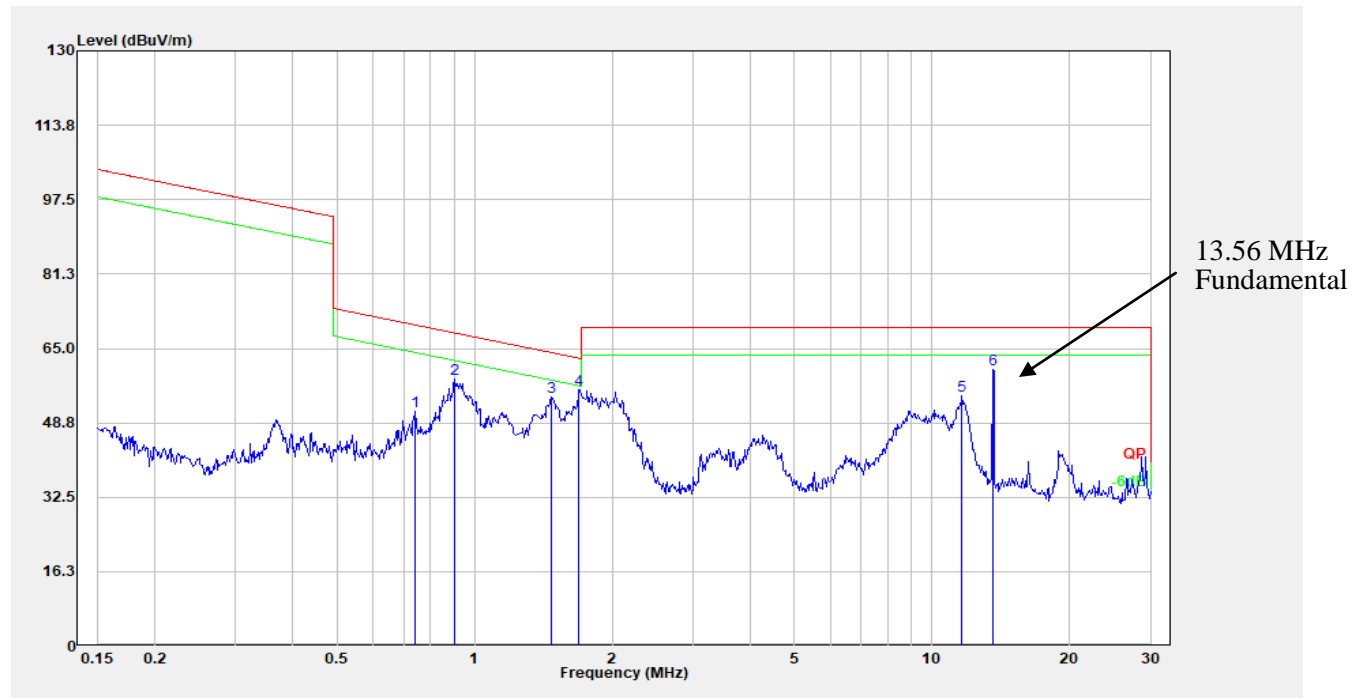


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	13.349	25.36	20.38	45.74	80.51	34.77	Peak
2	13.456	28.60	20.38	48.99	90.47	41.48	Peak
3	13.561	43.81	20.39	64.19	124.00	59.81	Peak
4	13.637	27.84	20.39	48.23	90.47	42.24	Peak
5	13.667	30.26	20.39	50.65	90.47	39.82	Peak
6	13.773	28.75	20.39	49.15	80.51	31.36	Peak

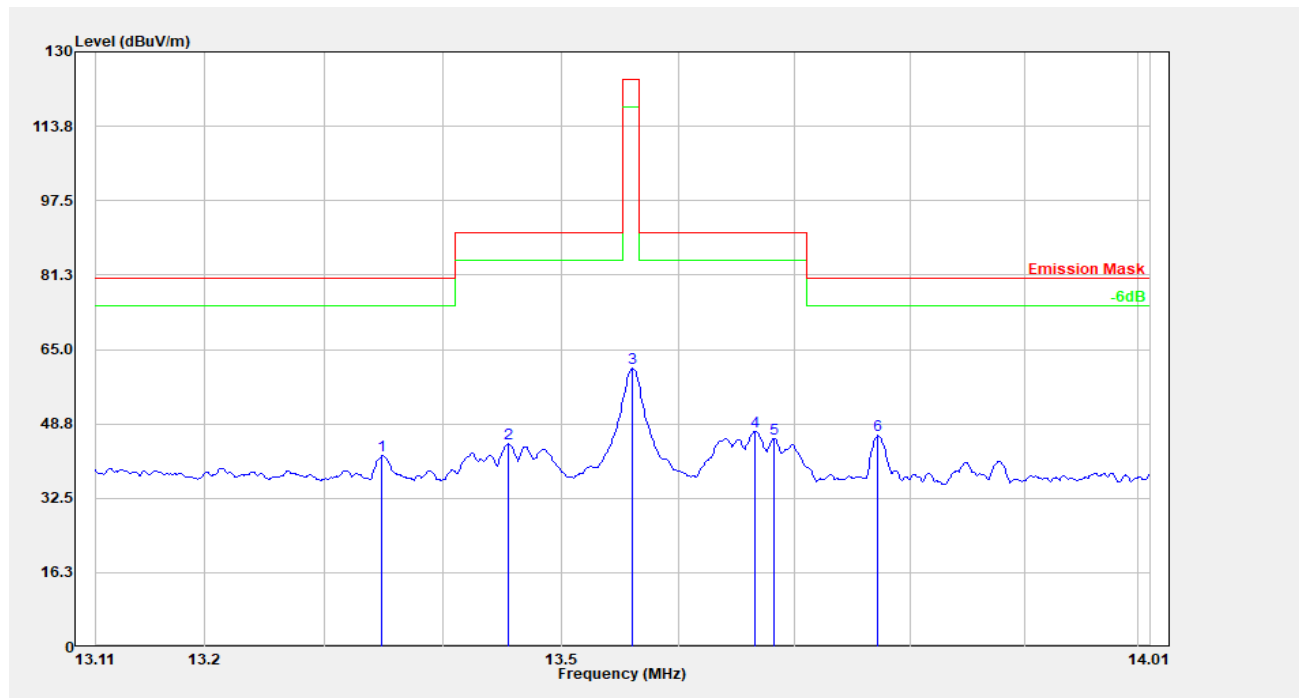
Perpendicular:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.011	27.47	20.51	47.98	127.05	79.07	Peak
2	0.029	21.24	20.41	41.65	118.28	76.63	Peak
3	0.044	19.63	20.41	40.04	114.66	74.63	Peak
4	0.055	34.07	20.41	54.48	112.78	58.30	Peak
5	0.059	34.73	20.41	55.14	112.20	57.05	Peak
6	0.110	22.65	20.22	42.87	106.75	63.88	Peak

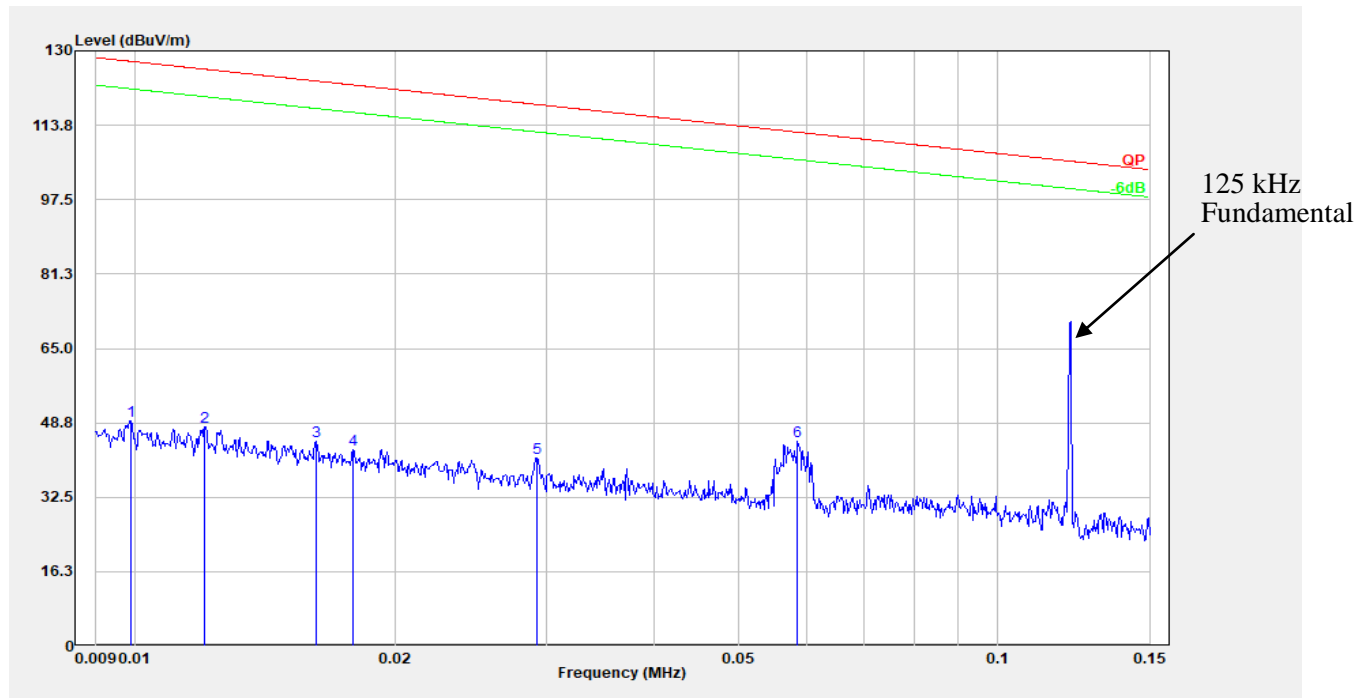


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.739	31.25	20.03	51.28	70.15	18.87	Peak
2	0.904	38.36	20.03	58.39	68.37	9.98	Peak
3	1.472	34.39	19.95	54.34	64.04	9.70	Peak
4	1.689	35.97	19.95	55.92	62.82	6.90	Peak
5	11.621	34.27	20.34	54.61	69.54	14.93	Peak
6	13.551	40.05	20.39	60.44	69.54	9.10	Peak

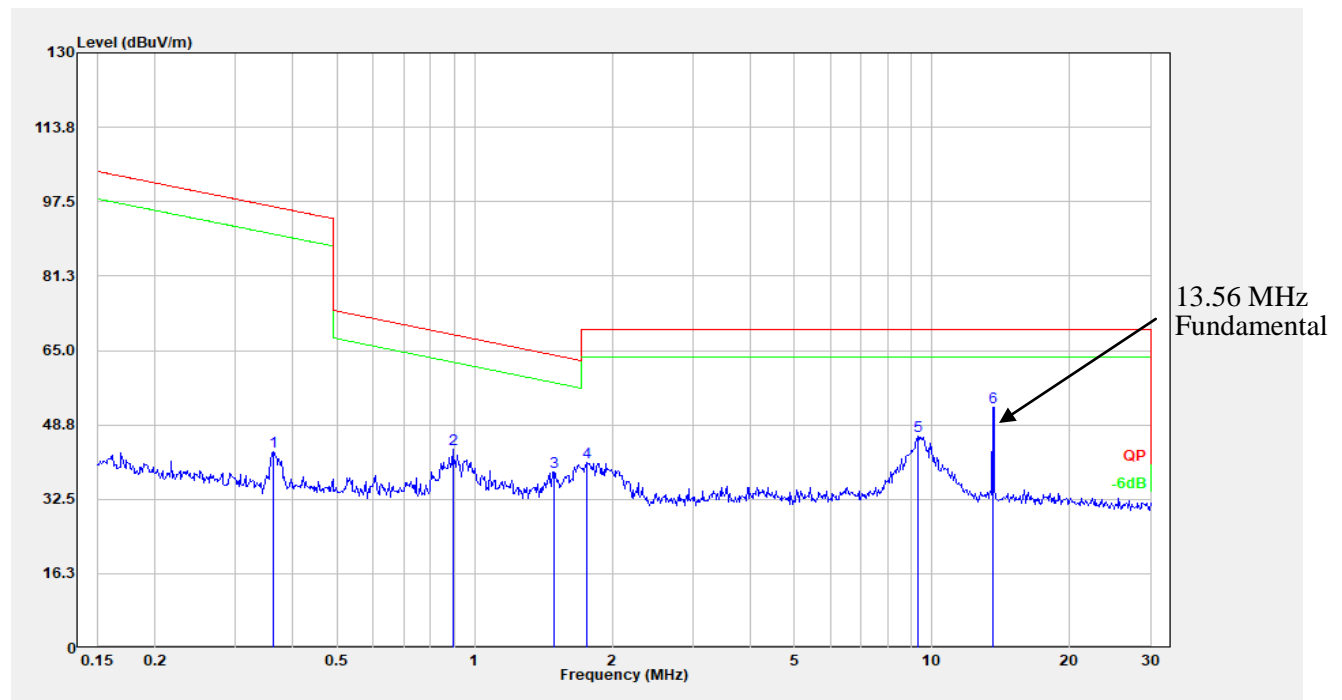


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	13.349	21.42	20.38	41.80	80.51	38.71	Peak
2	13.455	24.04	20.38	44.43	90.47	46.04	Peak
3	13.561	40.44	20.39	60.83	124.00	63.17	Peak
4	13.666	26.68	20.39	47.07	90.47	43.40	Peak
5	13.682	25.17	20.39	45.56	90.47	44.91	Peak
6	13.772	25.80	20.39	46.19	80.51	34.32	Peak

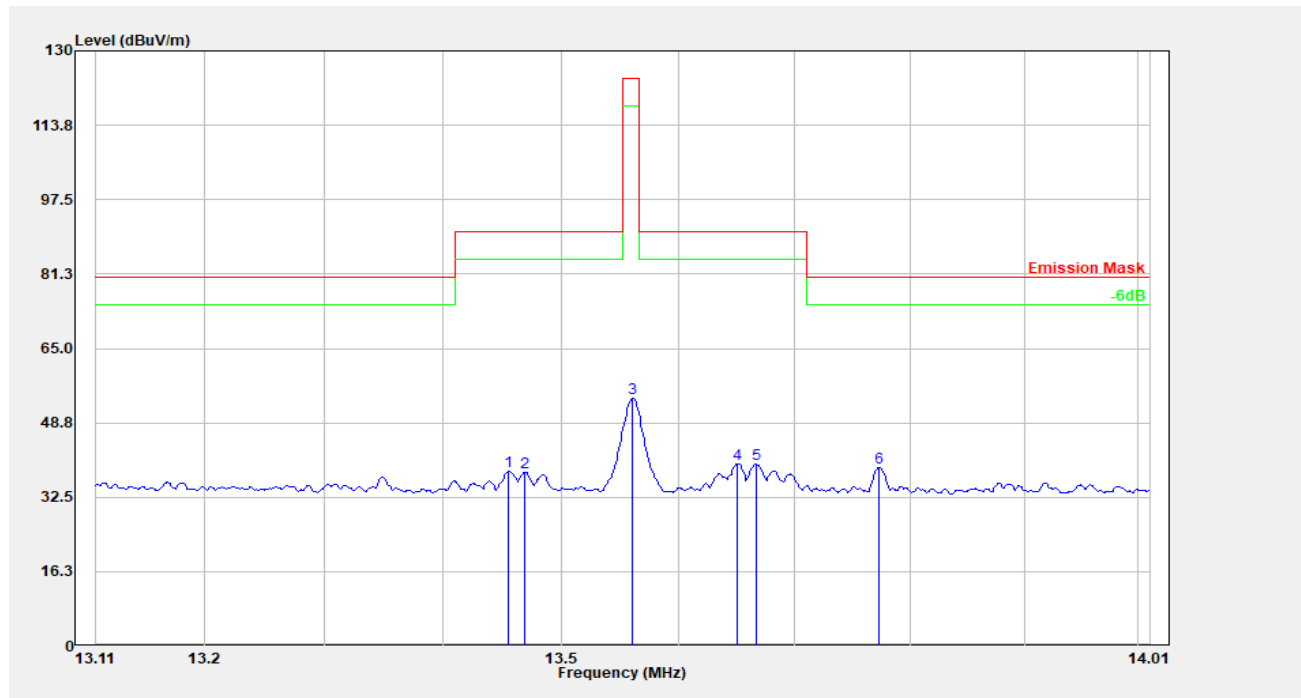
Ground-parallel:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.010	28.57	20.51	49.08	127.71	78.64	Peak
2	0.012	27.47	20.51	47.98	126.00	78.02	Peak
3	0.016	24.23	20.51	44.74	123.41	78.67	Peak
4	0.018	22.41	20.51	42.92	122.56	79.64	Peak
5	0.029	20.69	20.41	41.10	118.28	77.18	Peak
6	0.059	24.27	20.41	44.68	112.24	67.57	Peak

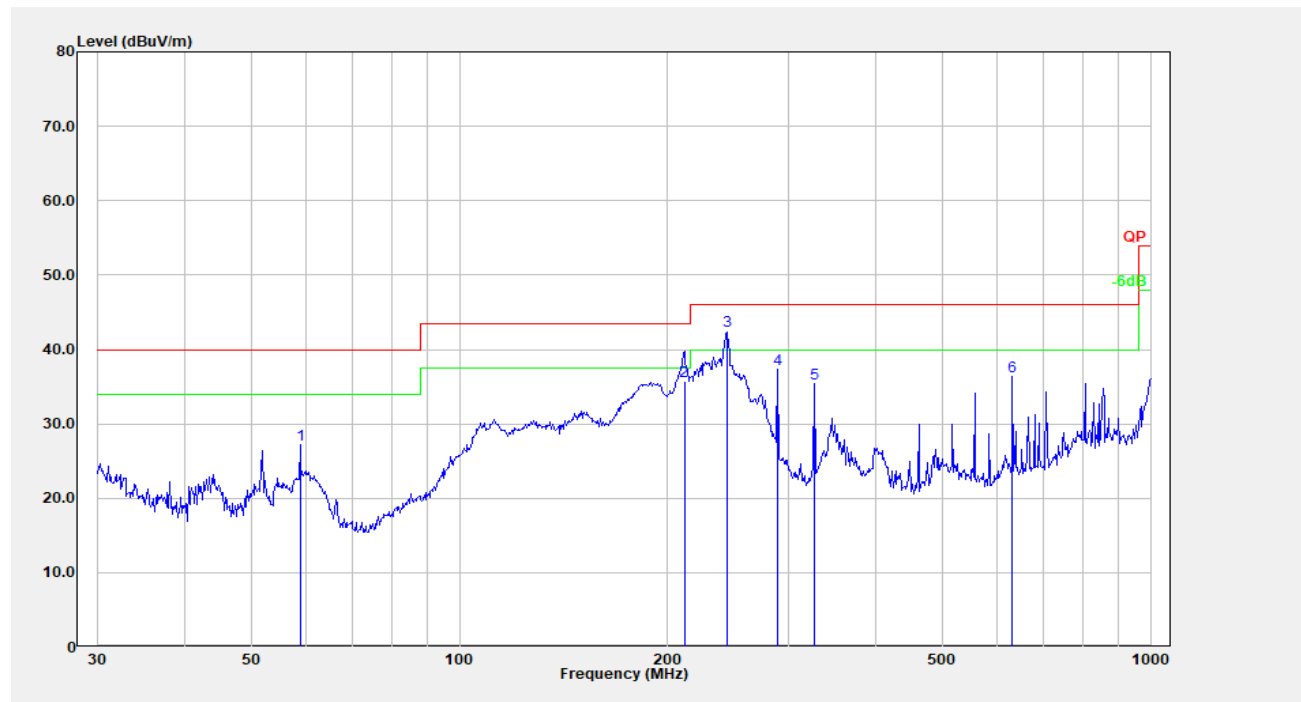


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.363	22.73	20.09	42.82	96.40	53.58	Peak
2	0.894	23.31	20.03	43.34	68.46	25.12	Peak
3	1.487	18.43	19.95	38.38	63.95	25.57	Peak
4	1.762	20.55	19.95	40.50	69.54	29.04	Peak
5	9.302	26.06	20.24	46.30	69.54	23.24	Peak
6	13.551	32.24	20.39	52.63	69.54	16.91	Peak

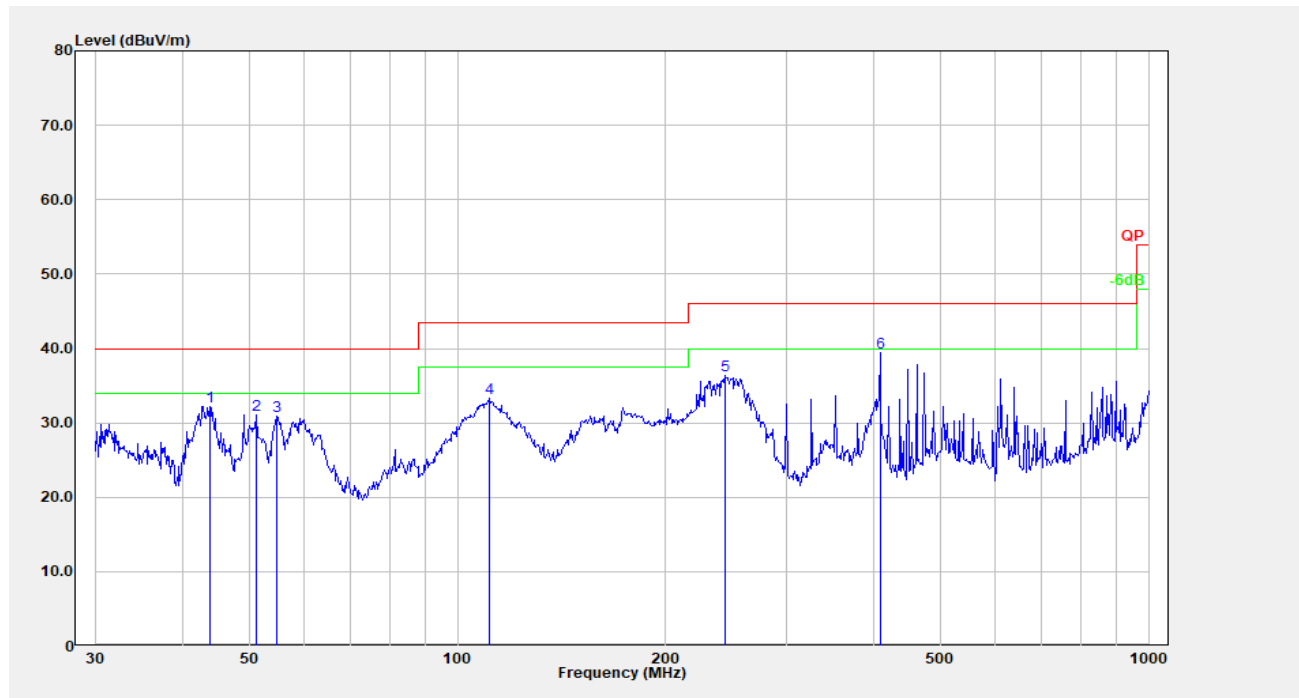


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	13.456	17.81	20.38	38.19	90.47	52.28	Peak
2	13.469	17.64	20.38	38.03	90.47	52.44	Peak
3	13.561	33.70	20.39	54.08	124.00	69.92	Peak
4	13.651	19.49	20.39	39.88	90.47	50.59	Peak
5	13.667	19.30	20.39	39.69	90.47	50.78	Peak
6	13.773	18.68	20.39	39.07	80.51	41.44	Peak

2) 30MHz-1GHz:

Horizontal:

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	58.819	44.78	-17.61	27.17	40.00	12.83	Peak
2	211.527	48.35	-12.66	35.69	43.50	7.81	QP
3	244.232	55.68	-13.13	42.55	46.00	3.45	QP
4	289.002	48.70	-11.28	37.42	46.00	8.58	Peak
5	326.740	45.96	-10.54	35.42	46.00	10.58	Peak
6	631.688	41.21	-4.89	36.32	46.00	9.68	Peak

Vertical:

No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	43.812	45.94	-13.80	32.14	40.00	7.86	Peak
2	51.121	48.53	-17.43	31.10	40.00	8.90	Peak
3	54.835	48.35	-17.50	30.85	40.00	9.15	Peak
4	111.347	45.82	-12.48	33.34	43.50	10.16	Peak
5	244.232	49.54	-13.13	36.42	46.00	9.58	Peak
6	408.946	48.11	-8.66	39.46	46.00	6.54	Peak

4.3 20 dB Emission Bandwidth

Serial Number:	CR22030053-RF-S1	Test Date:	2022-05-21
Test Site:	966-2	Test Mode:	Transmit
Tester:	Gary Ling	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	23.2	Relative Humidity: (%)	64	ATM Pressure: (kPa)	100.3
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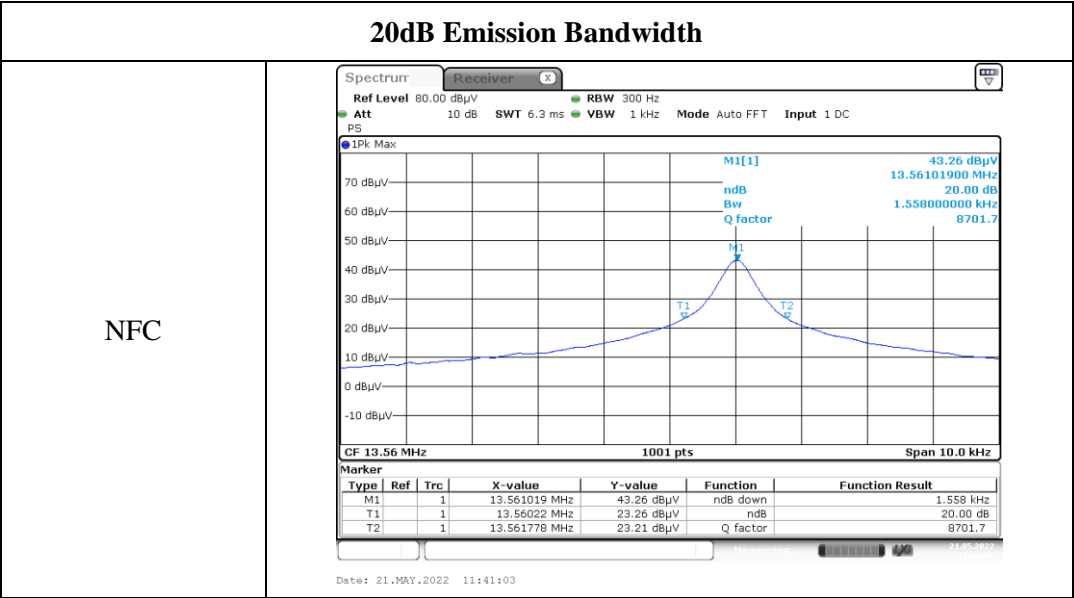
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
TESEQ	HF Loop Antenna	HLA6120	33561	2021-02-03	2024-02-02
R&S	EMI Test Receiver	ESR3	102724	2021-07-22	2022-07-21
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2021-07-18	2022-07-17
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2021-07-18	2022-07-17
Audix	Test Software	E3	201021 (V9)	N/A	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

Test Frequency (MHz)	20 dB Bandwidth (kHz)
13.56	1.558



4.4 Frequency Stability

Serial Number:	CR22030053-RF-S1	Test Date:	2022-05-21
Test Site:	RF	Test Mode:	Transmit
Tester:	Gary Ling	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	23.5	Relative Humidity: (%)	60	ATM Pressure: (kPa)	100.3
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
TESEQ	HF Loop Antenna	HLA6120	33561	2021-02-03	2024-02-02
R&S	EMI Test Receiver	ESR3	102724	2021-07-22	2022-07-21
BACL	TEMP&HUMI Test Chamber	BTH-150	30026	2021-07-22	2022-07-21
YINSAIGE	Coaxial Cable	SS402	SJ0300001	Each time	N/A
UNI-T	Multimeter	UT39A+	C210582554	2021-09-30	2022-09-29

** **Statement of Traceability:** China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

DC 12V

$f_0 = 13.56 \text{ MHz}$				
Temperature	Voltage	Measured frequency	Frequency Error	Limit
°C	V _{DC}	MHz	Hz	Hz
-30	12	13.5610810	1081.0	±1356
-20		13.5610420	1042.0	±1356
-10		13.5609420	942.0	±1356
0		13.5608390	839.0	±1356
10		13.5609680	968.0	±1356
20		13.5610190	1019.0	±1356
25		13.5609760	976.0	±1356
30		13.5608830	883.0	±1356
40		13.5608580	858.0	±1356
50		13.5608630	863.0	±1356
20	10.2	13.5608950	895.0	±1356
20	13.8	13.5609490	949.0	±1356

DC 48V

$f_0 = 13.56 \text{ MHz}$				
Temperature	Voltage	Measured frequency	Frequency Error	Limit
°C	V _{DC}	MHz	Hz	Hz
-30	48	13.5608250	825.0	±1356
-20		13.5608040	804.0	±1356
-10		13.5610220	1022.0	±1356
0		13.5609010	901.0	±1356
10		13.5609100	910.0	±1356
20		13.5610380	1038.0	±1356
25		13.5610310	1031.0	±1356
30		13.5609630	963.0	±1356
40		13.5610190	1019.0	±1356
50		13.5609590	959.0	±1356
20	40.8	13.5610790	1079.0	±1356
20	55.2	13.5609750	975.0	±1356

===== END OF REPORT =====