中认信通
CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)

ACCREDITED
TESTING LABORATORY
CERTIFICATE # 6356.01

TEST REPORT

Applicant: **Shanghai Sunmi Technology Co.,Ltd.**

Address: Room 505, KIC Plaza, No.388 Song Hu Road, Yang Pu District, Shanghai, China

FCC ID: **2AH25T5810**

Product Name: **Smart POS system**

Model Number: **T5810**

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: **CR21100085-00CA1**

Date Of Issue: **2022-04-25**

Reviewed By: **Sun Zhong**

Sun Zhong

Title: Manager

Test Laboratory: **China Certification ICT Co., Ltd (Dongguan)**
No. 113, Pingkang Road, Dalang Town, Dongguan,
Guangdong, China
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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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CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	CR21100085-00C	Original Report	2022-04-03
1	CR21100085-00CA1	Retest Radiated Emission And 20 dB Bandwidth	2022-04-25

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	Smart POS system
EUT Model:	T5810
Operation Frequency:	13.56 MHz
Modulation Type:	ASK
Rated Input Voltage:	DC 5V from adapter and DC 3.8V from battery
Serial Number:	CR21100085-RF-S2(Type-1) CR21100085-RF-S1(Type-2)
EUT Received Date:	2021.11.15
EUT Received Status:	Good
Note: The EUT model has two configurations that Type-1 is none code scanner and Type-2 is added code scanner. The adapter 1# power mode was reported for Radiation Below 1GHz test, since adapter 1# and adapter 2# power mode were proved to be compliance with 15.207&15.209 emission requirements in BT report CR21100085-00A, and the worst is adapter 1# power mode.	

Operation Frequency Detail:

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

Per section 15.31(m), the lowest frequency, middle frequency, and highest frequency were performed the test as below:

Test Channel	Frequency (MHz)
Middle	13.56

Antenna Information Detail▲:

Antenna Manufacturer	Antenna Type	input impedance (Ohm)	Antenna Gain /Frequency Range	§15.203 Requirement
Shanghai Sunmi Technology Co.,Ltd.	Coil	50	13.56MHz	**Compliance**
The Method of §15.203 Compliance: ☒Antenna must be permanently attached to the unit. ☐Antenna must use a unique type of connector to attach to the EUT. ☐Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.				

Accessory Information:

Accessory Description	Manufacturer	Model	Parameters
USB Cable	Unknown	Unknown	Un-shield, 1 m
Adapter 1#	SHENZHEN TIANYIN ELECTRONICS Co.,Ltd	TPA-23A050200UU01	Input: 100-240V~50/60Hz 0.3A Output: 5V/2A
Adapter 2#	Jiangsu Chenyang Eletron Co.,Ltd	UC13US	Input: 100-240V~50/60Hz 0.35A Output: 5V/2A

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:	engineering mode

Engineering Mode was provided by manufacturer▲. The maximum power was configured default setting.

Channel	Frequency (MHz)	Power Level Setting
Middle	13.56	Default

1.2.2 Support Equipment List and Details

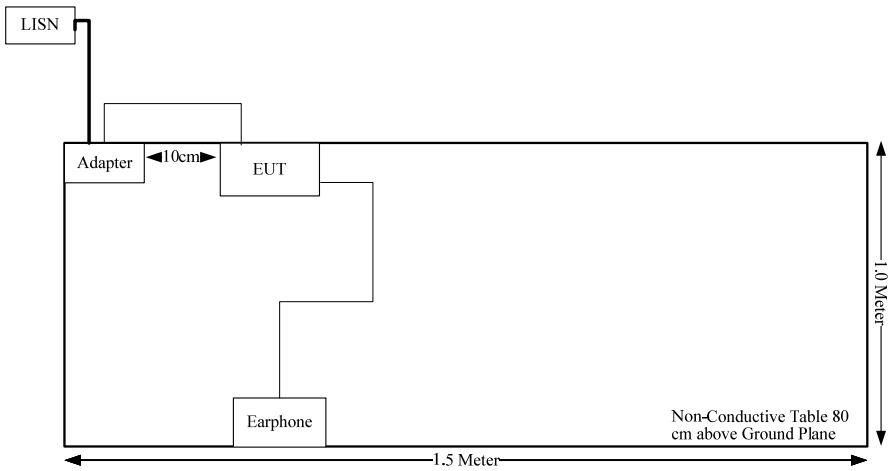
Manufacturer	Description	Model	Serial Number
Unknown	Earphone	Unknown	Earphone 02

1.2.3 Support Cable List and Details

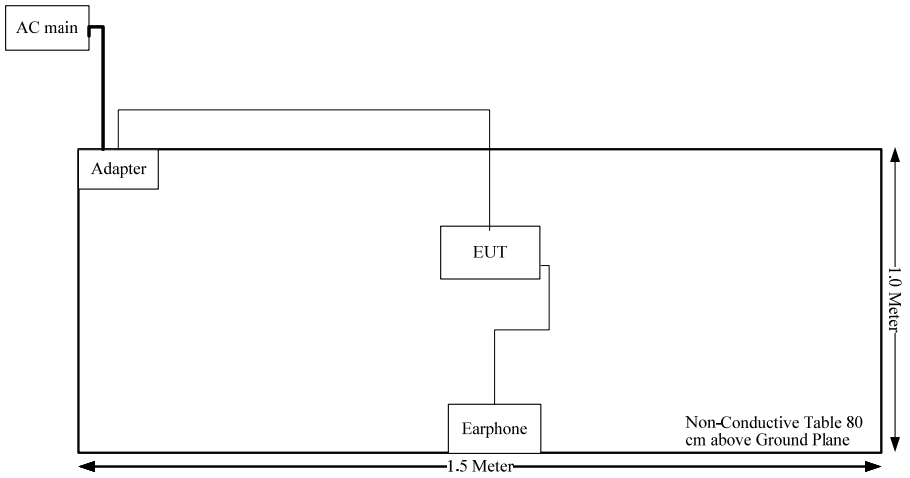
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
AC power cable	No	No	1	Adapter	LISN/AC Mains
USB cable	No	No	1	EUT	Adapter
Earphone Cable	No	No	1.2	EUT	Earphone

1.2.4 Block Diagram of Test Setup

AC line conducted emissions:



Spurious emissions Below 1GHz:



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	±5 %
Unwanted Emissions, radiated	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	±1℃
Humidity	±5%
DC and low frequency voltages	±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	Compliance
FCC§15.207 (a)	Conducted Emissions	Compliance
§15.225 §15.209 §15.205	Radiated Emission Test	Compliance
§15.225(e)	Frequency Stability	Compliance
§15.215(c)	20 dB Bandwidth	Compliance

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 μH/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.

	Conducted limit (dBμV)	
Frequency of emission (MHz)	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:

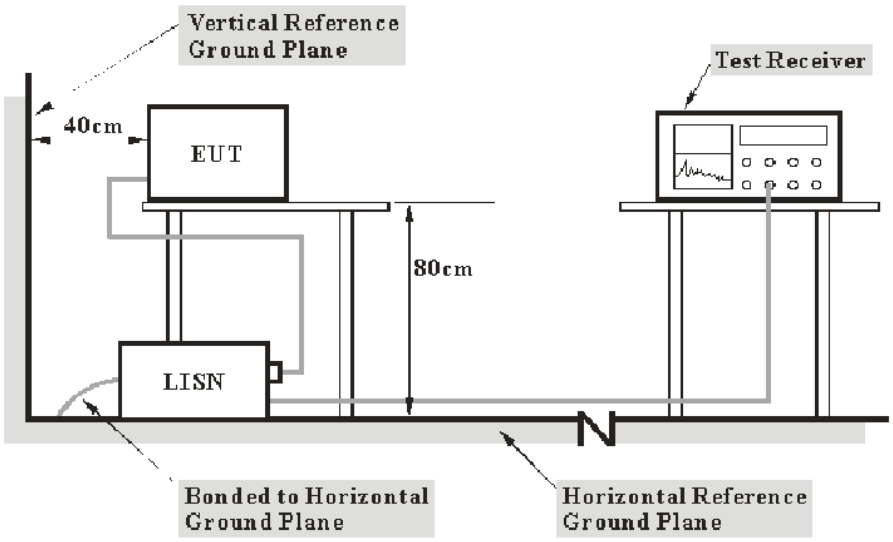
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000 μV within the frequency band 535-1705 kHz, as measured using a 50 μH/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, obtainig 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.

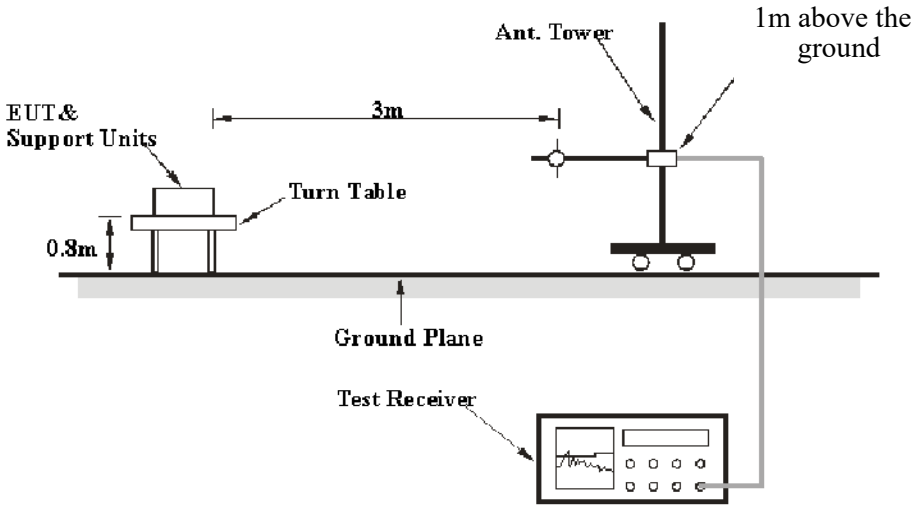
(b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

(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.

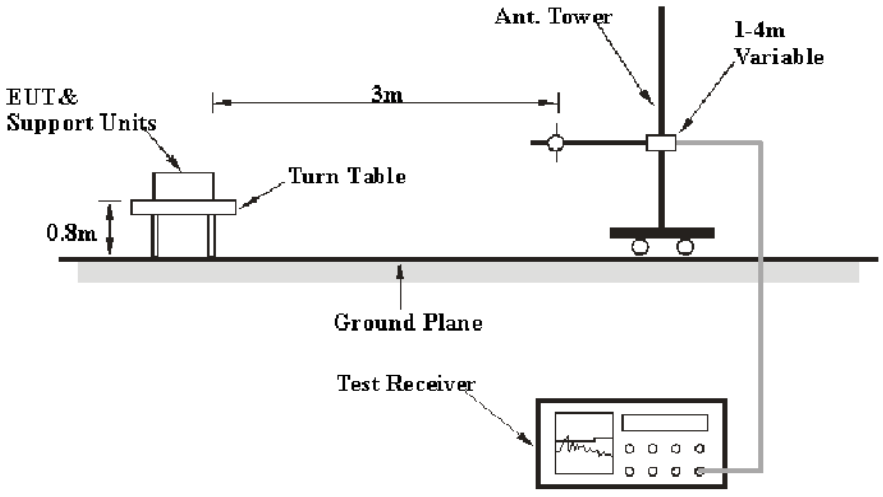
(d) The field strength of any emissions appearing outside of the 13.110–14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

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

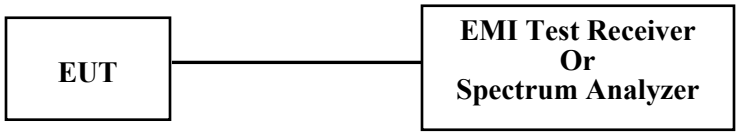
3.3 20 dB Emission Bandwidth:

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. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. 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.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.

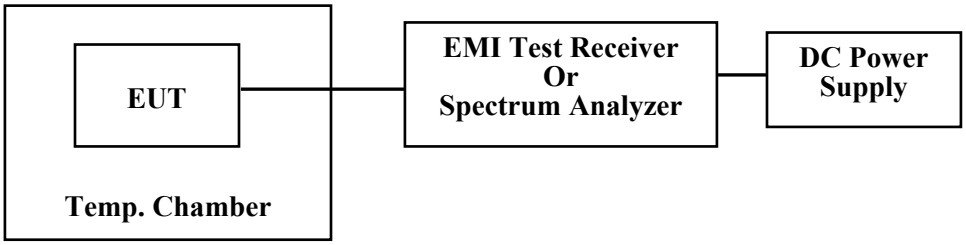
3.4 Frequency Stability

3.4.1 Applicable Standard

As per FCC Part 15.225:

The frequency tolerance of the carrier signal shall be maintained within ±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:	CR21100085-RF-S2(Type-1) CR21100085-RF-S1(Type-2)	Test Date:	2021-11-27~ 2022-03-22
Test Site:	CE	Test Mode:	Transmitting
Tester:	Allen Wu	Test Result:	Pass

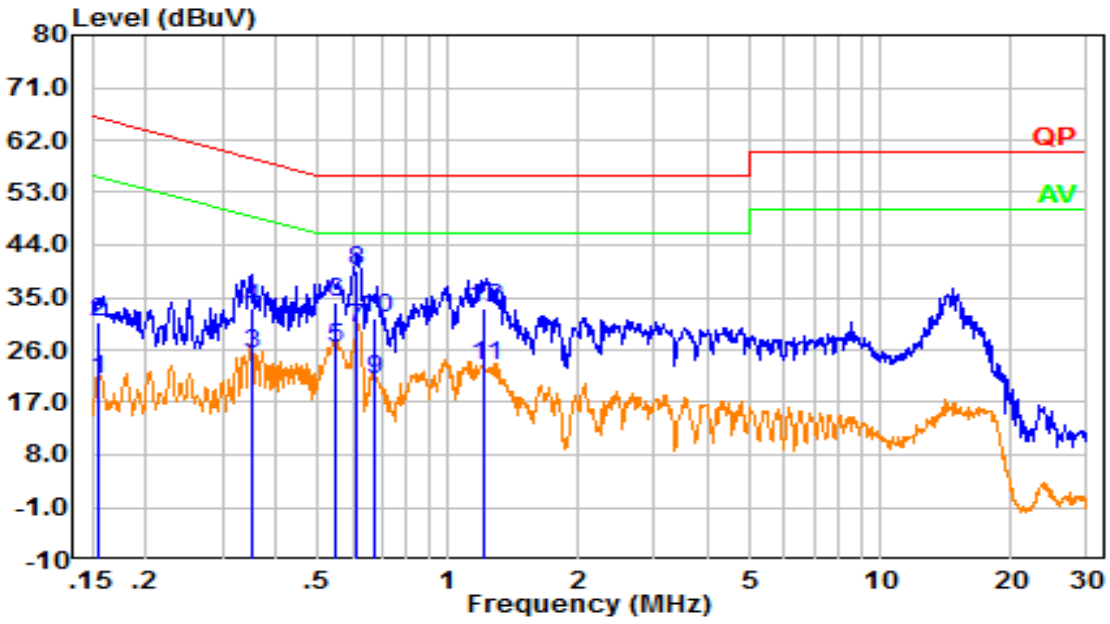
Environmental Conditions:					
Temperature: (℃)	21.8~24.8	Relative Humidity: (%)	63~67	ATM Pressure: (kPa)	100.5~101.5

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2021-04-25	2022-04-24
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

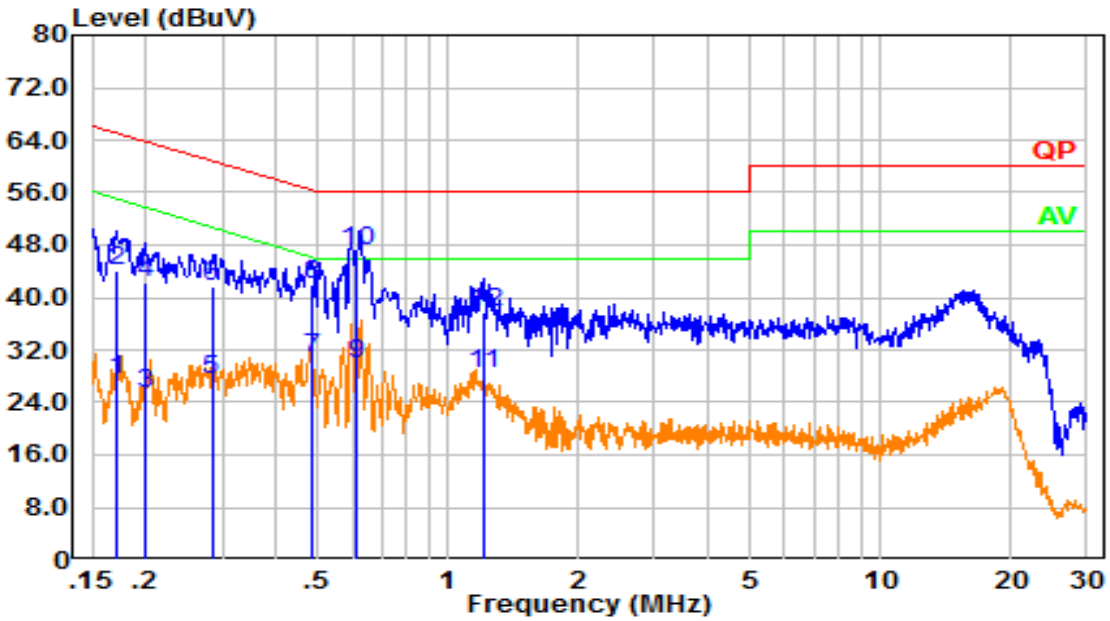
** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Type-2:
Adapter 1#:
Line:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.155	11.15	9.61	20.76	55.71	34.95	Average
2	0.155	21.17	9.61	30.78	65.71	34.93	QP
3	0.349	15.88	9.61	25.49	48.98	23.49	Average
4	0.349	23.49	9.61	33.10	58.98	25.88	QP
5	0.549	16.80	9.61	26.42	46.00	19.58	Average
6	0.549	24.69	9.61	34.31	56.00	21.69	QP
7	0.613	20.22	9.62	29.84	46.00	16.16	Average
8	0.613	30.10	9.62	39.72	56.00	16.28	QP
9	0.673	11.34	9.62	20.96	46.00	25.04	Average
10	0.673	21.89	9.62	31.51	56.00	24.49	QP
11	1.213	13.61	9.62	23.24	46.00	22.76	Average
12	1.213	23.38	9.62	33.00	56.00	23.00	QP

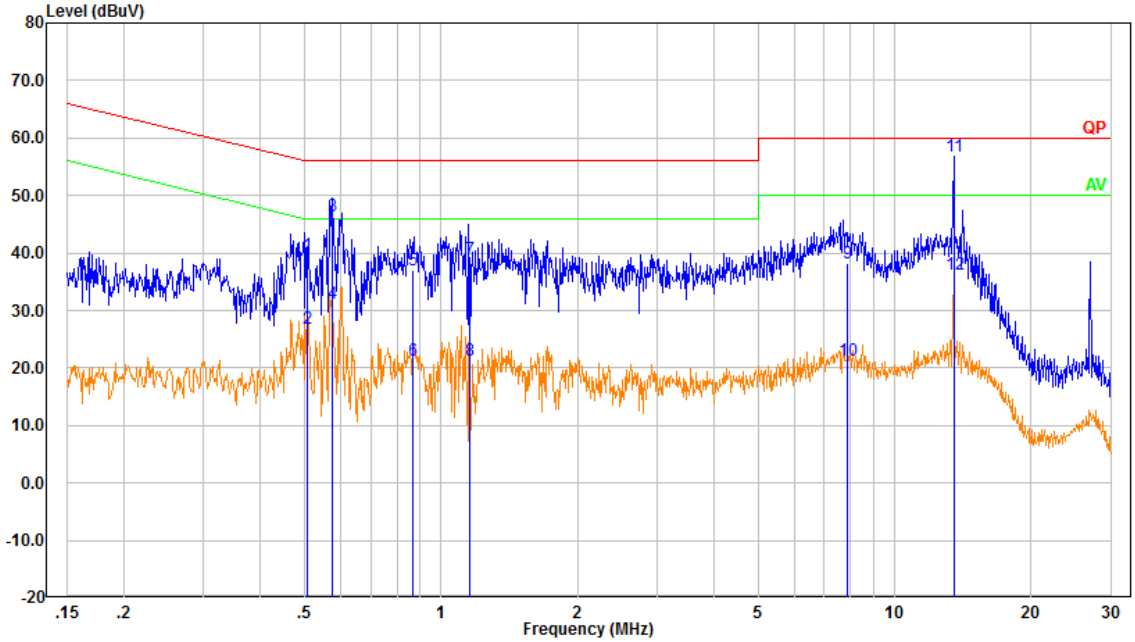
Neutral:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.170	18.00	9.61	27.61	54.95	27.34	Average
2	0.170	34.43	9.61	44.04	64.95	20.91	QP
3	0.198	15.73	9.61	25.34	53.69	28.34	Average
4	0.198	32.57	9.61	42.18	63.69	21.51	QP
5	0.284	17.95	9.61	27.56	50.71	23.15	Average
6	0.284	32.13	9.61	41.74	60.71	18.97	QP
7	0.481	21.22	9.61	30.83	46.32	15.49	Average
8	0.481	32.25	9.61	41.86	56.32	14.46	QP
9	0.616	20.32	9.62	29.94	46.00	16.06	Average
10	0.616	37.49	9.62	47.11	56.00	8.89	QP
11	1.206	18.86	9.62	28.48	46.00	17.52	Average
12	1.206	28.11	9.62	37.73	56.00	18.27	QP

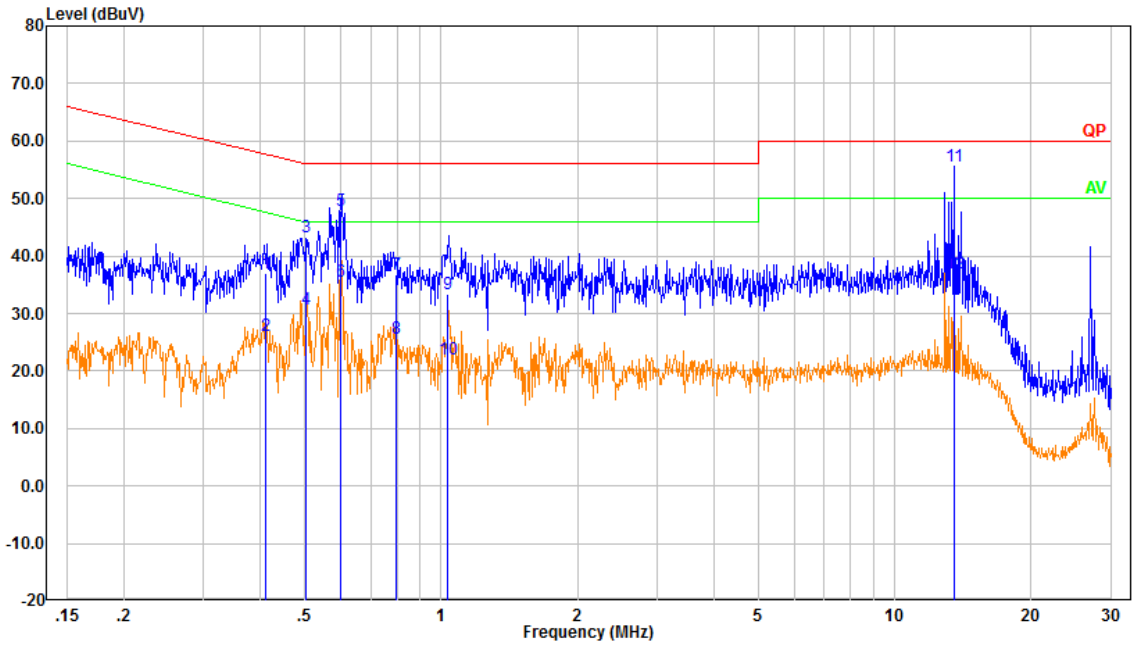
Type-1:
Adapter 1#:

Line:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.506	29.99	9.61	39.60	56.00	16.40	QP
2	0.506	17.29	9.61	26.90	46.00	19.10	Average
3	0.574	36.73	9.62	46.35	56.00	9.65	QP
4	0.574	21.60	9.62	31.22	46.00	14.78	Average
5	0.864	27.50	9.62	37.12	56.00	18.88	QP
6	0.864	11.80	9.62	21.42	46.00	24.58	Average
7	1.157	29.33	9.62	38.95	56.00	17.05	QP
8	1.157	11.68	9.62	21.30	46.00	24.70	Average
9	7.872	28.62	9.67	38.29	60.00	21.71	QP
10	7.872	11.55	9.67	21.22	50.00	28.78	Average
11	13.514	47.21	9.68	56.89	60.00	3.11	QP
12	13.514	26.51	9.68	36.19	50.00	13.81	Average

Neutral:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.412	27.43	9.61	37.04	57.61	20.57	QP
2	0.412	16.49	9.61	26.10	47.61	21.51	Average
3	0.505	33.73	9.61	43.34	56.00	12.66	QP
4	0.505	21.09	9.61	30.70	46.00	15.30	Average
5	0.601	38.21	9.62	47.83	56.00	8.17	QP
6	0.601	25.97	9.62	35.59	46.00	10.41	Average
7	0.795	27.06	9.62	36.68	56.00	19.32	QP
8	0.795	16.13	9.62	25.75	46.00	20.25	Average
9	1.036	23.85	9.62	33.47	56.00	22.53	QP
10	1.036	12.52	9.62	22.14	46.00	23.86	Average
11	13.514	45.86	9.68	55.54	60.00	4.46	QP
12	13.514	27.33	9.68	37.01	50.00	12.99	Average

4.2 Radiation Spurious Emissions

Serial Number:	CR21100085-RF-S2(Type-1) CR21100085-RF-S1(Type-2)	Test Date:	2021-11-17~2022-04-24
Test Site:	966-2	Test Mode:	Transmitting
Tester:	Allen Wu, Veyo Zhang	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	20.1~26.3	Relative Humidity: (%)	49~66	ATM Pressure: (kPa)	100.9~101.5

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:

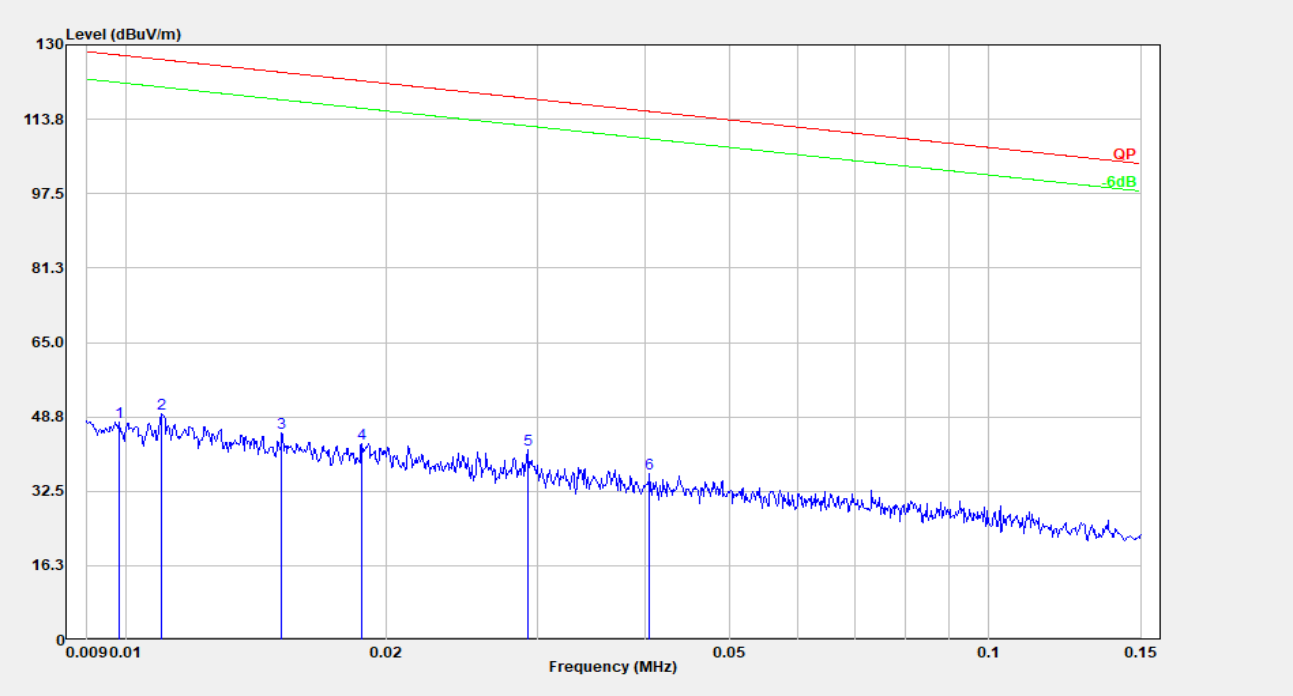
Please refer to the below table and plots.

Note: The device can be mounted in multiple orientations, test was performed with X,Y, Z Axis according to C63.10 Figure 8, the worst orientation was photographed and it`s data was recorded.

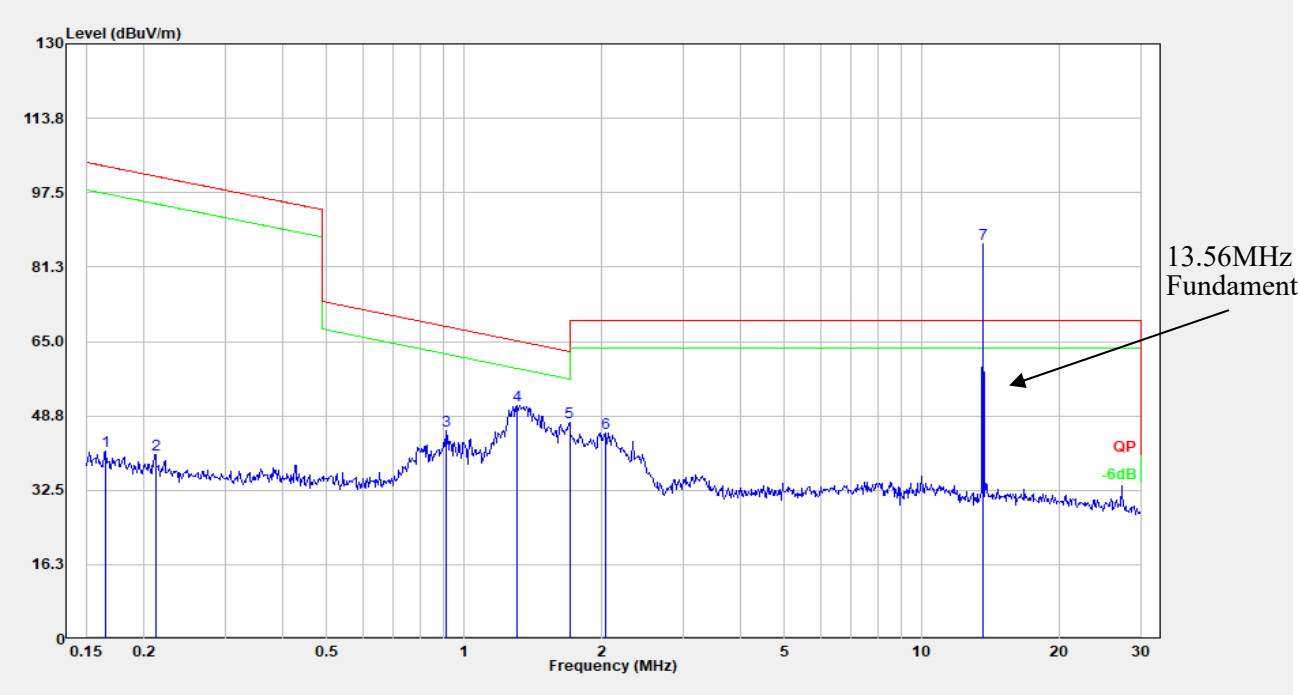
Test Data:

Type-2 adapter 1#:
1) 9 kHz~30MHz:

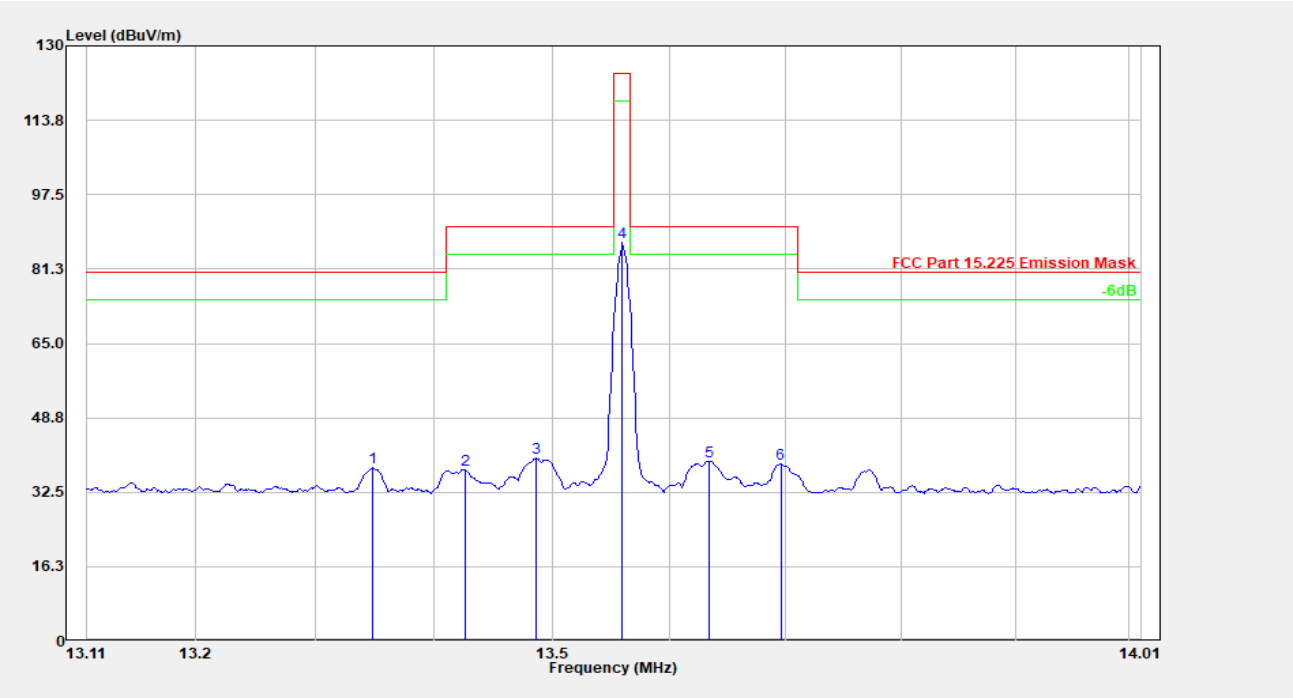
Parallel:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.010	27.09	20.51	47.60	127.79	80.19	Peak
2	0.011	28.93	20.51	49.44	126.78	77.34	Peak
3	0.015	24.66	20.51	45.17	124.00	78.83	Peak
4	0.019	22.35	20.51	42.86	122.14	79.28	Peak
5	0.029	21.06	20.41	41.47	118.31	76.83	Peak
6	0.040	16.05	20.41	36.46	115.47	79.01	Peak

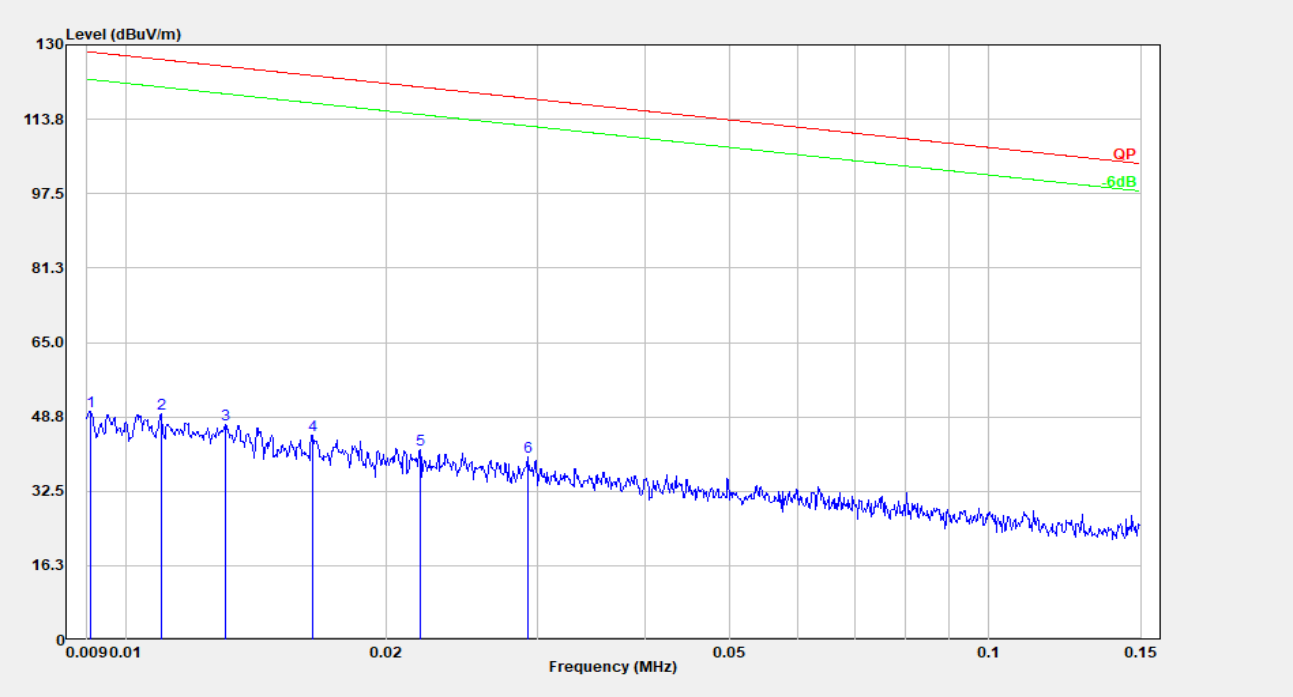


No.	Frequency	Reading	Factor	Result	Limit	Margin	Detector
	(MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	
1	0.164	20.72	20.22	40.94	103.30	62.36	Peak
2	0.212	20.10	20.20	40.30	101.09	60.79	Peak
3	0.914	25.57	20.03	45.60	68.27	22.67	Peak
4	1.303	30.97	19.98	50.95	65.13	14.18	Peak
5	1.698	27.51	19.95	47.46	62.78	15.32	Peak
6	2.033	25.15	19.96	45.11	69.54	24.43	Peak
7	13.551	66.04	20.39	86.43	N/A	N/A	Peak

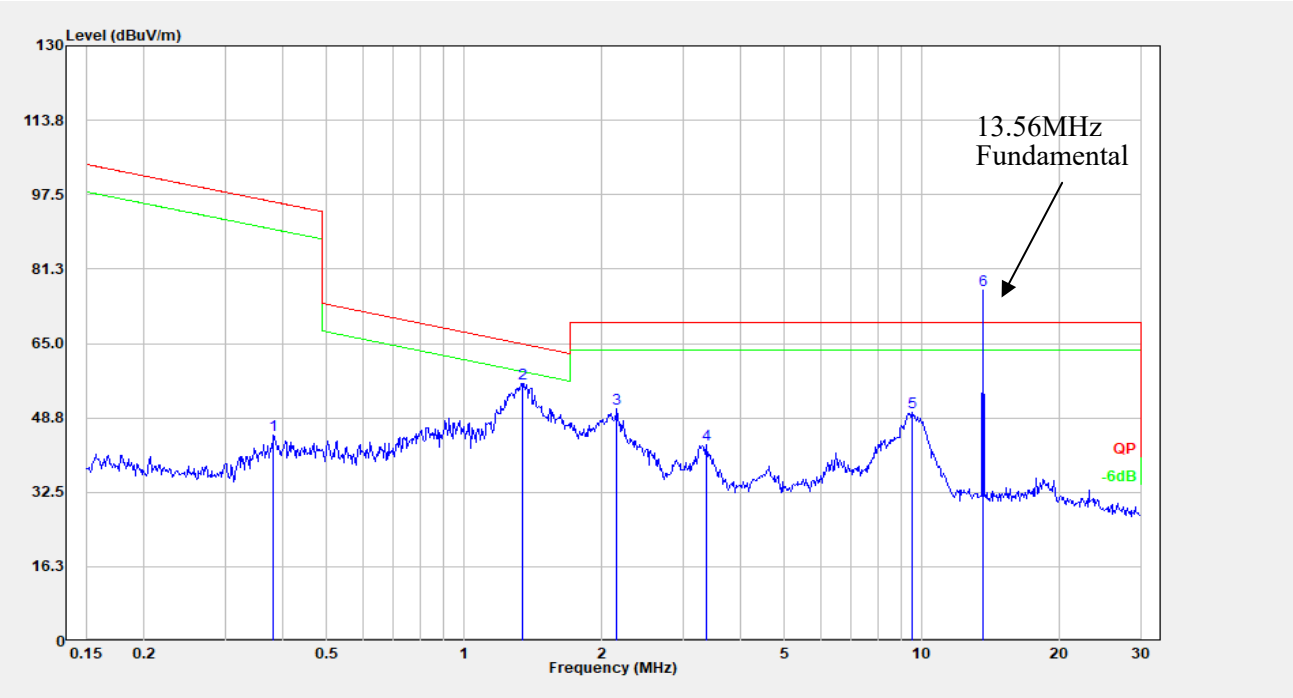


No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	13.349	17.47	20.38	37.85	80.51	42.66	Peak
2	13.426	17.12	20.38	37.50	90.47	52.97	Peak
3	13.486	19.51	20.38	39.89	90.47	50.58	Peak
4	13.560	66.79	20.39	87.17	124.00	36.83	Peak
5	13.634	18.94	20.39	39.33	90.47	51.14	Peak
6	13.696	18.23	20.39	38.62	90.47	51.85	Peak

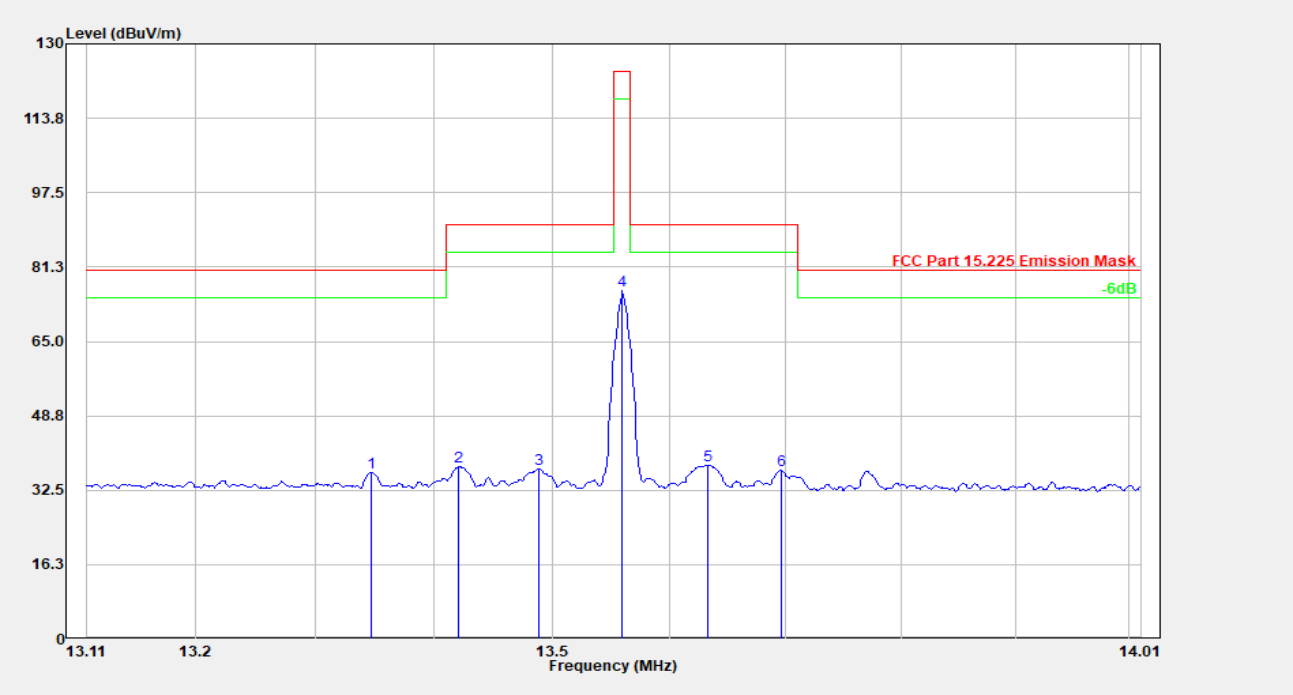
Perpendicular:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.009	29.53	20.51	50.04	128.45	78.41	Peak
2	0.011	28.97	20.51	49.48	126.81	77.33	Peak
3	0.013	26.64	20.51	47.15	125.32	78.16	Peak
4	0.016	24.29	20.51	44.80	123.29	78.49	Peak
5	0.022	21.07	20.47	41.54	120.80	79.26	Peak
6	0.029	19.68	20.41	40.09	118.31	78.22	Peak



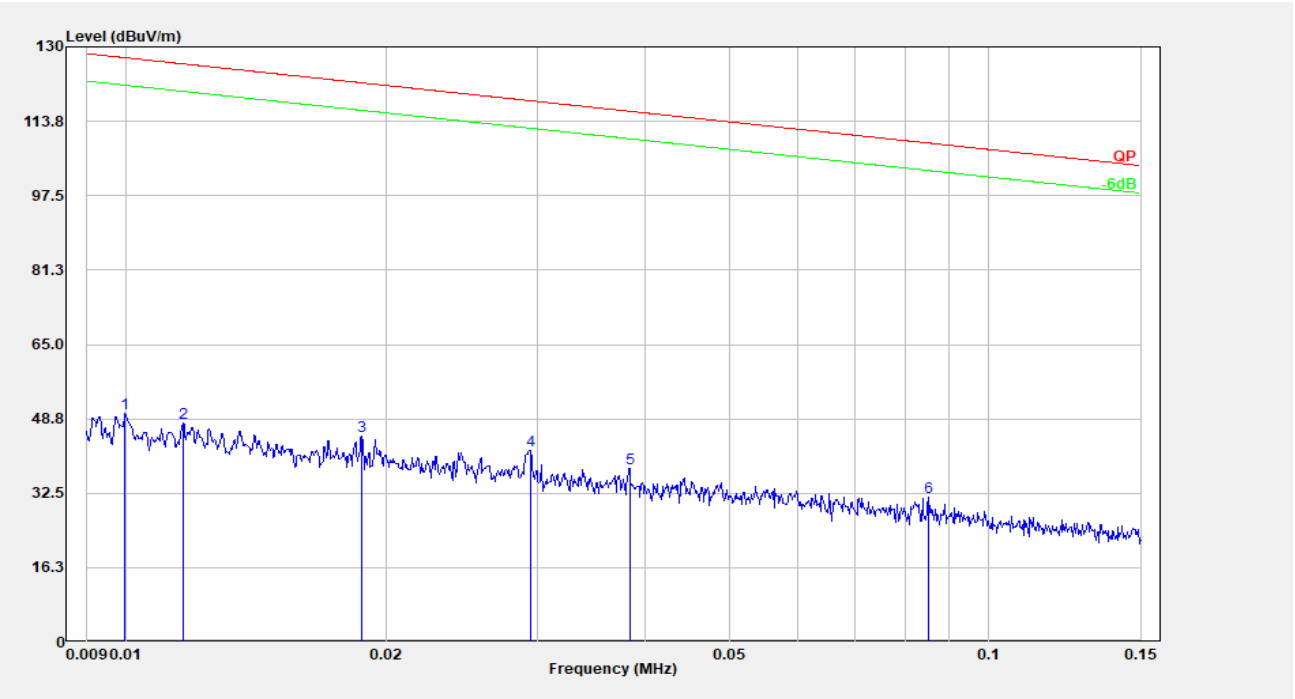
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.383	24.94	20.08	45.02	95.94	50.92	Peak
2	1.338	36.38	19.97	56.35	64.89	8.54	Peak
3	2.155	30.82	19.96	50.78	69.54	18.76	Peak
4	3.381	22.95	19.99	42.94	69.54	26.60	Peak
5	9.502	29.68	20.26	49.94	69.54	19.60	Peak
6	13.551	56.32	20.39	76.70	N/A	N/A	Peak



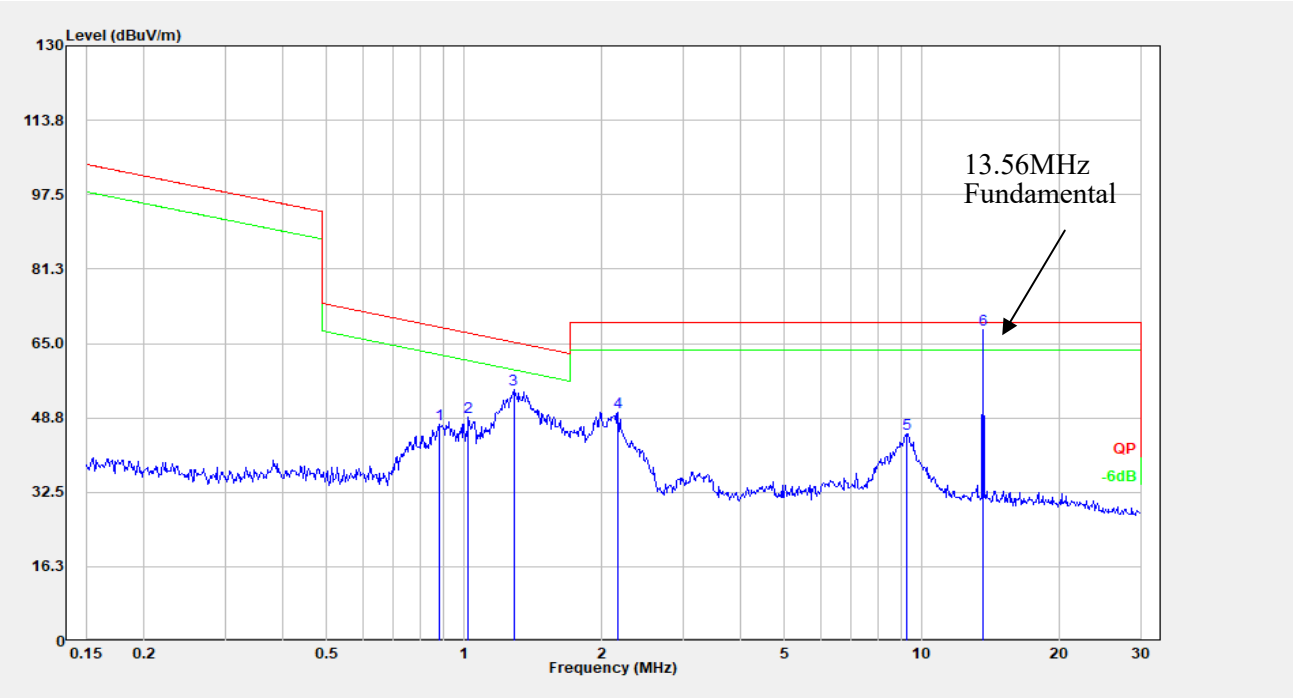
No.	Frequency	Reading	Factor	Result	Limit	Margin	Detector
	(MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	
1	13.347	16.04	20.38	36.42	80.51	44.09	Peak
2	13.421	17.23	20.38	37.61	90.47	52.86	Peak
3	13.489	16.79	20.38	37.17	90.47	53.30	Peak
4	13.560	55.69	20.39	76.08	124.00	47.92	Peak
5	13.633	17.61	20.39	38.00	90.47	52.47	Peak
6	13.696	16.49	20.39	36.88	90.47	53.59	Peak

Ground-parallel:

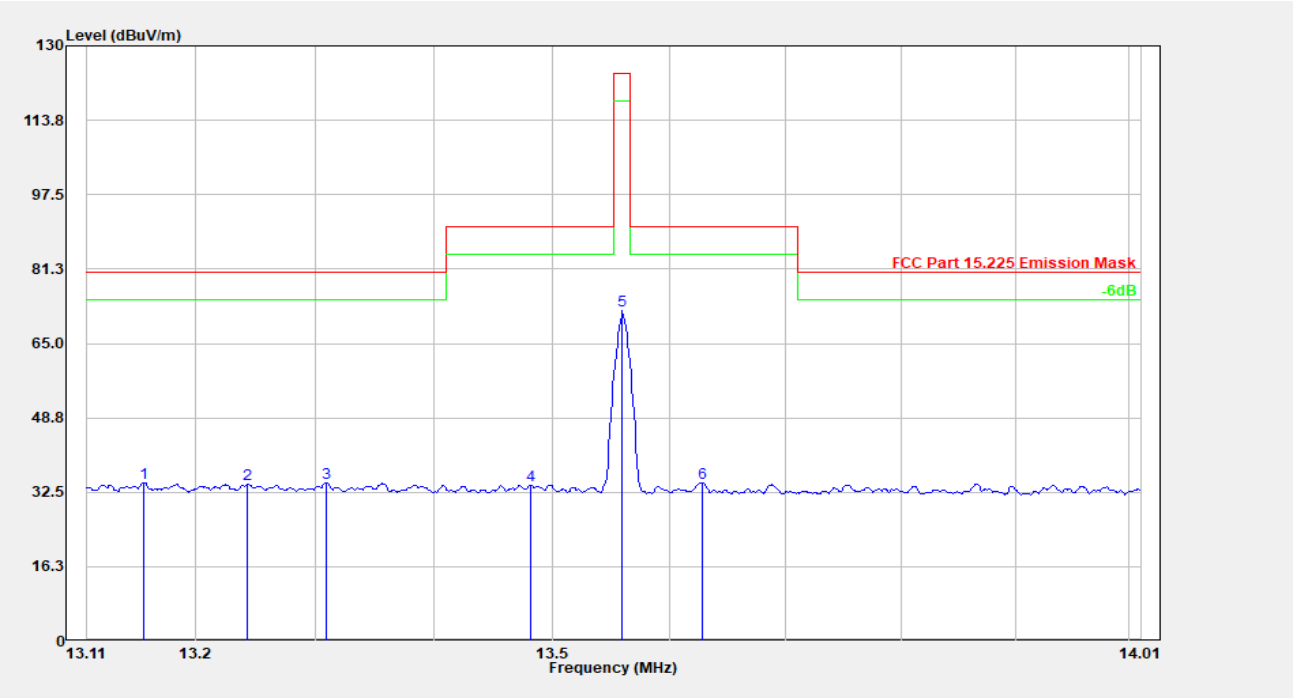
1) 9 kHz~30MHz:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.010	29.41	20.51	49.92	127.64	77.72	Peak
2	0.012	27.25	20.51	47.76	126.30	78.53	Peak
3	0.019	24.38	20.51	44.89	122.14	77.25	Peak
4	0.029	21.41	20.41	41.82	118.23	76.42	Peak
5	0.038	17.58	20.41	37.99	115.93	77.94	Peak
6	0.085	11.26	20.32	31.58	108.99	77.41	Peak



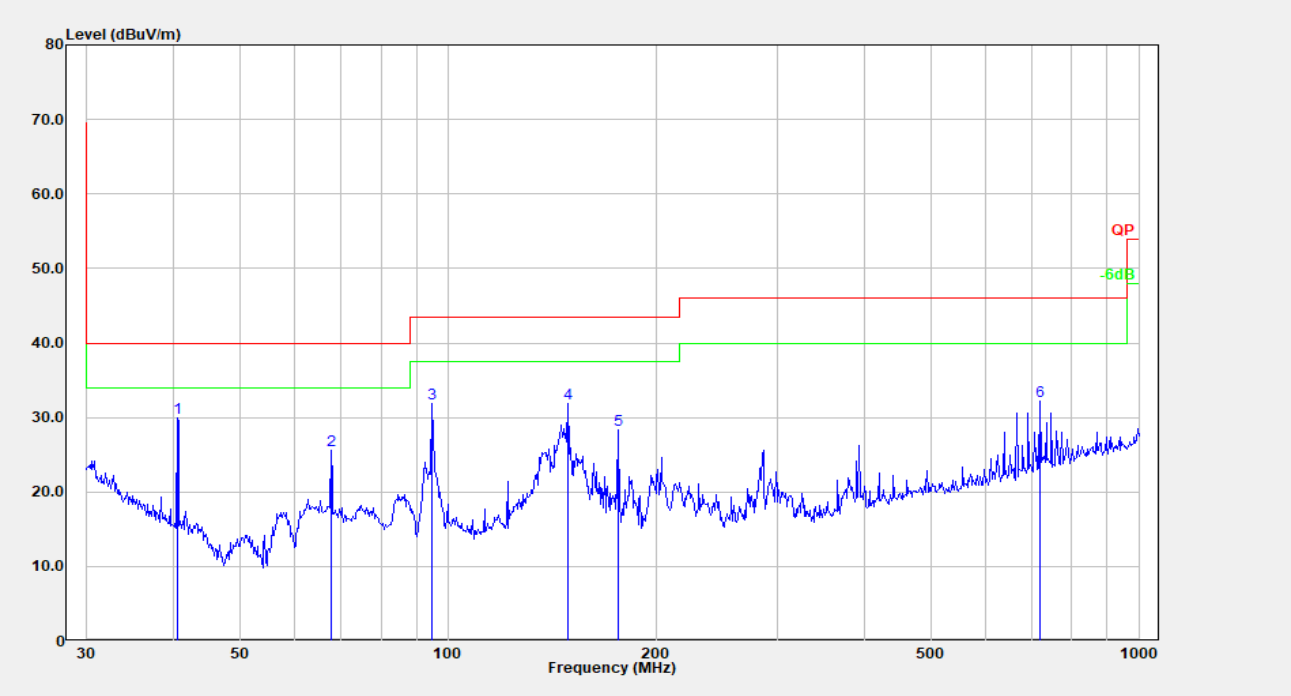
No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.885	27.43	20.03	47.46	68.56	21.10	Peak
2	1.021	28.94	20.03	48.97	67.29	18.32	Peak
3	1.282	34.95	19.98	54.93	65.27	10.34	Peak
4	2.167	29.99	19.96	49.95	69.54	19.59	Peak
5	9.253	25.10	20.24	45.34	69.54	24.20	Peak
6	13.551	47.65	20.39	68.03	N/A	N/A	Peak



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	13.157	14.27	20.37	34.64	80.51	45.87	Peak
2	13.243	13.79	20.38	34.17	80.51	46.34	Peak
3	13.309	14.25	20.38	34.63	80.51	45.88	Peak
4	13.482	13.60	20.38	33.98	90.47	56.49	Peak
5	13.560	51.93	20.39	72.32	124.00	51.68	Peak
6	13.628	14.24	20.39	34.63	90.47	55.84	Peak

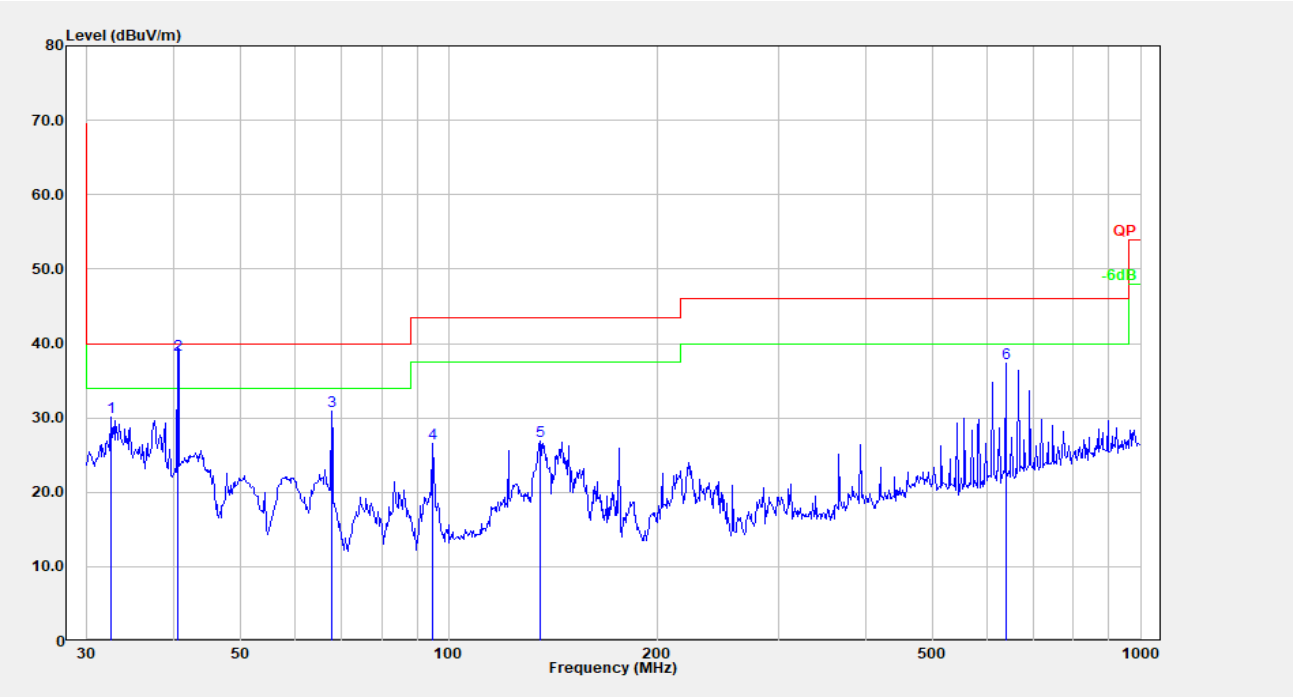
2) Above 30 MHz

Horizontal



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	40.559	41.82	-11.86	29.97	40.00	10.03	Peak
2	67.675	42.51	-16.94	25.58	40.00	14.42	Peak
3	94.760	47.88	-15.93	31.94	43.50	11.56	Peak
4	148.963	44.14	-12.26	31.88	43.50	11.62	Peak
5	176.269	41.81	-13.53	28.27	43.50	15.23	Peak
6	719.200	35.81	-3.57	32.23	46.00	13.77	Peak

Vertical

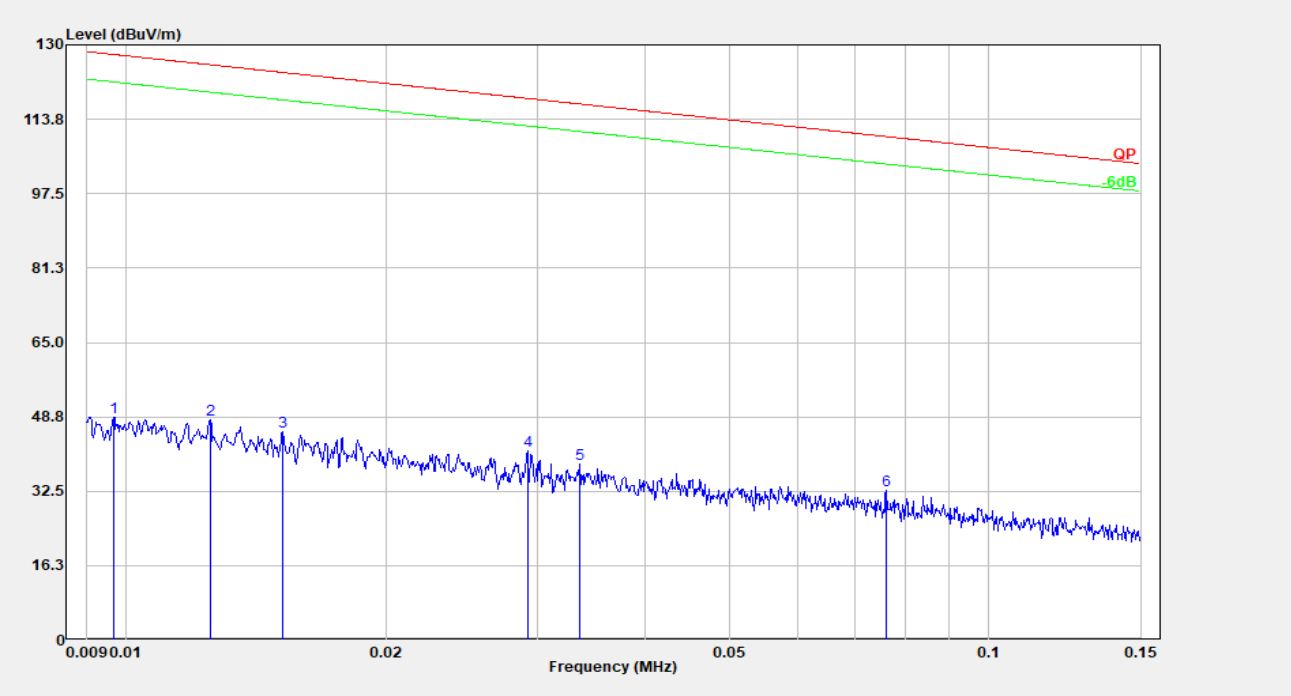


No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	32.520	35.84	-5.74	30.10	40.00	9.90	Peak
2	40.559	50.37	-11.86	38.51	40.00	1.49	QP
3	67.675	47.92	-16.94	30.98	40.00	9.02	Peak
4	94.760	42.42	-15.93	26.48	43.50	17.02	Peak
5	135.506	38.81	-11.88	26.93	43.50	16.57	Peak
6	638.369	41.98	-4.68	37.30	46.00	8.70	Peak

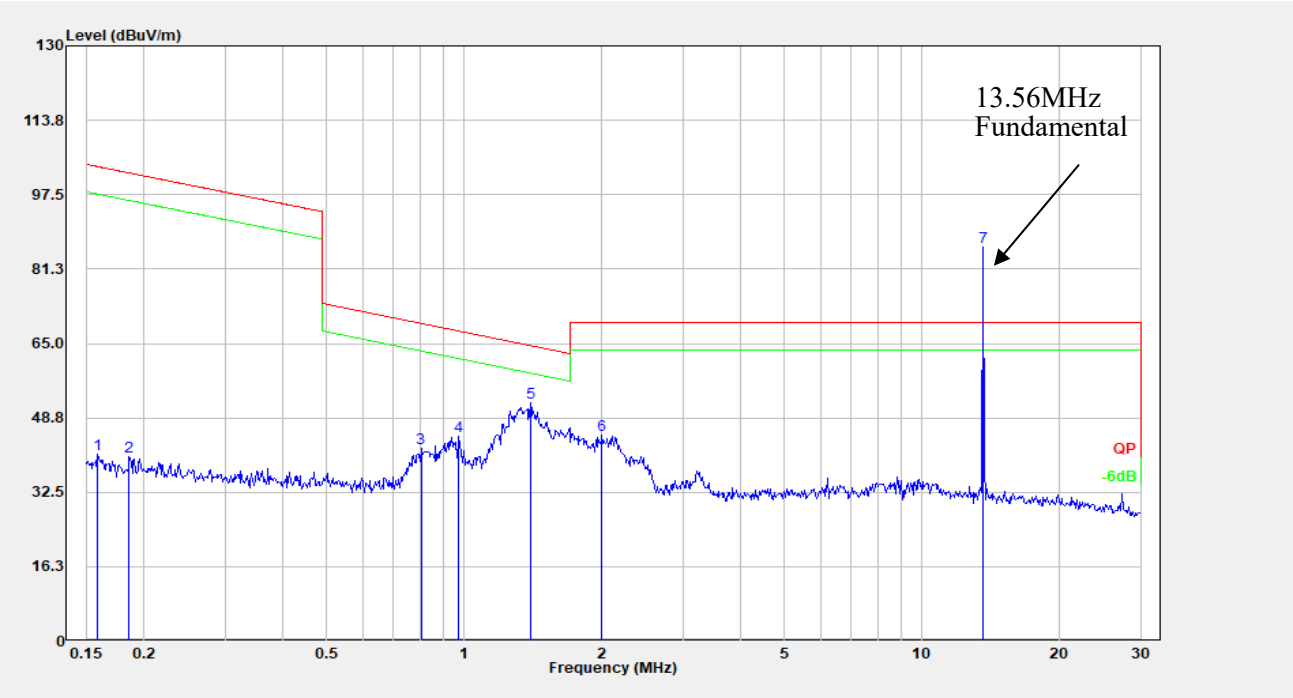
Type-1 adapter 1#:

1) 9 kHz~30MHz:

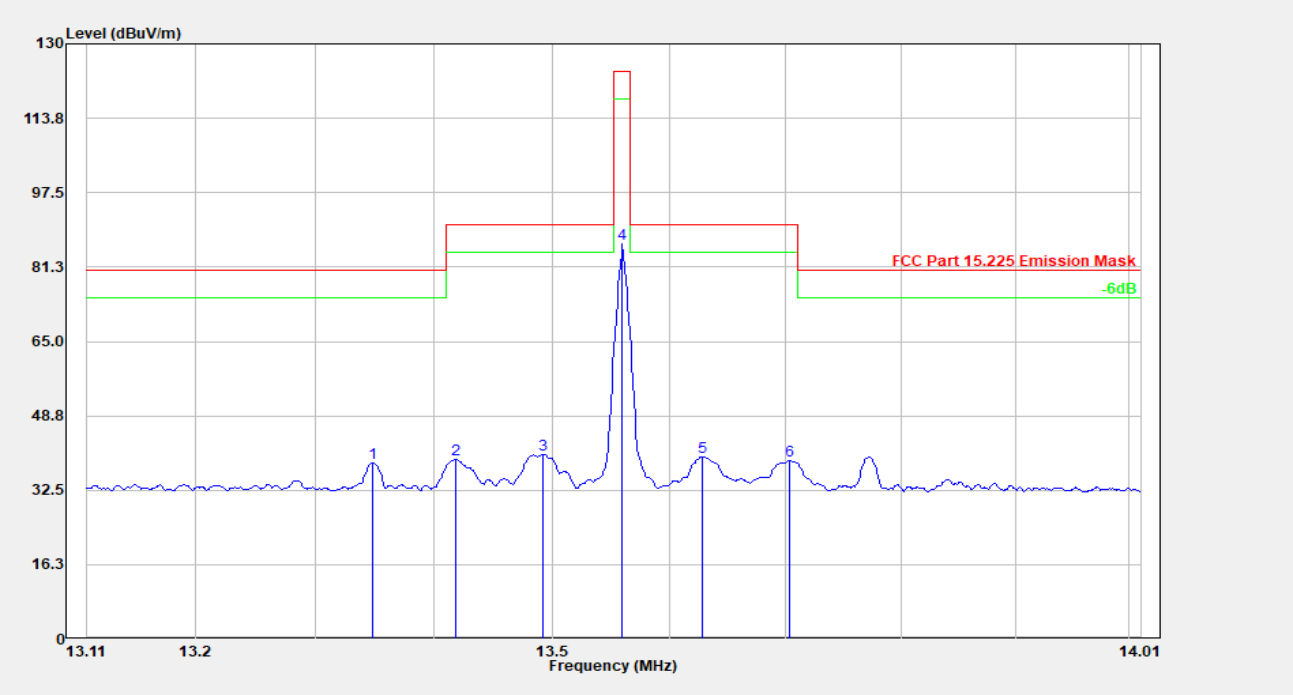
Parallel:



No.	Frequency	Reading	Factor	Result	Limit	Margin	Detector
	(MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	
1	0.010	28.26	20.51	48.77	127.91	79.14	Peak
2	0.013	27.58	20.51	48.09	125.66	77.57	Peak
3	0.015	24.97	20.51	45.48	123.97	78.49	Peak
4	0.029	21.04	20.41	41.45	118.31	76.86	Peak
5	0.034	18.03	20.41	38.44	117.08	78.64	Peak
6	0.076	12.30	20.38	32.68	109.97	77.29	Peak

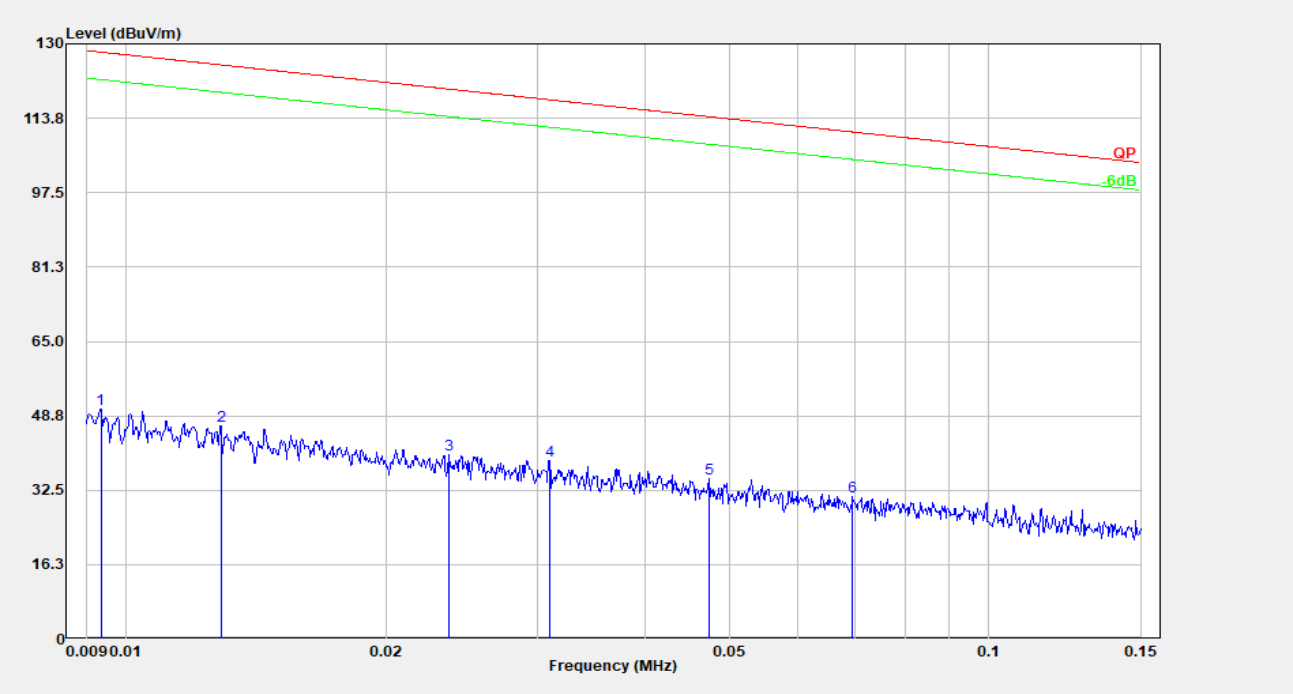


No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.158	20.67	20.22	40.89	103.62	62.73	Peak
2	0.185	20.11	20.22	40.33	102.24	61.91	Peak
3	0.804	22.05	20.03	42.08	69.40	27.32	Peak
4	0.974	24.61	20.03	44.64	67.71	23.07	Peak
5	1.396	32.02	19.96	51.98	64.51	12.53	Peak
6	2.001	25.13	19.96	45.09	69.54	24.45	Peak
7	13.551	65.77	20.39	86.15	N/A	N/A	Peak

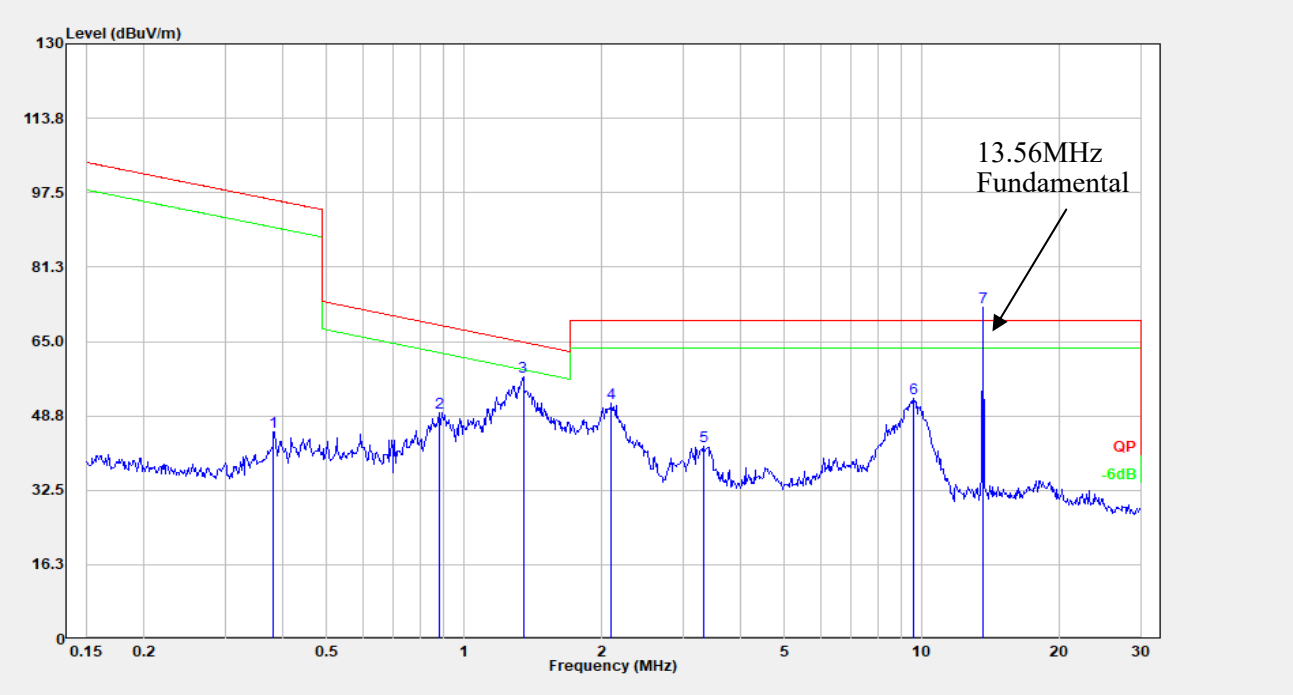


No.	Frequency	Reading	Factor	Result	Limit	Margin	Detector
	(MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	
1	13.349	18.07	20.38	38.45	80.51	42.06	Peak
2	13.418	18.80	20.38	39.18	90.47	51.29	Peak
3	13.493	19.91	20.38	40.29	90.47	50.18	Peak
4	13.560	65.98	20.39	86.37	124.00	37.63	Peak
5	13.628	19.49	20.39	39.88	90.47	50.59	Peak
6	13.704	18.66	20.39	39.05	90.47	51.42	Peak

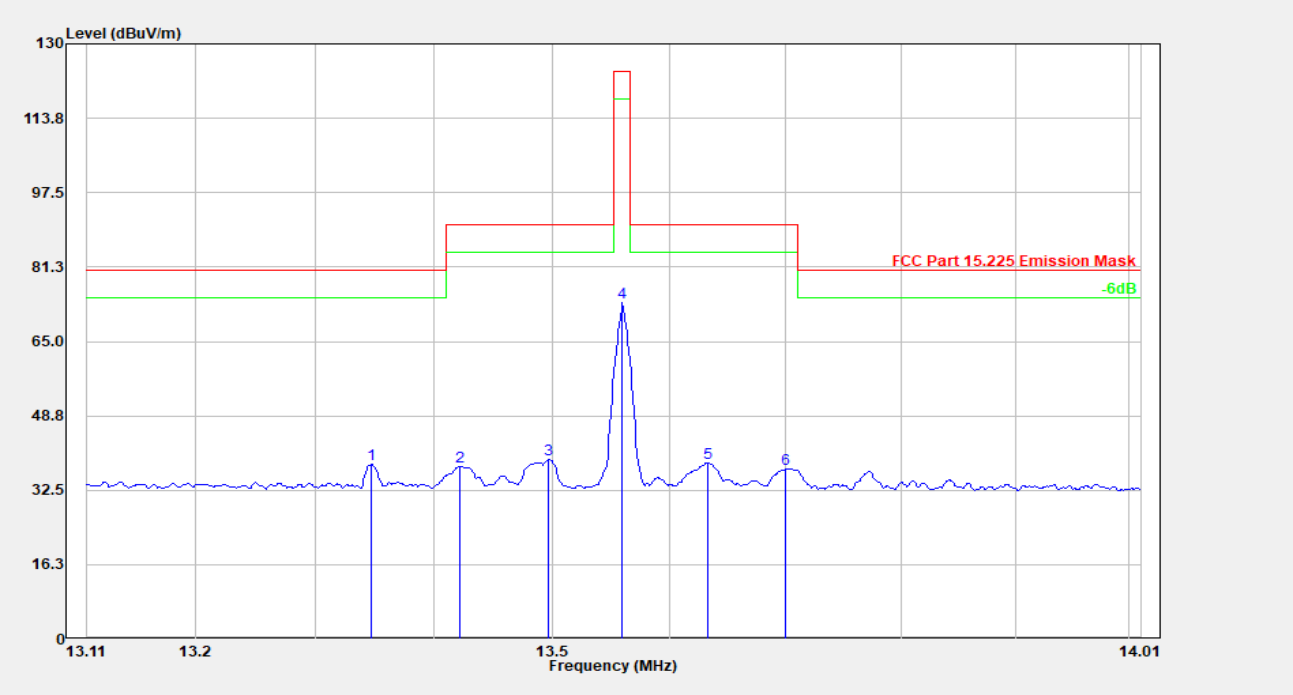
Perpendicular:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.009	29.83	20.51	50.34	128.20	77.86	Peak
2	0.013	26.08	20.51	46.59	125.42	78.83	Peak
3	0.024	19.77	20.44	40.21	120.14	79.93	Peak
4	0.031	18.55	20.41	38.96	117.79	78.83	Peak
5	0.047	14.61	20.41	35.02	114.08	79.06	Peak
6	0.070	10.75	20.42	31.17	110.75	79.58	Peak

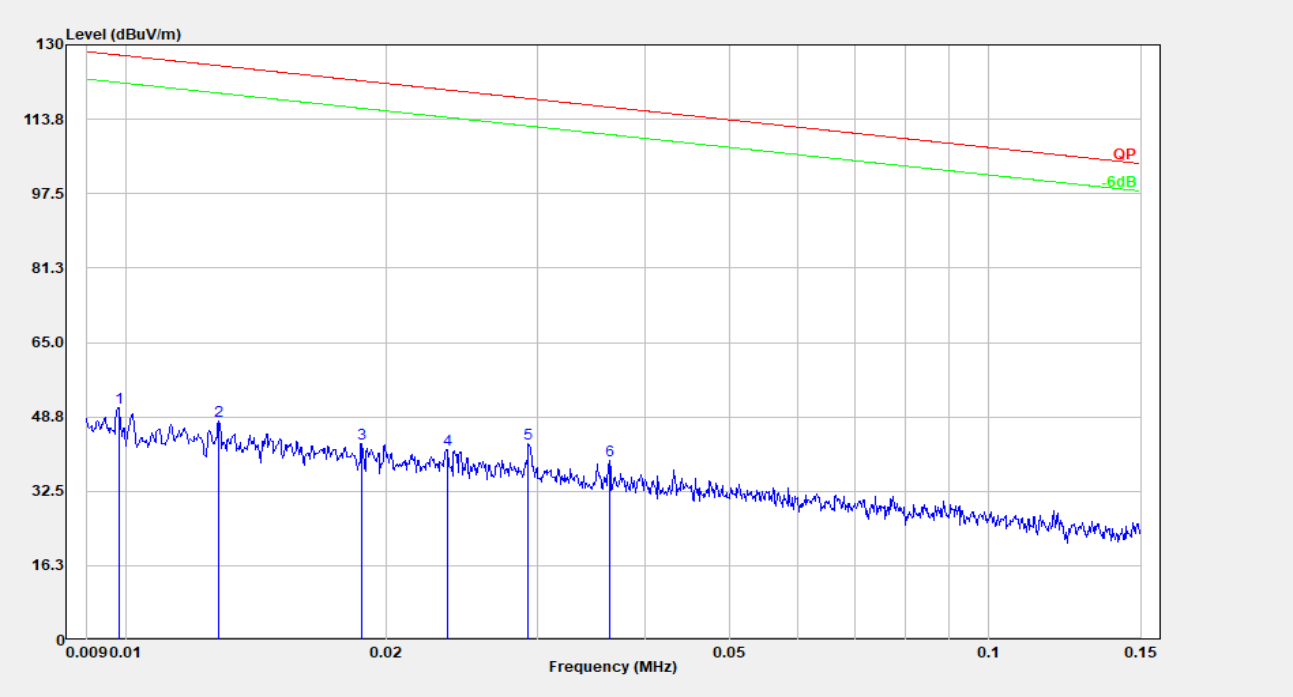


No.	Frequency	Reading	Factor	Result	Limit	Margin	Detector
	(MHz)	(dBμV)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	
1	0.383	25.24	20.08	45.32	95.94	50.62	Peak
2	0.885	29.52	20.03	49.55	68.56	19.01	Peak
3	1.345	37.39	19.97	57.36	64.84	7.48	Peak
4	2.099	31.48	19.96	51.44	69.54	18.10	Peak
5	3.328	22.24	19.99	42.23	69.54	27.31	Peak
6	9.552	32.26	20.26	52.52	69.54	17.02	Peak
7	13.551	51.99	20.39	72.38	N/A	N/A	Peak

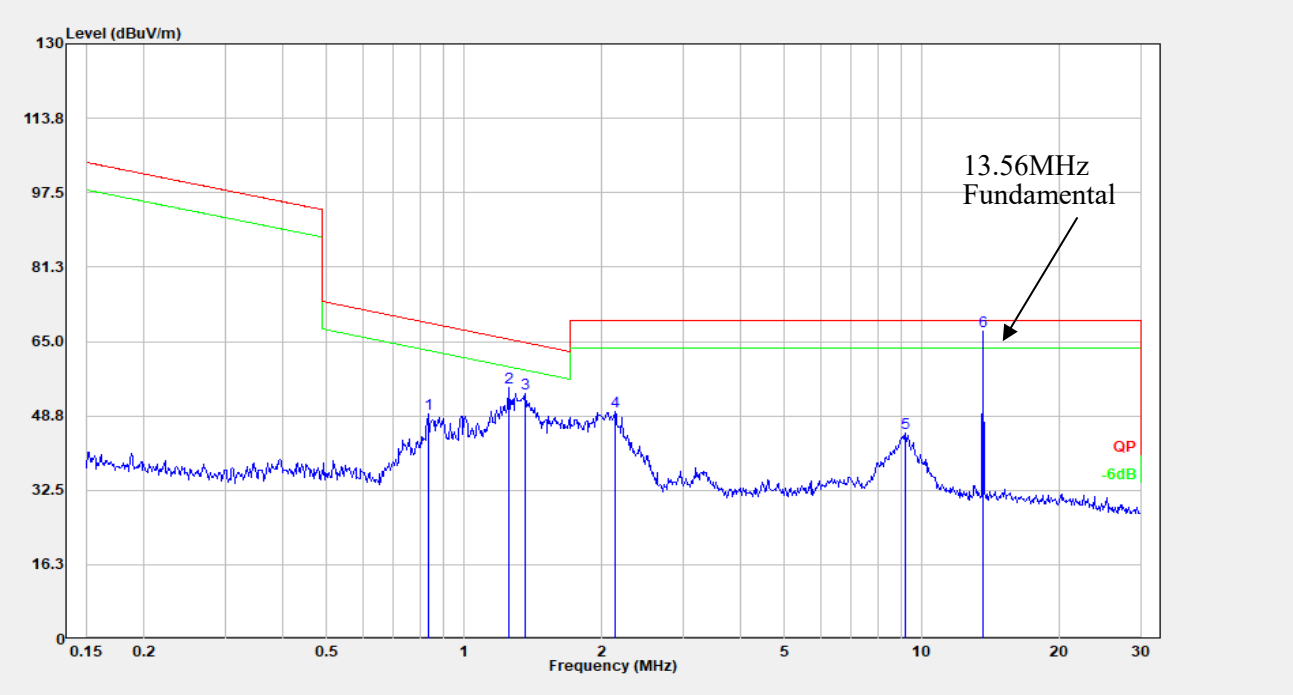


No.	Frequency	Reading	Factor	Result	Limit	Margin	Detector
	(MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	
1	13.347	17.78	20.38	38.16	80.51	42.35	Peak
2	13.422	17.35	20.38	37.73	90.47	52.74	Peak
3	13.497	18.78	20.38	39.16	90.47	51.31	Peak
4	13.560	53.02	20.39	73.41	124.00	50.59	Peak
5	13.633	18.12	20.39	38.51	90.47	51.96	Peak
6	13.700	16.74	20.39	37.13	90.47	53.34	Peak

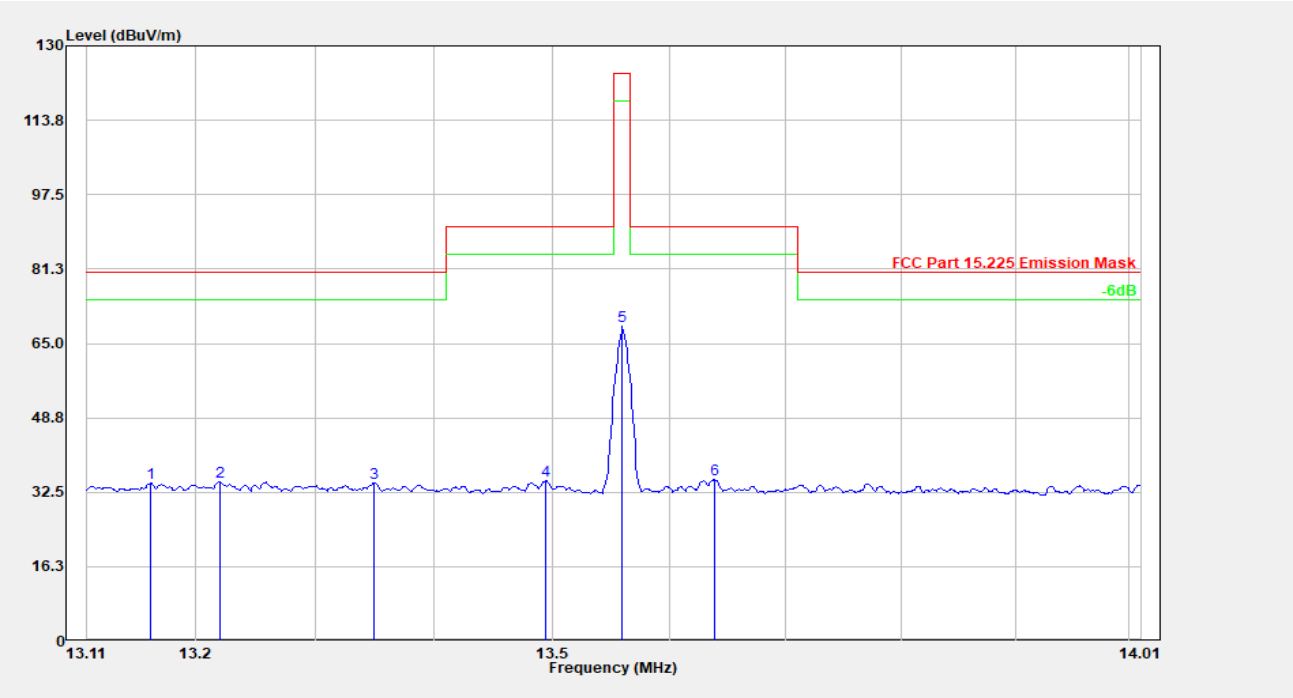
Ground-parallel:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	0.010	30.36	20.51	50.87	127.79	76.92	Peak
2	0.013	27.32	20.51	47.83	125.47	77.64	Peak
3	0.019	22.38	20.51	42.89	122.14	79.25	Peak
4	0.024	21.12	20.44	41.56	120.16	78.60	Peak
5	0.029	22.57	20.41	42.98	118.28	75.30	Peak
6	0.036	18.91	20.41	39.32	116.40	77.08	Peak



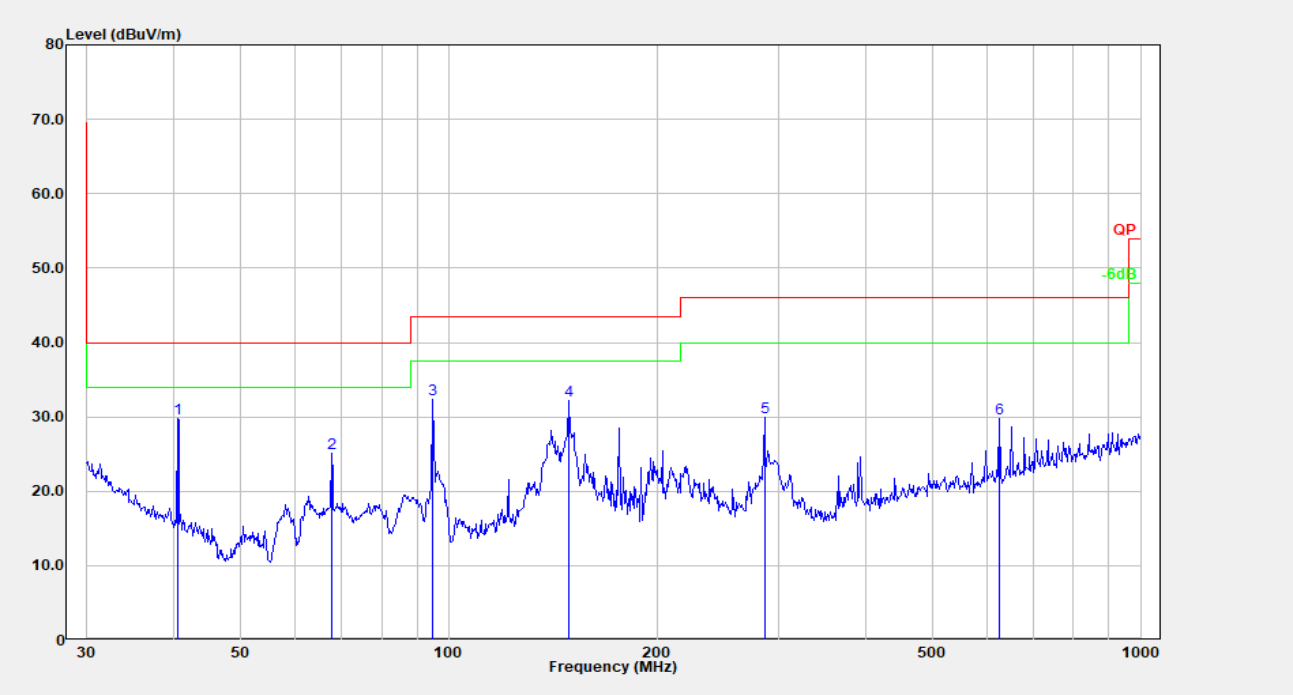
No.	Frequency	Reading	Factor	Result	Limit	Margin	Detector
	(MHz)	(dBµV)	(dB/m)	(dBµV/m)	(dBµV/m)	(dB)	
1	0.835	29.08	20.03	49.11	69.07	19.96	Peak
2	1.255	34.88	19.99	54.87	65.46	10.59	Peak
3	1.359	33.60	19.97	53.57	64.75	11.18	Peak
4	2.133	29.70	19.96	49.66	69.54	19.88	Peak
5	9.204	24.87	20.23	45.10	69.54	24.44	Peak
6	13.551	46.92	20.39	67.31	N/A	N/A	Peak



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	13.162	14.10	20.37	34.47	80.51	46.04	Peak
2	13.220	14.50	20.38	34.88	80.51	45.63	Peak
3	13.349	14.10	20.38	34.48	80.51	46.03	Peak
4	13.494	14.57	20.38	34.95	90.47	55.52	Peak
5	13.560	48.40	20.39	68.79	124.00	55.21	Peak
6	13.639	14.83	20.39	35.22	90.47	55.25	Peak

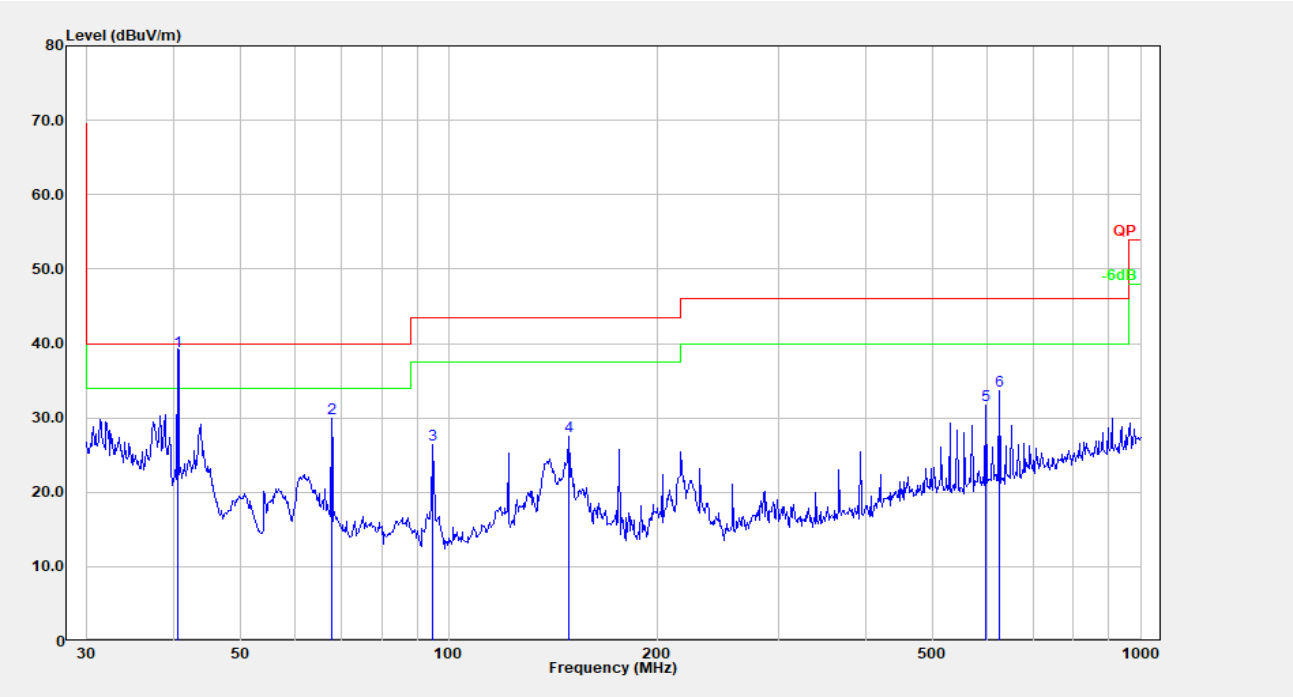
2) Above 30 MHz

Horizontal



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	40.559	41.57	-11.86	29.71	40.00	10.29	Peak
2	67.675	42.11	-16.94	25.17	40.00	14.83	Peak
3	94.760	48.32	-15.93	32.39	43.50	11.11	Peak
4	148.963	44.46	-12.26	32.20	43.50	11.30	Peak
5	285.978	41.48	-11.48	30.00	46.00	16.00	Peak
6	625.078	34.66	-4.84	29.81	46.00	16.19	Peak

Vertical



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	40.559	50.80	-11.86	38.94	40.00	1.06	QP
2	67.675	46.91	-16.94	29.97	40.00	10.03	Peak
3	94.760	42.37	-15.93	26.43	43.50	17.07	Peak
4	148.963	39.84	-12.26	27.58	43.50	15.92	Peak
5	597.223	37.12	-5.38	31.74	46.00	14.26	Peak
6	625.078	38.46	-4.84	33.61	46.00	12.39	Peak

4.3 20 dB Emission Bandwidth

Serial Number:	CR21100085-RF-S2(Type-1) CR21100085-RF-S1(Type-2)	Test Date:	2022-04-24
Test Site:	RF	Test Mode:	Transmitting
Tester:	Great Qiao	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	25.9	Relative Humidity: (%)	67	ATM Pressure: (kPa)	100.9

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2021-07-22	2022-07-21
Unknown	Coaxial Cable	C-SJ0010	C0010	Each time	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).*

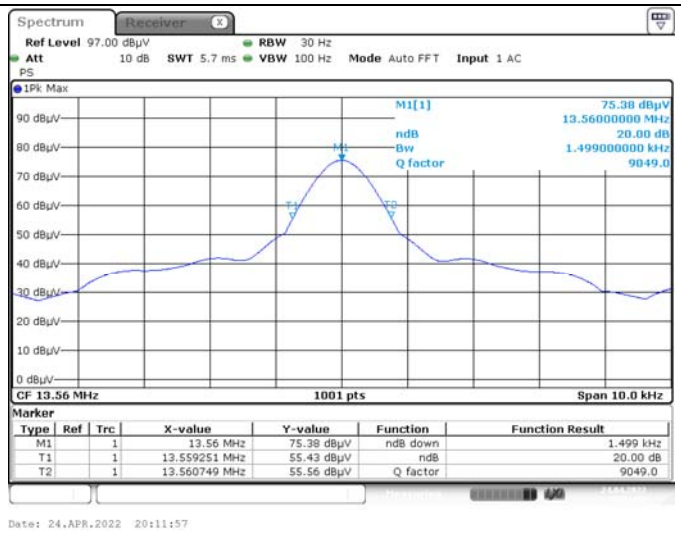
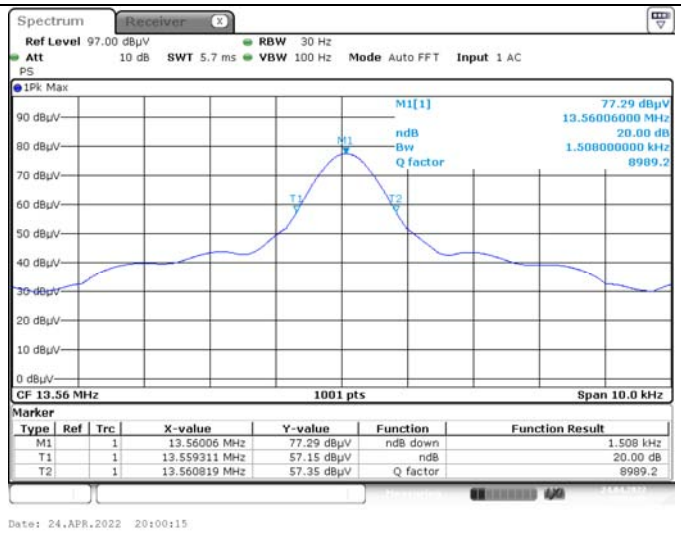
Test Data:

Type-2:

Test Frequency (MHz)	20 dB Bandwidth (kHz)
13.56	1.499

Type-1:

Test Frequency (MHz)	20 dB Bandwidth (kHz)
13.56	1.508

20dB Emission Bandwidth	
Type-2	
Type-1	

4.4 Frequency Stability

Serial Number:	CR21100085-RF-S2(Type-1) CR21100085-RF-S1(Type-2)	Test Date:	2021-11-17~2022-03-21
Test Site:	RF	Test Mode:	Transmit
Tester:	Great Qiao	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	22.3~23.7	Relative Humidity: (%)	50~56	ATM Pressure: (kPa)	100.5~101.5

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2021-07-22	2022-07-21
Unknown	Coaxial Cable	C-SJ0010	C0010	Each time	N/A
BACL	TEMP&HUMI Test Chamber	BTH-150	30026	2021-07-22	2022-07-21
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:
Type-2

f_o = 13.56 MHz				
Temperature	**Voltage**	**Measured frequency**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**MHz**	**Hz**	**Hz**
-30	3.8	13.5600067	7	±1356
-20		13.5599848	-15	±1356
-10		13.5600108	11	±1356
0		13.5599913	-9	±1356
10		13.5599979	-2	±1356
20		13.5599970	-3	±1356
25		13.5599986	-1	±1356
30		13.5599957	-4	±1356
40		13.5599973	-3	±1356
50		13.5599890	-11	±1356
20	3.5	13.5599799	-20	±1356
20	4.4	13.5599970	-3	±1356

Type-1

f_o = 13.56 MHz				
Temperature	**Voltage**	**Measured frequency**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**MHz**	**Hz**	**Hz**
-30	3.8	13.5600439	44	±1356
-20		13.5600699	70	±1356
-10		13.5600609	61	±1356
0		13.5600389	39	±1356
10		13.5600419	42	±1356
20		13.5600649	65	±1356
25		13.5600429	43	±1356
30		13.5600699	70	±1356
40		13.5600599	60	±1356
50		13.5600359	36	±1356
20	3.5	13.5600549	55	±1356
20	4.4	13.5600329	33	±1356

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