



TESTING LABORATORY
CERTIFICATE # 4297.01

ATC

FCC PART 15C

TEST REPORT

For

Shenzhen Jihezaowu Technology Co., Ltd.

Room 208, Building 5, Nanke Chuangyuan Valley, Gaofeng Community, Dalang Street, Longhua District, Shenzhen

FCC ID: 2AX6N-CW301V1

Report Type: Original Report	Product Type: Wireless Charger
Report Number: <u>RTZ210223002-RF</u>	
Report Date: <u>2021-03-30</u>	
Candy Li	
Reviewed By:	<u>RF Engineer</u>
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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

Product	Wireless Charger
Tested Model	CW301
Multiple Models	CW311
Model Difference	Only the model name is different
Frequency Range	110 kHz-205kHz
Antenna Specification	Coil
Voltage Range	Input: 9V---2.67A Output: 9V, 10W(max)
Date of Test	2021-03-08 to 2021-03-18
Sample serial number	RTZ210223002-RF-S1 (Assigned by ATC)
Received date	2021-02-23
Sample/EUT Status	Good Condition

Objective

This report is prepared on behalf of *Shenzhen Jihezaowu Technology Co., Ltd.* in accordance with Part 2, Subpart J, and Part 15, Subparts A and C of the Federal Communications Commission's rules.

The objective is to determine the compliance of EUT with FCC rules, section 15.203, 15.205, 15.207 and 15.209.

Related Submittal(s)/Grant(s)

No Related Submittal(s)/Grant(s).

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Item		Expanded Measurement uncertainty
Conducted Emissions	AC Mains	2.72 dB ($k=2$, 95% level of confidence)
Radiated emission	30MHz-1GHz	4.28 dB ($k=2$, 95% level of confidence)
	1GHz-18GHz	4.98 dB ($k=2$, 95% level of confidence)

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

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189.

The test site has been registered with ISED Canada under ISED Canada Registration Number 5077A-2.

SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in a test mode

The device is a wireless charger operation on frequency 110 kHz - 205 kHz.

EUT Exercise Software

No software used in test.

Support Equipment List and Details

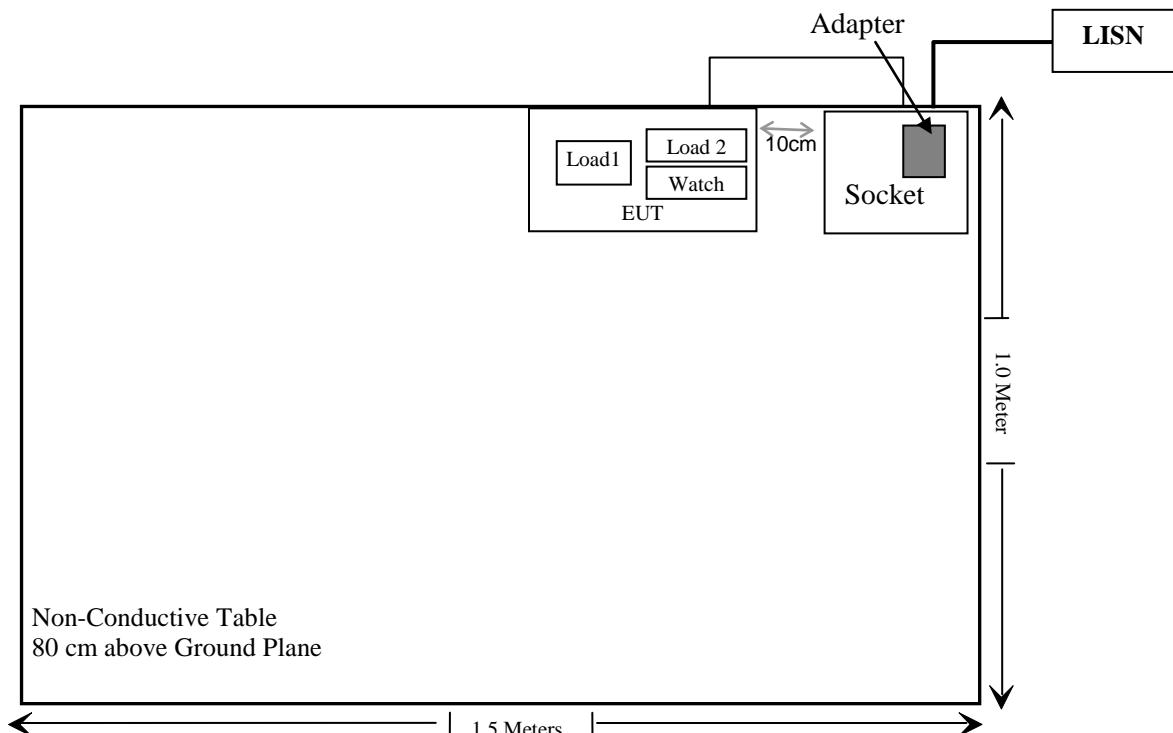
Manufacturer	Description	Model	Serial Number	Specification
Unknown	Adapter (Quick charge)	HTY-0503000	Unknown	Unknown
Unknown	Wireless load	Unknown	Wireless load 01	10W
Unknown	Wireless load	Unknown	Wireless load 02	5W
Apple	Watch	A1757	Unknown	5V1A

External I/O Cable

Cable Description	Length (m)	From Port	To
Unshielded Detachable Type C Cable	0.93	EUT	Adapter

Block Diagram of Test Setup

For conducted emission:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC§15.203	Antenna Requirement	Compliance
FCC§15.207	AC Line Conducted Emission	Compliance
§15.209 §15.205	Radiated Emission Test	Compliance

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
EMI					
Rohde & Schwarz	Test Receiver	ESPI3	100396	2020/12/24	2021/12/23
R & S	L.I.S.N.	ENV216	101314	2020/12/25	2021/12/24
Anritsu Corp	50Ω Coaxial Switch	MP59B	6200506474	2020/12/25	2021/12/24
Schwarzbeck	RF Coaxial Cable	N-2m	No.2	2020/01/04	2023/01/03
Conducted Emission Test Software: ES-K1 V1.71					
Rohde & Schwarz	Test Receiver	ESR	101817	2020/12/24	2021/12/23
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2020/01/05	2023/01/04
Schwarzbeck	LOOP Antenna	FMZB1516	1516131	2020/01/05	2023/01/04
SONOMA INSTRUMENT	Amplifier	310 N	186131	2020/12/25	2021/12/24
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2020/12/25	2021/12/24
RF Coaxial Cable	Schwarzbeck	N-5m	No.1	2020/01/04	2023/01/03
RF Coaxial Cable	Schwarzbeck	N-1m	No.6	2020/01/04	2023/01/03
RF Coaxial Cable	SUHNER	N-6m	No.10	2020/01/04	2023/01/03
RF Coaxial Cable	SUHNER	N-0.5m	No.15	2020/01/04	2023/01/03
Radiated Emission Test Software: EZ EMC V 1.1.4.2					

*** Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC§15.203 – ANTENNA REQUIREMENT

Applicable Standard

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.

Antenna Connected Construction

The EUT has three internal coil antennas arrangement, which were permanently attached, fulfill the requirement of this section. Please refer to the EUT photos.

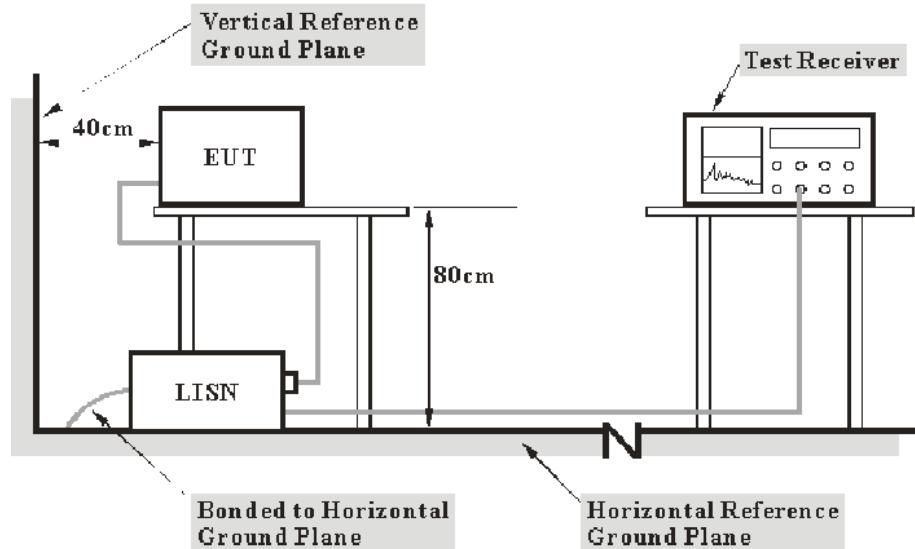
Result: Compliance.

FCC §15.207 – AC LINE CONDUCTED EMISSION

Applicable Standard

FCC§15.207

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.

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

Test Procedure

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 final data was recorded in the Quasi-peak and average detection mode.

Corrected Factor & Margin Calculation

The basic equation is as follows:

$$\text{Level (QuasiPeak or Average)} = \text{Reading Level} + \text{Transd Factor}$$

Note:

Transd Factor = Cable loss + Factor of coupling device

The “Margin” column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Level}$$

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

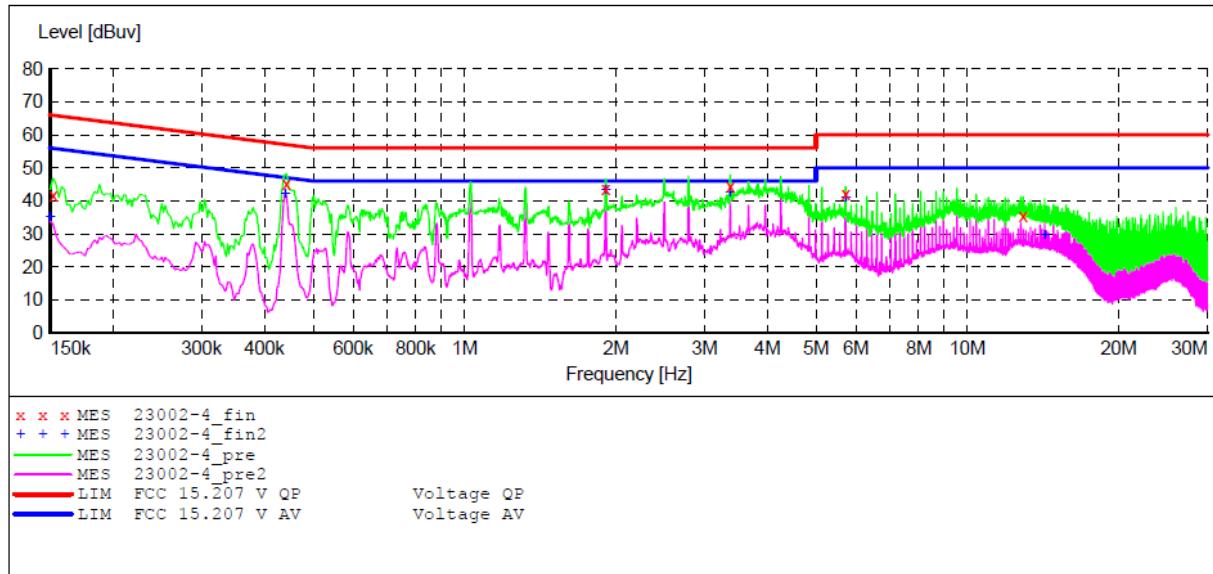
Test Data

Environmental Conditions

Temperature:	25°C
Relative Humidity:	65 %
ATM Pressure:	101.0 kPa

The testing was performed by Fan Yang on 2021-03-18.

Test Mode: Full load (worst case)

AC 120 V/60 Hz, Line:**MEASUREMENT RESULT: "23002-4_fin"**

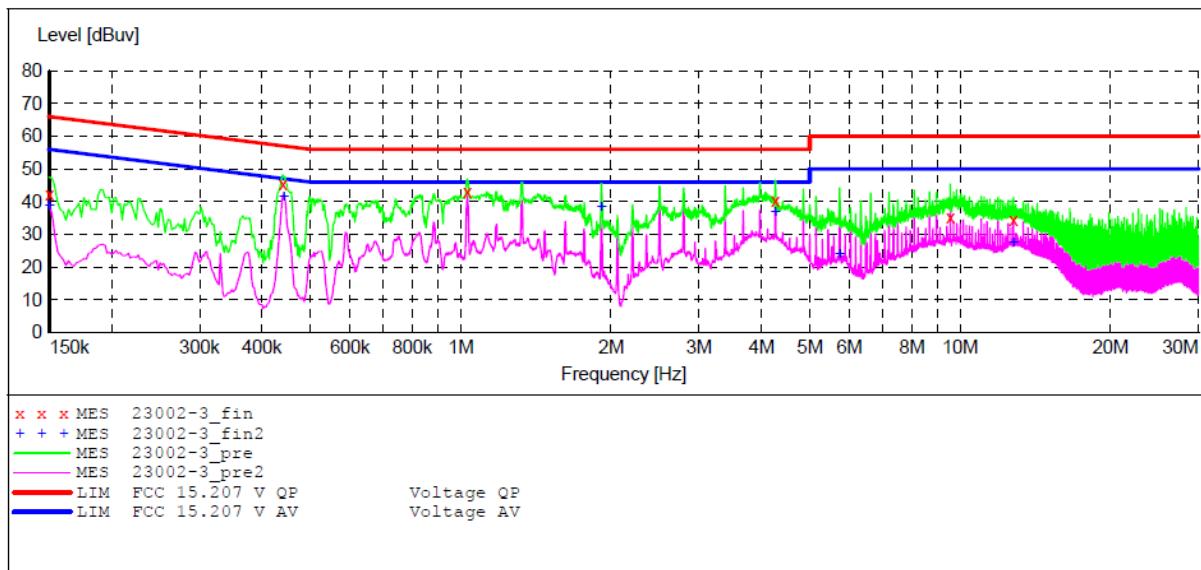
2021-3-18 10:43

Frequency MHz	Level dBuv	Transd dB	Limit dBuv	Margin dB	Detector	Line	PE
0.152000	41.50	10.8	66	24.5	QP	L1	GND
0.442000	45.10	11.0	57	11.9	QP	L1	GND
1.908000	43.70	11.3	56	12.3	QP	L1	GND
3.375000	44.20	11.4	56	11.8	QP	L1	GND
5.725000	42.00	11.5	60	18.0	QP	L1	GND
12.910000	35.30	11.6	60	24.7	QP	L1	GND

MEASUREMENT RESULT: "23002-4_fin2"

2021-3-18 10:43

Frequency MHz	Level dBuv	Transd dB	Limit dBuv	Margin dB	Detector	Line	PE
0.150000	34.90	10.8	56	21.1	AV	L1	GND
0.440000	42.10	11.0	47	4.9	AV	L1	GND
1.908000	43.10	11.3	46	2.9	AV	L1	GND
3.375000	42.30	11.4	46	3.7	AV	L1	GND
5.725000	40.90	11.5	50	9.1	AV	L1	GND
14.245000	29.50	11.6	50	20.5	AV	L1	GND

AC 120V/ 60 Hz, Neutral:**MEASUREMENT RESULT: "23002-3_fin"**

2021-3-18 10:36

Frequency MHz	Level dBuv	Transd dB	Limit dBuv	Margin dB	Detector	Line	PE
0.150000	42.30	10.8	66	23.7	QP	N	GND
0.440000	45.20	11.0	57	11.8	QP	N	GND
1.030000	43.00	11.1	56	13.0	QP	N	GND
4.265000	40.30	11.4	56	15.7	QP	N	GND
9.565000	35.20	11.6	60	24.8	QP	N	GND
12.790000	34.40	11.6	60	25.6	QP	N	GND

MEASUREMENT RESULT: "23002-3_fin2"

2021-3-18 10:36

Frequency MHz	Level dBuv	Transd dB	Limit dBuv	Margin dB	Detector	Line	PE
0.150000	38.90	10.8	56	17.1	AV	N	GND
0.442000	41.50	11.0	47	5.5	AV	N	GND
1.914000	38.40	11.3	46	7.6	AV	N	GND
4.265000	36.80	11.4	46	9.2	AV	N	GND
5.740000	23.90	11.5	50	26.1	AV	N	GND
12.790000	27.40	11.6	50	22.6	AV	N	GND

FCC §15.205 & §15.209 - RADIATED EMISSIONS TEST

Applicable Standard

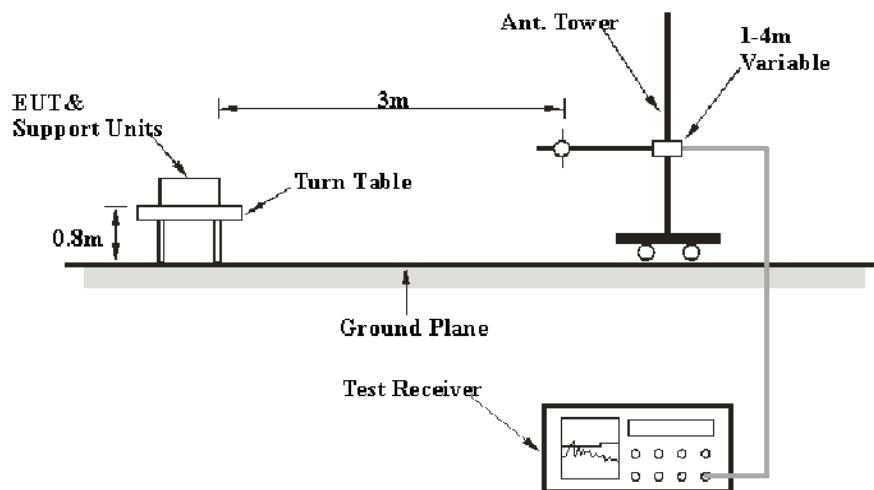
As per FCC Part 15.209

(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 (microvolts/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., §§15.231 and 15.241.

EUT Setup



The radiated emission tests were performed in the 3-meter chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC Part Subpart C limits.

The spacing between the peripherals was 10 cm.

EMI Test Receiver 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	Measurement
9 kHz – 150 kHz	200 Hz	1 kHz	QP/Average
150 kHz – 30 MHz	9 kHz	30 kHz	QP/Average
30 MHz – 1000 MHz	120 kHz	300 kHz	QP

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

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

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Meter Reading + Factor

Note:

Factor (dB/m) = Antenna factor + Cable Loss – Amplifier gain

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Result - Limit

Test Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15.209&15.205.

Test Data

Environmental Conditions

Temperature:	21 °C
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

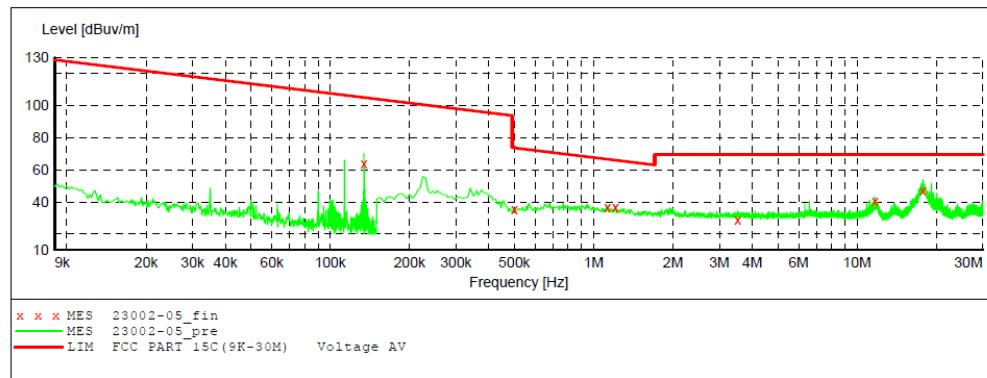
The testing was performed by Fan Yang on.2021-03-08

Test mode: full load (Worst case)

Result: Compliance

9 kHz~30MHz:

We pretest all the mode and worst case (Full load, X) was recorded in the report.

**MEASUREMENT RESULT: "23002-05_fin"**

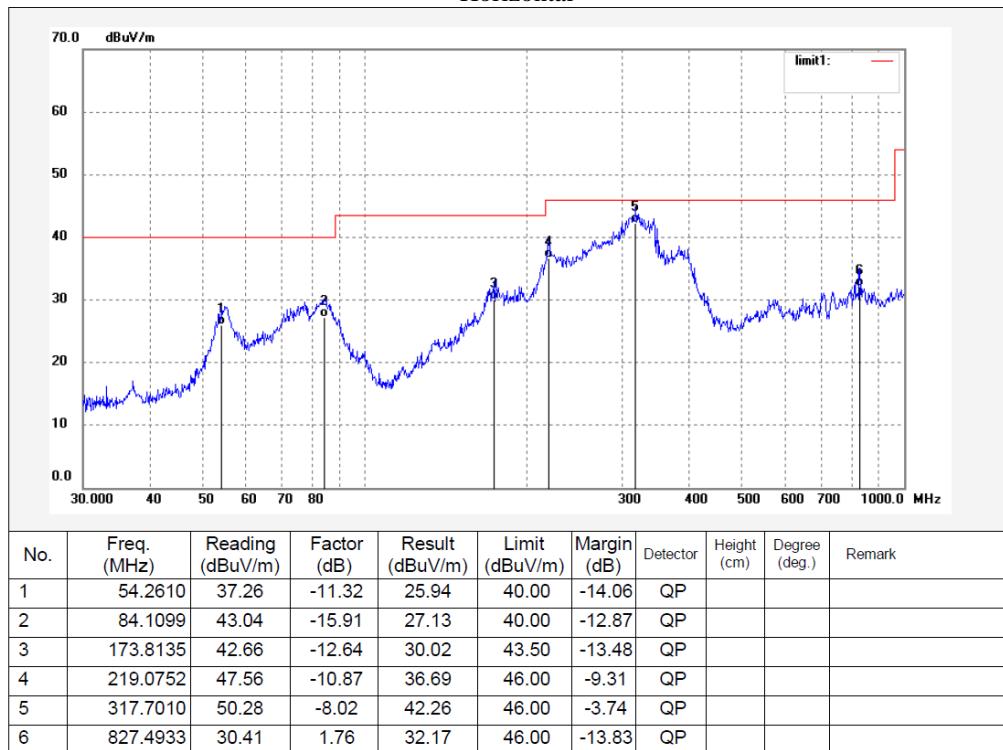
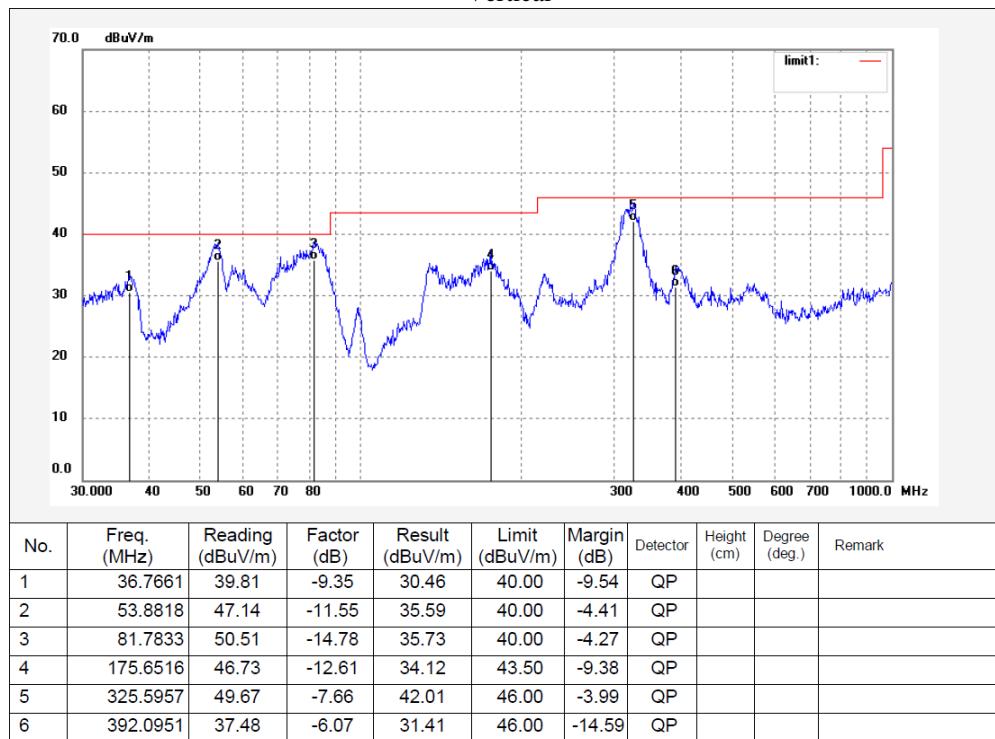
2021-3-8 11:26

Frequency MHz	Level dBuv/m	Transd dB	Limit dBuv/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
0.134200	63.90	20.1	105.0	-41.1	QP	105.0	0.00	X
0.500000	35.30	20.3	73.6	-38.3	QP	105.0	0.00	X
1.130000	36.70	20.4	66.5	-29.8	QP	105.0	0.00	X
1.210000	36.70	20.4	65.9	-29.2	QP	105.0	0.00	X
3.525000	29.10	20.5	69.5	-40.4	QP	105.0	0.00	X
11.675000	40.80	20.8	69.5	-28.7	QP	105.0	0.00	X
17.775000	47.00	21.3	69.5	-22.5	QP	105.0	0.00	X

Part 15 Section 15.31(f)(2) (9kHz-30MHz)

Limit at 3m=Limit at 300m-40*log(3(m)/300(m))

Limit at 3m=Limit at 30m-40*log(3(m)/30(m))

30 MHz ~ 1GHz**Horizontal****Vertical********* END OF REPORT *******