




FCC Part 18 Measurement and Test Report

For

ALOGIC Corporation Pty Ltd.

Level 40,140 William Street, Melbourne VIC 3000, Australia

FCC ID: 2ATCAUL2QC10CA-SGR

Test Rule(s):	<u>FCC Part 18</u>
Product Description:	<u>Ultra Multi Device Wireless & USB Charging Station</u>
Tested Model:	<u>UL2QC10CA-SGR</u>
Report No.:	<u>WTX19X04026123W-1</u>
Sample Receipt Date:	<u>2019-04-26</u>
Tested Date:	<u>2019-05-01 to 2019-05-20</u>
Issued Date:	<u>2019-05-20</u>
Tested By:	<u>Jason Su / Engineer</u> 
Reviewed By:	<u>Silin Chen / EMC Manager</u> 
Approved & Authorized By:	<u>Jandy So / PSQ Manager</u> 
Prepared By:	

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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen SEM Test Technology Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: ALOGIC Corporation Pty Ltd.
Address of applicant: Level 40,140 William Street, Melbourne VIC 3000,
Australia

Manufacturer: CE LINK LIMITED
Address of manufacturer: Building M,LiCheng Technology Industrial
Zone,GongHe Village,ShaJing Town,ShenZhen
City,China

General Description of EUT	
Product Name:	Ultra Multi Device Wireless & USB Charging Station
Trade Name:	ALOGIC
Model No.:	UL2QC10CA-SGR
Adding Model(s):	/
Rated Voltage:	DC5V/DC 9V
Power adapter	A653-0905000I Input: AC100-240V, 50/60Hz, 1.5A Output: DC9V, 5000mA
<i>Note: The test data is gathered from a production sample, provided by the manufacturer.</i>	

Technical Characteristics of EUT	
Frequency Range:	110~205kHz
Antenna Type:	Coil Antenna
Rated Voltage:	DC5V/DC 9V (Wireless output)
Rated Current:	1A/1.1A (Wireless output)
Rated Power:	5W/10W (Wireless output)

1.2 Test Standards

The tests were performed according to following standards:

FCC Part 18 Subpart C: Industrial, Scientific, and medical medical equipment.

ANSI C63.4-2014:American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

1.4 Test Facility

FCC – Registration No.: 125990

Shenzhen SEM Test Technology Co., Ltd. Laboratory has been recognized to perform compliance testing on equipment subject to the Commissions Declaration Of Conformity (DOC). The Designation Number is CN5010, and Test Firm Registration Number is 125990.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List:

Test Mode	Description	Remark	Power Supply Mode
TM1	Wireless Output	/	Input: DC5V(with a adapter input AC 120V/60Hz)
TM2	Wireless Output	/	Input: DC9V(with a adapter input AC 120V/60Hz)

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
DC Cable	1.2	Unshielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
iPhone 8 Plus	Apple	MQ8E2CH/A	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB-A Cable	0.8	Unshielded	Without Ferrite
USB-C Cable	0.8	Unshielded	Without Ferrite

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	9-150kHz ± 3.74 dB
		0.15-30MHz ± 3.34 dB
Radiated Emissions	Radiated	30-200MHz ± 4.52 dB
		0.2-1GHz ± 5.56 dB
		1-6GHz ± 3.84 dB
		6-18GHz ± 3.92 dB

1.7 Test Equipment List and Details

Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
Spectrum Analyzer	Agilent	E4407B	MY41440400	2019-04-30	2020-04-29
Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2019-04-30	2020-04-29
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2019-04-30	2020-04-29
Amplifier	Agilent	8447F	3113A06717	2019-04-30	2020-04-29
Amplifier	C&D	PAP-1G18	2002	2019-04-30	2020-04-29
Broadband Antenna	Schwarz beck	VULB9163	9163-333	2019-05-05	2021-05-04
Horn Antenna	ETS	3117	00086197	2019-05-05	2021-05-04
Loop Antenna	Schwarz beck	FMZB 1516	9773	2019-05-05	2021-05-04
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2019-04-30	2020-04-29
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2019-04-30	2020-04-29
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2019-04-30	2020-04-29

2. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§ 18.307 (b)	Conducted Emission	Compliant
§ 18.305 (b)	Radiated Emission	Compliant

3. Conducted Emissions

3.1 Standard Applicable

According to FCC 18.307(b), the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies shall not exceed the limits in the following tables:

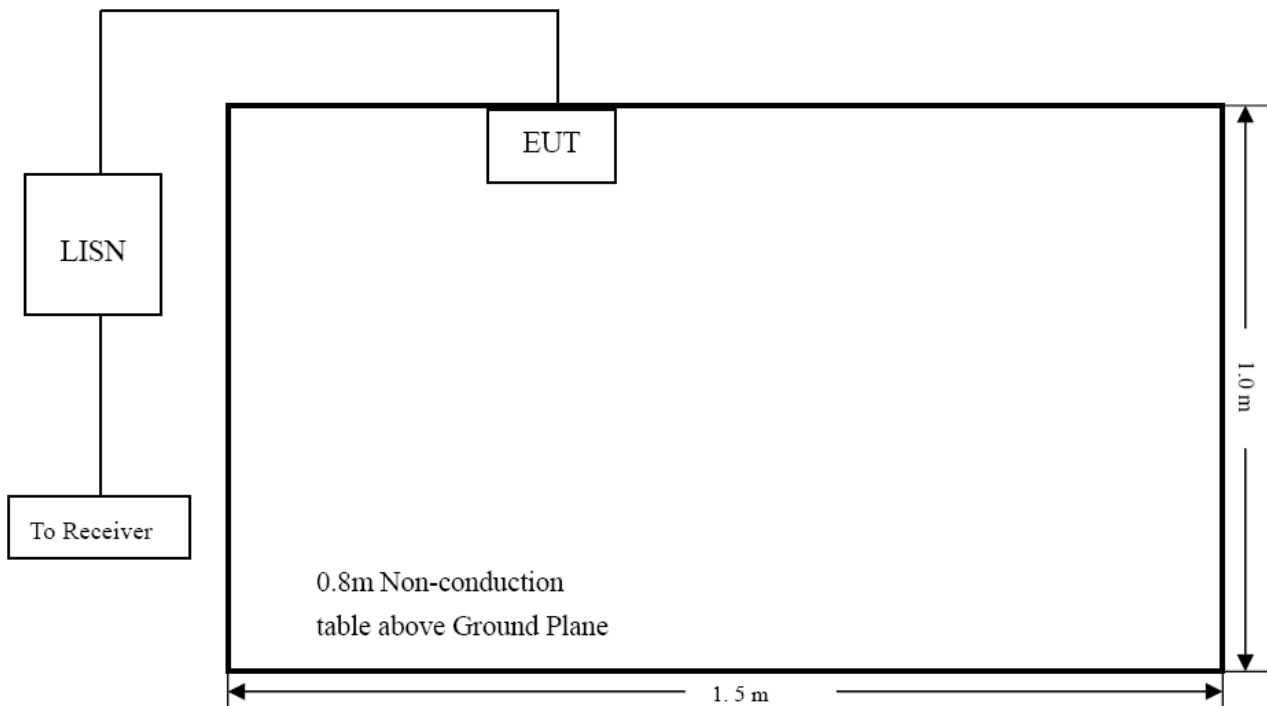
Frequency (MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

3.2 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 18.307 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle. The spacing between the peripherals was 10 cm.

3.3 Basic Test Setup Block Diagram



3.4 Environmental Conditions

Temperature:	26° C
Relative Humidity:	60%
ATM Pressure:	1016 mbar

3.5 Test Receiver Setup

During the conducted emission test, the test receiver was set with the following configurations:

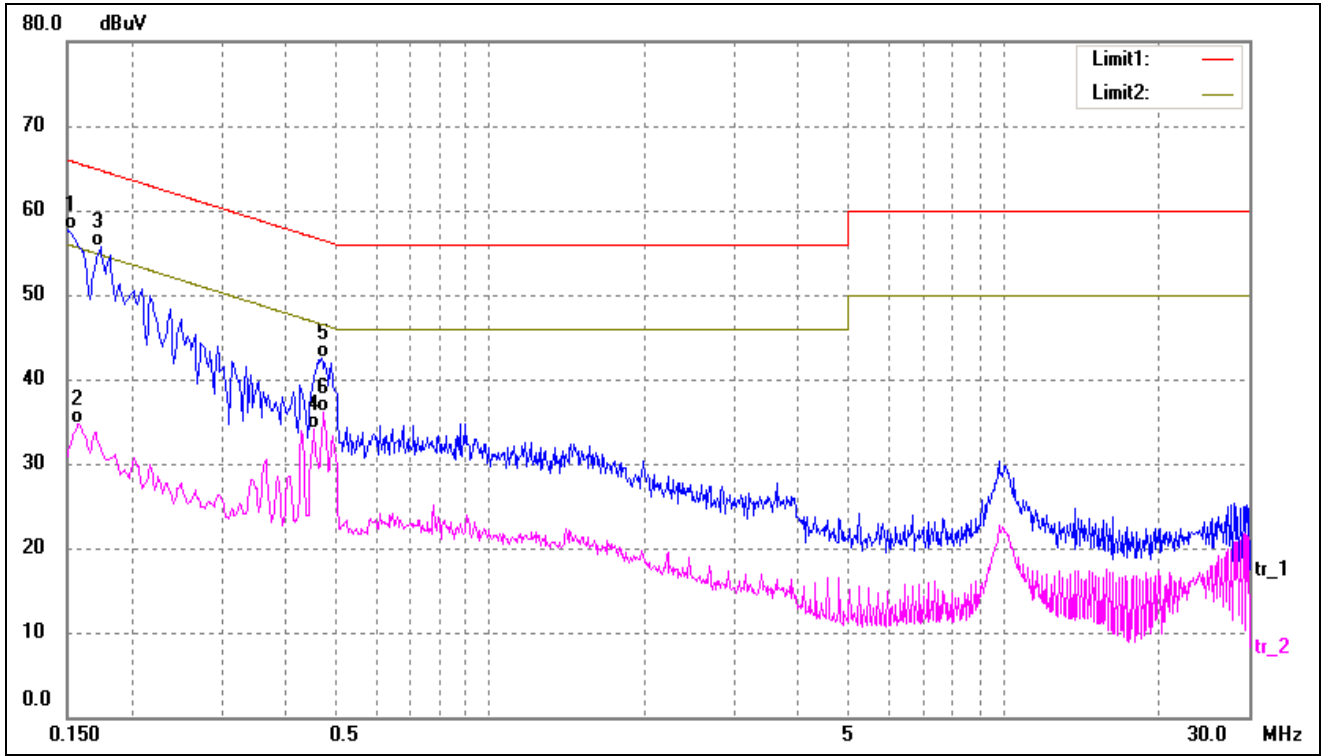
Start Frequency 150 kHz
Stop Frequency..... 30 MHz
Sweep Speed Auto
IF Bandwidth..... 10 kHz
Quasi-Peak Adapter Bandwidth 9 kHz
Quasi-Peak Adapter Mode Normal

3.6 Summary of Test Results/Plots

According to the data in this section, the EUT complied with the FCC Part 18C Conducted margin for Any non-ISM frequency device, with the *worst* margin reading of:

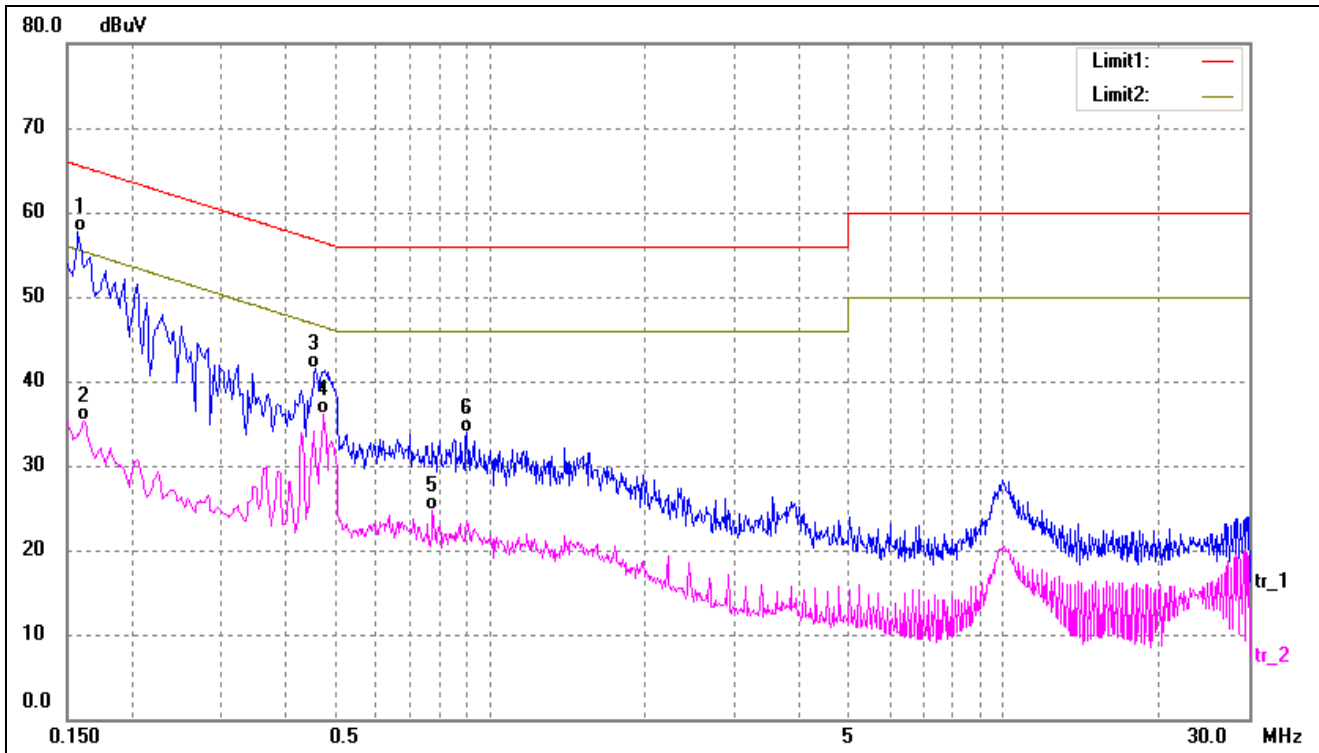
-6.79 dB at 0.1660 MHz in the Line, QP detector, TM2 detector, 0.15-30MHz

Test mode:	TM1	Polarity:	Line
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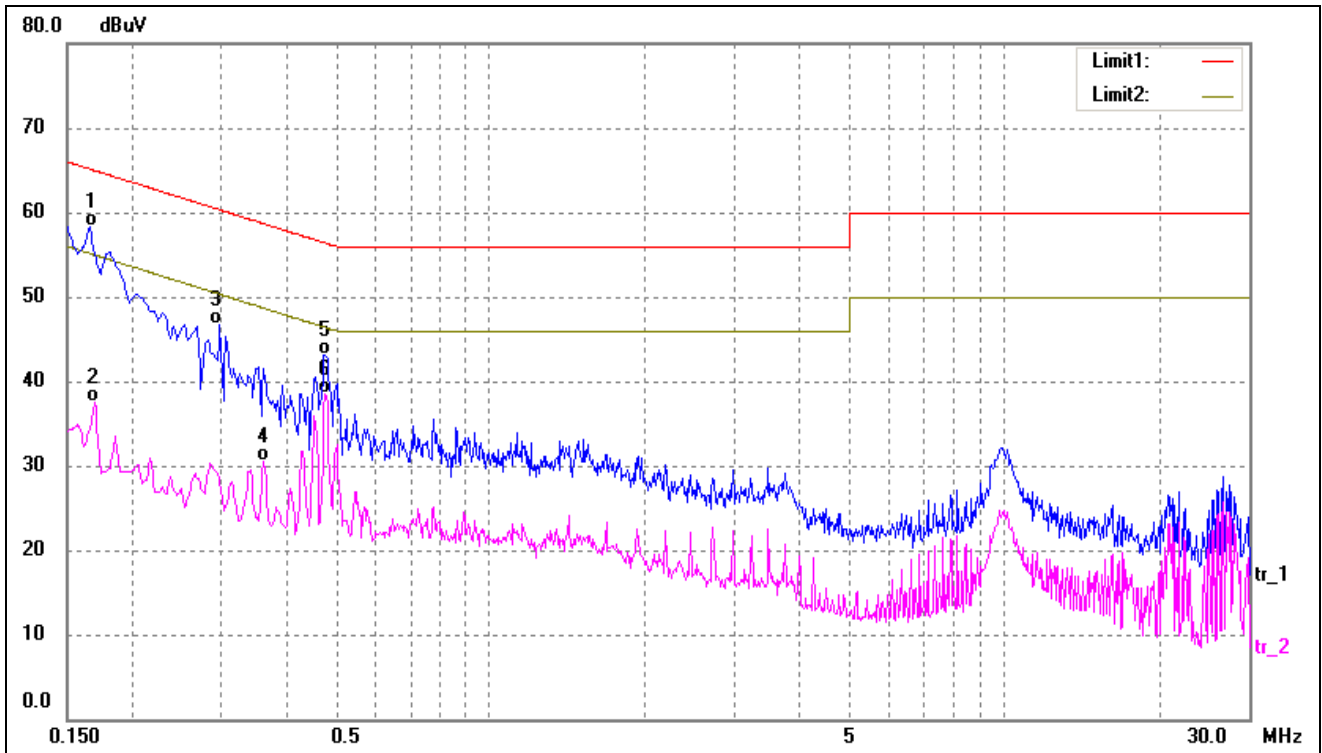
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1500	47.67	10.10	57.77	66.00	-8.23	QP
2	0.1580	24.63	10.10	34.73	55.57	-20.84	AVG
3	0.1740	45.53	10.11	55.64	64.77	-9.13	QP
4	0.4540	23.85	10.27	34.12	46.80	-12.68	AVG
5	0.4700	32.16	10.28	42.44	56.51	-14.07	QP
6	0.4740	25.85	10.28	36.13	46.44	-10.31	AVG

Test mode:	TM1	Polarity:	Neutral
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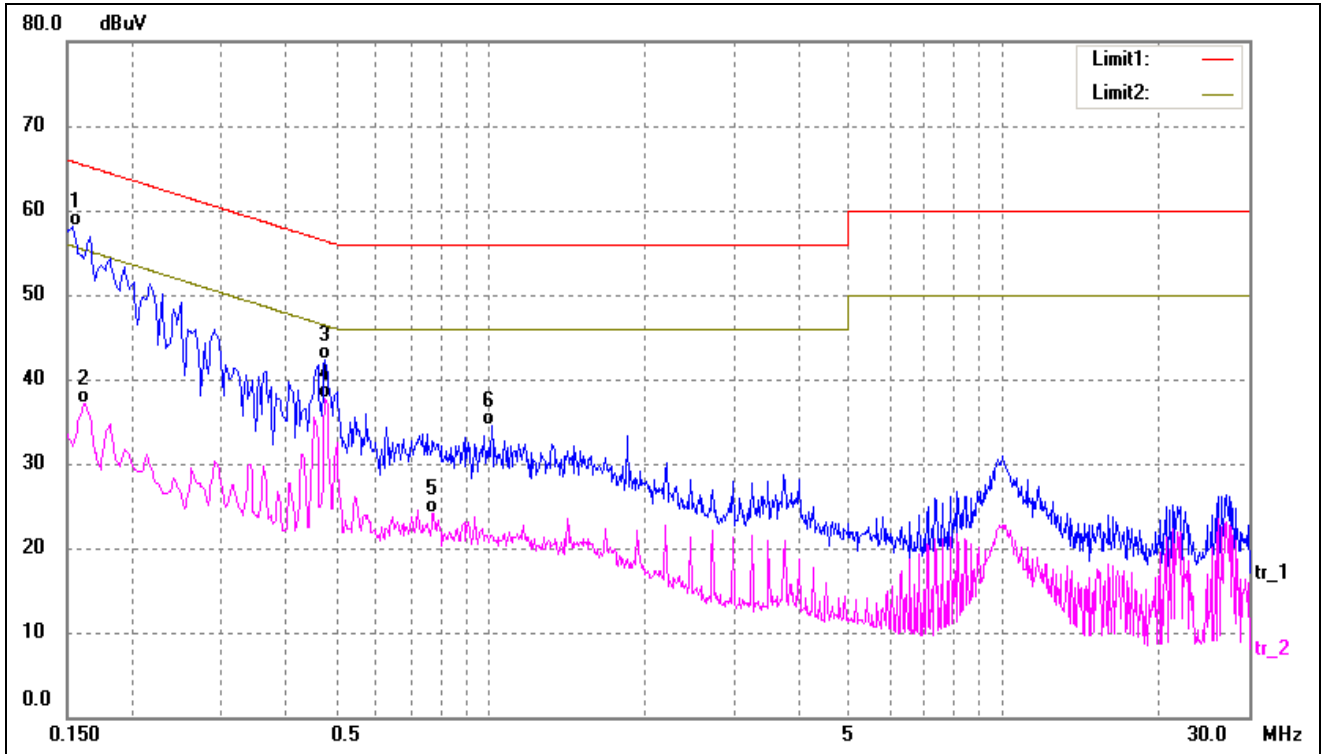
No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1580	47.63	10.10	57.73	65.57	-7.84	QP
2	0.1620	25.28	10.10	35.38	55.36	-19.98	AVG
3	0.4580	31.25	10.27	41.52	56.73	-15.21	QP
4	0.4740	25.84	10.28	36.12	46.44	-10.32	AVG
5	0.7740	14.35	10.41	24.76	46.00	-21.24	AVG
6	0.9020	23.44	10.46	33.90	56.00	-22.10	QP

Test mode:	TM2	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1660	48.26	10.11	58.37	65.16	-6.79	QP
2	0.1700	27.39	10.11	37.50	54.96	-17.46	AVG
3	0.2980	36.54	10.19	46.73	60.30	-13.57	QP
4	0.3620	20.30	10.23	30.53	48.68	-18.15	AVG
5	0.4780	32.87	10.28	43.15	56.37	-13.22	QP
6	0.4780	28.21	10.28	38.49	46.37	-7.88	AVG

Test mode:	TM2	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1*	0.1540	48.01	10.10	58.11	65.78	-7.67	QP
2	0.1620	27.08	10.10	37.18	55.36	-18.18	AVG
3	0.4780	31.98	10.28	42.26	56.37	-14.11	QP
4	0.4780	27.36	10.28	37.64	46.37	-8.73	AVG
5	0.7740	13.73	10.41	24.14	46.00	-21.86	AVG
6	1.0060	24.09	10.50	34.59	56.00	-21.41	QP

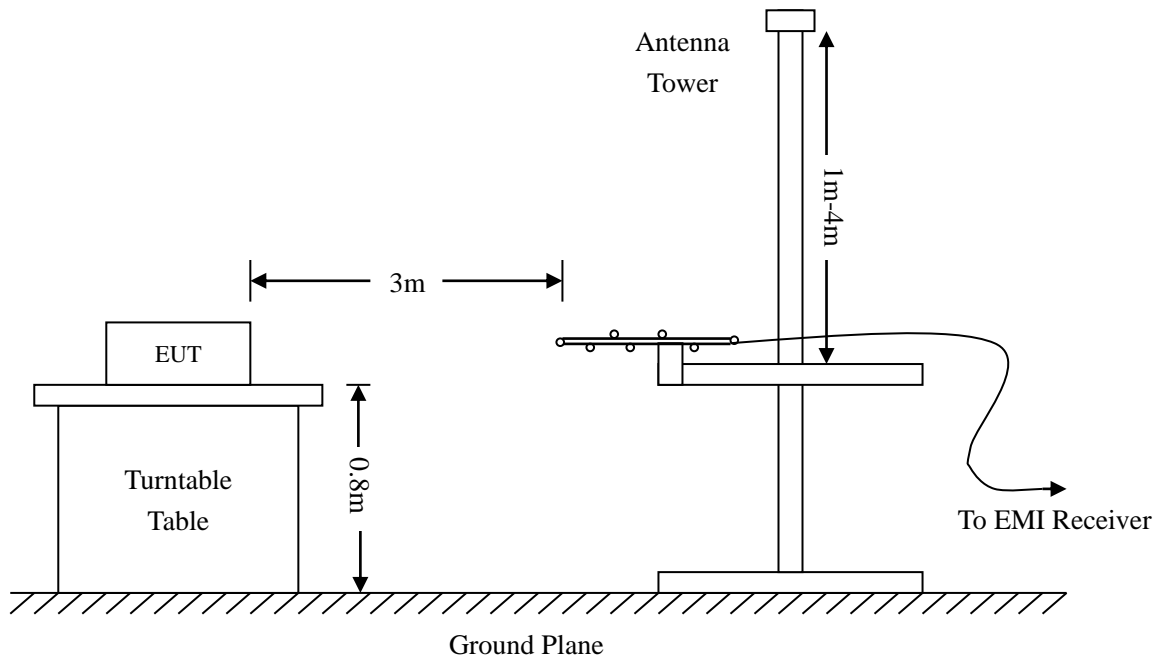
4. Radiated Emissions

4.1 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 18.305 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.



4.2 Test Receiver Setup

Frequency :9kHz-30MHz

RBW=10KHz,

VBW =30KHz

Sweep time= Auto

Trace = max hold

Detector function = peak

Frequency :30MHz-1GHz

RBW=120KHz,

VBW=300KHz

Sweep time= Auto

Trace = max hold

Detector function = peak, QP

Frequency :Above 1GHz

RBW=1MHz,

VBW=3MHz(Peak), 10Hz(AV)

Sweep time= Auto

Trace = max hold

Detector function = peak, AV

4.3 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of $-6\text{dB}\mu\text{V}$ means the emission is $6\text{dB}\mu\text{V}$ below the maximum limit for Any non-ISM frequency device. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 18.305 Limit

4.4 Environmental Conditions

Temperature:	22 °C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

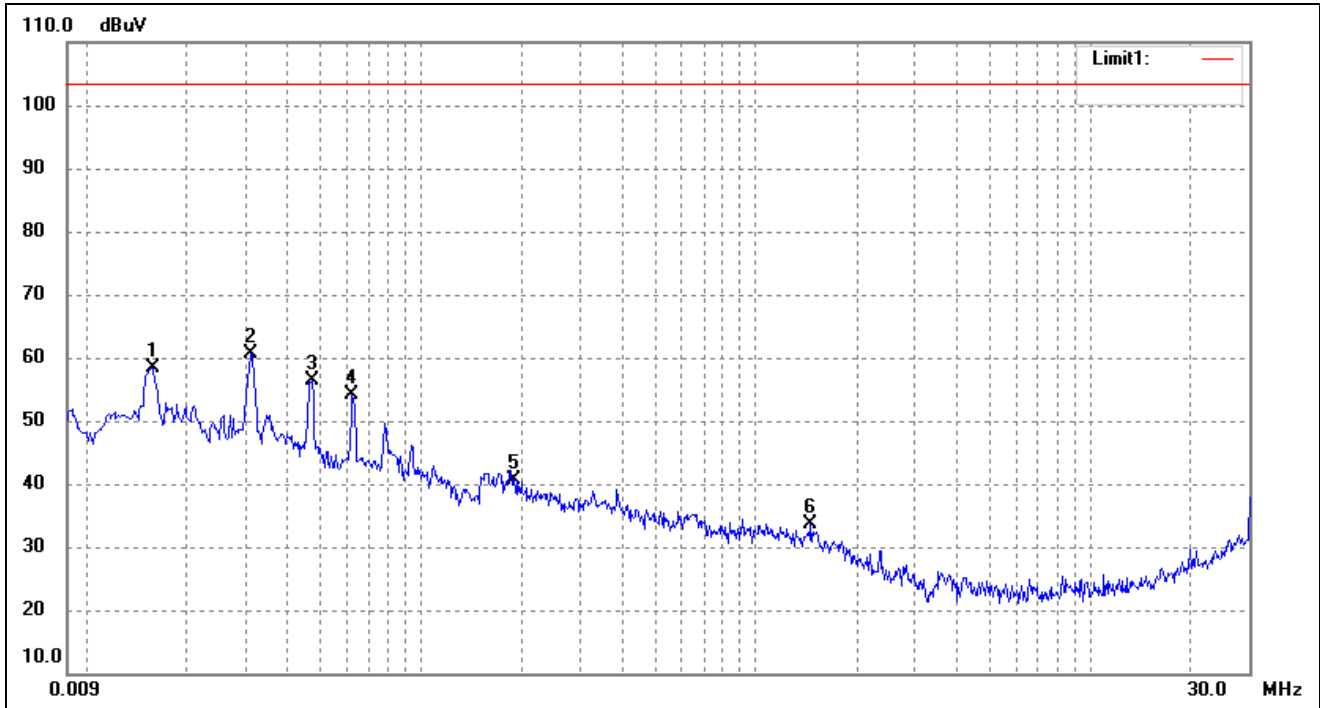
4.5 Summary of Test Results/Plots

According to the data, the EUT complied with the FCC Part 18.305 rule, and had the worst margin of:

-29.43dB at **929.0082 MHz** in the **Horizontal** polarization, **TM1** mode, **3Meters**

Plot of Radiated Emissions Test Data (Below 30MHz)

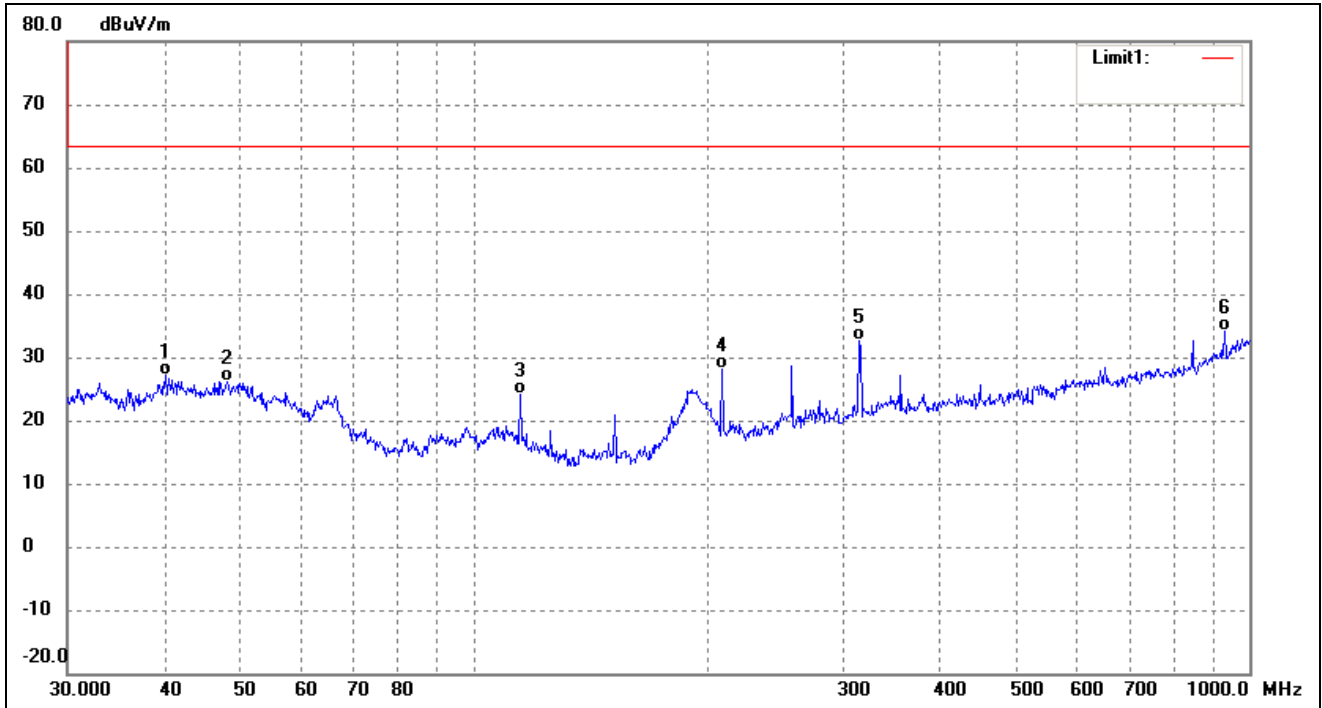
Test mode:	TM1	Polarity:	X
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No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Degree ()	Height (cm)	Remark
1	0.0158	64.91	-6.51	58.40	103.50	-45.10	228	100	peak
2	0.0309	67.71	-7.10	60.61	103.50	-42.89	329	100	peak
3	0.0471	63.47	-6.99	56.48	103.50	-47.02	50	100	peak
4	0.0625	61.75	-7.57	54.18	103.50	-49.32	183	100	peak
5	0.1894	46.34	-5.66	40.68	103.50	-62.82	58	100	peak
6	1.4637	43.57	-9.95	33.62	103.50	-69.88	350	100	peak

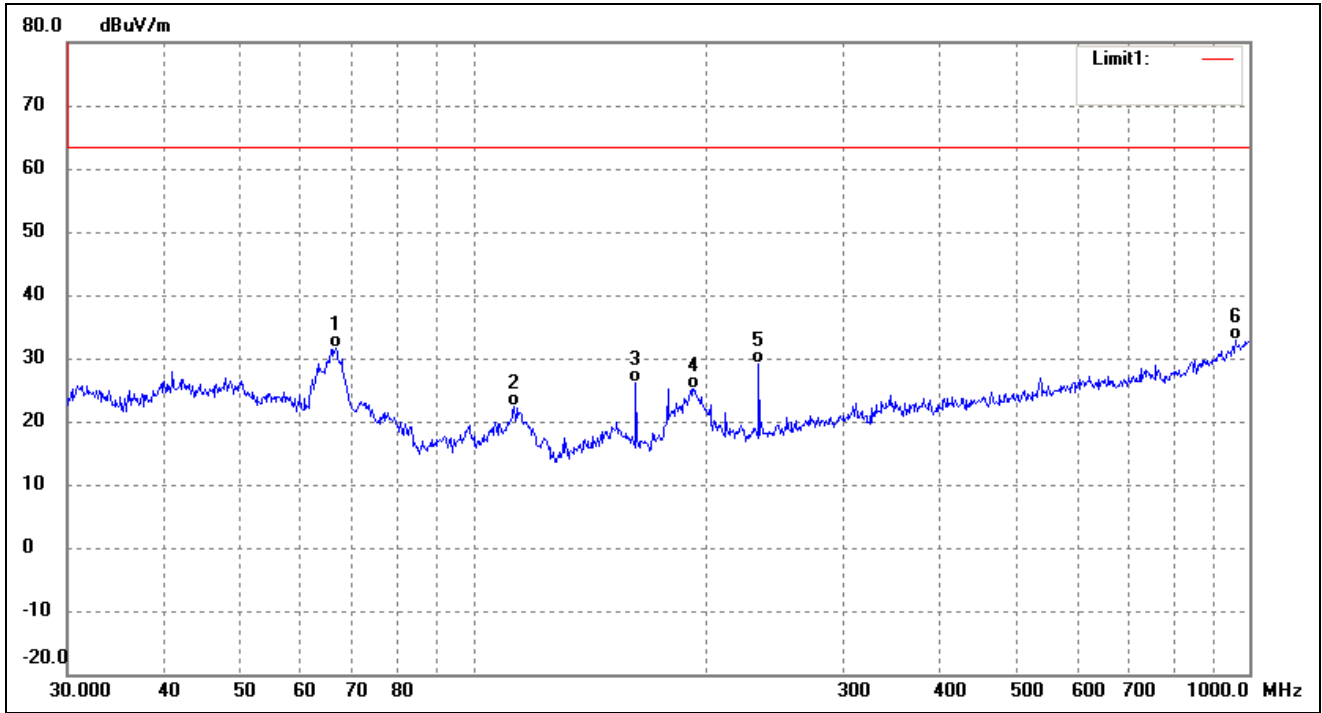
Plot of Radiated Emissions Test Data (Above 30MHz)

Test mode:	TM1	Polarity:	Horizontal
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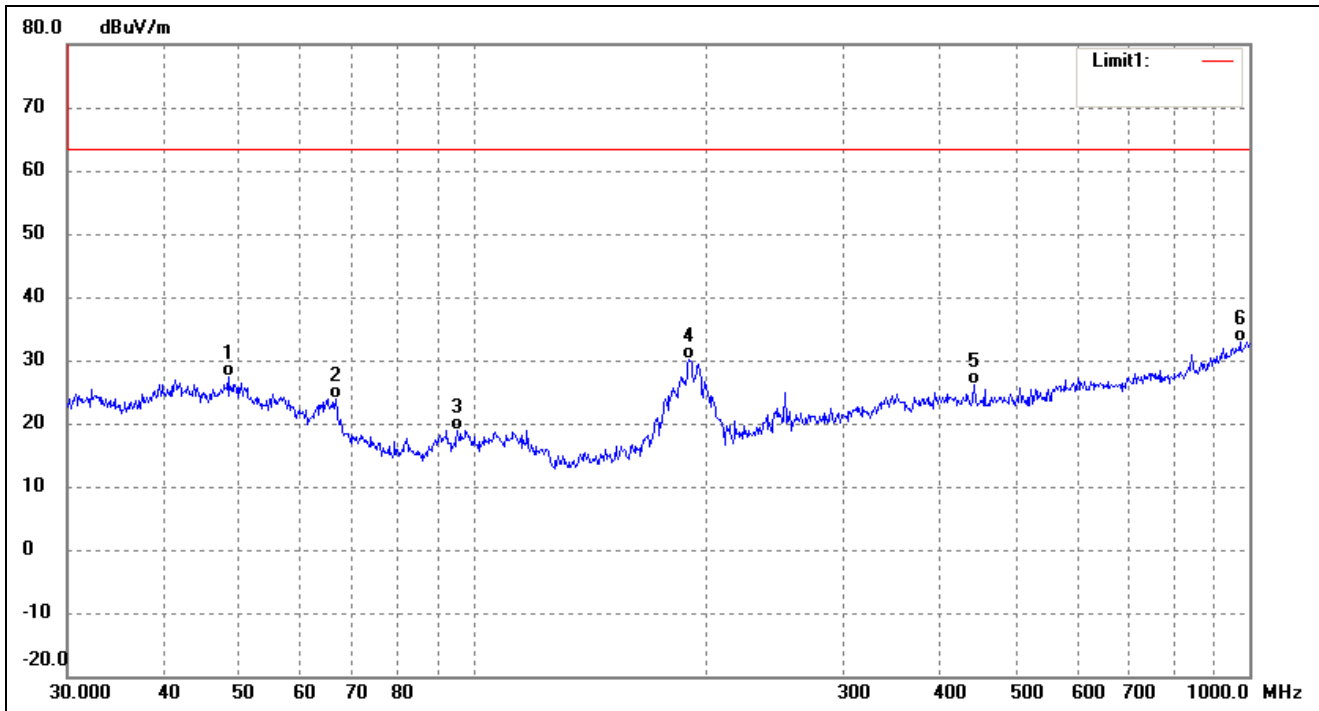
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	40.1347	35.53	-8.51	27.02	63.50	-36.48	56	100	QP
2	48.1626	34.38	-8.20	26.18	63.50	-37.32	228	100	QP
3	114.9169	39.43	-15.30	24.13	63.50	-39.37	87	100	QP
4	209.3129	41.33	-13.20	28.13	63.50	-35.37	293	100	QP
5	314.3765	41.53	-8.99	32.54	63.50	-30.96	260	100	QP
6	929.0082	32.04	2.03	34.07	63.50	-29.43	177	100	QP

Test mode:	TM1	Polarity:	Vertical
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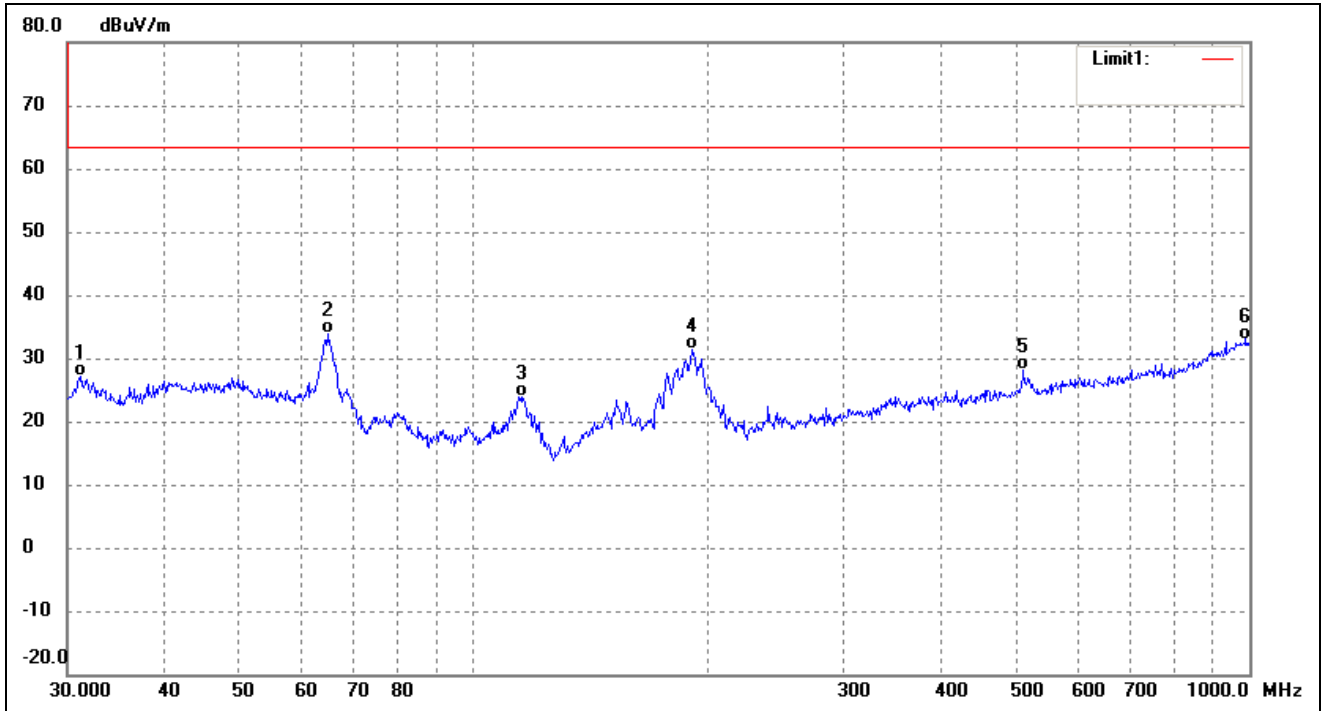
No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	66.4989	44.59	-12.87	31.72	63.50	-31.78	349	100	QP
2	112.9196	37.22	-14.93	22.29	63.50	-41.21	191	100	QP
3	162.0414	42.87	-16.67	26.20	63.50	-37.30	120	100	QP
4	192.4186	39.03	-13.91	25.12	63.50	-38.38	114	100	QP
5	233.3487	41.02	-11.90	29.12	63.50	-34.38	182	100	QP
6	958.7943	29.79	3.09	32.88	63.50	-30.62	282	100	QP

Test mode:	TM2	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	48.3318	35.60	-8.22	27.38	63.50	-36.12	177	100	QP
2	66.4989	36.69	-12.87	23.82	63.50	-39.68	264	100	QP
3	95.4270	33.90	-15.08	18.82	63.50	-44.68	72	100	QP
4	189.7385	44.35	-14.21	30.14	63.50	-33.36	242	100	QP
5	441.7426	32.99	-6.95	26.04	63.50	-37.46	314	100	QP
6	972.3374	29.52	3.38	32.90	63.50	-30.60	285	100	QP

Test mode:	TM2	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	31.1798	36.70	-9.56	27.14	63.50	-36.36	75	100	QP
2	64.8865	46.04	-12.13	33.91	63.50	-29.59	224	100	QP
3	115.3205	39.35	-15.36	23.99	63.50	-39.51	90	100	QP
4	191.7450	45.48	-13.99	31.49	63.50	-32.01	271	100	QP
5	511.8352	34.18	-5.94	28.24	63.50	-35.26	114	100	QP
6	989.5355	29.12	3.88	33.00	63.50	-30.50	206	100	QP

***** END OF REPORT *****