FCC Part 15B
Measurement and Test Report

For

Fortune Ship International Industrial Limited

Unit C, 24/F, Golden Bear Industrial Centre, 66-82 Chai Wan Kok Street,

Tsuen Wan NT, HONGKONG, China

FCC ID: 2AVFE-E1PLUS

FCC Rule(s):	FCC Part 15 Subpart B
Product Description:	4G Smart Phone
Tested Model:	Wildfire E1
Report No.:	WTX19X11081161W-7
Sample Receipt Date:	2019-11-22
Tested Date:	2019-11-22 to 2019-12-25
Issued Date:	2019-12-26
Tested By:	Jason Su / Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy So / PSQ Manager

Prepared By:

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TABLE OF CONTENTS

Report version

Version No.	Date of issue	Description
Rev.00	2019-12-26	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Fortune Ship International Industrial Limited
Address of applicant:	Unit C, 24/F, Golden Bear Industrial Centre, 66-82 Chai Wan Kok Street, Tsuen Wan NT, HONGKONG, China
Manufacturer:	Guizhou Fortuneship Technology Co., Ltd
Address of manufacturer:	No. 4 Plant, High-tech Industrial Park, Xinpu Economic Development Zone, Zunyi, China

General Description of EUT	
Product Name:	4G Smart Phone
Trade Name:	HTC
Model No.:	Wildfire E1
Adding Model(s):	Wildfire E1 PLUS
Note: The test data is gathered from a production sample, provided by the manufacturer. The appearance of others models listed in the report is different from main-test model Wildfire E1, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC3.85V
Rated Current:	/
Rated Power:	/
Power Adapter Model:	ES568-U050150XYE INPUT: AC100-20/60Hz, 0.5A, Max; Output: DC5V, 1500mA
Lowest Internal Frequency:	32.768kHz
Highest Internal Frequency:	5825MHz
Classification of ITE:	Class B

1.2 Test Standards

The tests were performed according to following standards:

FCC Rules Part 15 Subpart B: Unintentional Radiators.

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

The test facility is recognized, certified, or accredited by the following organizations:

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. 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	Charging And Playing	/	AC120V 60Hz for adapter
TM2	Downloading	/	AC120V 60Hz for adapter
TM3	Camera	/	AC120V 60Hz for adapter
TM4	FM	Receiver	AC120V 60Hz for adapter
TM5	GPS	Receiver	AC120V 60Hz for adapter
TM6	2G	Receiver	AC120V 60Hz for adapter
TM7	3G	Receiver	AC120V 60Hz for adapter
TM8	4G	Receiver	AC120V 60Hz for adapter
TM9	WIFI	Receiver	AC120V 60Hz for adapter
TM10	BT	Receiver	AC120V 60Hz for adapter
Remark:Only show the worst case(TM1-TM5) in the test report			

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	1.0	Unshielded	Without Ferrite
Earphone Cable	1.2	Unshielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E40	/

Special Cable List and Details

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

1.6 Measurement Uncertainty

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

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

Software List			
Description	**Manufacturer**	**Model**	**Version**
EMI Test Software (Radiated Emission)*	Farad	EZ-EMC	RA-03A1
EMI Test Software (Conducted Emission)*	Farad	EZ-EMC	RA-03A1

*Remark: indicates software version used in the compliance certification testing

2. SUMMARY OF TEST RESULTS

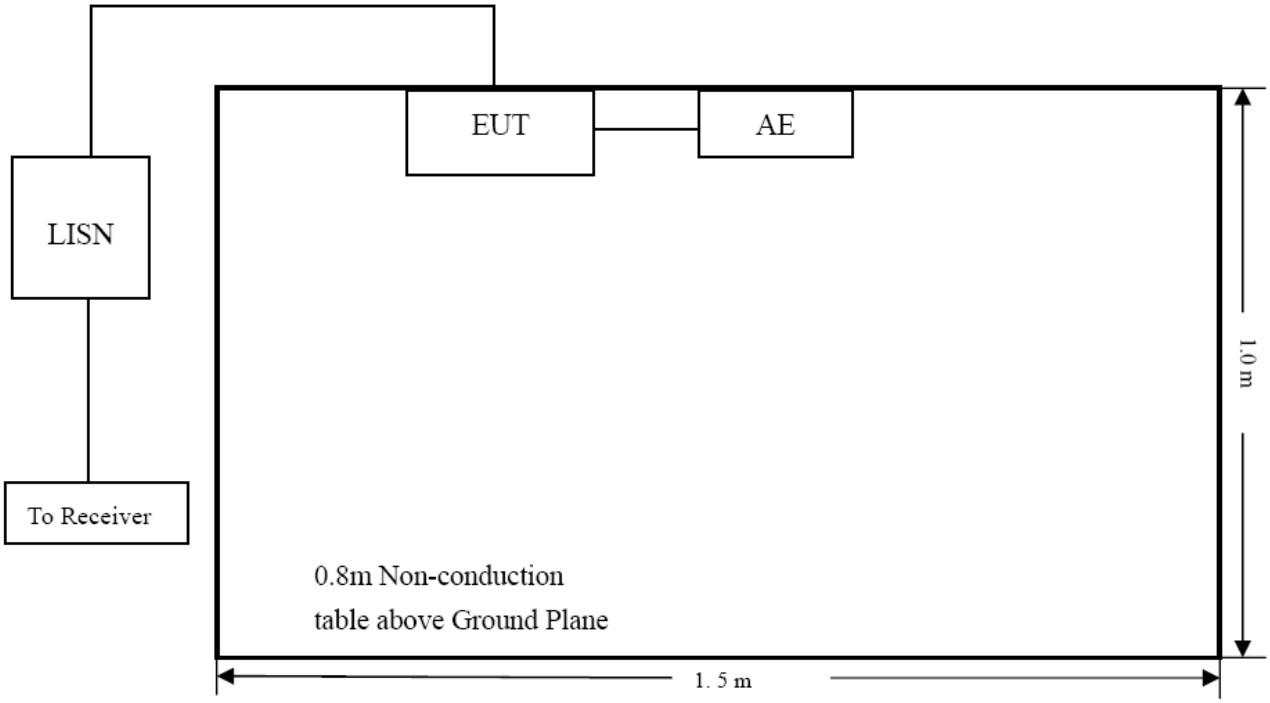
Description of Test	Result
§15.107(a) Conducted Emission	Compliant
§15.109(a) Radiated Emission	Compliant

3. Conducted Emissions

3.1 Test Procedure

Test is conducting under the description of 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.

3.2 Basic Test Setup Block Diagram



3.3 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

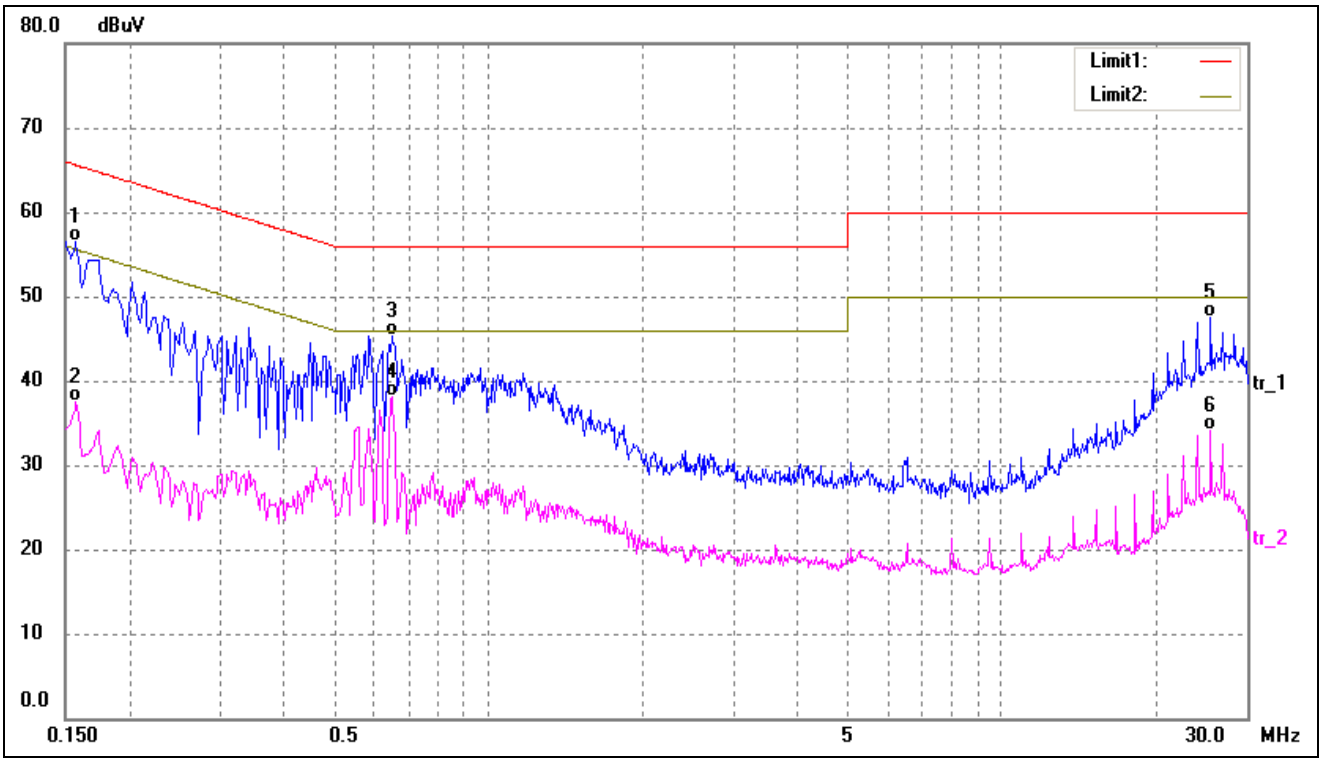
3.4 Summary of Test Results/Plots

According to the data in section 3.5, the EUT complied with the FCC Part 15.107(a) conducted margin for a Class B device, with the *worst* margin reading of:

-5.44 dB at **0.1500 MHz** in the **Neutral**, **QP** detector, 0.15-30 MHz

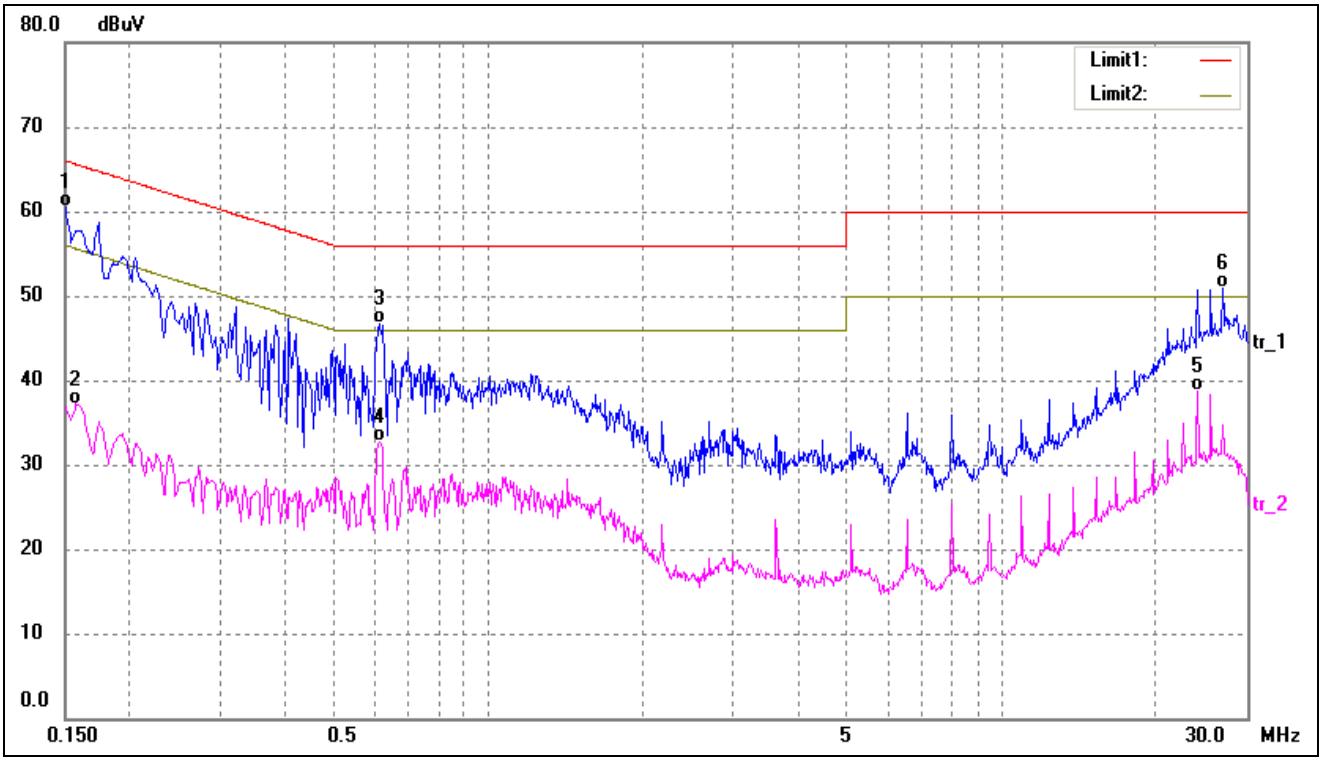
3.5 Conducted Emissions Test Data

Test mode:	TM1	Polarity:	Line



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1580	56.42	0.00	56.42	65.56	-9.14	QP
2	0.1580	37.46	0.00	37.46	55.56	-18.10	AVG
3	0.6500	45.34	0.00	45.34	56.00	-10.66	QP
4*	0.6500	38.05	0.00	38.05	46.00	-7.95	AVG
5	25.4740	47.42	0.00	47.42	60.00	-12.58	QP
6	25.4740	34.16	0.00	34.16	50.00	-15.84	AVG

Test mode:	TM1	Polarity:	Neutral

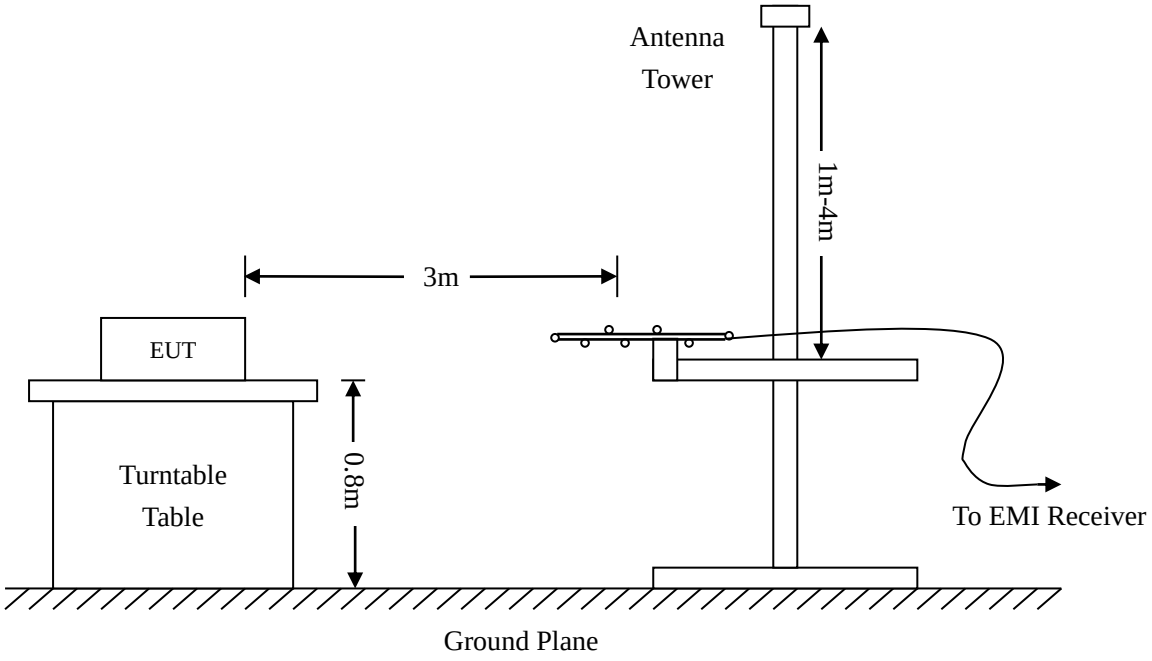


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1500	60.55	0.00	60.55	65.99	-5.44	QP
2	0.1580	37.20	0.00	37.20	55.56	-18.36	AVG
3	0.6140	46.69	0.00	46.69	56.00	-9.31	QP
4	0.6140	32.64	0.00	32.64	46.00	-13.36	AVG
5	24.0220	38.79	0.00	38.79	50.00	-11.21	AVG
6	26.9340	50.99	0.00	50.99	60.00	-9.01	QP

4. RADIATED EMISSION

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 15.109 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	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	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:

Corr. Ampl. = Indicated Reading + Correct
Correct=Ant.Factor + Cable Loss - Ampl.Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for a Class B device. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15.109(a) Limit

4.4 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	1011 mbar

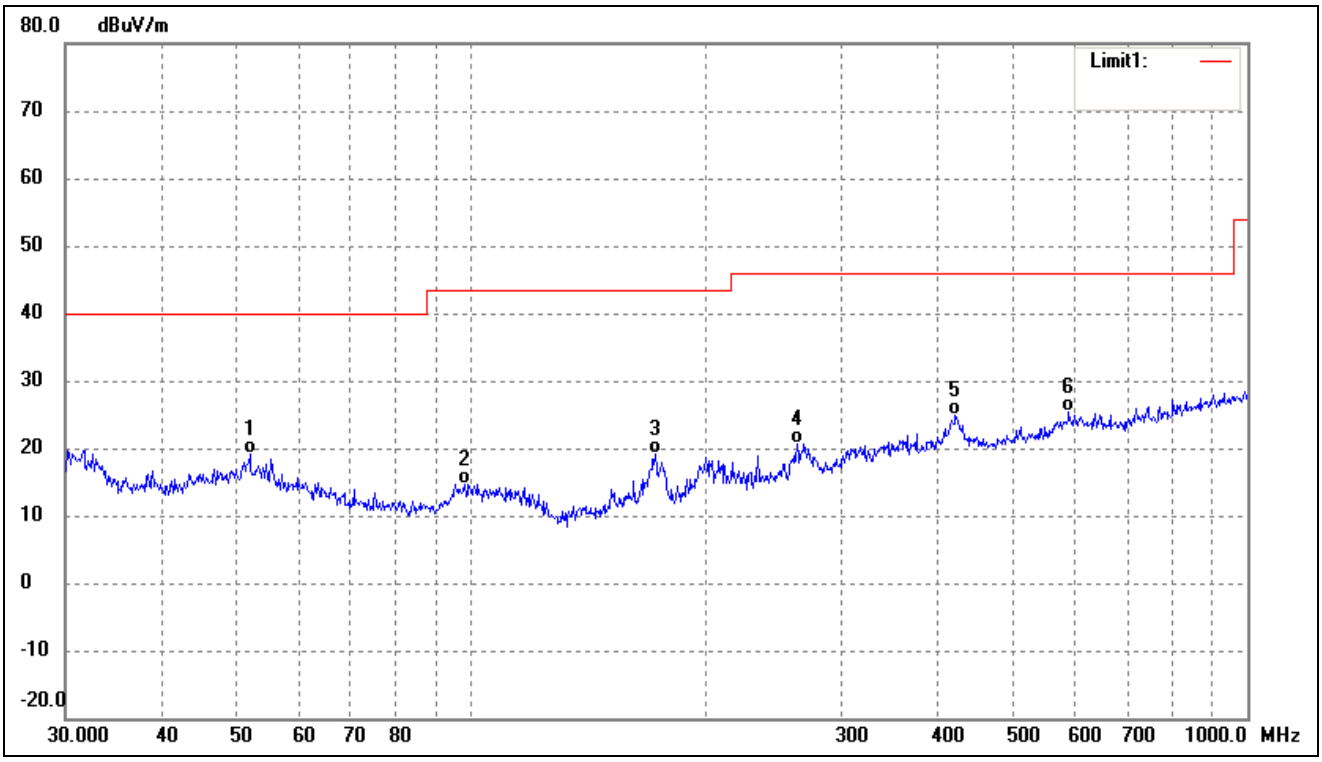
4.5 Summary of Test Results/Plots

According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-2.80 dB at **32.9791 MHz** in the **Vertical** polarization, **TM3** mode, **30 MHz** to **1 GHz**, **3 Meters**

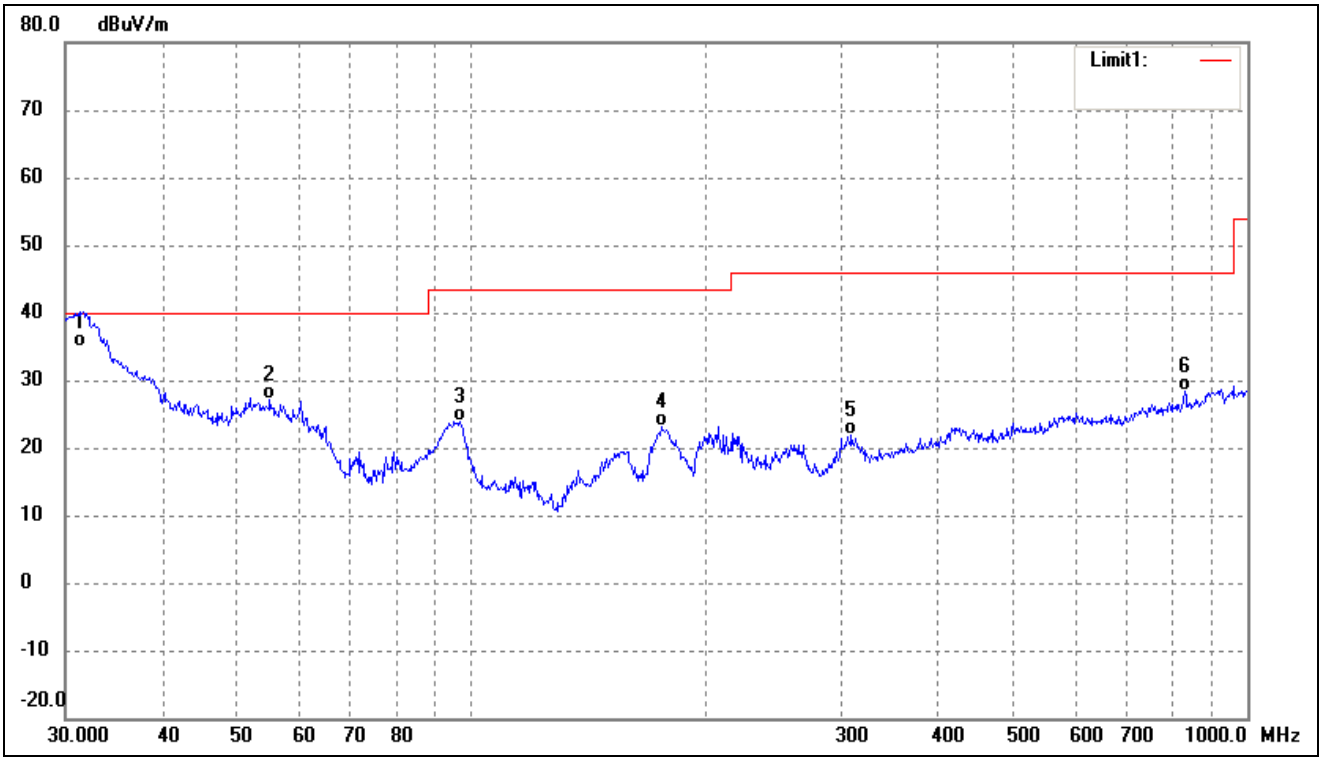
➢ Below 1GHz

Test mode:	TM1	Polarity:	Horizontal



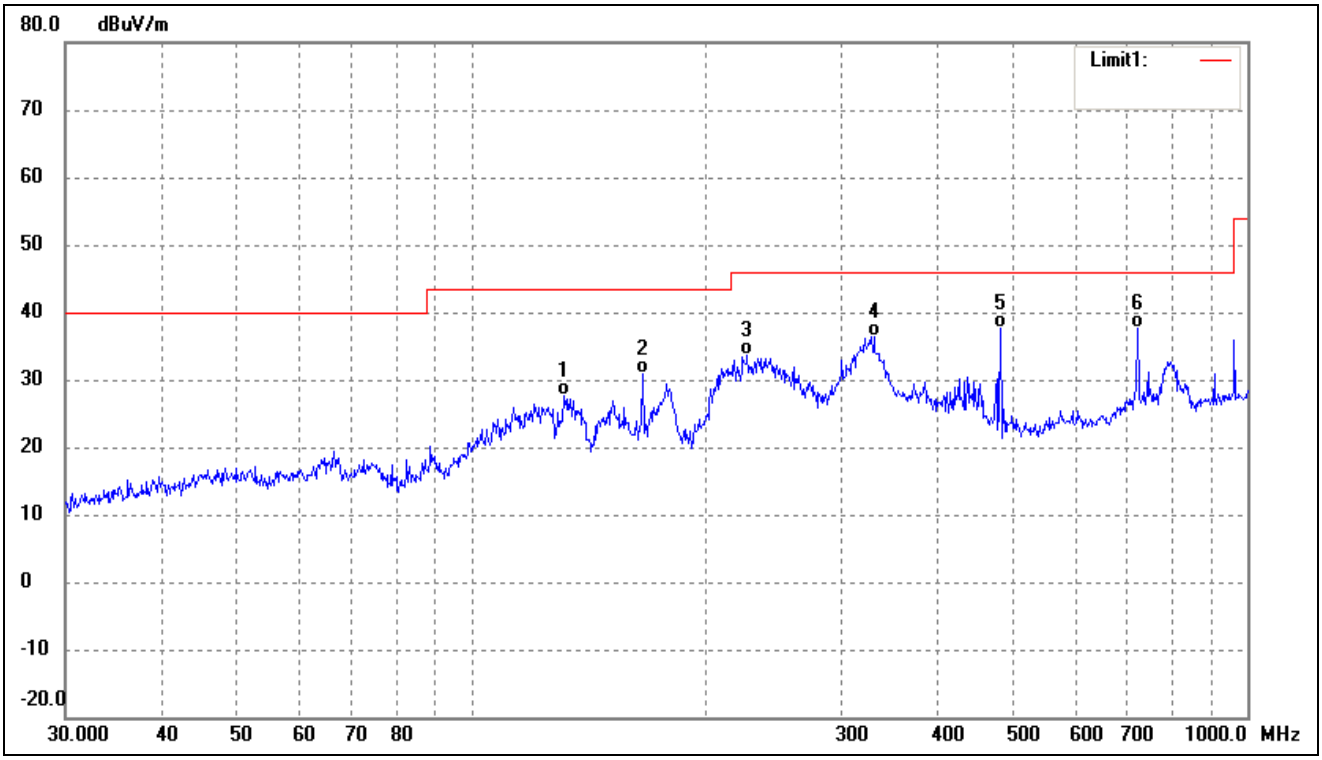
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	51.8430	30.63	-11.42	19.21	40.00	-20.79	243	100	QP
2	98.1419	28.24	-13.61	14.63	43.50	-28.87	99	100	QP
3	172.5988	33.84	-14.81	19.03	43.50	-24.47	283	100	QP
4	262.8955	31.34	-10.77	20.57	46.00	-25.43	104	100	QP
5	420.5803	31.30	-6.33	24.97	46.00	-21.03	321	100	QP
6	588.9051	29.52	-4.13	25.39	46.00	-20.61	99	100	QP

Test mode:	TM1	Polarity:	Vertical



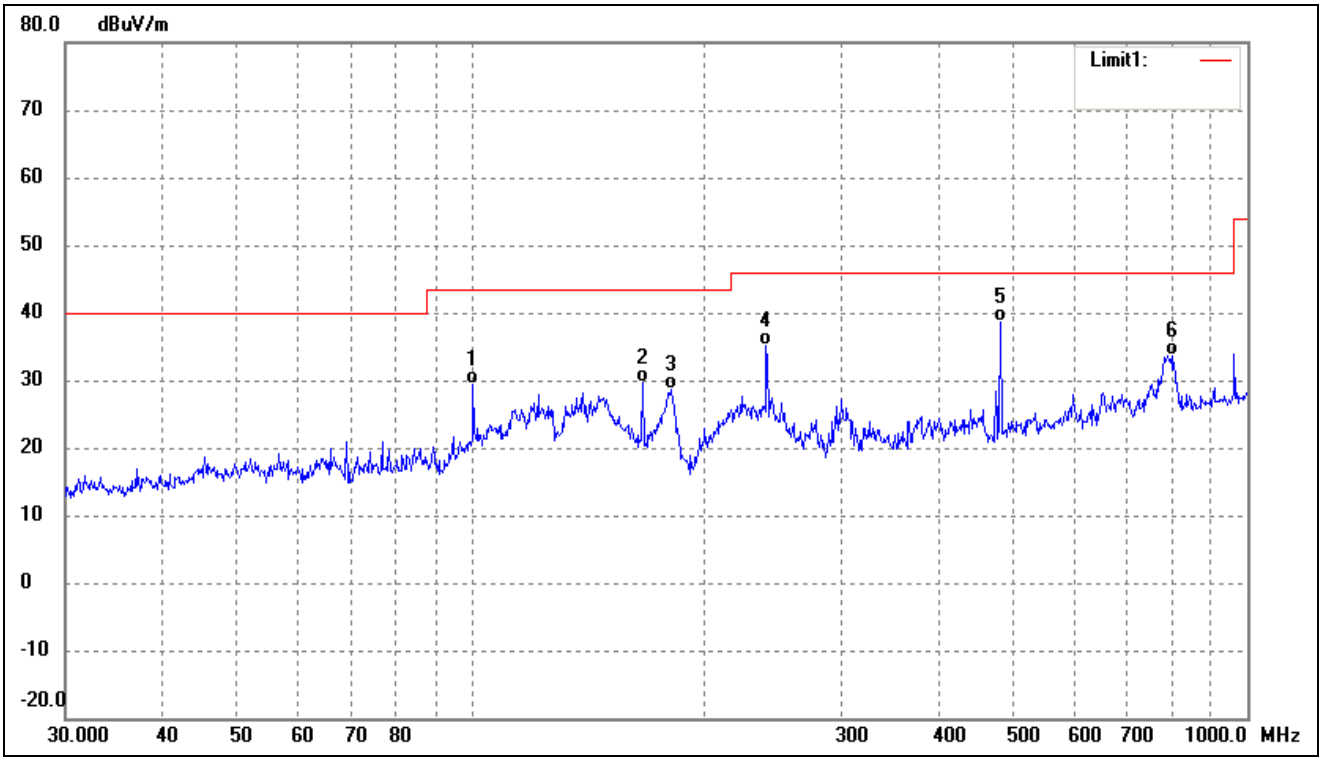
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	31.2893	49.16	-14.26	34.90	40.00	-5.10	189	100	QP
2	55.0274	39.21	-12.16	27.05	40.00	-12.95	342	100	QP
3	96.7749	37.78	-13.91	23.87	43.50	-19.63	99	100	QP
4	176.2686	37.72	-14.70	23.02	43.50	-20.48	338	100	QP
5	308.9126	31.06	-9.28	21.78	46.00	-24.22	335	100	QP
6	830.4002	29.93	-1.55	28.38	46.00	-17.62	275	100	QP

Test mode:	TM2	Polarity:	Horizontal



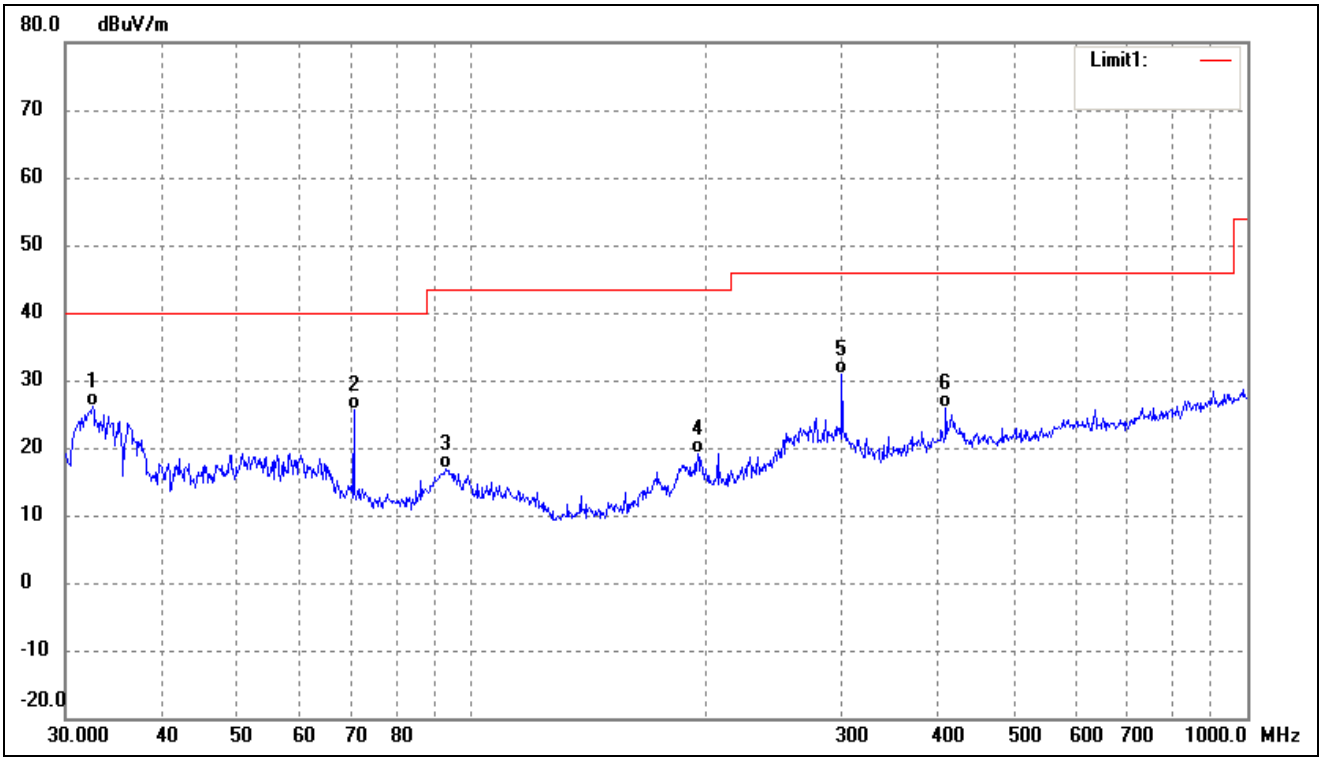
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	131.7577	44.20	-16.60	27.60	43.50	-15.90	40	100	QP
2	166.0680	46.06	-15.12	30.94	43.50	-12.56	93	100	QP
3	226.8936	45.94	-12.22	33.72	46.00	-12.28	134	100	QP
4	330.1949	45.58	-9.12	36.46	46.00	-9.54	108	100	QP
5	480.5276	44.12	-6.45	37.67	46.00	-8.33	320	100	QP
6	721.7259	40.75	-3.09	37.66	46.00	-8.34	310	100	QP

Test mode:	TM2	Polarity:	Vertical



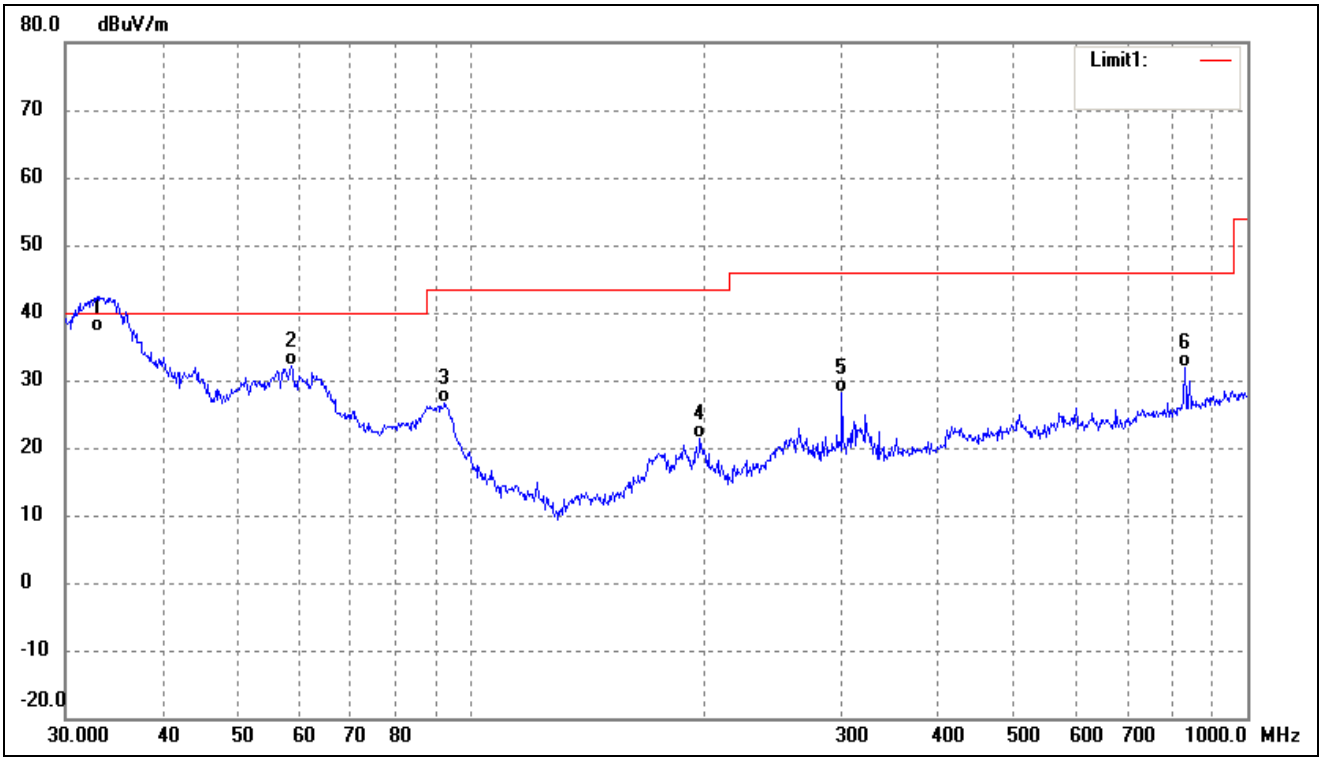
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	100.5806	42.44	-13.17	29.27	43.50	-14.23	274	100	QP
2	166.0680	44.80	-15.12	29.68	43.50	-13.82	96	100	QP
3	180.6487	43.22	-14.53	28.69	43.50	-14.81	343	100	QP
4	239.9874	46.61	-11.53	35.08	46.00	-10.92	111	100	QP
5	480.5276	45.16	-6.45	38.71	46.00	-7.29	74	100	QP
6	798.9796	35.88	-2.23	33.65	46.00	-12.35	148	100	QP

Test mode:	TM3	Polarity:	Horizontal



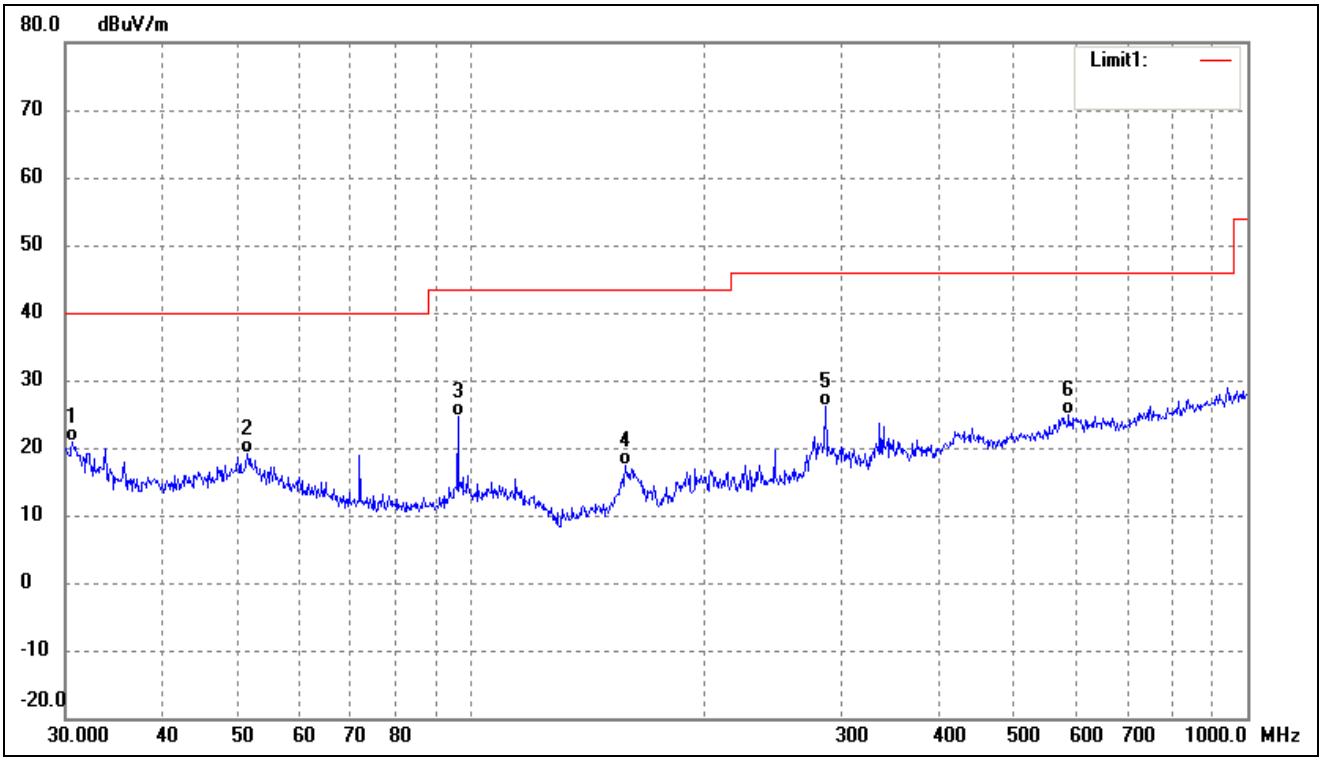
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	32.5198	40.02	-13.96	26.06	40.00	-13.94	163	100	QP
2	70.5836	40.72	-15.20	25.52	40.00	-14.48	234	100	QP
3	92.7871	31.84	-14.89	16.95	43.50	-26.55	67	100	QP
4	195.8220	32.09	-12.99	19.10	43.50	-24.40	344	100	QP
5	300.3672	40.12	-9.23	30.89	46.00	-15.11	138	100	QP
6	408.9460	33.06	-7.11	25.95	46.00	-20.05	135	100	QP

Test mode:	TM3	Polarity:	Vertical



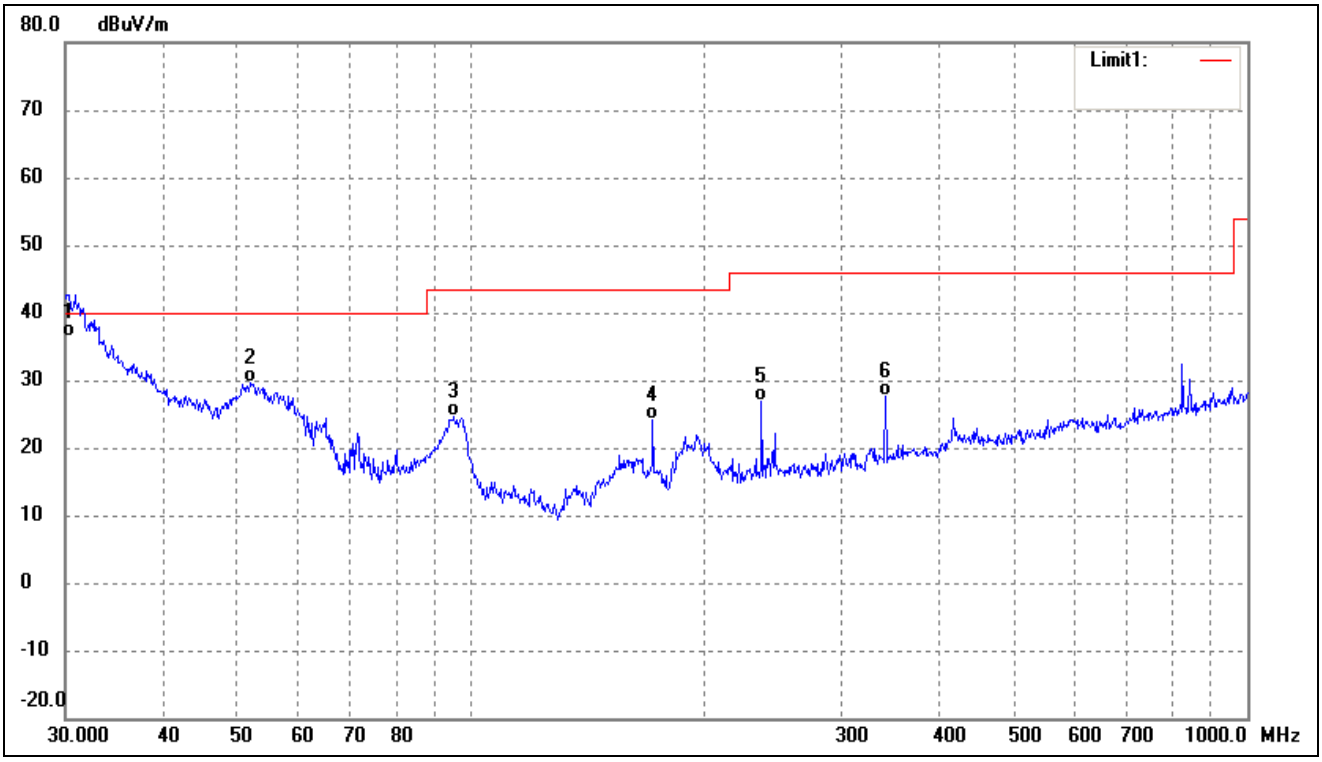
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	32.9791	51.05	-13.85	37.20	40.00	-2.80	96	100	QP
2	58.6126	45.05	-13.00	32.05	40.00	-7.95	109	100	QP
3	92.4624	41.53	-14.97	26.56	43.50	-16.94	87	100	QP
4	197.2001	34.28	-12.90	21.38	43.50	-22.12	99	100	QP
5	300.3672	37.37	-9.23	28.14	46.00	-17.86	121	100	QP
6	830.4002	33.53	-1.55	31.98	46.00	-14.02	308	100	QP

Test mode:	TM4	Polarity:	Horizontal



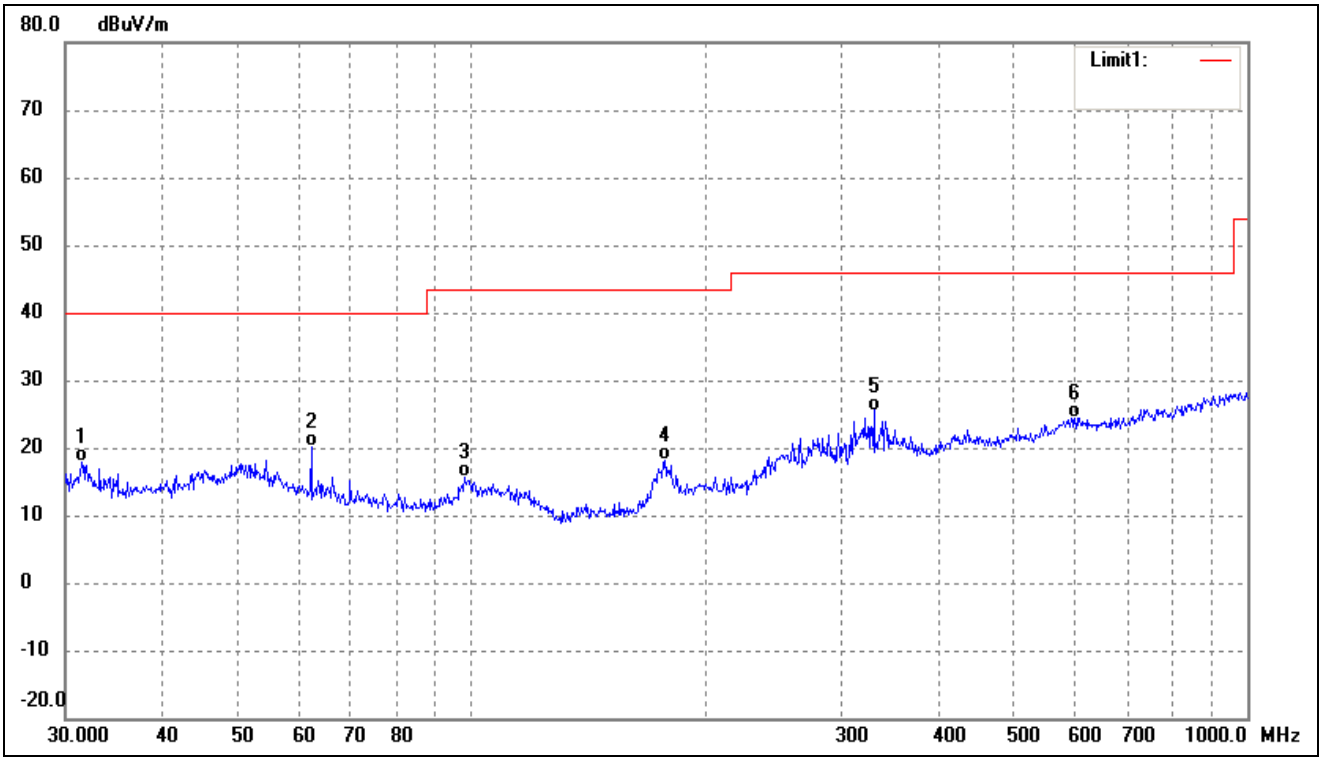
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	30.6379	35.22	-14.42	20.80	40.00	-19.20			QP
2	51.4807	30.55	-11.33	19.22	40.00	-20.78			QP
3	96.0986	38.81	-14.07	24.74	43.50	-18.76			QP
4	158.1123	32.89	-15.57	17.32	43.50	-26.18			QP
5	285.9778	36.06	-9.97	26.09	46.00	-19.91			QP
6	588.9051	28.91	-4.13	24.78	46.00	-21.22			QP

Test mode:	TM4	Polarity:	Vertical



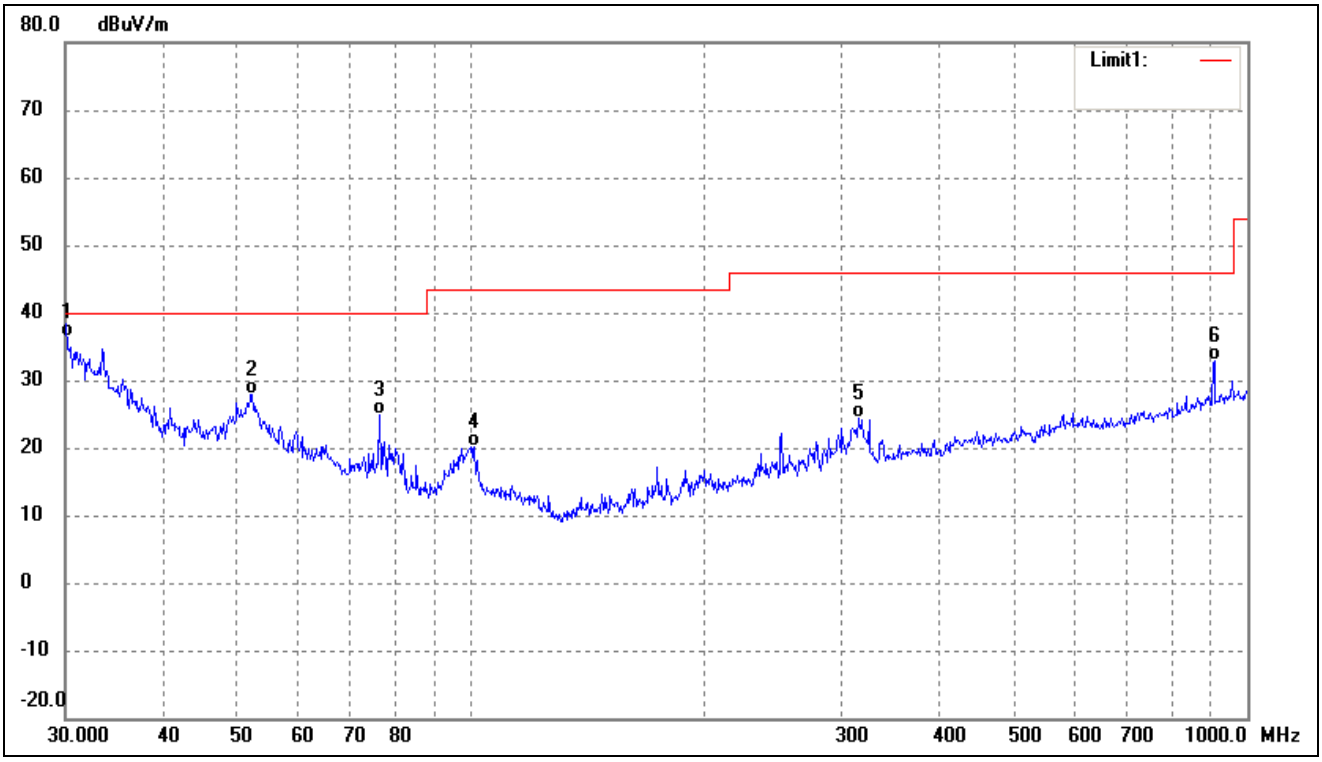
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	30.3173	51.00	-14.50	36.50	40.00	-3.50	179	100	QP
2	51.8430	40.98	-11.42	29.56	40.00	-10.44	145	100	QP
3	95.0930	38.93	-14.29	24.64	43.50	-18.86	95	100	QP
4	171.3926	38.98	-14.85	24.13	43.50	-19.37	350	100	QP
5	236.6447	38.58	-11.71	26.87	46.00	-19.13	95	100	QP
6	341.9786	36.17	-8.51	27.66	46.00	-18.34	327	100	QP

Test mode:	TM5	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	31.5095	32.07	-14.20	17.87	40.00	-22.13	225	100	QP
2	62.2128	33.82	-13.66	20.16	40.00	-19.84	136	100	QP
3	98.1419	29.18	-13.61	15.57	43.50	-27.93	83	100	QP
4	177.5092	32.87	-14.67	18.20	43.50	-25.30	132	100	QP
5	330.1949	34.62	-9.12	25.50	46.00	-20.50	205	100	QP
6	599.3212	28.48	-4.03	24.45	46.00	-21.55	219	100	QP

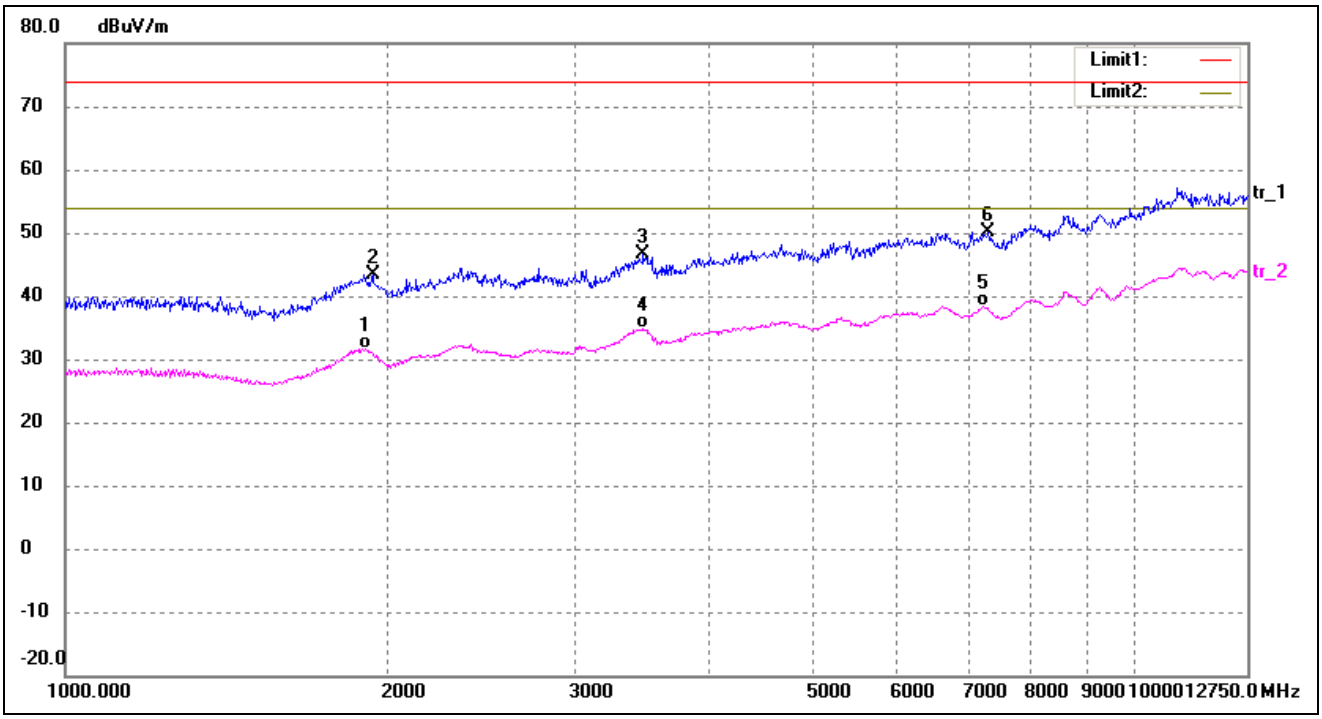
Test mode:	TM5	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	30.1054	50.95	-14.55	36.40	40.00	-3.60	246	100	QP
2	52.2079	39.35	-11.50	27.85	40.00	-12.15	91	100	QP
3	76.2442	40.08	-15.22	24.86	40.00	-15.14	61	100	QP
4	100.9339	33.40	-13.17	20.23	43.50	-23.27	94	100	QP
5	315.4808	33.67	-9.32	24.35	46.00	-21.65	79	100	QP
6	906.4824	33.33	-0.47	32.86	46.00	-13.14	165	100	QP

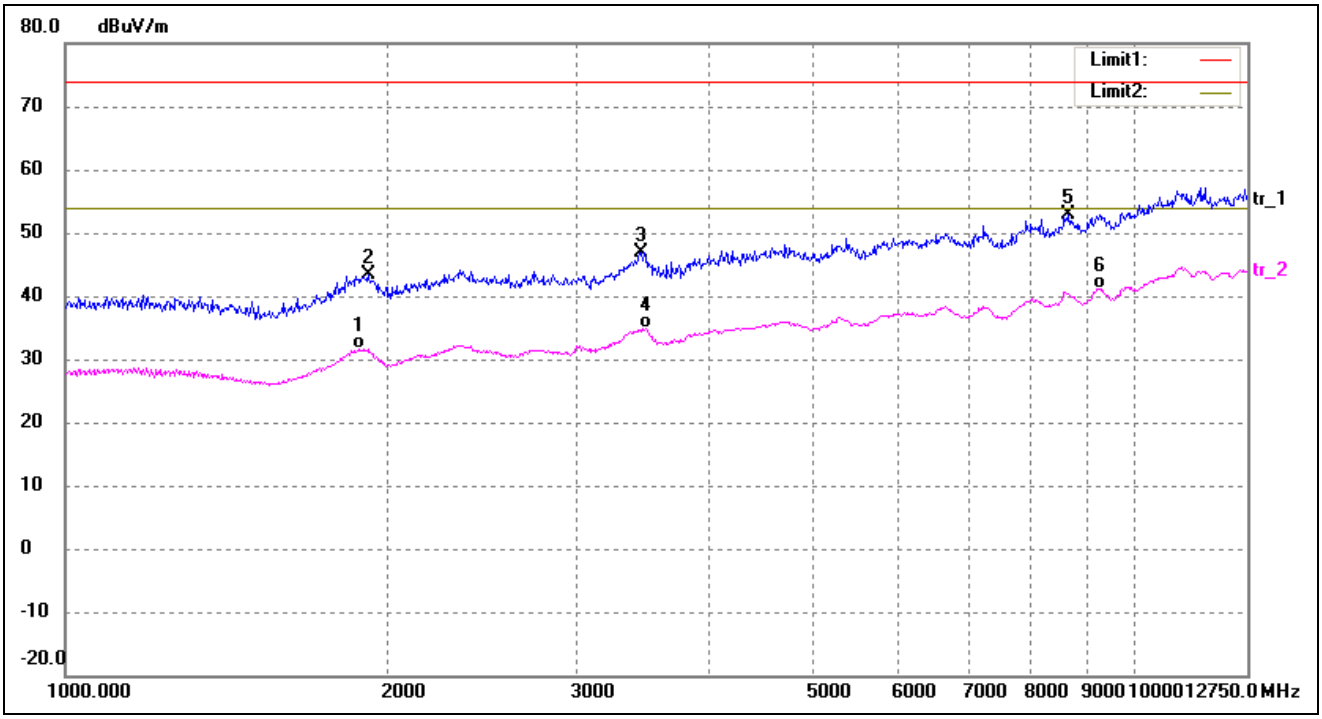
➢ Above 1GHz

Test mode:	TM1(worst case)	Polarity:	Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	1908.972	40.41	-8.71	31.70	54.00	-22.30	230	100	AVG
2	1938.352	52.55	-9.21	43.34	74.00	-30.66	91	100	peak
3	3472.118	53.96	-7.28	46.68	74.00	-27.32	209	100	peak
4	3472.118	42.10	-7.28	34.82	54.00	-19.18	107	100	AVG
5	7227.389	40.52	-2.20	38.32	54.00	-15.68	179	100	AVG
6	7301.355	52.40	-2.17	50.23	74.00	-23.77	238	100	peak

Test mode:	TM1(worst case)	Polarity:	Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	1884.829	40.24	-8.68	31.56	54.00	-22.44	224	100	AVG
2	1918.716	52.30	-8.88	43.42	74.00	-30.58	93	100	peak
3	3454.486	54.30	-7.33	46.97	74.00	-27.03	329	100	peak
4	3489.840	42.04	-7.22	34.82	54.00	-19.18	97	100	AVG
5	8681.168	52.61	0.15	52.76	74.00	-21.24	187	100	peak
6	9275.160	39.99	1.23	41.22	54.00	-12.78	252	100	AVG

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