

TEST REPORT

Reference No...... : WTX20X10075770W-7
FCC ID : 2AVFE-WILDFIREE2
Applicant : Fortune Ship International Industrial Limited
Address..... : UNIT C 24/F GOLDEN BEAR INDUSTRIAL CENTRE 66-82 CHAI WAN
KOK STREET TSUEN WAN NT, HONG KONG
Product Name : 4G Smart Phone
Test Model : Wildfire E2
Standards : **FCC PART15 SUBPART B**
Date of Receipt sample ... : Oct.19, 2020
Date of Test..... : Oct.19, 2020 to Nov.16, 2020
Date of Issue : Nov.16, 2020
Test Result..... : **Pass**

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

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Report version

Version No.	Date of issue	Description
Rev.00	Nov.16, 2020	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,
HONG KONG

Manufacturer: Fortune Ship International Industrial Limited
Address of manufacturer: UNIT C 24/F GOLDEN BEAR INDUSTRIAL CENTRE
66-82 CHAI WAN KOK STREET TSUEN WAN NT,
HONG KONG

General Description of EUT	
Product Name:	4G Smart Phone
Trade Name:	HTC
Model No.:	Wildfire E2
Adding Model(s):	/
<i>Note: The test data is gathered from a production sample, provided by the manufacturer.</i>	

Technical Characteristics of EUT	
Rated Voltage:	DC3.85V
Rated Current:	/
Rated Power:	/
Power Adapter Model:	ES568-U050200XYF INPUT: AC100-240V, 50/60Hz, 0.5A; Output: DC5V, 2000mA
Lowest Internal Frequency:	/
Highest Internal Frequency:	Above 108MHz
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

Address of the test laboratory

Laboratory: Waltek Testing Group (Shenzhen) Co., Ltd.

Address: 1/F., Room 101, Building 1, Hongwei Industrial Park, Liuxian 2nd Road, Block 70 Bao'an District, Shenzhen, Guangdong, China

FCC – Registration No.: 125990

Waltek Testing Group (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. The Designation Number is CN5010, and Test Firm Registration Number is 125990.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Waltek Testing Group (Shenzhen) 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	Connect to the Adapter;	AC120V 60Hz for adapter
TM2	Downloading	Connect to the Notebook;	AC120V 60Hz for PC
TM3	Camera	Camera On)	/
TM4	FM	Worst case FM 98MHz;	AC120V 60Hz for adapter
TM5	GPS	Receive 1575.42MHz	/
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-C Cable	0.99	Unshielded	Without Ferrite
Earphone Cable	1.23	Unshielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	TianYi310-14ISK	/

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 ± 3.74 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	2020-04-28	2021-04-27
Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2020-04-28	2021-04-27
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2020-04-28	2021-04-27
Amplifier	Agilent	8447F	3113A06717	2020-04-28	2021-04-27
Amplifier	C&D	PAP-1G18	2002	2020-04-28	2021-04-27
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	2020-04-28	2021-04-27
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2020-04-28	2021-04-27
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2020-04-28	2021-04-27

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

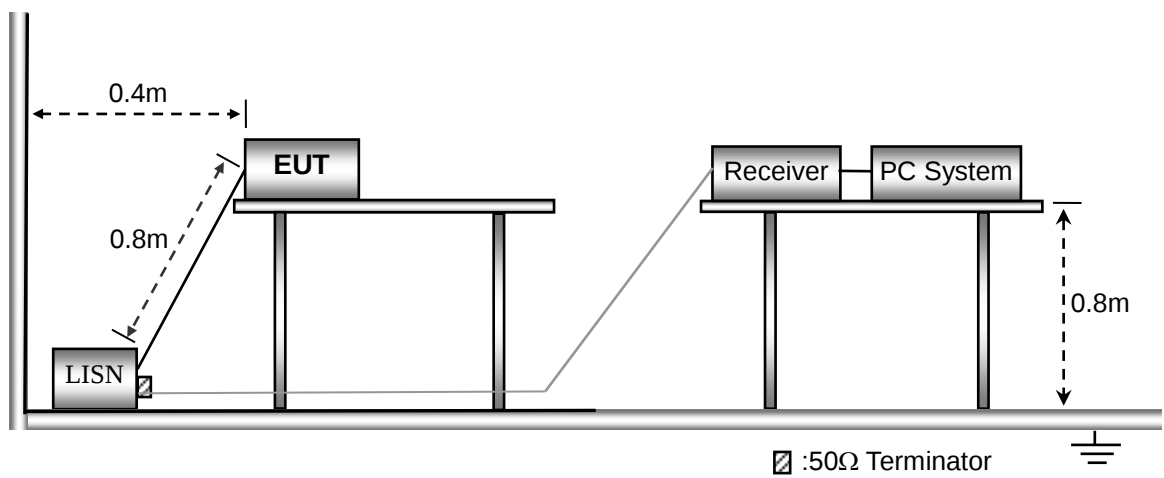
Description of Test	Result
§15.107(a) Conducted Emission	Compliant
§15.109(a) Radiated Emission	Compliant

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

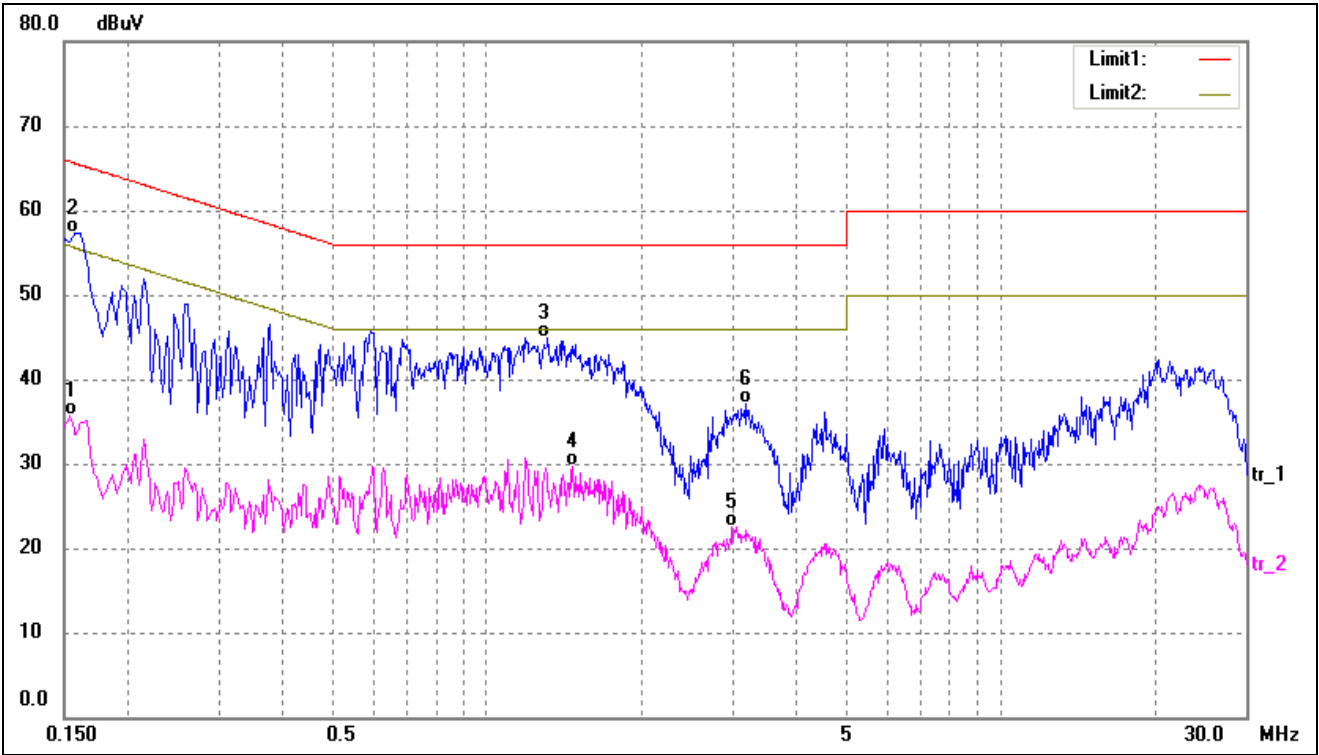
Temperature:	22.5 °C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

3.4 Summary of Test Results

Look at the graphs and data below:

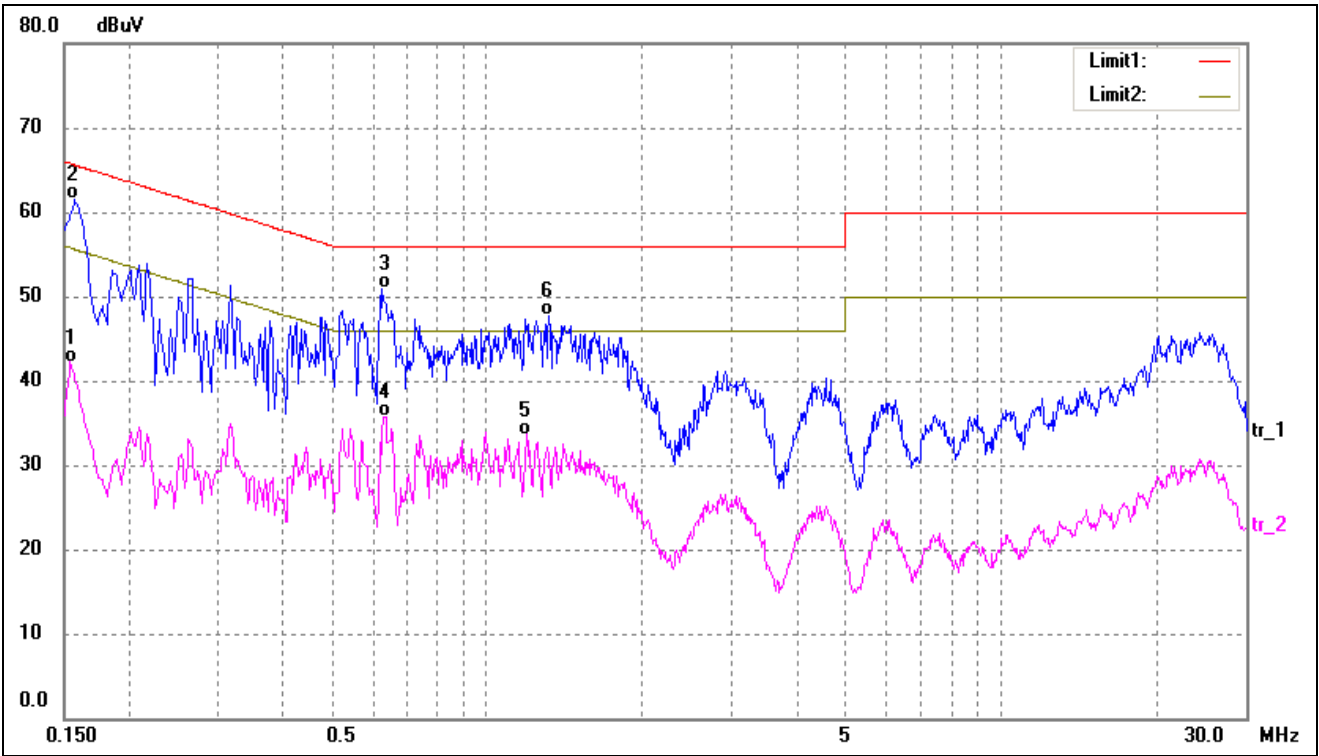
3.5 Conducted Emissions Test Data

Test mode:	TM1	Polarity:	Line
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No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1539	25.52	10.25	35.77	55.78	-20.01	AVG
2*	0.1580	47.09	10.25	57.34	65.56	-8.22	QP
3	1.3099	34.65	10.22	44.87	56.00	-11.13	QP
4	1.4660	19.56	10.23	29.79	46.00	-16.21	AVG
5	2.9980	12.15	10.27	22.42	46.00	-23.58	AVG
6	3.2020	26.87	10.27	37.14	56.00	-18.86	QP

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	0.1539	31.95	10.25	42.20	55.78	-13.58	AVG
2*	0.1580	51.32	10.25	61.57	65.56	-3.99	QP
3	0.6260	40.81	10.19	51.00	56.00	-5.00	QP
4	0.6340	25.56	10.19	35.75	46.00	-10.25	AVG
5	1.1940	23.38	10.22	33.60	46.00	-12.40	AVG
6	1.3180	37.44	10.22	47.66	56.00	-8.34	QP

4. RADIATED EMISSION

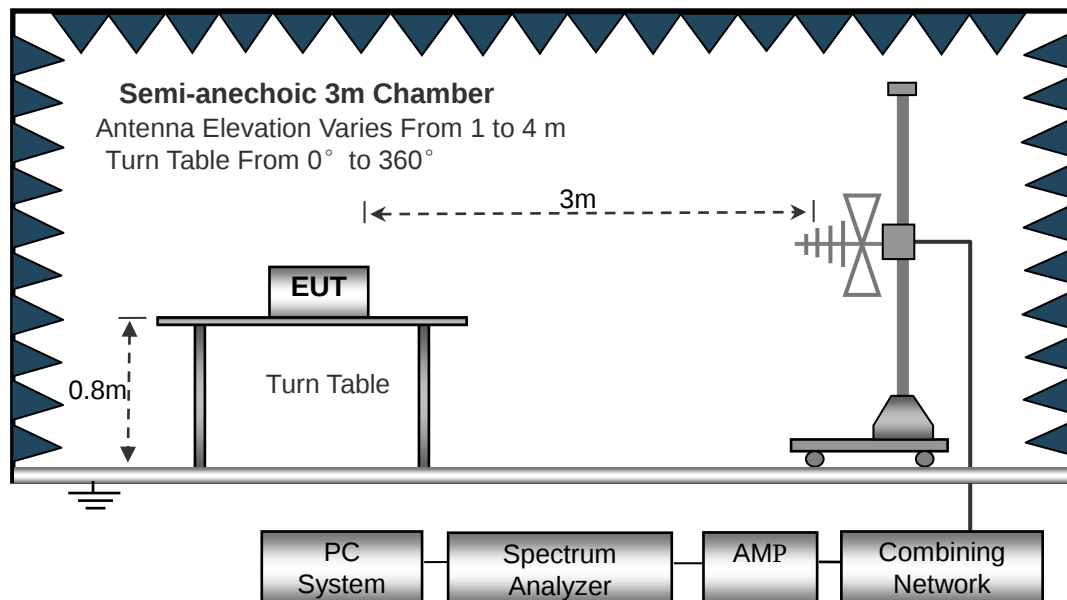
4.1 Test Procedure

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 Block Diagram of Test Setup



4.3 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

4.4 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:

$$\begin{aligned}\text{Corr. Ampl.} &= \text{Indicated Reading} + \text{Correct} \\ \text{Correct} &= \text{Ant. Factor} + \text{Cable Loss} - \text{Ampl. Gain}\end{aligned}$$

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

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15.109(a) Limit}$$

4.5 Environmental Conditions

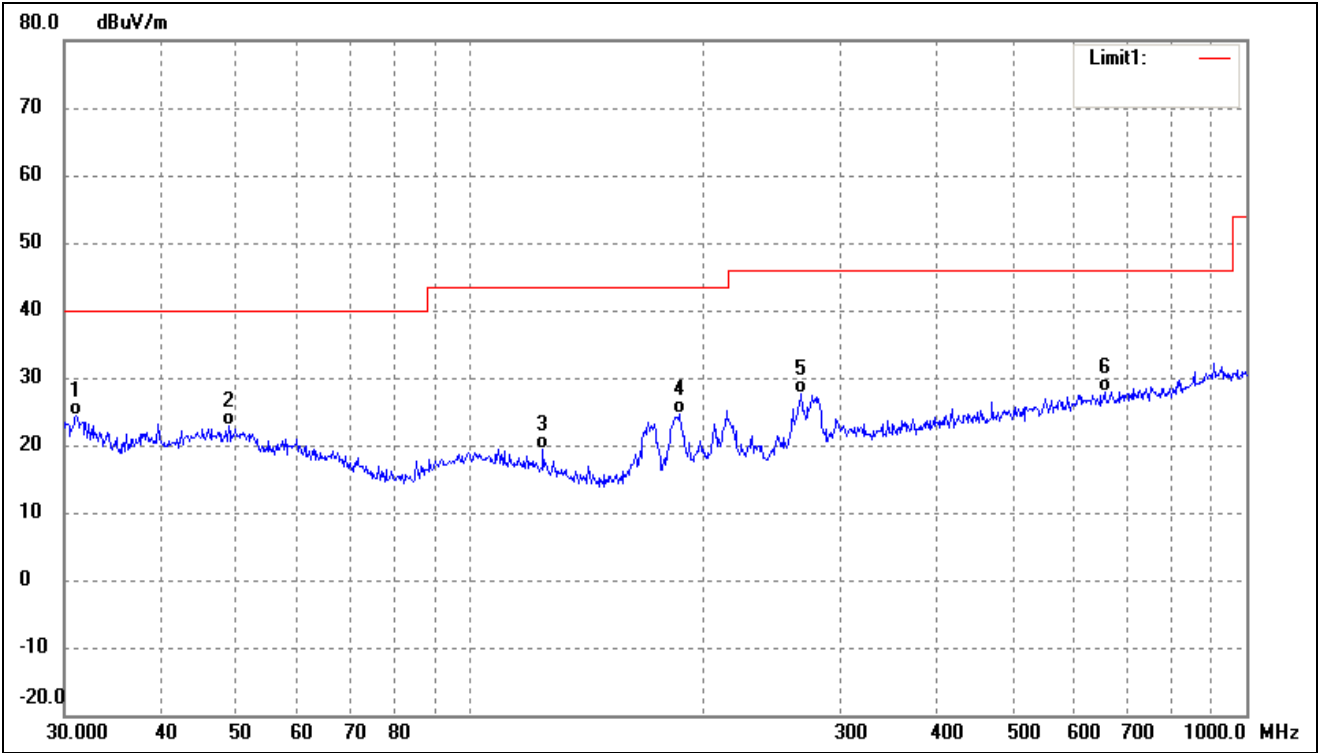
Temperature:	22.5 °C
Relative Humidity:	55 %
ATM Pressure:	1011 mbar

4.6 Summary of Test Results

Look at the graphs and data below:

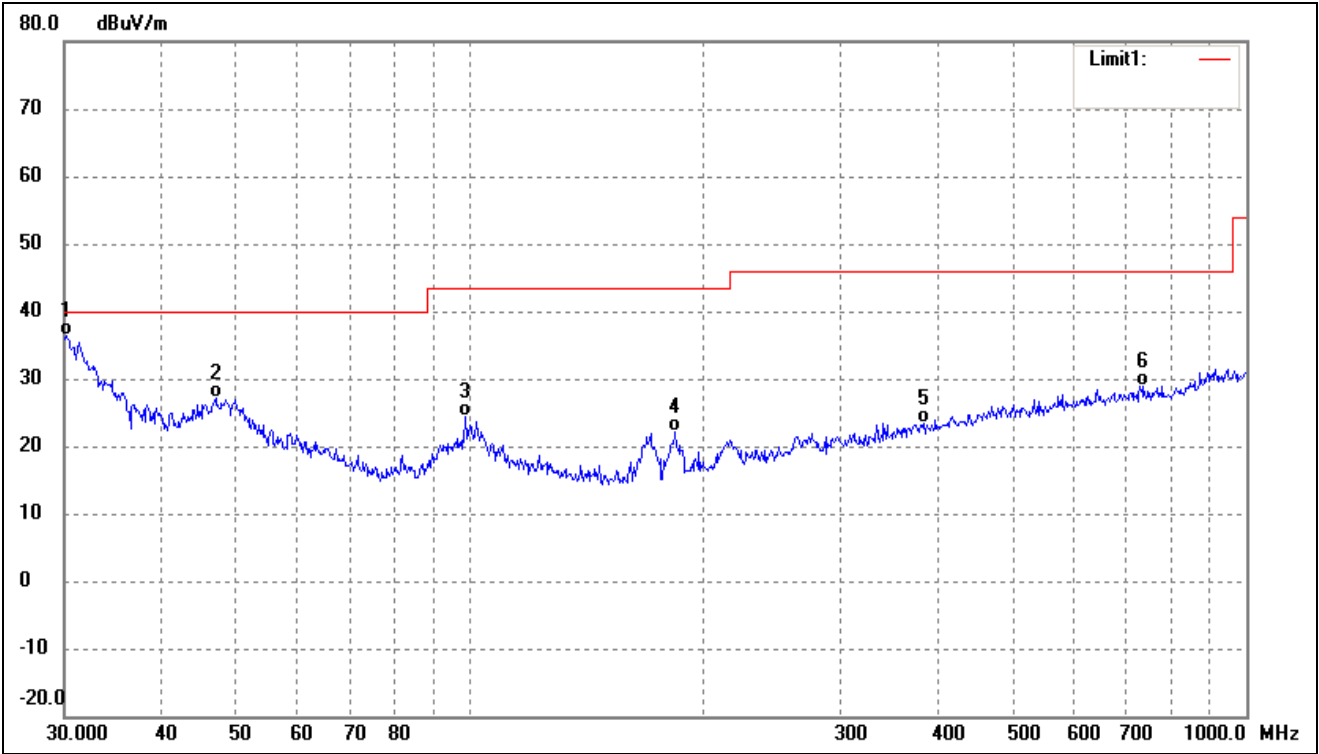
➤ Below 1GHz

Test mode:	TM1	Polarity:	Horizontal
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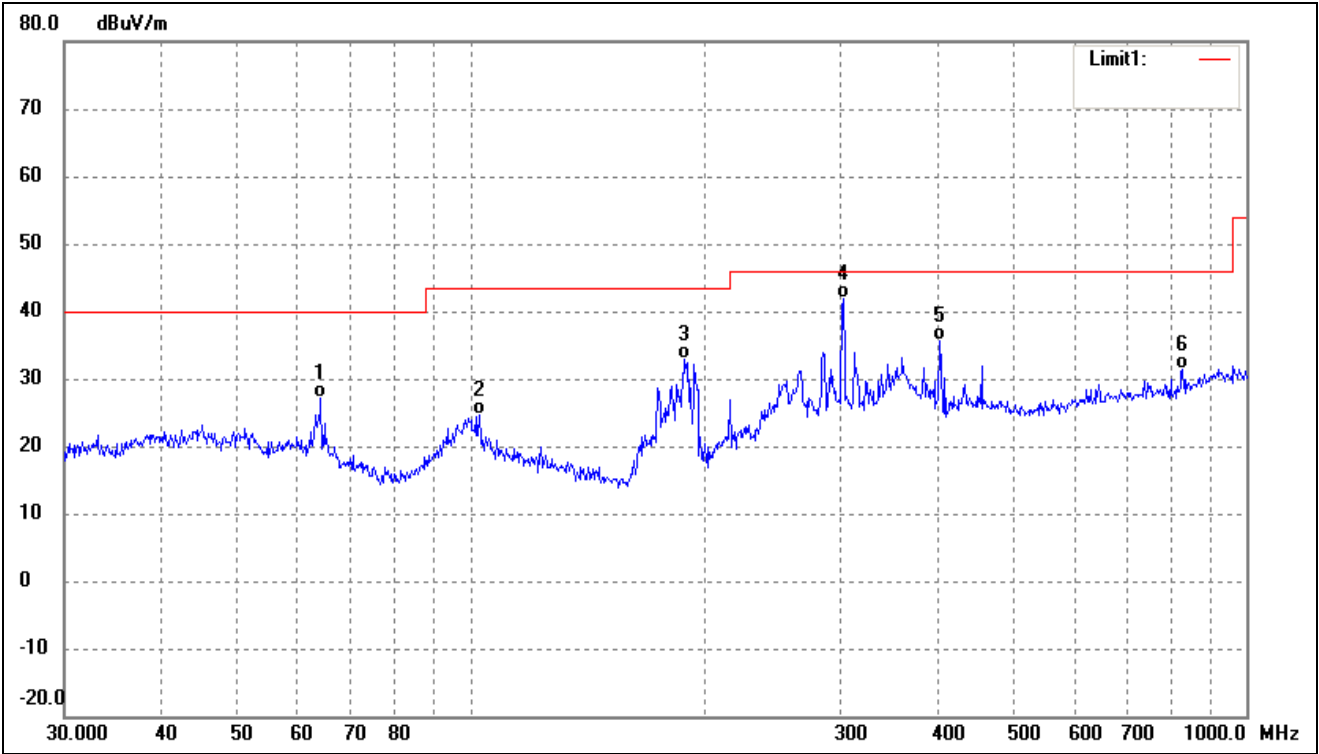
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	31.0706	38.39	-14.09	24.30	40.00	-15.70	-	-	QP
2	48.8429	34.43	-11.60	22.83	40.00	-17.17	-	-	QP
3	124.1330	34.88	-15.40	19.48	43.50	-24.02	-	-	QP
4	185.7882	38.13	-13.61	24.52	43.50	-18.98	-	-	QP
5	266.6089	38.44	-10.81	27.63	46.00	-18.37	-	-	QP
6	656.5300	30.13	-2.24	27.89	46.00	-18.11	-	-	QP

Test mode:	TM1	Polarity:	Vertical
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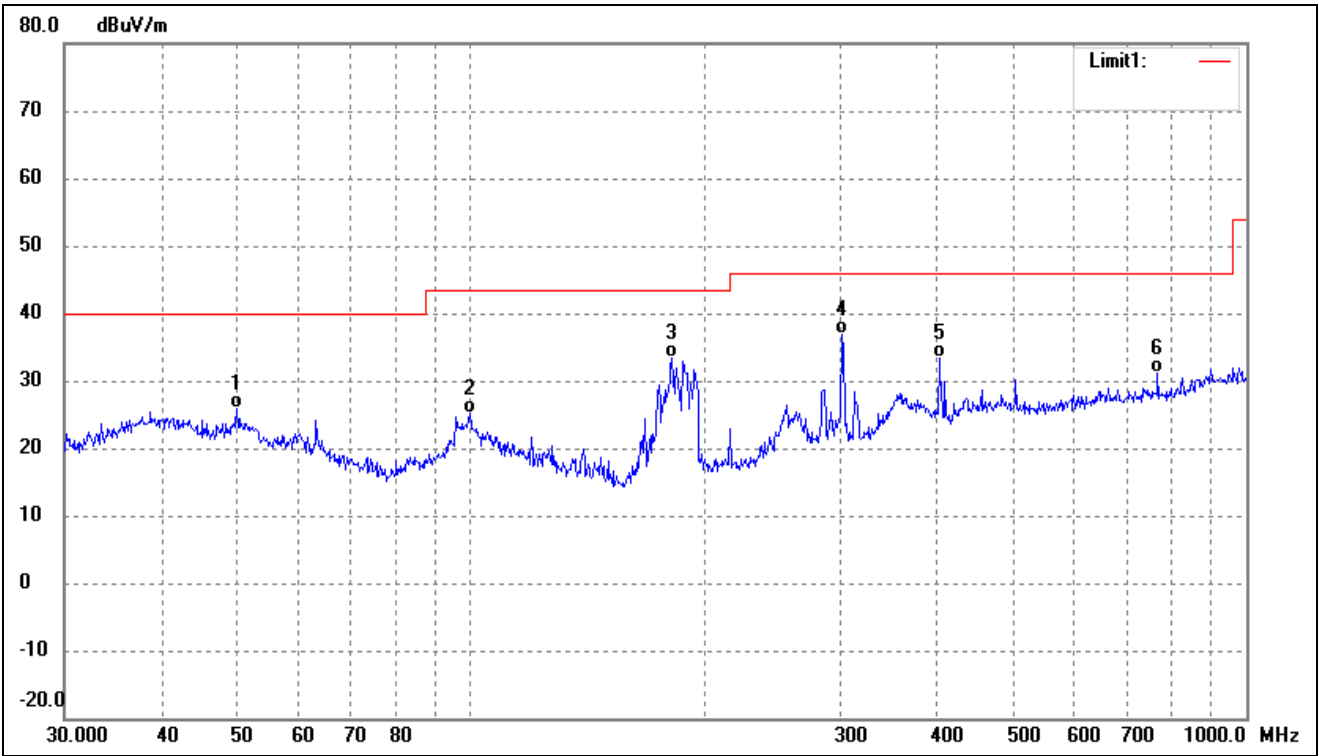
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	30.2111	50.44	-14.14	36.30	40.00	-3.70	-	-	QP
2	46.9948	38.75	-11.69	27.06	40.00	-12.94	-	-	QP
3	98.4866	37.83	-13.57	24.26	43.50	-19.24	-	-	QP
4	183.8440	35.94	-13.86	22.08	43.50	-21.42	-	-	QP
5	383.9318	30.35	-6.93	23.42	46.00	-22.58	-	-	QP
6	734.4913	29.97	-1.10	28.87	46.00	-17.13	-	-	QP

Test mode:	TM2	Polarity:	Horizontal
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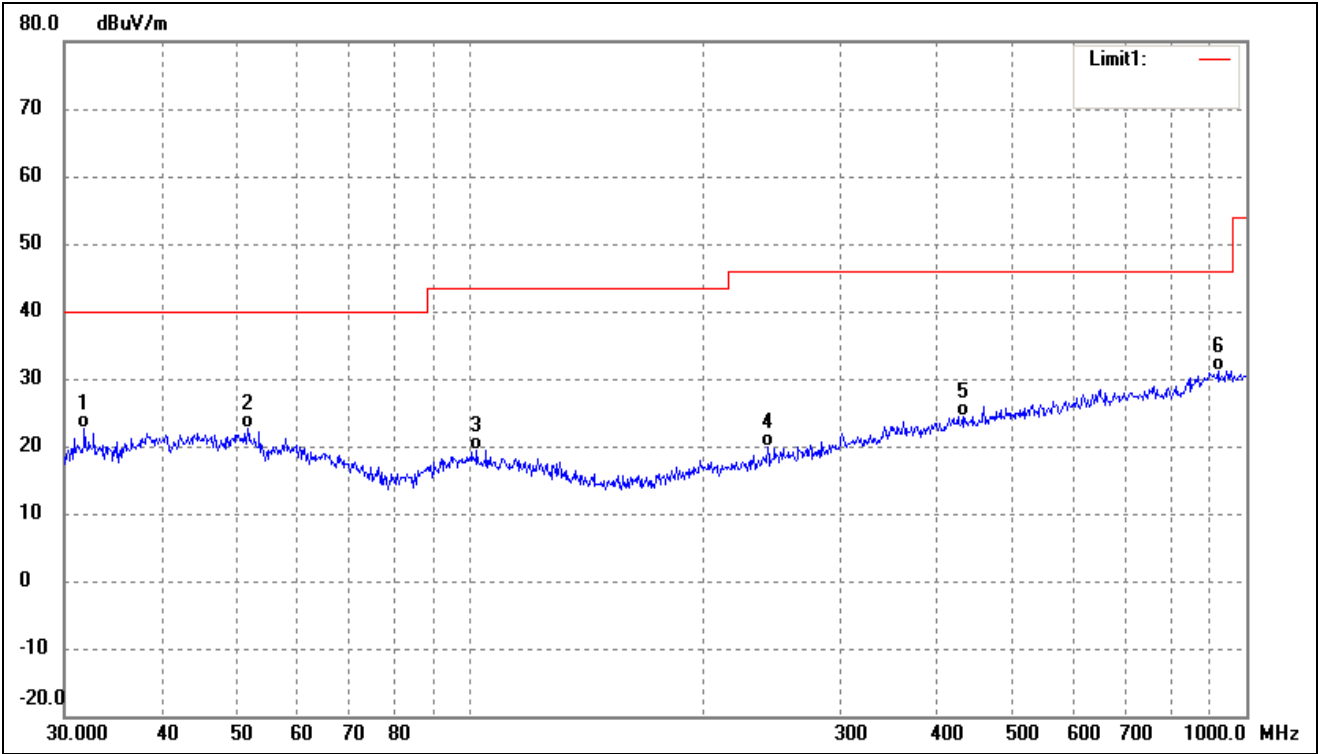
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	64.2074	40.88	-13.77	27.11	40.00	-12.89	-	-	QP
2	102.7192	37.95	-13.32	24.63	43.50	-18.87	-	-	QP
3	189.0743	46.19	-13.22	32.97	43.50	-10.53	-	-	QP
4	302.4812	50.70	-8.93	41.77	46.00	-4.23	-	-	QP
5	403.2500	41.90	-6.39	35.51	46.00	-10.49	-	-	QP
6	827.4934	31.40	0.05	31.45	46.00	-14.55	-	-	QP

Test mode:	TM2	Polarity:	Vertical
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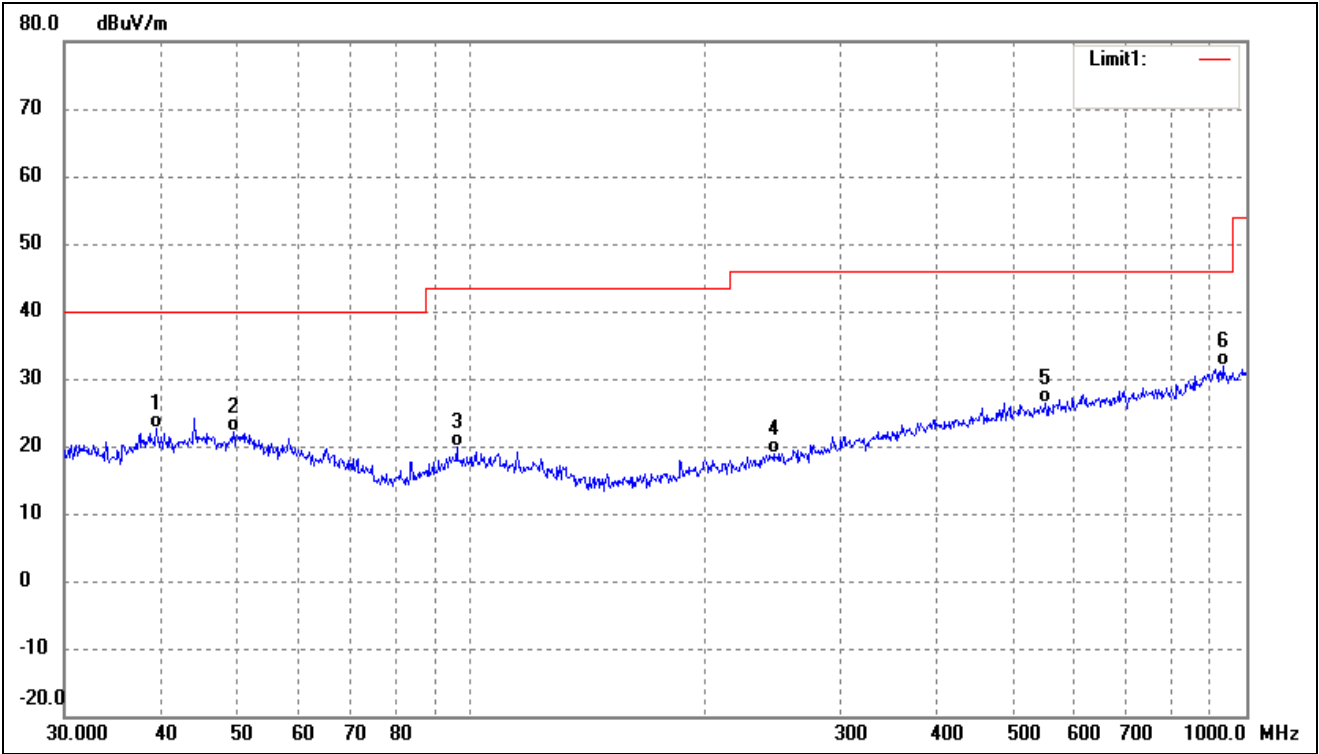
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	50.0566	37.38	-11.55	25.83	40.00	-14.17	-	-	QP
2	99.8777	38.41	-13.34	25.07	43.50	-18.43	-	-	QP
3	181.9202	47.45	-14.08	33.37	43.50	-10.13	-	-	QP
4	301.4224	45.72	-8.92	36.80	46.00	-9.20	-	-	QP
5	401.8385	39.69	-6.42	33.27	46.00	-12.73	-	-	QP
6	768.7481	32.37	-1.14	31.23	46.00	-14.77	-	-	QP

Test mode:	TM3	Polarity:	Horizontal
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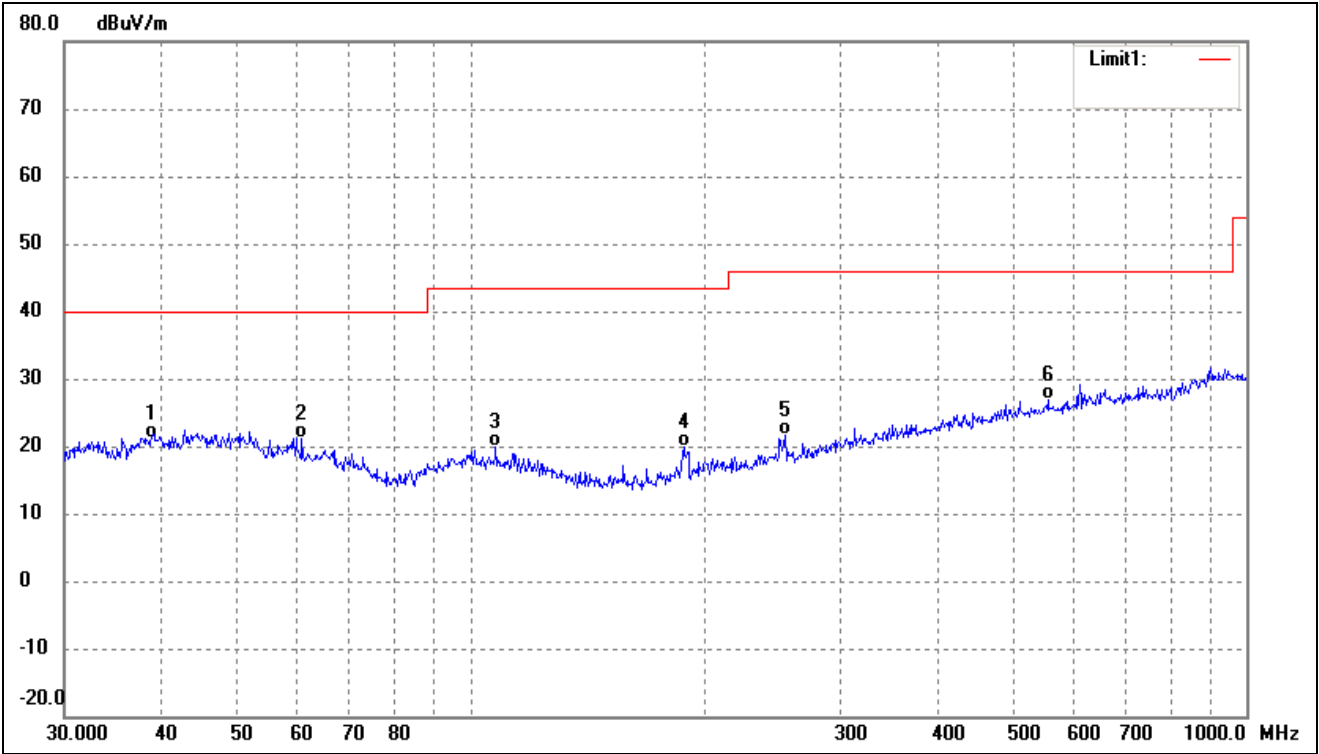
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	31.8427	36.64	-14.05	22.59	40.00	-17.41	-	-	QP
2	51.6616	34.54	-12.00	22.54	40.00	-17.46	-	-	QP
3	102.0014	32.69	-13.32	19.37	43.50	-24.13	-	-	QP
4	241.6763	31.10	-11.34	19.76	46.00	-26.24	-	-	QP
5	431.0316	30.27	-5.81	24.46	46.00	-21.54	-	-	QP
6	919.2866	29.42	1.78	31.20	46.00	-14.80	-	-	QP

Test mode:	TM3	Polarity:	Vertical
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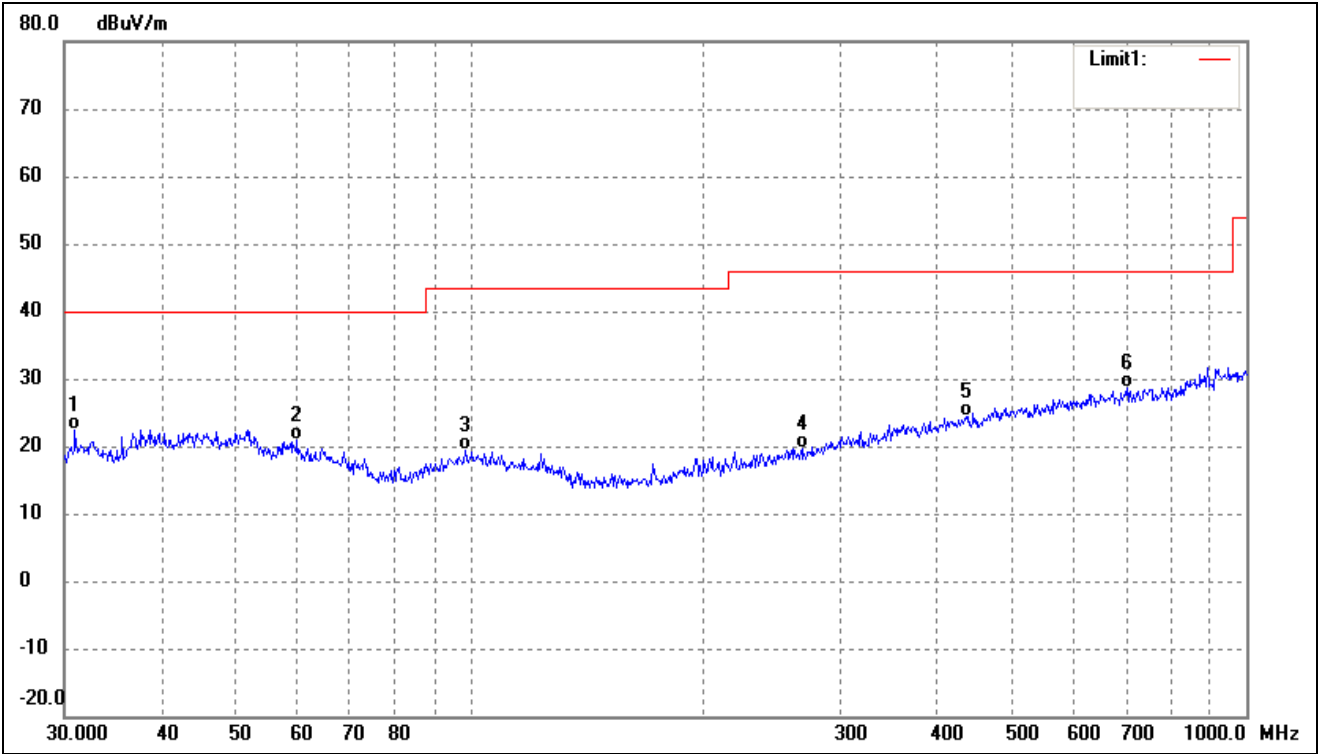
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	39.4371	34.75	-12.19	22.56	40.00	-17.44	-	-	QP
2	49.5328	33.63	-11.56	22.07	40.00	-17.93	-	-	QP
3	96.0986	33.79	-13.96	19.83	43.50	-23.67	-	-	QP
4	246.8149	30.00	-11.09	18.91	46.00	-27.09	-	-	QP
5	550.9480	30.08	-3.75	26.33	46.00	-19.67	-	-	QP
6	932.2715	30.18	1.71	31.89	46.00	-14.11	-	-	QP

Test mode:	TM4	Polarity:	Horizontal
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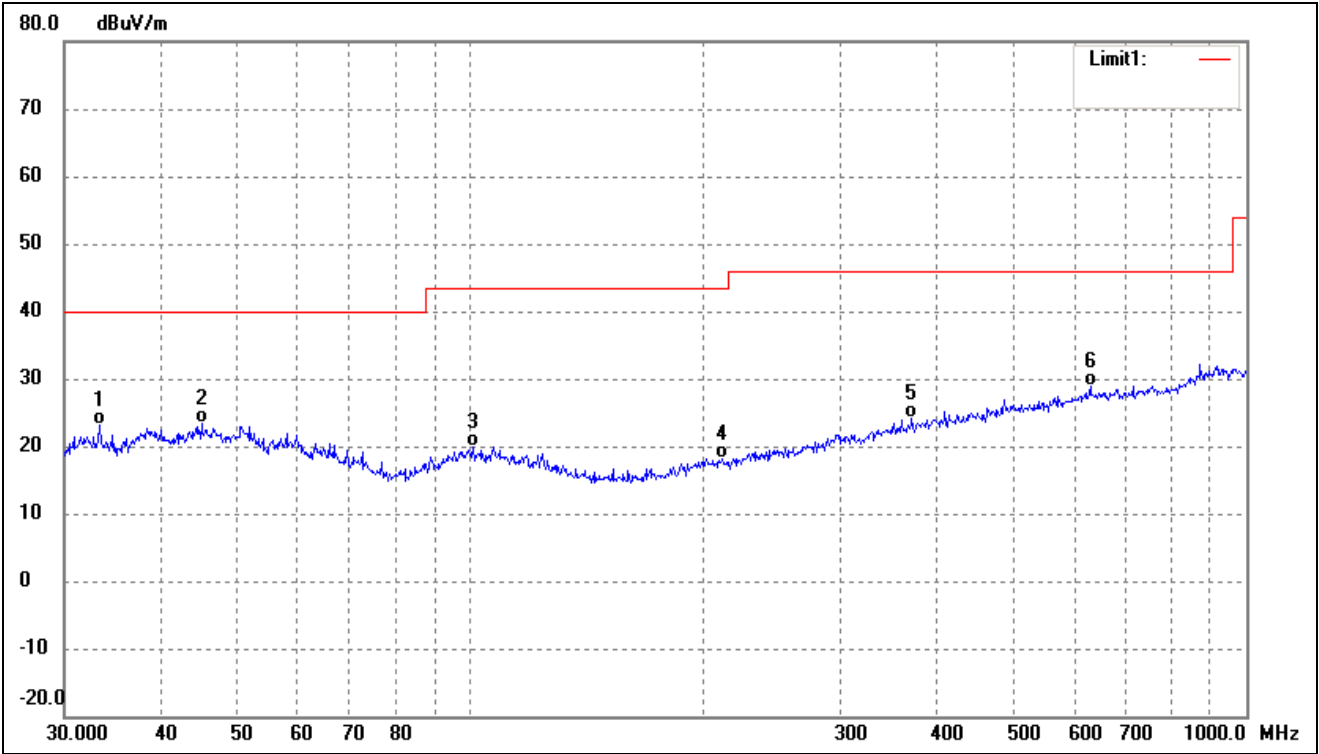
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	38.8878	33.60	-12.40	21.20	40.00	-18.80	-	-	QP
2	60.7044	34.37	-13.12	21.25	40.00	-18.75	-	-	QP
3	107.8877	33.07	-13.31	19.76	43.50	-23.74	-	-	QP
4	188.4125	33.28	-13.30	19.98	43.50	-23.52	-	-	QP
5	254.7284	32.59	-10.88	21.71	46.00	-24.29	-	-	QP
6	554.8254	30.36	-3.56	26.80	46.00	-19.20	-	-	QP

Test mode:	TM4	Polarity:	Vertical
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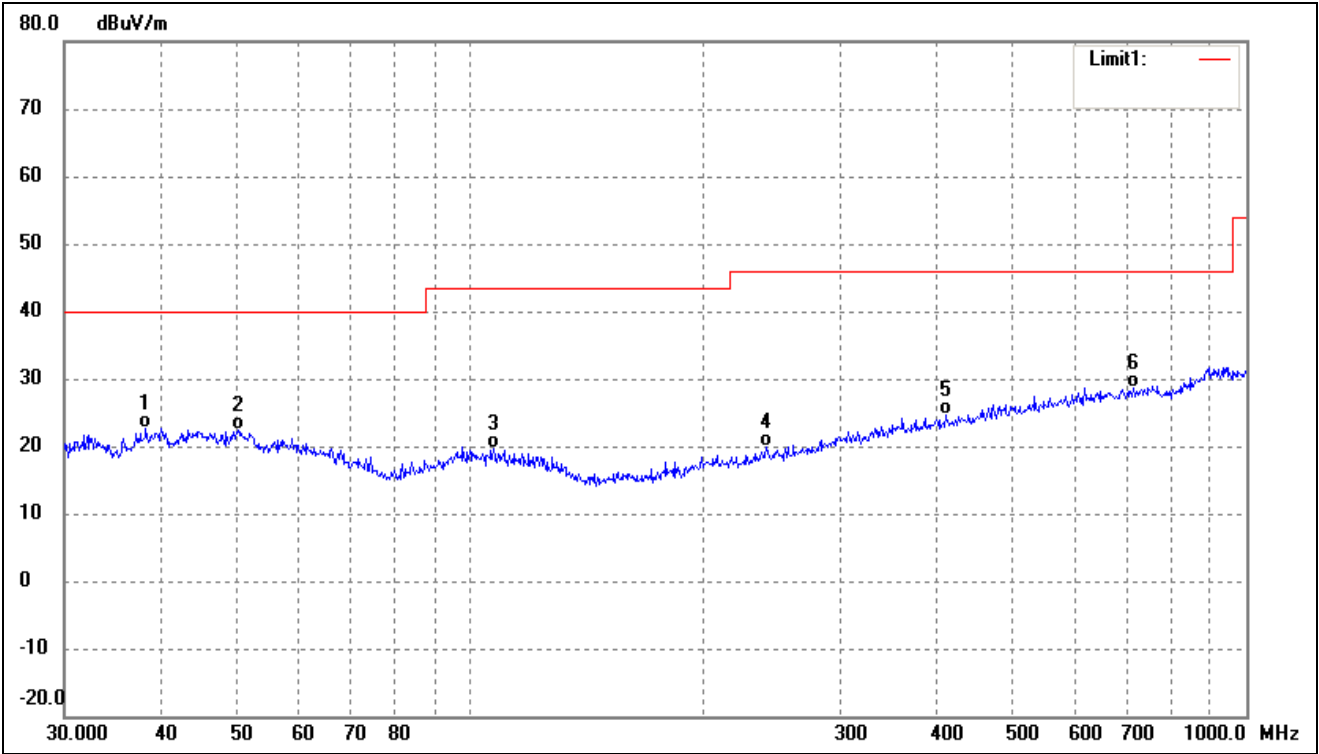
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	30.9618	36.54	-14.09	22.45	40.00	-17.55	-	-	QP
2	59.8588	33.79	-12.99	20.80	40.00	-19.20	-	-	QP
3	98.4865	32.85	-13.57	19.28	43.50	-24.22	-	-	QP
4	267.5455	30.42	-10.80	19.62	46.00	-26.38	-	-	QP
5	435.5898	30.23	-5.77	24.46	46.00	-21.54	-	-	QP
6	701.7609	30.40	-1.81	28.59	46.00	-17.41	-	-	QP

Test mode:	TM5	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	33.3279	37.06	-13.97	23.09	40.00	-16.91	-	-	QP
2	45.0583	35.16	-11.80	23.36	40.00	-16.64	-	-	QP
3	100.9339	33.15	-13.32	19.83	43.50	-23.67	-	-	QP
4	211.5265	30.42	-12.29	18.13	43.50	-25.37	-	-	QP
5	370.7023	31.33	-7.24	24.09	46.00	-21.91	-	-	QP
6	629.4772	31.05	-2.20	28.85	46.00	-17.15	-	-	QP

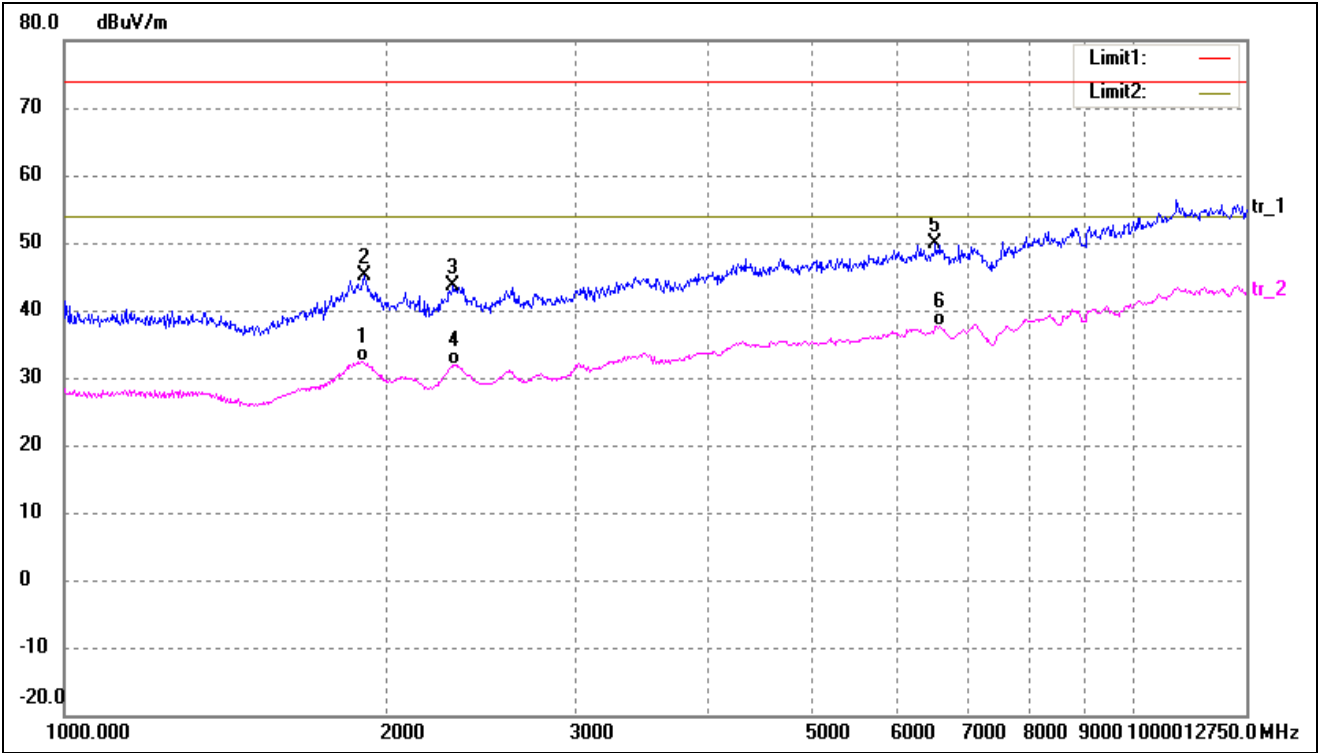
Test mode:	TM5	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	38.2120	35.24	-12.66	22.58	40.00	-17.42	-	-	QP
2	50.2324	33.91	-11.60	22.31	40.00	-17.69	-	-	QP
3	107.1337	32.96	-13.31	19.65	43.50	-23.85	-	-	QP
4	240.8304	31.16	-11.37	19.79	46.00	-26.21	-	-	QP
5	410.3825	30.83	-6.22	24.61	46.00	-21.39	-	-	QP
6	716.6820	30.01	-1.28	28.73	46.00	-17.27	-	-	QP

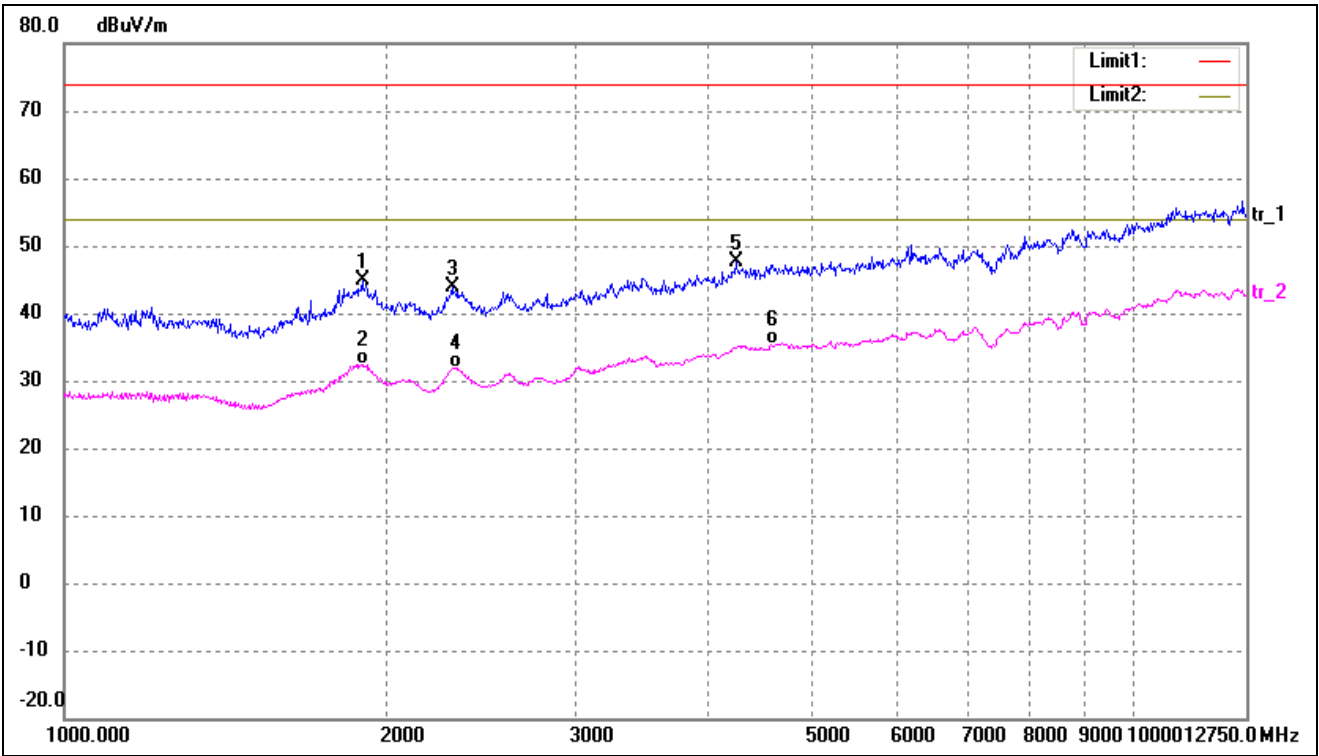
➤ Above 1GHz

Test mode:	TM1 (worst case)	Polarity:	Horizontal
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No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	1899.278	41.00	-8.55	32.45	54.00	-21.55	-	-	AVG
2	1908.972	53.90	-8.71	45.19	74.00	-28.81	-	-	peak
3	2310.537	53.40	-9.66	43.74	74.00	-30.26	-	-	peak
4	2316.426	41.60	-9.66	31.94	54.00	-22.06	-	-	AVG
5	6527.712	52.20	-2.29	49.91	74.00	-24.09	-	-	peak

Test mode:	TM1 (worst case)	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	1899.278	53.33	-8.55	44.78	74.00	-29.22	-	-	peak
2	1899.278	41.03	-8.55	32.48	54.00	-21.52	-	-	AVG
3	2304.662	53.52	-9.68	43.84	74.00	-30.16	-	-	peak
4	2322.330	41.56	-9.63	31.93	54.00	-22.07	-	-	AVG
5	4245.509	53.27	-5.74	47.53	74.00	-26.47	-	-	peak
6	4582.422	40.06	-4.66	35.40	54.00	-18.60	-	-	AVG

Remark: ‘-’Means’ the test Degree and Height are not recorded by the test software and only show the worst case in the test report.

APPENDIX PHOTOGRAPHS

Please refer to “ANNEX”

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