

TEST REPORT

Reference No...... : WTX24X07178901W
FCC ID..... : 2A9FO-MD-091P
Applicant..... : ZHUHAI MEDING TECHNOLOGY CO.,LTD
Address..... : Floor 2,Building 6A,ZHIZAO DAJIE,JINHE ROAD,HONGQI TOWN,JINWAN
DISTRICT,ZHUHAI,GUANGDONG, China
Manufacturer..... : The same as Applicant
Address..... : The same as Applicant
Product Name..... : Multi-function Emergency Radio With LCD Screen
Model No...... : MD-091P
Standards..... : **FCC PART15 SUBPART B**
Date of Receipt sample..... : 2024-07-30
Date of Test..... : 2024-07-30 to 2024-08-01
Date of Issue..... : 2024-08-01
Test Report Form No...... : WTX_FCC PART15B_001
Test Result..... : **Pass**

Remarks:

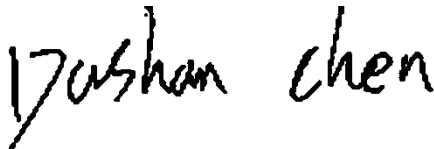
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of approver.

Prepared By:

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
Tel.: +86-755-33663308 Fax.: +86-755-33663309 Email: sem@waltek.com.cn

Tested by:



Dashan Chen

Approved by:



Jason Su

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Report version

Version No.	Date of issue	Description
Rev.00	2024-08-01	Original
/	/	/

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

General Description of EUT	
Product Name:	Multi-function Emergency Radio With LCD Screen
Trade Name:	/
Model No.:	MD-091P
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:	USB DC5V; Battery DC3.7V
Rated Current:	/
Rated Power:	/
Battery Capacity:	10000mAh
Lowest Internal Frequency:	/
Highest Internal Frequency:	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	FM	Worst case FM 98MHz	Battery powered

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	0.95	Unshielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Adapter	Xiaomi	MDY-12-EQ	QA622020106645G

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
☐ Chamber A:Below 1GHz					
Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2024-02-24	2025-02-23
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2024-03-19	2025-03-18
Amplifier	HP	8447F	2805A03475	2024-02-24	2025-02-23
Loop Antenna	Schwarz beck	FMZB 1516	9773	2024-02-26	2025-02-25
Trilog Broadband Antenna	Schwarz beck	VULB9163	9163-333	2024-02-24	2025-02-23
☐ Chamber A:Above 1GHz					
Amplifier	C&D	PAP-1G18	2002	2024-02-27	2025-02-26
Horn Antenna	ETS	3117	00086197	2024-02-26	2025-02-25
☐ Chamber B:Below 1GHz					
EMI Test Receiver	Rohde & Schwarz	ESPI	101391	2024-02-24	2025-02-23
Trilog Broadband Antenna	Schwarz beck	VULB9163(B)	9163-635	2024-03-17	2027-03-16
Amplifier	Agilent	8447D	2944A10457	2024-02-24	2025-02-23
☒ Chamber C:Below 1GHz					
EMI Test Receiver	Rohde & Schwarz	ESIB 26	100401	2024-02-27	2025-02-26
Trilog Broadband Antenna	Schwarz beck	VULB 9168	1194	2024-04-18	2027-04-17
Loop Antenna	Schwarz beck	FMZB 1516	9773	2024-02-26	2025-02-25
Amplifier	HP	8447F	2944A03869	2024-02-24	2025-02-23
☒ Chamber C:Above 1GHz					
EMI Test Receiver	Rohde & Schwarz	ESIB 26	100401	2024-02-27	2025-02-26
Horn Antenna	POAM	RTF-118A	1820	2023-03-10	2026-03-09
Amplifier	Tonscend	TAP01018050	AP22E806235	2024-02-27	2025-02-26
DRG Horn Antenna	A.H. SYSTEMS	SAS-574	571	2024-03-17	2025-03-16
Pre-amplifier	Schwarzbeck	BBV 9721	9721-031	2024-02-29	2025-02-28
☒ Conducted Room 1#					
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2024-02-24	2025-02-23
EMI Test Receiver	Rohde & Schwarz	ESCI	100525	2023-12-12	2024-12-11

AC LISN	Schwarz beck	NSLK8126	8126-279	2024-02-24	2025-02-23
☐ Conducted Room 2#					
EMI Test Receiver	Rohde & Schwarz	ESPI	101259	2024-02-24	2025-02-23
LISN	Rohde & Schwarz	ENV 216	100097	2024-02-24	2025-02-23

Software List			
Description	Manufacturer	Model	Version
EMI Test Software (Radiated Emission)*	Farad	EZ-EMC	RA-03A1
EMI Test Software (Conducted Emission Room 1#)*	Farad	EZ-EMC	RA-03A1
EMI Test Software (Conducted Emission Room 2#)*	SKET	EMC-I	V2.0

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

2. SUMMARY OF TEST RESULTS

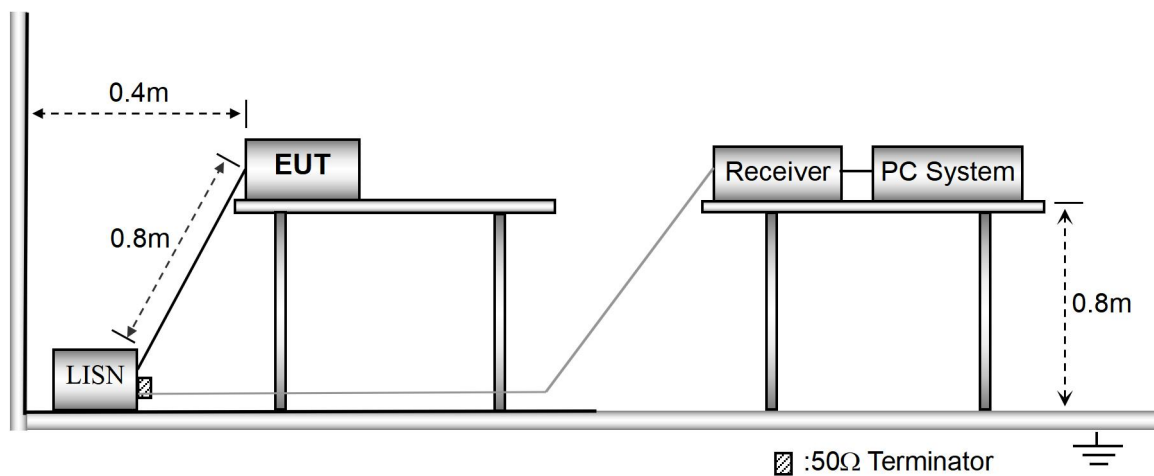
Description of Test	Result
§15.107(a) Conducted Emission	Compliant
§15.109(a) Radiated Emission	Compliant

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



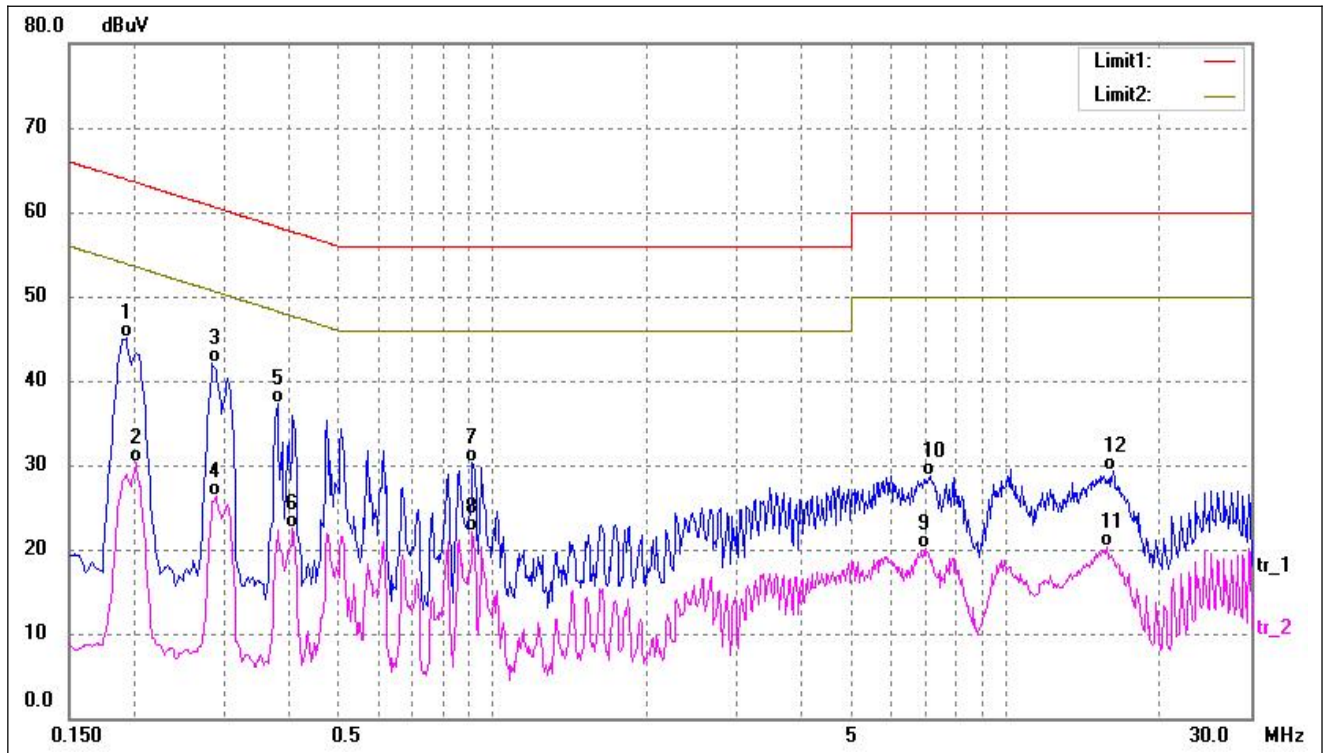
3.3 Environmental Conditions

Temperature:	23.5 °C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

3.4 Summary of Test Results

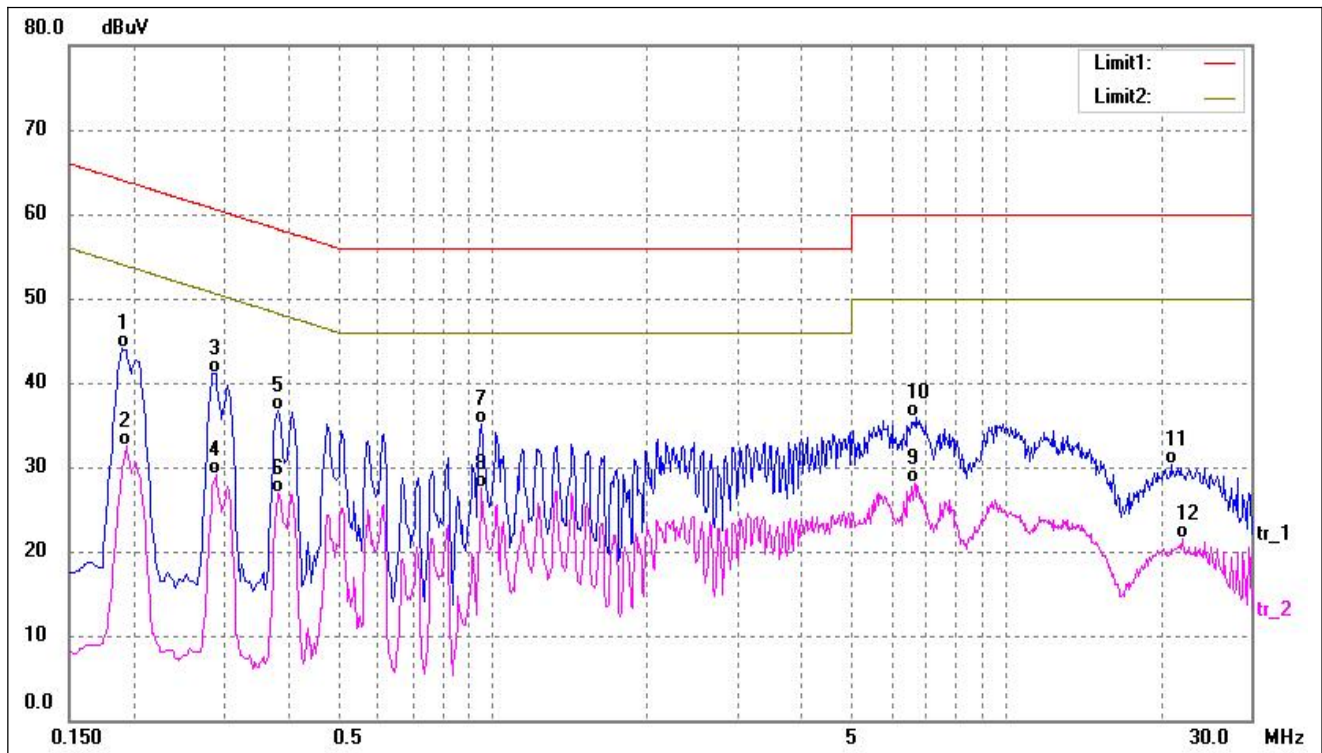
Look at the graphs and data below:

Test mode:	TM1	Polarity:	Line
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1940	34.64	10.39	45.03	63.86	-18.83	QP
2	0.2020	19.89	10.39	30.28	53.52	-23.24	AVG
3*	0.2860	31.73	10.31	42.04	60.64	-18.60	QP
4	0.2900	15.94	10.31	26.25	50.52	-24.27	AVG
5	0.3820	27.05	10.27	37.32	58.23	-20.91	QP
6	0.4100	12.32	10.26	22.58	47.65	-25.07	AVG
7	0.9180	20.13	10.15	30.28	56.00	-25.72	QP
8	0.9180	12.04	10.15	22.19	46.00	-23.81	AVG
9	6.9699	9.65	10.38	20.03	50.00	-29.97	AVG
10	7.1499	18.38	10.38	28.76	60.00	-31.24	QP
11	15.7379	9.99	10.24	20.23	50.00	-29.77	AVG
12	16.1818	18.98	10.25	29.23	60.00	-30.77	QP

Test mode:	TM1	Polarity:	Neutral
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No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1900	33.63	10.39	44.02	64.03	-20.01	QP
2	0.1940	22.06	10.39	32.45	53.86	-21.41	AVG
3	0.2860	30.87	10.31	41.18	60.64	-19.46	QP
4	0.2900	18.81	10.31	29.12	50.52	-21.40	AVG
5	0.3820	26.37	10.27	36.64	58.23	-21.59	QP
6	0.3820	16.65	10.27	26.92	48.23	-21.31	AVG
7	0.9500	24.91	10.15	35.06	56.00	-20.94	QP
8*	0.9540	17.33	10.15	27.48	46.00	-18.52	AVG
9	6.6540	17.79	10.38	28.17	50.00	-21.83	AVG
10	6.6660	25.57	10.38	35.95	60.00	-24.05	QP
11	20.9820	19.86	10.36	30.22	60.00	-29.78	QP
12	22.1220	11.18	10.34	21.52	50.00	-28.48	AVG

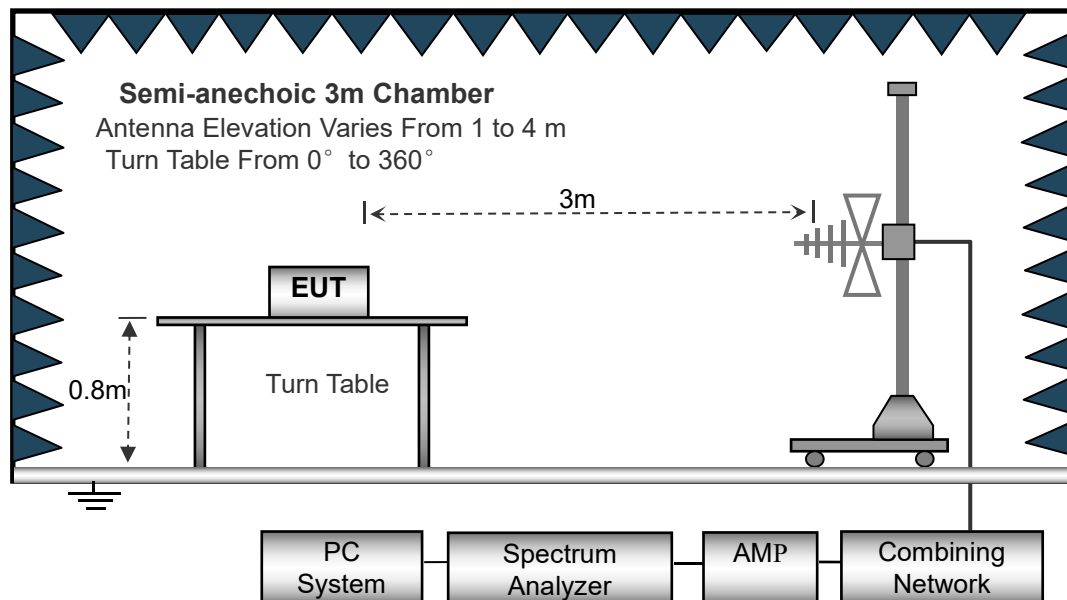
4. RADIATED EMISSION

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:

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

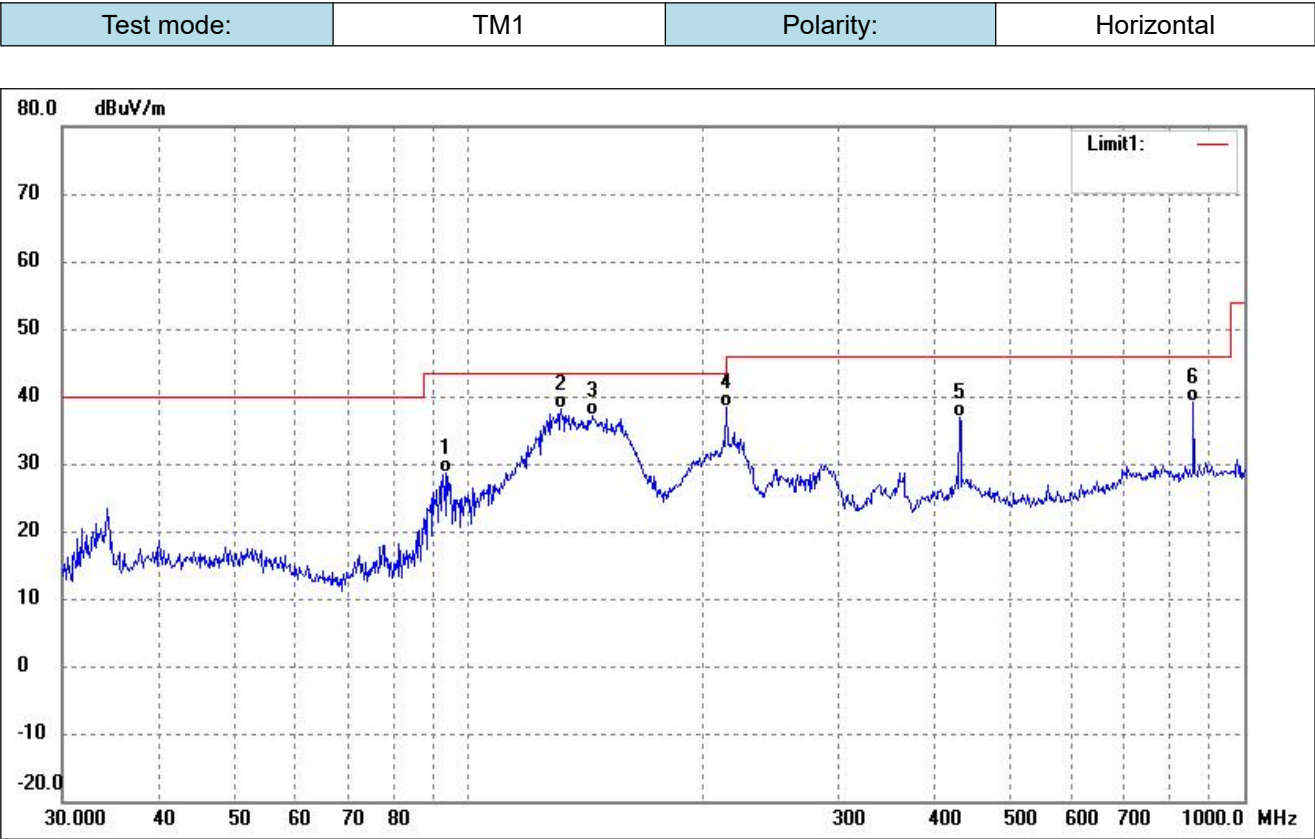
4.5 Environmental Conditions

Temperature:	23.5 °C
Relative Humidity:	54 %
ATM Pressure:	1011 mbar

4.6 Summary of Test Results

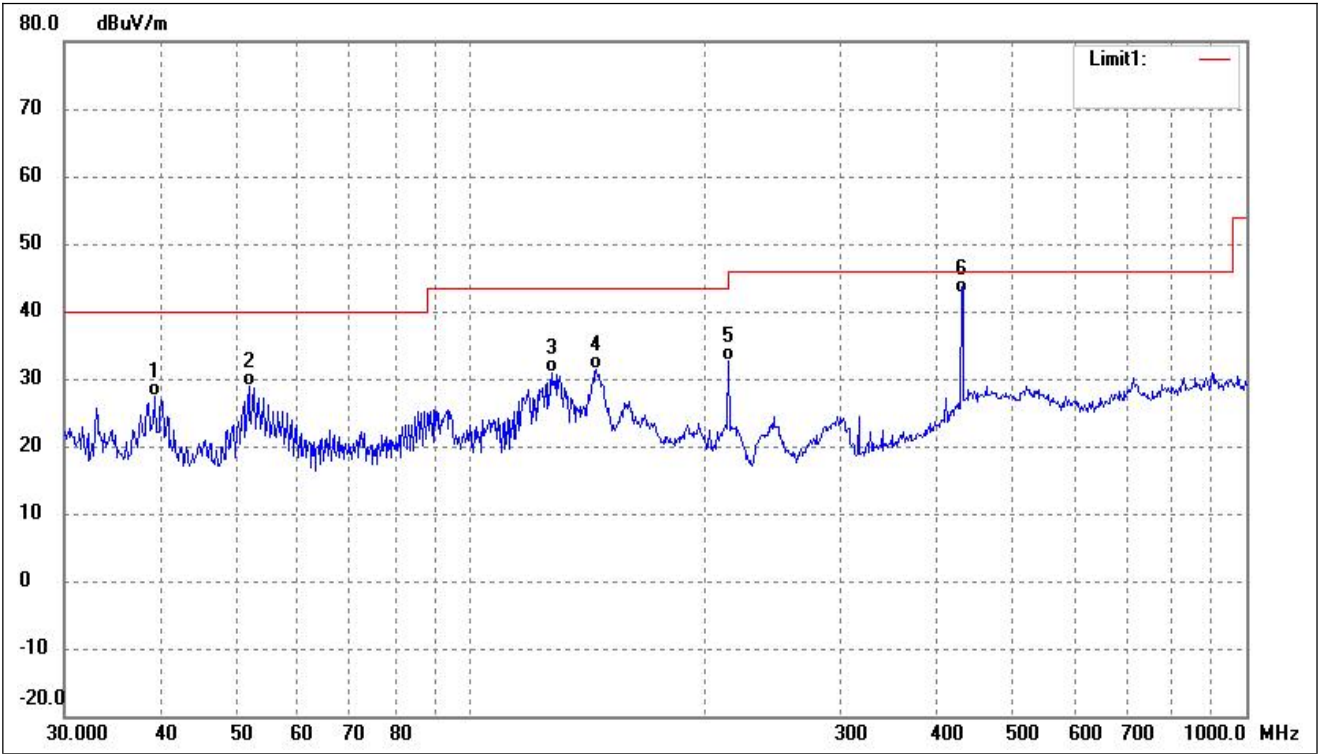
Look at the graphs and data below:

➤ Below 1GHz



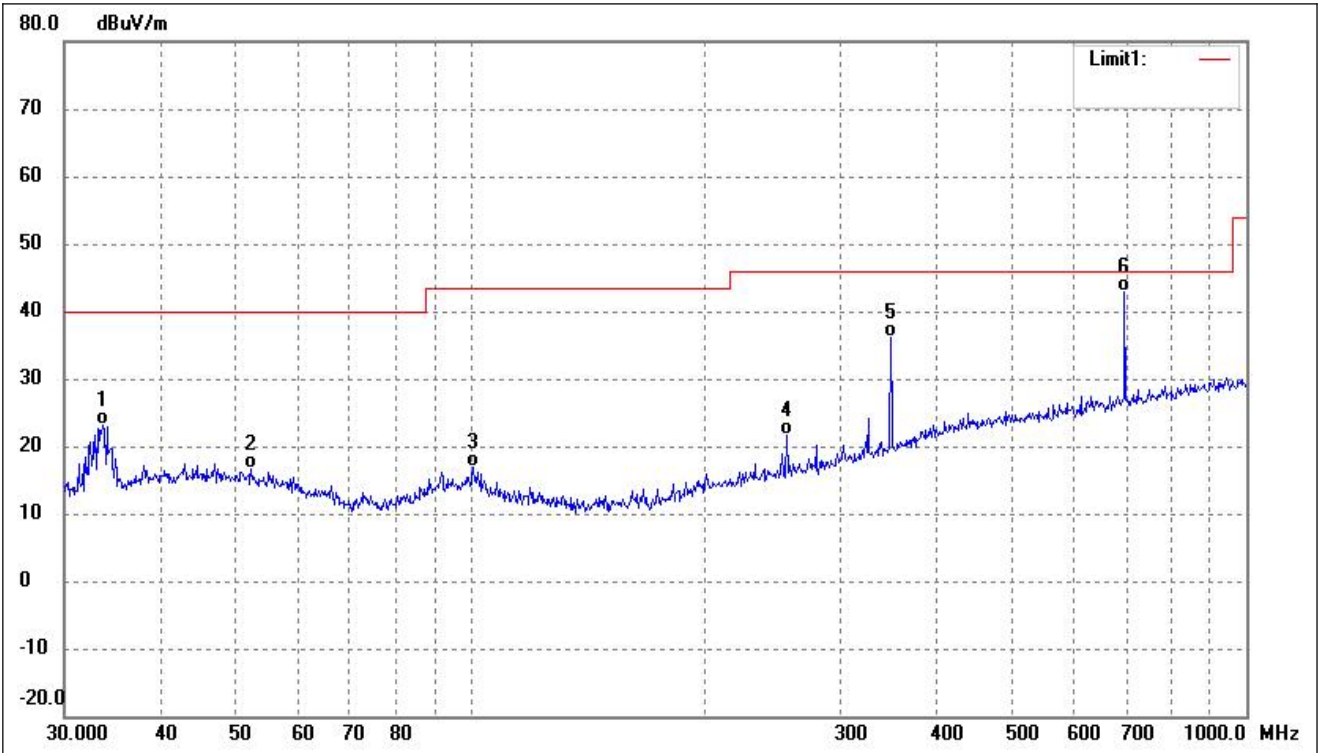
No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	()	(cm)	
1	93.4402	41.19	-12.60	28.59	43.50	-14.91	-	-	QP
2	131.7577	52.89	-14.81	38.08	43.50	-5.42	-	-	QP
3	144.8418	52.28	-15.12	37.16	43.50	-6.34	-	-	QP
4	215.2678	49.79	-11.45	38.34	43.50	-5.16	-	-	QP
5	429.5228	40.76	-3.99	36.77	46.00	-9.23	-	-	QP
6	860.0352	37.92	1.11	39.03	46.00	-6.97	-	-	QP

Test mode:	TM1	Polarity:	Vertical
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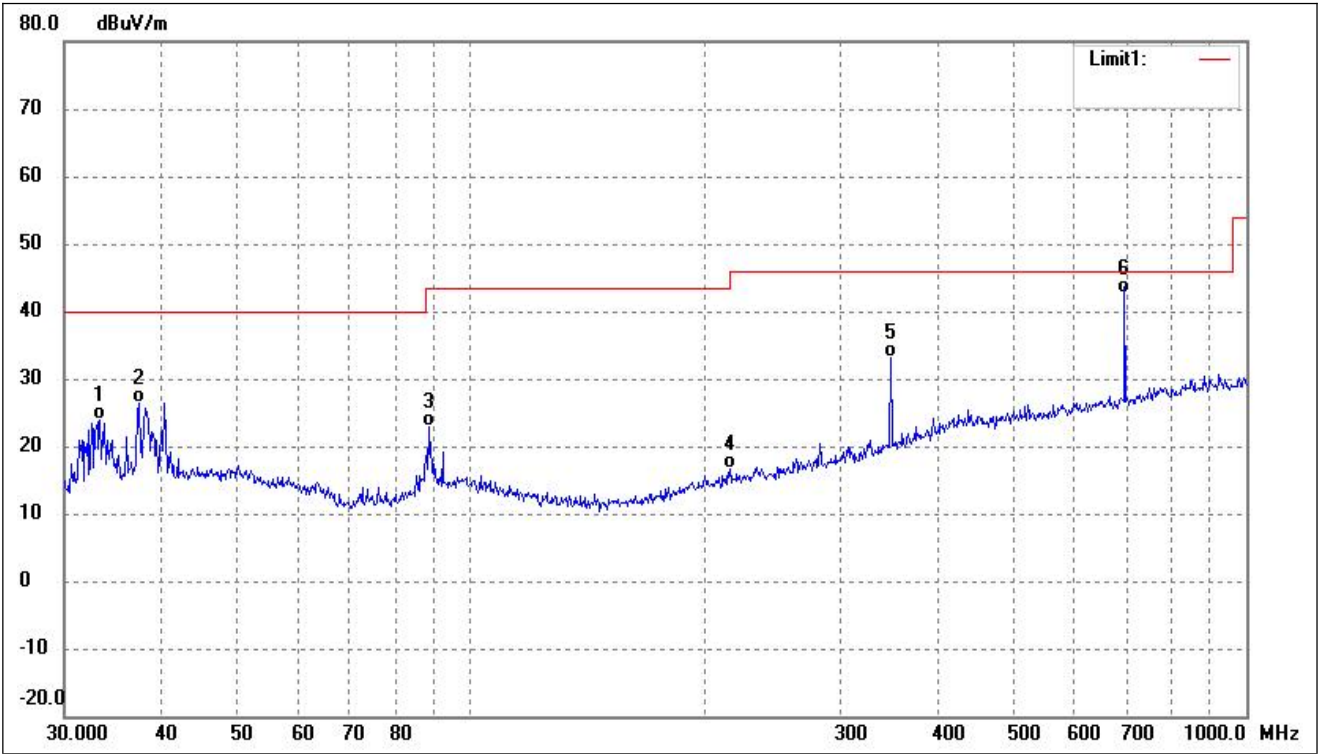
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	39.1616	38.36	-11.09	27.27	40.00	-12.73	-	-	QP
2	51.8430	40.13	-11.33	28.80	40.00	-11.20	-	-	QP
3	127.2176	45.45	-14.53	30.92	43.50	-12.58	-	-	QP
4	145.3506	46.45	-15.12	31.33	43.50	-12.17	-	-	QP
5	215.2678	44.11	-11.45	32.66	43.50	-10.84	-	-	QP
6	429.5228	46.56	-3.99	42.57	46.00	-3.43	-	-	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	33.6802	35.11	-12.07	23.04	40.00	-16.96	-	-	QP
2	52.2079	27.96	-11.40	16.56	40.00	-23.44	-	-	QP
3	100.9339	29.16	-12.23	16.93	43.50	-26.57	-	-	QP
4	255.6231	31.55	-9.99	21.56	46.00	-24.44	-	-	QP
5	348.0274	42.89	-6.75	36.14	46.00	-9.86	-	-	QP
6	696.8567	44.08	-1.24	42.84	46.00	-3.16	-	-	QP

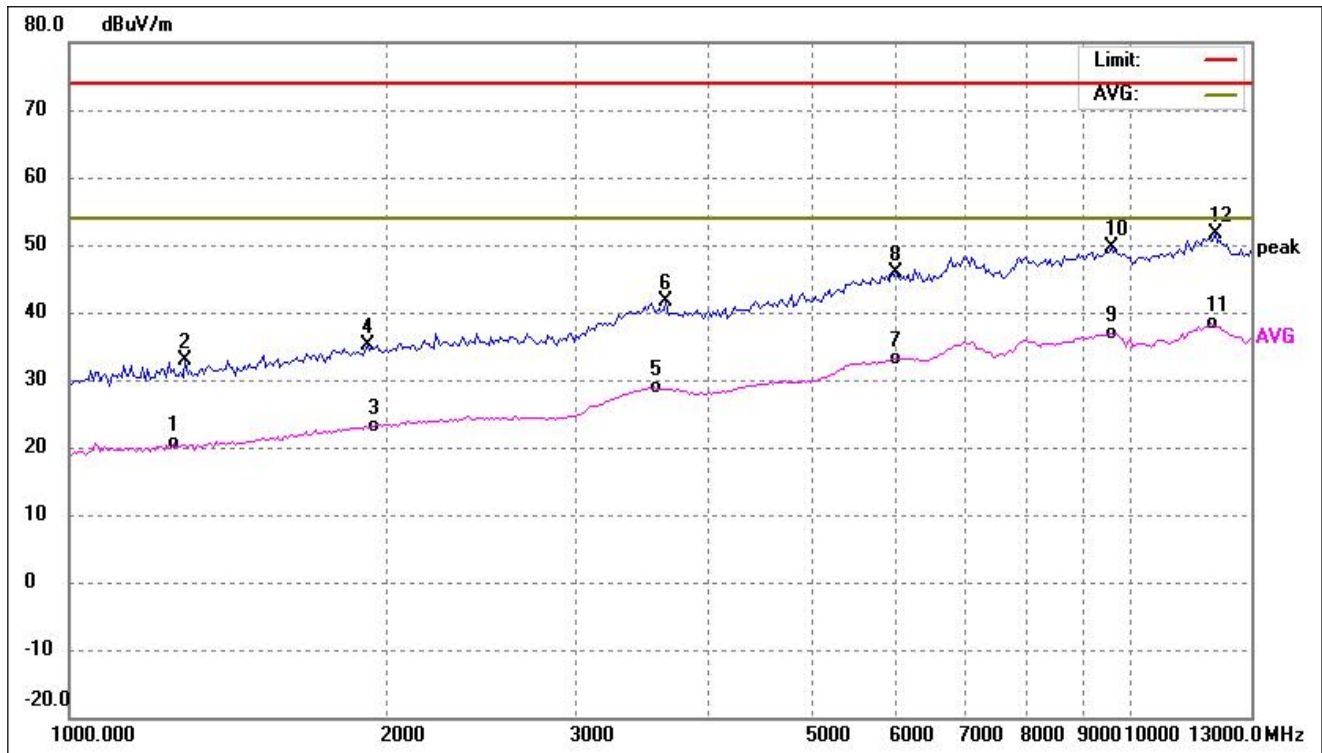
Test mode:	TM2	Polarity:	Vertical
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No.	Frequency (MHz)	Reading (dBuV/m)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ()	Height (cm)	Remark
1	33.3279	36.07	-12.13	23.94	40.00	-16.06	-	-	QP
2	37.4165	37.72	-11.40	26.32	40.00	-13.68	-	-	QP
3	88.3421	36.31	-13.32	22.99	43.50	-20.51	-	-	QP
4	216.0240	28.14	-11.44	16.70	46.00	-29.30	-	-	QP
5	348.0274	39.87	-6.75	33.12	46.00	-12.88	-	-	QP
6	696.8567	43.90	-1.24	42.66	46.00	-3.34	-	-	QP

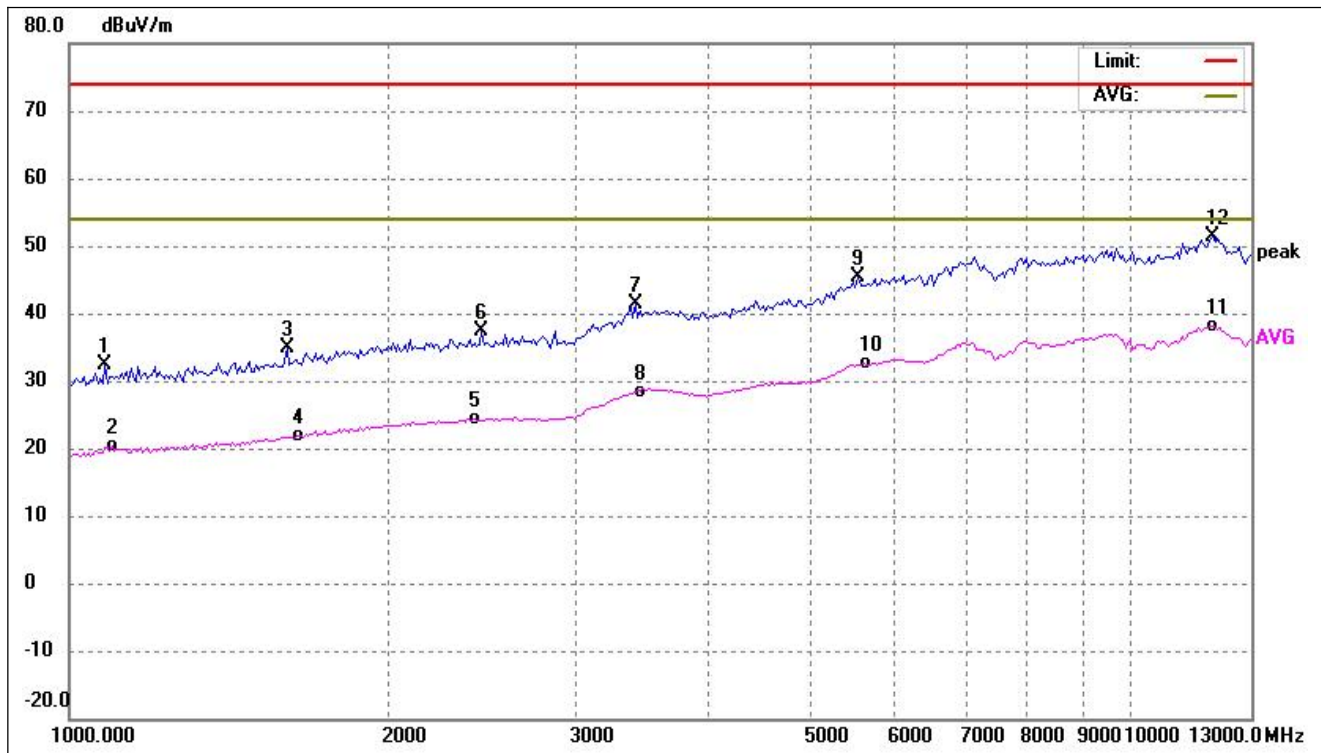
➤ Above 1GHz

Test mode:	TM1(worst case)	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	1253.786	44.10	-23.55	20.55	54.00	-33.45	-	-	AVG
2	1286.427	56.32	-23.44	32.88	74.00	-41.12	-	-	peak
3	1901.271	43.92	-20.85	23.07	54.00	-30.93	-	-	AVG
4	1911.069	55.92	-20.80	35.12	74.00	-38.88	-	-	peak
5	3559.515	43.71	-14.83	28.88	54.00	-25.12	-	-	AVG
6	3652.183	56.47	-14.96	41.51	74.00	-32.49	-	-	peak
7	5982.164	42.85	-9.62	33.23	54.00	-20.77	-	-	AVG
8	6012.992	55.41	-9.56	45.85	74.00	-28.15	-	-	peak
9	9549.976	42.28	-5.30	36.98	54.00	-17.02	-	-	AVG
10	9599.191	54.94	-5.30	49.64	74.00	-24.36	-	-	peak
11	11912.238	40.88	-2.60	38.28	54.00	-15.72	-	-	AVG
12	12035.332	54.29	-2.55	51.74	74.00	-22.26	-	-	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	1080.153	56.87	-24.56	32.31	74.00	-41.69	-	-	peak
2	1096.939	44.73	-24.44	20.29	54.00	-33.71	-	-	AVG
3	1604.635	57.17	-22.31	34.86	74.00	-39.14	-	-	peak
4	1646.410	44.10	-22.11	21.99	54.00	-32.01	-	-	AVG
5	2408.419	43.87	-19.45	24.42	54.00	-29.58	-	-	AVG
6	2445.846	56.79	-19.37	37.42	74.00	-36.58	-	-	peak
7	3416.111	56.65	-15.31	41.34	74.00	-32.66	-	-	peak
8	3416.111	43.58	-15.31	28.27	54.00	-25.73	-	-	AVG
9	5538.256	55.98	-10.69	45.29	74.00	-28.71	-	-	peak
10	5595.485	43.06	-10.55	32.51	54.00	-21.49	-	-	AVG
11	11912.238	40.78	-2.60	38.18	54.00	-15.82	-	-	AVG
12	11973.627	53.93	-2.47	51.46	74.00	-22.54	-	-	peak

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 *****