

FCC Part 15C

Measurement and Test Report

For

Cross Point b.v.

Waanderweg 12, Emmen, 7812 HZ, Netherlands

FCC ID: N9G-CP301MAXRXA

FCC Rule(s):	<u>FCC Part 15.207&15.209</u>
Product Description:	<u>Electronic Article Surveillance(EAS) Pedestal</u>
Tested Model:	<u>MAXUS AM50 Receiver Advertising</u>
Report No.:	<u>STR18078379I</u>
Sample Receipt Date:	<u>2018-07-30</u>
Tested Date:	<u>2018-07-31 to 2018-08-14</u>
Issued Date:	<u>2018-08-15</u>
Tested By:	<u>Long Tang/ Engineer</u> <i>Long Tang</i>
Reviewed By:	<u>Silin Chen / EMC Manager</u> <i>Silin Chen</i>
Approved & Authorized By:	<u>Jandy So / PSQ Manager</u> <i>Jandy So</i>
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.

**TABLE OF CONTENTS**

1. GENERAL INFORMATION.....	3
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	3
1.2 TEST STANDARDS.....	4
1.3 TEST METHODOLOGY.....	4
1.4 TEST FACILITY.....	4
1.5 EUT SETUP AND OPERATION MODE.....	5
1.6 MEASUREMENT UNCERTAINTY.....	5
1.7 TEST EQUIPMENT LIST AND DETAILS.....	6
2. SUMMARY OF TEST RESULTS.....	7
3. ANTENNA REQUIREMENT.....	8
3.1 STANDARD APPLICABLE.....	8
3.2 TEST RESULT.....	8
4. RADIATED EMISSION.....	9
4.1 STANDARD APPLICABLE.....	9
4.2 TEST PROCEDURE.....	9
4.3 TEST RECEIVER SETUP.....	10
4.4 CORRECTED AMPLITUDE & MARGIN CALCULATION.....	10
4.5 ENVIRONMENTAL CONDITIONS.....	11
4.6 SUMMARY OF TEST RESULTS/PLOTS.....	11



1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Cross Point b.v.
Address of applicant: Waanderweg 12, Emmen, 7812 HZ, Netherlands

Manufacturer: Cross Point b.v.
Address of manufacturer: Waanderweg 12, Emmen, 7812 HZ, Netherlands

General Description of EUT	
Product Name:	Electronic Article Surveillance(EAS) Pedestal
Trade Name:	/
Model No.:	MAXUS AM50 Receiver Advertising
Adding Model(s):	MAXUS AM50 Receiver
Rated Voltage:	DC32.5V
Power Adapter Model:	Input: 230VAC 50-60Hz 500mA/ 115VAC 50-60Hz 1A Output: 32.5VDC 1.6A + synchronization signal
<i>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 MAXUS AM50 Receiver Advertising, but the circuit and the electronic construction do not change, declared by the manufacturer.</i>	

Technical Characteristics of EUT	
Frequency Range:	58kHz(Receiver)
Antenna Type:	Integral Antenna
Radio Technology:	Acoustic Magnetic



1.2 Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.207: Conducted limits.

FCC Rules Part 15.209: Radiated emission limits; general requirements.

ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

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 C63.10-2013,

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted accordingly in reference to the Operating Instructions.

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. 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	58kHz Receiver Working	Power On	AC 120V60Hz

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
/	/	/	/

1.6 Measurement Uncertainty

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



1.7 Test Equipment List and Details

Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
Spectrum Analyzer	Agilent	E4407B	MY41440400	2018-05-22	2019-05-21
Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2018-05-22	2019-05-21
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2018-05-22	2019-05-21
Amplifier	Agilent	8447F	3113A06717	2018-05-22	2019-05-21
Amplifier	C&D	PAP-1G18	2002	2018-05-22	2019-05-21
Broadband Antenna	Schwarz beck	VULB9163	9163-333	2017-06-08	2020-06-07
Horn Antenna	ETS	3117	00086197	2017-06-08	2020-06-07
Loop Antenna	Schwarz beck	FMZB 1516	9773	2017-06-08	2020-06-07
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2018-05-22	2019-05-21
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2018-05-22	2019-05-21
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2018-05-22	2019-05-21



2. SUMMARY OF TEST RESULTS

Description of Test	Result
§15.203 Antenna Requirement	Compliant
§15.207 (a) Conducted Emission	N/A*
§15.209 Radiated Emission	Compliant

N/A: not applicable

*Remark: The AC Line Conducted Emissions testing is exempted because it is powered by the transmitter via POE.



3. Antenna Requirement

3.1 Standard Applicable

According to FCC Part 15.203, 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.

3.2 Test Result

This product has two integral antennas, fulfill the requirement of this section.

4. RADIATED EMISSION

4.1 Standard Applicable

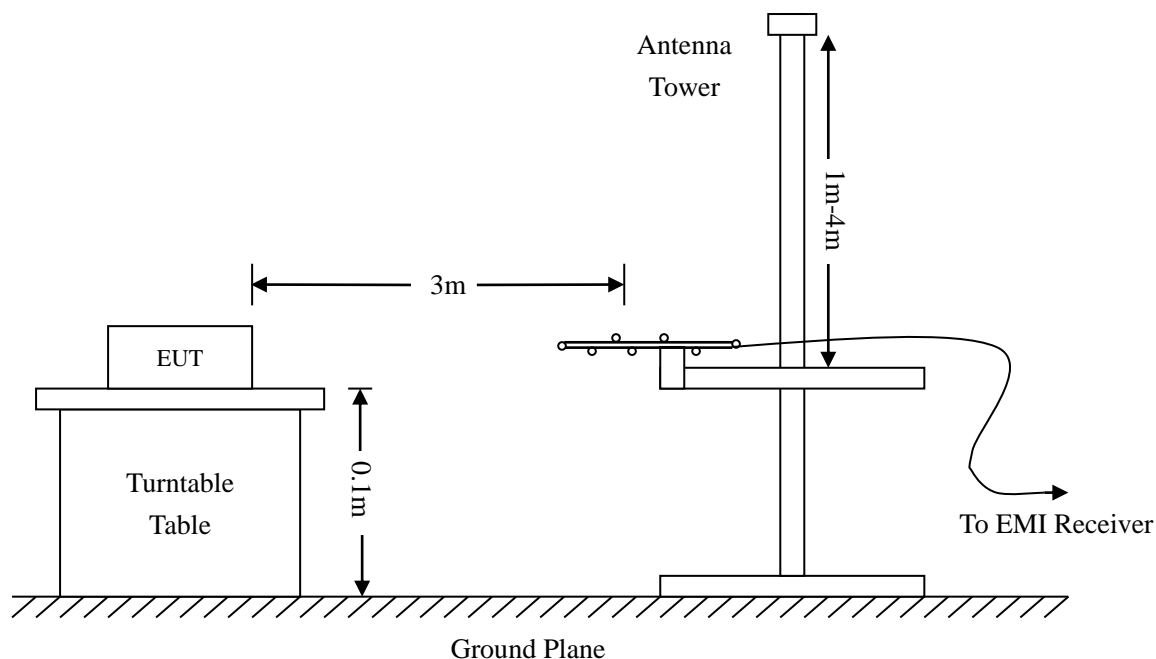
According to 15.209(a) Radiated emission limits; general requirements.

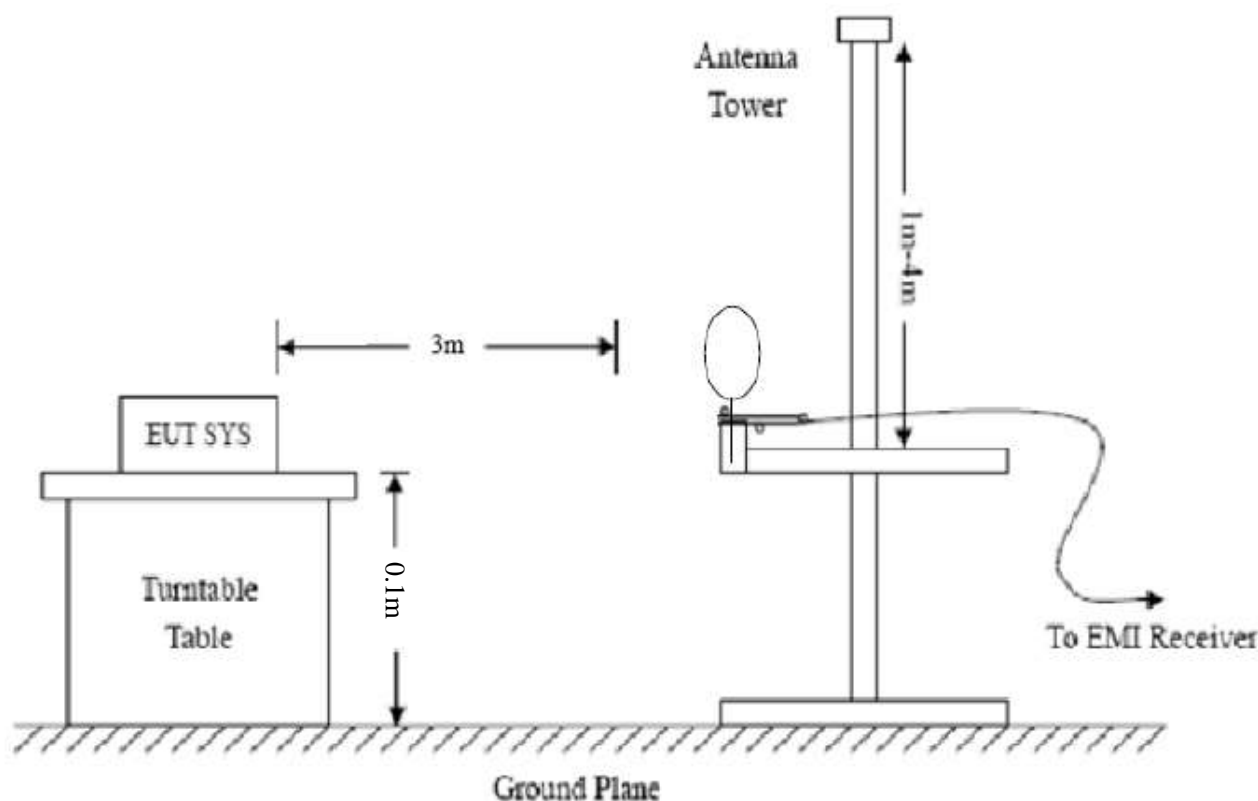
Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

4.2 Test Procedure

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.209 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.





4.3 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:

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

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -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:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15.209(a) Limit}$$

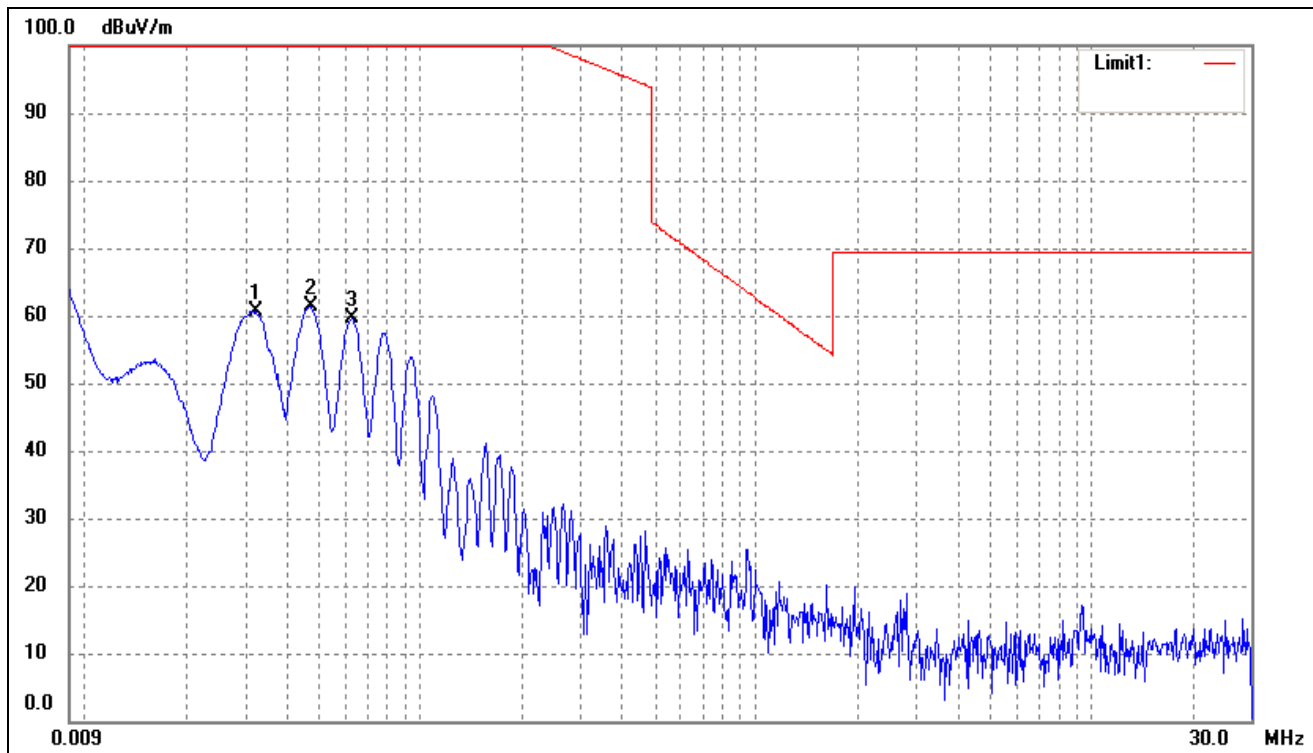
4.5 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	55 %
ATM Pressure:	1011 mbar

4.6 Summary of Test Results/Plots

➤ Below 30MHz

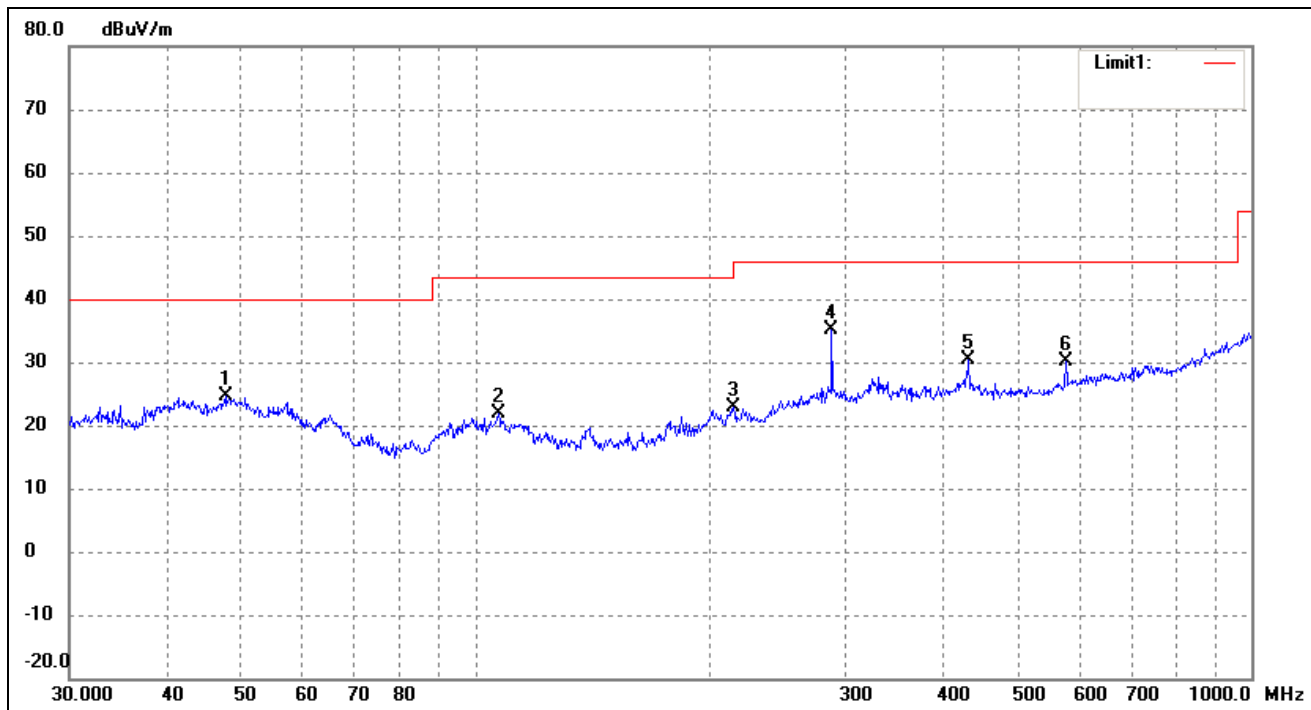
Test mode:	TM1	Polarity:	Horizontal
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No.	Frequency (MHz)	Reading (dBuA)	Correct dB	Result (dBuA)	Limit (dBuA)	Margin (dB)	Degree ()	Height (cm)	Remark
1	0.0324	41.53	19.18	60.71	117.25	-56.54	81	100	QP
2	0.0471	42.05	19.28	61.33	114.02	-52.69	152	100	QP
3	0.0625	40.86	18.70	59.56	111.58	-52.02	136	100	QP

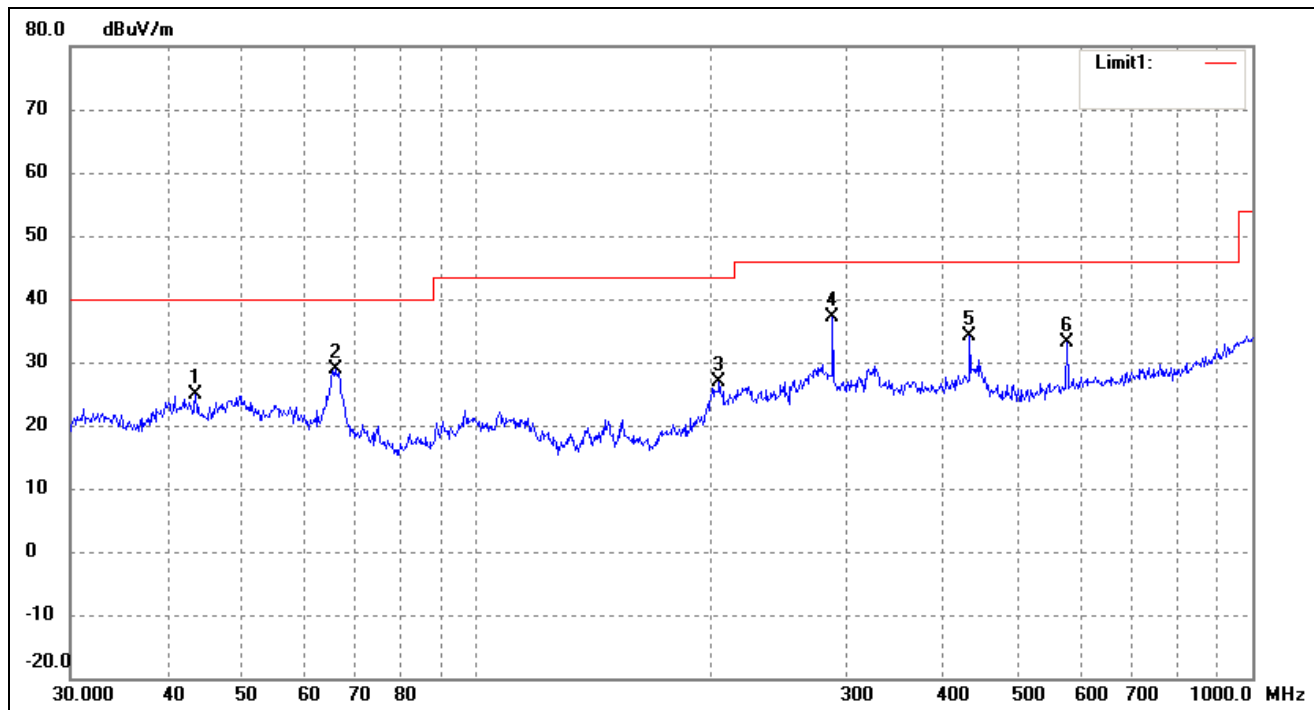
➤ 30MHz-1GHz

➤ 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	47.6586	37.53	-12.80	24.73	40.00	-15.27	357	100	QP
2	107.1337	35.83	-13.99	21.84	43.50	-21.66	90	100	QP
3	215.2678	34.60	-11.80	22.80	43.50	-20.70	270	100	QP
4	287.9904	43.22	-8.08	35.14	46.00	-10.86	98	100	QP
5	432.5457	36.76	-6.33	30.43	46.00	-15.57	244	100	QP
6	576.6443	34.67	-4.51	30.16	46.00	-15.84	143	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	43.5057	37.96	-13.11	24.85	40.00	-15.15	320	100	QP
2	65.8031	44.35	-15.54	28.81	40.00	-11.19	94	100	QP
3	205.6751	39.20	-12.26	26.94	43.50	-16.56	166	100	QP
4	287.9904	45.12	-8.08	37.04	46.00	-8.96	108	100	QP
5	432.5457	40.48	-6.33	34.15	46.00	-11.85	302	100	QP
6	576.6443	37.56	-4.51	33.05	46.00	-12.95	169	100	QP

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