

FCC Part 15B

Measurement and Test Report

For

Y-cam Solutions Ltd

3 Dee Road, Richmond, Surrey, TW9 2JN, United Kingdom

FCC ID: V4FY-CAM

Report Concerns: Original Report	Equipment Type: Network Camera
Model:	<u>Y-CAM Black</u>
Report No.:	<u>STR08028025I-2</u>
Test/Witness Engineer:	<i>Lahn peng</i>
Test Date:	<u>2008-02-19 to 2008-02-29</u>
Prepared By:	Shenzhen SEM.Test Compliance Service Co., Ltd 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C. (518101)
Approved & Authorized By:	<i>Jandyso</i>
	_____ Jandy So / PSQ Manager

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 SEM.Test Compliance Service Co., Ltd.

TABLE OF CONTENTS

1. GENERAL INFORMATION3

- 1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)3
- 1.2 TEST STANDARDS.....3
- 1.3 RELATED SUBMITTAL(S)/GRANT(S)3
- 1.4 TEST METHODOLOGY4
- 1.5 TEST FACILITY4
- 1.6 EUT EXERCISE SOFTWARE4
- 1.7 ACCESSORIES EQUIPMENT LIST AND DETAILS4
- 1.8 EUT CABLE LIST AND DETAILS4

2. SUMMARY OF TEST RESULTS5

3. CONDUCTED EMISSIONS6

- 3.1 MEASUREMENT UNCERTAINTY6
- 3.2 TEST EQUIPMENT LIST AND DETAILS6
- 3.3 TEST PROCEDURE.....6
- 3.4 BASIC TEST SETUP BLOCK DIAGRAM.....6
- 3.5 ENVIRONMENTAL CONDITIONS7
- 3.6 SUMMARY OF TEST RESULTS/PLOTS7
- 3.7 CONDUCTED EMISSIONS TEST DATA.....7

4. §15.205& §15.109(A)- RADIATED EMISSION10

- 4.1 MEASUREMENT UNCERTAINTY10
- 4.2 TEST EQUIPMENT LIST AND DETAILS10
- 4.3 TEST PROCEDURE.....10
- 4.4 TEST RECEIVER SETUP11
- 4.5 CORRECTED AMPLITUDE & MARGIN CALCULATION.....11
- 4.6 ENVIRONMENTAL CONDITIONS11
- 4.7 SUMMARY OF TEST RESULTS/PLOTS12

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Y-cam Solutions Ltd.
Address of applicant: 3 Dee Road, Richmond, Surrey, TW9 2JN, United Kingdom

Manufacturer: Y-cam Solutions Ltd.
Address of manufacturer: 3 Dee Road, Richmond, Surrey, TW9 2JN, United Kingdom

General Description of E.U.T

Items	Description
EUT Description:	Network Camera
Trade Name:	Y-CAM
Model No.:	Y-CAM Black
Adjusted Models:	Y-CAM White Y-CAM Knight
Rated Voltage:	DC 5V Adaptor
Max. Output Power	< 20dBm
Frequency range:	2412-2462MHz
Number of channels:	11
Size:	5MHz
Channel Separation:	Fixed Antenna
Type of Antenna:	11.3x8.6x3.3cm

The test data is gathered from a production sample, provided by the manufacturer. Test is carried out with Y-CAM Black since the other models listed in this report are different appearance from model Y-CAM Black without electronic construction changed, declared by the manufacture.

1.2 Test Standards

The following report is prepared on behalf of Y-cam Solutions Ltd. in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart B, and section 15.205, 15.107, and 15.109 rules.

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 Related Submittal(s)/Grant(s)

No Related Submittal(s).

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, 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.

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

1.5 Test Facility

The 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 files which the Registration No.: **759397**. Measurement required was performed at laboratory of Solid Industrial Co., Ltd. at 333 Bulong Highway Buji Longgang, Shenzhen, Guangdong, China.

1.6 EUT Exercise Software

The EUT exercise program used during the testing was designed to exercise the system components.

1.7 Accessories Equipment List and Details

Manufacturer	Description	Model	Serial Number
IBM	Notebook	R51e	LV14893
TP-LINK	Modem	TM-EC5658V	KT99CTQC-508
Lenovo	Printer	3110	OD65133711480

1.8 EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
DC Power Cable	1.8	Unshielded	With Core
RJ 45 Cable	3.0	Shielded	Without Core

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 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 0.5 dB.

3.2 Test Equipment List and Details

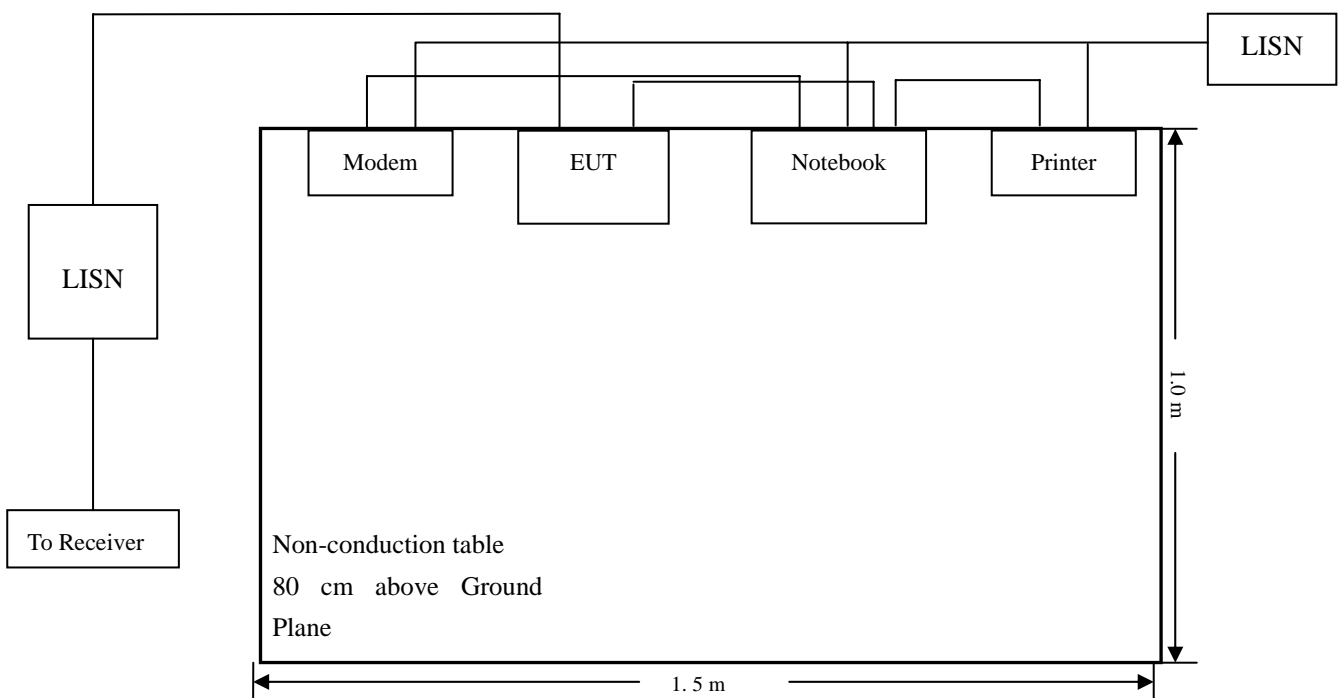
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESCS30	830245/009	2007-06-30	2008-06-29
AMN	Rohde & Schwarz	ESH2-Z5	100002	2007-06-30	2008-06-29
Limiter	Rohde & Schwarz	ESH3-Z2	357.8810.52	2007-06-30	2008-06-29
AMN	Rohde & Schwarz	ESH3-Z5	828304/014	2007-06-30	2008-06-29

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

3.3 Test Procedure

Test is conducting under the description of ANSI C63.4-2003, 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.

3.4 Basic Test Setup Block Diagram



3.5 Environmental Conditions

Temperature:	20° C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

3.6 Summary of Test Results/Plots

According to the data in section 3.7, the EUT complied with the FCC 15.207 Conducted margin for a Class B device, with the *worst* margin reading of:

-28.4 dBμV at 0.432 MHz in the Neutral, 0.15-30MHz

3.7 Conducted Emissions Test Data

LINE CONDUCTED EMISSIONS				FCC 15.207	
Frequency	Amplitude	Detector	Phase	Limit	Margin
MHz	dBμV	QP/Ave/Pk	Line/Neutral	dBμV	dB
0.432	28.79	PK	Neutral	57.21	-28.4
0.430	27.80	PK	Line	57.25	-29.5
0.370	27.10	PK	Line	58.50	-31.4
0.324	27.86	PK	Neutral	59.60	-31.7
0.252	29.02	PK	Neutral	61.69	-32.7
0.240	27.60	PK	Line	62.10	-34.5

The PK reading is lower than the Limit, so the AV reading is omitted

Plot of Conducted Emissions Test Data

Conducted Disturbance

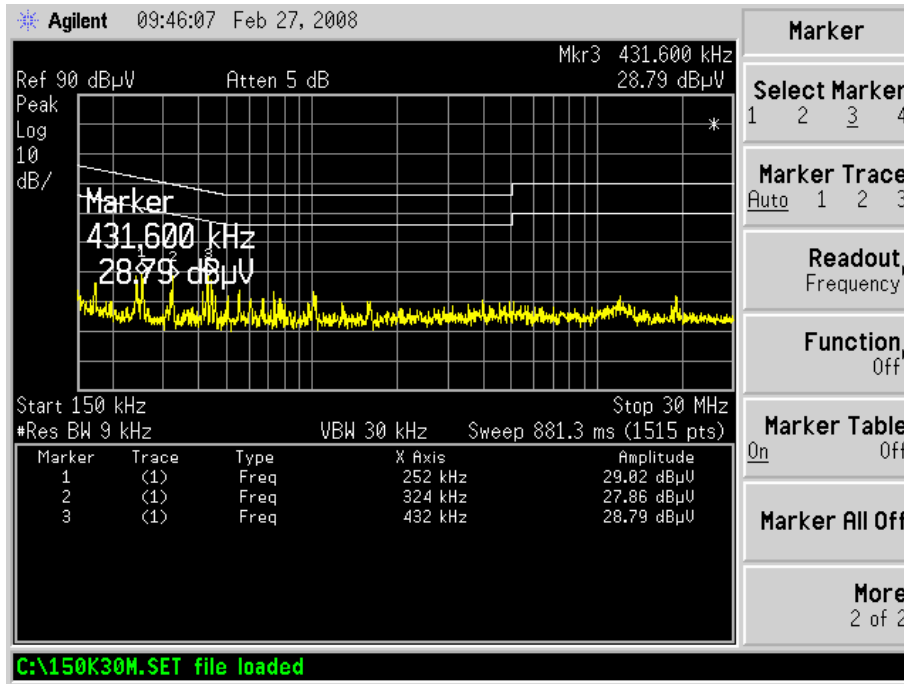
EUT: Network Camera

M/N: Y-CAM Black

Operating Condition: Running

Test Specification: N

Comment: 120V/60Hz; DC 5V adapter



Plot of Conducted Emissions Test Data

Conducted Disturbance

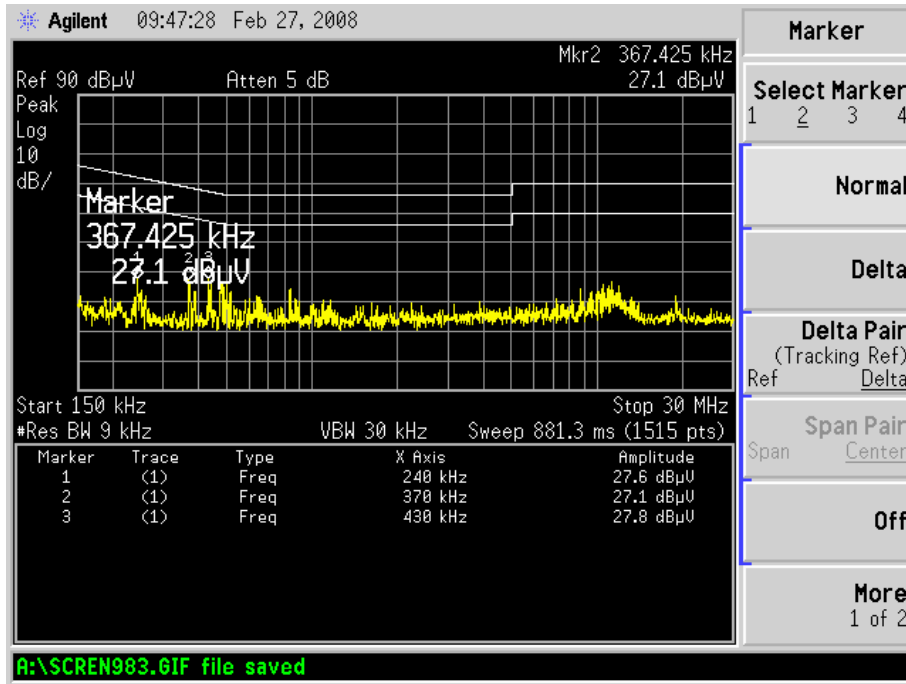
EUT: Network Camera

M/N: Y-CAM Black

Operating Condition: Running

Test Specification: L

Comment: 120V/60Hz; DC 5V adapter



4. §15.205& §15.109(a)- RADIATED EMISSION

4.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 3.0 dB.

4.2 Test Equipment List and Details

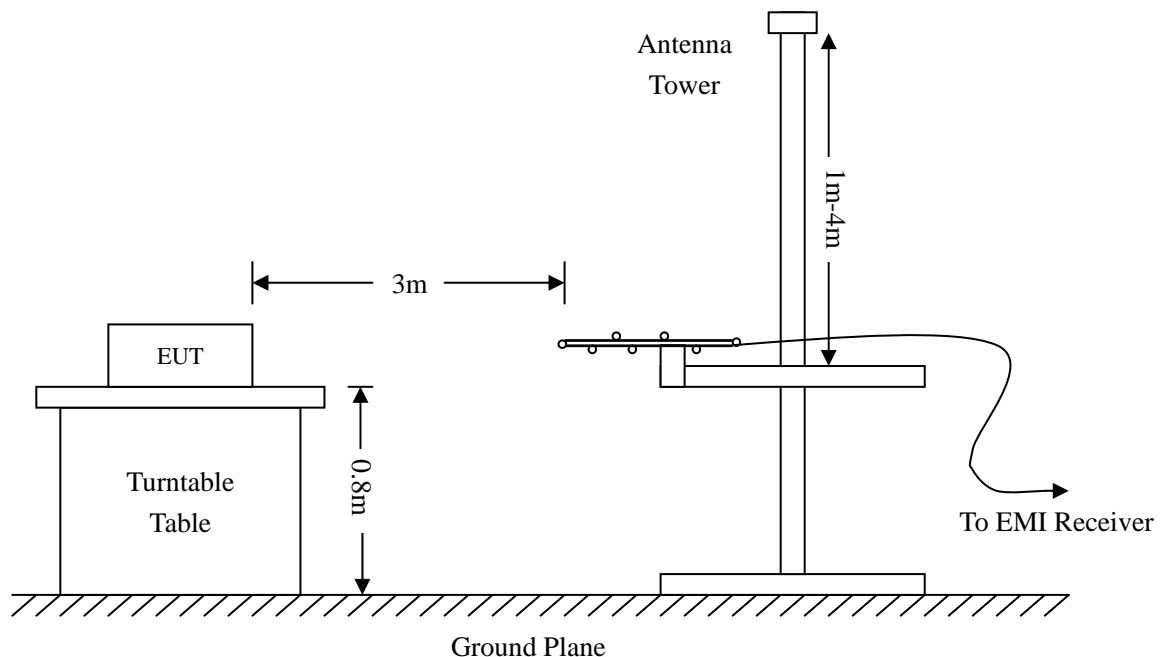
Manufacturer	Description	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESCS30	830245/009	2007-06-30	2008-06-29
Multi_Device Controller	ETS	2090	57230	2007-06-30	2008-06-29
Receiver Antenna	ETS	2175	57337	2007-06-30	2008-06-29
50 ohm Coaxial Cable	ETS	SUCOFLEX 104	25498514	2007-06-30	2008-06-29

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.205 and 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.



4.4 Test Receiver Setup

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

Start Frequency 30 MHz
 Stop Frequency..... 1000 MHz
 Sweep Speed Auto
 IF Bandwidth..... 10 kHz
 Quasi-Peak Adapter Bandwidth 120 kHz
 Quasi-Peak Adapter Mode Normal

4.5 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 Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15B Limit}$$

4.6 Environmental Conditions

Temperature:	18 °C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

4.7 Summary of Test Results/Plots

According to the data, the EUT complied with the FCC 15B Class B standards, and had the worst margin of:

-1.16 dB μ V at 243.54 MHz in the Horizontal polarization, 30 MHz to 25 GHz, 3Meters

Plot of Radiation Emissions Test

Radiated Disturbance

EUT: Network Camera

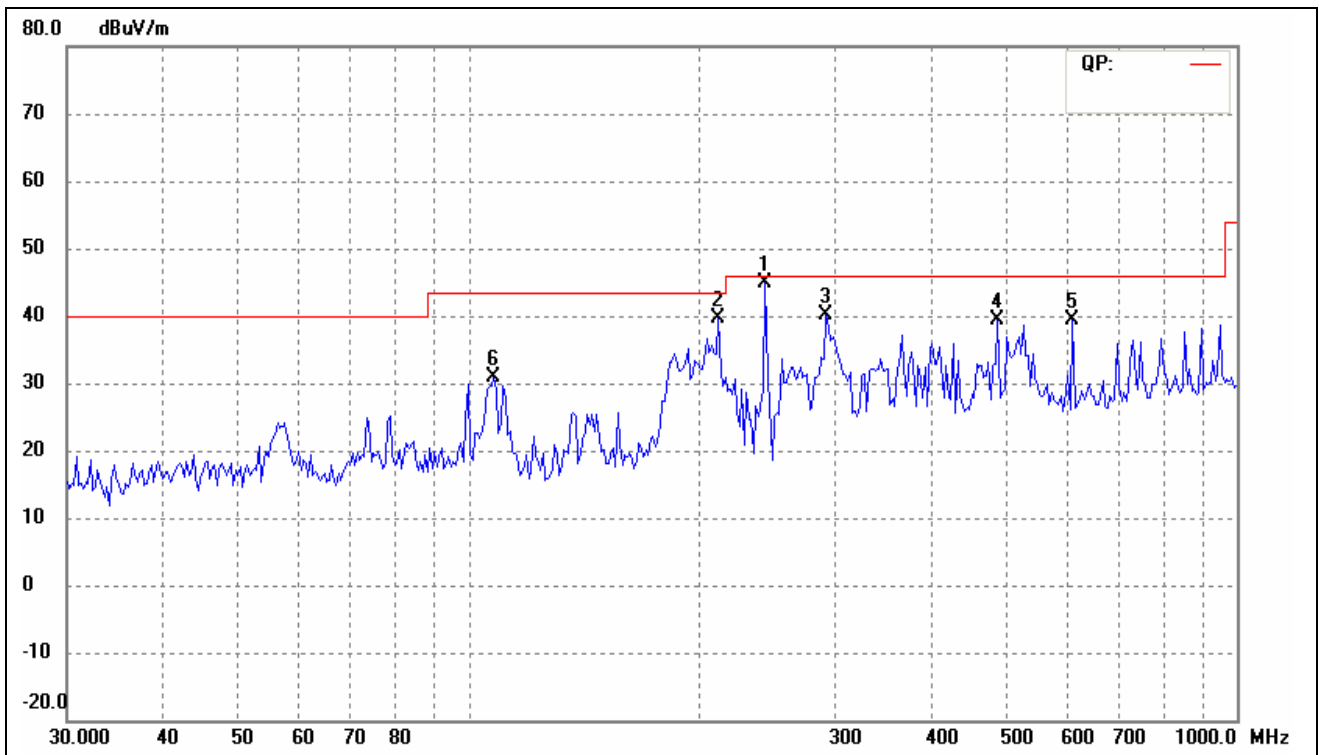
M/N: Y-CAM Black

Operating Condition: Running

Test Specification: Horizontal & Vertical

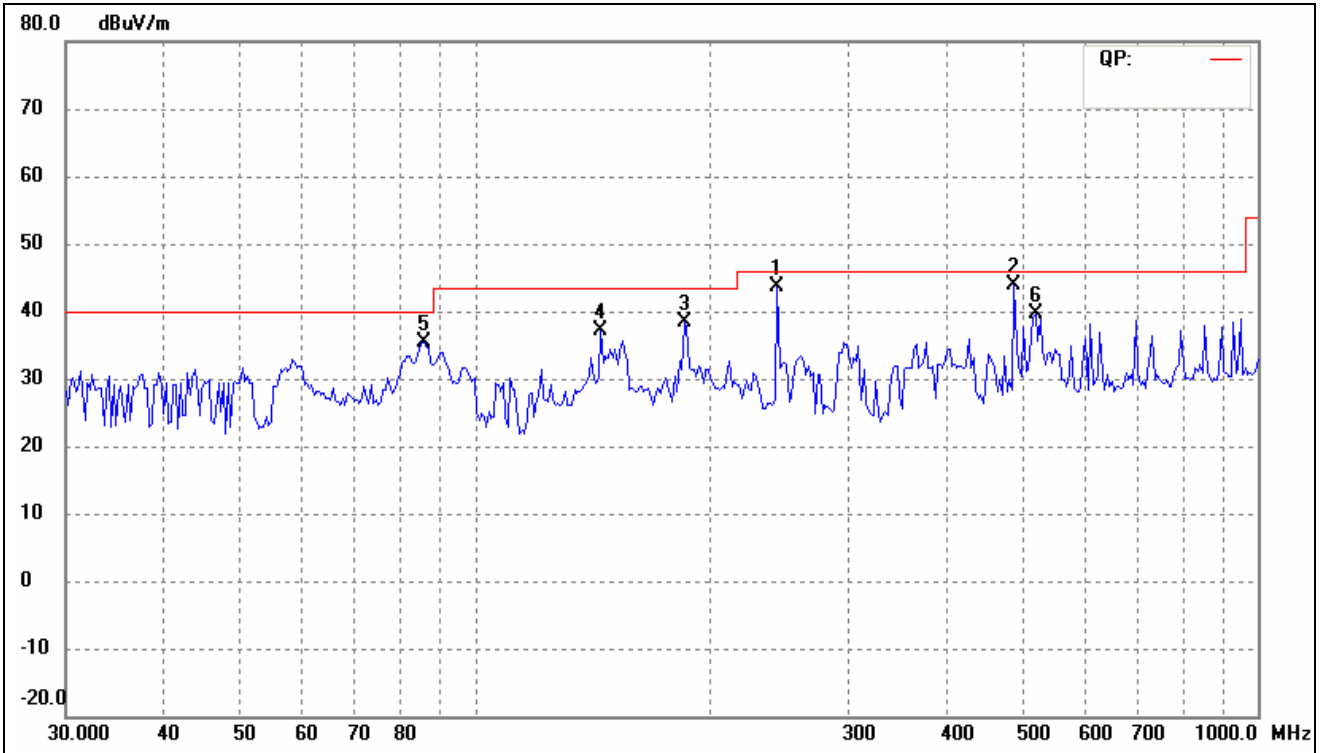
Comment: DC 5V adapter

Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	243.5431	36.31	8.53	44.84	46.00	-1.16	0	120	QP
2	211.6111	32.71	6.99	39.70	43.50	-3.80	360	110	QP
3	292.3643	30.37	9.68	40.05	46.00	-5.95	120	100	QP
4	488.3263	27.58	11.86	39.44	46.00	-6.56	135	105	peak
5	611.4623	25.05	14.21	39.26	46.00	-6.74	45	150	peak
6	107.7853	23.19	7.77	30.96	43.50	-12.54		110	peak

Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	243.5431	35.06	8.53	43.59	46.00	-2.41	360	120	QP
2	488.3263	31.92	11.86	43.78	46.00	-2.22	270	100	QP
3	185.1626	32.29	6.10	38.39	43.50	-5.11	135	150	QP
4	144.7899	33.03	4.01	37.04	43.50	-6.46	0	120	QP
5	86.0796	29.61	5.82	35.43	40.00	-4.57	120	110	QP
6	520.2079	26.97	12.76	39.73	46.00	-6.27	87	150	peak