FCC Part 15B
Measurement and Test Report

For

ZhuHai Bcom Electronic Technology Co., Ltd.

401 Room, 5 Building, No 19 YongTian Road, XiangZhou District, ZhuHai City, GuangDong Province, China

FCC ID: 2AGRA-86211-PC

Test Rule(s):	FCC Part 15 Subpart B
Product Description:	IP VIDEO DOOR PHONE
Tested Model:	86211-PC
Report No.:	STR15108257I-3
Tested Date:	2015-10-30 to 2015-12-16
Issued Date:	2015-12-16
Tested By:	Jason Su / Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy so / PSQ Manager

Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	ZhuHai Bcom Electronic Technology Co., Ltd.
Address of applicant:	401 Room, 5 Building, No 19 YongTian Road, XiangZhou District, ZhuHai City, GuangDong Province, China
Manufacturer:	ZhuHai Bcom Electronic Technology Co., Ltd.
Address of manufacturer:	401 Room, 5 Building, No 19 YongTian Road, XiangZhou District, ZhuHai City, GuangDong Province, China

General Description of EUT	
Product Name:	IP VIDEO DOOR PHONE
Trade Name:	BcomTech
Model No.:	86211-PC
Adding Model(s):	86211-P, 86211-F, 86206
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 86211-PC, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 12V Adapter
Rated Current:	1A
Rated Power:	/
Power Adapter Model:	/
Lowest Internal Frequency:	24MHz
Highest Internal Frequency:	40MHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the ZhuHai Bcom Electronic Technology Co., 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 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

FCC – Registration No.: 934118

Shenzhen SEM.Test Technology 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 and the Registration is 934118.

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.

CNAS Registration No.: L4062

Shenzhen SEM.Test Technology Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C (518101).

1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List:

Test Mode	Description	Remark
TM1	Bell Rang	Connected to internet with RJ45

EUT Cable List and Details

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

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	Lenovo	E10	LR-63C8R
AC to DC Adapter	/	XED-CE120100C	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
RJ45 Cable	2.8	Unshielded	Without Ferrite

1.6 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Spectrum Analyzer	Agilent	E4407B	MY41440400	2015-06-17	2016-06-16
Spectrum Analyzer	Rohde & Schwarz	FSP	836079/035	2015-06-17	2016-06-16
EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2015-06-17	2016-06-16
Amplifier	Agilent	8447F	3113A06717	2015-06-17	2016-06-16
Amplifier	C&D	PAP-1G18	2002	2015-06-17	2016-06-16
Broadband Antenna	Schwarz beck	VULB9163	9163-333	2015-06-17	2016-06-16
Horn Antenna	ETS	3117	00086197	2015-06-17	2016-06-16
Loop Antenna	Schwarz beck	FMZB 1516	9773	2015-06-17	2016-06-16
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2015-06-17	2016-06-16
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2015-06-17	2016-06-16
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2015-06-17	2016-06-16

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 15.107 (a)	Conducted Emissions	Compliant
§ 15.109 (a)	Radiated Emissions	Compliant

N/A: not applicable

3. Conducted Emissions

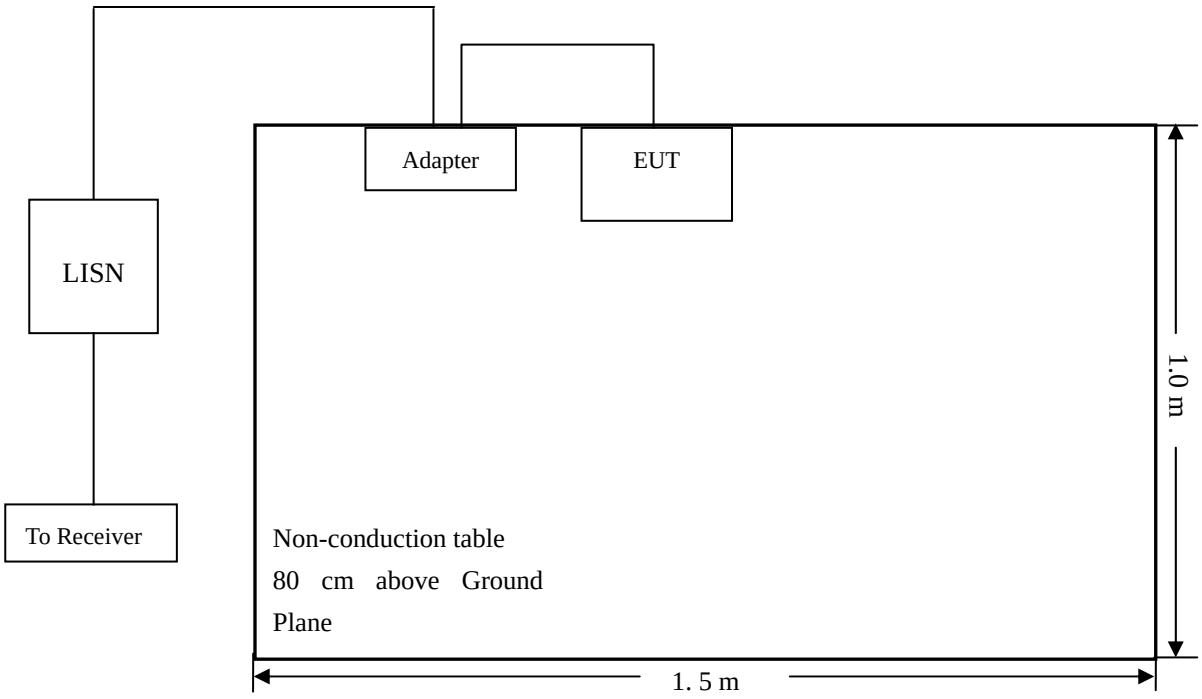
3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 2.88 dB.

3.2 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.

3.3 Basic Test Setup Block Diagram



3.4 Environmental Conditions

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

3.5 Summary of Test Results/Plots

According to the data in section 3.6, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

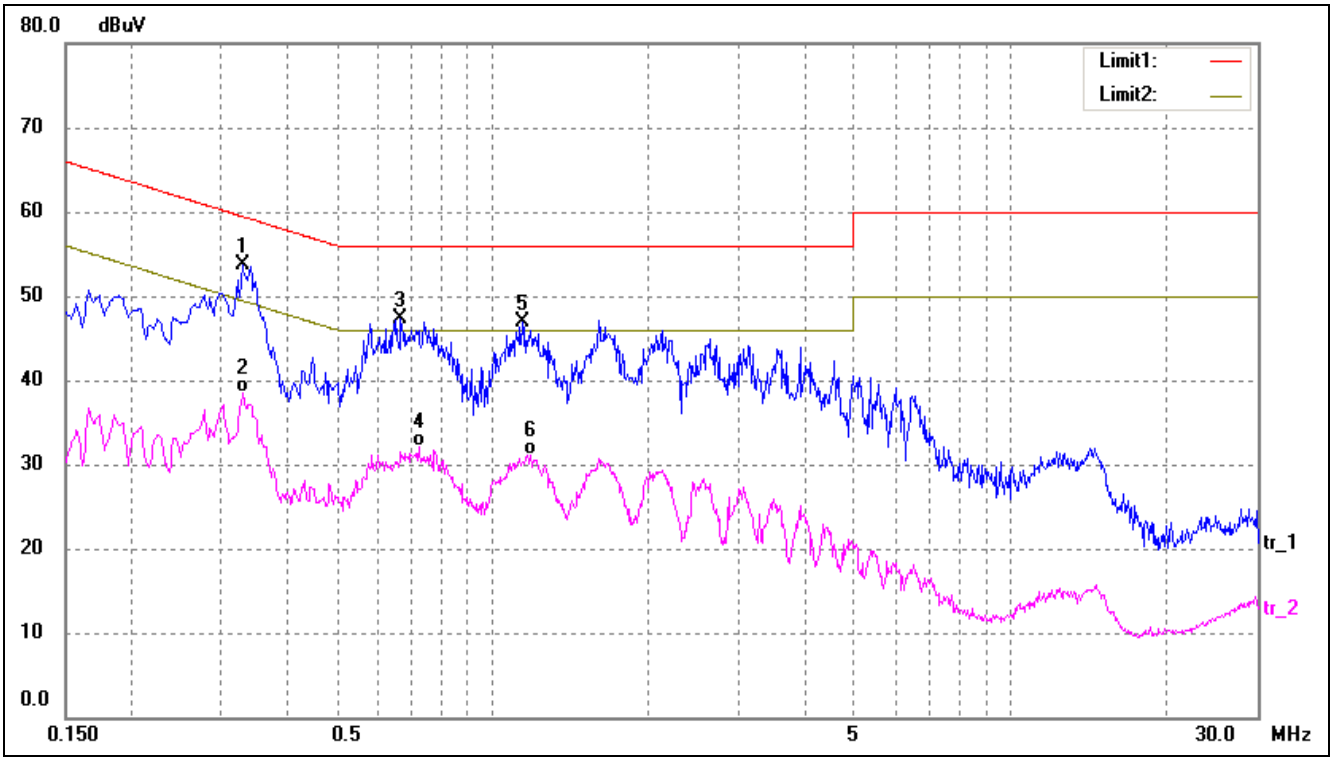
-3.44dB at **0.3340 MHz** in the **Line**, **AVG** detector, 0.15-30MHz

3.6 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

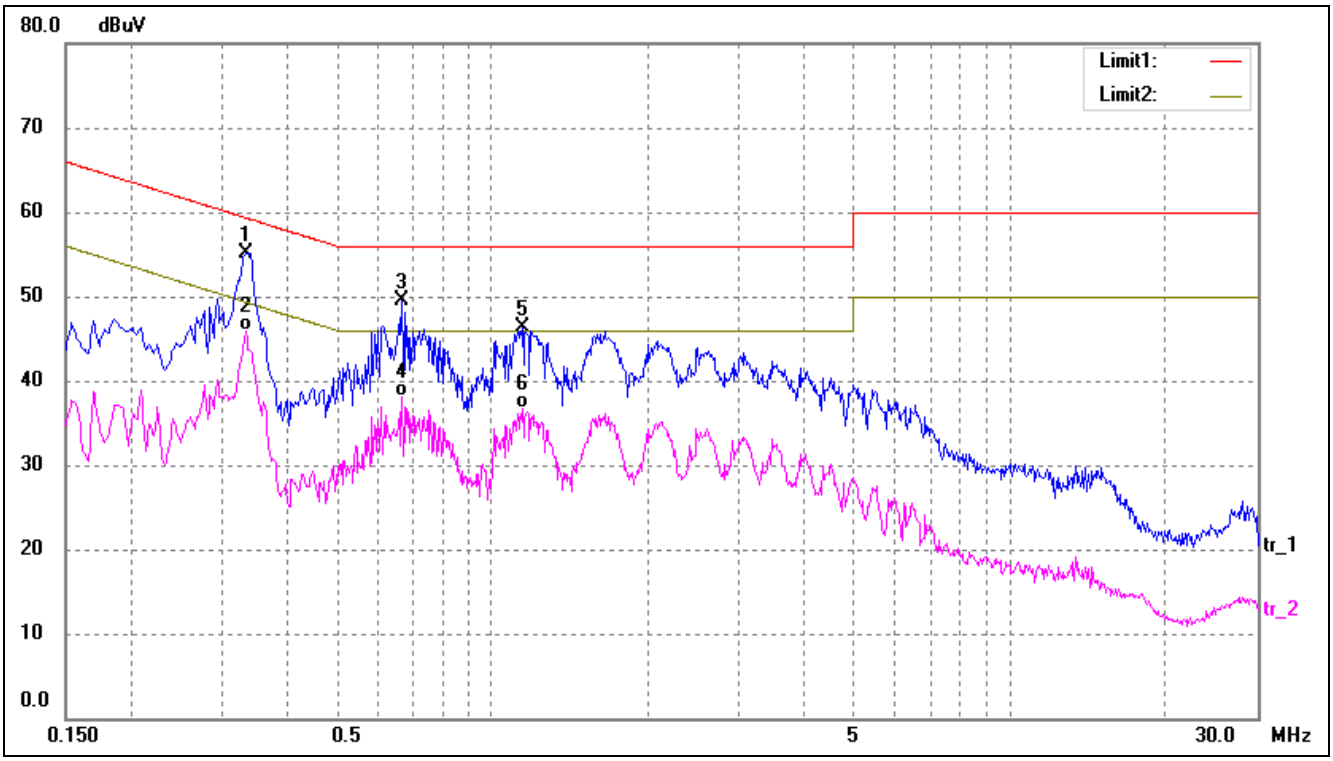
EUT: *IP VIDEO DOOR PHONE*
Tested Model: *86211-PC*
Operating Condition: *TM1*
Comment: *Adapter DC12V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.3300	41.26	12.50	53.76	59.45	-5.69	peak
2	0.3300	26.08	12.50	38.58	49.45	-10.87	AVG
3	0.6660	34.61	12.67	47.28	56.00	-8.72	peak
4	0.7220	19.37	12.72	32.09	46.00	-13.91	AVG
5	1.1460	33.89	13.00	46.89	56.00	-9.11	peak
6	1.1900	18.16	13.00	31.16	46.00	-14.84	AVG

Test Specification: *Line*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.3340	42.70	12.50	55.20	59.35	-4.15	peak
2	0.3340	33.41	12.50	45.91	49.35	-3.44	AVG
3	0.6700	36.78	12.67	49.45	56.00	-6.55	peak
4	0.6700	25.43	12.67	38.10	46.00	-7.90	AVG
5	1.1460	33.25	13.00	46.25	56.00	-9.75	peak
6	1.1460	23.78	13.00	36.78	46.00	-9.22	AVG

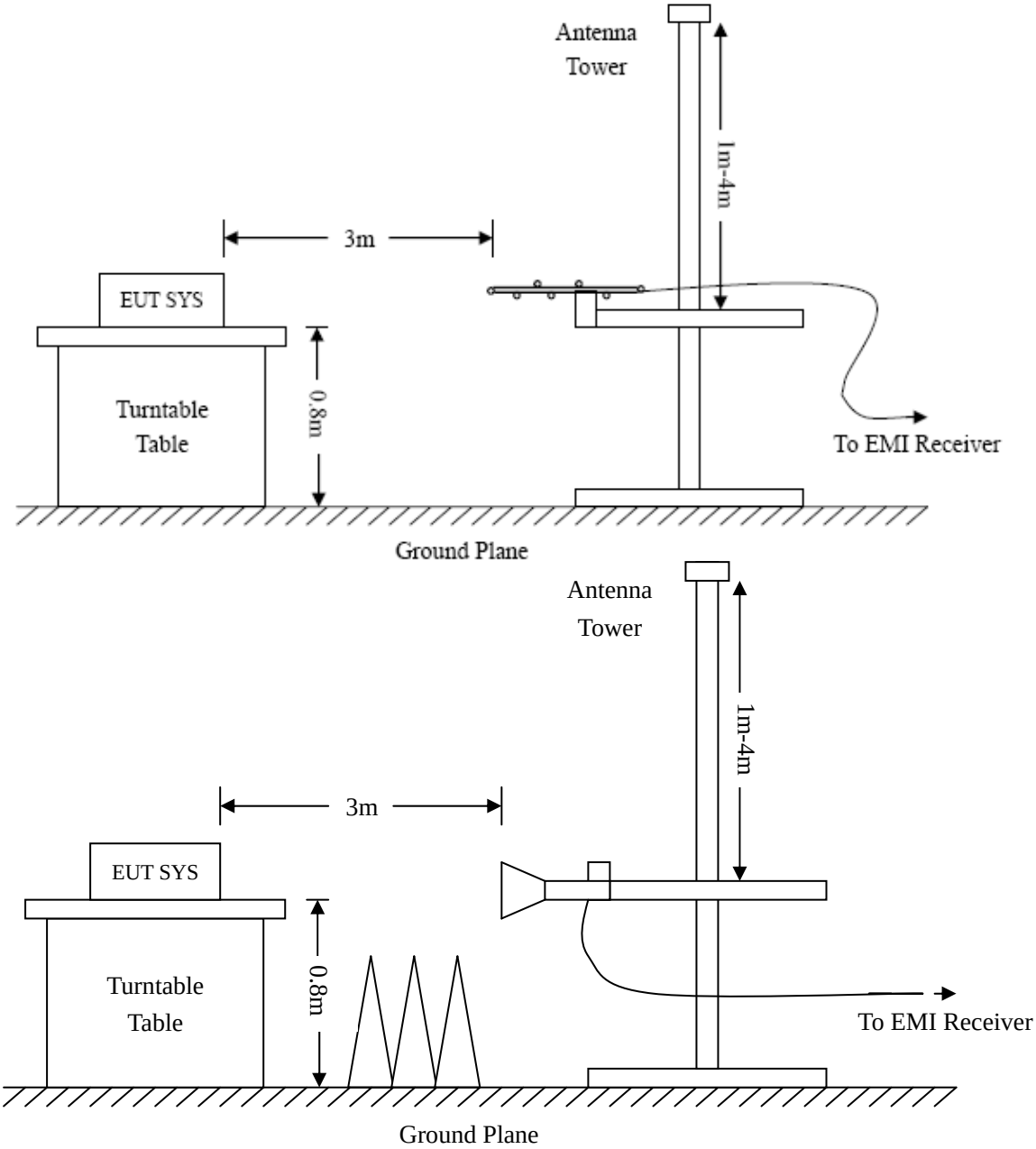
4. Radiated Emissions

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 ± 5.10 dB.

4.2 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.



4.3 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

4.4 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:

Corr. Ampl. = Indicated Reading – Corr. Factor

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

4.5 Environmental Conditions

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

4.6 Summary of Test Results/Plots

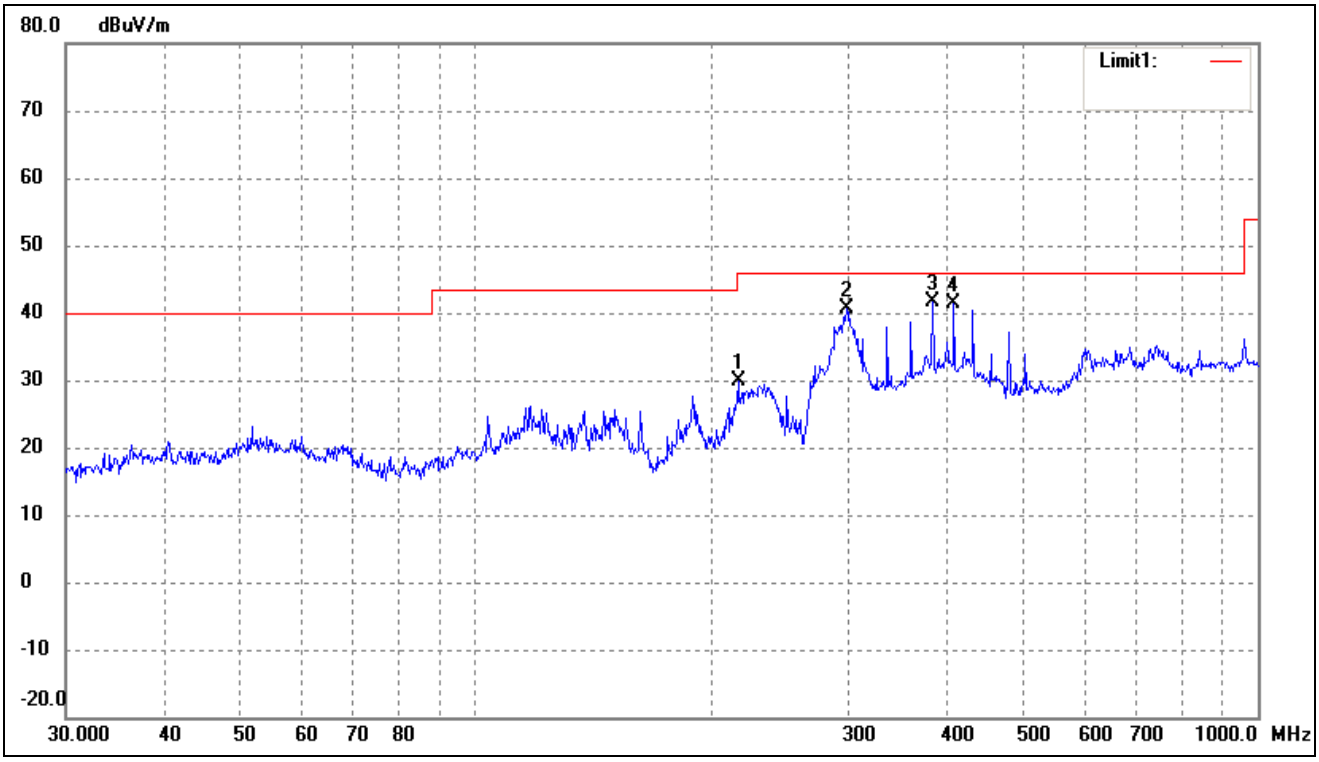
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-4.28 dB at **383.9318 MHz** in the **Horizontal** polarization, **9 kHz** to **1 GHz**, **3Meters**

Plot of Radiated Emissions Test Data

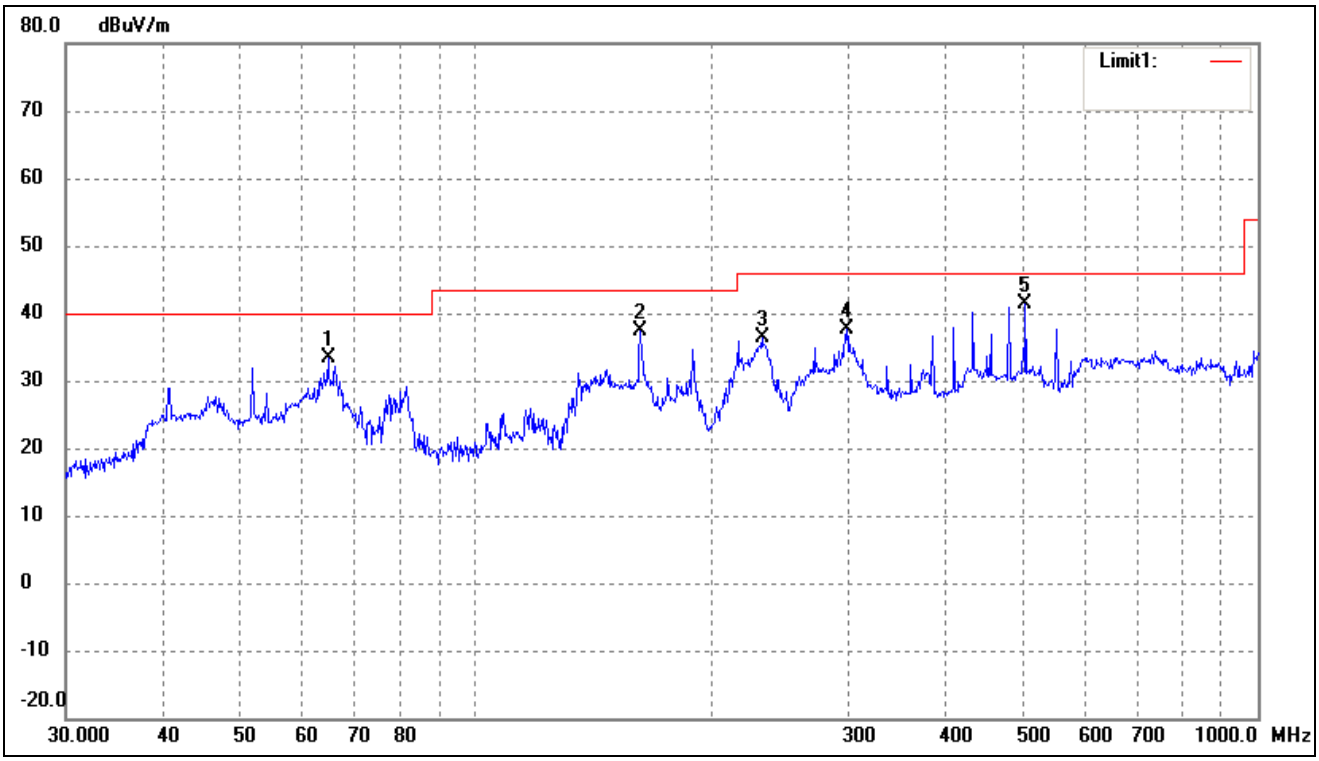
EUT: *IP VIDEO DOOR PHONE*
Tested Model: *86211-PC*
Operating Condition: *TM1*
Comment: *Adapter DC12V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	216.7828	22.43	7.40	29.83	46.00	-16.17	156	100	peak
2	298.2681	28.45	12.11	40.56	46.00	-5.44	98	100	peak
3	383.9318	29.34	12.38	41.72	46.00	-4.28	125	100	peak
4	408.9460	28.52	12.80	41.32	46.00	-4.68	56	100	peak

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	64.8865	29.05	4.30	33.35	40.00	-6.65	158	100	peak
2	162.6106	34.81	2.63	37.44	43.50	-6.06	78	100	peak
3	232.5318	27.39	8.87	36.26	46.00	-9.74	41	100	peak
4	298.2681	25.64	12.11	37.75	46.00	-8.25	122	100	peak
5	504.7062	27.43	13.98	41.41	46.00	-4.59	10	100	peak

Note: The measurements greater than 20dB below the limit from 9kHz to 30MHz and test data are not provided.

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