FCC Part 15B
Measurement and Test Report

For

Netatmo

892, rue yves kermen - 92100 Boulogne Billancourt - FRANCE

FCC ID: N3A-NSC01

Test Rule(s):	FCC Part 15 Subpart B
Product Description:	Netatmo Security Camera
Tested Model:	NSC01
Report No.:	STR15038146I-1
Tested Date:	2015-03-16 to 2015-05-07
Issued Date:	2015-05-08
Tested By:	Seven Song / Engineer
Reviewed By:	Lahm Peng / EMC Manager
Approved & Authorized By:	Jandy So / PSQ Manager

Prepared By:

Shenzhen SEM.Test Technology Co., Ltd.
1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road,
Bao'an District, Shenzhen, P.R.C.（518101）
Tel.: +86-755-33663308 Fax.: +86-755-33663309 Website: www.semtest.com.cn

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Netatmo
Address of applicant:	892, rue yves kermen - 92100 Boulogne Billancourt - FRANCE
Manufacturer:	Netatmo
Address of manufacturer:	892, rue yves kermen - 92100 Boulogne Billancourt - FRANCE

General Description of EUT	
Product Name:	Netatmo Security Camera
Trade Name:	Netatmo
Model No.:	NSC01
Rated Voltage:	Adapter DC 5V
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	Apdater DC 5V
Rated Current:	1.5A(Max)
Power Adapter Model:	SED0502000P
	INPUT:AC100-240V~50-60Hz; OUTPUT:DC5V/2A
Lowest Internal Frequency:	32.768KHz
Highest Internal Frequency:	1GHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the Netatmo 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 C63.4-2009, 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	Operating	With Notebook (Video Record)
TM2	Configure the product	USB via to Notebook

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
DC Power Cable	1.0	Unshielded	Without Ferrite
RJ45	3.0	Unshielded	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
Notebook	Dell	Certification	/

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.

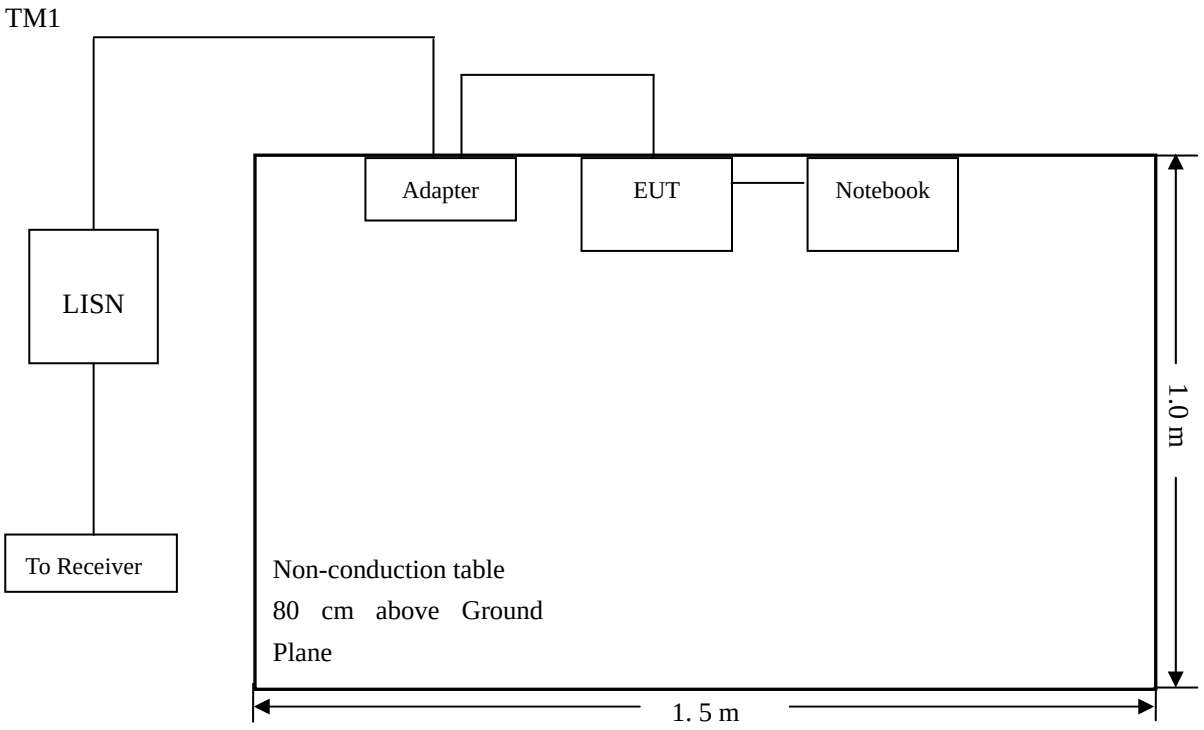
3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2014-05-28	2015-05-27
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2014-05-28	2015-05-27
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2014-05-28	2015-05-27

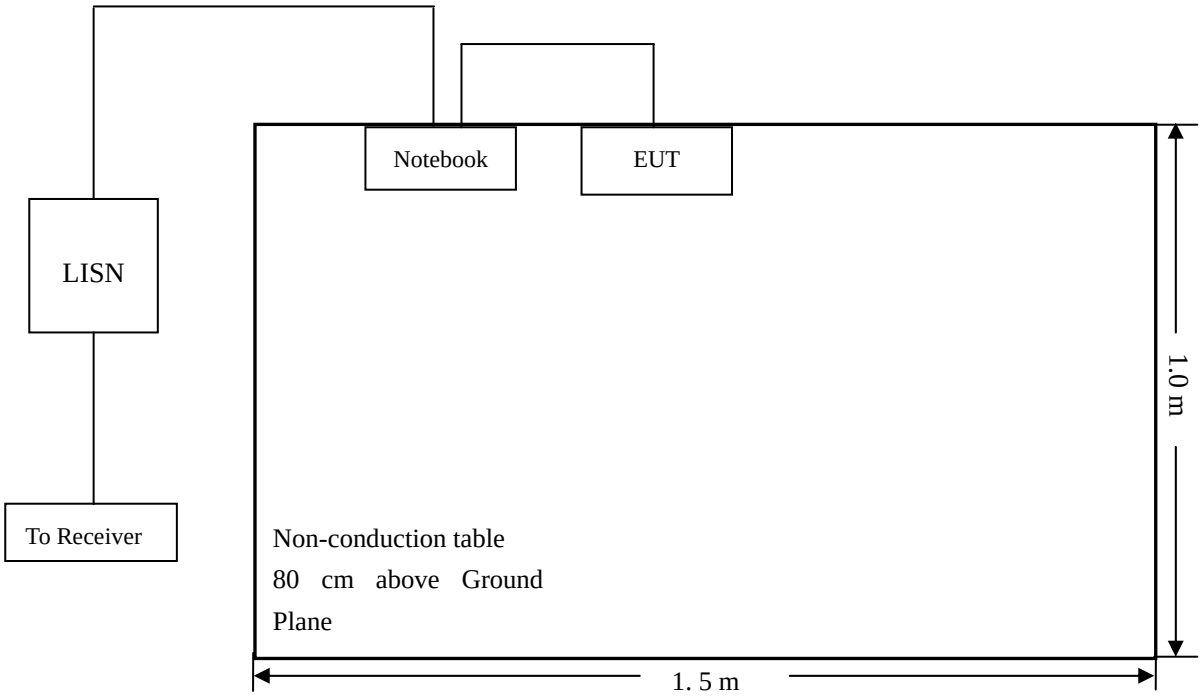
3.3 Test Procedure

Test is conducting under the description of ANSI C63.4-2009, 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



TM2



3.5 Environmental Conditions

Temperature:	23 °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 Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

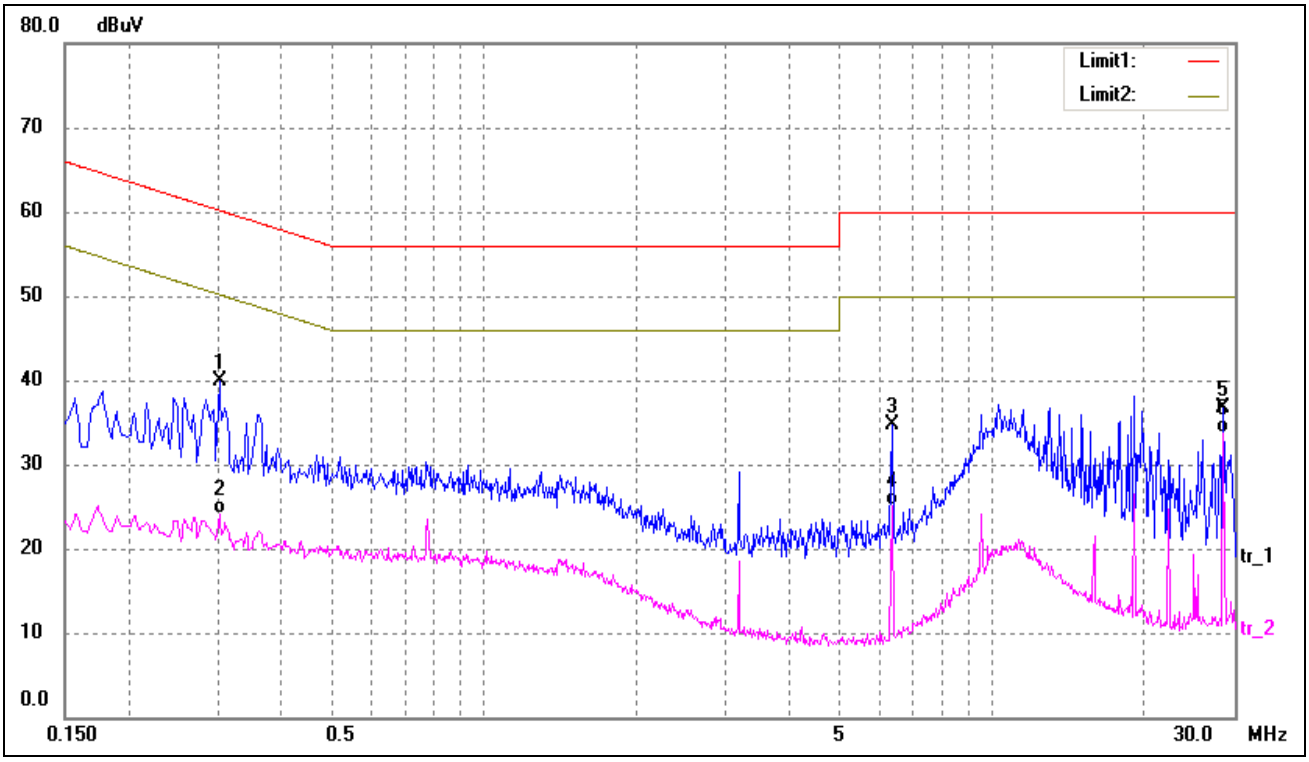
-5.39 dB at **2.7300 MHz** in the **Neutral**, **Peak** detector (TM2), 0.15-30MHz

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

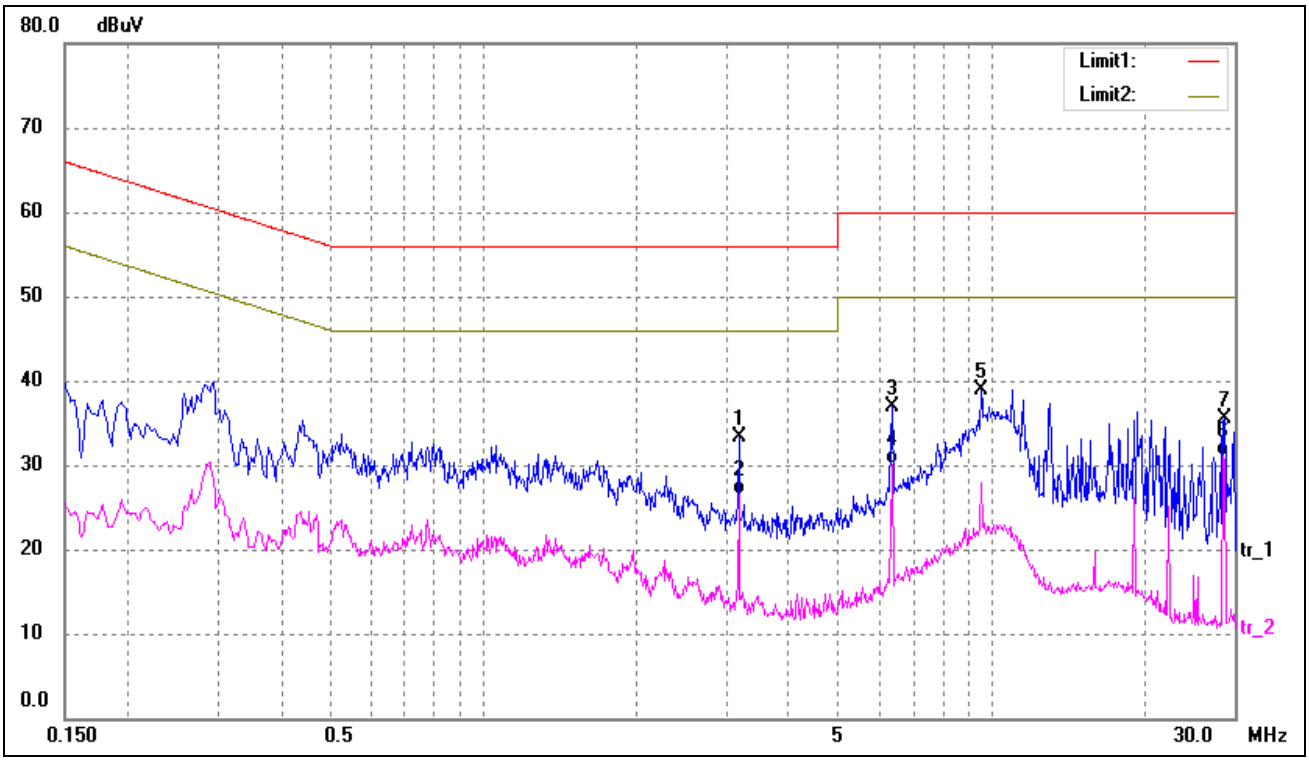
EUT: *Netatmo Security Camera*
Tested Model: *NSC01*
Operating Condition: *TM1*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.3020	30.43	9.50	39.93	60.19	-20.26	peak
2	0.3020	14.56	9.50	24.06	50.19	-26.13	AVG
3	6.3540	24.66	10.00	34.66	60.00	-25.34	peak
4	6.3540	15.05	10.00	25.05	50.00	-24.95	AVG
5	28.5940	23.68	13.00	36.68	60.00	-23.32	peak
6*	28.5940	20.68	13.00	33.68	50.00	-16.32	AVG

Test Specification: *Line*

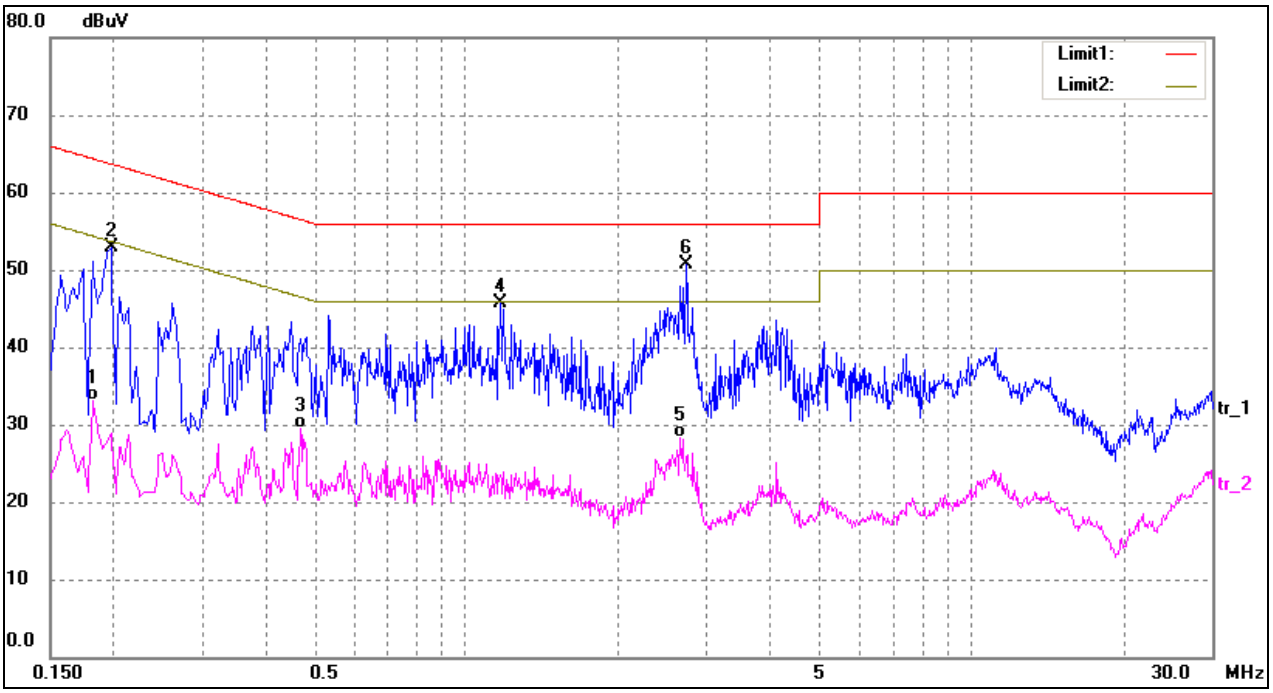


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	3.1780	23.26	10.00	33.26	56.00	-22.74	peak
2	3.1780	16.48	10.00	26.48	46.00	-19.52	AVG
3	6.3540	26.88	10.00	36.88	60.00	-23.12	peak
4	6.3540	20.01	10.00	30.01	50.00	-19.99	AVG
5	9.5380	28.90	10.00	38.90	60.00	-21.10	peak
6*	28.6020	18.12	13.00	31.12	50.00	-18.88	AVG
7	28.6060	22.46	13.00	35.46	60.00	-24.54	peak

Plot of Conducted Emissions Test Data

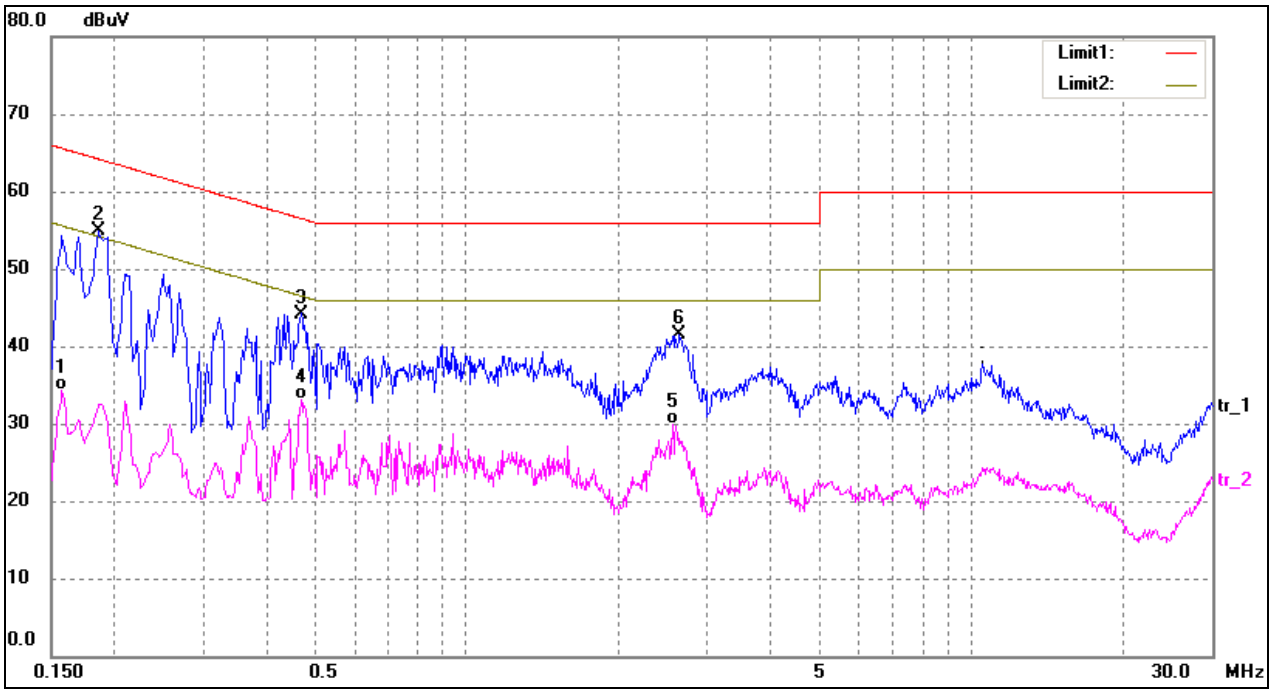
EUT: *Netatmo Security Camera*
Tested Model: *NSC01*
Operating Condition: *TM2*
Comment: *AC 120V/60Hz; Adapter DC 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1820	23.60	9.50	33.10	54.39	-21.29	AVG
2	0.1980	43.48	9.50	52.98	63.69	-10.71	peak
3	0.4700	20.06	9.50	29.56	46.51	-16.95	AVG
4	1.1660	35.64	10.00	45.64	56.00	-10.36	peak
5	2.6500	18.36	10.00	28.36	46.00	-17.64	AVG
6*	2.7300	40.61	10.00	50.61	56.00	-5.39	peak

Test Specification: *Line*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1580	24.72	9.50	34.22	55.57	-21.35	AVG
2*	0.1860	45.41	9.50	54.91	64.21	-9.30	peak
3	0.4700	34.70	9.50	44.20	56.51	-12.31	peak
4	0.4700	23.62	9.50	33.12	46.51	-13.39	AVG
5	2.5580	19.91	10.00	29.91	46.00	-16.09	AVG
6	2.6380	31.41	10.00	41.41	56.00	-14.59	peak

4. Radiated Emissions

4.1 Measurement Uncertainty

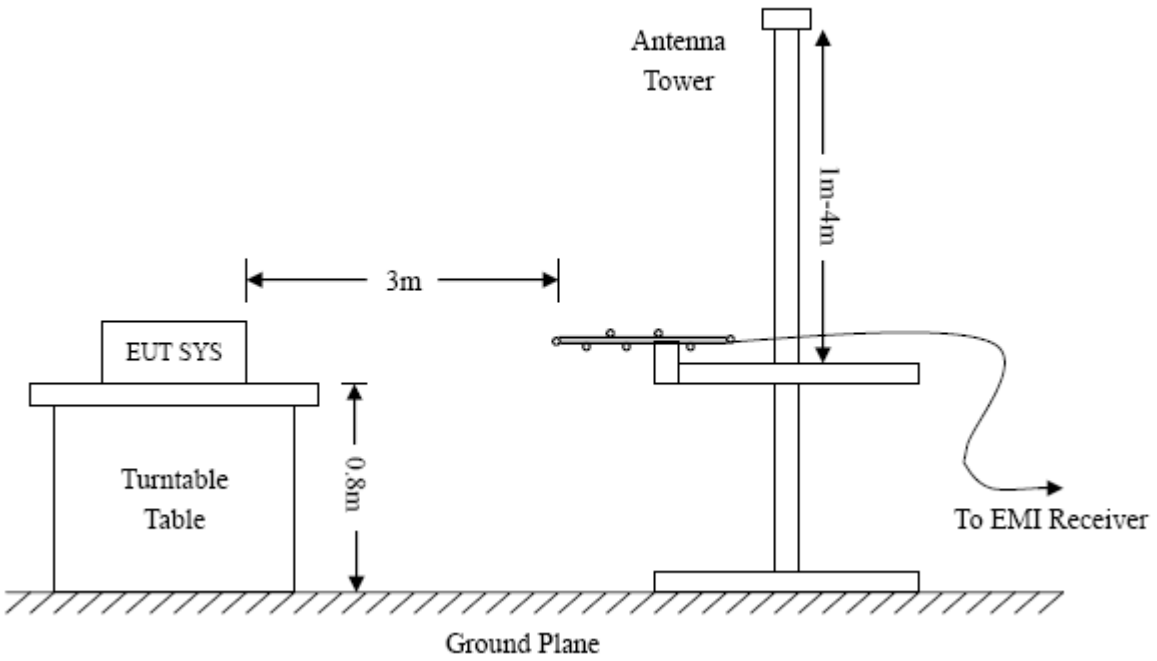
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

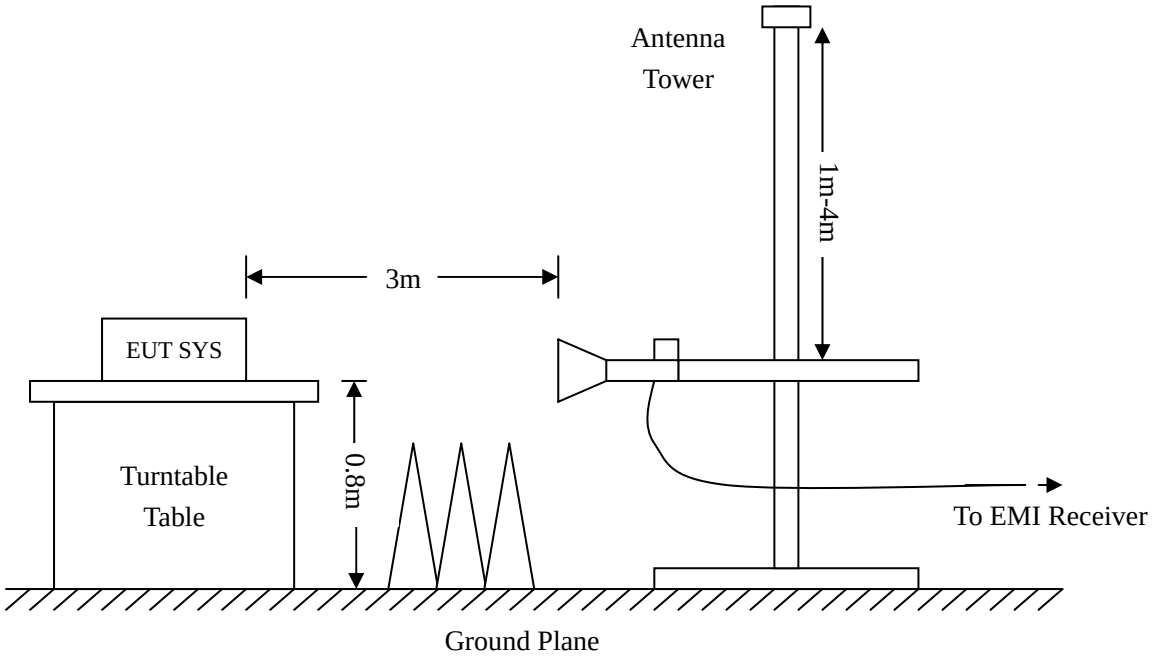
4.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2014-05-28	2015-05-27
EMI Test Receiver	R&S	ESVB	825471/005	2014-05-28	2015-05-27
Pre-amplifier	Agilent	8447F	3113A06717	2014-05-28	2015-05-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2014-05-28	2015-05-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2014-05-24	2015-05-23
Horn Antenna	ETS	3117	00086197	2014-05-24	2015-05-23
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2014-05-24	2015-05-23

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2009 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.





4.4 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

4.5 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:

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

4.6 Environmental Conditions

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

4.7 Summary of Test Results/Plots

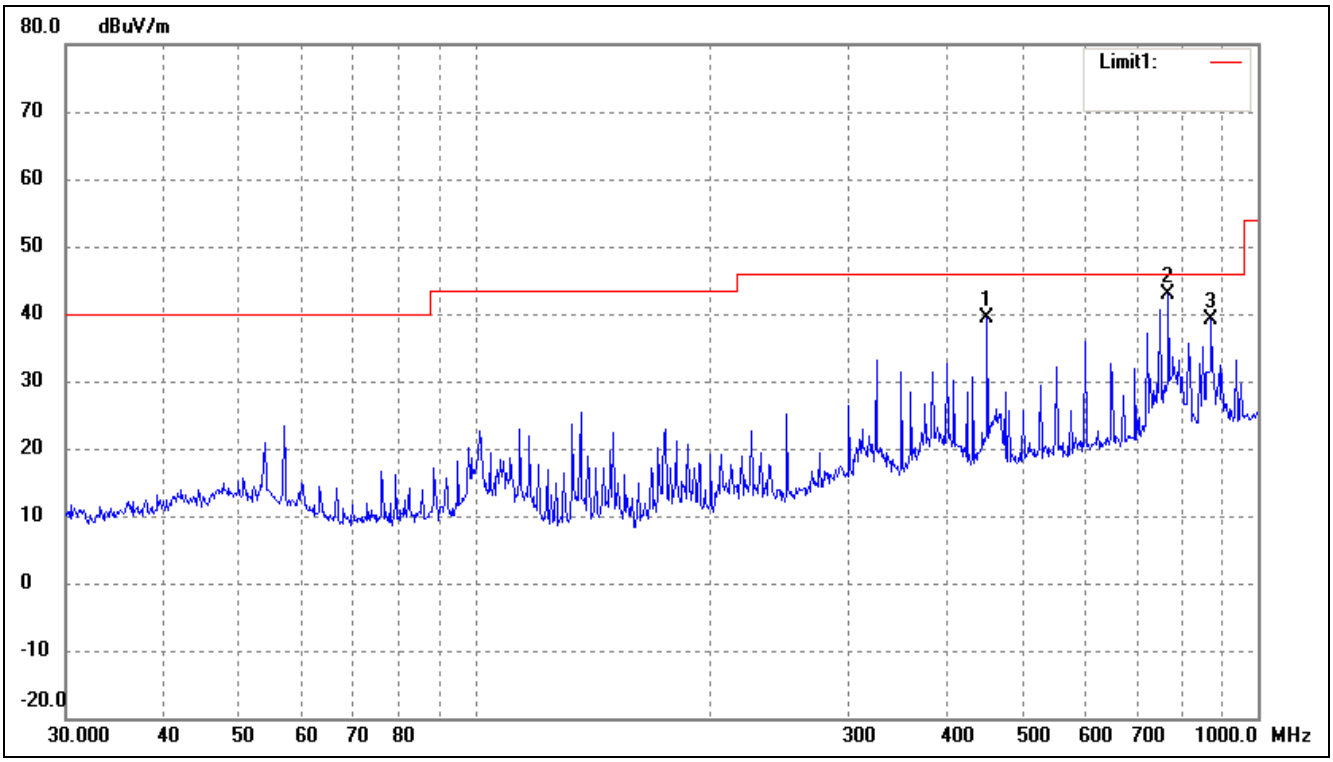
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-3.19 dB at **768.7482 MHz** in the **Horizontal** polarization, TM1, **9 kHz** to **1 GHz**, **3Meters**

Plot of Radiated Emissions Test Data

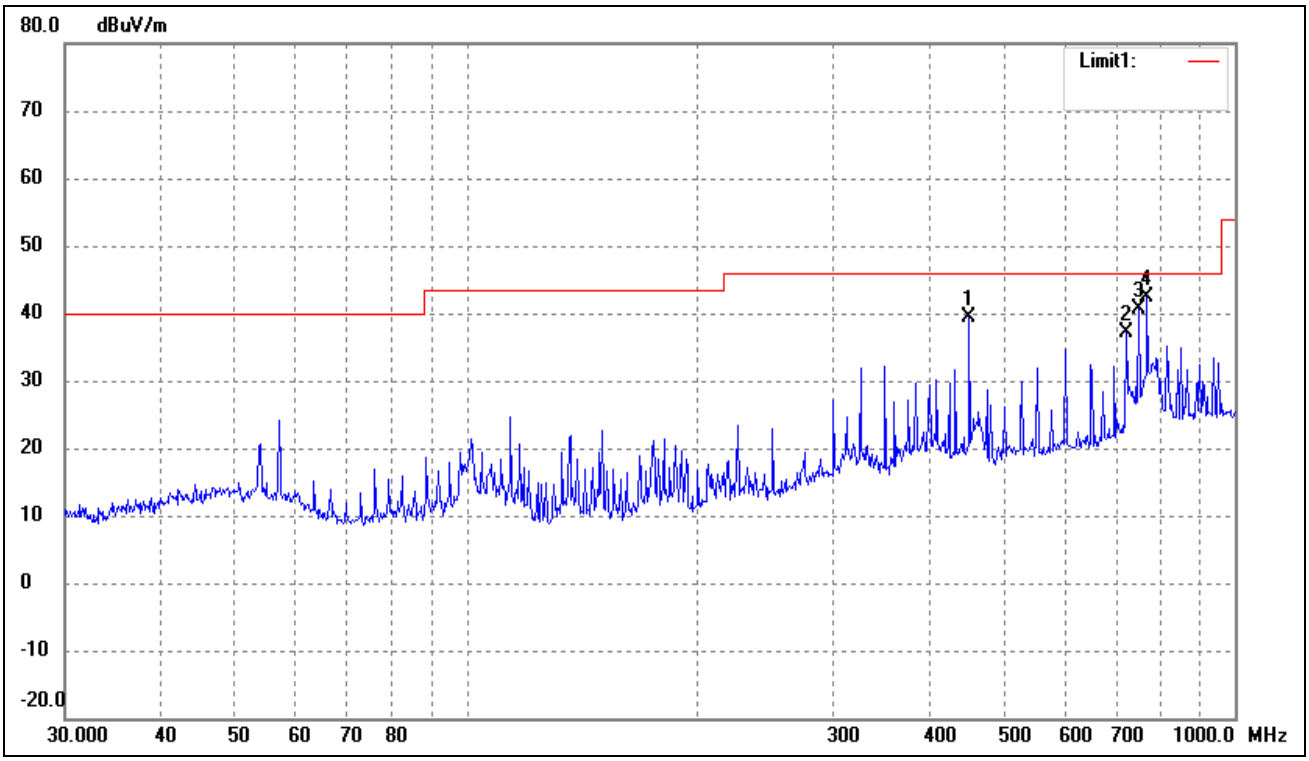
EUT: *Netatmo Security Camera*
Tested Model: *NSC01*
Operating Condition: *TM1*
Comment: *AC 120V/60Hz Adapter DC 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	451.1350	43.32	-4.02	39.30	46.00	-6.70	271	100	peak
2	768.7482	41.24	1.57	42.81	46.00	-3.19	187	100	peak
3	872.1832	36.36	2.79	39.15	46.00	-6.85	220	100	peak

Test Specification: *Vertical*

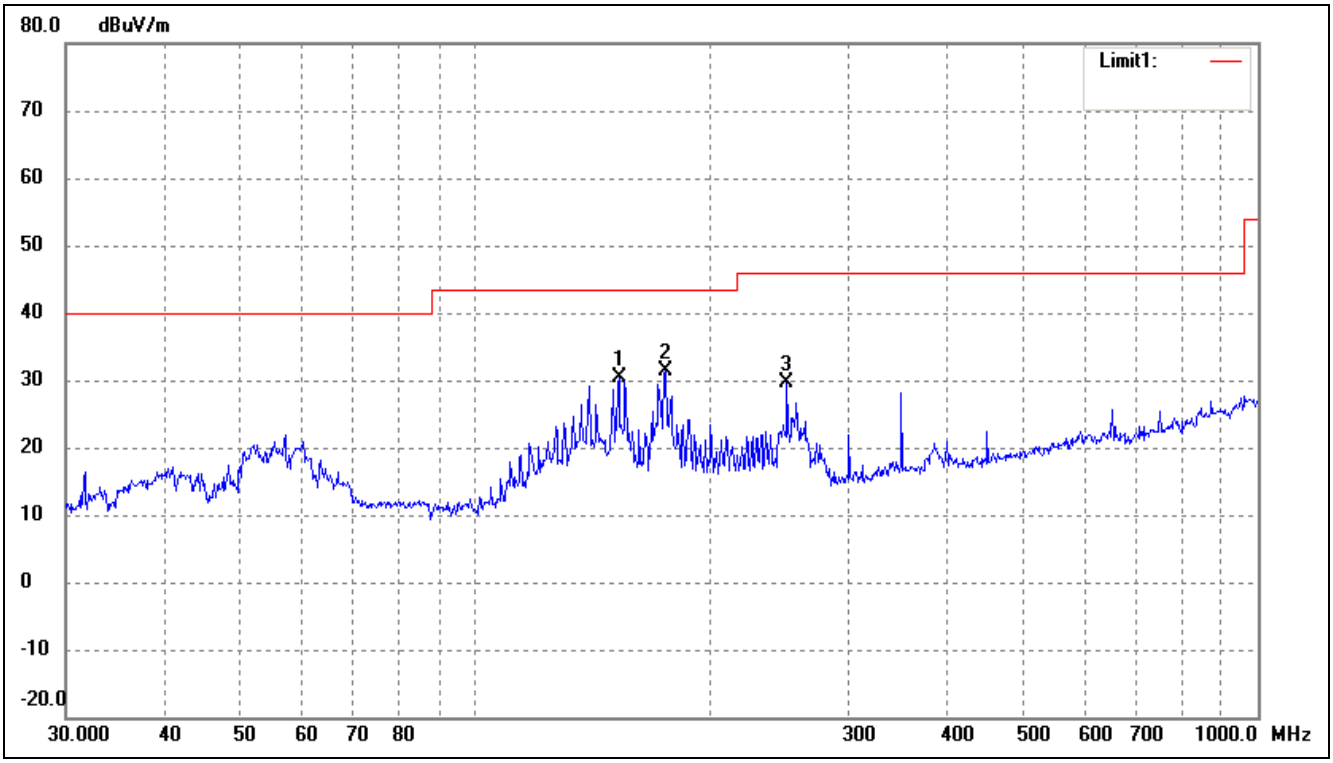


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	451.1350	43.47	-4.02	39.45	46.00	-6.55	360	100	peak
2	721.7259	36.43	0.76	37.19	46.00	-8.81	117	100	peak
3	750.1083	39.39	1.35	40.74	46.00	-5.26	256	100	peak
4	768.7482	40.87	1.57	42.44	46.00	-3.56	273	100	peak

Plot of Radiated Emissions Test Data

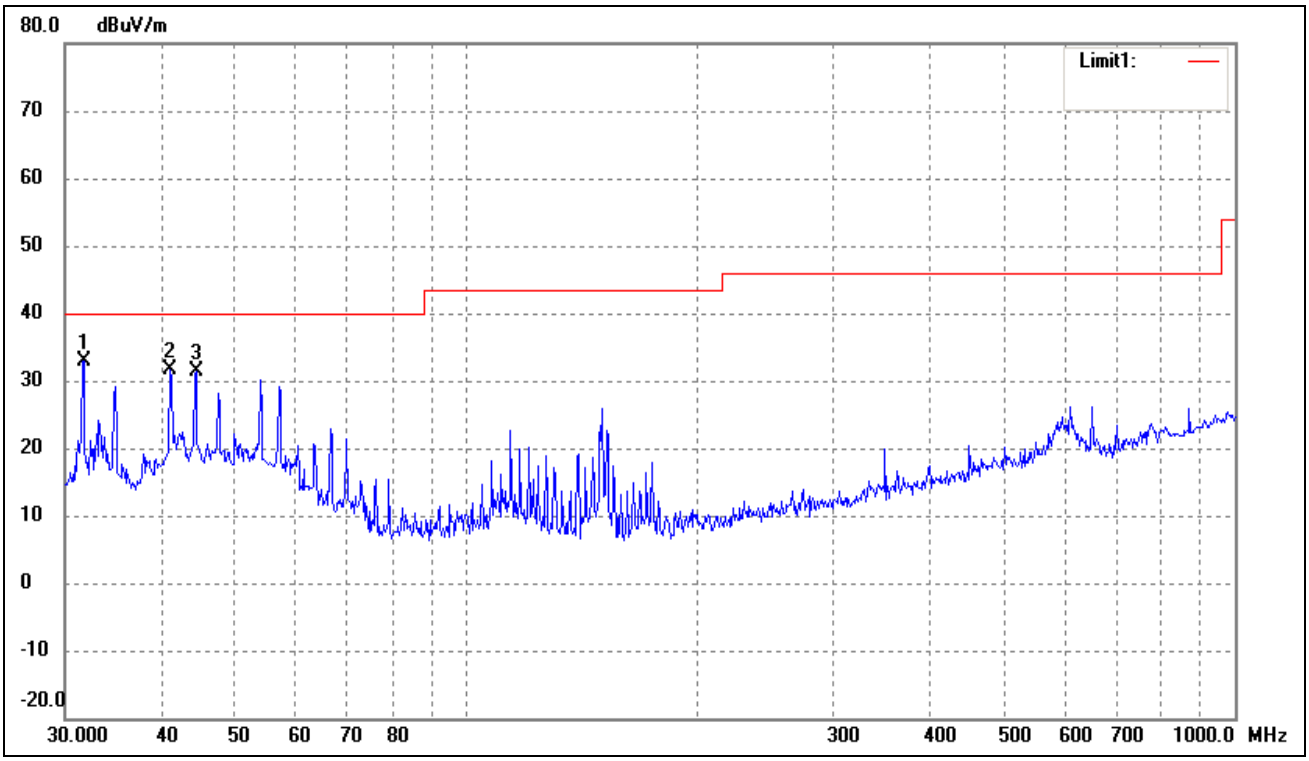
EUT: *Netatmo Security Camera*
Tested Model: *NSC01*
Operating Condition: *TM2*
Comment: *Notebook USB 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	152.6641	43.66	-13.31	30.35	43.50	-13.15	22	100	peak
2	175.0368	43.39	-12.01	31.38	43.50	-12.12	165	100	peak
3	250.3012	38.12	-8.43	29.69	46.00	-16.31	334	100	peak

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	31.7313	43.28	-10.42	32.86	40.00	-7.14	224	100	peak
2	41.1320	40.67	-9.09	31.58	40.00	-8.42	167	100	peak
3	44.4308	40.02	-8.64	31.38	40.00	-8.62	330	100	peak

Note: Testing is carried out with frequency rang 9kHz to the 6GHz, which above 1GHz is close to the noise base even antenna close up to 1meter distance according the measurement of ANSI C63.4.
The measurements greater than 20dB below the limit from 9kHz to 30MHz and test data are not provided.

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