FCC Part 15B
Measurement and Test Report

For

Netatmo

93, rue Nationale - 92100 Boulogne Billancourt - FRANCE

FCC ID: N3A-NHC01

Test Rule(s):	FCC Part 15 Subpart B
Product Description:	Netatmo Home Coach
Tested Model:	NHC01
Report No.:	STR16068143I-3
Tested Date:	2016-06-13 to 2016-06-30
Issued Date:	2016-07-04
Tested By:	Seven Song / Engineer
Reviewed By:	Silin Chen / 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

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. CONDUCTED EMISSIONS 8
3.1 TEST PROCEDURE 8
3.2 BASIC TEST SETUP BLOCK DIAGRAM 8
3.3 ENVIRONMENTAL CONDITIONS 8
3.4 SUMMARY OF TEST RESULTS/PLOTS 8
3.5 CONDUCTED EMISSIONS TEST DATA 9
4. RADIATED EMISSIONS 11
4.1 TEST PROCEDURE 11
4.2 TEST RECEIVER SETUP 12
4.3 CORRECTED AMPLITUDE & MARGIN CALCULATION 12
4.4 ENVIRONMENTAL CONDITIONS 12
4.5 SUMMARY OF TEST RESULTS/PLOTS 12

1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Netatmo

Address of applicant: 93, rue Nationale - 92100 Boulogne Billancourt - FRANCE

Manufacturer: Netatmo

Address of manufacturer: 93, rue Nationale - 92100 Boulogne Billancourt - FRANCE

General Description of EUT	
Product Name:	Netatmo Home Coach
Trade Name:	Netatmo
Model No.:	NHC01
Adding Model(s):	/
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:	NHC01
	INPUT:AC100-240V~50-60Hz; OUTPUT:DC5V/1A
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 C63.4-2014, 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	Configure the product	USB via to Notebook

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
USB Cable	1.5	Shielded	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	Lenovo	E10	/

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	±2.88dB
Transmitter Spurious Emissions	Radiated	±5.1dB

1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2016-06-04	2017-06-03
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2016-06-04	2017-06-03
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2016-06-04	2017-06-03
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2016-06-04	2017-06-03
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2016-06-04	2017-06-03
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2016-06-04	2017-06-03
SEMT-1042	Horn Antenna	ETS	3117	00086197	2016-06-04	2017-06-03
SEMT-1121	Horn Antenna	ETS	3116B	00088203	2016-06-04	2017-06-03
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2016-06-04	2017-06-03
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2016-06-04	2017-06-03
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2016-06-04	2017-06-03
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2016-06-04	2017-06-03

2. SUMMARY OF TEST RESULTS

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

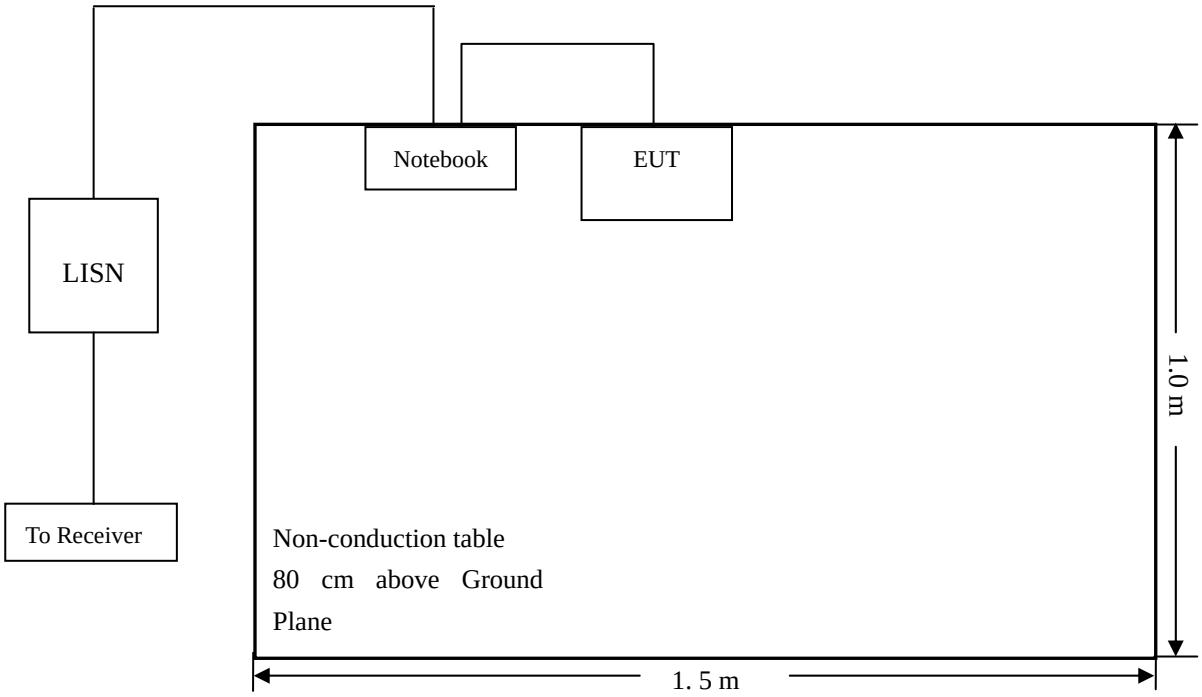
N/A: not applicable

3. Conducted Emissions

3.1 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 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

3.4 Summary of Test Results/Plots

According to the data in section 3.5, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

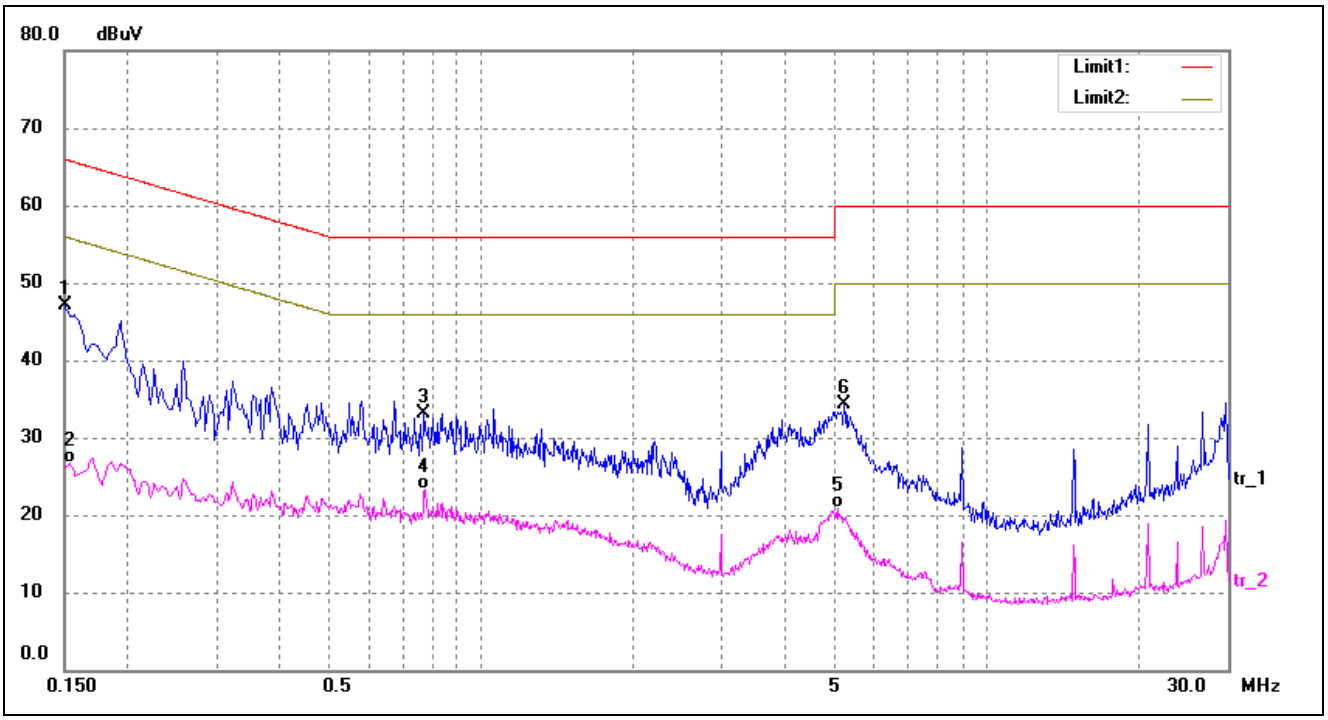
-14.01 dB at 0.1540MHz in the **TM1** Mode**, peak** detector, **0.15-30MHz**

3.5 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

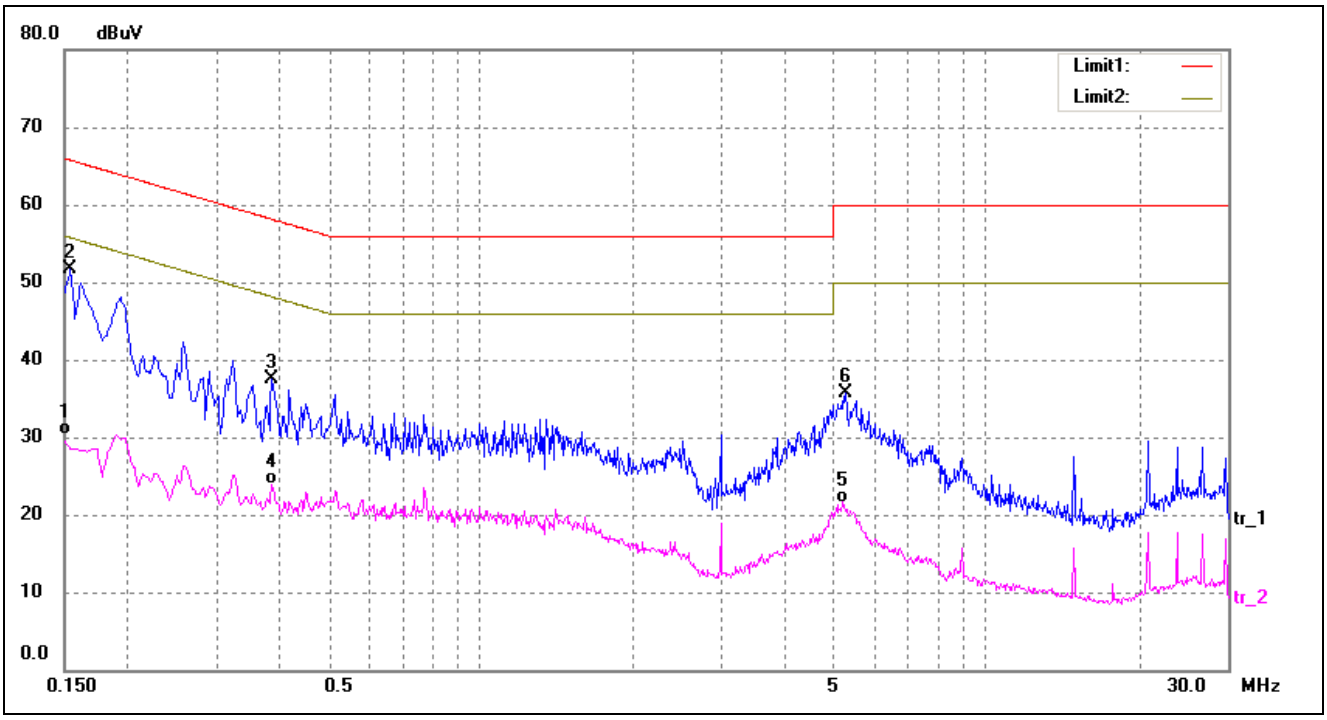
EUT: *Netatmo Home Coach*
Tested Model: *NHC01*
Operating Condition: *TM1*
Comment: *Connect to PC*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1*	0.1500	37.67	9.50	47.17	66.00	-18.83	peak
2	0.1540	17.15	9.50	26.65	55.78	-29.13	AVG
3	0.7740	23.40	9.63	33.03	56.00	-22.97	peak
4	0.7780	13.66	9.63	23.29	46.00	-22.71	AVG
5	5.0780	10.67	10.24	20.91	50.00	-29.09	AVG
6	5.2340	24.06	10.25	34.31	60.00	-25.69	peak

Test Specification: *Line*

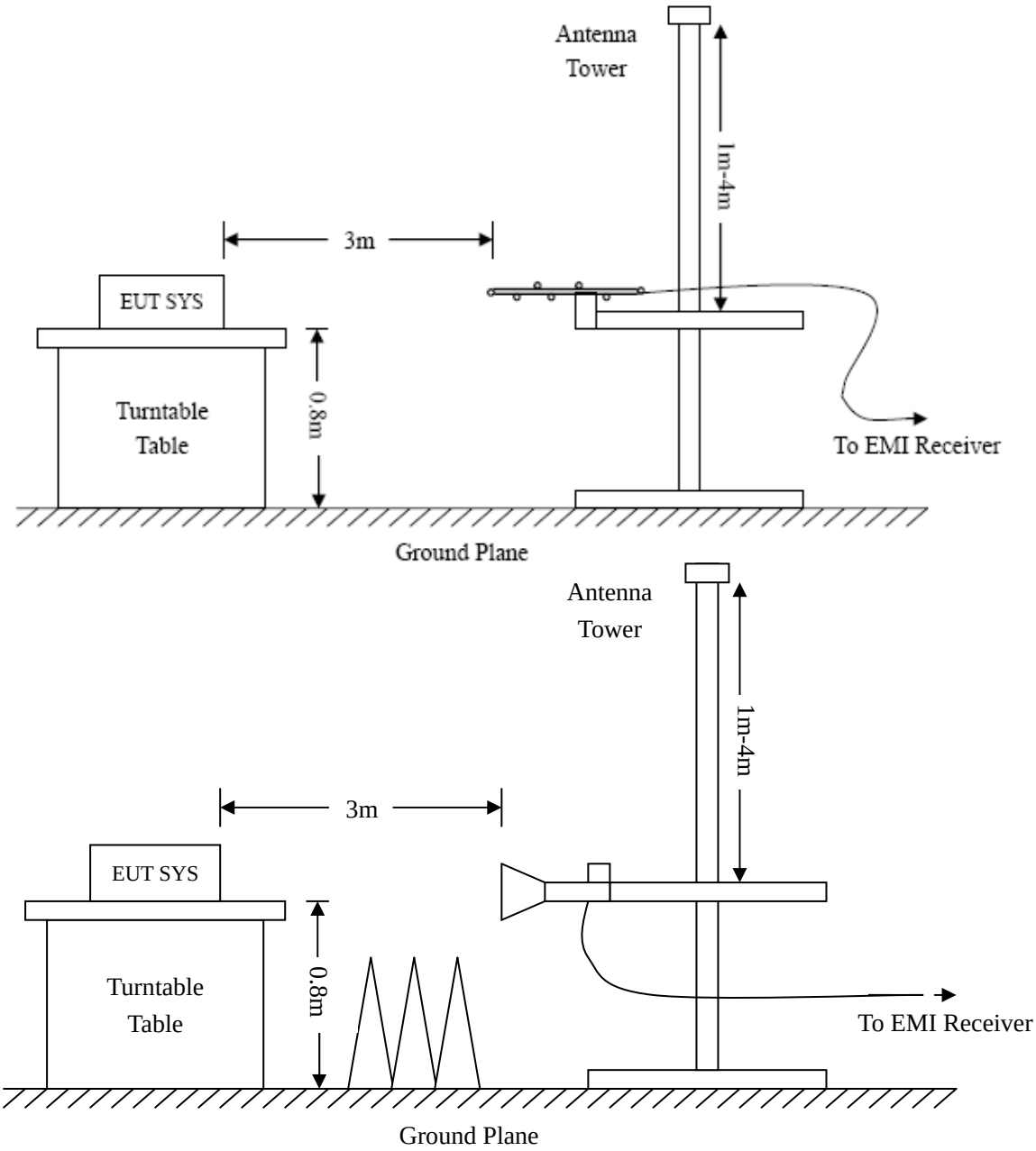


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1500	20.80	9.50	30.30	56.00	-25.70	AVG
2*	0.1540	42.27	9.50	51.77	65.78	-14.01	peak
3	0.3860	27.93	9.50	37.43	58.15	-20.72	peak
4	0.3860	14.32	9.50	23.82	48.15	-24.33	AVG
5	5.2060	11.36	10.24	21.60	50.00	-28.40	AVG
6	5.2700	25.40	10.25	35.65	60.00	-24.35	peak

4. Radiated Emissions

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 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

4.3 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

4.4 Environmental Conditions

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

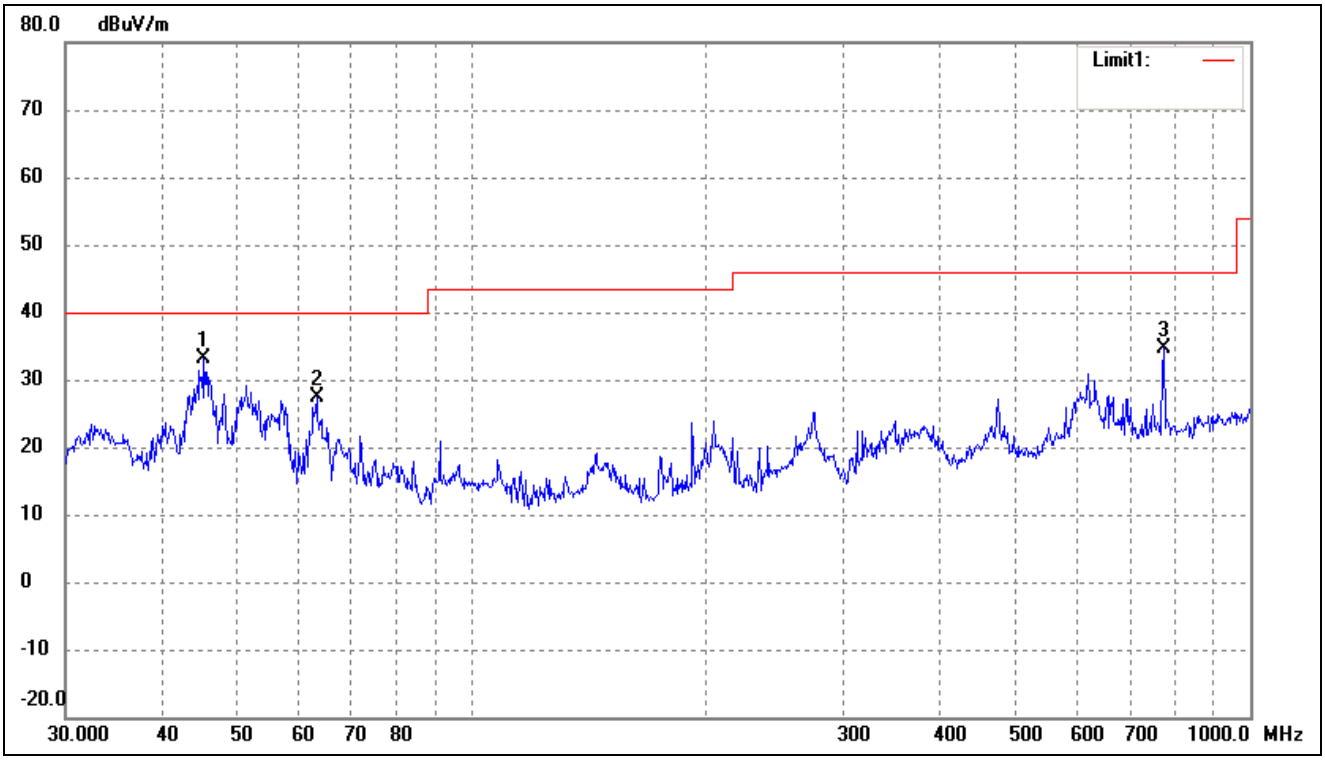
4.5 Summary of Test Results/Plots

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

-2.72 dB at **44.2752 MHz** in the **Vertical** polarization, **30MHz** to **6 GHz**, **3Meters**

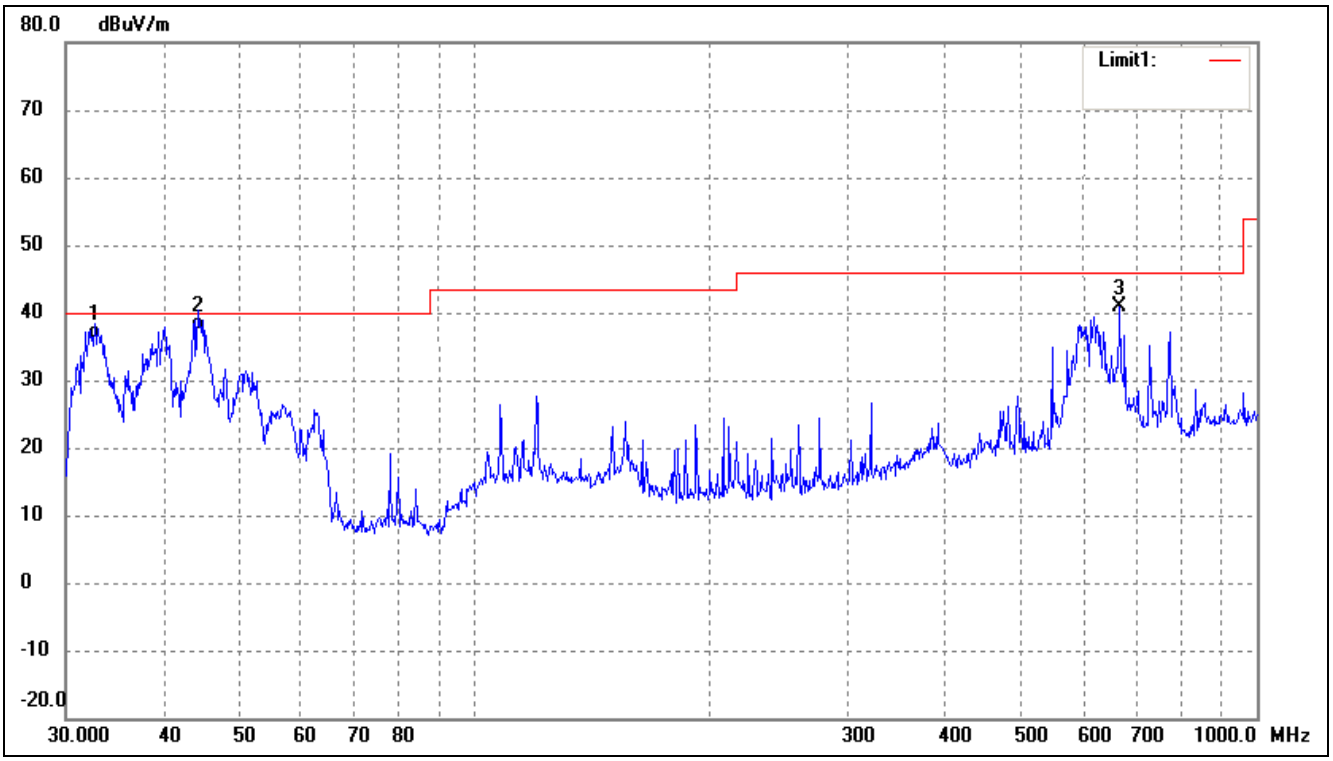
Plot of Radiated Emissions Test Data

EUT: *Netatmo Home Coach*
Tested Model: *NHC01*
Operating Condition: *TM1*
Comment: *Connect to PC*
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	45.2165	41.06	-8.01	33.05	40.00	-6.95	343	100	peak
2	63.0915	37.99	-10.58	27.41	40.00	-12.59	300	100	peak
3	774.1584	32.17	2.58	34.75	46.00	-11.25	71	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	32.7486	45.82	-9.62	36.20	40.00	-3.80	126	100	peak
2	44.2752	45.23	-7.95	37.28	40.00	-2.72	124	100	QP
3	668.1423	40.62	0.23	40.85	46.00	-5.15	68	100	QP

Note: Testing is carried out with frequency rang 30MHz 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.

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