

TEST REPORT

For

3M Peltor Wireless Communication Accessory

Model Number: MT67H05WS6

FCC ID: Y9ZM67H05WS6

Report Number : WT178003161

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Inspection
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TEST REPORT DECLARATION

Applicant : 3M Company
Address : Personal Safety Division, 3M Center, Building 235-2NW-70,
St. Paul, Minnesota, United States
Manufacturer : 3M Svenska AB
Address : Box 2341, Malmstengatan 19, SE-331 02 Varnamo, Sweden
EUT Description : 3M Peltor Wireless Communication Accessory
MODEL No : MT67H05WS6
Trade mark : 3M™ PELTOR™
Serial Number : /
FCC ID : Y9ZM67H05WS6

Test Standards:

FCC Part 15 Subpart B 15.107, 15.109 (2016)

The EUT described above is tested by Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory to determine the maximum emissions from the EUT. Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory is assumed full responsibility for the accuracy of the test results.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Project Engineer:	 _____ (Chen Silin 陈司林)	Date:	<u>Jul.24, 2017</u>
Checked by:	 _____ (Lin Yixiang 林奕翔)	Date:	<u>Jul.24, 2017</u>
Approved by:	 _____ (Lin Bin 林斌)	Date:	<u>Jul.24, 2017</u>

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1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	Test Results
Conducted Disturbance (Class B)	Pass
Radiation Emission (Class B)	Pass

Remark: "N/A" means "Not applicable."

2. GENERAL INFORMATION

2.1. Report information

This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that SMQ approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that SMQ in any way guarantees the later performance of the product/equipment.

The sample/s mentioned in this report is/are supplied by Applicant, SMQ therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through SMQ, unless the applicant has authorized SMQ in writing to do so.

2.2. Laboratory Accreditation and Relationship to Customer

The testing report were performed by the Shenzhen Academy of Metrology and quality Inspection EMC Laboratory (Guangdong EMC compliance testing center), in their facilities located at NETC Building, No.4 Tongfa Rd., Xili, Nanshan, Shenzhen, China. At the time of testing, Laboratory is accredited by the following organizations:

China National Accreditation Service for Conformity Assessment (CNAS) accredits the Laboratory for conformance to FCC standards, EMC international standards and EN standards. The Registration Number is CNAS L0579.

The Laboratory is accredited by the United States of American Federal Communications Commission (FCC), and the registration number is 582918.

The Laboratory is registered to perform emission tests with Industry Canada (IC), and the registration number is 11177A-1 11177A-2.

TUV Rhineland accredits the Laboratory for conformance to IEC and EN standards, the registration number is E2024086Z02.

2.3. Measurement Uncertainty

Conducted Emission
9kHz~30MHz 3.5dB

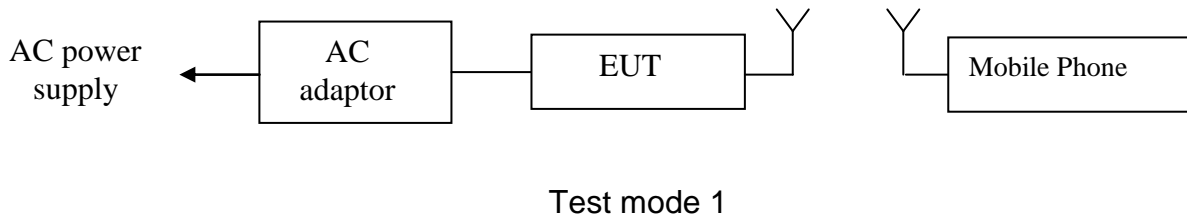
Radiated Emission
30MHz~1000MHz 4.5dB
1GHz~18GHz 4.6dB

3. PRODUCT DESCRIPTION

3.1.EUT Description

Manufacturer : 3M Svenska AB
Description : 3M Peltor Wireless Communication Accessory
Model Number : MT67H05WS6
Input : 100~240V~ 50/60Hz 0.4A AC Adaptor
Antenna Designation : BT: Internal Antenna 2.6dBi
Operating Voltage : DC 3.8V
Rating input : 4.5V(Low)/5.0V(Normal)/5.5V(Max)
Software Version : CSRA63120 (ID: 0x432)
Hardware Version : 11084
Test Voltage : AC 120V/60Hz
Remark:--

3.2.Block Diagram of EUT Configuration



3.3.Operating Condition of EUT

Test mode 1: BT link + adaptor

3.4.Support Equipment List

Table 2 Support Equipment List

Name	Model No	S/N	Manufacturer
Mobile Phone	Iphone 6s	--	APPLE
Adaptor	UC13	--	Ten Pao Industrial Co.,Ltd.

3.5.Test Conditions

Date of test : Jun.09, 2017- Jul.07, 2017
Date of EUT Receive : Jun.06, 2017
Temperature: -30-50 °C
Relative Humidity: 48-56%

3.6.Modifications

No modification was made.

4. TEST EQUIPMENT USED

4.1. Test Equipment Used to Measure Conducted Disturbance

Table 3 Conducted Disturbance Test Equipment

No.	Equipment	Manufacturer	Model No.	LAST CALIB	Period
SB3319	EMI Test Receiver	R&S	ESCS30	Nov.29,2016	1 Year
SB4357	AMN	R&S	ENV216	Sep.23,2016	1 Year

4.2. Test Equipment Used to Measure Radiated Disturbance

Table 4 Radiated Disturbance Test Equipment

No.	Equipment	Manufacturer	Model No.	LAST CALIB	Period
SB3436	EMI Test Receiver	R&S	ESI26	Nov.29,2016	1 Year
SB3955	Trilog Broadband Antenna (30M-3GHz)	Schwarzbeck	VULB9163	Mar.22,2017	1 Year
SB9422/16	Double-Ridged Waveguide Horn Antenna (1G~18GHz)	R&S	HF907	Mar.19,2017	1 Year
SB8501/17	Preamplifier	Rohde & Schwarz	SCU-18	Mar.06, 2017	1 Year
SB8501/16	Preamplifier	Rohde & Schwarz	SCU-26	Mar.06, 2017	1 Year
SB9059	Preamplifier	Rohde & Schwarz	SCU-40	Sep.21,2016	1 Year
SB8501/11	Horn Antenna	Rohde & Schwarz	3160-09	Mar.21,2017	3 Years
SB8501/12	Horn Antenna	Rohde & Schwarz	3160-10	Mar.21,2017	3 Years

5. CONDUCTED DISTURBANCE TEST

5.1. Test Standard and Limit

5.1.1. Test Standard

FCC Part 15: Section 15.107

5.1.2. Test Limit

Table 5 Conducted Disturbance Test Limit (Class B)

Frequency	Power Port limits (dB μ V)	
	Quasi-peak	Average
0.15MHz ~ 0.5MHz	66~56*	56~46*
0.5MHz ~ 5 MHz	56	46
5 MHz ~ 30MHz	60	50

5.2. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESCS30) is used to test the emissions form both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

5.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

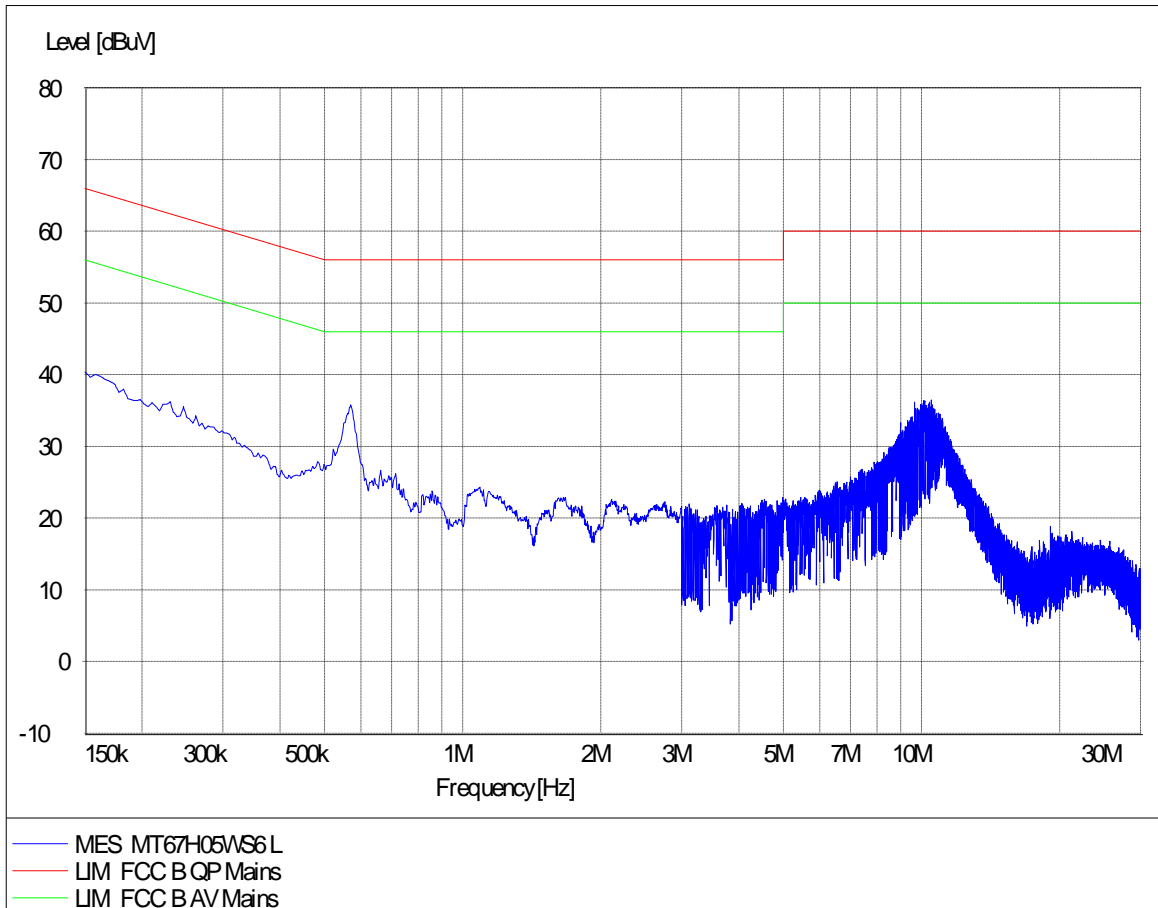
5.4. Test Data

The emissions don't show in below are too low against the (L – 20 dB), where L is the limit level in logarithmic units.

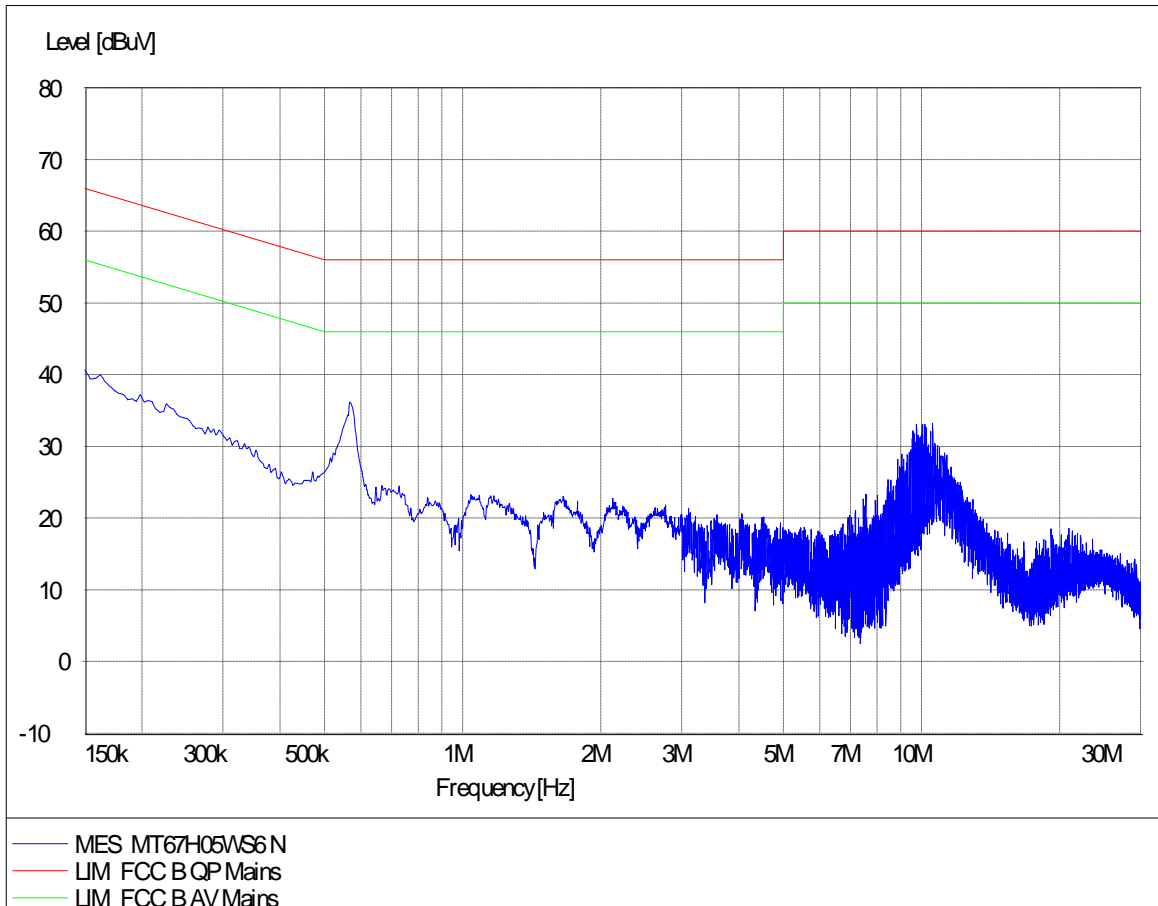
Table 6 Conducted Disturbance Test Data at mains Port

Model No.: MT67H05WS6								
Test mode: Test Mode 1								
	Frequency (MHz)	Correction Factor (dB)	Quasi-Peak			Average		
			Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)	Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)
Line	0.150	9.7	26.3	36.0	66	10.5	20.2	56
	0.226	9.7	21.8	31.5	62.6	11.9	21.6	52.6
	0.566	9.8	22.6	32.4	56	18.5	28.3	46
	1.654	9.8	10.8	20.6	56	5.3	15.1	46
	9.740	10.0	15.8	25.8	60	7.0	17.0	50
	10.560	9.9	15.9	25.8	60	10.4	20.3	50
Neutral	0.150	9.7	26.1	35.8	66	9.0	18.7	56
	0.246	9.7	20.1	29.8	61.9	7.4	17.1	51.9
	0.570	9.8	22.1	31.9	56	14.8	24.6	46
	1.082	9.8	10.3	20.1	56	1.5	11.3	46
	9.648	10.0	21.4	31.4	60	14.1	24.1	50
	10.500	9.9	22.4	32.3	60	15.2	25.1	50

EUT: MT67H05WS6
Operating Condition: Test mode 1
Test Specification: L
Comment: AC 120V/60Hz



EUT: MT67H05WS6
Operating Condition: Test mode 1
Test Specification: N
Comment: AC 120V/60Hz



6. RADIATION DISTURBANCE TEST

6.1. Test Standard and Limit

6.1.1. Test Standard

FCC Part 15: Section 15.109

6.1.2. Test Limit

Table 7 Radiation Disturbance Test Limit (Class B)

Frequency (MHz)	Class B Radiated Limit (dB μ V/m)
	Quasi-peak
30 to 88	40
88 to 216	43.5
216 to 960	46
960 to 1000	54

Table 8 Radiation Disturbance Test Limit(Class B)(Above 1G)

Frequency (MHz)	Class B Radiated Limit (dB μ V/m)	
	Linear Average Detector	Peak Detector
> 1000	54	74

* The lower limit shall apply at the transition frequency.

* The test distance is 3m.

6.2. Test Procedure

The EUT is placed on a turntable, which is 0.8 meter above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set **3 meters** away from the receiving antenna, which is mounted on an antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test. Set RBW=100 kHz for $f < 1$ GHz; VBW \geq RBW; Detector function = peak; Set RBW = 1 MHz, VBW= 3MHz for $f > 1$ GHz for peak measurement.

6.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

6.4. Test Data

The emissions don't show in below are too low against the (L – 20 dB), where L is the limit level in logarithmic units.

Table 9 Radiated Disturbance Test Data

Frequency (MHz)	Cable Loss +preamp(dB)	Antenna Factor (dB)	Readings (dBµV/m)	Level (dBµV/m)	Polarity (H/V)	Turntable Angle(deg)	Antenna Height(m)	Limits (dBµV/m)	Margin (dB)
51.383	0.8	13.3	9.6	23.7	H	20	1	40	16.3
56.135	0.9	13.0	7.3	21.2	H	30	1	40	18.8
144.638	1.4	8.2	12.9	22.5	H	20	2	43.5	21.0
166.071	1.5	8.7	16.9	27.1	H	20	2	43.5	16.4
195.330	1.6	10.6	13.8	26.0	H	30	2	43.5	17.5
486.811	2.7	16.1	11.3	30.1	H	20	1	46	15.9
38.988	0.7	12.3	15.7	28.7	V	20	1	40	11.3
43.631	0.7	13.6	11.3	25.6	V	30	1	40	14.4
55.271	0.8	13.0	12.3	26.1	V	20	1	40	13.9
78.597	1.0	7.8	13.9	22.7	V	30	1	40	17.3
197.171	1.7	10.6	10.7	23.0	V	20	1	43.5	20.5
537.213	2.8	16.6	7.8	27.2	V	20	1	46	18.8
PK									
1170.340	-41.0	24.4	56.0	39.4	H	24	1	74	34.6
3180.036	-38.9	30.4	51.1	42.6	H	310	1	74	31.4
6655.310	-36.1	35.3	49.5	48.7	H	56	1	74	25.3
8136.262	-37.8	36.1	50.3	48.6	H	210	1	74	25.4
15881.777	-33.7	41.0	46.2	53.5	H	80	1	74	20.5
17453.490	-32.4	42.9	48.4	58.9	H	314	1	74	15.1
4509.018	-39.3	33.7	49.9	44.3	V	36	1	74	29.7
8699.398	-36.9	36.6	49.2	48.9	V	72	1	74	25.1
10300.601	-33.8	37.1	48.1	51.4	V	45	1	74	22.6
13060.120	-36.1	38.1	50.8	52.8	V	79	1	74	21.2
14865.731	-34.3	40.5	48.3	54.5	V	105	1	74	19.5
17114.228	-31.8	42.7	48.3	59.2	V	150	1	74	14.8
AV									
1170.340	-41.0	24.4	44.2	27.6	H	24	1	54	26.4
3180.036	-38.9	30.4	36.8	28.3	H	310	1	54	25.7
6655.310	-36.1	35.3	31.0	30.2	H	56	1	54	23.8
8136.262	-37.8	36.1	32.3	30.6	H	210	1	54	23.4
15881.777	-33.7	41.0	27.5	34.8	H	80	1	54	19.2
17453.490	-32.4	42.9	27.4	37.9	H	314	1	54	16.1
4509.018	-39.3	33.7	35.2	29.6	V	36	1	54	24.4
8699.398	-36.9	36.6	31.6	31.3	V	72	1	54	22.7
10300.601	-33.8	37.1	29.4	32.7	V	45	1	54	21.3
13060.120	-36.1	38.1	31.0	33.0	V	79	1	54	21.0
14865.731	-34.3	40.5	28.9	35.1	V	105	1	54	18.9
17114.228	-31.8	42.7	27.3	38.2	V	150	1	54	15.8

Remark: Emission level(dBuV)=Read Value(dBuV/m) + Antenna Factor(dB)+ Cable Loss +preamp(dB)

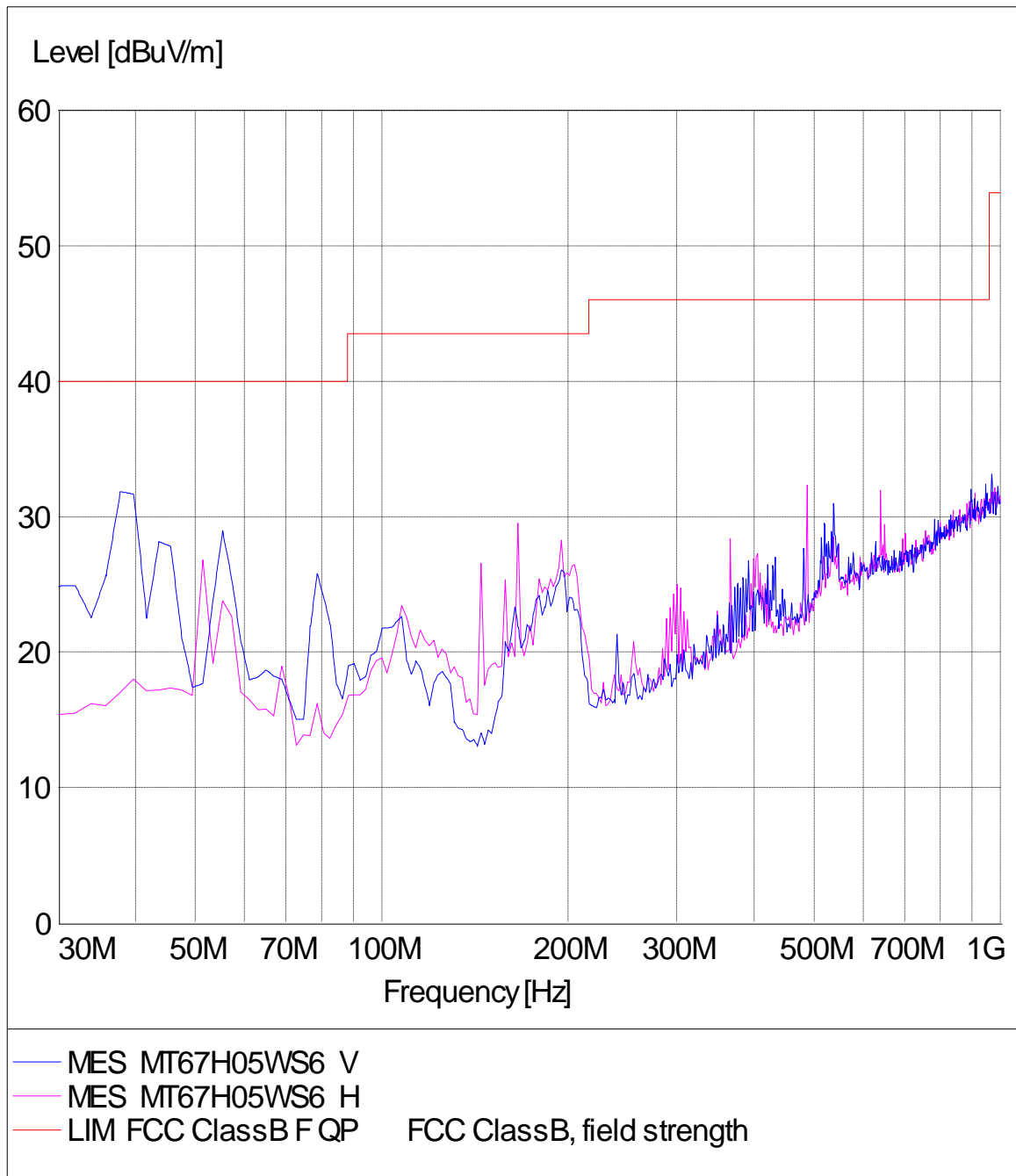
Radiated Emission

EUT Information

EUT Model Name: MT67H05WS6
Operation mode: Test Mode 1
Test Voltage:
Comment:

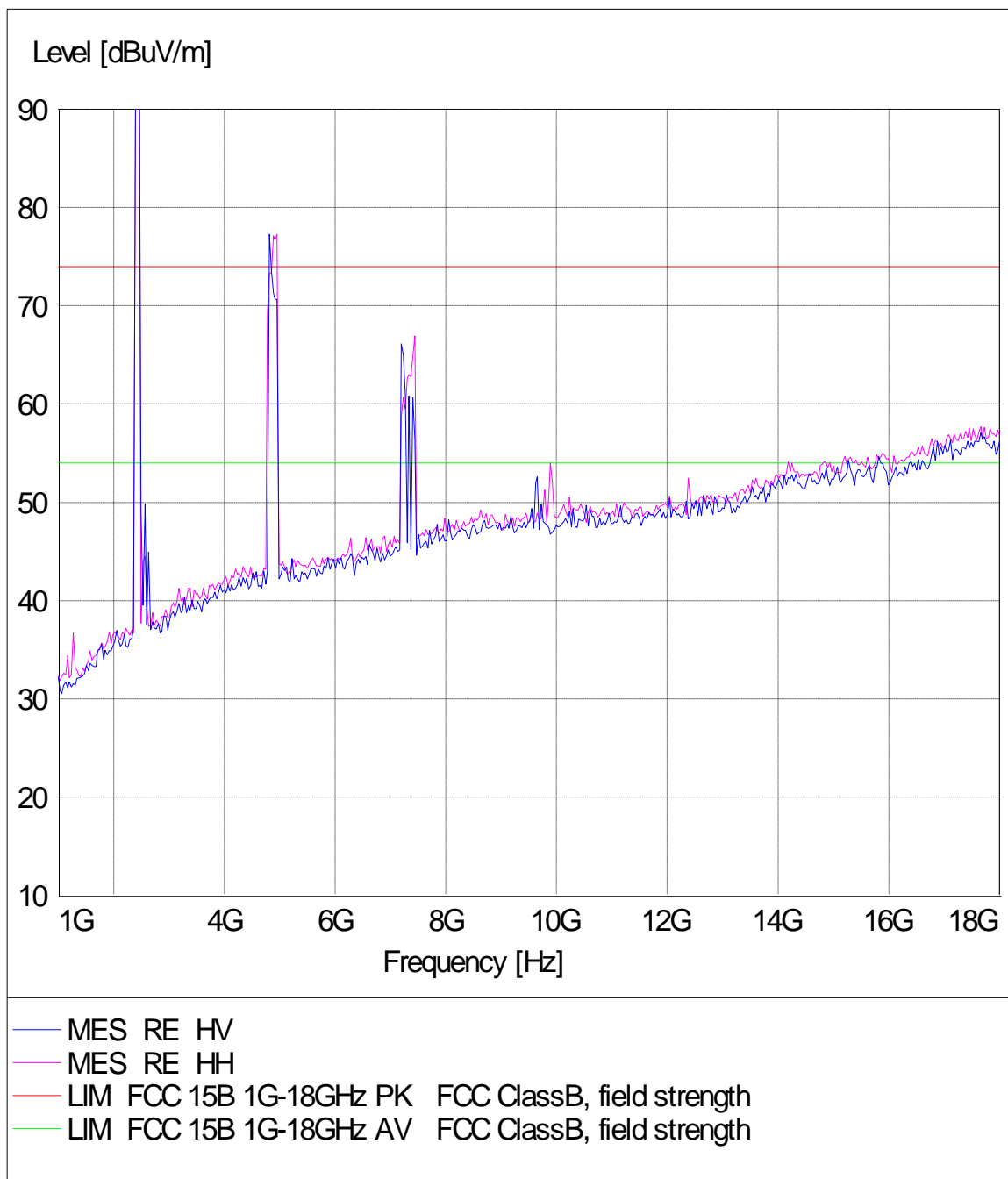
Common Information

Test Site: SMQ EMC Lab.
Environment
Antenna Polarization: Horizontal & Vertical
Operator Name:
Comment:



Radiated Emission

EUT Name: MT67H05WS6
Operating Condition: Test Mode 1
Test site: SMQ NETC EMC Lab.3m Chamber
Antenna Position: Vertical & Horizontal
Comment: AC 120V/60Hz



Remark : The peaks above limits are the frequencies of BT.