

Class II Permissive Change Test Report

**FCC 47 CFR Part 15C
Industry Canada RSS-210**

Frequency hopping systems operating within the 2400 – 2483.5MHz band

Report Reference No. : G0M-1111-1506-TFC247B-V01

Testing Laboratory : Eurofins Product Service GmbH

Address : Storkower Str. 38c
15526 Reichenwalde
Germany

Accreditation :



A2LA Accredited Testing Laboratory, Certificate No.: 1983.01
FCC Filed Test Laboratory, Reg.-No.: 96970
IC OATS Filing assigned code: 3470A

Applicant's name : lesswire AG

Address : Rudower Chaussee 30
12489 Berlin
GERMANY

Test specification:

Standard..... : 47 CFR Part 15C
RSS-210, Issue 8, 2010-12
RSS-Gen, Issue 3, 2010-12
ANSI C63.4:2009

Equipment under test (EUT):

Product description : WLAN/Bluetooth Module
Model No. : AN00K73535 / AN00K77421
Hardware version : 2.3
Firmware / Software version : Test FW 10.0.3.63
FCC-ID: PV7-WIBEAR-SF-UAP IC: 7738A-WIBEARSFUAP

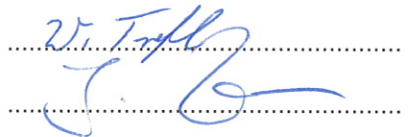
Test result : **Passed**

Possible test case verdicts:

- neither assessed nor tested : N/N
- required by standard but not appl. to test object : N/A
- required by standard but not tested : N/T
- not required by standard for the test object : N/R
- test object does meet the requirement : P (Pass)
- test object does not meet the requirement : F (Fail)

Testing:

Date of receipt of test item..... : 2011-11-21
 Date (s) of performance of tests..... : 2011-12-06
 Compiled by..... : Christian Weber
 Tested by (+ signature) : Wilfried Treffke
 Approved by (+ signature)..... : Jens Zimmermann
 Date of issue..... : 2012-04-16
 Total number of pages : 118


General remarks:

**The test results presented in this report relate only to the object tested.
 The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.**

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

Additional comments:

Class II permissive change tests are performed to show compliance of the modular transmitter with the FCC rules taking into account the changes stated in the class II permissive change letter.

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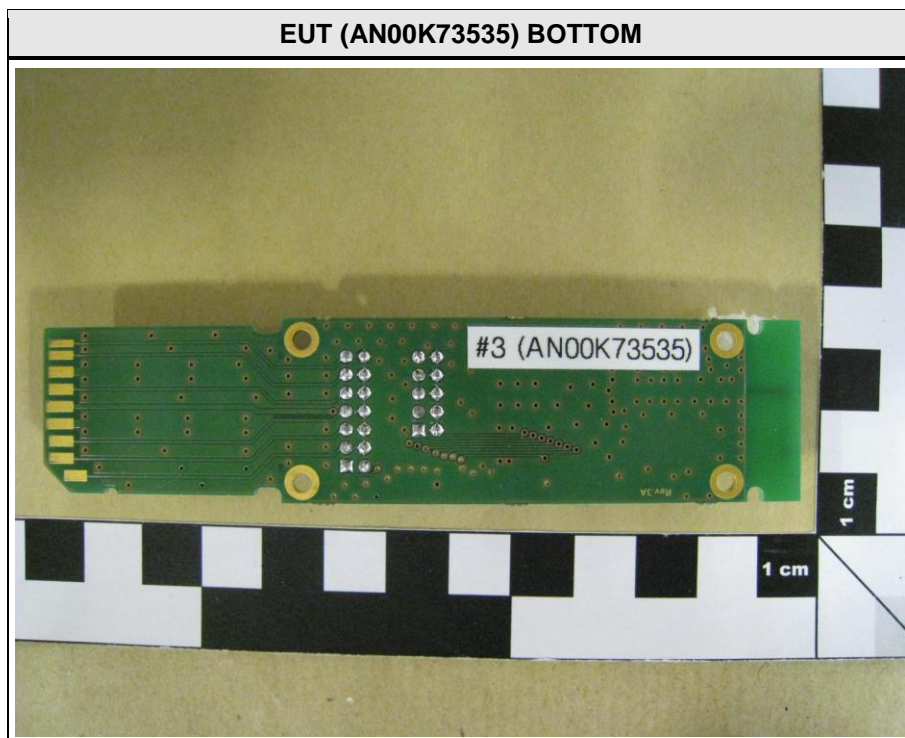
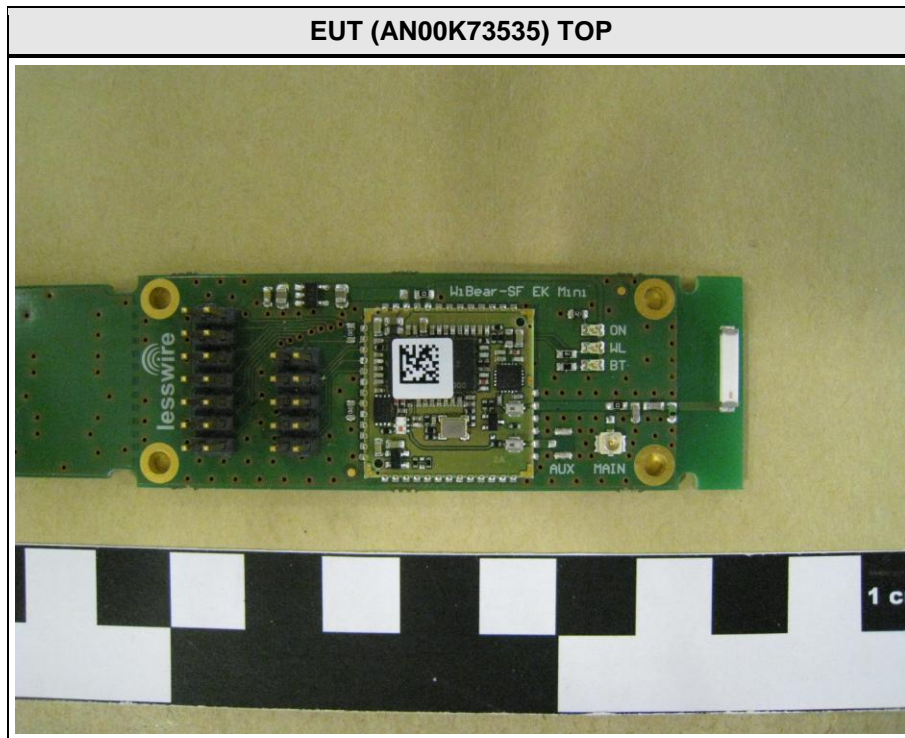
1 Equipment (Test item) Description:

Description	WLAN/Bluetooth Module	
Model	AN00K73535 / AN00K77421	
Brand Name:	Wibear-SF2	
Serial number	None	
Hardware version	2.3	
Software / Firmware version	Test FW 10.0.3.63	
FCC-ID	PV7-WIBEAR-SF-UAP	
IC	7738A-WIBEARSFUAP	
Equipment type	Radio module	
Radio type	Transceiver	
Radio technology	Bluetooth	
Operating frequency range	2402 - 2480MHz	
Assigned frequency band	2400 - 2483.5MHz	
Main test frequencies	F _{LOW}	2402MHz
	F _{MID}	2441MHz
	F _{HIGH}	2480MHz
Spreading	FHSS	
Modulations	GFSK, PI/4-DQPSK, 8-PSK	
Number of channels	79 hopping channels at all	
Channel spacing	1MHz	
Number of antennas	1	
Antenna 1	Type	external dedicated Half wave dipole, RF-SMA connector
	Model	WiMo 17010.10REV
	Manufacturer	WiMo
	Gain	3.14dBi
Antenna 2	Type	integrated Ceramic chip antenna, soldered into the PCB
	Model	7488910245
	Manufacturer	Würth Elektronik
	Gain	3.0dBi
Manufacturer	PRETTL Electronics AG Robert-Bosch-Straße 10 01454 Radeberg GERMANY	
Power supply	V _{NOM}	3.3VDC
	V _{MIN}	--
	V _{MIN}	--

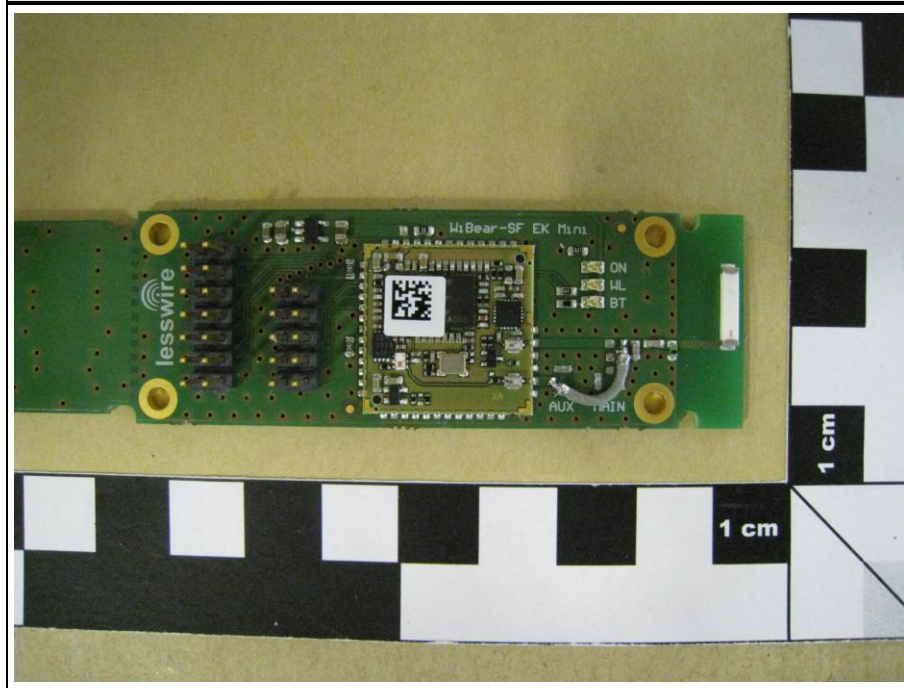
Test Report No.: G0M-1111-1506-TFC247B-V01

Eurofins Product Service GmbH
Storkower Str. 38c, D-15526 Reichenwalde, Germany

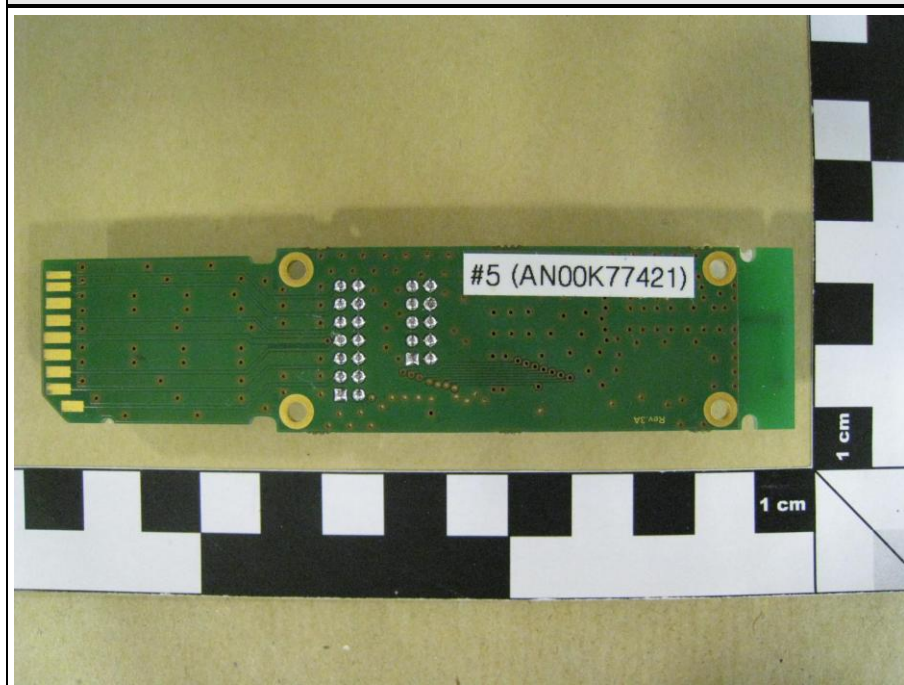
1.1 Photos – Equipment



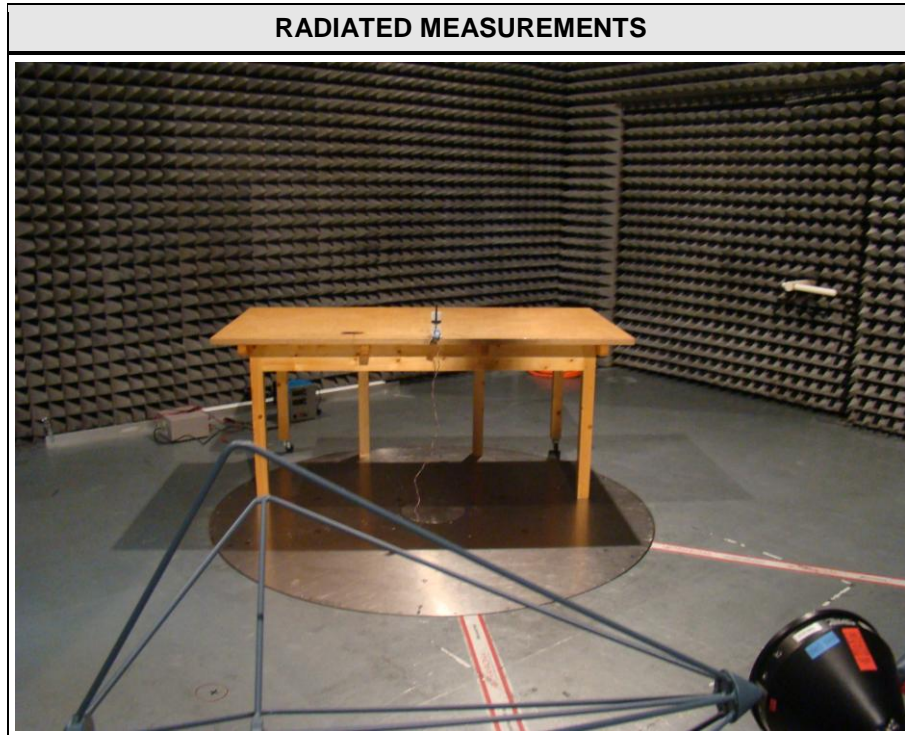
EUT (AN00K77421) TOP



EUT (AN00K77421) BOTTOM



1.2 Photos – Test setup



1.3 Supporting Equipment Used During Testing

Product Type*	Device	Manufacturer	Model No.	Comments
none				
<p>*Note: Use the following abbreviations:</p> <p>AE : Auxiliary/Associated Equipment, or</p> <p>SIM : Simulator (Not Subjected to Test)</p> <p>CABL : Connecting cables</p>				

1.4 Test Modes

Mode #	Description	
DH5-Sngl	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone transmit Spreading = Hopping stopped (single hopping channel) Modulation = GFSK Packet type = DH5 Data rate = 1Mbps Duty cycle = 46% Power level = Maximum
2-DH5-Sngl	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone transmit Spreading = Hopping stopped (single hopping channel) Modulation = $\pi/4$ -DQPSK Packet type = 2-DH5 Data rate = 2Mbps Duty cycle = 46% Power level = Maximum
3-DH5-Sngl	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone transmit Spreading = Hopping stopped (single hopping channel) Modulation = 8-DPSK Packet type = 3-DH5 Data rate = 3Mbps Duty cycle = 46% Power level = Maximum
DH5-Hop	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone transmit Spreading = Hopping Modulation = GFSK Packet type = DH5 Data rate = 1Mbps Duty cycle = 46% Power level = Maximum

2DH5-Hop	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone transmit Spreading = Hopping Modulation = $\pi/4$ -DQPSK Packet type = 2-DH5 Data rate = 2Mbps Duty cycle = 46% Power level = Maximum
3DH5-Hop	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone transmit Spreading = Hopping Modulation = 8-DPSK Packet type = 3-DH5 Data rate = 3Mbps Duty cycle = 46% Power level = Maximum
Receive	General conditions:	EUT powered by laboratory power supply.
	Radio conditions:	Mode = standalone receive Spreading = Hopping

1.5 Test Equipment Used During Testing

20dB Bandwidth					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	ETS 0496	Aug 10	Aug 12

Maximum peak conducted power					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	ETS 0496	Aug 10	Aug 12

Band edge compliance					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	Inv. No. 0496	Aug 10	Aug 12

Conducted spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Spectrum Analyzer	R&S	FSP 30	Inv. No. 0496	Aug 10	Aug 12

Radiated spurious emissions					
Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due
Semi-anechoic chamber	Frankonia	AC 5	Inv. No. 0583		
Spectrum Analyzer	R&S	FSIQ26	Inv. No. 0413	Apr. 11	Apr. 12
Biconical Antenna	R&S	HK 116	Inv. No. 0012	Jan 10	Jan 13
LPD Antenna	R&S	HL 223	Inv. No. 0295	Feb 11	Feb 13
LPD Antenna	R&S	HL 025	Inv. No. 0512	Feb 10	Feb 13

1.6 Sample emission level calculation

The following is a description of terms and a sample calculation, as appears in the radiated emissions data table. The numbers used in the calculation are for example only. There is no direct correlation to the specific data taken for the product described in this document:

Reading:

This is the reading obtained on the spectrum analyzer in dB μ V. Any external preamplifiers used are taken into account through internal analyzer settings.

A.F.:

This is the antenna factor for the receiving antenna. It is a conversion factor, which converts electric fields strengths to voltages, which can be measured directly on the spectrum analyzer. It is treated as a loss in dB. Cable losses have been included with the A.F. to simplify the calculations. The antenna factor is used in calculations as follows:

$$\text{Reading on Analyzer (dB}\mu\text{V)} + \text{A.F. (dB)} = \text{Net field strength (dB}\mu\text{V/m)}$$

Net:

This is the net field strength measurement (as shown above).

Limit:

This is the FCC Class B radiated emission limit (in units of dB μ V/m). The FCC limits are given in units of μ V/m. The following formula is used to convert the units of μ V/m to dB μ V/m:

$$\text{Limit (dB}\mu\text{V/m)} = 20 * \log (\mu\text{V/m})$$

Margin:

This is the margin of compliance below the FCC limit. The units are given in dB. A negative margin indicates the emission was below the limit. A positive margin indicates that the emission exceeds the limit.

Example only:


$$\begin{array}{rclcl} \text{Reading} & + & \text{AF} & = & \text{Net Reading} & : & \text{Net reading - FCC limit} & = & \text{Margin} \\ 21.5 \text{ dB}\mu\text{V} & + & 26 \text{ dB} & = & 47.5 \text{ dB}\mu\text{V/m} & : & 47.5 \text{ dB}\mu\text{V/m} - 57.0 \text{ dB}\mu\text{V/m} & = & -9.5 \text{ dB} \end{array}$$

2 Result Summary

FCC 47 CFR Part 15C, IC RSS-210				
Product Specific Standard Section	Requirement – Test	Reference Method	Result	Remarks
RSS-Gen 4.6.1	Occupied Bandwidth	RSS-Gen 4.6.1	N/A	Informational only
FCC § 15.247(a)(1) IC RSS-210 § A8.1	20dB Bandwidth	Public notice DA 00-705	N/A	Not included in Class II permission change
FCC § 15.247(a)(1)(iii) IC RSS-210 § A8.1	Number of hopping frequencies	Public notice DA 00-705	N/A	Not included in Class II permission change
FCC § 15.247(a)(1) IC RSS-210 § A8.1	Frequency hopping channel separation	Public notice DA 00-705	N/A	Not included in Class II permission change
FCC § 15.247(a)(1)(iii) IC RSS-210 § A8.1	Time of occupancy (Dwell time)	Public notice DA 00-705	N/A	Not included in Class II permission change
FCC § 15.247(b)(1) IC RSS-210 § A8.4	Maximum peak conducted power	Public notice DA 00-705	PASS	
47 CFR 15.207 RSS-Gen 7.2.4	AC power line conducted emissions	ANSI C63.4	N/A	Not included in Class II permission change
FCC § 15.247(d) IC RSS-210 § A8.5	Band edge compliance	Public notice DA 00-705	PASS	
FCC § 15.247(d) IC RSS-210 § A8.5	Conducted spurious emissions	Public notice DA 00-705	PASS	
FCC § 15.247(d) FCC § 15.209 IC RSS-210 A8.5 IC RSS-Gen 4.9 IC RSS-Gen 7.2.5	Transmitter radiated spurious emissions	Public notice DA 00-705 / ANSI C 63.4	PASS	
IC RSS-Gen 4.10 IC RSS-Gen 6.1	Receiver radiated spurious emissions	ANSI C 63.4	PASS	
Remarks:				

3 Test Conditions and Results

3.1 Test Conditions and Results – Occupied Bandwidth

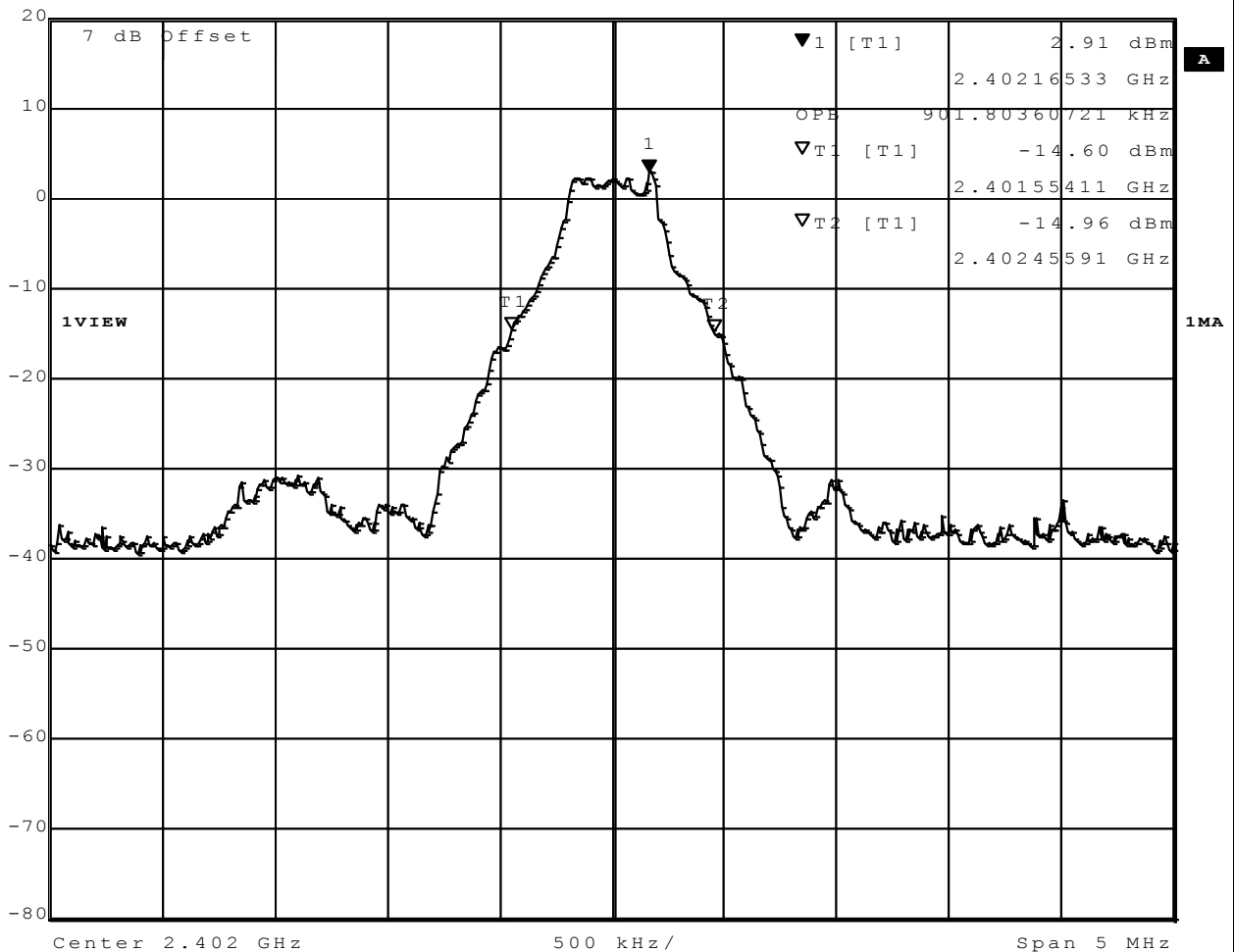
Occupied Bandwidth acc. IC RSS-Gen		Verdict: PASS	
Test according to measurement reference	Reference Method		
	RSS-Gen 4.6.1		
Test frequency range	Tested frequencies		
	$F_{LOW} / F_{MID} / F_{HIGH}$		
Limits			
None (Informational only)			
Test setup			
 <pre> graph LR SA[Spectrum Analyzer] --- EUT[EUT] </pre>			
Test procedure			
<ol style="list-style-type: none"> 1. EUT set to test mode (Communication tester is used if needed) 2. Span set to at least twice the emission spectrum 3. Resolution bandwidth set to 1% of span 4. Occupied Bandwidth (99%) measurement with spectrum analyzer built in measurement function 			
Test results			
Channel	Frequency [MHz]	Mode	Occupied Bandwidth [kHz]
F_{LOW}	2402	DH5-Sngl	901.803
F_{MID}	2441	DH5-Sngl	911.824
F_{HIGH}	2480	DH5-Sngl	911.824
F_{LOW}	2402	3-DH5-Sngl	1152.304
F_{MID}	2441	3-DH5-Sngl	1172.345
F_{HIGH}	2480	3-DH5-Sngl	1172.345
Comments:			

Occupied Bandwidth – DH5-Sngl F_{Low}

RSS Gen
Occupied Bandwidth

EUT WLAN/Bluetooth Module / WiBear SF2 UAP
 Model AN00K73535 #3
 Approval Holder lesswire AG / Ord.: G0M-1111-1506
 Temperature / Voltage 25°C, Vnom
 Test Site / Operator Eurofins Product Service GmbH, Mr. Treffke
 Test Specification 4.4.1 Occupied Bandwidth
 Comment 1 Channel.: 2402 MHz
 Comment 2 A spectrum analyzer with an integrated 99% power bandwidth function is used
 Comment 3 GFSK, DH5


	Marker 1 [T1]	RBW	50 kHz	RF Att	40 dB
Ref Lvl	2.91 dBm	VBW	200 kHz		
20 dBm	2.40216533 GHz	SWT	5 ms	Unit	dBm

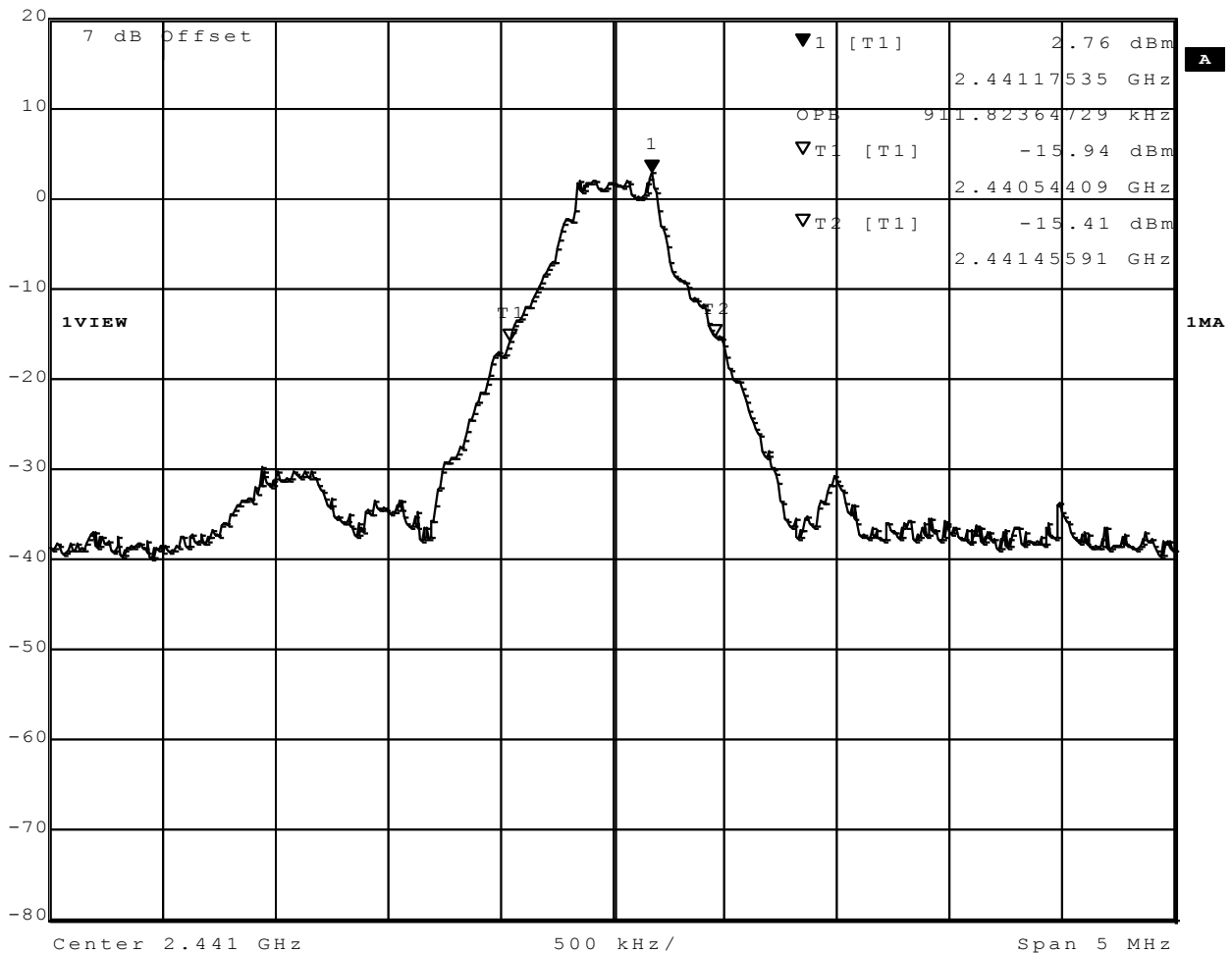


Comment A: Occupied bandwidth: 901.8 KHz
 Date: 6.DEC.2011 08:09:44

Occupied Bandwidth – DH5-Sngl F_{MID}
RSS Gen
Occupied Bandwidth

EUT WLAN/Bluetooth Module / WiBear SF2 UAP
 Model AN00K73535 #3
 Approval Holder lesswire AG / Ord.: G0M-1111-1506
 Temperature / Voltage 25°C, Vnom
 Test Site / Operator Eurofins Product Service GmbH, Mr. Treffke
 Test Specification 4.4.1 Occupied Bandwidth
 Comment 1 Channel.: 2441 MHz
 Comment 2 A spectrum analyzer with an integrated 99% power bandwidth function is used
 Comment 3 GFSK, DH5

	Marker 1 [T1]	RBW	50 kHz	RF Att	40 dB
Ref Lvl	2.76 dBm	VBW	200 kHz		
20 dBm	2.44117535 GHz	SWT	5 ms	Unit	dBm



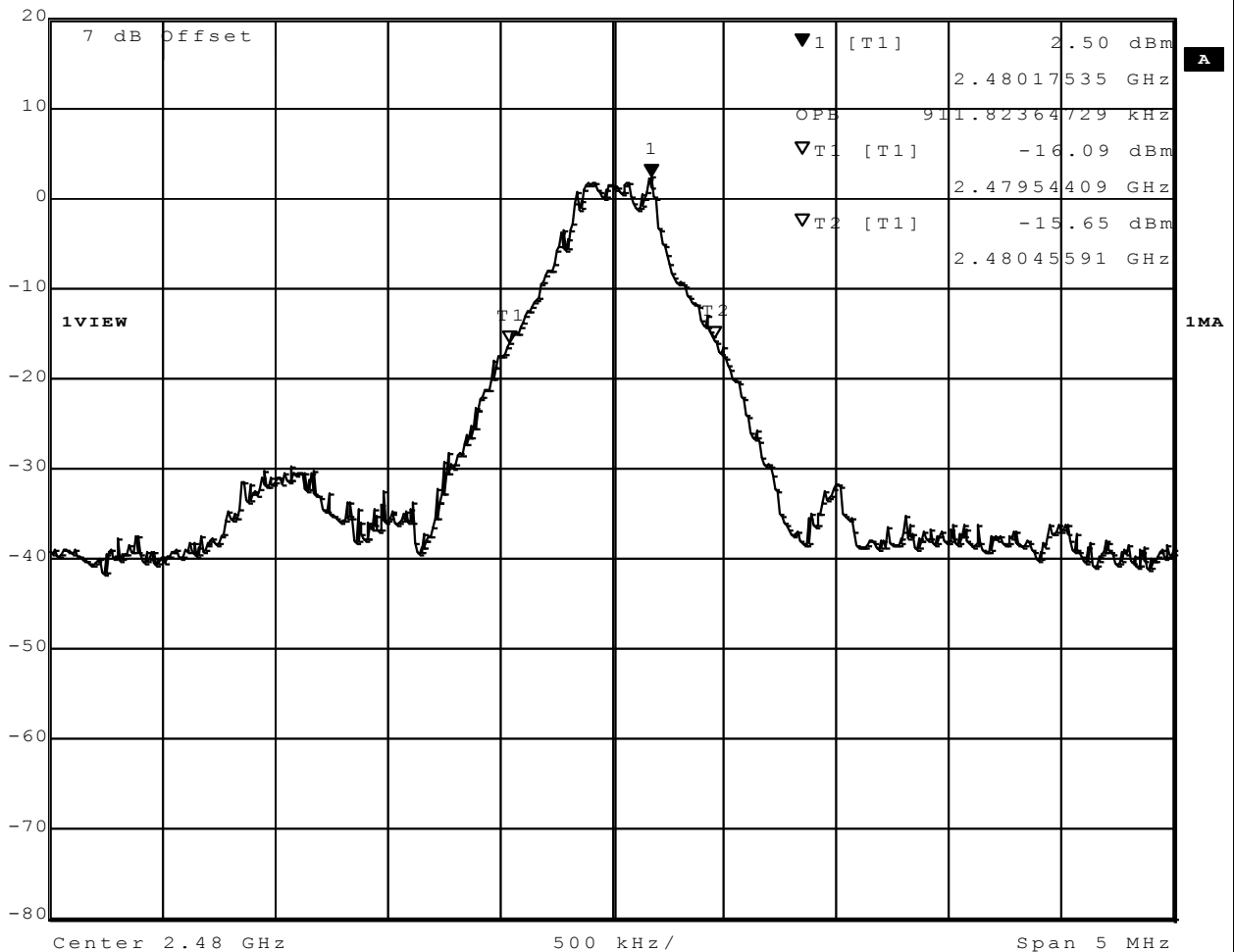
Comment A: Occupied bandwidth: 911.8 KHz
 Date: 6.DEC.2011 08:13:22

Occupied Bandwidth – DH5-Sngl F_{HIGH}

RSS Gen
Occupied Bandwidth

EUT WLAN/Bluetooth Module / WiBear SF2 UAP
 Model AN00K73535 #3
 Approval Holder lesswire AG / Ord.: G0M-1111-1506
 Temperature / Voltage 25°C, Vnom
 Test Site / Operator Eurofins Product Service GmbH, Mr. Treffke
 Test Specification 4.4.1 Occupied Bandwidth
 Comment 1 Channel.: 2480 MHz
 Comment 2 A spectrum analyzer with an integrated 99% power bandwidth function is used
 Comment 3 GFSK, DH5


	Marker 1 [T1]	RBW	50 kHz	RF Att	40 dB
	Ref Lvl	2.50 dBm	VBW	200 kHz	
	20 dBm	2.48017535 GHz	SWT	5 ms	Unit dBm

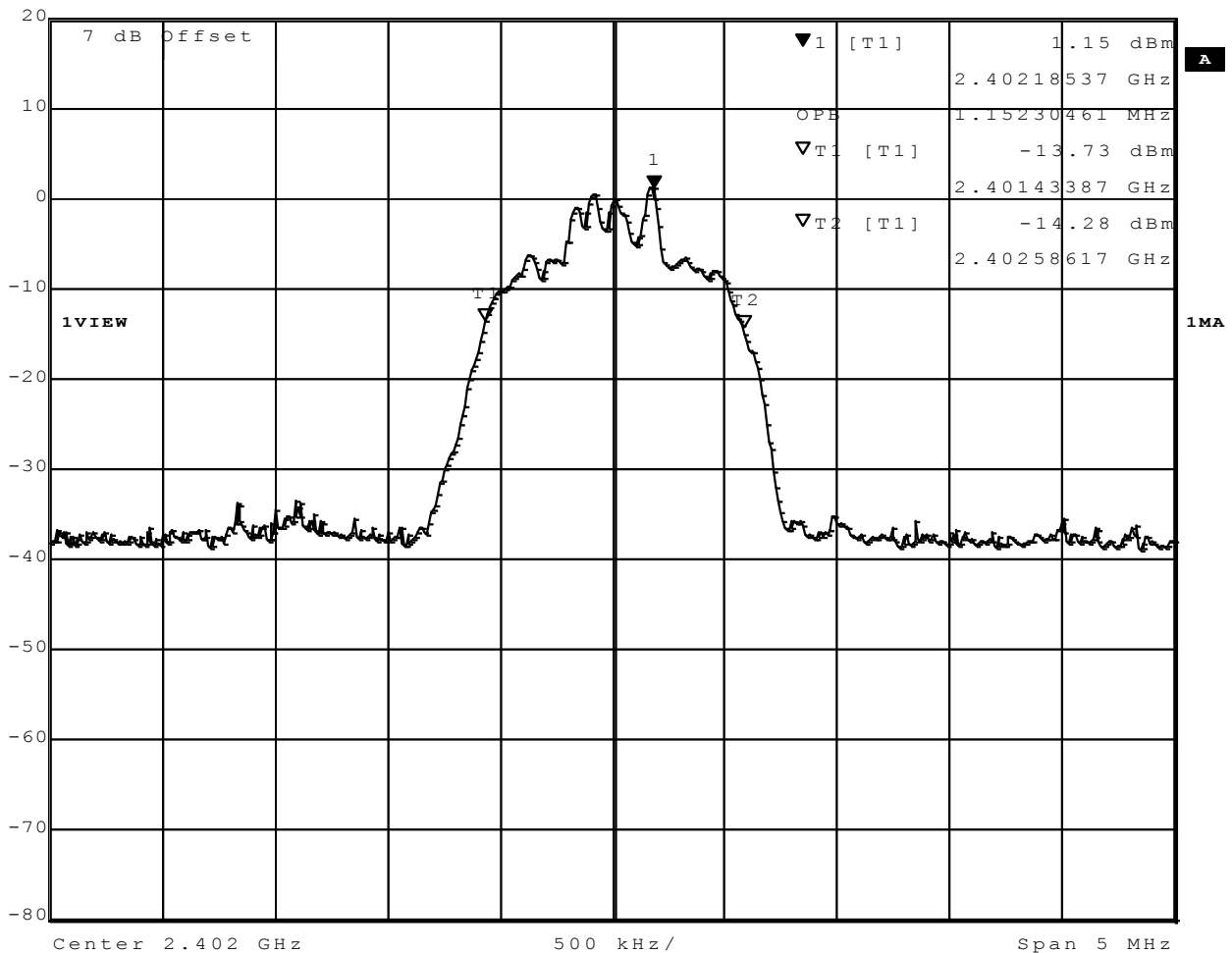


Comment A: Occupied bandwidth: 911.8 KHz
 Date: 6.DEC.2011 08:14:42

Occupied Bandwidth – 3-DH5-Sngl F_{LOW}
**RSS Gen
Occupied Bandwidth**

EUT WLAN/Bluetooth Module / WiBear SF2 UAP
 Model AN00K73535 #3
 Approval Holder lesswire AG / Ord.: G0M-1111-1506
 Temperature / Voltage 25°C, Vnom
 Test Site / Operator Eurofins Product Service GmbH, Mr. Treffke
 Test Specification 4.4.1 Occupied Bandwidth
 Comment 1 Channel.: 2402 MHz
 Comment 2 A spectrum analyzer with an integrated 99% power bandwidth function is used
 Comment 3 8DPSK, 3DH5

	Marker 1 [T1]	RBW	50 kHz	RF Att	40 dB
Ref Lvl	1.15 dBm	VBW	200 kHz		
20 dBm	2.40218537 GHz	SWT	5 ms	Unit	dBm



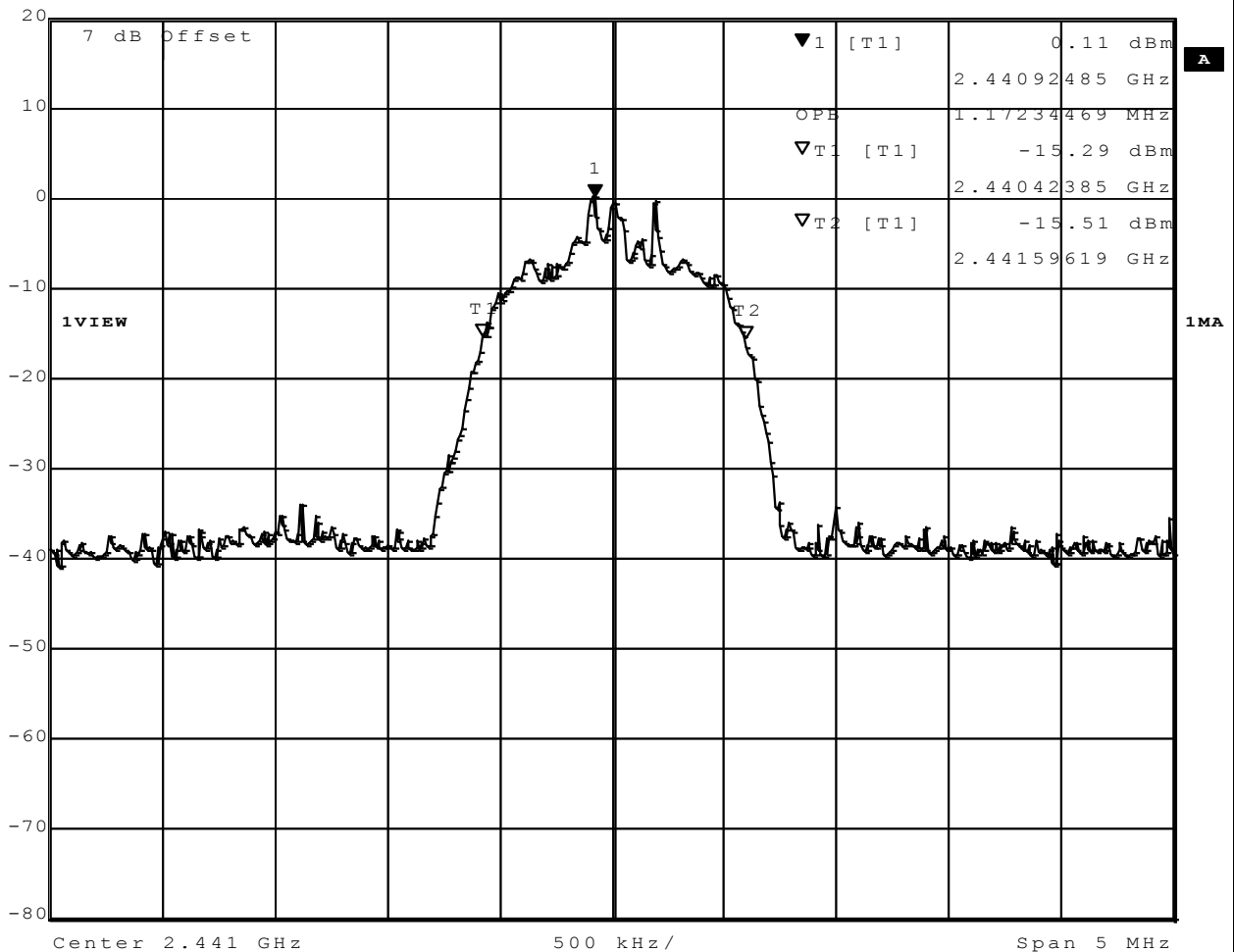
Comment A: Occupied bandwidth: 1152.3 KHz
 Date: 6.DEC.2011 08:17:09

Occupied Bandwidth – 3-DH5-Sngl F_{MID}

RSS Gen
Occupied Bandwidth

EUT WLAN/Bluetooth Module / WiBear SF2 UAP
 Model AN00K73535 #3
 Approval Holder lesswire AG / Ord.: G0M-1111-1506
 Temperature / Voltage 25°C, Vnom
 Test Site / Operator Eurofins Product Service GmbH, Mr. Treffke
 Test Specification 4.4.1 Occupied Bandwidth
 Comment 1 Channel.: 2441 MHz
 Comment 2 A spectrum analyzer with an integrated 99% power bandwidth function is used
 Comment 3 8DPSK, 3DH5


	Ref Lvl	0.11 dBm	RBW	50 kHz	RF Att	40 dB
	20 dBm	2.44092485 GHz	VBW	200 kHz	SWT	5 ms
			Unit			dBm

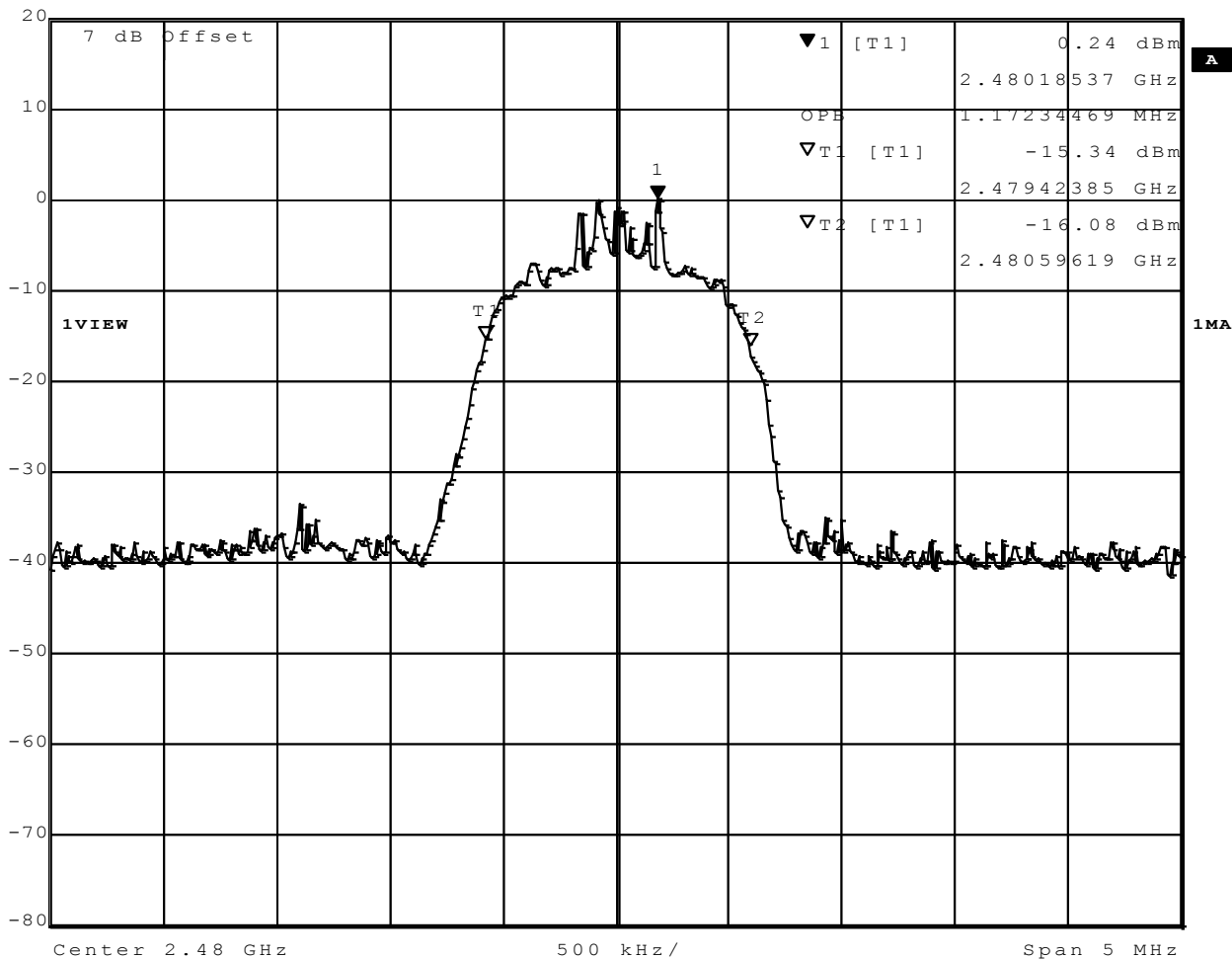


Comment A: Occupied bandwidth: 1172.3 KHz
 Date: 6.DEC.2011 08:18:49

Occupied Bandwidth – 3-DH5-Sngl F_{HIGH}
**RSS Gen
Occupied Bandwidth**


EUT WLAN/Bluetooth Module / WiBear SF2 UAP
 Model AN00K73535 #3
 Approval Holder lesswire AG / Ord.: G0M-1111-1506
 Temperature / Voltage 25°C, Vnom
 Test Site / Operator Eurofins Product Service GmbH, Mr. Treffke
 Test Specification 4.4.1 Occupied Bandwidth
 Comment 1 Channel.: 2480 MHz
 Comment 2 A spectrum analyzer with an integrated 99% power bandwidth function is used
 Comment 3 8DPSK, 3DH5

	Marker 1 [T1]	RBW	50 kHz	RF Att	40 dB
Ref Lvl	0.24 dBm	VBW	200 kHz		
20 dBm	2.48018537 GHz	SWT	5 ms	Unit	dBm




Comment A: Occupied bandwidth: 1172.3 KHz
 Date: 6.DEC.2011 08:20:18

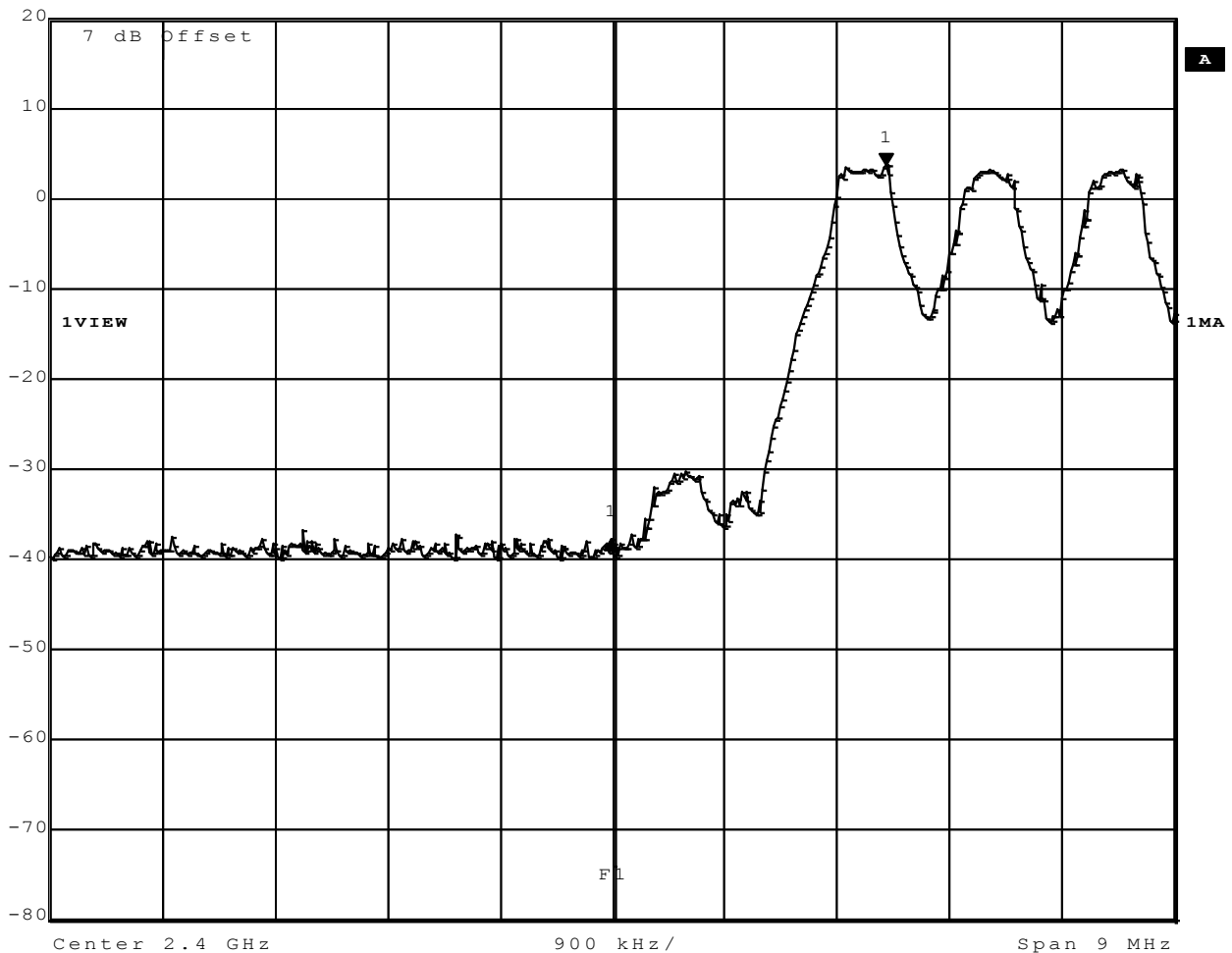
3.2 Test Conditions and Results – Band edge compliance

Band-edge compliance acc. FCC 15.247 / IC RSS-210				Verdict: PASS		
EUT requirement rule parts and clause	Reference					
	FCC 15.247(d) / IC RSS-210 A8.5					
Test according to measurement reference	Reference Method					
	FCC Public Notice DA 00-705					
Test frequency range	Tested frequencies					
	$F_{LOW} / F_{MID} / F_{HIGH}$					
Measurement mode	Peak					
Limits						
Limit			Condition			
$\leq -20\text{dB}/100\text{kHz}$			Peak power measurement detector = Peak			
$\leq -30\text{dB}/100\text{kHz}$			Peak power measurement detector = RMS			
Test setup						
 <pre> graph LR SA[Spectrum Analyzer] --- EUT[EUT] </pre>						
Test procedure						
<ol style="list-style-type: none"> 1. EUT set to test mode (Communication tester is used if needed) 2. Span set around lower band edge and detector is set to peak and max hold 3. Resolution bandwidth is set to 100kHz 4. Markers are set to peak emission levels within frequency band and outside frequency band 5. Band edge attenuation is determined from level difference 						
Test results						
Channel	Frequency [MHz]	Mode	Level [dBc]	Limit [dBc]	Margin [dB]	Result
F_{LOW}	2402	DH5-Hop	-41.62	-20	-21.62	PASS
F_{HIGH}	2480	DH5-Hop	-41.65	-20	-21.65	PASS
F_{LOW}	2402	2-DH5-Hop	-38.33	-20	-18.33	PASS
F_{HIGH}	2480	2-DH5-Hop	-39.13	-20	-19.13	PASS
F_{LOW}	2402	3-DH5-Hop	-38.99	-20	-18.99	PASS
F_{HIGH}	2480	3-DH5-Hop	-39.27	-20	-19.27	PASS
Comments:						

Band-edge compliance – DH5- Hop F_{Low}
FCC part 15.247
Band-edge compliance of RF conducted emissions

EUT	WLAN/Bluetooth Module / WiBear SF2 UAP
Model	AN00K73535 #3
Approval Holder	lesswire AG / Ord.: G0M-1111-1506
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15 section 247(c)
Comment 1	Band-edge compliance
Comment 2	Channel.: 2402 MHz
Comment 3	GFSK, DH5

	Delta 1 [T1]	RBW	100 kHz	RF Att	40 dB
	Ref Lvl	VBW	100 kHz		
	20 dBm	SWT	5 ms	Unit	dBm
	-41.62 dB				
	-2.20040080 MHz				




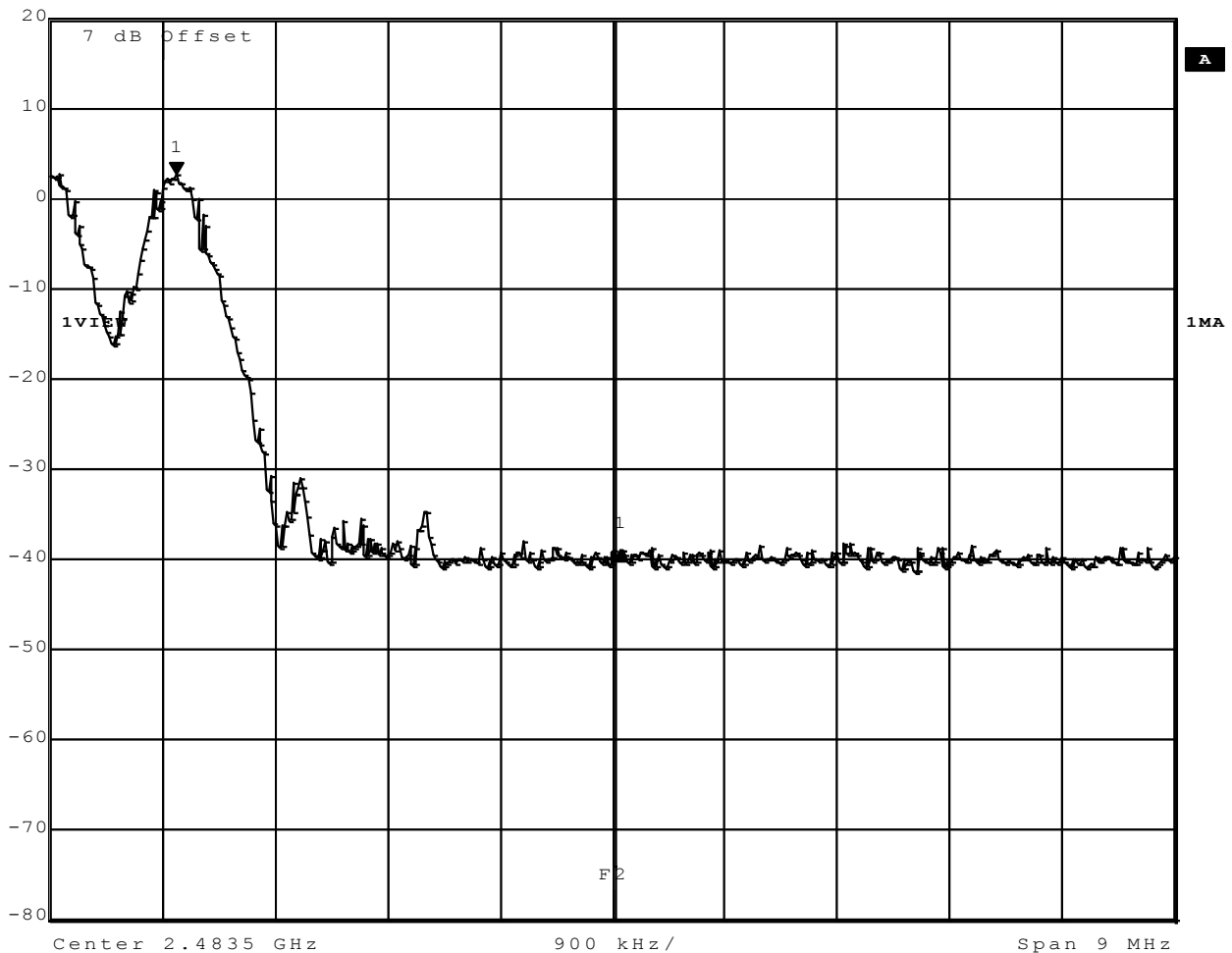
Comment A: Limit: Marker Delta value >20 dB; Result: PASS

Date: 6.DEC.2011 07:41:34

Band-edge compliance – DH5- Hop F_{HIGH}
FCC part 15.247
Band-edge compliance of RF conducted emissions

EUT	WLAN/Bluetooth Module / WiBear SF2 UAP
Model	AN00K73535 #3
Approval Holder	lesswire AG / Ord.: G0M-1111-1506
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15 section 247(c)
Comment 1	Band-edge compliance
Comment 2	Channel.: 2480 MHz
Comment 3	GFSK, DH5

	Delta 1 [T1]	RBW	100 kHz	RF Att	40 dB
Ref Lvl	-41.65 dB	VBW	100 kHz		
20 dBm	3.55310621 MHz	SWT	5 ms	Unit	dBm




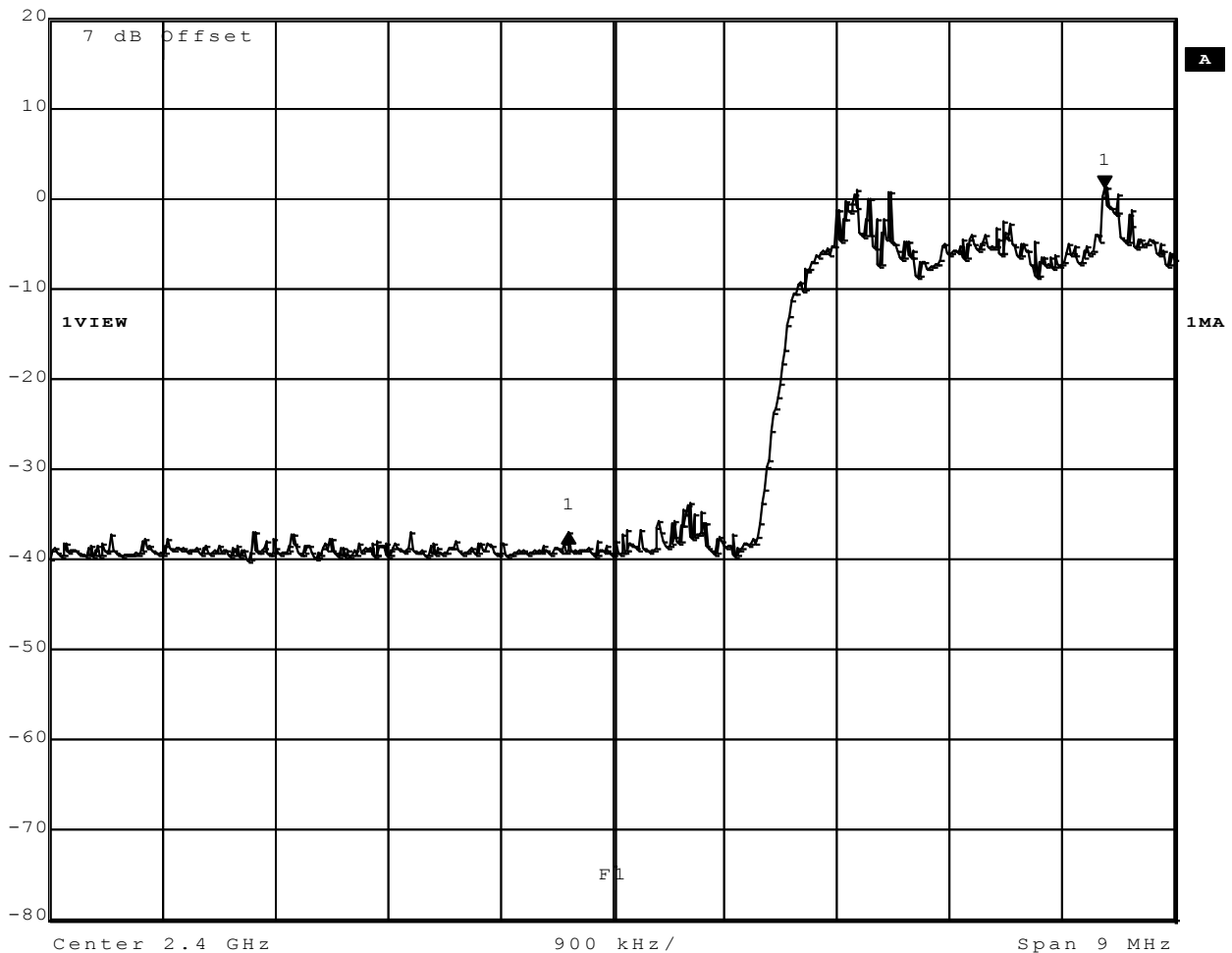
Comment A: Limit: Marker Delta value >20 dB; Result: PASS

Date: 6.DEC.2011 07:48:22

Band-edge compliance – 2-DH5-Hop F_{LOW}
FCC part 15.247
Band-edge compliance of RF conducted emissions

EUT	WLAN/Bluetooth Module / WiBear SF2 UAP
Model	AN00K73535 #3
Approval Holder	lesswire AG / Ord.: G0M-1111-1506
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15 section 247(c)
Comment 1	Band-edge compliance
Comment 2	Channel.: 2402 MHz
Comment 3	Pi/4-DQPSK , 2DH5

	Delta 1 [T1]	RBW	100 kHz	RF Att	40 dB
Ref Lvl	-38.33 dB	VBW	100 kHz		
20 dBm	-4.29258517 MHz	SWT	5 ms	Unit	dBm




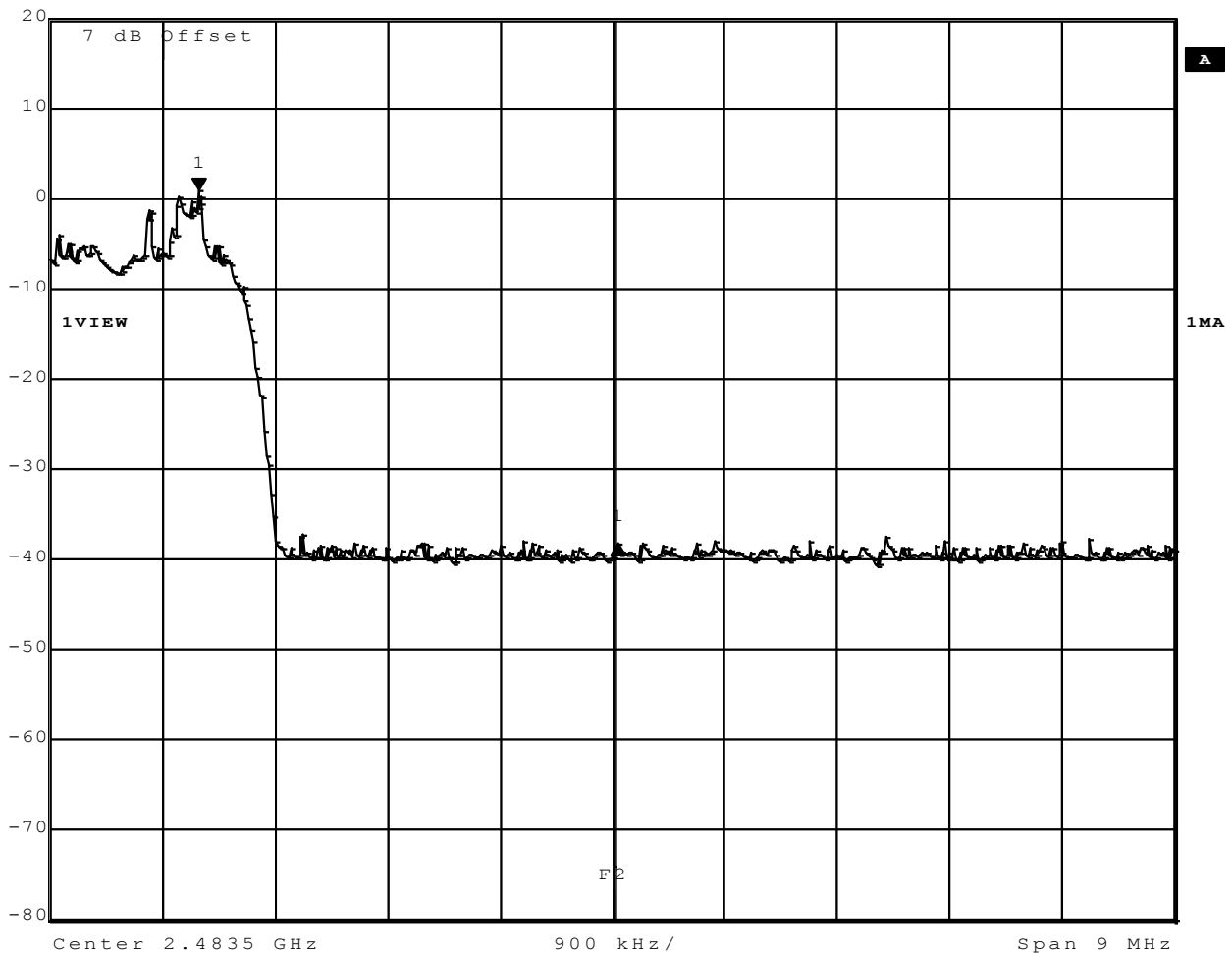
Comment A: Limit: Marker Delta value >20 dB; Result: PASS

Date: 6.DEC.2011 07:54:08

Band-edge compliance – 2-DH5-Hop F_{HIGH}
FCC part 15.247
Band-edge compliance of RF conducted emissions

EUT	WLAN/Bluetooth Module / WiBear SF2 UAP
Model	AN00K73535 #3
Approval Holder	lesswire AG / Ord.: G0M-1111-1506
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15 section 247(c)
Comment 1	Band-edge compliance
Comment 2	Channel.: 2480 MHz
Comment 3	Pi/4-DQPSK , 2DH5


	Delta 1 [T1]	RBW	100 kHz	RF Att	40 dB
	Ref Lvl	VBW	100 kHz		
	20 dBm	SWT	5 ms	Unit	dBm

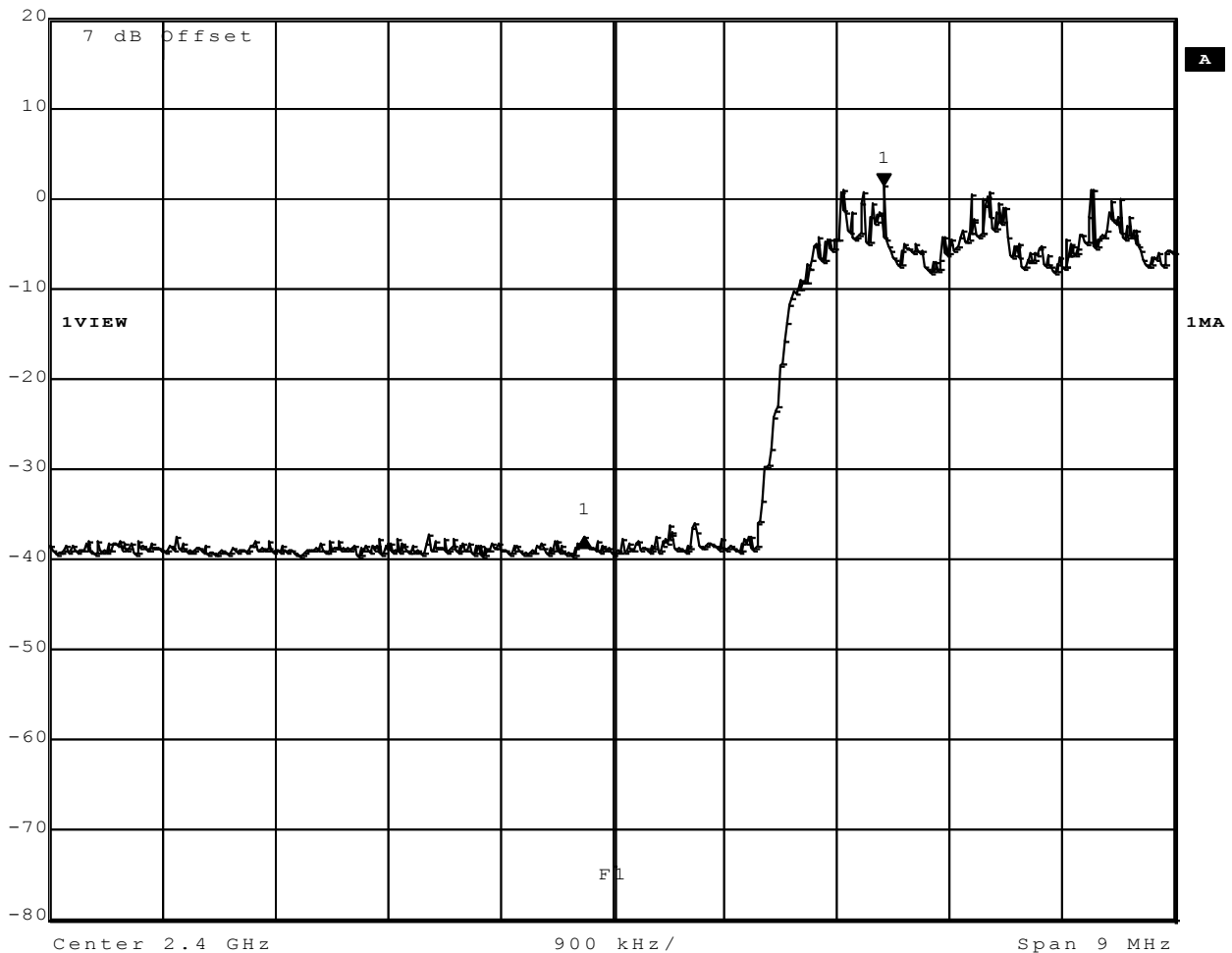


Comment A: Limit: Marker Delta value >20 dB; Result: PASS
 Date: 6.DEC.2011 07:57:22

Band-edge compliance – 3-DH5-Hop F_{LOW}
FCC part 15.247
Band-edge compliance of RF conducted emissions

EUT	WLAN/Bluetooth Module / WiBear SF2 UAP
Model	AN00K73535 #3
Approval Holder	lesswire AG / Ord.: G0M-1111-1506
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15 section 247(c)
Comment 1	Band-edge compliance
Comment 2	Channel.: 2402 MHz
Comment 3	8DPSK , 3DH5

	Delta 1 [T1]	RBW	100 kHz	RF Att	40 dB
Ref Lvl	-38.99 dB	VBW	100 kHz		
20 dBm	-2.39879760 MHz	SWT	5 ms	Unit	dBm




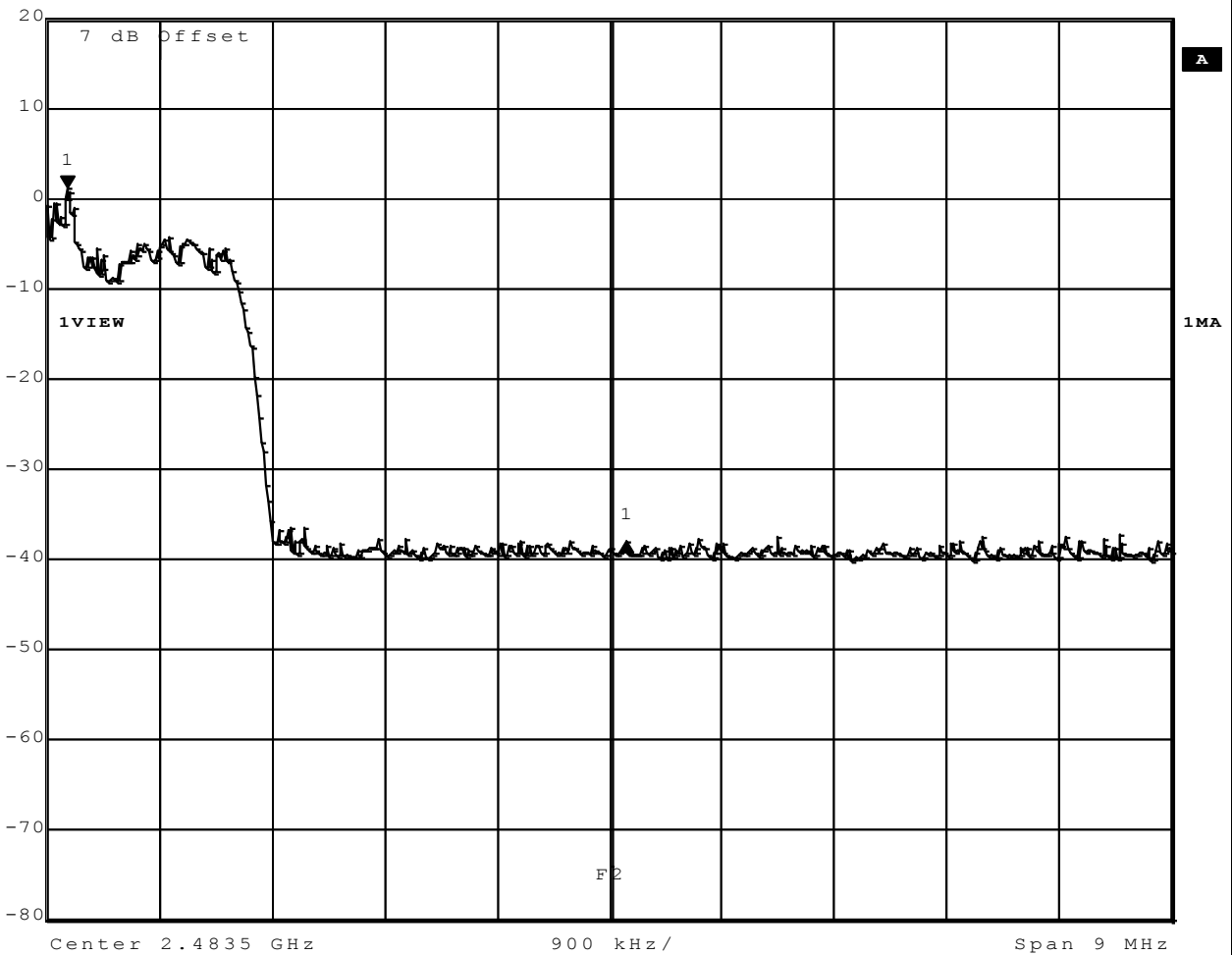
Comment A: Limit: Marker Delta value >20 dB; Result: PASS

Date: 6.DEC.2011 08:06:42

Band-edge compliance – 3-DH5-Hop F_{HIGH}
FCC part 15.247
Band-edge compliance of RF conducted emissions

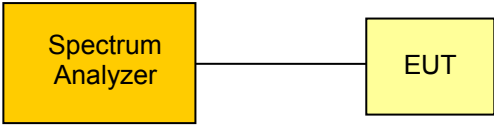
EUT	WLAN/Bluetooth Module / WiBear SF2 UAP
Model	AN00K73535 #3
Approval Holder	lesswire AG / Ord.: G0M-1111-1506
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15 section 247(c)
Comment 1	Band-edge compliance
Comment 2	Channel.: 2480 MHz
Comment 3	8DPSK , 3DH5

	Delta 1 [T1]	RBW	100 kHz	RF Att	40 dB
	Ref Lvl	VBW	100 kHz		
	20 dBm	SWT	5 ms	Unit	dBm



Comment A: Limit: Marker Delta value >20 dB; Result: PASS
 Date: 6.DEC.2011 08:02:28

3.3 Test Conditions and Results – Conducted spurious emissions

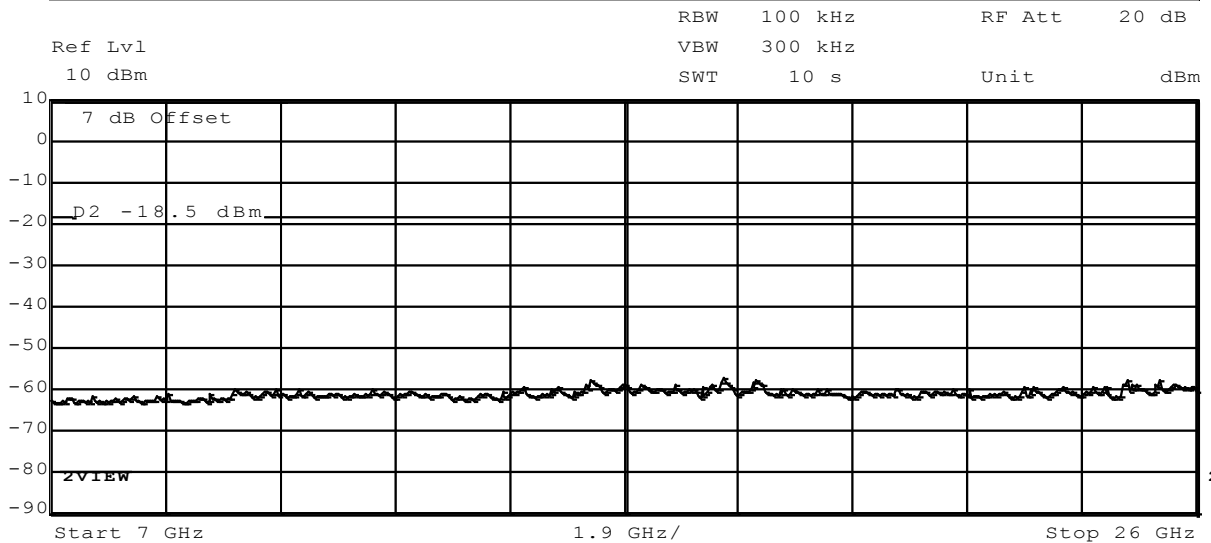
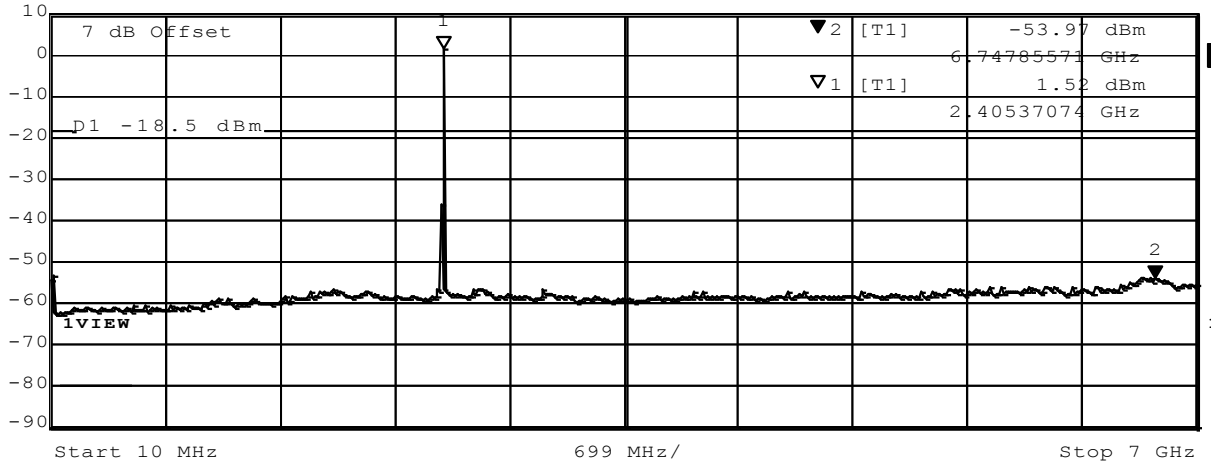
Conducted spurious emissions acc. FCC 15.247 / IC RSS-210							Verdict: PASS		
EUT requirement rule parts and clause			Reference						
			FCC 15.247(d) / IC RSS-210 A8.5						
Test according to measurement reference			Reference Method						
			FCC Public Notice DA 00-705						
Test frequency range			Tested frequencies						
			10MHz – 10 th Harmonic						
Measurement mode			Peak						
Limits									
Limit					Condition				
≤ -20dB/100kHz					Peak power measurement detector = Peak				
≤ -30dB/100kHz					Peak power measurement detector = RMS				
Test setup									
 <pre> graph LR SA[Spectrum Analyzer] --- EUT[EUT] </pre>									
Test procedure									
<ol style="list-style-type: none"> 1. EUT set to test mode (Communication tester is used if needed) 2. Span it set according to measurement range 3. Resolution bandwidth is set to 100kHz and detector to peak and max hold 4. Markers are set to peak emission levels within frequency band 5. Emission level is determined by second marker on emission peak 6. Attenuation is determined from level difference 									
Test results									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Emission Level [dbm]	Peak power [dBm]	Limit [dBm]	Margin [dB]	Result	
F _{MID}	2402	3DH5	6747	-53.97	1.52	-18.5	-35.47	pass	
Comments:									

Conducted spurious emissions – 3-DH5-Sngl F_{Low}

FCC part 15.247 (d)
Spurious Emissions

EUT WLAN/Bluetooth Module / WiBear SF2 UAP
 Model AN00K73535 #3
 Approval Holder lesswire AG / Ord.: G0M-1111-1506
 Temperature / Voltage 25°C, V_{nom}
 Test Site / Operator Eurofins Product Service GmbH, Mr. Treffke
 Test Specification FCC part 15.247 (d)
 Comment 1 Spurious Emissions conducted
 Comment 2 Channel : 2402 MHz
 Comment 3 8DPSK, 3DH5

Ref Lvl 10 dBm
 Marker 2 [T1] 6.74785571 GHz
 RBW 100 kHz
 VBW 300 kHz
 RF Att 20 dB
 SWT 10 s
 Unit dBm



Date: 6.DEC.2011 08:32:51

3.4 Test Conditions and Results – Transmitter radiated emissions

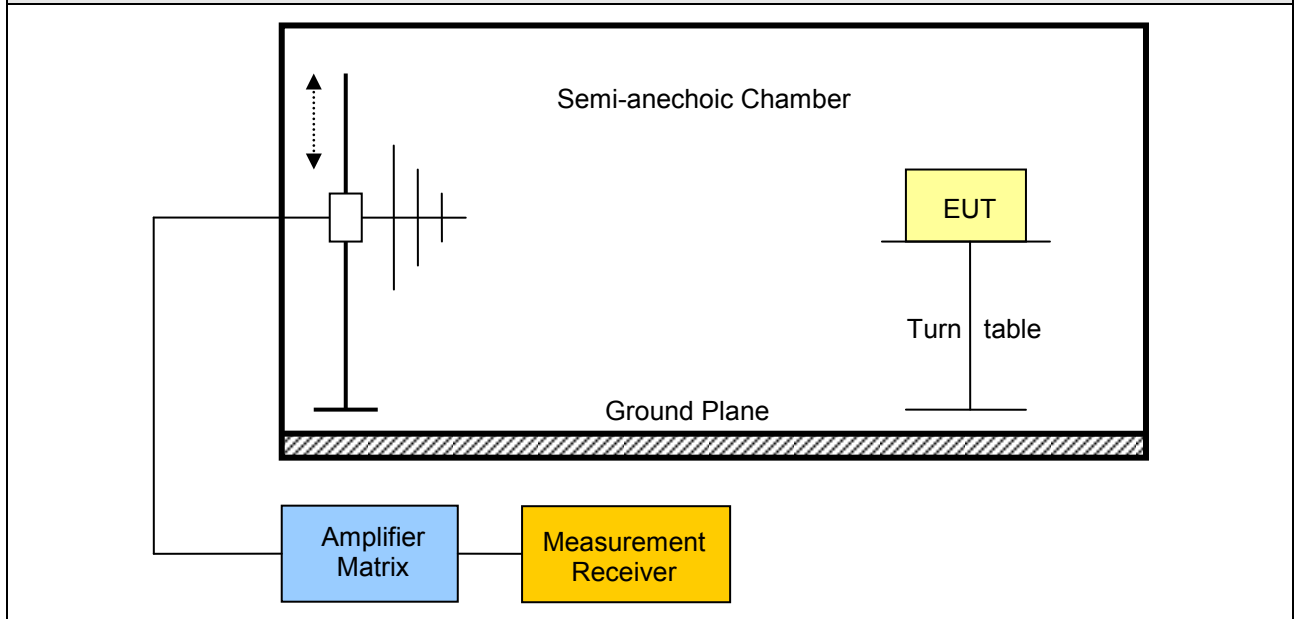
Transmitter radiated emissions acc. FCC 47 CFR 15.247 / IC RSS-210 **Verdict: PASS**

Test according referenced standards	Reference Method
	FCC 15.247(d) / IC RSS-210 A8.5
Test according to measurement reference	Reference Method
	FCC Public Notice DA 00-705 / ANSI C63.4
Test frequency range	Tested frequencies
	30MHz – 10 th Harmonic

Limits				
Frequency range [MHz]	Detector	Limit [μ V/m]	Limit [dB μ V/m]	Limit Distance [m]
30 – 88	Quasi-Peak	100	40	3
88 – 216	Quasi-Peak	150	43.5	3
216 – 960	Quasi-Peak	200	46	3
960 – 1000	Quasi-Peak	500	54	3
> 1000	Average	500	54	3

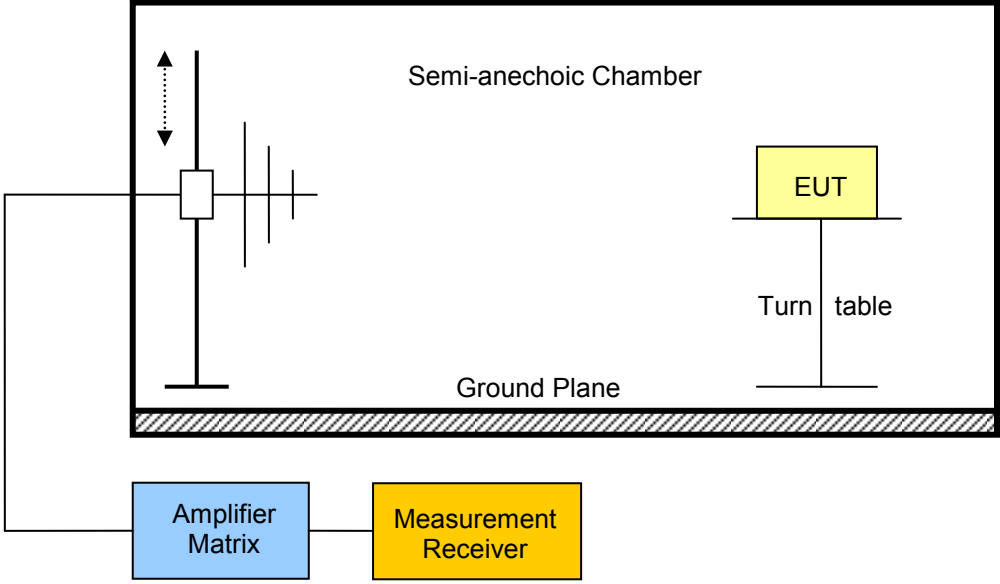
Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).
 When average radiated emission measurements are specified, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test.

Test setup



Test procedure									
<ol style="list-style-type: none"> 1. EUT set to test mode (Communication tester is used if needed) 2. Span it set according to measurement range 3. Resolution bandwidth below 1GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1MHz with peak/average detector is used above 1GHz 4. Markers are set to peak emission levels within restricted bands 									
Test results – Internal Antenna									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [db μ V/m]	Det.	Pol.	Limit [db μ V/m]	Limit dist. [m]*	Margin [dB]
F _{LOW}	2402	DH5	4802	53.2	pk	ver	74	3	-20.80
F _{LOW}	2480	DH5	4954	53.1	pk	ver	74	3	-20.90
F _{High}	2480	DH5	4986	53.2	pk	ver	74	3	-20.80
Test results – External Antenna									
Channel	Frequency [MHz]	Mode	Emission [MHz]	Level [db μ V/m]	Det.	Pol.	Limit [db μ V/m]	Limit dist. [m]*	Margin [dB]
F _{High}	2480	DH5	4954	52.4	pk	ver	74	3	-21.60
F _{High}	2480	8DPSK	4954	52.6	pk	hor	74	3	-21.40
Comments: * Physical distance between EUT and measurement antenna.									

3.5 Test Conditions and Results – Receiver radiated emissions

Receiver radiated emissions acc. IC RSS-210			Verdict: PASS	
Test according referenced standards	Reference Method			
	IC RSS-210 A8.5			
Test according to measurement reference	Reference Method			
	ANSI C63.4			
Test frequency range	Tested frequencies			
	30MHz – 3 th Harmonic			
EUT test mode	Receive			
Limits				
Frequency range [MHz]	Detector	Limit [μ V/m]	Limit [dB μ V/m]	Limit Distance [m]
30 – 88	Quasi-Peak	100	40	3
88 – 216	Quasi-Peak	150	43.5	3
216 – 960	Quasi-Peak	200	46	3
960 – 1000	Quasi-Peak	500	54	3
> 1000	Average	500	54	3
Test setup				
				

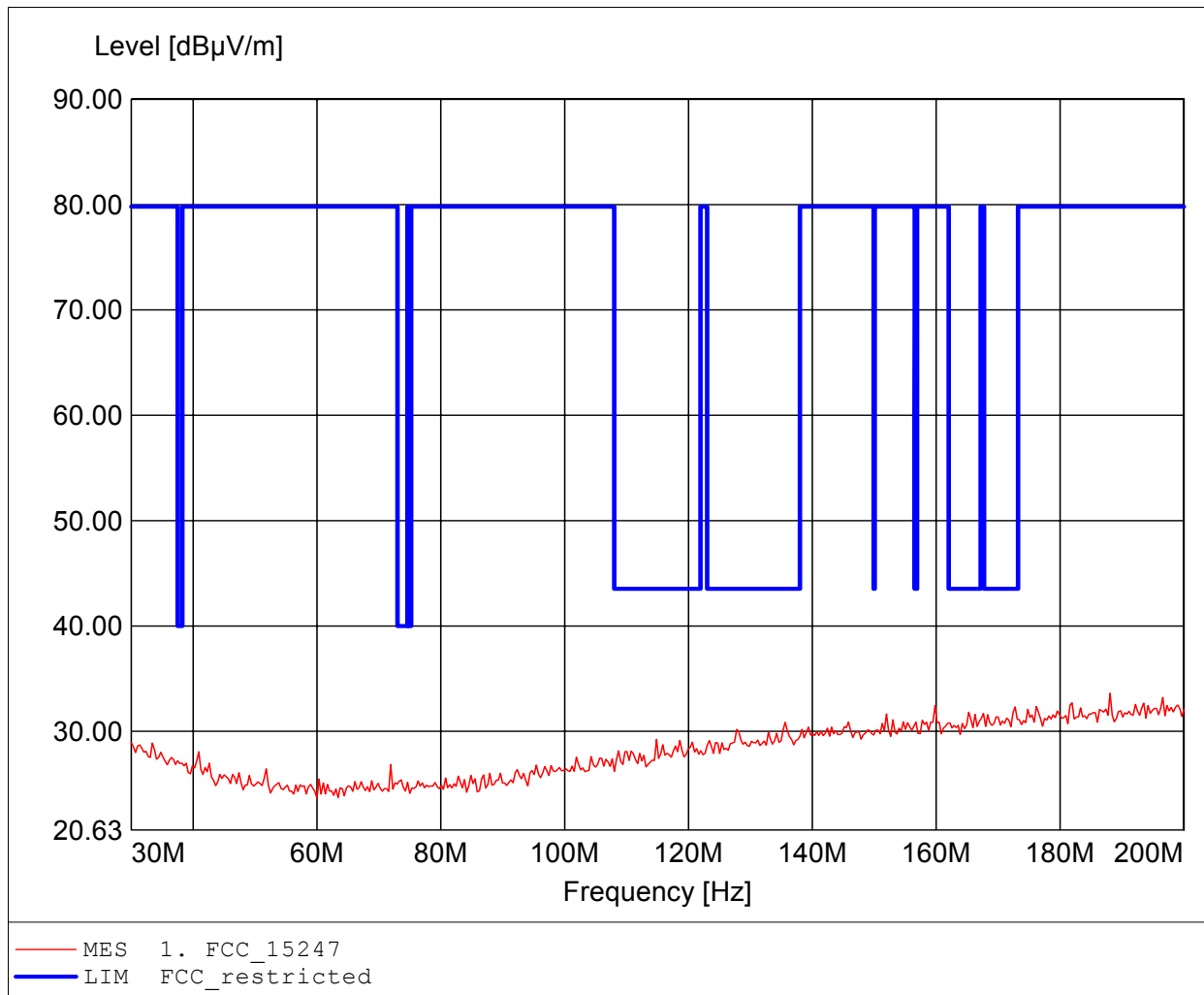
Test procedure							
1. EUT set to receive mode (Communication tester is used if needed) 2. Span it set according to measurement range 3. Resolution bandwidth below 1GHz is set according to CISPR 16 with peak/quasi-peak detector and RBW of 1MHz with peak/average detector is used above 1GHz 4. Markers are set to peak emission levels							
Test results							
Channel	Frequency [MHz]	Emission [MHz]	Emission Level [db μ V/m]	Emission Level [μ V/m]	Det.	Limit [μ V/m]	Margin [μ V/m]
Test results – Internal Antenna							
F _{MDI}	2441	4801.000	47.9	248.31	pk	500	-251.69
F _{MID}	2441	4921.000	49.1	285.10	pk	500	-214.90
Test results – external Antenna							
F _{MDI}	2441	4914	48.6	269.15	pk	500	-230.85
F _{MID}	2441	4882	48.1	254.10	pk	500	-245.90
Comments: * Physical distance between EUT and measurement antenna. ** Emission level corresponds to ambient noise floor							

ANNEX A Transmitter radiated spurious emissions

Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

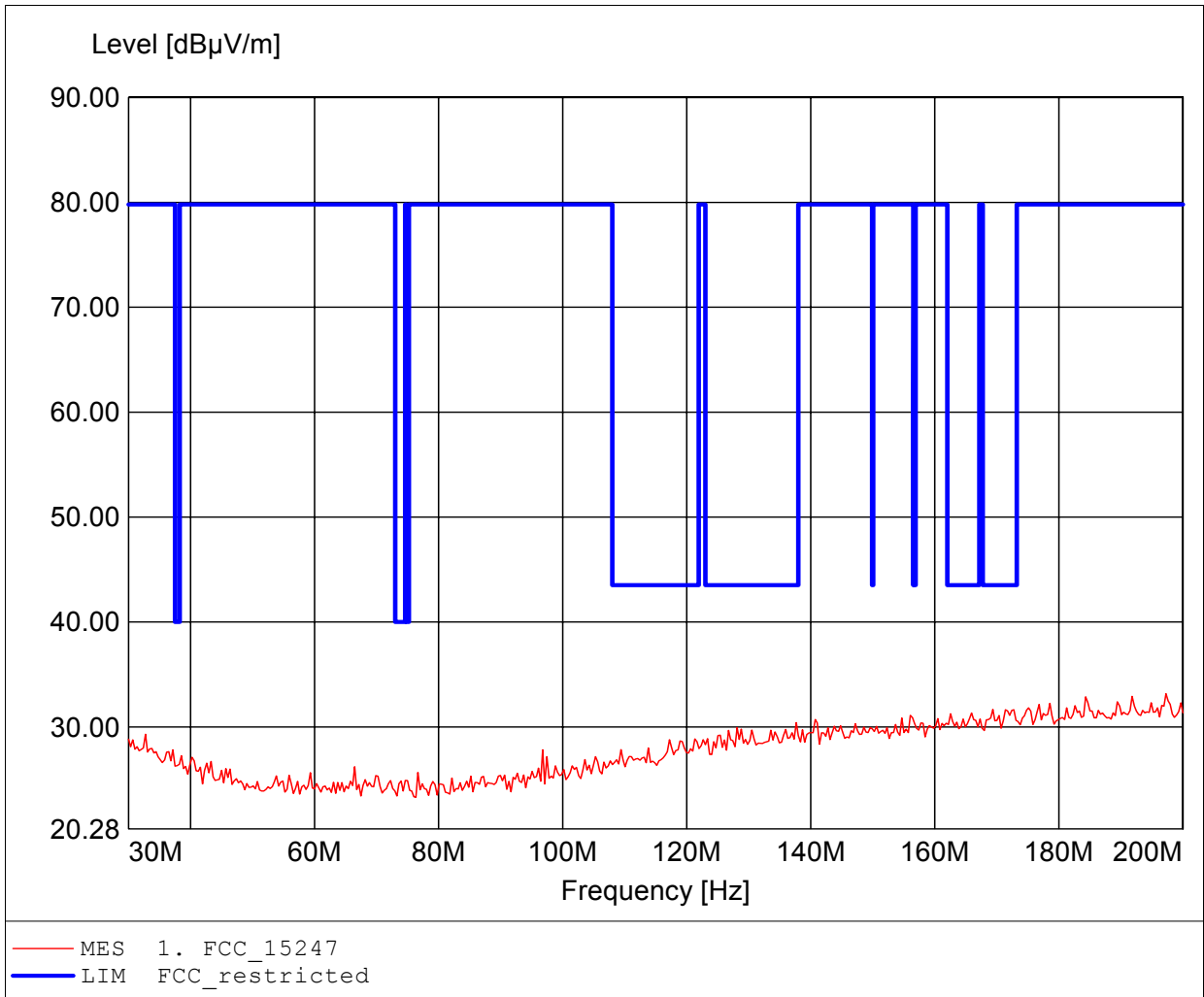
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HK 116
Comment 2: Freq: 188.076MHz, Emax: 33.60dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

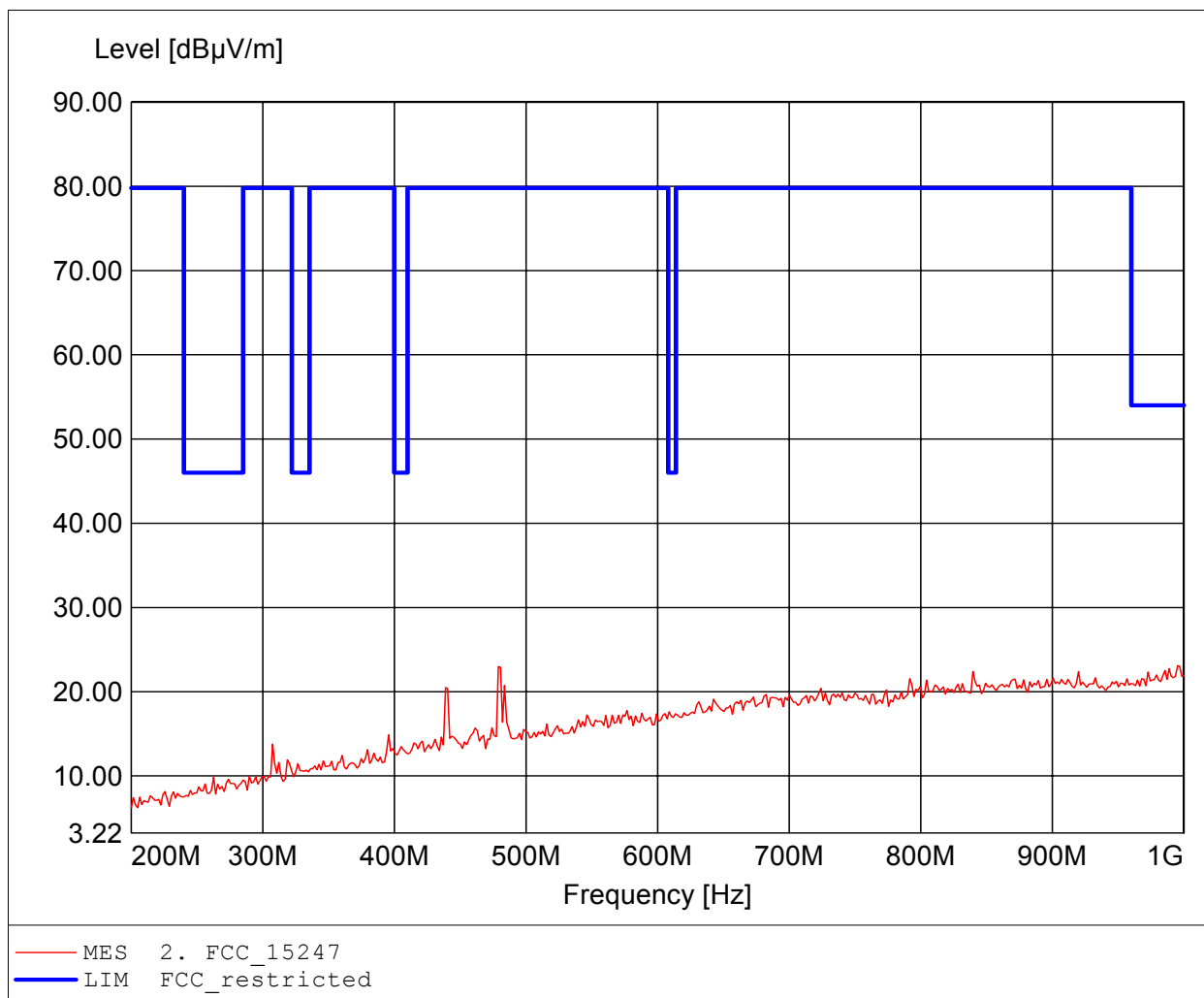
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HK 116
Comment 2: Freq: 197.275MHz, Emax: 33.17dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

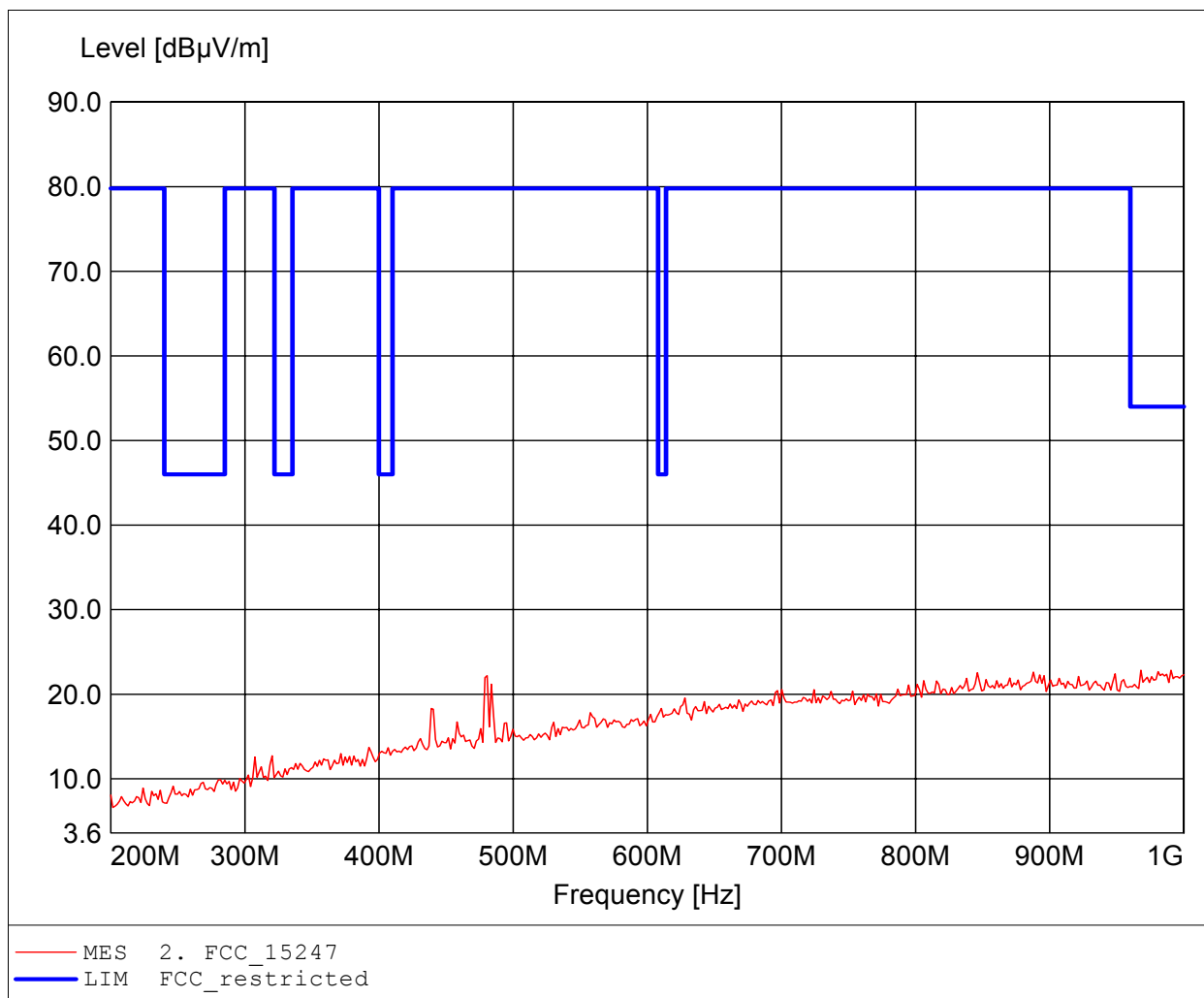
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL 223, amplif.
Comment 2: Freq: 995.190MHz, Emax: 23.08dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

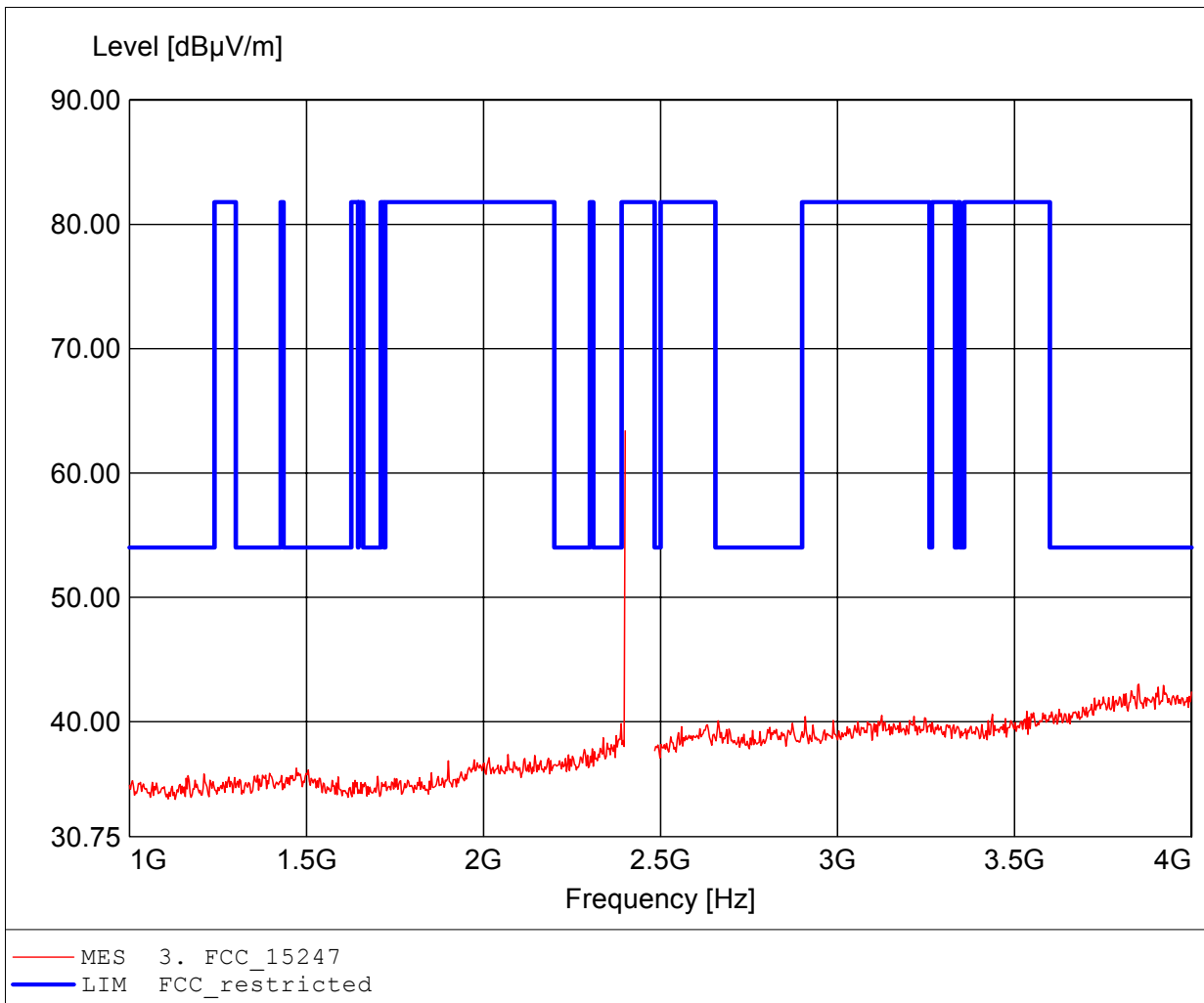
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL 223, amplif.
Comment 2: Freq: 990.381MHz, Emax: 22.84dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

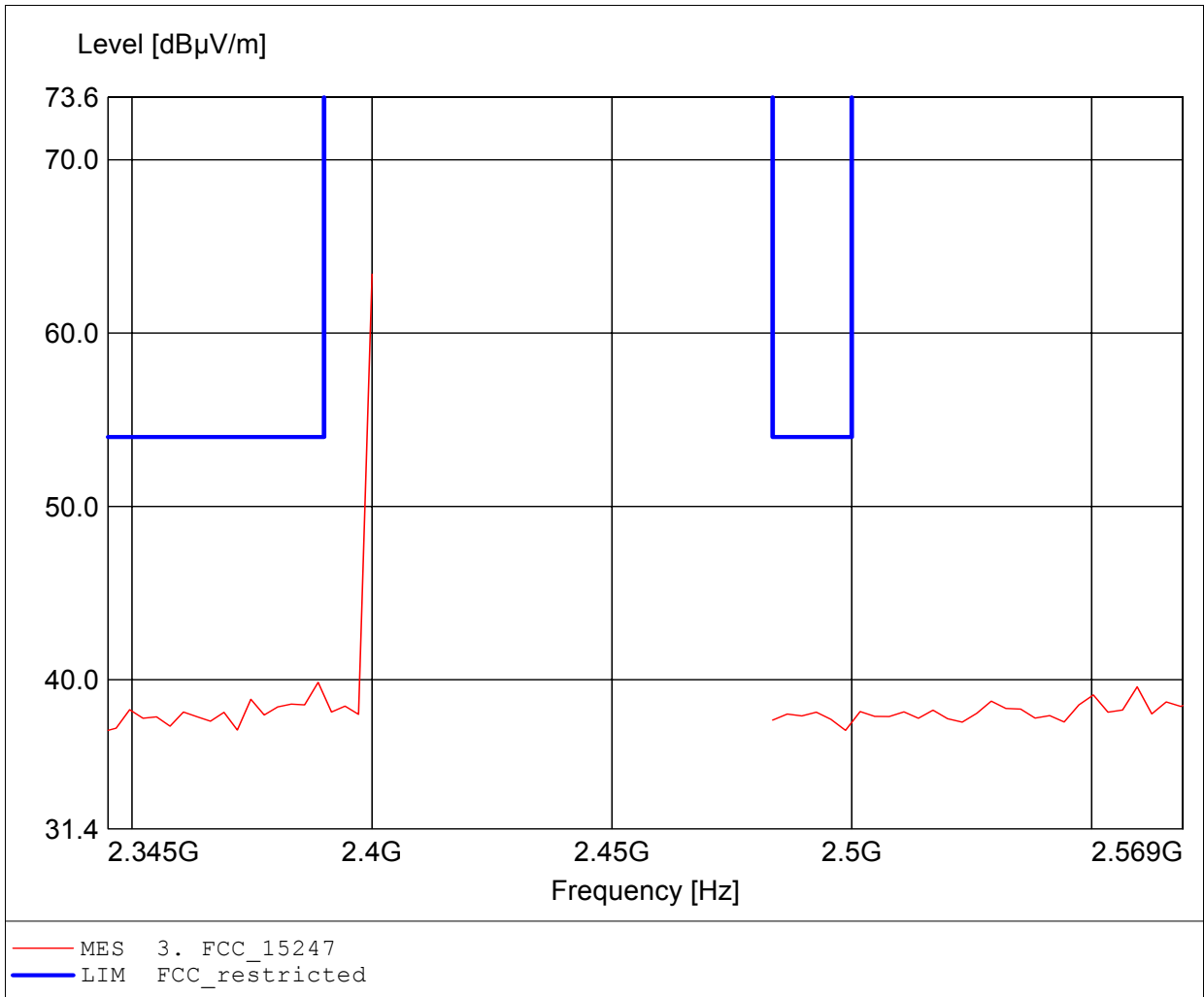
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 63.40dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

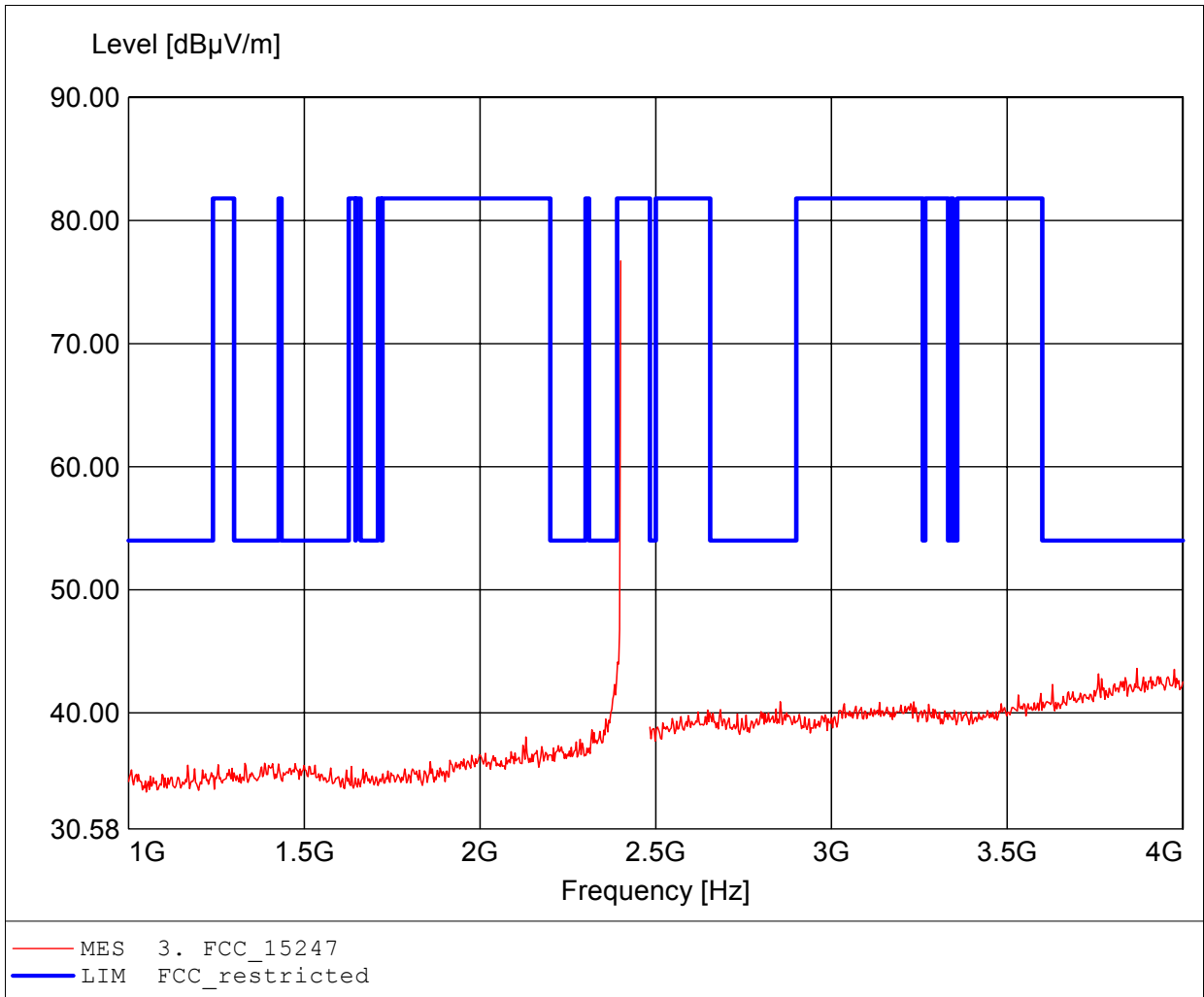
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 63.40dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

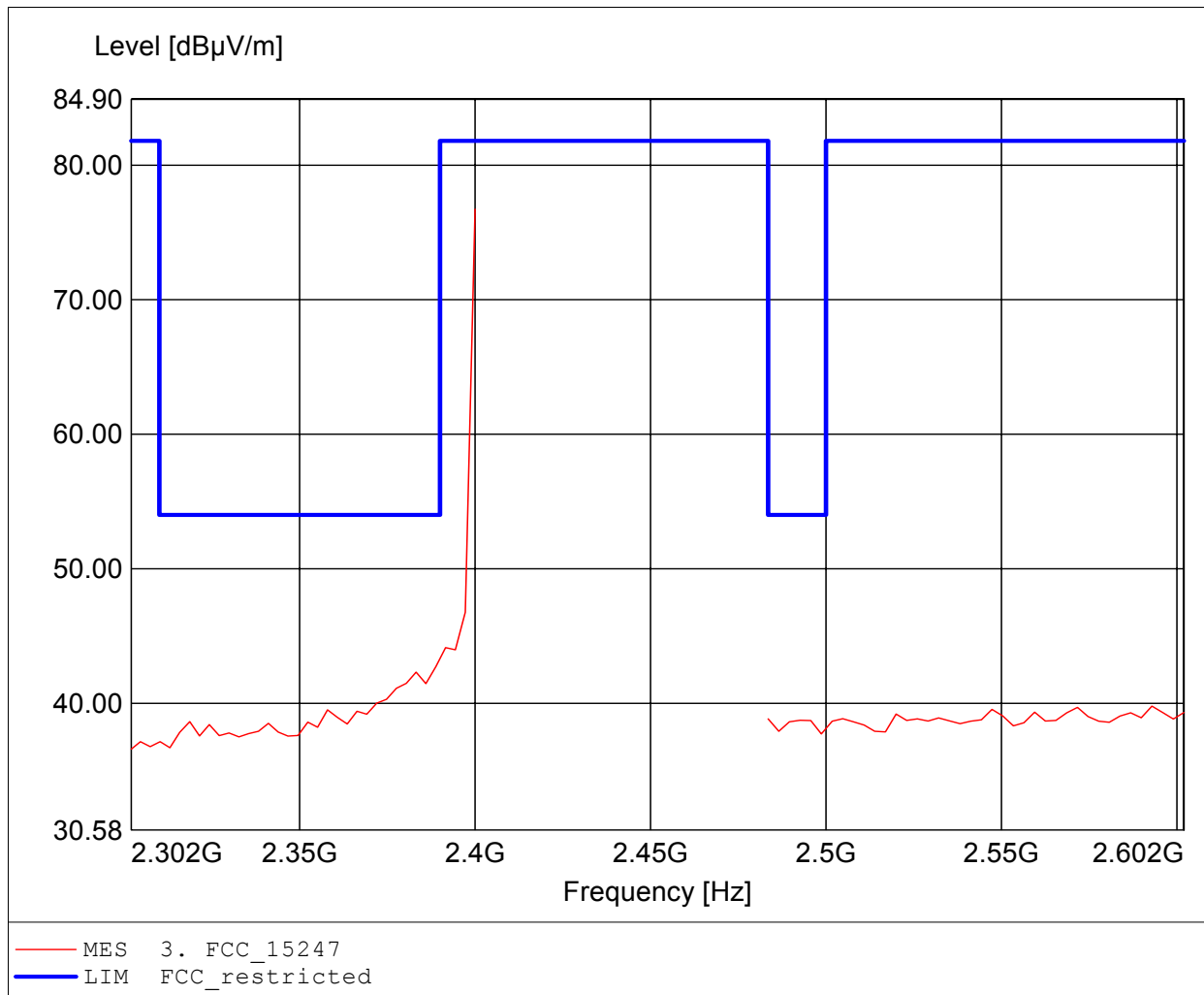
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 76.73dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

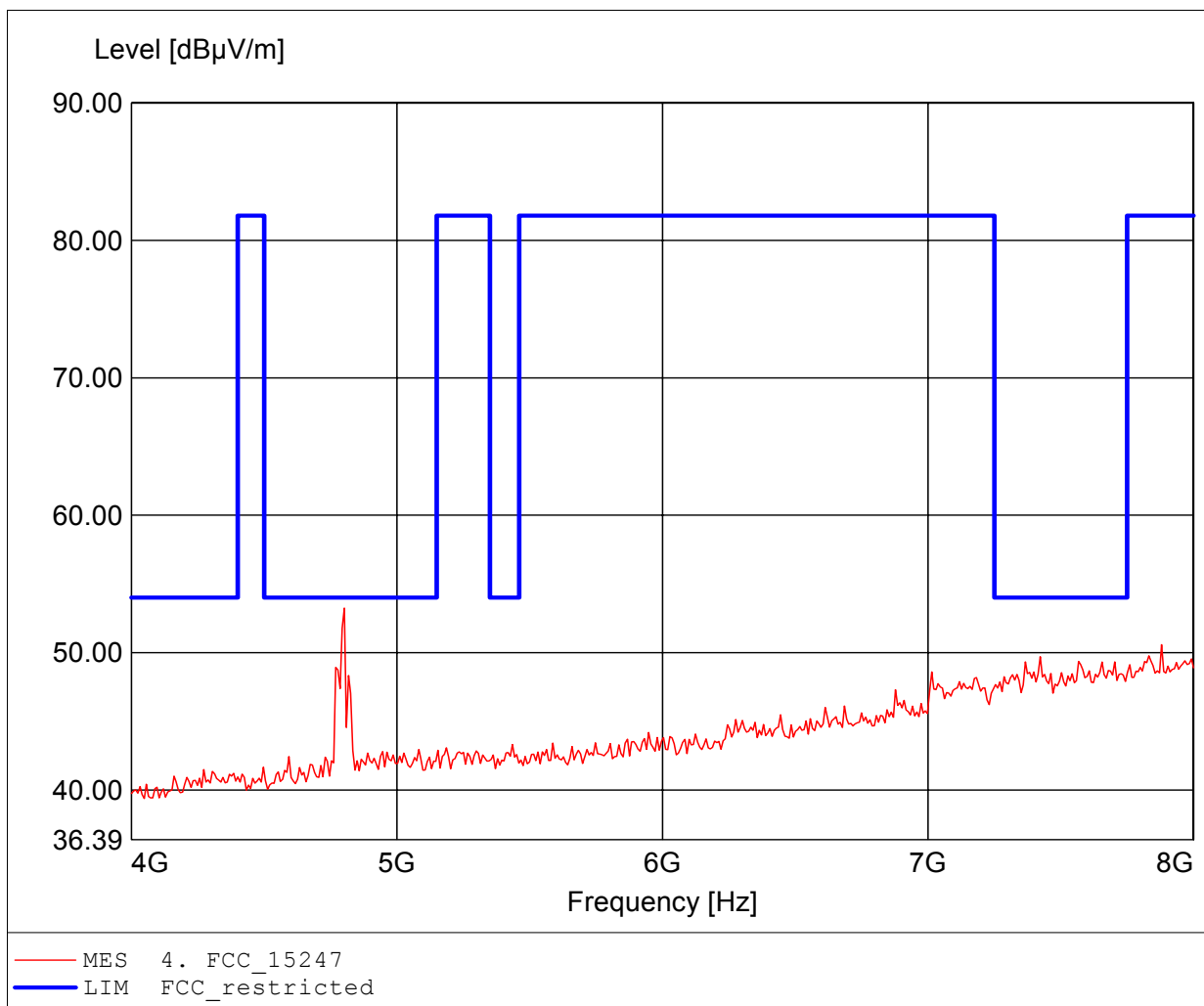
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 76.73dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

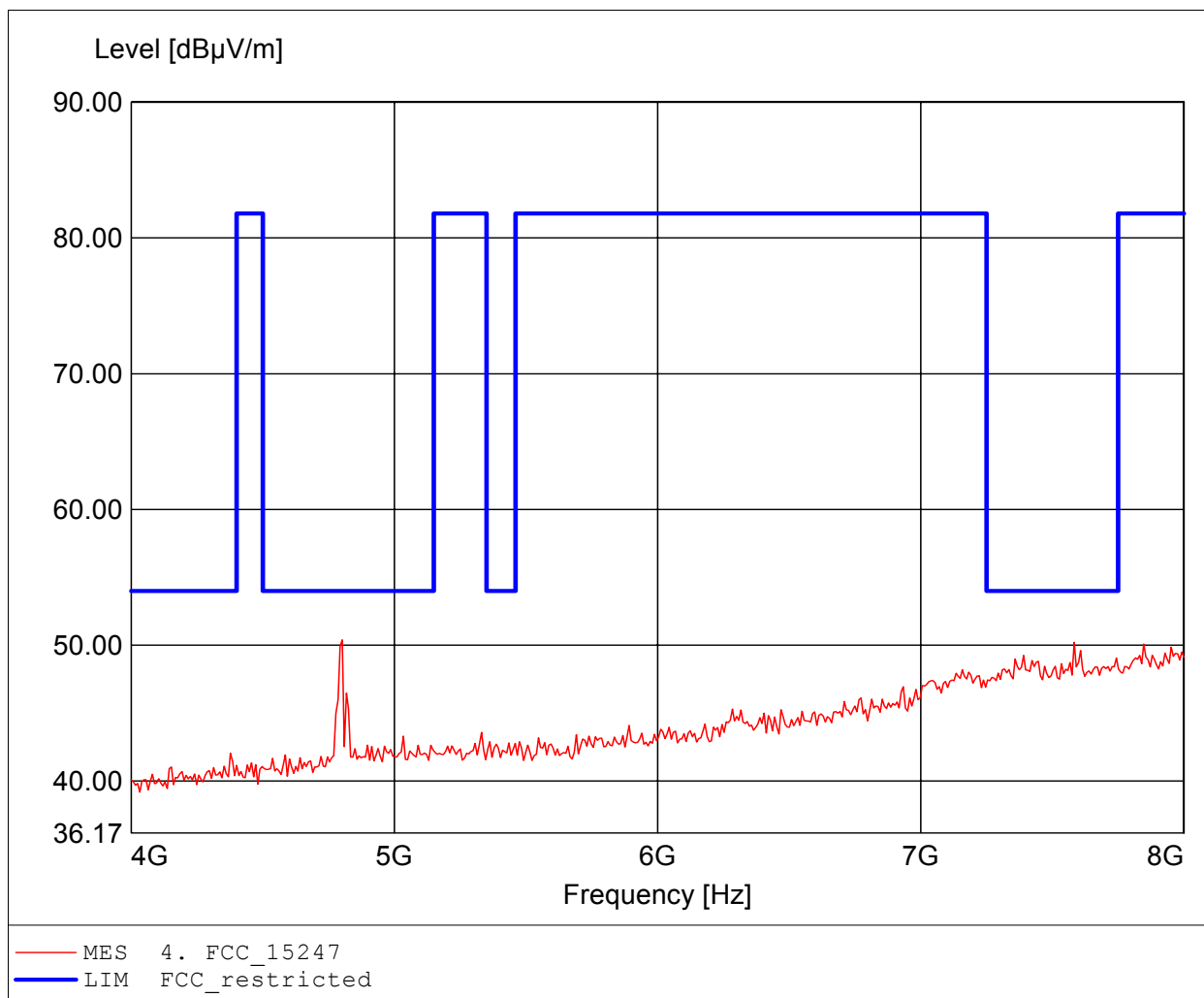
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.802GHz, Emax: 53.24dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

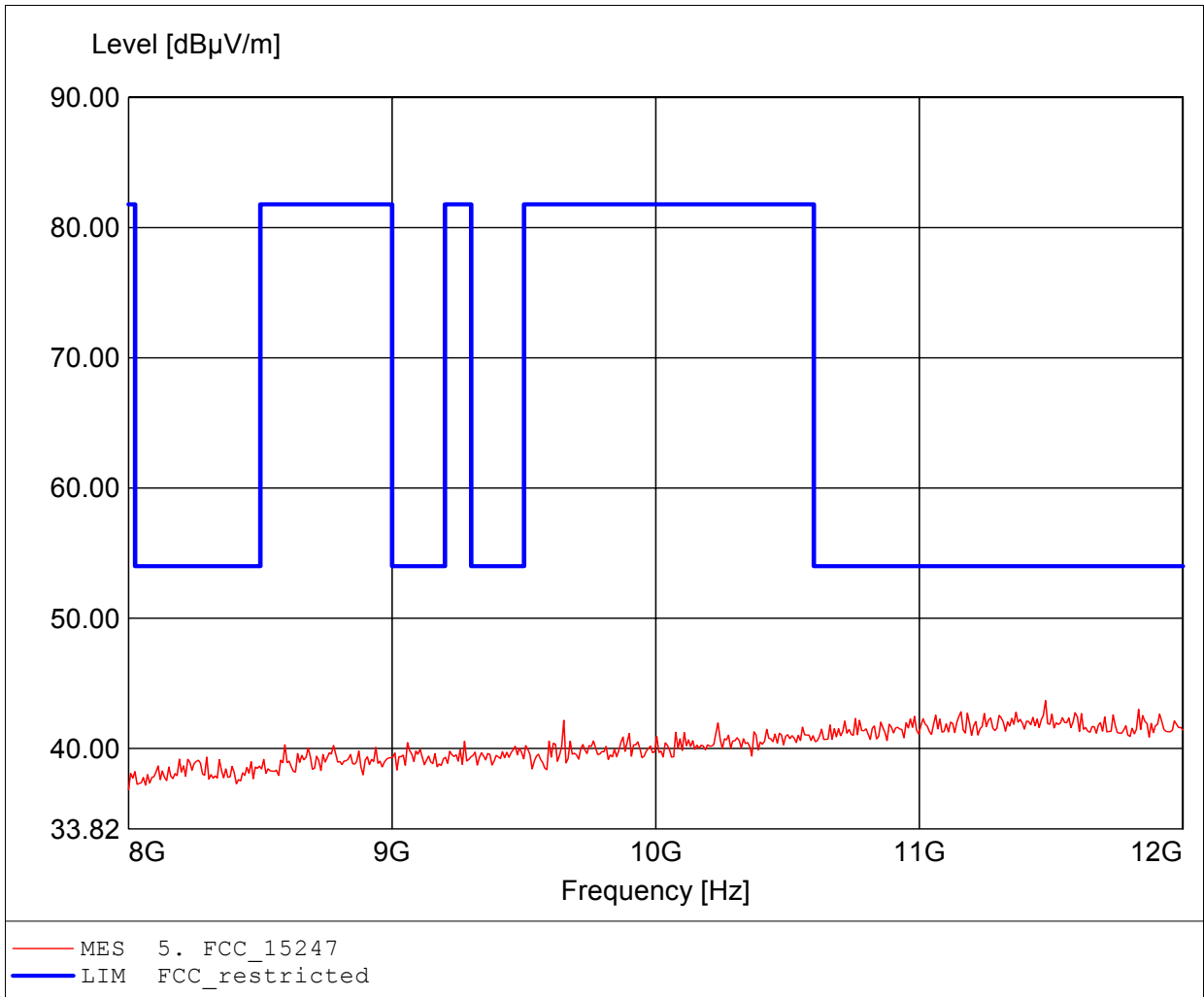
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.802GHz, Emax: 50.39dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

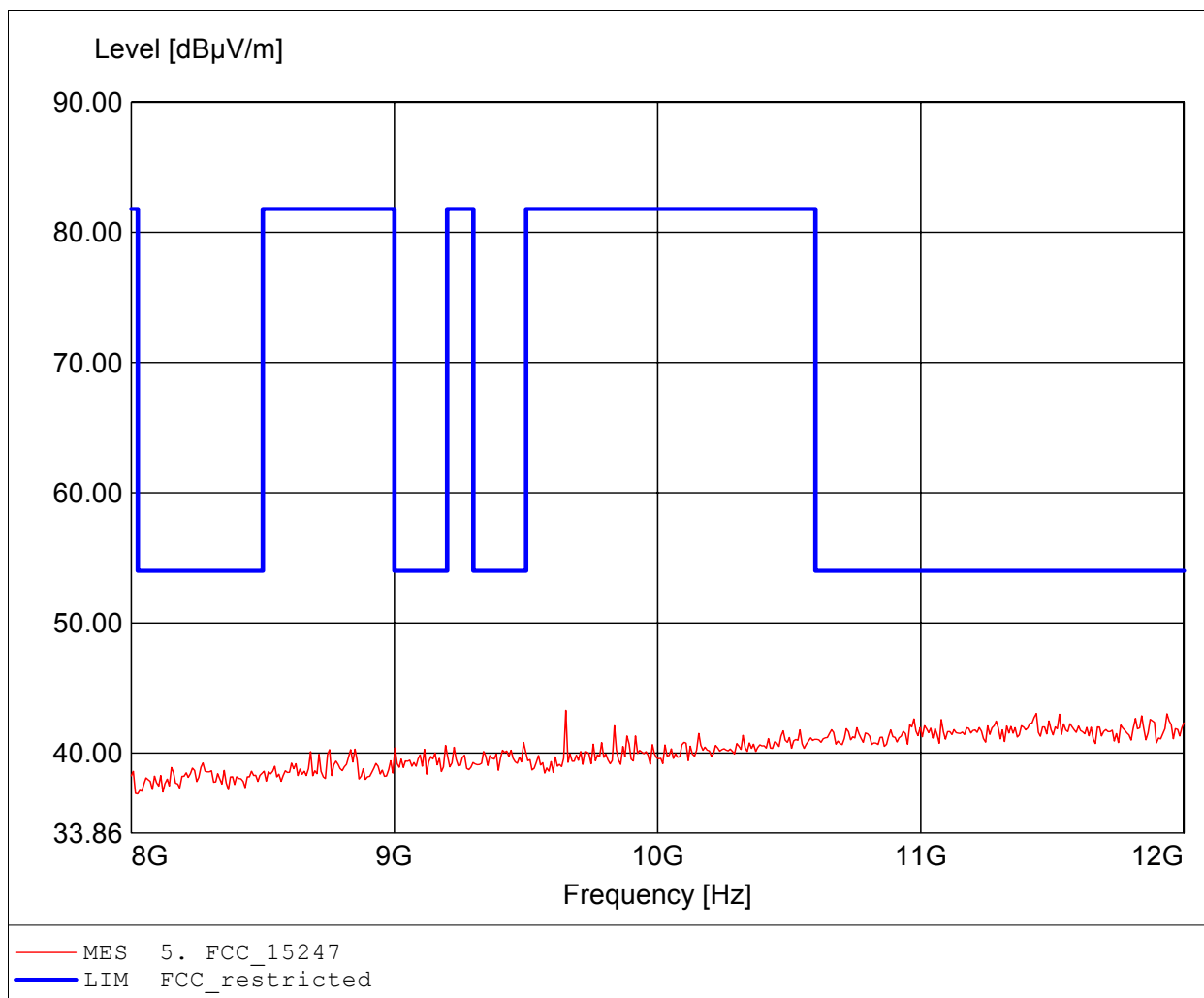
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 11.479GHz, Emax: 43.67dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

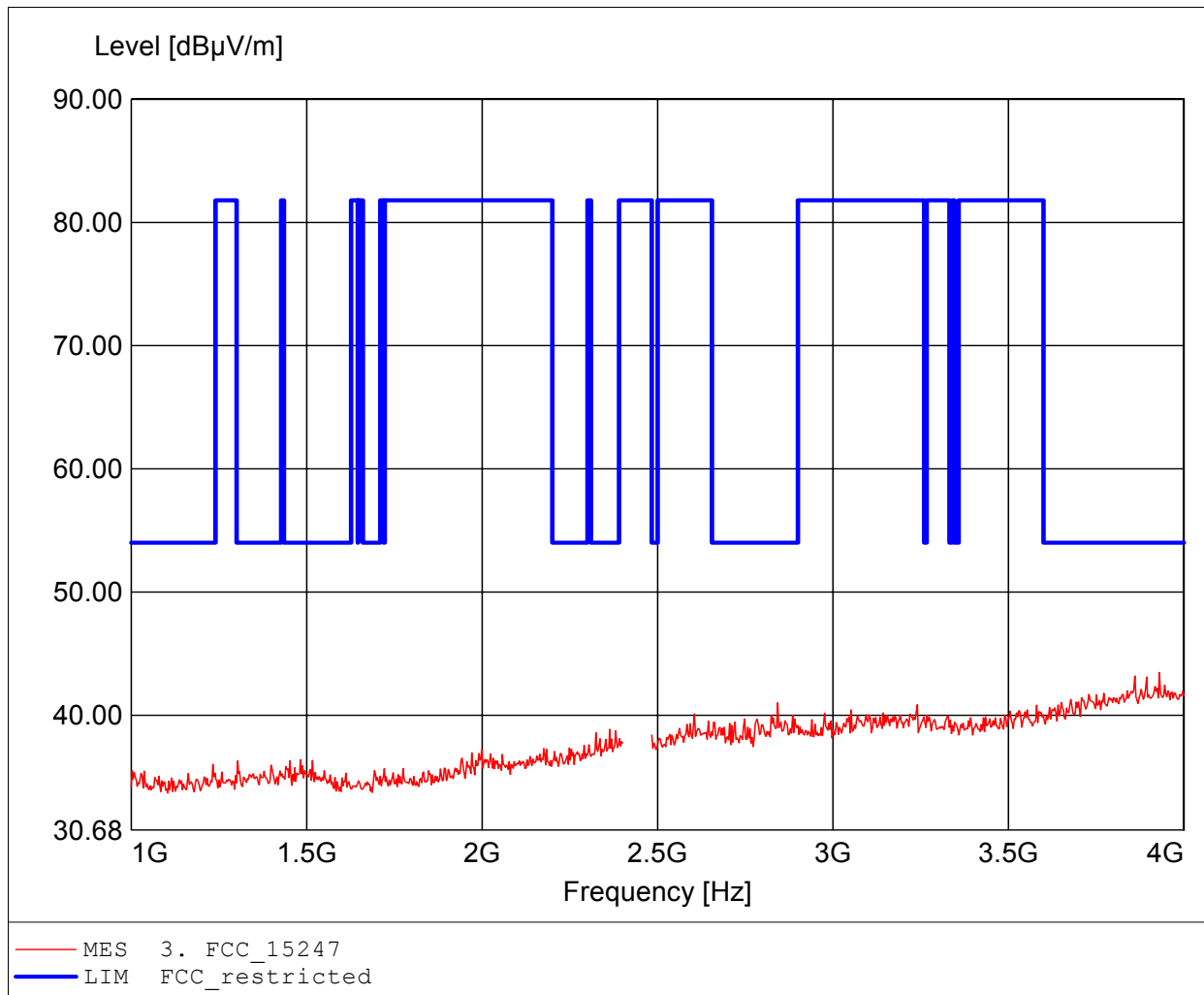
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 9.651GHz, Emax: 43.28dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

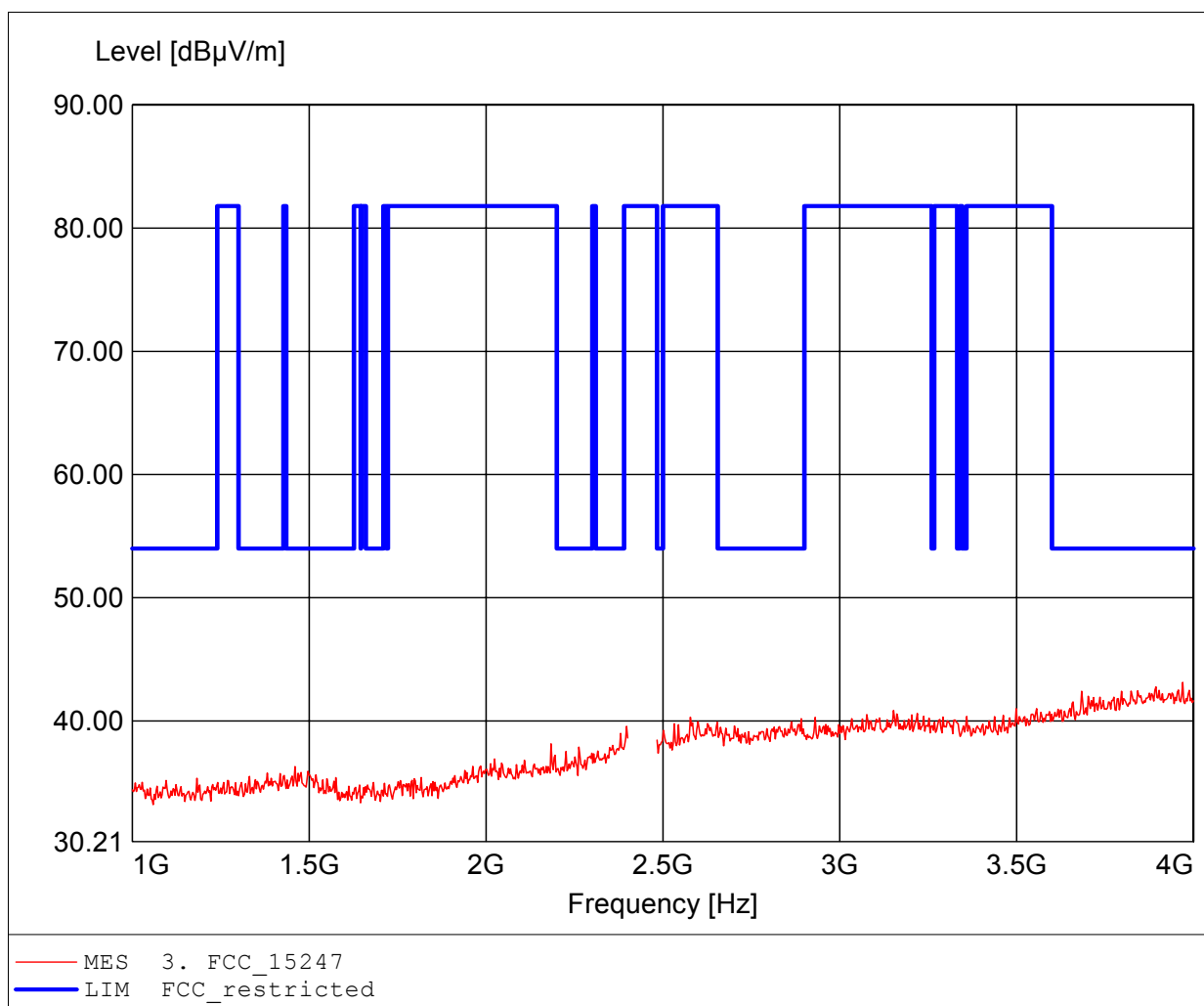
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.39
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 3.930GHz, Emax: 43.47dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

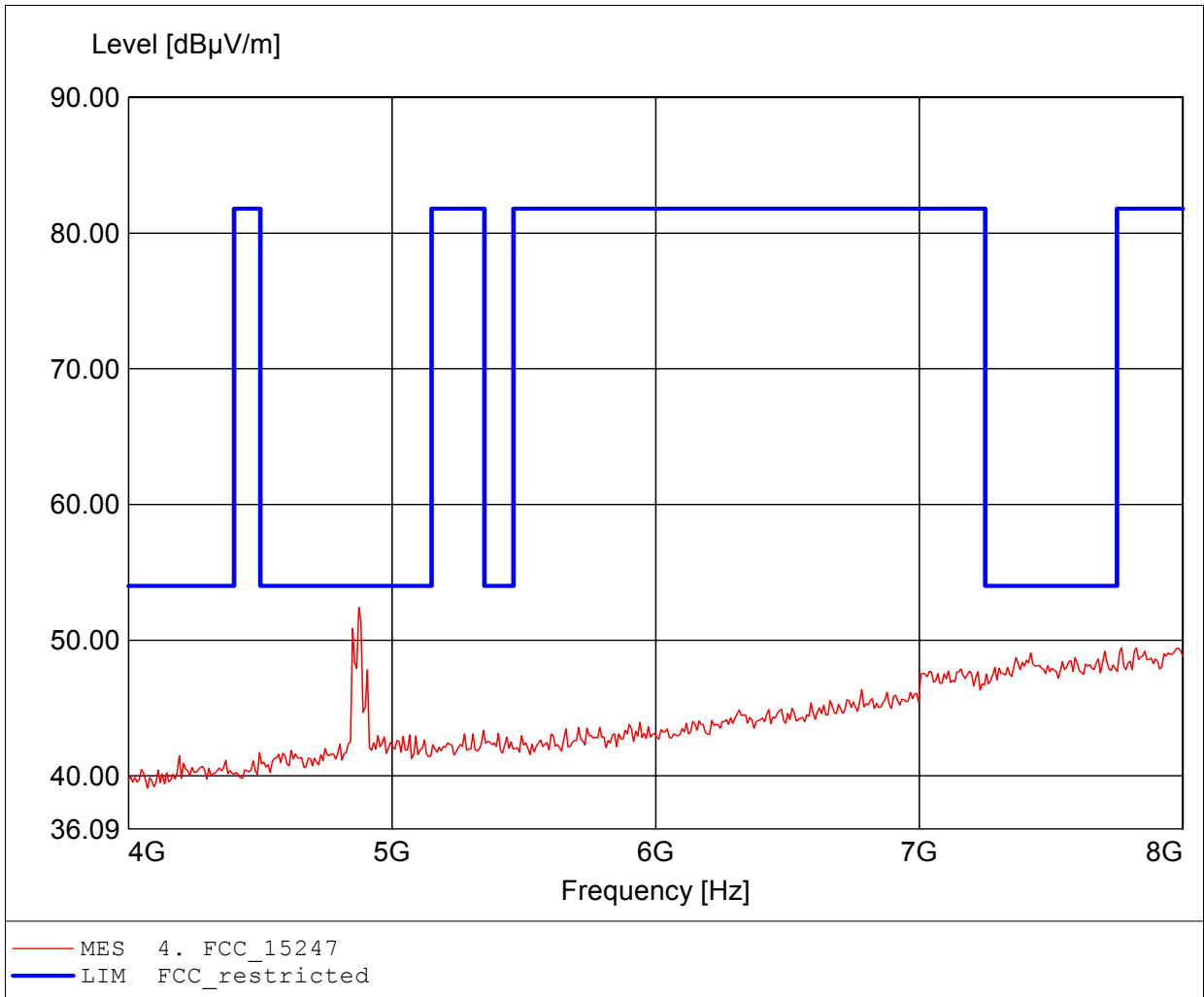
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.39
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 3.970GHz, Emax: 43.14dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

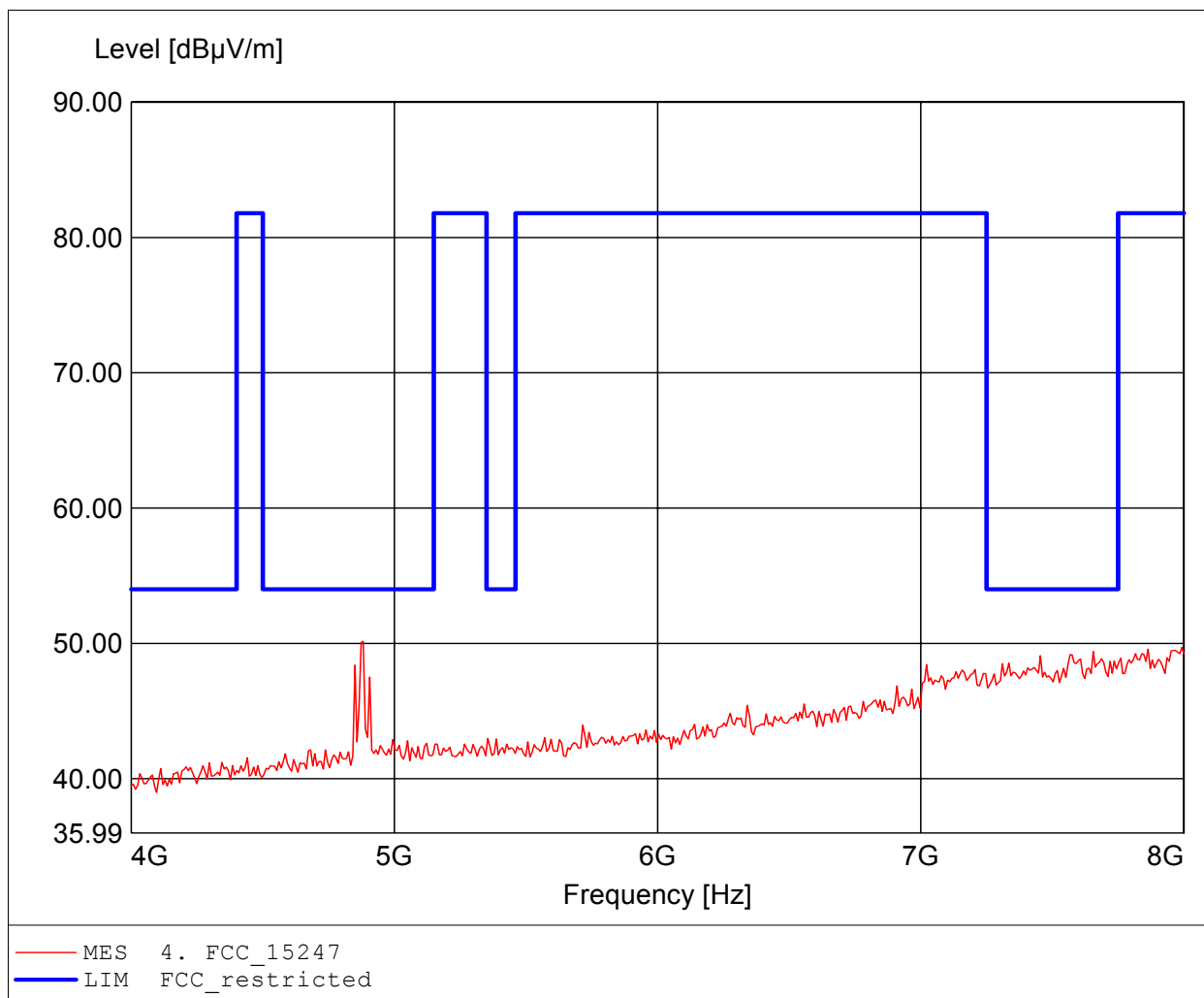
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.39
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.874GHz, Emax: 52.41dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

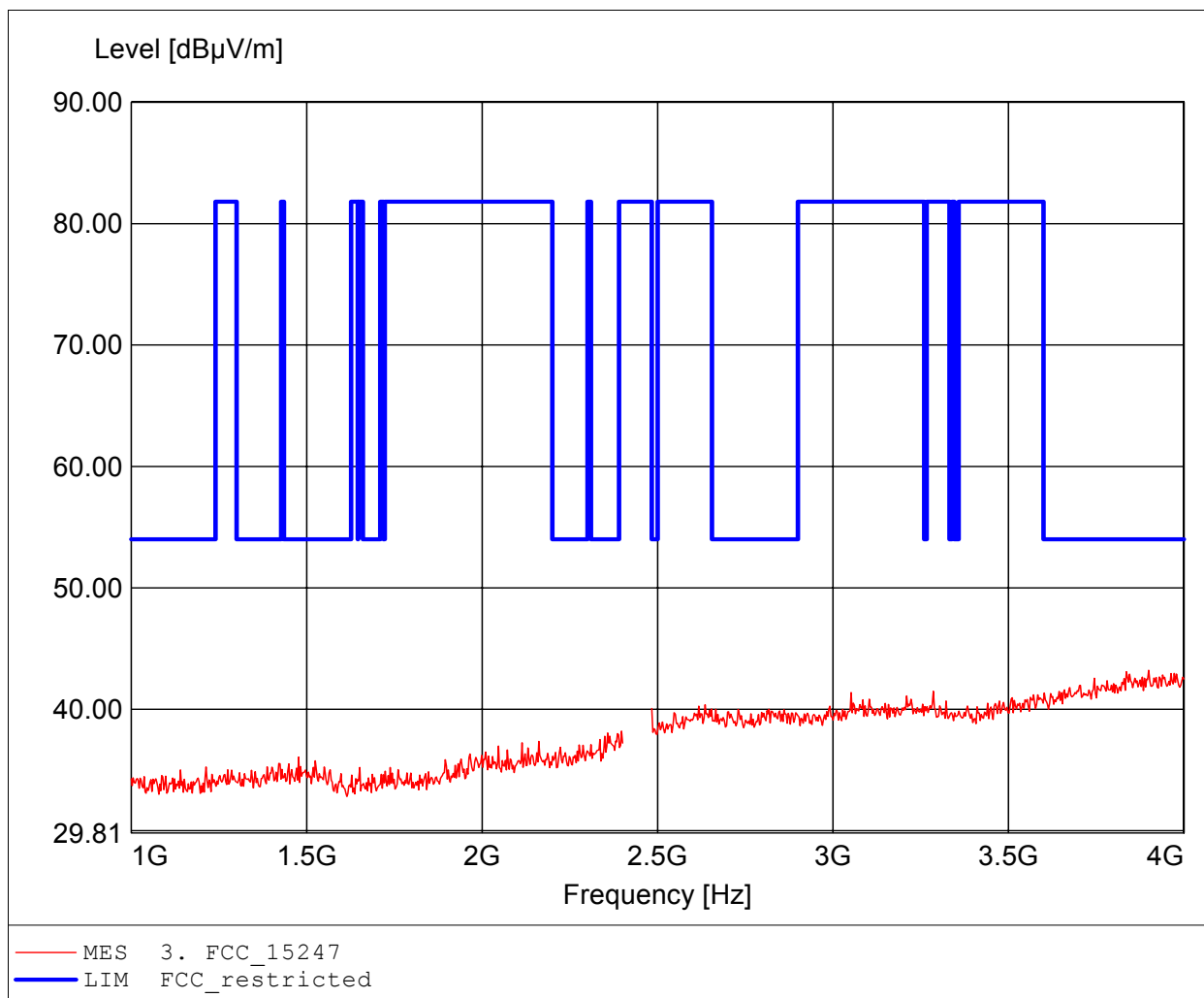
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.39
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.882GHz, Emax: 50.15dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

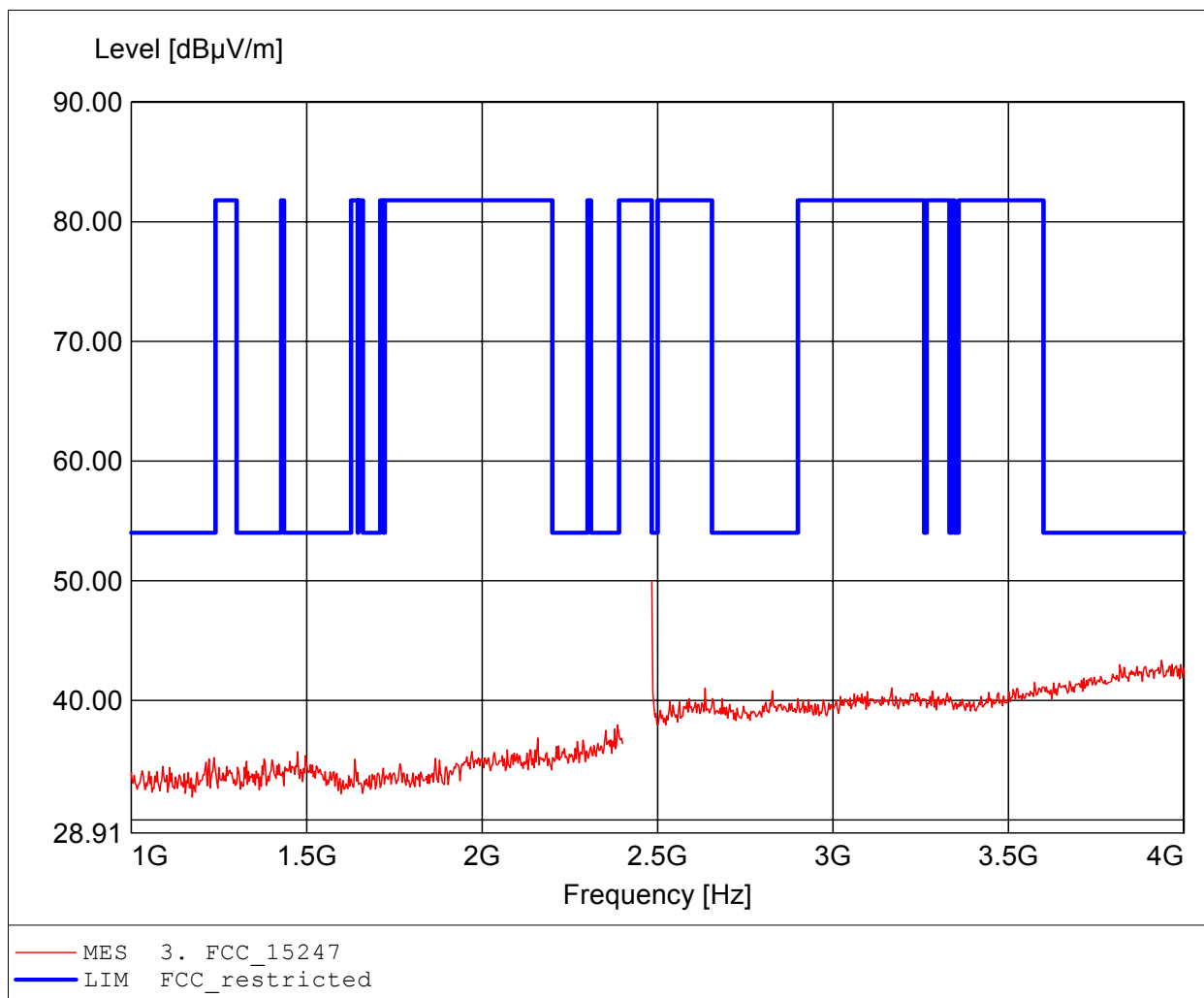
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.78
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 3.900GHz, Emax: 43.22dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

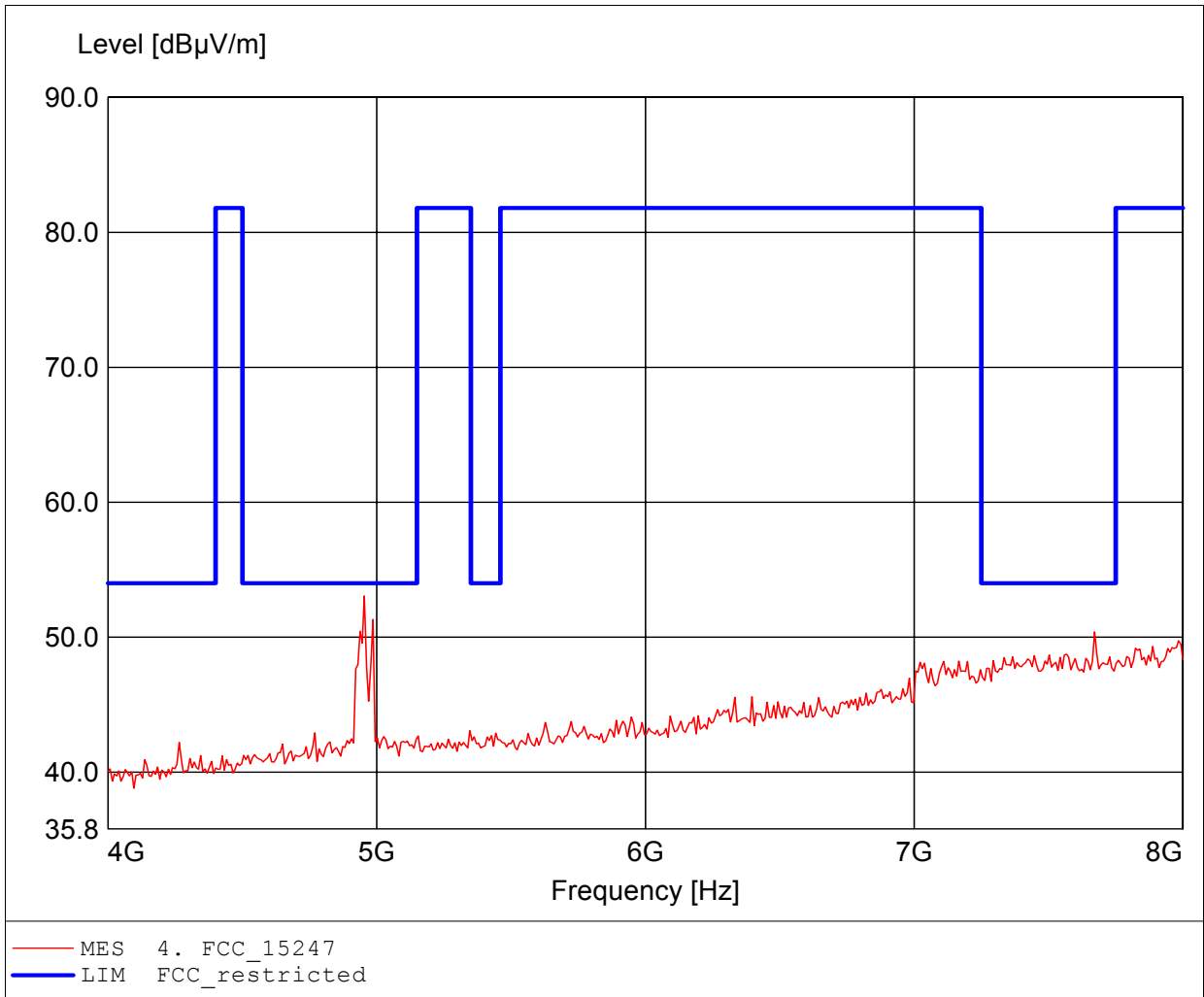
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.78
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.484GHz, Emax: 49.98dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

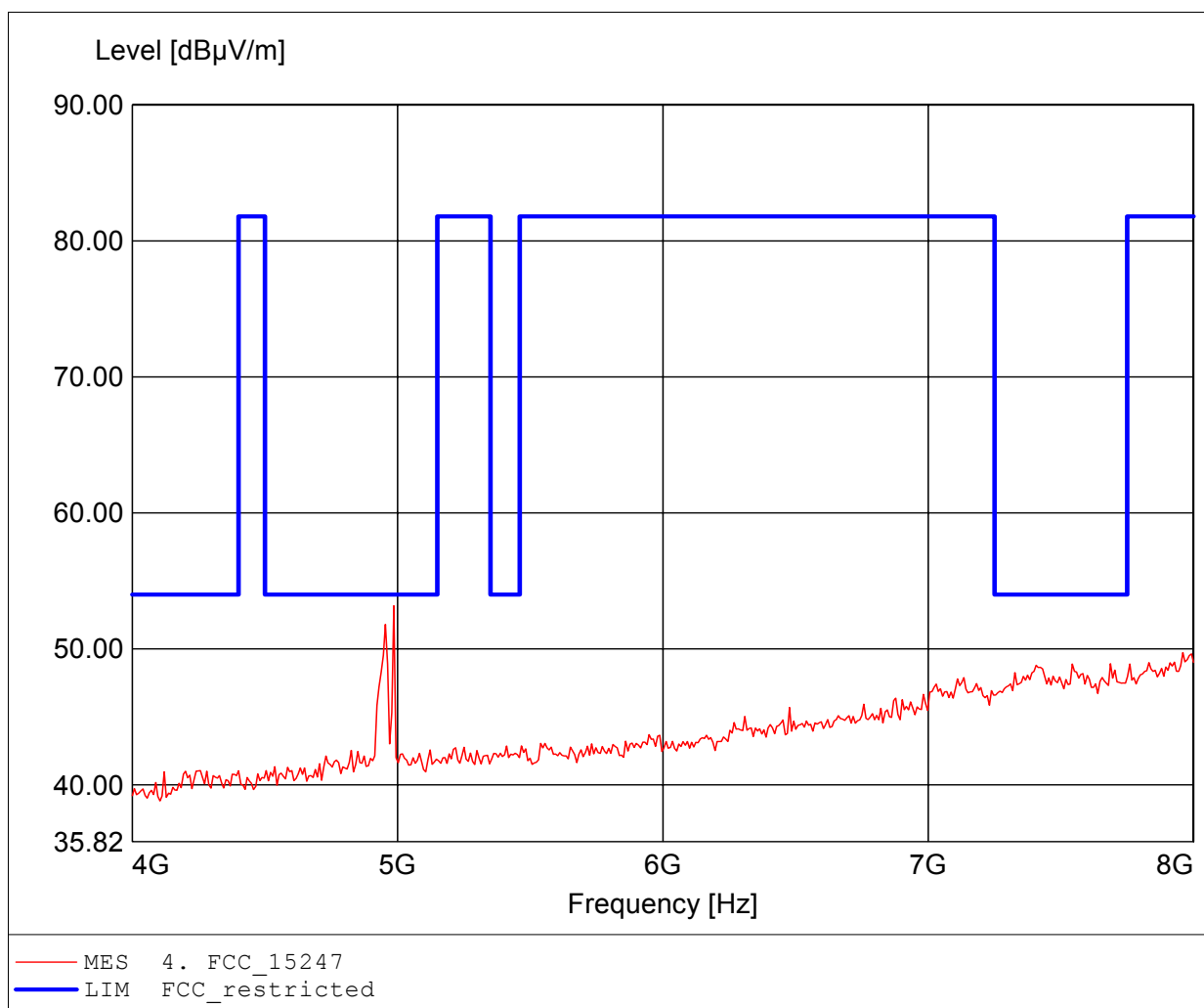
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.78
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.954GHz, Emax: 53.05dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

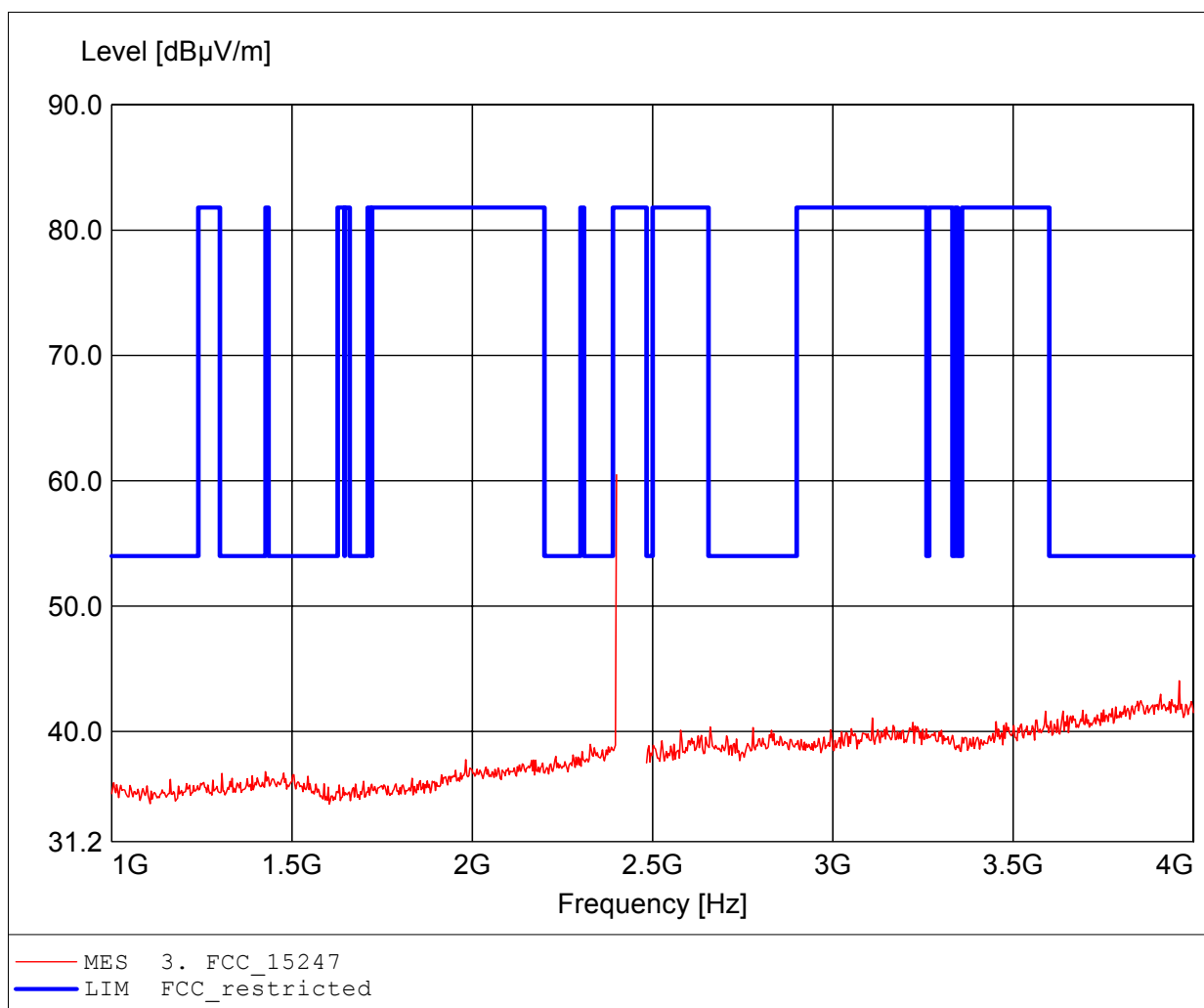
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.78
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.986GHz, Emax: 53.16dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

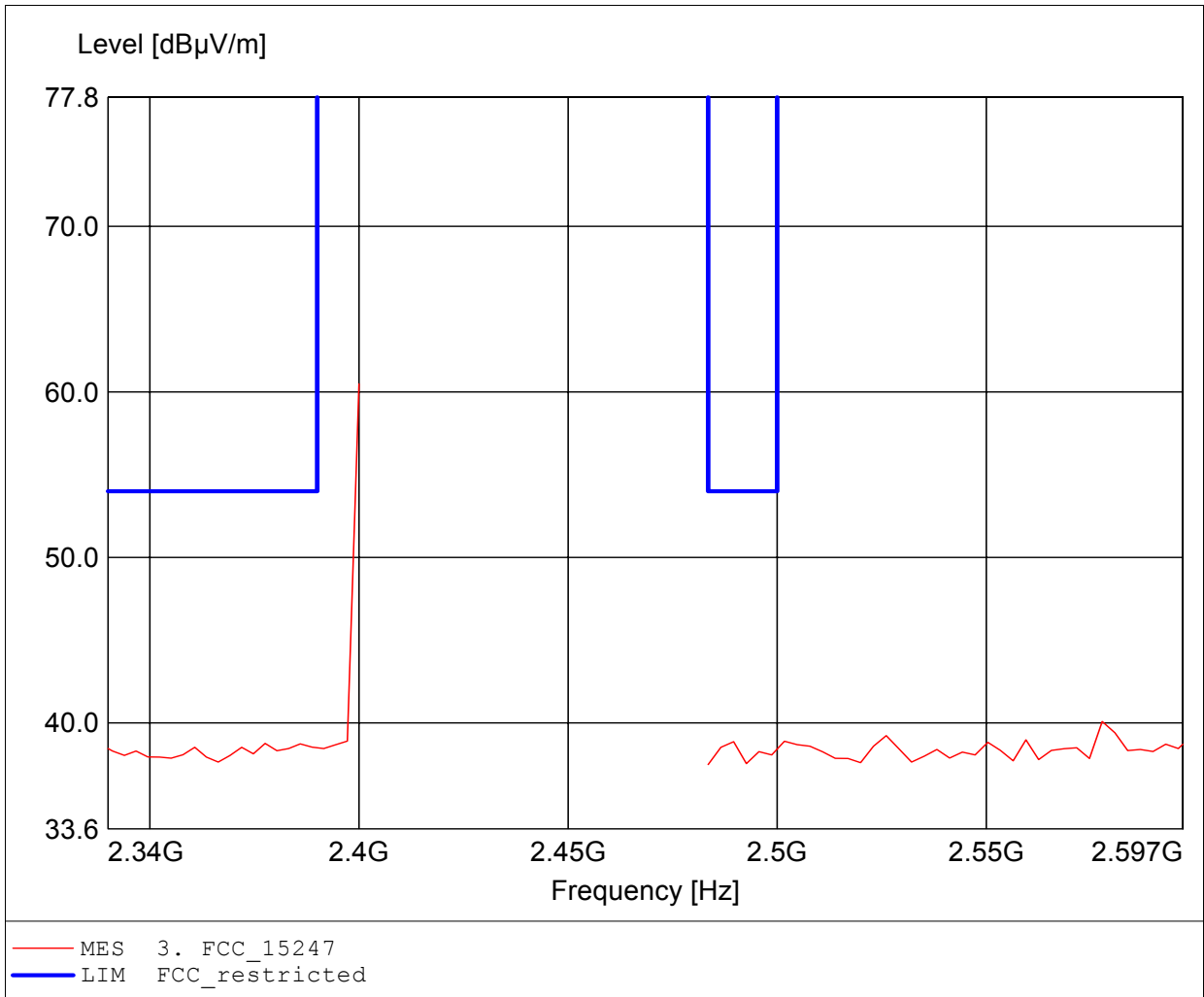
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 60.49dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

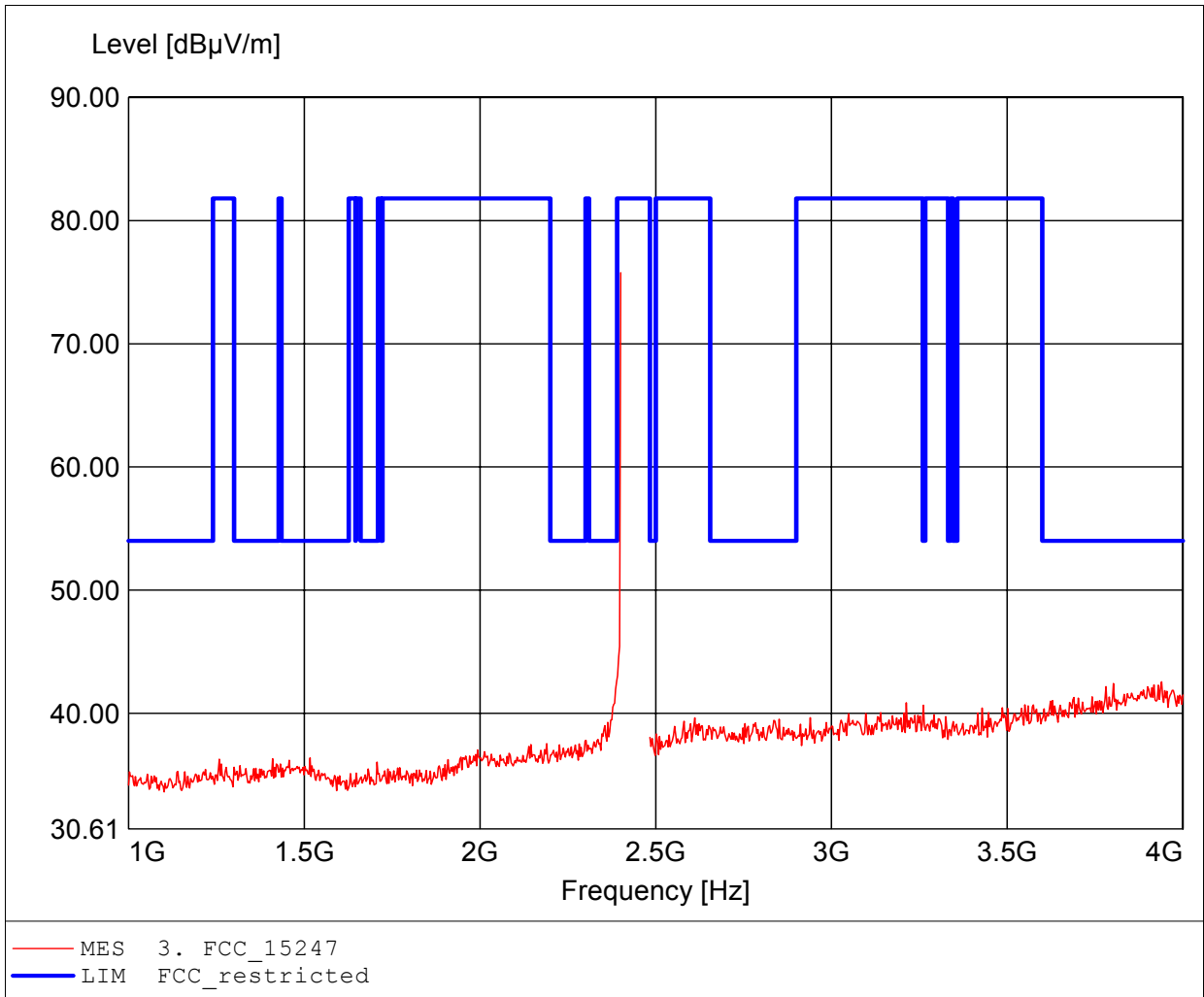
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 60.49dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

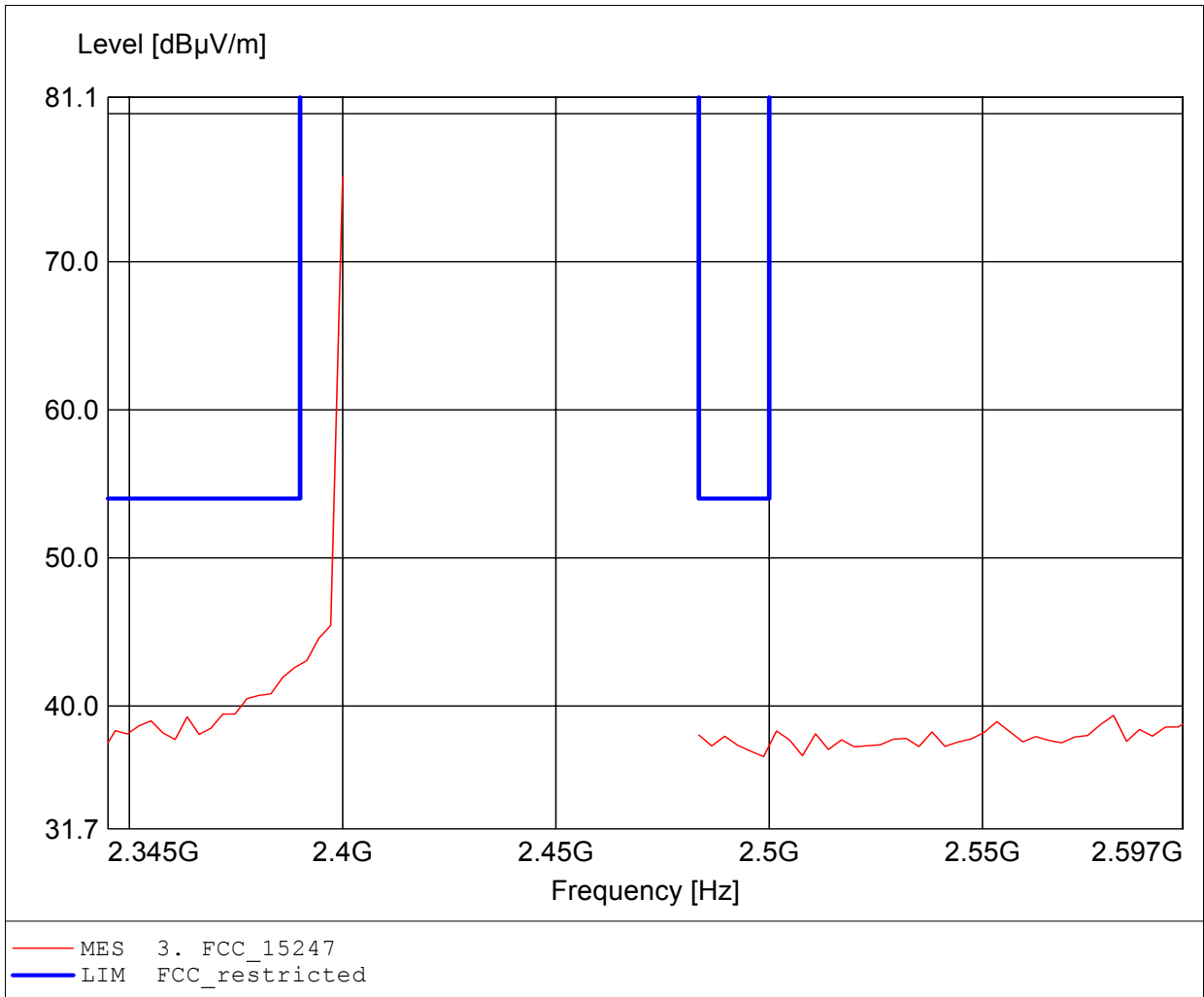
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 75.77dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

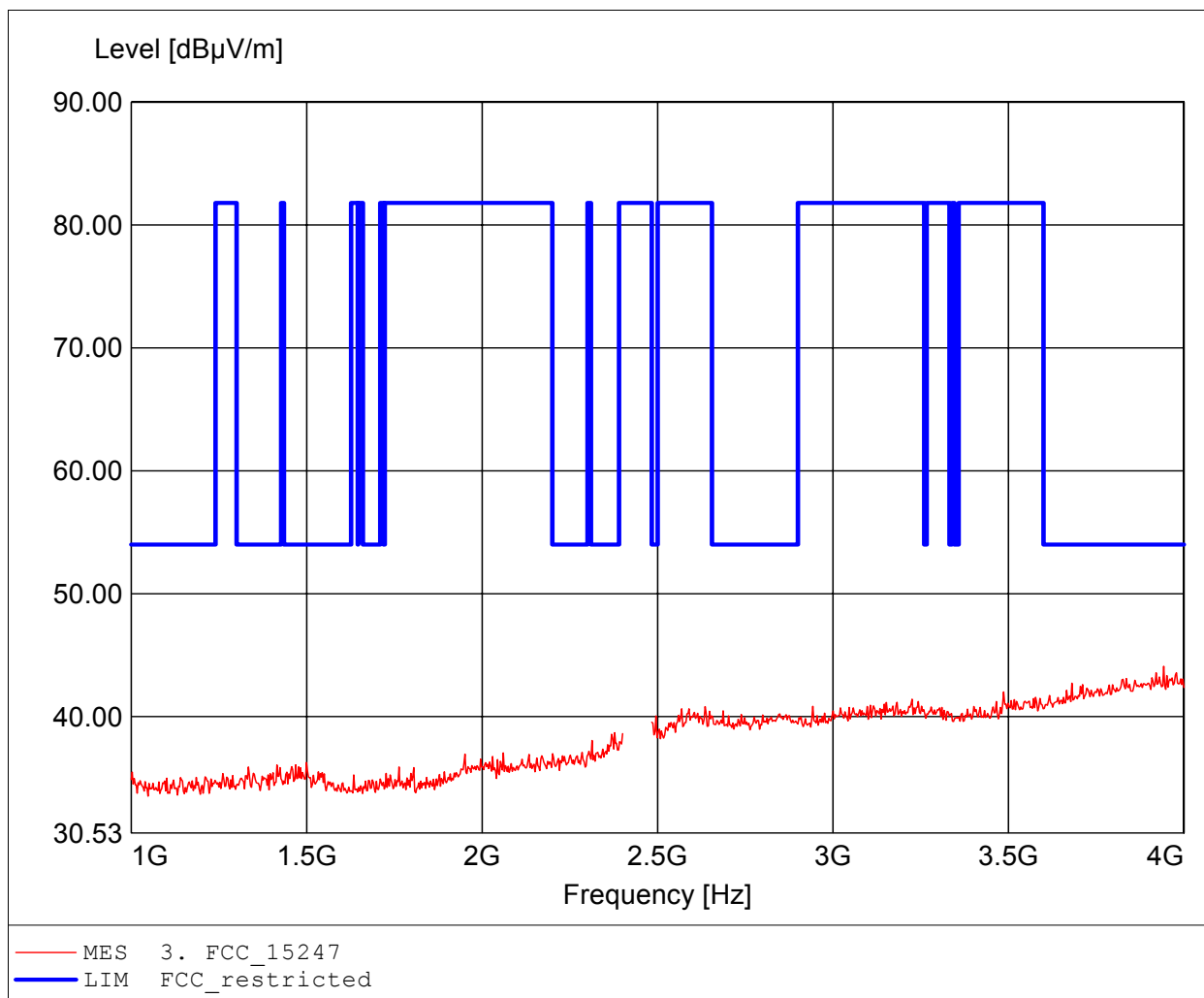
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 75.77dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

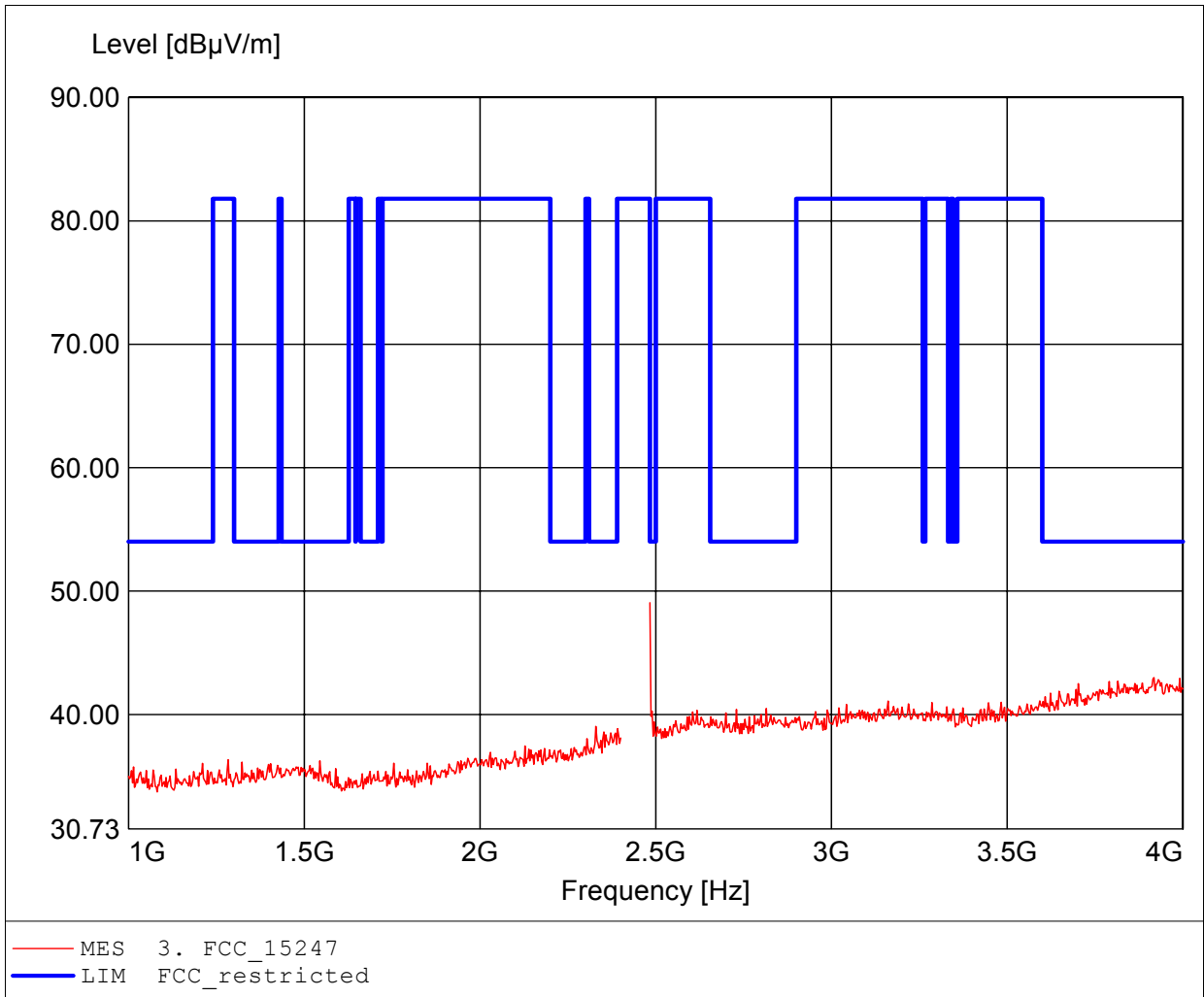
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.78
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 3.942GHz, Emax: 44.09dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

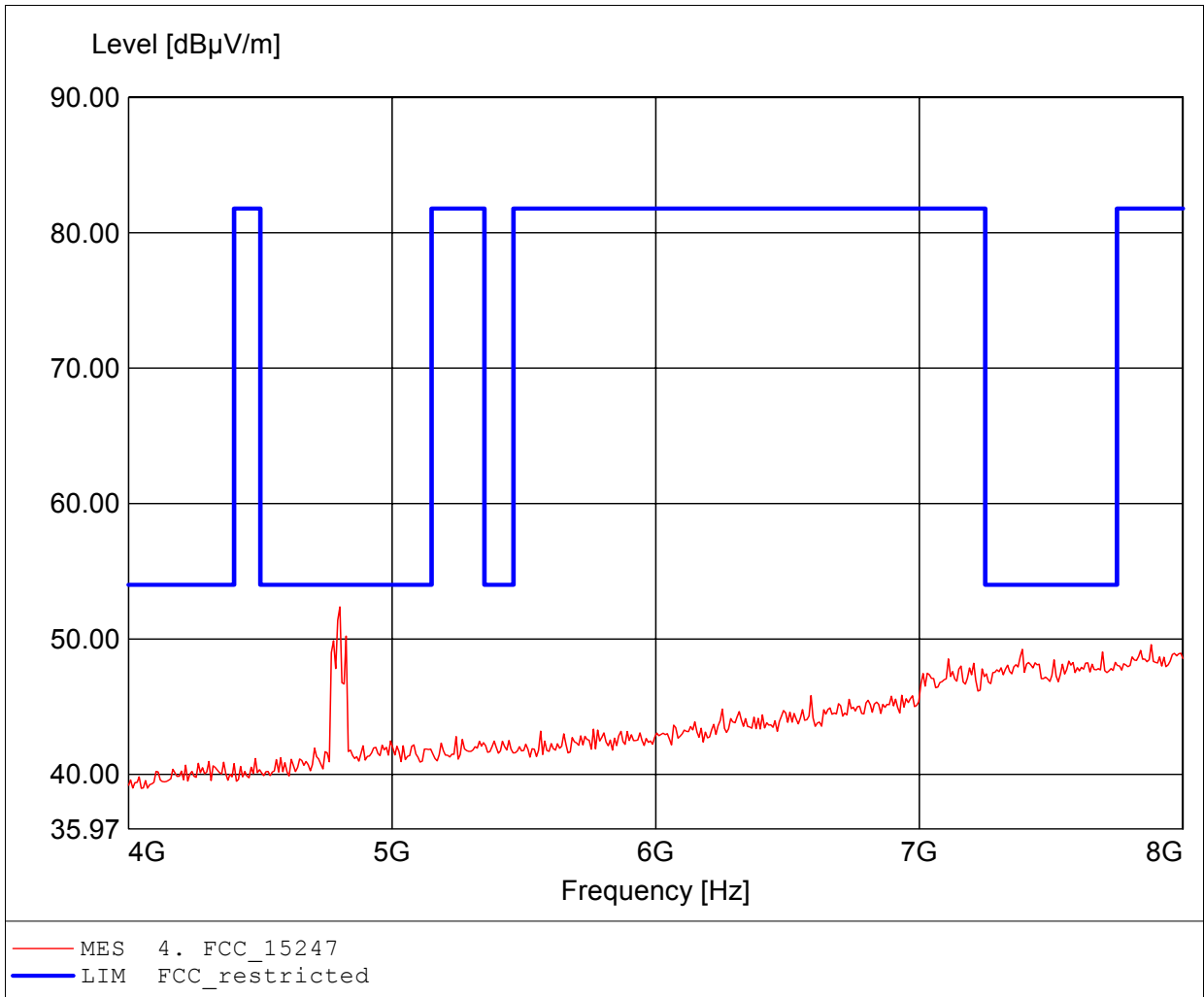
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.78
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.484GHz, Emax: 49.06dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

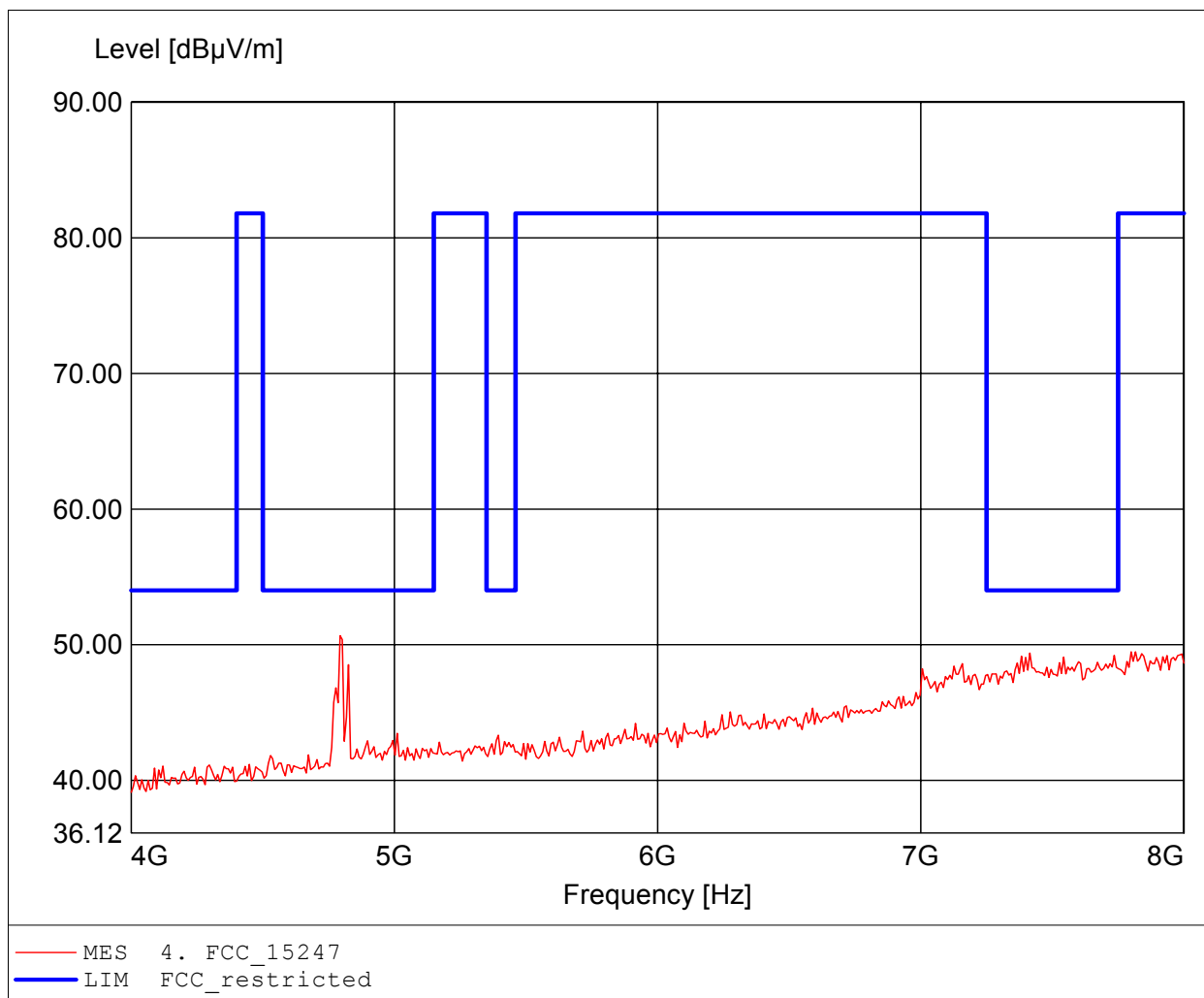
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.802GHz, Emax: 52.37dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

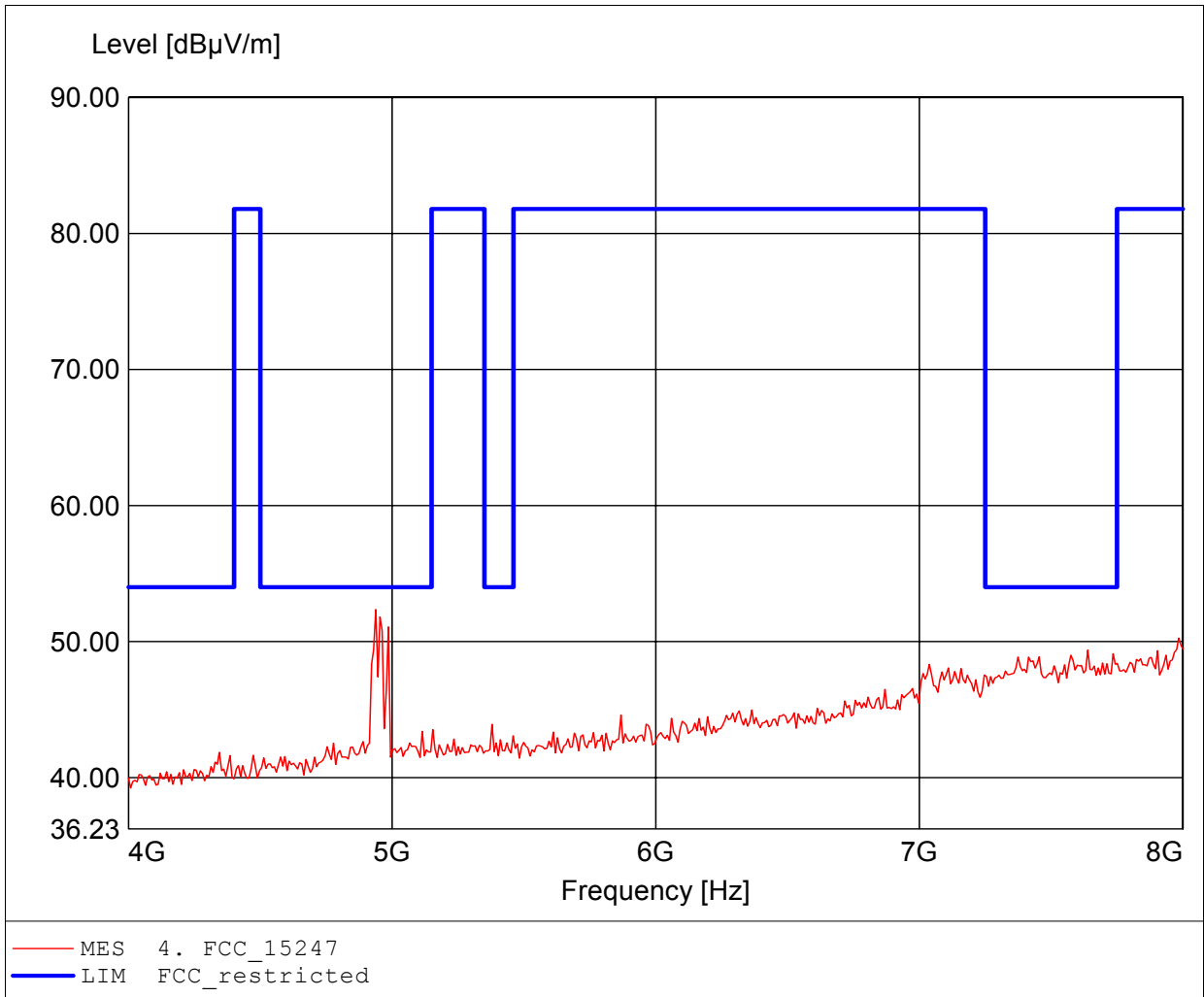
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.0
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.794GHz, Emax: 50.67dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

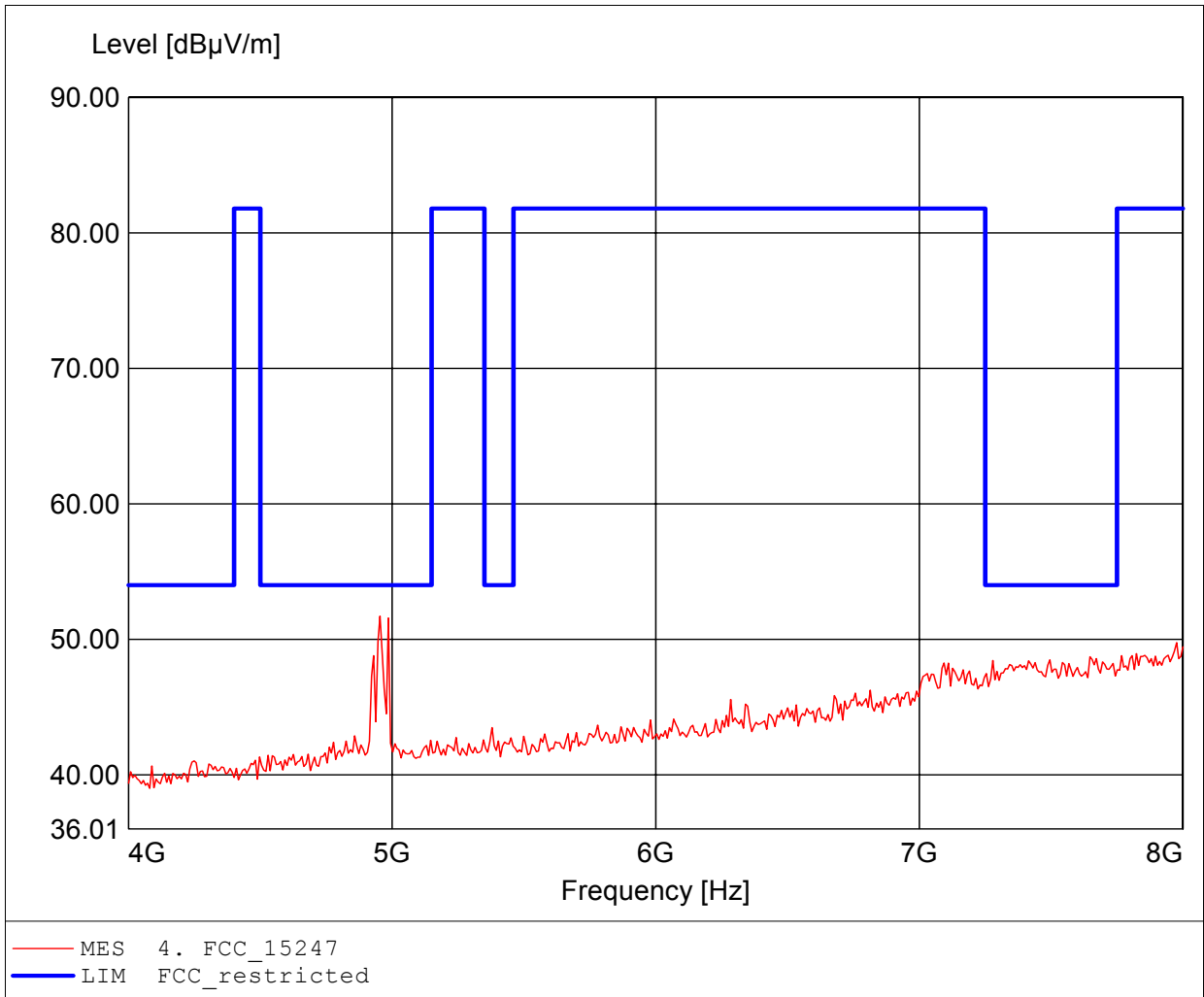
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.78
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.938GHz, Emax: 52.36dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

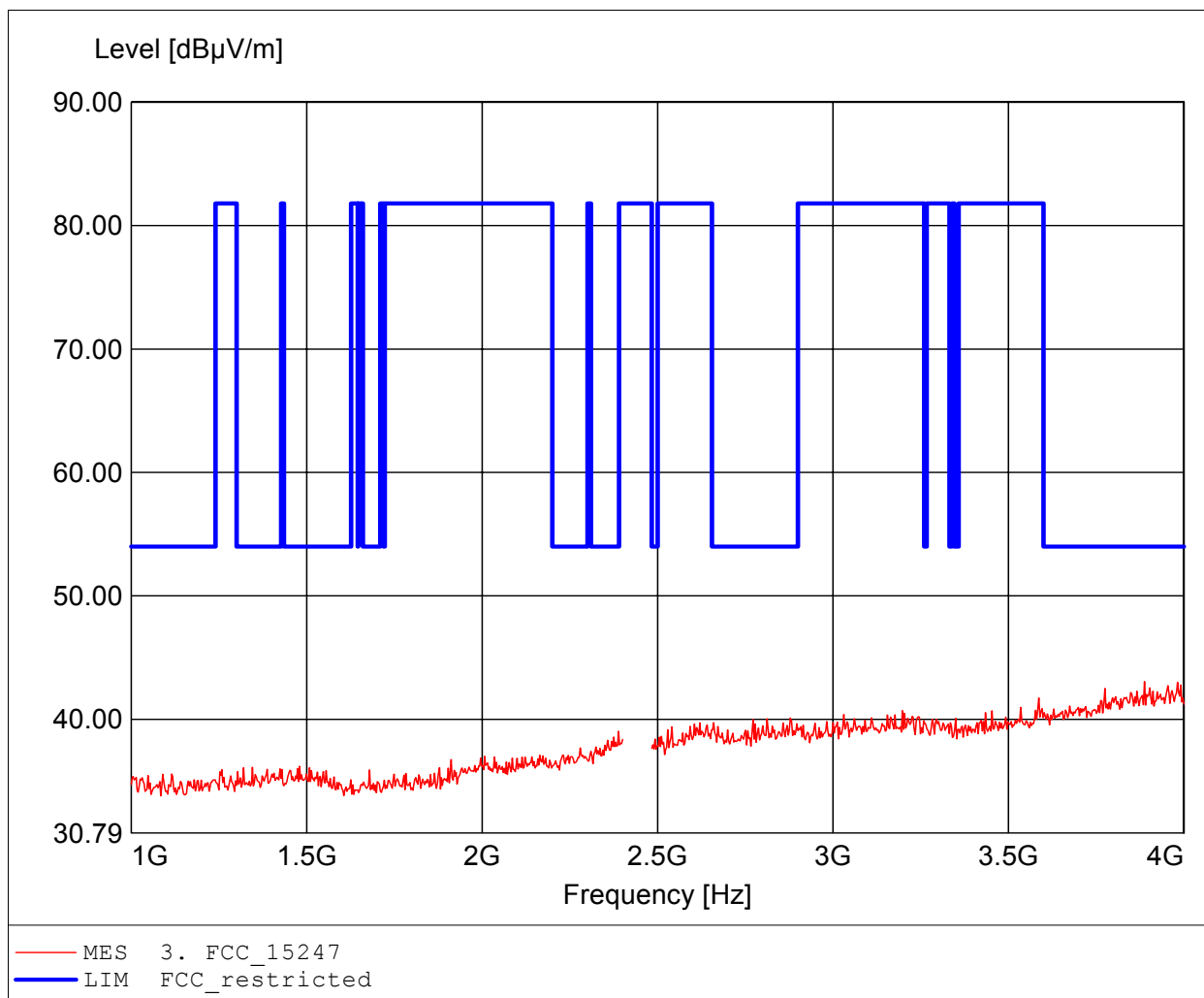
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.78
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.954GHz, Emax: 51.71dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

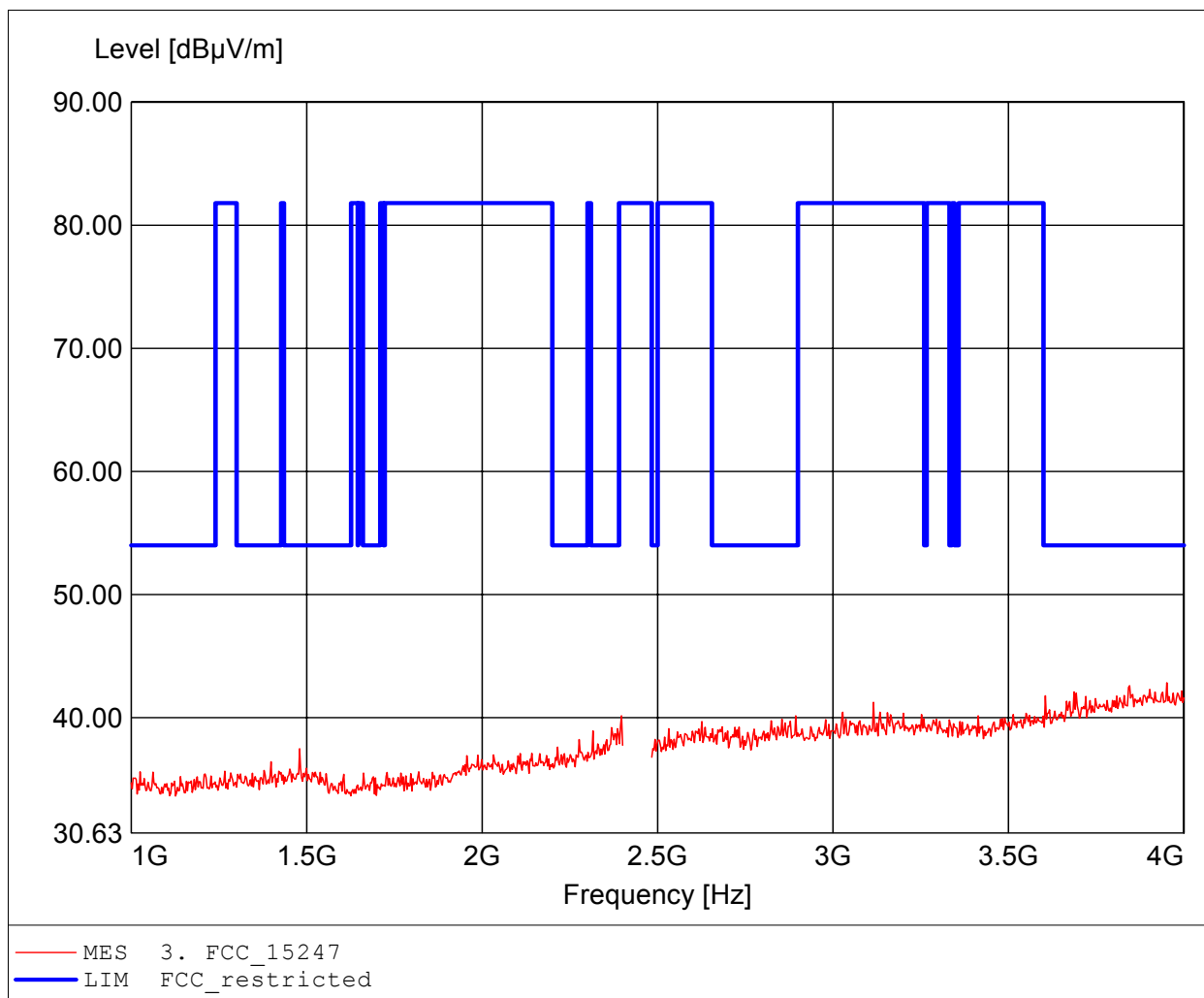
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.39
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 3.888GHz, Emax: 43.05dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

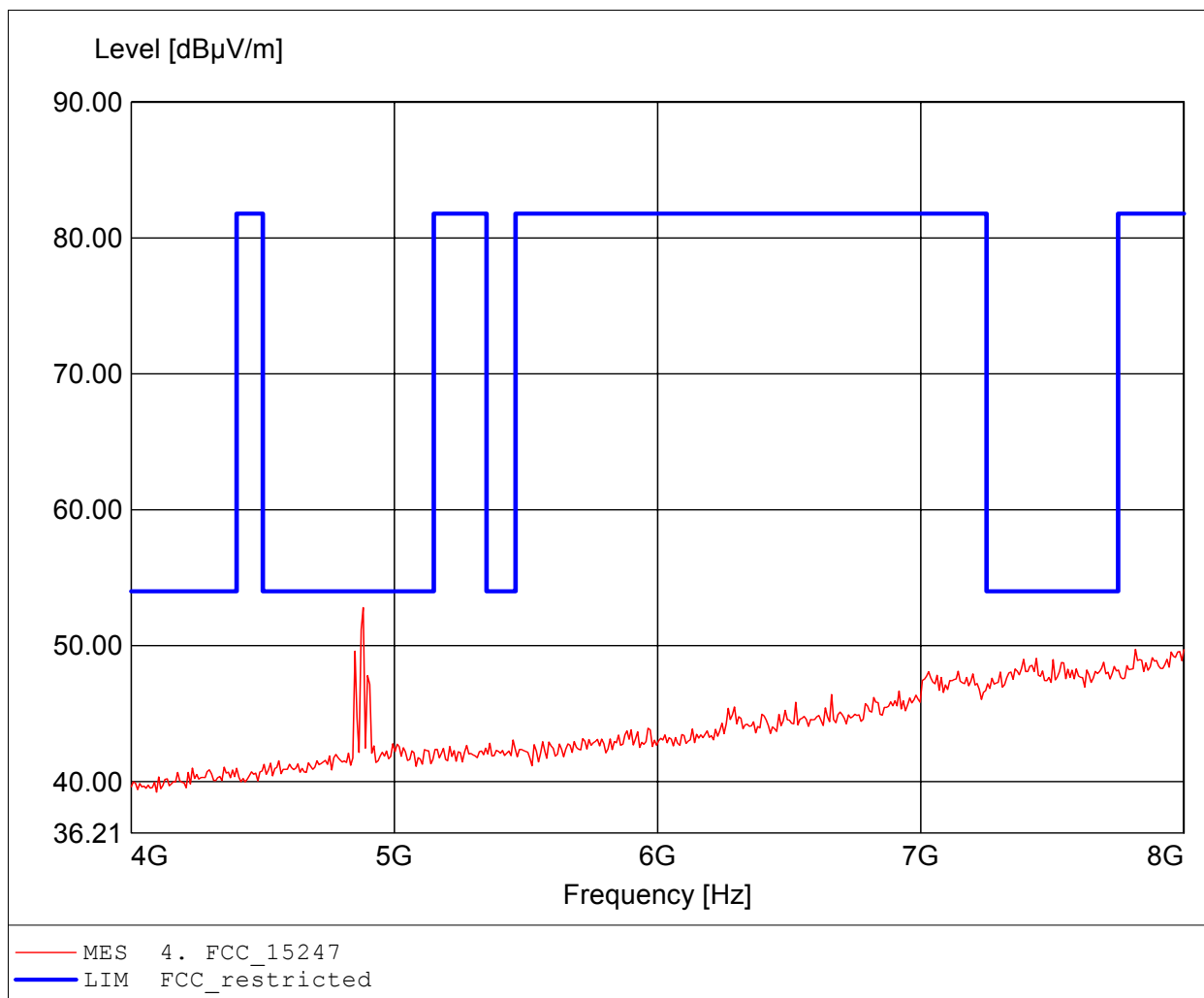
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.39
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 3.951GHz, Emax: 42.83dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

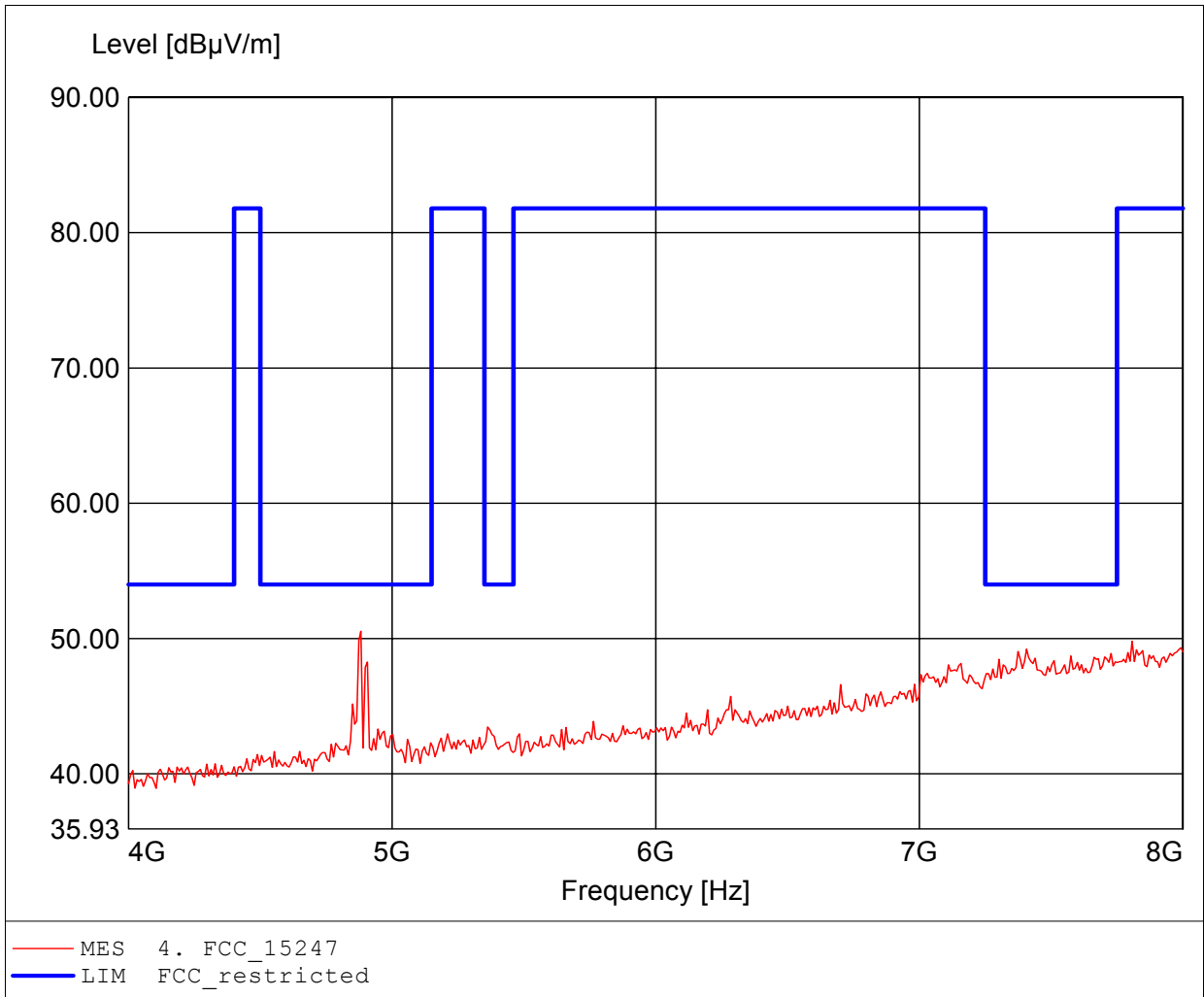
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.39
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.882GHz, Emax: 52.81dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

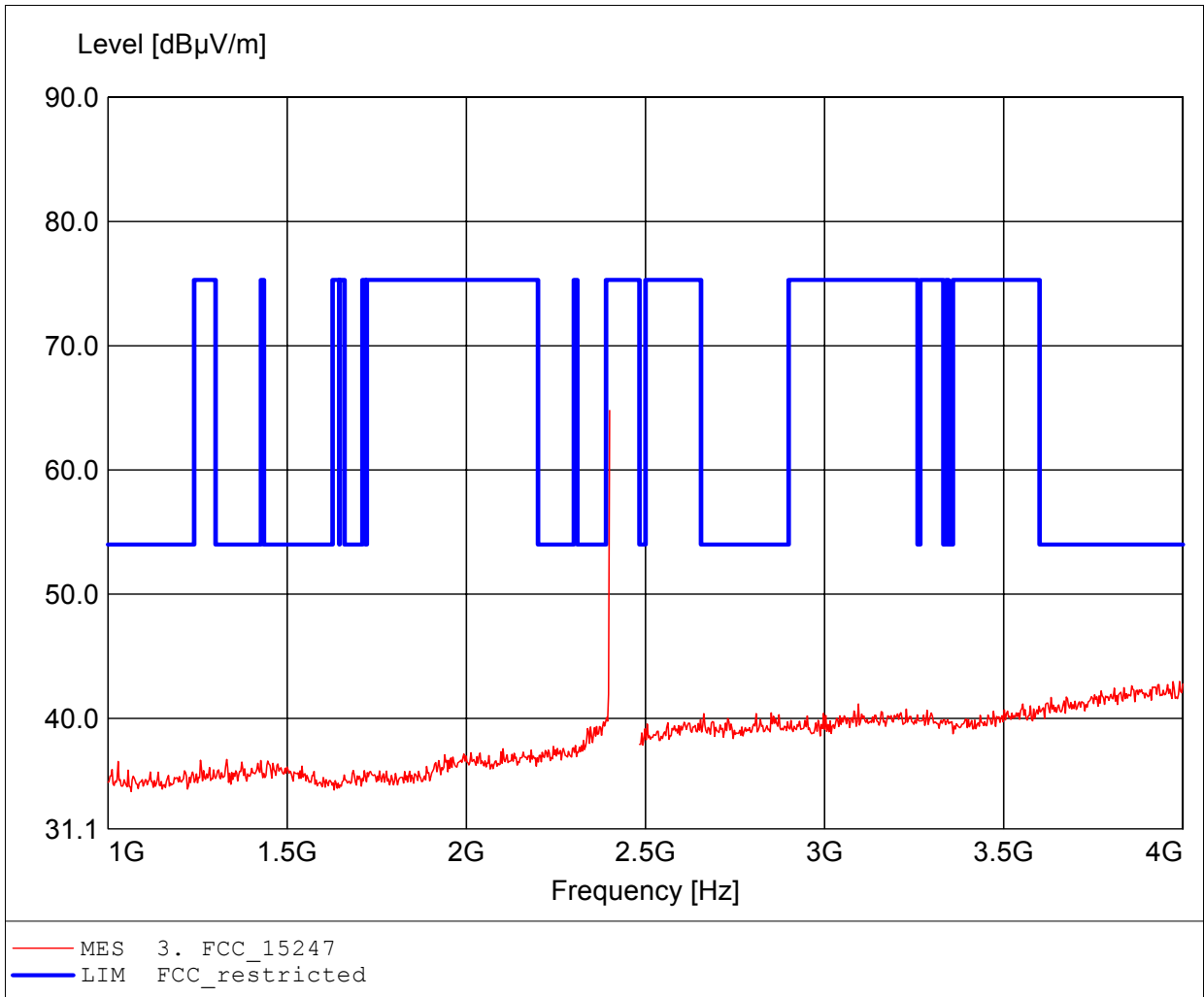
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.39
Model: WiBear-SF2-UAP / AN00K77421 #6, ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.882GHz, Emax: 50.54dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

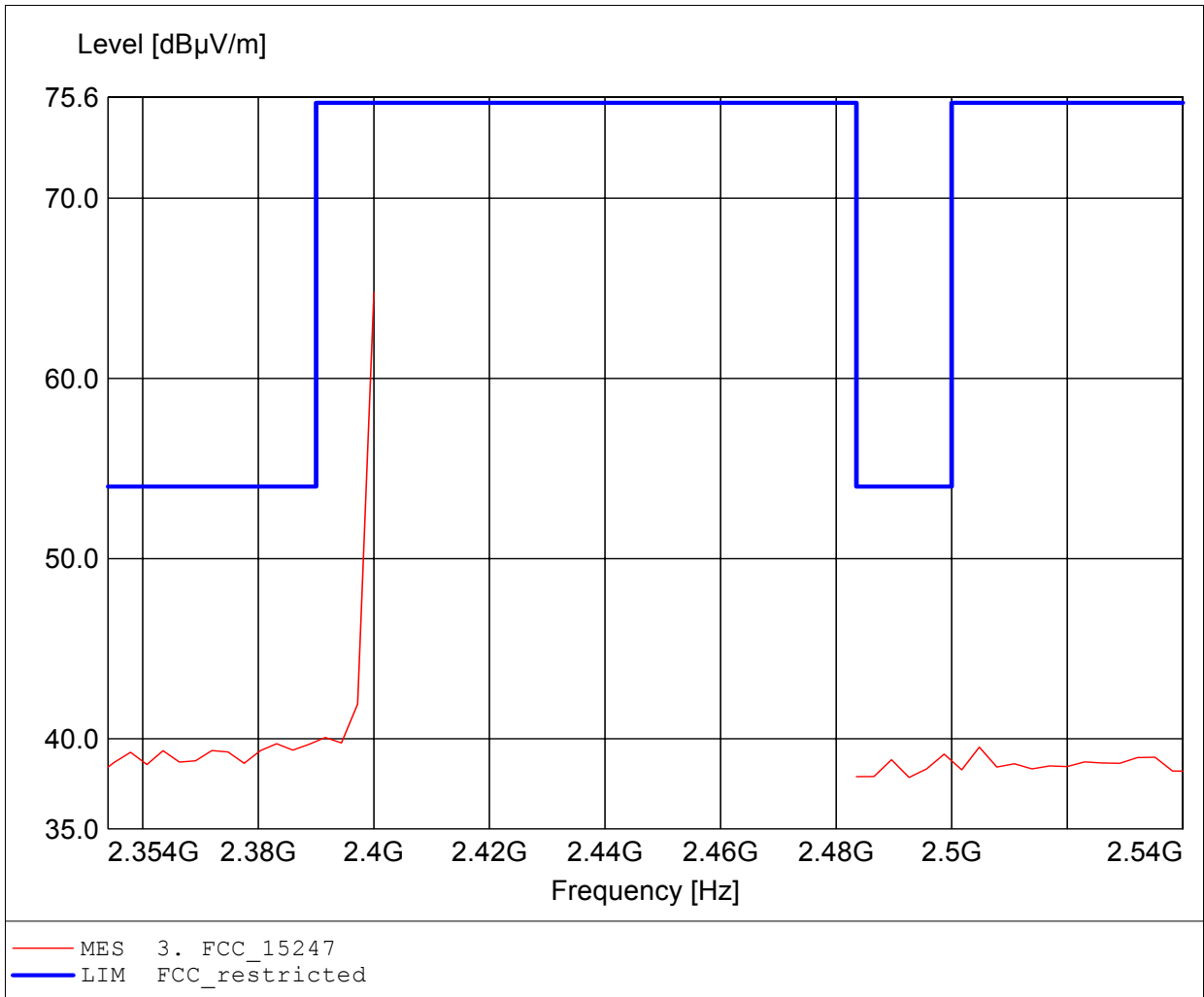
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 64.79dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

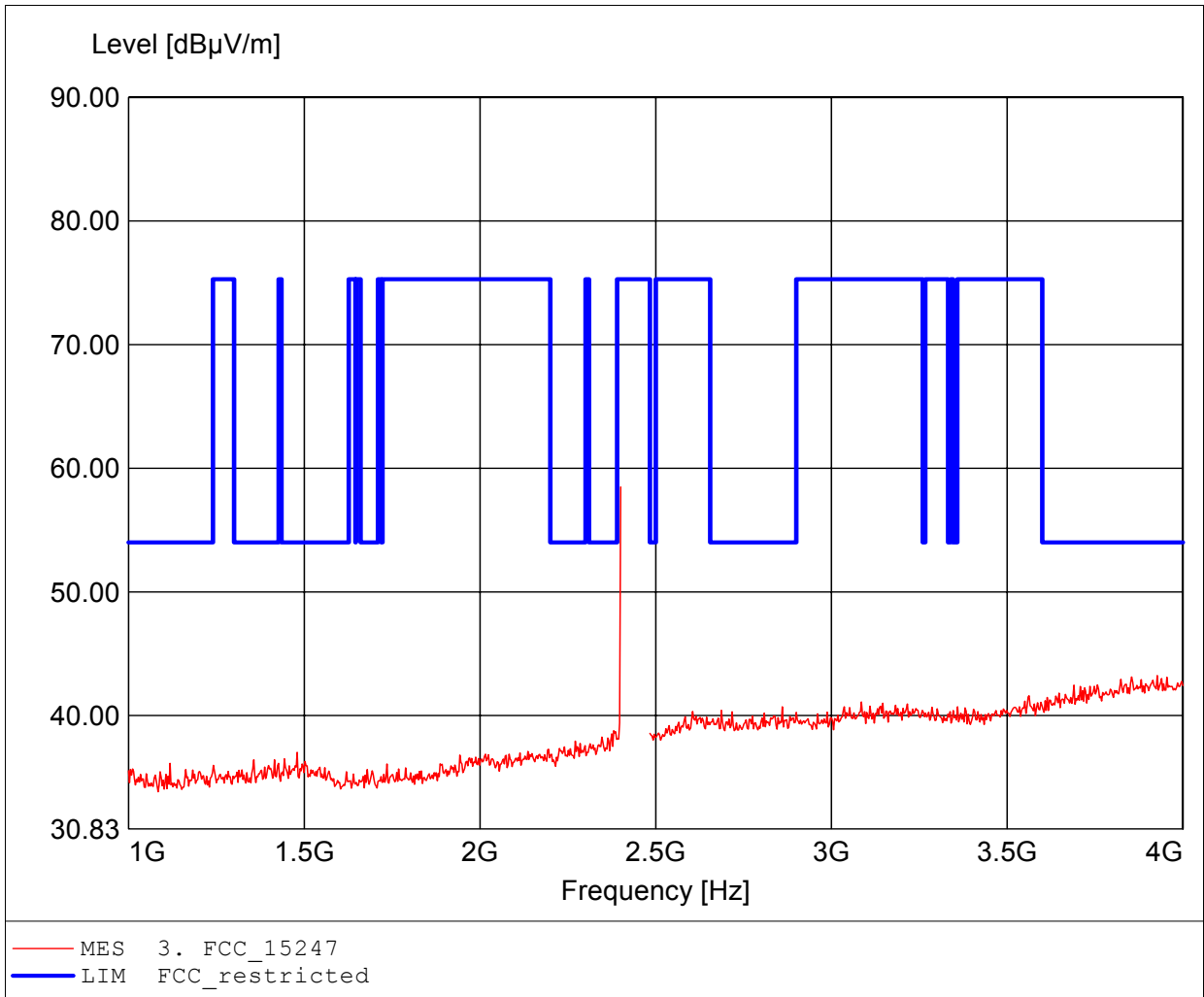
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 64.79dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

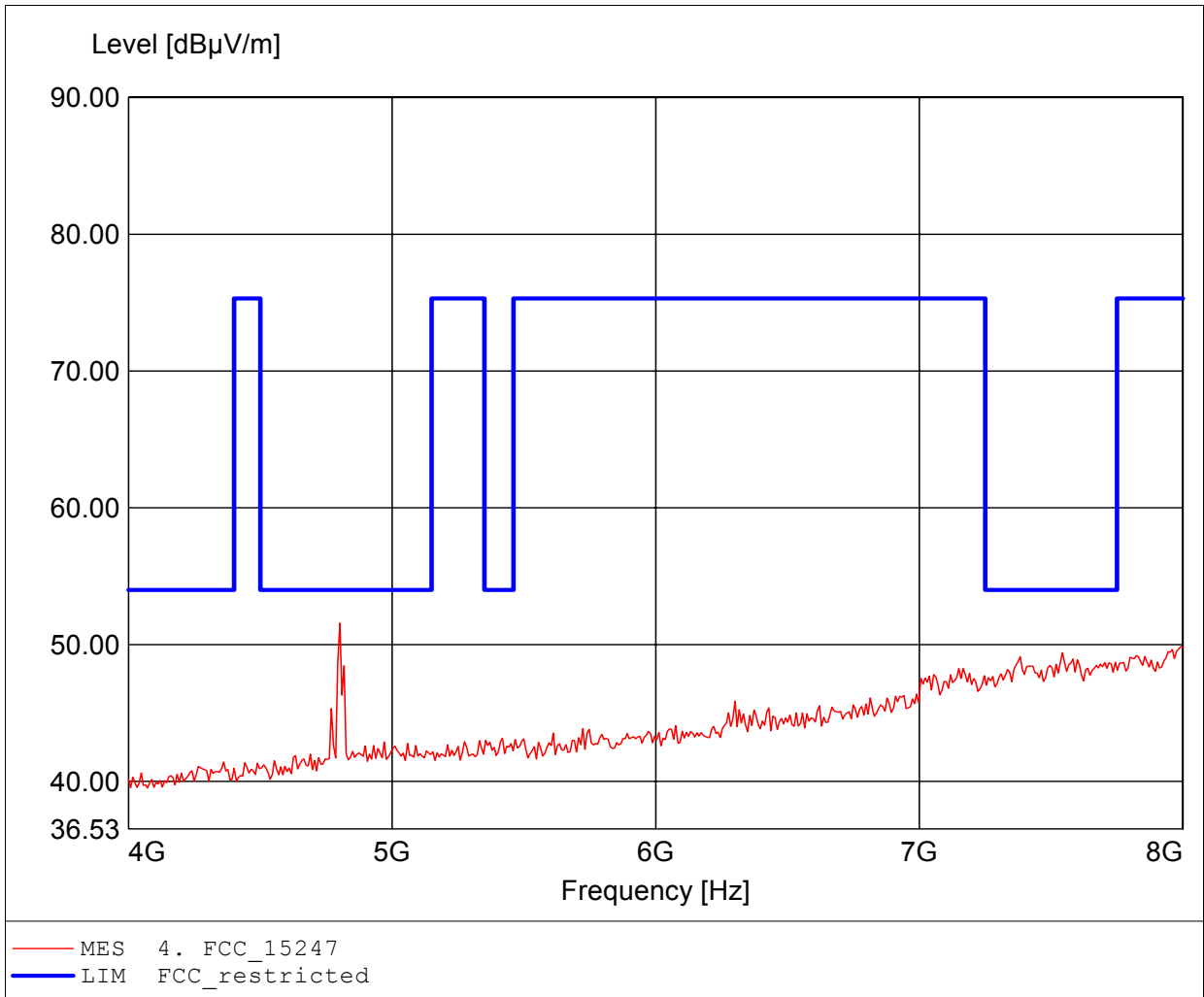
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 58.48dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

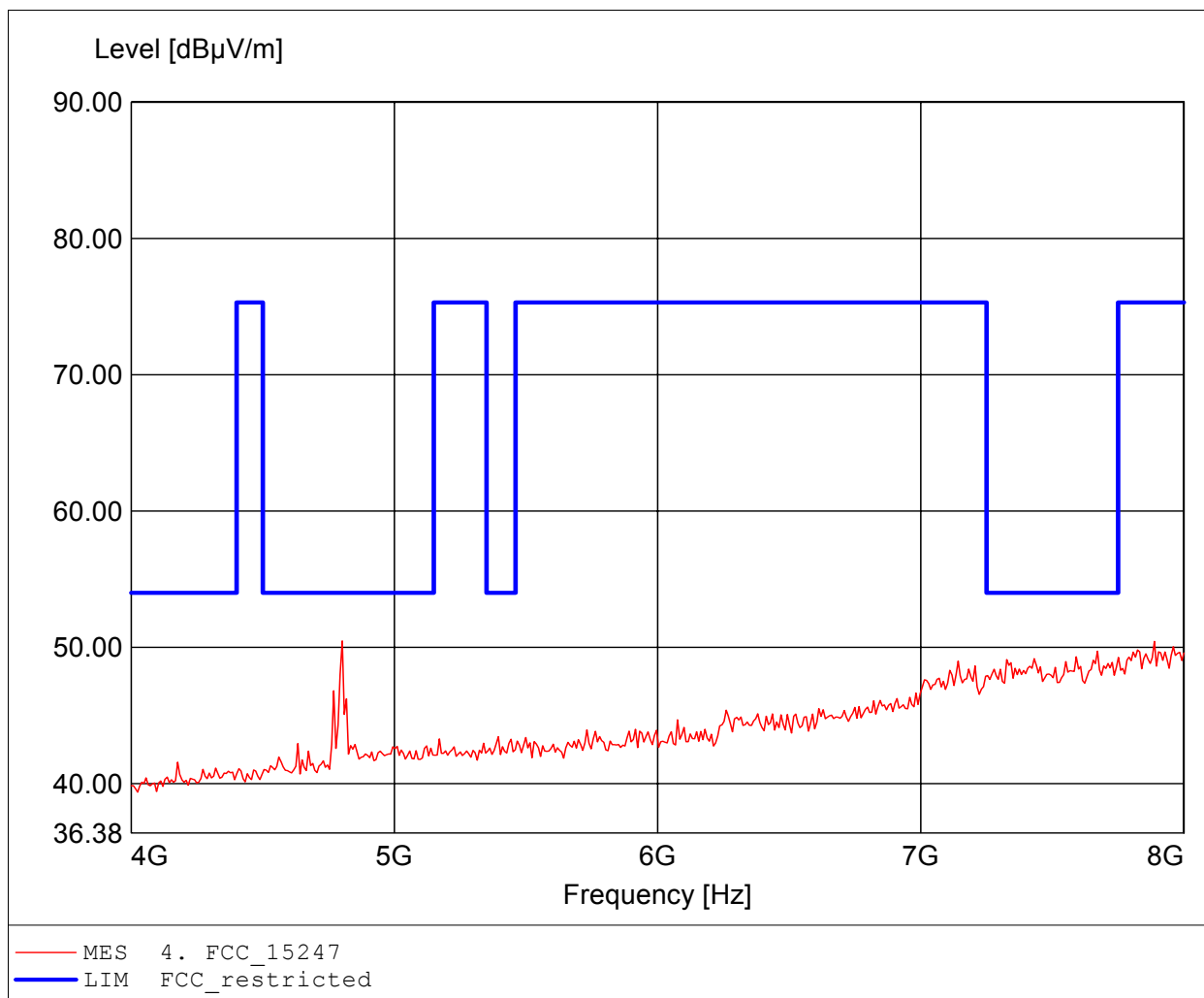
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.802GHz, Emax: 51.58dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

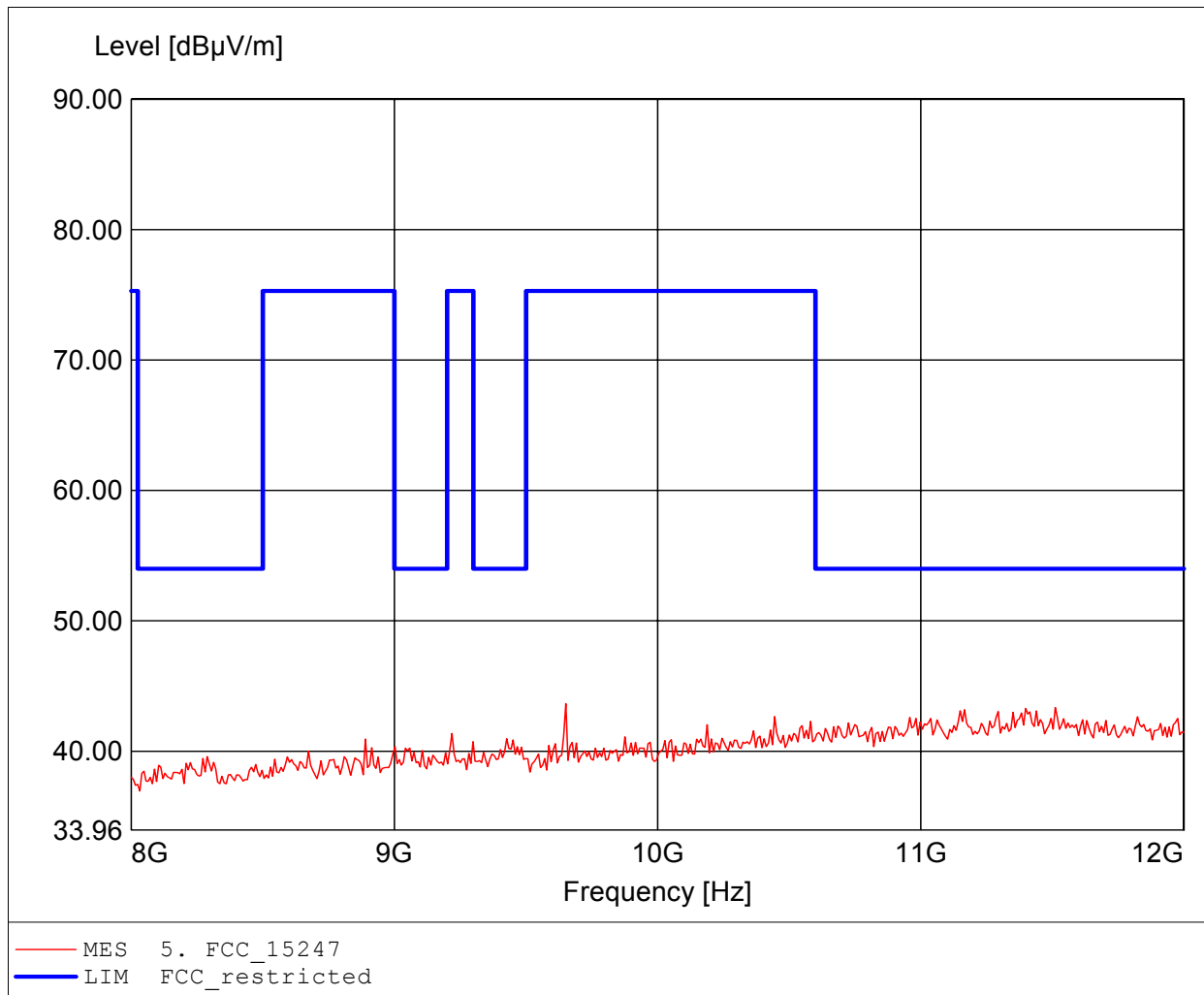
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.802GHz, Emax: 50.47dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

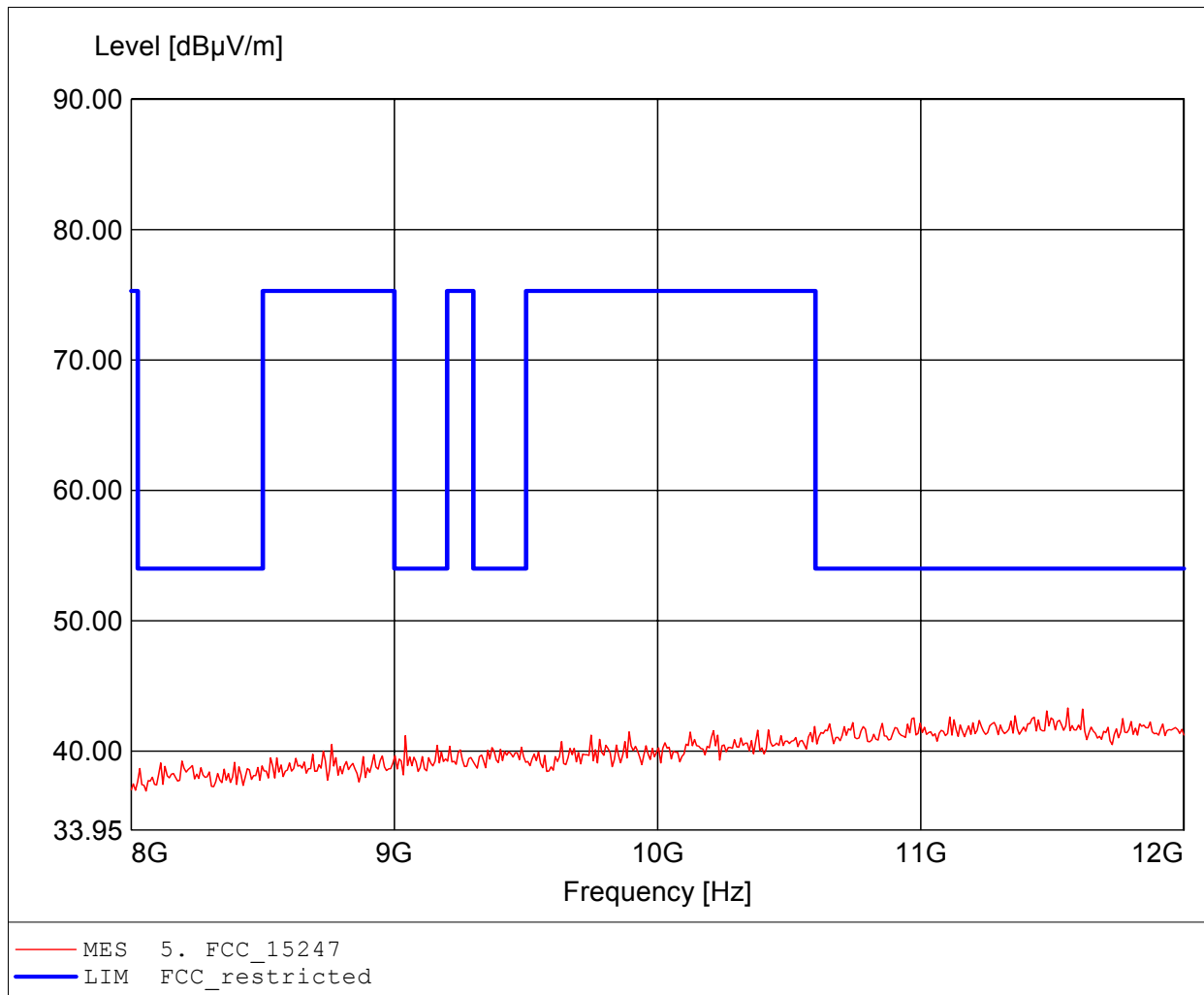
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 9.651GHz, Emax: 43.66dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

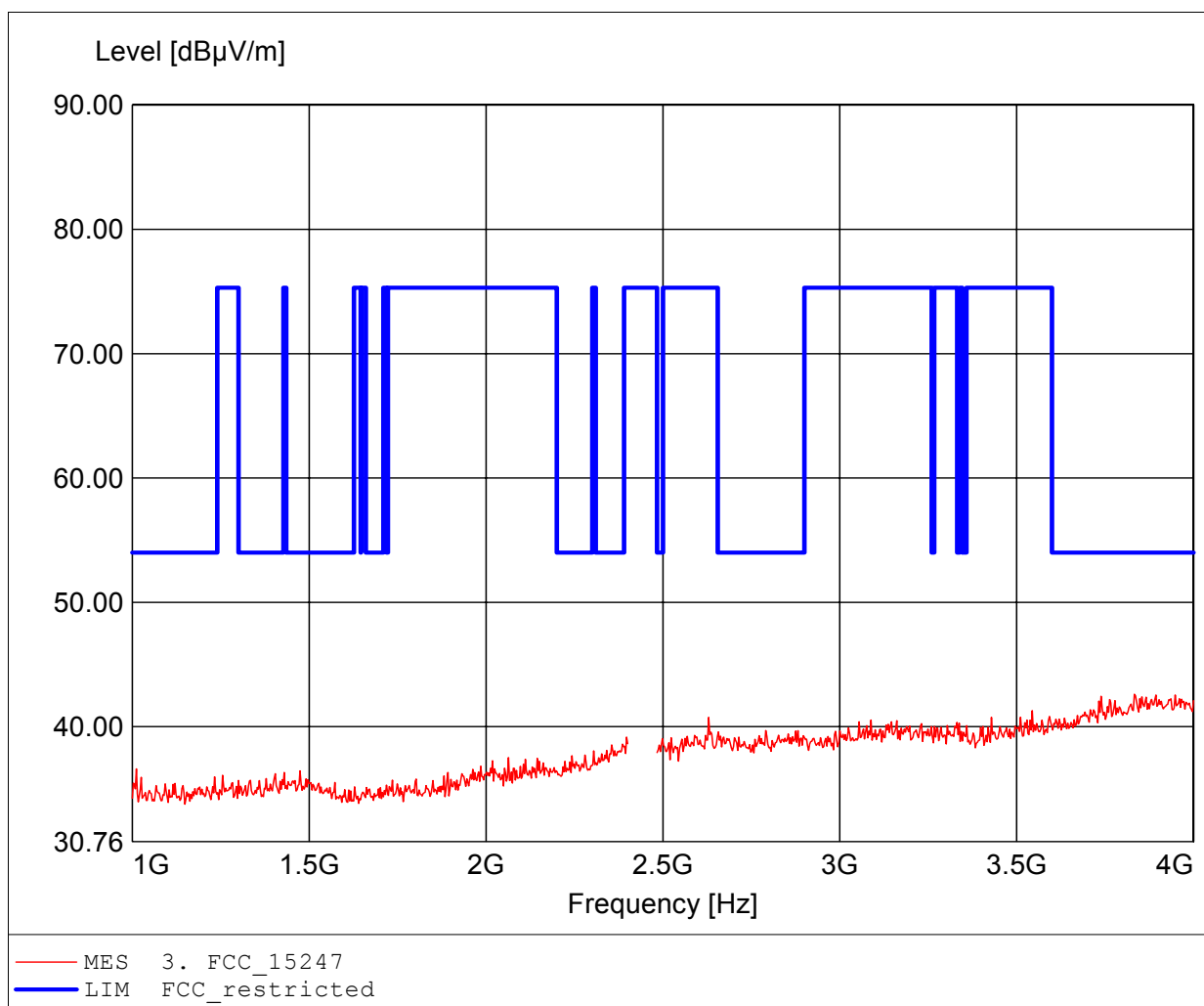
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.0
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 11.559GHz, Emax: 43.31dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

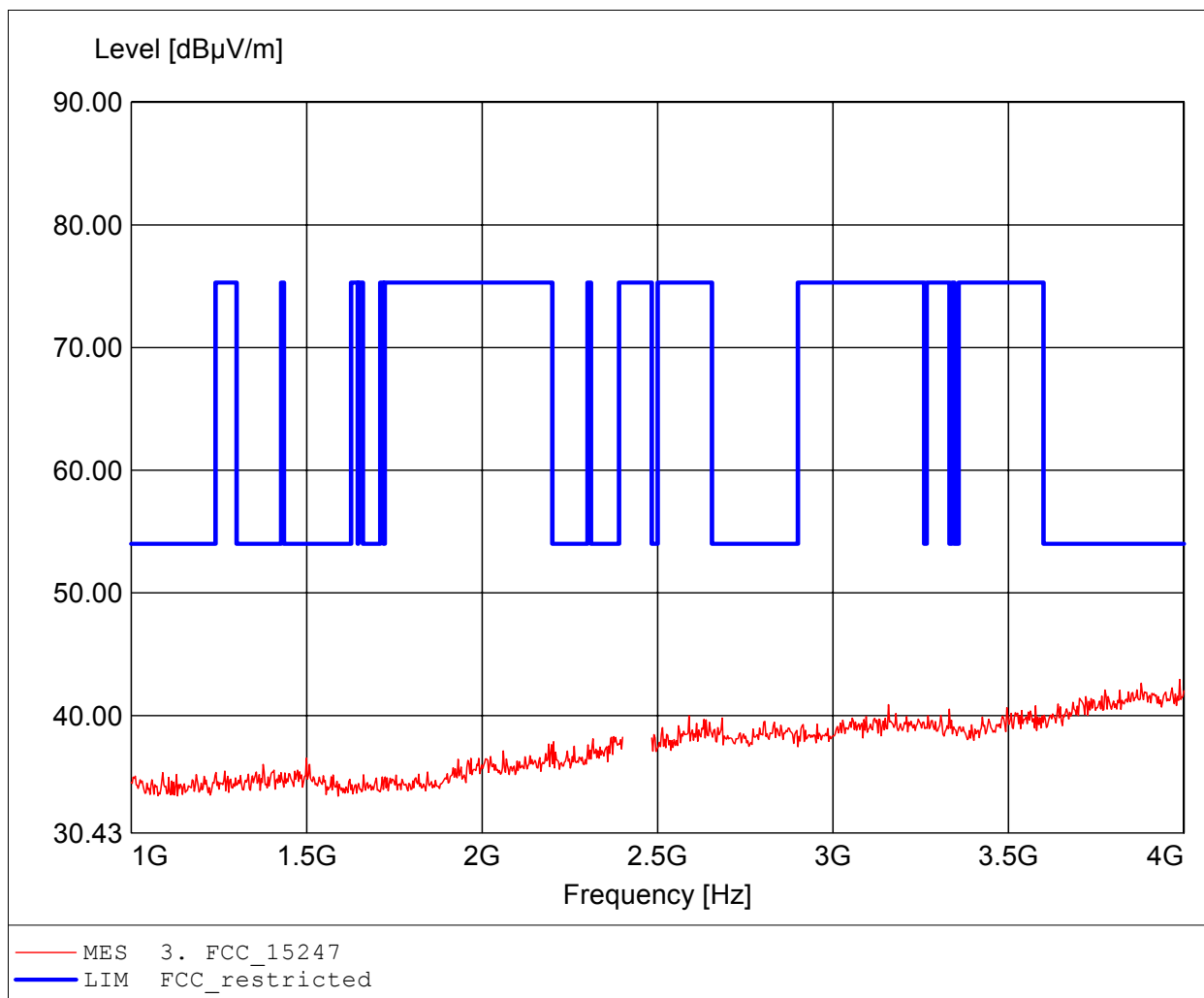
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.39
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 3.833GHz, Emax: 42.62dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

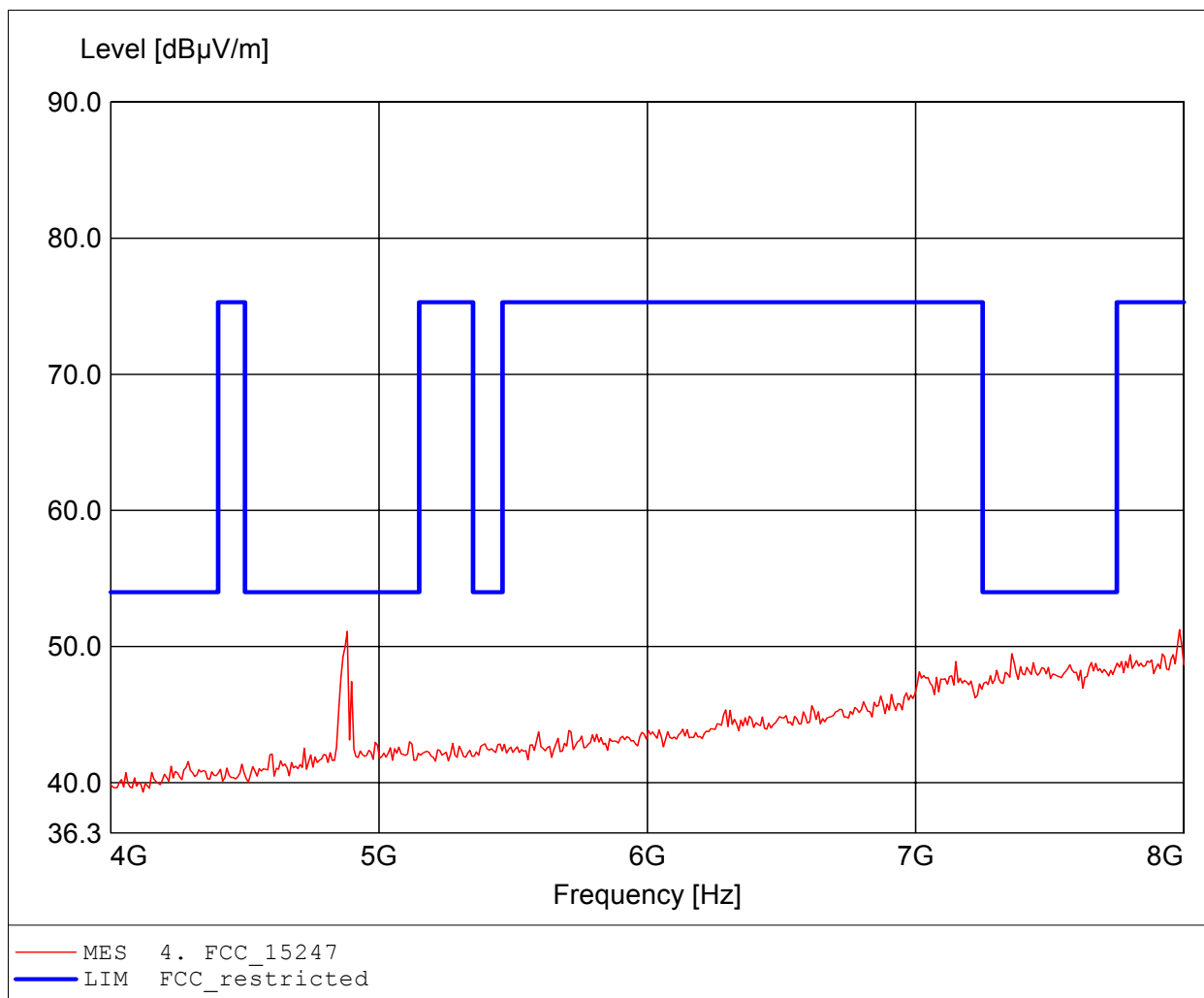
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.39
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 3.988GHz, Emax: 42.94dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

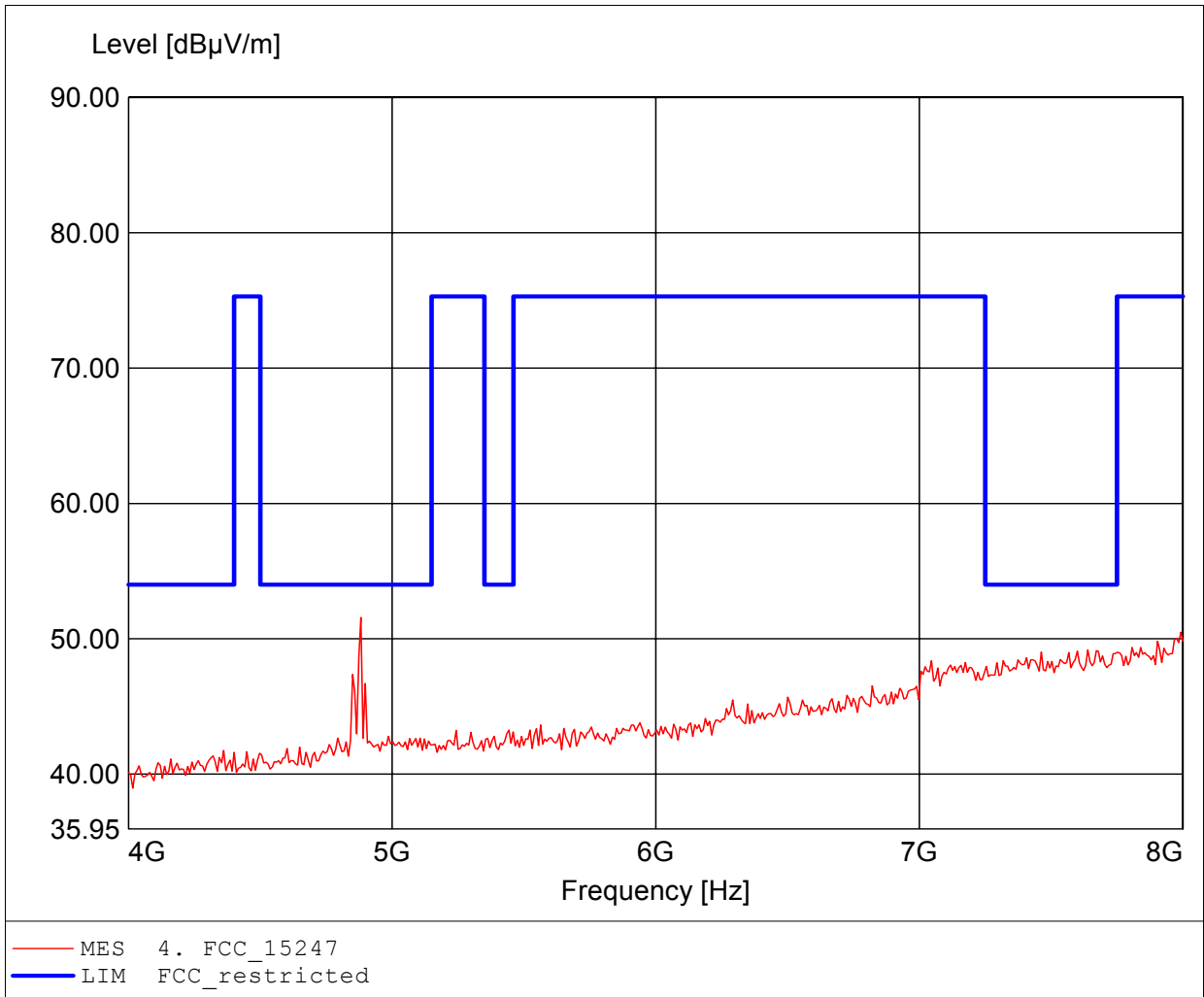
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.39
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 7.984GHz, Emax: 51.24dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

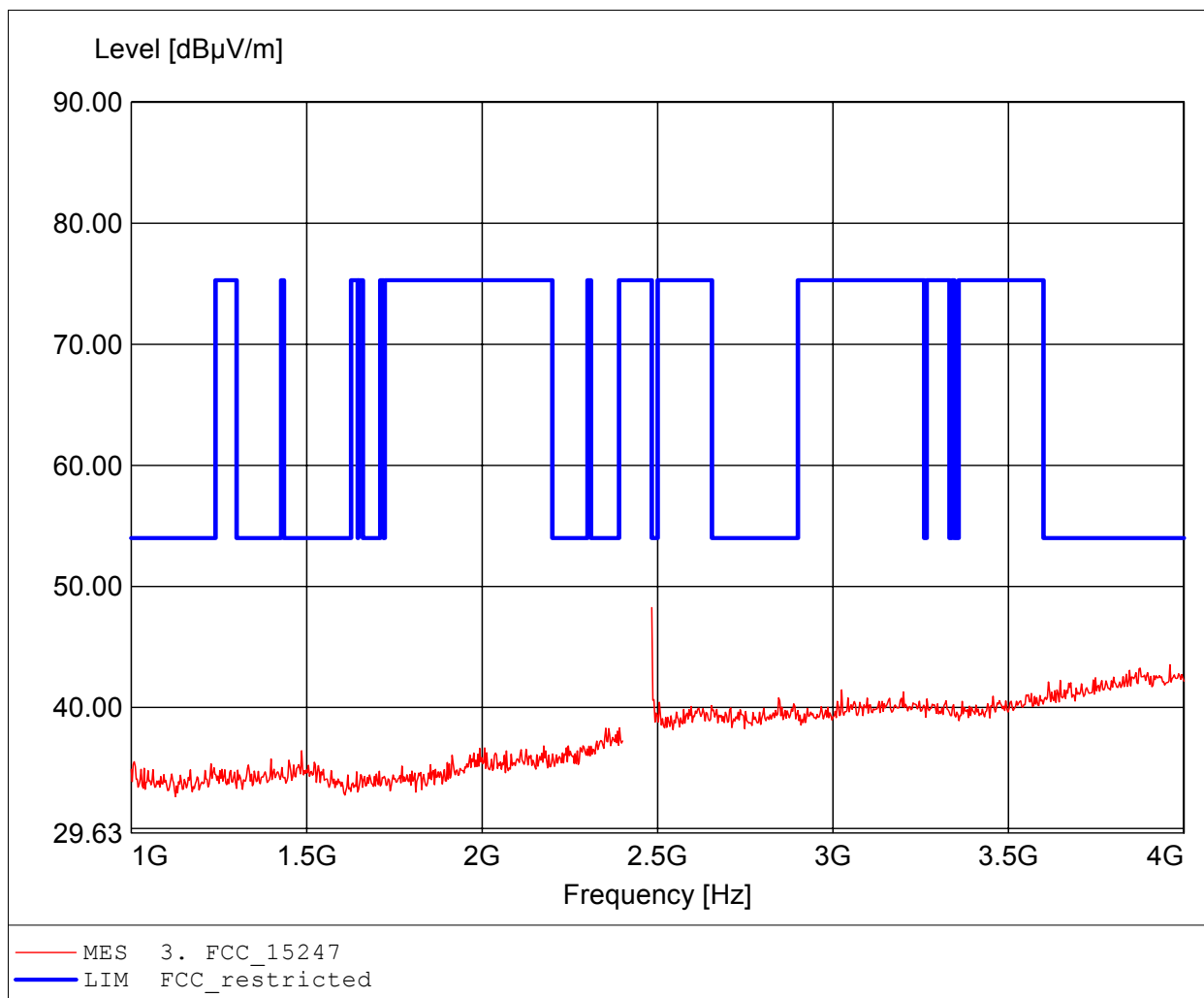
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.39
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.882GHz, Emax: 51.57dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

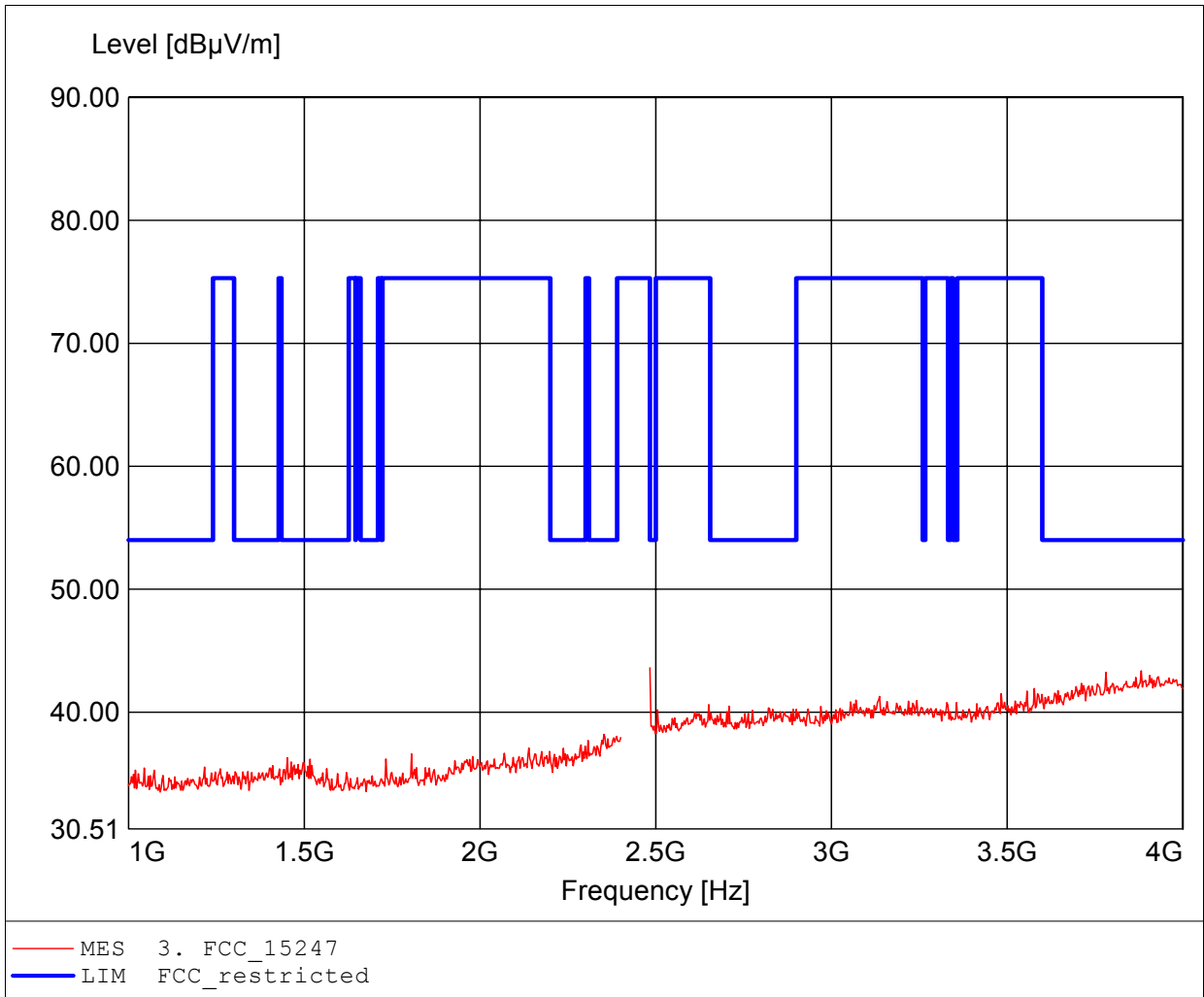
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.78
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.484GHz, Emax: 48.24dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

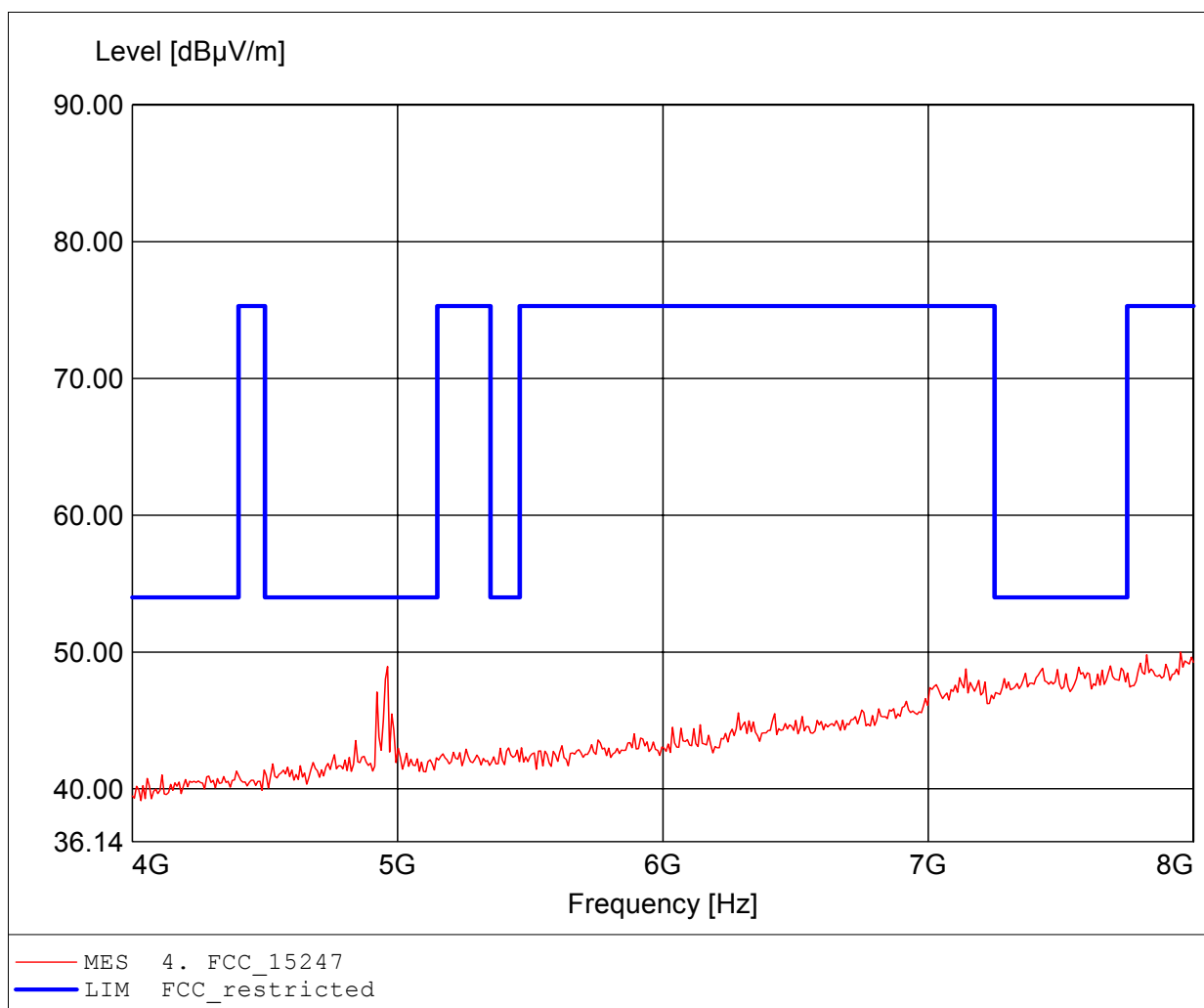
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.78
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.484GHz, Emax: 43.62dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

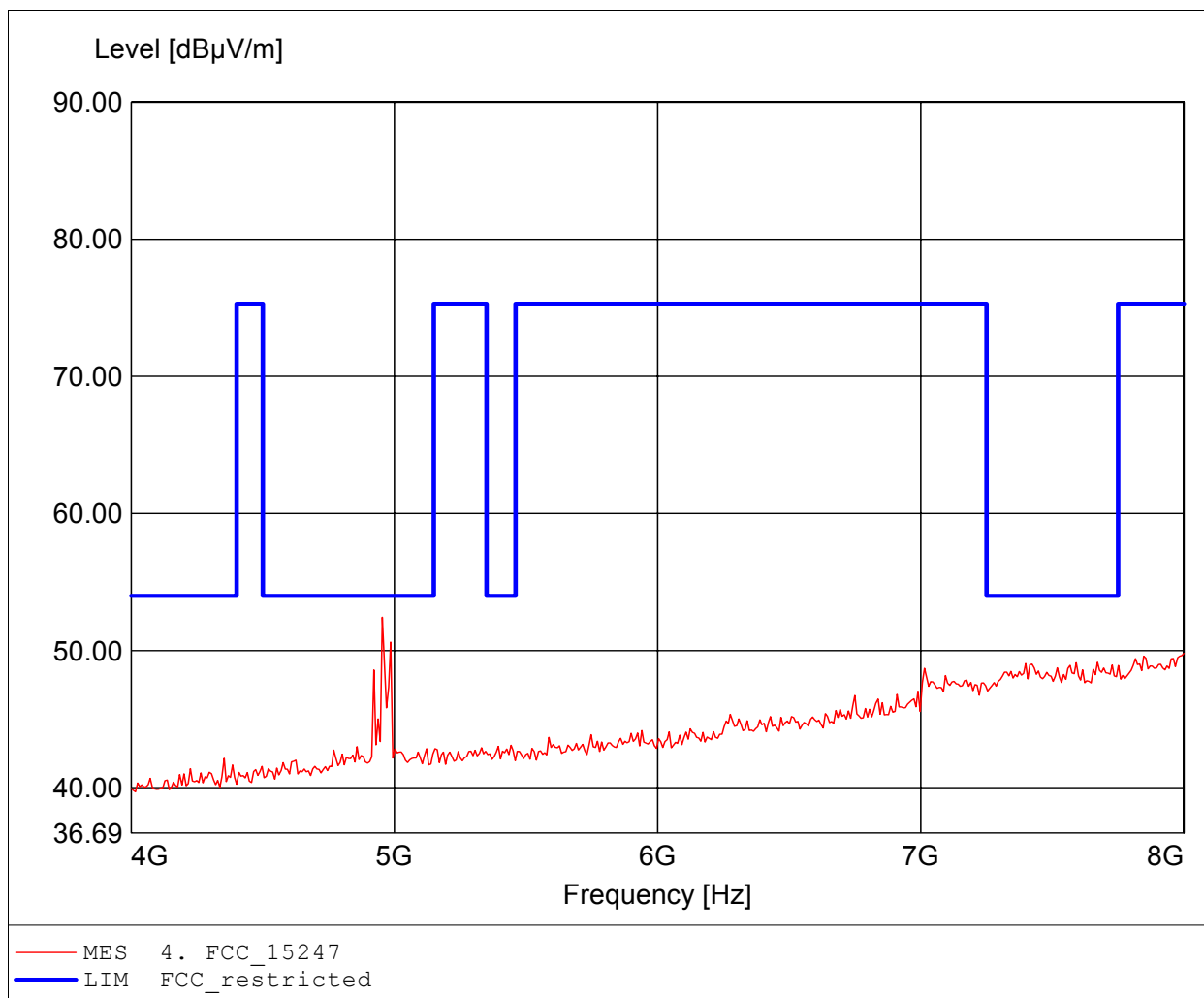
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.78
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 7.952GHz, Emax: 50.01dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

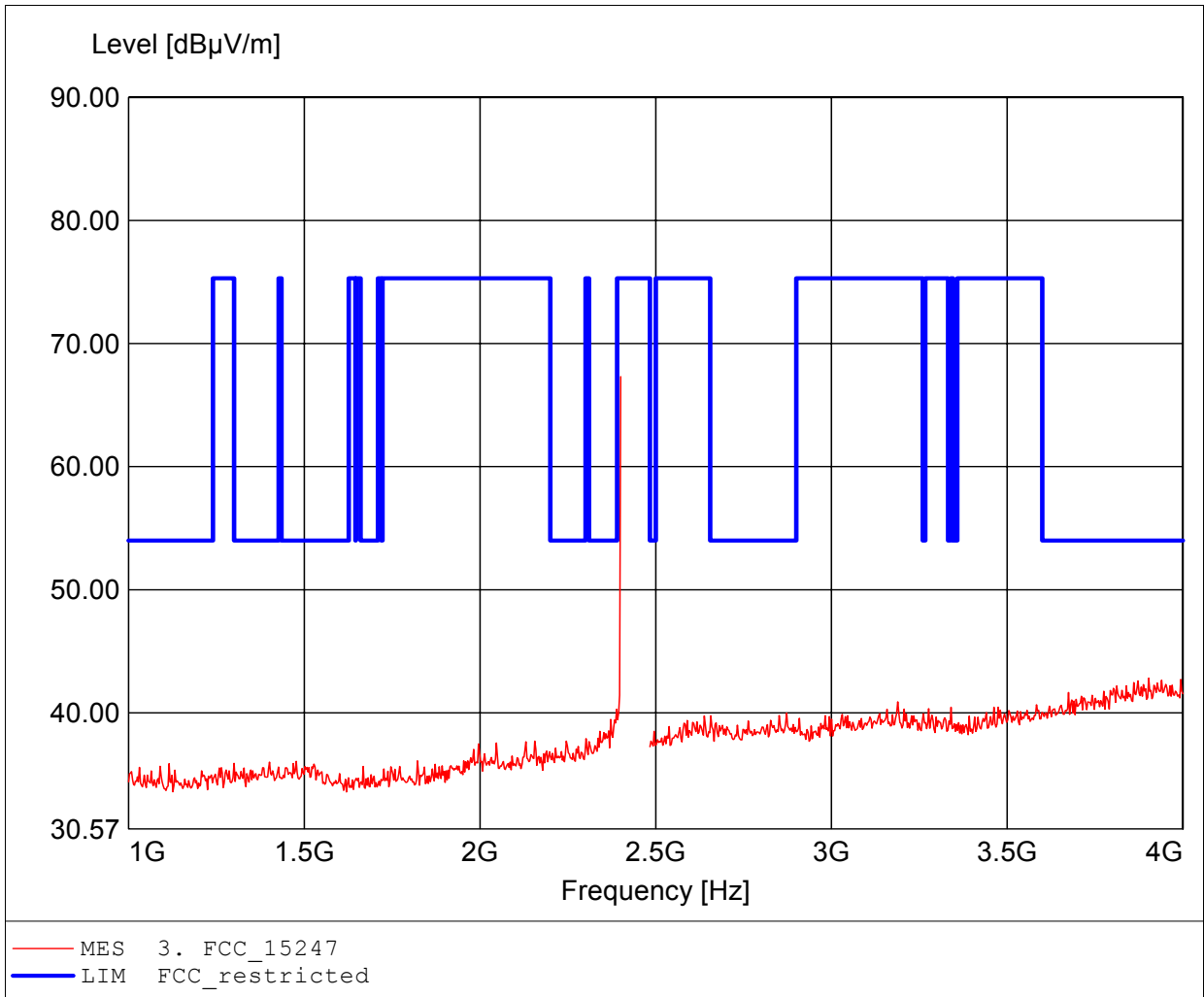
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: basic ch.78
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.954GHz, Emax: 52.43dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

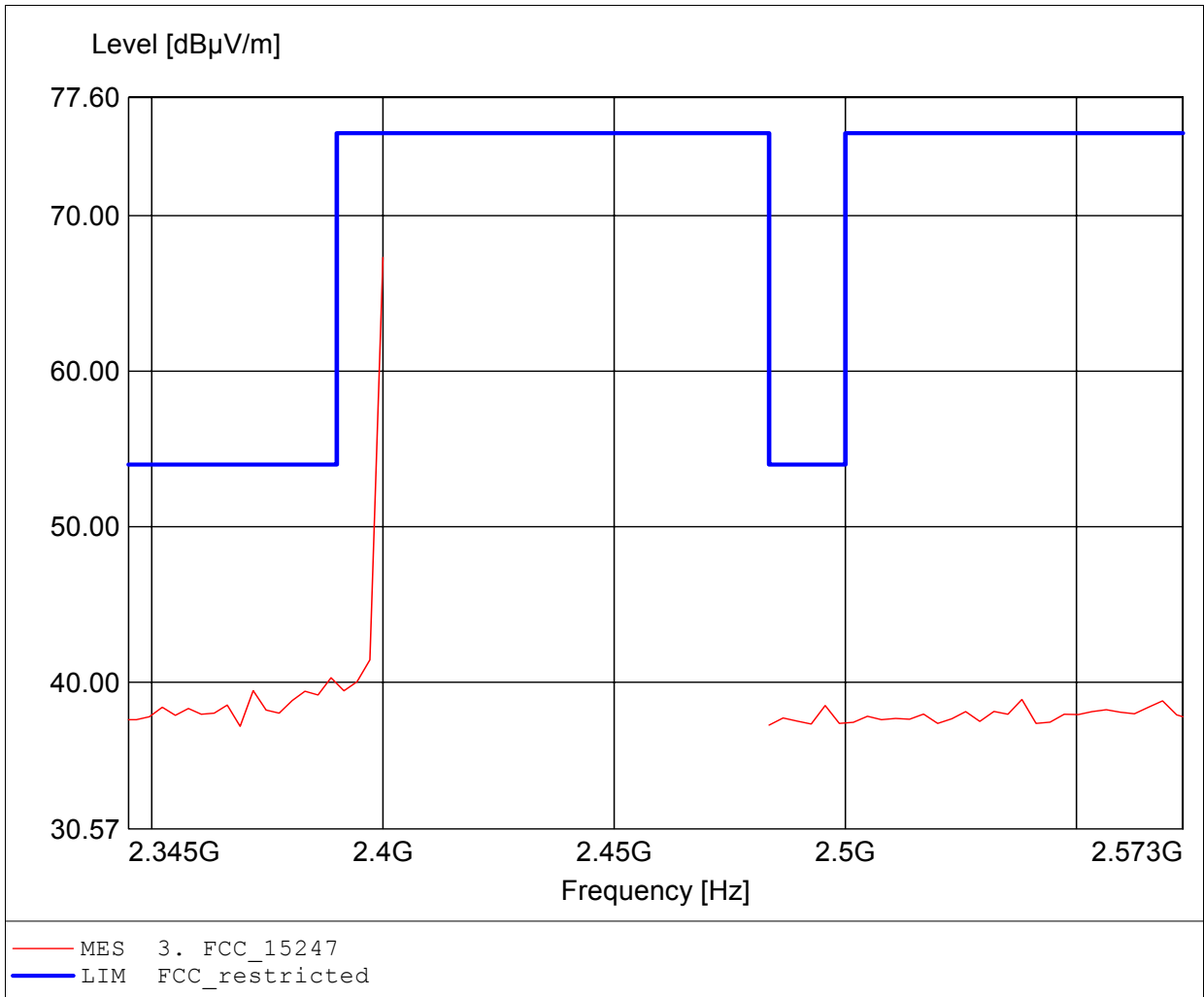
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.0
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 67.31dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

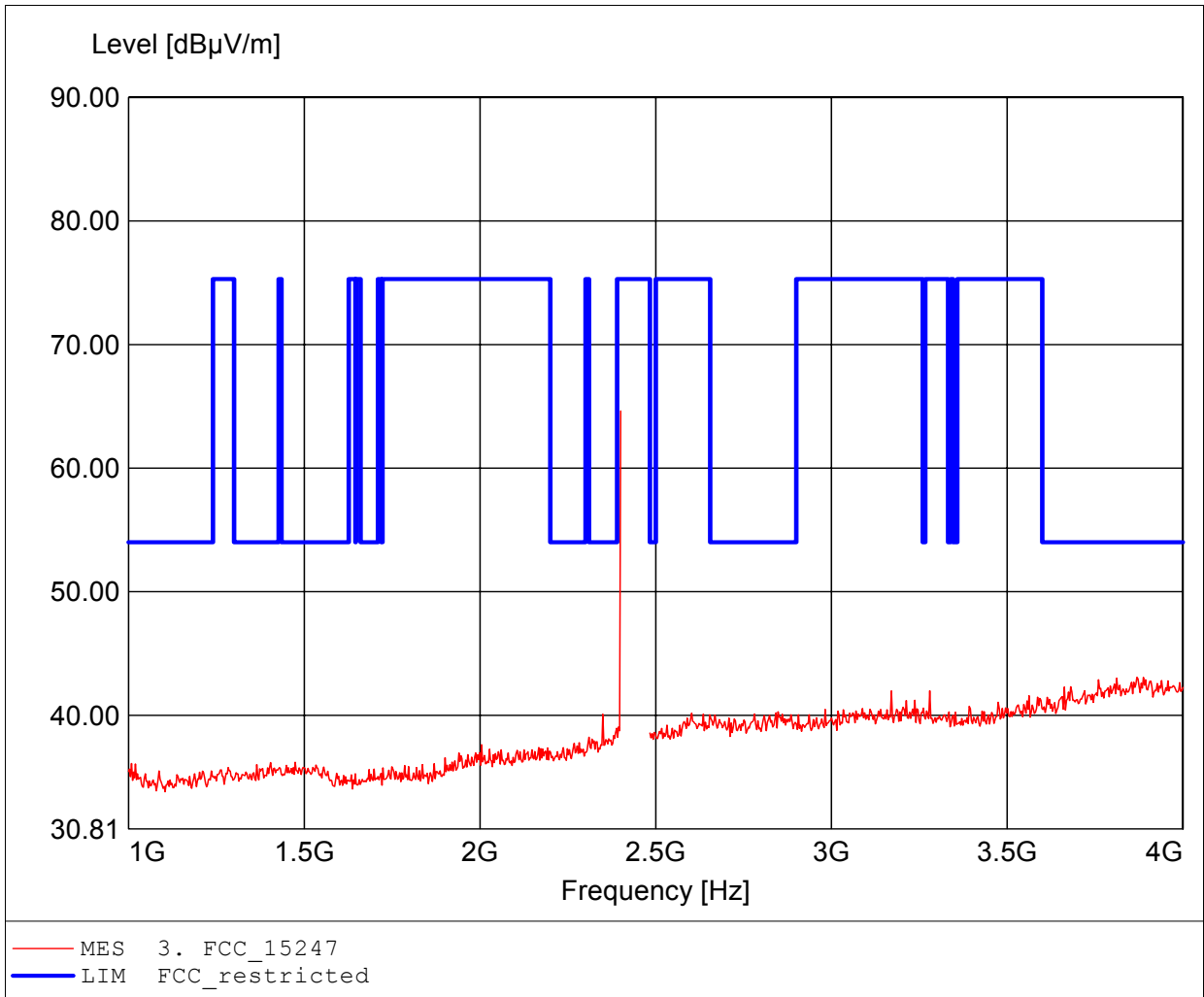
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.0
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 67.31dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

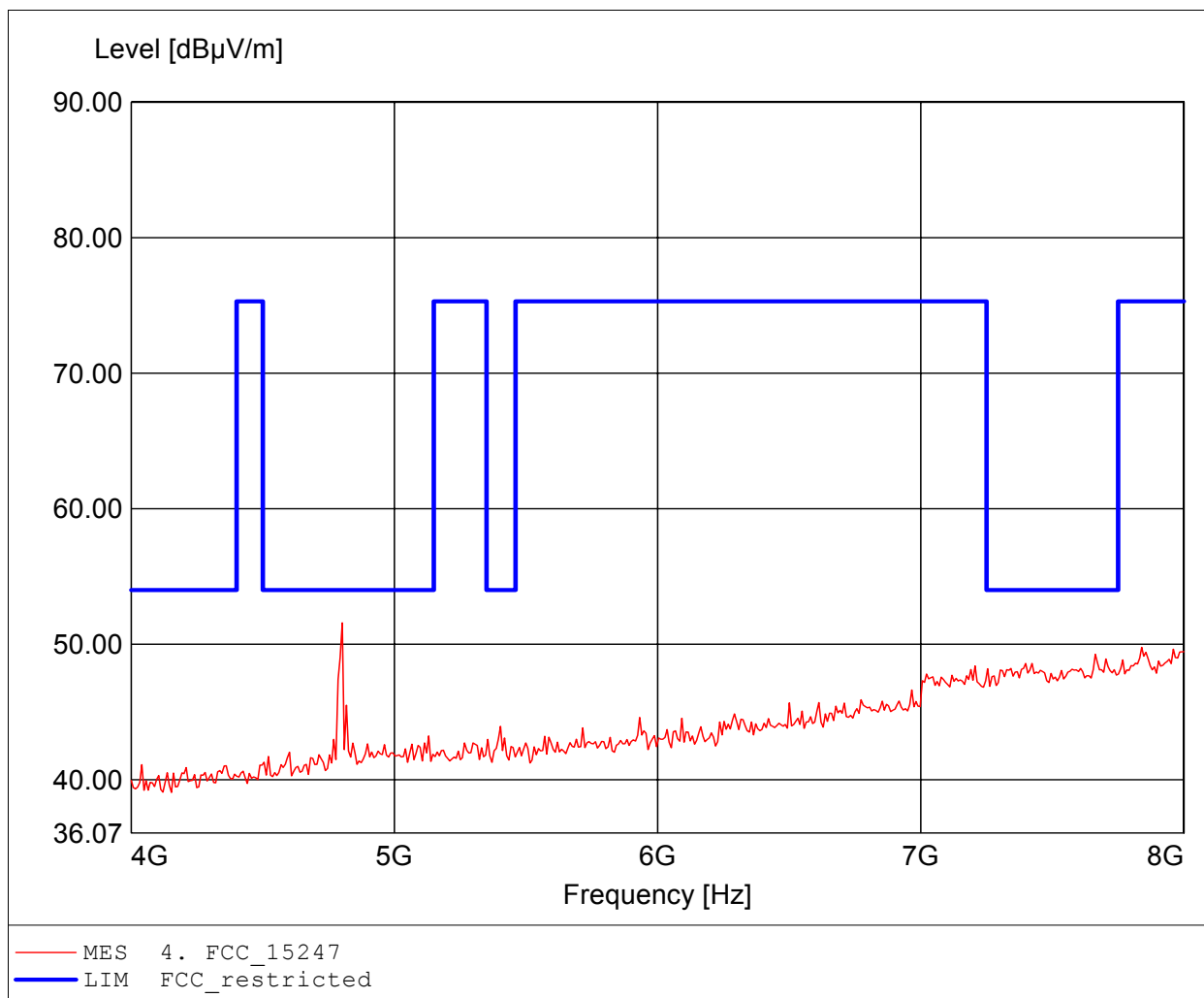
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.0
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.400GHz, Emax: 64.63dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

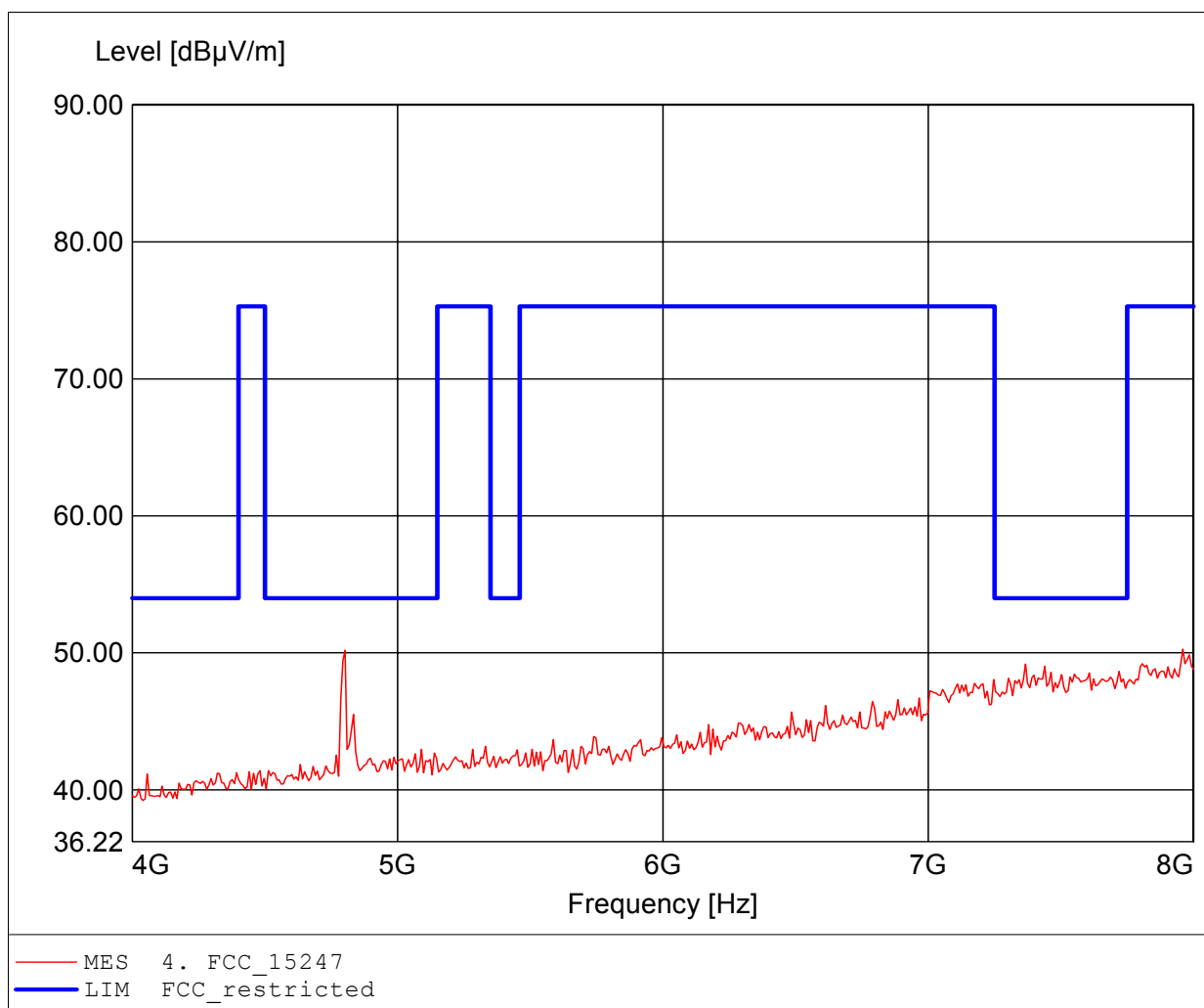
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.0
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.802GHz, Emax: 51.58dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

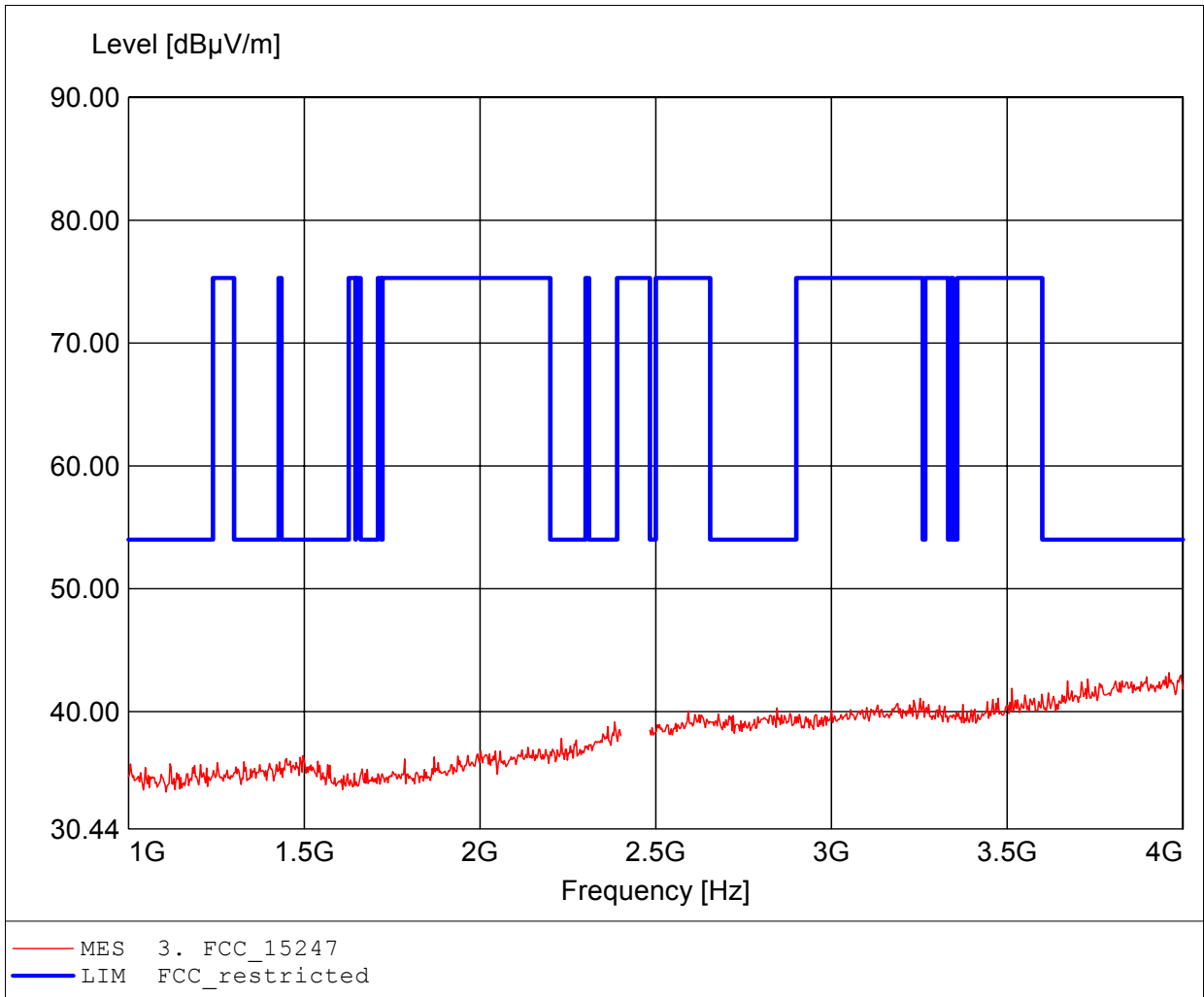
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.0
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 7.960GHz, Emax: 50.27dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

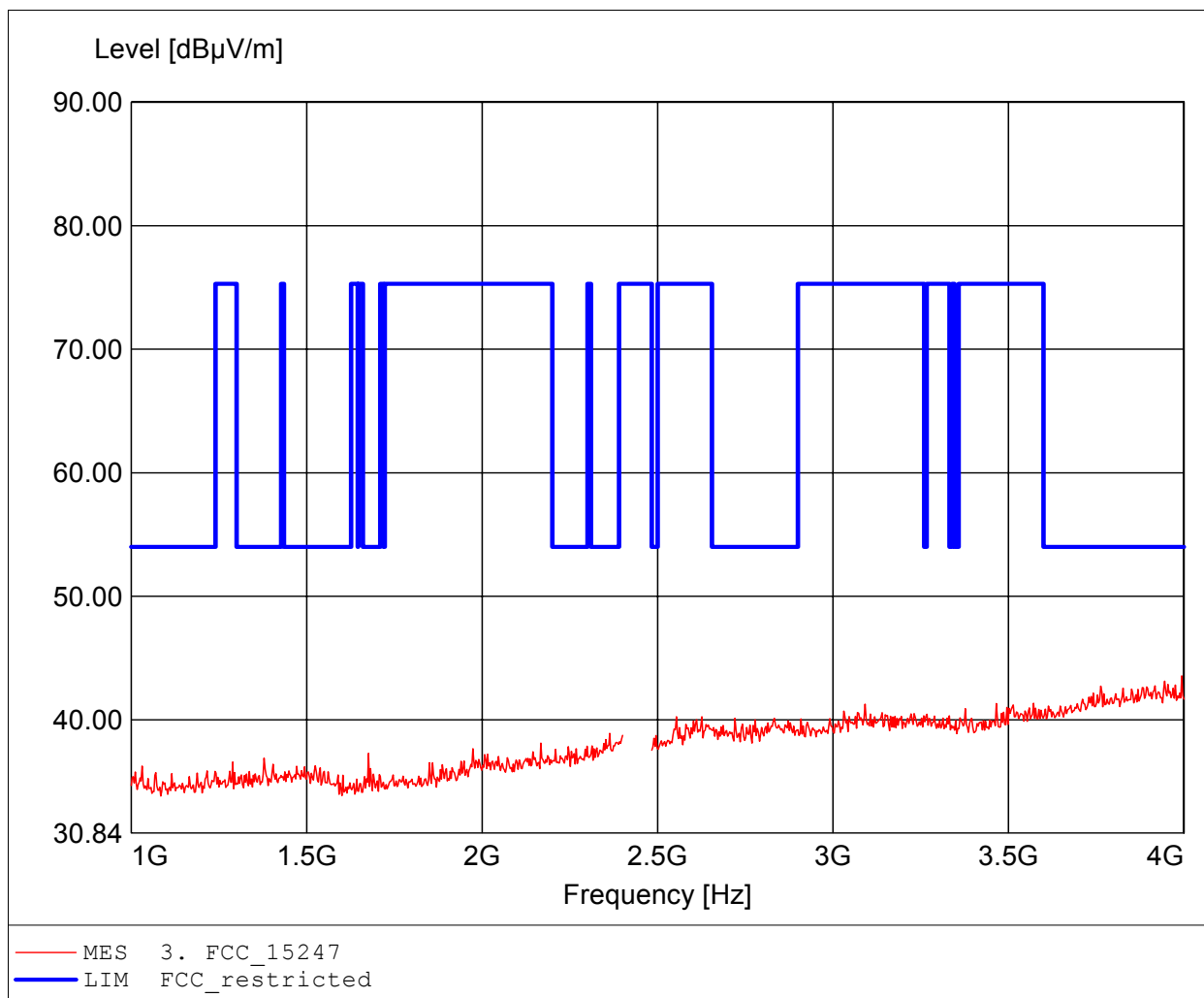
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.39
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 3.960GHz, Emax: 43.16dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

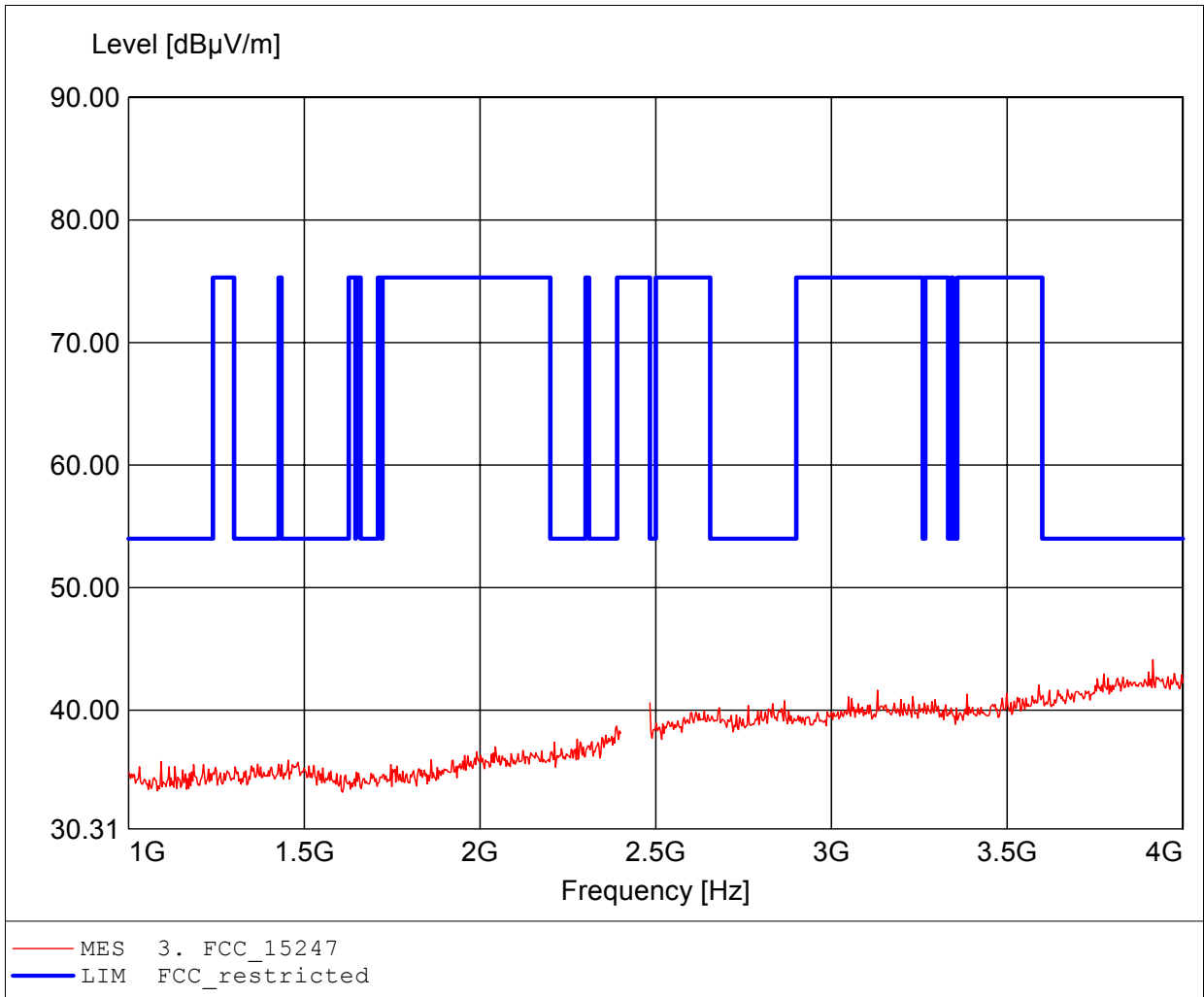
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.39
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 3.994GHz, Emax: 43.55dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

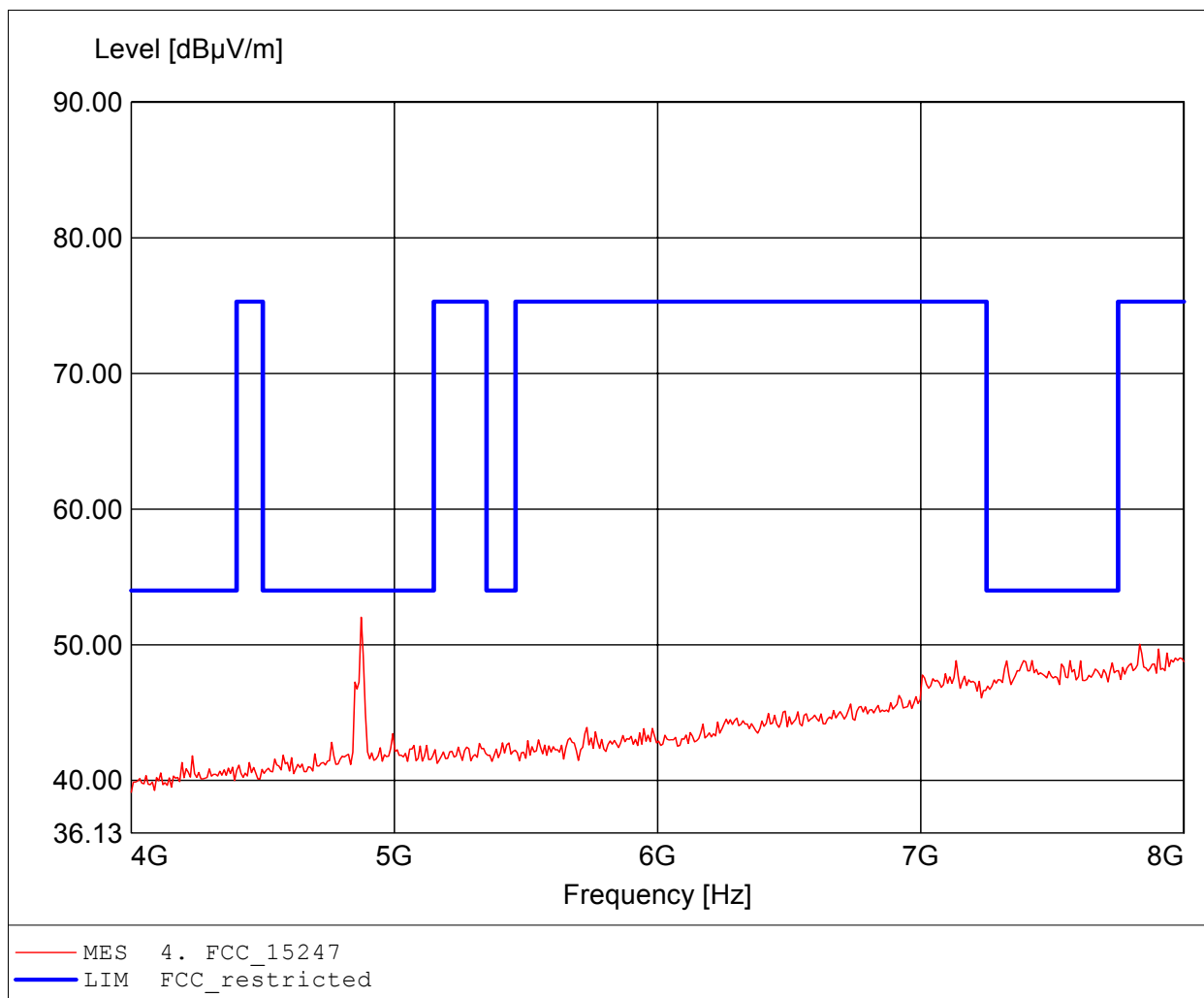
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.48
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 3.915GHz, Emax: 44.12dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

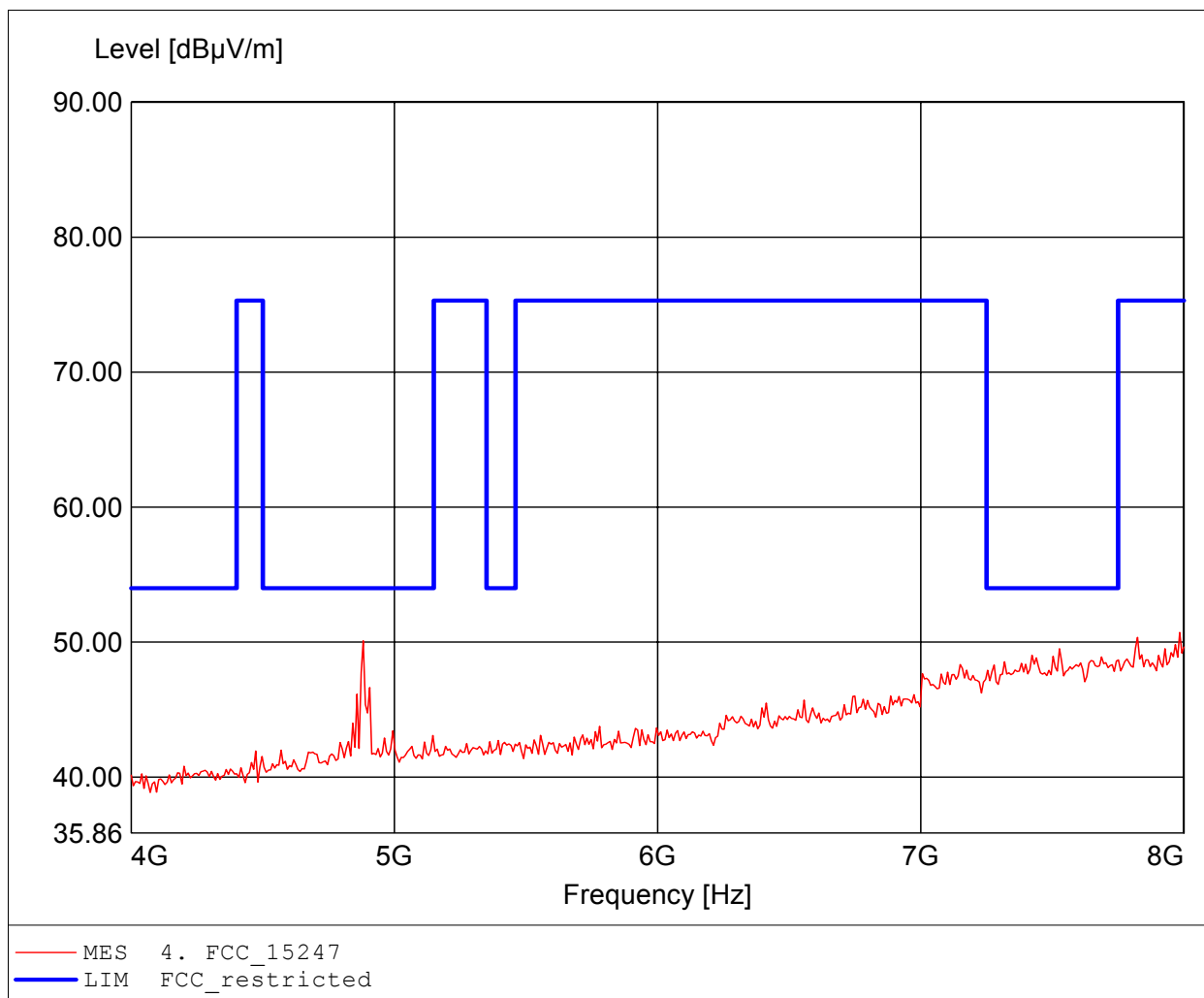
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.39
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.874GHz, Emax: 52.04dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

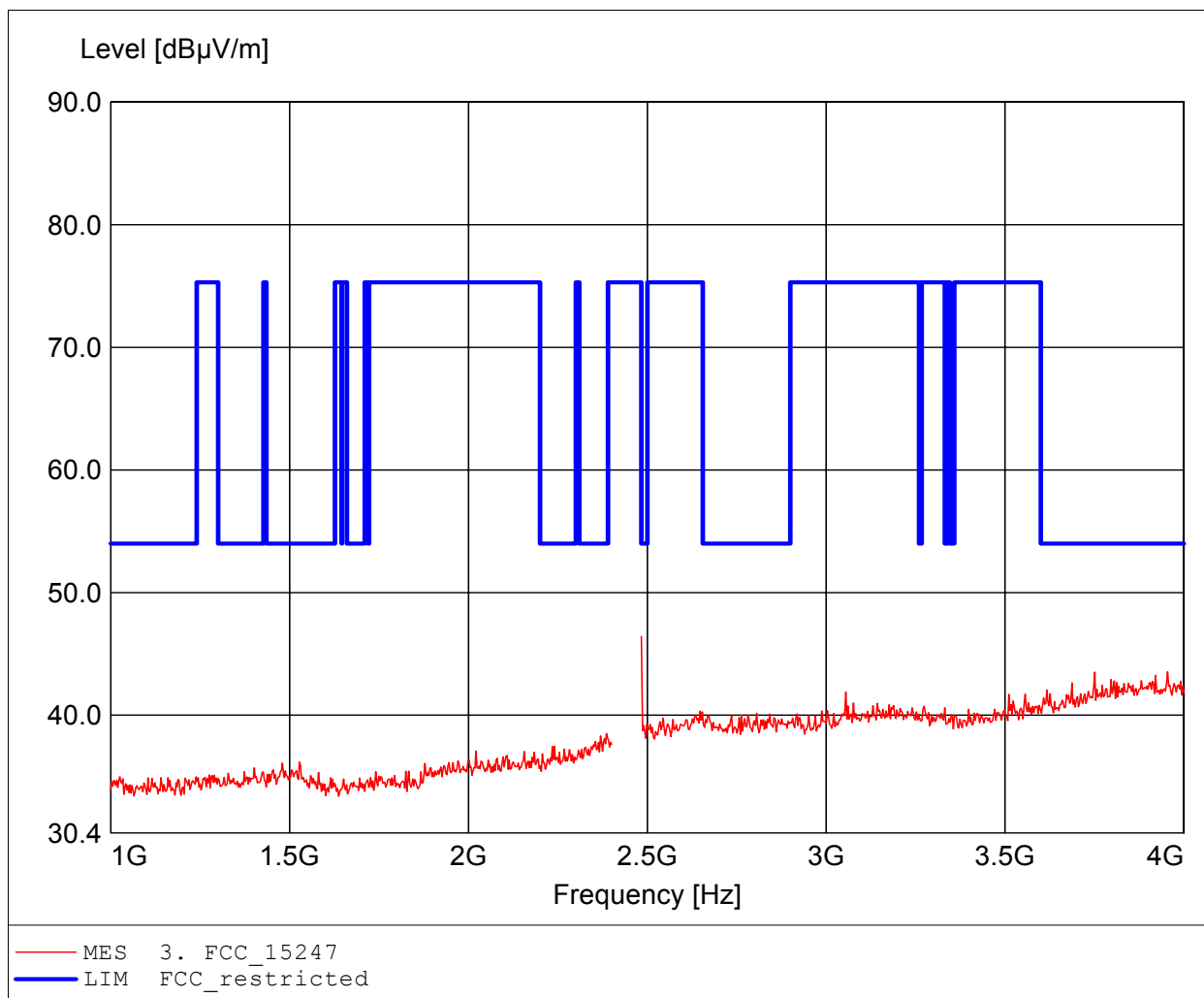
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.39
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 7.984GHz, Emax: 50.71dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

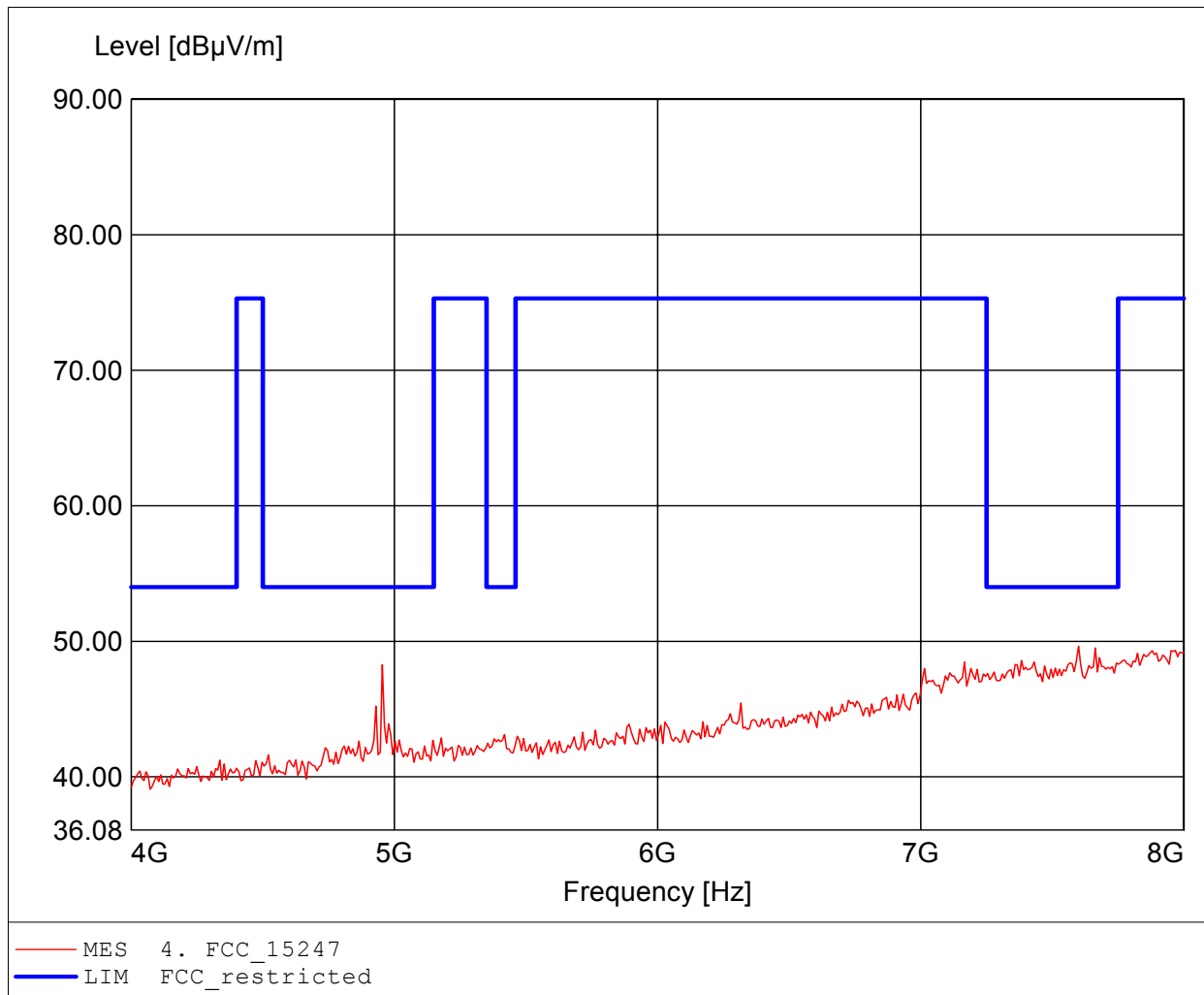
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.48
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.
Comment 2: Freq: 2.484GHz, Emax: 46.43dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

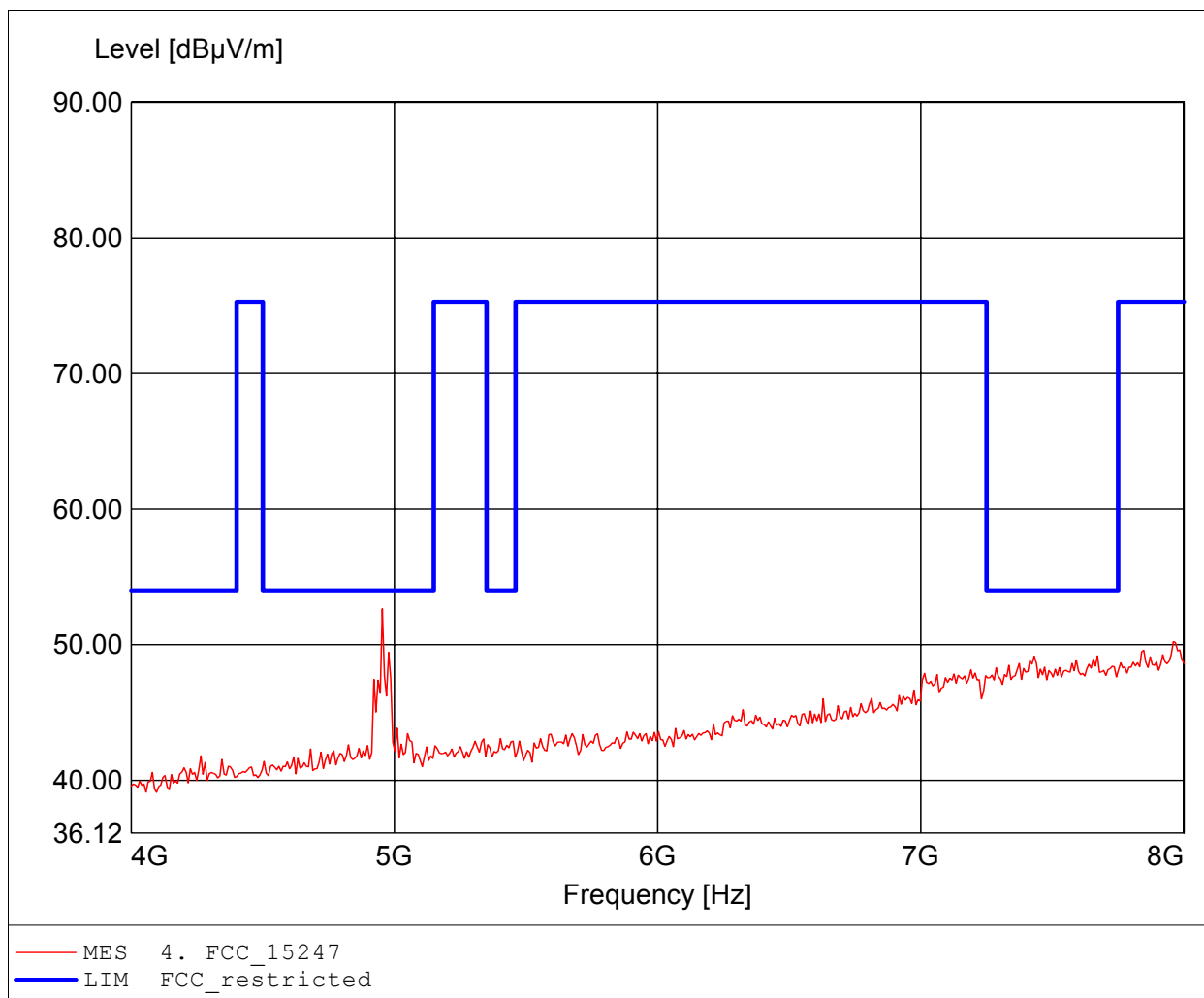
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.48
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 7.599GHz, Emax: 49.64dBuV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C

Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: EDR ch.48
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.
Comment 2: Freq: 4.954GHz, Emax: 52.64dBµV/m, RBW: 1MHz

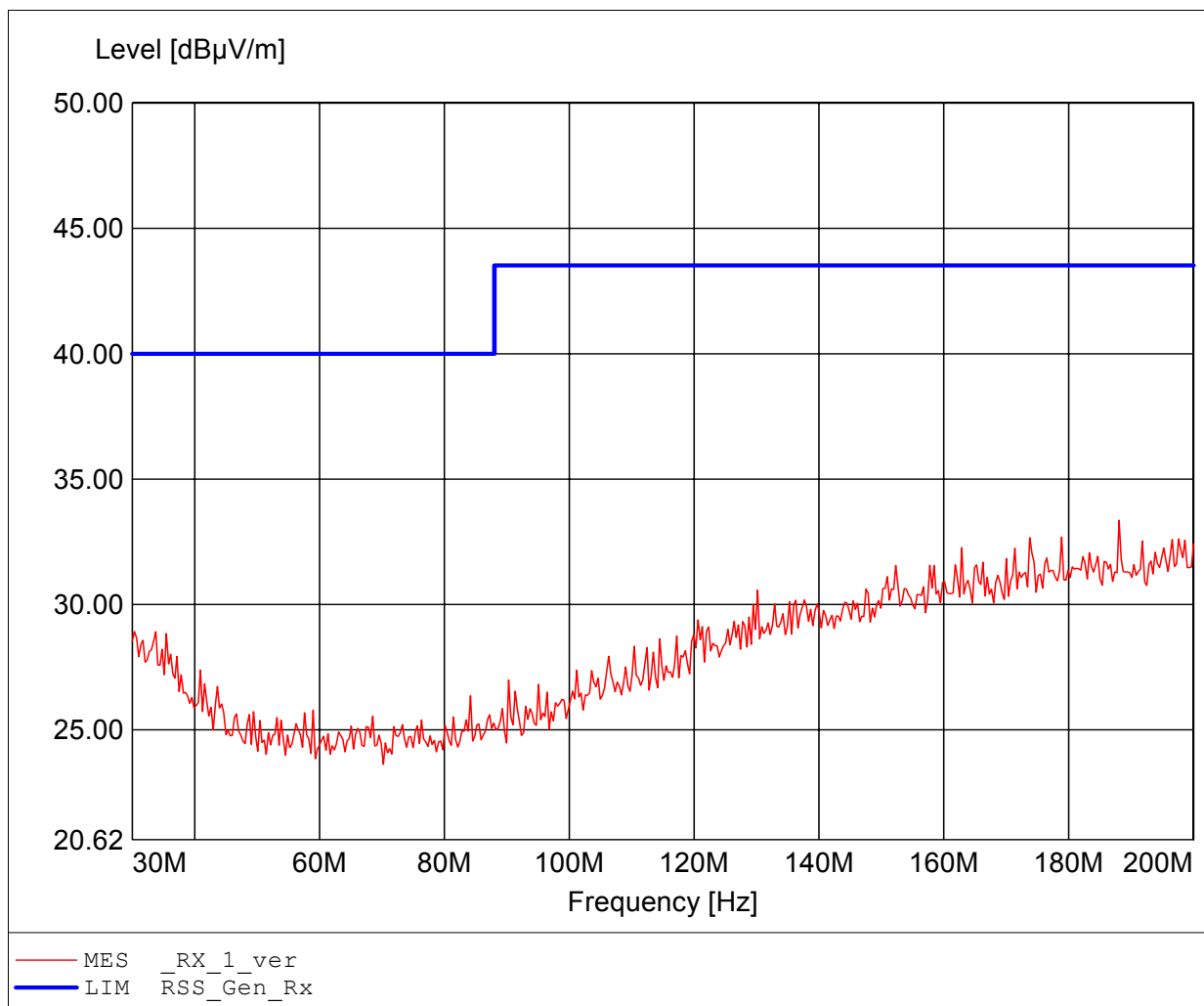


ANNEX B Receiver radiated spurious emissions

Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

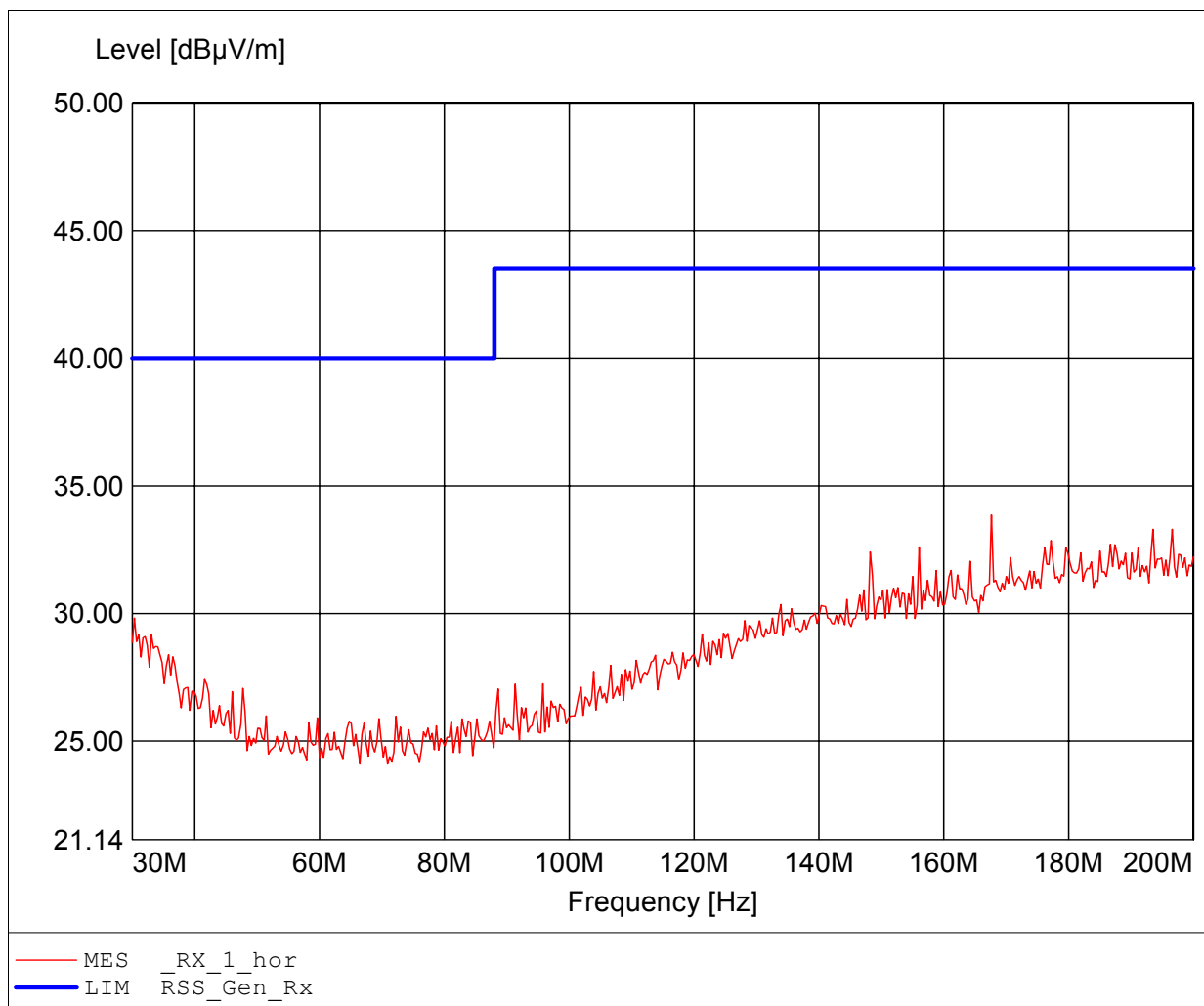
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module
Model: WiBear-SF2-UAP / AN00K77421 #6 ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH:39
Comment 1: Dist.: 3m, Ant.: HK 116
Comment 2: Freq:188.076MHz Emax:33.36dBuV/m RBW: 100 kHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

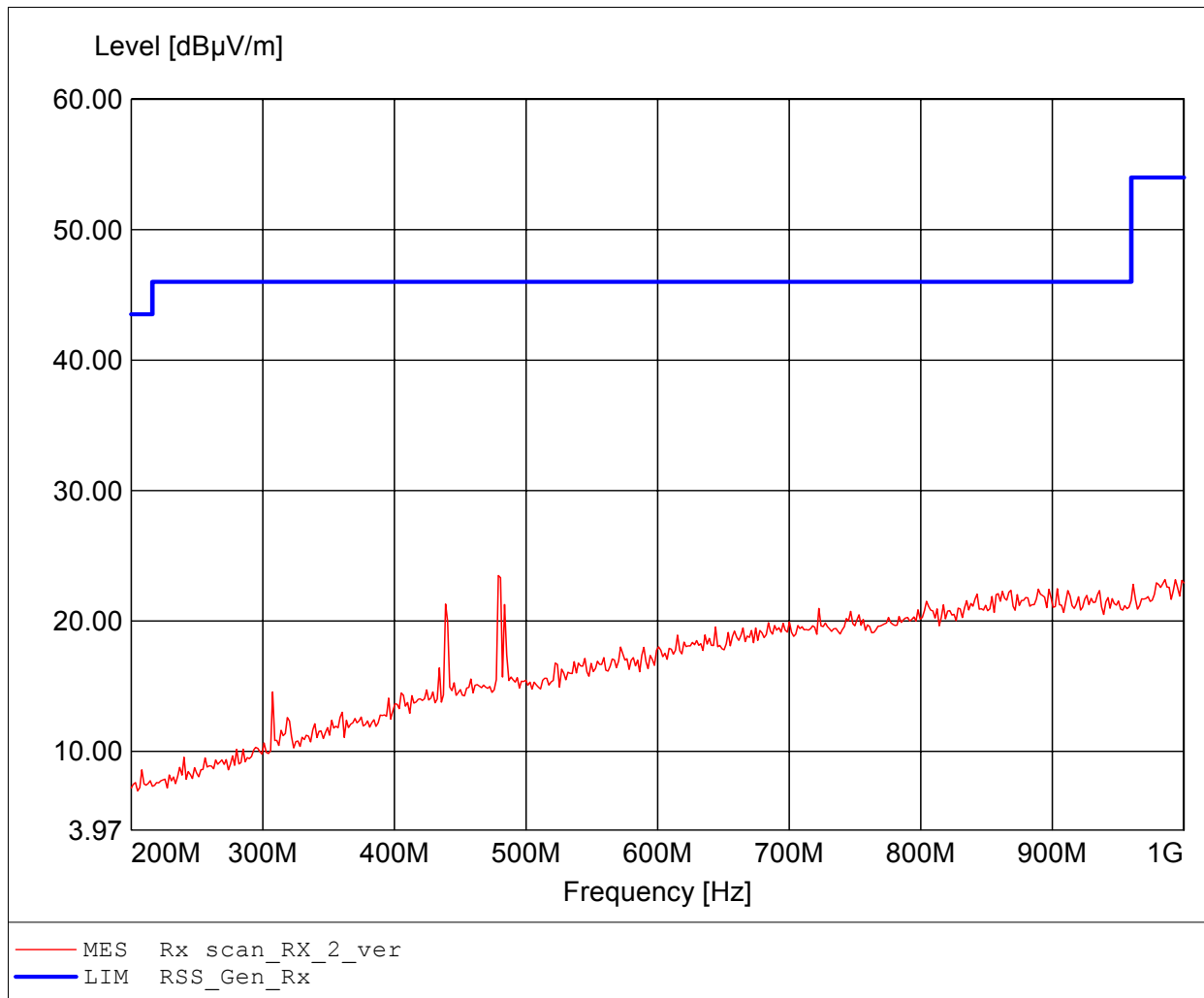
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module
Model: WiBear-SF2-UAP / AN00K77421 #6 ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH:39
Comment 1: Dist.: 3m, Ant.: HK 116
Comment 2: Freq:167.635MHz Emax:33.87dBuV/m RBW: 100 kHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

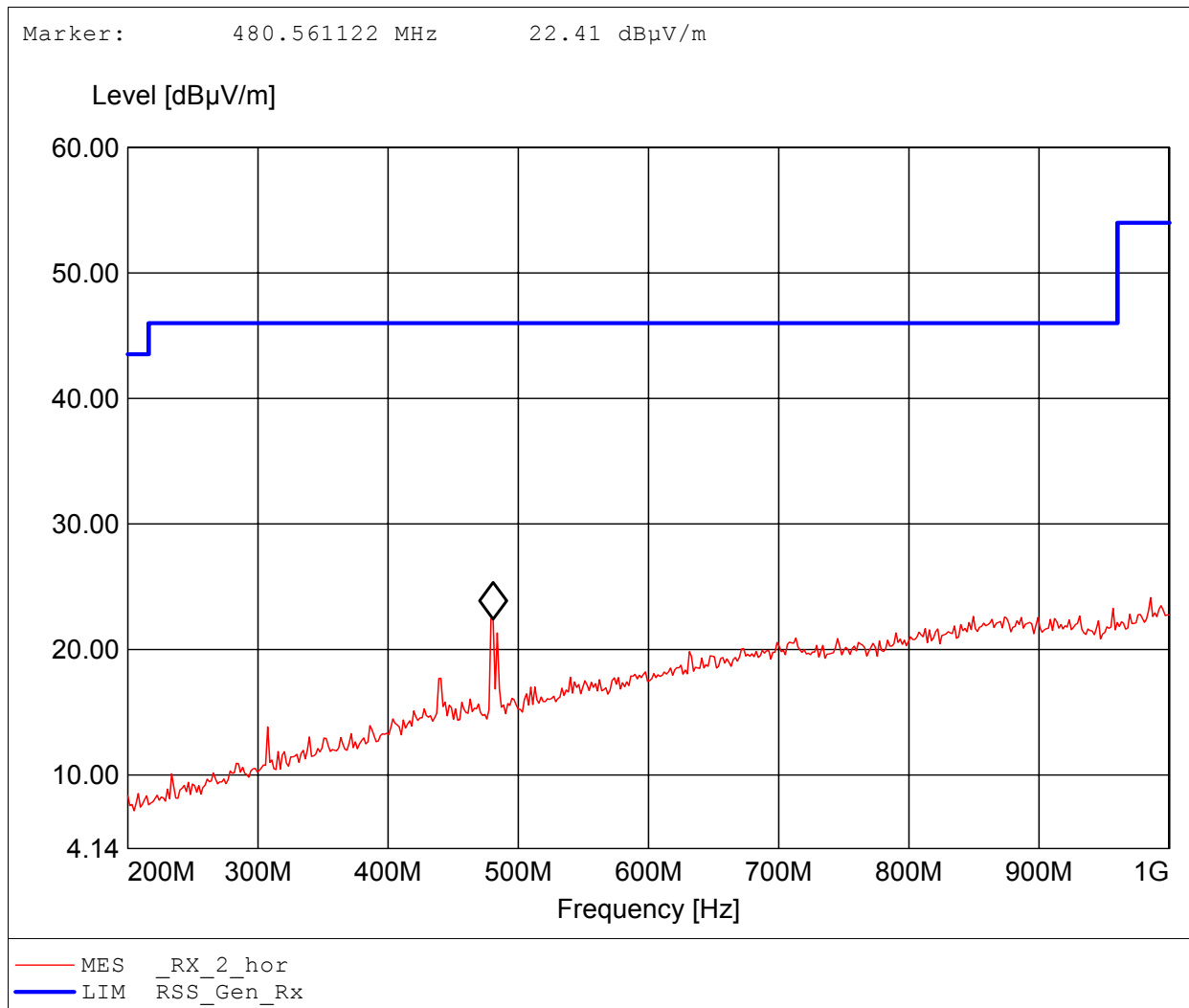
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module
Model: WiBear-SF2-UAP / AN00K77421 #6 ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH:39
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.
Comment 2: Freq:478.958MHz Emax:23.49dBuV/m RBW: 100 kHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

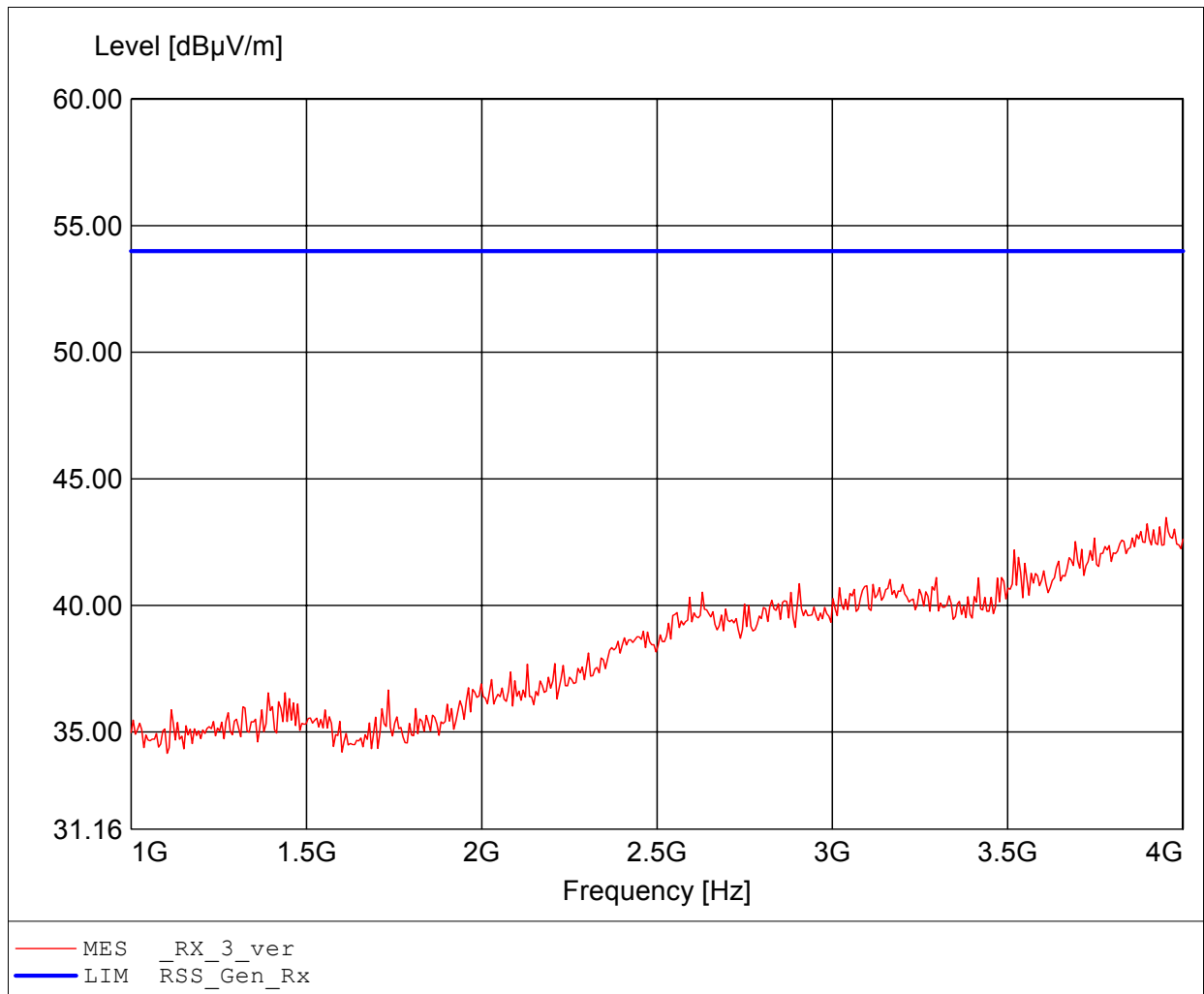
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module
Model: WiBear-SF2-UAP / AN00K77421 #6 ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH:39
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.
Comment 2: Freq:985.571MHz Emax:24.13dBµV/m RBW: 100 kHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

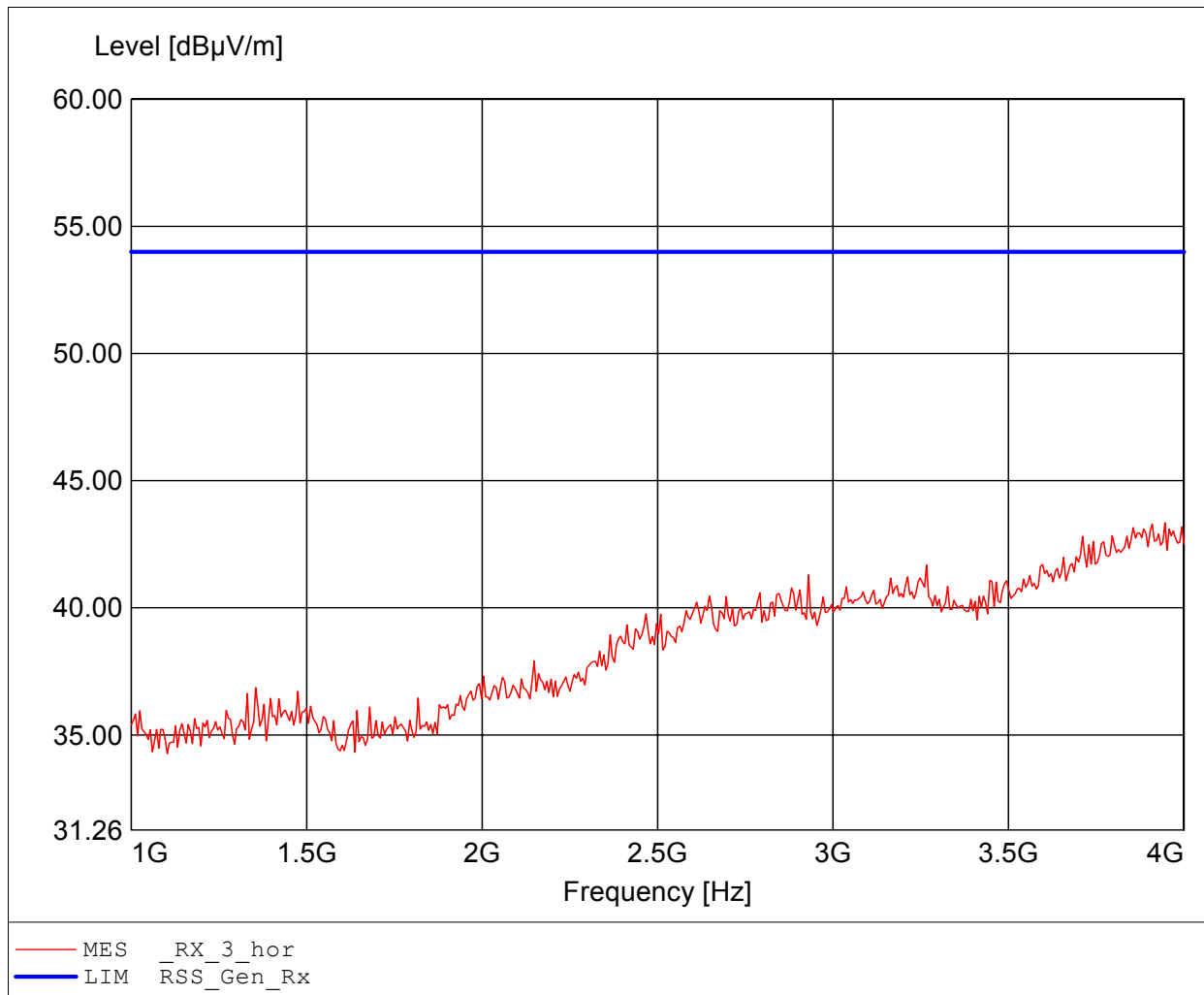
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module
Model: WiBear-SF2-UAP / AN00K77421 #6 ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH:39
Comment 1: Dist.: 3m, Ant.: HL025, ampl.
Comment 2: Freq:3.952GHz Emax:43.47dBµV/m RBW: 1 MHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

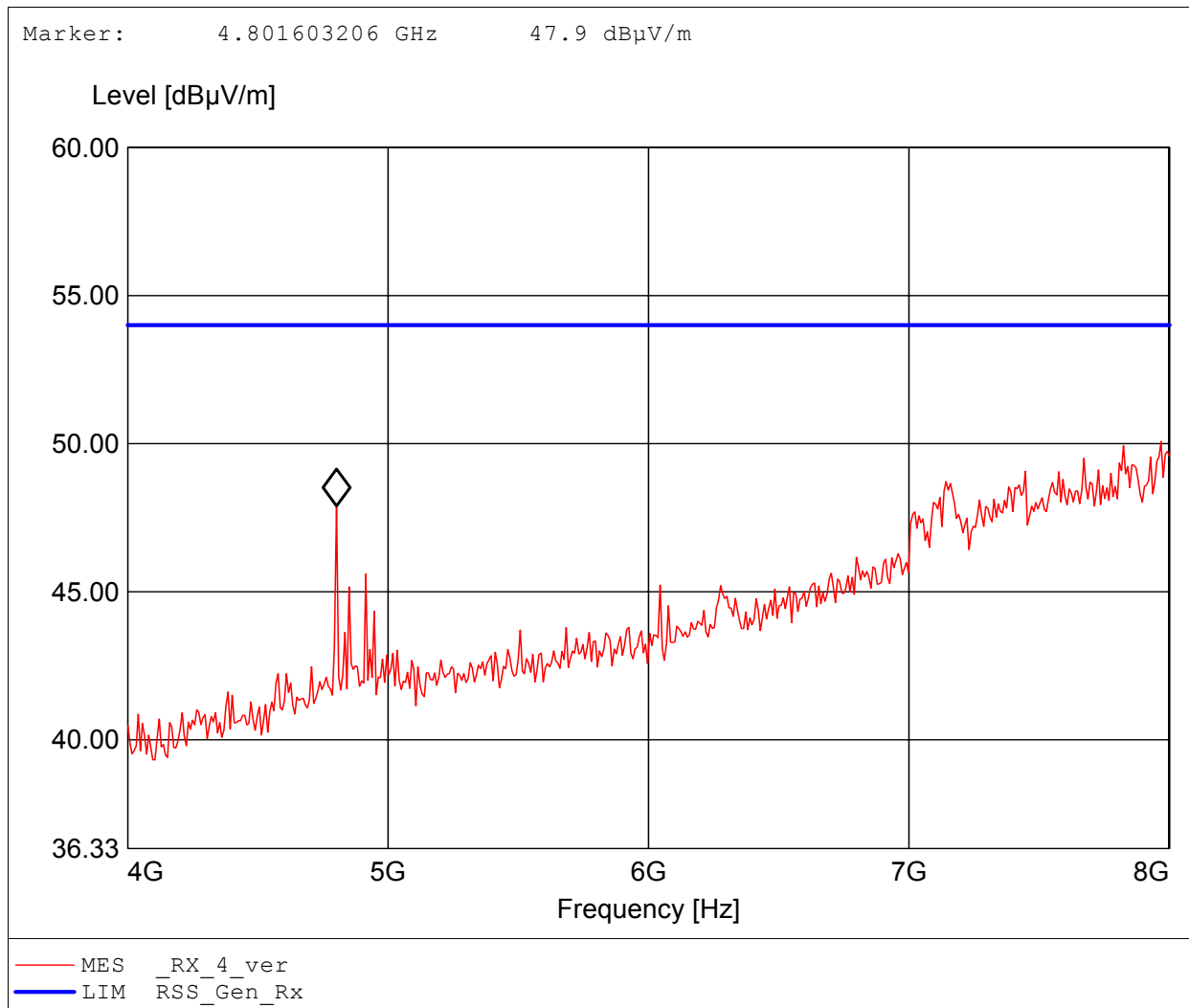
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module
Model: WiBear-SF2-UAP / AN00K77421 #6 ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH:39
Comment 1: Dist.: 3m, Ant.: HL025, ampl.
Comment 2: Freq:3.946GHz Emax:43.34dBuV/m RBW: 1 MHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

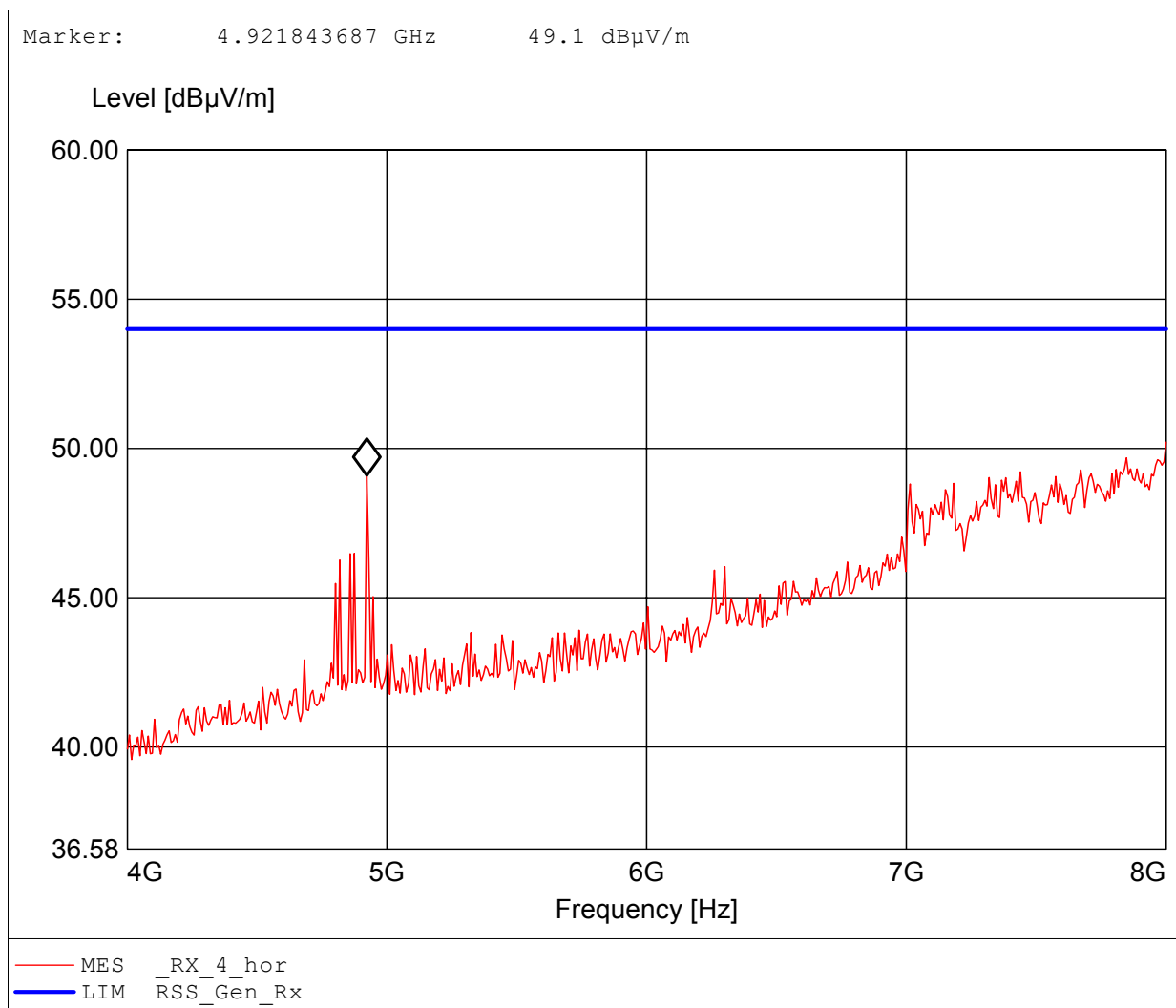
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module
Model: WiBear-SF2-UAP / AN00K77421 #6 ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH:39
Comment 1: Dist.: 3m, Ant.: HL025, ampl.
Comment 2: Freq:7.968GHz Emax:50.06dBµV/m RBW: 1 MHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

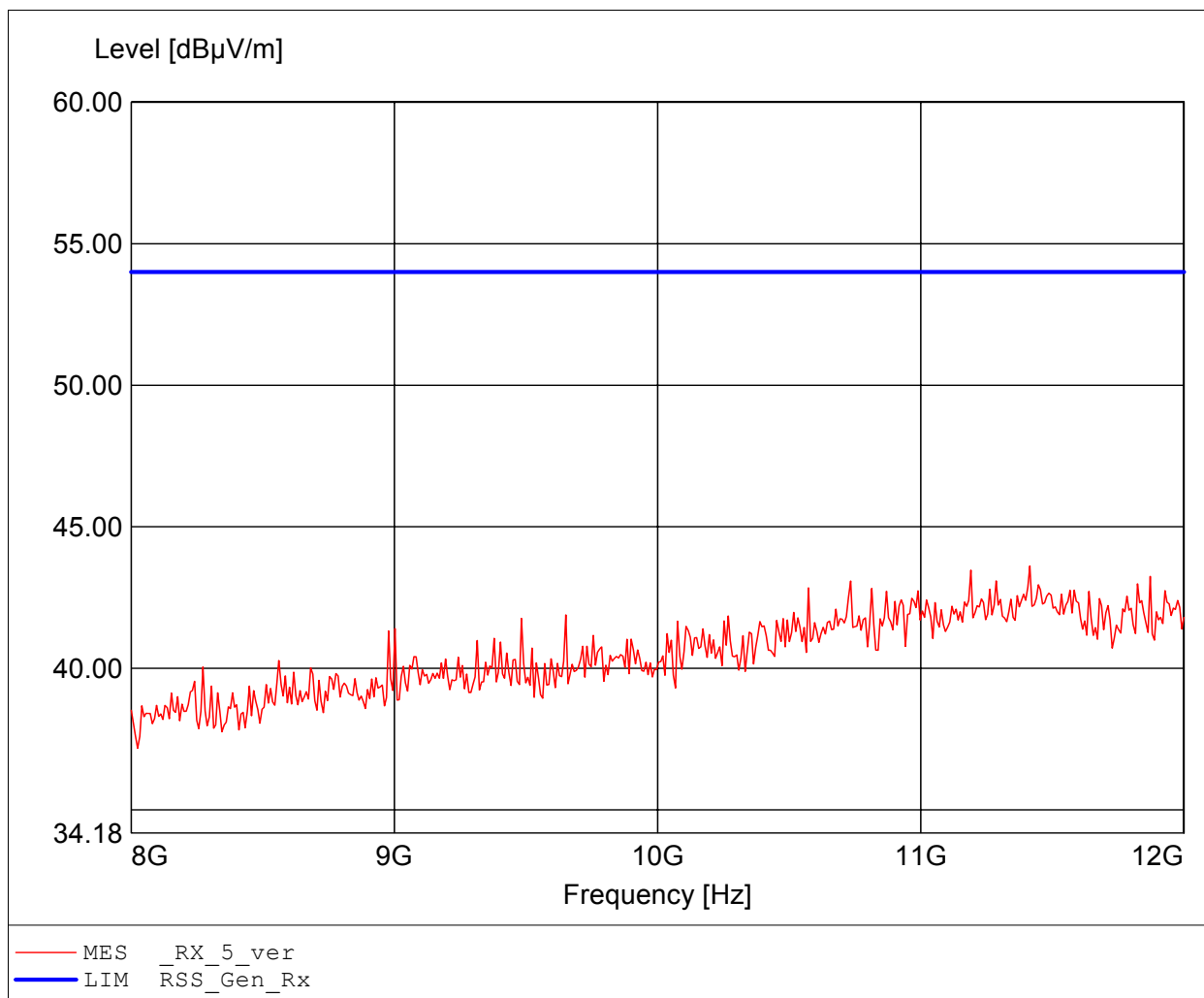
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module
Model: WiBear-SF2-UAP / AN00K77421 #6 ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH:39
Comment 1: Dist.: 3m, Ant.: HL025, ampl.
Comment 2: Freq:8.000GHz Emax:50.21dBµV/m RBW: 1 MHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

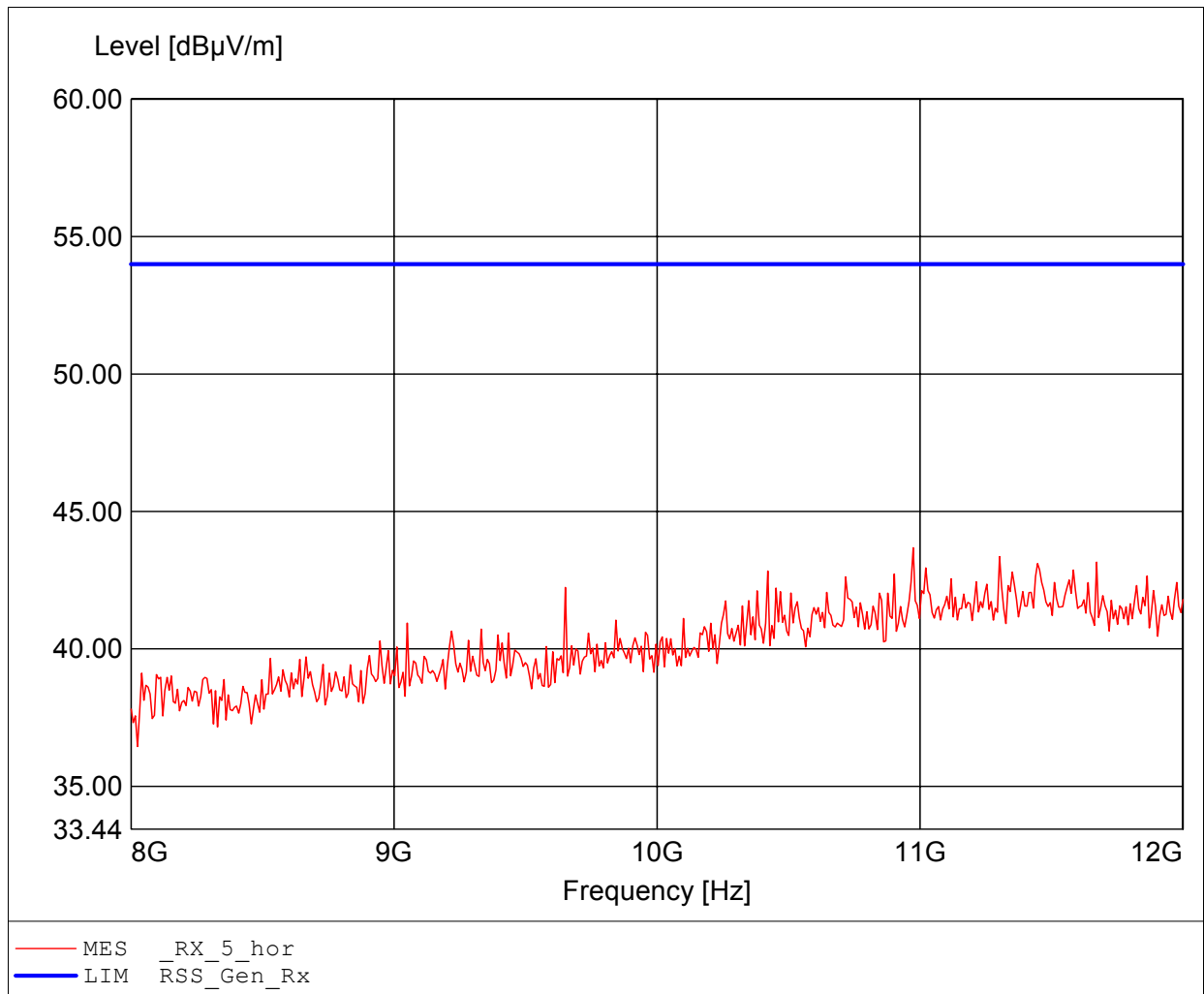
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module
Model: WiBear-SF2-UAP / AN00K77421 #6 ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH:39
Comment 1: Dist.: 3m, Ant.: HL025, ampl.
Comment 2: Freq:11.415GHz Emax:43.61dBµV/m RBW: 1 MHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

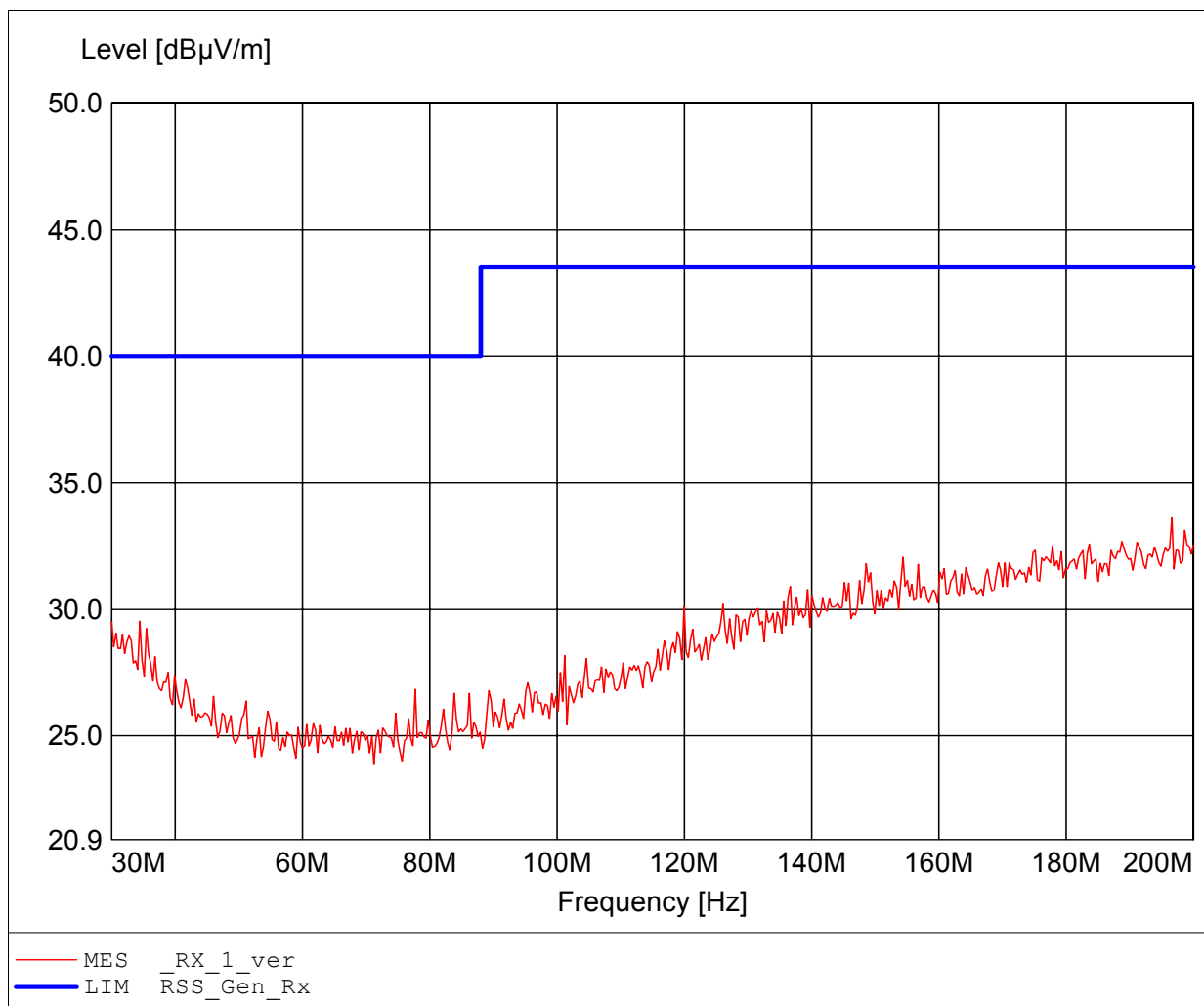
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module
Model: WiBear-SF2-UAP / AN00K77421 #6 ceramic antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH:39
Comment 1: Dist.: 3m, Ant.: HL025, ampl.
Comment 2: Freq:10.974GHz Emax:43.68dBuV/m RBW: 1 MHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

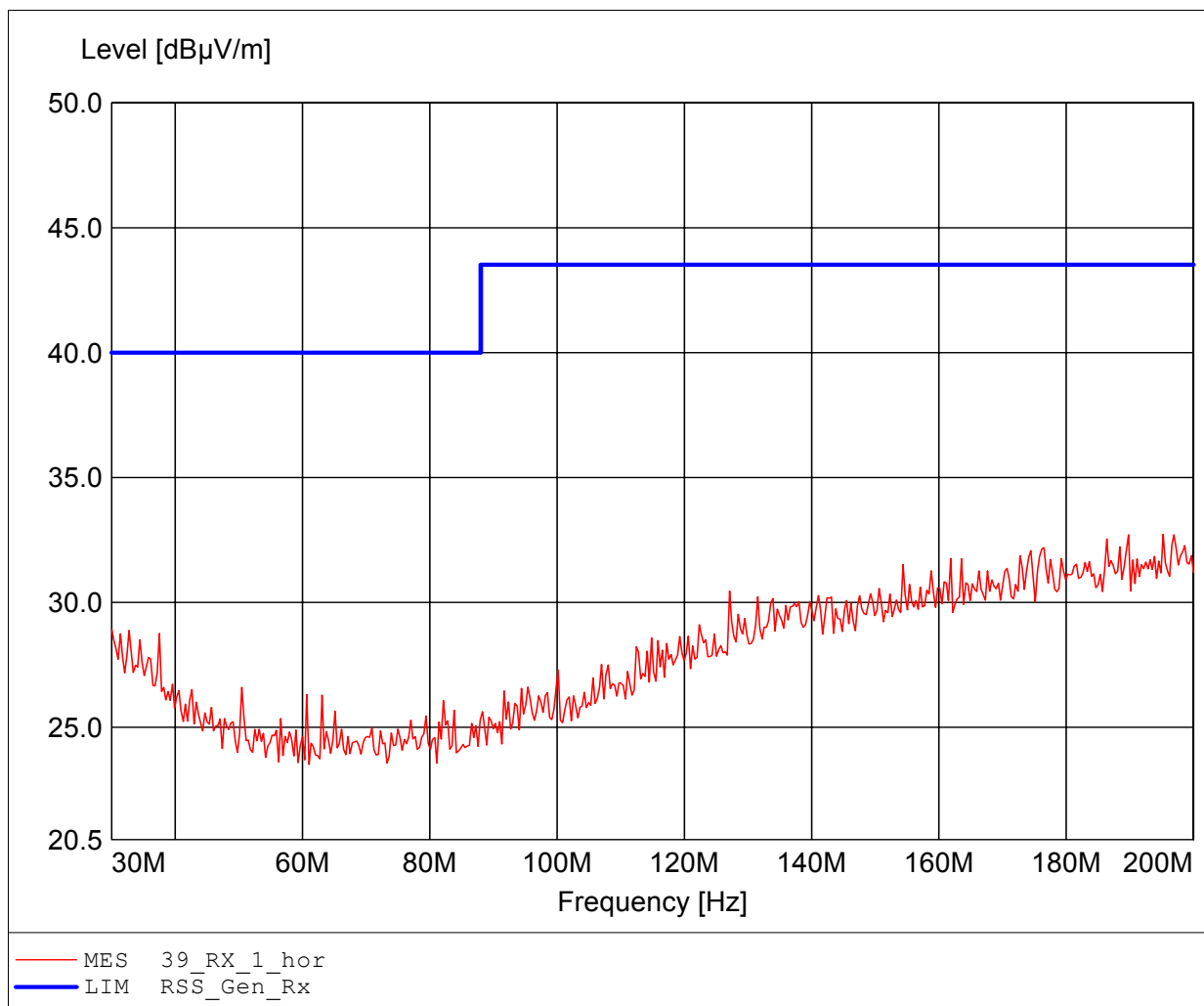
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: Rx
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH:
Comment 1: Dist.: 3m, Ant.: HK 116
Comment 2: Freq:196.593MHz Emax:33.62dBµV/m RBW: 100 kHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

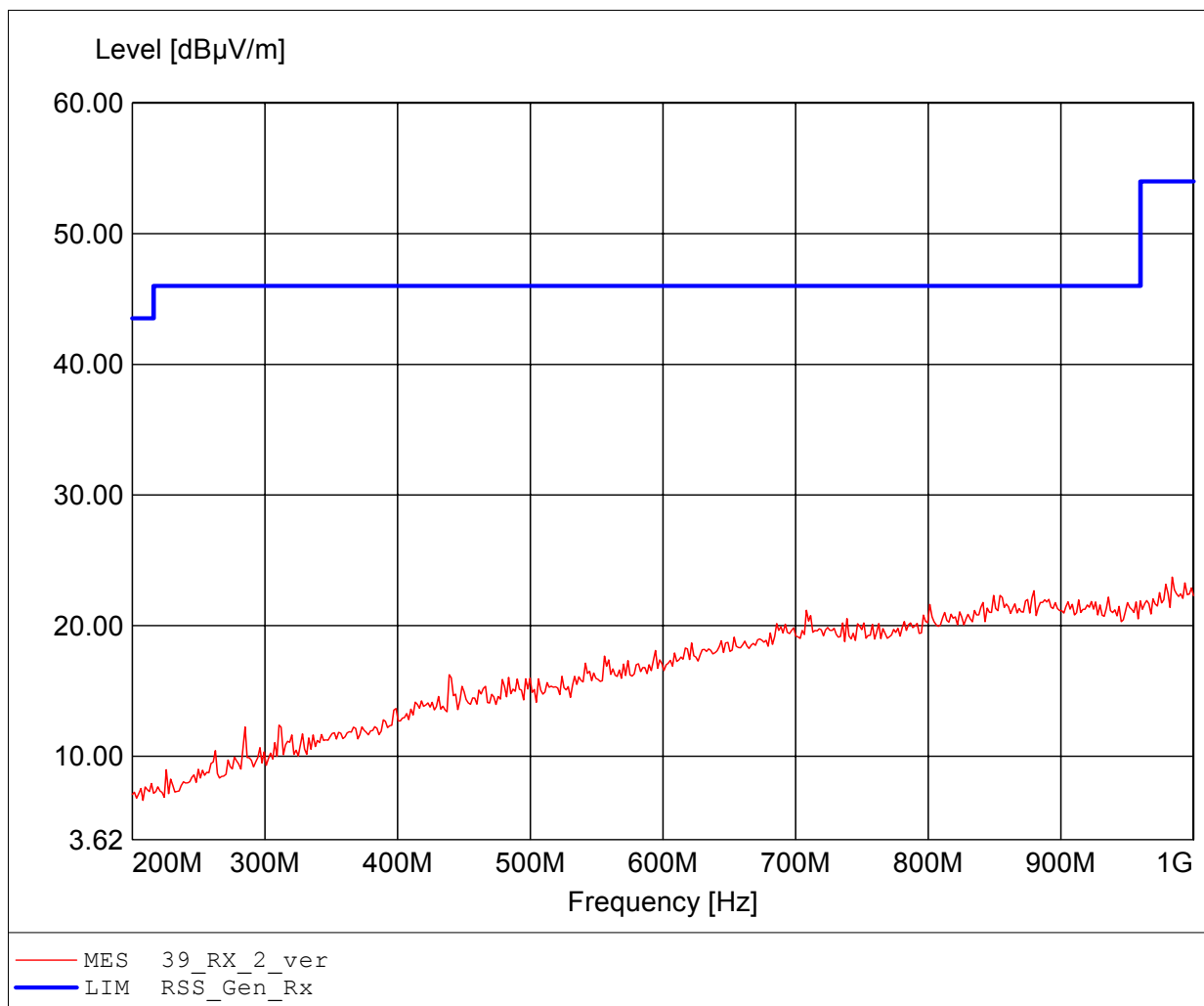
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: Rx
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH: 39
Comment 1: Dist.: 3m, Ant.: HK 116
Comment 2: Freq:195.230MHz Emax:32.72dBµV/m RBW: 100 kHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

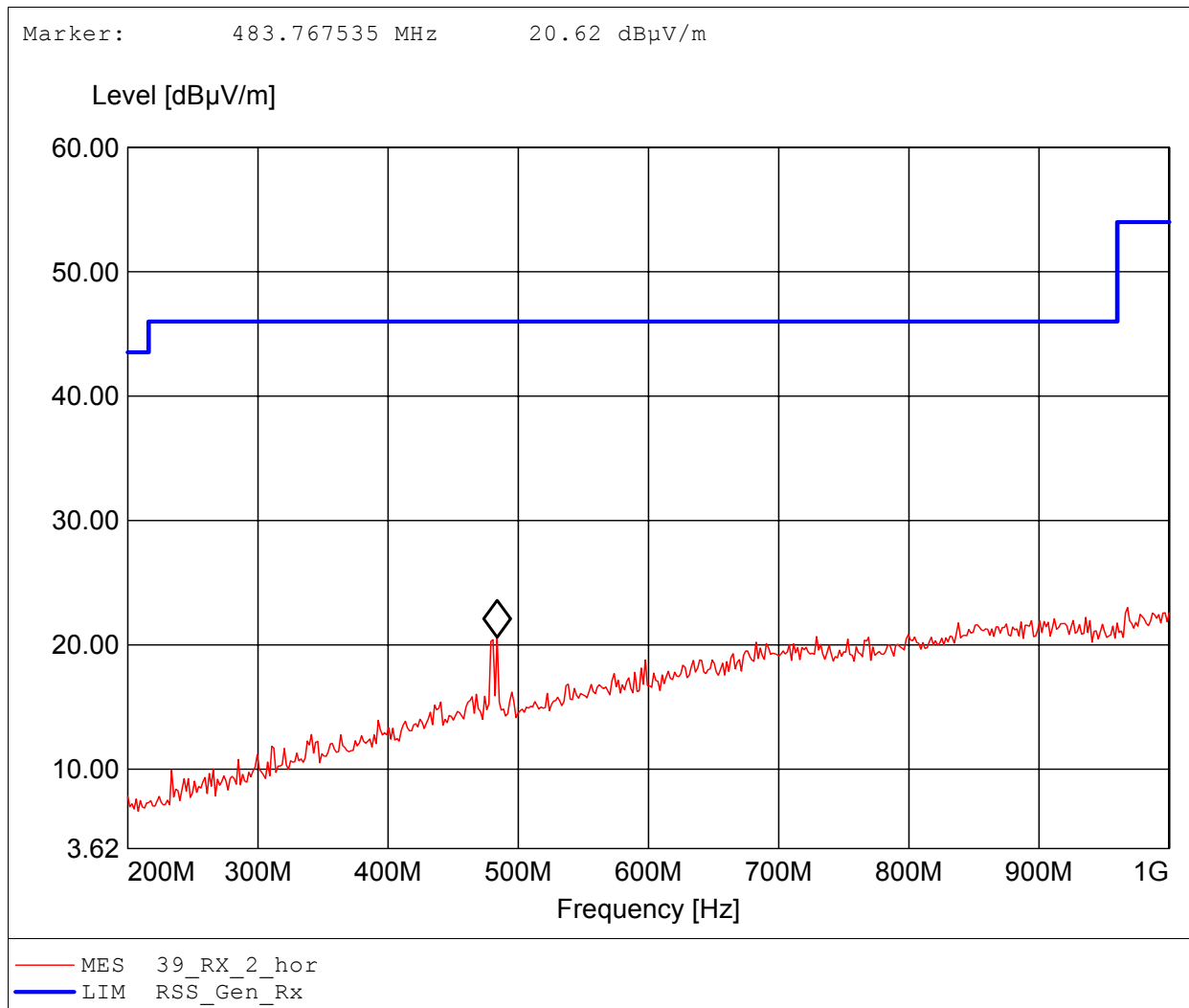
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: Rx
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH: 39
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.
Comment 2: Freq:983.968MHz Emax:23.72dBµV/m RBW: 100 kHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

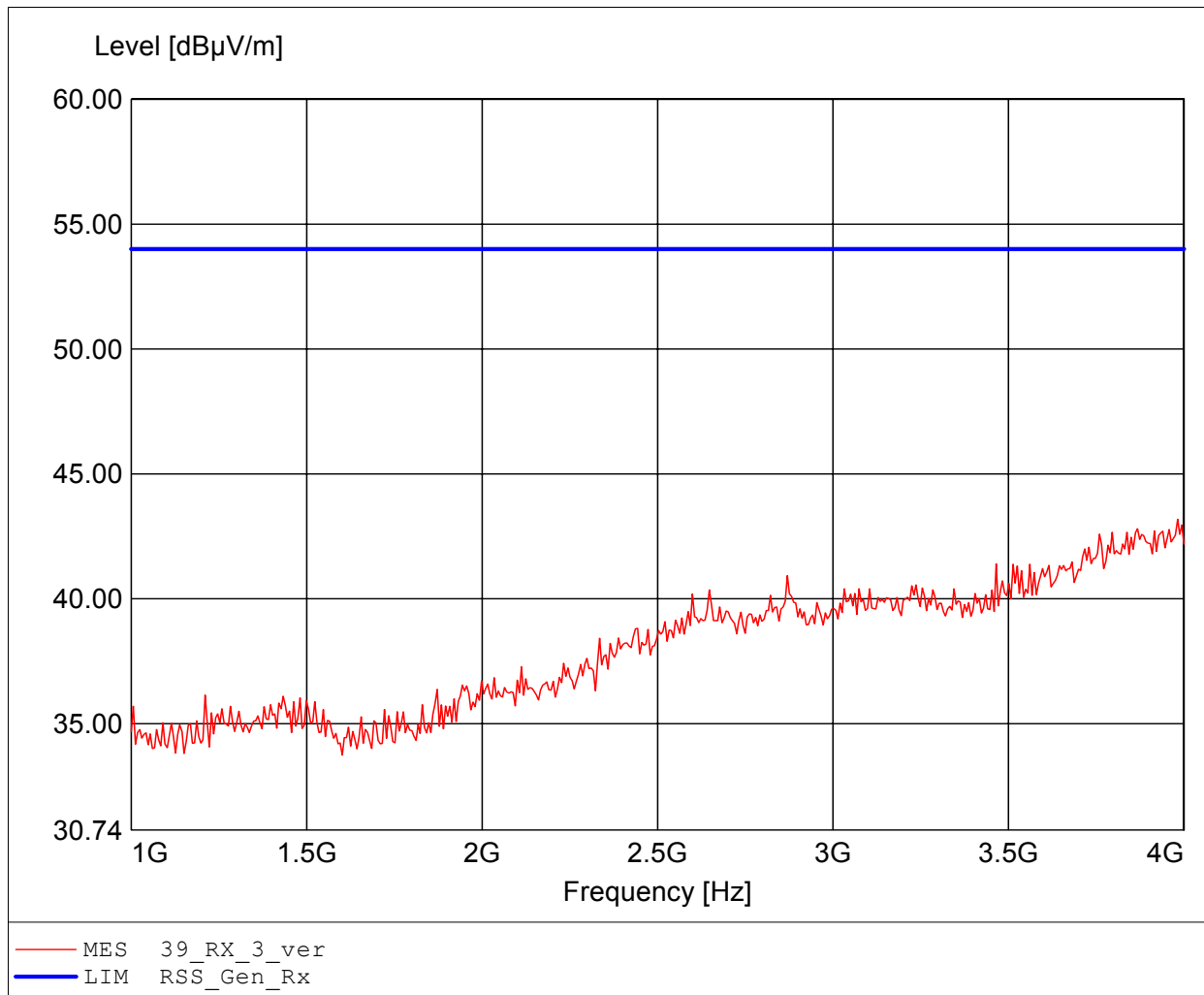
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: Rx
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH: 39
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.
Comment 2: Freq:967.936MHz Emax:23.00dBµV/m RBW: 100 kHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

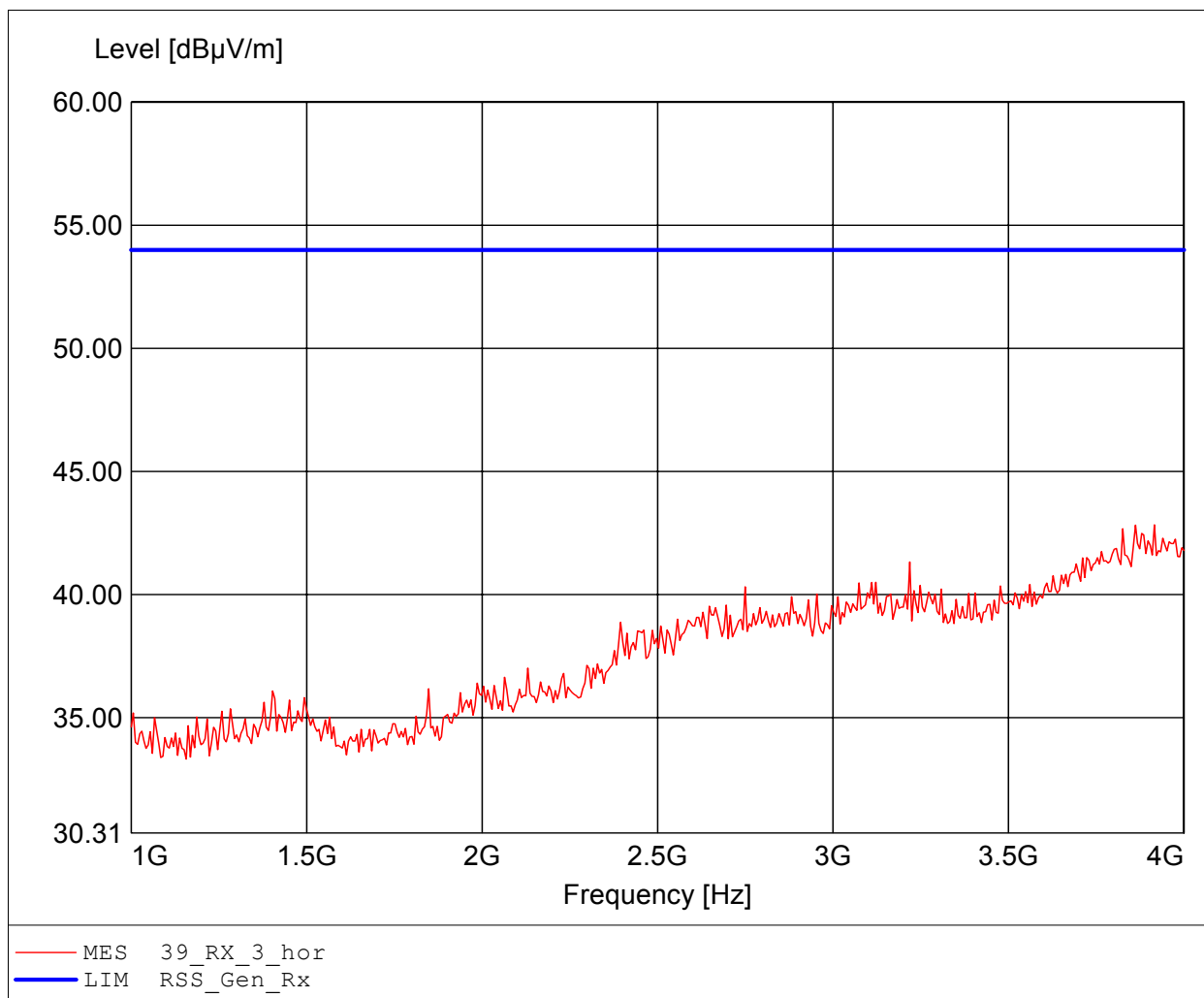
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: Rx
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH: 39
Comment 1: Dist.: 3m, Ant.: HL025, ampl.
Comment 2: Freq:3.982GHz Emax:43.18dBµV/m RBW: 1 MHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

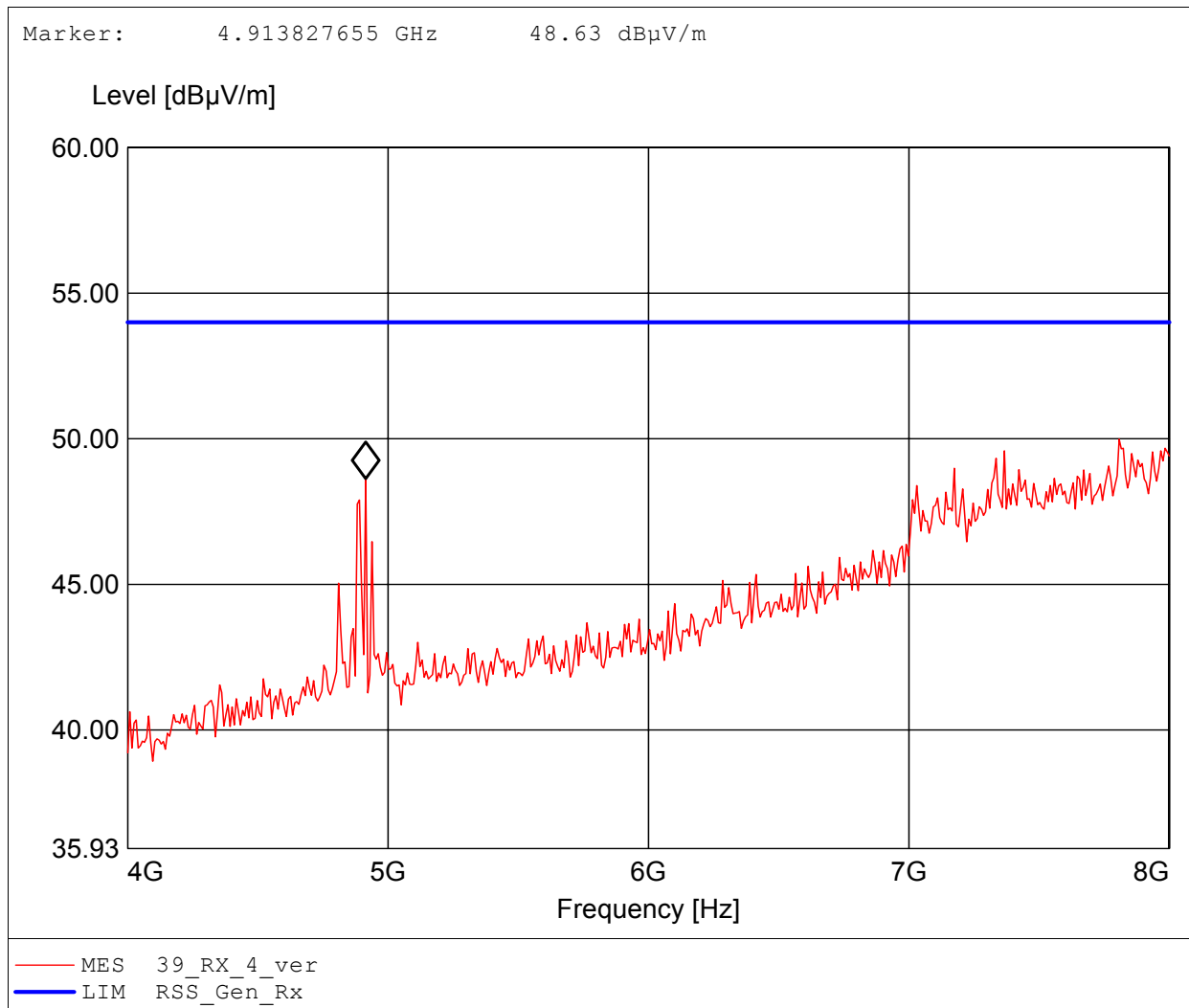
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: Rx
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH: 39
Comment 1: Dist.: 3m, Ant.: HL025, ampl.
Comment 2: Freq:3.916GHz Emax:42.83dBµV/m RBW: 1 MHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

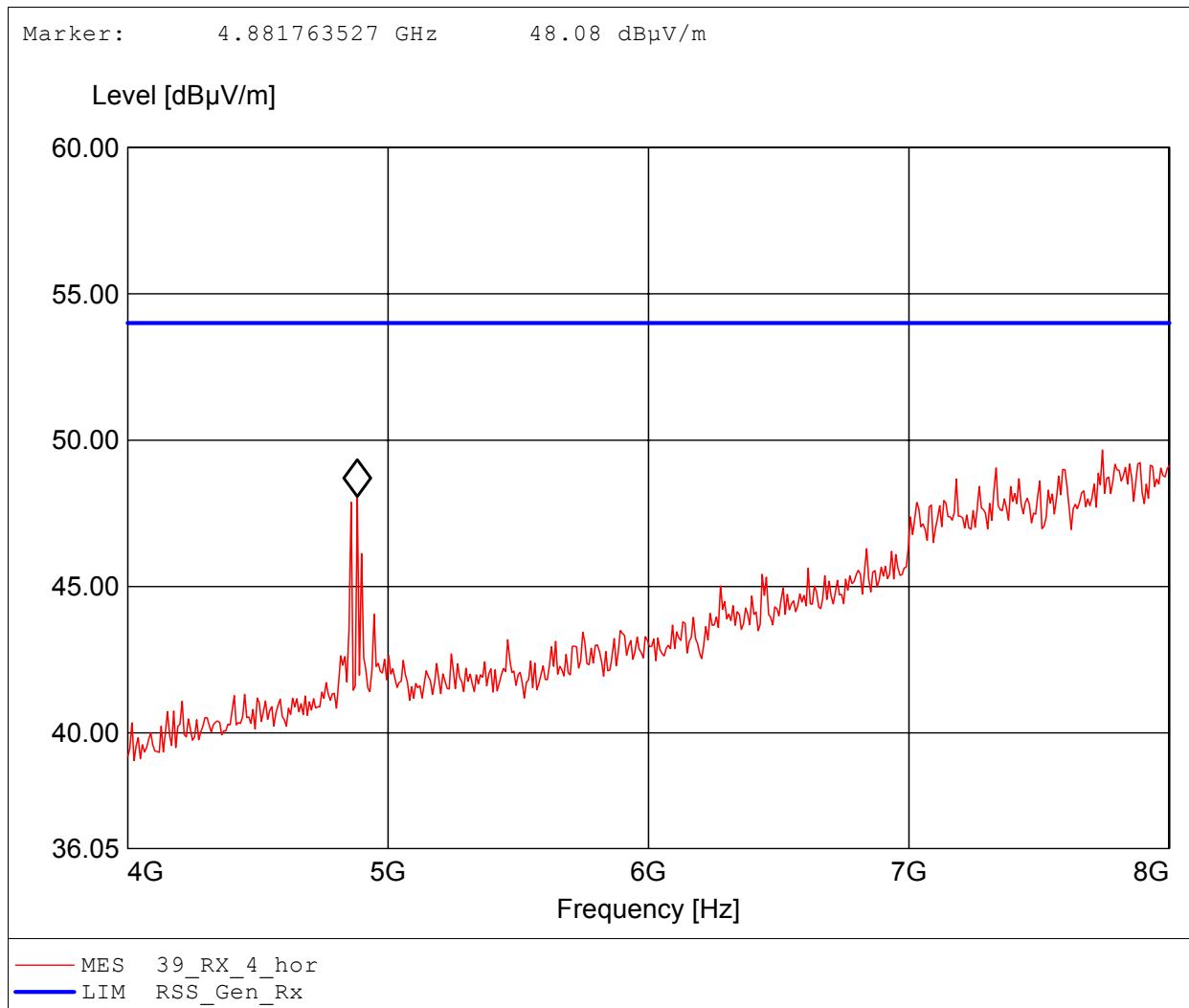
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: Rx
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH: 39
Comment 1: Dist.: 3m, Ant.: HL025, ampl.
Comment 2: Freq:7.808GHz Emax:49.98dBµV/m RBW: 1 MHz



Field Strength under normal conditions

Standards Industry Canada, RSS-GEN

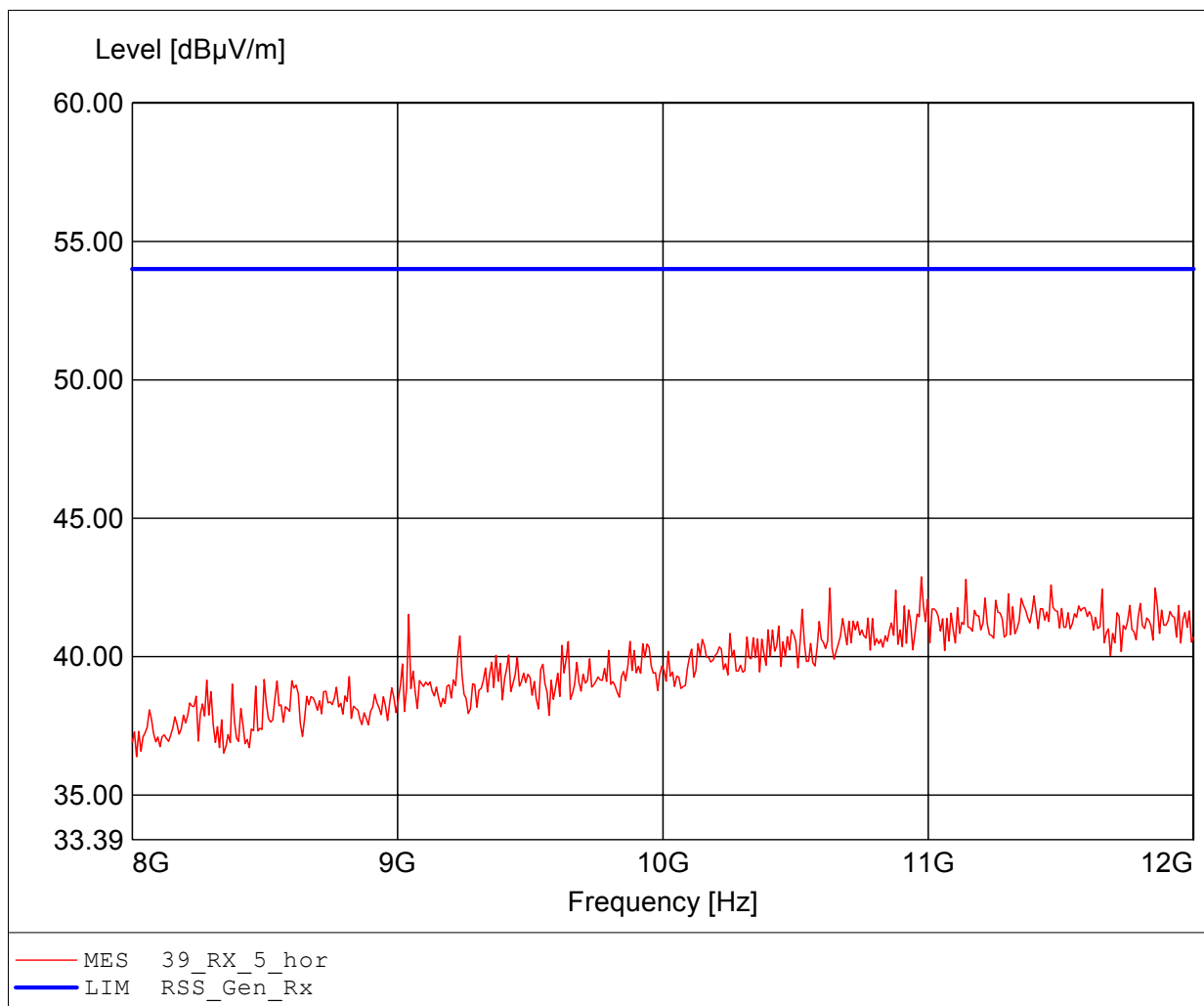
Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: Rx
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH: 39
Comment 1: Dist.: 3m, Ant.: HL025, ampl.
Comment 2: Freq:7.743GHz Emax:49.67dBµV/m RBW: 1 MHz



Field Strength under normal conditions

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EUT: WLAN/Bluetooth Module setup: Rx
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Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH: 39
Comment 1: Dist.: 3m, Ant.: HL025, ampl.
Comment 2: Freq:10.974GHz Emax:42.89dBuV/m RBW: 1 MHz



Field Strength under normal conditions

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Approval Holder: lesswire AG / Ord.: G0M-1111-1506
EUT: WLAN/Bluetooth Module setup: Rx
Model: WiBear-SF2-UAP / AN00K77421 #3, external antenna
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke
Test Condition: Tnom.: 25°C / Vnom.: 3.3V DC
Test Specification: Freq. / CH:
Comment 1: Dist.: 3m, Ant.: HL025, ampl.
Comment 2: Freq:10.974GHz Emax:42.23dBµV/m RBW: 1 MHz

