



EUROFINS PRODUCT SERVICE GMBH



Testing Cert #1983.01

# RADIO TEST- REPORT

**Compliance Test Report**

**FCC PART 15 SUBPART C  
IC RSS 210 ISSUE 7**

**FCC ID: PV7-WIBEAR-I**

**Component**

**WiBear-I, AN00K59744**

**Wireless LAN Radio Part**

**TEST REPORT NUMBER: G0M21008-3606-C-1**



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# 1 General Information

## 1.1 Notes

The results of this test report relate exclusively to the item tested as specified in chapter "Description of test item" and are not transferable to any other test items.

Eurofins Product Service GmbH is not responsible for any generalisations and conclusions drawn from this report. Any modification of the test item can lead to invalidity of test results and this test report may therefore be not applicable to the modified test item.

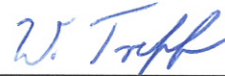
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### Operator:

01.11.2010

W. Treffke



Date

Eurofins-Lab.

Name

Signature

### Technical responsibility for area of testing:

01.11.2010

J. Zimmermann



Date

Eurofins

Name

Signature

## 1.2 Testing laboratory

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Storkower Strasse 38c  
D-15526 Reichenwalde b. Berlin  
Germany  
Telefon : +49 33631 888 00  
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**DAR ACCREDITED TESTING LABORATORY**  
DAR-REGISTRATION NUMBER: DAT-P-268/08

**RECOGNIZED NOTIFIED BODY EMC**  
REGISTRATION NUMBER: BNetzA-bS EMV-07/61

**RECOGNIZED NOTIFIED BODY R&TTE**  
REGISTRATION NUMBER: BNetzA-bS-02/51-53

**FCC FILED TEST LABORATORY**  
REG.-No. 96970

**A2LA ACCREDITED TESTING LABORATORY**  
CERTIFICATE No. 1983.01

**BLUETOOTH QUALIFICATION TEST FACILITY (BQTF)**  
ACCREDITED BY BLUETOOTH QUALIFICATION REVIEW BOARD

**INDUSTRY CANADA FILED TEST LABORATORY**  
REG. NO. IC 3470

### Test location, where different:

Name : ./.  
Street : ./.  
Town : ./.  
Country : ./.  
Telephone : ./.  
Fax : ./.

### 1.3 Details of approval holder

Name : lesswire AG  
Street : Im Technologiepark 1  
Town : 15236 Frankfurt/Oder  
Country : Germany  
Telephone : 030 / 6392 8282  
Fax : 030 / 6392 8287

Contact : Herr Ralph Meyfarth  
Telephone : 030 / 6392 8282

### 1.4 Application details

Date of receipt of application : 31.08.2010  
Date of receipt of test item : 31.08.2010  
Date of test : 15.09.2010

### 1.5 Test item

Description of test item : Component  
Type identification : WiBear-I, AN00K59744  
Brand Name : WiBear  
Serial number : Unspecified  
Hardware version : 1.0  
Software version : 10.38.x  
Equipment type : Radio module

#### Technical data

Frequency range : 2400 - 2483.5MHz  
Radio Technology : Wireless LAN 802.11b/g  
Tested frequencies : F<sub>1</sub> 2412MHz  
Tested frequencies : F<sub>2</sub> 2437MHz  
Tested frequencies : F<sub>3</sub> 2462MHz  
Antenna type : integrated  
Antenna model : FR05-S1-NO-1-004, Fractus Compact Dual-Band Reach  
Xtend Chip Antenna, FRACTUS, S.A.  
Number of antennas : 1  
Antenna gain : 0.0dBi (Declared by approval holder)  
Power supply : 3.3VDC  
Duty cycle : CCK, DSSS : 90%, OFDM : 55%  
Operating mode : semi duplex

Spreading technique : CCK, DSSS, OFDM  
 Modulations : DBPSK, DQPSK  
 Device classification : Mobile Device (Human Body distance > 20 cm)  
 Additional information : The results in this test report cover only the 2.4GHz wireless lan radio part of the EUT.

**Manufacturer:**  
(if applicable)

Name : lesswire AG  
 Street : Im Technologiepark 1  
 Town : 15236 Frankfurt/Oder  
 Country : Germany

## 1.6 Test standards

Technical standard :  **FCC PART 15 SUBPART C**  
 **IC RSS 210 ISSUE 7**

## 1.7 Acronyms and abbreviations

EUT : Equipment under Test  
 TX : Transmission  
 RX : Reception  
 RBW : Measurement Resolution Bandwidth  
 Pol : Measurement Polarization  
 e.i.r.p. : Equivalent isotropic radiated power  
 FHSS : Frequency hopping spread spectrum  
 DSSS : Direct Sequence Spread Spectrum  
 OFDM : Orthogonal frequency division multiplexing  
 CCK : Complementary code keying  
 GFSK : Gaussian frequency shift keying  
 DBPSK : Differential binary phase shift keying  
 DQPSK : Differential quadrature phase shift keying  
 PSK : Phase shift keying  
 $T_{nom}$  : Nominal Temperature  
 $T_{min}$  : Minimum Temperature  
 $T_{max}$  : Maximum Temperature  
 $V_{nom}$  : Nominal Supply Voltage  
 $V_{min}$  : Minimum Supply Voltage  
 $V_{max}$  : Maximum Supply Voltage  
 VDC : DC voltage  
 N/A : Not applicable  
 IC : Industry Canada

## 2 Technical test

### 2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests performed.

or

The deviations as specified in 2.4 were ascertained in the course of the tests performed.

### 2.2 Test environment

Temperature : 22 ... 26°C

Relative humidity content : 20 ... 75%

Air pressure : 86 ... 103kPa

Extreme conditions parameters:

$V_{nom}$  : 3.3VDC

$V_{min} (V_{nom}-15\%)$  : -

$V_{max} (V_{nom}+15\%)$  : -

$T_{nom}$  : 25°C

Other parameter: None



## 2.3 Test equipment utilized

Measurement Equipment List					
No.	Measurement device:	Type:	Manufacturer:	Last Cal.	Next Cal.
ETS 0086	Semi-anechoic chamber	AC1	Frankonia	12.03.2010	12.03.2011
ETS 0271	Spectrum Analyzer	FSEK30	Rohde & Schwarz	19.03.2009	19.03.2011
ETS 0012	Biconical Antenna	HK 116	Rohde & Schwarz	29.01.2010	29.01.2011
ETS 0336	LPD Antenna	HL 223	Rohde & Schwarz	28.01.2010	28.01.2011
ETS 0018	Horn Antenna	BBHA 9120D	Schwarzbeck	26.08.2010	26.08.2011
ETS 0432	Amplifier-Matrix			02.06.2010	02.06.2012
ETS 0259	Power Meter	NRVD	Rohde & Schwarz	26.03.2010	26.03.2011
ETS 0278	Power Sensor	NRV-Z31	Rohde & Schwarz	01.08.2008	01.08.2010
ETS 0496	Spectrum Analyzer	FSP30	Rohde & Schwarz	26.08.2010	26.08.2011
ETS 0086	Semi-anechoic chamber	AC1	Frankonia	12.03.2010	12.03.2011

## 2.4 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 $\mu$ 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 $\mu$ V/m). The FCC limits are given in units of  $\mu$ V/m. The following formula is used to convert the units of  $\mu$ V/m to dB $\mu$ V/m:

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

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:

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

## 2.5 Test results

 1<sup>st</sup> test

 test after modification

 production test

Test case	Clause	Required	Result	Remarks
<b>INFORMATIONAL TRANSMITTER PARAMETERS</b>				
Occupied Bandwidth	IC RSS-Gen. 4.6.1	<input checked="" type="checkbox"/>		
<b>TRANSMITTER PARAMETERS</b>				
6dB Bandwidth	FCC § 15.247(a)(2) IC RSS-210 § A8.2	<input checked="" type="checkbox"/>	PASS	
Spectral Density	FCC § 15.247(e) IC RSS-210 § A8.2	<input checked="" type="checkbox"/>	PASS	
Maximum peak conducted output power	FCC § 15.247(b) IC RSS-210 § A8.4	<input checked="" type="checkbox"/>	PASS	
Band-edge Compliance	FCC § 15.247(d) IC RSS-210 § A8.5	<input checked="" type="checkbox"/>	PASS	
Conducted spurious emissions	FCC § 15.247(d) IC RSS-210 § A8.5	<input checked="" type="checkbox"/>	PASS	
Radiated spurious emissions	FCC § 15.209 IC RSS-Gen § 4.9	<input checked="" type="checkbox"/>	PASS	
<b>RECEIVER PARAMETERS</b>				
Radiated spurious emissions	FCC § 15.109 IC RSS-Gen § 4.10 IC RSS-Gen § 7.2.3	<input type="checkbox"/>	N/A	IC only
<b>POWER LINE PARAMETERS</b>				
AC power line conducted emissions	FCC § 15.207 IC RSS-Gen. 7.2.2	<input checked="" type="checkbox"/>	PASS	

### 3 Informational Transmitter parameters

#### 3.1 Transmitter Modes for conformance testing

The following transmission modes are elected for compliance testing.

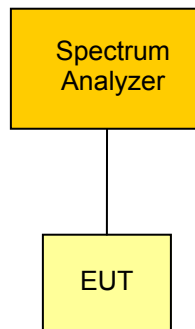
TEST MODE DSSS	
Conditions	
Spread Spectrum :	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Spreading Technique :	DSSS
Modulation :	DBPSK
Bandwidth :	20MHz
Data rate :	1Mbps
Duty Cycle :	90%
Power level :	Maximum : 18 (Firmware setting)

TEST MODE OFDM	
Conditions	
Spread Spectrum :	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Spreading Technique :	OFDM
Modulation :	DBPSK
Bandwidth :	20MHz
Data rate :	6Mbps
Duty Cycle :	55%
Power level :	Maximum : 15 (Firmware setting)

### 3.2 Occupied Bandwidth

According FCC rules 47 CFR 2.1049 and RSS-Gen Section 4.6.1 the 99% emission bandwidth occupied by the digital modulated transmitted signal has to be reported.

#### 3.2.1 Measurement procedure



The eut is connected to a spectrum analyzer and set to transmission mode with maximum power under normal test conditions. The span of the analyzer is set wide enough to capture all significant emissions of the modulation spectrum. The resolutions bandwidth is set as close as possible to 1% of the selected span without being below 1%. The occupied bandwidth is than measured evaluated by an internal measurement procedure of the analyzer.

#### 3.2.2 Results

Transmitter occupied bandwidth			
Measurement Conditions			
Power occupation :		99%	
Channel [MHz]	Lower edge frequency [MHz]	Upper edge frequency [MHz]	Occupied Bandwidth [MHz]
Test mode DSSS			
2412	2405.1	2418.9	13.8
2437	2430.0	2443.9	13.9
2462	2455.0	2468.9	13.9
Test mode OFDM			
2412	2403.3	2420.4	17.1
2437	2428.3	2445.4	17.1
2462	2453.4	2470.4	17.0
See attached diagram in Annex			
<b>Verdict</b>			<b>PASS</b>

## 4 Transmitter parameters

### 4.1 6dB Bandwidth

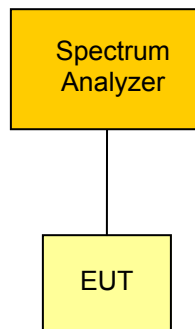
According FCC rules 47 CFR 15.247(a)(2) and RSS-210 Section A8.2 the minimum 6dB Bandwidth has to be validated.

#### 4.1.1 Limits

According FCC and IC rules the minimum 6 dB bandwidth shall be at least 500 kHz.

6dB bandwidth limit
≥ 500kHz

#### 4.1.2 Measurement procedure



The eut is connected to a spectrum analyzer and set to transmission mode with maximum power under normal test conditions. The resolution bandwidth is set to 100kHz (VBW≥RBW). The center frequency is set to the channel center frequency. The span of the analyzer is set to 2 -3 times the 6dB bandwidth. The bandwidth is determined using markers with peak detector and max hold.

**4.1.3 Results**

<b>Transmitter 6dB bandwidth</b>			
<b>Channel [MHz]</b>	<b>Lower edge frequency [MHz]</b>	<b>Upper edge frequency [MHz]</b>	<b>6dB Bandwidth [MHz]</b>
Test mode DSSS			
2412	2407.0	2417.1	10.1
2437	2432.0	2442.1	10.1
2462	2457.0	2467.1	10.1
Test mode OFDM			
2412	2403.8	2420.3	16.5
2437	2428.8	2445.3	16.5
2462	2453.8	2470.3	16.5
<b>See attached diagram in Annex</b>			
<b>Verdict</b>			<b>PASS</b>

## 4.2 Power spectral density

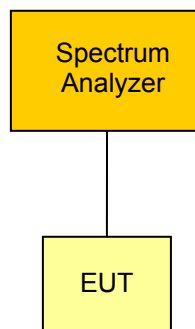
According to FCC rules 47 CFR 15.247(e) and RSS-210 Section A8.2 the maximum power density in any 3kHz bandwidth is limited and has to be validated.

### 4.2.1 Limits

According to FCC and IC rules the transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission or over 1.0 second if the transmission exceeds 1.0-second duration.

Spectral density limit
≤ 8dBm/3kHz

### 4.2.2 Measurement procedure



The eut is connected to a spectrum analyzer and set to transmission mode with maximum power under normal test conditions. The resolution bandwidth is set to 3kHz ( $VBW \geq RBW$ ). The center frequency is set to the channel center frequency. The span of the analyzer is set to 1.5MHz. The sweep time is set to  $SPAN/RBW$ . The spectral density is determined using peak detector and max hold.

According to 47 CFR 15.31 battery power equipment is measured using new batteries and equipment using external power supply is measured with 85%, 100% and 115% of the nominal rated supply voltage.



#### 4.2.3 Results

Power spectral density		
Channel [MHz]	Max. emission frequency [MHz]	Spectral density [dBm/3kHz]
Test mode DSSS		
2412	2411.004	2.1
2437	2436.003	6.4
2462	2461.186	3.5
Test mode OFDM		
2412	2405.711	-11.6
2437	2431.093	-13.3
2462	2463.295	-14.9
See attached diagram in Annex		
<b>Verdict</b>		<b>PASS</b>

### 4.3 Maximum peak conducted output power

According FCC rules 47 CFR 15.247(b)(3) and RSS-210 Section A8.4 the maximum peak conducted output power is limited and has been verified.

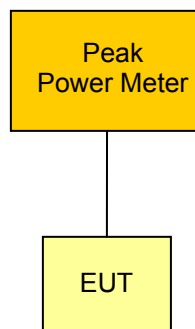
#### 4.3.1 Limits

For systems employing digital modulation techniques operating in the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz, the maximum peak conducted output power shall not exceed 1 W.

Maximum peak conducted power limit
1W / 30dBm

\*) The conducted output power limit specified above is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in the table, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### 4.3.2 Measurement procedure



The eut is connected to a peak power sensor of a power meter and activated with the maximum power level. The peak power is measured and recorded.

According to 47 CFR 15.31(e) battery power equipment is measured using new batteries and equipment using external power supply is measured with 85%, 100% and 115% of the nominal rated supply voltage.

**4.3.3 Results**

Maximum peak conducted output power		
Measurement Conditions		
Antenna gain :	0.0dBi	
Power correction :	0dB	
Channel [MHz]	Conducted output power [dBm]	Power Limit [dBm]
Test mode DSSS		
2412	19.4	30
2437	18.4	30
2462	18.4	30
Test mode OFDM		
2412	19.6	30
2437	19.4	30
2462	18.7	30
See attached diagrams in Annex		
Measurement uncertainty		4.22dB
Verdict		<b>PASS</b>

#### 4.4 Transmitter band-edge compliance

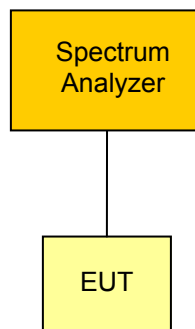
According FCC rules 47 CFR 15.209, 15.247(d) and RSS-210 Section A8.5 the emission level of out-of-band emissions are limited and has to be validated.

##### 4.4.1 Limits

The emission limit of out of band emission in any 100kHz bandwidth outside the frequency band in which the spread spectrum device is operating, the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits (see "Transmitter spurious emissions"-measurement) is not required.

Transmitter band-edge emission limits	
TX-Power Detector	Out of band attenuation
Peak	-20dBc/100kHz
RMS	-30dBc/100kHz

##### 4.4.2 Measurement procedure



The eut is connected to a spectrum analyzer and set to transmission mode without hopping with maximum power under normal test conditions. The span of the analyzer is set large enough to capture the maximum emission within the emission band as well as any modulation product which fall outside the authorized band of operation. The resolution bandwidth is set to 1% of the span ( $VBW \geq RBW$ ). The

A marker is set on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Using the delta-marker function the highest peak of of the in-band emission is measured.

#### 4.4.3 Results

<b>Transmitter band-edge emissions</b>		
<b>Measurement Conditions</b>		
<b>Power mode :</b>	Peak	
<b>Test mode</b>	<b>Lower edge emission [dBc]</b>	<b>Upper edge emission [dBc]</b>
DSSS	-43.96	-46.93
OFDM	-34.01	-41.19
<b>See attached diagram in Annex</b>		
<b>Verdict</b>	<b>PASS</b>	

## 4.5 Transmitter conducted spurious emissions

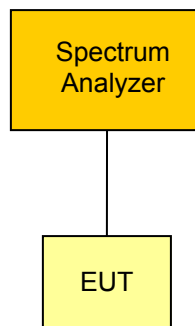
According FCC rules 47 CFR 15.247(d) and RSS-210 Section A8.5 unwanted emissions in the spurious domain are power limited and has to be validated.

### 4.5.1 Limits

The emission limit of out of band emission in any 100kHz bandwidth outside the frequency band in which the spread spectrum device is operating, the radio frequency power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general limits (see "Transmitter radiated spurious emissions"-measurement) is not required.

Transmitter conducted spurious emission limits	
TX-Power Detector	Out of band attenuation
Peak	-20dBc/100kHz
RMS	-30dBc/100kHz

### 4.5.2 Measurement procedure



The eut is connected to a spectrum analyzer and set to transmission mode with maximum power under normal test conditions. The span of the analyzer is set large enough to capture the maximum emission within the emission band as well as any spurious emission outside the authorized band of operation. The resolution bandwidth is set to 100kHz (VBW≥RBW). The emissions are measured using peak detector and max hold.

The measurement is performed over the frequency range of 30MHz up to the tenth harmonic.

#### 4.5.3 Results

Transmitter conducted spurious emissions					
Measurement Conditions					
Power detector :		Peak			
Modulated :		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Channel Frequency [MHz]	Emission Frequency [MHz]	Measured Field Strength * [dBm]	Channel Power [dBm]	Limit [dBm]	Margin [dB]
Test mode DSSS					
2412	9460	-34.66	8.53	-11.47	-23.19
2437	13000	-34.90	7.65	-12.35	-22.55
2462	10240	-34.97	7.03	-12.97	-22.00
Test mode OFDM					
2412	11620	-34.52	2.29	-17.71	-16.81
2437	10240	-44.62	1.79	-18.21	-26.41
2462	12800	-44.68	1.55	-18.45	-26.23
See attached diagrams in Annex					
<b>Verdict</b>				<b>PASS</b>	

## 4.6 Transmitter radiated spurious emissions

According FCC rules 47 CFR 15.209 unwanted emissions in the spurious domain are power limited and has to be validated.

### 4.6.1 Limits

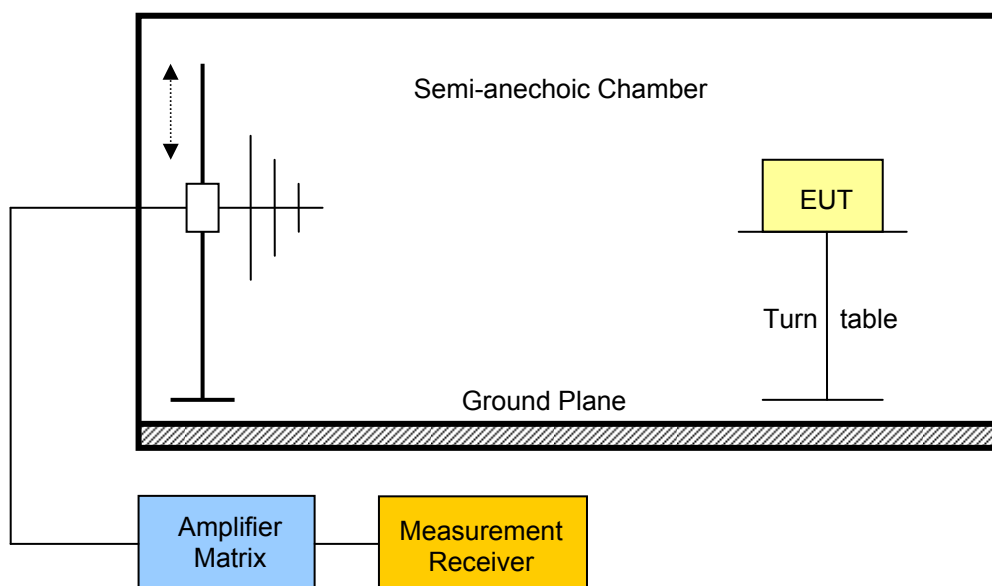
Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

Tranmitter restricted band spurious emission limits				
Frequency range [MHz]	Detector	Limit [ $\mu\text{V}/\text{m}$ ]	Calculated Limit 3m [ $\text{dB}\mu\text{V}/\text{m}$ ]	Measurement 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

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.

### 4.6.2 Measurement procedure

The spurious emission measurement is performed on 3m a semi-anechoic test site.





The eut is placed on a non-metallic table. Any emission is received by the measurement antenna and measured via a measurement receiver connected to the antenna. To obtain the maximum emission the eut is rotated through 360°.

Due to practical reasons the spurious emission level check is first performed with a peak detector and the quasi-peak and average limits.

If any emission is detected that gets close to the emission limit the detector is changed and the quasi-peak or average detector is used. Which detector is used is determined by the emission frequency. If pulsed transmission is used, averaging over the pulse train is used.

The measurement values are also corrected to obtain the field strength values at the defined measurement distances of the emission limits.

The measurement is performed over the frequency range of 30MHz up to the tenth harmonic.

**4.6.3 Results**

Transmitter radiated spurious emissions						
Measurement Conditions						
Measurement distance :		3m				
Modulated :		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Channel Frequency [MHz]	Emission Frequency [MHz]	Polarization	Measured Field Strength * [dB $\mu$ V/m]	Limit@3m [dB $\mu$ V/m]	Detector	Margin [dB]
Test mode DSSS						
2412MHz	2.3859	v	64.03	74	peak	-9.97
	2.3867	v	51.3	54	average	-2.70
	2.3887	h	57.77	74	peak	-16.23
	2.3863	h	52.51	54	average	-1.49
	7.250	v	55.09	74	peak	-18.91
	7.250	v	40.41	54	average	13.59
	14.475	v	57.13	74	peak	-16.87
	14.472	v	52.4	54	average	-1.6
2437MHz	<i>No significant spurious emissions</i>					
2462MHz	7.931	h	58.17	74	peak	-15.83
	7.931	v	59.60	74	peak	-14.4
Test mode OFDM						
2412MHz	2.389	v	63.7	74	peak	-10.30
	2.390	v	44.6	54	average	-9.40
	2.390	h	62.4	74	peak	-11.60
	2.390	h	45.9	54	average	-8.10
2437MHz	7.319	v	57.2	74	peak	-16.80
	7.311	v	42.5	54	average	-11.50
2462MHz	2.3835	v	57.8	74	peak	-16.20
	2.3840	v	36.9	54	average	-17.10
	7375	v	55.2	74	peak	-18.80
	7383	v	41.1	54	average	-12.90
<b>See attached diagrams in Annex</b>						
<b>Verdict</b>					<b>PASS</b>	

## 5 Power Line parameters

### 5.1 AC power line conducted emissions

According FCC rules 47 CFR 15.207 and RSS-Gen Section 7.2.2 for any intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits given below.

#### 5.1.1 Limits

AC power line emission limits		
Frequency [MHz]	Conducted Limit [dB $\mu$ V]	
	Quasi-Peak	Average
0.15 – 0.5	66 to 56	56 to 46
0.5 - 5	56	46
5 - 30	60	50

#### 5.1.2 Measurement procedure

The ac power line emissions are measured using a 50 $\mu$ H / 50 $\Omega$  line impedance stabilization network (LINS). The radio frequency voltage between each power line and ground at the power terminal is measured.

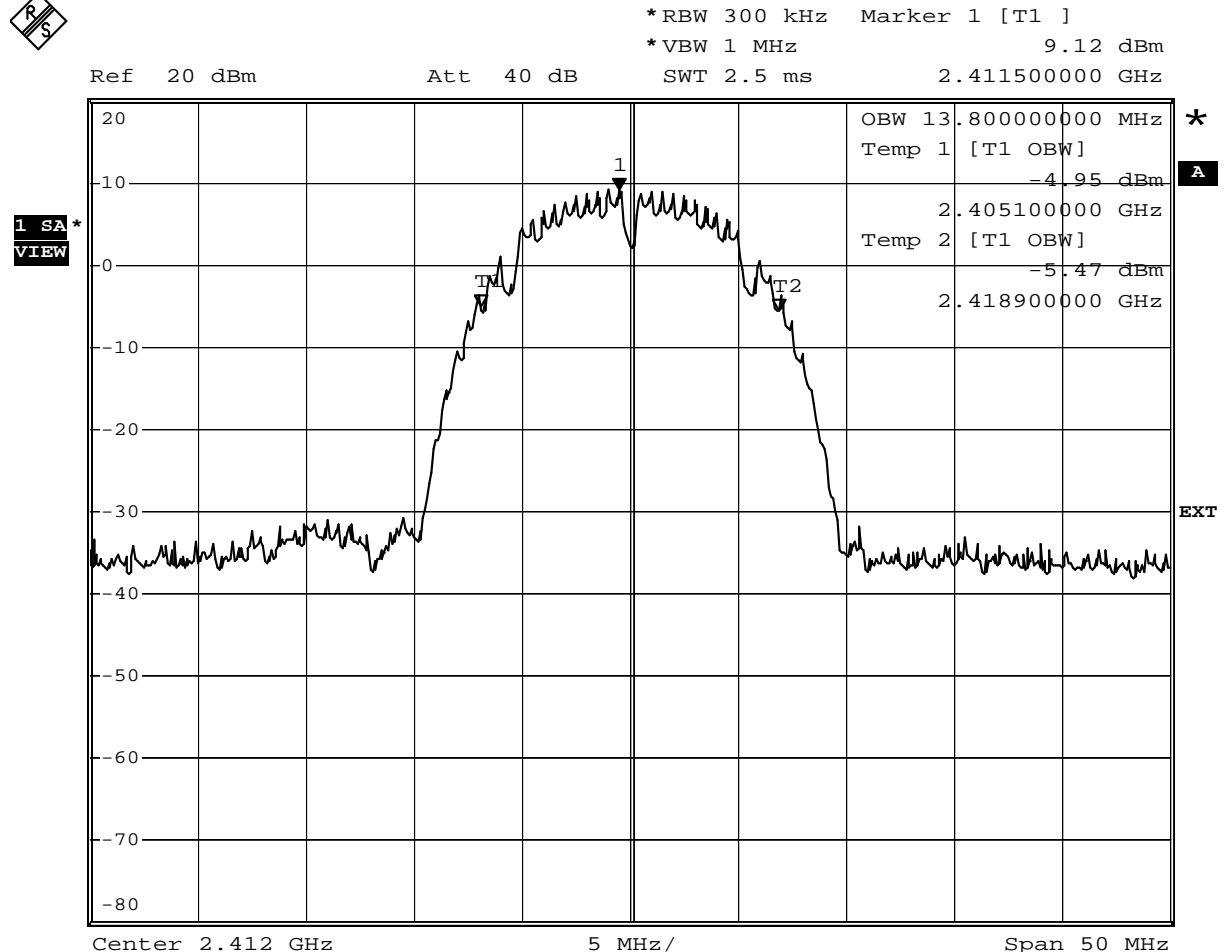
#### 5.1.3 Results

AC power line emissions	
Conducted emission level	
See attached Diagram	
Verdict	<b>PASS</b>

## Annex B Transmitter Occupied Bandwidth

### RSS Gen Occupied Bandwidth

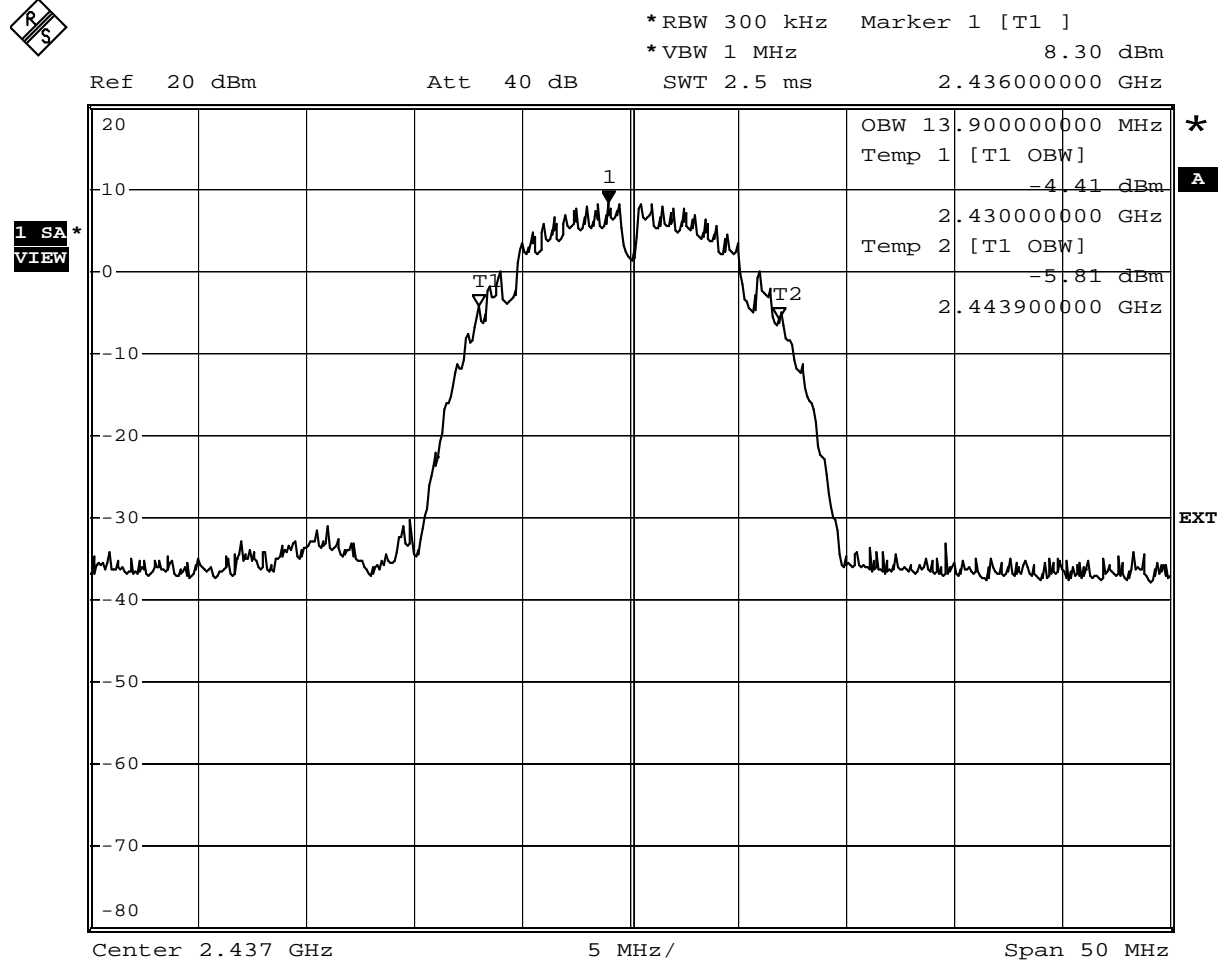
EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 2412 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	Setup DSSS



Comment: Occupied bandwidth: 13800 KHz  
 Date: 15.SEP.2010 13:37:35

**RSS Gen  
Occupied Bandwidth**

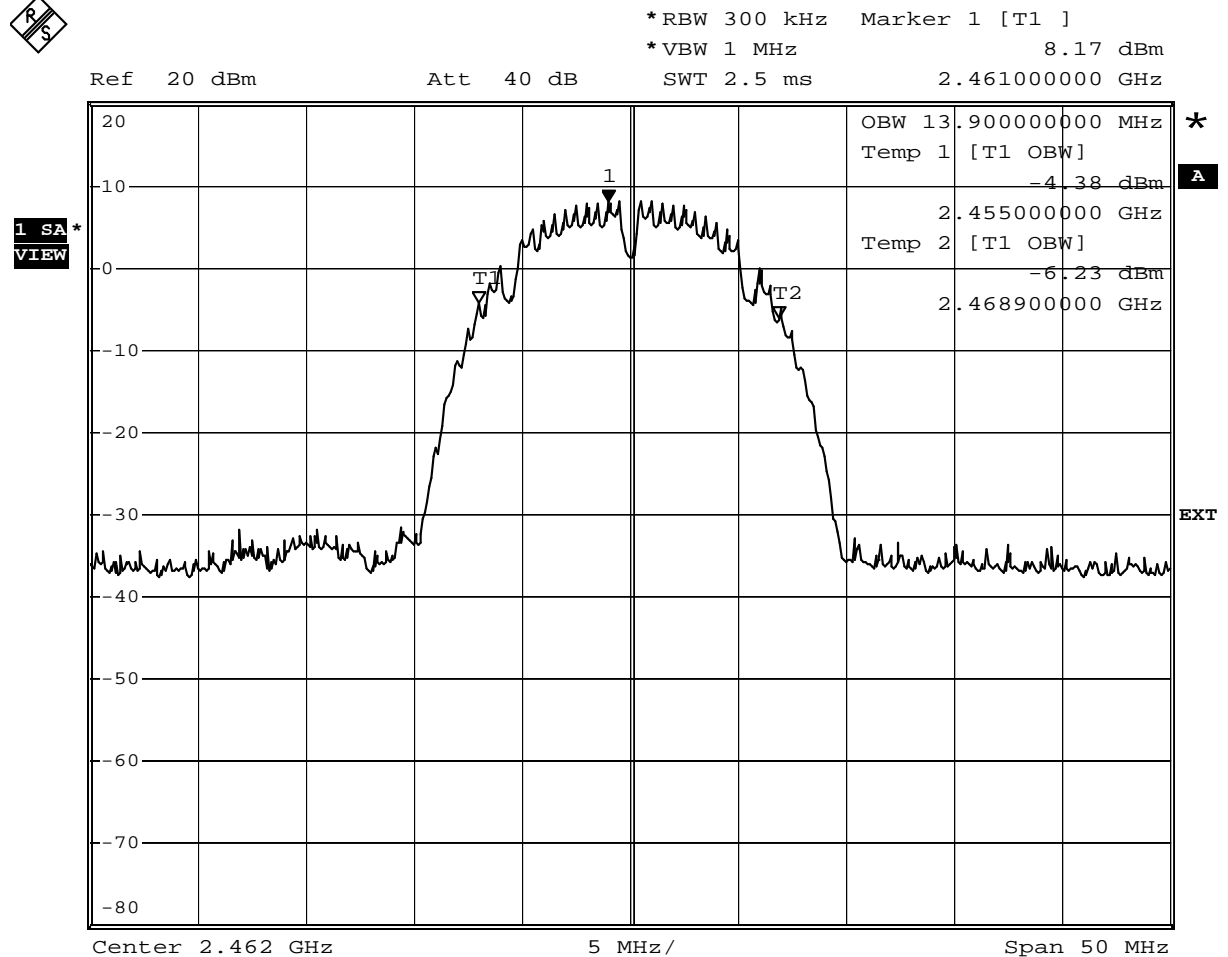
EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 2437 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	Setup DSSS



Comment: Occupied bandwidth: 13900 KHz  
 Date: 15.SEP.2010 13:43:59

**RSS Gen  
Occupied Bandwidth**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 2462 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	Setup DSSS



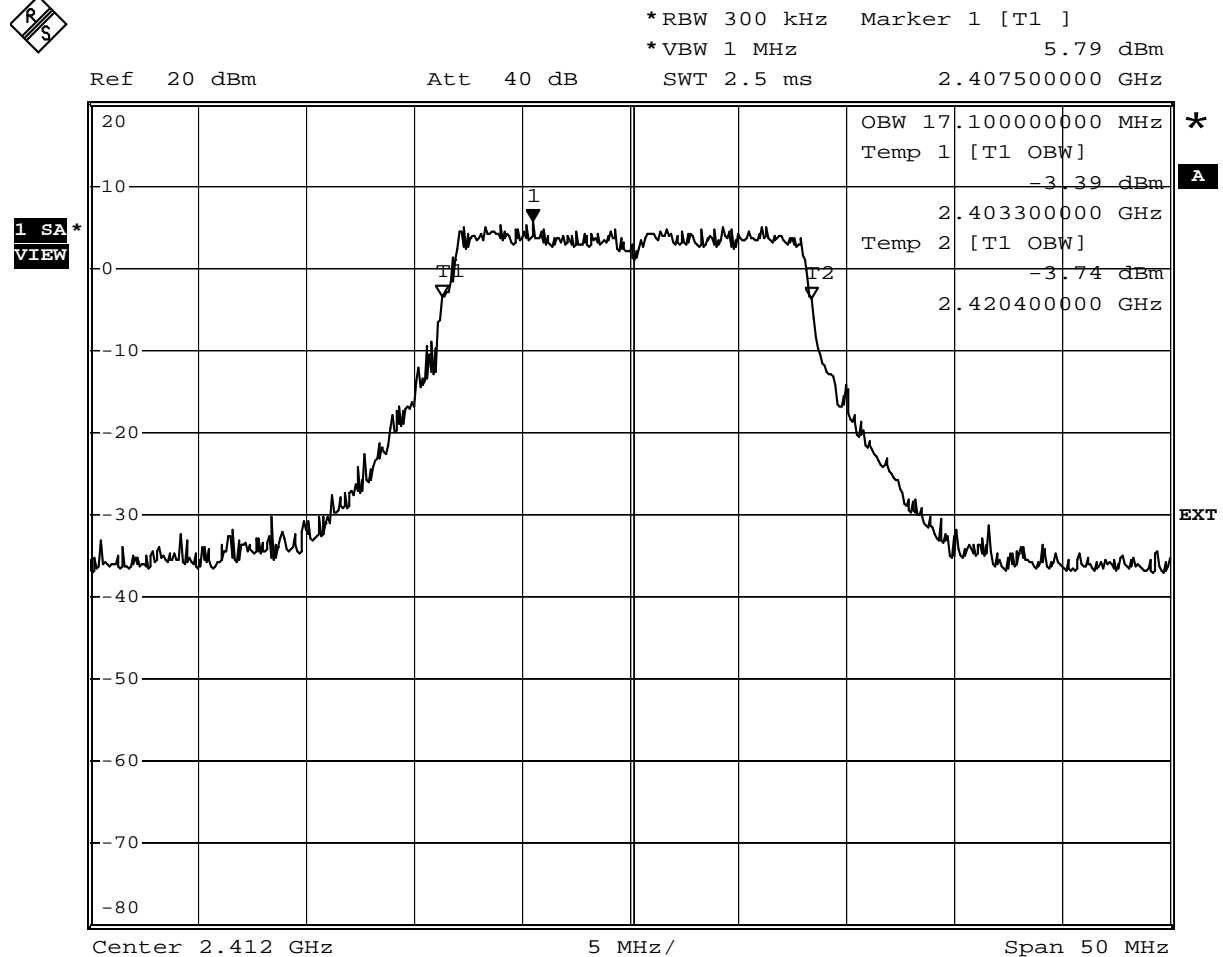
Comment: Occupied bandwidth: 13900 KHz  
 Date: 15.SEP.2010 13:46:16

---

 Test Report No.: G0M21008-3606-C-1

**RSS Gen  
Occupied Bandwidth**

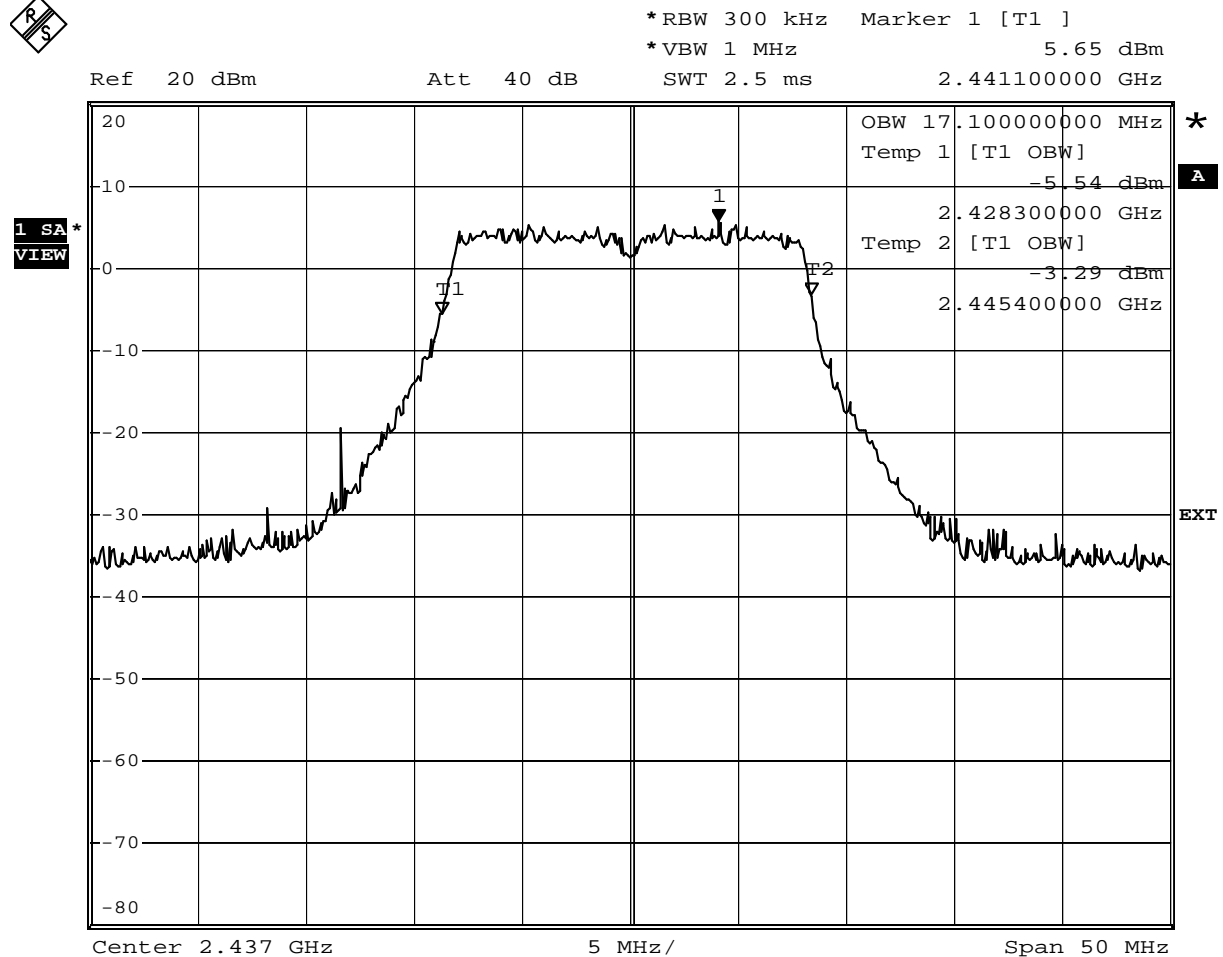
EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 2412 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	Setup OFDM



Comment: Occupied bandwidth: 17100 KHz  
 Date: 15.SEP.2010 13:33:35

**RSS Gen  
Occupied Bandwidth**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 2437 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	Setup OFDM

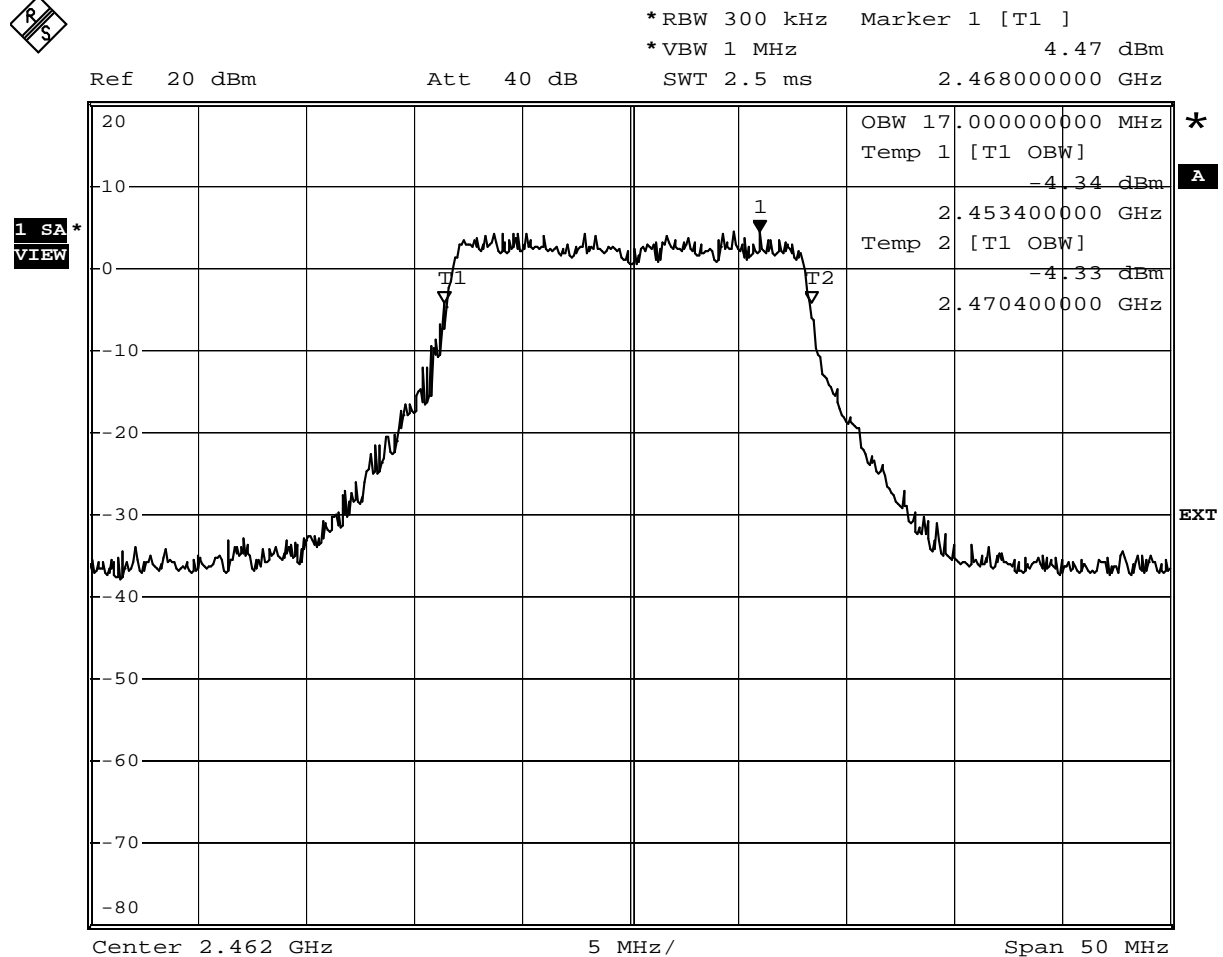


Comment: Occupied bandwidth: 17100 KHz  
 Date: 15.SEP.2010 13:18:01



**RSS Gen  
Occupied Bandwidth**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 2462 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	Setup OFDM

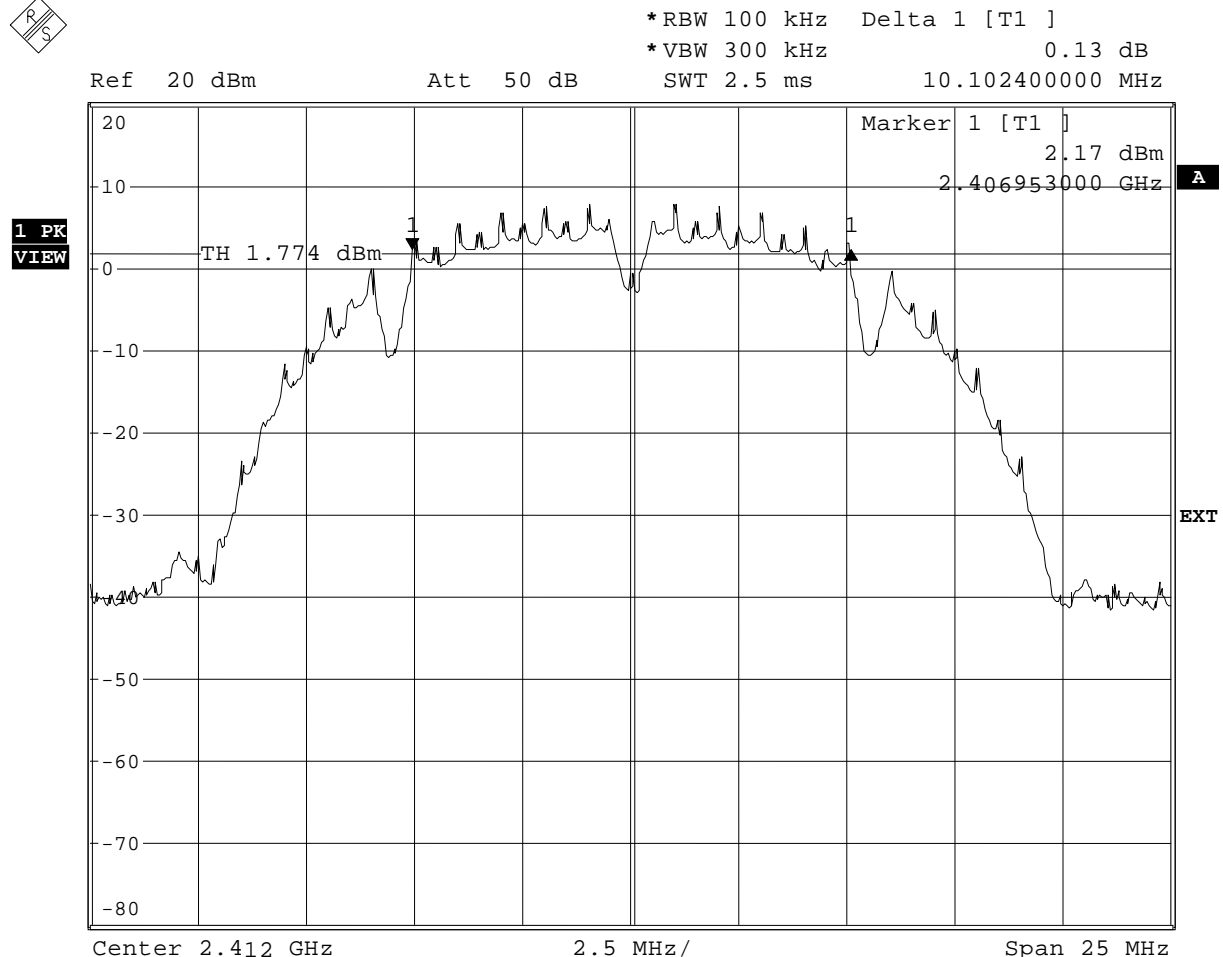


Comment: Occupied bandwidth: 17000 KHz  
 Date: 15.SEP.2010 13:13:28

## Annex C Transmitter 6dB bandwidth

### FCC part 15.247 (a)2 Minimum 6 dB Bandwidth

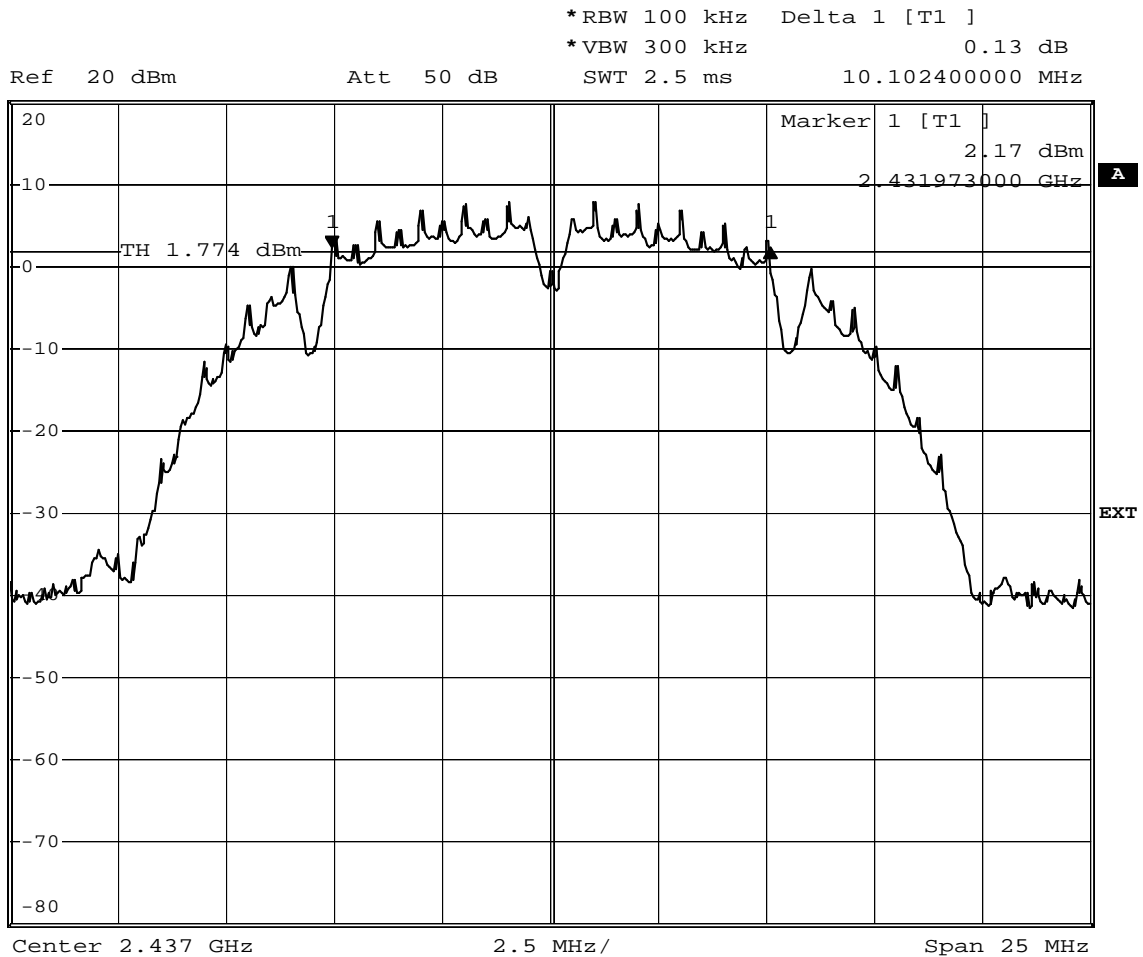
EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (a)2
Comment 1	Minimum 6 dB Bandwidth
Comment 2	Channel : 2412 MHz
Comment 3	DSSS, power level 18, 1 Mbit/s



Comment: 6 dB bandwidth: 10102.4 KHz > 500 KHz; verdict: PASS  
 Date: 15.SEP.2010 13:52:02

**FCC part 15.247 (a)2  
Minimum 6 dB Bandwidth**

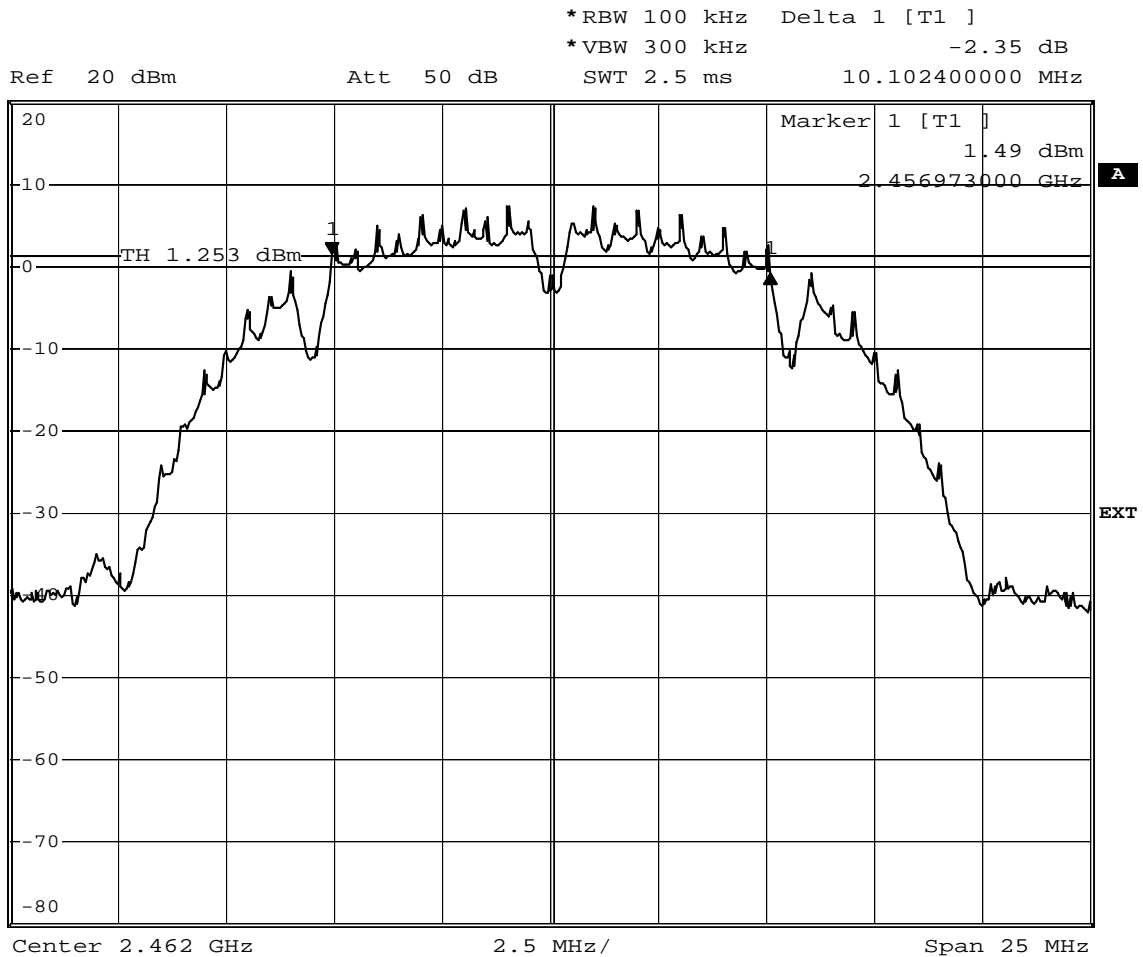
EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (a)2
Comment 1	Minimum 6 dB Bandwidth
Comment 2	Channel : 2437 MHz
Comment 3	setup DSSS



Comment: 6 dB bandwidth: 10102.4 KHz > 500 KHz; verdict: PASS  
Date: 15.SEP.2010 13:54:08

**FCC part 15.247 (a)2  
Minimum 6 dB Bandwidth**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (a)2
Comment 1	Minimum 6 dB Bandwidth
Comment 2	Channel : 2462 MHz
Comment 3	setup DSSS



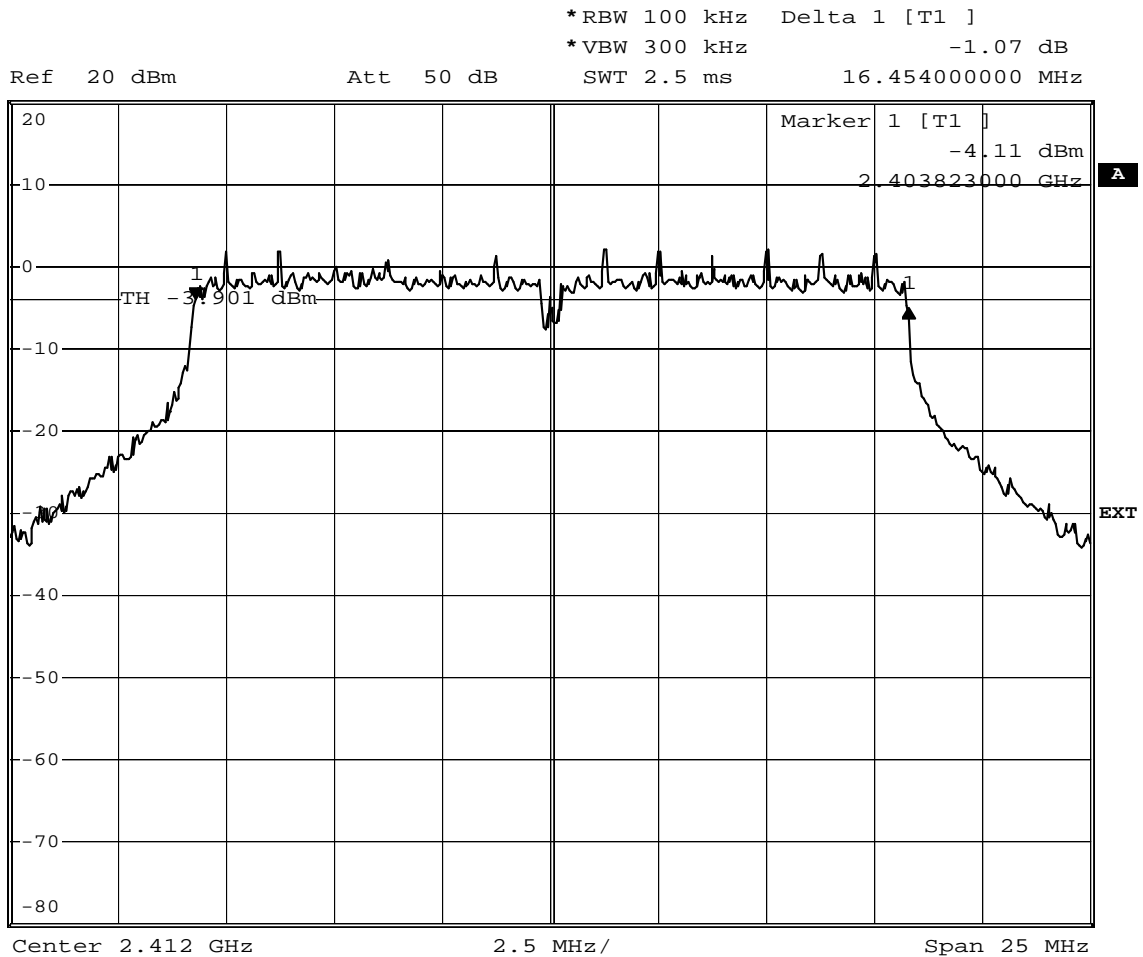
Comment: 6 dB bandwidth: 10102.4 KHz > 500 KHz; verdict: PASS  
Date: 15.SEP.2010 13:50:18

---

 Test Report No.: G0M21008-3606-C-1

**FCC part 15.247 (a)2  
Minimum 6 dB Bandwidth**

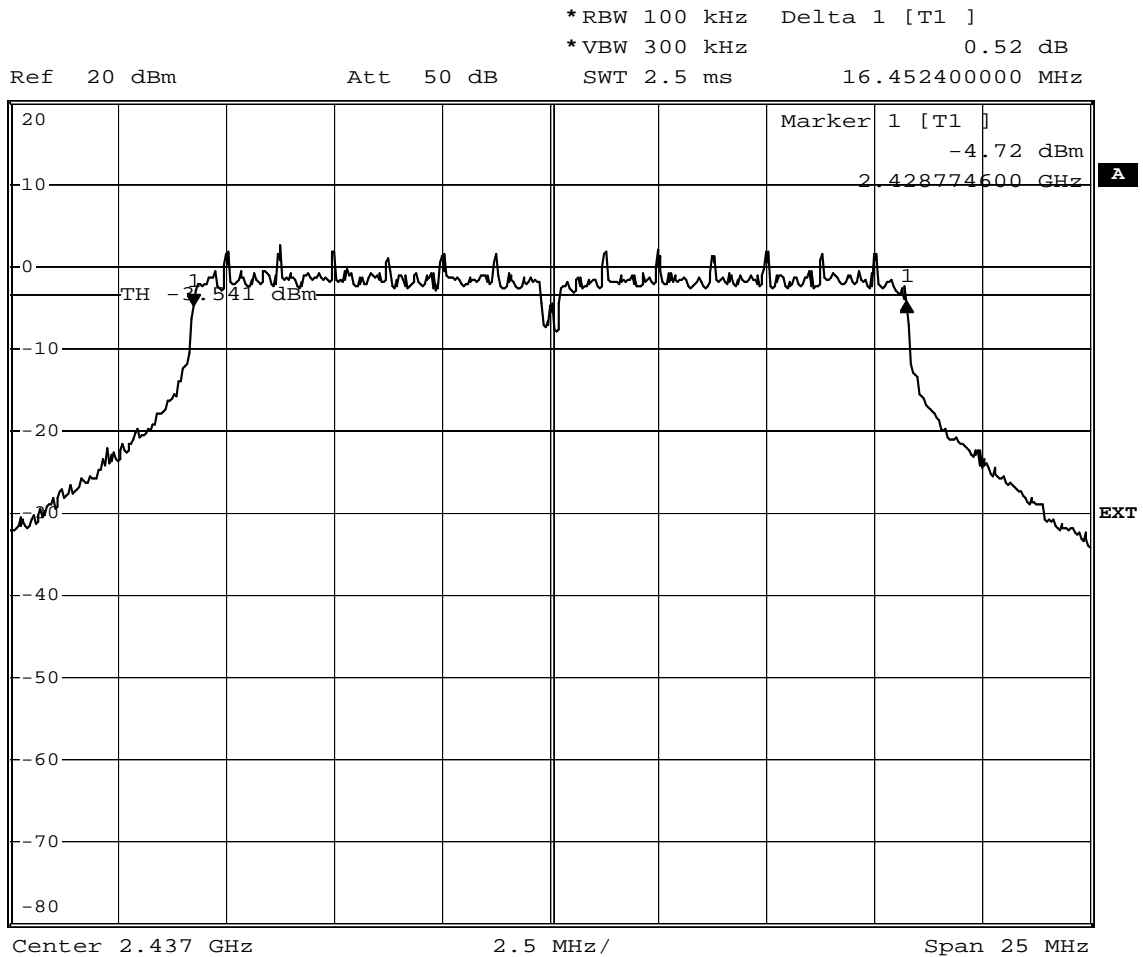
EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (a)2
Comment 1	Minimum 6 dB Bandwidth
Comment 2	Channel : 2412 MHz
Comment 3	setup OFDM



Comment: 6 dB bandwidth: 16454 KHz > 500 KHz; verdict: PASS  
Date: 15.SEP.2010 14:55:49

**FCC part 15.247 (a)2  
Minimum 6 dB Bandwidth**

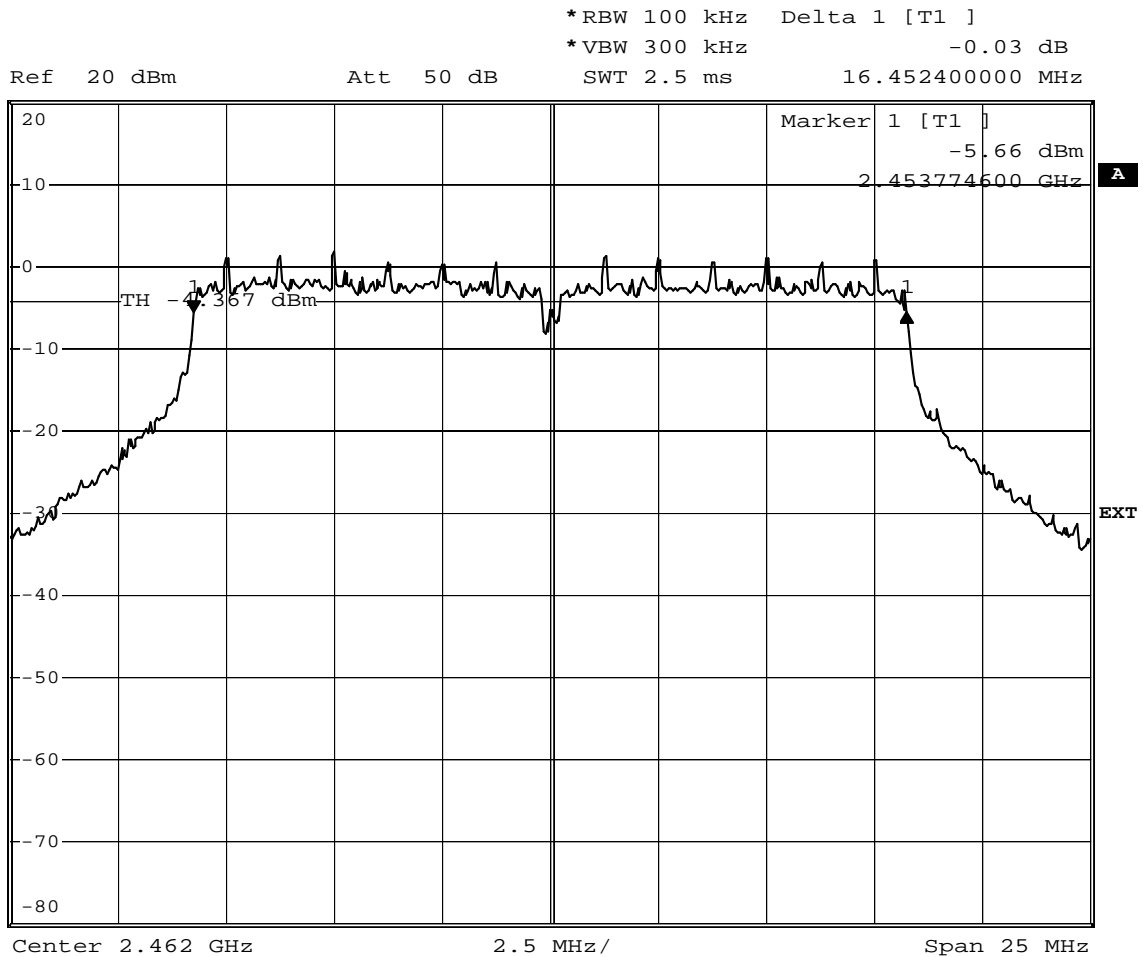
EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (a)2
Comment 1	Minimum 6 dB Bandwidth
Comment 2	Channel : 2437 MHz
Comment 3	setup OFDM



Comment: 6 dB bandwidth: 16452.4 KHz > 500 KHz; verdict: PASS  
Date: 15.SEP.2010 14:53:25

**FCC part 15.247 (a)2  
Minimum 6 dB Bandwidth**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (a)2
Comment 1	Minimum 6 dB Bandwidth
Comment 2	Channel : 2462 MHz
Comment 3	setup OFDM



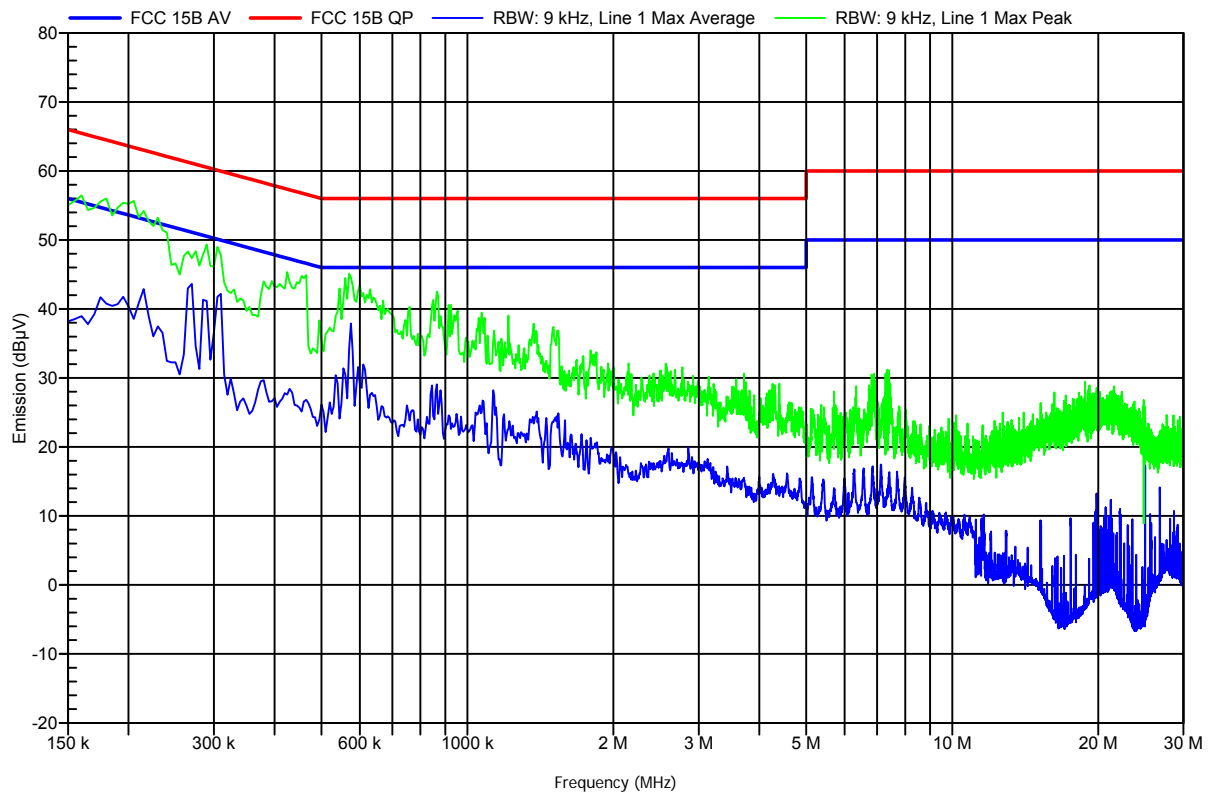
Comment: 6 dB bandwidth: 16452.4 KHz > 500 KHz; verdict: PASS  
 Date: 15.SEP.2010 14:44:42

## Annex D AC Powerline Conducted Emissions

### EMI voltage test in the ac-mains according to FCC 15C

Order number: G0M21008-3606

Manufacturer: lesswire AG  
 EUT Name: WiBear-I, AN00K59744  
 Model: AN00960055  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Klein  
 Test Conditions: Tnom: 23°C, Unom: 120VAC  
 LISN: ESH2-Z5 L  
 Mode: powered from notebook  
 Test Date: 03.09.2010  
 Note:

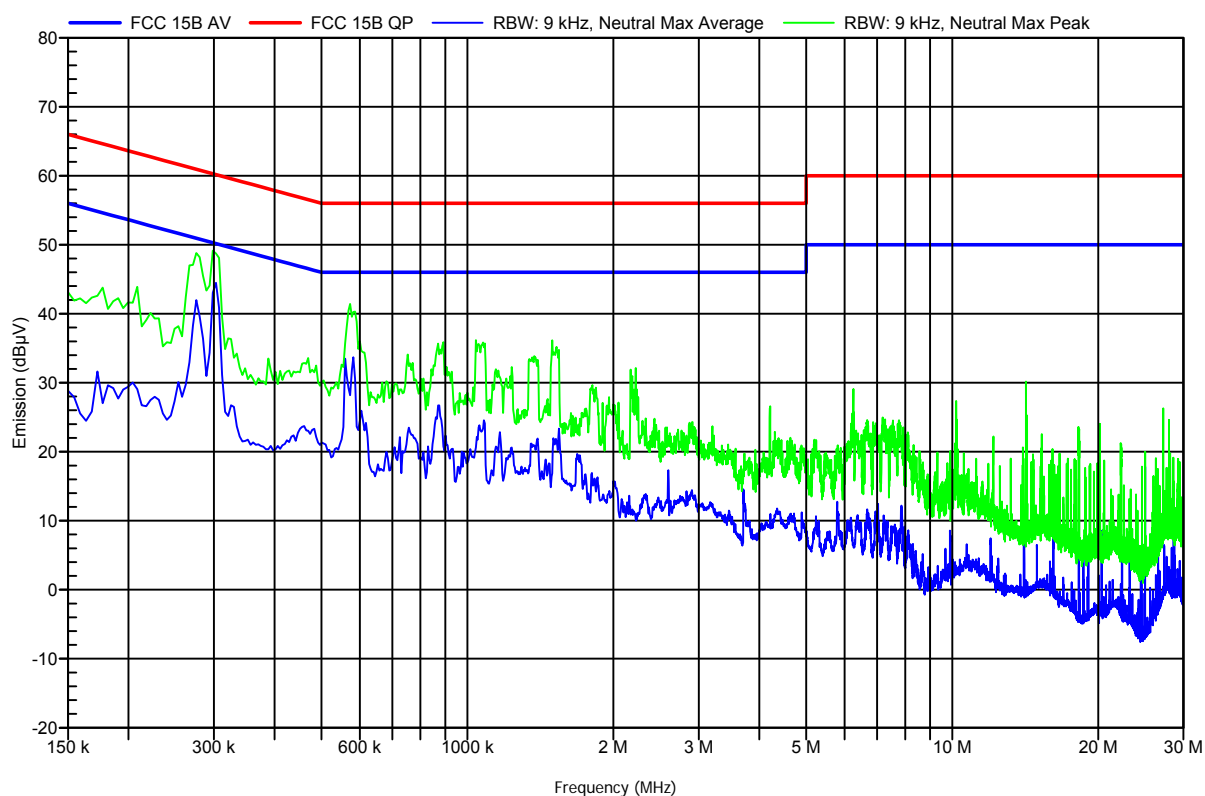




## EMI voltage test in the ac-mains according to FCC 15C

Order number: G0M21008-3606

Manufacturer: lesswire AG  
 EUT Name: WiBear-I, AN00K59744  
 Model: AN00960055  
 Test Site: Eurofins Product Service GmbH  
 Operator: Mr. Klein  
 Test Conditions: Tnom: 23°C, Unom: 120VAC  
 LISN: ESH2-Z5 N  
 Mode: powered from notebook  
 Test Date: 03.09.2010  
 Note:



## Annex E Transmitter conducted spurious emissions

### FCC part 15.247 (d) Spurious Emissions

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2412 MHz
Comment 3	setup DSSS

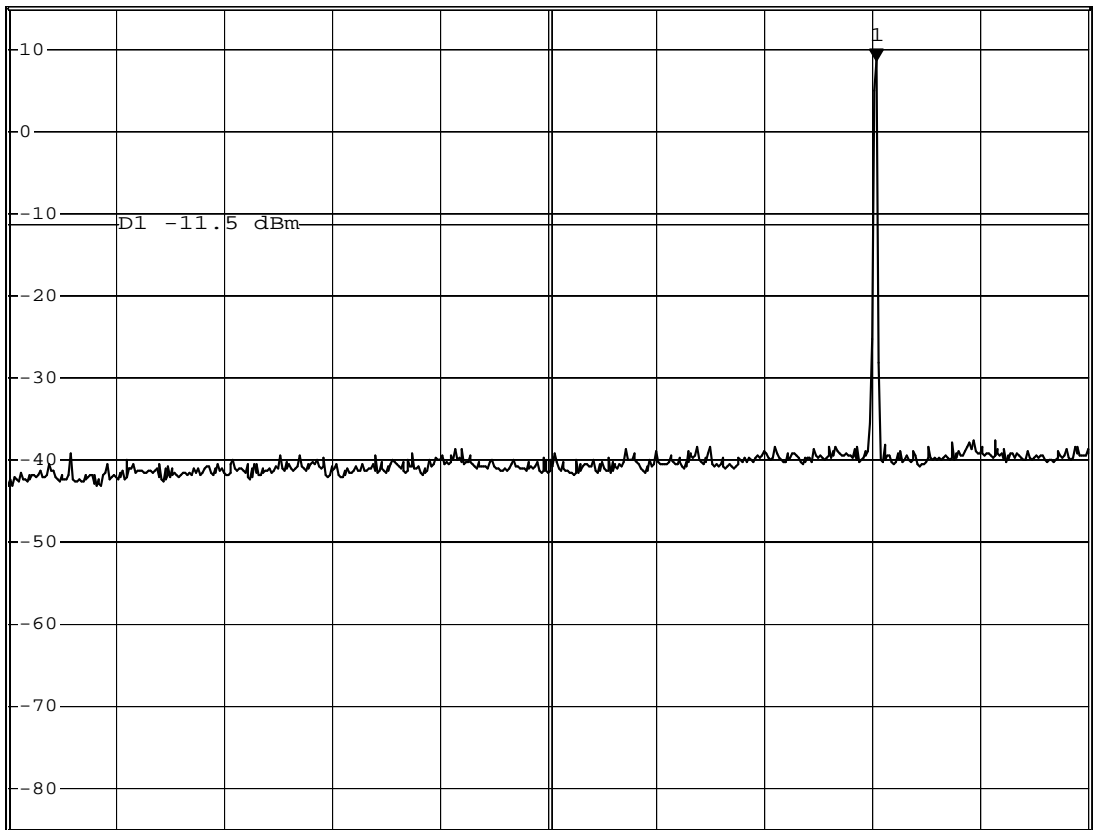


\*RBW 100 kHz Marker 1 [T1 ]  
 \*VBW 300 kHz 8.53 dBm  
 \*SWT 5 s 2.413960000 GHz

Ref 15 dBm

Att 50 dB

1 PK  
VIEW



Start 10 MHz

299 MHz/

Stop 3 GHz

Date: 15.SEP.2010 11:35:47

Test Report No.: G0M21008-3606-C-1

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

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**FCC part 15.247 (d)  
Spurious Emissions**

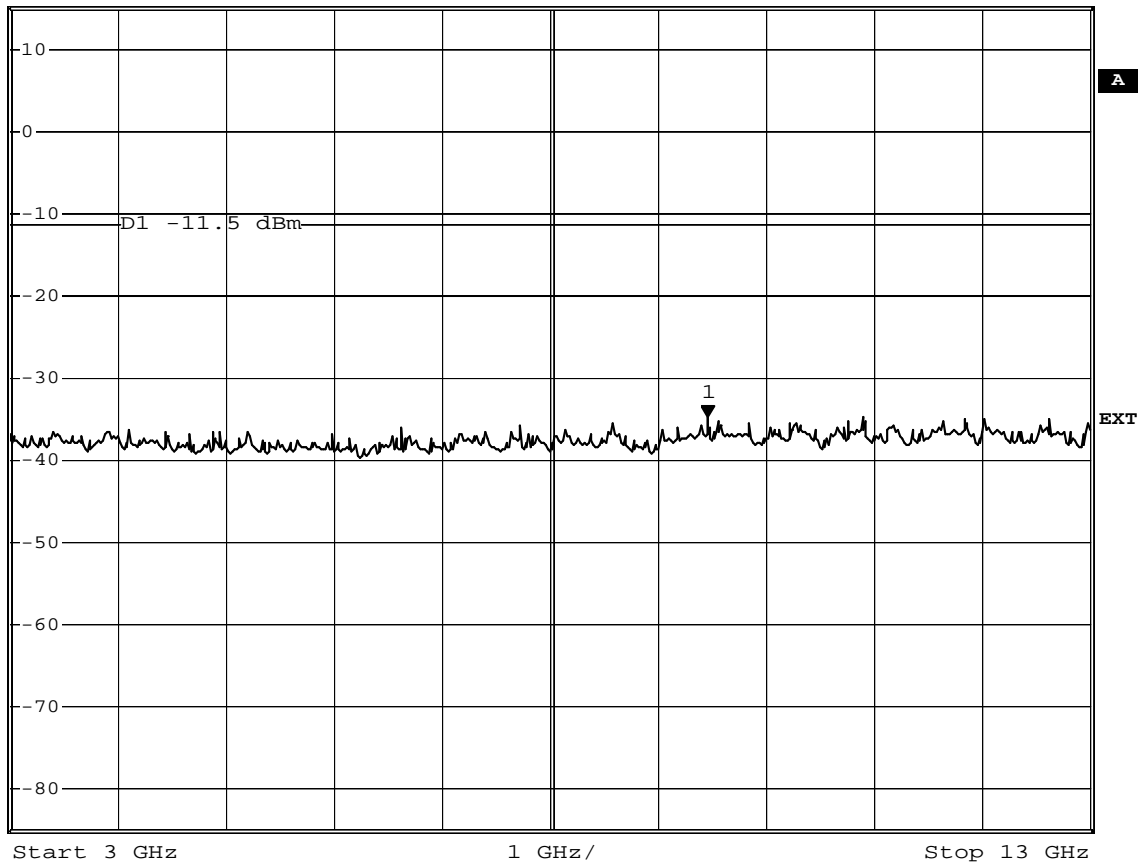
EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2412 MHz
Comment 3	setup DSSS



\*RBW 100 kHz Marker 1 [T1 ]  
 \*VBW 300 kHz -34.66 dBm  
 \*SWT 5 s 9.460000000 GHz

Ref 15 dBm

Att 50 dB

 1 PK  
VIEW


Date: 15.SEP.2010 11:39:06

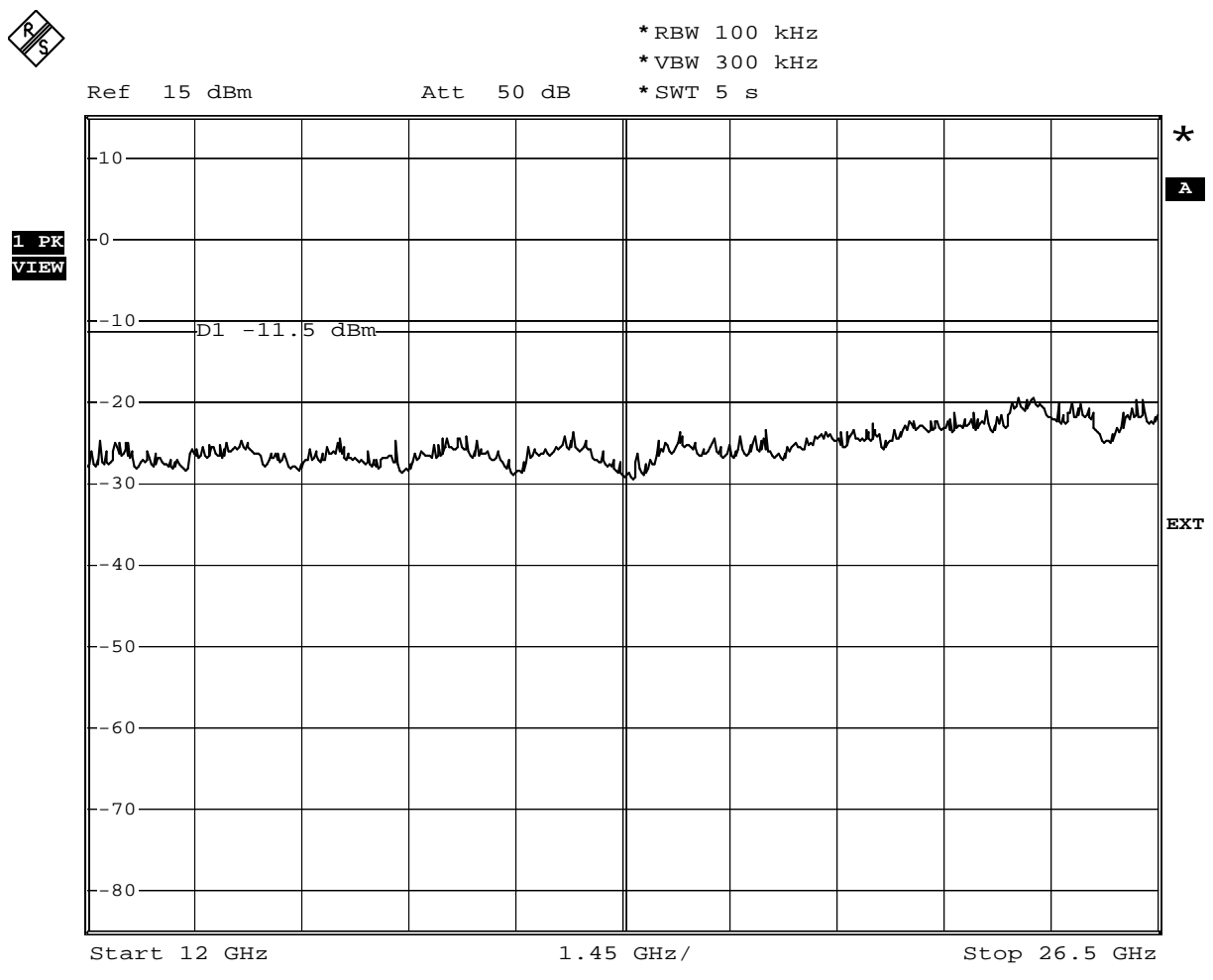
Test Report No.: G0M21008-3606-C-1

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

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**FCC part 15.247 (d)  
Spurious Emissions**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2412 MHz
Comment 3	setup DSSS



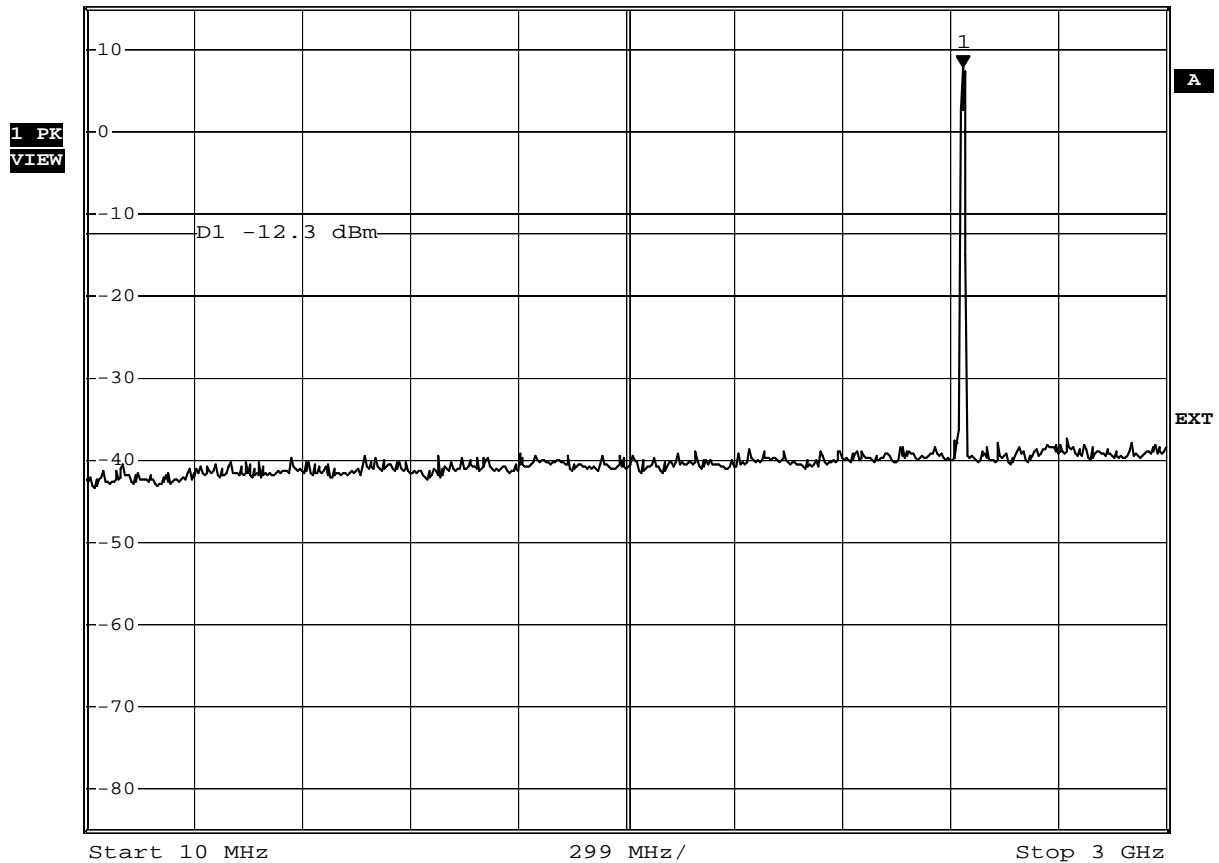
Date: 15.SEP.2010 11:40:15

**FCC part 15.247 (d)  
Spurious Emissions**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2437 MHz
Comment 3	setup DSSS



\*RBW 100 kHz    Marker 1 [T1 ]  
 \*VBW 300 kHz                                7.65 dBm  
 \*SWT 5 s                                        2.437880000 GHz  
 Ref 15 dBm                                Att 50 dB



Date: 15.SEP.2010 11:44:59



**FCC part 15.247 (d)  
Spurious Emissions**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2437 MHz
Comment 3	setup DSSS



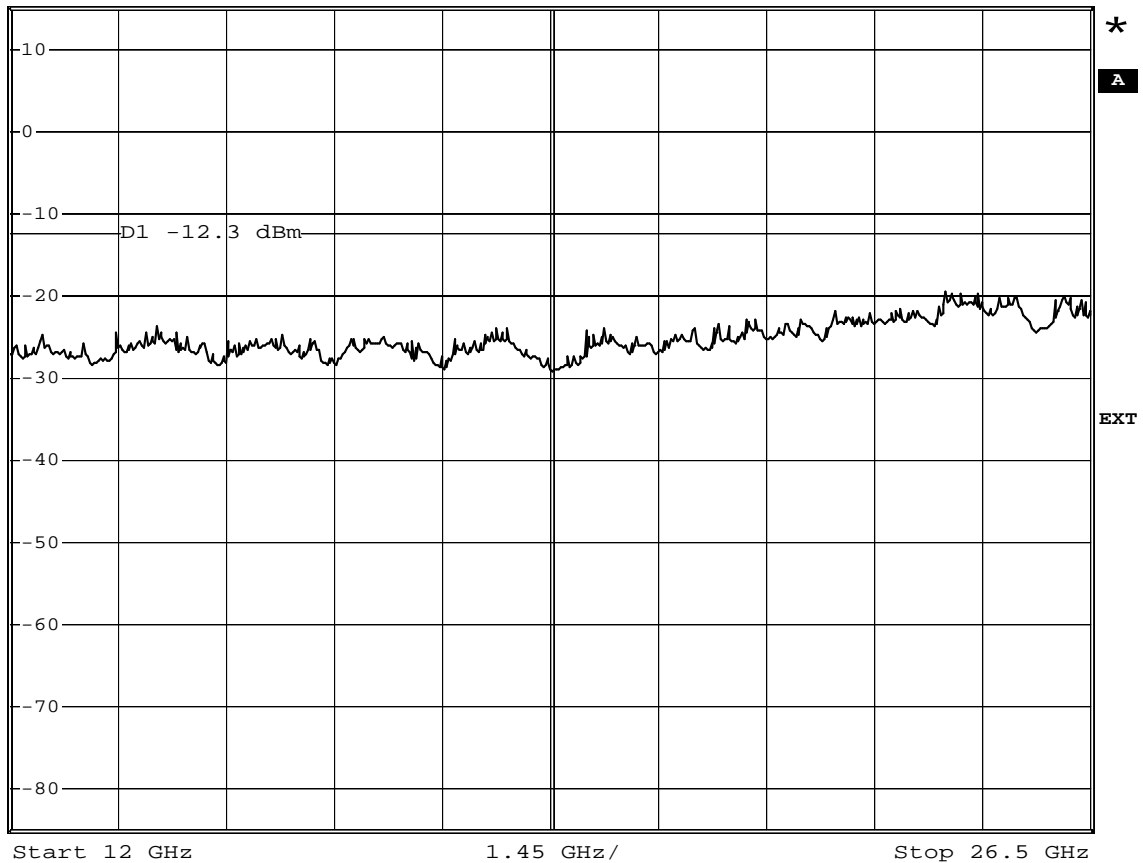
\* RBW 100 kHz

\* VBW 300 kHz

\* SWT 5 s

Ref 15 dBm

Att 50 dB

1 PK  
VIEW

Date: 15.SEP.2010 11:47:00

Test Report No.: G0M21008-3606-C-1

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

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**FCC part 15.247 (d)  
Spurious Emissions**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2462 MHz
Comment 3	setup DSSS

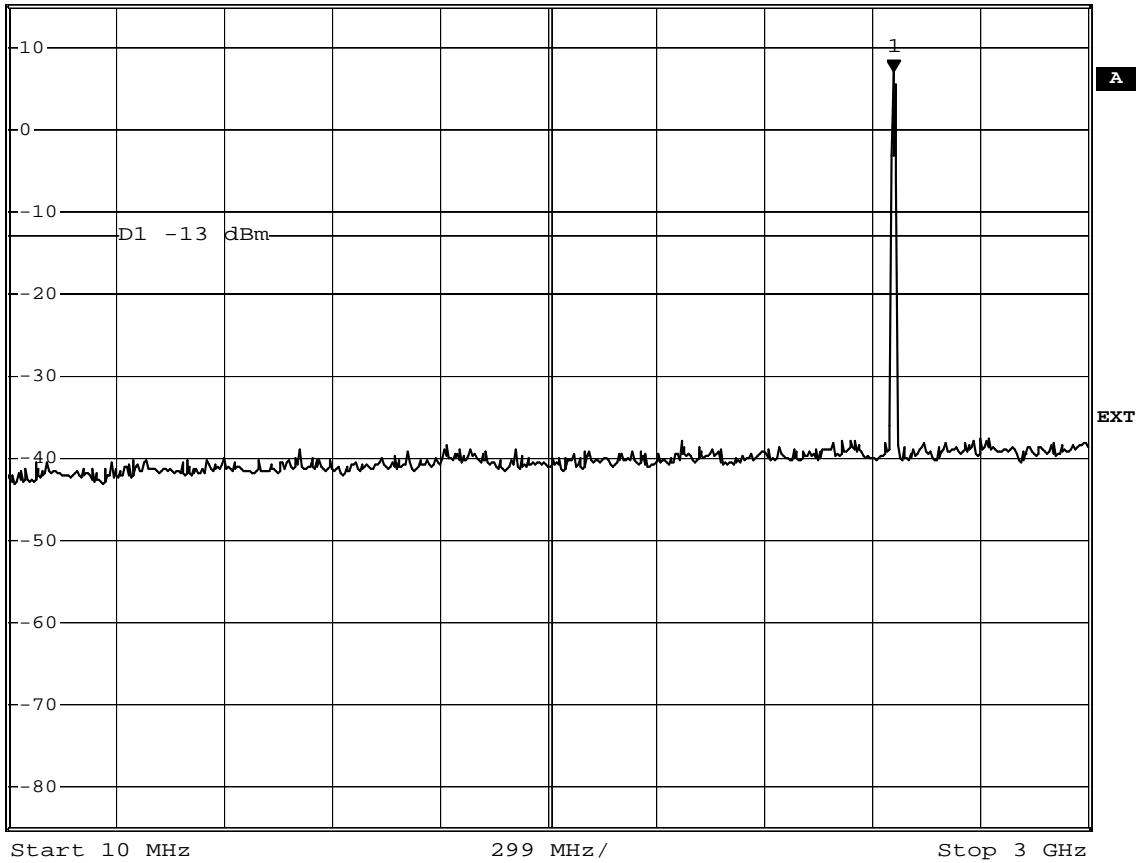


\*RBW 100 kHz Marker 1 [T1 ]  
 \*VBW 300 kHz 7.03 dBm  
 \*SWT 5 s 2.461800000 GHz

Ref 15 dBm

Att 50 dB

1 PK  
VIEW



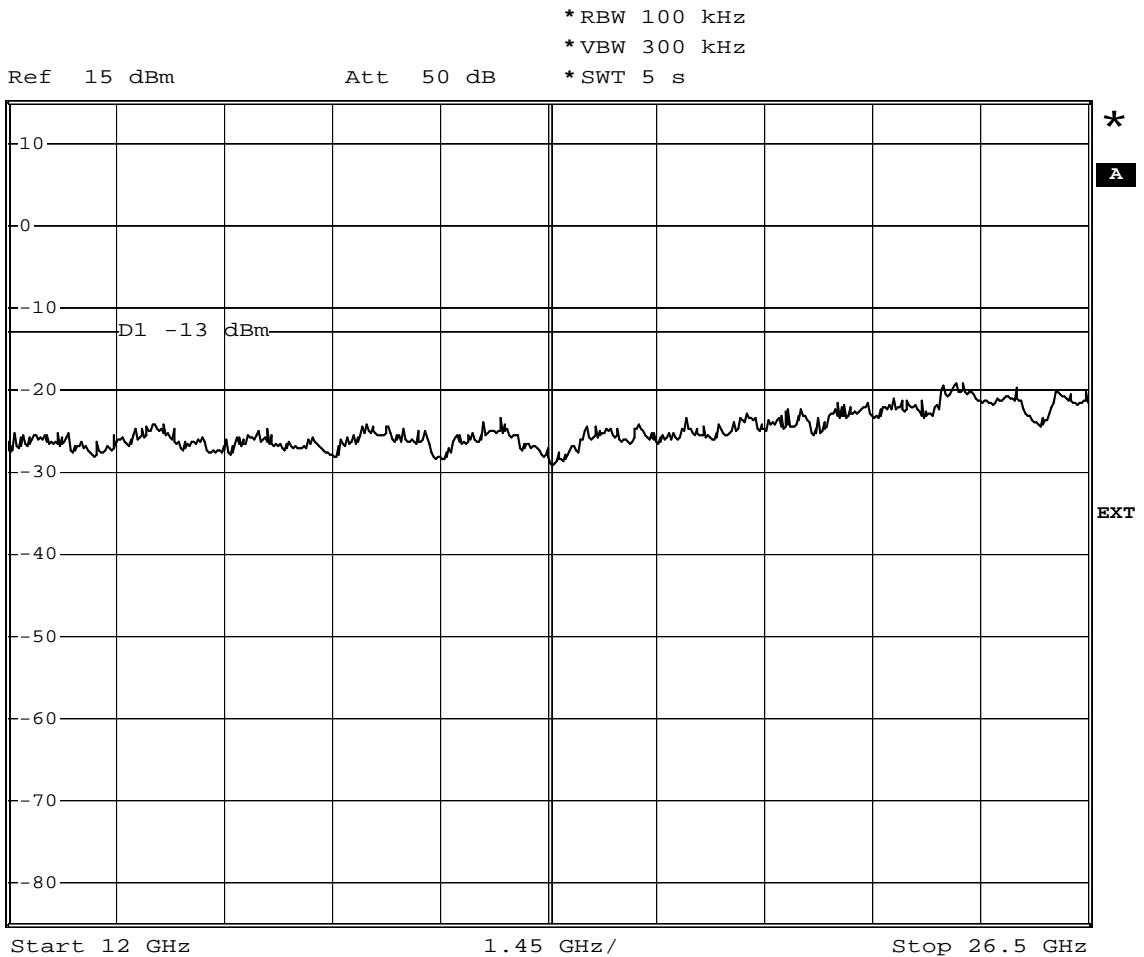
Date: 15.SEP.2010 11:49:34





**FCC part 15.247 (d)**  
**Spurious Emissions**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2462 MHz
Comment 3	setup DSSS



Date: 15.SEP.2010 11:52:39

**FCC part 15.247 (d)  
Spurious Emissions**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2412 MHz
Comment 3	Setup OFDM

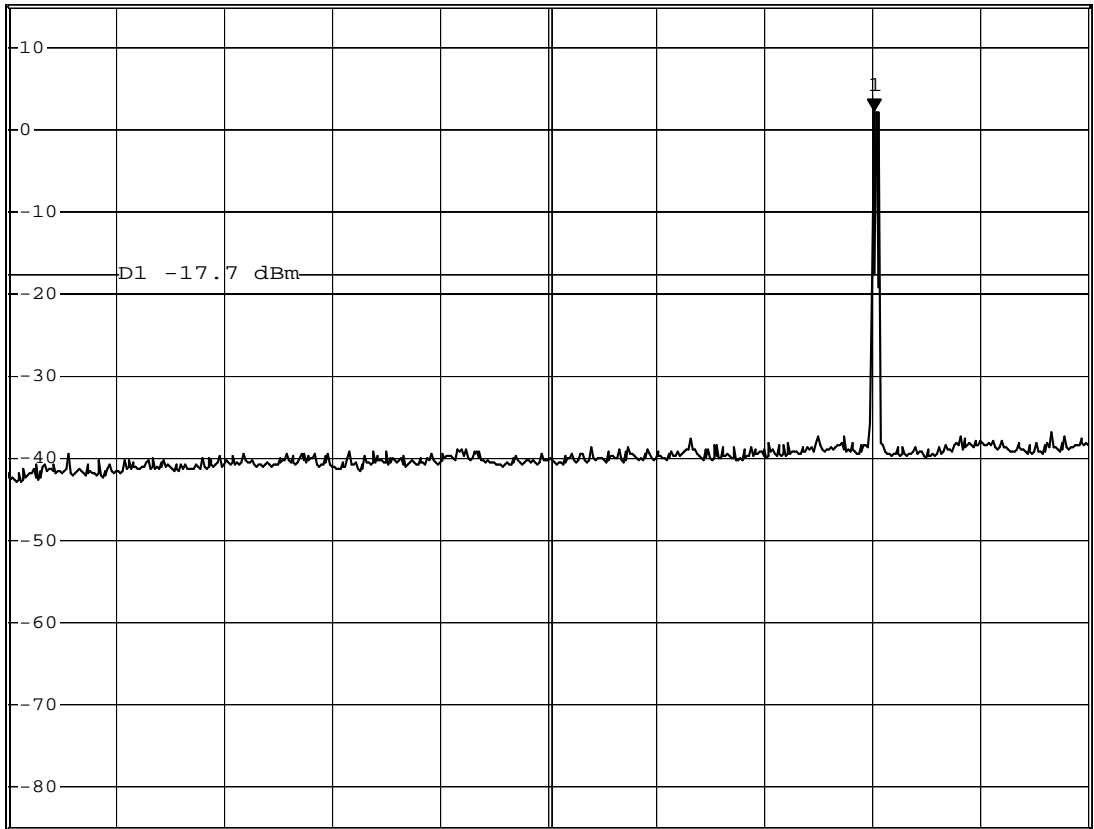


\*RBW 100 kHz    Marker 1 [T1 ]  
 \*VBW 300 kHz                            2.29 dBm  
 \*SWT 5 s                                    2.407980000 GHz

Ref 15 dBm

Att 50 dB

1 PK  
VIEW



Start 10 MHz

299 MHz/

Stop 3 GHz

Date: 15.SEP.2010 15:03:15

Test Report No.: G0M21008-3606-C-1

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

**FCC part 15.247 (d)  
Spurious Emissions**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2412 MHz
Comment 3	Setup OFDM

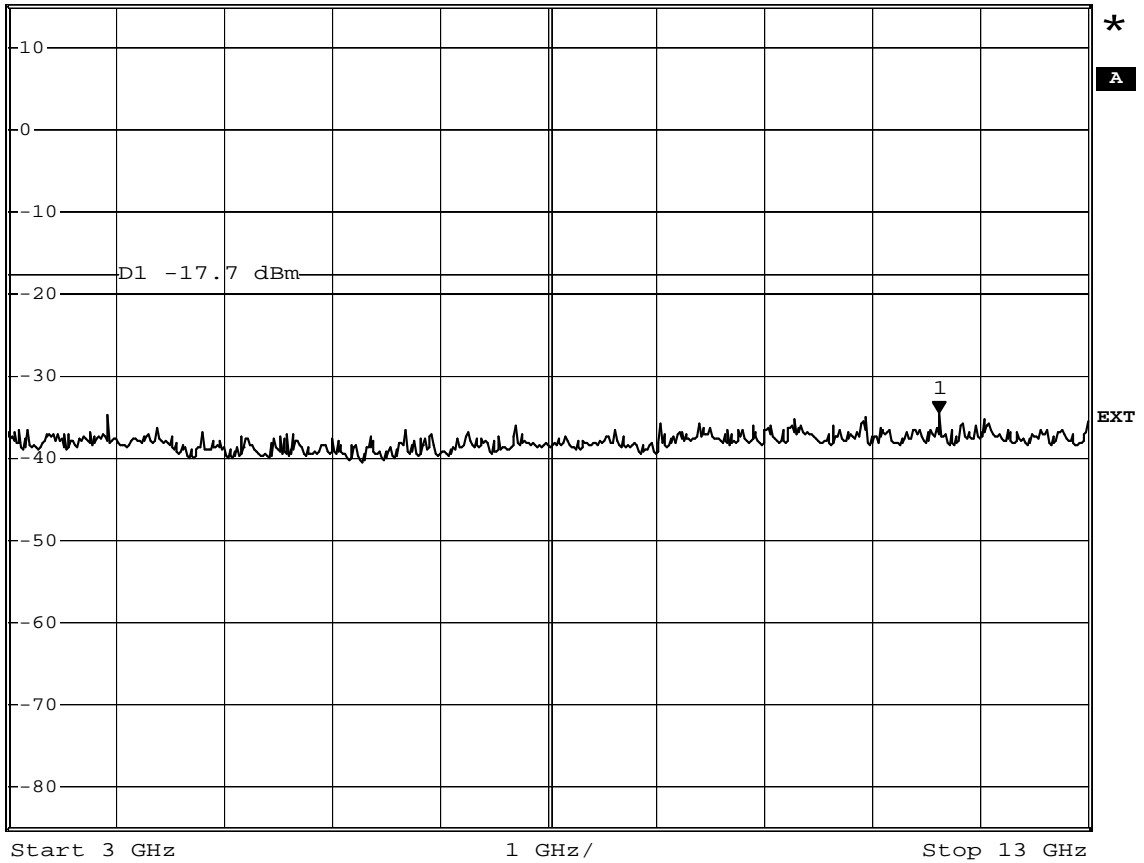


\*RBW 100 kHz Marker 1 [T1 ]  
 \*VBW 300 kHz -34.52 dBm  
 \*SWT 5 s 11.62000000 GHz

Ref 15 dBm

Att 50 dB

1 PK  
VIEW



Date: 15.SEP.2010 15:05:59

## FCC part 15.247 (d) Spurious Emissions

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2412 MHz
Comment 3	Setup OFDM



\*RBW 100 kHz

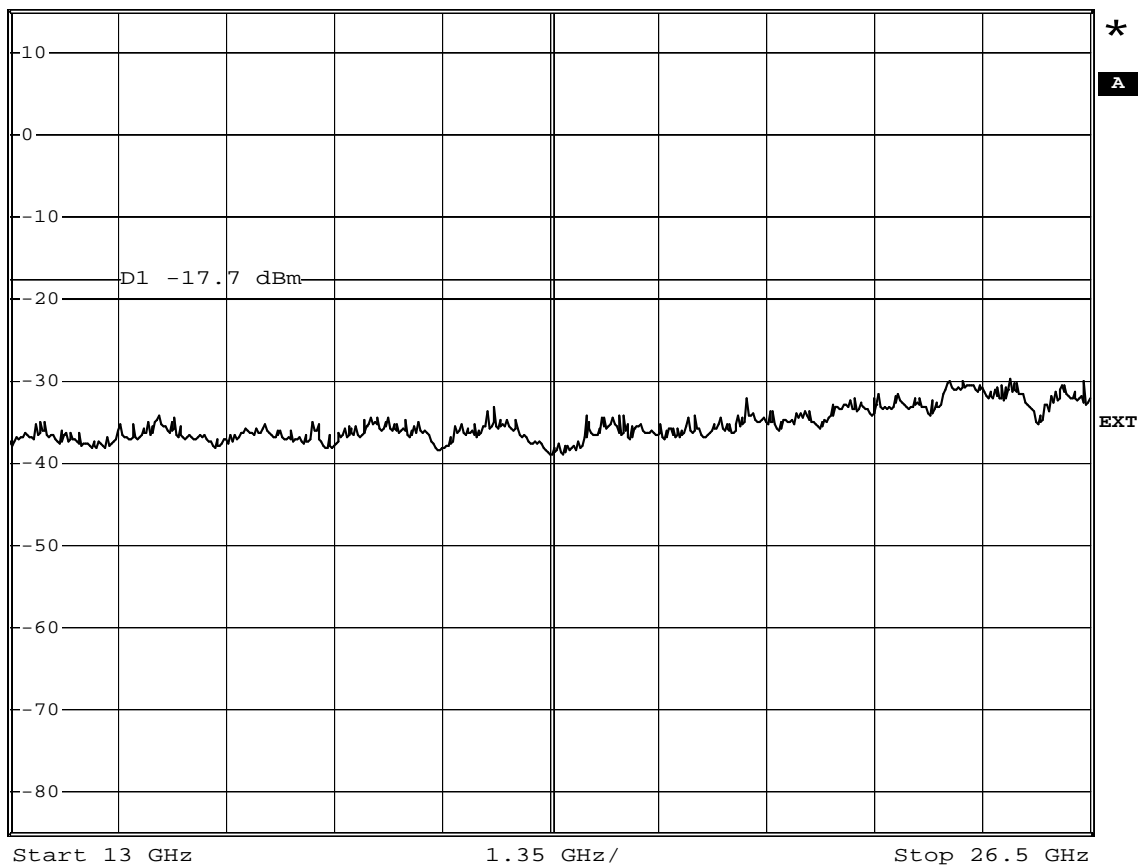
\*VBW 300 kHz

\*SWT 5 s

Ref 15 dBm

\*Att 40 dB

1 PK  
VIEW



Date: 15.SEP.2010 15:08:45

**FCC part 15.247 (d)  
Spurious Emissions**

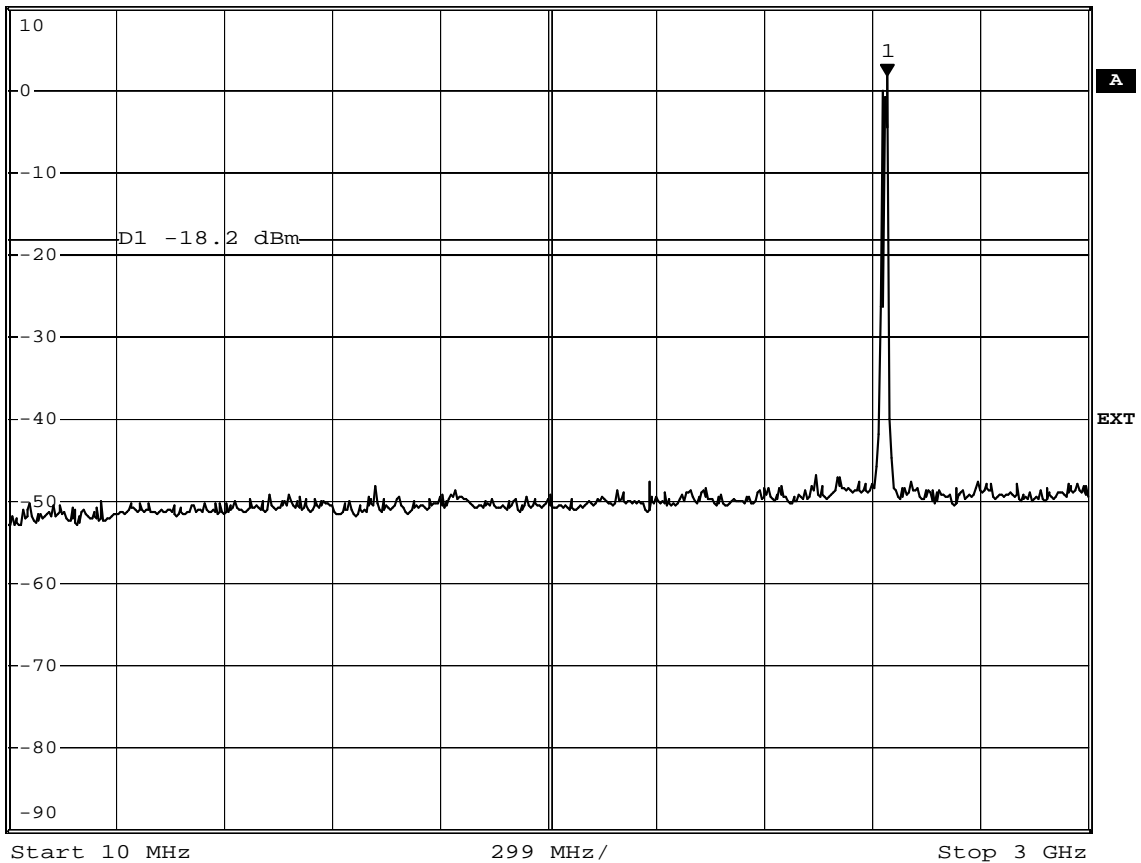
EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2437 MHz
Comment 3	Setup OFDM



\*RBW 100 kHz Marker 1 [T1 ]  
 \*VBW 300 kHz 1.79 dBm  
 \*SWT 5 s 2.443860000 GHz

Ref 10 dBm

Att 40 dB

**1 PK  
VIEW**


Date: 15.SEP.2010 15:11:50

Test Report No.: G0M21008-3606-C-1

### FCC part 15.247 (d) Spurious Emissions

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2437 MHz
Comment 3	Setup OFDM

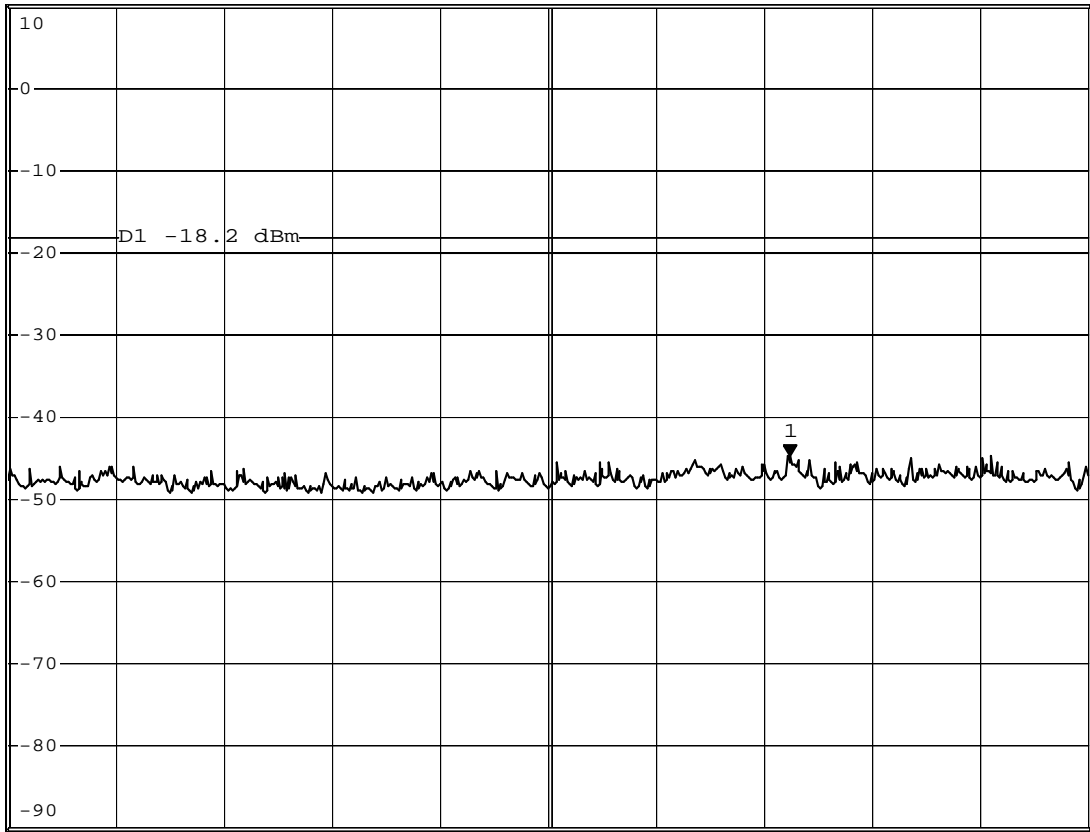


\*RBW 100 kHz Marker 1 [T1 ]  
 \*VBW 300 kHz -44.62 dBm  
 \*SWT 5 s 10.24000000 GHz

Ref 10 dBm

Att 40 dB

1 PK  
VIEW



Start 3 GHz

1 GHz/

Stop 13 GHz

Date: 15.SEP.2010 15:12:41

**FCC part 15.247 (d)  
Spurious Emissions**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2437 MHz
Comment 3	Setup OFDM

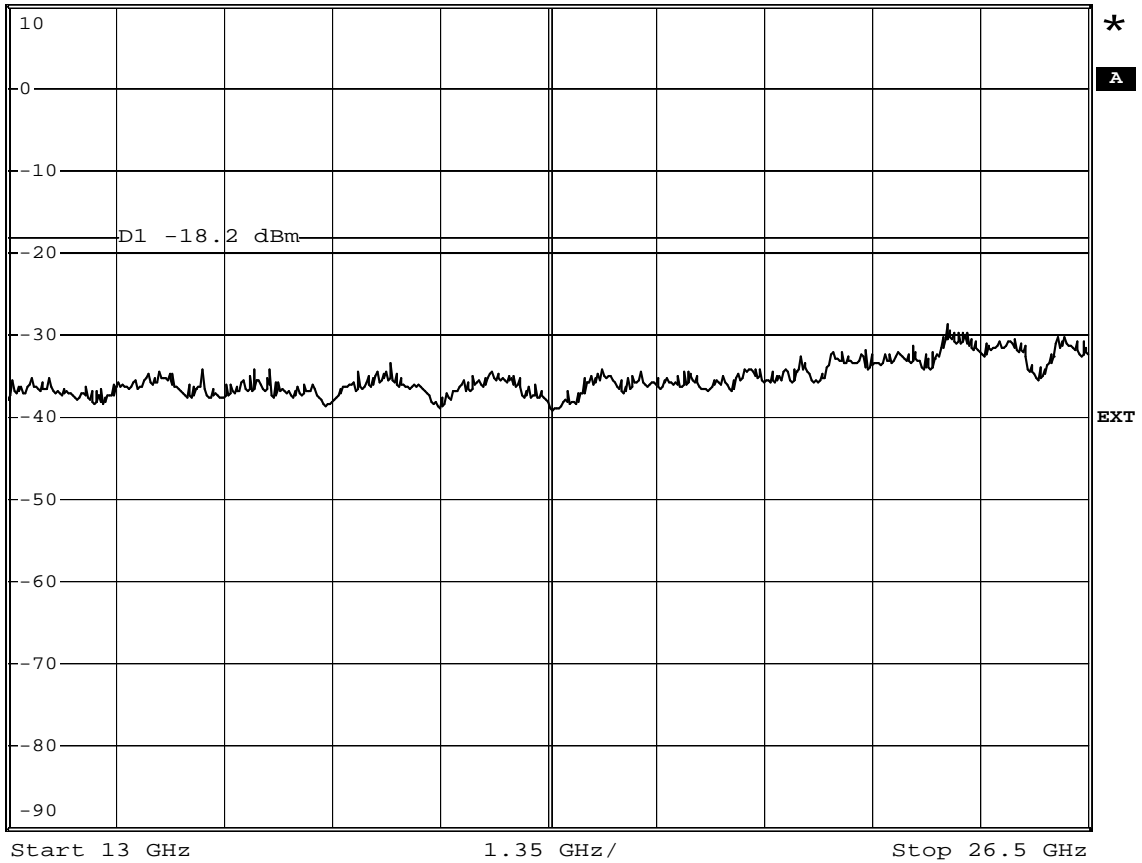


\*RBW 100 kHz  
\*VBW 300 kHz  
\*SWT 5 s

Ref 10 dBm

Att 40 dB

1 PK  
VIEW



Date: 15.SEP.2010 15:13:29

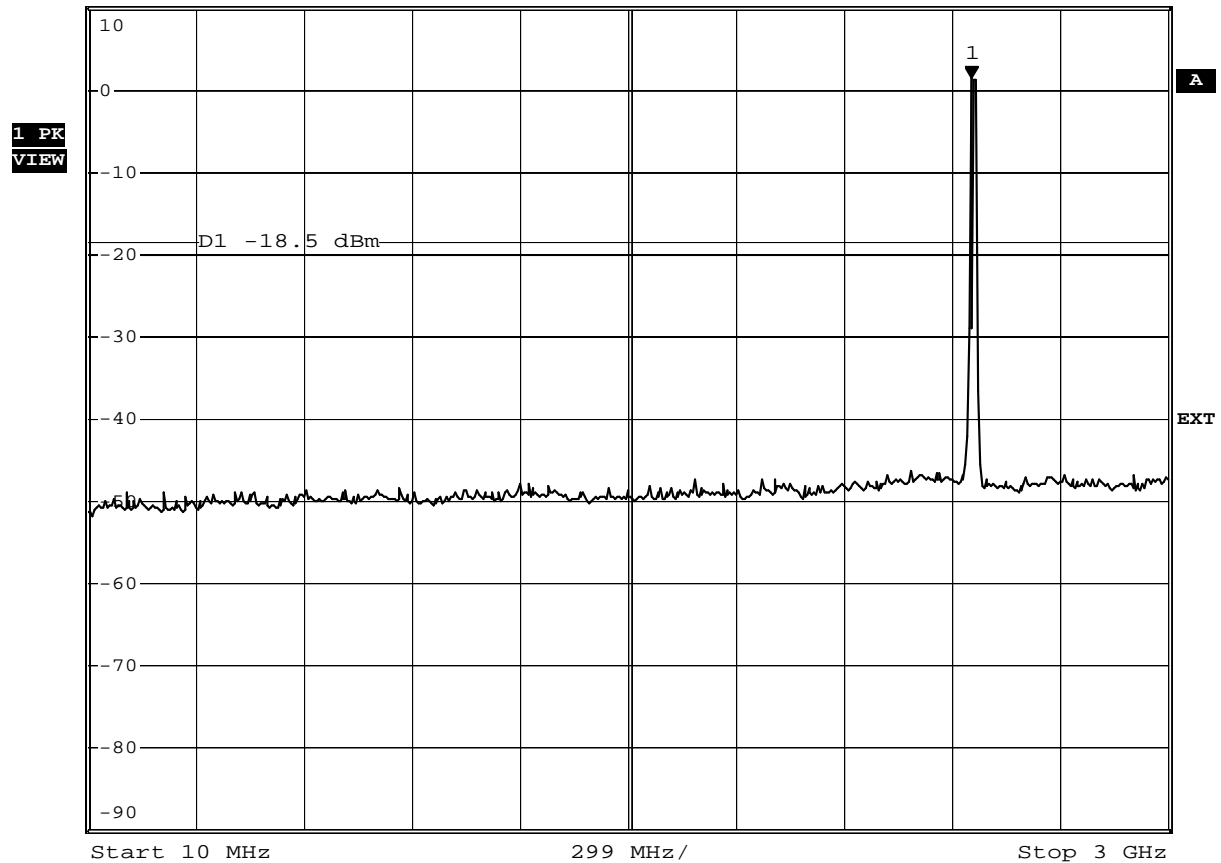


**FCC part 15.247 (d)  
Spurious Emissions**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2462 MHz
Comment 3	Setup OFDM



\*RBW 100 kHz    Marker 1 [T1 ]  
 \*VBW 300 kHz                            1.55 dBm  
 \*SWT 5 s                                    2.455820000 GHz  
 Ref 10 dBm                    Att 40 dB



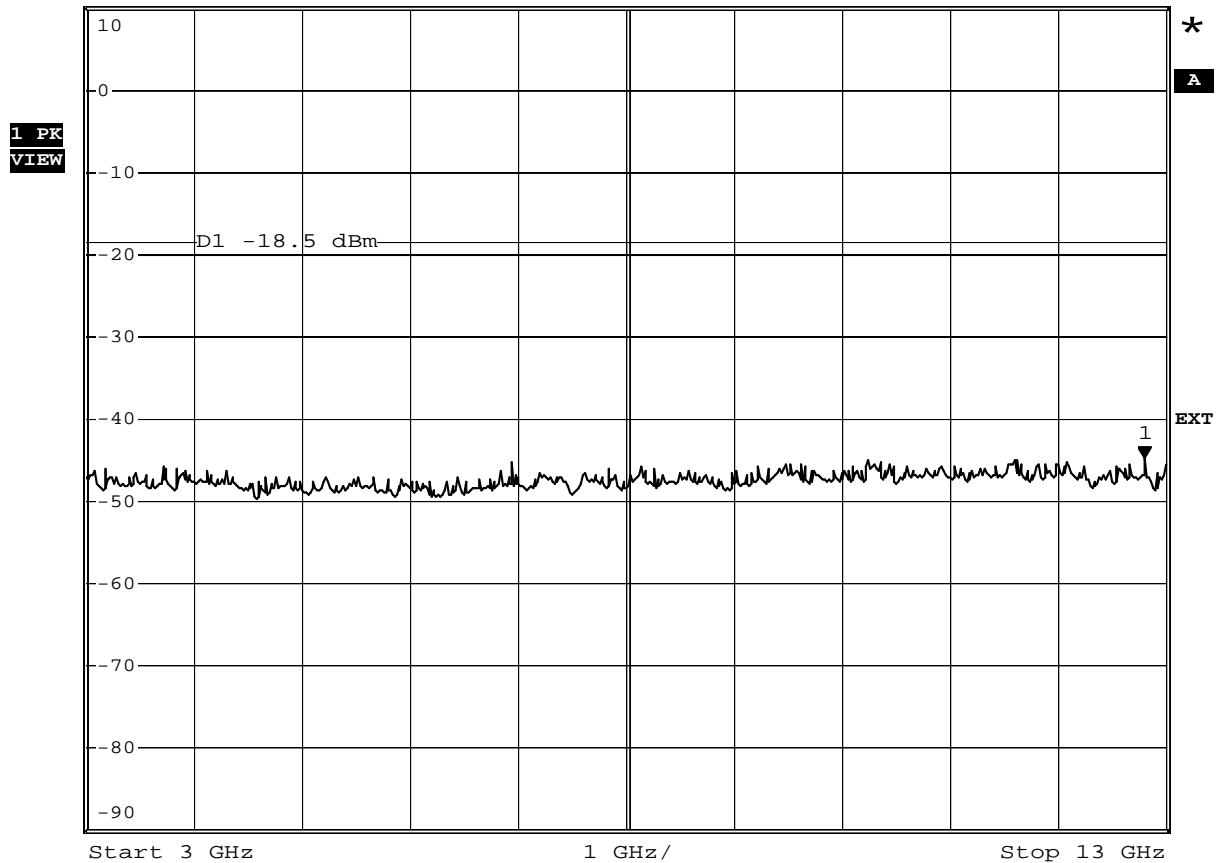
Date: 15.SEP.2010 15:18:47

**FCC part 15.247 (d)  
Spurious Emissions**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2462 MHz
Comment 3	Setup OFDM



Ref	10 dBm	Att	40 dB	*RBW 100 kHz	Marker 1 [T1]
				*VBW 300 kHz	-44.68 dBm
				*SWT 5 s	12.80000000 GHz



Date: 15.SEP.2010 15:20:33

Test Report No.: G0M21008-3606-C-1

**FCC part 15.247 (d)  
Spurious Emissions**

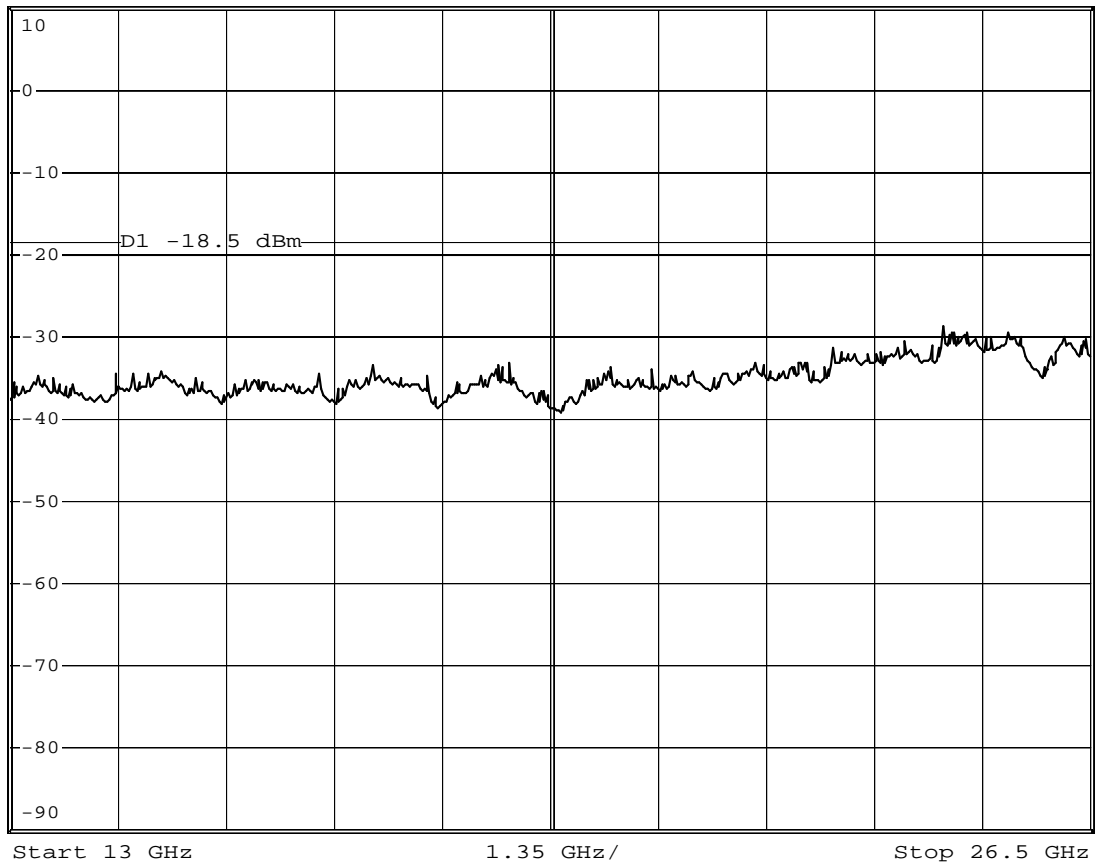
EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15.247 (d)
Comment 1	Spurious Emissions conducted
Comment 2	Channel : 2462 MHz
Comment 3	Setup OFDM



\*RBW 100 kHz  
\*VBW 300 kHz  
\*SWT 5 s

Ref 10 dBm

Att 40 dB



Date: 15.SEP.2010 15:21:30

---

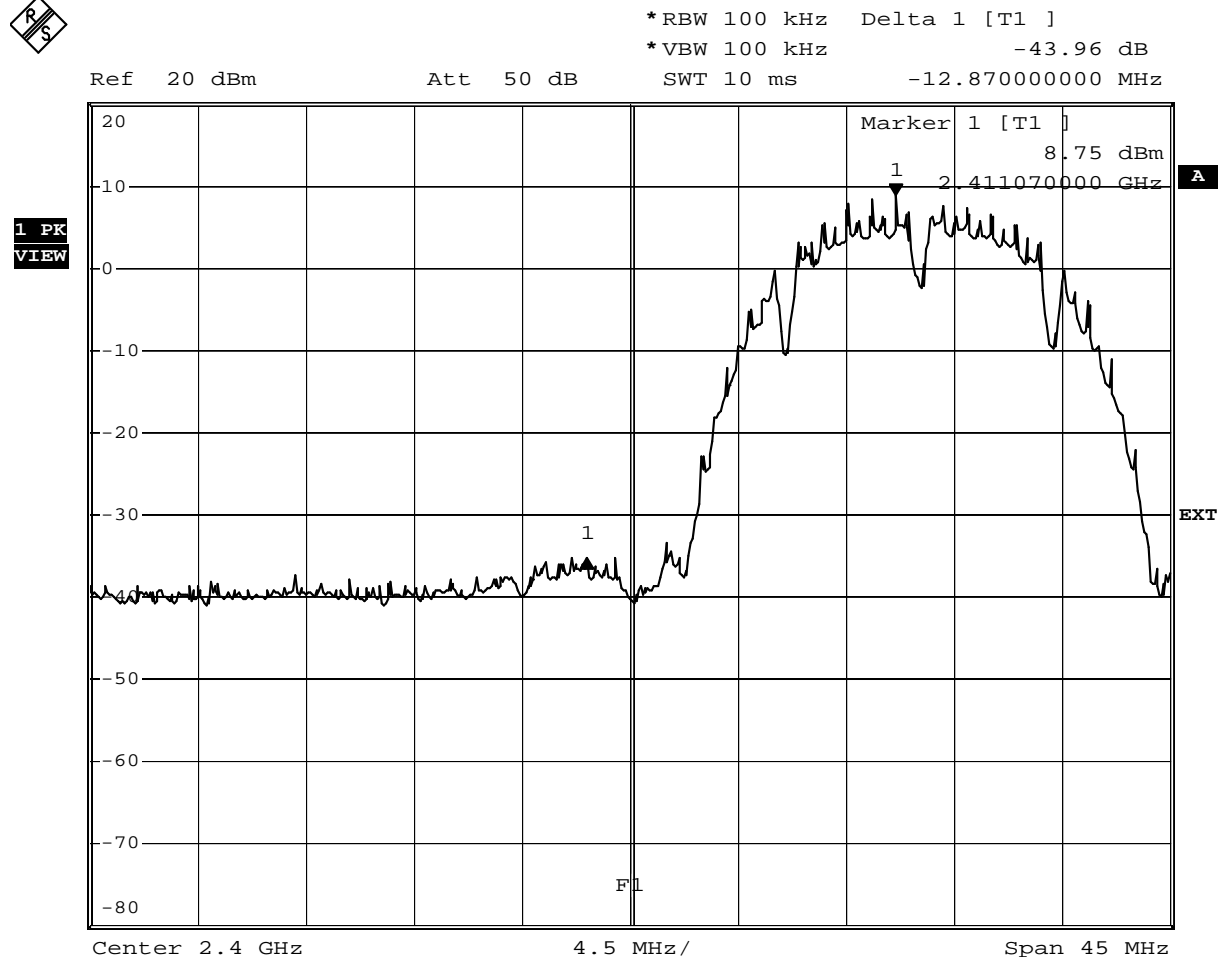
 Test Report No.: G0M21008-3606-C-1

## Annex F Band edge compliance

### FCC part 15.247

#### Band-edge compliance of RF conducted emissions

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
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.: 2412 MHz
Comment 3	setup DSSS

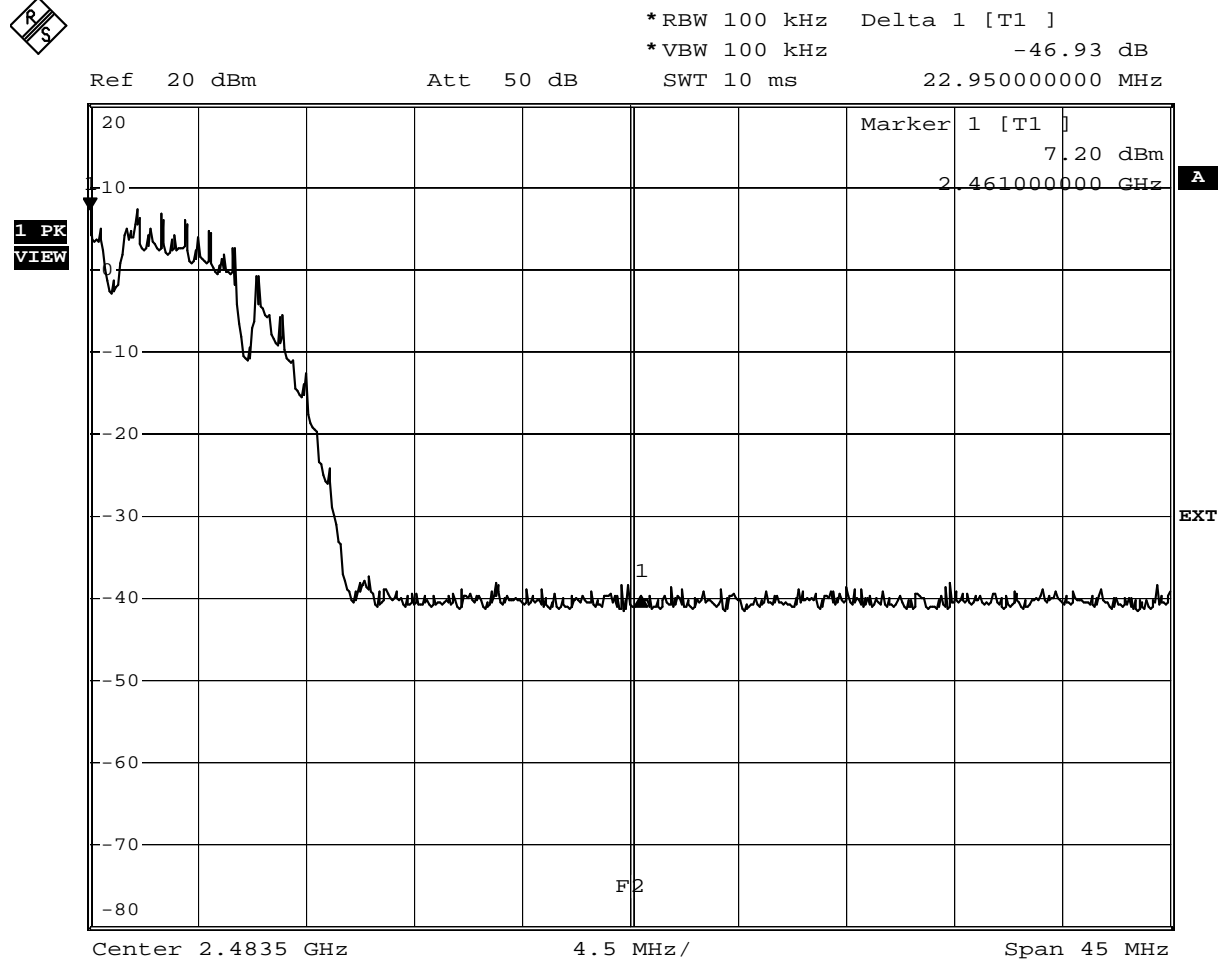


Comment: Limit: Marker Delta value >20 dB; Result: PASS

Date: 15.SEP.2010 13:02:32

**FCC part 15.247  
Band-edge compliance of RF conducted emissions**

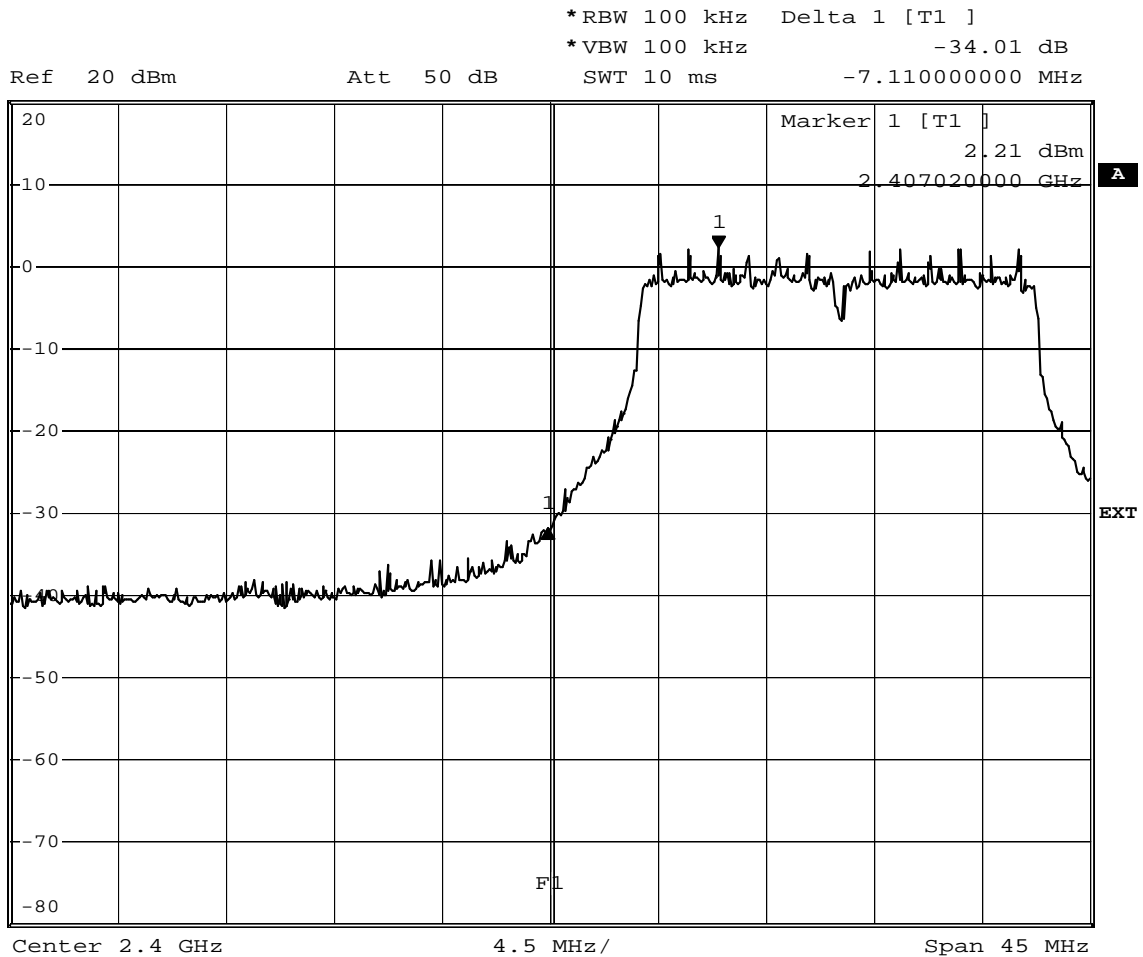
EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
Temperature / Voltage	25°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	FCC part 15 section 247(c)
Comment 1	Band-edge compliance
Comment 2	Channel.: 2462 MHz
Comment 3	setup DSSS



Comment: Limit: Marker Delta value >20 dB; Result: PASS  
 Date: 15.SEP.2010 12:59:18

**FCC part 15.247  
Band-edge compliance of RF conducted emissions**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
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.: 2412 MHz
Comment 3	setup OFDM

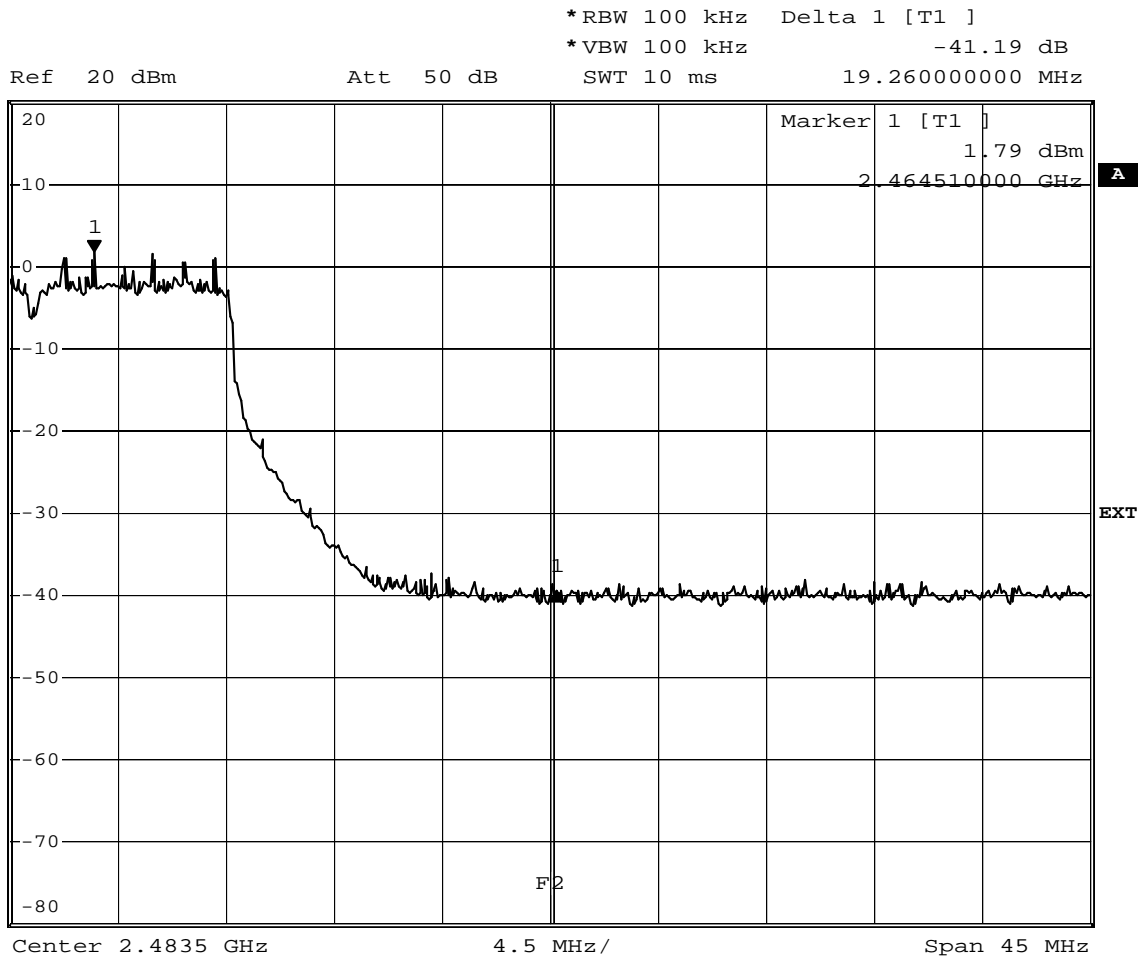


Date: 15.SEP.2010 13:06:38

Test Report No.: G0M21008-3606-C-1

**FCC part 15.247**  
**Band-edge compliance of RF conducted emissions**

EUT	Component
Model	WiBear-I, AN00K59744
Approval Holder	lesswire AG / Ord.: G0M21008-3606
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.: 2462 MHz
Comment 3	setup OFDM



Comment: Limit: Marker Delta value >20 dB; Result: PASS  
 Date: 15.SEP.2010 13:08:18

## **Annex G Transmitter radiated spurious emissions**

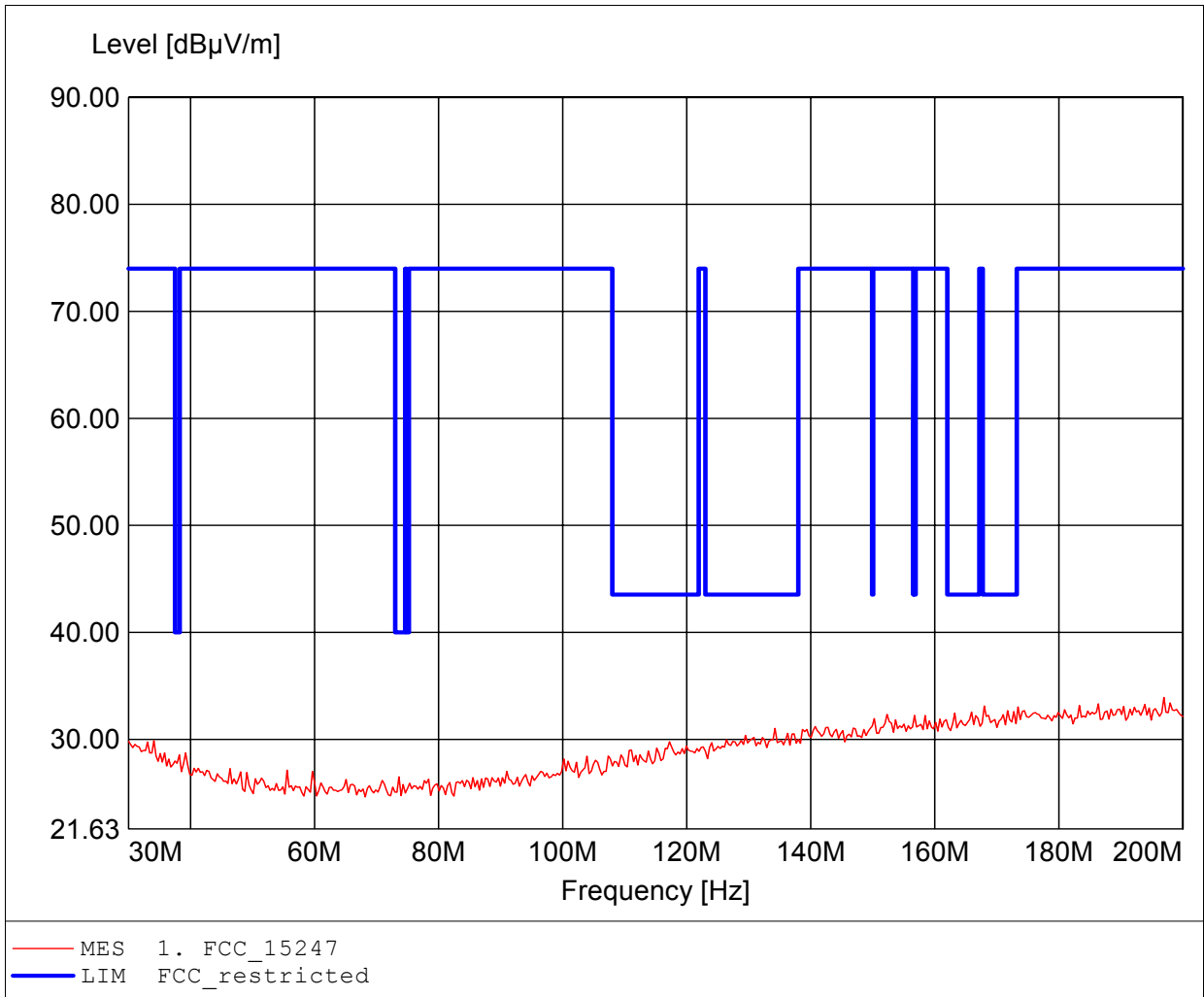
Only plot containing significant spurious emission are given in this annex.



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

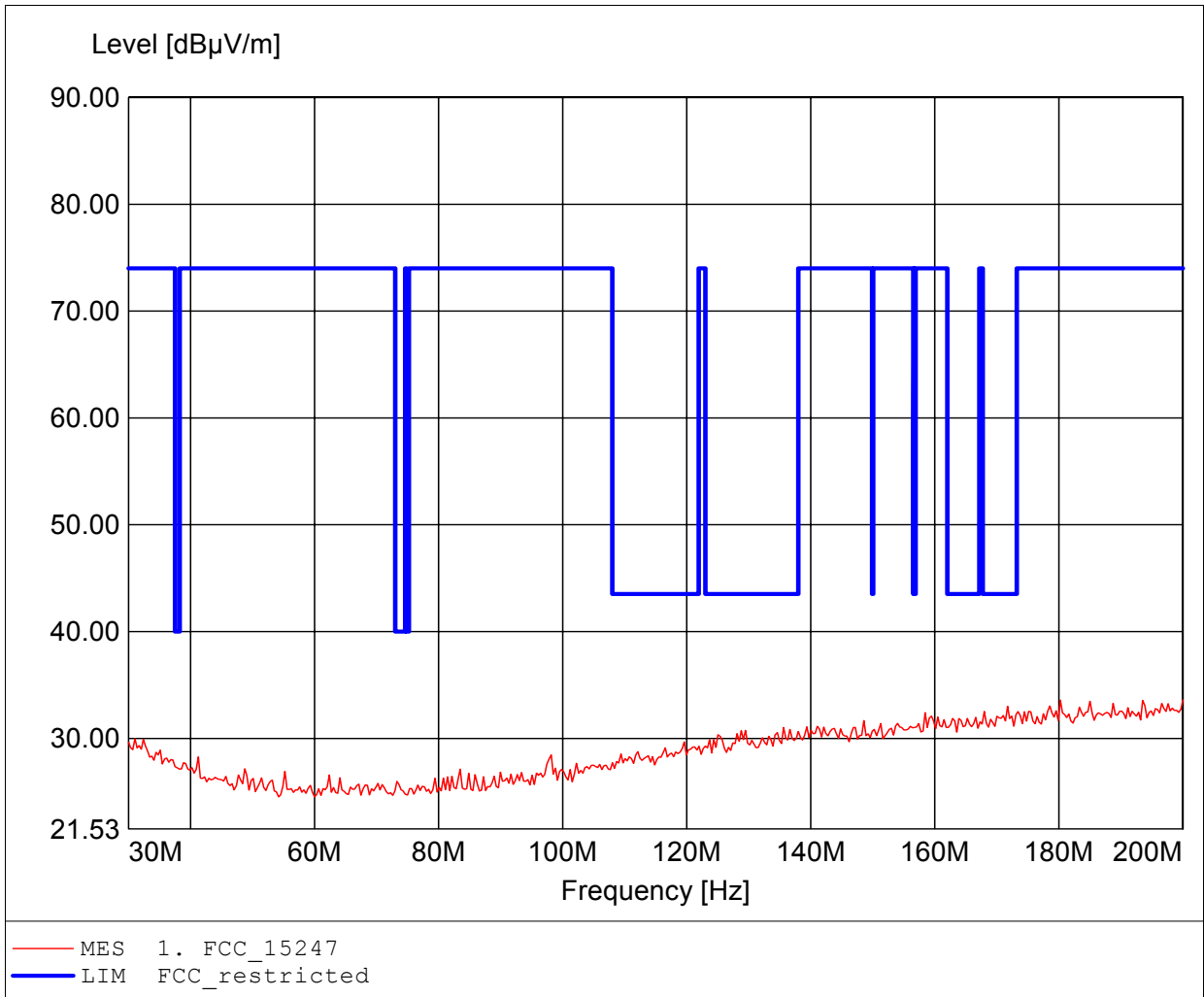
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247  
Comment 1: Dist.: 3m, Ant.: HK 116  
Comment 2: Freq: 196.934MHz, Emax: 33.92dBµV/m, RBW: 100kHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

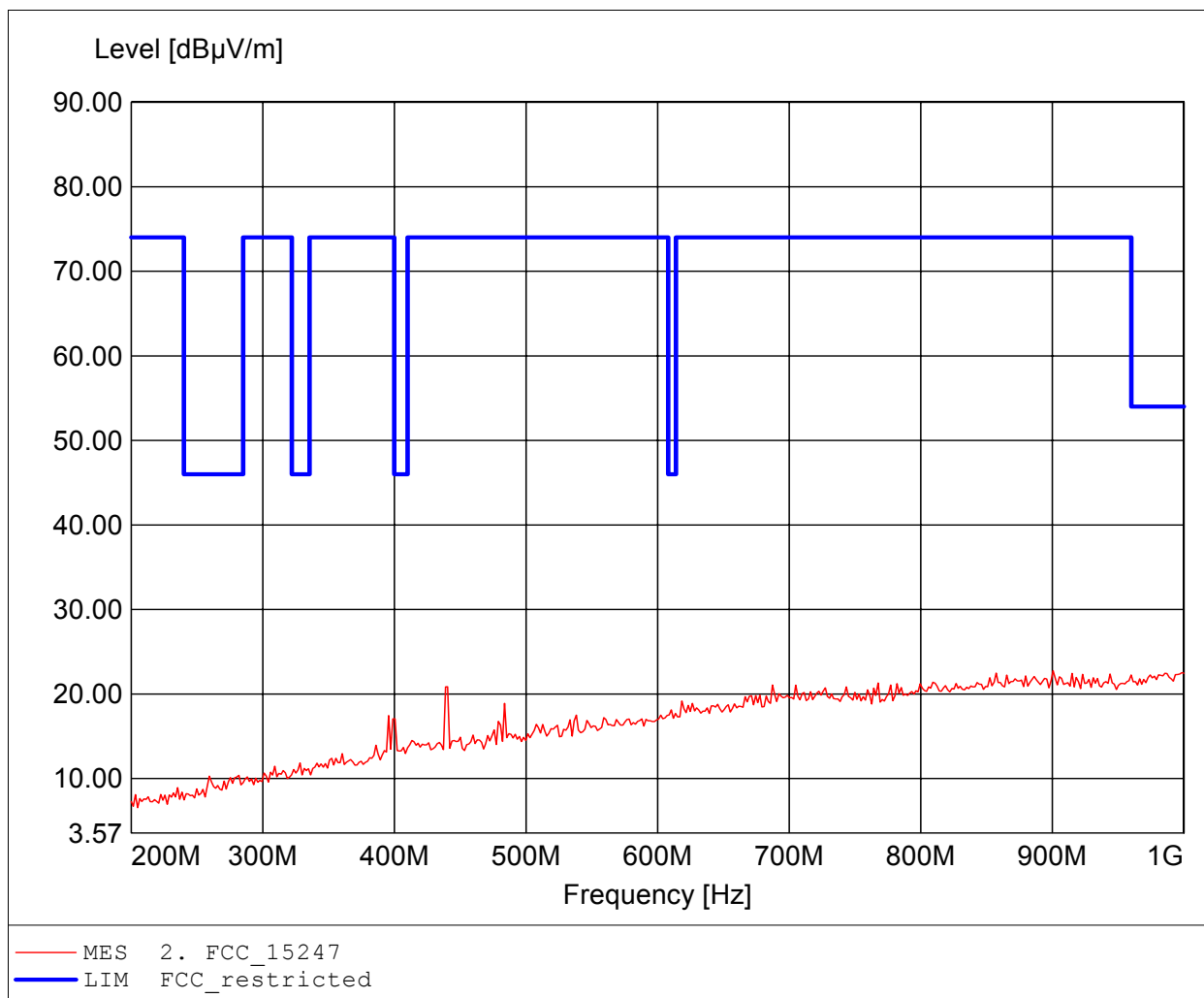
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (8dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247  
Comment 1: Dist.: 3m, Ant.: HK 116  
Comment 2: Freq: 200.000MHz, Emax: 33.59dBµV/m, RBW: 100kHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

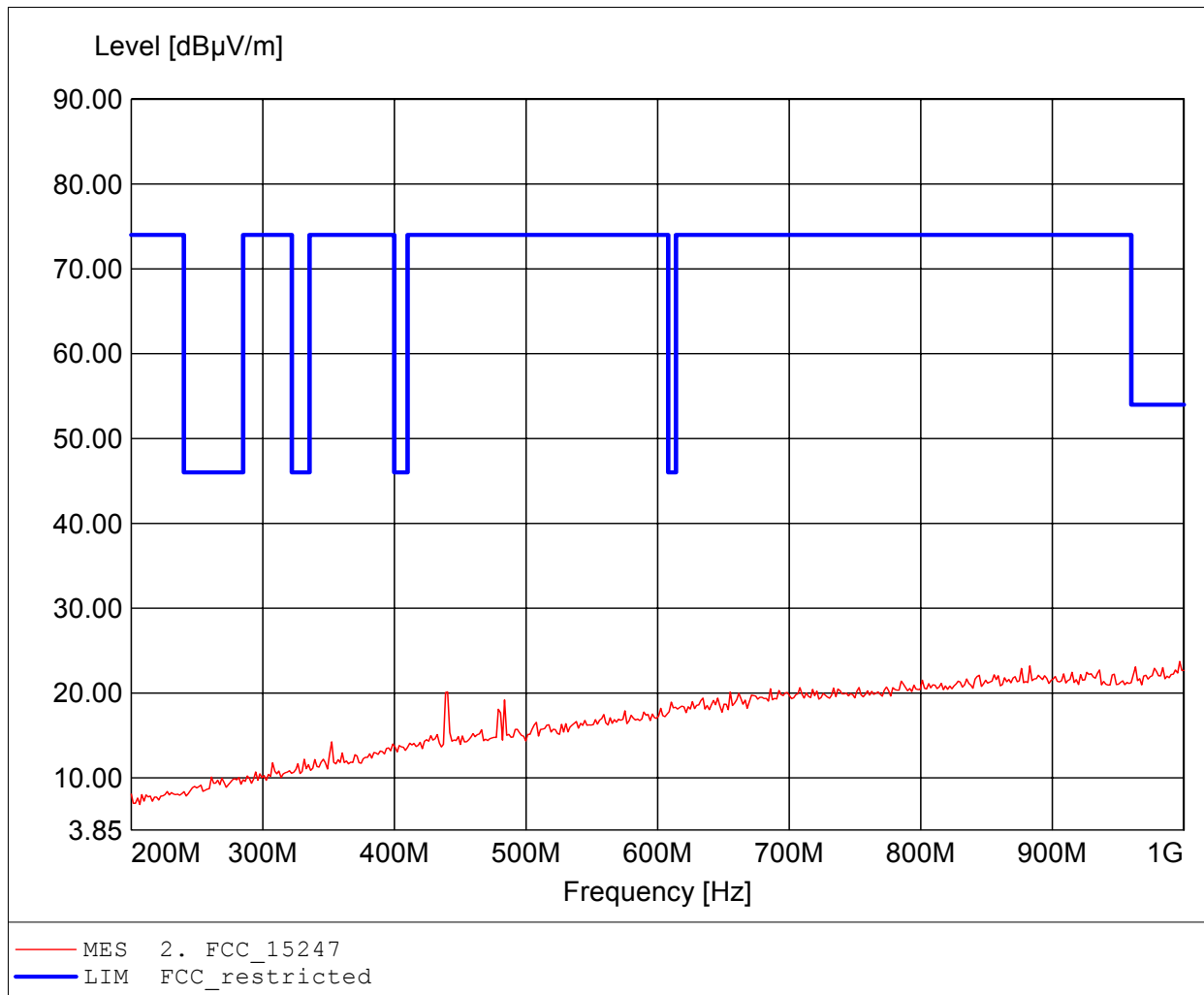
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (8dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247  
Comment 1: Dist.: 3m, Ant.: HL 223, amplif.  
Comment 2: Freq: 900.601MHz, Emax: 22.76dBµV/m, RBW: 100kHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

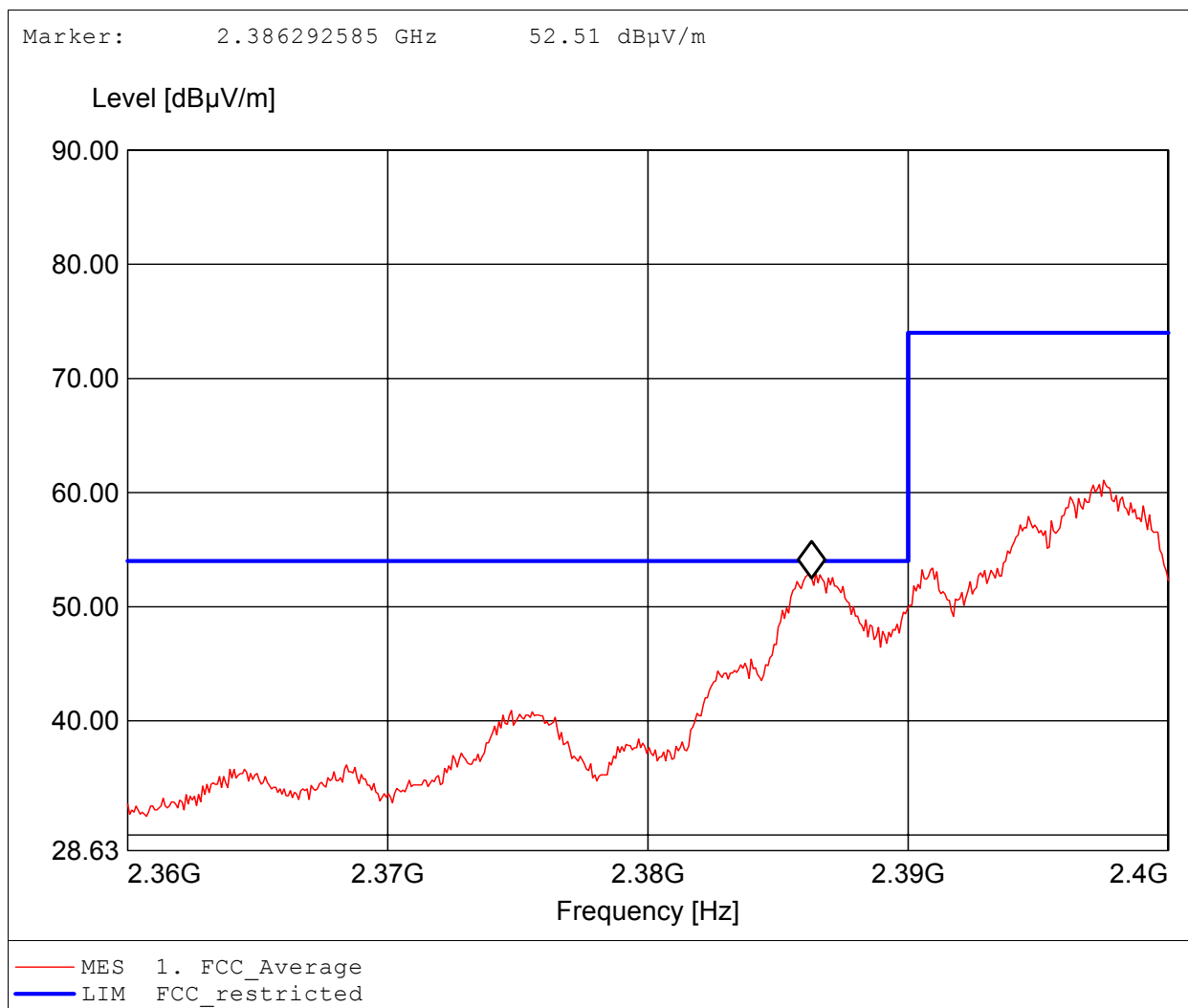
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (8dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247  
Comment 1: Dist.: 3m, Ant.: HL 223, amplif.  
Comment 2: Freq: 996.794MHz, Emax: 23.72dBµV/m, RBW: 100kHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

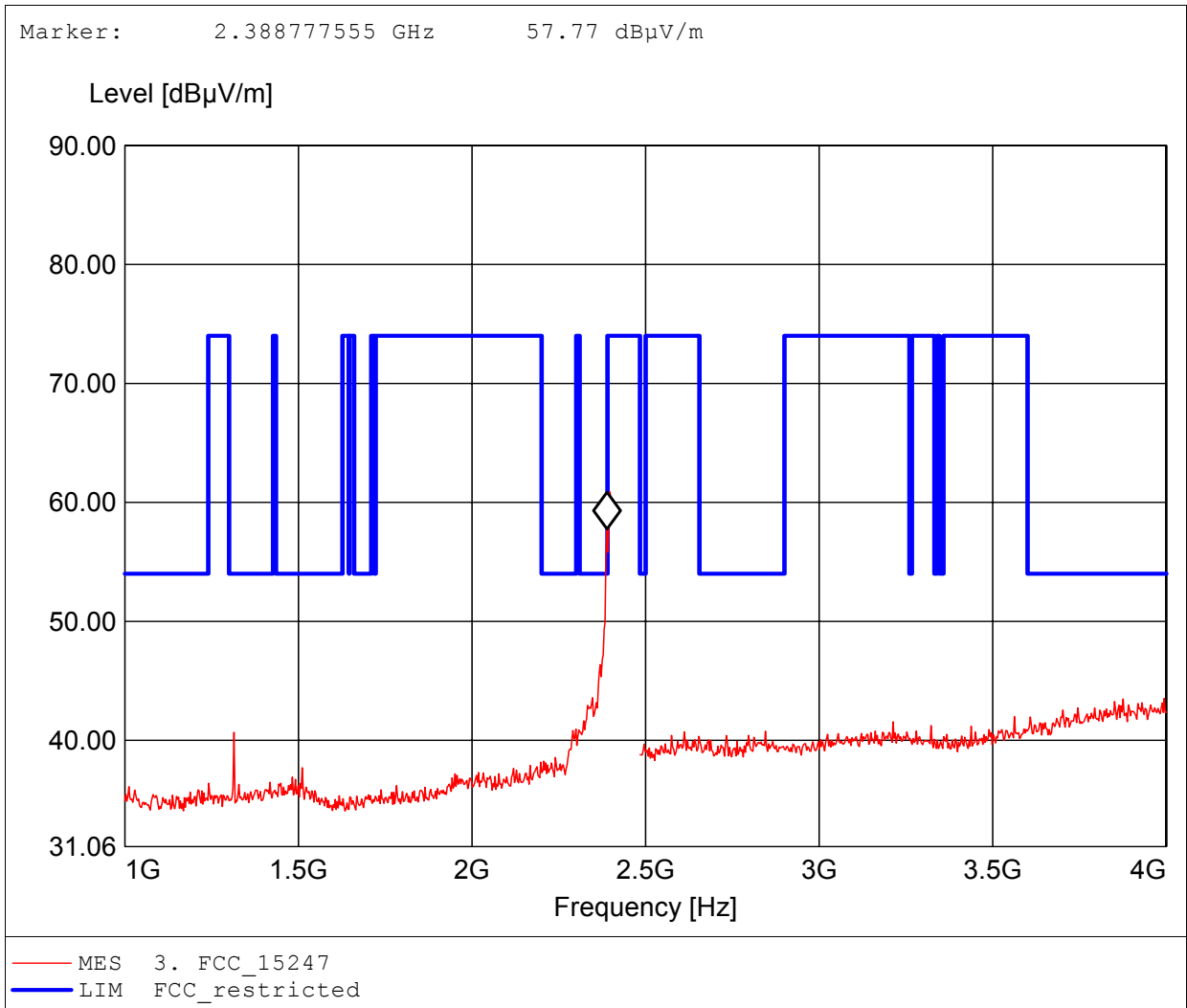
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: DSSS, 2412 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, average detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.398GHz, Emax: 61.09dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

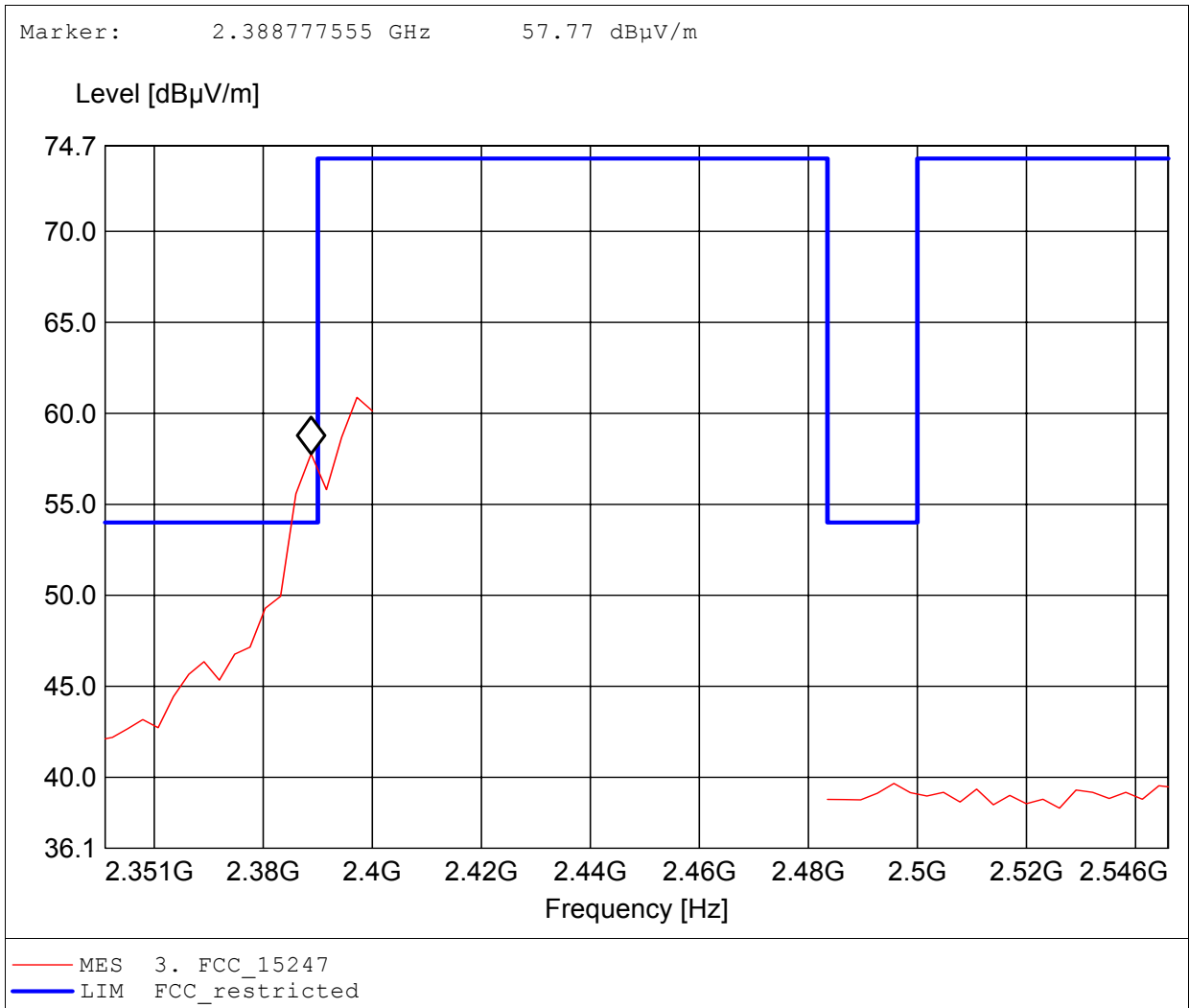
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.397GHz, Emax: 60.88dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

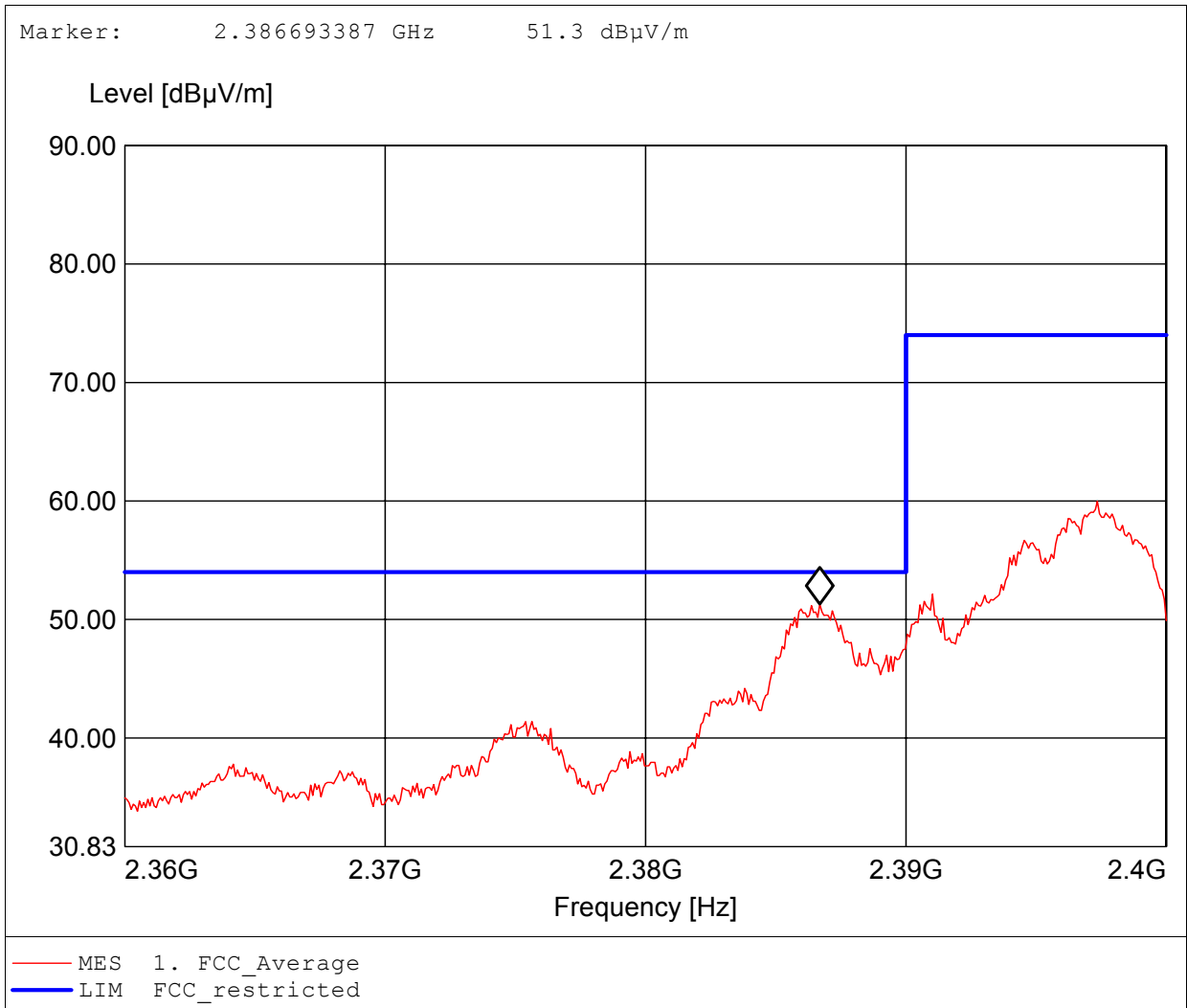
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.397GHz, Emax: 60.88dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: DSSS, 2412 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, average detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.397GHz, Emax: 59.98dBµV/m, RBW: 1MHz

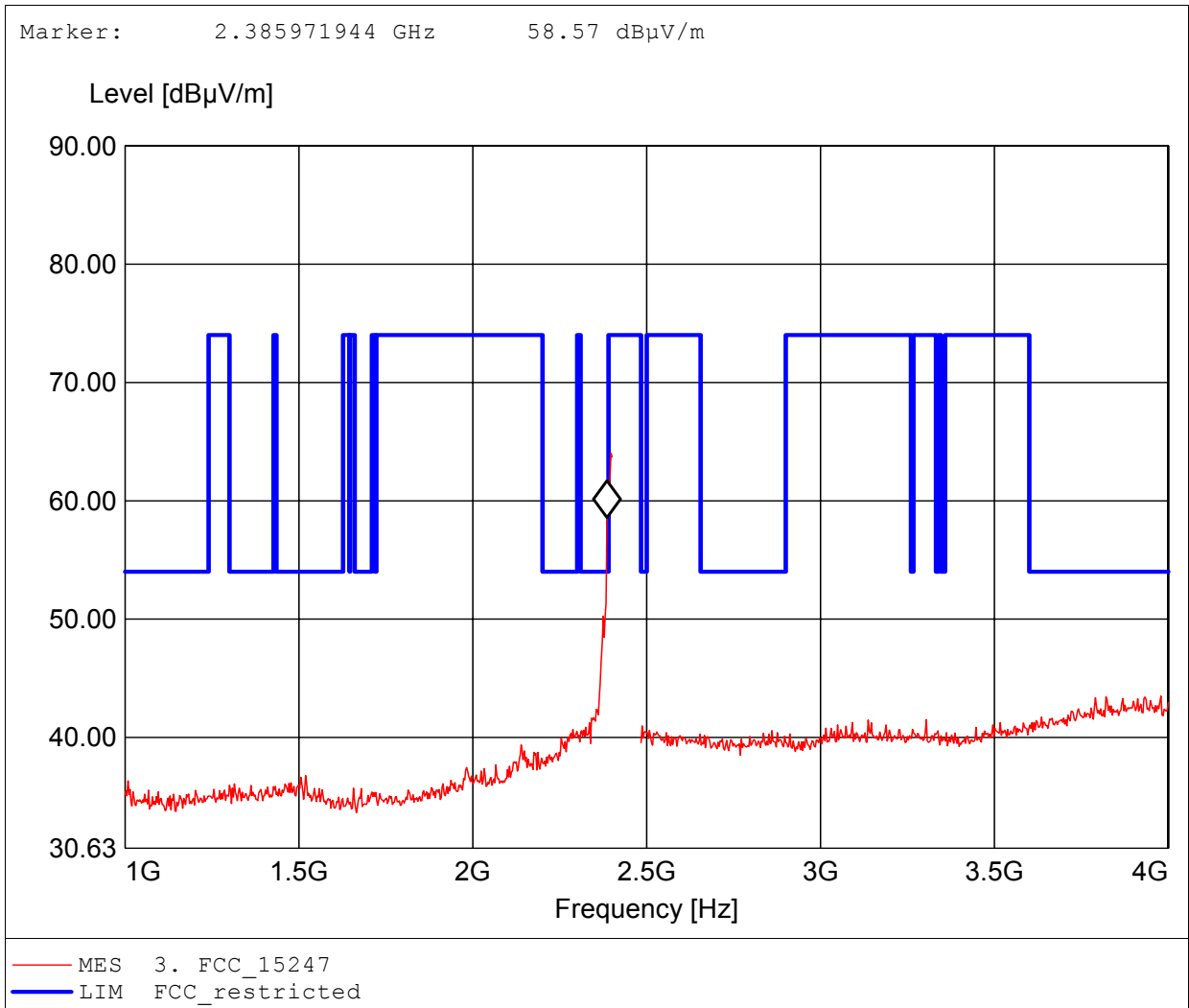




**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

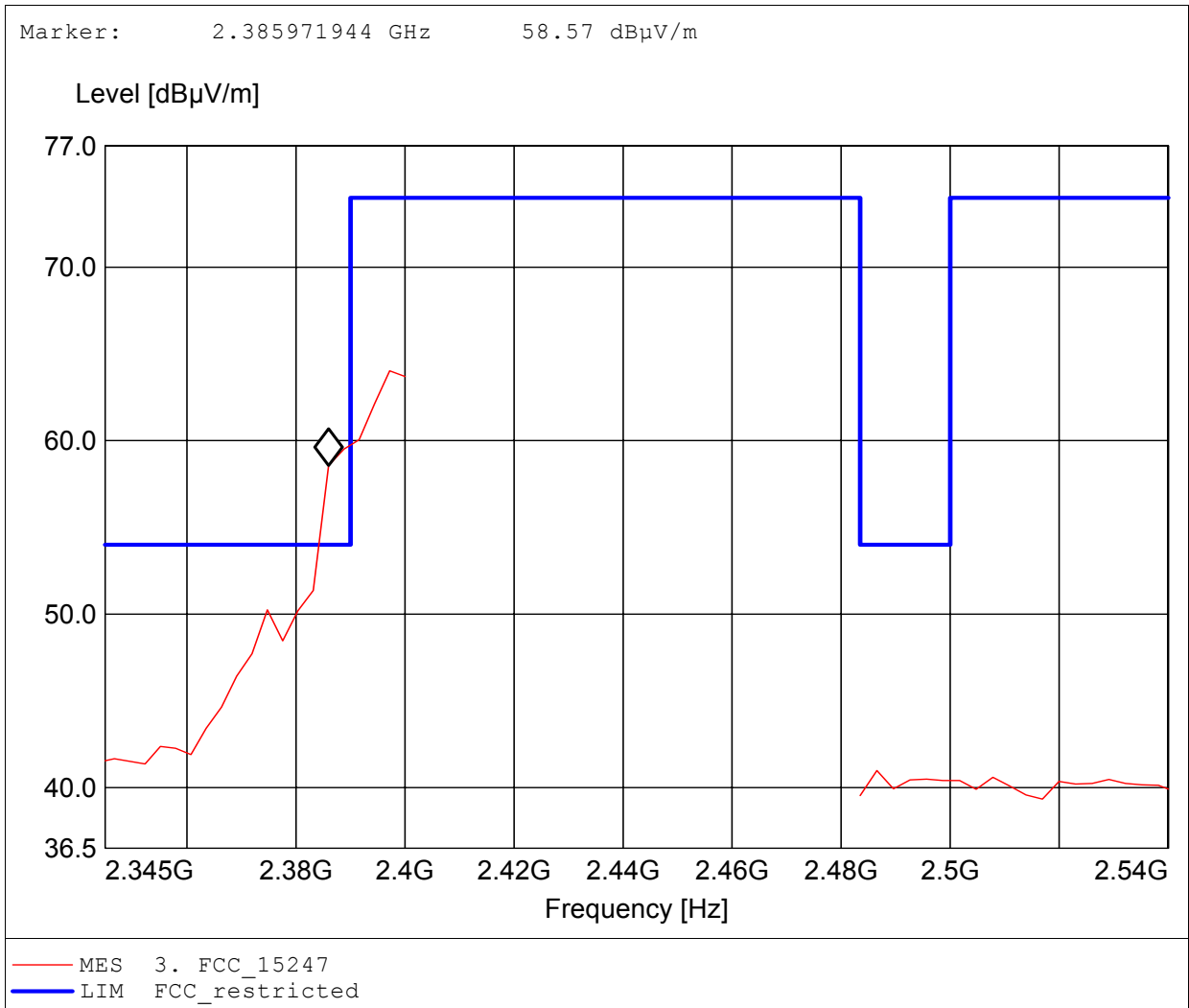
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.397GHz, Emax: 64.03dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

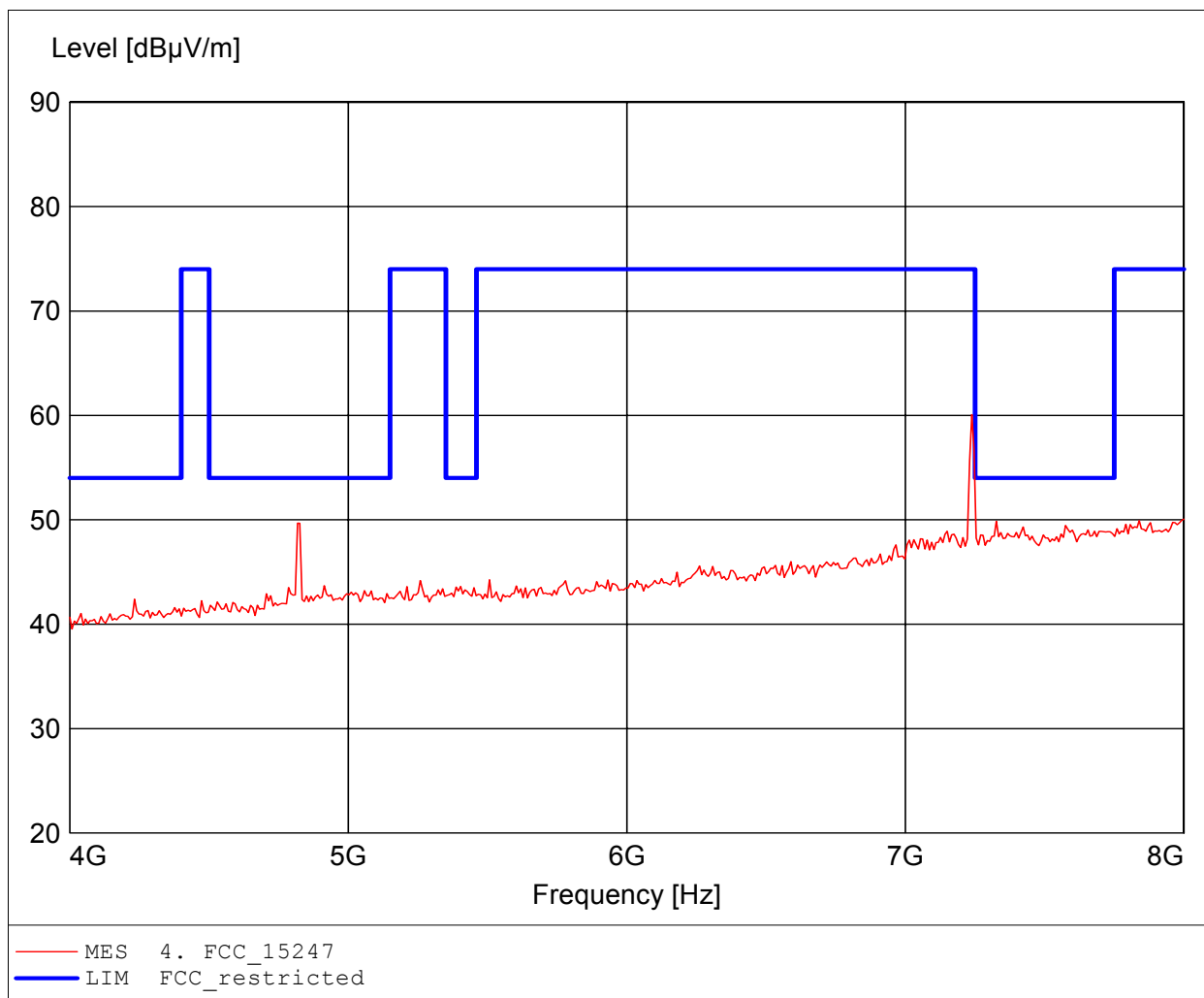
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.397GHz, Emax: 64.03dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

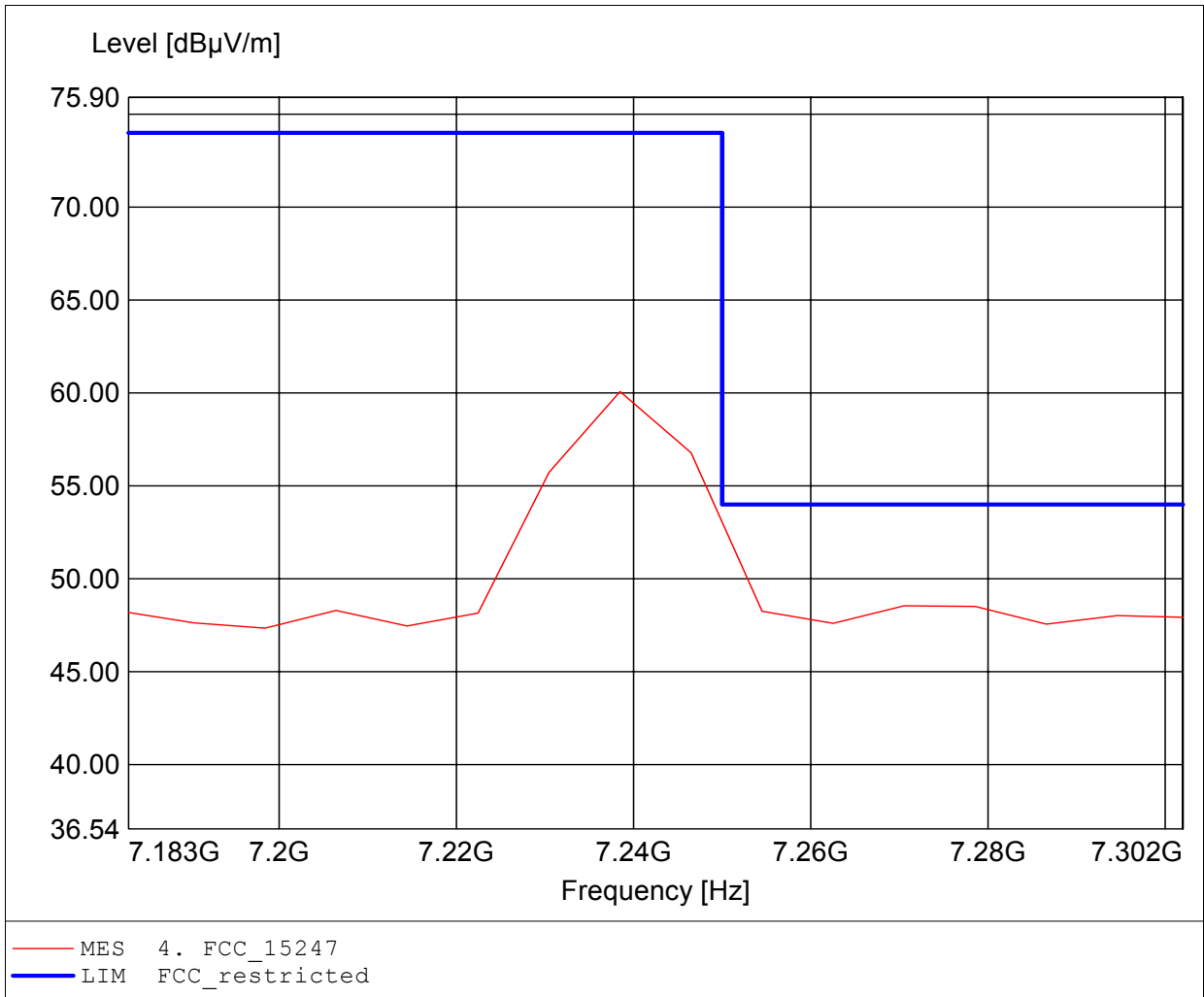
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.238GHz, Emax: 60.07dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

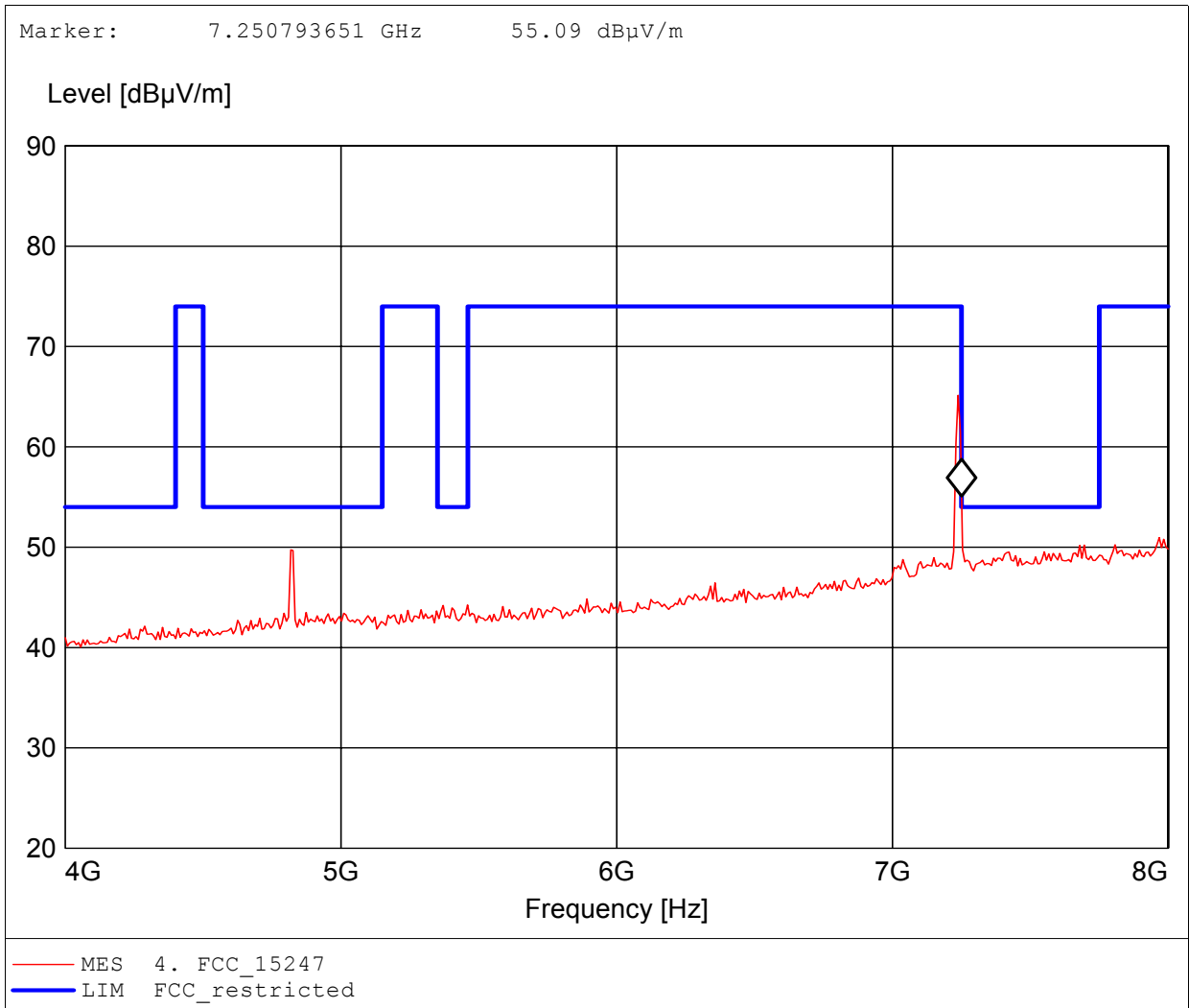
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.238GHz, Emax: 60.07dBuV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

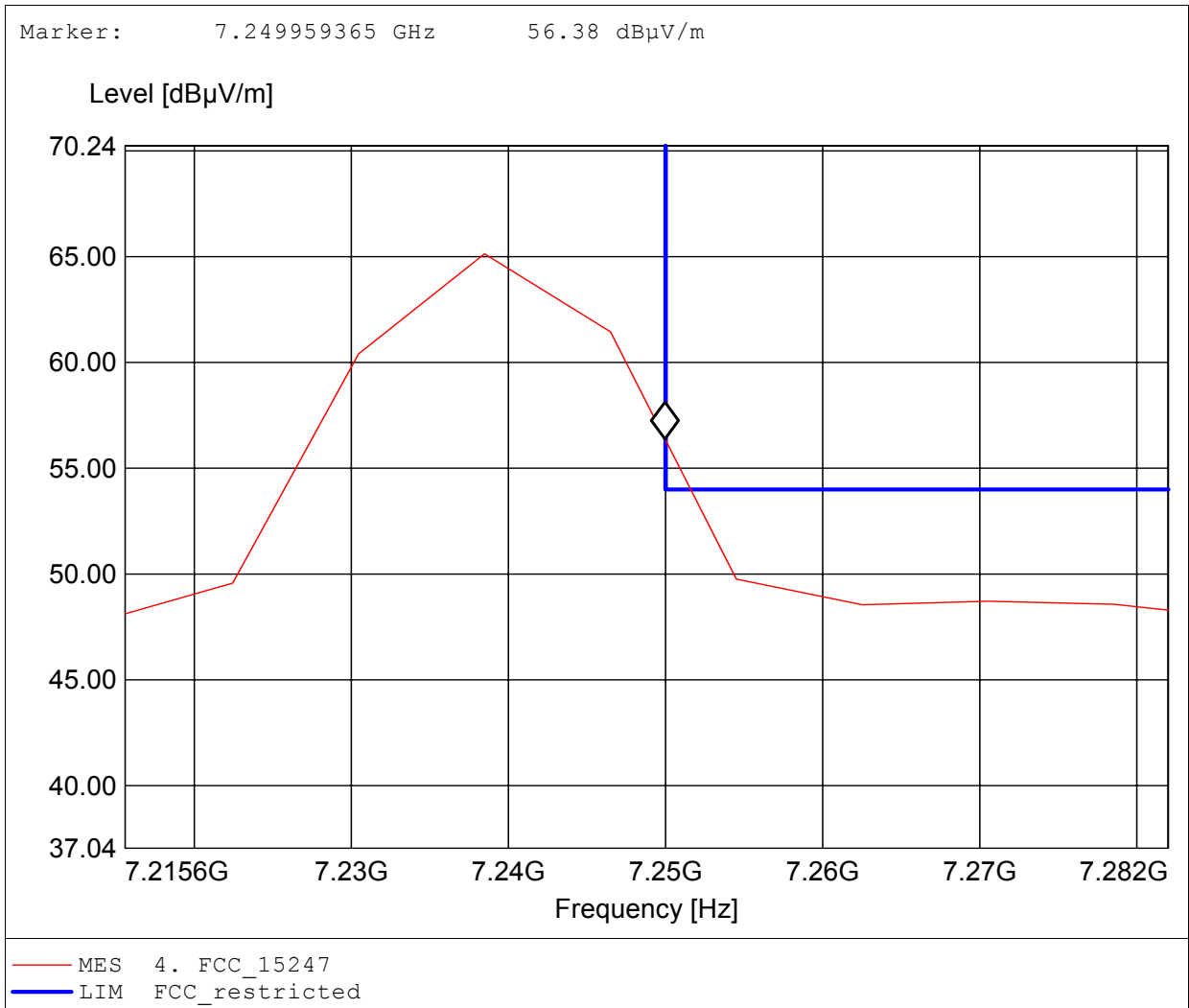
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.238GHz, Emax: 65.13dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

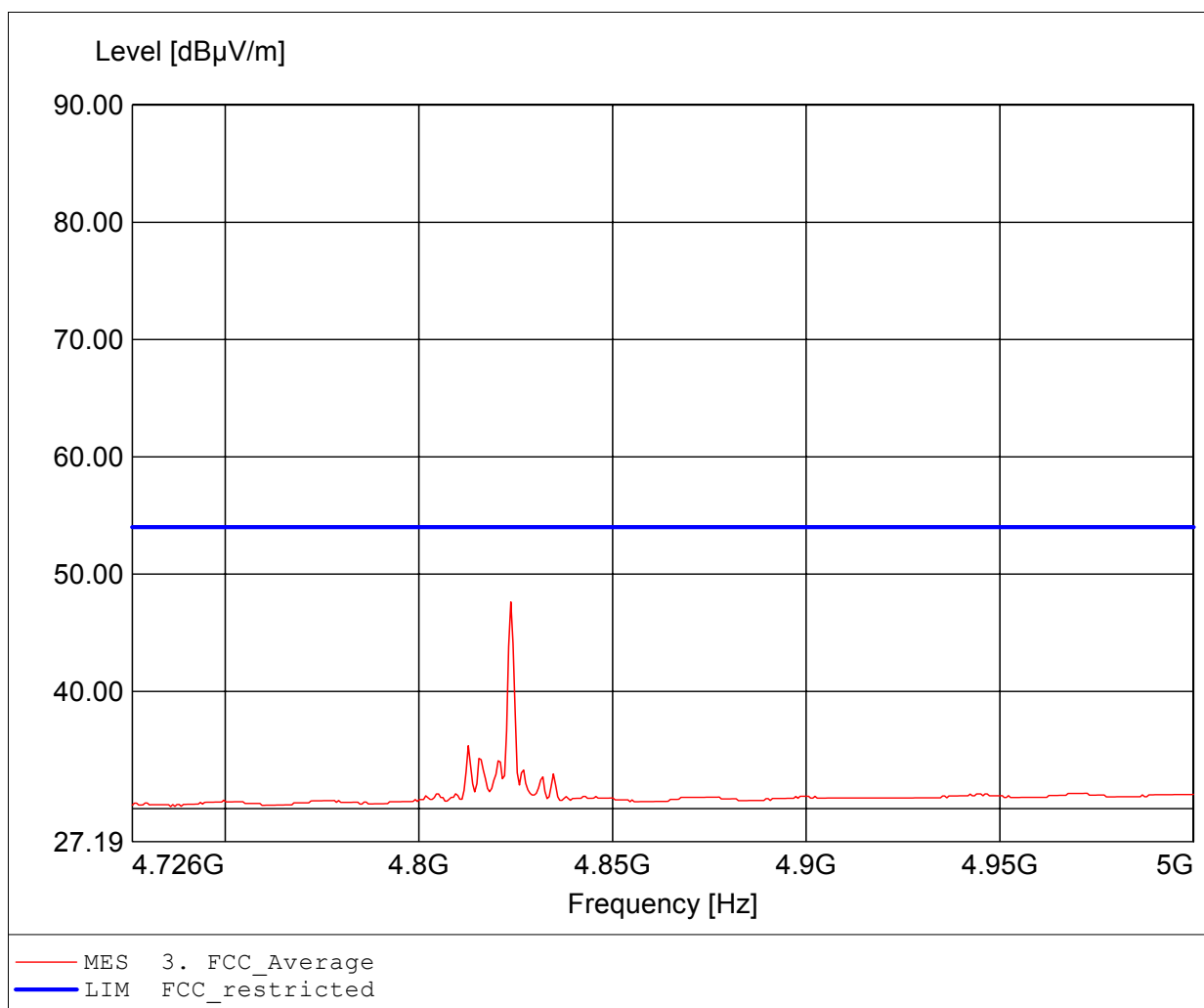
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.238GHz, Emax: 65.13dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

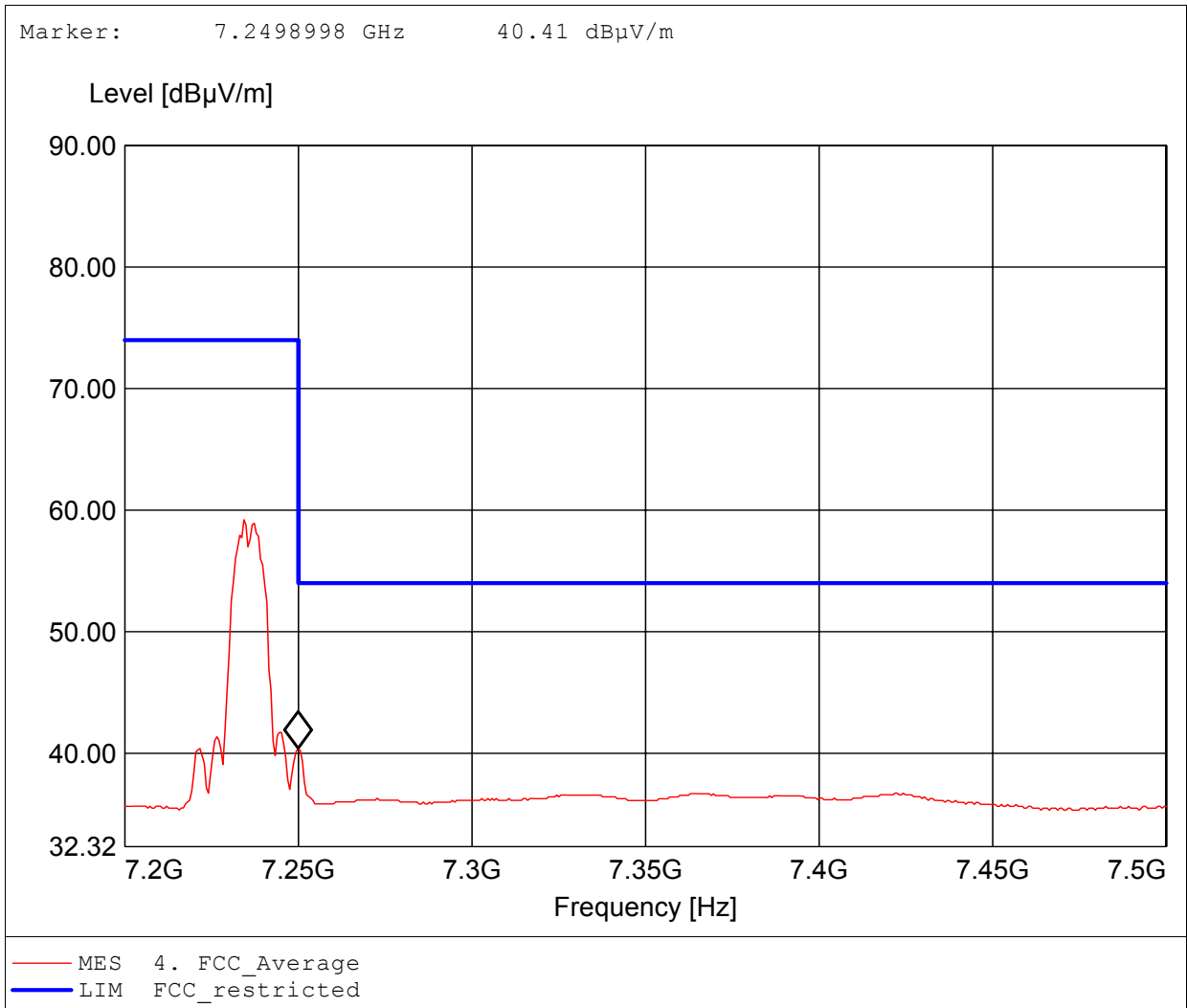
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: DSSS, 2412 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, average detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 4.824GHz, Emax: 47.63dBuV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: DSSS, 2412 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, average detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 7.234GHz, Emax: 59.22dBµV/m, RBW: 1MHz

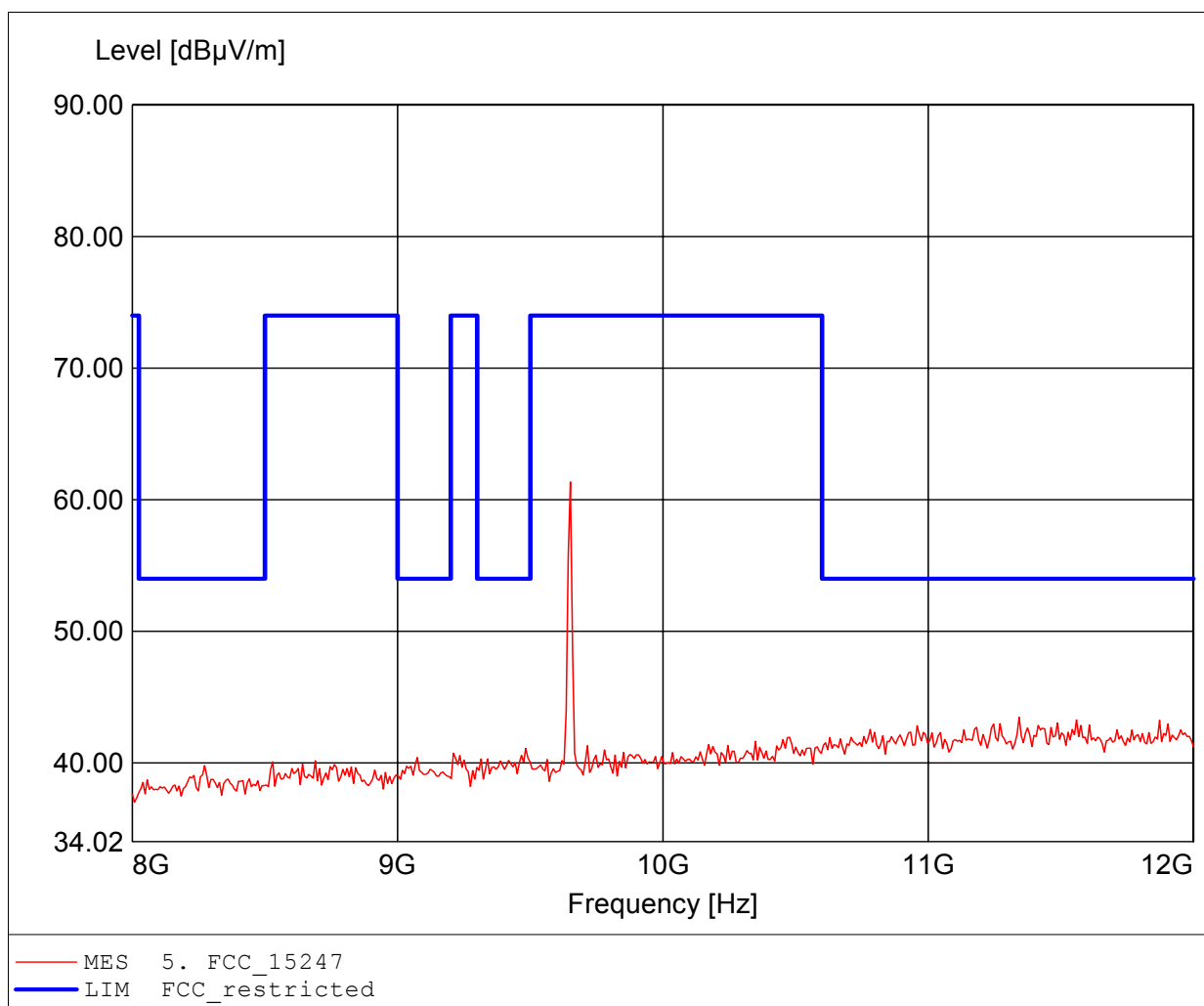




# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

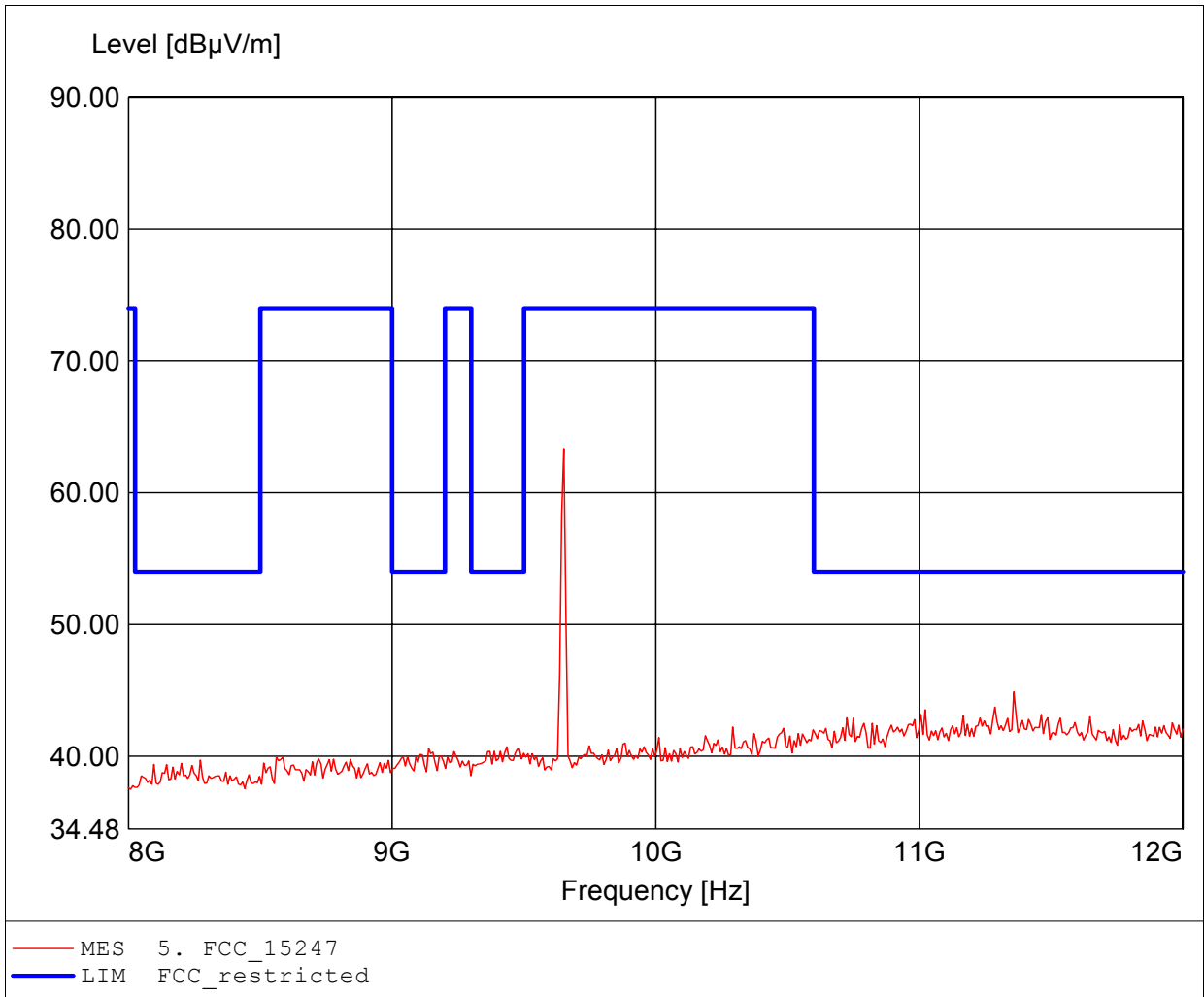
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 9.651GHz, Emax: 61.36dBuV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

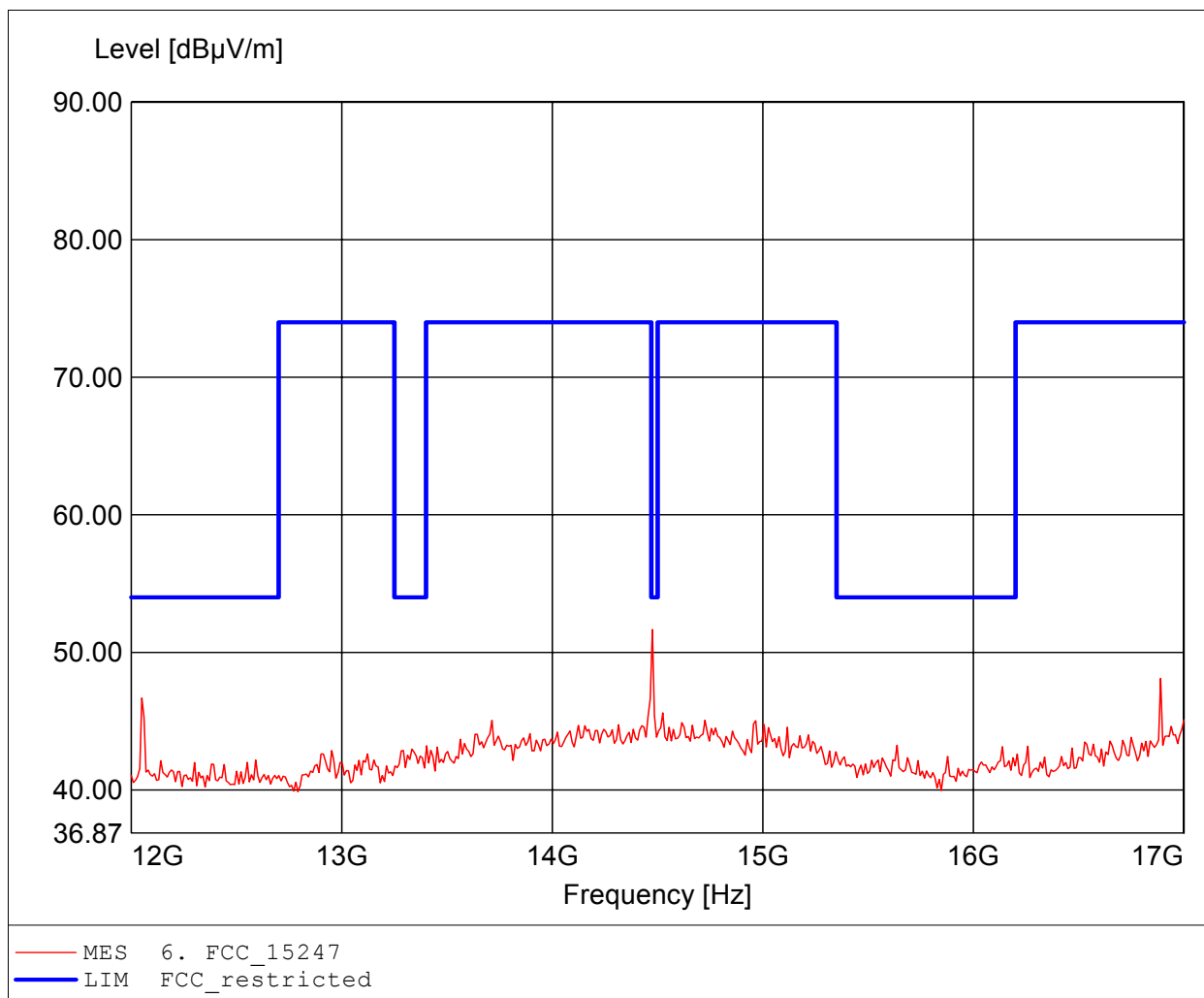
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 9.651GHz, Emax: 63.36dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

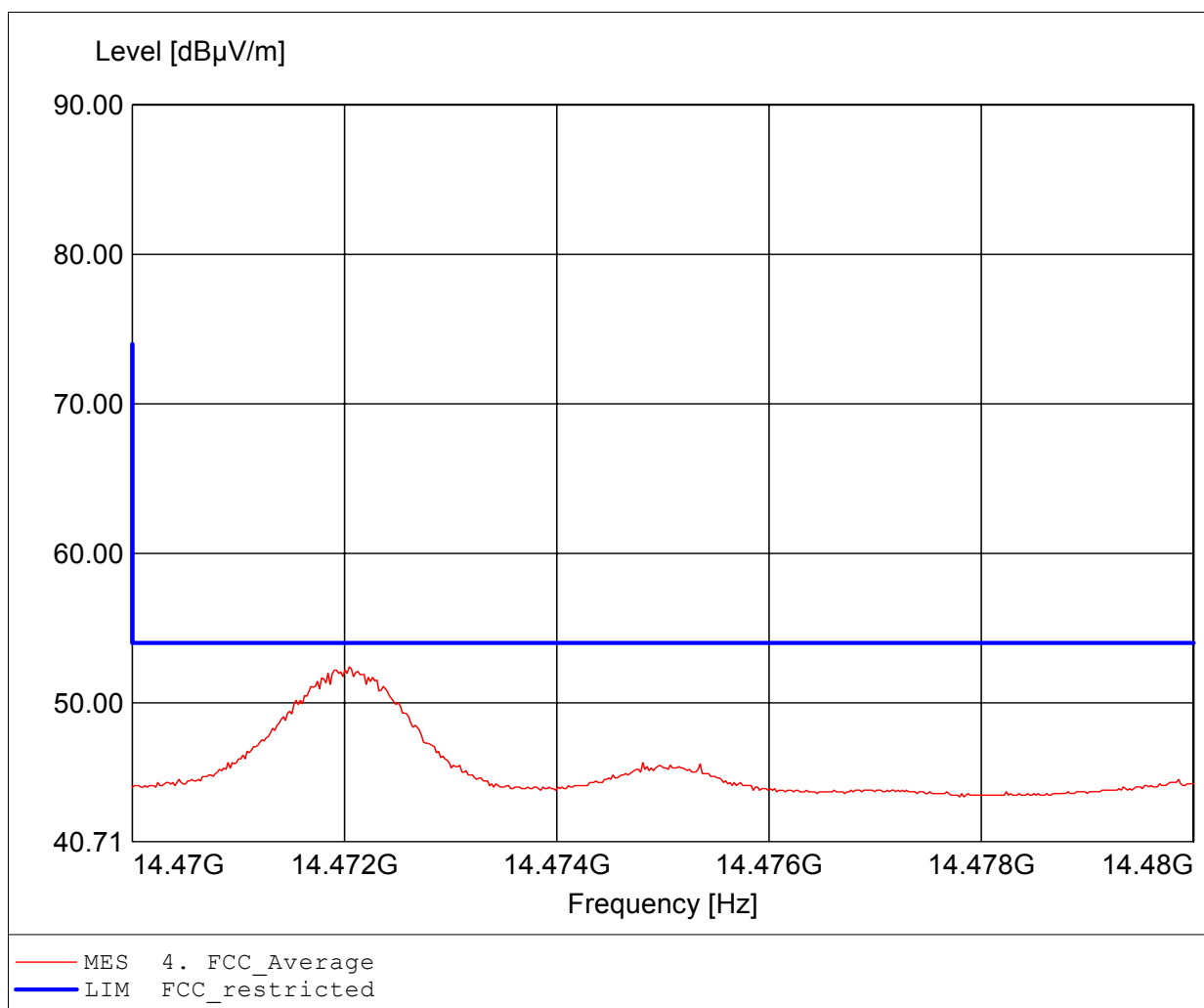
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 14.475GHz, Emax: 51.67dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

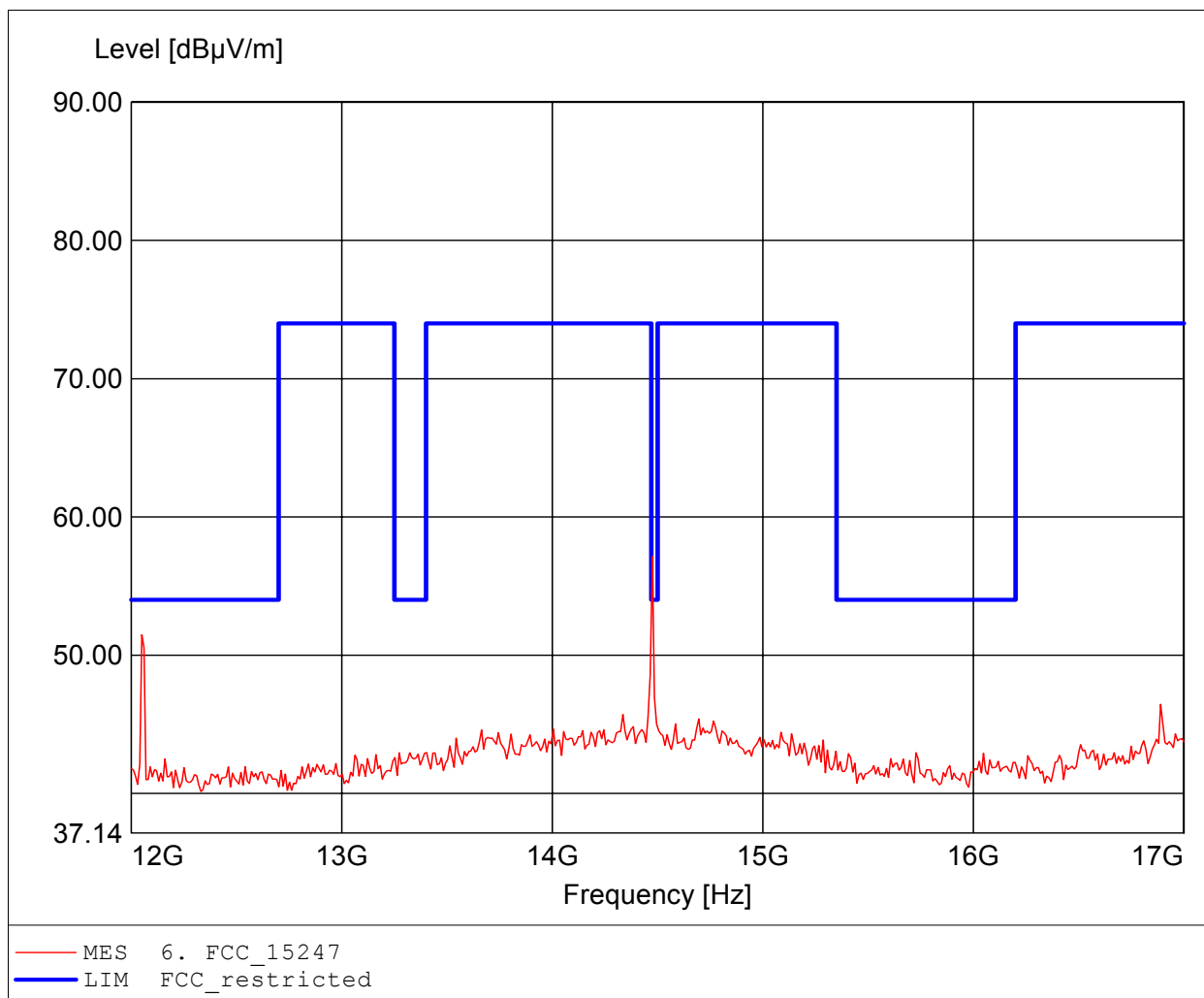
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: DSSS, 2412 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, average detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 14.472GHz, Emax: 52.40dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

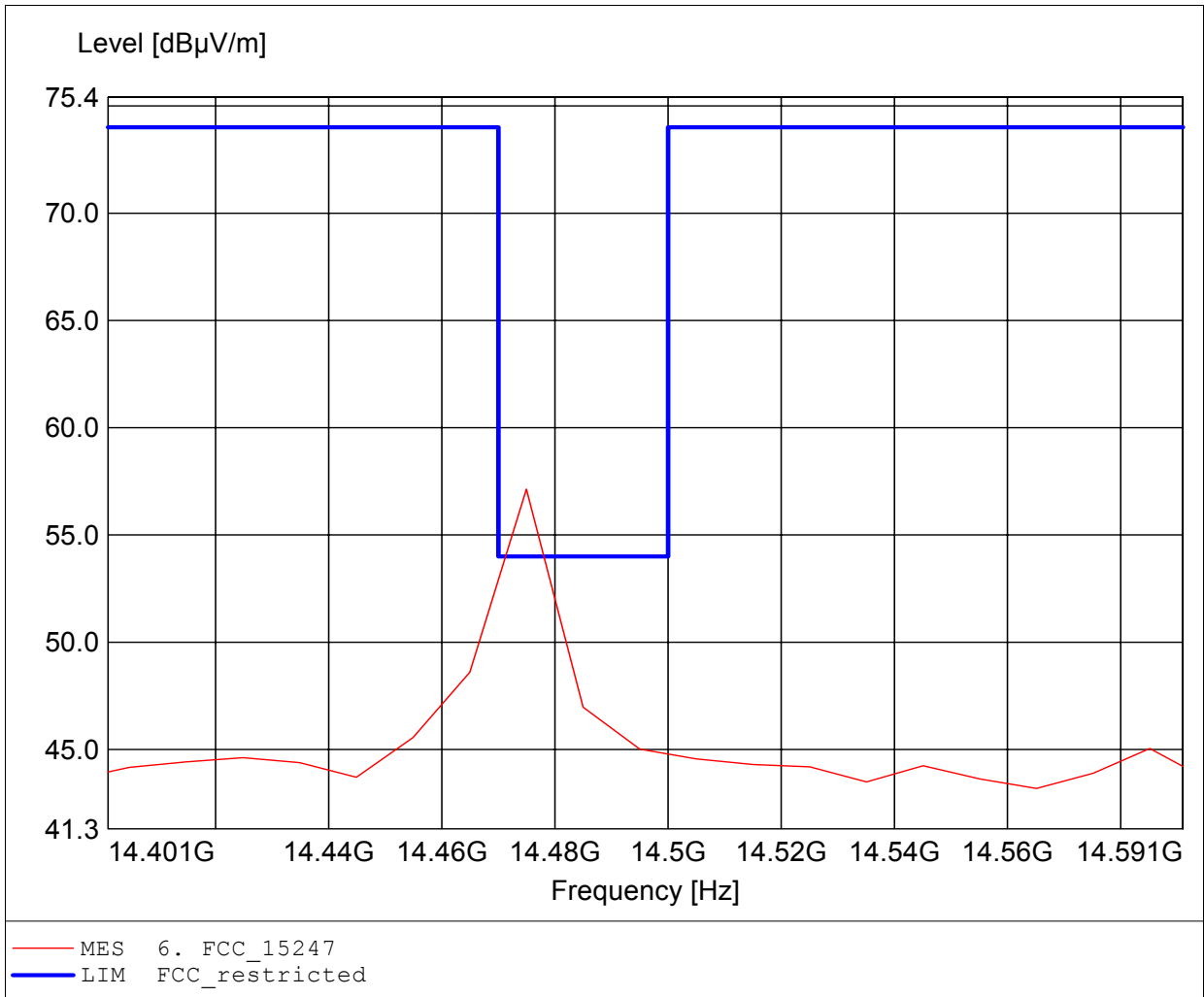
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 14.475GHz, Emax: 57.13dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

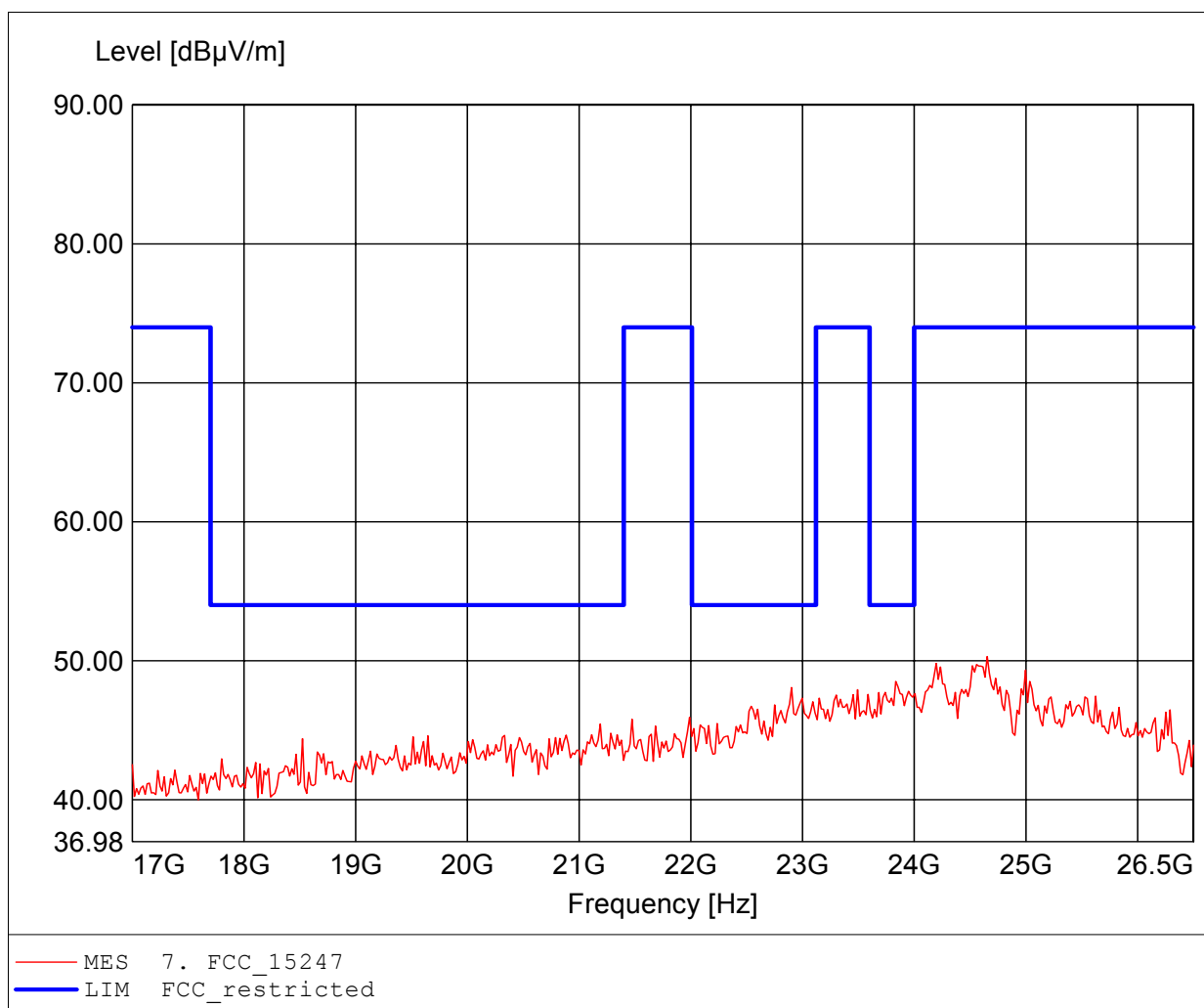
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 14.475GHz, Emax: 57.13dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

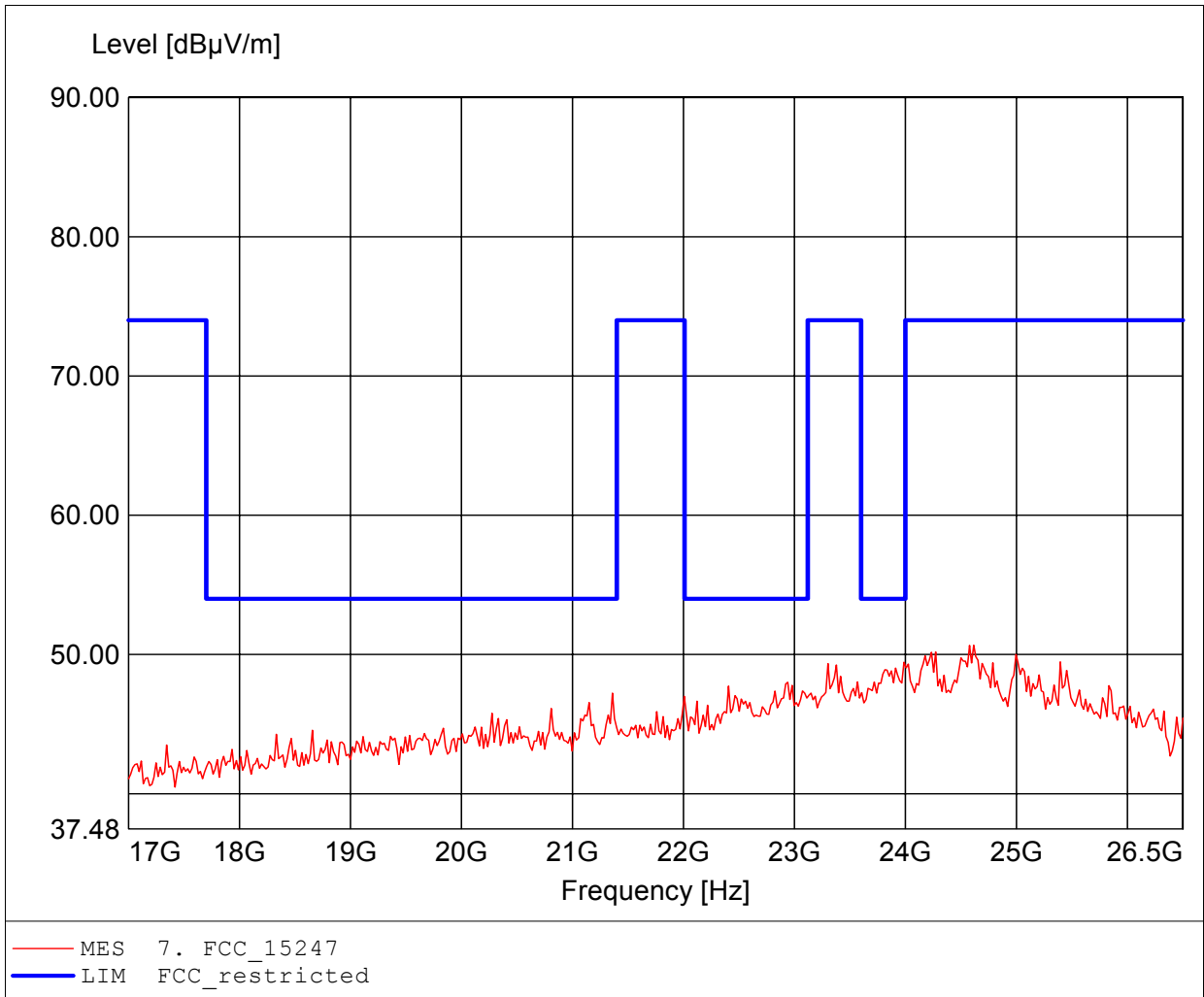
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Comment 2: Freq: 24.653GHz, Emax: 50.30dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 1 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Comment 2: Freq: 24.615GHz, Emax: 50.67dBuV/m, RBW: 1MHz

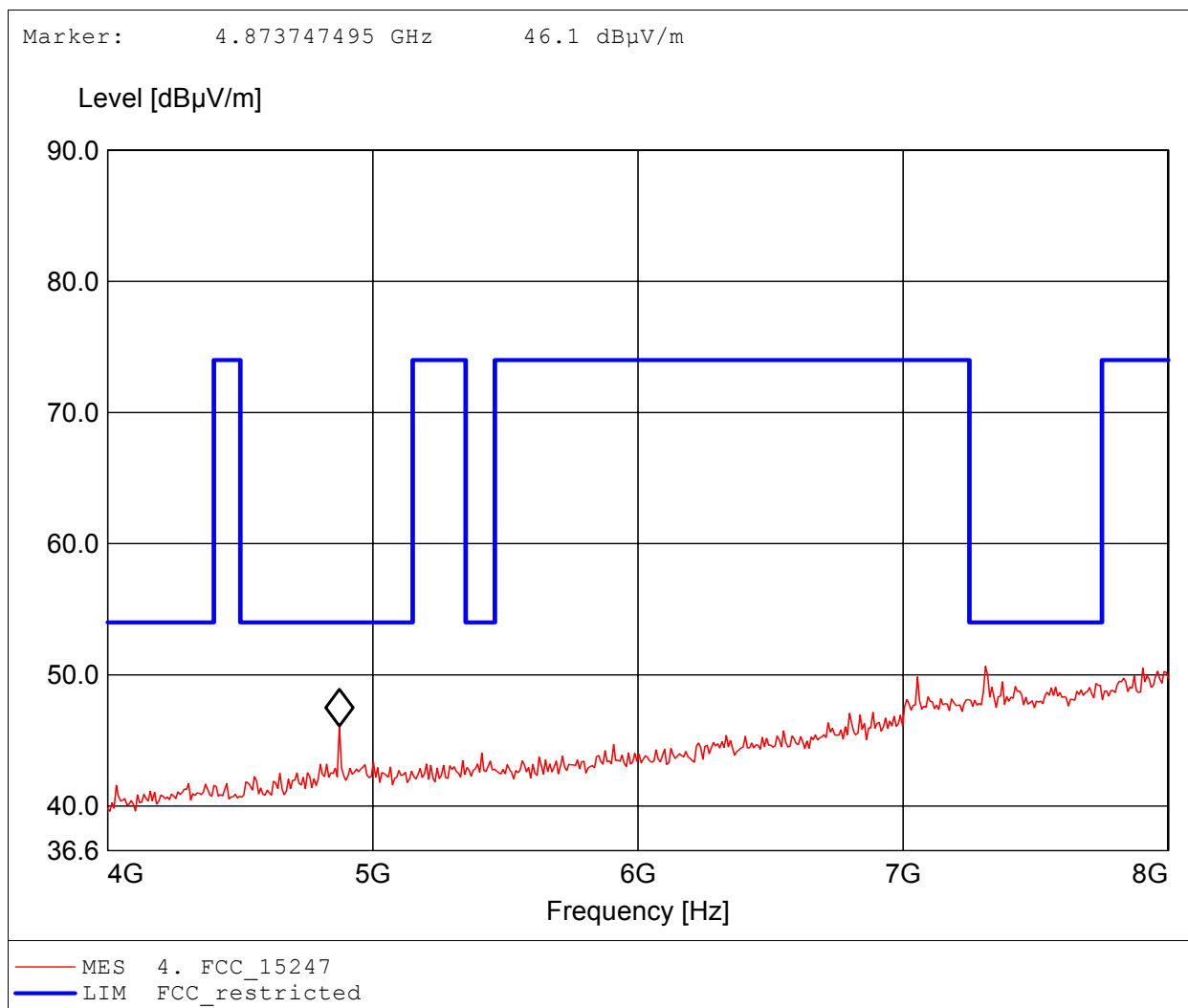




# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

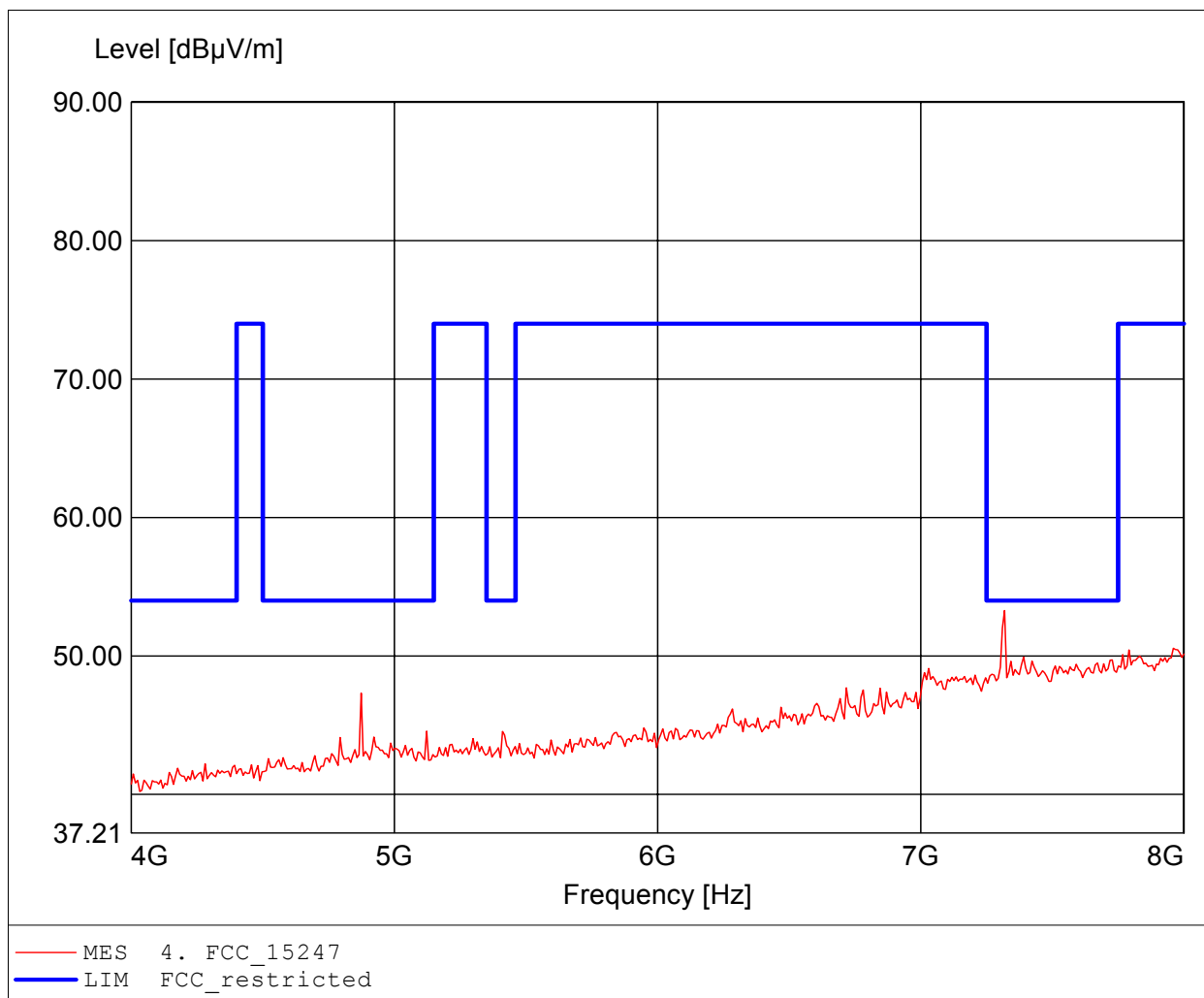
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup:DSSS 1Mbps / CH. 6 max power (18dB  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.311GHz, Emax: 50.65dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

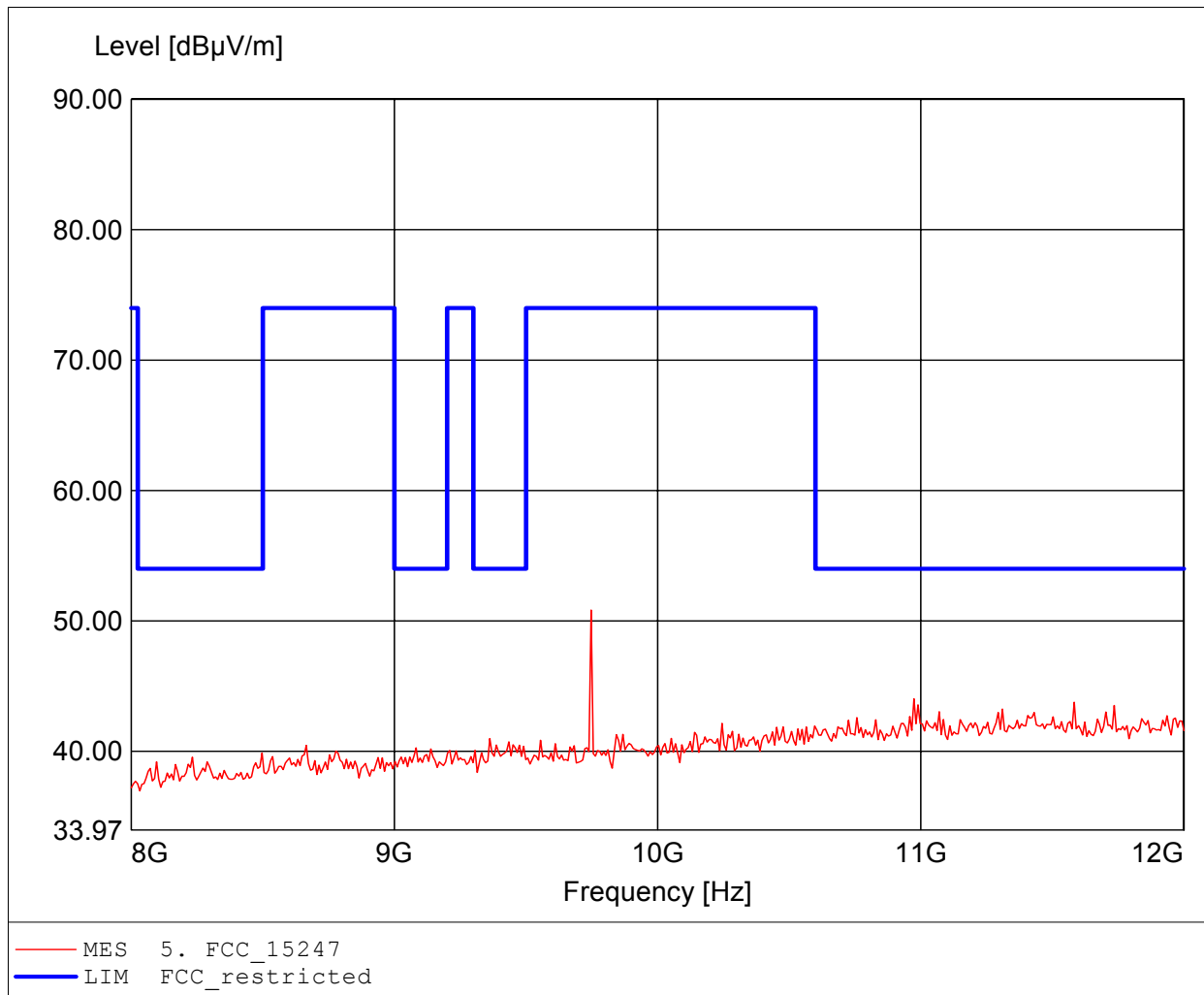
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup:DSSS 1Mbps / CH. 6 max power (18dB  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.319GHz, Emax: 53.28dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

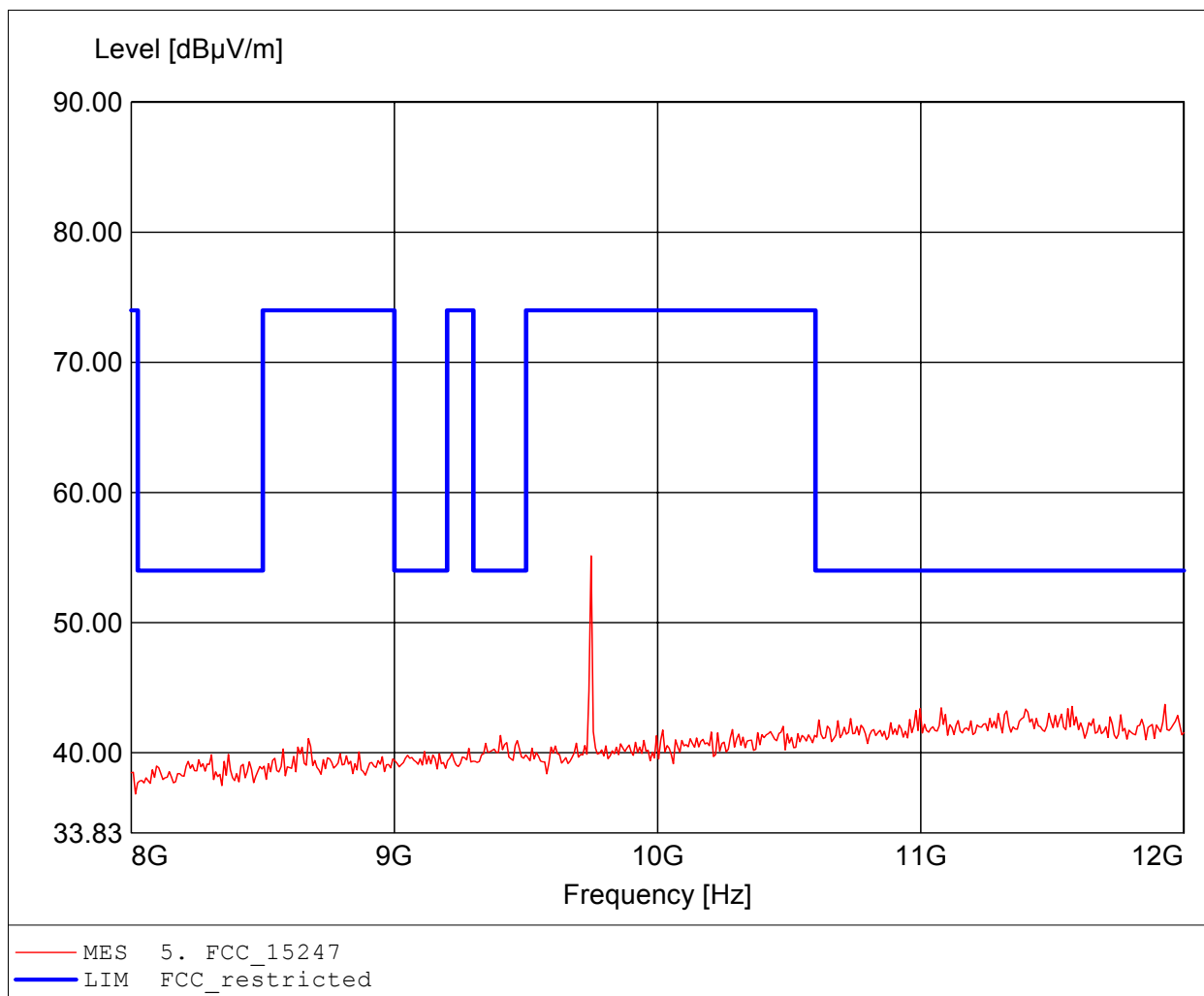
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup:DSSS 1Mbps / CH. 6 max power (18dB  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 9.747GHz, Emax: 50.83dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

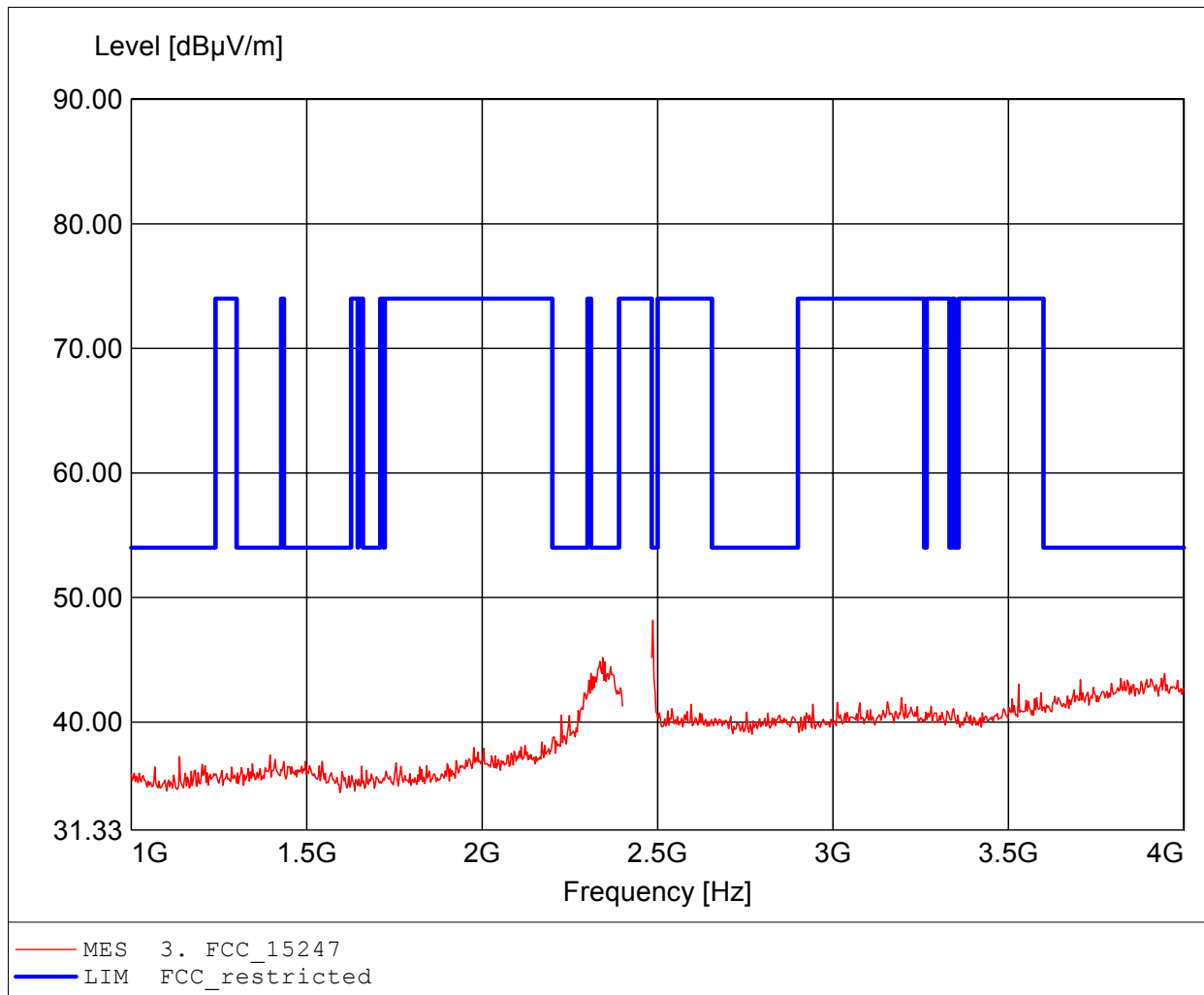
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup:DSSS 1Mbps / CH. 6 max power (18dB)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 9.747GHz, Emax: 55.12dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

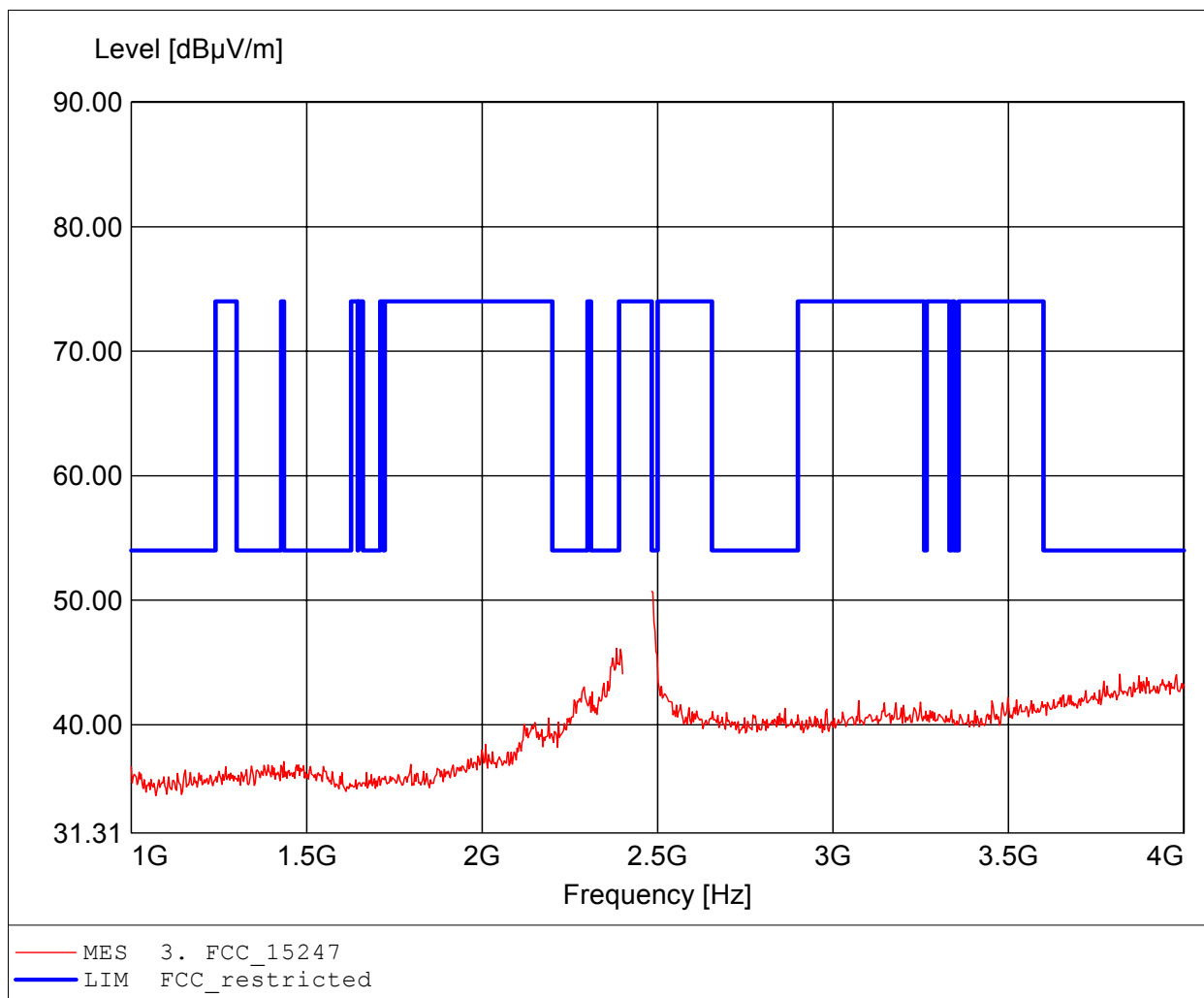
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 11 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.487GHz, Emax: 48.16dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

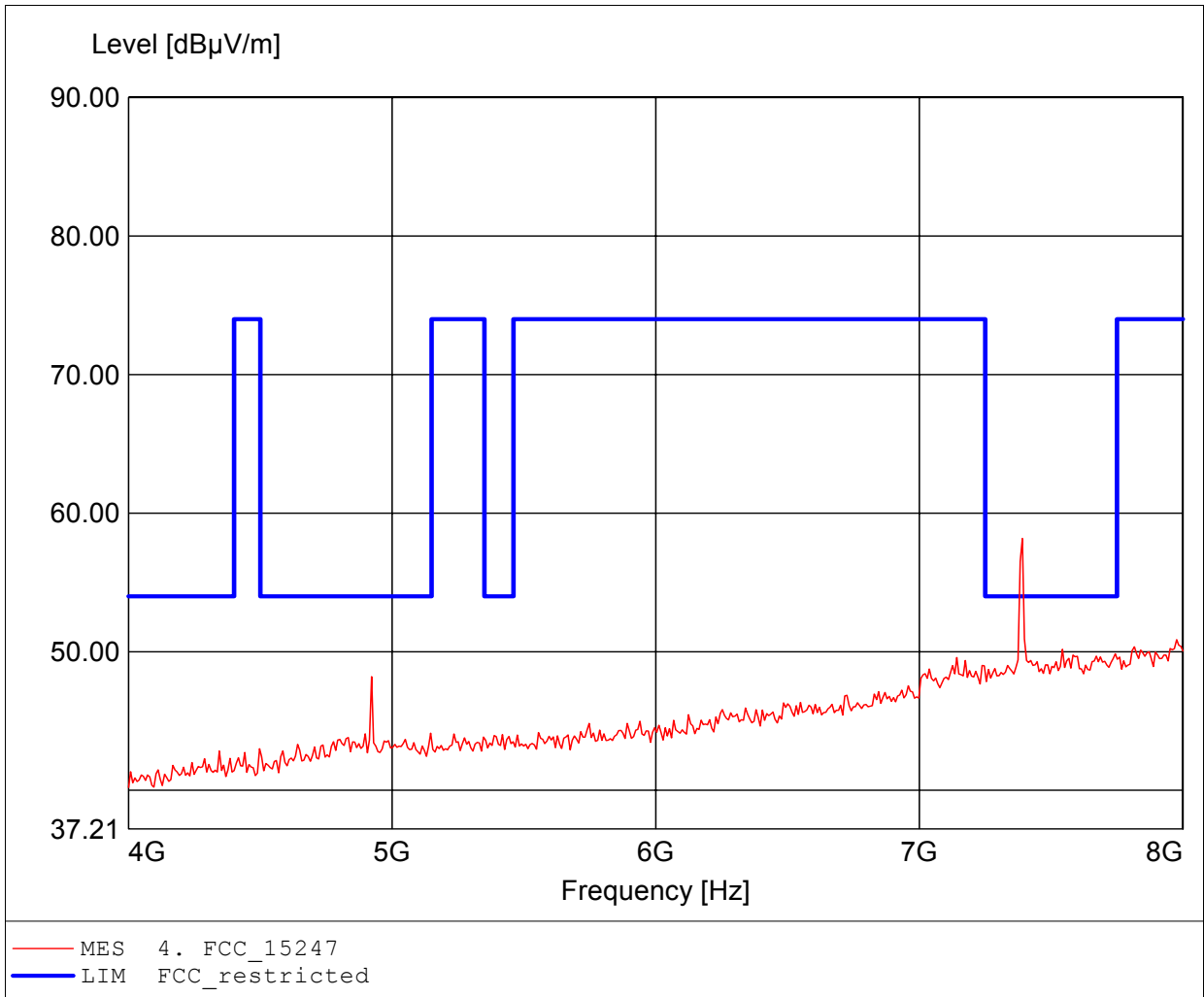
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 11 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.484GHz, Emax: 50.72dBuV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

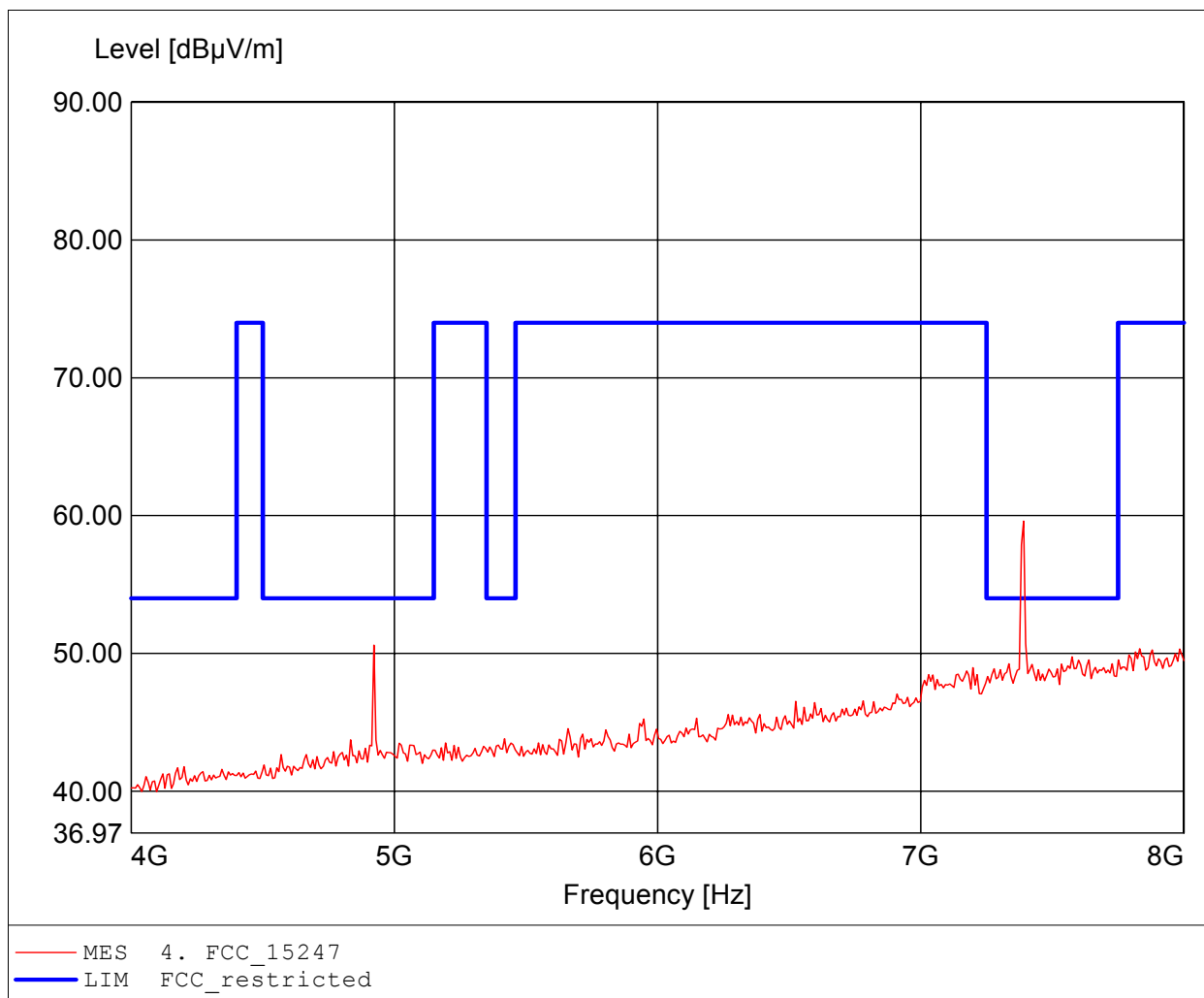
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 11 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.391GHz, Emax: 58.17dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 11 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.391GHz, Emax: 59.60dBµV/m, RBW: 1MHz

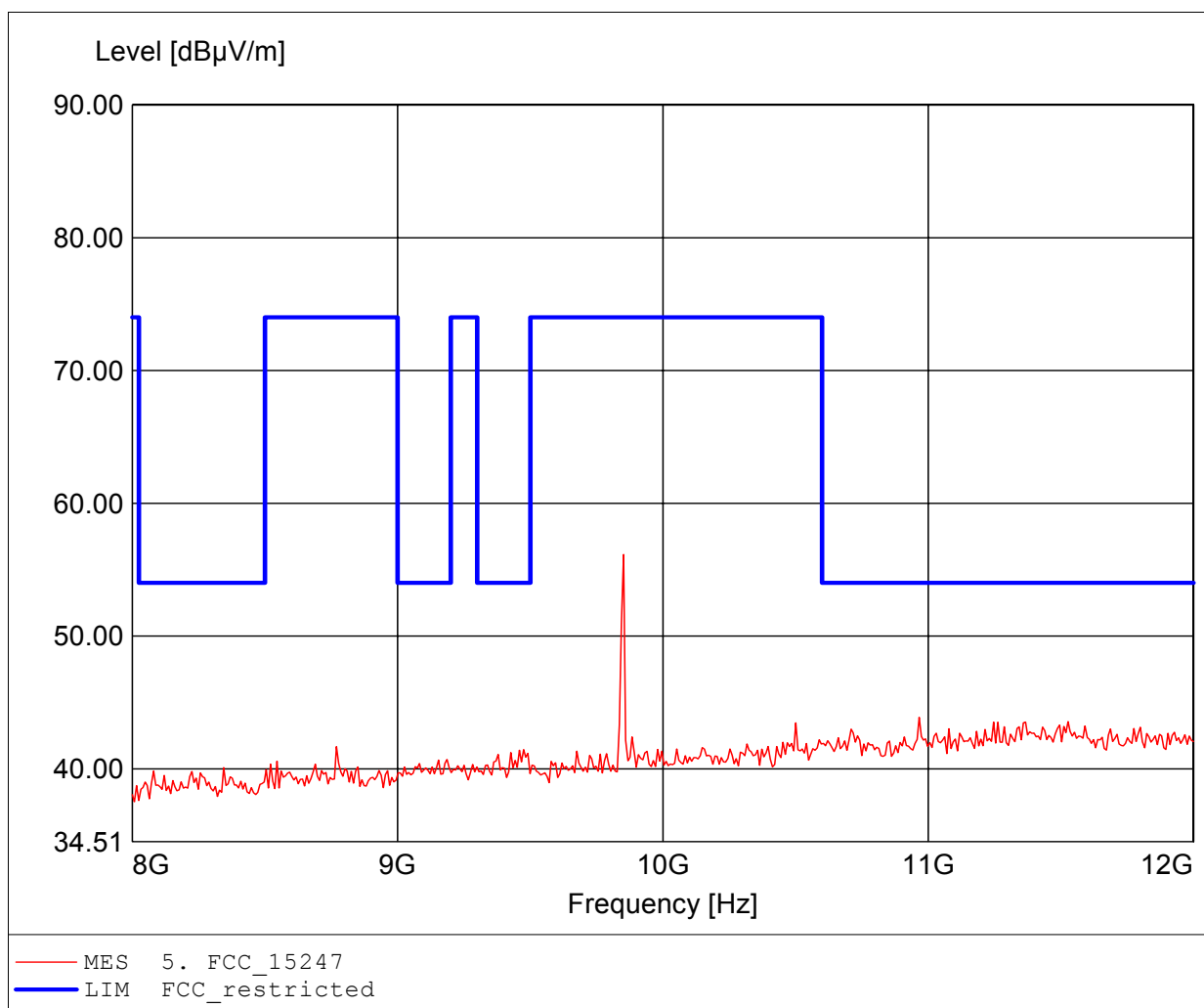




# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

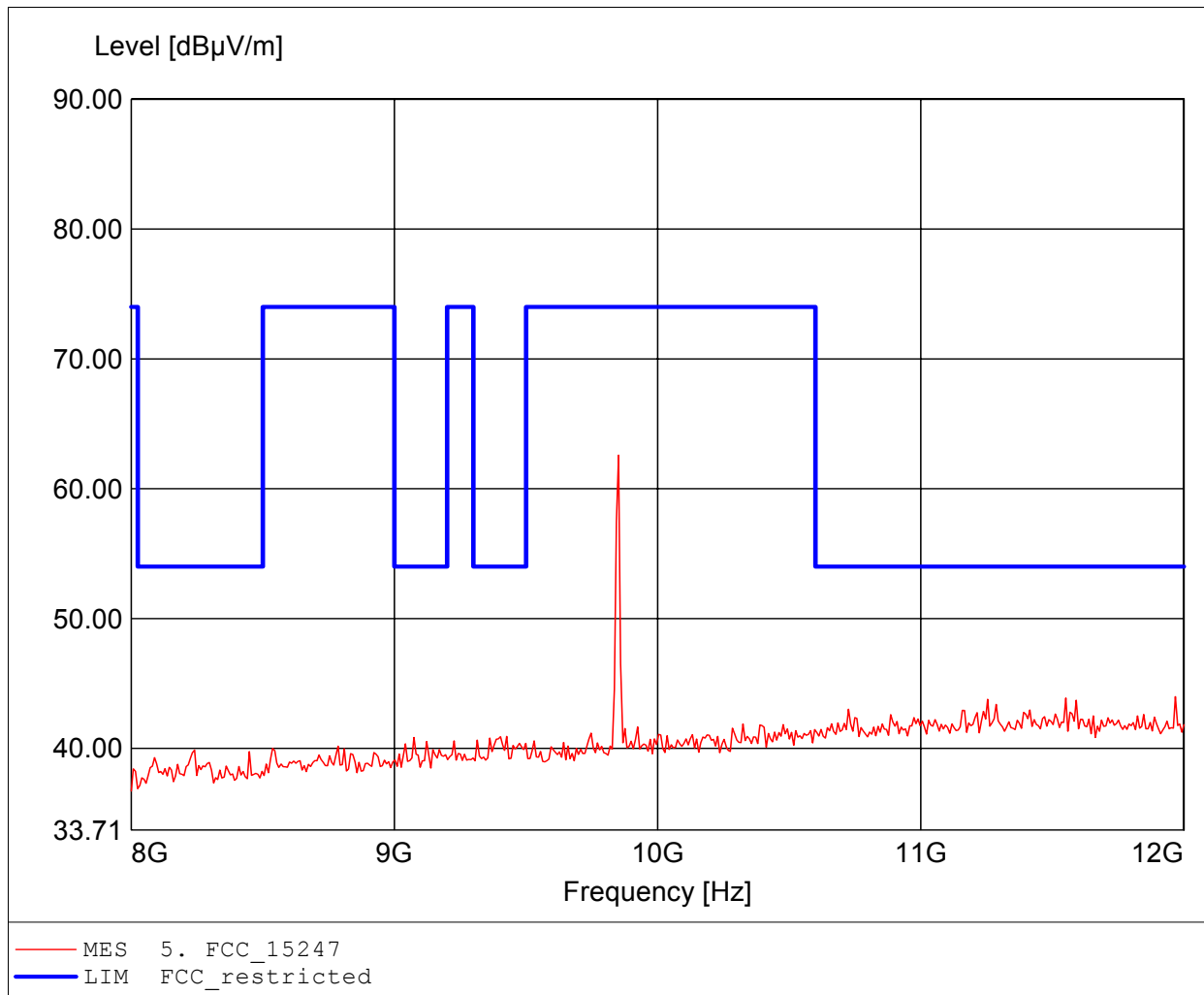
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 11 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 9.852GHz, Emax: 56.14dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

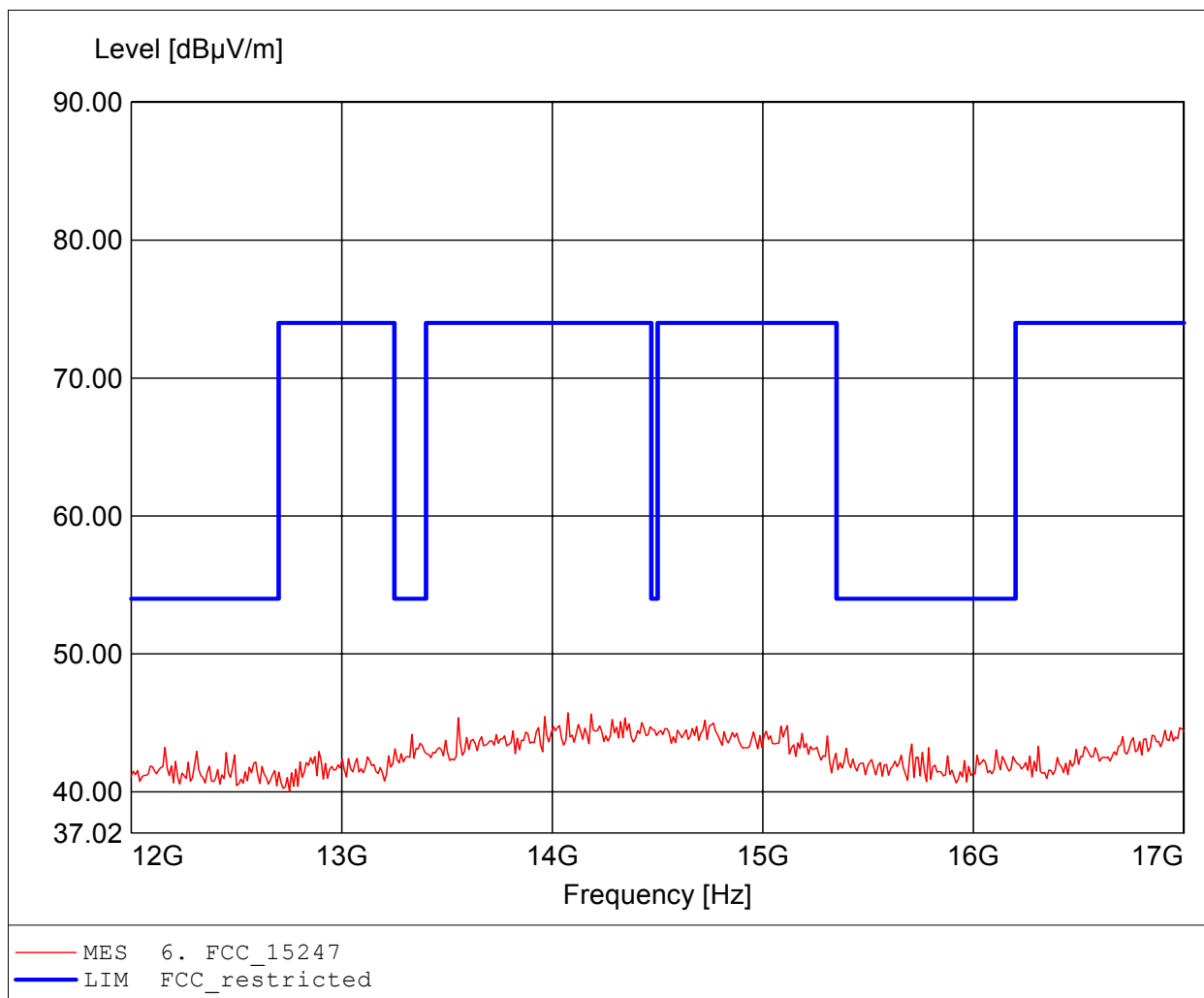
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 11 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 9.852GHz, Emax: 62.59dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

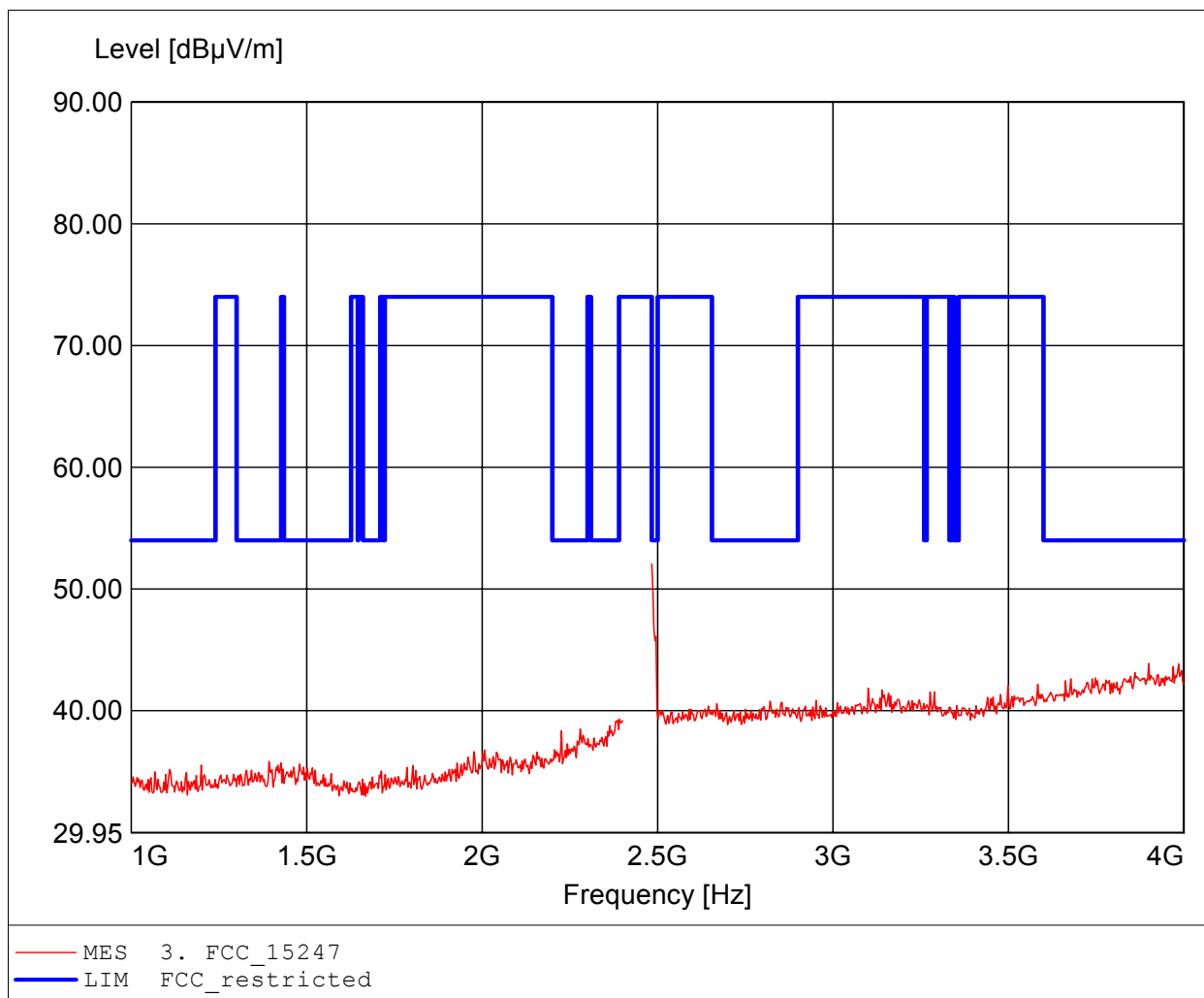
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / DSSS 1Mbps / CH. 11 max power (18dBm)  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Pudell  
Test Condition: Tnom: 24°C / Unom.: 3.3V DC rechargeable battery  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 14.074GHz, Emax: 45.73dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

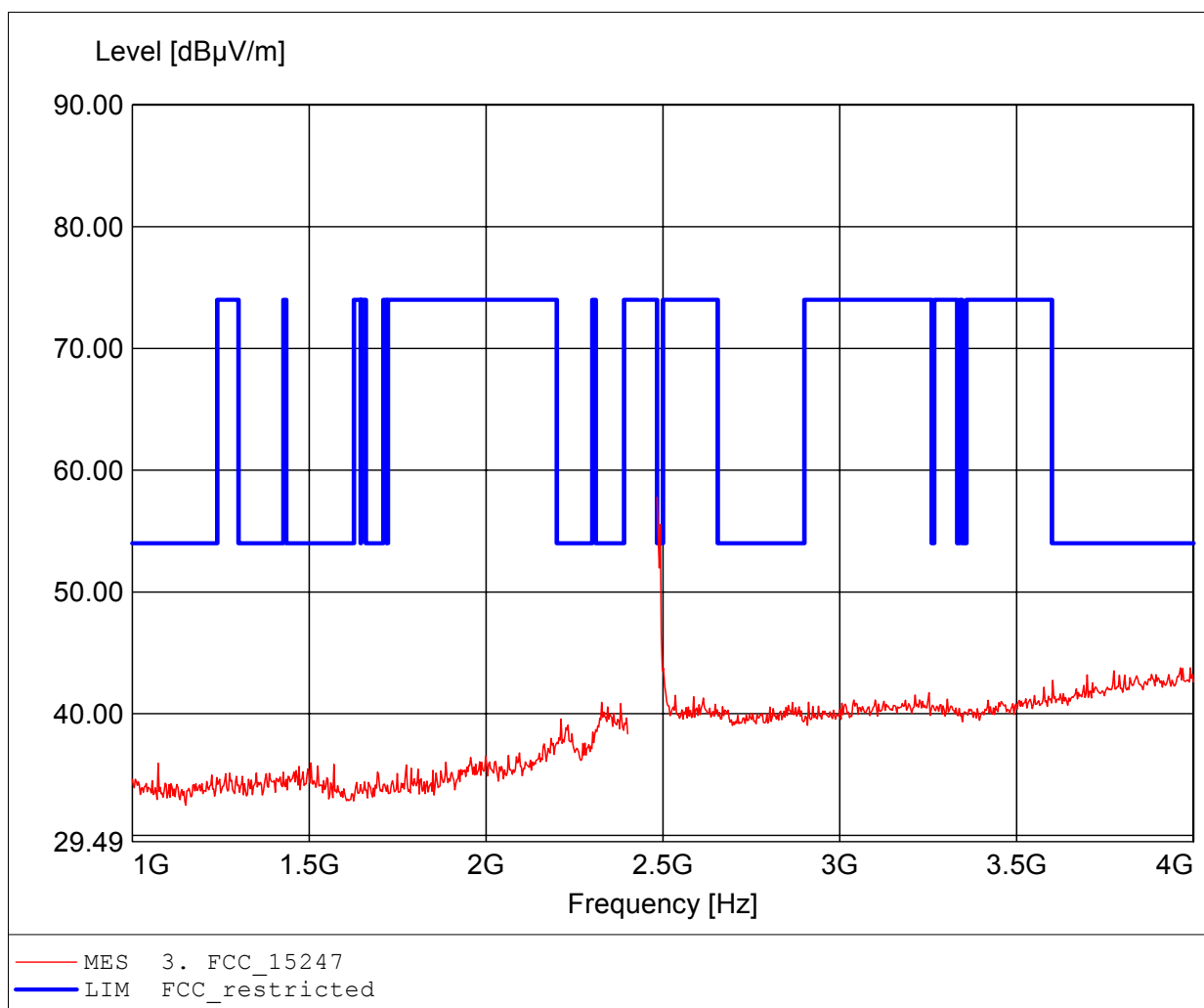
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2462 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.484GHz, Emax: 52.07dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

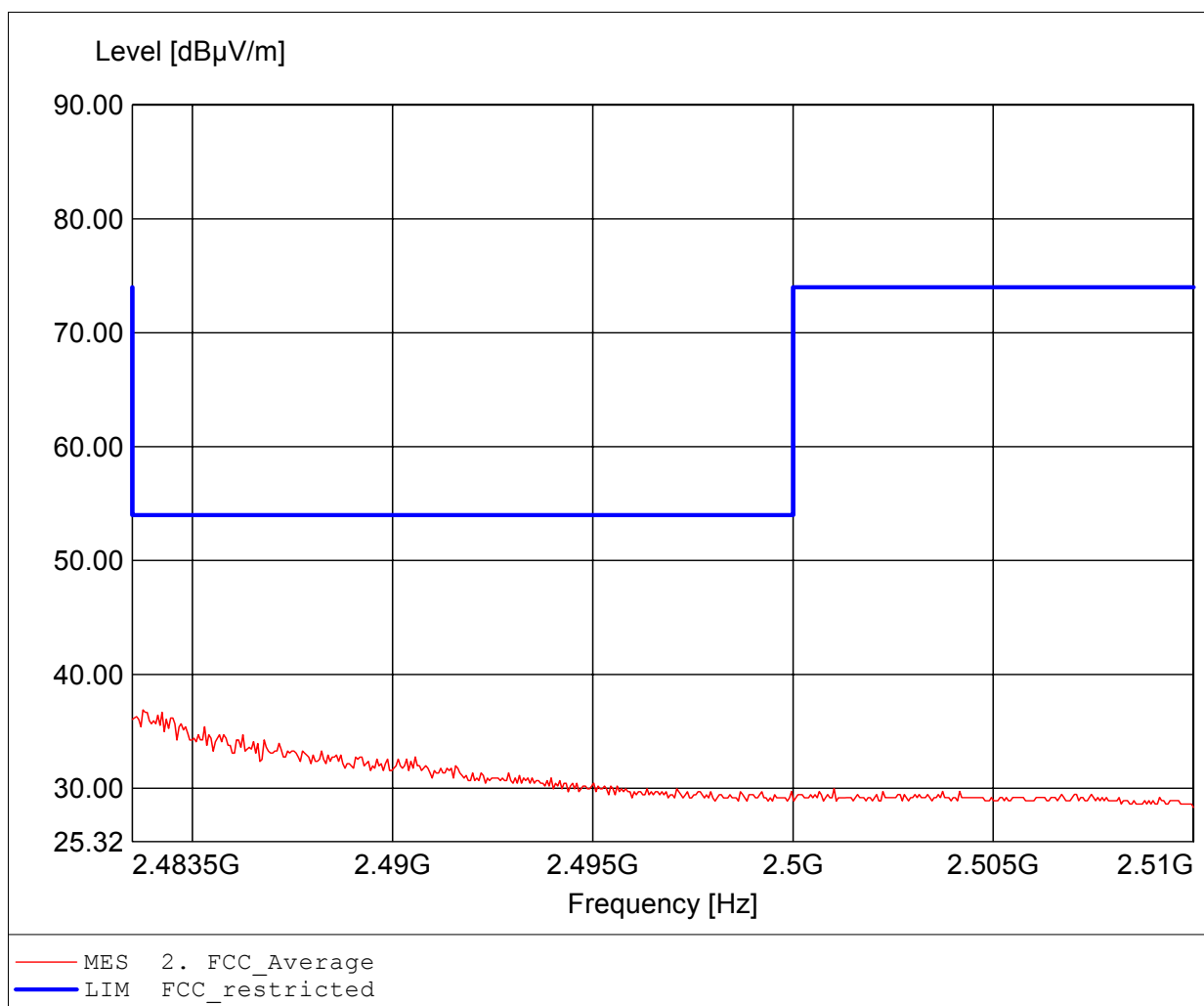
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2462 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.484GHz, Emax: 57.79dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

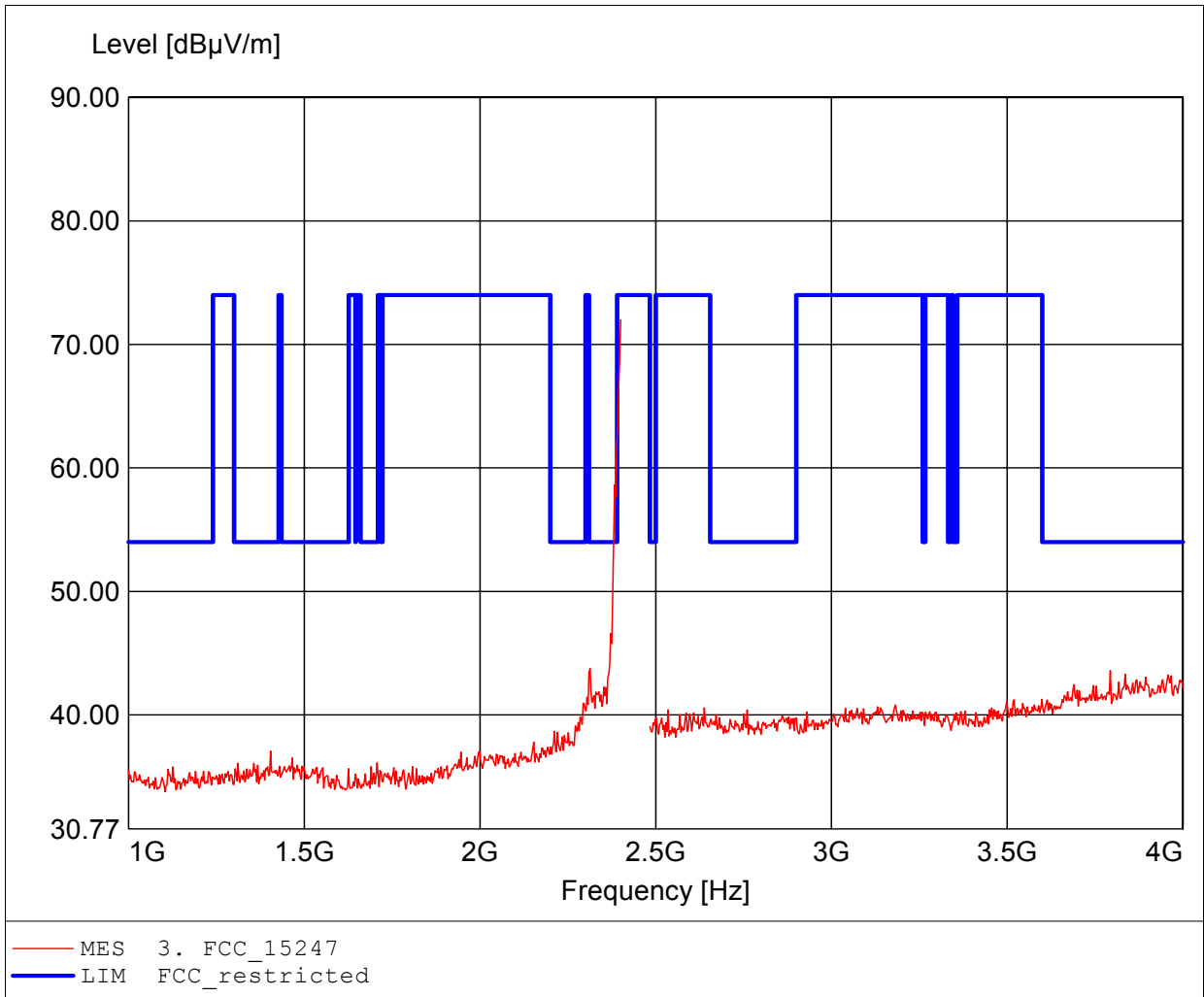
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2462 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, average detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.484GHz, Emax: 36.89dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

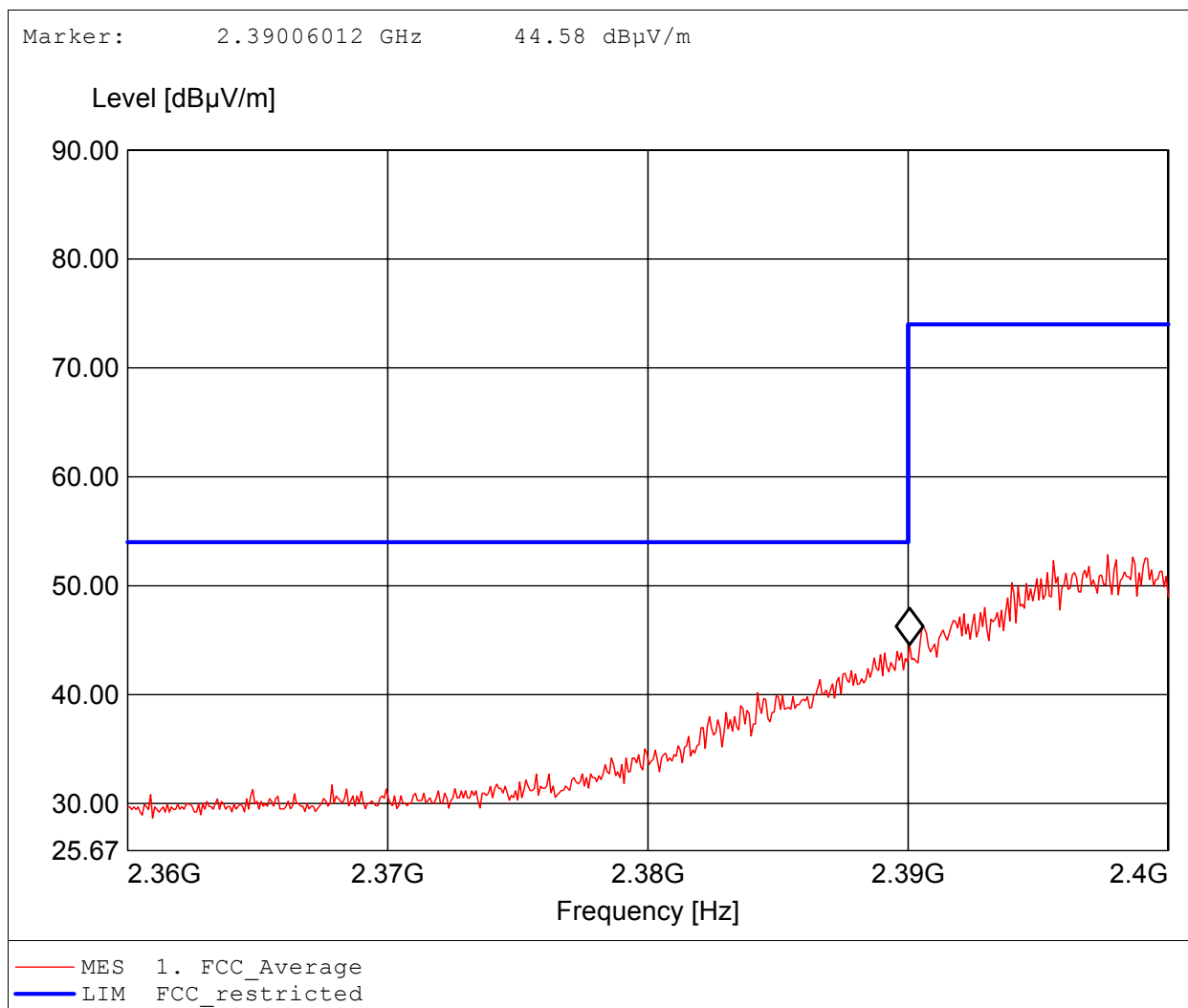
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2412 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.400GHz, Emax: 72.00dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2412 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, average detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.398GHz, Emax: 52.86dBµV/m, RBW: 1MHz

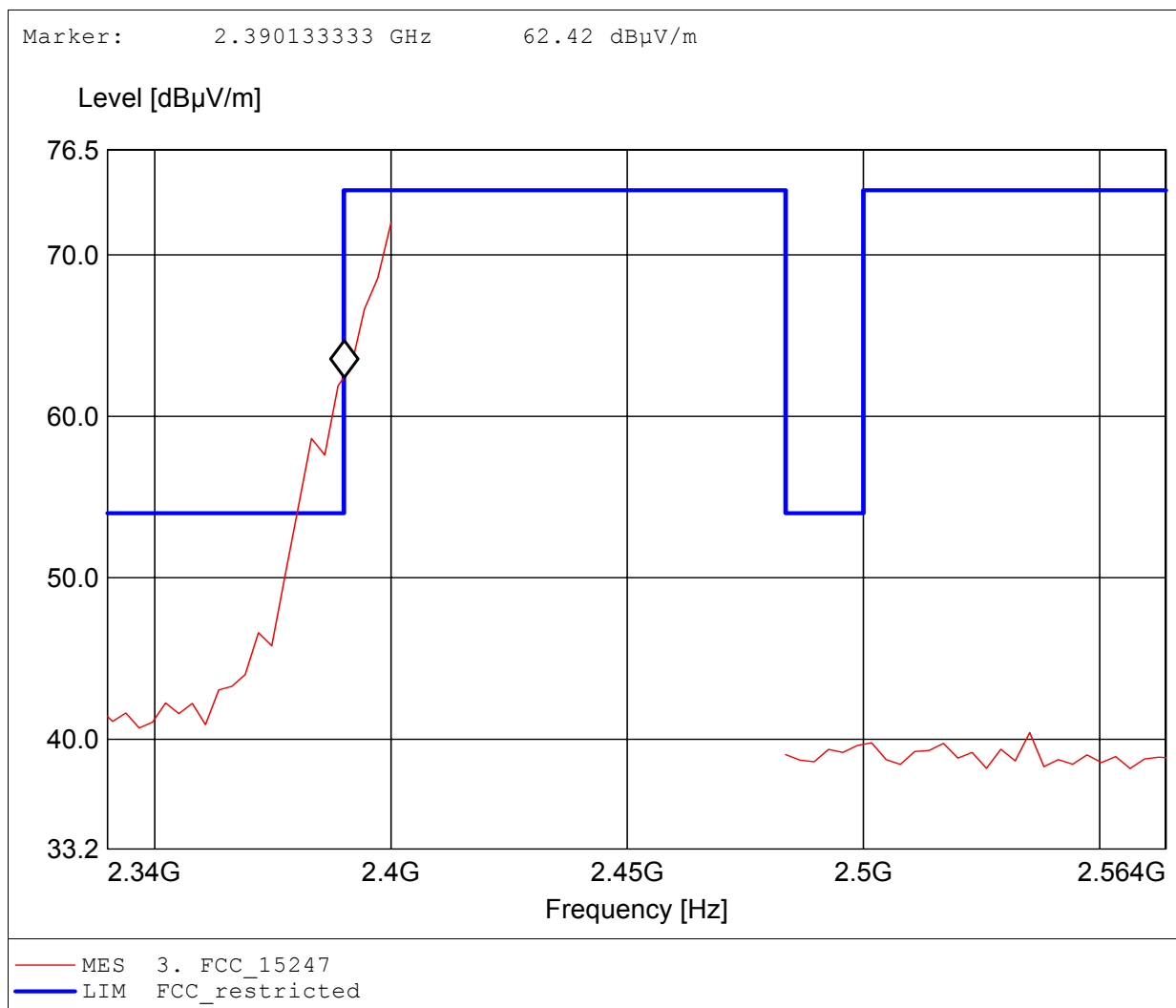




# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

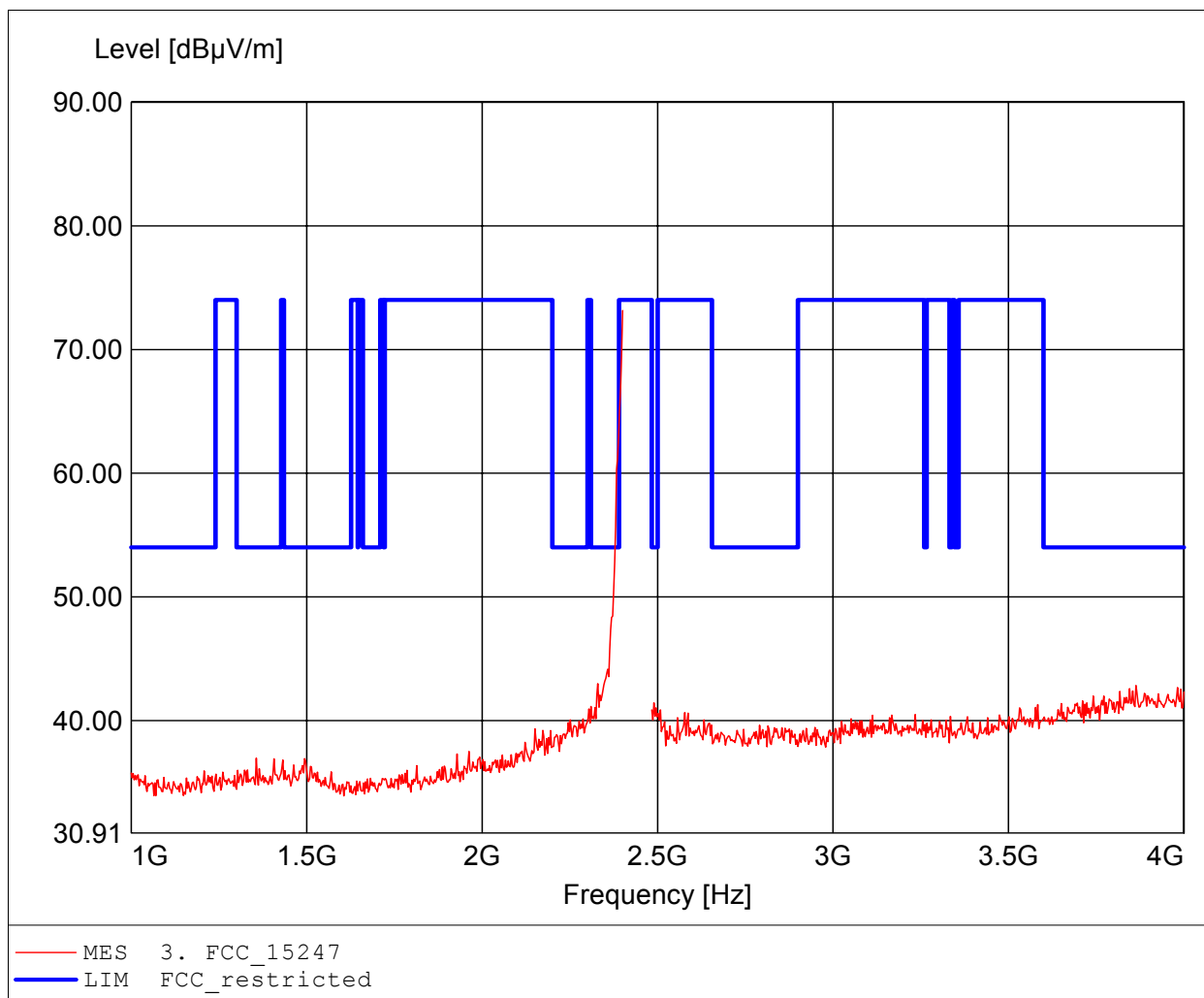
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2412 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.400GHz, Emax: 72.00dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

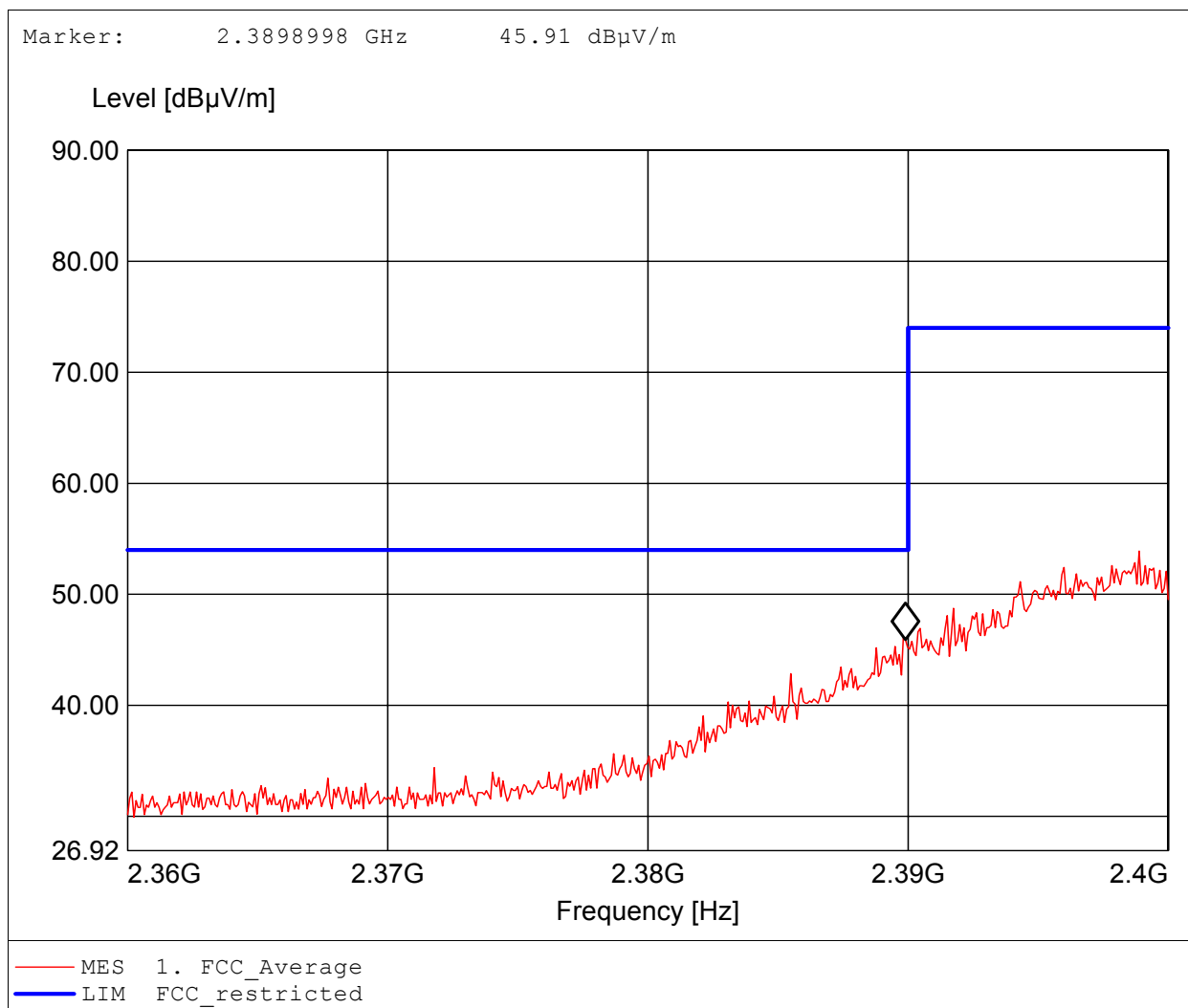
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2412 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.400GHz, Emax: 73.16dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

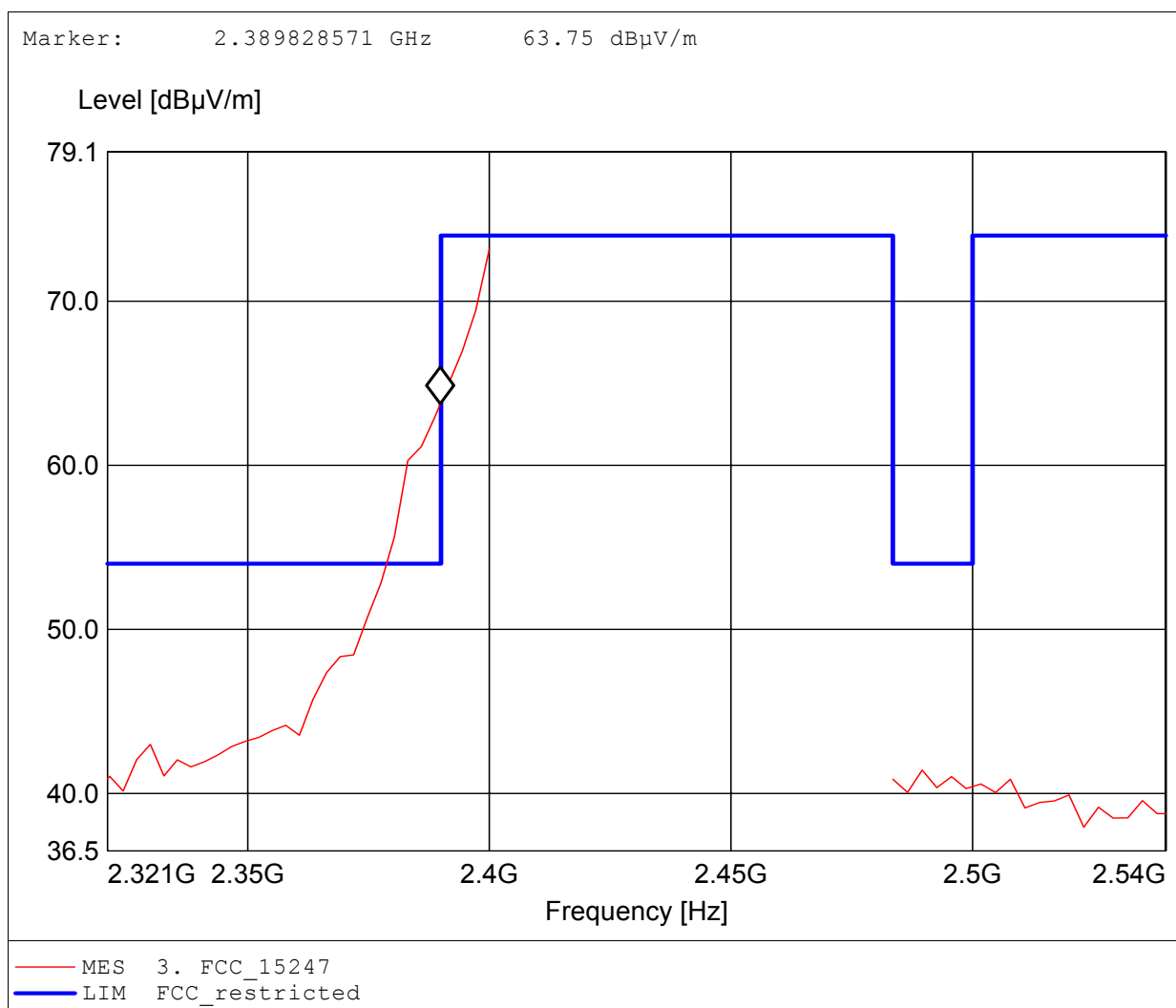
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2412 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, average detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.399GHz, Emax: 53.90dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

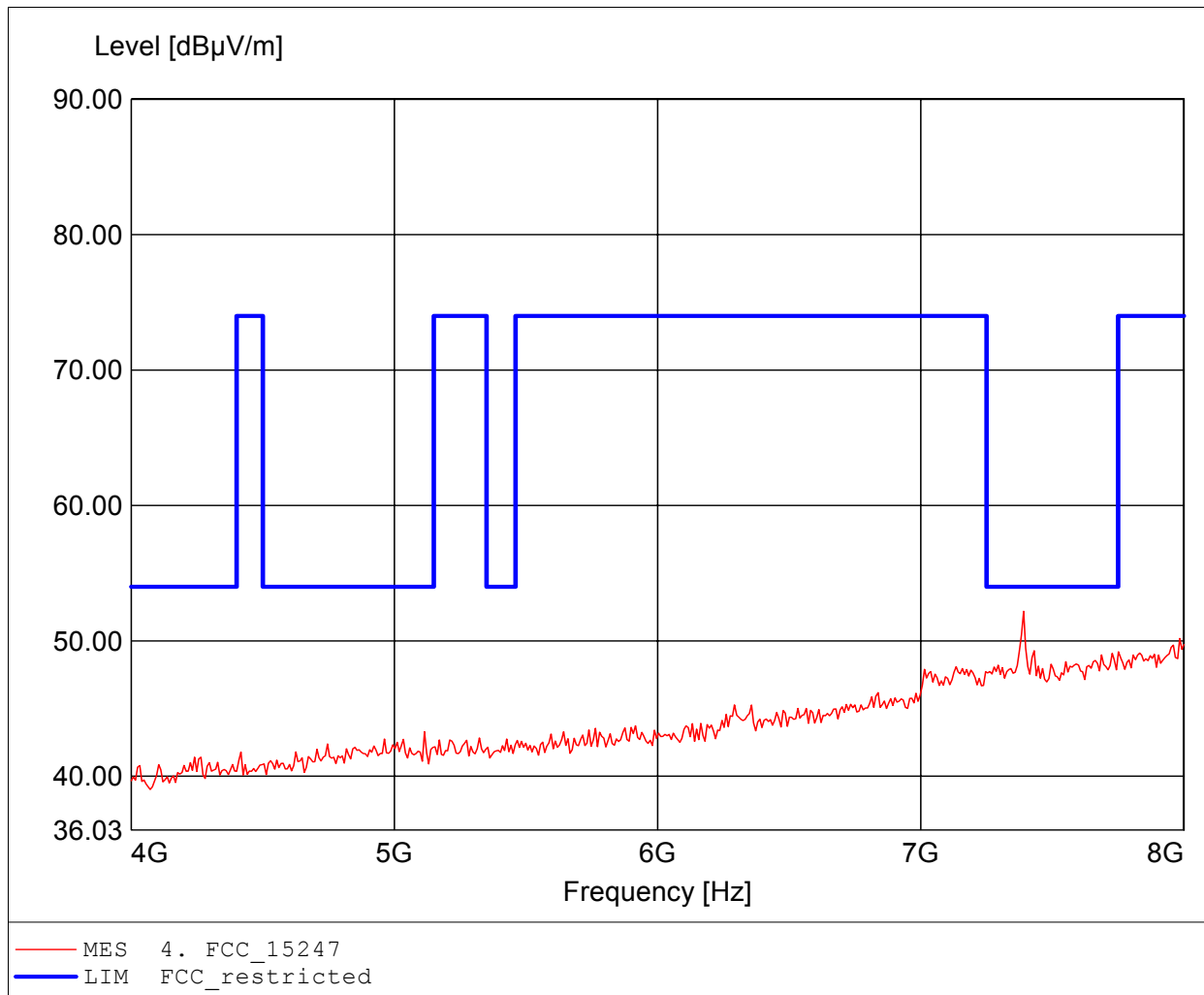
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2412 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.400GHz, Emax: 73.16dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

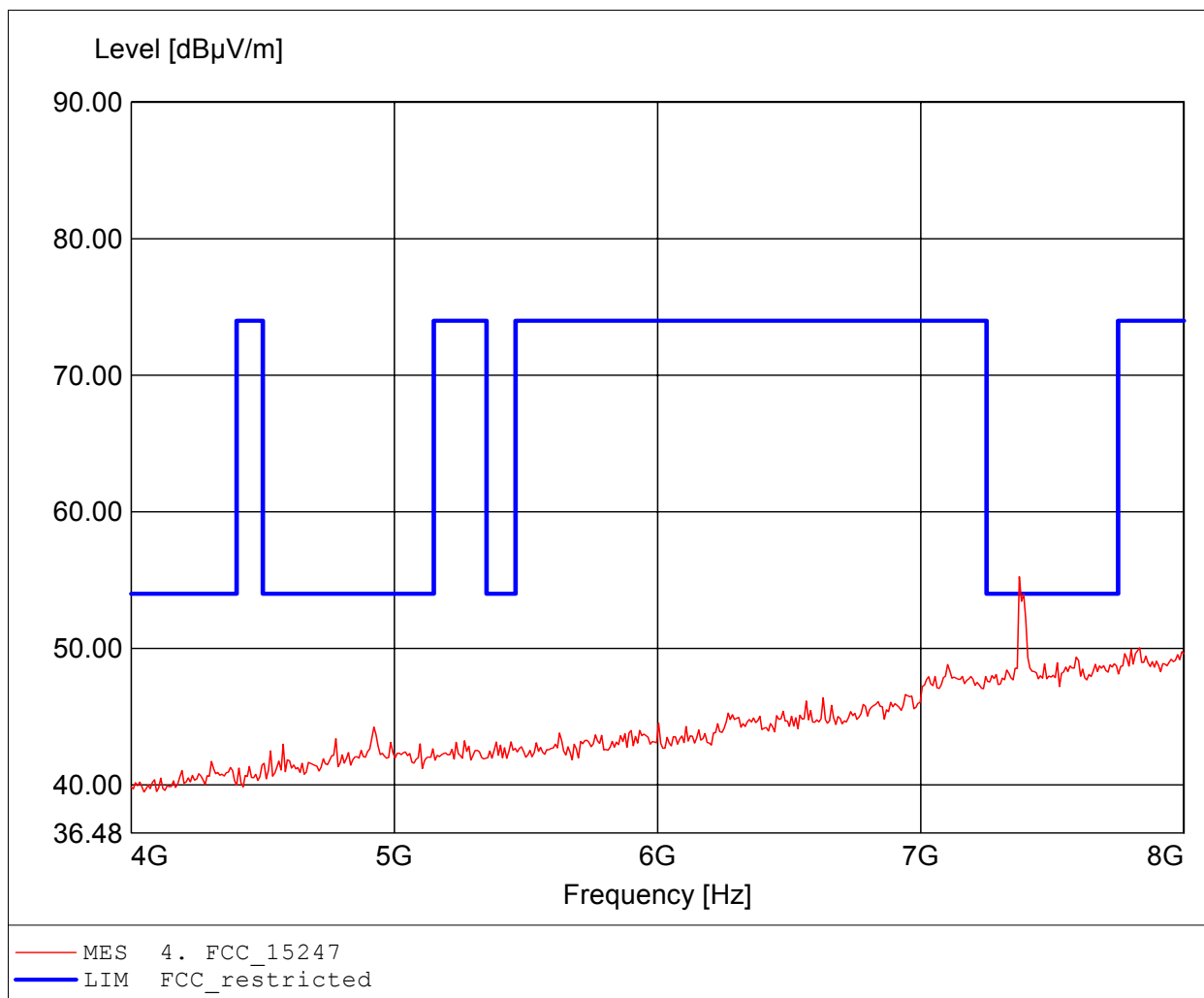
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2462 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.391GHz, Emax: 52.18dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

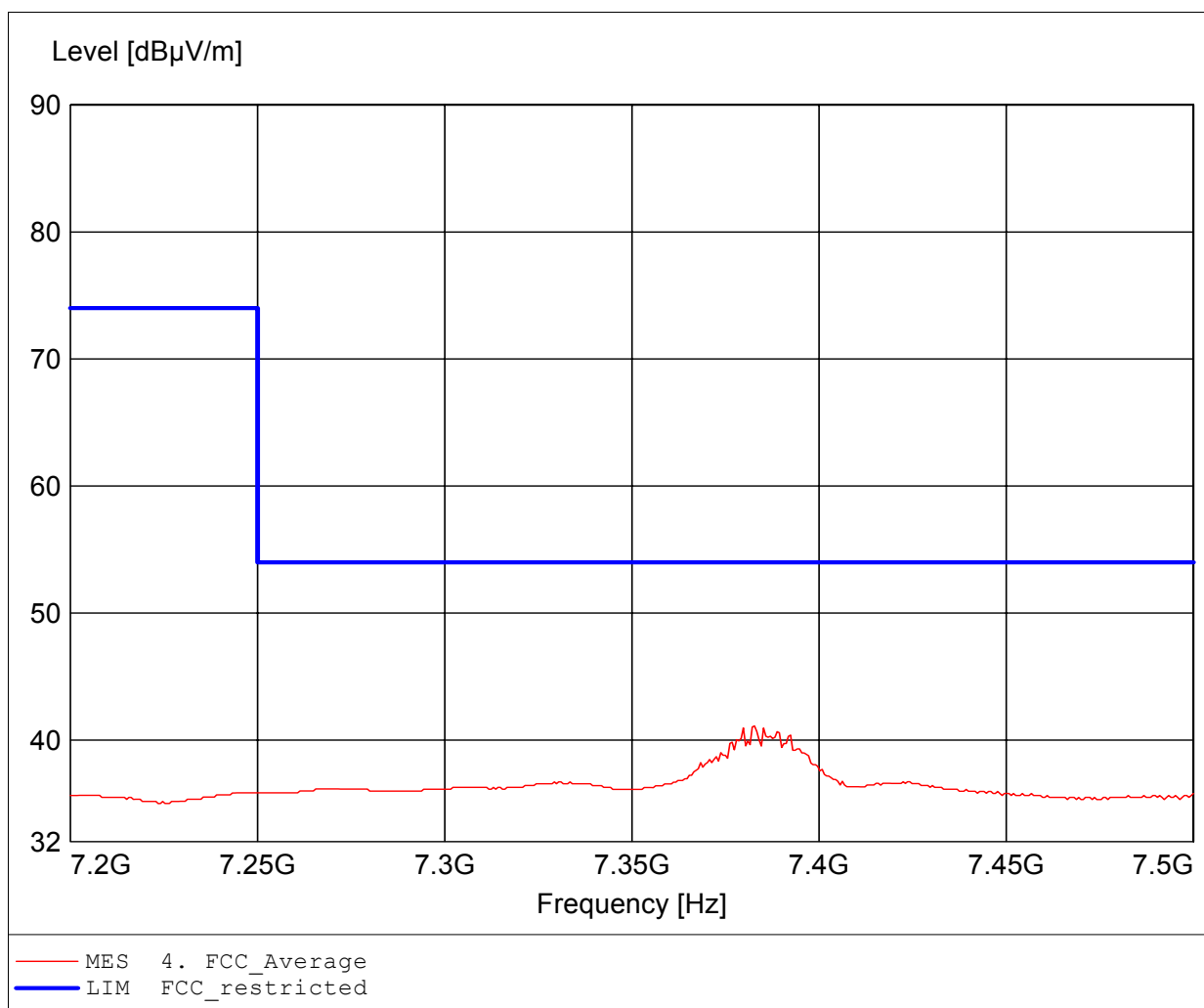
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2462 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.375GHz, Emax: 55.25dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

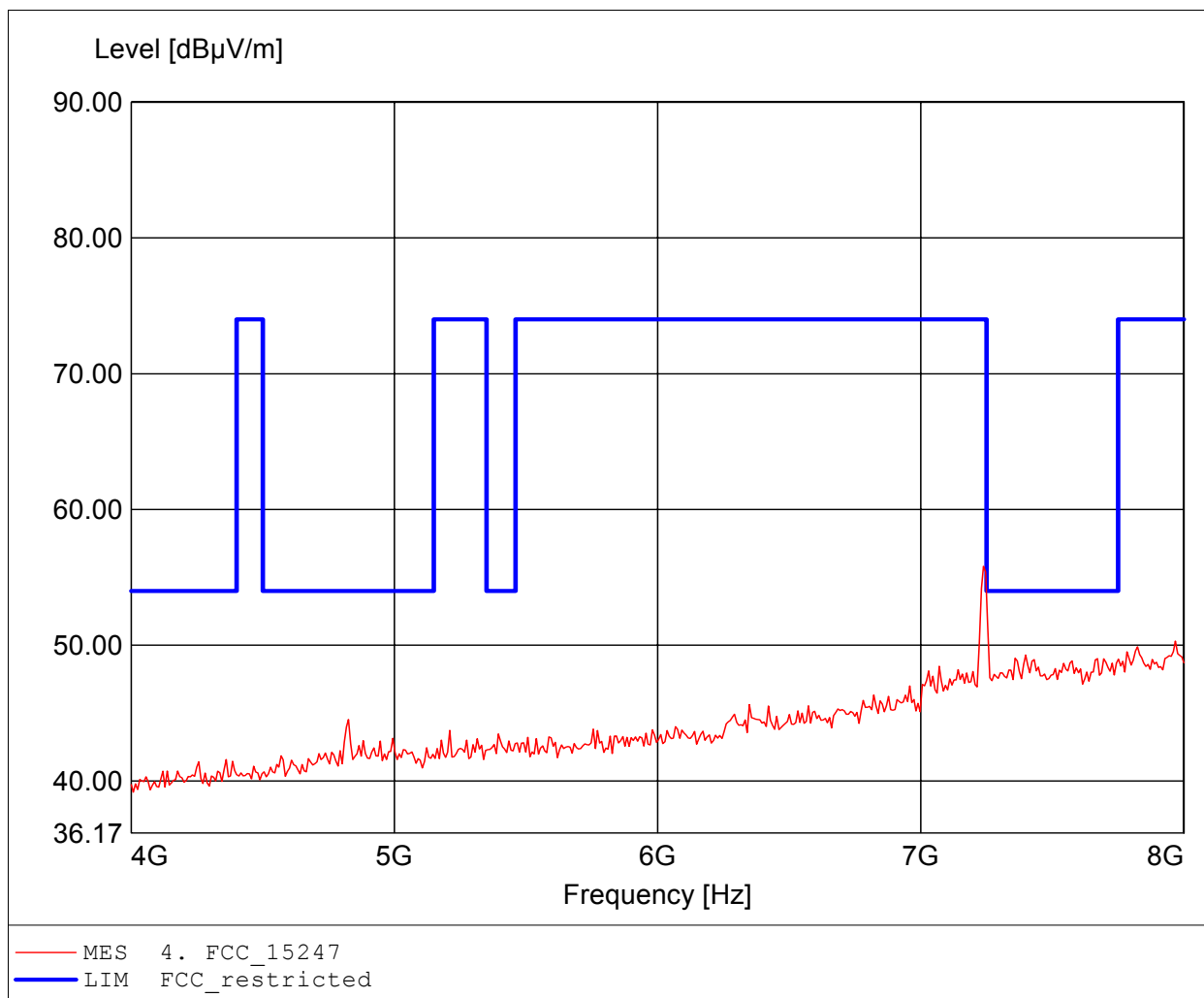
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2462 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, average detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 7.383GHz, Emax: 41.11dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2412 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.238GHz, Emax: 55.82dBuV/m, RBW: 1MHz

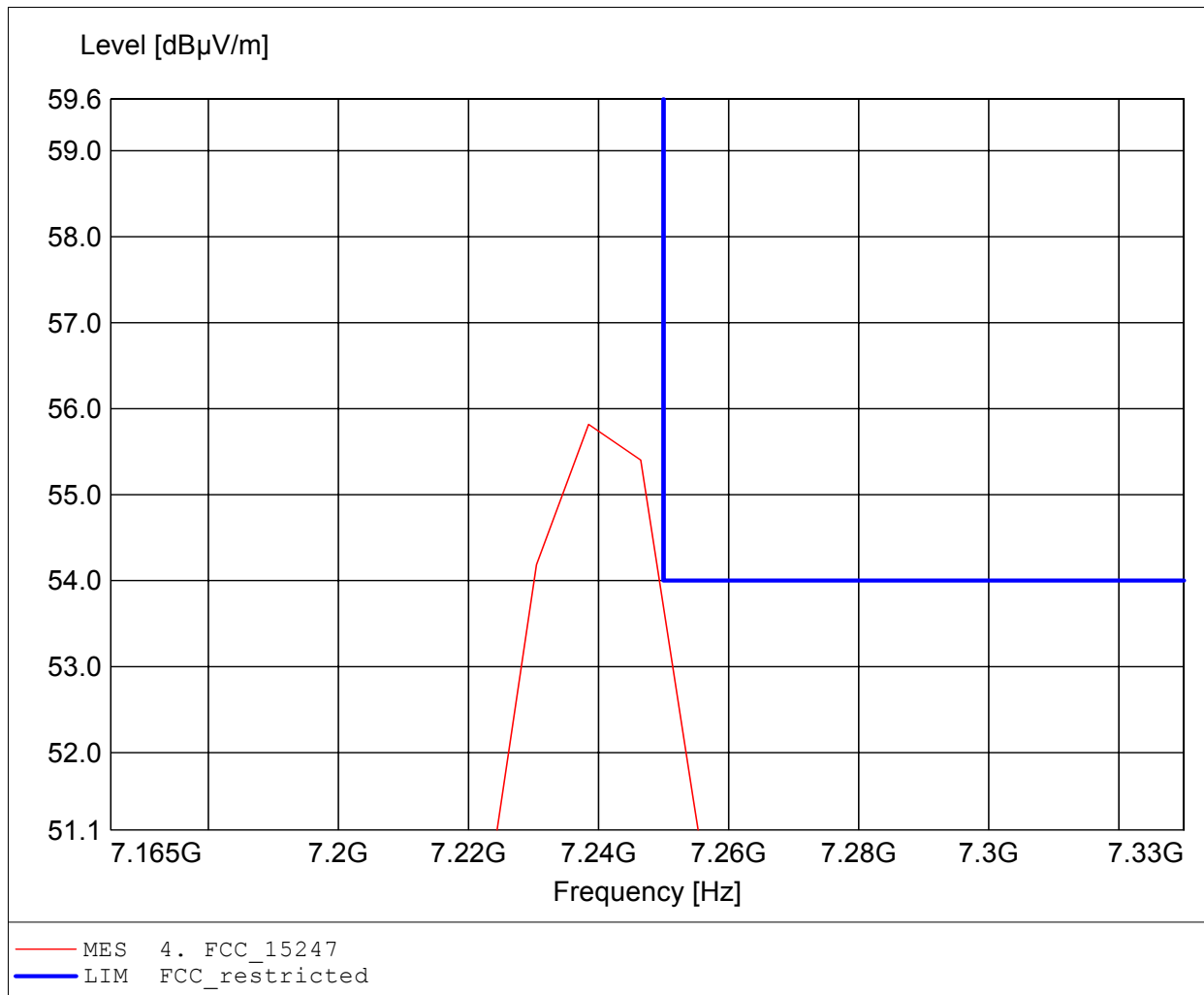




# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

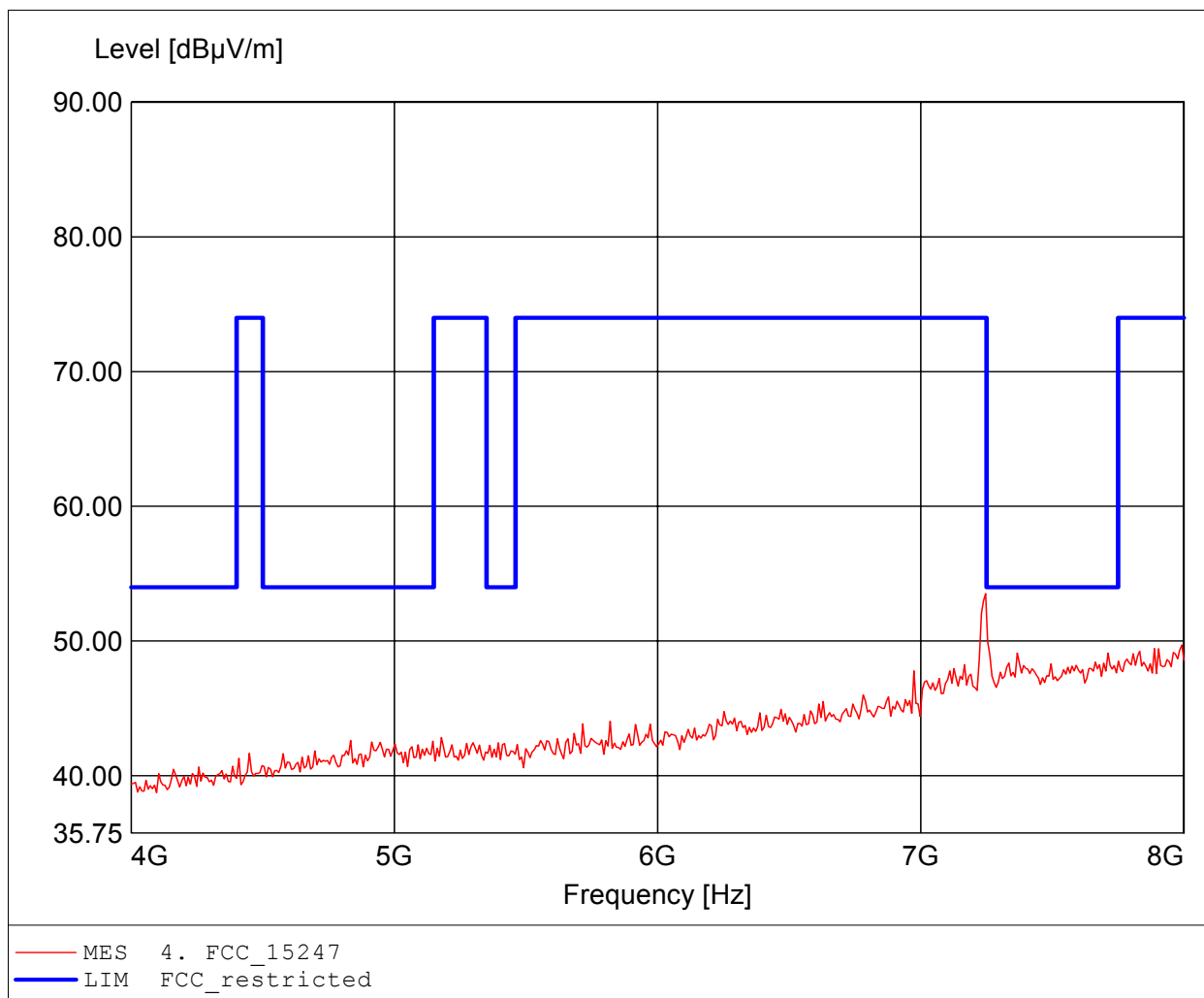
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2412 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.238GHz, Emax: 55.82dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

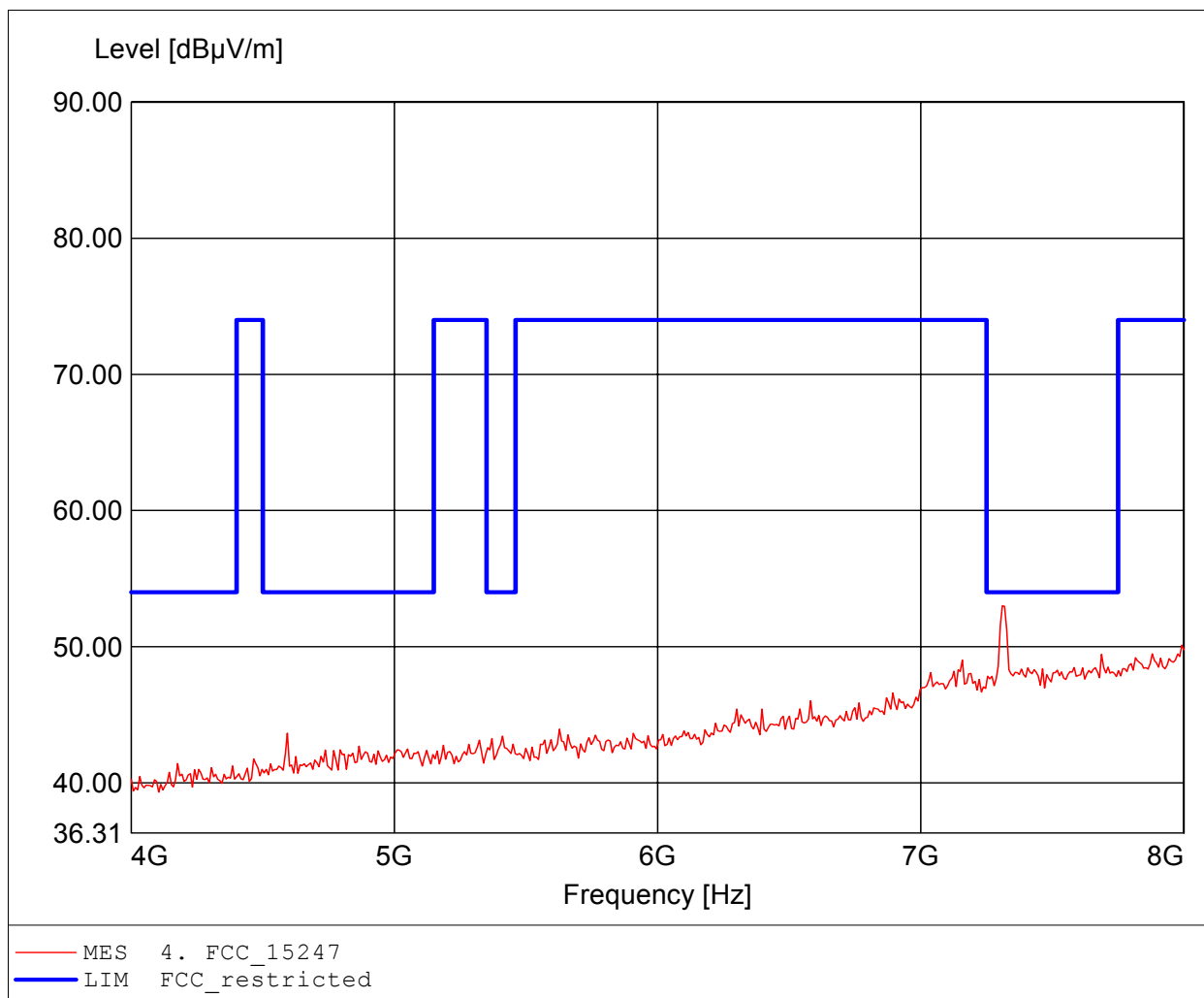
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2412 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.246GHz, Emax: 53.52dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

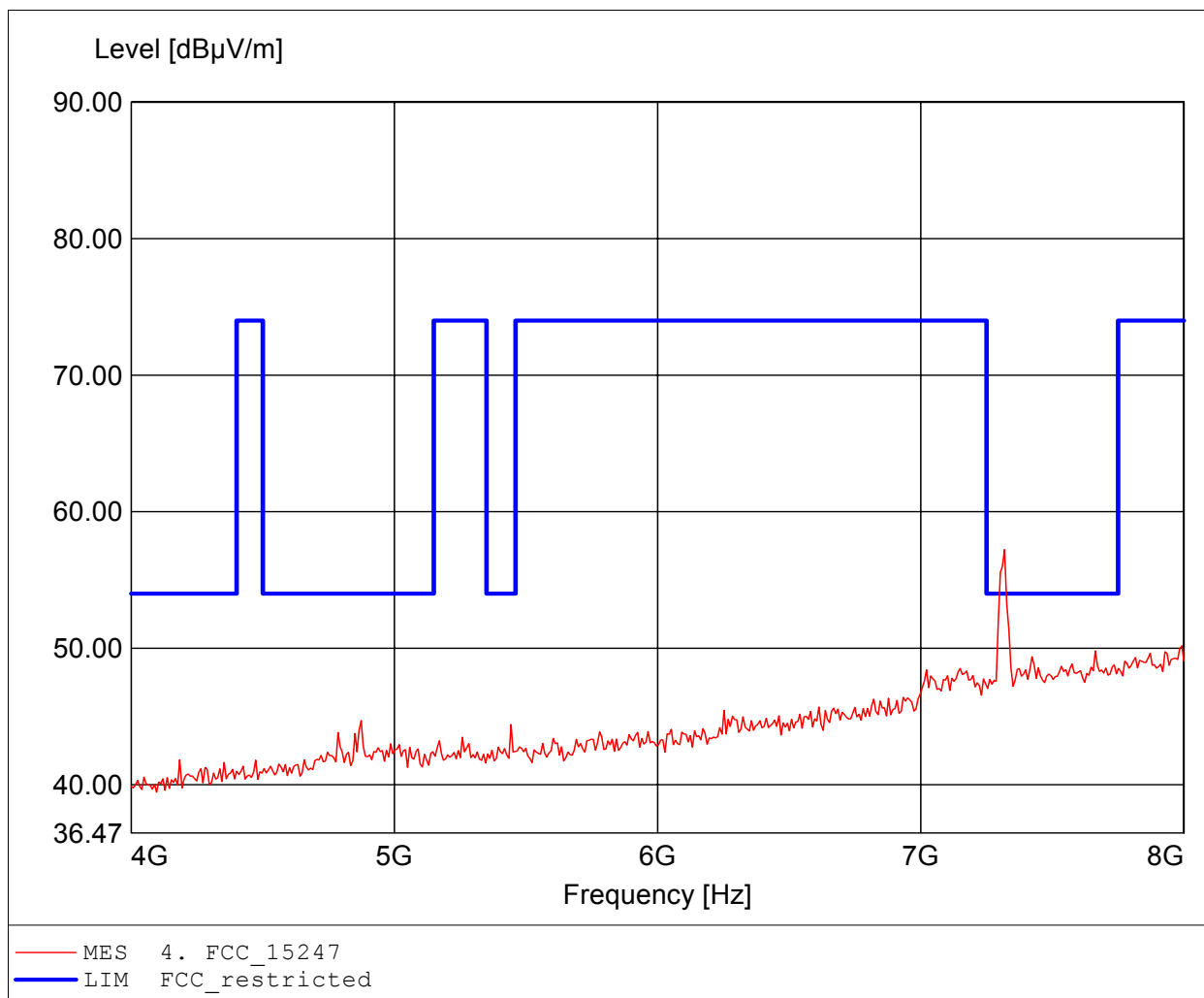
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2437 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.311GHz, Emax: 53.01dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

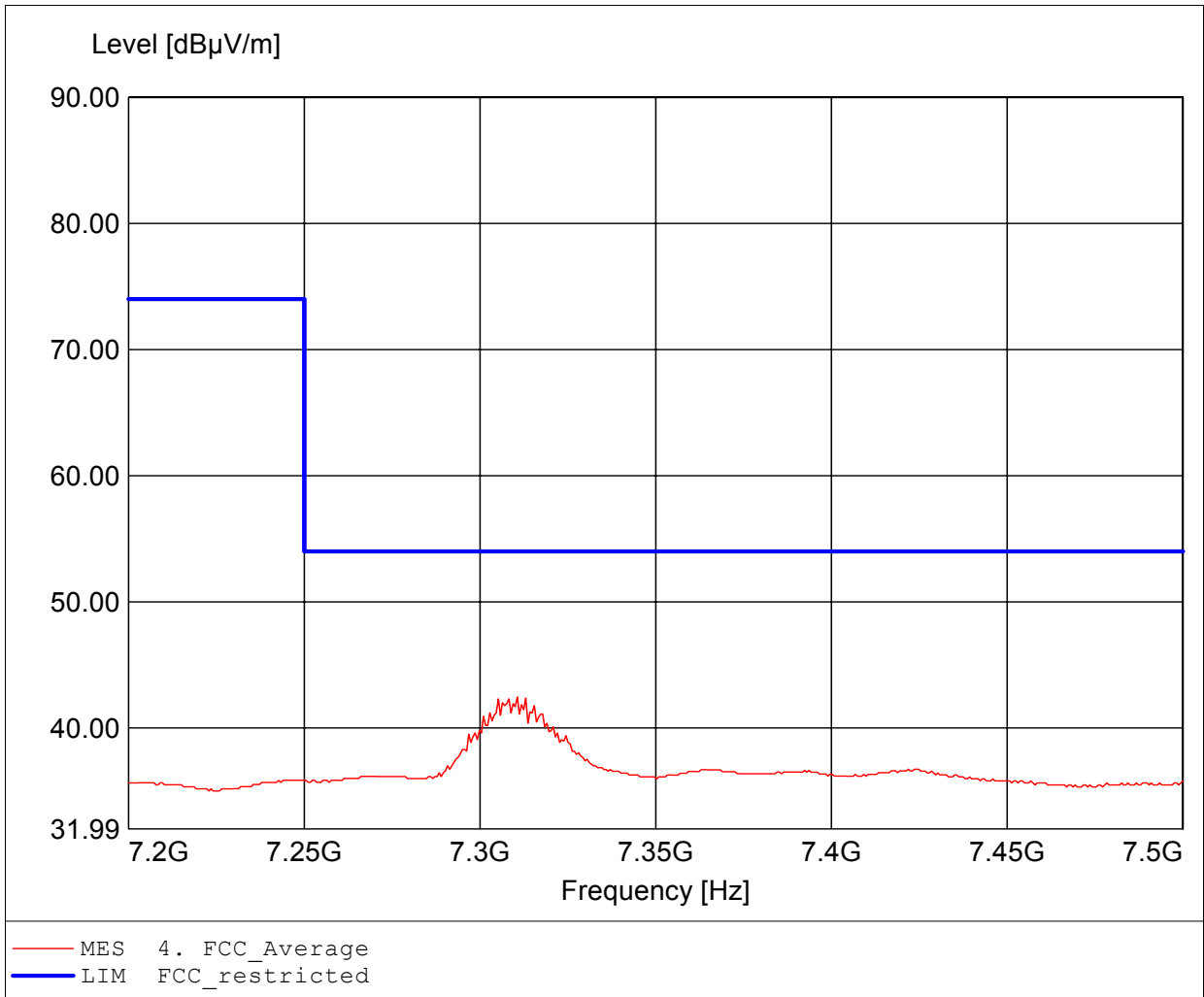
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2437 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.319GHz, Emax: 57.23dBuV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

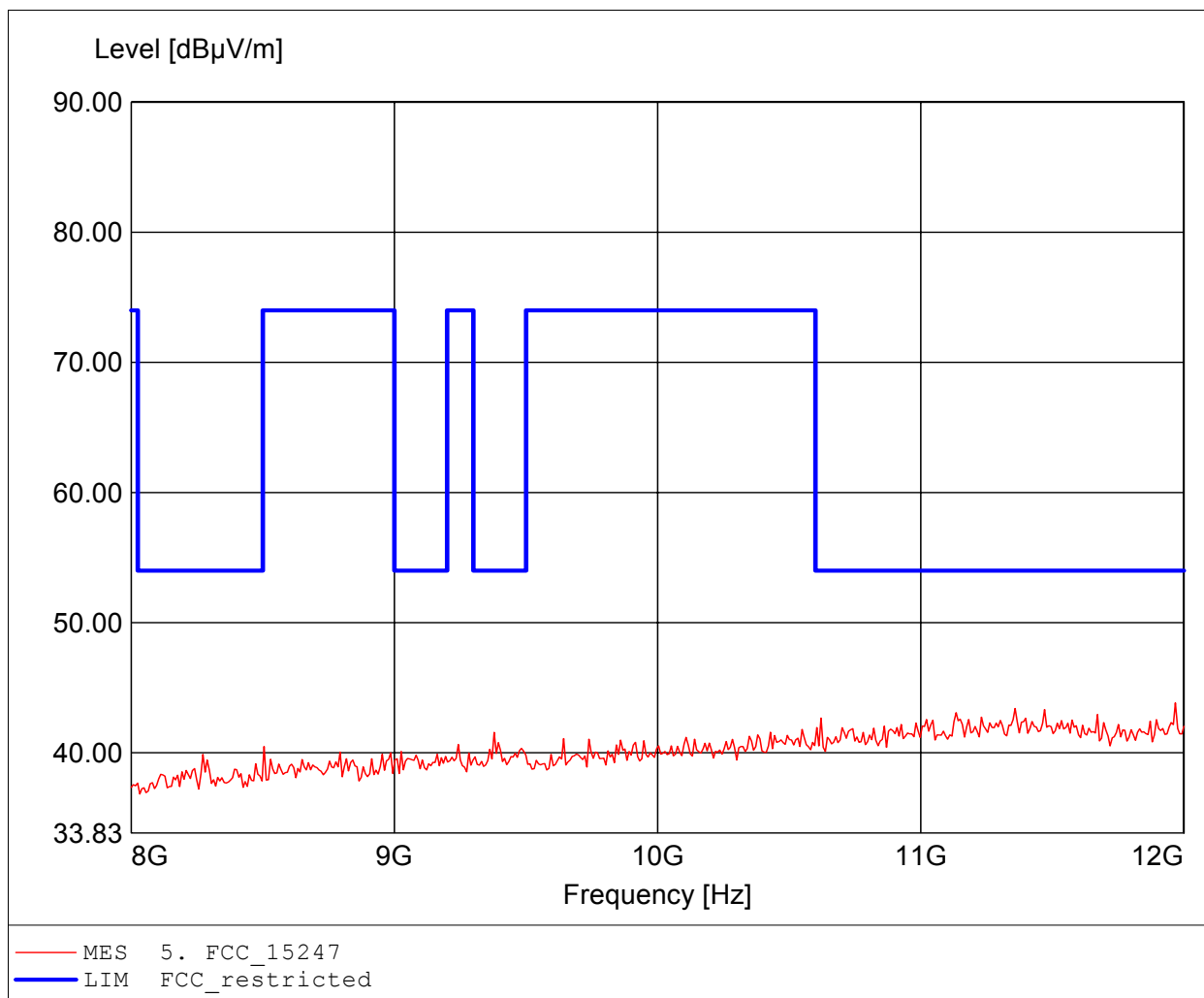
Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2437 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, average detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 7.311GHz, Emax: 42.45dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2462 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 11.968GHz, Emax: 43.82dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

Approval Holder: lesswire AG / Ord.: G0M21008-3606  
EUT: Component  
Model: WiBear-I / setup: OFDM, 2412 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Temp.: 24°C / Unom.: 3.3 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 9.643GHz, Emax: 44.96dBµV/m, RBW: 1MHz

