



EUROFINS PRODUCT SERVICE GMBH



# TEST-REPORT

**FCC PART 15 SUBPART C  
IC RSS 210 ISSUE 8**

**Headphone  
P214**

**FCC ID: T8GP214  
IC: 6434A-P214**

**TEST REPORT NUMBER: G0M21010-3765-P-15**



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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:**

26.07.2011

W. Treffke



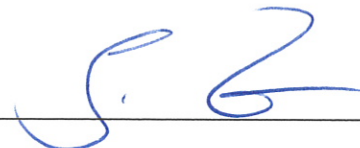

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Date	Eurofins-Lab.	Name	Signature
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**Technical responsibility for area of testing:**

26.07.2011

J. Zimmermann




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Date	Eurofins	Name	Signature
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## 1.2 Testing laboratory

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D-15526 Reichenwalde b. Berlin  
Germany  
Telephone :+49 33631 888 00  
Telefax :+49 33631 888 660

**DAKKS ACCREDITED TESTING LABORATORY**  
DAKKS-REGISTRATION NUMBER: D-PL-12092-01-01

**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 : HARMAN Automotive  
Street : Becker-Görling-Str. 16  
Town : 76307 Karlsbad  
Country : Germany  
Telephone : +49 7248 71 3382  
Fax : +49 7248 71 380

Contact : Herr Stefan Blaschek  
Telephone : +49 7248 71 3382

**Manufacturer:**  
(if applicable)

Name : Fujikon Industrial Co., Ltd  
Street : 16/F., Tower 1, Grand Central Plaza 138 Shatin Rural  
Committee Road  
Town : Shatin, N.T.  
Country : Hong Kong

### 1.4 Application details

Date of receipt of application : 07.10.2010  
Date of receipt of test item : 07.10.2010  
Date of test : 05.06. – 15.07.2011

### 1.5 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  
DQPSK : Differential quadrature phase shift keying  
PSK : Phase shift keying  
MSK : Minimum 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

## 1.6 Test standards

Technical standard :  **FCC PART 15 SUBPART C**  
 **IC RSS 210 ISSUE 8**

## 1.7 Test item

Description of test item : Headphone  
 Type identification : P214  
 Brand Name : Daimler  
 Serial number : Unspecified  
 Hardware version : serial production  
 Software version : serial production  
 Equipment type : End product

### Technical data

Radio type : Transceiver  
 Radio technology : Non specific  
 Frequency range : 2400 - 2483.5MHz  
 Tested frequencies : F<sub>1</sub> 2403MHz  
 Tested frequencies : F<sub>2</sub> 2438MHz  
 Tested frequencies : F<sub>3</sub> 2478MHz  
 Number of channels : 16  
 Channel spacing : 5MHz  
 Antenna type(s) : internal  
 Antenna model(s) : Small SMD chip antenna, Fractus, FR05-S1-N-0-102  
 Number of antennas : 2 (Diversity)  
 Antenna gain(s) : 1.5dBi (Declared by approval holder)  
 Power supply : 2.7VDC (charging mode via usb not possible)  
 Duty cycle(s) : 100% (Test mode), 3% User mode  
 Operating mode(s) : semi duplex  
 Spreading technique : None  
 Modulation(s) : MSK  
 Device classification : Portable Device (Human Body distance < 20 cm)

## 1.8 Additional information

None

## 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 condition parameters:

$V_{nom}$  : 2.7VDC

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

$V_{max} (V_{nom}+15\%)$  : N/A

$T_{nom}$  : 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	09.12.2010	09.12.2012
ETS 0253	Spectrum Analyzer	FSIQ26	Rohde & Schwarz	04.11.2010	04.11.2012
ETS 0030	Biconical Antenna	HK 116	Rohde & Schwarz	10.02.2011	20.02.2012
ETS 0295	LPD Antenna	HL 223	Rohde & Schwarz	09.02.2011	09.02.2012
ETS 0018	Horn Antenna	BBHA 9120D	Schwarzbeck	26.08.2010	26.08.2011
ETS 0432	Amplifier-Matrix			02.06.2010	02.06.2012
ETS 0496	Spectrum Analyzer	FSP30	Rohde & Schwarz	26.08.2010	26.08.2011
ETS 0497	Power Meter	NRVD	Rohde & Schwarz	28.02.2011	28.02.2013
ETS 0278	Power Sensor	NRV-Z31	Rohde & Schwarz	25.11.2010	25.11.2012
ETS 0288	LISN	ESH2-Z5	Rohde & Schwarz	07.09.2010	07.09.2012



## 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:

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

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:

Reading	+	AF	=	Net Reading	:	Net reading - FCC limit = Margin
21.5 dB $\mu$ V		+ 26 dB		= 47.5 dB $\mu$ V/m		: 47.5 dB $\mu$ V/m - 57.0 dB $\mu$ V/m = -9.5 dB

## 2.5 Test results

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	
Maximum peak e.i.r.p. 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 § 15.247(d) FCC § 15.209 IC RSS-210 § A8.5 IC RSS-Gen § 7.2.2	<input checked="" type="checkbox"/>	PASS	
<b>RECEIVER PARAMETERS</b>				
Radiated spurious emissions	FCC § 15.109 IC RSS-Gen § 4.10 IC RSS-Gen § 6.1	<input checked="" type="checkbox"/>	N/A	
<b>POWER LINE PARAMETERS</b>				
AC power line conducted emissions	FCC § 15.207 IC RSS-Gen. 7.2.4	<input type="checkbox"/>	N/A	

### 3 Informational Transmitter parameters

#### 3.1 Transmitter Modes for conformance testing

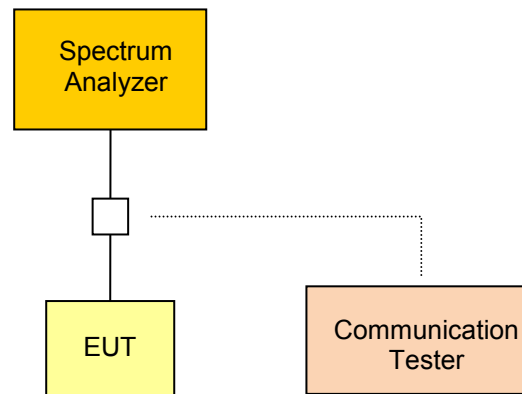
The following transmission modes are elected for compliance testing.

TEST MODE MSK	
Conditions	
Spread Spectrum	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Spreading Technique	None
Modulation	MSK
Bandwidth	3MHz
Duty Cycle	100%
Power level	Maximum

### 3.2 Occupied Bandwidth

According to RSS-Gen Section 4.6.1 the 99% emission bandwidth occupied by the modulated transmitted signal has to be reported as calculated or measured.

#### 3.2.1 Measurement procedure



The EUT is connected to a spectrum analyzer and set to transmission mode (using a communication tester if needed) 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 resolution bandwidth is set as close as possible to 1% of the selected span without being below 1%. The occupied bandwidth is then measured and evaluated by an internal measurement procedure of the analyzer.

**3.2.2 Results**

<b>Transmitter occupied bandwidth</b>			
<b>Measurement Conditions</b>			
<b>Power occupation</b>		99%	
<b>Channel [MHz]</b>	<b>Lower edge frequency [MHz]</b>	<b>Upper edge frequency [MHz]</b>	<b>Occupied Bandwidth [MHz]</b>
Test mode MSK			
2403	2401.30	2404.60	3.301
2438	2436.36	2439.63	3.269
2478	2476.33	2479.60	3.269
<b>See attached diagram in Annex</b>			
<b>Verdict</b>			<b>PASS</b>

## 4 Transmitter parameters

### 4.1 6dB Bandwidth

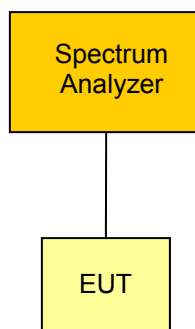
According FCC rules 47 CFR 15.247(a)(2) and RSS-210 Section A8.2 the minimum 6dB Bandwidth has to be validated.

#### 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 MSK			
2403	2402.05	2403.95	1.9016
2438	2437.12	2438.90	1.7812
2478	2477.05	2478.86	1.8061
<b>See attached diagram in Annex</b>			
<b>Verdict</b>			<b>PASS</b>

## 4.2 Power spectral density

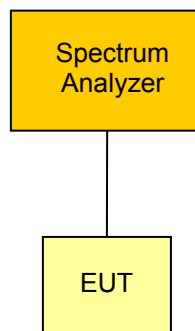
According FCC rules 47 CFR 15.247(e) and RSS-210 Section A8.2 the maximum power density in any 3kHz bandwidth is limited and has to be validated.

### 4.2.1 Limits

According 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≥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**

<b>Power spectral density</b>		
<b>Channel [MHz]</b>	<b>Max. emission frequency [MHz]</b>	<b>Spectral density [dBm/3kHz]</b>
Test mode MSK		
2403	2402.824	-14.3
2438	2437.861	-14.7
2478	2478.004	-15.2
<b>See attached diagram in Annex</b>		
<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 be verified.

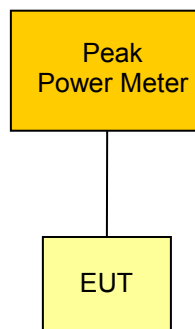
#### 4.3.1 Limits

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**

<b>Maximum peak conducted output power</b>		
<b>Measurement Conditions</b>		
<b>Antenna gain</b>	1.5dBi	
<b>Power correction</b>	0dB	
<b>Channel [MHz]</b>	<b>Conducted output power [dBm]</b>	<b>Power Limit [dBm]</b>
Test mode MSK		
2403	1.9	30
2438	1.5	30
2478	1.3	30
<b>See attached diagrams in Annex</b>		
Measurement uncertainty		4.22dB
<b>Verdict</b>		<b>PASS</b>

#### 4.4 Transmitter band-edge compliance

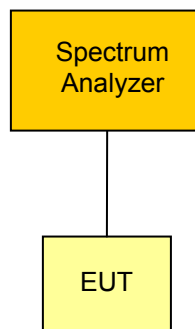
According FCC rules 47 CFR 15.209, 15.247(d) and RSS-210 Section A8.5 the emission level of out-of-band emissions are limited and has to be validated.

##### 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 band edge, or on the highest modulation product outside of the band, if this level is greater than that at the band edge. Using the delta-marker function the highest peak 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>	<b>Peak</b>	
<b>Test mode</b>	<b>Lower edge emission [dBc]</b>	<b>Upper edge emission [dBc]</b>
MSK	-29.68	-35.29
<b>See attached diagram in Annex</b>		
<b>Verdict</b>		<b>PASS</b>

## 4.5 Transmitter conducted spurious emissions

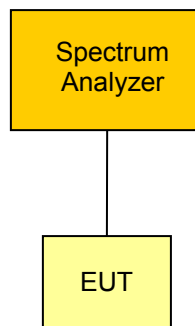
According FCC rules 47 CFR 15.247(d) and RSS-210 Section A8.5 unwanted emissions in the spurious domain are power limited and has to be validated.

### 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						
Modulated		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No				
Channel Frequency [MHz]	Emission Frequency [MHz]	Emission Level [dBm]	Fund. Emission Level [dBm]	Limit [dBm]	Detector	Margin [dB]
Test mode MSK						
2403	2187	-50.00	-2.49	-22.49	peak	-27.51
2403	2623	-49.30	-2.49	-22.49	peak	-26.81
2403	4800	-46.41	-2.49	-22.49	peak	-23.92
2403	7200	-51.44	-2.49	-22.49	peak	-28.95
2438	2217	-49.08	-2.01	-22.01	peak	-27.07
2438	2659	-50.26	-2.01	-22.01	peak	-28.25
2438	4860	-44.59	-2.01	-22.01	peak	-22.58
2438	7329	-51.20	-2.01	-22.01	peak	-29.19
2478	2252	-48.04	-2.04	-22.04	peak	-26.00
2478	2707	-50.37	-2.04	-22.04	peak	-28.33
2478	4940	-45.29	-2.04	-22.04	peak	-23.25
2478	7440	-49.59	-2.04	-22.04	peak	-27.55
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

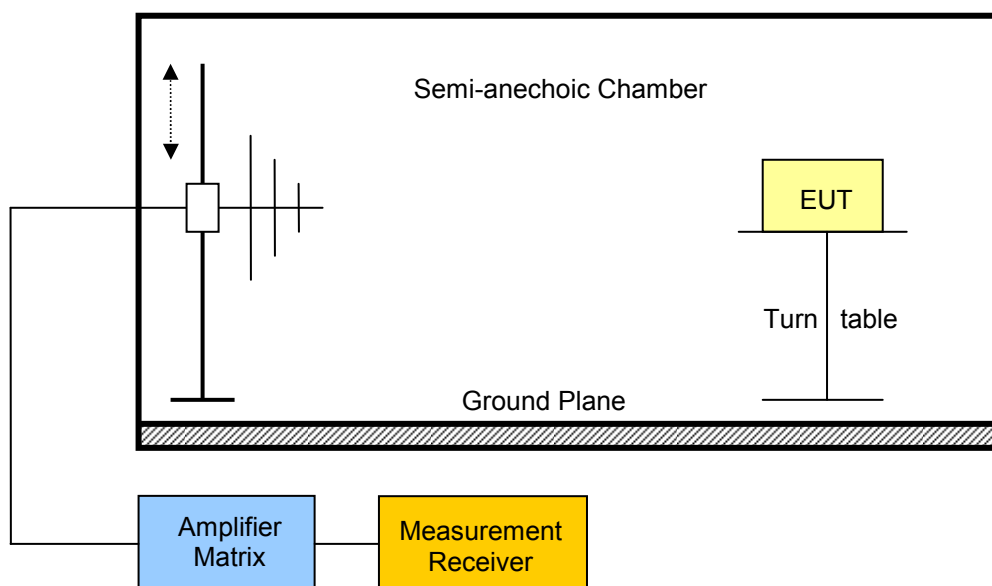
Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

Transmitter 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 MSK						
2478	2245.0	h	55.1	74	peak	-18.90
2478	2245.0	h	48.9	54	avg	-05.10
2478	2483.5	v	59.8	74	peak	-14.20
2478	2483.5	v	46.2	54	avg	-07.80
2478	2483.5	h	58.9	74	peak	-15.10
2478	2483.5	v	51.9	54	avg	-02.10
See attached diagrams in Annex						
<b>Verdict</b>					<b>PASS</b>	

## 5 Receiver parameters

### 5.1 Receiver spurious emissions

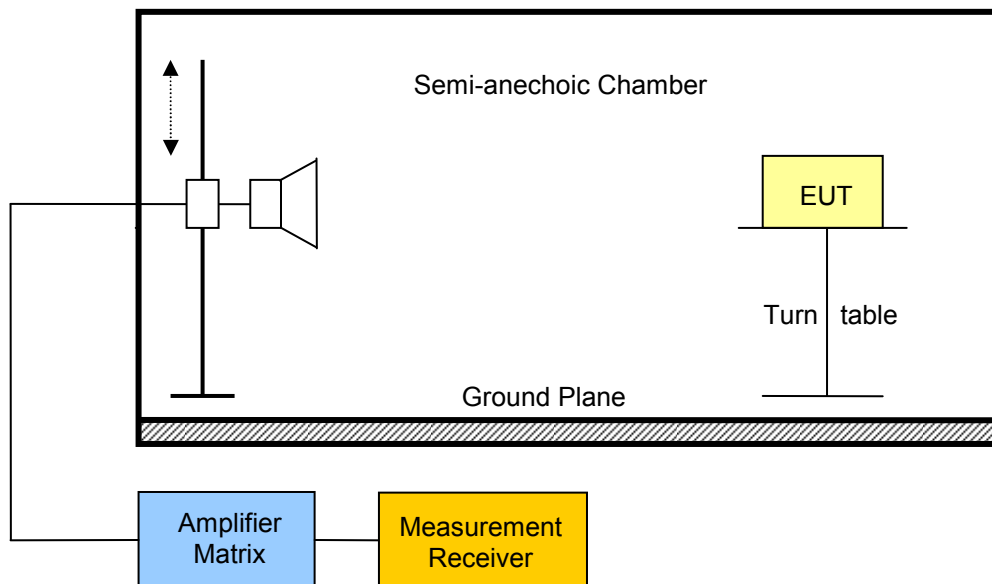
According RSS-Gen Section 4.9 the emissions of unintentional radiators have to comply with limits stated in the rules.

#### 5.1.1 Limits

Receiver spurious emission limits @ 3m				
Frequency range [MHz]	Detector	Limit@3m [ $\mu\text{V/m}$ ]	Calculated Limit @ 3m [dB $\mu\text{V/m}$ ]	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

#### 5.1.2 Measurement procedure

The spurious emission measurement is performed on a 3m open area test site.



The EUT is placed on a non-metallic table. Any emission is received by a loop antenna and measured via a measurement receiver connected to the loop 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 3rd harmonic.

### 5.1.3 Results

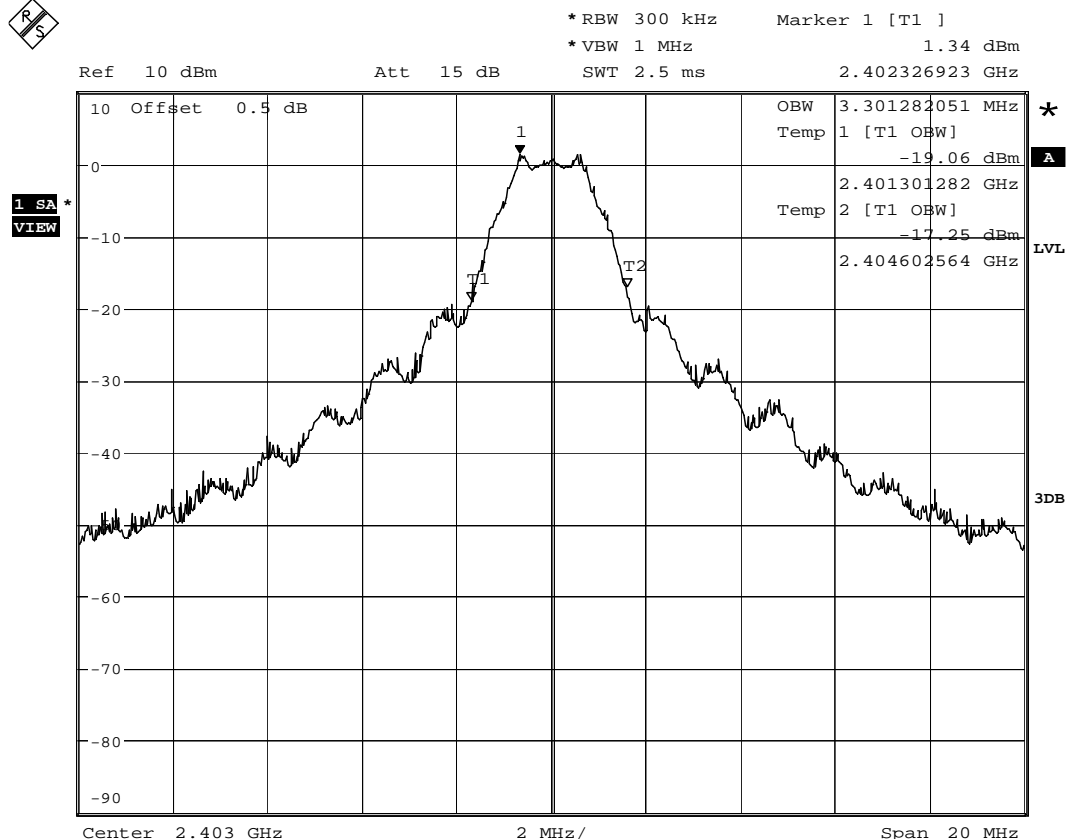
Receiver spurious Emissions						
Measurement Conditions						
Measurement distance		3m				
Channel Frequency [MHz]	Emission Frequency [MHz]	Polarization	Measured Field Strength [ $\mu\text{V/m}$ ]	Limit@3m [ $\mu\text{V/m}$ ]	Detector	Margin [ $\mu\text{V/m}$ ]
SCAN	2389	h	171.79	500	peak	-328.21
See attached diagrams in Annex						
Verdict					PASS	

\* **Note** : If needed the measured field strength values are corrected to reflect the field strength values at the measurement distance stated in the table. Correction acc.  $20 \cdot \log_{10}(\text{measurement distance}/\text{limit distance})$ .

## Annex B Transmitter occupied bandwidth

### RSS Gen Occupied Bandwidth

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 2403 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	MSK

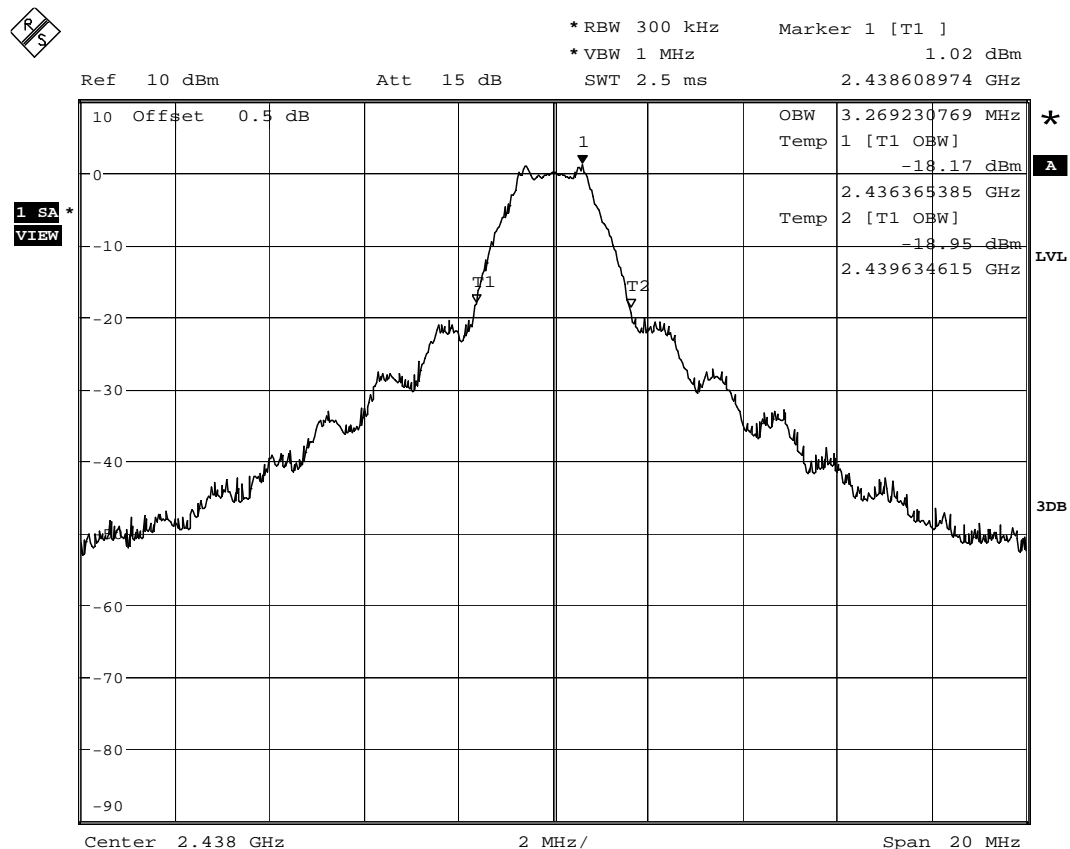


Occupied bandwidth: 3301.3 KHz

Date: 6.JUL.2011 13:36:49

**RSS Gen  
Occupied Bandwidth**

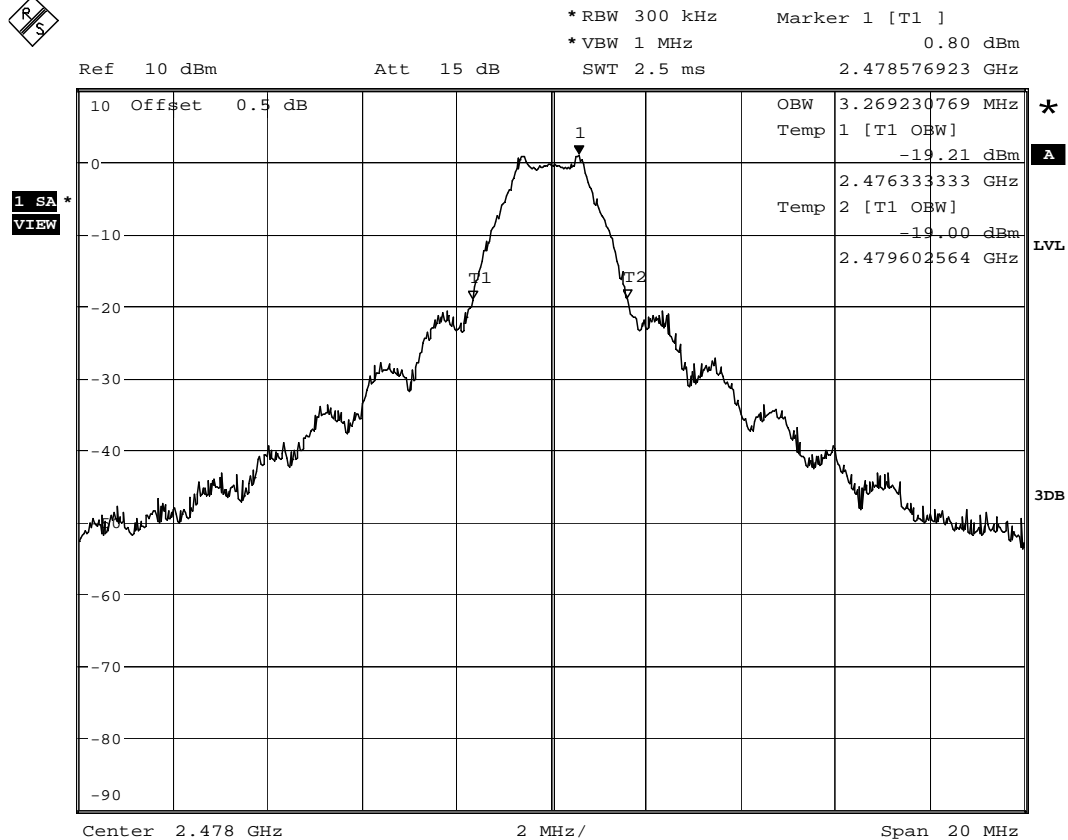
EUT Headphone  
 Model P214  
 Approval Holder HAMAN Automotive / Ord.: G0M21010-3765  
 Temperature / Voltage 24°C, Vnom  
 Test Site / Operator Eurofins Product Service GmbH, Mr. Treffke  
 Test Specification 4.4.1 Occupied Bandwidth  
 Comment 1 Channel.: 2438 MHz  
 Comment 2 A spectrum analyzer with an integrated 99% power bandwidth function is used  
 Comment 3 MSK



Occupied bandwidth: 3269.2 KHz  
 Date: 6.JUL.2011 13:38:54

**RSS Gen  
Occupied Bandwidth**

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°C, Vnom
Test Site / Operator	Eurofins Product Service GmbH, Mr. Treffke
Test Specification	4.4.1 Occupied Bandwidth
Comment 1	Channel.: 2478 MHz
Comment 2	A spectrum analyzer with an integrated 99% power bandwidth function is used
Comment 3	MSK

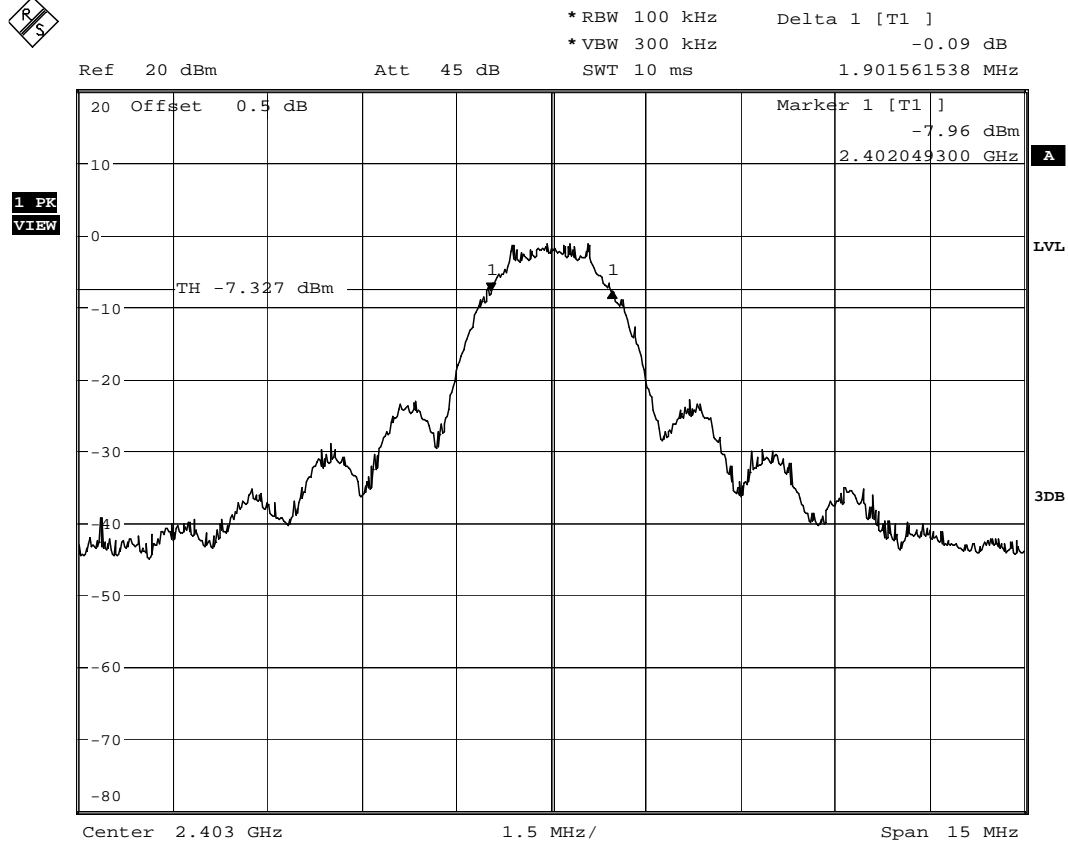


Occupied bandwidth: 3269.2 KHz  
Date: 6.JUL.2011 13:41:18

## Annex C Transmitter 6dB bandwidth

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

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°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 : 2403 MHz
Comment 3	Modulation: MSK



6 dB bandwidth: 1901.6 KHz > 500 KHz; verdict: PASS

Date: 5.JUL.2011 08:05:06

Test Report No.: G0M21010-3765-P-15

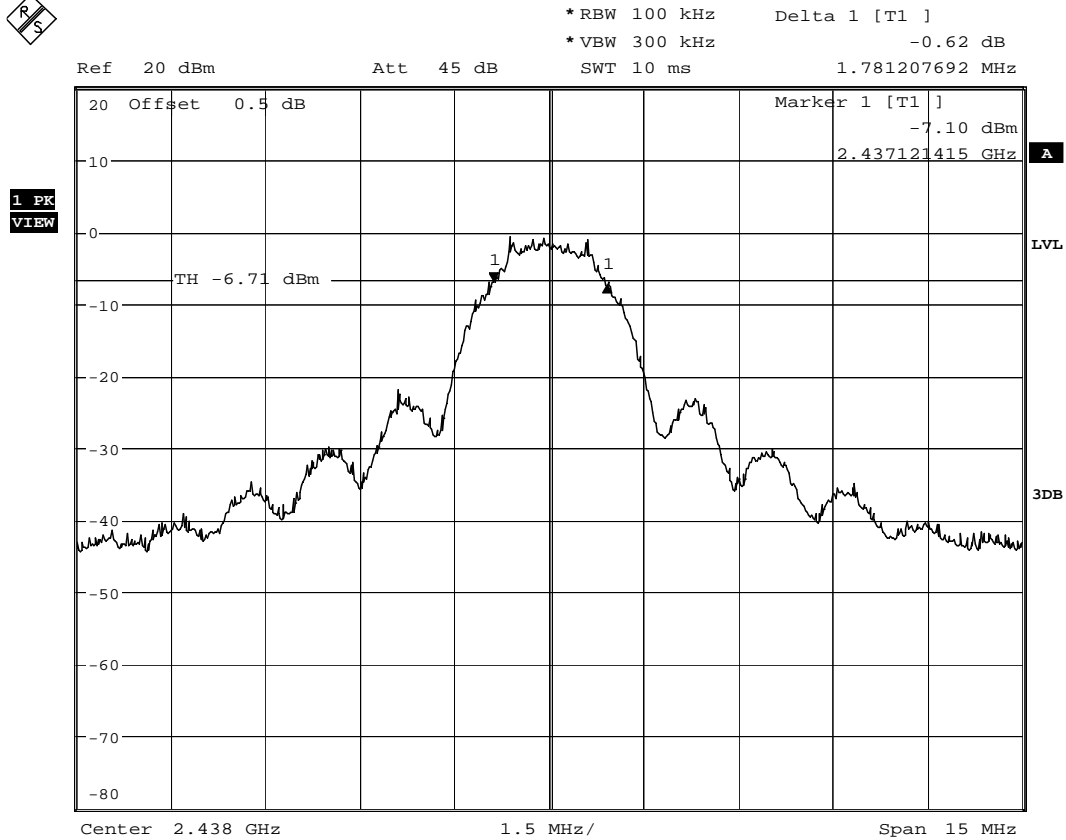
Eurofins Product Service GmbH  
 Storkower Str. 38c, D-15526 Reichenwalde, Germany

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

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°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 : 2438 MHz
Comment 3	Modulation: MSK

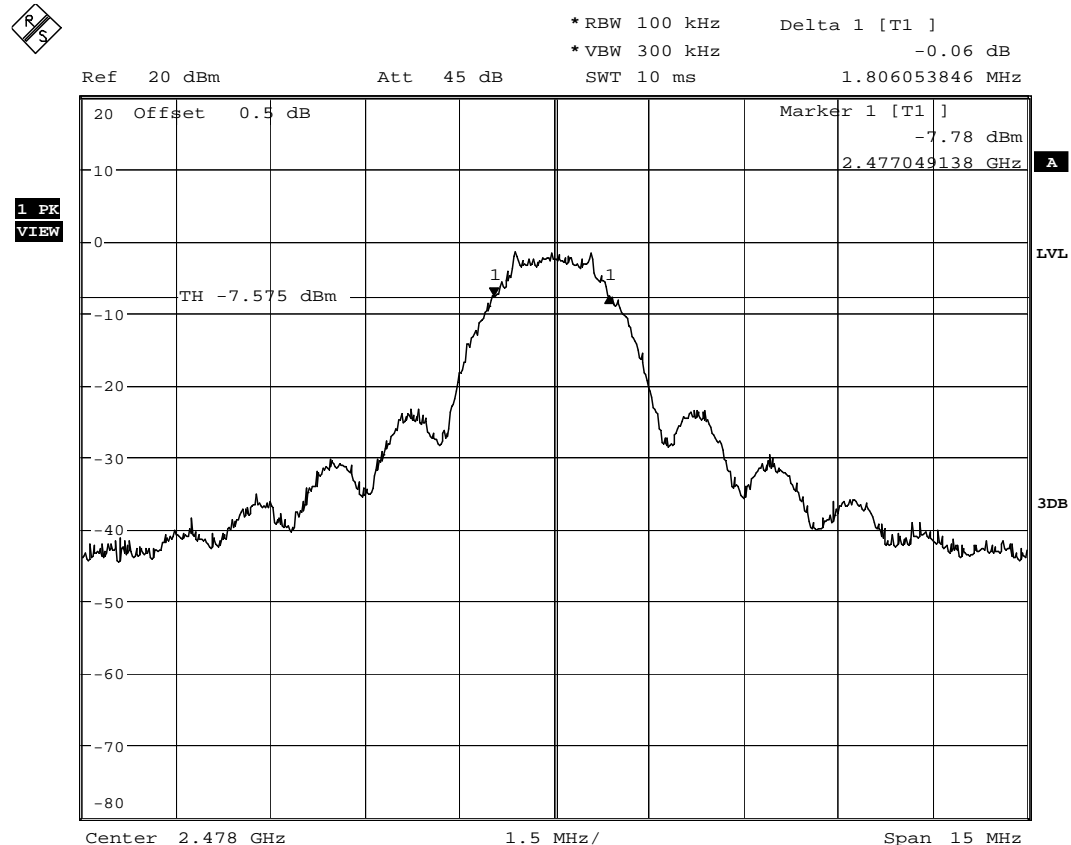


6 dB bandwidth: 1781.2 KHz > 500 KHz;      verdict: PASS

Date: 5.JUL.2011 08:06:35

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

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°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 : 2478 MHz
Comment 3	Modulation: MSK



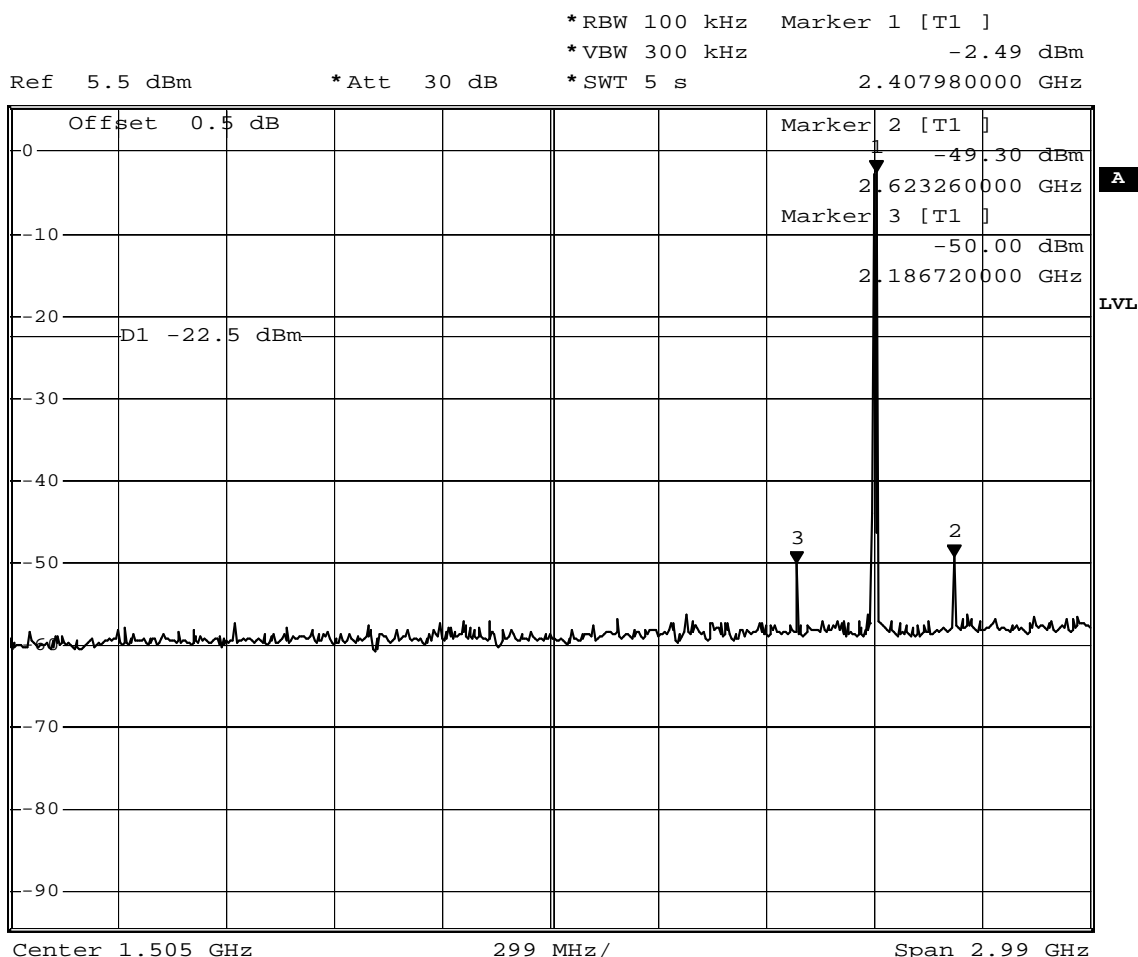
6 dB bandwidth: 1806.1 KHz > 500 KHz;      verdict: PASS

Date: 5.JUL.2011 08:09:17

## Annex D Transmitter conducted spurious emissions

### FCC part 15.247 (d) Spurious Emissions

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°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 : 2403 MHz
Comment 3	MSK



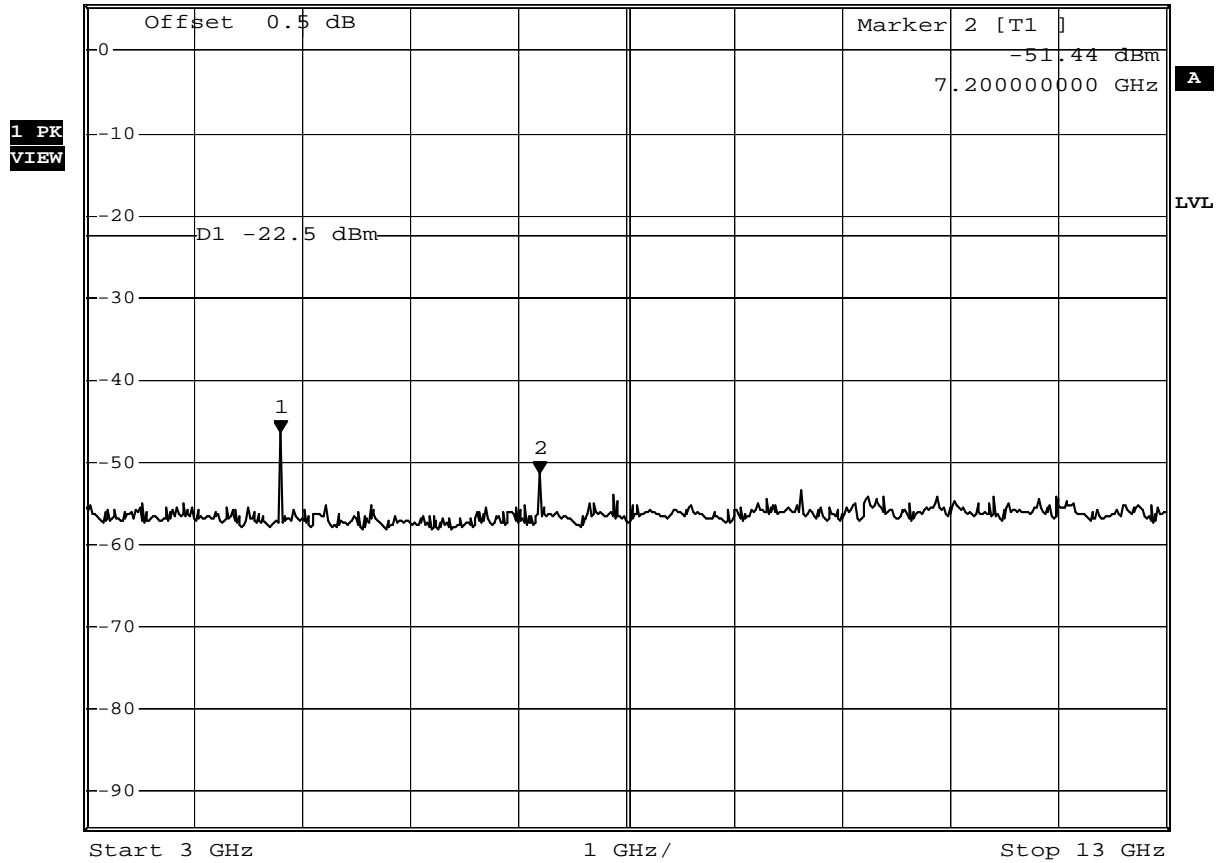
Date: 6.JUL.2011 14:32:43

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

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°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 : 2403 MHz
Comment 3	MSK



Ref 5.5 dBm	*Att 30 dB	*RBW 100 kHz	Marker 1 [T1 ]
		*VBW 300 kHz	-46.41 dBm
		*SWT 5 s	4.800000000 GHz



Date: 6.JUL.2011 14:33:57

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

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°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 : 2403 MHz
Comment 3	MSK



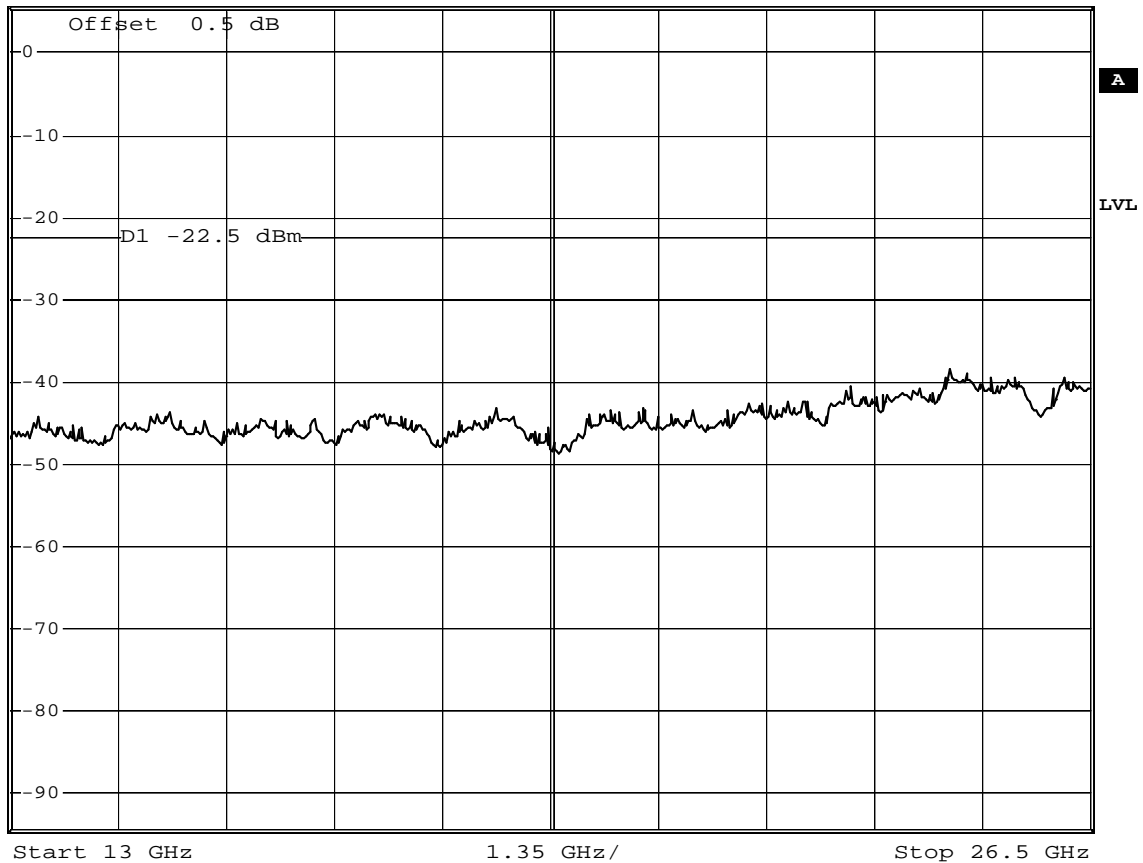
\*RBW 100 kHz

\*VBW 300 kHz

\*SWT 5 s

Ref 5.5 dBm

\*Att 30 dB

**1 PK  
VIEW**


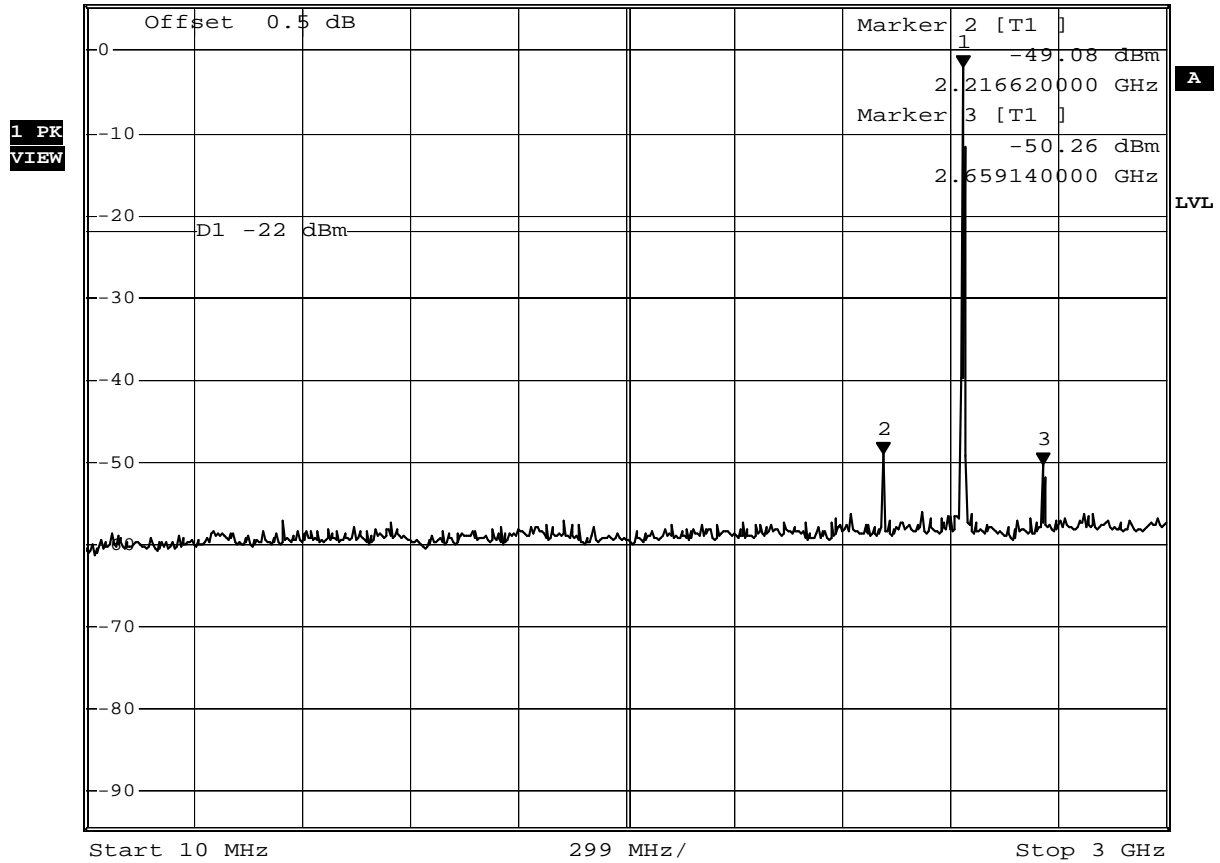
Date: 6.JUL.2011 14:35:49

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

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°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 : 2438 MHz
Comment 3	MSK



Ref 5.5 dBm      \*Att 30 dB      \*RBW 100 kHz      Marker 1 [T1]      -2.01 dBm  
 \*VBW 300 kHz      2.437880000 GHz  
 \*SWT 5 s



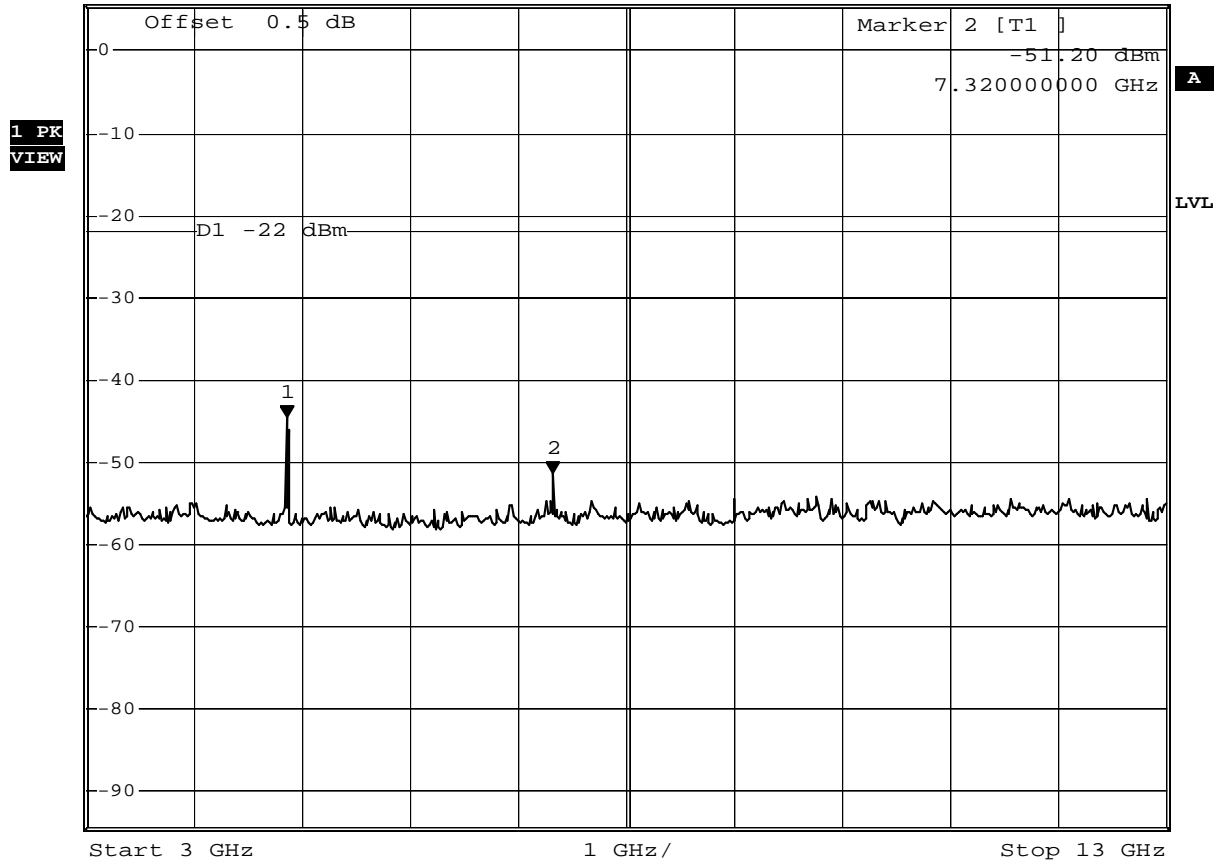
Date: 6.JUL.2011 14:37:36

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

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°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 : 2438 MHz
Comment 3	MSK



Ref 5.5 dBm	*Att 30 dB	*RBW 100 kHz	Marker 1 [T1 ]
		*VBW 300 kHz	-44.59 dBm
		*SWT 5 s	4.860000000 GHz



Date: 6.JUL.2011 14:39:07

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

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°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 : 2438 MHz
Comment 3	MSK



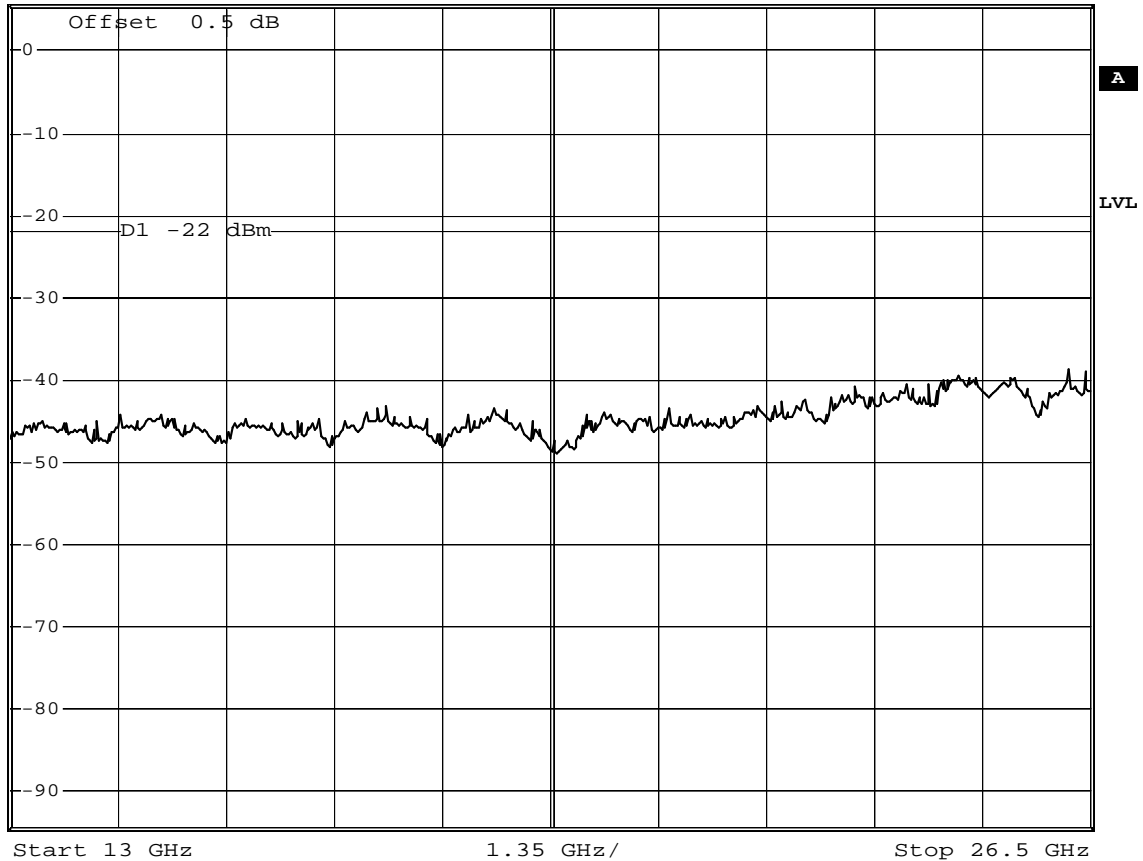
\*RBW 100 kHz

\*VBW 300 kHz

\*SWT 5 s

Ref 5.5 dBm

\*Att 30 dB

**1 PK  
VIEW**


Date: 6.JUL.2011 14:40:10

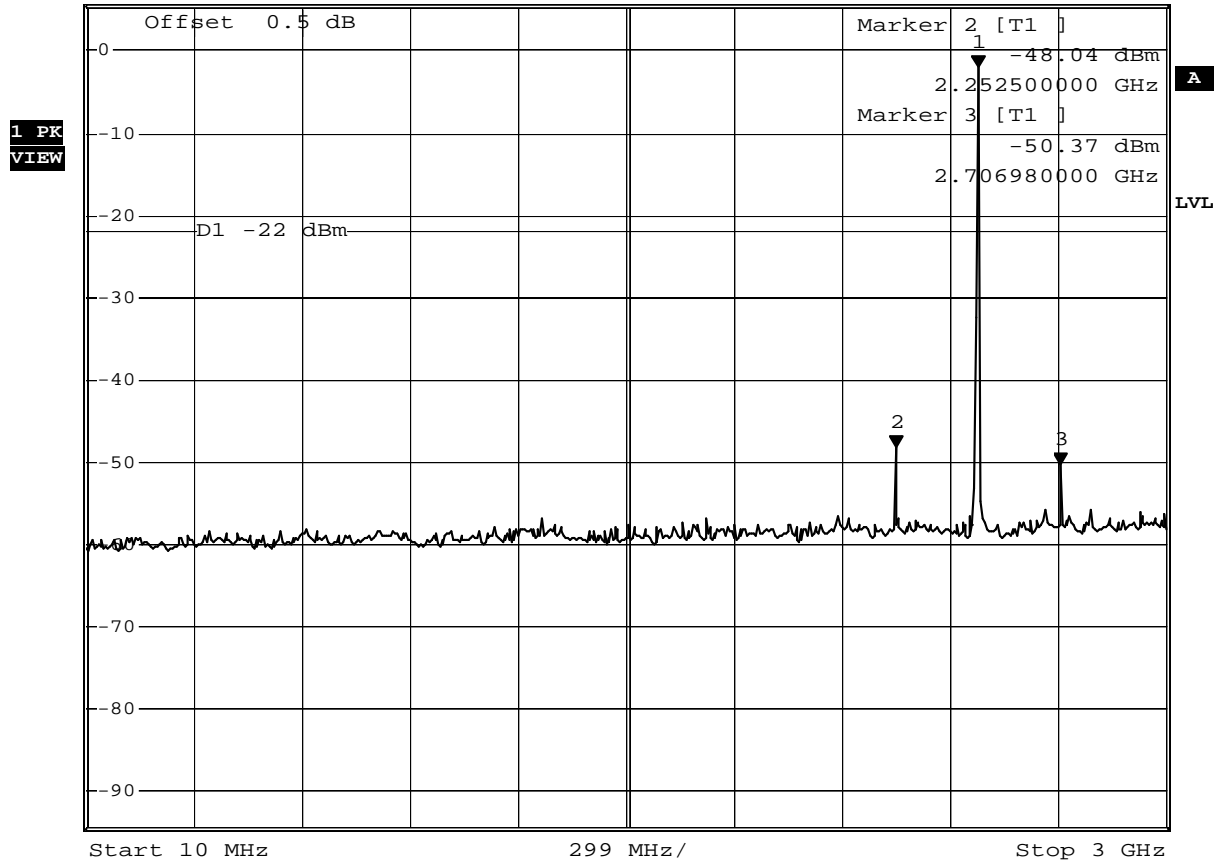


**FCC part 15.247 (d)  
Spurious Emissions**

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°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 : 2478 MHz
Comment 3	MSK



Ref 5.5 dBm	*Att 30 dB	*RBW 100 kHz	Marker 1 [T1]
		*VBW 300 kHz	-2.04 dBm
		*SWT 5 s	2.479740000 GHz



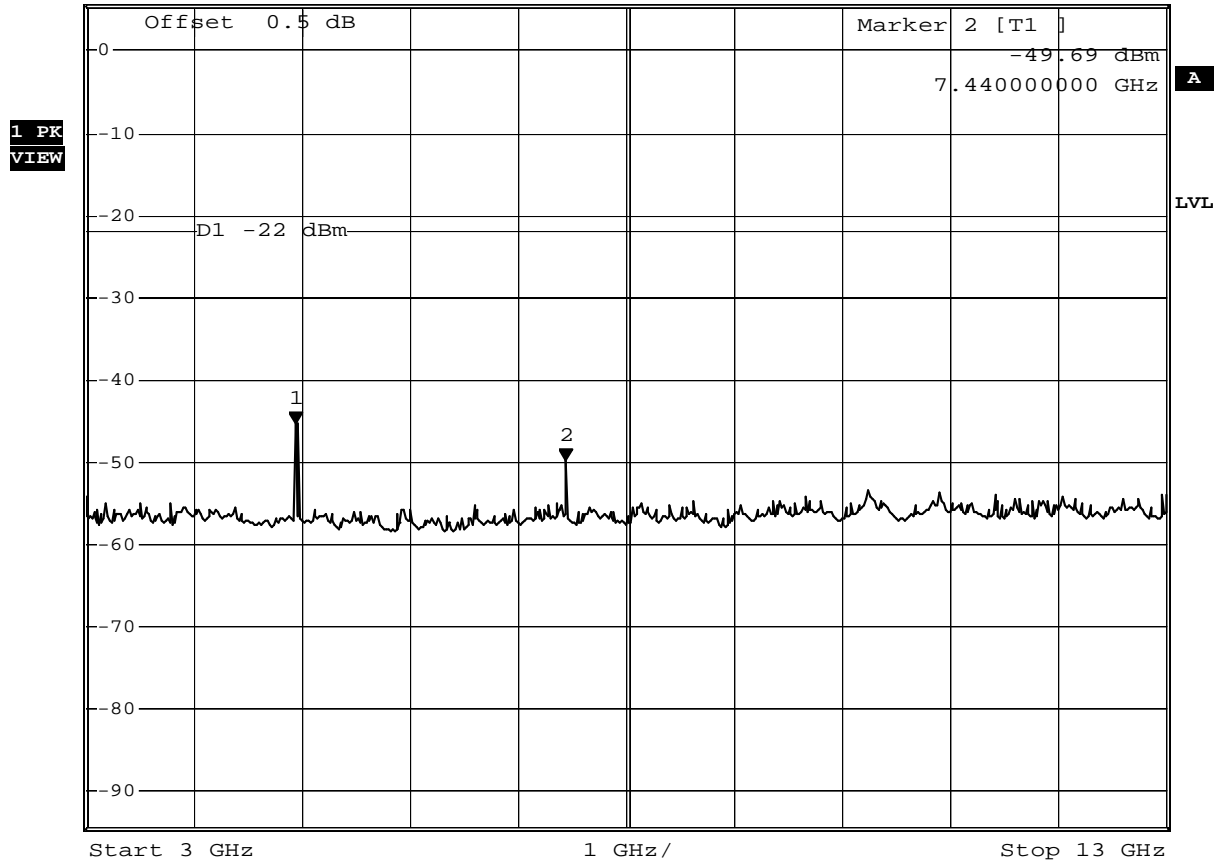
Date: 6.JUL.2011 14:41:31

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

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°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 : 2478 MHz
Comment 3	MSK



Ref 5.5 dBm	*Att 30 dB	*RBW 100 kHz	Marker 1 [T1 ]
		*VBW 300 kHz	-45.29 dBm
		*SWT 5 s	4.940000000 GHz



Date: 6.JUL.2011 14:42:37

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

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°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 : 2478 MHz
Comment 3	MSK

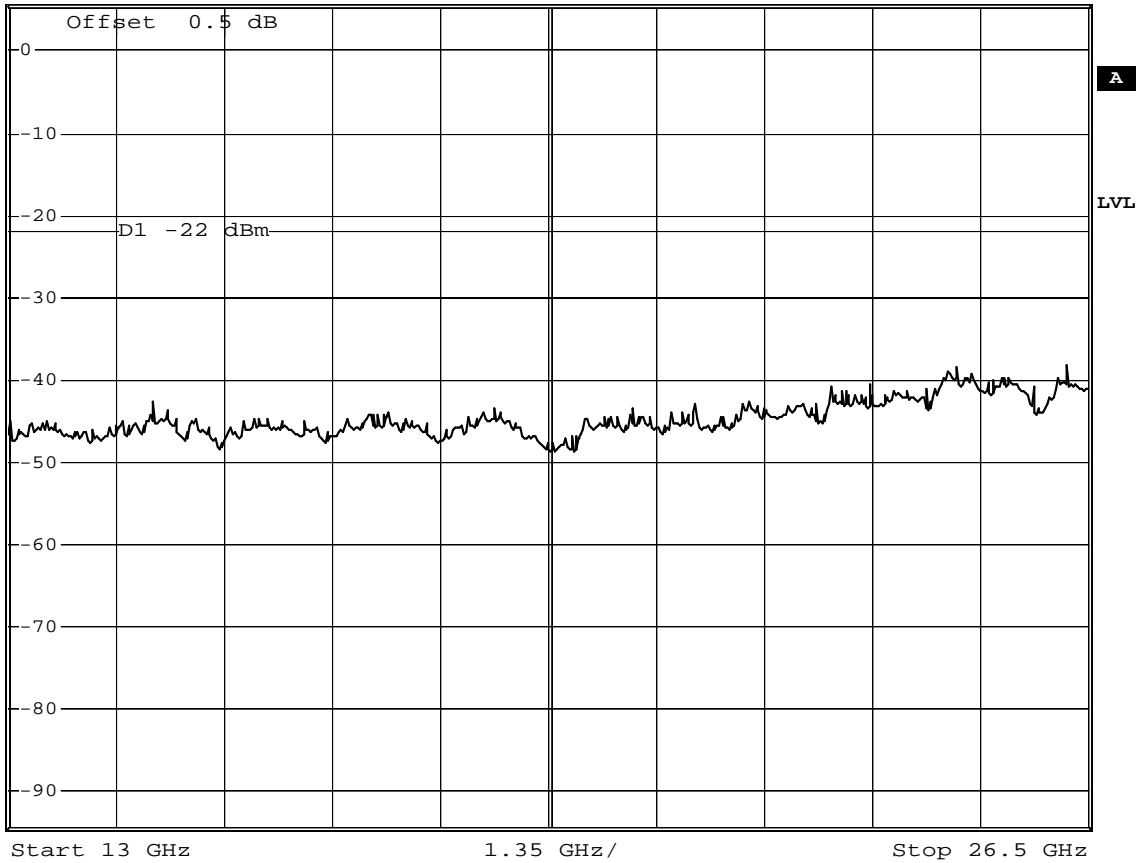


\*RBW 100 kHz  
\*VBW 300 kHz  
\*SWT 5 s

Ref 5.5 dBm

\*Att 30 dB

1 PK  
VIEW



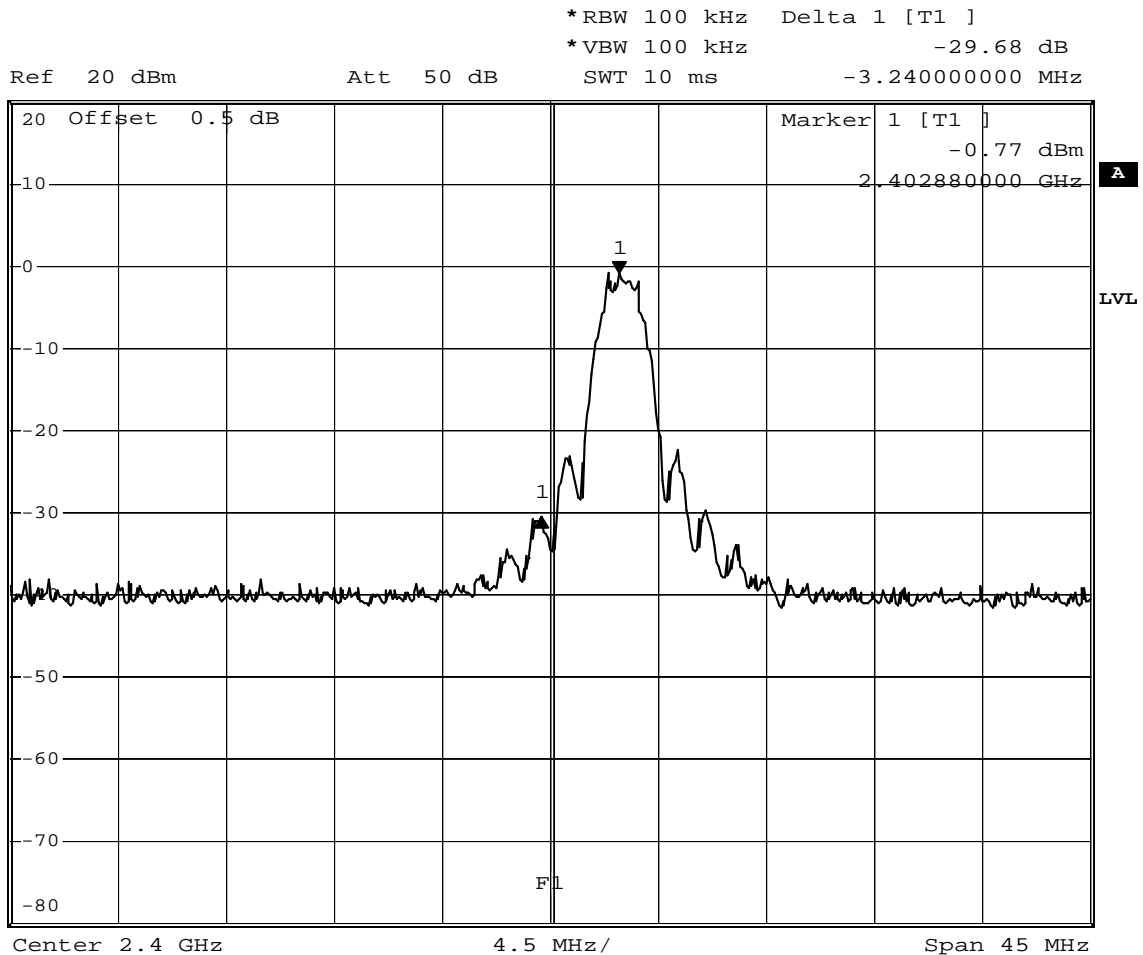
Date: 6.JUL.2011 14:43:27

## Annex E Band edge compliance

### FCC part 15.247

### Band-edge compliance of RF conducted emissions

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°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.: 2403 MHz
Comment 3	MSK



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

Date: 6.JUL.2011 14:53:19

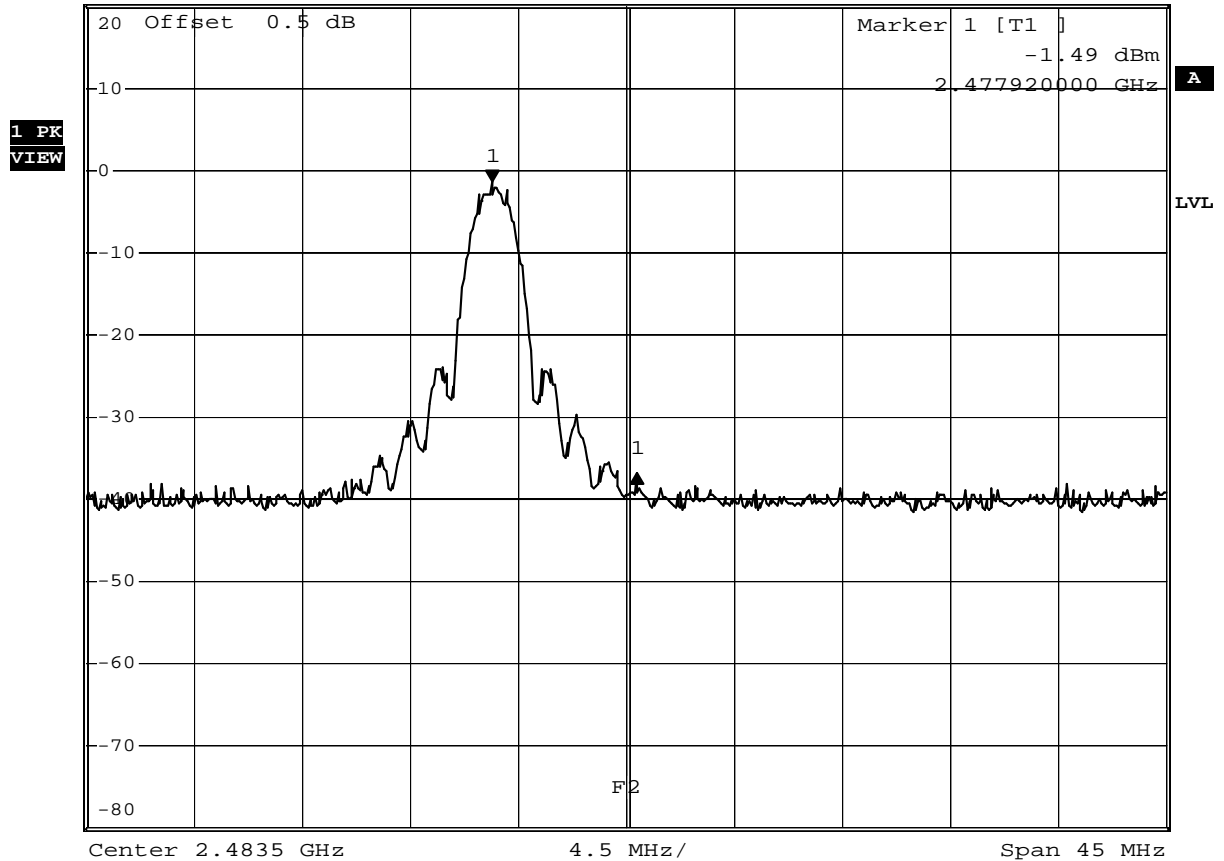
**FCC part 15.247  
Band-edge compliance of RF conducted emissions**

EUT	Headphone
Model	P214
Approval Holder	HAMAN Automotive / Ord.: G0M21010-3765
Temperature / Voltage	24°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.: 2478 MHz
Comment 3	MSK



\*RBW 100 kHz Delta 1 [T1 ]  
\*VBW 100 kHz -35.29 dB

Ref 20 dBm Att 50 dB SWT 10 ms 6.030000000 MHz



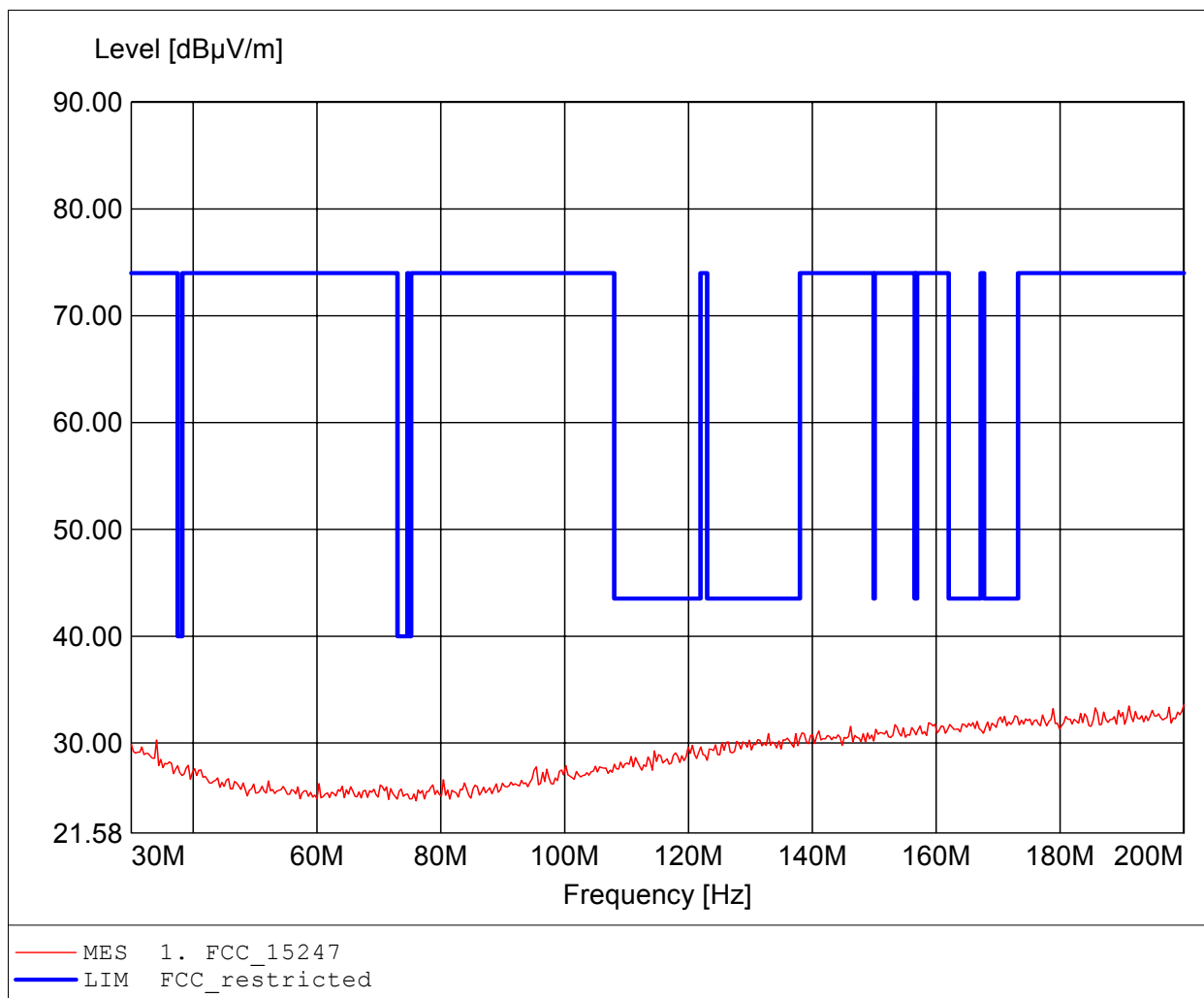
Comment: Limit: Marker Delta value >20 dB; Result: PASS  
Date: 6.JUL.2011 14:58:18

## **Annex F Transmitter radiated spurious emissions**

# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

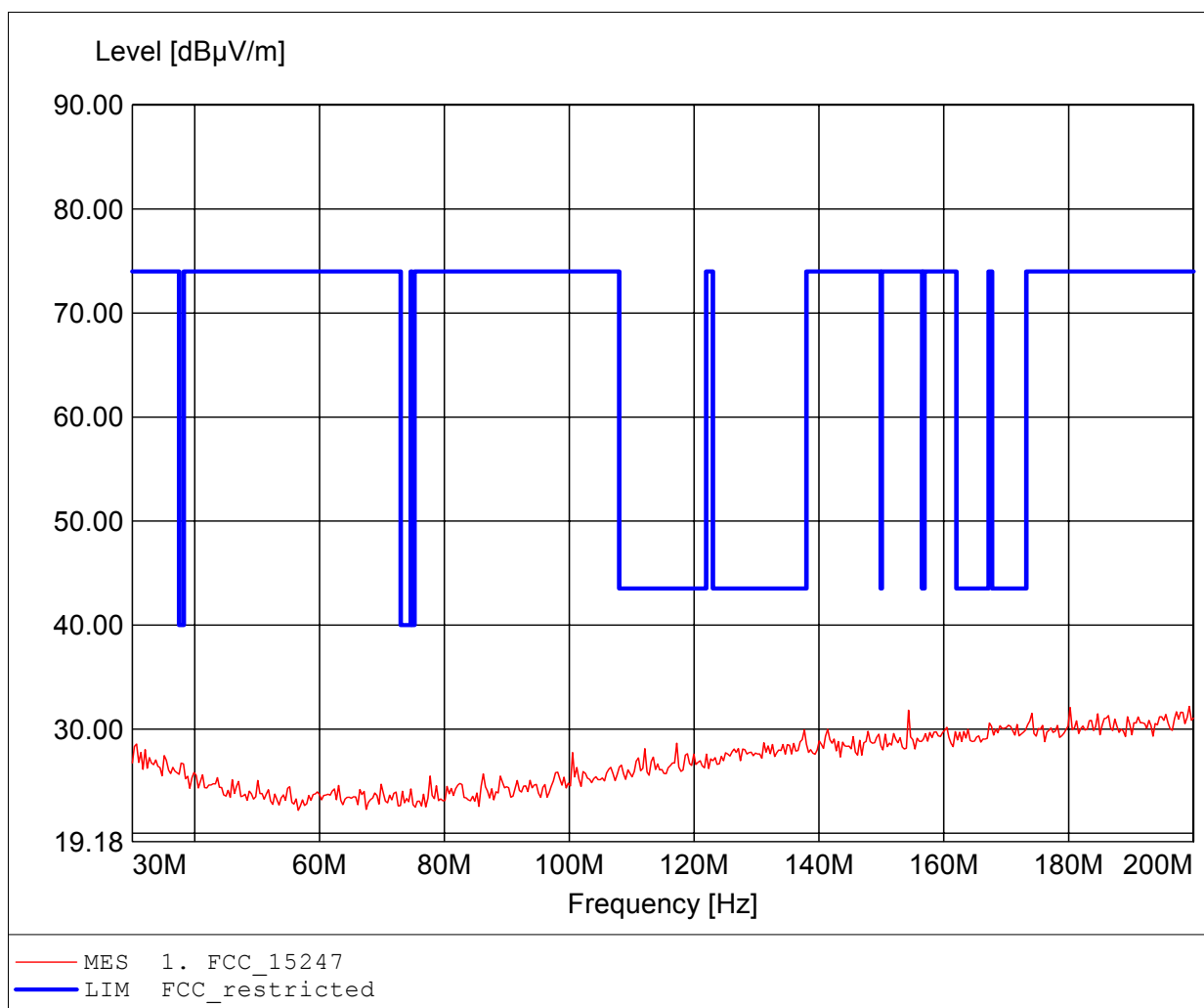
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz, worst case  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247  
Comment 1: Dist.: 3m, Ant.: HK 116  
Comment 2: Freq: 200.000MHz, Emax: 33.57dBµV/m, RBW: 100kHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz, worst case  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247  
Comment 1: Dist.: 3m, Ant.: HK 116  
Comment 2: Freq: 199.319MHz, Emax: 32.18dBµV/m, RBW: 100kHz

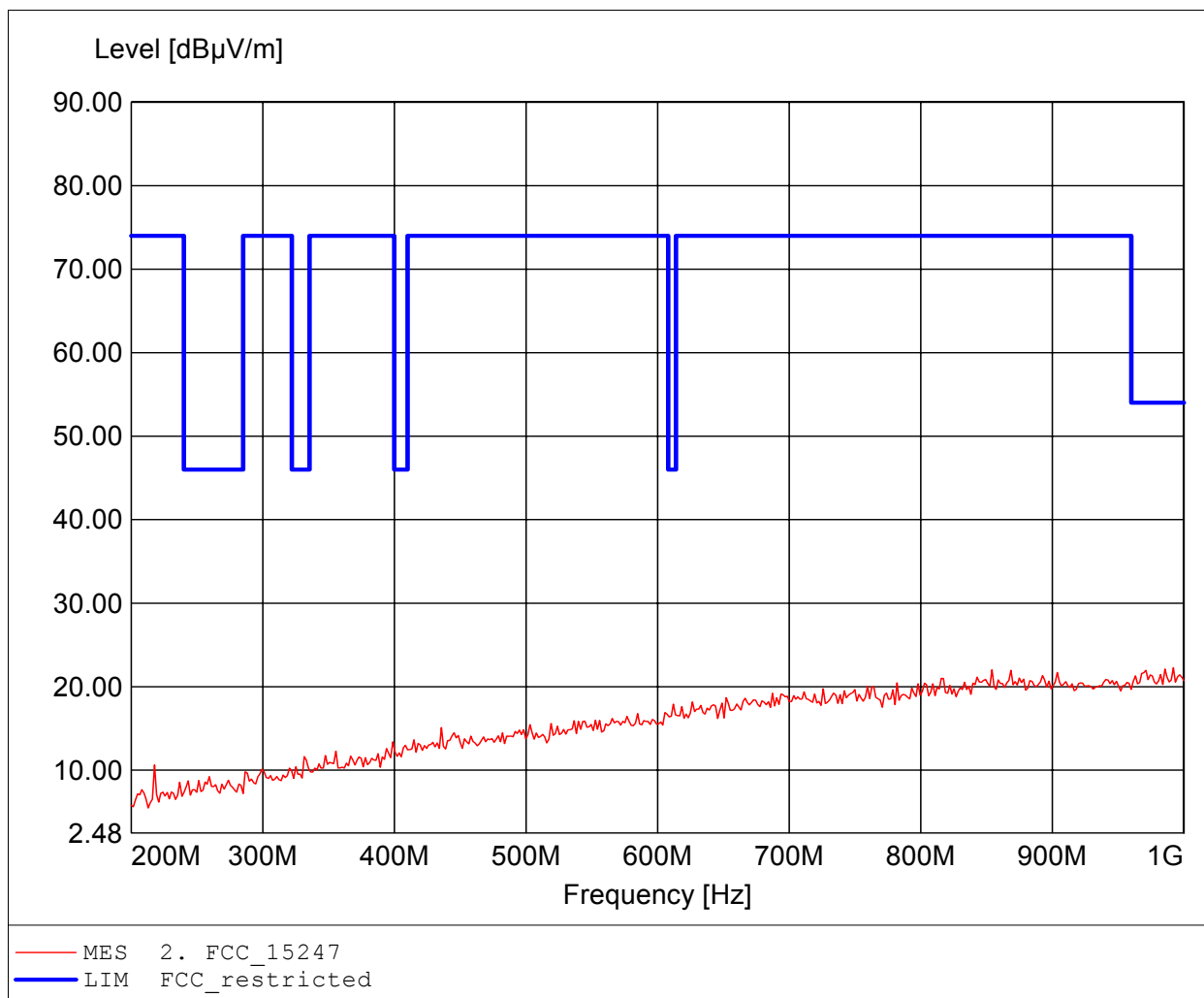




# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

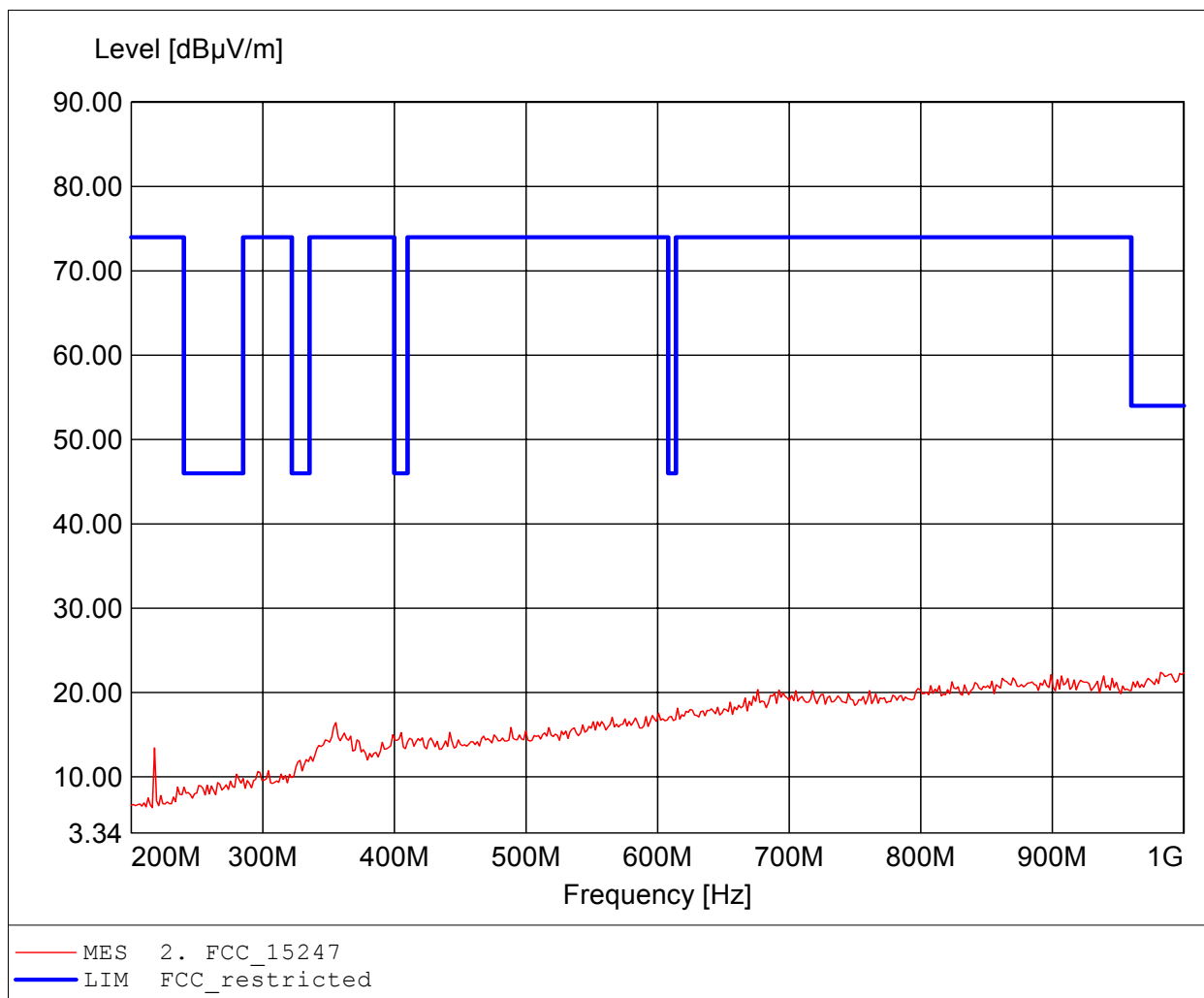
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz, worst case  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247  
Comment 1: Dist.: 3m, Ant.: HL 223, amplif.  
Comment 2: Freq: 991.984MHz, Emax: 22.25dBµV/m, RBW: 100kHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

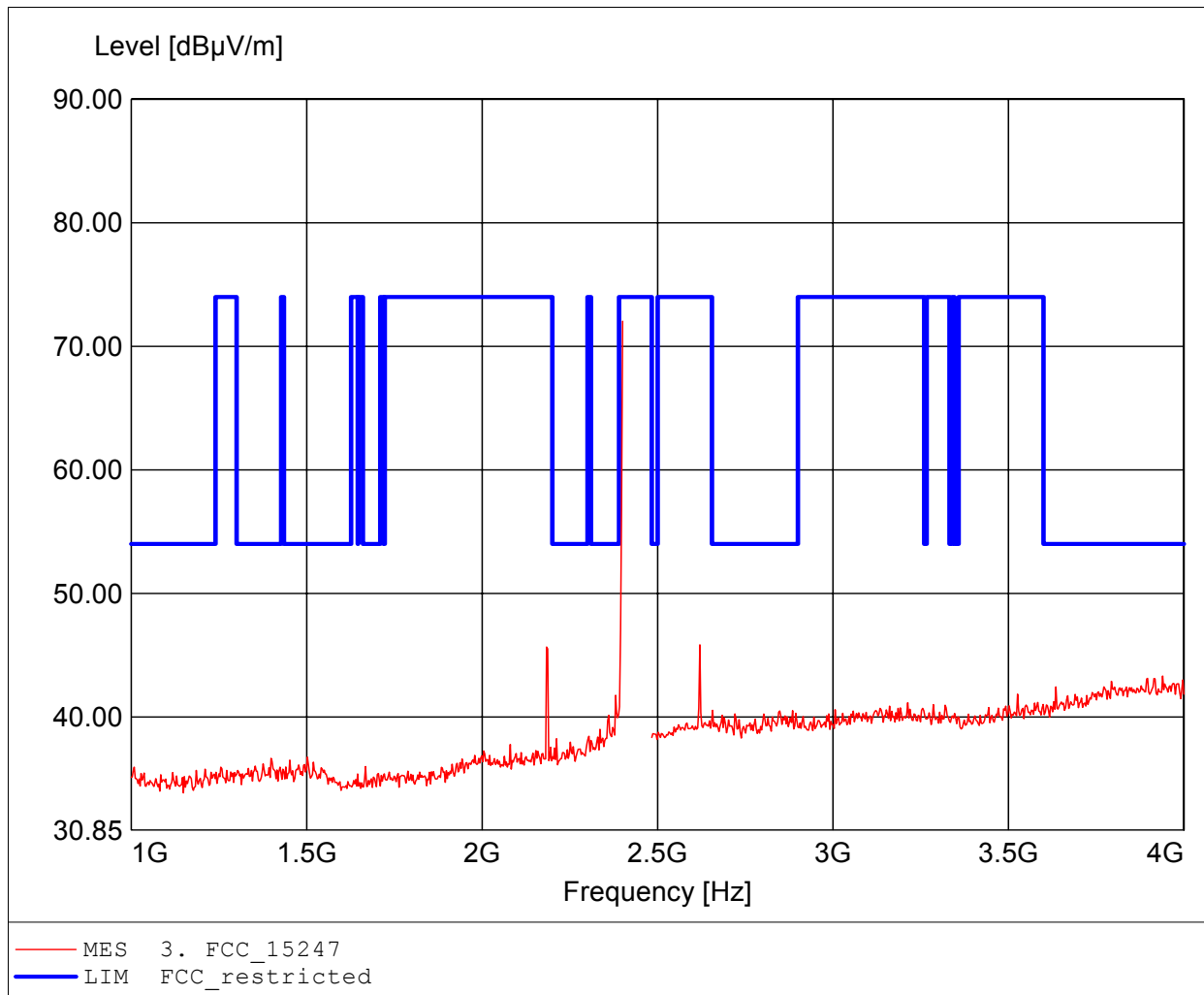
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz, worst case  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247  
Comment 1: Dist.: 3m, Ant.: HL 223, amplif.  
Comment 2: Freq: 982.365MHz, Emax: 22.38dBµV/m, RBW: 100kHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

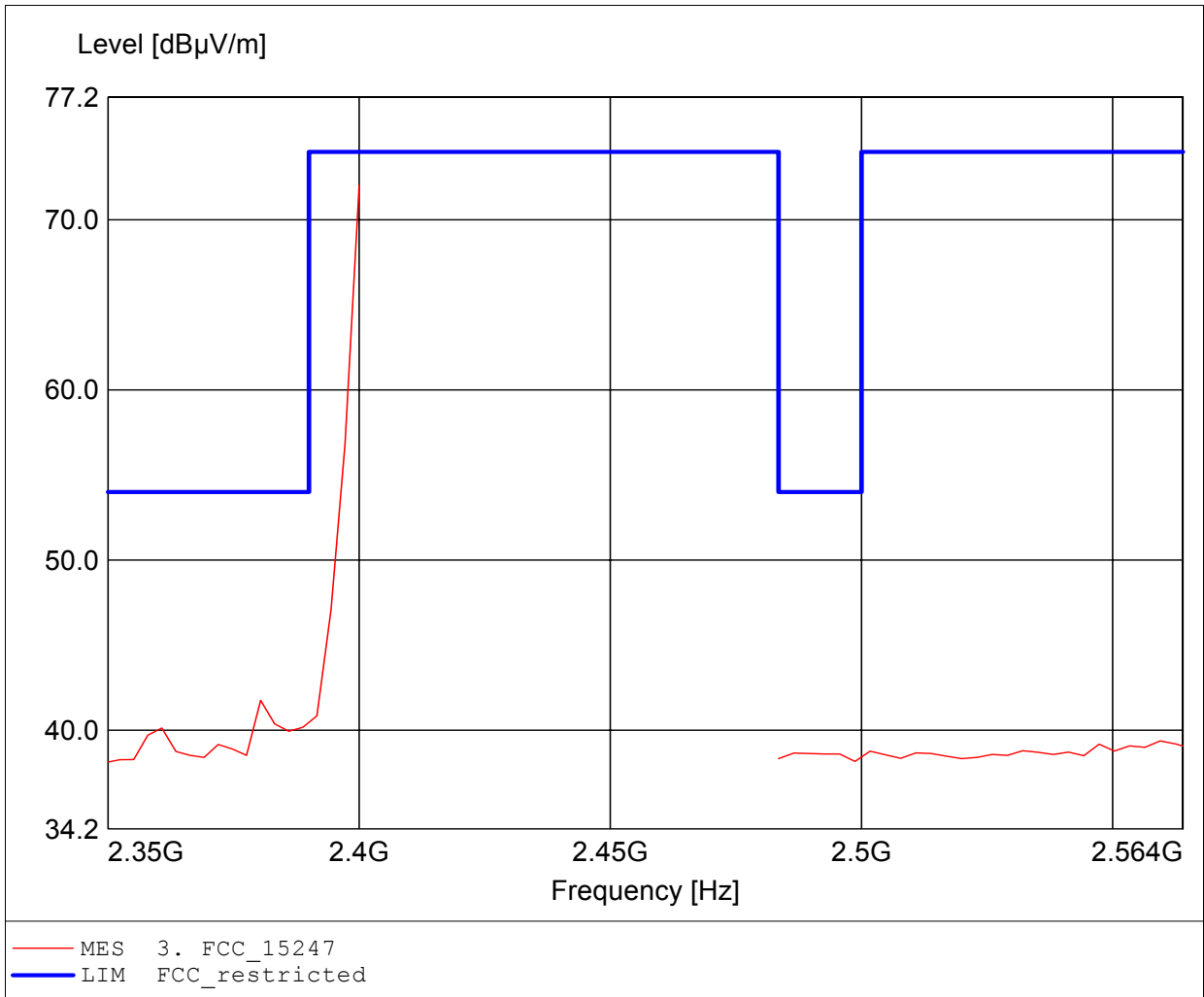
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.400GHz, Emax: 72.03dBuV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

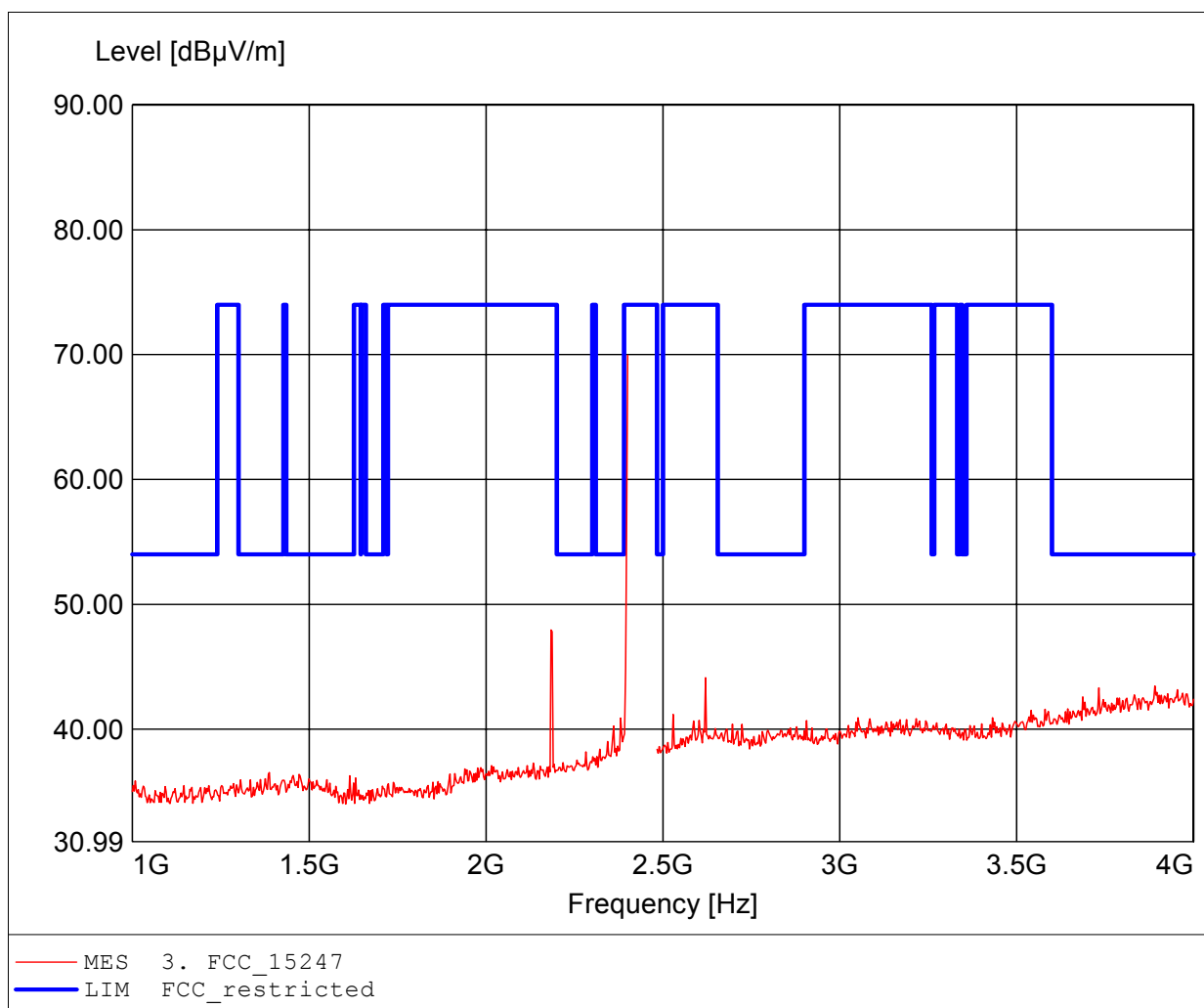
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.400GHz, Emax: 72.03dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

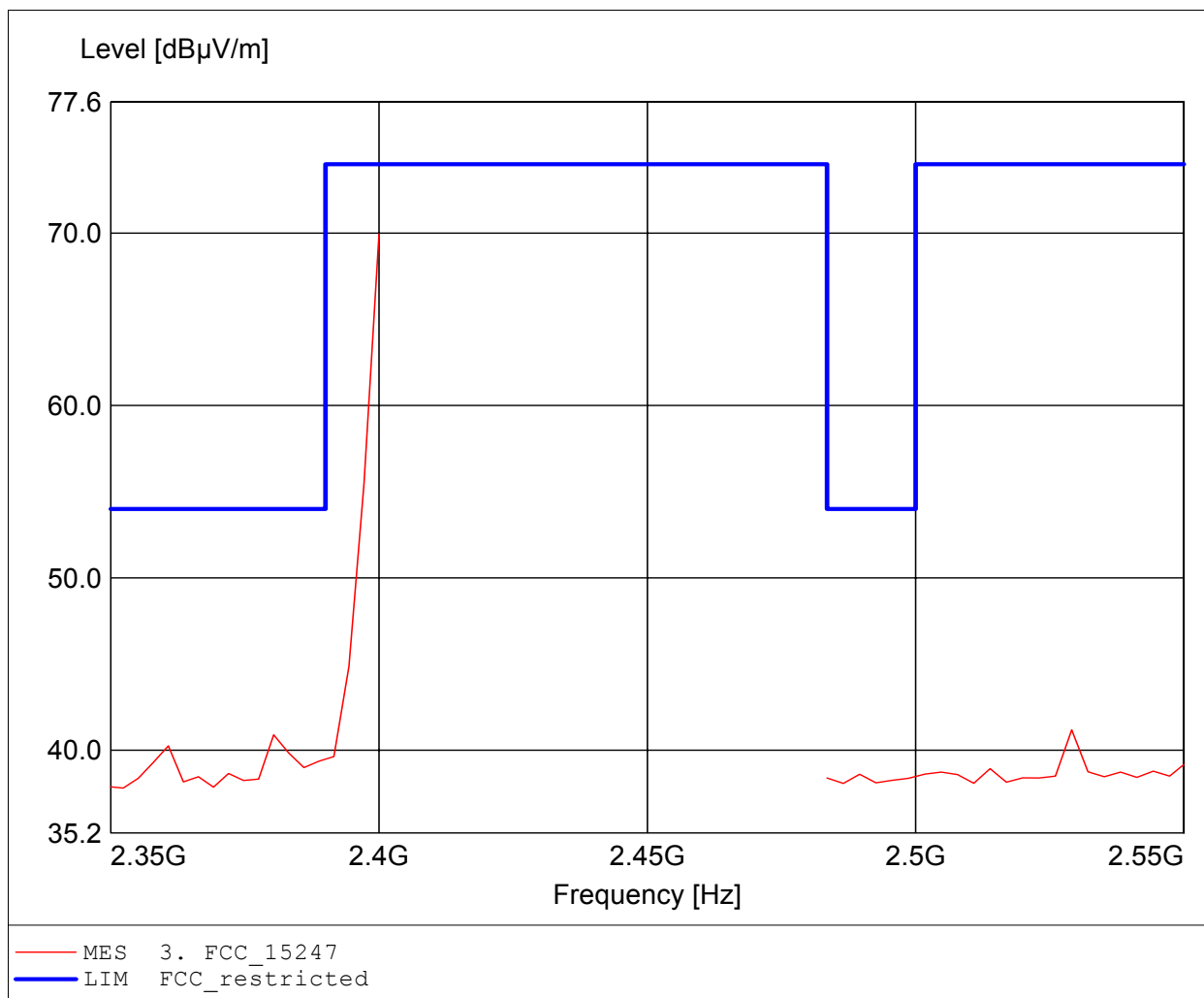
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.400GHz, Emax: 69.97dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

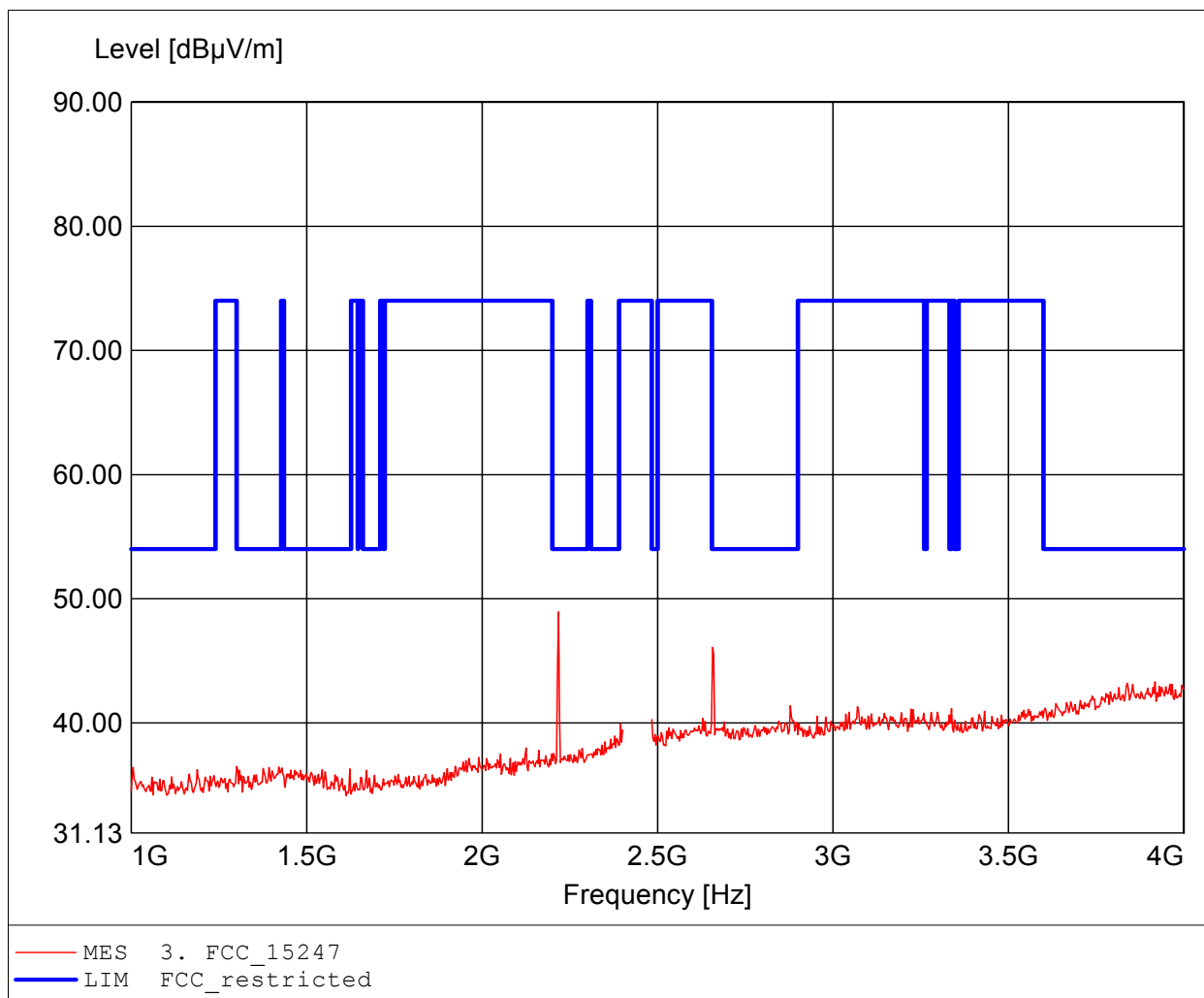
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.400GHz, Emax: 69.97dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

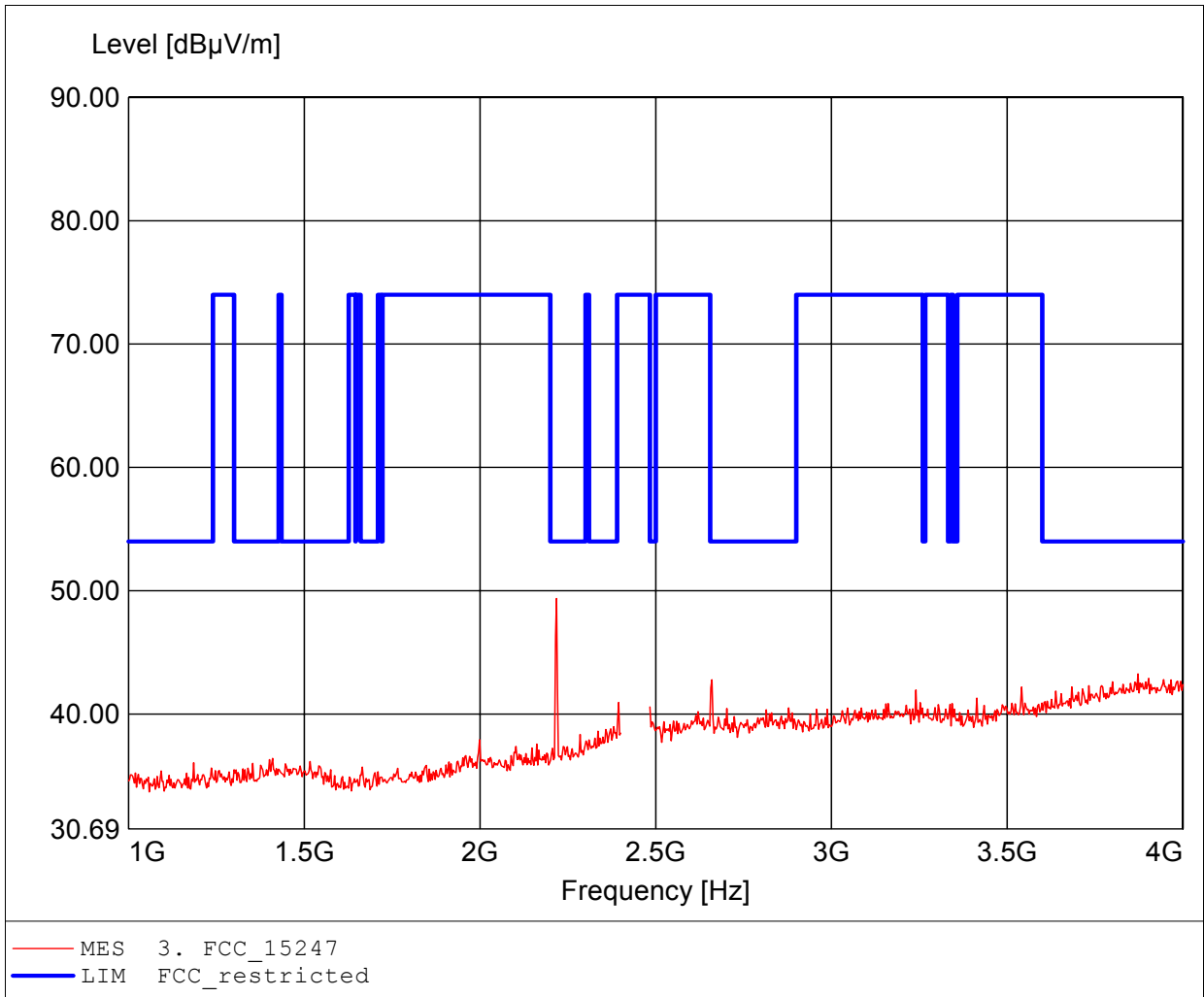
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2438 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.218GHz, Emax: 48.95dBuV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2438 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.218GHz, Emax: 49.37dBuV/m, RBW: 1MHz

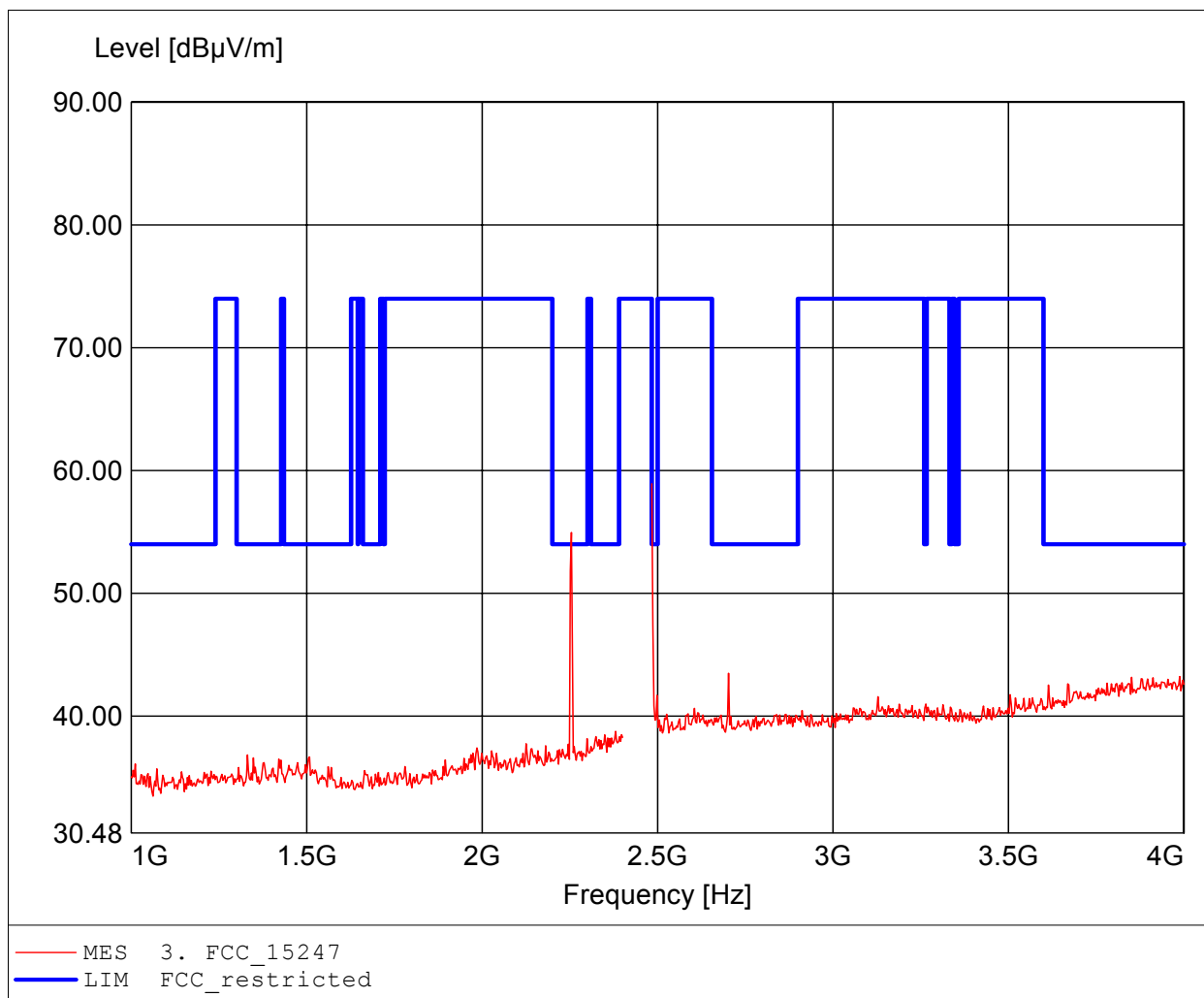




# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

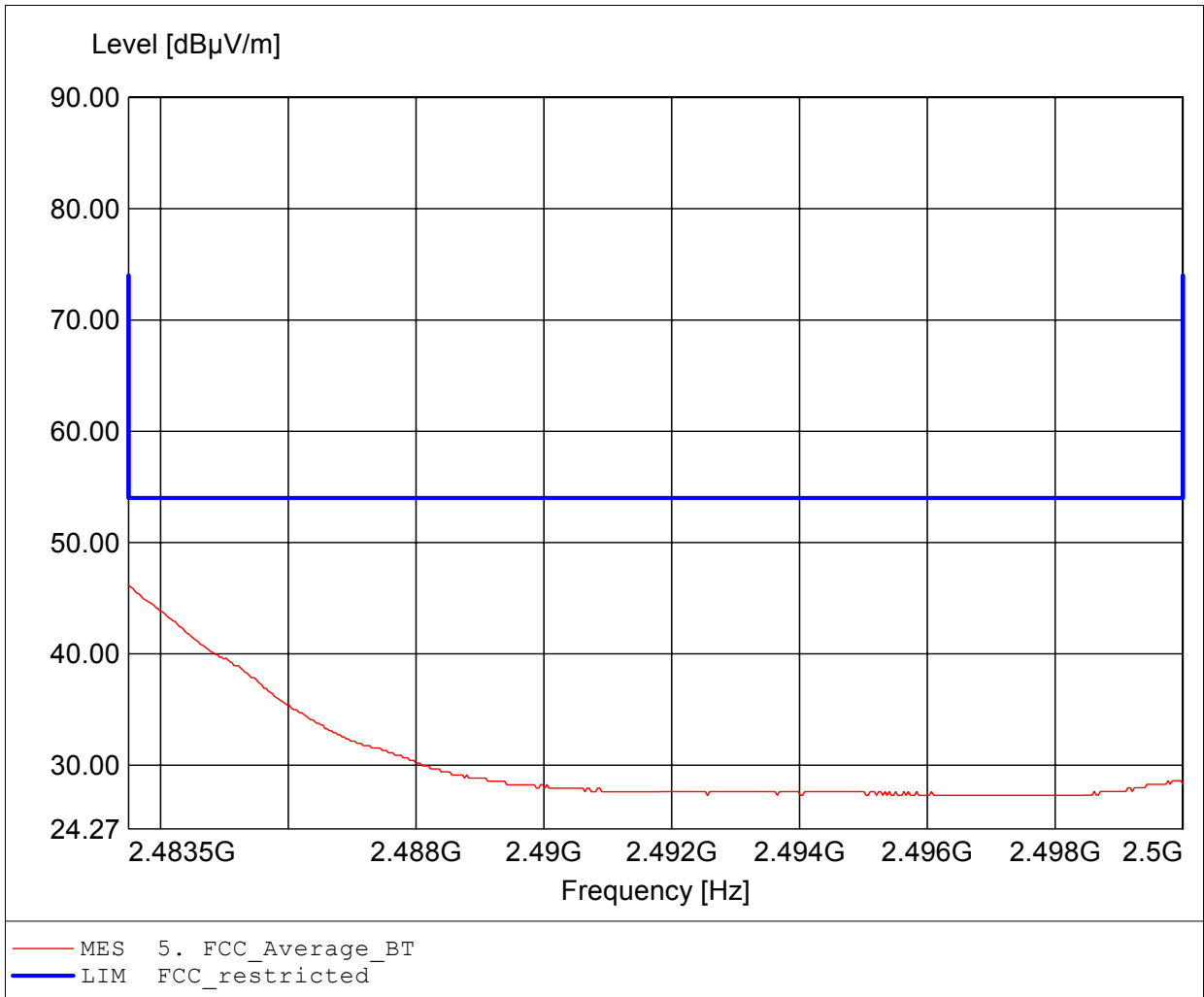
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2478 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.484GHz, Emax: 58.93dBuV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

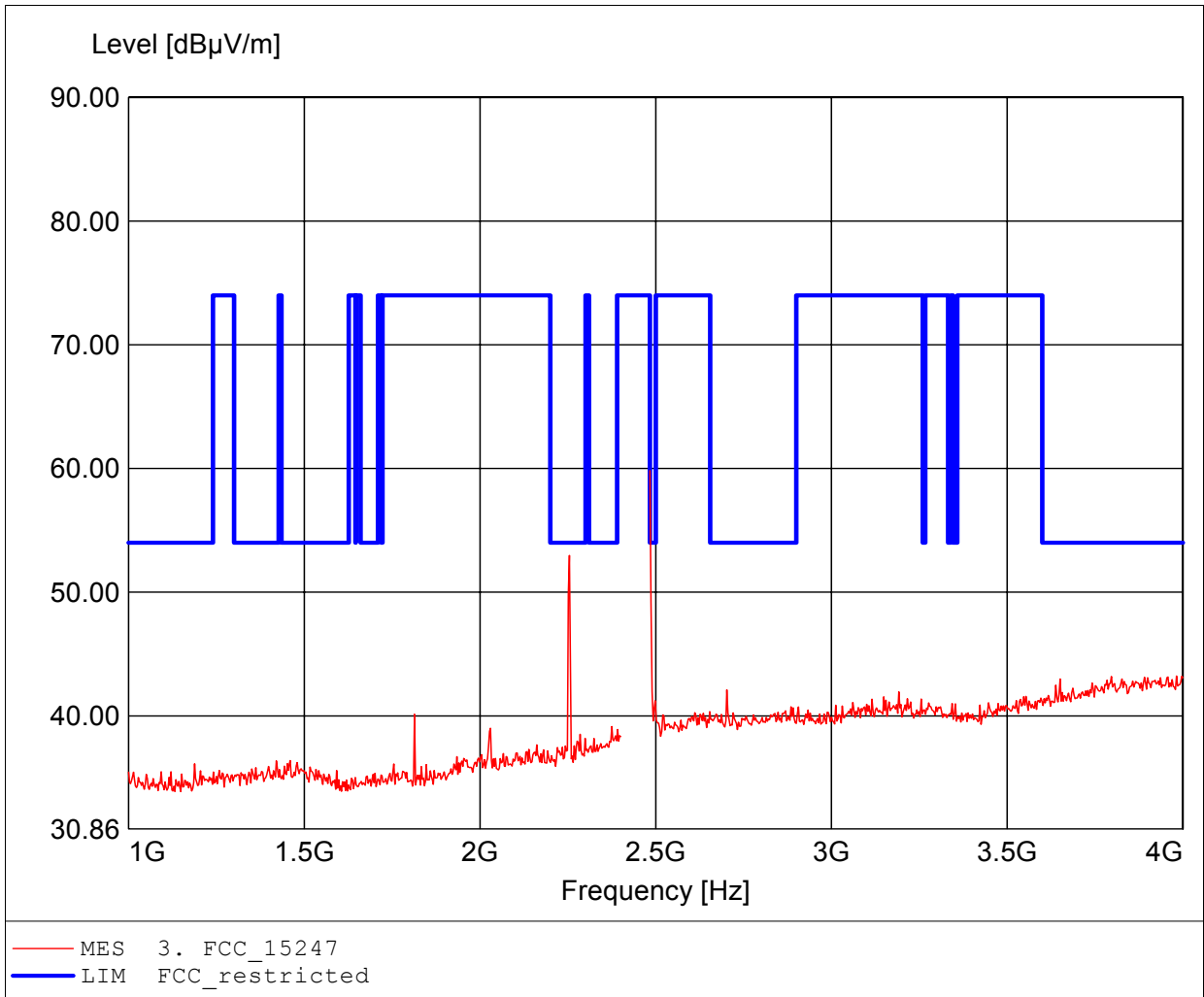
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2478 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to S15.247, average detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 2.484GHz, Emax: 46.20dBuV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

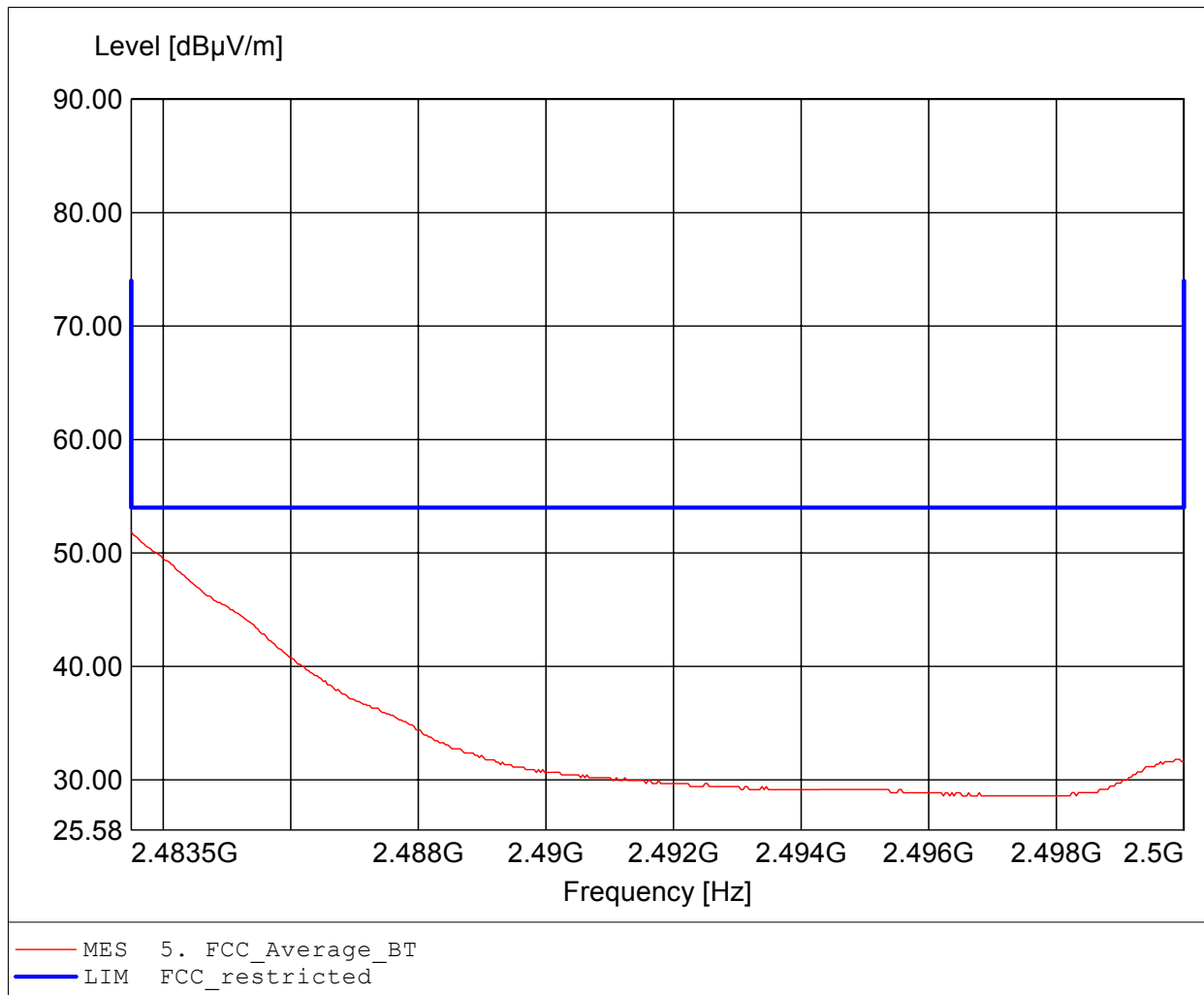
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2478 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.484GHz, Emax: 59.83dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

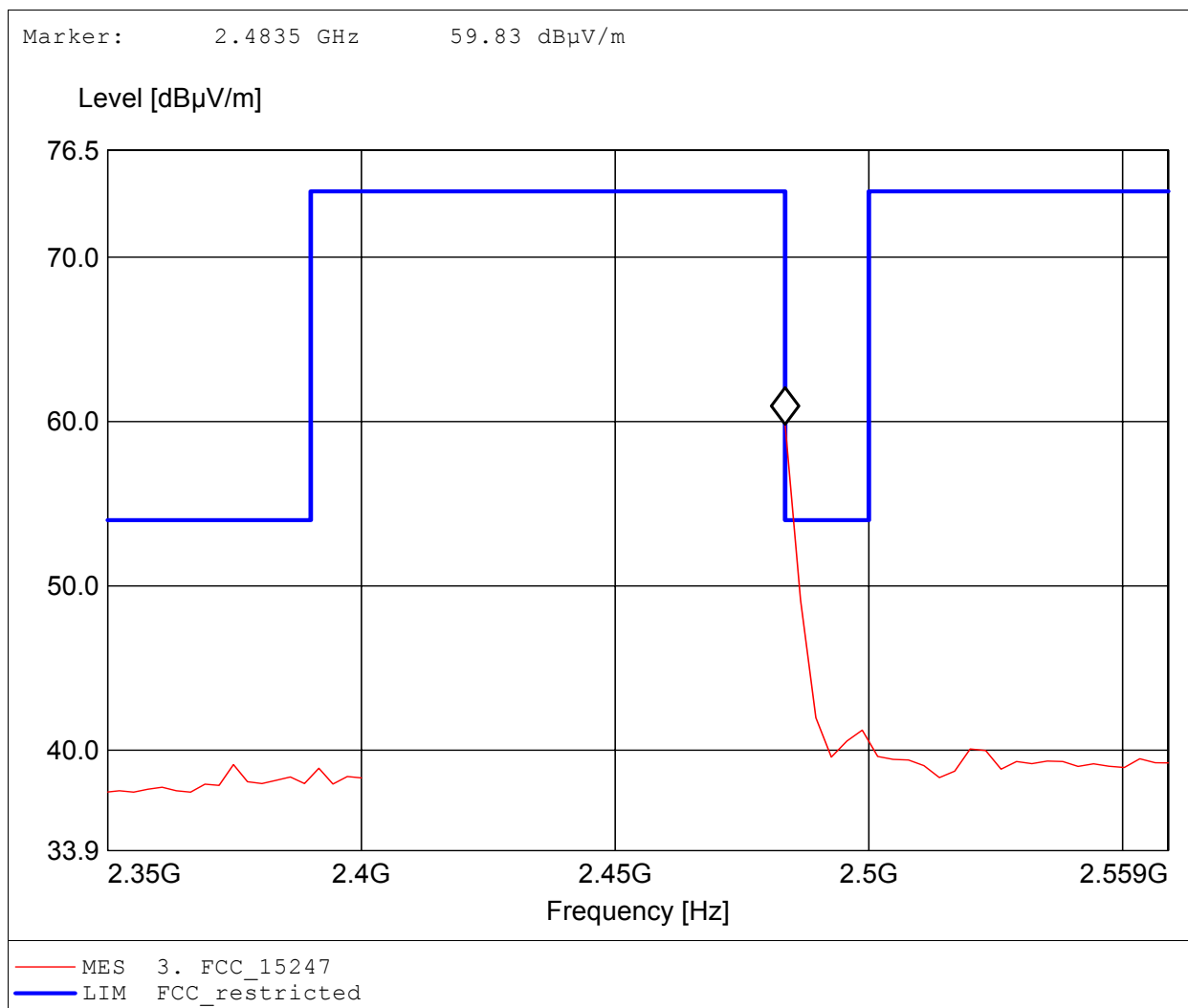
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2478 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, average detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 2.484GHz, Emax: 51.88dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

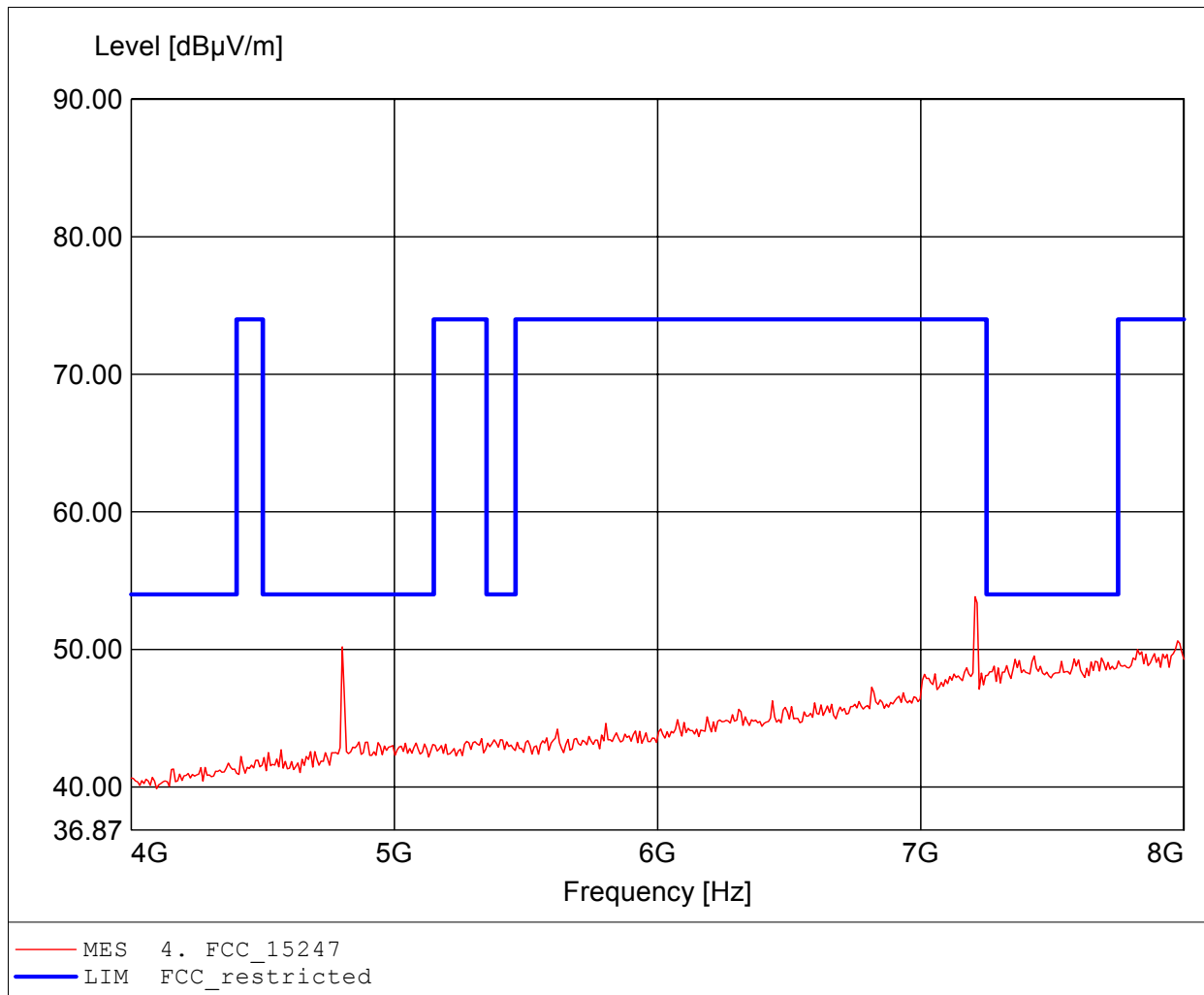
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2478 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, amplif.  
Comment 2: Freq: 2.484GHz, Emax: 59.83dBμV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

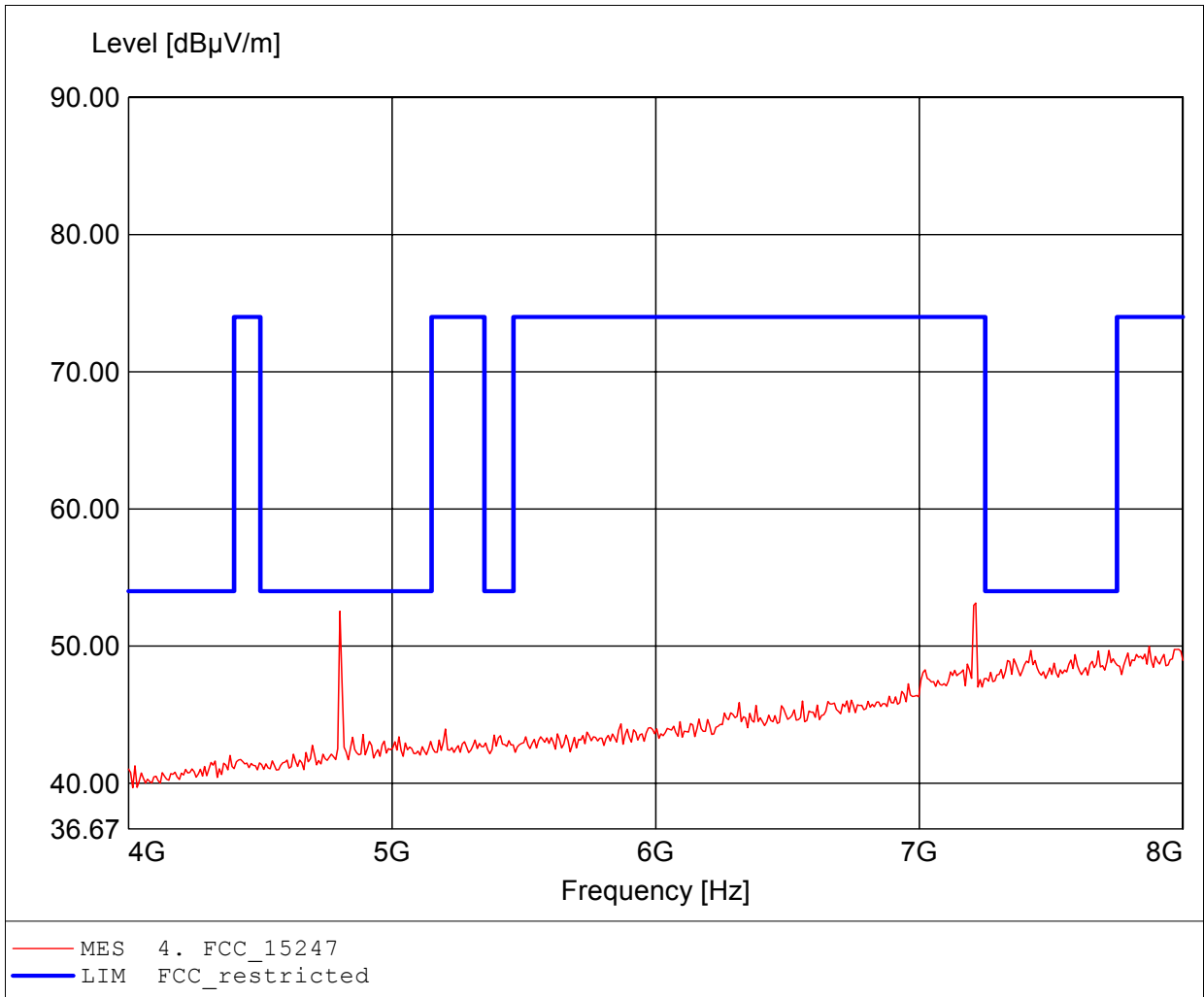
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.206GHz, Emax: 53.83dBuV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

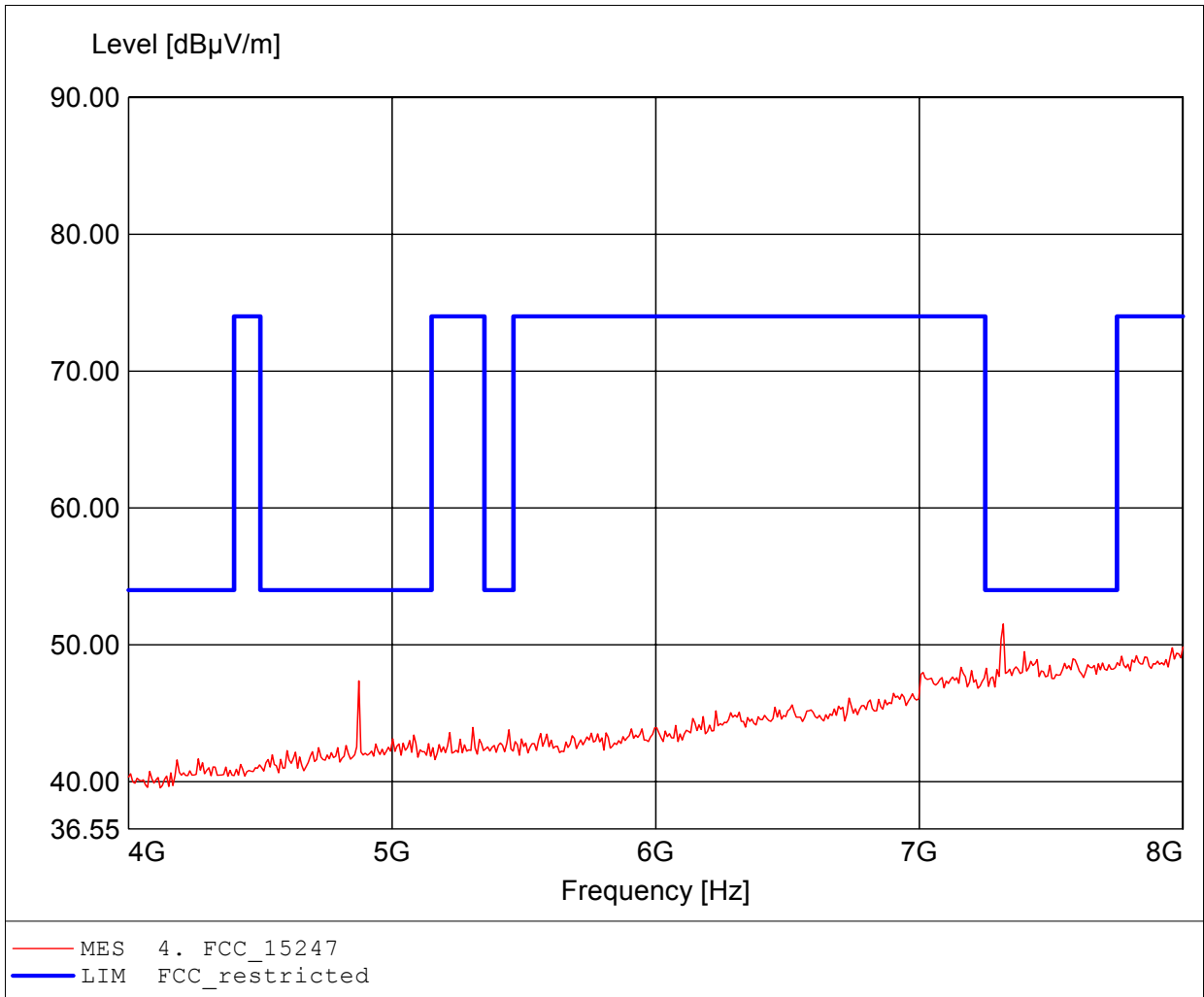
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.214GHz, Emax: 53.14dBuV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2438 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.319GHz, Emax: 51.53dBuV/m, RBW: 1MHz

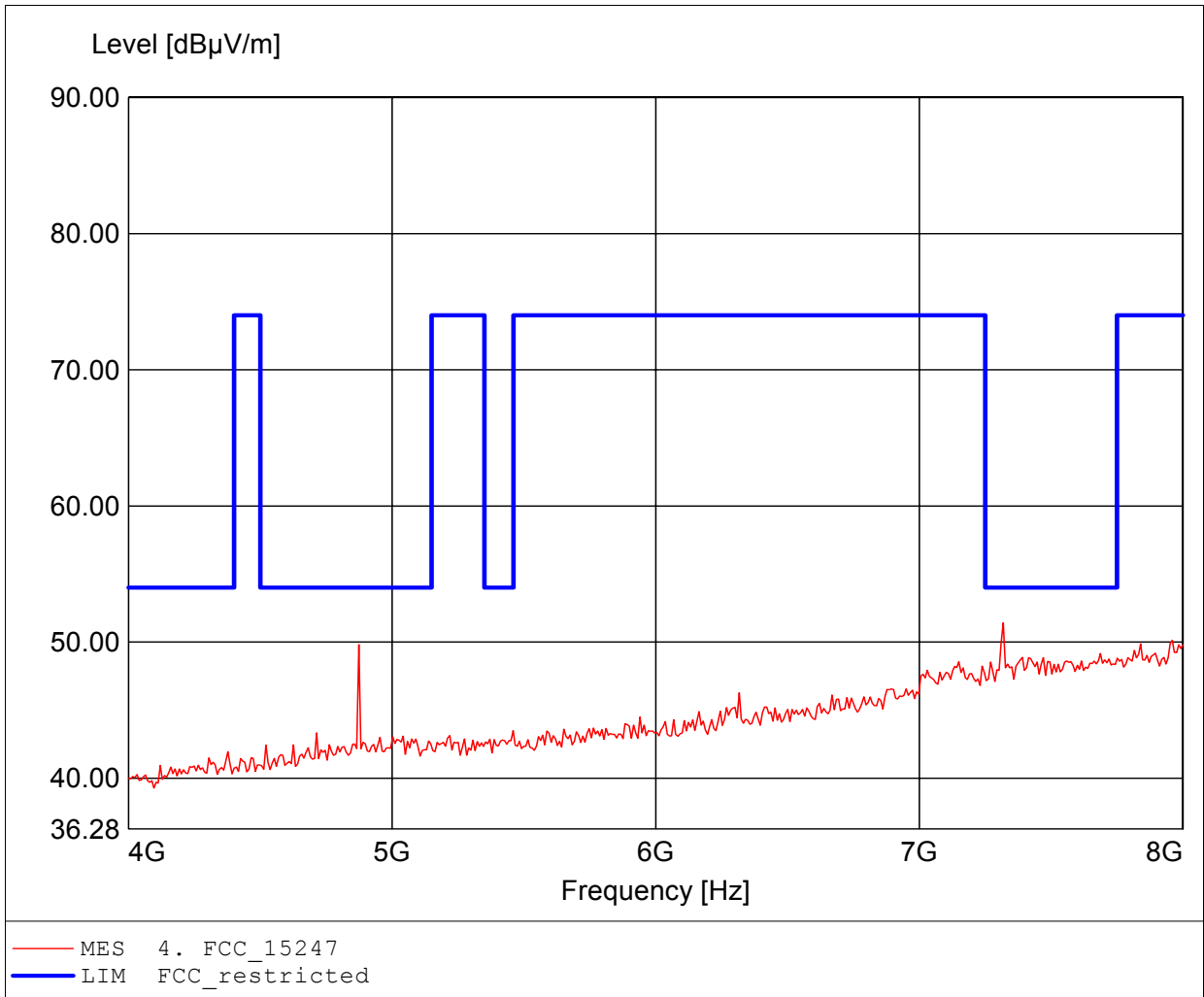




**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

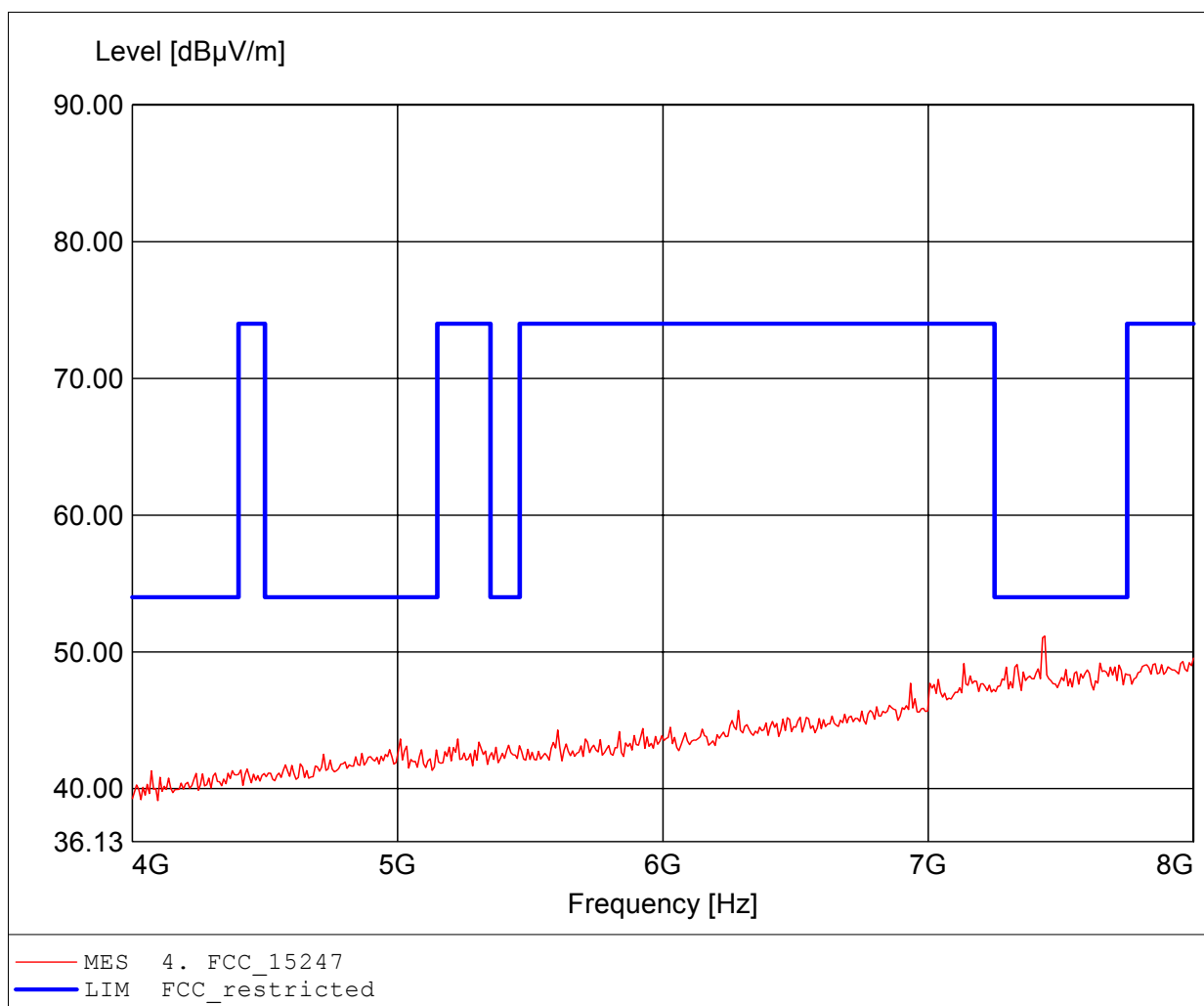
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2438 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.319GHz, Emax: 51.43dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

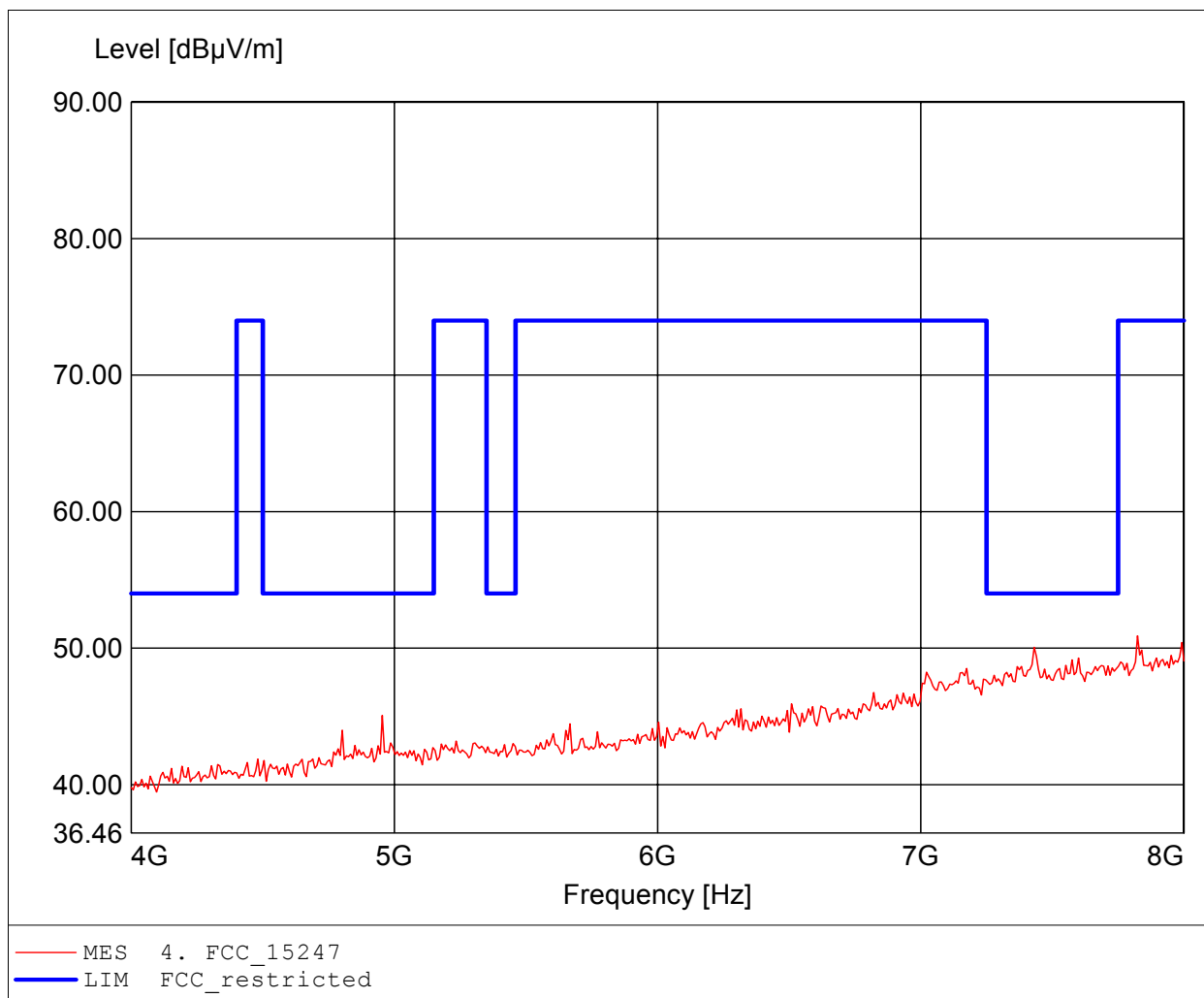
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2478 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.439GHz, Emax: 51.17dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

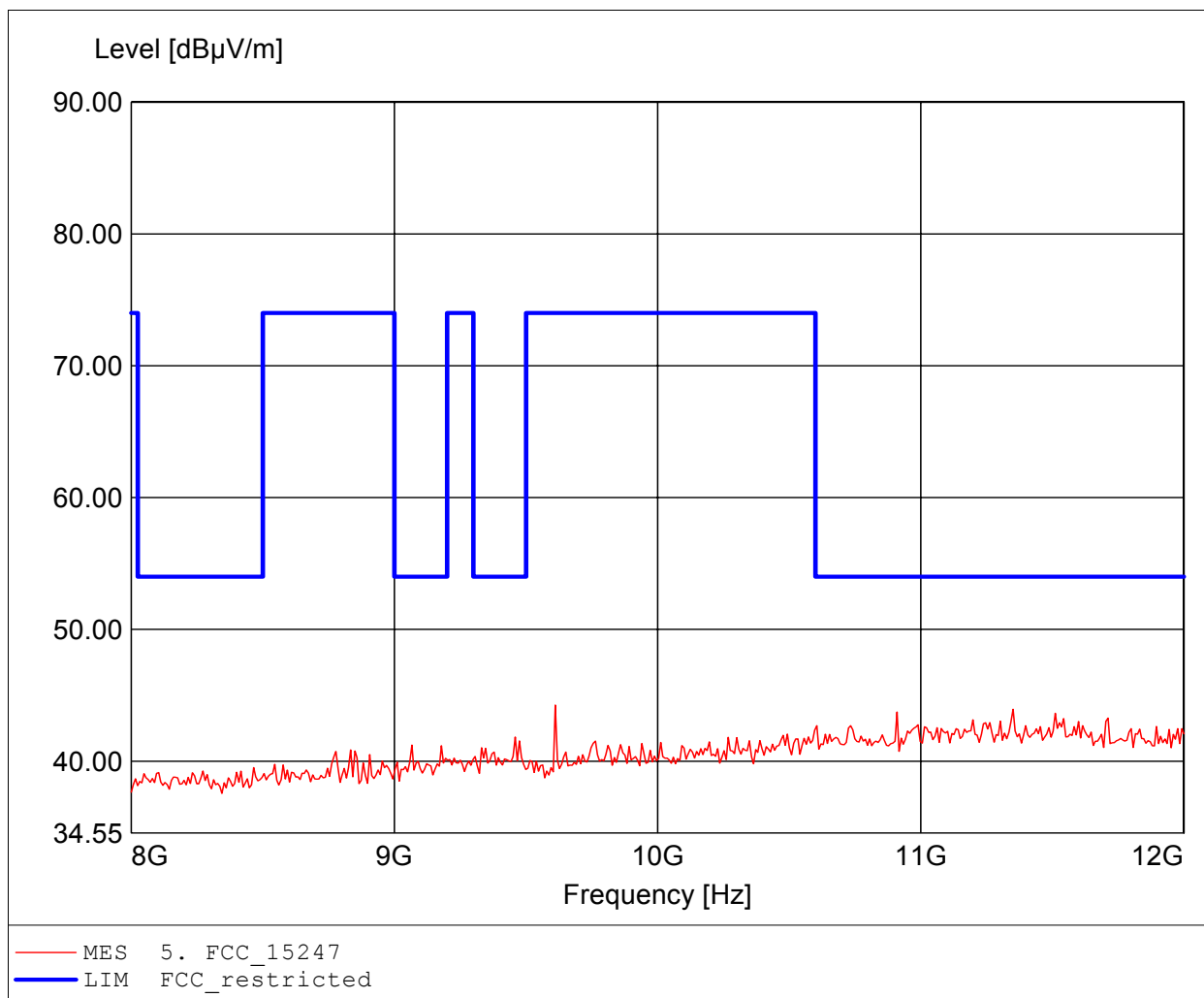
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2478 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 7.824GHz, Emax: 50.90dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

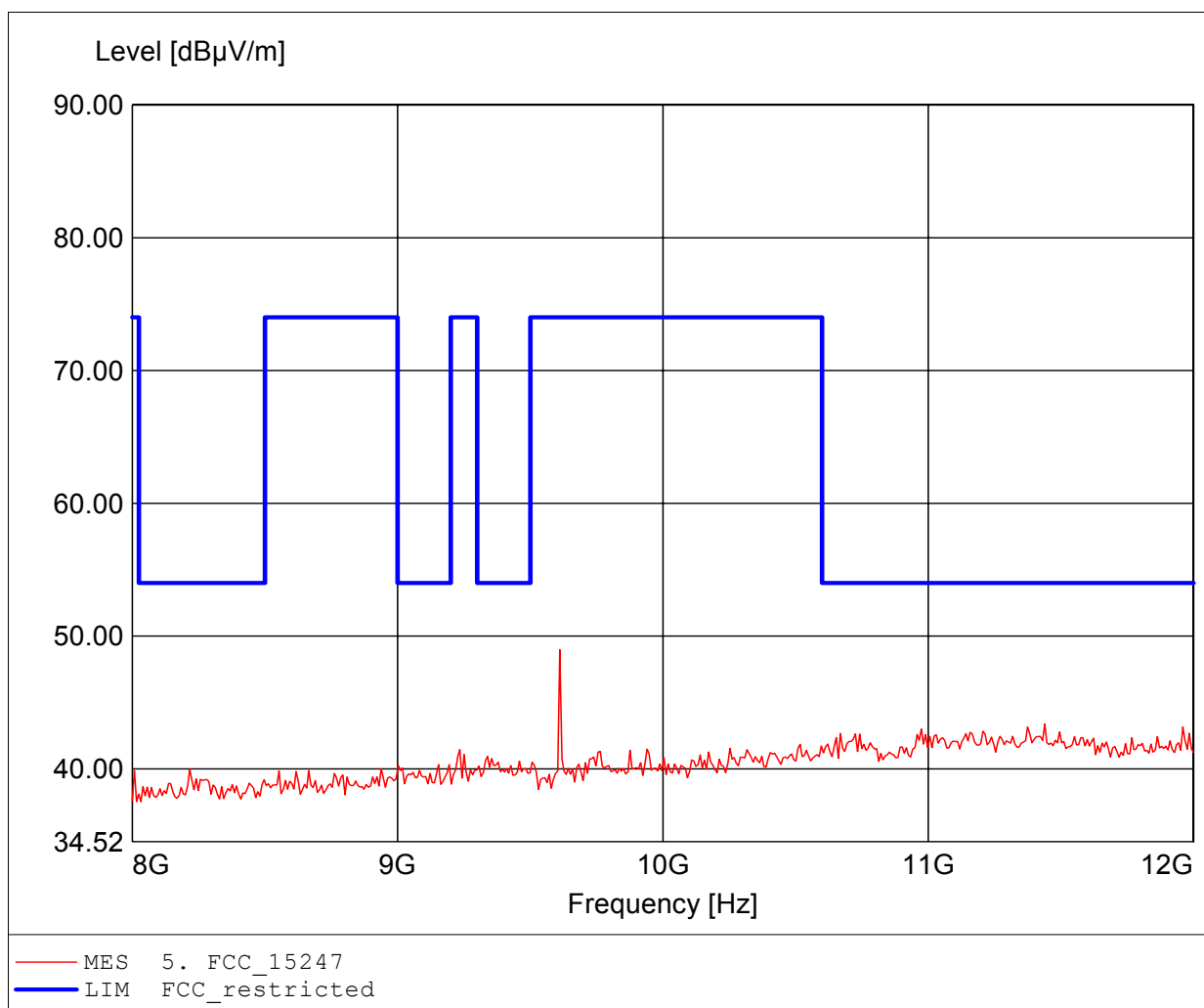
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 9.611GHz, Emax: 44.25dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

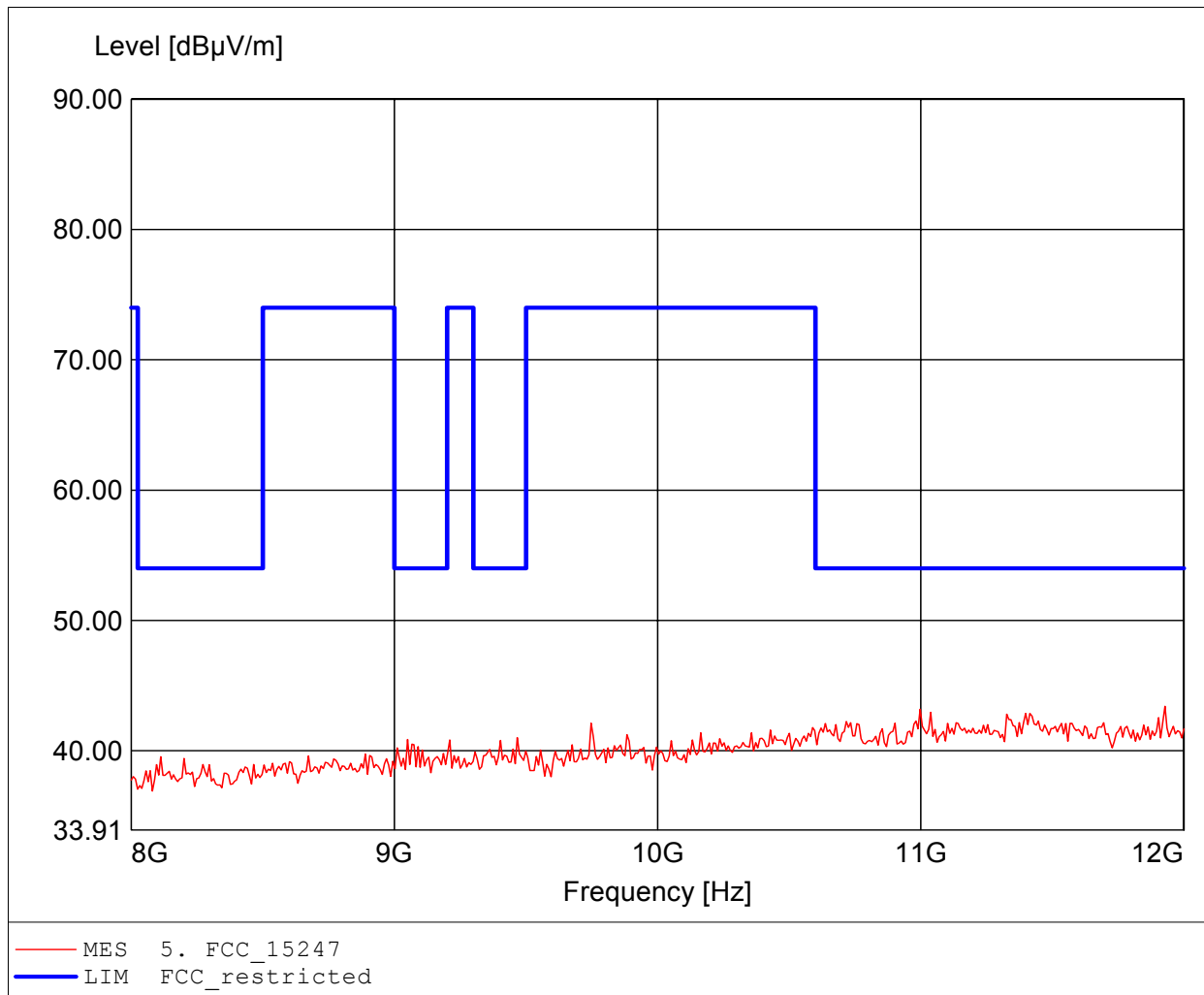
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 9.611GHz, Emax: 48.99dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

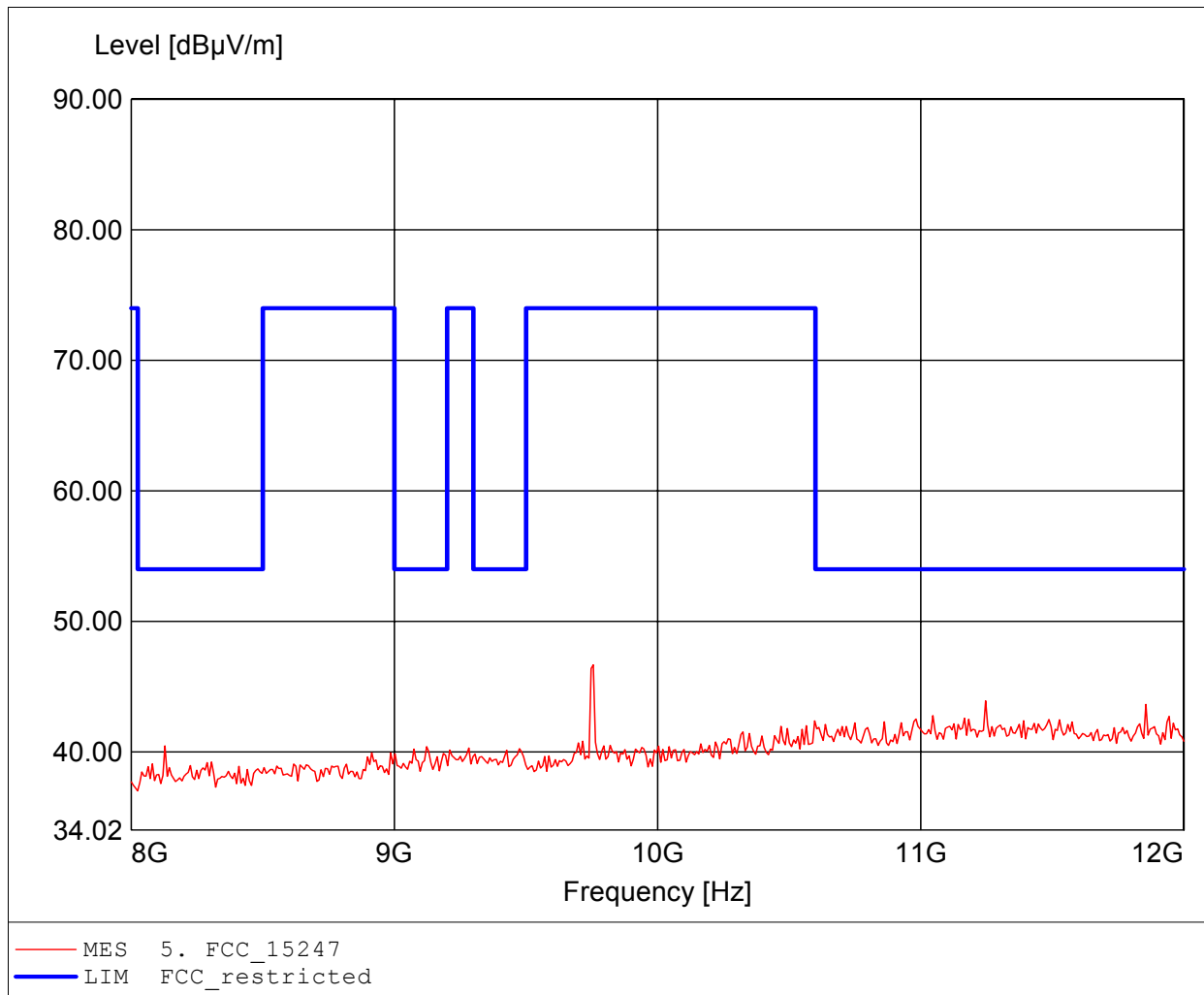
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2438 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 11.928GHz, Emax: 43.41dBuV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

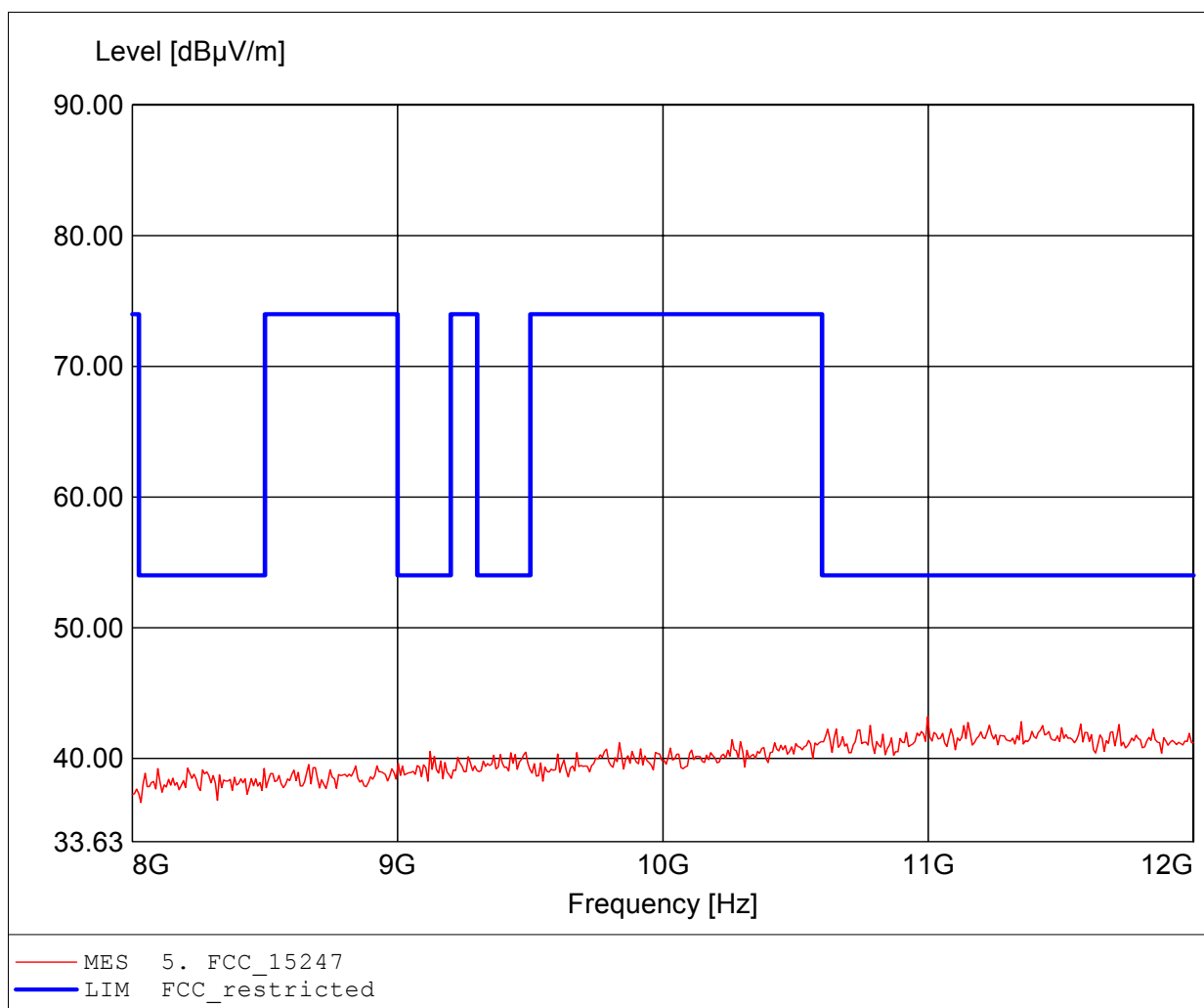
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2438 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 9.756GHz, Emax: 46.67dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2478 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 10.998GHz, Emax: 43.19dBuV/m, RBW: 1MHz

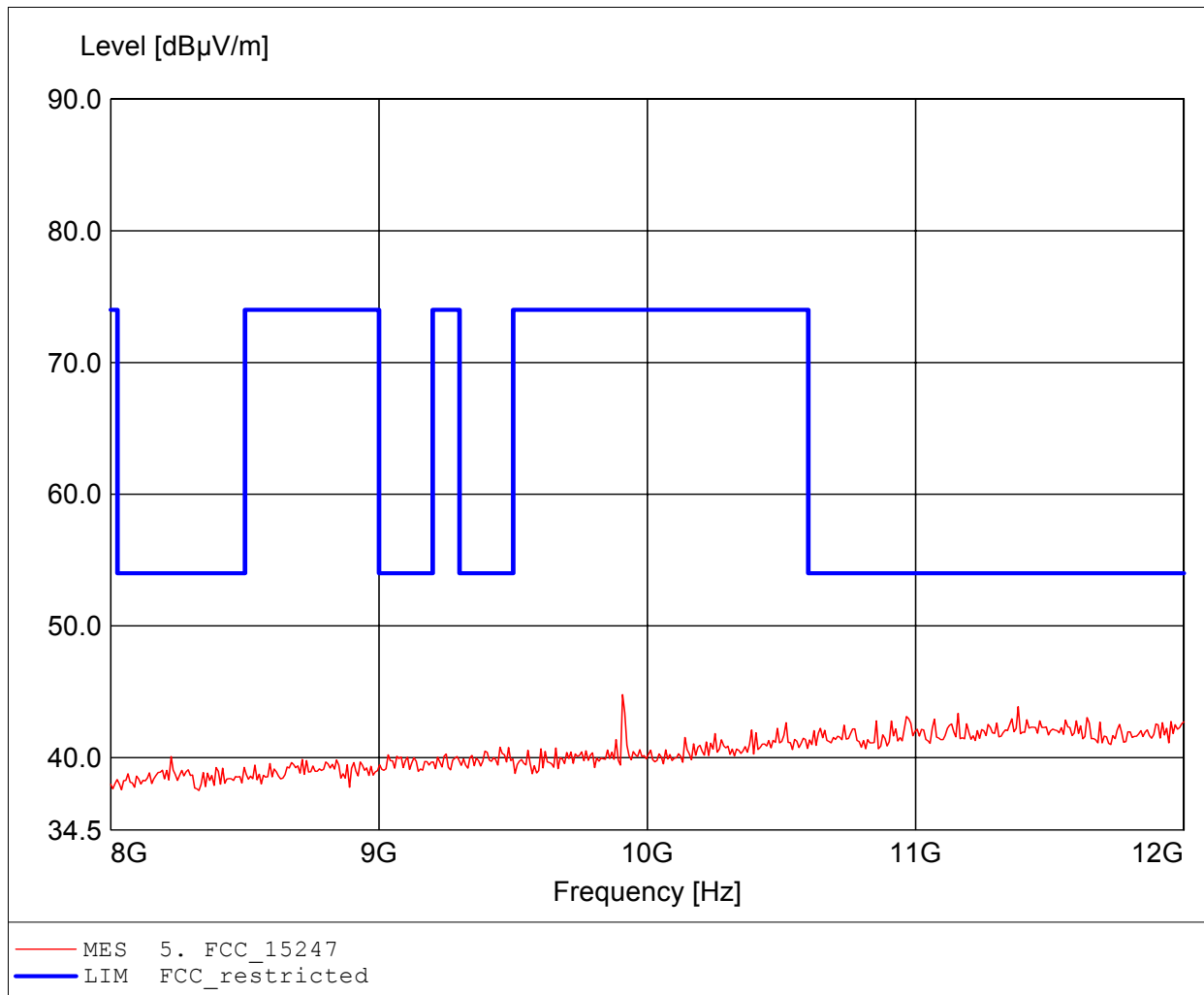




# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

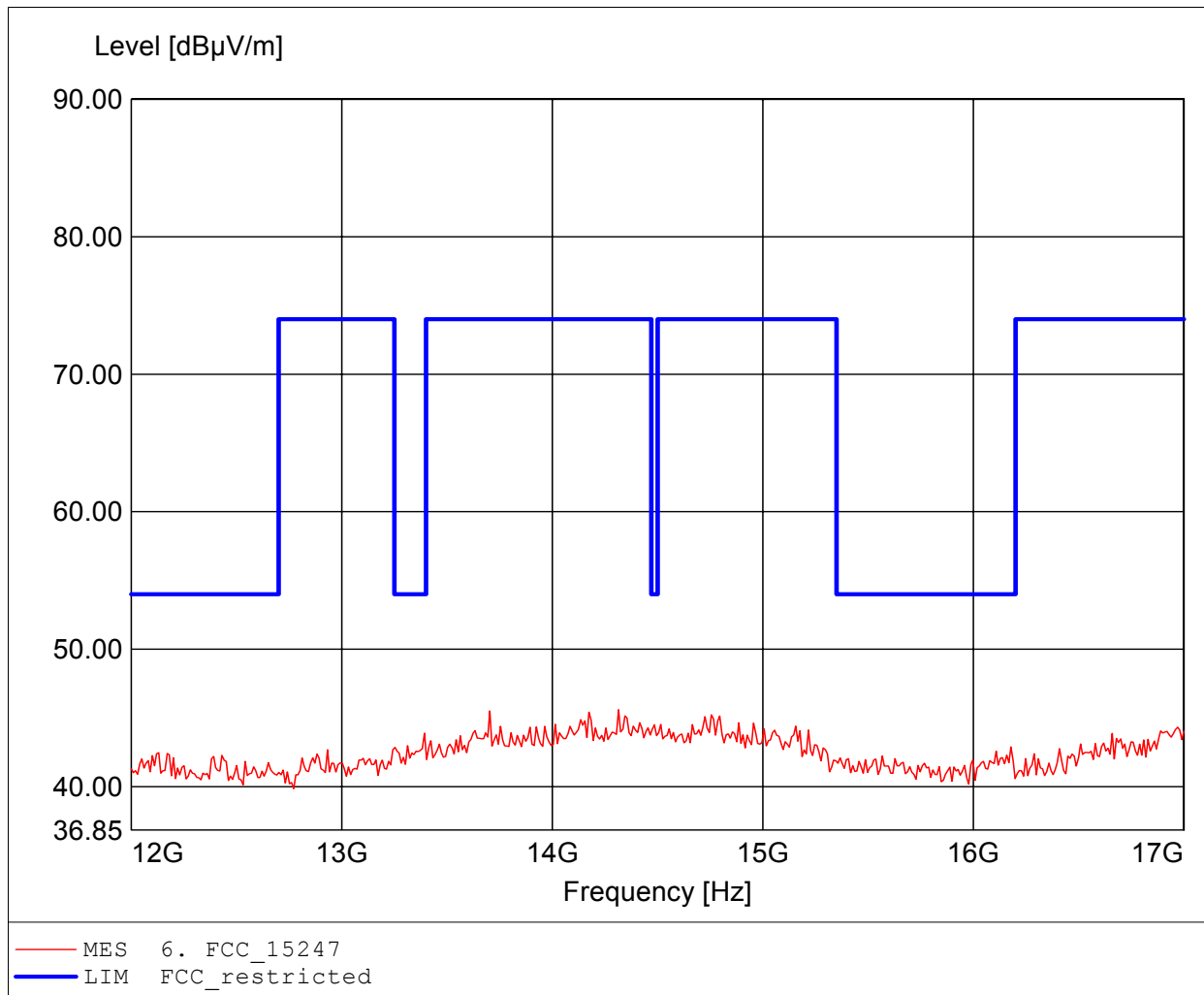
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2478 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 9.908GHz, Emax: 44.78dBμV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

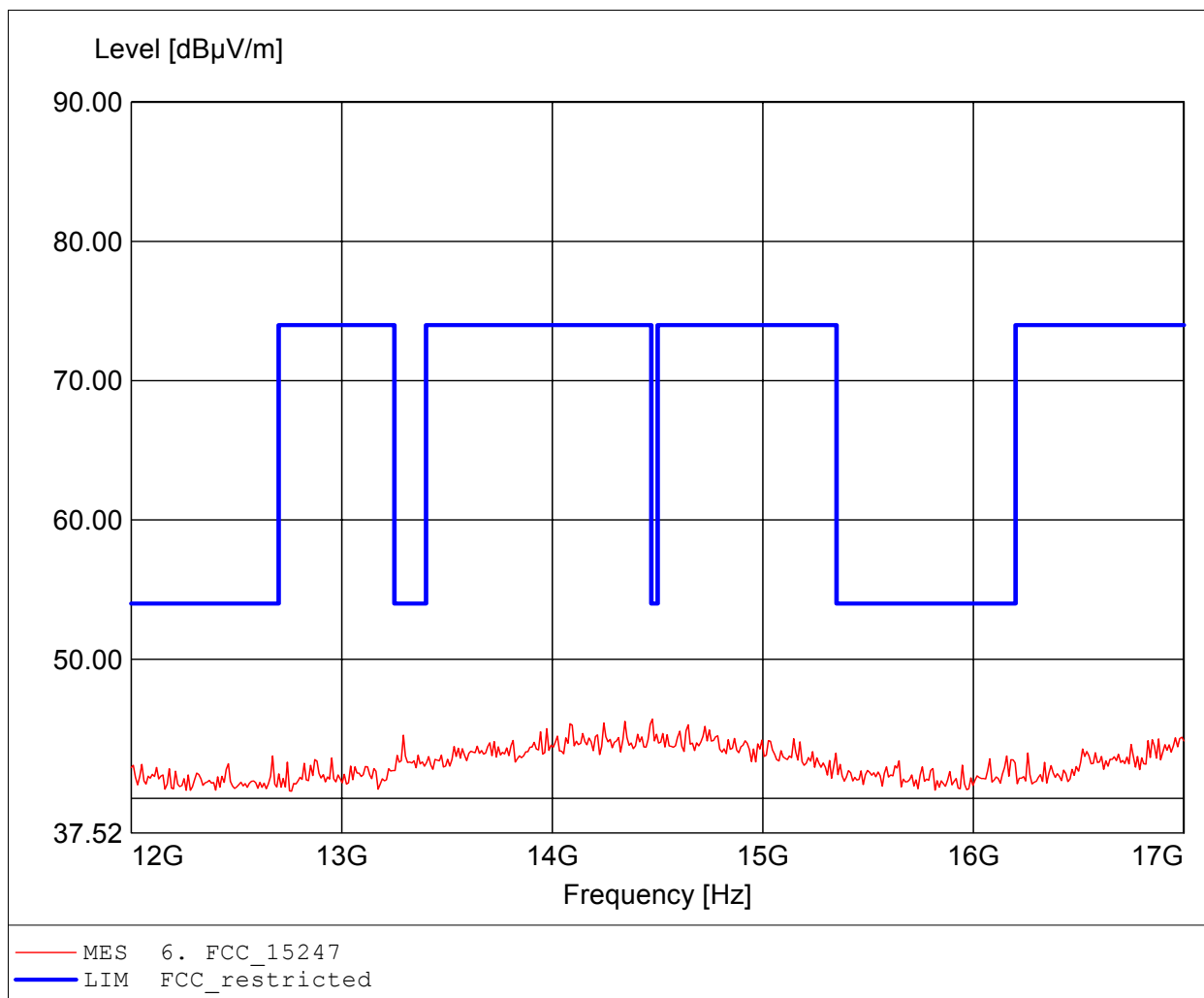
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 14.315GHz, Emax: 45.59dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

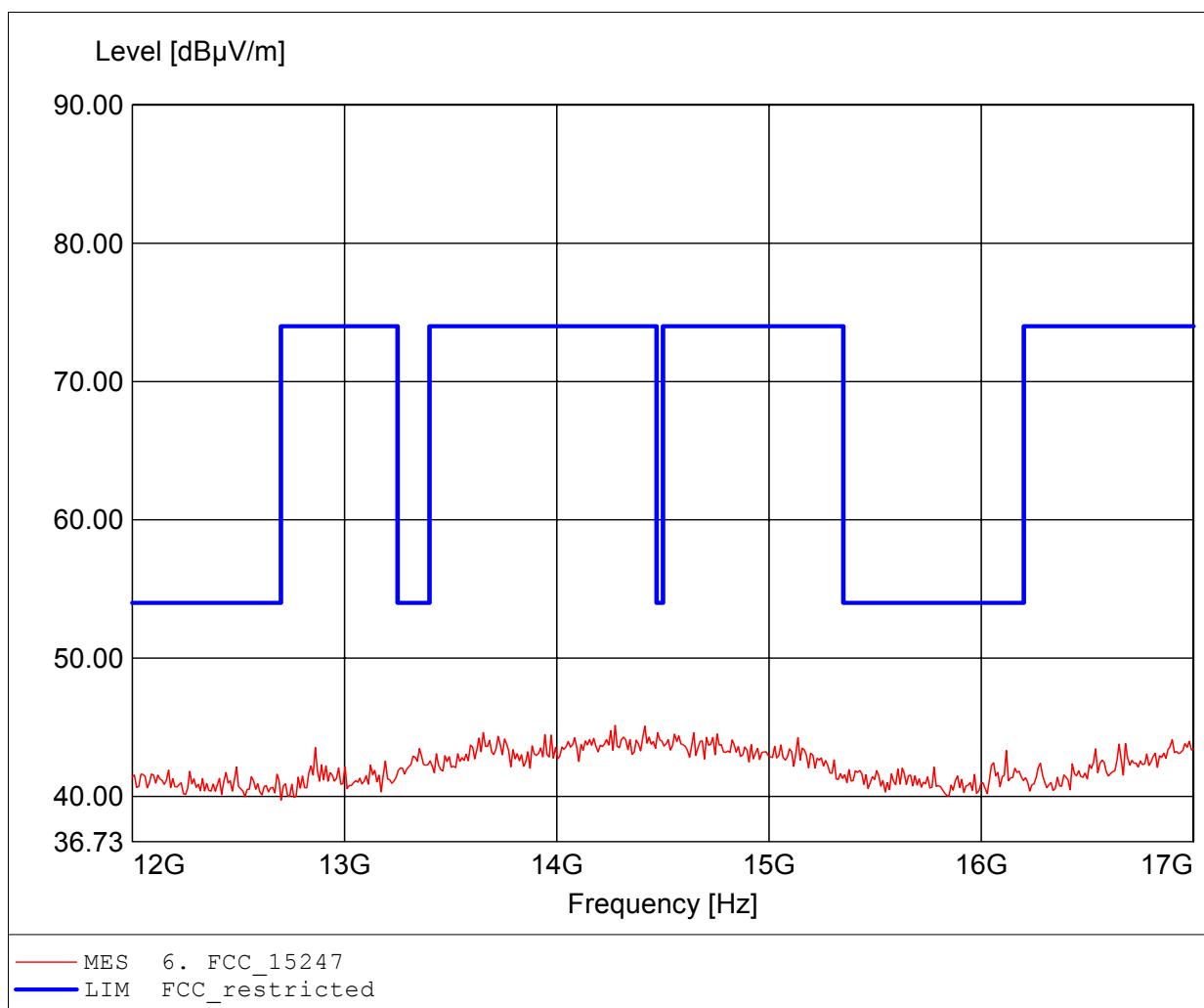
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 14.475GHz, Emax: 45.70dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

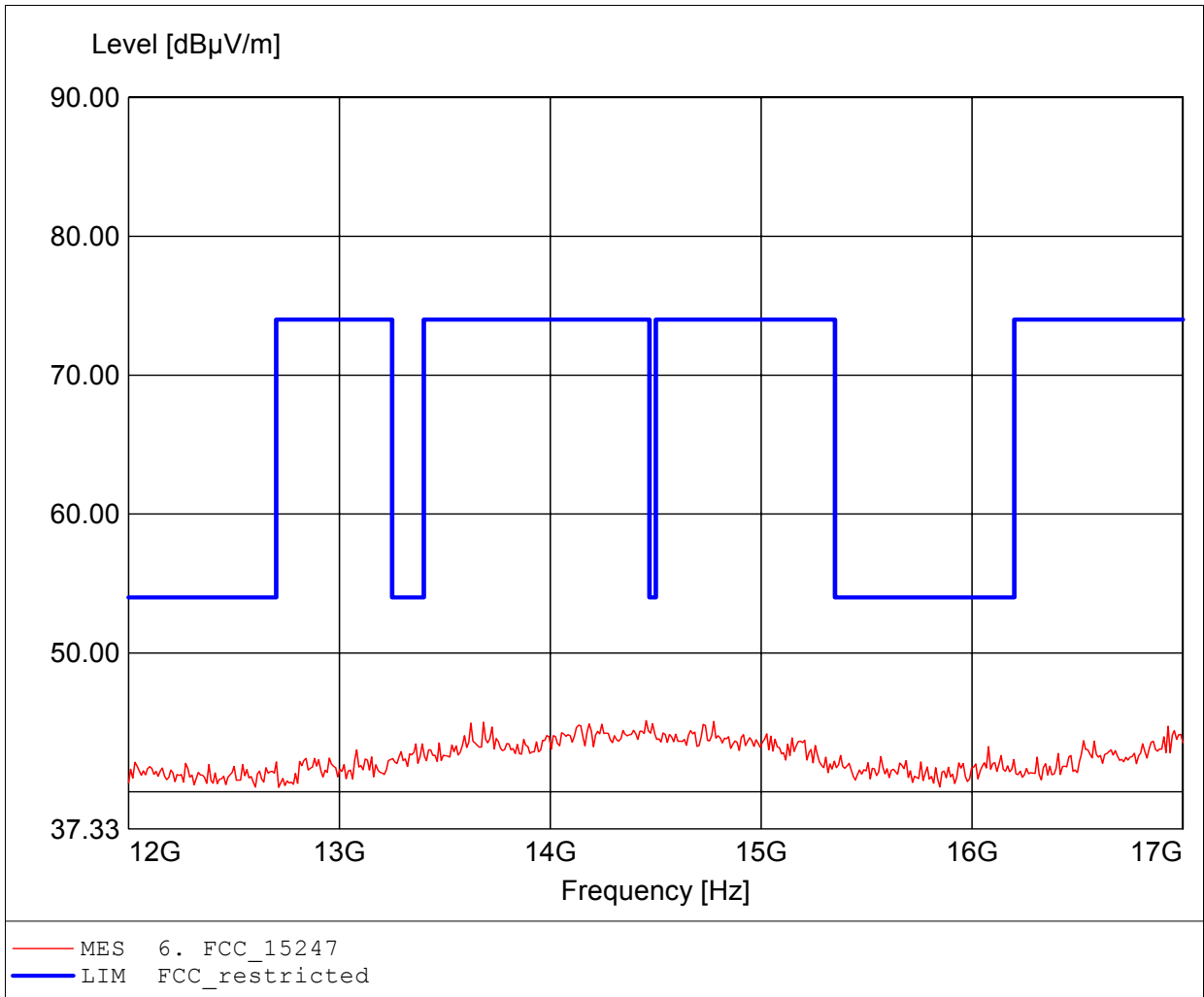
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2438 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 14.275GHz, Emax: 45.14dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C**

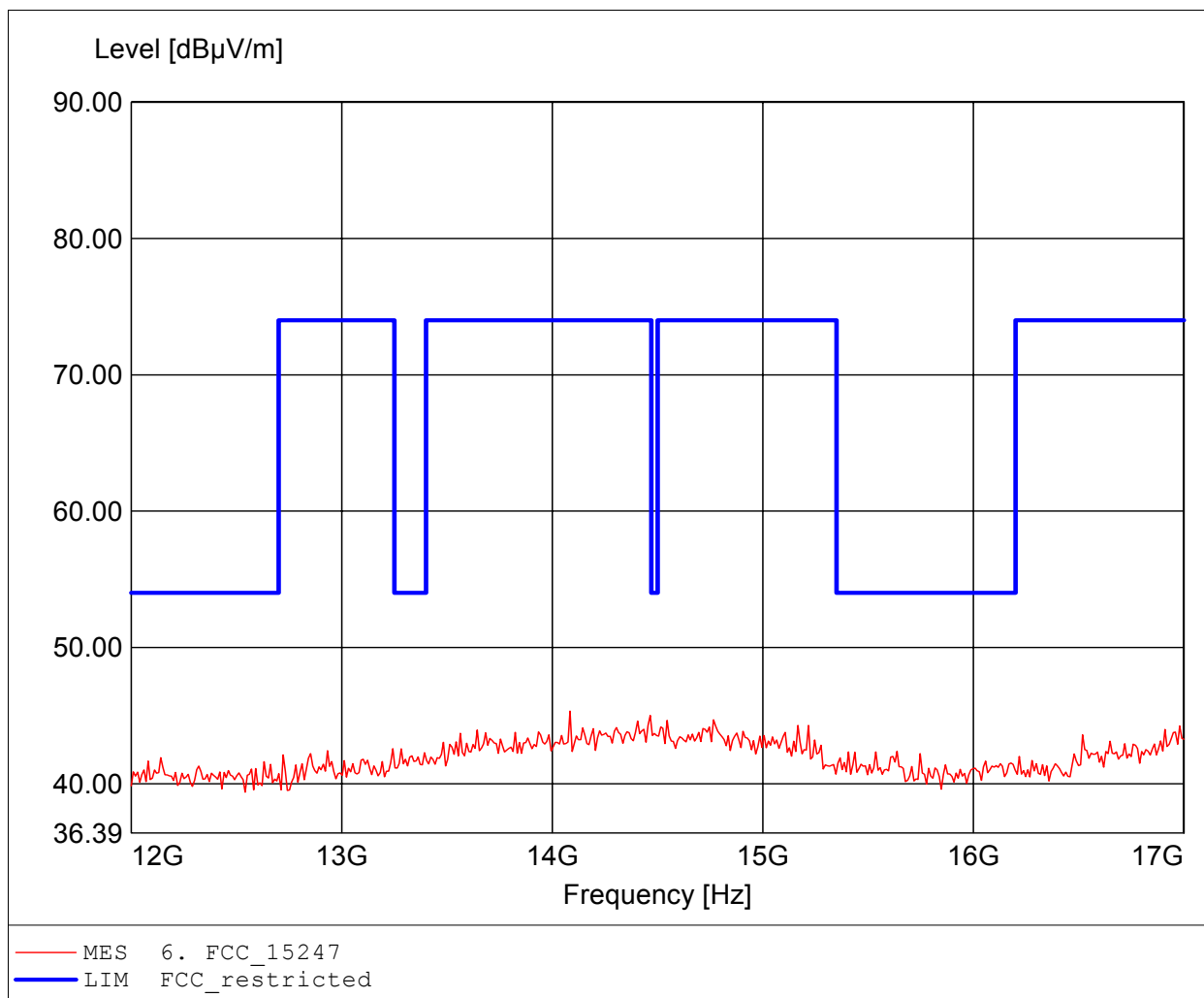
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2438 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 14.455GHz, Emax: 45.13dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

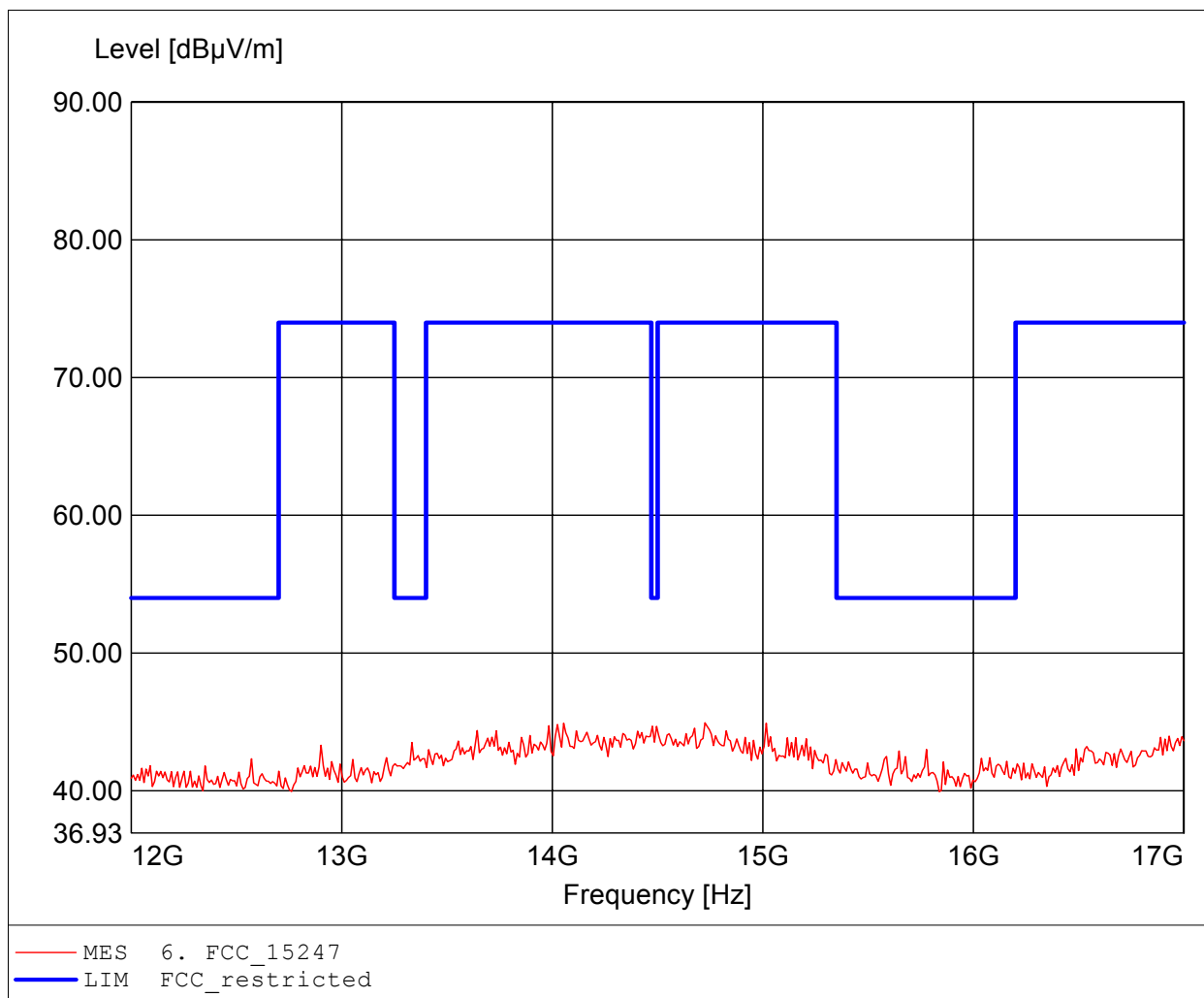
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2478 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 14.084GHz, Emax: 45.32dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

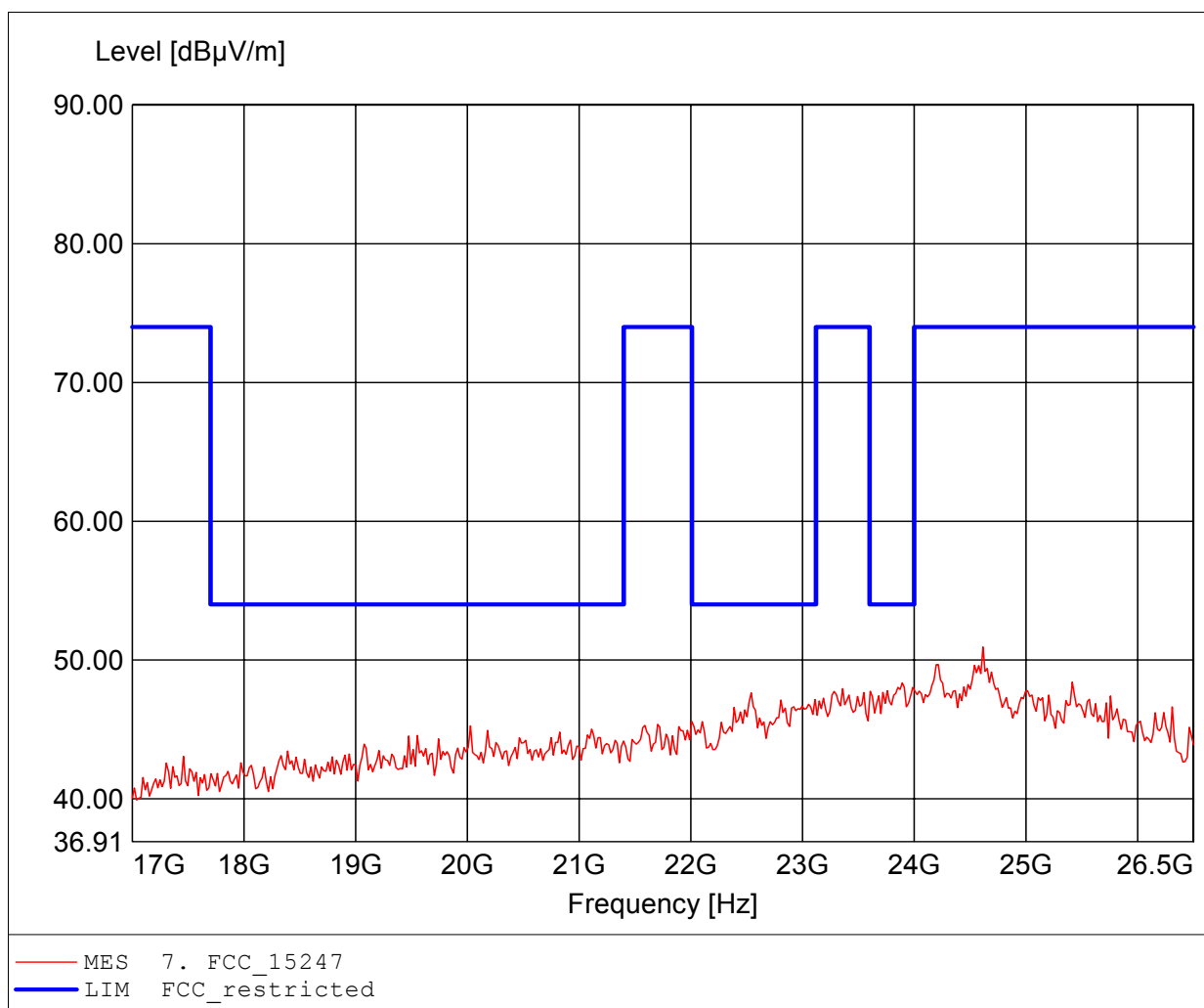
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2478 MHz.  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: BBHA9120D, ampl.+HP.  
Comment 2: Freq: 14.725GHz, Emax: 44.93dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz, worst case  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Comment 2: Freq: 24.615GHz, Emax: 50.94dBµV/m, RBW: 1MHz

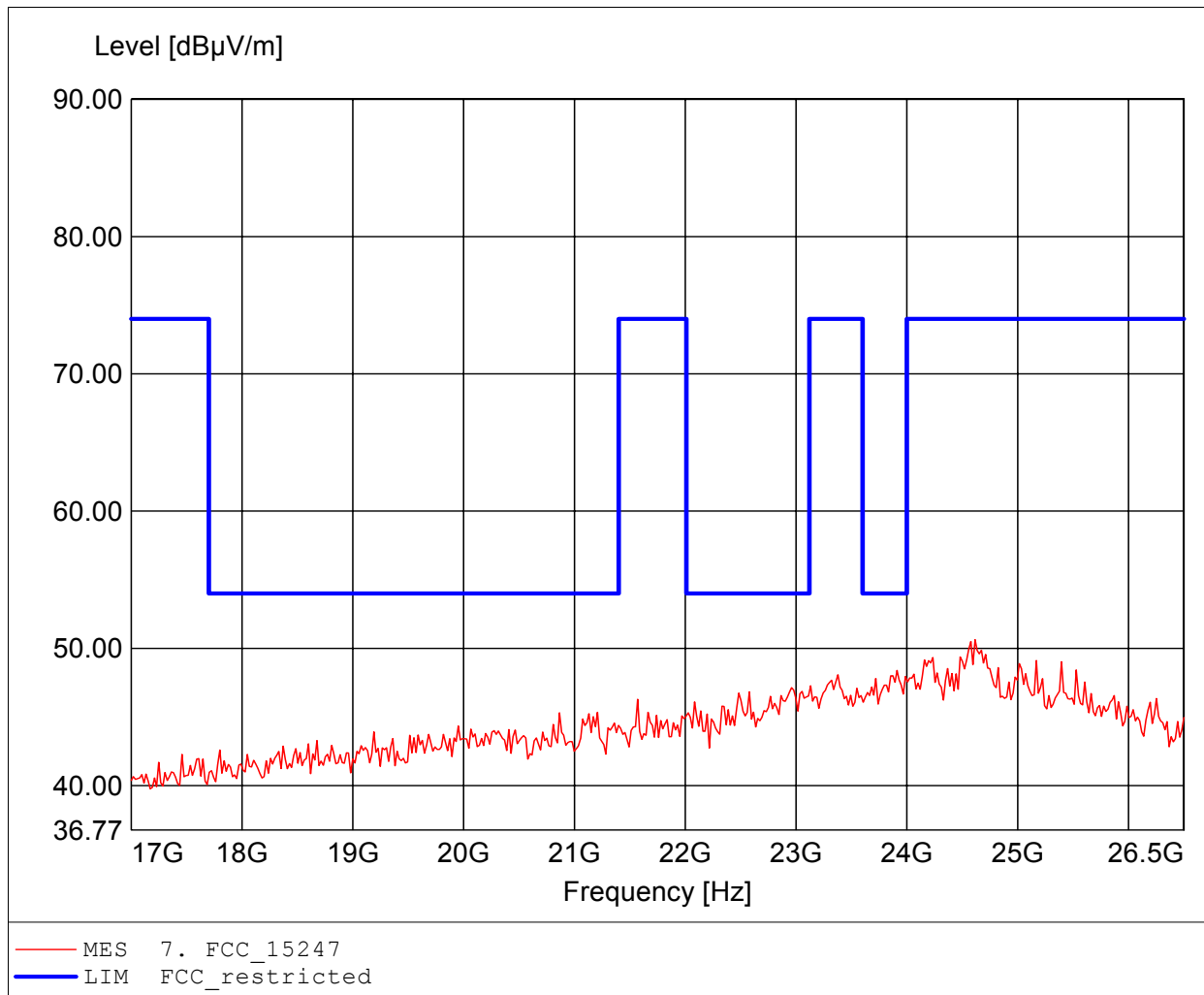




# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C

Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Tx, MSK / 2403 MHz, worst case  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Comment 2: Freq: 24.615GHz, Emax: 50.64dBµV/m, RBW: 1MHz

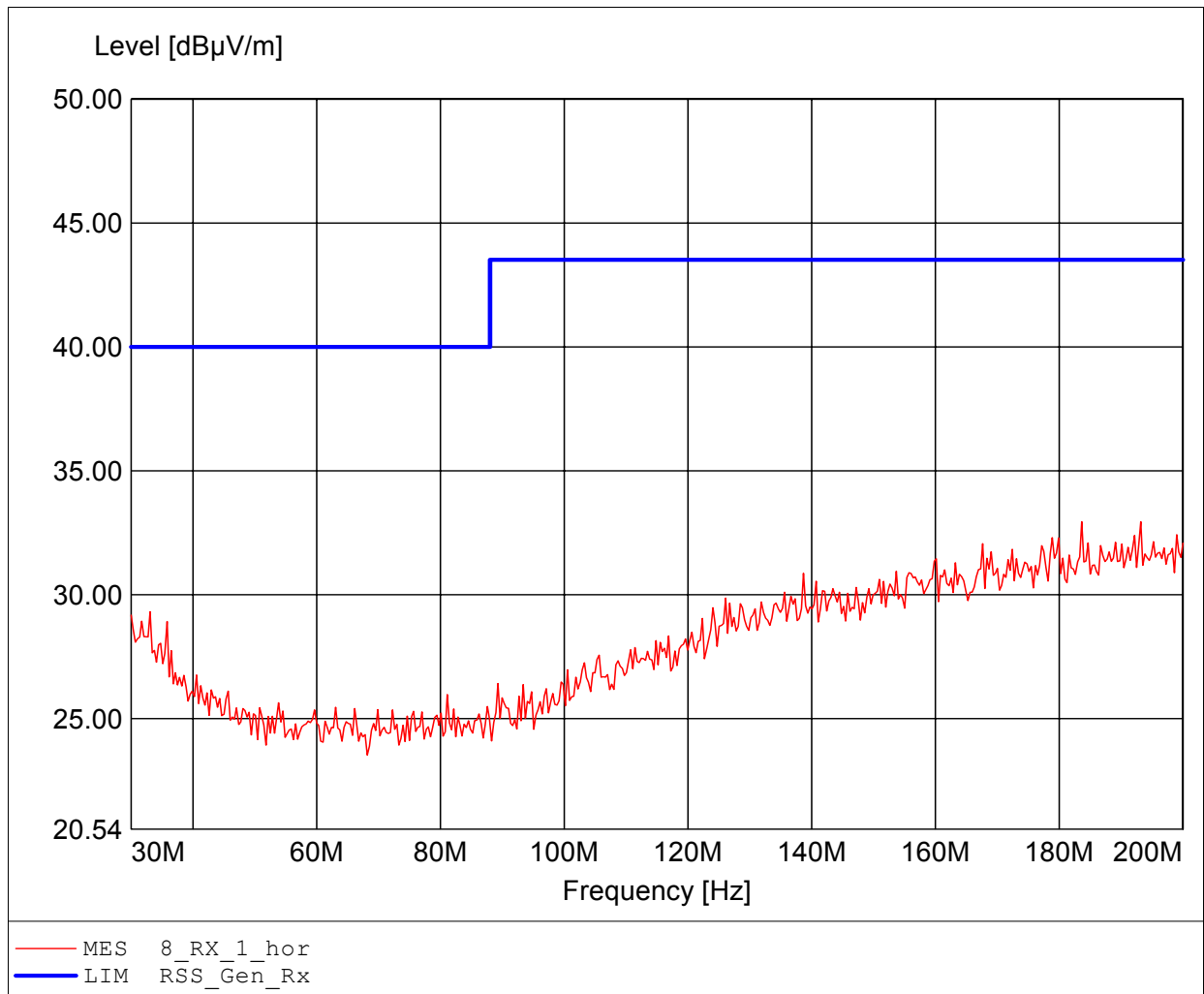


## **Annex G Receiver radiated spurious emissions**

**Field Strength under normal conditions**

**Standards Industry Canada, RSS-GEN**

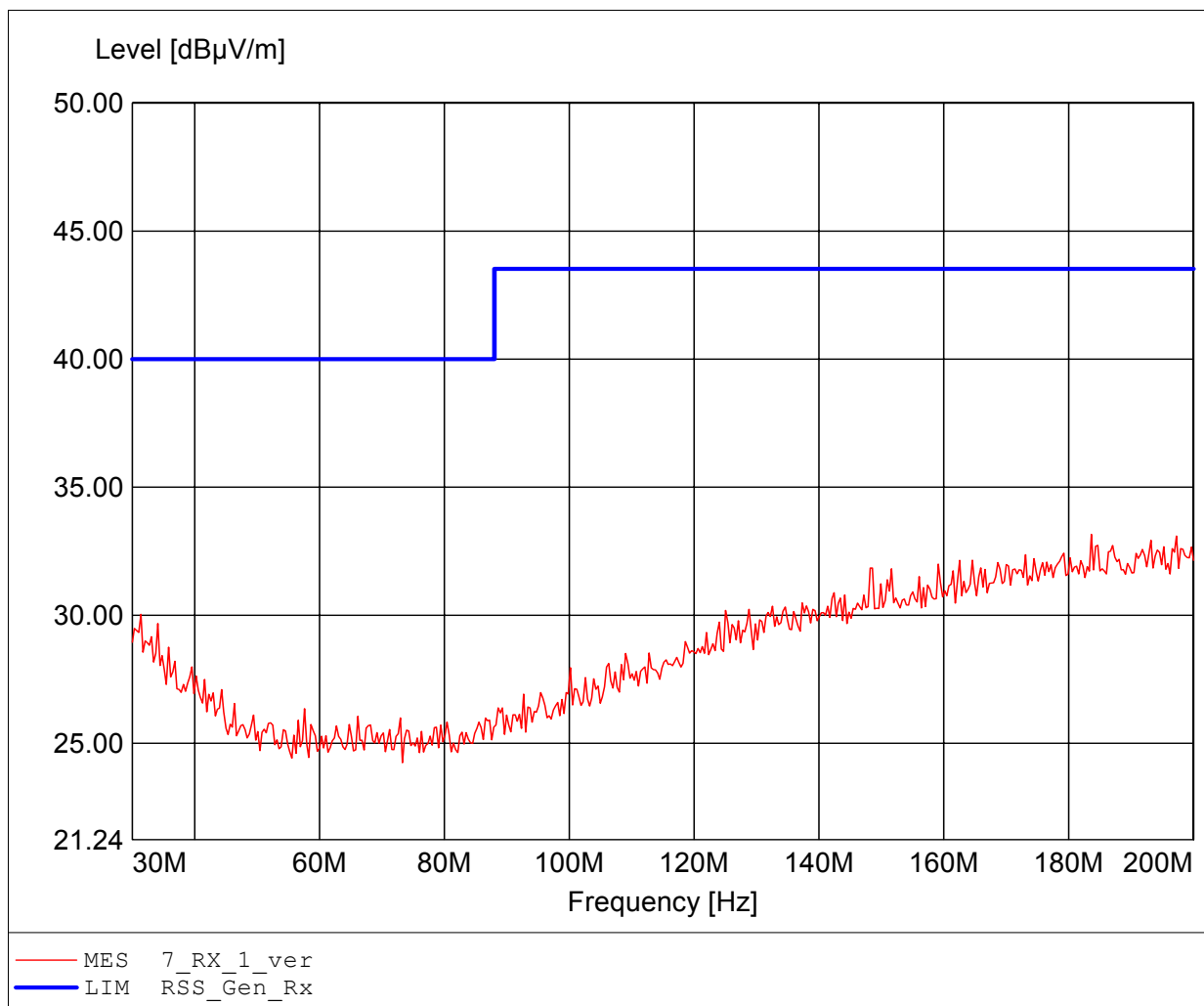
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Rx / 2438 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: Freq. / CH: 8  
Comment 1: Dist.: 3m, Ant.: HK 116  
Comment 2: Freq:193.186MHz Emax:32.95dBuV/m RBW: 100 kHz



**Field Strength under normal conditions**

**Standards Industry Canada, RSS-GEN**

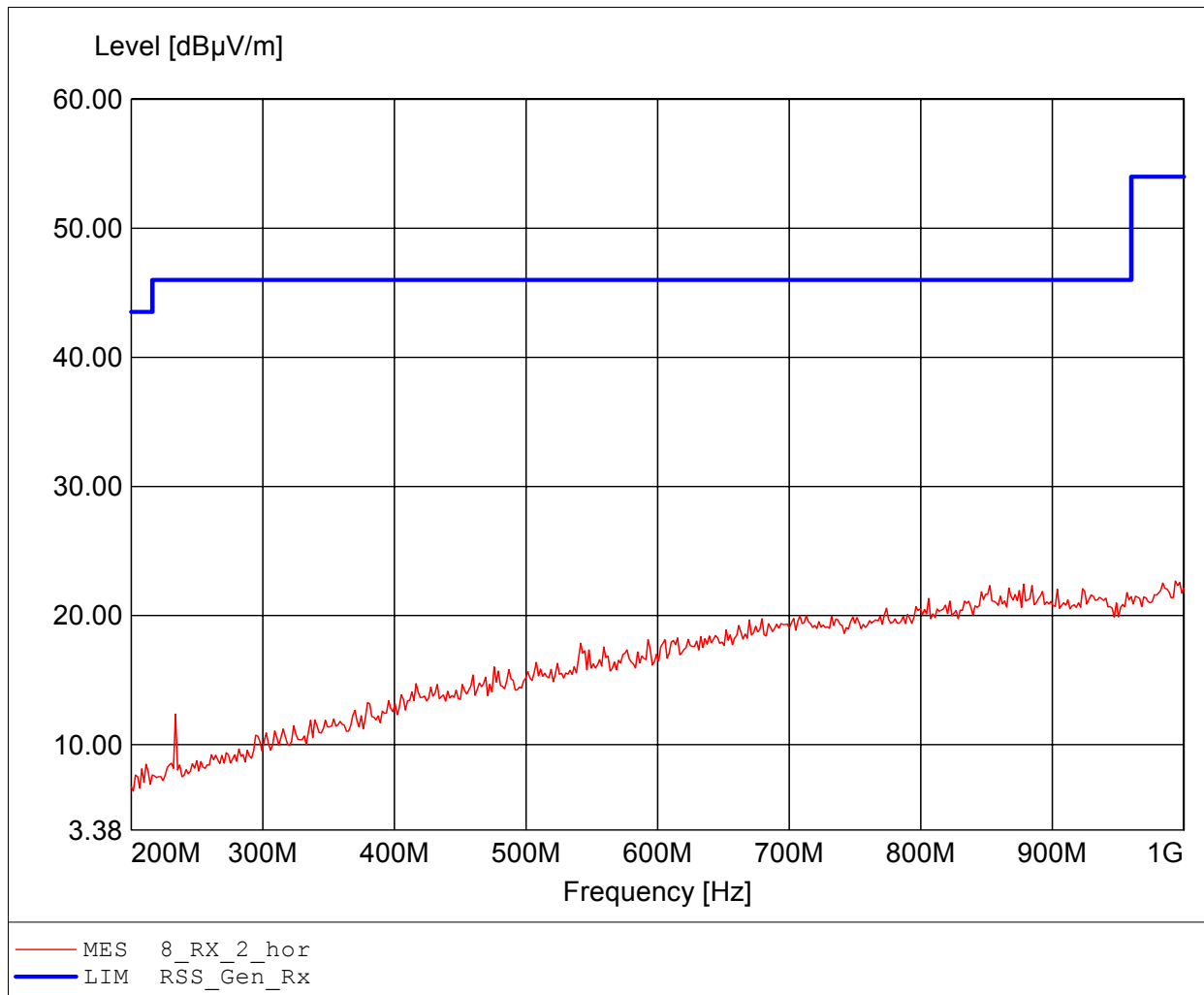
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Rx / 2438 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: Freq. / CH: 8  
Comment 1: Dist.: 3m, Ant.: HK 116  
Comment 2: Freq:183.647MHz Emax:33.16dBuV/m RBW: 100 kHz



**Field Strength under normal conditions**

**Standards Industry Canada, RSS-GEN**

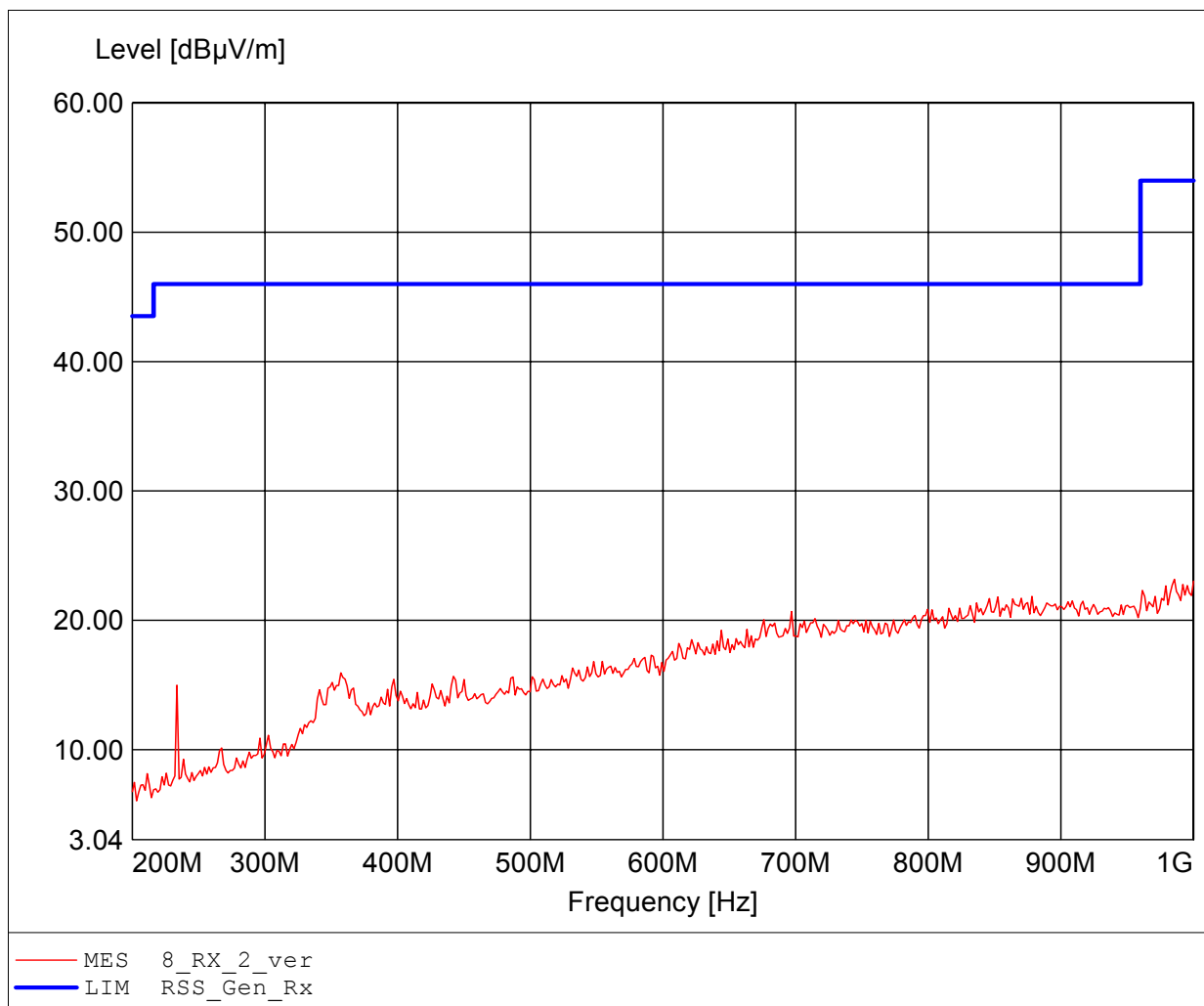
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Rx / 2438 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: Freq. / CH: 8  
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.  
Comment 2: Freq:993.587MHz Emax:22.67dBuV/m RBW: 100 kHz



**Field Strength under normal conditions**

**Standards Industry Canada, RSS-GEN**

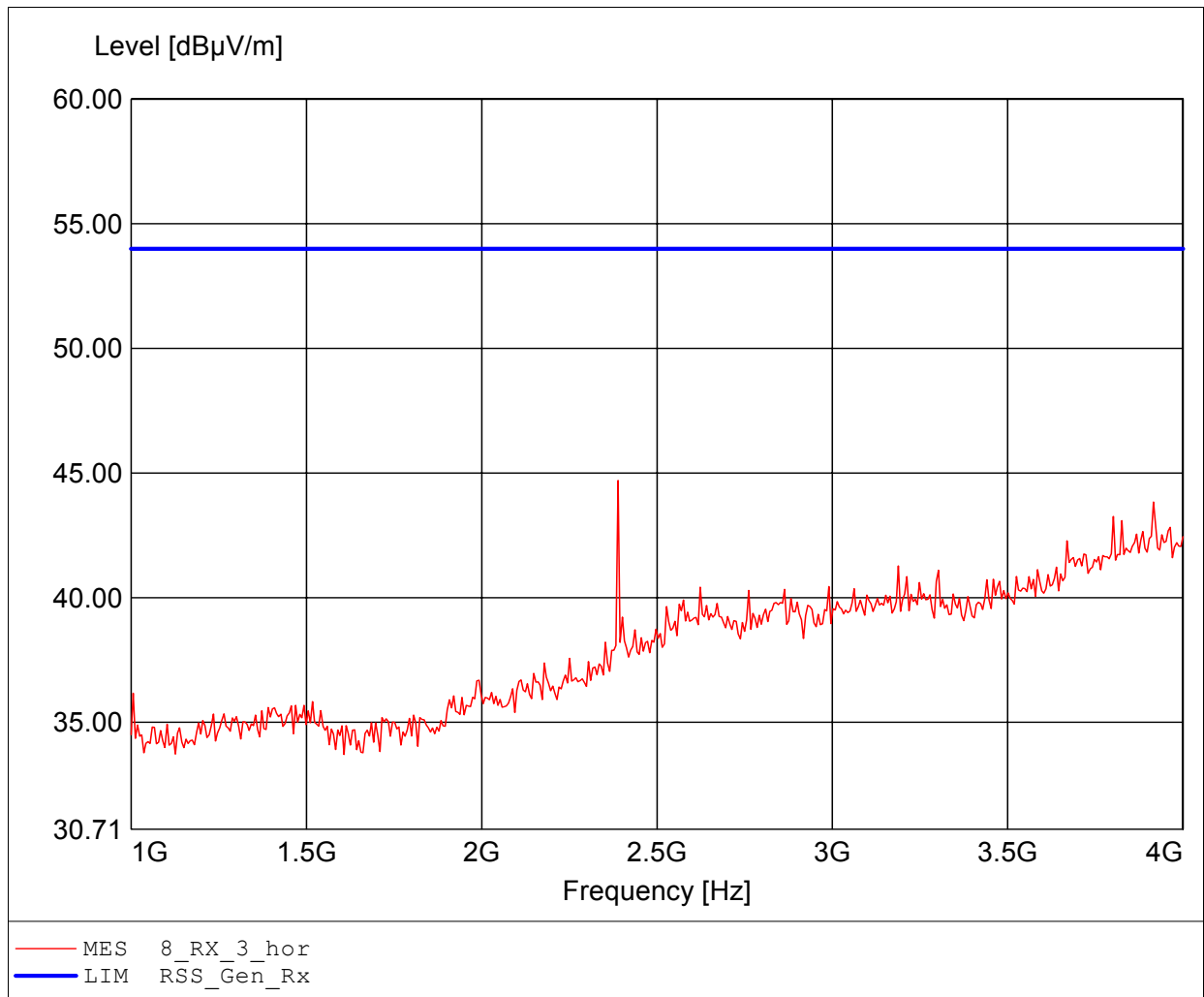
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Rx / 2438 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: Freq. / CH: 8  
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.  
Comment 2: Freq:985.571MHz Emax:23.17dBuV/m RBW: 100 kHz



**Field Strength under normal conditions**

**Standards Industry Canada, RSS-GEN**

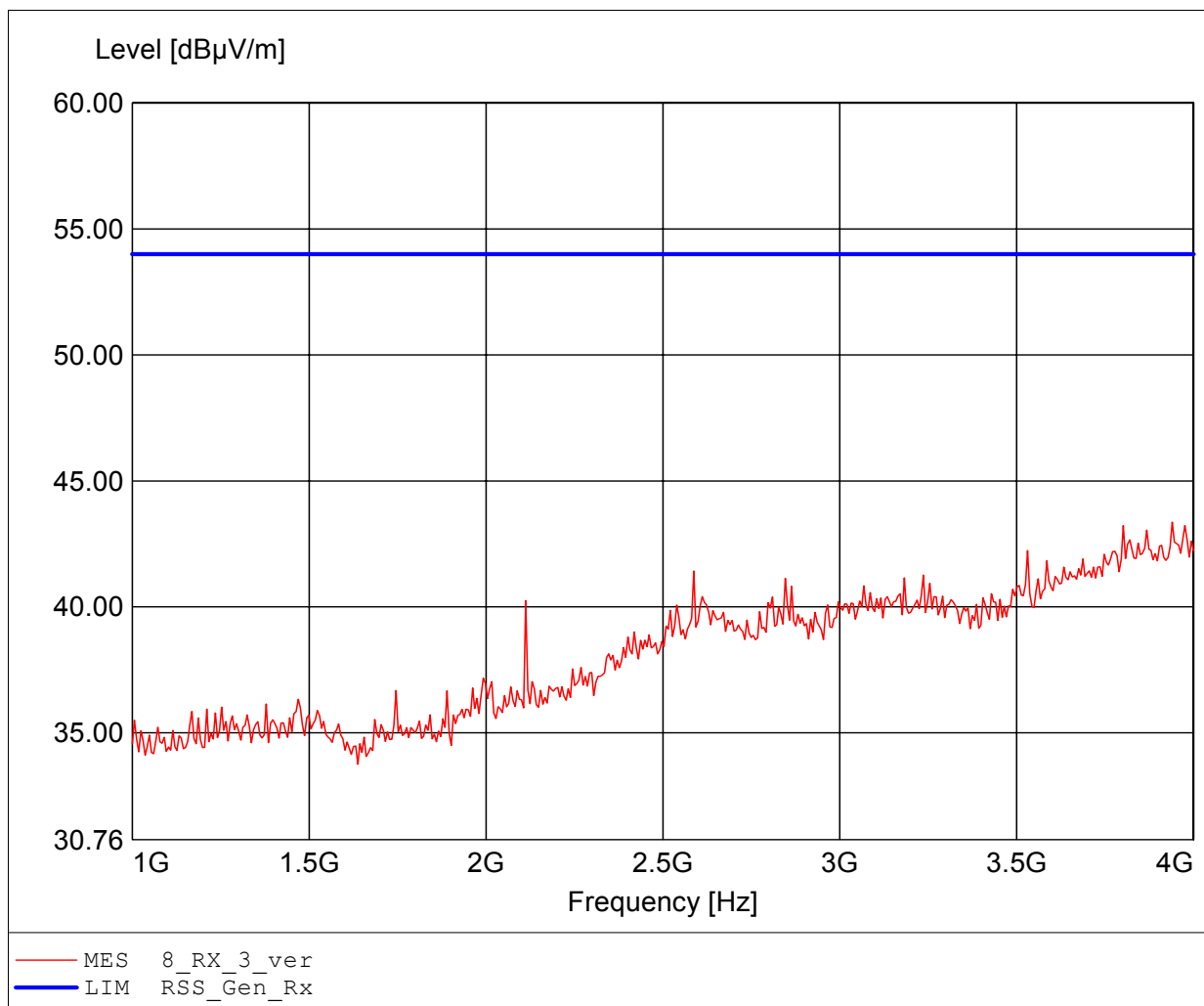
Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Rx / 2438 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: Freq. / CH: 8  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.  
Comment 2: Freq:2.389GHz Emax:44.70dBuV/m RBW: 1 MHz



**Field Strength under normal conditions**

**Standards Industry Canada, RSS-GEN**

Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Rx / 2438 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: Freq. / CH: 8  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.  
Comment 2: Freq:3.940GHz Emax:43.36dBuV/m RBW: 1 MHz

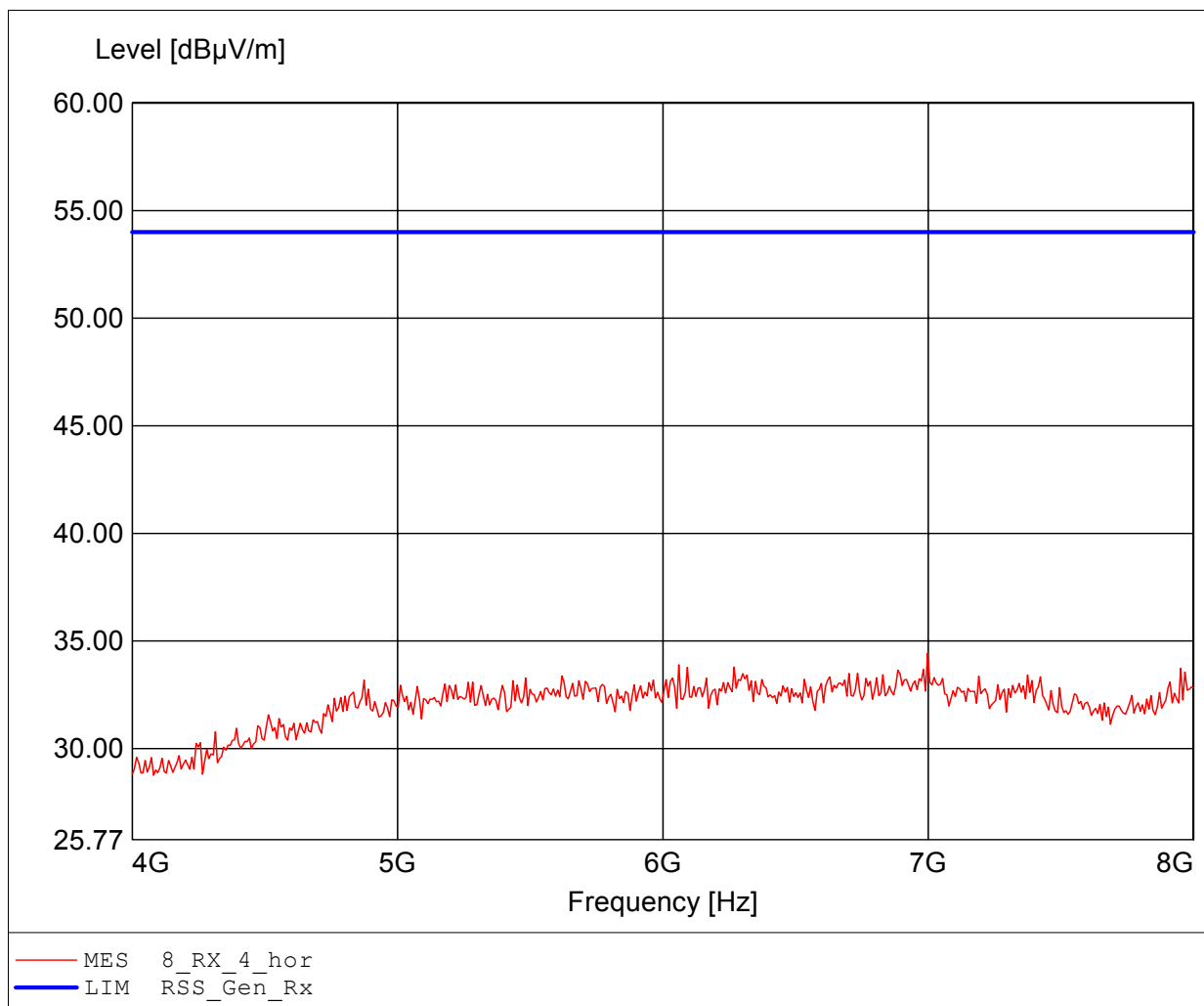




**Field Strength under normal conditions**

**Standards Industry Canada, RSS-GEN**

Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Rx / 2438 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: Freq. / CH: 8  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.  
Comment 2: Freq:6.998GHz Emax:34.45dBuV/m RBW: 1 MHz



**Field Strength under normal conditions**

**Standards Industry Canada, RSS-GEN**

Approval Holder: HARMAN Automotive / G0M21010-3765  
EUT / Model: Headphone / T214 (EUT vert.)  
Configuration: Rx / 2438 MHz  
Test Site / Operator: Eurofins Product Service GmbH / Mr. Treffke  
Test Condition: Tnom.: 24°C / Unom: 2.7 V DC  
Test Specification: Freq. / CH: 8  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.  
Comment 2: Freq:7.976GHz Emax:50.79dBµV/m RBW: 1 MHz

