



ETS Dr.GenZ Taiwan PS Co., Ltd.

FCC Registration No.: 930600

Industry Canada filed test laboratory Reg. No. IC 5679

A2LA Cert.No.: 2300.01

PTCRB Accredited Type Certification Test House

FCC

TEST - REPORT

FCC Part 15 C for IEEE 802.11 b device

FCC ID: UK9SPICA

Test report no.: W6M20607-7234-C-1

Registration number: W6M20607-7234-C-1
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1 General Information

1.1 Notes

The purpose of conformity testing is to increase the probability of adherence to the essential requirements or conformity specifications, as appropriate.

The complexity of the technical specifications, however, means that full and thorough testing is impractical for both technical and economic reasons.

Furthermore, there is no guarantee that a test sample which has Passed all the relevant tests conforms to a specification.

Neither is there any guarantee that such a test sample will interwork with other genuinely open systems.

The existence of the tests nevertheless provides the confidence that the test sample possesses the qualities as maintained and that its performance generally conforms to representative cases of communications equipment.

The test results of this test report relate exclusively to the item tested as specified in 1.5.

The test report may only be reproduced or published in full.

Reproduction or publication of extracts from the report requires the prior written approval of the ETS DR. GENZ TAIWAN PS CO., LTD.

Specific Conditions:

Usage of the hereunder tested device in combination with other integrated or external antennas requires at least additional output power measurements, spurious emission measurements, conducted emission measurements (AC supply lines) and radio frequency exposure evaluations for each individual configuration performed, for certification by FCC.

The test sample is able to work according IEEE 802.11 b.

This report is related to FCC Part 15 C (DSSS device).

Tester:

December 07, 2006

Jay Chaing



Date

ETS-Lab.

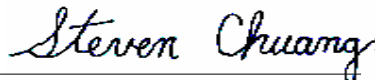
Name

Signature

Technical responsibility for area of testing:

December 07, 2006

Steven Chuang



Date

ETS

Name

Signature

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1.2 Testing laboratory

1.2.1 Location

OATS
No.5-1, Shuang Sing Village,
LiShuei Rd., Wanli Township,
Taipei County 207, Taiwan (R.O.C.)

Company
ETS Dr.Genz Taiwan PS Co., Ltd.
6F, NO. 58, LANE 188, RUEY-KUANG RD.
NEIHU, TAIPEI 114, TAIWAN R.O.C.
Tel : 886-2-66068877
Fax : 886-2-66068879

1.2.2 Details of accreditation status

Accredited testing laboratory

A2LA-registration number: 2300.01

FCC filed test laboratory Reg. No. 930600

Industry Canada filed test laboratory Reg. No. IC 5679

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1.3 Details of approval holder

Name	: Mobinnova Corp.
Street	: 11F, 845, CHUNG SHAN RD.
Town	: TAOYUAN 33059
Country	: TAIWAN, R.O.C.
Telephone	: +886-3-3699098
Fax	: +886-3-3699099

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1.4 Application details

Date of receipt of application : August 30, 2006
Date of receipt of test item : September 01, 2006
Date of test : from September 02, 2006 to December 07, 2006

1.5 General information of Test item

Type of test item : Wireless Pocket PC
Model Number : GP3000
Brand Name : Mobinnova
Hardware : MV
Software : 1.0.0.91 (WWE) 、 1.0.0.92 (Chinese)
Serial number : without
Photos : see Annex

Technical data

Frequency band : 2.4 GHz – 2.4835 GHz
Frequency (ch 1) : 2.412 GHz
Frequency (ch 6) : 2.437 GHz
Frequency (ch 11) : 2.462 GHz
Number of Channels : 11
Operation modes : duplex
Modulation Type : DSSS / OFDM

Fixed point-to-point operation: ☐ Yes / ☒ No
Type of Antenna : IFA Antenna
Antenna gain : 4.32 dBi

Power supply Input : 100 ~240 VAC, 50 ~ 60Hz
 Output : 5 VDC, 1A
 Battery : 3.7 ~ 4.2 VDC

Emission designator : 14M5G1D

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Host device: none

Classification :

Fixed Device	☐
Mobile Device (Human Body distance > 20cm)	☐
Portable Device (Human Body distance < 20cm)	☒

Transmitter

Unom

Power (ch 1) : Conducted: 11.86 dBm
Power (ch 6) : Conducted: 10.86 dBm
Power (ch 11) : Conducted: 11.62 dBm

Manufacturer:
(if applicable)

Name : ./.
 Street : ./.
 Town : ./.
 Country : ./.

Additional information: The sample is using WLAN technology according IEEE 802.11 b/g. For this report the function according IEEE 802.11b is considered only. The scheme for frequency generation, spectrum spreading, receiver parameters, synchronization procedure, and other parameters are determined by the mentioned standard above.

1.6 Test standards

Technical standard : FCC RULES PART 15 SUBPART B / SUBPART C § 15.247: February, 2006

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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 2.5 were ascertained in the course of the tests performed.



2.2 Test environment

Temperature		: 23 °C
Relative humidity content		: 20 ... 75 %
Air pressure		: 86 ... 103 kPa
Power supply	Input	: 100 ~240 VAC, 50 ~ 60Hz
	Output	: 5 VDC, 1A
	Battery	: 3.7 ~ 4.2 VDC
Extreme conditions parameters		: --

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2.3 Test Equipment List

No.	Test equipment	Type	Serial No.	Manufacturer	Cal. Date	Next Cal. Date
ETSTW-CE 001	EMI TEST RECEIVER	ESHS10	842121/013	R&S	2006/10/16	2007/10/15
ETSTW-CE 002	PREREULATOR MODE DC POWER SUPPLY	None	None		Function Test	
ETSTW-CE 003	AC POWER SOURCE	APS-9102	D161137	GW	Function Test	
ETSTW-CE 004	ZWEILEITER-V-NETZNACHBILDUNG TWO-LINE V-NETWORK	ESH3-Z5	840731/011	R&S	2006/10/16	2007/10/15
ETSTW-CE 005	Line-Impedance Stabilisation Network	NNBM 8126D	137	Schwarzbeck	2006/10/16	2007/10/15
ETSTW-CE 006	IMPULS-BEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	In House Certificate	
ETSTW-CE 008	ABSORBING CLAMP	MDS 21	3469	ABSORPTIONS-MESSWANDLER-ZANGE	2005/10/24	2007/10/23
ETSTW-CE 009	TEMP.&HUMIDITY CHAMBER	GTH-225-40-1P-U	MAA0305-009	GIANT FORCE	2006/8/17	2007/8/16
ETSTW-CE 012	Dual-Phase-V-Network	NNB-2/16Z	03/10201	Telemeter	2006/6/13	2007/6/12
ETSTW-RE 002	Function Generator	33220A	MY43004982	Agilent	2005/10/14	2007/10/13
ETSTW-RE 003	EMI TEST RECEIVER	ESI 26	831438/001	R&S	2006/10/20	2007/10/19
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2006/10/30	2007/10/29
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2006/10/12	2007/10/11
ETSTW-RE 010	PROGRAMMABLE LINEAR POWER SUPPLY	LPS-305	30503070181	MOTECH	Function Test	
ETSTW-RE 011	PROGRAMMABLE LINEAR POWER SUPPLY	LPS-305	30503070165	MOTECH	Function Test	
ETSTW-RE 017	ANTENNA	HL025	352886/001	R&S	2006/5/4	2008/5/3
ETSTW-RE 018	ANTENNA	AT4560	27212	AR	2004/11/8	2007/11/7
ETSTW-RE 021	SWEEP GENERATOR	SWM05	835130/010	R&S	2006/10/11	2007/10/10
ETSTW-RE 027	Passive Loop Antenna	6512	34563	EMCO	2004/6/30	2007/6/29
ETSTW-RE 028	Log-Periodic DipoleArray Antenna	3148	34429	EMCO	2006/5/26	2008/5/25
ETSTW-RE 029	Biconical Antenna	3109	33524	EMCO	2006/5/26	2008/5/25
ETSTW-RE 030	Double-Ridged Waveguide Horn Antenna	3117	35224	EMCO	2006/5/3	2008/5/2
ETSTW-RE 032	Millivoltmeter	URV 55	849086/013	R&S	2006/10/11	2007/10/10
ETSTW-RE 033	4CH 1GHz 5GS/s DSO	WAVERUNNER 6100A	LCRY0604P14508	LeCroy	2006/7/27	2007/7/26
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2006/10/11	2007/10/10
ETSTW-RE 042	ANTENNA	HK116	100172	R&S	2005/1/14	2007/1/13
ETSTW-RE 043	ANTENNA	HL223	100166	R&S	2006/5/8	2008/5/7
ETSTW-RE 044	ANTENNA	HL050	100094	R&S	2006/5/29	2008/5/28

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ETSTW-RE 048	Triple Loop Antenna	HXYZ 9170	HXYZ 9170-134	Schwarzbeck	2005/3/22	2008/3/21
ETSTW-RE 049	TRILOG Super Broadband test Antenna	VULB 9160	9160-3185	Schwarzbeck	2005/5/19	2007/5/18
ETSTW-RE 055	SPECTRUM ANALYZER	FSU-26	200074	R&S	2006/7/28	2007/7/27
ETSTW-EMS 002	Frequency Converter	YF-6020	308014	T-Power	Function Test	
ETSTW-EMS 013	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T4-02	20242	FCC	2005/12/8	2008/12/8
ETSTW-EMS 014	CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK	FCC-TLISN-T2-02	20241	FCC	2005/12/7	2007/12/7
ETSTW-GSM 01	SIM Simulator	IT3	B2004-50106	ORGA	2006/7/26	2007/7/25
ETSTW-GSM 02	Universal Radio Communication Tester	CMU 200	109439	R&S	2006/10/18	2007/10/17
ETSTW-GSM 03	Agilent 8960 Test Set 1	E5515C	GB44052675	Agilent	2006/6/26	2008/6/25
ETSTW-GSM 04	Agilent 8960 Test Set 2	E5515C	GB44052665	Agilent	2006/7/13	2008/7/12
ETSTW-GSM 05	Agilent 8960 Test Set 3	E5515C	GB44052652	Agilent	2006/7/16	2008/7/15
ETSTW-GSM 06	Agilent 8960 Test Set 4	E5515C	GB44052684	Agilent	2006/7/4	2008/4/3
ETSTW-GSM 07	Agilent 8960 Test Set 5	E5515C	GB44052658	Agilent	2006/7/12	2008/7/11
ETSTW-GSM 08	Agilent 8960 Test Set 6	E5515C	GB44052666	Agilent	2006/7/6	2008/7/5
ETSTW-GSM 09	Controller PC	Dell GX 270	700F61J	Dell	Function Test	
ETSTW-GSM 10	Combiner Wessex / Anite	B4605/100	0053	Wessex / Anite	2006/7/13	2008/7/12
ETSTW-GSM 11	GSM 850,900,1800,1900 Test system	TS8950G	101087	R&S	2005/11/1	2007/4/30
ETSTW-GSM 12	Acoustical Calibrator	4231	2463874	Brüel&Kjær	2006/7/26	2007/7/25
ETSTW-GSM 13	Conditioning Amplifier	2690	2437856	Brüel&Kjær	2006/7/26	2007/7/25
ETSTW-GSM 15	Mouth Simulator	4227	2462516	Brüel&Kjær	2006/7/26	2007/7/25
ETSTW-GSM 16	TEMP.&HUMIDITY CHAMBER	GTH-120-40-1P-U	MAA0501002	GIANT FORCE	2005/12/29	2006/12/28
ETSTW-GSM 18	AUDIO ANALYZER	UPL16	100173	R&S	2006/10/28	2007/10/27
ETSTW-GSM 23	SPLITTER	4901.19.A	None	SUHNER	Function Test	
ETSTW-GSM 24	Vibration Testing System	VS-100V	5494	Vibration	2005/12/20	2006/12/19
ETSTW-GSM 29	Microphone	4192	2458739	Brüel&Kjær	2006/7/26	2007/7/25
ETSTW-GSM 30	Ear Simulator	4195	2457416	Brüel&Kjær	2006/7/26	2007/7/25

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2.4 General Test Procedure

POWER LINE CONDUCTED INTERFERENCE: The procedure used was ANSI STANDARD C63.4-2003 using a 50 μ H LISN (if necessary). Both lines were observed. The bandwidth of the spectrum analyzer was 10 kHz with an appropriate sweep speed.

RADIATION INTERFERENCE: The test procedure used was according to ANSI STANDARD C63.4-2003 employing a spectrum analyzer. For investigated frequency is equal to or below 1GHz, the RBW and VBW of the spectrum analyzer was 100 kHz and 100kHz respectively with an appropriate sweep speed. For investigated frequency is above 1GHz, both of RBW and VBW of the spectrum analyzer were 1 MHz with an appropriate sweep speed. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 23°C with a humidity of 40 %.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dB μ V) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

Freq (MHz)	METER READING + ACF + CABLE LOSS (to the receiver) = FS
33	20 dB μ V + 10.36 dB + 6 dB = 36.36 dB μ V/m @3m

The UUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table) and arranged according to ANSI C63.4-2000 Section 13.1.2. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to the frequency specified as follows:

- (1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
- (2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
- (3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules.
- (4) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1)-(a)(3) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this Section, whichever is the higher frequency range of investigation.

For hand-held devices, a exploratory test was performed with three (3) orthogonal planes to determine the highest emissions.

Measurements were made by ETS Dr.Genz Taiwan PS Co., Ltd. at the registered open field test site located at No.5-1, Shuang Sing Village, LiShuei Rd., Wanli Township, Taipei County 207, Taiwan (R.O.C.) The Registration Number: 930600.

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When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

The formula is as follows:

Average = Peak + Duty Factor

Duty Factor = $20 \log (\text{dwell time}/T)$

T = 100ms when the pulse train period is over 100 ms or the period of the pulse train.

Modified Limits for peak according to 15.35 (b) = Max Permitted average Limits + 20dB

ANTENNA & GROUND:

This unit uses IFA Antenna. (see photos)

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3 Test results (enclosure)

TEST CASE	Para. Number	Required	Test passed	Test failed
Peak Output Power	15.247(b)(3)	☒	☒	☐
Equivalent radiated Power	15.247(b)(3)	☒	☒	☐
Spurious Emissions radiated – Transmitter operating	15.247(c)	☒	☒	☐
Band Edge Measurement	15.247(c)	☒	☒	☐
Minimum 6 dB Bandwidth	15.247(a)(2)	☒	☒	☐
Peak Power Spectral Density	15.247(d)	☒	☒	☐
Radiated Emission from Digital Part And Receiver L.O.	15.109	☒	☒	☐
Power Line Conducted Emission	15.207	☒	☒	☐

The follows is intended to leave blank.

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3.1 Peak Output Power (transmitter)

FCC Rule: 15.247(b)(3)

This measurement applies to equipment with an integral antenna and to equipment with an antenna connector and equipped with an antenna as declared by the applicant.

The power was measured with modulation (declared by the applicant).

Test condition		Conducted Power		
		Channel A	Channel B	Channel C
T _{nom} = 23°C	V _{nom} = 120 V	[dBm]	[dBm]	[dBm]
		11.86	10.86	11.62
Measurement uncertainty		< 3 dB		

Test condition $T_{\text{nom}} = 23^{\circ}\text{C}$, $V_{\text{nom}} = 120 \text{ V}$	Signal Field strength TX highest power mode dB $\mu\text{V/m}$
Frequency [MHz]	
2413	100.77
Measurement uncertainty	< 3 dB

Limits:

Frequency MHz	Power dBm
902 - 928	30
2400 – 2483.5	30
5725 – 5850	30

In case of employing transmitter antennas having antenna gain $> 6 \text{ dBi}$ and using fixed point-to-point operation consider §15.247 (b)(4)

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 055

Comment: The diagrams for the field strength measurements are included in Appendix.

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3.2 Equivalent isotropic radiated power

FCC Rule: 15.247(b)(3)

EIRP = max. conducted output power + antenna gain
EIRP = 11.86 dBm + 4.32 dBi
= 16.18 dBm

Limit: EIRP = +36 dBm for Antenna gain <6dBi

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 017 ETSTW-RE 021
ETSTW-RE 028 ETSTW-RE 030 ETSTW-RE 043 ETSTW-RE 044

3.2.1 Transmitter

Integral Antenna:

At the transmitter the measurement was transacted with the modulation declared by the manufacturer and the maximum available output power of the EUT.

In this arrangement the EUT fulfils the requirements of the FCC rules § 15.247, subpart C, section b.

3.3 RF Exposure Compliance Requirements

The test sample is a WLAN access point intended for fixed installation.

FCC OET Bulletin 65 Edition 97.01 determines the equations for predicting RF fields and applicable limits.

The prediction for power density in the far-field but will over-predict power density in the near field, where it could be used for walking a “worst case” or conservative prediction.

$$S = \frac{PG}{4\pi R^2}$$

S – Power Density

P – Output power ERP

R – Distance

D – Cable Loss

AG – Antenna Gain G = AG-D

Item	Unit	Value	Remarks
P	mW	16.18	Peak value
D	dB		
AG	dBi	4.32	
G		2.7	Calculated Value
R	cm	20	Assumed value
S	mW/cm ²	0.0086911	Calculated value

Limits:

Limit for General Population / Uncontrolled Exposure	
Frequency (MHz)	Power Density (mW/cm ²)
1500 – 100.000	1,0

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3.4 Transmitter Radiated Emissions in Restricted Bands

FCC Rules: 15.247 (c), 15.205, 15.209, 15.35

Radiated emission measurements were performed from 30 MHz to 1000 MHz.

For radiated emission tests, the analyzer setting was as followings:

Frequency $\leq$ 1 GHz, RBW:100 kHz, VBW: 100 kHz (Peak measurements)

Frequency $>$ 1 GHz, RBW: 1 MHz, VBW: 1 MHz (Peak measurements)

Frequency $>$ 1 GHz , RBW:1 MHz , VBW: 100Hz (Average measurements)

Limits.

For frequencies below 1GHz:

Frequency of Emission (MHz)	Field strength (microvolts/meter)	Field Strength (dB microvolts/meter)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above	500	54.0

For frequencies above 1GHz (Average measurements).

Guidance on Measurement of DSSS Systems:

“If the emission is pulsed, modify the unit for continuous operation, use the setting shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.”

The correction factor, based on the total channel dwell time in a 100 ms period, may be mathematically applied to a measurement made with an average detector, to further reduce the value.

Duty cycle correction = $20 \log (\text{dwell time} / 100\text{ms})$

No duty cycle correction was added to the reading.

$54.0\text{dB } \mu\text{V/m} + 20 \text{ dB} = 74 \text{ dB } \mu\text{V/m}$

Comment: see attached diagrams in Appendix B.

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3.5 Spurious Emissions (tx)

Spurious emission was measured with modulation (declared by manufacturer).

In any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB 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. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c))

FCC Rule: 15.247(c), 15.35

For out of band emissions that are close to or that exceed the 20 dB attenuation requirement described in the specification, radiated measurements were performed at a 3 m separation distance to determine whether these emissions complied with the general radiated emission requirement.

Limits:

For frequencies below 1GHz:

Max. reading – 20 dB

$100.77\text{dB } \mu\text{V/m} - 20\text{ dB} = 80.77\text{ dB } \mu\text{V/m}$

Guidance on Measurement of DSSS Systems:

“If the emission is pulsed, modify the unit for continuous operation, use the settings shown above, then correct the reading by subtracting the peak-average correction factor, derived from the appropriate duty cycle calculation.”

The correction factor, based on the total channel dwell time in a 100 ms period, may be mathematically applied to a measurement made with an average detector, to further reduce the value.

Duty Cycle correction = $20 \log (\text{dwell time}/100\text{ms})$

For frequencies above 1GHz (Peak measurements).

Limit = max. aver. Reading-20dB+20dB(because Peak detector is used)

$80.77\text{ dB } \mu\text{V/m}$

For frequencies above 1GHz (Average measurements).

Max. reading – 20dB

No duty cycle correction was added to the reading

$100.77\text{dB } \mu\text{V/m} - 20\text{ dB} = 80.77\text{ dB } \mu\text{V/m}$

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 017 ETSTW-RE 028
ETSTW-RE 029 ETSTW-RE 030 ETSTW-RE 042 ETSTW-RE 043
ETSTW-RE 044

Comment: see attached diagrams in Appendix B.

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SAMPLE CALCULATION OF LIMIT. All results will be updated by an automatic measuring system in accordance with point 2.3.

Calculation of test results:

Such factors like antenna correction, cable loss, external attenuation etc. are already included in the provided measurement results. This is done by using validated test software and calibrated test system according the accreditation requirements.

The peak and average spurious emission plots was measured with the average limits.

In the Table being listed the critical peak and average value and exhibit the compliance with the above calculated Limits.

If in the column's correction factor states a value then the max. Field strength in the same row is corrected by a value gained from the "Duty-Cycle Correction Factor".

Summary table with radiated data of the test plots

CH 1

Antenna Polarization	Frequency Marker (MHz)	Corrected Reading (dBuV)	Correction Factor (dB)	Detector	Test Result (dBuV/m)	Compliance Limit (dBuV/m)	Margin (dB)	Table Azimuth (degree)	Antenna Height (cm)
H	123.213	19.40	12.76	PK	32.16	80.77	48.61	144	168
	189.646	18.12	12.09	PK	30.21	80.77	50.56	168	170
	524.736	19.63	20.50	PK	40.13	80.77	40.64	217	185
	4823.9137	47.36	4.49	PK	51.85	54.00	2.15	271	195

Antenna Polarization	Frequency Marker (MHz)	Corrected Reading (dBuV)	Correction Factor (dB)	Detector	Test Result (dBuV/m)	Compliance Limit (dBuV/m)	Margin (dB)	Table Azimuth (degree)	Antenna Height (cm)
V	129.357	15.36	13.31	PK	28.67	43.52	14.85	224	170
	523.736	13.90	20.48	PK	34.38	80.77	46.39	233	145
	4823.914	56.59	4.49	PK	61.08	74.00	12.92	271	195
	4823.914	38.68	4.49	AV	43.17	54.00	10.83	271	195

Ch6

Antenna Polarization	Frequency Marker (MHz)	Corrected Reading (dBuV)	Correction Factor (dB)	Detector	Test Result (dBuV/m)	Compliance Limit (dBuV/m)	Margin (dB)	Table Azimuth (degree)	Antenna Height (cm)
H	123.609	20.24	12.78	PK	33.02	80.77	47.75	192	140
	502.316	14.70	20.14	PK	34.84	80.77	45.93	174	135
	4873.633	42.47	4.84	PK	47.31	54.00	6.69	168	185
	7254.498	43.97	7.01	PK	50.98	74.00	23.02	254	165
	7254.498	30.10	7.01	AV	37.11	54.00	16.89	254	165

Antenna Polarization	Frequency Marker (MHz)	Corrected Reading (dBuV)	Correction Factor (dB)	Detector	Test Result (dBuV/m)	Compliance Limit (dBuV/m)	Margin (dB)	Table Azimuth (degree)	Antenna Height (cm)
V	129.357	15.17	13.30	PK	28.47	43.50	15.03	126	175
	4874.048	49.66	4.72	PK	54.38	74.00	19.62	233	150
	4874.048	35.85	4.72	AV	40.57	54.00	13.43	233	150

Registration number: W6M20607-7234-C-1
FCC ID: UK9SPICA

Ch11

Antenna Polarization	Frequency Marker (MHz)	Corrected Reading (dBuV)	Correction Factor (dB)	Detector	Test Result (dBuV/m)	Compliance Limit (dBuV/m)	Margin (dB)	Table Azimuth (degree)	Antenna Height (cm)
H	123.486	19.72	12.74	PK	32.46	80.77	48.31	278	135
	502.196	12.41	20.12	PK	32.53	80.77	48.24	210	145
	1646.278	45.23	-6.81	PK	38.42	54.00	15.58	191	180

Antenna Polarization	Frequency Marker (MHz)	Corrected Reading (dBuV)	Correction Factor (dB)	Detector	Test Result (dBuV/m)	Compliance Limit (dBuV/m)	Margin (dB)	Table Azimuth (degree)	Antenna Height (cm)
V	123.213	15.45	12.72	PK	28.17	80.77	52.60	165	160
	227.428	16.07	12.71	PK	28.78	80.77	51.99	210	185
	4923.965	46.40	4.76	PK	51.16	74.00	22.84	187	150
	4923.965	33.52	4.76	AV	38.28	54.00	15.72	187	150

- Note**
1. **Correction Factor = Antenna factor + Cable loss - Preamplifier**
 2. **The formula of measured value as: Test Result = Corrected Reading + Correction Factor**
 3. **Detector function in the form : P = Peak, QP = Quasi Peak, AV = Average**

Freq. – Frequency Range:

- 1: 30 - 200 MHz
- 2: 200 - 1000 MHz
- 3: 1 - 4 GHz
- 4: 4 - 8 GHz
- 5: 8 - 12 GHz
- 6: 12 - 17 GHz
- 7: 17 - 26.5 GHz

All not in the table noted test results are more than 20 dB below the relevant limits.
All other not noted test polts do not contain significant test results in relation to the limits.

TEST RESULT (Transmitter): The unit DOES meet the FCC requirements.

Test equipment used: ETSTW-RE003 ETSTW-RE 004 ETSTW-RE 017 ETSTW-RE 028
ETSTW-RE029 ETSTW-RE 030 ETSTW-RE 042 ETSTW-RE 043
ETSTW-RE 044

Comment: see attached diagrams in Appendix B.

Registration number: W6M20607-7234-C-1
FCC ID: UK9SPICA

3.6 Minimum 6 dB Bandwidth

The analyzer ResBW was set to 100 kHz. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK reading was taken, two markers were set 6 dB below the maximum level on the right and the left side of the emission. The 6 dB bandwidth is the frequency difference between the two markers.

Test conditions		6 dB Bandwidth		
		Channel 1	Channel 6	Channel 11
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 120 \text{ V}$	8.23718 MHz	8.23718 MHz	8.23718 MHz
Measurement uncertainty		< 10 Hz		

Limits:

Frequency Range MHz	Limits
902-928	min 500 kHz
2400-2483.5	min 500 kHz
5725-5850	min 500 kHz

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 055

Comment: see attached diagrams in Appendix D.

Registration number: W6M20607-7234-C-1
FCC ID: UK9SPICA

3.7 Peak Power Spectral Density

Peak Power Spectral density is measured at low, middle and high channel.

The peak output power is measured with a measurement bandwidth of 10 MHz and displayed on diagram together with Peak Power Spectral Density result which was measured with a bandwidth of 3 kHz, appropriate frequency span and sweep time.

Test conditions		Peak Power Spectral Density (3 kHz)		
		Channel 1 [dBm]	Channel 6 [dBm]	Channel 11 [dBm]
$T_{nom} = 23^{\circ}\text{C}$	$V_{nom} = 120 \text{ V}$	-12.76	-13.37	-12.68
Measurement uncertainty		< 3 Hz		

Limits:

Frequency Range MHz	dBm
902-928	8
2400-2483,5	8
5725-5850	8

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 055

Comment: see attached diagrams in Appendix E.

Registration number: W6M20607-7234-C-1
FCC ID: UK9SPICA

3.8 Radiated Emission from Digital Part And Receiver L.O.

FCC Rule: 15.109

Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (microvolts/meter)	Field Strength (dBmicrovolts/meter)
30 – 88	100	40.0
88 – 216	150	43.5
216 – 960	200	46.0
Above 960	500	54.0

Test equipment used: ETSTW-RE 003 ETSTW-RE 004 ETSTW-RE 017 ETSTW-RE 028
ETSTW-RE 029 ETSTW-RE 030 ETSTW-RE 042 ETSTW-RE 043
ETSTW-RE 044

Comment: The final test result and referable diagrams are listed on the test report number
W6M20607-7234-P-15B.

Registration number: W6M20607-7234-C-1
FCC ID: UK9SPICA

3.9 Power Line Conducted Emission

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the table bellows with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals.

This measurement was transact first with instrumentation using an average and peak detector and a 10 kHz bandwidth. If the peak detector achieves a calculated level, the measurement is repeated by an instrumentation using a quasi-peak detector.

Frequency	Level (dB μ V)	
	quasi-peak	average
150 kHz	lower limit line	Lower limit line

Adaptor 1 mode

LISN type	Frequency Marker	Corrected Reading (dB μ V)		Correction Factor	Test Result (dB μ V)		Compliance Limit (dB μ V)		Margin (dB)	
N	MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	0.380	26.07	17.89	10.10	36.17	27.99	58.28	48.28	22.11	20.29
	1.940	32.77	22.64	10.10	42.87	32.74	56.00	46.00	13.13	13.26
	23.210	29.47	14.79	10.10	39.57	24.89	60.00	50.00	20.43	25.11

LISN type	Frequency Marker	Corrected Reading (dB μ V)		Correction Factor	Test Result (dB μ V)		Compliance Limit (dB μ V)		Margin (dB)	
L1	MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	0.270	26.70	17.08	10.10	36.80	27.18	61.11	51.11	24.31	23.93
	1.940	32.37	22.15	10.10	42.47	32.25	56.00	46.00	13.53	13.75
	23.530	24.37	13.68	10.10	34.47	23.78	60.00	50.00	25.53	26.22

Registration number: W6M20607-7234-C-1
 FCC ID: UK9SPICA

Adaptor 2 mode

LISN type	Frequency Marker	Corrected Reading (dBuV)		Correction Factor	Test Result (dBuV)		Compliance Limit (dBuV)		Margin (dB)	
N	MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	0.175	29.99	11.25	10.10	40.09	21.35	65.28	55.28	25.19	33.93
	0.650	25.91	8.62	10.10	36.01	18.72	56.00	46.00	19.99	27.28
	28.145	24.26	8.55	10.10	34.36	18.65	60.00	50.00	25.64	31.35

LISN type	Frequency Marker	Corrected Reading (dBuV)		Correction Factor	Test Result (dBuV)		Compliance Limit (dBuV)		Margin (dB)	
L1	MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	0.175	31.12	11.91	10.10	41.22	22.01	65.28	55.28	24.06	33.27
	0.585	26.21	11.85	10.10	36.31	21.95	56.00	46.00	19.69	24.05
	25.325	18.75	15.04	10.10	28.85	25.14	60.00	50.00	31.15	24.86

USB mode

LISN type	Frequency Marker	Corrected Reading (dBuV)		Correction Factor	Test Result (dBuV)		Compliance Limit (dBuV)		Margin (dB)	
N	MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	0.270	37.38	31.80	10.10	47.48	41.90	61.1	51.1	13.62	9.20
	0.470	32.52	28.67	10.10	42.62	38.77	56.5	46.5	13.88	7.73
	1.475	25.14	21.45	10.10	35.24	31.55	56.0	46.0	20.76	14.45
	12.935	21.89	19.05	10.10	31.99	29.15	60.0	50.0	28.01	20.85

LISN type	Frequency Marker	Corrected Reading (dBuV)		Correction Factor	Test Result (dBuV)		Compliance Limit (dBuV)		Margin (dB)	
L1	MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	0.205	37.77	28.07	10.10	47.87	38.17	63.4	53.4	15.53	15.23
	0.470	32.32	27.63	10.10	42.42	37.73	56.5	46.5	14.08	8.77
	1.405	23.89	20.64	10.10	33.99	30.74	56.0	46.0	22.01	15.26
	14.885	23.19	13.37	10.10	33.29	23.47	60.0	50.0	26.71	26.53

Note: 1. The formula of measured value as: Test Result = Corrected Reading + Correction Factor
2. The Correction Factor = Cable Loss + LISN Insertion Loss + Pulse Limit Loss
3. Detector function in the form : P = Peak, QP = Quasi Peak, AV = Average

Registration number: W6M20607-7234-C-1
FCC ID: UK9SPICA

Limits:

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi Peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Test equipment used: ETSTW-CE 001 ETSTW-CE 003 ETSTW-CE 004 ETSTW-CE 006
ETSTW-CE 011 ETSTW-EMS 013 ETSTW-EMS 014

Comment: see attached diagrams in Appendix F.

Registration number: W6M20607-7234-C-1
FCC ID: UK9SPICA

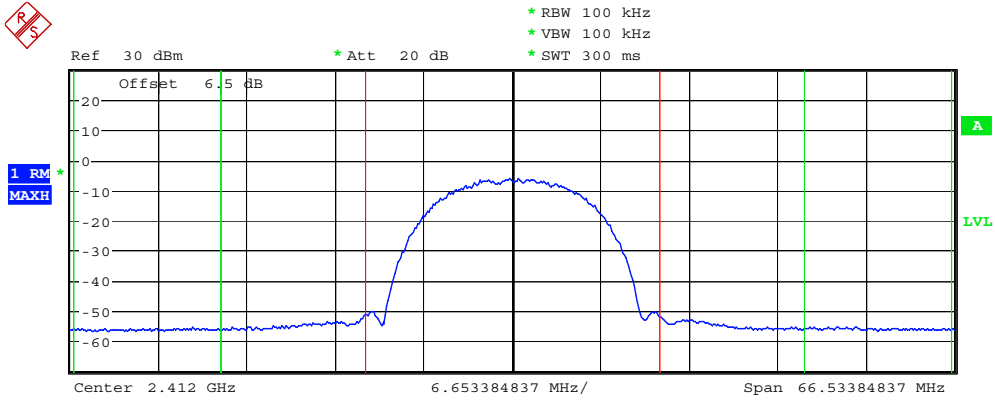
Appendix

- A Peak Output Power
- B Spurious Emissions radiated
- C Band Edge Measurement
- D Minimum 6dB Bandwidth
- E Peak Power Spectral Density
- F Power Line Conducted Emission

Registration number: W6M20607-7234-C-1
FCC ID: UK9SPICA

Appendix A

Peak Output Power



Tx Channel

Bandwidth	22 MHz	Power	11.86 dBm
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Adjacent Channel

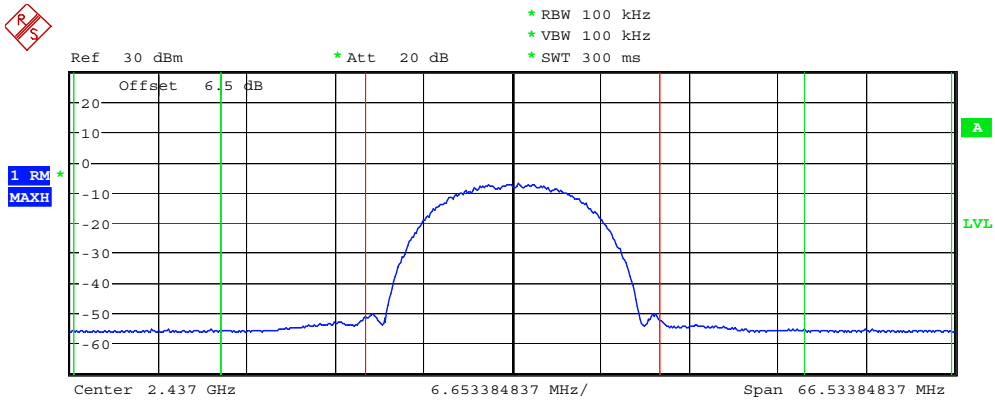
Bandwidth	11 MHz	Lower	-46.88 dB
Spacing	16.5 MHz	Upper	-46.71 dB

Alternate Channel

Bandwidth	11 MHz	Lower	-48.28 dB
Spacing	27.5 MHz	Upper	-48.03 dB

MAX OUTPUT POWER 802.11B CH1

Date: 7.SEP.2006 09:59:18



Tx Channel

Bandwidth 22 MHz Power 10.86 dBm

Adjacent Channel

Bandwidth 11 MHz Lower -45.70 dB

Spacing 16.5 MHz Upper -46.02 dB

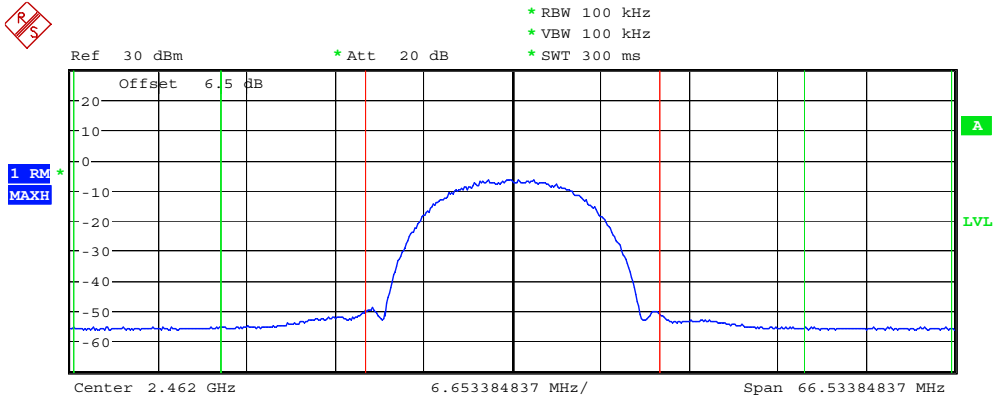
Alternate Channel

Bandwidth 11 MHz Lower -47.10 dB

Spacing 27.5 MHz Upper -47.00 dB

MAX OUTPUT POWER 802.11B CH6

Date: 7.SEP.2006 09:58:44



Tx Channel

Bandwidth	22 MHz	Power	11.62 dBm
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Adjacent Channel

Bandwidth	11 MHz	Lower	-45.48 dB
Spacing	16.5 MHz	Upper	-46.06 dB

Alternate Channel

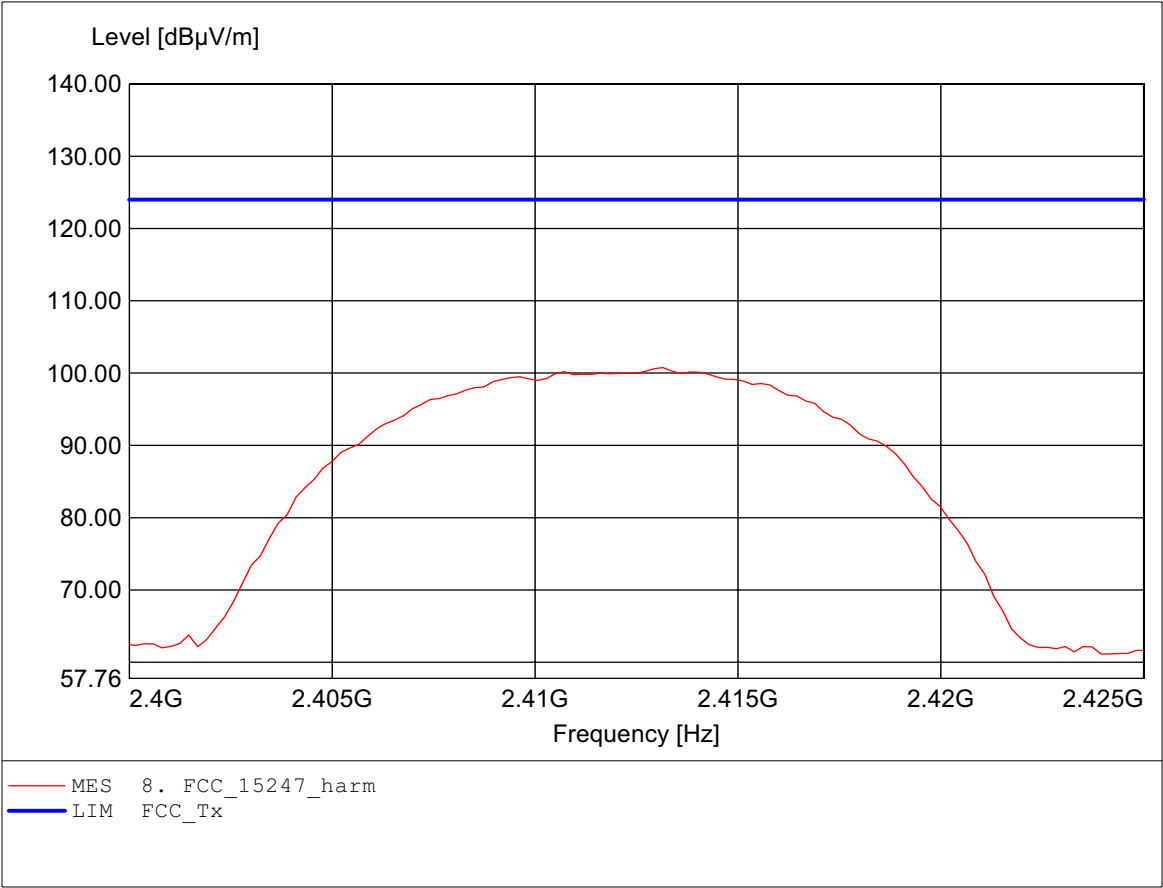
Bandwidth	11 MHz	Lower	-47.65 dB
Spacing	27.5 MHz	Upper	-47.63 dB

MAX OUTPUT POWER 802.11B CH11

Date: 7.SEP.2006 09:57:46

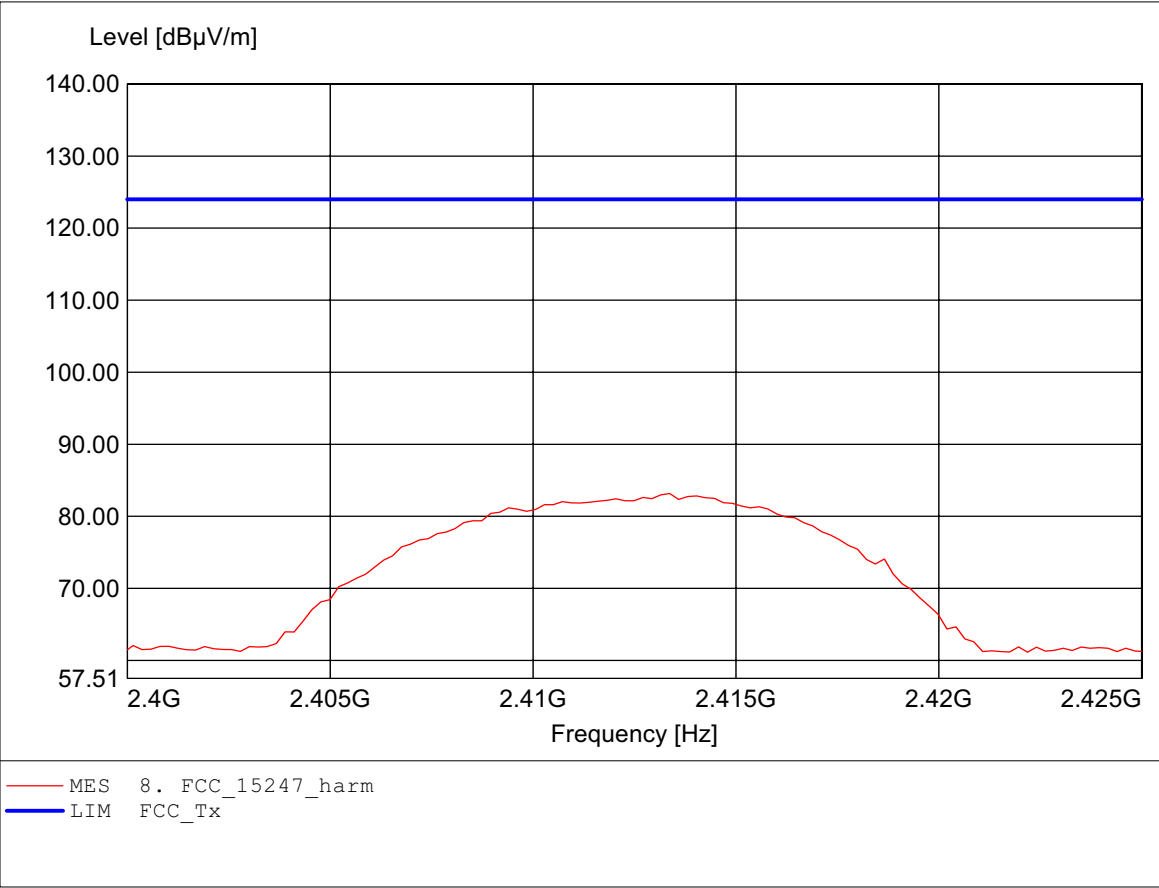
Carrier power (Field Strength)
FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL025
Freq: 2.413GHz, Emax: 100.77dBµV/m, RBW: 1MHz



Carrier power (Field Strength)
FCC RULES PART 15, SUBPART C / LP0002

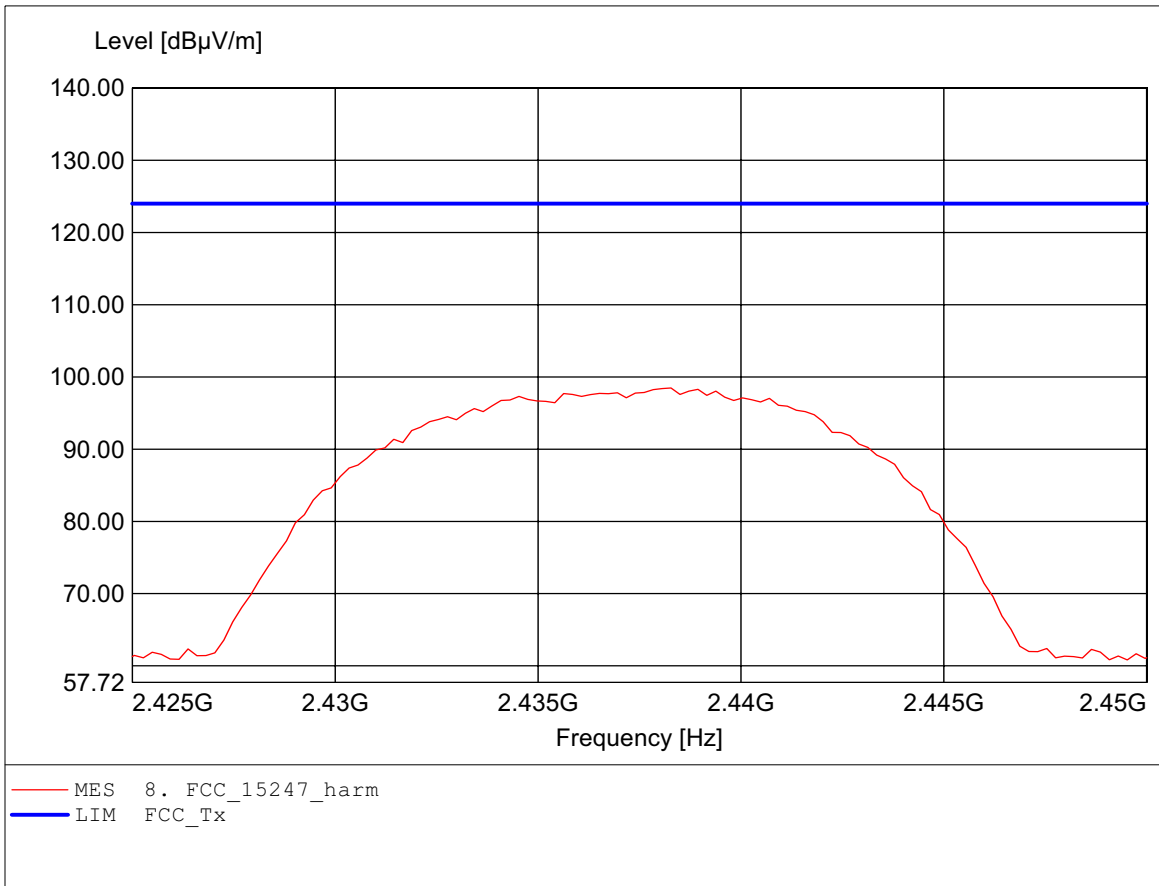
Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL025
Freq: 2.413GHz, Emax: 83.16dBµV/m, RBW: 1MHz



Carrier power (Field Strength)

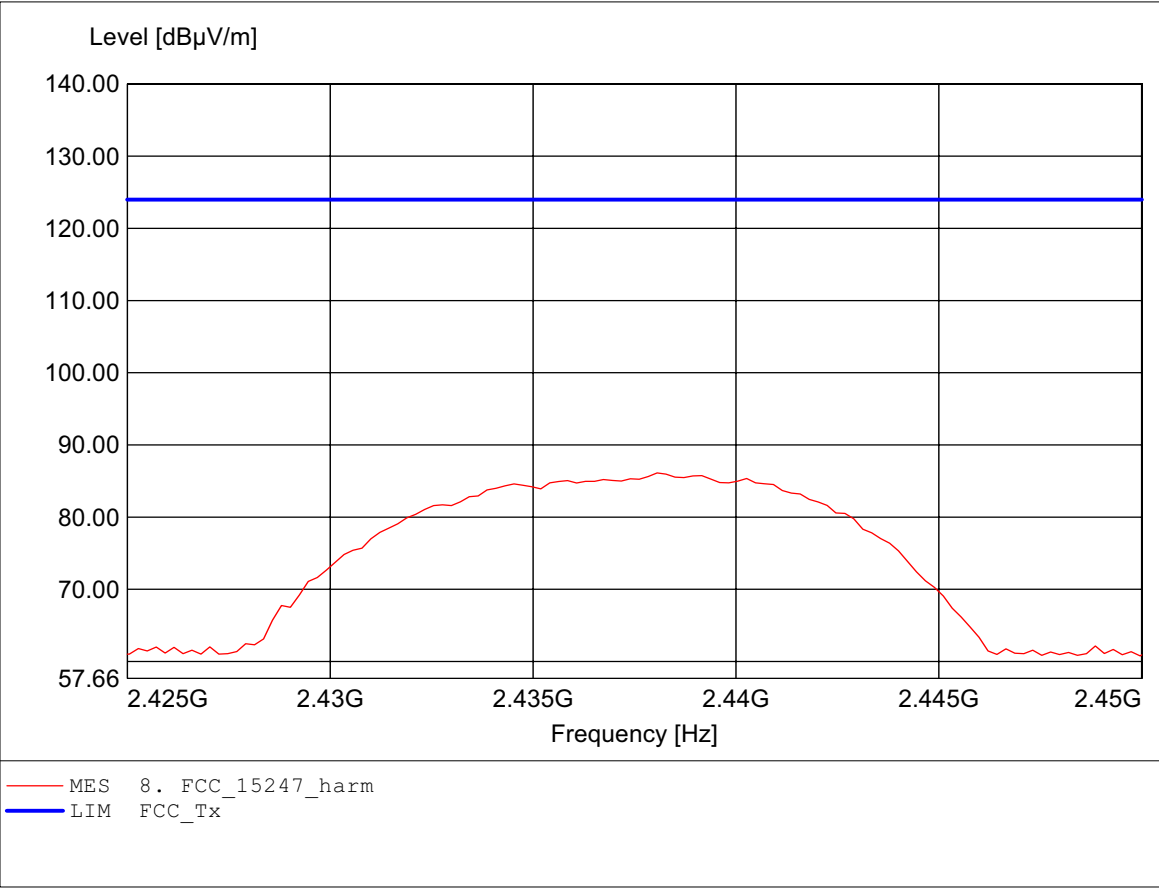
FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL025
Freq: 2.438GHz, Emax: 98.48dBμV/m, RBW: 1MHz



Carrier power (Field Strength)
FCC RULES PART 15, SUBPART C / LP0002

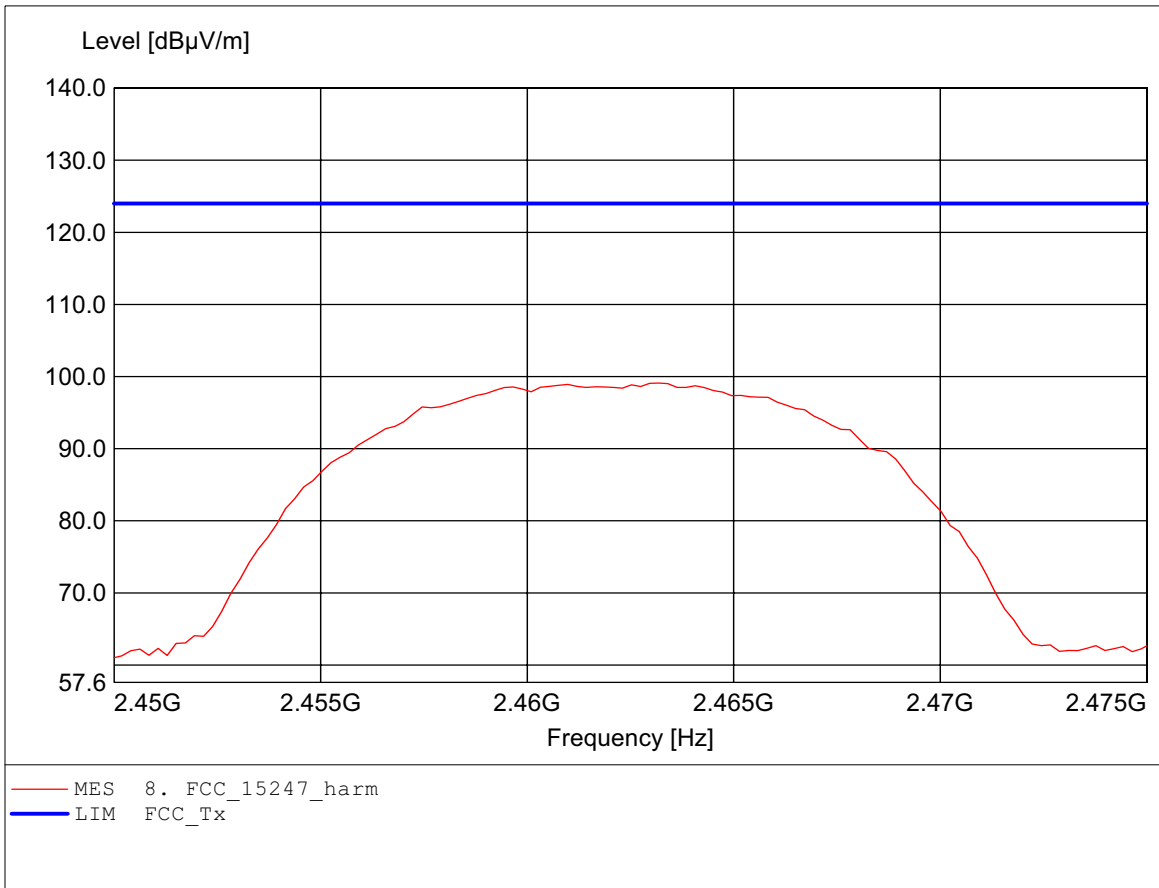
Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL025
Freq: 2.438GHz, Emax: 86.13dBµV/m, RBW: 1MHz



Carrier power (Field Strength)

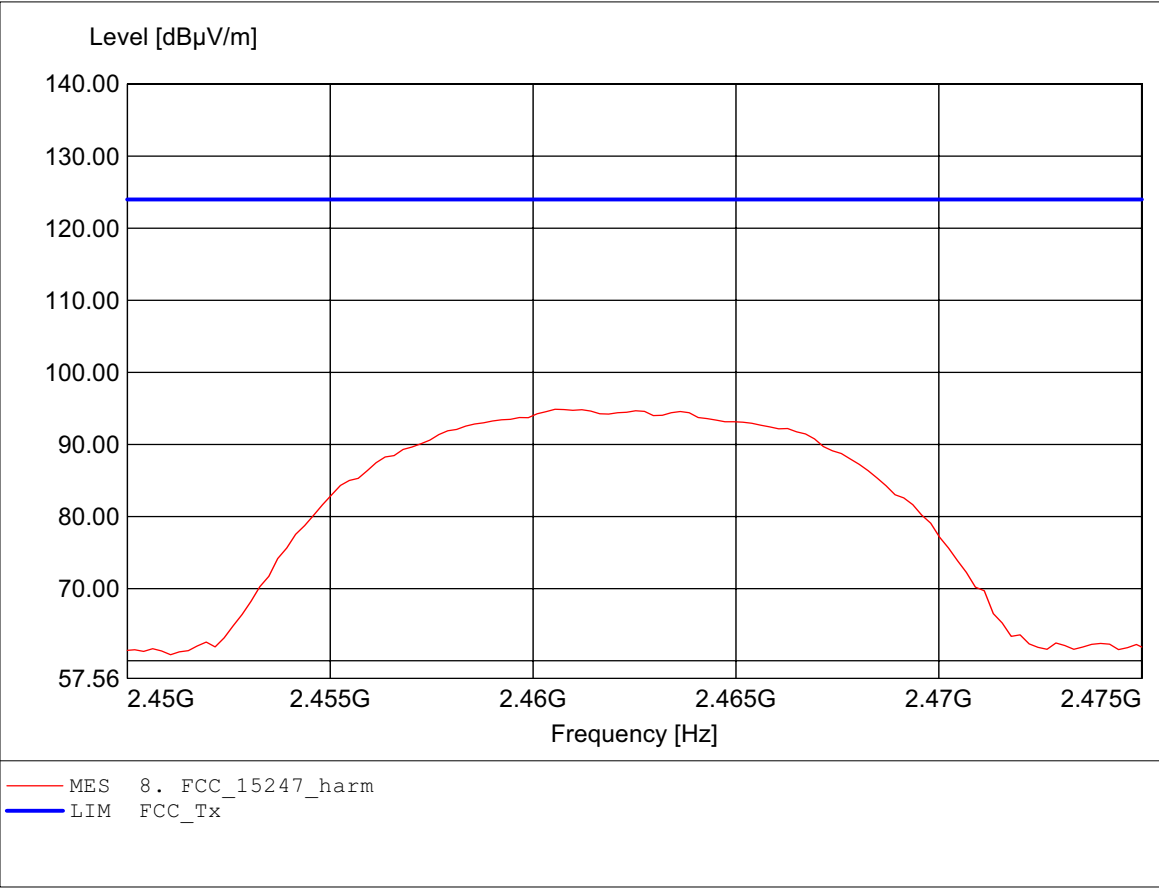
FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL025
Freq: 2.463GHz, Emax: 99.10dBµV/m, RBW: 1MHz



Carrier power (Field Strength)
FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL025
Freq: 2.461GHz, Emax: 94.90dBµV/m, RBW: 1MHz



Registration number: W6M20607-7234-C-1
FCC ID: UK9SPICA

Appendix B

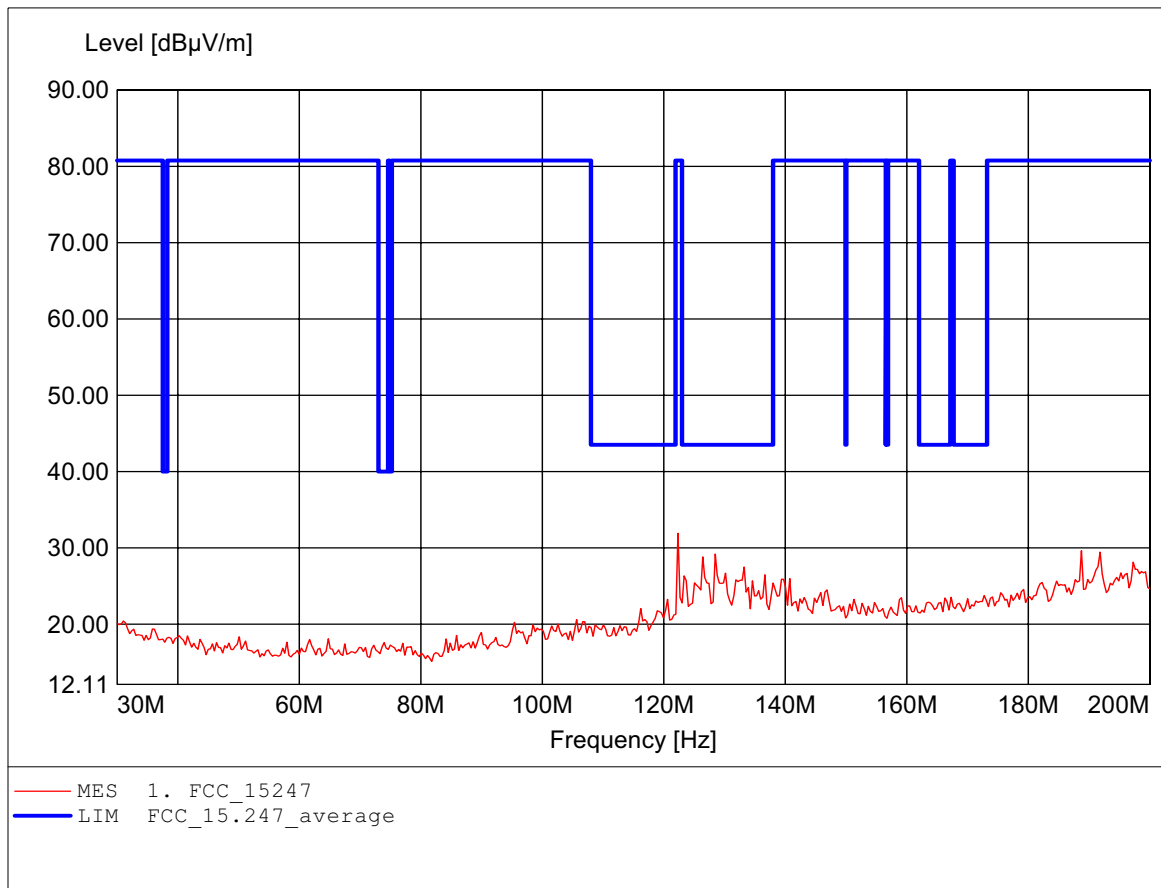
Spurious Emissions radiated

The measurement diagrams plots attached below are preliminary wideband scan with a peak detector for reference only. The final test results are listed on section 3.5

Spurious emissions Field Strength

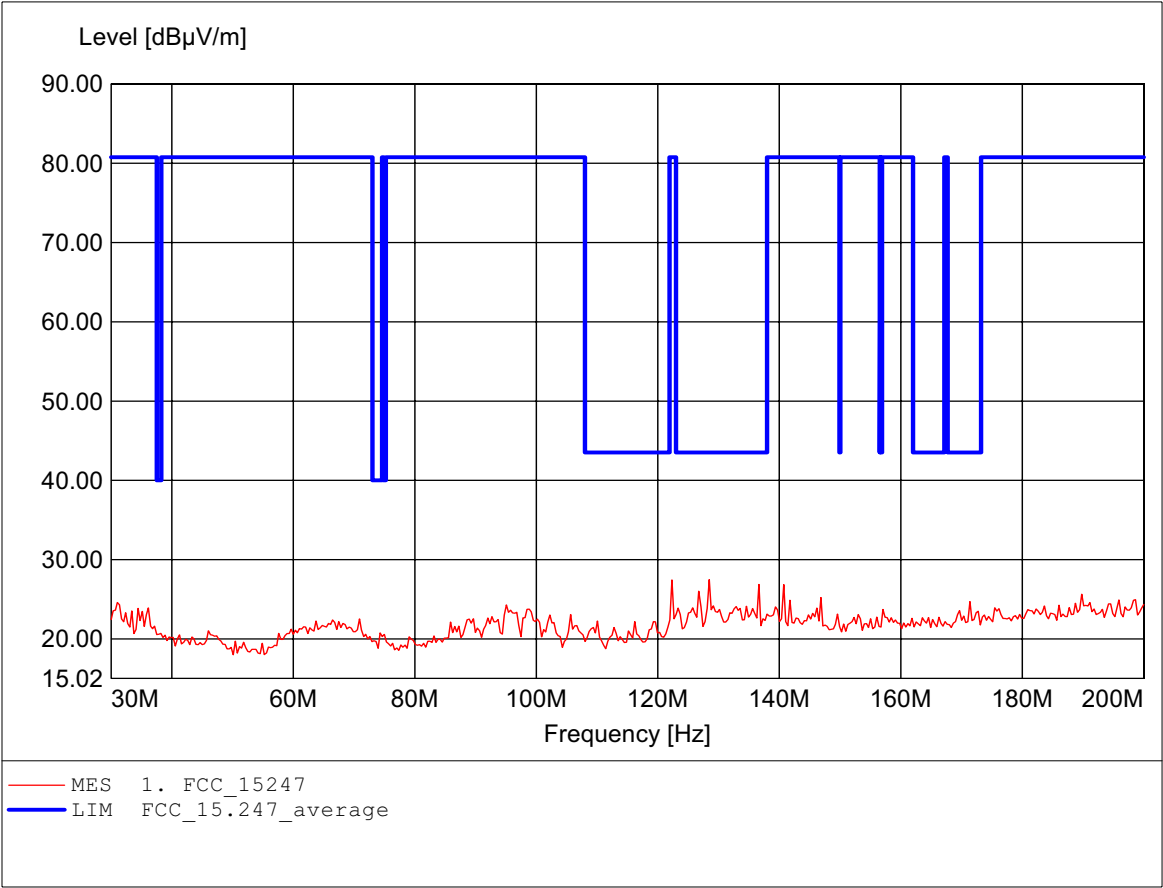
FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HK 116
Freq: 122.325MHz, Emax: 31.92dBμV/m, RBW: 100kHz



Spurious emissions Field Strength
FCC RULES PART 15, SUBPART C / LP0002

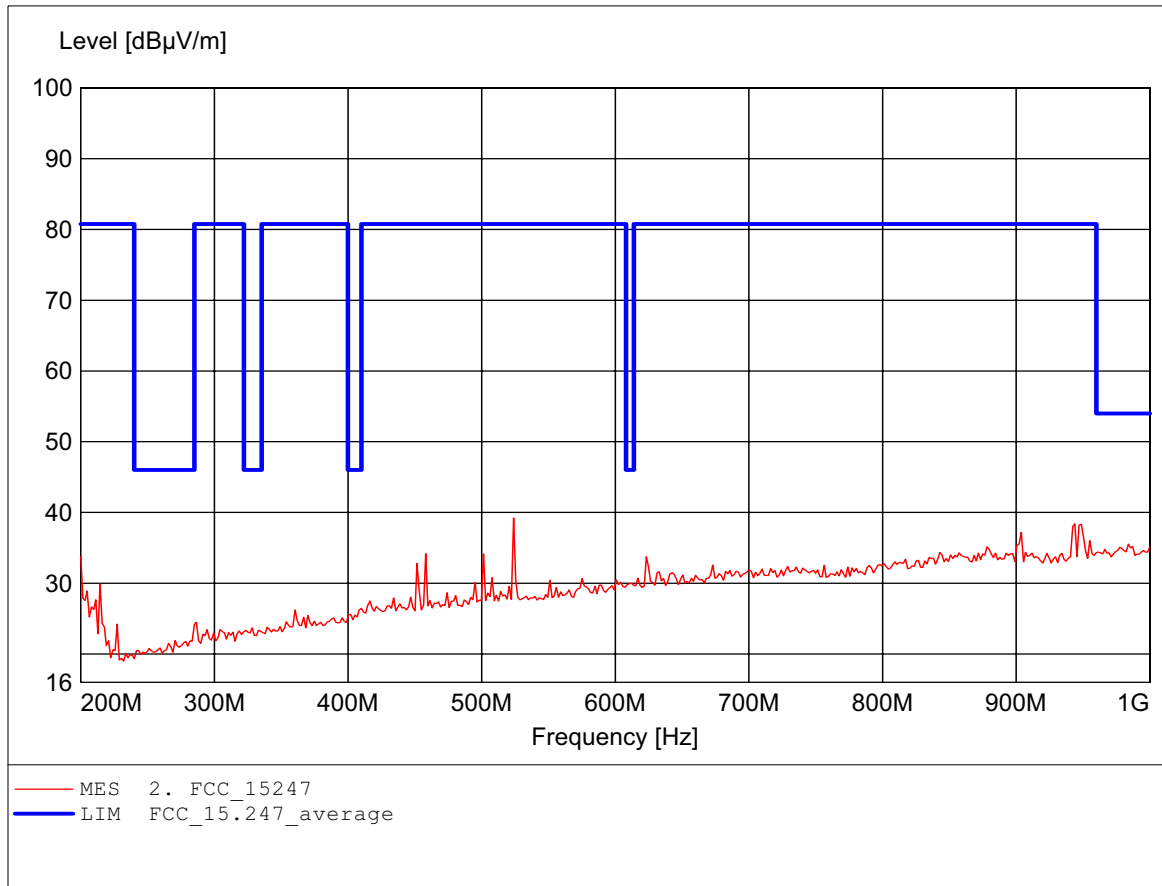
Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HK 116
Freq: 128.457MHz, Emax: 27.47dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

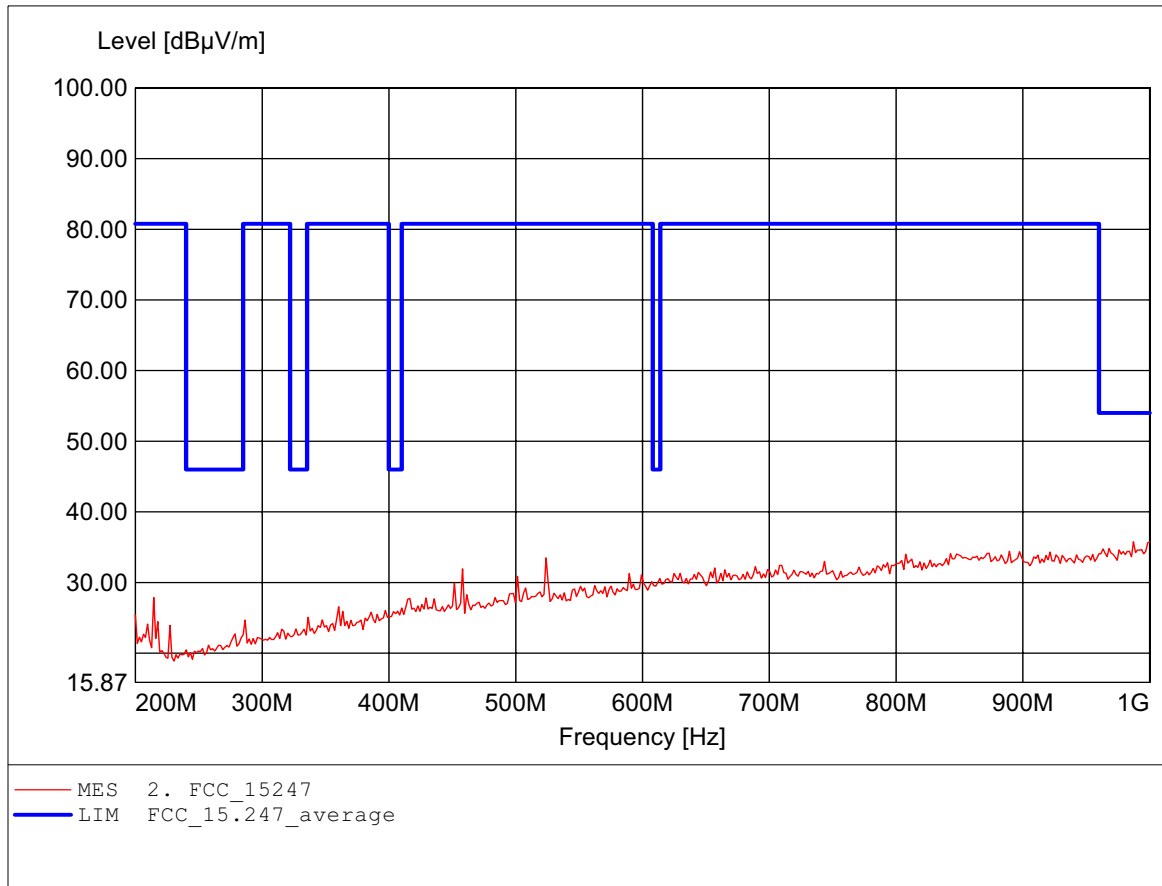
Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL 223,
Freq: 523.848MHz, Emax: 39.22dBμV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

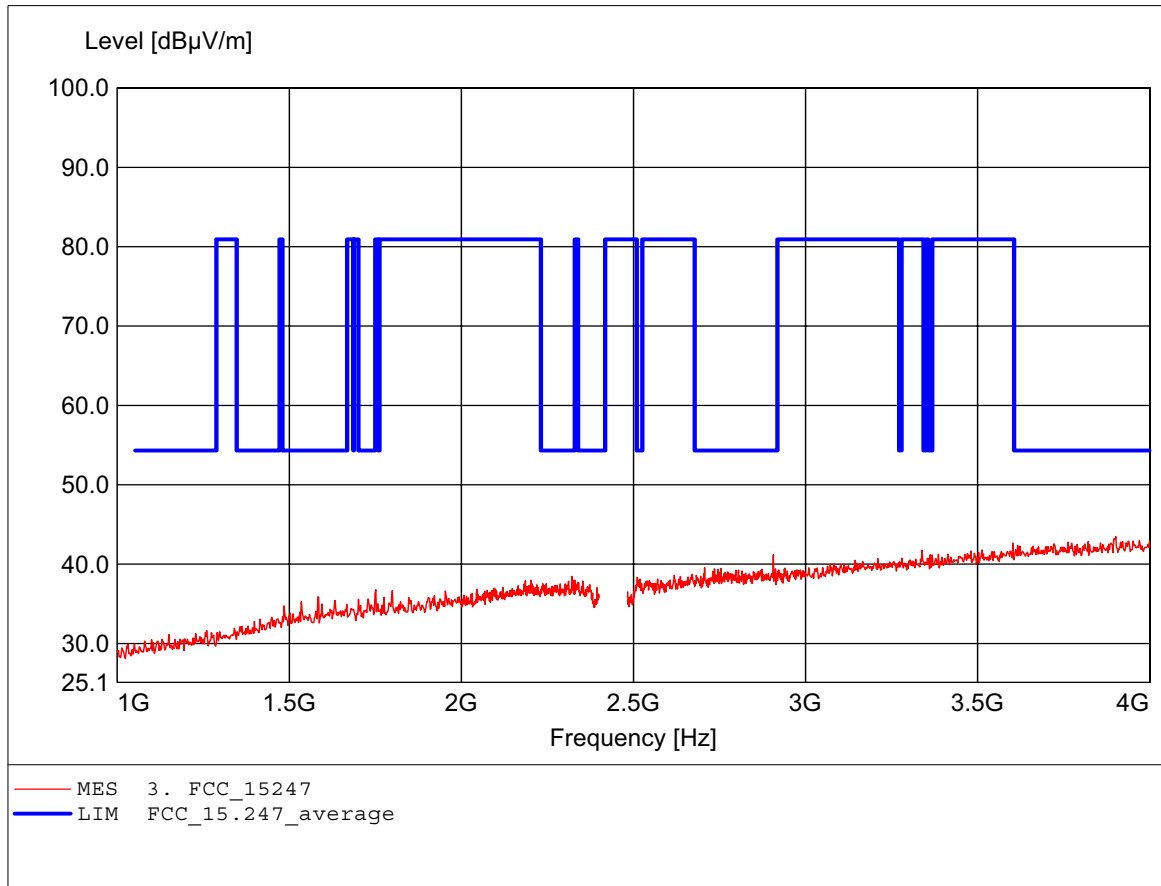
Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL 223,
Freq: 987.174MHz, Emax: 35.76dBμV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

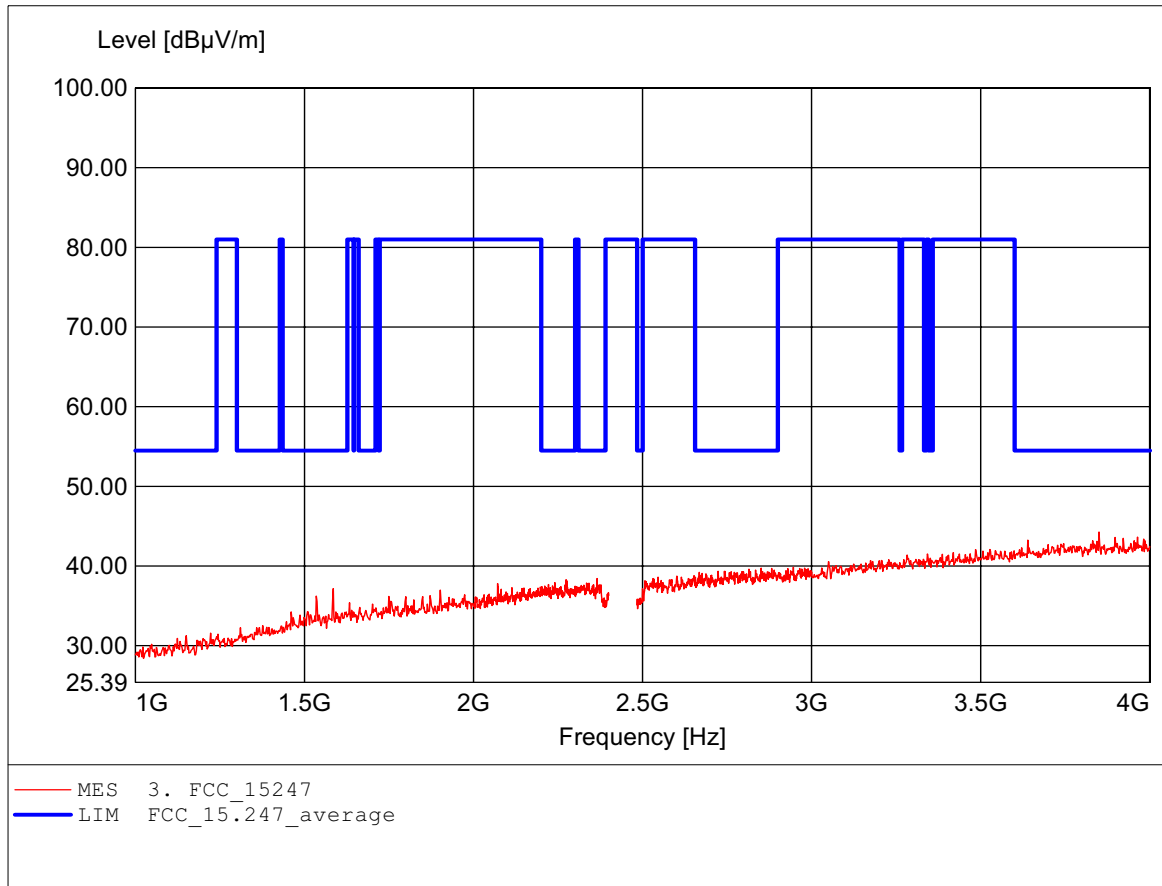
Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Freq: 3.902GHz, Emax: 43.46dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

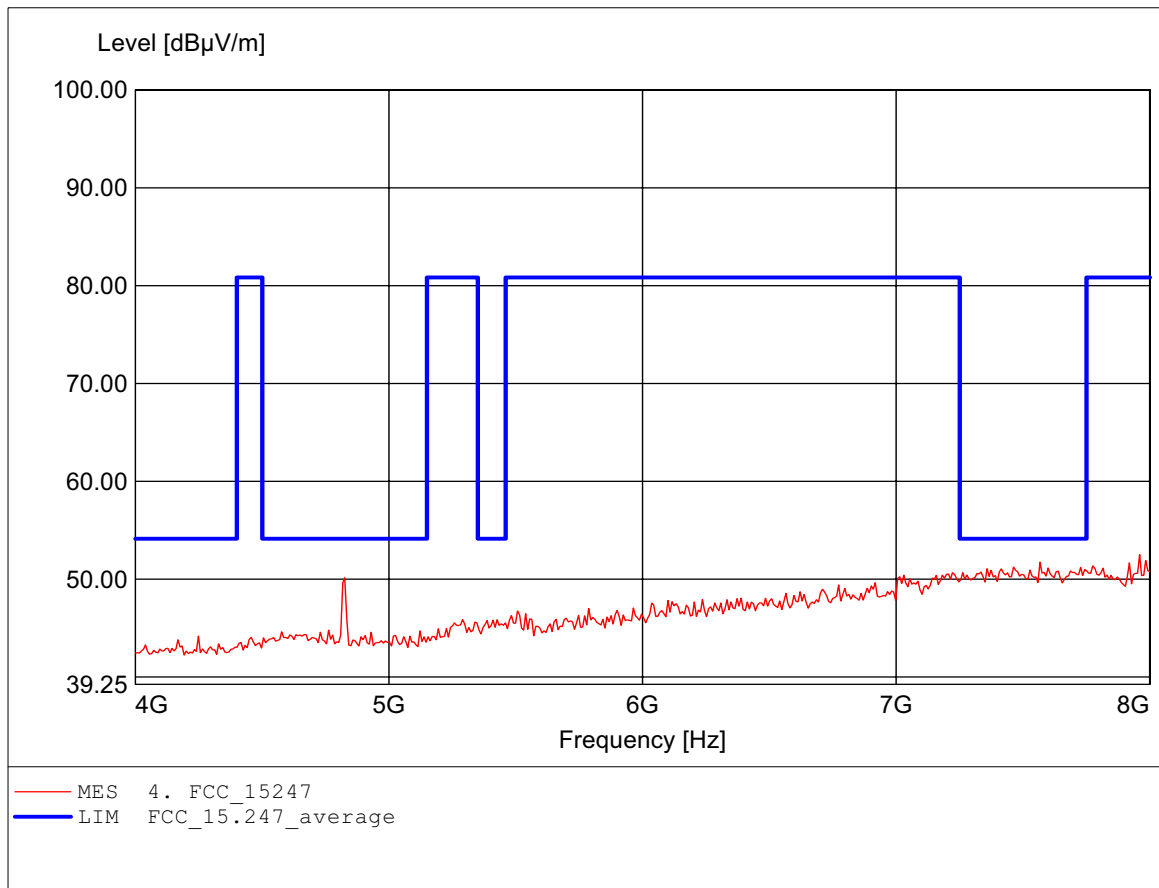
FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Freq: 3.850GHz, Emax: 44.27dBμV/m, RBW: 1MHz



Spurious emissions Field Strength
FCC RULES PART 15, SUBPART C / LP0002

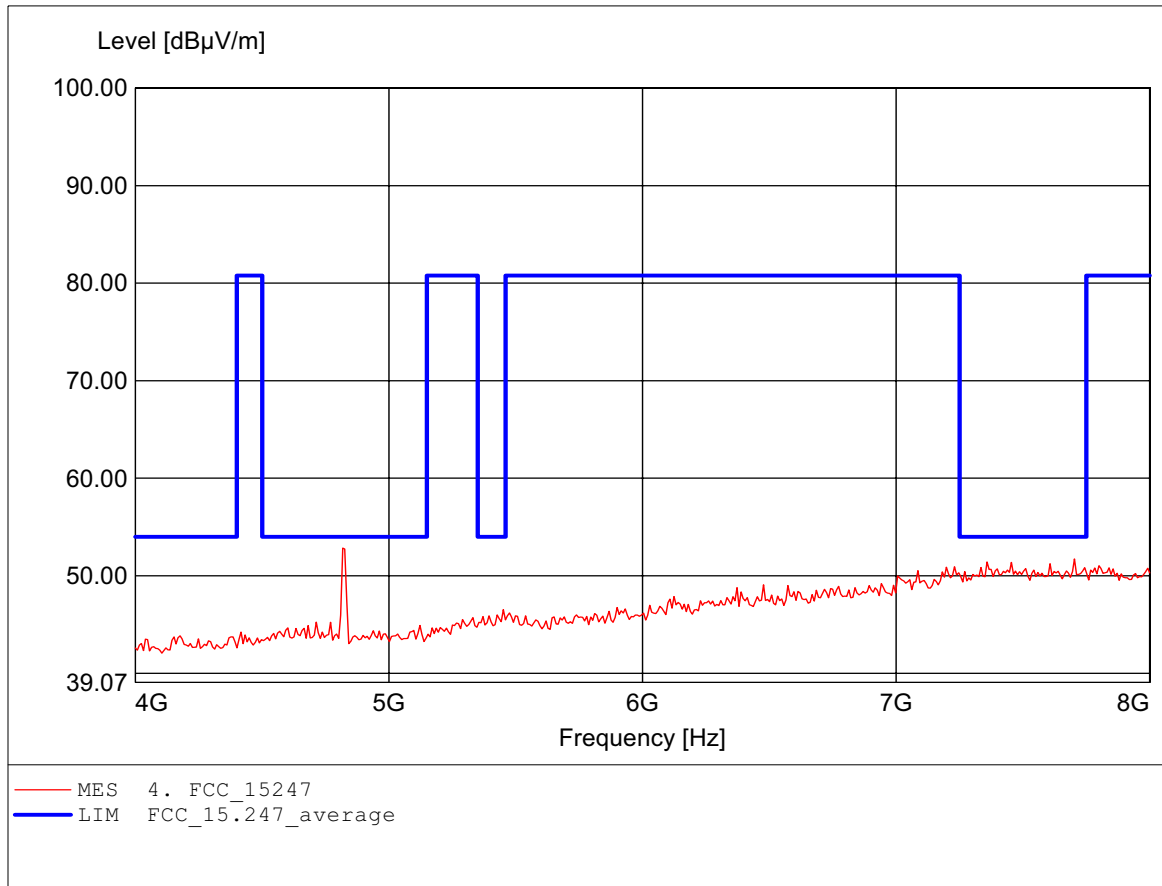
Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 7.960GHz, Emax: 52.50dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

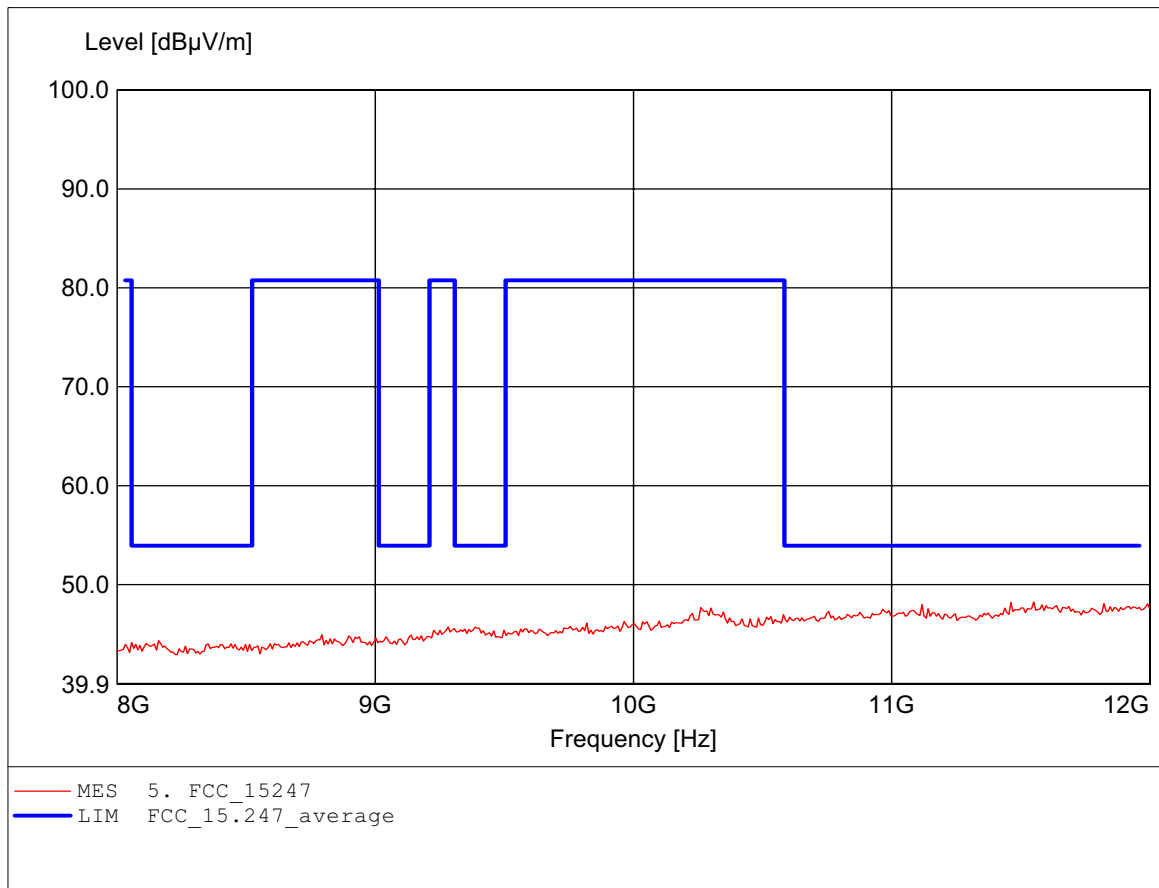
FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 4.818GHz, Emax: 57.83dBμV/m, RBW: 1MHz



Spurious emissions Field Strength
FCC RULES PART 15, SUBPART C / LP0002

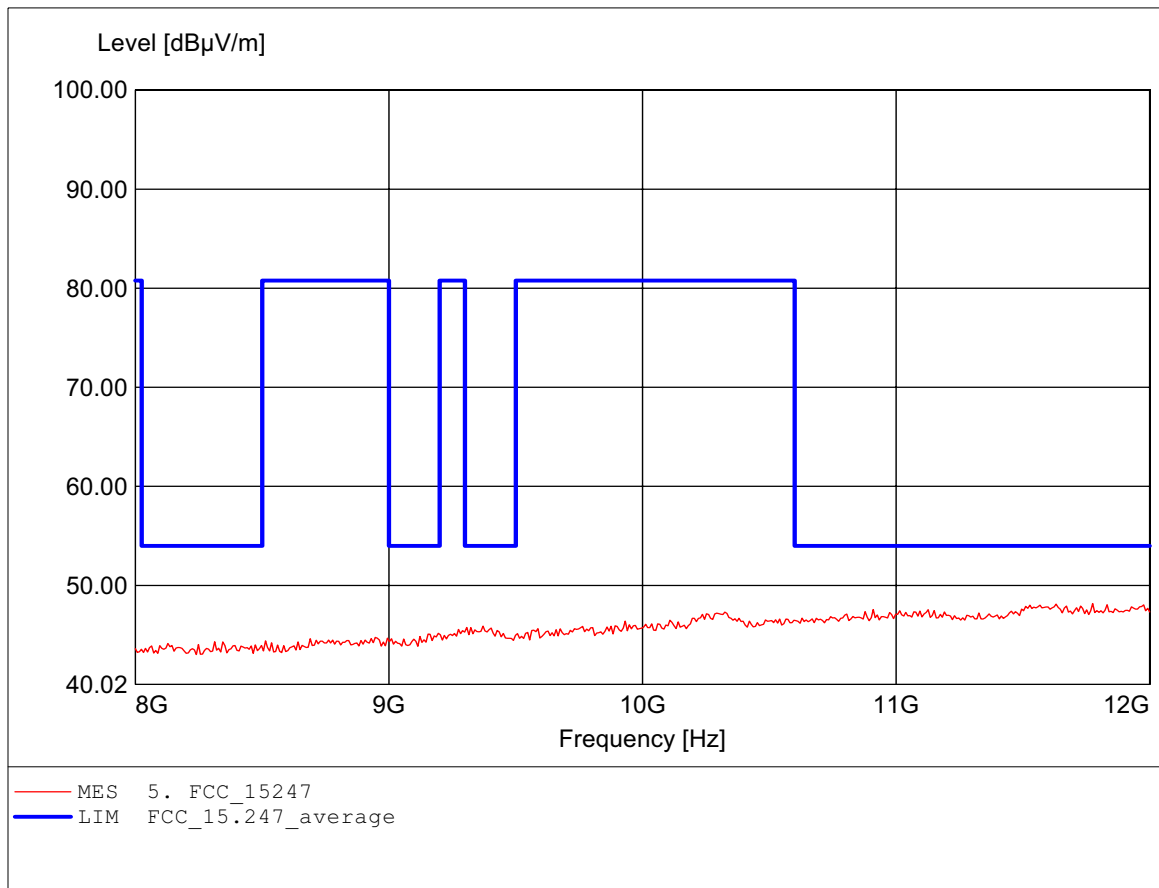
Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 11.551GHz, Emax: 48.22dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

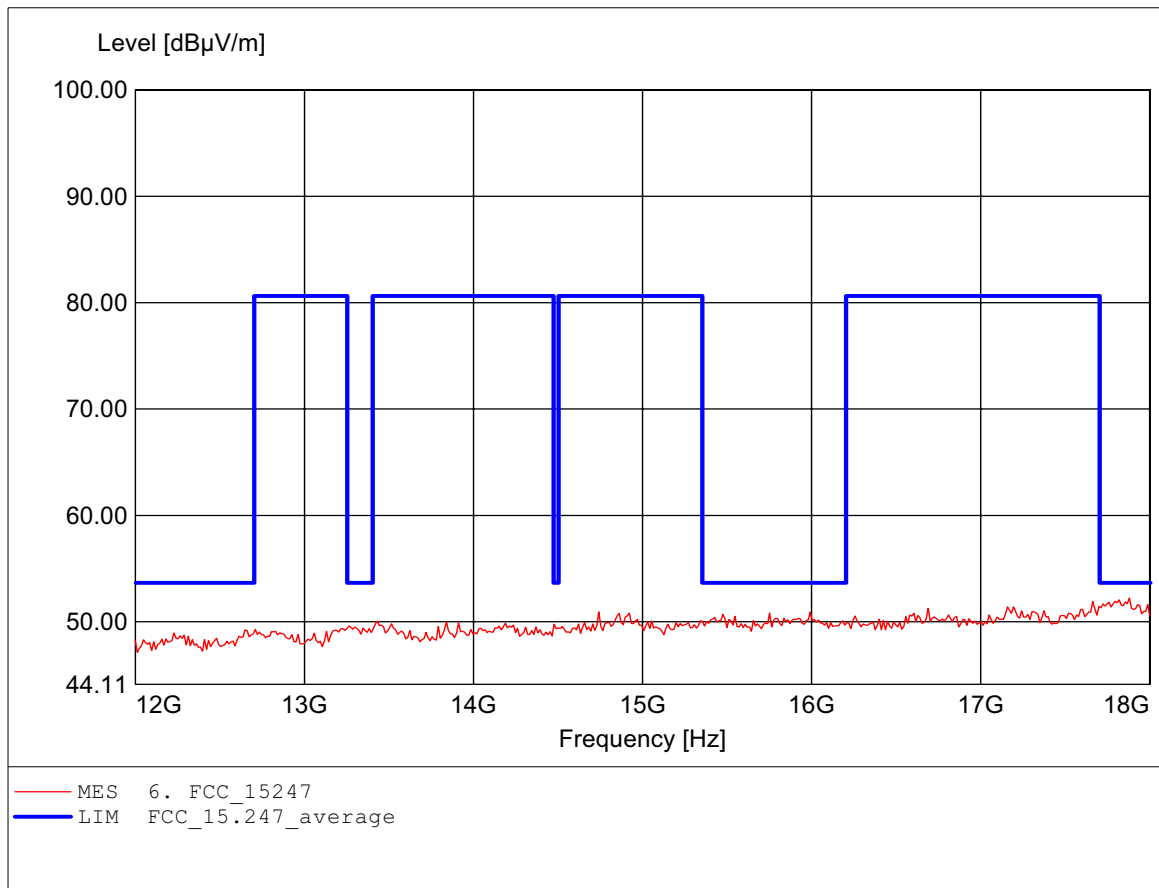
FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 11.776GHz, Emax: 48.18dBµV/m, RBW: 1MHz



Spurious emissions Field Strength
FCC RULES PART 15, SUBPART C / LP0002

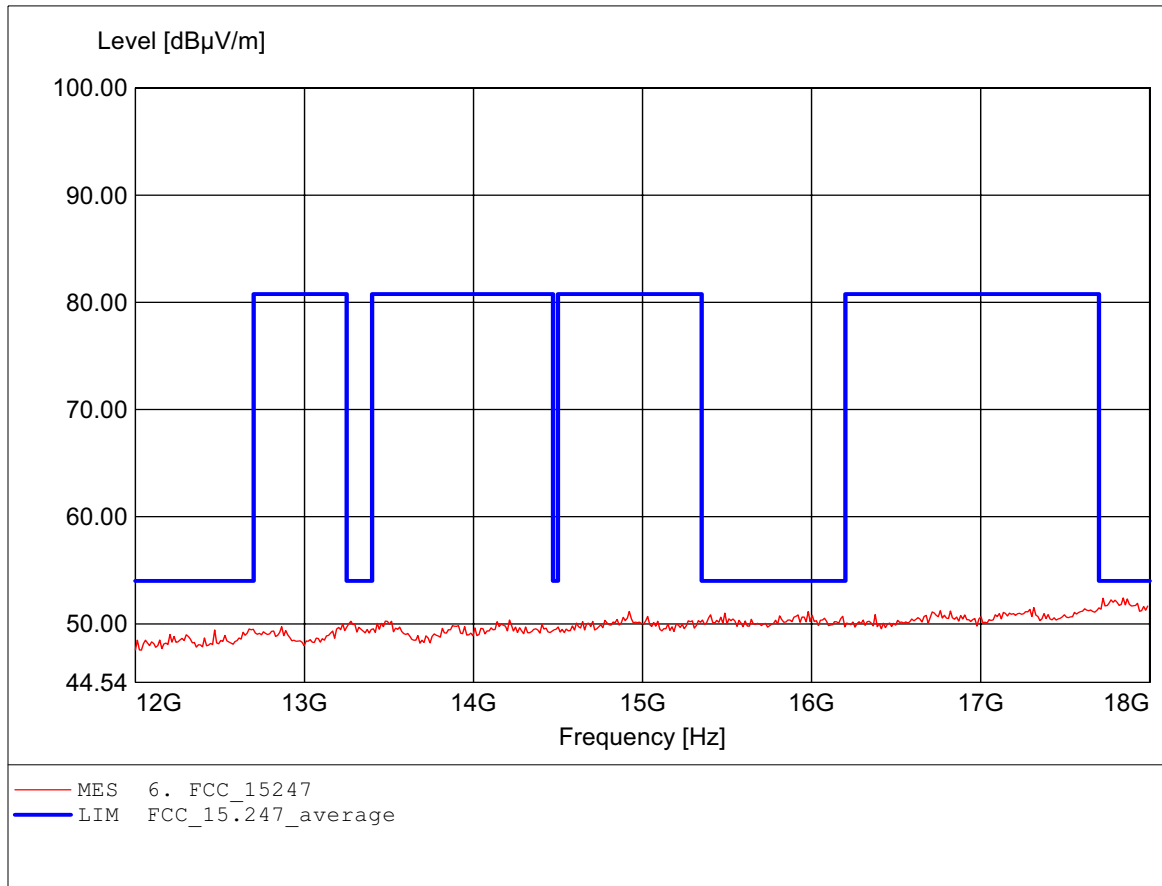
Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 17.880GHz, Emax: 52.22dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

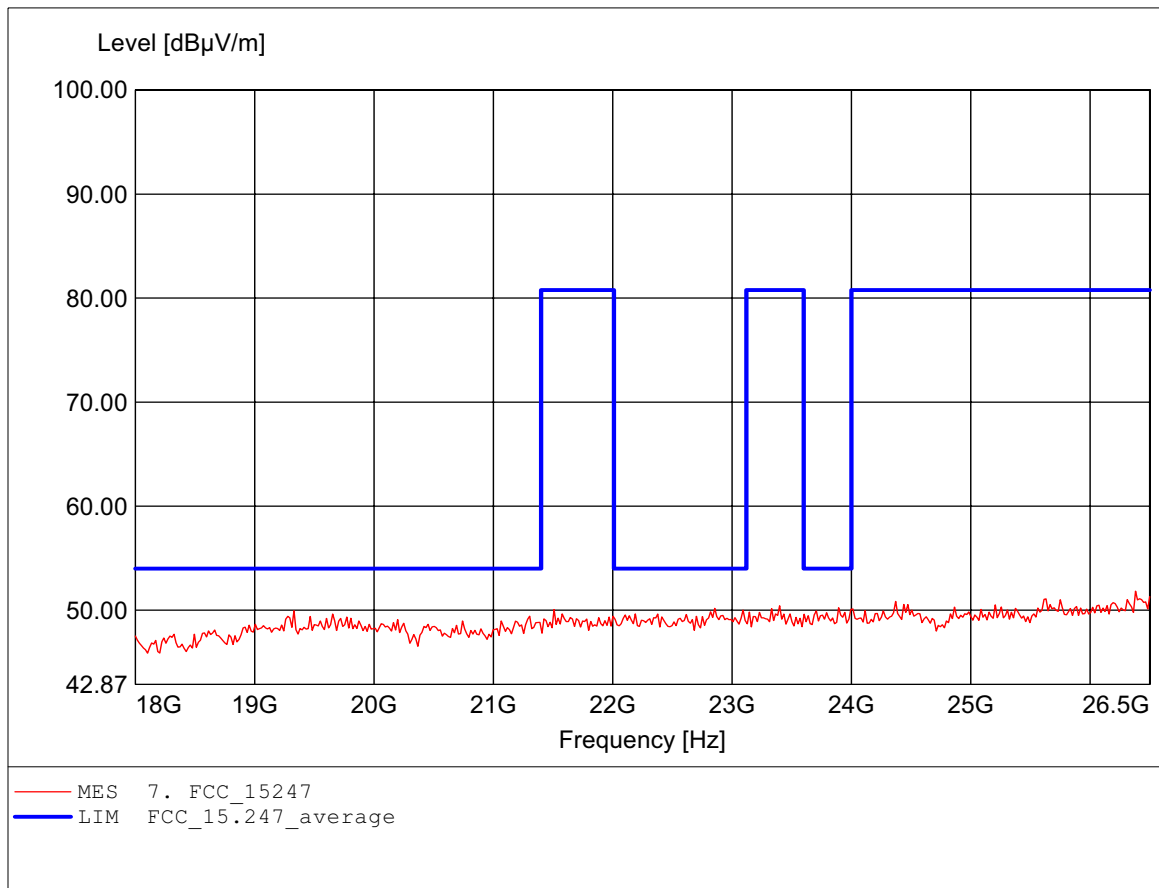
FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 17.844GHz, Emax: 52.42dBµV/m, RBW: 1MHz



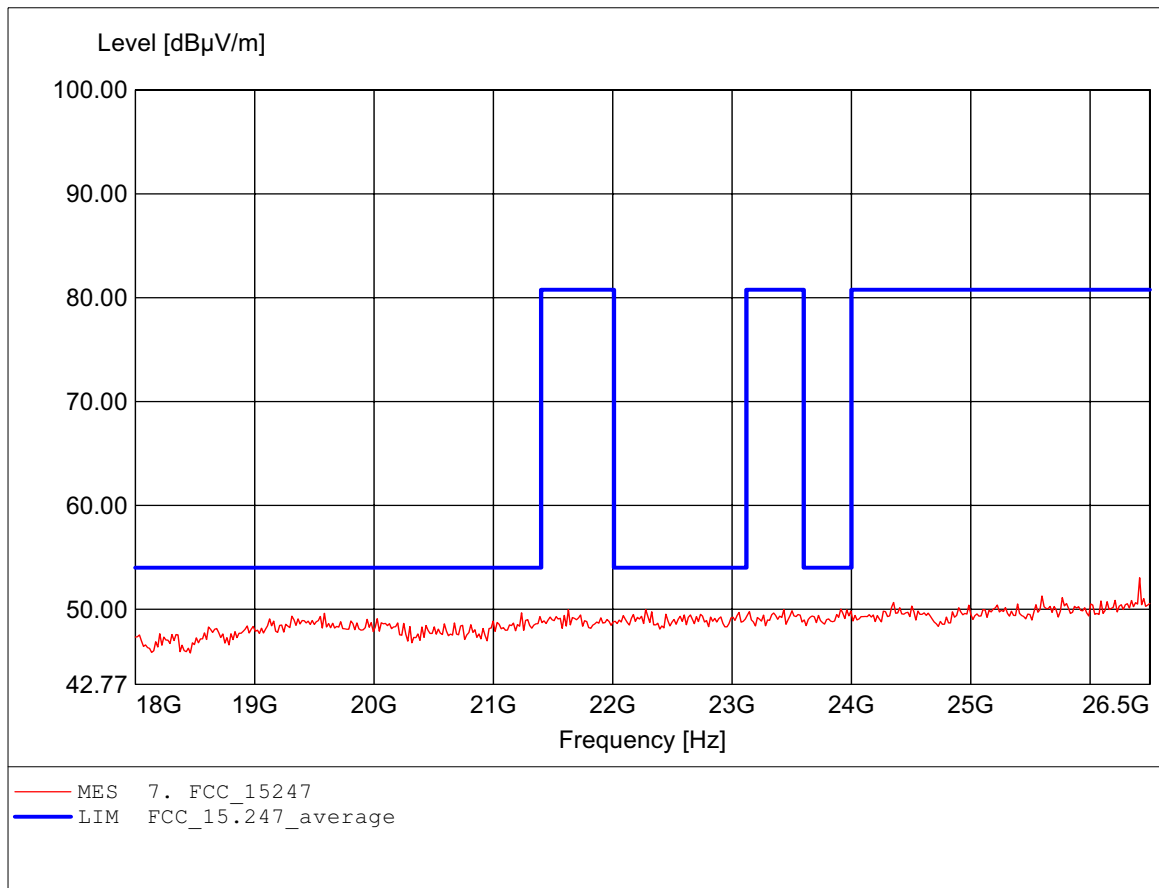
Spurious emissions Field Strength
FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Freq: 26.381GHz, Emax: 51.82dBμV/m, RBW: 1MHz



Spurious emissions Field Strength
FCC RULES PART 15, SUBPART C / LP0002

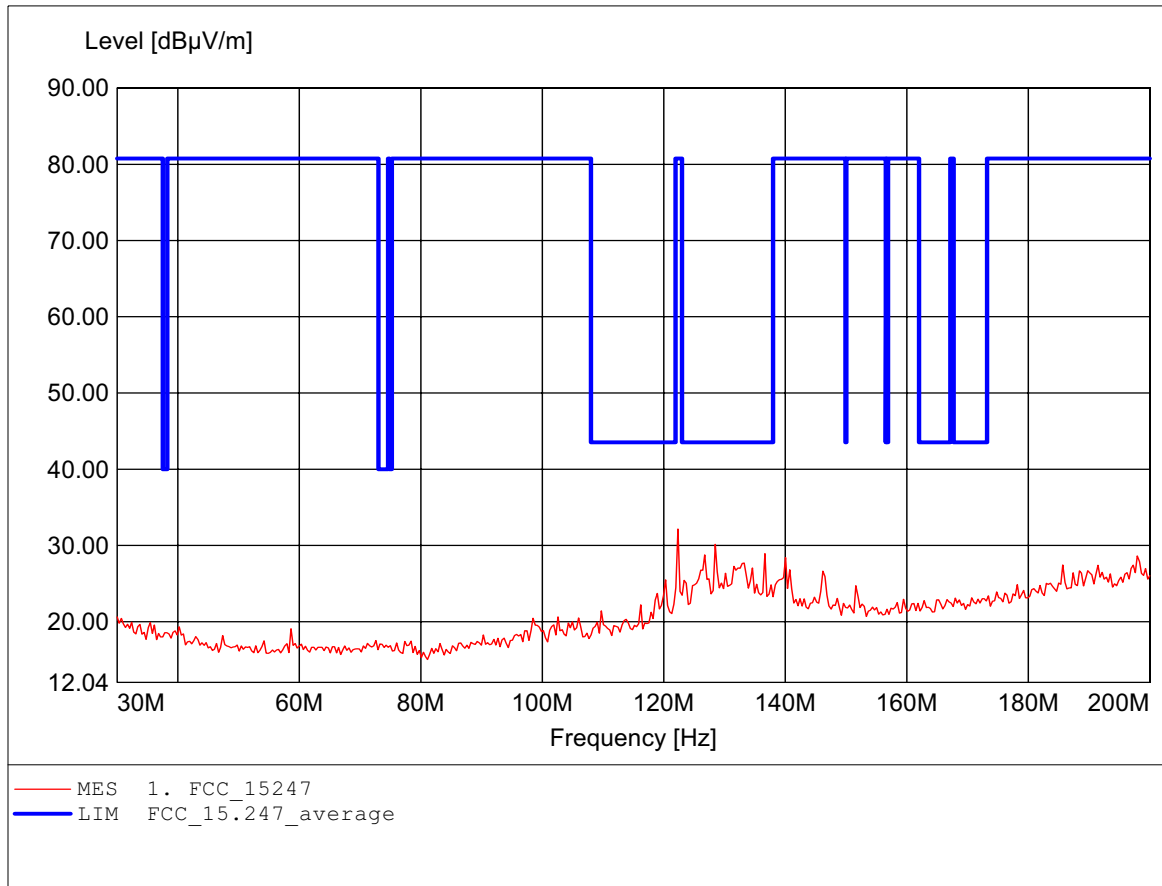
Order Number : W6M20607-7234 802.11b ch1
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Freq: 26.415GHz, Emax: 53.03dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

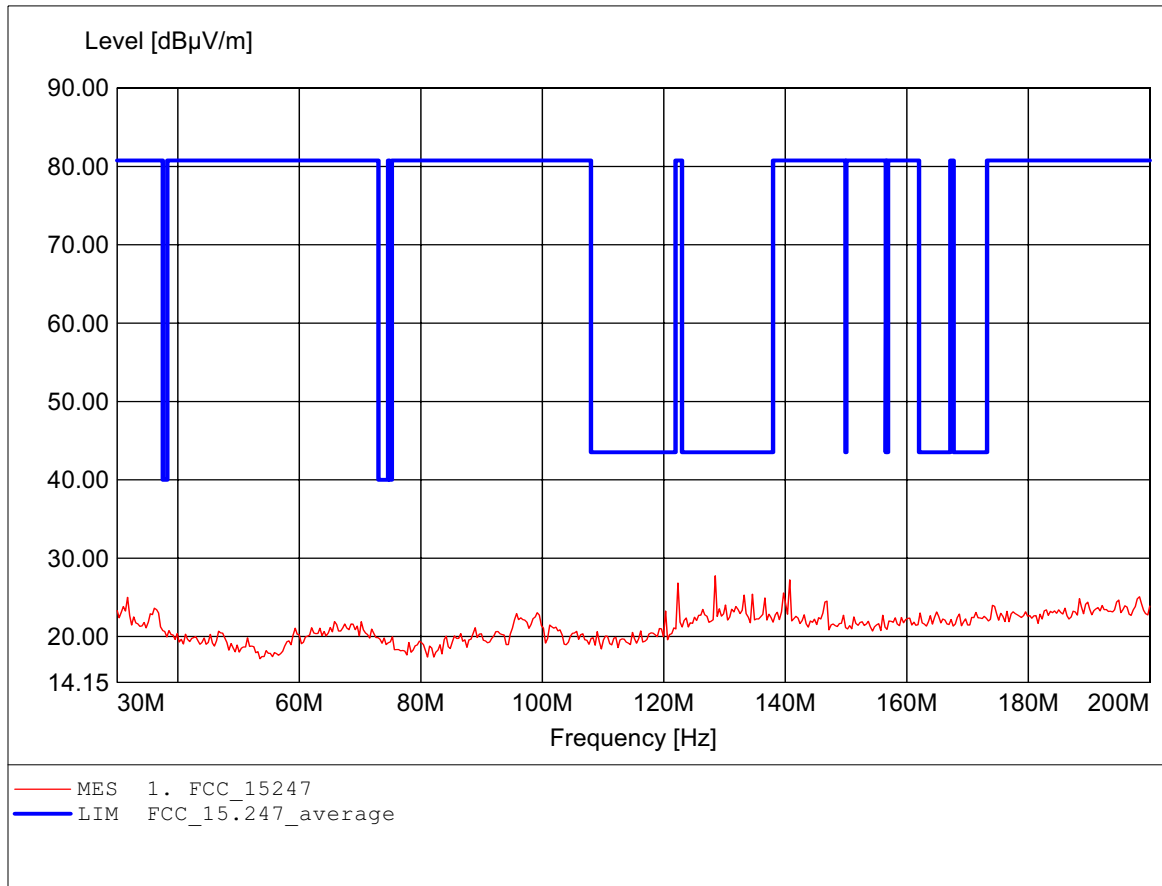
Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HK 116
Freq: 122.325MHz, Emax: 32.15dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

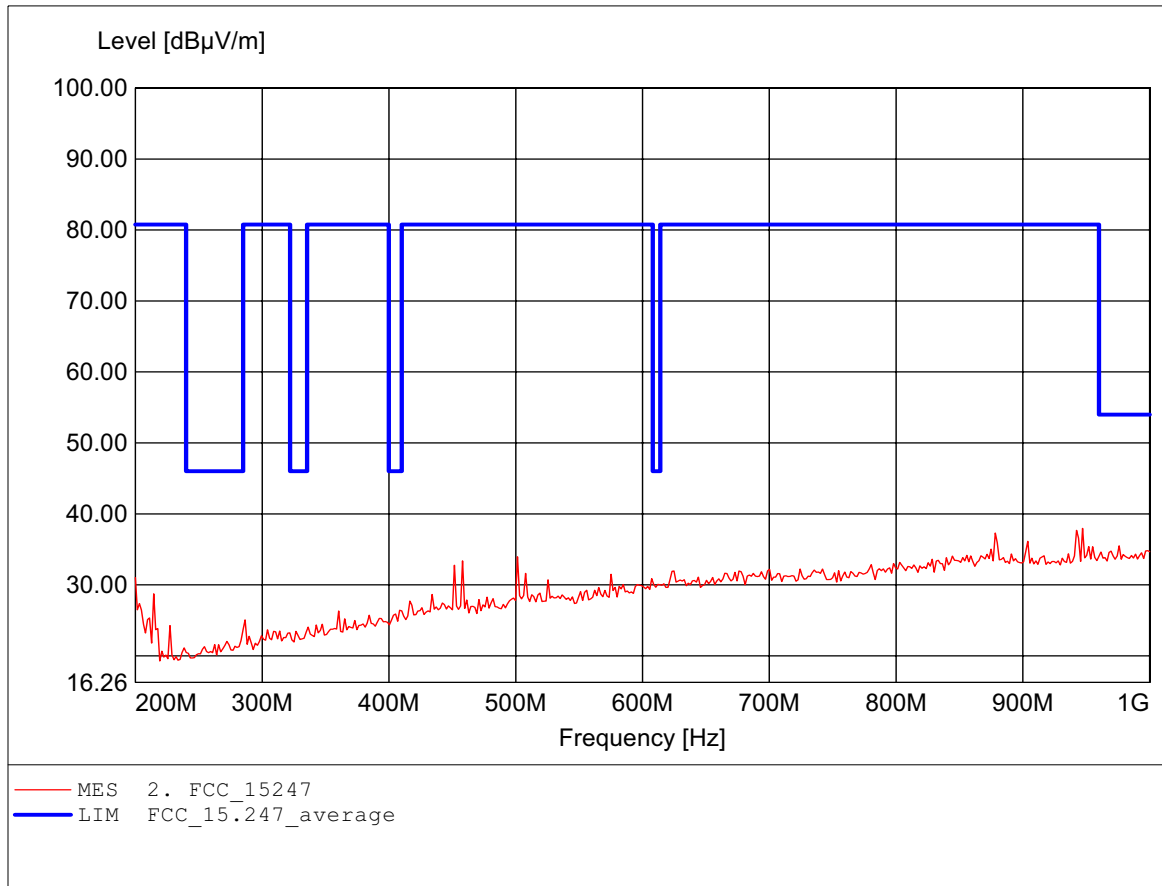
Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HK 116
Freq: 128.457MHz, Emax: 27.75dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

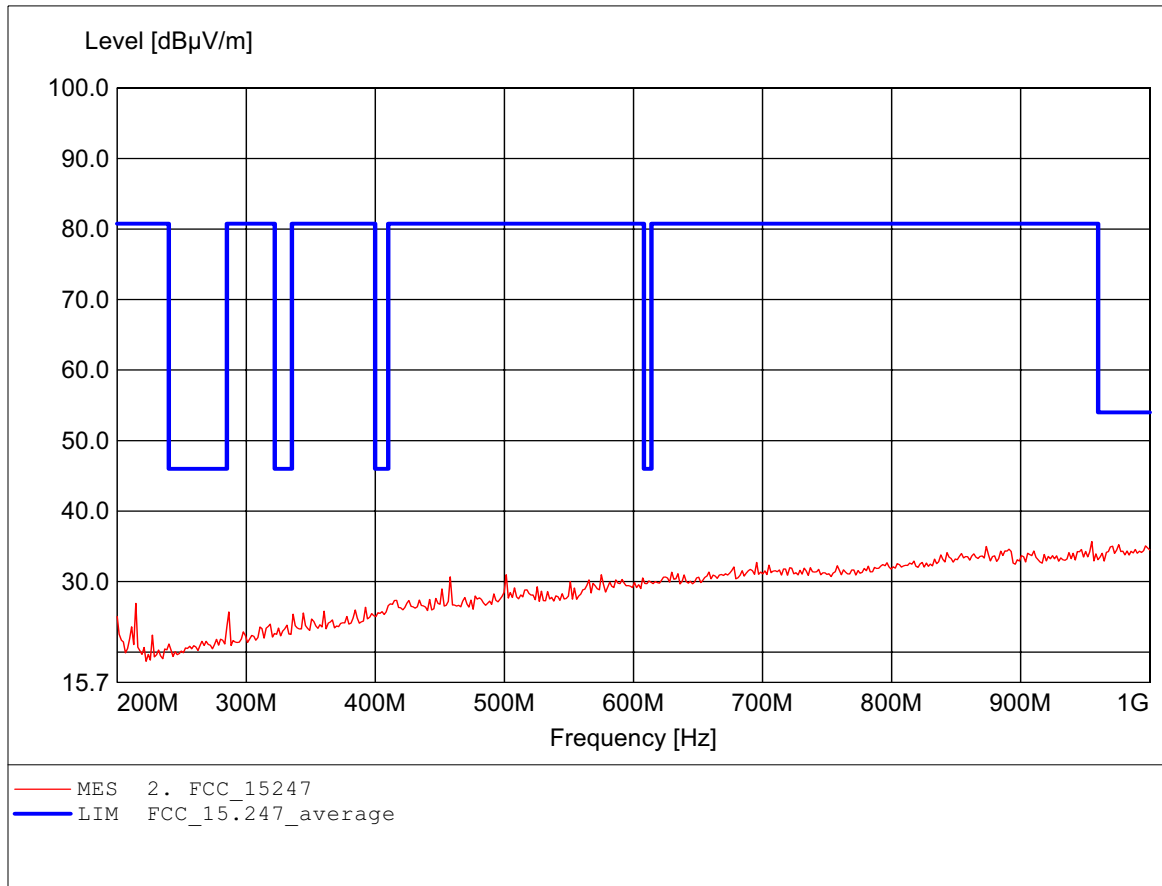
Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL 223,
Freq: 947.094MHz, Emax: 37.95dBμV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

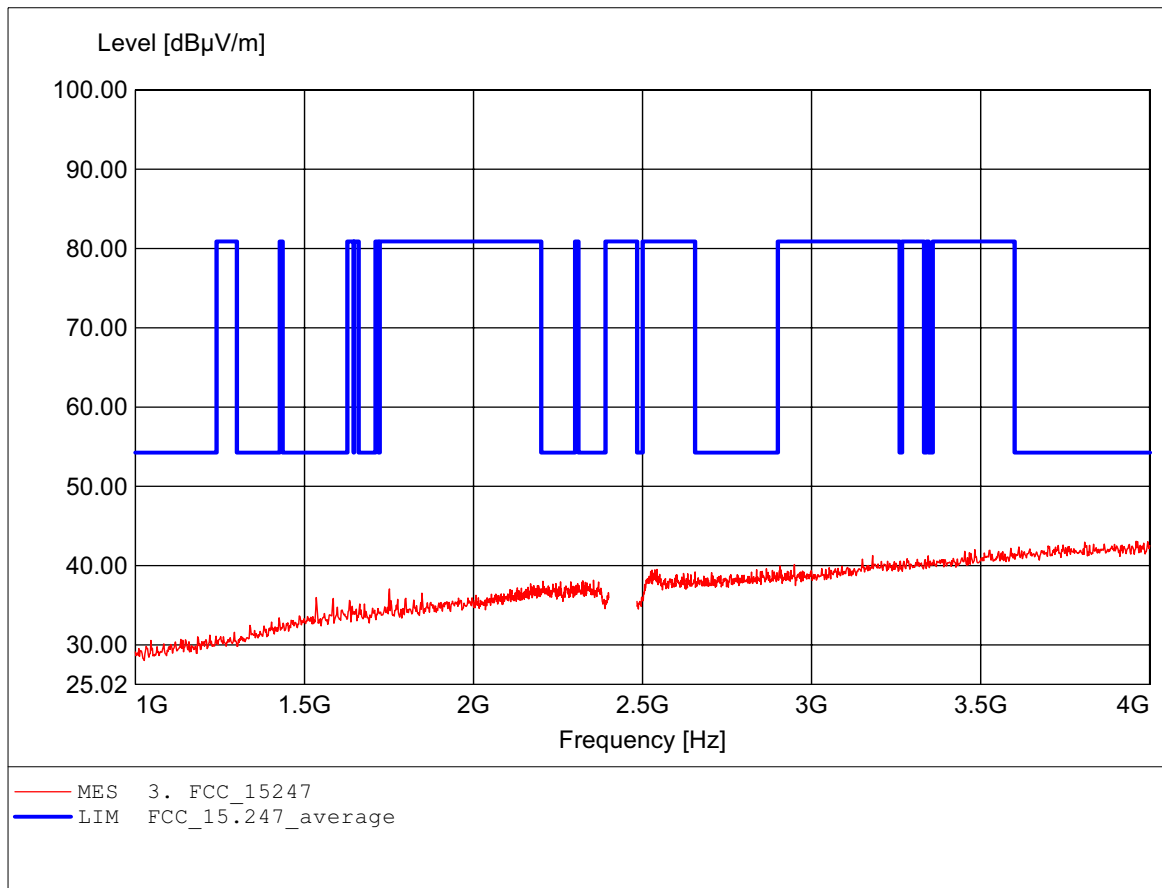
Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL 223,
Freq: 955.110MHz, Emax: 35.68dBμV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

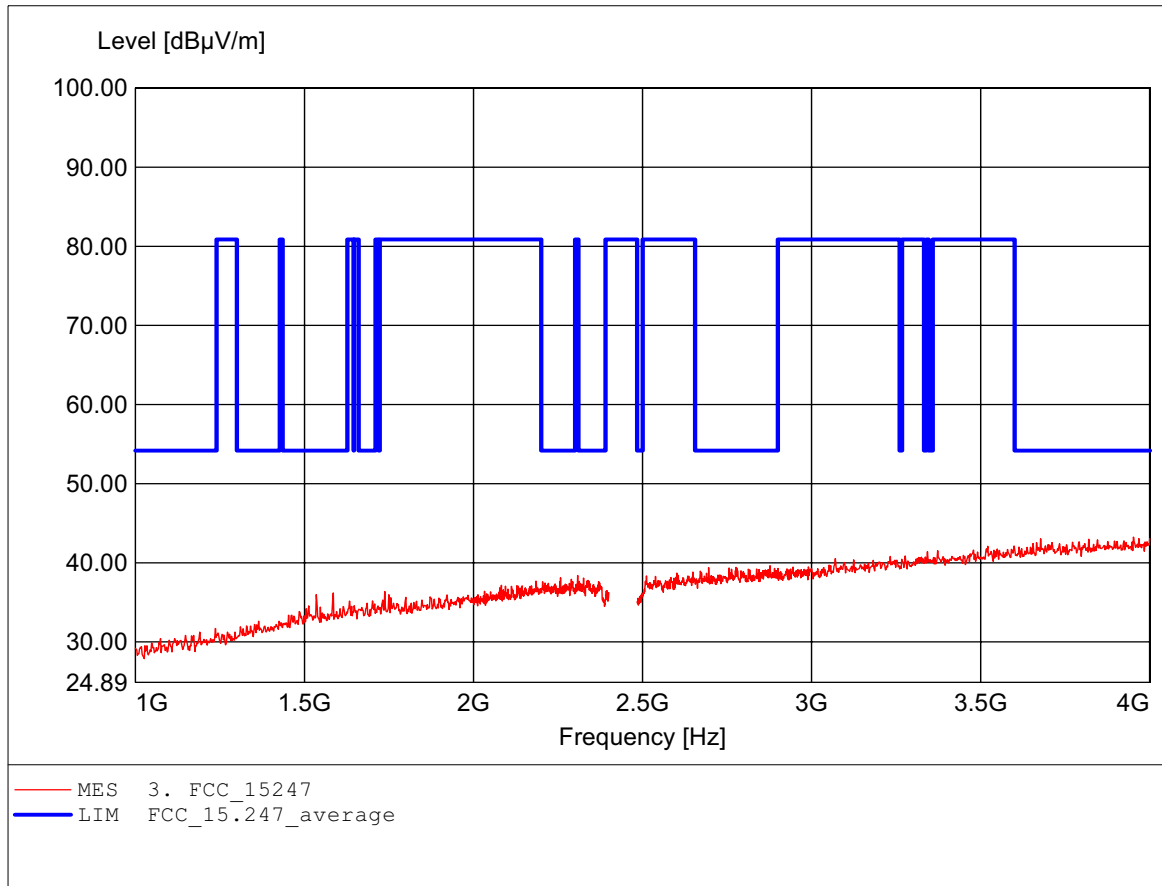
Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Freq: 3.960GHz, Emax: 43.07dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

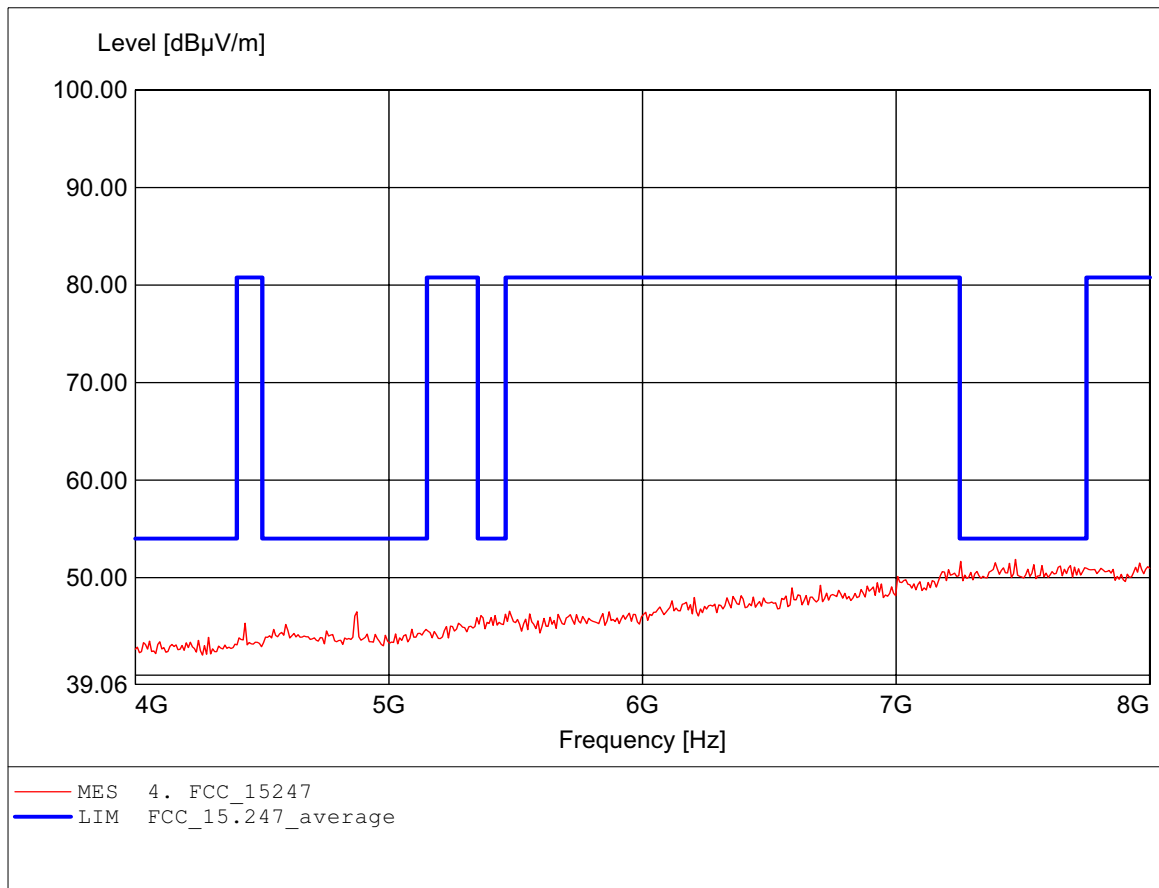
Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Freq: 3.952GHz, Emax: 43.24dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

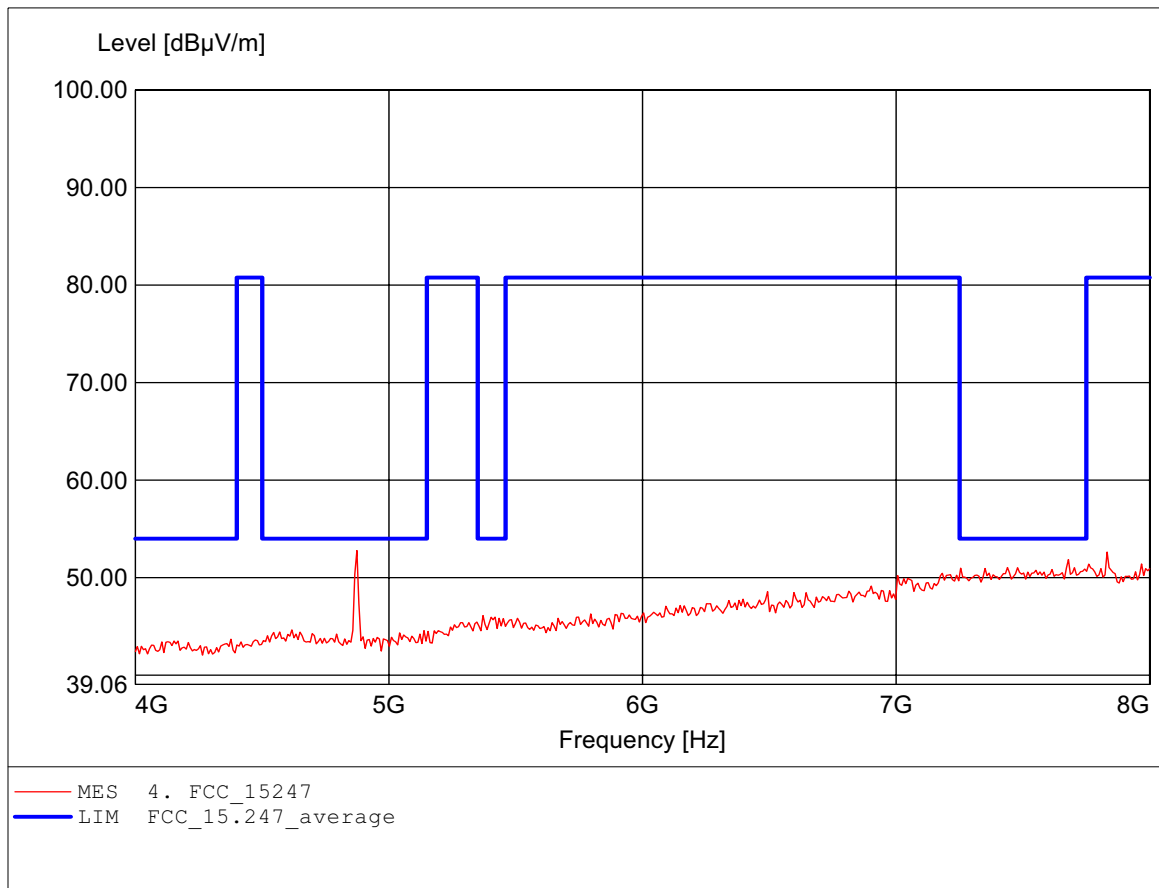
Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 7.471GHz, Emax: 51.87dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

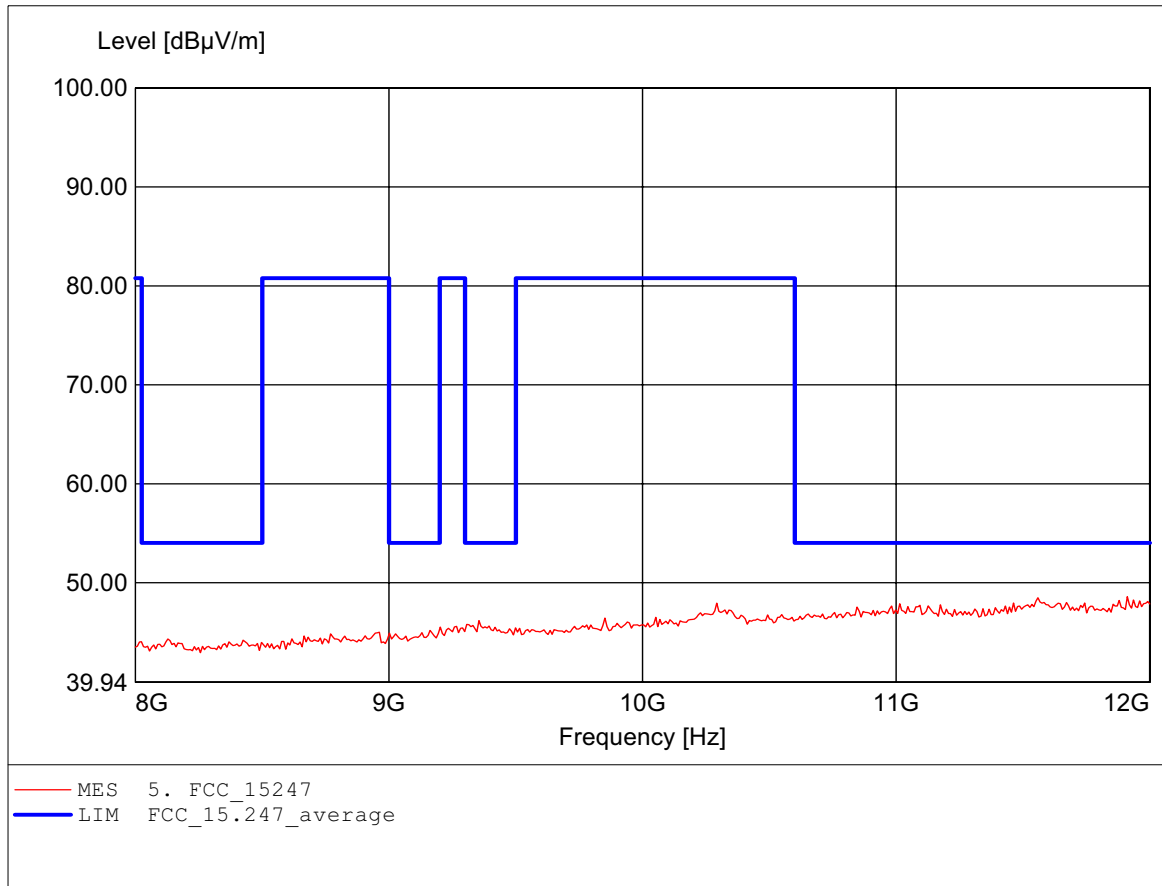
Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 4.874GHz, Emax: 52.78dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

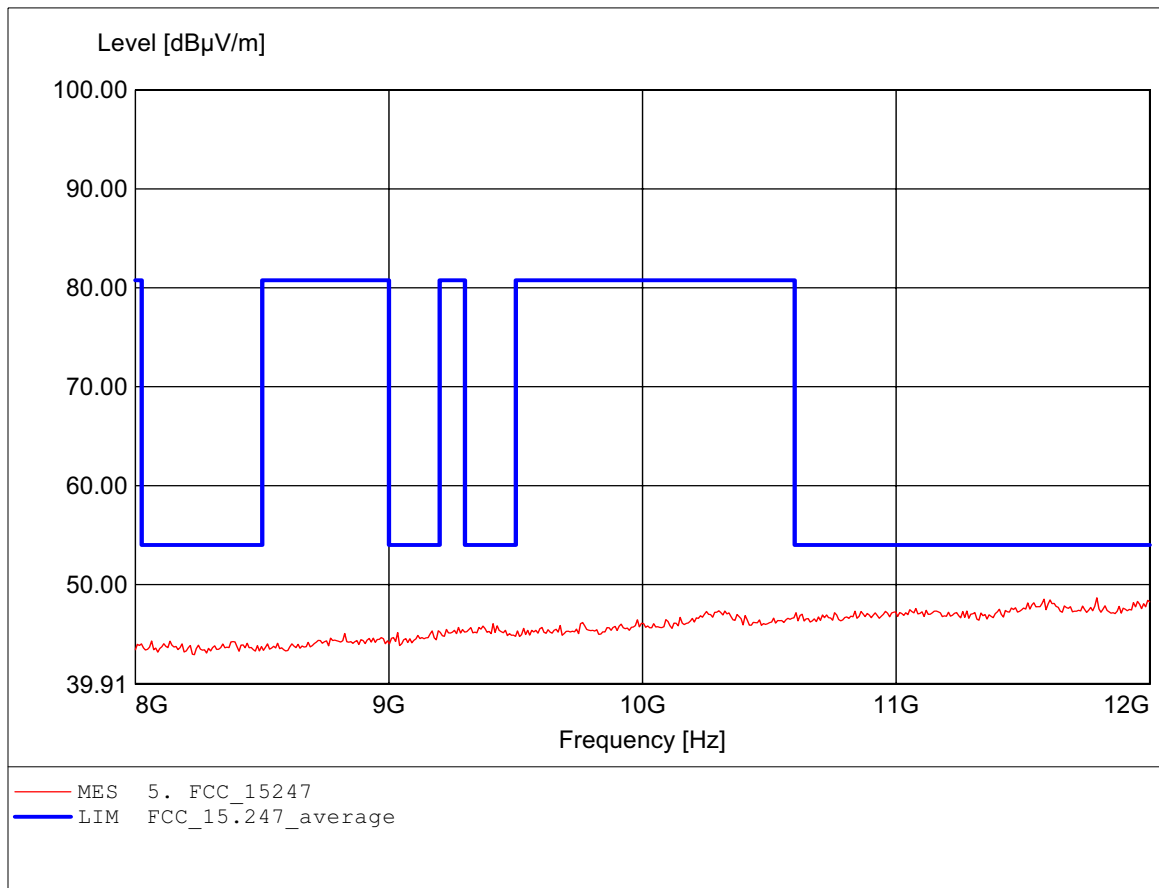
FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 11.912GHz, Emax: 48.60dBμV/m, RBW: 1MHz



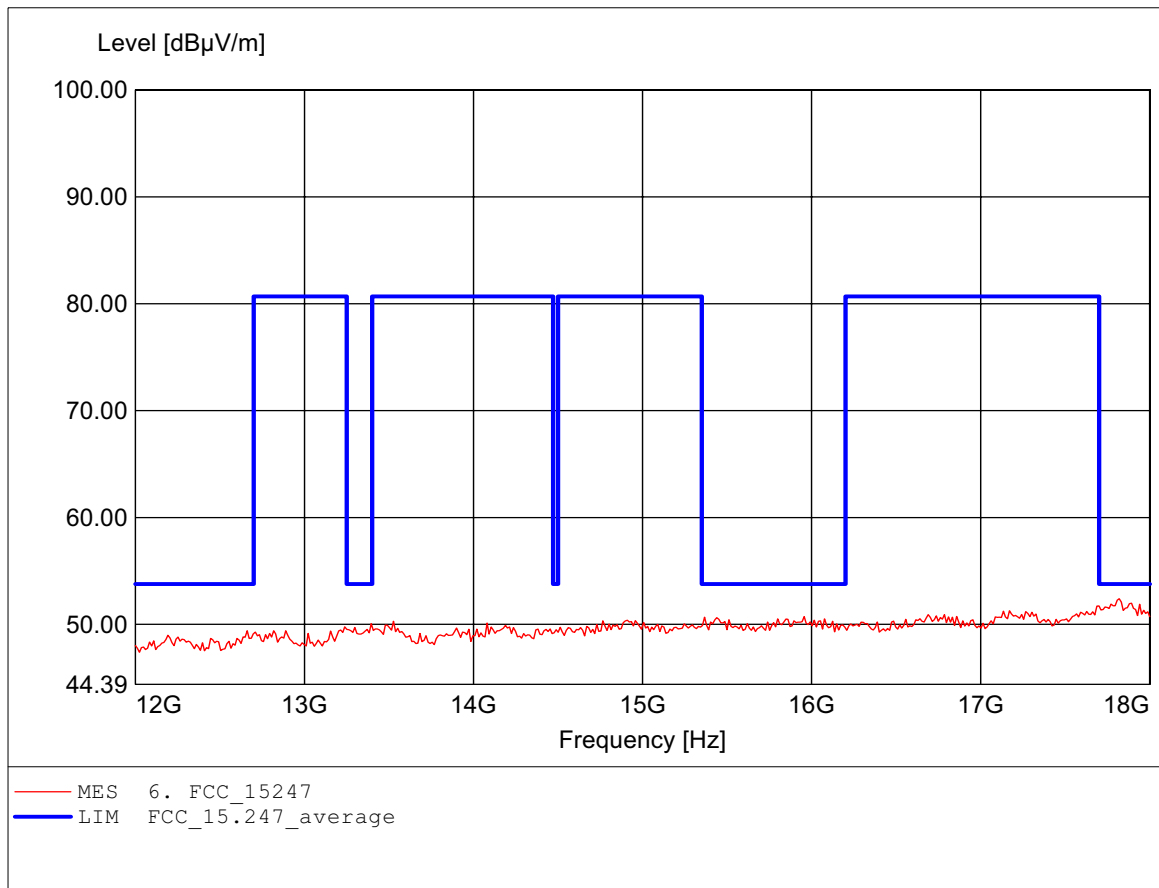
Spurious emissions Field Strength
FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 11.792GHz, Emax: 48.66dBµV/m, RBW: 1MHz



Spurious emissions Field Strength
FCC RULES PART 15, SUBPART C / LP0002

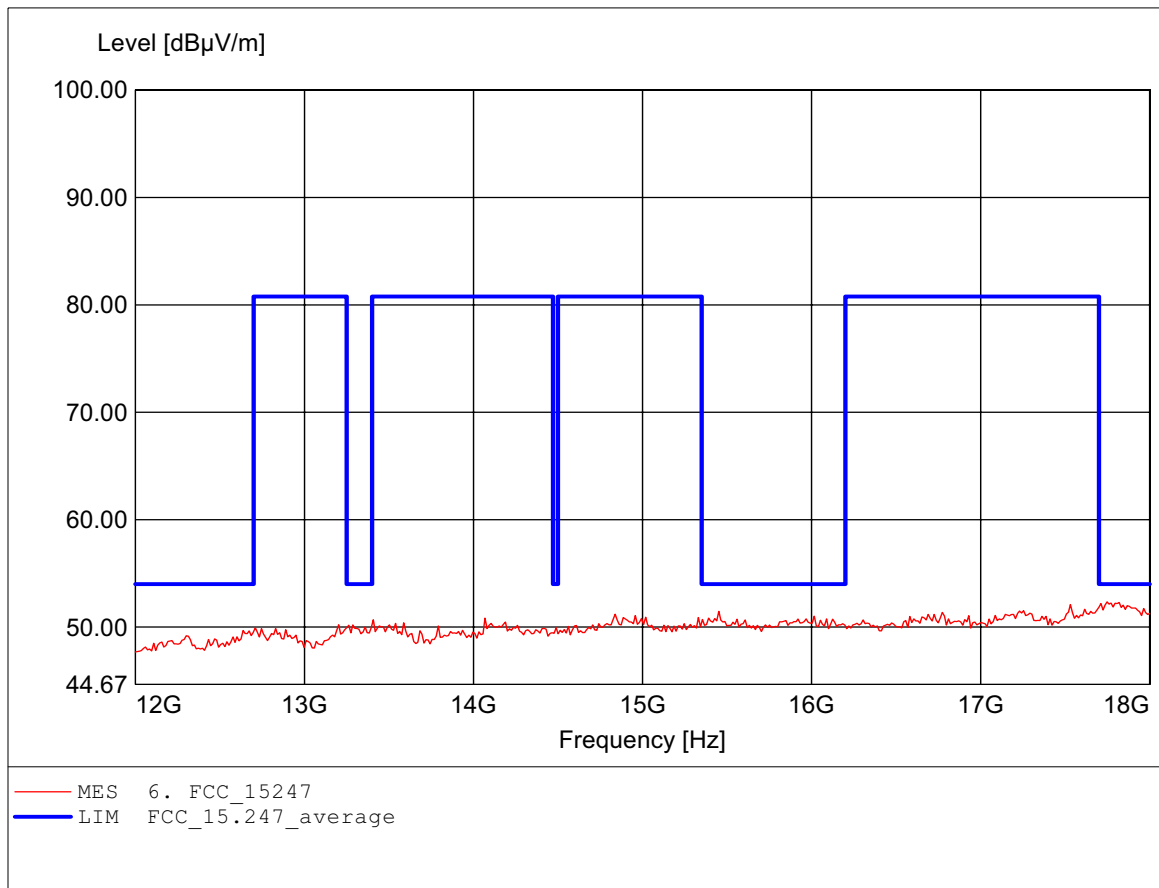
Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 17.820GHz, Emax: 52.41dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

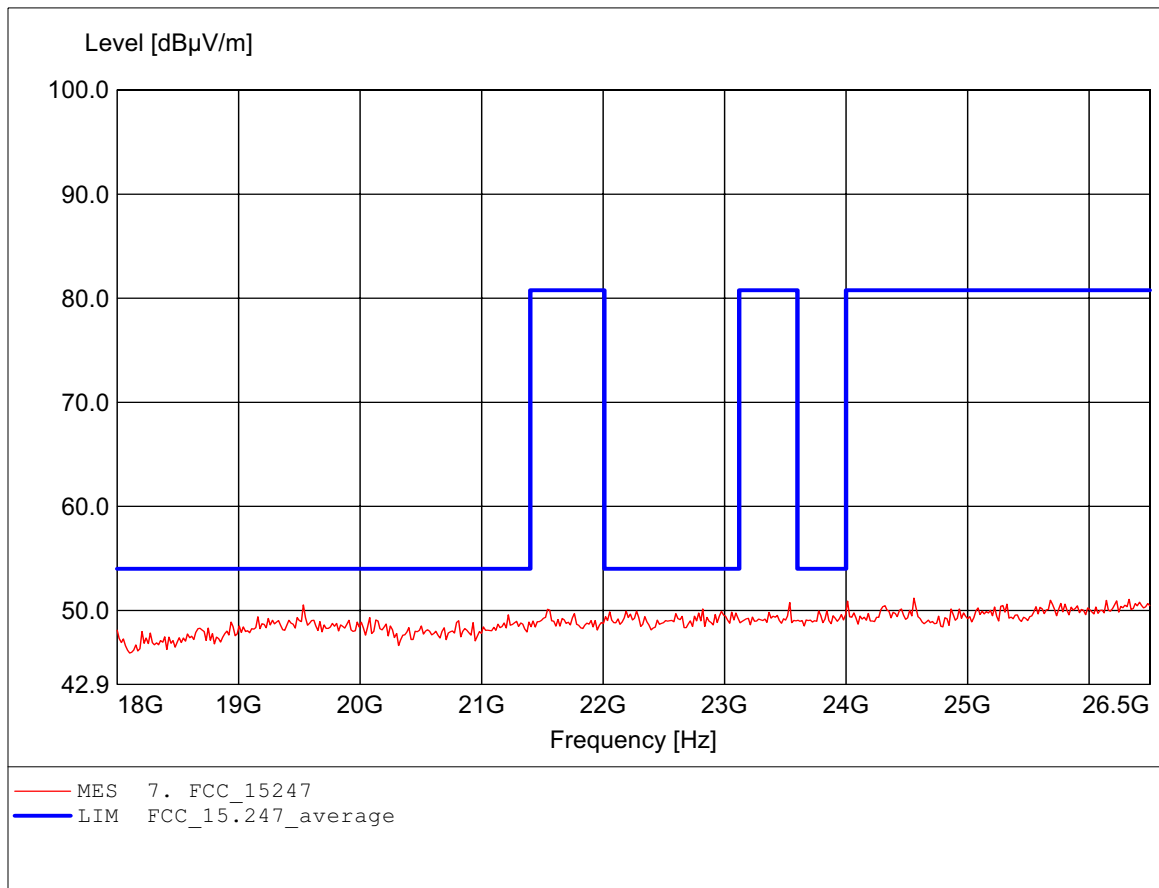
FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 17.747GHz, Emax: 52.35dBµV/m, RBW: 1MHz



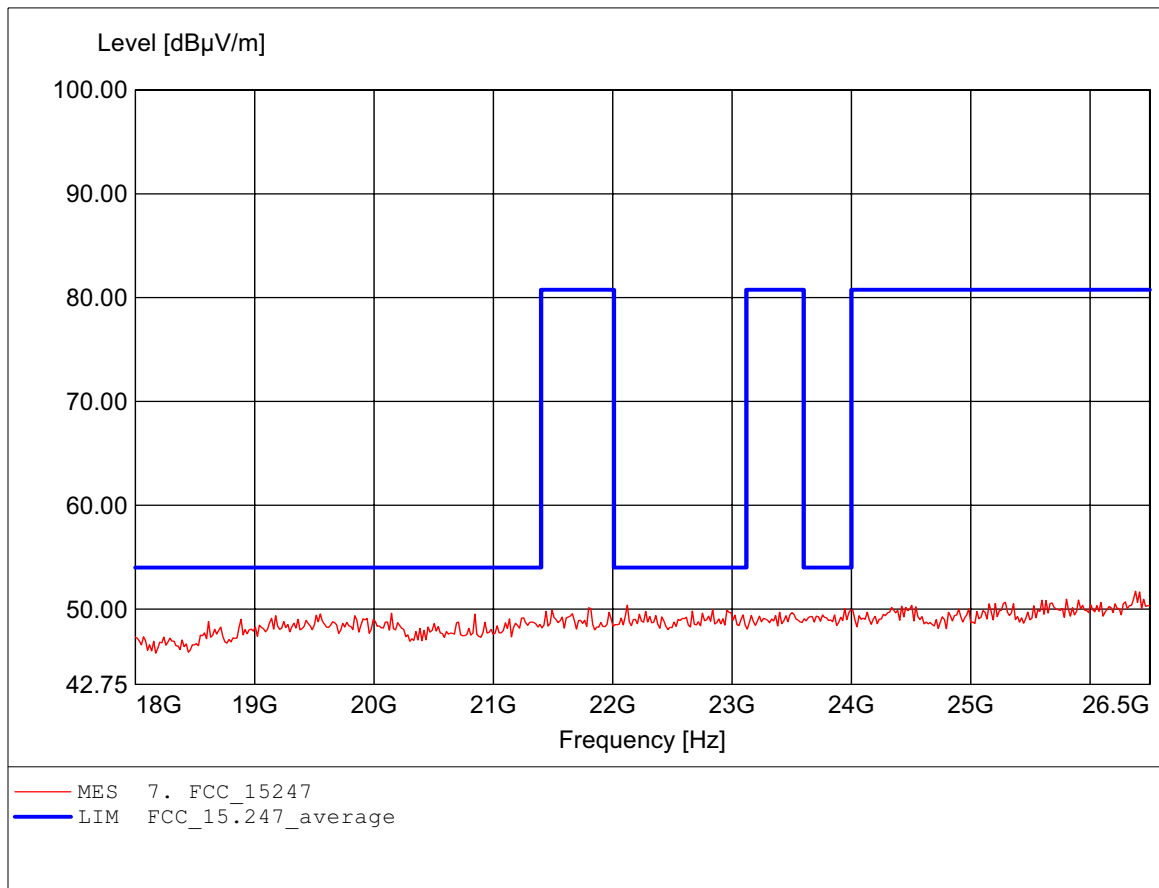
Spurious emissions Field Strength
FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Freq: 24.558GHz, Emax: 51.18dBµV/m, RBW: 1MHz



Spurious emissions Field Strength
FCC RULES PART 15, SUBPART C / LP0002

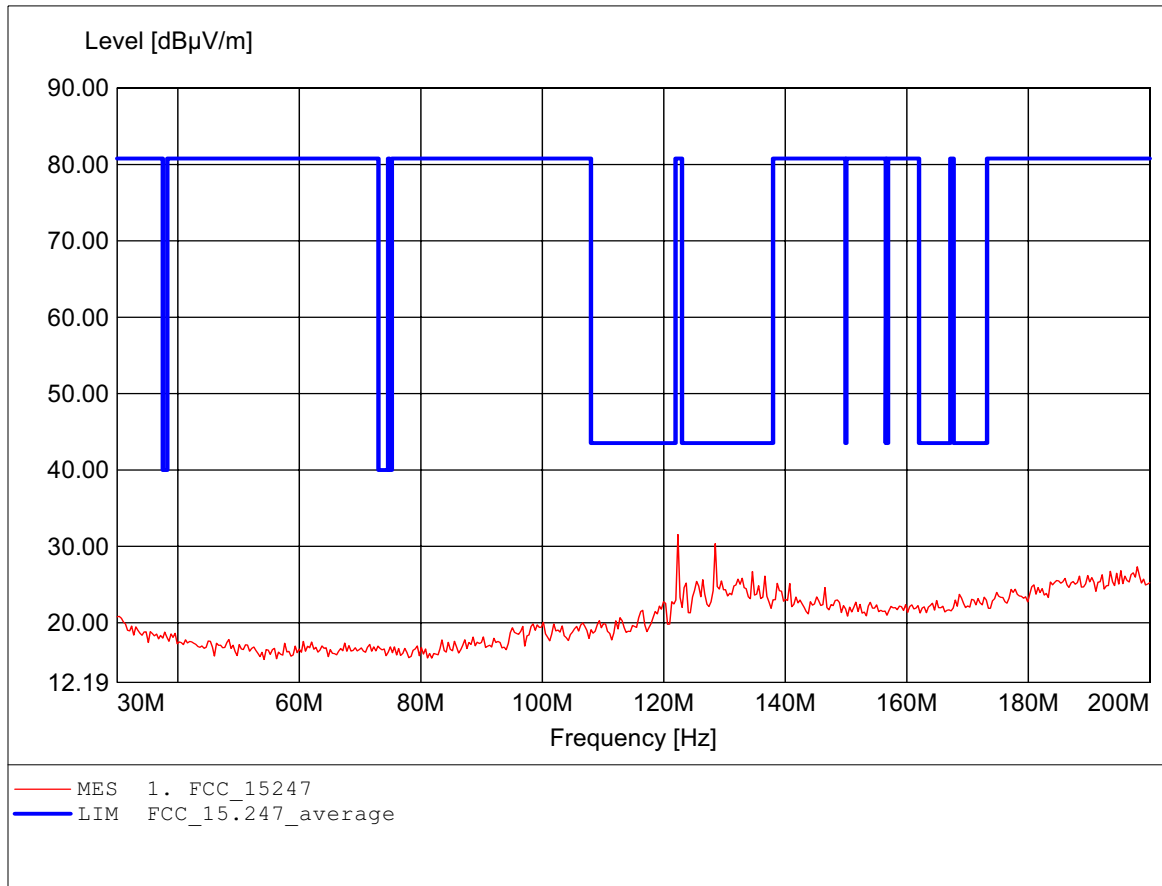
Order Number : W6M20607-7234 802.11b ch6
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Freq: 26.381GHz, Emax: 51.73dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

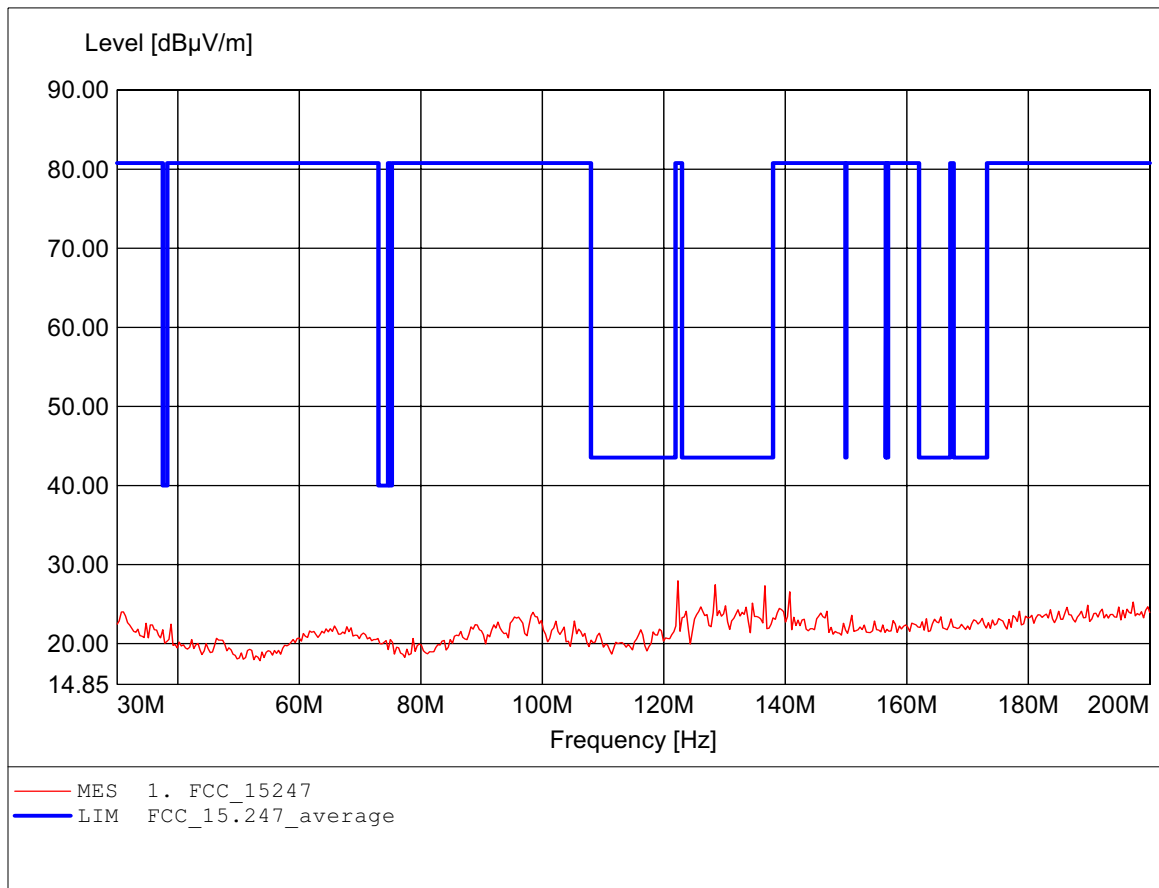
Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HK 116
Freq: 122.325MHz, Emax: 31.54dBμV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

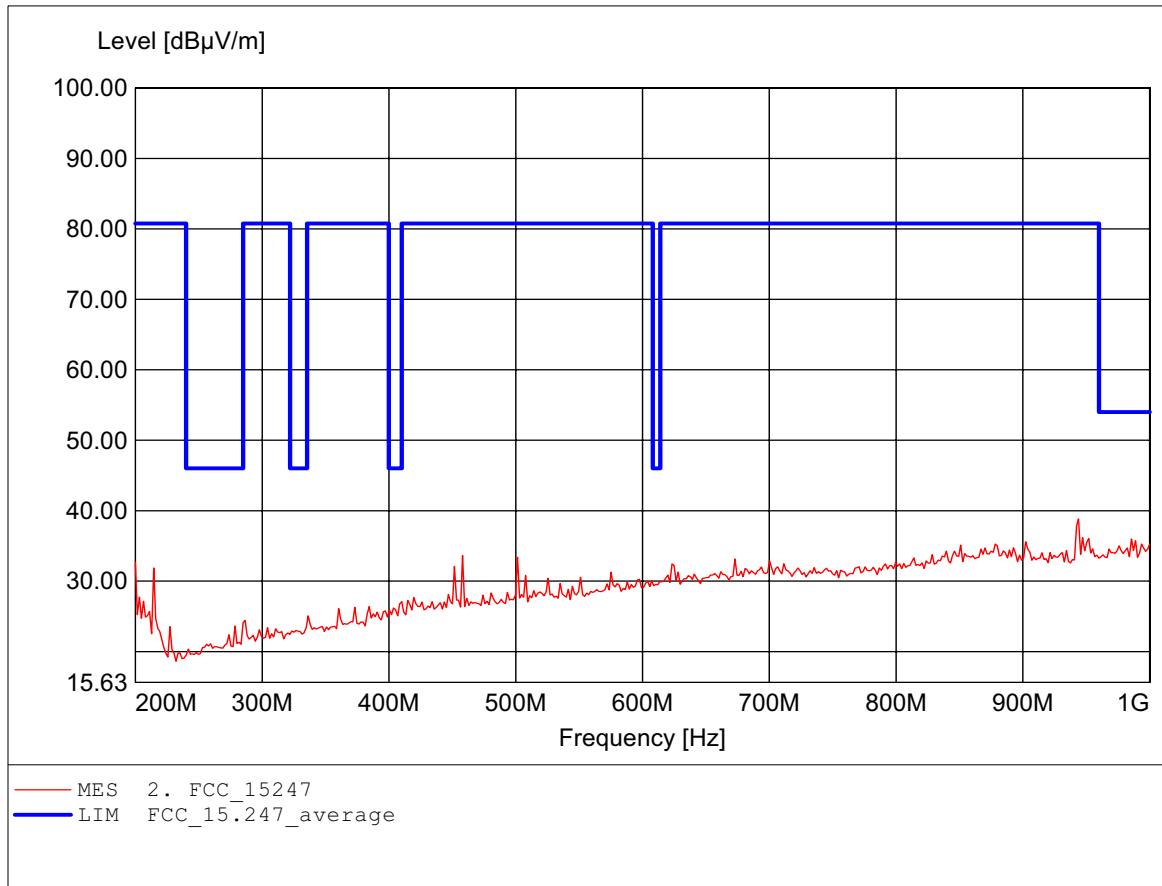
Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HK 116
Freq: 122.325MHz, Emax: 27.93dBµV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

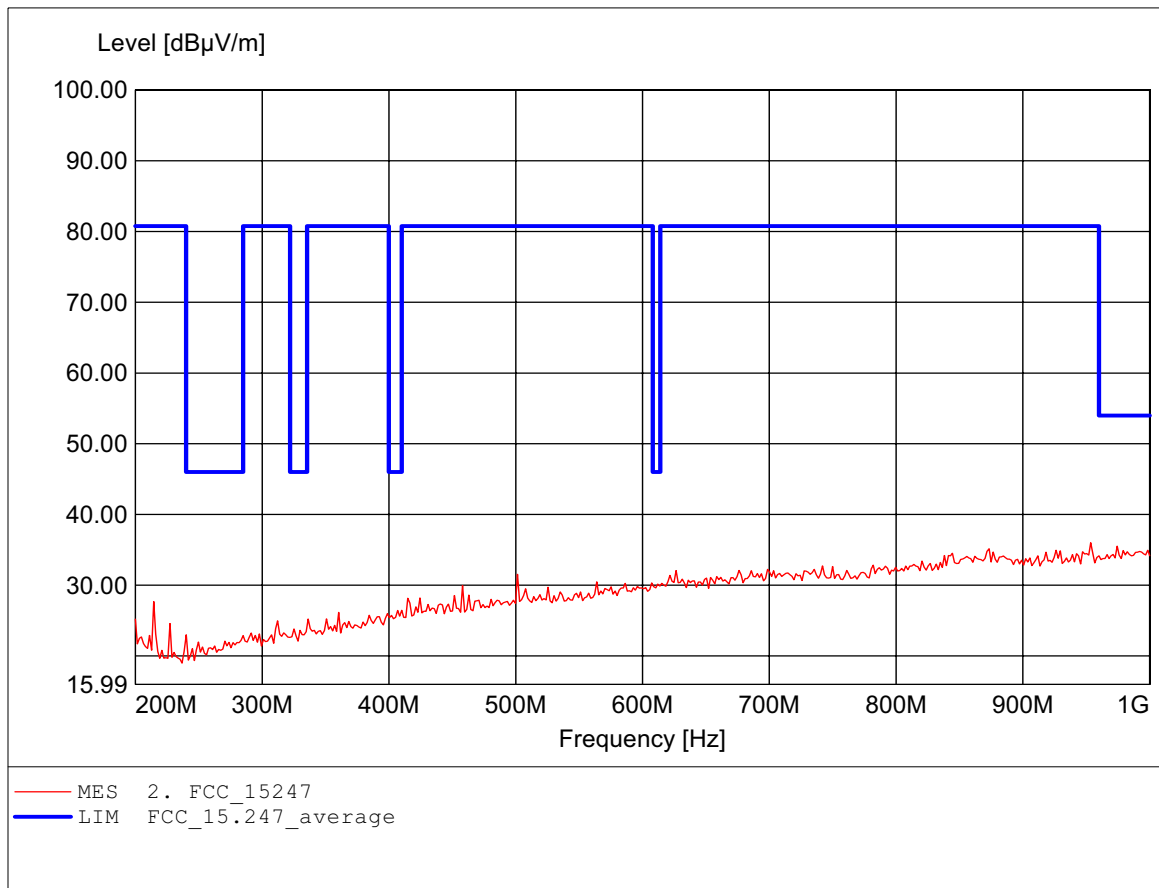
Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL 223,
Freq: 943.888MHz, Emax: 38.82dBμV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

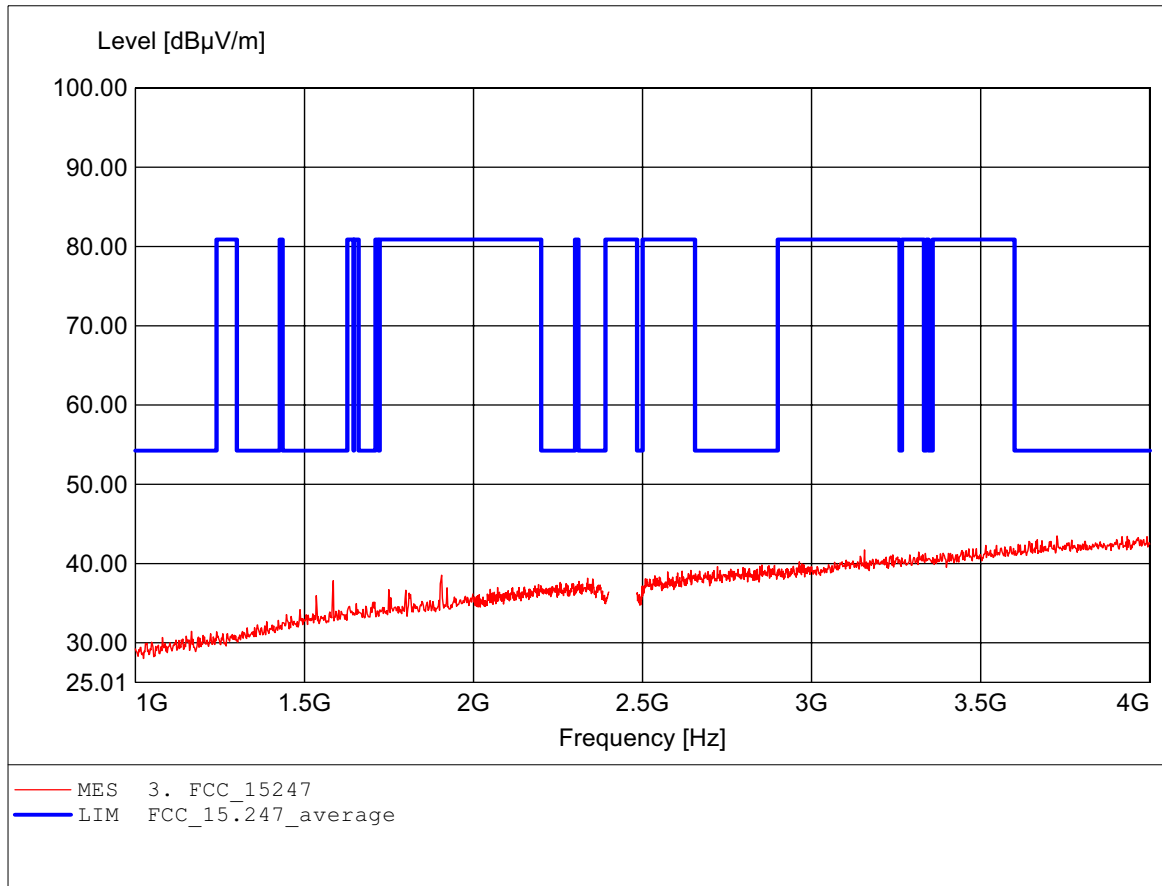
Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247
Comment 1: Dist.: 3m, Ant.: HL 223,
Freq: 953.507MHz, Emax: 36.01dBμV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

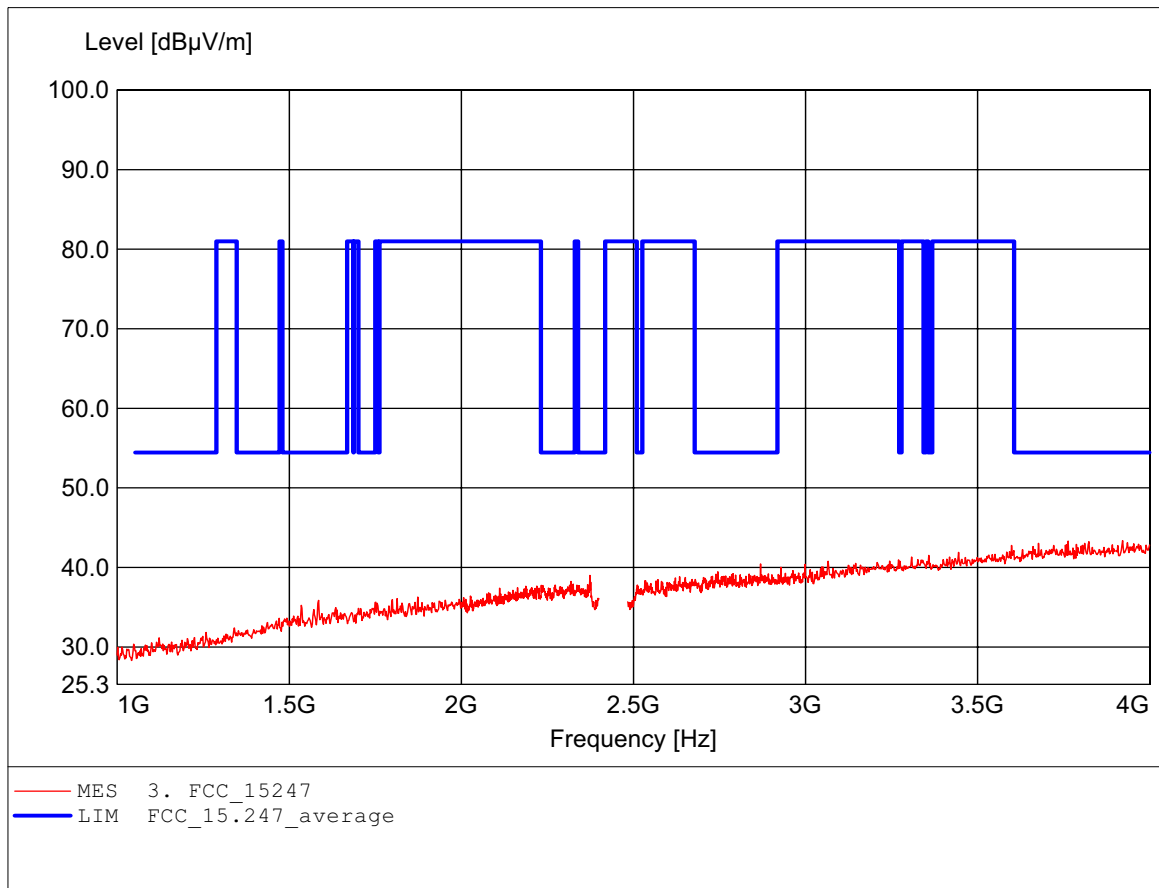
Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Freq: 3.725GHz, Emax: 43.48dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

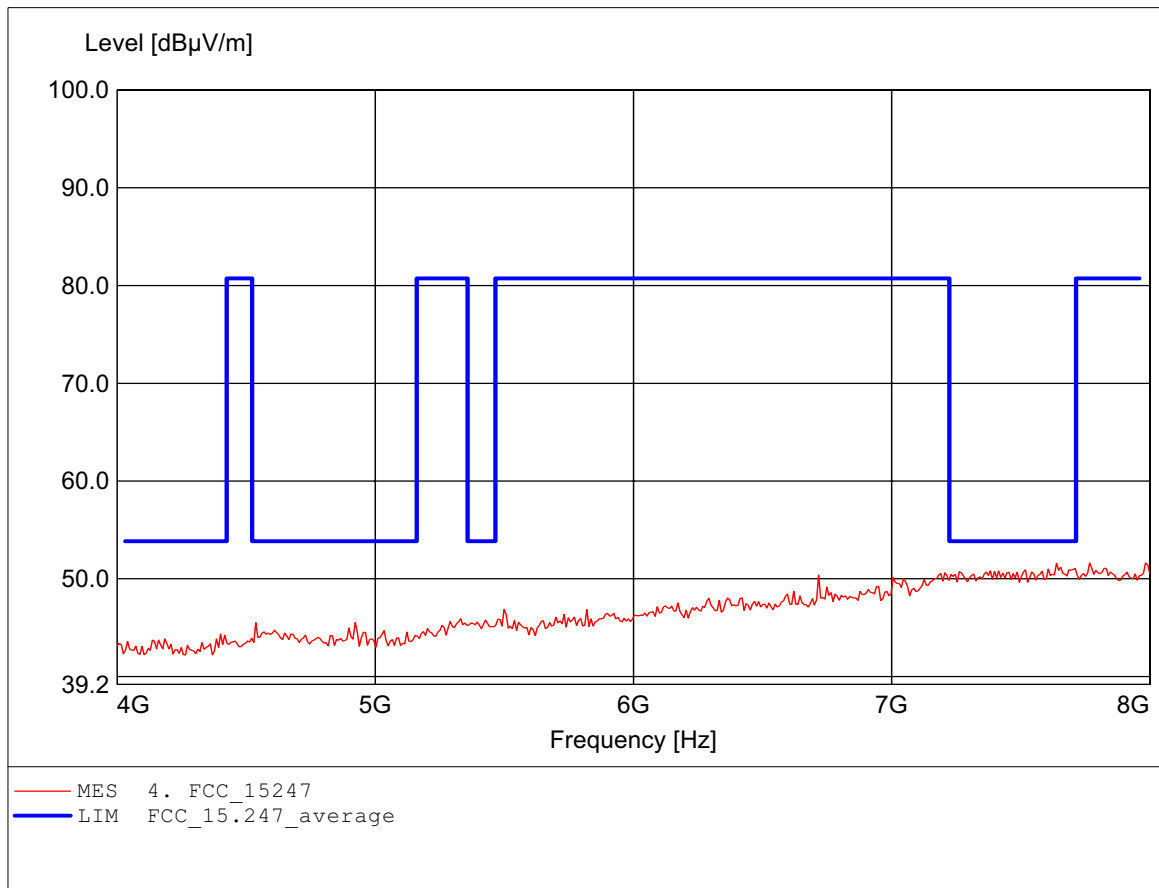
Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Freq: 3.922GHz, Emax: 43.38dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

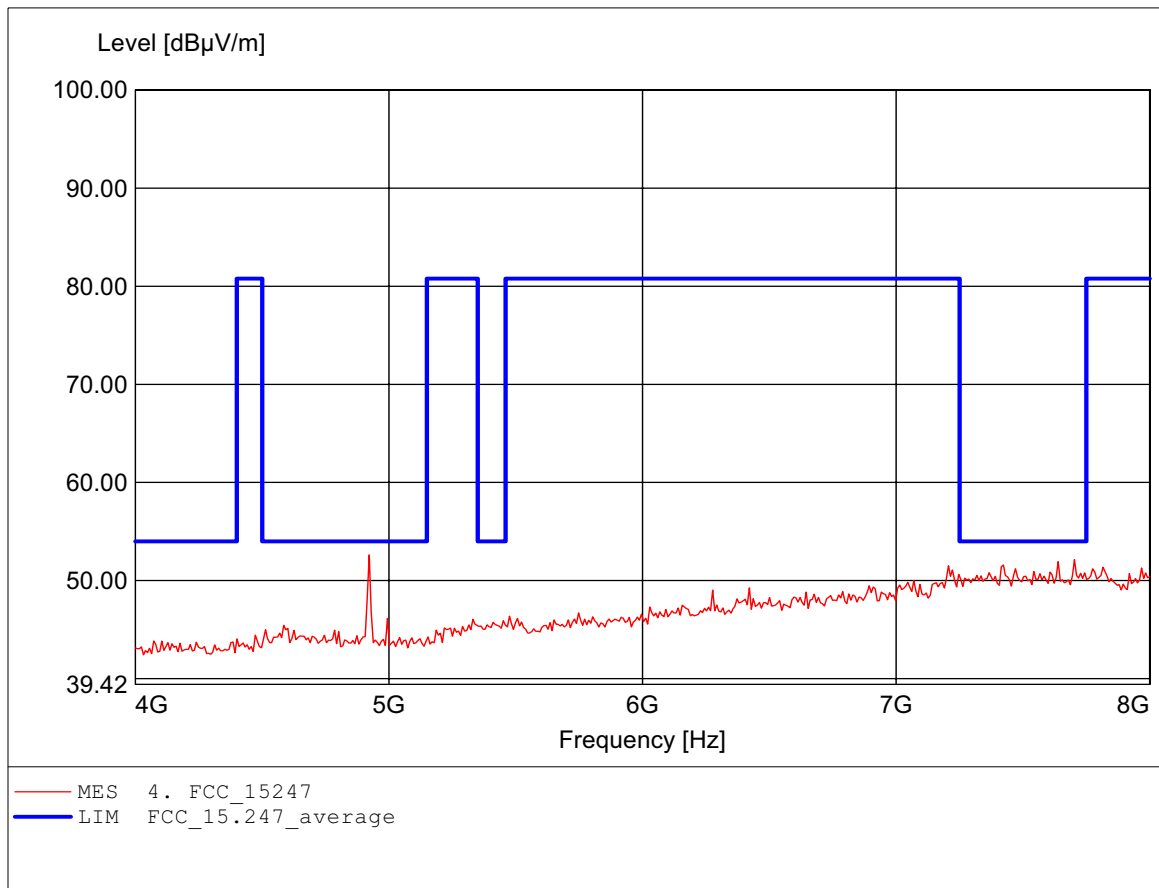
Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 7.984GHz, Emax: 51.61dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

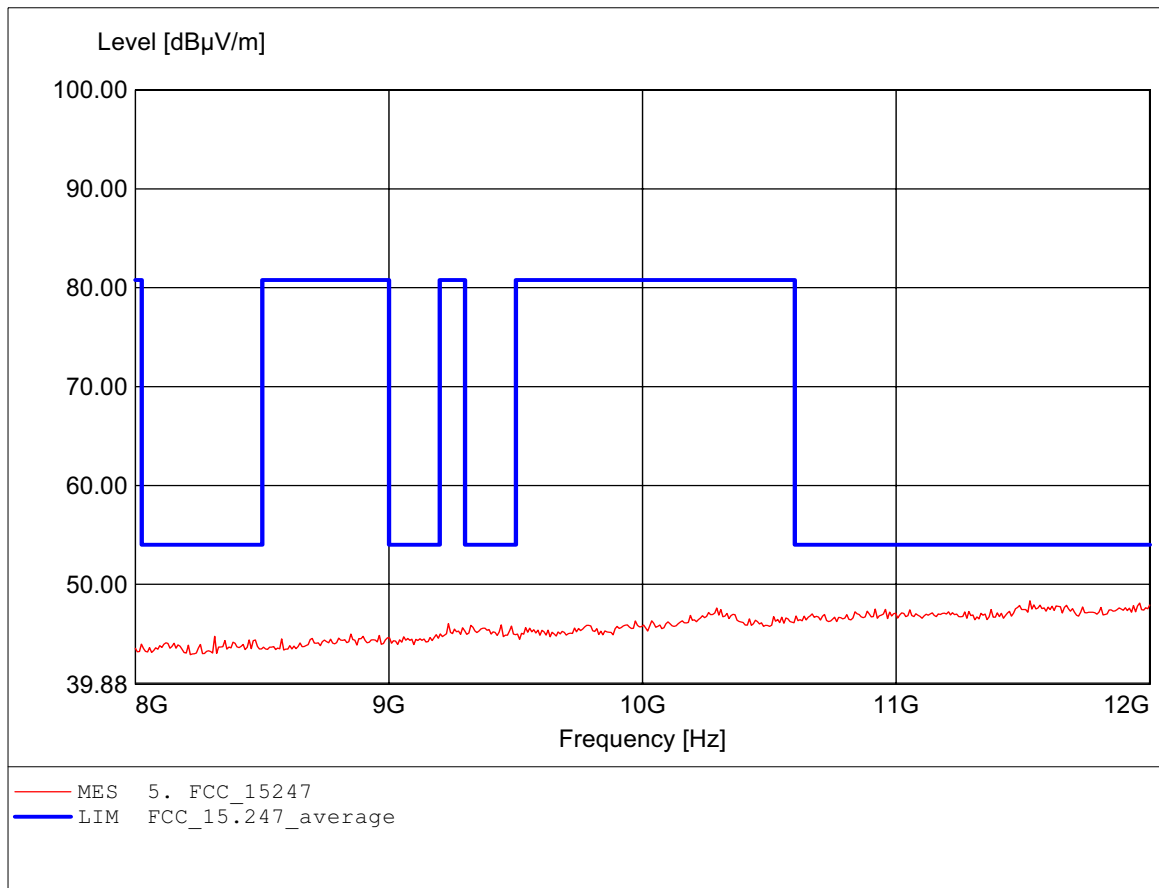
Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 4.922GHz, Emax: 52.61dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

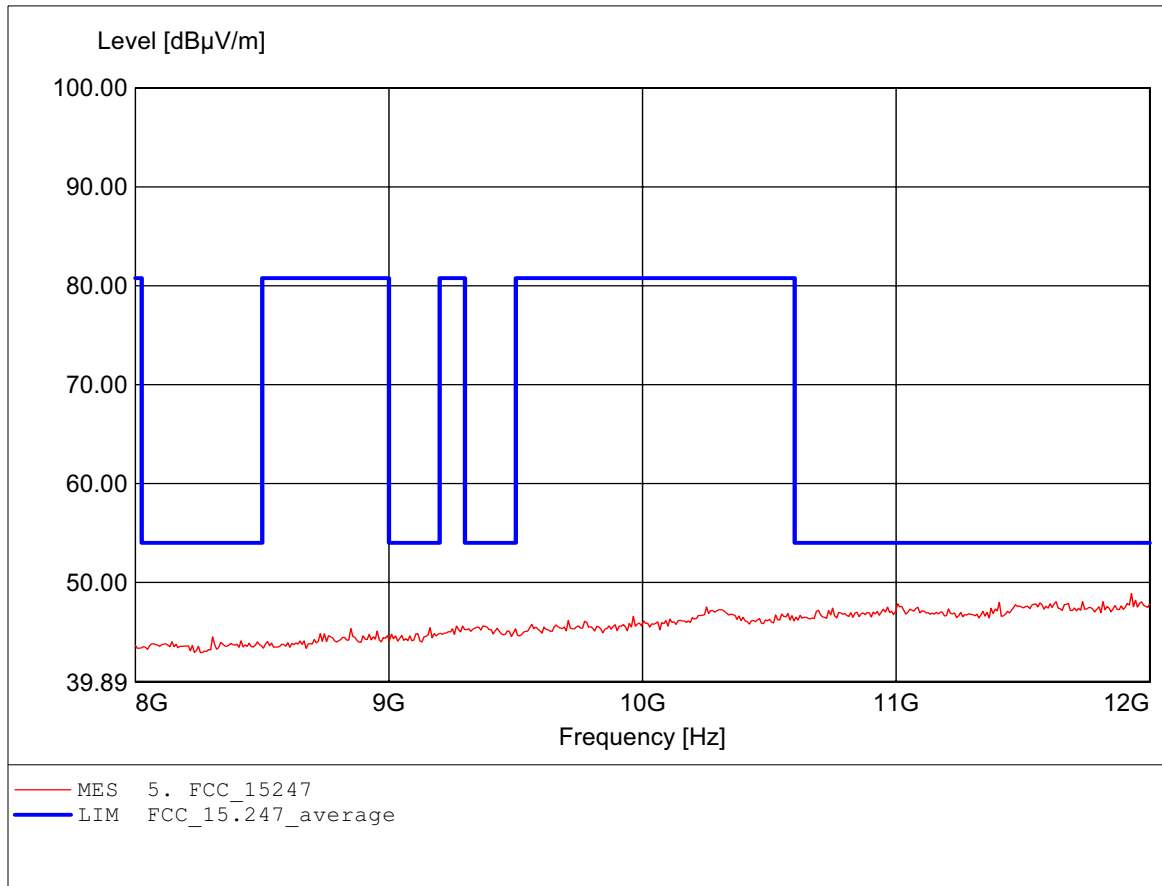
Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 11.527GHz, Emax: 48.33dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

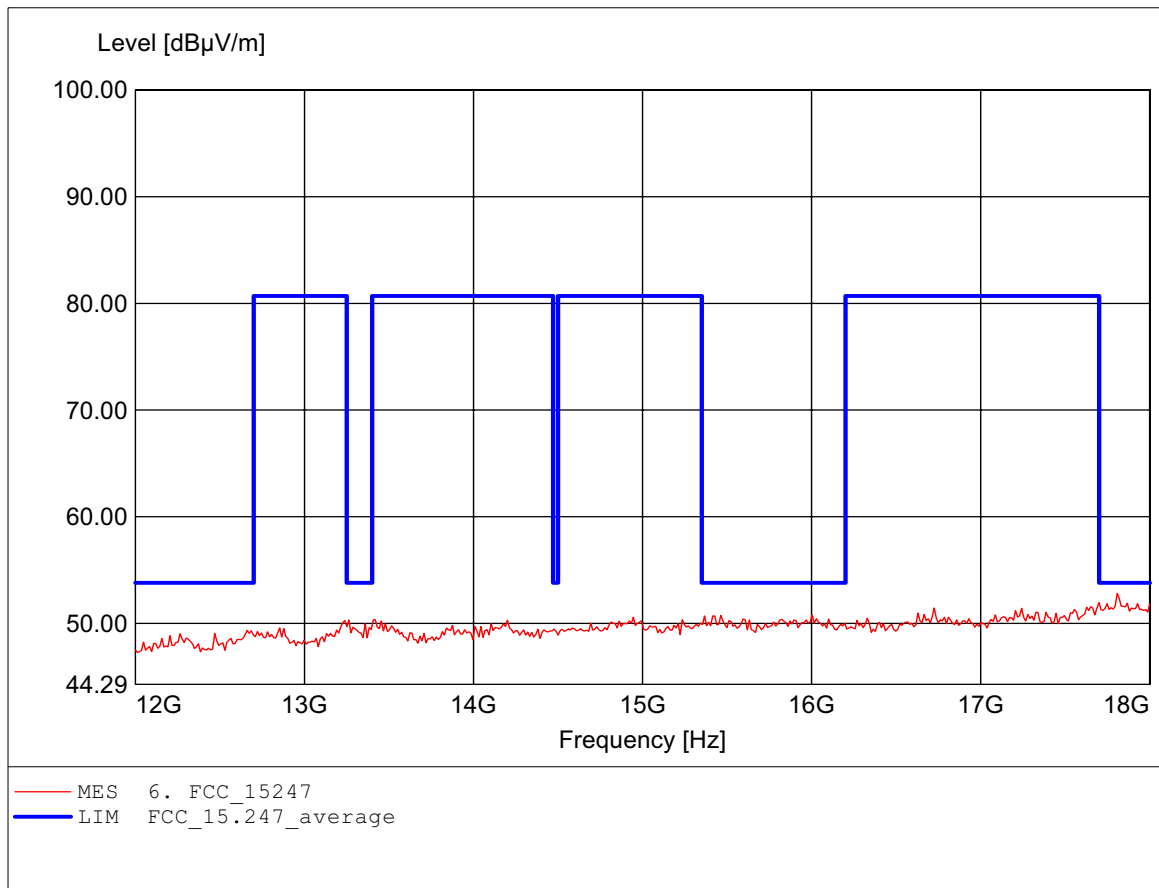
Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 11.928GHz, Emax: 48.87dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

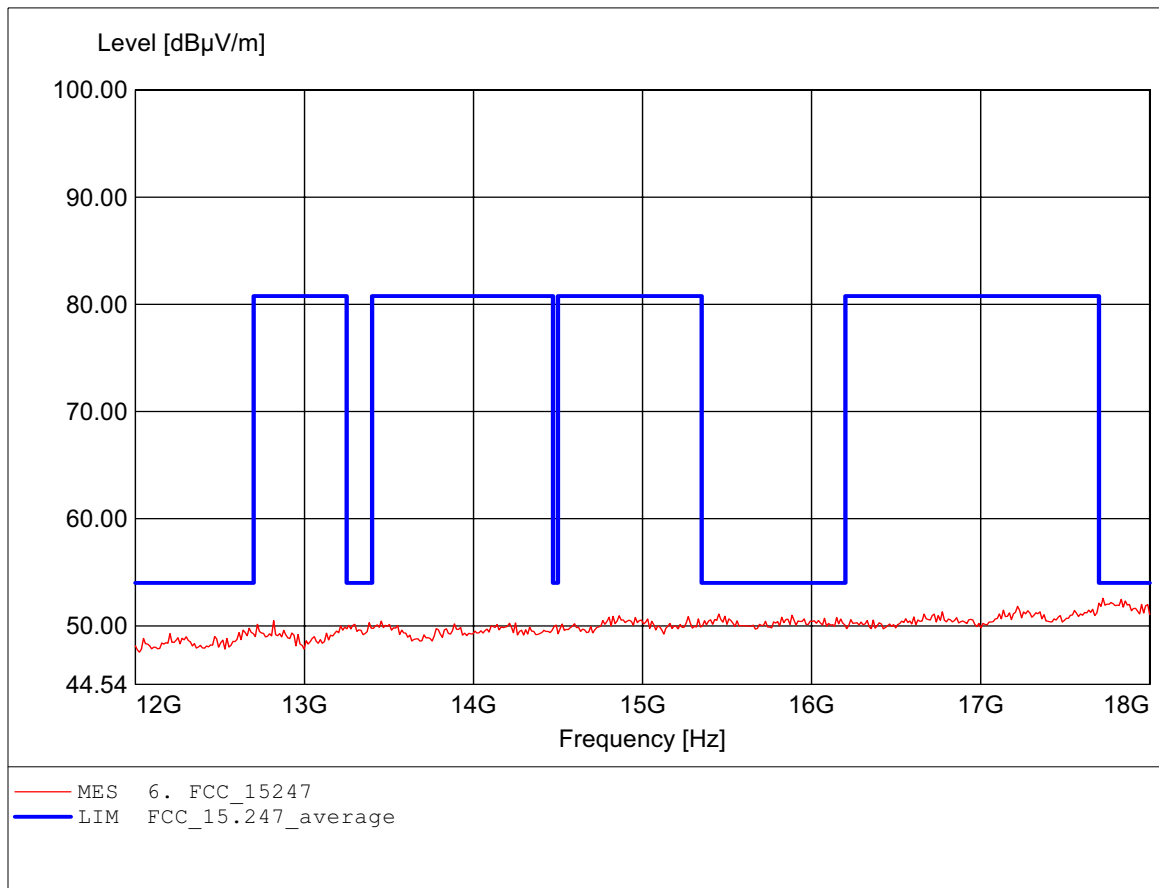
Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 17.808GHz, Emax: 52.80dBμV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

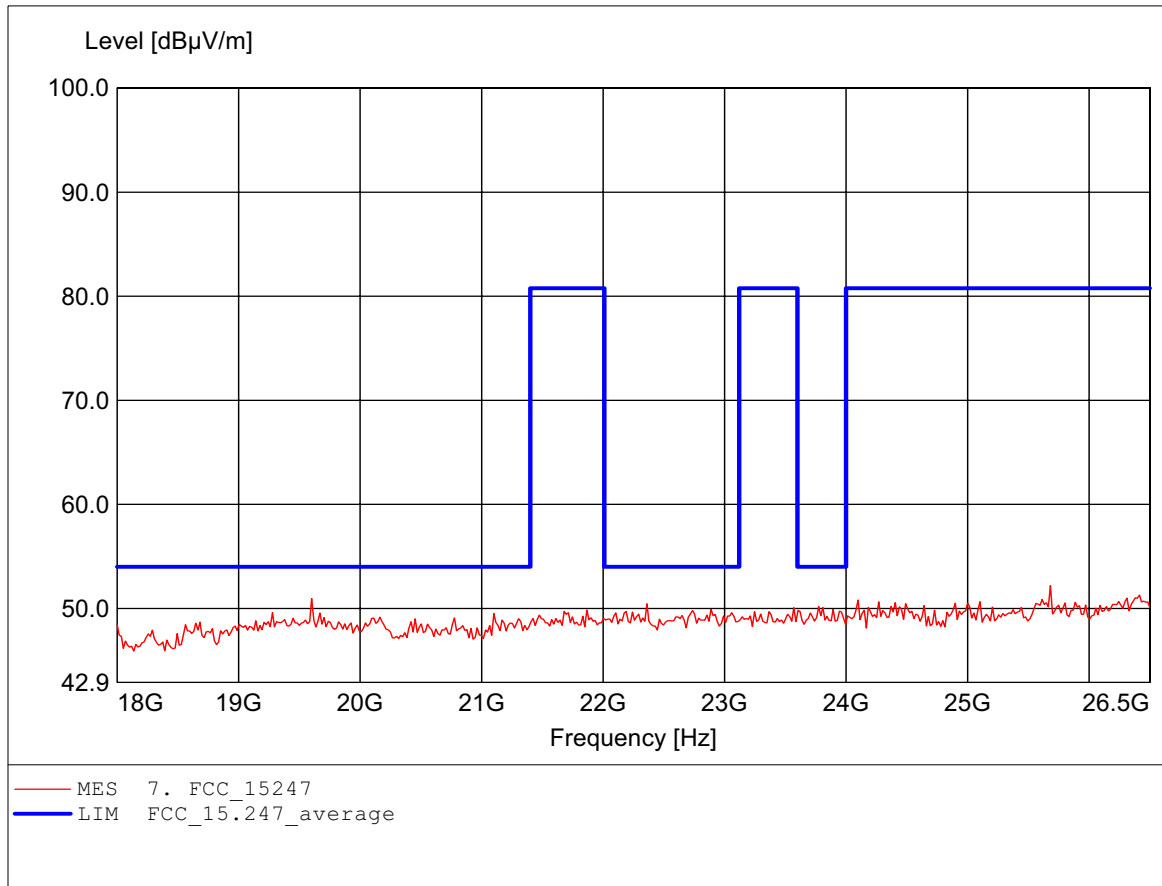
Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.
Freq: 17.723GHz, Emax: 52.57dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

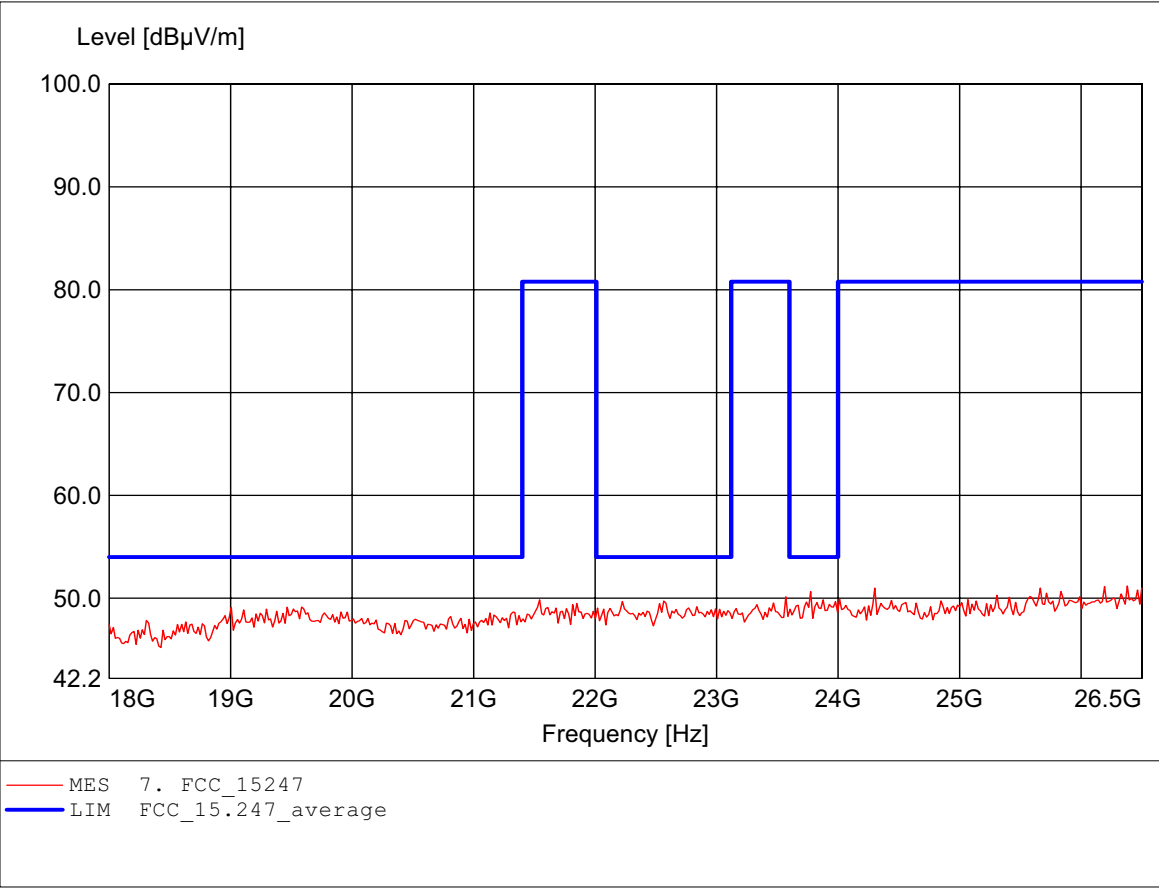
FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Freq: 25.682GHz, Emax: 52.20dBµV/m, RBW: 1MHz



Spurious emissions Field Strength
FCC RULES PART 15, SUBPART C / LP0002

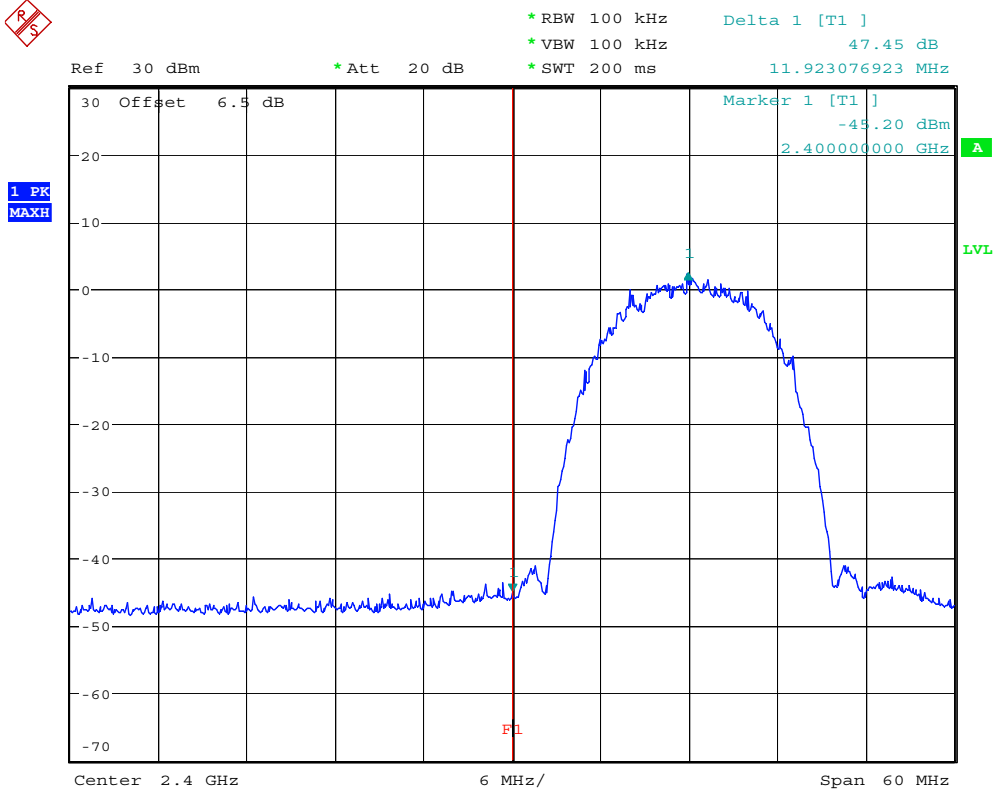
Order Number : W6M20607-7234 802.11b ch11
Test Site / Operator: ETS / Michael
Temperature: Temp.: 23.9°C
Test Specification: according to §15.247, peak detector
Comment 1: Dist.: 3m, Ant.: HL025, amplif.
Freq: 26.381GHz, Emax: 51.19dBµV/m, RBW: 1MHz



Registration number: W6M20607-7234-C-1
FCC ID: UK9SPICA

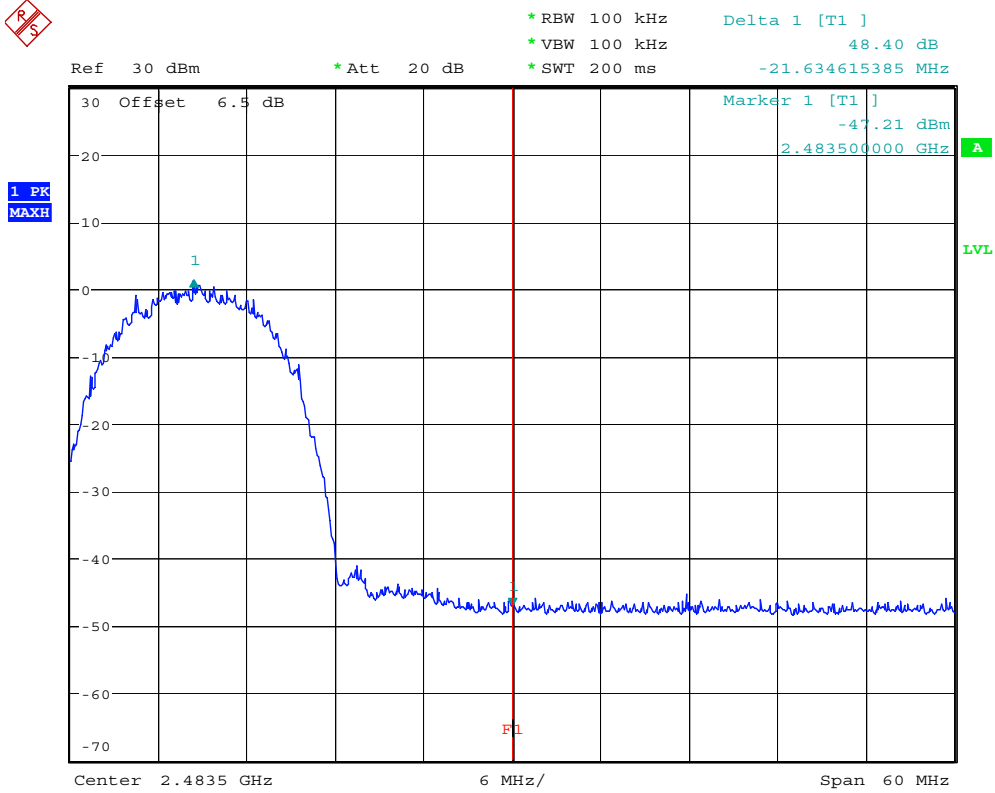
Appendix C

Band Edge Measurement



BANDEDGE 802.11B CH1

Date: 4.SEP.2006 10:32:34



BANDEDGE 802.11B CH11

Date: 4.SEP.2006 10:34:19

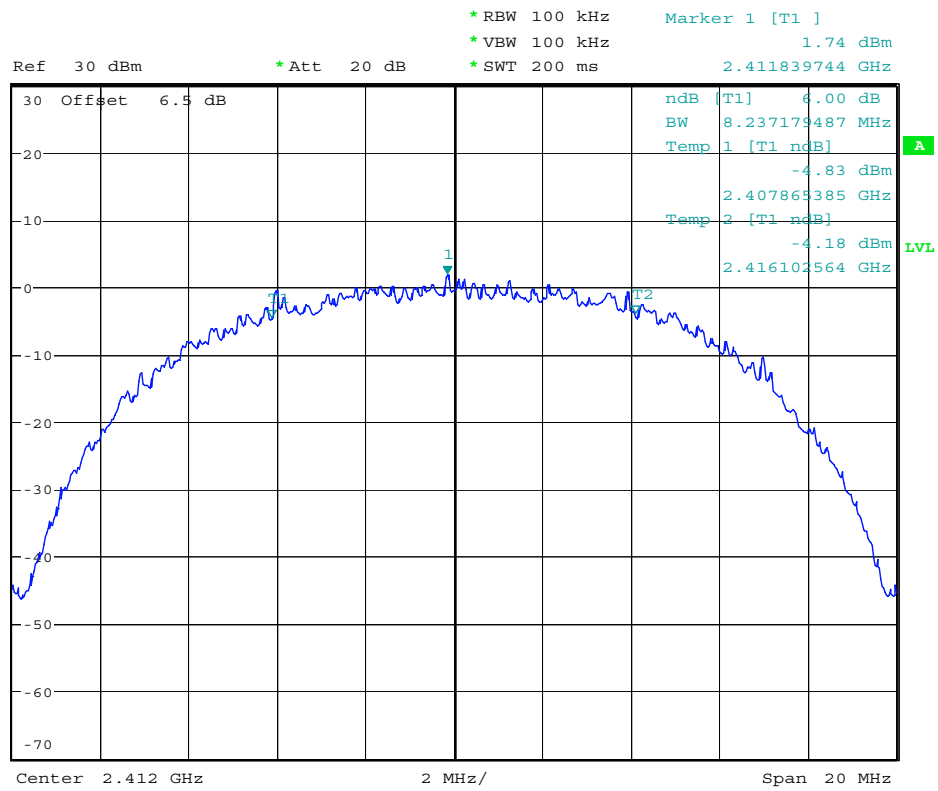
Registration number: W6M20607-7234-C-1
FCC ID: UK9SPICA

Appendix D

Minimum 6dB Bandwidth



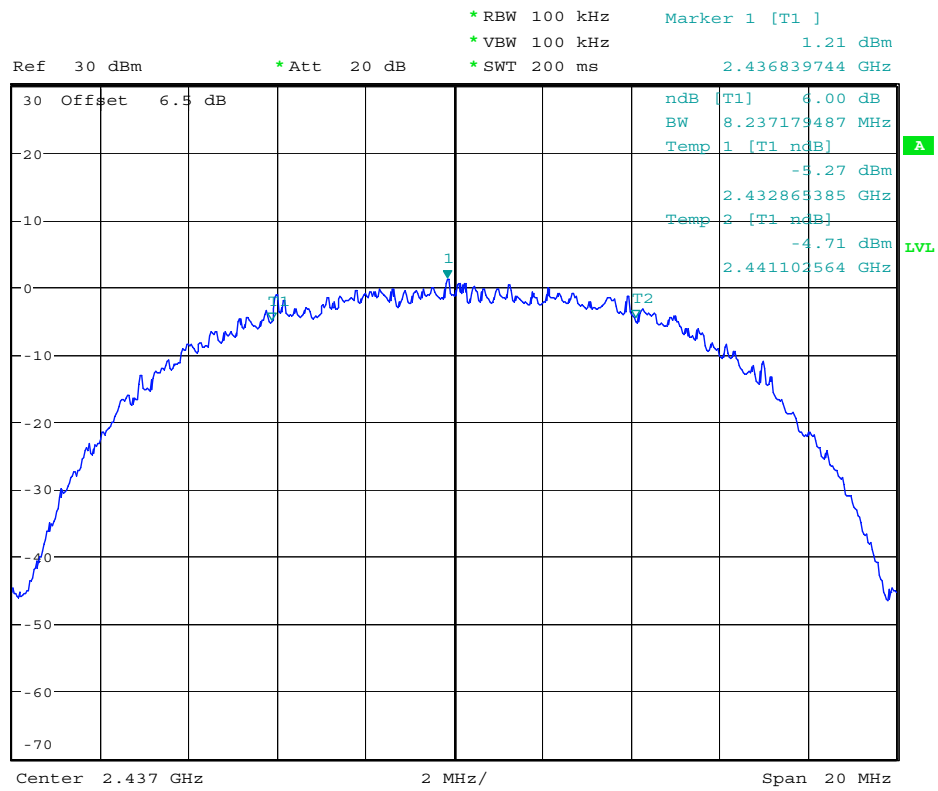
1 PK
MAXH



6dB BANDWIDTH 802.11B CH1
Date: 4.SEP.2006 10:48:44



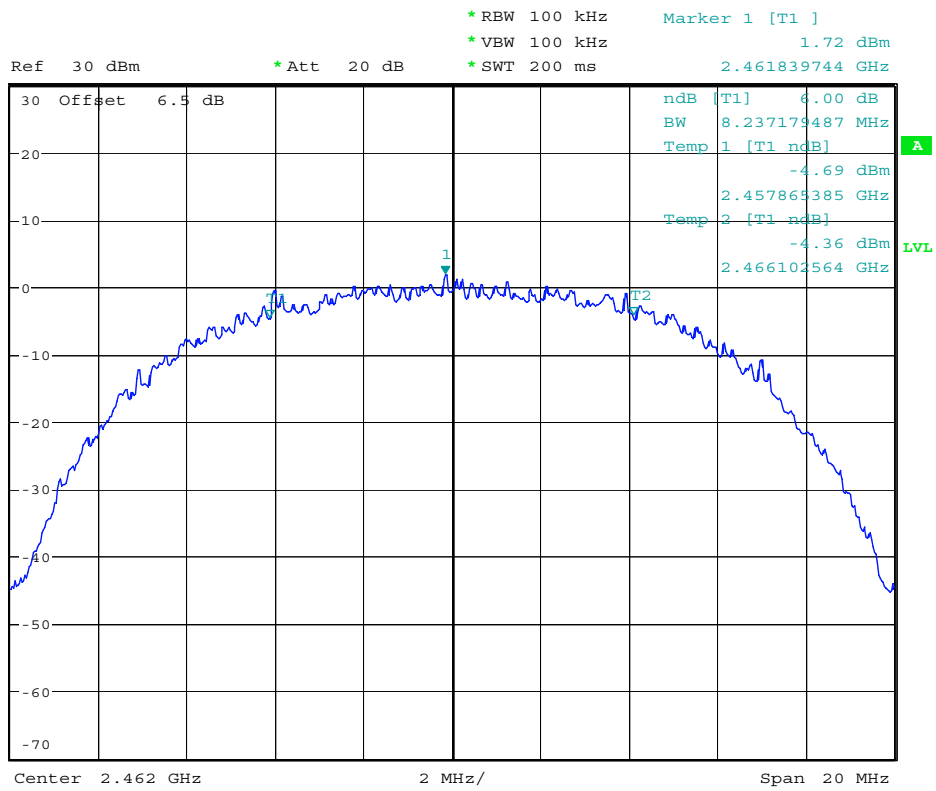
1 PK
MAXH



6dB BANDWIDTH 802.11B CH6
Date: 4.SEP.2006 10:48:07



1 PK
MAXH

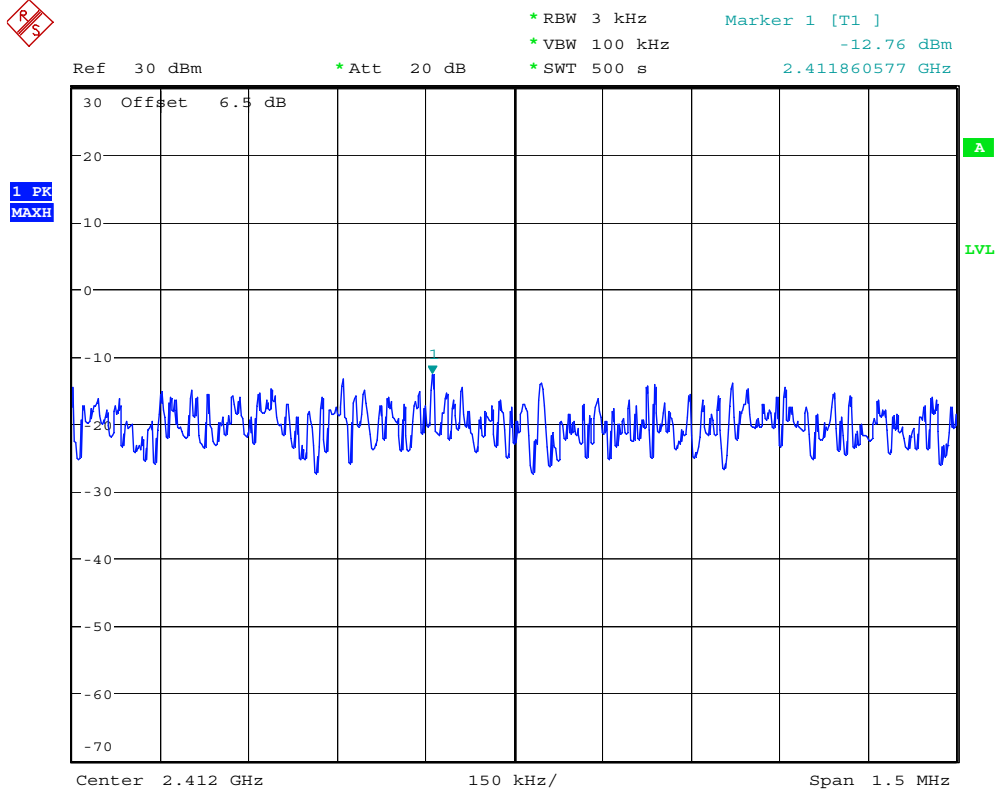


6dB BANDWIDTH 802.11B CH11
Date: 4.SEP.2006 10:47:05

Registration number: W6M20607-7234-C-1
FCC ID: UK9SPICA

Appendix E

Peak Power Spectral Density



POWER DENSITY 802.11B CH1
Date: 4.SEP.2006 10:29:47

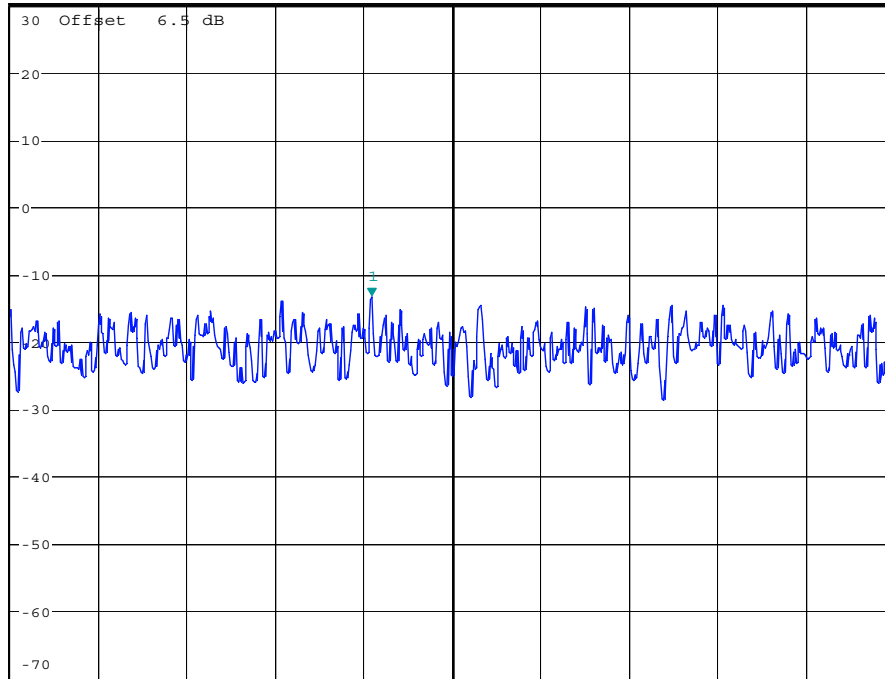


*RBW 3 kHz Marker 1 [T1]
*VBW 100 kHz -13.37 dBm
*SWT 500 s 2.436862981 GHz

Ref 30 dBm

*Att 20 dB

1 PK
MAXH



Center 2.437 GHz

150 kHz/

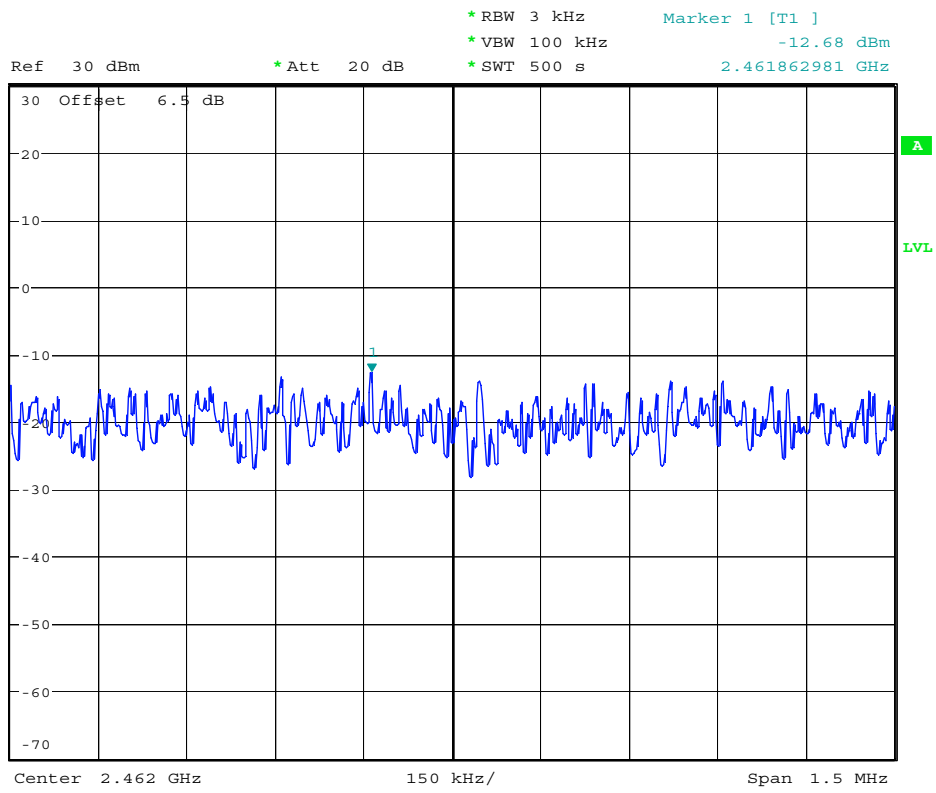
Span 1.5 MHz

POWER DENSITY 802.11B CH6

Date: 4.SEP.2006 10:28:41



1 PK
MAXH



POWER DENSITY 802.11B CH11

Date: 4.SEP.2006 10:27:13

Registration number: W6M20607-7234-C-1
FCC ID: UK9SPICA

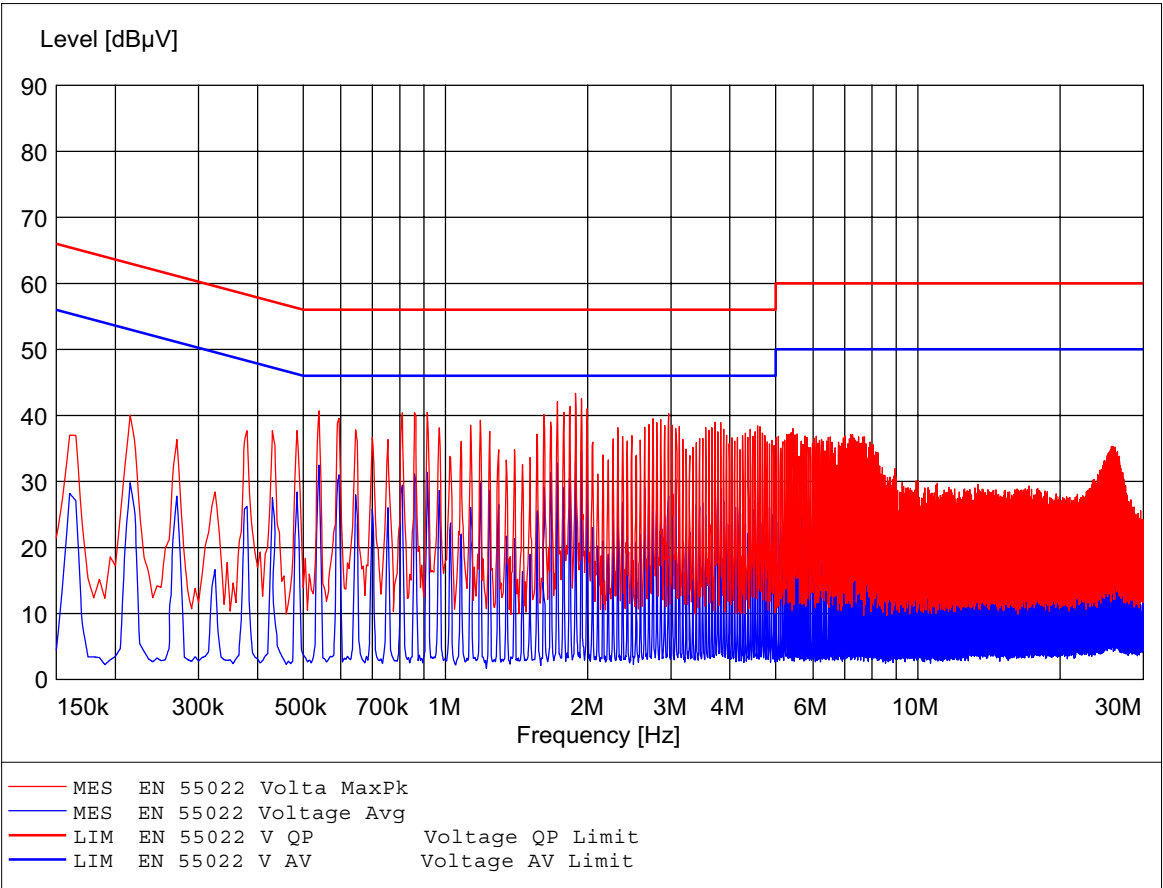
Appendix F

Power Line Conducted Emission

The measurement diagrams plots attached below are preliminary wideband scan with a quasi-peak and average detector for reference only. The final test results are listed on section 3.9

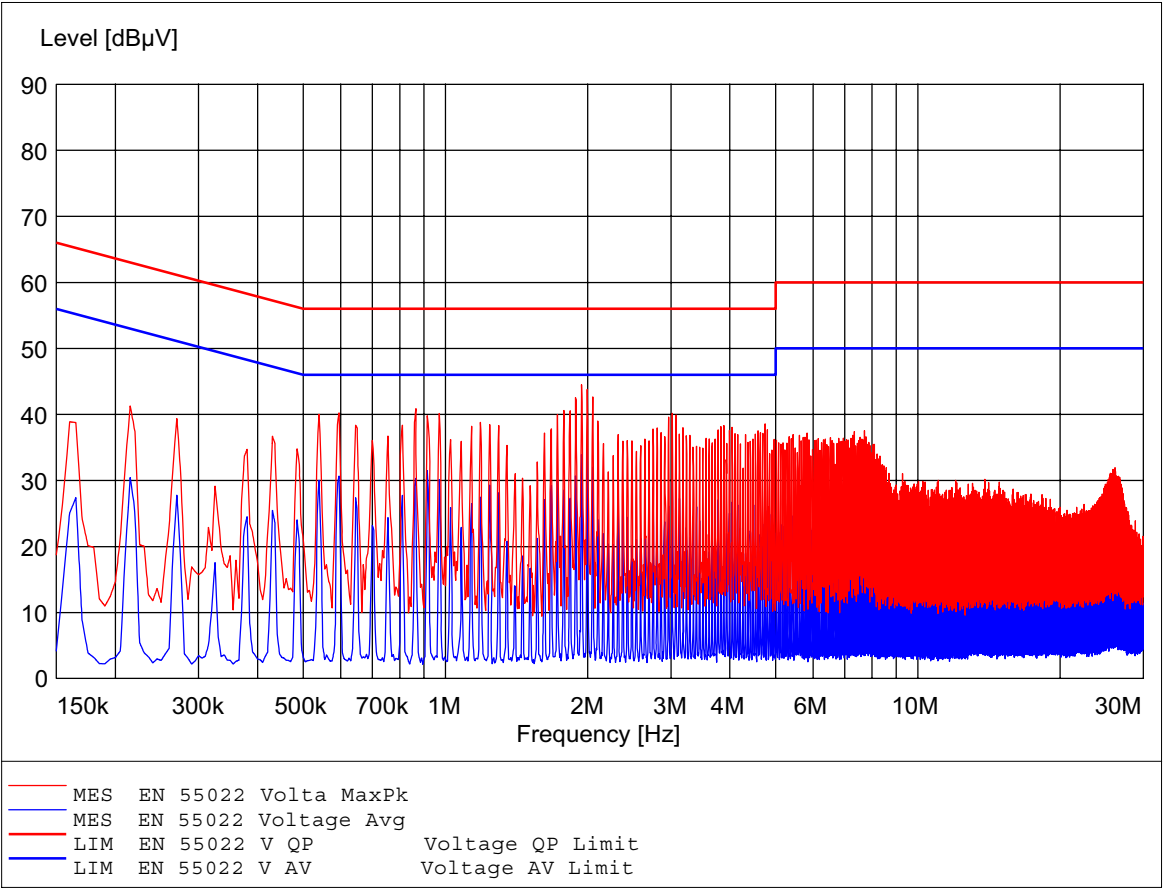
EMI voltage test in the ac-mains according to FCC PART 15
CLASS B

Order Number: W6M20607-7234 adaptor 1 mode
Operating Condition: Tnom: 23.9°C
Test Site: ETS
Operator: Jason
Test Specification: V-network: ESH3-Z5 N



EMI voltage test in the ac-mains according to FCC PART 15
CLASS B

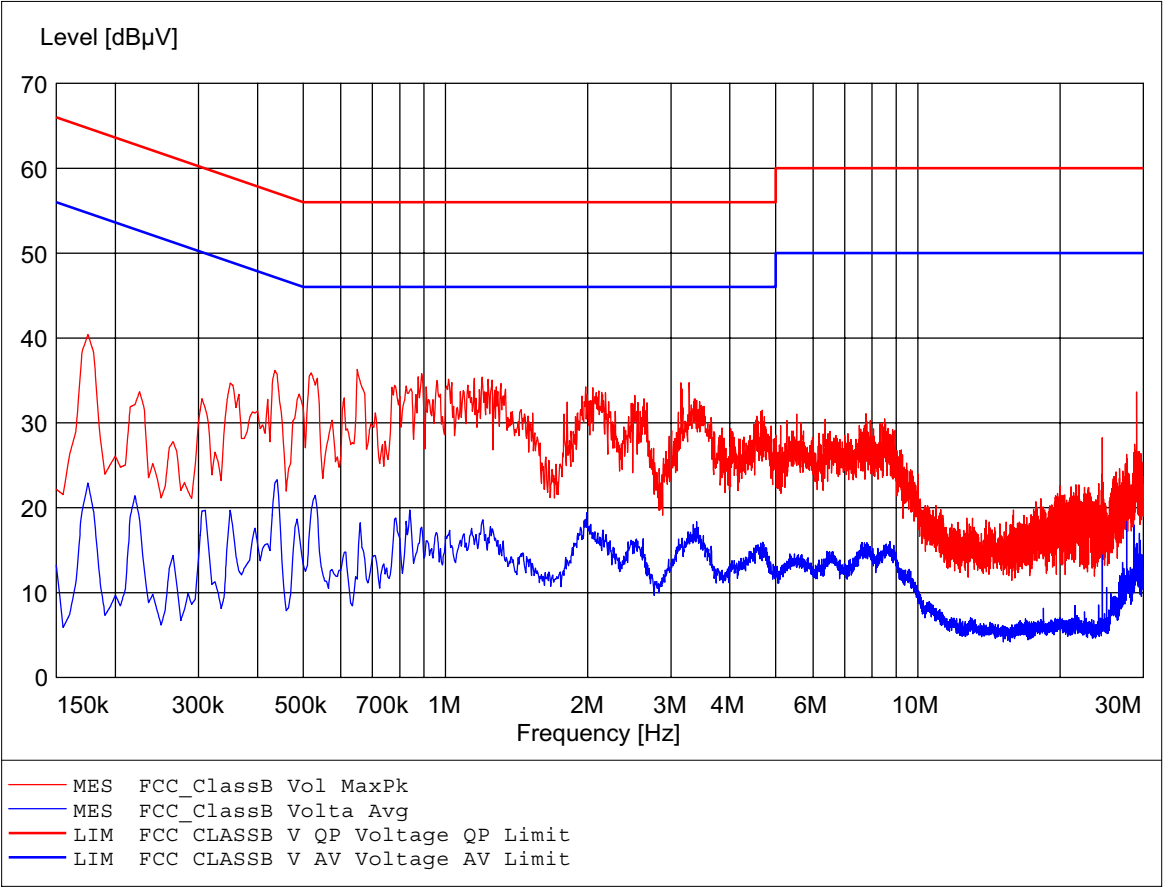
Order Number: W6M20607-7234 adaptor 1 mode
Operating Condition: Tnom: 23.9°C
Test Site: ETS
Operator: Jason
Test Specification: V-network: ESH3-Z5 L1



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

CLASS B

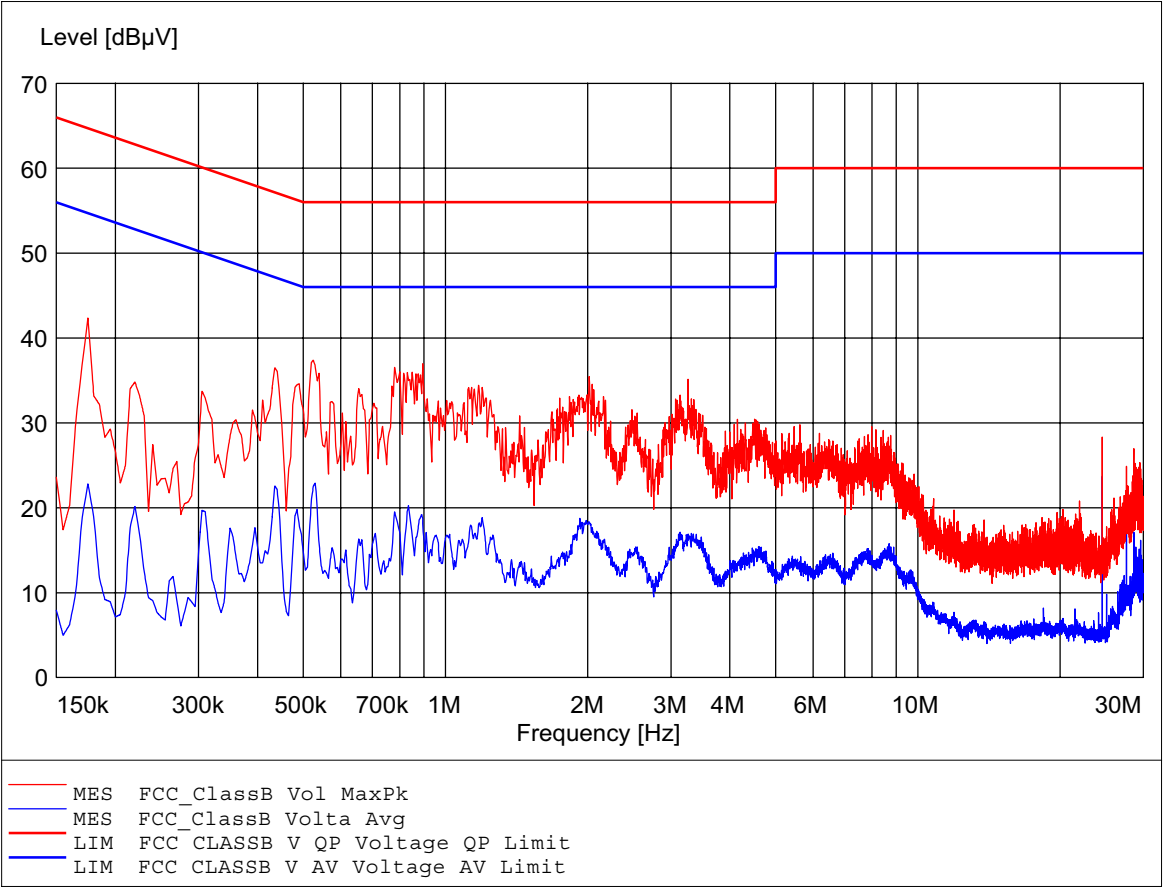
Order Number: W6M20607-7234 ADAPTOR 2 MODE
Operating Condition: Tnom: 23.9°C
Test Site: ETS
Operator: Danny
Test Specification: V-network: ESH3-Z5 N



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

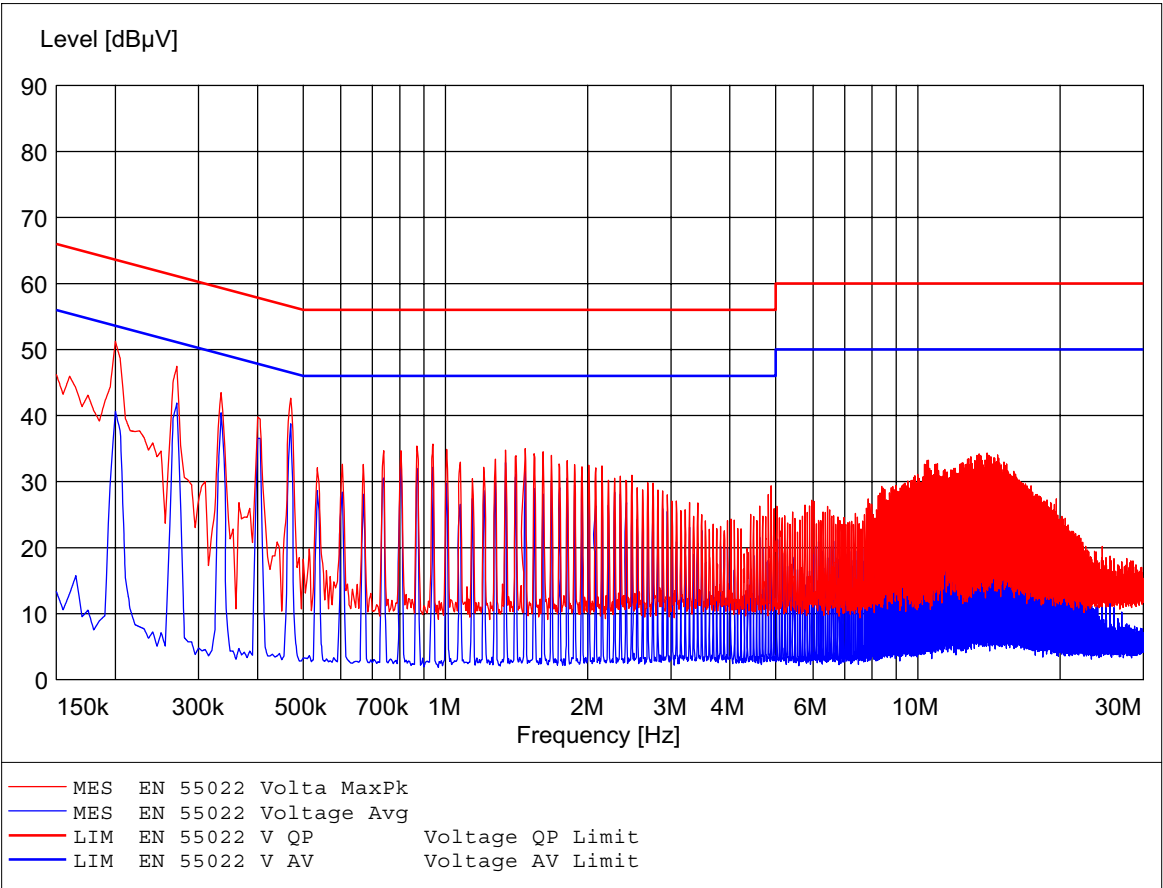
CLASS B

Order Number: W6M20607-7234 ADAPTOR 2 MODE
Operating Condition: Tnom: 23.9°C
Test Site: ETS
Operator: Danny
Test Specification: V-network: ESH3-Z5 L1



EMI voltage test in the ac-mains according to FCC PART 15
CLASS B

Order Number: W6M20607-7234 USB mode
Operating Condition: Tnom: 23.9°C
Test Site: ETS
Operator: Jason
Test Specification: V-network: ESH3-Z5 N



EMI voltage test in the ac-mains according to FCC PART 15
CLASS B

Order Number: W6M20607-7234 USB mode
Operating Condition: Tnom: 23.9°C
Test Site: ETS
Operator: Jason
Test Specification: V-network: ESH3-Z5 L1

