

**ETS Dr.GenZ Taiwan PS Co., Ltd.**

**FCC Registration No.: 930600**

**Industry Canada filed test laboratory Reg. No. IC 5679**

**Accredited Testing Laboratory**



**A2LA Cert.No.: 2300.01**

**PTCRB Accredited Type Certification Test House**

# **FCC TEST - REPORT**

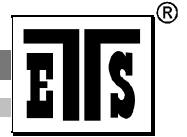
**FCC RULES PART 15 / SUBPART C**

**FCC ID: PNKWDA-105C**

**Test report no.: W6M20607-7203-C-1**

## TABLE OF CONTENTS

<b>1</b>	<b>GENERAL INFORMATION</b>	<b>3</b>
1.1	NOTES	3
1.2	TESTING LABORATORY	4
1.2.1	<i>Location</i>	4
1.2.2	<i>Details of accreditation status</i>	4
1.3	DETAILS OF APPROVAL HOLDER	4
1.4	APPLICATION DETAILS	5
1.5	GENERAL INFORMATION OF TEST ITEM	5
1.6	TEST STANDARDS	6
<b>2</b>	<b>TECHNICAL TEST</b>	<b>7</b>
2.1	SUMMARY OF TEST RESULTS	7
2.2	TEST ENVIRONMENT	7
2.3	TEST EQUIPMENT LIST	8
<b>3</b>	<b>TEST RESULTS (ENCLOSURE)</b>	<b>12</b>
3.1	PEAK OUTPUT POWER (TRANSMITTER)	13
3.2	EQUIVALENT ISOTROPIC RADIATED POWER	14
3.2.1	<i>Transmitter</i>	14
3.3	RF EXPOSURE COMPLIANCE REQUIREMENTS	14
3.4	TRANSMITTER RADIATED EMISSIONS IN RESTRICTED BANDS	15
3.5	SPURIOUS EMISSIONS (TX)	16
3.6	MINIMUM 6 dB BANDWIDTH	19
3.7	PEAK POWER SPECTRAL DENSITY	20
3.8	RADIATED EMISSIONS FROM RECEIVER SECTION OF TRANSCEIVER	21
3.9	POWER LINE CONDUCTED EMISSION	22
	<b>APPENDIX</b>	<b>23</b>
	APPENDIX A	24
	APPENDIX B	25
	APPENDIX C	26
	APPENDIX D	27
	APPENDIX E	28
	APPENDIX F	29
	APPENDIX G	30
	APPENDIX H	31



Registration number: W6M20607-7203-C-1  
 FCC ID: PNKWDA-105C

**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 is 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.

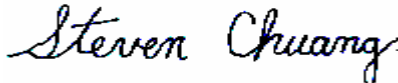
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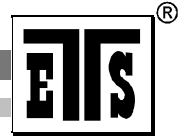
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**Tester:**

Aug. 02 2006		Jay Chaing	
Date	ETS-Lab.	Name	Signature

**Technical responsibility for area of testing:**

Aug. 02 2006		Steven Chuang	
Date	ETS	Name	Signature



Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

## **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.Genx 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**

**PTCRB Accredited Type Certification Test House**

## **1.3 Details of approval holder**

Name	: ELANSat Technologies Inc.
Street	: 5F, No.12, Innovation Rd.1 Hsinchu Science Park
Town	: Hsinchu 300
Country	: Taiwan, R.O.C.
Telephone	: +886-3-563-5105
Fax	: +886-3-563-5107

Registration number: W6M20607-7203-C-1

FCC ID: PNKWDA-105C

## 1.4 Application details

Date of receipt of application : July. 20, 2006  
Date of receipt of test item : July. 24, 2006  
Date of test : from July. 25, 2006 to Aug. 02, 2006

## 1.5 General information of Test item

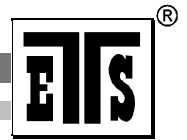
Type of test item : 2.4GHz Wireless Digital Audio  
Model Number : DIO-T105C  
Brand Name : ./.

Hardware : v1.0  
Software : ./.  
Serial number : ./.  
Photos : see Annex

## Technical data

Frequency band : 2400MHZ~2483.5MHZ  
Frequency ( ch A) : 2.410 GHz  
Frequency ( ch B) : 2.446 GHZ  
Frequency ( ch C) : 2.473 GHz  
Number of Channels : 8  
Operation modes : simplex  
Modulation Type : FSK

Fixed point-to-point operation:  Yes /  No  
Type of Antenna : Inverted F Antenna  
Antenna gain of Antenna : 0.87 dBi  
Power supply Input : 120 VAC ( ac/dc adaptor )  
Output : 9 VDC ( ac/dc adaptor )  
Emission designator : 3M3G1D



Registration number: W6M20607-7203-C-1  
 FCC ID: PNKWDA-105C

Host device: none

Classification :

Fixed Device	<input checked="" type="checkbox"/>
Mobile Device (Human Body distance > 20cm)	<input type="checkbox"/>
Portable Device (Human Body distance < 20cm)	<input type="checkbox"/>

**Transmitter**

**Unom**

**Power ( ch A)** : Conducted: 8.24 dBm  
**Power ( ch B)** : Conducted: 8.36 dBm  
**Power ( ch C)** : Conducted: 7.78 dBm

**Manufacturer:**

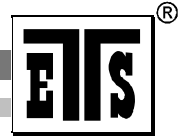
(if different from applicant)

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

Additional information: --

**1.6 Test standards**

Technical standard : FCC RULES PART 15 SUBPART B / SUBPART C § 15.247 : September 2005



Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

## **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 adaptor	Input	: 120 VAC ( ac/dc adaptor )
	Output	: 9 VDC ( ac/dc adaptor )
Extreme conditions parameters	:	--

Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

## 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	2005/10/27	2006/10/26
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	2005/10/25	2006/10/24
ETSTW-CE 005	Line-Impedance Stabilisation Network	NNBM 8126D	137	Schwarzbeck	2005/10/21	2006/10/20
ETSTW-CE 006	IMPULS-BEGRENZER PULSE LIMITER	ESH3-Z2	100226	R&S	2004/11/11	2006/11/10
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	2005/8/18	2006/8/17
ETSTW-CE 011	Power Line Conducted Emission Only	None	None	ETS	2005/10/25	2006/10/24
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	2005/10/24	2006/10/23
ETSTW-RE 004	EMI TEST RECEIVER	ESI 40	832427/004	R&S	2005/10/29	2006/10/30
ETSTW-RE 005	EMI TEST RECEIVER	ESVS10	843207/020	R&S	2005/10/16	2006/10/15
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	2005/10/14	2006/10/13
ETSTW-RE 022	AMPLIFIER	8447D	2944A09837	Agilent	2005/10/14	2006/10/13
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	2005/10/17	2006/10/16
ETSTW-RE 033	4CH 1GHz 5GS/s DSO	WAVERUNNER 6100A	LCRY0604P14508	LeCory	2005/8/11	2006/8/10
ETSTW-RE 034	Power Sensor	URV5-Z4	839313/006	R&S	2005/10/17	2006/10/16
ETSTW-RE 037	Log-Periodic DipoleArray Antenna	3148	00034546	EMCO	2004/11/18	2006/11/17
ETSTW-RE 038	Log-Periodic DipoleArray Antenna	3148	00034547	EMCO	2004/11/18	2006/11/17
ETSTW-RE 039	Biconical Antenna	3110B	41760	EMCO	2004/11/18	2006/11/17



Registration number: W6M20607-7203-C-1

FCC ID: PNKWDA-105C

ETSTW-RE 040	Biconical Antenna	3110B	41761	EMCO	2004/11/18	2006/11/17
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
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	2005/9/6	2006/9/5
ETSTW-EMI 001	HARMONICS 1000	HAR1000-1P	93	EMC-PARTNER	2005/9/12	2006/9/11
ETSTW-EMS 002	Frequency Converter	YF-6020	0308014	T-Power	Function Test	
ETSTW-GSM 01	SIM Simulator	IT3	B2004-50106	ORGA	2005/9/15	2006/9/14
ETSTW-GSM 02	Universal Radio Communication Tester	CMU 200	103489	R&S	2005/11/15	2006/11/14
ETSTW-GSM 03	Agilent 8960 Test Set 1	E5515C	GB44052675	Agilent	2006/7/13	2008/7/12
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	2006/7/16	2008/7/15
ETSTW-GSM 07	Agilent 8960 Test Set 5	E5515C	GB44052658	Agilent	2006/7/13	2008/7/12
ETSTW-GSM 08	Agilent 8960 Test Set 6	E5515C	GB44052666	Agilent	2006/7/16	2008/7/15
ETSTW-GSM 10	Combiner Wessex / Anite	B4605/100	053	Wessex / Anite	2006/7/13	2008/7/12
ETSTW-GSM 11	GSM 850,900,1800,1900 Test system	TS8950G		R&S	2005/11/1	2006/10/31
ETSTW-GSM 12	Acoustical Calibrator	4231	2463874	Brüel&Kjær	2005/10/31	2006/10/30
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	2005/10/29	2006/10/28
ETSTW-GSM 24	Vibration Testing System	VS-100V	5494	Vibration	2005/12/20	2006/12/19

Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

## 2.4 General Test Procedure

**POWER LINE CONDUCTED INTERFERENCE:** The procedure used was ANSI STANDARD C63.4-2003 using a 50 $\mu$ 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 $\mu$ V) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB.

Example:

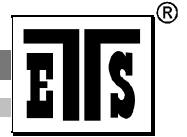
Freq (MHz)	METER READING + ACF + CABLE LOSS (to the receiver) = FS
33	20 dB $\mu$ V + 10.36 dB + 6 dB = 36.36 dB $\mu$ V/m @3m

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 C63.4-2003 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.Genx 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.



Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

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

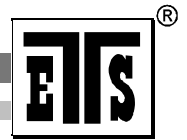
Duty Factor =  $20 \log(\text{dwell time}/T)$

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 Inverted F Antenna. (see photos)**

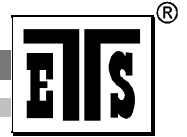


Registration number: W6M20607-7203-C-1  
 FCC ID: PNKWDA-105C

**3 Test results (enclosure)**

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

The follows is intended to leave blank.



Registration number: W6M20607-7203-C-1  
 FCC ID: PNKWDA-105C

**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
		[dBm]	[dBm]	[dBm]
$T_{nom} = 23^{\circ}C$	$V_{nom} = 120\ V$	8.24	8.36	7.78
Measurement uncertainty		< 3 dB		

Test condition	Signal Field strength TX highest power mode
$T_{nom} = 23^{\circ}C, V_{nom} = 120\ V$	dB $\mu V/m$
Frequency [MHz]	
2472	98.67
Measurement uncertainty	< 3 dB

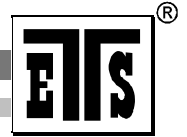
Remarks: The diagrams for the field strength measurements are included in Appendix.

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 dBi and using fixed point-to-point operation consider §15.247 (b)(4)

Test equipment used: ETSTW-RE 003 , ETSTW-RE 012 , ETSTW-RE 017 , ETSTW-RE 024



Registration number: W6M20607-7203-C-1  
 FCC ID: PNKWDA-105C

**3.2 Equivalent isotropic radiated power**

FCC Rule: 15.247(b)(3)

EIRP = max. conducted output power + antenna gain  
 EIRP = 8.36 dBm + 0.87 dBi  
 = 9.23 dBm

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

**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

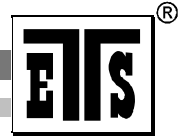
D – Cable Loss

AG – Antenna Gain G = AG-D

Item	Unit	Value	Remarks
P	mW	6.85488	Peak value
D	dB		
AG	dBi	1.3	
G		0.87	Calculated Value
R	cm	20	Assumed value
S	mW/cm <sup>2</sup>	0.001186	Calculated value

Limits:

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



Registration number: W6M20607-7203-C-1  
 FCC ID: PNKWDA-105C

**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.

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

Remarks: see attached diagrams

Test equipment used: ETS 0125, ETS 0271

Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

### 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

98.67 dB  $\mu$  V/m- 20 dB= 78.67 dB  $\mu$  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)

78.67 dB  $\mu$  V/m

For frequencies above 1GHz (Average measurements).

Max. reading – 20dB

No duty cycle correction was added to the reading

98.67 dB  $\mu$  V/m- 20 dB= 78.67 dB  $\mu$  V/m

Remarks: see attached diagrams

Test equipment used: ETSTW-RE 003 , ETSTW-RE 012 , ETSTW-RE 015,  
ETSTW-RE 016 , ETSTW-RE 017 , ETSTW-RE 024



Registration number: W6M20607-7203-C-1

FCC ID: PNKWDA-105C

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

#### Low Channel

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	2390	34.78	2.08	PK	36.86	74	37.14	68	162
	2390	21.3	2.08	AV	23.38	54	30.62	68	162
	4817.7213	43.54	4.58	PK	48.12	54	5.88	131	189
	9643.3182	38.39	10.62	PK	49.01	54	4.99	201	173

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	2390	34.93	2.08	PK	37.01	74	36.99	61	149
	2390	21.40	2.08	AV	23.48	54	30.52	61	149
	4817.7312	41.71	4.56	PK	46.27	54	7.73	140	172

#### Middle Channel

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	4889.7854	44.75	3.46	PK	48.21	54	5.79	13	141
	7446.8815	45.81	6.31	PK	52.12	54	1.88	41	157
	9787.5421	38.32	10.81	PK	49.13	78.67	29.54	111	148

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	4889.7851	43.68	3.44	PK	47.12	54	6.88	214	151
	7446.8914	45.22	6.34	PK	51.56	54	2.44	211	140
	11647.2911	38.55	11.01	PK	49.56	54	4.44	112	174

Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

### High Channel

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	2488.7500	54.56	-1.32	PK	53.24	74	20.76	58	172
	2488.7500	50.63	-1.32	AV	49.31	54	4.69	58	172
	4945.8725	45.07	3.45	PK	48.52	54	5.48	125	192
	7422.8451	46.20	6.31	PK	52.51	54	1.49	111	173
	9891.7542	37.79	10.74	PK	48.53	78.67	30.14	212	141

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	2488.7409	55.89	-1.33	PK	54.56	74	19.44	237	142
	2488.7409	52.70	-1.33	AV	51.37	54	2.63	237	142
	4945.8473	45.09	3.45	PK	48.54	54	5.46	114	157

- 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:

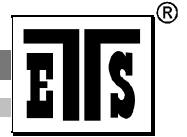
- 1: 30 - 200 MHz
- 2: 200 - 1000 MHz
- 3: 1 - 4 GHz
- 4: 4 - 8 GHz
- 5: 8 - 12 GHz
- 6: 12 - 17 GHz
- 7: 17 - 26.5 GHz

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.

Comment: see attached diagrams

Test equipment used: ETSTW-RE 003, ETSTW-RE 015, ETSTW-RE 016, ETSTW-RE 017, ETSTW-RE 024



Registration number: W6M20607-7203-C-1  
 FCC ID: PNKWDA-105C

**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.

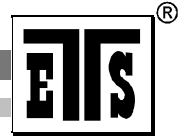
Test conditions		6 dB Bandwidth		
		Channel A	Channel B	Channel C
$T_{nom} = 23^{\circ}C$	$V_{nom} = 120 V$	1.923076 MHz	1.923076 MHz	2.307692 MHz
Measurement uncertainty			< 10 Hz	

**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-CE 003 , ETSTW-RE 003

Comment: see attached diagram



Registration number: W6M20607-7203-C-1  
 FCC ID: PNKWDA-105C

**3.7 Peak Power Spectral Density**

Peak Power Spectral density is a 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, appreciate frequency span and sweep time.

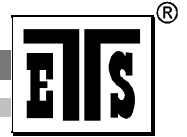
Test conditions		Peak Power Spectral Density (3 kHz)		
		Channel A [dBm]	Channel B [dBm]	Channel C [dBm]
$T_{nom} = 23^{\circ}C$	$V_{nom} = 120\ V$	-0.17	-2.21	-2.61
Measurement uncertainty		< 3 Hz		

**Limits:**

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

Test equipment used: ETSTW-CE 003 , ETSTW-RE 003

Comment: see attached diagram



Registration number: W6M20607-7203-C-1  
 FCC ID: PNKWDA-105C

**3.8 Radiated Emissions from Receiver Section of Transceiver**

FCC Rule: 15.109

**Summary table with radiated data of the test plots**

Antenna Polarization	Frequency Marker (MHz)	Corrected Reading (dBuV)		Correction Factor (dB)	Test Result (dBuV/m)		Compliance Limit (dBuV/m)	Margin (dB)		Table Azimuth (degree)	Antenna Height (cm)
		PK	QP		PK	QP		PK	QP		
H	35.540	0.47	--	12.54	13.01	--	30.0	16.99	--	33	315
	135.911	2.49	--	13.75	16.24	--	30.0	13.76	--	105	324
	225.749	4.76	--	12.36	17.12	--	30.0	12.88	--	215	300
	315.198	10.53	--	15.64	26.17	--	37.0	10.83	--	311	241

Antenna Polarization	Frequency Marker (MHz)	Corrected Reading (dBuV)		Correction Factor (dB)	Test Result (dBuV/m)		Compliance Limit (dBuV/m)	Margin (dB)		Table Azimuth (degree)	Antenna Height (cm)
		PK	QP		PK	QP		PK	QP		
V	32.910	1.62	--	12.37	13.99	--	30.0	16.01	--	40	192
	135.782	2.46	--	13.75	16.21	--	30.0	13.79	--	101	214
	315.513	9.51	--	15.64	25.15	--	37.0	11.85	--	312	250
	496.715	7.12	--	20.01	27.13	--	37.0	9.87	--	51	317

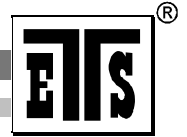
- Note**
1. Correction Factor = Antenna factor + Cable loss - Preamplifier
  2. The formula of measured value as: Test Result = Corrected Reading + Correction Factor
  3. Detector function in the form : P = Peak, QP = Quasi Peak, AV = Average

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 015, ETSTW-RE 016, ETSTW-RE 017, ETSTW-CS 001, ETSTW-RE 026, ETSTW-RE 003, ETSTW-RE 025

Comment: see attached diagram



Registration number: W6M20607-7203-C-1  
 FCC ID: PNKWDA-105C

**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 (dBµV)	
	quasi-peak	average
150 kHz	lower limit line	Lower limit line

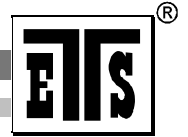
LISN type	Frequency Marker	Corrected Reading (dBuV)		Correction Factor	Test Result (dBuV)		Compliance Limit (dBuV)		Margin (dB)	
		QP	AV		dB	QP	AV	QP	AV	QP
N	MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	0.150	24.70	0.11	10.10	34.80	10.21	66.0	56.0	31.20	45.79
	0.805	10.93	0.38	10.10	21.03	10.48	56.0	46.0	34.97	35.52
	24.655	8.01	0.52	10.10	18.11	10.62	60.0	50.0	41.89	39.38

LISN type	Frequency Marker	Corrected Reading (dBuV)		Correction Factor	Test Result (dBuV)		Compliance Limit (dBuV)		Margin (dB)	
		QP	AV		dB	QP	AV	QP	AV	QP
L1	MHz	QP	AV	dB	QP	AV	QP	AV	QP	AV
	0.175	24.00	0.36	10.10	34.10	10.46	64.7	54.7	30.62	44.26
	0.540	21.41	0.57	10.10	31.51	10.67	56.0	46.0	24.49	35.33
	12.835	5.49	0.77	10.10	15.59	10.87	60.0	50.0	44.41	39.13

**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 004, ETSTW-CE 001, ETSTW-RE 023  
 Comment: see attached diagram



Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

## **Appendix**

- A Peak Output Power
- B Spurious Emissions radiated
- C Band Edge Measurement
- D Minimum 6dB Bandwidth
- E Peak Power Spectral Density
- F Radiated Emissions from Receiver Section of Transceiver
- G Power Line Conducted Emission
- H Pictures



Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

## Appendix A

### Peak Output Power

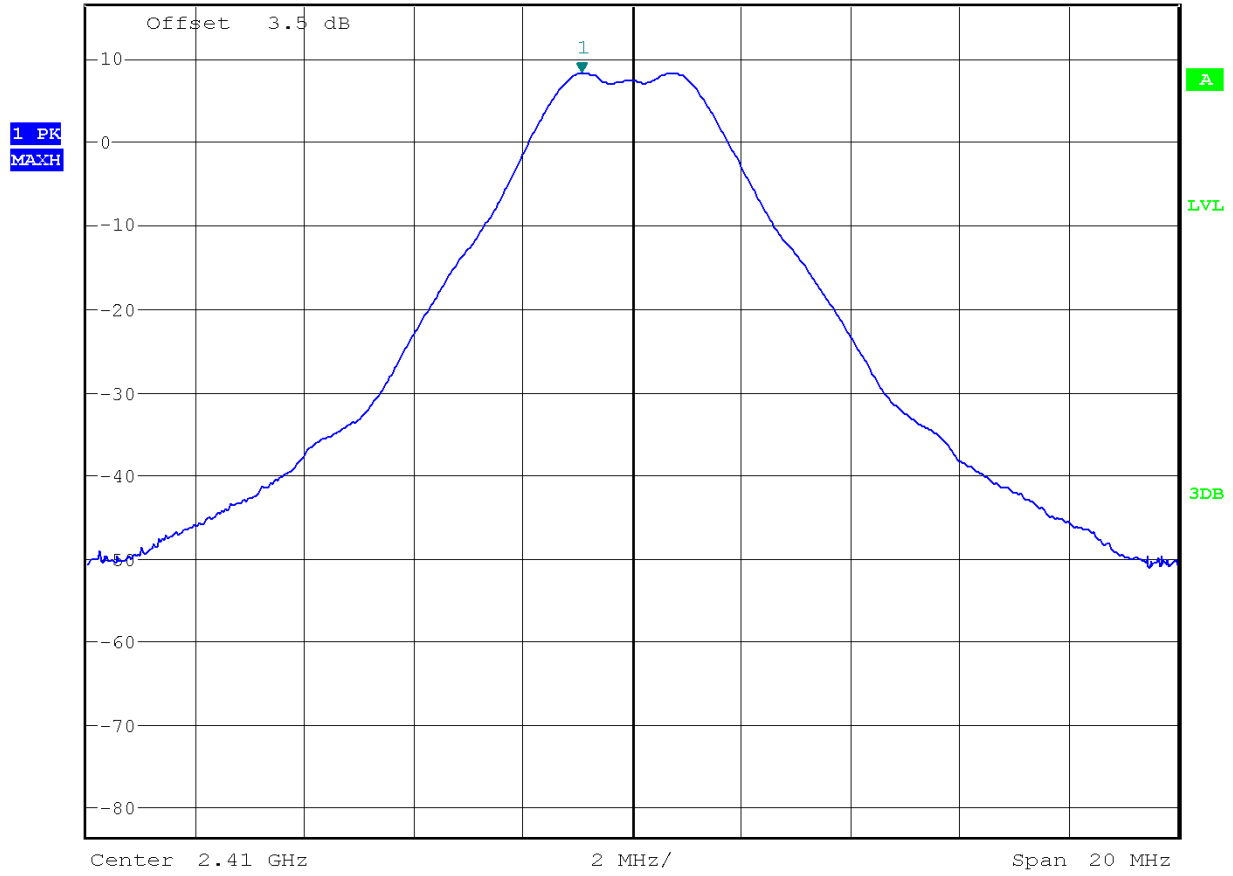
**The measurement diagram are wideband pre-scan results; only for reference.**





\*RBW 1 MHz      Marker 1 [T1 ]  
\*VBW 3 MHz      8.24 dBm  
\*SWT 200 ms      2.409070513 GHz

Ref 16.5 dBm      \*Att 10 dB



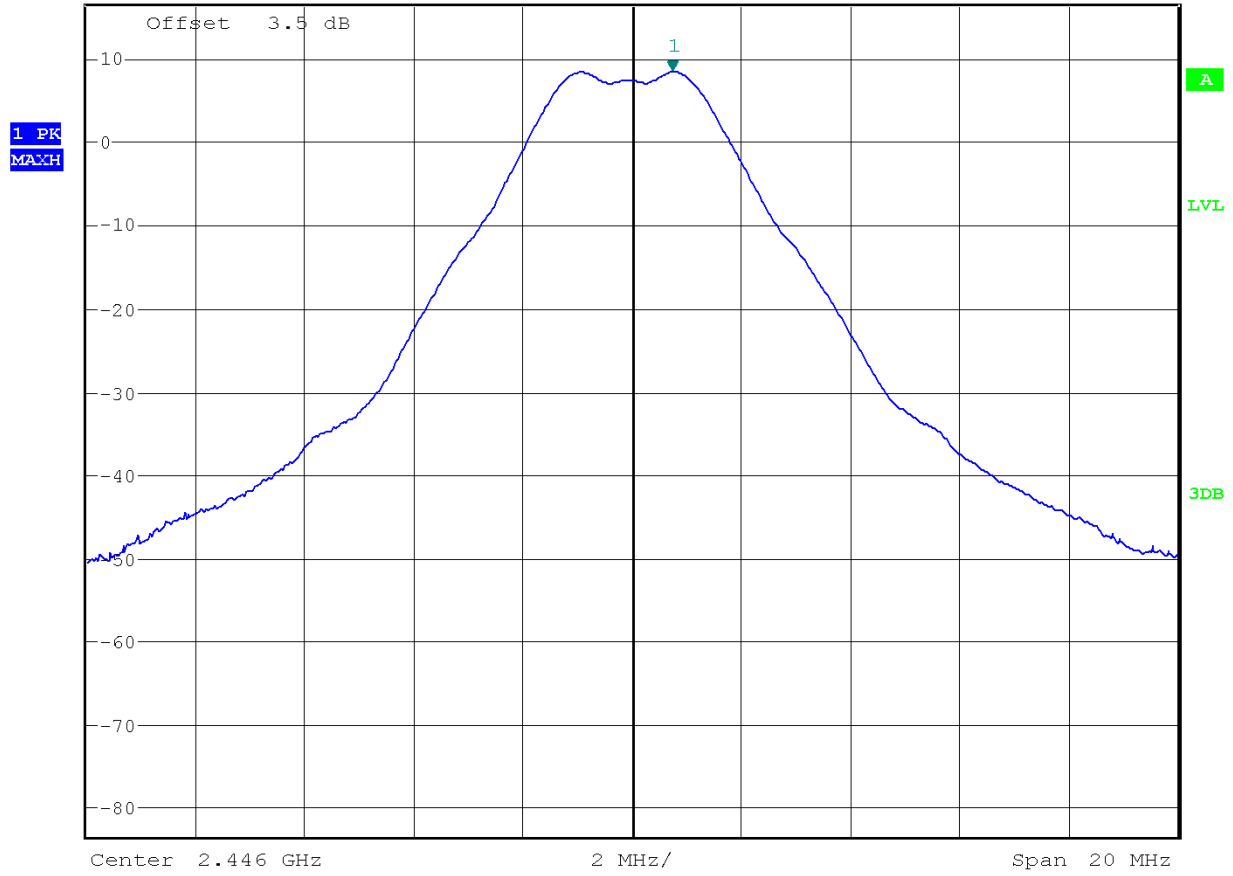
MAX OUTPUT POWER CH1

Date: 26.JUL.2006 08:56:48



\*RBW 1 MHz      Marker 1 [T1 ]  
\*VBW 3 MHz      8.36 dBm  
\*SWT 200 ms      2.446737179 GHz

Ref 16.5 dBm      \*Att 10 dB

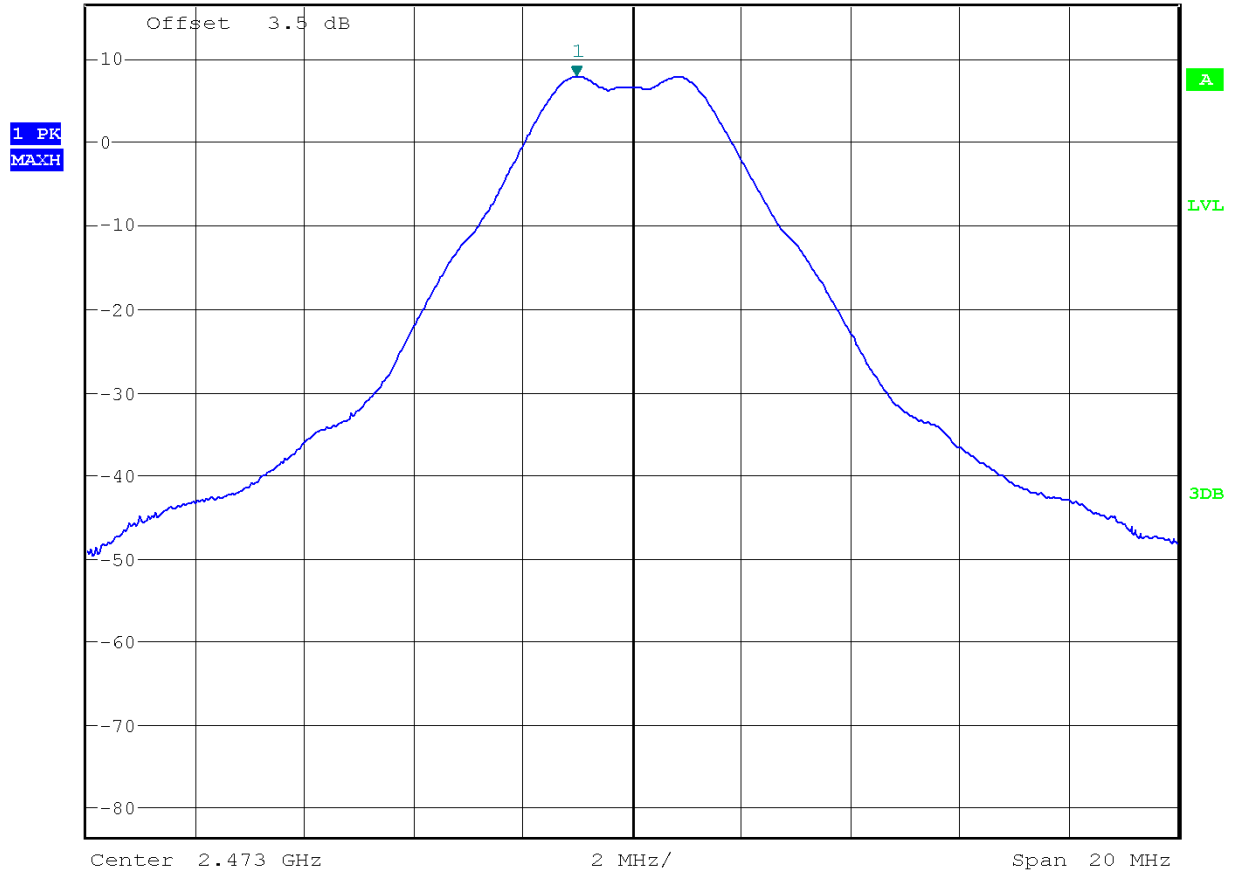


MAX OUTPUT POWER CH5

Date: 26.JUL.2006 08:52:18



Ref 16.5 dBm      \*Att 10 dB      \*RBW 1 MHz      Marker 1 [T1 ]  
\*VBW 3 MHz      7.78 dBm  
\*SWT 200 ms      2.471974359 GHz



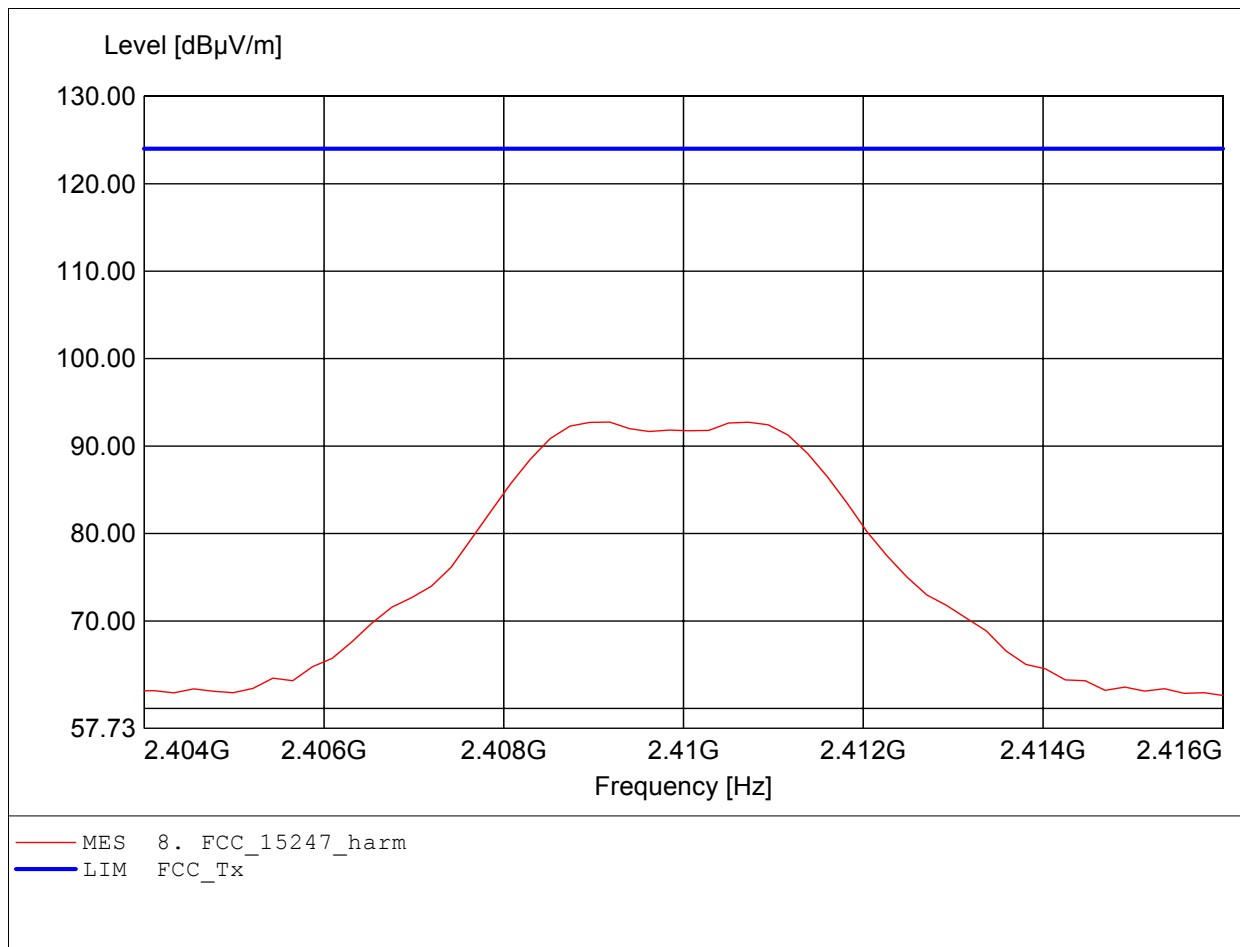
MAX OUTPUT POWER CH8

Date: 26.JUL.2006 08:56:07

**Carrier power (Field Strength)**

**FCC RULES PART 15, SUBPART C / LP0002**

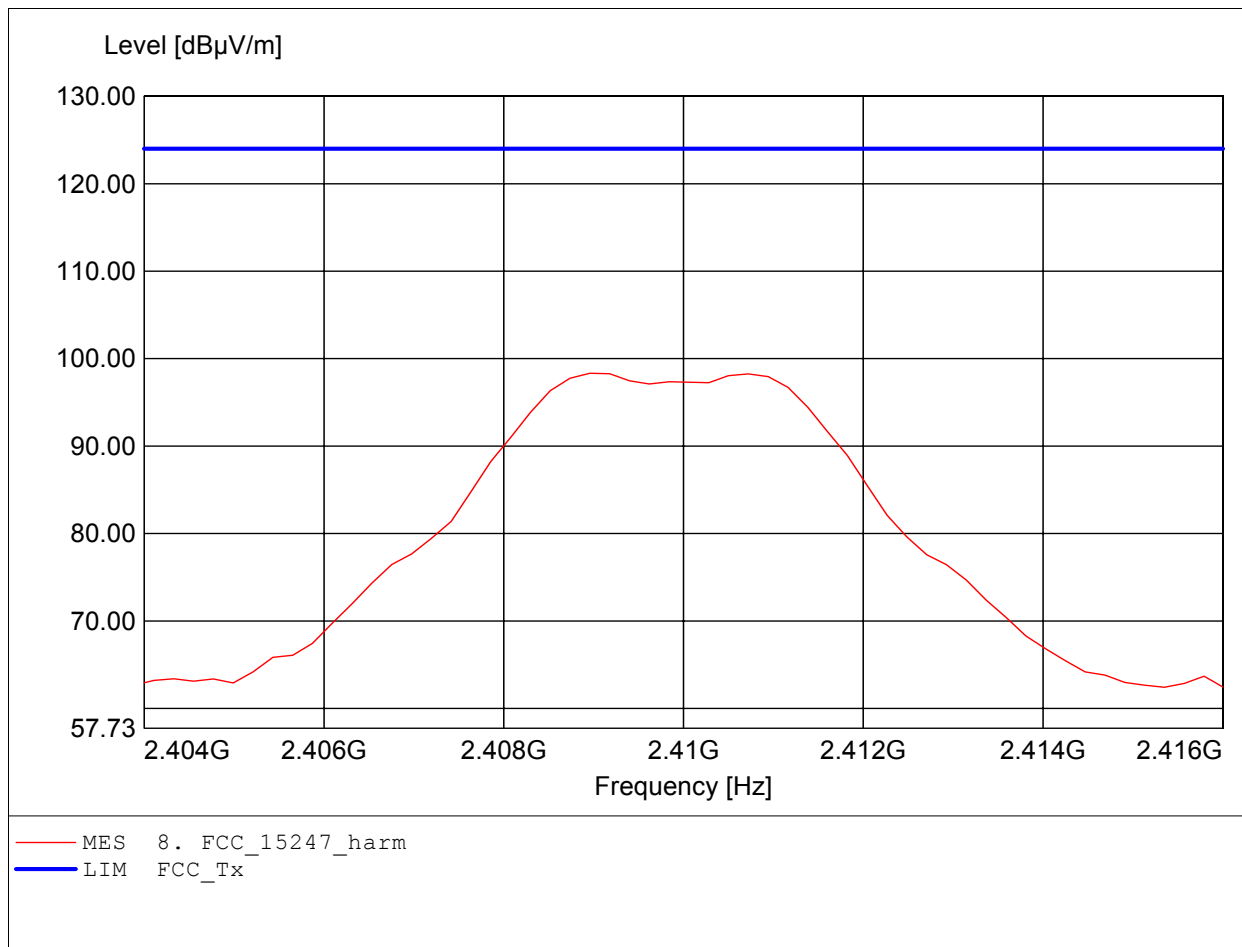
Order Number : W6M20607-7203 low channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247  
Comment 1: Dist.: 3m, Ant.: HL025  
Freq: 2.409GHz, Emax: 92.73dBµV/m, RBW: 1MHz



**Carrier power (Field Strength)**

**FCC RULES PART 15, SUBPART C / LP0002**

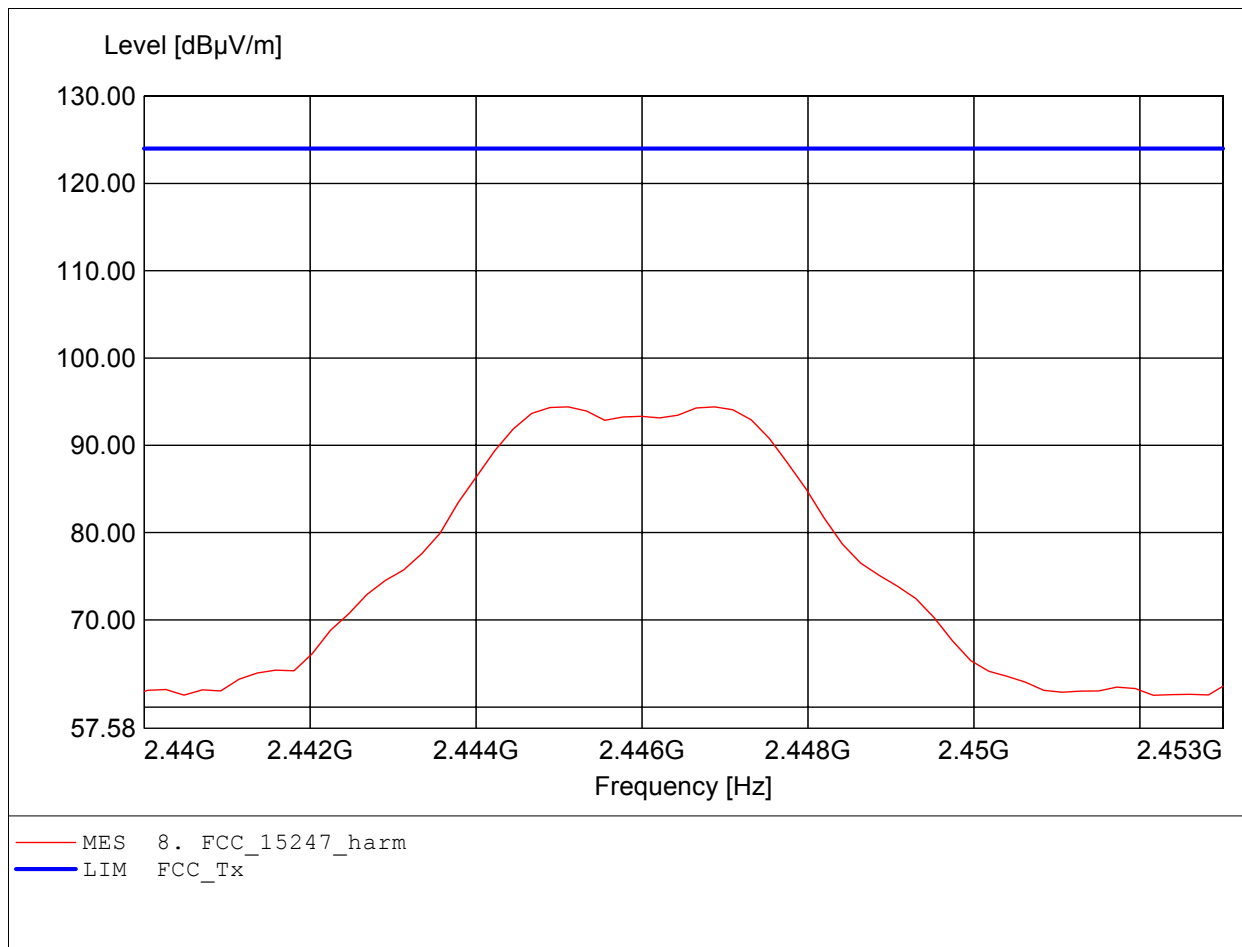
Order Number : W6M20607-7203 low channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247  
Comment 1: Dist.: 3m, Ant.: HL025  
Freq: 2.409GHz, Emax: 98.32dBµV/m, RBW: 1MHz



**Carrier power (Field Strength)**

**FCC RULES PART 15, SUBPART C / LP0002**

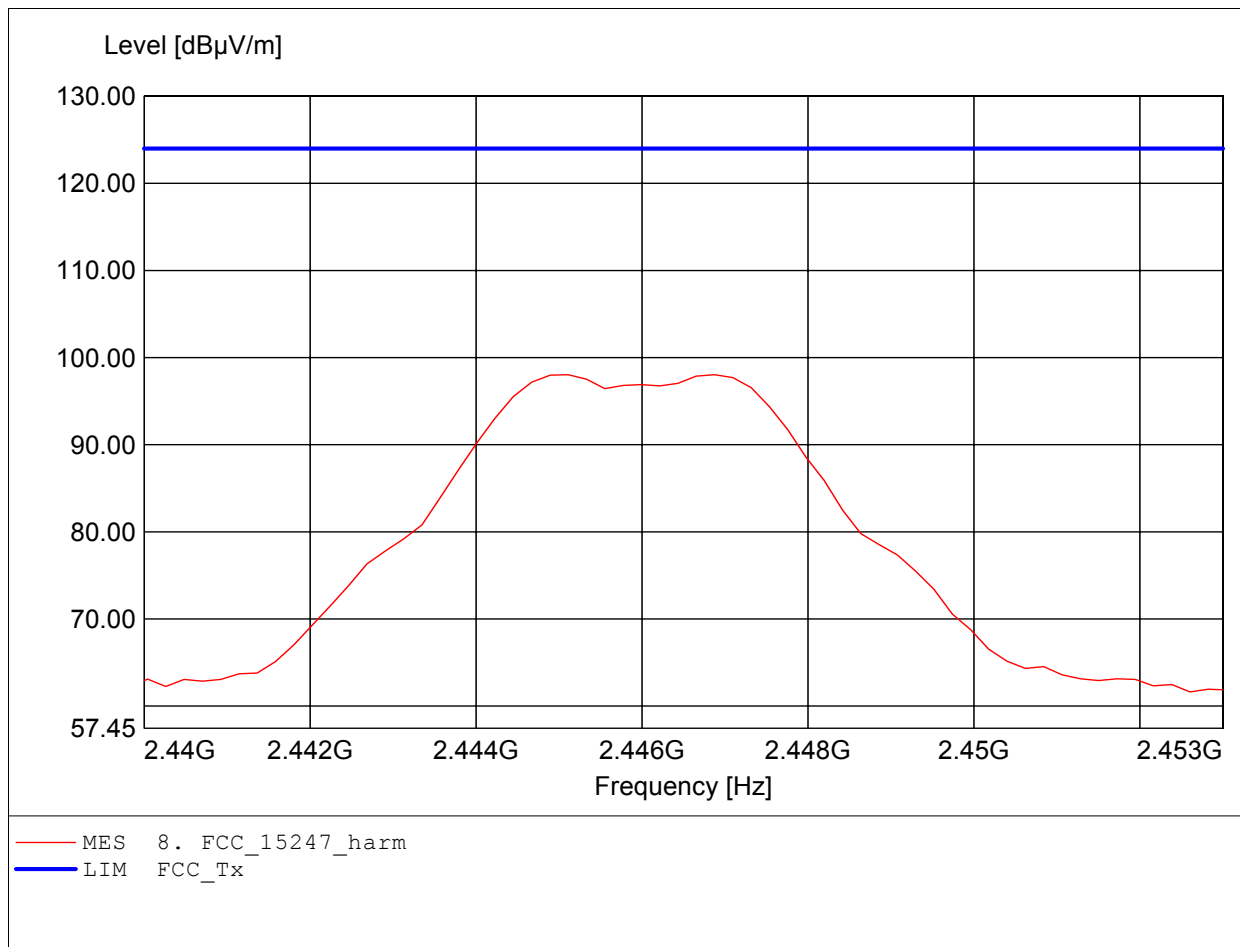
Order Number : W6M20607-7203 middle channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247  
Comment 1: Dist.: 3m, Ant.: HL025  
Freq: 2.445GHz, Emax: 94.41dBµV/m, RBW: 1MHz



**Carrier power (Field Strength)**

**FCC RULES PART 15, SUBPART C / LP0002**

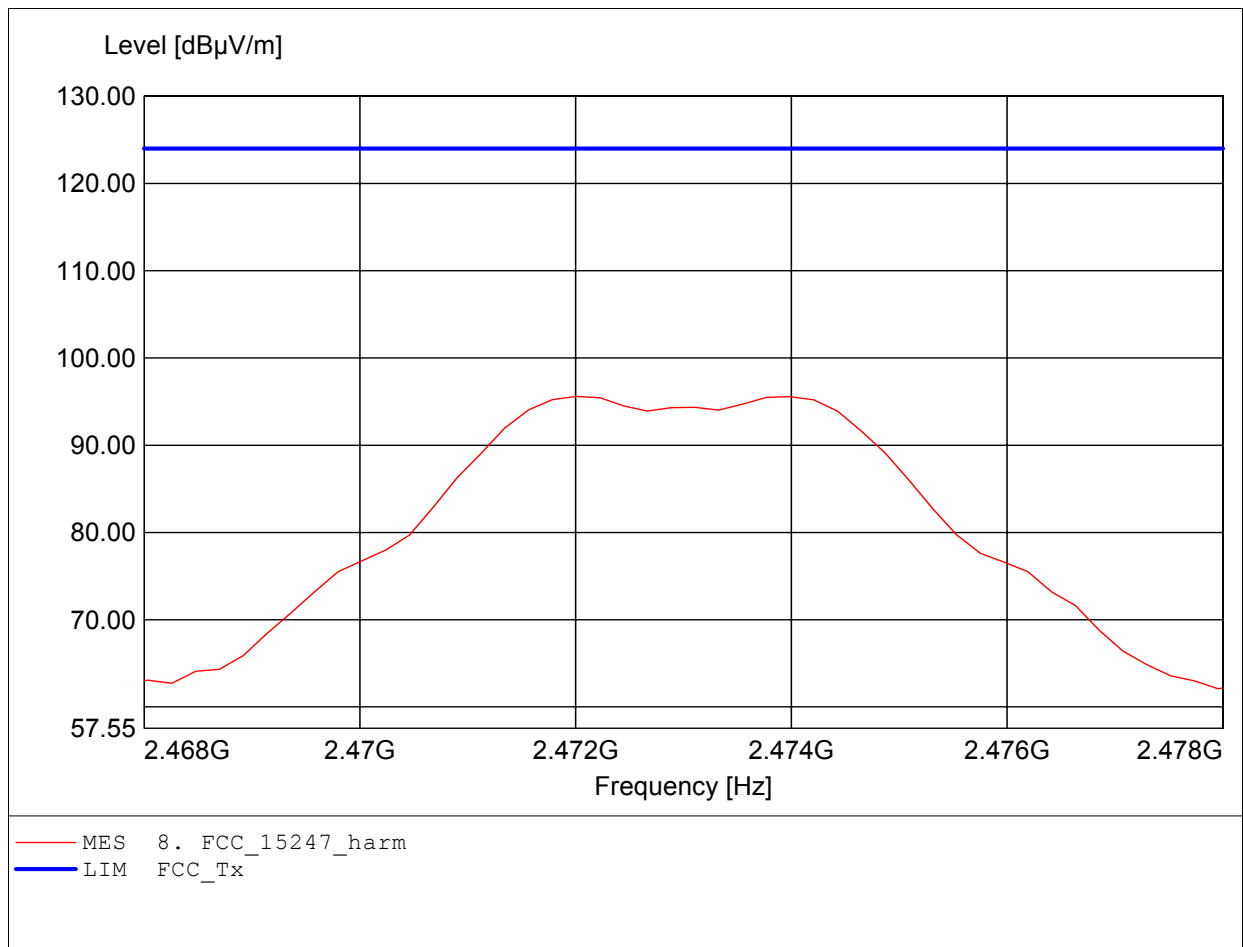
Order Number : W6M20607-7203 middle channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247  
Comment 1: Dist.: 3m, Ant.: HL025  
Freq: 2.447GHz, Emax: 98.04dBµV/m, RBW: 1MHz



**Carrier power (Field Strength)**

**FCC RULES PART 15, SUBPART C / LP0002**

Order Number : W6M20607-7203 high channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247  
Comment 1: Dist.: 3m, Ant.: HL025  
Freq: 2.472GHz, Emax: 95.58dBµV/m, RBW: 1MHz

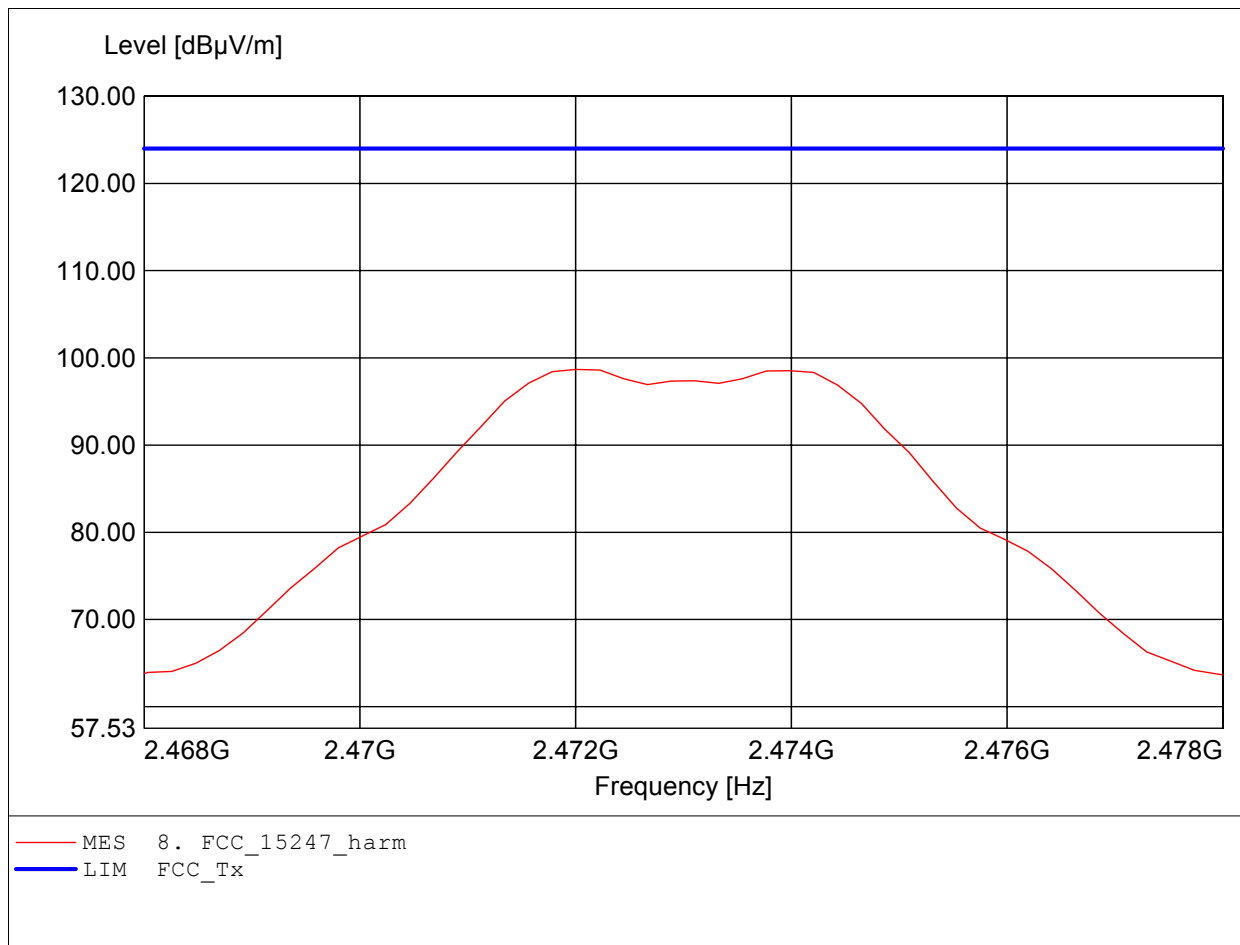


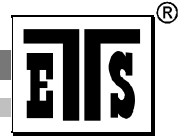


**Carrier power (Field Strength)**

**FCC RULES PART 15, SUBPART C / LP0002**

Order Number : W6M20607-7203 high channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247  
Comment 1: Dist.: 3m, Ant.: HL025  
Freq: 2.472GHz, Emax: 98.67dBµV/m, RBW: 1MHz





Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

## Appendix B

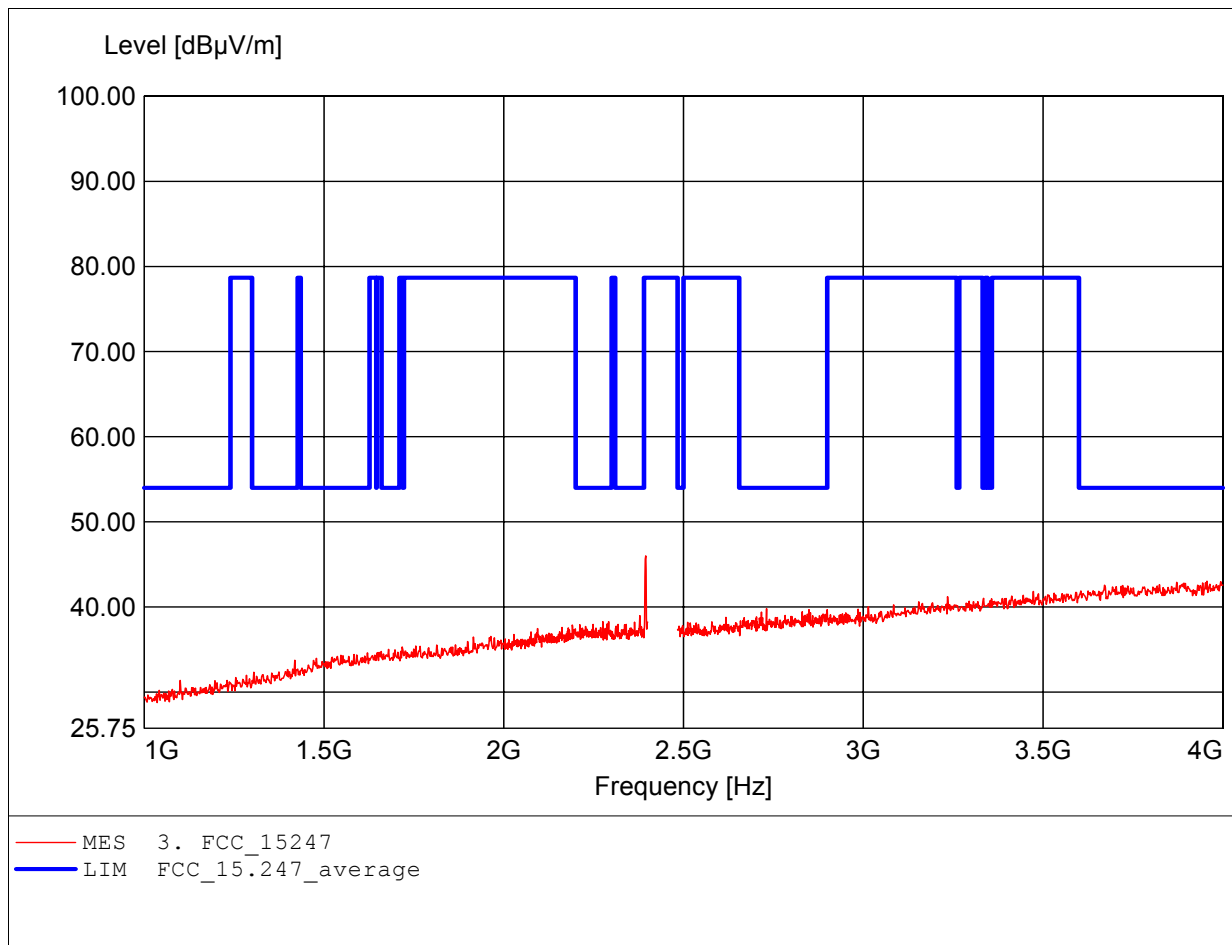
### Spurious Emissions radiated

**The measurement diagram are wideband pre-scan results; only for reference.**

# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

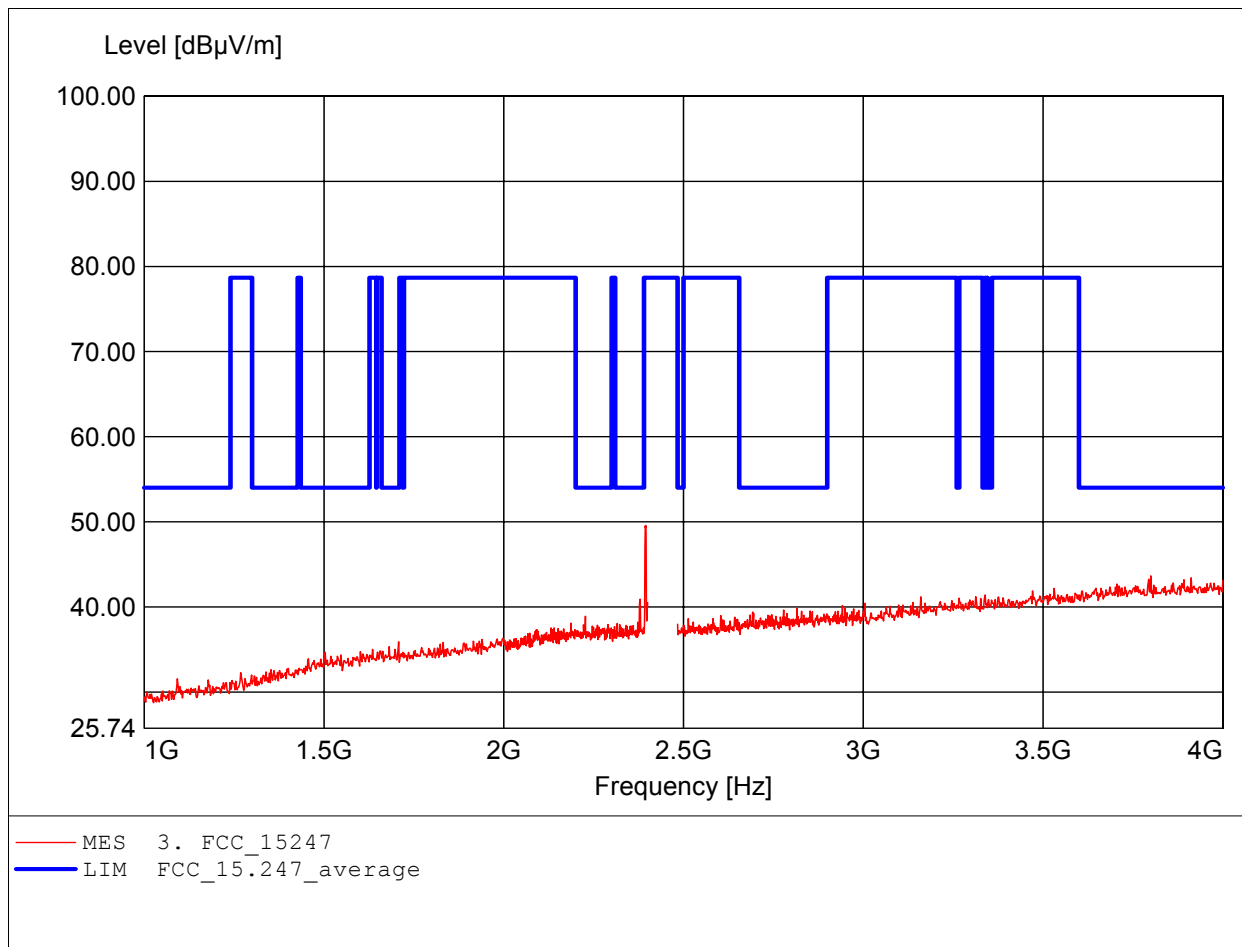
Order Number : W6M20607-7203 low channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq: 2.395GHz, Emax: 45.99dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

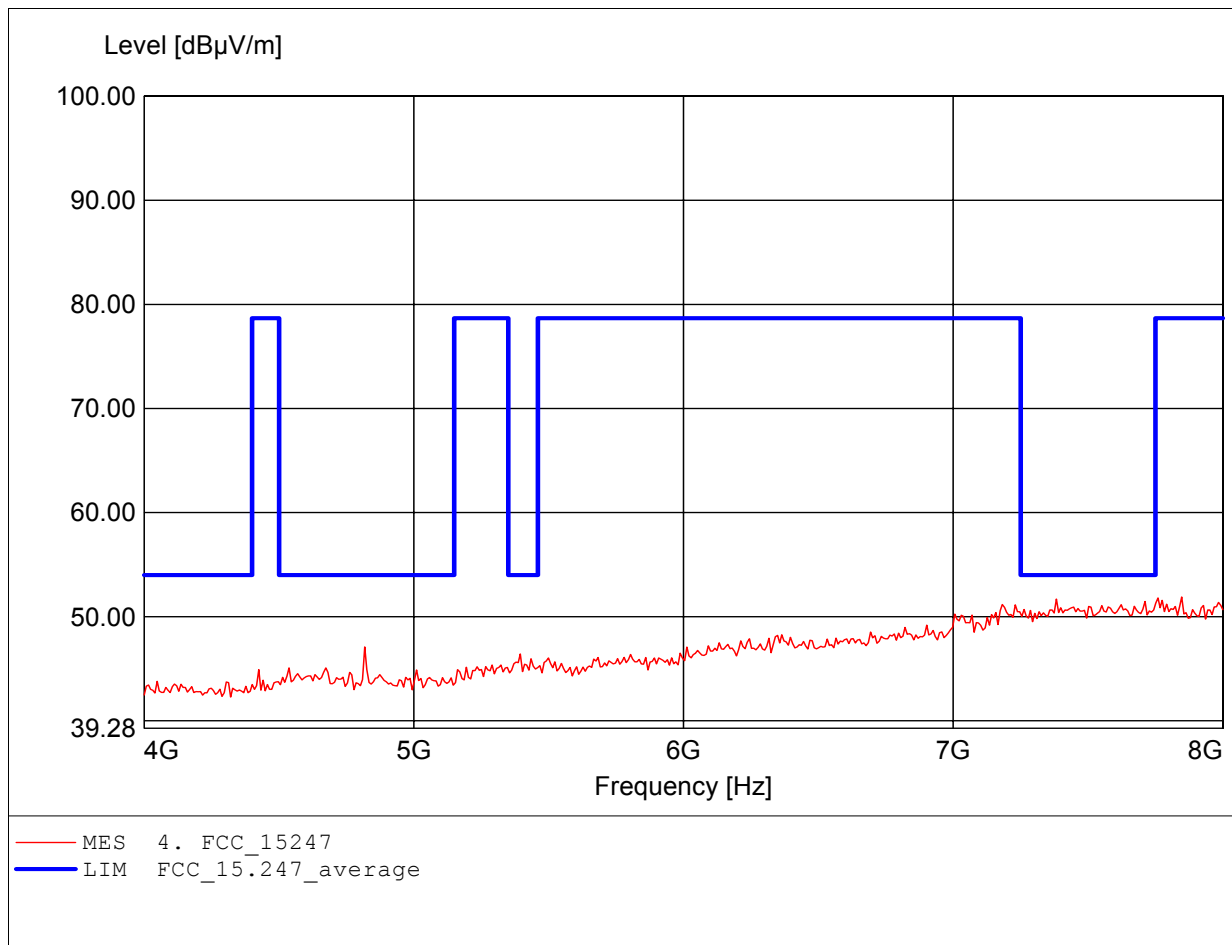
Order Number : W6M20607-7203 low channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq: 2.395GHz, Emax: 49.57dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C / LP0002**

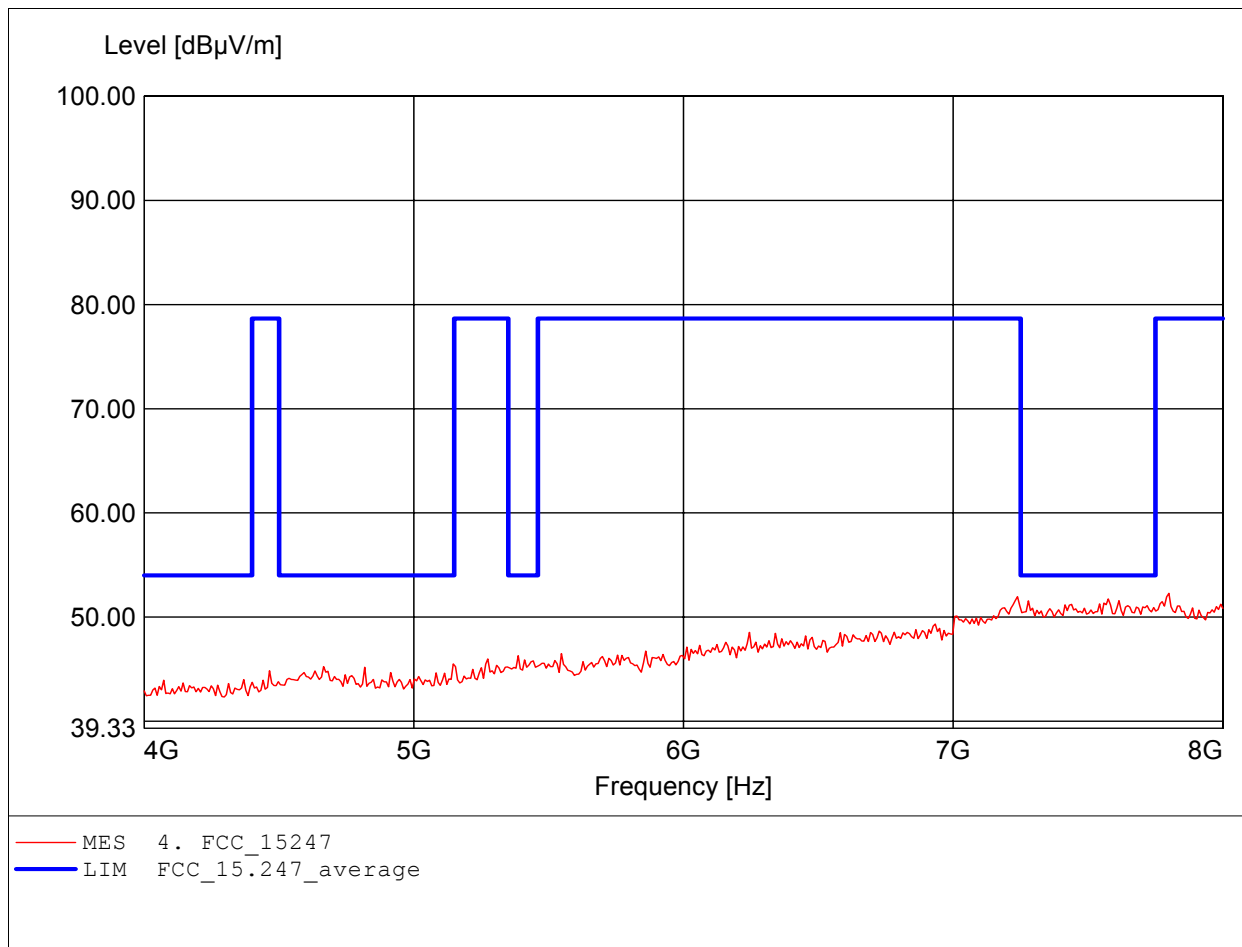
Order Number : W6M20607-7203 low channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 7.848GHz, Emax: 51.89dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

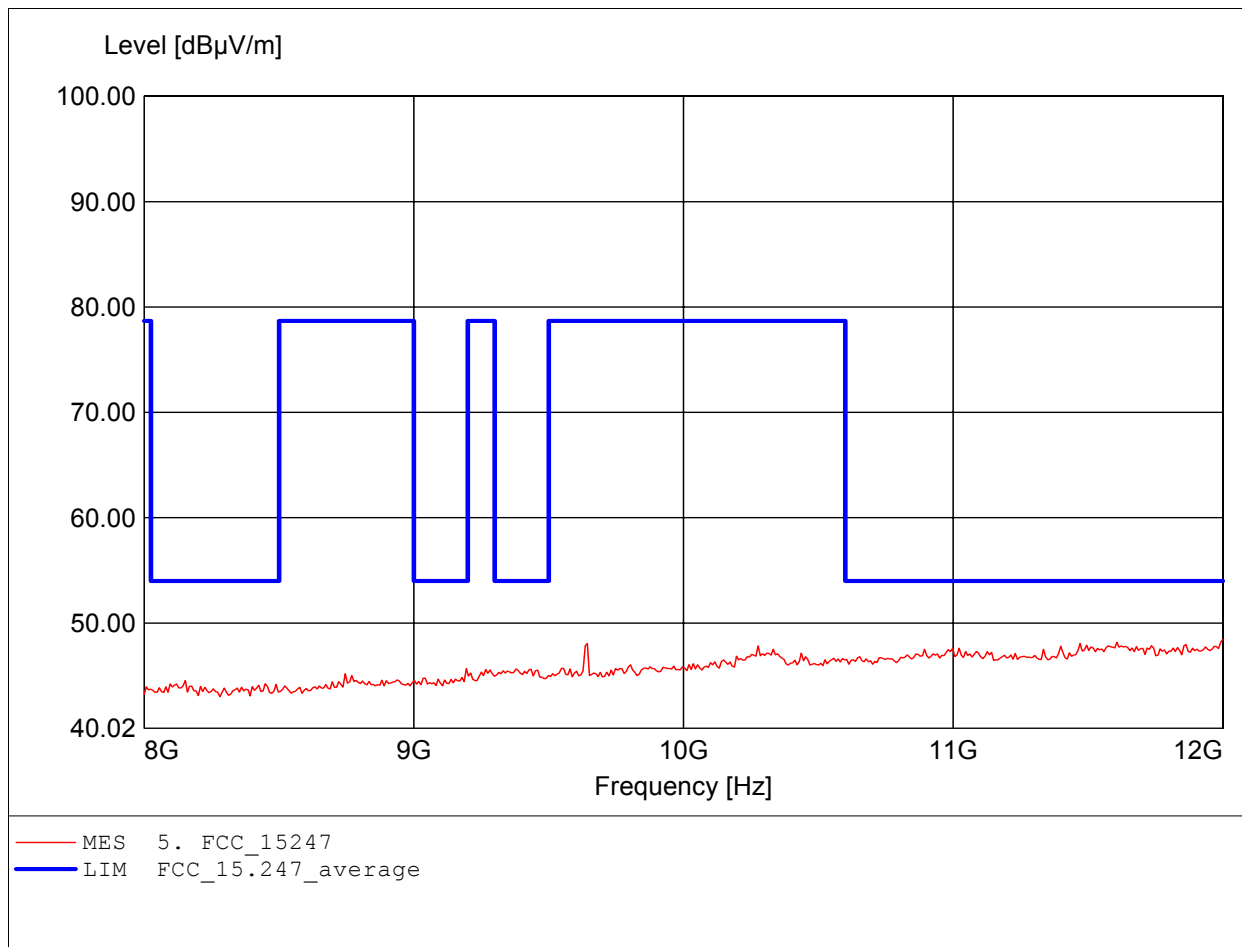
Order Number : W6M20607-7203 low channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 7.800GHz, Emax: 52.28dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

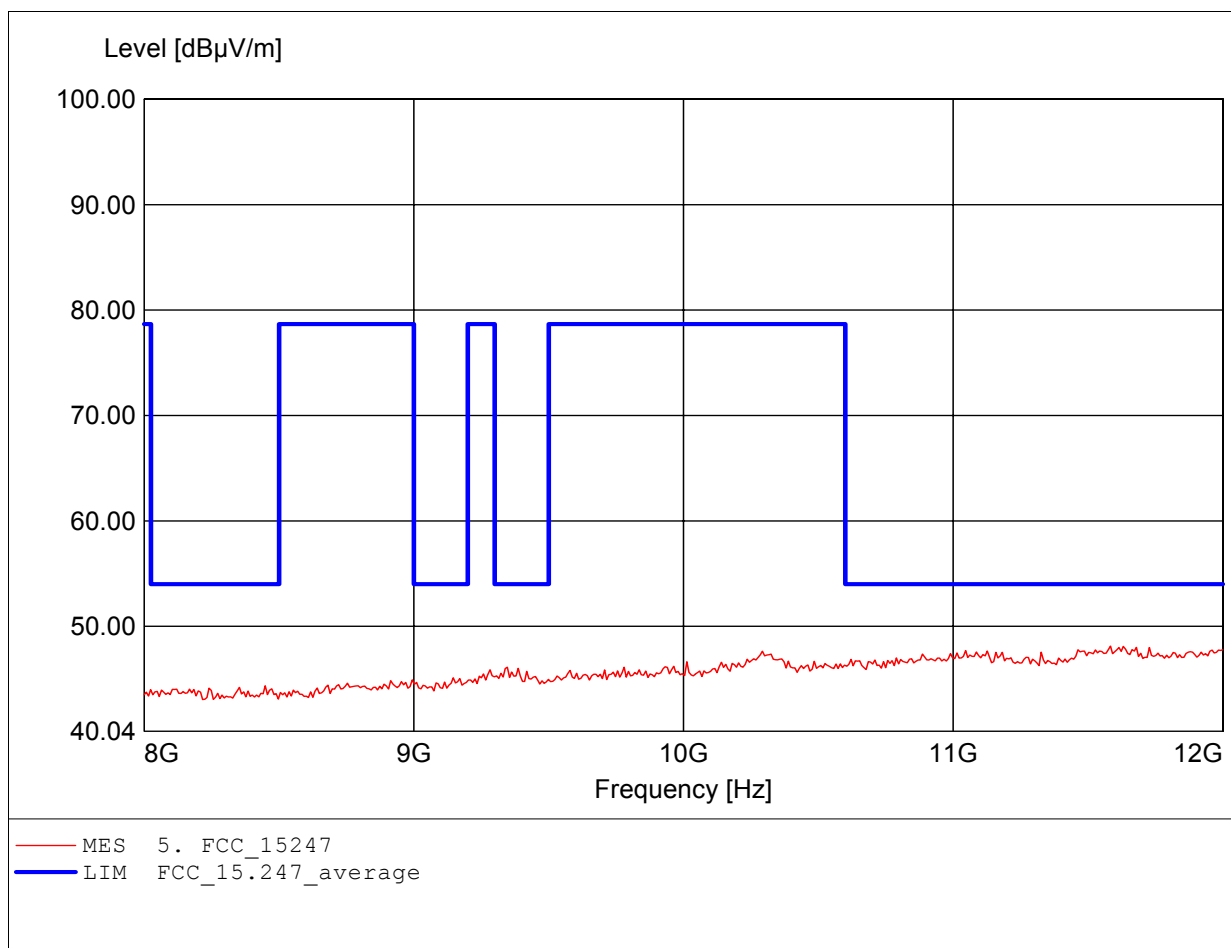
Order Number : W6M20607-7203 low channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 12.000GHz, Emax: 48.46dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C / LP0002**

Order Number : W6M20607-7203 low channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 11.583GHz, Emax: 48.12dBµV/m, RBW: 1MHz

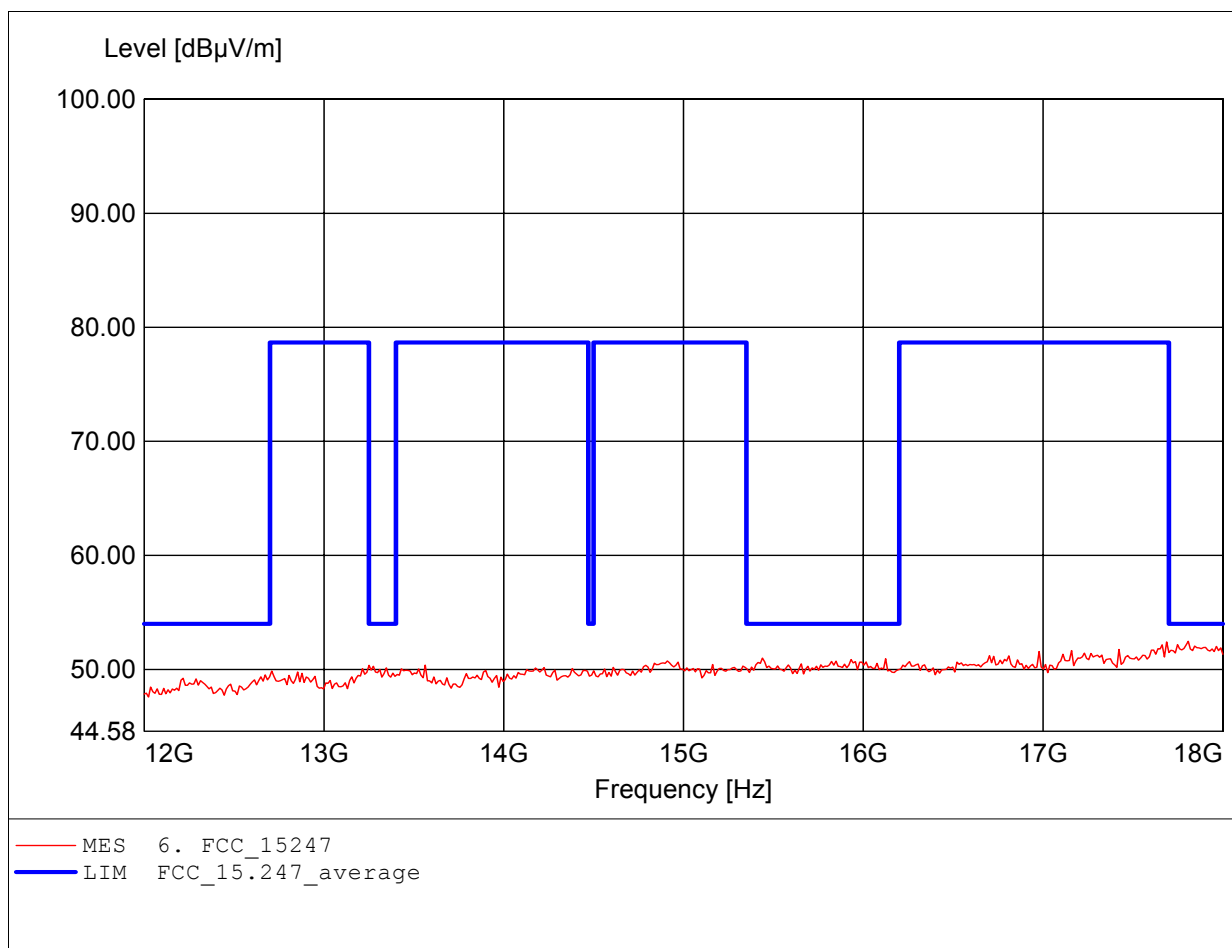




**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C / LP0002**

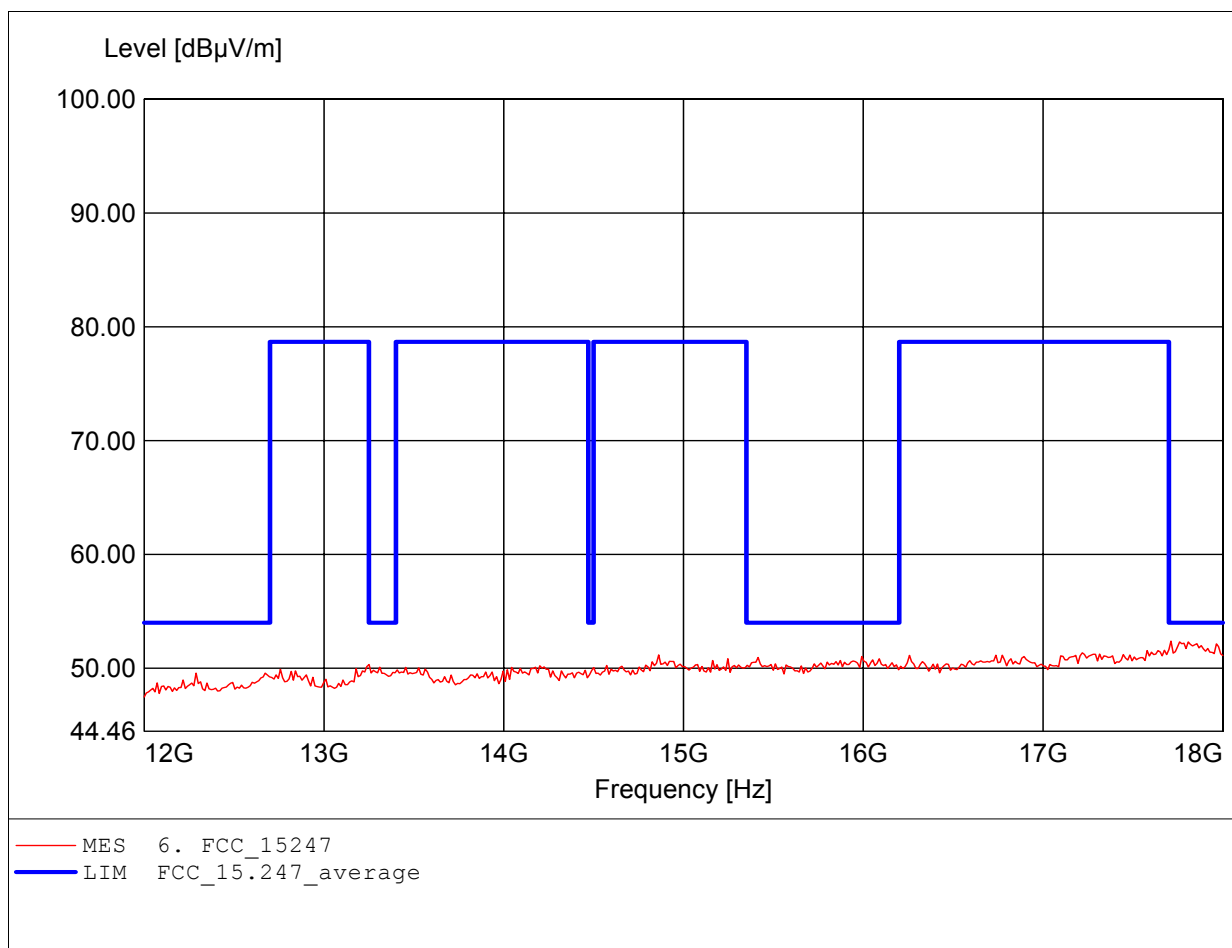
Order Number : W6M20607-7203 low channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 17.808GHz, Emax: 52.46dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C / LP0002**

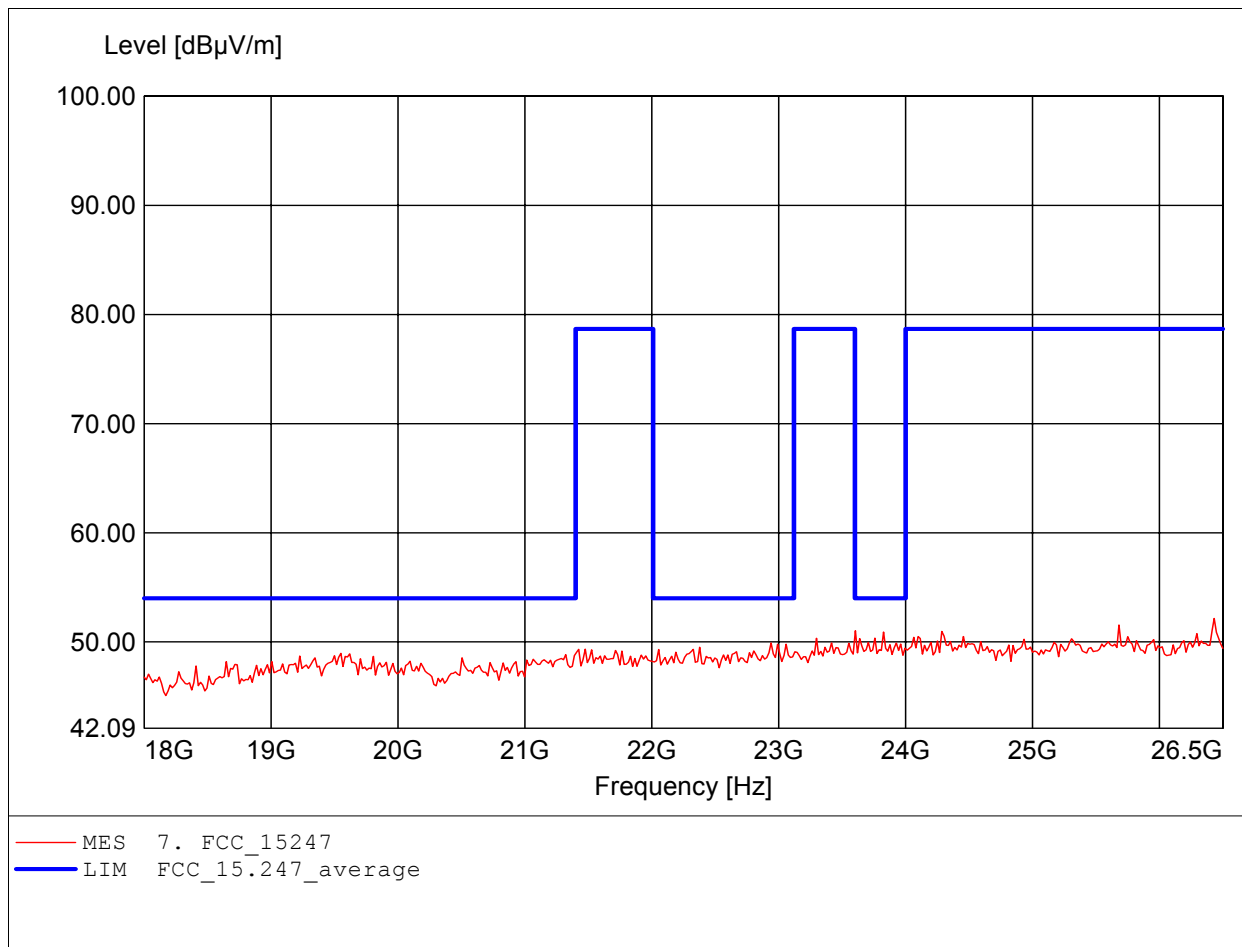
Order Number : W6M20607-7203 low channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 17.711GHz, Emax: 52.39dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

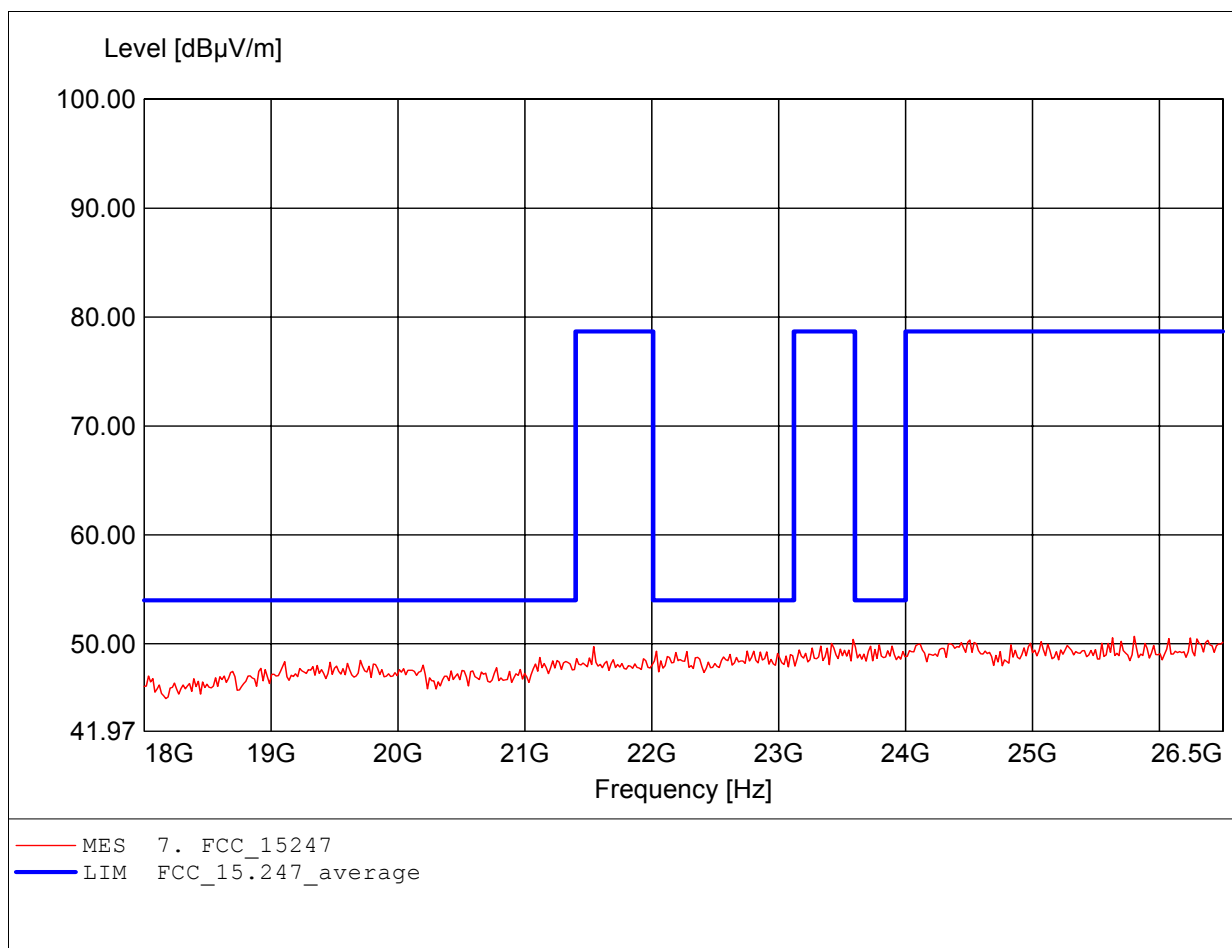
Order Number : W6M20607-7203      low channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq: 26.432GHz, Emax: 52.16dBμV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C / LP0002**

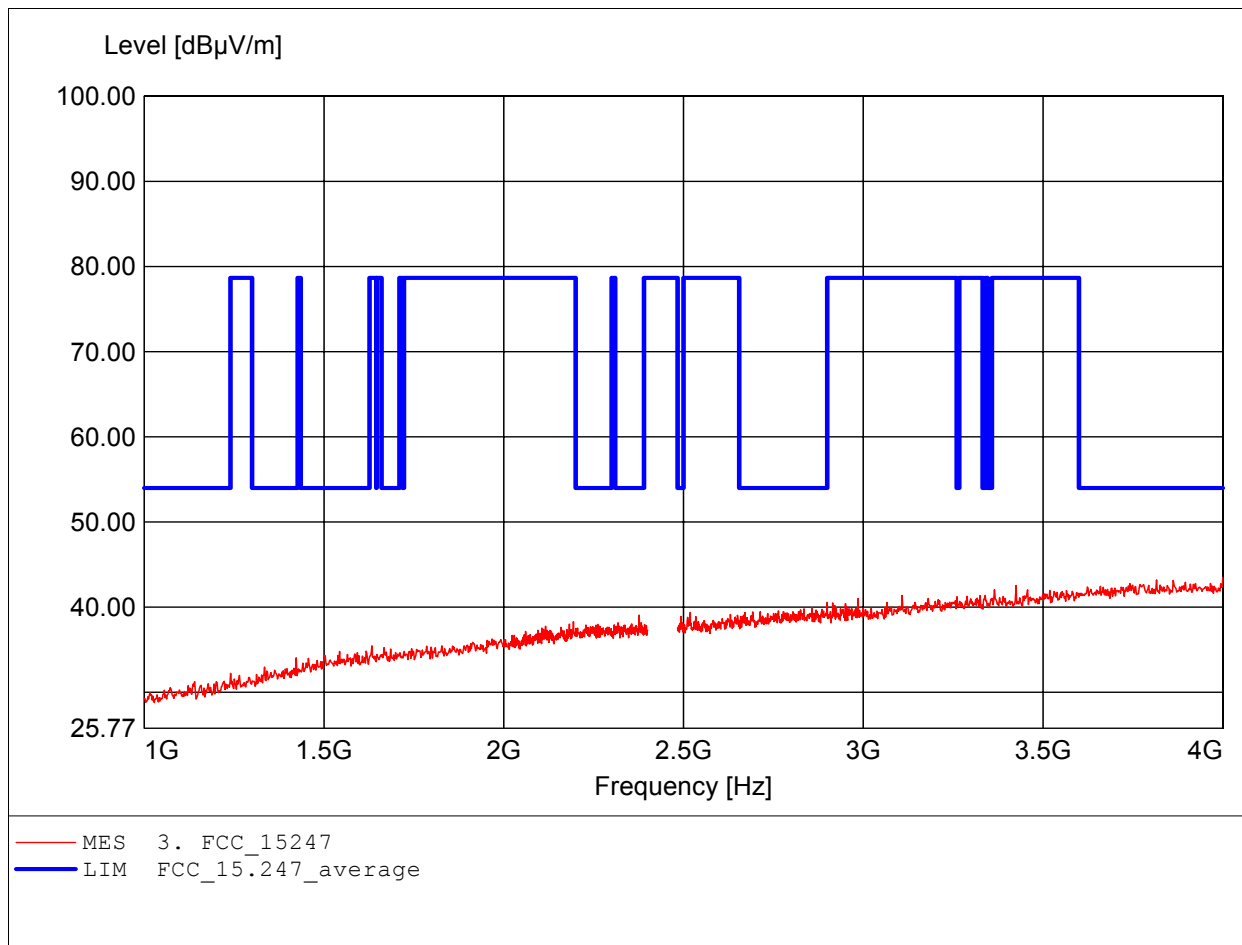
Order Number : W6M20607-7203 low channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq: 25.802GHz, Emax: 50.68dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

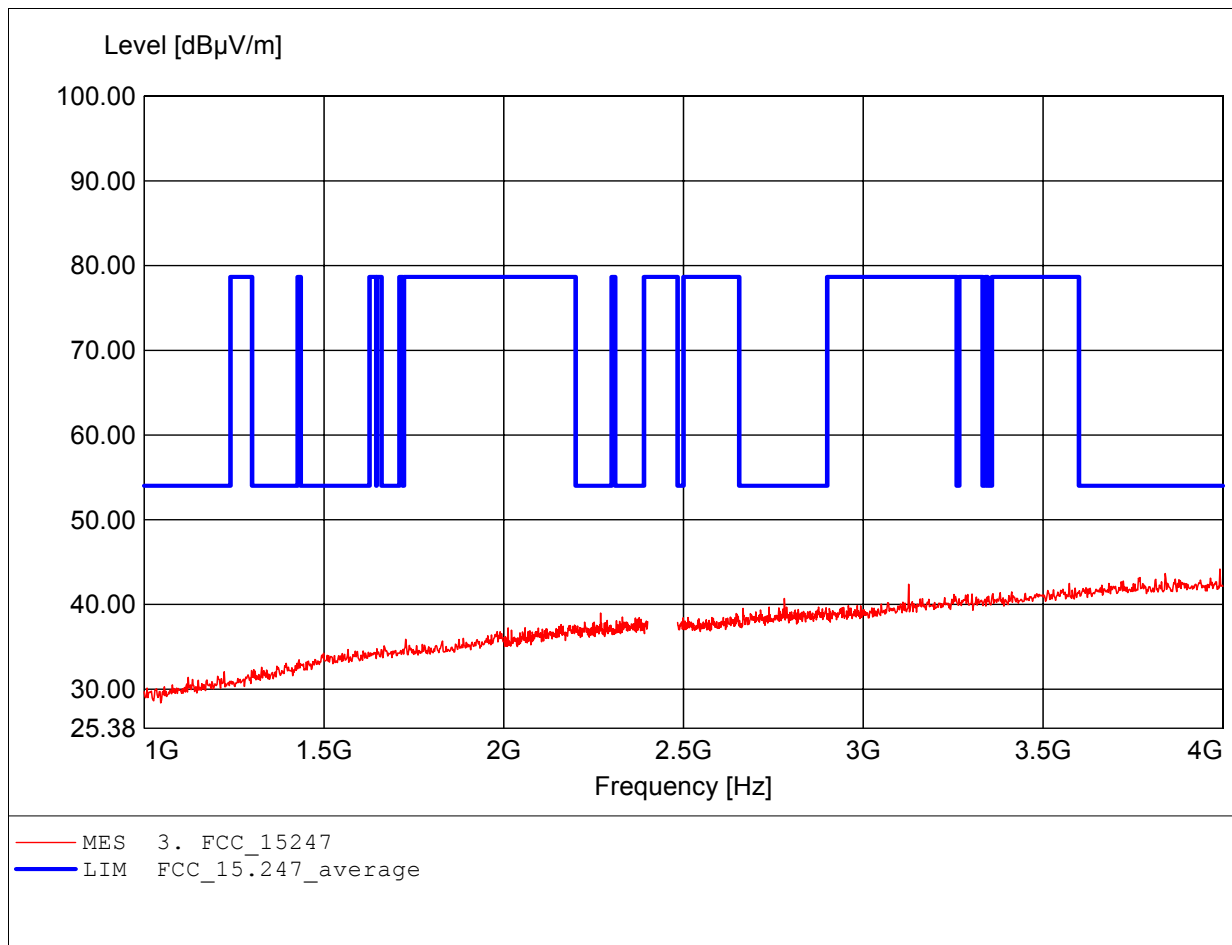
Order Number : W6M20607-7203 middle channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq: 4.000GHz, Emax: 43.49dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

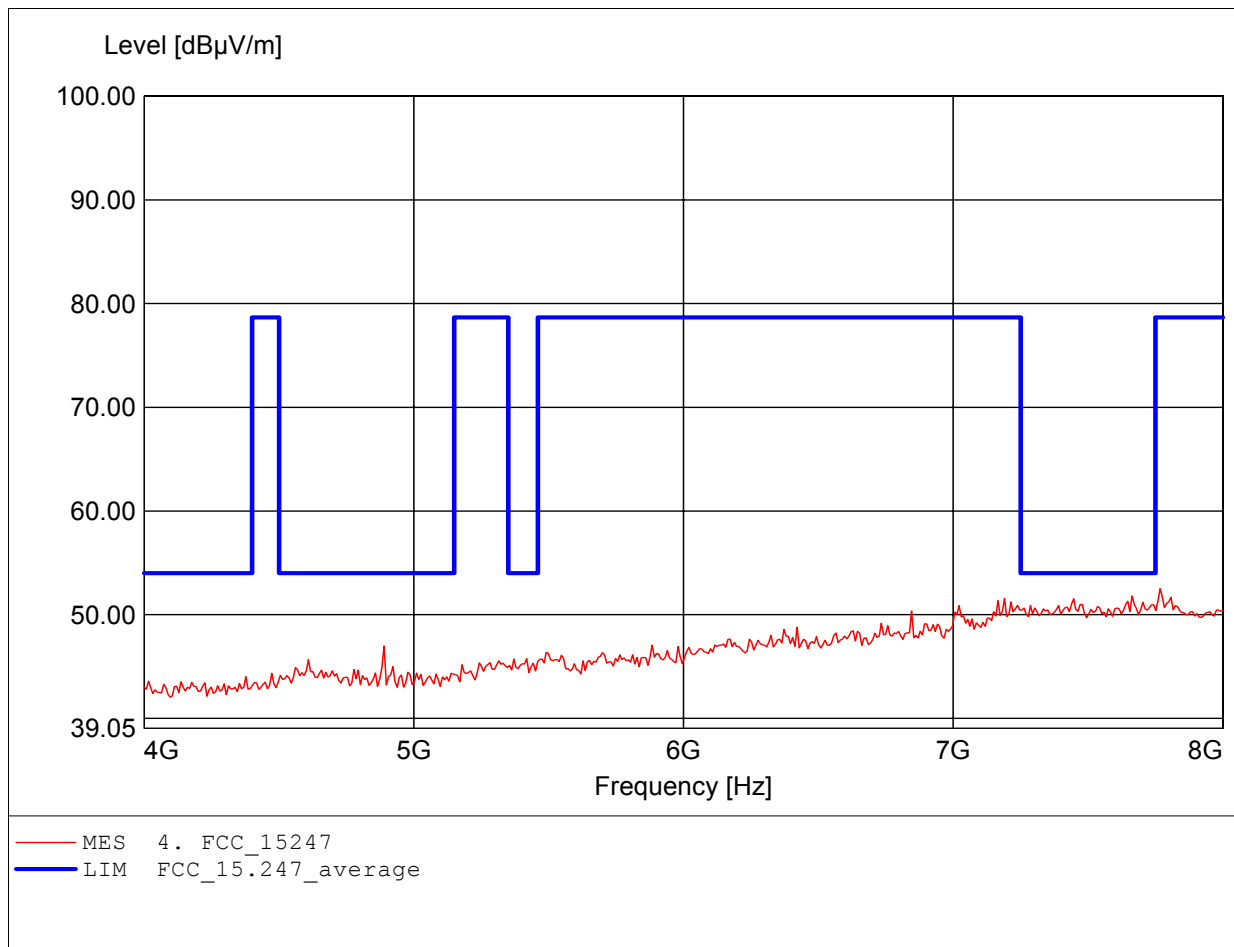
Order Number : W6M20607-7203 middle channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq: 3.992GHz, Emax: 44.17dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C / LP0002**

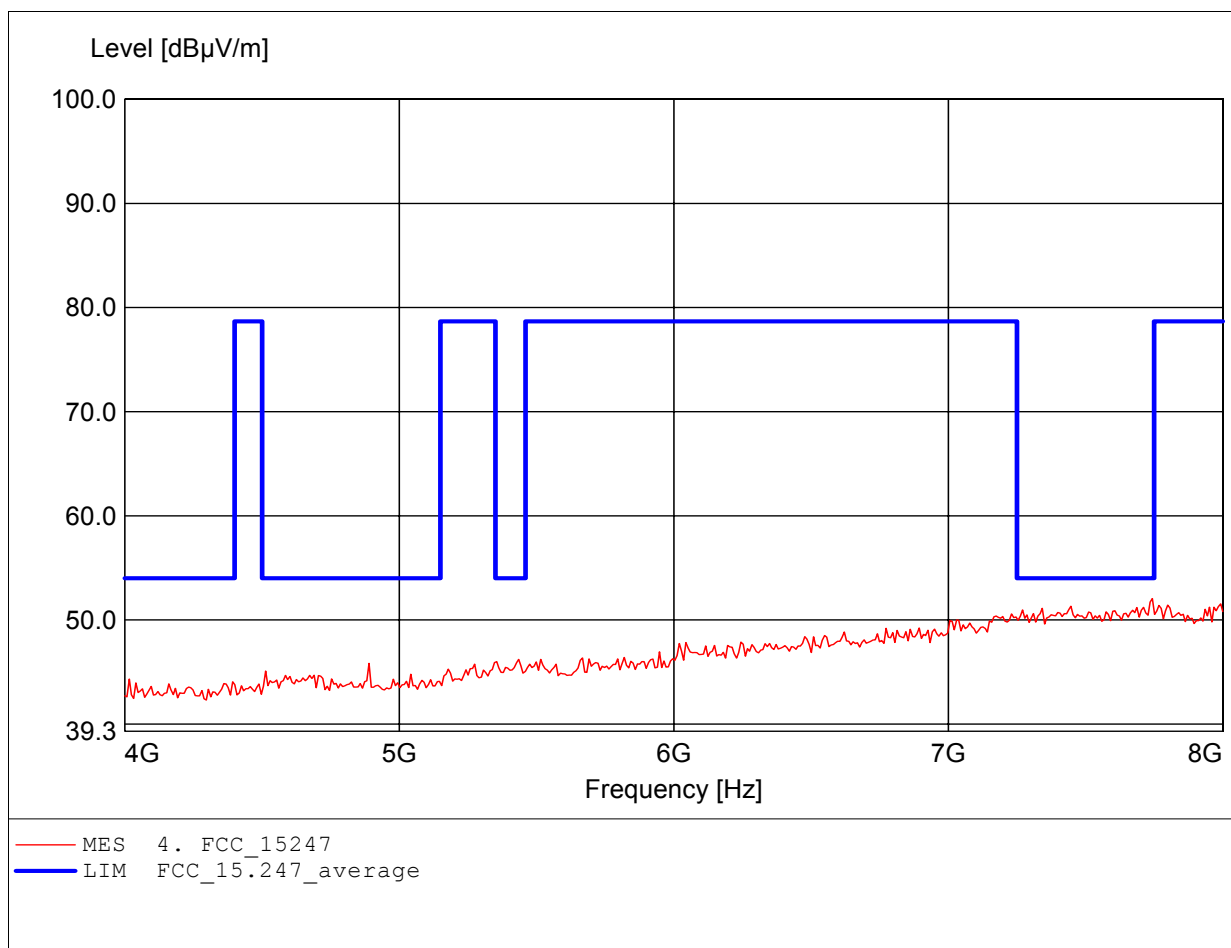
Order Number : W6M20607-7203 middle channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 7.768GHz, Emax: 52.52dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20607-7203 middle channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 7.743GHz, Emax: 52.05dBµV/m, RBW: 1MHz

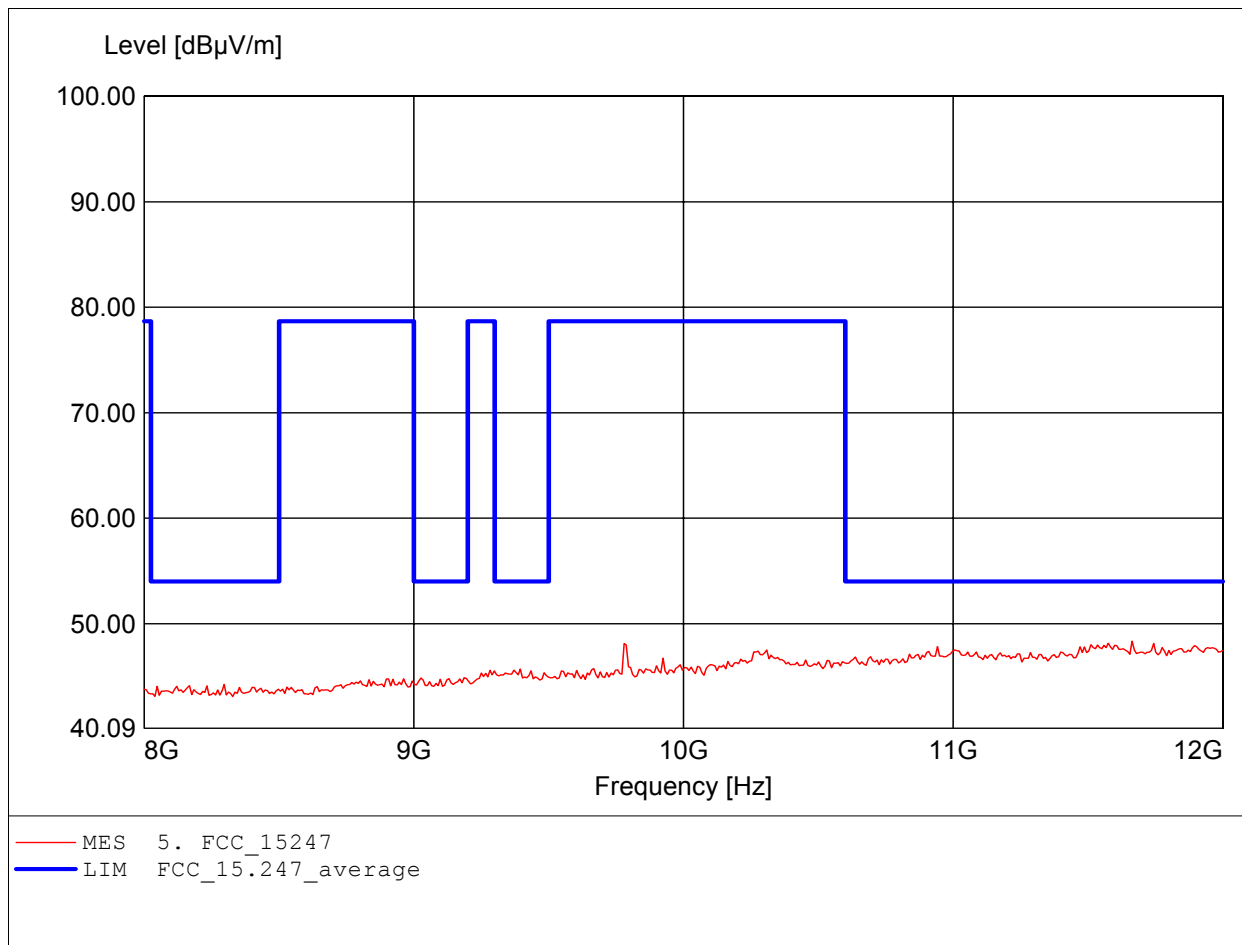




# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

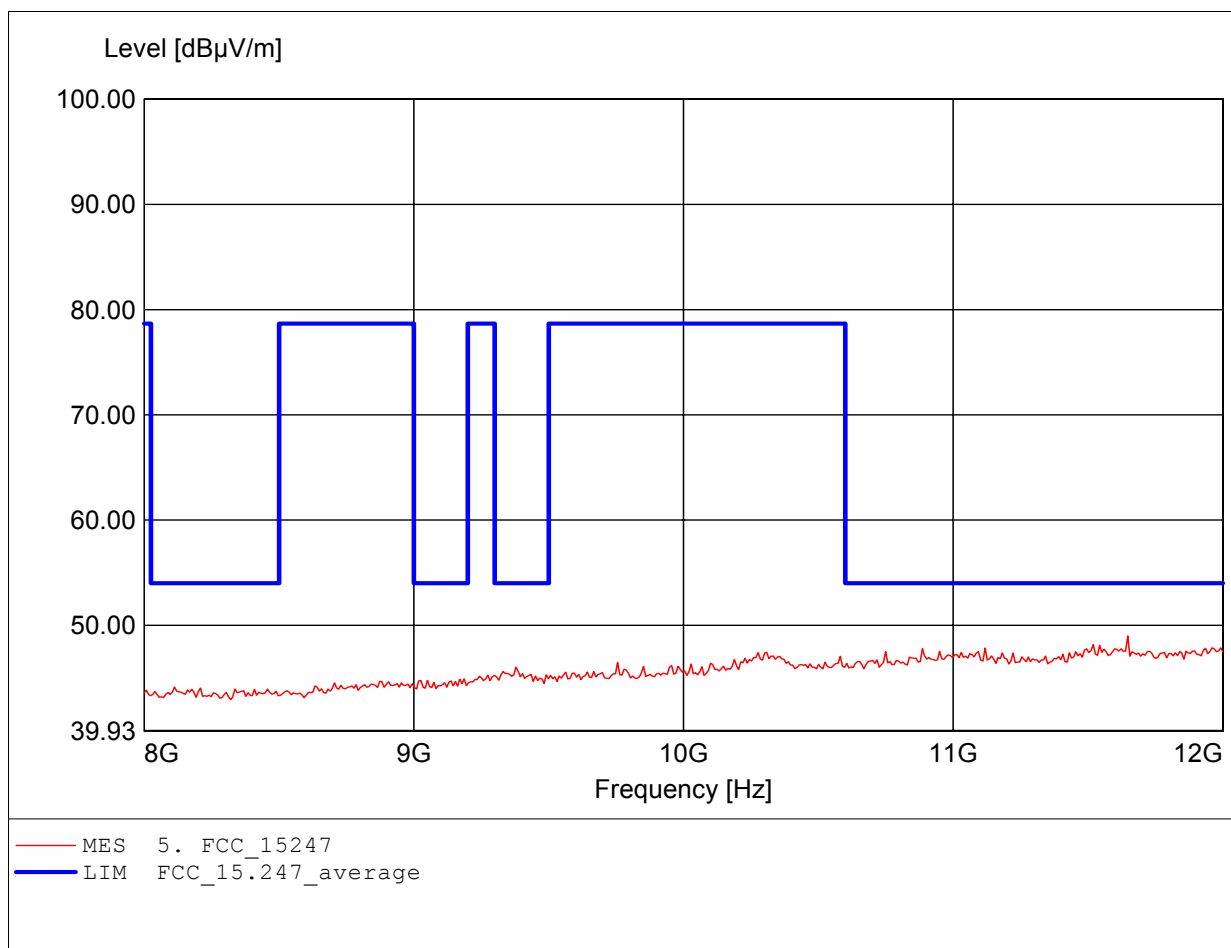
Order Number : W6M20607-7203 middle channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 11.663GHz, Emax: 48.34dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C / LP0002**

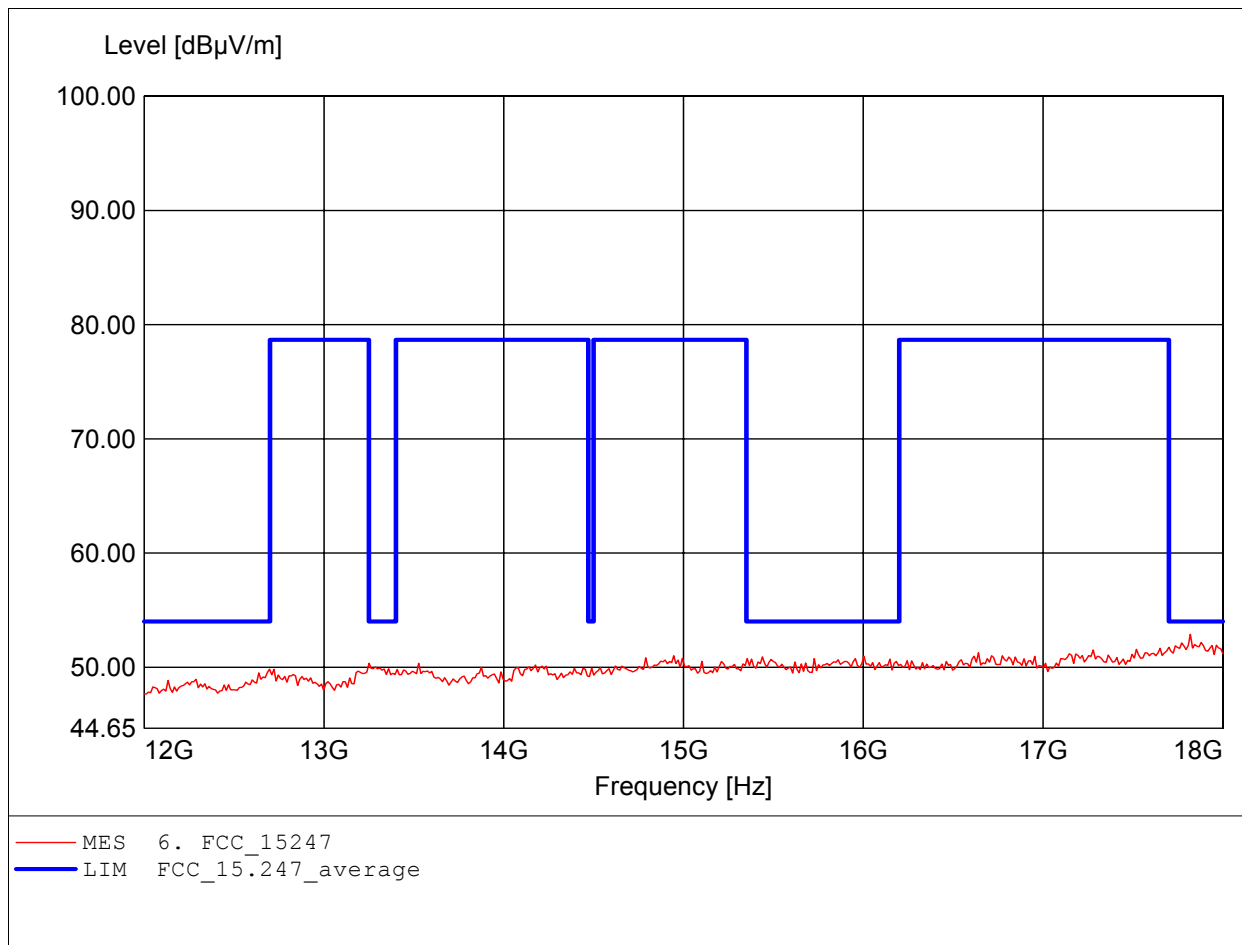
Order Number : W6M20607-7203 middle channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 11.647GHz, Emax: 48.99dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

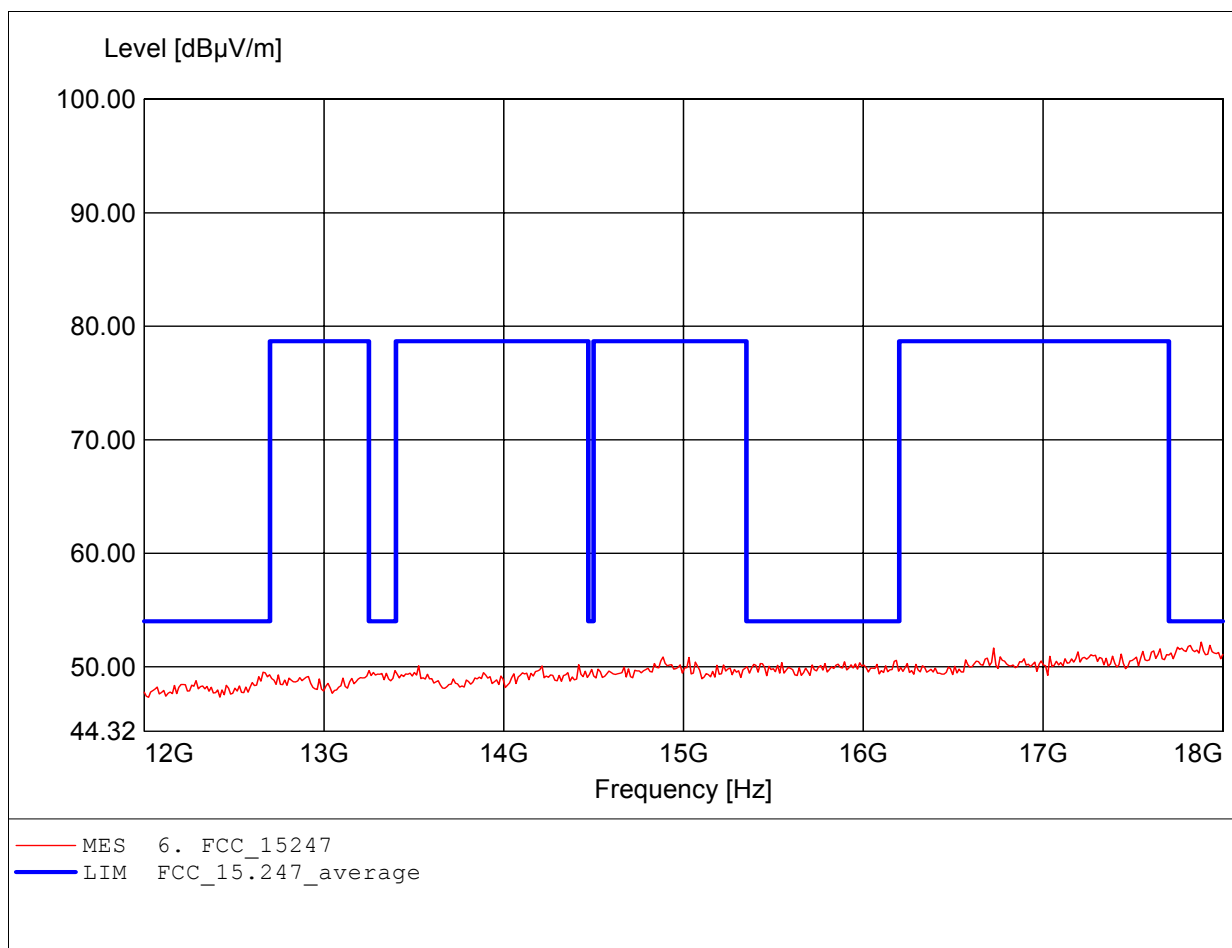
Order Number : W6M20607-7203 middle channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 17.820GHz, Emax: 52.88dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C / LP0002**

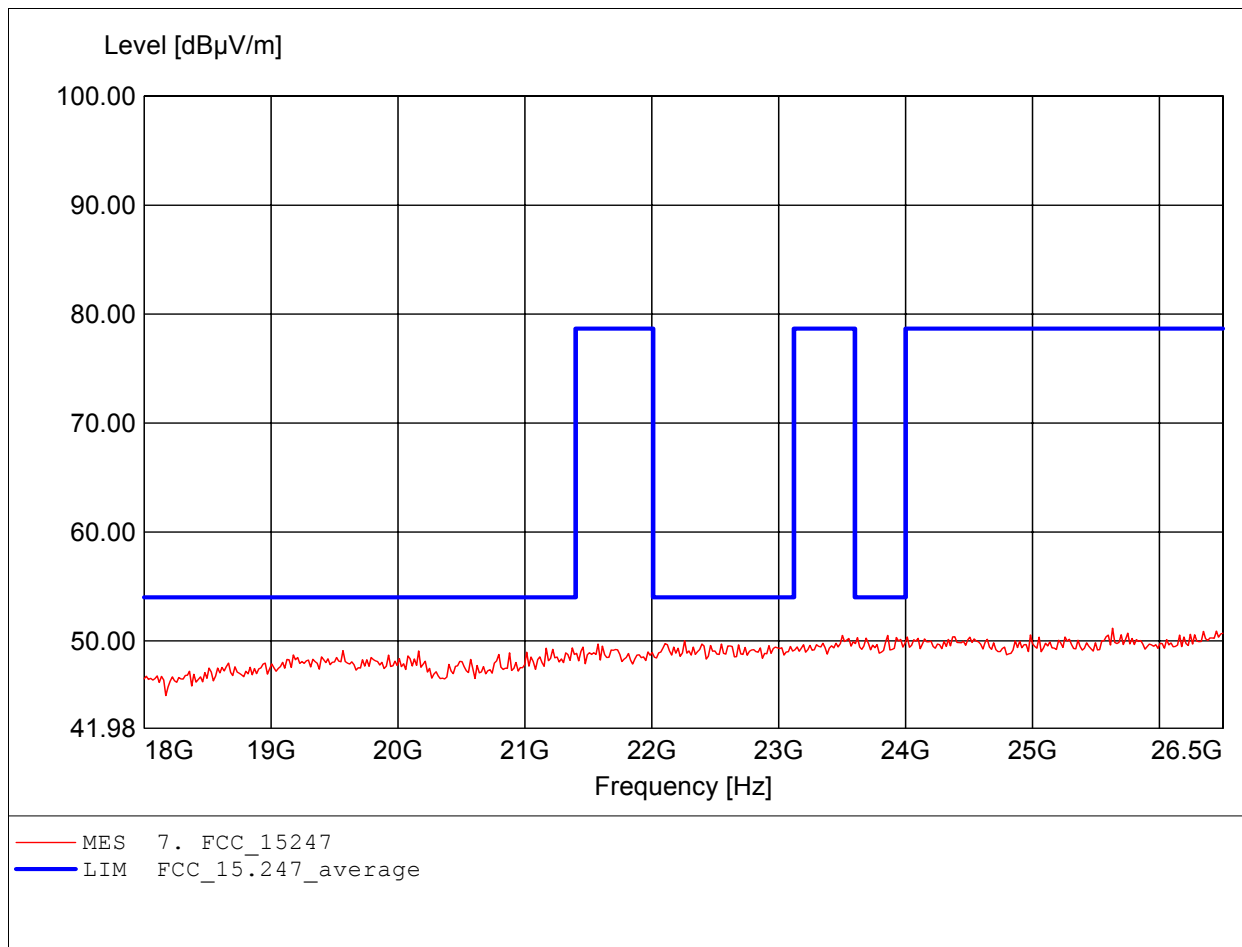
Order Number : W6M20607-7203 middle channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 17.880GHz, Emax: 52.18dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

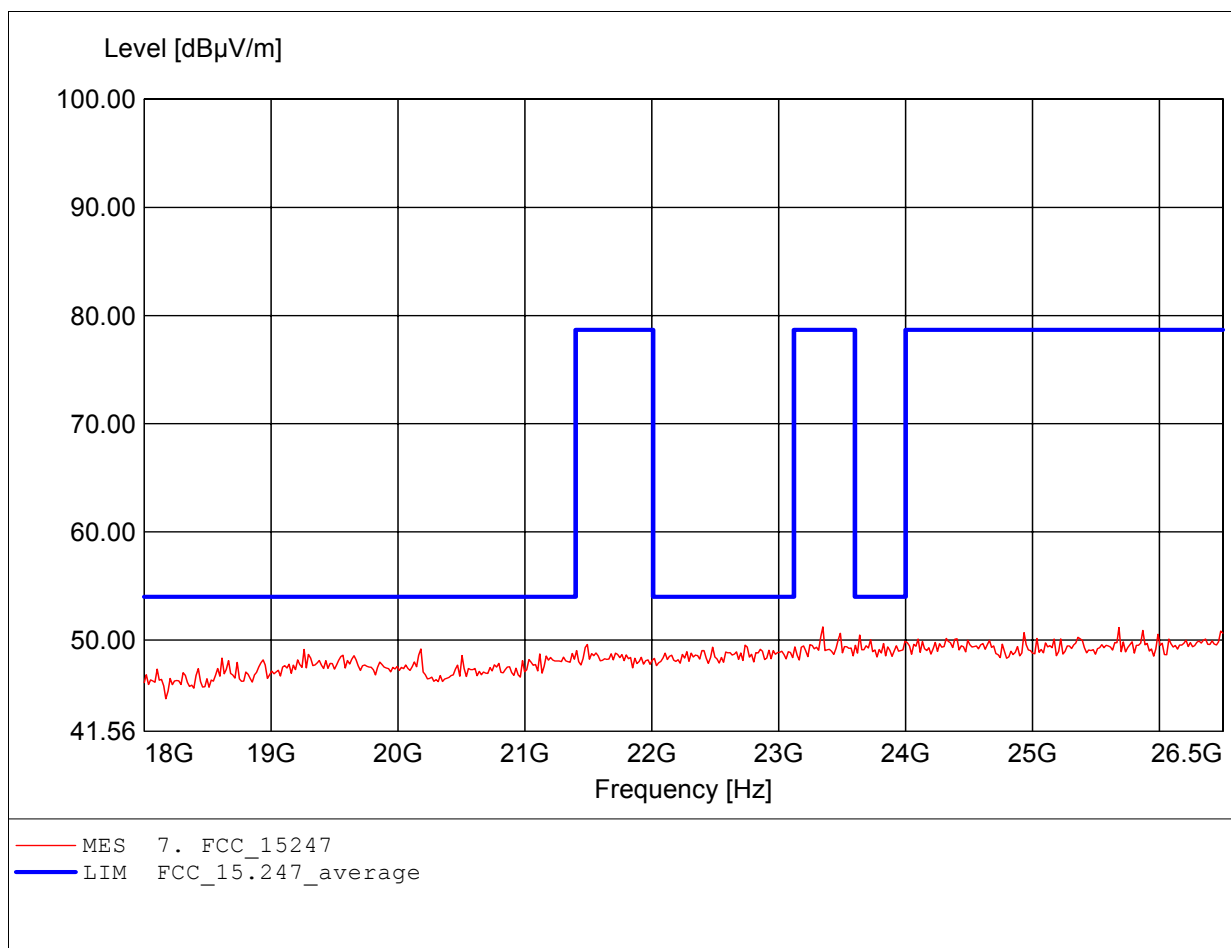
Order Number : W6M20607-7203 middle channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq: 25.631GHz, Emax: 51.17dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C / LP0002**

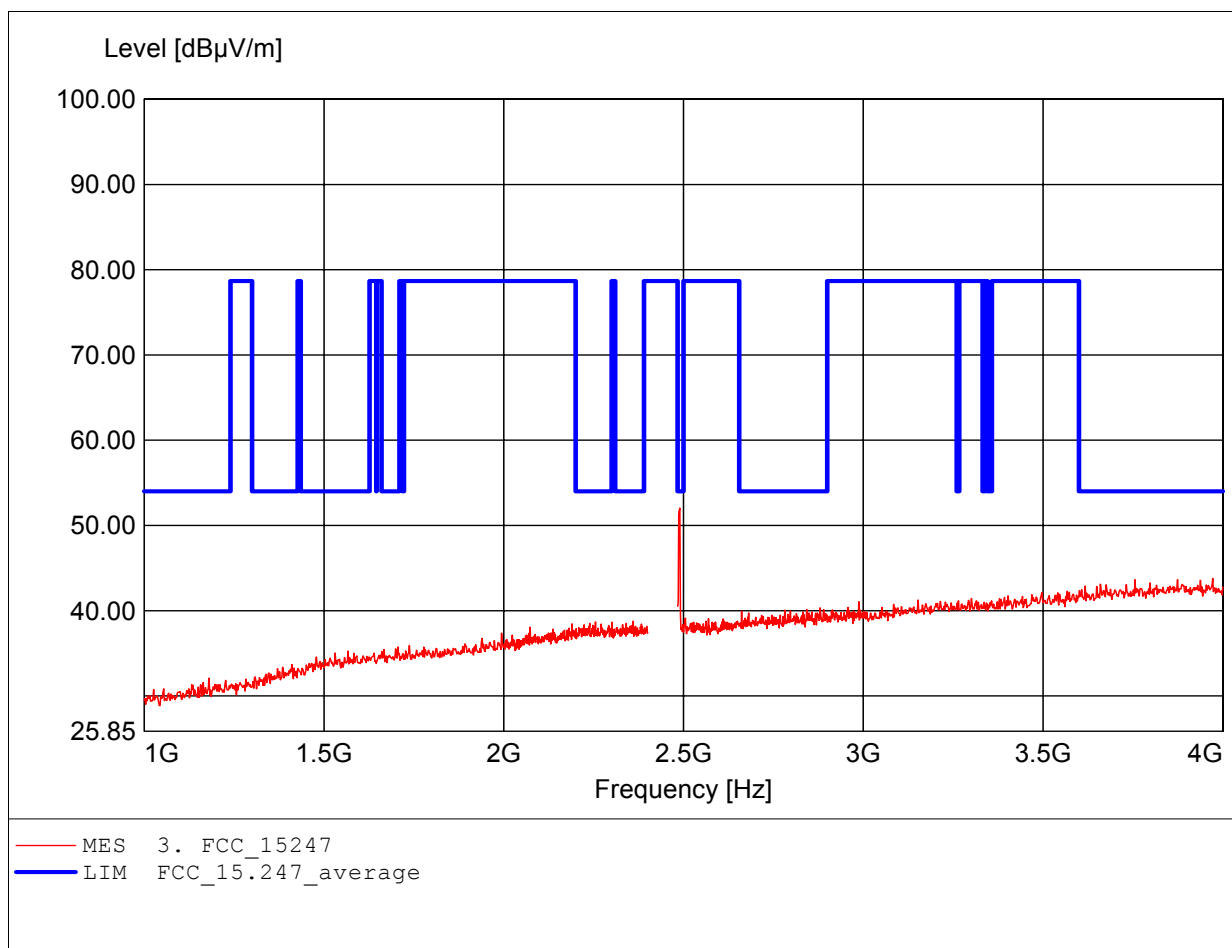
Order Number : W6M20607-7203 middle channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq: 23.349GHz, Emax: 51.21dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

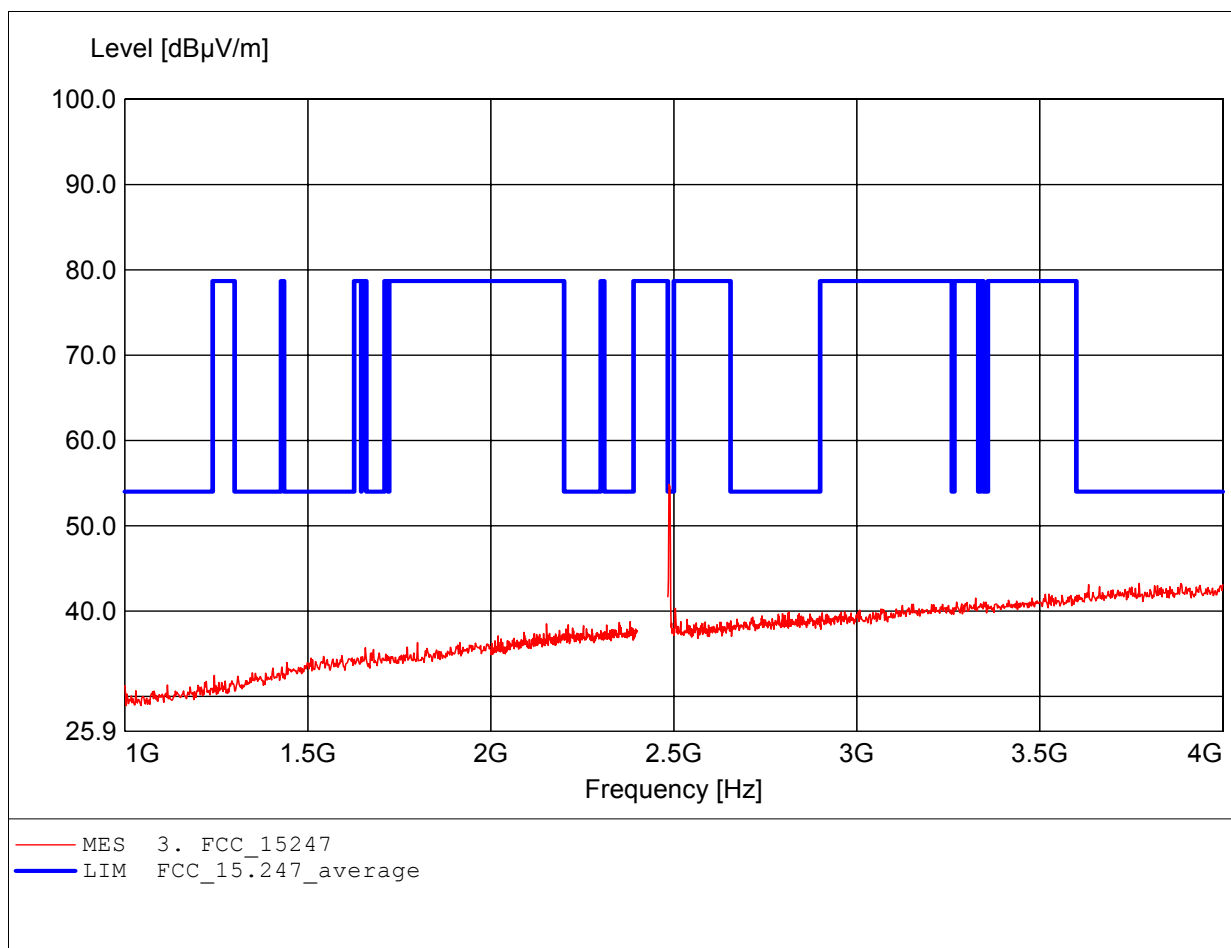
Order Number : W6M20607-7203 high channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq: 2.490GHz, Emax: 52.02dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C / LP0002**

Order Number : W6M20607-7203 high channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq: 2.488GHz, Emax: 54.85dBµV/m, RBW: 1MHz

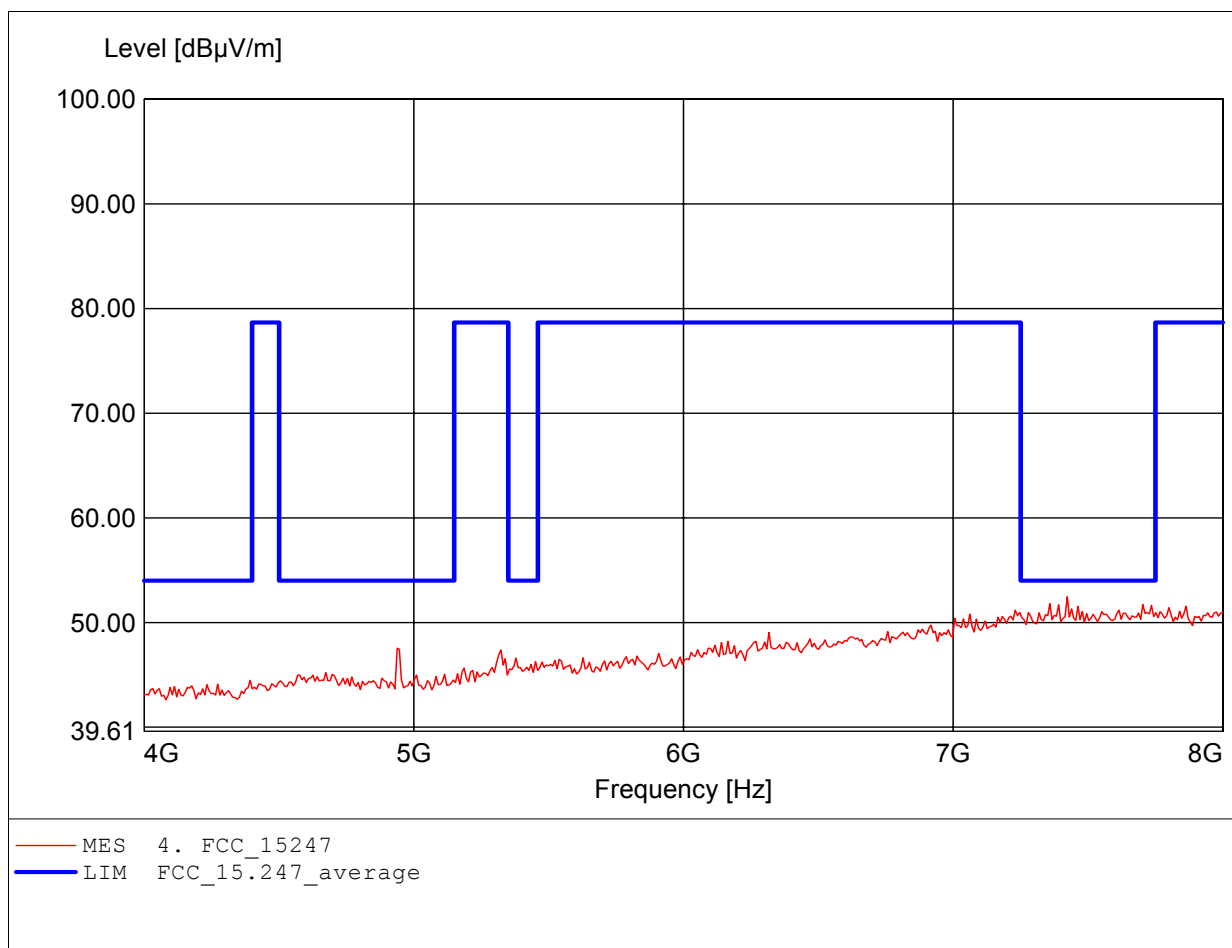




# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

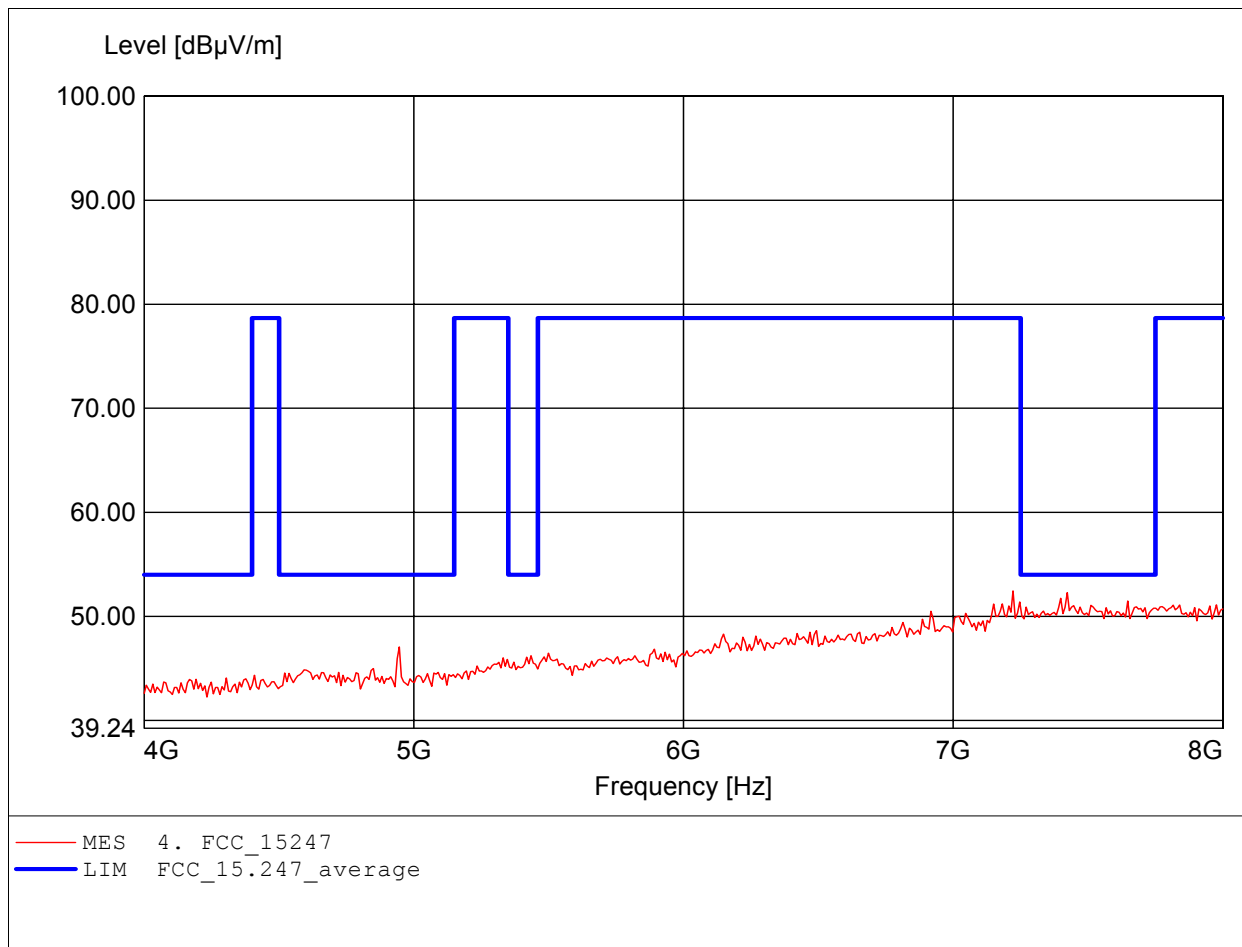
Order Number : W6M20607-7203 high channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 7.423GHz, Emax: 52.45dBμV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

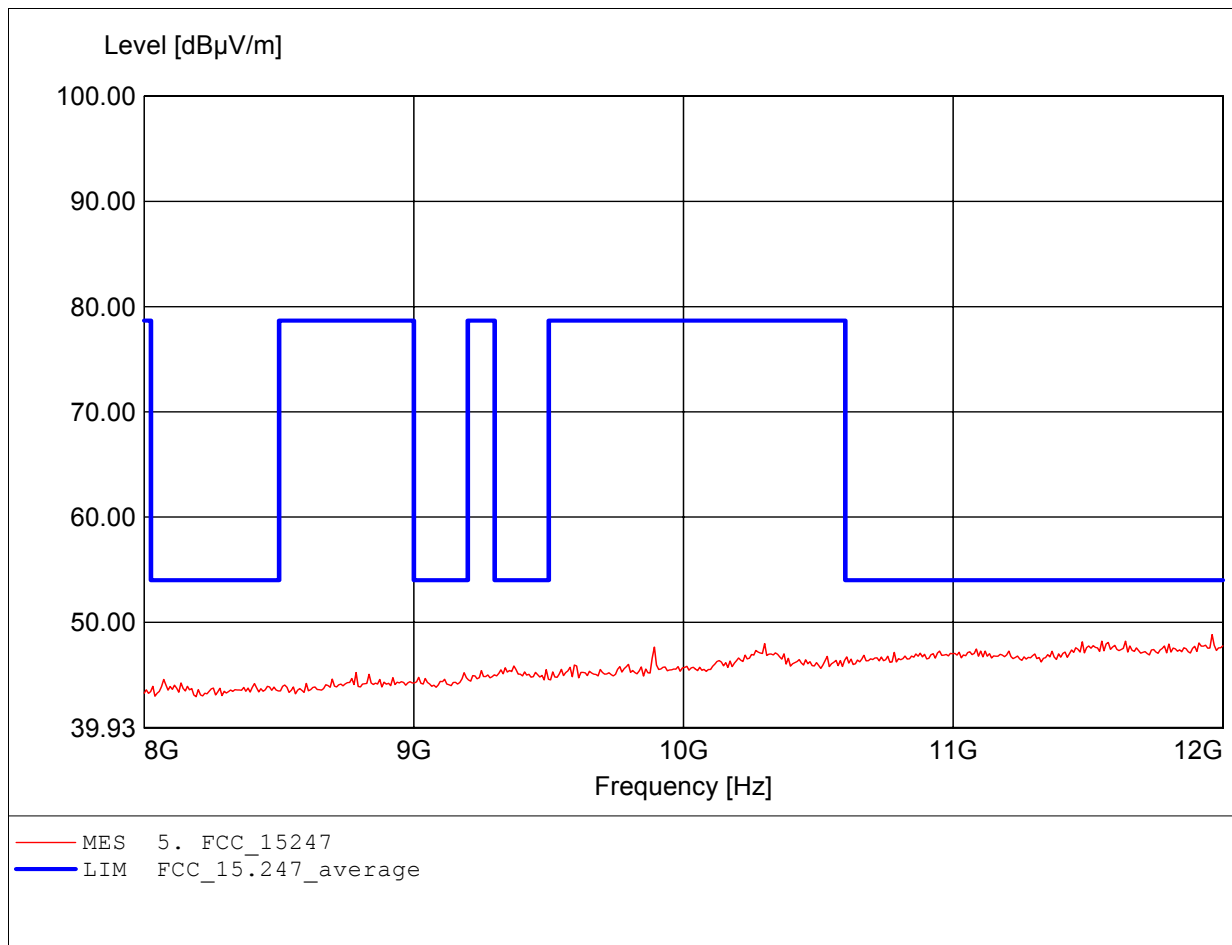
Order Number : W6M20607-7203 high channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 7.222GHz, Emax: 52.44dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

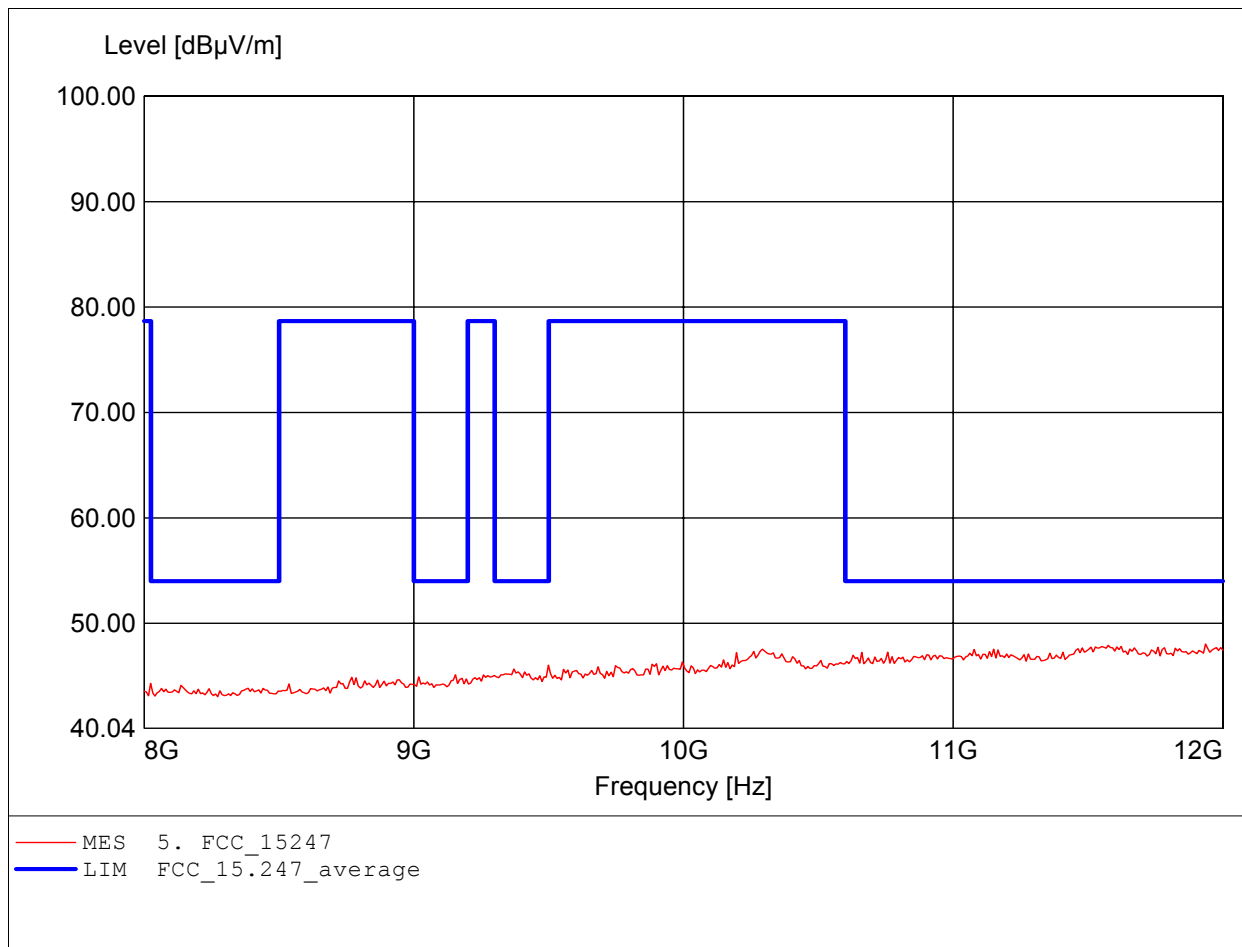
Order Number : W6M20607-7203 high channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 11.960GHz, Emax: 48.83dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C / LP0002**

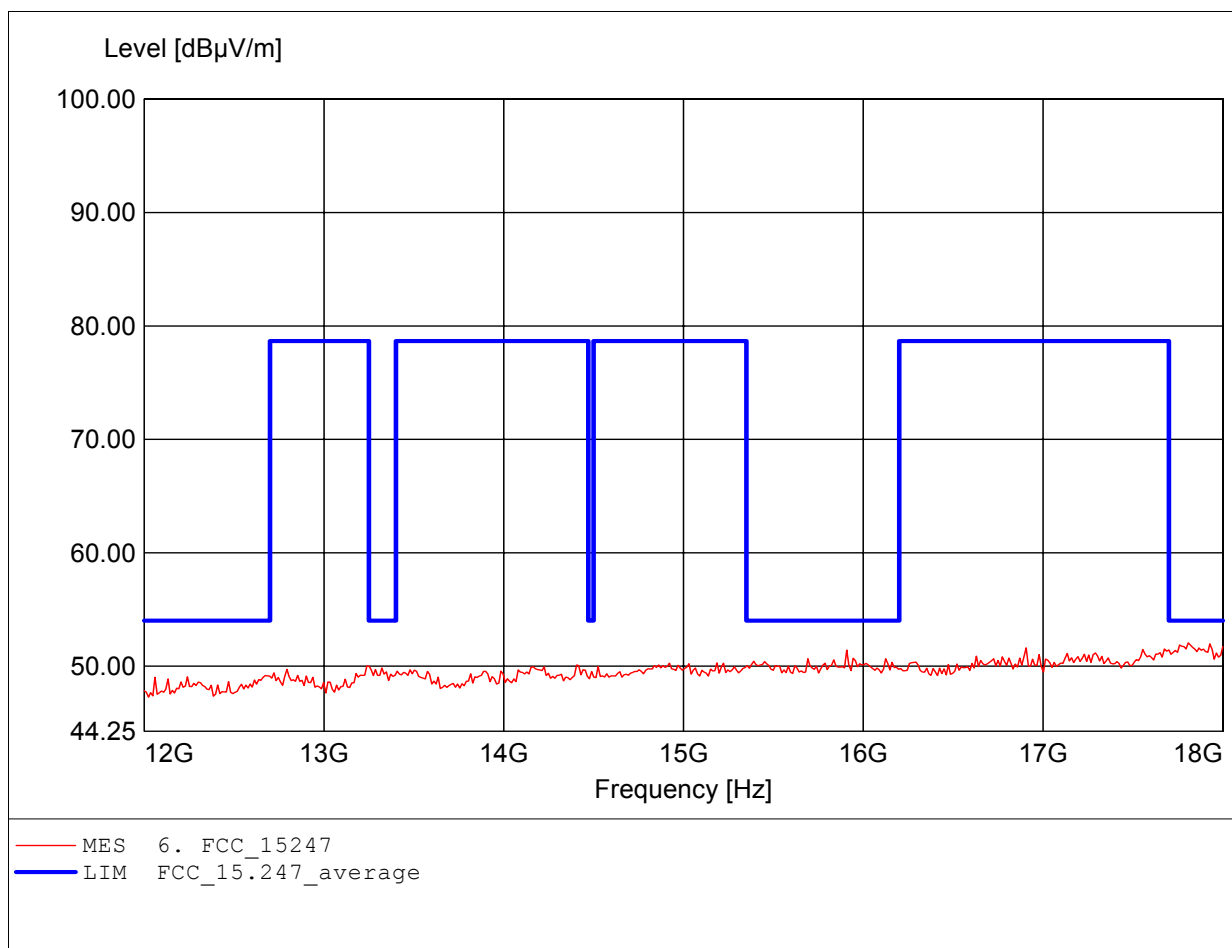
Order Number : W6M20607-7203 high channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 11.936GHz, Emax: 48.02dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

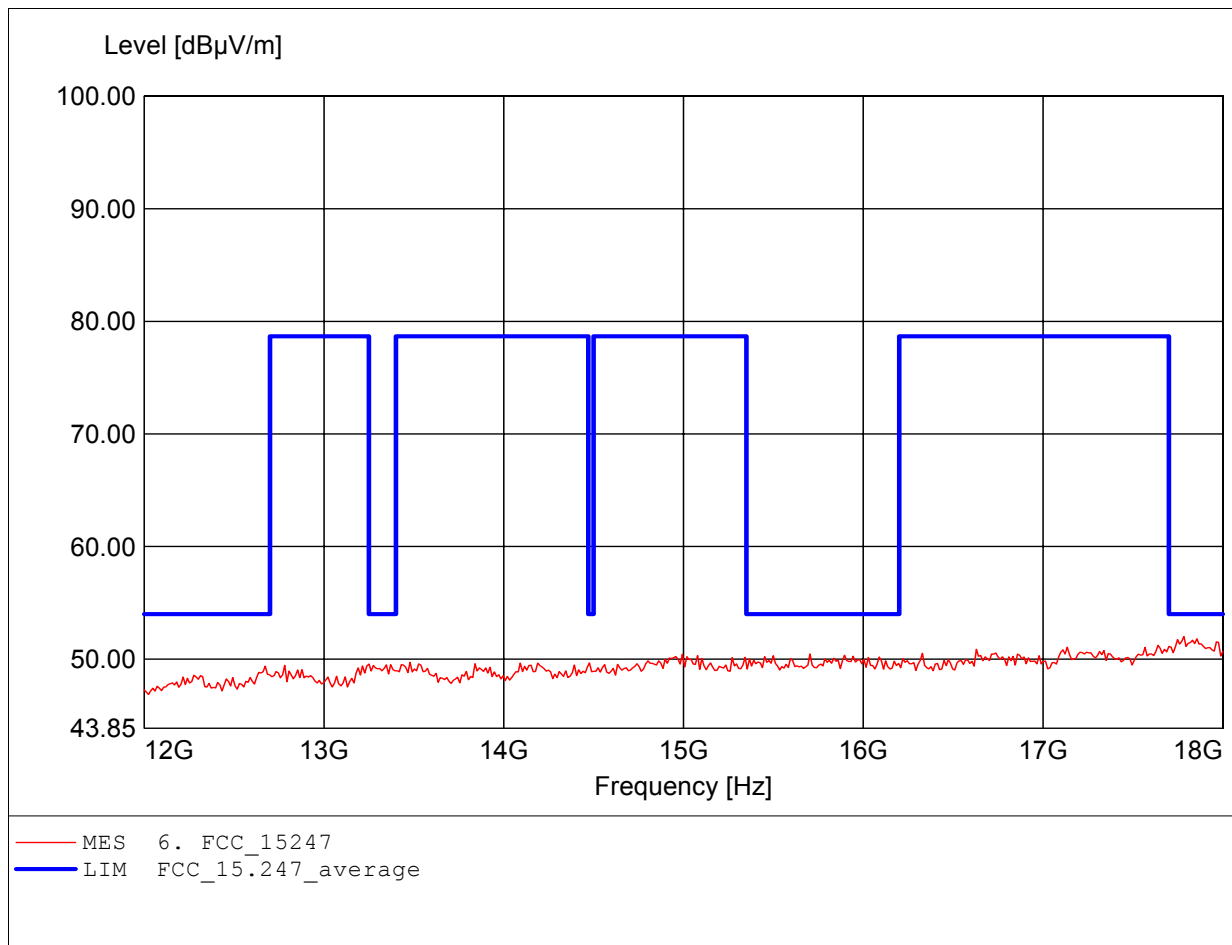
Order Number : W6M20607-7203 high channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 17.808GHz, Emax: 52.04dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

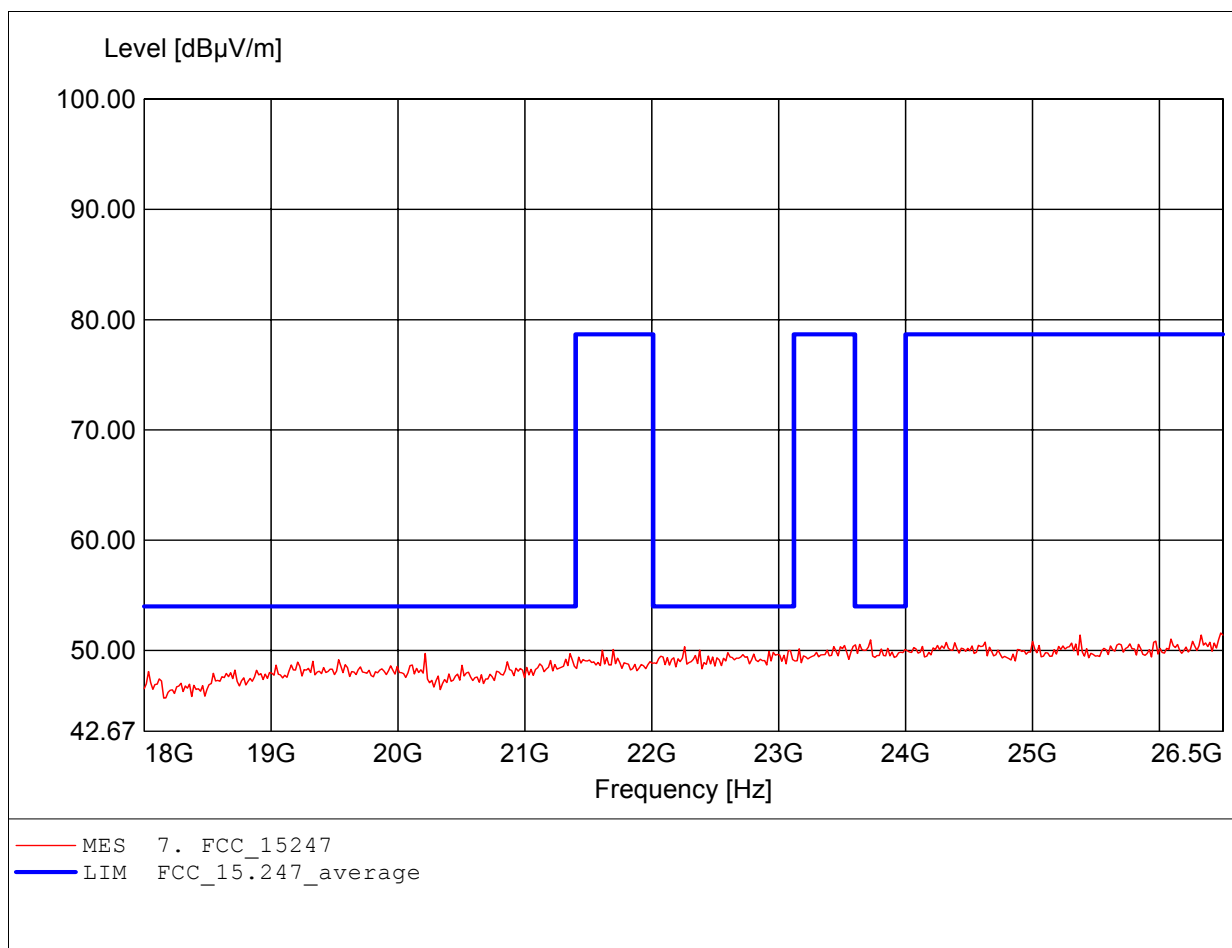
Order Number : W6M20607-7203 high channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 17.784GHz, Emax: 52.00dBµV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

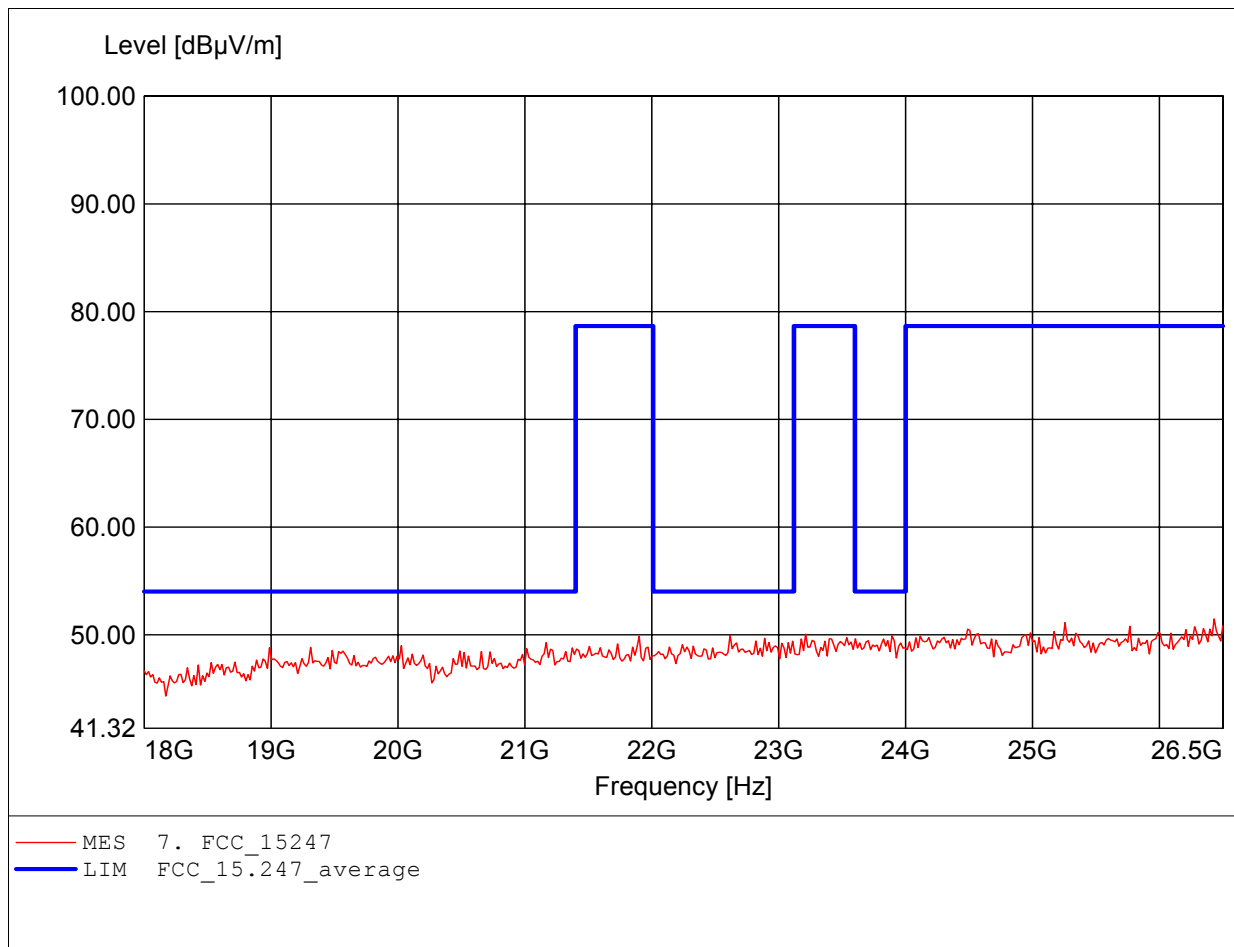
Order Number : W6M20607-7203 high channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq: 26.483GHz, Emax: 51.58dBµV/m, RBW: 1MHz



**Spurious emissions Field Strength**

**FCC RULES PART 15, SUBPART C / LP0002**

Order Number : W6M20607-7203 high channel  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: according to §15.247, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq: 26.432GHz, Emax: 51.46dBµV/m, RBW: 1MHz







Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

## Appendix C

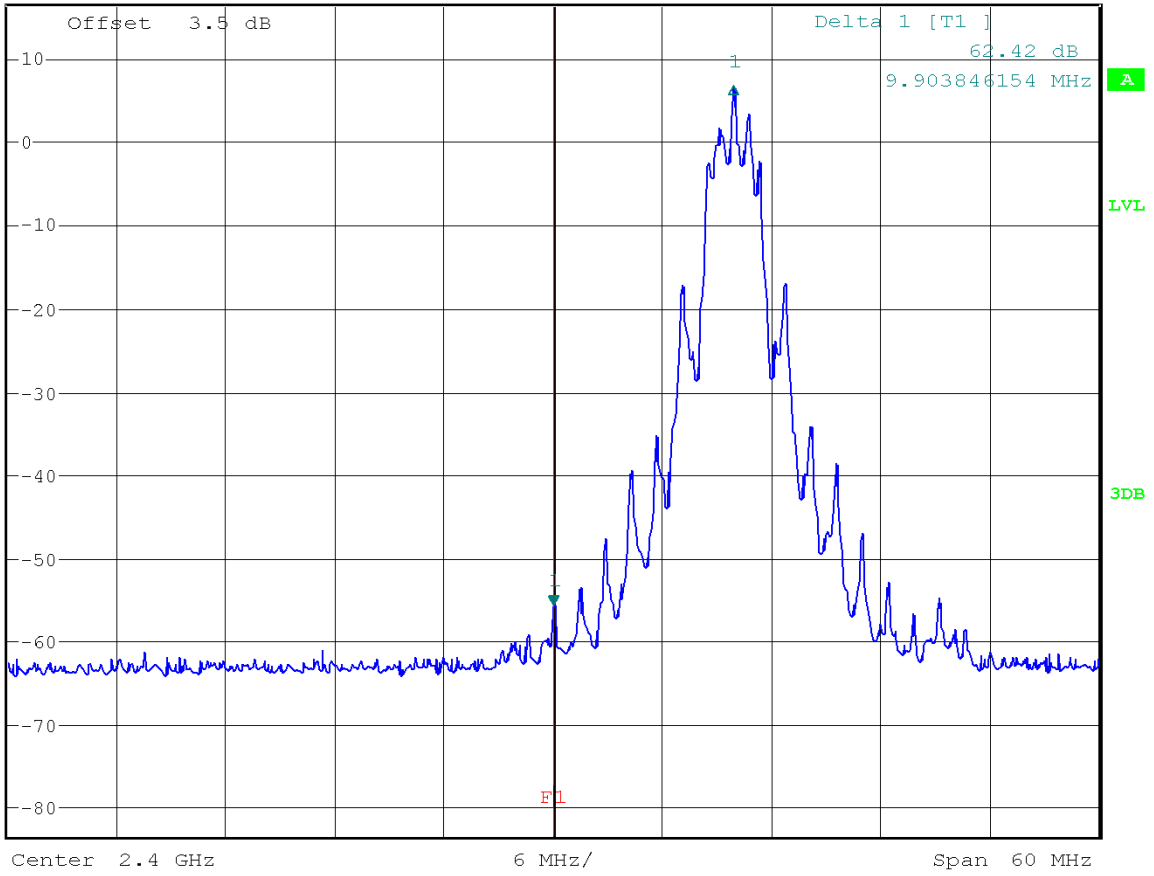
### Band Edge Measurement



\*RBW 100 kHz      Marker 1 [T1 ]  
\*VBW 300 kHz      -55.95 dBm  
\*SWT 200 ms      2.400000000 GHz

Ref 16.5 dBm      \*Att 10 dB

1 PK  
MAXH



BANDEGE CH1

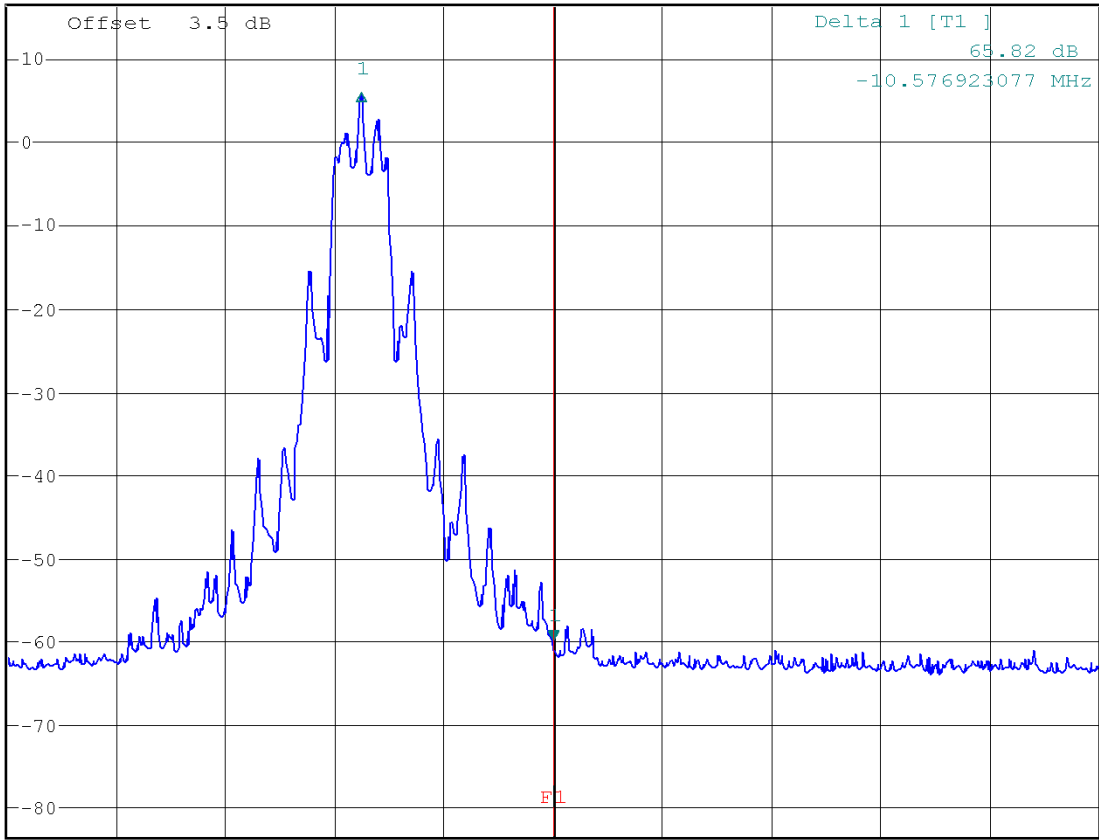
Date: 26.JUL.2006 09:05:32



\*RBW 100 kHz      Marker 1 [T1 ]  
\*VBW 300 kHz      -60.08 dBm  
\*SWT 200 ms      2.483500000 GHz

Ref 16.5 dBm      \*Att 10 dB

1 PK  
MAXH



Center 2.4835 GHz      6 MHz/      Span 60 MHz

BANDEDGE CH8

Date: 26.JUL.2006 09:04:47



Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

## Appendix D

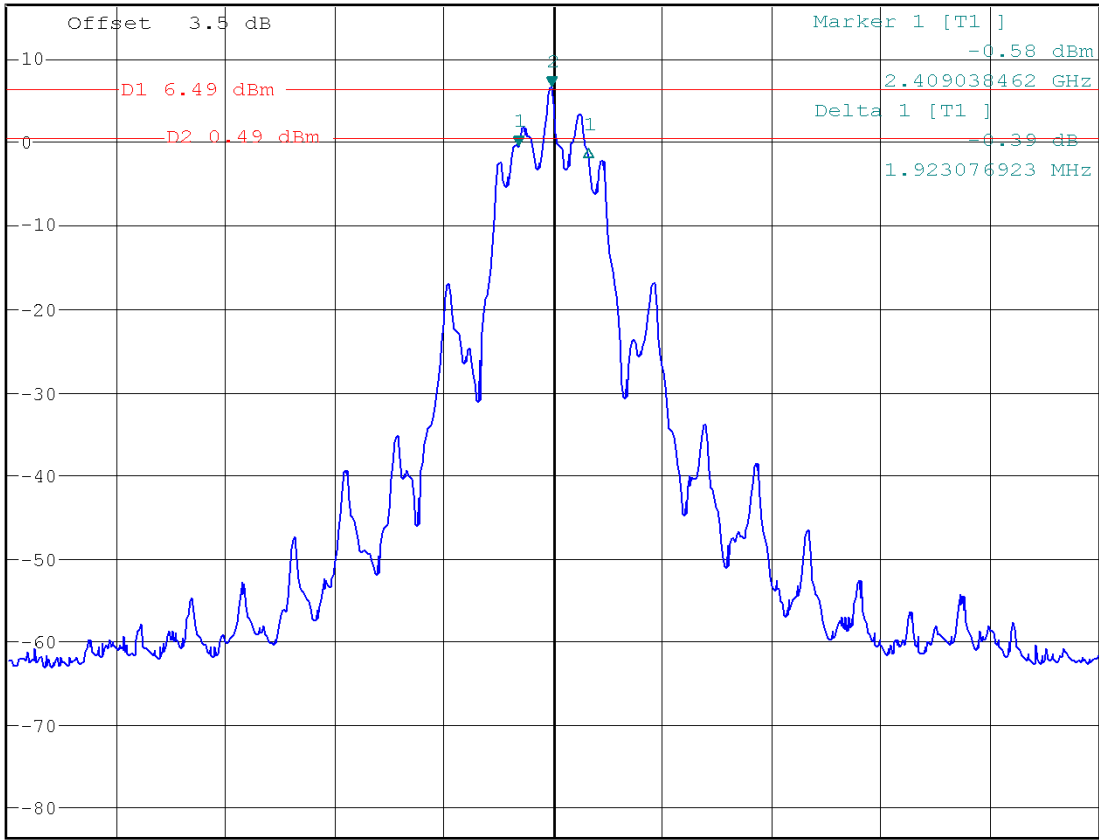
### Minimum 6dB Bandwidth



\*RBW 100 kHz      Marker 2 [T1 ]  
\*VBW 300 kHz      6.49 dBm  
\*SWT 200 ms      2.409951923 GHz

Ref 16.5 dBm      \*Att 10 dB

1 PK  
MAXH



Center 2.41 GHz      3 MHz/      Span 30 MHz

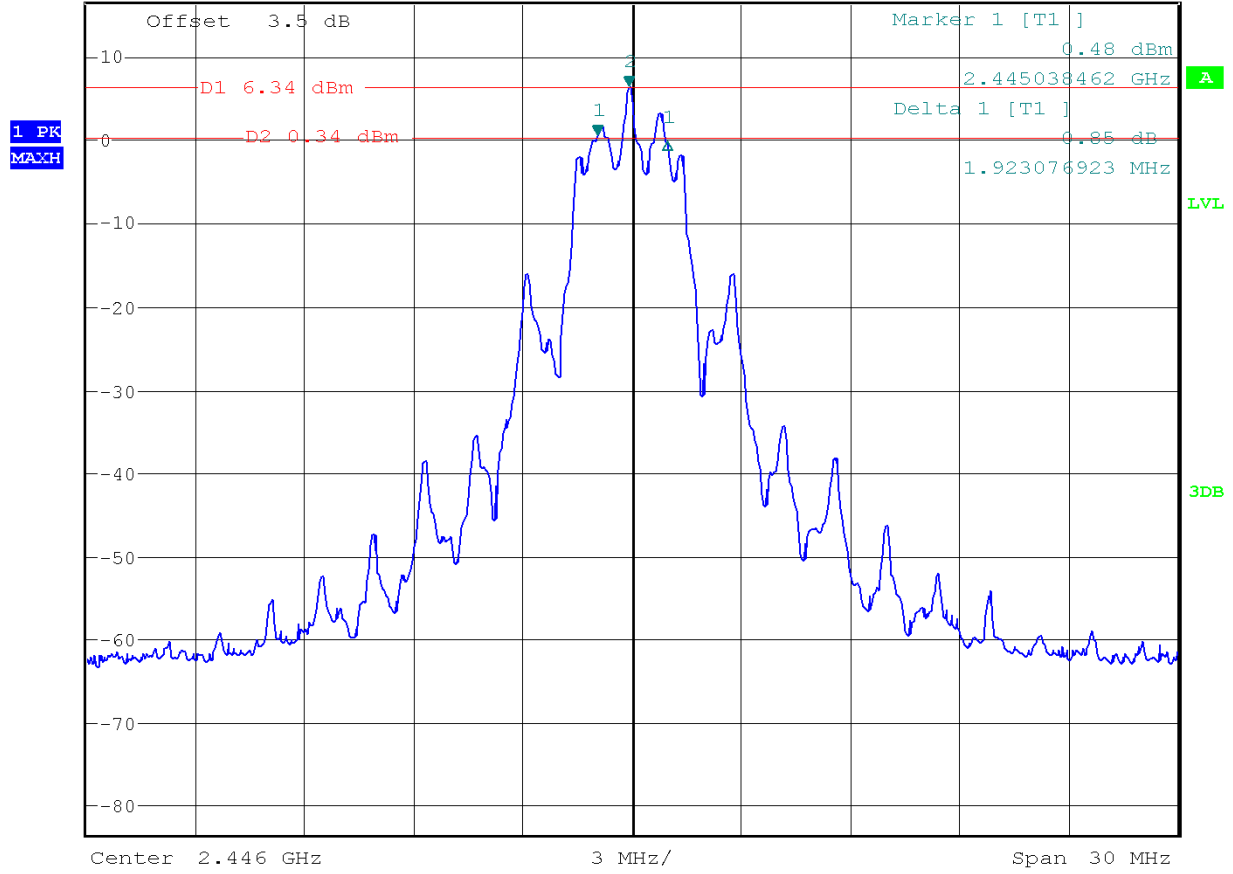
6dB BANDWIDTH CH1

Date: 26.JUL.2006 09:19:07



\*RBW 100 kHz      Marker 2 [T1 ]  
\*VBW 300 kHz      6.34 dBm  
\*SWT 200 ms      2.445903846 GHz

Ref 16.5 dBm      \*Att 10 dB



6dB BANDWIDTH CH5

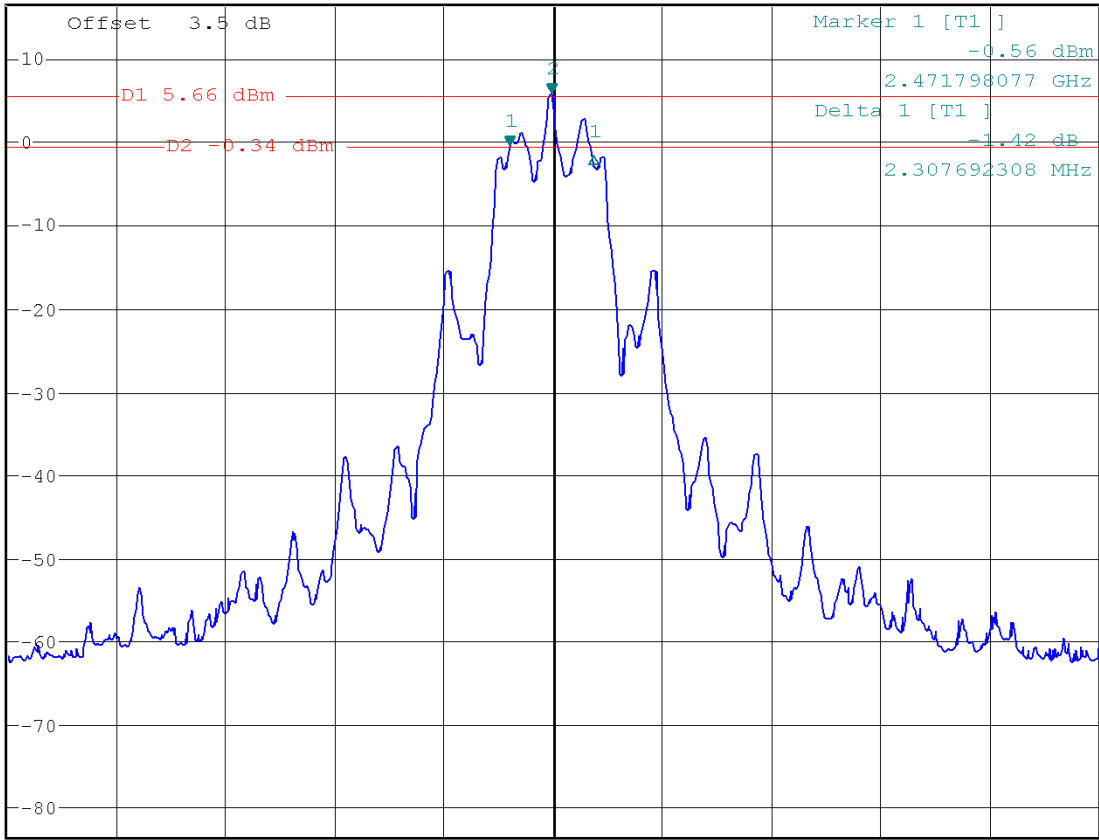
Date: 26.JUL.2006 09:20:42



\*RBW 100 kHz      Marker 2 [T1 ]  
\*VBW 300 kHz                      5.66 dBm  
\*SWT 200 ms                      2.472951923 GHz

Ref 16.5 dBm      \*Att 10 dB

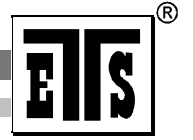
1 PK  
MAXH



Center 2.473 GHz      3 MHz/      Span 30 MHz

6dB BANDWIDTH CH8

Date: 26.JUL.2006 09:17:20



Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

## Appendix E

### Peak Power Spectral Density

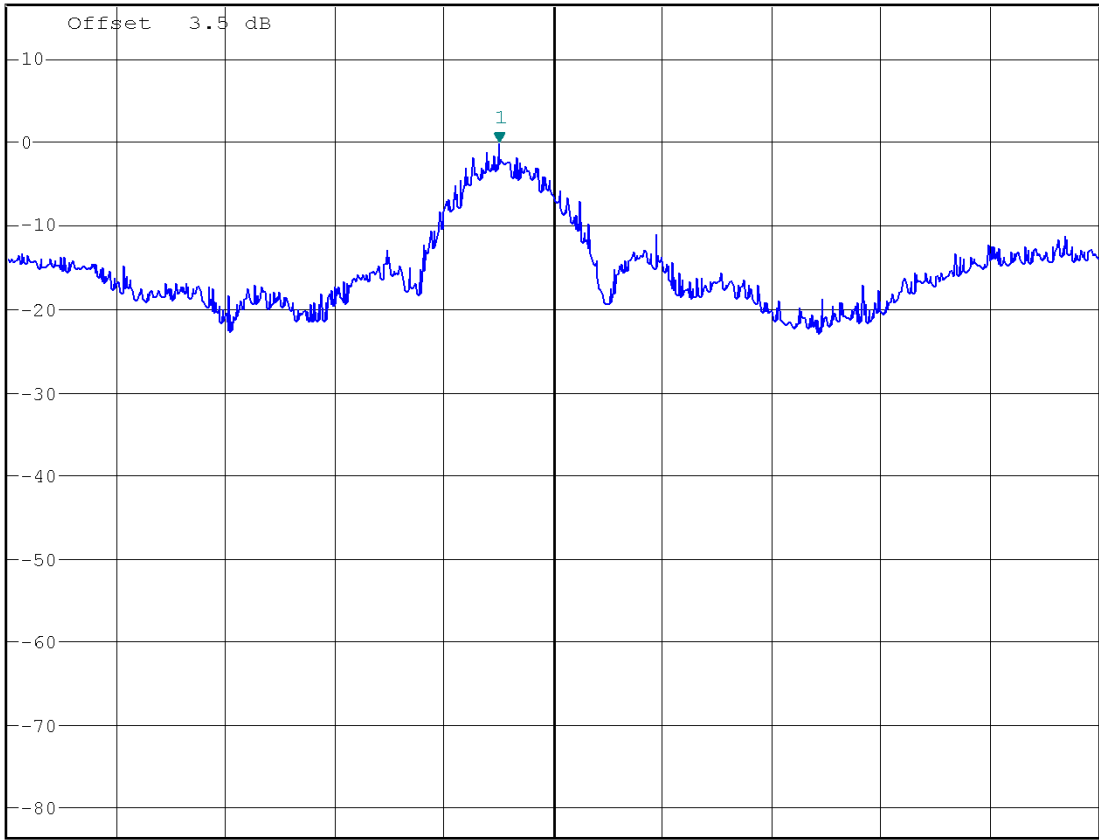




\*RBW 3 kHz      Marker 1 [T1 ]  
\*VBW 100 kHz      -0.17 dBm  
\*SWT 500 s      2.409925481 GHz

Ref 16.5 dBm      \*Att 10 dB

1 PK  
MAXH



Center 2.41 GHz      150 kHz/      Span 1.5 MHz

POWER DENSITY CH1

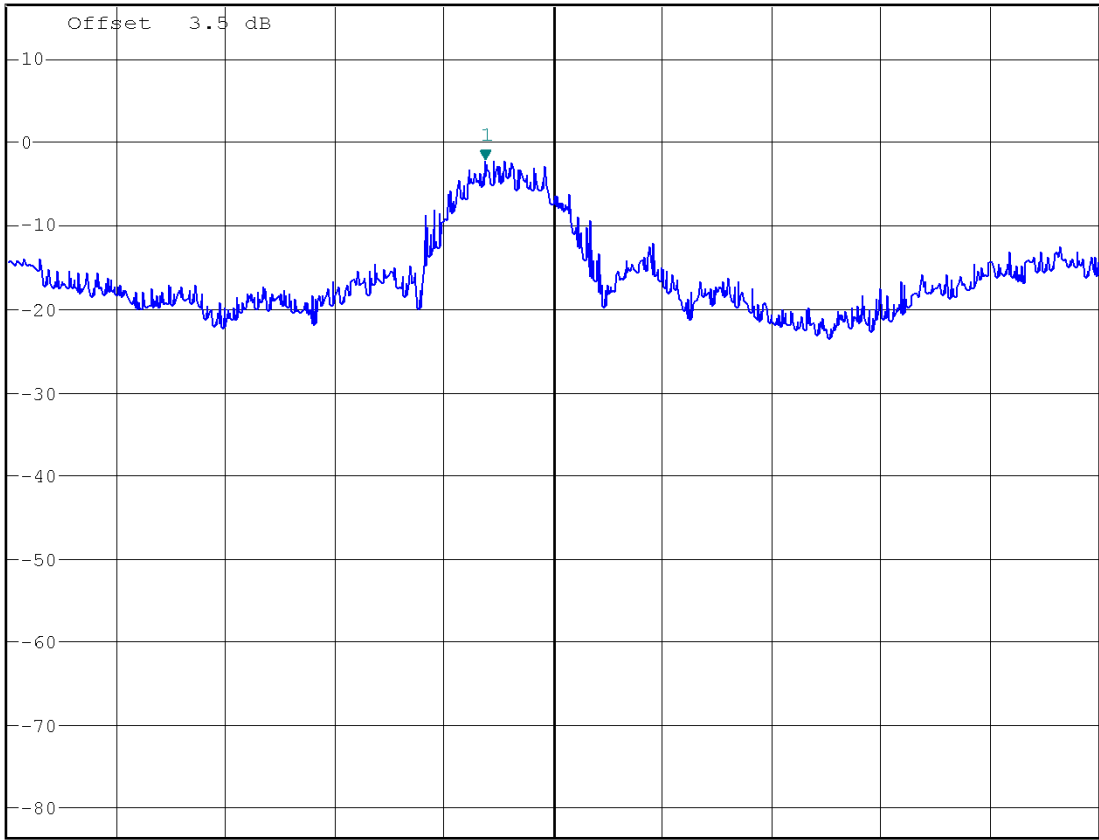
Date: 26.JUL.2006 09:09:37



\*RBW 3 kHz      Marker 1 [T1 ]  
\*VBW 100 kHz      -2.21 dBm  
\*SWT 500 s      2.445906250 GHz

Ref 16.5 dBm      \*Att 10 dB

1 PK  
MAXH



Offset 3.5 dB  
Center 2.446 GHz      150 kHz/      Span 1.5 MHz

POWER DENSITY CH5

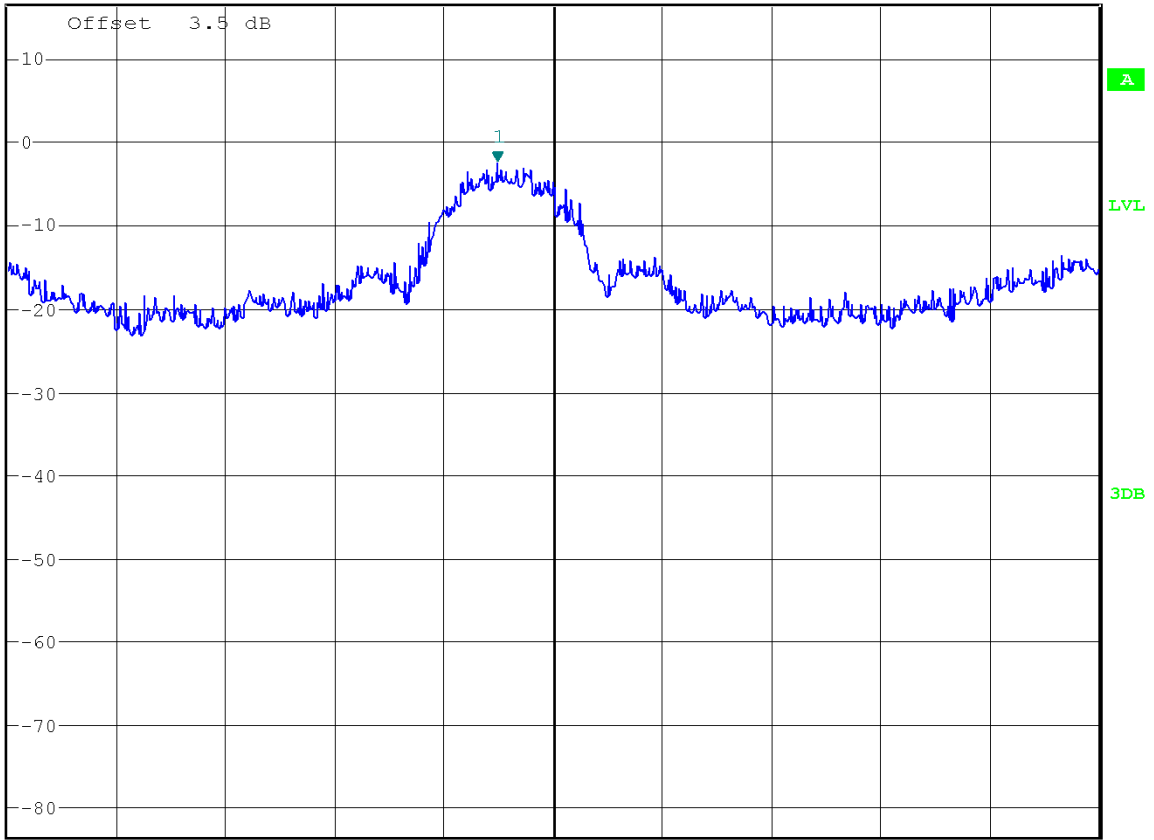
Date: 26.JUL.2006 09:11:04



\*RBW 3 kHz      Marker 1 [T1 ]  
\*VBW 100 kHz      -2.61 dBm  
\*SWT 500 s      2.472923077 GHz

Ref 16.5 dBm      \*Att 10 dB

1 PK  
MAXH



Center 2.473 GHz      150 kHz/      Span 1.5 MHz

POWER DENSITY CH8

Date: 26.JUL.2006 09:12:40



Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

## Appendix F

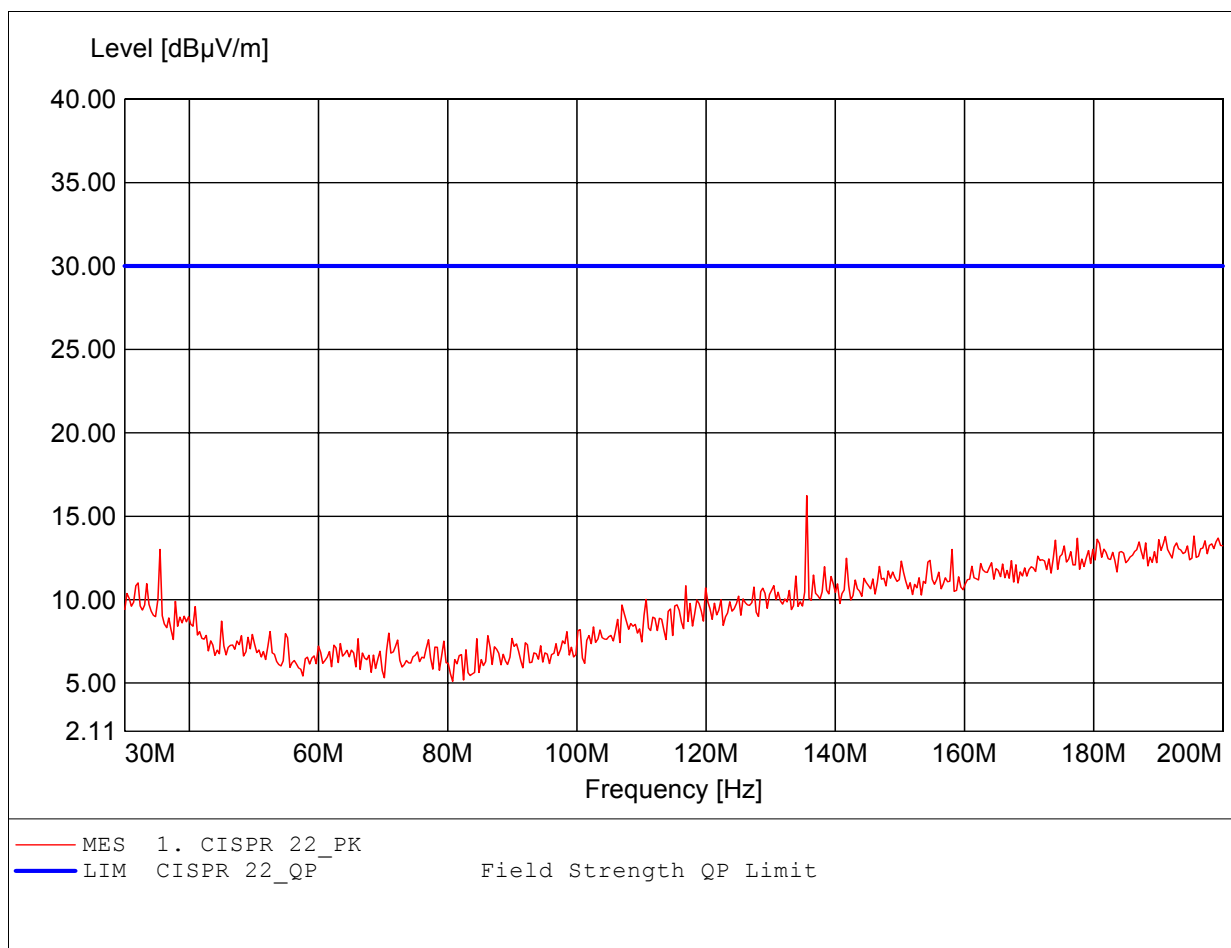
### Radiated Emissions from Receiver Section of Transceiver

**The measurement diagram are wideband pre-scan results; only for reference.**

**Spurious emissions under normal conditions**

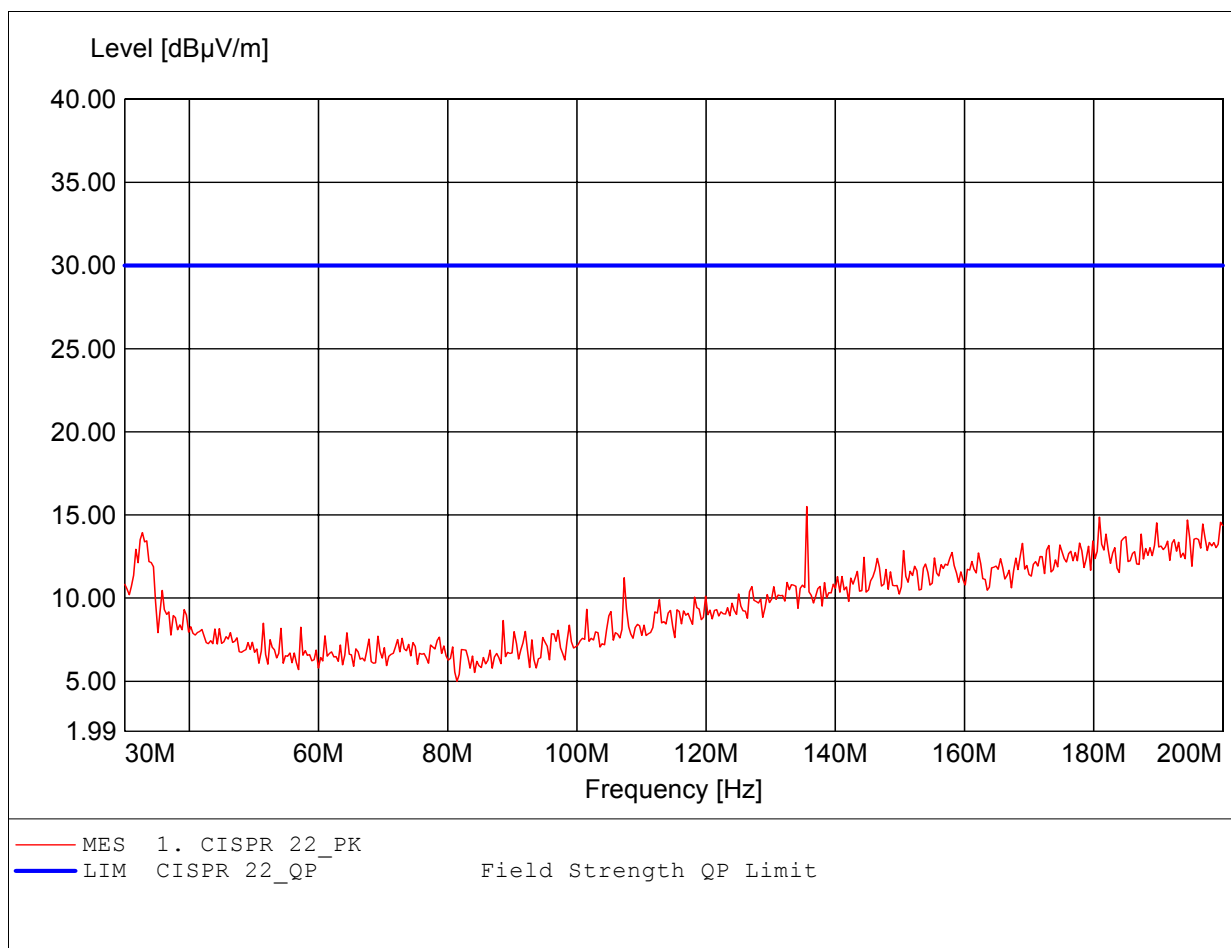
**in accordance to the CISPR 22**

Order Number : W6M20607-7203  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: FullyAnechoic Chamber  
Comment 1: Dist.: 3m, Ant.: HK 116  
Freq:135.611MHz Emax:16.24dBµV/m RBW: 100 kHz



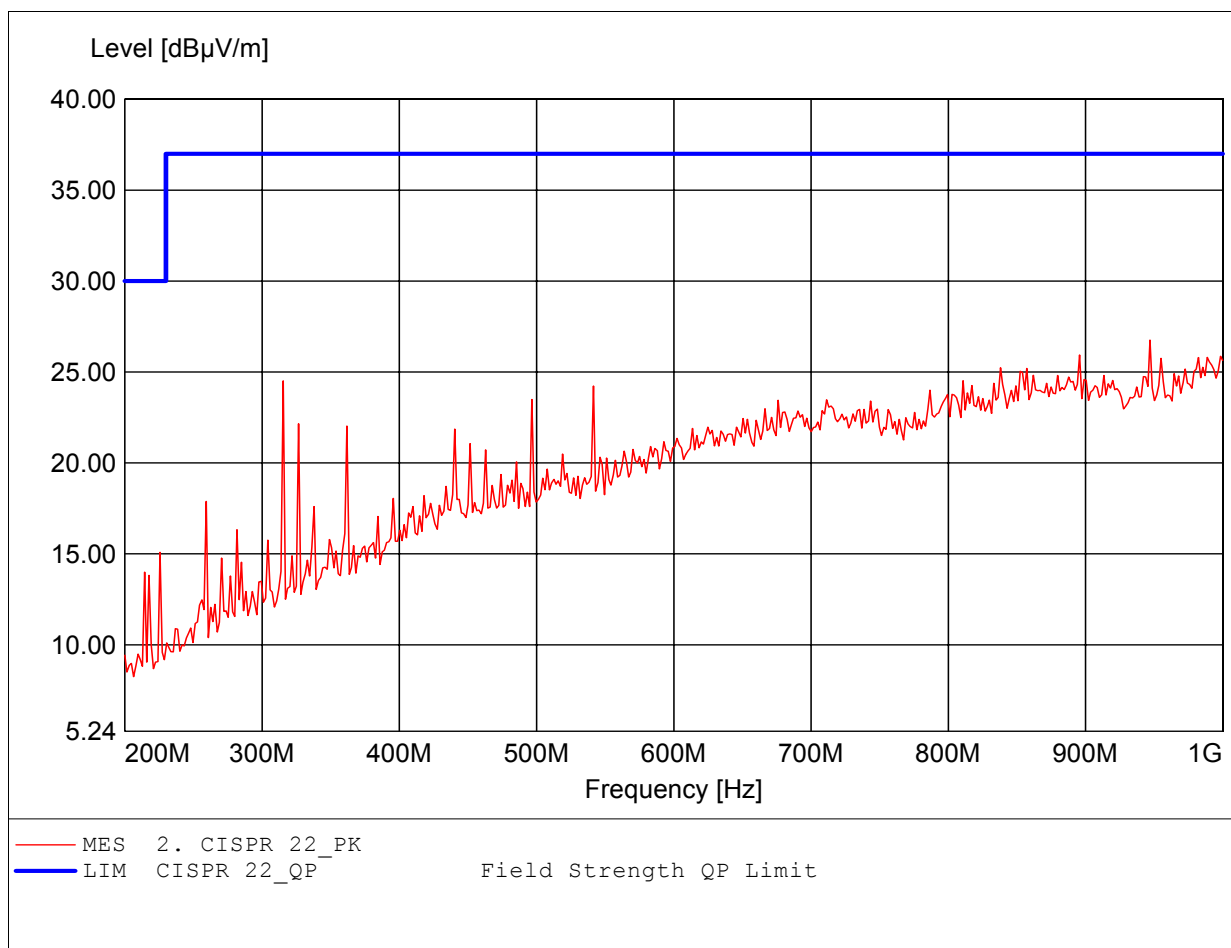
**Spurious emissions under normal conditions**  
**in accordance to the CISPR 22**

Order Number : W6M20607-7203  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: FullyAnechoic Chamber  
Comment 1: Dist.: 3m, Ant.: HK 116  
Freq:135.611MHz Emax:15.51dBµV/m RBW: 100 kHz



**Spurious emissions under normal conditions  
in accordance to the CISPR 22**

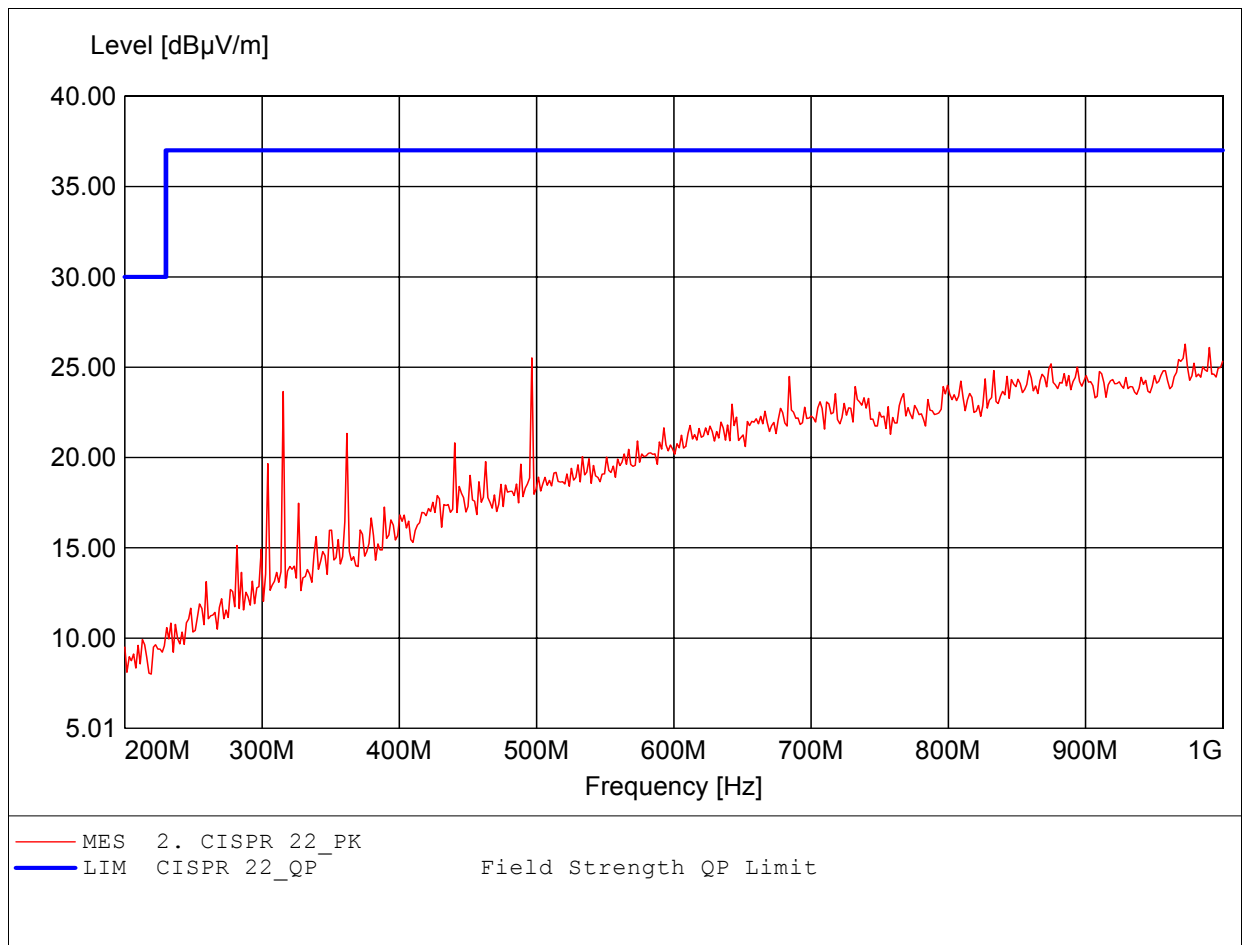
Order Number : W6M20607-7203  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: FullyAnechoic Chamber  
Comment 1: Dist.: 3m, Ant.: HL 223  
Freq:947.094MHz Emax:26.76dBµV/m RBW: 100 kHz



**Spurious emissions under normal conditions**

**in accordance to the CISPR 22**

Order Number : W6M20607-7203  
Test Site / Operator: ETS / Charles  
Temperature/Voltage: Temp.: 23.9°C/ Unom.: 9 VDC ( ac/dc adaptor)  
Test Specification: FullyAnechoic Chamber  
Comment 1: Dist.: 3m, Ant.: HL 223  
Freq:972.745MHz Emax:26.27dBµV/m RBW: 100 kHz







Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

## Appendix G

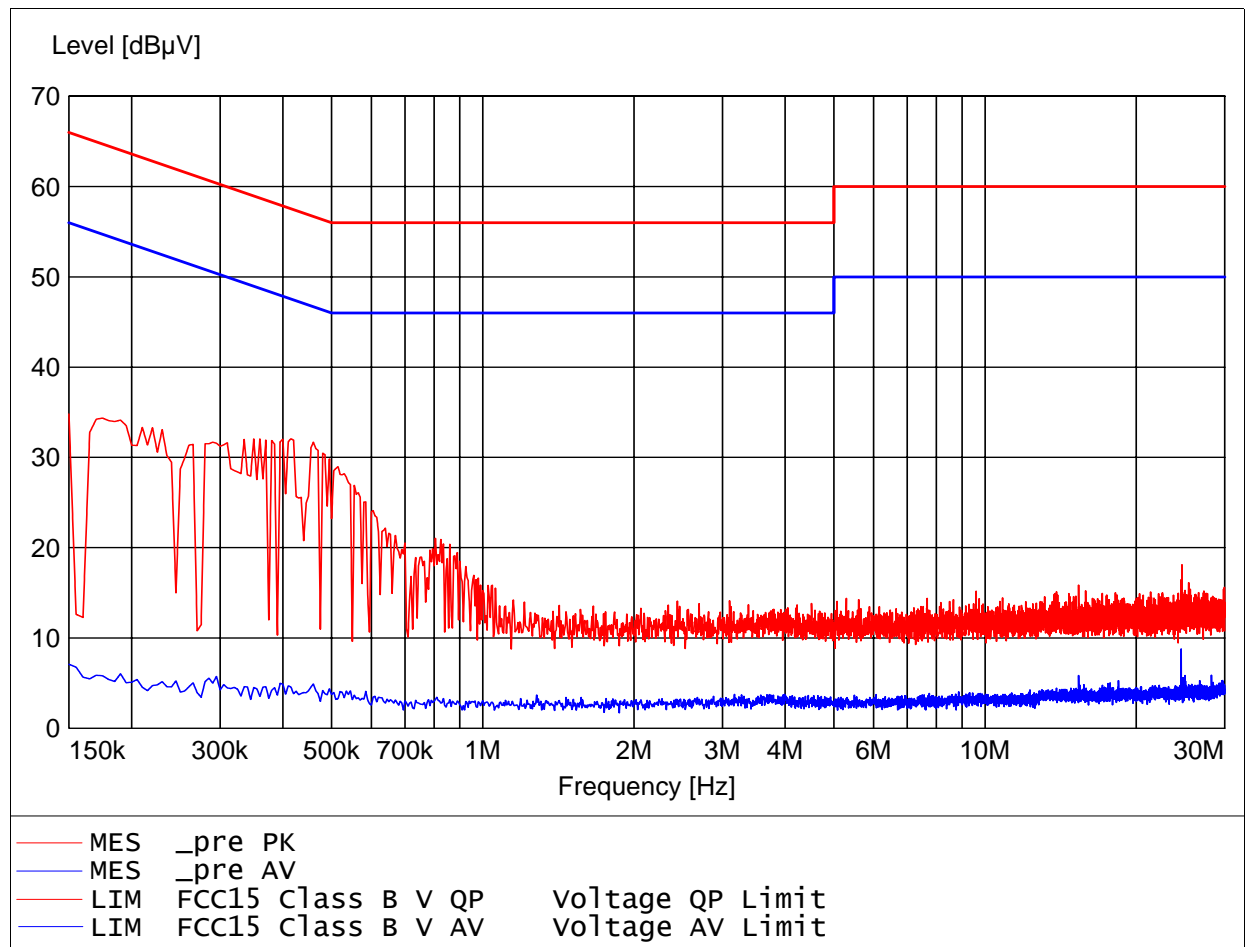
### Power Line Conducted Emission

**The measurement diagram are wideband pre-scan results; only for reference.**

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

**CLASS B**

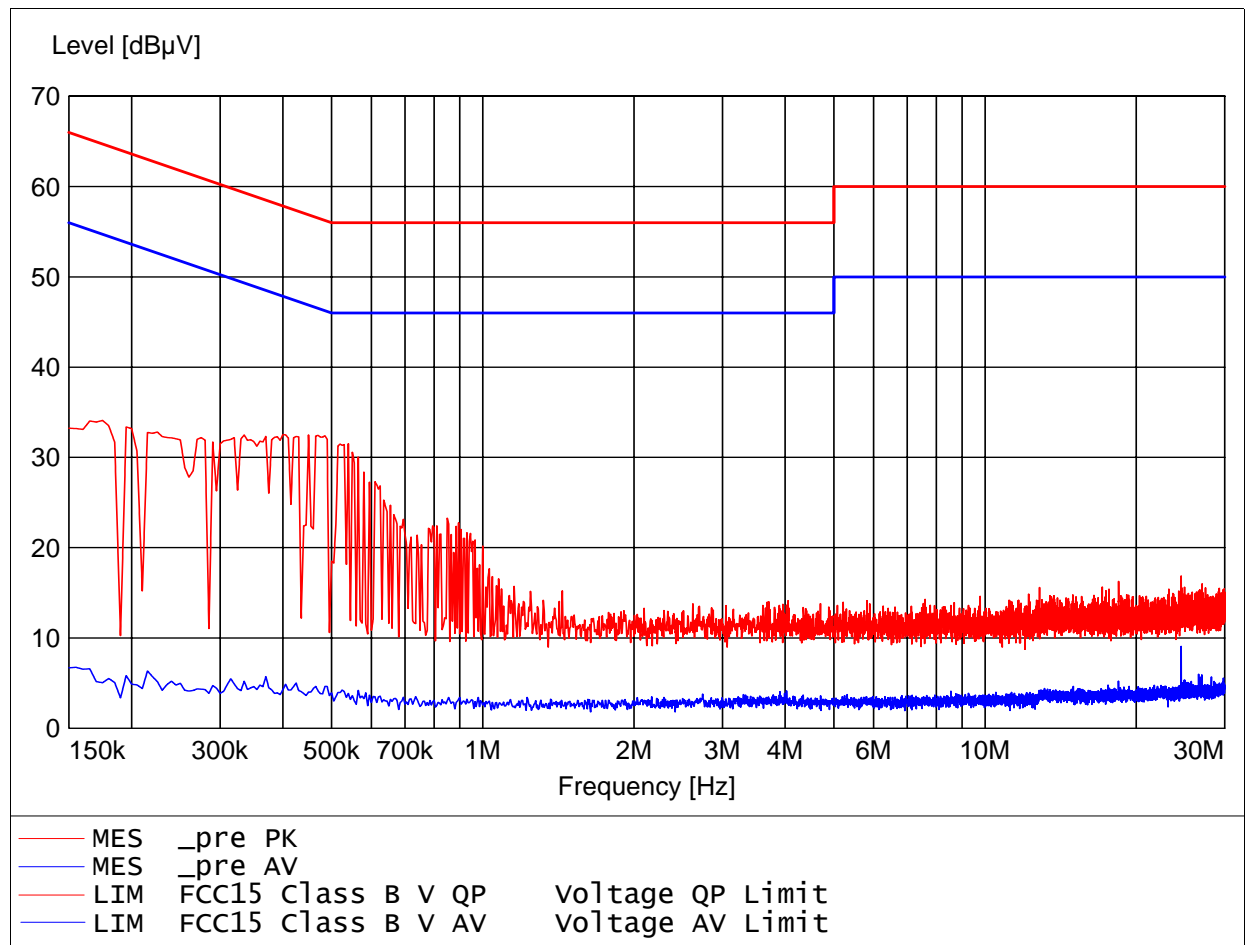
Order Number: W6M20607-7203  
Operating Condition: Unom: 9 VDC ( ac/dc adaptor ) , Tnom: 23.9°C  
Test Site: ETS  
Operator: Michael  
Test Specification: V-network: ESH3-Z5 N



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

**CLASS B**

Order Number: W6M20607-7203  
Operating Condition: Unom: 9 VDC ( ac/dc adaptor) , Tnom: 23.9°C  
Test Site: ETS  
Operator: Michael  
Test Specification: V-network: ESH3-Z5 L1





Registration number: W6M20607-7203-C-1  
FCC ID: PNKWDA-105C

## Appendix H

### Pictures