

**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 § 15.249**

**FCC ID : TYNWV-3201D**

**Test report no.:**

**W6M20512-6462-P-15**

## TABLE OF CONTENTS

|          |                                                            |           |
|----------|------------------------------------------------------------|-----------|
| <b>1</b> | <b>GENERAL INFORMATION .....</b>                           | <b>2</b>  |
| 1.1      | NOTES .....                                                | 2         |
| 1.2      | TESTING LABORATORY .....                                   | 3         |
| 1.2.1    | Location .....                                             | 3         |
| 1.2.2    | Details of accreditation status .....                      | 3         |
| 1.3      | DETAILS OF APPROVAL HOLDER .....                           | 3         |
| 1.4      | APPLICATION DETAILS .....                                  | 4         |
| 1.5      | GENERAL INFORMATION OF TEST ITEM .....                     | 4         |
| 1.6      | TEST STANDARDS .....                                       | 5         |
| <b>2</b> | <b>TECHNICAL TEST .....</b>                                | <b>6</b>  |
| 2.1      | SUMMARY OF TEST RESULTS .....                              | 6         |
| 2.2      | TEST ENVIRONMENT .....                                     | 6         |
| 2.3      | TEST EQUIPMENT LIST .....                                  | 7         |
| 2.4      | GENERAL TEST PROCEDURE .....                               | 9         |
| <b>3</b> | <b>TEST RESULTS (ENCLOSURE) .....</b>                      | <b>10</b> |
| 3.1      | PEAK OUTPUT POWER (TRANSMITTER) .....                      | 11        |
| 3.2      | EQUIVALENT ISOTROPIC RADIATED POWER .....                  | 12        |
| 3.2.1    | Transmitter .....                                          | 12        |
| 3.3      | RF EXPOSURE COMPLIANCE REQUIREMENTS .....                  | 12        |
| 3.4      | OUT OF BAND RADIATED EMISSIONS .....                       | 12        |
| 3.5      | SPURIOUS EMISSION (TX) .....                               | 13        |
| 3.6      | RADIATED EMISSION FROM DIGITAL PART AND RECEIVER L.O. .... | 15        |
| 3.7      | RADIATED EMISSION ON THE BAND EDGE .....                   | 17        |
| 3.8      | POWER LINE CONDUCTED EMISSION .....                        | 18        |
|          | <b>APPENDIX .....</b>                                      | <b>19</b> |
|          | APPENDIX A .....                                           | 20        |
|          | APPENDIX B .....                                           | 21        |
|          | APPENDIX C .....                                           | 22        |
|          | APPENDIX D .....                                           | 23        |
|          | APPENDIX E .....                                           | 24        |

Registration number: W6M20512-6462-P-15

FCC ID: TYNWV-3201D

**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.

**Tester:**

Oct 03, 2006

Jay Chaing



Date

ETS-Lab.

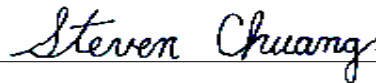
Name

Signature

**Technical responsibility for area of testing:**

Oct 03, 2006

Steven Chuang



Date

ETS

Name

Signature

Registration number: W6M20512-6462-P-15  
FCC ID: TYNWV-3201D

## **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**

**PTCRB Accredited Type Certification Test House**

## **1.3 Details of approval holder**

|            |                                                          |
|------------|----------------------------------------------------------|
| Name:      | SynerTech International Limited                          |
| Street:    | 1st Floor, Dah Way Industrial Building, 86 Hung To Road, |
| Town:      | Kwun Tong,                                               |
| Country:   | Hong Kong                                                |
| Telephone: | (852)2687-6828                                           |
| Fax:       | (852)2687-6936                                           |
| Teletex:   | ./.                                                      |

Registration number: W6M20512-6462-P-15

FCC ID: TYNWV-3201D

**1.4 Application details**

Date of receipt of application : Dec 22, 2005  
Date of receipt of test item : Sep 21, 2006  
Date of test : From Sep 22, 2006 to Oct 03, 2006

**1.5 General information of Test item**

Type of test item : Wireless video door phone - Door Station Color

Model Number : WV-3201D

Serial number : without

Photos : see Annex

**Technical data**

Frequency band : 2.400-2.4835GHz

Operating frequency for audio TX : 2.474, 2.475, 2.476GHz  
RX : 2.404, 2.405, 2.406GHz

Operating frequency for video : 2.432, 2.450GHz

**Audio**

Frequency 1 for TX : 2.474GHz  
Frequency 2 for TX : 2.476GHz  
Frequency 1 for RX : 2.404GHz  
Frequency 2 for RX : 2.406GHz

**Video**

Frequency 1 : 2.432GHz  
Frequency 2 : 2.450GHz

Operation modes : duplex

Modulation Type : FM

Antenna type : dipole antenna

Power supply : 6VDC ( battery )



Registration number: W6M20512-6462-P-15  
FCC ID: TYNWV-3201D

**Manufacturer:**

(if different from applicant)

Name : SynerTech International Limited  
Street : Industrial Zone 2 Qingxi Zhen, Dongguan City Province  
Town : Guangdong  
Country : China

Additional information : --

**1.6 Test standards**

Technical standard : FCC RULES PART 15 SUBPART B /  
SUBPART C § 15.249 : February 2006

Registration number: W6M20512-6462-P-15  
FCC ID: TYNWV-3201D

## **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   |
| Details Power supply          | : 6VDC ( battery ) |
| Extreme conditions parameters | : Not required     |

Registration number: W6M20512-6462-P-15

FCC ID: TYNWV-3201D

### 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<br>TWO-LINE V-NETWORK | ESH3-Z5             | 840731/011     | R&S                                   | 2005/10/25    | 2006/10/24     |
| ETSTW-CE 005 | Line-Impedance Stabilisation<br>Network            | NNBM 8126D          | 137            | Schwarzbeck                           | 2005/10/21    | 2006/10/20     |
| ETSTW-CE 006 | IMPULS-BEGRENZER<br>PULSE LIMITER                  | ESH3-Z2             | 100226         | R&S                                   | 2004/11/11    | 2006/11/10     |
| ETSTW-CE 008 | ABSORBING CLAMP                                    | MDS 21              | 3469           | ABSORPTIONS-<br>MESSWANDLER-<br>ZANGE | 2005/10/24    | 2007/10/23     |
| ETSTW-CE 009 | TEMP.&HUMIDITY<br>CHAMBER                          | GTH-225-40-1P-U     | MAA0305-009    | GIANT FORCE                           | 2006/8/17     | 2007/8/16      |
| ETSTW-CE 011 | Power Line Conducted<br>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<br>POWER SUPPLY                | LPS-305             | 30503070181    | MOTECH                                | Function Test |                |
| ETSTW-RE 011 | PROGRAMMABLE LINEAR<br>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<br>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<br>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<br>6100A | LCRY0604P14508 | LeCory                                | 2006/7/27     | 2007/7/26      |
| ETSTW-RE 034 | Power Sensor                                       | URV5-Z4             | 839313/006     | R&S                                   | 2005/10/17    | 2006/10/16     |
| ETSTW-RE 037 | Log-Periodic DipoleArray<br>Antenna                | 3148                | 00034546       | EMCO                                  | 2004/11/18    | 2006/11/17     |
| ETSTW-RE 038 | Log-Periodic DipoleArray<br>Antenna                | 3148                | 00034547       | EMCO                                  | 2004/11/18    | 2006/11/17     |
| ETSTW-RE 039 | Biconical Antenna                                  | 3110B               | 41760          | EMCO                                  | 2004/11/18    | 2006/11/17     |
| 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      |

Registration number: W6M20512-6462-P-15

FCC ID: TYNWV-3201D

|               |                                                                     |                 |               |                |               |            |
|---------------|---------------------------------------------------------------------|-----------------|---------------|----------------|---------------|------------|
| 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            | 2006/7/28     | 2007/7/27  |
| ETSTW-EMI 001 | HARMONICS 1000                                                      | HAR1000-1P      | 93            | EMC-PARTNER    | 2006/9/11     | 2007/9/10  |
| ETSTW-EMS 002 | Frequency Converter                                                 | YF-6020         | 0308014       | 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     | 2006/12/8  |
| ETSTW-EMS 014 | CISPR 22 TWO BALANCED TELECOM PAIRS IMPEDANCE STABILIZATION NETWORK | FCC-TLISN-T2-02 | 20241         | FCC            | 2005/12/7     | 2006/12/7  |
| ETSTW-GSM 01  | SIM Simulator                                                       | IT3             | B2004-50106   | ORGA           | 2006/7/26     | 2007/7/25  |
| ETSTW-GSM 02  | Universal Radio Communication Tester                                | CMU 200         | 103489        | R&S            | 2005/11/15    | 2006/11/14 |
| 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 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: W6M20512-6462-P-15  
FCC ID: TYNWV-3201D

## 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 |

ANSI STANDARD C63.4-2003 10.1.7 MEASUREMENT PROCEDURES: The UUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m (non metallic table). The UUT was placed in the center of the table. The table used for radiated measurements is capable of continuous rotation. The spectrum was scanned from 30 MHz to 10<sup>th</sup> harmonic of the fundamental.

Peak readings were taken in three (3) orthogonal planes and the highest readings.

Measurements were made by ETS Dr. Genz GmbH 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.

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.

ANTENNA & GROUND:

**This unit uses dipole antenna (see photo).**

Registration number: W6M20512-6462-P-15

FCC ID: TYNWV-3201D

**3 Test results (enclosure)**

| TEST CASE                                                      | Para. Number | Required                            | Test passed                         | Test failed              |
|----------------------------------------------------------------|--------------|-------------------------------------|-------------------------------------|--------------------------|
| Peak Output Power                                              | 15.249 (b)   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Spurious Emissions radiated – Transmitter operating            | 15.249 (e)   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Spurious Emissions conducted – Transmitter operating           | 15.249 (e)   | <input type="checkbox"/>            | <input 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"/> |
| Out of Band Spurious Emission, Band edge-Transmitter operating | 15.249 (e)   | <input type="checkbox"/>            | <input 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: W6M20512-6462-P-15

FCC ID: TYNWV-3201D

**3.1 Peak Output Power (transmitter)**

FCC Rule: 15.249 (b)

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).

Audio

| Test conditions<br>Frequency 1 |                        | Transmitter field strength of<br>fundamental | Transmitter field strength of<br>harmonics |
|--------------------------------|------------------------|----------------------------------------------|--------------------------------------------|
|                                |                        | [dB $\mu$ V/m]                               |                                            |
| T <sub>nom</sub> = 23 °C       | V <sub>nom</sub> = 6 V | 74.67                                        | --                                         |
| Measurement uncertainty        |                        | < 3 dB                                       |                                            |

| Test conditions<br>Frequency 2 |                        | Transmitter field strength of<br>fundamental | Transmitter field strength of<br>harmonics |
|--------------------------------|------------------------|----------------------------------------------|--------------------------------------------|
|                                |                        | [dB $\mu$ V/m]                               |                                            |
| T <sub>nom</sub> = 23 °C       | V <sub>nom</sub> = 6 V | 74.85                                        | --                                         |
| Measurement uncertainty        |                        | < 3 dB                                       |                                            |

Video

| Test conditions<br>Frequency 1 |                        | Transmitter field strength of<br>fundamental | Transmitter field strength of<br>harmonics |
|--------------------------------|------------------------|----------------------------------------------|--------------------------------------------|
|                                |                        | [dB $\mu$ V/m]                               |                                            |
| T <sub>nom</sub> = 23 °C       | V <sub>nom</sub> = 6 V | 103.59                                       | --                                         |
| Measurement uncertainty        |                        | < 3 dB                                       |                                            |

| Test conditions<br>Frequency 2 |                        | Transmitter field strength of<br>fundamental | Transmitter field strength of<br>harmonics |
|--------------------------------|------------------------|----------------------------------------------|--------------------------------------------|
|                                |                        | [dB $\mu$ V/m]                               |                                            |
| T <sub>nom</sub> = 23 °C       | V <sub>nom</sub> = 6 V | 103.35                                       | --                                         |
| Measurement uncertainty        |                        | < 3 dB                                       |                                            |

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 030, ETSTW-RE 017

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

Registration number: W6M20512-6462-P-15

FCC ID: TYNWV-3201D

### 3.2 Equivalent isotropic radiated power

Because using an permanent antenna there are no deviations from the radiated test results according 3.1.

#### 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 § 15.249, subpart C, This unit uses permanent antenna. There is no provision for an external antenna (see photo).

### 3.3 RF Exposure Compliance Requirements

Not applicable for this Wireless video door phone - Door Station Color for the low power level.

### 3.4 Out of Band Radiated Emissions

FCC Rule: 15.249 (d)(e), 15.35(b)

Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in section 15.209, whichever is the lesser attenuation.

For frequency above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

Limits:

| Frequency of Emission<br>(MHz) | Field strength<br>(microvolts/meter) | Field Strength<br>(dB microvolts/meter) |
|--------------------------------|--------------------------------------|-----------------------------------------|
| 30 - 88                        | 100                                  | 40.0                                    |
| 88 - 216                       | 150                                  | 43.5                                    |
| 216 - 960                      | 200                                  | 46.5                                    |
| Above 960                      | 500                                  | 54.0                                    |

For frequencies above 1 GHz (Peak measurements).

Limit + 20 dB

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

Or

Must be attenuated at least 50dB below the level of fundament

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

Comment: see attached diagram

### 3.5 Spurious emission (tx)

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

Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in section 15.209, whichever is the lesser attenuation.

For frequencies above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

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

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

The critical peak value listed in the table agree with the above calculated limits.

#### 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) | Antenna Height (cm) | Table Azimuth (degree) |
|----------------------|------------------------|--------------------------|------------------------|----------|----------------------|---------------------------|-------------|---------------------|------------------------|
| H                    | 804.2080               | 17.71                    | 25.17                  | QP       | 42.88                | 46                        | 3.12        | 240                 | 214                    |
|                      | 825.4900               | 18.65                    | 25.54                  | QP       | 44.19                | 46                        | 1.81        | 280                 | 92                     |
|                      | 1823.9690              | 50.68                    | -4.64                  | PK       | 46.04                | 54                        | 7.96        | 140                 | 140                    |
|                      | 7296.0714              | 48.47                    | 6.45                   | PK       | 54.92                | 74                        | 19.08       | 130                 | 100                    |
|                      | 7296.0714              | 42.06                    | 6.45                   | AV       | 48.51                | 54                        | 5.49        | 130                 | 100                    |

| Antenna Polarization | Frequency Marker (MHz) | Corrected Reading (dBuV) | Correction Factor (dB) | Detector | Test Result (dBuV/m) | Compliance Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Azimuth (degree) |
|----------------------|------------------------|--------------------------|------------------------|----------|----------------------|---------------------------|-------------|---------------------|------------------------|
| V                    | 804.2080               | 19.65                    | 25.17                  | QP       | 44.82                | 46                        | 1.18        | 315                 | 219                    |
|                      | 825.4900               | 17.40                    | 25.54                  | QP       | 42.94                | 46                        | 3.06        | 305                 | 97                     |
|                      | 1823.9690              | 54.62                    | -4.64                  | PK       | 49.98                | 54                        | 4.02        | 145                 | 142                    |
|                      | 7296.0714              | 48.27                    | 6.45                   | PK       | 54.72                | 74                        | 19.28       | 130                 | 98                     |
|                      | 7296.0714              | 41.52                    | 6.45                   | AV       | 47.97                | 54                        | 6.03        | 130                 | 98                     |

Registration number: W6M20512-6462-P-15

FCC ID: TYNWV-3201D

## High Channel

| Antenna Polarization | Frequency Marker (MHz) | Corrected Reading (dBuV) | Correction Factor (dB) | Detector | Test Result (dBuV/m) | Compliance Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Azimuth (degree) |
|----------------------|------------------------|--------------------------|------------------------|----------|----------------------|---------------------------|-------------|---------------------|------------------------|
| H                    | 31.0220                | 11.01                    | 13.03                  | QP       | 24.04                | 40                        | 15.96       | 315                 | 145                    |
|                      | 804.2080               | 17.72                    | 25.17                  | QP       | 42.89                | 46                        | 3.11        | 245                 | 314                    |
|                      | 825.4900               | 18.61                    | 25.54                  | QP       | 44.15                | 46                        | 1.85        | 260                 | 202                    |
|                      | 1837.3860              | 49.67                    | -4.71                  | PK       | 44.96                | 54                        | 9.04        | 145                 | 145                    |
|                      | 7350.0501              | 41.84                    | 6.26                   | AV       | 48.1                 | 54                        | 5.9         | 150                 | 111                    |
|                      | 7350.0501              | 48.64                    | 6.26                   | PK       | 54.9                 | 74                        | 19.1        | 150                 | 111                    |

| Antenna Polarization | Frequency Marker (MHz) | Corrected Reading (dBuV) | Correction Factor (dB) | Detector | Test Result (dBuV/m) | Compliance Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Azimuth (degree) |
|----------------------|------------------------|--------------------------|------------------------|----------|----------------------|---------------------------|-------------|---------------------|------------------------|
| V                    | 31.0220                | 16.09                    | 13.03                  | QP       | 29.12                | 40                        | 10.88       | 255                 | 141                    |
|                      | 804.2080               | 19.81                    | 25.17                  | QP       | 44.98                | 46                        | 1.02        | 315                 | 310                    |
|                      | 825.4900               | 17.37                    | 25.54                  | QP       | 42.91                | 46                        | 3.09        | 305                 | 200                    |
|                      | 1837.3860              | 48.55                    | -4.71                  | PK       | 43.84                | 54                        | 10.16       | 155                 | 147                    |
|                      | 7350.0501              | 47.84                    | 6.26                   | PK       | 54.1                 | 74                        | 19.9        | 160                 | 107                    |
|                      | 7350.0501              | 41.14                    | 6.26                   | AV       | 47.4                 | 54                        | 6.6         | 160                 | 107                    |

## 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

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

- 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

Comment: see attached diagrams

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

**3.6 Radiated Emission from Digital Part And Receiver L.O.****Summary table with radiated data of the test plots**

RX

Low Channel

| Antenna Polarization | Frequency Marker (MHz) | Corrected Reading (dBuV) | Correction Factor (dB) | Detector | Test Result (dBuV/m) | Compliance Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Azimuth (degree) |
|----------------------|------------------------|--------------------------|------------------------|----------|----------------------|---------------------------|-------------|---------------------|------------------------|
| H                    | 156.8010               | 6.71                     | 15.43                  | PK       | 22.14                | 46                        | 23.86       | 315                 | 270                    |
|                      | 709.4080               | 8.63                     | 23.74                  | PK       | 32.37                | 46                        | 13.63       | 210                 | 185                    |
|                      | 1901.7982              | 39.71                    | -5.14                  | PK       | 34.57                | 54                        | 19.43       | 140                 | 92                     |

| Antenna Polarization | Frequency Marker (MHz) | Corrected Reading (dBuV) | Correction Factor (dB) | Detector | Test Result (dBuV/m) | Compliance Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Azimuth (degree) |
|----------------------|------------------------|--------------------------|------------------------|----------|----------------------|---------------------------|-------------|---------------------|------------------------|
| V                    | 156.8010               | 8.64                     | 15.43                  | PK       | 24.07                | 46                        | 21.93       | 285                 | 276                    |
|                      | 709.4080               | 8.53                     | 23.74                  | PK       | 32.27                | 46                        | 13.73       | 310                 | 184                    |
|                      | 1901.7982              | 39.22                    | -5.14                  | PK       | 34.08                | 54                        | 19.92       | 145                 | 94                     |

High Channel

| Antenna Polarization | Frequency Marker (MHz) | Corrected Reading (dBuV) | Correction Factor (dB) | Detector | Test Result (dBuV/m) | Compliance Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Azimuth (degree) |
|----------------------|------------------------|--------------------------|------------------------|----------|----------------------|---------------------------|-------------|---------------------|------------------------|
| H                    | 105.7080               | 6.94                     | 11.86                  | PK       | 18.8                 | 46                        | 27.20       | 375                 | 210                    |
|                      | 406.1090               | 9.31                     | 17.88                  | PK       | 27.19                | 46                        | 18.81       | 240                 | 148                    |
|                      | 1901.7982              | 38.94                    | -5.14                  | PK       | 33.8                 | 54                        | 20.20       | 140                 | 88                     |

| Antenna Polarization | Frequency Marker (MHz) | Corrected Reading (dBuV) | Correction Factor (dB) | Detector | Test Result (dBuV/m) | Compliance Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Azimuth (degree) |
|----------------------|------------------------|--------------------------|------------------------|----------|----------------------|---------------------------|-------------|---------------------|------------------------|
| V                    | 105.7080               | 8.31                     | 11.86                  | PK       | 20.17                | 46                        | 25.83       | 275                 | 211                    |
|                      | 406.1090               | 10.24                    | 17.88                  | PK       | 28.12                | 46                        | 17.88       | 340                 | 146                    |
|                      | 1907.7982              | 38.85                    | -5.14                  | PK       | 33.71                | 54                        | 20.29       | 145                 | 89                     |

- 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**

Registration number: W6M20512-6462-P-15

FCC ID: TYNWV-3201D

## Digital

| Antenna Polarization | Frequency Marker (MHz) | Corrected Reading (dBuv) | Correction Factor (dB) | Detector | Test Result (dBuV/m) | Compliance Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Azimuth (degree) |
|----------------------|------------------------|--------------------------|------------------------|----------|----------------------|---------------------------|-------------|---------------------|------------------------|
| H                    | 172.4250               | 4.37                     | 14.04                  | QP       | 18.41                | 30                        | 11.59       | 315                 | 92                     |
|                      | 803.5470               | 9.18                     | 25.71                  | QP       | 34.89                | 37                        | 2.11        | 255                 | 72                     |
|                      | 825.4730               | 9.85                     | 26.07                  | QP       | 35.92                | 37                        | 1.08        | 250                 | 309                    |

| Antenna Polarization | Frequency Marker (MHz) | Corrected Reading (dBuv) | Correction Factor (dB) | Detector | Test Result (dBuV/m) | Compliance Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Azimuth (degree) |
|----------------------|------------------------|--------------------------|------------------------|----------|----------------------|---------------------------|-------------|---------------------|------------------------|
| V                    | 159.1190               | 2.69                     | 14.73                  | QP       | 17.42                | 30                        | 12.58       | 245                 | 111                    |
|                      | 803.5470               | 10.23                    | 25.71                  | QP       | 35.94                | 37                        | 1.06        | 320                 | 74                     |
|                      | 825.4730               | 8.92                     | 26.07                  | QP       | 34.99                | 37                        | 2.01        | 325                 | 315                    |

- 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 003, ETSTW-RE 004, ETSTW-RE 028, ETSTW-CS 029, ETSTW-RE 042, ETSTW-RE 043

Comment: see attached diagram

Registration number: W6M20512-6462-P-15  
FCC ID: TYNWV-3201D

### 3.7 Radiated Emission on the band edge

From the following plots, they show that the fundamental emissions are confined in the specified band and they are at least 50 dB below the carrier level at band edge (--- MHz). It meets the requirement of section 15.249(d).

| Test conditions<br>Tnom = 23°C, Vnom = 6V<br>Frequency [MHz] | Transmitter field strength of<br>Radiated Emission<br>(Peak Detector) | Transmitter field strength of<br>Radiated Emission<br>(Average Detector) |
|--------------------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------------------------|
|                                                              | [dBμV/m]                                                              |                                                                          |
| --                                                           | --                                                                    | --                                                                       |
| --                                                           | --                                                                    | --                                                                       |

Limit:

| Frequency Range (MHz) | Limit (dBμV/m) |         |
|-----------------------|----------------|---------|
|                       | Peak           | Average |
| 902 – 928             | 74             | 54      |
| 2400 – 2483,5         |                |         |
| 5725 – 5875           |                |         |
| 24000 - 24250         |                |         |

Test equipment used: ETSTW-RE 003, ETSTW-RE 004, ETSTW-RE 017, ETSTW-RE 030

Remark: This test is not required. The frequency of video mode is far away from limit and bandwidth of audio mode is 360.72 kHz. Please see attached diagram as Appendix D.

Registration number: W6M20512-6462-P-15

FCC ID: TYNWV-3201D

### 3.8 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 $\mu$ V) |                  |
|-----------|--------------------|------------------|
|           | quasi-peak         | average          |
| 150 kHz   | lower limit line   | Lower limit line |

#### 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-RE 004, ETSTW-RE 006

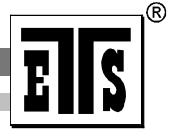
Comment: This device uses battery, so test is not required.



Registration number: W6M20512-6462-P-15  
FCC ID: TYNWV-3201D

## **Appendix**

- A Fundamental Field Strength
- B Spurious Emissions radiated
- C Radiated Emission from Digital Part And Receiver L.O.
- D Bandwidth
- E Pictures



Registration number: W6M20512-6462-P-15  
FCC ID: TYNWV-3201D

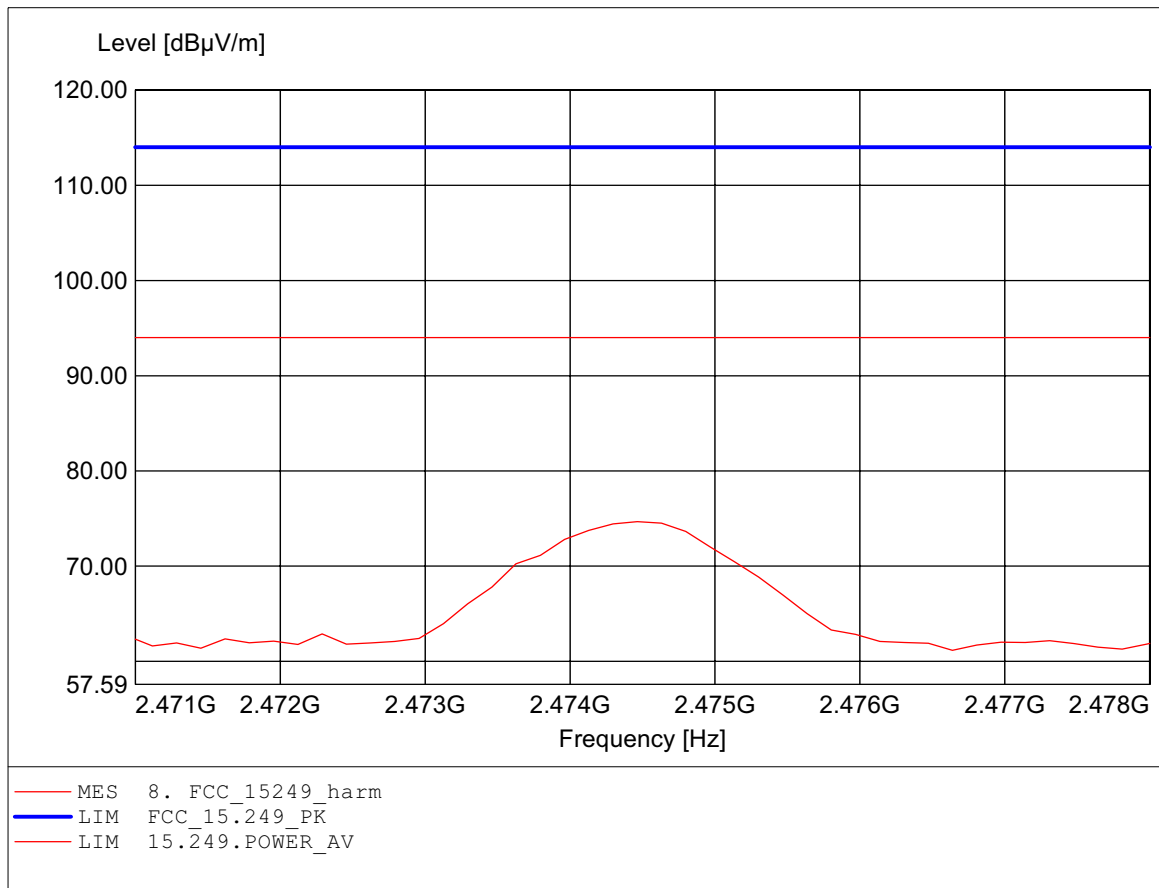
## **Appendix A**

### Fundamental Field Strength

# Carrier power (Field Strength)

## FCC RULES PART 15, SUBPART C / LP0002

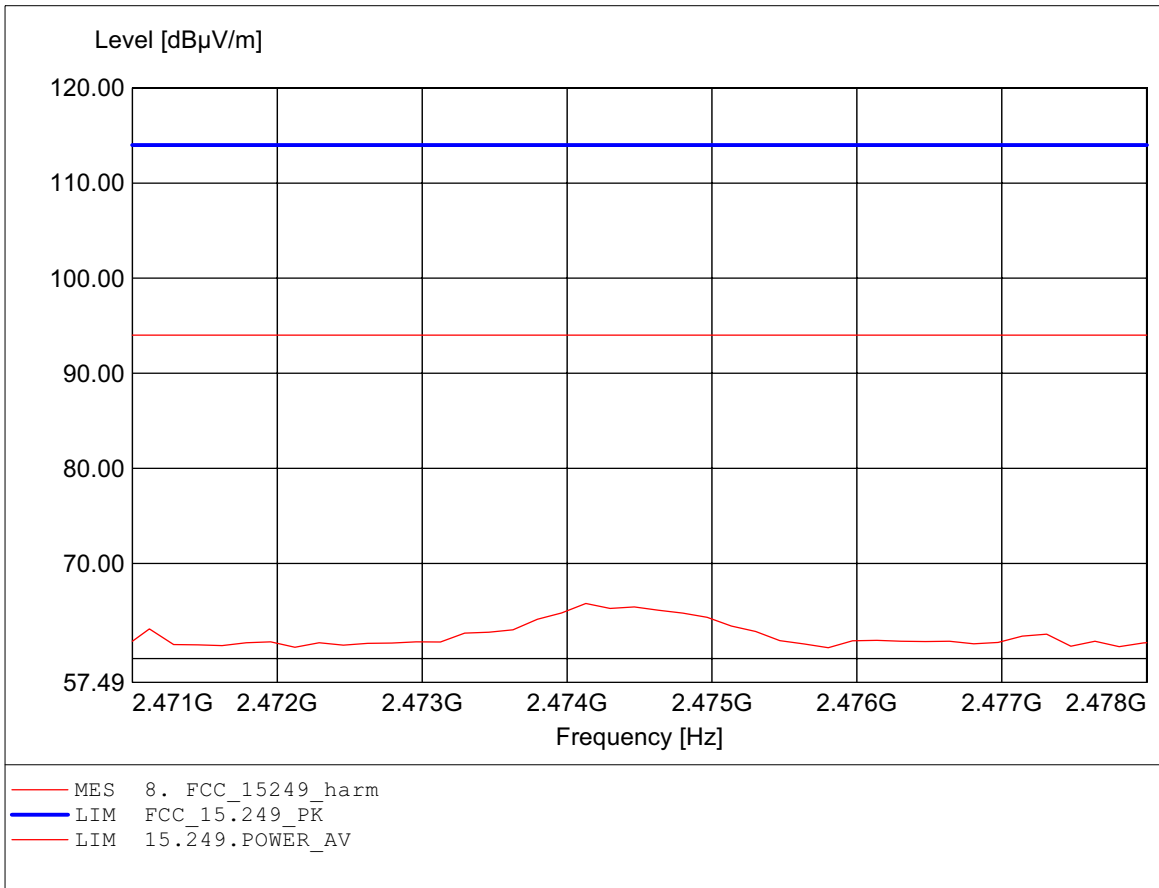
Order Number : W6M20512-6462 ( low channel ) audio mode  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9°C  
Test Specification: according to §15.249, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025  
Freq: 2.474GHz, Emax: 74.67dBμV/m, RBW: 1MHz



# Carrier power (Field Strength)

## FCC RULES PART 15, SUBPART C / LP0002

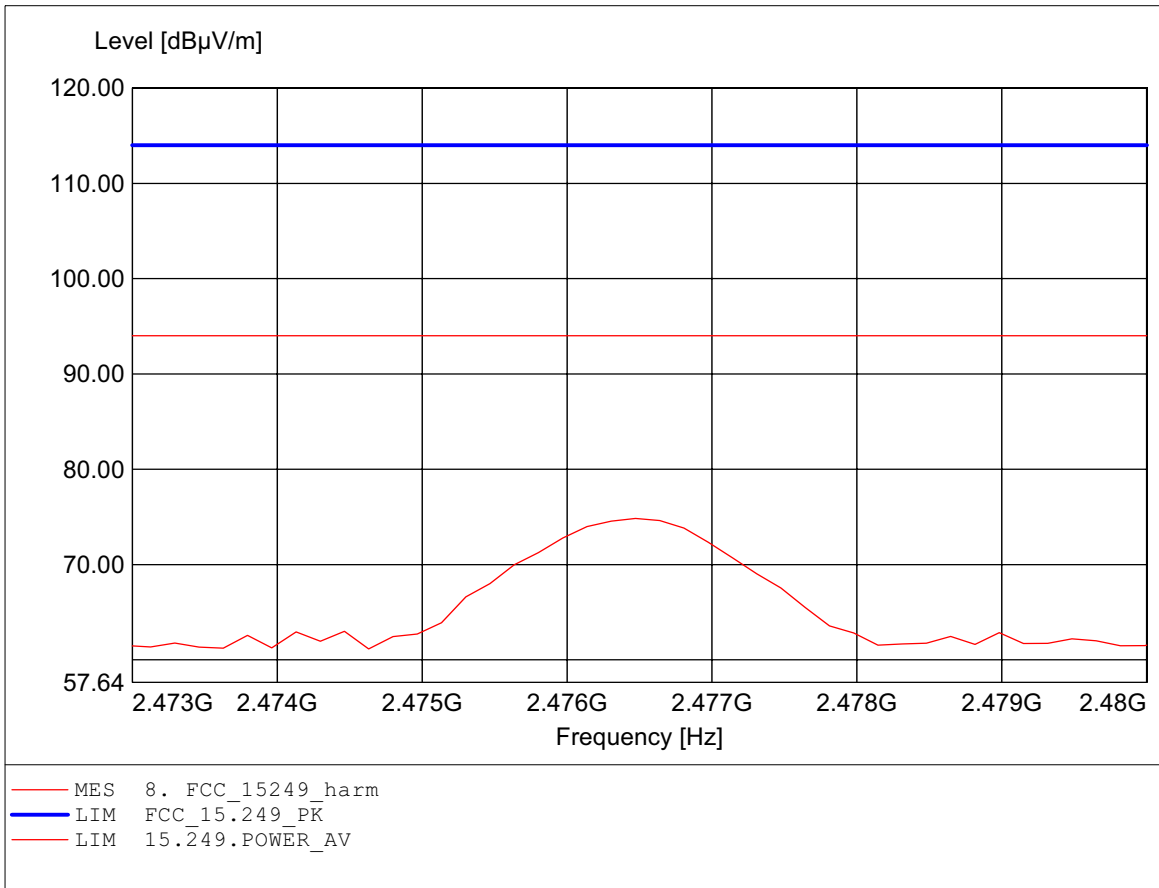
Order Number : W6M20512-6462 ( low channel ) audio mode  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9°C  
Test Specification: according to §15.249, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025  
Freq: 2.474GHz, Emax: 65.78dBμV/m, RBW: 1MHz



# Carrier power (Field Strength)

## FCC RULES PART 15, SUBPART C / LP0002

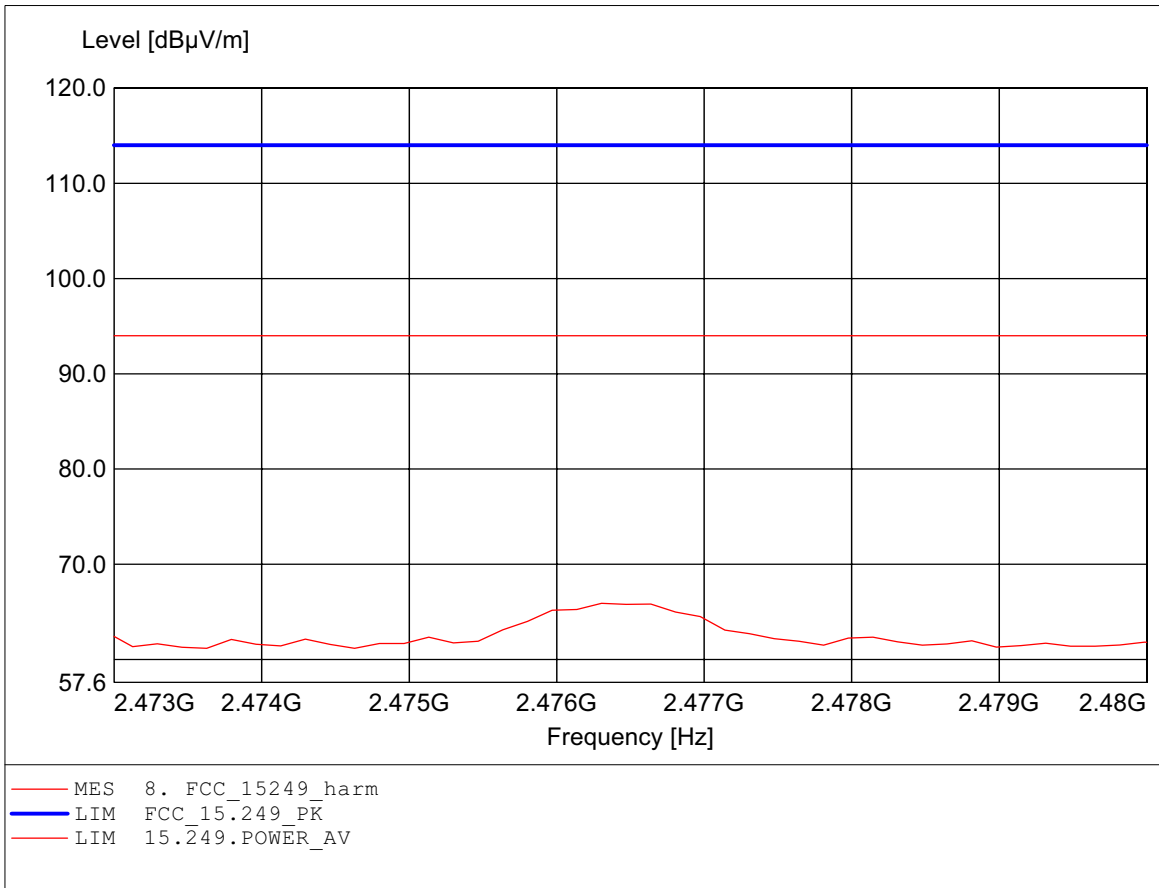
Order Number : W6M20512-6462 ( high channel ) audio mode  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9°C  
Test Specification: according to §15.249, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025  
Freq: 2.476GHz, Emax: 74.85 dBµV/m, RBW: 1MHz



# Carrier power (Field Strength)

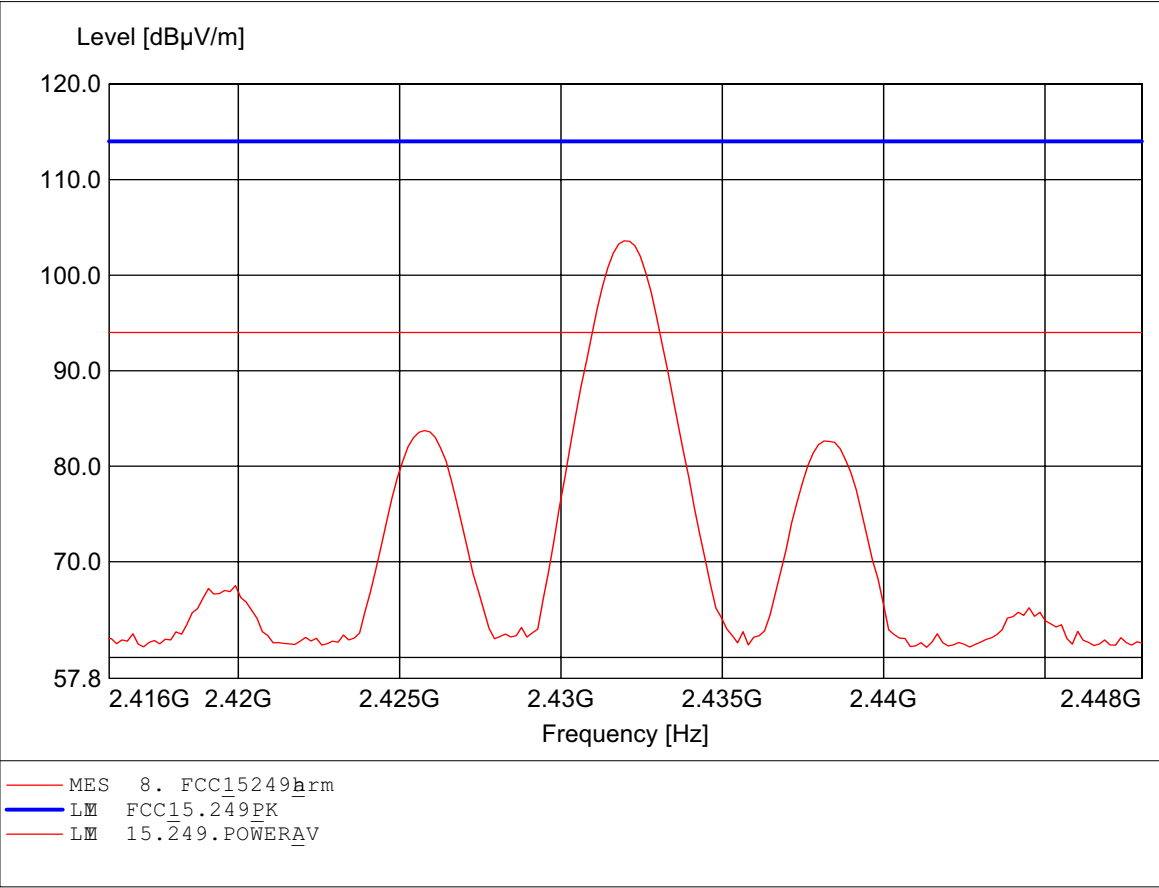
## FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20512-6462 ( high channel ) audio mode  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9°C  
Test Specification: according to §15.249, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025  
Freq: 2.476GHz, Emax: 65.9dBµV/m, RBW: 1MHz



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

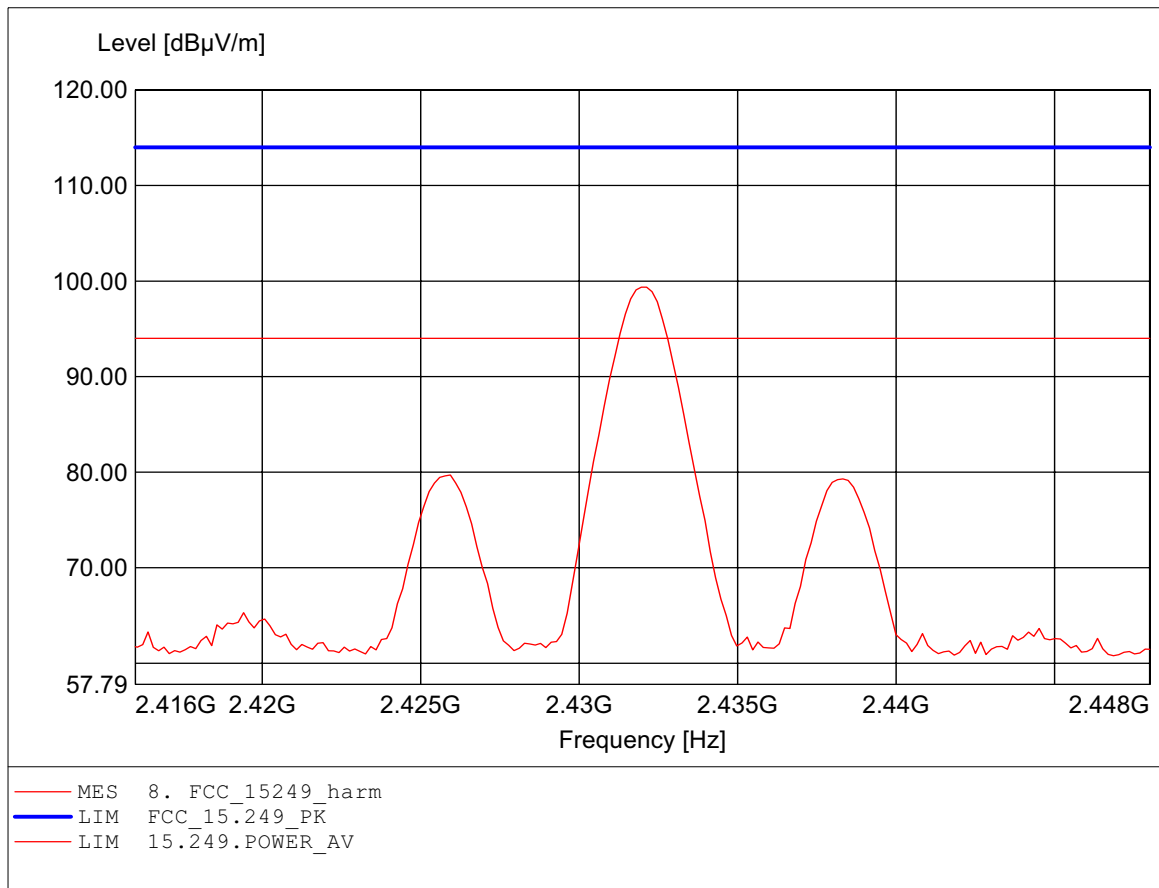
Order Nbr : W6M20512-6462 ( low channel ) vedio mode  
Test Site / Operato: ETS / Charles  
Temperatne: Temp.: 23.9C  
Test Speffiatio: aodingto\$5.249,peak deteto  
Cmment 1: Dist.: 3m,Ant.: HL025  
Freq 2.432GHz,Emax 103.59dBW/m,RBW: 1MHz



# Carrier power (Field Strength)

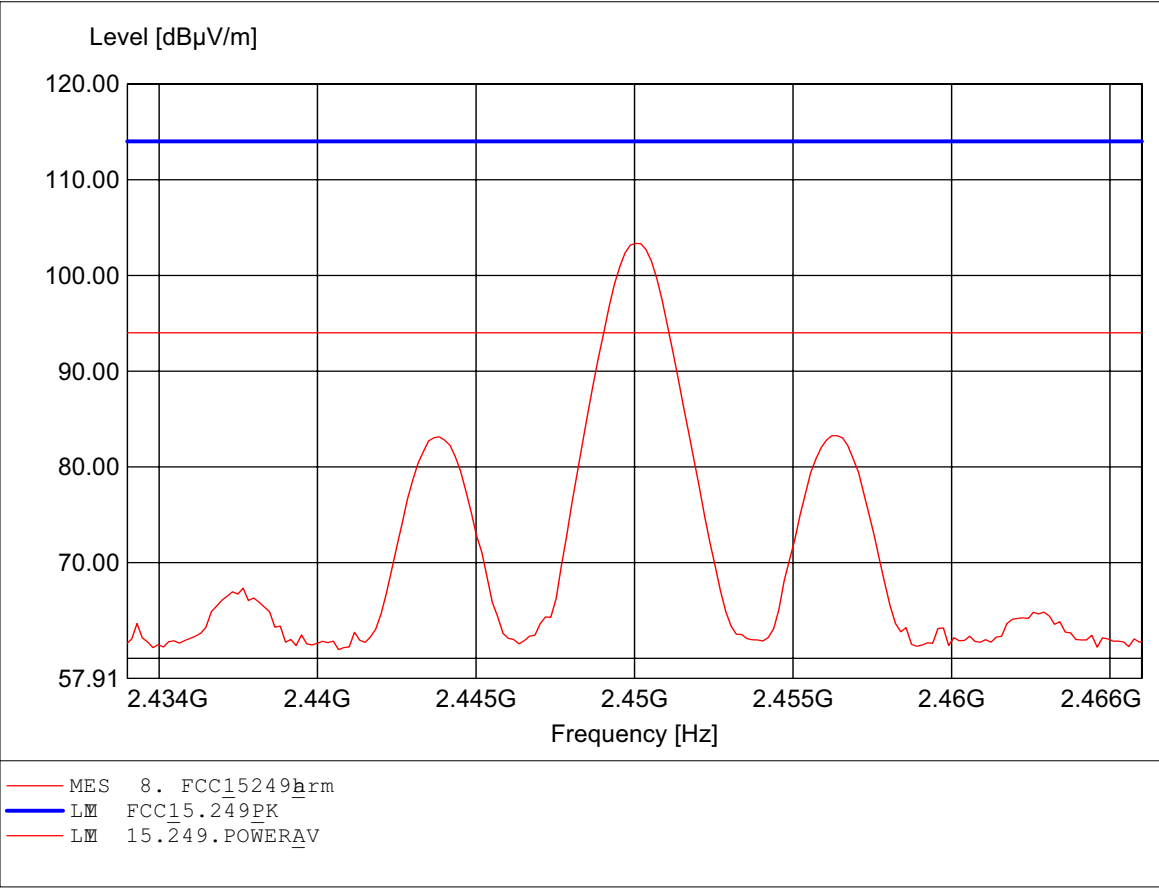
## FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20512-6462 ( low channel ) vedio mode  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9°C  
Test Specification: according to §15.249, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025  
Freq: 2.432GHz, Emax: 99.36dBμV/m, RBW: 1MHz



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

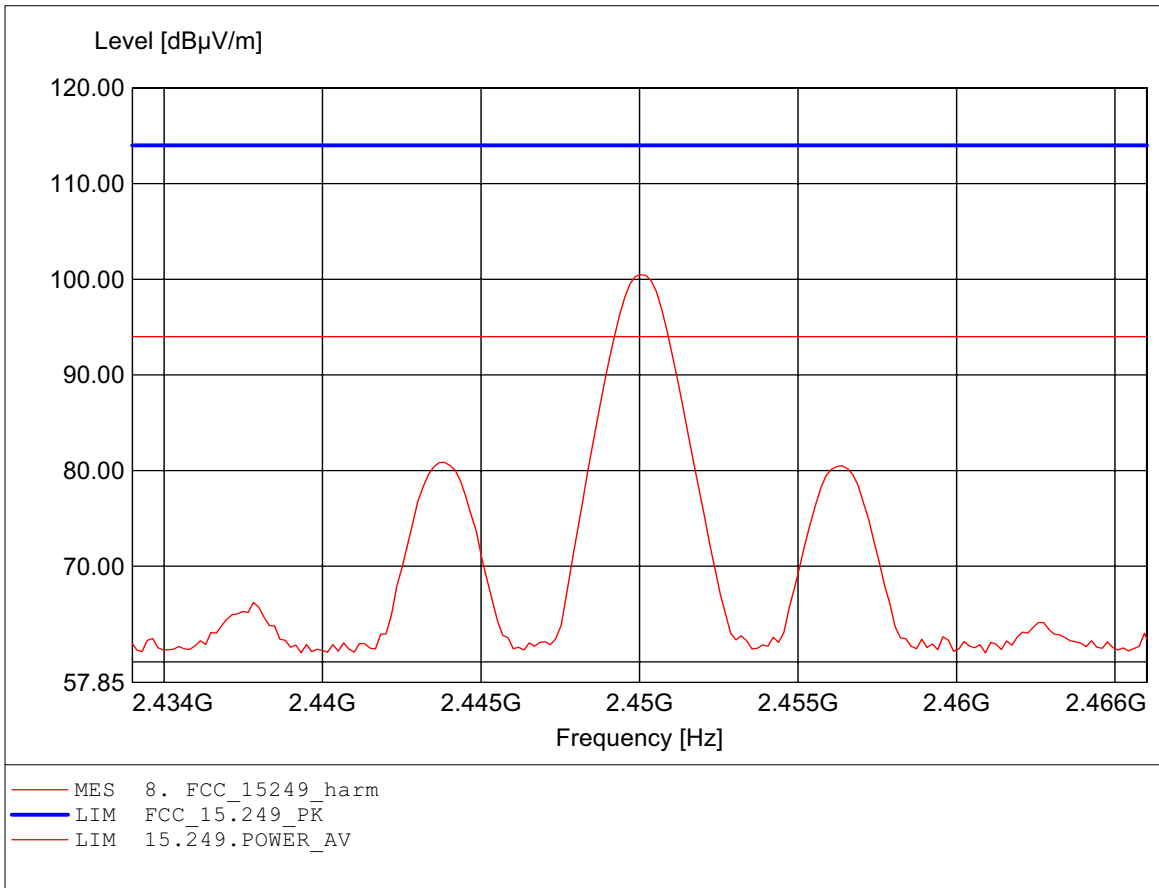
Order Nbr : W6M20512-6462 ( high channel ) vedio mode  
Test Site / Operato: ETS / Charles  
Temperatne: Temp.: 23.9C  
Test Speđfiatio: aodingto\$5.249,peak deteto  
Cmment 1: Dist.: 3m,Ant.: HL025  
Freq 2.450GHz,Emax 103.35dBW/m,RBW: 1MHz



# Carrier power (Field Strength)

## FCC RULES PART 15, SUBPART C / LP0002

Order Number : W6M20512-6462 ( high channel ) vedio mode  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9°C  
Test Specification: according to §15.249, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025  
Freq: 2.450GHz, Emax: 100.49dBμV/m, RBW: 1MHz





## **Appendix B**

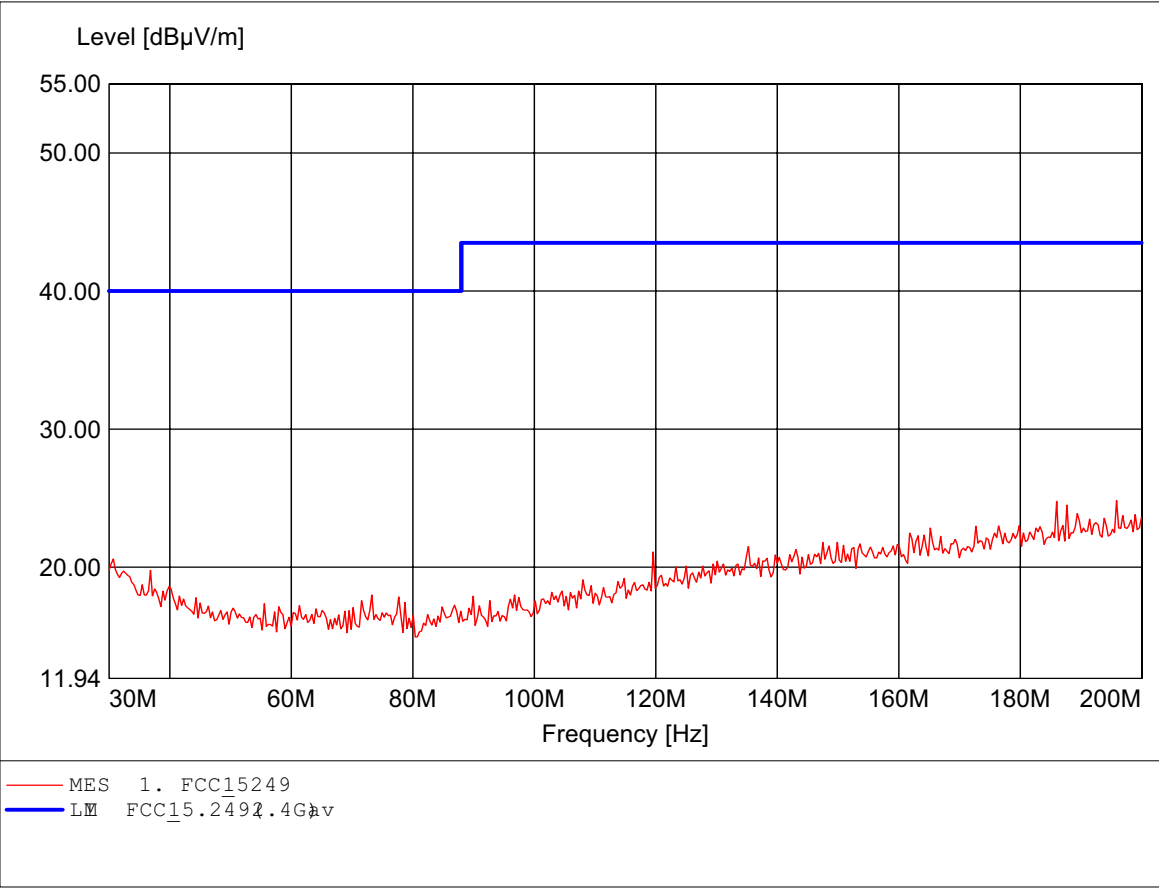
### Spurious Emissions radiated

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

Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

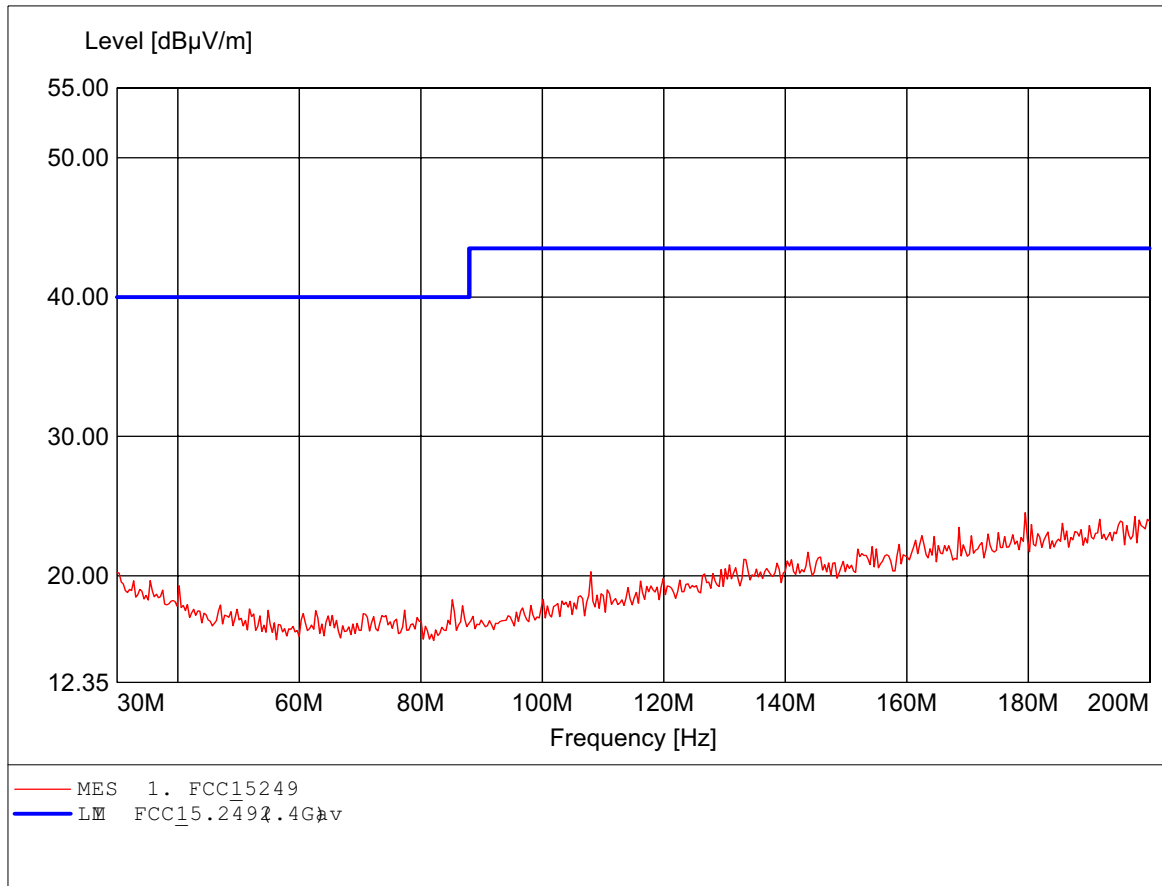
Order Nbr : W6M20512-6462 (1channel )TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to 5.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HK116  
Freq 195.912MHz, Emax 24.83dBV/m, RBW: 100kHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

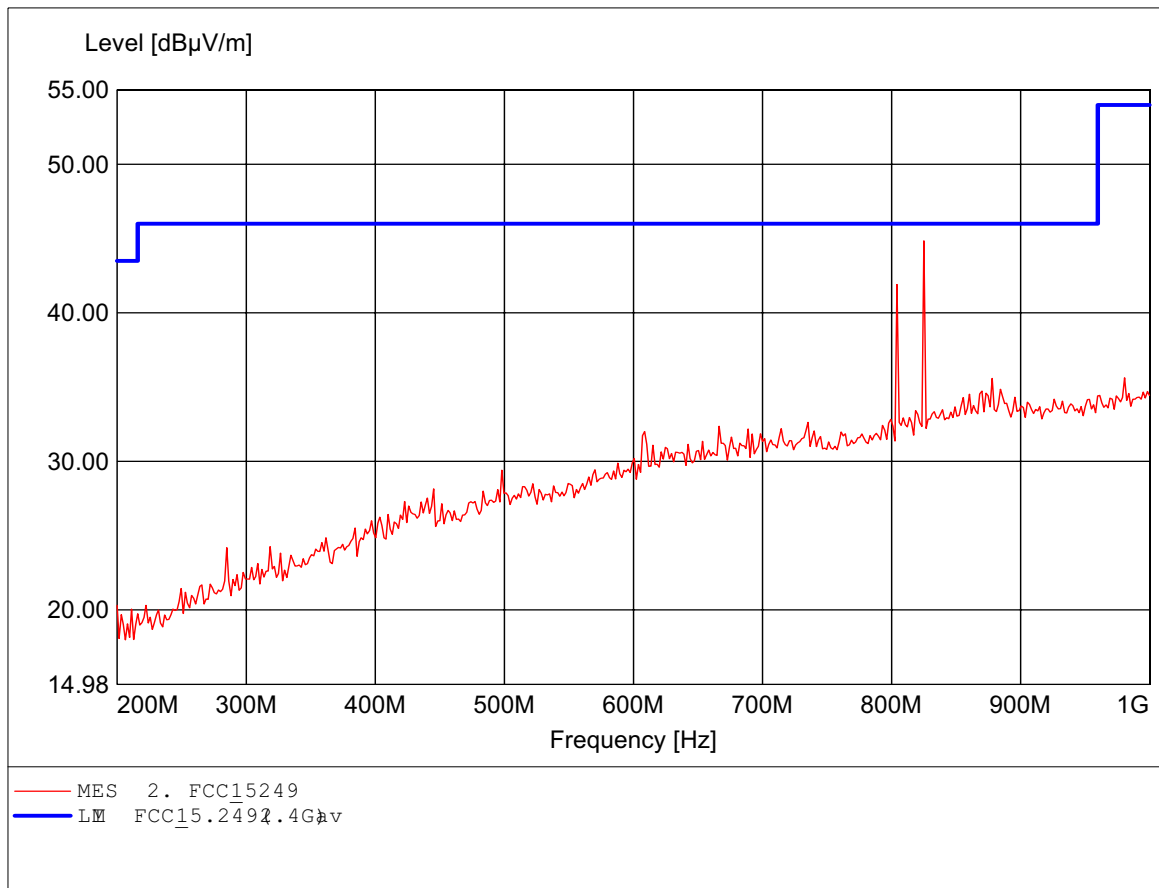
Order Nbr : W6M20512-6462 (1 channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9°C  
Test Specification: according to §5.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HK116  
Freq 179.559MHz, Emax 24.53dBµV/m, RBW: 100kHz



# Spurious emissions Field Strength

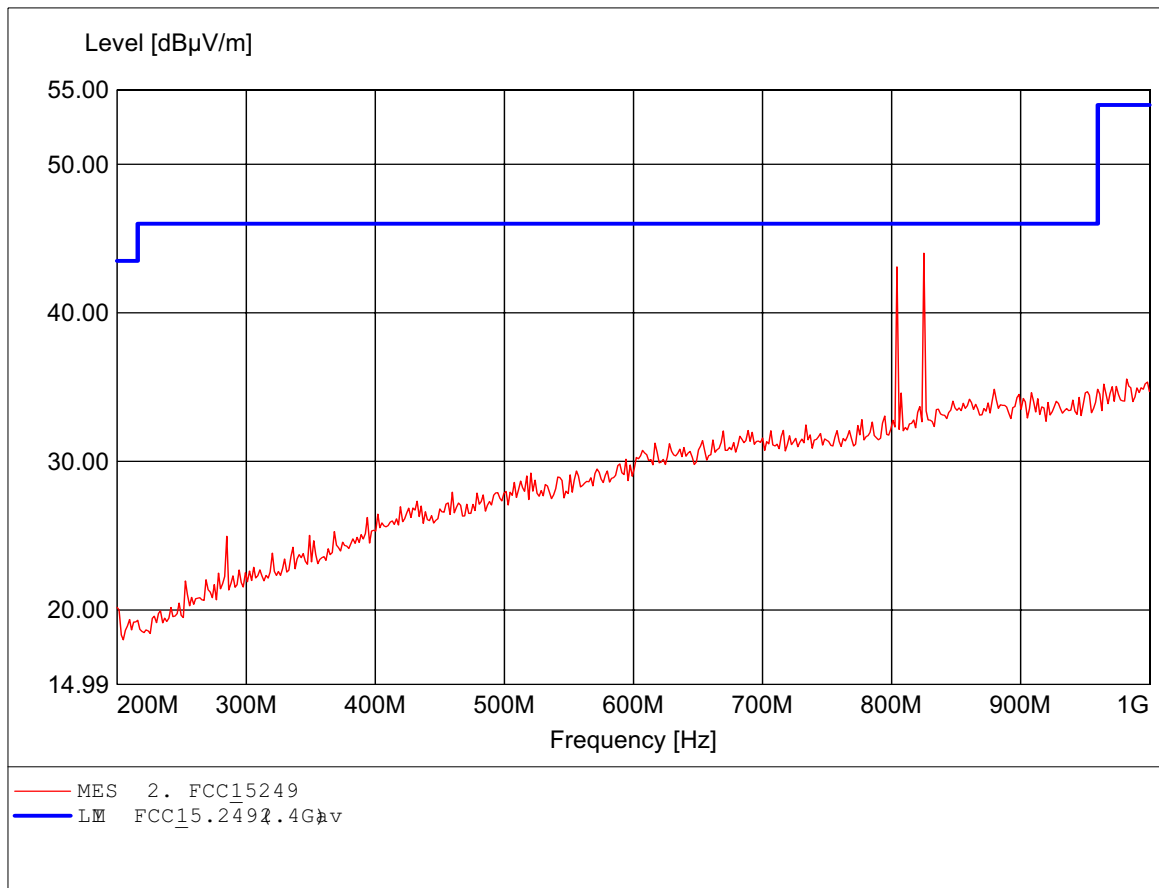
## FCC RULES PART 15, SUBPART C / LP0002

Order Nbr : W6M20512-6462 (1channel )TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to FCC 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL 223, amplif.  
Freq 825.251MHz, Emax 44.85dBu/m, RBW: 100kHz



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

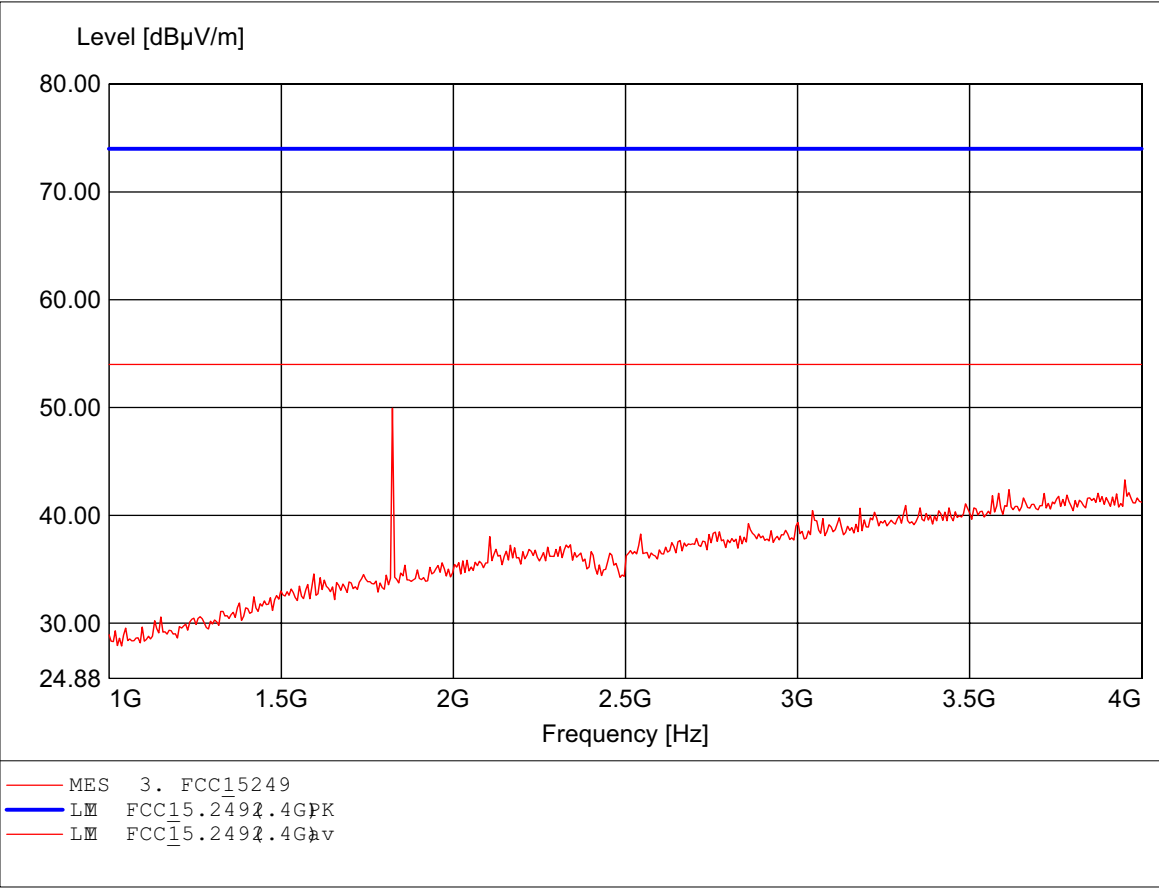
Order Nbr : W6M20512-6462 (1channel )TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to FCC 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL 223, amplifier.  
Freq 825.251MHz, Emax 44.02dBV/m, RBW: 100kHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

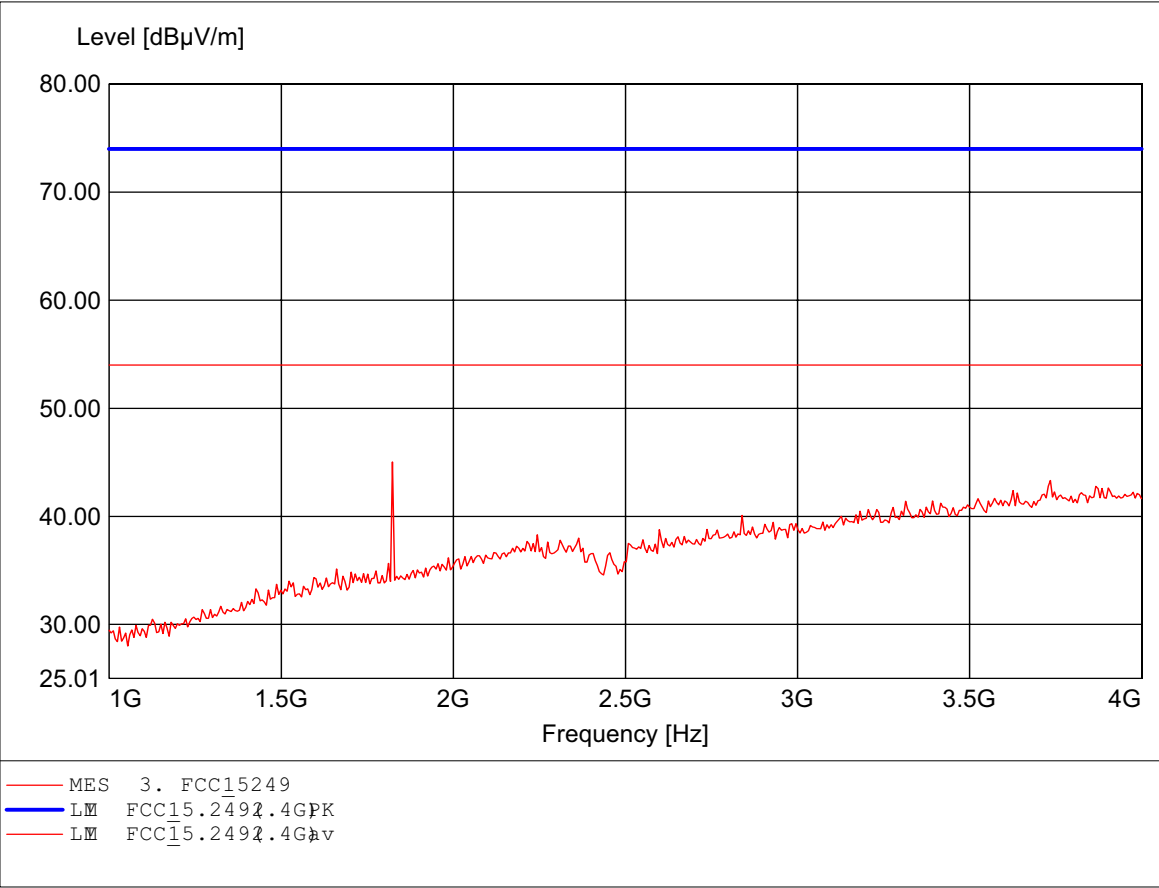
Order Nbr : W6M20512-6462 (1channel )TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to 5.249, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq 1.824GHz, Emax 49.93dBV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

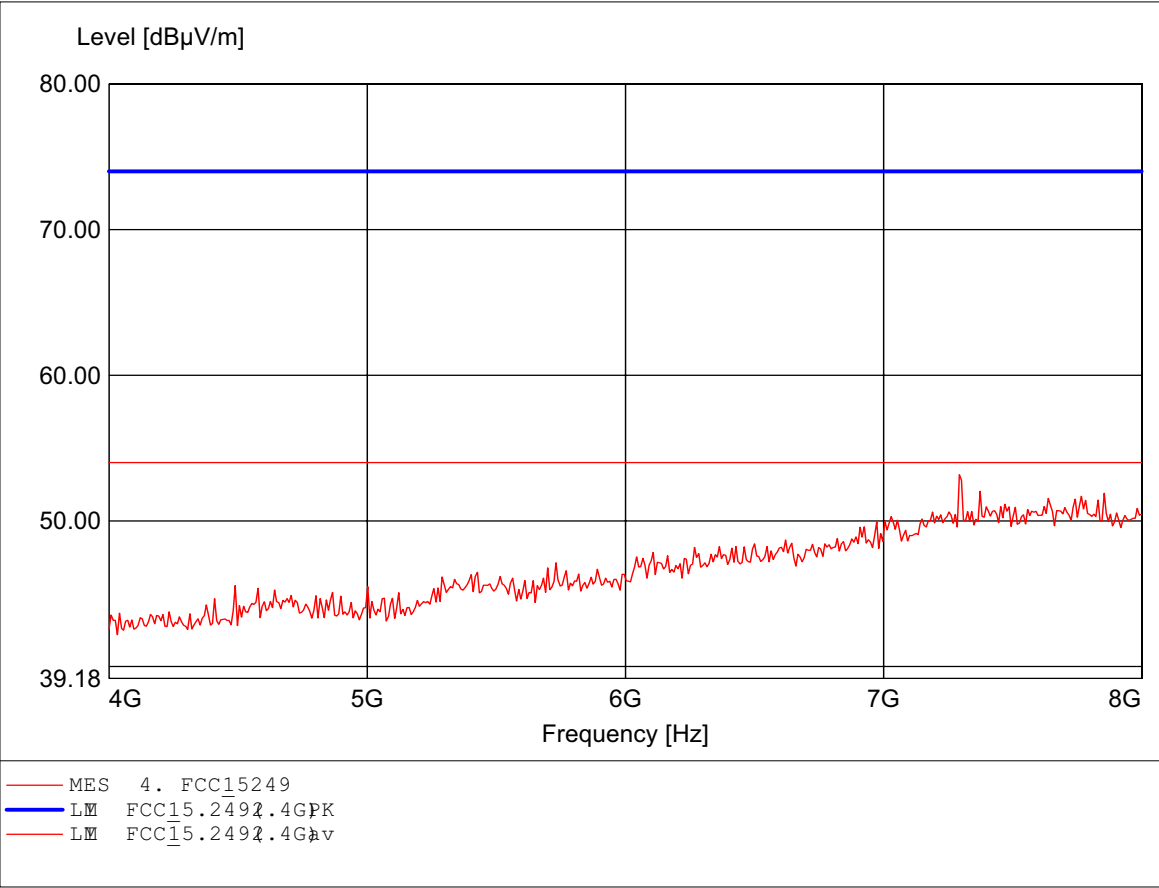
Order Nbr : W6M20512-6462 (1channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to FCC15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL025, amplifier.  
Freq 1.824GHz, Emax 45.04dBu/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

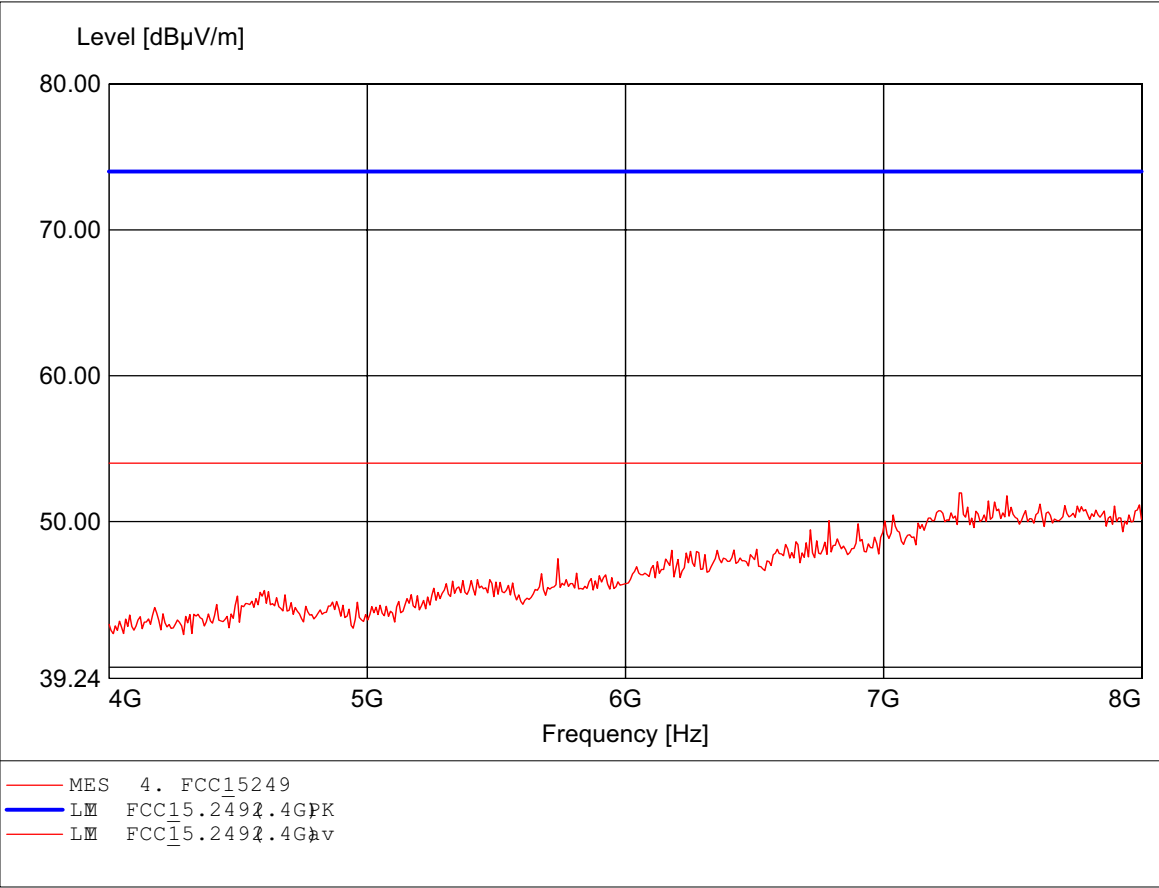
Order Nbr : W6M20512-6462 (1channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to FCC 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL025, ampl. HP.  
Freq 7.295GHz, Emax 53.16dBu/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

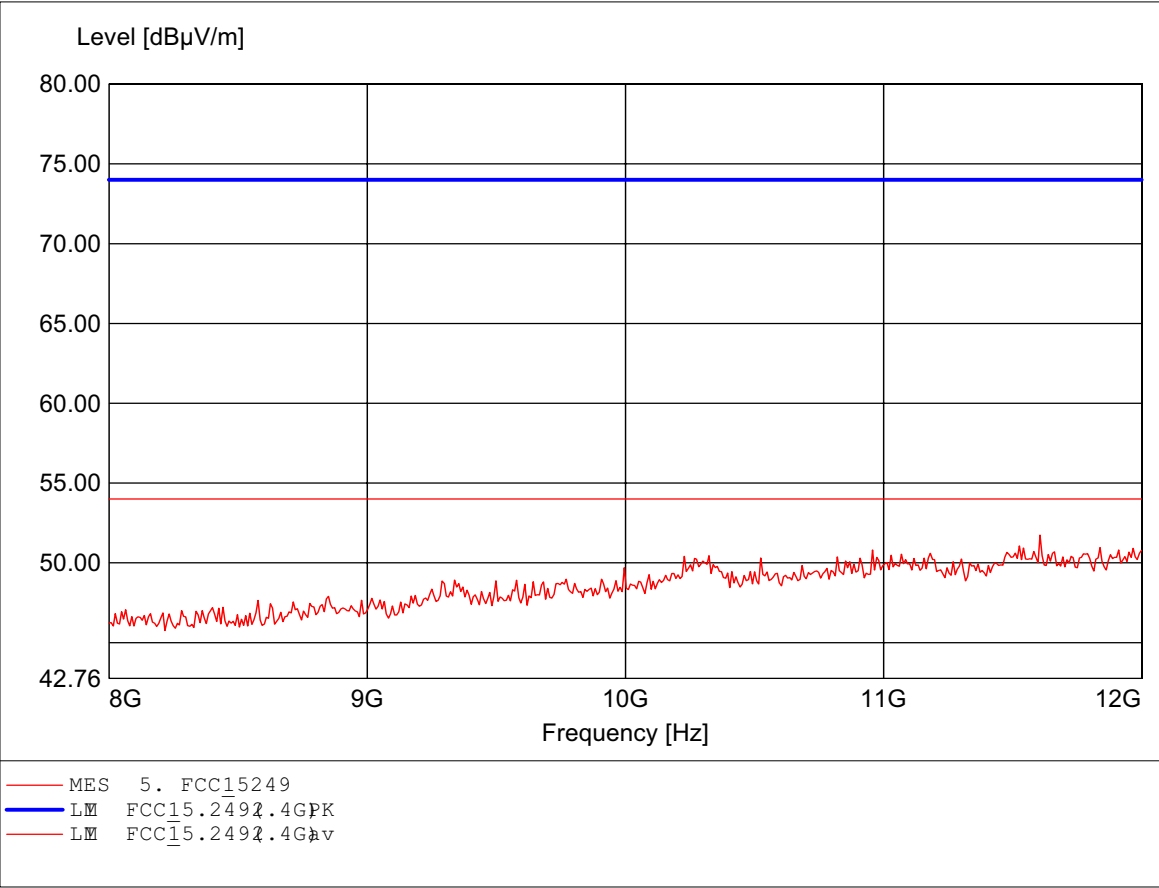
Order Nbr : W6M20512-6462 (1channel )TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to 47CFR 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL025, ampl. HP.  
Freq 7.295GHz, Emax 51.96dBu/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

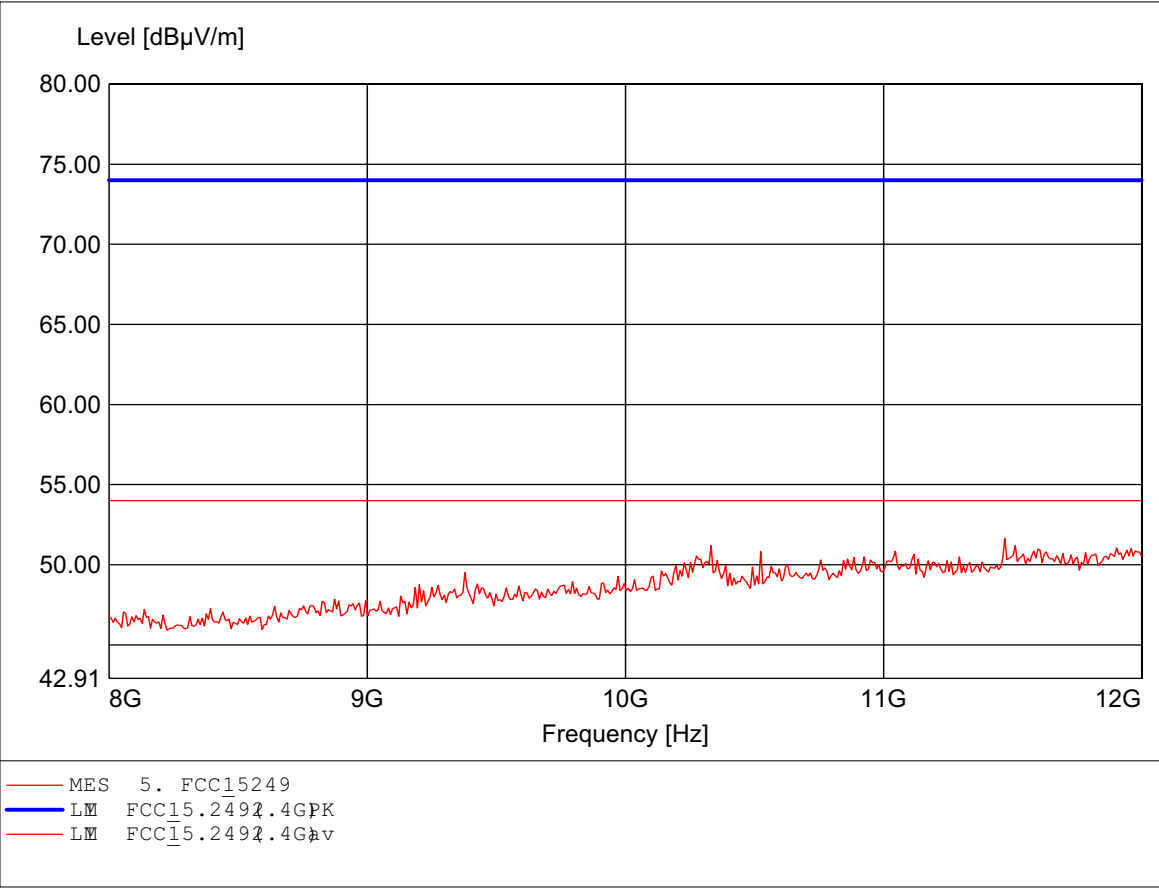
Order Nbr : W6M20512-6462 (1channel )TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to FCC 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL025, ampl. HP.  
Freq 11.607GHz, Emax 51.73dBu/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

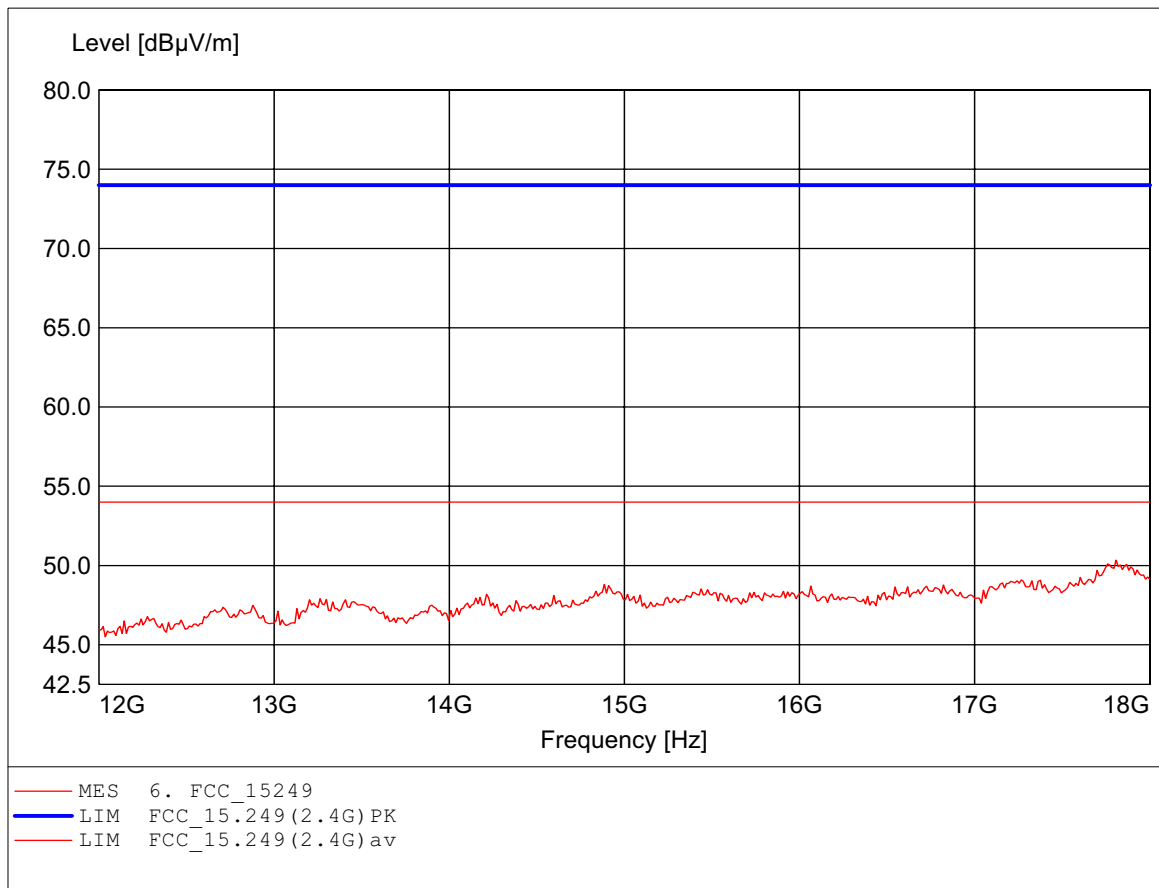
Order Nbr : W6M20512-6462 (1channel )TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to FCC 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL025, ampl. HP.  
Freq 11.471GHz, Emax 51.64dBu/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

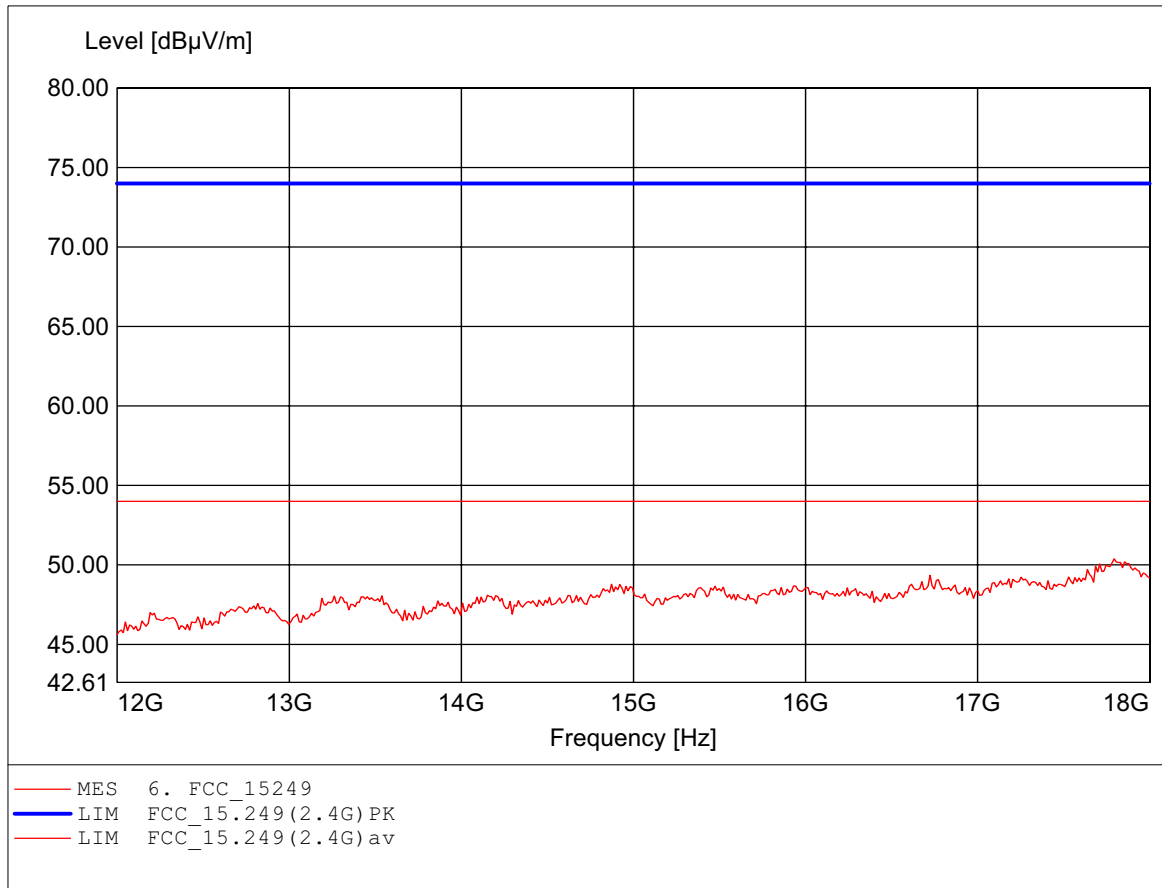
Order Number : W6M20512-6462 ( low channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9°C  
Test Specification: according to §15.249, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 17.808GHz, Emax: 50.34dBμV/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

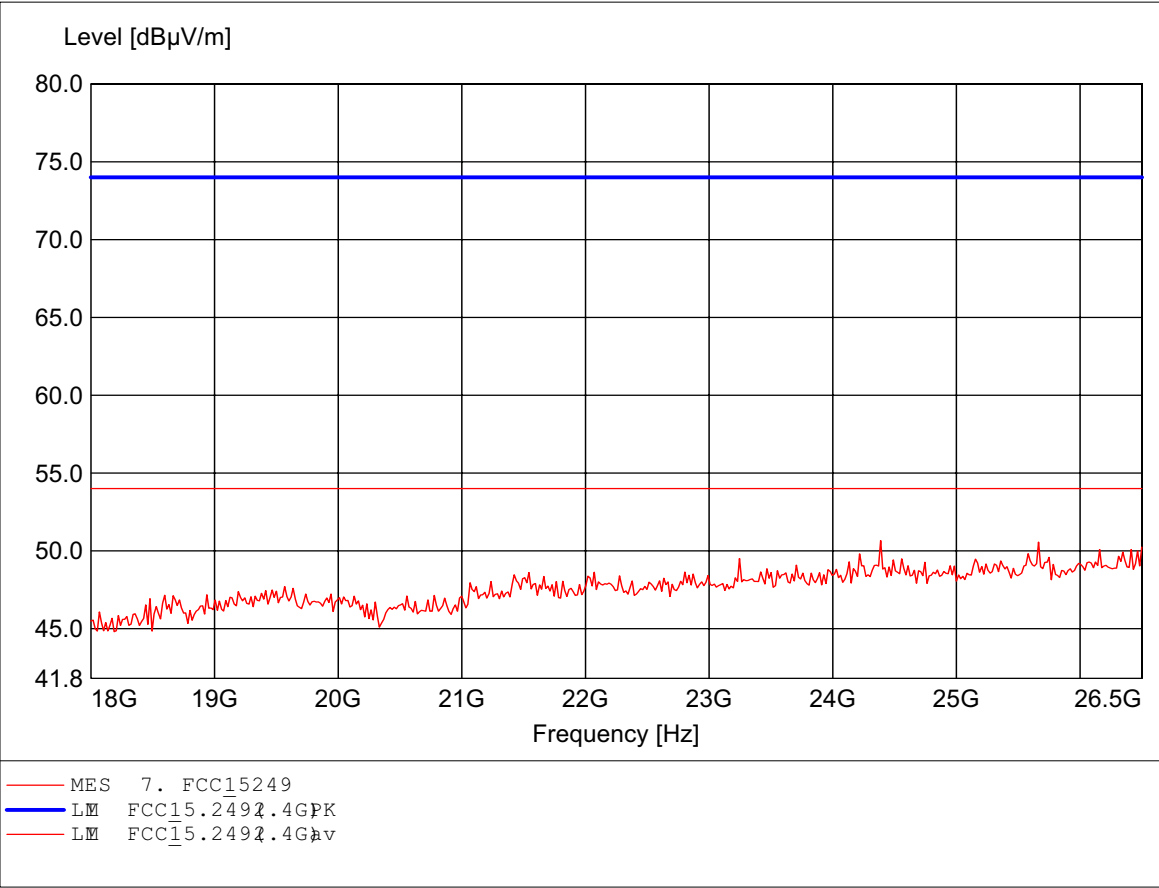
Order Number : W6M20512-6462 ( low channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9°C  
Test Specification: according to §15.249, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl.+HP.  
Freq: 17.796GHz, Emax: 50.38dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

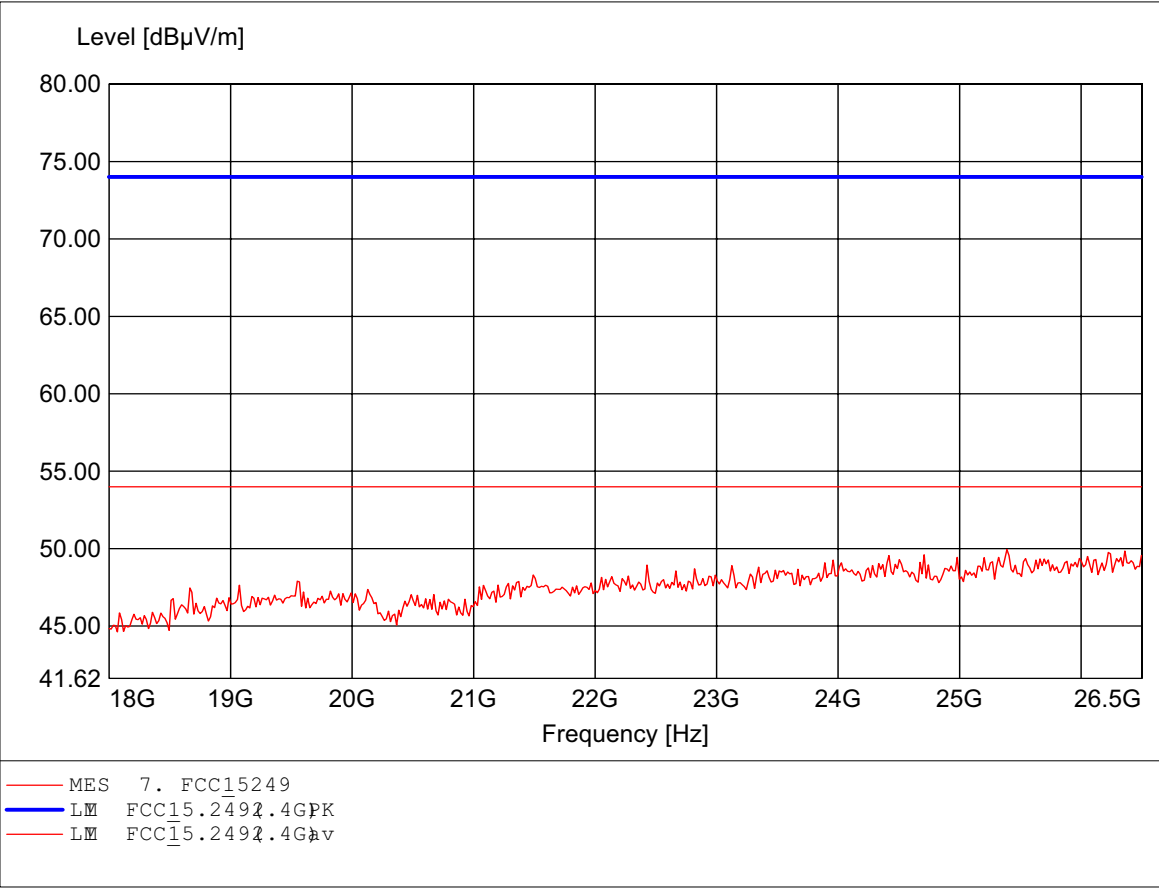
Order Nbr : W6M20512-6462 (1channel )TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to FCC 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq 24.388GHz, Emax 50.65dBu/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

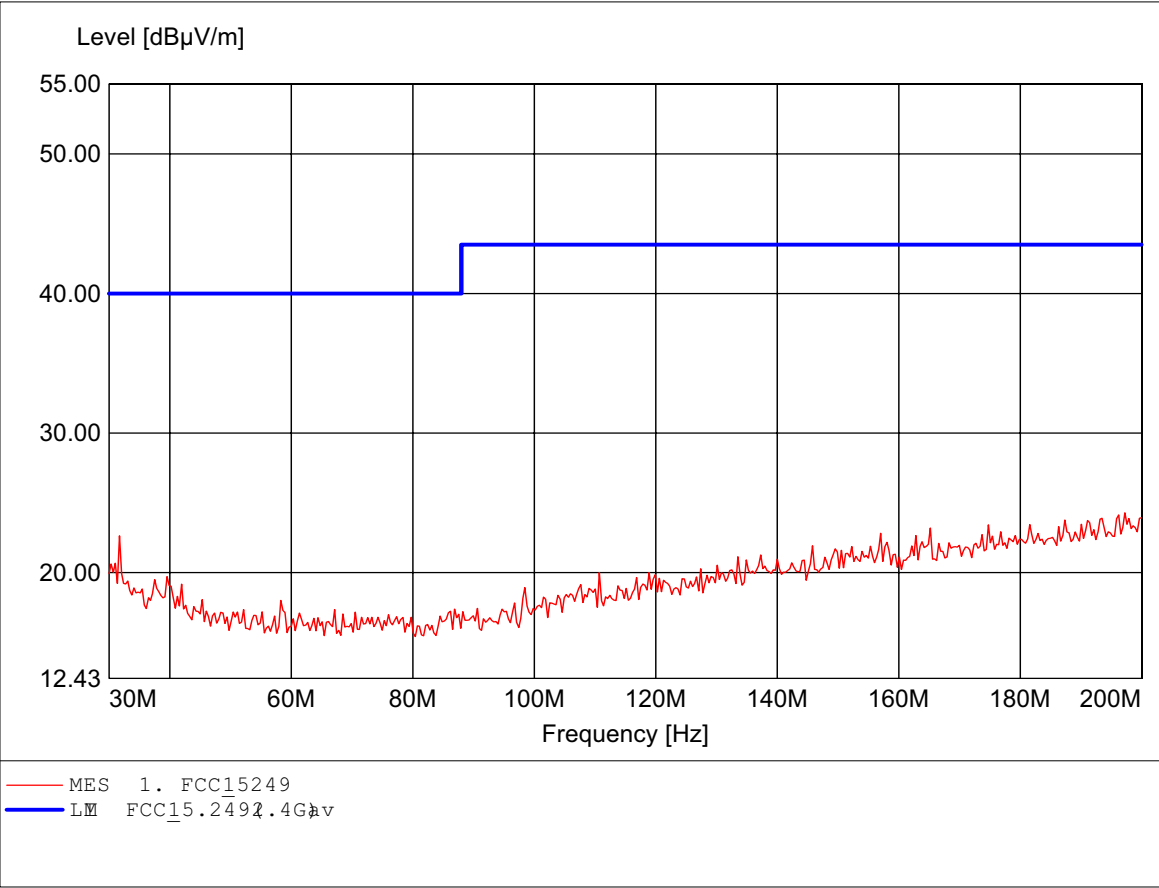
Order Nbr : W6M20512-6462 (1channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to FCC15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL025, amplifier.  
Freq 25.393GHz, Emax 49.94dBu/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

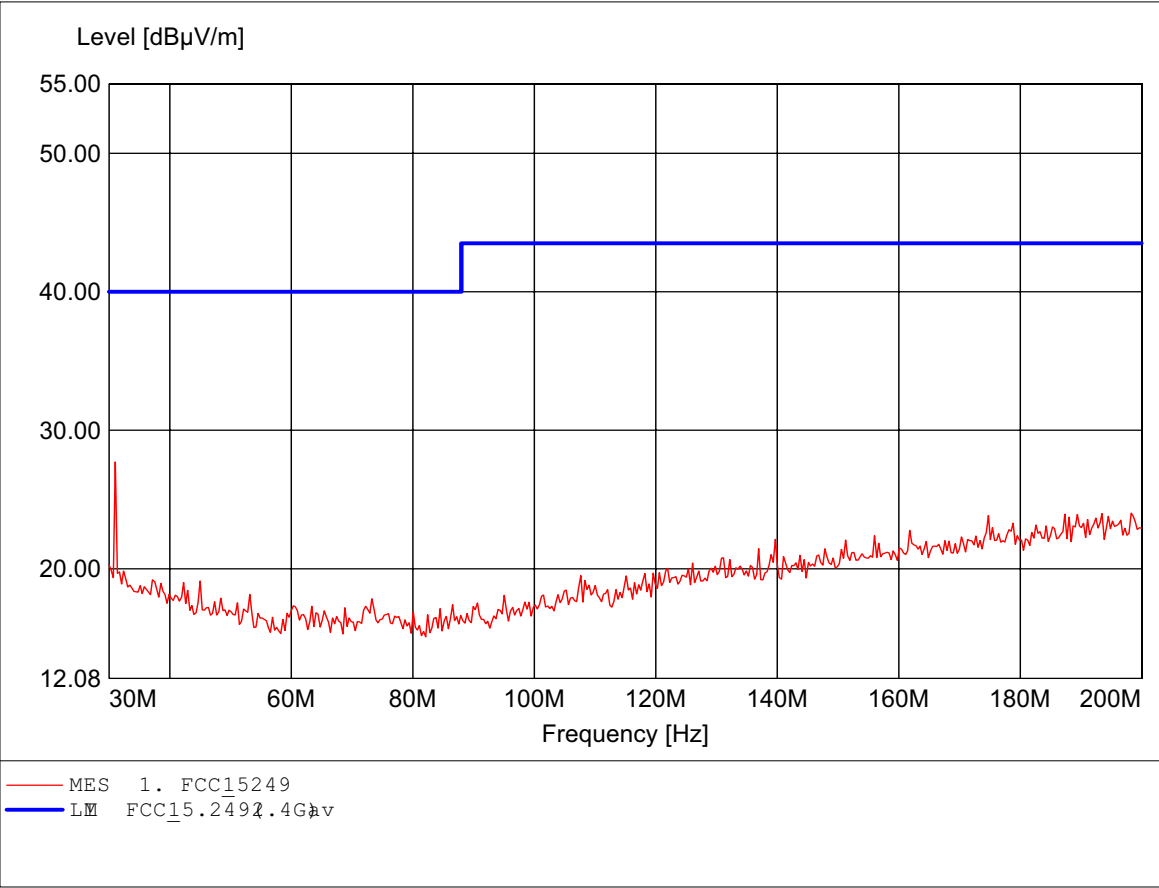
Order Nbr : W6M20512-6462 (1 channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to FCC 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HK116  
Freq 197.275MHz, Emax 24.29dBu/m, RBW: 100kHz



Spurious emissions Field Strength

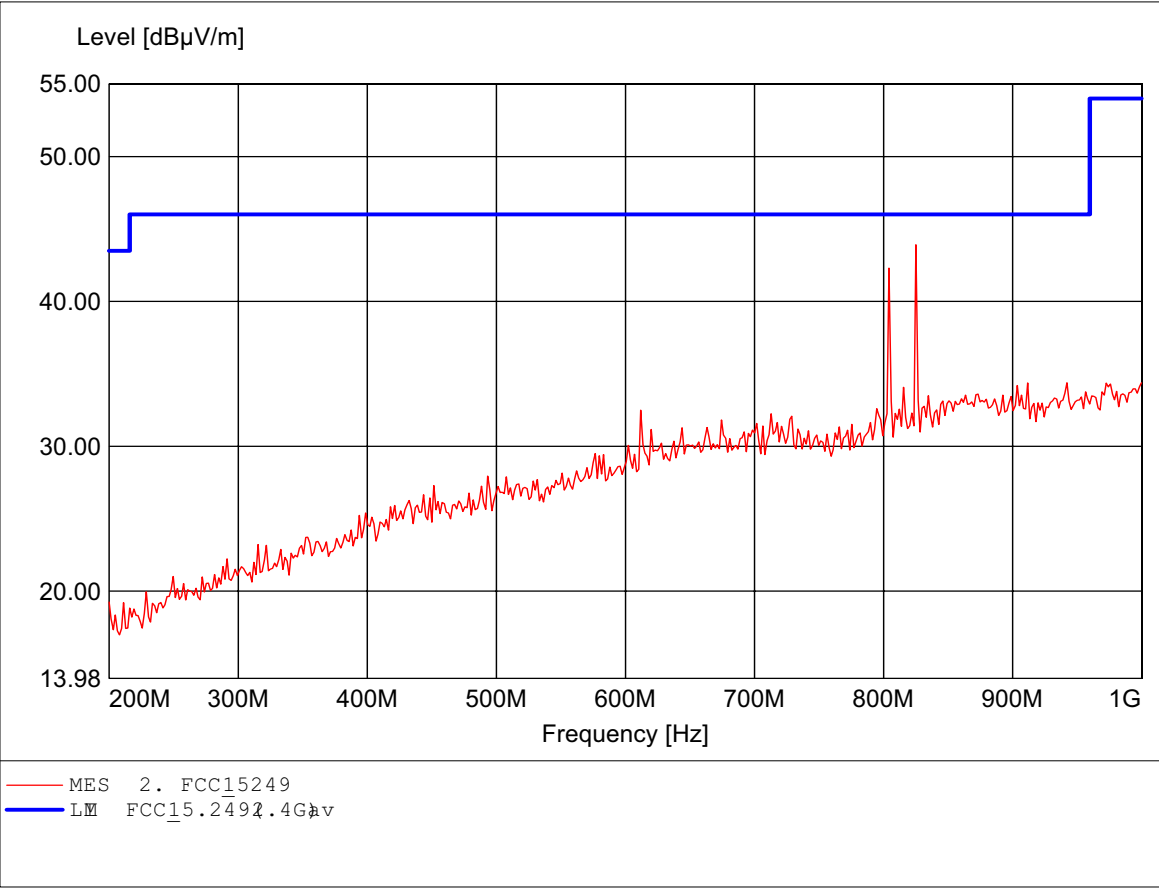
FCC RULES PART 15, SUBPART C / LP0002

Order Nbr : W6M20512-6462 (hghannel )TX  
Test Site / Operato: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to FCC 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HK116  
Freq 31.022MHz, Emax 27.71dBu/m, RBW: 100kHz



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

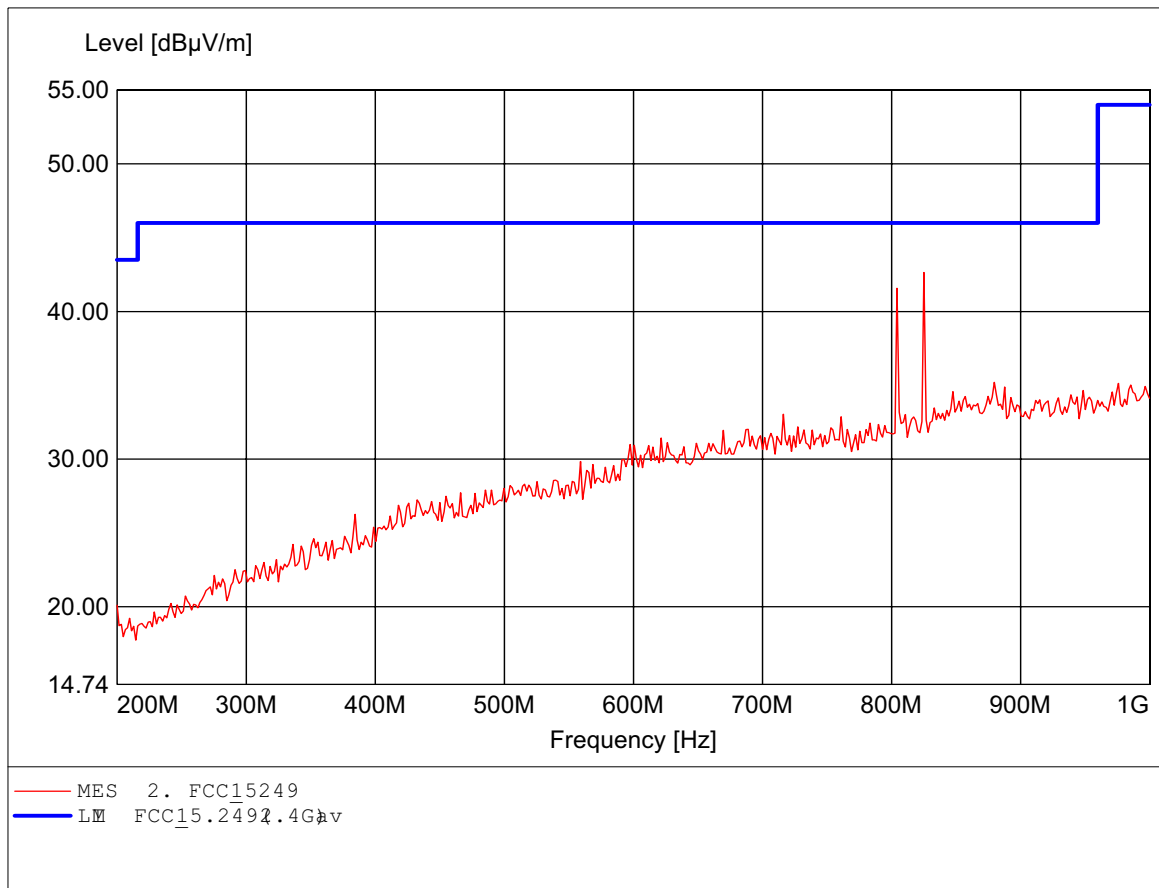
Order Nbr : W6M20512-6462 (1 channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to FCC 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL 223, amplifier.  
Freq 825.251MHz, Emax 43.91dBu/m, RBW: 100kHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

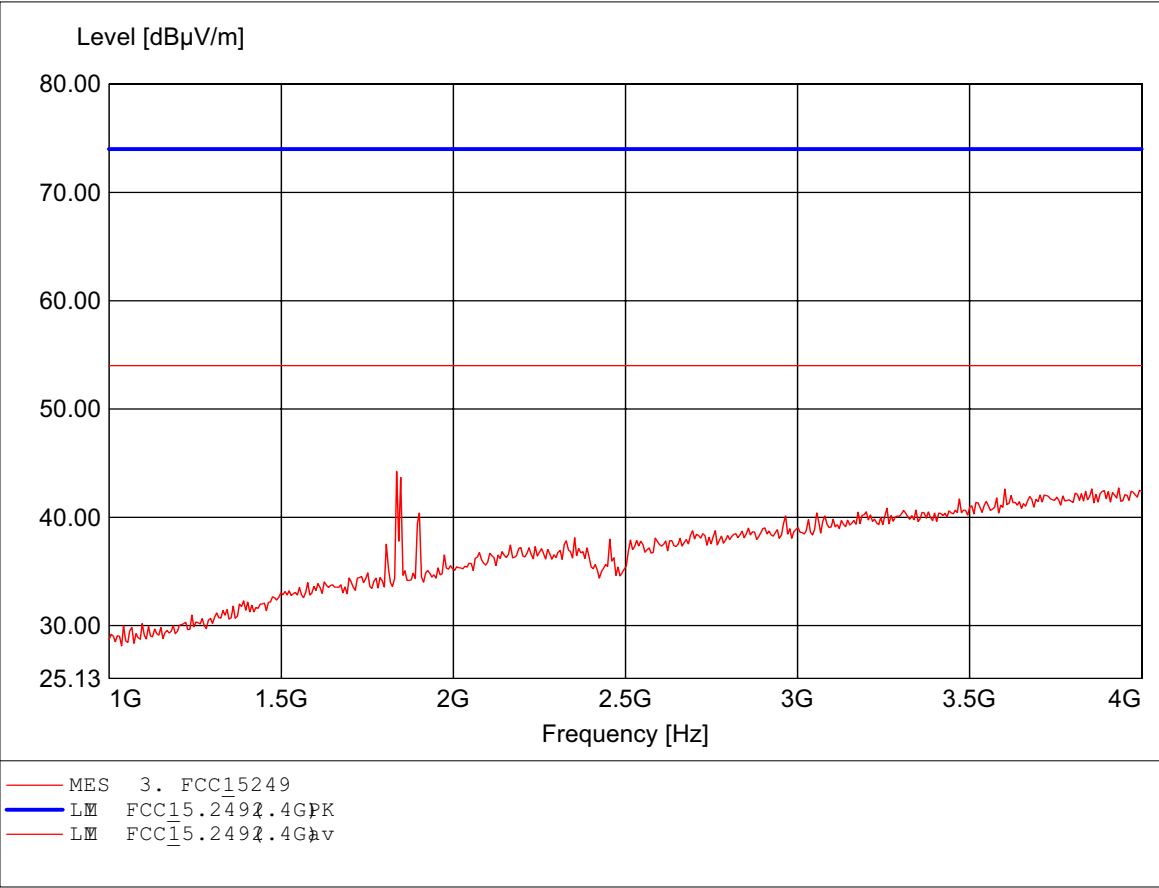
Order Nbr : W6M20512-6462 (1 channel )TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to FCC 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL 223, amplifier.  
Freq 825.251MHz, Emax 42.64dBu/m, RBW: 100kHz



Spurious emissions Field Strength

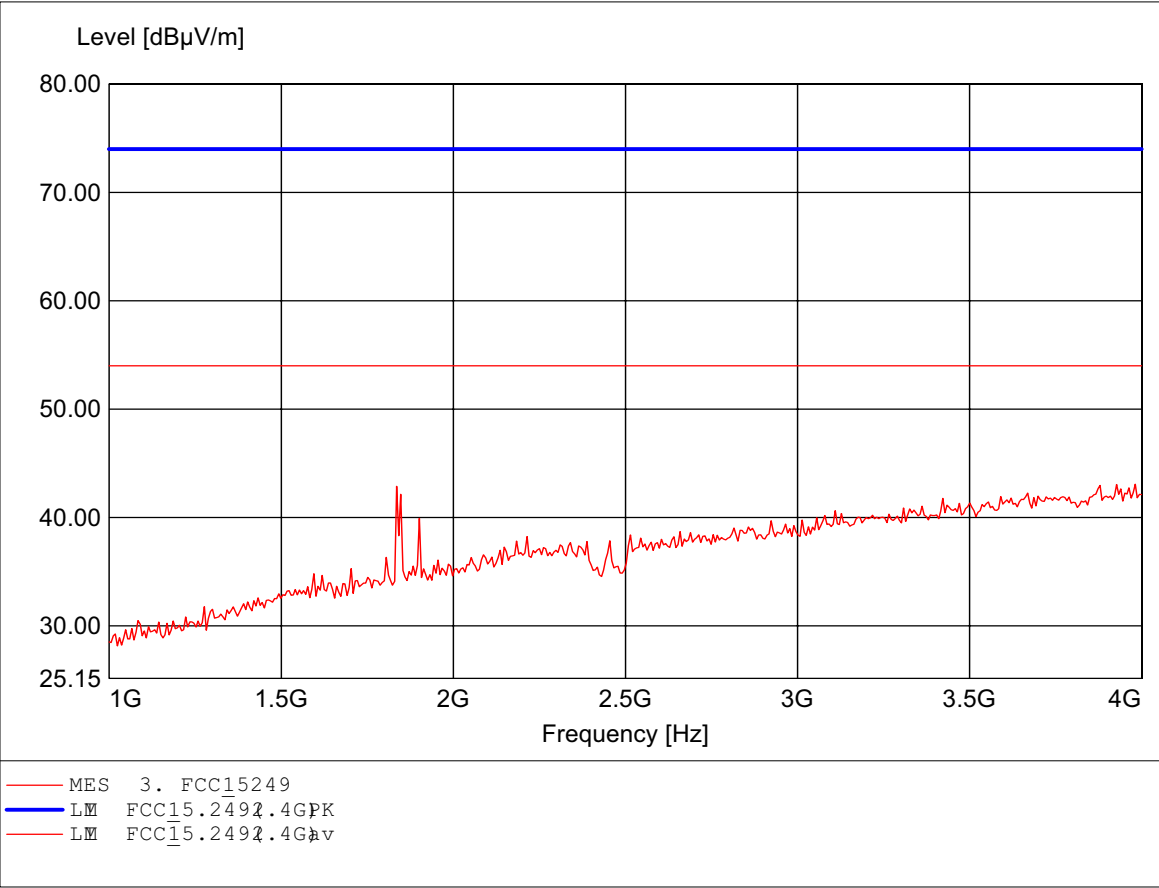
FCC RULES PART 15, SUBPART C / LP0002

Order Nbr : W6M20512-6462 (1 channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to 15.249, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq 1.836GHz, Emax 44.25dBu/m, RBW: 1MHz



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

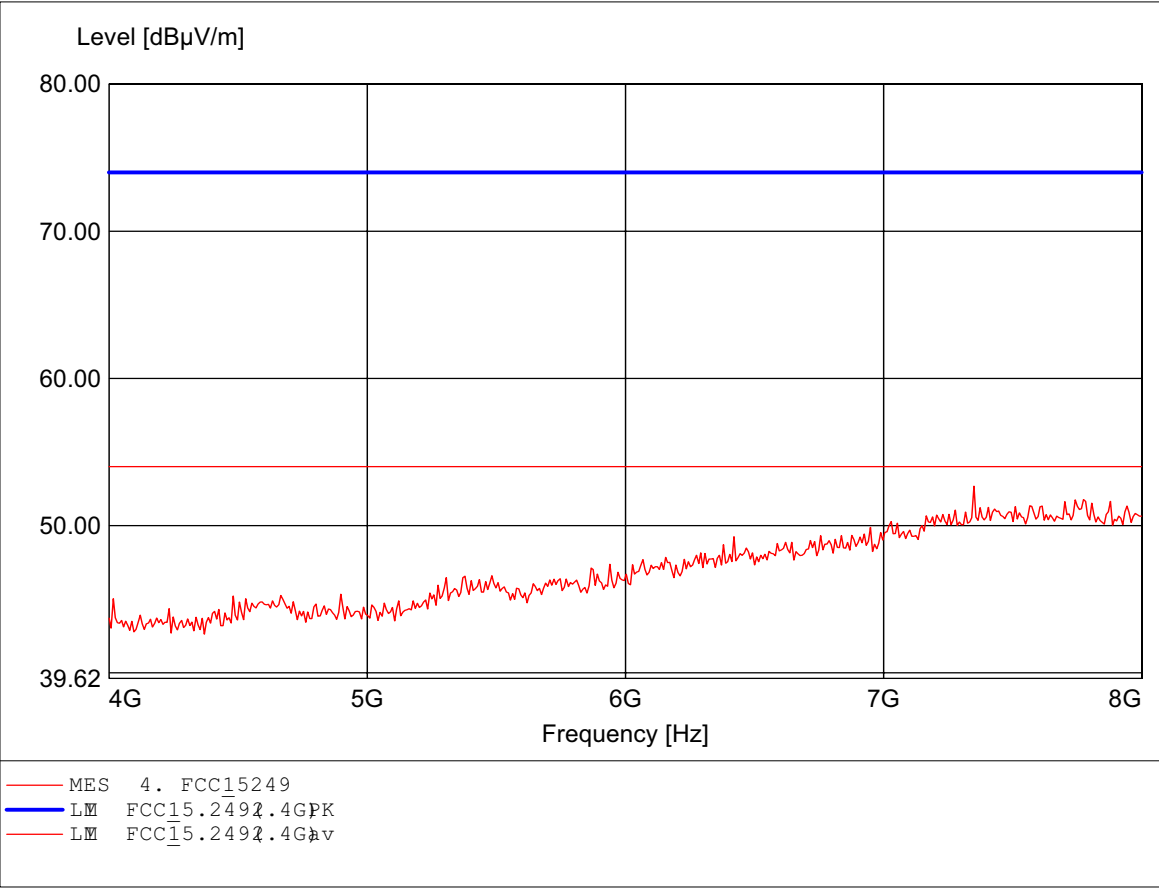
Order Nbr : W6M20512-6462 (1 channel )TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to 15.249, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq 3.982GHz, Emax 43.06dBV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

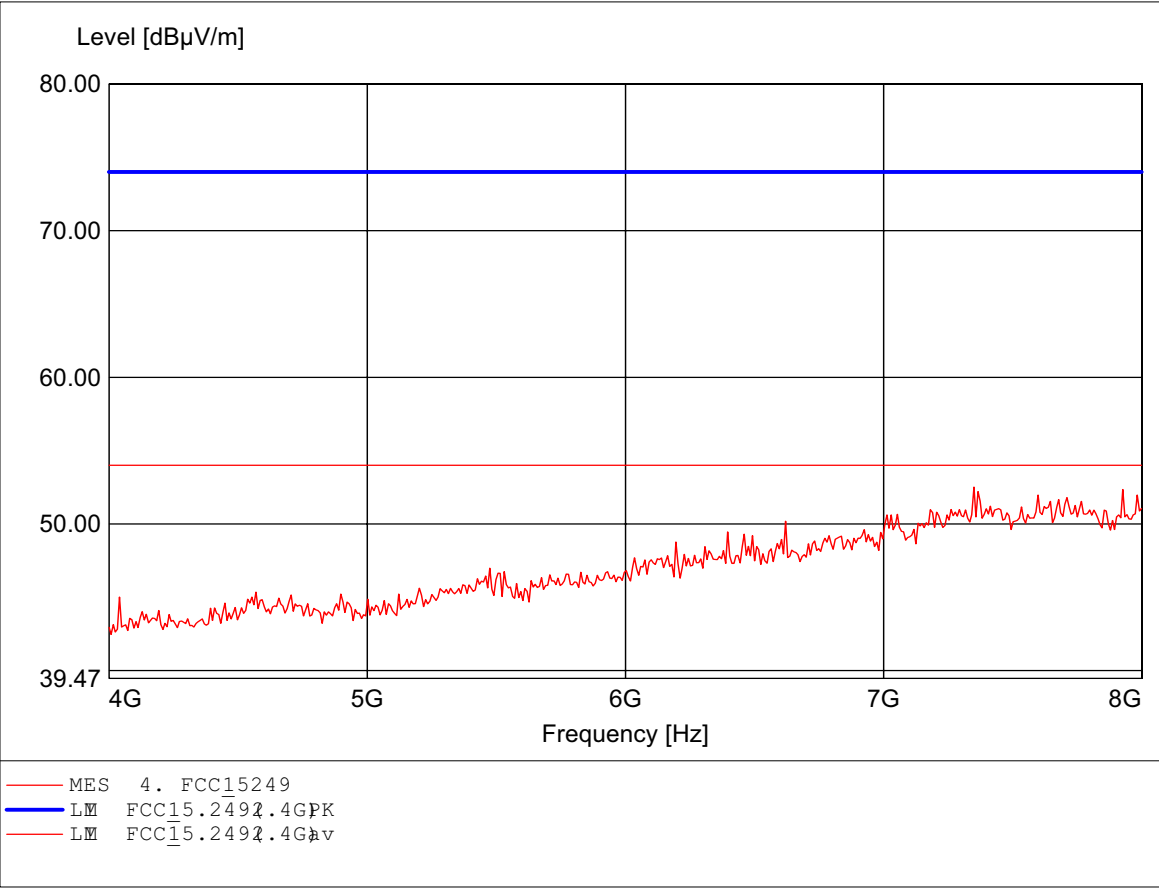
Order Nbr : W6M20512-6462 (1 channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL025, ampl. HP.  
Freq 7.351GHz, Emax 52.68dBu/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

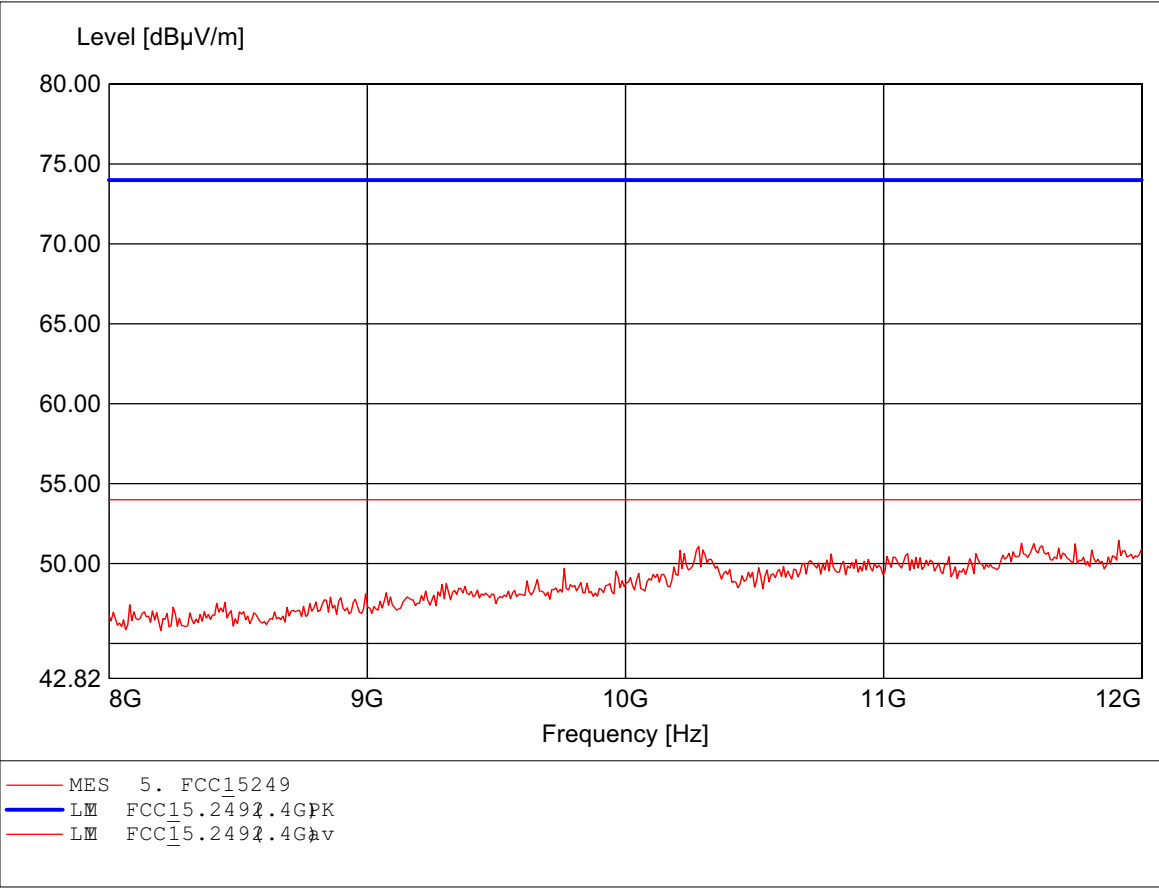
Order Nbr : W6M20512-6462 (1 channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to 5.249, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, ampl. HP.  
Freq 7.351GHz, Emax 52.52dBV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

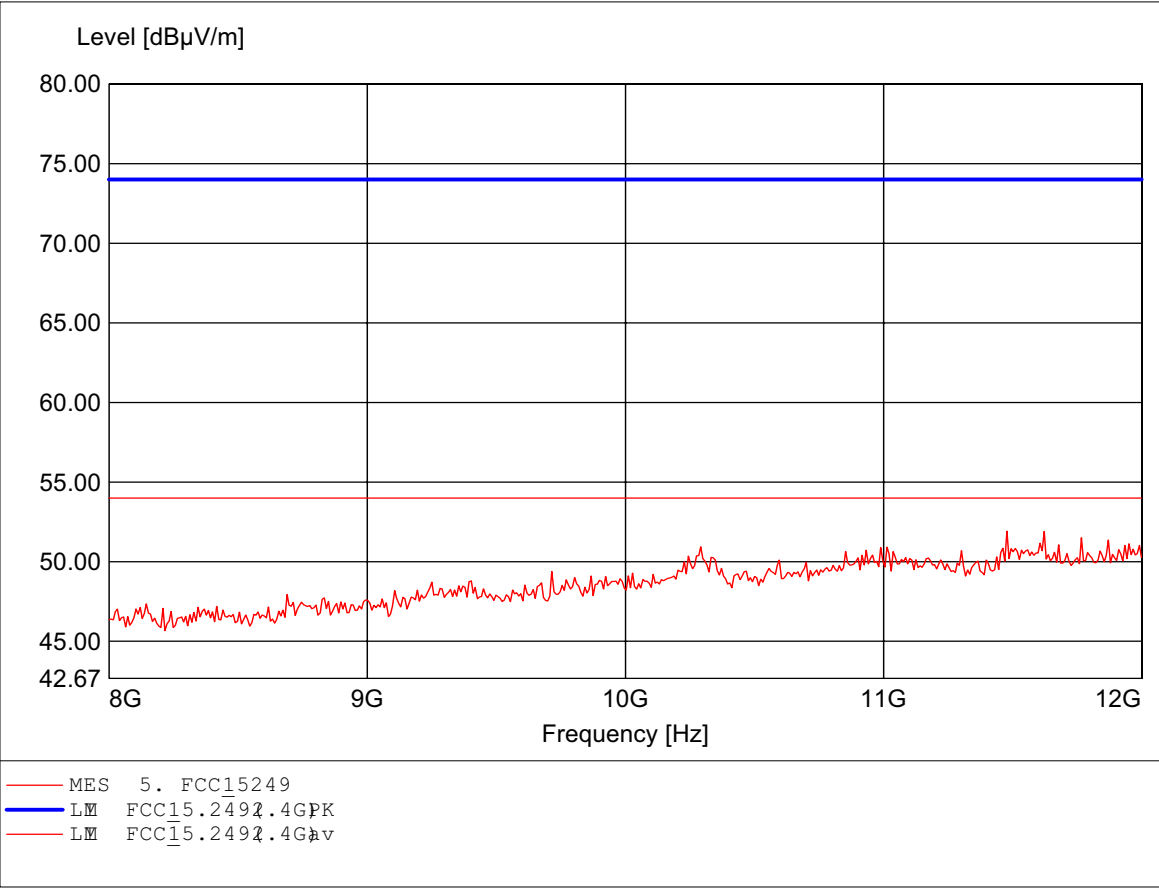
Order Nbr : W6M20512-6462 (1 channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to FCC 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL025, ampl. HP.  
Freq 11.912GHz, Emax 51.46dBu/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

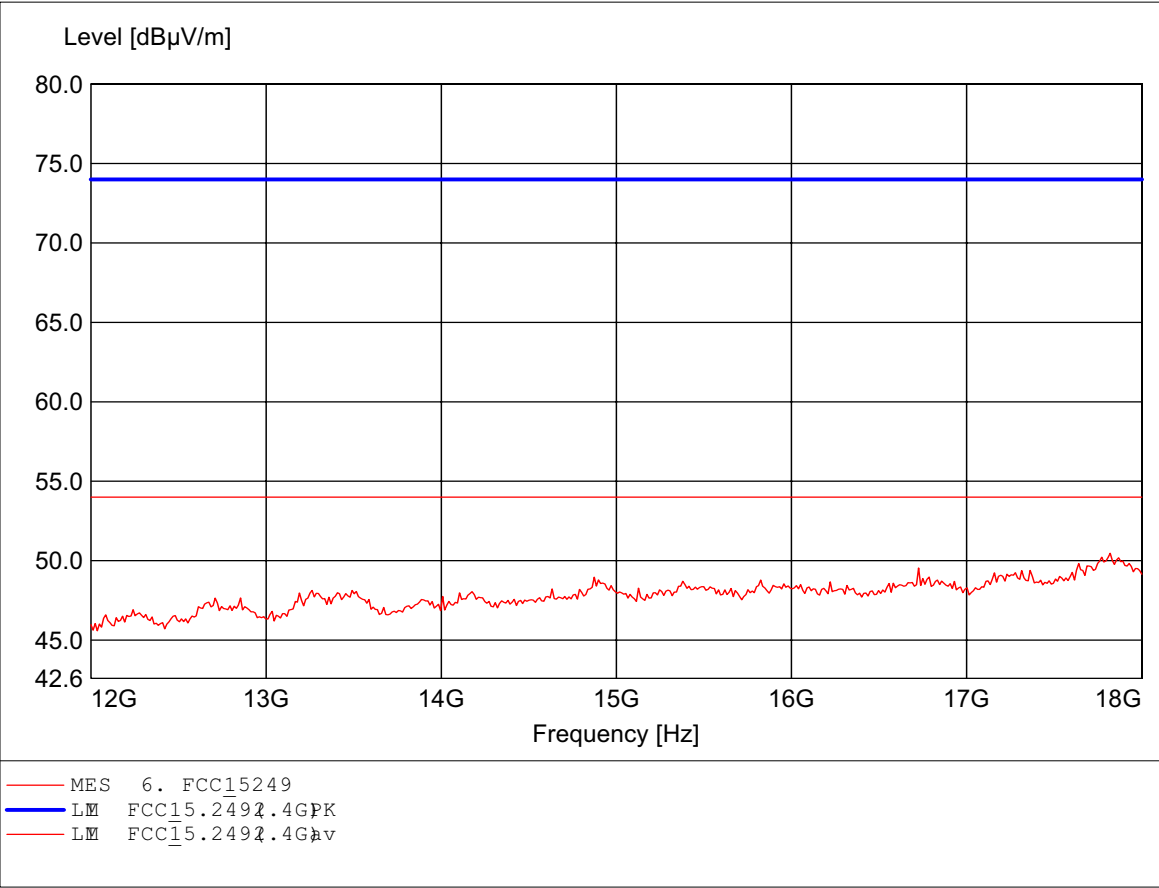
Order Nbr : W6M20512-6462 (1 channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to FCC 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL025, ampl. HP.  
Freq 11.479GHz, Emax 51.92dBu/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

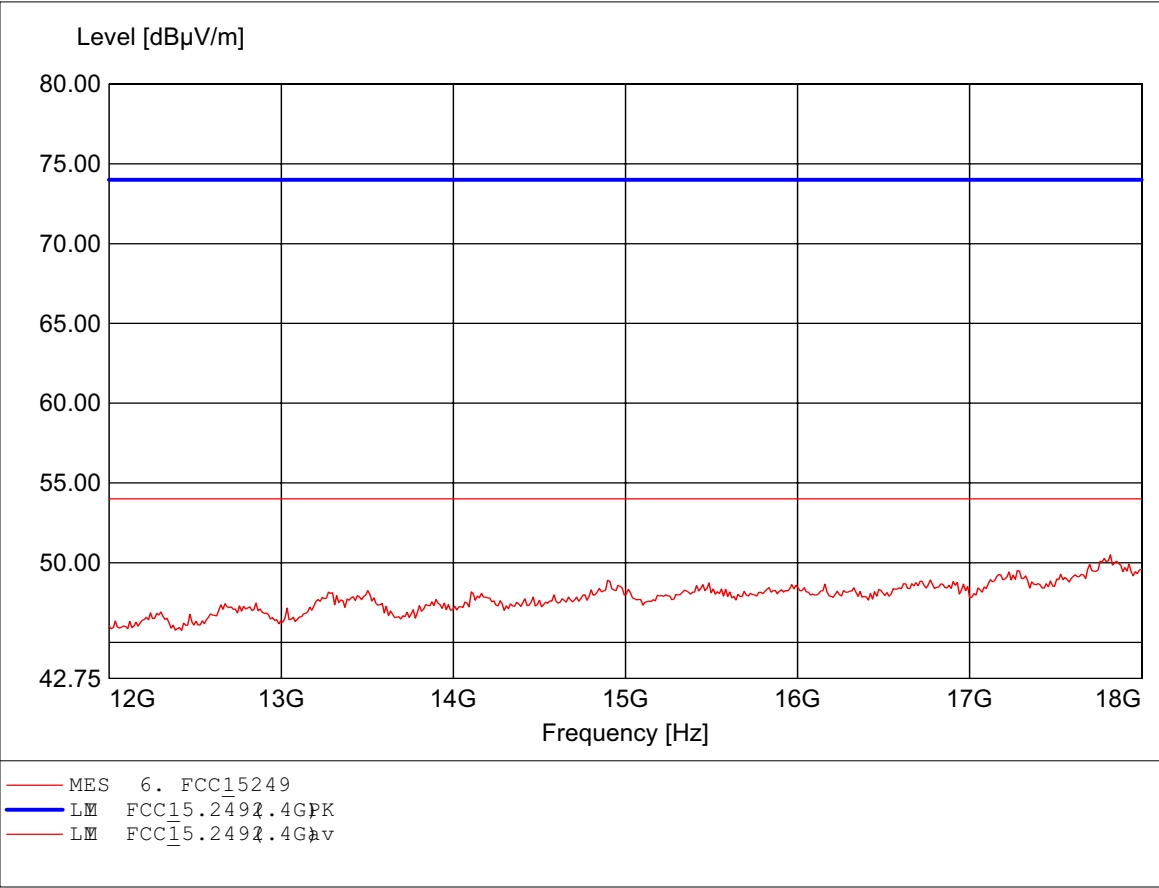
Order Nbr : W6M20512-6462 (1 channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to 5.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL025, ampl. HP.  
Freq 17.820GHz, Emax 50.47dBV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

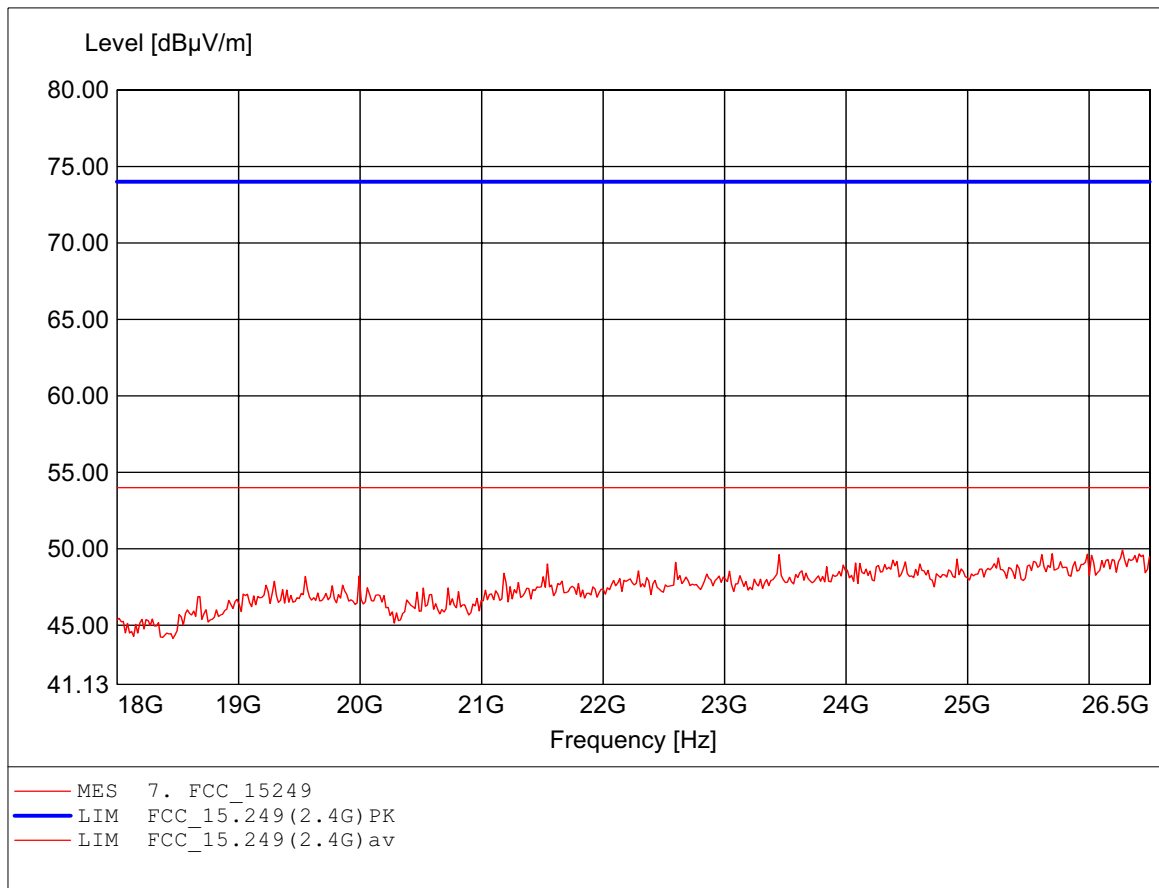
Order Nbr : W6M20512-6462 (1 channel )TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL025, ampl. HP.  
Freq 17.820GHz, Emax 50.49dBu/m, RBW: 1MHz



# Spurious emissions Field Strength

## FCC RULES PART 15, SUBPART C / LP0002

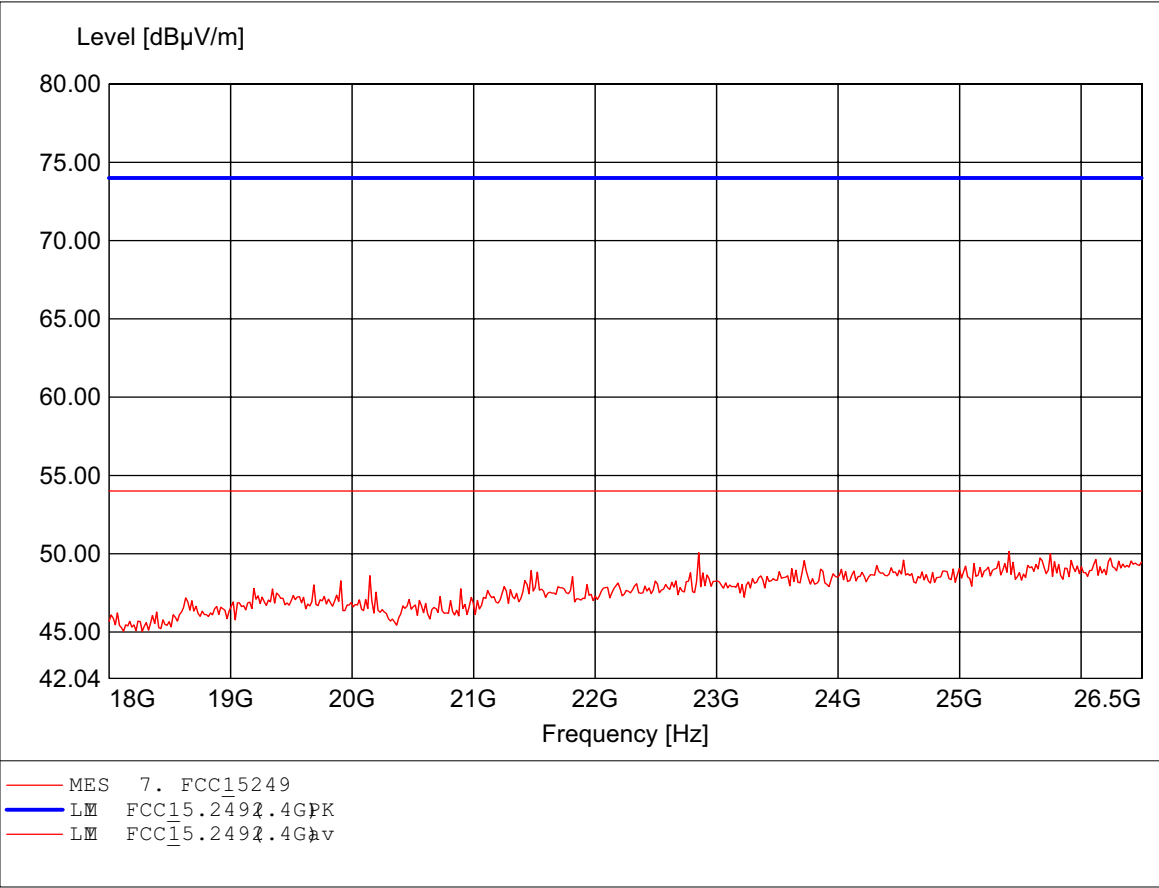
Order Number : W6M20512-6462 ( high channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9°C  
Test Specification: according to §15.249, peak detector  
Comment 1: Dist.: 3m, Ant.: HL025, amplif.  
Freq: 26.279GHz, Emax: 49.91dBµV/m, RBW: 1MHz



Spurious emissions Field Strength

FCC RULES PART 15, SUBPART C / LP0002

Order Nbr : W6M20512-6462 (1 channel ) TX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to FCC 15.249, peak detection  
Comment 1: Dist.: 3m, Ant.: HL025, amplifier.  
Freq 25.410GHz, Emax 50.14dBV/m, RBW: 1MHz





## **Appendix C**

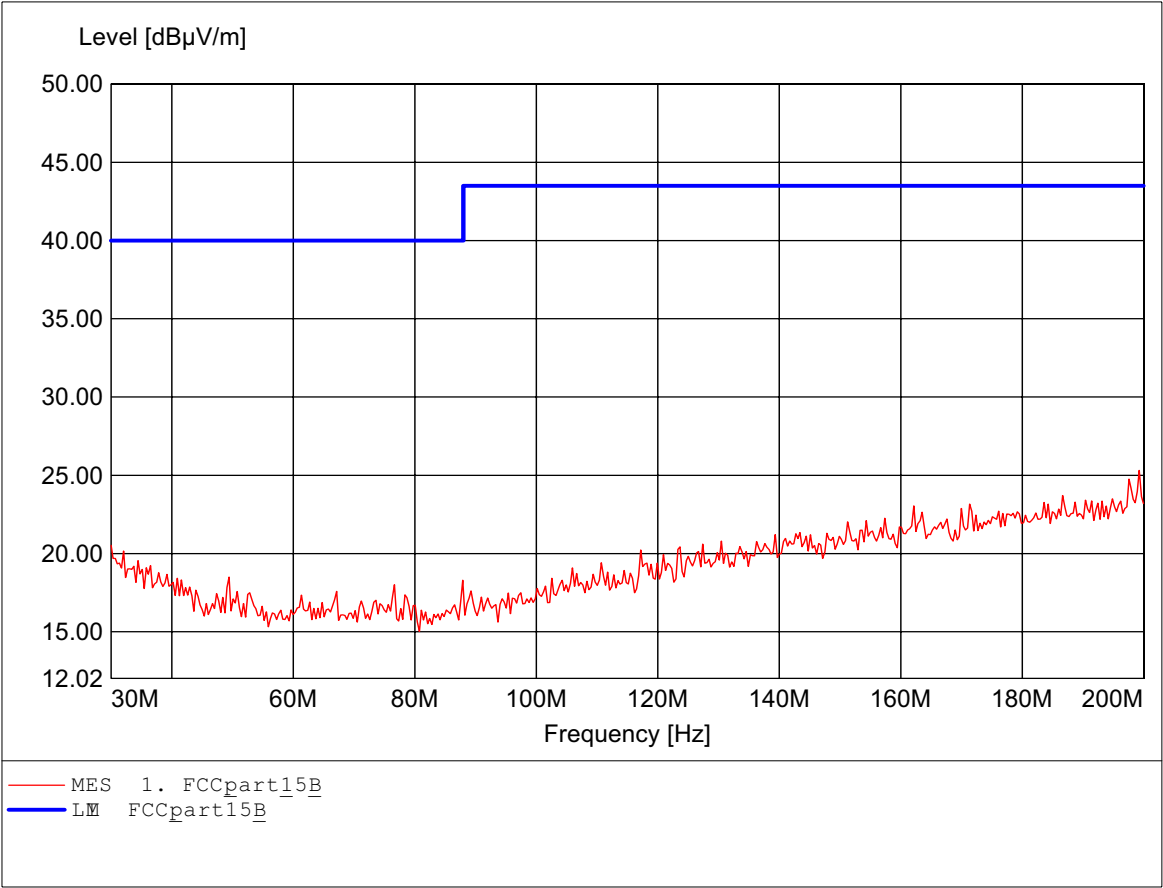
Radiated Emission from Digital Part And Receiver L.O.

The measurement diagrams plots attached below are preliminary wideband scan with a peak detector and for reference only. The final test results are listed on section 3.6

Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

Order Nbr : W6M20512-6462 (1 channel ) RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HK116  
Frequency: 199.319MHz Emax: 25.31dBV/m RBW: 100 kHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

Order Nbr : W6M20512-6462 (1channel )RX

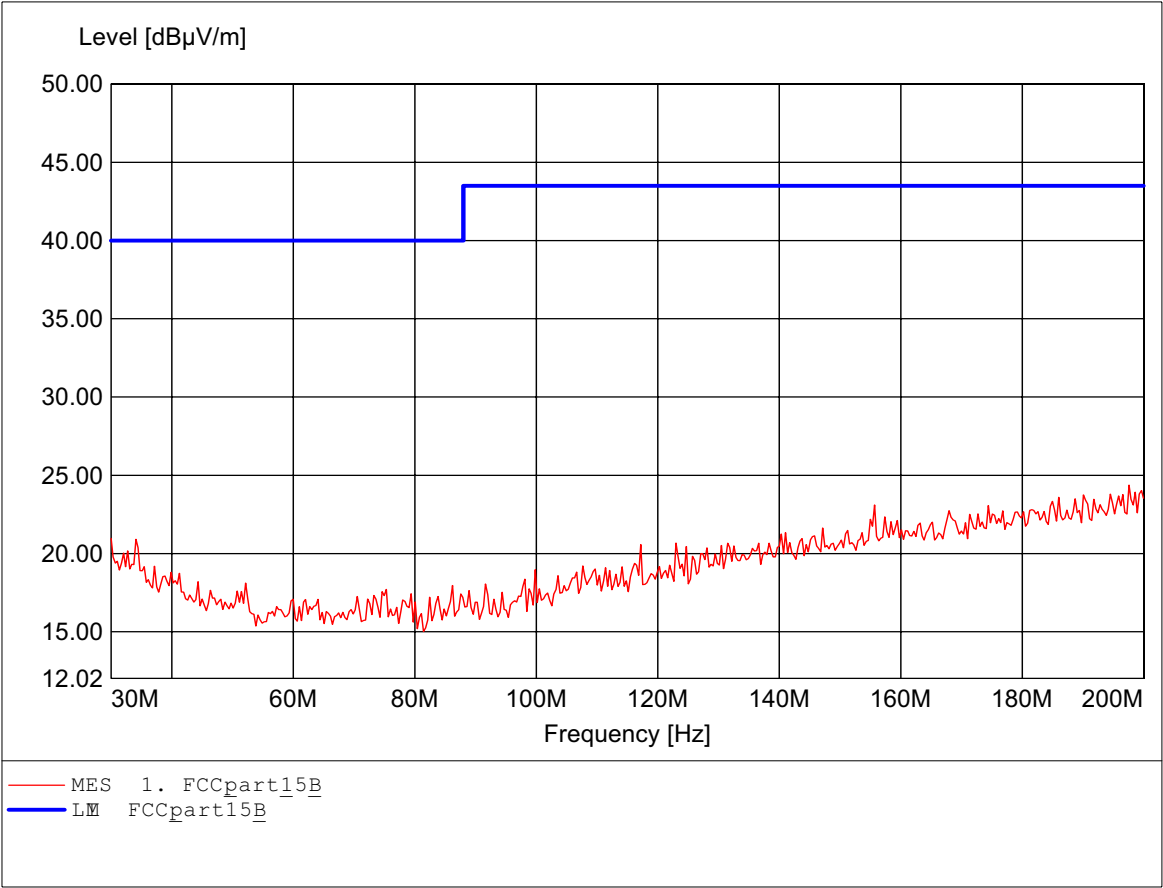
Test Site / Operator: ETS / Charles

Temperature: Temp.: 23.9C

Test Specification: according to part B

Comment 1: Dist.: 3m, Ant.: HK116

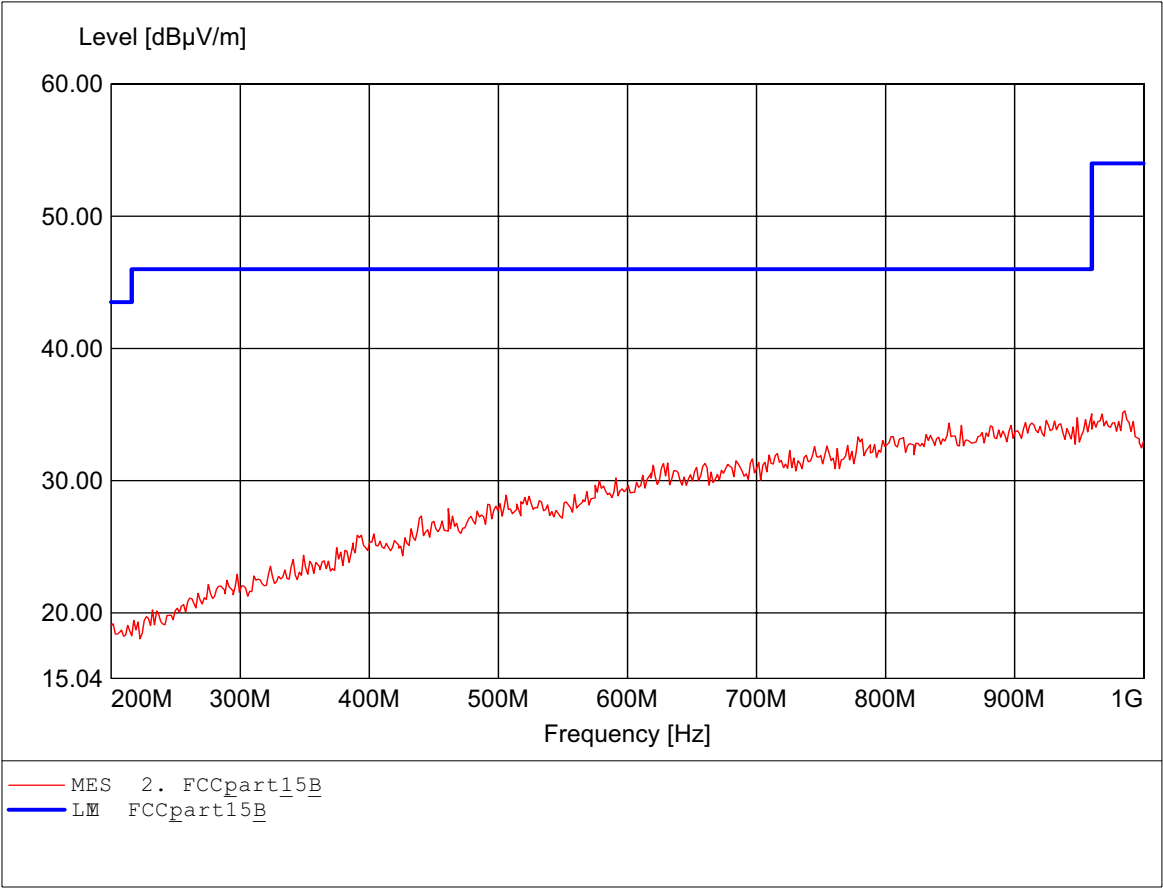
Frequency: 197.615MHz Emax: 24.37dBµV/m RBW: 100 kHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

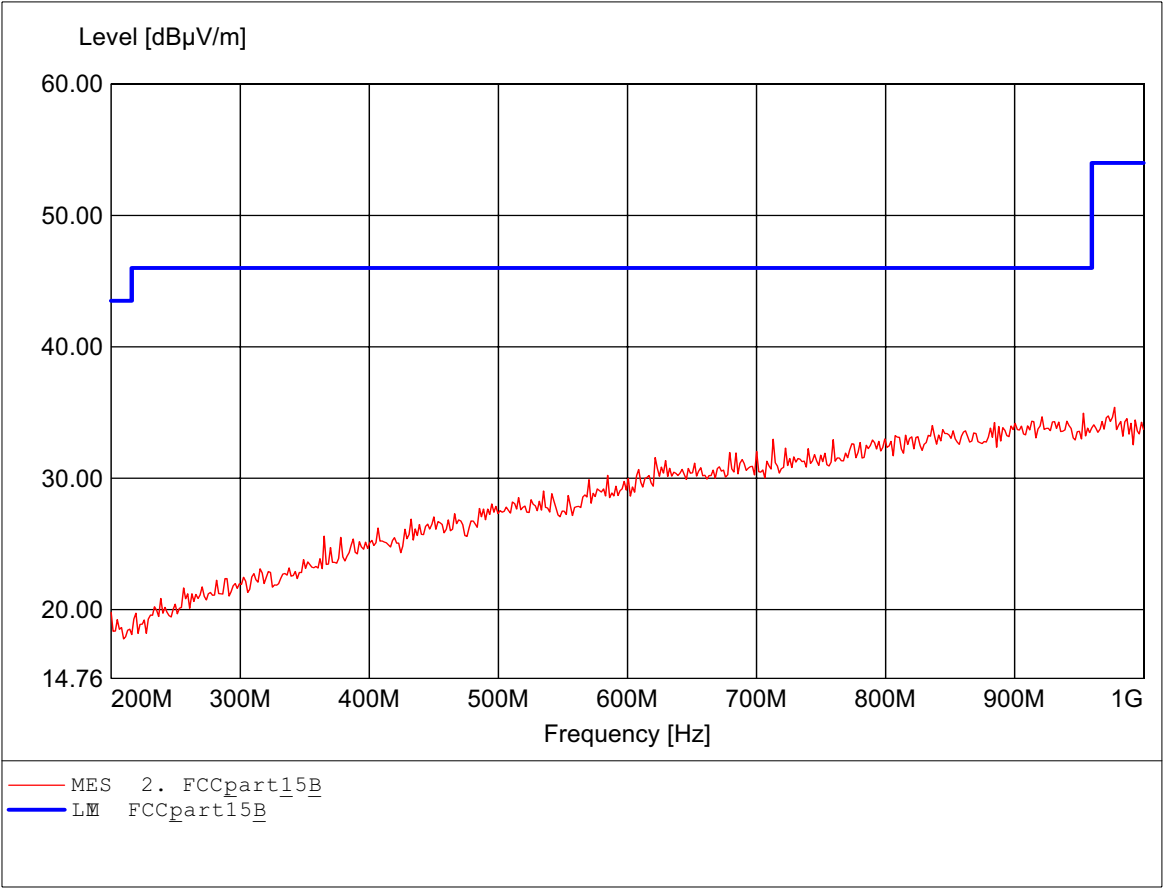
Order Nbr : W6M20512-6462 (1channel )RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.  
Frequency: 985.571MHz Emax: 35.28dBu/m RBW: 100 kHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

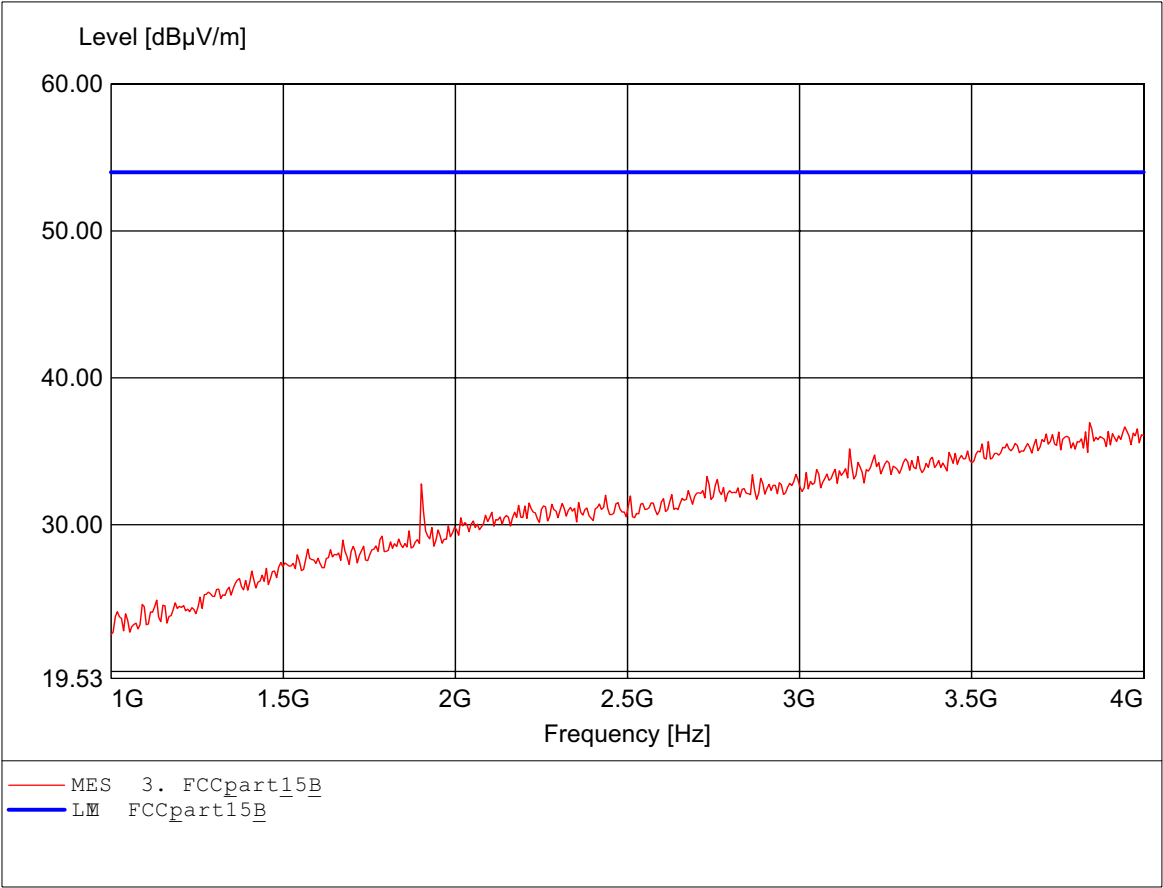
Order Nbr : W6M20512-6462 (1channel )RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.  
Frequency: 977.555MHz Emax: 35.39dBμV/m RBW: 100 kHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

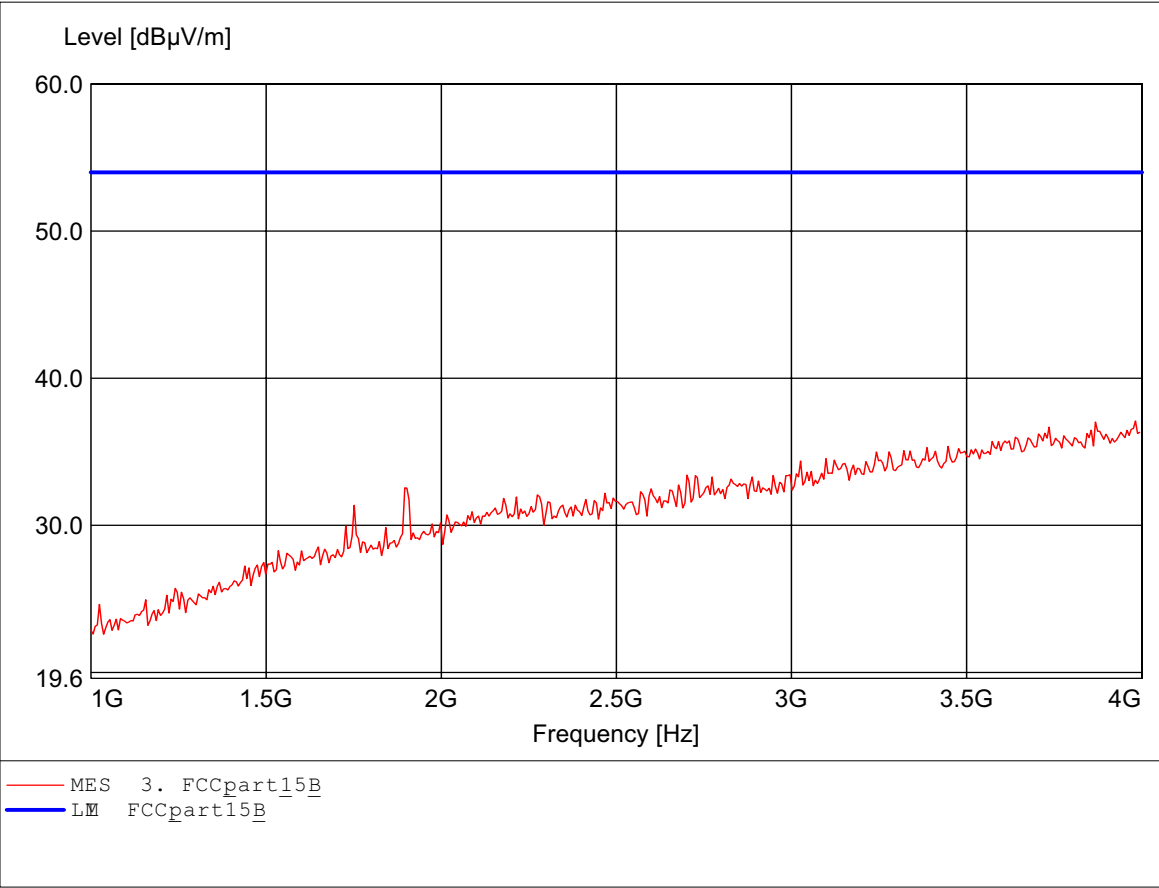
Order Nbr : W6M20512-6462 (1channel )RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Freq 3.844GHz Emax 36.94dBµV/m RBW: 1 MHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

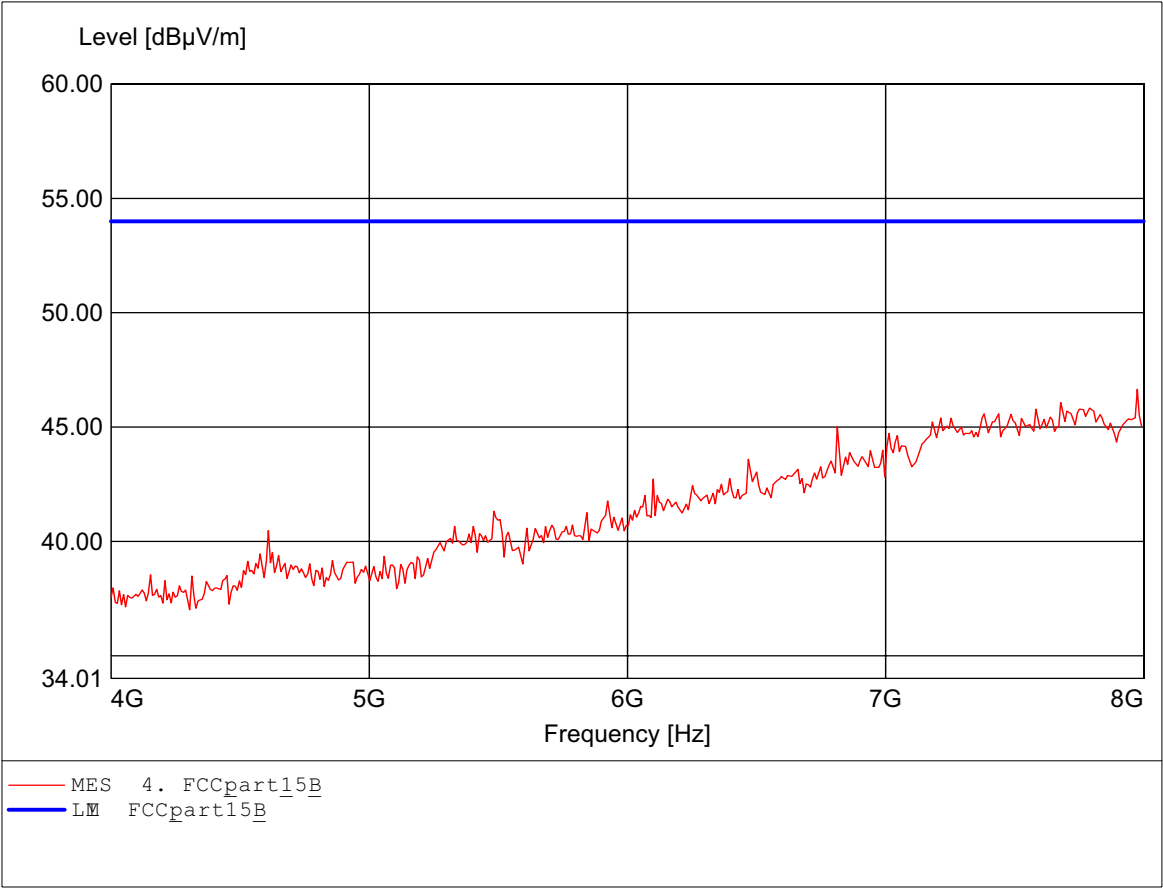
Order Nbr : W6M20512-6462 (1channel )RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Freq 3.982GHz Emax 37.09dBμV/m RBW: 1 MHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

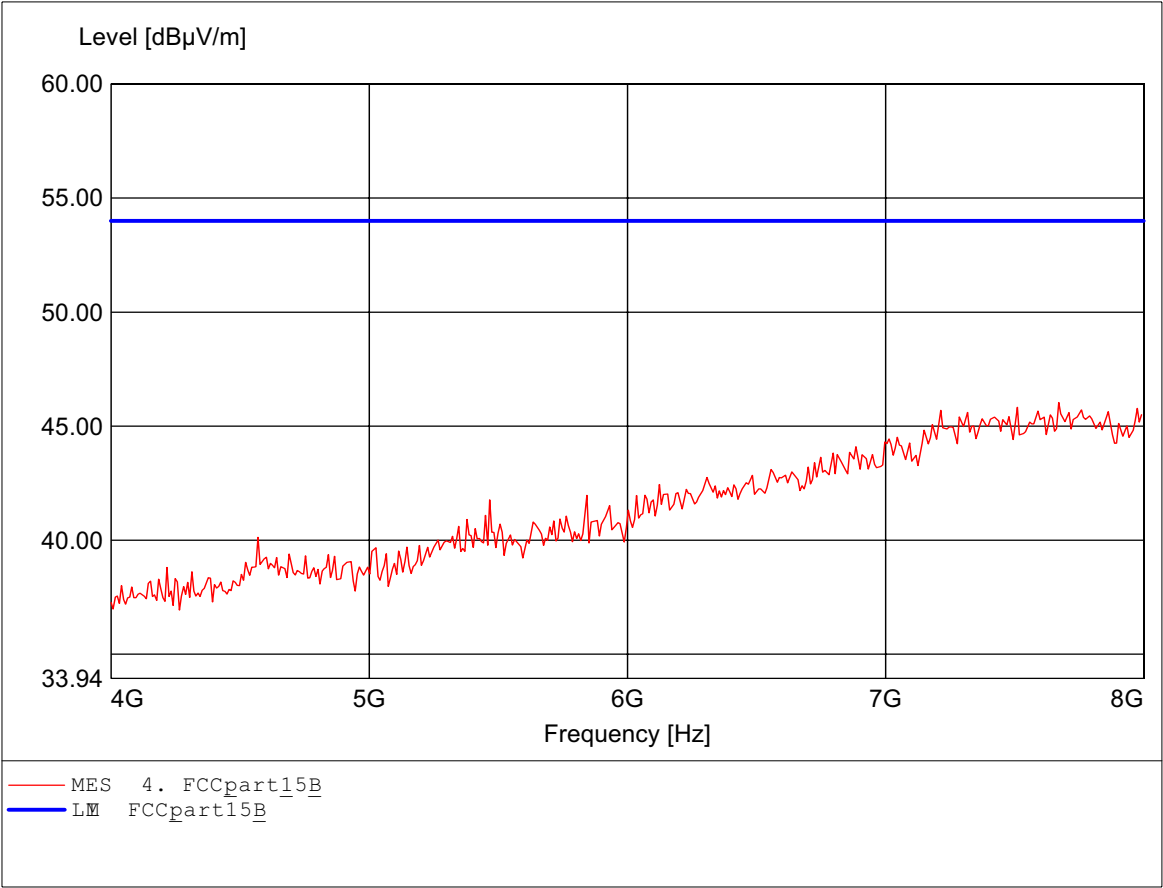
Order Nbr : W6M20512-6462 (1channel )RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Freq: 7.976GHz Emax: 46.65dBµV/m RBW: 1 MHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

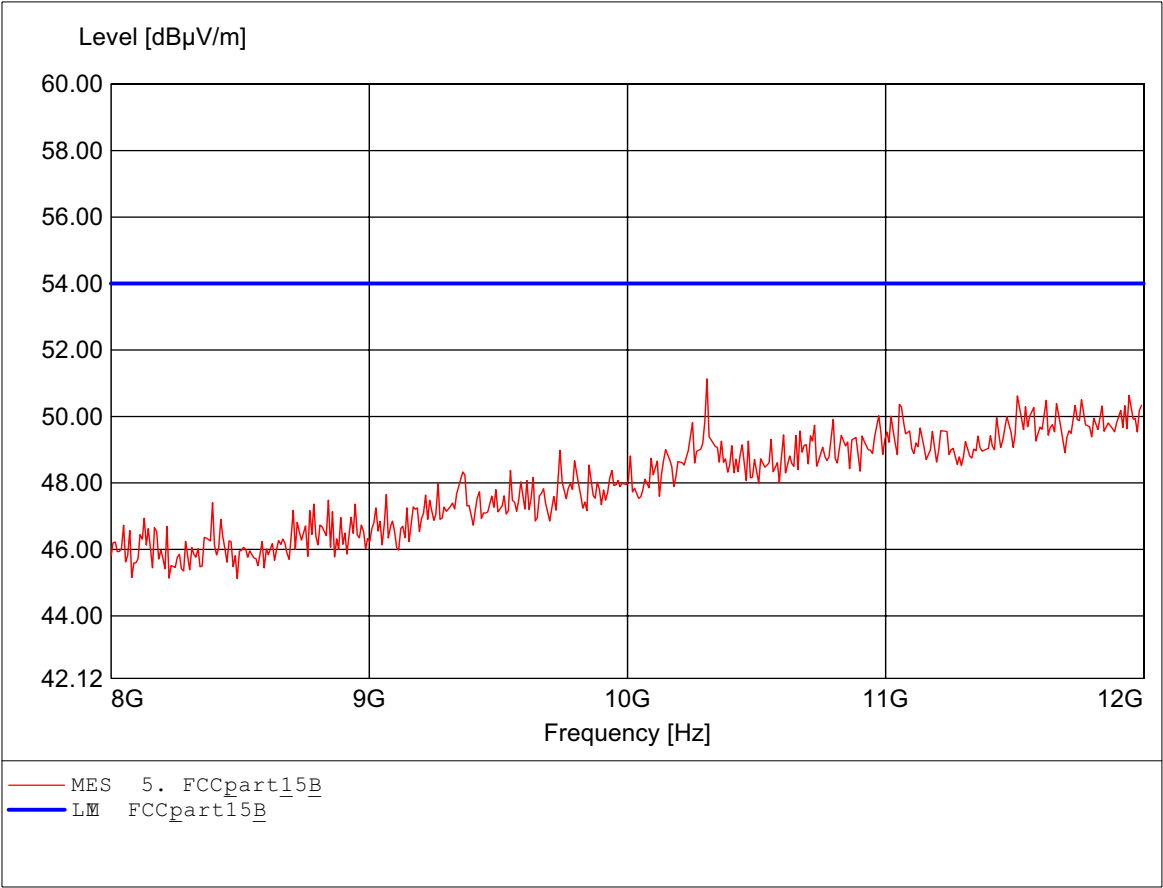
Order Nbr : W6M20512-6462 (1channel )RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Freq 7.671GHz Emax 46.04dBµ/m RBW: 1 MHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

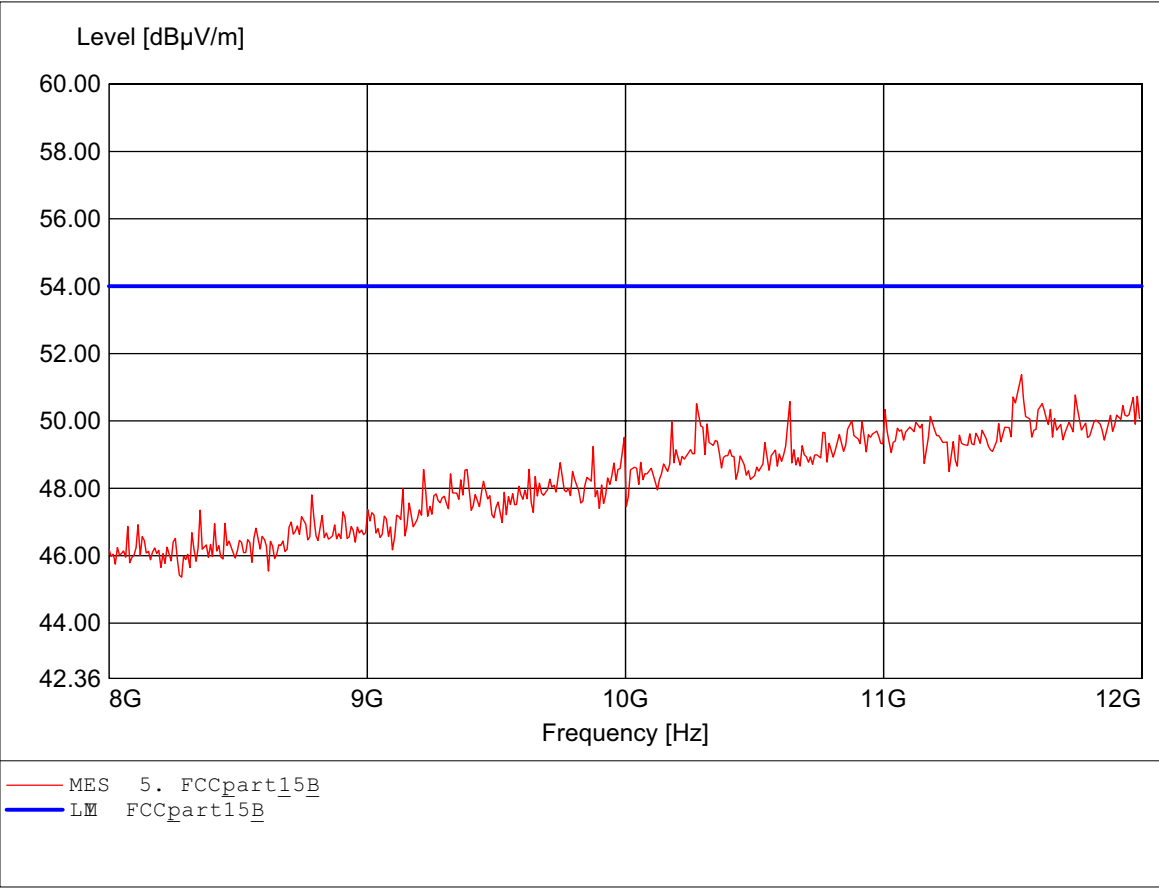
Order Nbr : W6M20512-6462 (1 channel ) RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Freq: 10.309GHz Emax: 51.13dBV/m RBW: 1 MHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

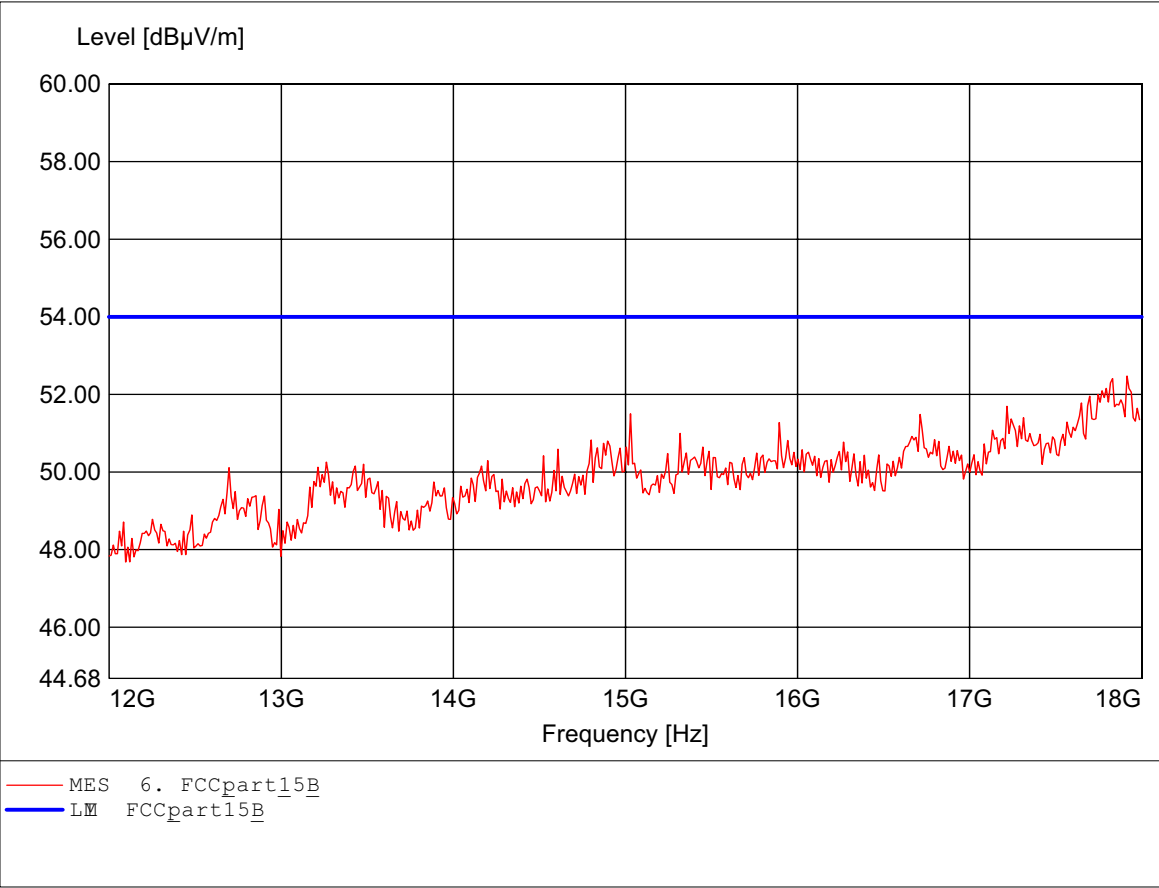
Order Nbr : W6M20512-6462 (1channel )RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Freq: 11.535GHz Emax: 51.37dBu/m RBW: 1 MHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

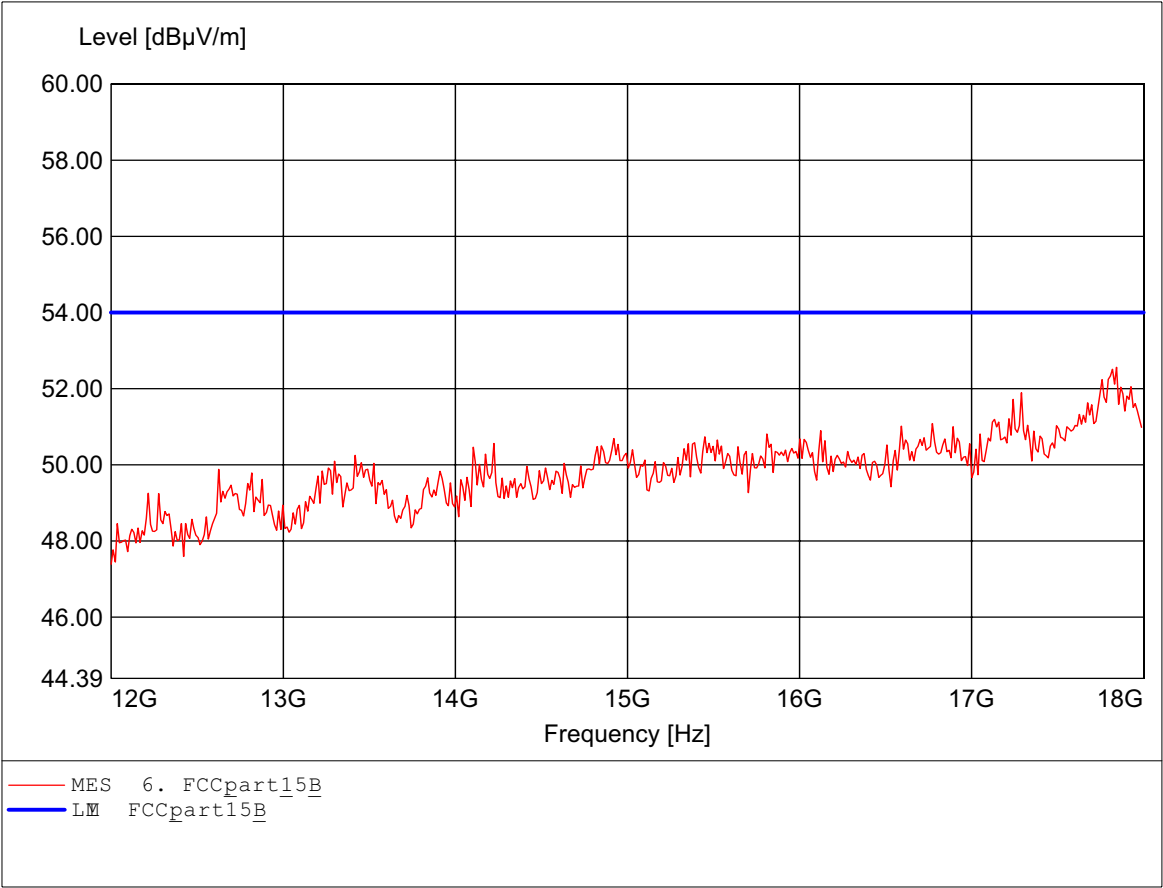
Order Nbr : W6M20512-6462 (1 channel ) RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Freq 17.916GHz Emax 52.47dBμV/m RBW: 1 MHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

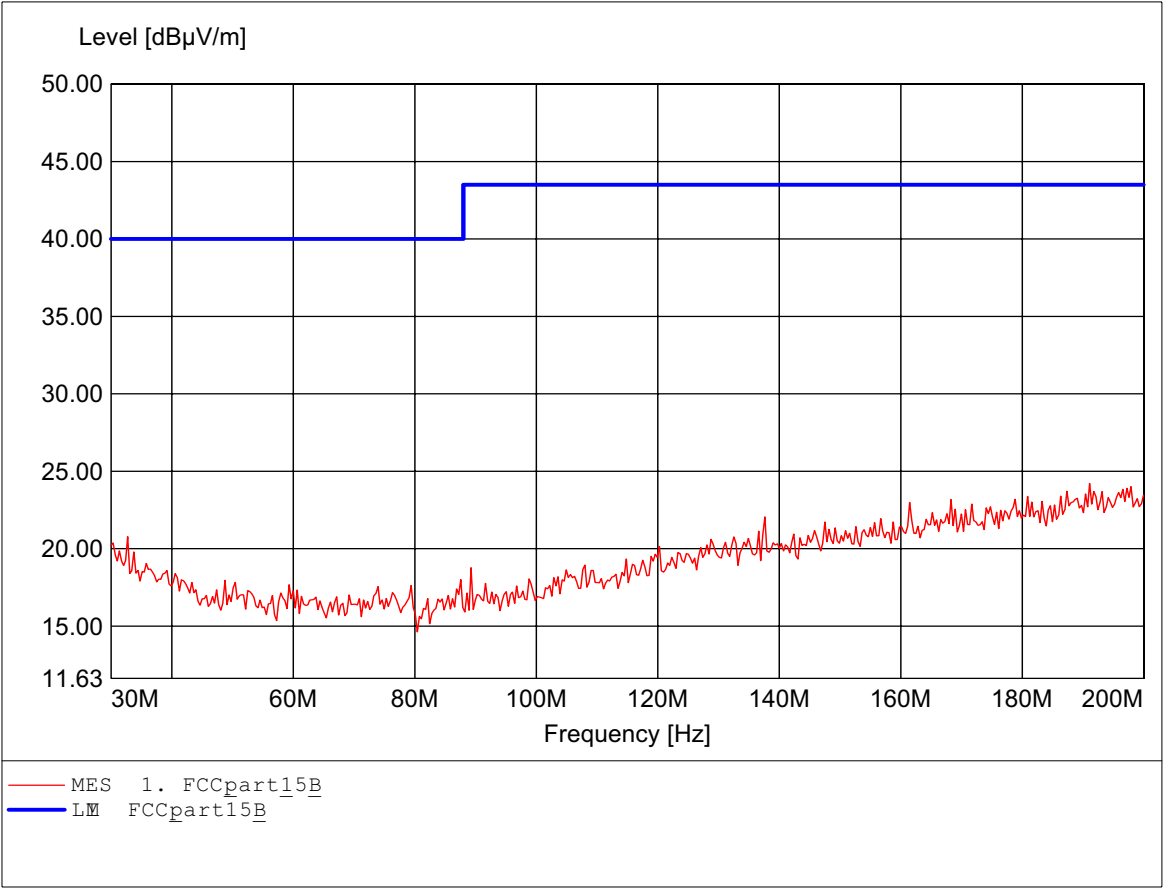
Order Nbr : W6M20512-6462 (1 channel ) RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Frequency 17.844GHz Emax 52.56dBμV/m RBW: 1 MHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

Order Nbr : W6M20512-6462 (1 channel ) RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HK116  
Frequency 191.142MHz Emax 24.22dBµ/m RBW: 100 kHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

Order Nbr : W6M20512-6462 (1 channel )RX

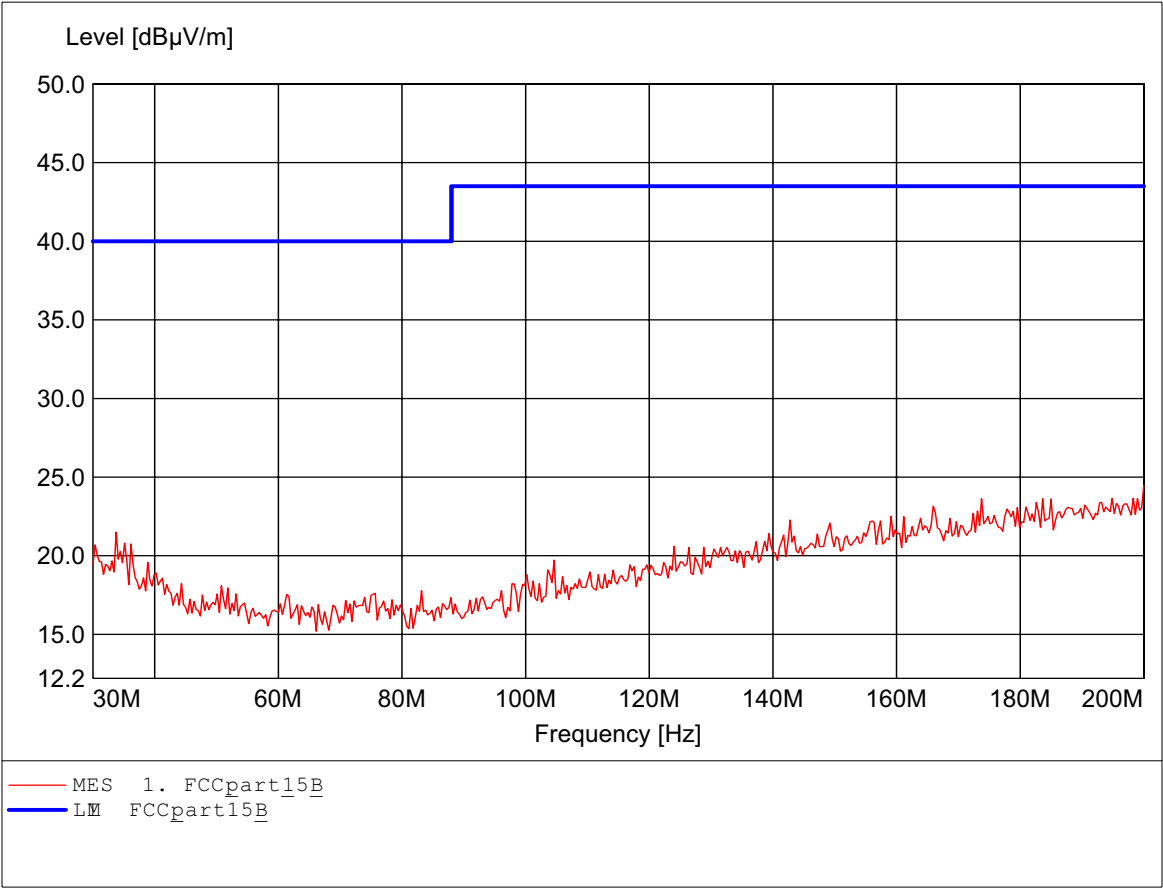
Test Site / Operator: ETS / Charles

Temperature: Temp.: 23.9C

Test Specification: according to part B

Comment 1: Dist.: 3m, Ant.: HK116

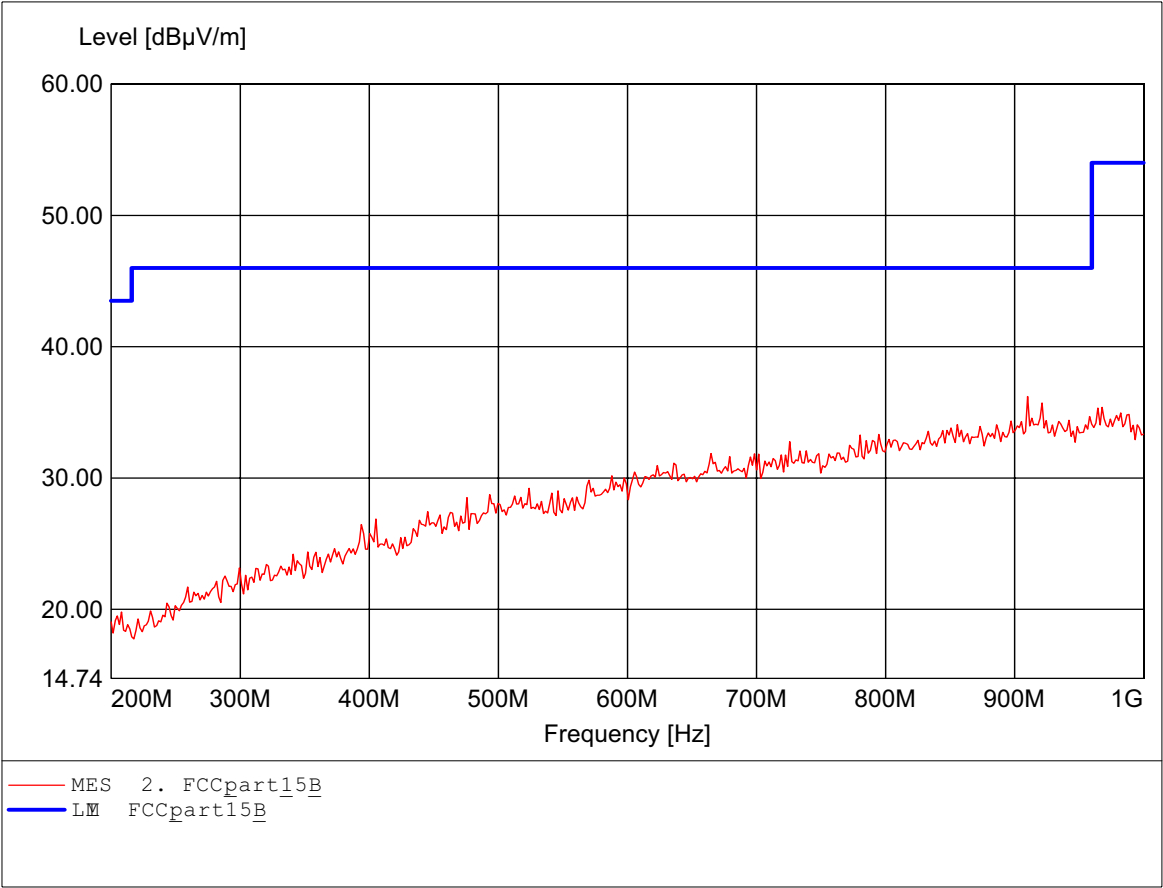
Frequency: 200.000MHz Emax: 24.47dBµV/m RBW: 100 kHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

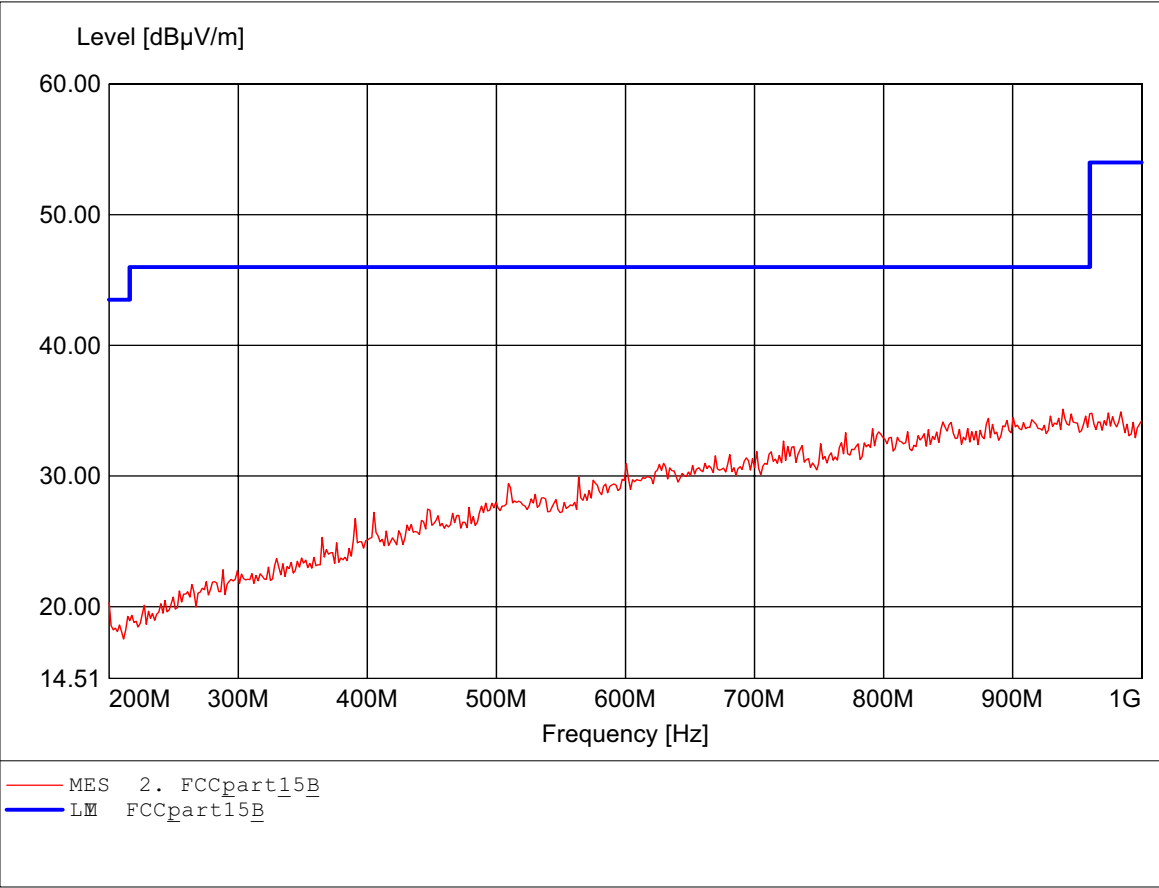
Order Nbr : W6M20512-6462 (1 channel ) RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.  
Frequency: 910.220MHz Emax: 36.21dBu/m RBW: 100 kHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

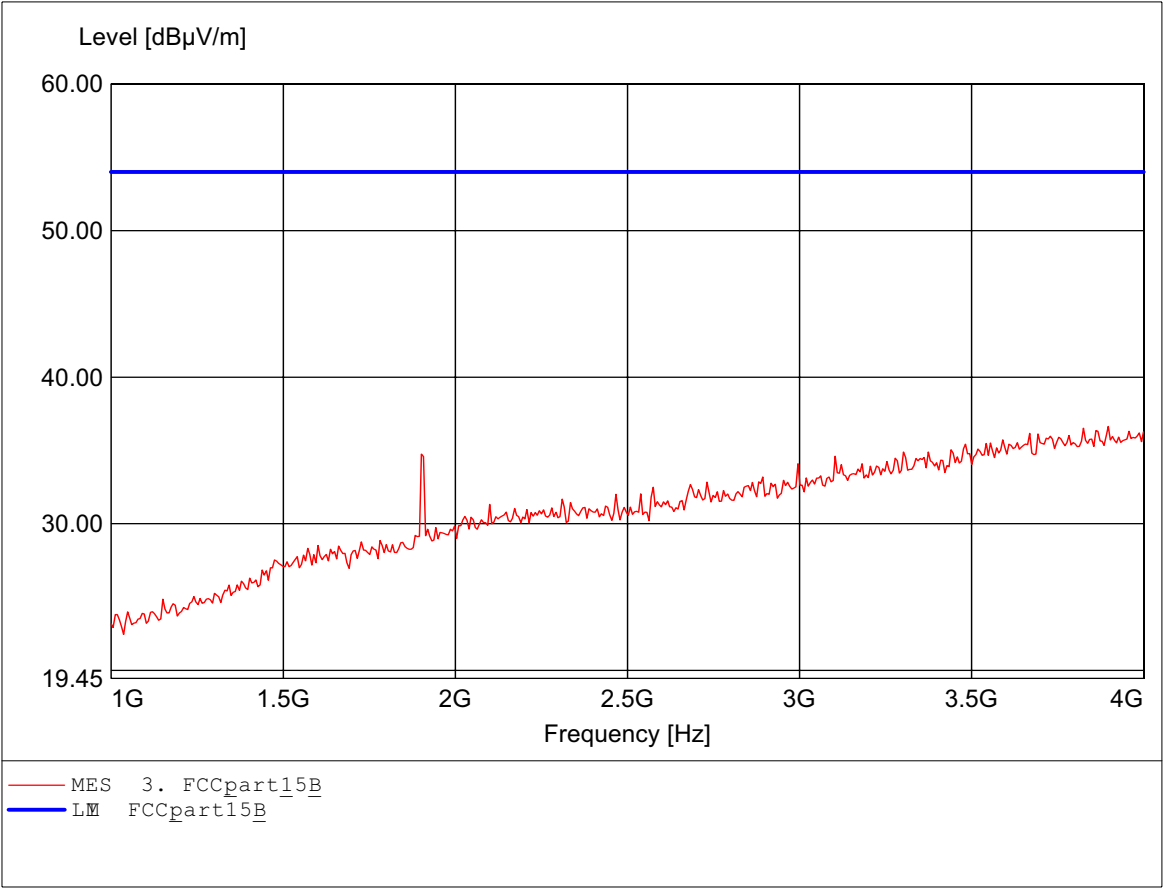
Order Nbr : W6M20512-6462 (1 channel ) RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL 223, ampl.  
Frequency: 939.078MHz Emax: 35.12dBµV/m RBW: 100 kHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

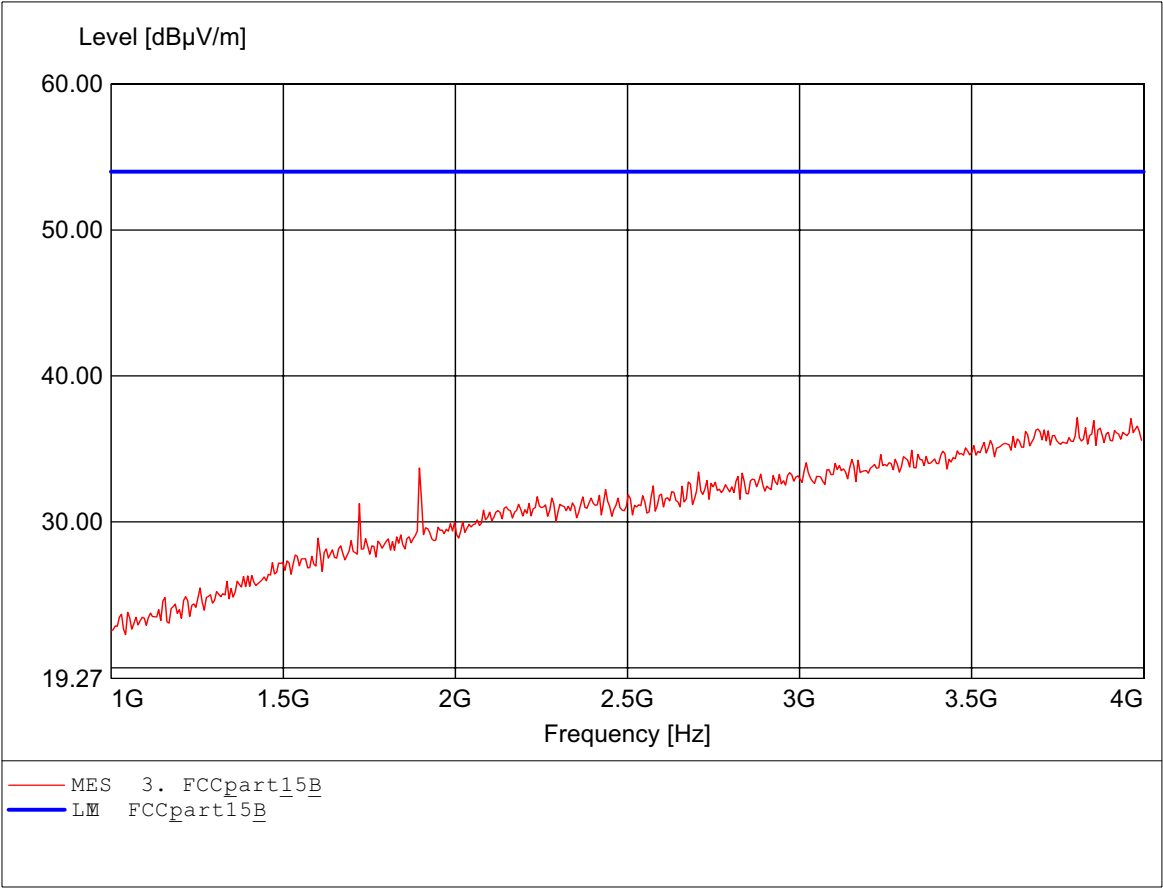
Order Nbr : W6M20512-6462 (1 channel ) RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Freq 3.898GHz Emax 36.64dBμ/m RBW: 1 MHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

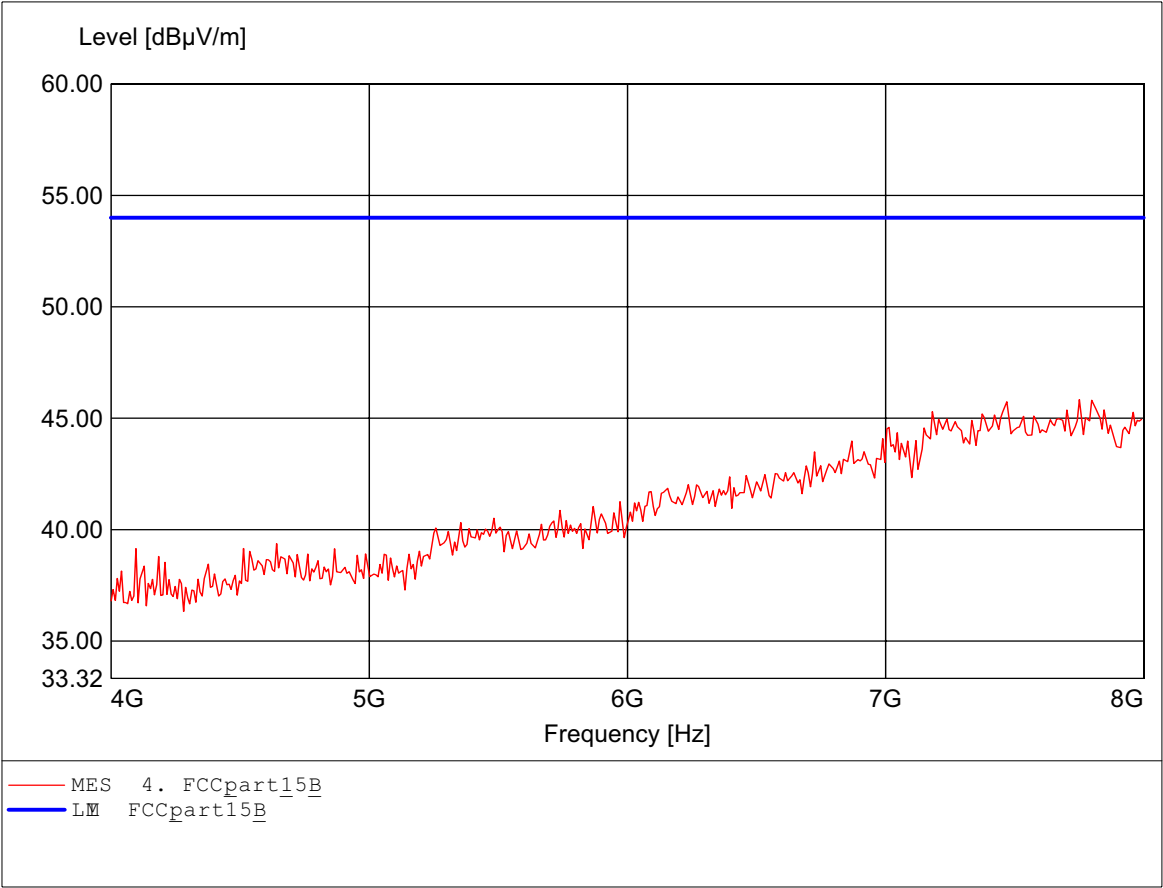
Order Nbr : W6M20512-6462 (1 channel )RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Freq 3.808GHz Emax 37.13dBµV/m RBW: 1 MHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

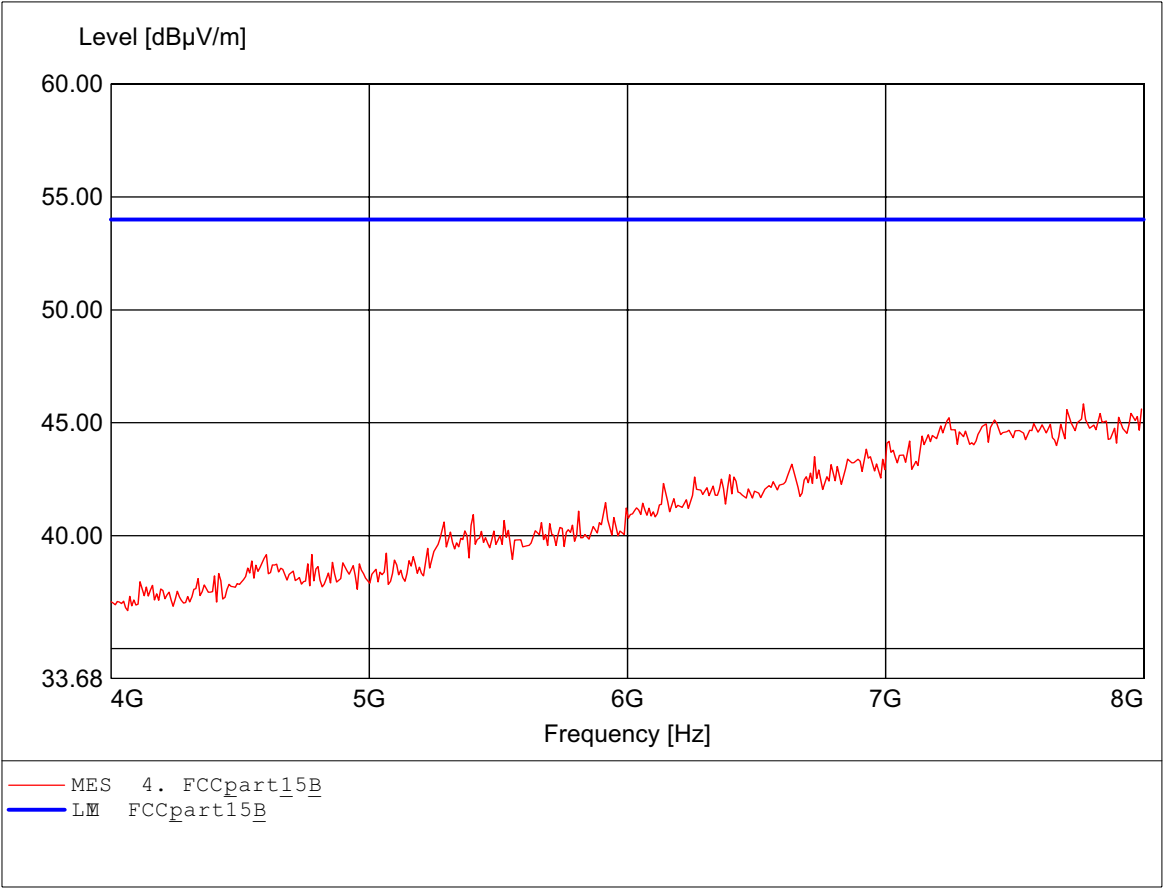
Order Nbr : W6M20512-6462 (1 channel ) RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Freq: 7.752GHz Emax: 45.83dBu/m RBW: 1 MHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

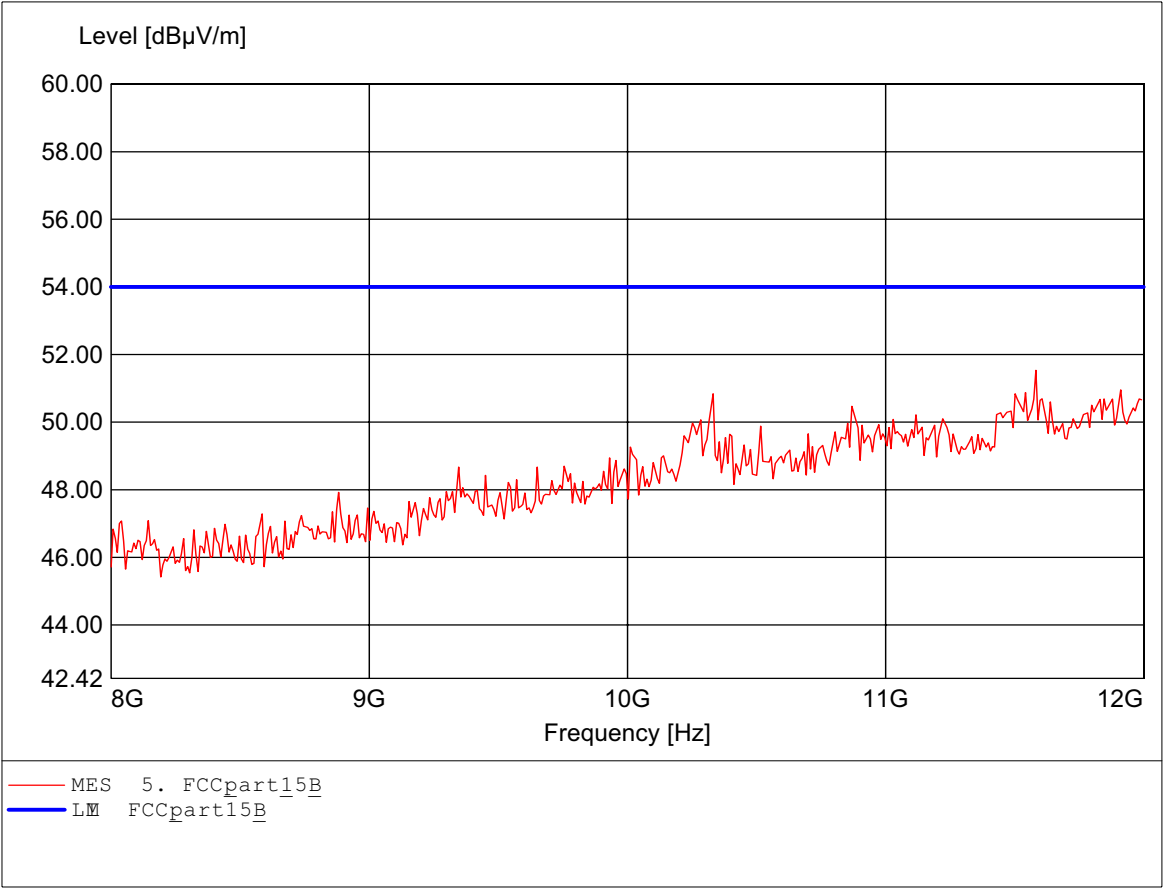
Order Nbr : W6M20512-6462 (1 channel )RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Freq 7.768GHz Emax 45.84dBµ/m RBW: 1 MHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

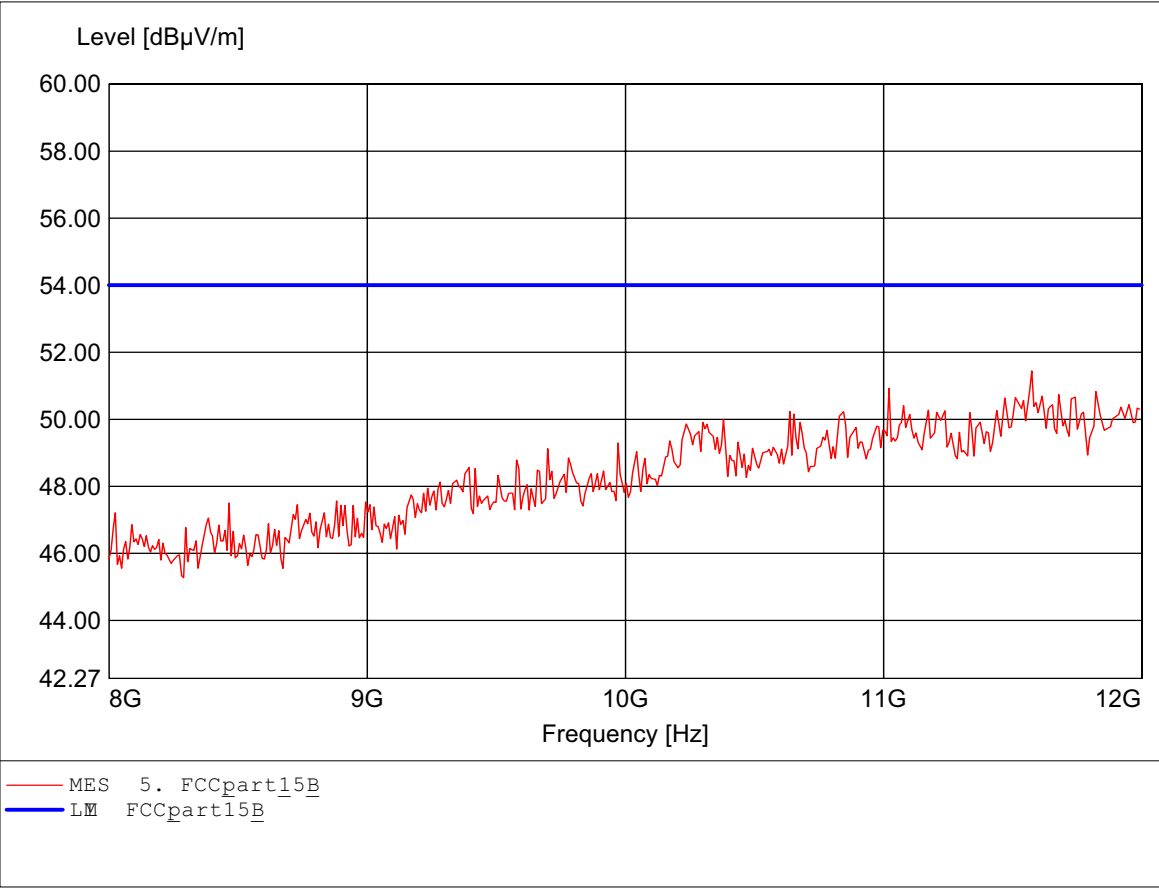
Order Nbr : W6M20512-6462 (1 channel ) RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Freq 11.583GHz Emax 51.53dBµV/m RBW: 1 MHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

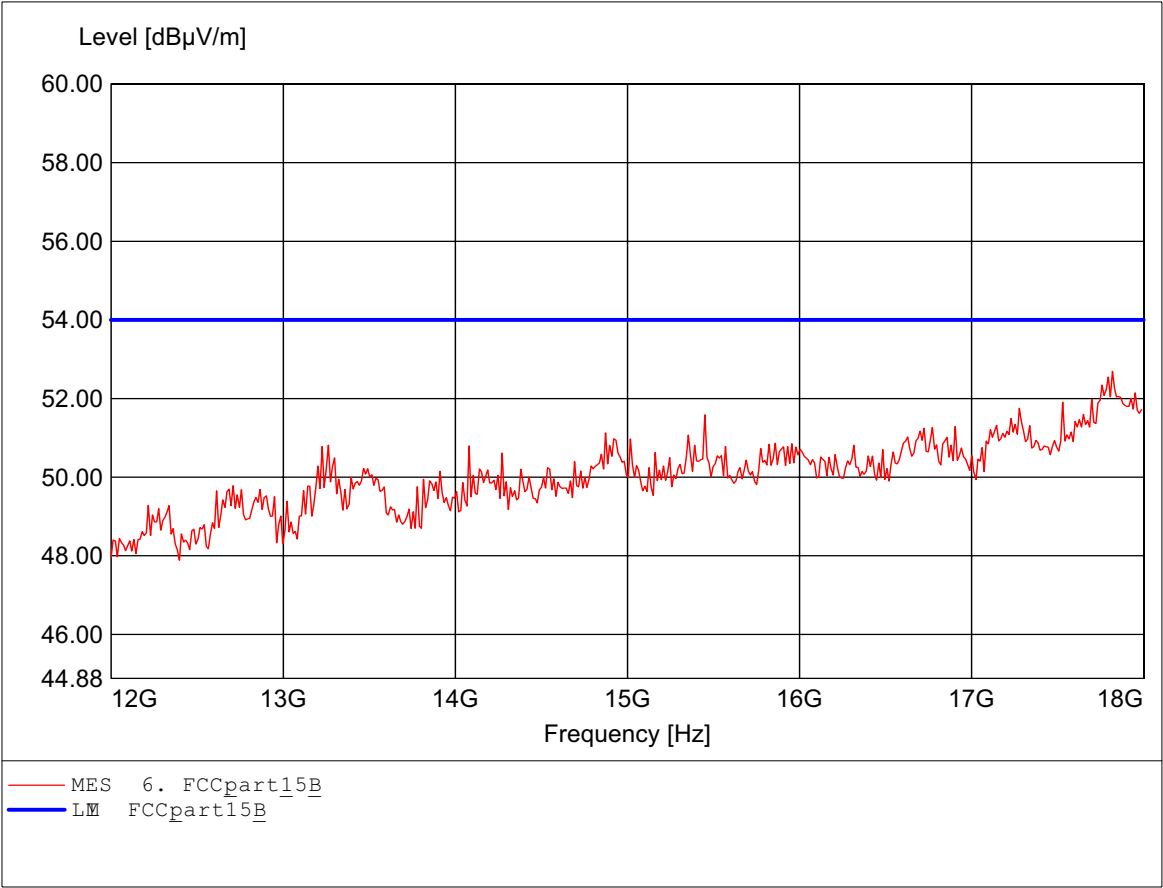
Order Nbr : W6M20512-6462 (1 channel ) RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Freq: 11.575GHz Emax: 51.44dBµV/m RBW: 1 MHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

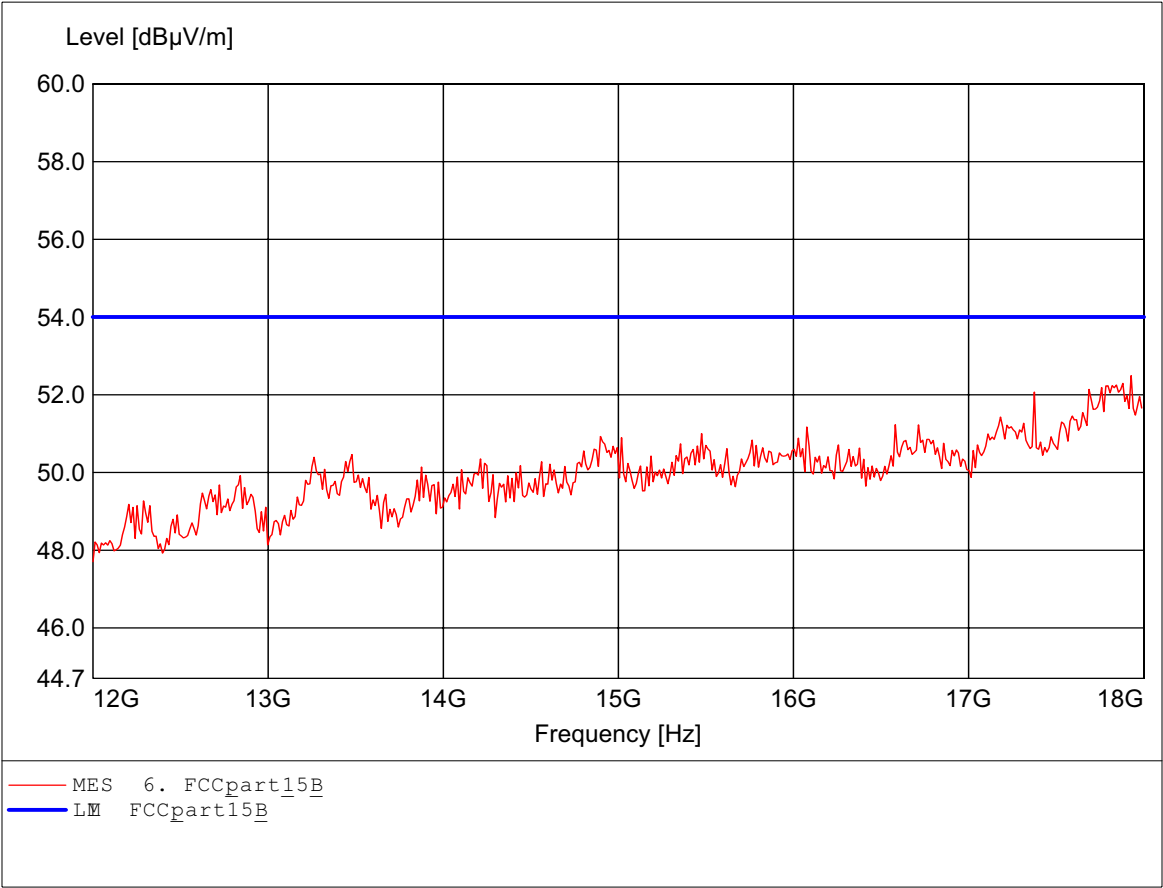
Order Nbr : W6M20512-6462 (1 channel )RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Frequency 17.820GHz Emax 52.69dBu/m RBW: 1 MHz



Field Strength under normal conditions

FCC RULES PART 15, SUBPART B

Order Nbr : W6M20512-6462 (1 channel )RX  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9C  
Test Specification: according to part B  
Comment 1: Dist.: 3m, Ant.: HL25, ampl.  
Frequency 17.928GHz Emax 52.49dBµV/m RBW: 1 MHz



Spurious emissions under normal conditions  
in accordance to the CISPR 22

Order n° : W6M20512-6462Digital

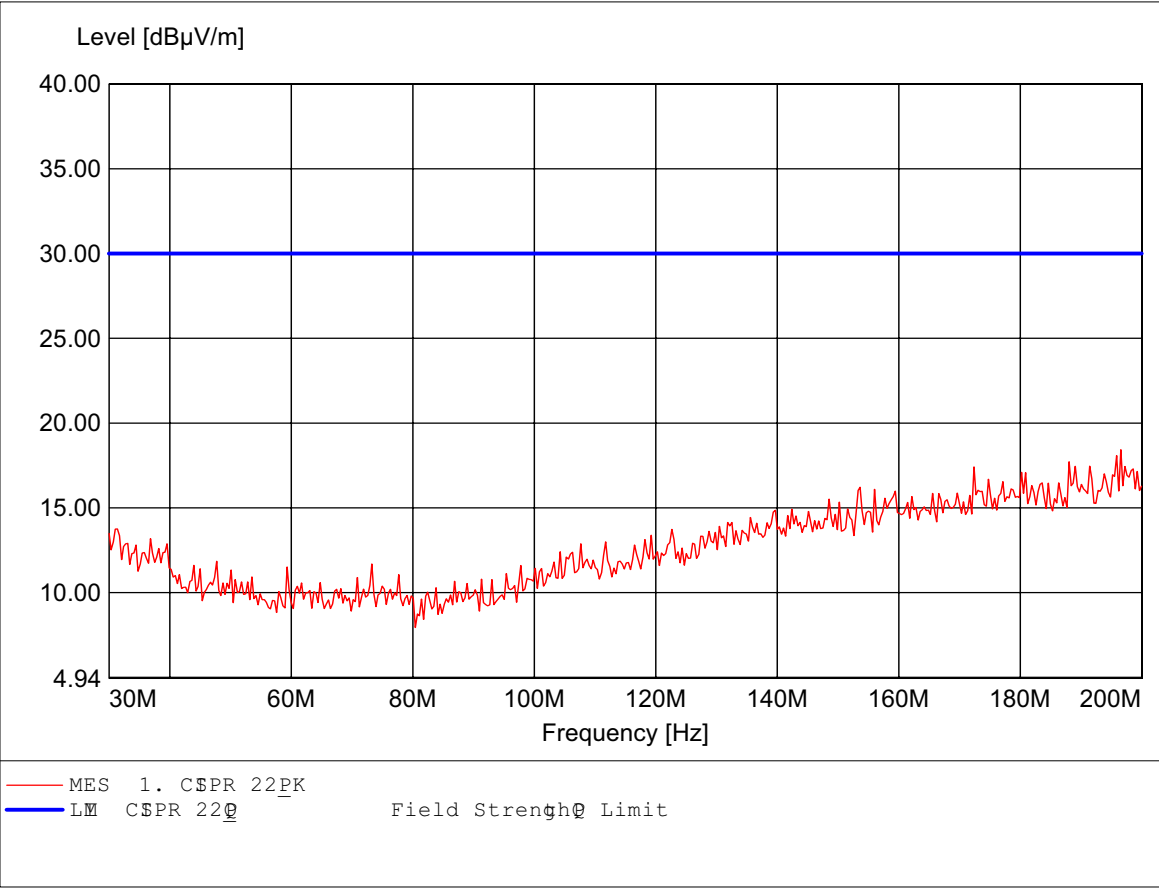
Test Site / Operator: ETS / Charles

Temperature: Temp.: 23.9°C

Test Specification: Fully Anechoic Chamber

Comment 1: Dist.: 3m, Ant.: HK116

Frequency: 196.593MHz Emax: 18.43dBµV/m RBW: 100 kHz



Spurious emissions under normal conditions  
in accordance to the CISPR 22

Order Nbr : W6M20512-6462 Digital

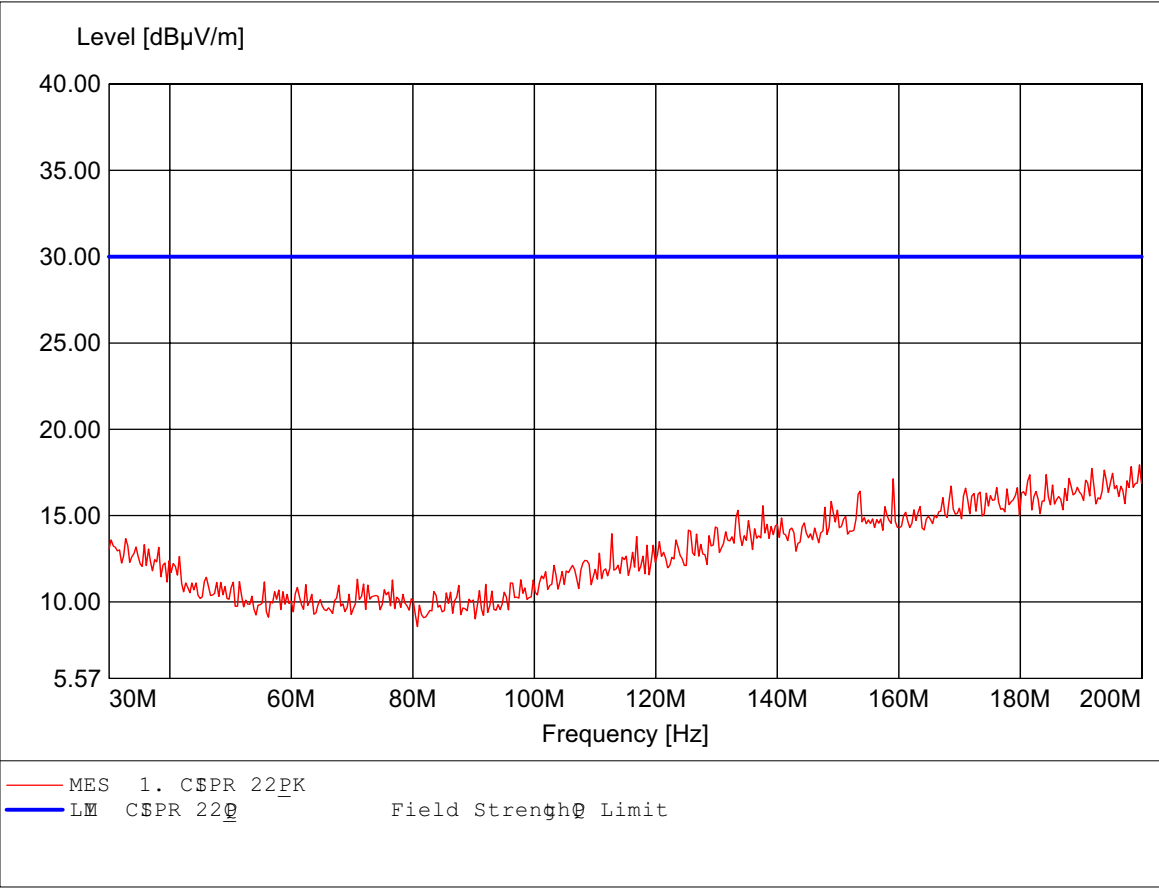
Test Site / Operator: ETS / Charles

Temperature: Temp.: 23.9C

Test Specification: Fully Aneco Chamber

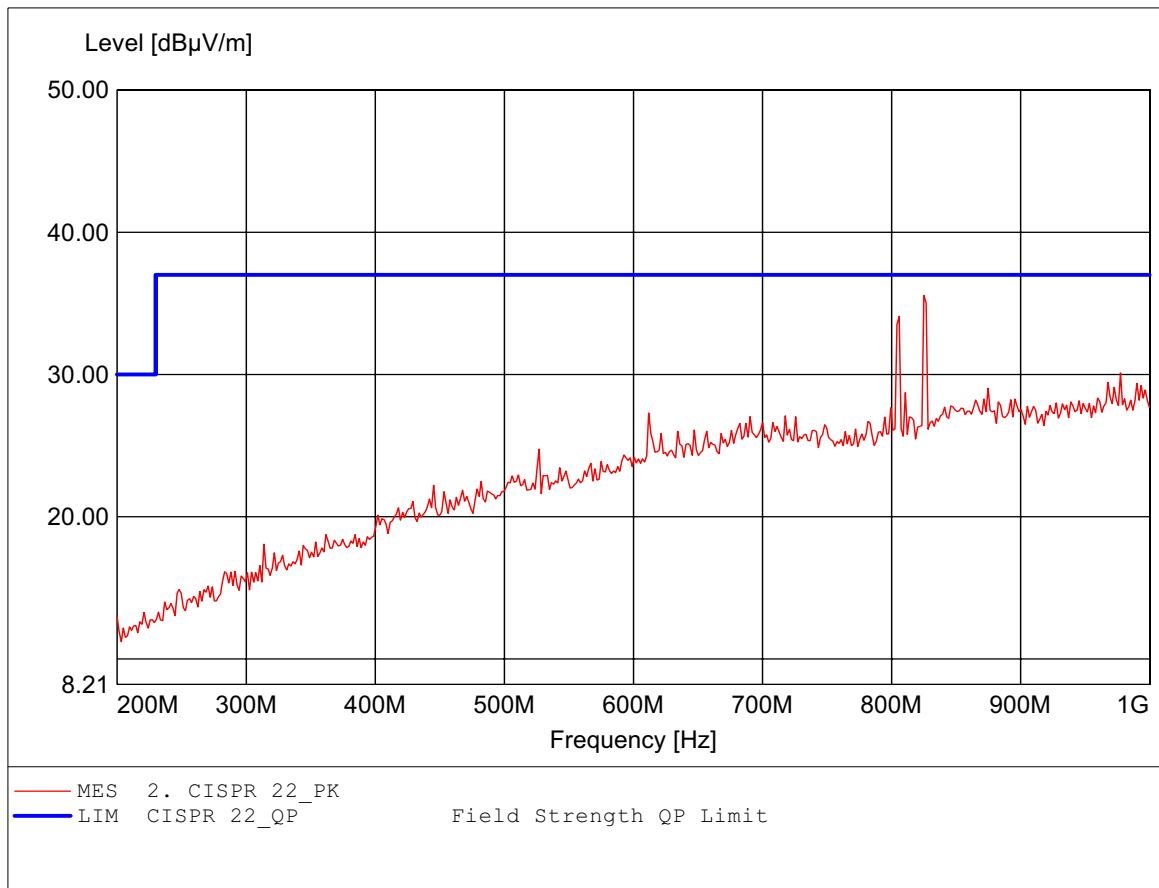
Comment 1: Dist.: 3m, Ant.: HK116

Frequency: 199.659MHz Emax: 17.94dBu/m RBW: 100 kHz



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

Order Number : W6M20512-6462 Digital  
Test Site / Operator: ETS / Charles  
Temperature: Temp.: 23.9°C  
Test Specification: Fully Anechoic Chamber  
Comment 1: Dist.: 3m, Ant.: HL 223  
Freq:826.854MHz Emax:35.03dBμV/m RBW: 100 kHz



Spurious emissions under normal conditions  
in accordance to the CISPR 22

Order n° : W6M20512-6462 Digital

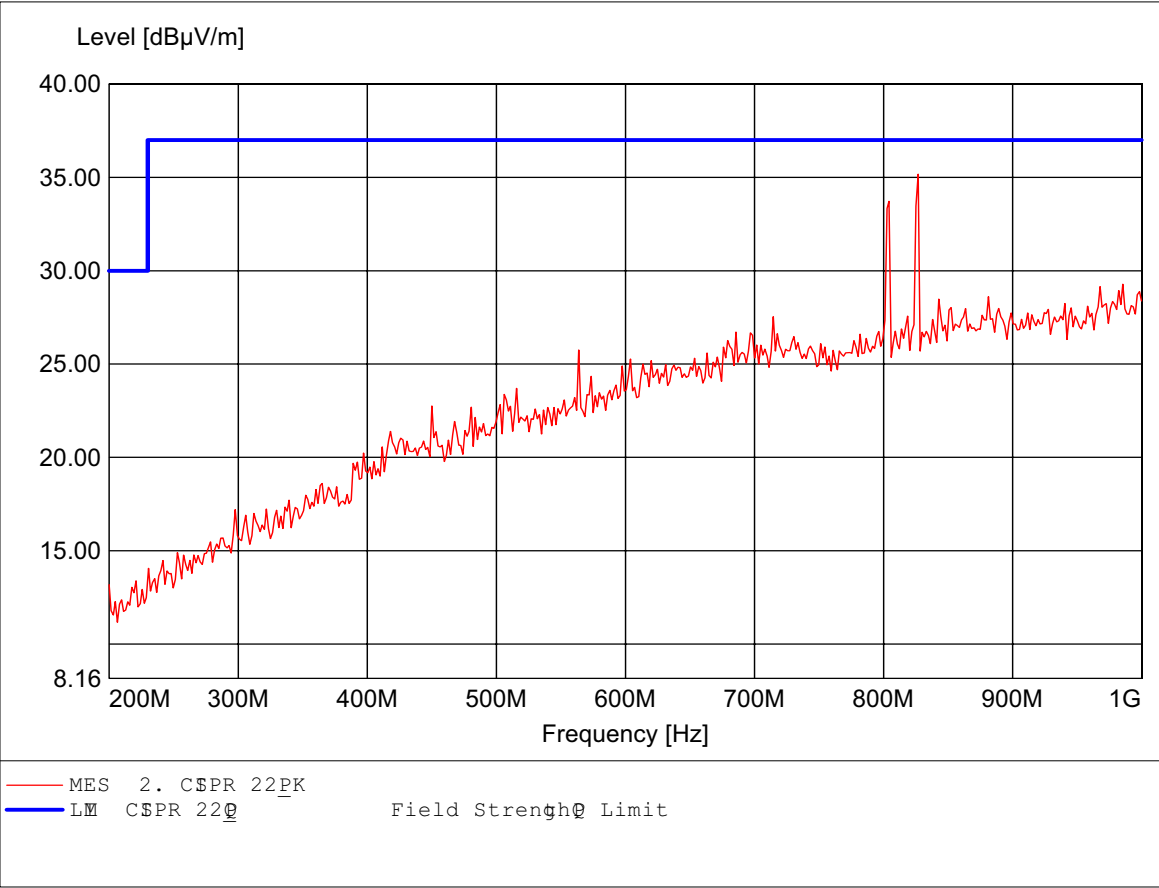
Test Site / Operator: ETS / Charles

Temperature: Temp.: 23.9°C

Test Specification: Fully Anechoic Chamber

Comment 1: Dist.: 3m, Ant.: HL 223

Frequency: 826.854MHz Emax: 35.17dBμV/m RBW: 100 kHz





Registration number: W6M20512-6462-P-15  
FCC ID: TYNWV-3201D

## **Appendix D**

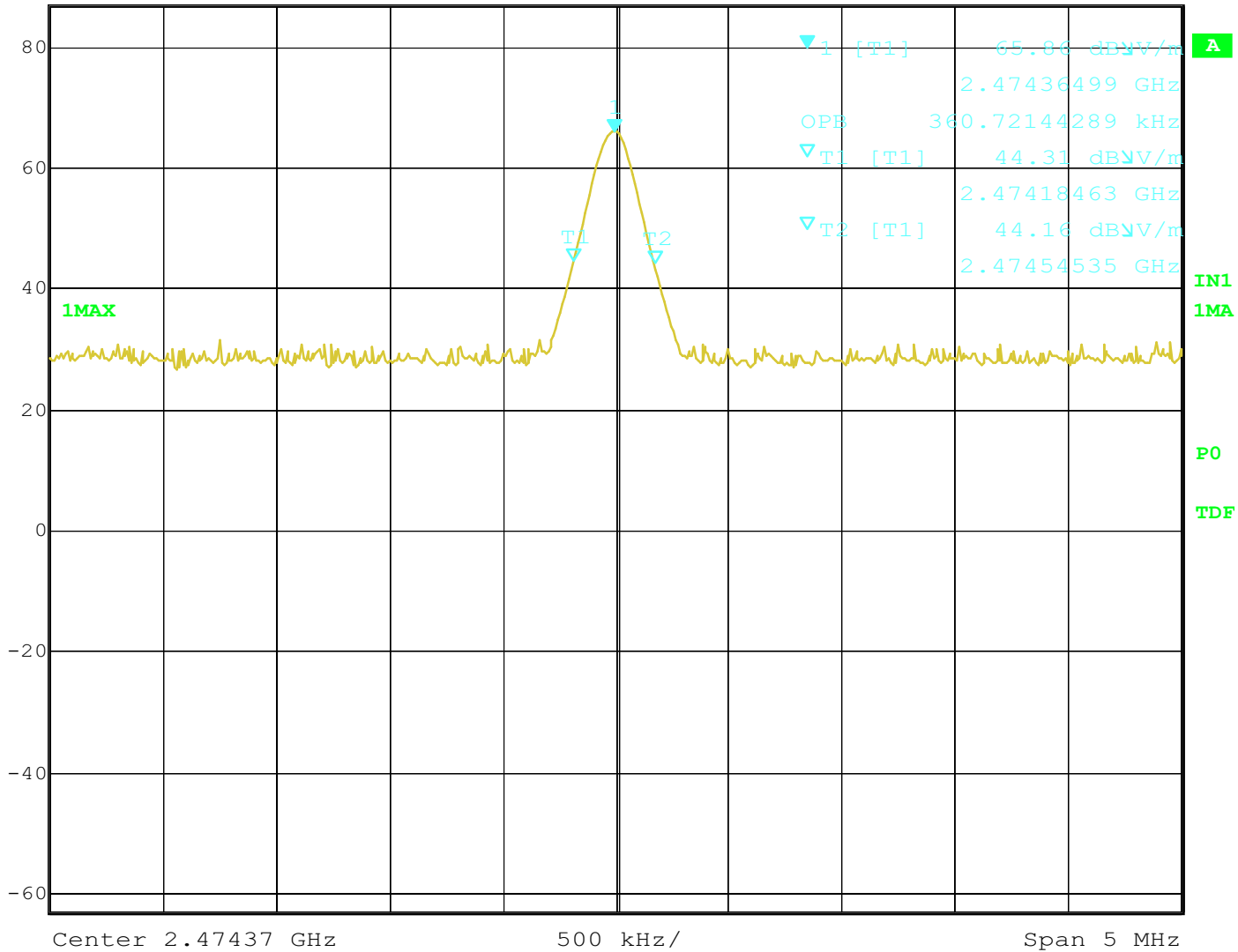
Bandwidth



Ref Lvl  
87 dB\*

Marker 1 [T1]  
65.86 dBV/m  
2.47436499 GHz

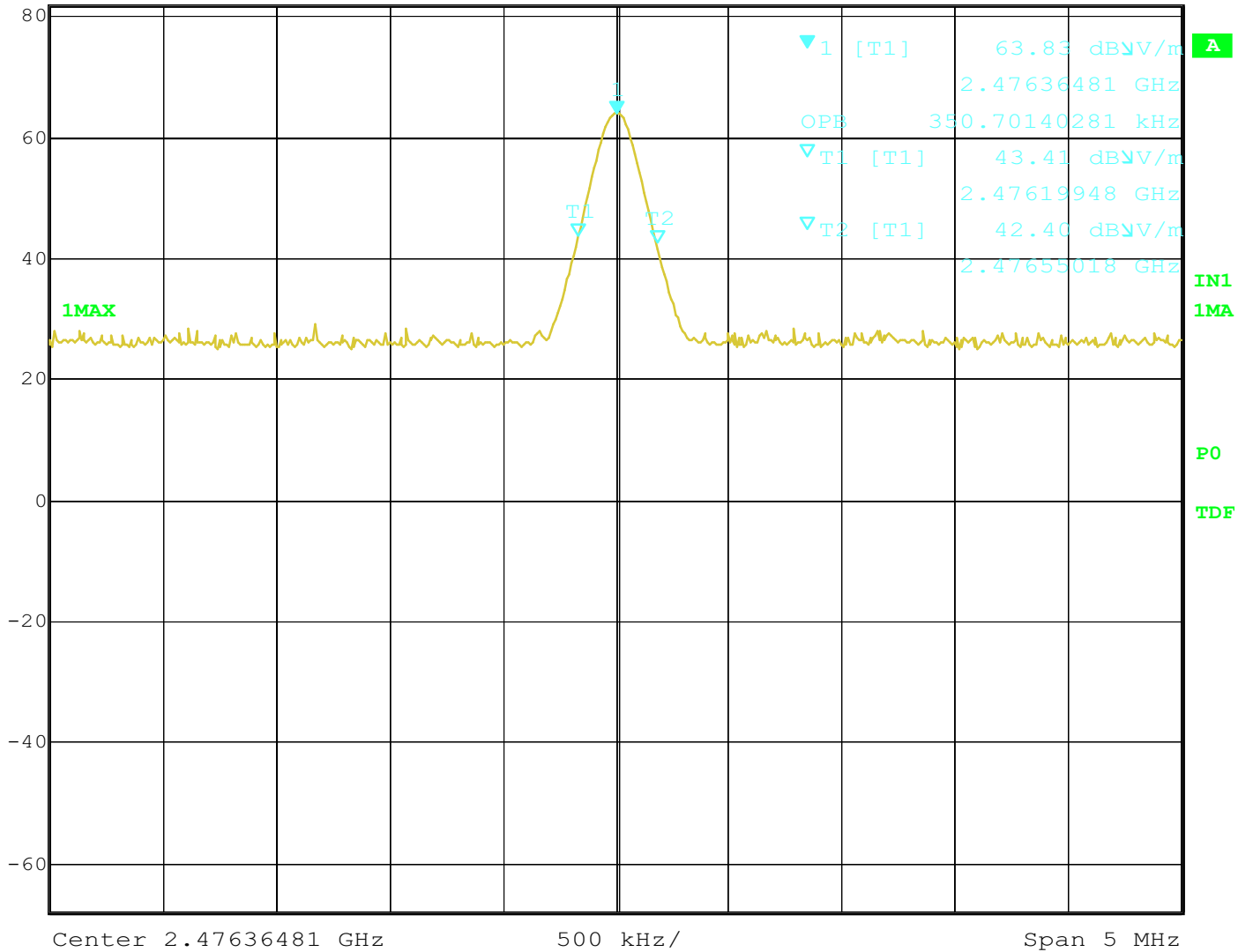
RBW 100 kHz RF Att 10 dB  
VBW 100 kHz  
SWT 200 ms Unit dBV/m



Date: 27.SEP.2006 10:21:32 audio mode



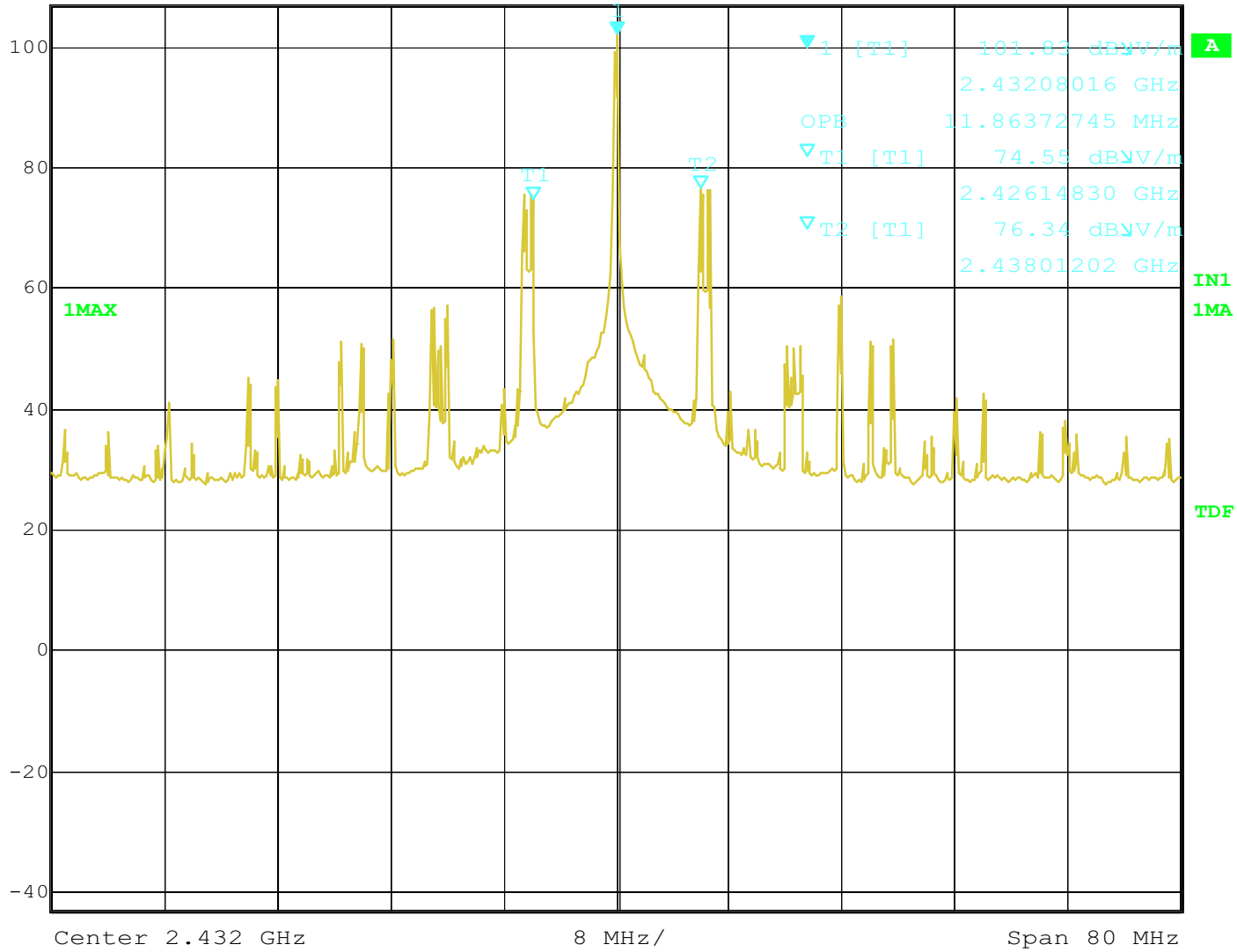
Ref Lvl 82 dB\*      Marker 1 [T1]      RBW 100 kHz      RF Att 10 dB  
63.83 dBV/m      VBW 100 kHz  
2.47636481 GHz      SWT 200 ms      Unit dBV/m



Date: 27.SEP.2006 10:39:11 audio mode



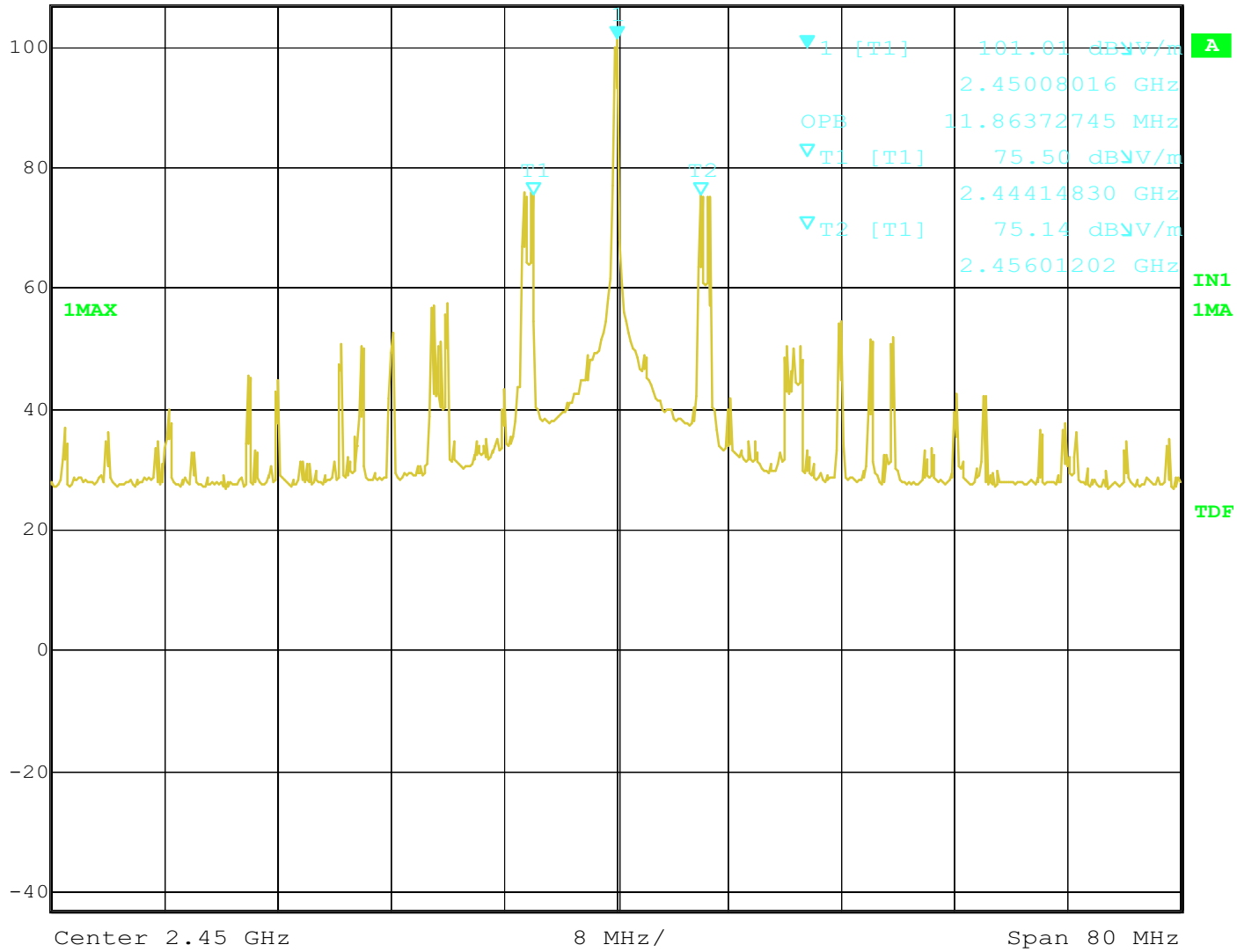
Marker 1 [T1] RBW 100 kHz RF Att 10 dB  
Ref Lvl 101.83 dB $\mu$ V/m VBW 100 kHz  
107 dB\* 2.43208016 GHz SWT 200 ms Unit dB $\mu$ V/m



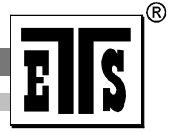
Date: 27.SEP.2006 09:58:36 video mode



Marker 1 [T1] RBW 100 kHz RF Att 10 dB  
Ref Lvl 101.01 dBμV/m VBW 100 kHz  
107 dB\* 2.45008016 GHz SWT 200 ms Unit dBμV/m



Date: 27.SEP.2006 10:10:15 video mode



Registration number: W6M20512-6462-P-15  
FCC ID: TYNWV-3201D

## **Appendix E**

Pictures