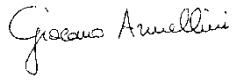


TEST REPORT

| | | |
|------------------------------------|--|---|
| APPLICANT: | EMBIT S.r.l EMBEDDED & WIRELESS SOLUTION Via Emilia Est, 911 – 41100 Modena (MO) Italy Phone +39 059 371714 Fax +39 059 3680498 | |
| APPLICANT REFEREE: | Mr. Daniele Rosani | |
| EUT DESCRIPTION | ZIGBEE Radio module | |
| EUT MODEL | EMB-Z2538PA | |
| EUT VERSIONS | EMB-Z2538PA / UL, EMB-Z2538PA / IA | |
| EUT FCC ID | Z7H-EMB2538PA | |
| EUT TRADEMARK |  | |
| MANUFACTURER | EMBIT S.r.l EMBEDDED & WIRELESS SOLUTION. | |
| REFERENCE STANDARDS | 47 CFR FCC part 15.247 | |
| TEST REPORT NUMBER | FCCTR_140934-2 | |
| TEST REPORT ISSUE DATE | 23/12/2015 | |
| TESTING LABORATORY | Prima Ricerca & Sviluppo S.r.l. Via Campagna, 92 -22020 Faloppio (Co) – Italy FCC test registration number: 421808 | |
| TESTING LOCATION | As Above | |
| DATE OF TEST SAMPLE RECEIPT | 08/08/2014 | |
| DATE OF TEST | August/September 2014 | |
| TESTED BY | Giacomo ARMELLINI Responsabile Laboratorio EMC e RADIO/ <i>EMC and RADIO Laboratory Manager</i> |  |
| APPROVED BY | Vincenzo LA FRAGOLA Direttore generale / <i>Managing director</i> |  |

The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.

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1. RELEASE CONTROL RECORD

| TEST REPORT NUMBER | REASON OF CHANGE | DATE OF ISSUE |
|--------------------|------------------|---------------|
| FCCTR_140934-0 | Original release | 10/06/2015 |
| FCCTR_140934-1 | Editorial Change | 04/12/2015 |
| FCCTR_140934-2 | Editorial Change | 23/12/2015 |

2. TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)

2.1 Identification

| | |
|--------------------------|--|
| Trademark: |  |
| Manufacturer: | EMBIT S.r.l EMBEDDED & WIRELESS SOLUTION. |
| Type of Equipment : | ZIGBEE Radio module |
| Model name: | EMB-Z2538PA |
| Versions: | <p>EMB-Z2538PA / UL, EMB-Z2538PA / IA</p> <p>In the EMB- Z2538PA / UL version: the RF output is connected to the uF.I connector via the 0ohm resistor</p> <p>In the EMB- Z2538PA / IA version: the RF output is connected to the integrated PIFA antenna via the 0ohm resistor</p> |
| Serial number : | prototype |
| FCC ID : | Z7H-EMB2538PA |
| Country of manufacturer: | ITALY |

2.2 Technical data

| | |
|--|---|
| Product type: | Radio Equipment |
| Radio type: | Intentional radiators |
| Product description / application | The EUT is 2.4GHz Zigbee Transceiver |
| Power supply requirements : | 2V to 3.6V (typ. 3V) 3,3V (powered by demoboard connected to PC USB port) |
| Operating Frequency range | 2400-2483,5MHz |
| Operating Frequency: | From 2405MHz to 2480MHz |
| Channel bandwidth | 5MHz |
| Channel spacing | 5MHz |
| Number of Channel | 16 (from 11 to 26) Note: In order to achieve compliance with band edge requirements is not possible to use the last channel (26). The use of this channel has been blocked by the manufacturer |
| Modulation Type | QPSK |
| Antenna Type | <p>EMB-Z2538PA / IA: Manufacturer: EMBIT Type: Printed Integrated PIFA Antenna Model: EMB-AN24-15PFA Gain: -2 dbi Connector: pad</p> <p>EMB-Z2538PA / UL: Antenna: Manufacturer: EMBIT Type: Swivel Antenna Model: EMB-AN24-70SA-R1 Gain: 7dbi Connector: SMA Reverse Polarity</p> <p>Cable: Manufacturer: EMBIT Type: SMA-RP (Female) To U.FL diameter 1.37mm Model: EMB-CA-SU-100 Loss: 0.25dB Connector: u.FL – SMA Reverse Polarity</p> |
| Power Control Setting | EA |

2.3 Ports identification

This section contains descriptions of all signal ports and AC/DC power input/output ports, the length and the type of the cable provided by manufacturer needed for the tests. Moreover it is specified if the ports are ever or optionally connected.

| Port | | Description | Connection |
|-------------|------------------------|---|--------------------------|
| 1 | Enclosure | Not present (electronic PCB board only) | Plug-in electronic board |
| 2 | AC Power Supply | Not present (electronic PCB board only) | ----- |
| 3 | DC power supply | 3.3Vdc | Plug-in electronic board |
| 4 | Signal lines | Signal line | Plug-in electronic board |
| 5 | Telecomm. Lines | Not present (electronic PCB board only) | ----- |
| 6 | Antenna port | For external antenna | u.FI connector |

Note: During the tests all cables must be what provided the manufacturer or the same that used in the real employment of the EUT.

2.4 Auxiliary equipment

- EMBIT Evaluation Board EMB-Z2538PA(/xx)-EVB (used during the session to power supply the EUT and for channel setting)

3. OPERATING TEST MODES AND CONDITIONS

In the following table there are the operating conditions adopted during tests identified by an indicator (#..) at which has been referred the item “Operating condition of the equipment under test”

| <i>Operating condition</i> | <i>Description</i> |
|-----------------------------------|--|
| #1 | <i>Continuous transmission, modulated carrier, on channel 11</i> <i>Power control setting: EA</i> |
| #2 | <i>Continuous transmission, modulated carrier, on channel 18</i> <i>Power control setting: EA</i> |
| #3 | <i>Continuous transmission, modulated carrier, on channel 26</i> <i>Power control setting: EA</i> |

Special Test Software: Special software and hardware by the Applicant to operate the EUT at each channel frequency continuously. For example, the transmitter will be operated at each of the lowest, middle and highest frequencies individually continuously during testing.

Special Hardware Used: The RF Module has been tested by an evaluation board supplied by Embit (See Photographic documentation).

Transmitter Test Antenna: The EUT has been tested with the antenna fitted in a manner typical of normal intended use as integral antenna equipment as described with the test results.

4. REFERENCE STANDARD / DOCUMENT FOR PERFORMED TESTS

| | |
|--------------------------------------|---|
| Cfr 47 part 15 subpart C par. 15.247 | Radio Frequency Devices – Intentional Radiators Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz |
| ANSI C63.10:2009 | American National Standard for Testing Unlicensed Wireless Devices |
| KDB 558074 D01 | Guidance for performing Compliance measurements on Digital Transmission Systems (DTS) Operating under §15.247 |

5. SUMMARY OF TEST RESULTS

| Port | Phenomena | Basic standard | Operating condition ¹ | Result |
|--------------|--|-----------------------------|----------------------------------|------------------|
| Antenna port | Antenna requirement | FCC Part 15 §15.203 | --- | Compliant |
| | Maximum Peak Output Power | FCC Part 15 §15.247 (b) (3) | #1 #2 | Within the limit |
| | 6 dB Bandwidth | FCC Part 15 §15.247 (a) (2) | #1 #2 | Within the limit |
| | Power Spectral Density | FCC Part 15 §15.247 (e) | #1 #2 | Within the limit |
| | Band-Edge | FCC Part 15 § 15.247 (d) | #1 #2 | Within the limit |
| | RF radiated Spurious Emissions at the Transmitter Antenna Terminal | FCC Part 15 § 15.247 (d) | #1 #2 | Within the limit |

NOTE:

CONDUCTED MEASUREMENT HAS BEEN PERFORMED ON EMB-Z2538PA / UL version

RADIATED MEASUREMENT HAS BEEN PERFORMED ON EMB-Z2538PA / IA version

6. TEST RESULTS

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TEST
1.

ANTENNA REQUIREMENTS

REFERENCE
DOCUMENT

According to §15.203 / 15.204

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sec. 15.211, Sec. 15.213, Sec. 15.217, Sec. 15.219, or Sec. 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Sec. 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded

Antenna requirement

The EMB-Z2538PA / IA version have a integrated Printed PIFA antenna

The EMB-Z2538PA / UL: u.FL connector

RESULT: COMPLIANT

TEST
2.

MAXIMUM PEAK OUTPUT POWER

REFERENCE DOCUMENT

According to §15.247(b) (3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

| | |
|---------------------|---|
| TEST SETUP | In according to ref std |
| TEST LOCATION | Semi Anechoic Chamber / Radio test Area |
| TEST METHOD | KDB 558074 D01 par. 9.1.1 Maximum peak conducted output power |
| TYPE OF MEASUREMENT | CONDUCTED & RADIATED |
| TEST EQUIPMENT | Emi Receiver / Spectrum Analyzer Rohde&Schwarz mod. ESU40 |
| TEST PERFORMED BY | Giacomo Armellini |
| TESTING DATE | August 2014 |

| TEST CONDITIONS: | MEASURED |
|--|----------|
| Ambient temperature : $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$ | 24°C |
| Ambient humidity : 25 – 75 %rH | 45% |
| Pressure : 85 – 106 kPa (860 mbar – 1060 mbar) | 960mbar |

| | |
|---------------------|----------------------------|
| OPERATING CONDITION | #1, #2, #3 DUTY CYCLE 100% |
|---------------------|----------------------------|

| | |
|-------------|-------------------|
| TEST RESULT | WITHIN THE LIMITS |
|-------------|-------------------|

CONDUCTED MEASUREMENTS
(PERFORMED ON EMB-Z2538PA / UL)

| Channel | Frequency (MHz) | Conducted Output Power at antenna cable connector (dBm) | Cable Loss (dB) | Conducted Output Power at u.FI connector (dBm) |
|---------|--------------------|---|--------------------|--|
| | | (see note 1) | | |
| 11 | 2405 | 22.19 | 0.25 | 22.44 |
| 18 | 2440 | 22.00 | 0.25 | 22.25 |
| 26 | 2480 | 21.85 | 0.25 | 22.10 |

Incertezza di misura / Measurement Uncertainty : ± 3 dB

Note 1
The conducted measurements has been performed at the RP-SMA connector of the EMB-CA-SU-100 Cable
The conducted output power at u.FI connector of the EMB-Z2538PA / UL has been calculated adding the EMB-CA-SU-100 cable loss.

EMB-Z2538PA / UL + EMB-CA-SU-100 CABLE + EMB-AN24-70SA-R1 ANTENNA EIRP

| Channel | Frequency (MHz) | Conducted Output Power at u.FI connector (dBm) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Result |
|---------|--------------------|---|-----------------------|--------------------------|---------------|----------------|----------------------|
| 11 | 2405 | 22.44 | 0.25 | 7 | 29.19 | 30 | WITHIN THE LIMITS |
| 18 | 2440 | 22.25 | 0.25 | 7 | 29.00 | | |
| 26 | 2480 | 22.10 | 0.25 | 7 | 28.85 | | |

Incertezza di misura / Measurement Uncertainty : ± 3 dB

EMB-Z2538PA / IA EIRP

| Channel | Frequency (MHz) | Conducted Output Power (dBm) (see note 2) | Cable Loss (dB) | Antenna Gain (dBi) | EIRP (dBm) | Limit (dBm) | Result |
|---------|--------------------|--|-----------------------|--------------------------|---------------|----------------|----------------------|
| 11 | 2405 | 22.44 | NA | -2 | 20.44 | 30 | WITHIN THE LIMITS |
| 18 | 2440 | 22.25 | NA | -2 | 20.25 | | |
| 26 | 2480 | 22.10 | NA | -2 | 20.10 | | |

Incertezza di misura / Measurement Uncertainty : ± 3 dB

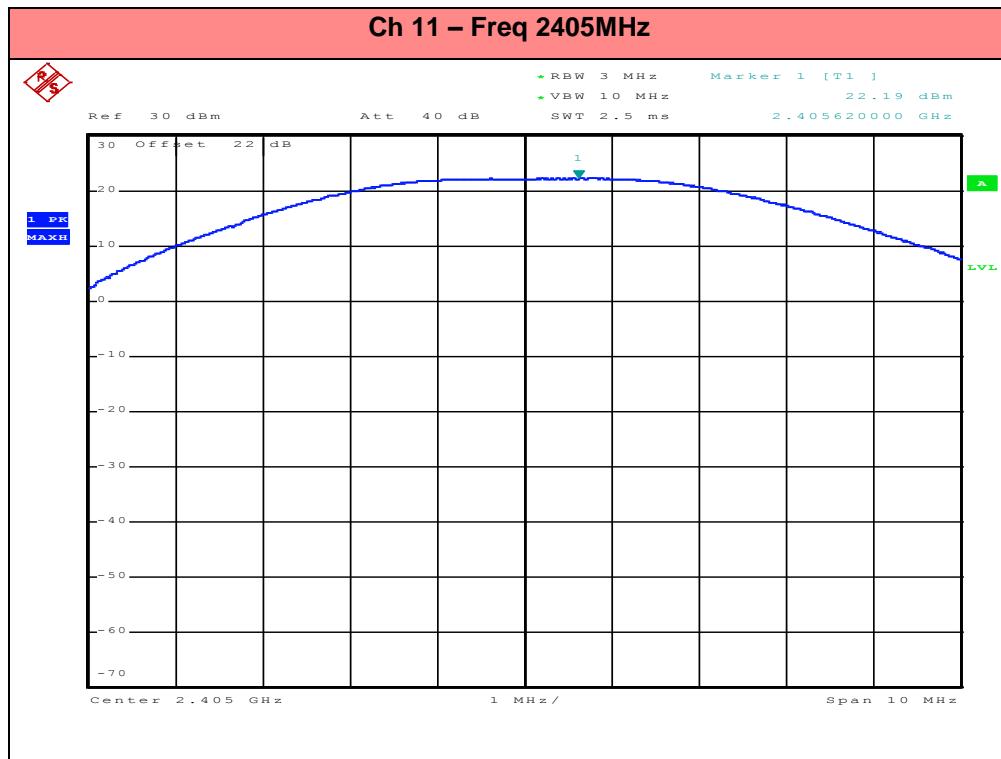
Note 2

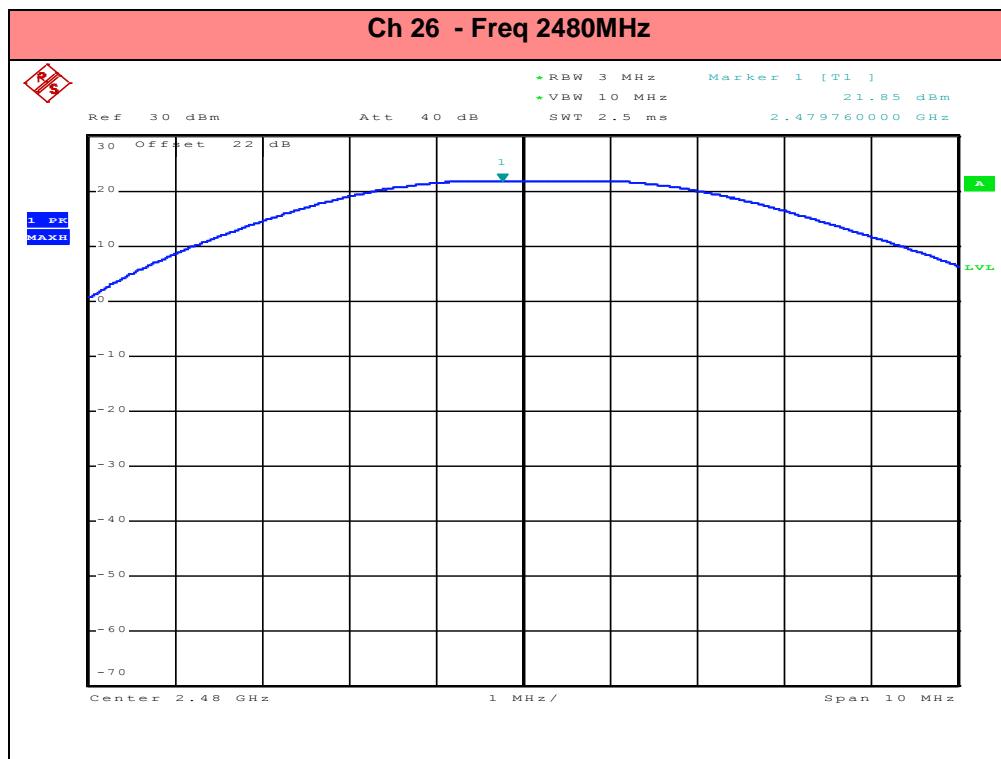
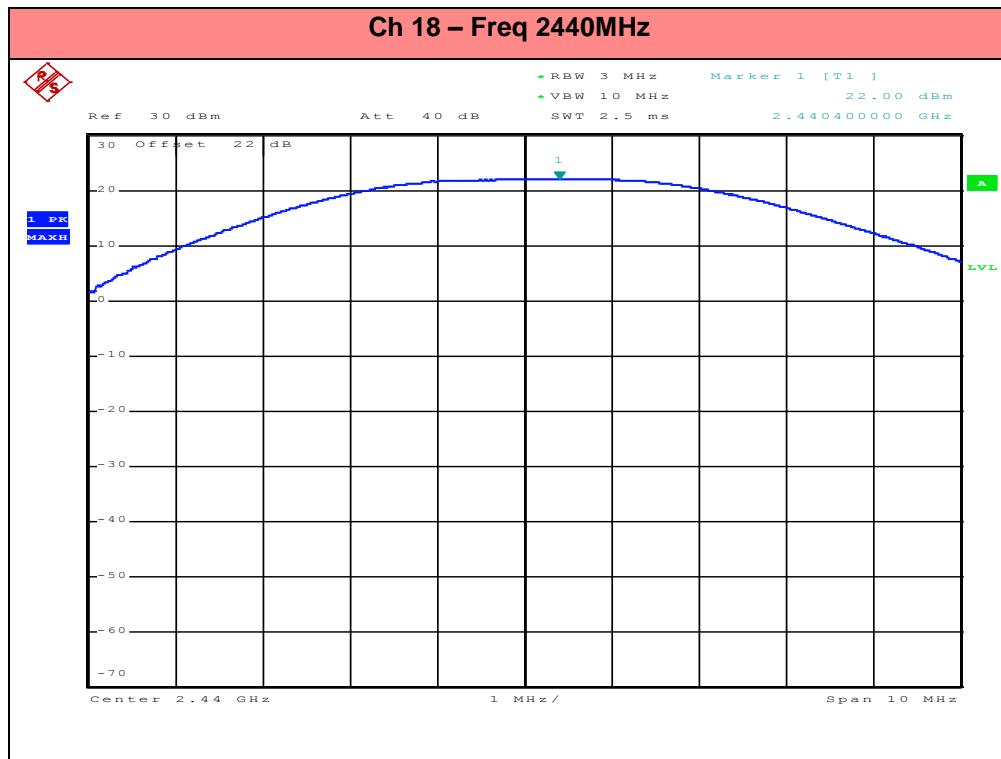
In the EMB-Z2538PA / UL version the RF output power is delivered to the external antenna connecting the 0Ω resistor to the u.FI connector.

In the EMB-Z2538PA / IA version the RF output power is delivered to the printed PCB Antenna connecting the 0Ω resistor to the pad of the printed antenna.

For this reason the Conducted output power measured on the EMB-Z2538PA / UL u.FI connector has been used to calculate the EIRP of the EMB-Z2538PA / IA

GRAPHICS







PRIMA
RICERCA & SVILUPPO

FCCTR 140934-2

TEST
3.

6dB CHANNEL BANDWIDTH

REFERENCE DOCUMENT

According to §15.247(a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

| | |
|---------------------|--|
| TEST SETUP | In according to ref std |
| TEST LOCATION | Radio test area |
| TEST METHOD | KDB 558074 D01 par. 8.2 DTS Bandwidth Option 2 |
| TYPE OF MEASUREMENT | CONDUCTED |
| TEST EQUIPMENT | Spectrum Analyzer Rohde&Schwarz mod. FSP40 SYSTEM DC POWER SUPPLY HP mod. 6623A |
| TEST PERFORMED BY | Giacomo Armellini |
| TESTING DATE | August 2014 |

| TEST CONDITIONS: | MEASURED |
|--|----------------------|
| Ambient temperature : $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$ | 24°C |
| Ambient humidity : 25 - 75 %rH | 45% |
| Pressure : 85 - 106 kPa (860 mbar - 1060 mbar) | 960mbar |

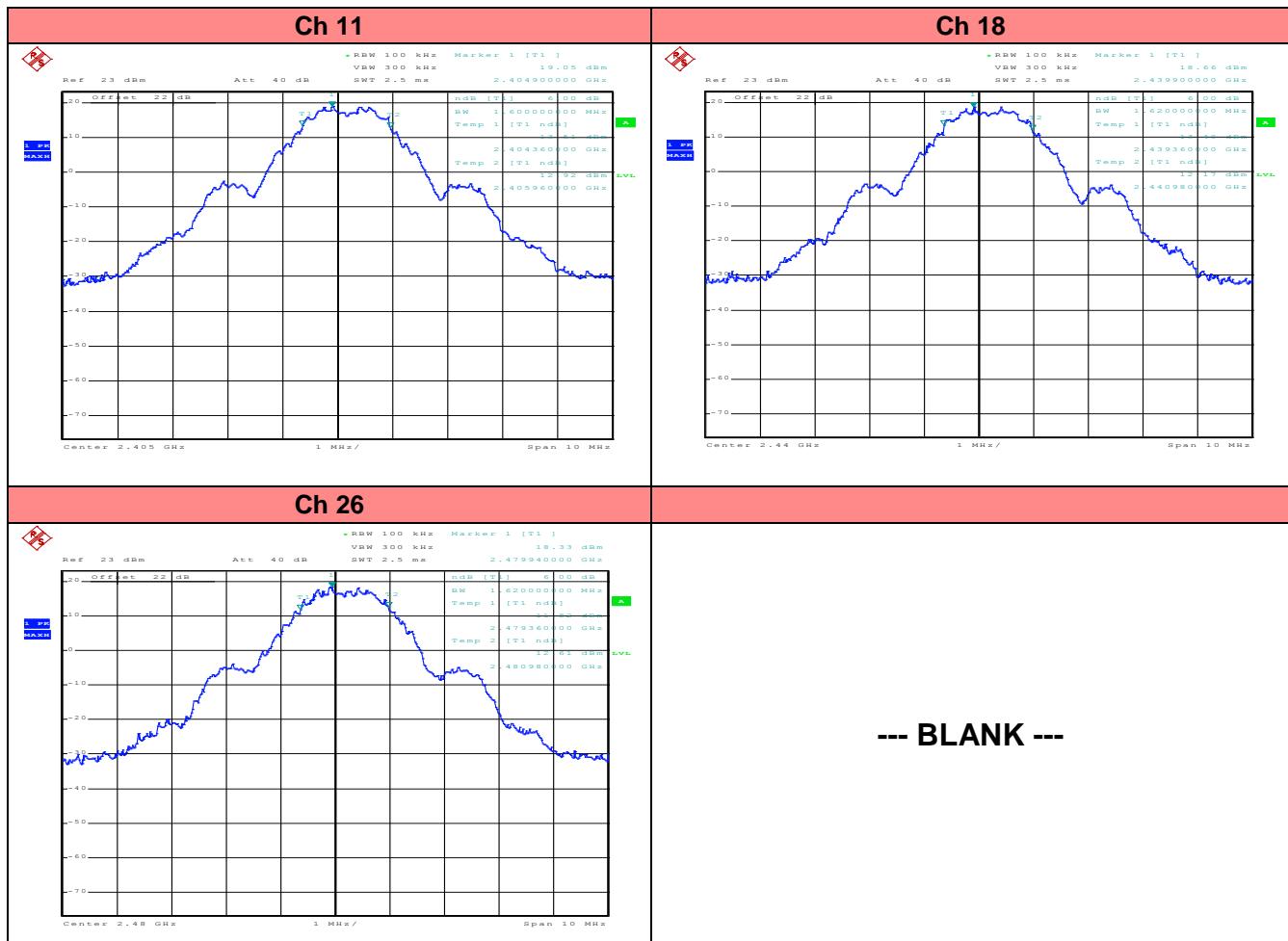
OPERATING CONDITION #1, #2, #3 DUTY CYCLE 100%

| | |
|--------------------|--------------------------|
| TEST RESULT | WITHIN THE LIMITS |
|--------------------|--------------------------|

Measurement Result

| Channel | Frequency (MHz) | 6dB Channel Bandwidth (kHz) | Limit (kHz) | Result |
|---------|-----------------|-----------------------------|-------------|--------------------------|
| 11 | 2405 | 1600 | >500 | WITHIN THE LIMITS |
| 18 | 2440 | 1620 | | |
| 26 | 2480 | 1620 | | |

Incognita di misura / Measurement Uncertainty : ±1 KHz



**TEST
4.**

Band-Edge

REFERENCE DOCUMENT

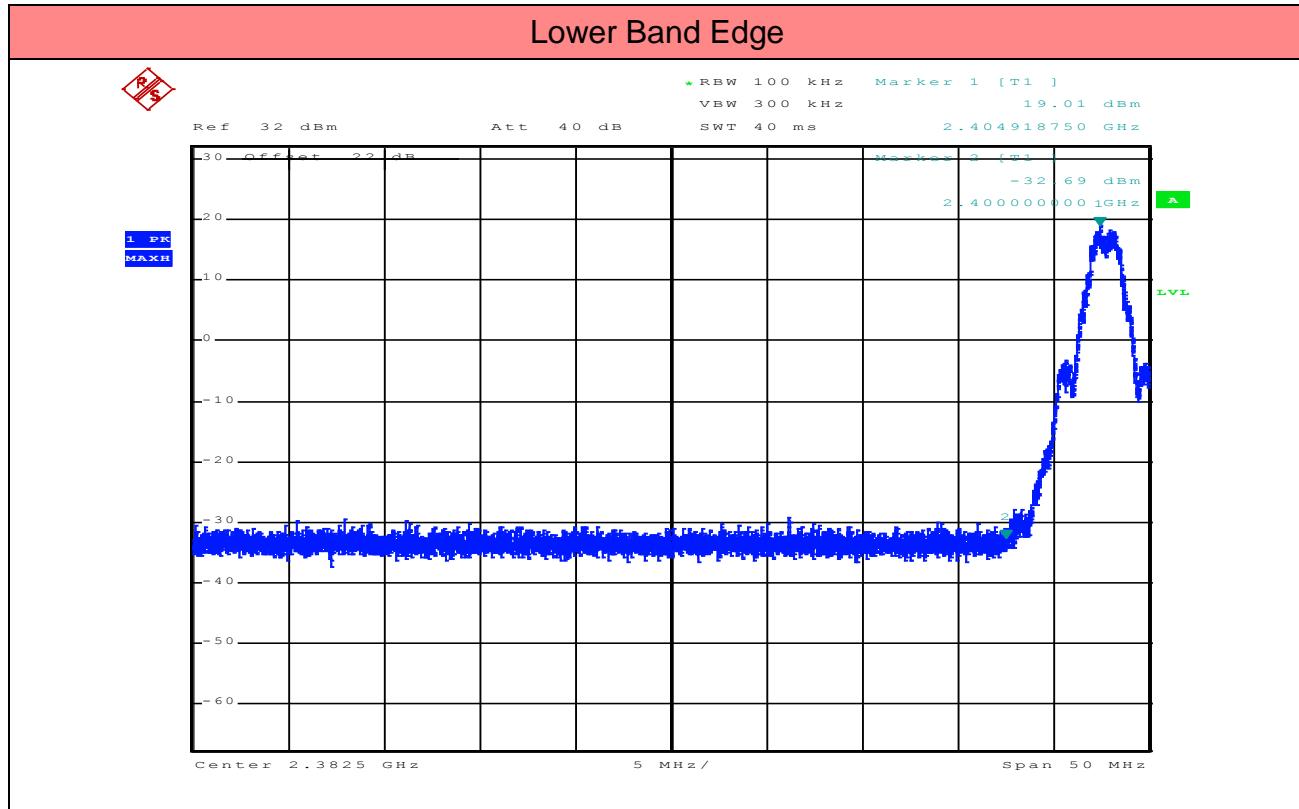
According to §15.247(d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits, If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB, Attenuation below the general limits specified in Sec, 15,209(a) is not required, In addition, radiated emissions which fall in the restricted bands, as defined in Sec, 15,205(a), must also comply with the radiated emission limits specified in Sec, 15,209(a) (see Sec, 15,205(c)),

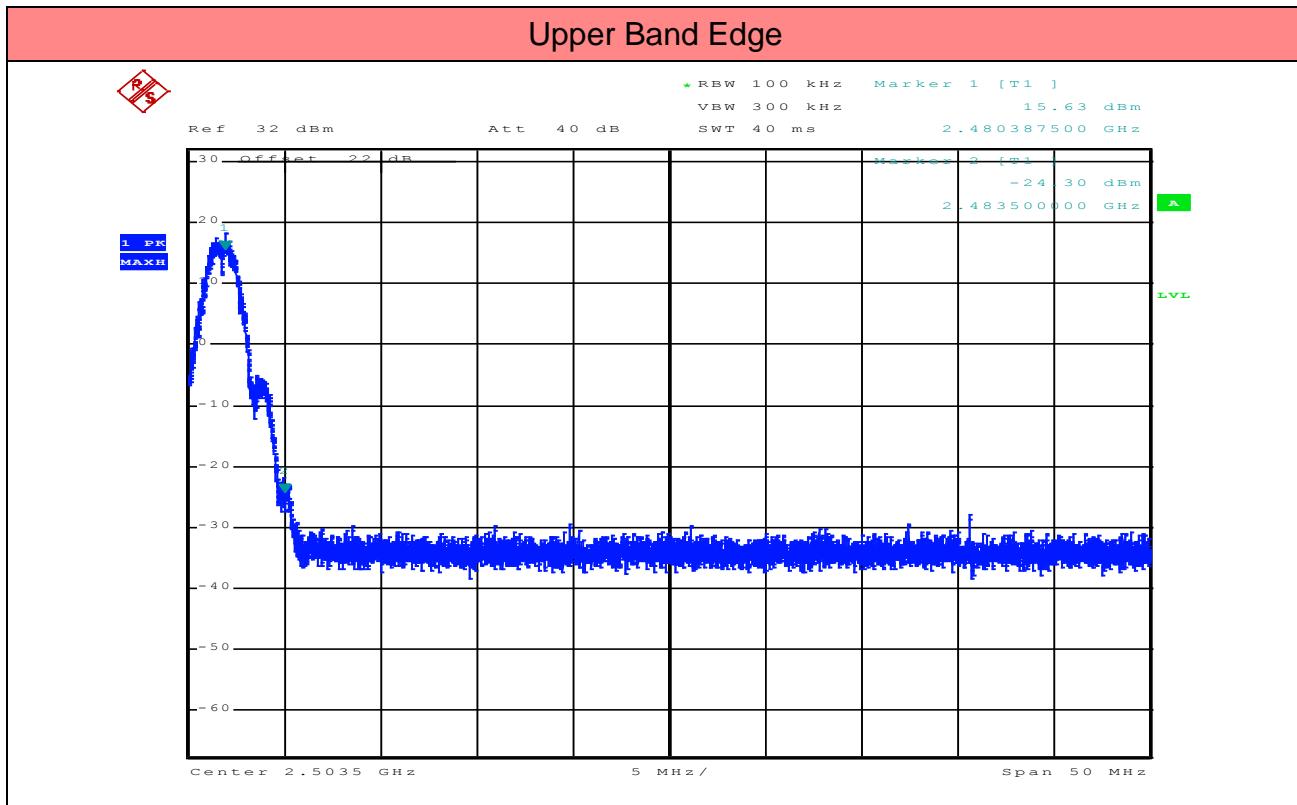
| | |
|----------------------------|--|
| TEST SETUP | In according to ref std |
| TEST LOCATION | Radio test area |
| TYPE OF MEASUREMENT | CONDUCTED |
| TEST EQUIPMENT | Spectrum Analyzer Rohde&Schwarz mod. FSP40 SYSTEM DC POWER SUPPLY HP mod. 6623A |
| TEST PERFORMED BY | Giacomo Armellini |
| TESTING DATE | August 2014 |

| TEST CONDITIONS: | MEASURED |
|--|-----------------|
| Ambient temperature : 23°C ± 5°C | 24°C |
| Ambient humidity : 25 - 75 %rH | 45% |
| Pressure : 85 - 106 kPa (860 mbar - 1060 mbar) | 960mbar |

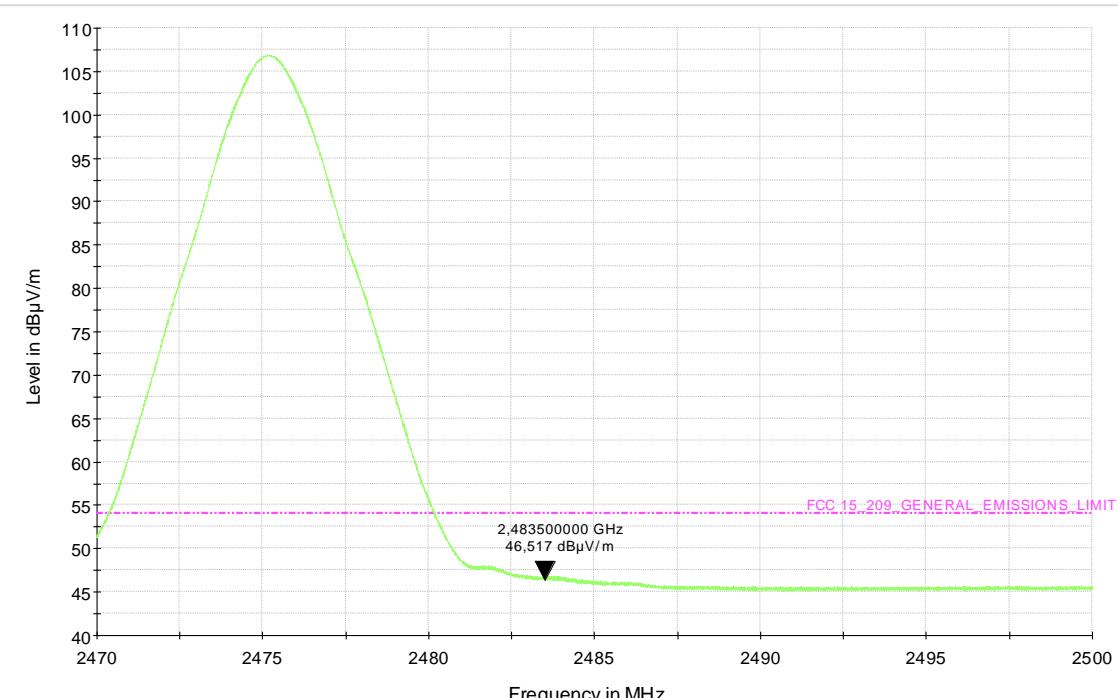
| | |
|----------------------------|----------------------------|
| OPERATING CONDITION | #1, #2, #3 DUTY CYCLE 100% |
|----------------------------|----------------------------|

| | |
|--------------------|--------------------------|
| TEST RESULT | WITHIN THE LIMITS |
|--------------------|--------------------------|

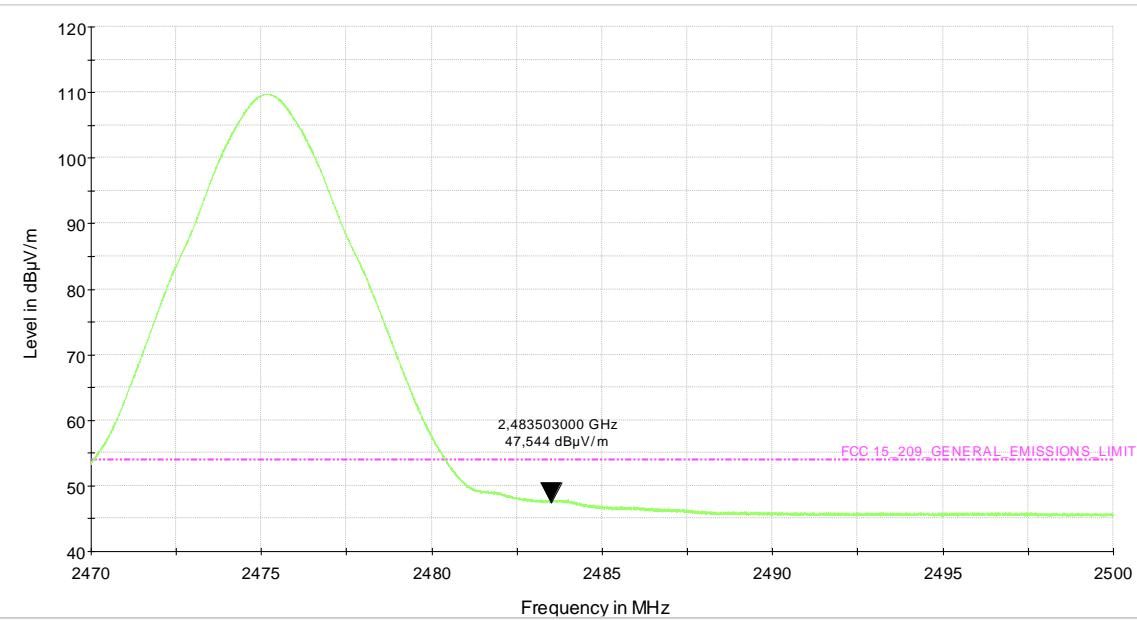




Upper Band Edge - EMB-Z2538PA / IA – CH25



Upper Band Edge - EMB-Z2538PA / UL – CH25



TEST
5.

POWER SPECTRAL DENSITY

REFERENCE DOCUMENT

According to §15.247) (e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission, This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section, The same method of determining the conducted output power shall be used to determine the power spectral density,

| | |
|---------------------|--|
| TEST SETUP | In according to ref std |
| TEST LOCATION | Radio test area |
| TYPE OF MEASUREMENT | CONDUCTED |
| | KDB 558074 D01 par. 10.2 Method PKPSD (peak PSD) |
| TEST EQUIPMENT | Spectrum Analyzer Rohde&Schwarz mod. FSP40 SYSTEM DC POWER SUPPLY HP mod. 6623A |
| TEST PERFORMED BY | Giacomo Armellini |
| TESTING DATE | August 2014 |

| TEST CONDITIONS: | MEASURED |
|--|----------|
| Ambient temperature : 23°C ± 5°C | 24°C |
| Ambient humidity : 25 - 75 %rH | 45% |
| Pressure : 85 - 106 kPa (860 mbar - 1060 mbar) | 960mbar |

| | |
|---------------------|----------------------------|
| OPERATING CONDITION | #1, #2, #3 DUTY CYCLE 100% |
|---------------------|----------------------------|

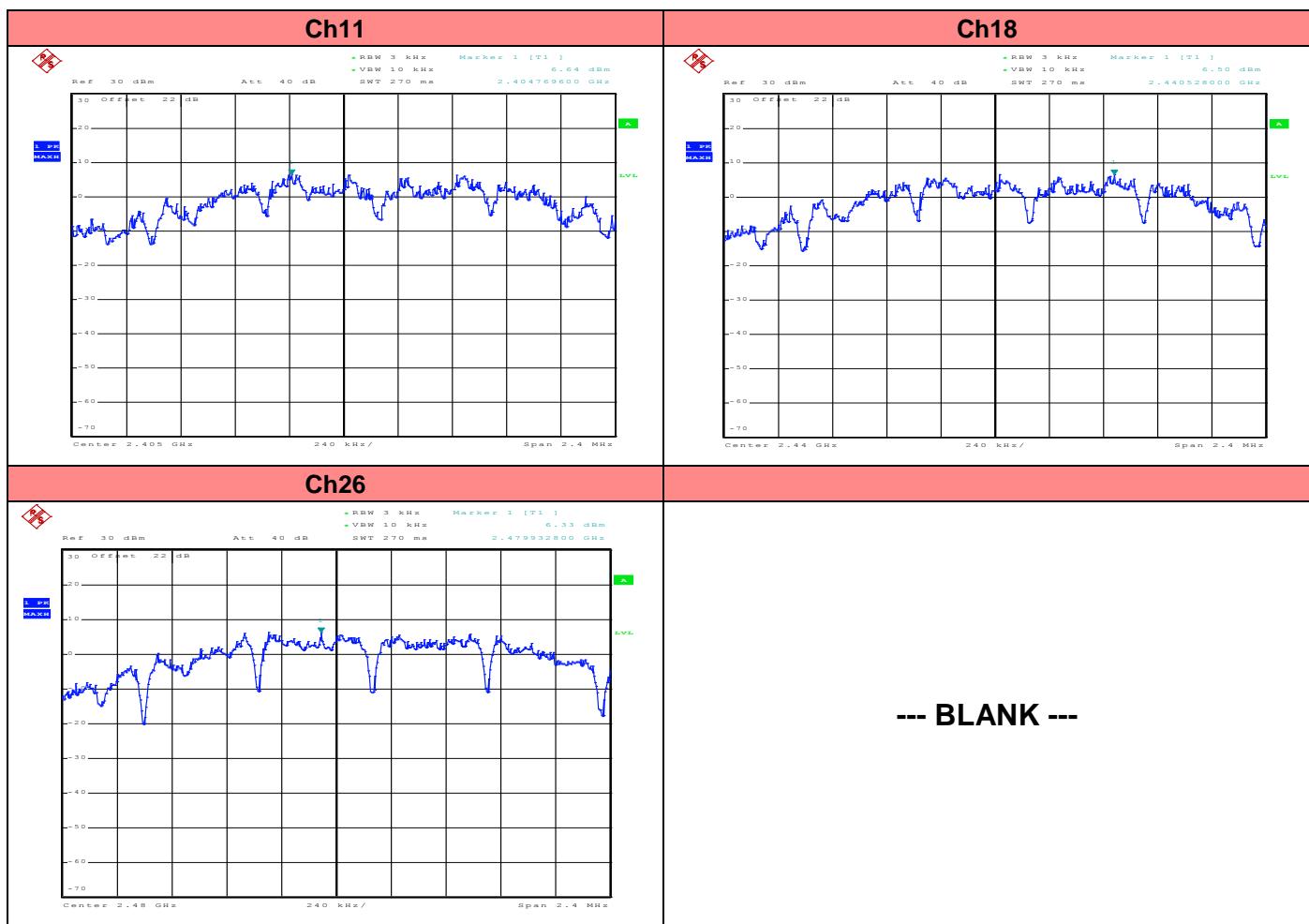
| | |
|-------------|-------------------|
| TEST RESULT | WITHIN THE LIMITS |
|-------------|-------------------|



Measurement Result

| Channel | Frequency (MHz) | PSD (dBm) | Limit (dBm) | Margin (dB) | Result |
|---|-----------------|-----------|-------------|-------------|-------------------|
| 11 | 2405 | 6.64 | 8 | 1.36 | WITHIN THE LIMITS |
| 18 | 2440 | 6.50 | 8 | 1.50 | |
| 26 | 2480 | 6.33 | 8 | 1.67 | |
| Incertezza di misura / Measurement Uncertainty : ±1dB | | | | | |

GRAPHICS



**TEST
6.**

RADIATED EMISSION 9KHZ ÷10TH HARMONIC

**REFERENCE
DOCUMENT**

According to §15.247) d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 Db below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 Db instead of 20 Db. 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)).

| | |
|--------------------------------|--|
| TEST SETUP | In according to ref std |
| TEST LOCATION | Semi Anechoic Chamber |
| TYPE OF MEASUREMENT | RADIATED & CONDUCTED |
| | KDB 558074 D01 par. 11.0 |
| TEST EQUIPMENT | EMI receiver Rohde & Schwarz Mod, ESU 40 Spectrum Analyzer Rohde & Schwarz Mod, FSP40 Chase Antenna Mod, CBL 6111 C Antenna Rohde & Schwarz mod, HL050 Tunable notch filter Wainwright mod, WRCT2200/2500-5/40-10SK High pass filter Wainwright WHNX 2,8/18G-10SS |
| TEST PERFORMED BY | Giacomo Armellini |
| TESTING DATE | August 2014 |
| UNCERTAINTY OF MEASURE: | Combined uncertainty = ± 1,75 dB Total uncertainty = (k=2) ± 3,5 dB |

| TEST CONDITIONS: | MEASURED |
|--|-----------------|
| Ambient temperature : 23°C ± 5°C | 24°C |
| Ambient humidity : 25 - 75 %rH | 45% |
| Pressure : 85 - 106 kPa (860 mbar - 1060 mbar) | 960mbar |

| | |
|----------------------------|----------------------------|
| OPERATING CONDITION | #1, #2, #3 DUTY CYCLE 100% |
|----------------------------|----------------------------|

| | |
|--------------------|--------------------------|
| TEST RESULT | WITHIN THE LIMITS |
|--------------------|--------------------------|

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 9kHz - 30MHz CH11

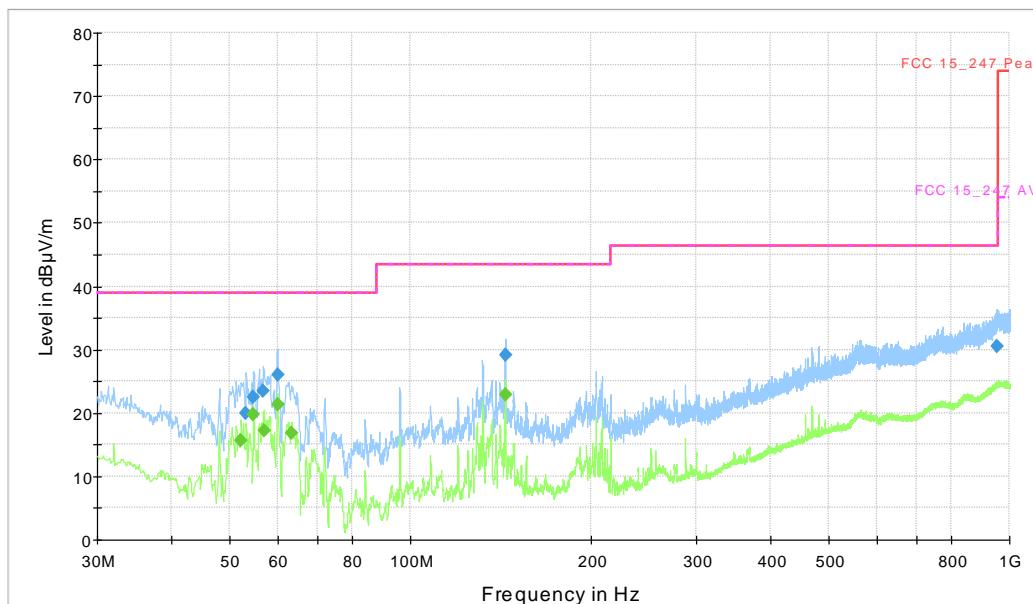
VERTICAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

FREQUENCY RANGE 30MHz – 1GHz CH11

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector, Blue Marker Quasi-Peak detector; Green trace average detector, Green Marker average detector

Final Result - Quasi Peak

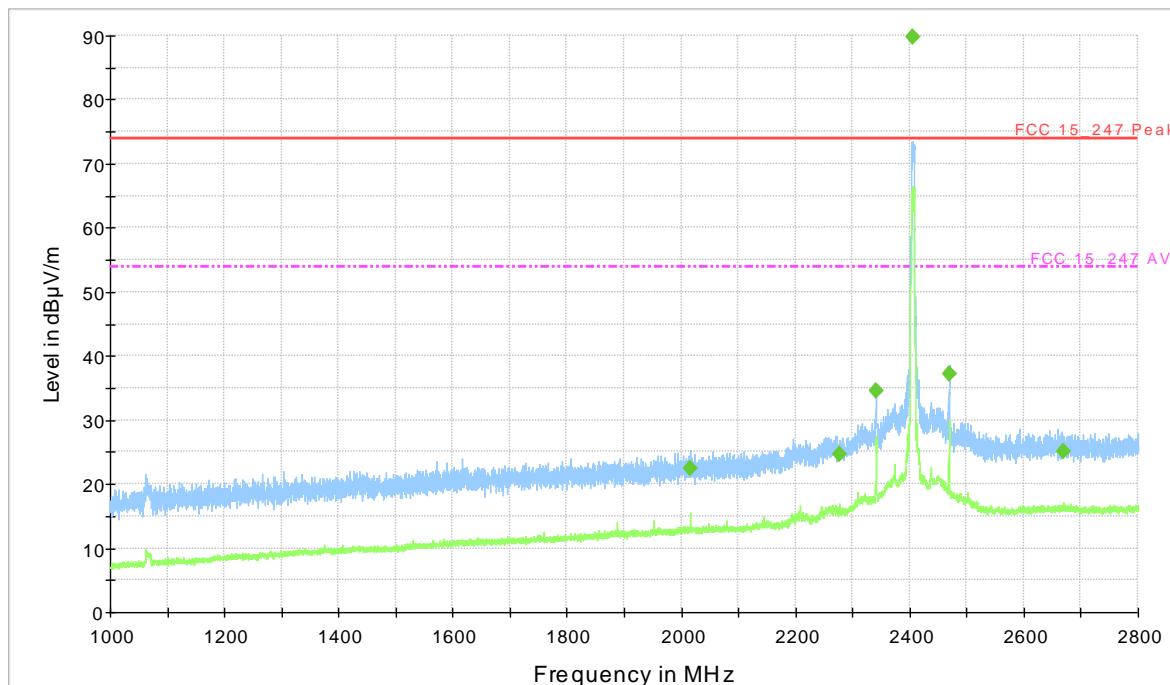
| Frequency (MHz) | QuasiPeak (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|--------------------------|-------------|--------------|---------------|-------------|----------------------|
| 53.183000 | 19.9 | 100.0 | V | 90.0 | 19.10 | 39.00 |
| 54.735000 | 22.6 | 100.0 | V | 90.0 | 16.40 | 39.00 |
| 56.869000 | 23.5 | 100.0 | V | 0.0 | 15.50 | 39.00 |
| 59.973000 | 26.1 | 100.0 | V | 90.0 | 12.90 | 39.00 |
| 143.975000 | 29.1 | 100.0 | V | 180.0 | 14.40 | 43.50 |
| 955.089000 | 30.5 | 100.0 | V | 0.0 | 15.90 | 46.40 |

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 1GHz-2.8GHz CH11

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector, Blue Marker Quasi-Peak detector; Green trace average detector, Green Marker average detector

Average Final Result

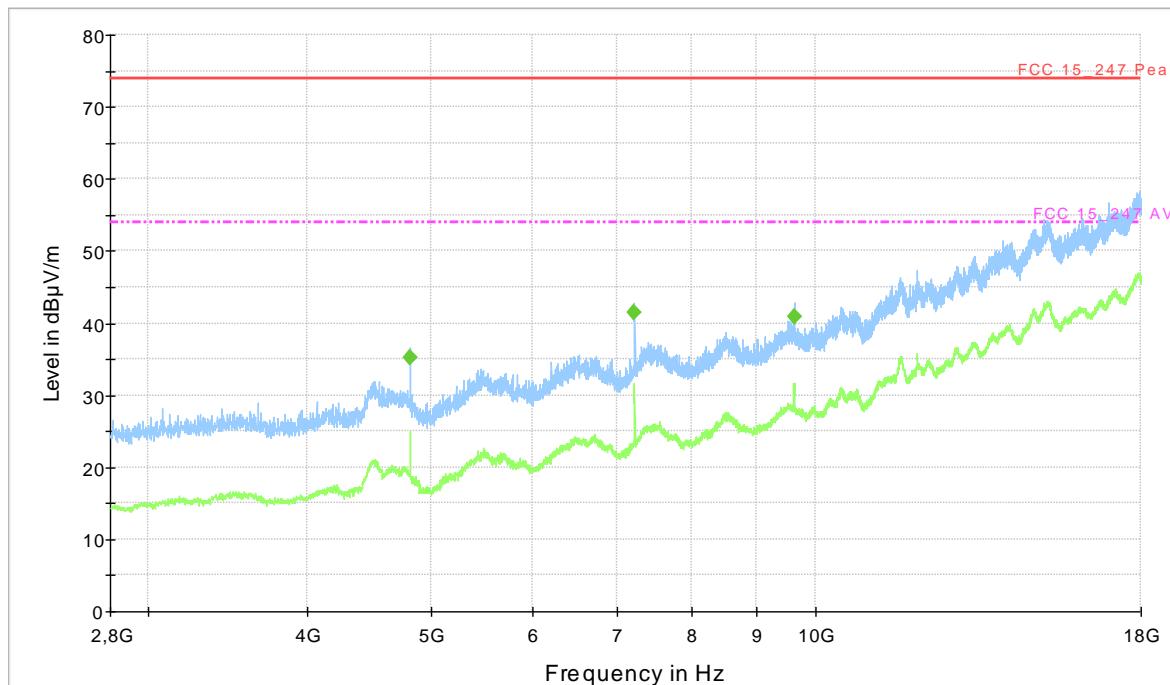
| Frequency (MHz) | Average (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|------------------------|-------------|--------------|---------------|-------------|----------------------|
| 2016.100000 | 22.4 | 100.0 | V | 180.0 | 31.60 | 54.00 |
| 2277.640000 | 24.7 | 100.0 | V | 0.0 | 29.30 | 54.00 |
| 2340.820000 | 34.4 | 100.0 | V | 0.0 | 19.60 | 54.00 |
| 2405.620000 | 89.8 | 100.0 | V | 90.0 | -535.80 | 54.00 |
| 2468.800000 | 37.2 | 100.0 | V | 90.0 | 16.80 | 54.00 |
| 2669.500000 | 25.0 | 100.0 | V | 180.0 | 29.00 | 54.00 |

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 2.8GHz-18GHz CH11

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector, Green trace average detector, Green marker Average detector

Final Result - Average

| Frequency (MHz) | Average (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|------------------------|-------------|--------------|---------------|-------------|----------------------|
| 4809.440000 | 35.1 | 100.0 | V | 270.0 | 18.90 | 54.00 |
| 7214.080000 | 41.5 | 100.0 | V | 89.0 | 12.50 | 54.00 |
| 9621.760000 | 40.9 | 100.0 | V | 0.0 | 13.10 | 54.00 |

FREQUENCY RANGE 18GHz to 10th HARMONIC CH11

VERTICAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 9kHz - 30MHz CH11

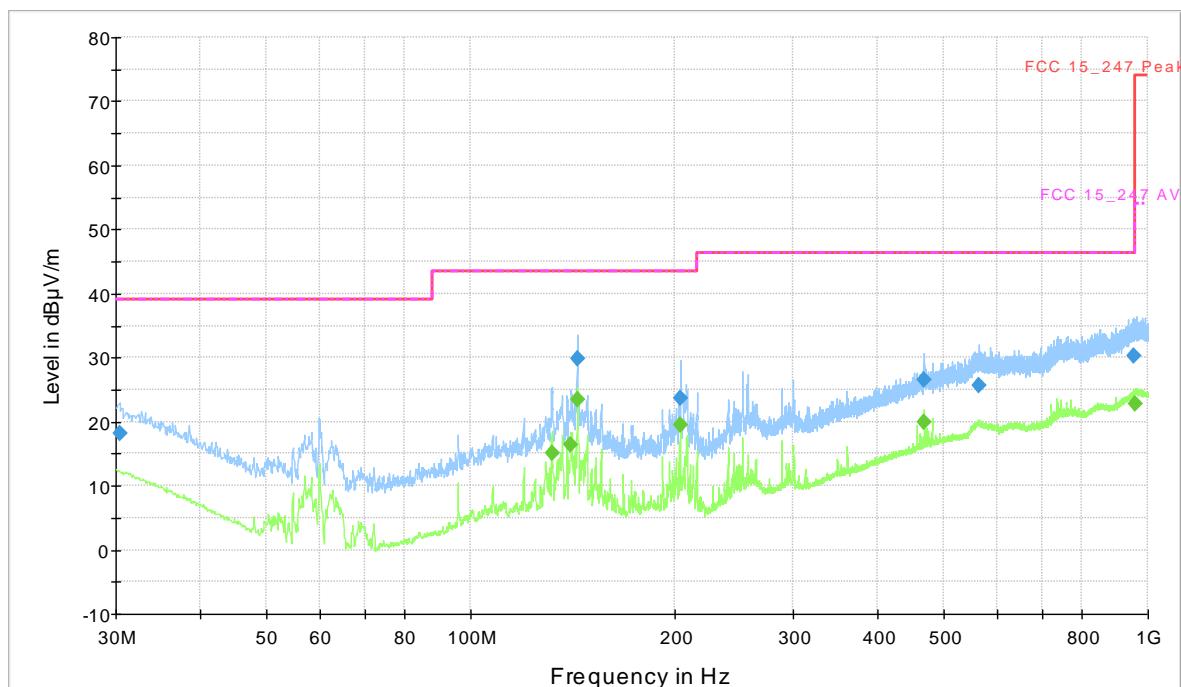
HORIZONTAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

FREQUENCY RANGE 30MHz – 1GHz CH11

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



Blue trace Peak detector, Blue Marker Quasi-Peak detector; Green trace average detector, Green Marker average detector

Final Result – Quasi Peak

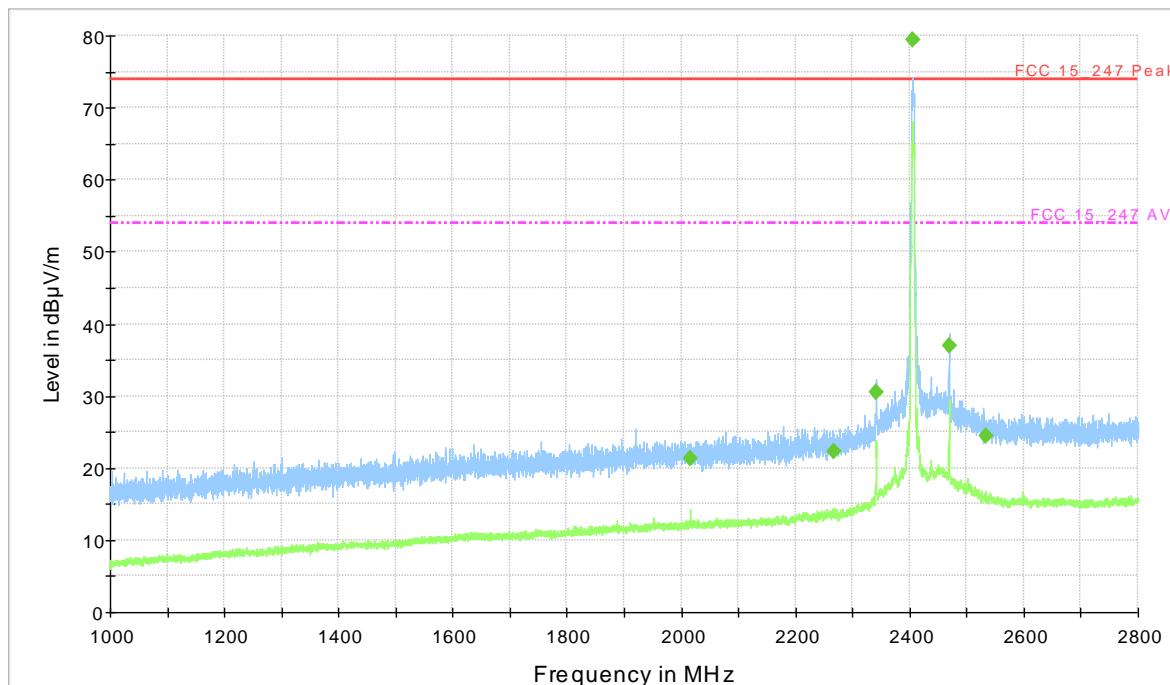
| Frequency (MHz) | QuasiPeak (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|--------------------------|-------------|--------------|---------------|-------------|----------------------|
| 30.388000 | 18.2 | 100.0 | H | 90.0 | 20.80 | 39.00 |
| 143.975000 | 29.8 | 100.0 | H | 270.0 | 13.70 | 43.50 |
| 204.018000 | 23.8 | 100.0 | H | 0.0 | 19.70 | 43.50 |
| 468.052000 | 26.6 | 100.0 | H | 0.0 | 19.80 | 46.40 |
| 562.724000 | 25.7 | 100.0 | H | 0.0 | 20.70 | 46.40 |
| 953.828000 | 30.3 | 100.0 | H | 0.0 | 16.10 | 46.40 |

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 1GHz-2.8GHz CH11

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



Blue trace Peak detector, Blue Marker Quasi-Peak detector; Green trace average detector, Green Marker average detector

Average Final Result

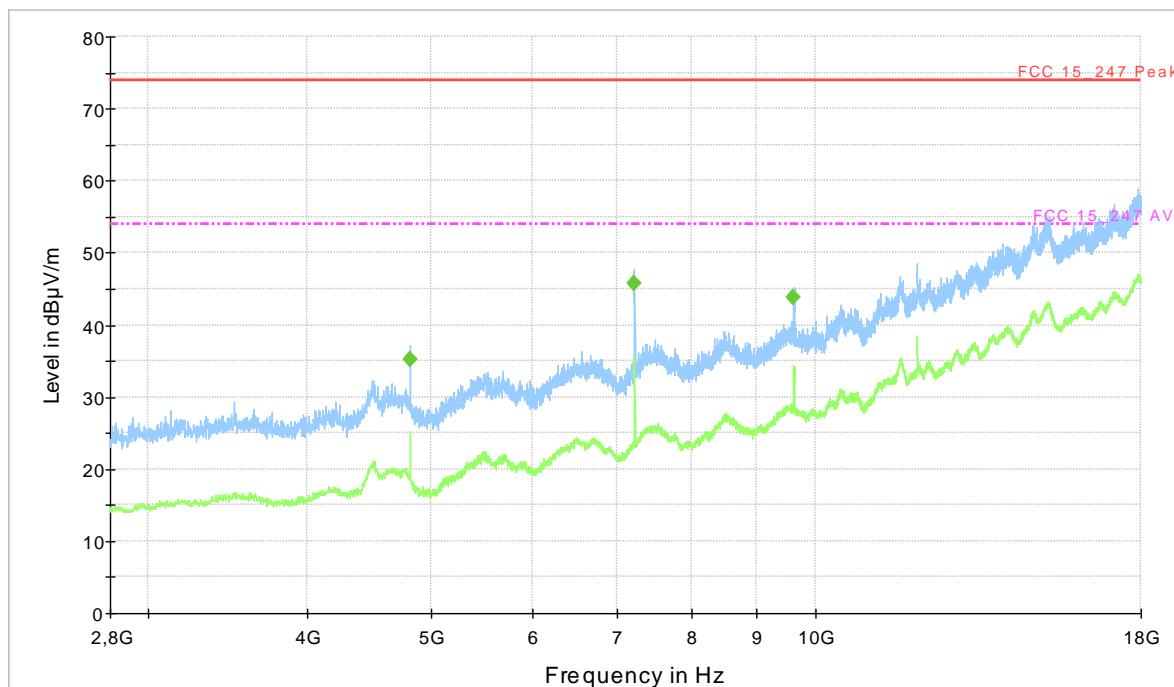
| Frequency (MHz) | Average (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|------------------------|-------------|--------------|---------------|-------------|----------------------|
| 2016.100000 | 21.3 | 100.0 | H | 0.0 | 32.70 | 54.00 |
| 2267.740000 | 22.2 | 100.0 | H | 0.0 | 31.80 | 54.00 |
| 2341.540000 | 30.6 | 100.0 | H | 0.0 | 23.40 | 54.00 |
| 2405.620000 | 79.5 | 100.0 | H | 90.0 | -25.50 | 54.00 |
| 2468.800000 | 37.0 | 100.0 | H | 0.0 | 17.00 | 54.00 |
| 2533.600000 | 24.4 | 100.0 | H | 270.0 | 29.60 | 54.00 |

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 2.8GHz-18GHz CH11

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



Blue trace Peak detector, Green trace & Green marker average detector

Average Final Result

| Frequency (MHz) | Average (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|------------------------|-------------|--------------|---------------|-------------|----------------------|
| 4809.44000 | 35.3 | 100.0 | H | 270.0 | 18.70 | 54.00 |
| 7214.08000 | 45.8 | 100.0 | H | 0.0 | 8.20 | 54.00 |
| 9618.72000 | 43.8 | 100.0 | H | 90.0 | 10.20 | 54.00 |

FREQUENCY RANGE 18GHz to 10th HARMONIC CH11

HORIZONTAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 9kHz - 30MHz CH 18

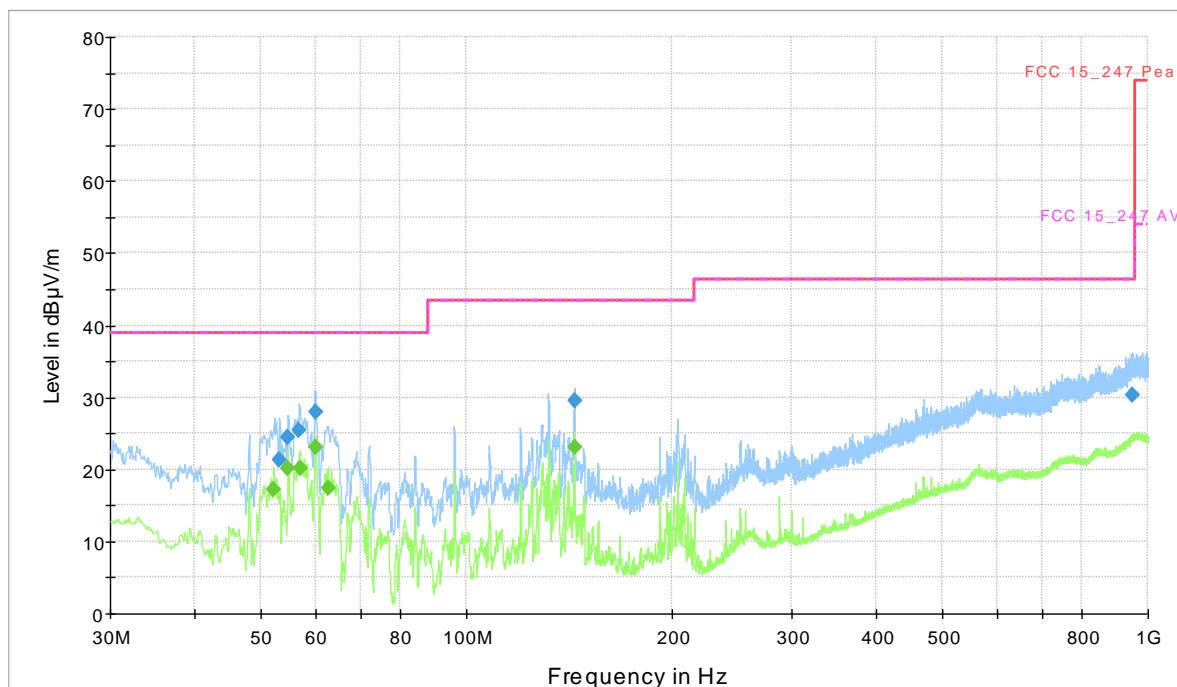
VERTICAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

FREQUENCY RANGE 30MHz – 1GHz CH 18

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector, Blue Marker Quasi-Peak detector; Green trace average detector, Green Marker average detector

Quasi Peak Final Result

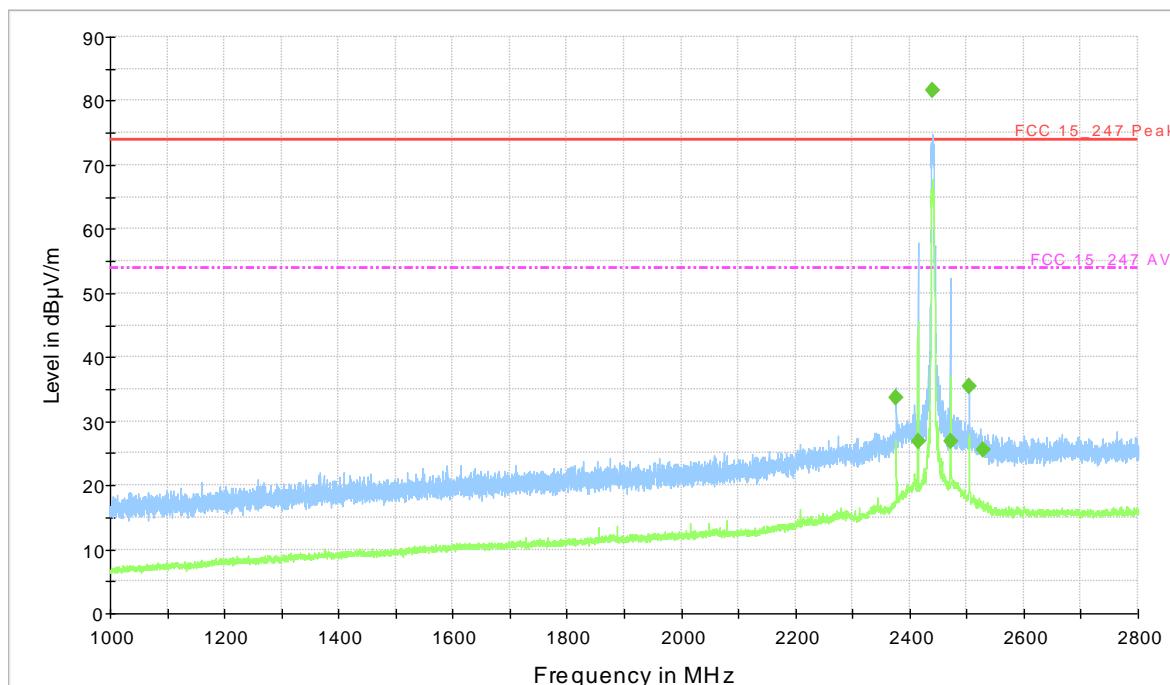
| Frequency (MHz) | QuasiPeak (dBμV/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dBμV/m) |
|-----------------|--------------------|-------------|--------------|---------------|-------------|----------------|
| 53.183000 | 21.3 | 100.0 | V | 0.0 | 17.70 | 39.00 |
| 54.735000 | 24.5 | 100.0 | V | 0.0 | 14.50 | 39.00 |
| 56.869000 | 25.5 | 100.0 | V | 0.0 | 13.50 | 39.00 |
| 59.973000 | 28.0 | 100.0 | V | 270.0 | 11.00 | 39.00 |
| 143.975000 | 29.5 | 100.0 | V | 180.0 | 14.00 | 43.50 |
| 951.015000 | 30.3 | 100.0 | V | 270.0 | 16.10 | 46.40 |

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 1GHz-2.8GHz CH 18

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector, Blue Marker Quasi-Peak detector; Green trace average detector, Green Marker average detector

Average Final Result

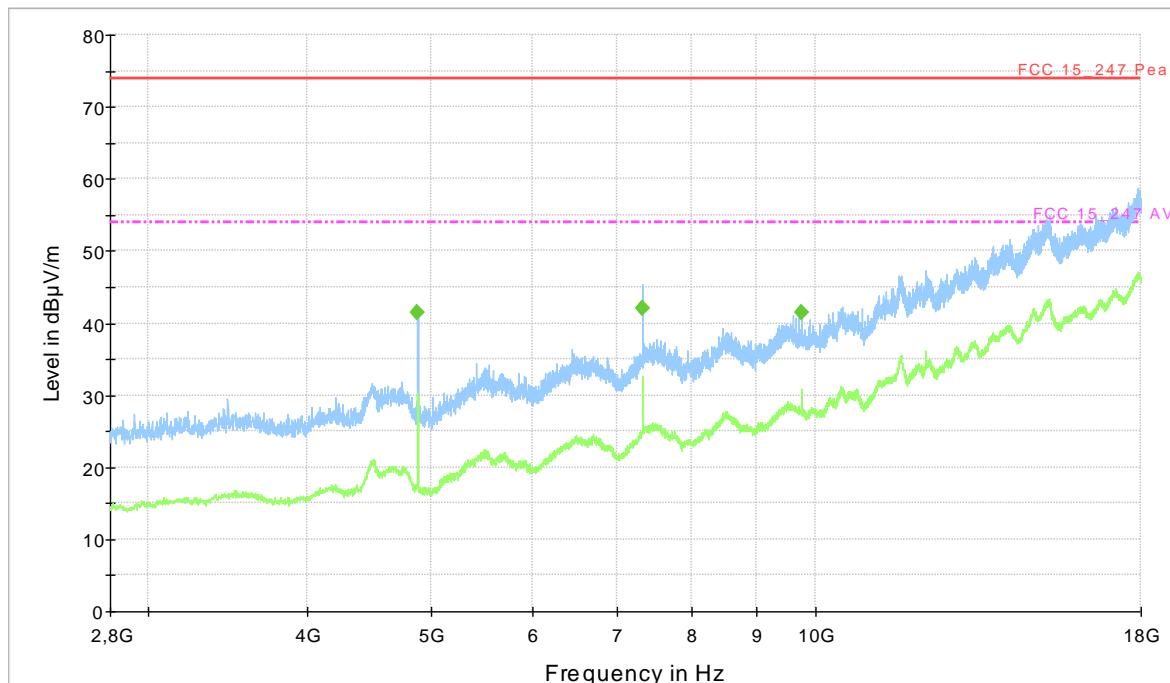
| Frequency (MHz) | Average (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|------------------------|-------------|--------------|---------------|-------------|----------------------|
| 2376.640000 | 33.8 | 100.0 | V | 0.0 | 20.20 | 54.00 |
| 2414.260000 | 26.8 | 100.0 | V | 180.0 | 27.20 | 54.00 |
| 2439.820000 | 81.7 | 100.0 | V | 270.0 | -27.70 | 54.00 |
| 2471.140000 | 26.8 | 100.0 | V | 0.0 | 27.20 | 54.00 |
| 2503.900000 | 35.3 | 100.0 | V | 90.0 | 18.70 | 54.00 |
| 2527.660000 | 25.4 | 100.0 | V | 90.0 | 28.60 | 54.00 |

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 2.8GHz-18GHz CH 18

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector, Green trace average detector

Average Final Result

| Frequency (MHz) | Average (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|------------------------|-------------|--------------|---------------|-------------|----------------------|
| 4879.360000 | 41.6 | 100.0 | V | 0.0 | 12.40 | 54.00 |
| 7318.960000 | 42.0 | 100.0 | V | 270.0 | 12.00 | 54.00 |
| 9758.560000 | 41.4 | 100.0 | V | 90.0 | 12.60 | 54.00 |

FREQUENCY RANGE 18GHz to 10th HARMONIC CH 18

VERTICAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 9kHz - 30MHz CH 18

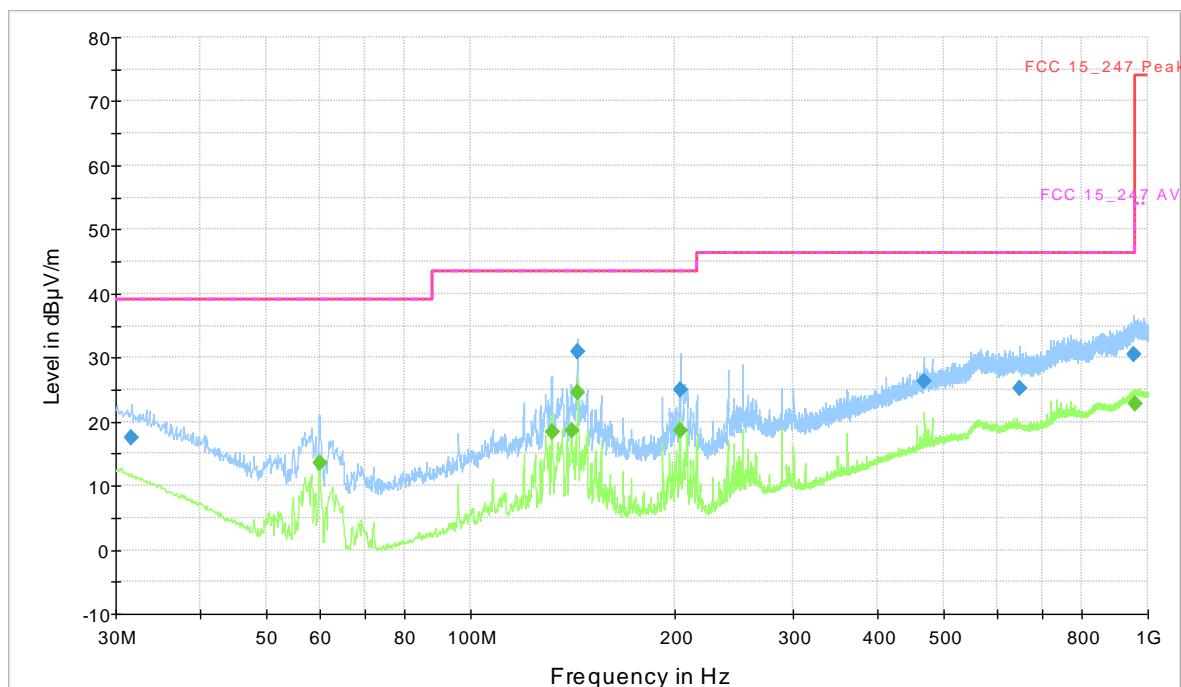
HORIZONTAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

FREQUENCY RANGE 30MHz – 1GHz CH 18

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



Blue trace Peak detector, Blue Marker Quasi-Peak detector; Green trace average detector, Green Marker average detector

Quasi Peak Final Result

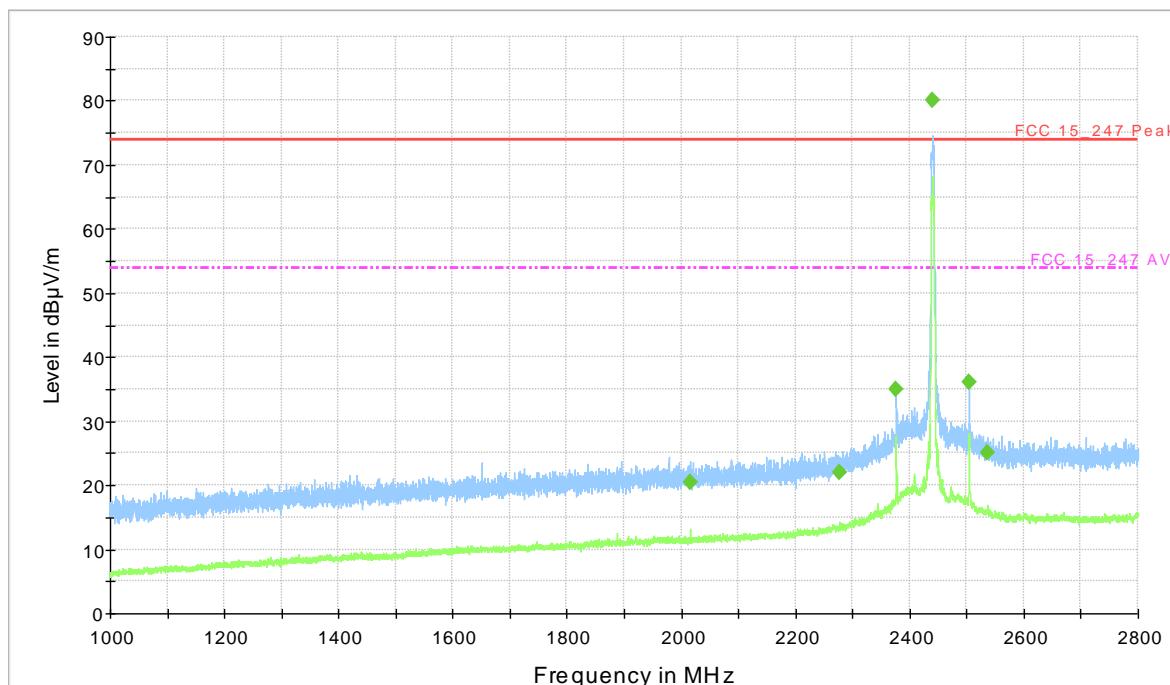
| Frequency (MHz) | QuasiPeak (dBμV/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dBμV/m) |
|-----------------|--------------------|-------------|--------------|---------------|-------------|----------------|
| 31.649000 | 17.4 | 100.0 | H | 0.0 | 21.60 | 39.00 |
| 143.975000 | 30.8 | 100.0 | H | 270.0 | 12.70 | 43.50 |
| 204.018000 | 25.0 | 100.0 | H | 0.0 | 18.50 | 43.50 |
| 468.246000 | 26.2 | 100.0 | H | 0.0 | 20.20 | 46.40 |
| 646.338000 | 25.2 | 100.0 | H | 180.0 | 21.20 | 46.40 |
| 955.089000 | 30.5 | 100.0 | H | 180.0 | 15.90 | 46.40 |

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 1GHz-2.8GHz CH 18

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



Blue trace Peak detector, Blue Marker Quasi-Peak detector; Green trace average detector, Green Marker average detector

Final Result - Average

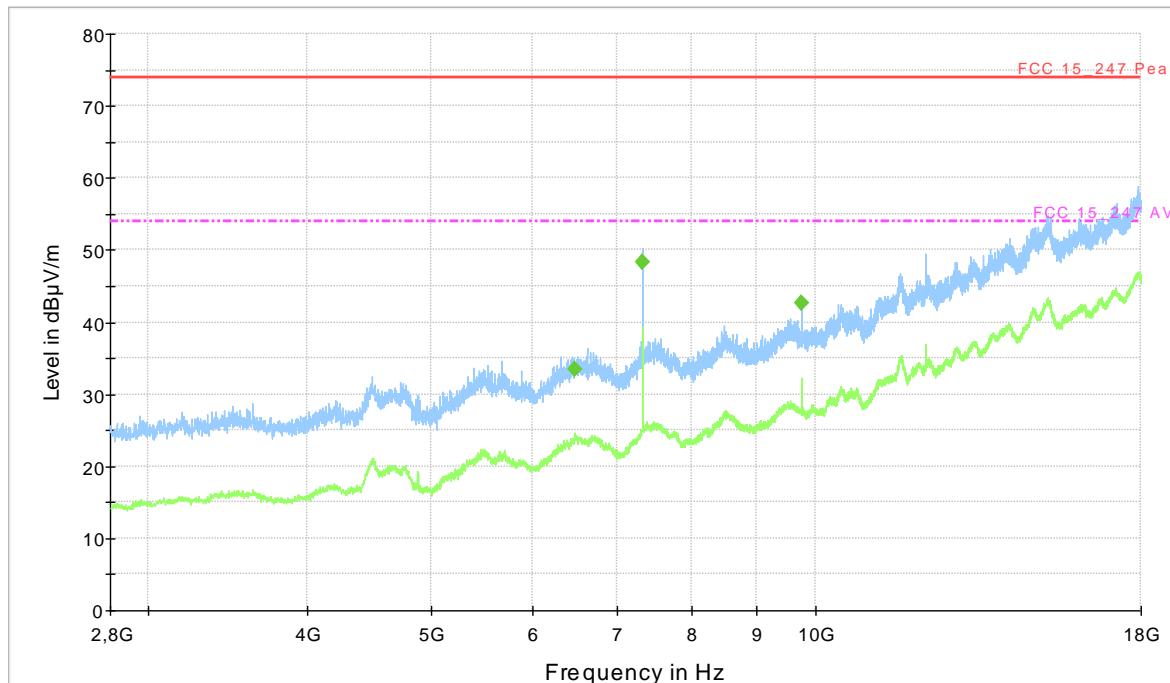
| Frequency (MHz) | Average (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|------------------------|-------------|--------------|---------------|-------------|----------------------|
| 2016.100000 | 20.5 | 100.0 | H | 0.0 | 33.50 | 54.00 |
| 2277.100000 | 22.0 | 100.0 | H | 0.0 | 32.00 | 54.00 |
| 2375.740000 | 34.9 | 100.0 | H | 0.0 | 19.10 | 54.00 |
| 2439.820000 | 80.0 | 100.0 | H | 180.0 | -26.00 | 54.00 |
| 2503.900000 | 36.1 | 100.0 | H | 270.0 | 17.90 | 54.00 |
| 2535.760000 | 25.0 | 100.0 | H | 270.0 | 29.00 | 54.00 |

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 2.8GHz-18GHz CH 18

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



Blue trace Peak detector, Green trace average detector

Final Result - Average

| Frequency (MHz) | Average (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|------------------------|-------------|--------------|---------------|-------------|----------------------|
| 6478.400000 | 33.5 | 100.0 | H | 270.0 | 20.50 | 54.00 |
| 7318.960000 | 48.4 | 100.0 | H | 0.0 | 5.60 | 54.00 |
| 9758.560000 | 42.5 | 100.0 | H | 90.0 | 11.50 | 54.00 |

FREQUENCY RANGE 18GHz to 10th HARMONIC CH 18

HORIZONTAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 9kHz - 30MHz CH 26

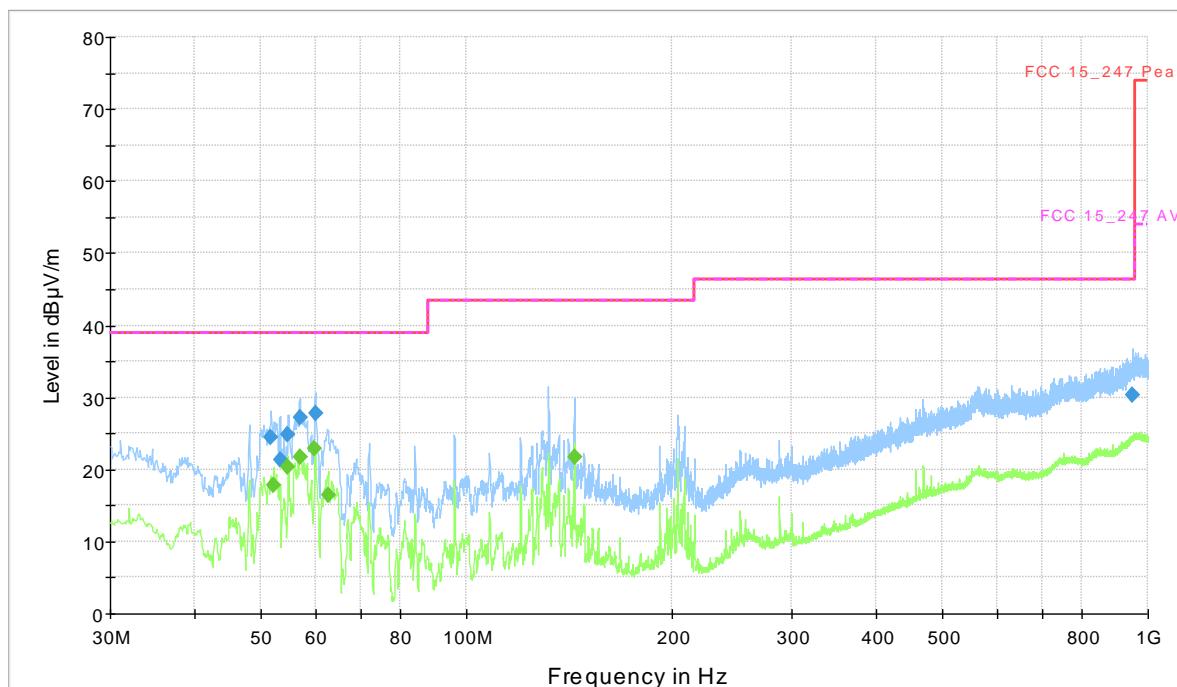
VERTICAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

FREQUENCY RANGE 30MHz – 1GHz CH 26

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector, Blue Marker Quasi-Peak detector; Green trace average detector, Green Marker average detector

Quasi Peak Final Result

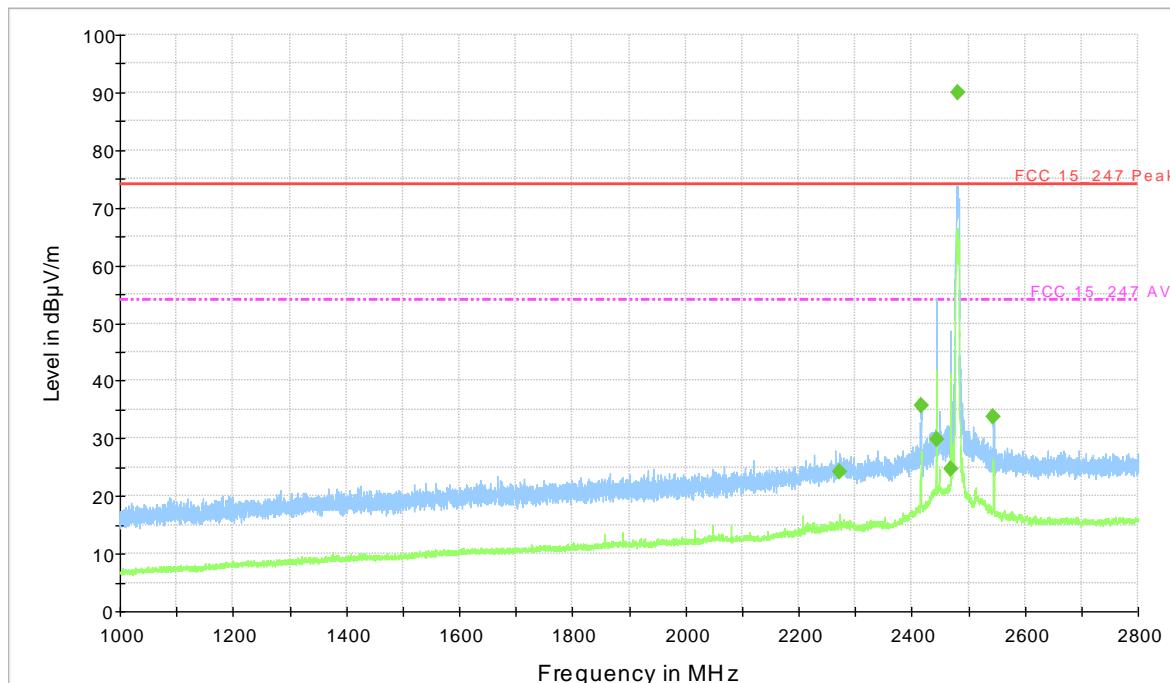
| Frequency (MHz) | QuasiPeak (dBμV/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dBμV/m) |
|-----------------|--------------------|-------------|--------------|---------------|-------------|----------------|
| 51.631000 | 24.4 | 100.0 | V | 0.0 | 14.60 | 39.00 |
| 53.280000 | 21.3 | 100.0 | V | 90.0 | 17.70 | 39.00 |
| 54.735000 | 24.9 | 100.0 | V | 0.0 | 14.10 | 39.00 |
| 56.966000 | 27.2 | 100.0 | V | 0.0 | 11.80 | 39.00 |
| 59.973000 | 27.7 | 100.0 | V | 180.0 | 11.30 | 39.00 |
| 948.978000 | 30.3 | 100.0 | V | 90.0 | 16.10 | 46.40 |

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 1GHz-2.8GHz CH 26

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector, Blue Marker Quasi-Peak detector; Green trace average detector, Green Marker average detector

Average Final Result

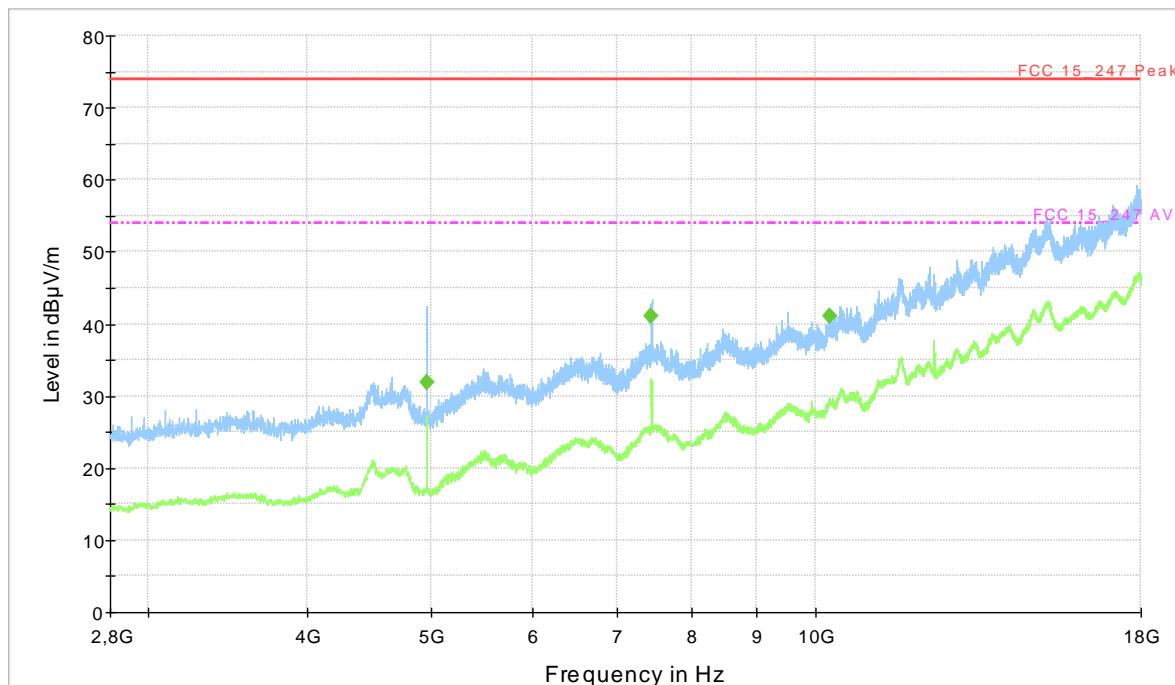
| Frequency (MHz) | Average (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|------------------------|-------------|--------------|---------------|-------------|----------------------|
| 2272.240000 | 24.2 | 100.0 | V | 0.0 | 29.80 | 54.00 |
| 2415.880000 | 35.7 | 100.0 | V | 90.0 | 18.30 | 54.00 |
| 2443.060000 | 29.7 | 100.0 | V | 90.0 | 24.30 | 54.00 |
| 2468.260000 | 24.6 | 100.0 | V | 270.0 | 29.40 | 54.00 |
| 2480.680000 | 90.0 | 100.0 | V | 90.0 | -36.00 | 54.00 |
| 2543.860000 | 33.7 | 100.0 | V | 90.0 | 20.30 | 54.00 |

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 2.8GHz-18GHz CH 26

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector, Green trace average detector

Average Final Result

| Frequency (MHz) | Average (dBµV/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) |
|-----------------|------------------|-------------|--------------|---------------|-------------|
| 4958.400000 | 31.8 | 100.0 | V | 0.0 | 22.20 |
| 7439.040000 | 41.0 | 100.0 | V | 0.0 | 13.00 |
| 10269.280000 | 41.0 | 100.0 | V | 0.0 | 13.00 |

FREQUENCY RANGE 18GHz to 10th HARMONIC CH 26

VERTICAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 9kHz - 30MHz CH 26

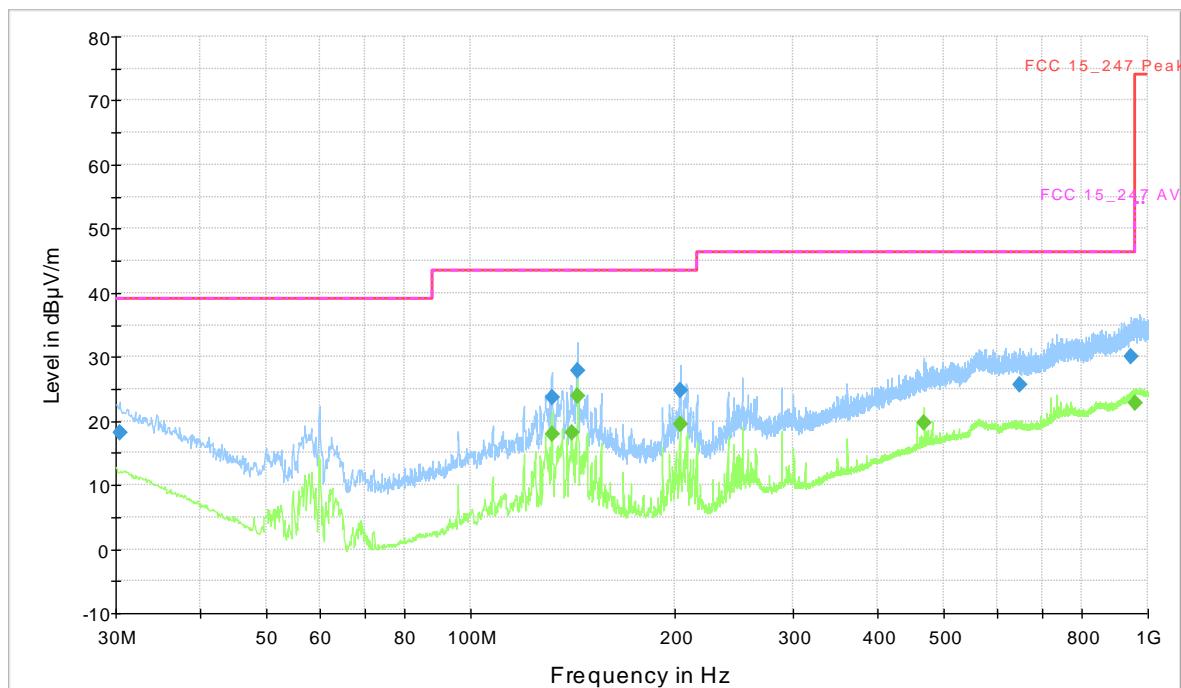
HORIZONTAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

FREQUENCY RANGE 30MHz – 1GHz CH 26

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



Blue trace Peak detector, Blue Marker Quasi-Peak detector; Green trace average detector, Green Marker average detector

Quasi Peak Final Result

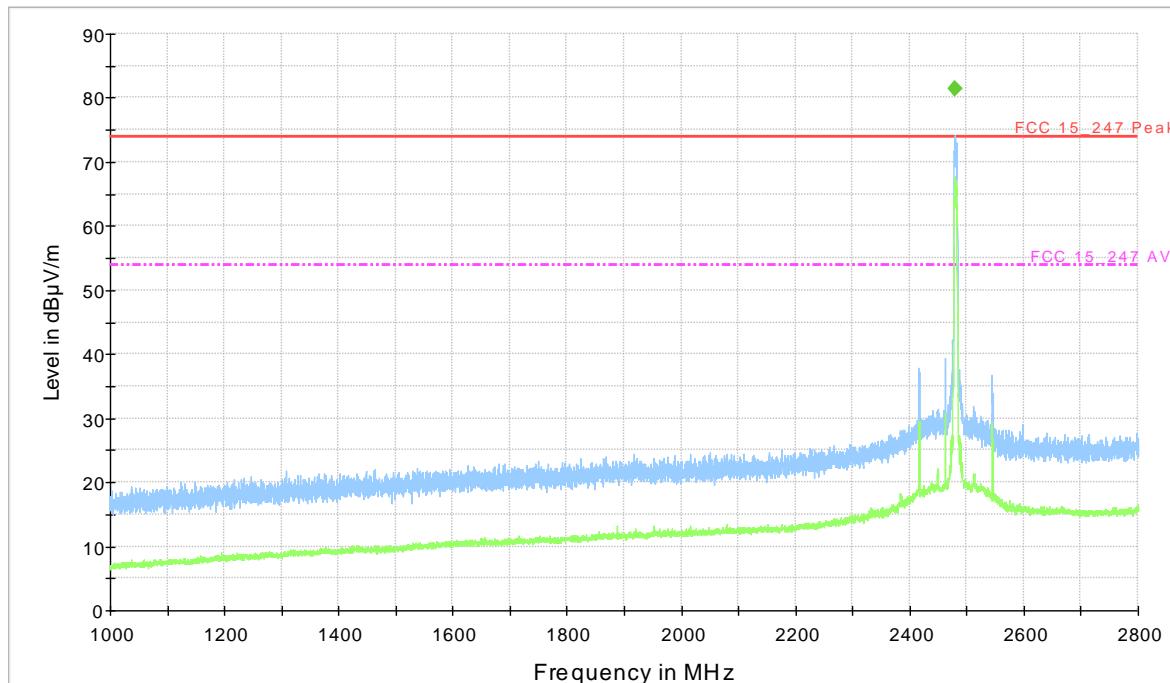
| Frequency (MHz) | QuasiPeak (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|--------------------------|-------------|--------------|---------------|-------------|----------------------|
| 30.388000 | 18.2 | 100.0 | H | 180.0 | 20.80 | 39.00 |
| 131.947000 | 23.7 | 100.0 | H | 270.0 | 19.80 | 43.50 |
| 143.878000 | 27.9 | 100.0 | H | 270.0 | 15.60 | 43.50 |
| 204.018000 | 24.8 | 100.0 | H | 0.0 | 18.70 | 43.50 |
| 648.375000 | 25.6 | 100.0 | H | 180.0 | 20.80 | 46.40 |
| 945.486000 | 30.1 | 100.0 | H | 180.0 | 16.30 | 46.40 |

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 1GHz-2.8GHz CH 26

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



Blue trace Peak detector, Blue Marker Quasi-Peak detector; Green trace average detector, Green Marker average detector

Final Result - Average

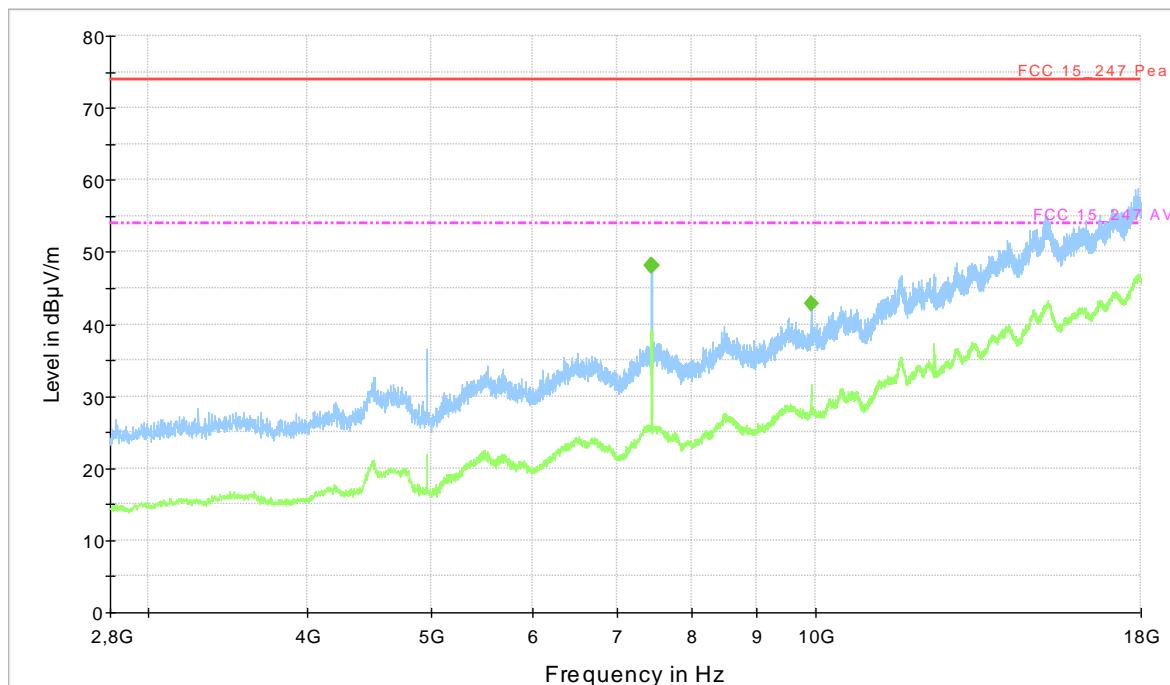
| Frequency (MHz) | Average (dBμV/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dBμV/m) |
|-----------------|------------------|-------------|--------------|---------------|-------------|----------------|
| 2479.600000 | 81.4 | 100.0 | H | 90.0 | -27.40 | 54.00 |

EMB-Z2538PA / IA - RADIATED MEASUREMENT

FREQUENCY RANGE 2.8GHz-18GHz CH 26

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



Blue trace Peak detector, Green trace average detector

Final Result - Average

| Frequency (MHz) | Average (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|------------------------|-------------|--------------|---------------|-------------|----------------------|
| 7439.040000 | 48.2 | 100.0 | H | 0.0 | 5.80 | 54.00 |
| 7442.080000 | 48.1 | 100.0 | H | 0.0 | 5.90 | 54.00 |
| 9922.720000 | 42.9 | 100.0 | H | 0.0 | 11.10 | 54.00 |

FREQUENCY RANGE 18GHz to 10th HARMONIC CH 26

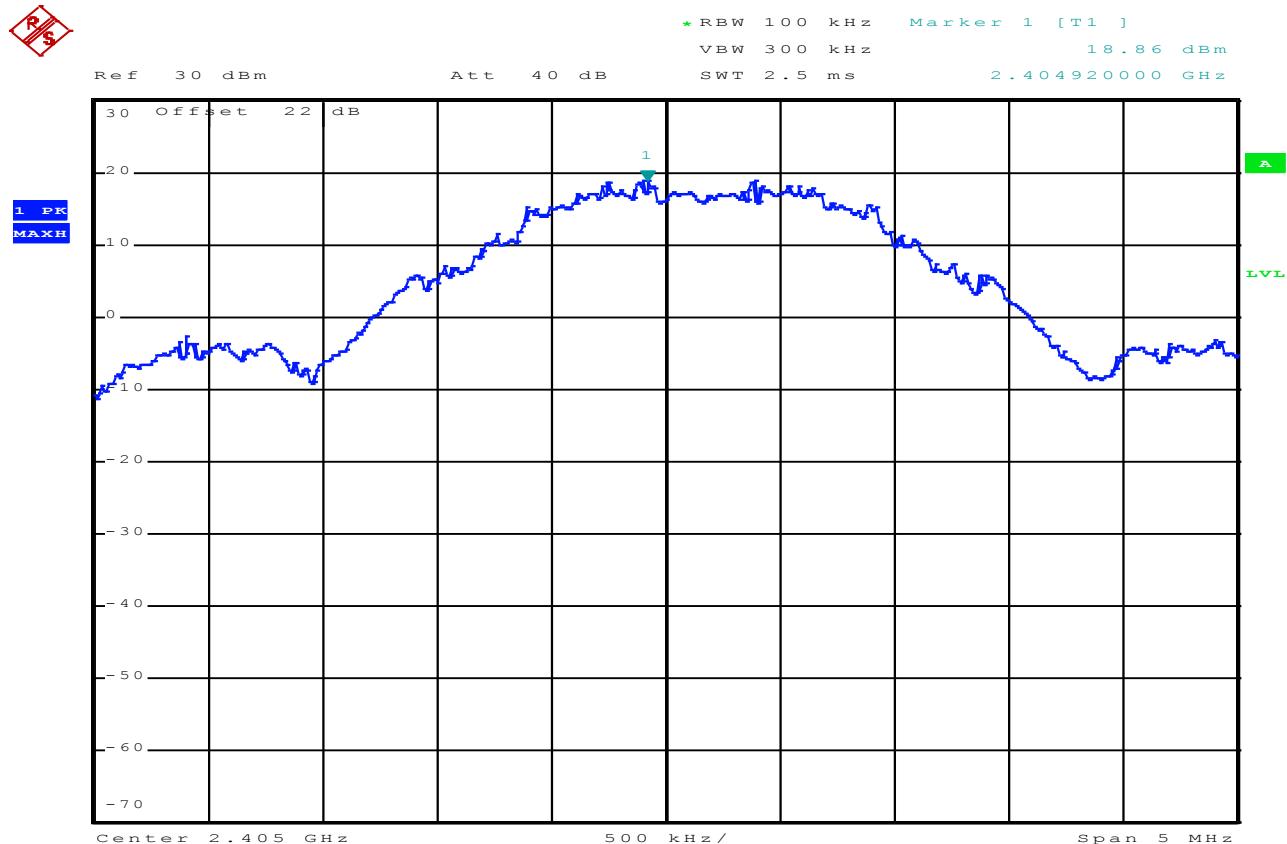
HORIZONTAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

EMB-Z2538PA / UL - CONDUCTED MEASUREMENT

CONDUCTED MEASUREMENTS

REFERENCE LEVEL FOR SPURIOUS EMISSION LIMIT EVALUATION – CH11



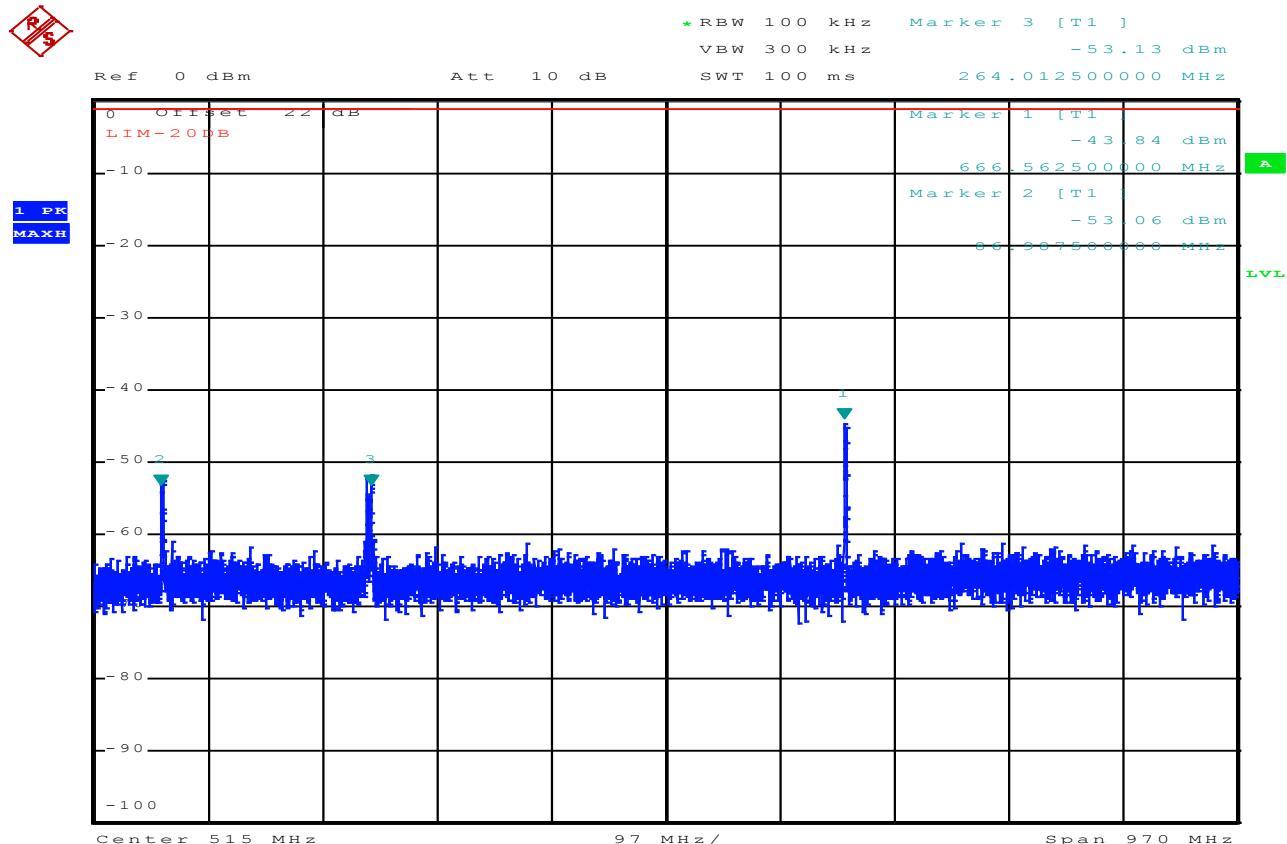


PRIMA
RICERCA & SVILUPPO

FCCTR_140934-2

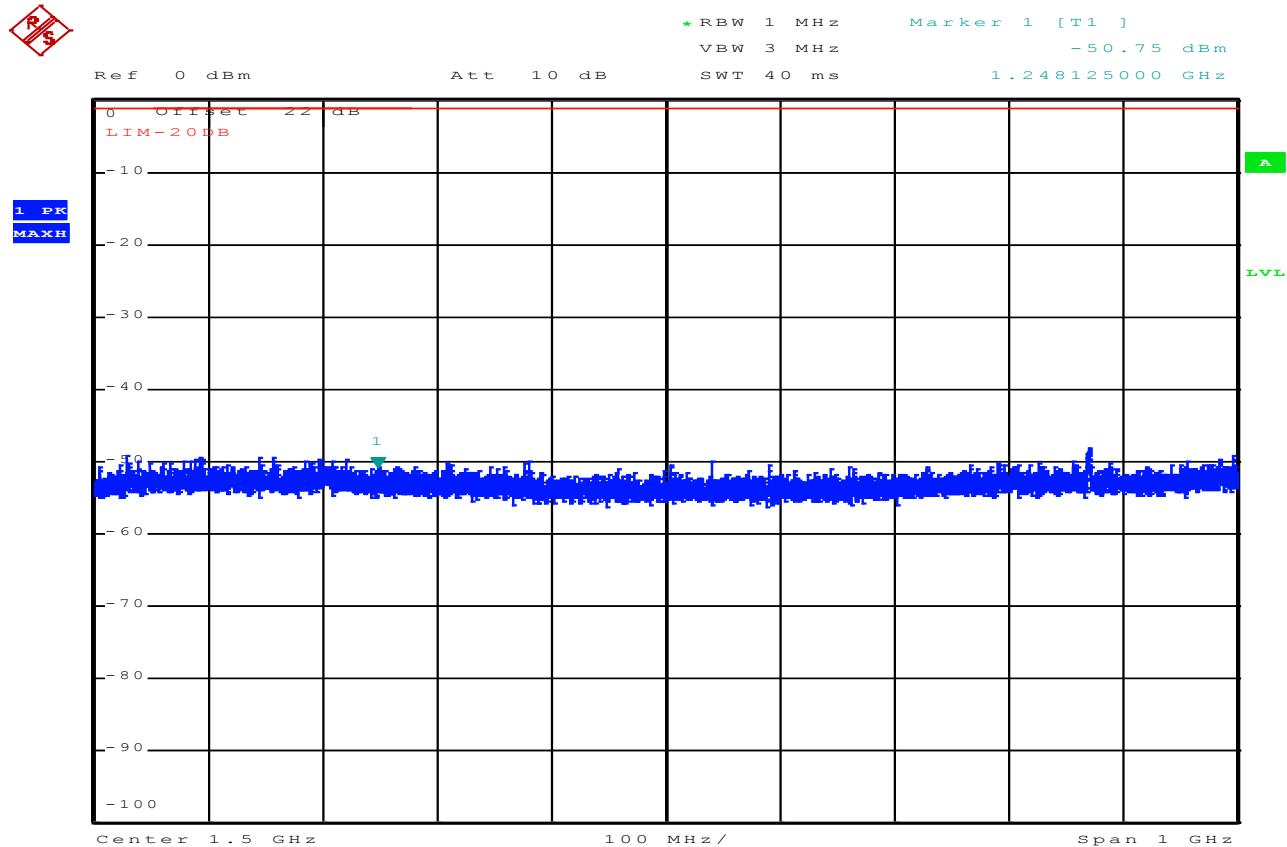
EMB-Z2538PA / UL - CONDUCTED MEASUREMENT

FREQ. RANGE 30MHz – 1GHz CH11



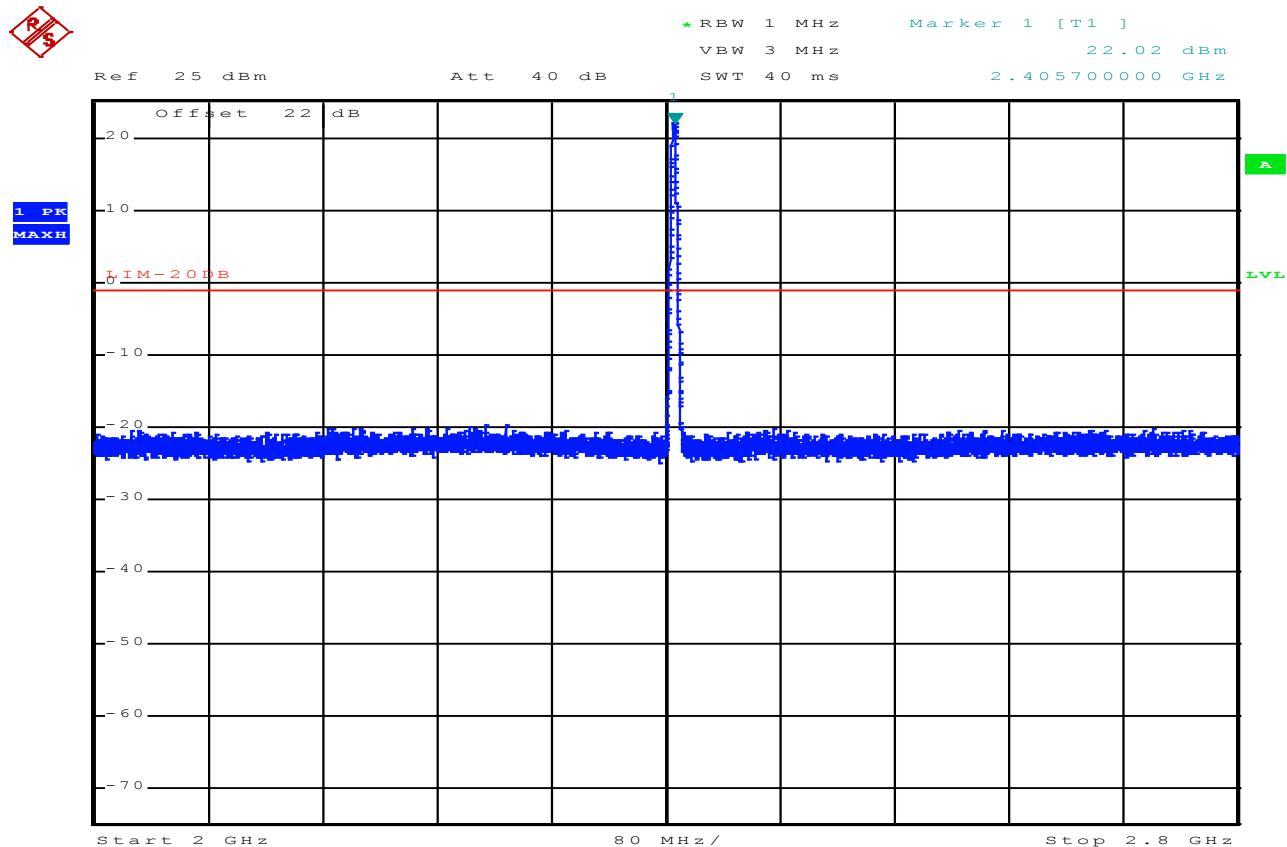
EMB-Z2538PA / UL - CONDUCTED MEASUREMENT

FREQ. RANGE 1-2GHz CH11



EMB-Z2538PA / UL - CONDUCTED MEASUREMENT

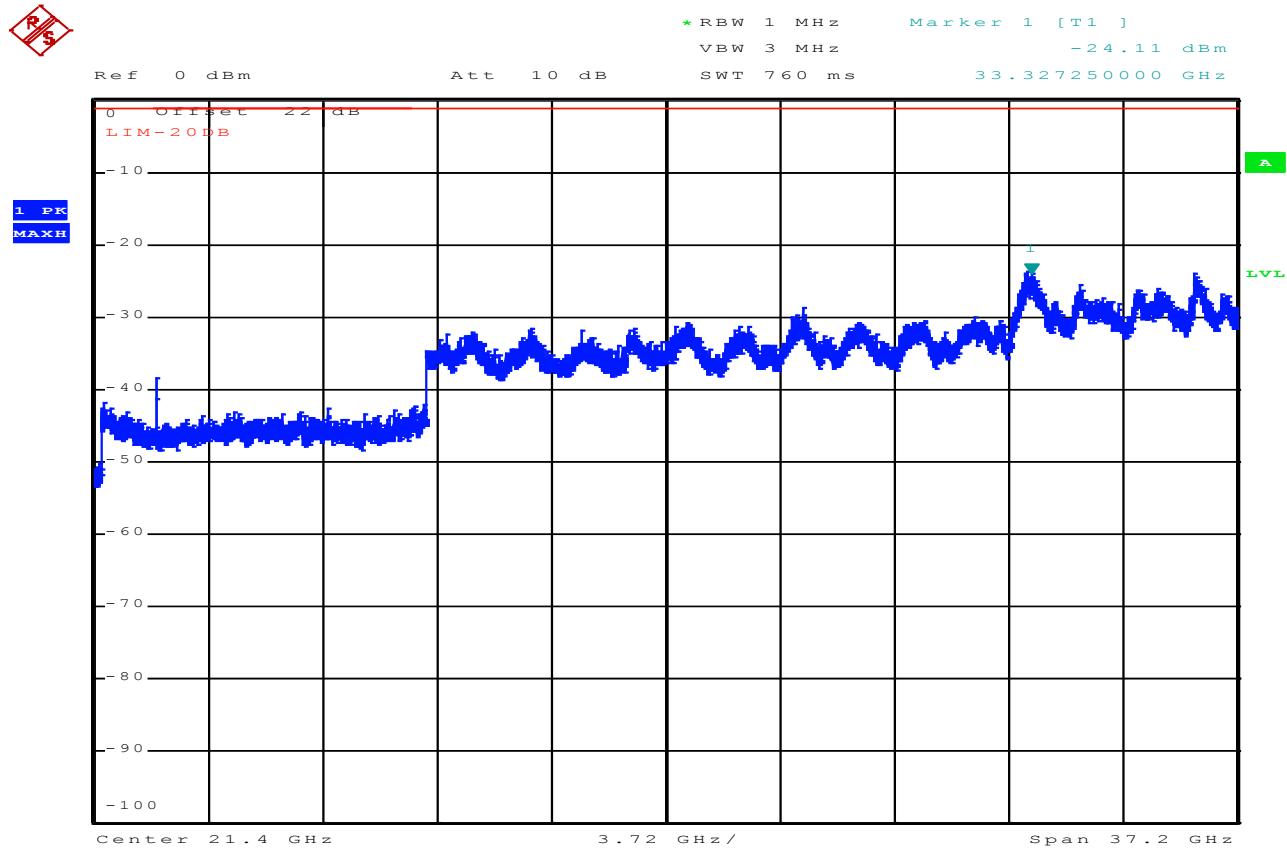
FREQ. RANGE 2-2.8 GHz CH11



Date : 4. JAN. 2000 23:55:43

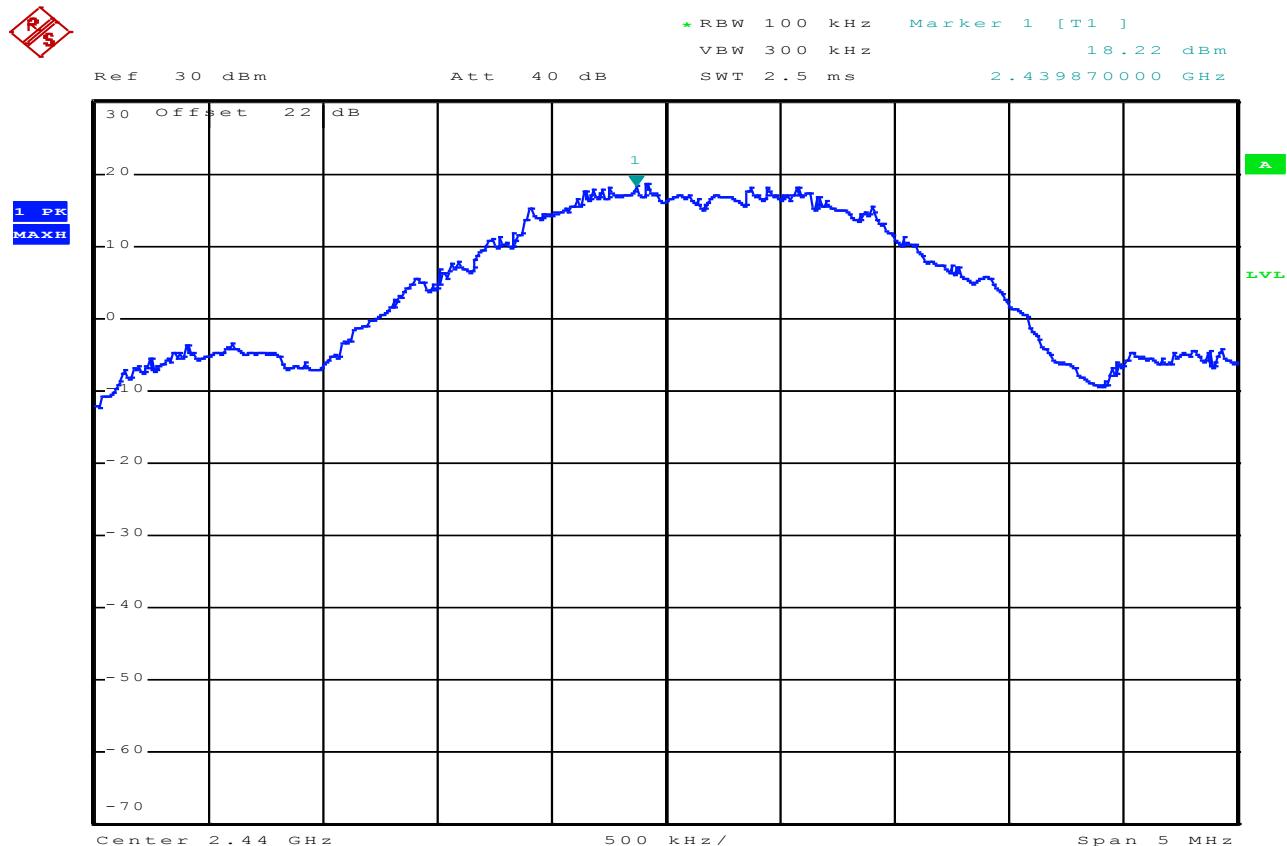
EMB-Z2538PA / UL - CONDUCTED MEASUREMENT

FREQ. RANGE 2.8-40 GHz CH11



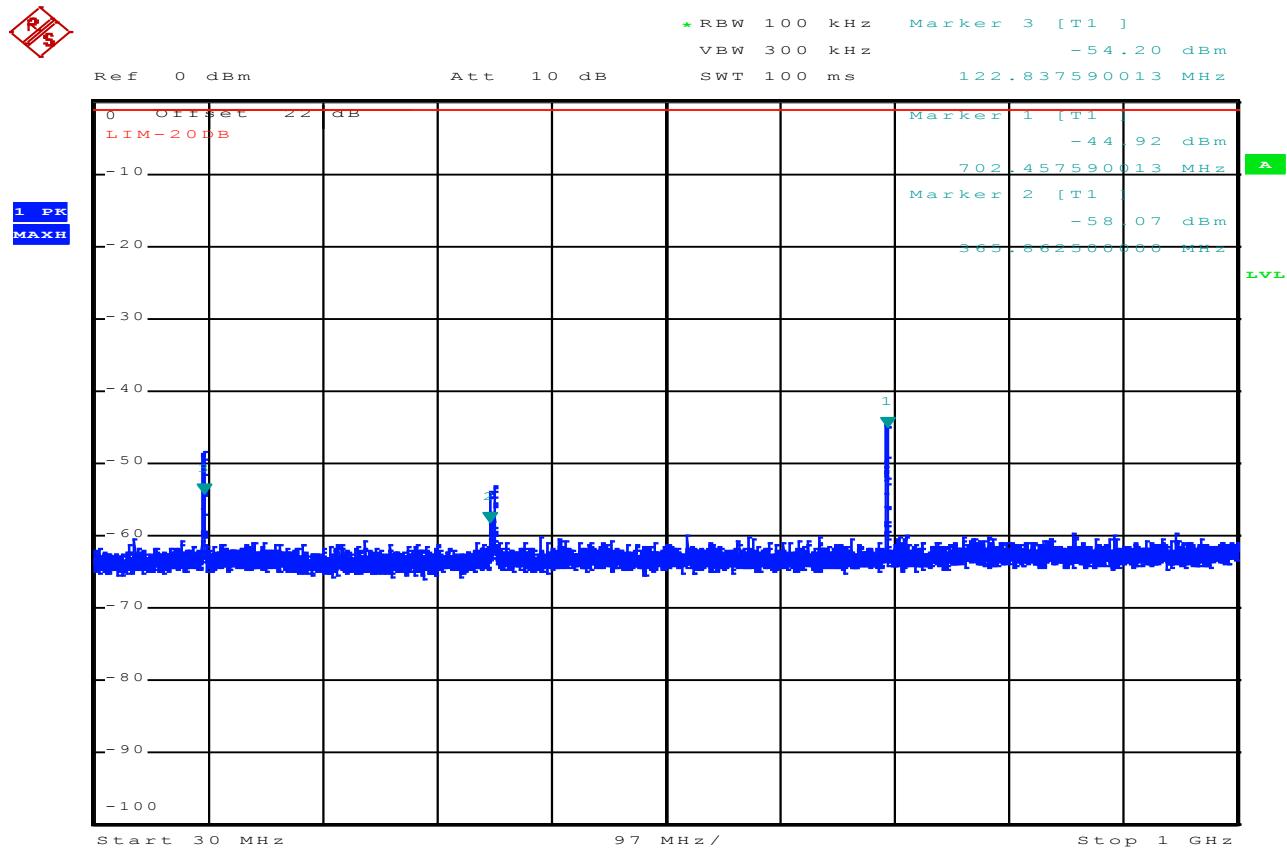
EMB-Z2538PA / UL - CONDUCTED MEASUREMENT

REFERENCE LEVEL FOR SPURIOUS EMISSION LIMIT EVALUATION – CH18



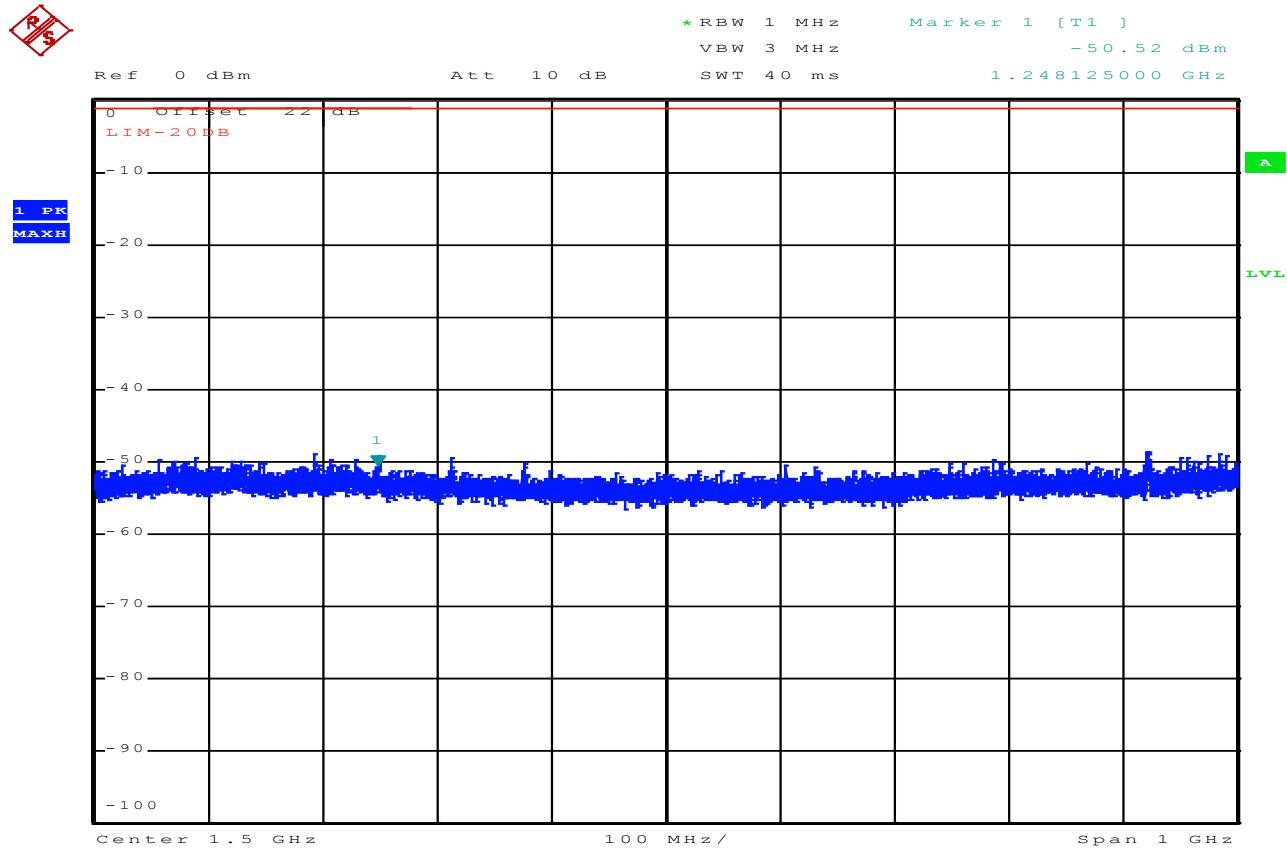
EMB-Z2538PA / UL - CONDUCTED MEASUREMENT

FREQ. RANGE 30MHz – 1GHz CH18



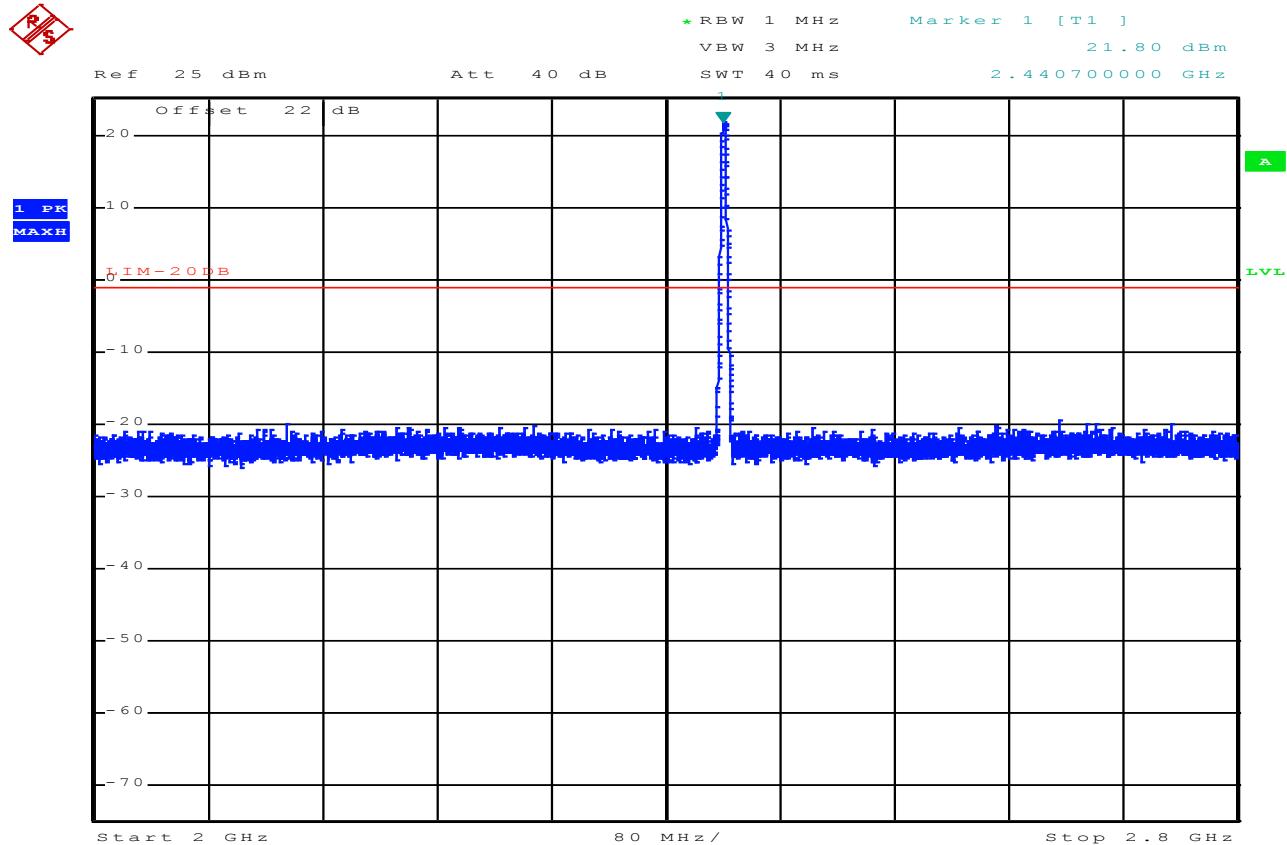
EMB-Z2538PA / UL - CONDUCTED MEASUREMENT

FREQ. RANGE 1-2GHz CH18



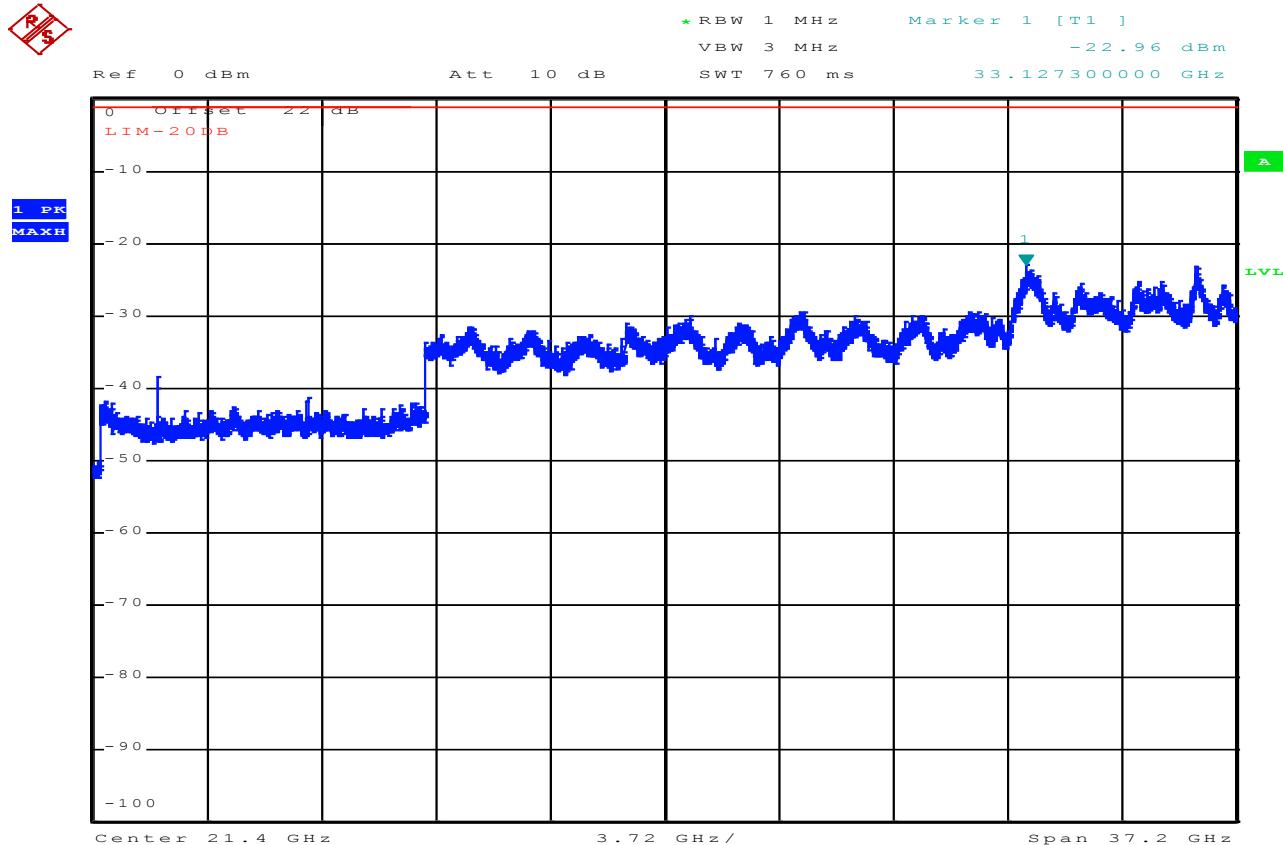
EMB-Z2538PA / UL - CONDUCTED MEASUREMENT

FREQ. RANGE 2-2.8 GHz CH18



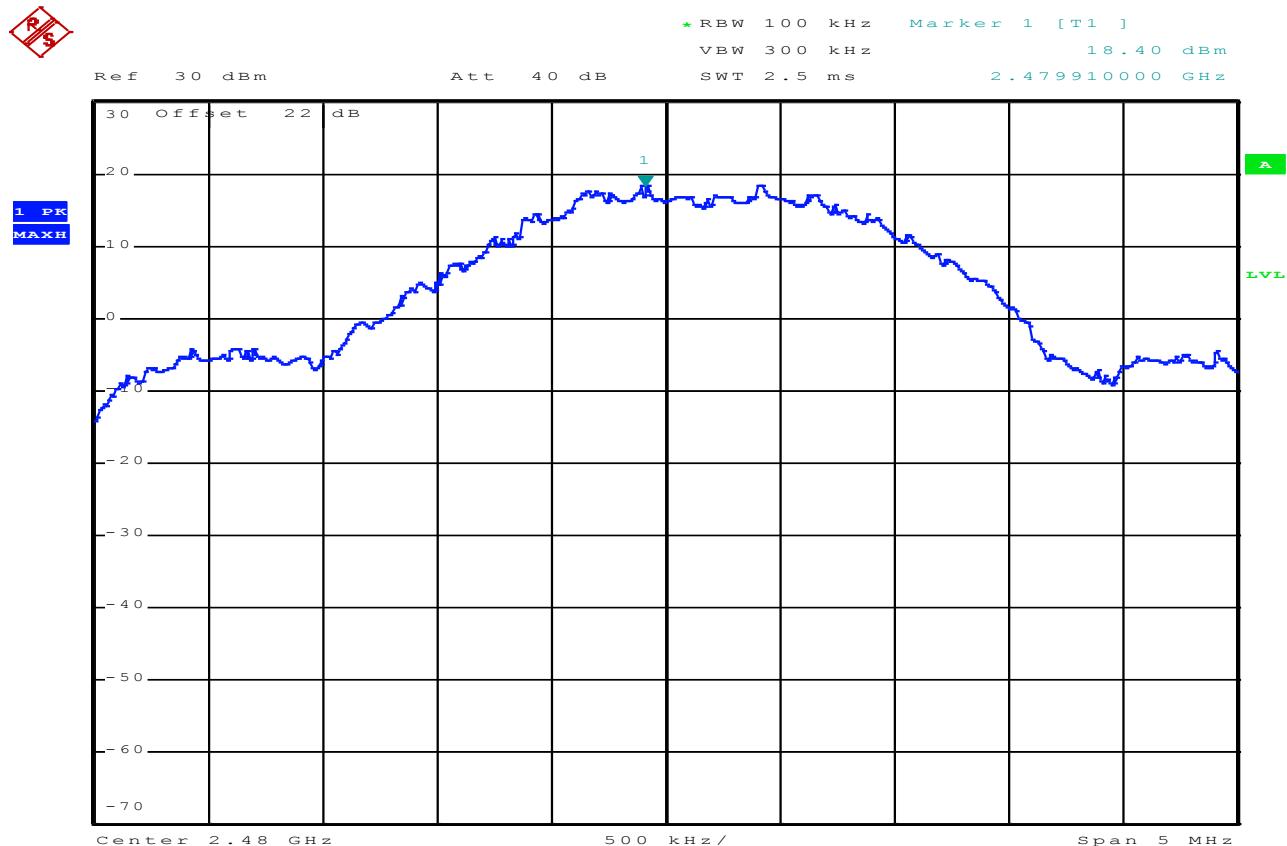
EMB-Z2538PA / UL - CONDUCTED MEASUREMENT

FREQ. RANGE 2.8-40 GHz CH18



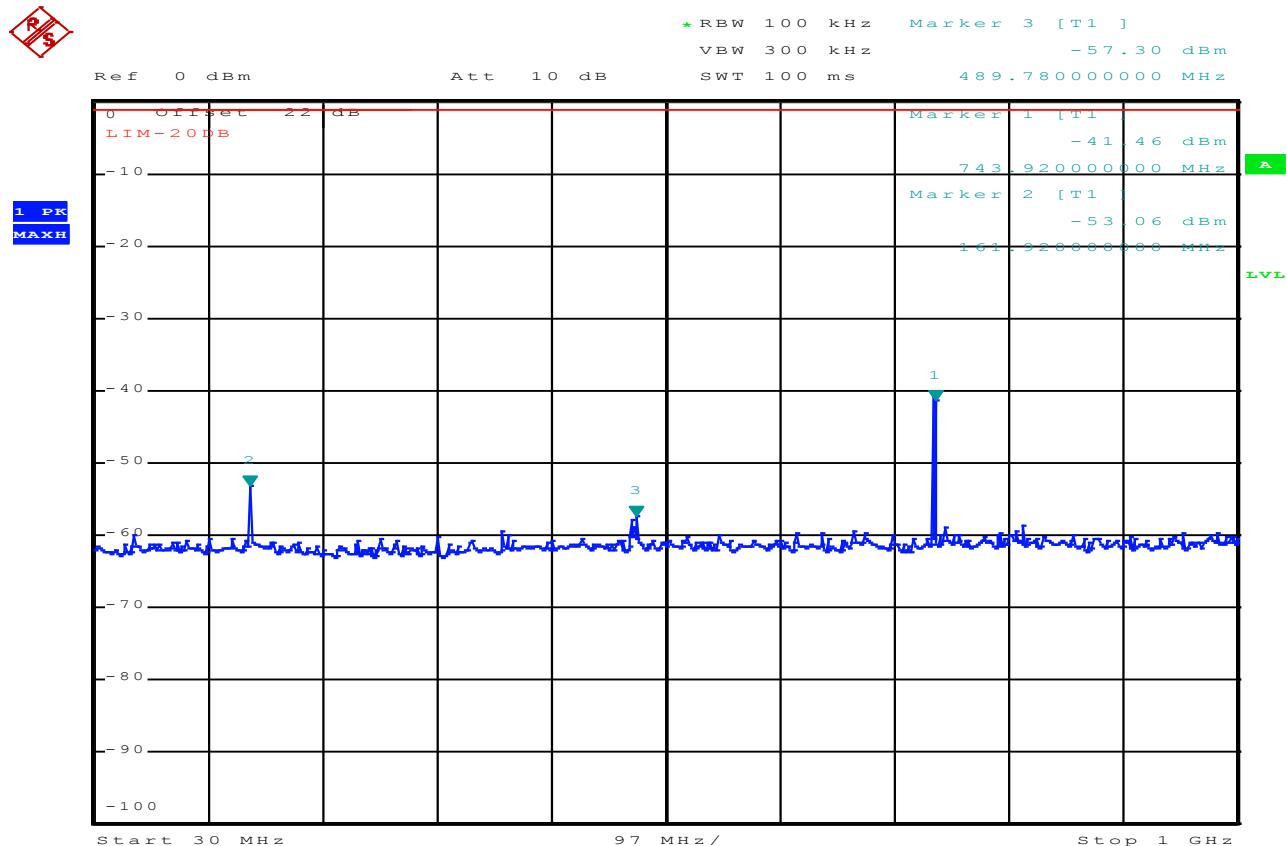
EMB-Z2538PA / UL - CONDUCTED MEASUREMENT

REFERENCE LEVEL FOR SPURIOUS EMISSION LIMIT EVALUATION – CH26



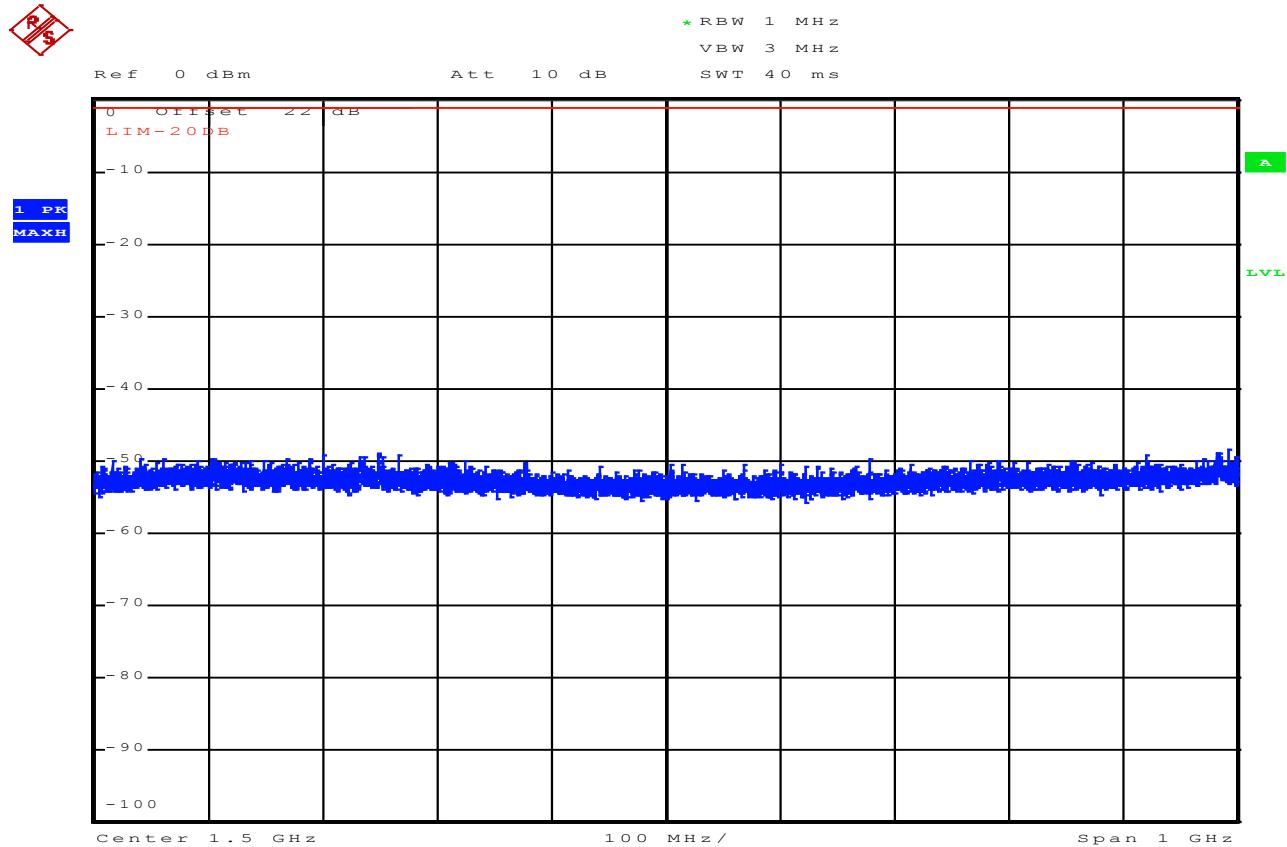
EMB-Z2538PA / UL - CONDUCTED MEASUREMENT

FREQ. RANGE 30MHz – 1GHz CH26



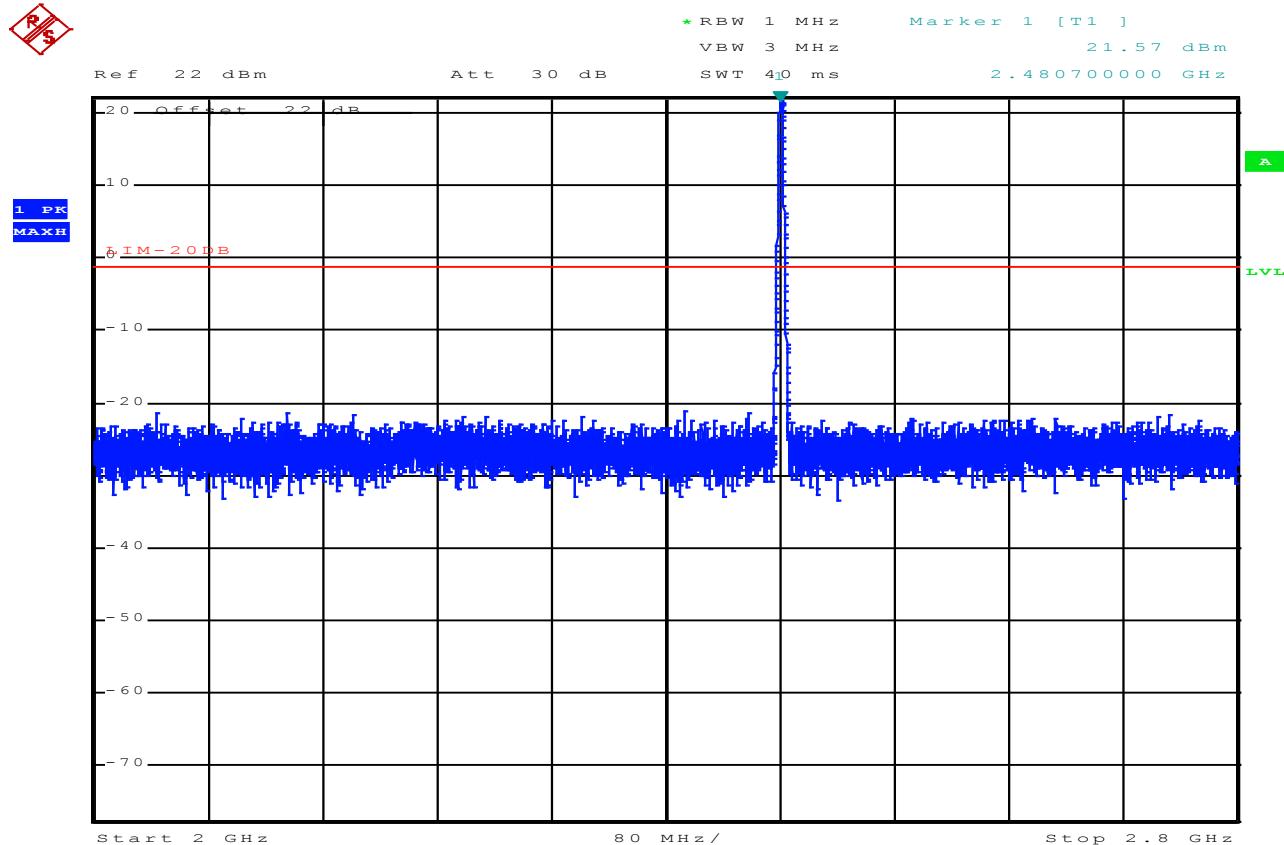
EMB-Z2538PA / UL - CONDUCTED MEASUREMENT

FREQ. RANGE 1-2GHz CH26



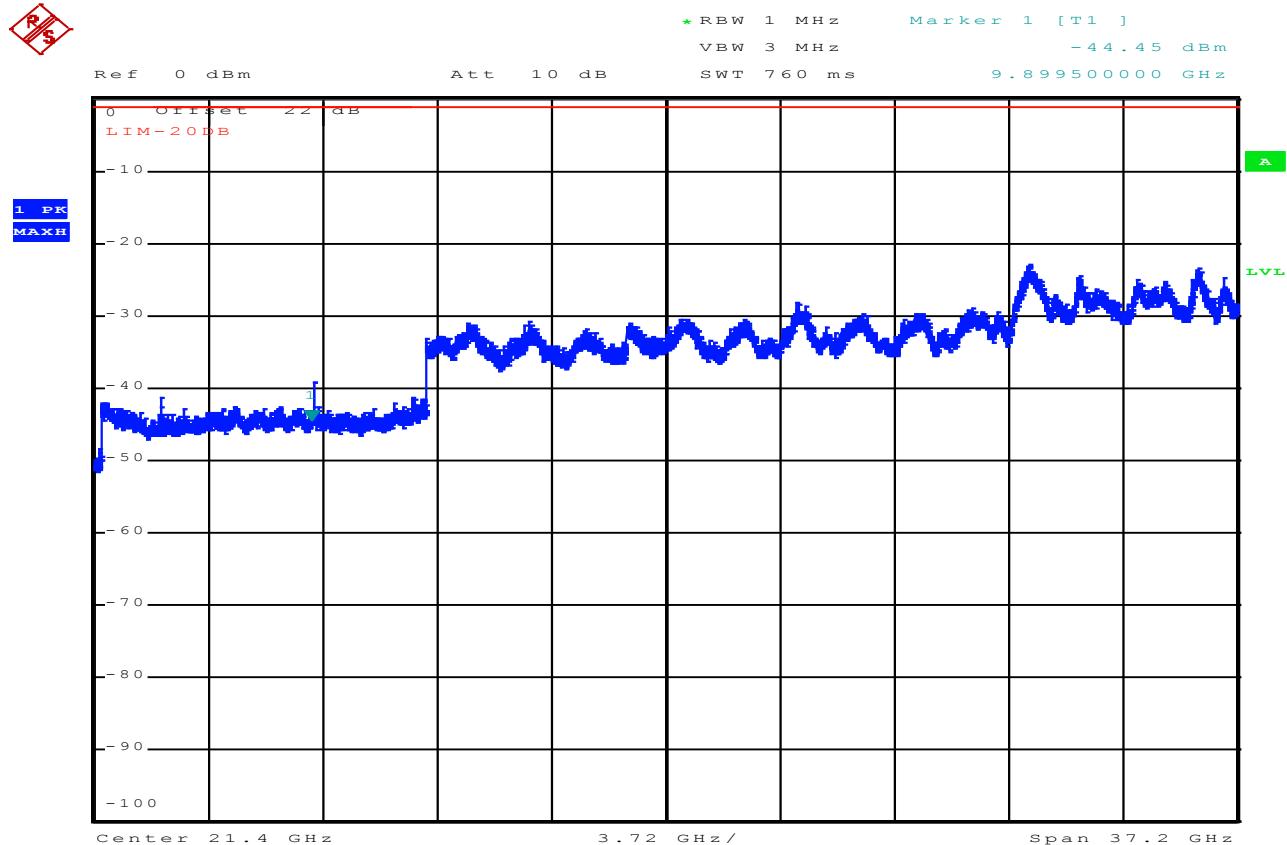
EMB-Z2538PA / UL - CONDUCTED MEASUREMENT

FREQ. RANGE 2-2.8 GHz CH26



EMB-Z2538PA / UL - CONDUCTED MEASUREMENT

FREQ. RANGE 2.8-40 GHz CH26



EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 9kHz - 30MHz CH11

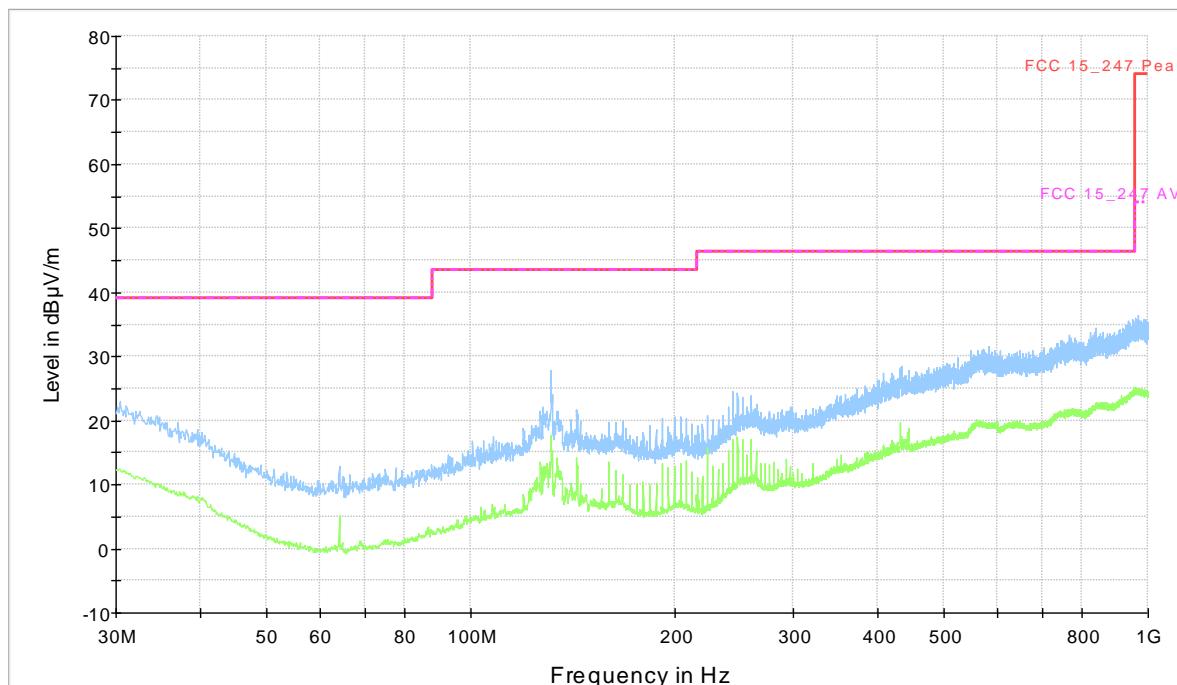
VERTICAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

FREQUENCY RANGE 30MHz – 1GHz CH11

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



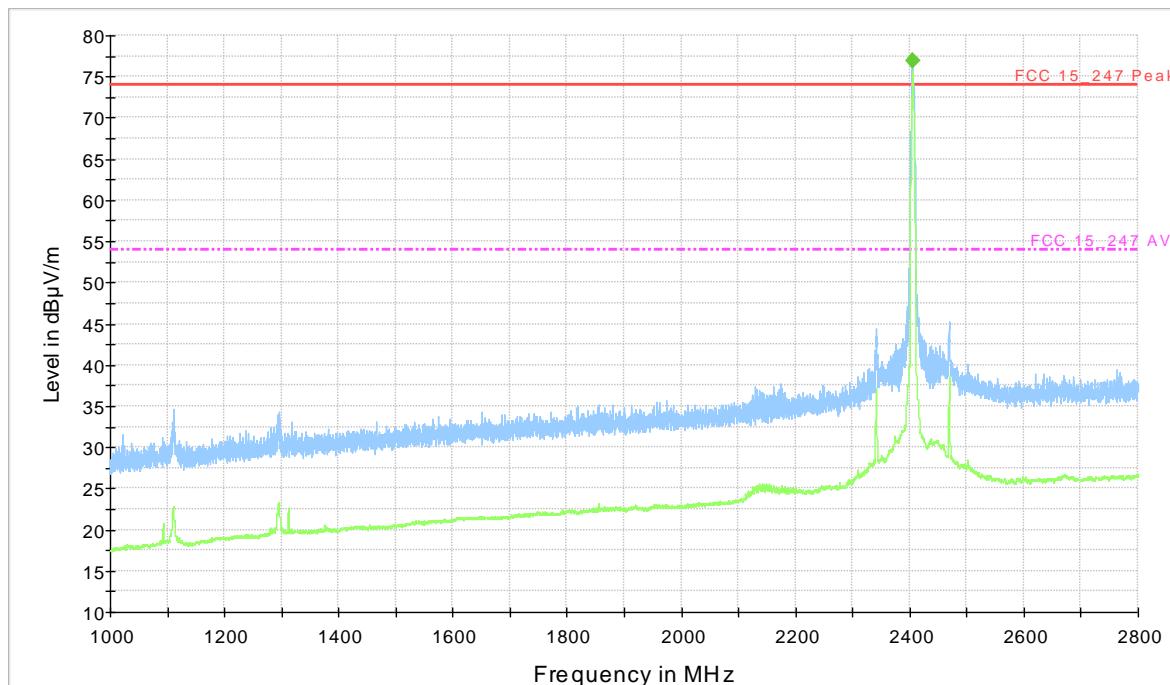
Blue trace Peak detector, Green trace average detector

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 1GHz-2.8GHz CH11

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector, Blue Marker Quasi-Peak detector; Green trace average detector, Green Marker average detector

Average Final Result

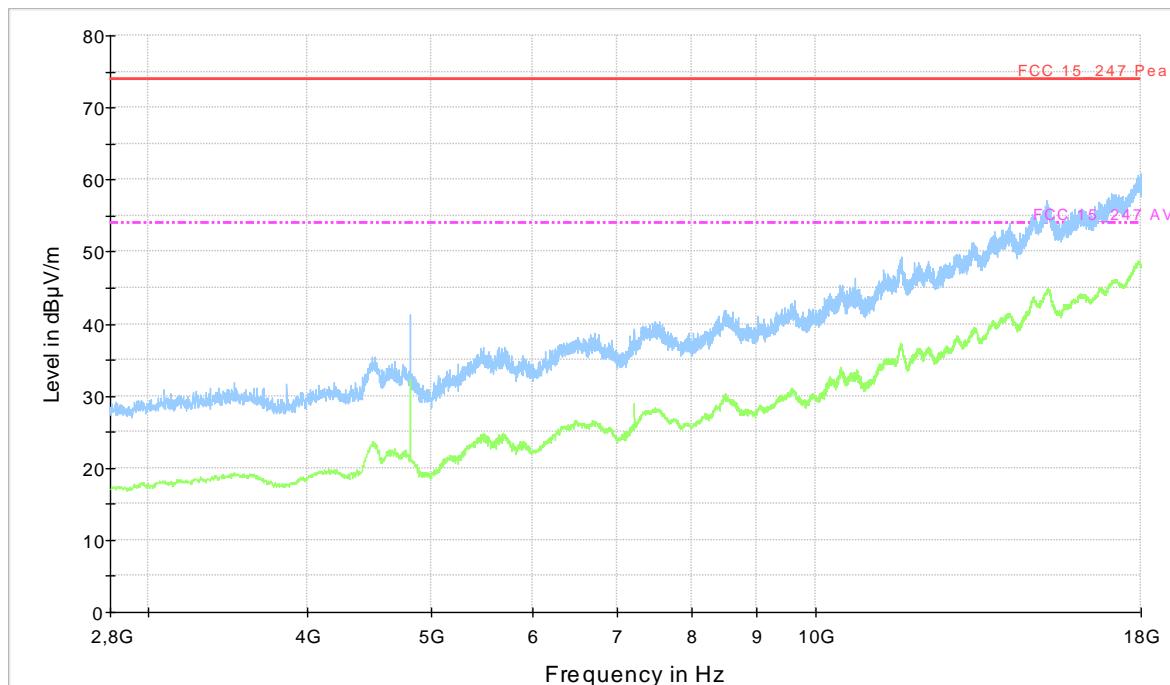
| Frequency (MHz) | Average (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|------------------------|-------------|--------------|---------------|-------------|----------------------|
| 2405.260000 | 77.0 | 104.0 | V | 1.0 | -537.90 | 54.00 |

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 2.8GHz-18GHz CH11

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector, Green trace average detector

FREQUENCY RANGE 18GHz to 10th HARMONIC CH11

VERTICAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 9kHz - 30MHz CH11

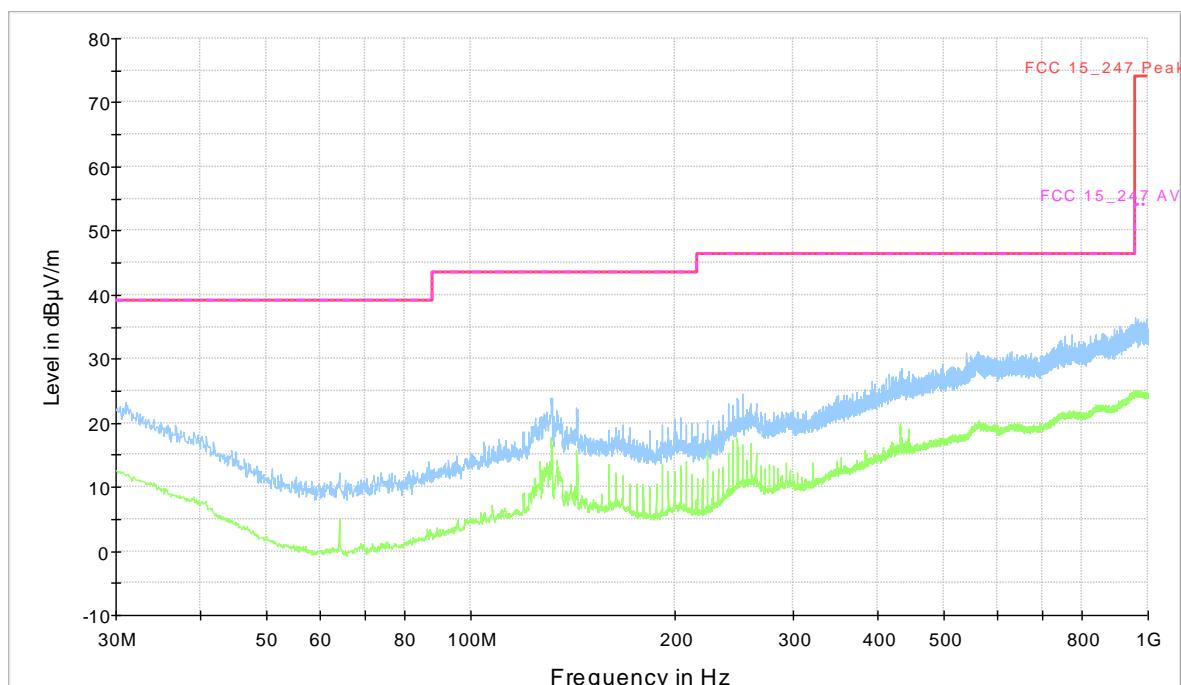
HORIZONTAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

FREQUENCY RANGE 30MHz – 1GHz CH11

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



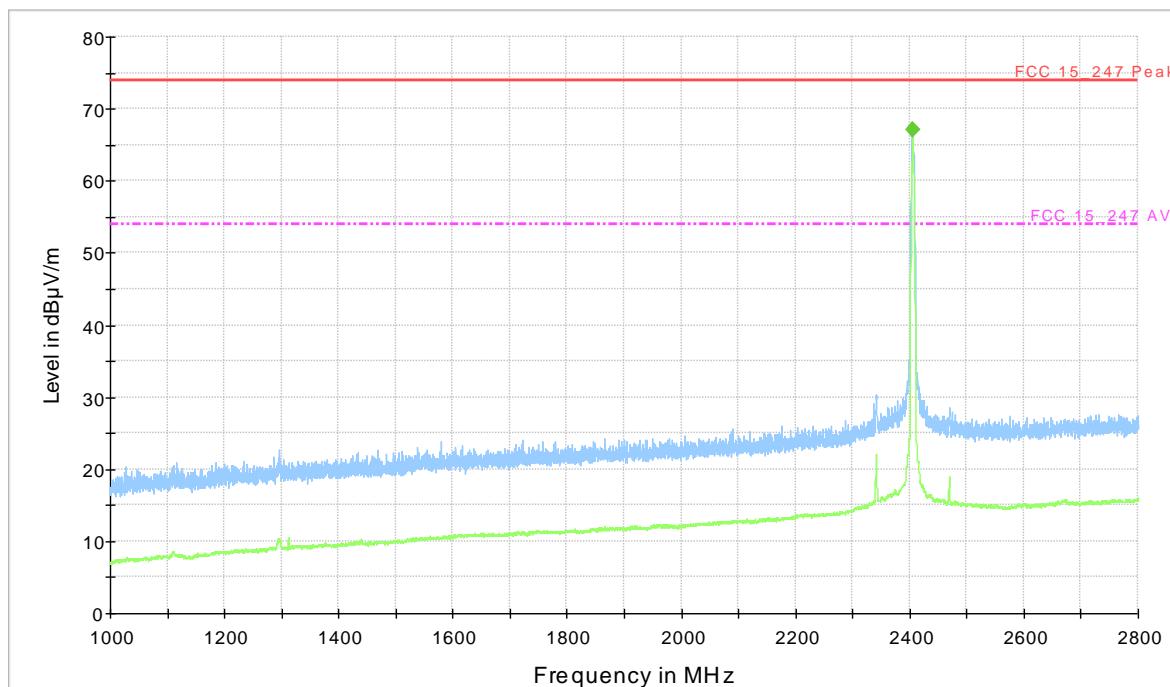
Blue trace Peak detector, Green trace average detector

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 1GHz-2.8GHz CH11

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



Blue trace Peak detector, Green trace average detector

Average Final Result

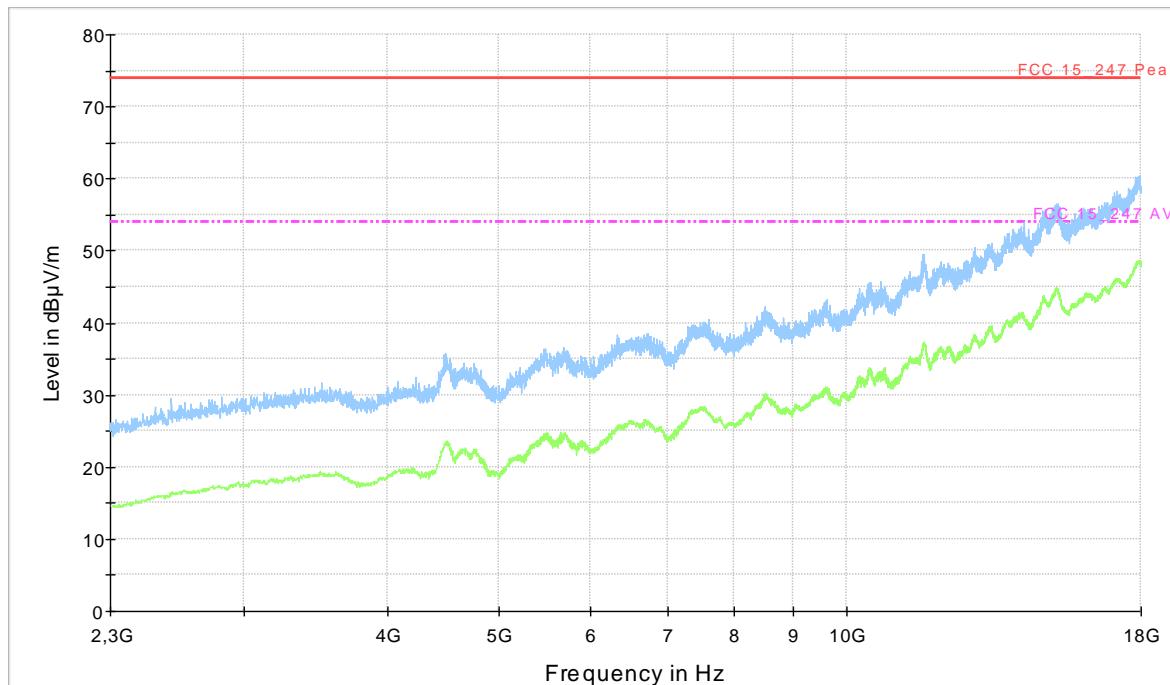
| Frequency (MHz) | Average (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|------------------------|-------------|--------------|---------------|-------------|----------------------|
| 2405.440000 | 67.0 | 104.0 | H | 90.0 | -28.30 | 54.00 |

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 2.8GHz-18GHz CH11

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



Blue trace Peak detector, Green trace average detector

FREQUENCY RANGE 18GHz to 10th HARMONIC CH11

HORIZONTAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 9kHz - 30MHz CH 18

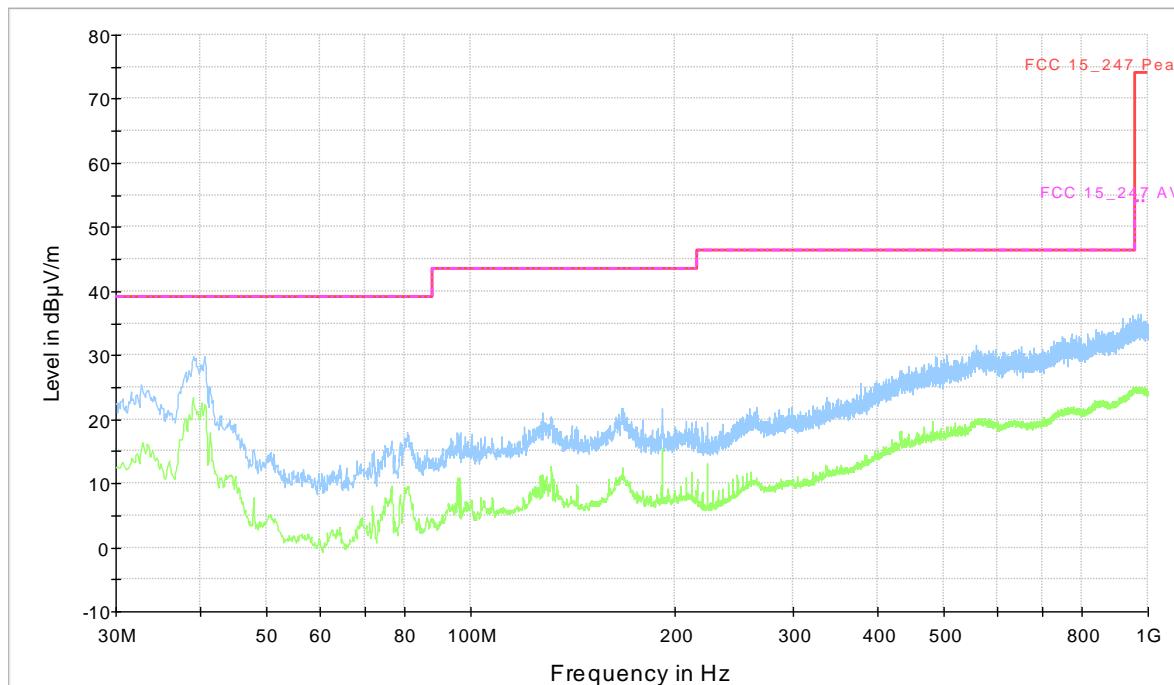
VERTICAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

FREQUENCY RANGE 30MHz – 1GHz CH 18

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



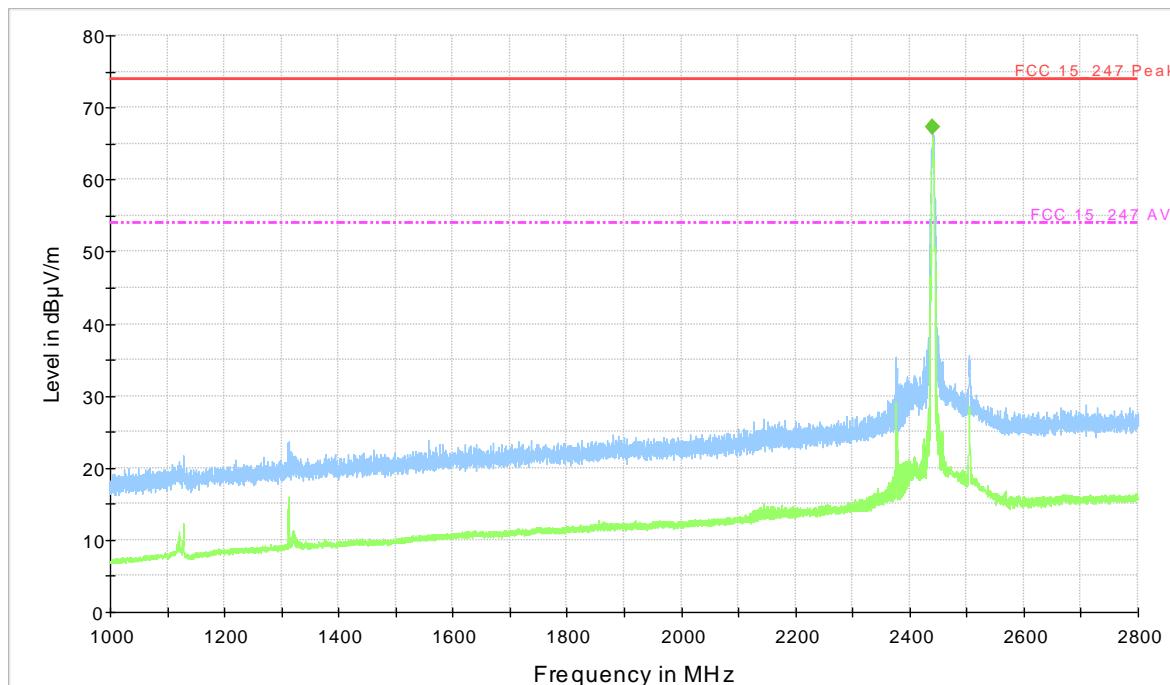
Blue trace Peak detector, Green trace average detector

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 1GHz-2.8GHz CH 18

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector, Green trace average detector

Average Final Result

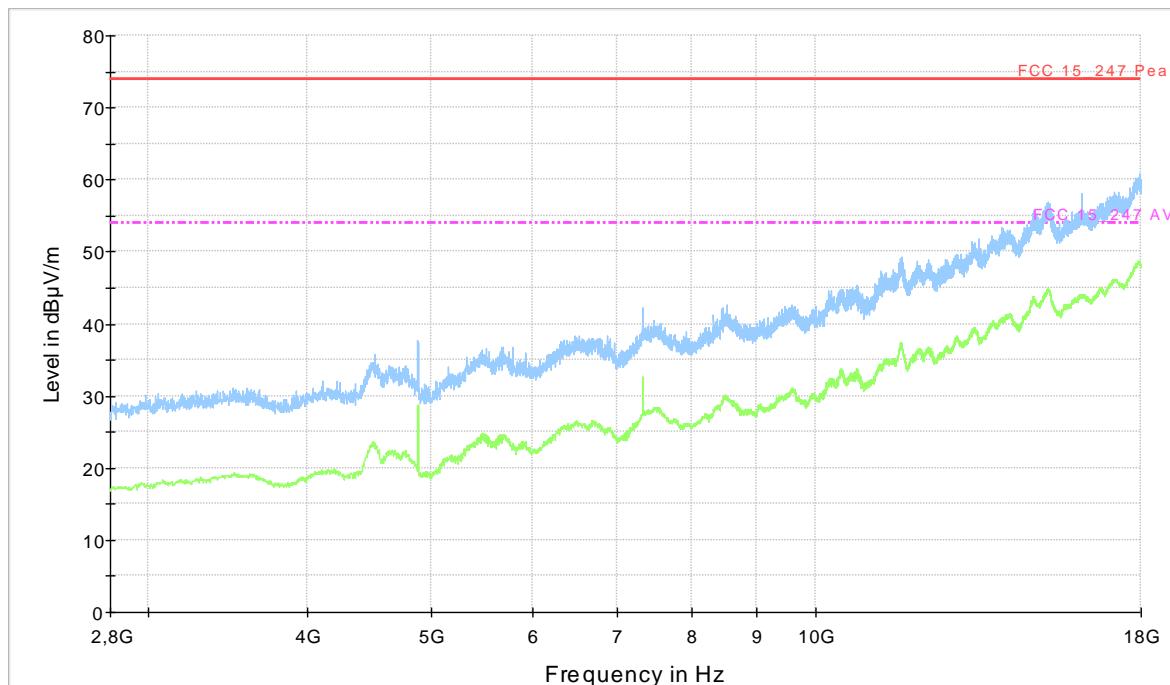
| Frequency (MHz) | Average ($\text{dB}\mu\text{V}/\text{m}$) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit ($\text{dB}\mu\text{V}/\text{m}$) |
|-----------------|---|-------------|--------------|---------------|-------------|---|
| 2440.360000 | 67.3 | 104.0 | V | 1.0 | -537.40 | 54.00 |

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 2.8GHz-18GHz CH 18

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector, Green trace average detector

FREQUENCY RANGE 18GHz to 10th HARMONIC CH 18

VERTICAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 9kHz - 30MHz CH 18

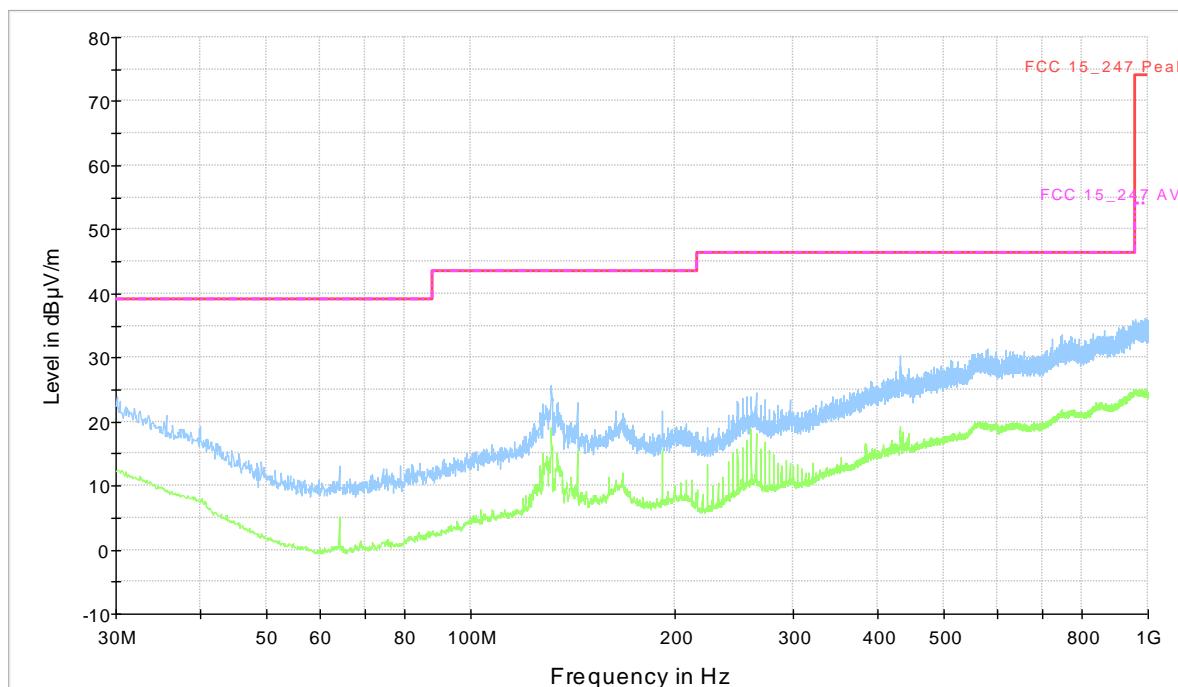
HORIZONTAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

FREQUENCY RANGE 30MHz – 1GHz CH 18

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL

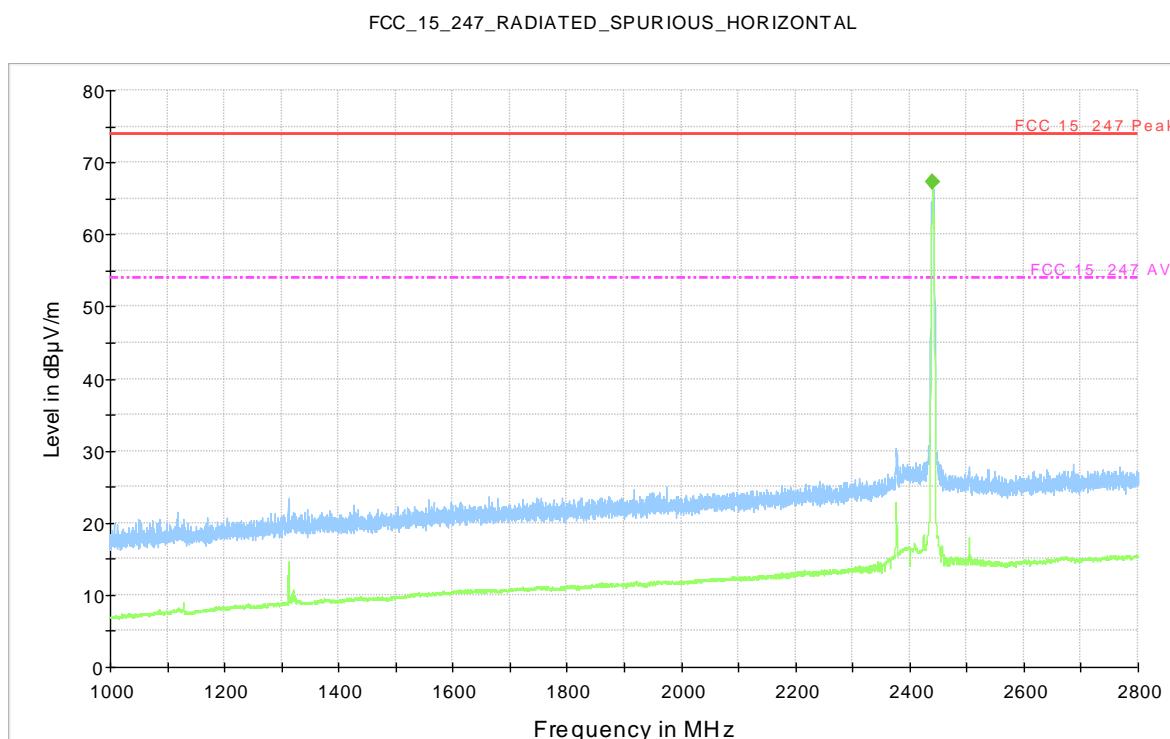


Blue trace Peak detector, Green trace average detector

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 1GHz-2.8GHz CH 18

HORIZONTAL POLARIZATION



Blue trace Peak detector, Blue Marker Quasi-Peak detector; Green trace average detector

Final Result - Average

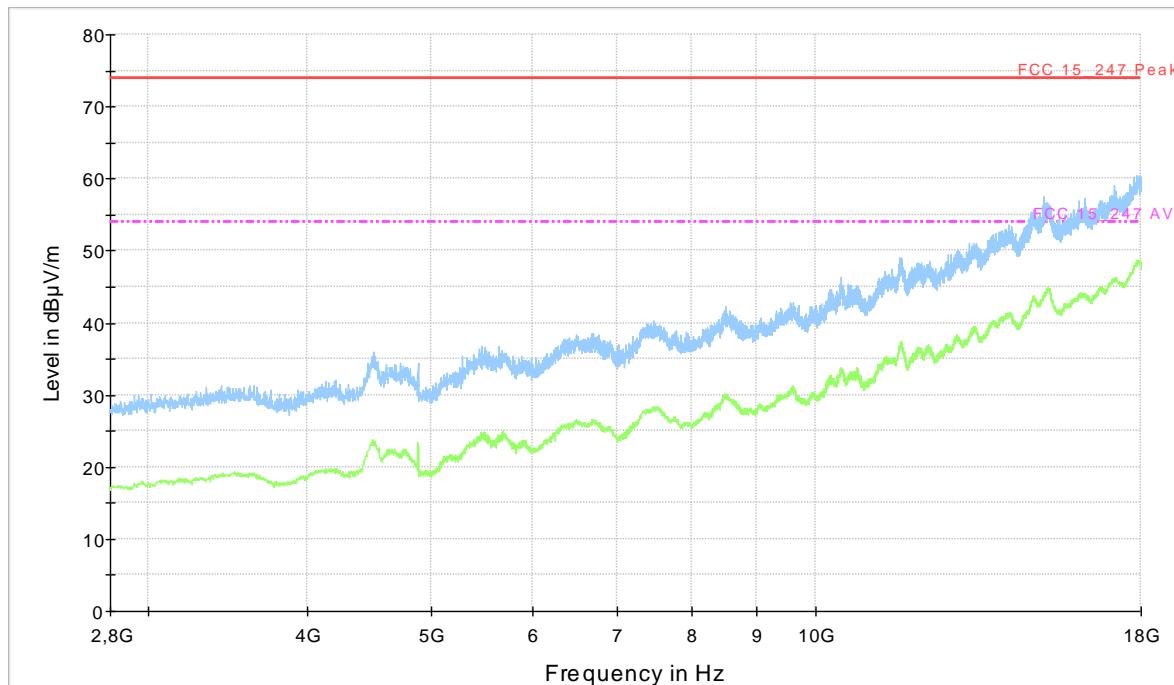
| Frequency (MHz) | Average (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|------------------------|-------------|--------------|---------------|-------------|----------------------|
| 2440.360000 | 67.3 | 104.0 | H | 179.0 | -26.60 | 54.00 |

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 2.8GHz-18GHz CH 18

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



Blue trace Peak detector, Green trace average detector

FREQUENCY RANGE 18GHz to 10th HARMONIC CH 18

HORIZONTAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 9kHz - 30MHz CH 26

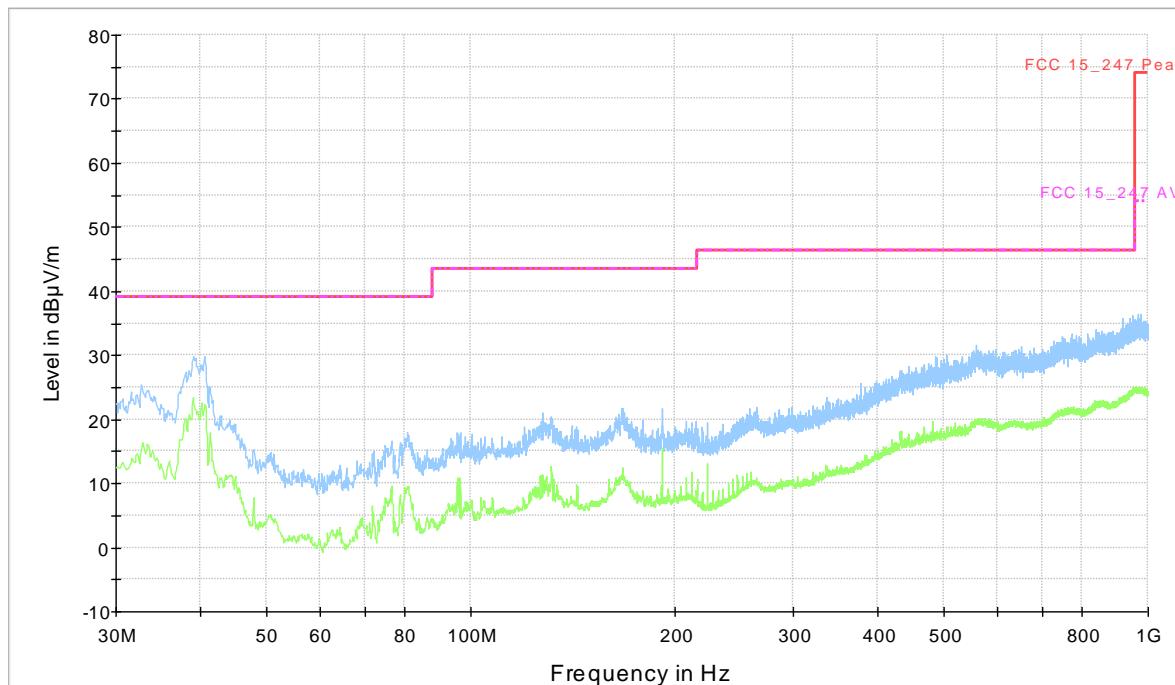
VERTICAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

FREQUENCY RANGE 30MHz – 1GHz CH 26

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector; Green trace average detector



PRIMA
RICERCA & SVILUPPO

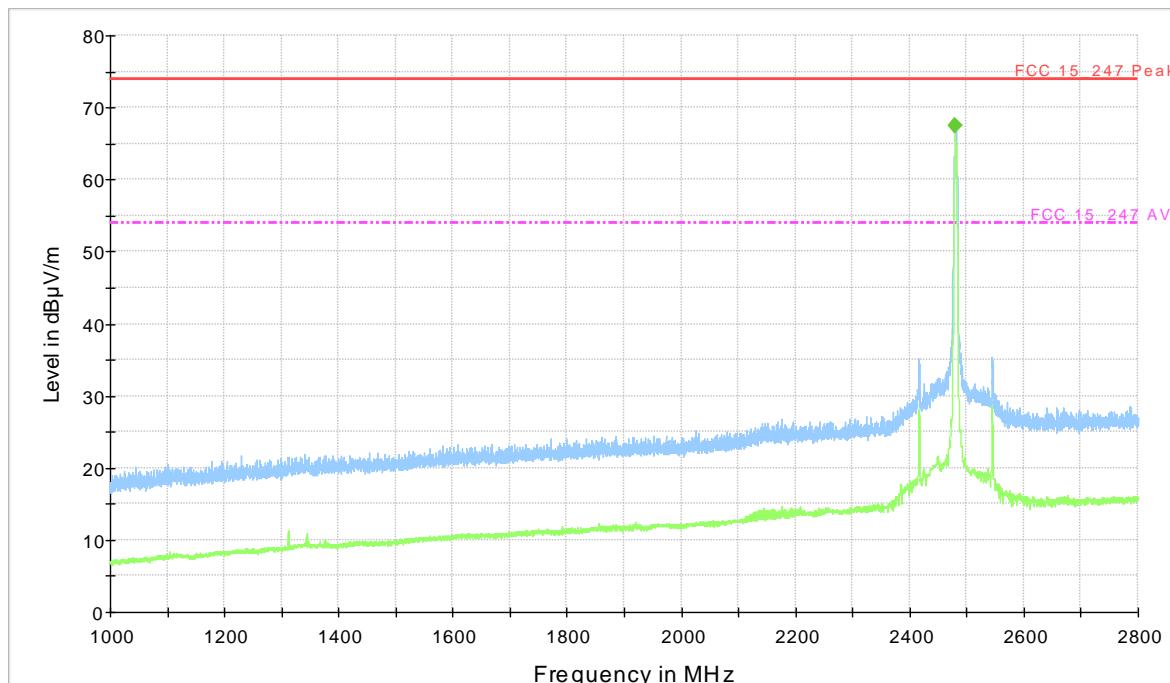
FCCTR_140934-2

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 1GHz-2.8GHz CH 26

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector; Green trace average detector, Green Marker average detector

Average Final Result

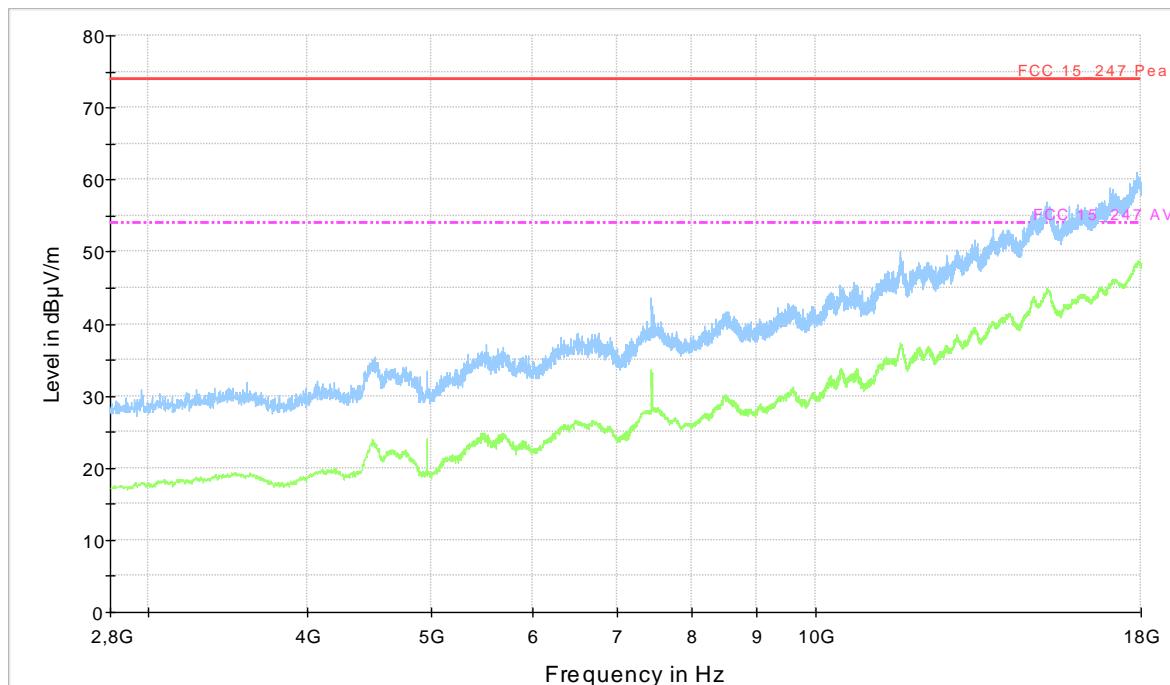
| Frequency (MHz) | Average (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|------------------------|-------------|--------------|---------------|-------------|----------------------|
| 2480.320000 | 67.5 | 104.0 | V | 179.0 | -538.00 | 54.00 |

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 2.8GHz-18GHz CH 26

VERTICAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_VERTICAL



Blue trace Peak detector, Green trace average detector

FREQUENCY RANGE 18GHz to 10th HARMONIC CH 26

VERTICAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 9kHz - 30MHz CH 26

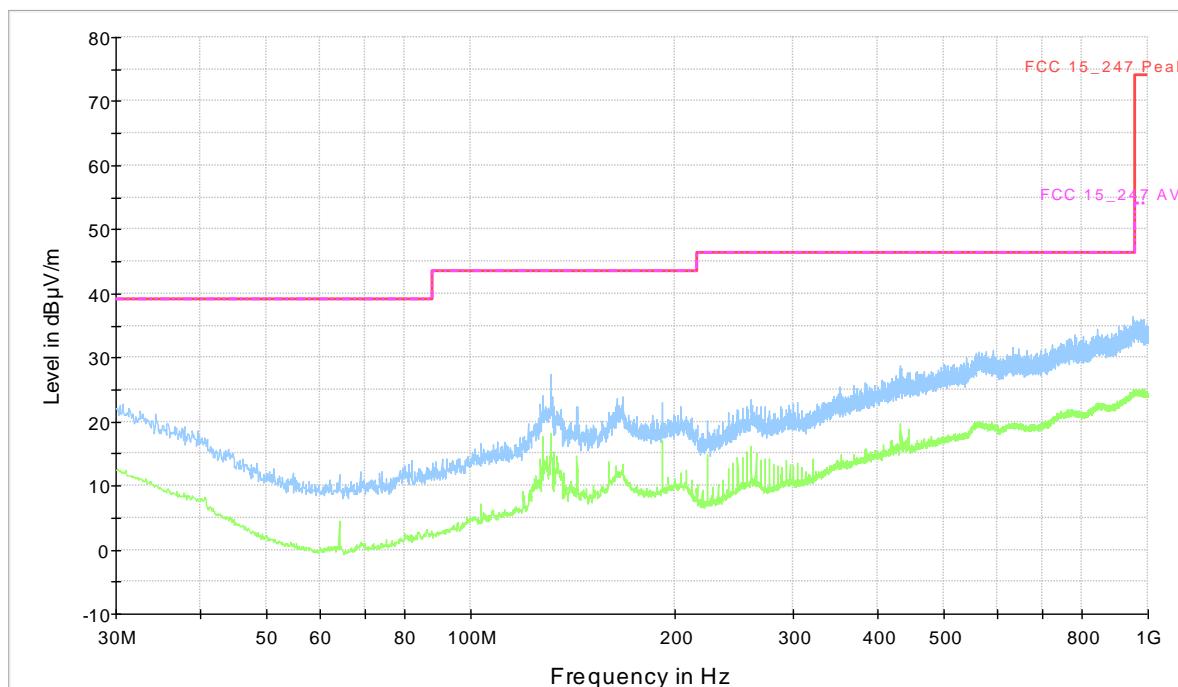
HORIZONTAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

FREQUENCY RANGE 30MHz – 1GHz CH 26

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



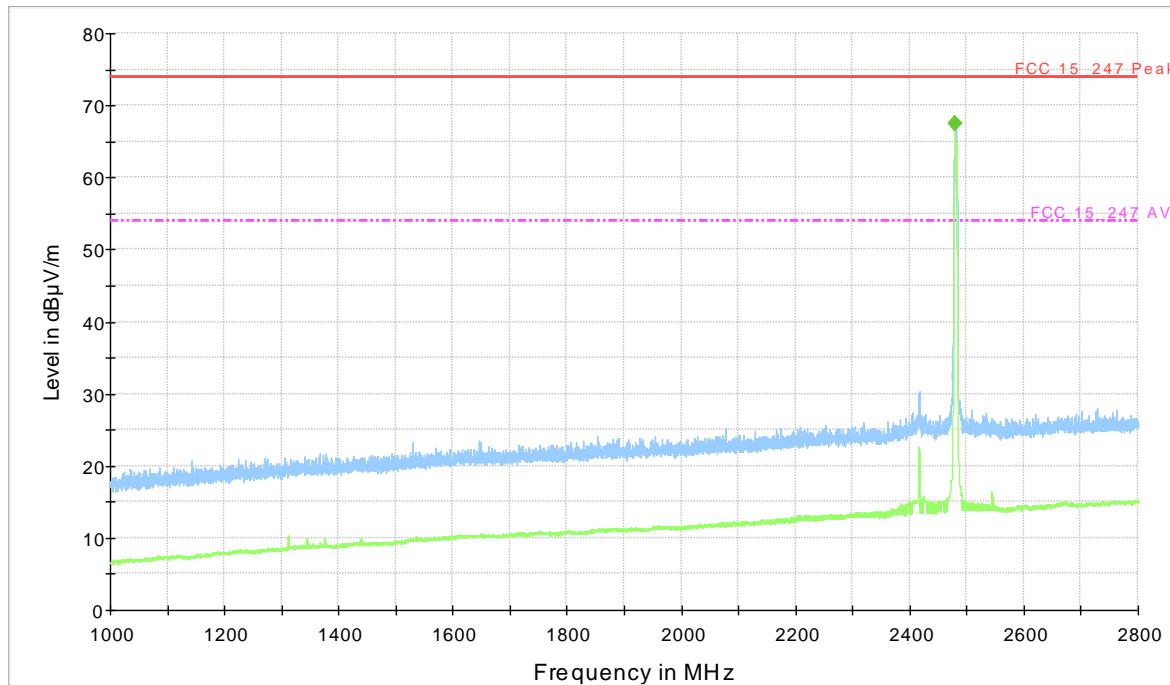
Blue trace Peak detector; Green trace average detector,

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 1GHz-2.8GHz CH 26

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



Blue trace Peak detector; Green trace average detector, Green Marker average detector

Final Result - Average

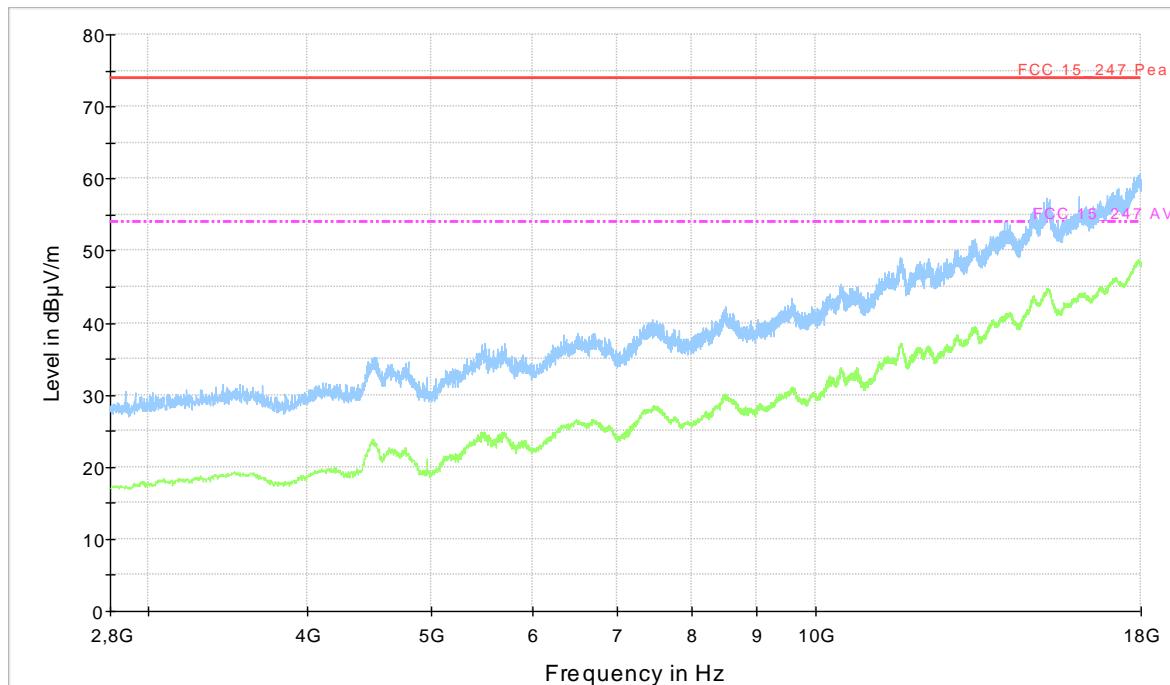
| Frequency (MHz) | Average (dB μ V/m) | Height (cm) | Polarization | Azimuth (deg) | Margin (dB) | Limit (dB μ V/m) |
|-----------------|------------------------|-------------|--------------|---------------|-------------|----------------------|
| 2480.320000 | 67.5 | 104.0 | H | 1.0 | -32.60 | 54.00 |

EMB-Z2538PA / UL + ANTENNA EMB-AN24-70SA-R1
RADIATED MEASUREMENT

FREQUENCY RANGE 2.8GHz-18GHz CH 26

HORIZONTAL POLARIZATION

FCC_15_247_RADIATED_SPURIOUS_HORIZONTAL



Blue trace Peak detector, Green trace average detector

FREQUENCY RANGE 18GHz to 10th HARMONIC CH 26

HORIZONTAL POLARIZATION

The amplitude of spurious emissions are attenuated more than 20 dB so the permissible value need not be reported

7. LIST OF EQUIPMENT USED

| EQUIPMENT | MANUFACTURER | MODEL | SERIAL Nr. | CAL. DUE |
|---|-----------------|-------------------------|-----------------|------------|
| EMI TEST RECEIVER 20Hz - 40GHz | Rohde & Schwarz | ESU40 | 100111 | 04/02/2016 |
| RF SEMI-ANECHOIC CHAMBER (CSSA) | Siemens | B83117-D6019-T232 | 003-005-134/94C | 26/01/2016 |
| BILOG ANTENNA | Chase | CBL6111C | 2717 | 05/05/2016 |
| LOG PERIODIC ANTENNA BROAD BAND 1-26,5GHz | Rohde & Schwarz | HL050 | 100437 | 01/04/2016 |
| SPECTRUM ANALYZER | Rohde & Schwarz | FSP40 | 100038 | 16/01/2016 |
| SYSTEM DC POWER SUPPLY | HP | 6623A | 3448A04501 | 10/01/2016 |
| TUNABLE NOTCH FILTER | Wainwright | WRCT2200/2500-5/40-10SK | 5 | 11/11/2016 |
| HIGH PASS FILTER | Wainwright | WHNX 2,8/18G-10SS | 1 | 11/11/2016 |