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**FCC PART 15.249 AND IC RSS-210 issue 8
TEST REPORT
UNLICENSED INTENTIONAL RADIATOR**

| | |
|-----------------------------|--|
| Applicant | COBRA ELECTRONICS CORPORATION |
| Address | 6500 WEST CORTLAND STREET |
| | CHICAGO IL 60707 USA |
| FCC ID | BBORBTM900 |
| IC: | 906A-RBTM900 |
| Model Number | RBTM900 |
| Product Description | BLUETOOTH MODULE |
| Date Sample Received | 1/29/2013 |
| Date Tested | 2/5/2013 |
| Tested By | Joe Scoglio |
| Approved By | Mario de Aranzeta |
| Report Number | 166AUT13TestReport.doc |
| Test Results | <input checked="" type="checkbox"/> PASS <input type="checkbox"/> FAIL |

**THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL
WITHOUT THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.**



Testing Certificate #0955-01

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GENERAL REMARKS

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

Summary

The device under test does:

- ☒ fulfill the general approval requirements as identified in this test report
☐ not fulfill the general approval requirements as identified in this test report

Attestations

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.



Certificate # 0955-01

I attest that the necessary measurements were made, under my supervision, at:

Timco Engineering Inc.
849 NW State Road 45
Newberry, Fl 32669

Authorized Signatory Name:



Mario de Aranzeta C.E.T.
Compliance Engineer/ Lab. Supervisor

Date: 2/5/2013

APPLICANT: COBRA ELECTRONICS CORPORATION
FCC ID: BBORBTM900
REPORT #: C\COBRA\166AUT13\166AUT13TestReport.doc

GENERAL INFORMATION

DUT Specification

| | | | |
|---|---|--|-------------------------------------|
| The test results relate only to the items tested. | | | |
| Applicable Standard | Part 15.249 | | |
| DUT Description | BLUETOOTH MODULE | | |
| FCC ID | BBORBTM900 | | |
| Model Number | RBTM900 | | |
| Operating Frequency | TX: 2400 MHz | RX: Same | |
| No. of Channels | 79 | | |
| DUT Power Source | <input type="checkbox"/> 110-120Vac/50- 60Hz | | |
| | <input checked="" type="checkbox"/> DC Power | | |
| | <input type="checkbox"/> Battery Operated Exclusively | | |
| Test Item | <input type="checkbox"/> Prototype | <input checked="" type="checkbox"/> Pre-Production | <input type="checkbox"/> Production |
| Type of Equipment | <input type="checkbox"/> Fixed | <input checked="" type="checkbox"/> Mobile | <input type="checkbox"/> Portable |
| Antenna Connector | FCC Rules require that the antenna connector be unique. | | |
| Test Facility | Timco Engineering Inc. located at 849 NW State Road 45 Newberry, FL 32669 USA. | | |
| Test Conditions | Temperature: 26°C Relative humidity: 50% | | |
| Test Exercise | The DUT was placed in continuous transmit mode of operation. | | |
| Modifications | none | | |

Test Supporting Equipment

| Supporting Device | Manufacturer | Model / FCC ID | Serial Number |
|-------------------|--------------|----------------|---------------|
| N/A | | | |

EMC EQUIPMENT LIST

| Device | Manufacturer | Model | Serial Number | Cal/Char Date | Due Date |
|--|--------------------|---------------|--------------------------|---------------|----------|
| 3/10-Meter OATS | TEI | N/A | N/A | 12/31/11 | 12/31/13 |
| Antenna: Passive Loop | EMC Test Systems | EMCO 6512 | 9706-1211 | 06/14/12 | 06/14/14 |
| Frequency Counter | HP | 5352B | 2632A00165 | 06/22/11 | 06/22/13 |
| Digital Multimeter | Fluke | FLUKE-77-3 | 79510405 | 06/13/11 | 06/13/13 |
| Frequency Counter | HP | 5385A | 3242A07460 | 06/22/11 | 06/22/13 |
| Antenna: Active Loop | ETS-Lindgren | 6502 | 00062529 | 09/23/10 | 09/23/13 |
| Analyzer Open-Frame Tower Preamplifier | HP | 8449B | 3008A01075 | 07/22/09 | 09/15/13 |
| Antenna: Double-Ridged Horn | Electro-Metrics | RGA-180 | 2319 | 06/19/12 | 06/19/14 |
| DC Power Supply | HP | 6264B | | 03/21/11 | 03/21/13 |
| 3-Meter Semi-Anechoic Chamber | Panashield | N/A | N/A | 12/31/11 | 12/31/13 |
| Temperature Chamber | Tenney Engineering | TTRC | 11717-7 | 07/03/12 | 07/03/14 |
| Antenna: Biconnical | Electro-Metrics | BIA-25 | 1171 | 06/13/12 | 06/13/14 |
| Antenna: Log-Periodic | Electro-Metrics | LPA-25 | 1122 | 05/04/11 | 05/04/13 |
| Antenna: Biconnical | Eaton | 94455-1 | 1096 | 05/04/11 | 05/04/13 |
| Analyzer Tan Tower Preamplifier | HP | 8449B-H02 | 3008A00372 | 10/28/11 | 10/28/13 |
| Analyzer Tan Tower Quasi-Peak Adapter | HP | 85650A | 3303A01690 | 10/28/11 | 10/28/13 |
| Analyzer Tan Tower RF Preselector | HP | 85685A | 3221A01400 | 10/28/11 | 10/28/13 |
| Analyzer Tan Tower Spectrum Analyzer | HP | 8566B Opt 462 | 3138A07786 3144A20661 | 10/28/11 | 10/28/13 |
| Antenna: Log-Periodic | Eaton | 96005 | 1243 | 05/31/11 | 05/31/13 |

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TEST PROCEDURES

Radiation Interference: ANSI C63.4-2003 using a spectrum analyzer, a preselector, a quasi-peak adapter, and an appropriate antenna. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100 kHz with an appropriate sweep speed and the video bandwidth was 300 kHz up to 1 GHz and 1 MHz with a video BW of 3 MHz above 1 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. The antenna was placed in both the horizontal and vertical planes and the worse case emissions were reported. The spectrum was searched to at least the tenth (10) harmonic of the fundamental.

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 dBμV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the preselector was accounted for in the spectrum analyzer meter reading.

Example:

| | | | |
|------------|---------------|------------|---------------------------|
| Freq (MHz) | Meter Reading | + ACF | + CL = FS |
| 33 | 20 dBμV | + 10.36 dB | + 0.5 = 30.86 dBμV/m @ 3m |

Power Line Conducted Interference: The procedure used was ANSI C63.4-2003 using a 50uH LISN. Both lines were observed. The bandwidth of the spectrum analyzer was 10kHz with an appropriate sweep speed. The spectrum was scanned from 0.15 to 30 MHz.

Occupied Bandwidth: A small sample of the transmitter output was fed into the spectrum analyzer and the attached plot was printed. The vertical scale is set to -10 dBm per division.

ANSI C63.4-2003 10.1 Measurement Procedures: The DUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The DUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation.

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. Emissions attenuated more than 20 dB below the permissible value are not reported.

RADIATION INTERFERENCE

Rules Part No.: 15.249, 15.209

Requirements:

| Frequency | Limits |
|------------------------------|-------------------------------------|
| Part 15.209 | |
| 9 to 490 kHz | 2400/F (kHz) μ V/m @ 300 meters |
| 490 to 1705 kHz | 24000/F (kHz) μ V/m @ 30 meters |
| 1705 kHz to 30 MHz | 29.54 dB μ V/m @ 30 meters |
| 30 – 88 | 40.0 dB μ V/m @ 3 meters |
| 80 – 216 | 43.5 dB μ V/m @ 3 meters |
| 216 – 960 | 46.0 dB μ V/m @ 3 meters |
| Above 960 | 54.0 dB μ V/m @ 3 meters |
| Part 15.249 | |
| Fundamental 902 – 928 MHz | 94.0 dB μ V/m @ 3 meters |
| Fundamental 2.4 – 2.4835 MHz | 94.0 dB μ V/m @ 3 meters |
| Harmonics | 54.0 dB μ V/m @ 3 meters |

Test Data: Radiated emissions were measured from the lowest frequency generated or 9 kHz to the 10th harmonic intentional emission. Measurements in the table are peak unless noted otherwise.

| Tuned Frequency MHz | Emission Frequency MHz | Meter Reading dB μ V | Ant. Polarity | Coax Loss dB | Correction Factor dB/m | Field Strength dB μ V/m | Margin dB |
|---------------------|------------------------|--------------------------|---------------|--------------|------------------------|-----------------------------|-----------|
| 2,403.0 | 2,310.00 | -10.7 | H | 3.12 | 32.22 | 24.64 | 29.36 |
| 2,403.0 | 2,384.80 | 2.1 | H | 3.17 | 32.37 | 37.64 | 16.36 |
| 2,403.0 | 2,400.00 | -11.2 | H | 3.18 | 32.40 | 24.38 | 29.62 |
| 2,403.0 | 2,400.00 | 1.3 | H | 3.18 | 32.40 | 36.88 | 17.12 |
| 2,403.0 | 2,403.00 | 56.4 | H | 3.18 | 32.41 | 91.99 | 2.10 |
| 2,403.0 | 2,403.00 | 57.1 | V | 3.18 | 32.41 | 92.69 | 1.31 |
| 2,442.0 | 2,442.00 | 56.5 | V | 3.21 | 32.48 | 92.19 | 1.81 |
| 2,442.0 | 2,442.00 | 57.7 | H | 3.21 | 32.48 | 93.39 | 0.61 |
| 2,480.0 | 2,480.00 | 57.2 | V | 3.24 | 32.56 | 93.00 | 1.00 |
| 2,480.0 | 2,480.00 | 57.6 | H | 3.24 | 32.56 | 93.40 | 0.60 |
| 2,480.0 | 2,483.50 | -11.0 | H | 3.24 | 32.57 | 24.81 | 29.19 |
| 2,480.0 | 2,483.50 | -0.2 | H | 3.24 | 32.57 | 35.61 | 18.39 |

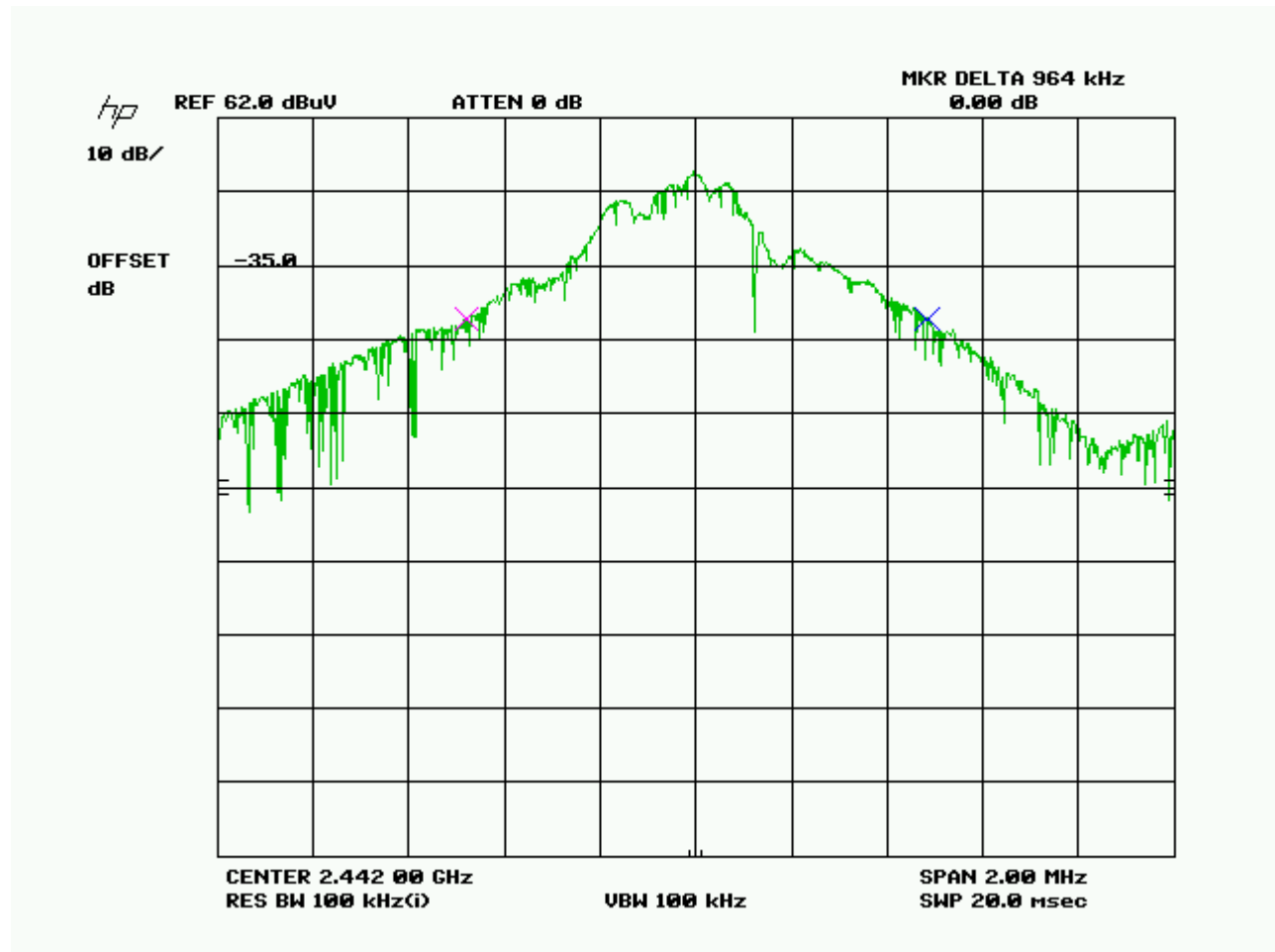
No significant harmonic energy noted.

OCCUPIED BANDWIDTH

Rules Part No.: 15.249 (d)

Requirements: The field strength of any emissions appearing outside the specified frequency bands, except harmonics shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.209 whichever is the lesser.

Test Data:



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BAND EDGE COMPLIANCE

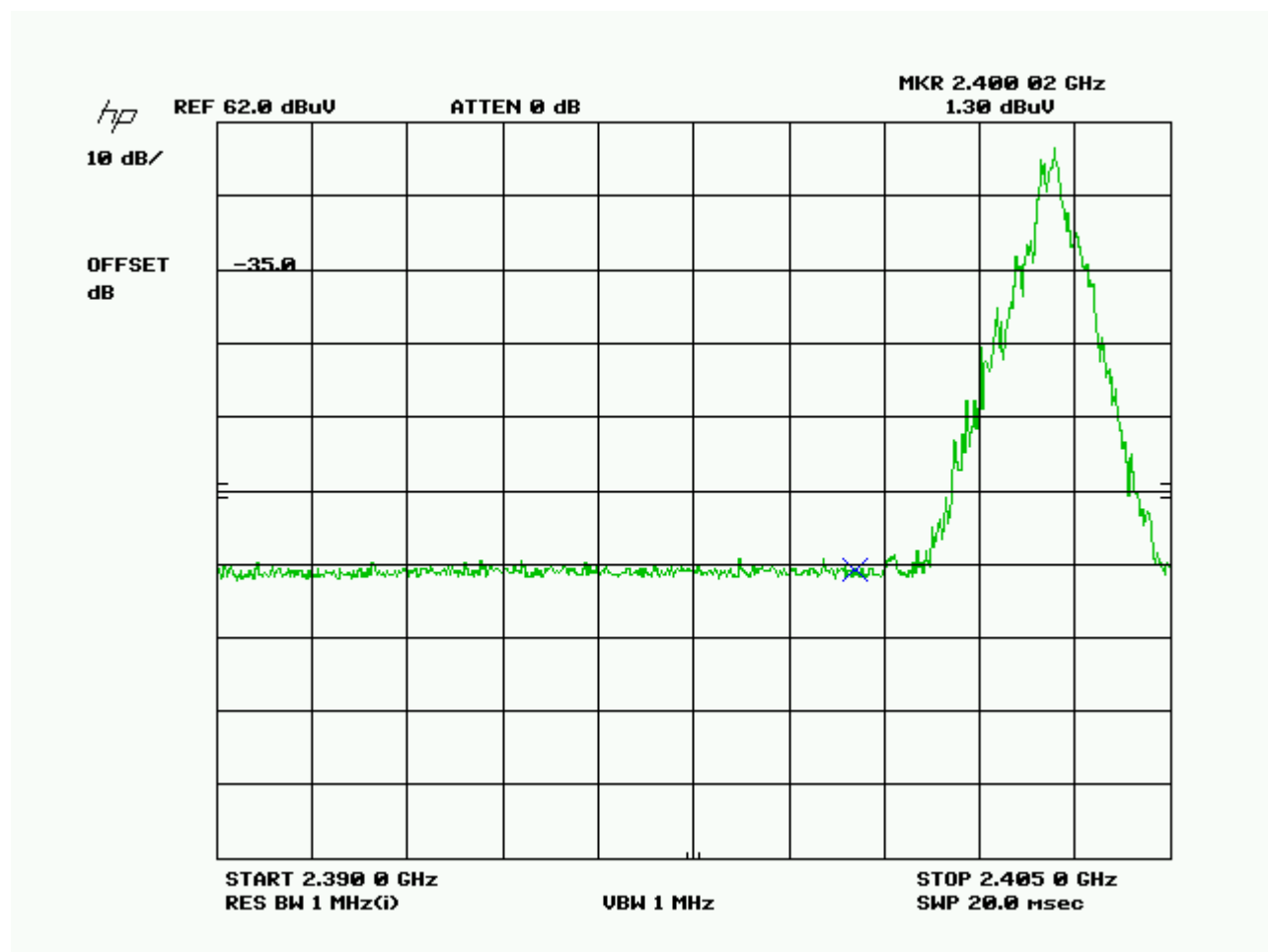
Rules Part No.: 15.249 (d)

Requirements: 50 dBc or in the case of restricted bands 54 dB μ V/m.

Test Data:

Lower bandedge

Peak Plot



| Tuned Frequency MHz | Emission Frequency MHz | Meter Reading dB μ V | Ant. Polarity V/H | Coax Loss dB | Correction Factor dB/m | Field Strength dB μ V/m | Margin dB |
|---------------------|------------------------|--------------------------|-------------------|--------------|------------------------|-----------------------------|-----------|
| 2,403.0 | 2,400.00 | 1.3 | H | 3.18 | 32.40 | 36.88 | 17.12 |
| | | | | | | | |

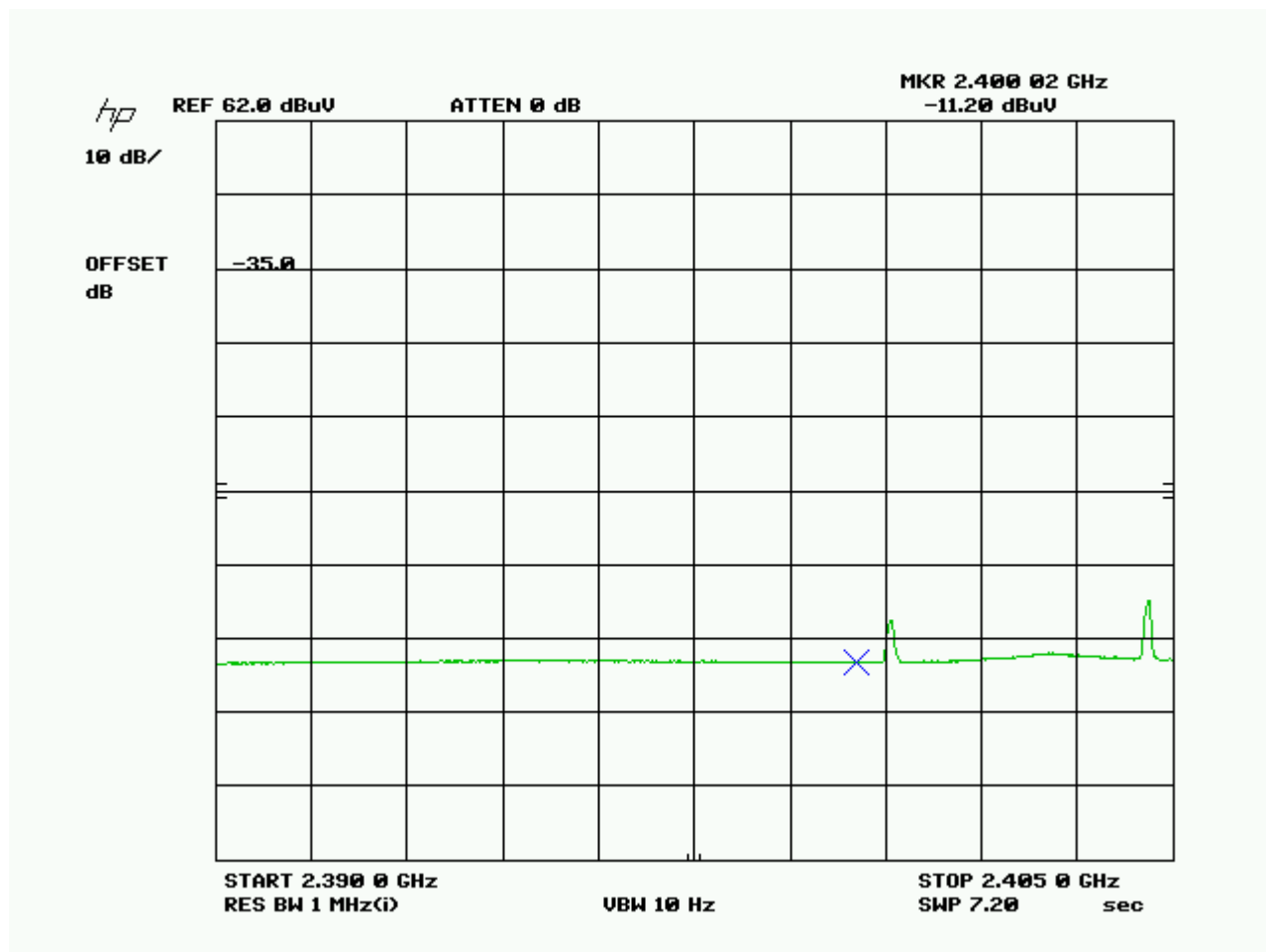
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Lower bandedge

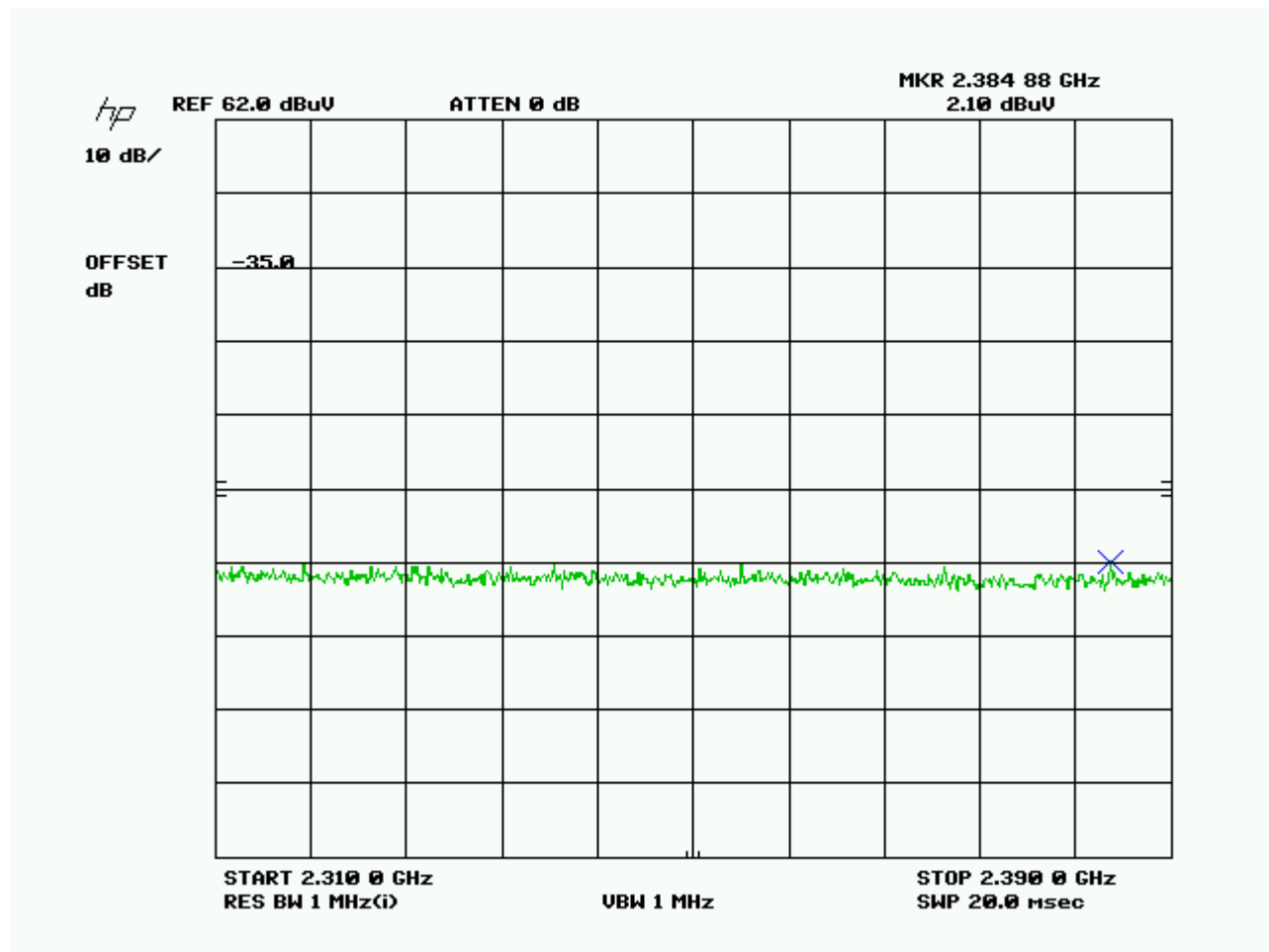
Average Plot



| Tuned Frequency MHz | Emission Frequency MHz | Meter Reading dBuV | Ant. Polarity V/H | Coax Loss dB | Correction Factor dB/m | Field Strength dBuV/m | Margin dB |
|---------------------|------------------------|--------------------|-------------------|--------------|------------------------|-----------------------|-----------|
| 2,403.0 | 2,400.00 | -11.2 | H | 3.18 | 32.40 | 24.38 | 29.62 |
| | | | | | | | |

Lower non-adjacent restricted band

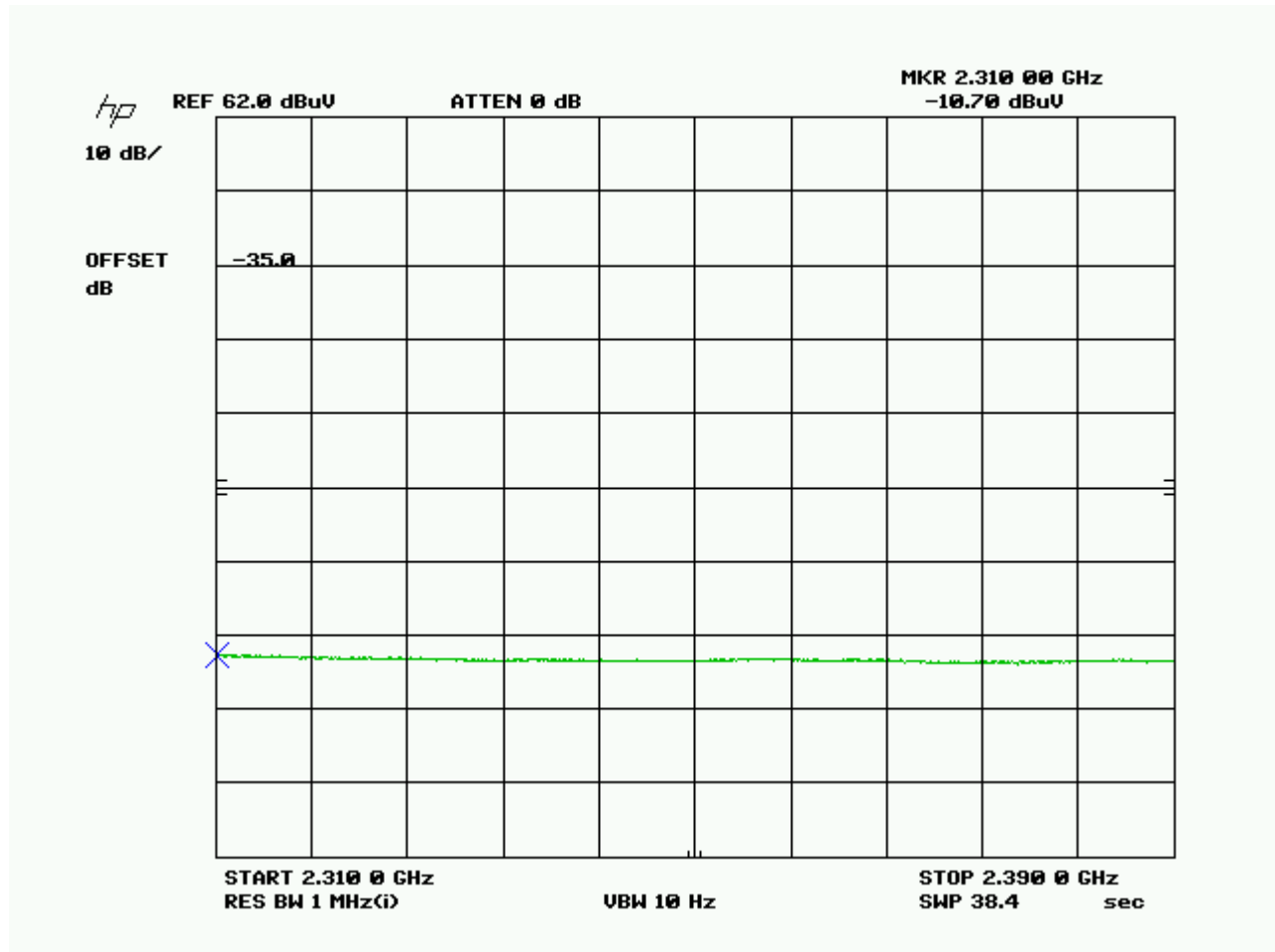
Peak Plot



| Tuned Frequency MHz | Emission Frequency MHz | Meter Reading dBμV | Ant. Polarity V/H | Coax Loss dB | Correction Factor dB/m | Field Strength dBμV/m | Margin dB |
|---------------------|------------------------|--------------------|-------------------|--------------|------------------------|-----------------------|-----------|
| 2,403.0 | 2,384.80 | 2.1 | H | 3.17 | 32.37 | 37.64 | 16.36 |
| | | | | | | | |

Lower non-adjacent restricted band

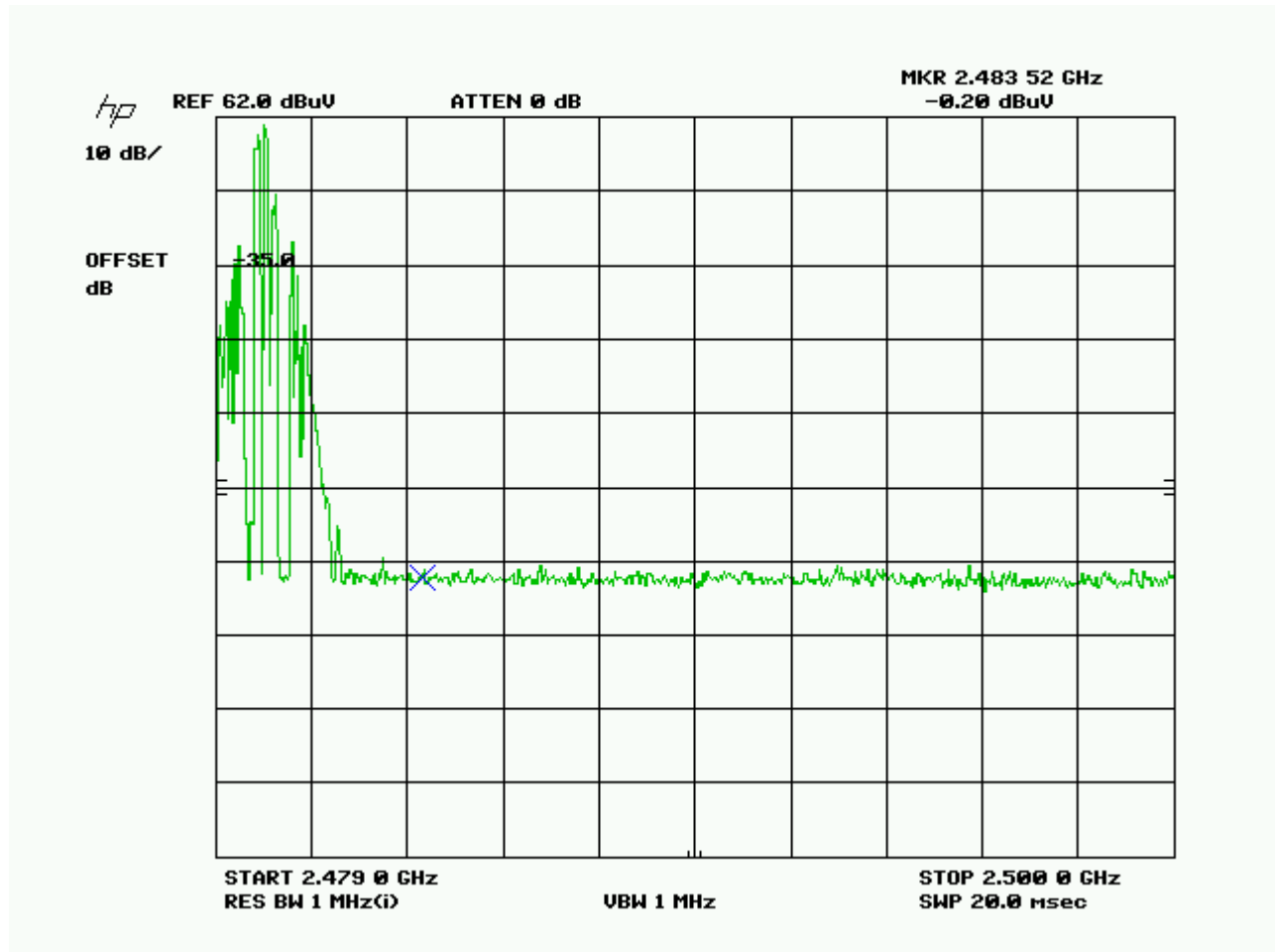
Average Plot



| Tuned Frequency MHz | Emission Frequency MHz | Meter Reading dBμV | Ant. Polarity V/H | Coax Loss dB | Correction Factor dB/m | Field Strength dBμV/m | Margin dB |
|---------------------|------------------------|--------------------|-------------------|--------------|------------------------|-----------------------|-----------|
| 2,403.0 | 2,310.00 | -10.7 | H | 3.12 | 32.22 | 24.64 | 29.36 |
| | | | | | | | |

Upper bandedge

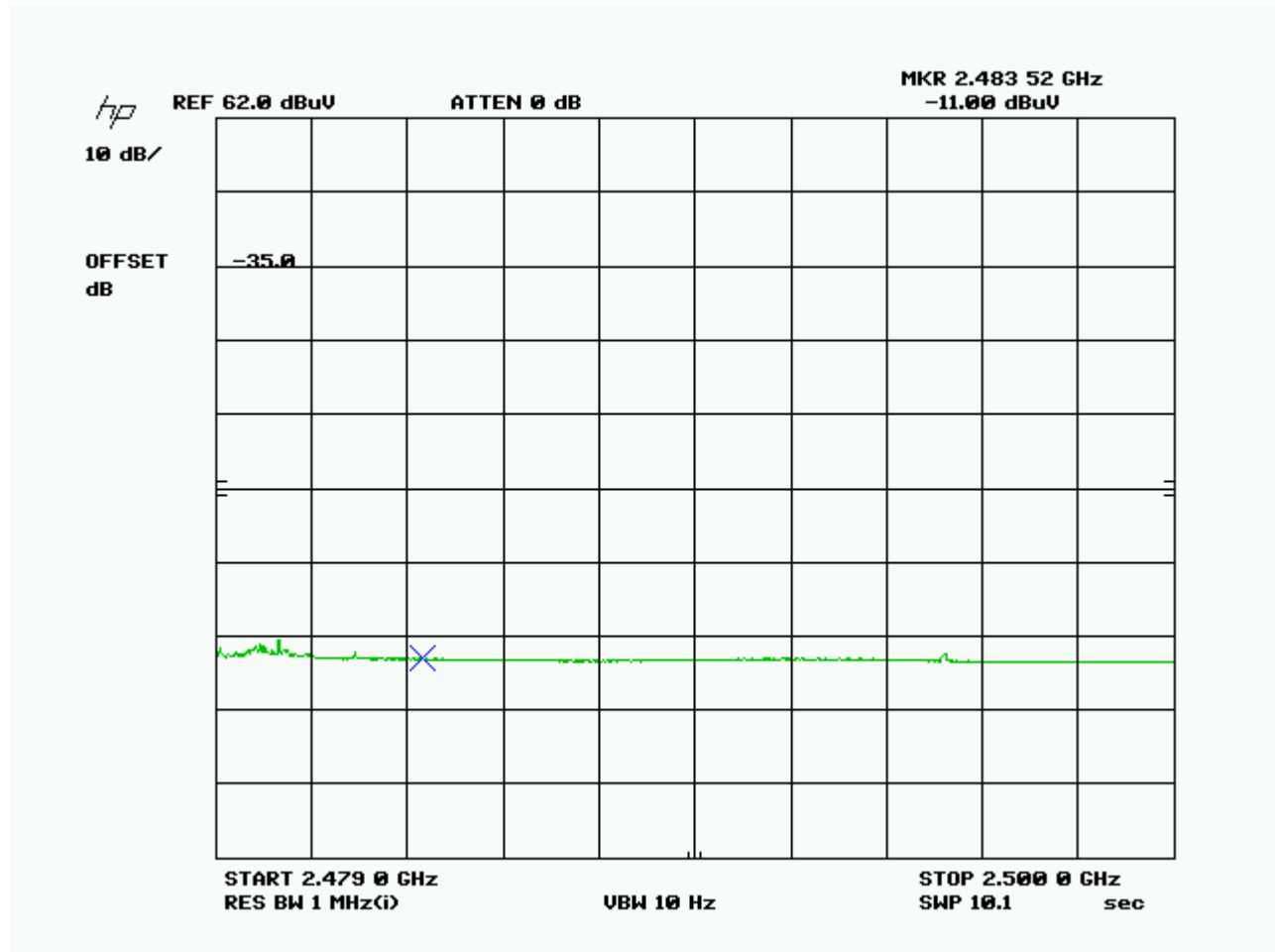
Peak Plot



| Tuned Frequency MHz | Emission Frequency MHz | Meter Reading dBμV | Ant. Polarity V/H | Coax Loss dB | Correction Factor dB/m | Field Strength dBμV/m | Margin dB |
|---------------------|------------------------|--------------------|-------------------|--------------|------------------------|-----------------------|-----------|
| 2,480.0 | 2,483.50 | -0.2 | H | 3.24 | 32.57 | 35.61 | 18.39 |
| | | | | | | | |

Upper bandedge

Average Plot



| Tuned Frequency MHz | Emission Frequency MHz | Meter Reading dBμV | Ant. Polarity V/H | Coax Loss dB | Correction Factor dB/m | Field Strength dBμV/m | Margin dB |
|---------------------|------------------------|--------------------|-------------------|--------------|------------------------|-----------------------|-----------|
| 2,480.0 | 2,483.50 | -11.0 | H | 3.24 | 32.57 | 24.81 | 29.19 |
| | | | | | | | |

POWER LINE CONDUCTED INTERFERENCE

Rules Part No.: 15.207

Requirements:

| Frequency (MHz) | Quasi Peak Limits (dB μ V) | Average Limits (dB μ V) |
|--------------------|-----------------------------------|--------------------------------|
| 0.15 – 0.5 | 66 – 56 | 56 – 46 |
| 0.5 – 5.0 | 56 | 46 |
| 5.0 – 30 | 60 | 50 |

Test Data: The attached graphs represent the emissions read for power line conducted for this device. Both lines were observed.

N/A
Battery powered DUT.