

Test Report

| | | | |
|--|---|---|--|
| Product | Narrowband Alarm Transceiver | | |
| Name and address of the applicant | Ascom (Sweden) AB Grimbodalen 2 P.O. Box 8783 40276 Gothenburg, Sweden | | |
| Name and address of the manufacturer | Ascom (Sweden) AB Grimbodalen 2 P.O. Box 8783 40276 Gothenburg, Sweden | | |
| Model | See page 4 | | |
| Rating | 3.7V DC | | |
| Trademark | ASCOM | | |
| Additional information | Alarm, FSK | | |
| Tested according to | FCC Part 90.217 Private Land Mobile Radio Services Industry Canada RSS-119, Issue 12 Land Mobile and Fixed Equipment operating in the Frequency Range 27.41 – 960 MHz | | |
| Order number | PRJ0013969 | | |
| Tested in period | 2023-03-30 to 2023-04-27 | | |
| Issue date | 2023-09-26 | | |
| Name and address of the testing laboratory | <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="text-align: center;">  <p>Nemko Scandinavia AS Instituttveien 6 2007 Kjeller, Norway www.nemko.com</p> </div> <div style="text-align: center;"> <p>CAB Number: FCC: NO0001 ISED: NO0470 ISED No: 2040D-1</p> </div> <div style="text-align: center;">  <p>ilac-MRA</p> </div> <div style="text-align: center;">  <p>NORWEGIAN ACCREDITATION TEST 033</p> </div> </div> <p style="text-align: center; color: red; font-weight: bold;">An accredited technical test executed under the Norwegian accreditation scheme</p> | | |
| |  Prepared by [Frode Sveinsen] |  Approved by [G.Suhanthakumar] | |
| <p>This report was originally distributed electronically with digital signatures. For more information, please contact Nemko Scandinavia AS.</p> | | | |

Revision history

| Revision | Date | Comment | Sign |
|----------|------------|-----------------------------------|------|
| A | 2023-05-24 | First Edition | FS |
| B | 2023-06-05 | Minor corrections | FS |
| C | 2023-09-26 | Removed references to 6.25 kHz BW | FS |
| | | | |

GENERAL REMARKS

This report applies only to the sample(s) tested. It is the manufacturer's responsibility to ensure the additional production units of this product are manufactured with identical electrical and mechanical components. The manufacturer is solely responsible for any modifications to the product that could result in non-compliance with the relevant regulations.

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Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko Group accepts no responsibility for damage suffered by any third party because of decisions made or actions based on this report.

Opinions expressed within this report regarding general assessments and qualifications for PASS or FAIL to the standards limits and requirements, are not part of the current accreditation. Neither are opinions expressed regarding model variants covered by the testing of this report.

CALIBRATION

All instruments used in the tests given in this test report are calibrated and traceable to national or international standards. Between calibrations all test set-ups are controlled and verified on a regular basis by periodic checks to ensure, with 95% confidence, that the instruments remain within the calibrated levels.

MEASUREMENT UNCERTAINTY

Measurement uncertainties are calculated or considered for all instruments and instrument set-ups used during these tests. Uncertainty figures are found in a separate clause in this report.

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1 INFORMATION

1.1 Technical Information

| | |
|----------------------------------|--|
| Name | a72 Protector |
| FCC ID | BXZCHAT2 |
| IC ID | 3724B-CHAT2 |
| Model/version | CHAT2-BBAA / CHAT2-CBAA / CHAT2-DBAA CHAT2-BBAB / CHAT2-CBAB / CHAT2-DBAB CHAT2-BCAA / CHAT2-CCAA / CHAT2-DCAA CHAT2-BCAB / CHAT2-CCAB / CHAT2-DCAB |
| Serial number | DUT1 (HW ID: 32) DUT3 (HW ID: 34) DUT4 (HW ID: 35) |
| Hardware identity and/or version | B2 |
| Software identity and/or version | 0.3.0 |
| Frequency Range | 420.000 – 475.000 MHz |
| Type of Modulation | Digital (FSK) |
| User Frequency Adjustment | None |
| Channel Bandwidth | 12.5 kHz |
| Type of Power Supply | Secondary Battery (Li-Ion 3.7V DC, 650mAh, 2.4Wh) |
| Antenna Type | Integral Antenna |

Theory of Operation

The EUT is narrowband Alarm Transceiver.

Tested Devices

| Marking | Model Number | Freq Range | Comment |
|---------|--------------|-------------|--|
| DUT1 | CHAT2-CBAA | 420-454 MHz | Integral Antenna |
| DUT3 | CHAT2-CCAA | 454-475 MHz | Integral Antenna |
| DUT4 | CHAT2-CBAA | 420-475 MHz | Sample with temporary antenna connector. Only used for frequency stability measurements |

1.2 Normal Test Conditions

| | |
|----------------------|------------|
| Temperature: | 21 - 24 °C |
| Relative humidity: | 30 - 50 % |
| Normal test voltage: | 3.7 V DC |

The values are the limit registered during the test period.

All tests were performed with a fully charged battery.

1.3 Test Engineer(s)

Frode Sveinsen

1.4 EUT Operating Modes and Test Set-up

| | |
|---------------------------------------|--|
| Description of operating modes | All tests were performed in test mode. The EUT was programmed using the Ascom Test Software. Tested for 12.5 CH BW with normal settings for 2.5 kHz deviation. |
| Tested Devices | Two samples with differently tuned antennas were tested. DUT1 was tuned for the frequency band 420-454 MHz. DUT3 was tuned for the frequency band 454-475 MHz. DUT4 has a temporary antenna connector and was used for frequency stability measurements only. Output power levels were adjusted for each frequency to be below 120 mW ERP. |

| Tested Device | Carrier Frequency | Tested Power Level |
|---------------|-------------------|--------------------|
| EUT1 | 420.000 | 0x3F |
| EUT1 | 437.000 | 0x34 |
| EUT1 | 454.000 | 0x1D |
| EUT3 | 454.000 | 0x28 |
| EUT3 | 464.500 | 0x20 |
| EUT3 | 475.000 | 0x24 |

1.5 Family List Rational

Not Applicable.

1.6 Comments

The tested equipment does not have any mechanism for frequency selection.

The frequency is changed by programming the unit, the programming requires special software that is not normally available to the user.

All ports were populated during spurious emission measurements.

2 TEST REPORT SUMMARY

2.1 General

The tests were conducted for demonstrating compliance with FCC CFR 47 Part 90 and Industry Canada RSS-119 Issue 12.

Radiated tests were conducted in accordance with ANSI C63.4-2014 and ANSI C63.26-2015.

Radiated tests were made in a semi-anechoic chamber at measuring distance of 3m.

| | |
|---|---|
| <input checked="" type="checkbox"/> New Submission | <input checked="" type="checkbox"/> Production Unit |
| <input type="checkbox"/> Class II Permissive Change | <input type="checkbox"/> Pre-production Unit |
| TNT Equipment Code | <input type="checkbox"/> Family Listing |

2.2 Test Summary

| Name of test | FCC Parts 2 and Part 90 Reference | ISED Canada RSS-119, Issue 12 Reference | Test Method ANSI C63.26-2015 Reference | Result |
|--|---|---|--|----------|
| RF Power Output | 2.1046 90.205, 90.217 | 4.1 5.4 5.10 | 5.2 | Complies |
| Channel Bandwidth, Authorized Bandwidth, Occupied Bandwidth and Spectrum Masks | 2.1049 90.209, 90.210, 90.217 | 5.5 5.8 | 5.4 | Complies |
| Spurious Emissions at antenna terminals | 2.1051, 2.1057 90.210 | 5.8 | 5.7 | N/A |
| Field Strength of Transmitter Spurious Radiations | 2.1053, 2.1057 90.210 90.217 | 5.11 | 5.5 | Complies |
| Frequency Stability | 2.1055 90.213 90.217 | 5.3 | 5.6 | Complies |
| Transmitters with Output Power not exceeding 120 mW | 90.217 | 5.10 | | Complies |

3 TEST RESULTS

3.1 RF Output Power (ERP)

FCC Part 2.1046, 90.217

ISED Canada RSS-119 Issue 12, Clause 4.1, 5.4, 5.10

Measurement Method: ANSI C63.26-2015 Clause 5.2

Test Results: Complies

Measurement Data:

| Tested EUT | Carrier Frequency | Measured Field Strength @3m (dBμV/m) | Calculated ERP (dBm) | Calculated ERP (mW) |
|------------|-------------------|--------------------------------------|----------------------|---------------------|
| DUT1 | 420.000 MHz | 112.0 | 16.8 | 29.0 |
| | 437.000 MHz | 115.9 | 20.6 | 70.7 |
| | 454.000 MHz | 115.9 | 20.7 | 71.8 |
| DUT3 | 454.000 MHz | 114.4 | 19.2 | 50.7 |
| | 464.500 MHz | 115.2 | 19.9 | 59.9 |
| | 475.000 MHz | 115.8 | 20.6 | 69.7 |

This measurement was performed with a Spectrum Analyzer.

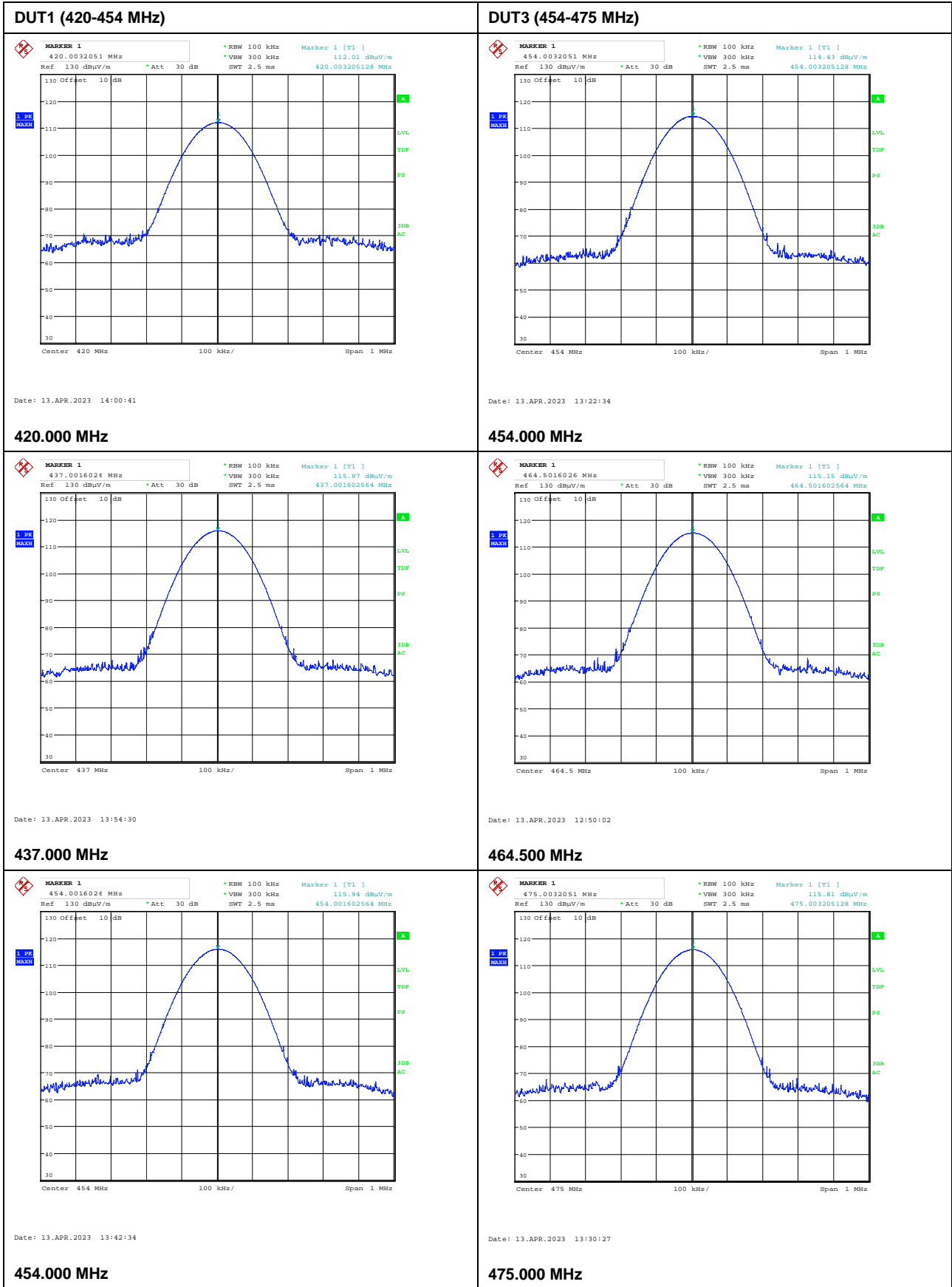
The measurement is performed with the EUT transmitting continuously and unmodulated.

The tested equipment has an integral antenna only.

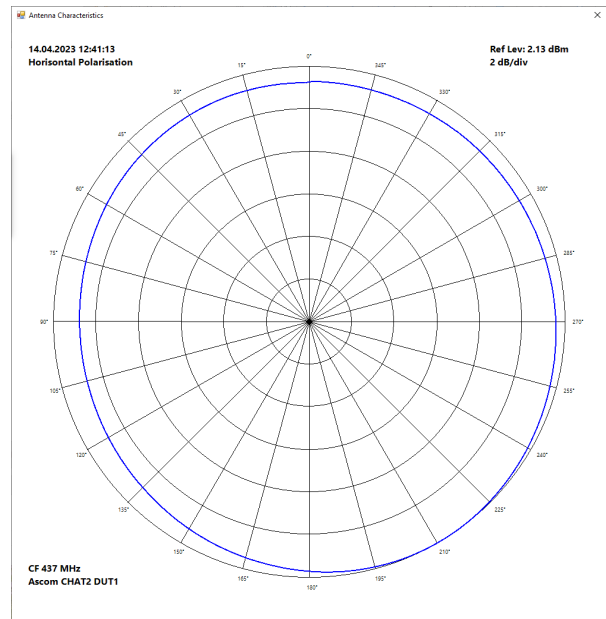
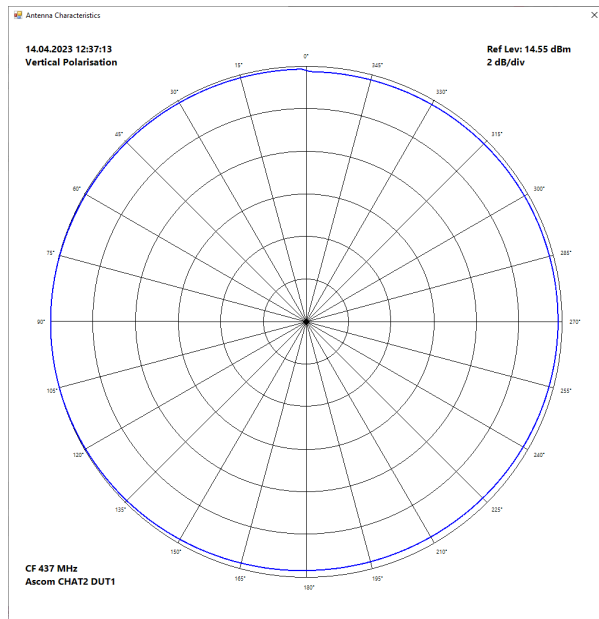
ERP was calculated from measured field strength using the method described in KDB 412172 D01 v01r01.

Requirements:

| | |
|-------------|---|
| Part 90.217 | Except as noted herein, transmitters used at stations licensed below 800 MHz on any frequency listed in subparts B and C of this part or licensed on a business category channel above 800 MHz which have an output power not exceeding 120 milliwatts are exempt from the technical requirements set out in this subpart |
|-------------|---|

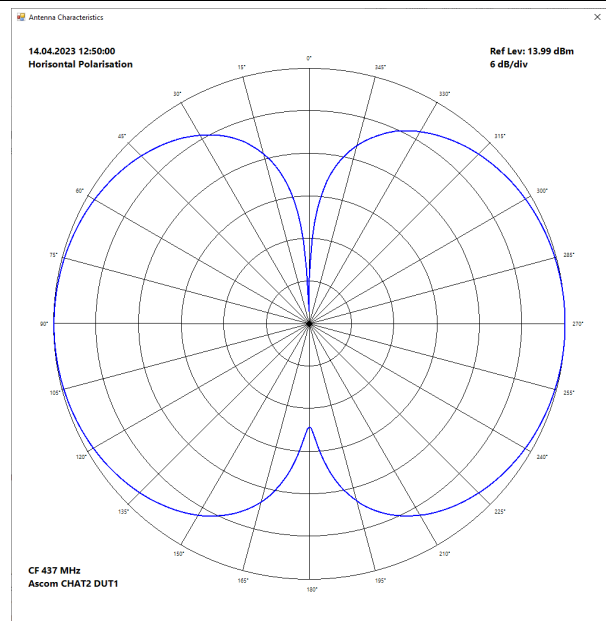
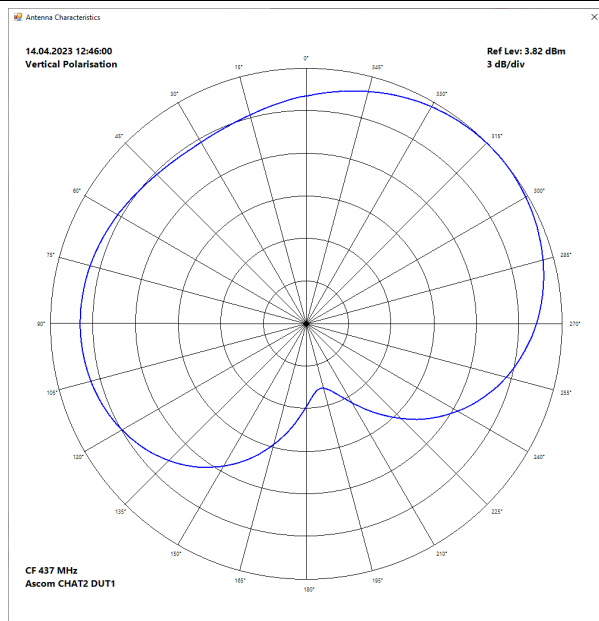


Antenna Characteristics, DUT 1, 437.000 MHz



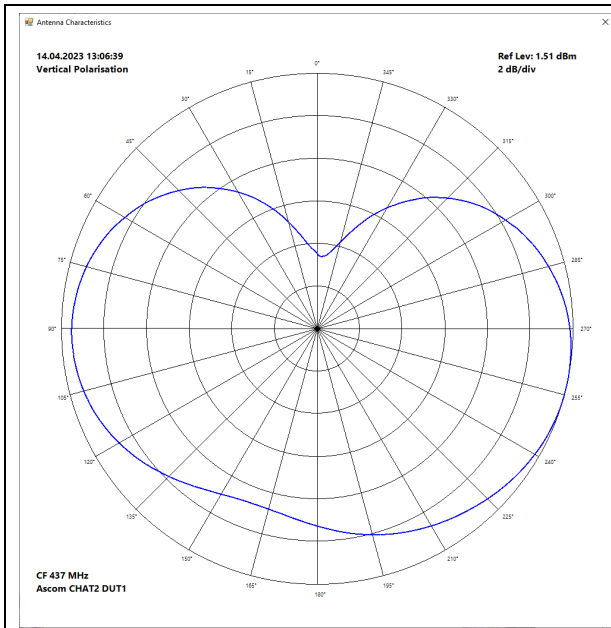
XY, VP

HP

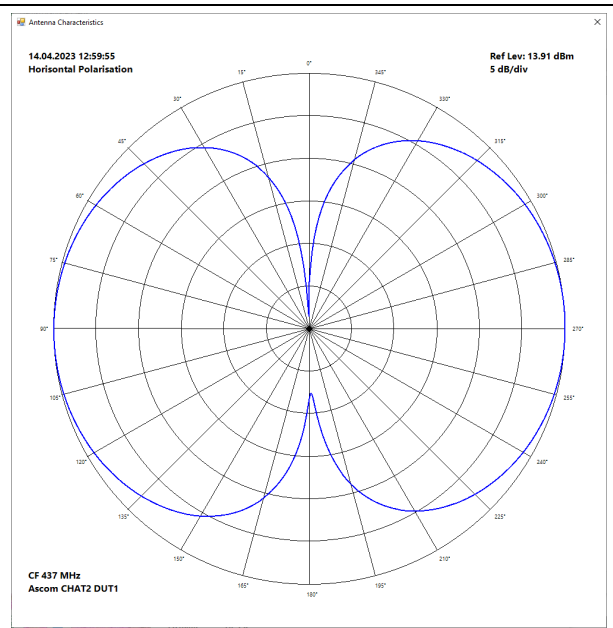


YZ, VP

HP

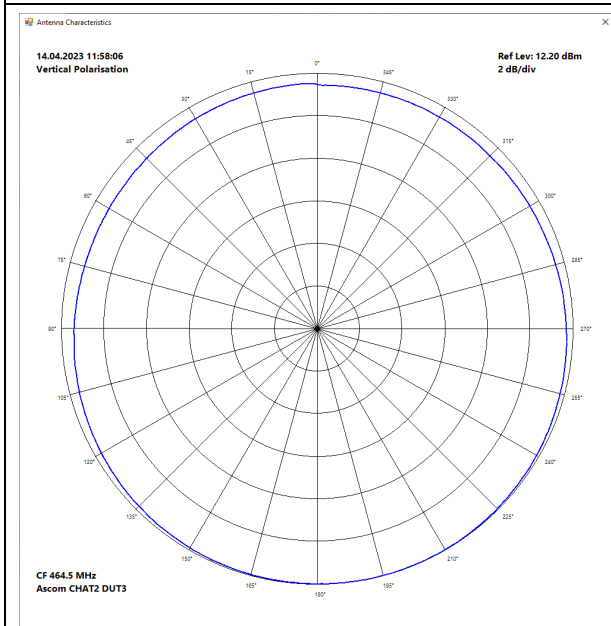


ZX, VP

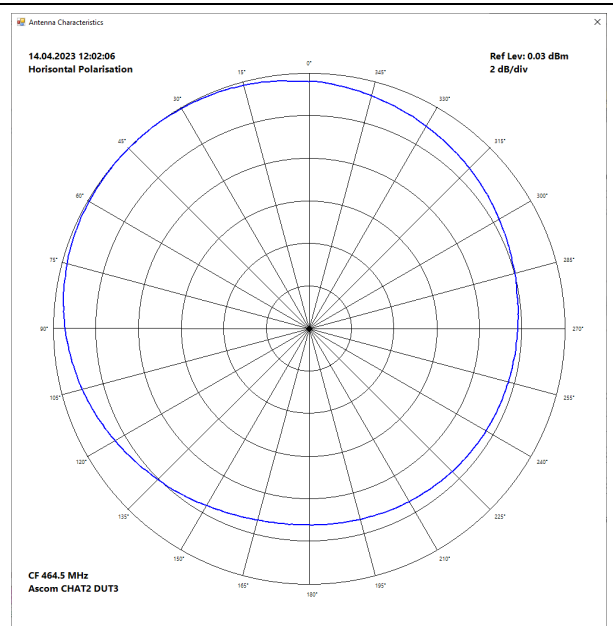


HP

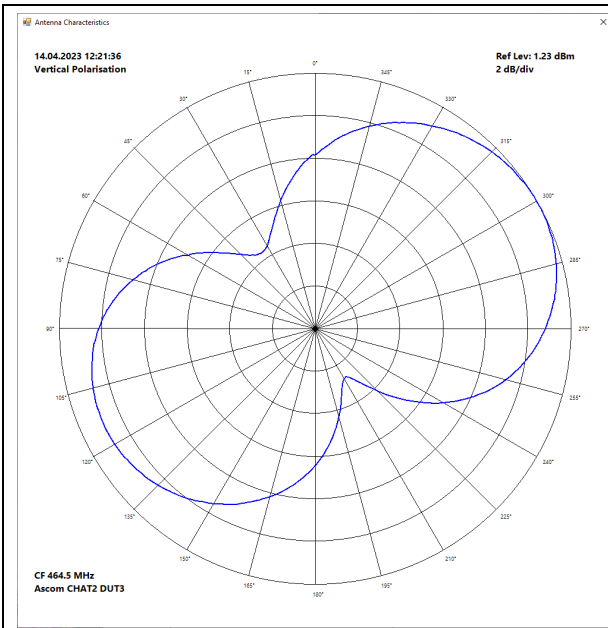
Antenna Characteristics, DUT 3, 464.500 MHz



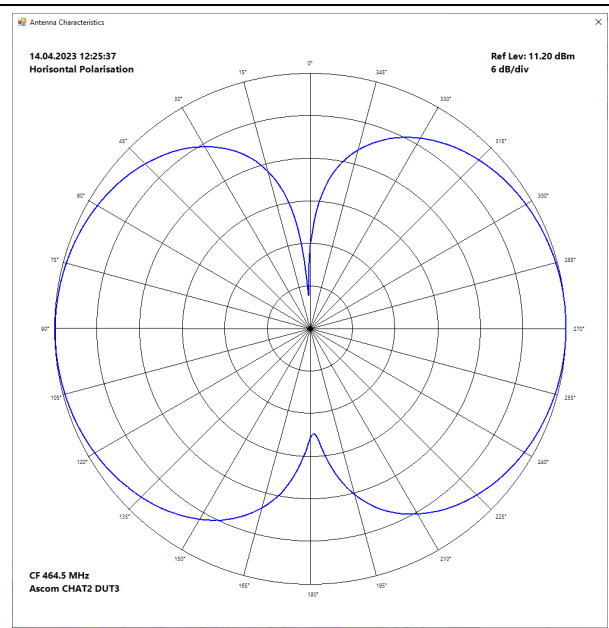
XY, VP



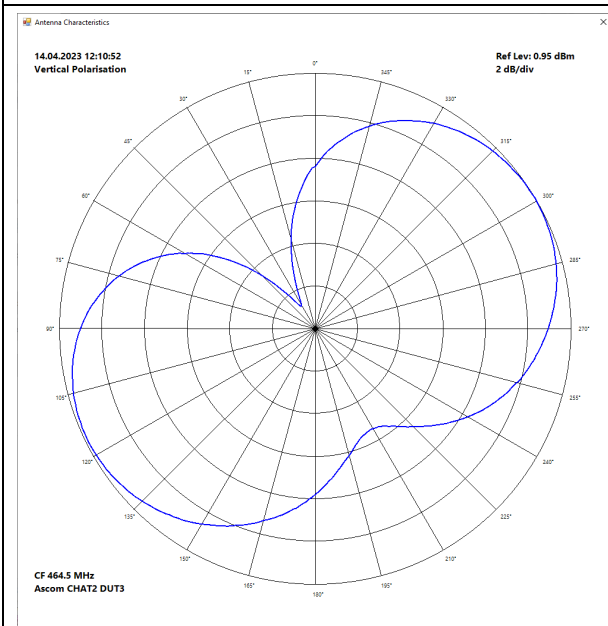
HP



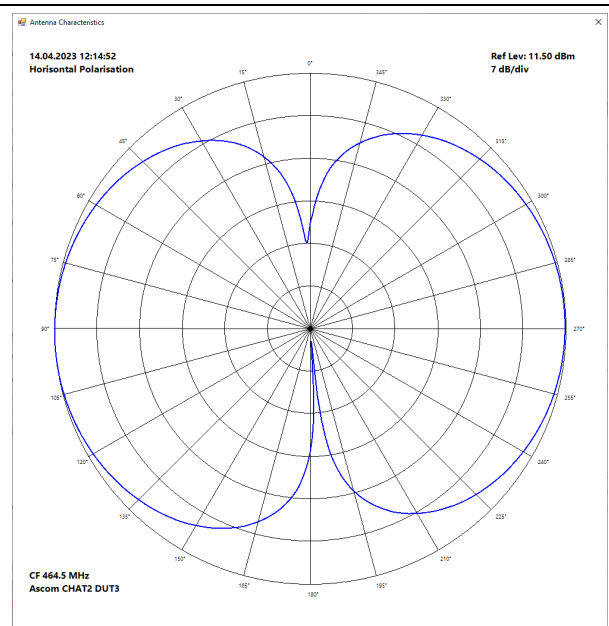
YZ, VP



HP



ZX, VP



HP

3.2 Occupied Bandwidth

FCC Parts 2.1049, 90.217

ISED Canada RSS-119 Issue 12, Clause 5.5, 5.8

Measurement Method: ANSI C63.26-2015, Clause 5.4

Test Results: Complies

Measurement Data:

| Carrier Frequency | Occupied BW | Spectrum Mask |
|-------------------|-------------|---------------|
| 437.000 MHz | 6.96 kHz | Pass |
| 464.500 MHz | 6.96 kHz | Pass |
| Limit (RSS-119) | 11.25 kHz | See Plot |

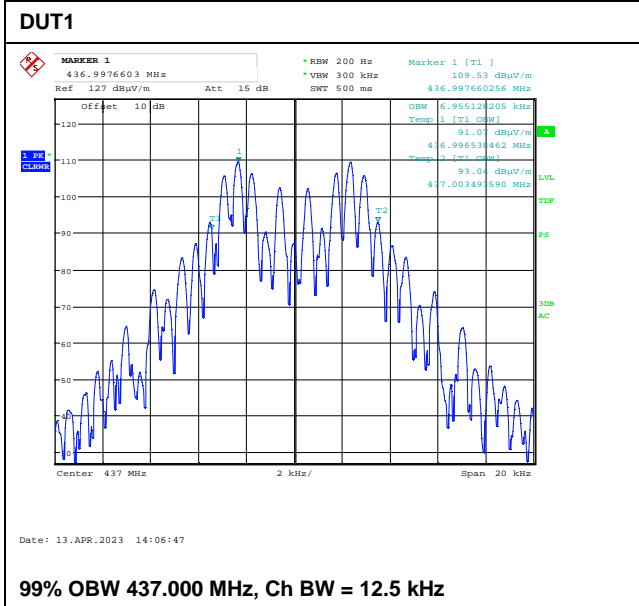
See attached plots.

For this test, the EUT was made to transmit continuously with modulation activated.

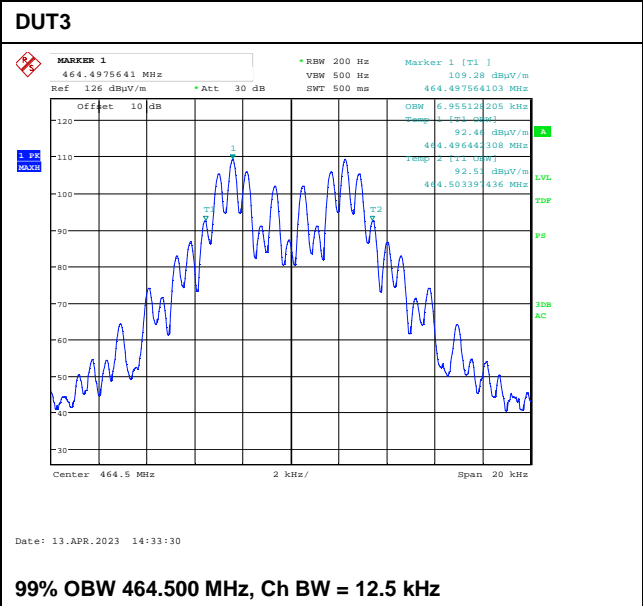
Tested for 12.5 kHz channels with normal settings for 2.5 kHz deviation.

Requirements:

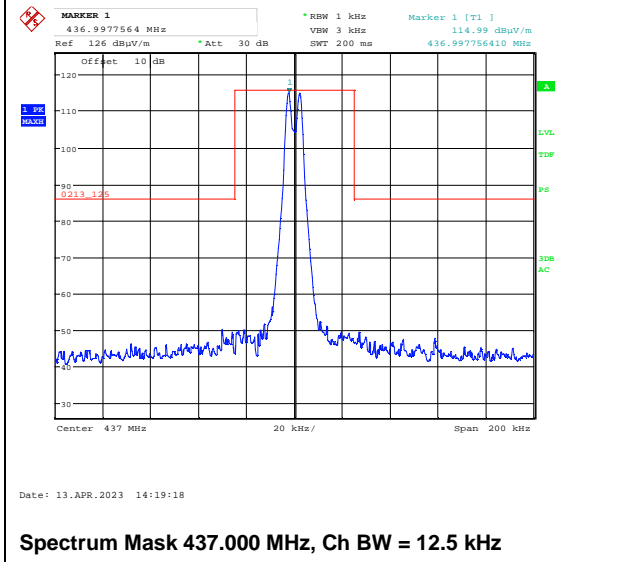
| | |
|------------------------|--|
| FCC 90.217(b) | For equipment designed to operate with a 12.5 kHz channel bandwidth, the sum of the bandwidth occupied by the emitted signal plus the bandwidth required for frequency stability shall be adjusted so that any emission appearing on a frequency 25 kHz or more removed from the assigned frequency is attenuated at least 30 dB below the unmodulated carrier. |
| FCC 90.217(d) | Transmitters may be operated in the continuous carrier transmit mode. |
| ISED RSS-119, Issue 12 | The maximum permissible occupied bandwidth shall not exceed the authorized bandwidth specified in Table 3 for the equipment's frequency band. Authorized Bandwidth is 6.0 kHz for 6.25 KHz Channels, and 11.25 kHz for 12.5 kHz Channels. |
| | Transmitters that have an output power that does not exceed 120 mW are exempt from the emission masks of Section 5.8, the transient frequency behaviour of Section 5.9, and the frequency stability limits of Section 5.3 provided that they comply with the following: The sum of the bandwidth occupied by the emitted signal plus the bandwidth required for frequency stability shall be adjusted so that any emission appearing on a displacement frequency, f_d , from the assigned frequency as shown in Table 19 is attenuated below the unmodulated carrier power by at least 30 dB, when measured with a resolution bandwidth of 300 Hz. If the unmodulated carrier power is not available, the modulated transmitter output power can be used instead. The transmitter output power is measured or integrated over its occupied bandwidth. |



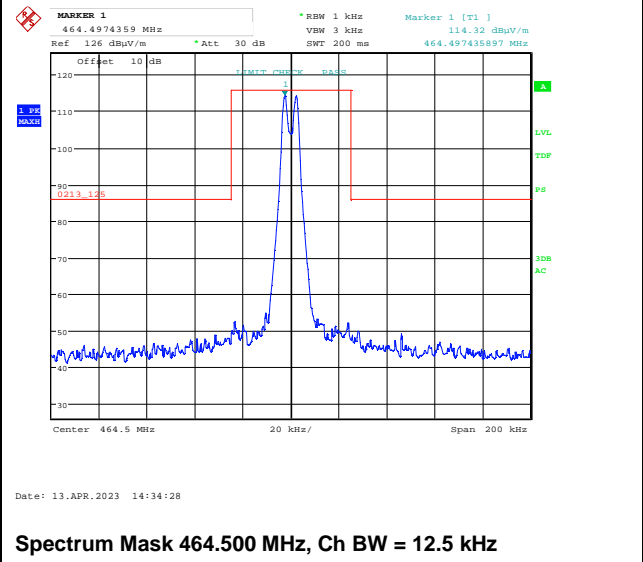
99% OBW 437.000 MHz, Ch BW = 12.5 kHz



99% OBW 464.500 MHz, Ch BW = 12.5 kHz



Spectrum Mask 437.000 MHz, Ch BW = 12.5 kHz



Spectrum Mask 464.500 MHz, Ch BW = 12.5 kHz

3.3 Field Strength of Transmitter Spurious Radiations

FCC Part 2.1053, 2.1057, 90.217

ISED Canada RSS-119 Issue 12, Clause 5.11

Measurement Method: ANSI C63.26-2015 Clause 5.5

Test Results: Complies

Measurement Data:

| Sample No | Carrier Frequency (MHz) | Spurious Frequency (MHz) | Measured Value (dBμV/m @3m) | Calculated Value (dBm) | Limit (dBm) | Margin (dB) |
|-----------|-------------------------|--------------------------|-----------------------------|------------------------|-------------|-------------|
| DUT1 | 420.025 MHz | 1260.05 | 52.8 | -42.4 | -10 | 32.4 |
| | | 2520.02 | 51.5 | -43.7 | -10 | 33.7 |
| | 436.000 MHz | 1308 | 53.6 | -41.6 | -10 | 31.6 |
| | | 3052 | 51.2 | -44.0 | -10 | 34.0 |
| | 449.7875 MHz | 1349.4 | 52.8 | -42.4 | -10 | 32.4 |
| 2698.75 | | 53.6 | -41.6 | -10 | 31.6 | |
| DUT3 | 454.025 MHz | 2724.2 | 59.7 | -35.5 | -10 | 25.5 |
| | 464.500 MHz | 1393.5 | 47.9 | -47.3 | -10 | 37.3 |
| | | 2787 | 60.4 | -34.8 | -10 | 24.8 |
| | 474.975 MHz | 2849.9 | 56.7 | -38.5 | -10 | 28.5 |

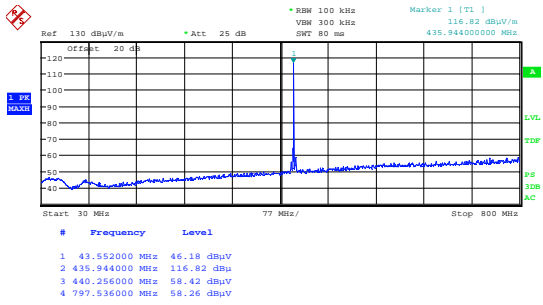
Measurement distance was 3m for all measurements.

EUT was transmitting continuously without modulation.

Requirements:

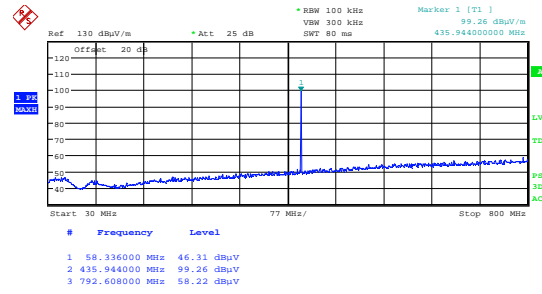
| | |
|------------------------|---|
| FCC 90.217(b) | For equipment designed to operate with a 12.5 kHz channel bandwidth, the sum of the bandwidth occupied by the emitted signal plus the bandwidth required for frequency stability shall be adjusted so that any emission appearing on a frequency 25 kHz or more removed from the assigned frequency is attenuated at least 30 dB below the unmodulated carrier. |
| FCC 90.217(d) | Transmitters may be operated in the continuous carrier transmit mode. |
| ISED RSS-119, Issue 12 | The sum of the bandwidth occupied by the emitted signal plus the bandwidth required for frequency stability shall be adjusted so that any emission appearing on a displacement frequency, f_d , from the assigned frequency as shown in Table 19 is attenuated below the unmodulated carrier power by at least 30 dB, when measured with a resolution bandwidth of 300 Hz. If the unmodulated carrier power is not available, the modulated transmitter output power can be used instead. The transmitter output power is measured or integrated over its occupied bandwidth. |

DUT1



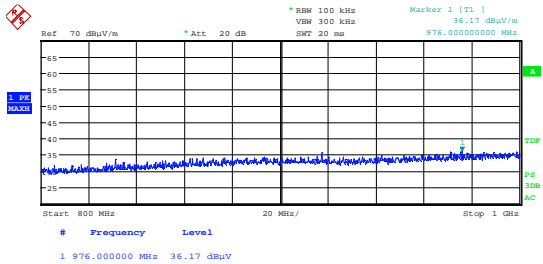
Date: 30.MAR.2023 16:36:03

30-800 MHz, 436.000 MHz VP



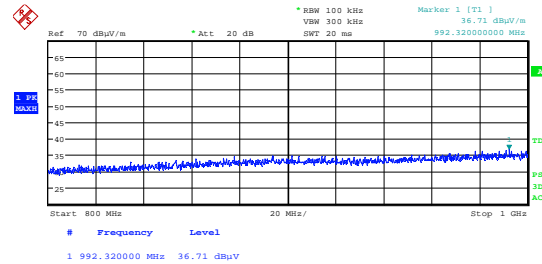
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HP



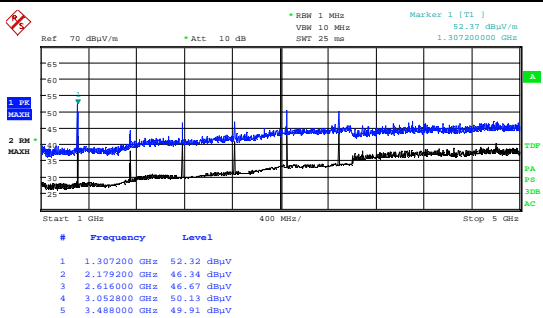
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800-1000 MHz, 436.000 MHz VP



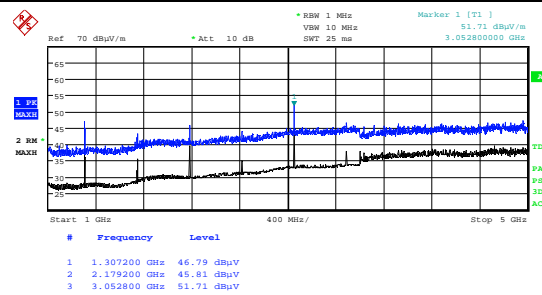
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HP



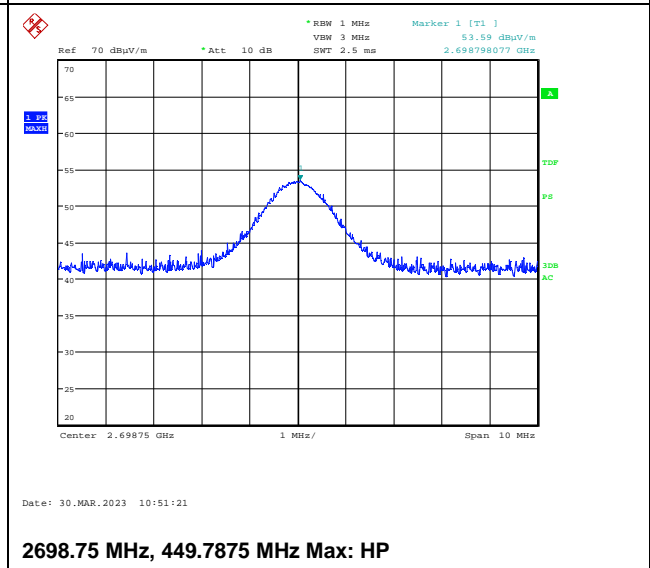
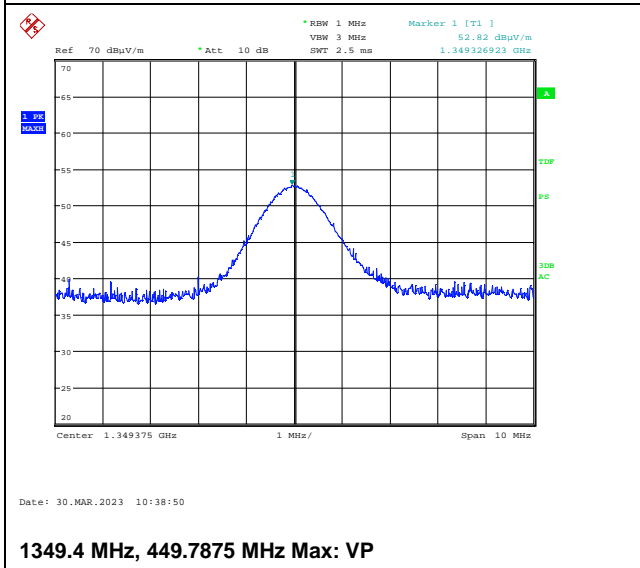
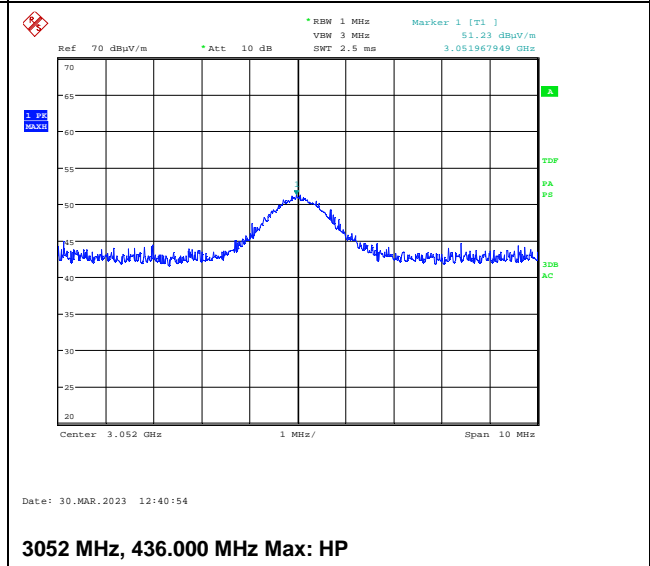
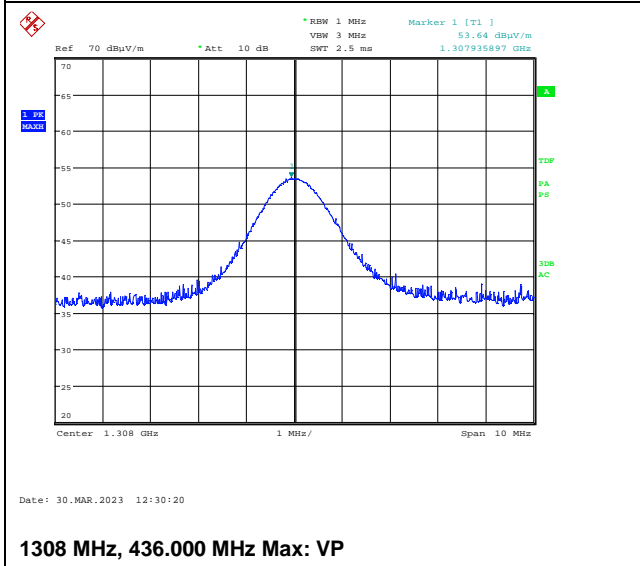
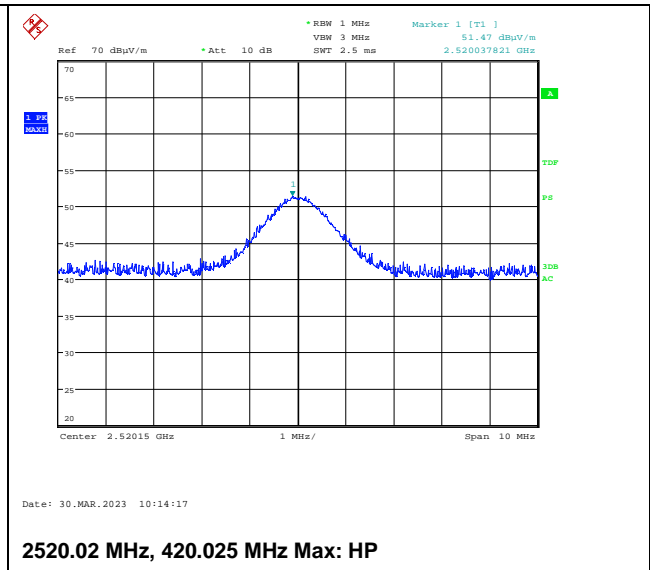
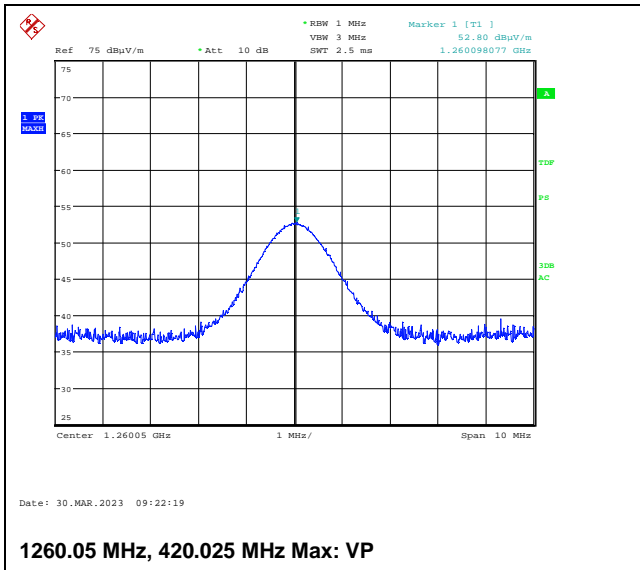
Date: 30.MAR.2023 12:19:43

1000-5000 MHz, 436.000 MHz VP

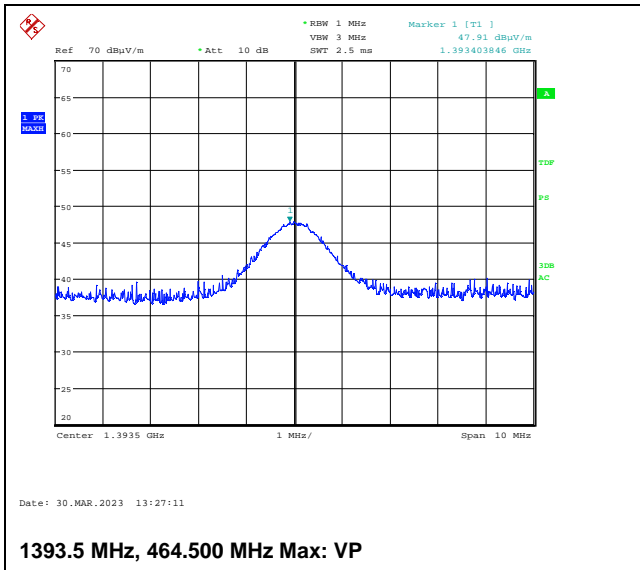


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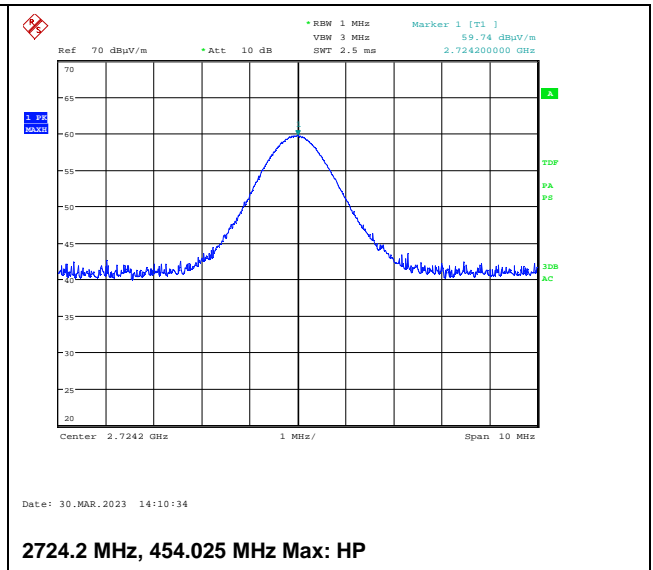
HP



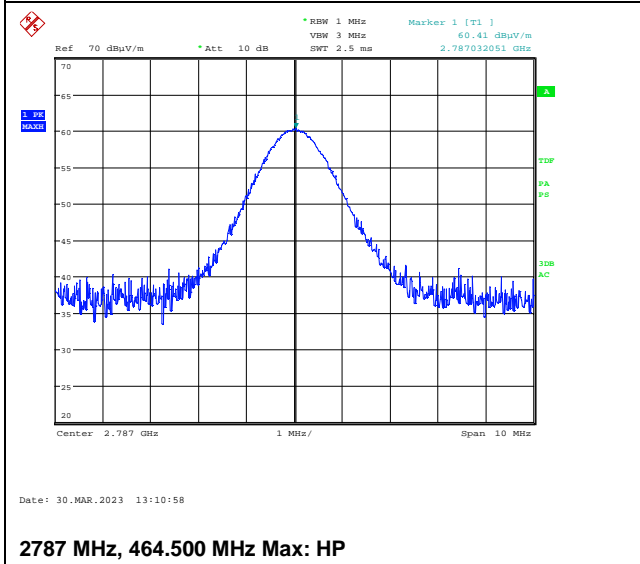
| <p>DUT3</p> <table border="1"> <thead> <tr> <th>#</th> <th>Frequency</th> <th>Level</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>56.488000 MHz</td> <td>41.27 dBuV</td> </tr> <tr> <td>2</td> <td>464.280000 MHz</td> <td>118.76 dBuV</td> </tr> <tr> <td>3</td> <td>748.256000 MHz</td> <td>53.21 dBuV</td> </tr> </tbody> </table> <p>Date: 30.MAR.2023 14:37:02</p> <p>30-800 MHz, 464.500 MHz, VP</p> | # | Frequency | Level | 1 | 56.488000 MHz | 41.27 dBuV | 2 | 464.280000 MHz | 118.76 dBuV | 3 | 748.256000 MHz | 53.21 dBuV | <table border="1"> <thead> <tr> <th>#</th> <th>Frequency</th> <th>Level</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>38.008000 MHz</td> <td>41.94 dBuV</td> </tr> <tr> <td>2</td> <td>464.280000 MHz</td> <td>100.85 dBuV</td> </tr> <tr> <td>3</td> <td>785.832000 MHz</td> <td>53.57 dBuV</td> </tr> </tbody> </table> <p>Date: 30.MAR.2023 14:39:14</p> <p>HP</p> | # | Frequency | Level | 1 | 38.008000 MHz | 41.94 dBuV | 2 | 464.280000 MHz | 100.85 dBuV | 3 | 785.832000 MHz | 53.57 dBuV |
|--|----------------|-------------|-------|---|----------------|------------|--|----------------|-------------|--|----------------|----------------|--|---|--------------|------------|---|---------------|------------|---|----------------|-------------|---|----------------|------------|
| # | Frequency | Level | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 56.488000 MHz | 41.27 dBuV | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 464.280000 MHz | 118.76 dBuV | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 748.256000 MHz | 53.21 dBuV | | | | | | | | | | | | | | | | | | | | | | | |
| # | Frequency | Level | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 38.008000 MHz | 41.94 dBuV | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 464.280000 MHz | 100.85 dBuV | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 785.832000 MHz | 53.57 dBuV | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>#</th> <th>Frequency</th> <th>Level</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>928.960000 MHz</td> <td>37.32 dBuV</td> </tr> </tbody> </table> <p>Date: 30.MAR.2023 15:36:58</p> <p>800-1000 MHz, 464.500 MHz, VP</p> | # | Frequency | Level | 1 | 928.960000 MHz | 37.32 dBuV | <table border="1"> <thead> <tr> <th>#</th> <th>Frequency</th> <th>Level</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>989.120000 MHz</td> <td>36.84 dBuV</td> </tr> </tbody> </table> <p>Date: 30.MAR.2023 15:38:56</p> <p>HP</p> | # | Frequency | Level | 1 | 989.120000 MHz | 36.84 dBuV | | | | | | | | | | | | |
| # | Frequency | Level | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 928.960000 MHz | 37.32 dBuV | | | | | | | | | | | | | | | | | | | | | | | |
| # | Frequency | Level | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 989.120000 MHz | 36.84 dBuV | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1"> <thead> <tr> <th>#</th> <th>Frequency</th> <th>Level</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1.393600 GHz</td> <td>45.87 dBuV</td> </tr> <tr> <td>2</td> <td>2.787200 GHz</td> <td>51.30 dBuV</td> </tr> </tbody> </table> <p>Date: 30.MAR.2023 12:53:21</p> <p>1000-5000 MHz, 464.500 MHz, VP</p> | # | Frequency | Level | 1 | 1.393600 GHz | 45.87 dBuV | 2 | 2.787200 GHz | 51.30 dBuV | <table border="1"> <thead> <tr> <th>#</th> <th>Frequency</th> <th>Level</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1.393600 GHz</td> <td>43.79 dBuV</td> </tr> <tr> <td>2</td> <td>2.321600 GHz</td> <td>47.03 dBuV</td> </tr> <tr> <td>3</td> <td>2.787200 GHz</td> <td>55.39 dBuV</td> </tr> </tbody> </table> <p>Date: 30.MAR.2023 12:55:34</p> <p>HP</p> | # | Frequency | Level | 1 | 1.393600 GHz | 43.79 dBuV | 2 | 2.321600 GHz | 47.03 dBuV | 3 | 2.787200 GHz | 55.39 dBuV | | | |
| # | Frequency | Level | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1.393600 GHz | 45.87 dBuV | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 2.787200 GHz | 51.30 dBuV | | | | | | | | | | | | | | | | | | | | | | | |
| # | Frequency | Level | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 1.393600 GHz | 43.79 dBuV | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 2.321600 GHz | 47.03 dBuV | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 2.787200 GHz | 55.39 dBuV | | | | | | | | | | | | | | | | | | | | | | | |



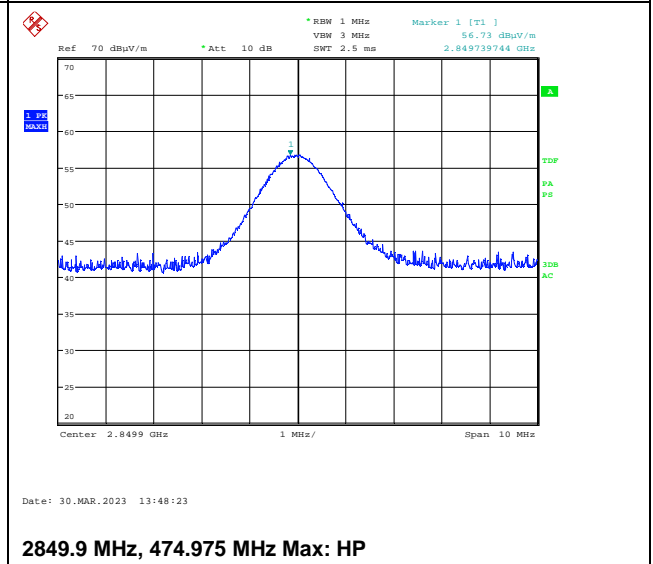
1393.5 MHz, 464.500 MHz Max: VP



2724.2 MHz, 454.025 MHz Max: HP



2787 MHz, 464.500 MHz Max: HP



2849.9 MHz, 474.975 MHz Max: HP

3.4 Frequency Stability

FCC Part 2.1055, 90.213, 90.217

ISED Canada RSS-119 Issue 12, Clause 5.3

ANSI C63.26-2015 Clause 5.6

Test Results: Complies

Measurement Data:

| Temperature | Measured Frequency (MHz) | Deviation (ppm) | Deviation (kHz) |
|-------------|--------------------------|-----------------|-----------------|
| +50 °C | 450.002313 | -0.16 | -0.072 |
| +40 °C | 450.002300 | -0.19 | -0.085 |
| +30 °C | 450.002341 | -0.10 | -0.043 |
| +20 °C | 450.002385 | 0.00 | 0.000 |
| +10 °C | 450.002390 | 0.01 | 0.005 |
| 0 °C | 450.002383 | 0.00 | -0.001 |
| -10 °C | 450.002259 | -0.28 | -0.126 |
| -20 °C | 450.002214 | -0.38 | -0.171 |
| -30 °C | 450.002204 | -0.40 | -0.180 |

Measurement was performed with a constant symbol at 2.5 kHz positive deviation.

Calculated Deviation is deviation from measured frequency at +20 °C.

Requirements:

| | |
|------------|--|
| FCC 2.1055 | <p>(a) The frequency stability shall be measured with variation of ambient temperature as follows:</p> <p>(1) From -30° to + 50° centigrade</p> <p>(b) Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10° centigrade through the range.</p> |
|------------|--|

3.5 Measurement Uncertainty

| Measurement Uncertainty Values | | |
|--|-----------|----------------|
| Test Item | | Uncertainty |
| Output Power | | ±0.5 dB |
| Power Spectral Density | | ±0.5 dB |
| Out of Band Emissions, Conducted (RBW < 100 kHz) | < 3.6 GHz | ±0.6 dB |
| | > 3.6 GHz | ±0.9 dB |
| Spurious Emissions, Radiated | < 1 GHz | ±2.5 dB |
| | > 1 GHz | ±2.2 dB |
| Emission Bandwidth | | ±4 % |
| Power Line Conducted Emissions | | +2.9 / -4.1 dB |
| Spectrum Mask Measurements | Frequency | ±5 % |
| | Amplitude | ±1.0 dB |
| Frequency Error | | ±0.6 ppm |
| Temperature Uncertainty | | ±1 °C |

All uncertainty values are expanded standard uncertainty to give a confidence level of 95%, based on coverage factor k=2

4 LIST OF TEST EQUIPMENT

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries are identified (numbered) by the Test Laboratory.

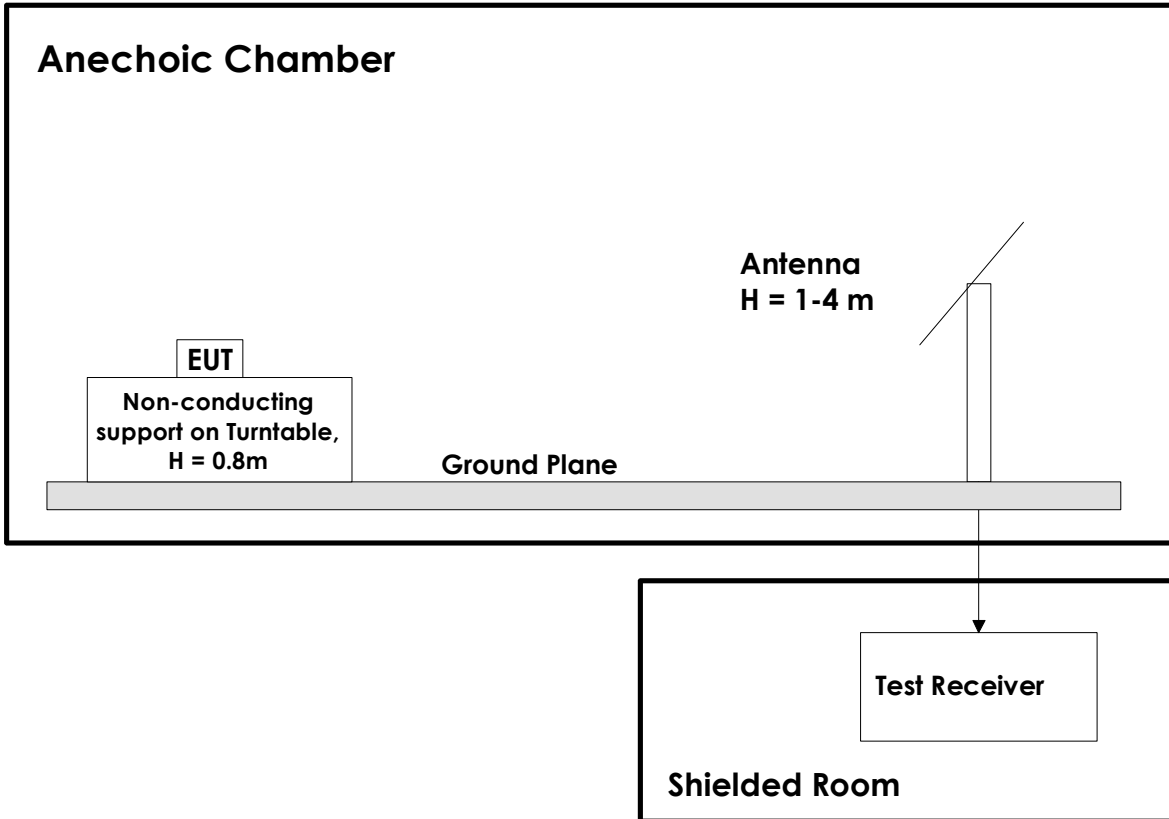
| No. | Model number | Description | Manufacturer | Ref. no. | Cal. date | Cal. Due |
|-----|-------------------------|---------------------------|-----------------|----------|-----------|----------|
| 1 | FSW43 | Spectrum Analyzer | Rohde & Schwarz | LR 1690 | 2023-01 | 2024-01 |
| 2 | ESU40 | Measuring Receiver | Rohde & Schwarz | LR 1639 | 2023-01 | 2024-01 |
| 3 | 6810.17B | Attenuator | Narda | LR 1669 | 2022-05 | 2023-05 |
| 4 | WHK6-790-1000-7000-40SS | Highpass Filter (800 MHz) | Wainwright Inst | LR 1781 | COU | |
| 5 | VULB 9163 | BiLog Antenna | Schwarzbech | LR 1616 | 2021-05 | 2024-05 |
| 6 | 310 | Pre-Amplifier | Sonoma Inst | LR 1686 | 2022-08 | 2023-08 |
| 7 | 3115 | Horn Antenna | EMCO | LR 1330 | 2022-11 | 2027-11 |
| 8 | 8449A | Pre-amplifier | Hewlett Packard | LR 1322 | 2022-08 | 2023-08 |

The software listed below has been used for one or more tests in this report.

| No. | Manufacturer | Name | Version | Comment |
|-----|--------------|--------|---------|---|
| 1 | Nemko AS | RSPlot | 1.0.8.0 | Captures screenshots from R&S Analyzers |

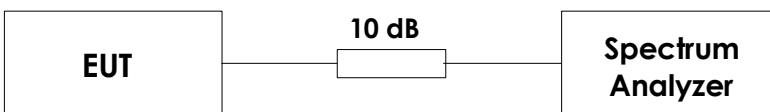
5 BLOCK DIAGRAM

5.1 Test Site Radiated Emission



For measurements above 1 GHz the ground plane is covered by absorbers.

5.2 Conducted Test



This setup is used for all conducted tests where a spectrum analyser is used. If the Output power of the EUT is higher than 100mW or so it may be necessary to use more attenuation to avoid damaging the input stage of the spectrum analyser.