



## **Geospace Technologies Corporation**

**Geospace Endpoint**

**FCC 15.247:2025**

**RSS-247 Issue 4:2025**

**RSS-Gen Issue 5:2018+A1:2019+A2:2021**

**Bluetooth radio**

**Report: PCTE0075.0 Rev. 1, Issue Date: February 16, 2026**



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# CERTIFICATE OF TEST

**Last Date of Test: October 22, 2025**  
**Geospace Technologies Corporation**  
**EUT: Geospace Endpoint**

## Radio Equipment Testing

### Standards

| Specification                        | Method           |
|--------------------------------------|------------------|
| FCC 15.247:2025                      | ANSI C63.10:2020 |
| RSS-247 Issue 4:2025                 |                  |
| RSS-Gen Issue 5:2018+A1:2019+A2:2021 |                  |

### Guidance

|                            |
|----------------------------|
| FCC KDB 558074 v05r02:2019 |
| Notice 2021 - CEB0001      |

### Results

| Test Description                    | Result | FCC Section(s)                   | RSS Section(s)                  | ANSI C63.10 Section(s)          | Comments                                |
|-------------------------------------|--------|----------------------------------|---------------------------------|---------------------------------|-----------------------------------------|
| Powerline Conducted Emissions       | N/A    | 15.207                           | RSS-Gen 8.8                     | 6.2                             | Not required for a battery powered EUT. |
| Duty Cycle                          | Pass   | KDB 558074 -6.0                  | RSS-Gen 3.2                     | 11.6                            |                                         |
| DTS Bandwidth (6 dB)                | Pass   | 15.247(a)(2), KDB 558074 -8.2    | RSS-247 6.3.1(a)                | 11.8.2                          |                                         |
| Occupied Bandwidth (99%)            | N/A    | KDB 558074 -2.1                  | RSS-Gen 6.7                     | 6.9.3                           | See Data.                               |
| Output Power                        | Pass   | 15.247(b)(3), KDB 558074 -8.3.1  | RSS-247 6.3.2, RSS-Gen 6.12     | 11.9.1.1                        |                                         |
| Equivalent Isotropic Radiated Power | Pass   | 15.247(b)(3), KDB 558074 -8.3.1  | RSS-247 6.3.2, RSS-Gen 6.12     | 11.9.1.1                        |                                         |
| Power Spectral Density              | Pass   | 15.247(e), KDB 558074 -8.4       | RSS-247 6.3.1(b)                | 11.10.2                         |                                         |
| Band Edge Compliance                | Pass   | 15.247(d), KDB 558074 -8.5       | RSS-247 6.6                     | 11.11                           |                                         |
| Spurious Conducted Emissions        | Pass   | 15.247(d), KDB 558074 -8.5       | RSS-247 6.6                     | 11.11                           |                                         |
| Radiated Band Edge Emissions        | Pass   | 15.247(d), KDB 558074 - 8.6, 8.7 | RSS-247 6.6, RSS-Gen 6.13, 8.10 | 11.12.1, 11.13.2, 6.6           |                                         |
| Spurious Radiated Emissions         | Pass   | 15.247(d), KDB 558074 - 8.6, 8.7 | RSS-247 6.6, RSS-Gen 6.13, 8.10 | 11.12.1, 11.13.2, 6.4, 6.5, 6.6 |                                         |

### Deviations From Test Standards

None

### Approved By:



Johnny Candelas, Operations Manager  
 Signed for and on behalf of Element

*Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.*

# REVISION HISTORY



| Revision Number | Description                                                             | Date (yyyy-mm-dd) | Page Number       |
|-----------------|-------------------------------------------------------------------------|-------------------|-------------------|
| 01              | Updated RSS-247 sections to correspond to RSS-247 Issue 4 (not Issue 3) | 2026-02-12        | Throughout report |
| 01              | Updated formatting, captions, photos                                    | 2026-02-12        | Throughout report |

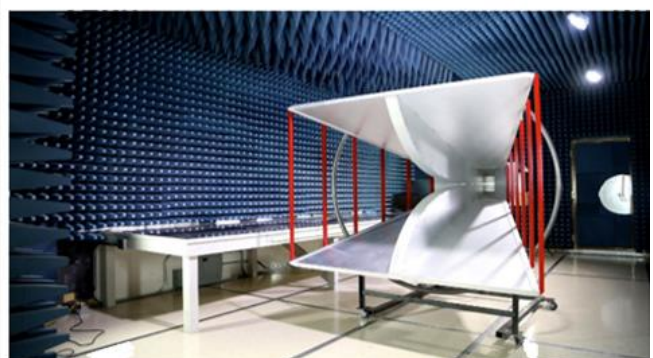
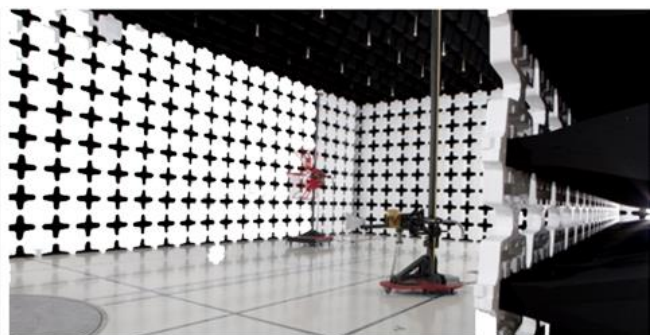
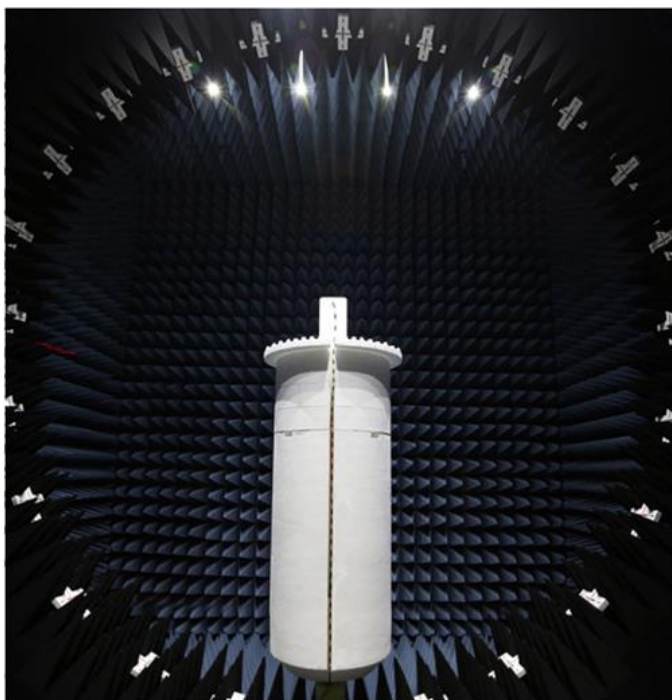
# FACILITIES

Testing was performed at the following location(s)

|                                     | Location   | Labs <sup>(1)</sup> | Address                                                              | A2LA <sup>(2)</sup> | ISED <sup>(3)</sup> | BSMI <sup>(4)</sup> | VCCI <sup>(5)</sup> | CAB    | FDA <sup>(6)</sup> |
|-------------------------------------|------------|---------------------|----------------------------------------------------------------------|---------------------|---------------------|---------------------|---------------------|--------|--------------------|
| <input checked="" type="checkbox"/> | California | OC01-17             | 41 Tesla<br>Irvine, CA 92618<br>(949) 861-8918                       | 3310.04             | 2834B               | SL2-IN-E-1154R      | A-0029              | US0158 | TL-55              |
| <input type="checkbox"/>            | Minnesota  | MN01-11             | 9349 W Broadway Ave.<br>Brooklyn Park, MN 55445<br>(612) 638-5136    | 3310.05             | 2834E               | SL2-IN-E-1152R      | A-0109              | US0175 | TL-57              |
| <input type="checkbox"/>            | Oregon     | EV01-12             | 6775 NE Evergreen Pkwy #400<br>Hillsboro, OR 97124<br>(503) 844-4066 | 3310.02             | 2834D               | SL2-IN-E-1017       | A-0108              | US0017 | TL-56              |
| <input type="checkbox"/>            | Washington | NC01-05             | 19201 120th Ave NE<br>Bothell, WA 98011<br>(425) 984-6600            | 3310.06             | 2834F               | SL2-IN-E-1153R      | A-0110              | US0157 | TL-67              |
| <input type="checkbox"/>            | Offsite    | N/A                 | See Product Description                                              | N/A                 | N/A                 | N/A                 | N/A                 | N/A    | N/A                |

See data sheets for specific labs

- (1) The lab designations denote individual rooms within each location. (OC01, OC02, OC03, etc.)
- (2) A2LA Certificate No.
- (3) ISED Company No.
- (4) BSMI No.
- (5) VCCI Site Filing No.
- (6) FDA ASCA No.



# MEASUREMENT UNCERTAINTY

## Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

A measurement uncertainty estimation reported is based on statistical analysis that was performed by the laboratory. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty ( $k=2$ ) can be found in the table below. A lab specific value may also be found in the applicable test description section. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable) and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

### Various Measurements

| Test                                   | All Labs<br>(+/-) |
|----------------------------------------|-------------------|
| Frequency Accuracy (%)                 | 0.0007            |
| Amplitude Accuracy (dB)                | 1.2               |
| Conducted Power (dB)                   | 1.2               |
| Radiated Power via Substitution (dB)   | 0.7               |
| Temperature (degrees C)                | 0.7               |
| Humidity (% RH)                        | 2.5               |
| Voltage (AC) (%)                       | 1                 |
| Voltage (DC) (%)                       | 0.7               |
| Near-field Measurement of E-Field (dB) | 1.89              |
| Near-field Measurement of H-Field (dB) | 2.65              |

### Field Strength Measurements (dB)

| Range         | OC10<br>(+/-) |
|---------------|---------------|
| 10kHz-30MHz   | 1.8           |
| 30MHz-1GHz 3m | 4.6           |
| 1GHz-6GHz     | 5             |
| 6GHz-40GHz    | 5.1           |

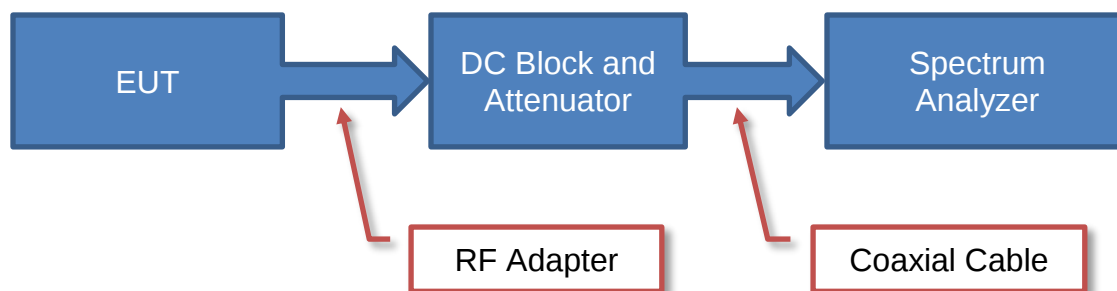
# TEST SETUP BLOCK DIAGRAMS

## Measurement Bandwidths

| Frequency Range (MHz) | Peak Data (kHz) | Quasi-Peak Data (kHz) | Average Data (kHz) |
|-----------------------|-----------------|-----------------------|--------------------|
| 0.01 - 0.15           | 1.0             | 0.2                   | 0.2                |
| 0.15 - 30.0           | 10.0            | 9.0                   | 9.0                |
| 30.0 - 1000           | 100.0           | 120.0                 | 120.0              |
| Above 1000            | 1000.0          | N/A                   | 1000.0             |

Unless otherwise stated, measurements were made using the bandwidths and detectors specified. No video filter was used.

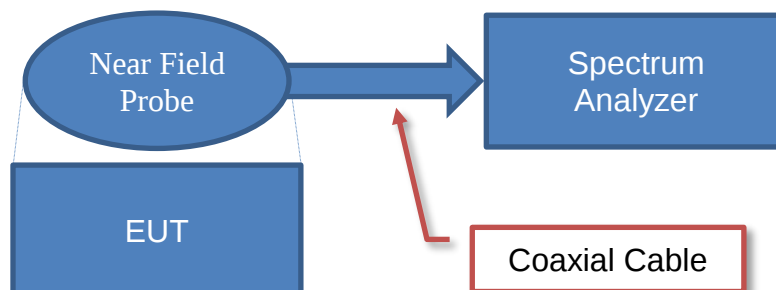
## Antenna Port Conducted Measurements



## Sample Calculation (logarithmic units)

|                |   |                |   |                        |
|----------------|---|----------------|---|------------------------|
| Measured Value |   | Measured Level |   | Reference Level Offset |
| 71.2           | = | 42.6           | + | 28.6                   |

## Near Field Test Fixture Measurements

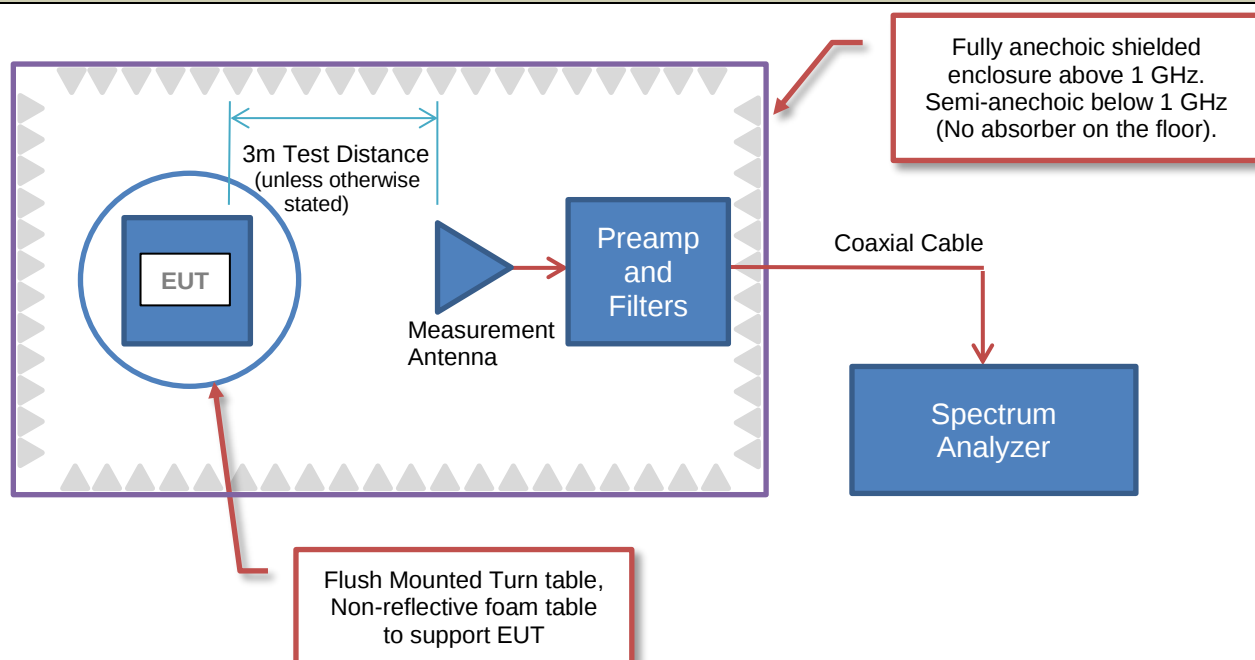


## Sample Calculation (logarithmic units)

|                |   |                |   |                        |
|----------------|---|----------------|---|------------------------|
| Measured Value |   | Measured Level |   | Reference Level Offset |
| 71.2           | = | 42.6           | + | 28.6                   |

# TEST SETUP BLOCK DIAGRAMS

## Emissions Measurements



## Sample Calculation (logarithmic units)

### Radiated Emissions:

| Measured Level (Amplitude) | Factor         |              |                | Distance Adjustment Factor | External Attenuation | Field Strength |
|----------------------------|----------------|--------------|----------------|----------------------------|----------------------|----------------|
|                            | Antenna Factor | Cable Factor | Amplifier Gain |                            |                      |                |
| 42.6                       | 28.6           | 3.1          | 40.8           | 0.0                        | 0.0                  | 33.5           |

### Conducted Emissions:

| Measured Level (Amplitude) | Factor            |              | External Attenuation | Adjusted Level |
|----------------------------|-------------------|--------------|----------------------|----------------|
|                            | Transducer Factor | Cable Factor |                      |                |
| 26.7                       | 0.3               | 0.1          | 20.0                 | 47.1           |

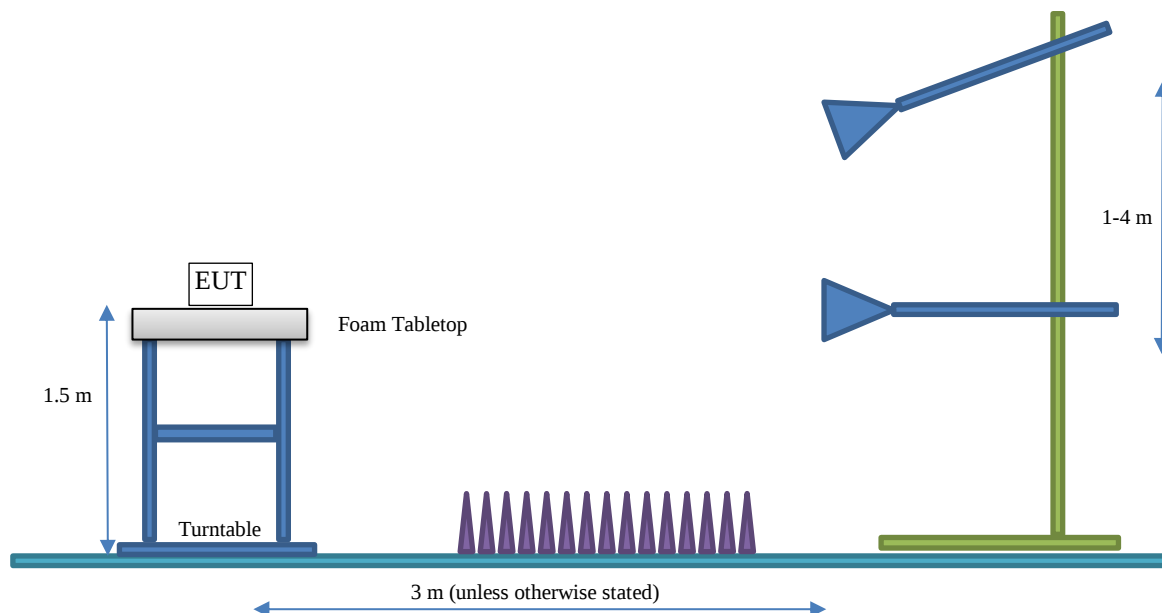
### Radiated Power (ERP/EIRP) – Substitution Method:

| Measured Level into Substitution Antenna (Amplitude dBm) | Substitution Antenna Factor (dBi) | EIRP to ERP (if applicable) | Measured power (dBm ERP/EIRP) |
|----------------------------------------------------------|-----------------------------------|-----------------------------|-------------------------------|
| 10.0                                                     | 6.0                               | 2.15                        | 13.9/16.0                     |

# TEST SETUP BLOCK DIAGRAMS

## Bore Sighting (>1GHz)

The diameter of the illumination area is the dimension of the line tangent to the EUT formed by 3 dB beamwidth of the measurement antenna at the measurement distance. At a 3 meter test distance, the diameter of the illumination area was 3.8 meters at 1 GHz and greater than 2.1 meters up to 6 GHz. Above 1 GHz, when required by the measurement standard, the antenna is pointed for both azimuth and elevation to maintain the receive antenna within the cone of radiation from the EUT. The specified measurement detectors were used for comparison of the emissions to the peak and average specification limits.



# PRODUCT DESCRIPTION



## Client and Equipment under Test (EUT) Information

|                                 |                                                                                                                               |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| <b>Company Name:</b>            | Geospace Technologies Corporation                                                                                             |
| <b>Address:</b>                 | 707 Pinemont Drive                                                                                                            |
| <b>City, State, Zip:</b>        | Houston, TX 77040                                                                                                             |
| <b>Test Requested By:</b>       | Darin Hatcher from Connected Development, LLC. on behalf of Colin King and Milad Hmeda from Geospace Technologies Corporation |
| <b>EUT:</b>                     | Geospace Endpoint                                                                                                             |
| <b>First Date of Test:</b>      | October 14, 2025                                                                                                              |
| <b>Last Date of Test:</b>       | October 22, 2025                                                                                                              |
| <b>Receipt Date of Samples:</b> | October 14, 2025                                                                                                              |
| <b>Equipment Design Stage:</b>  | Production                                                                                                                    |
| <b>Equipment Condition:</b>     | No Damage                                                                                                                     |
| <b>Purchase Authorization:</b>  | Verified                                                                                                                      |

## Information Provided by the Party Requesting the Test

|                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------|
| <b>Functional Description of the EUT:</b>                                                                                           |
| The endpoint provides LTE-M or Bluetooth access to devices including water valve and actuator equipment using proprietary software. |
| <b>Testing Objective:</b>                                                                                                           |
| To demonstrate compliance of the Bluetooth radio to FCC 15.247/RSS-247 requirements.                                                |

# POWER SETTINGS AND ANTENNAS



The power settings, antenna gain value(s) and cable loss (if applicable) used for the testing contained in this report were provided by the customer and will affect the validity of the results. Element assumes no responsibility for the accuracy of this information. The power settings below reflect the maximum power that the EUT is allowed to transmit at during normal operation.

## ANTENNA GAIN (dBi)

| Type     | Provided by: | Frequency Range (MHz) | Gain (dBi) |
|----------|--------------|-----------------------|------------|
| FR-4 PCB | Geospace     | 2360-2520             | 0.48       |

The EUT was tested using the power settings provided by the manufacturer which were based upon:

- ☒ Test software settings      Software / firmware used for testing: Smart RF Studio V.7, Version 2.32.0  
☐ Rated power settings

## SETTINGS FOR ALL TESTS IN THIS REPORT

| Radio:       | Modulation Types | Data Rate | Channel      | Frequency (MHz) | Power Setting |
|--------------|------------------|-----------|--------------|-----------------|---------------|
| Bluetooth LE | GFSK             | 1 Mbps    | Low Channel  | 2402            | 5             |
| Bluetooth LE | GFSK             | 2 Mbps    | Mid Channel  | 2440            | 5             |
| Bluetooth LE | GFSK             | 1 Mbps    | High Channel | 2480            | 5             |

Note: The low and high channels are advertising channels and use legacy advertising. The Mid channel is a data channel.

# CONFIGURATIONS



## Configuration PCTE0075-1

| Software/Firmware Running During Test |         |
|---------------------------------------|---------|
| Description                           | Version |
| Smart RF Studio V.7                   | 2.32.0  |

| EUT               |                                   |                   |               |
|-------------------|-----------------------------------|-------------------|---------------|
| Description       | Manufacturer                      | Model/Part Number | Serial Number |
| Geospace Endpoint | Geospace Technologies Corporation | 456-7370-01B      | 0000051       |

| Peripherals in Test Setup Boundary |                   |                           |               |
|------------------------------------|-------------------|---------------------------|---------------|
| Description                        | Manufacturer      | Model/Part Number         | Serial Number |
| DC Power Supply                    | TekPower          | TP3005P                   | N/A           |
| Laptop                             | Hewlett Packard   | HP ZBook Studio 15 Laptop | CND1100VDX    |
| Development Kit                    | Texas Instruments | CC2652-R7                 | MCU075        |

| Cables                     |        |            |         |                         |                   |
|----------------------------|--------|------------|---------|-------------------------|-------------------|
| Cable Type                 | Shield | Length (m) | Ferrite | Connection 1            | Connection 2      |
| USB Cable                  | Yes    | 1m         | No      | Laptop                  | Development Board |
| Tag Connect Cable          | No     | 0.15m      | No      | Development Board Cable | Geospace Endpoint |
| Negative Power Supply Lead | No     | 0.30m      | No      | DC Power Supply         | Geospace Endpoint |
| Positive Power Supply Lead | No     | 0.30m      | No      | DC Power Supply         | Geospace Endpoint |
| AC Power Cable             | No     | 2m         | No      | DC Power Supply         | AC Public Mains   |
| USB to TTL Cable           | No     | 0.2m       | No      | USB to TTL Adapter      | Geospace Endpoint |

# MODIFICATIONS

## Equipment Modifications

| Item | Date       | Test                                             | Modification                         | Note                                                                | Disposition of EUT                          |
|------|------------|--------------------------------------------------|--------------------------------------|---------------------------------------------------------------------|---------------------------------------------|
| 1    | 2025-10-14 | Spurious Radiated Emissions - Below 1GHz         | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 2    | 2025-10-16 | Spurious Radiated Emissions - Above 1 GHz        | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 3    | 2025-10-16 | Radiated Spurious Emissions Restricted Band Edge | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 4    | 2025-10-17 | Occupied Bandwidth (99%)                         | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 5    | 2025-10-17 | Spurious Conducted Emissions                     | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 6    | 2025-10-17 | Band Edge Compliance                             | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 7    | 2025-10-17 | DTS Bandwidth (6 dB)                             | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 8    | 2025-10-17 | Equivalent Isotropic Radiated Power (EIRP)       | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 9    | 2025-10-17 | Output Power                                     | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 10   | 2025-10-17 | Power Spectral Density                           | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 11   | 2025-10-22 | Duty Cycle                                       | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | Scheduled testing was completed.            |

# DUTY CYCLE

## TEST DESCRIPTION

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The Duty Cycle (x) of the single channel operation of the radio as controlled by the provided test software was measured for each of the EUT operating modes.

There is no compliance requirement to be met by this test, so therefore no Pass / Fail criteria.

The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum.

The duty cycle was calculated by dividing the transmission pulse duration (T) by the total period of a single on and total off time.

If the transmit duty cycle < 98 percent, burst gating may have been used during some of the other tests in this report to only take the measurement during the burst duration.

## TEST EQUIPMENT

| Description                  | Manufacturer  | Model            | ID  | Last Cal.  | Cal. Due   |
|------------------------------|---------------|------------------|-----|------------|------------|
| Antenna - Double Ridge       | ETS Lindgren  | 3115             | AIR | 2024-07-23 | 2026-07-23 |
| Cable                        | Northwest EMC | 1-8GHz RE Cables | OCJ | 2025-04-30 | 2026-04-30 |
| Amplifier - Pre-Amplifier    | Cernex        | CBL01084020-xx   | PAX | 2025-04-30 | 2026-04-30 |
| Analyzer - Spectrum Analyzer | Agilent       | N9010A           | AFJ | 2025-03-03 | 2026-03-03 |

# DUTY CYCLE



|                   |                                   |                       |            |
|-------------------|-----------------------------------|-----------------------|------------|
| EUT:              | Geospace Endpoint                 | Work Order:           | PCTE0075   |
| Serial Number:    | 0000051                           | Date:                 | 2025-10-22 |
| Customer:         | Geospace Technologies Corporation | Temperature:          | 21.8°C     |
| Attendees:        | None                              | Relative Humidity:    | 52.8%      |
| Customer Project: | None                              | Bar. Pressure (PMSL): | 1018 mbar  |
| Tested By:        | Kyle Fujimoto                     | Job Site:             | OC10       |
| Power:            | 3.6 Vdc                           | Configuration:        | PCTE0075-1 |

## COMMENTS

The Duty Cycle is 100% and thus there are not pulse widths or periods. Please see the screenshot below.

## DEVIATIONS FROM TEST STANDARD

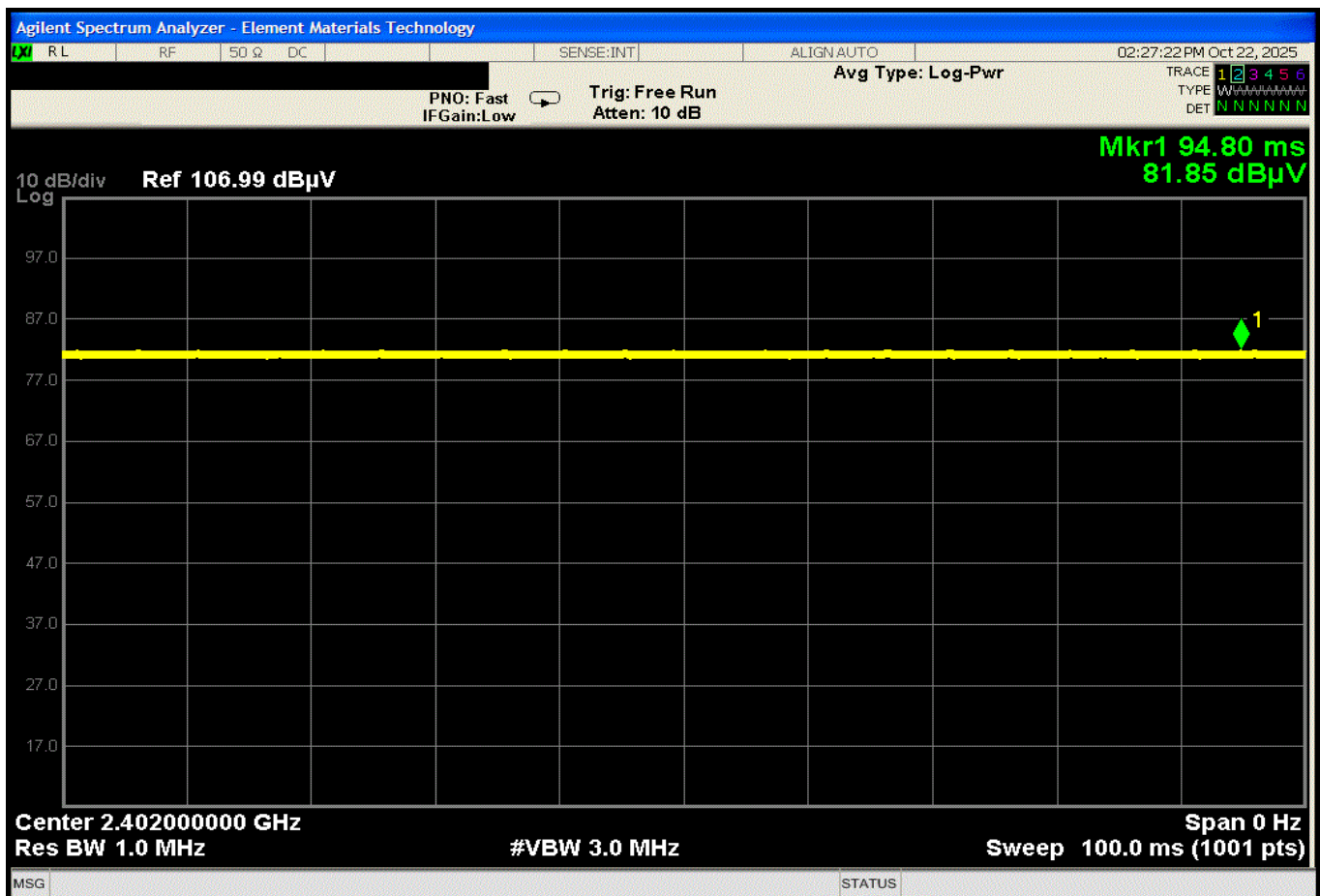
None

## CONCLUSION

N/A

*Kyle Fujimoto*

Tested By



# DTS BANDWIDTH (6 dB)

## TEST DESCRIPTION

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The EUT was set to the channels and modes listed in the datasheet.

The 6dB DTS bandwidth was measured using the following analyzer settings:

Detector: Peak

Sweep time: Auto

Resolution Bandwidth: 1% to 5% of the OBW but not less than 100 kHz

Video Bandwidth:  $\geq 3 * RBW$

Trace: Max Hold

Span: Large enough to capture all products of the modulation process, including the emission skirts.

## TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent            | E4440A                | AFA | 2025-10-06 | 2027-10-06 |
| Block - DC                   | Aeroflex           | INMET 8535            | AMO | 2024-12-17 | 2025-12-17 |
| Attenuator                   | Fairview Microwave | SA18H-20              | UAZ | 2025-03-25 | 2026-03-25 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | OCA | 2025-10-17 | 2026-10-17 |
| Generator - Signal           | Agilent            | E8257D                | TGU | 2023-11-08 | 2026-11-08 |

# DTS BANDWIDTH (6 dB)



|                   |                                   |                       |            |
|-------------------|-----------------------------------|-----------------------|------------|
| EUT:              | Geospace Endpoint                 | Work Order:           | PCTE0075   |
| Serial Number:    | 0000051                           | Date:                 | 2025-10-17 |
| Customer:         | Geospace Technologies Corporation | Temperature:          | 21.8°C     |
| Attendees:        | None                              | Relative Humidity:    | 52.8%      |
| Customer Project: | None                              | Bar. Pressure (PMSL): | 1018 mbar  |
| Tested By:        | Kyle Fujimoto                     | Job Site:             | OC13       |
| Power:            | 3.6 Vdc                           | Configuration:        | PCTE0075-1 |

## COMMENTS

Reference level offset includes: DC Block, 20 dB Attenuator, measurement cable, and manufacturers patch cable.

## DEVIATIONS FROM TEST STANDARD

None

## CONCLUSION

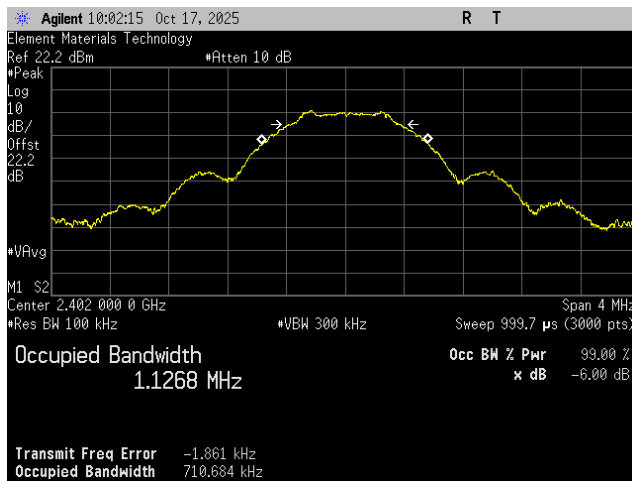
Pass

Tested By

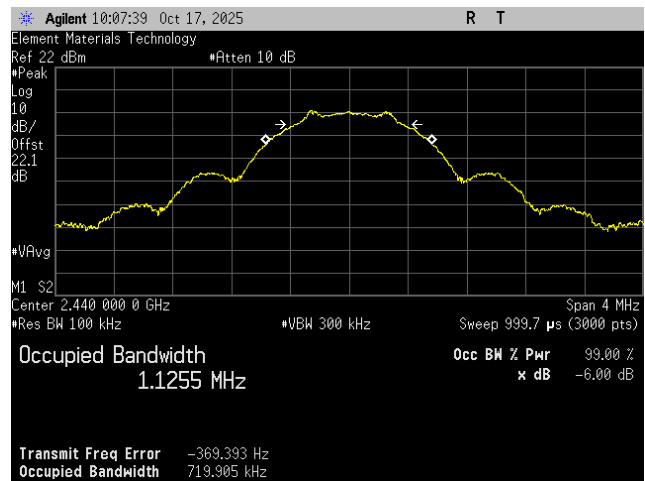
## TEST RESULTS

|                 |                        | Value       | Limit<br>(±) | Result |
|-----------------|------------------------|-------------|--------------|--------|
| BLE/GFSK 1 Mbps |                        |             |              |        |
|                 | Low Channel, 2402 MHz  | 710.684 kHz | 500 kHz      | Pass   |
|                 | Mid Channel, 2440 MHz  | 719.905 kHz | 500 kHz      | Pass   |
|                 | High Channel, 2480 MHz | 693.225 kHz | 500 kHz      | Pass   |
| BLE/GFSK 2 Mbps |                        |             |              |        |
|                 | Low Channel, 2402 MHz  | 1.412 MHz   | 500 kHz      | Pass   |
|                 | Mid Channel, 2440 MHz  | 1.308 MHz   | 500 kHz      | Pass   |
|                 | High Channel, 2480 MHz | 1.228 MHz   | 500 kHz      | Pass   |

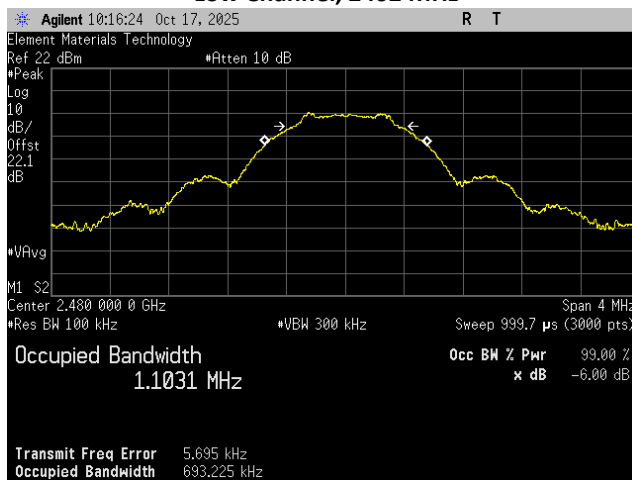
# DTS BANDWIDTH (6 dB)



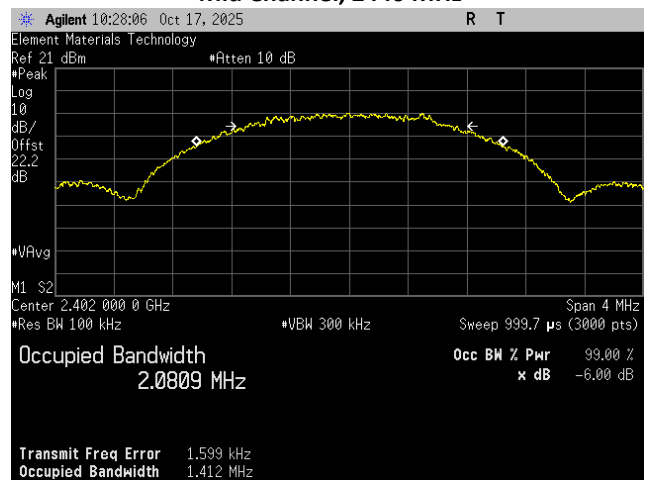
BLE/GFSK 1 Mbps  
Low Channel, 2402 MHz



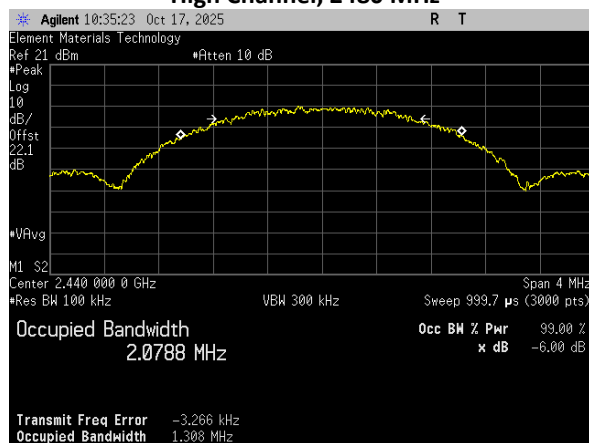
BLE/GFSK 1 Mbps  
Mid Channel, 2440 MHz



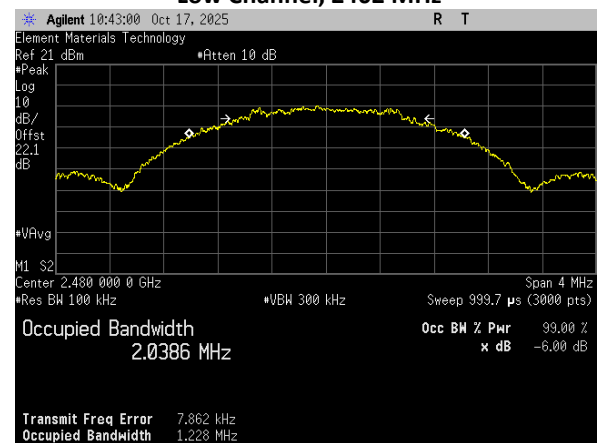
BLE/GFSK 1 Mbps  
High Channel, 2480 MHz



BLE/GFSK 2 Mbps  
Low Channel, 2402 MHz



BLE/GFSK 2 Mbps  
Mid Channel, 2440 MHz



BLE/GFSK 2 Mbps  
High Channel, 2480 MHz

# OCCUPIED BANDWIDTH (99%)

## TEST DESCRIPTION

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The 99% occupied bandwidth was measured with the EUT configured for continuous modulated operation.

Per ANSI C63.10:2020, 6.9.3, the spectrum analyzer was configured as follows:

Sweep time: Auto

Resolution Bandwidth: 1% to 5% of the OBW

Video Bandwidth:  $\geq 3 \times \text{RBW}$

Trace: Max Hold

Span: Large enough to capture all products of the modulation process, including the emission skirts.

A sample detector was used unless the device was not able to be operated in a continuous transmit mode, in which case a peak detector was used.

The spectrum analyzer occupied bandwidth measurement function was used to sum the power of the transmission in linear terms to obtain the 99% bandwidth.

## TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent            | E4440A                | AFA | 2025-10-06 | 2027-10-06 |
| Block - DC                   | Aeroflex           | INMET 8535            | AMO | 2024-12-17 | 2025-12-17 |
| Attenuator                   | Fairview Microwave | SA18H-20              | UAZ | 2025-03-25 | 2026-03-25 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | OCA | 2025-10-17 | 2026-10-17 |
| Generator - Signal           | Agilent            | E8257D                | TGU | 2023-11-08 | 2026-11-08 |

# OCCUPIED BANDWIDTH (99%)



|                   |                                   |                       |            |
|-------------------|-----------------------------------|-----------------------|------------|
| EUT:              | Geospace Endpoint                 | Work Order:           | PCTE0075   |
| Serial Number:    | 0000051                           | Date:                 | 2025-10-17 |
| Customer:         | Geospace Technologies Corporation | Temperature:          | 21.7°C     |
| Attendees:        | None                              | Relative Humidity:    | 52.6%      |
| Customer Project: | None                              | Bar. Pressure (PMSL): | 1017 mbar  |
| Tested By:        | Kyle Fujimoto                     | Job Site:             | OC13       |
| Power:            | 3.6 Vdc                           | Configuration:        | PCTE0075-1 |

## COMMENTS

Reference level offset includes: DC Block, 20 dB Attenuator, measurement cable, and manufacturers patch cable.

## DEVIATIONS FROM TEST STANDARD

None

## CONCLUSION

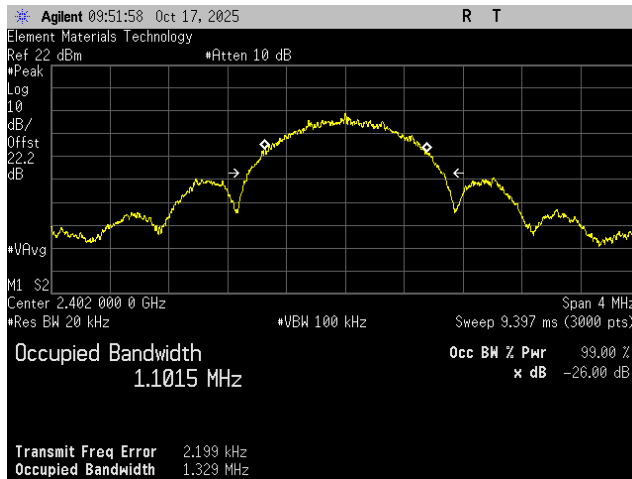
N/A

Tested By

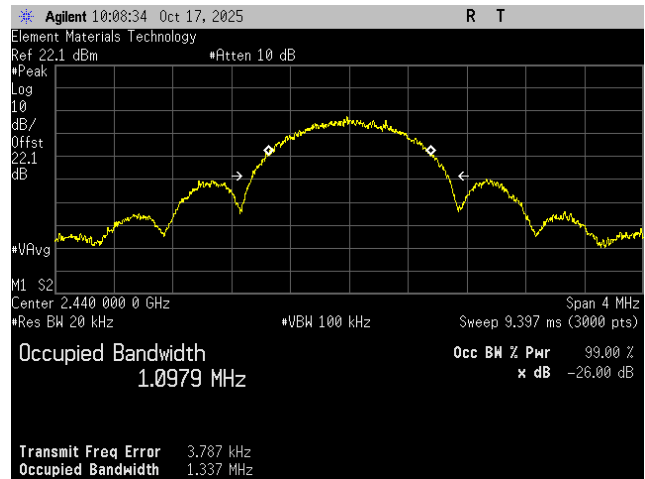
## TEST RESULTS

|                 |                        | Value     | Limit | Result |
|-----------------|------------------------|-----------|-------|--------|
| BLE/GFSK 1 Mbps |                        |           |       |        |
|                 | Low Channel, 2402 MHz  | 1.102 MHz | N/A   | N/A    |
|                 | Mid Channel, 2440 MHz  | 1.098 MHz | N/A   | N/A    |
|                 | High Channel, 2480 MHz | 1.092 MHz | N/A   | N/A    |
| BLE/GFSK 2 Mbps |                        |           |       |        |
|                 | Low Channel, 2402 MHz  | 2.066 MHz | N/A   | N/A    |
|                 | Mid Channel, 2440 MHz  | 2.064 MHz | N/A   | N/A    |
|                 | High Channel, 2480 MHz | 2.038 MHz | N/A   | N/A    |

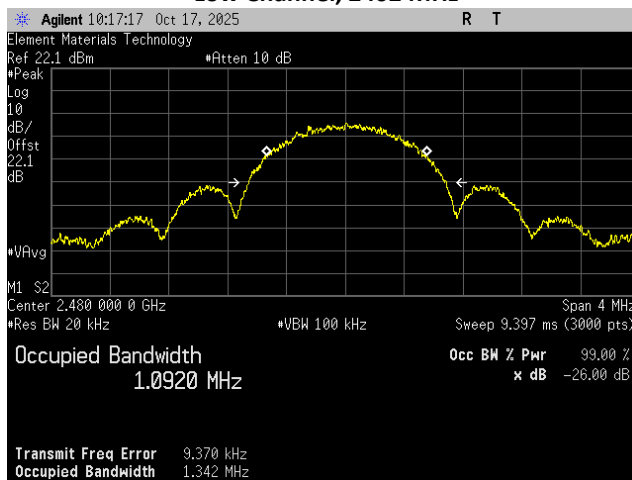
# OCCUPIED BANDWIDTH (99%)



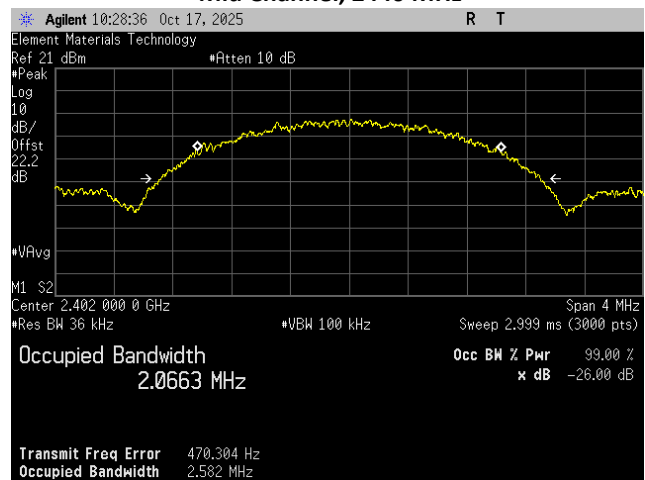
BLE/GFSK 1 Mbps  
Low Channel, 2402 MHz



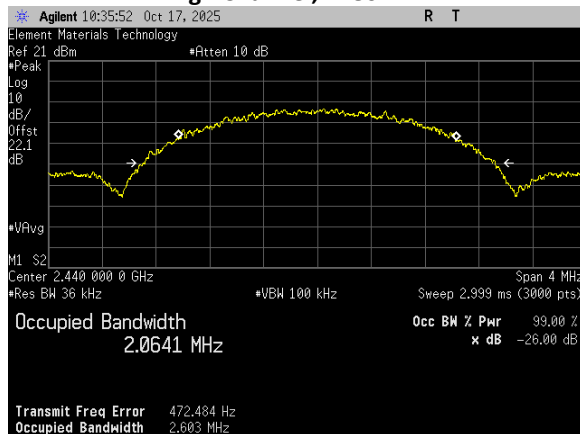
BLE/GFSK 1 Mbps  
Mid Channel, 2440 MHz



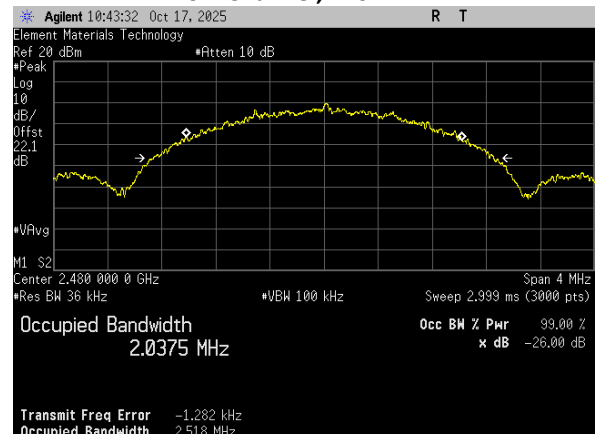
BLE/GFSK 1 Mbps  
High Channel, 2480 MHz



BLE/GFSK 2 Mbps  
Low Channel, 2402 MHz



BLE/GFSK 2 Mbps  
Mid Channel, 2440 MHz



BLE/GFSK 2 Mbps  
High Channel, 2480 MHz

# OUTPUT POWER

## TEST DESCRIPTION

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum.

Prior to measuring peak transmit power the DTS bandwidth (B) was measured.

The method found in ANSI C63.10:2020 Section 11.9.1.1 was used because the RBW on the analyzer was greater than the DTS Bandwidth of the radio.

Analyzer settings:

Detector: Peak

Sweep time: Auto

Resolution Bandwidth:  $\geq$  DTS bandwidth

Video Bandwidth:  $\geq 3 * RBW$

Trace: Max Hold

## TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent            | E4440A                | AFA | 2025-10-06 | 2027-10-06 |
| Block - DC                   | Aeroflex           | INMET 8535            | AMO | 2024-12-17 | 2025-12-17 |
| Attenuator                   | Fairview Microwave | SA18H-20              | UAZ | 2025-03-25 | 2026-03-25 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | OCA | 2025-10-17 | 2026-10-17 |
| Generator - Signal           | Agilent            | E8257D                | TGU | 2023-11-08 | 2026-11-08 |

# OUTPUT POWER

|                   |                                   |                       |            |
|-------------------|-----------------------------------|-----------------------|------------|
| EUT:              | Geospace Endpoint                 | Work Order:           | PCTE0075   |
| Serial Number:    | 0000051                           | Date:                 | 2025-10-17 |
| Customer:         | Geospace Technologies Corporation | Temperature:          | 21.8°C     |
| Attendees:        | None                              | Relative Humidity:    | 52.9%      |
| Customer Project: | None                              | Bar. Pressure (PMSL): | 1018 mbar  |
| Tested By:        | Kyle Fujimoto                     | Job Site:             | OC13       |
| Power:            | 3.6 Vdc                           | Configuration:        | PCTE0075-1 |

## COMMENTS

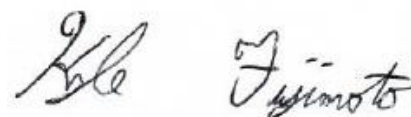
Reference level offset includes: DC Block, 20 dB Attenuator, measurement cable, and manufacturers patch cable.

## DEVIATIONS FROM TEST STANDARD

None

## CONCLUSION

Pass

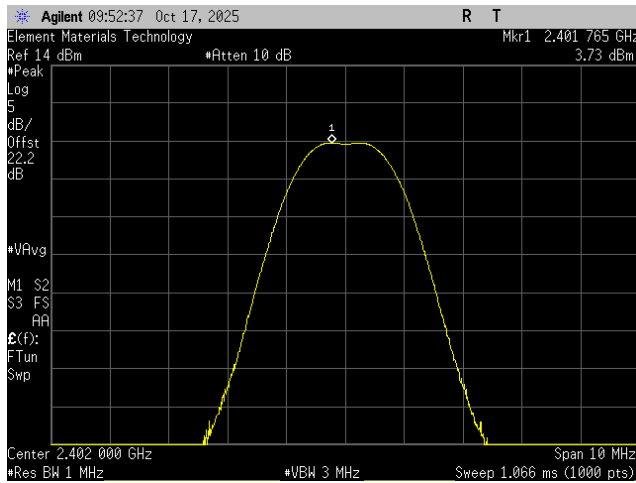


Tested By

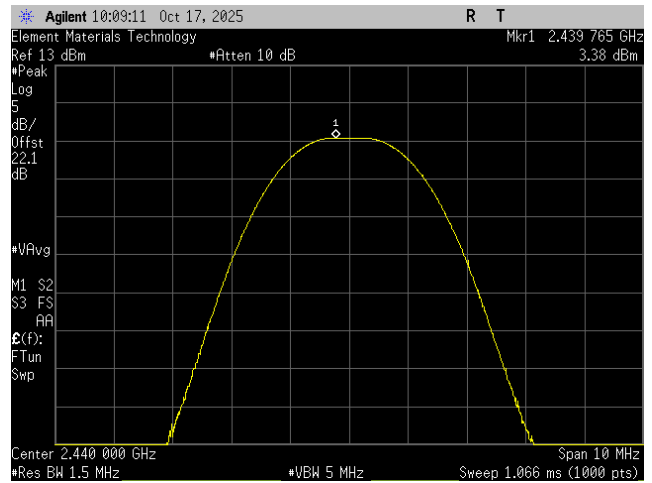
## TEST RESULTS

|                 |                        | Out Pwr<br>(dBm) | Limit<br>(dBm) | Result |
|-----------------|------------------------|------------------|----------------|--------|
| BLE/GFSK 1 Mbps |                        |                  |                |        |
|                 | Low Channel, 2402 MHz  | 3.726            | 30             | Pass   |
|                 | Mid Channel, 2440 MHz  | 3.38             | 30             | Pass   |
|                 | High Channel, 2480 MHz | 3.01             | 30             | Pass   |
| BLE/GFSK 2 Mbps |                        |                  |                |        |
|                 | Low Channel, 2402 MHz  | 3.784            | 30             | Pass   |
|                 | Mid Channel, 2440 MHz  | 3.296            | 30             | Pass   |
|                 | High Channel, 2480 MHz | 2.878            | 30             | Pass   |

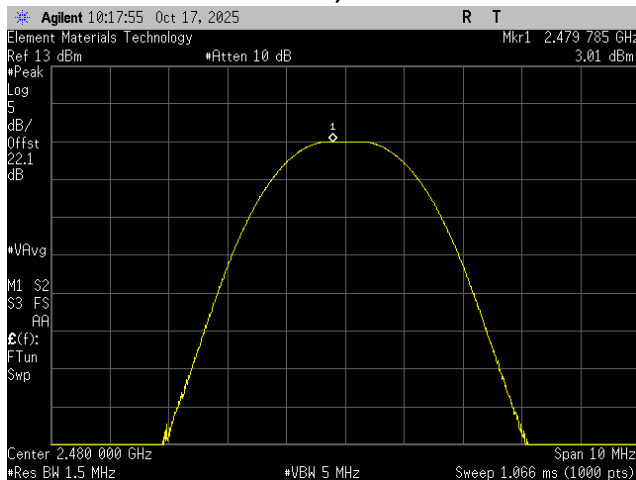
# OUTPUT POWER



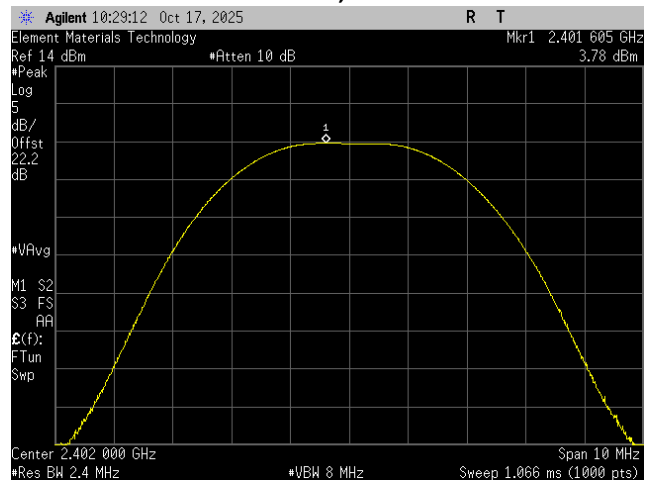
**BLE/GFSK 1 Mbps  
Low Channel, 2402 MHz**



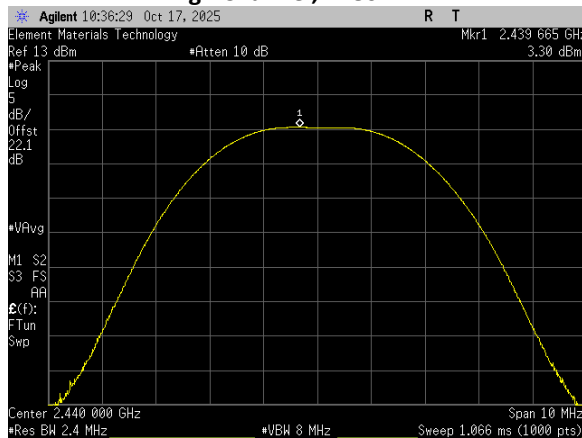
**BLE/GFSK 1 Mbps  
Mid Channel, 2440 MHz**



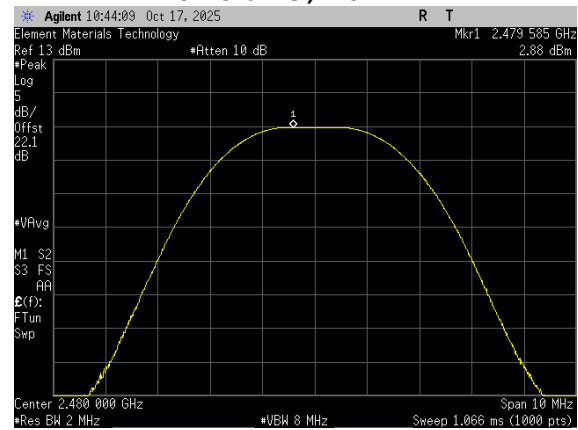
**BLE/GFSK 1 Mbps  
High Channel, 2480 MHz**



**BLE/GFSK 2 Mbps  
Low Channel, 2402 MHz**



**BLE/GFSK 2 Mbps  
Mid Channel, 2440 MHz**



**BLE/GFSK 2 Mbps  
High Channel, 2480 MHz**

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



## TEST DESCRIPTION

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum.

Prior to measuring peak transmit power the DTS bandwidth (B) was measured.

The method found in ANSI C63.10:2020 Section 11.9.1.1 was used because the RBW on the analyzer was greater than the DTS Bandwidth of the radio.

Equivalent Isotropic Radiated Power (EIRP) = Max Measured Power + Antenna gain (dBi)

Analyzer settings:

Detector: Peak

Sweep time: Auto

Resolution Bandwidth:  $\geq$  DTS bandwidth

Video Bandwidth:  $\geq 3 * RBW$

Trace: Max Hold

## TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent            | E4440A                | AFA | 2025-10-06 | 2027-10-06 |
| Block - DC                   | Aeroflex           | INMET 8535            | AMO | 2024-12-17 | 2025-12-17 |
| Attenuator                   | Fairview Microwave | SA18H-20              | UAZ | 2025-03-25 | 2026-03-25 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | OCA | 2025-10-17 | 2026-10-17 |
| Generator - Signal           | Agilent            | E8257D                | TGU | 2023-11-08 | 2026-11-08 |

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



|                   |                                   |                       |            |
|-------------------|-----------------------------------|-----------------------|------------|
| EUT:              | Geospace Endpoint                 | Work Order:           | PCTE0075   |
| Serial Number:    | 0000051                           | Date:                 | 2025-10-17 |
| Customer:         | Geospace Technologies Corporation | Temperature:          | 21.8°C     |
| Attendees:        | None                              | Relative Humidity:    | 52.9%      |
| Customer Project: | None                              | Bar. Pressure (PMSL): | 1018 mbar  |
| Tested By:        | Kyle Fujimoto                     | Job Site:             | OC13       |
| Power:            | 3.6 Vdc                           | Configuration:        | PCTE0075-1 |

## COMMENTS

Reference level offset includes: DC Block, 20 dB Attenuator, measurement cable, and manufacturers patch cable.

## DEVIATIONS FROM TEST STANDARD

None

## CONCLUSION

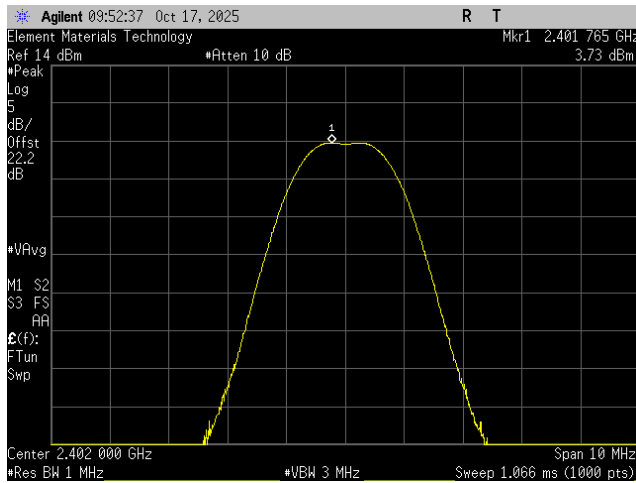
Pass

Tested By

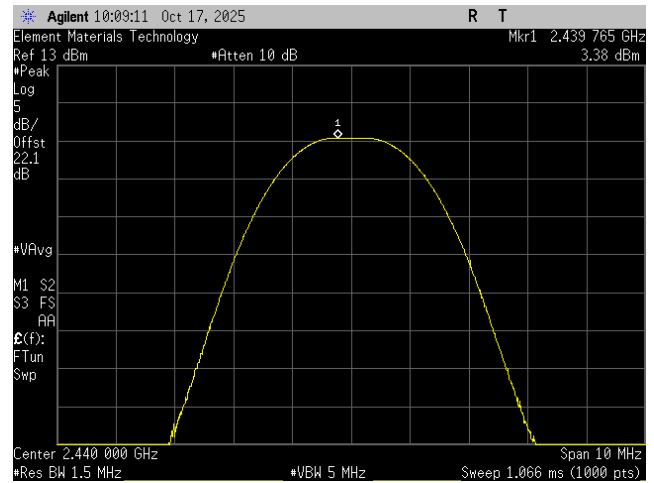
## TEST RESULTS

|                        | Out Pwr<br>(dBm) | Antenna<br>Gain (dBi) | EIRP<br>(dBm) | EIRP Limit<br>(dBm) | Result |
|------------------------|------------------|-----------------------|---------------|---------------------|--------|
| BLE/GFSK 1 Mbps        |                  |                       |               |                     |        |
| Low Channel, 2402 MHz  | 3.726            | 0.48                  | 4.206         | 36                  | Pass   |
| Mid Channel, 2440 MHz  | 3.38             | 0.48                  | 3.86          | 36                  | Pass   |
| High Channel, 2480 MHz | 3.01             | 0.48                  | 3.49          | 36                  | Pass   |
| BLE/GFSK 2 Mbps        |                  |                       |               |                     |        |
| Low Channel, 2402 MHz  | 3.784            | 0.48                  | 4.264         | 36                  | Pass   |
| Mid Channel, 2440 MHz  | 3.296            | 0.48                  | 3.776         | 36                  | Pass   |
| High Channel, 2480 MHz | 2.878            | 0.48                  | 3.358         | 36                  | Pass   |

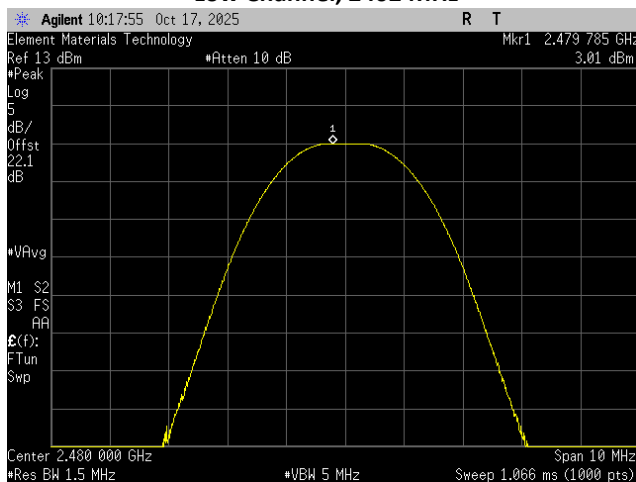
# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



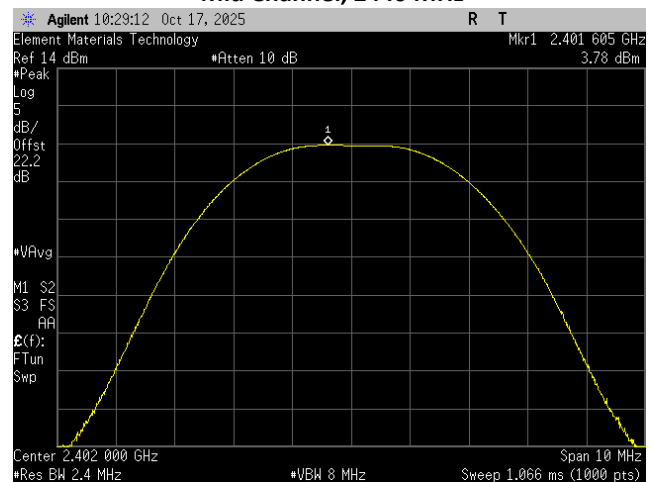
**BLE/GFSK 1 Mbps  
Low Channel, 2402 MHz**



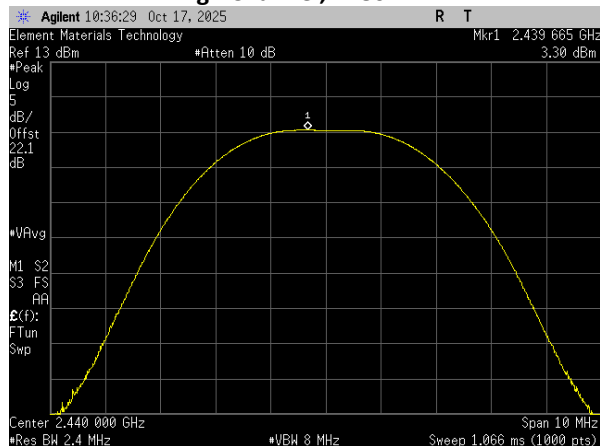
**BLE/GFSK 1 Mbps  
Mid Channel, 2440 MHz**



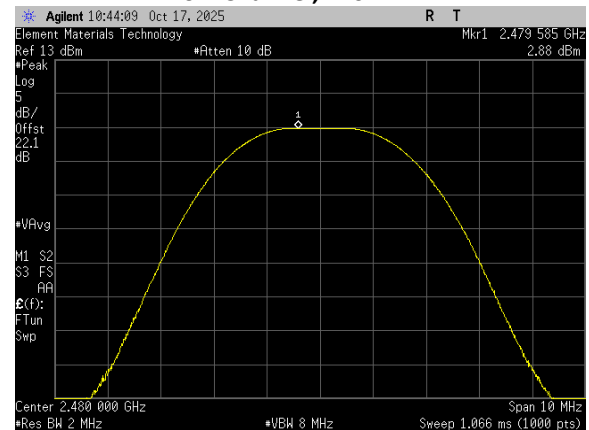
**BLE/GFSK 1 Mbps  
High Channel, 2480 MHz**



**BLE/GFSK 2 Mbps  
Low Channel, 2402 MHz**



**BLE/GFSK 2 Mbps  
Mid Channel, 2440 MHz**



**BLE/GFSK 2 Mbps  
High Channel, 2480 MHz**

# POWER SPECTRAL DENSITY

## TEST DESCRIPTION

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The maximum power spectral density measurements was measured using the channels and modes as called out on the following data sheets.

Per the procedure outlined in ANSI C63.10 the peak power spectral density was measured in a 3 kHz RBW.

## TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent            | E4440A                | AFA | 2025-10-06 | 2027-10-06 |
| Block - DC                   | Aeroflex           | INMET 8535            | AMO | 2024-12-17 | 2025-12-17 |
| Attenuator                   | Fairview Microwave | SA18H-20              | UAZ | 2025-03-25 | 2026-03-25 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | OCA | 2025-10-17 | 2026-10-17 |
| Generator - Signal           | Agilent            | E8257D                | TGU | 2023-11-08 | 2026-11-08 |

# POWER SPECTRAL DENSITY



|                   |                                   |                       |            |
|-------------------|-----------------------------------|-----------------------|------------|
| EUT:              | Geospace Endpoint                 | Work Order:           | PCTE0075   |
| Serial Number:    | 0000051                           | Date:                 | 2025-10-17 |
| Customer:         | Geospace Technologies Corporation | Temperature:          | 22.5°C     |
| Attendees:        | None                              | Relative Humidity:    | 52.9%      |
| Customer Project: | None                              | Bar. Pressure (PMSL): | 1017 mbar  |
| Tested By:        | Kyle Fujimoto                     | Job Site:             | OC13       |
| Power:            | 3.6 Vdc                           | Configuration:        | PCTE0075-1 |

## COMMENTS

Reference level offset includes: DC Block, 20 dB Attenuator, measurement cable, and manufacturers patch cable.

## DEVIATIONS FROM TEST STANDARD

None

## CONCLUSION

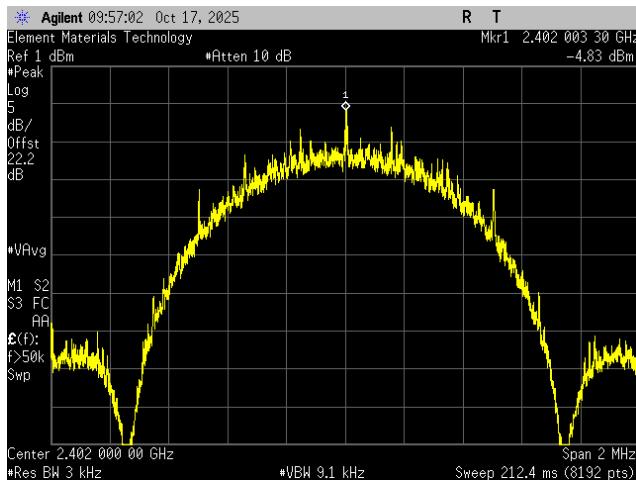
Pass

Tested By

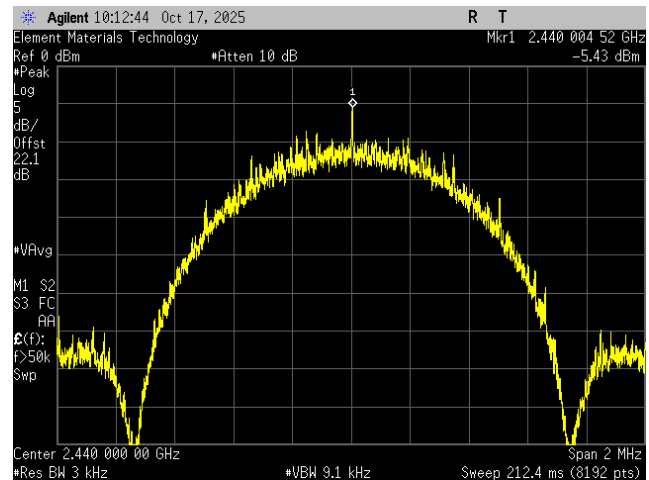
## TEST RESULTS

|                 |                        | Value<br>dBm/3kHz | Limit<br>≤ (dBm/3kHz) | Results |
|-----------------|------------------------|-------------------|-----------------------|---------|
| BLE/GFSK 1 Mbps |                        |                   |                       |         |
|                 | Low Channel, 2402 MHz  | -4.828            | 8                     | Pass    |
|                 | Mid Channel, 2440 MHz  | -5.43             | 8                     | Pass    |
|                 | High Channel, 2480 MHz | -5.668            | 8                     | Pass    |
| BLE/GFSK 2 Mbps |                        |                   |                       |         |
|                 | Low Channel, 2402 MHz  | -10.34            | 8                     | Pass    |
|                 | Mid Channel, 2440 MHz  | -9.431            | 8                     | Pass    |
|                 | High Channel, 2480 MHz | -9.195            | 8                     | Pass    |

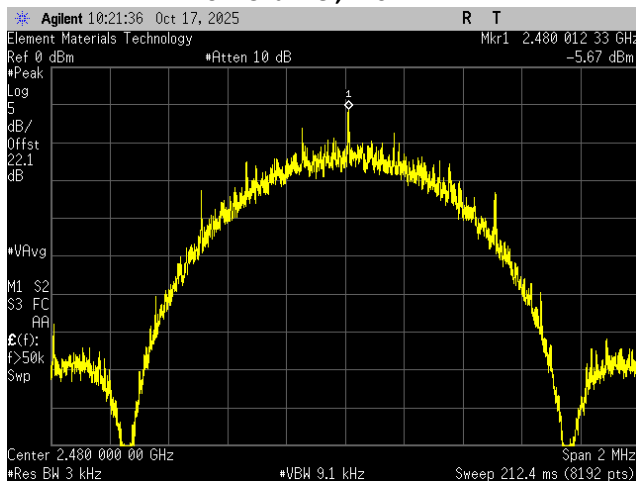
# POWER SPECTRAL DENSITY



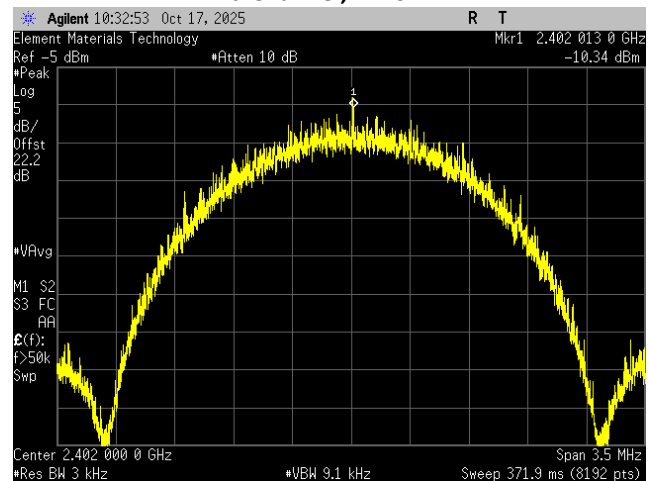
**BLE/GFSK 1 Mbps  
Low Channel, 2402 MHz**



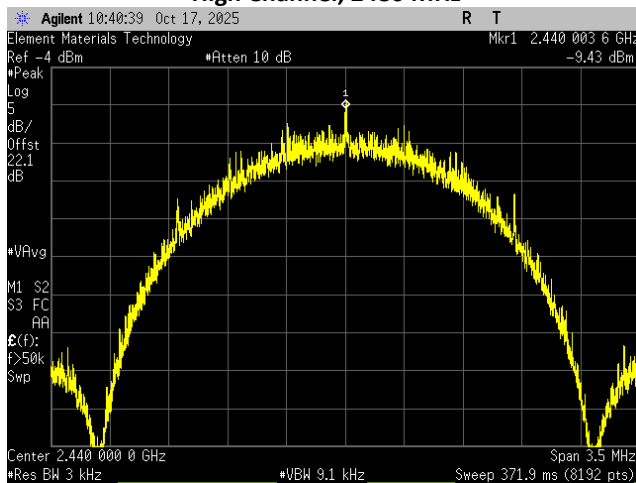
**BLE/GFSK 1 Mbps  
Mid Channel, 2440 MHz**



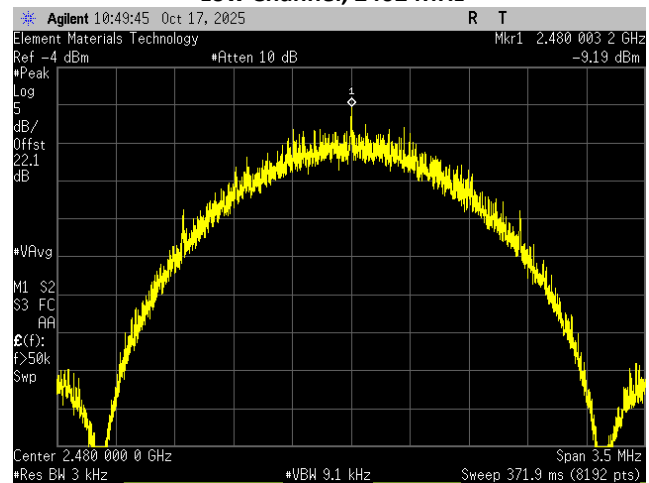
**BLE/GFSK 1 Mbps  
High Channel, 2480 MHz**



**BLE/GFSK 2 Mbps  
Low Channel, 2402 MHz**



**BLE/GFSK 2 Mbps  
Mid Channel, 2440 MHz**



**BLE/GFSK 2 Mbps  
High Channel, 2480 MHz**

# BAND EDGE COMPLIANCE

## TEST DESCRIPTION

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in each available band. The channels closest to the band edges were selected. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge. The analyzer screen captures for this test show an example of the emission mask for the test mode also used during the radiated spurious emissions at the restricted band edges test.

## TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent            | E4440A                | AFA | 2025-10-06 | 2027-10-06 |
| Block - DC                   | Aeroflex           | INMET 8535            | AMO | 2024-12-17 | 2025-12-17 |
| Attenuator                   | Fairview Microwave | SA18H-20              | UAZ | 2025-03-25 | 2026-03-25 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | OCA | 2025-10-17 | 2026-10-17 |
| Generator - Signal           | Agilent            | E8257D                | TGU | 2023-11-08 | 2026-11-08 |

# BAND EDGE COMPLIANCE



|                   |                                   |                       |            |
|-------------------|-----------------------------------|-----------------------|------------|
| EUT:              | Geospace Endpoint                 | Work Order:           | PCTE0075   |
| Serial Number:    | 0000051                           | Date:                 | 2025-10-17 |
| Customer:         | Geospace Technologies Corporation | Temperature:          | 22.4°C     |
| Attendees:        | None                              | Relative Humidity:    | 53%        |
| Customer Project: | None                              | Bar. Pressure (PMSL): | 1017 mbar  |
| Tested By:        | Kyle Fujimoto                     | Job Site:             | OC13       |
| Power:            | 3.6 Vdc                           | Configuration:        | PCTE0075-1 |

## COMMENTS

Reference level offset includes: DC Block, 20 dB Attenuator, measurement cable, and manufacturers patch cable.

## DEVIATIONS FROM TEST STANDARD

None

## CONCLUSION

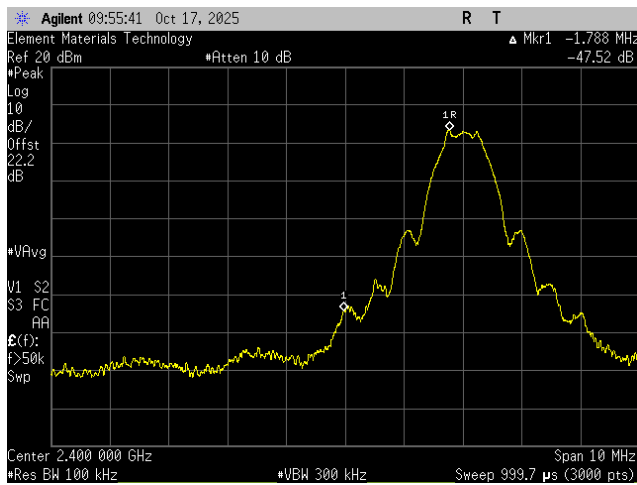
Pass

Tested By

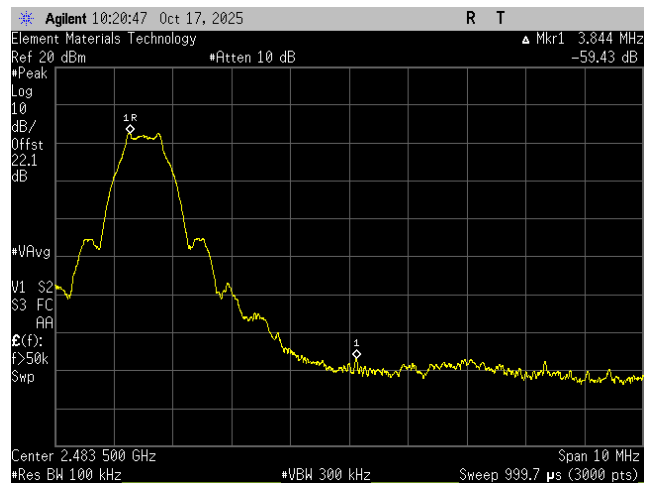
## TEST RESULTS

|                 |                        | Value<br>(dBc) | Limit<br>≤ (dBc) | Result |
|-----------------|------------------------|----------------|------------------|--------|
| BLE/GFSK 1 Mbps |                        |                |                  |        |
|                 | Low Channel, 2402 MHz  | -47.52         | -20              | Pass   |
|                 | High Channel, 2480 MHz | -59.43         | -20              | Pass   |
| BLE/GFSK 2 Mbps |                        |                |                  |        |
|                 | Low Channel, 2402 MHz  | -32.07         | -20              | Pass   |
|                 | High Channel, 2480 MHz | -54.1          | -20              | Pass   |

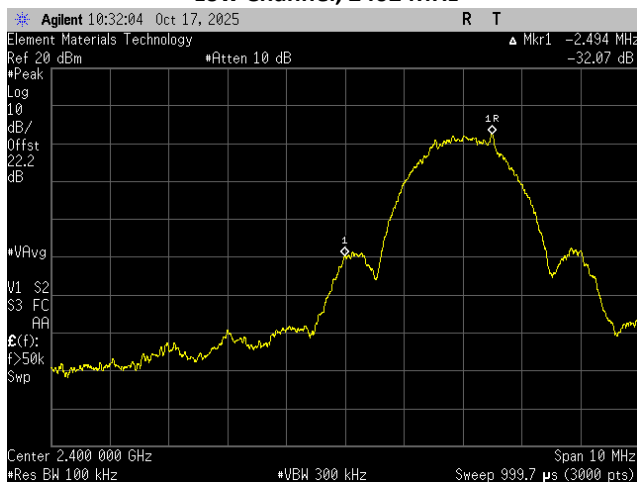
# BAND EDGE COMPLIANCE



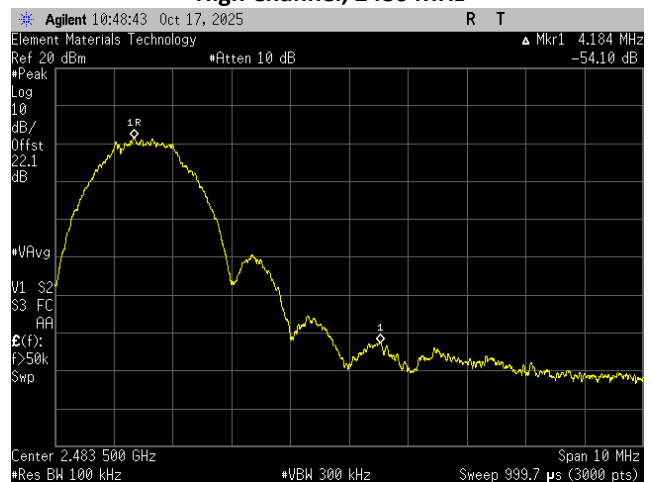
**BLE/GFSK 1 Mbps  
Low Channel, 2402 MHz**



**BLE/GFSK 1 Mbps  
High Channel, 2480 MHz**



**BLE/GFSK 2 Mbps  
Low Channel, 2402 MHz**



**BLE/GFSK 2 Mbps  
High Channel, 2480 MHz**

# SPURIOUS CONDUCTED EMISSIONS

## TEST DESCRIPTION

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The spurious RF conducted emissions were measured with the EUT set to low, medium and high transmit frequencies. The EUT was transmitting at the data rate(s) listed in the datasheet. For each transmit frequency, the fundamental was measured with a 100 kHz resolution bandwidth and the highest value was recorded. The rest of the spectrum was then measured with a 100 kHz resolution bandwidth and the highest value was found. The difference between the value found on the fundamental and the rest of the spectrum was compared against the limit to determine compliance.

The reference level offset for the fundamental screen capture was based on a measured value of the loss between the spectrum analyzer and the EUT which was verified at the time of test. The remaining screen capture(s) use an internal transducer factor on the analyzer to correct the displayed trace based on the cable loss over frequency. The reference level offset for the additional screen capture(s) is then based on the expected attenuator value and any other losses.

Fundamental Offset = Ref Lvl Offset showing measured composite factor of all losses

Remaining Screen capture(s) Offset = "Internal" cable loss factor not shown on screen capture + Ref Lvl Offset showing expected attenuator value and any other losses

## TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent            | E4440A                | AFA | 2025-10-06 | 2027-10-06 |
| Block - DC                   | Aeroflex           | INMET 8535            | AMO | 2024-12-17 | 2025-12-17 |
| Attenuator                   | Fairview Microwave | SA18H-20              | UAZ | 2025-03-25 | 2026-03-25 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | OCA | 2025-10-17 | 2026-10-17 |
| Generator - Signal           | Agilent            | E8257D                | TGU | 2023-11-08 | 2026-11-08 |

# SPURIOUS CONDUCTED EMISSIONS



|                   |                                   |                       |            |
|-------------------|-----------------------------------|-----------------------|------------|
| EUT:              | Geospace Endpoint                 | Work Order:           | PCTE0075   |
| Serial Number:    | 0000051                           | Date:                 | 2025-10-17 |
| Customer:         | Geospace Technologies Corporation | Temperature:          | 22.5°C     |
| Attendees:        | None                              | Relative Humidity:    | 53%        |
| Customer Project: | None                              | Bar. Pressure (PMSL): | 1017 mbar  |
| Tested By:        | Kyle Fujimoto                     | Job Site:             | OC13       |
| Power:            | 3.6 Vdc                           | Configuration:        | PCTE0075-1 |

## COMMENTS

Reference level offset includes: DC Block, 20 dB Attenuator, measurement cable, and manufacturers patch cable.

## DEVIATIONS FROM TEST STANDARD

None

## CONCLUSION

Pass

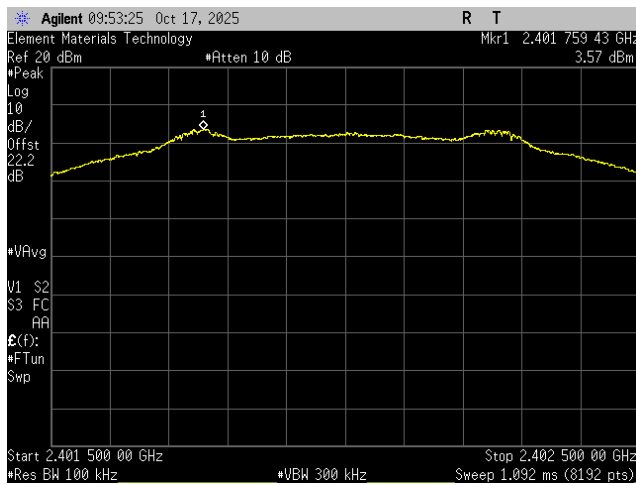
*Kyle Fujimoto*

Tested By

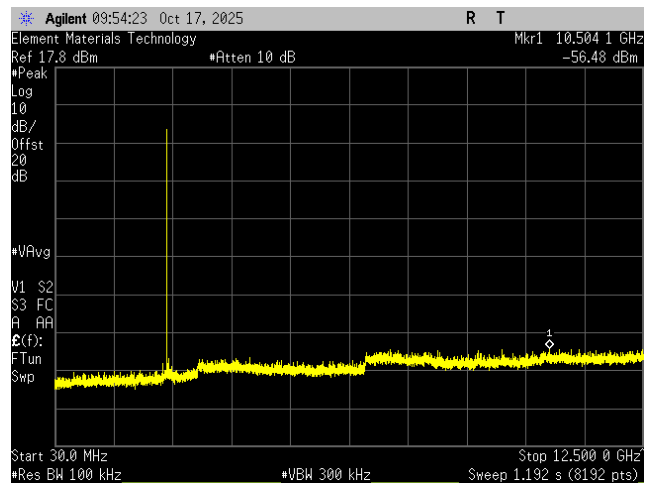
## TEST RESULTS

|                        | Frequency Range   | Measured Freq (MHz) | Max Value (dBc) | Limit ≤ (dBc) | Result |
|------------------------|-------------------|---------------------|-----------------|---------------|--------|
| BLE/GFSK 1 Mbps        |                   |                     |                 |               |        |
| Low Channel, 2402 MHz  | Fundamental       | 2401.76             | N/A             | N/A           | N/A    |
|                        | 30 MHz - 12.5 GHz | 10504.1             | -60.05          | -20           | Pass   |
|                        | 12.5 GHz - 25 GHz | 24148.5             | -54.81          | -20           | Pass   |
| Mid Channel, 2440 MHz  | Fundamental       | 2440.26             | N/A             | N/A           | N/A    |
|                        | 30 MHz - 12.5 GHz | 10501.1             | -59.1           | -20           | Pass   |
|                        | 12.5 GHz - 25 GHz | 24256.8             | -54.02          | -20           | Pass   |
| High Channel, 2480 MHz | Fundamental       | 2479.77             | N/A             | N/A           | N/A    |
|                        | 30 MHz - 12.5 GHz | 12265.6             | -58.41          | -20           | Pass   |
|                        | 12.5 GHz - 25 GHz | 24122.5             | -54.25          | -20           | Pass   |
| BLE/GFSK 2 Mbps        |                   |                     |                 |               |        |
| Low Channel, 2402 MHz  | Fundamental       | 2402.03             | N/A             | N/A           | N/A    |
|                        | 30 MHz - 12.5 GHz | 2397.3              | -56.06          | -20           | Pass   |
|                        | 12.5 GHz - 25 GHz | 24676.5             | -52.93          | -20           | Pass   |
| Mid Channel, 2440 MHz  | Fundamental       | 2440.04             | N/A             | N/A           | N/A    |
|                        | 30 MHz - 12.5 GHz | 11519.6             | -57.79          | -20           | Pass   |
|                        | 12.5 GHz - 25 GHz | 24624.6             | -52.89          | -20           | Pass   |
| High Channel, 2480 MHz | Fundamental       | 2479.51             | N/A             | N/A           | N/A    |
|                        | 30 MHz - 12.5 GHz | 10478.2             | -57.54          | -20           | Pass   |
|                        | 12.5 GHz - 25 GHz | 24703.9             | -52.43          | -20           | Pass   |

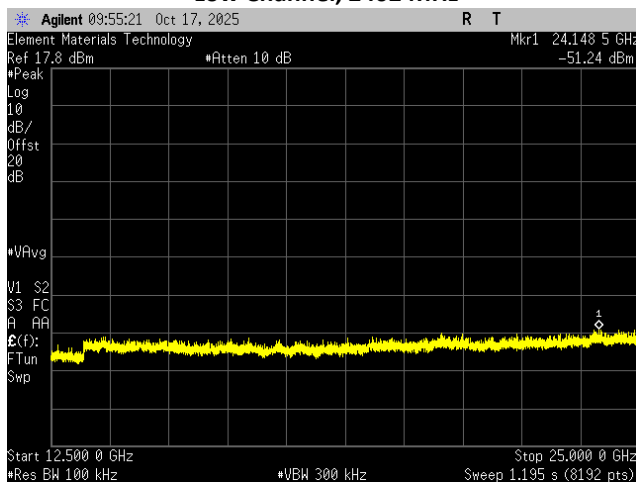
# SPURIOUS CONDUCTED EMISSIONS



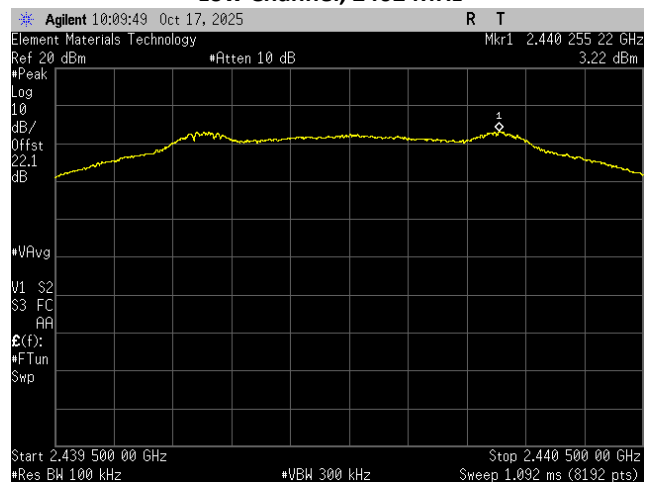
**BLE/GFSK 1 Mbps  
Low Channel, 2402 MHz**



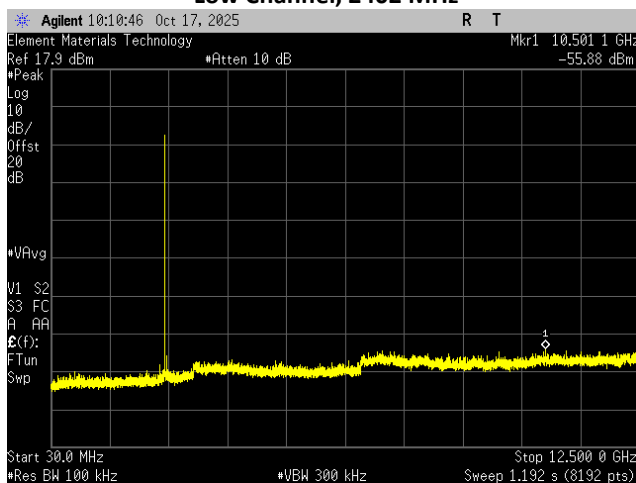
**BLE/GFSK 1 Mbps  
Low Channel, 2402 MHz**



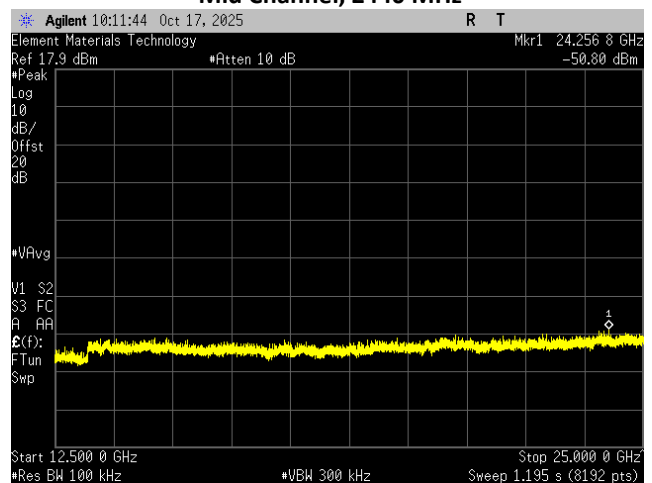
**BLE/GFSK 1 Mbps  
Low Channel, 2402 MHz**



**BLE/GFSK 1 Mbps  
Mid Channel, 2440 MHz**

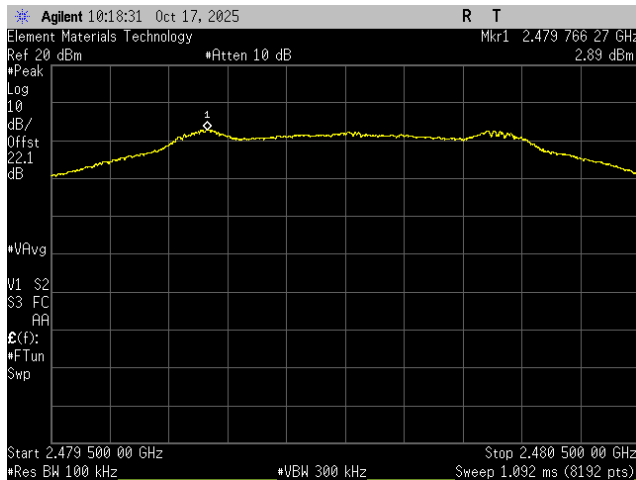


**BLE/GFSK 1 Mbps  
Mid Channel, 2440 MHz**

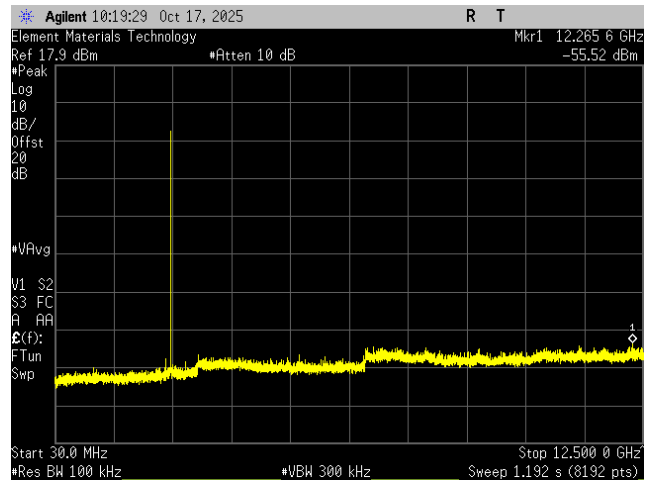


**BLE/GFSK 1 Mbps  
Mid Channel, 2440 MHz**

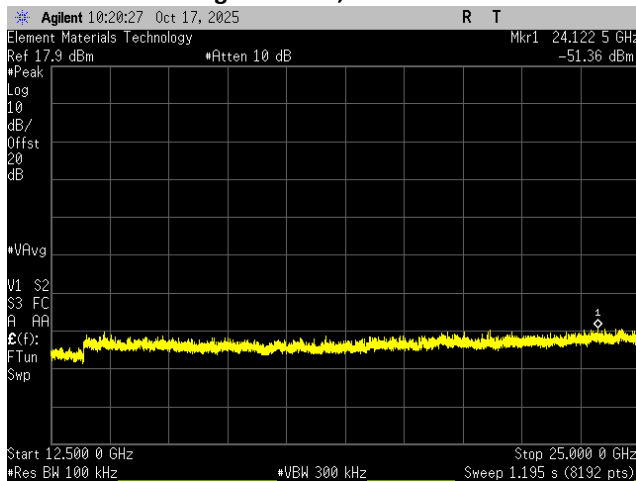
# SPURIOUS CONDUCTED EMISSIONS



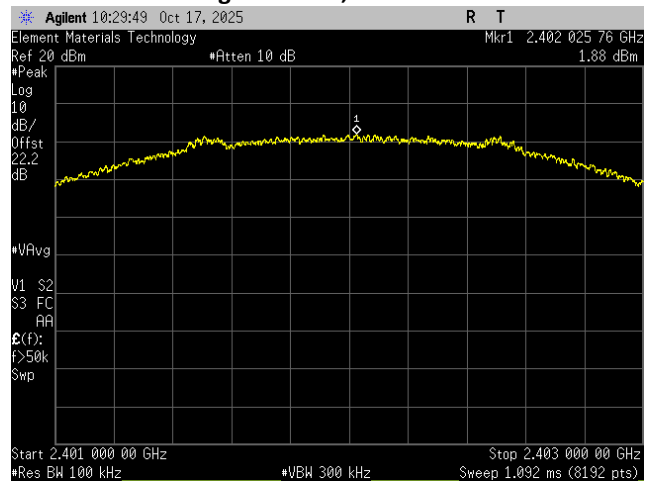
**BLE/GFSK 1 Mbps  
High Channel, 2480 MHz**



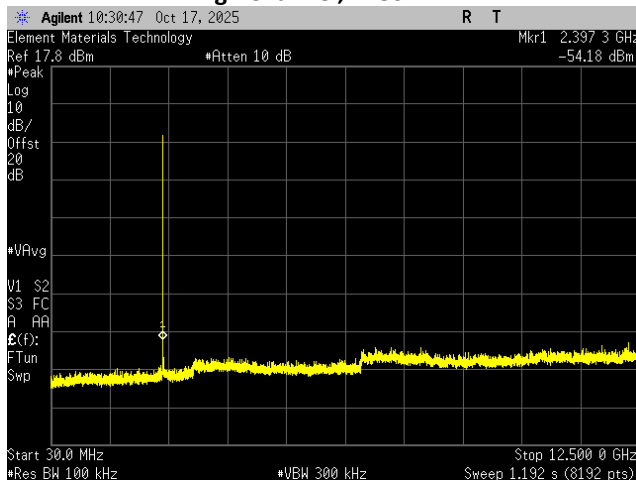
**BLE/GFSK 1 Mbps  
High Channel, 2480 MHz**



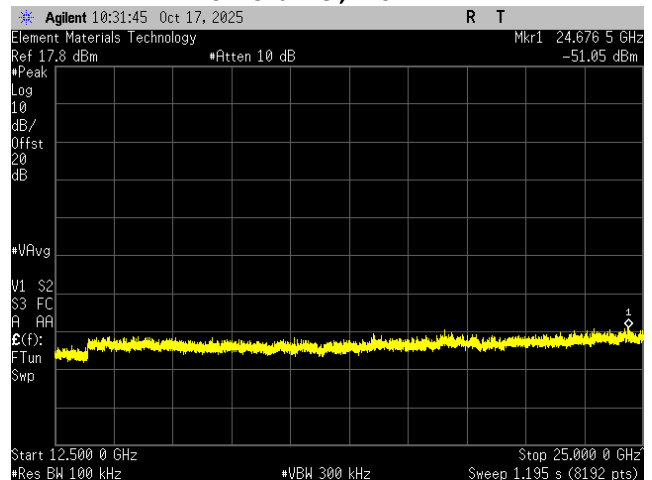
**BLE/GFSK 1 Mbps  
High Channel, 2480 MHz**



**BLE/GFSK 2 Mbps  
Low Channel, 2402 MHz**

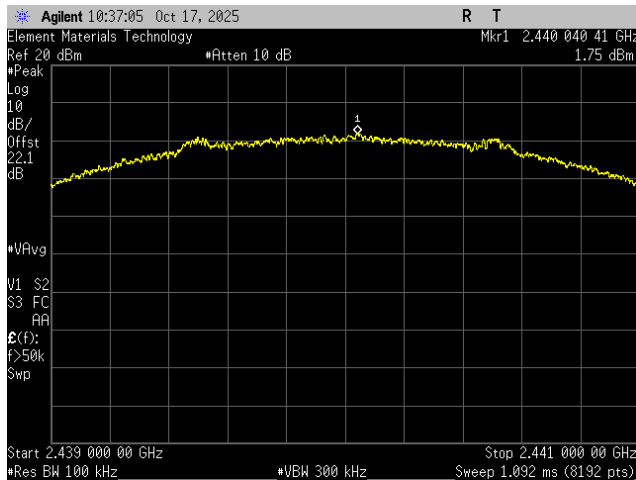


**BLE/GFSK 2 Mbps  
Low Channel, 2402 MHz**

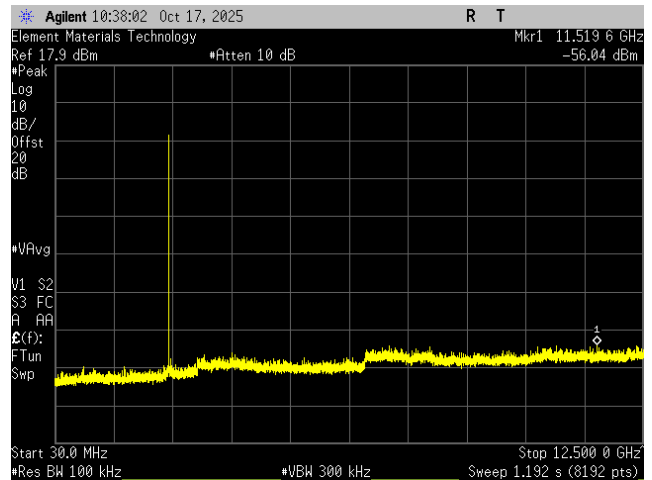


**BLE/GFSK 2 Mbps  
Low Channel, 2402 MHz**

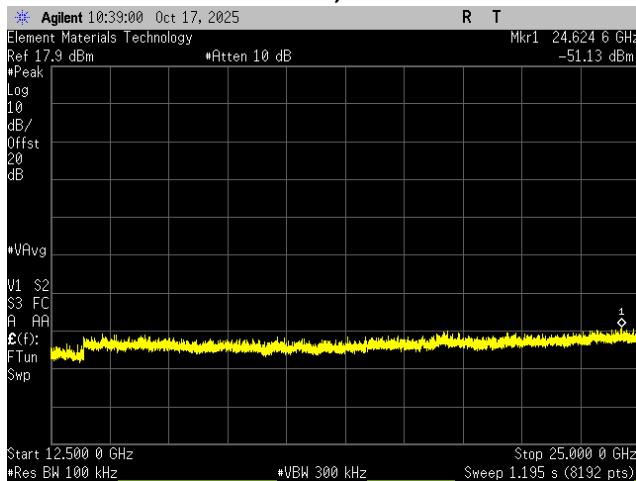
# SPURIOUS CONDUCTED EMISSIONS



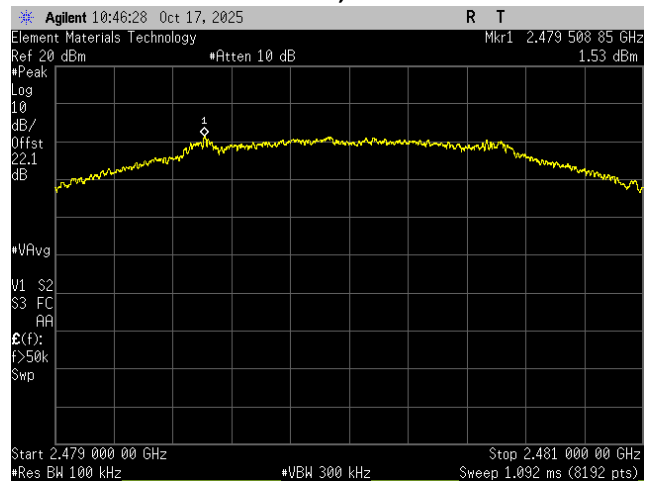
BLE/GFSK 2 Mbps  
Mid Channel, 2440 MHz



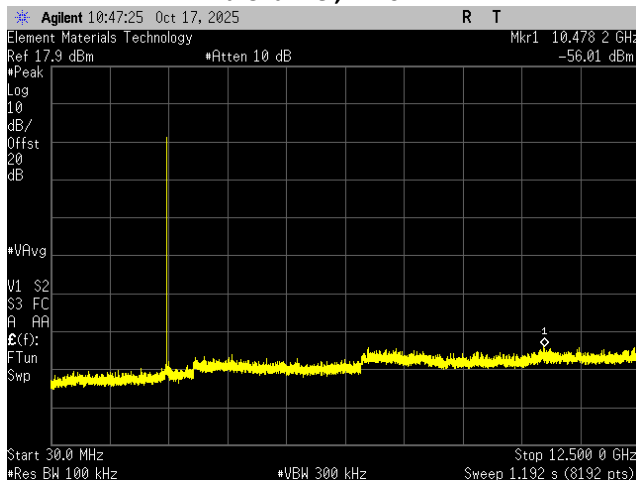
BLE/GFSK 2 Mbps  
Mid Channel, 2440 MHz



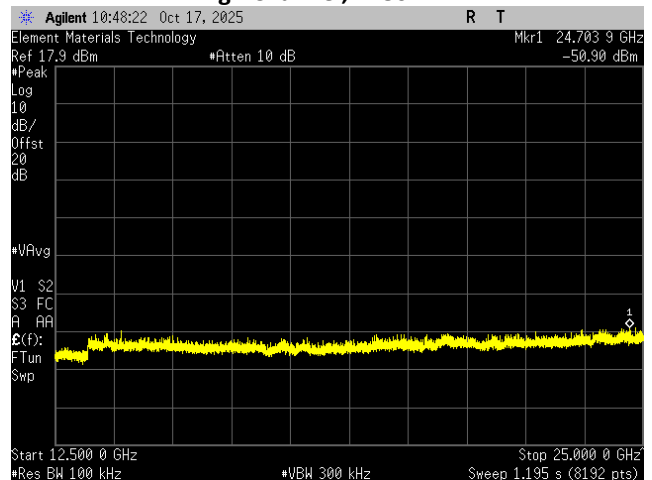
BLE/GFSK 2 Mbps  
Mid Channel, 2440 MHz



BLE/GFSK 2 Mbps  
High Channel, 2480 MHz



BLE/GFSK 2 Mbps  
High Channel, 2480 MHz



BLE/GFSK 2 Mbps  
High Channel, 2480 MHz

# SPURIOUS RADIATED EMISSIONS – ABOVE 1 GHz

## TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies and the modes as showed in the data sheets.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. A reference preview scan (pre-scan) is included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector  
PK = Peak Detector  
AV = RMS Detector

Measurements were made to satisfy the specific requirements of the test specification for out of band emissions as well as the restricted band requirements.

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

Measurements within 2 MHz of the allowable band may have been taken using the integration method from ANSI C63.10 clause 11.13.3. This procedure uses the channel power feature of the spectrum analyzer to integrate the power of the emission within a 1 MHz bandwidth.

Where the radio test software does not provide for a duty cycle at continuous transmit conditions (> 98%) and the RMS (power average) measurements were made across the on and off times of the EUT transmissions, a duty cycle correction is added to the measurements using the formula of  $10 \cdot \log(1/dc)$ .

## TEST EQUIPMENT

| Description                  | Manufacturer       | Model                  | ID   | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|------------------------|------|------------|------------|
| Antenna - Double Ridge       | EMCO               | 3115                   | AHB  | 2024-04-16 | 2026-04-16 |
| Cable                        | ESM Cable Corp.    | 1-8GHz Cables          | OCX  | 2025-03-19 | 2026-03-19 |
| Amplifier - Pre-Amplifier    | Miteq              | AMF-3D-00100800-32-13P | AVJ  | 2025-03-19 | 2026-03-19 |
| Antenna - Standard Gain      | ETS Lindgren       | 3160-07                | AHX  | 2024-12-03 | 2025-12-03 |
| Cable                        | ESM Cable Corp.    | 8-18GHz Cables         | OCY  | 2025-03-19 | 2026-03-19 |
| Amplifier - Pre-Amplifier    | Miteq              | AMF-6F-08001200-30-10P | AVL  | 2025-03-19 | 2026-03-19 |
| Antenna - Standard Gain      | EMCO               | 3160-08                | AHK  | 2024-12-03 | 2025-12-03 |
| Amplifier - Pre-Amplifier    | Miteq              | AMF-6F-12001800-30-10P | AVP  | 2025-03-19 | 2026-03-19 |
| Antenna - Biconilog          | EMCO               | 3142                   | AXA  | 2024-01-05 | 2026-01-05 |
| Filter - High Pass           | Micro-Tronics      | HPM50111               | HGQ  | 2024-12-05 | 2025-12-05 |
| Attenuator                   | S.M. Electronics   | SA6021-10              | RFJ  | 2025-09-22 | 2026-09-22 |
| Antenna - Double Ridge       | A.H. Systems, Inc. | SAS-574                | AXV  | 2024-08-16 | 2026-08-16 |
| Cable                        | D-Coax             | None                   | OC4  | 2025-02-18 | 2026-02-18 |
| Amplifier - Pre-Amplifier    | Narda Miteq        | LNA-40-18004000-33-5P  | AXVA | 2024-02-29 | 2026-02-28 |
| Analyzer - Spectrum Analyzer | Agilent            | N9010A                 | AFJ  | 2025-03-03 | 2026-03-03 |

## FREQUENCY RANGE INVESTIGATED

1000 MHz TO 26500 MHz

# SPURIOUS RADIATED EMISSIONS – ABOVE 1 GHz

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## POWER INVESTIGATED

3.6 Vdc

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## CONFIGURATIONS INVESTIGATED

PCTE0075-1

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## MODES INVESTIGATED

BLE, GFSK, Low Channel = 2402 MHz, Middle Channel = 2440 MHz, High Channel = 2480 MHz

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# SPURIOUS RADIATED EMISSIONS – ABOVE 1 GHz



|                   |                                   |                       |            |
|-------------------|-----------------------------------|-----------------------|------------|
| EUT:              | Geospace Endpoint                 | Work Order:           | PCTE0075   |
| Serial Number:    | 0000051                           | Date:                 | 2025-10-16 |
| Customer:         | Geospace Technologies Corporation | Temperature:          | 23.1°C     |
| Attendees:        | None                              | Relative Humidity:    | 50.4%      |
| Customer Project: | None                              | Bar. Pressure (PMSL): | 1011 mb    |
| Tested By:        | Kyle Fujimoto                     | Job Site:             | OC10       |
| Power:            | 3.6 Vdc                           | Configuration:        | PCTE0075-1 |

## TEST PARAMETERS

|        |    |                    |   |                     |           |
|--------|----|--------------------|---|---------------------|-----------|
| Run #: | 39 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|----|--------------------|---|---------------------|-----------|

## COMMENTS

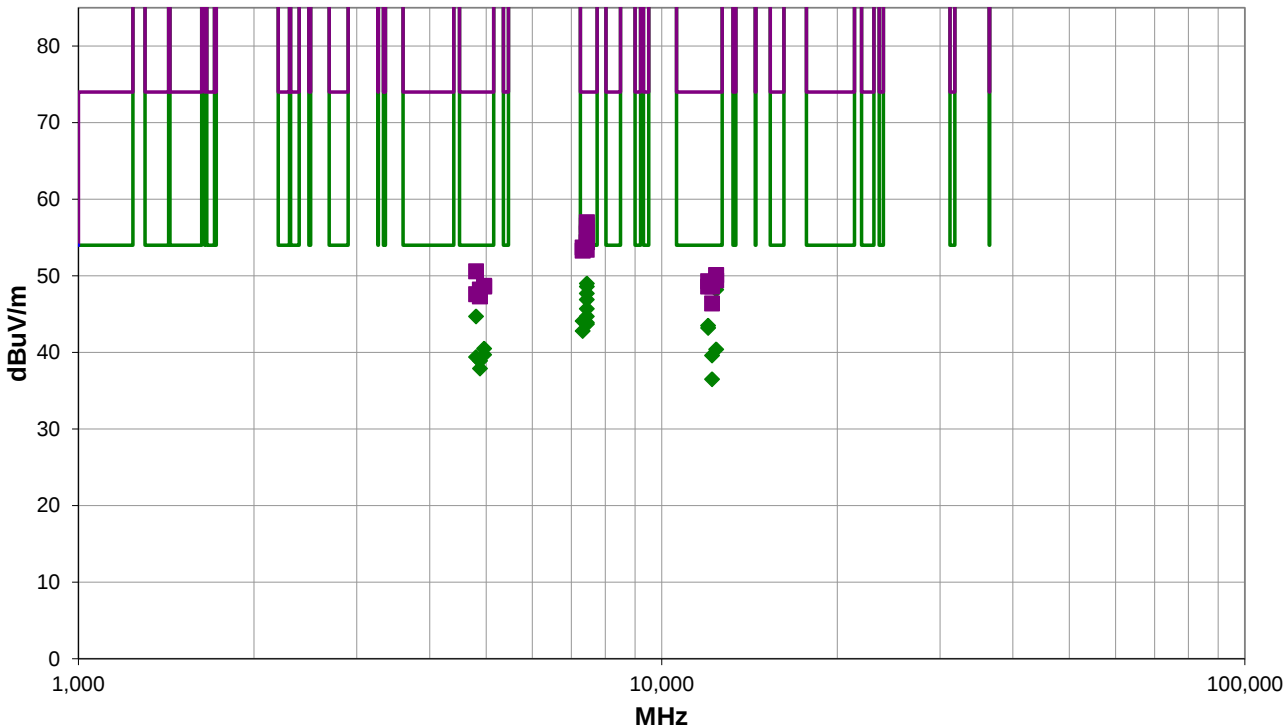
None

## EUT OPERATING MODES

BLE, GFSK, Low Channel = 2402 MHz, Middle Channel = 2440 MHz, High Channel = 2480 MHz

## DEVIATIONS FROM TEST STANDARD

None



Run #: 39

PK AV QP

# SPURIOUS RADIATED EMISSIONS – ABOVE 1 GHz

## RESULTS - Run #39

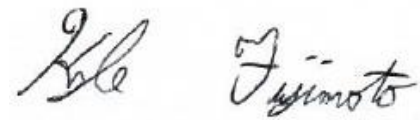
| Freq (MHz) | Amplitude (dBuV) | Factor (dB/m) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments                          |
|------------|------------------|---------------|-------------------------|-------------------|------------------------|---------------------------|--------------------------|----------|--------------------------|-------------------|----------------------|------------------------|-----------------------------------|
| 7440.675   | 42.3             | 6.7           | 1.2                     | 284.0             | 3.0                    | 0.0                       | Horz                     | AV       | 0.0                      | 49.0              | 54.0                 | -5.0                   | Tx 2480 MHz, 1 Mbps, EUT on Side  |
| 7440.642   | 41.9             | 6.7           | 1.0                     | 17.0              | 3.0                    | 0.0                       | Horz                     | AV       | 0.0                      | 48.6              | 54.0                 | -5.4                   | Tx 2480 MHz, 1 Mbps, EUT on Vert  |
| 12398.740  | 49.8             | -1.6          | 2.2                     | 136.0             | 3.0                    | 0.0                       | Vert                     | AV       | 0.0                      | 48.2              | 54.0                 | -5.8                   | Tx 2480 MHz, 1 Mbps, EUT on Side  |
| 7439.458   | 41.0             | 6.7           | 2.1                     | 213.0             | 3.0                    | 0.0                       | Vert                     | AV       | 0.0                      | 47.7              | 54.0                 | -6.3                   | Tx 2480 MHz, 1 Mbps, EUT on Horiz |
| 7438.733   | 40.2             | 6.7           | 1.0                     | 121.0             | 3.0                    | 0.0                       | Horz                     | AV       | 0.0                      | 46.9              | 54.0                 | -7.1                   | Tx 2480 MHz, 2 Mbps, EUT on Side  |
| 7439.483   | 39.0             | 6.7           | 3.0                     | 360.0             | 3.0                    | 0.0                       | Horz                     | AV       | 0.0                      | 45.7              | 54.0                 | -8.3                   | Tx 2480 MHz, 1 Mbps, EUT on Horiz |
| 7439.450   | 38.0             | 6.7           | 1.0                     | 334.0             | 3.0                    | 0.0                       | Vert                     | AV       | 0.0                      | 44.7              | 54.0                 | -9.3                   | Tx 2480 MHz, 1 Mbps, EUT on Side  |
| 4804.125   | 48.7             | -4.0          | 2.4                     | 217.0             | 3.0                    | 0.0                       | Horz                     | AV       | 0.0                      | 44.7              | 54.0                 | -9.3                   | Tx 2402 MHz, 1 Mbps, EUT on Side  |
| 7318.675   | 37.7             | 6.4           | 1.1                     | 108.0             | 3.0                    | 0.0                       | Horz                     | AV       | 0.0                      | 44.1              | 54.0                 | -9.9                   | Tx 2440 MHz, 1 Mbps, EUT on Side  |
| 7439.475   | 37.2             | 6.7           | 1.0                     | 211.0             | 3.0                    | 0.0                       | Vert                     | AV       | 0.0                      | 43.9              | 54.0                 | -10.1                  | Tx 2480 MHz, 1 Mbps, EUT on Vert  |
| 7441.400   | 37.0             | 6.7           | 1.0                     | 210.0             | 3.0                    | 0.0                       | Vert                     | AV       | 0.0                      | 43.7              | 54.0                 | -10.3                  | Tx 2480 MHz, 2 Mbps, EUT on Side  |
| 12008.910  | 48.6             | -5.1          | 2.3                     | 212.0             | 3.0                    | 0.0                       | Vert                     | AV       | 0.0                      | 43.5              | 54.0                 | -10.5                  | Tx 2402 MHz, 1 Mbps, EUT on Side  |
| 12011.140  | 48.3             | -5.1          | 3.6                     | 210.0             | 3.0                    | 0.0                       | Horz                     | AV       | 0.0                      | 43.2              | 54.0                 | -10.8                  | Tx 2402 MHz, 1 Mbps, EUT on Side  |
| 7318.842   | 36.4             | 6.4           | 2.8                     | 162.0             | 3.0                    | 0.0                       | Vert                     | AV       | 0.0                      | 42.8              | 54.0                 | -11.2                  | Tx 2440 MHz, 1 Mbps, EUT on Side  |
| 4960.133   | 44.1             | -3.6          | 1.0                     | 83.0              | 3.0                    | 0.0                       | Horz                     | AV       | 0.0                      | 40.5              | 54.0                 | -13.5                  | Tx 2480 MHz, 1 Mbps, EUT on Side  |
| 12398.910  | 42.0             | -1.6          | 1.0                     | 129.0             | 3.0                    | 0.0                       | Horz                     | AV       | 0.0                      | 40.4              | 54.0                 | -13.6                  | Tx 2480 MHz, 1 Mbps, EUT on Side  |
| 4959.925   | 43.3             | -3.6          | 1.0                     | 142.0             | 3.0                    | 0.0                       | Vert                     | AV       | 0.0                      | 39.7              | 54.0                 | -14.3                  | Tx 2480 MHz, 1 Mbps, EUT on Side  |
| 12197.890  | 42.9             | -3.3          | 1.0                     | 128.0             | 3.0                    | 0.0                       | Horz                     | AV       | 0.0                      | 39.6              | 54.0                 | -14.4                  | Tx 2440 MHz, 1 Mbps, EUT on Side  |
| 4804.075   | 43.4             | -4.0          | 1.1                     | 168.0             | 3.0                    | 0.0                       | Vert                     | AV       | 0.0                      | 39.4              | 54.0                 | -14.6                  | Tx 2402 MHz, 1 Mbps, EUT on Side  |
| 4880.825   | 42.7             | -3.8          | 1.5                     | 213.0             | 3.0                    | 0.0                       | Horz                     | AV       | 0.0                      | 38.9              | 54.0                 | -15.1                  | Tx 2440 MHz, 1 Mbps, EUT on Side  |
| 4879.308   | 41.7             | -3.8          | 1.5                     | 160.0             | 3.0                    | 0.0                       | Vert                     | AV       | 0.0                      | 37.9              | 54.0                 | -16.1                  | Tx 2440 MHz, 1 Mbps, EUT on Side  |
| 7440.658   | 50.3             | 6.7           | 1.2                     | 284.0             | 3.0                    | 0.0                       | Horz                     | PK       | 0.0                      | 57.0              | 74.0                 | -17.0                  | Tx 2480 MHz, 1 Mbps, EUT on Side  |
| 7439.017   | 49.9             | 6.7           | 1.0                     | 17.0              | 3.0                    | 0.0                       | Horz                     | PK       | 0.0                      | 56.6              | 74.0                 | -17.4                  | Tx 2480 MHz, 1 Mbps, EUT on Vert  |
| 12197.870  | 39.8             | -3.3          | 1.0                     | 227.0             | 3.0                    | 0.0                       | Vert                     | AV       | 0.0                      | 36.5              | 54.0                 | -17.5                  | Tx 2440 MHz, 1 Mbps, EUT on Side  |
| 7440.450   | 49.0             | 6.7           | 2.1                     | 213.0             | 3.0                    | 0.0                       | Vert                     | PK       | 0.0                      | 55.7              | 74.0                 | -18.3                  | Tx 2480 MHz, 1 Mbps, EUT on Horiz |
| 7441.250   | 48.8             | 6.7           | 1.0                     | 121.0             | 3.0                    | 0.0                       | Horz                     | PK       | 0.0                      | 55.5              | 74.0                 | -18.5                  | Tx 2480 MHz, 2 Mbps, EUT on Side  |
| 7439.842   | 47.8             | 6.7           | 1.0                     | 211.0             | 3.0                    | 0.0                       | Vert                     | PK       | 0.0                      | 54.5              | 74.0                 | -19.5                  | Tx 2480 MHz, 1 Mbps, EUT on Vert  |
| 7440.242   | 47.7             | 6.7           | 1.0                     | 334.0             | 3.0                    | 0.0                       | Vert                     | PK       | 0.0                      | 54.4              | 74.0                 | -19.6                  | Tx 2480 MHz, 1 Mbps, EUT on Side  |
| 7440.917   | 47.7             | 6.7           | 3.0                     | 360.0             | 3.0                    | 0.0                       | Horz                     | PK       | 0.0                      | 54.4              | 74.0                 | -19.6                  | Tx 2480 MHz, 1 Mbps, EUT on Horiz |
| 7318.883   | 47.3             | 6.4           | 1.1                     | 108.0             | 3.0                    | 0.0                       | Horz                     | PK       | 0.0                      | 53.7              | 74.0                 | -20.3                  | Tx 2440 MHz, 1 Mbps, EUT on Side  |
| 7439.008   | 46.7             | 6.7           | 1.0                     | 210.0             | 3.0                    | 0.0                       | Vert                     | PK       | 0.0                      | 53.4              | 74.0                 | -20.6                  | Tx 2480 MHz, 2 Mbps, EUT on Side  |
| 7318.983   | 46.9             | 6.4           | 2.8                     | 162.0             | 3.0                    | 0.0                       | Vert                     | PK       | 0.0                      | 53.3              | 74.0                 | -20.7                  | Tx 2440 MHz, 1 Mbps, EUT on Side  |
| 4804.650   | 54.6             | -4.0          | 2.4                     | 217.0             | 3.0                    | 0.0                       | Horz                     | PK       | 0.0                      | 50.6              | 74.0                 | -23.4                  | Tx 2402 MHz, 1 Mbps, EUT on Side  |
| 12398.890  | 51.7             | -1.6          | 2.2                     | 136.0             | 3.0                    | 0.0                       | Vert                     | PK       | 0.0                      | 50.1              | 74.0                 | -23.9                  | Tx 2480 MHz, 1 Mbps, EUT on Side  |
| 12398.690  | 51.0             | -1.6          | 1.0                     | 129.0             | 3.0                    | 0.0                       | Horz                     | PK       | 0.0                      | 49.4              | 74.0                 | -24.6                  | Tx 2480 MHz, 1 Mbps, EUT on Side  |
| 12008.830  | 54.4             | -5.1          | 2.3                     | 212.0             | 3.0                    | 0.0                       | Vert                     | PK       | 0.0                      | 49.3              | 74.0                 | -24.7                  | Tx 2402 MHz, 1 Mbps, EUT on Side  |
| 4959.467   | 52.3             | -3.6          | 1.0                     | 83.0              | 3.0                    | 0.0                       | Horz                     | PK       | 0.0                      | 48.7              | 74.0                 | -25.3                  | Tx 2480 MHz, 1 Mbps, EUT on Side  |
| 4960.733   | 52.2             | -3.6          | 1.0                     | 142.0             | 3.0                    | 0.0                       | Vert                     | PK       | 0.0                      | 48.6              | 74.0                 | -25.4                  | Tx 2480 MHz, 1 Mbps, EUT on Side  |
| 12197.630  | 51.9             | -3.3          | 1.0                     | 128.0             | 3.0                    | 0.0                       | Horz                     | PK       | 0.0                      | 48.6              | 74.0                 | -25.4                  | Tx 2440 MHz, 1 Mbps, EUT on Side  |
| 12008.770  | 53.7             | -5.1          | 3.6                     | 210.0             | 3.0                    | 0.0                       | Horz                     | PK       | 0.0                      | 48.6              | 74.0                 | -25.4                  | Tx 2402 MHz, 1 Mbps, EUT on Side  |

# SPURIOUS RADIATED EMISSIONS – ABOVE 1 GHz

| Freq<br>(MHz) | Amplitude<br>(dBuV) | Factor<br>(dB/m) | Antenna Height<br>(meters) | Azimuth<br>(degrees) | Test Distance<br>(meters) | External<br>Attenuation<br>(dB) | Polarity/<br>Transducer<br>Type | Detector | Distance<br>Adjustment<br>(dB) | Adjusted<br>(dBuV/m) | Spec. Limit<br>(dBuV/m) | Compared to<br>Spec.<br>(dB) | Comments                         |
|---------------|---------------------|------------------|----------------------------|----------------------|---------------------------|---------------------------------|---------------------------------|----------|--------------------------------|----------------------|-------------------------|------------------------------|----------------------------------|
| 4878.783      | 52.0                | -3.8             | 1.5                        | 213.0                | 3.0                       | 0.0                             | Horz                            | PK       | 0.0                            | 48.2                 | 74.0                    | -25.8                        | Tx 2440 MHz, 1 Mbps, EUT on Side |
| 4804.142      | 51.6                | -4.0             | 1.1                        | 168.0                | 3.0                       | 0.0                             | Vert                            | PK       | 0.0                            | 47.6                 | 74.0                    | -26.4                        | Tx 2402 MHz, 1 Mbps, EUT on Side |
| 4878.850      | 51.1                | -3.8             | 1.5                        | 160.0                | 3.0                       | 0.0                             | Vert                            | PK       | 0.0                            | 47.3                 | 74.0                    | -26.7                        | Tx 2440 MHz, 1 Mbps, EUT on Side |
| 12197.510     | 49.8                | -3.4             | 1.0                        | 227.0                | 3.0                       | 0.0                             | Vert                            | PK       | 0.0                            | 46.4                 | 74.0                    | -27.6                        | Tx 2440 MHz, 1 Mbps, EUT on Side |

## CONCLUSION

Pass

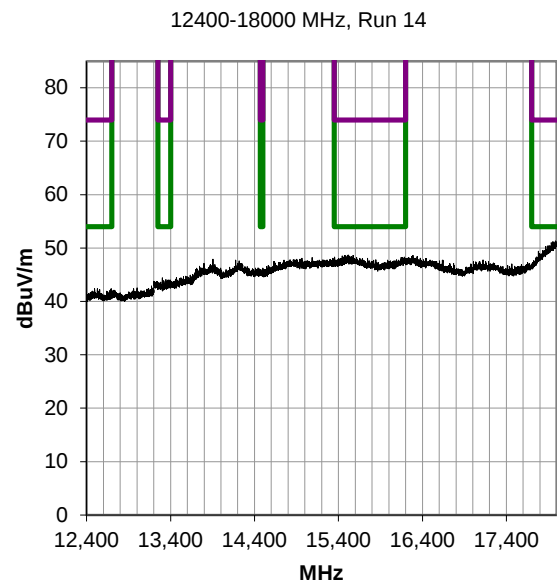
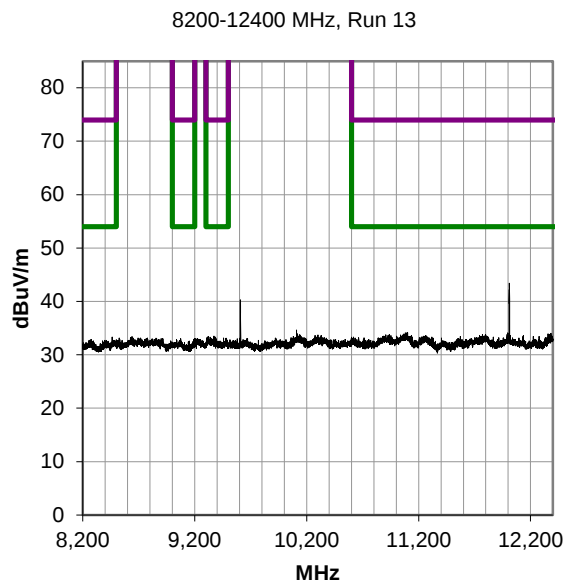
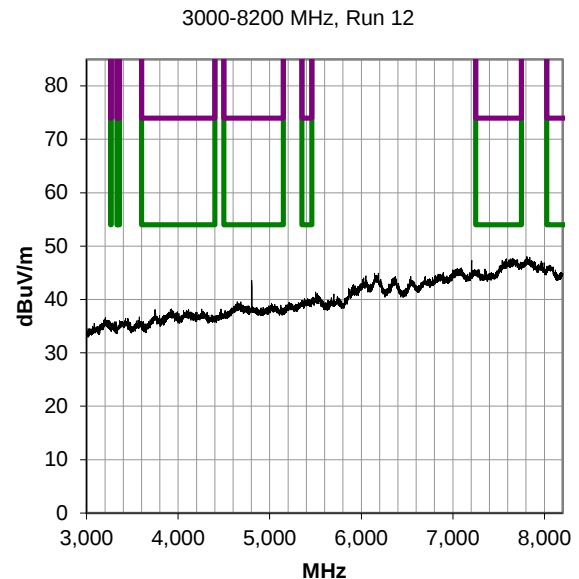
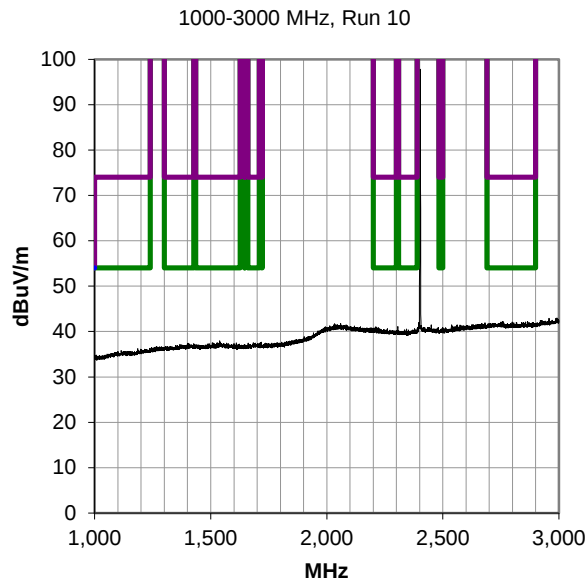


Tested By

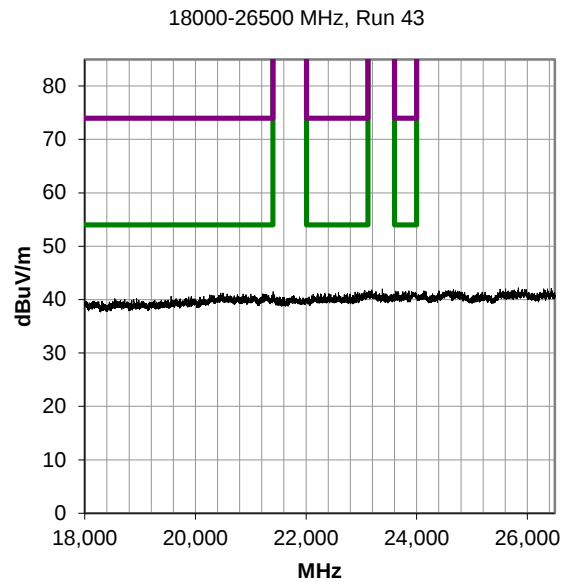
# SPURIOUS RADIATED EMISSIONS – ABOVE 1 GHz

## PRESCAN DATA

Radiated spurious emissions from the EUT are initially reviewed with Pre-scans (Preview scans). Pre-scans are performed, with the EUT transmitting on the lowest applicable data rate, for both vertical and horizontal polarizations. The Pre-scan plots below are shown with a peak detector and RBW for the following frequency ranges: 9 kHz RBW (< 30 MHz); 120 kHz RBW (30 - 1000 MHz); 1 MHz RBW (> 1 GHz). In the case where unintentional emissions are observed, an ambient or idle pre-scan with the radio off, will be shown for comparison.



# SPURIOUS RADIATED EMISSIONS – ABOVE 1 GHz



# SPURIOUS RADIATED EMISSIONS – BELOW 1 GHz

## TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies and the modes as showed in the data sheets.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. A reference preview scan (pre-scan) is included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector  
PK = Peak Detector  
AV = RMS Detector

Measurements were made to satisfy the specific requirements of the test specification for out of band emissions as well as the restricted band requirements.

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

Measurements within 2 MHz of the allowable band may have been taken using the integration method from ANSI C63.10 clause 11.13.3. This procedure uses the channel power feature of the spectrum analyzer to integrate the power of the emission within a 1 MHz bandwidth.

Where the radio test software does not provide for a duty cycle at continuous transmit conditions (> 98%) and the RMS (power average) measurements were made across the on and off times of the EUT transmissions, a duty cycle correction is added to the measurements using the formula of  $10 \cdot \log(1/dc)$ .

## TEST EQUIPMENT

| Description                  | Manufacturer    | Model          | ID  | Last Cal.  | Cal. Due   |
|------------------------------|-----------------|----------------|-----|------------|------------|
| Antenna - Biconilog          | EMCO            | 3142           | AXA | 2024-01-05 | 2026-01-05 |
| Cable                        | ESM Cable Corp. | 30-1GHz Cables | OCW | 2024-12-17 | 2025-12-17 |
| Amplifier - Pre-Amplifier    | Miteq           | AM-1616-1000   | PAD | 2024-12-17 | 2025-12-17 |
| Filter - Low Pass            | Micro-Tronics   | LPM50004       | HGK | 2024-12-05 | 2025-12-05 |
| Analyzer - Spectrum Analyzer | Agilent         | N9010A         | AFJ | 2025-03-03 | 2026-03-03 |

## FREQUENCY RANGE INVESTIGATED

9 kHz TO 1000 MHz

## POWER INVESTIGATED

3.6 Vdc

## CONFIGURATIONS INVESTIGATED

PCTE0075-1

## MODES INVESTIGATED

BLE, GFSK, Low Channel = 2402 MHz, Middle Channel = 2440 MHz, High Channel = 2480 MHz

# SPURIOUS RADIATED EMISSIONS – BELOW 1 GHz



|                   |                                   |                       |            |
|-------------------|-----------------------------------|-----------------------|------------|
| EUT:              | Geospace Endpoint                 | Work Order:           | PCTE0075   |
| Serial Number:    | None                              | Date:                 | 2025-10-14 |
| Customer:         | Geospace Technologies Corporation | Temperature:          | 21.2°C     |
| Attendees:        | None                              | Relative Humidity:    | 57.6%      |
| Customer Project: | None                              | Bar. Pressure (PMSL): | 1012 mb    |
| Tested By:        | Kyle Fujimoto                     | Job Site:             | OC10       |
| Power:            | 3.6 Vdc                           | Configuration:        | PCTE0075-1 |

## TEST PARAMETERS

|        |   |                    |   |                     |           |
|--------|---|--------------------|---|---------------------|-----------|
| Run #: | 7 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|---|--------------------|---|---------------------|-----------|

## COMMENTS

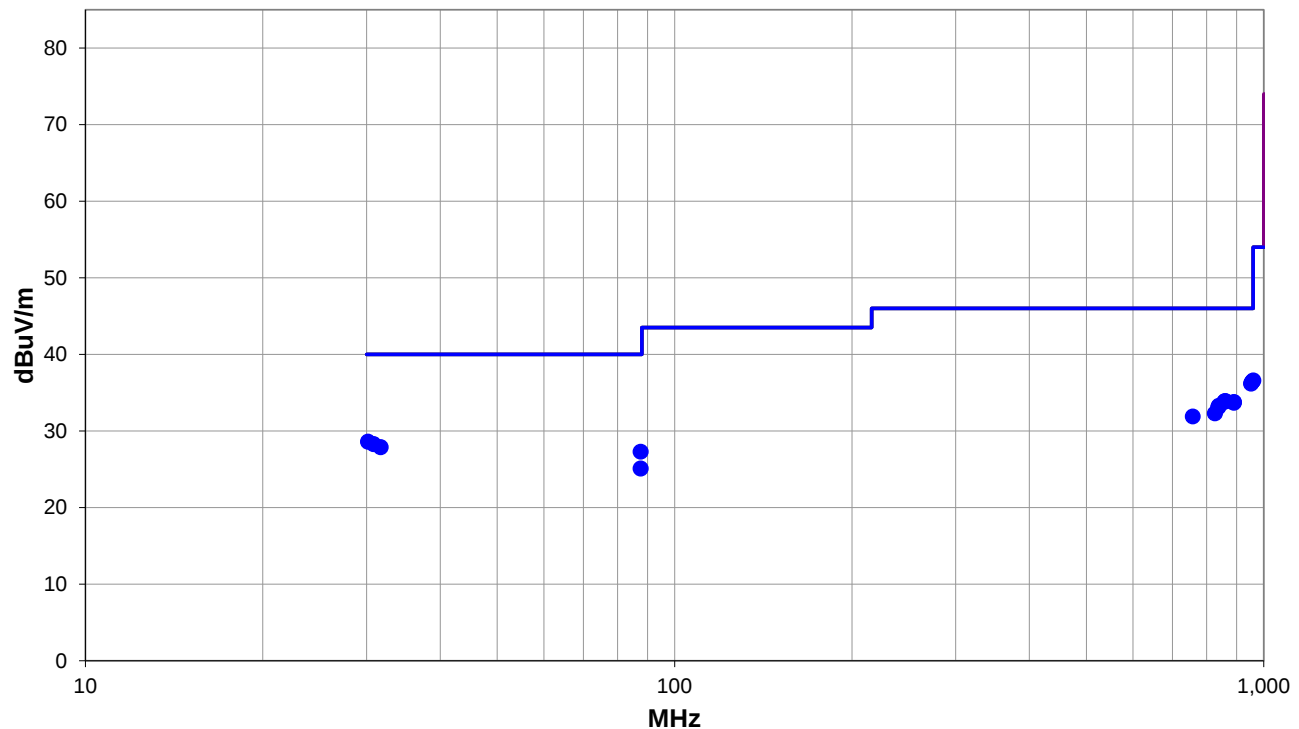
None

## EUT OPERATING MODES

BLE, GFSK, Low Channel = 2402 MHz, Middle Channel = 2440 MHz, High Channel = 2480 MHz

## DEVIATIONS FROM TEST STANDARD

None



Run #: 7

■ PK ◆ AV ● QP

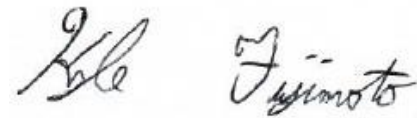
# SPURIOUS RADIATED EMISSIONS – BELOW 1 GHz

## RESULTS - Run #7

| Freq (MHz) | Amplitude (dBuV) | Factor (dB/m) | Antenna Height (meters) | Azimuth (degrees) | Test Distance (meters) | External Attenuation (dB) | Polarity/ Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | bComments                        |
|------------|------------------|---------------|-------------------------|-------------------|------------------------|---------------------------|---------------------------|----------|--------------------------|-------------------|----------------------|------------------------|----------------------------------|
| 957.808    | 16.3             | 20.2          | 2.8                     | 203.0             | 3.0                    | 0.0                       | Vert                      | QP       | 0.0                      | 36.5              | 46.0                 | -9.5                   | Tx 2440 MHz, 2 Mbps, EUT on Side |
| 955.113    | 16.4             | 20.0          | 2.8                     | 218.0             | 3.0                    | 0.0                       | Vert                      | QP       | 0.0                      | 36.4              | 46.0                 | -9.6                   | Tx 2480 MHz, 1 Mbps, EUT on Side |
| 951.857    | 16.3             | 19.9          | 2.8                     | 195.0             | 3.0                    | 0.0                       | Horz                      | QP       | 0.0                      | 36.2              | 46.0                 | -9.8                   | Tx 2440 MHz, 2 Mbps, EUT on Side |
| 30.163     | 16.4             | 12.2          | 2.0                     | 177.0             | 3.0                    | 0.0                       | Vert                      | QP       | 0.0                      | 28.6              | 40.0                 | -11.4                  | Tx 2480 MHz, 1 Mbps, EUT on Side |
| 30.834     | 16.4             | 11.9          | 1.5                     | 224.0             | 3.0                    | 0.0                       | Horz                      | QP       | 0.0                      | 28.3              | 40.0                 | -11.7                  | Tx 2402 MHz, 1 Mbps, EUT on Side |
| 861.241    | 16.5             | 17.4          | 2.0                     | 258.0             | 3.0                    | 0.0                       | Vert                      | QP       | 0.0                      | 33.9              | 46.0                 | -12.1                  | Tx 2440 MHz, 2 Mbps, EUT on Side |
| 31.692     | 16.3             | 11.6          | 1.5                     | 140.0             | 3.0                    | 0.0                       | Vert                      | QP       | 0.0                      | 27.9              | 40.0                 | -12.1                  | Tx 2440 MHz, 2 Mbps, EUT on Side |
| 858.976    | 16.5             | 17.4          | 1.0                     | 187.0             | 3.0                    | 0.0                       | Horz                      | QP       | 0.0                      | 33.9              | 46.0                 | -12.1                  | Tx 2480 MHz, 1 Mbps, EUT on Side |
| 857.284    | 16.4             | 17.4          | 1.5                     | 124.0             | 3.0                    | 0.0                       | Vert                      | QP       | 0.0                      | 33.8              | 46.0                 | -12.2                  | Tx 2402 MHz, 1 Mbps, EUT on Side |
| 889.987    | 16.4             | 17.4          | 1.5                     | 10.0              | 3.0                    | 0.0                       | Horz                      | QP       | 0.0                      | 33.8              | 46.0                 | -12.2                  | Tx 2480 MHz, 1 Mbps, EUT on Side |
| 889.852    | 16.3             | 17.4          | 3.8                     | 82.0              | 3.0                    | 0.0                       | Horz                      | QP       | 0.0                      | 33.7              | 46.0                 | -12.3                  | Tx 2440 MHz, 2 Mbps, EUT on Side |
| 87.559     | 29.1             | -1.8          | 1.0                     | 264.0             | 3.0                    | 0.0                       | Vert                      | QP       | 0.0                      | 27.3              | 40.0                 | -12.7                  | Tx 2480 MHz, 1 Mbps, EUT on Side |
| 839.288    | 16.5             | 16.8          | 1.5                     | 195.0             | 3.0                    | 0.0                       | Vert                      | QP       | 0.0                      | 33.3              | 46.0                 | -12.7                  | Tx 2480 MHz, 1 Mbps, EUT on Side |
| 836.967    | 16.4             | 16.7          | 2.0                     | 159.0             | 3.0                    | 0.0                       | Horz                      | QP       | 0.0                      | 33.1              | 46.0                 | -12.9                  | Tx 2402 MHz, 1 Mbps, EUT on Side |
| 826.221    | 16.4             | 15.9          | 2.6                     | 178.0             | 3.0                    | 0.0                       | Vert                      | QP       | 0.0                      | 32.3              | 46.0                 | -13.7                  | Tx 2402 MHz, 1 Mbps, EUT on Side |
| 757.825    | 16.5             | 15.4          | 0.0                     | 6.0               | 3.0                    | 0.0                       | Vert                      | QP       | 0.0                      | 31.9              | 46.0                 | -14.1                  | Tx 2402 MHz, 1 Mbps, EUT on Side |
| 87.555     | 26.9             | -1.8          | 1.5                     | 255.0             | 3.0                    | 0.0                       | Vert                      | QP       | 0.0                      | 25.1              | 40.0                 | -14.9                  | Tx 2440 MHz, 2 Mbps, EUT on Side |
| 960.286    | 16.3             | 20.3          | 1.5                     | 175.0             | 3.0                    | 0.0                       | Vert                      | QP       | 0.0                      | 36.6              | 54.0                 | -17.4                  | Tx 2402 MHz, 1 Mbps, EUT on Side |

## CONCLUSION

Pass

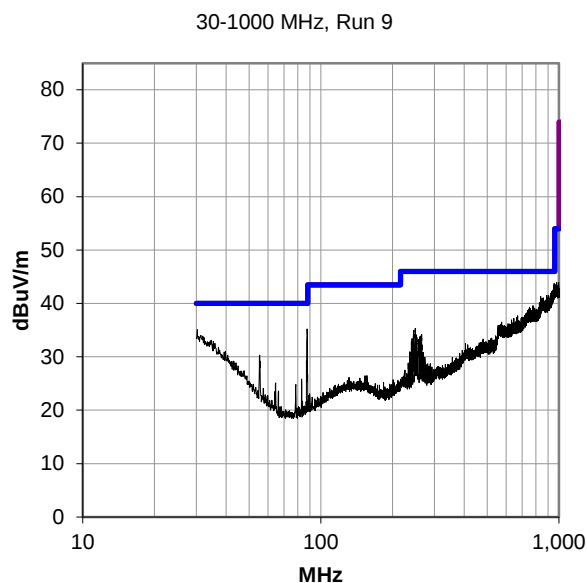
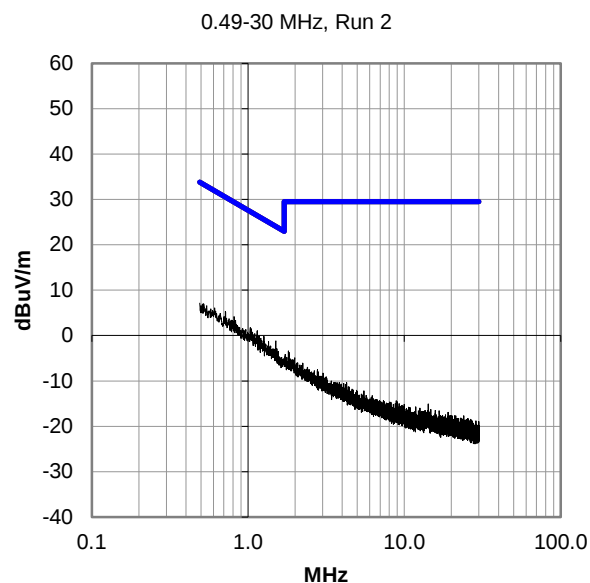
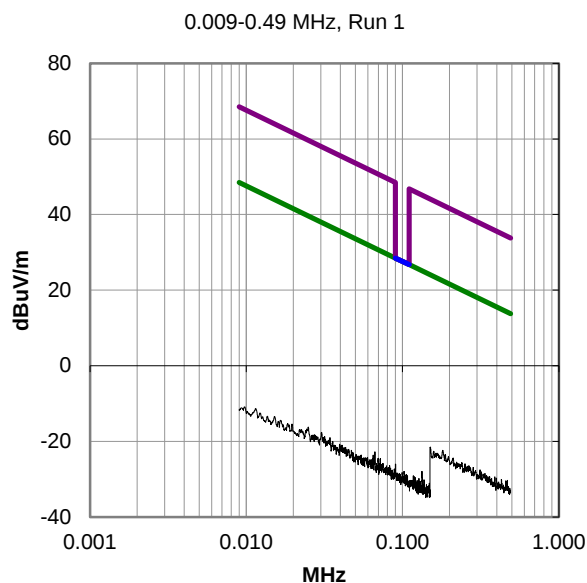


Tested By

# SPURIOUS RADIATED EMISSIONS – BELOW 1 GHz

## PRESCAN DATA

Radiated spurious emissions from the EUT are initially reviewed with Pre-scans (Preview scans). Pre-scans are performed, with the EUT transmitting on the lowest applicable data rate, for both vertical and horizontal polarizations. The Pre-scan plots below are shown with a peak detector and RBW for the following frequency ranges: 9 kHz RBW (< 30 MHz); 120 kHz RBW (30 - 1000 MHz); 1 MHz RBW (> 1 GHz). In the case where unintentional emissions are observed, an ambient or idle pre-scan with the radio off, will be shown for comparison.



# RADIATED SPURIOUS EMISSIONS RESTRICTED BAND EDGE



## TEST DESCRIPTION

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies and the modes as showed in the data sheets.

The emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and attenuation were used (if needed) for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

PK = Peak Detector  
AV = RMS Detector

Measurements within 2 MHz of the allowable band may have been taken using the integration method from ANSI C63.10 clause 11.13.3. This procedure uses the channel power feature of the spectrum analyzer to integrate the power of the emission within a 1 MHz bandwidth.

Where the radio test software does not provide for a duty cycle at continuous transmit conditions (> 98%) and the RMS (power average) measurements were made across the on and off times of the EUT transmissions, a duty cycle correction is added to the measurements using the formula of  $10 \cdot \log(1/dc)$ .

## TEST EQUIPMENT

| Description                  | Manufacturer  | Model            | ID  | Last Cal.  | Cal. Due   |
|------------------------------|---------------|------------------|-----|------------|------------|
| Antenna - Double Ridge       | ETS Lindgren  | 3115             | AIR | 2024-07-23 | 2026-07-23 |
| Cable                        | Northwest EMC | 1-8GHz RE Cables | OCJ | 2025-04-30 | 2026-04-30 |
| Amplifier - Pre-Amplifier    | Cernex        | CBL01084020-xx   | PAX | 2025-04-30 | 2026-04-30 |
| Analyzer - Spectrum Analyzer | Agilent       | N9010A           | AFJ | 2025-03-03 | 2026-03-03 |

# RADIATED SPURIOUS EMISSIONS RESTRICTED BAND EDGE



|                   |                                   |                       |            |
|-------------------|-----------------------------------|-----------------------|------------|
| EUT:              | Geospace Endpoint                 | Work Order:           | PCTE0075   |
| Serial Number:    | 0000051                           | Date:                 | 2025-10-16 |
| Customer:         | Geospace Technologies Corporation | Temperature:          | 22.6°C     |
| Attendees:        | None                              | Relative Humidity:    | 53%        |
| Customer Project: | None                              | Bar. Pressure (PMSL): | 1017 mbar  |
| Tested By:        | Kyle Fujimoto                     | Job Site:             | OC13       |
| Power:            | 3.6 Vdc                           | Configuration:        | PCTE0075-1 |

## COMMENTS

The Band Edges were performed at 1 Mbps because the EUT only uses Legacy Advertising

## DEVIATIONS FROM TEST STANDARD

None

## CONCLUSION

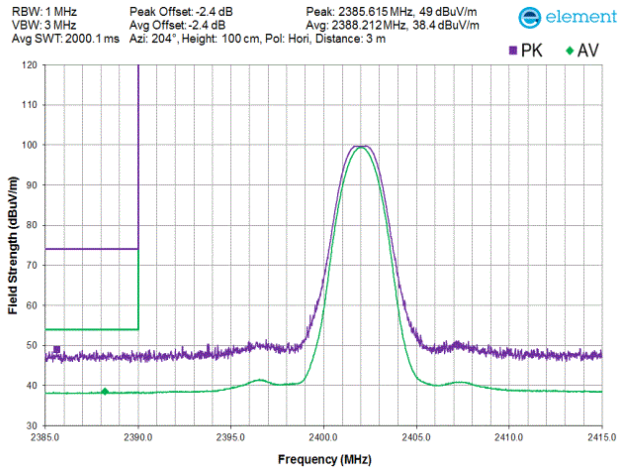
Pass

Tested By

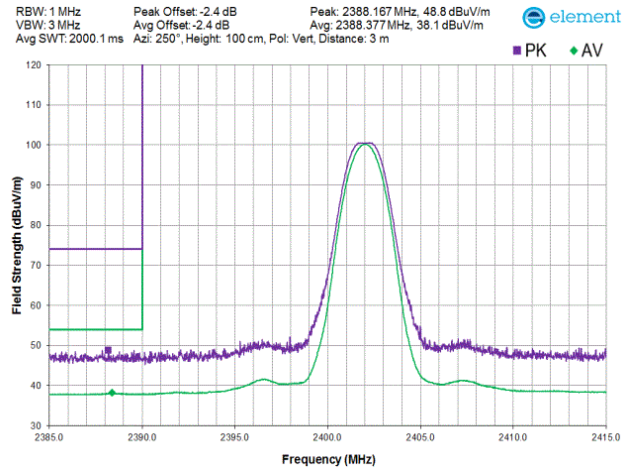
## TEST RESULTS

|                        | Frequency<br>(MHz) | PK (dBuV/m)<br>AV (dBuV/m) | PK Lim (dBuV/m)<br>AV Lim (dBuV/m) | Worst<br>Margin (dB) | Pol.<br>(H/V) | EUT<br>Orientation | Results |
|------------------------|--------------------|----------------------------|------------------------------------|----------------------|---------------|--------------------|---------|
| BLE/GFSK 1 Mbps        |                    |                            |                                    |                      |               |                    |         |
| Low Channel, 2402 MHz  | 2385.615           | 49.0                       | 74.0                               | -15.6                | H             | on Side            | Pass    |
|                        | 2388.212           | 38.4                       | 54.0                               |                      |               |                    |         |
|                        | 2388.167           | 48.8                       | 74.0                               | -15.9                | V             | Vertical           | Pass    |
|                        | 2388.377           | 38.1                       | 54.0                               |                      |               |                    |         |
|                        | 2387.041           | 48.7                       | 74.0                               | -16.2                | H             | Vertical           | Pass    |
|                        | 2386.936           | 37.8                       | 54.0                               |                      |               |                    |         |
|                        | 2388.602           | 48.9                       | 74.0                               | -16.3                | V             | on Side            | Pass    |
|                        | 2386.546           | 37.7                       | 54.0                               |                      |               |                    |         |
|                        | 2388.857           | 49.0                       | 74.0                               | -16.3                | V             | Horizontal         | Pass    |
|                        | 2388.962           | 37.7                       | 54.0                               |                      |               |                    |         |
| High Channel, 2480 MHz | 2385.090           | 49.0                       | 74.0                               | -15.9                | H             | Horizontal         | Pass    |
|                        | 2387.551           | 38.1                       | 54.0                               |                      |               |                    |         |
|                        | 2484.163           | 50.7                       | 74.0                               | -14.0                | H             | Vertical           | Pass    |
|                        | 2485.413           | 40.0                       | 54.0                               |                      |               |                    |         |
|                        | 2485.519           | 52.4                       | 74.0                               | -12.8                | H             | Horizontal         | Pass    |
|                        | 2485.423           | 41.2                       | 54.0                               |                      |               |                    |         |
|                        | 2486.624           | 50.4                       | 74.0                               | -15.8                | V             | Horizontal         | Pass    |
|                        | 2485.233           | 38.2                       | 54.0                               |                      |               |                    |         |
|                        | 2483.513           | 50.8                       | 74.0                               | -14.1                | V             | on Side            | Pass    |
|                        | 2485.438           | 39.9                       | 54.0                               |                      |               |                    |         |
|                        | 2485.413           | 50.7                       | 74.0                               | -14.7                | H             | on Side            | Pass    |
|                        | 2485.509           | 39.3                       | 54.0                               |                      |               |                    |         |
|                        | 2484.623           | 50.3                       | 74.0                               | -14.6                | V             | Vertical           | Pass    |
|                        | 2483.518           | 39.4                       | 54.0                               |                      |               |                    |         |

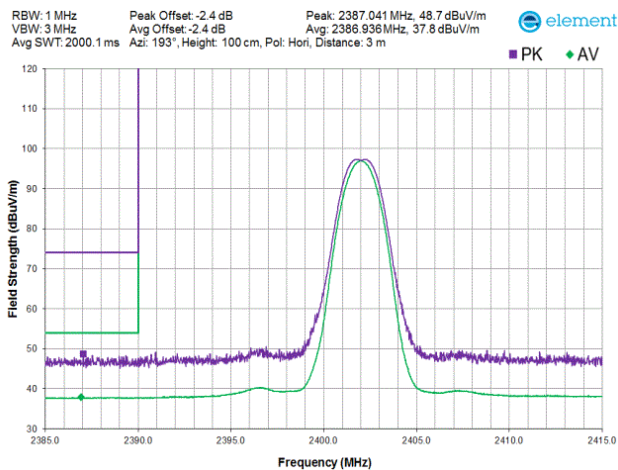
# RADIATED SPURIOUS EMISSIONS RESTRICTED BAND EDGE



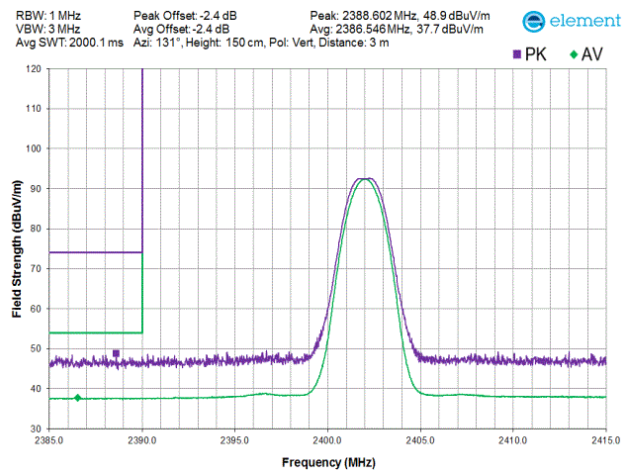
**BLE/GFSK 1 Mbps  
Low Channel, 2402 MHz**



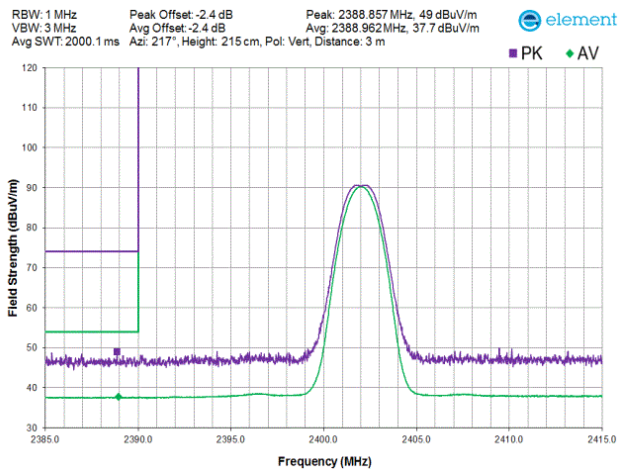
**BLE/GFSK 1 Mbps  
Low Channel, 2402 MHz**



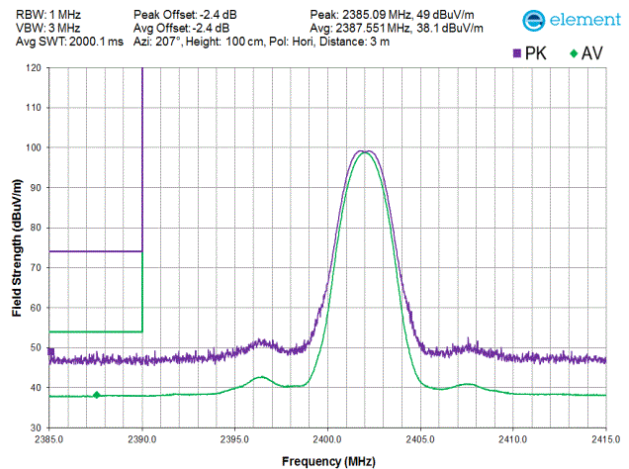
**BLE/GFSK 1 Mbps  
Low Channel, 2402 MHz**



**BLE/GFSK 1 Mbps  
Low Channel, 2402 MHz**

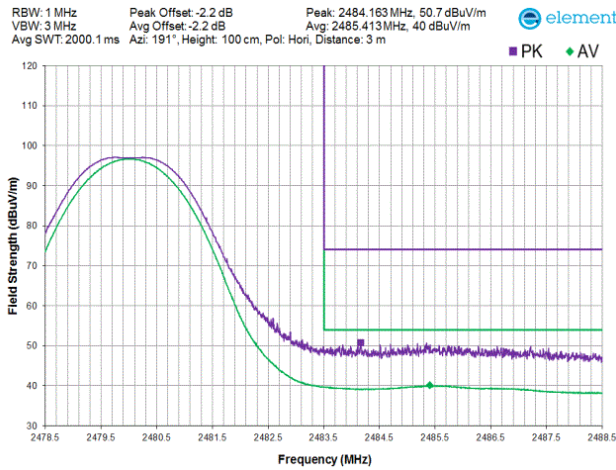


**BLE/GFSK 1 Mbps  
Low Channel, 2402 MHz**

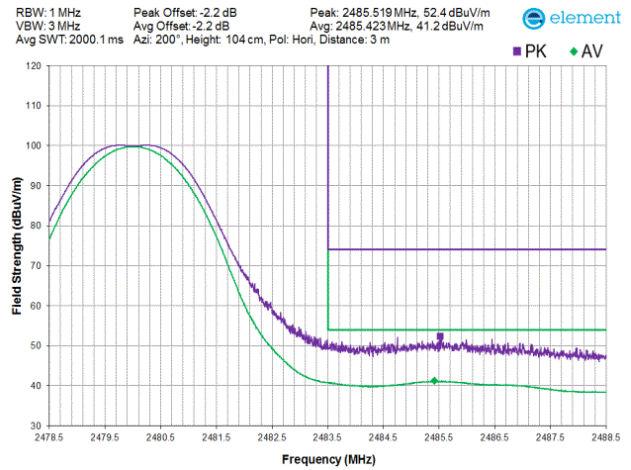


**BLE/GFSK 1 Mbps  
Low Channel, 2402 MHz**

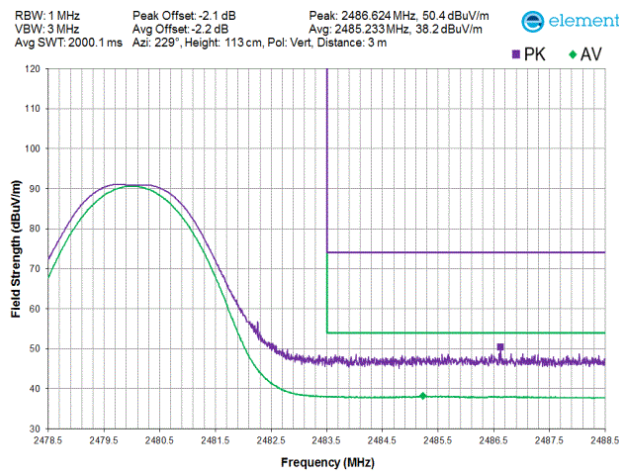
# RADIATED SPURIOUS EMISSIONS RESTRICTED BAND EDGE



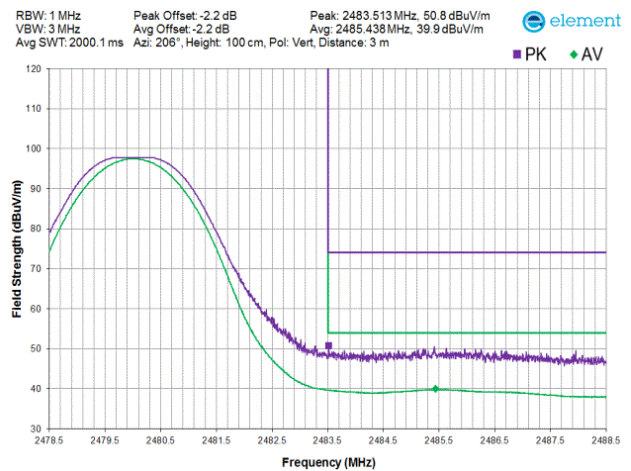
**BLE/GFSK 1 Mbps  
High Channel, 2480 MHz**



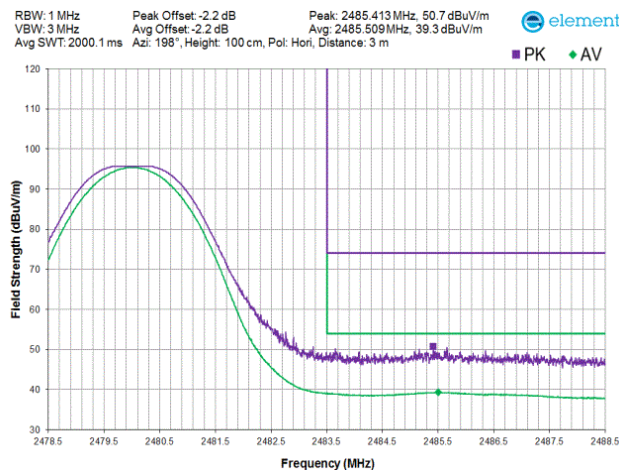
**BLE/GFSK 1 Mbps  
High Channel, 2480 MHz**



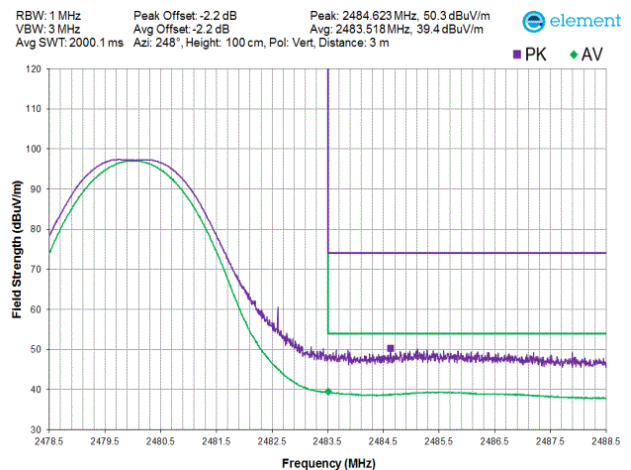
**BLE/GFSK 1 Mbps  
High Channel, 2480 MHz**



**BLE/GFSK 1 Mbps  
High Channel, 2480 MHz**



**BLE/GFSK 1 Mbps  
High Channel, 2480 MHz**



**BLE/GFSK 1 Mbps  
High Channel, 2480 MHz**

End of Test Report