

Test Report 2025-82

Version B

Issued 29 Dec 2025

Project GCL-0885

Model Identifier: AA5206

Primary Test Standard(s):

CFR 47, FCC Part 15, Subpart C (15.247 FHSS)

RSS-GEN Issue 5 Amd 2

RSS-247 Issue 4 (FHSS)

Garmin Compliance Lab

Garmin International

1200 E 151st Street

Olathe Kansas 66062 USA

Client-supplied Information

FCC ID: IPH-A5206

IC ID: 1792A-A5206



See section 6 of this report regarding the presence or absence of accreditation logos or marks on this cover page.

1. Summary

The equipment or product described in section 5 of this report was tested at the Garmin Compliance Lab according to standards listed in section 6. This report focuses on the Bluetooth Classic transceiver under the FHSS rules. The results are as follows.

Parameter	Description	Key Performance Values	Result	Data starts at page
Radio Modulation	Summary of the kinds of communication this radio can achieve, as stated by the client. [RSS-GEN at Annex A item 10b]	Digitally modulated frequency hopping spread spectrum at rates as high as 3 Mbps.	Reported	N/A
Hopping Channels	The radio manages its use of channels appropriately. [15.247(a)(1); RSS-247 at 5.1]	The system uses 79 hopping channels separated by at least 2/3 of the 20 dB Bandwidth. Channels are used on an appropriately equal time basis.	PASS	14
DTS Bandwidth	The nature of the radio signal is broadband, being at least 500 kHz wide. [15.247(a)(2); RSS-247 at 5.2(a)]	Only relevant for DTS systems.	N/A	N/A
Other Bandwidths	Regulatory agencies also require the reporting of signal bandwidths using alternate processes. [2.202; RSS-GEN at 6.7]	The 99% Occupied Bandwidth was 1.24 MHz or less. These values are reported but have no actual performance requirements.	Reported	21
Transmit Power	The peak transmit power presented to the antenna is no greater than 1 Watt or 30 dBm. The effective radiated power is limited to 4 Watts or 36 dBm EIRP. [15.247(b); RSS-247 at 5.4(d)]	The maximum transmit power is 12.86 dBm or 19.3 mW.	PASS	25
Antenna Gain	The radio should not focus too much energy in any direction. Unless additional rules are applied, the antenna gain is no greater than 6 dBi. [15.247(b)(4) and (c)]	NT. The client stated that the antenna gain value was -2.26 dBi and will document antenna gain separately.	NT	NT

Unwanted (Spurious) Emissions	The radio should not provide too much radio energy to the antenna at frequencies beyond its intended frequency band. [15.247(d); 15.209, RSS-247 at 5.5, RSS-Gen at 8.9]	Emissions outside the band must meet the 'Class B' limits of 15.209 or be reduced at least 20 dB from in-band levels. The measured reduction was at least 48 dB below in-band levels, or the margin to the 'Class B' limit was 7.5 dB or greater.	PASS	27
Adjacent Restricted Bands	The radio must not emit in certain designated restricted frequency bands to the transmission band above a set of limit values. This entry focuses on bands adjacent to the operating band. [15.247(d) and 15.205; RSS-247 at 3.3]	Emissions in the adjacent restricted bands were at least 12.0 dB below the applicable limits. Compliance for the remaining restricted bands is demonstrated by the spurious emission data.	PASS	54
Power Spectral Density	The radio must not focus too much radio energy in a narrow frequency band. [15.247(e); RSS-247 at 5.2(b)]	Not relevant to FHSS systems.	N/A	N/A
Hybrid Systems	A radio that is both frequency hopping and digitally modulated should satisfy a combination of system rules. [15.247(f); RSS-247 at 5.3]	N/A. The radios described in this report are not subjected to the Hybrid System rules.	N/A	N/A
Frequency Hopping Rules	Frequency hopping systems have additional functional requirements. [15.247(g) and (h); RSS-247 at 5.1]	These functional requirements are design parameters, but not testable requirements.	NT	NT
Radio Safety	The radio emissions must meet public health & safety guidelines related to human exposure. [15.247(i) and 1.1307; RSS-Gen at 3.4]	NT. Client will report radio energy safety results separately.	NT	NT
Frequency Stability	The radio tuning must be robust over a range of temperature and supply voltage conditions. [RSS-Gen at 6.11]	Radio emissions remained within the allowed radio band under all environmental conditions tested.	NT	NT
Unwanted Emissions (Mains Conducted)	While transmitting, the emissions conducted into the power mains must not be too strong. [15.207, RSS-Gen at 8.8]	Emissions other than the fundamental and harmonics must meet the 'Class B' limits. The measured emissions had at least 15.8 dB of margin.	PASS	64

NT (Not Tested) means the requirement may or may not be applicable, but the relevant measurement or test was not performed as part of this test project.

N/A (Not Applicable) means the lab judged that the test sample is exempt from the requirement.

Table 1: Summary of results

Report Organization

For convenience of the reader, this report is organized as follows:

1. Summary
2. Test Background
3. Report History and Approval
4. Test Sample Modifications and Special Conditions
5. Description of Equipment Tested
6. Test Standards Applied
7. Measurement Instrumentation Uncertainty
8. Selected Examples of Calculations
9. Environmental Conditions During Test
10. 3m RF Chamber Block Diagrams

Annex: Test records are provided for each type of test, following the order and page numbering stated in the summary table. Concluding notes appear on the final page of this report.

Due to confidentiality, certain material (such as test setup photographs) has been removed from this report and placed in GCL Test Report 2025-83. That report is treated as a part of this document by way of this reference.

2. Test Background

2.1 The Test Lab

The testing reported here was performed at the Garmin Compliance Lab, an organization within Garmin International, located at 1200 E 151st St, Olathe Kansas, USA. The contact telephone number is +1.913.397.8200.

2.2 The Client

The testing was performed on behalf of the Garmin design group, a separate organization located at 1200 E 151st St, Olathe Kansas, USA. Witnesses from the business group included: None.

2.3 Other Information

Test Sample received: 14 Nov 2025

Test Start Date: 17 Nov 2025

Test End Date: 07 Dec 2025

The data in this test report apply only to the specific samples tested.

Upon receipt all test samples were believed to be properly assembled and ready for testing.

3. Report History and Approval

This report was written by David Arnett and initially issued on 22 Dec 2025 as Version A.

Version B, issued on 29 Dec 2025, added FCC "Lab Registration Number" in section 6.4. Version B was written by Majid Farah.

Report Technical Review:

Majid Farah
Senior EMC Engineer



GCL only

Report Approval:

Shruti Kohli
Senior Manager Operations



GCL only

4. Test Sample Modifications and Special Conditions

The following special conditions or usage attributes were judged during test to be necessary to achieve compliance with one or more of the standards listed in section 6 of this report:
None.

The following modifications to the test sample(s) were made, and are judged necessary to achieve compliance with one or more of the standards listed in section 6 of this report:

Modification 1

Detailed Description: All samples firmware was updated from version 6.01 to 6.03.

Date applied: 01 Dec 2025 at 12.00 noon

Reason for this modification: Power reduction for IEEE802.11 for g mode ch.11 and 12, n mode ch. 11, 12, and 13 to meet restricted band limits.

The following tests were performed without this modification being present, and the presence or absence of the modification is judged by the lab and client to have no significant effect on these specific tests, or that the changes created more margin to the limits: all tests not related to IEEE 802.11 g and n modes; tests for g and n modes on channels where no power change was made; conducted transmit power, occupied bandwidth, DTS bandwidth, power spectral density, band edge gap measurement.

5. Description of the Equipment Tested

5.1 Unique Identification

Product Model	AA5206
Serial Numbers Tested	3621679818, 3621679832, 3621679383

The product tested is a mobile device for collecting and sharing data with the user and nearby electronic devices.

The client affirmed that the test samples will be representative of production in all relevant aspects.

5.2 Key Parameters

EUT Input Power:	5 Vdc
I/O Ports:	USB
Radio Transceivers:	IEEE 802.11 b/g/n, Bluetooth, Bluetooth Low Energy, ANT, NFC
Radio Receivers:	GPS L1, Galileo E1, BeiDou, GLONASS
Primary Functions:	Data collection and communication
Typical use:	Body worn
Highest internal frequency:	2.484 GHz
Highest digital frequency:	192 MHz
Firmware Revision	6.03

5.3 Operating modes

During test, the EUT was operated in one or more of the following modes.

M1 (BTx): Bluetooth radio transmitting consistently on a selected channel sending data using the BR (Basic Rate of 1 Mbps), EDR2 (Extended Data Rate of 2 Mbps) or EDR3 (Extended Data Rate of 3 Mbps) modulation types.

M3 (BTHop): Bluetooth radio transmitting consistently on various channels within operational frequency range in accordance with the protocol (Hopping).

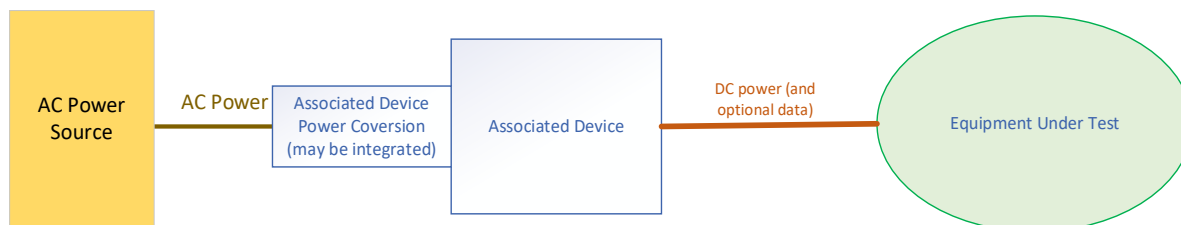
M12 (RxBTC): Bluetooth radio was set to receive signals on a selected channel, with a specified modulation type.

5.4 EUT Arrangement

During test, the EUT components and associated support equipment were selected including the following arrangement sets.

A1: The test sample is attached to a Mains-powered device connected that provides dc power to the sample and user data over a cable. See the block diagram in Figure 1.

A2: The test sample is attached to a Mains-powered device connected that provides dc power to the sample over a cable but no user data. See the block diagram in Figure 1.



*This interconnect drawing is not to scale.
It does not indicate the placement of devices.*

Figure 1: Block diagram of equipment arrangement A1 and A2

A3: The test sample operates from its battery and no external physical connections. No block diagram is needed for this arrangement.

5.5 Associated Equipment (AE) used

Description	Manufacturer	Model	Serial Number
USB C power adaptor	Phihong (Garmin)	AQ27A-59CFA	362-00118-00
Laptop	Dell	Precision 5540	3JYG33
AC/DC Power Adapter	Dell	HA130PM130	0V363H-CH200-78G-0DC1-A01
NFC tag	Garmin	Approach CT1	part# 010-03908-00

Table 2: List of associated equipment that may have been used during test

5.6 Cables used

Description	From	To	Length	EMC Treatment
USB C to custom cable	Power and/or Data source	EUT	0.5 m	None

Table 3: List of cables that may have been used during test

6. Test Standards Applied

6.1. Accredited Standards

The following test or measurement standards were applied and are within the scope of the lab's accreditation. All results in this report that cite these standards are presented as Accredited results consistent with ISO/IEC 17025.

CFR 47, FCC Part 15, Subpart C

RSS-GEN Issue 5 Amd 2

RSS-247 Issue 4

ANSI C63.10: 2020 and ANSI C63.10: 2020 +Cor 1: 2023

6.2 Non-accredited Standards

The following test or measurement standards were applied and are either outside the scope of the lab's accreditation, or were performed in such a way that results are not presented as being fully accredited.

FCC Part 2.202

TRC-43 Issue 3

6.3 Variances

The following variances were applied to standards cited in this section.

Where different test standards cover the same test parameter or phenomenon, and the standards have compatible differences, the stricter of the requirements is typically applied. For example, a consolidated limit may be applied to emission tests selecting the strictest of the limits at each frequency. Likewise, if one standard requires a vertical antenna sweep with boresighting and another does not, swept motion with boresighting will typically be used as it is the more stringent requirement.

Some standards that apply an Average detector provide a variety of methods to handle time-averaging, especially where the transmission is not continuous and the Duty Cycle (DC) is below a value such as 98%. The basic GCL process is to begin by applying an Average detector to the emission with the receiver in Max-Hold data mode. This Max Average method is worst-case compared to any of the methods of time-averaging provided. If the Max Average result complies with the limit, that result is provided in the test record and the emission judged to be compliant without additional detail. If the Max Average result is near or above the limit at one or more emission frequencies, then one of the appropriate time-averaging methods is applied to determine final compliance. When time-averaging is used, the test record will indicate which method of time-averaging was used.

Some standards ask for measurements made with a 'Time Domain Power' function, but that function is not defined in the standards. GCL addresses this gap as follows. Staff capture a zero-span Average detector data record of emission power, with a timespan covering a transmission burst. When the maximum power in the data record is clearly below the limit, this value will be reported. When the maximum power in the data record is near or above the limit, then the average of the power (in linear units) during a transmission burst is calculated and reported.

DISCLAIMER: In some test activities, the operation of a test or the result of a test depends on data provided by the client. The Garmin Compliance Lab disclaims responsibility for any error in the processes, results, or judgments in this report arising from incorrect client-provided data.

6.4 Laboratory Accreditation

The Garmin Compliance Lab, an organization within Garmin International, is registered with the US Federal Communication Commission (FCC) as:

Lab Registration Number: 273575
FCC Designation Number: US1311

The Garmin Compliance Lab, an organization within Garmin International, is recognized by the Canada Department of Innovation, Science, and Economic Development (ISED) under:

Company Number: 1792A
CAB Identifier: US0233

The Garmin Compliance Lab, an organization within Garmin International, is accredited by A2LA, Certificate No. 6162.01. The presence of the A2LA logo on the cover of this report indicates this is an accredited ISO/IEC 17025 test report. If the logo is absent, this report is not issued as an accredited report. Other marks and symbols adjacent to the A2LA logo are accreditation co-operations of which A2LA is a member under a mutual recognition agreement, and to which the Garmin Compliance Lab has been sublicensed.

7. Measurement Instrumentation Uncertainty

The lab has analyzed the sources of measurement instrumentation uncertainty. The analysis concludes that the actual measurement values cited in this report are accurate within the U_{LAB} intervals shown below with approximately 95% statistical confidence. Where the report shows a judgment that a test sample passes a test against a published limit based on these measured values, that judgment has a statistical confidence of 97.5% or greater. Measurement Instrumentation Uncertainty is one component of over-all measurement uncertainty, and other uncertainty components are not considered as part of this analysis.

The primary benchmark for measurement instrumentation uncertainty (MIU) in an electromagnetic compatibility (EMC) test lab is the set of U_{CISPR} values published in CISPR 16-4-2. In all cases where a U_{CISPR} value is published by CISPR, the analysis shows that U_{LAB} – this lab's estimated MIU – is better than the U_{CISPR} benchmark.

The secondary benchmark for MIU in an EMC lab performing radio transceiver tests is a set of uncertainty limit values published in various ETSI standards. In this report, U_{ETSI} is the most restrictive of the values found in the ETSI EN standards listed in section 5 of this report. The analysis principles are described in the ETSI TR documents listed there. In most cases U_{LAB} is better than the U_{ETSI} benchmark. Where U_{LAB} exceeds the U_{ETSI} benchmark cited here, that entry is preceded by an asterisk. When required by the ETSI EN standards, excess uncertainty will be added to the measurand before comparison to a limit. In an individual test report, staff may re-evaluate that excess uncertainty based on the uncertainty of the method used and the uncertainty limits of the actual ETSI EN standard being applied, and the revised uncertainty values will be shown in the test report.

Some measurement uncertainties analyzed and reported here are not addressed in CISPR 16-4-2 or the ETSI standards, as indicated by the entry 'None.'

Test Type	U_{LAB}	U_{CISPR}	U_{ETSI}
Conducted DC voltage	0.09% + 2 x LSDPV	None	1%
Conducted AC voltage below 500 Hz	1.0% + 3 x LSDPV	None	2%
Conducted Emissions, Mains Voltage	0.10% + 10 mV	None	None
Conducted Emissions, Mains Current	0.10% + 3 mA	None	None
Conducted Emissions, Mains Power	0.15% + 100 mW	None	None
Conducted Emissions, Power Mains, 9 kHz to 150 kHz	1.70 dB	3.8 dB	None
Conducted Emissions, Power Mains, 150 kHz to 30 MHz	1.48 dB	3.4 dB	None
Conducted Emissions, Cat 6 LCL, 150 kHz to 30 MHz	1.57 dB	5 dB	None
Conducted Emissions, Cat 5 LCL, 150 kHz to 30 MHz	3.06 dB	5 dB	None
Conducted Emissions, Cat 3 LCL, 150 kHz to 30 MHz	4.27 dB	5 dB	None
Radiated Emissions, below 30 MHz	0.88 dB	None	6 dB
Radiated Emissions, 30 MHz to 1000 MHz	2.79 dB	6.3 dB	6 dB
Radiated Emissions, 1 GHz to 18 GHz	2.54 dB	5.2 & 5.5 dB	6 dB
Radiated Emissions, 18 GHz to 26.5 GHz	2.68 dB	None	6 dB
Radiated Emissions, 26.5 GHz to 40 GHz	3.17 dB	None	6 dB
*Radio Signal Frequency Accuracy	1.55×10^{-7}	None	1.0×10^{-7}
Radio Signal Occupied Bandwidth	0.95%	None	5%
Radio Power or Power Spectral Density	0.98 dB	None	1 dB
Temperature	0.38 °C	None	1 °C
Barometric Pressure	0.38 kPa	None	None
Relative Humidity	2.85% RH	None	±5% RH
Signal Timing	The greater of these three... 0.63 µsec 0.01% of value 0.5 x LSDPV	None	None

Note: LSDPV stands for the Least Significant Digit Place Value reported. In the value 1470 msec, the least significant digit is the 7. It has a 10 msec place value. The LSDPV is thus 10 msec and the maximum error due to roundoff would be 5 msec. If the time value were reported as 1470 msec, the underscore indicates that the 0 is a significant figure and the error due to roundoff would be 0.5 msec. All digits provided to the right of a decimal point radix are significant.

8. Selected Example Calculations

Certain regulators require samples of the calculations that lead from the raw measurement to the final result for AC Mains conducted and unintended radiated emissions. The assumption is that the lab performs raw measurements, then adds, subtracts, multiplies, or divides based on transducer factors, amplifier gains, and losses in the signal transmission path. In this lab, our CISPR 16 Receiver does not work that way. The calibration factors and losses and gains are provided to the receiver as detailed data files. These factors are applied in the RF measurement path prior to the detector. But as a step in the lab measurement process, staff frequently verify that these factors are applied correctly. They make a measurement with the factors applied inside the receiver, then they disable the factors and remeasure the result manually adding in the various relevant factors.

The transmission loss is measured including the combined losses and gains of preamplifiers, cables, and any band-selective filters. In many cases above 1 GHz it is a negative value, indicating that the preamplifier gain is greater than these other losses.

Here are examples of these calculations. The data in these examples was not taken as part of this project:

8.1 AC Mains conducted emissions at 22 MHz

(Raw measurement) + (AMN factor) + (transmission loss) = Result

$$(7.145 \text{ dB}\mu\text{V}) + (9.812 \text{ dB}) + (0.216 \text{ dB}) = 17.173 \text{ dB}\mu\text{V}$$

8.2 Radiated Emissions at 630 MHz

(Raw measurement) + (Antenna factor) + (transmission loss) = Result

$$(2.25 \text{ dB}\mu\text{V}) + (27.80 \text{ dB/m}) + (2.89 \text{ dB}) = 32.94 \text{ dB}\mu\text{V/m}$$

8.3 Radiated Emissions at 2.7 GHz

(Raw measurement) + (Antenna factor) + (transmission loss) = Result

$$(43.72 \text{ dB}\mu\text{V}) + (32.22 \text{ dB/m}) + (-36.09 \text{ dB}) = 39.85 \text{ dB}\mu\text{V/m}$$

9. Environmental Conditions During Test

Environmental conditions in the test lab were monitored during the test period. Temperature and humidity are controlled by an air handling system. As information to the reader, the conditions were observed at the values or within the ranges noted below. For any tests where environmental conditions are critical to test results and require further constraints or details, the test records in the annex may provide more specific information.

Temperature:	20.6 to 22.9 °C
Relative Humidity:	41.5% to 49.3% (non-condensing)
Barometric Pressure	96.7 to 99.2 kPa

Description	Make	Model #	Serial #	Last Cal/Ver	Next Due
Barometer	Traceable	6453	240300703	9-Apr-2024	9-Apr-2027

Table 4: Environmental monitoring device

10. 3m RF Chamber Block Diagrams

The 3m chamber has three basic configurations which are shown in the figures below. These figures are not to scale.

Figure 1 shows a semi anechoic setup which is typically used for frequencies below 1 GHz. In this example, the antenna is mounted on a mast capable of 1-4 m elevation changes. If a preamplifier or RF filter is used, they are located at or just below floor level. The receiver is outside the chamber, typically in an adjacent separate shielded room.

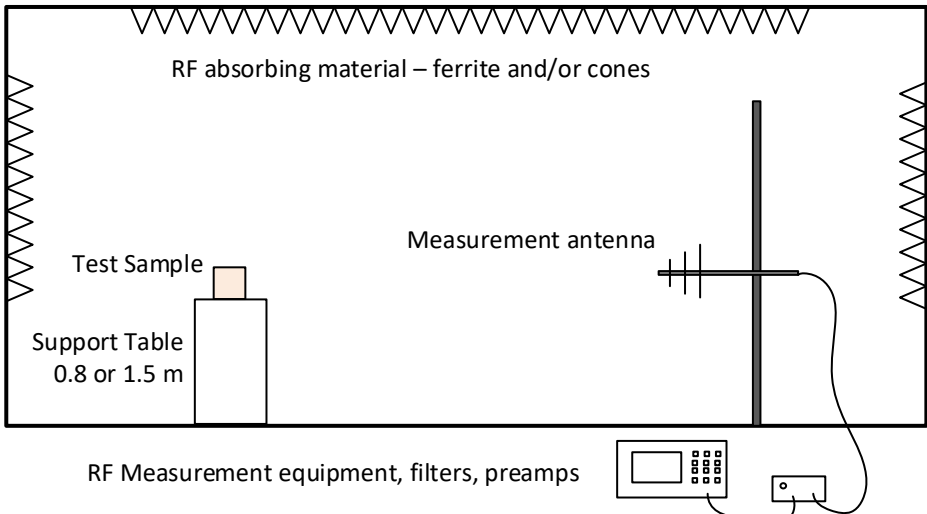


Figure 1: Typical configuration for measurements below 1 GHz

Figure 2 shows an FSOATS setup which is typically used for frequencies above 1 GHz but below an upper limit such as 14 or 18 GHz. In this example, the antenna is mounted on a mast capable of 1-4 m elevation changes and bore sighting. If a preamplifier or RF filter is used, they are located at or just below floor level. The receiver is outside the chamber, typically in an adjacent separate shielded room.

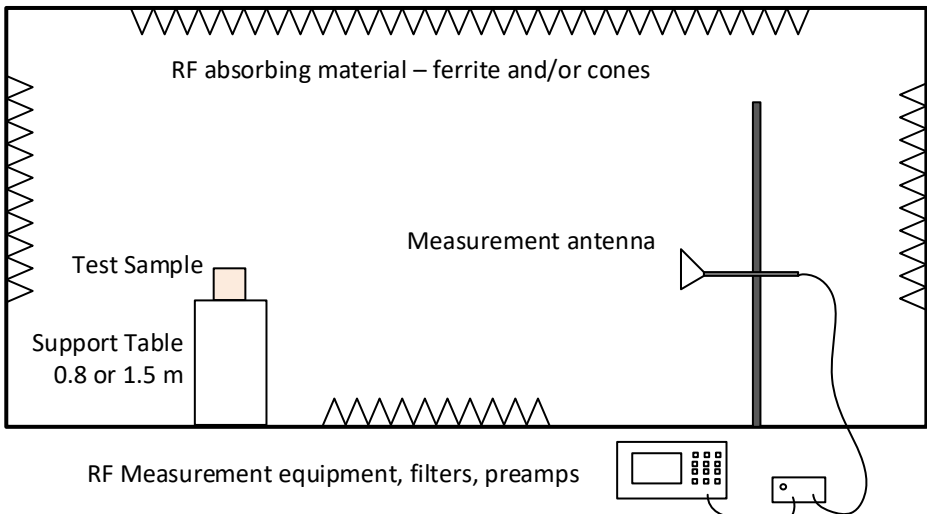


Figure 2: Typical configuration for measurements between 1 GHz and 14 GHz

Figure 3 shows an alternate FSOATS setup which is typically used for frequencies above 14 GHz. In this example, the antenna is mounted on a mast capable of 1-4 m elevation changes and bore sighting. A preamplifier is located on the mast just behind the antenna. The receiver is located in the chamber near floor level but outside the antenna beam. The receiver may be operated manually by an operator in the chamber and or remotely via an Ethernet connection.

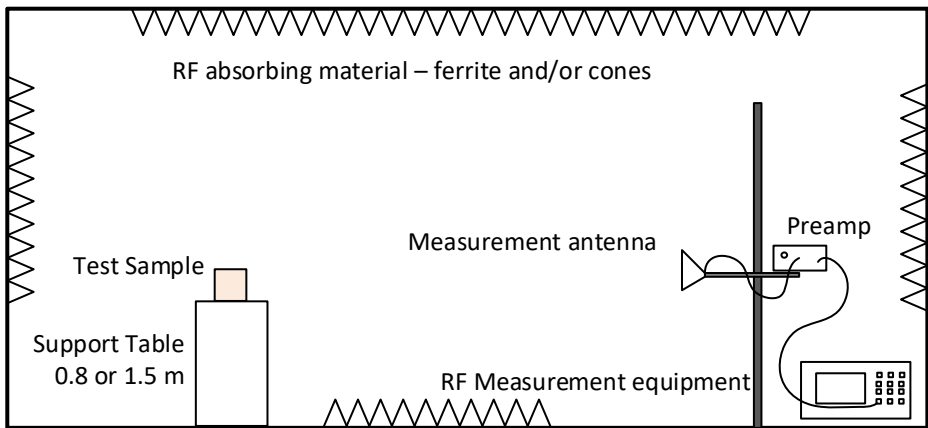


Figure 3: Typical configuration for measurements above 14 GHz

ANNEX

The remainder of this report is an Annex containing individual test data records. These records are the basis for the judgments summarized in section 1 of this report. The Annex ends with a set of concluding notes regarding use of the report.

Test Record

FHSS ANSI Tests: 20 dB bandwidth, Carrier frequency separation, Number of hopping frequencies, Time of channel occupancy

Test IDs TR10, TR78, TR79, TR80

Project GCL0885

Test Date(s) 15 Nov, 01 and 05 Dec 2025

Test Personnel Majid Farah, Dave Arnett

Product Model AA5206

Serial Number tested 3621679383

Operating Mode M1 (BTx), M3 (BTHop)

Arrangement A2

Input Power 5 Vdc

RF Output Is Not greater than 125 mW (21 dBm) conducted to the antenna

Test Standards: FCC Part 15.247, ANSI C63.10, AS/NZS 4268, RSS-GEN, RSS-247 (as noted in Section 6 of the report).

Pass/Fail Judgment: PASS

Test record created by: Majid Farah

Date of this test record: 7 Dec 2025

Original record, Version A.

Test Equipment Used

Description	Make	Model #	Serial #	Last Cal/Ver	Next Due
MXE Receiver 8.4 GHz	Keysight	N9038B	MY63460112	17-Mar-2025	17-Mar-2026
PXE Receiver 44 GHz	Keysight	N9048B	MY62220139	4-Sep-2025	4-Sep-2026

Table TR10.1: Test equipment used

Test software used: Keysight MXE software A.37.02, Keysight PXE software A.33.03

Test Data

This test looks at details specific to frequency hopping systems in the referenced standards: the maximum number of hopping channels; the relationship between 20 dB Occupied bandwidth and channel separation; and channel occupancy time.

This measurement requires that a coaxial feed line from the transmitter is available as a connector exterior to the test sample. This feed line and connector may be a part of the shipping product, or it may be a special modification to the product for testing purposes. The connector is attached via laboratory cables to the measurement instrument. Since the absolute signal amplitude is not relevant to these tests, the results may not have been adjusted to account for the losses in the laboratory cables.

Bandwidth and Channel Separation

The 20 dB Occupied bandwidth (OBW20) was measured for each modulation type, with the transmission fixed on low, middle, and high channels. The maximum bandwidth observed is highlighted in yellow, and the spectrum image for that case is also provided.

The standard requires that the hopping channel separation is no less than OBW20 if the transmitted power is above 125 mW. For lower power transmissions, the hopping channel separation must be no less than two-thirds of OBW20. This second case can also be expressed as limiting OBW20 to 1.5 times the channel separation. Based

on the 914 kHz separation between hopping channel, and the output power of the transmitter, the 20 dB occupied bandwidth must be no greater than 1.371 MHz. The data below shows compliance with this limit.

		2402	2440	2480
		MHz	MHz	MHz
Bluetooth BR		1.041	1.039	1.039
Bluetooth EDR2		1.340	1.337	1.338
Bluetooth EDR3		1.364	1.353	1.354

Table TR10.2: Summary of 20 dB Occupied Bandwidth results

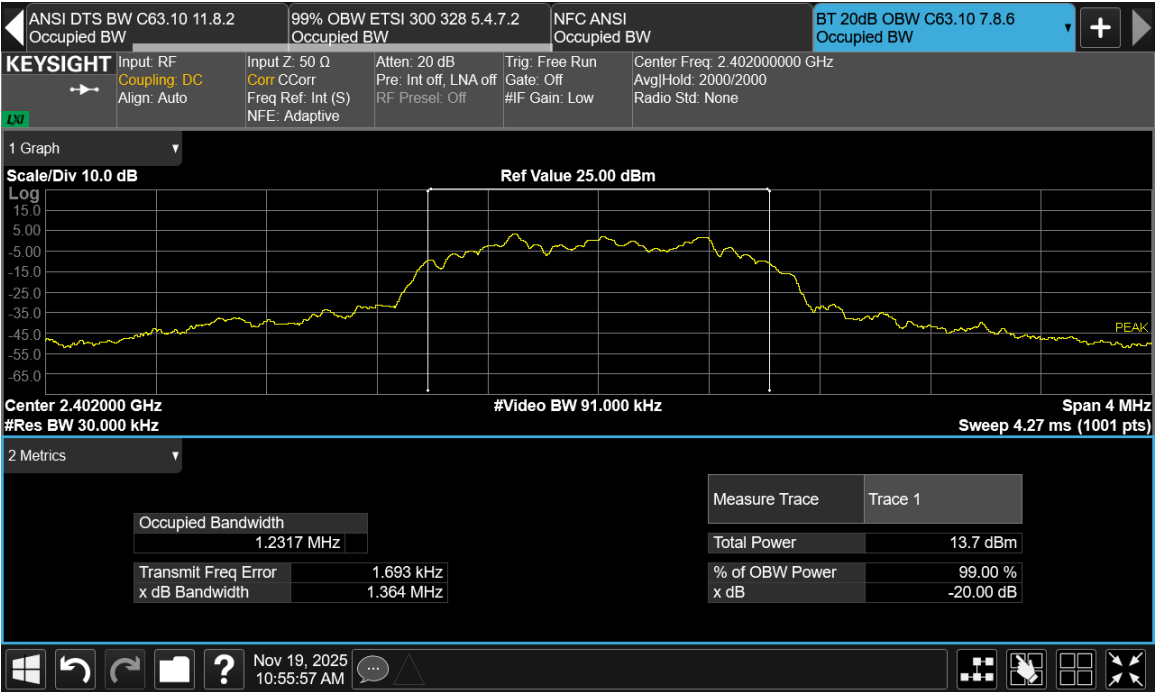


Figure TR10.1: Spectral data for Bluetooth EDR3 modulation at 2402 MHz

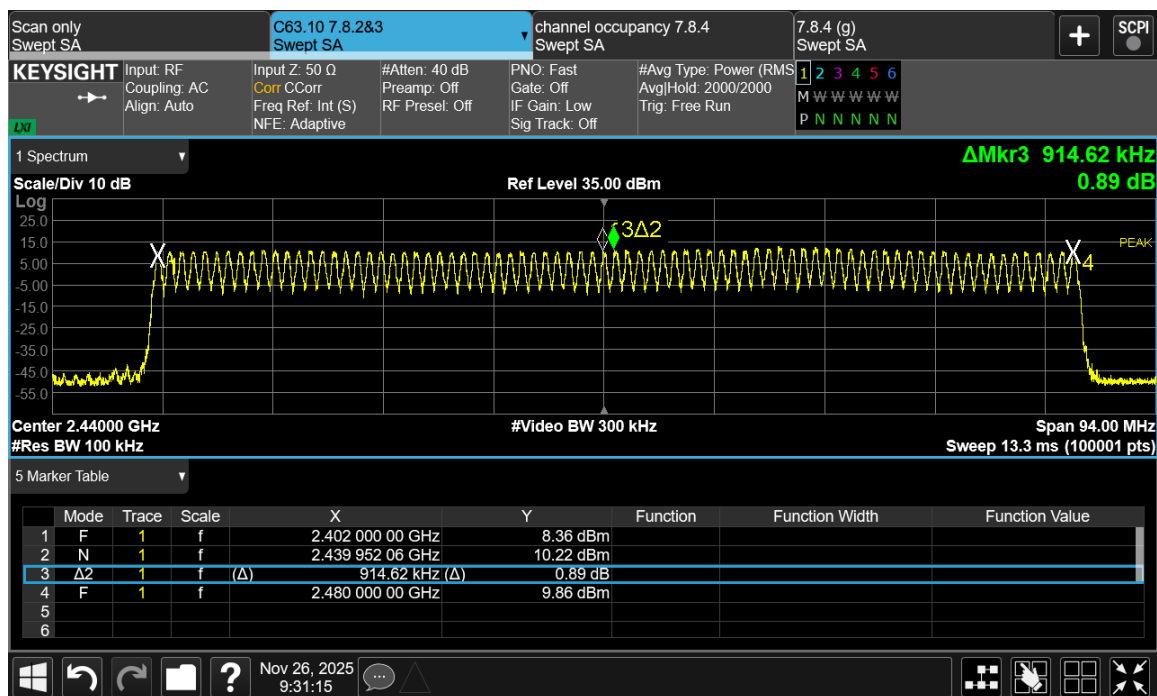


Figure TR10.2: Spectral data for maximum number of channels and channel separation for Bluetooth basic rate

Hopping Channels

The test sample was placed in a test mode where it transmits on its various frequency channels while hopping. The spectrum analyzer scanned a frequency range that included these frequencies in Max Hold condition. The resulting spectra in Figure TR10.2 showing that the sample uses each of the 79 hopping frequencies from 2402 MHz to 2480 MHz, also confirming a channel separation of 914 kHz.

Channel Occupancy

The channel occupancy requirement ensures that the transmissions are distributed consistently across the hopping channels. The maximum channel occupancy time should not exceed 0.4 seconds in the regulatory observation period. The regulatory observation period can be calculated by 0.4 seconds multiplied by the number of hopping channels to ensure having enough sweep time. For this product, the regulatory observation period is 31.6 seconds. During that time, the sum of the transmission times on the selected channel cannot exceed the limit of 0.4 seconds.

The test sample was placed in a test mode where it transmits on its various frequency channels while hopping. This testing is performed at three channel frequencies within the lowest, middle and the highest frequency of the band of different data rates. As an initial test the dwell time per hop on a channel measured using zero-span time with a consistent measurement of 2.89 milliseconds. The plot image below shows a sample of the equipment settings and the measurements for a single hop.

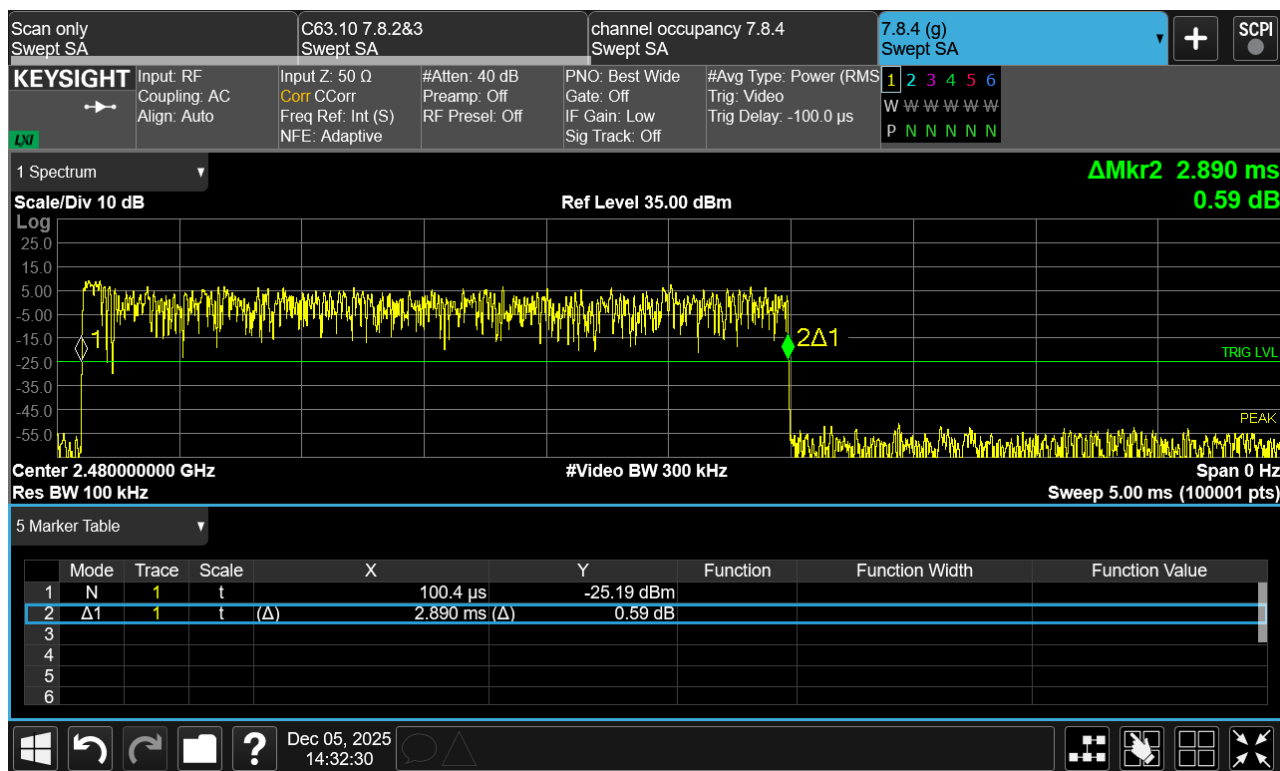


Figure TR10.3: Dwell time per hop, Bluetooth EDR3 transmission

To determine channel occupancy in the regulatory observation period of 31.6 seconds, the total number of hops was measured. For this device 112 hops were observed. See figure TR10.4 below. The channel occupancy time calculated as (112 hops) x (2.89 msec/hop) = 0.324 seconds which complies with standard.

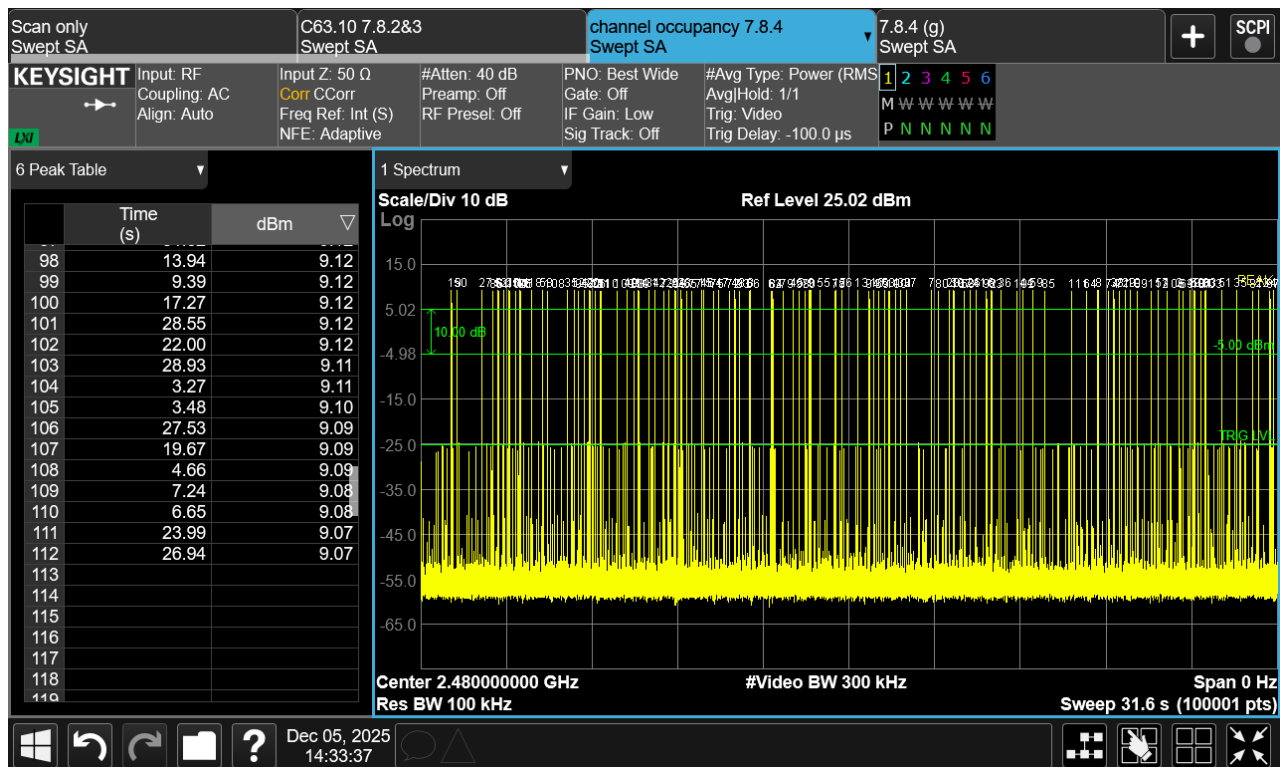


Table TR10.4: Summary of Channel Occupancy and number of hops in the regulatory observation period
This line is the end of the test record.

Test Record
FHSS Minimum Channels Used TR95
Project GCL0885

Test Date(s) 1 Dec 2025
Test Personnel David Arnett

Product Model AA5206
Serial Number tested 3621679383

Operating Mode M2 (BtLnk)
Arrangement A2
Input Power USB 5V dc

RF Output Power Is Not greater than 125 mW (21 dBm) conducted to the antenna
Client-declared Min Chans. 20

Test Standards: FCC Part 15.247, ANSI C63.10, AS/NZS 4268, RSS-GEN, RSS-247 (as noted in Section 6 of the report).

Pass/Fail Judgment: PASS

Test record created by: David Arnett
Date of this test record: 8 Dec 2025

Original record, Version A.

Test Equipment Used

Description	Make	Model #	Serial #	Last Cal/Ver	Next Due
MXE Receiver 8.4 GHz	Keysight	N9038B	MY63460112	17-Mar-2025	17-Mar-2026
Vector Signal Generator	Rohde&Schwarz	SMBV100B	103450	12-Jun-2024	12-Jun-2026

Table TR95.1: Test equipment used

Test software used: Keysight MXE software A.37.02

Requirement

This test looks at details specific to frequency hopping systems in the referenced standards. It specifically evaluates the minimum number of channels used. 15.247(a)(iii) states, "Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used." The text at (b)(1) raises the limit to a minimum of 75 hopping channels if the Tx power delivered to the antenna is greater than 21 dBm. The same requirements are found in RSS-247 at 6.2.3.1(b) and 6.2.3.2(b).

This measurement requires that a coaxial feed line from the transmitter is available as a connector exterior to the test sample. This feed line and connector may be a part of the shipping product, or it may be a special modification to the product for testing purposes. The connector is attached via laboratory cables to the measurement instrumentation. Since the absolute signal amplitude is not relevant to these tests, the results may not have been adjusted to account for the losses in the measurement system.

Test Data: Hopping Channels

The test sample was connected through attenuators to a companion device, as well as the spectrum analyzer and a vector signal generator capable of creating Gaussian noise more than 80 MHz wide. The sample was linked to the companion and operated in a mode where it transmits on its various frequency channels while hopping. The Gaussian noise was introduced so that it created interference on the upper channels, and it was slowly shifted downward in frequency to observe how channels were removed from the hopping list. The objective was to detect how few hopping channels the test sample would use before it stopped transmissions altogether.

The spectrum analyzer scanned a frequency range that included these frequencies. Trace 1 (yellow) is in Max Hold condition to show the channels on which the test sample radio hopped. The cyan trace is clear-write, showing the interfering noise spectrum. Marker 1 is set at the lowest channel (2402MHz); Marker 2 is set 14 channels higher at 2416 MHz. Marker 3 is set at the highest channel, 2480 MHz. In a compliant result, some channels might be suppressed, but all channels between markers 1 and 2 would be in use.

The resulting spectra are attached, showing that in the presence of in-channel interference the sample did not suppress transmissions in an impermissible way. It used more than 15 hopping frequencies, or stopped transmissions, for any placement of the interfering noise.

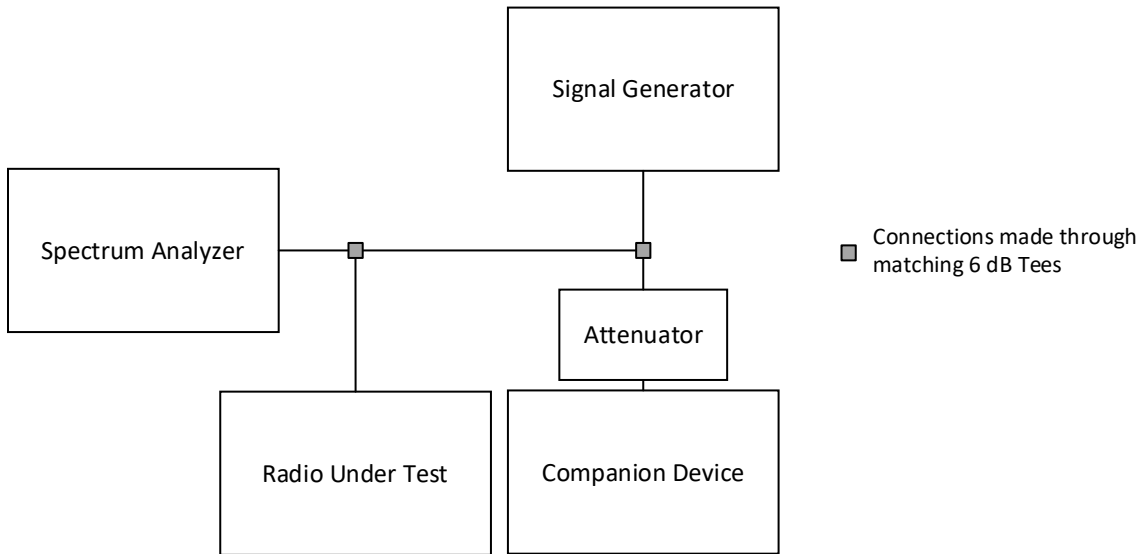


Figure TR95.1: Equipment setup

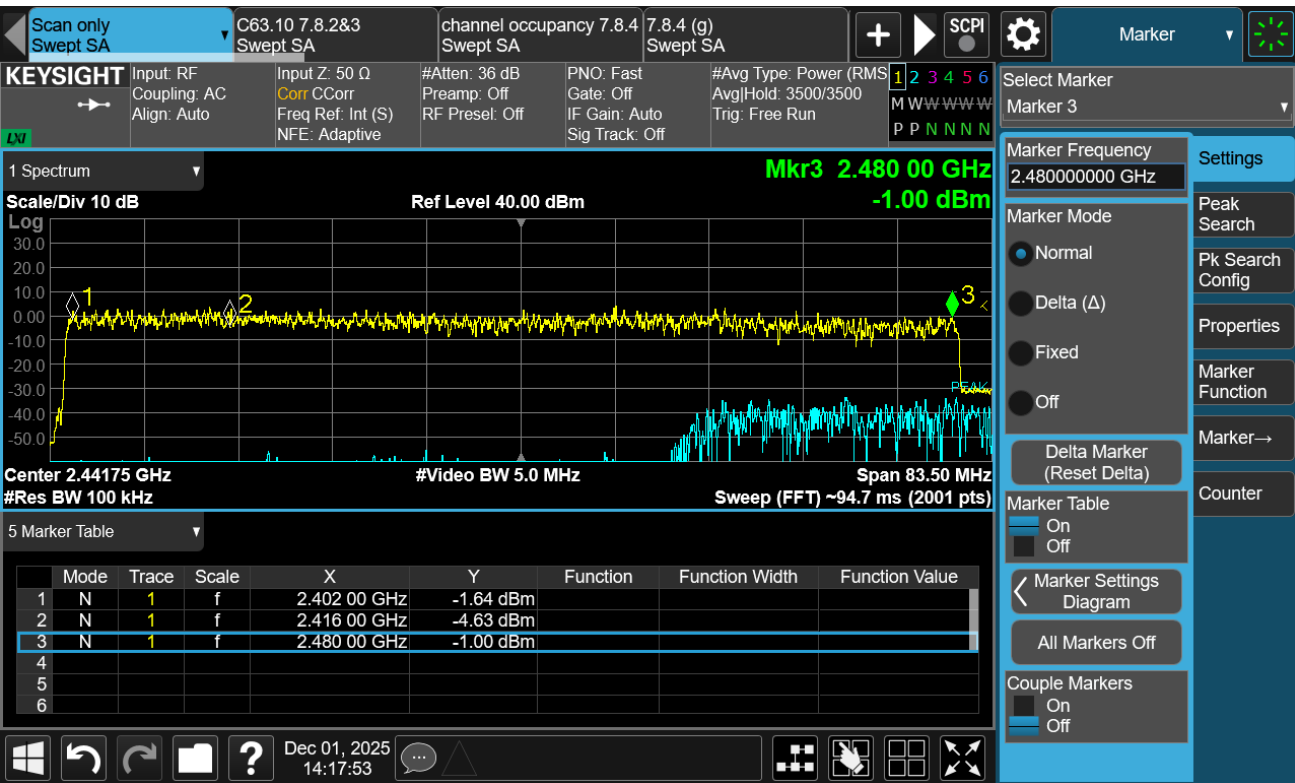


Figure TR95.2: Spectral data, Bluetooth transmissions, showing channels used in the presence of a very broadband interference source

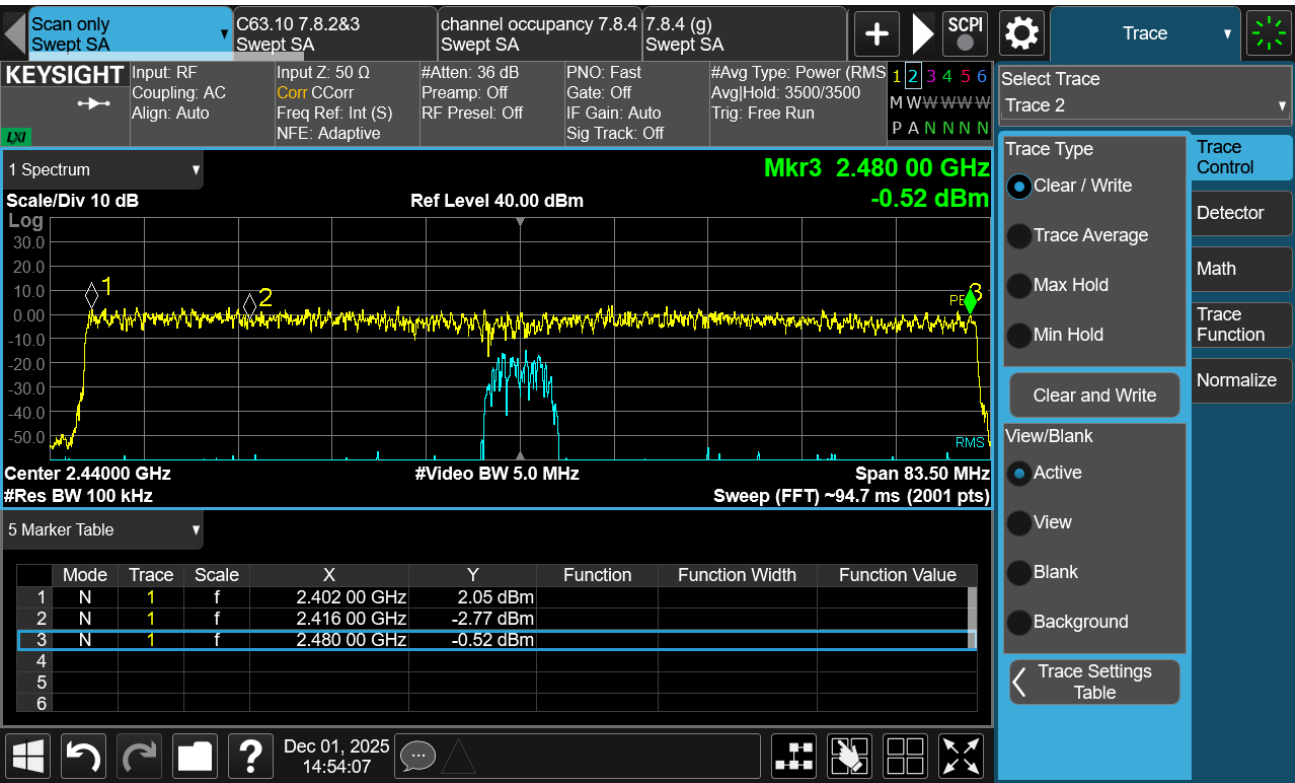


Figure TR95.3: Spectral data, Bluetooth transmissions, showing channels used in the presence of moderately broadband interference located mid-band

This line is the end of the test record.

Test Record
Transmitter Bandwidth Tests
Test IDs TR14
Project GCL0885

Test Date(s) 19 Nov 2025
Test Personnel Jim Solum

Product Model AA5206
Serial Number tested 3621679383

Operating Mode M1(BtTx)
Arrangement A2
Input Power USB 5 Vdc

Test Standards: FCC Part 2.202, ANSI C63.10, TRC-43, RSS-GEN (as noted in Section 6 of the report).

Radio Protocol Bluetooth Classic (Including EDR2 and EDR3)
Radio Band 2480 to 2483.5 MHz

Pass/Fail Judgment: Reported

Test record created by: Jim Solum
Date of this record: 03 Dec 2025

Original record, Version A.

Test Equipment Used

Description	Make	Model #	Serial #	Last Cal/Ver	Next Due
PXE Receiver 44 GHz	Keysight	N9048B	MY62220139	4-Sep-2025	4-Sep-2026

Table TR14.1 Equipment Used

Software used: Keysight PXE software A.33.03,

Background

There are regulatory requirements to present two additional types of bandwidth analyses: 99% Occupied Bandwidth and Necessary Bandwidth. There are no limits or functional requirements around these data, beyond a reporting requirement. The contents of this test record are for information, and do not affect compliance of the devices that are the subject of this report.

Test Setup

This block diagram shows the test equipment setup.

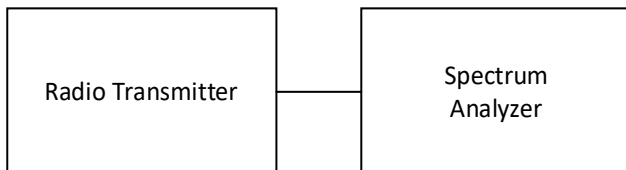


Figure TR14.1: Test setup

Occupied Bandwidth, 99% Test Method

During this test the transmitter output is fed directly, or through RF attenuators, to the spectrum analyzer. The analyzer has a built-in capability to identify the minimum bandwidth that contains a specified percentage of the total

power observed. The spectrum is scanned hundreds of times so that the varied effects of modulation are appropriately assessed. Since the focus is on the relative distribution of energy across a range of frequencies, the absolute amplitudes recorded during this test are not relevant and may not include cable losses or attenuation factors.

Occupied Bandwidth, 99% Test Data

The data for each type of bandwidth is summarized below, followed by the spectral data for the cases highlighted in yellow. The analysis threshold for this test was the bandwidth containing 99% of the observed power using the ANSI C63.10 method. The standards require testing a frequency near the bottom, middle, and top of the band. The measured bandwidth data are in bold font and have MHz as their units of measure.

	2402	2440	2480
Bluetooth BR	0.9493	0.9219	0.9286
Bluetooth EDR2	1.1955	1.1957	1.1974
Bluetooth EDR3	1.2341	1.2310	1.2336

Table TR14.2: Summary of 99% Occupied Bandwidth Data (DH5) for Bluetooth modes

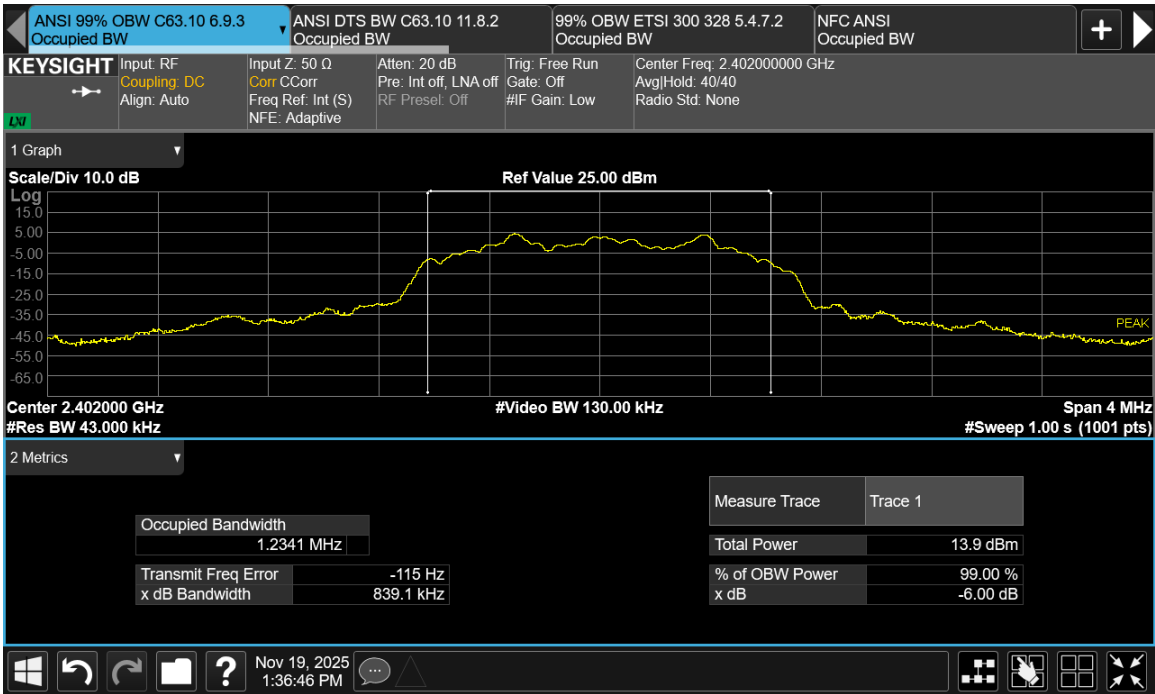


Figure TR14.2: Occupied bandwidth data for Bluetooth EDR3 (3_DH5) at low channel (2402 MHz)

Necessary Bandwidth Calculations

The Necessary Bandwidth is a theoretical value based on the specifications for a communication protocol, rather than the hardware implementation and a subsequent lab measurement. The analysis methods in FCC Part 2.202 and TRC-43 are the same for NFC, Bluetooth, ANT, and IEEE 802.11b WiFi. However, they differ for IEEE 802.11g and 11n systems because the Canadian TRC-43 standard provides different analysis methods for Orthogonal Frequency Division Multiplexing systems (OFDM). The tables below will show the analysis for most of the radios signals as a combined approach, then separately analyze the results for IEEE 802.11g and n systems. The tables below may include radio protocols that are not part of the product being evaluated.

NFC (Near Field Communication) at 13.56 MHz uses continuous wave telegraphy without tone modulation. The bit rate 'B' in the FCC and TRC equations is split into two parts here. B is the baud rate. C is a coding factor. C=1 for Miller encoding where the transition speed is as high as the bit rate, or C=2 for Manchester encoding where the transition speed is as high as twice the bit rate). K is a factor set to 3 for non-fading circuits under the standards. The Necessary Bandwidth, B_N is then:

$$B_N = BCK$$

Radio Type	B (kbaud)	C	K	B_N (kHz)
NFC A	106	1	3	318.0
NFC B	212	2	3	1272.0
NFC B	424	2	3	2544.0

Table TR14.100: Necessary Bandwidth for NFC

The radio modulation schemes for Ant, for the various Bluetooth protocols, and for IEEE 802.11 b WiFi are a mix of Phase Shift Key (PSK) and Quadrature Amplitude Modulation (QAM) techniques. The Necessary Bandwidth calculations use the equations from 47CFR Part 2.202(g) table section 6. We have set the variable K=1, which leaves the equation for both PSK and QAM as:

$$B_N = 2R / \log_2(S)$$

where B_N is the Necessary Bandwidth, R is the bit rate, and S is the number of signaling states.

Radio Type	R Mbps	K	S	LogBase2 of (S)	B_N (MHz)
ANT / ANT+	1	1	2	1	2

Table TR14.101: Necessary Bandwidth for ANT and ANT+ Radio Protocols (FCC and TRC-43)

Radio Type	Sub-type	Method	R Mbps	K	S	LogBase2 of (S)	B_N (MHz)
Bluetooth	BR	GFSK	1	1	2	1	2
	EDR2	Pi/4 DPSK	2	1	4	2	2
	EDR3	8DPSK	3	1	8	3	2
BLE	1Mbps	GFSK	1	1	2	1	2
	2Mbps	DQPSK	2	1	4	2	2

Table TR14.102: Necessary Bandwidth for Bluetooth Radio Protocols (FCC and TRC-43)

Radio Type	Sub-type	R Mbps	K	S	LogBase2 of (S)	B_N (MHz)
802.11 b	1	1	1	2	1	2
	2	2	1	4	2	2
	5.5	5.5	1	4	2	5.5
	11	11	1	4	2	11

Table TR14.103: Necessary Bandwidth for IEEE 802.11 b Radio Protocol (FCC and TRC-43)

Radio Type	Sub-type	R Mbps	K	S	LogBase2 of (S)	B _N (MHz)
802.11 a/g	6	6	1	2	1	12
	9	9	1	2	1	18
	12	12	1	4	2	12
	18	18	1	4	2	18
	24	24	1	16	4	12
	36	36	1	16	4	18
	48	48	1	64	6	16
	54	54	1	64	6	18
802.11 n/ac	MCS0	7.2	1	2	1	14.4
	MCS1	14.4	1	4	2	14.4
	MCS2	21.7	1	4	2	21.7
	MCS3	28.9	1	16	4	14.5
	MCS4	43.3	1	16	4	21.7
	MCS5	57.8	1	64	6	19.3
	MCS6	65	1	64	6	21.7
	MCS7	72.2	1	64	6	24.1
	MCS8	86.7	1	256	8	21.7

Table TR14.104: Necessary Bandwidth for IEEE 802.11 a, g, n, and ac 20 MHz Radio Protocols (FCC)

Radio Type	Sub-type	R Mbps	K	S	LogBase2 of (S)	B _N (MHz)
802.11 n/ac	MCS0	15	1	2	1	30.0
	MCS1	30	1	4	2	30.0
	MCS2	45	1	4	2	45.0
	MCS3	60	1	16	4	30.0
	MCS4	90	1	16	4	45.0
	MCS5	120	1	64	6	40.0
	MCS6	135	1	64	6	45.0
	MCS7	150	1	64	6	50.0
	MCS8	180	1	256	8	45.0
	MCS9	200	1	256	8	50.0

Table TR14.105: Necessary Bandwidth for IEEE 802.11 n and ac 40 MHz Radio Protocols (FCC)

As a note, the bit rate for IEEE 802.11 n or ac WiFi is calculated based on the IEEE standard's short guard interval of 400 nsec. If only the long guard interval of 800 nsec were implemented, the bit rates would decrease by a small amount.

The TRC-43 method for OFDM signals simply multiplies the number of subcarriers, K, and the subcarrier spacing, N_s. In both cases, N_s is 312.5 kHz. The count of subcarriers includes nulls. So for example, 802.11 n uses 4 pilot subcarriers, 52 data subcarriers, and one null suppressed subcarrier in the middle for 57 total subcarrier channels.

$$B_N = N_s * K$$

Radio Type	Mode	N _s (MHz)	K	B _N (MHz)
802.11a/g	20 MHz	0.3125	53	16.6
802.11n/ac	20 MHz	0.3125	57	17.8
802.11n/ac	40 MHz	0.3125	117	36.6

Table TR14.106: Necessary Bandwidth for IEEE 802.11 a, g, n, and ac Radio Protocols (TRC-43)

This line is the end of the test record.

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Garmin		

Test Record
Transmitter Power, Duty Cycle
Test IDs TR01
Project GCL0885

Test Date(s) 17 Nov 2025
Test Personnel Jim Solum

Product Model AA5206
Serial Number 3621679383

Operating Mode M1(BtTx)
Arrangement A2
Input Power 5Vdc

Test Standards: FCC Part 15, ANSI C63.10, RSS-GEN, RSS-247 (as noted in Section 6 of the report).

Antenna Gain -2.26 dBi, as reported by the client
Radio Protocol Bluetooth

Pass/Fail Judgment: PASS

Test record created by: Jim Solum
Date of this record: 25 Nov 2025

Original record, Version A.

Test Equipment Used

Description	Make	Model #	Serial #	Last Cal/Ver	Next Due
RF Power Sensor	Keysight	U2063XA	MY65340001	29-Oct-2025	29-Oct-2026

Table TR01.1: List of test equipment used

Software used: Keysight BenchVue 2024; KeysightPowerAnalysisV2.xlsx

Test Method

The basic test standards provide options for the time evaluation test method. The following test methods were applied.

ANSI C63.10: 11.9.1.2 (Peak power with broadband power meter)

Duty Cycle data will be included if it is relevant to test methods used for other standards such as Average Detector methods in the ANSI standards that apply duty cycle correction.

Transmit Power and Timing Data

Each measurement is made conducted from the antenna port with the transmitter on a specified channel and in a selected transmission protocol. Where standards cited here apply harmonized test methods and different limits, the more strict limit has applied.

This test record will show results based on one or more of the following methods of analyzing the same set of raw power data vs. time. The ANSI peak power method looks for the highest power in the data record, with results in dBm units. The ANSI gated average power method determines the average power in the data record but only during times when the transmitter is keyed on, with results in dBm units. Under the US and Canadian rules a limit of 30 dBm is applied independent of which ANSI method is used. RF exposure limits are not addressed in this test record. Many of these standards also care about duty cycle, the portion of the time when the transmitter was actually transmitting. That is presented as a percentage, and no limit applies. All of these results are drawn from the same trace of Tx power data. The results are shown below.

ANSI Power

Frequency	(MHz)	2402	2440	2464	2466	2478	2480
Bluetooth	Basic	11.13	11.04	NT	10.14	9.59	9.65
Bluetooth	EDR2	12.86	12.85	12.21	NT	11.42	11.65
Bluetooth	EDR3	12.24	12.24	NT	11.61	11.02	11.08

Table TR01.2: Transmit Power, ANSI Peak Power method, in dBm for Bluetooth

Other Power Analyses

Frequency	(MHz)	2402	2440	2464	2466	2478	2480
Bluetooth	Basic	99.8%	99.8%	NT	99.8%	99.8%	99.8%
Bluetooth	EDR2	99.8%	99.8%	99.8%	NT	99.8%	99.8%
Bluetooth	EDR3	99.8%	99.8%	NT	99.8%	99.8%	99.8%

Table TR01.3: Duty cycle for Bluetooth BR, EDR2, EDR3

Setup Diagram

The following block diagrams show how the EUT and test equipment is arranged for test.

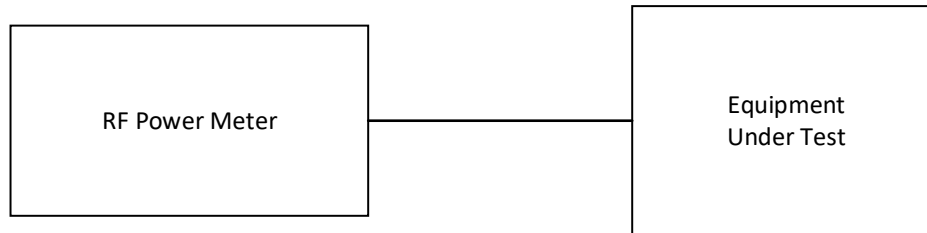


Figure TR01.1: Test equipment setup

This line is the end of the test record.

Test Record

Band Edge Conducted Spurious Emission Tests TR40, TR41 Project GCL0885

Test Date(s) 24 Nov 2025
Test Personnel Majid Farah

Product Model AA5206
Serial Number tested 3621679383

Operating Mode M1 (BtTx), M3 (BTHop)
Arrangement A2
Input Power USB 5 Vdc

Test Standards: FCC Part 15, ANSI C63.10, RSS-GEN, RSS-247 (as noted in Section 6 of the report).

Required reduction: 20 dBc for out-of-band reduction relative to in-band levels

Judgment: **PASS**

Test record created by: Jim Solum
Date of this test record: 05 Dec 2025

Original record, Version A.

Test Equipment Used

Description	Make	Model #	Serial #	Last Cal/Ver	Next Due
MXE Receiver 8.4 GHz	Keysight	N9038B	MY63460112	17-Mar-2025	17-Mar-2026

Table TR40.1: Test equipment used

Software used: Keysight PXE software A.37.02

Test Data

This conducted spurious emission test measures the strength of radio signals conducted from the transmitter to the antenna in the range between the 2390 MHz upper edge of a restricted band and the 2400 MHz lower edge of the allocated band for a 2.4 GHz transceiver. Radiated testing in the 2483.5 – 2500 MHz restricted bands demonstrates compliance with the rules at the upper edge of the 2.4 GHz allocated band. This test is only performed at the lower end of the 2.4 GHz band because there is a 10 MHz gap between the restricted band and the allocated band. This test follows the ANSI methods for non-restricted bands.

In this record, BT 1 refers to 1 Mbps Bluetooth Basic rate; BT 2 refers to Extended Data Rate 2 which sends traffic runs at about 2 Mbps; BT 3 refers to Extended Data Rate 3 with data rates near 3 Mbps.

This is a relative measurement. The measurement captures the energy both inside and outside the allocated band using a 100 kHz resolution bandwidth. All emissions outside the allocated band must be reduced relative to the highest emission inside the allocated band. The amount of the reduction is either 20 dB or 30 dB as indicated above, depending on how transmitter power was measured (using a peak or average detector).

This measurement requires that a coaxial feed line from the transmitter is available as a connector exterior to the test sample. This feed line and connector may be a part of the shipping product, or it may be a special modification to the product for testing purposes. The connector is attached via laboratory cables to the measurement instrument. The results may not have been adjusted to account for the losses in the laboratory cables or feed lines since it is a relative measurement across a small frequency span.

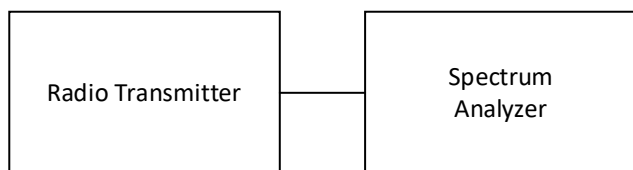


Figure TR40.1: Typical test arrangement

Testing meets the ANSI C63.10 requirements at 11.11 for DTS transmitters, 7.8.7 for FHSS transmitters, and 6.10.4 for other transmitters. Data is collected using the required peak detector function, in Max-Hold operation, across the frequency range. The instrument uses a 100 kHz bandwidth detector typically at half-bandwidth intervals to ensure overlapping measurements. ANSI C63.10 may recommend making two distinct measurements, one focused on the in-band signal and the other looking a broad span of frequencies. The ANSI method is intended for use across a wide frequency span, such as 30 MHz to 25 GHz, where identification of in-band signal levels could be more difficult. The measurement reported here happens across a span of 50 MHz, so the separated measurement approach is not pertinent.

Measurement to find the highest emission across the full 2400-2483.5 allocated band is not usually necessary. If some part of the emission spectrum extends above 2440 MHz (as is typical with frequency hopping transmitters) and the out of band data is reduced the necessary amount from the signal levels below 2440 MHz, then the transmitter would also be compliant when considering the possibility of higher in-band emissions above 2440 MHz.

Radio Type	Frequency MHz	In band to band gap required reduction in dB	In band to band gap measurement in dB	Margin to limit in dB
Bluetooth 1-DH5	2402	20	-49.44	29.44
Bluetooth 2-DH5	2402	20	-48.22	28.22
Bluetooth 3-DH5	2402	20	-48.84	28.84
Bluetooth 1-DH5	Hopping	20	-52.40	32.40
Bluetooth 2-DH5	Hopping	20	-54.67	34.67
Bluetooth 3-DH5	Hopping	20	-53.45	33.45

Table TR40.2: Results Summary

The graphs below show the spectral data as continuous curves. Marker 1 is the highest power level found inside the allocated band. Marker 2 is the highest power level found between 2390 and 2400 MHz. It is configured as a delta marker relative to Marker 1. A vertical green reference line at 2400 MHz shows the edge of the allocated band. A horizontal green reference line shows the allowed level, and is set 20 or 30 dB below Marker 1. Marker 2 is the highest signal peak found outside the allocated band. The table at the bottom shows the Y offset between Marker 1 and Marker 2.

Compliance is demonstrated when the Y offset shown for delta Marker 2 is larger than the required amplitude reduction (20 or 30 dB), or when there is no signal that is above and to the left of where the green lines cross.

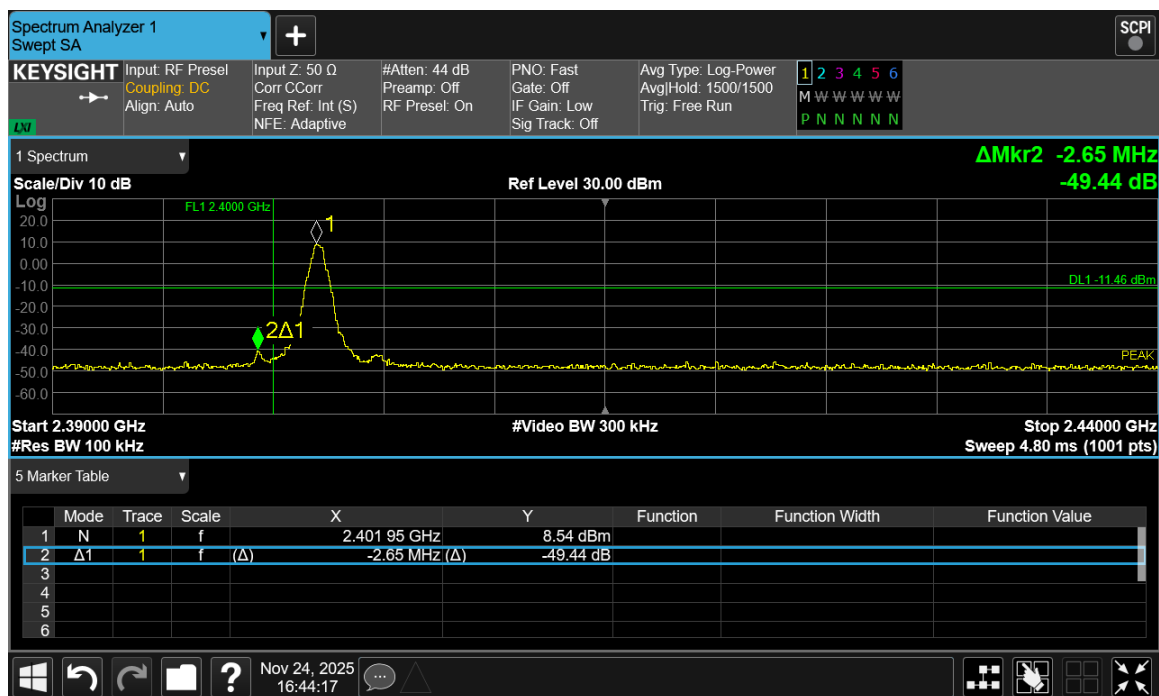


Figure TR40.1: Band edge gap measurement for Bluetooth 1-DH5, 2402 MHz

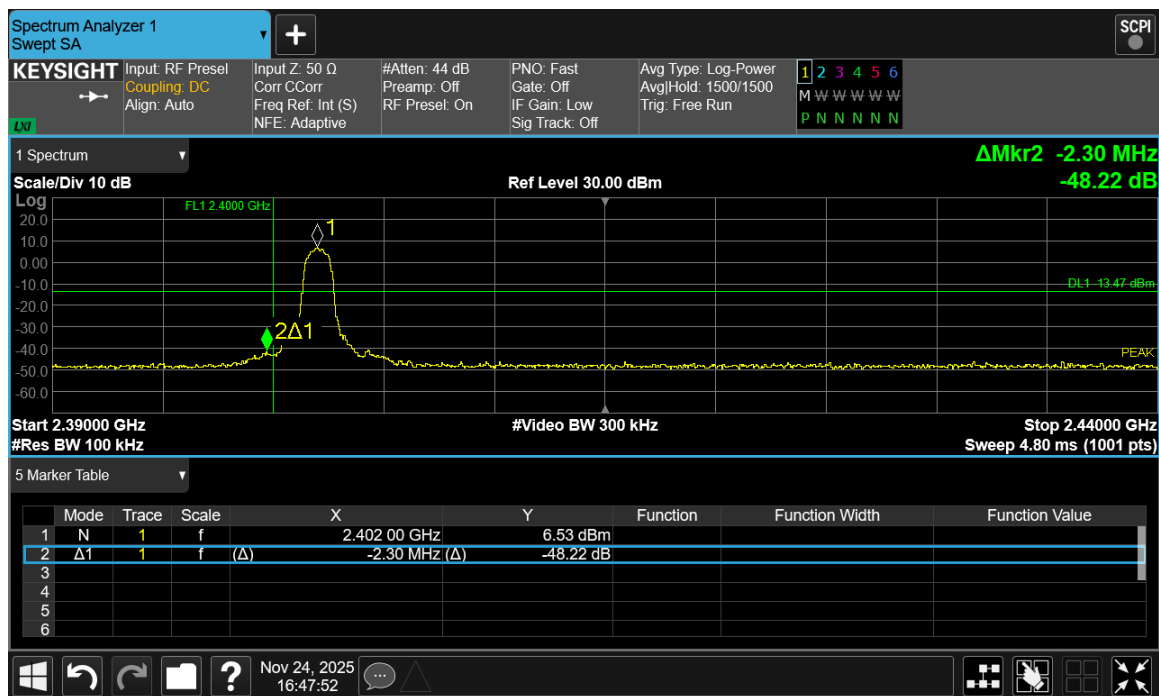


Figure TR40.2: Band edge gap measurement for Bluetooth 2-DH5, 2402 MHz

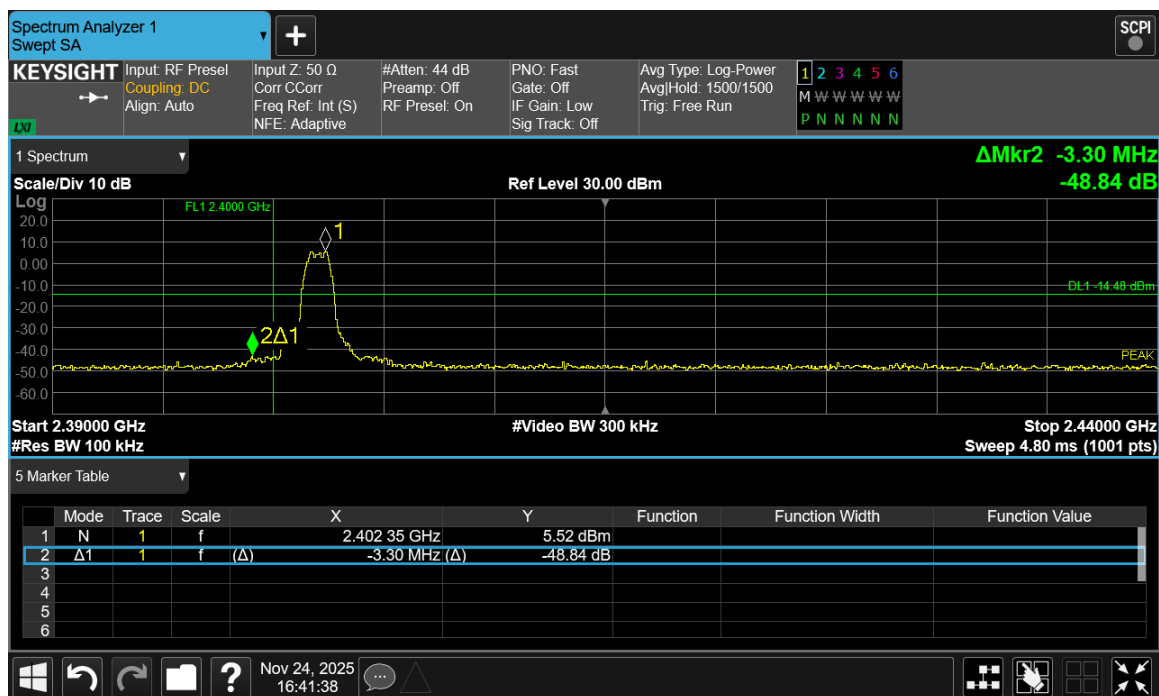


Figure TR40.3: Band edge gap measurement for Bluetooth 3-DH5, 2402 MHz

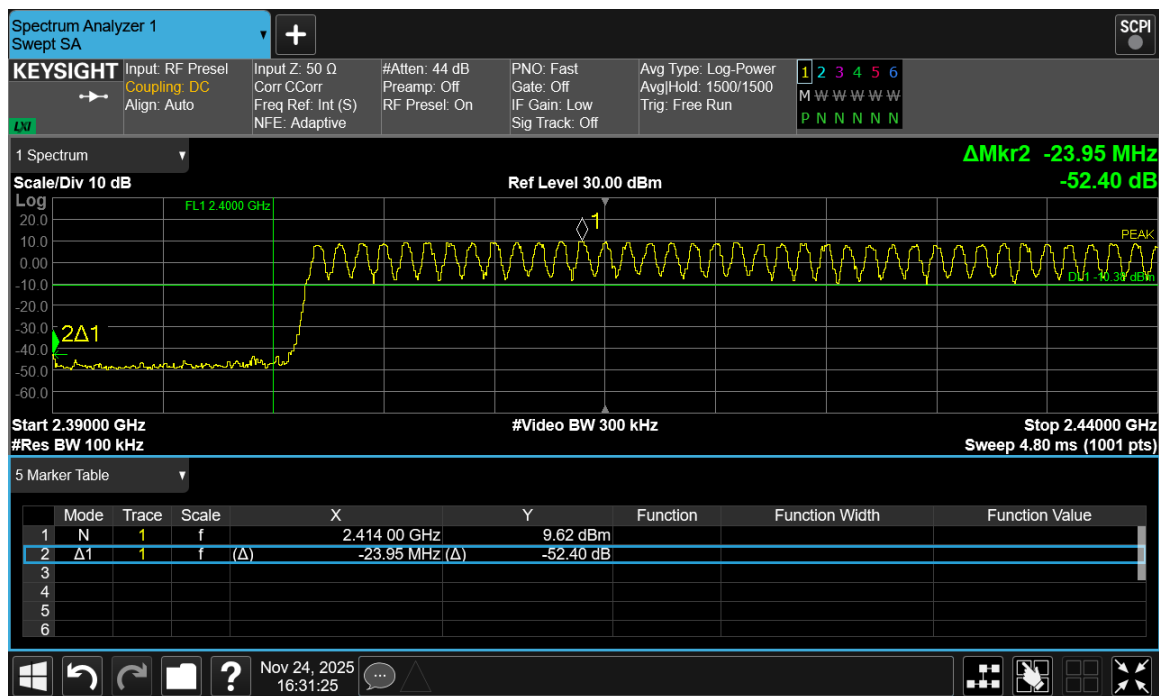


Figure TR40.4: Band edge gap measurement for Bluetooth 1-DH5, Hopping

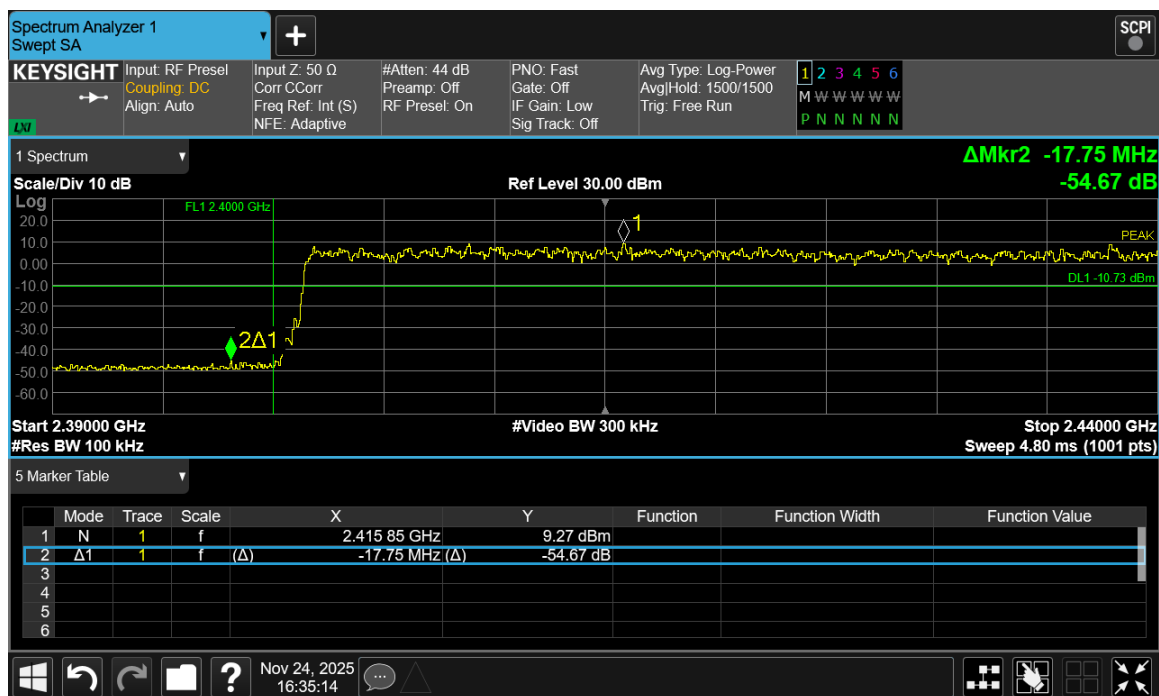


Figure TR40.5: Band edge gap measurement for Bluetooth 2-DH5, Hopping

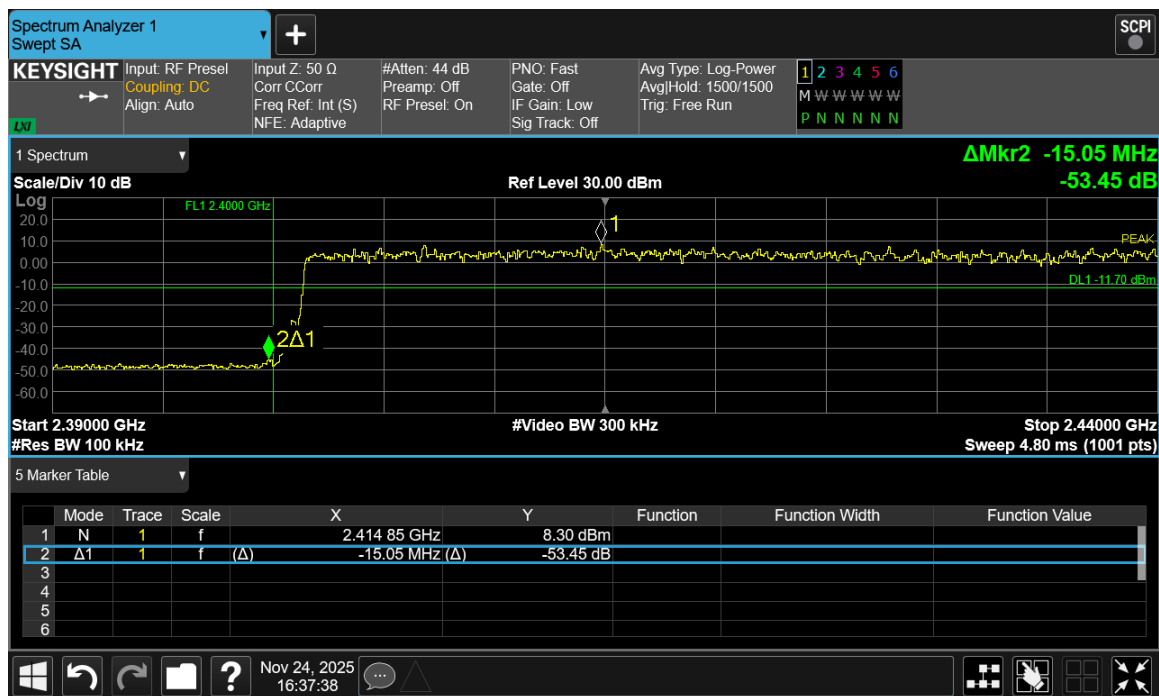


Figure TR40.6: Band edge gap measurement for Bluetooth 3-DH5, Hopping

This line is the end of the test record.

Test Record

Radiated Emission Test RE12

Project GCL0885

Test Date(s) 01 Dec 2025
 Test Personnel David Kerr, Vladimir Tolstik

Product Model AA5206
 Serial Number tested 3621679832

Operating Mode M1 (BtTx)
 Arrangement A2
 Input Power USB 5 Vdc

Test Standards: FCC Part 15.247; RSS-247; RSS-GEN; ANSI C63.10 (as noted in Section 6 of the report).

Frequency Range: 1 GHz to 14 GHz
Pass/Fail Judgment: PASS

Test record created by: David A Kerr
 Date of this record: 01 Dec 2025

Original record, Version A.

Test Equipment

Description	Make	Model #	Serial #	Last Cal/Ver	Next Due
PXE Receiver 44 GHz	Keysight	N9048B	MY65140100	21-Nov-2025	21-Nov-2026
Antenna, Horn, 1-18 GHz	ETS Lindgren	3117	00259208	30-May-2024	30-May-2026
FSOATS 3m, above 1 GHz	Frankonia	SAC3	F199004	13-Dec-2024	13-Dec-2027
Tape Measure, 1-3/16 in x 33 ft	Crecent Lufkin	L1135CME-02	GMN0013783	26-Jun-2024	26-Jun-2027
Preamplifier, 500 MHz 18 GHz	Com-Power	PAM-118A	18040133	Calibration	Not Required
Wifi Filter	K&L	8NSL26-2437/E82.2-0/	1	Calibration	Not Required
3 GHz High Pass filter	Anatech Electronics	OKOR2	01	Calibration	Not Required

Table RE12.1: Test Equipment Used

Software Used: Keysight PXE software A.41.06, , EPX test software Version 2025.01.000

Test Data

For test standards that require reorienting the test sample, preliminary scans were taken in those alternate orientations to find the orientation that produced that largest field at the receive antenna. With intentional radiators, that highest field is usually found at the carrier frequency. The alternate orientations are typically described as X, Y, and Z and explained with a photograph. Subsequent testing was done using on the orientation identified in this way.

The radiated emission test process continued with a preliminary scan at multiple turntable angles, antenna heights, and both antenna polarizations. Where the test standard requires cable manipulation, this was done at one of more likely worst case frequencies selected by the test personnel while observing the receiver display. At each of the frequencies selected for final measurements, the turntable angle, antenna height, and antenna polarization were explored to find the worst-case settings. Final field strength measurements were taken in that set of positions. Full maximization was not performed at frequencies that are noise floor measurements included per the test standard requirements.

In the 1 GHz to 3.2 GHz frequency range, a Chebyshev 'Wifi' notch filter covering the 2.4 GHz ISM band was placed in series just before the preamplifier to ensure it operated in its linear range. This filter is accounted for in the system loss, so it appears in the prescan plots as high noise floor levels from 2400 – 2483 MHz. These are not failing emissions. A 3 GHz high pass filter was applied during testing between 3.2 GHz and 14 GHz to similarly protect the preamplifier.

In the 1 GHz to 14 GHz frequency range, pre-scan spectral data was taken at 1 meter and extrapolated to a 3 meter distance. Final measurements were made at 3 meters.

At azimuth angle 180° the 'front' reference mark of the turntable is pointed Southward. At 270° the reference mark points West. At 90° it points East. At 173° the turntable reference mark is pointed directly at the antenna. The designation of the X, Y, and Z orientations of the test sample are sample dependent, so these are reported by use of photographs.

The table shows the selected final measurement data between 1 GHz and 14 GHz. It includes at least the six strongest emissions observed relative to the test limit, along with other data points of interest. Where a data point is highlighted in yellow, this is an aid to indicate the data point(s) with the least margin to the test limit. A positive margin value indicates that the emission was below the test limit. The test limit is the FCC Class B Limit at 3m. Any unintentional radio emission limits are not applied to intentional radio signals.

Test limits for electric fields above 30 MHz that are stated for a distance other than 3 m are adjusted to 3 m with a factor of 20 dB per decade of distance. Test limits for electric or magnetic fields below 30 MHz that are stated for a distance other than 3 m are adjusted to 3 m. The conservative method of ANSI C63.10 clause 6.4.4.1 is applied: 40 dB per decade for distances within the boundary (wavelength / 2 Pi), 20 dB per decade beyond that distance boundary.

Emissions within the restricted bands were measured with an averaging process described in the ANSI C63.10 methods noted in this paragraph. (See also section 6.3 of this test report.) The duty cycle for the BT radios had a duty cycle of 98% or greater and so the trace-averaging method of clause 11.12.2.5.1 was applied.

In this test, fewer than six emissions were observed within 20 dB of the limit. The relevant emissions were measured, including one or more noise floor signals as judged appropriate to the spectrum.

Frequency	Pol.	Reading		Factor	Level		Limit		Margin		Height	Angle
MHz		dB(μ V)		dB(1/m)	dB(μ V/m)		dB(μ V/m)		dB		cm	deg
		RMS	PK		RMS	PK	AV	PK	RMS	PK		
2217.537	H	33.5	44.7	-2.2	31.3	42.5	54.0	74.0	22.7	31.5	299.8	141.0
4804.167	H	36.8	45.5	4.9	41.7	50.4	54.0	74.0	12.3	23.6	245.1	32.0
7206.366	H	30.1	41.9	8.2	38.3	50.1	54.0	74.0	15.7	23.9	191.6	0.0
9607.841	H	27.1	39.0	13.1	40.2	52.1	54.0	74.0	13.8	21.9	181.6	176.0

Table RE12.2: Emission summary (Bluetooth, BR, 2402 MHz)

The graph below shows the background spectrum observed during pre-scan, as well as the final data points from the table above.

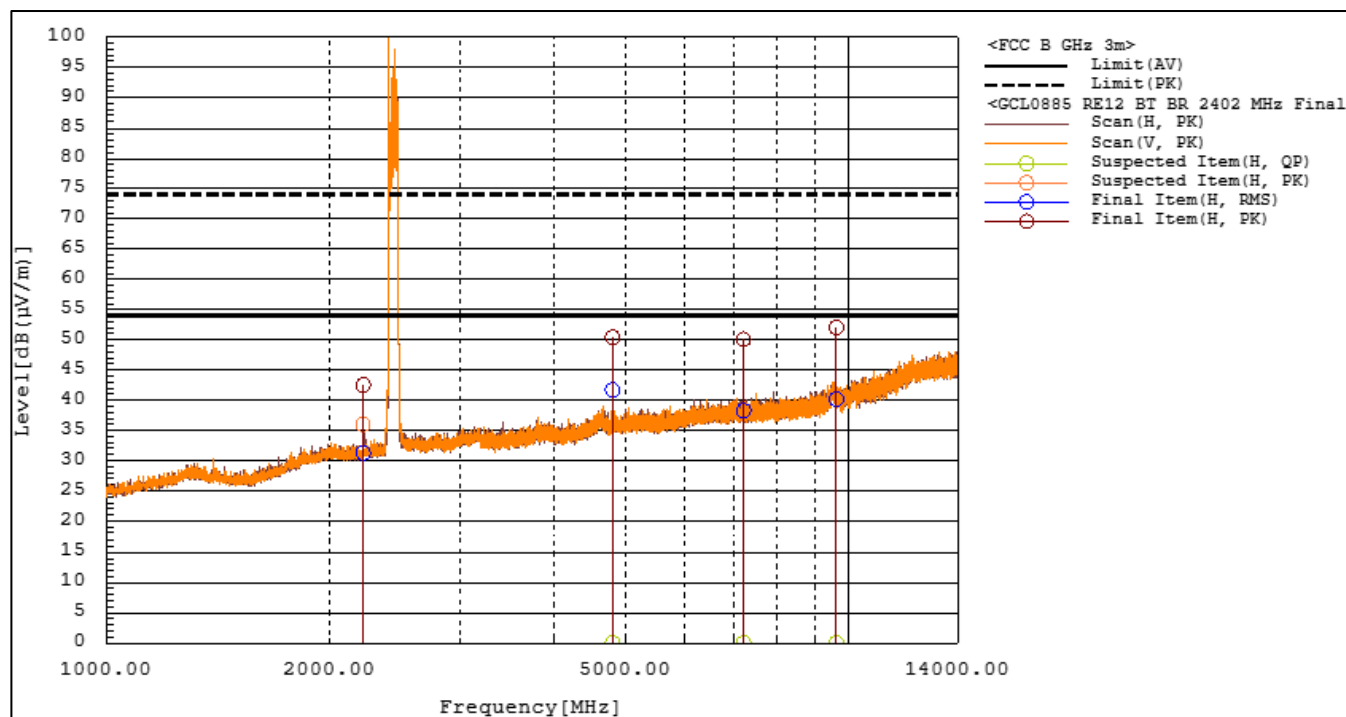


Figure RE12.1: Spectral data (Bluetooth, BR, 2402 MHz)

Frequency	Pol.	Reading		Factor	Level		Limit		Margin		Height	Angle
MHz		dB(μ V)		dB(1/m)	dB(μ V/m)		dB(μ V/m)		dB		cm	deg
		RMS	PK		RMS	PK	AV	PK	RMS	PK		
4880.116	H	35.8	45.2	4.8	40.6	50.0	54.0	74.0	13.4	24.0	138.2	340.0
7320.036	H	29.7	41.5	8.7	38.4	50.2	54.0	74.0	15.6	23.8	219.3	117.0
9760.214	H	27.7	39.7	12.6	40.3	52.3	54.0	74.0	13.7	21.7	154.0	147.0

Table RE12.3: Emission summary (Bluetooth, BR, 2440 MHz)

The graph below shows the background spectrum observed during pre-scan, as well as the final data points from the table above.

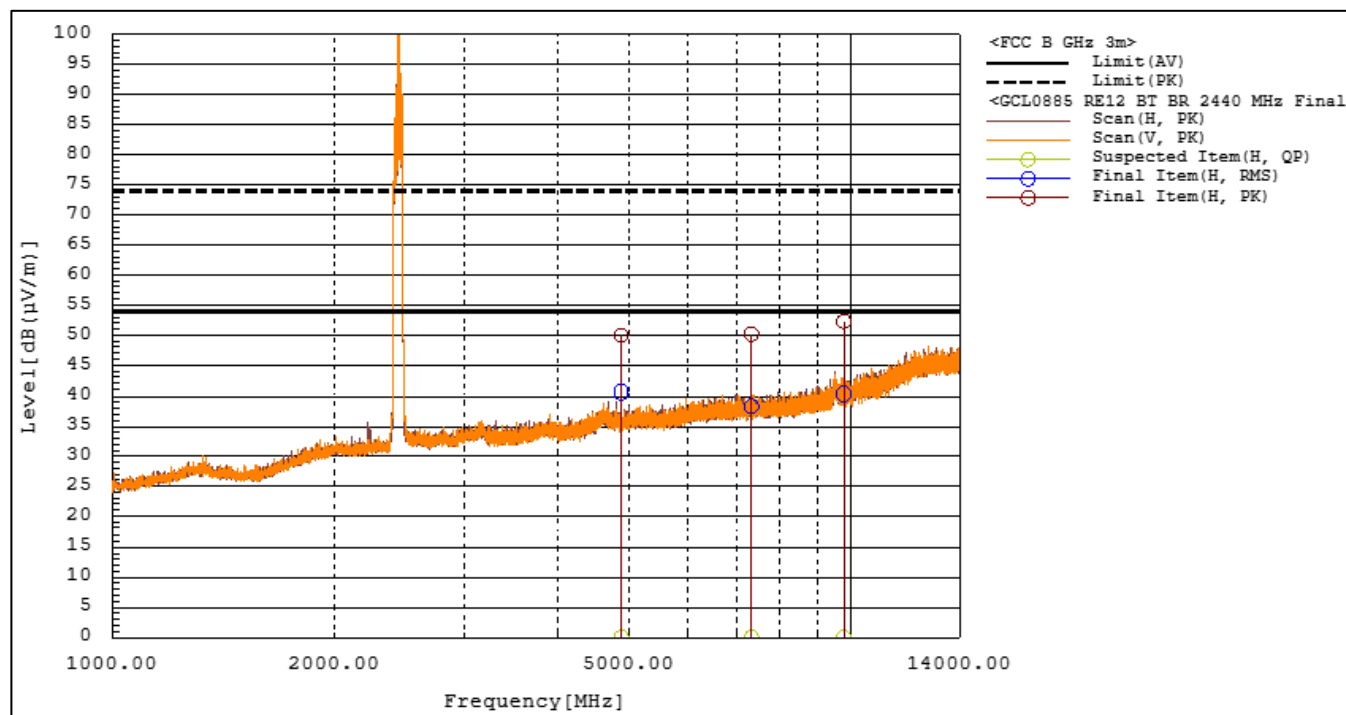


Figure RE12.2: Spectral data (Bluetooth, BR, 2440 MHz)

Frequency	Pol.	Reading		Factor	Level		Limit		Margin		Height	Angle
MHz		dB(μ V)		dB(1/m)	dB(μ V/m)		dB(μ V/m)		dB		cm	deg
		RMS	PK		RMS	PK	AV	PK	RMS	PK		
4960.130	H	35.3	45.4	4.9	40.2	50.3	54.0	74.0	13.8	23.7	118.4	341.0
7440.318	H	29.9	42.1	8.8	38.7	50.9	54.0	74.0	15.3	23.1	214.8	45.0
9919.955	H	27.6	39.5	13.4	41.0	52.9	54.0	74.0	13.0	21.1	205.2	99.0

Table RE12.4: Emission summary (Bluetooth, BR, 2480 MHz)

The graph below shows the background spectrum observed during pre-scan, as well as the final data points from the table above.

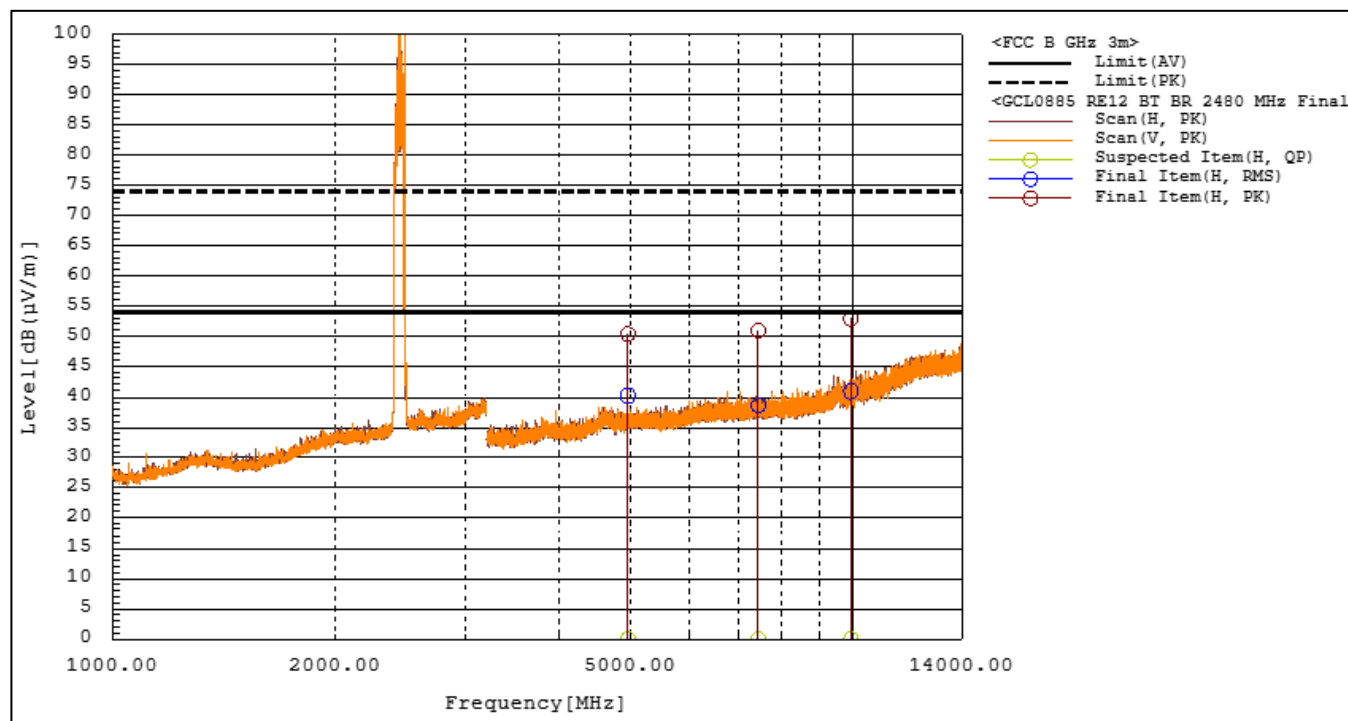


Figure RE12.3: Spectral data (Bluetooth, BR, 2480 MHz)

Frequency	Pol.	Reading		Factor	Level		Limit		Margin		Height	Angle
MHz		dB(μ V)		dB(1/m)	dB(μ V/m)		dB(μ V/m)		dB		cm	deg
		RMS	PK		RMS	PK	AV	PK	RMS	PK		
4804.060	H	35.0	45.7	4.9	39.9	50.6	54.0	74.0	14.1	23.4	146.0	31.0
7206.485	H	30.1	42.4	8.2	38.3	50.6	54.0	74.0	15.7	23.4	209.2	118.0
9608.419	H	27.1	39.5	13.1	40.2	52.6	54.0	74.0	13.8	21.4	100.0	76.0

Table RE12.5: Emission summary (Bluetooth, EDR2, 2402 MHz)

The graph below shows the background spectrum observed during pre-scan, as well as the final data points from the table above.

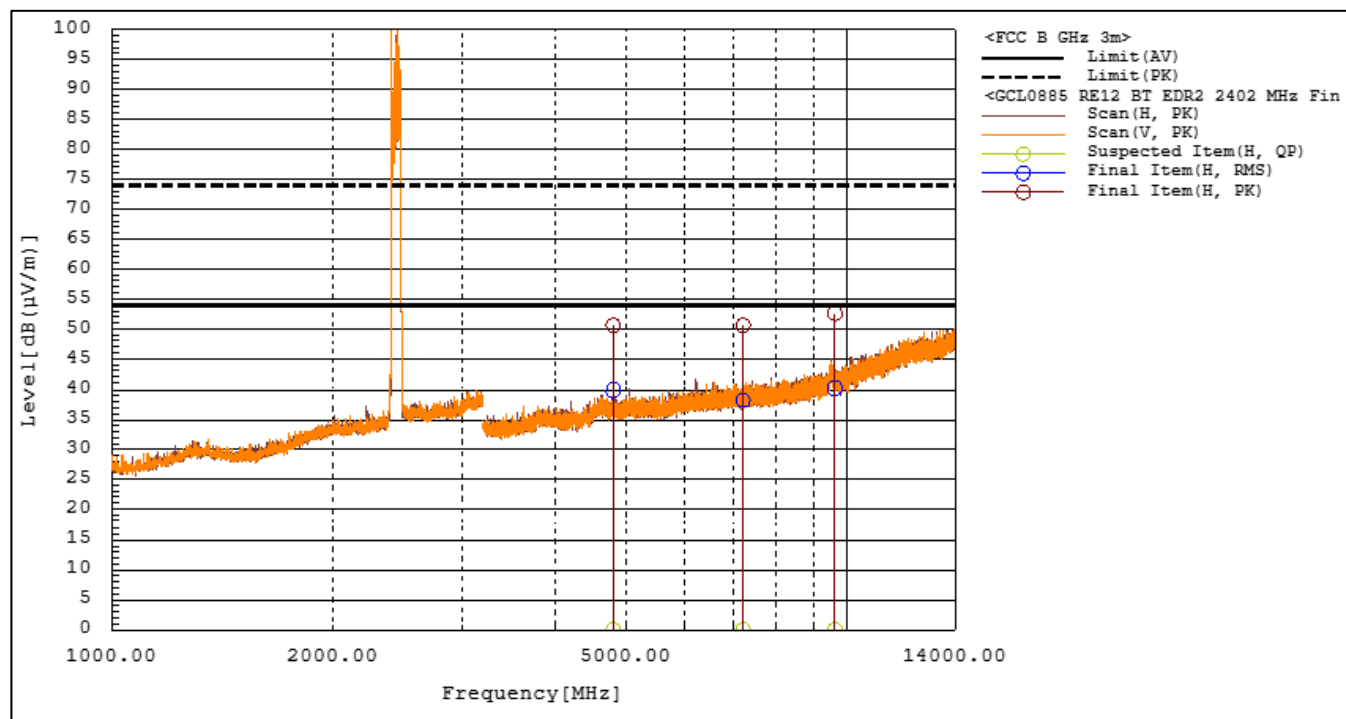


Figure RE12.4: Spectral data (Bluetooth, EDR2, 2402 MHz)

Frequency	Pol.	Reading		Factor	Level		Limit		Margin		Height	Angle
MHz		dB(μ V)		dB(1/m)	dB(μ V/m)		dB(μ V/m)		dB		cm	deg
		RMS	PK		RMS	PK	AV	PK	RMS	PK		
4879.933	H	34.2	44.3	4.8	39.0	49.1	54.0	74.0	15.0	24.9	122.4	342.0
7320.345	H	29.8	41.5	8.7	38.5	50.2	54.0	74.0	15.5	23.8	205.5	118.0
9759.730	H	27.7	39.6	12.6	40.3	52.2	54.0	74.0	13.7	21.8	201.4	7.0

Table RE12.6: Emission summary (Bluetooth, EDR2, 2440 MHz)

The graph below shows the background spectrum observed during pre-scan, as well as the final data points from the table above.

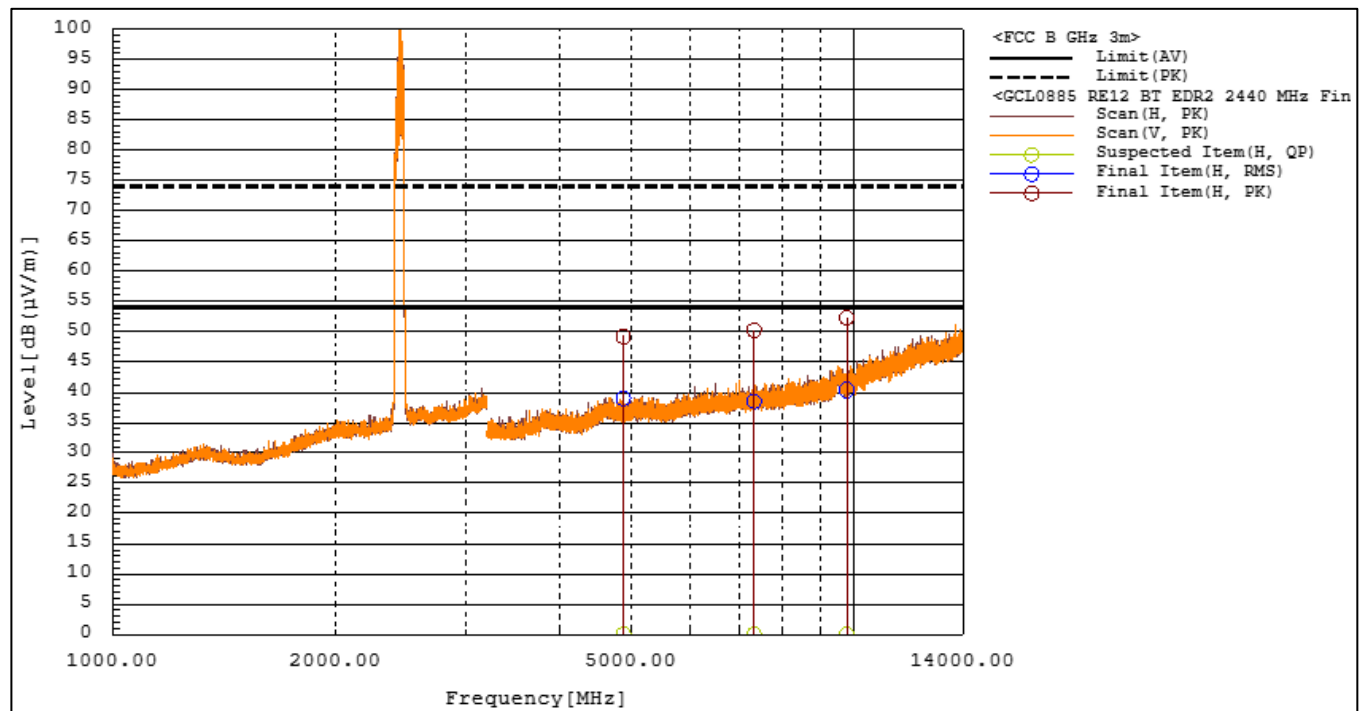


Figure RE12.5: Spectral data (Bluetooth, EDR2, 2440 MHz)

Frequency	Pol.	Reading		Factor	Level		Limit		Margin		Height	Angle
MHz		dB(μ V)		dB(1/m)	dB(μ V/m)		dB(μ V/m)		dB		cm	deg
		RMS	PK		RMS	PK	AV	PK	RMS	PK		
4959.891	H	34.1	44.3	4.9	39.0	49.2	54.0	74.0	15.0	24.8	242.5	351.0
7440.322	H	29.6	40.9	8.8	38.4	49.7	54.0	74.0	15.6	24.3	195.2	284.0
9919.533	H	27.6	39.8	13.4	41.0	53.2	54.0	74.0	13.0	20.8	100.0	16.0

Table RE12.2: Emission summary (Bluetooth, EDR2, 2480 MHz)

The graph below shows the background spectrum observed during pre-scan, as well as the final data points from the table above.

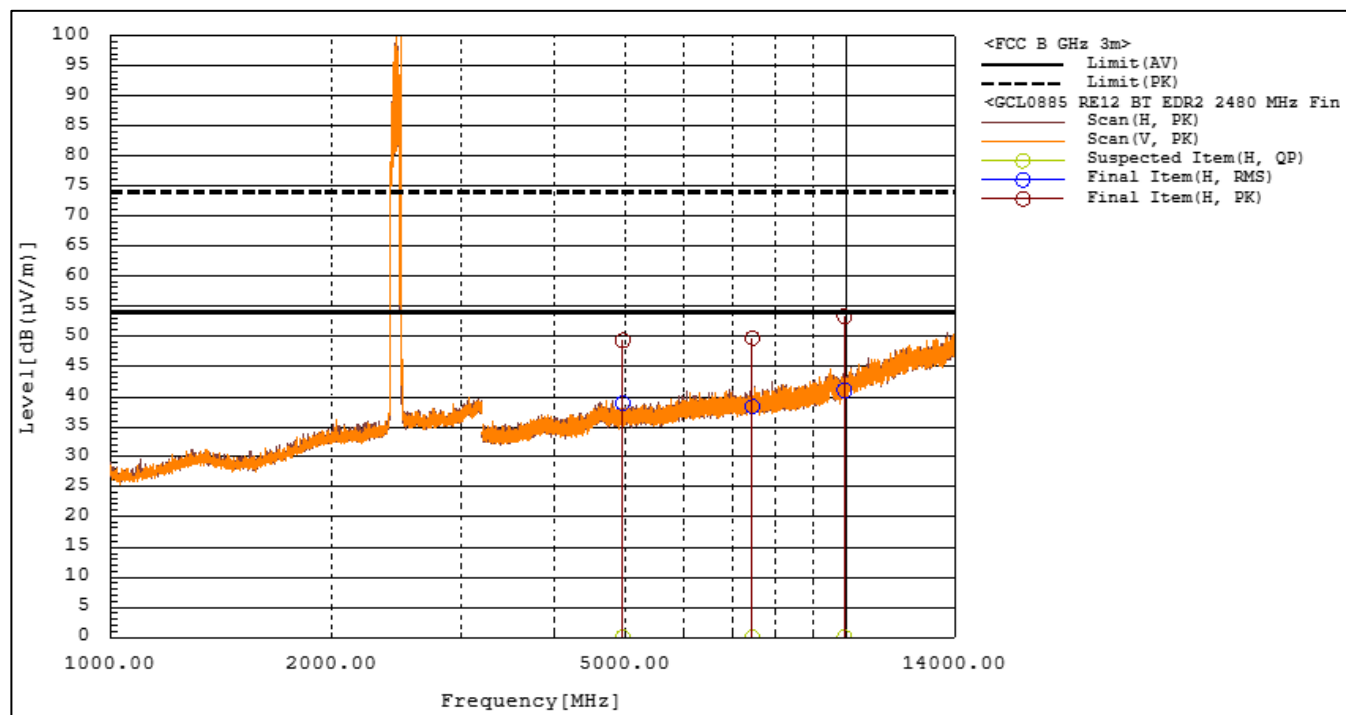


Figure RE12.6: Spectral data (Bluetooth, EDR2, 2480 MHz)

Setup Photographs

The following photographs show the EUT configured and arranged in the manner in which it was measured.

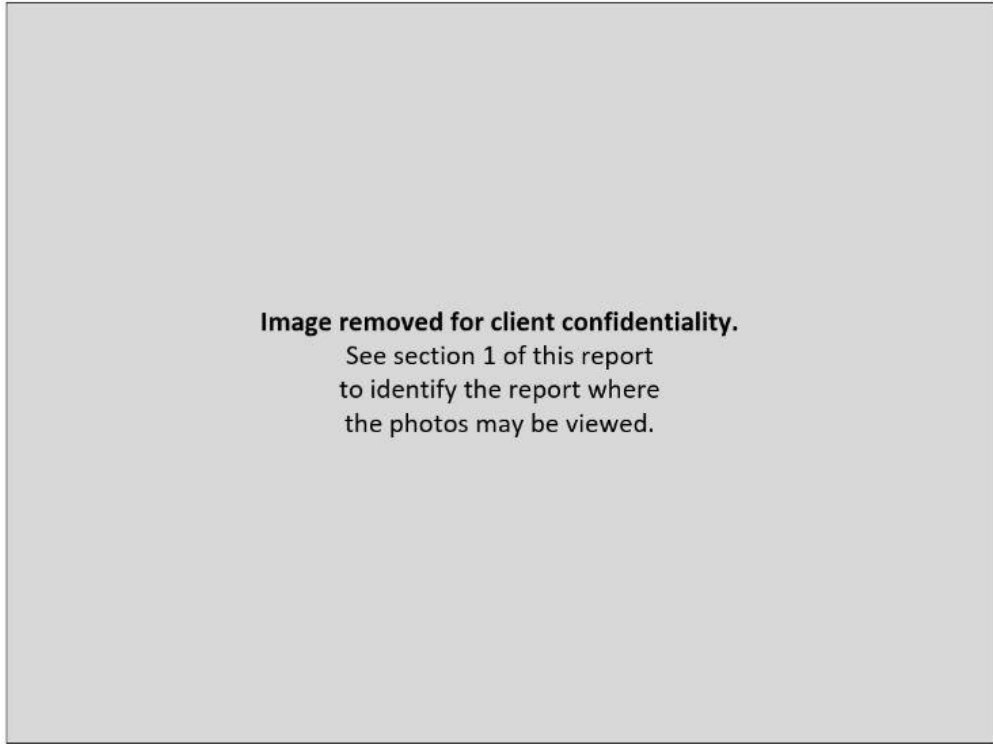


Figure RE12.7: EUT test setup, first view

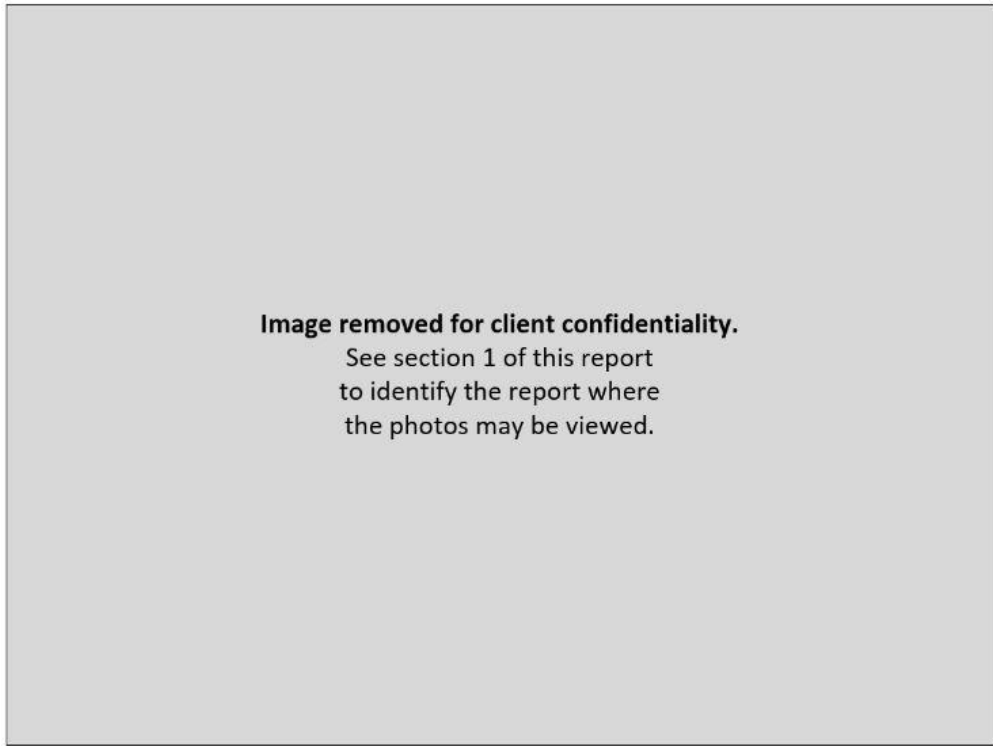


Figure RE12.8: EUT test setup, second view

This line is the end of the test record.

Test Record

Radiated Emission Test RE15

Project GCL0885

Test Date(s) 07 Dec 2025
Test Personnel David Kerr

Product Model AA5206
Serial Number tested 3621679832

Operating Mode M1 (BtTx)
Arrangement A2
Input Power USB 5 Vdc

Test Standards: FCC Part 15.247; RSS-247; RSS-GEN; ANSI C63.10 (as noted in Section 6 of the report).

Frequency Range: 14 GHz to 25 GHz
Pass/Fail Judgment: PASS

Test record created by: Vladimir Tolstik
Date of this record: 08 Dec 2025

Original record, Version A.

Test Equipment

Description	Make	Model #	Serial #	Last Cal/Ver	Next Due
PXE Receiver 44 GHz	Keysight	N9048B	MY62220139	4-Sep-2025	4-Sep-2026
Antenna, Horn, 10-40 GHz	ETS Lindgren	3116C	00259186	8-May-2025	8-May-2027
FSOATS 3m, above 1 GHz	Frankonia	SAC3	F199004	13-Dec-2024	13-Dec-2027
Tape Measure, 1-3/16 in x 33 ft	Crecent Lufkin	L1135CME-02	GMN0013783	26-Jun-2024	26-Jun-2027
Preamplifier, 14 GHz to 40 GHz	Com-Power	PAM-840A	461364	Calibration	Not Required

Table RE15.1: Test Equipment Used

Software Used: Keysight PXE software A.33.03, EPX test software Version 2025.01.001

Test Data

For test standards that require reorienting the test sample, preliminary scans were taken in those alternate orientations to find the orientation that produced that largest field at the receive antenna. With intentional radiators, that highest field is usually found at the carrier frequency. The alternate orientations are typically described as X, Y, and Z and explained with a photograph. Subsequent testing was done using on the orientation identified in this way.

The radiated emission test process continued with a preliminary scan at multiple turntable angles, antenna heights, and both antenna polarizations. Where the test standard requires cable manipulation, this was done at one of more likely worst case frequencies selected by the test personnel while observing the receiver display. At each of the frequencies selected for final measurements, the turntable angle, antenna height, and antenna polarization were explored to find the worst-case settings. Final field strength measurements were taken in that set of positions. Full maximization was not performed at frequencies that are noise floor measurements included per the test standard requirements.

In the 14 GHz to 26.5 GHz frequency range, pre-scan spectral data was taken at 1 meter and extrapolated to a 3 meter distance. Final measurements were made at 3 meters.

At azimuth angle 180° the 'front' reference mark of the turntable is pointed Southward. At 270° the reference mark points West. At 90° it points East. At 173° the turntable reference mark is pointed directly at the antenna. The designation of the X, Y, and Z orientations of the test sample are sample dependent, so these are reported by use of photographs.

The table shows the selected final measurement data between 14 GHz and 25 GHz. It includes at least the six strongest emissions observed relative to the test limit, along with other data points of interest. Where a data point is highlighted is yellow, this is an aid to indicate the data point(s) with the least margin to the test limit. A positive margin value indicates that the emission was below the test limit. The test limit is the FCC Class B Limit at 3m. Any unintentional radio emission limits are not applied to intentional radio signals.

Test limits for electric fields above 30 MHz that are stated for a distance other than 3 m are adjusted to 3 m with a factor of 20 dB per decade of distance. Test limits for electric or magnetic fields below 30 MHz that are stated for a distance other than 3 m are adjusted to 3 m. The conservative method of ANSI C63.10 clause 6.4.4.1 is applied: 40 dB per decade for distances within the boundary (wavelength / 2 Pi), 20 dB per decade beyond that distance boundary.

In this test, fewer than six emissions were observed within 20 dB of the limit. The relevant emissions were measured, including one or more noise floor signals as judged appropriate to the spectrum.

Frequency	Pol.	Reading		Factor	Level		Limit		Margin		Height	Angle
MHz		dB(μ V)		dB(1/m)	dB(μ V/m)		dB(μ V/m)		dB		cm	deg
		RMS	PK		RMS	PK	AV	PK	RMS	PK		
23903.574	H	24.0	36.2	13.5	37.5	49.7	54.0	74.0	16.5	24.3	100.0	180.0

Table RE15.2: Emission summary (Bluetooth BR, 2402 MHz)

The graph below shows the background spectrum observed during pre-scan, as well as the final data points from the table above.

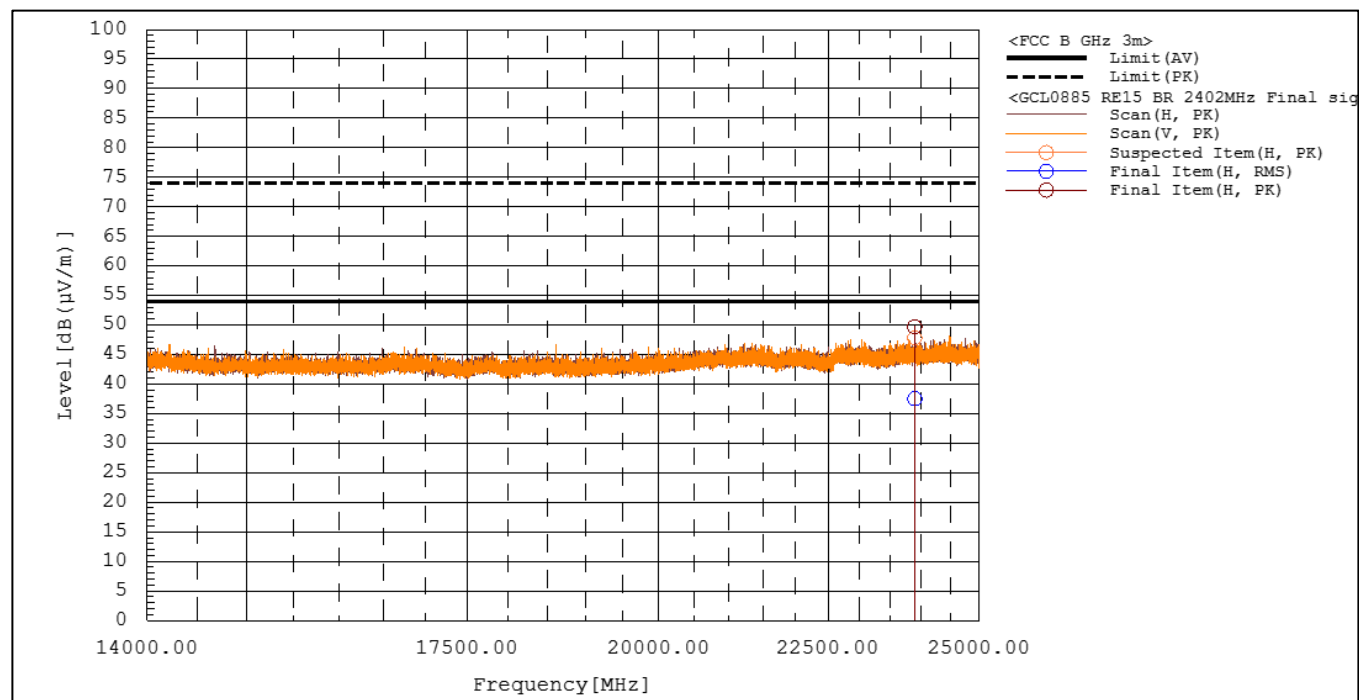


Figure RE15.1: Spectral data (Bluetooth BR, 2402 MHz)

Frequency	Pol.	Reading		Factor	Level		Limit		Margin		Height	Angle
MHz		dB(μ V)		dB(1/m)	dB(μ V/m)		dB(μ V/m)		dB		cm	deg
		RMS	PK		RMS	PK	AV	PK	RMS	PK		
21564.431	H	25.4	37.1	12.2	37.6	49.3	54.0	74.0	16.4	24.7	100.0	180.0

Table RE15.3: Emission summary (Bluetooth EDR2, 2480 MHz)

The graph below shows the background spectrum observed during pre-scan, as well as the final data points from the table above.

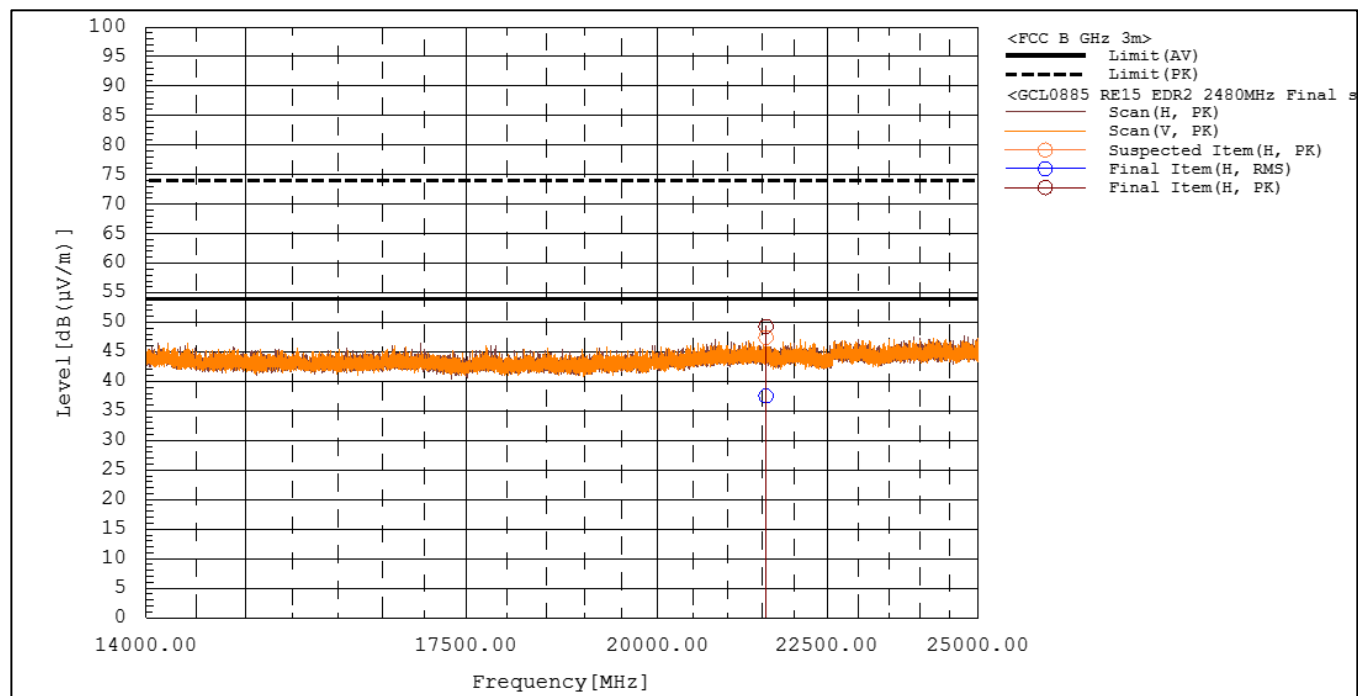


Figure RE15.2: Spectral data (Bluetooth EDR2, 2480 MHz)

Setup Photographs

The following photographs show the EUT configured and arranged in the manner in which it was measured.

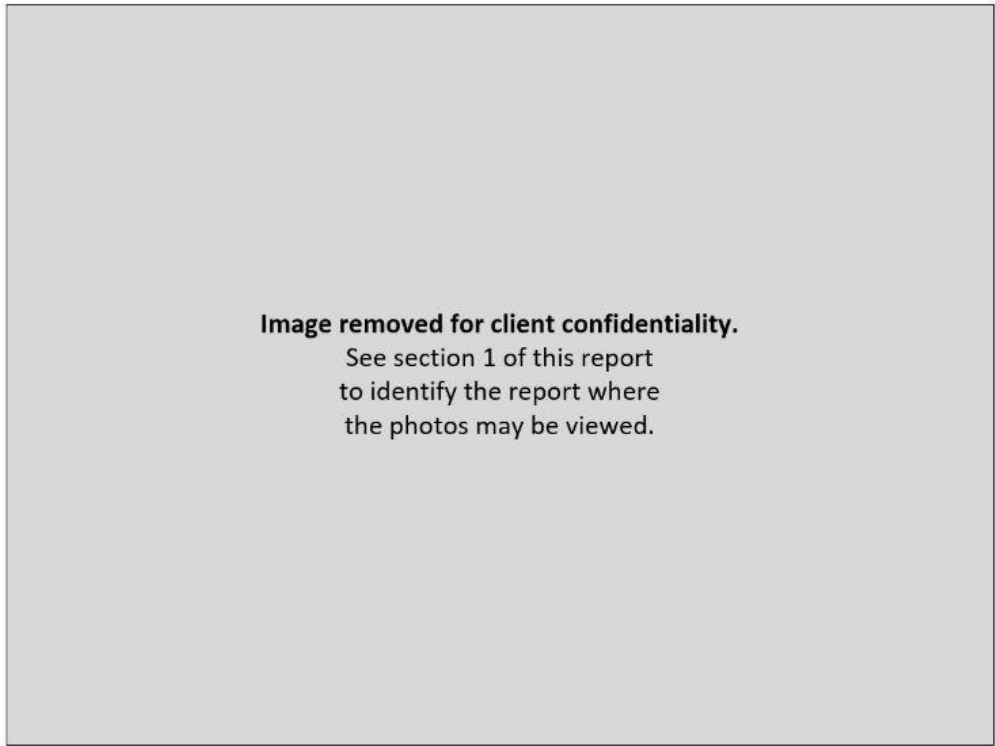


Figure RE15.3: EUT test setup, first view

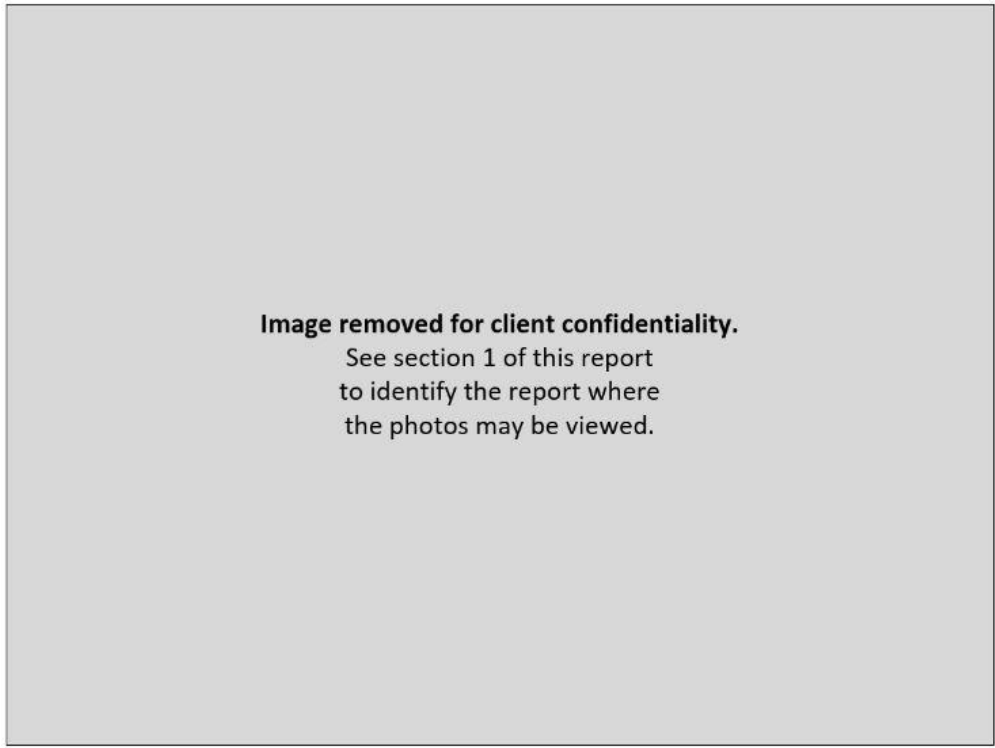


Figure RE15.4: EUT test setup, second view

This line is the end of the test record.

Test Record

Radiated Emission Test RE23

Project GCL0885

Test Date(s) 05 Dec 2025
Test Personnel David Kerr

Product Model AA5206
Serial Number tested 3621679832

Operating Mode M1 (BtTx)
Arrangement A2
Input Power USB 5

Test Standards: FCC Part 15.247; RSS-247; RSS-GEN; ANSI C63.10 (as noted in Section 6 of the report).

Frequency Range: 9 kHz to 30 MHz
Pass/Fail Judgment: PASS

Test record created by: David A Kerr
Date of this record: 09 Dec 2025

Original record, Version A.

Test Equipment

Description	Make	Model #	Serial #	Last Cal/Ver	Next Due
PXE Receiver 44 GHz	Keysight	N9048B	MY65140100	21-Nov-2025	21-Nov-2026
Loop antenna, amplified	Schwarzbeck	FMZB 1519B	00174	18-Jul-2024	18-Jul-2026
SAC 3m, below 1 GHz	Frankonia	SAC3	F199004	11-Dec-2024	11-Dec-2027
Tape Measure, 1-3/16 in x 33 ft	Crecent Lufkin	L1135CME-02	GMN0013783	26-Jun-2024	26-Jun-2027

Table RE23.1: Test Equipment Used

Software Used: Keysight PXE software A.41.06, RE 9k to 30M Signal Maximization Tool V1 2021Mar17.xlsx, RE 9k30m FccCanada Analysis4.xlsx

Test Data

For test standards that require reorienting the test sample, preliminary scans were taken in those alternate orientations to find the orientation that produced that largest field at the receive antenna. With intentional radiators, that highest field is usually found at the carrier frequency. The alternate orientations are typically described as X, Y, and Z and explained with a photograph. Subsequent testing was done using on the orientation identified in this way.

The radiated emission test process continued with a preliminary scan at multiple turntable angles, and in the three loop antenna polarizations. The loop antenna was positioned at a 1.5 m height. Where the test standard requires cable manipulation, this was done at one of more likely worst case frequencies selected by the test personnel while observing the receiver display. At each of the frequencies selected for final measurements, the loop was set to the worst case orientation for that frequency and the turntable angle was explored to find the worst-case settings. Final field strength measurements were taken in that set of positions. Full maximization was not performed at frequencies that are noise floor measurements included per the test standard requirements.

At azimuth angle 0° the 'front' reference mark of the turntable is pointed Southward. At 90° the reference mark points West. At -90° it points East. At -7° the turntable reference mark is pointed directly at the antenna mast for tests that involve changes in antenna elevation. At 0° the turntable reference mark is pointed directly at the loop antenna location. The designation of the X, Y, and Z orientations of the test sample are sample dependent, so these are reported by use of photographs.

The table shows the selected final measurement data between 9 kHz and 30 MHz. It includes at least the six strongest emissions observed relative to the test limit, along with other data points of interest. Where a data point is highlighted is yellow, this is an aid to indicate the data point(s) with the least margin to the test limit. A positive margin value indicates that the emission was below the test limit. The test limit is the FCC Class B Limit at 3m. Any unintentional radio emission limits are not applied to intentional radio signals.

Test limits for electric fields above 30 MHz that are stated for a distance other than 3 m are adjusted to 3 m with a factor of 20 dB per decade of distance. Test limits for electric or magnetic fields below 30 MHz that are stated for a distance other than 3 m are adjusted to 3 m. The conservative method of ANSI C63.10 clause 6.4.4.1 is applied: 40 dB per decade for distances within the boundary (wavelength / 2 Pi), 20 dB per decade beyond that distance boundary.

In this test, fewer than six emissions were observed within 20 dB of the limit. The relevant emissions were measured, including one or more noise floor signals as judged appropriate to the spectrum.

Freq.	3 m Level	Detector	Distance	Dist Adj	Final Level	Limit	Margin	Peak 3 m	Peak Final	Pk Limit	Pk Margin	Antenna	Table
MHz	dBuV/m	Type	m	dB	dBuV/m	dBuV/m	dB	dBuV/m	dBuV/m	dBuV/m	dB	Orientation	Azimuth, deg
0.0491	42.19	Avg	300	80.00	-37.81	33.78	71.59	49.69	-30.31	53.78	84.10	Y	-157
1.3043	30.24	QP	30	40.00	-9.76	25.30	35.06	36.39	-3.61	None	None	X	-151

Table RE23.2: Emission summary (Bluetooth, BR, 2402 MHz)

The graph below shows the background spectrum observed during pre-scan, as well as the final data points from the table above.

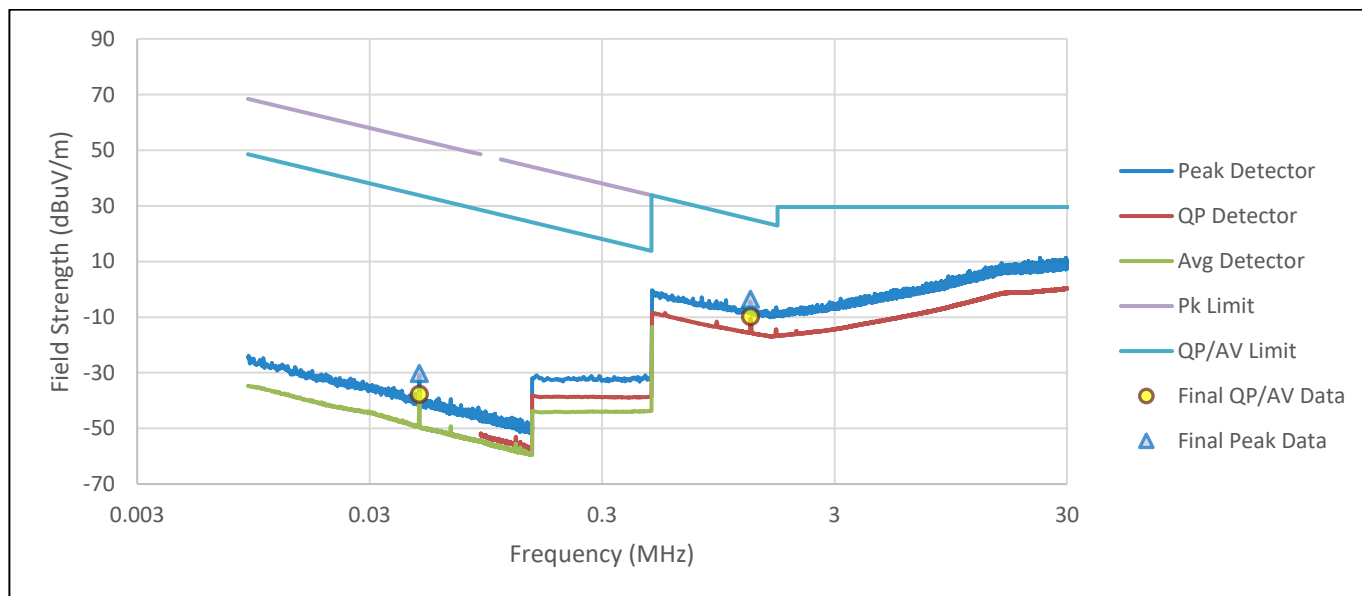


Figure RE23.1: Spectral data (BT BR 2402 MHz)

Freq. MHz	3 m Level dBuV/m	Detector Type	Distance m	Dist Adj dB	Final Level dBuV/m	Limit dBuV/m	Margin dB	Peak 3 m dBuV/m	Peak Final dBuV/m	Pk Limit dBuV/m	Pk Margin dB	Antenna Orientation	Table Azimuth, deg
0.0491	40.58	Avg	300	80.00	-39.42	33.78	73.20	48.14	-31.86	53.78	85.65	X	180
1.311	30.22	QP	30	40.00	-9.78	25.25	35.04	35.88	-4.12	None	None	X	-20

Table RE23.3: Emission summary (BT EDR2 2480 MHz)

The graph below shows the background spectrum observed during pre-scan, as well as the final data points from the table above.

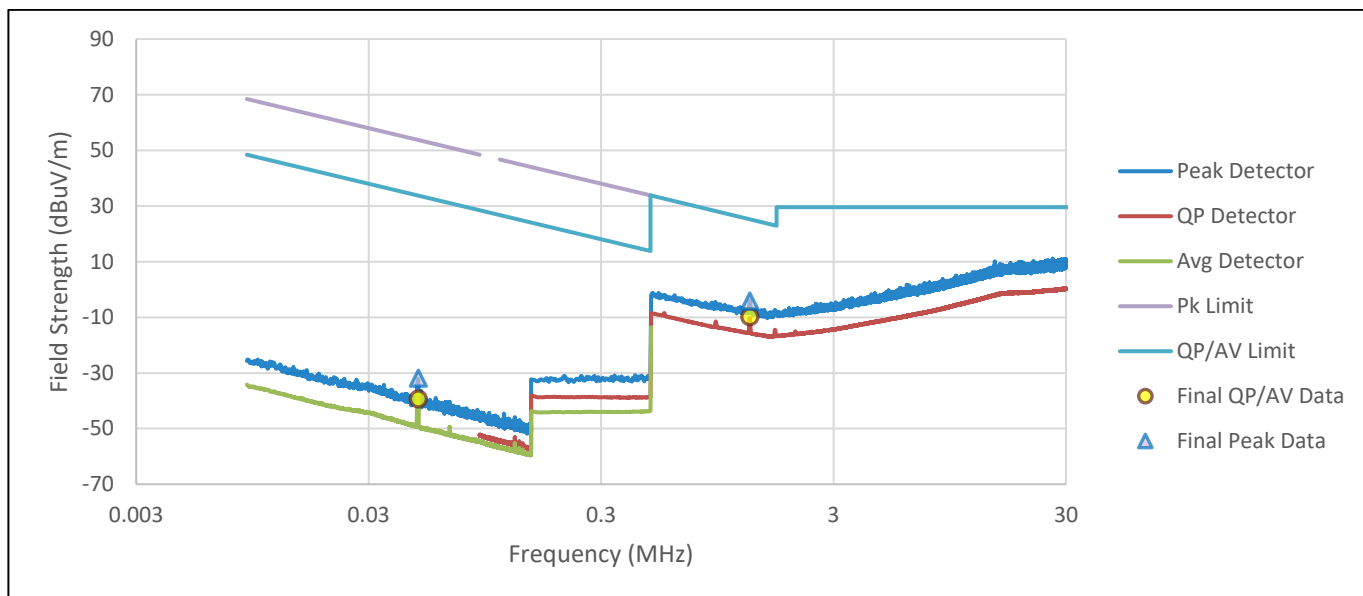


Figure RE23.2: Spectral data (BT EDR2 2480 MHz)

Setup Photographs

The following photographs show the EUT configured and arranged in the manner in which it was measured.



Figure RE23.3: EUT test setup, first view



Figure RE23.4: EUT test setup, second view (X orientation)

Image removed for client confidentiality.

See section 1 of this report
to identify the report where
the photos may be viewed.

Figure RE23.5: EUT test setup, second view (Y orientation)

This line is the end of the test record.

Test Record
Radiated Emission Test RE52
Project GCL0885

Test Date(s) 03 Dec 2025
Test Personnel Vladimir Tolstik

Product Model AA5206
Serial Number tested 3621679832

Operating Mode M1 (BtTx)
Arrangement A2
Input Power USB 5 Vdc

Test Standards: FCC Part 15.247; RSS-247; RSS-GEN; ANSI C63.10 (as noted in Section 6 of the report).

Frequency Range: 30 MHz to 1000 MHz
Pass/Fail Judgment: PASS

Test record created by: Vladimir Tolstik
Date of this record: 05 Dec 2025

Original record, Version A.

Test Equipment

Description	Make	Model #	Serial #	Last Cal/Ver	Next Due
PXE Receiver 44 GHz	Keysight	N9048B	MY65140100	21-Nov-2025	21-Nov-2026
Antenna, Biconilog, 30M-6 GHz	ETS Lindgren	3142E	00233201	18-Jul-2024	18-Jul-2026
SAC 3m, below 1 GHz	Frankonia	SAC3	F199004	11-Dec-2024	11-Dec-2027
Tape Measure, 1-3/16 in x 33 ft	Crecent Lufkin	L1135CME-02	GMN0013783	26-Jun-2024	26-Jun-2027

Table RE52.1: Test Equipment Used

Software Used: Keysight PXE software A.41.06, EPX test software Version 2025.01.000

Test Data

For test standards that require reorienting the test sample, preliminary scans were taken in those alternate orientations to find the orientation that produced that largest field at the receive antenna. With intentional radiators, that highest field is usually found at the carrier frequency. The alternate orientations are typically described as X, Y, and Z and explained with a photograph. Subsequent testing was done using on the orientation identified in this way.

The radiated emission test process continued with a preliminary scan at multiple turntable angles, antenna heights, and both antenna polarizations. Where the test standard requires cable manipulation, this was done at one of more likely worst case frequencies selected by the test personnel while observing the receiver display. At each of the frequencies selected for final measurements, the turntable angle, antenna height, and antenna polarization were explored to find the worst-case settings. Final field strength measurements were taken in that set of positions. Full maximization was not performed at frequencies that are noise floor measurements included per the test standard requirements.

At azimuth angle 180° the 'front' reference mark of the turntable is pointed Southward. At 270° the reference mark points West. At 90° it points East. At 173° the turntable reference mark is pointed directly at the antenna. The designation of the X, Y, and Z orientations of the test sample are sample dependent, so these are reported by use of photographs.

The table shows the selected final measurement data between 30 MHz and 1 GHz. It includes at least the six strongest emissions observed relative to the test limit, along with other data points of interest. Where a data point is highlighted in yellow, this is an aid to indicate the data point(s) with the least margin to the test limit. A positive margin value indicates that the emission was below the test limit. The test limit is the FCC Class B Limit at 3m. Any unintentional radio emission limits are not applied to intentional radio signals.

Test limits for electric fields above 30 MHz that are stated for a distance other than 3 m are adjusted to 3 m with a factor of 20 dB per decade of distance. Test limits for electric or magnetic fields below 30 MHz that are stated for a distance other than 3 m are adjusted to 3 m. The conservative method of ANSI C63.10 clause 6.4.4.1 is applied: 40 dB per decade for distances within the boundary (wavelength / 2 Pi), 20 dB per decade beyond that distance boundary.

In this test, fewer than six emissions were observed within 20 dB of the limit. The relevant emissions were measured, including one or more noise floor signals as judged appropriate to the spectrum.

Frequency	Pol.	Reading	Factor	Level	Limit	Margin	Height	Angle
MHz		dB(μ V)	dB(1/m)	dB(μ V/m)	dB(μ V/m)	dB	cm	deg
		QP		QP	QP	QP		
44.220	V	12.9	15.2	28.1	40.0	11.9	100.0	186.0
72.000	V	11.6	14.2	25.8	40.0	14.2	100.0	359.0
811.800	V	4.3	34.2	38.5	46.0	7.5	386.9	52.0

Table RE52.2: Emission summary (Bluetooth BR, 2402 MHz)

The graph below shows the background spectrum observed during pre-scan, as well as the final data points from the table above.

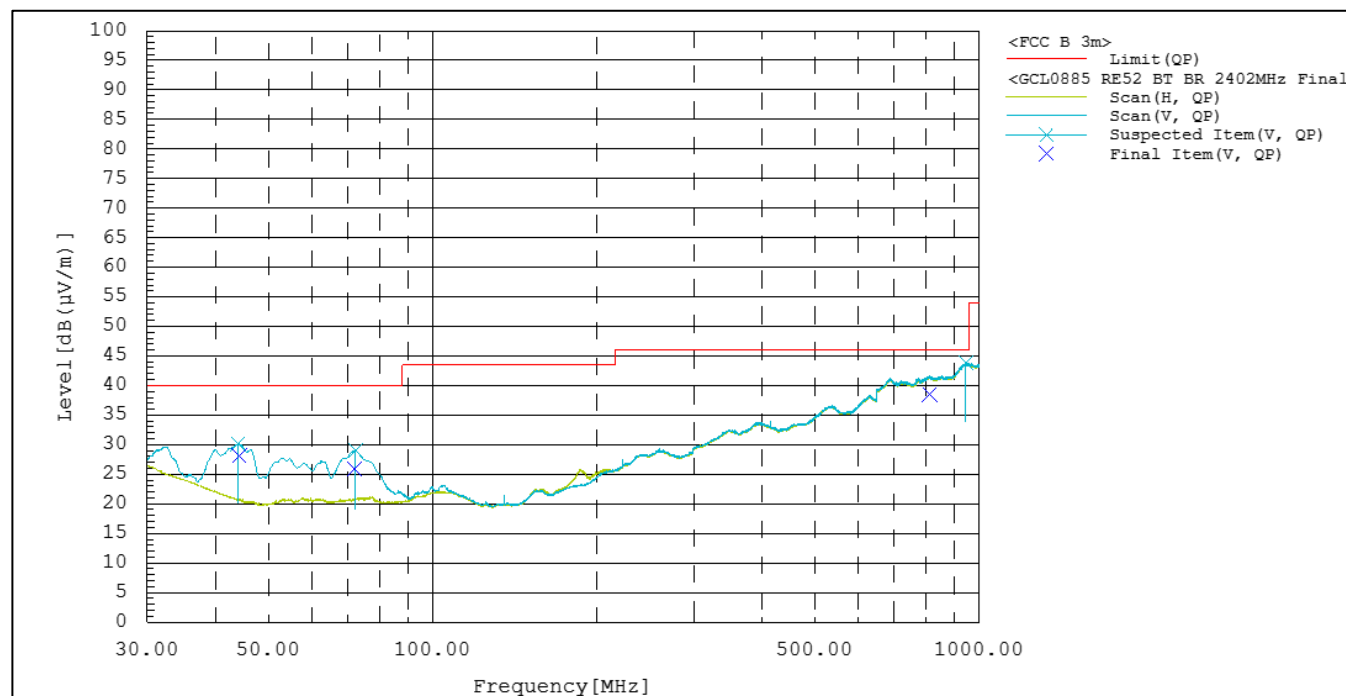


Figure RE52.1: Spectral data (Bluetooth, BR, 2402 MHz)

Frequency	Pol.	Reading	Factor	Level	Limit	Margin	Height	Angle
MHz		dB(μ V)	dB(1/m)	dB(μ V/m)	dB(μ V/m)	dB	cm	deg
		QP		QP	QP	QP		
32.580	V	6.3	21.0	27.3	40.0	12.7	100.0	58.0
44.160	V	13.1	15.2	28.3	40.0	11.7	100.0	124.0
71.970	V	11.5	14.2	25.7	40.0	14.3	106.3	0.0
812.430	V	4.2	34.2	38.4	46.0	7.6	315.4	198.0

Table RE52.3: Emission summary (Bluetooth, EDR2, 2480 MHz)

The graph below shows the background spectrum observed during pre-scan, as well as the final data points from the table above.

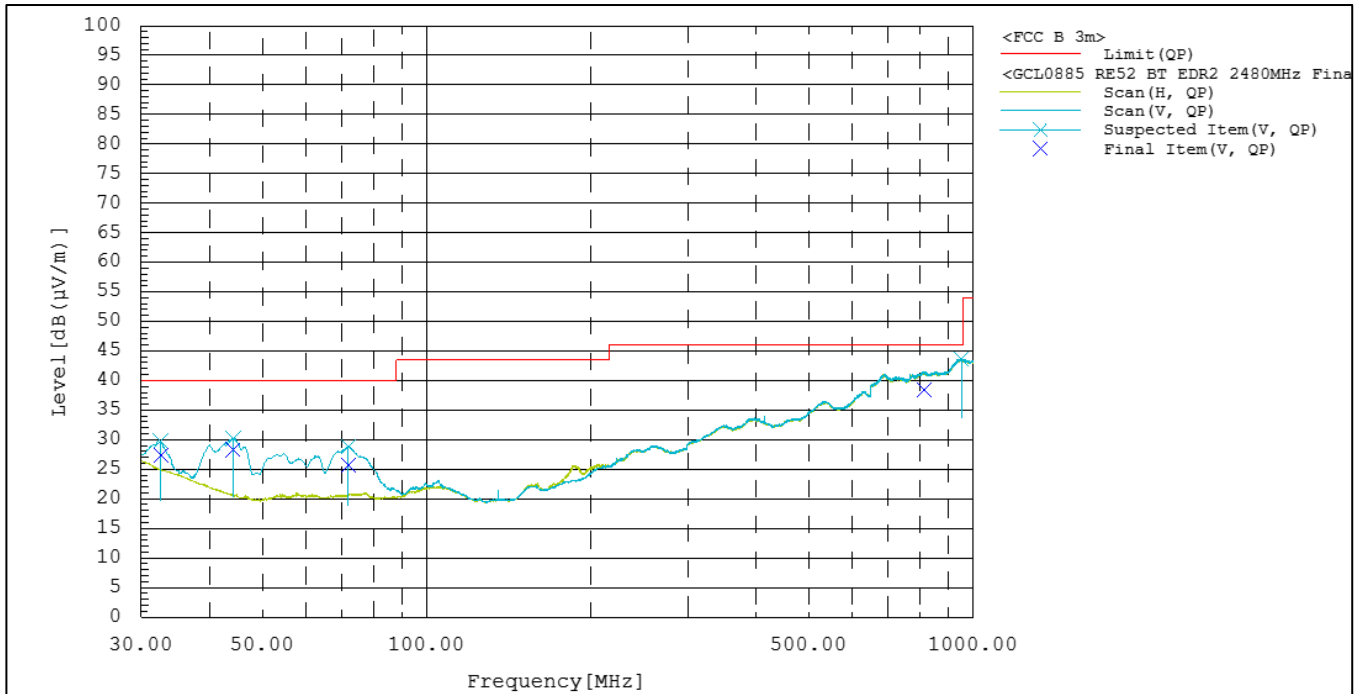


Figure RE52.2: Spectral data (Bluetooth EDR, 2480 MHz)

Setup Photographs

The following photographs show the EUT configured and arranged in the manner in which it was measured.



Figure RE52.3: EUT test setup, first view

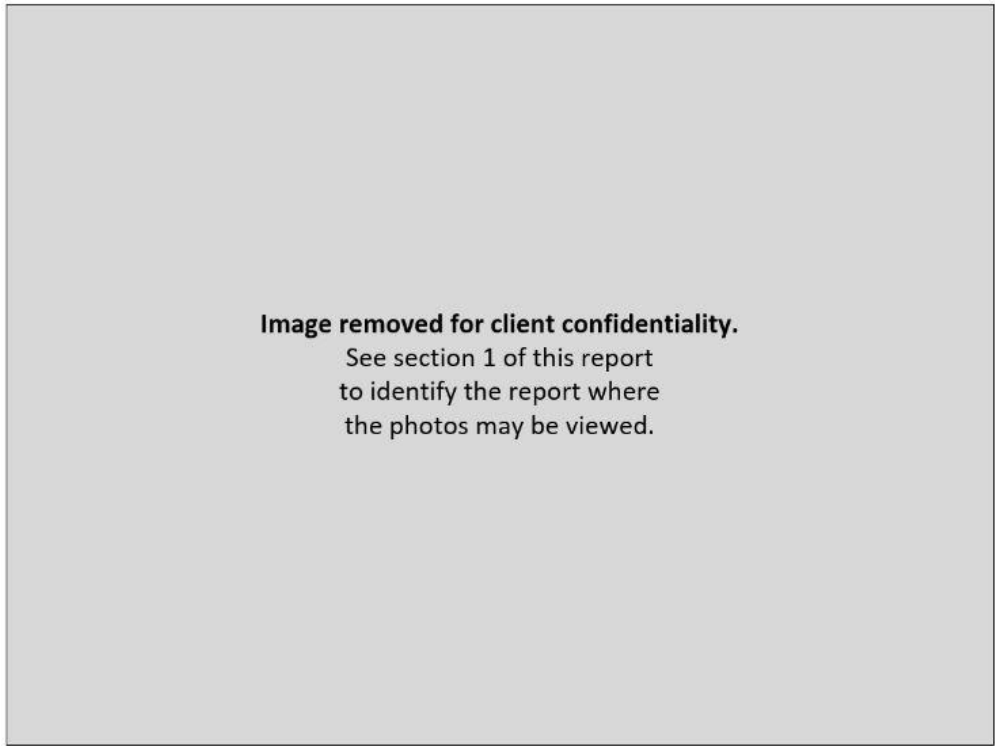


Figure RE52.4: EUT test setup, second view

This line is the end of the test record.

Test Record

Radiated Emission Test RE02

Project GCL0885

Test Date(s) 25 November 2025
Test Personnel Vladimir Tolstik

Product Model AA5206
Serial Number tested 3621679832

Operating Mode M1 (BtTx)
Arrangement A2
Input Power USB 5 Vdc

Test Standards: FCC Part 15, ANSI C63.10, RSS-247, RSS-GEN (as noted in Section 6 of the report).

Frequency Range: Restricted Bands (2310-2390 MHz, 2483.5-2500 MHz)
Pass/Fail Judgment: PASS

Test record created by: Aditya Prakash
Date of this record: 8 December 2025

Original record, Version A.

Test Equipment

Description	Make	Model #	Serial #	Last Cal/Ver	Next Due
PXE Receiver 44 GHz	Keysight	N9048B	MY65140100	21-Nov-2025	21-Nov-2026
Antenna, Horn, 1-18 GHz	ETS Lindgren	3117	00259208	30-May-2024	30-May-2026
FSOATS 3m, above 1 GHz	Frankonia	SAC3	F199004	13-Dec-2024	13-Dec-2027
Tape Measure, 1-3/16 in x 33 ft	Crecent Lufkin	L1135CME-02	GMN0013783	26-Jun-2024	26-Jun-2027
Preamplifier, 500 MHz 18 GHz	Com-Power	PAM-118A	18040133	Calibration	Not Required
Wifi Filter	K&L	8NSL26-2437/E82.2-0/1		Calibration	Not Required

Table RE02.1: Test Equipment Used

Software Used: Keysight PXE receiver software A.41.06, FCC Restricted Band 2p4GHz Data Analysis Template v2a 2025May27, RE Signal Maximization Tool v2025May27.xlsx

Test Data

US and Canadian laws contain dozens of bands where radio operation is restricted. Compliance with most of those band restrictions is typically demonstrated by a series of spurious emission tests covering a very wide span of frequencies from kilohertz to Gigahertz. This test record focuses on restricted bands that are immediately adjacent to the authorized band in which the test sample radio operate. It shows whether the modulation products are sufficiently suppressed to meet the restricted band requirements.

The radiated emission test began with a preliminary scan in each restricted band at multiple turntable angles, antenna heights, and both antenna polarizations. For test standards that require reorienting the test sample, further preliminary scans were taken in those alternate orientations typically described as X, Y, and Z. Subsequent testing was done using on the orientation(s) producing the highest result relative to the test limit. Final field strength measurements were taken in that set of positions.

Restricted band measurements in the lower band were made while the transmitter was tuned to its lowest frequency of 2402 MHz. Measurements in the upper band were made while the transmitter was tuned to its highest frequency of 2480 MHz for the 1 Mbps data rate.

At azimuth angle 0° the 'front' reference mark of the turntable is pointed Southward. At 90° the reference mark points West. At -90° it points East. At -7° the turntable reference mark is pointed directly at the antenna. The designation of the X, Y, and Z orientations of the test sample are sample dependent, so these are reported by use of photographs.

The tables show the selected final measurement data between the FCC restricted bands. It includes a the strongest emissions observed relative to the test limit, along with other data points of interest. Where a data point is highlighted is yellow, this is an aid to indicate the data point(s) with the least margin to the test limit. A positive margin value indicates that the emission was below the test limit. The test limit is the FCC restricted band 'Class B' Limit at 3 m listed at 15.209 and RSS-Gen clause 8.9.

Emissions within the restricted bands were measured with an averaging process described in the ANSI C63.10 methods noted in this paragraph. (See also section 6.3 of this test report). The duty cycle for the Bluetooth Classic radio had a duty cycle of 98% or greater and so the trace-averaging method of clause 11.12.2.5.1 was applied.

Frequency	Avg Limit	Pk Limit	Avg Level	Pk Level	Av Margin	Pk Margin	Azimuth	Height	Polarity	Avg Type	DC Adjust
(MHz)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(dB)	(degree)	(mm)	---	---	(dB)
2390	54	74	37.01	50.56	16.99	23.44	-134	1605	VERT	RMS	0.00
2390	54	74	36.99	50.54	17.01	23.46	-134	1605	VERT	RMS	0.00

Table RE02.2: FCC restricted bands from 2200 to 2390 MHz (Bluetooth, BR, 2402 MHz)

Frequency	Avg Limit	Pk Limit	Avg Level	Pk Level	Av Margin	Pk Margin	Azimuth	Height	Polarity	Avg Type	DC Adjust
(MHz)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(dB)	(degree)	(mm)	---	---	(dB)
2390	54	74	36.74	50.29	17.26	23.71	-134	1605	VERT	RMS	0.00
2390	54	74	36.72	50.63	17.29	23.37	-134	1605	VERT	RMS	0.00

Table RE02.3: FCC restricted bands from 2200 to 2390 MHz (Bluetooth, EDR2, 2402 MHz)

Frequency	Avg Limit	Pk Limit	Avg Level	Pk Level	Av Margin	Pk Margin	Azimuth	Height	Polarity	Avg Type	DC Adjust
(MHz)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(dB)	(degree)	(mm)	---	---	(dB)
2483.5	54	74	40.78	61.35	13.22	12.65	161	1965	VERT	RMS	0.00
2493.3	54	74	41.94	52.37	12.06	21.63	161	1965	VERT	RMS	0.00

Table RE02.4: FCC restricted band from 2483.5 to 2500 MHz (Bluetooth, BR, 2480 MHz)

Frequency	Avg Limit	Pk Limit	Avg Level	Pk Level	Av Margin	Pk Margin	Azimuth	Height	Polarity	Avg Type	DC Adjust
(MHz)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(dB)	(degree)	(mm)	---	---	(dB)
2483.5	54	74	41.14	56.16	12.86	17.84	161	1965	VERT	RMS	0.00
2493.3	54	74	40.91	51.84	13.09	22.17	161	1965	VERT	RMS	0.00

Table RE02.5: FCC restricted band from 2483.5 to 2500 MHz (Bluetooth, EDR2, 2480 MHz)

The graphs below show the background spectrum observed during pre-scan, as well as the final data points from the table above.

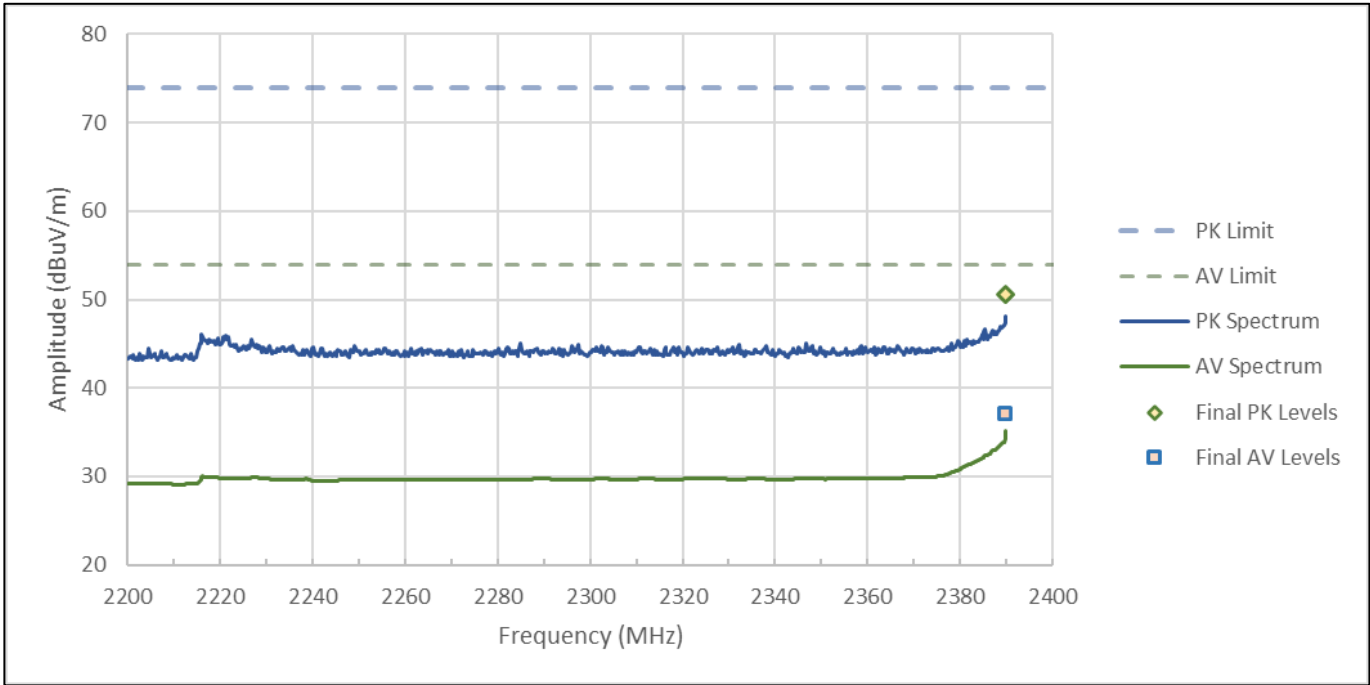


Figure RE02.1: FCC restricted band spectral data from 2200 to 2390 MHz (Bluetooth, BR, 2402 MHz)

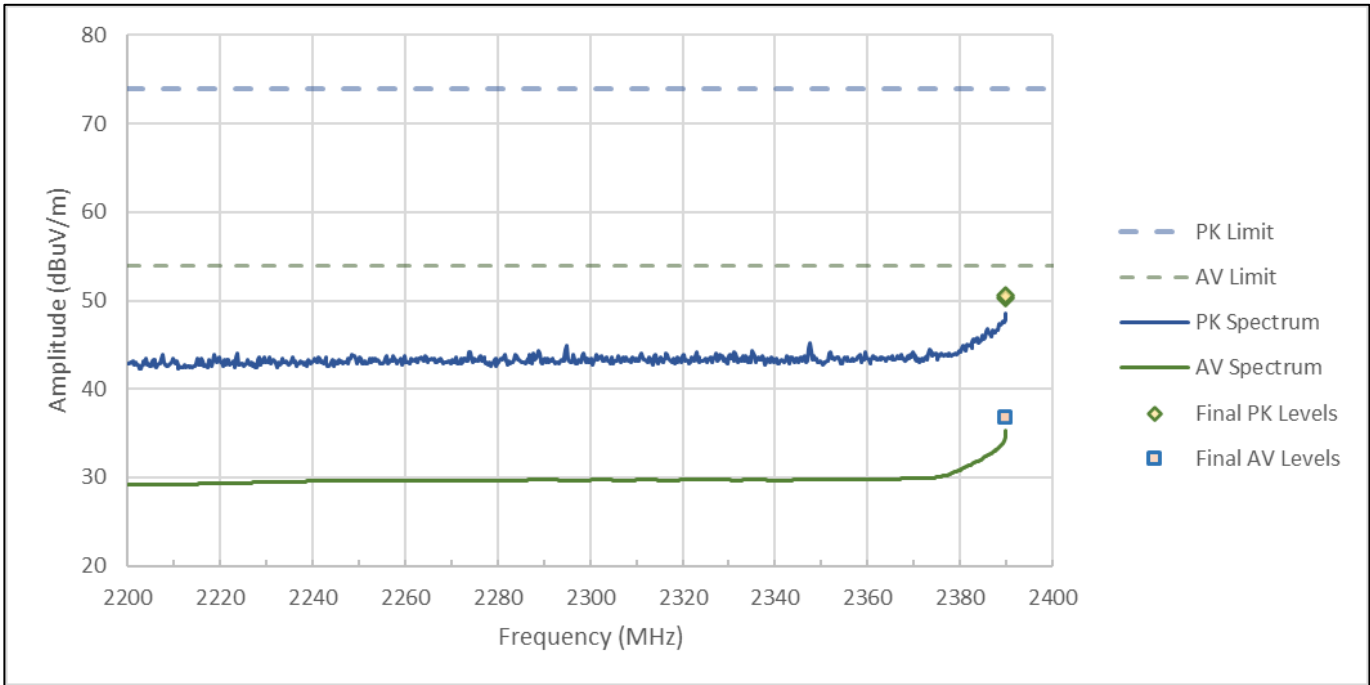


Figure RE02.2: FCC restricted band spectral data from 2200 to 2390 MHz (Bluetooth, EDR2, 2402 MHz)

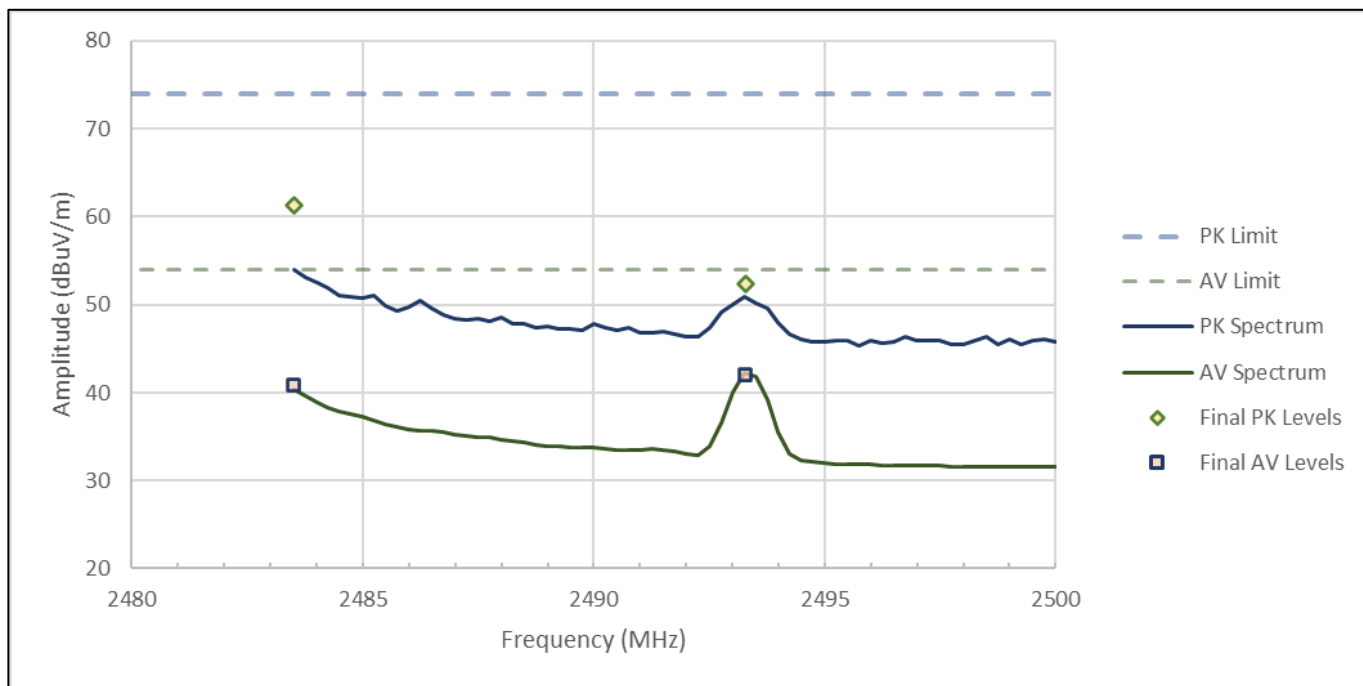


Figure RE02.3: FCC restricted band spectral data from 2483.5 to 2500 MHz (Bluetooth, BR, 2480 MHz)

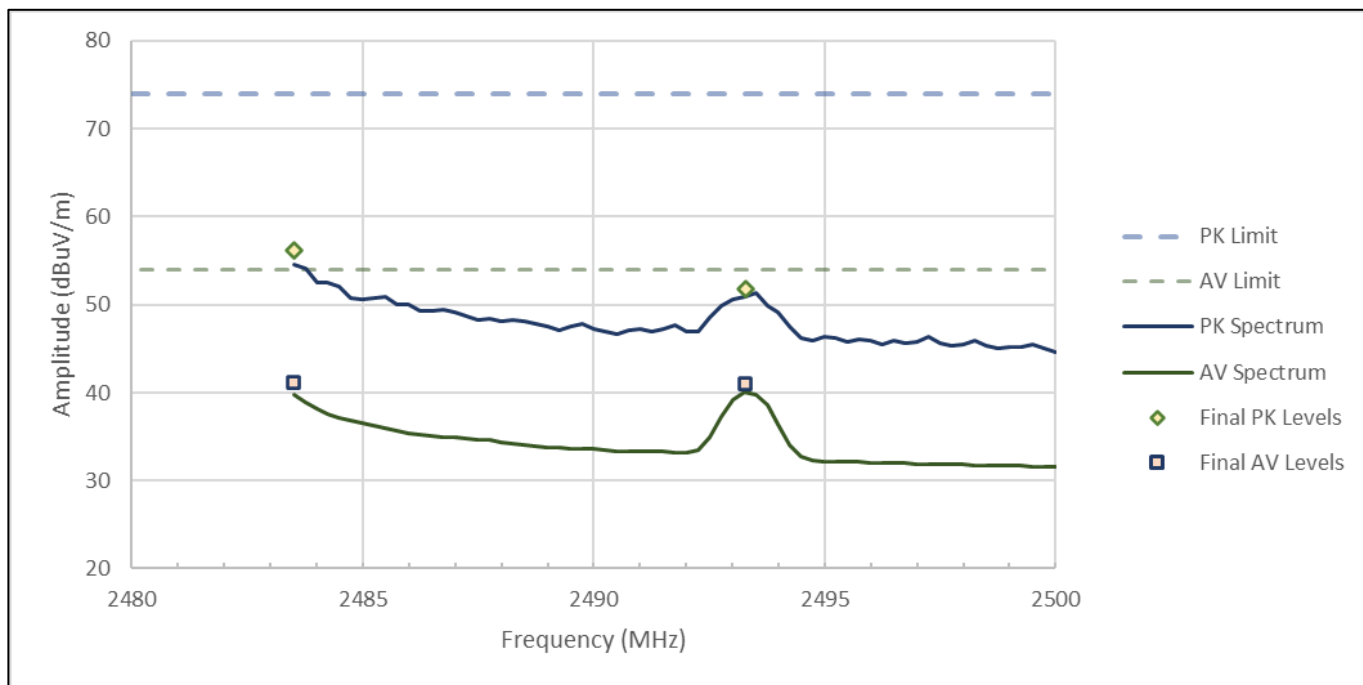


Figure RE02.4: FCC restricted band spectral data from 2483.5 to 2500 MHz (Bluetooth, EDR2, 2480 MHz)

Setup Photographs

The following photographs show the EUT configured and arranged in the manner in which it was measured.



Figure RE02.7: EUT test setup, primary view

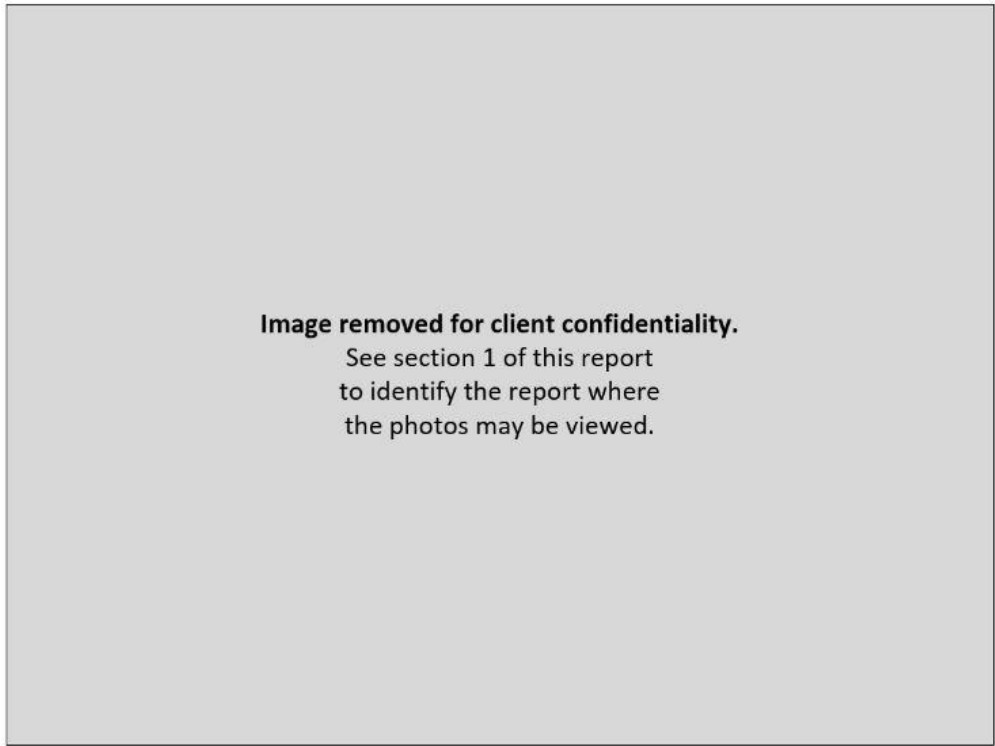


Figure RE02.8: EUT test setup, reverse view

This line is the end of the test record.

Test Record

Radiated Emission Test RE05

Project GCL0885

Test Date(s) 26 November 2025
Test Personnel Vladimir Tolstik

Product Model AA5206
Serial Number tested 3621679832

Operating Mode M3 (BTHop)
Arrangement A2
Input Power USB 5 Vdc

Test Standards: FCC Part 15, ANSI C63.10, RSS-247, RSS-GEN (as noted in Section 6 of the report).

Frequency Range: Restricted Bands (2310-2390 MHz, 2483.5-2500 MHz)
Pass/Fail Judgment: PASS

Test record created by: Aditya Prakash
Date of this record: 8 December 2025

Original record, Version A.

Test Equipment

Description	Make	Model #	Serial #	Last Cal/Ver	Next Due
PXE Receiver 44 GHz	Keysight	N9048B	MY65140100	21-Nov-2025	21-Nov-2026
Antenna, Horn, 1-18 GHz	ETS Lindgren	3117	00259208	30-May-2024	30-May-2026
FSOATS 3m, above 1 GHz	Frankonia	SAC3	F199004	13-Dec-2024	13-Dec-2027
Tape Measure, 1-3/16 in x 33 ft	Crecent Lufkin	L1135CME-02	GMN0013783	26-Jun-2024	26-Jun-2027
Preamplifier, 500 MHz 18 GHz	Com-Power	PAM-118A	18040133	Calibration	Not Required
Wifi Filter	K&L	8NSL26-2437/E82.2-0/1		Calibration	Not Required

Table RE05.1: Test Equipment Used

Software Used: Keysight PXE receiver software A.41.06, FCC Restricted Band 2p4GHz Data Analysis Template v2a 2025May27, RE Signal Maximization Tool v2025May27.xlsx

Test Data

US and Canadian laws contain dozens of bands where radio operation is restricted. Compliance with most of those band restrictions is typically demonstrated by a series of spurious emission tests covering a very wide span of frequencies from kilohertz to Gigahertz. This test record focuses on restricted bands that are immediately adjacent to the authorized band in which the test sample radio operate. It shows whether the modulation products are sufficiently suppressed to meet the restricted band requirements.

The radiated emission test began with a preliminary scan in each restricted band at multiple turntable angles, antenna heights, and both antenna polarizations. For test standards that require reorienting the test sample, further preliminary scans were taken in those alternate orientations typically described as X, Y, and Z. Subsequent testing was done using on the orientation(s) producing the highest result relative to the test limit. Final field strength measurements were taken in that set of positions.

At azimuth angle 0° the 'front' reference mark of the turntable is pointed Southward. At 90° the reference mark points West. At -90° it points East. At -7° the turntable reference mark is pointed directly at the antenna. The designation of the X, Y, and Z orientations of the test sample are sample dependent, so these are reported by use of photographs.

The tables show the selected final measurement data between the FCC restricted bands. It includes a the strongest emissions observed relative to the test limit, along with other data points of interest. Where a data point is highlighted is yellow, this is an aid to indicate the data point(s) with the least margin to the test limit. A positive margin value indicates that the emission was below the test limit. The test limit is the FCC restricted band 'Class B' Limit at 3 m listed at 15.209 and RSS-Gen clause 8.9.

Emissions within the restricted bands were measured with an averaging process described in the ANSI C63.10 methods noted in this paragraph. (See also section 6.3 of this test report.) The duty cycle for the BT Hopping radio had a duty cycle of 98% or greater and so the trace-averaging method of clause 11.12.2.5.1 was applied.

Frequency	Avg Limit	Pk Limit	Avg Level	Pk Level	Av Margin	Pk Margin	Azimuth	Height	Polarity	Avg Type	DC Adjust
(MHz)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(dB)	(degree)	(mm)	---	---	(dB)
2389	54	74	33.65	50.19	20.35	23.82	-134	1549	VERT	RMS	0.00
2390	54	74	33.88	49.60	20.13	24.40	-134	1549	VERT	RMS	0.00

Table RE05.2: FCC restricted bands from 2200 to 2390 MHz (Bluetooth, BR, Hopping)

Frequency	Avg Limit	Pk Limit	Avg Level	Pk Level	Av Margin	Pk Margin	Azimuth	Height	Polarity	Avg Type	DC Adjust
(MHz)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(dB)	(degree)	(mm)	---	---	(dB)
2483.5	54	74	34.61	53.44	19.40	20.57	160	1971	VERT	RMS	0.00
2483.5	54	74	34.57	53.46	19.43	20.54	160	1971	VERT	RMS	0.00

Table RE05.3: FCC restricted band from 2483.5 to 2500 MHz (Bluetooth, BR, Hopping)

Frequency	Avg Limit	Pk Limit	Avg Level	Pk Level	Av Margin	Pk Margin	Azimuth	Height	Polarity	Avg Type	DC Adjust
(MHz)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(dB)	(degree)	(mm)	---	---	(dB)
2389.8	54	74	33.74	50.28	20.26	23.72	-134	1549	VERT	RMS	0.00
2390	54	74	33.97	50.60	20.03	23.40	-134	1549	VERT	RMS	0.00

Table RE05.4: FCC restricted bands from 2200 to 2390 MHz (Bluetooth, EDR2, Hopping)

Frequency	Avg Limit	Pk Limit	Avg Level	Pk Level	Av Margin	Pk Margin	Azimuth	Height	Polarity	Avg Type	DC Adjust
(MHz)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dBµV/m)	(dB)	(dB)	(degree)	(mm)	---	---	(dB)
2483.5	54	74	34.63	54.89	19.37	19.11	160	1971	VERT	RMS	0.00
2483.5	54	74	34.72	55.34	19.28	18.66	160	1971	VERT	RMS	0.00

Table RE05.5: FCC restricted band from 2483.5 to 2500 MHz (Bluetooth, EDR2, Hopping)

The graphs below show the background spectrum observed during pre-scan, as well as the final data points from the table above.

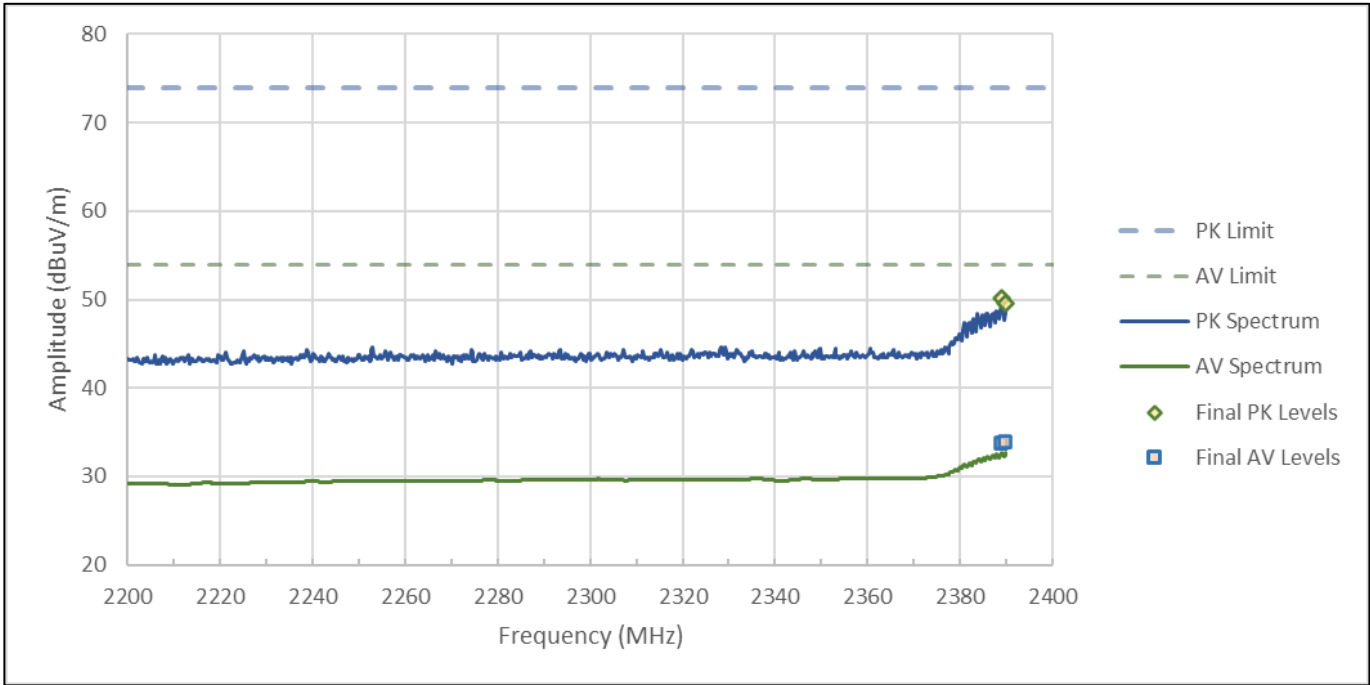


Figure RE05.1: FCC restricted band spectral data from 2200 to 2390 MHz (Bluetooth, BR, Hopping)

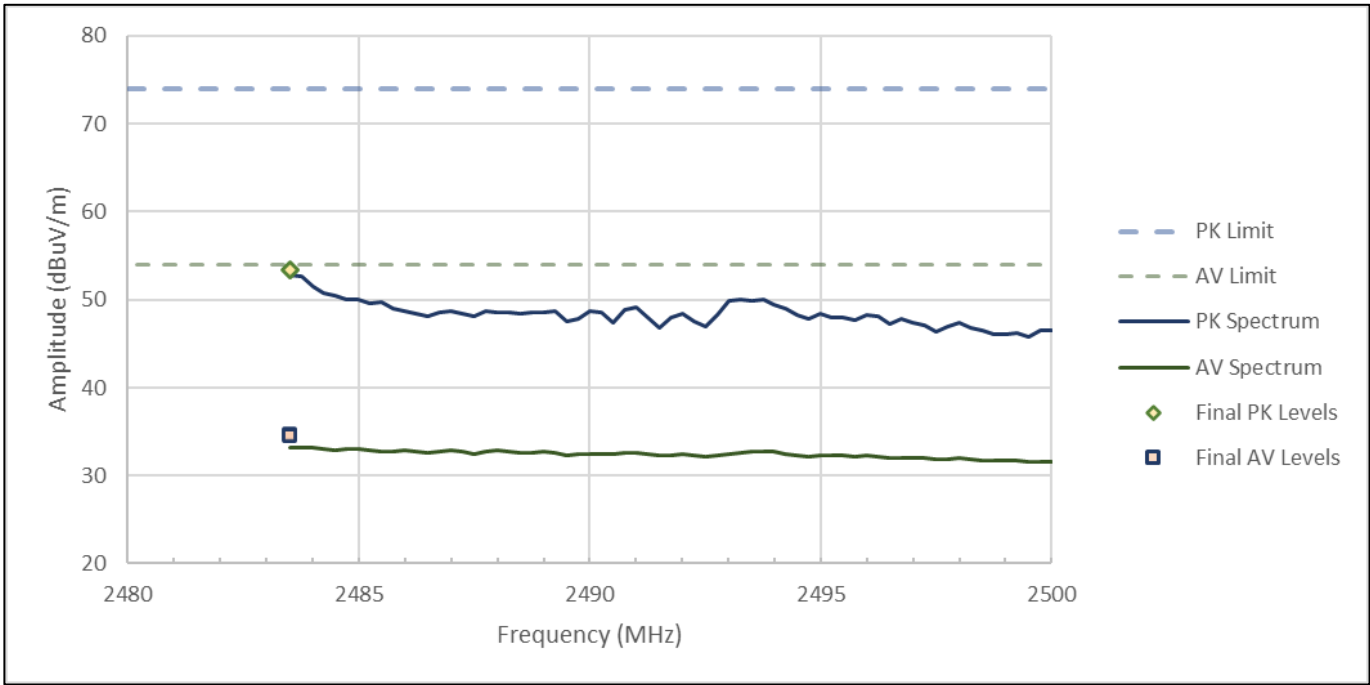


Figure RE05.2: FCC restricted band spectral data from 2483.5 to 2500 MHz (Bluetooth, BR, Hopping)

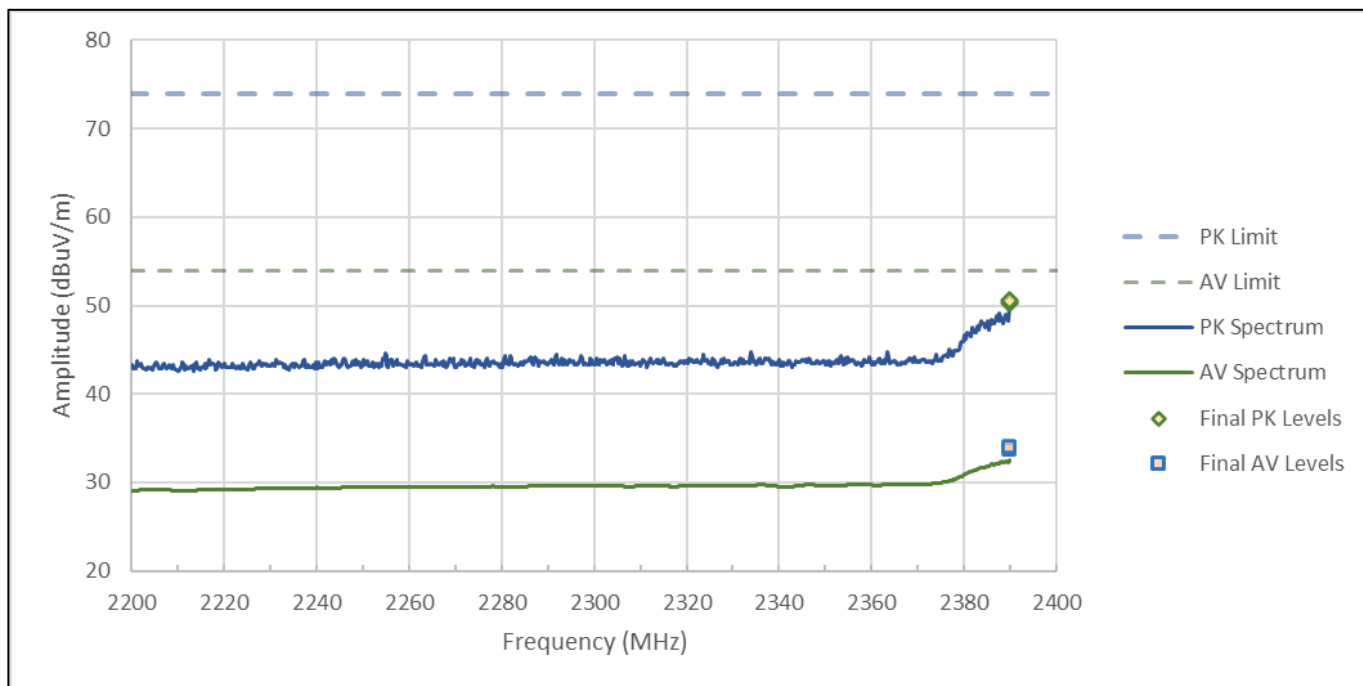


Figure RE05.3: FCC restricted band spectral data from 2200 to 2390 MHz (Bluetooth, EDR2, Hopping)

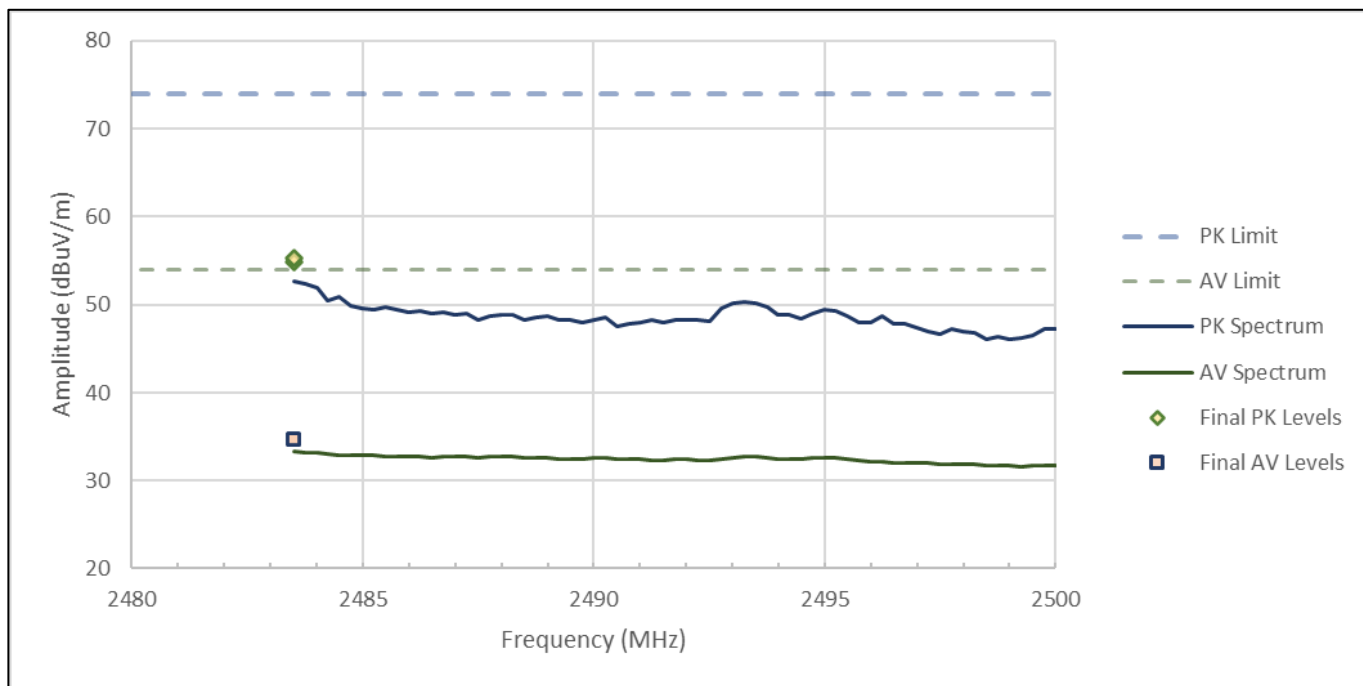


Figure RE05.4: FCC restricted band spectral data from 2483.5 to 2500 MHz (Bluetooth, EDR2, Hopping)

Setup Photographs

The following photographs show the EUT configured and arranged in the manner in which it was measured.



Figure RE05.5: EUT test setup, primary view

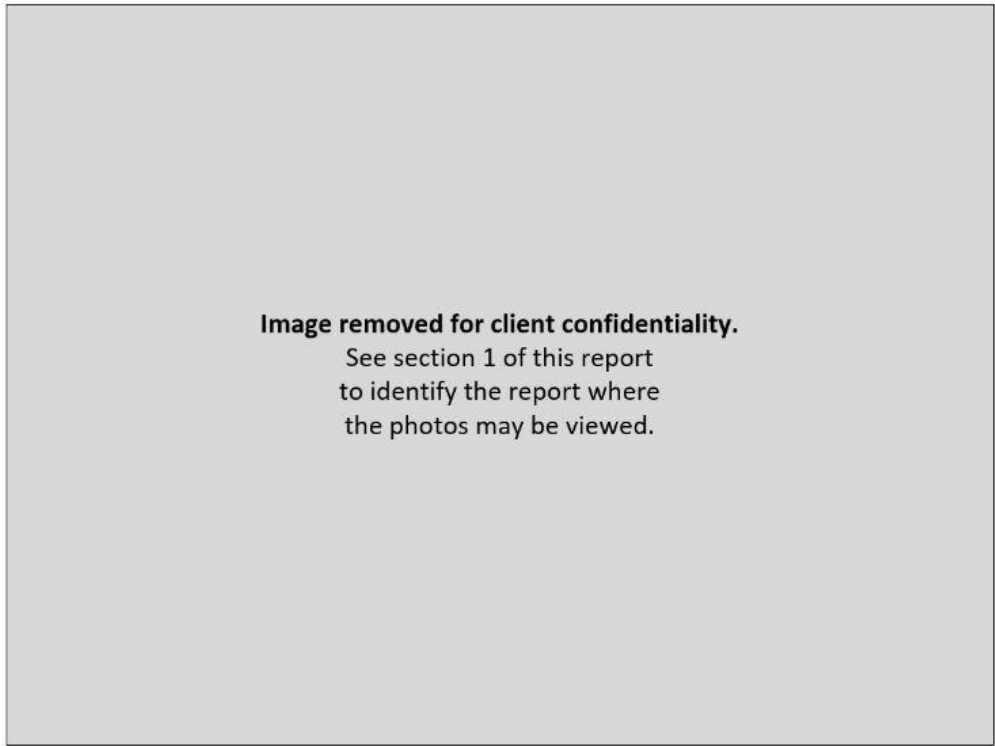


Figure RE05.6: EUT test setup, reverse view

This line is the end of the test record.

Test Record

Conducted Emissions Mains Test CE02

Project GCL0885

Test Date(s) 04-Dec-2025
Test Personnel Andy Heier

Product Model AA5206
Serial Number tested 3621679818

Operating Mode M1 (BtTx)
Arrangement A2
Input Power 120 Vac 60 Hz

Test Standards: FCC Part 15, ANSI C63.10, RSS-247, RSS-GEN (as noted in Section 6 of the report).

Frequency Range: 150 kHz to 30 MHz

Pass/Fail Judgment: PASS

Test record created by: Andy Heier
Date of this record: 04 Dec 2025

Original record, Version A.

Test Equipment

Description	Make	Model #	Serial #	Last Cal/Ver	Next Due
PXE Receiver 44 GHz	Keysight	N9048B	MY62220139	4-Sep-2025	4-Sep-2026
Tape Measure, 1-3/16 in x 33 ft	Crecent Lufkin	L1135CME-02	GMN0013782	26-Jun-2024	26-Jun-2027
LISN multiline; 20A 50uH	Com-Power	LIN-120C	20160005	3-Apr-2024	1-Apr-2027
Coaxial Power Cable	Garmin	RG214/U	20230124-01	3-Apr-2024	1-Apr-2027

Table CE02.1: Test Equipment Used

Software Used

Keysight PXE software A.33.03, CE Mains 150k to 30M Data Analysis V3a 2025Oct23.xlsx

Test Data

The conducted emission test process began with a set of preliminary scans on both power conductors using both Quasi-Peak and Average detectors across the frequency range. Where the test standard requires cable manipulation, one or more likely worst case frequencies selected by the test personnel. Cables were manipulated to find the maximal signal strength while observing the receiver levels at those selected frequencies. At each of the frequencies selected for final measurements, Quasi-peak and Average detector readings were taken on each conductor.

The table shows the selected final measurement data. It includes at least the six strongest emissions observed relative to the limit lines, along with other data points of interest. The yellow highlight indicate the data points with the least margin to the quasi-peak detector limit and the average detector limit. A positive margin value indicates that the emission was below the test limit. The test limit is the FCC Class B Limit.

In this test, fewer than six emissions were observed within 20 dB of the limit. The relevant emissions were measured, including one or more noise floor signals as judged appropriate to the spectrum.

Frequency	QP Limit	AV Limit	L1 QP	L2 QP	L1 AV	L2 AV	QP Margin	AV Margin
(kHz)	(dBμV)	(dBμV)	(dBμV)	(dBμV)	(dBμV)	(dBμV)	(dB)	(dB)
503	56.00	46.00	33.91	29.78	29.96	25.33	22.09	16.04
8023	60.00	50.00	28.51	29.01	23.10	23.95	30.99	26.05

Table CE02.2: Emission summary (Bluetooth, BR, 2402 MHz)

The graph below shows preliminary scan data as continuous curves. Superimposed are the final measurement data points reported in the table above.

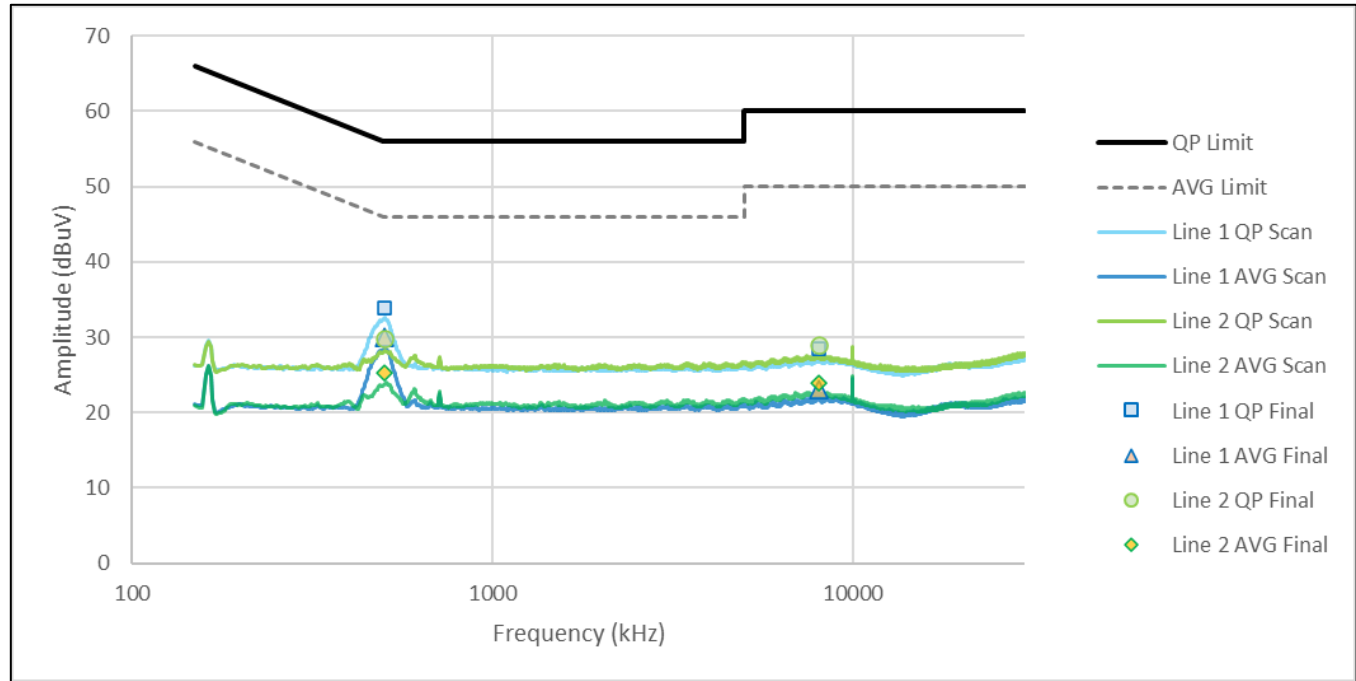


Figure CE02.1: Spectral data (Bluetooth, BR, 2402 MHz)

Frequency	QP Limit	AV Limit	L1 QP	L2 QP	L1 AV	L2 AV	QP Margin	AV Margin
(kHz)	(dBμV)	(dBμV)	(dBμV)	(dBμV)	(dBμV)	(dBμV)	(dB)	(dB)
503	56.00	46.00	34.14	29.77	30.16	25.35	21.86	15.84
8023	60.00	50.00	28.70	29.30	23.48	24.22	30.70	25.78

Table CE02.3: Emission summary (Bluetooth, EDR2, 2480 MHz)

The graph below shows preliminary scan data as continuous curves. Superimposed are the final measurement data points reported in the table above.

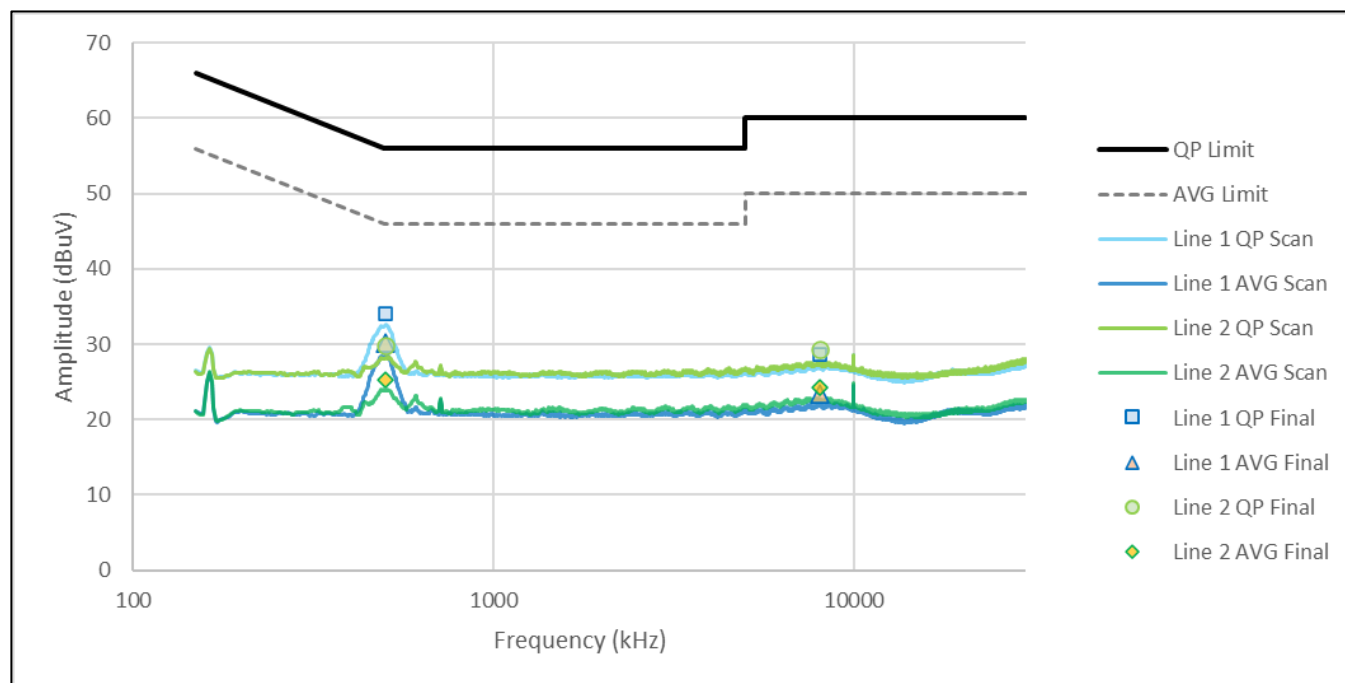


Figure CE02.2: Spectral data (Bluetooth, EDR2, 2480 MHz)

Setup Photographs

The following photographs show the EUT configured and arranged in the manner in which it was measured.

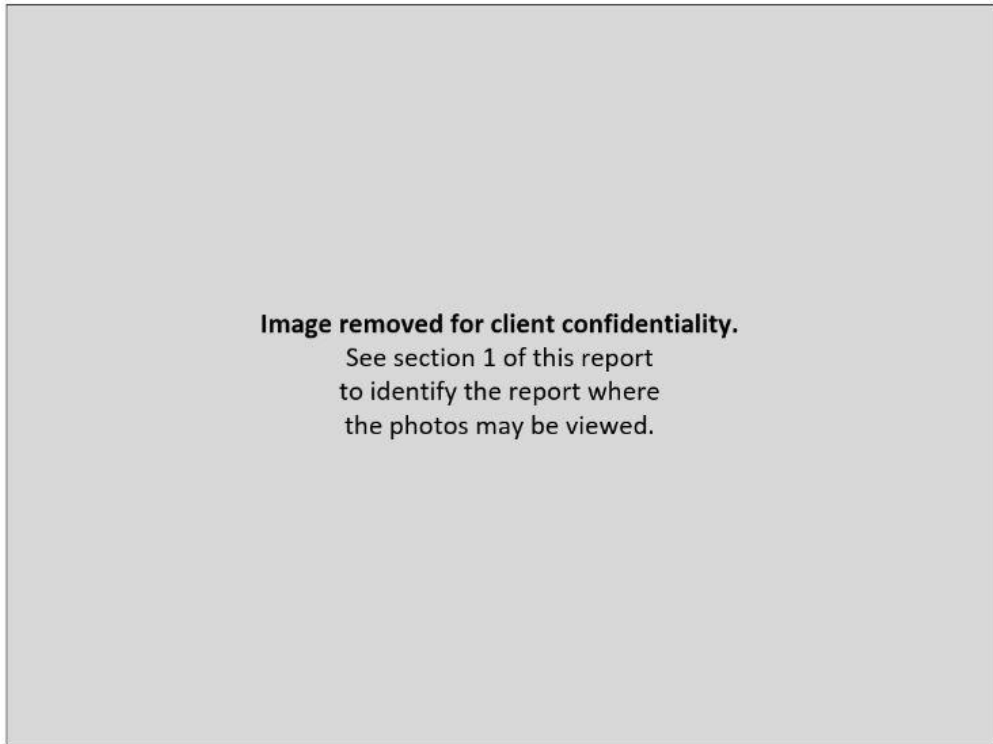


Figure CE02.3: Test setup, first view



Figure CE02.4: Test setup, second view

This line is the end of the test record.

Concluding Notes

This report stands as an integrated record of the tests performed and must be copied or distributed in its complete form. The reproduction of selected pages or sections separate from the complete report would require specific approval from the manager of the Garmin Compliance Lab.

This is the final page of the report.