**MEASUREMENT REPORT****FCC PART 15.407/ ISED RSS-247 802.15.4 ab-NB****Applicant Name:**

Apple Inc.
One Apple Park Way
Cupertino, CA 95014
United States

Date of Testing:

08/05/2025 - 12/09/2025

Test Report Issue Date:

12/15/2025

Test Site/Location:

Element Materials Technology Morgan Hill, CA, USA

Test Report Serial No.:

1C2504170045-03-R5.BCG

FCC ID:

BCGA2937

IC:

579C-A2937

APPLICANT:

Apple Inc.

Application Type:

Certification

Model/HVIN:

A2937

EUT Type:

Location Tracking Tag

Frequency Range:

5728.75 – 5846.25MHz

Modulation Type:

O-QPSK

FCC Classification:

Unlicensed National Information Infrastructure (UNII)

FCC Rule Part(s):

Part 15 Subpart E (15.407)

ISED Specification:

RSS-247 Issue 4

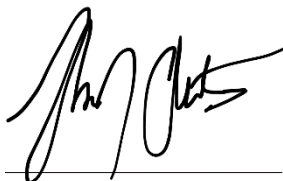
Test Procedure(s):

ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to
C63.10a:2024, KDB 789033 D02 v02r01

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024, and KDB 789033 D02 v02r01. Test results reported herein relate only to the item(s) tested.

This revised Test Report (S/N: 1C2504170045-03-R5.BCG) supersedes and replaces the previously issued test report on the same subject device for the same type of testing as indicated. Please discard or destroy the previously issued test report(s) and dispose accordingly.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.



RJ Ortanez

Executive Vice President



CERT #2041.02

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 1 of 50

V 10.6 08/28/2023

Revision Summary

Revision	Description	Issue Date	Revised By
-	Released to client & TCB	11/11/2025	WKR007077
R1	Addressed initial TCB review updates and minor formatting corrections	11/17/2025	WKR007077
R2	Addressed additional TCB comments minor formatting	11/18/2025	WKR007077
R3	Addressed additional TCB comments and minor formatting	12/5/2025	WKR016622
R4	Addressed TCB comments in section 7	12/9/2025	WKR007077
R5	Addressed additional TCB comments in section 1.2 and overview table	12/15/2025	WKR016622

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 2 of 50

V 10.6 08/28/2023

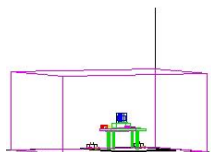
TABLE OF CONTENTS

1.0	INTRODUCTION	5
1.1	Scope.....	5
1.2	Element Materials Technology Test Location	5
1.3	Test Facility / Accreditations.....	5
2.0	PRODUCT INFORMATION	6
2.1	Equipment Description	6
2.2	Device Capabilities.....	6
2.3	Antenna Description.....	6
2.4	Test Support Equipment.....	7
2.5	Test Configuration.....	7
2.6	Software and Firmware	7
2.7	EMI Suppression Device(s)/Modifications.....	7
3.0	DESCRIPTION OF TESTS	8
3.1	Evaluation Procedure	8
3.2	AC Line Conducted Emissions	8
3.3	Radiated Emissions.....	9
3.4	Environmental Conditions.....	9
4.0	ANTENNA REQUIREMENTS	10
5.0	MEASUREMENT UNCERTAINTY	11
6.0	TEST EQUIPMENT CALIBRATION DATA.....	12
7.0	TEST RESULTS	13
7.1	Summary.....	13
7.2	99% Bandwidth Measurement – O-QPSK	14
7.3	6dB Bandwidth Measurement – O-QPSK	21
7.4	Conducted Output Power Measurement – O-QPSK	28
7.5	Maximum Power Spectral Density – O-QPSK	30
7.6	Radiated Spurious Emission – Above 1GHz.....	37
7.7	Radiated Spurious Emissions – Below 1GHz	46
8.0	CONCLUSION.....	50

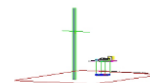
FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 3 of 50

V 10.6 08/28/2023

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element Materials Technology. If you have any questions about this or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.



MEASUREMENT REPORT



UNII Band	Tx Frequency [MHz]	Mode (kbps)	Max. Power (mW)	Max. Power (dBm)
3	5728.75-5846.25	250	38.905	15.90
		500	38.459	15.85
		1000	38.548	15.86

EUT Overview

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 4 of 50

V 10.6 08/28/2023

1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada.

1.2 Element Materials Technology Test Location

These measurement tests were conducted at the Element Materials Technology Morgan Hill facility located at 18855 Adams Court, Morgan Hill, CA 95037. The measurement facility is compliant with the test site requirements specified in ANSI C63.4-2014 and KDB 414788 D01 v01r01.

1.3 Test Facility / Accreditations

Measurements were performed at Element Materials Technology located in Morgan Hill, CA 95037, U.S.A.

- Element Materials Technology Morgan Hill is an ISO 17025-2017 accredited test facility under the American Association for Laboratory Accreditation (A2LA) with Certificate number 2041.02 for Specific Absorption Rate (SAR), Hearing Aid Compatibility (HAC) testing, where applicable, and Electromagnetic Compatibility (EMC) testing for FCC and Innovation, Science, and Economic Development Canada rules.
- Element Washington DC LLC TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC 17065-2012 by A2LA (Certificate number 2041.03) in all scopes of FCC Rules and ISED Standards (RSS).
- Element Materials Technology Morgan Hill facility is a registered (22831) test laboratory with the site description on file with ISED.
- Element Washington DC LLC is a Recognized U.S. Certification Assessment Body (CAB# US0110) for ISED Canada as designed by NIST under the U.S. and Canada Mutual Recognition Agreements (MRAs)

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 5 of 50

V 10.6 08/28/2023

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Apple Location Tracking Tag FCC ID: BCGA2937, IC: 579C-A2937**. The test data contained in this report pertains only to the emissions due to the EUT's 802.15.4 ab-NB transmitter.

Test Device Serial No.: HG9HKD0000800014W6, JLG0VM4JHX, FWMQFY99HG

2.2 Device Capabilities

This device contains the following capabilities:

802.15.4ab-NB, Bluetooth LE, UWB.

Band 3
Frequency (MHz)
5728.75
:
5786.25
:
5846.25

Table 2-1. 802.15.4ab-NB Frequency of Operations

Notes:

The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = peak per the guidance of Section B)2)b) of KDB 789033 D02 v02r01 and ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Measured Duty Cycle		
Mode	Duty Cycle [%]	DCCF [dB]
250kbps	85.10	0.70
500kbps	43.40	3.63
1000kbps	22.60	6.46

Table 2-2. Measured Duty Cycles

2.3 Antenna Description

The following antenna gain provided by manufacturer was used for testing.

Frequency [MHz]	Antenna Gain (dBi)
5728.75-5846.25	-0.47

Table 2-3. Highest Antenna Gain

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 6 of 50

V 10.6 08/28/2023

2.4 Test Support Equipment

1	Apple Macbook	Model:	A1398	S/N:	FVFDHG8TP3XY
	w/AC/DC Adapter	Model:	A1435	S/N:	N/A
	Apple iPhone	Model:	N/A	S/N:	X5P97RW5YC
2	Apple NFC Transmission Board	Model:	N/A	S/N:	9000TTF1608508

Table 2-4. Test Support Equipment List

2.5 Test Configuration

The EUT was tested per the guidance of ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024 and KDB 789033 D02 v02r01. ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024 was used to reference the appropriate EUT setup for radiated spurious emissions testing. See Sections 3.3 for radiated emissions test setups, and 7.2, 7.3, 7.4, and 7.5 for antenna port conducted emissions test setups.

For emissions from 1GHz – 18GHz, low, mid, and high channels were tested with highest power and worst case configuration. The emissions below 1GHz and above 18GHz were tested with the highest transmitting power and the worst case channel were reported.

The EUT was manipulated through three orthogonal planes of X-orientation (flatbed), Y-orientation (landscape), and Z-orientation (portrait) during the testing. Only the worst case emissions were reported in this test report.

2.6 Software and Firmware

The test was conducted with firmware version ChillyFactory2A105_3A10 installed on the EUT.

2.7 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 7 of 50

V 10.6 08/28/2023

3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

The measurement procedures described in the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices (ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024) and the guidance provided in KDB 789033 D02 v02r01 were used in the measurement of the EUT.

Deviation from measurement procedure.....None

3.2 AC Line Conducted Emissions

The line-conducted facility is located inside a 7m x 3.66m x 2.7m shielded enclosure. The shielded enclosure is manufactured by AP Americas. The shielding effectiveness of the shielded room is in accordance with MIL-Std-285 or NSA 65-6. A 1m x 1.5m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50μH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. The external power line filter is EPCOS 2X60A Power Line Filter (100dB Attenuation, 14kHz-18GHz) and the two EPCOs 2X48A filters (100dB Minimum Insertion Loss, 14kHz - 10GHz). These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and this supply line(s) will be connected to the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference groundplane. Power cables for support equipment were routed down to the second LISN while ensuring that the cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the spectrum analyzer and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The spectrum was scanned from 150kHz to 30MHz with a spectrum analyzer. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 10kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions is used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 8 of 50

V 10.6 08/28/2023

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element Materials Technology. If you have any questions about this or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.

3.3 Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. An 80cm tall test table made of Styrodur is placed on top of the turn table. For measurements above 1GHz, an additional Styrodur pedestal is placed on top of the test table to bring the total table height to 1.5m.

Per KDB 414788 D01 v01r01, radiated emission test sites other than open-field test sites (e.g., shielded anechoic chambers), may be employed for emission measurements below 30MHz if characterized so that the measurements correspond to those obtained at an open-field test site. To determine test site equivalency, a reference sample transmitting at 149kHz was measured on an open field test site (asphalt with no ground plane) and then measured in the 3m semi-anechoic chamber. A calibrated 60cm loop antenna was used while the reference device was rotated through the X, Y and Z axis in order to capture the worst case level. A maximum deviation of 2.77dB at 149kHz was measured when comparing the 3 meter semi-anechoic chamber to the open field site.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33 depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, mode of operation, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions.

3.4 Environmental Conditions

The temperature is controlled within range of 15°C to 35°C. The relative humidity is controlled within range of 10% to 75%. The atmospheric pressure is monitored within the range 86-106kPa (860-1060mbar).

FCC ID: BCGA2937 IC: 579C-A2937	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 9 of 50

V 10.6 08/28/2023

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element Materials Technology. If you have any questions about this or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.

4.0 ANTENNA REQUIREMENTS

Excerpt from §15.203 of the FCC Rules/Regulations:

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antennas of the EUT are **permanently attached**.
- There are no provisions for connection to an external antenna.

Conclusion:

The EUT complies with the requirement of §15.203.

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 10 of 50

V 10.6 08/28/2023

5.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.23-2012. All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95% level of confidence. The measurement uncertainty shown below meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty ($\pm$ dB)
Conducted Bench Top Measurements	2.00
Line Conducted Disturbance	1.88
Radiated Disturbance (<30MHz)	4.24
Radiated Disturbance (30MHz - 1GHz)	4.96
Radiated Disturbance (1 - 18GHz)	5.18
Radiated Disturbance (>18GHz)	5.18

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 11 of 50

V 10.6 08/28/2023

6.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST). Measurements antennas used during testing were calibrated in accordance to the requirements of ANSI C63.5-2017.

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
Agilent Technologies	N9030A	3Hz-26.5GHz PXA Signal Analyzer	6/6/2025	Annual	6/6/2026	MY55330128
Anritsu	ML2496A	65MHz Power Meter	2/10/2025	Annual	2/10/2026	2002005
Anritsu	MA2411B	Pulse Power Sensor	2/10/2025	Annual	2/10/2026	1027293
ATM	180-442-KF	20dB Nominal Gain Horn Antenna	3/24/2025	Annual	3/24/2026	T058601-2
ESPEC	SH-241	Temperature Chamber	9/26/2024	Biennial	9/26/2026	92002873
ETS-Lindgren	3117	Double Ridged Guide Antenna (1-18 GHz)	4/16/2025	Annual	4/16/2026	00218555
ETS-Lindgren	3117	Double Ridged Guide Antenna (1-18 GHz)	5/6/2025	Annual	5/6/2026	00240231
Keysight Technology	N9040B	UXA Signal Analyzer	6/9/2025	Annual	6/9/2026	MY57212015
Mini-Circuits	FLC-1.5FT-SMSM+	30MHz-27GHz Conducted Cable w/attenuator *	6/17/2025	Annual	6/17/2026	16113316
Rohde & Schwarz	TS-PR18	Pre-Amplifier (1GHz - 18GHz)	8/6/2025	Annual	8/6/2026	101639
Rohde & Schwarz	FSV40	Signal Analyzer (10Hz-40GHz)	5/20/2025	Annual	5/20/2026	101619
Rohde & Schwarz	ESW44	EMI Test Receiver	5/13/2025	Annual	5/13/2026	101867
Rohde & Schwarz	TS-PR8	Pre-Amplifier (30MHz - 8GHz)	10/14/2025	Annual	10/14/2026	102327
Rohde & Schwarz	TS-PR1840	Pre-Amplifier (18GHz - 40GHz)	6/3/2025	Annual	6/3/2026	100052
Rohde & Schwarz	HFH2-Z2	Loop Antenna	5/12/2025	Annual	5/12/2026	100546
Rohde & Schwarz	ENV216	Two-Line V-Network	4/25/2025	Annual	4/25/2026	101364
Schwarzbeck	VULB 9162	Bilog Antenna (30MHz - 6GHz)	5/7/2025	Annual	5/7/2026	00304

Table 6-1. Test Equipment List

Note:

- For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.
- * denotes passive equipment that have been internally verified/calibrated.

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 12 of 50

V 10.6 08/28/2023

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element Materials Technology. If you have any questions about this or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.

7.0 TEST RESULTS

7.1 Summary

Company Name: Apple Inc.

FCC ID: BCGA2937

FCC Classification: Unlicensed National Information Infrastructure (UNII)

IC: 579C-A2937

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.407(e)	RSS-247 [7.3.4.2]	6dB Bandwidth	>500kHz(5725-5850MHz)	CONDUCTED	PASS	Section 7.3
2.1049	RSS-Gen [6.7]	Occupied Bandwidth	N/A		N/A	Section 7.2
15.407 (a.3.i)	RSS-247 [7.3.4.3(a)]	Maximum Conducted Output Power	Maximum conducted powers must meet the limits detailed in 15.407 (a) (RSS-247 [7.3])		PASS	Section 7.4
15.407 (a.3.i)	RSS-247 [7.3.4.3(b)]	Maximum Power Spectral Density	Maximum power spectral density must meet the limits detailed in 15.407 (a) (RSS-247 [7.3])		PASS	Section 7.5
15.407(b.4)	RSS-247 [7.3.4.4]	Undesirable Emissions	Undesirable emissions must meet the limits detailed in 15.407(b) (RSS-247 [7.3])	RADIATED	PASS	Section 7.6
15.205, 15.407(b.4)	RSS-Gen [8.9]	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	Emissions in restricted bands must meet the radiated limits detailed in 15.209 (RSS-Gen [8.9])		PASS	Section 7.6, 7.7
15.207	RSS-Gen [8.8]	AC Conducted Emissions 150kHz – 30MHz	N/A	LINE CONDUCTED	N/A	N/A

Table 7-1. Summary of Test Results

Notes:

- All channels, modes, and modulations/data rates were investigated among all UNII bands. The test results shown in the following sections represent the worst case emissions.
- The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.
- For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is Element "Conducted Automation," Version 1.4.0.
- For radiated band edge, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is Element "Chamber Automation," Version 3.5.0.
- The EUT is powered by a disposable coin battery. AC Line conducted results are not applicable.

FCC ID: BCGA2937 IC: 579C-A2937	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 13 of 50

V 10.6 08/28/2023

7.2 99% Bandwidth Measurement – O-QPSK

§2.1049; §15.407 (e); RSS-Gen [6.7]; RSS-Gen [7.3.4.2]

Test Overview and Limit

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Procedure Used

ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024 – Section 12.5.1
KDB 789033 D02 v02r01 – Section C

Test Settings

1. The signal analyzers' automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to $X = 6$. The automatic bandwidth measurement function also has the capability of simultaneously measuring the 99% occupied bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. Span = between 1.5x to 5x the OBW
3. RBW = in the range of 1- 5% of the OBW
4. $VBW \geq 3 \times RBW$
5. Detector = Peak
6. Trace mode = max hold
7. Sweep = auto couple
8. Trace was allowed to stabilize
9. If necessary, steps 2 – 8 were repeated after changing the RBW such that it would be within 1 – 5% of the 99% occupied bandwidth observed in Step 7

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-1. Test Instrument & Measurement Setup

Test Notes

None.

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 14 of 50

V 10.6 08/28/2023

99% Bandwidth Measurements

Frequency [MHz]	Channel No.	Mode	Data Rate [kbps]	Measured 99% Occupied Bandwidth [MHz]
5728.75	1	O-QPSK	250	2.52
5786.25	24	O-QPSK	250	2.53
5846.25	48	O-QPSK	250	2.53

Table 7-2. Conducted BW Measurements (250kbps)

Frequency [MHz]	Channel No.	Mode	Data Rate [kbps]	Measured 99% Occupied Bandwidth [MHz]
5728.75	1	O-QPSK	500	2.43
5786.25	24	O-QPSK	500	2.45
5846.25	48	O-QPSK	500	2.45

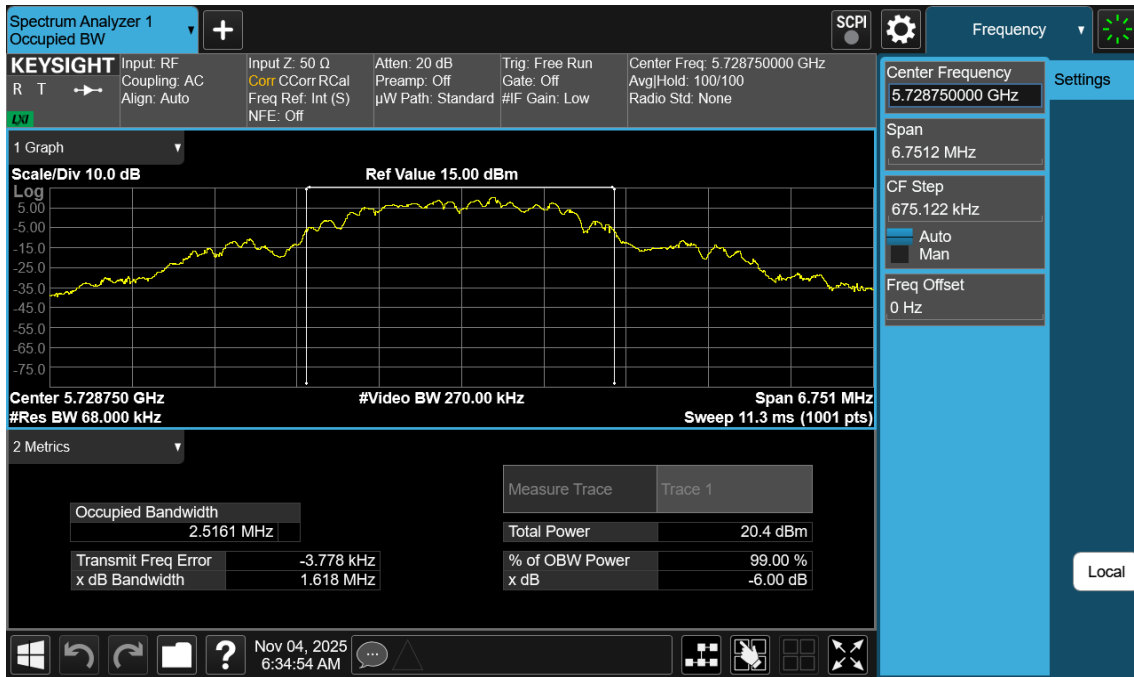
Table 7-3. Conducted BW Measurements (500kbps)

Frequency [MHz]	Channel No.	Mode	Data Rate [kbps]	Measured 99% Occupied Bandwidth [MHz]
5728.75	1	O-QPSK	1000	2.56
5786.25	24	O-QPSK	1000	2.55
5846.25	48	O-QPSK	1000	2.55

Table 7-4. Conducted BW Measurements (1000kbps)

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 15 of 50

V 10.6 08/28/2023

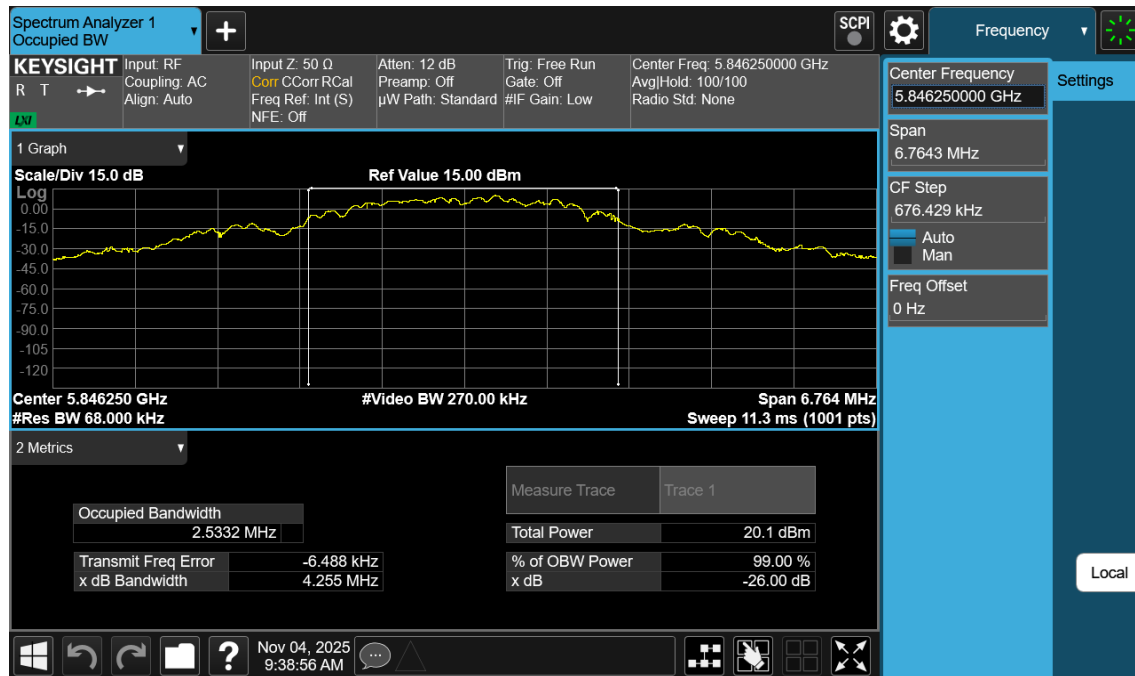


Plot 7-1. 99% OBW (O-QPSK, 5728.75MHz, 250kbps)

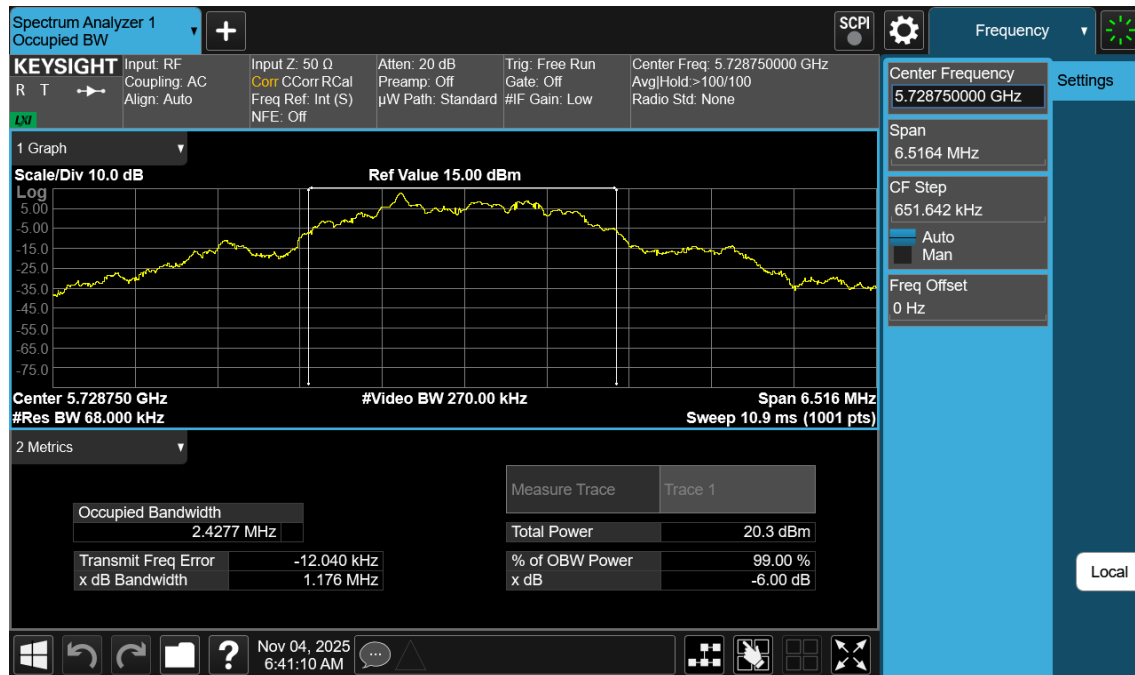


Plot 7-2. 99% OBW (O-QPSK, 5786.25MHz, 250kbps)

FCC ID: BCGA2937 IC: 579C-A2937	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 16 of 50



Plot 7-3. 99% OBW (O-QPSK, 5846.25MHz, 250kbps)

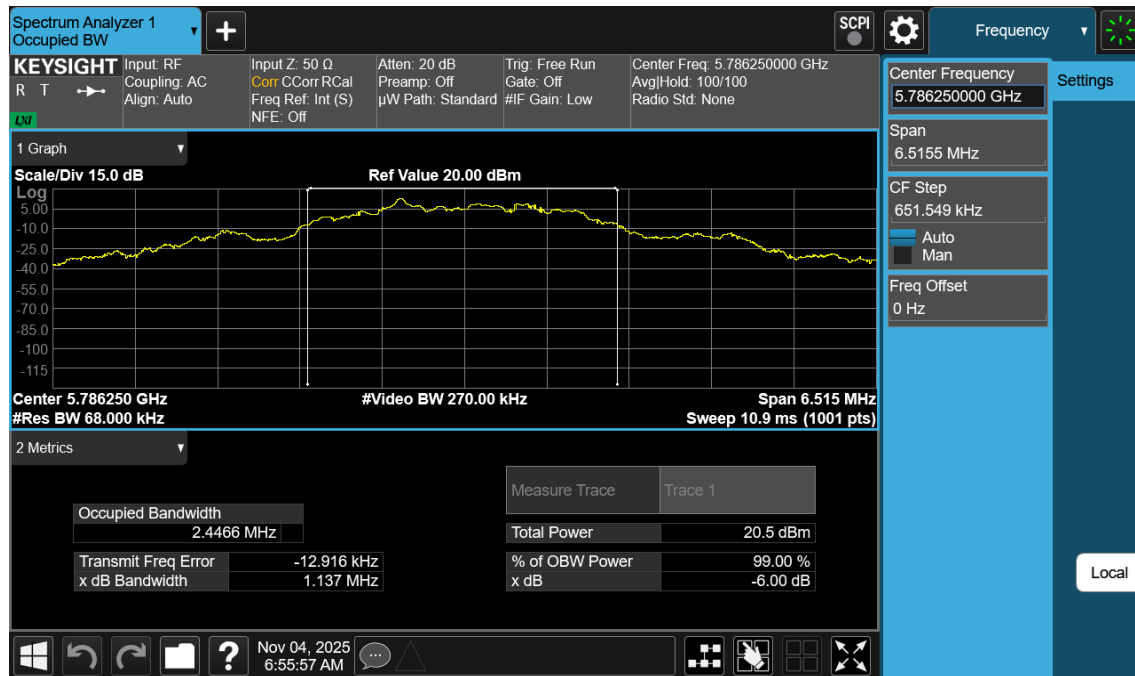


Plot 7-4. 99% OBW (O-QPSK, 5728.75MHz, 500kbps)

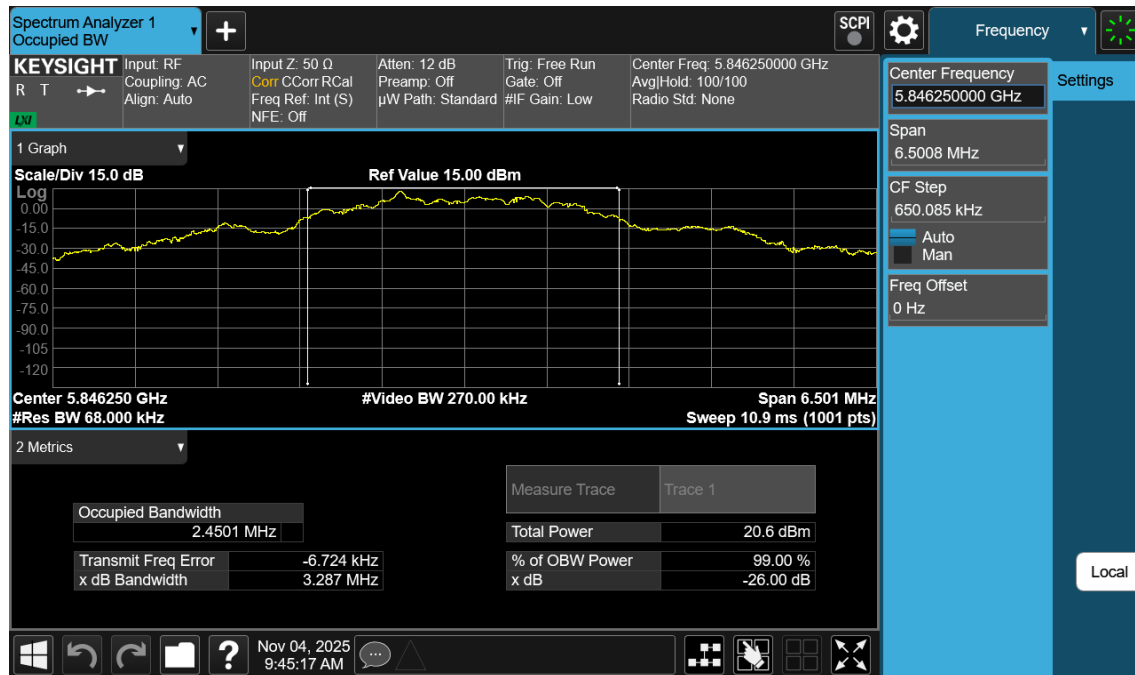
FCC ID: BCGA2937 IC: 579C-A2937	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 17 of 50

V 10.6 08/28/2023

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element Materials Technology. If you have any questions about this or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.

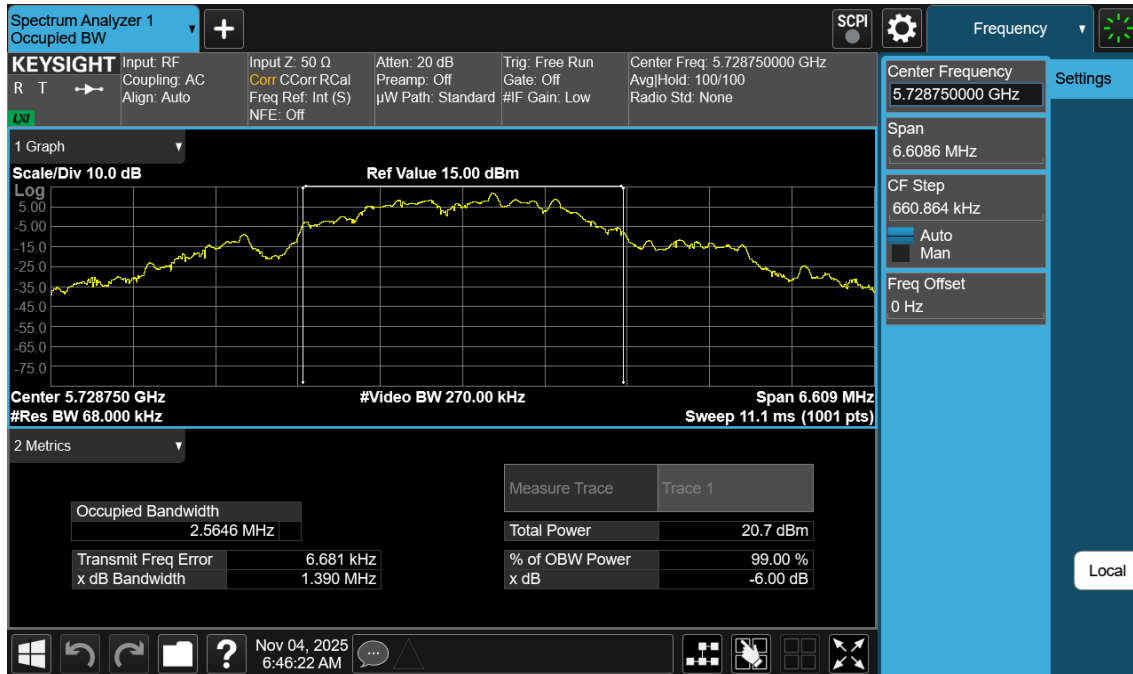


Plot 7-5. 99% OBW (O-QPSK, 5786.25MHz, 500kbps)

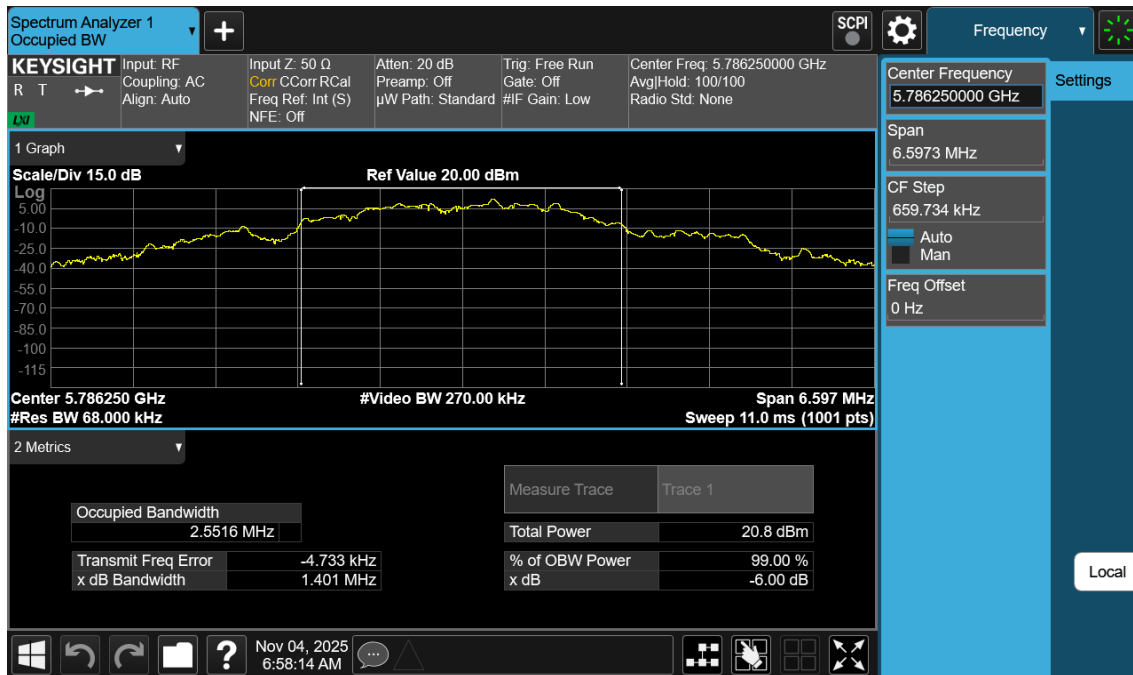


Plot 7-6. 99% OBW (O-QPSK, 5846.25MHz, 500kbps)

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 18 of 50

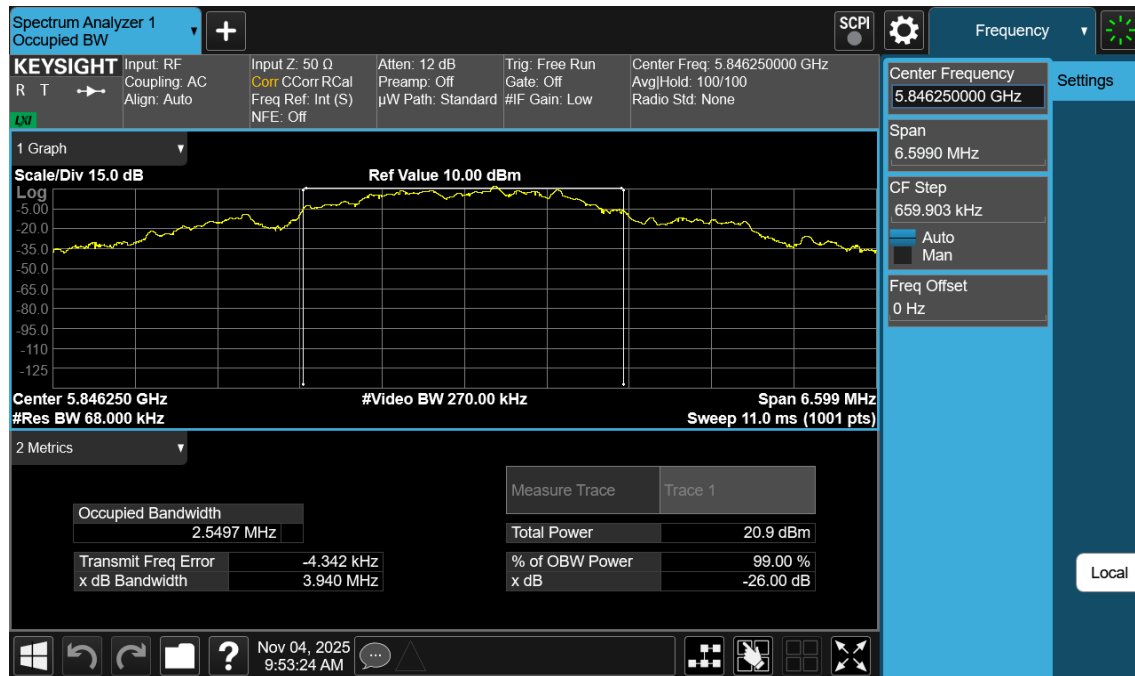


Plot 7-7. 99% OBW (O-QPSK, 5728.75MHz, 1000kbps)



Plot 7-8. 99% OBW (O-QPSK, 5786.25MHz, 1000kbps)

FCC ID: BCGA2937 IC: 579C-A2937	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 19 of 50



Plot 7-9. 99% OBW (O-QPSK, 5846.25MHz, 1000kbps)

FCC ID: BCGA2937 IC: 579C-A2937	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 20 of 50

V 10.6 08/28/2023

7.3 6dB Bandwidth Measurement – O-QPSK

§2.1049; §15.407 (e); RSS-Gen [6.7]; RSS-Gen [7.3.4.2]

Test Overview and Limit

The bandwidth at 6dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024 and KDB 789033 D02 v02r01, and at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 6dB bandwidth.

In the 5.725 – 5.850GHz band, the 6dB bandwidth must be ≥ 500 kHz.

Test Procedure Used

ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024 – Section 12.5.1
KDB 789033 D02 v02r01 – Section C

Test Settings

1. The signal analyzers' automatic bandwidth measurement capability of the spectrum analyzer was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to $X = 6$. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. RBW = 100kHz
3. VBW $\geq 3 \times$ RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-2. Test Instrument & Measurement Setup

Test Notes

None.

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 21 of 50

V 10.6 08/28/2023

6dB Bandwidth Measurements

Frequency [MHz]	Channel No.	Mode	Data Rate [kbps]	Measured 6dB Bandwidth [MHz]	Minimum 6dB Bandwidth [MHz]	Pass / Fail
5728.75	1	O-QPSK	250	1.63	0.50	Pass
5786.25	24	O-QPSK	250	1.63	0.50	Pass
5846.25	48	O-QPSK	250	1.62	0.50	Pass

Table 7-5. Conducted BW Measurements (250kbps)

Frequency [MHz]	Channel No.	Mode	Data Rate [kbps]	Measured 6dB Bandwidth [MHz]	Minimum 6dB Bandwidth [MHz]	Pass / Fail
5728.75	1	O-QPSK	500	1.29	0.50	Pass
5786.25	24	O-QPSK	500	1.29	0.50	Pass
5846.25	48	O-QPSK	500	1.30	0.50	Pass

Table 7-6. Conducted BW Measurements (500kbps)

Frequency [MHz]	Channel No.	Mode	Data Rate [kbps]	Measured 6dB Bandwidth [MHz]	Minimum 6dB Bandwidth [MHz]	Pass / Fail
5728.75	1	O-QPSK	1000	1.61	0.50	Pass
5786.25	24	O-QPSK	1000	1.61	0.50	Pass
5846.25	48	O-QPSK	1000	1.61	0.50	Pass

Table 7-7. Conducted BW Measurements (1000kbps)

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 22 of 50

V 10.6 08/28/2023



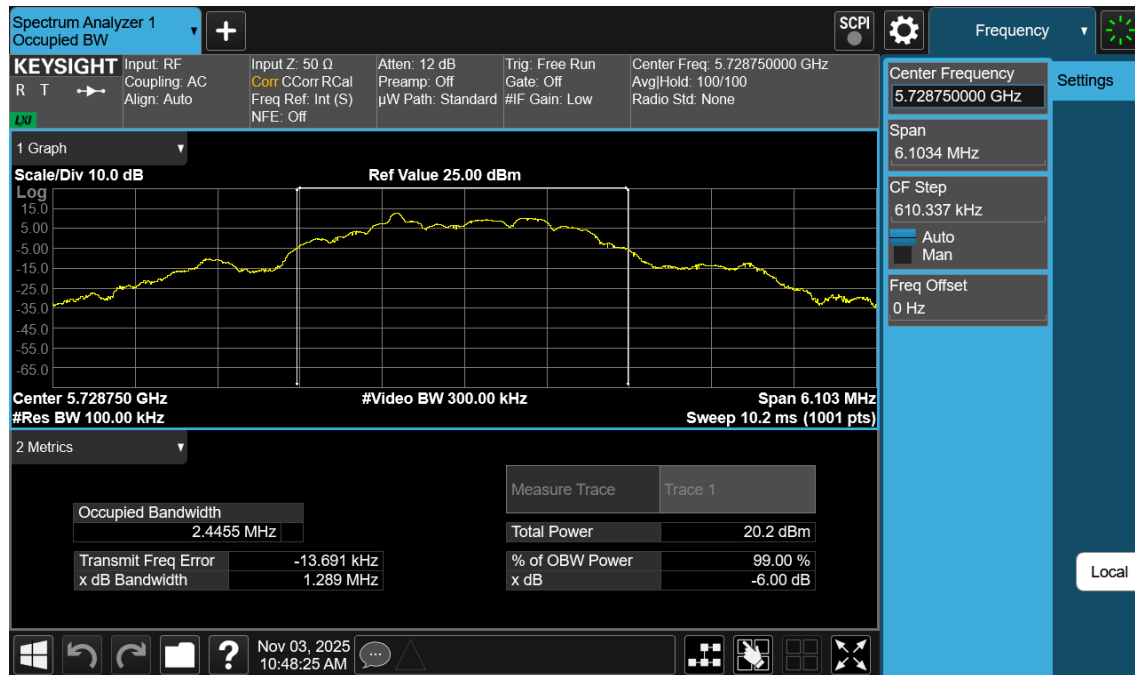
FCC ID: BCGA2937 IC: 579C-A2937	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 23 of 50

V 10.6 08/28/2023

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element Materials Technology. If you have any questions about this or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.



Plot 7-12. 6dB BW OBW (O-QPSK, 5846.25MHz, 250kbps)



Plot 7-13. 6dB BW OBW (O-QPSK, 5728.75MHz, 500kbps)

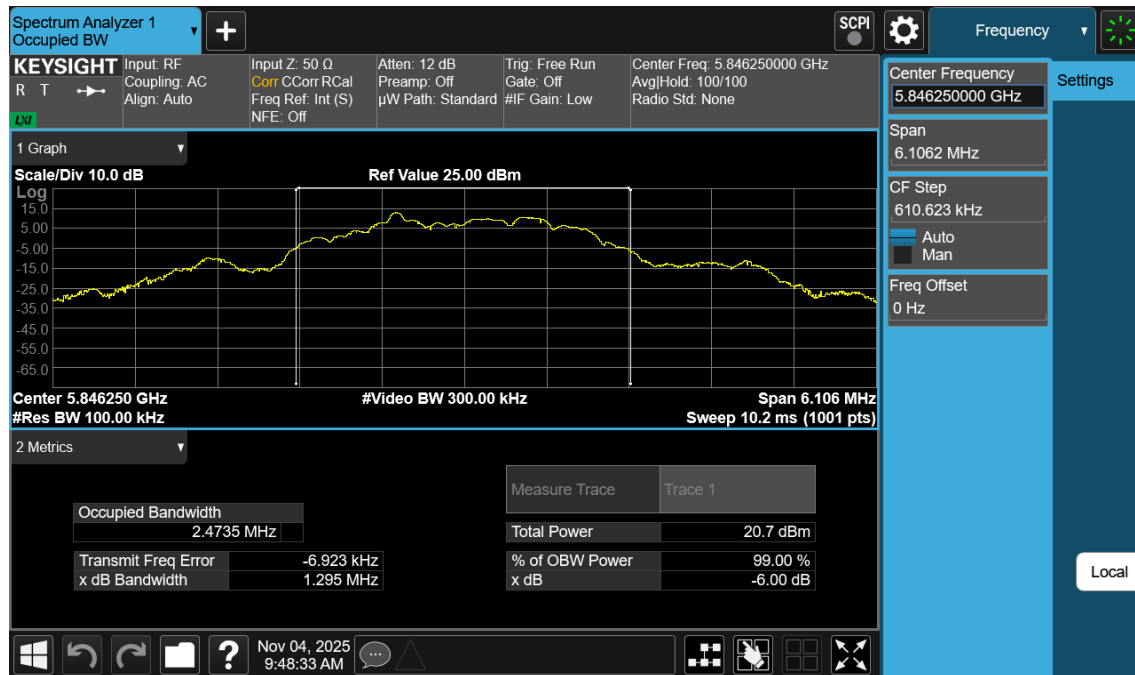
FCC ID: BCGA2937 IC: 579C-A2937	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 24 of 50

V 10.6 08/28/2023

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element Materials Technology. If you have any questions about this or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.



Plot 7-14. 6dB BW OBW (O-QPSK, 5786.25MHz, 500kbps)



Plot 7-15. 6dB BW OBW (O-QPSK, 5846.25MHz, 500kbps)

FCC ID: BCGA2937 IC: 579C-A2937	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 25 of 50

V 10.6 08/28/2023

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element Materials Technology. If you have any questions about this or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.



Plot 7-16. 6dB BW OBW (O-QPSK, 5728.75MHz, 1000kbps)



Plot 7-17. 6dB BW OBW (O-QPSK, 5786.25MHz, 1000kbps)

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 26 of 50

V 10.6 08/28/2023

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element Materials Technology. If you have any questions about this or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.



Plot 7-18. 6dB BW OBW (O-QPSK, 5846.25MHz, 1000kbps)

FCC ID: BCGA2937 IC: 579C-A2937	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 27 of 50

V 10.6 08/28/2023

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element Materials Technology. If you have any questions about this or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.

7.4 Conducted Output Power Measurement – O-QPSK

§15.407(a.3.i); RSS-247 [7.3.4.3(a)]

Test Overview and Limits

A transmitter antenna terminal of the EUT is connected to the input of an RF pulse power sensor. Measurement is made using a broadband average power meter while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024 and KDB 789033 D02 v02r01, and at the appropriate frequencies. B is the 26dB BW per FCC 15.407.

In the 5.725 – 5.850GHz band, the maximum permissible conducted output power is 1W (30dBm).

Test Procedure Used

ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024 – Section 12.4.3.2 Method PM-G
KDB 789033 D02 v02r01 – Section E)3)b) Method PM-G

Test Settings

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-3. Test Instrument & Measurement Setup

Test Notes

None

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 28 of 50

V 10.6 08/28/2023

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element Materials Technology. If you have any questions about this or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.

FCC/ISED Conducted Output Power Measurements

Frequency [MHz]	Channel No.	Detector	Conducted Powers [dBm]			Conducted Power Limit [dBm]	Conducted Power Margin [dB]
			250kbps	500kbps	1000kbps		
5728.75	1	AVG	15.89	15.85	15.81	30.00	-14.11
5786.25	24	AVG	15.82	15.84	15.83	30.00	-14.16
5846.25	49	AVG	15.90	15.83	15.86	30.00	-14.10

Table 7-8. Maximum Conducted Output Power

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 29 of 50

V 10.6 08/28/2023

7.5 Maximum Power Spectral Density – O-QPSK

§15.407(a.3.i); RSS-247 [7.3.4.3(b)]

Test Overview and Limit

The spectrum analyzer was connected to the antenna terminal while the EUT was operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024 and KDB 789033 D02 v02r01, and at the appropriate frequencies. Method SA-1, as defined in ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024 and KDB 789033 D02 v02r01, was used to measure the power spectral density.

In the 5.725 – 5.850GHz band, the maximum permissible power spectral density is 30dBm/500kHz.

Test Procedure Used

ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024 – Section 12.4.2.2
KDB 789033 D02 v02r01 – Section F

Test Settings

1. Analyzer was set to the center frequency of the UNII channel under investigation
2. Span was set to encompass the entire emission bandwidth of the signal
3. RBW = 500kHz
4. VBW $\geq$ 3MHz
5. Number of sweep points $\geq 2 \times (\text{span}/\text{RBW})$
6. Sweep time = auto
7. Detector = power averaging (RMS)
8. Trigger was set to free run for all modes
9. Trace was averaged over 100 sweeps
10. The peak search function of the spectrum analyzer was used to find the peak of the spectrum.

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Figure 7-4. Test Instrument & Measurement Setup

Test Notes

None.

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 30 of 50

V 10.6 08/28/2023

Power Spectral Density Measurements

Frequency [MHz]	Channel No.	Mode	Data Rate [kbps]	Measured Power Density [dBm/500kHz]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
5728.75	1	O-QPSK	250	11.39	30.00	-18.61
5786.25	24	O-QPSK	250	10.59	30.00	-19.41
5846.25	48	O-QPSK	250	11.38	30.00	-18.62

Table 7-9. Power Spectral Density Measurements (250kbps)

Frequency [MHz]	Channel No.	Mode	Data Rate [kbps]	Measured Power Density [dBm/500kHz]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
5728.75	1	O-QPSK	500	12.97	30.00	-17.03
5786.25	24	O-QPSK	500	12.77	30.00	-17.23
5846.25	48	O-QPSK	500	12.86	30.00	-17.14

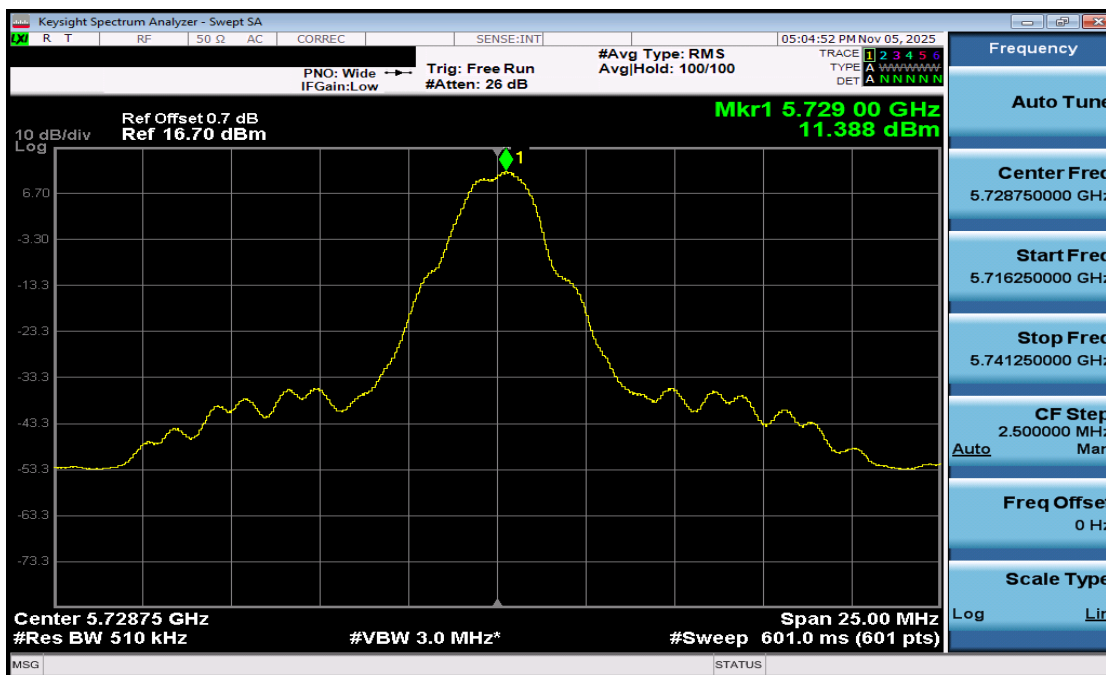
Table 7-10. Power Spectral Density Measurements (500kbps)

Frequency [MHz]	Channel No.	Mode	Data Rate [kbps]	Measured Power Density [dBm/500kHz]	Max Permissible Power Density [dBm/500kHz]	Margin [dB]
5728.75	1	O-QPSK	1000	12.64	30.00	-17.36
5786.25	24	O-QPSK	1000	12.52	30.00	-17.48
5846.25	48	O-QPSK	1000	12.24	30.00	-17.77

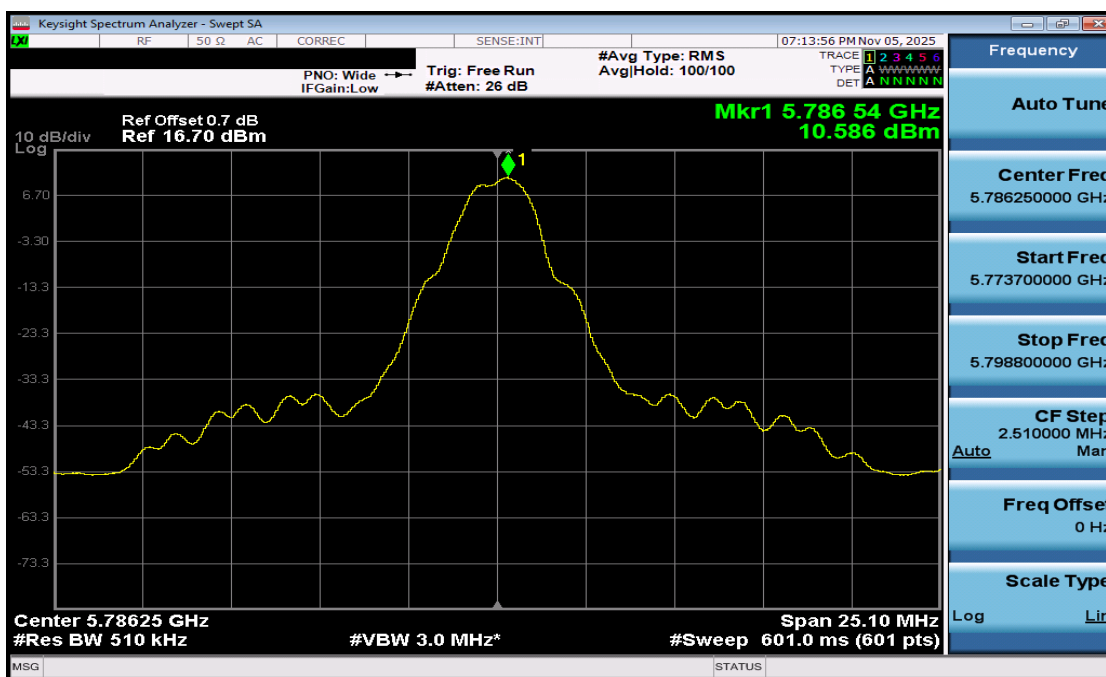
Table 7-11. Power Spectral Density Measurements (1000kbps)

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 31 of 50

V 10.6 08/28/2023



Plot 7-19. PSD (O-QPSK, 5728.75MHz, 250kbps)

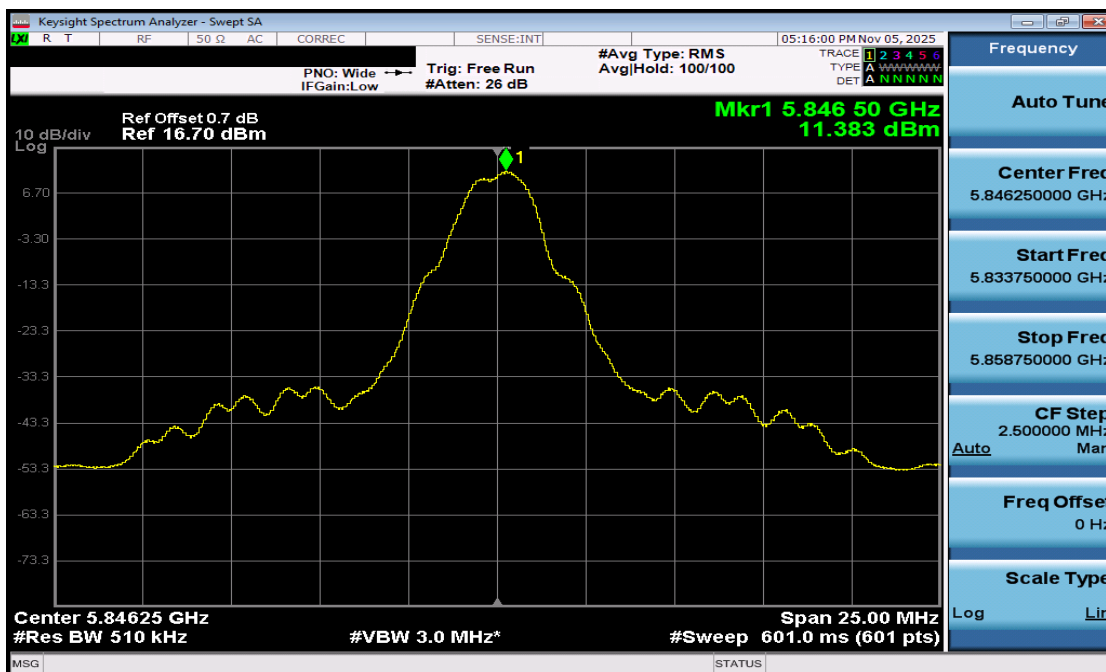


Plot 7-20. PSD (O-QPSK, 5786.25MHz, 250kbps)

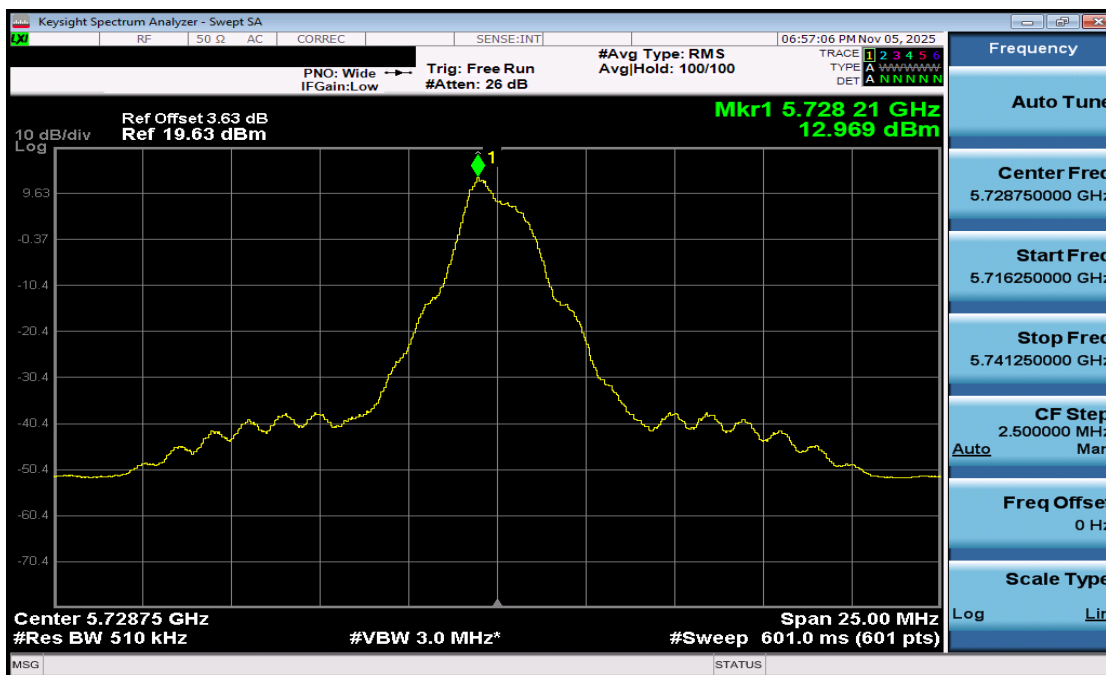
FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 32 of 50

V 10.6 08/28/2023

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element Materials Technology. If you have any questions about this or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.



Plot 7-21. PSD (O-QPSK, 5846.25MHz, 250kbps)

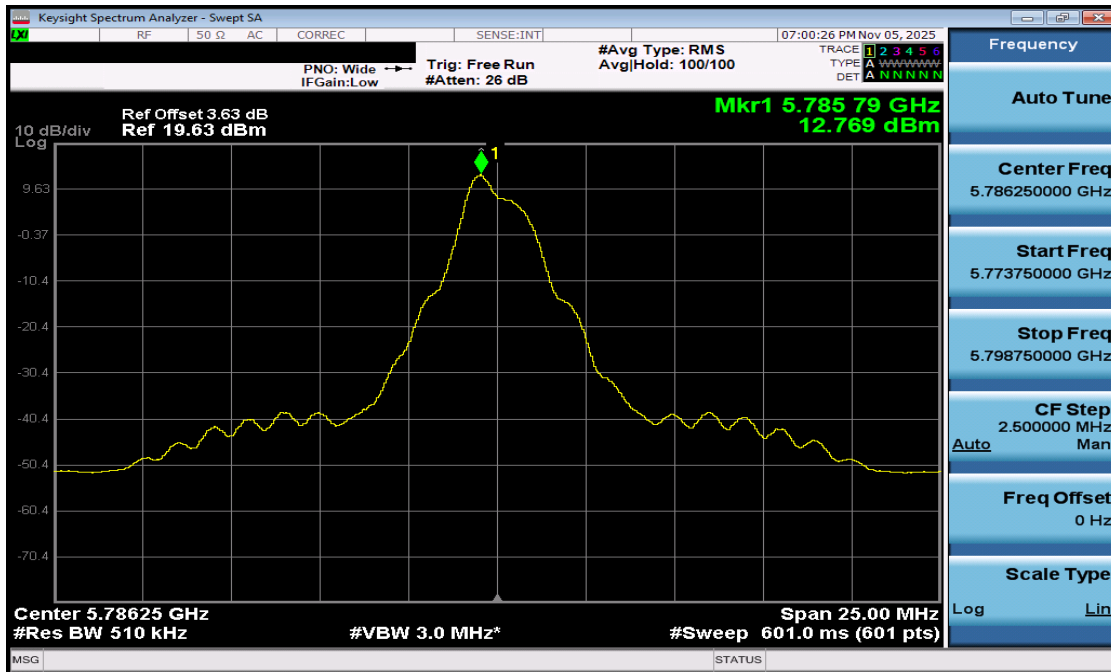


Plot 7-22. PSD (O-QPSK, 5728.75MHz, 500kbps)

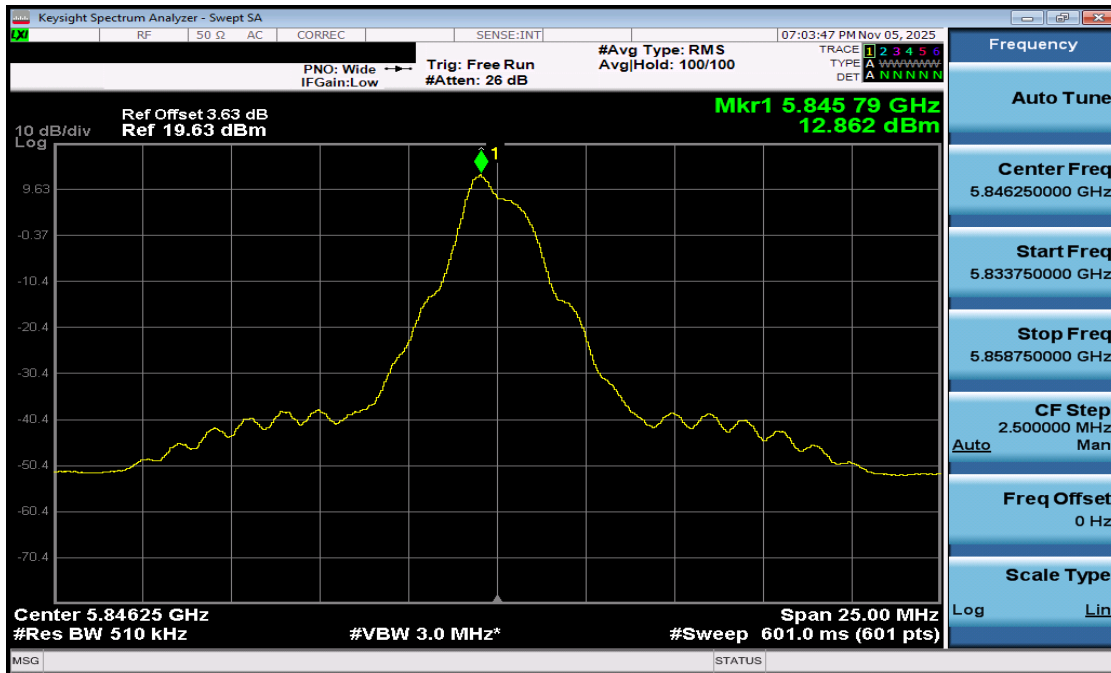
FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 33 of 50

V 10.6 08/28/2023

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element Materials Technology. If you have any questions about this or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.



Plot 7-23. PSD (O-QPSK, 5786.25MHz, 500kbps)

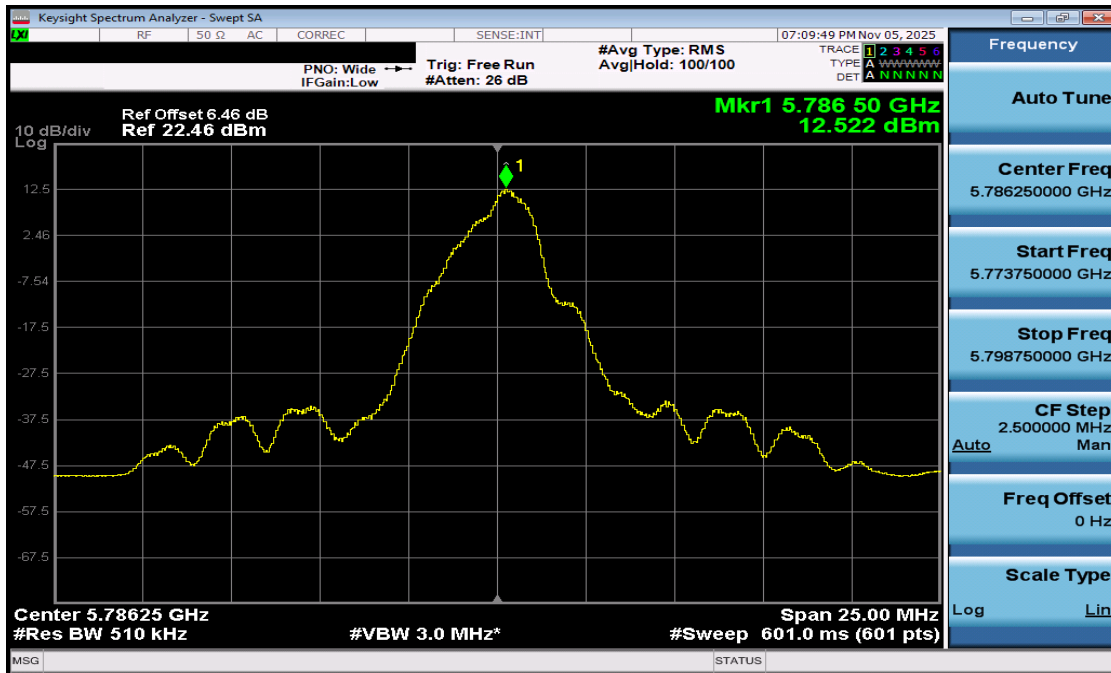


Plot 7-24. PSD (O-QPSK, 5846.25MHz, 500kbps)

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 34 of 50

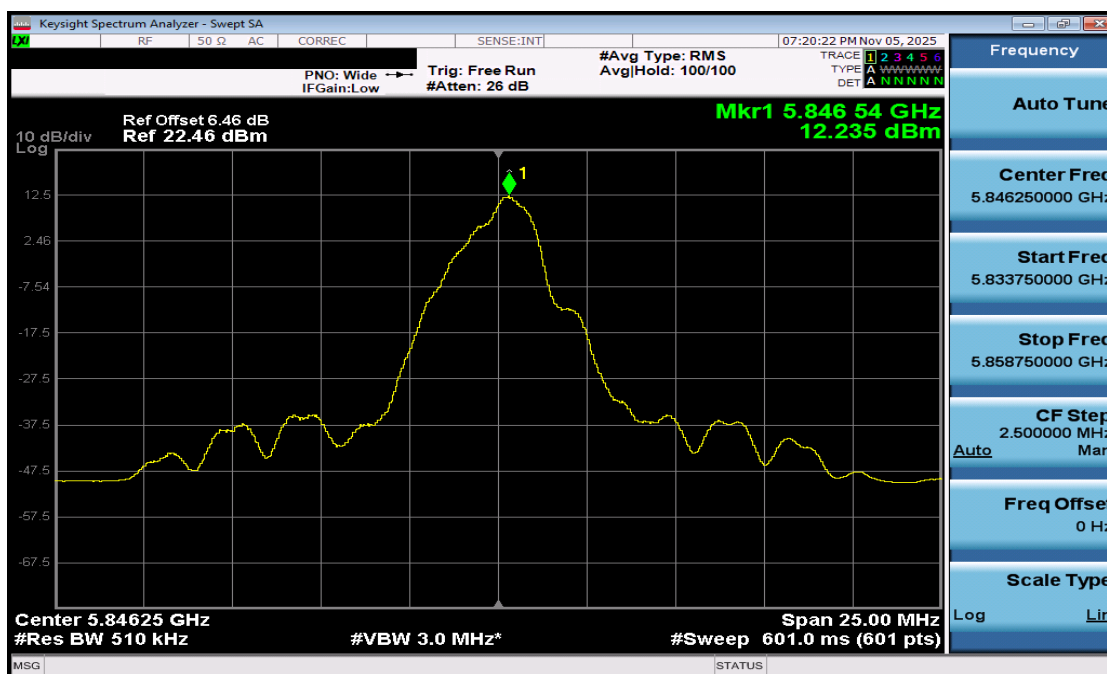


Plot 7-25. PSD (O-QPSK, 5728.75MHz, 1000kbps)



Plot 7-26. PSD (O-QPSK, 5786.25MHz, 1000kbps)

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 35 of 50



Plot 7-27. PSD (O-QPSK, 5846.25MHz, 1000kbps)

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 36 of 50

V 10.6 08/28/2023

7.6 Radiated Spurious Emission – Above 1GHz

§15.407(b.4) §15.205 §15.209; RSS-Gen [8.9]; RSS-247 [7.3.4.4]

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at its maximum power control level, as defined in ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024 and KDB 789033 D02 v02r01, and at the appropriate frequencies. All channels were investigated among all UNII bands. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

For transmitters operating in the 5.725 – 5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table 7-12 per Section 15.209.

Frequency	Field Strength [μ V/m]	Measured Distance [Meters]
Above 960.0 MHz	500	3

Table 7-12. Radiated Limits

Test Procedures Used

ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024 – Sections 12.7.7, 12.7.6
KDB 789033 D02 v02r01 – Section G

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 37 of 50

V 10.6 08/28/2023

Test Settings

Average Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = power average (RMS)
5. Number of measurement points = 1001 (Number of points must be $\geq 2 \times \text{span/RBW}$)
6. Averaging type = power (RMS)
7. Sweep time = auto couple
8. Trace was averaged over 100 sweeps

Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

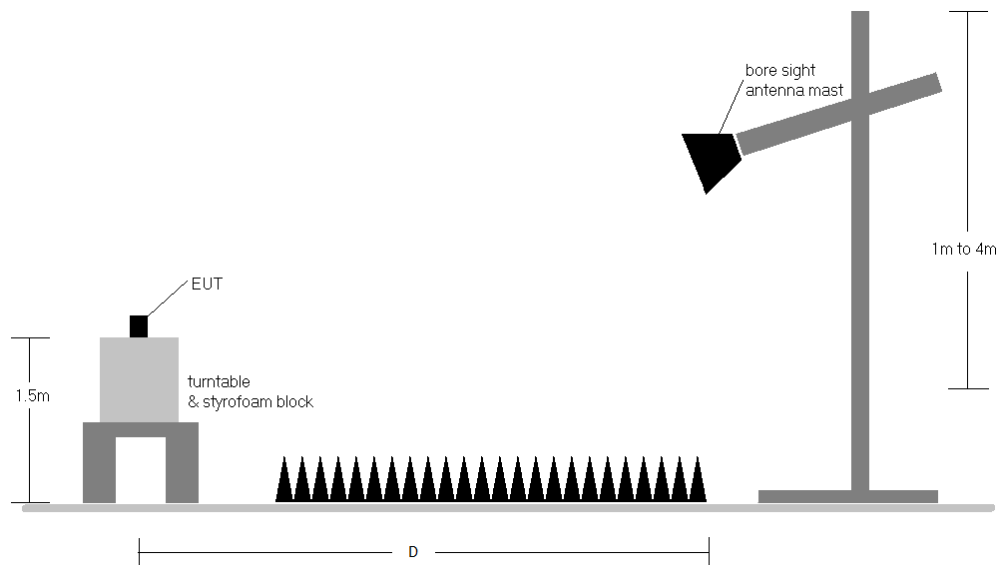


Figure 7-5. Test Instrument & Measurement Setup

FCC ID: BCGA2937 IC: 579C-A2937	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 38 of 50

V 10.6 08/28/2023

Test Notes

1. All emissions that lie in the restricted bands (denoted by a * next to the frequency) specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-12.
2. All spurious emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-12. All spurious emissions that do not lie in a restricted band are subject to a peak limit of -27dBm/MHz. At a distance of 3 meters, the field strength limit in dB μ V/m can be determined by adding a "conversion" factor of 95.2dB to the EIRP limit of -27dBm/MHz to obtain the limit for out of band spurious emissions of 68.2dB μ V/m.
3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
4. This unit was tested with a disposable battery.
5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas.
6. D is the measurement test distance and emissions 1-18GHz were measured at a 3 meters test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
7. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

Sample Calculations

Determining Spurious Emissions Levels

- Field Strength Level [dB μ V/m] = Analyzer Level [dBm] + 107 + AFCL [dB/m]
- AFCL [dB/m] = Antenna Factor [dB/m] + Cable Loss [dB] – Preamplifier Gain [dB]
- Margin [dB] = Field Strength Level [dB μ V/m] – Limit [dB μ V/m]

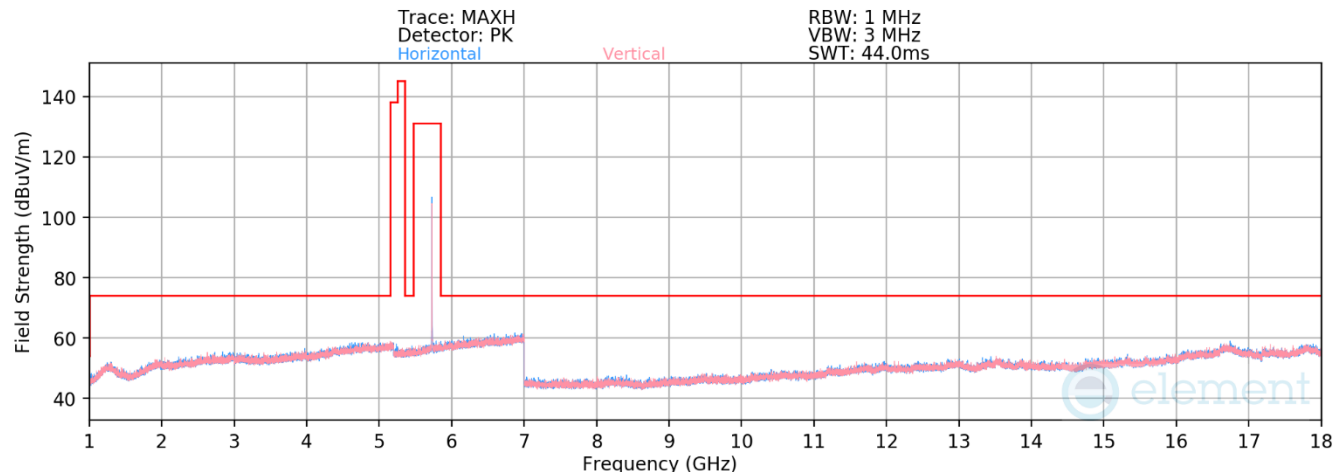
Radiated Band Edge Measurement Offset

- The amplitude offset shown in the radiated restricted band edge plots in Section 7.6.2 was calculated using the formula:
Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 39 of 50

V 10.6 08/28/2023

7.6.1 Radiated Spurious Emission (1-40GHz)



Plot 7-28. Radiated Spurious Emissions 1-18GHz (O-QPSK – 5728.75MHz)

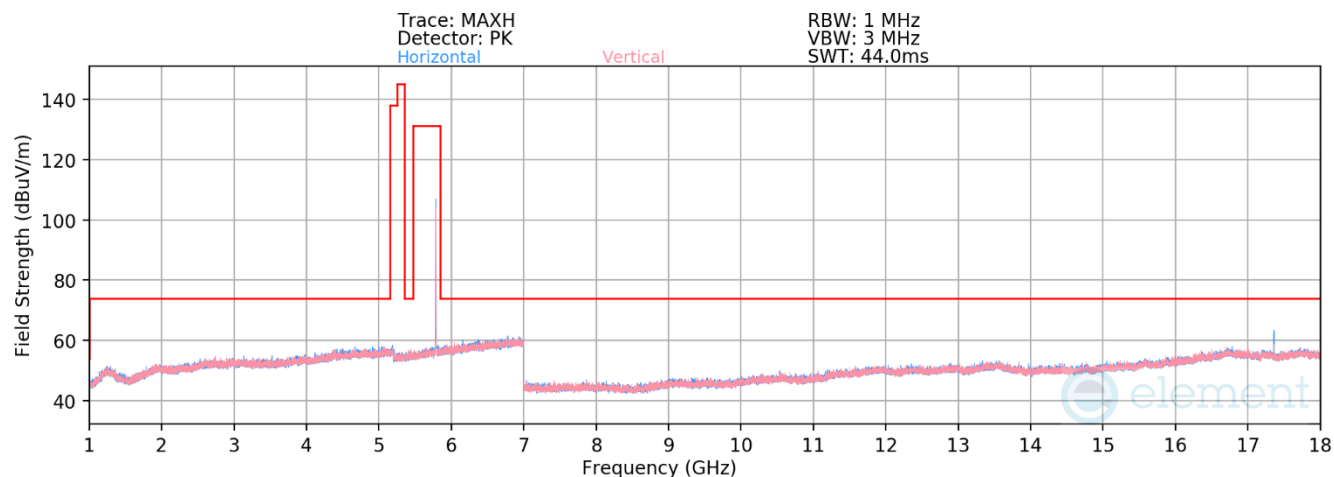
Mode:	O-QPSK
Data Rate:	250kbps
Distance of Measurements:	3 Meters
Operating Frequency:	5728.75MHz
Channel:	1

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBuV/m]	Limit [dBuV/m]	Margin [dB]
* 11457.50	Average	H	-	-	-82.56	16.11	40.55	53.98	-13.43
* 11457.50	Peak	H	-	-	-71.54	16.11	51.57	73.98	-22.41
17186.25	Peak	H	104	345	-65.63	23.98	65.35	68.23	-2.88

Table 7-13. Radiated Spurious Emissions Measurements

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 40 of 50

V 10.6 08/28/2023



Plot 7-29. Radiated Spurious Emissions 1-18GHz (O-QPSK – 5786.25MHz)

Mode: O-QPSK

Data Rate: 250kbps

Distance of Measurements: 3 Meters

Operating Frequency: 5786.25MHz

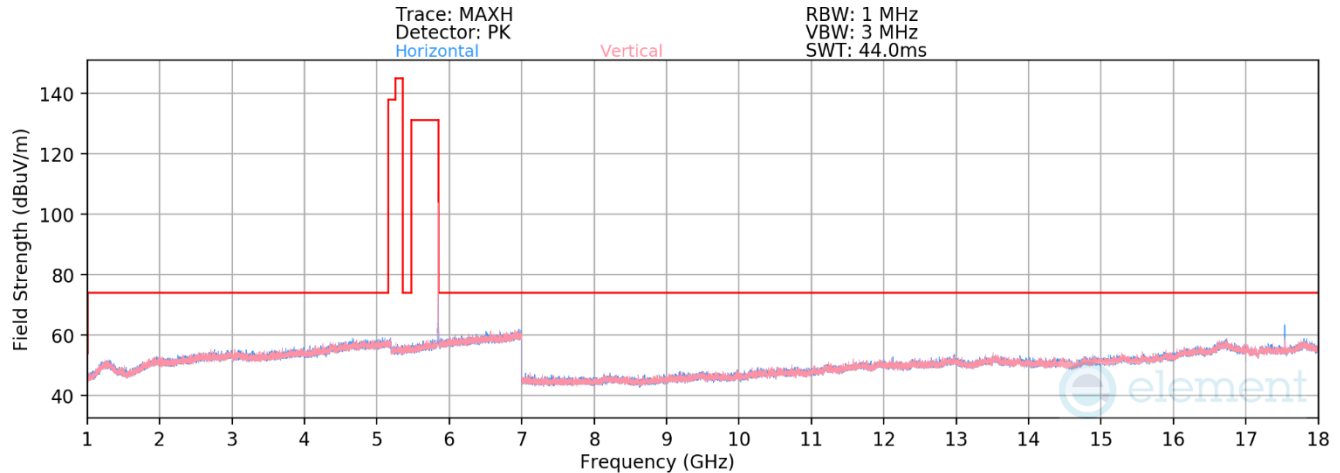
Channel: 24

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
* 11572.50	Average	H	-	-	-82.96	16.74	40.78	53.98	-13.20
* 11572.50	Peak	H	-	-	-71.69	16.74	52.05	73.98	-21.93
17358.75	Peak	H	104	342	-63.51	23.50	66.99	68.23	-1.24

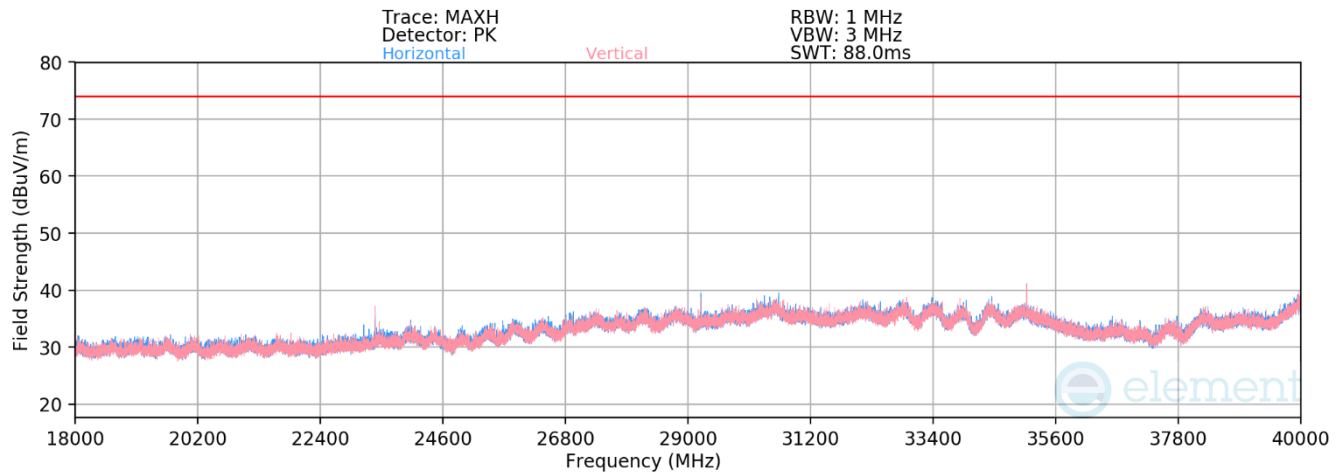
Table 7-14. Radiated Spurious Emissions Measurements

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag		Page 41 of 50

V 10.6 08/28/2023



Plot 7-30. Radiated Spurious Emissions 1-18GHz (O-QPSK – 5846.25MHz)



Plot 7-31. Radiated Spurious Emissions 18-40GHz (O-QPSK – 5846.25MHz)

Mode: O-QPSK

Data Rate: 250kbps

Distance of Measurements: 3 Meters

Operating Frequency: 5846.25MHz

Channel: 48

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Distance Correction Factor [dB]	Field Strength [dBuV/m]	Limit [dBuV/m]	Margin [dB]
* 11692.50	Average	H	-	-	-82.16	16.30	0.00	41.14	53.98	-12.84
* 11692.50	Peak	H	-	-	-71.26	16.30	0.00	52.04	73.98	-21.94
17538.75	Peak	H	104	348	-65.65	25.06	0.00	66.41	68.23	-1.82
23385.00	Peak	V	229	165	-44.65	-6.79	-9.54	46.02	68.23	-22.21
29231.25	Peak	V	9	189	-46.31	-4.08	-9.54	47.07	68.23	-21.16
35077.50	Peak	H	329	177	-44.12	-4.43	-9.54	48.91	68.23	-19.32

Table 7-15. Radiated Spurious Emissions Measurements

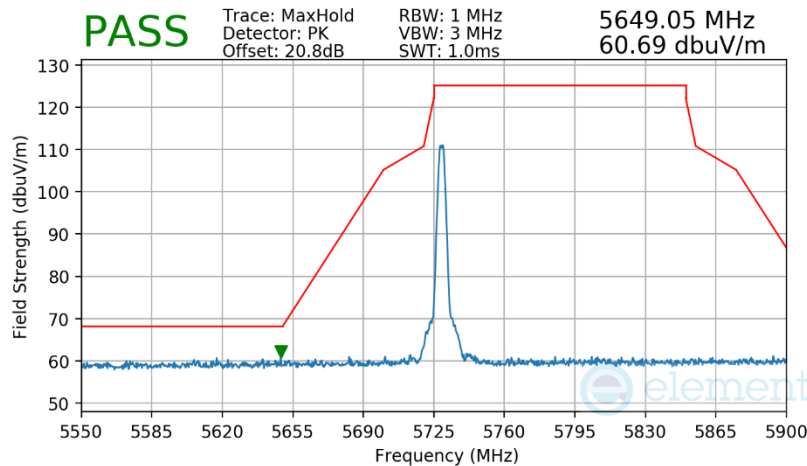
FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 42 of 50

V 10.6 08/28/2023

7.6.2 Radiated Band Edge Measurements

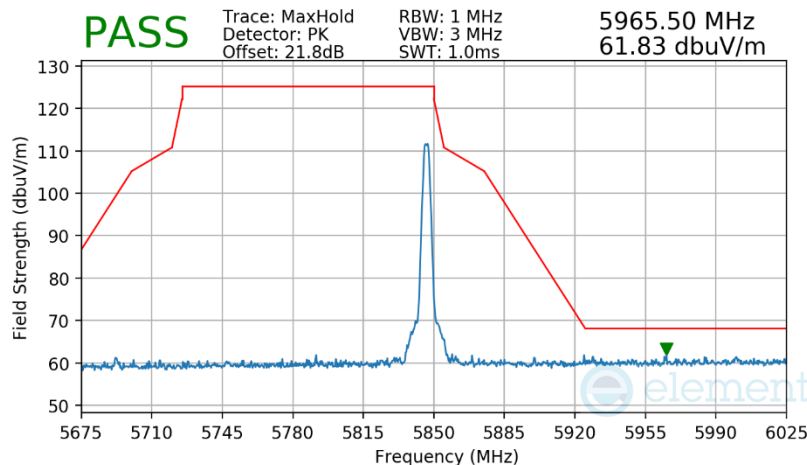
§15.407(b.1) §15.205 §15.209; RSS-Gen [8.9]

Mode: O-QPSK
 Data Rate: 250kbps
 Measurement Distance: 3 Meters
 Operating Frequency: 5728.75MHz



Plot 7-32. Radiated Lower Band Edge Measurement

Mode: O-QPSK
 Data Rate: 250kbps
 Measurement Distance: 3 Meters
 Operating Frequency: 5846.25MHz

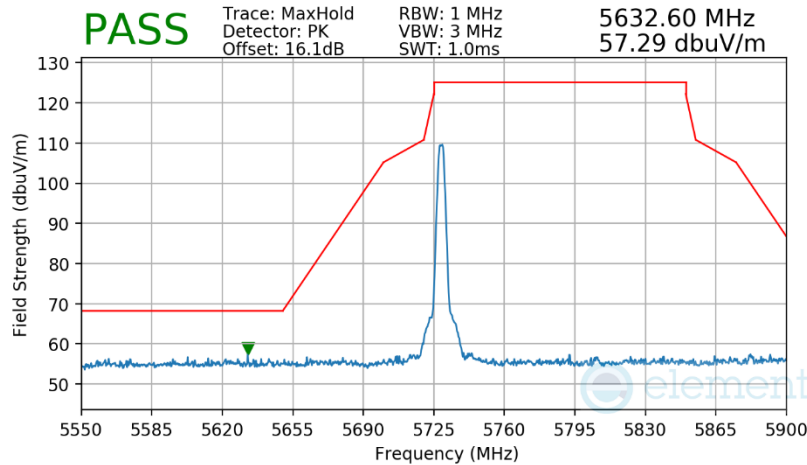


Plot 7-33. Radiated Upper Band Edge Measurement

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 43 of 50

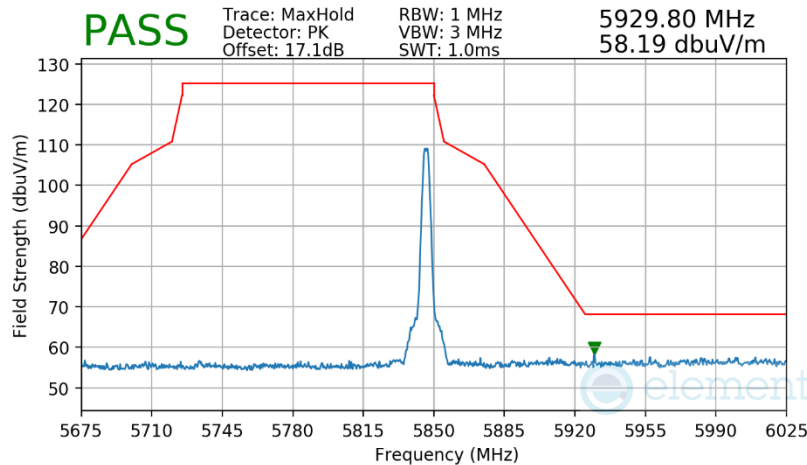
V 10.6 08/28/2023

Mode: O-QPSK
 Data Rate: 500kbps
 Measurement Distance: 3 Meters
 Operating Frequency: 5728.75MHz



Plot 7-34. Radiated Lower Band Edge Measurement

Mode: O-QPSK
 Data Rate: 500kbps
 Measurement Distance: 3 Meters
 Operating Frequency: 5846.25MHz

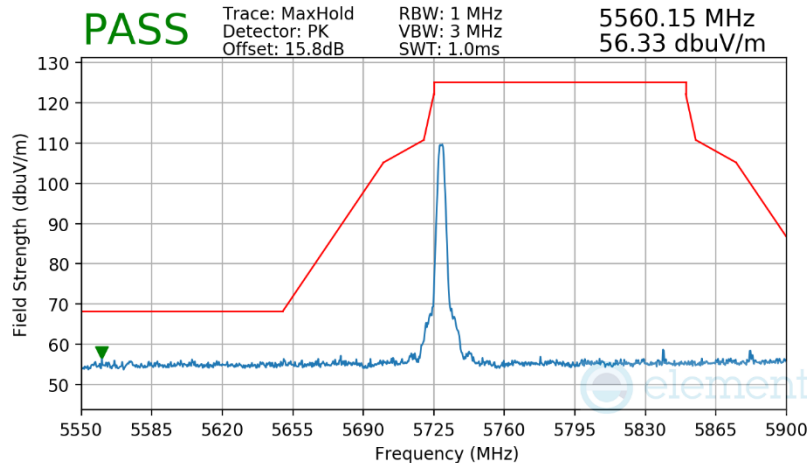


Plot 7-35. Radiated Upper Band Edge Measurement

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 44 of 50

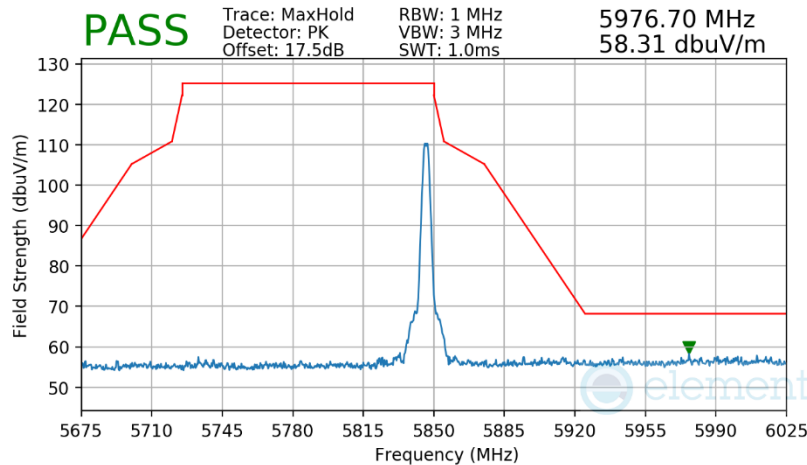
V 10.6 08/28/2023

Mode: O-QPSK
 Data Rate: 1000kbps
 Measurement Distance: 3 Meters
 Operating Frequency: 5728.75MHz



Plot 7-36. Radiated Lower Band Edge Measurement

Mode: O-QPSK
 Data Rate: 1000kbps
 Measurement Distance: 3 Meters
 Operating Frequency: 5846.25MHz



Plot 7-37. Radiated Upper Band Edge Measurement

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 45 of 50

V 10.6 08/28/2023

7.7 Radiated Spurious Emissions – Below 1GHz

§15.209; RSS-Gen [8.9]

Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates and modes were investigated for radiated spurious emissions. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Table 7-16 per Section 15.209.

Frequency	Field Strength [$\mu\text{V/m}$]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table 7-16. Radiated Limits

Test Procedures Used

ANSI C63.10:2020 + Cor. 1:2023 + C63.10a:2024 + Errata to C63.10a:2024

Test Settings

Quasi-Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 120kHz (for emissions from 30MHz – 1GHz)
3. Detector = quasi-peak
4. Sweep time = auto couple
5. Trace mode = max hold
6. Trace was allowed to stabilize

Peak Field Strength Measurements

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 120kHz (for emissions from 30MHz – 1GHz)
3. VBW = 300kHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 46 of 50

V 10.6 08/28/2023

Test Setup

The EUT and measurement equipment were set up as shown in the diagrams below.

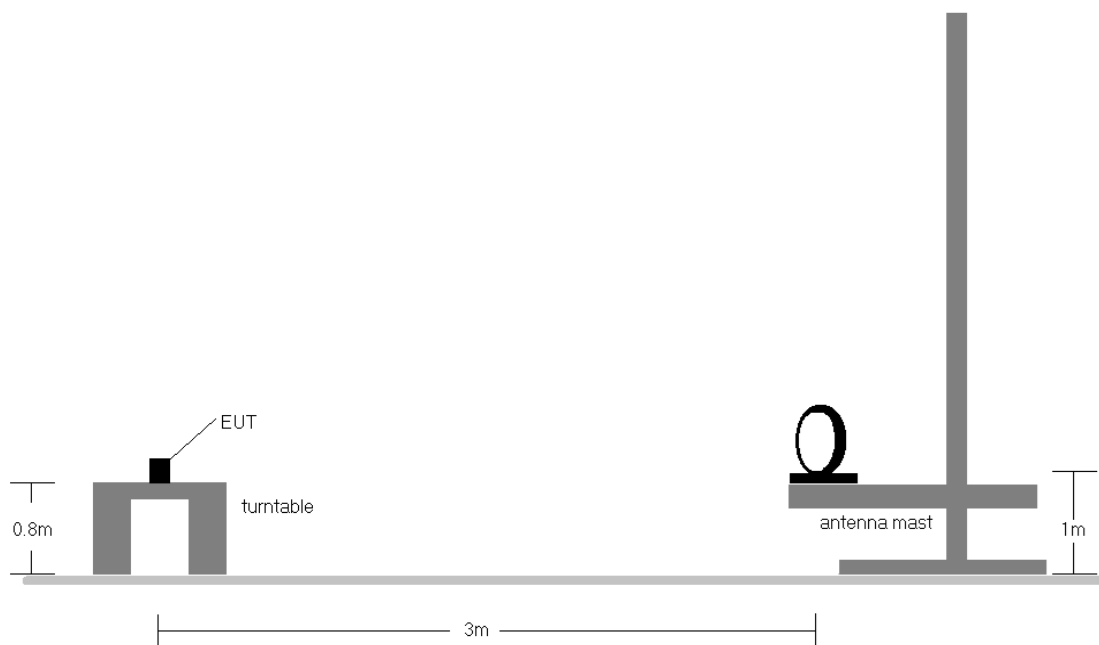


Figure 7-6. Radiated Test Setup < 30MHz

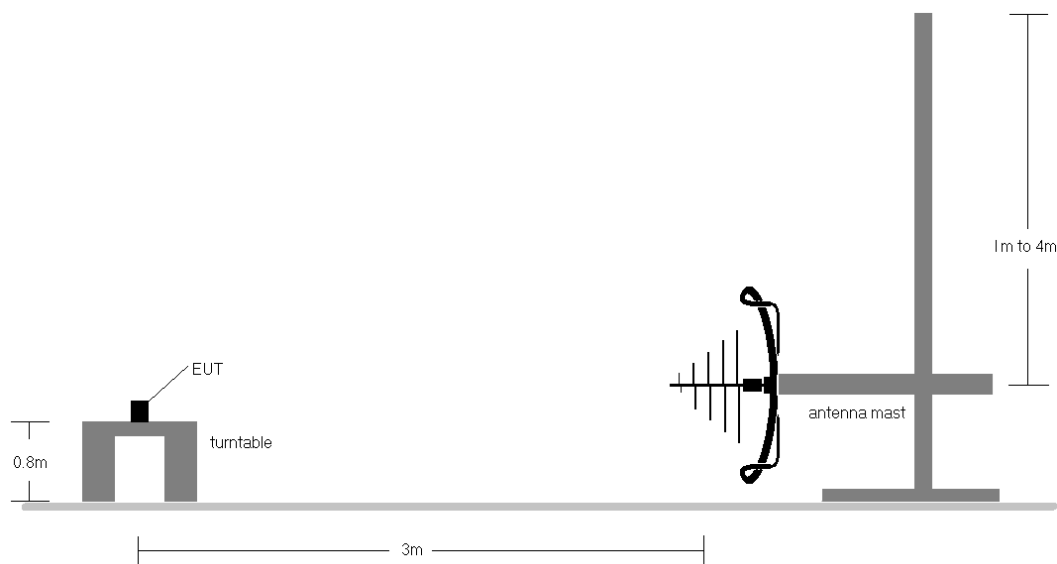


Figure 7-7. Radiated Test Setup < 1GHz

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 47 of 50

V 10.6 08/28/2023

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element Materials Technology. If you have any questions about this or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.

Test Notes

1. All emissions lying in restricted bands specified in §15.205 are below the limit shown in Table 7-16.
2. The broadband receive antenna is manipulated through vertical and horizontal polarizations during the tests. The EUT is manipulated through three orthogonal planes. For below 30MHz the loop antenna was positioned in 3 orthogonal planes (X front, Y side, Z top) to determine the orientation resulting in the worst case emissions.
3. This unit was tested with a disposable battery.
4. The spectrum is investigated using a peak detector and final measurements are recorded using CISPR quasi peak detector for emissions within 6dB of the limit.
5. Emissions were measured at a 3 meter test distance.
6. Emissions are investigated while operating on the center channel of the mode, band, and modulation that produced the worst case results during the transmitter spurious emissions testing.
7. No spurious emissions were detected within 20dB of the limit below 30MHz.
8. The results recorded using the broadband antenna is known to correlate with the results obtained by using a tuned dipole with an acceptable degree of accuracy. The VSWR for the measurement antenna was found to be less than 2:1.
9. Only the worst case emissions were reported in this test report.
10. Both configurations below were investigated, and the worst case has been reported.
 - a. EUT powered by a disposable battery.

Sample Calculations

Determining Spurious Emissions Levels

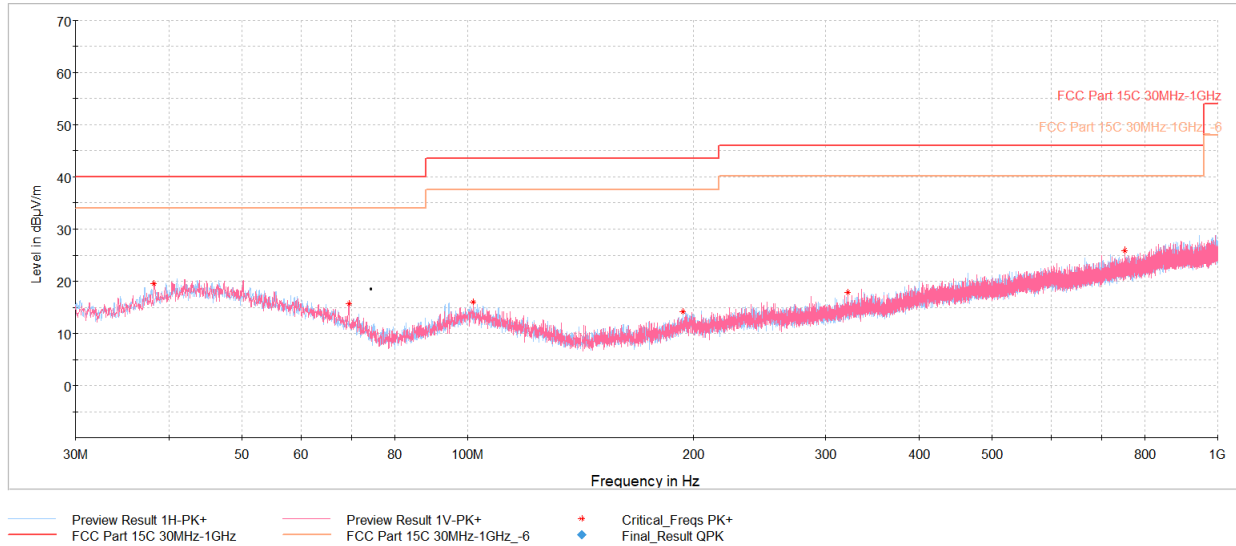
- Field Strength Level $_{[dB_{\mu V/m}]}$ = Analyzer Level $_{[dBm]} + 107 + AFCL_{[dB/m]}$
- AFCL $_{[dB/m]}$ = Antenna Factor $_{[dB/m]} + Cable Loss_{[dB]} - Preamplifier Gain_{[dB]}$
- Margin $_{[dB]}$ = Field Strength Level $_{[dB_{\mu V/m}]}$ – Limit $_{[dB_{\mu V/m}]}$

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 48 of 50

V 10.6 08/28/2023

Radiated Spurious Emissions (Below 1GHz)

§15.209; RSS-Gen [8.9]



Plot 7-38. Radiated Spurious Emissions Below 1GHz (O-QPSK – 5846.25MHz), with disposable battery

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	Limit [dBμV/m]	Margin [dB]
38.20	Max Peak	V	100	52	-76.78	-10.68	19.54	40.00	-20.46
69.48	Max Peak	V	100	352	-75.74	-15.48	15.78	40.00	-24.22
101.78	Max Peak	V	100	280	-77.12	-13.75	16.13	43.52	-27.39
193.64	Max Peak	H	300	160	-78.22	-14.58	14.20	43.52	-29.32
321.29	Max Peak	V	300	220	-77.56	-11.49	17.95	46.02	-28.07
751.10	Max Peak	V	300	306	-77.97	-3.12	25.91	46.02	-20.11

Table 7-17. Radiated Spurious Emissions Below 1GHz (O-QPSK – 5846.25MHz), with disposable battery

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 49 of 50

V 10.6 08/28/2023

8.0 CONCLUSION

The data collected relate only the item(s) tested and show that the **Apple Location Tracking Tag FCC ID: BCGA2937, IC: 579C-A2937** is in compliance with is in compliance with Part 15 Subpart E (15.407) of the FCC Rules and RSS-247 of the Innovation, Science, and Economic Development Canada Rules.

FCC ID: BCGA2937 IC: 579C-A2937		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N: 1C2504170045-03-R5.BCG	Test Dates: 08/05/2025 - 12/09/2025	EUT Type: Location Tracking Tag	Page 50 of 50

V 10.6 08/28/2023

Unless otherwise specified, no part of this report may be reproduced or utilized in any part, form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from Element Materials Technology. If you have any questions about this or have an enquiry about obtaining additional rights to this report or assembly of contents thereof, please contact ct.info@element.com.