



BACtrack

Model Tested: BT-Z9 (BACtrack Z9 Pro)

**Related Family Model(s)*: BT-Z9-RM (BACtrack Z9 Remote Monitoring)
BT-Z9-EN (BACtrack Z9 Enforce)
(*See product description for details)**

FCC 15.247:2025

RSS-247 Issue 4:2025

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

Bluetooth Low Energy (DTS) Radio

Report: BACT0015.0 Rev. 01, Issue Date: February 9, 2026



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CERTIFICATE OF TEST

Last Date of Test: August 26, 2025

Model Tested: BT-Z9 (BACtrack Z9 Pro)
Related Family Model(s)*: BT-Z9-RM (BACtrack Z9 Remote Monitoring)
BT-Z9-EN (BACtrack Z9 Enforce)
 (*See product description for details)

Radio Equipment Testing

Standards

Specification	Method
FCC 15.247:2025	ANSI C63.10-2020 + Cor.1-2023
RSS-247 Issue 4:2025	ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024
RSS-Gen Issue 5:2018+A1:2019+A2:2021	

Guidance

FCC KDB 558074 v05r02:2019
Notice 2021 - CEB0001

Results

Test Description	Result	FCC Section(s)	RSS Section(s)	ANSI C63.10 Section(s)	Comments
Powerline Conducted Emissions	Pass	15.207	RSS-Gen 8.8	6.2	
Occupied Bandwidth (99%)	Pass	KDB 558074 -2.1	RSS-Gen 6.7	6.9.3	
Duty Cycle	Pass	KDB 558074 -6.0	RSS-Gen 3.2	11.6	
DTS Bandwidth (6 dB)	Pass	15.247(a)(2), KDB 558074 -8.2	RSS-247 5.2(a)	11.8.2	
Output Power	Pass	15.247(b)(3), KDB 558074 -8.3.1	RSS-247 5.4(d, f), RSS-Gen 6.12	11.9.1.1	
Equivalent Isotropic Radiated Power	Pass	15.247(b)(3), KDB 558074 -8.3.1	RSS-247 5.4(d, f), RSS-Gen 6.12	11.9.1.1	
Power Spectral Density	Pass	15.247(e), KDB 558074 -8.4	RSS-247 5.2(b)	11.10.2	
Band Edge Compliance	Pass	15.247(d), KDB 558074 -8.5	RSS-247 5.5	11.11	
Spurious Conducted Emissions	Pass	15.247(d), KDB 558074 -8.5	RSS-247 5.5	11.11	
Radiated Band Edge Emissions	Pass	15.247(d), KDB 558074	RSS-247 5.5, RSS-Gen	11.12.1, 11.12.3.1,	

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

CERTIFICATE OF TEST



		- 8.6, 8.7	6.13, 8.10	6.6	
Spurious Radiated Emissions	Pass	15.247(d), KDB 558074 - 8.6, 8.7	RSS-247 5.5, RSS-Gen 6.13, 8.10	11.12.1, 11.12.3.1, 6.4, 6.5, 6.6	

Deviations From Test Standards

None

Approved By:

Trevor Buls, Principal EMC Test Engineer
Signed for and on behalf of Element

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

REVISION HISTORY

Revision Number	Description	Date (yyyy-mm-dd)	Page Number
00	None		
01	Updated RSS-247 to Issue 4	2026-02-04	1, 3
	Added EUT model numbers for each variant of Z9 Series devices (with clarifications of what was tested)		1, 11
	Updated the measurement methods used for testing to include ANSI C63.10-2020 + Cor.1-2023 + C63.10a-2024 + Errata to C63.10a-2024		3
	Updated the functional description to describe the model variants for the Z9 Series devices		11
	Updated the model number of the devices that were tested.		13-14, 17, 19, 21, 23, 25, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57
	Corrected the listed EUT serial number to match the configuration used for testing.		17, 19, 21, 23, 25, 27, 45

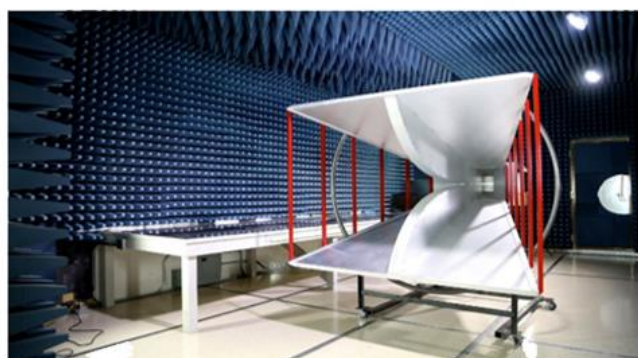
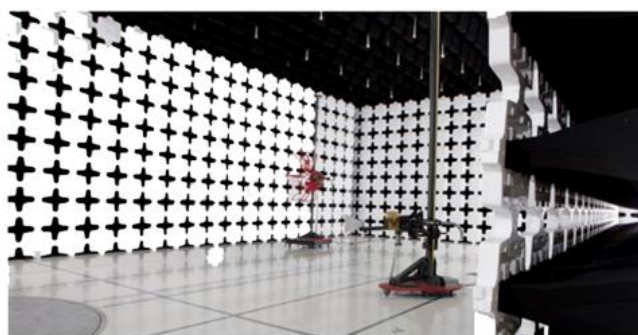
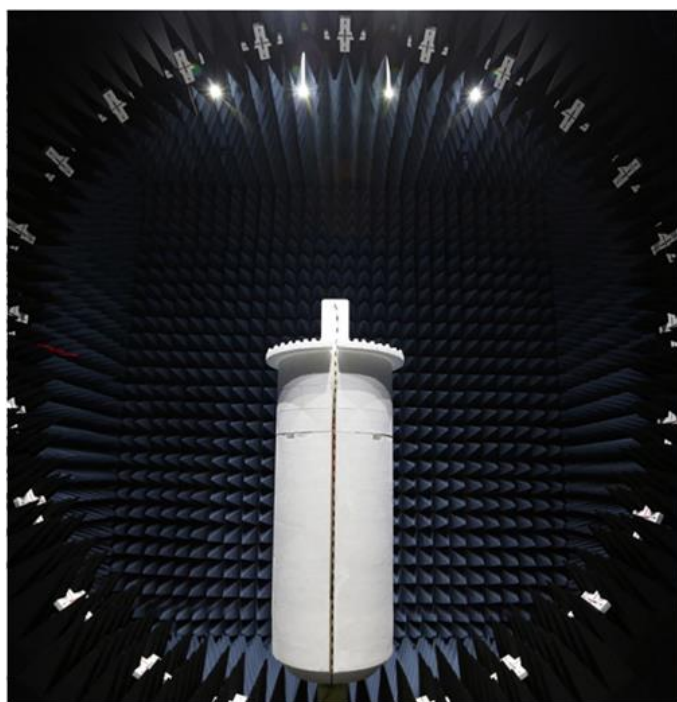
FACILITIES

Testing was performed at the following location(s)

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

See data sheets for specific labs

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



MEASUREMENT UNCERTAINTY

Measurement Uncertainty

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

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

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

Various Measurements

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

Field Strength Measurements (dB)

Range	EV01 (+/-)
10kHz-30MHz	1.8
30MHz-1GHz 3m	4.6
1GHz-6GHz	5.1
6GHz-40GHz	5.2

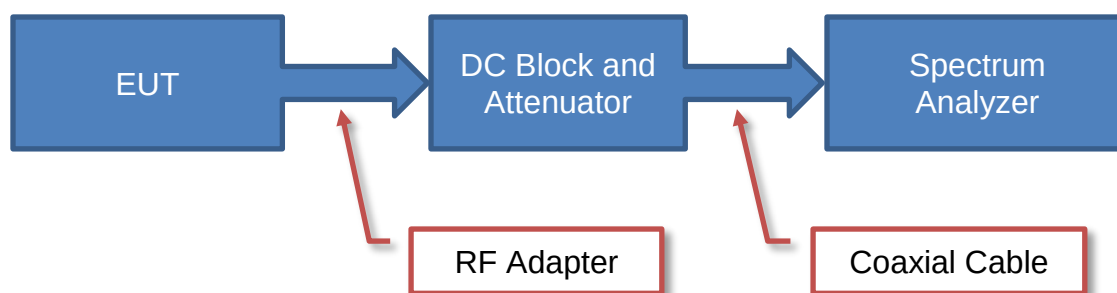
TEST SETUP BLOCK DIAGRAMS

Measurement Bandwidths

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

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

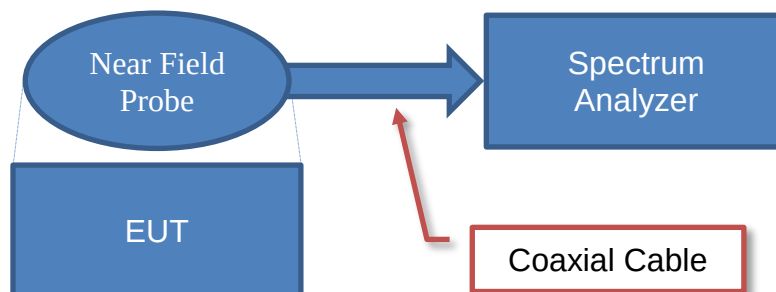
Antenna Port Conducted Measurements



Sample Calculation (logarithmic units)

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

Near Field Test Fixture Measurements

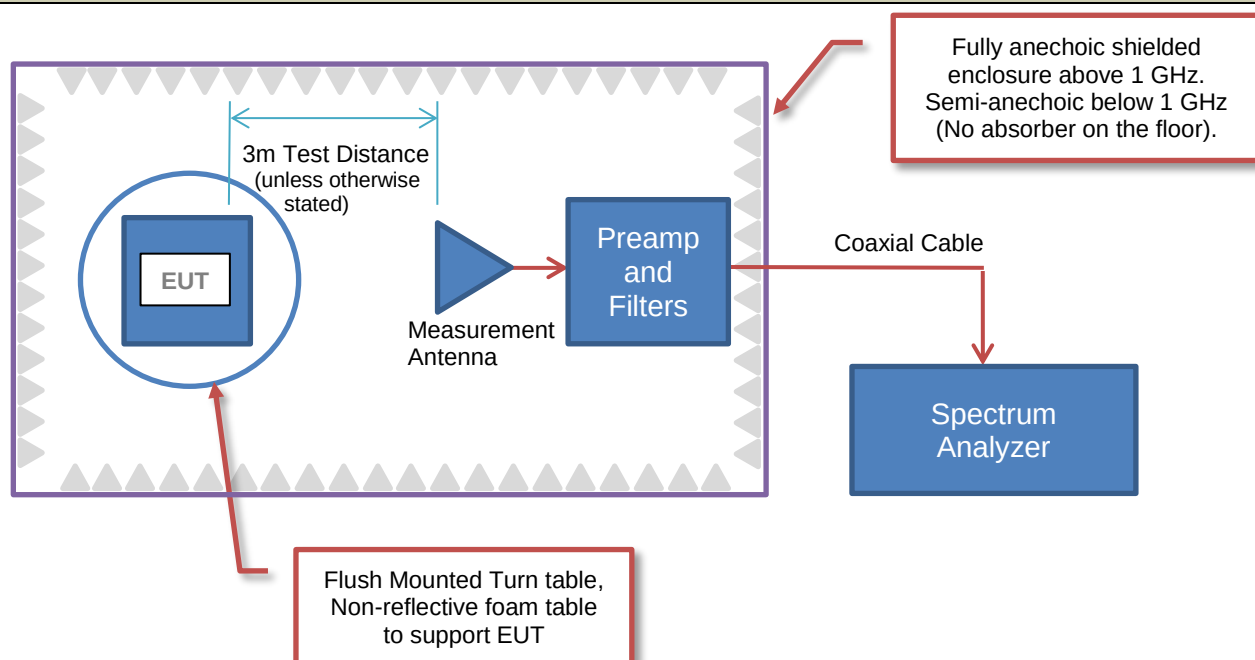


Sample Calculation (logarithmic units)

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

TEST SETUP BLOCK DIAGRAMS

Emissions Measurements



Sample Calculation (logarithmic units)

Radiated Emissions:

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

Conducted Emissions:

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

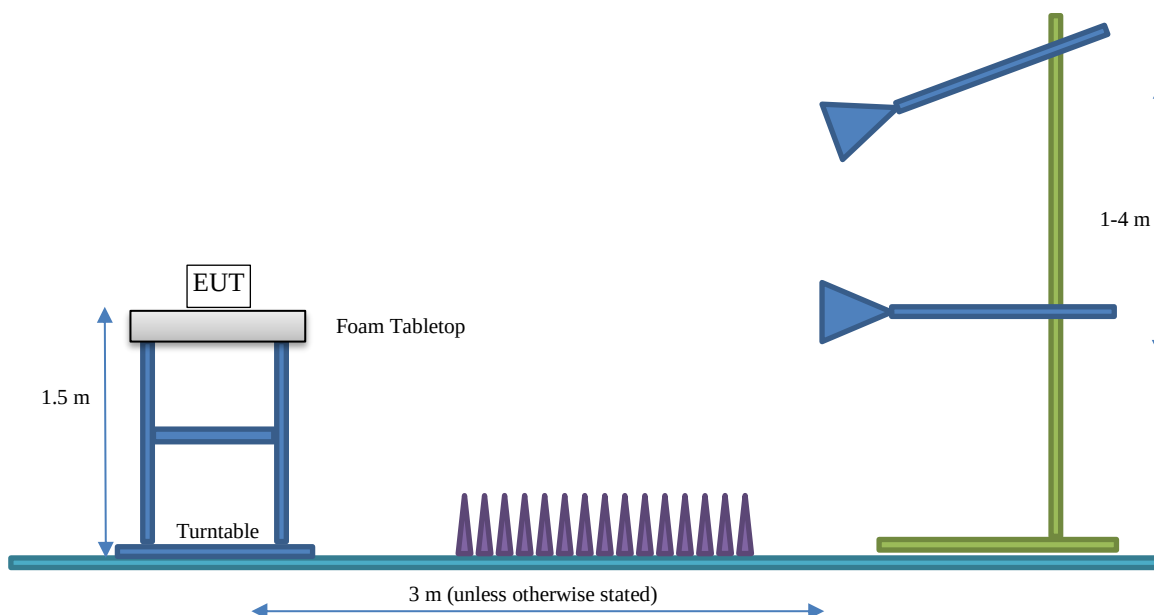
Radiated Power (ERP/EIRP) – Substitution Method:

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

TEST SETUP BLOCK DIAGRAMS

Bore Sighting (>1GHz)

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



PRODUCT DESCRIPTION

Client and Equipment under Test (EUT) Information

Company Name:	BACtrack
Address:	200 Green Street 2nd Floor
City, State, Zip:	San Francisco, CA 94111
Test Requested By:	Byron Benitez
EUT:	Model Tested: BT-Z9 (BACtrack Z9 Pro) Related Family Model(s): BT-Z9-RM (BACtrack Z9 Remote Monitoring) BT-Z9-EN (BACtrack Z9 Enforce)
First Date of Test:	August 18, 2025
Last Date of Test:	August 26, 2025
Receipt Date of Samples:	August 18, 2025
Equipment Design Stage:	Prototype
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
Breath Alcohol Detector that contains a Bluetooth LE radio.
Testing Objective:
To demonstrate compliance of the Bluetooth radio to FCC 15.247/RSS-247 requirements.
Client Provided Justification
The Z9 Series; BT-Z9 (BACtrack Z9 Pro), BT-Z9-RM (BACtrack Z9 Remote Monitoring) and BT-Z9-EN (BACtrack Z9 Enforce) are breath alcohol detectors that contain a Bluetooth LE radio. The electronic hardware and radio performance of each device variant is identical. The key difference of the product family is the color of the plastic enclosure and the interface presented to the user on the devices display.
*Model Equivalency
Element Materials Technology tested the models as shown in the datasheets contained within this report. The manufacturer claims the results apply to the additional models listed based upon their statement of similarity stated above. Element Materials Technology does not make any claims of compliance for models not tested.

POWER SETTINGS AND ANTENNAS



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

ANTENNA GAIN (dBi)

Type	Provided by:	Frequency Range (MHz)	Gain (dBi)
PCB	BACtrack	2400-2480	1.6

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

- ☒ Test software settings Software / firmware used for testing: **d91997e593272531c7ee240cef9bc2d4a276bc1d**
☐ Rated power settings

SETTINGS FOR ALL TESTS IN THIS REPORT

Modulation Types / Data Rates	Type	Channel	Position	Frequency (MHz)	Power Setting (dBm)
BLE GFSK 1 Mbps	DTS	37	Low Channel	2402	0
		17	Mid Channel	2440	
		39	High Channel	2480	

CONFIGURATIONS

Configuration BACT0015-1

Software/Firmware Running During Test	
Description	Version
NRF Connect Direct Test Mode	2.4.2

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
BAC Meter	BACtrack	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	70

Peripherals in Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Acer	N16W1	NXGK4AA0227120854B6600
AC Power Adapter	Acer	PA-1450-26	ADT KP04503004707056BFPE03

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB C	Yes	0.85m	No	BAC Meter	USB Extension
USB Extender	Yes	1.8m	No	USB C	Laptop
AC Power Cord	No	1m	No	AC Mains	AC Power Adapter
DC Power Cord	No	1.4m	No	AC Power Adapter	Laptop

Configuration BACT0015-5

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
BAC Meter	BACtrack	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	68

Peripherals in Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
AC Power Adapter	Apple	A1385	None

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB C	Yes	0.85m	No	BAC Meter	AC Power Adapter

CONFIGURATIONS



Configuration BACT0015-6

Software/Firmware Running During Test	
Description	Version
NRF Connect Direct Test Mode	2.4.2
Meter DTM Firmware	d91997e593272531c7ee240cef9bc2d4a276bc1d

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
BAC Meter w/ direct connect cable (no UFL)	BACtrack	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	66

Peripherals in Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop	Acer	N16W1	NXGK4AA0227120854B6600

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB C	Yes	0.85m	No	BAC Meter	USB Extension
USB Extender	Yes	1.8m	No	USB C	Laptop
AC Power Cord	No	1m	No	AC Mains	AC Power Adapter
DC Power Cord	No	1.4m	No	AC Power Adapter	Laptop

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2025-08-18	Spurious Radiated Emissions	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	2025-08-21	Spurious Conducted Emissions	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	2025-08-21	Radiated Band Edge Emissions	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
4	2025-08-25	Powerline Conducted Emissions	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
5	2025-08-26	Equivalent Isotropic Radiated Power	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
6	2025-08-26	Occupied Bandwidth (99%)	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
7	2025-08-26	Output Power	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
8	2025-08-26	Power Spectral Density	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
9	2025-08-26	Band Edge Compliance	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
10	2025-08-26	Duty Cycle	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
11	2025-08-26	DTS Bandwidth (6 dB)	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

POWERLINE CONDUCTED EMISSIONS

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network.

Measurements are made using a LISN (Line Impedance Stabilization Network). The 50 Ω measuring port is terminated by a 50 Ω EMI meter or a 50 Ω resistive load. All 50 Ω measuring ports of the LISN are terminated by 50 Ω . The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Receiver	Gauss Instruments	TDEMI 30M	ARN	2025-06-12	2026-06-12
Transformer	Powerstat	236B	XFG	NCR	NCR
LISN	Solar Electronics	9252-50-R-24-BNC	LIR	2024-09-13	2025-09-13
Cable - Conducted Cable Assembly	Northwest EMC	EVG, HHD, RKT, VAB	EVGA	2025-04-08	2026-04-08

CONFIGURATIONS INVESTIGATED

BACT0015-5

MODES INVESTIGATED

BLE, GFSK, 1 Mbps, Mid Channel = 2440 MHz

POWERLINE CONDUCTED EMISSIONS

EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	68	Date:	2025-08-25
Customer:	KHN Solutions DBA BACtrack	Temperature:	22.5°C
Attendees:	None	Relative Humidity:	47%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mb
Tested By:	Jeff Alcoke and Christopher Pinkham	Job Site:	EV07
Power:	5V via 240 VAC @ 60 Hz	Configuration:	BACT0015-5

TEST PARAMETERS

Run #:	7	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

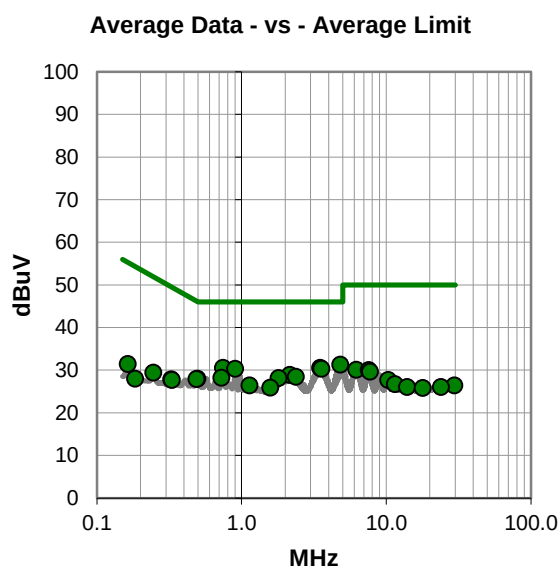
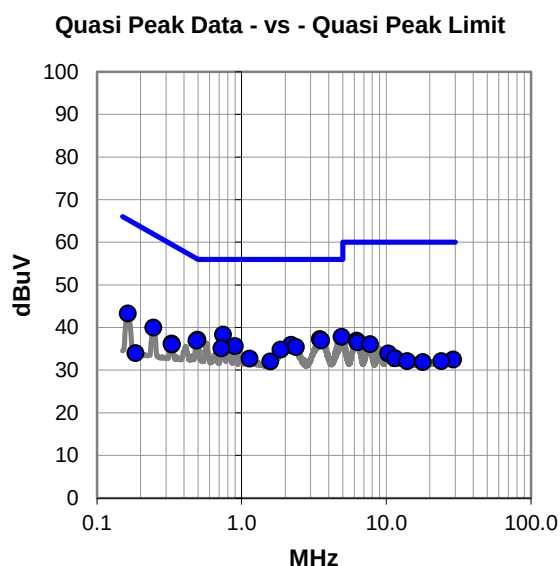
None

EUT OPERATING MODES

BLE, GFSK, 1 Mbps, Mid Channel = 2440 MHz

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #7

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.744	18.4	19.9	38.3	56.0	-17.7
4.915	17.5	20.3	37.8	56.0	-18.2
3.478	17.2	20.1	37.3	56.0	-18.7
0.495	17.2	19.9	37.1	56.1	-19.0
3.559	16.9	20.1	37.0	56.0	-19.0
0.487	17.0	19.9	36.9	56.2	-19.3
2.205	15.9	20.0	35.9	56.0	-20.1
0.901	15.7	19.9	35.6	56.0	-20.4
2.373	15.4	20.0	35.4	56.0	-20.6
0.725	15.2	19.9	35.1	56.0	-20.9
1.865	14.8	20.0	34.8	56.0	-21.2
0.246	20.0	20.0	40.0	61.9	-21.9
0.164	23.2	20.1	43.3	65.3	-22.0
6.232	16.6	20.3	36.9	60.0	-23.1
0.329	16.3	19.9	36.2	59.5	-23.3
1.134	12.8	19.9	32.7	56.0	-23.3
0.330	16.1	19.9	36.0	59.5	-23.5
6.348	16.2	20.3	36.5	60.0	-23.5
7.732	15.7	20.4	36.1	60.0	-23.9
1.581	12.0	20.0	32.0	56.0	-24.0
10.329	13.3	20.6	33.9	60.0	-26.1
11.473	12.1	20.7	32.8	60.0	-27.2
28.997	10.2	22.3	32.5	60.0	-27.5
13.930	11.2	20.9	32.1	60.0	-27.9
24.036	10.4	21.7	32.1	60.0	-27.9

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
4.825	11.0	20.3	31.3	46.0	-14.7
0.744	10.6	19.9	30.5	46.0	-15.5
3.488	10.4	20.1	30.5	46.0	-15.5
0.902	10.4	19.9	30.3	46.0	-15.7
3.572	10.2	20.1	30.3	46.0	-15.7
2.161	8.9	20.0	28.9	46.0	-17.1
2.373	8.4	20.0	28.4	46.0	-17.6
0.725	8.3	19.9	28.2	46.0	-17.8
1.804	8.1	20.0	28.1	46.0	-17.9
0.495	8.1	19.9	28.0	46.1	-18.1
0.487	8.0	19.9	27.9	46.2	-18.3
1.134	6.5	19.9	26.4	46.0	-19.6
6.227	9.8	20.3	30.1	50.0	-19.9
7.570	9.6	20.4	30.0	50.0	-20.0
1.580	5.9	20.0	25.9	46.0	-20.1
7.727	9.2	20.4	29.6	50.0	-20.4
0.327	7.9	19.9	27.8	49.5	-21.7
0.330	7.8	19.9	27.7	49.5	-21.8
10.332	7.0	20.7	27.7	50.0	-22.3
0.246	9.4	20.0	29.4	51.9	-22.5
11.476	6.0	20.7	26.7	50.0	-23.3
29.590	4.1	22.3	26.4	50.0	-23.6
0.164	11.3	20.1	31.4	55.3	-23.9
13.930	5.1	20.9	26.0	50.0	-24.0
23.925	4.3	21.7	26.0	50.0	-24.0

CONCLUSION

Pass


Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	68	Date:	2025-08-25
Customer:	KHN Solutions DBA BACtrack	Temperature:	22.5°C
Attendees:	None	Relative Humidity:	47%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV07
Power:	5V via 240 VAC @ 60 Hz	Configuration:	BACT0015-5

TEST PARAMETERS

Run #:	6	Line:	High	Add. Ext. Attenuation (dB):	0
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COMMENTS

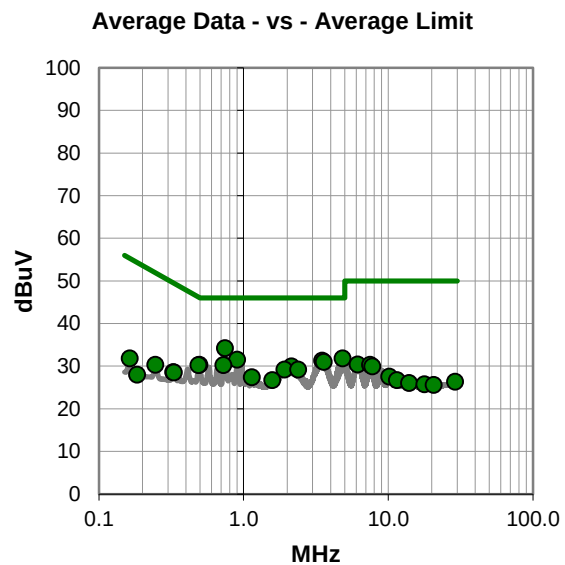
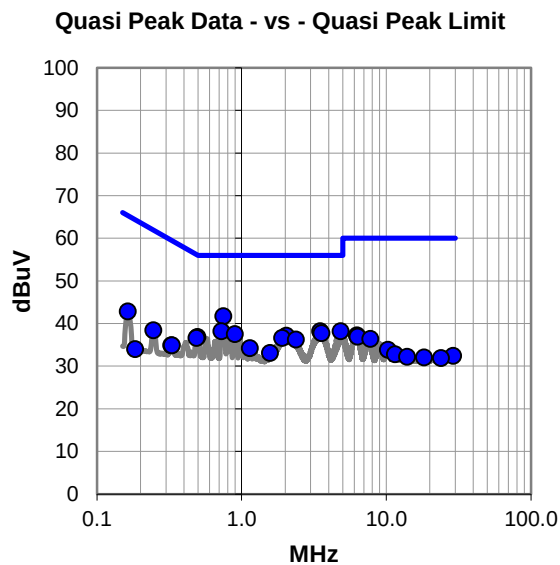
None

EUT OPERATING MODES

BLE, GFSK, 1 Mbps, Mid Channel = 2440 MHz

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #6

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.747	21.8	19.9	41.7	56.0	-14.3
3.490	18.1	20.1	38.2	56.0	-17.8
4.849	17.9	20.3	38.2	56.0	-17.8
0.725	18.3	19.9	38.2	56.0	-17.8
3.568	17.6	20.1	37.7	56.0	-18.3
0.901	17.6	19.9	37.5	56.0	-18.5
2.042	17.1	20.0	37.1	56.0	-18.9
0.496	16.9	19.9	36.8	56.1	-19.3
1.906	16.6	20.0	36.6	56.0	-19.4
0.489	16.7	19.9	36.6	56.2	-19.6
2.381	16.2	20.0	36.2	56.0	-19.8
1.139	14.3	19.9	34.2	56.0	-21.8
0.164	22.7	20.1	42.8	65.3	-22.5
6.261	16.9	20.3	37.2	60.0	-22.8
1.575	13.1	20.0	33.1	56.0	-22.9
6.337	16.6	20.3	36.9	60.0	-23.1
0.246	18.4	20.0	38.4	61.9	-23.5
7.759	15.9	20.5	36.4	60.0	-23.6
0.327	15.0	19.9	34.9	59.5	-24.6
0.330	15.0	19.9	34.9	59.5	-24.6
10.280	13.2	20.6	33.8	60.0	-26.2
11.507	12.1	20.7	32.8	60.0	-27.2
29.093	10.1	22.3	32.4	60.0	-27.6
13.978	11.3	20.9	32.2	60.0	-27.8
18.266	10.7	21.3	32.0	60.0	-28.0

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.745	14.3	19.9	34.2	46.0	-11.8
4.840	11.5	20.3	31.8	46.0	-14.2
0.902	11.6	19.9	31.5	46.0	-14.5
3.501	11.2	20.1	31.3	46.0	-14.7
3.585	10.9	20.1	31.0	46.0	-15.0
0.496	10.4	19.9	30.3	46.1	-15.8
0.725	10.3	19.9	30.2	46.0	-15.8
0.489	10.3	19.9	30.2	46.2	-16.0
2.144	9.9	20.0	29.9	46.0	-16.1
1.917	9.2	20.0	29.2	46.0	-16.8
2.385	9.1	20.1	29.2	46.0	-16.8
1.139	7.5	19.9	27.4	46.0	-18.6
1.584	6.7	20.0	26.7	46.0	-19.3
6.165	10.1	20.3	30.4	50.0	-19.6
7.510	9.9	20.4	30.3	50.0	-19.7
7.753	9.4	20.5	29.9	50.0	-20.1
0.327	8.7	19.9	28.6	49.5	-20.9
0.330	8.6	19.9	28.5	49.5	-21.0
0.246	10.3	20.0	30.3	51.9	-21.6
10.199	6.9	20.6	27.5	50.0	-22.5
11.507	6.0	20.7	26.7	50.0	-23.3
0.164	11.7	20.1	31.8	55.3	-23.5
29.017	4.0	22.3	26.3	50.0	-23.7
13.977	5.1	20.9	26.0	50.0	-24.0
17.851	4.5	21.2	25.7	50.0	-24.3

CONCLUSION

Pass


Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	68	Date:	2025-08-25
Customer:	KHN Solutions DBA BACtrack	Temperature:	22.5°C
Attendees:	None	Relative Humidity:	47%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mb
Tested By:	Jeff Alcoke and Christopher Pinkham	Job Site:	EV07
Power:	5V via 208 VAC @ 60 Hz	Configuration:	BACT0015-5

TEST PARAMETERS

Run #:	8	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

None

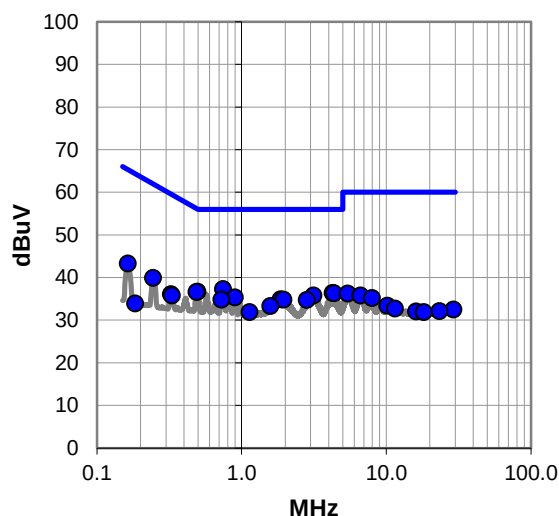
EUT OPERATING MODES

BLE, GFSK, 1 Mbps, Mid Channel = 2440 MHz

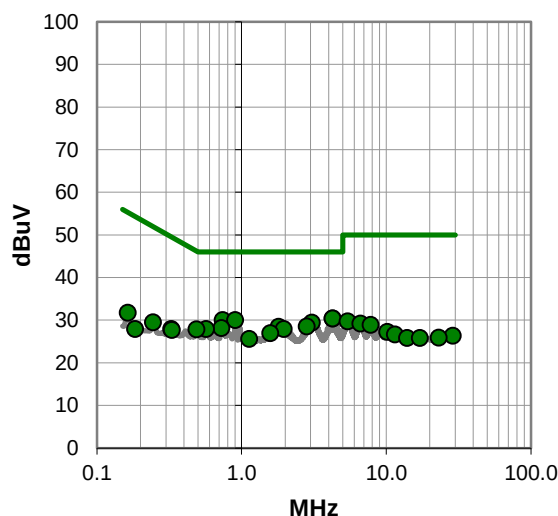
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #8

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.744	17.4	19.9	37.3	56.0	-18.7
0.495	16.8	19.9	36.7	56.1	-19.4
0.487	16.7	19.9	36.6	56.2	-19.6
4.268	16.1	20.3	36.4	56.0	-19.6
4.346	16.0	20.3	36.3	56.0	-19.7
3.144	15.7	20.1	35.8	56.0	-20.2
0.901	15.4	19.9	35.3	56.0	-20.7
1.865	14.9	20.0	34.9	56.0	-21.1
0.725	14.9	19.9	34.8	56.0	-21.2
1.950	14.8	20.0	34.8	56.0	-21.2
2.825	14.6	20.1	34.7	56.0	-21.3
0.164	23.2	20.1	43.3	65.3	-22.0
0.245	19.9	20.0	39.9	61.9	-22.0
1.583	13.3	20.0	33.3	56.0	-22.7
0.325	16.2	19.9	36.1	59.6	-23.5
0.330	15.9	19.9	35.8	59.5	-23.7
5.411	15.9	20.3	36.2	60.0	-23.8
1.134	12.0	19.9	31.9	56.0	-24.1
6.641	15.5	20.3	35.8	60.0	-24.2
7.979	14.7	20.5	35.2	60.0	-24.8
10.162	12.8	20.6	33.4	60.0	-26.6
11.473	12.0	20.7	32.7	60.0	-27.3
29.124	10.2	22.3	32.5	60.0	-27.5
23.324	10.5	21.6	32.1	60.0	-27.9
16.099	10.8	21.2	32.0	60.0	-28.0

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
4.268	10.1	20.3	30.4	46.0	-15.6
4.273	10.1	20.3	30.4	46.0	-15.6
0.742	10.1	19.9	30.0	46.0	-16.0
0.902	10.1	19.9	30.0	46.0	-16.0
3.066	9.3	20.1	29.4	46.0	-16.6
2.825	8.4	20.1	28.5	46.0	-17.5
1.802	8.4	20.0	28.4	46.0	-17.6
0.725	8.2	19.9	28.1	46.0	-17.9
0.568	8.0	19.9	27.9	46.0	-18.1
1.954	7.9	20.0	27.9	46.0	-18.1
0.487	7.9	19.9	27.8	46.2	-18.4
1.580	6.9	20.0	26.9	46.0	-19.1
5.405	9.4	20.3	29.7	50.0	-20.3
1.133	5.7	19.9	25.6	46.0	-20.4
6.636	8.9	20.3	29.2	50.0	-20.8
7.823	8.4	20.5	28.9	50.0	-21.1
0.327	8.0	19.9	27.9	49.5	-21.6
0.330	7.8	19.9	27.7	49.5	-21.8
0.245	9.5	20.0	29.5	51.9	-22.4
10.165	6.6	20.6	27.2	50.0	-22.8
11.475	5.9	20.7	26.6	50.0	-23.4
0.164	11.6	20.1	31.7	55.3	-23.6
28.948	4.0	22.3	26.3	50.0	-23.7
23.109	4.3	21.6	25.9	50.0	-24.1
13.931	4.9	20.9	25.8	50.0	-24.2

CONCLUSION

Pass


Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	68	Date:	2025-08-25
Customer:	KHN Solutions DBA BACtrack	Temperature:	22.5°C
Attendees:	None	Relative Humidity:	47%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV07
Power:	5V via 208 VAC @ 60 Hz	Configuration:	BACT0015-5

TEST PARAMETERS

Run #:	9	Line:	High	Add. Ext. Attenuation (dB):	0
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COMMENTS

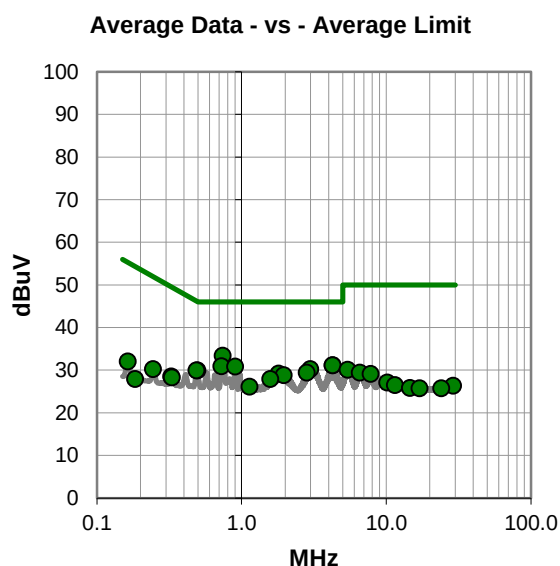
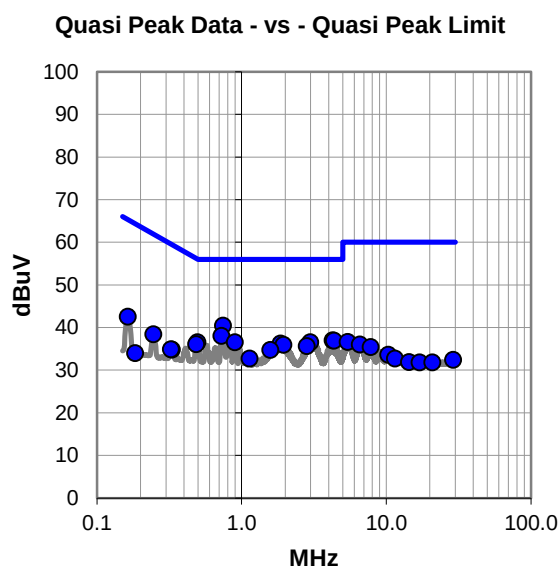
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EUT OPERATING MODES

BLE, GFSK, 1 Mbps, Mid Channel = 2440 MHz

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #9

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.744	20.5	19.9	40.4	56.0	-15.6
0.725	18.1	19.9	38.0	56.0	-18.0
4.270	16.7	20.3	37.0	56.0	-19.0
4.347	16.6	20.3	36.9	56.0	-19.1
0.901	16.6	19.9	36.5	56.0	-19.5
2.988	16.4	20.1	36.5	56.0	-19.5
0.496	16.6	19.9	36.5	56.1	-19.6
1.865	16.2	20.0	36.2	56.0	-19.8
0.486	16.2	19.9	36.1	56.2	-20.1
1.950	15.9	20.0	35.9	56.0	-20.1
2.825	15.5	20.1	35.6	56.0	-20.4
1.581	14.7	20.0	34.7	56.0	-21.3
0.164	22.4	20.1	42.5	65.3	-22.8
1.134	12.8	19.9	32.7	56.0	-23.3
5.411	16.3	20.3	36.6	60.0	-23.4
0.246	18.4	20.0	38.4	61.9	-23.5
6.563	15.7	20.3	36.0	60.0	-24.0
7.814	14.9	20.5	35.4	60.0	-24.6
0.330	14.9	19.9	34.8	59.5	-24.7
0.325	15.0	19.9	34.9	59.6	-24.7
10.333	12.9	20.7	33.6	60.0	-26.4
11.475	12.0	20.7	32.7	60.0	-27.3
29.008	10.1	22.3	32.4	60.0	-27.6
14.354	10.9	21.0	31.9	60.0	-28.1
17.015	10.6	21.2	31.8	60.0	-28.2

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.742	13.5	19.9	33.4	46.0	-12.6
4.271	10.8	20.3	31.1	46.0	-14.9
4.273	10.8	20.3	31.1	46.0	-14.9
0.725	11.0	19.9	30.9	46.0	-15.1
0.902	10.9	19.9	30.8	46.0	-15.2
2.986	10.1	20.1	30.2	46.0	-15.8
0.495	10.0	19.9	29.9	46.1	-16.2
0.487	10.0	19.9	29.9	46.2	-16.3
2.825	9.3	20.1	29.4	46.0	-16.6
1.804	9.2	20.0	29.2	46.0	-16.8
1.955	8.8	20.0	28.8	46.0	-17.2
1.581	7.9	20.0	27.9	46.0	-18.1
1.134	6.2	19.9	26.1	46.0	-19.9
5.408	9.8	20.3	30.1	50.0	-19.9
6.560	9.1	20.3	29.4	50.0	-20.6
7.814	8.6	20.5	29.1	50.0	-20.9
0.327	8.6	19.9	28.5	49.5	-21.0
0.330	8.4	19.9	28.3	49.5	-21.2
0.245	10.2	20.0	30.2	51.9	-21.7
10.165	6.5	20.6	27.1	50.0	-22.9
0.164	11.9	20.1	32.0	55.3	-23.3
11.475	5.8	20.7	26.5	50.0	-23.5
29.003	4.0	22.3	26.3	50.0	-23.7
14.644	4.8	21.0	25.8	50.0	-24.2
16.978	4.5	21.2	25.7	50.0	-24.3

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	68	Date:	2025-08-25
Customer:	KHN Solutions DBA BACtrack	Temperature:	22.5°C
Attendees:	None	Relative Humidity:	47%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV07
Power:	5V via 120 VAC @ 60 Hz	Configuration:	BACT0015-5

TEST PARAMETERS

Run #:	11	Line:	Neutral	Add. Ext. Attenuation (dB):	0
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COMMENTS

None

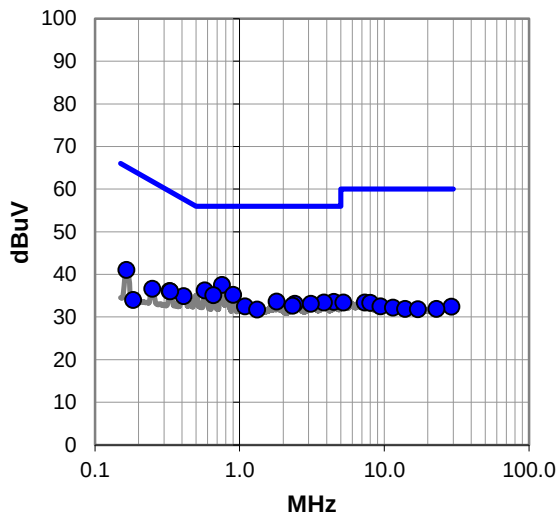
EUT OPERATING MODES

BLE, GFSK, 1 Mbps, Mid Channel = 2440 MHz

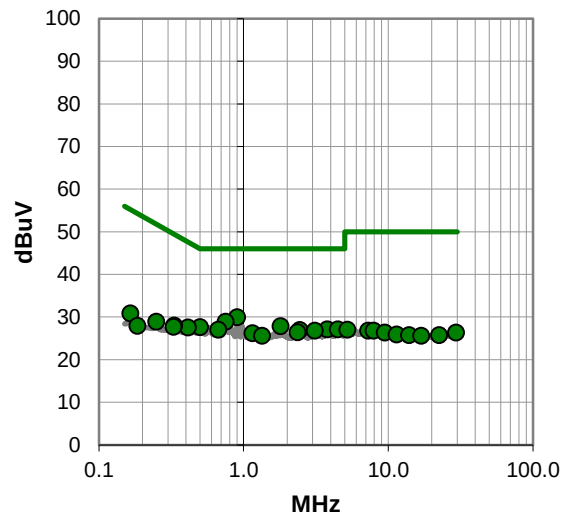
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #11

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.754	17.6	19.9	37.5	56.0	-18.5
0.576	16.3	19.9	36.2	56.0	-19.8
0.902	15.3	19.9	35.2	56.0	-20.8
0.658	15.2	19.9	35.1	56.0	-20.9
1.804	13.6	20.0	33.6	56.0	-22.4
4.491	13.2	20.3	33.5	56.0	-22.5
3.841	13.2	20.2	33.4	56.0	-22.6
0.411	15.0	19.9	34.9	57.6	-22.7
2.407	13.0	20.1	33.1	56.0	-22.9
3.112	13.0	20.1	33.1	56.0	-22.9
0.329	16.2	19.9	36.1	59.5	-23.4
0.332	16.1	19.9	36.0	59.4	-23.4
2.324	12.6	20.0	32.6	56.0	-23.4
1.088	12.6	19.9	32.5	56.0	-23.5
0.165	20.9	20.1	41.0	65.2	-24.2
1.325	11.7	20.0	31.7	56.0	-24.3
0.249	16.6	20.0	36.6	61.8	-25.2
5.220	13.1	20.3	33.4	60.0	-26.6
7.350	13.0	20.4	33.4	60.0	-26.6
8.011	12.8	20.5	33.3	60.0	-26.7
9.415	12.0	20.5	32.5	60.0	-27.5
29.128	10.1	22.3	32.4	60.0	-27.6
11.523	11.5	20.7	32.2	60.0	-27.8
13.934	11.0	20.9	31.9	60.0	-28.1
22.997	10.4	21.5	31.9	60.0	-28.1

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.902	10.0	19.9	29.9	46.0	-16.1
0.753	9.0	19.9	28.9	46.0	-17.1
1.804	7.8	20.0	27.8	46.0	-18.2
0.501	7.7	19.9	27.6	46.0	-18.4
3.801	6.9	20.2	27.1	46.0	-18.9
4.492	6.8	20.3	27.1	46.0	-18.9
0.669	7.1	19.9	27.0	46.0	-19.0
2.449	6.8	20.1	26.9	46.0	-19.1
3.112	6.7	20.1	26.8	46.0	-19.2
2.364	6.4	20.0	26.4	46.0	-19.6
1.151	6.3	19.9	26.2	46.0	-19.8
0.412	7.6	19.9	27.5	47.6	-20.1
1.340	5.6	20.0	25.6	46.0	-20.4
0.332	8.1	19.9	28.0	49.4	-21.4
0.329	7.8	19.9	27.7	49.5	-21.8
0.249	8.9	20.0	28.9	51.8	-22.9
5.223	6.7	20.3	27.0	50.0	-23.0
7.265	6.4	20.4	26.8	50.0	-23.2
7.929	6.3	20.5	26.8	50.0	-23.2
9.489	5.8	20.5	26.3	50.0	-23.7
29.447	4.0	22.3	26.3	50.0	-23.7
11.441	5.2	20.7	25.9	50.0	-24.1
13.934	4.8	20.9	25.7	50.0	-24.3
22.508	4.2	21.5	25.7	50.0	-24.3
0.165	10.7	20.1	30.8	55.2	-24.4

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	68	Date:	2025-08-25
Customer:	KHN Solutions DBA BACtrack	Temperature:	22.5°C
Attendees:	None	Relative Humidity:	47%
Customer Project:	None	Bar. Pressure (PMSL):	1014 mb
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV07
Power:	5V via 120 VAC @ 60 Hz	Configuration:	BACT0015-5

TEST PARAMETERS

Run #:	10	Line:	High	Add. Ext. Attenuation (dB):	0
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COMMENTS

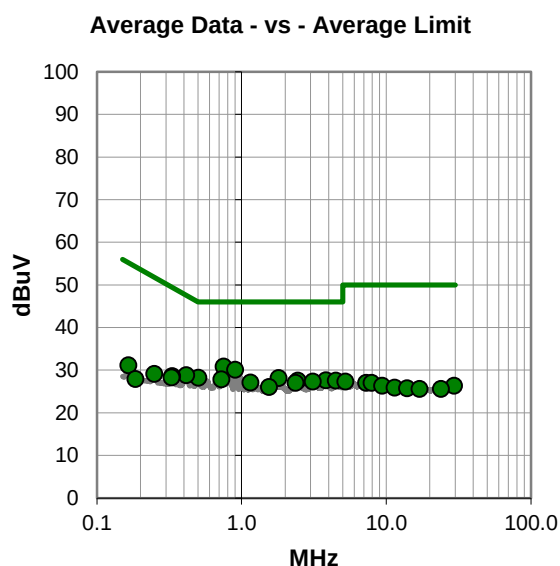
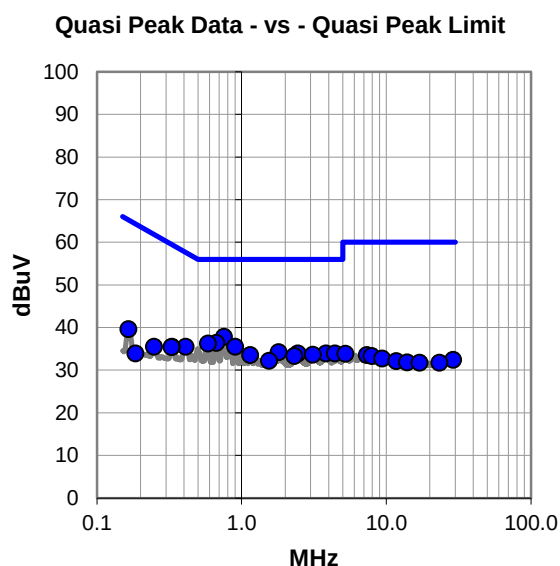
None

EUT OPERATING MODES

BLE, GFSK, 1 Mbps, Mid Channel = 2440 MHz

DEVIATIONS FROM TEST STANDARD

None



POWERLINE CONDUCTED EMISSIONS

RESULTS - Run #10

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.754	17.9	19.9	37.8	56.0	-18.2
0.669	16.5	19.9	36.4	56.0	-19.6
0.586	16.3	19.9	36.2	56.0	-19.8
0.902	15.6	19.9	35.5	56.0	-20.5
1.804	14.2	20.0	34.2	56.0	-21.8
0.411	15.6	19.9	35.5	57.6	-22.1
2.449	13.8	20.1	33.9	56.0	-22.1
3.836	13.7	20.2	33.9	56.0	-22.1
4.410	13.6	20.3	33.9	56.0	-22.1
3.109	13.5	20.1	33.6	56.0	-22.4
1.149	13.6	19.9	33.5	56.0	-22.5
2.321	13.3	20.0	33.3	56.0	-22.7
1.546	12.2	20.0	32.2	56.0	-23.8
0.330	15.6	19.9	35.5	59.5	-24.0
0.329	15.5	19.9	35.4	59.5	-24.1
0.165	19.5	20.1	39.6	65.2	-25.6
5.219	13.5	20.3	33.8	60.0	-26.2
0.248	15.5	20.0	35.5	61.8	-26.3
7.343	13.1	20.4	33.5	60.0	-26.5
7.924	12.8	20.5	33.3	60.0	-26.7
9.406	12.2	20.5	32.7	60.0	-27.3
29.032	10.1	22.3	32.4	60.0	-27.6
11.751	11.4	20.7	32.1	60.0	-27.9
13.939	10.9	20.9	31.8	60.0	-28.2
16.981	10.5	21.2	31.7	60.0	-28.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.753	10.9	19.9	30.8	46.0	-15.2
0.902	10.2	19.9	30.1	46.0	-15.9
0.502	8.3	19.9	28.2	46.0	-17.8
1.804	8.1	20.0	28.1	46.0	-17.9
0.725	7.9	19.9	27.8	46.0	-18.2
3.836	7.4	20.2	27.6	46.0	-18.4
2.449	7.4	20.1	27.5	46.0	-18.5
4.488	7.2	20.3	27.5	46.0	-18.5
0.415	8.9	19.9	28.8	47.5	-18.7
3.105	7.2	20.1	27.3	46.0	-18.7
1.152	7.2	19.9	27.1	46.0	-18.9
2.364	7.0	20.0	27.0	46.0	-19.0
1.546	6.0	20.0	26.0	46.0	-20.0
0.332	8.7	19.9	28.6	49.4	-20.8
0.329	8.4	19.9	28.3	49.5	-21.2
0.249	9.1	20.0	29.1	51.8	-22.7
5.219	7.0	20.3	27.3	50.0	-22.7
7.260	6.6	20.4	27.0	50.0	-23.0
7.927	6.5	20.5	27.0	50.0	-23.0
9.393	5.8	20.5	26.3	50.0	-23.7
29.485	4.0	22.3	26.3	50.0	-23.7
0.165	11.0	20.1	31.1	55.2	-24.1
11.458	5.2	20.7	25.9	50.0	-24.1
13.930	4.8	20.9	25.7	50.0	-24.3
17.048	4.4	21.2	25.6	50.0	-24.4

CONCLUSION

Pass



Tested By

OCCUPIED BANDWIDTH (99%)

TEST DESCRIPTION

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

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

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

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

Sweep time: Auto

Resolution Bandwidth: 1% to 5% of the OBW

Video Bandwidth: $\geq 3 * RBW$

Trace: Max Hold

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

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

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	2025-06-18	2026-06-18
Cable	Micro-Coax	UFD150A-1-0720-200200	EVK	2025-03-21	2026-03-21
Attenuator	S.M. Electronics	SA26B-20	AWT	2025-03-21	2026-03-21
Block - DC	Fairview Microwave	SD3473	AMY	2025-03-21	2026-03-21
Generator - Signal	Agilent	N5181A	TIG	2023-04-18	2026-04-18

OCCUPIED BANDWIDTH (99%)

EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	66	Date:	2025-08-26
Customer:	KHN Solutions DBA BACtrack	Temperature:	22.7°C
Attendees:	None	Relative Humidity:	49.5%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mbar
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV06
Power:	5V via USB	Configuration:	BACT0015-6

COMMENTS

Reference level offset includes; DC Block, 20 dB attenuator, measurement cable, and manufacturers patch cable.
Screen capture depicts worst case (widest) channel – Mid Channel = 2440 MHz.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

N/A

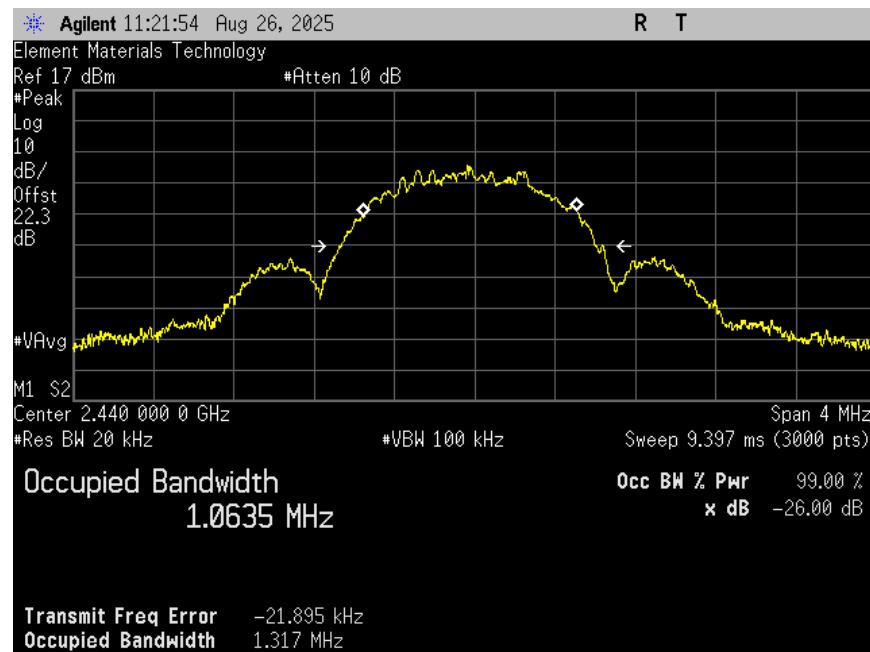


Tested By

TEST RESULTS

	Value	Limit	Result
BLE/GFSK 1 Mbps			
Low Channel, 2402 MHz	1.059 MHz	N/A	N/A
Mid Channel, 2440 MHz	1.063 MHz	N/A	N/A
High Channel, 2480 MHz	1.062 MHz	N/A	N/A

OCCUPIED BANDWIDTH (99%)



BLE/GFSK 1 Mbps
Mid Channel, 2440 MHz

DUTY CYCLE

TEST DESCRIPTION

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

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

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

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

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

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

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	2025-06-18	2026-06-18
Cable	Micro-Coax	UFD150A-1-0720-200200	EVK	2025-03-21	2026-03-21
Attenuator	S.M. Electronics	SA26B-20	AWT	2025-03-21	2026-03-21
Block - DC	Fairview Microwave	SD3473	AMY	2025-03-21	2026-03-21
Generator - Signal	Agilent	N5181A	TIG	2023-04-18	2026-04-18

DUTY CYCLE

EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	66	Date:	2025-08-26
Customer:	KHN Solutions DBA BACtrack	Temperature:	22.6°C
Attendees:	None	Relative Humidity:	49.4%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mbar
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV06
Power:	5V via USB	Configuration:	BACT0015-6

COMMENTS

Reference level offset includes DC Block, 20 dB attenuator, measurement cable and manufacturer's patch cable.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

N/A

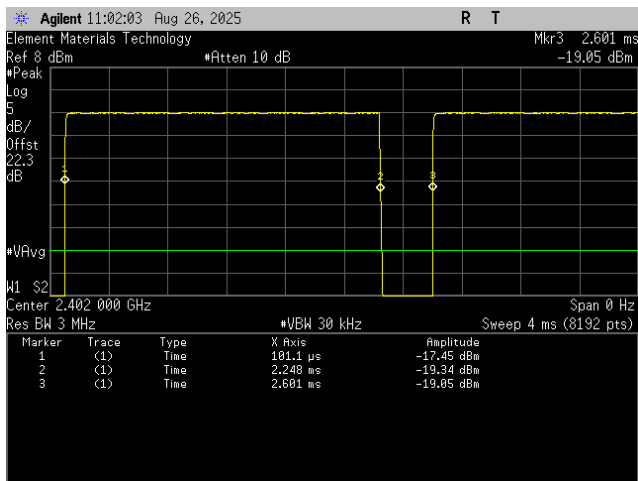


Tested By

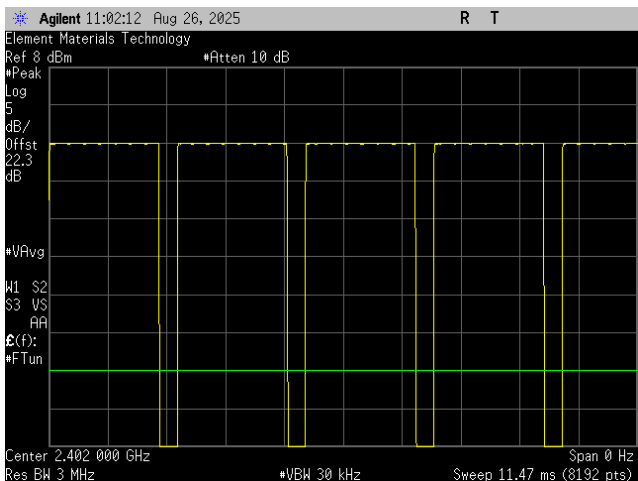
TEST RESULTS

	Pulse Width	Period	Number of Pulses	Value (%)	Limit N/A ()	Results
BLE/GFSK 1 Mbps						
Low Channel, 2402 MHz	2.147 ms	2.5 ms	1	85.9	N/A	N/A
	N/A	N/A	5	N/A	N/A	N/A

DUTY CYCLE



BLE/GFSK 1 Mbps
Low Channel, 2402 MHz



BLE/GFSK 1 Mbps
Low Channel, 2402 MHz

DTS BANDWIDTH (6 dB)

TEST DESCRIPTION

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

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

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

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

Detector: Peak
Sweep time: Auto
Resolution Bandwidth: 1% to 5% of the OBW but not less than 100 kHz
Video Bandwidth: $\geq 3 * RBW$
Trace: Max Hold
Span: Large enough to capture all products of the modulation process, including the emission skirts.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	2025-06-18	2026-06-18
Cable	Micro-Coax	UFD150A-1-0720-200200	EVK	2025-03-21	2026-03-21
Attenuator	S.M. Electronics	SA26B-20	AWT	2025-03-21	2026-03-21
Block - DC	Fairview Microwave	SD3473	AMY	2025-03-21	2026-03-21
Generator - Signal	Agilent	N5181A	TIG	2023-04-18	2026-04-18

DTS BANDWIDTH (6 dB)

EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	66	Date:	2025-09-10
Customer:	KHN Solutions DBA BACtrack	Temperature:	22.6°C
Attendees:	None	Relative Humidity:	49.4%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mbar
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV06
Power:	5V via USB	Configuration:	BACT0015-6

COMMENTS

Reference level offset includes; DC Block, 20 dB attenuator, measurement cable, and manufacturer's patch cable.
Screen capture depicts worst case (narrowest) channel – Low Channel = 2402 MHz.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass

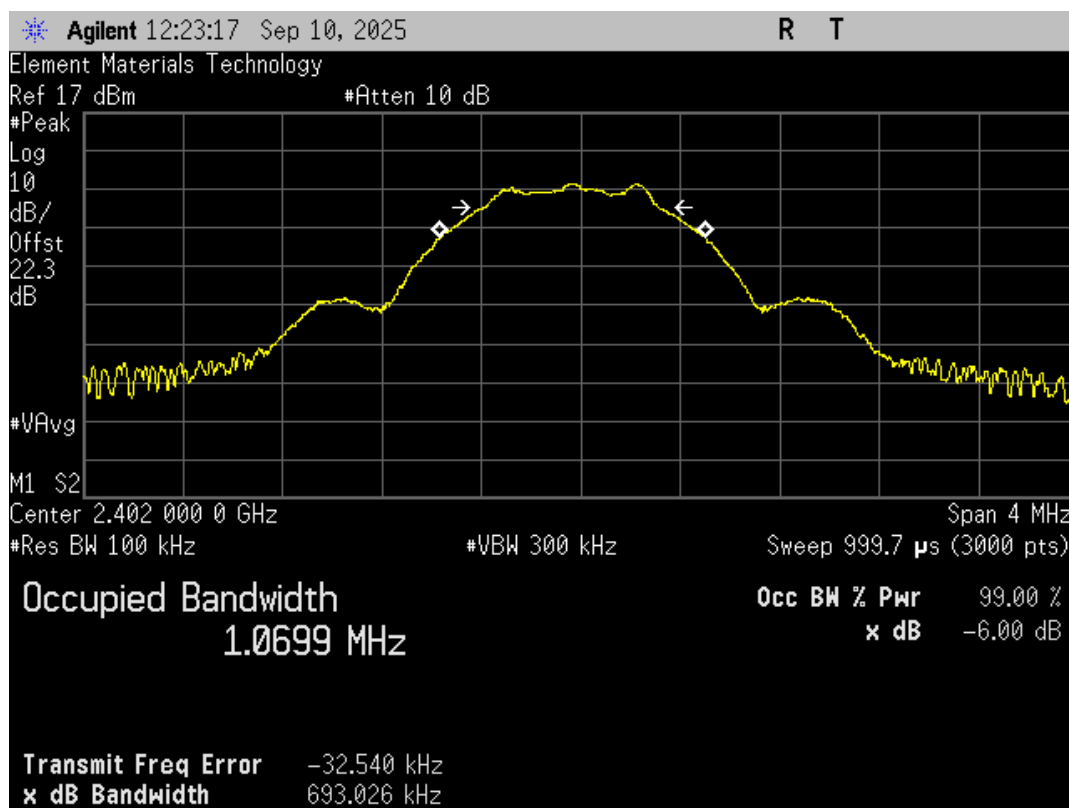


Tested By

TEST RESULTS

		Value	Limit (≥)	Result
BLE/GFSK 1 Mbps				
	Low Channel, 2402 MHz	693.026 kHz	500 kHz	Pass
	Mid Channel, 2440 MHz	706.182 kHz	500 kHz	Pass
	High Channel, 2480 MHz	711.321 kHz	500 kHz	Pass

DTS BANDWIDTH (6 dB)



BLE/GFSK 1 Mbps
Low Channel, 2402 MHz

OUTPUT POWER

TEST DESCRIPTION

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

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

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

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

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

Analyzer settings:

Detector: Peak

Sweep time: Auto

Resolution Bandwidth: $\geq$ DTS bandwidth

Video Bandwidth: $\geq 3 * RBW$

Trace: Max Hold

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	2025-06-18	2026-06-18
Cable	Micro-Coax	UFD150A-1-0720-200200	EVK	2025-03-21	2026-03-21
Attenuator	S.M. Electronics	SA26B-20	AWT	2025-03-21	2026-03-21
Block - DC	Fairview Microwave	SD3473	AMY	2025-03-21	2026-03-21
Generator - Signal	Agilent	N5181A	TIG	2023-04-18	2026-04-18

OUTPUT POWER

EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	66	Date:	2025-08-26
Customer:	KHN Solutions DBA BACtrack	Temperature:	22.8°C
Attendees:	None	Relative Humidity:	49.3%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mbar
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV06
Power:	5V via USB	Configuration:	BACT0015-6

COMMENTS

Reference level offset includes; DC Block, 20 dB attenuator, measurement cable, and manufacturers patch cable.
Screen capture depicts highest power channel – Low Channel = 2402 MHz.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass

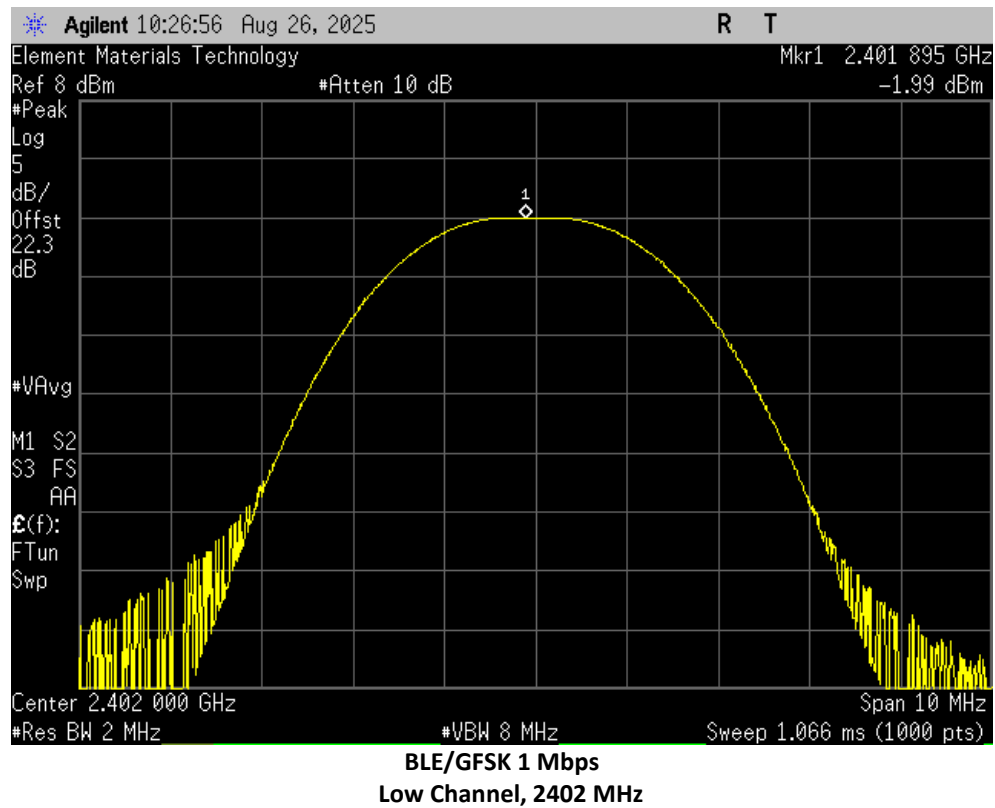


Tested By

TEST RESULTS

	Out Pwr (dBm)	Limit (dBm)	Result
BLE/GFSK 1 Mbps			
Low Channel, 2402 MHz	-1.988	30	Pass
Mid Channel, 2440 MHz	-2.353	30	Pass
High Channel, 2480 MHz	-2.815	30	Pass

OUTPUT POWER



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



TEST DESCRIPTION

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

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

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

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

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

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

Analyzer settings:

Detector: Peak

Sweep time: Auto

Resolution Bandwidth: $\geq$ DTS bandwidth

Video Bandwidth: $\geq 3 * RBW$

Trace: Max Hold

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	2025-06-18	2026-06-18
Cable	Micro-Coax	UFD150A-1-0720-200200	EVK	2025-03-21	2026-03-21
Attenuator	S.M. Electronics	SA26B-20	AWT	2025-03-21	2026-03-21
Block - DC	Fairview Microwave	SD3473	AMY	2025-03-21	2026-03-21
Generator - Signal	Agilent	N5181A	TIG	2023-04-18	2026-04-18

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	66	Date:	2025-08-26
Customer:	KHN Solutions DBA BACtrack	Temperature:	22.7°C
Attendees:	None	Relative Humidity:	49.6%
Customer Project:	None	Bar. Pressure (PMSL):	1011 mbar
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV06
Power:	5V via USB	Configuration:	BACT0015-6

COMMENTS

Reference level offset includes DC block, 20 dB attenuator, measurement cable and manufacturer's patch cable.
Screen capture depicts highest power channel – Low Channel = 2402 MHz.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

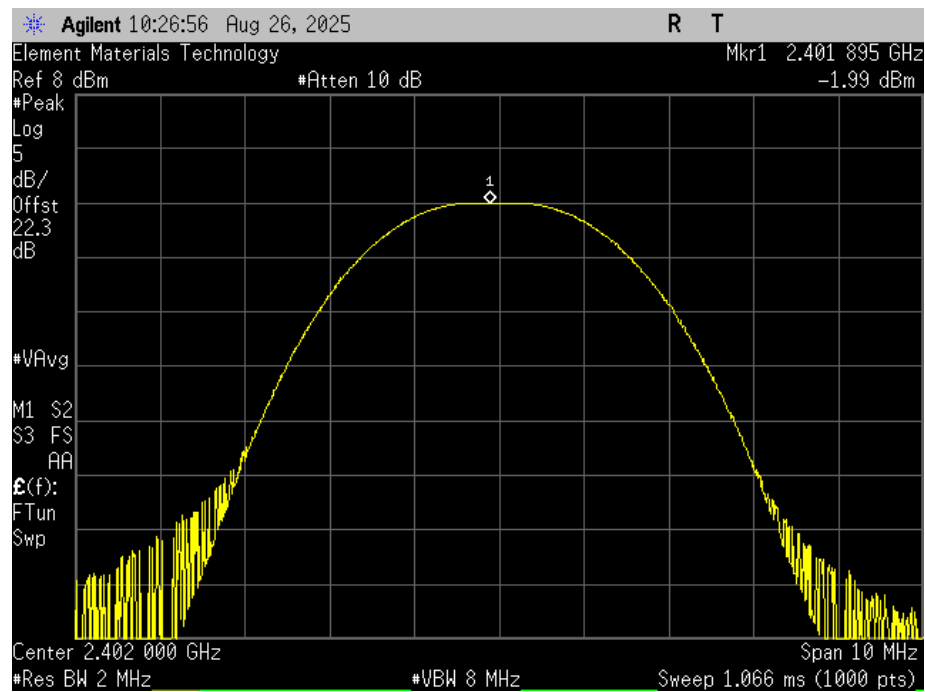
Pass

Tested By

TEST RESULTS

	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
BLE/GFSK 1 Mbps					
Low Channel, 2402 MHz	-1.988	1.6	-0.388	36	Pass
Mid Channel, 2440 MHz	-2.353	1.6	-0.753	36	Pass
High Channel, 2480 MHz	-2.815	1.6	-1.215	36	Pass

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



BLE/GFSK 1 Mbps
Low Channel, 2402 MHz

POWER SPECTRAL DENSITY

TEST DESCRIPTION

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

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

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

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	2025-06-18	2026-06-18
Cable	Micro-Coax	UFD150A-1-0720-200200	EVK	2025-03-21	2026-03-21
Attenuator	S.M. Electronics	SA26B-20	AWT	2025-03-21	2026-03-21
Block - DC	Fairview Microwave	SD3473	AMY	2025-03-21	2026-03-21
Generator - Signal	Agilent	N5181A	TIG	2023-04-18	2026-04-18

POWER SPECTRAL DENSITY

EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	70	Date:	2025-08-26
Customer:	KHN Solutions DBA BACtrack	Temperature:	23.2°C
Attendees:	None	Relative Humidity:	48.4%
Customer Project:	None	Bar. Pressure (PMSL):	1012 mbar
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV06
Power:	5V via USB	Configuration:	BACT0015-1

COMMENTS

Reference level offset includes; DC Block, 20 dB attenuator, measurement cable, and manufacturers patch cable.
Screen capture depicts worst case channel – Low Channel = 2402 MHz.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass

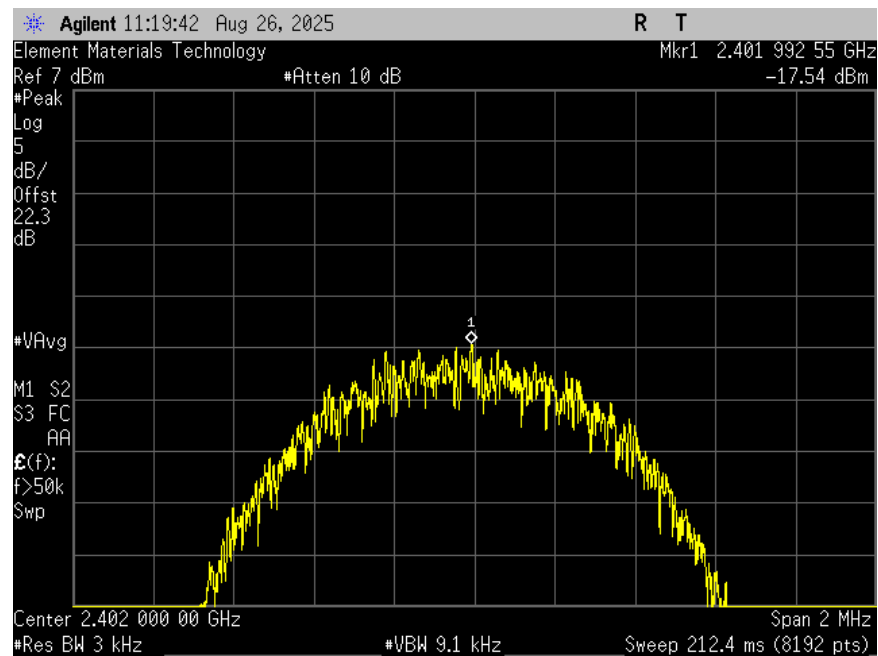


Tested By

TEST RESULTS

	Value dBm/3kHz	Limit ≤ (dBm/3kHz)	Results
BLE/GFSK 1 Mbps			
Low Channel, 2402 MHz	-17.538	8	Pass
Mid Channel, 2440 MHz	-17.927	8	Pass
High Channel, 2480 MHz	-18.896	8	Pass

POWER SPECTRAL DENSITY



BLE/GFSK 1 Mbps
Low Channel, 2402 MHz

BAND EDGE COMPLIANCE

TEST DESCRIPTION

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

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

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

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFD	2025-06-18	2026-06-18
Cable	Micro-Coax	UFD150A-1-0720-200200	EVK	2025-03-21	2026-03-21
Attenuator	S.M. Electronics	SA26B-20	AWT	2025-03-21	2026-03-21
Block - DC	Fairview Microwave	SD3473	AMY	2025-03-21	2026-03-21
Generator - Signal	Agilent	N5181A	TIG	2023-04-18	2026-04-18

BAND EDGE COMPLIANCE

EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	66	Date:	2025-08-26
Customer:	KHN Solutions DBA BACtrack	Temperature:	23.2°C
Attendees:	None	Relative Humidity:	48.6%
Customer Project:	None	Bar. Pressure (PMSL):	1012 mbar
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV06
Power:	5V via USB	Configuration:	BACT0015-6

COMMENTS

Reference level offset includes; DC Block, 20 dB attenuator, measurement cable, and manufacturer's patch cable.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass

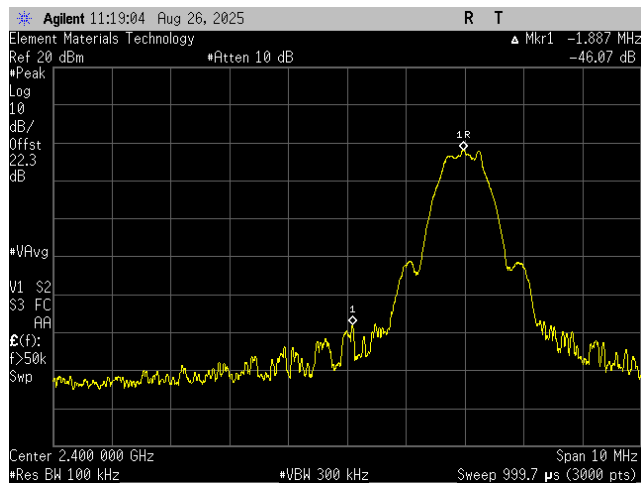


Tested By

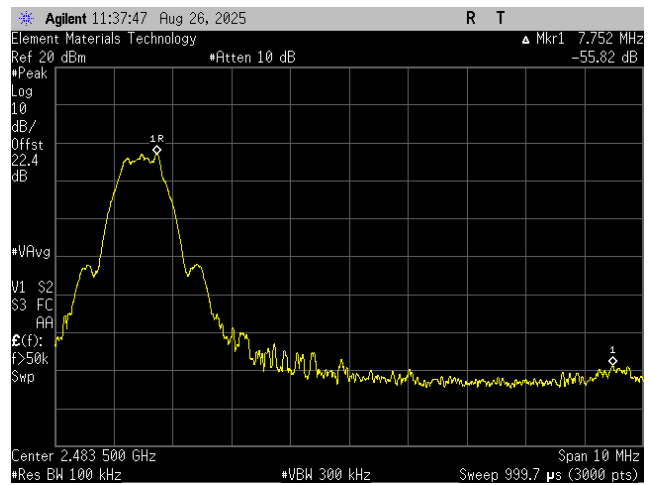
TEST RESULTS

	Value (dBc)	Limit ≤ (dBc)	Result
BLE/GFSK 1 Mbps			
Low Channel, 2402 MHz	-46.07	-20	Pass
High Channel, 2480 MHz	-55.82	-20	Pass

BAND EDGE COMPLIANCE



BLE/GFSK 1 Mbps
Low Channel, 2402 MHz



BLE/GFSK 1 Mbps
High Channel, 2480 MHz

SPURIOUS CONDUCTED EMISSIONS

TEST DESCRIPTION

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

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

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

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

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

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2024-11-25	2025-11-25
Cable	Micro-Coax	UFD150A-1-0720-200200	EVK	2025-03-21	2026-03-21
Generator - Signal	Agilent	N5181A	TIG	2023-04-18	2026-04-18
Attenuator	S.M. Electronics	SA26B-20	AWT	2025-03-21	2026-03-21
Block - DC	Fairview Microwave	SD3473	AMY	2025-03-21	2026-03-21

SPURIOUS CONDUCTED EMISSIONS

EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	66	Date:	2025-08-21
Customer:	KHN Solutions DBA BACtrack	Temperature:	22.1°C
Attendees:	None	Relative Humidity:	44.3%
Customer Project:	None	Bar. Pressure (PMSL):	1022 mbar
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	5V via USB	Configuration:	BACT0015-6

COMMENTS

Reference level offset includes DC Block, 20 dB attenuator, measurement cable and manufacturer's patch cable.
Screen capture depicts worst case (highest dBc) channel – High Channel = 2480 MHz.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass

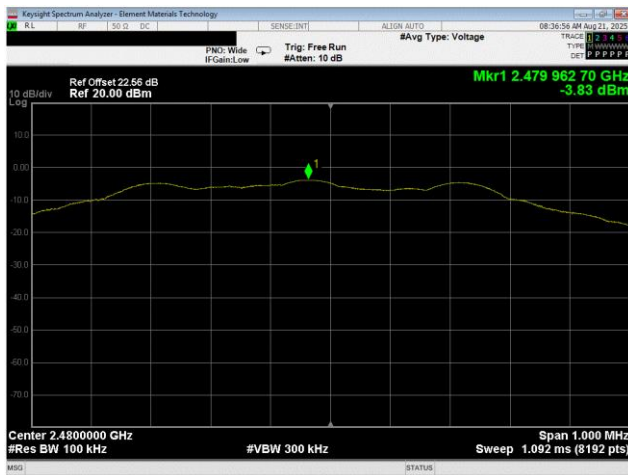


Tested By

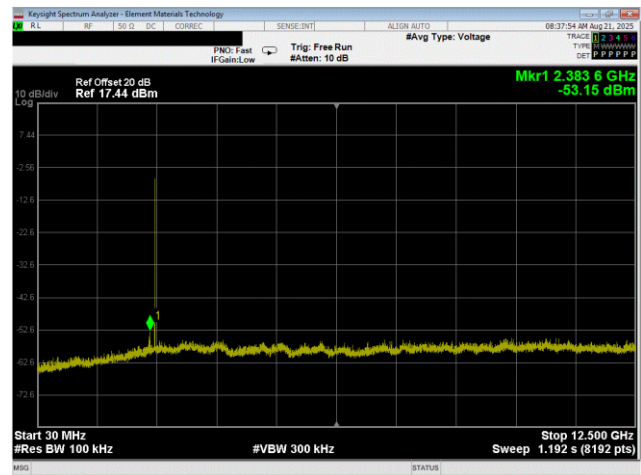
TEST RESULTS

		Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
BLE/GFSK 1 Mbps						
Low Channel, 2402 MHz	Fundamental		2402.23	N/A	N/A	N/A
	30 MHz - 12.5 GHz		2305.99	-50.78	-20	Pass
	12.5 GHz - 25 GHz		24591.01	-47.88	-20	Pass
Mid Channel, 2440 MHz	Fundamental		2440.23	N/A	N/A	N/A
	30 MHz - 12.5 GHz		8837.1	-51.65	-20	Pass
	12.5 GHz - 25 GHz		23986.69	-47.41	-20	Pass
High Channel, 2480 MHz	Fundamental		2479.96	N/A	N/A	N/A
	30 MHz - 12.5 GHz		2383.63	-49.32	-20	Pass
	12.5 GHz - 25 GHz		24096.57	-46.79	-20	Pass

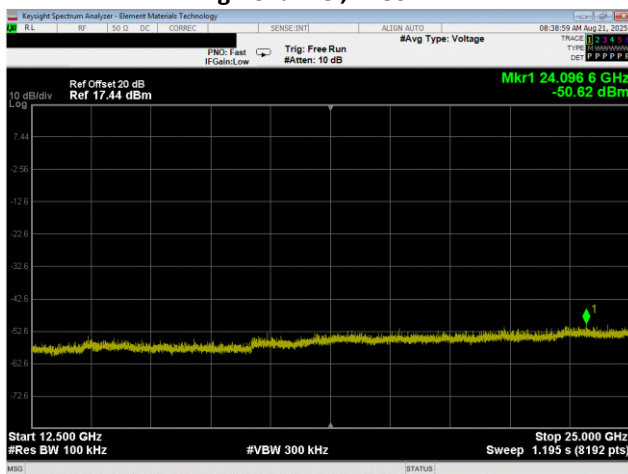
SPURIOUS CONDUCTED EMISSIONS



BLE/GFSK 1 Mbps
High Channel, 2480 MHz



BLE/GFSK 1 Mbps
High Channel, 2480 MHz



BLE/GFSK 1 Mbps
High Channel, 2480 MHz

RADIATED SPURIOUS EMISSIONS RESTRICTED BAND EDGE



TEST DESCRIPTION

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

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

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

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

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

PK = Peak Detector
AV = RMS Detector

Test mode operates at 85.9% duty cycle, upward DCCF correction applied to AV measurements based on $10 \cdot \log(1/0.859) = 0.7$ dB.

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

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2024-11-25	2025-11-25
Antenna - Double Ridge	ETS Lindgren	3115	AIZ	2024-03-08	2026-03-08
Cable	N/A	Double Ridge Horn Cables	EVB	2025-05-02	2026-05-02
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAG	2024-10-28	2025-10-28
Attenuator	Coaxicom	3910-10	AWX	2024-10-28	2025-10-28

RADIATED SPURIOUS EMISSIONS RESTRICTED BAND EDGE



EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	70	Date:	2025-08-21
Customer:	KHN Solutions DBA BACtrack	Temperature:	22.7°C
Attendees:	None	Relative Humidity:	45.7%
Customer Project:	None	Bar. Pressure (PMSL):	1018 mbar
Tested By:	Jeff Alcock and Christopher Pinkham	Job Site:	EV01
Power:	5V via USB	Configuration:	BACT0015-1

COMMENTS

None

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

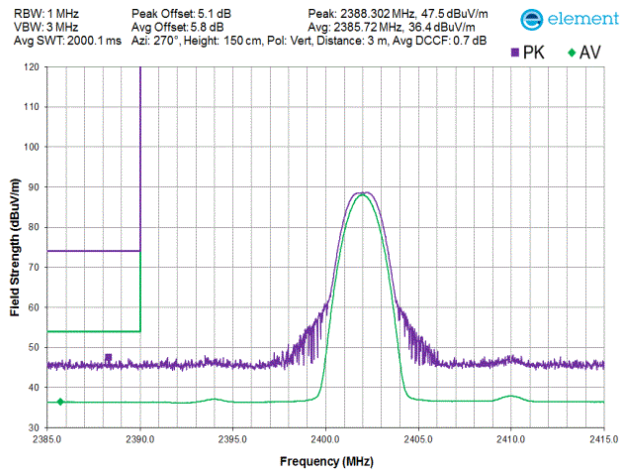
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Tested By

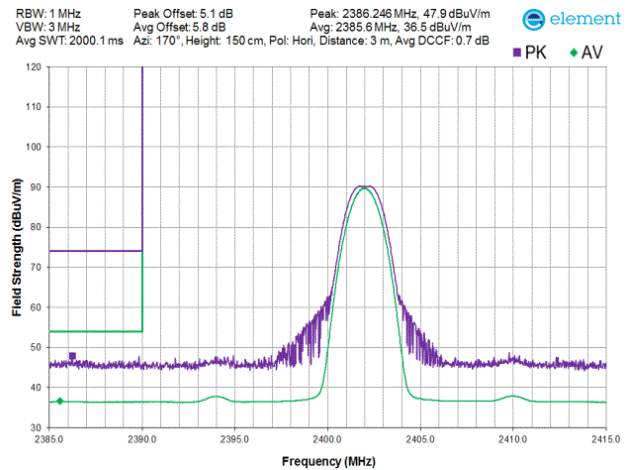
TEST RESULTS

	Frequency (MHz)	PK (dBuV/m) AV (dBuV/m)	PK Lim (dBuV/m) AV Lim (dBuV/m)	Worst Margin (dB)	Pol. (H/V)	EUT Orientation	Results
BLE/GFSK 1 Mbps							
Low Channel, 2402 MHz	2388.302	47.5	74.0	-17.6	V	Horizontal	Pass
	2385.720	36.4	54.0				
	2386.246	47.9	74.0	-17.5	H	on Side	Pass
	2385.600	36.5	54.0				
High Channel, 2480 MHz	2483.503	50.7	74.0	-16.5	V	Horizontal	Pass
	2487.805	37.5	54.0				
	2483.543	52.6	74.0	-16.0	H	on Side	Pass
	2487.880	38.0	54.0				

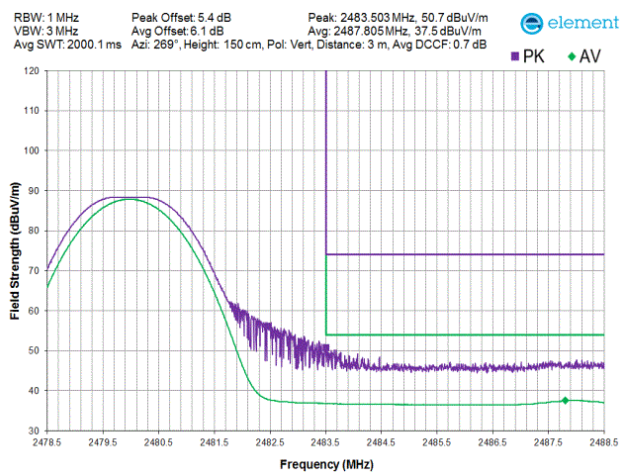
RADIATED SPURIOUS EMISSIONS RESTRICTED BAND EDGE



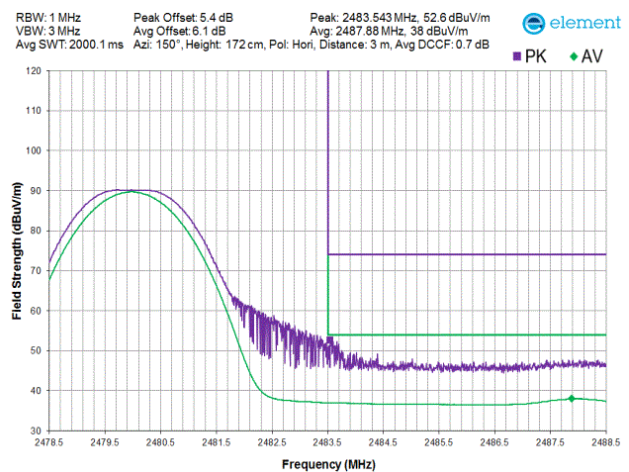
**BLE/GFSK 1 Mbps
Low Channel, 2402 MHz**



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



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



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

SPURIOUS RADIATED EMISSIONS

TEST DESCRIPTION

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

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

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

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

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

Test mode operates at 85.9% duty cycle, upward DCCF correction applied to AV measurements based on $10 \cdot \log(1/0.859) = 0.7$ dB.

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

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2024-11-25	2025-11-25
Antenna - Loop	EMCO	6502	AOA	2024-10-23	2026-10-23
Antenna - Biconilog	Teseq	CBL 6141B	AXR	2025-04-15	2027-04-15
Antenna - Double Ridge	ETS Lindgren	3115	AIZ	2024-03-08	2026-03-08
Antenna - Standard Gain	ETS Lindgren	3160-07	AHU	2025-01-23	2026-01-23
Antenna - Standard Gain	ETS Lindgren	3160-08	AHV	2025-01-23	2026-01-23
Antenna - Standard Gain	ETS Lindgren	3160-09	AIV	2025-01-23	2026-01-23
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AOL	2024-10-28	2025-10-28
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAG	2024-10-28	2025-10-28
Amplifier - Pre-Amplifier	L-3 Narda-MITEQ	AMF-6F-08001200-30-10P	PAO	2024-10-28	2025-10-28
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	2024-10-28	2025-10-28
Amplifier - Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	2025-04-27	2026-04-27
Cable	N/A	Bilog Cables	EVA	2024-10-29	2025-10-29
Cable	N/A	Double Ridge Horn Cables	EVB	2025-05-02	2026-05-02
Cable	None	Standard Gain Horn Cables	EVF	2024-10-28	2025-10-28
Cable	ESM Cable Corp.	TTBJ141-KMKM-72	EVY	2025-04-27	2026-04-27
Attenuator	Coaxicom	3910-10	AWX	2024-10-28	2025-10-28
Filter - Low Pass	Micro-Tronics	LPM50004	LFD	2024-10-28	2025-10-28
Filter - High Pass	Micro-Tronics	HPM50111	HFO	2024-10-28	2025-10-28

FREQUENCY RANGE INVESTIGATED

9 kHz TO 26.5 GHz

SPURIOUS RADIATED EMISSIONS

POWER INVESTIGATED

5V via USB

CONFIGURATIONS INVESTIGATED

BACT0015-1

MODES INVESTIGATED

BLE, GFSK, 1 Mbps - Low Channel = 2402 MHz, Mid Channel = 2440 MHz, High Channel = 2480 MHz

SPURIOUS RADIATED EMISSIONS

EUT:	Z9 Series: BT-Z9 (BACtrack Z9 Pro)	Work Order:	BACT0015
Serial Number:	70	Date:	2025-08-18
Customer:	KHN Solutions DBA BACtrack	Temperature:	22°C
Attendees:	Ray Kampmeier	Relative Humidity:	52.8%
Customer Project:	None	Bar. Pressure (PMSL):	1016 mb
Tested By:	Jeff Alcoke and Christopher Pinkham	Job Site:	EV01
Power:	5V via USB	Configuration:	BACT0015-1

TEST PARAMETERS

Run #:	17	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)
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COMMENTS

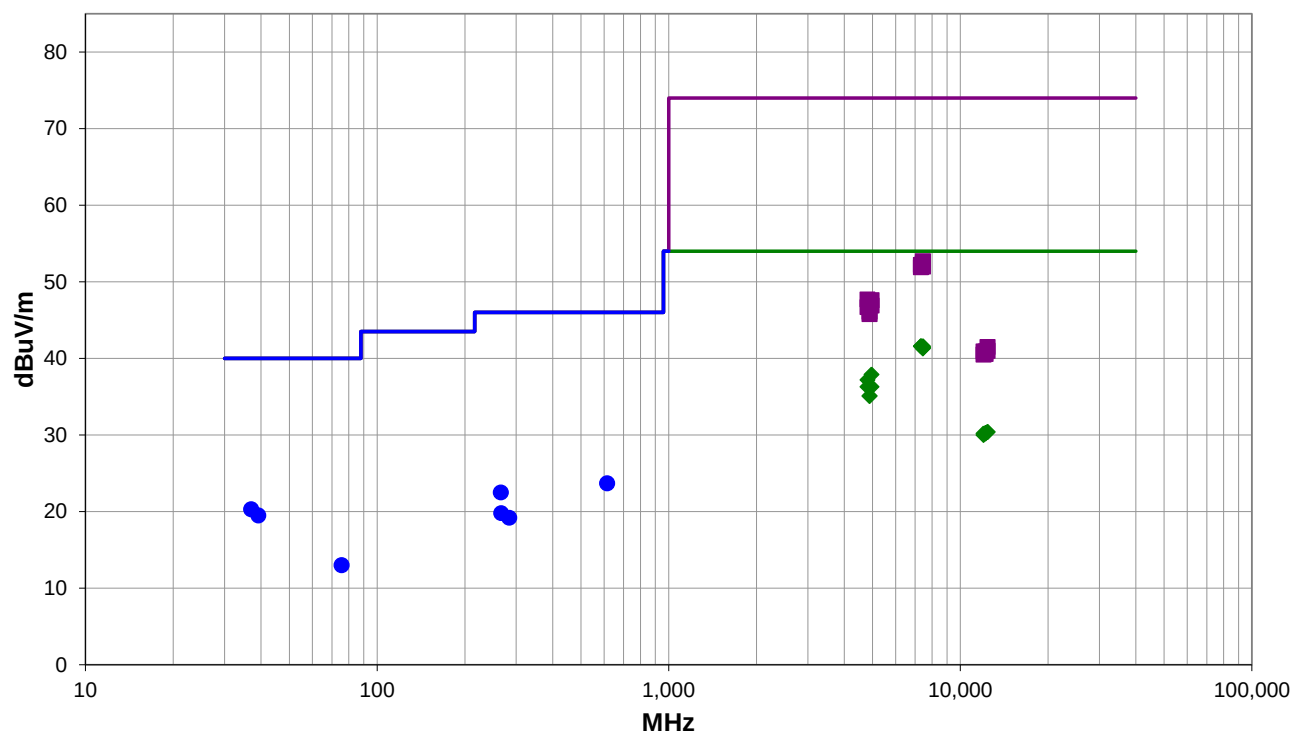
None

EUT OPERATING MODES

BLE, GFSK, 1 Mbps – Low Channel = 2402 MHz, Mid Channel = 2440 MHz, High Channel = 2480 MHz

DEVIATIONS FROM TEST STANDARD

None



Run #: 17

PK AV QP

SPURIOUS RADIATED EMISSIONS

RESULTS - Run #17

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
7324.600	27.6	13.3	1.5	124.0	0.7	0.0	Horz	AV	0.0	41.6	54.0	-12.4	Mid Ch. EUT on side
7324.992	27.6	13.3	1.5	84.0	0.7	0.0	Vert	AV	0.0	41.6	54.0	-12.4	Mid Ch. EUT on side
7439.925	27.5	13.4	1.9	46.0	0.7	0.0	Horz	AV	0.0	41.6	54.0	-12.4	High Ch. EUT on side
7438.483	27.4	13.4	1.5	153.0	0.7	0.0	Vert	AV	0.0	41.5	54.0	-12.5	High Ch. EUT on side
7438.283	27.3	13.4	1.9	198.0	0.7	0.0	Horz	AV	0.0	41.4	54.0	-12.6	High Ch. EUT Horz
7438.575	27.3	13.4	2.0	93.0	0.7	0.0	Horz	AV	0.0	41.4	54.0	-12.6	High Ch. EUT Vert
7440.100	27.3	13.4	2.5	61.0	0.7	0.0	Vert	AV	0.0	41.4	54.0	-12.6	High Ch. EUT Horz
7439.367	27.2	13.4	1.5	103.0	0.7	0.0	Vert	AV	0.0	41.3	54.0	-12.7	High Ch. EUT Vert
4959.750	30.8	6.4	1.5	214.0	0.7	0.0	Horz	AV	0.0	37.9	54.0	-16.1	High Ch. EUT on side
4803.842	30.2	6.3	2.0	306.0	0.7	0.0	Horz	AV	0.0	37.2	54.0	-16.8	Low Ch. EUT on side
4803.692	29.3	6.3	2.4	166.0	0.7	0.0	Vert	AV	0.0	36.3	54.0	-17.7	Low Ch. EUT on side
4959.808	29.2	6.4	1.5	121.0	0.7	0.0	Vert	AV	0.0	36.3	54.0	-17.7	High Ch. EUT on side
4881.942	28.1	6.3	1.5	78.0	0.7	0.0	Horz	AV	0.0	35.1	54.0	-18.9	Mid Ch. EUT on side
4883.167	28.1	6.3	1.5	75.0	0.7	0.0	Vert	AV	0.0	35.1	54.0	-18.9	Mid Ch. EUT on side
36.996	17.1	3.2	1.0	210.0	0.0	0.0	Horz	QP	0.0	20.3	40.0	-19.7	Mid Ch. EUT on side
39.137	17.3	2.2	1.0	210.0	0.0	0.0	Horz	QP	0.0	19.5	40.0	-20.5	Mid Ch. EUT on side
7439.633	39.3	13.4	2.5	61.0	0.0	0.0	Vert	PK	0.0	52.7	74.0	-21.3	High Ch. EUT Horz
7440.967	39.0	13.4	2.0	93.0	0.0	0.0	Horz	PK	0.0	52.4	74.0	-21.6	High Ch. EUT Vert
7441.183	39.0	13.4	1.5	103.0	0.0	0.0	Vert	PK	0.0	52.4	74.0	-21.6	High Ch. EUT Vert
7326.058	38.9	13.3	1.5	124.0	0.0	0.0	Horz	PK	0.0	52.2	74.0	-21.8	Mid Ch. EUT on side
7440.758	38.8	13.4	1.9	46.0	0.0	0.0	Horz	PK	0.0	52.2	74.0	-21.8	High Ch. EUT on side
7440.958	38.8	13.4	1.5	153.0	0.0	0.0	Vert	PK	0.0	52.2	74.0	-21.8	High Ch. EUT on side
7440.383	38.6	13.4	1.9	198.0	0.0	0.0	Horz	PK	0.0	52.0	74.0	-22.0	High Ch. EUT Horz
7324.092	38.6	13.3	1.5	84.0	0.0	0.0	Vert	PK	0.0	51.9	74.0	-22.1	Mid Ch. EUT on side
615.016	16.5	7.2	3.4	267.0	0.0	0.0	Horz	QP	0.0	23.7	46.0	-22.3	Mid Ch. EUT on side
265.538	24.1	-1.6	1.0	289.0	0.0	0.0	Vert	QP	0.0	22.5	46.0	-23.5	Mid Ch. EUT on side
12397.980	28.7	1.0	1.5	360.0	0.7	0.0	Horz	AV	0.0	30.4	54.0	-23.6	High Ch. EUT on side
12398.590	28.7	1.0	1.3	305.0	0.7	0.0	Vert	AV	0.0	30.4	54.0	-23.6	High Ch. EUT on side
12209.390	28.9	0.7	3.6	229.0	0.7	0.0	Horz	AV	0.0	30.3	54.0	-23.7	Mid Ch. EUT on side
12008.840	29.2	0.3	1.6	223.0	0.7	0.0	Horz	AV	0.0	30.2	54.0	-23.8	Low Ch. EUT on side
12208.560	28.8	0.7	1.5	138.0	0.7	0.0	Vert	AV	0.0	30.2	54.0	-23.8	Mid Ch. EUT on side
12007.640	29.0	0.3	2.5	205.0	0.7	0.0	Vert	AV	0.0	30.0	54.0	-24.0	Low Ch. EUT on side
266.258	21.4	-1.6	1.4	211.0	0.0	0.0	Horz	QP	0.0	19.8	46.0	-26.2	Mid Ch. EUT on side
4803.658	41.4	6.3	2.0	306.0	0.0	0.0	Horz	PK	0.0	47.7	74.0	-26.3	Low Ch. EUT on side
4960.308	41.2	6.4	1.5	214.0	0.0	0.0	Horz	PK	0.0	47.6	74.0	-26.4	High Ch. EUT on side
283.735	20.8	-1.6	1.0	356.0	0.0	0.0	Horz	QP	0.0	19.2	46.0	-26.8	Mid Ch. EUT on side
75.492	21.6	-8.6	1.8	59.0	0.0	0.0	Horz	QP	0.0	13.0	40.0	-27.0	Mid Ch. EUT on side
4960.125	40.5	6.4	1.5	121.0	0.0	0.0	Vert	PK	0.0	46.9	74.0	-27.1	High Ch. EUT on side
4802.075	40.4	6.3	2.4	166.0	0.0	0.0	Vert	PK	0.0	46.7	74.0	-27.3	Low Ch. EUT on side
4883.217	39.8	6.3	1.5	75.0	0.0	0.0	Vert	PK	0.0	46.1	74.0	-27.9	Mid Ch. EUT on side

SPURIOUS RADIATED EMISSIONS

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
4882.150	39.5	6.3	1.5	78.0	0.0	0.0	Horz	PK	0.0	45.8	74.0	-28.2	Mid Ch, EUT on side
12397.630	40.5	1.0	1.5	360.0	0.0	0.0	Horz	PK	0.0	41.5	74.0	-32.5	High Ch, EUT on side
12397.880	40.0	1.0	1.3	305.0	0.0	0.0	Vert	PK	0.0	41.0	74.0	-33.0	High Ch, EUT on side
12010.980	40.6	0.3	2.5	205.0	0.0	0.0	Vert	PK	0.0	40.9	74.0	-33.1	Low Ch, EUT on side
12208.690	40.2	0.7	3.6	229.0	0.0	0.0	Horz	PK	0.0	40.9	74.0	-33.1	Mid Ch, EUT on side
12210.790	39.9	0.7	1.5	138.0	0.0	0.0	Vert	PK	0.0	40.6	74.0	-33.4	Mid Ch, EUT on side
12010.040	40.2	0.3	1.6	223.0	0.0	0.0	Horz	PK	0.0	40.5	74.0	-33.5	Low Ch, EUT on side

CONCLUSION

Pass

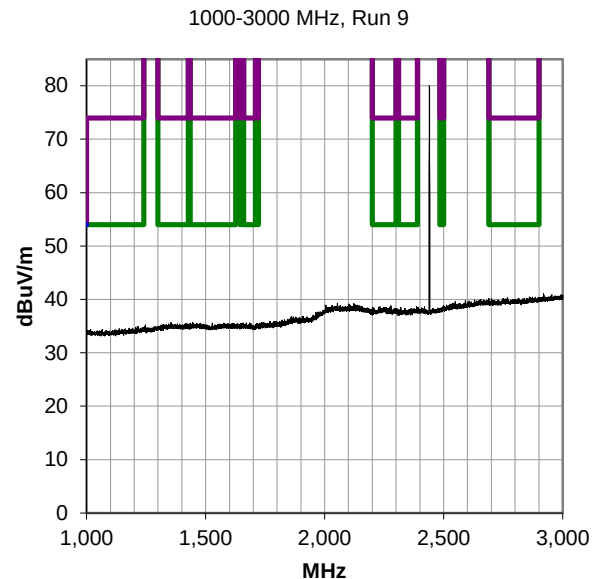
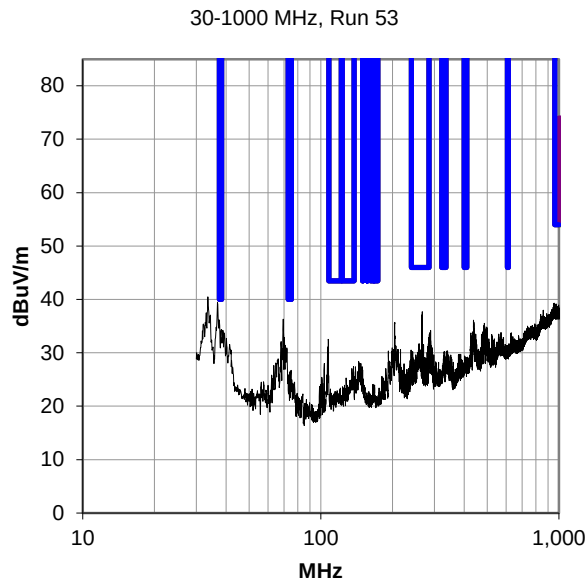
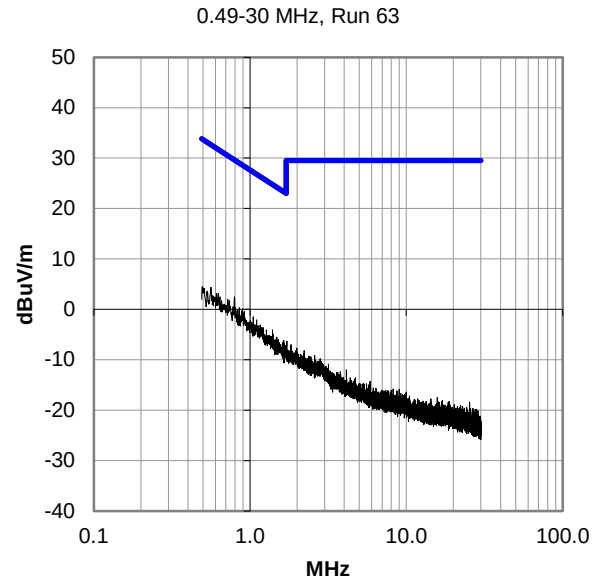
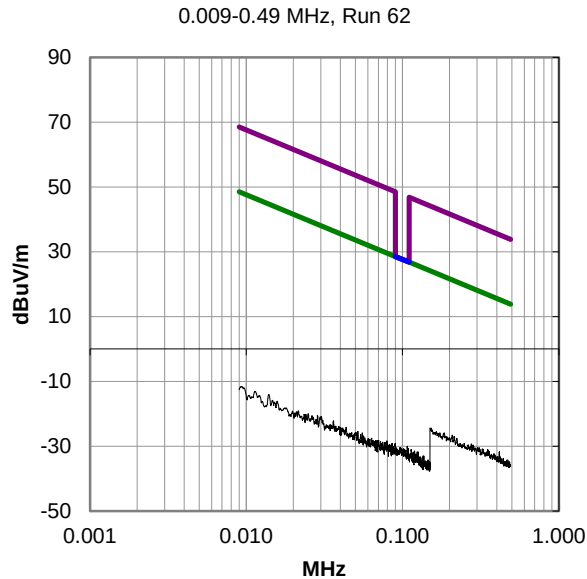


Tested By

SPURIOUS RADIATED EMISSIONS

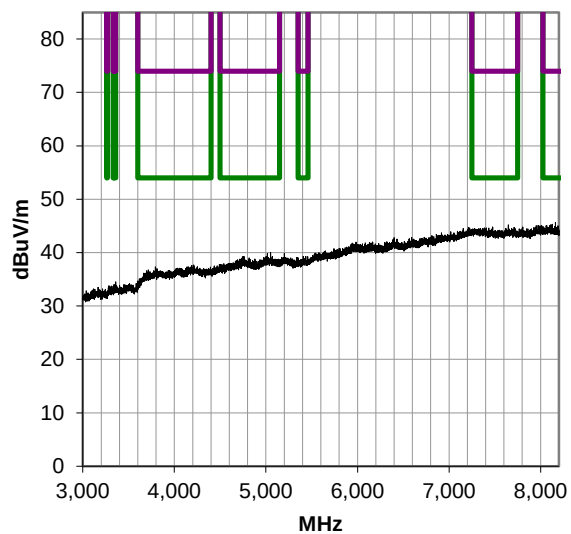
PRESCAN DATA

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

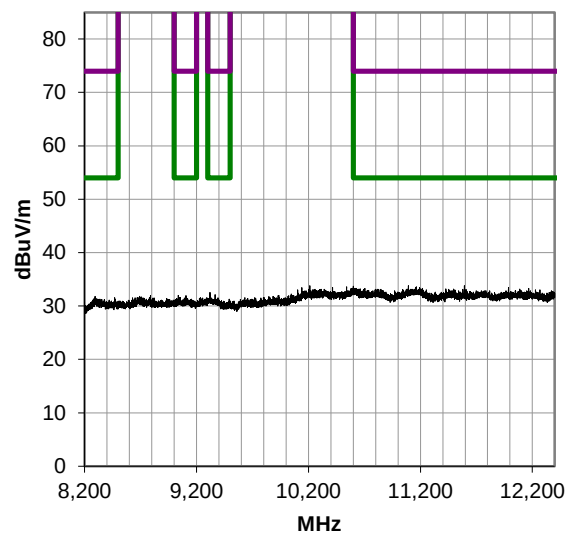


SPURIOUS RADIATED EMISSIONS

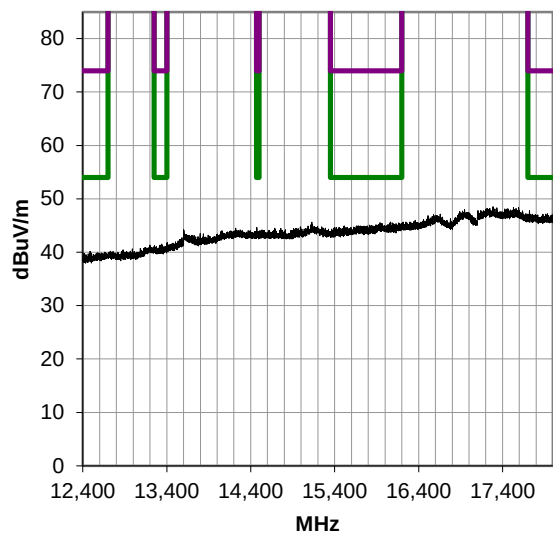
3000-8200 MHz, Run 10



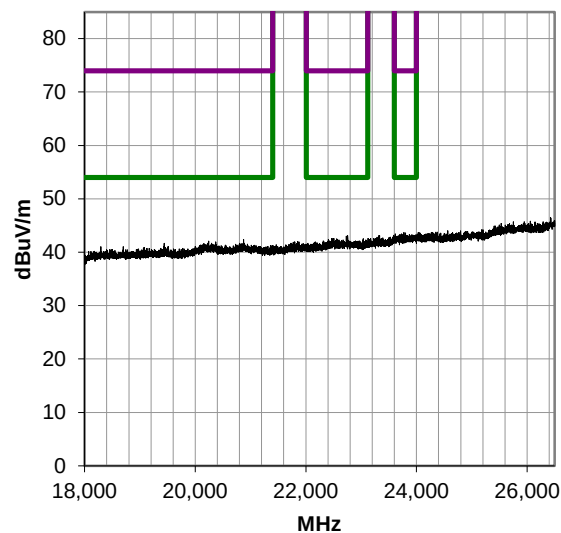
8200-12400 MHz, Run 11



12400-18000 MHz, Run 12



18000-26500 MHz, Run 26



End of Test Report