Backburner Labs Inc.

BAN-1

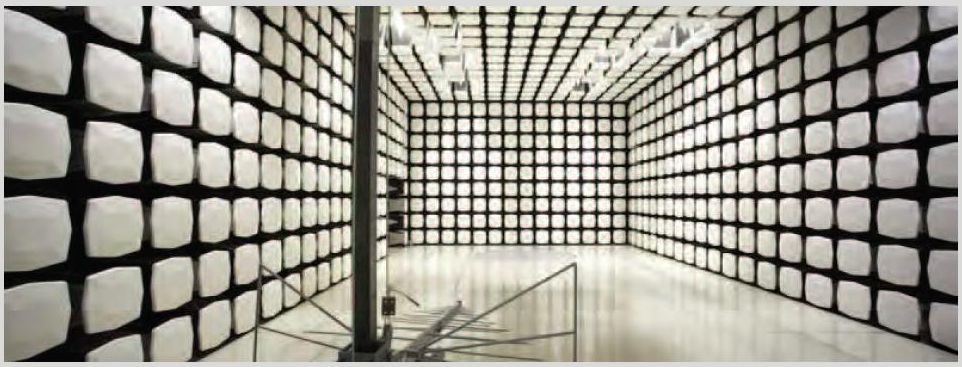
FCC 15.247:2024

RSS-247 Issue 3:2023

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

Bluetooth Radio

Report: BKBN0001.4 Rev. 1, Issue Date: November 23, 2024



ACCREDITED
CERT #3310.05

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element
2023.04.17

Section	Page Number

CERTIFICATE OF TEST

Last Date of Test: November 19, 2024
Backburner Labs Inc.
EUT: BAN-1

Radio Equipment Testing

Standards

Specification	Method
FCC 15.247:2024	ANSI C63.10:2013
RSS-247 Issue 3:2023	
RSS-Gen Issue 5:2018+A1:2019+A2:2021	

Guidance

FCC KDB 558074 v05r02:2019
Notice 2021 - CEB0001

Results

Test Description	Result	FCC Section(s)	RSS Section(s)	ANSI C63.10 Section(s)	Comments
Powerline Conducted Emissions	N/A	15.207	RSS-Gen 8.8	6.2	Not included for a C2PC to add a new antenna type
Duty Cycle	Eval	KDB 558074 -6.0	RSS-Gen 3.2	11.6	
DTS Bandwidth (6 dB)	N/A	15.247(a)(2), KDB 558074 -8.2	RSS-247 5.2(a)	11.8.2	Not included for a C2PC to add a new antenna type
Occupied Bandwidth (99%)	Eval	KDB 558074 -2.1	RSS-Gen 6.7	6.9.3	
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	N/A	15.247(e), KDB 558074 -8.4	RSS-247 5.2(b)	11.10.2	Not included for a C2PC to add a new antenna type
Band Edge Compliance	N/A	15.247(d), KDB 558074 -8.5	RSS-247 5.5	11.11	Not included for a C2PC to add a new antenna type
Spurious Conducted Emissions	N/A	15.247(d), KDB 558074 -8.5	RSS-247 5.5	11.11	Not included for a C2PC to add a new antenna type
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, 11.13.2, 6.4, 6.5, 6.6	

Deviations From Test Standards

None

Approved By:

Trevor Buls

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
01	Updated Output Power data at power setting 7.	2024-11-05	20-22
	Updated EIRP data at power setting 7.	2024-11-05	23-24
	Updated SRE data at power setting 7.	2024-11-05	25-36
	Updated test dates.	2024-11-05	3, 11, 15
	Added configuration BKBN0003-1.	2024-11-05	14
	Updated Spurious Radiated Emissions.	2024-11-24	25-33
	Updated test dates to reflect new SRE.	2024-11-24	3, 11, 15

ACCREDITATIONS AND AUTHORIZATIONS

United States

FCC - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

A2LA - Each laboratory is accredited by A2LA to ISO / IEC 17025, and as a product certifier to ISO / IEC 17065 which allows Element to certify transmitters to FCC and IC specifications.

Canada

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB) and as a CAB for the acceptance of test data.

European Union

European Commission – Recognized as an EU Notified Body validated for the EMCD and RED Directives.

United Kingdom

BEIS – Recognized by the UK as an Approved Body under the UK Radio Equipment and UK EMC Regulations.

Australia/New Zealand

ACMA - Recognized by ACMA as a CAB for the acceptance of test data.

Korea

MSIT / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

NCC - Recognized by NCC as a CAB for the acceptance of test data.

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Israel

MOC – Recognized by MOC as a CAB for the acceptance of test data.

Hong Kong

OFCA – Recognized by OFCA as a CAB for the acceptance of test data.

Vietnam

MIC – Recognized by MIC as a CAB for the acceptance of test data.

SCOPE

For details on the Scopes of our Accreditations, please visit:

California Minnesota Oregon Texas Washington

FACILITIES

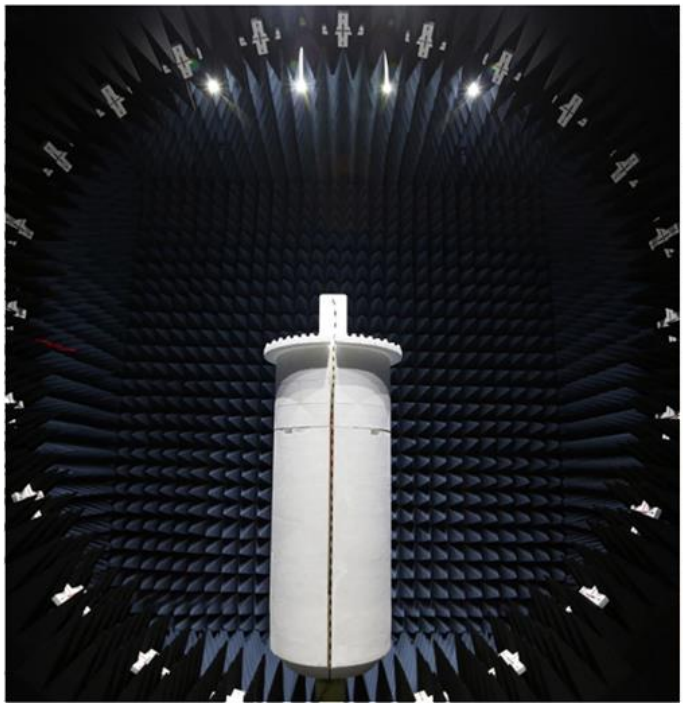
element
2024.08.21

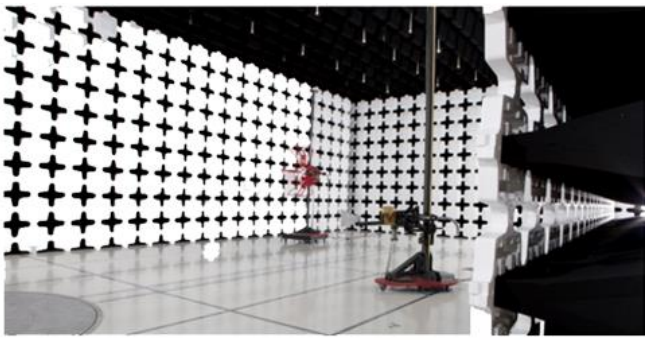
Testing was performed at the following location(s)

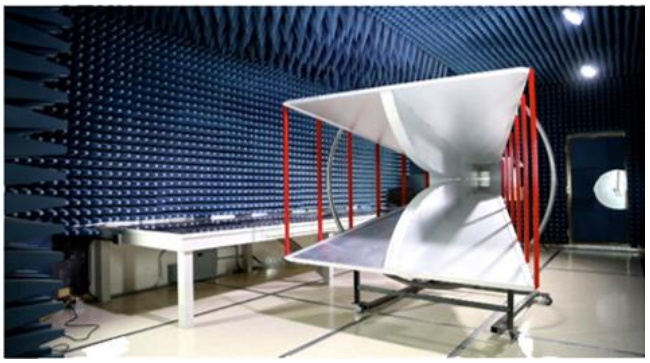
	Location	Labs (1)	Address	A2LA (2)	ISED (3)	BSMI (4)	VCCI (5)	CAB (6)	FDA (7)
☐	California	OC01-17	41 Tesla Irvine, CA 92618 (949) 861-8918	3310.04	2834B	SL2-IN-E-1154R	A-0029	US0158	TL-55
☒	Minnesota	MN01-11	9349 W Broadway Ave. Brooklyn Park, MN 55445 (612) 638-5136	3310.05	2834E	SL2-IN-E-1152R	A-0109	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
☐	Plano Texas	PT01-15	1701 E Plano Pkwy, Ste 150 Plano, TX 75074 (972) 509-2566	214.19	32637	SL2-IN-E-057R	A-0426	US0054	N/A
☐	Texas	TX01-09	3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	3310.03	2834G	SL2-IN-E-1158R	N/A	US0191	TL-54
☐	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) CAB Identifier. Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA
(7) FDA ASCA No.







MEASUREMENT UNCERTAINTY

element
MU 2023-09-21

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 has been performed for each test per our internal quality document QM205.4.6. 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

Field Strength Measurements (dB)

Range	MN05 (+/-)	MN11 (+/-)
10kHz-30MHz	1.8	N/A
30MHz-1GHz 3m	4.6	N/A
1GHz-6GHz	5.1	N/A
6GHz-40GHz	5.2	N/A

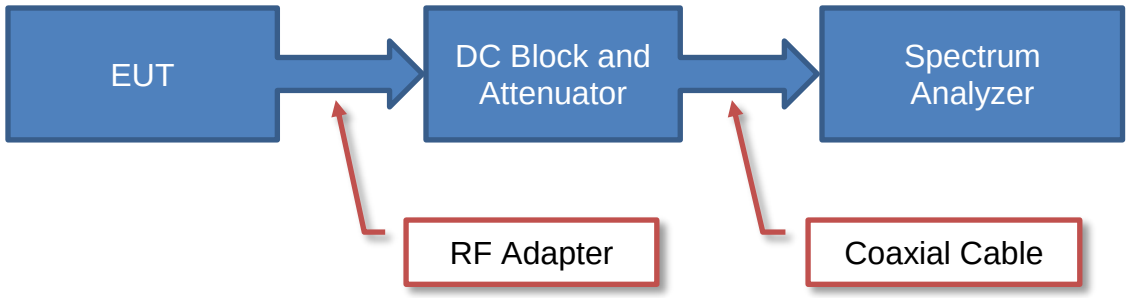
TEST SETUP BLOCK DIAGRAMS

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.

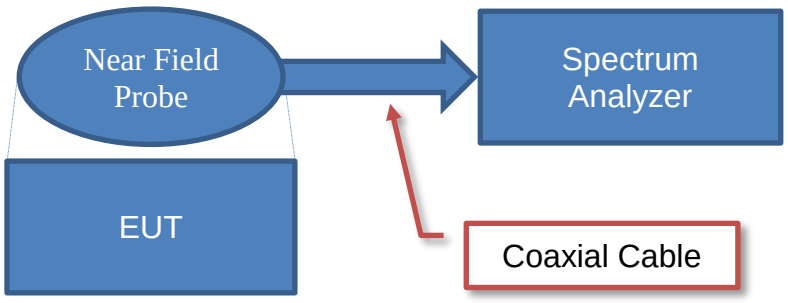
Antenna Port Conducted Measurements



Sample Calculation (logarithmic units)

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

Near Field Test Fixture Measurements

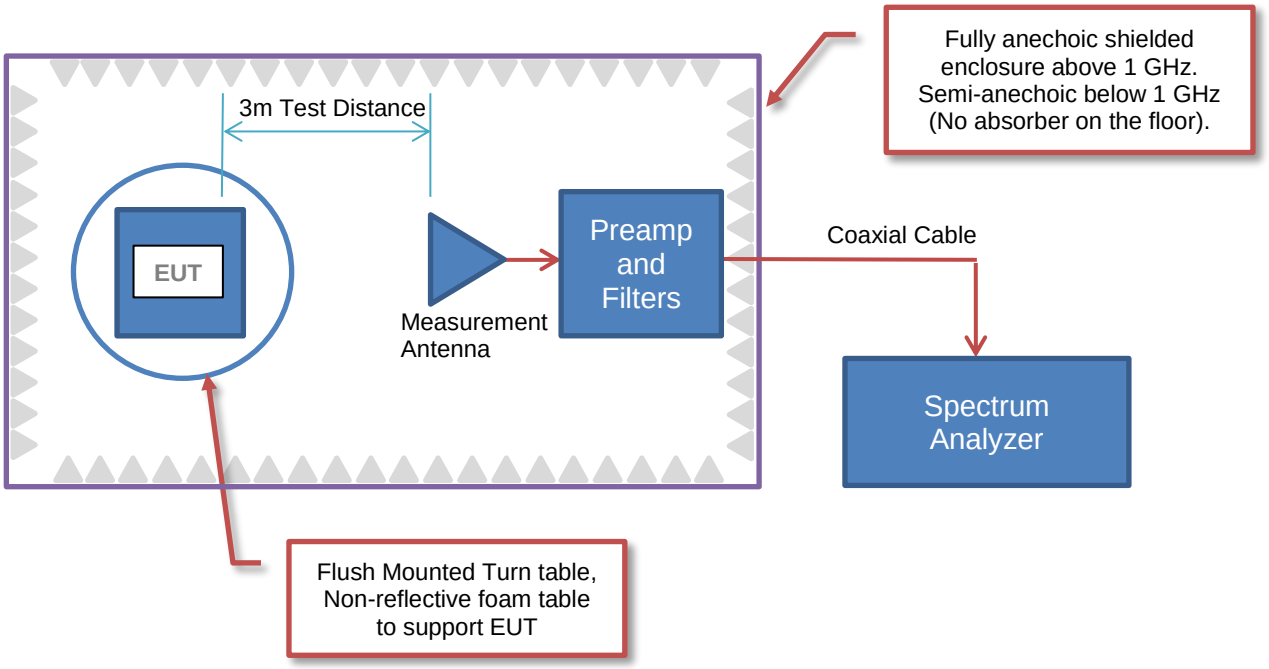


Sample Calculation (logarithmic units)

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: Antenna Factor		Factor: Cable Factor		Factor: Amplifier Gain		Distance Adjustment Factor		External Attenuation		Field Strength
42.6	+	28.6	+	3.1	-	40.8	+	0.0	+	0.0	=	**33.5**

Conducted Emissions:

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

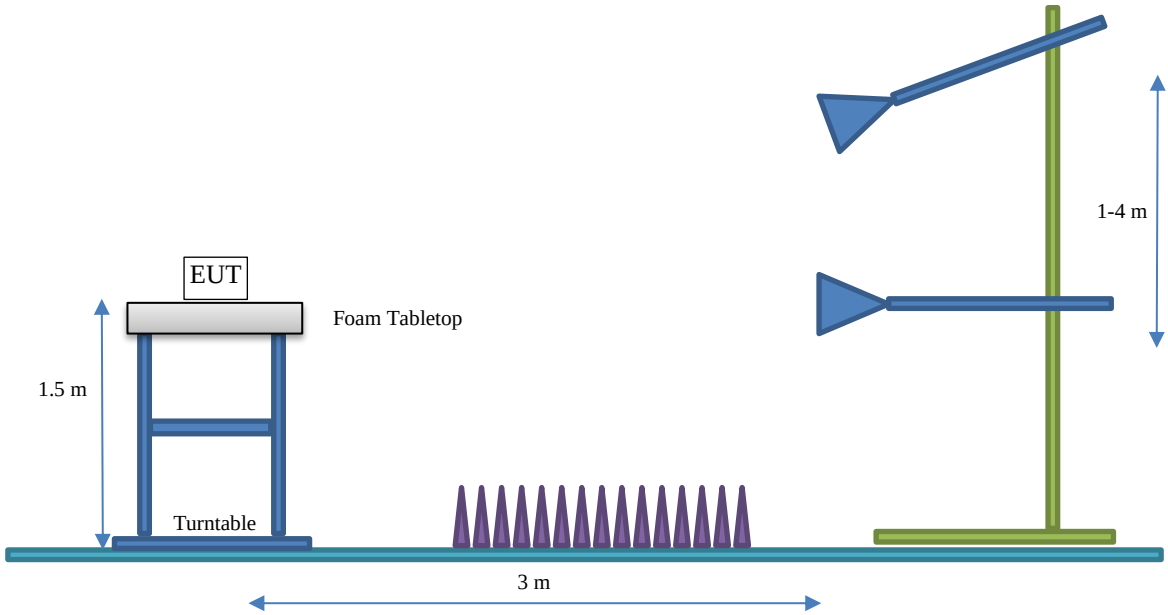
Radiated Power (ERP/EIRP) – Substitution Method:

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:	Backburner Labs Inc.
Address:	3040 Wilder Street N
City, State, Zip:	St. Paul, MN 55113
Test Requested By:	Tyler Perry
EUT:	BAN-1
First Date of Test:	August 19, 2024
Last Date of Test:	November 19, 2024
Receipt Date of Samples:	August 9, 2024
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
2.4 GHz Wi-Fi/Bluetooth module BAN-1. This report is specific to adding one new antenna type for the Bluetooth portion of the module. FCC ID: 2BKES-BANRT-A IC: 32926-BANRTA

Testing Objective:
To demonstrate compliance of the Bluetooth radio to FCC 15.247/RSS-247 requirements.

POWER SETTINGS AND ANTENNAS

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

ANTENNA GAIN (dBi)

Type	Provided by:	Frequency Range (MHz)	Gain (dBi)
Flex PCB Taoglas FXP73	Taoglas	2400-2483.5	5

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

☒ Test software settings
☒ Rated power settings

Test Software: ESP RF Test Tool v3.6

Firmware: ESP32-S3_RF_Test_bin_v110

SETTINGS FOR ALL OTHER TESTS IN THIS REPORT

Modulation Types / Data Rates	Type	Channel	Frequency (MHz)	Power Setting	Rated Power (dBm)
BLE GFSK 1 Mbps, 2 Mbps	DTS	37	2402	7	-3
		18	2442	7	-3
		39	2480	7	-3

CONFIGURATIONS

Configuration BKBN0001-4

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Taoglas FXP73.07.0100A	Taoglas	FXP73.07.01008	1
Wi-Fi and Bluetooth Module	Espressif Systems	BAN-1	MAC 74:4D:BD:A3:ED:D0

Peripherals in Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Li-Ion Battery	Jauch	LP906090LH	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Antenna Cable	No	0.1m	No	Taoglas FXP73.07.0100A (with board)	Board
Battery Cable	No	0.4 m	No	Battery	Board

Configuration BKBN0001-8

Software/Firmware Running During Test	
Description	**Version**
See Power Settings	

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Wi-Fi and Bluetooth Module	Espressif Systems	BAN-1	MAC C0:4E:30:3E:C3:08

Peripherals in Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Li-Ion Battery	Jauch	LP906090LH	None

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Dell	Inspiron	CGTKL24

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Battery Cable	No	0.4 m	No	Battery	Board
USB Cable (laptop)	Yes	1.5 m	No	Laptop	Board

CONFIGURATIONS

Configuration BKBN0003-1

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
WiFi and BLE Module	Espressif Systems	BAN-1	74:4d:bd:a3:ed:d0

Peripherals in Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Dell	Inspiron	CGTKL24
Li-Ion Battery	Jauch	LP906090LH	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Battery Cable	No	0.4 m	No	Battery	Board
USB Cable (laptop)	Yes	1.5 m	No	Laptop	Board

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2024-08-19	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.
2	2024-11-05	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.
3	2024-11-05	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.
4	2024-11-19	Spurious Radiated Emissions	Tested as delivered to test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

DUTY CYCLE

element
2023/09/26

TEST DESCRIPTION

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 test software provided for operation in a fixed, single channel mode allows the EUT to operate continuously at 100% Duty Cycle.

OCCUPIED BANDWIDTH (99%)

element
TbtTx 2024.05.24.1
WTD.2024.01.16.0

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 C63.10:2013, 6.9.3, the spectrum analyzer was configured as follows:

The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.

The resolution bandwidth (RBW) of the spectrum analyzer was set to the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) bandwidth was set to at least 3 times the resolution bandwidth. The analyzer sweep time was set to auto to prevent video filtering or averaging. 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	Keysight	N9010A	AFM	2024-05-22	2025-05-22
Generator - Signal	Agilent	N5183A	TIK	2022-01-24	2025-01-24
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	2023-09-05	2024-09-05
Attenuator	Fairview Microwave	SA4014-20	AQI	2023-09-05	2024-09-05
Block - DC	Fairview Microwave	SD3379	ANH	2023-09-05	2024-09-05

OCCUPIED BANDWIDTH (99%)

element
TbtTx 2024.05.24.1
WTD.2024.01.16.0

EUT:	BAN-1	Work Order:	BKBN0001
Serial Number:	MAC C0:4E:30:3E:C3:08	Date:	2024-08-19
Customer:	Back Burner Labs	Temperature:	21.8°C
Attendees:	Tyler Perry	Relative Humidity:	56.6%
Customer Project:	None	Bar. Pressure (PMSL):	1023 mbar
Tested By:	Christopher Heintzelman	Job Site:	MN11
Power:	3.7VDC Battery	Configuration:	BKBN0001-8

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2024	ANSI C63.10:2013
RSS-247 Issue 3:2023	ANSI C63.10:2013

COMMENTS

Reference level offset includes measurement cable, attenuator, and DC block.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass

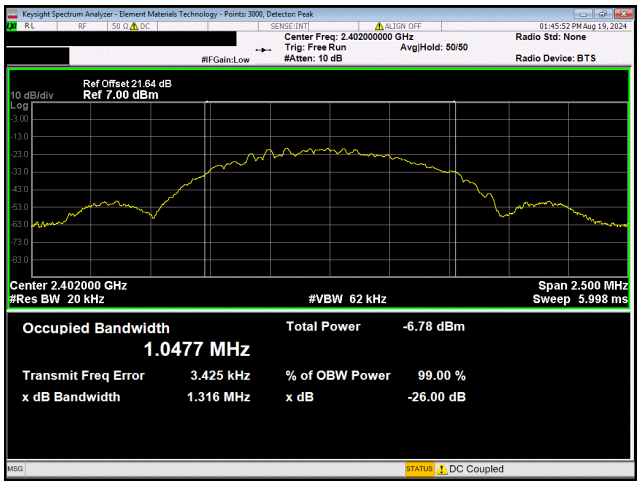
Tested By

TEST RESULTS

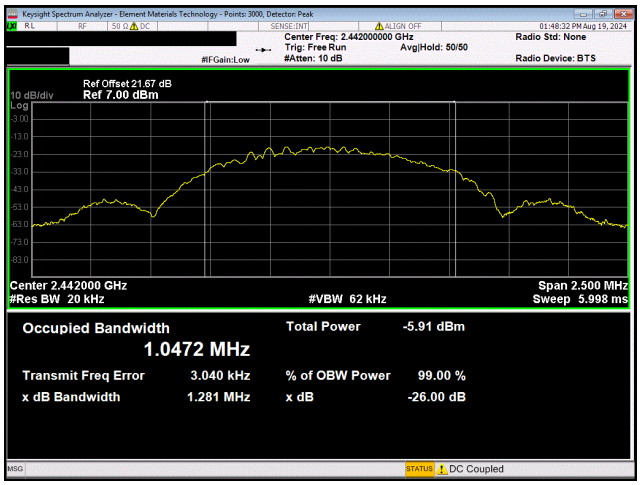
	Value	Limit	Result
BLE/GFSK 1 Mbps			
Low Channel, 2402 MHz	1.048 MHz	N/A	N/A
Mid Channel, 2442 MHz	1.047 MHz	N/A	N/A
High Channel, 2480 MHz	1.047 MHz	N/A	N/A
BLE/GFSK 2 Mbps			
Low Channel, 2402 MHz	2.074 MHz	N/A	N/A
Mid Channel, 2442 MHz	2.073 MHz	N/A	N/A
High Channel, 2480 MHz	2.072 MHz	N/A	N/A

OCCUPIED BANDWIDTH (99%)

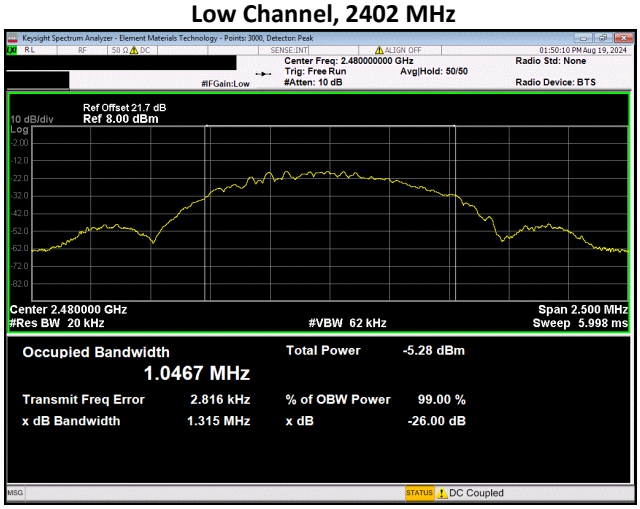
element
TbtTx 2024.05.24.1
WTD.2024.01.16.0



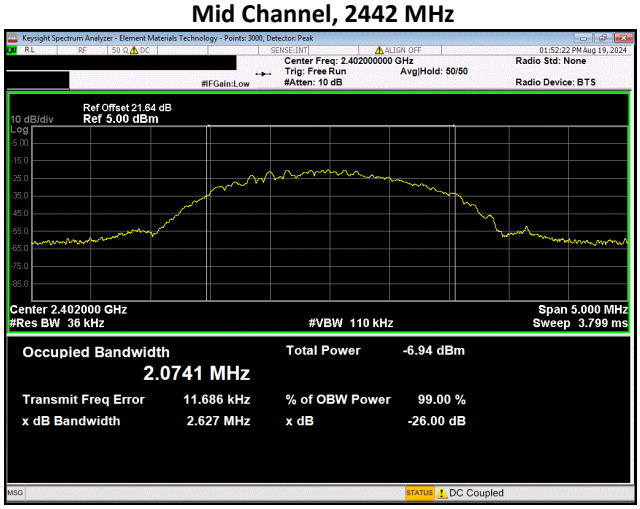
BLE/GFSK 1 Mbps
Low Channel, 2402 MHz



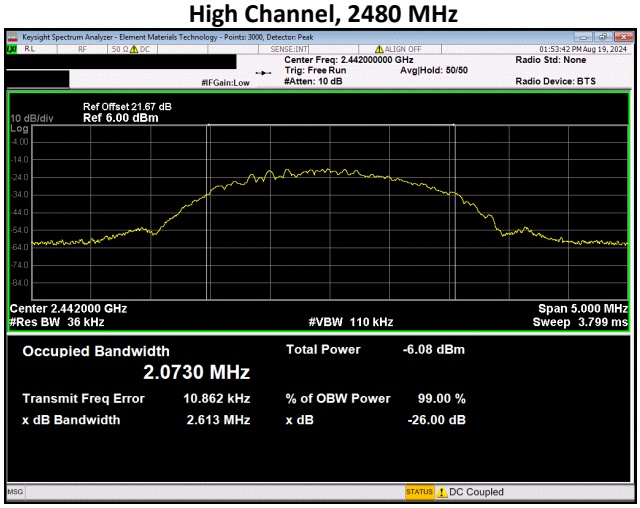
BLE/GFSK 1 Mbps
Mid Channel, 2442 MHz



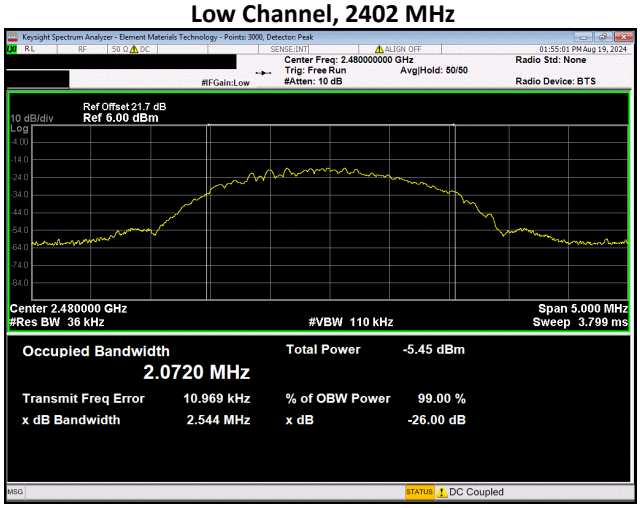
BLE/GFSK 1 Mbps
High Channel, 2480 MHz



BLE/GFSK 2 Mbps
Low Channel, 2402 MHz



BLE/GFSK 2 Mbps
Mid Channel, 2442 MHz



BLE/GFSK 2 Mbps
High Channel, 2480 MHz

OUTPUT POWER

element
TbtTx 2024.05.24.1
WTD.2024.01.16.0

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 C63.10:2013 Section 11.9.1.1 was used because the RBW on the analyzer was greater than the DTS Bandwidth of the radio.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5171B (EXG)	TEY	2024-01-11	2027-01-11
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	2024-05-22	2025-05-22
Block - DC	Fairview Microwave	SD3379	ANH	2024-08-28	2025-08-28
Attenuator	S.M. Electronics	SA26B-20	RFW	2024-01-31	2025-01-31
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	2024-08-28	2025-08-28

OUTPUT POWER

element
TbtTx 2024.05.24.1
WTD.2024.01.16.0

EUT:	BAN-1	Work Order:	BKBN0003
Serial Number:	MAC: 74:4d:bd:a3:ed:d0	Date:	2024-11-05
Customer:	Back Burner Labs	Temperature:	21.3°C
Attendees:	Tyler Perry	Relative Humidity:	43.3%
Customer Project:	None	Bar. Pressure (PMSL):	1004 mbar
Tested By:	Christopher Heintzelman	Job Site:	MN11
Power:	3.7VDC Battery	Configuration:	BKBN0003-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2024	ANSI C63.10:2013
RSS-247 Issue 3:2023	ANSI C63.10:2013

COMMENTS

Reference level offset includes measurement cable, attenuator, and DC block.
Power setting set to 7 in test software.

DEVIATIONS FROM TEST STANDARD

None

CONCLUSION

Pass

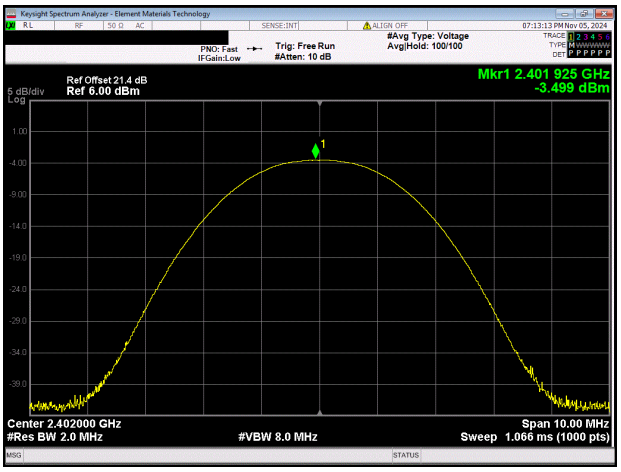
Tested By

TEST RESULTS

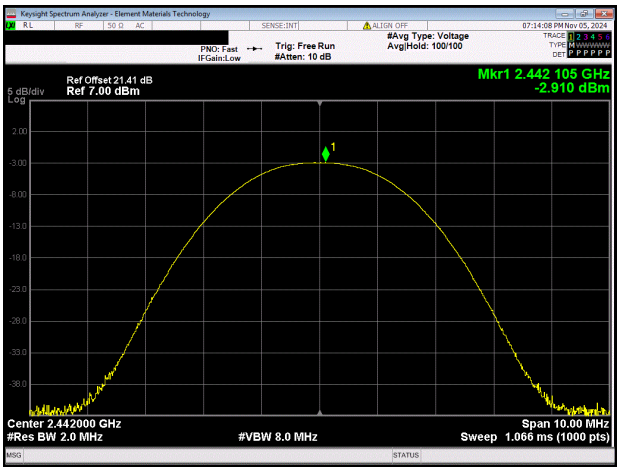
	Out Pwr (dBm)	Limit (dBm)	Result
BLE/GFSK 1 Mbps			
Low Channel, 2402 MHz	-3.499	30	Pass
Mid Channel, 2442 MHz	-2.91	30	Pass
High Channel, 2480 MHz	-2.573	30	Pass
BLE/GFSK 2 Mbps			
Low Channel, 2402 MHz	-3.748	30	Pass
Mid Channel, 2442 MHz	-3.151	30	Pass
High Channel, 2480 MHz	-2.825	30	Pass

OUTPUT POWER

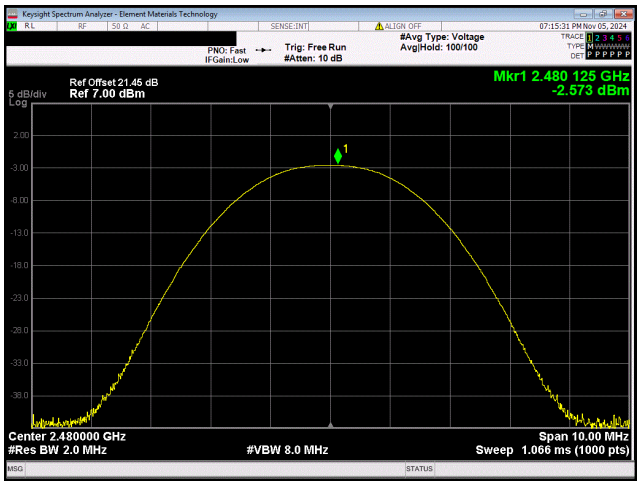
element
TbtTx 2024.05.24.1
WTD.2024.01.16.0



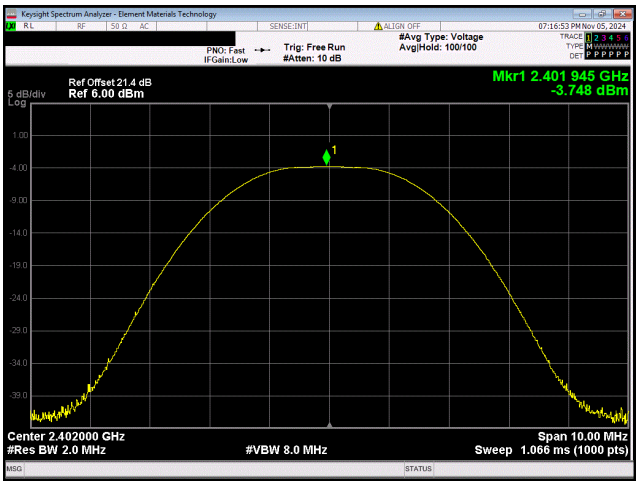
BLE/GFSK 1 Mbps
Low Channel, 2402 MHz



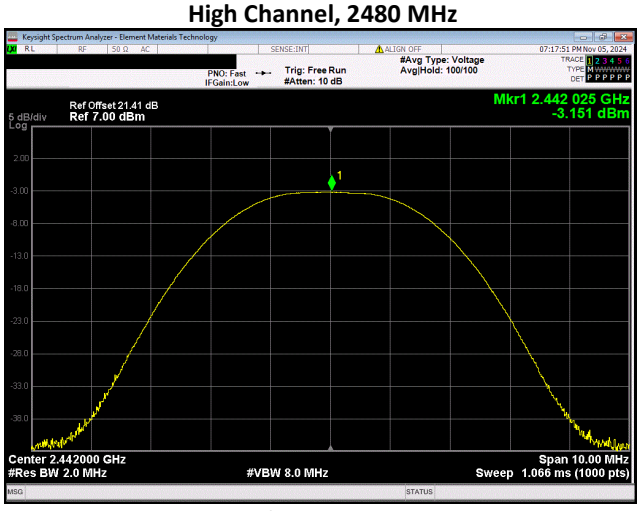
BLE/GFSK 1 Mbps
Mid Channel, 2442 MHz



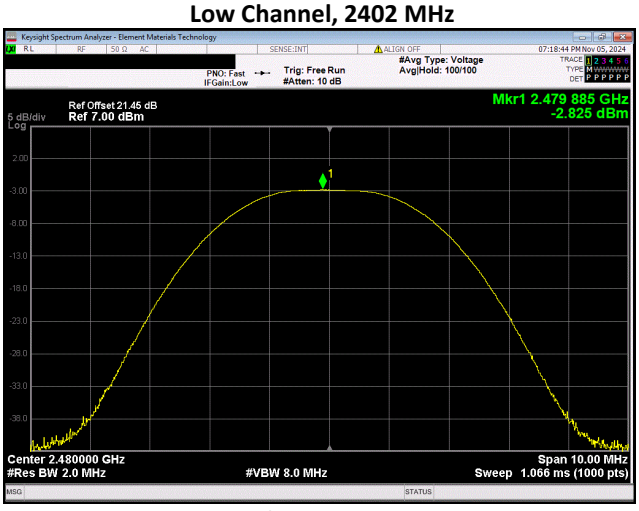
BLE/GFSK 1 Mbps
High Channel, 2480 MHz



BLE/GFSK 2 Mbps
Low Channel, 2402 MHz



BLE/GFSK 2 Mbps
Mid Channel, 2442 MHz



BLE/GFSK 2 Mbps
High Channel, 2480 MHz

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

element
TbtTx 2024.05.24.1
WTD.2024.01.16.0

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 C63.10:2013 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)

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5171B (EXG)	TEY	2024-01-11	2027-01-11
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFM	2024-05-22	2025-05-22
Block - DC	Fairview Microwave	SD3379	ANH	2024-08-28	2025-08-28
Attenuator	S.M. Electronics	SA26B-20	RFW	2024-01-31	2025-01-31
Cable	Micro-Coax	UFD150A-1-0720-200200	MNL	2024-08-28	2025-08-28

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

element
TbtTx 2024.05.24.1
WTD.2024.01.16.0

EUT:	BAN-1	Work Order:	BKBN0003
Serial Number:	MAC: 74:4d:bd:a3:ed:d0	Date:	2024-11-05
Customer:	Back Burner Labs	Temperature:	21.3°C
Attendees:	Tyler Perry	Relative Humidity:	43.2%
Customer Project:	None	Bar. Pressure (PMSL):	1006 mbar
Tested By:	Christopher Heintzelman	Job Site:	MN11
Power:	3.7VDC Battery	Configuration:	BKBN0003-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2024	ANSI C63.10:2013
RSS-247 Issue 3:2023	ANSI C63.10:2013

COMMENTS

Reference level offset includes measurement cable, attenuator, and DC block.
Power setting 7 in the test software.

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 2 Mbps					
Low Channel, 2402 MHz	-3.748	5	1.252	36	Pass
Mid Channel, 2442 MHz	-3.151	5	1.849	36	Pass
High Channel, 2480 MHz	-2.825	5	2.175	36	Pass
BLE/GFSK 1 Mbps					
Low Channel, 2402 MHz	-3.499	5	1.501	36	Pass
Mid Channel, 2442 MHz	-2.91	5	2.09	36	Pass
High Channel, 2480 MHz	-2.573	5	2.427	36	Pass

SPURIOUS RADIATED EMISSIONS

element
WTD.2024.01.16.0
EmiR5 2023.08.29.0
PSA-ESCI 2024.06.27.0

TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, a final radiated emissions test was performed. The frequency range investigated (scanned), is also noted in this report. Radiated emissions measurements were made at the EUT azimuth and antenna height such that the maximum radiated emissions level was detected. This required the use of a turntable and an antenna positioner. The preferred method of a continuous azimuth search was utilized for frequency scans of the EUT field strength with both polarities of the measuring antenna. A calibrated, linearly polarized antenna was positioned at the specified distance from the periphery of the EUT. Tests were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna was varied in height above the conducting ground plane to obtain the maximum signal strength. Though specified in the report, the measurement distance was 3 meters or 10 meters (from antenna to boundary of EUT). At any measurement distance, the antenna height was varied from 1 meter to 4 meters. These height scans apply for both horizontal and vertical polarization, except that for vertical polarization the minimum height of the center of the antenna was increased so that the lowest point of the bottom of the antenna cleared the ground surface by at least 25 cm.

The EUT arrangement is configured as equivalent to that occurring in normal use. Tabletop equipment is placed on a 0.8 meter high non-conductive table & for Floor-standing equipment, it is placed on, but insulated from a ground reference plane by the use of its own rollers or stand-off supports. If measurements above 1 GHz were required, the test setup was modified to meet the regulatory requirements for higher frequency measurements. If required, RF absorber was placed on the floor between the measurement antenna and EUT. If required, per the standard, an insulating material was also added to ground plane between the EUT's power and remote I/O cables.

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.

The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Antenna - Double Ridge	ETS Lindgren	3115	AIP	2024-08-02	2026-08-02
Cable	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	2024-01-08	2025-01-08
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVT	2024-01-08	2025-01-08
Filter - High Pass	Micro-Tronics	HPM50111	LFN	2024-08-25	2025-08-25
Analyzer - Spectrum Analyzer	Agilent	E4446A	AAQ	2024-03-13	2025-03-13
Attenuator	Fairview Microwave	SA18H-20	VAF	2024-08-25	2025-08-25
Antenna - Standard Gain	ETS Lindgren	3160-07	AXP	NCR	NCR
Cable	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	2024-01-28	2025-01-28
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	2024-01-08	2025-01-08
Antenna - Standard Gain	ETS Lindgren	3160-08	AIQ	NCR	NCR
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVW	2024-01-08	2025-01-08
Antenna - Biconilog	ETS Lindgren	3142D	AXO	2023-10-02	2025-10-02
Cable	ESM Cable Corp.	Bilog Cables	MNH	2024-10-09	2025-10-09
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AVO	2024-10-09	2025-10-09
Filter - Low Pass	Micro-Tronics	LPM50004	LFK	2024-08-25	2025-08-25
Antenna - Standard Gain	ETS Lindgren	3160-09	AHG	NCR	NCR
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNP	2024-09-05	2025-09-05
Amplifier - Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	2024-09-05	2025-09-05
Antenna - Loop	ETS Lindgren	6502	AOB	2023-06-12	2025-06-12

SPURIOUS RADIATED EMISSIONS

element
WTD.2024.01.16.0
EmiR5 2023.08.29.0
PSA-ESCI 2024.06.27.0

FREQUENCY RANGE INVESTIGATED

9 kHz TO 26 GHz

POWER INVESTIGATED

Battery

CONFIGURATIONS INVESTIGATED

BKBN0001-4

MODES INVESTIGATED

Radio Transmitting BLE Low & High Ch, 1 & 2 Mbps
Radio Transmitting BLE Low, Mid & High Ch, 1 & 2 Mbps

SPURIOUS RADIATED EMISSIONS

element
WTD.2024.01.16.0
EmiR5 2023.08.29.0
PSA-ESCI 2024.06.27.0

EUT:	BAN-1	Work Order:	BKBN0001
Serial Number:	MAC 74:4D:BD:A3:ED:D0	Date:	2024-11-19
Customer:	Backburner Labs Inc.	Temperature:	21.5°C
Attendees:	Scott Elgaard	Relative Humidity:	43.9%
Customer Project:	None	Bar. Pressure (PMSL):	987 mb
Tested By:	Arnauld Dedry	Job Site:	MN05
Power:	Battery	Configuration:	BKBN0001-4

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2024	ANSI C63.10:2013
RSS 247 Issue 3:2023	ANSI C63.10:2013

TEST PARAMETERS

Run #:	218	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)

COMMENTS

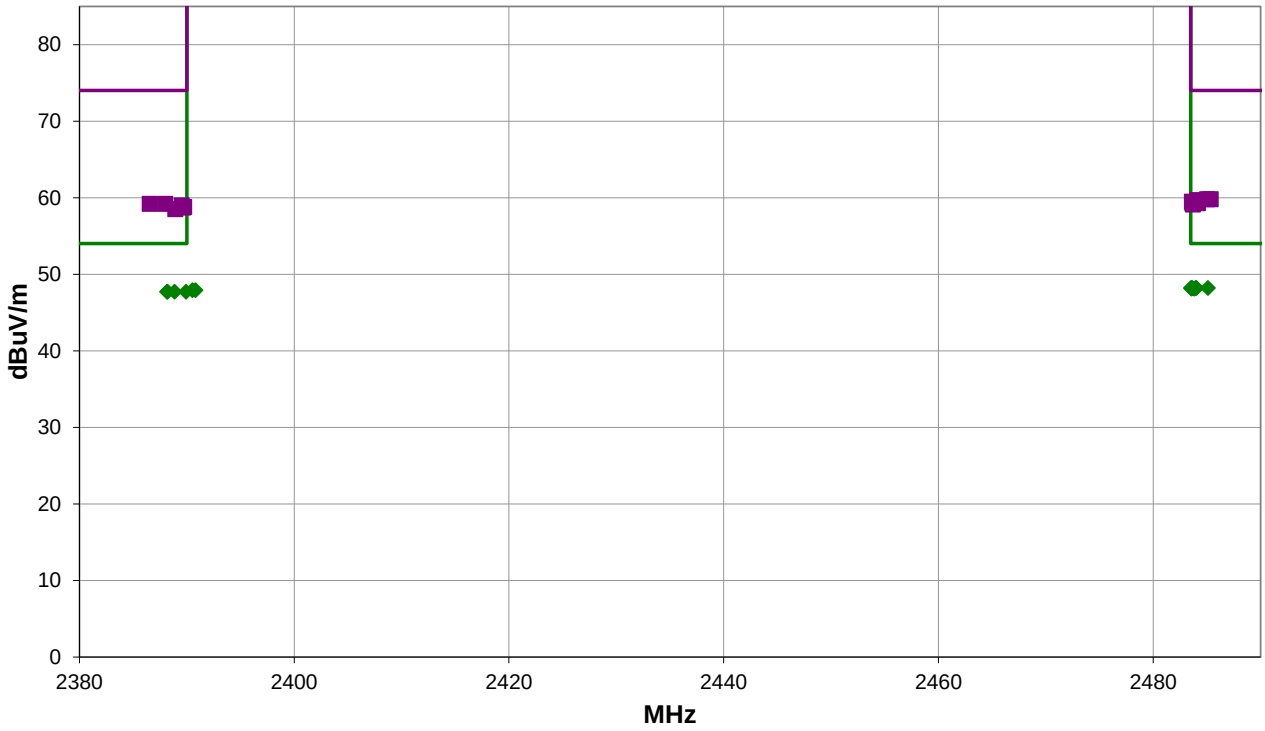
Duty Cycle >98%

EUT OPERATING MODES

Radio Transmitting BLE Low & High Ch, 1 & 2 Mbps

DEVIATIONS FROM TEST STANDARD

None



Run #: 218 PK AV QP

SPURIOUS RADIATED EMISSIONS

element
WTD.2024.01.16.0
EmiR5 2023.08.29.0
PSA-ESCI 2024.06.27.0

RESULTS - Run #218

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.627	31.5	-3.3	1.3	157.9	3.0	20.0	Horz	AV	0.0	48.2	54.0	-5.8	Eut Horz, High Ch, 1Mbps
2484.040	31.5	-3.3	1.5	218.9	3.0	20.0	Horz	AV	0.0	48.2	54.0	-5.8	Eut On Side, High Ch, 1Mbps
2483.530	31.5	-3.3	1.5	227.0	3.0	20.0	Vert	AV	0.0	48.2	54.0	-5.8	Eut On Side, High Ch, 1Mbps
2483.610	31.5	-3.3	1.5	247.9	3.0	20.0	Horz	AV	0.0	48.2	54.0	-5.8	Eut Vert, High Ch, 1Mbps
2485.113	31.5	-3.3	1.1	304.0	3.0	20.0	Vert	AV	0.0	48.2	54.0	-5.8	Eut Vert, High Ch, 1Mbps
2483.957	31.5	-3.3	3.0	339.0	3.0	20.0	Horz	AV	0.0	48.2	54.0	-5.8	Eut Horz, High Ch, 2Mbps
2483.833	31.4	-3.3	1.5	117.0	3.0	20.0	Vert	AV	0.0	48.1	54.0	-5.9	Eut Horz, High Ch, 1Mbps
2483.590	31.4	-3.3	1.5	358.9	3.0	20.0	Vert	AV	0.0	48.1	54.0	-5.9	Eut On Side, High Ch, 2Mbps
2389.925	31.8	-4.1	1.5	157.9	3.0	20.0	Horz	AV	0.0	47.7	54.0	-6.3	Eut On Side, Low Ch, 1Mbps
2388.865	31.8	-4.1	1.5	101.0	3.0	20.0	Vert	AV	0.0	47.7	54.0	-6.3	Eut On Side, Low Ch, 1Mbps
2388.160	31.8	-4.1	1.5	102.9	3.0	20.0	Horz	AV	0.0	47.7	54.0	-6.3	Eut Vert, Low Ch, 1Mbps
2388.205	31.8	-4.1	1.5	322.0	3.0	20.0	Vert	AV	0.0	47.7	54.0	-6.3	Eut Vert, Low Ch, 1Mbps
2485.027	43.1	-3.3	1.5	227.0	3.0	20.0	Vert	PK	0.0	59.8	74.0	-14.2	Eut On Side, High Ch, 1Mbps
2485.363	43.1	-3.3	3.0	339.0	3.0	20.0	Horz	PK	0.0	59.8	74.0	-14.2	Eut Horz, High Ch, 2Mbps
2484.147	43.0	-3.3	1.5	218.9	3.0	20.0	Horz	PK	0.0	59.7	74.0	-14.3	Eut On Side, High Ch, 1Mbps
2483.613	42.8	-3.3	1.5	247.9	3.0	20.0	Horz	PK	0.0	59.5	74.0	-14.5	Eut Vert, High Ch, 1Mbps
2483.863	42.7	-3.3	1.5	358.9	3.0	20.0	Vert	PK	0.0	59.4	74.0	-14.6	Eut On Side, High Ch, 2Mbps
2483.680	42.6	-3.3	1.3	157.9	3.0	20.0	Horz	PK	0.0	59.3	74.0	-14.7	Eut Horz, High Ch, 1Mbps
2484.173	42.6	-3.3	1.5	117.0	3.0	20.0	Vert	PK	0.0	59.3	74.0	-14.7	Eut Horz, High Ch, 1Mbps
2386.550	43.3	-4.1	1.5	245.0	3.0	20.0	Vert	PK	0.0	59.2	74.0	-14.8	Eut Horz, Low Ch, 1Mbps
2387.980	43.3	-4.1	1.5	102.9	3.0	20.0	Horz	PK	0.0	59.2	74.0	-14.8	Eut Vert, Low Ch, 1Mbps
2483.690	42.4	-3.3	1.1	304.0	3.0	20.0	Vert	PK	0.0	59.1	74.0	-14.9	Eut Vert, High Ch, 1Mbps
2389.517	43.1	-4.1	1.5	95.0	3.0	20.0	Horz	PK	0.0	59.0	74.0	-15.0	Eut Horz, Low Ch, 1Mbps
2389.755	42.9	-4.1	1.5	322.0	3.0	20.0	Vert	PK	0.0	58.8	74.0	-15.2	Eut Vert, Low Ch, 1Mbps
2389.655	42.8	-4.1	1.5	101.0	3.0	20.0	Vert	PK	0.0	58.7	74.0	-15.3	Eut On Side, Low Ch, 1Mbps
2388.930	42.6	-4.1	1.5	157.9	3.0	20.0	Horz	PK	0.0	58.5	74.0	-15.5	Eut On Side, Low Ch, 1Mbps
2390.825	32.0	-4.1	1.5	245.0	3.0	20.0	Vert	AV	0.0	47.9	200.0	-152.1	Eut Horz, Low Ch, 1Mbps
2390.525	32.0	-4.1	1.5	95.0	3.0	20.0	Horz	AV	0.0	47.9	200.0	-152.1	Eut Horz, Low Ch, 1Mbps

CONCLUSION

Pass

Tested By

SPURIOUS RADIATED EMISSIONS

element
WTD.2024.01.16.0
EmiR5 2023.08.29.0
PSA-ESCI 2024.06.27.0

EUT:	BAN-1	Work Order:	BKBN0001
Serial Number:	MAC 74:4D:BD:A3:ED:D0	Date:	2024-11-19
Customer:	Backburner Labs Inc.	Temperature:	21.8°C
Attendees:	Scott Elgaard	Relative Humidity:	45.5%
Customer Project:	None	Bar. Pressure (PMSL):	989 mb
Tested By:	Arnauld Dedry	Job Site:	MN05
Power:	Battery	Configuration:	BKBN0001-4

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2024	ANSI C63.10:2013
RSS 247 Issue 3:2023	ANSI C63.10:2013

TEST PARAMETERS

Run #:	223	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)

COMMENTS

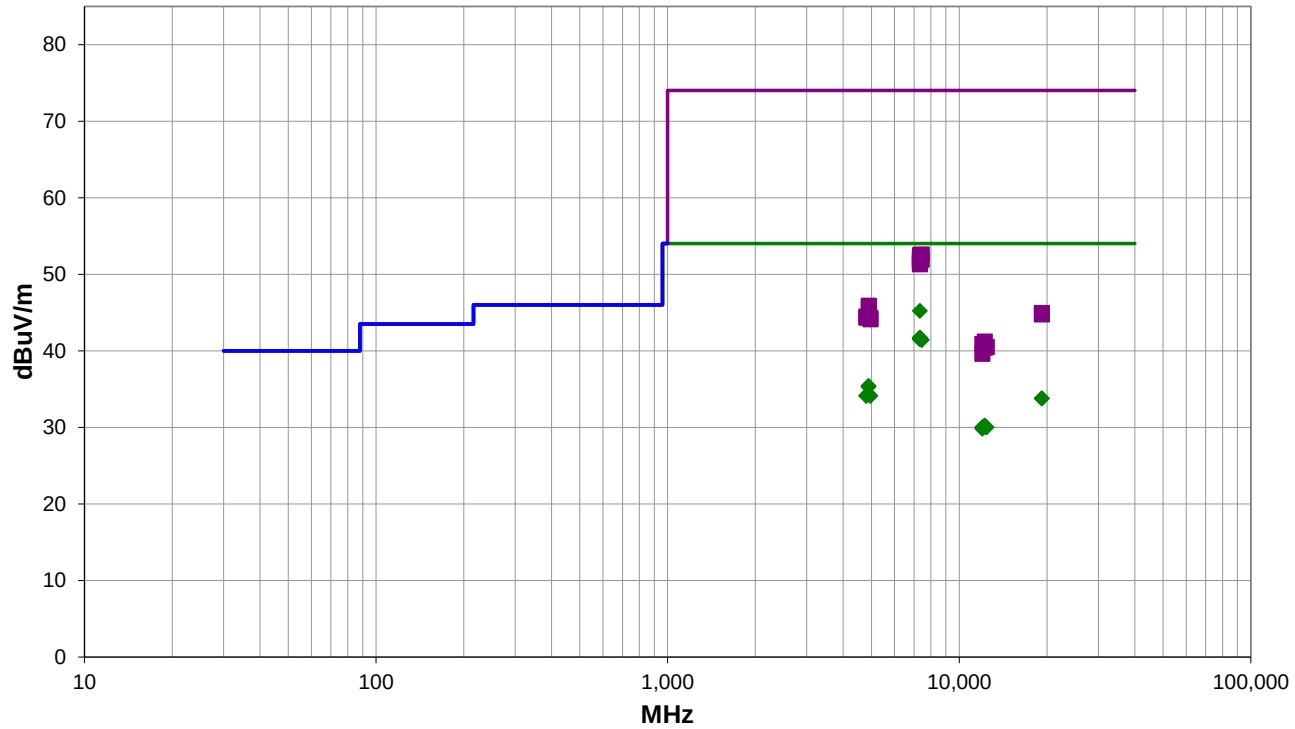
None

EUT OPERATING MODES

Radio Transmitting BLE Low, Mid & High Ch, 1 & 2 Mbps

DEVIATIONS FROM TEST STANDARD

None



Run #: 223 ■ PK ◆ AV ● QP

SPURIOUS RADIATED EMISSIONS

element
WTD.2024.01.16.0
EmiR5 2023.08.29.0
PSA-ESCI 2024.06.27.0

RESULTS - Run #223

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
7337.175	32.5	12.7	1.5	261.9	3.0	0.0	Horz	AV	0.0	45.2	54.0	-8.8	Eut Horz, Mid Ch, 2Mbps
7336.550	29.0	12.7	1.5	346.0	3.0	0.0	Vert	AV	0.0	41.7	54.0	-12.3	Eut Horz, Mid Ch, 1Mbps
7336.683	29.0	12.7	1.5	346.0	3.0	0.0	Vert	AV	0.0	41.7	54.0	-12.3	Eut Horz, Mid Ch, 2Mbps
7336.375	29.0	12.6	1.5	261.9	3.0	0.0	Horz	AV	0.0	41.6	54.0	-12.4	Eut Horz, Mid Ch, 1Mbps
7335.908	29.0	12.6	1.5	311.9	3.0	0.0	Horz	AV	0.0	41.6	54.0	-12.4	Eut Vert, Mid Ch, 1Mbps
7336.608	28.9	12.7	1.5	95.0	3.0	0.0	Vert	AV	0.0	41.6	54.0	-12.4	Eut On Side, Mid Ch, 1Mbps
7335.917	28.9	12.6	1.5	246.9	3.0	0.0	Vert	AV	0.0	41.5	54.0	-12.5	Eut Vert, Mid Ch, 1Mbps
7336.167	28.9	12.6	1.5	358.9	3.0	0.0	Horz	AV	0.0	41.5	54.0	-12.5	Eut On Side, Mid Ch, 1Mbps
7442.167	28.8	12.6	1.5	55.0	3.0	0.0	Vert	AV	0.0	41.4	54.0	-12.6	Eut Horz, High Ch, 1Mbps
7442.033	28.8	12.6	2.4	186.9	3.0	0.0	Horz	AV	0.0	41.4	54.0	-12.6	Eut Horz, High Ch, 1Mbps
4891.175	30.1	5.3	1.5	357.0	3.0	0.0	Horz	AV	0.0	35.4	54.0	-18.6	Eut Horz, Mid Ch, 1Mbps
4890.008	30.1	5.2	1.5	181.0	3.0	0.0	Vert	AV	0.0	35.3	54.0	-18.7	Eut Horz, Mid Ch, 1Mbps
4803.208	28.9	5.2	1.5	109.0	3.0	0.0	Horz	AV	0.0	34.1	54.0	-19.9	Eut Horz, Low Ch, 1Mbps
4802.017	28.9	5.2	1.5	160.0	3.0	0.0	Vert	AV	0.0	34.1	54.0	-19.9	Eut Horz, Low Ch, 1Mbps
4957.567	28.8	5.3	1.6	167.0	3.0	0.0	Horz	AV	0.0	34.1	54.0	-19.9	Eut Horz, High Ch, 1Mbps
4959.150	28.8	5.3	1.5	354.9	3.0	0.0	Vert	AV	0.0	34.1	54.0	-19.9	Eut Horz, High Ch, 1Mbps
19215.670	26.8	16.5	0.0	178.9	1.0	0.0	Horz	AV	-9.5	33.8	54.0	-20.2	Eut Horz, Low Ch, 1Mbps
19214.990	26.8	16.5	0.0	138.9	1.0	0.0	Vert	AV	-9.5	33.8	54.0	-20.2	Eut Horz, Low Ch, 1Mbps
7440.692	40.0	12.6	1.5	55.0	3.0	0.0	Vert	PK	0.0	52.6	74.0	-21.4	Eut Horz, High Ch, 1Mbps
7338.850	39.8	12.7	1.5	346.0	3.0	0.0	Vert	PK	0.0	52.5	74.0	-21.5	Eut Horz, Mid Ch, 1Mbps
7337.567	39.5	12.7	1.5	261.9	3.0	0.0	Horz	PK	0.0	52.2	74.0	-21.8	Eut Horz, Mid Ch, 2Mbps
7338.917	39.4	12.7	1.5	261.9	3.0	0.0	Horz	PK	0.0	52.1	74.0	-21.9	Eut Horz, Mid Ch, 1Mbps
7440.317	39.3	12.6	2.4	186.9	3.0	0.0	Horz	PK	0.0	51.9	74.0	-22.1	Eut Horz, High Ch, 1Mbps
7339.750	39.0	12.7	1.5	358.9	3.0	0.0	Horz	PK	0.0	51.7	74.0	-22.3	Eut On Side, Mid Ch, 1Mbps
7338.350	39.0	12.7	1.5	346.0	3.0	0.0	Vert	PK	0.0	51.7	74.0	-22.3	Eut Horz, Mid Ch, 2Mbps
7338.458	38.8	12.7	1.5	311.9	3.0	0.0	Horz	PK	0.0	51.5	74.0	-22.5	Eut Vert, Mid Ch, 1Mbps
7336.408	38.8	12.6	1.5	246.9	3.0	0.0	Vert	PK	0.0	51.4	74.0	-22.6	Eut Vert, Mid Ch, 1Mbps
7336.608	38.6	12.7	1.5	95.0	3.0	0.0	Vert	PK	0.0	51.3	74.0	-22.7	Eut On Side, Mid Ch, 1Mbps
12227.510	31.0	-0.8	1.5	314.0	3.0	0.0	Horz	AV	0.0	30.2	54.0	-23.8	Eut Horz, Mid Ch, 1Mbps
12228.560	31.0	-0.8	1.5	328.0	3.0	0.0	Vert	AV	0.0	30.2	54.0	-23.8	Eut Horz, Mid Ch, 1Mbps
12009.380	31.9	-1.9	1.5	200.9	3.0	0.0	Horz	AV	0.0	30.0	54.0	-24.0	Eut Horz, Low Ch, 1Mbps
12398.100	30.8	-0.8	1.5	303.0	3.0	0.0	Horz	AV	0.0	30.0	54.0	-24.0	Eut Horz, High Ch, 1Mbps
12397.510	30.8	-0.8	1.5	78.9	3.0	0.0	Vert	AV	0.0	30.0	54.0	-24.0	Eut Horz, High Ch, 1Mbps
12008.160	31.7	-1.9	1.5	27.9	3.0	0.0	Vert	AV	0.0	29.8	54.0	-24.2	Eut Horz, Low Ch, 1Mbps
4892.025	40.6	5.3	1.5	357.0	3.0	0.0	Horz	PK	0.0	45.9	74.0	-28.1	Eut Horz, Mid Ch, 1Mbps
4893.292	40.4	5.3	1.5	181.0	3.0	0.0	Vert	PK	0.0	45.7	74.0	-28.3	Eut Horz, Mid Ch, 1Mbps
19215.720	38.0	16.5	0.0	178.9	1.0	0.0	Horz	PK	-9.5	45.0	74.0	-29.0	Eut Horz, Low Ch, 1Mbps
19214.890	37.8	16.5	0.0	138.9	1.0	0.0	Vert	PK	-9.5	44.8	74.0	-29.2	Eut Horz, Low Ch, 1Mbps
4806.192	39.2	5.3	1.5	109.0	3.0	0.0	Horz	PK	0.0	44.5	74.0	-29.5	Eut Horz, Low Ch, 1Mbps
4803.567	39.1	5.2	1.5	160.0	3.0	0.0	Vert	PK	0.0	44.3	74.0	-29.7	Eut Horz, Low Ch, 1Mbps

SPURIOUS RADIATED EMISSIONS

element
WTD.2024.01.16.0
EmiR5 2023.08.29.0
PSA-ESCI 2024.06.27.0

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
4959.508	39.0	5.3	1.5	354.9	3.0	0.0	Vert	PK	0.0	44.3	74.0	-29.7	Eut Horz, High Ch, 1Mbps
4960.533	38.8	5.3	1.6	167.0	3.0	0.0	Horz	PK	0.0	44.1	74.0	-29.9	Eut Horz, High Ch, 1Mbps
12229.380	42.0	-0.8	1.5	314.0	3.0	0.0	Horz	PK	0.0	41.2	74.0	-32.8	Eut Horz, Mid Ch, 1Mbps
12007.740	42.8	-1.9	1.5	200.9	3.0	0.0	Horz	PK	0.0	40.9	74.0	-33.1	Eut Horz, Low Ch, 1Mbps
12399.370	41.3	-0.8	1.5	303.0	3.0	0.0	Horz	PK	0.0	40.5	74.0	-33.5	Eut Horz, High Ch, 1Mbps
12399.130	41.3	-0.8	1.5	78.9	3.0	0.0	Vert	PK	0.0	40.5	74.0	-33.5	Eut Horz, High Ch, 1Mbps
12230.360	41.2	-0.8	1.5	328.0	3.0	0.0	Vert	PK	0.0	40.4	74.0	-33.6	Eut Horz, Mid Ch, 1Mbps
12010.280	41.5	-1.9	1.5	27.9	3.0	0.0	Vert	PK	0.0	39.6	74.0	-34.4	Eut Horz, Low Ch, 1Mbps

CONCLUSION

Pass

Tested By

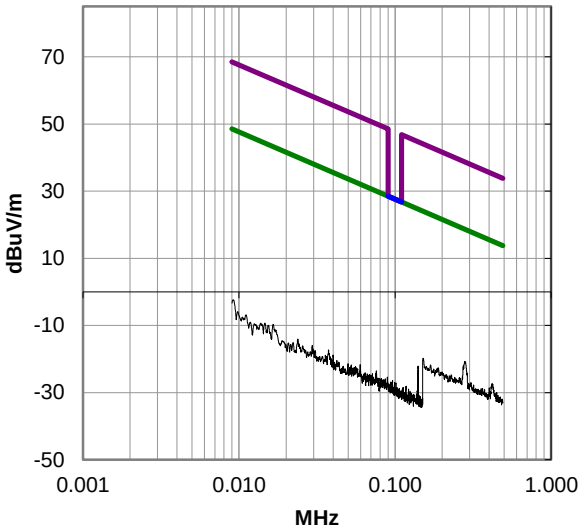
SPURIOUS RADIATED EMISSIONS

element
WTD.2024.01.16.0
EmiR5 2023.08.29.0
PSA-ESCI 2024.06.27.0

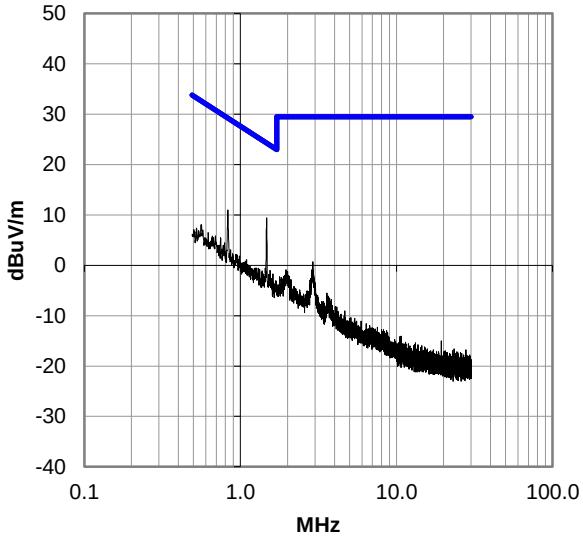
PRESCAN DATA

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.

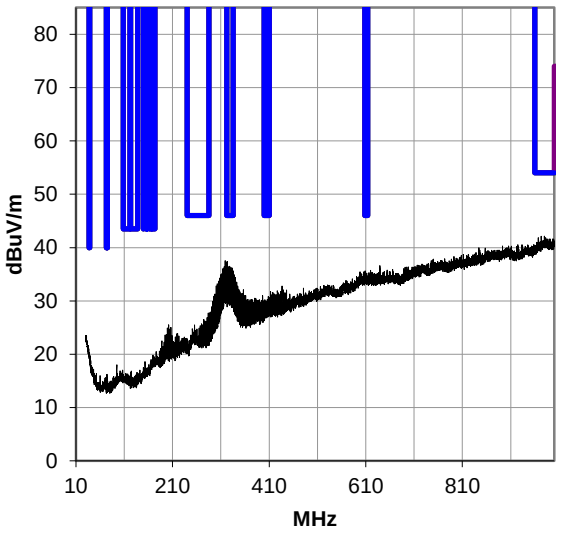
0.009-0.49 MHz, Run 234



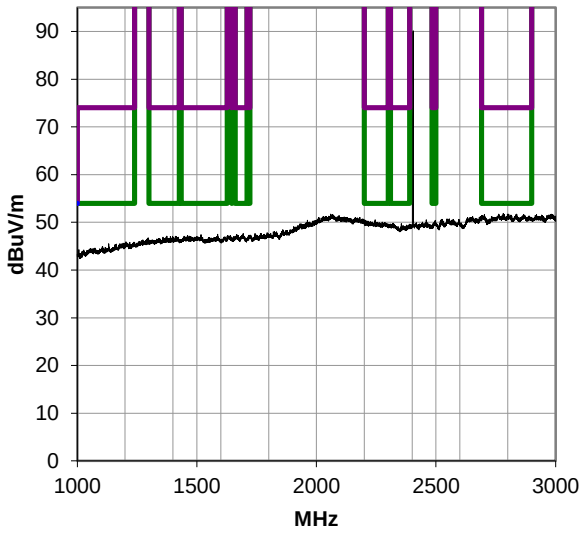
0.49-30 MHz, Run 235



30-1000 MHz, Run 230



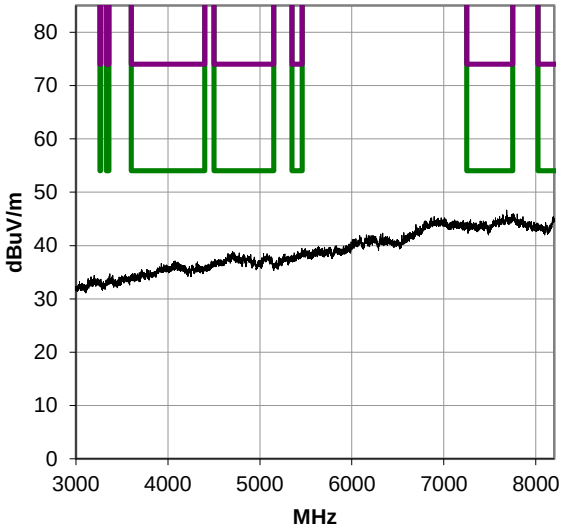
1000-3000 MHz, Run 226



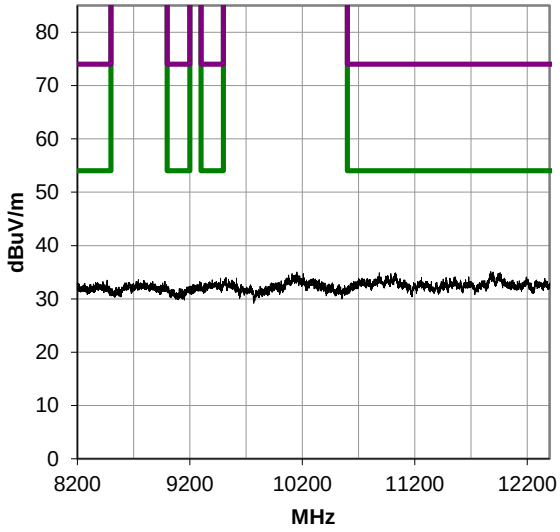
SPURIOUS RADIATED EMISSIONS

element
WTD.2024.01.16.0
EmiR5 2023.08.29.0
PSA-ESCI 2024.06.27.0

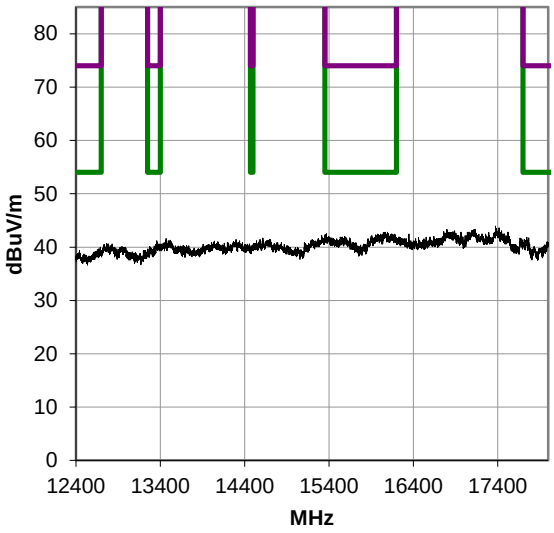
3000-8200 MHz, Run 227



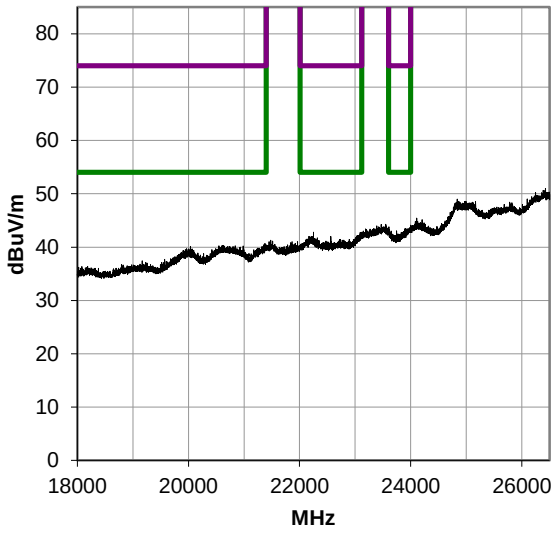
8200-12400 MHz, Run 228



12400-18000 MHz, Run 229



18000-26500 MHz, Run 231



End of Test Report