



BACtrack

BACtrack Skyn Wearable Alcohol Monitor

**FCC 15.247:2021
Bluetooth**

Report: BACT0001, Issue Date: July 6, 2021



NVLAP LAB CODE: 200630-0



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CERTIFICATE OF TEST

Last Date of Test: May 19, 2021
 BACtrack
 EUT: BACtrack Skyn Wearable Alcohol Monitor

Radio Equipment Testing

Standards

Specification	Method
FCC 15.247:2021	ANSI C63.10:2013, KDB 558074

Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
11.6	Duty Cycle	Yes	Pass	
11.8.2	Occupied Bandwidth	Yes	Pass	
11.9.1.1	Output Power	Yes	Pass	
11.9.1.1	Equivalent Isotropic Radiated Power	Yes	Pass	
11.10.2	Power Spectral Density	Yes	Pass	
11.11	Band Edge Compliance	Yes	Pass	
11.11	Spurious Conducted Emissions	Yes	Pass	
11.12.1, 11.13.2, 6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	

Deviations From Test Standards

None

Approved By:



Kyle Holgate, Operations Manager

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		

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 - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Element to certify transmitters to FCC and IC specifications.

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

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.

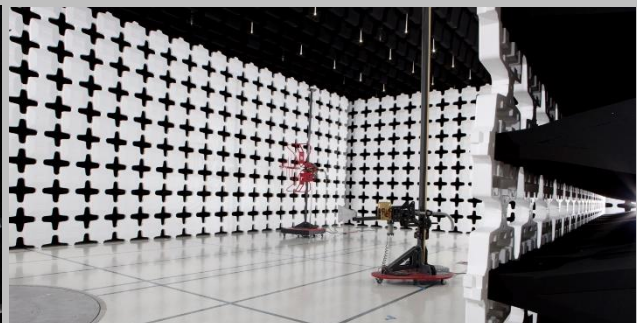
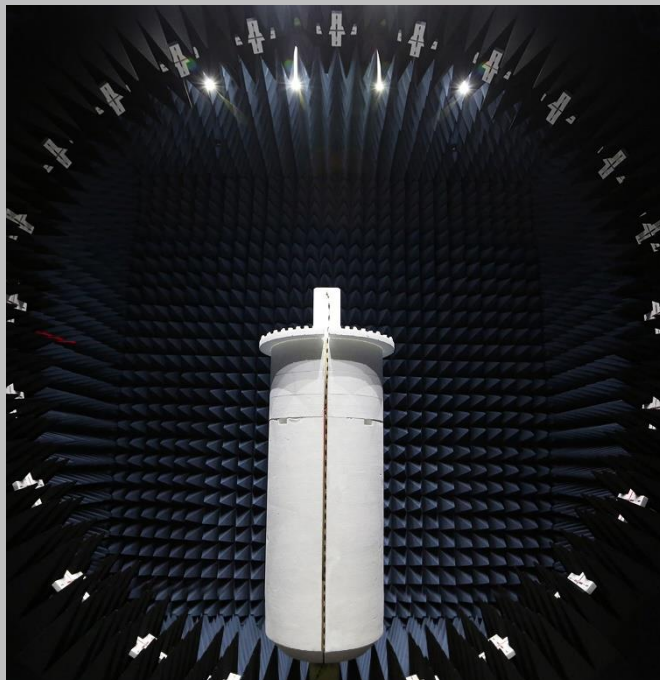
SCOPE

For details on the Scopes of our Accreditations, please visit:
<https://www.nwemc.com/emc-testing-accreditations>

FACILITIES



California Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Minnesota Labs MN01-11 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Oregon Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Texas Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Washington Labs NC01-05 19201 120 th Ave NE Bothell, WA 98011 (425)984-6600
NVLAP				
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0
Innovation, Science and Economic Development Canada				
2834B-1, 2834B-3	2834E-1, 2834E-3	2834D-1	2834G-1	2834F-1
BSMI				
SL2-IN-E-1154R	SL2-IN-E-1152R	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI				
A-0029	A-0109	A-0108	A-0201	A-0110
Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA				
US0158	US0175	US0017	US0191	US0157



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.

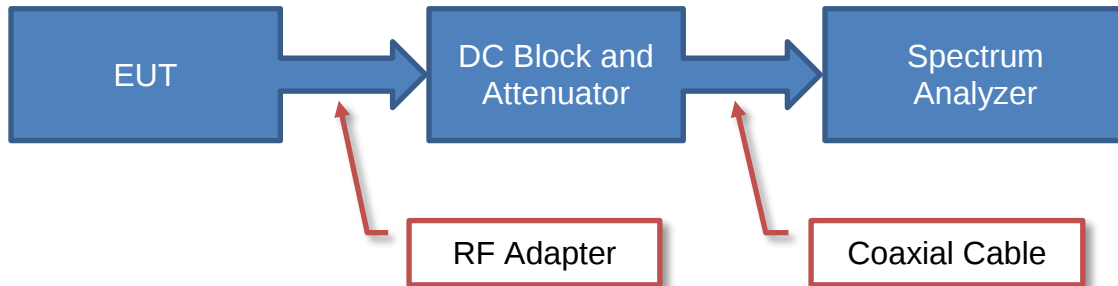
A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found in the table below. A lab specific 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.

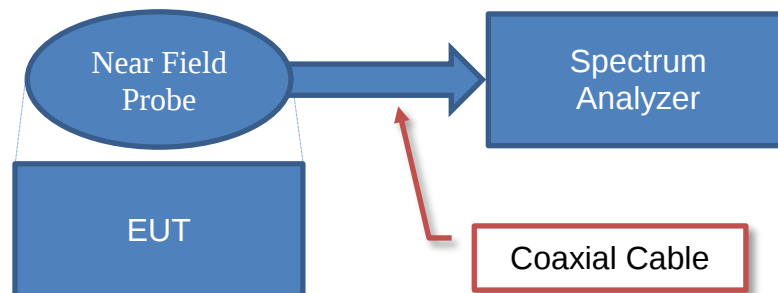
Test	+ MU	- MU
Frequency Accuracy	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	1.2 dB	-1.2 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.6 dB	-2.6 dB

Test Setup Block Diagrams

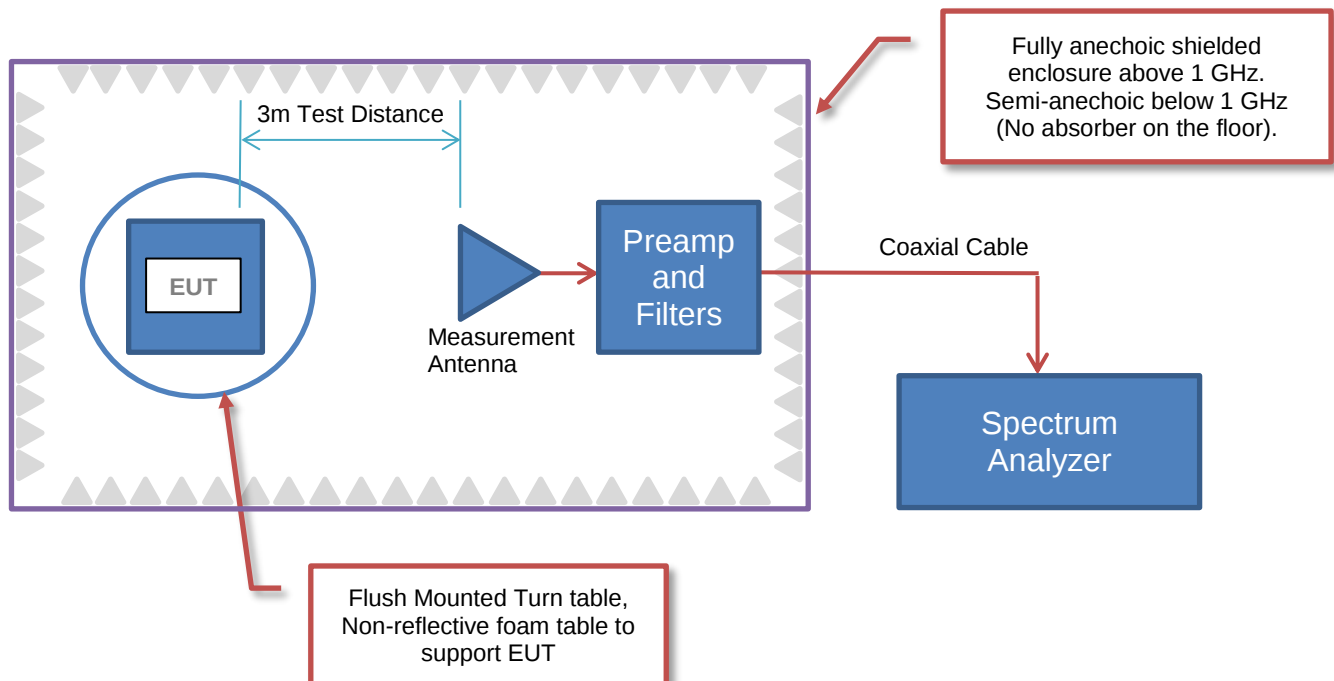
Antenna Port Conducted Measurements



Near Field Test Fixture Measurements



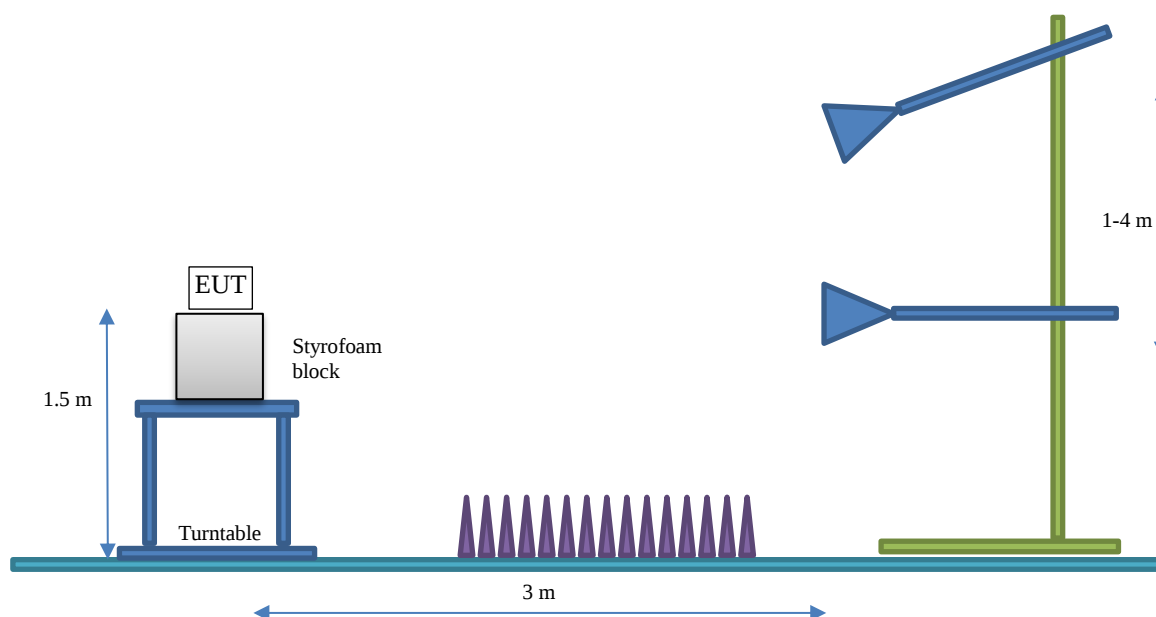
Spurious Radiated Emissions



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:	300 Broadway, Suite 26
City, State, Zip:	San Francisco, 94133
Test Requested By:	Pauline Basaran
EUT:	BACtrack Skyn Wearable Alcohol Monitor
First Date of Test:	May 13, 2021
Last Date of Test:	May 19, 2021
Receipt Date of Samples:	May 10, 2021
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
Wireless skin wearable alcohol monitor
Testing Objective:
To demonstrate compliance of the Bluetooth radio to FCC 15.247 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.

ANTENNA GAIN (dBi)

Type	Provided by:	Frequency Range (MHz)	Gain (dBi)
Ceramic Chip	Manufacturer	2400 – 2500	0.5

No adjustable power settings were provided. The EUT was tested using power settings pre-defined by the manufacturer.

CONFIGURATIONS

Configuration BACT0001- 3

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Wearable Alcohol Monitor	BACtrack	BACtrack Skyn	Sample #1

Configuration BACT0001- 4

Software/Firmware Running during test	
Description	Version
nRF Connect - Direct Test Mode	v3.6.1

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Wearable Alcohol Monitor	BACtrack	BACtrack Skyn	Sample #2

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop PC	Acer	N16W1	NXGK4AA0227120854B6600
Power Supply	Acer	PA-1450-26	KP04503004707056BFPE03

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
DC Power Cable	No	1.5 m	Yes	Power Supply	Laptop PC
AC Power Cable	No	1 m	No	Power Supply	AC Mains
USB Extension Cable	Yes	3.0 m	No	Laptop PC	USB Cable
USB Cable	Yes	0.8 m	No	USB Extension Cable	Wearable Alcohol Monitor

CONFIGURATIONS



Configuration BACT0001- 5

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Wearable Alcohol Monitor	BACtrack	BACtrack Skyn	Sample #1

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop PC	Acer	N16W1	NXGK4AA0227120854B6600
Power Supply	Acer	PA-1450-26	KP04503004707056BFPE03

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB Cable	Yes	.8 m	No	Laptop PC	Wearable Alcohol Monitor
DC Power Cable	No	1.5 m	Yes	Power Supply	Laptop PC
AC Power Cable	No	1 m	No	Power Supply	AC Mains

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2021-05-13	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	2021-05-18	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.
3	2021-05-18	Occupied Bandwidth	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	2021-05-18	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.
5	2021-05-18	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	2021-05-18	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.
7	2021-05-18	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.
8	2021-05-19	Powerline Conducted Emissions	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. Per the standard, an insulating material was also added to ground plane between the EUT's power and remote I/O cables. 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. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm. 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
Receiver	Rohde & Schwarz	ESR7	ARI	2020-07-09	2021-07-09
Cable - Conducted Cable Assembly	Northwest EMC	EVG, HHD, RKT	EVGA	2021-01-05	2022-01-05
LISN	Solar Electronics	9252-50-R-24-BNC	LIP	2020-08-31	2021-08-31

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.6 dB	-2.6 dB

CONFIGURATIONS INVESTIGATED

BACT0001-5

MODES INVESTIGATED

BLE Tx, Mid Ch = 2442 MHz

POWERLINE CONDUCTED EMISSIONS

EUT:	BACtrack Skyn Wearable Alcohol Monitor	Work Order:	BACT0001
Serial Number:	Sample #1	Date:	2021-05-19
Customer:	BACtrack	Temperature:	23.2°C
Attendees:	None	Relative Humidity:	36.8%
Customer Project:	None	Bar. Pressure:	1021 mb
Tested By:	Jeff Alcock	Job Site:	EV07
Power:	5.0 VDC via 110VAC/50Hz	Configuration:	BACT0001-5

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2021	ANSI C63.10:2013

TEST PARAMETERS

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

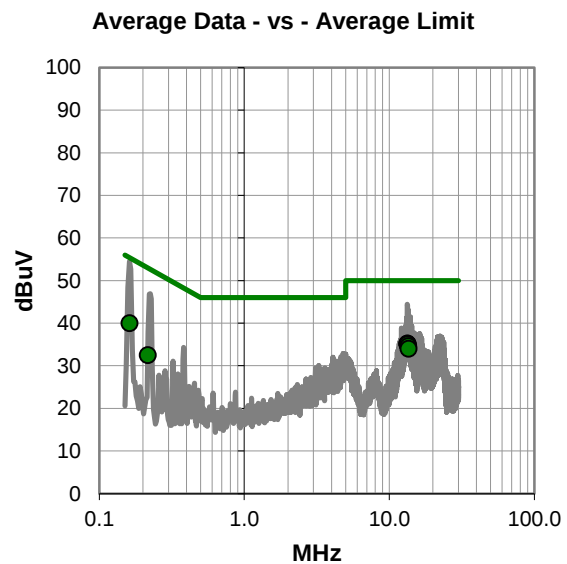
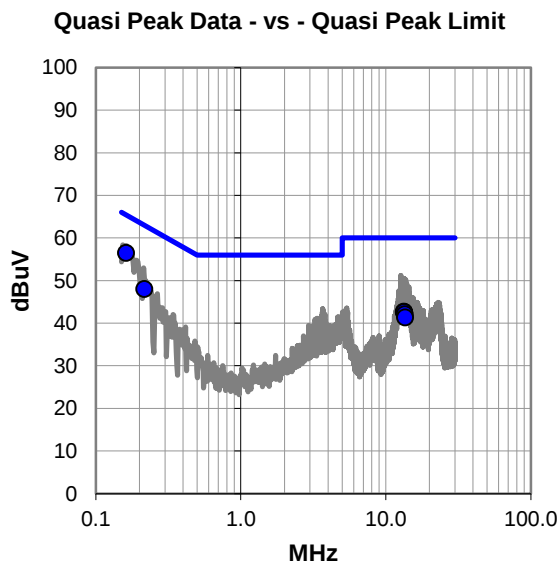
Measuring AC mains of Laptop power supply

EUT OPERATING MODES

BLE Tx, Mid Ch = 2442 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)
0.162	36.5	20.0	56.5	65.4	-8.9
0.216	28.0	20.0	48.0	63.0	-15.0
13.329	22.4	20.3	42.7	60.0	-17.3
13.420	22.3	20.3	42.6	60.0	-17.4
13.399	22.3	20.3	42.6	60.0	-17.4
13.539	21.8	20.3	42.1	60.0	-17.9
13.599	21.0	20.3	41.3	60.0	-18.7

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.329	14.9	20.3	35.2	50.0	-14.8
13.399	14.9	20.3	35.2	50.0	-14.8
13.420	14.7	20.3	35.0	50.0	-15.0
13.539	14.3	20.3	34.6	50.0	-15.4
0.162	20.0	20.0	40.0	55.4	-15.4
13.599	13.7	20.3	34.0	50.0	-16.0
0.216	12.5	20.0	32.5	53.0	-20.5

CONCLUSION

Pass



Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	BACtrack Skyn Wearable Alcohol Monitor	Work Order:	BACT0001
Serial Number:	Sample #1	Date:	2021-05-19
Customer:	BACtrack	Temperature:	23.2°C
Attendees:	None	Relative Humidity:	36.8%
Customer Project:	None	Bar. Pressure:	1021 mb
Tested By:	Jeff Alcock	Job Site:	EV07
Power:	5.0 VDC via 110VAC/50Hz	Configuration:	BACT0001-5

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2021	ANSI C63.10:2013

TEST PARAMETERS

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

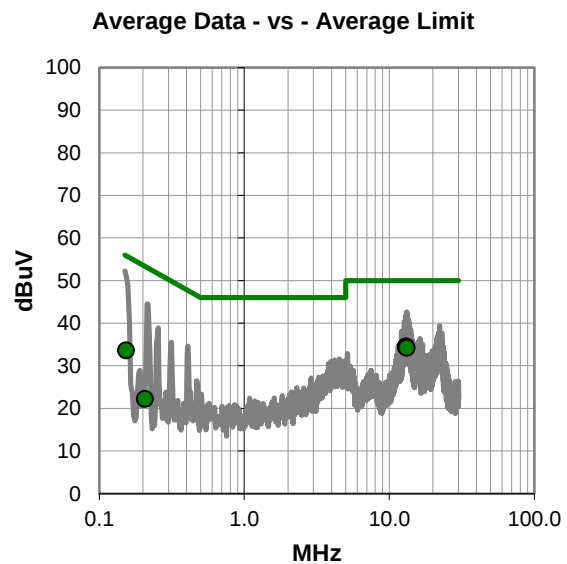
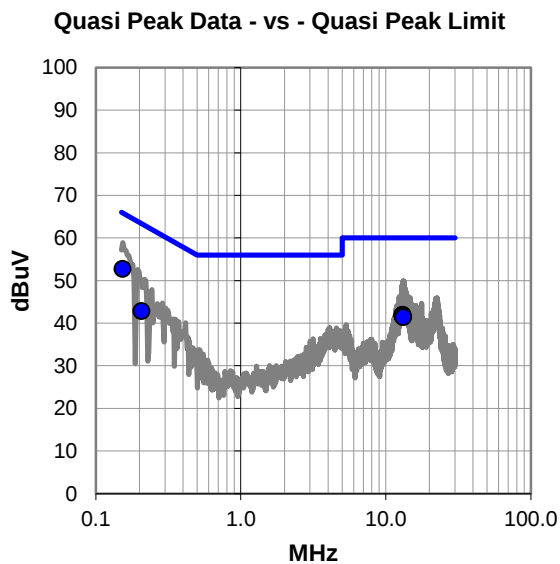
Measuring AC mains of Laptop power supply

EUT OPERATING MODES

BLE Tx, Mid Ch = 2442 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)
0.153	32.7	20.0	52.7	65.8	-13.1
13.075	21.6	20.3	41.9	60.0	-18.1
13.051	21.6	20.3	41.9	60.0	-18.1
13.091	21.4	20.3	41.7	60.0	-18.3
13.224	21.1	20.3	41.4	60.0	-18.6
0.207	22.8	20.0	42.8	63.3	-20.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
13.075	14.2	20.3	34.5	50.0	-15.5
13.091	14.1	20.3	34.4	50.0	-15.6
13.051	14.1	20.3	34.4	50.0	-15.6
13.224	13.9	20.3	34.2	50.0	-15.8
0.153	13.6	20.0	33.6	55.8	-22.2
0.207	2.2	20.0	22.2	53.3	-31.1

CONCLUSION

Pass



Tested By

DUTY CYCLE



XMIT 2020.12.30.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	N5181A	TIG	2020-04-16	2023-04-16
Block - DC	Fairview Microwave	SD3379	AMW	2021-03-14	2022-03-14
Attenuator	S.M. Electronics	SA26B-20	AUY	2021-03-14	2022-03-14
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	2021-03-14	2022-03-14
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFE	2021-04-08	2022-04-08

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 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.

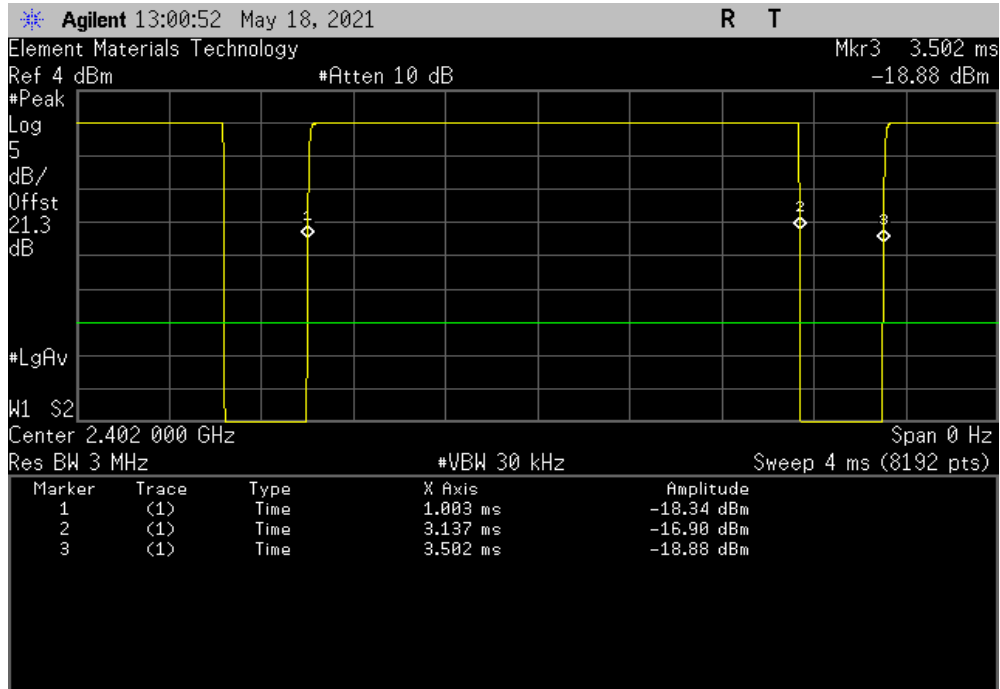
ThiTx 2019.08.30.0 XMIT 2020.12.30.0

DUTY CYCLE

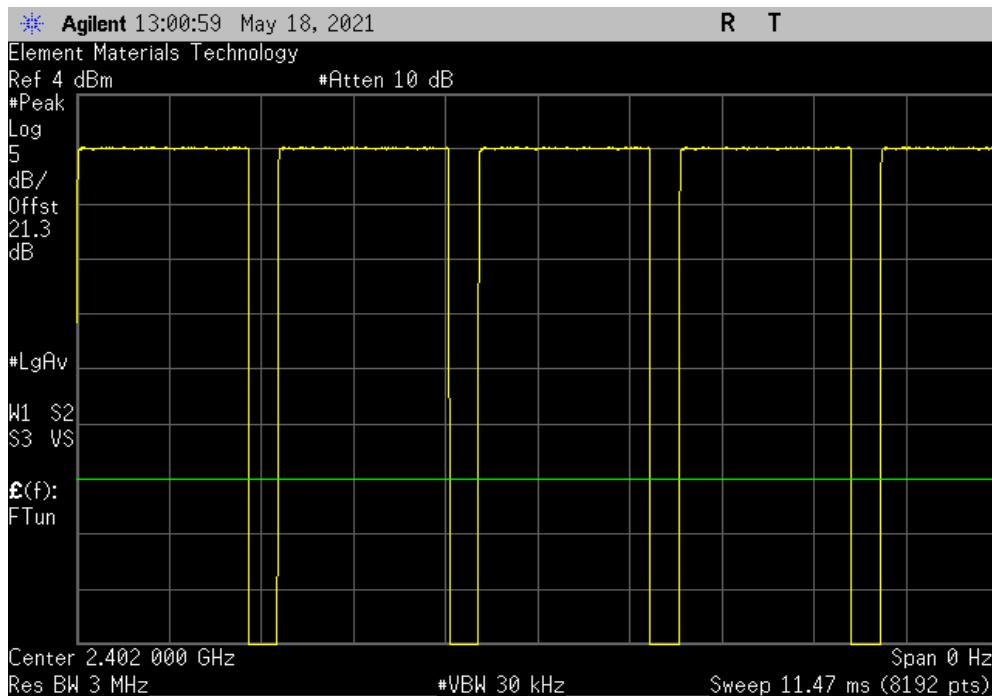


TMTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps Low Channel, 2402 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.135 ms	2.5 ms	1	85.4	N/A	N/A



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

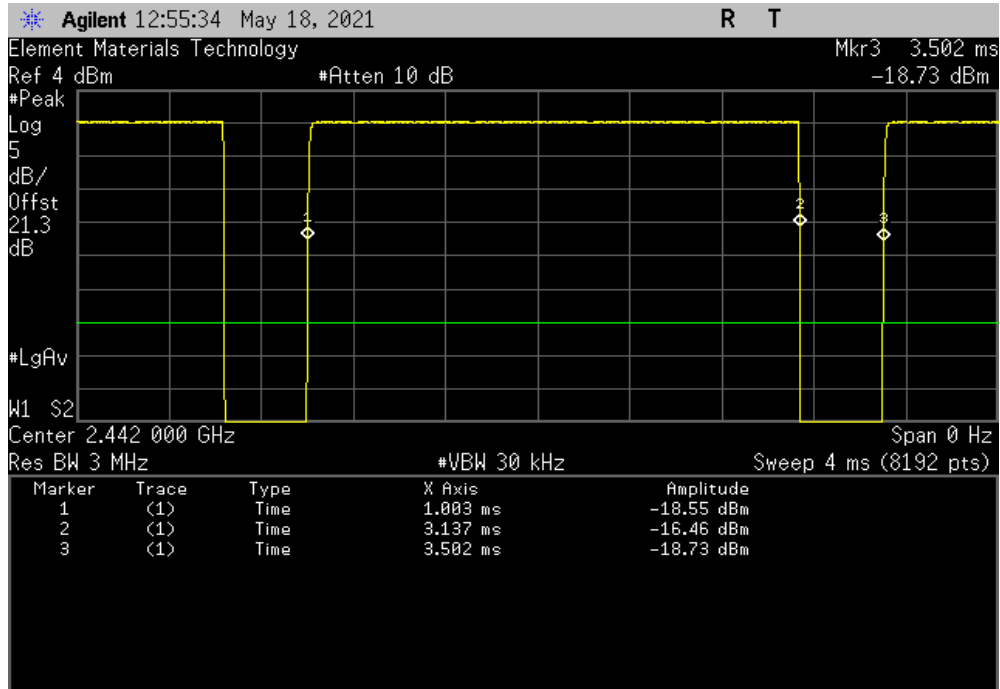


DUTY CYCLE

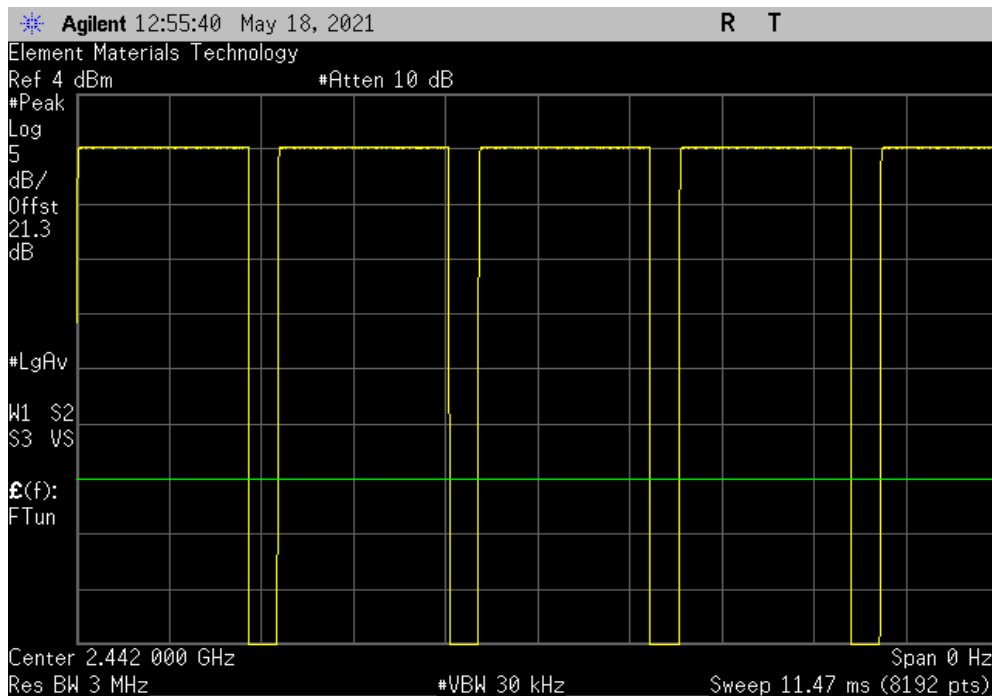


TMTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps Mid Channel, 2442 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.135 ms	2.5 ms	1	85.4	N/A	N/A



BLE/GFSK 1 Mbps Mid Channel, 2442 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

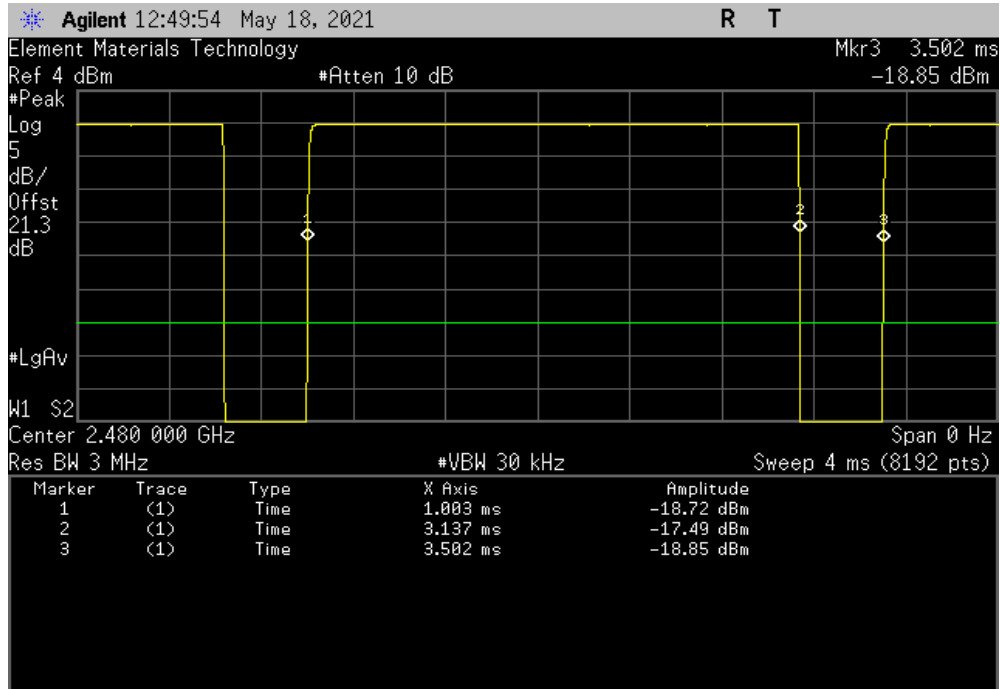


DUTY CYCLE

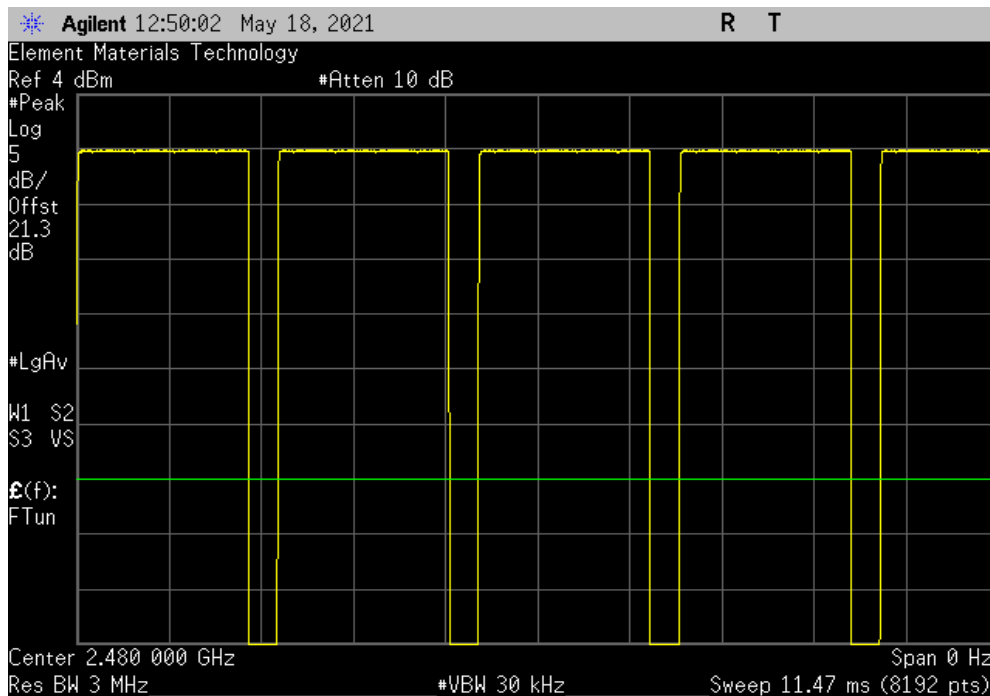


TMTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps High Channel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.135 ms	2.5 ms	1	85.4	N/A	N/A



BLE/GFSK 1 Mbps High Channel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



OCCUPIED BANDWIDTH



XMIT 2020.12.30.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	N5181A	TIG	2020-04-16	2023-04-16
Block - DC	Fairview Microwave	SD3379	AMW	2021-03-14	2022-03-14
Attenuator	S.M. Electronics	SA26B-20	AUY	2021-03-14	2022-03-14
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	2021-03-14	2022-03-14
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFE	2021-04-08	2022-04-08

TEST DESCRIPTION

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

The 6dB occupied bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The 99.0% occupied bandwidth was also measured at the same time which can be needed during Output Power depending on the applicable method.

OCCUPIED BANDWIDTH



TSTx 2019.08.30.0 XMR 2020.12.30.0

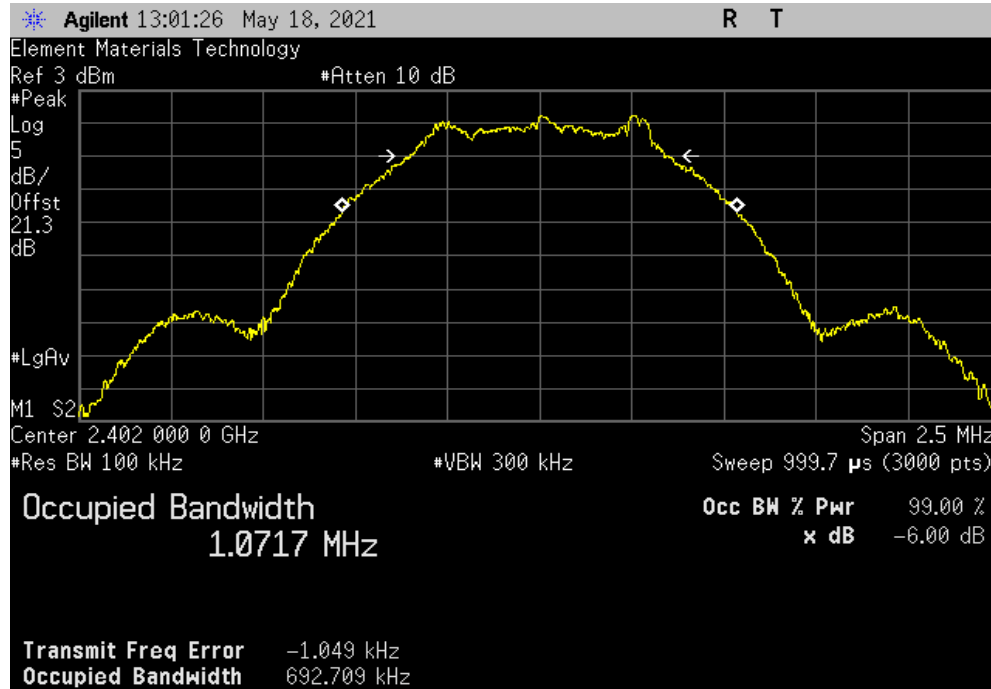
EUT: BACtrack Skyn Wearable Alcohol Monitor		Work Order: BACT0001	
Serial Number: Sample #2		Date: 18-May-21	
Customer: BACtrack		Temperature: 22.4 °C	
Attendees: None		Humidity: 40.2% RH	
Project: None		Barometric Pres.: 1024 mbar	
Tested by: Cole Ghizzone & Kam Robertson		Power: Battery	
		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2021		ANSI C63.10:2013	
COMMENTS			
Reference level offset includes: DC block, 20 dB attenuator, measurement cable, and the manufacturers SMA patch cable.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	4	Signature <i>Cole Ghizzone</i>	
		Value	Limit (±) Result
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		692.709 kHz	500 kHz Pass
BLE/GFSK 1 Mbps Mid Channel, 2442 MHz		707.27 kHz	500 kHz Pass
BLE/GFSK 1 Mbps High Channel, 2480 MHz		733.635 kHz	500 kHz Pass

OCCUPIED BANDWIDTH

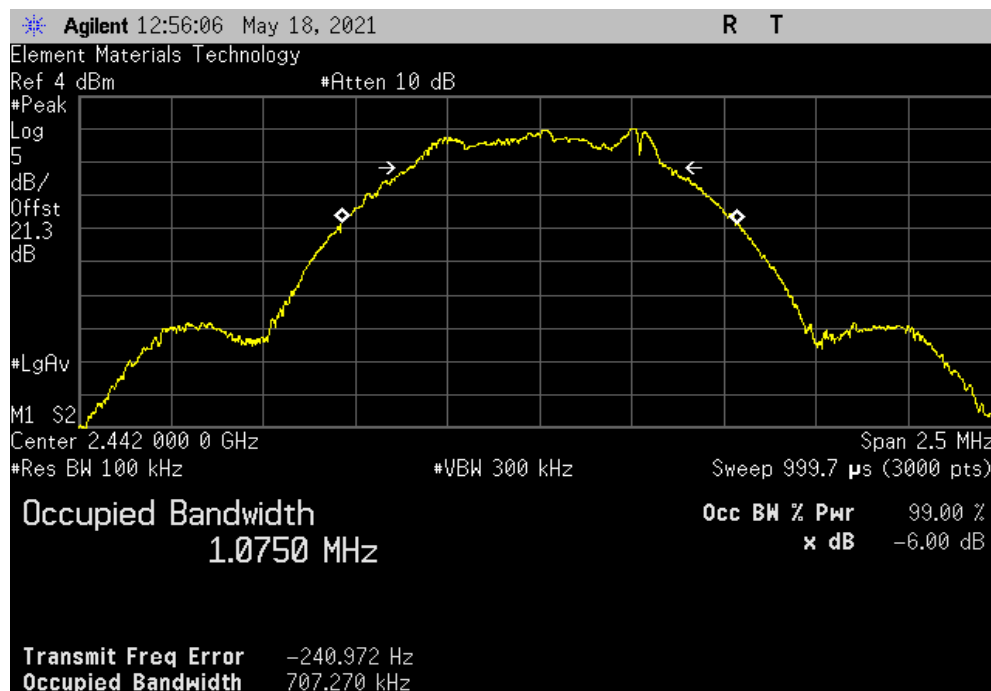


TMTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps Low Channel, 2402 MHz						
				Value	Limit (≥)	Result
				692.709 kHz	500 kHz	Pass



BLE/GFSK 1 Mbps Mid Channel, 2442 MHz						
				Value	Limit (≥)	Result
				707.27 kHz	500 kHz	Pass

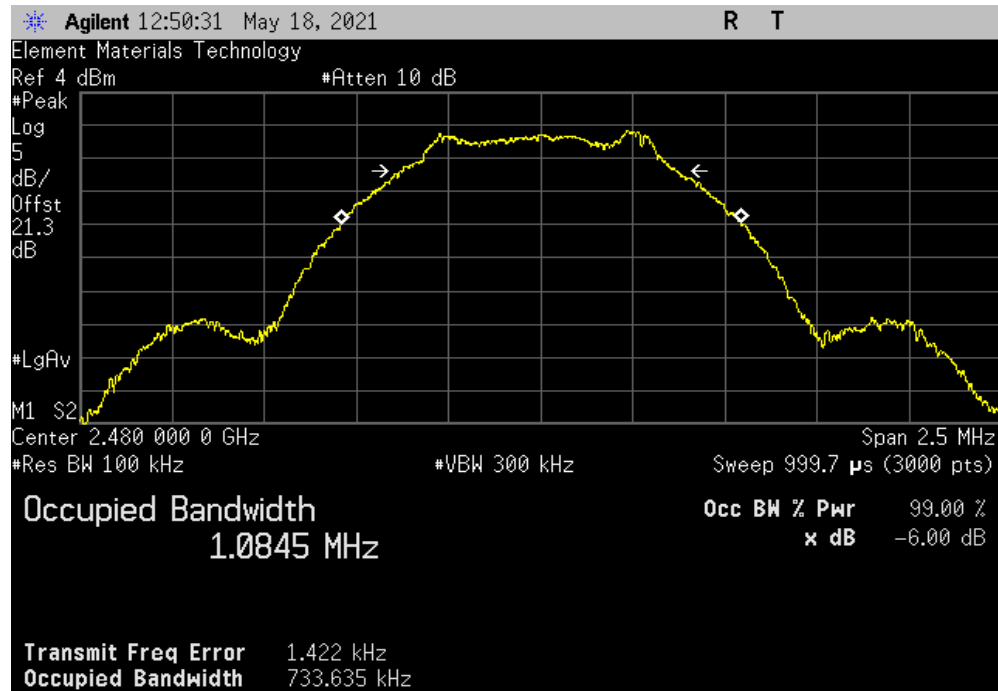


OCCUPIED BANDWIDTH



TMTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps High Channel, 2480 MHz						
				Value	Limit (≥)	Result
				733.635 kHz	500 kHz	Pass



OUTPUT POWER



XMIT 2020.12.30.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	N5181A	TIG	2020-04-16	2023-04-16
Block - DC	Fairview Microwave	SD3379	AMW	2021-03-14	2022-03-14
Attenuator	S.M. Electronics	SA26B-20	AUY	2021-03-14	2022-03-14
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	2021-03-14	2022-03-14
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFE	2021-04-08	2022-04-08

TEST DESCRIPTION

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.

OUTPUT POWER



TSTx 2019.08.30.0 XMR 2020.12.30.0

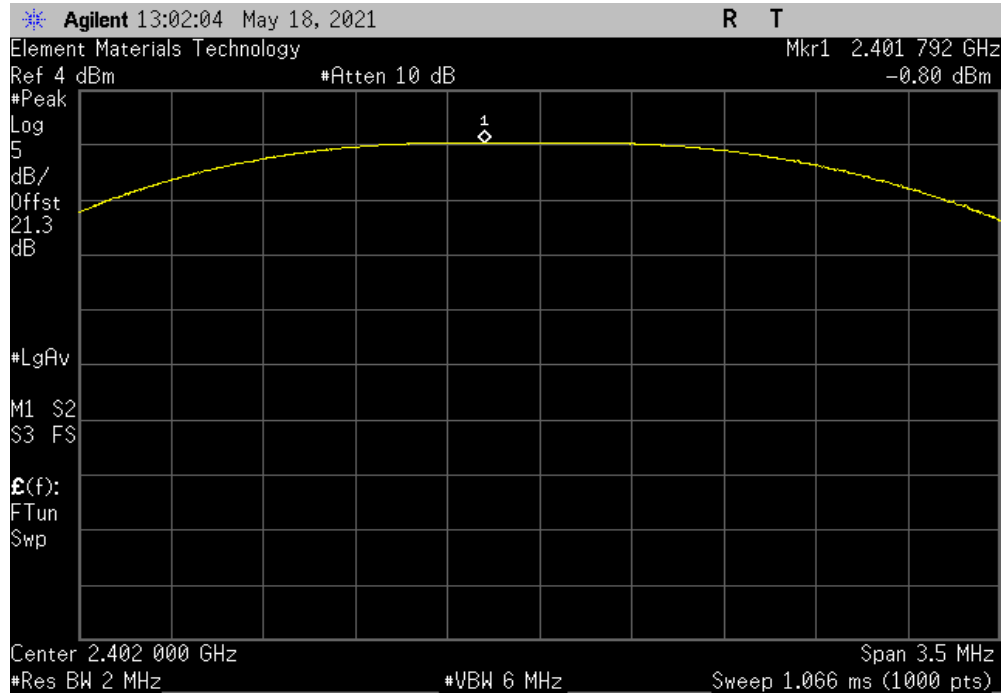
EUT: BACtrack Skyn Wearable Alcohol Monitor		Work Order: BACT0001	
Serial Number: Sample #2		Date: 18-May-21	
Customer: BACtrack		Temperature: 22.4 °C	
Attendees: None		Humidity: 40.2% RH	
Project: None		Barometric Pres.: 1024 mbar	
Tested by: Cole Ghizzone & Kam Robertson		Power: Battery	
Job Site: EV06			
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2021		ANSI C63.10:2013	
COMMENTS			
Reference level offset includes: DC block, 20 dB attenuator, measurement cable, and the manufacturers SMA patch cable.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	4	Signature <i>Cole Ghizzone</i>	
		Out Pwr (dBm)	Limit (dBm)
			Result
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		-0.798	30
BLE/GFSK 1 Mbps Mid Channel, 2442 MHz		-0.702	30
BLE/GFSK 1 Mbps High Channel, 2480 MHz		-1.037	30

OUTPUT POWER

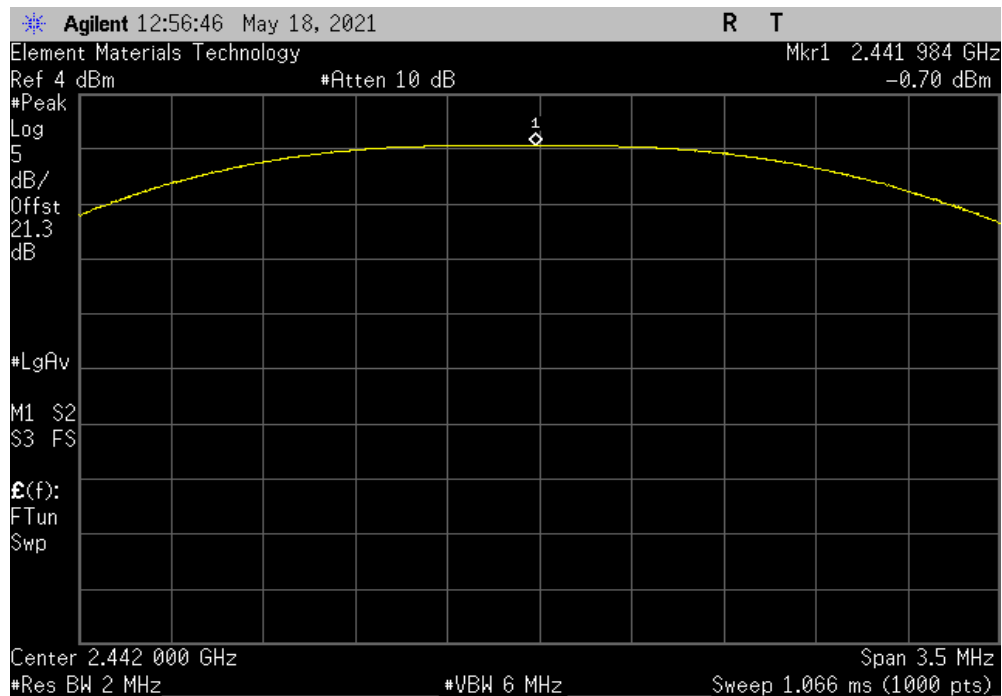


TbTx 2019.08.30.0 XbM 2020.12.30.0

BLE/GFSK 1 Mbps Low Channel, 2402 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				-0.798	30	Pass



BLE/GFSK 1 Mbps Mid Channel, 2442 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				-0.702	30	Pass

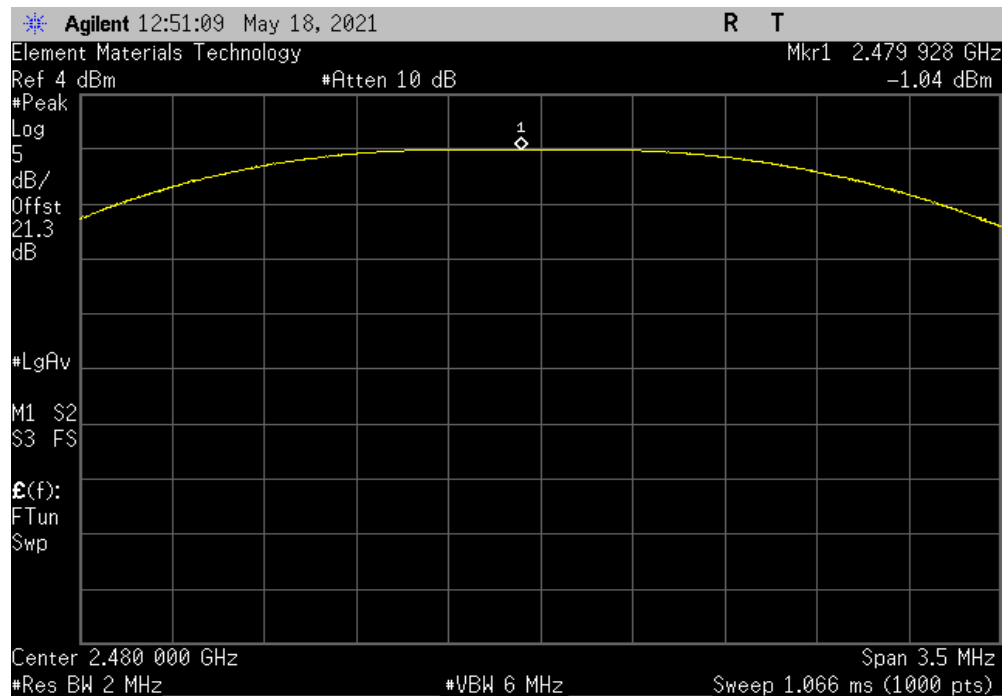


OUTPUT POWER



TUTx 2019.08.30.0 XMt 2020.12.30.0

BLE/GFSK 1 Mbps High Channel, 2480 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				-1.037	30	Pass



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



XMit 2020.12.30.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	N5181A	TIG	2020-04-16	2023-04-16
Block - DC	Fairview Microwave	SD3379	AMW	2021-03-14	2022-03-14
Attenuator	S.M. Electronics	SA26B-20	AUY	2021-03-14	2022-03-14
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	2021-03-14	2022-03-14
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFE	2021-04-08	2022-04-08

TEST DESCRIPTION

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)

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



TSTx 2019.08.30.0 XMR 2020.12.30.0

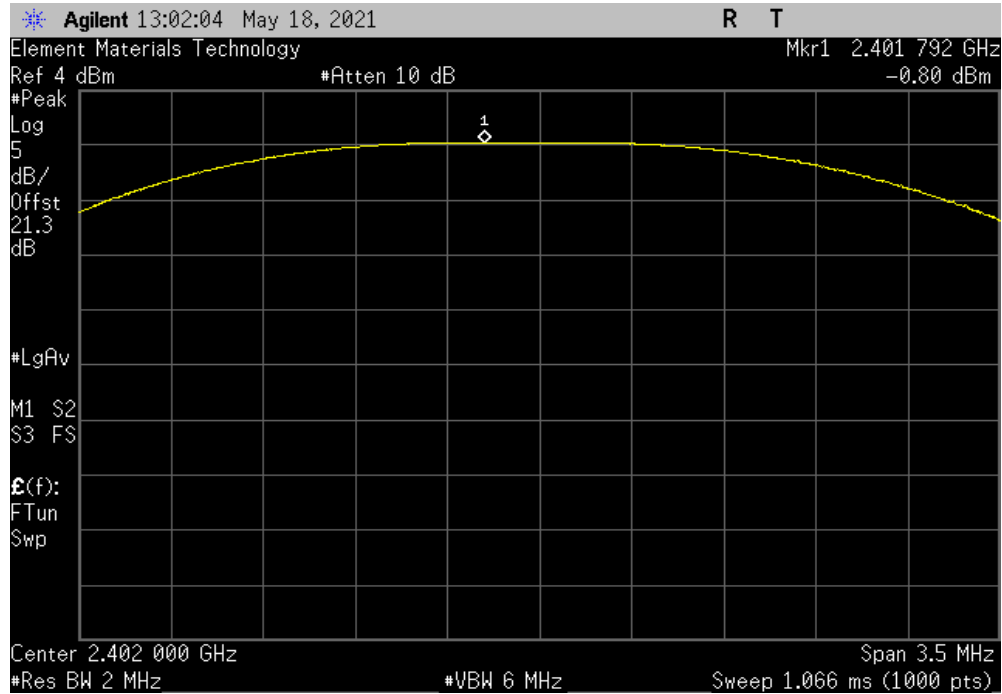
EUT: BACtrack Skyn Wearable Alcohol Monitor		Work Order: BACT0001				
Serial Number: Sample #2		Date: 18-May-21				
Customer: BACtrack		Temperature: 22.4 °C				
Attendees: None		Humidity: 40.2% RH				
Project: None		Barometric Pres.: 1024 mbar				
Tested by: Cole Ghizzone & Kam Robertson		Power: Battery				
Job Site: EV06						
TEST SPECIFICATIONS		Test Method				
FCC 15.247:2021		ANSI C63.10:2013				
COMMENTS						
Reference level offset includes: DC block, 20 dB attenuator, measurement cable, and the manufacturers SMA patch cable.						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	4	Signature <i>Cole Ghizzone</i>				
		Out Pwr (dBm)	Antenna Gain (dBi)			
		EIRP (dBm)	EIRP Limit (dBm)			
			Result			
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		-0.798	0.5	-0.298	36	Pass
BLE/GFSK 1 Mbps Mid Channel, 2442 MHz		-0.702	0.5	-0.202	36	Pass
BLE/GFSK 1 Mbps High Channel, 2480 MHz		-1.037	0.5	-0.537	36	Pass

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

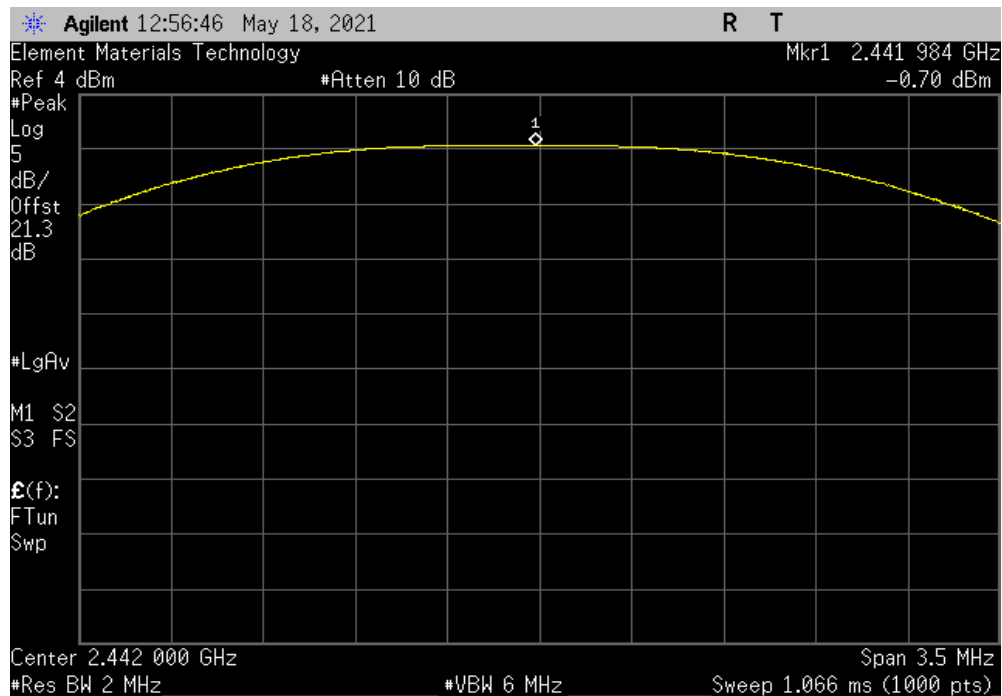


TbTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps Low Channel, 2402 MHz						
	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result	
	-0.798	0.5	-0.298	36	Pass	



BLE/GFSK 1 Mbps Mid Channel, 2442 MHz						
	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result	
	-0.702	0.5	-0.202	36	Pass	

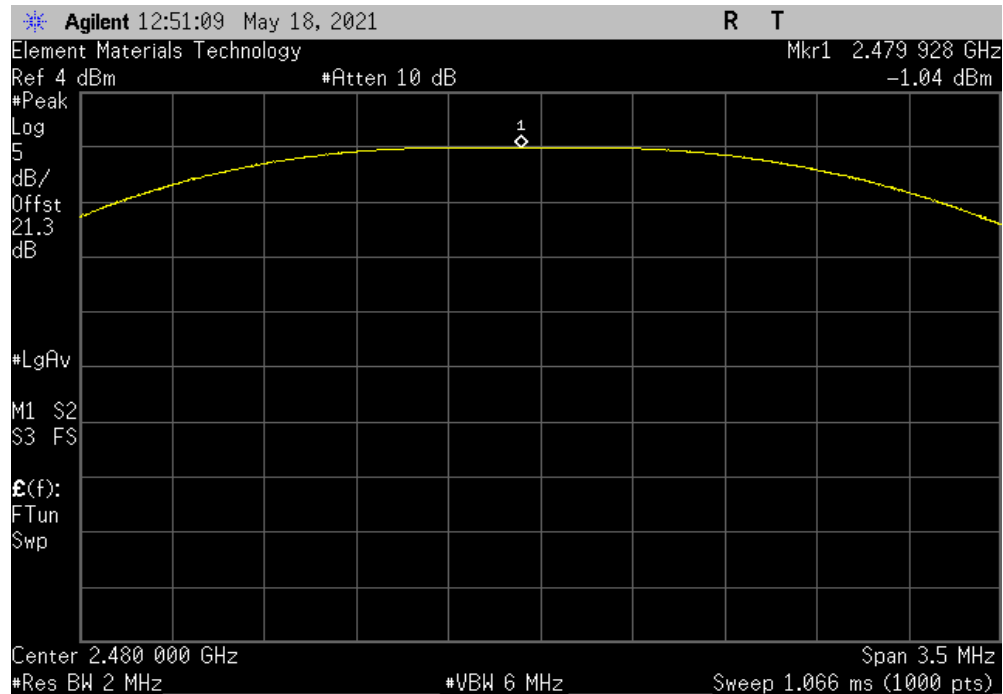


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)



TbTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps High Channel, 2480 MHz						
	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result	
	-1.037	0.5	-0.537	36	Pass	



POWER SPECTRAL DENSITY

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	N5181A	TIG	2020-04-16	2023-04-16
Block - DC	Fairview Microwave	SD3379	AMW	2021-03-14	2022-03-14
Attenuator	S.M. Electronics	SA26B-20	AUY	2021-03-14	2022-03-14
Cable	Micro-Coax	D150A-1-0720-200	EVH	2021-03-14	2022-03-14
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFE	2021-04-08	2022-04-08

TEST DESCRIPTION

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

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

POWER SPECTRAL DENSITY



TSTx 2019.08.30.0 XMR 2020.12.30.0

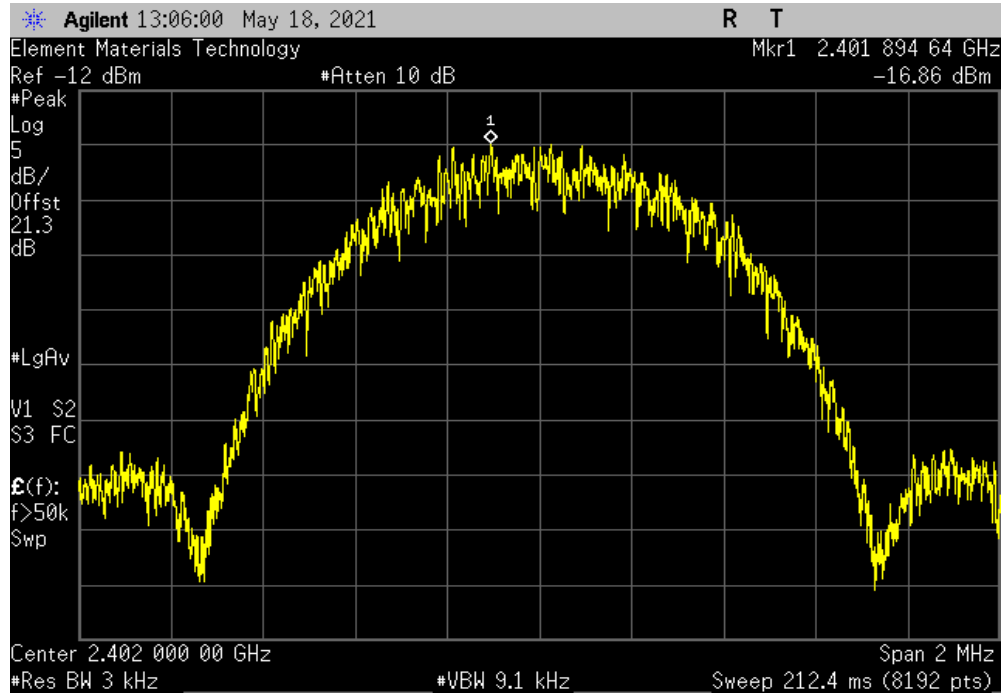
EUT: BACtrack Skyn Wearable Alcohol Monitor		Work Order: BACT0001	
Serial Number: Sample #2		Date: 18-May-21	
Customer: BACtrack		Temperature: 22.4 °C	
Attendees: None		Humidity: 40.2% RH	
Project: None		Barometric Pres.: 1024 mbar	
Tested by: Cole Ghizzone & Kam Robertson		Power: Battery	
Job Site: EV06			
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2021		ANSI C63.10:2013	
COMMENTS			
Reference level offset includes: DC block, 20 dB attenuator, measurement cable, and the manufacturers SMA patch cable.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	4	Signature <i>Cole Ghizzone</i>	
		Value dBm/3kHz	Limit < dBm/3kHz
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		-16.863	8
BLE/GFSK 1 Mbps Mid Channel, 2442 MHz		-16.518	8
BLE/GFSK 1 Mbps High Channel, 2480 MHz		-16.86	8
			Results
			Pass
			Pass
			Pass

POWER SPECTRAL DENSITY

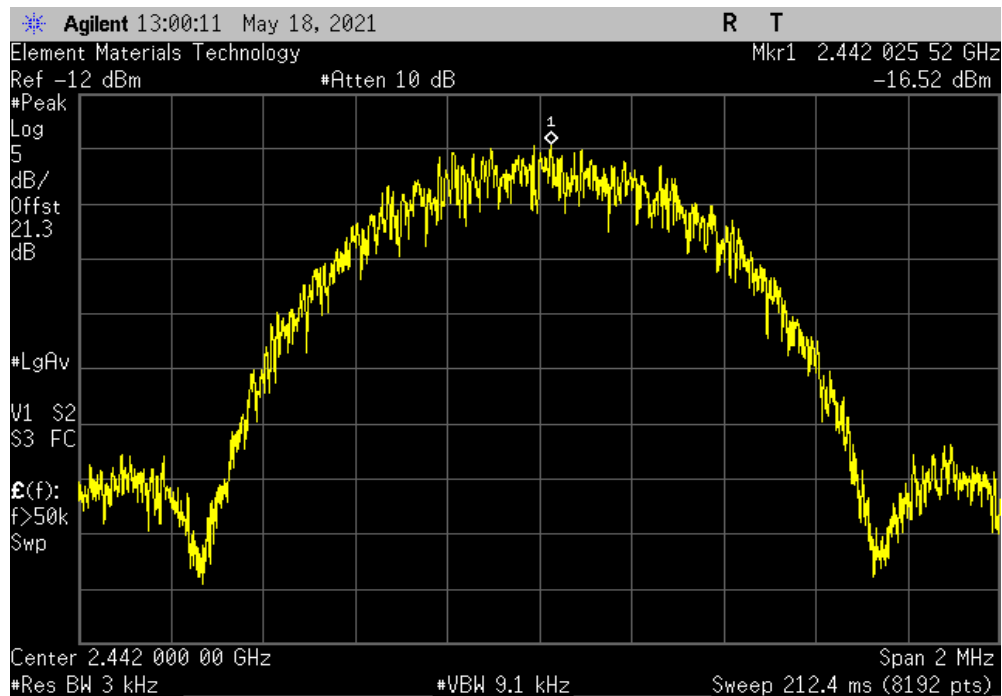


TbTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps Low Channel, 2402 MHz						
	Value	Limit	Results			
	dBm/3kHz	< dBm/3kHz				
	-16.863	8	Pass			



BLE/GFSK 1 Mbps Mid Channel, 2442 MHz						
	Value	Limit	Results			
	dBm/3kHz	< dBm/3kHz				
	-16.518	8	Pass			

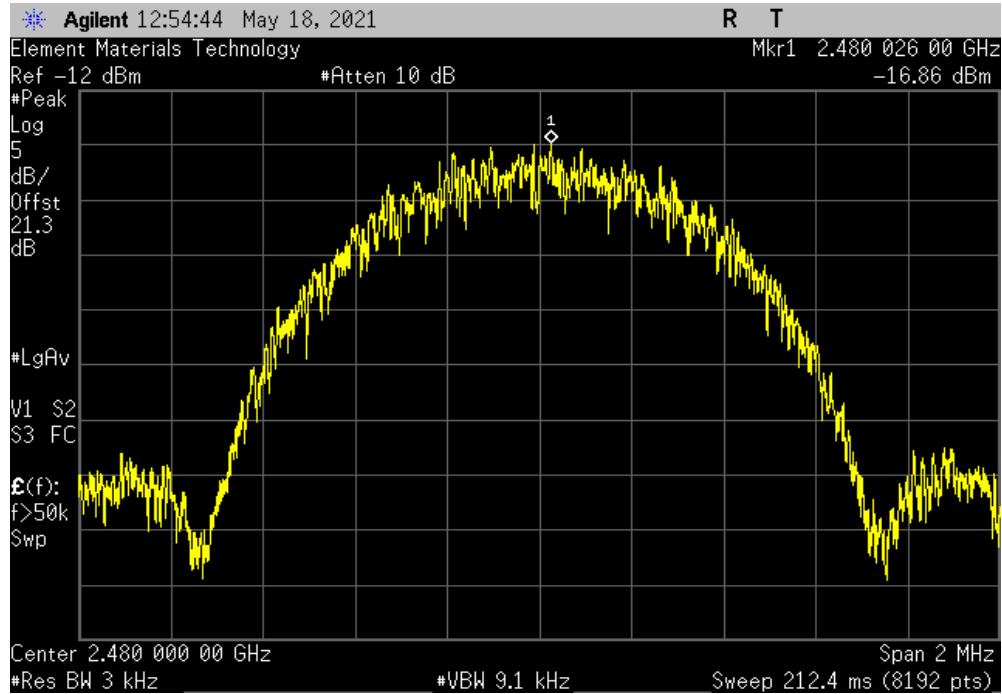


POWER SPECTRAL DENSITY



TMTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps High Channel, 2480 MHz						
	Value	Limit				
	dBm/3kHz	< dBm/3kHz	Results			
	-16.86	8	Pass			



BAND EDGE COMPLIANCE



XMIT 2020.12.30.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	N5181A	TIG	2020-04-16	2023-04-16
Block - DC	Fairview Microwave	SD3379	AMW	2021-03-14	2022-03-14
Attenuator	S.M. Electronics	SA26B-20	AUY	2021-03-14	2022-03-14
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	2021-03-14	2022-03-14
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFE	2021-04-08	2022-04-08

TEST DESCRIPTION

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.

BAND EDGE COMPLIANCE



TSTx 2019.08.30.0 XMR 2020.12.30.0

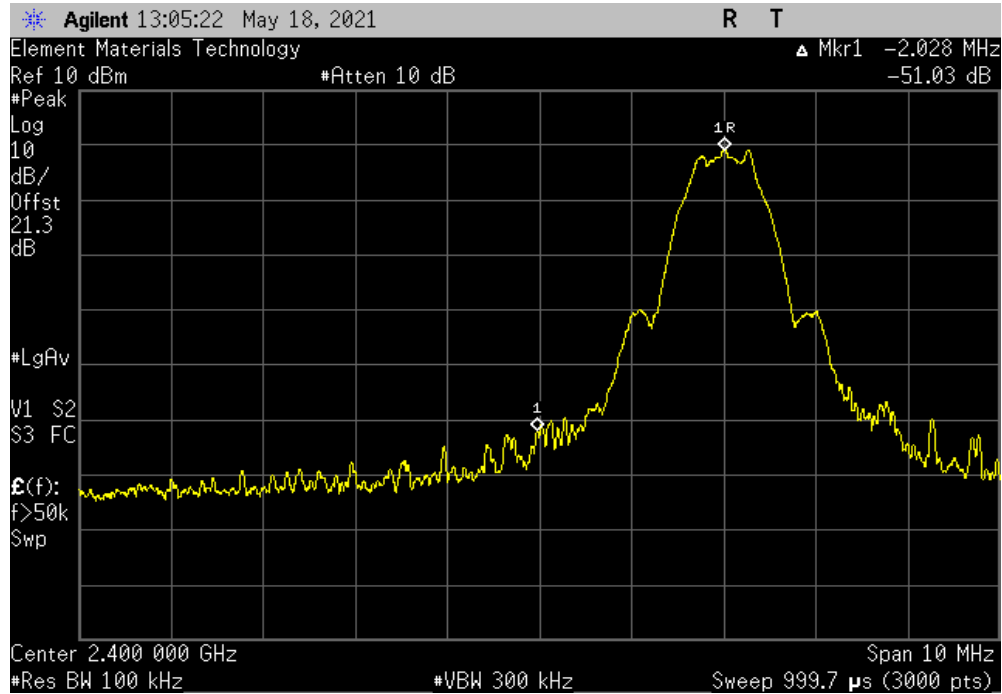
EUT: BACtrack Skyn Wearable Alcohol Monitor		Work Order: BACT0001	
Serial Number: Sample #2		Date: 18-May-21	
Customer: BACtrack		Temperature: 22.4 °C	
Attendees: None		Humidity: 40.2% RH	
Project: None		Barometric Pres.: 1024 mbar	
Tested by: Cole Ghizzone & Kam Robertson		Power: Battery	
		Job Site: EV06	
TEST SPECIFICATIONS		Test Method	
FCC 15.247:2021		ANSI C63.10:2013	
COMMENTS			
Reference level offset includes: DC block, 20 dB attenuator, measurement cable, and the manufacturers SMA patch cable.			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	4	Signature <i>Cole Ghizzone</i>	
		Value (dBc)	Limit ≤ (dBc) Result
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		-51.03	-20 Pass
BLE/GFSK 1 Mbps High Channel, 2480 MHz		-58.36	-20 Pass

BAND EDGE COMPLIANCE

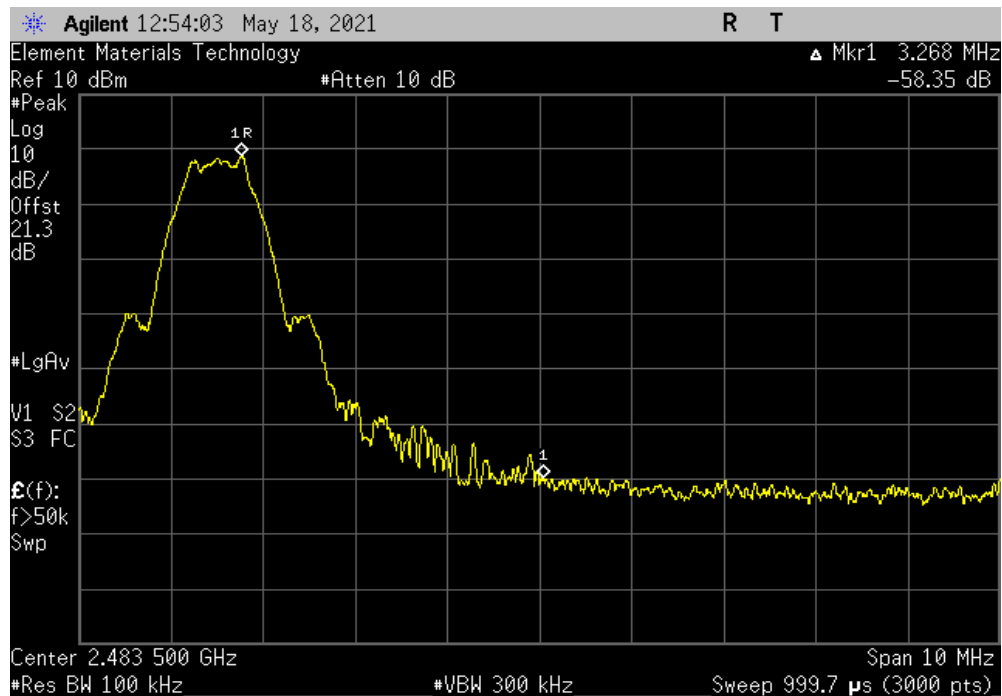


TMTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-51.03	-20	Pass



BLE/GFSK 1 Mbps High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-58.36	-20	Pass



SPURIOUS CONDUCTED EMISSIONS

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	N5181A	TIG	2020-04-16	2023-04-16
Block - DC	Fairview Microwave	SD3379	AMW	2021-03-14	2022-03-14
Attenuator	S.M. Electronics	SA26B-20	AUY	2021-03-14	2022-03-14
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	2021-03-14	2022-03-14
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFE	2021-04-08	2022-04-08

TEST DESCRIPTION

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.

SPURIOUS CONDUCTED EMISSIONS



TSTx 2019.08.30.0 XMR 2020.12.30.0

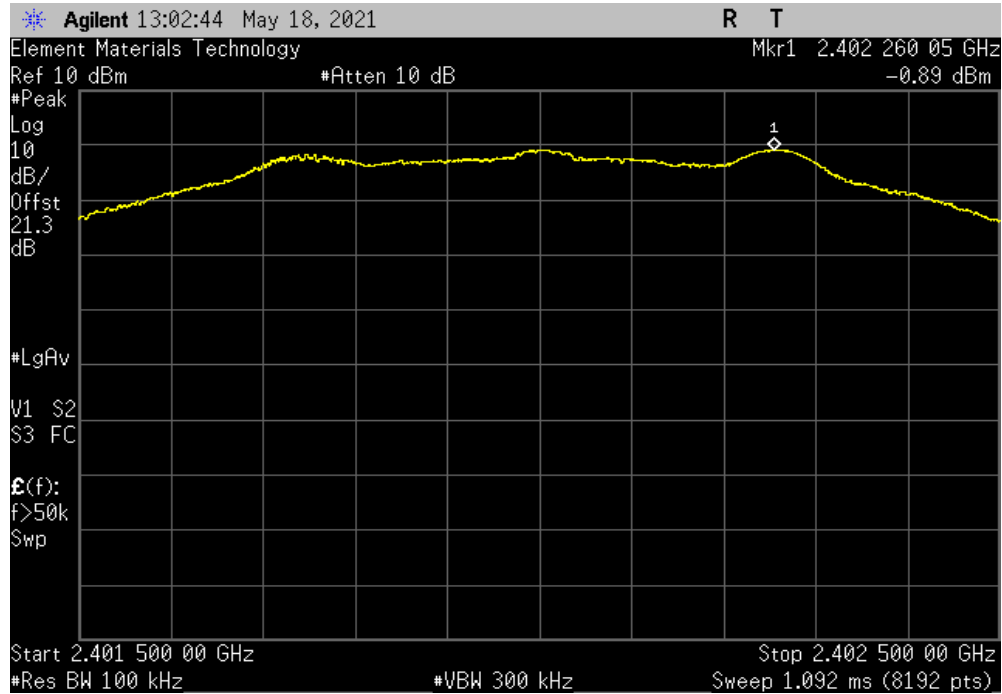
EUT: BACtrack Skyn Wearable Alcohol Monitor		Work Order: BACT0001				
Serial Number: Sample #2		Date: 18-May-21				
Customer: BACtrack		Temperature: 22.4 °C				
Attendees: None		Humidity: 40.2% RH				
Project: None		Barometric Pres.: 1024 mbar				
Tested by: Cole Ghizzone & Kam Robertson		Power: Battery				
		Job Site: EV06				
TEST SPECIFICATIONS		Test Method				
FCC 15.247:2021		ANSI C63.10:2013				
COMMENTS						
Reference level offset includes: DC block, 20 dB attenuator, measurement cable, and the manufacturers SMA patch cable.						
DEVIATIONS FROM TEST STANDARD						
None						
Configuration #	4	Signature <i>Cole Ghizzone</i>				
		Frequency Range	Measured Freq (MHz)			
			Max Value (dBc)			
			Limit ≤ (dBc)			
			Result			
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		Fundamental	2402.26	N/A	N/A	
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		30 MHz - 12.5 GHz	4804.3	-42.28	-20	Pass
BLE/GFSK 1 Mbps Low Channel, 2402 MHz		12.5 GHz - 25 GHz	24420.1	-51.74	-20	Pass
BLE/GFSK 1 Mbps Mid Channel, 2442 MHz		Fundamental	2442.26	N/A	N/A	N/A
BLE/GFSK 1 Mbps Mid Channel, 2442 MHz		30 MHz - 12.5 GHz	4883.4	-43.4	-20	Pass
BLE/GFSK 1 Mbps Mid Channel, 2442 MHz		12.5 GHz - 25 GHz	23499.9	-52.55	-20	Pass
BLE/GFSK 1 Mbps High Channel, 2480 MHz		Fundamental	2480.26	N/A	N/A	N/A
BLE/GFSK 1 Mbps High Channel, 2480 MHz		30 MHz - 12.5 GHz	4961.1	-45.07	-20	Pass
BLE/GFSK 1 Mbps High Channel, 2480 MHz		12.5 GHz - 25 GHz	23620.4	-51.93	-20	Pass

SPURIOUS CONDUCTED EMISSIONS

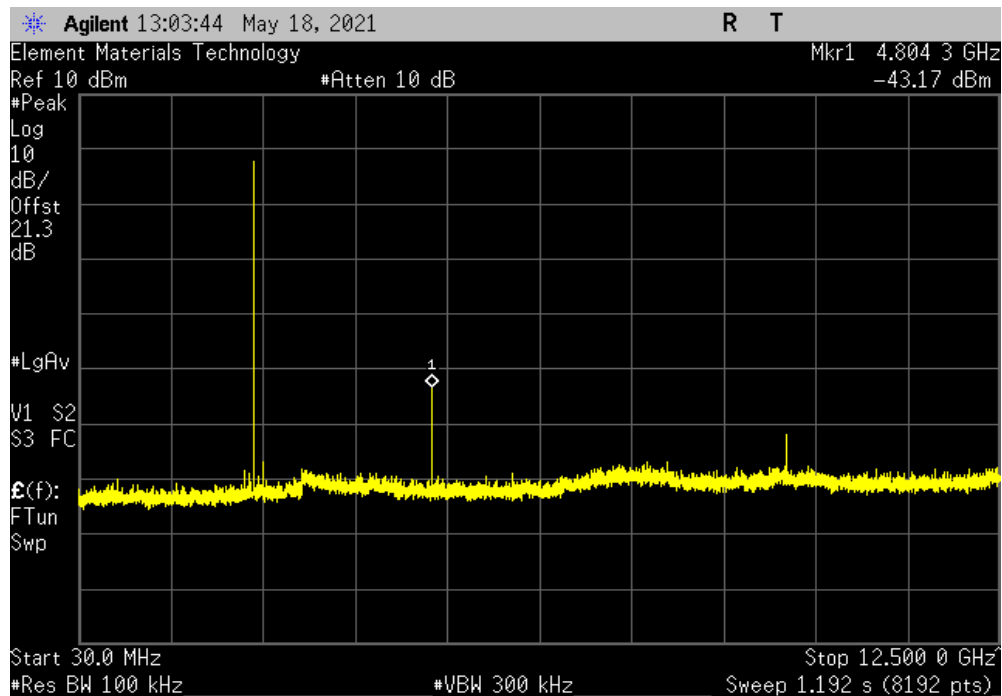


TbTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps Low Channel, 2402 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	2402.26	N/A	N/A	N/A	



BLE/GFSK 1 Mbps Low Channel, 2402 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	4804.3	-42.28	-20	Pass	

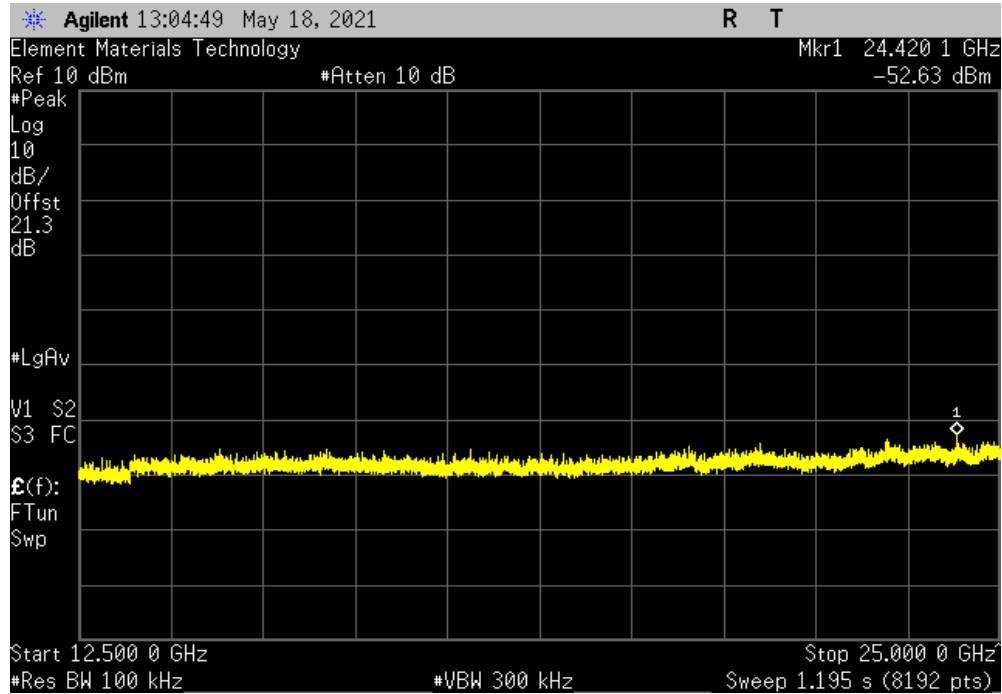


SPURIOUS CONDUCTED EMISSIONS

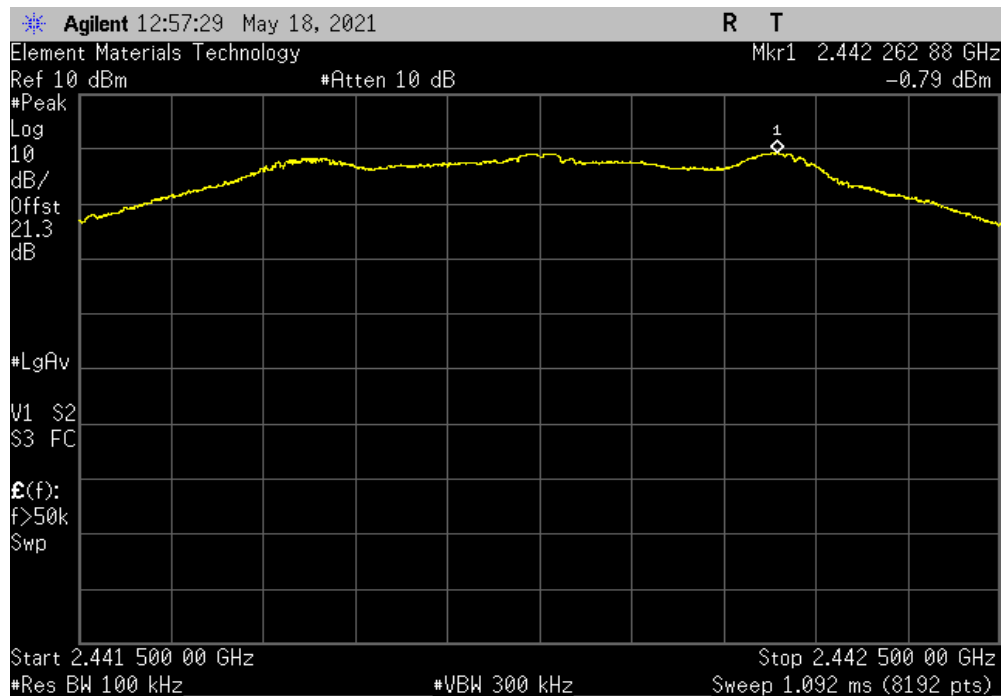


TbTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps Low Channel, 2402 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	24420.1	-51.74	-20	Pass	



BLE/GFSK 1 Mbps Mid Channel, 2442 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	2442.26	N/A	N/A	N/A	

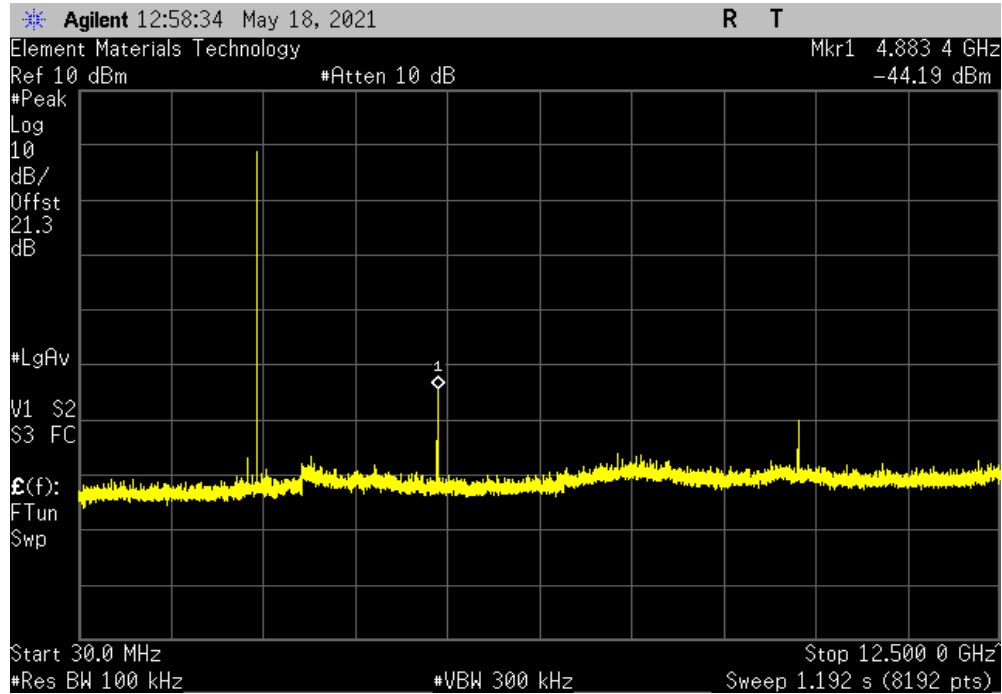


SPURIOUS CONDUCTED EMISSIONS

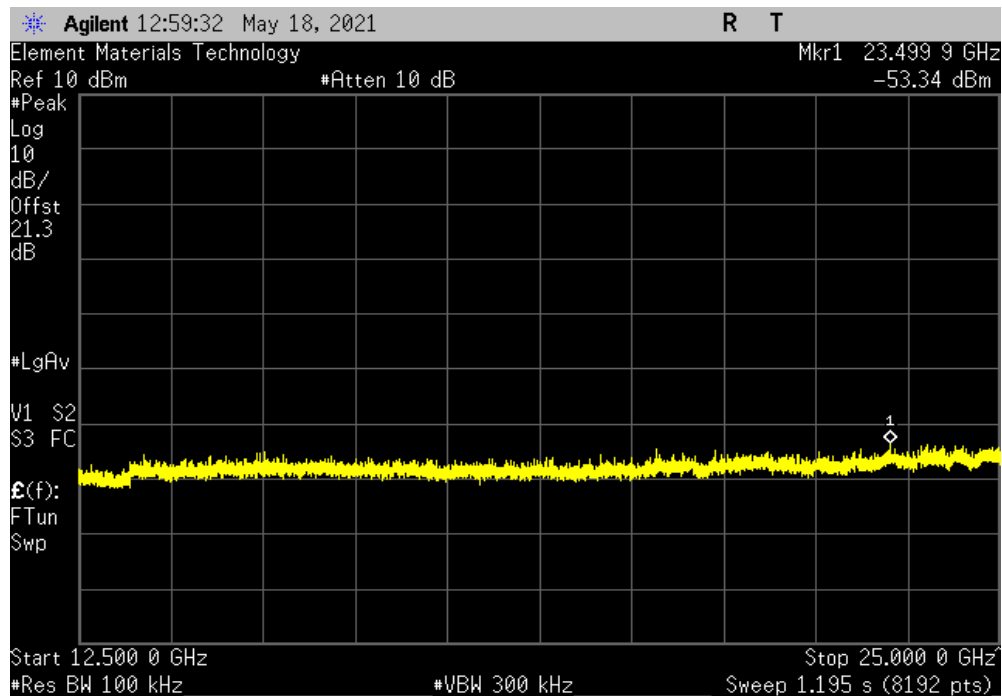


TUTTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps Mid Channel, 2442 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	4883.4	-43.4	-20	Pass	



BLE/GFSK 1 Mbps Mid Channel, 2442 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	23499.9	-52.55	-20	Pass	

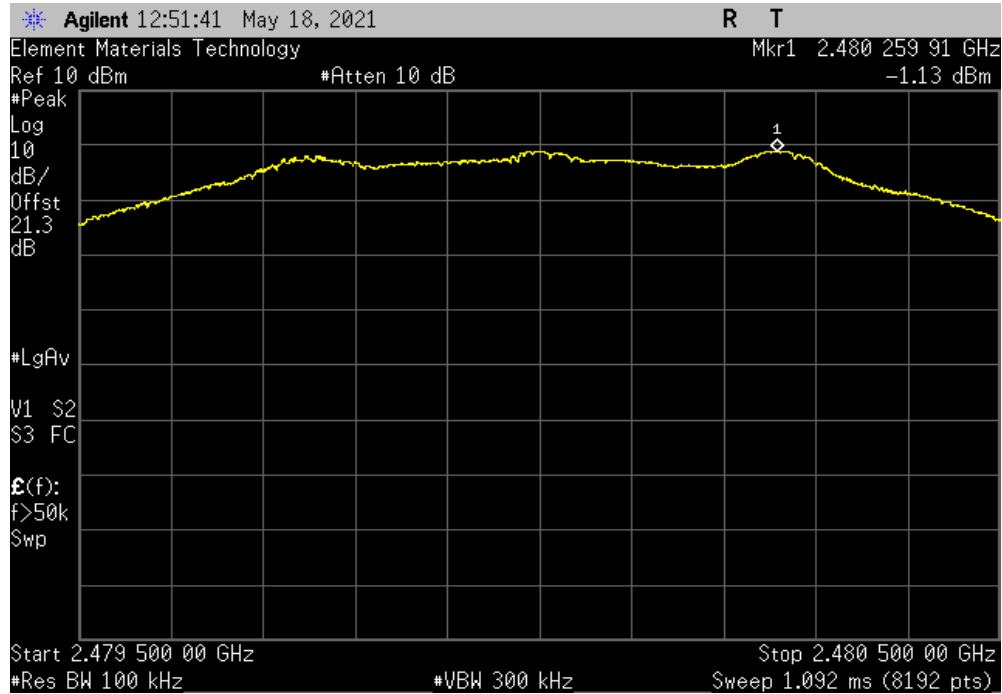


SPURIOUS CONDUCTED EMISSIONS

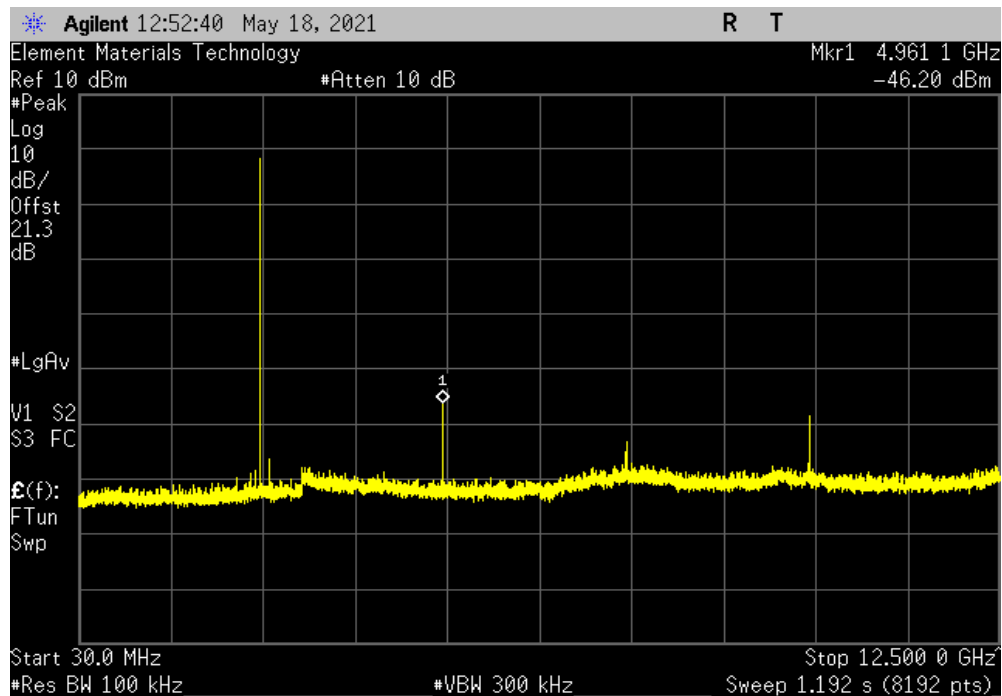


TbTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps High Channel, 2480 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
Fundamental	2480.26	N/A	N/A	N/A	



BLE/GFSK 1 Mbps High Channel, 2480 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	4961.1	-45.07	-20	Pass	

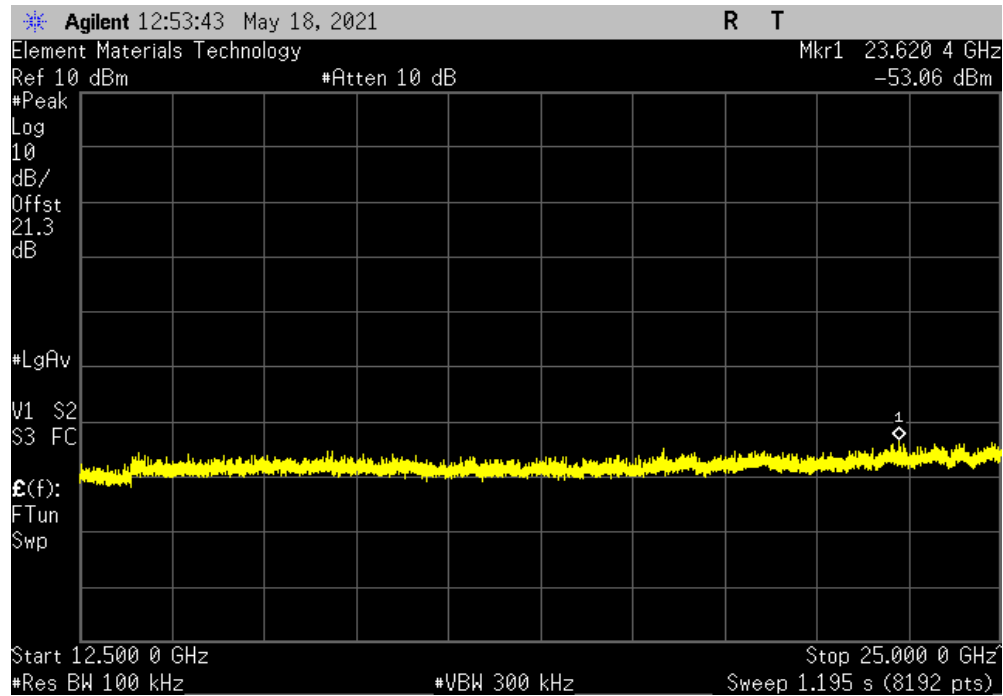


SPURIOUS CONDUCTED EMISSIONS



TMTx 2019.08.30.0 XMR 2020.12.30.0

BLE/GFSK 1 Mbps High Channel, 2480 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	23620.4	-51.93	-20	Pass	



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. These "pre-scans" are not included in the report. Final measurements on individual emissions were then made and included in this test report.

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

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

QP = Quasi-Peak Detector

PK = Peak Detector

AV = RMS Detector

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

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

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

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2020-06-25	2021-06-25
Antenna - Biconilog	EMCO	3141	AXG	2019-07-23	2021-07-23
Antenna - Double Ridge	EMCO	3115	AHC	2020-07-01	2022-07-01
Antenna - Standard Gain	ETS Lindgren	3160-07	AHU	NCR	NCR
Antenna - Standard Gain	ETS Lindgren	3160-08	AHV	NCR	NCR
Antenna - Standard Gain	ETS Lindgren	3160-09	AIV	NCR	NCR
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AOL	2020-11-17	2021-11-17
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAG	2020-11-17	2021-11-17
Amplifier - Pre-Amplifier	L-3 Narda-MITEQ	AMF-6F-08001200-30-10P	PAO	2020-11-18	2021-11-18
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	2020-11-18	2021-11-18
Amplifier - Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	2020-07-25	2021-07-25
Cable	N/A	Bilog Cables	EVA	2020-11-17	2021-11-17
Cable	N/A	Double Ridge Horn Cables	EVB	2020-11-17	2021-11-17
Cable	None	Standard Gain Horns Cable	EVF	2020-11-18	2021-11-18
Cable	ESM Cable Corp.	TTBJ141-KMKM-72	EVY	2020-07-25	2021-07-25
Attenuator	Coaxicom	3910-20	AXZ	2021-02-15	2022-02-15
Filter - Low Pass	Micro-Tronics	LPM50004	LFD	2021-02-15	2022-02-15
Filter - High Pass	Micro-Tronics	HPM50111	HFO	2020-11-17	2021-11-17

SPURIOUS RADIATED EMISSIONS

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	5.2 dB	-5.2 dB

FREQUENCY RANGE INVESTIGATED

30 MHz TO 26400 MHz

POWER INVESTIGATED

Battery

CONFIGURATIONS INVESTIGATED

BACT0001-3

MODES INVESTIGATED

BLE Tx, Low Ch = 2402 MHz, Mid Ch = 2442 MHz, High Ch = 2480 MHz
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SPURIOUS RADIATED EMISSIONS

EUT:	BACtrack Skyn Wearable Alcohol Monitor	Work Order:	BACT0001
Serial Number:	Sample #1	Date:	2021-05-13
Customer:	BACtrack	Temperature:	23.2°C
Attendees:	None	Relative Humidity:	43%
Customer Project:	None	Bar. Pressure:	1023 mb
Tested By:	Jeff Alcoke	Job Site:	EV01
Power:	Battery	Configuration:	BACT0001-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	26	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)
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COMMENTS

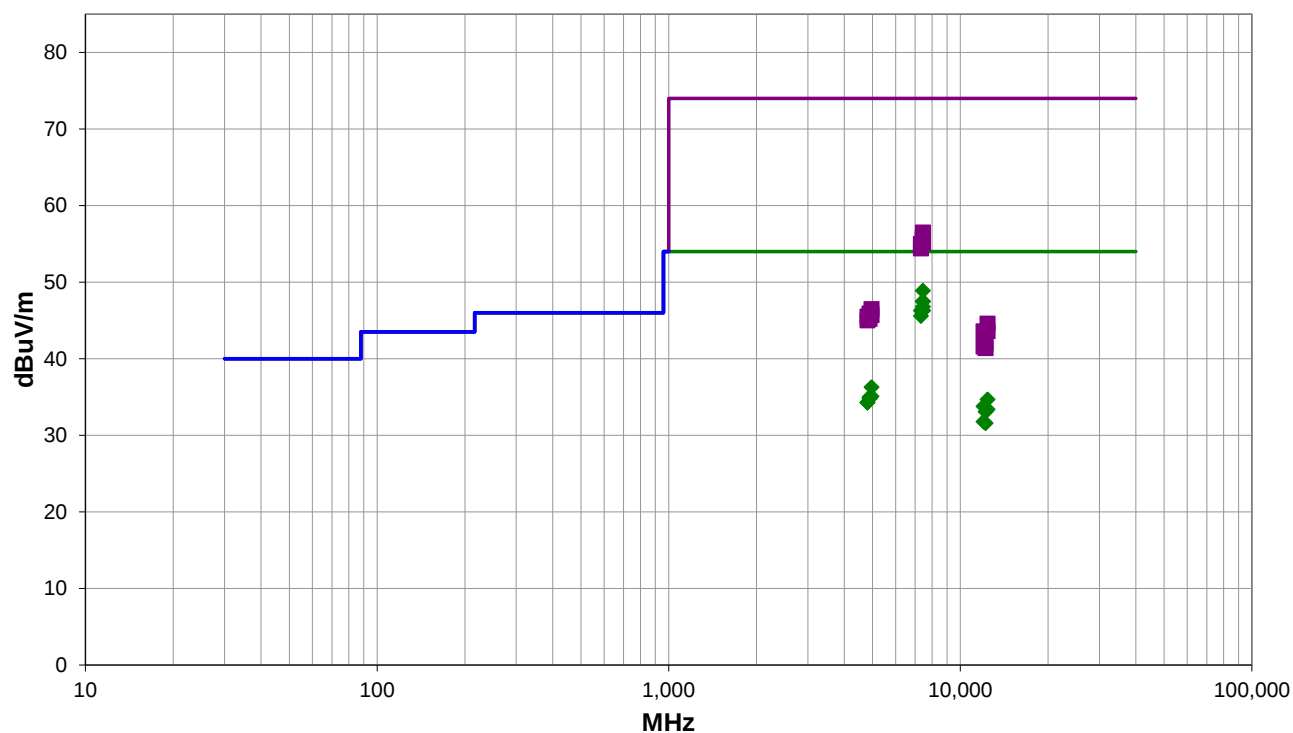
The EUT operates at a duty cycle (DC) of 85.4% or 0.854. An upward duty cycle correction factor (DCCF) was applied to the average measurements using $10 \cdot \log(1 / DC) = 10 \cdot \log(1 / 0.854) = 0.7$ dB.

EUT OPERATING MODES

BLE Tx, Low Ch = 2402 MHz, Mid Ch = 2442 MHz, High Ch = 2480 MHz

DEVIATIONS FROM TEST STANDARD

None



Run #: 26

■ PK ◆ AV ● QP

SPURIOUS RADIATED EMISSIONS

RESULTS - Run #26

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
7439.575	36.0	12.2	2.4	143.0	0.7	0.0	Horz	AV	0.0	48.9	54.0	-5.1	High Ch, EUT Horz
7439.408	34.6	12.2	2.0	299.0	0.7	0.0	Horz	AV	0.0	47.5	54.0	-6.5	High Ch, EUT on Side
7439.483	34.6	12.2	2.5	183.0	0.7	0.0	Vert	AV	0.0	47.5	54.0	-6.5	High Ch, EUT Horz
7439.442	33.9	12.2	3.2	136.0	0.7	0.0	Vert	AV	0.0	46.8	54.0	-7.2	High Ch, EUT Vert
7439.433	33.4	12.2	2.6	356.0	0.7	0.0	Vert	AV	0.0	46.3	54.0	-7.7	High Ch, EUT on Side
7439.475	33.4	12.2	1.8	22.0	0.7	0.0	Horz	AV	0.0	46.3	54.0	-7.7	High Ch, EUT Vert
7325.475	33.9	11.7	2.2	76.0	0.7	0.0	Horz	AV	0.0	46.3	54.0	-7.7	Mid Ch, EUT Horz
7325.592	33.2	11.7	3.0	58.0	0.7	0.0	Vert	AV	0.0	45.6	54.0	-8.4	Mid Ch, EUT Horz
7439.100	44.3	12.2	2.4	143.0	0.0	0.0	Horz	PK	0.0	56.5	74.0	-17.5	High Ch, EUT Horz
4960.025	29.7	5.9	3.8	122.0	0.7	0.0	Vert	AV	0.0	36.3	54.0	-17.7	High Ch, EUT Horz
7439.900	43.7	12.2	2.0	299.0	0.0	0.0	Horz	PK	0.0	55.9	74.0	-18.1	High Ch, EUT on Side
7439.258	43.7	12.2	2.5	183.0	0.0	0.0	Vert	PK	0.0	55.9	74.0	-18.1	High Ch, EUT Horz
7439.250	43.4	12.2	3.2	136.0	0.0	0.0	Vert	PK	0.0	55.6	74.0	-18.4	High Ch, EUT Vert
7440.783	43.3	12.2	2.6	356.0	0.0	0.0	Vert	PK	0.0	55.5	74.0	-18.5	High Ch, EUT on Side
7438.950	42.9	12.2	1.8	22.0	0.0	0.0	Horz	PK	0.0	55.1	74.0	-18.9	High Ch, EUT Vert
4957.500	28.5	5.9	1.5	19.0	0.7	0.0	Horz	AV	0.0	35.1	54.0	-18.9	High Ch, EUT Horz
7326.875	43.3	11.7	2.2	76.0	0.0	0.0	Horz	PK	0.0	55.0	74.0	-19.0	Mid Ch, EUT Horz
4884.042	28.3	6.0	1.3	22.0	0.7	0.0	Horz	AV	0.0	35.0	54.0	-19.0	Mid Ch, EUT Horz
4884.108	28.1	6.0	3.1	187.0	0.7	0.0	Vert	AV	0.0	34.8	54.0	-19.2	Mid Ch, EUT Horz
12398.880	32.5	1.5	1.1	162.0	0.7	0.0	Horz	AV	0.0	34.7	54.0	-19.3	High Ch, EUT Horz
7326.117	42.7	11.7	3.0	58.0	0.0	0.0	Vert	PK	0.0	54.4	74.0	-19.6	Mid Ch, EUT Horz
4801.700	28.5	5.1	1.5	212.0	0.7	0.0	Horz	AV	0.0	34.3	54.0	-19.7	Low Ch, EUT Horz
4801.533	28.5	5.1	2.2	54.0	0.7	0.0	Vert	AV	0.0	34.3	54.0	-19.7	Low Ch, EUT Horz
12008.950	32.0	1.1	1.1	182.0	0.7	0.0	Horz	AV	0.0	33.8	54.0	-20.2	Low Ch, EUT Horz
12398.840	31.2	1.5	1.0	35.0	0.7	0.0	Vert	AV	0.0	33.4	54.0	-20.6	High Ch, EUT Horz
12208.910	31.5	0.9	2.0	23.0	0.7	0.0	Horz	AV	0.0	33.1	54.0	-20.9	Mid Ch, EUT Horz
12008.830	30.0	1.1	2.6	163.0	0.7	0.0	Vert	AV	0.0	31.8	54.0	-22.2	Low Ch, EUT Horz
12208.860	30.0	0.9	2.6	313.0	0.7	0.0	Vert	AV	0.0	31.6	54.0	-22.4	Mid Ch, EUT Horz
4959.408	40.6	5.9	3.8	122.0	0.0	0.0	Vert	PK	0.0	46.5	74.0	-27.5	High Ch, EUT Horz
4884.150	39.9	6.0	1.3	22.0	0.0	0.0	Horz	PK	0.0	45.9	74.0	-28.1	Mid Ch, EUT Horz
4958.783	39.8	5.9	1.5	19.0	0.0	0.0	Horz	PK	0.0	45.7	74.0	-28.3	High Ch, EUT Horz
4802.350	40.4	5.1	2.2	54.0	0.0	0.0	Vert	PK	0.0	45.5	74.0	-28.5	Low Ch, EUT Horz
4884.550	39.2	6.0	3.1	187.0	0.0	0.0	Vert	PK	0.0	45.2	74.0	-28.8	Mid Ch, EUT Horz
4803.633	39.9	5.1	1.5	212.0	0.0	0.0	Horz	PK	0.0	45.0	74.0	-29.0	Low Ch, EUT Horz
12400.910	43.1	1.5	1.1	162.0	0.0	0.0	Horz	PK	0.0	44.6	74.0	-29.4	High Ch, EUT Horz
12398.880	42.1	1.5	1.0	35.0	0.0	0.0	Vert	PK	0.0	43.6	74.0	-30.4	High Ch, EUT Horz
12008.780	42.5	1.1	1.1	182.0	0.0	0.0	Horz	PK	0.0	43.6	74.0	-30.4	Low Ch, EUT Horz
12208.870	41.1	0.9	2.0	23.0	0.0	0.0	Horz	PK	0.0	42.0	74.0	-32.0	Mid Ch, EUT Horz
12008.690	40.5	1.1	2.6	163.0	0.0	0.0	Vert	PK	0.0	41.6	74.0	-32.4	Low Ch, EUT Horz
12209.460	40.5	0.9	2.6	313.0	0.0	0.0	Vert	PK	0.0	41.4	74.0	-32.6	Mid Ch, EUT Horz

SPURIOUS RADIATED EMISSIONS

CONCLUSION

Pass



Tested By

SPURIOUS RADIATED EMISSIONS

EUT:	BACtrack Skyn Wearable Alcohol Monitor	Work Order:	BACT0001
Serial Number:	Sample #1	Date:	2021-05-13
Customer:	BACtrack	Temperature:	23.2°C
Attendees:	None	Relative Humidity:	43%
Customer Project:	None	Bar. Pressure:	1023 mb
Tested By:	Jeff Alcock	Job Site:	EV01
Power:	Battery	Configuration:	BACT0001-3

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2021	ANSI C63.10:2013

TEST PARAMETERS

Run #:	28	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)
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COMMENTS

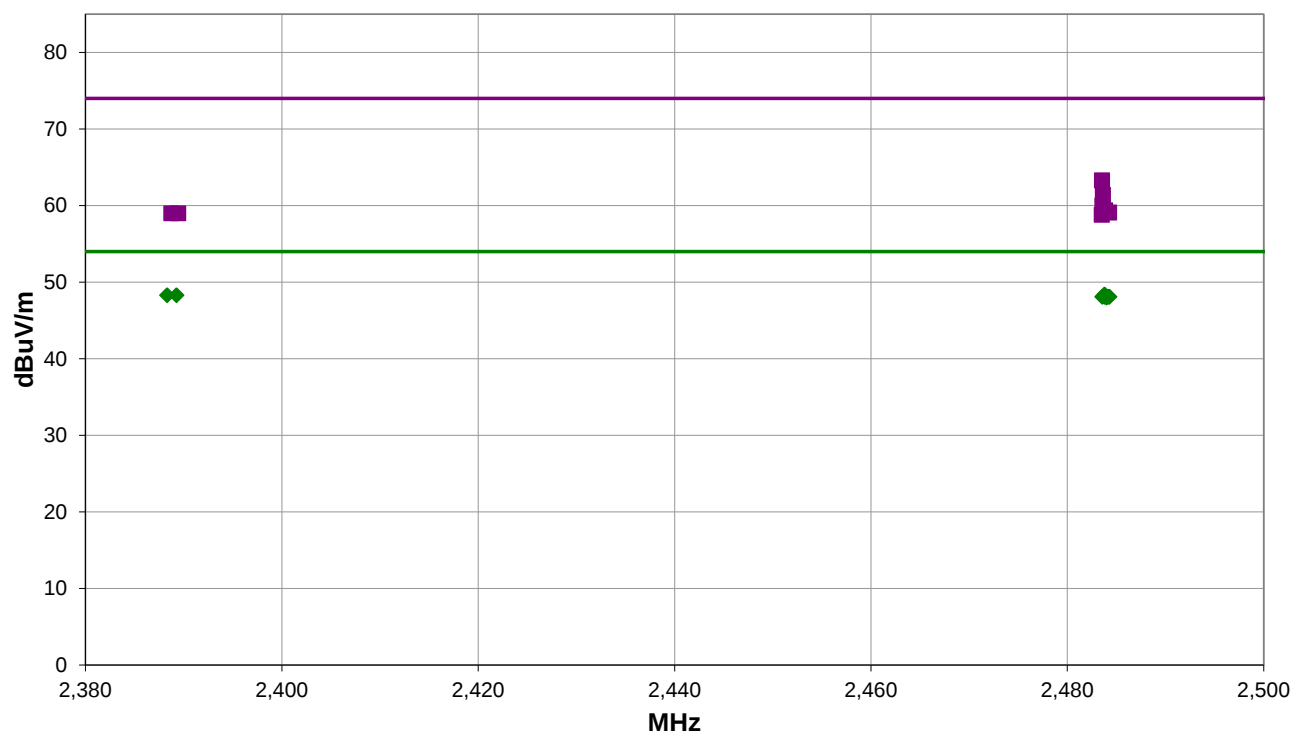
The EUT operates at a duty cycle (DC) of 85.4% or 0.854. An upward duty cycle correction factor (DCCF) was applied to the average measurements using $10 \cdot \log(1 / DC) = 10 \cdot \log(1 / 0.854) = 0.7$ dB.

EUT OPERATING MODES

BLE Tx, Low Ch = 2402 MHz, Mid Ch = 2442 MHz, High Ch = 2480 MHz

DEVIATIONS FROM TEST STANDARD

None



Run #: 28

■ PK ◆ AV ● QP

SPURIOUS RADIATED EMISSIONS

RESULTS - Run #28

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
2483.790	31.3	-3.6	1.1	105.0	0.7	20.0	Horz	AV	0.0	48.4	54.0	-5.6	High Ch, EUT Horz
2389.263	31.1	-3.5	1.5	56.0	0.7	20.0	Horz	AV	0.0	48.3	54.0	-5.7	Low Ch, EUT Horz
2388.307	31.1	-3.5	1.5	73.0	0.7	20.0	Vert	AV	0.0	48.3	54.0	-5.7	Low Ch, EUT Horz
2484.160	31.0	-3.6	1.5	311.0	0.7	20.0	Vert	AV	0.0	48.1	54.0	-5.9	High Ch, EUT Horz
2483.560	31.0	-3.6	1.5	332.0	0.7	20.0	Horz	AV	0.0	48.1	54.0	-5.9	High Ch, EUT on Side
2484.287	31.0	-3.6	1.5	311.0	0.7	20.0	Vert	AV	0.0	48.1	54.0	-5.9	High Ch, EUT on Side
2483.780	31.0	-3.6	1.5	62.0	0.7	20.0	Vert	AV	0.0	48.1	54.0	-5.9	High Ch, EUT Vert
2483.987	30.9	-3.6	1.5	124.0	0.7	20.0	Horz	AV	0.0	48.0	54.0	-6.0	High Ch, EUT Vert
2483.530	46.9	-3.6	1.1	105.0	0.0	20.0	Horz	PK	0.0	63.3	74.0	-10.7	High Ch, EUT Horz
2483.623	45.0	-3.6	1.5	62.0	0.0	20.0	Vert	PK	0.0	61.4	74.0	-12.6	High Ch, EUT Vert
2483.563	43.6	-3.6	1.5	332.0	0.0	20.0	Horz	PK	0.0	60.0	74.0	-14.0	High Ch, EUT on Side
2483.843	43.0	-3.6	1.5	311.0	0.0	20.0	Vert	PK	0.0	59.4	74.0	-14.6	High Ch, EUT Horz
2484.243	42.7	-3.6	1.5	311.0	0.0	20.0	Vert	PK	0.0	59.1	74.0	-14.9	High Ch, EUT on Side
2389.433	42.5	-3.5	1.5	56.0	0.0	20.0	Horz	PK	0.0	59.0	74.0	-15.0	Low Ch, EUT Horz
2388.727	42.5	-3.5	1.5	73.0	0.0	20.0	Vert	PK	0.0	59.0	74.0	-15.0	Low Ch, EUT Horz
2483.507	42.4	-3.6	1.5	124.0	0.0	20.0	Horz	PK	0.0	58.8	74.0	-15.2	High Ch, EUT Vert

CONCLUSION

Pass



Tested By

End of Test Report