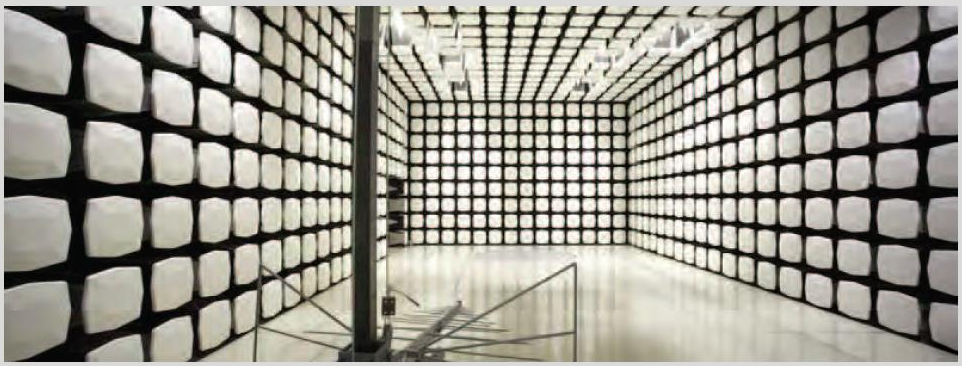
CAN Mobilities Inc.

CAN Go

FCC 15.247:2022

Bluetooth Low Energy (DTS) Radio

Report: ANNC0001.1 Rev. 2, Issue Date: January 8, 2023



CERT #3310.03

CERTIFICATE OF TEST

Last Date of Test: December 30, 2022
CAN Mobilities Inc.
EUT: CAN Go

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2022	ANSI C63.10:2013, KDB 558074
FCC 15.247:2022	

Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
11.6	Duty Cycle	No	N/A	
11.8.2	Occupied Bandwidth	Yes	Pass	Results shown apply to DTS Occupied Bandwidth. 99% Occupied Bandwidth has no pass/fail criteria.
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 Radiated Emissions - Outside of the Restricted Bands	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:

Eric Brandon, Department 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
01	Added comment for no 99% OB criteria	2022-04-27	2
	Added Band Edge module to report	2022-04-27	49-54
	Configuration 1 now matches the serial number seen across the all data modules	2022-04-27	15, 17, 21, 29, 37, 39, 42, 50, 56, 59, 61,
	Updated test descriptions for the OP and EIRP	2022-04-27	36, 38
	Antenna gain was added to the Datasheet to be subtracted out of the final reported value.	2022-04-27	42-48
	Test description modified	2022-04-27	49
02	Replaced data for Occupied Bandwidth 99%, DTS Bandwidth, Output Power, EIRP, Power Spectral Density, and Band Edge Compliance	2023-01-07	21-66
	Updated test dates	2023-01-07	2, 10, 14
	Added Spurious Conducted Emissions data	2023-01-07	69-88
	Added ANNC0001-3 to configurations	2023-01-07	13

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

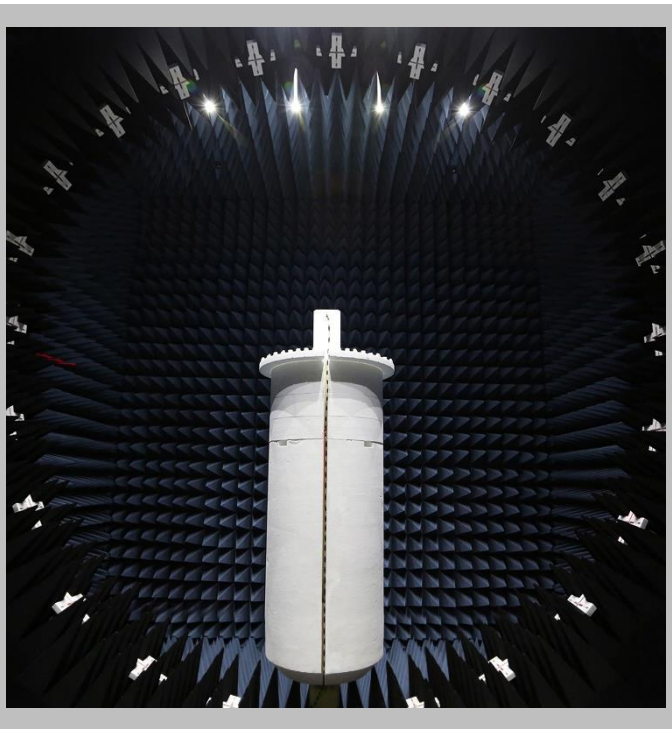
For details on the Scopes of our Accreditations, please visit:

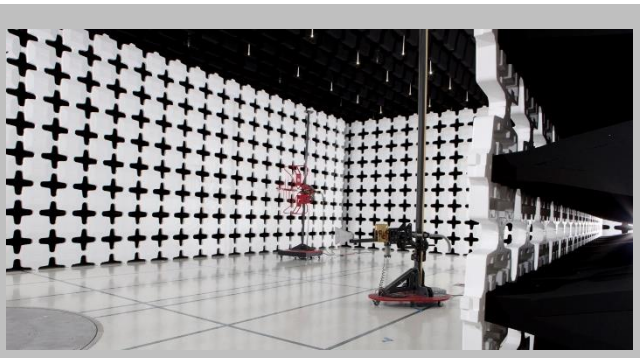
California Minnesota Oregon Texas Washington

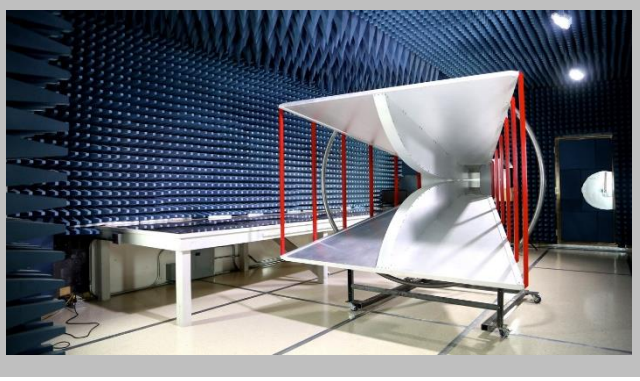
FACILITIES

element
2020.12.15

California	Minnesota	Oregon	Texas	Washington
Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-11 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120th Ave NE Bothell, WA 98011 (425)984-6600
A2LA				
Lab Code: 3310.04	Lab Code: 3310.05	Lab Code: 3310.02	Lab Code: 3310.03	Lab Code: 3310.06
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

element
TMU.2015.07.10

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)	3.2 dB	-3.2 dB

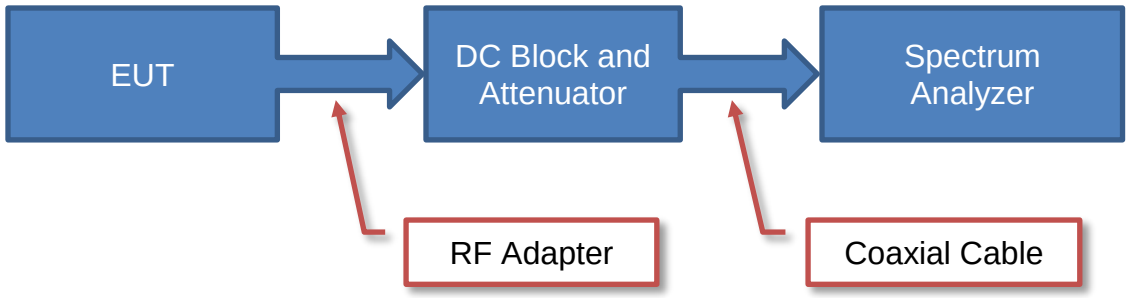
TEST SETUP BLOCK DIAGRAMS

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.

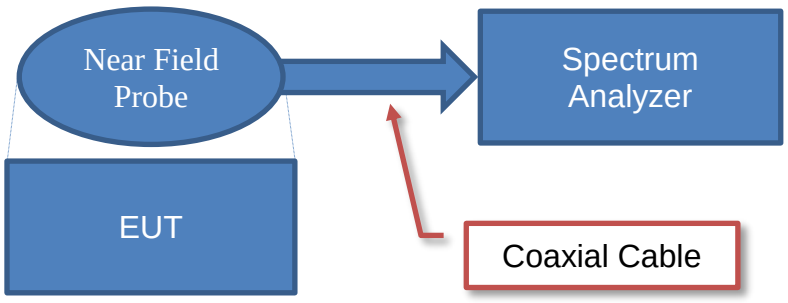
Antenna Port Conducted Measurements



Sample Calculation (logarithmic units)

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

Near Field Test Fixture Measurements

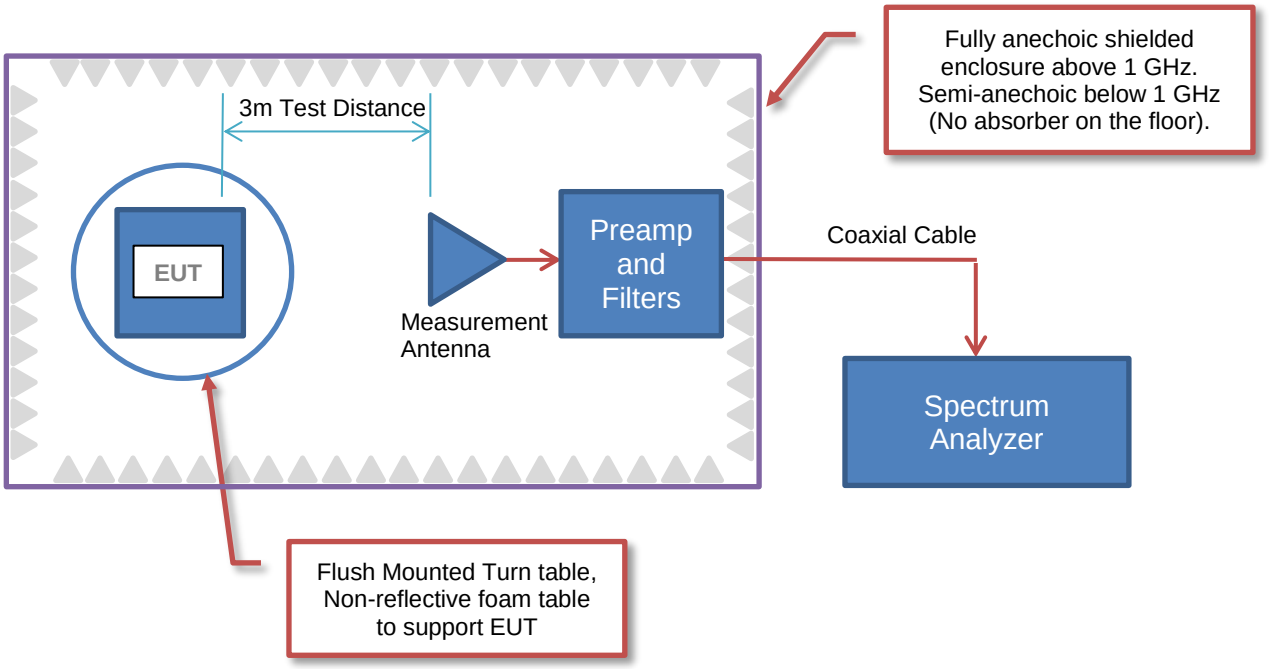


Sample Calculation (logarithmic units)

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**

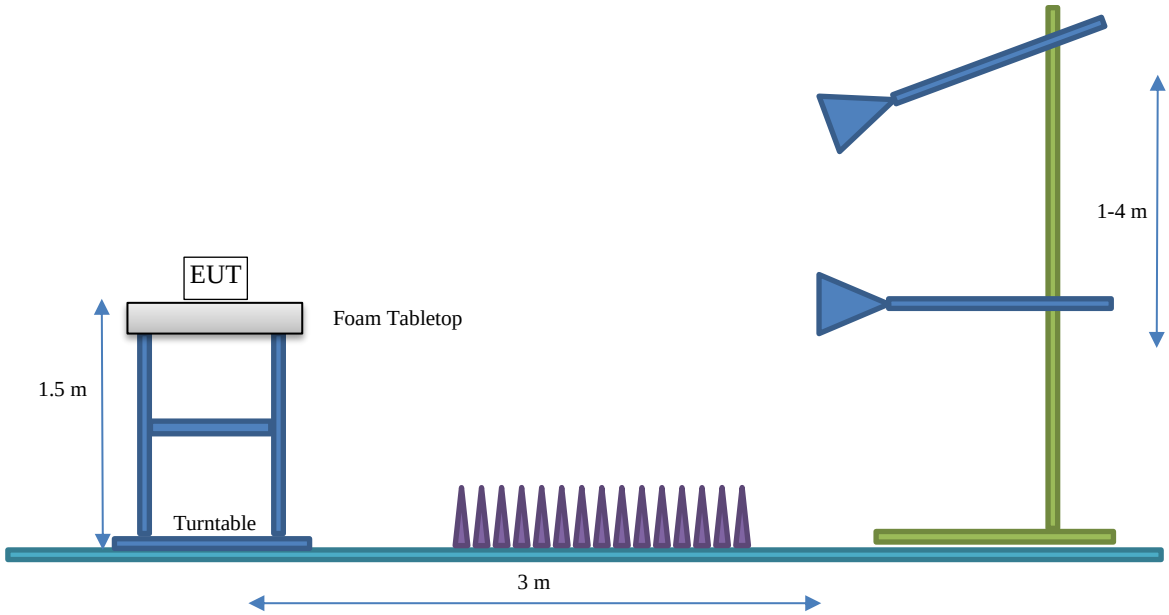
Conducted Emissions:

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

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:	CAN Mobilities Inc.
Address:	119 Independence Dr
City, State, Zip:	Menlo Park, CA 94025
Test Requested By:	Abdullah Hejazi
EUT:	CAN Go
First Date of Test:	February 8, 2022
Last Date of Test:	December 30, 2022
Receipt Date of Samples:	December 13, 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:
Smart cane containing a Bluetooth chip and cellular module.

Testing Objective:
To demonstrate compliance of the Bluetooth Low Energy (DTS) 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	TDK	2400 - 2484	1.6

The EUT was tested using the power settings provided by the manufacturer:

SETTINGS FOR ALL TESTS IN THIS REPORT

Modulation Types / Data Rates	Type	Channel	Frequency (MHz)	Power Setting
BLE 125 kbps, 500 kbps, 1 Mbps, 2 Mbps	DTS	0	2402	8dBm
		20	2442	8dBm
		39	2480	8dBm

CONFIGURATIONS

Configuration ANNC0001- 1

Software/Firmware Running During Test	
Description	**Version**
Putty	0.68

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Smart Cane	CAN Mobilities Inc.	CAN Go	869260049954217
Switching Power Supply	CAN Mobilities Inc.	S012CDU0500200	None

Peripherals in Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
USB to Serial Dongle	None	None	None
Serial to Ribbon Convertor Board	None	None	None

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Charging Cable	No	2.0 m	No	Smart Cane	Switching Power Supply
I/0 Cable	No	0.3 m	No	USB Dongle	Ribbon Cable Convertor Board
Ribbon Cable	No	0.3 m	No	Ribbon Cable Convertor Board	Cane

CONFIGURATIONS

Configuration ANNC0001- 3

Software/Firmware Running During Test	
Description	**Version**
Putty	0.68
Firmware	

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Smart Cane PCB Suite	CAN Mobilities Inc.	CAN Go	EC21-A

Peripherals in Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Switching Power Supply	CAN Mobilities Inc.	S012CDU0500200	None
USB to Serial Dongle	None	None	None
Serial to Ribbon Convertor Board	None	None	None
Laptop PC	Lenovo	IdeaPad Slim	R90YGNE6

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
Charging Cable	No	2.0 m	No	Smart Cane	Switching Power Supply
I/0 Cable	No	0.3 m	No	USB Dongle	Ribbon Cable Convertor Board
Ribbon Cable	No	0.3 m	No	Ribbon Cable Convertor Board	Cane

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2022-02-08	Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	2022-02-09	Spurious Radiated Emissions - Outside of the Restricted Bands	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	2022-02-11	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.
4	2022-12-30	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.
5	2022-12-30	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.
6	2022-12-30	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.
7	2022-12-30	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.
8	2022-12-30	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.
9	2022-12-30	Spurious 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

element
WTD.2021.09.21.0
EmiR5 2021.09.09.0
PSA-ESCI 2022.1.12.0

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	Gauss Instruments	TDEMI 30M	ARL	2021-03-23	2022-03-23
Cable - Conducted Cable Assembly	Northwest EMC	TXA, HFC, TQU	TXAA	2022-01-24	2023-01-24
LISN	Solar Electronics	9252-50-R-24-BNC	LIK	2021-07-01	2022-07-01

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	3.6 dB	-3.6 dB

CONFIGURATIONS INVESTIGATED

ANNC0001-1

MODES INVESTIGATED

Transmitting Bluetooth LE: Mid Ch 20 (2442 MHz)

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2021.09.09.0
PSA-ESCI 2022.1.12.0

EUT:	CAN Go	Work Order:	ANNC0001
Serial Number:	869260049954217	Date:	2022-02-08
Customer:	CAN Mobilities Inc.	Temperature:	22.5°C
Attendees:	Abdullah Hejazi	Relative Humidity:	23.3%
Customer Project:	None	Bar. Pressure (PMSL):	1022 mb
Tested By:	Mark Baytan	Job Site:	TX01
Power:	110VAC/60Hz	Configuration:	ANNC0001-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

Run #:	3	Line:	High Line	Add. Ext. Attenuation (dB):	0

COMMENTS

None

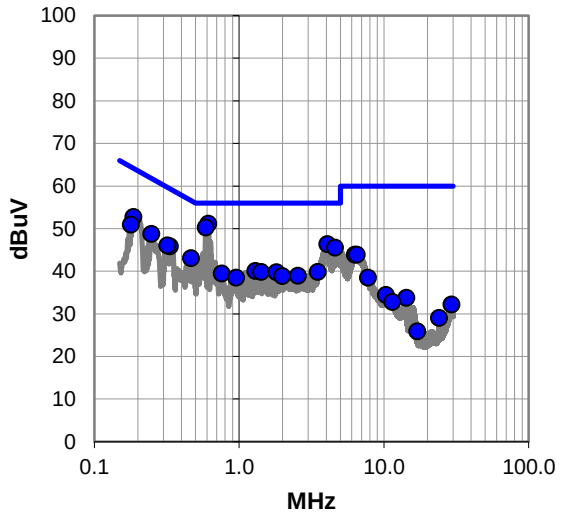
EUT OPERATING MODES

Transmitting Bluetooth LE: Mid Ch 20 (2442 MHz)

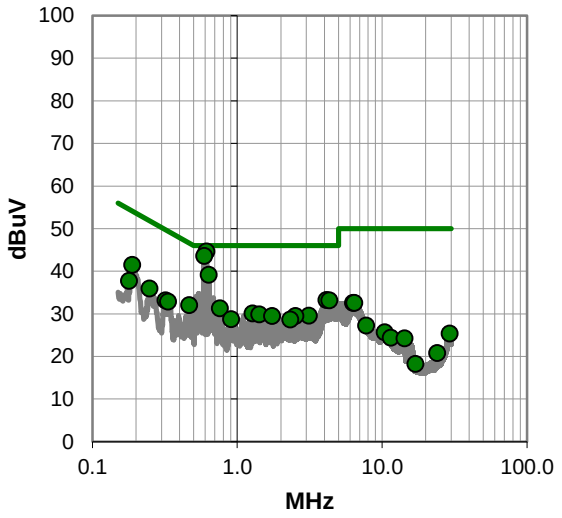
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2021.09.09.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #3

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.612	31.0	20.2	51.2	56.0	-4.8
0.589	30.1	20.2	50.3	56.0	-5.7
4.068	26.2	20.2	46.4	56.0	-9.6
4.595	25.4	20.2	45.6	56.0	-10.4
0.187	32.2	20.6	52.8	64.2	-11.4
0.248	28.2	20.6	48.8	61.8	-13.0
0.179	30.4	20.6	51.0	64.5	-13.5
0.333	25.6	20.3	45.9	59.4	-13.5
0.466	22.9	20.2	43.1	56.6	-13.5
0.319	25.8	20.3	46.1	59.7	-13.6
1.294	20.0	20.1	40.1	56.0	-15.9
1.418	19.7	20.2	39.9	56.0	-16.1
3.487	19.7	20.2	39.9	56.0	-16.1
6.285	23.7	20.2	43.9	60.0	-16.1
6.508	23.7	20.2	43.9	60.0	-16.1
1.812	19.6	20.2	39.8	56.0	-16.2
0.759	19.3	20.2	39.5	56.0	-16.5
2.544	18.8	20.2	39.0	56.0	-17.0
1.981	18.7	20.2	38.9	56.0	-17.1
0.956	18.3	20.2	38.5	56.0	-17.5
7.753	18.1	20.4	38.5	60.0	-21.5
10.342	14.0	20.5	34.5	60.0	-25.5
14.279	12.8	21.0	33.8	60.0	-26.2
11.441	12.1	20.7	32.8	60.0	-27.2
29.233	9.6	22.6	32.2	60.0	-27.8

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.612	24.5	20.2	44.7	46.0	-1.3
0.589	23.4	20.2	43.6	46.0	-2.4
0.635	19.0	20.2	39.2	46.0	-6.8
0.188	20.9	20.6	41.5	54.1	-12.6
4.128	13.1	20.2	33.3	46.0	-12.7
4.325	13.0	20.2	33.2	46.0	-12.8
0.466	11.9	20.2	32.1	46.6	-14.5
0.759	11.1	20.2	31.3	46.0	-14.7
0.248	15.4	20.6	36.0	51.8	-15.8
1.271	10.0	20.1	30.1	46.0	-15.9
1.418	9.7	20.2	29.9	46.0	-16.1
3.112	9.4	20.2	29.6	46.0	-16.4
0.319	12.9	20.3	33.2	49.7	-16.5
0.333	12.6	20.3	32.9	49.4	-16.5
1.734	9.3	20.2	29.5	46.0	-16.5
2.517	9.3	20.2	29.5	46.0	-16.5
0.179	17.2	20.6	37.8	54.5	-16.7
0.905	8.6	20.2	28.8	46.0	-17.2
2.324	8.5	20.2	28.7	46.0	-17.3
6.302	12.4	20.2	32.6	50.0	-17.4
6.421	12.4	20.2	32.6	50.0	-17.4
7.750	6.9	20.4	27.3	50.0	-22.7
10.408	5.2	20.5	25.7	50.0	-24.3
29.233	2.8	22.6	25.4	50.0	-24.6
11.442	3.7	20.7	24.4	50.0	-25.6

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2021.09.09.0
PSA-ESCI 2022.1.12.0

EUT:	CAN Go	Work Order:	ANNC0001
Serial Number:	869260049954217	Date:	2022-02-08
Customer:	CAN Mobilities Inc.	Temperature:	22.5°C
Attendees:	Abdullah Hejazi	Relative Humidity:	23.3%
Customer Project:	None	Bar. Pressure (PMSL):	1022 mb
Tested By:	Mark Baytan	Job Site:	TX01
Power:	110VAC/60Hz	Configuration:	ANNC0001-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2022	ANSI C63.10:2013

TEST PARAMETERS

Run #:	4	Line:	Neutral	Add. Ext. Attenuation (dB):	0

COMMENTS

None

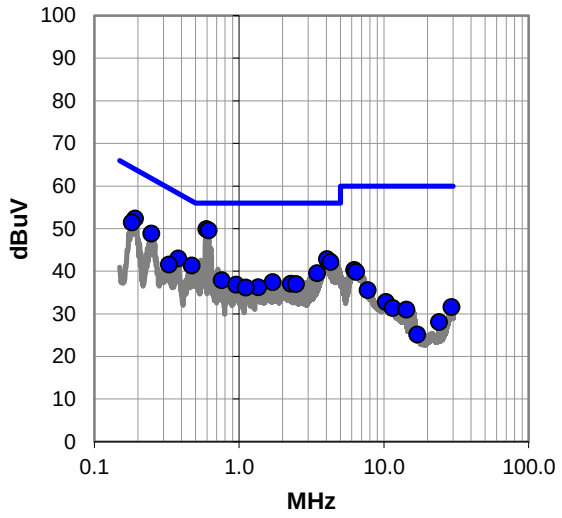
EUT OPERATING MODES

Transmitting Bluetooth LE: Mid Ch 20 (2442 MHz)

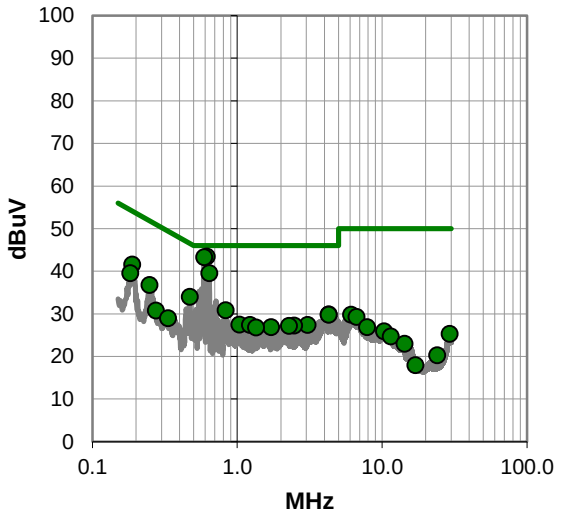
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2021.09.09.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #4

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.594	29.7	20.2	49.9	56.0	-6.1
0.617	29.4	20.2	49.6	56.0	-6.4
0.191	31.8	20.6	52.4	64.0	-11.6
0.248	28.3	20.6	48.9	61.8	-12.9
0.182	30.9	20.6	51.5	64.4	-12.9
4.045	22.7	20.2	42.9	56.0	-13.1
4.274	22.0	20.2	42.2	56.0	-13.8
0.470	21.2	20.2	41.4	56.5	-15.1
0.379	22.7	20.3	43.0	58.3	-15.3
3.464	19.4	20.2	39.6	56.0	-16.4
0.329	21.3	20.3	41.6	59.5	-17.9
0.757	17.7	20.2	37.9	56.0	-18.1
1.706	17.3	20.2	37.5	56.0	-18.5
2.274	16.9	20.2	37.1	56.0	-18.9
2.466	16.8	20.2	37.0	56.0	-19.0
0.953	16.7	20.2	36.9	56.0	-19.1
6.246	20.1	20.2	40.3	60.0	-19.7
1.354	16.2	20.1	36.3	56.0	-19.7
1.111	16.2	20.0	36.2	56.0	-19.8
6.420	19.7	20.2	39.9	60.0	-20.1
7.724	15.3	20.3	35.6	60.0	-24.4
10.309	12.3	20.5	32.8	60.0	-27.2
29.233	9.0	22.6	31.6	60.0	-28.4
11.464	10.7	20.7	31.4	60.0	-28.6
14.280	10.0	21.0	31.0	60.0	-29.0

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.614	23.3	20.2	43.5	46.0	-2.5
0.589	23.1	20.2	43.3	46.0	-2.7
0.640	19.4	20.2	39.6	46.0	-6.4
0.188	21.0	20.6	41.6	54.1	-12.5
0.470	13.8	20.2	34.0	46.5	-12.5
0.182	19.0	20.6	39.6	54.4	-14.8
0.248	16.2	20.6	36.8	51.8	-15.0
0.832	10.7	20.2	30.9	46.0	-15.1
4.274	9.7	20.2	29.9	46.0	-16.1
4.270	9.6	20.2	29.8	46.0	-16.2
1.033	7.5	20.0	27.5	46.0	-18.5
1.226	7.4	20.0	27.4	46.0	-18.6
3.057	7.2	20.2	27.4	46.0	-18.6
2.466	7.1	20.2	27.3	46.0	-18.7
2.274	7.0	20.2	27.2	46.0	-18.8
1.706	6.7	20.2	26.9	46.0	-19.1
1.345	6.7	20.1	26.8	46.0	-19.2
6.107	9.6	20.2	29.8	50.0	-20.2
0.274	10.3	20.5	30.8	51.0	-20.2
0.333	8.7	20.3	29.0	49.4	-20.4
6.641	9.1	20.2	29.3	50.0	-20.7
7.854	6.5	20.4	26.9	50.0	-23.1
10.330	5.4	20.5	25.9	50.0	-24.1
29.233	2.7	22.6	25.3	50.0	-24.7
11.447	4.0	20.7	24.7	50.0	-25.3

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 DESCRIPTION

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

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

OCCUPIED BANDWIDTH

XMit 2022.02.07.0

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
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17
Block - DC	Fairview Microwave	SD3379	AMM	2022-09-09	2023-09-09
Attenuator	Fairview Microwave	SA4018-20	TYW	2022-03-01	2023-03-01
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXJ	2022-09-09	2023-09-09
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17

TEST DESCRIPTION

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.

OCCUPIED BANDWIDTH

TbtTx 2022.06.03.0 XMit 2022.02.07.0

EUT:	**CAN Go**			**Work Order:**	**ANNC0001**
Serial Number:	**EC21-A**			**Date:**	**30-Dec-22**
Customer:	**CAN Mobilities Inc.**			**Temperature:**	**22.4 °C**
Attendees:	**None**			**Humidity:**	**37.8% RH**
Project:	**None**			**Barometric Pres.:**	**1018 mbar**
Tested by:	**Jarrod Brenden**	**Power:**	**4.05 VDC via Battery**	**Job Site:**	**TX07**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2022	ANSI C63.10:2013

COMMENTS

All losses in the measurment path were accounted for: cable, attenuator, and DC block (21.16 dB).

DEVIATIONS FROM TEST STANDARD

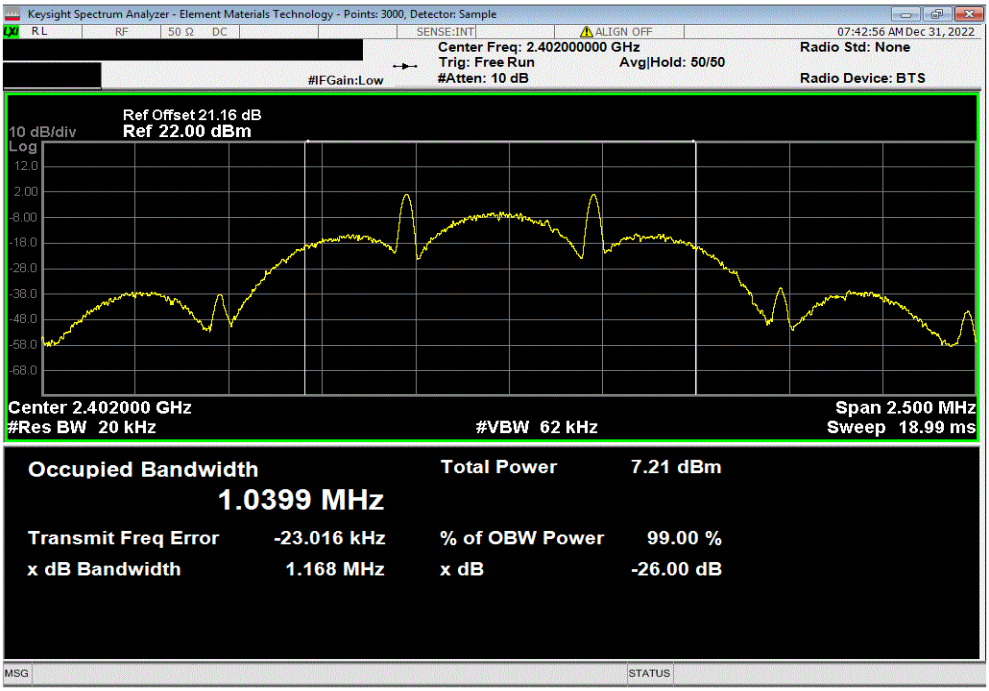
None

Configuration #	**3**	*Signature*

		Value	**Limit**	**Result**
GFSK				
	125 kbps			
	Low Channel, 2402 MHz	1.04 MHz	N/A	N/A
	Mid Channel, 2442 MHz	1.039 MHz	N/A	N/A
	High Channel, 2480 MHz	1.045 MHz	N/A	N/A
	500 kbps			
	Low Channel, 2402 MHz	1.059 MHz	N/A	N/A
	Mid Channel, 2442 MHz	1.059 MHz	N/A	N/A
	High Channel, 2480 MHz	1.065 MHz	N/A	N/A
	1 Mbps			
	Low Channel, 2402 MHz	1.059 MHz	N/A	N/A
	Mid Channel, 2442 MHz	1.058 MHz	N/A	N/A
	High Channel, 2480 MHz	1.065 MHz	N/A	N/A
	2 Mbps			
	Low Channel, 2402 MHz	2.063 MHz	N/A	N/A
	Mid Channel, 2442 MHz	2.07 MHz	N/A	N/A
	High Channel, 2480 MHz	2.073 MHz	N/A	N/A

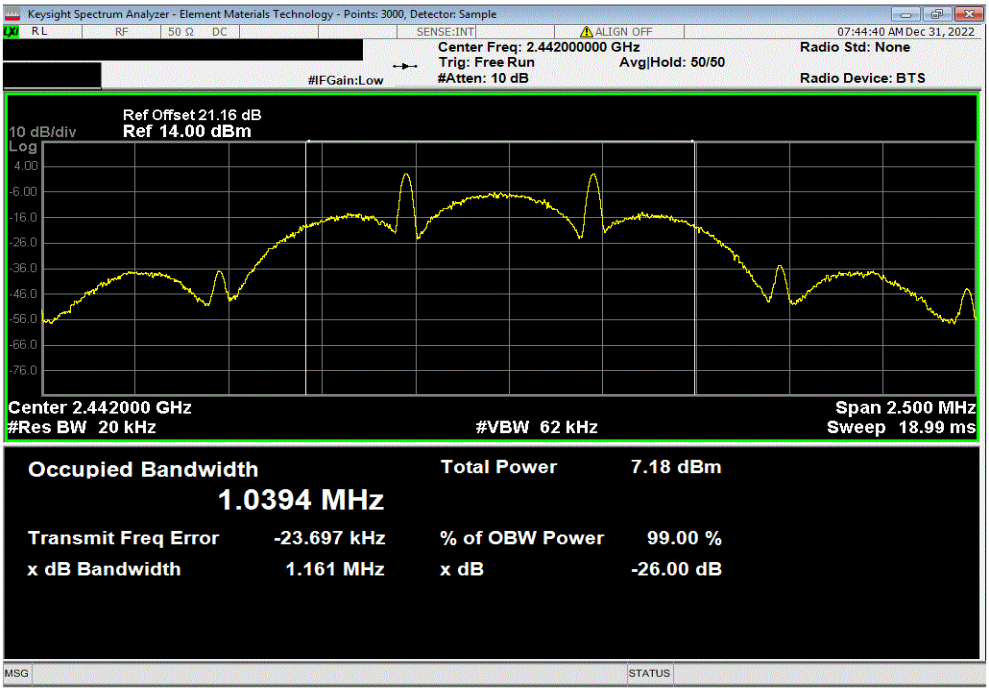
GFSK, 125 kbps, Low Channel, 2402 MHz

				Value	Limit	Result
				1.04 MHz	N/A	N/A



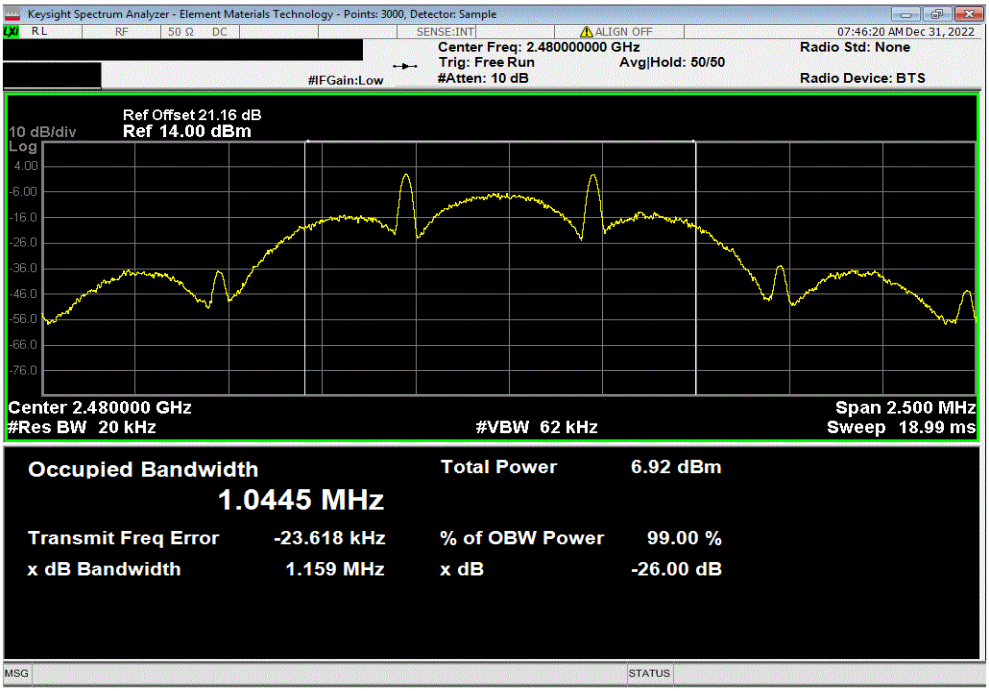
GFSK, 125 kbps, Mid Channel, 2442 MHz

				Value	Limit	Result
				1.039 MHz	N/A	N/A



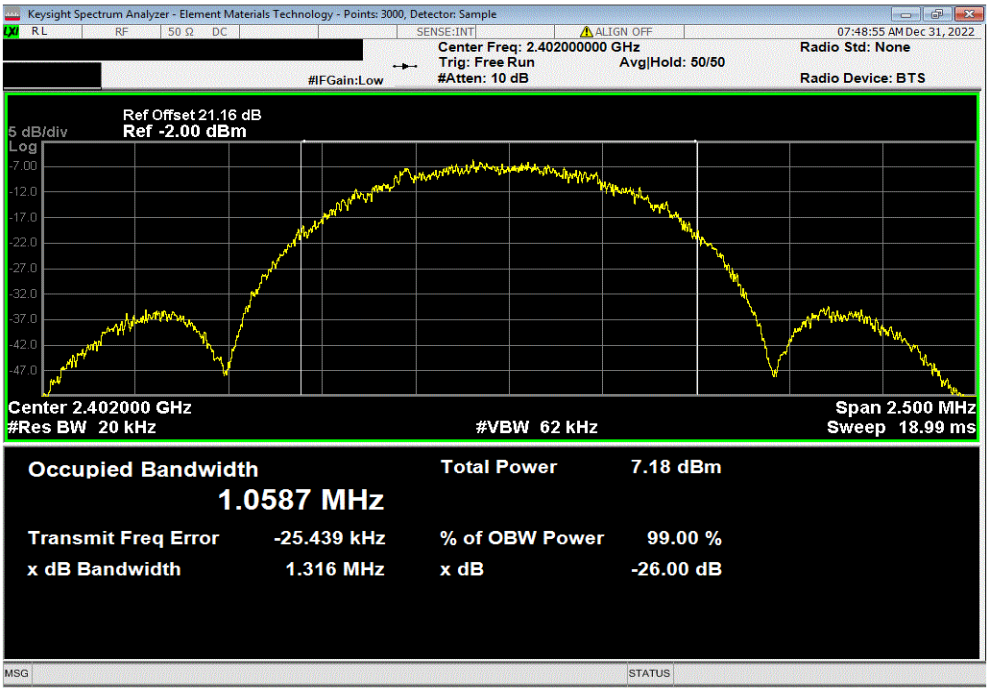
GFSK, 125 kbps, High Channel, 2480 MHz

				Value	Limit	Result
				1.045 MHz	N/A	N/A



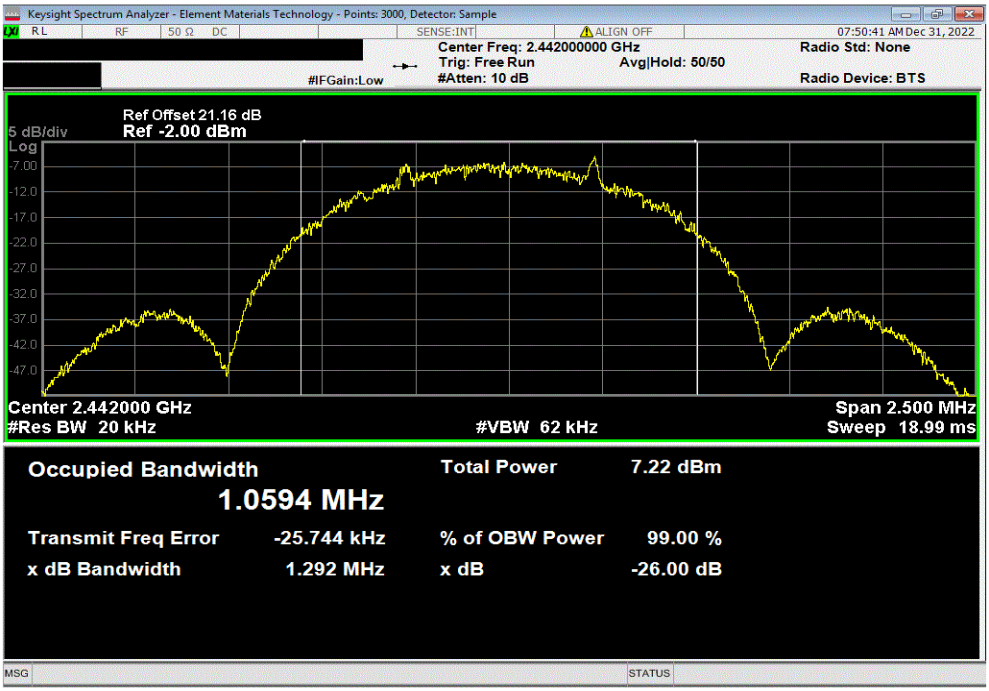
GFSK, 500 kbps, Low Channel, 2402 MHz

				Value	Limit	Result
				1.059 MHz	N/A	N/A



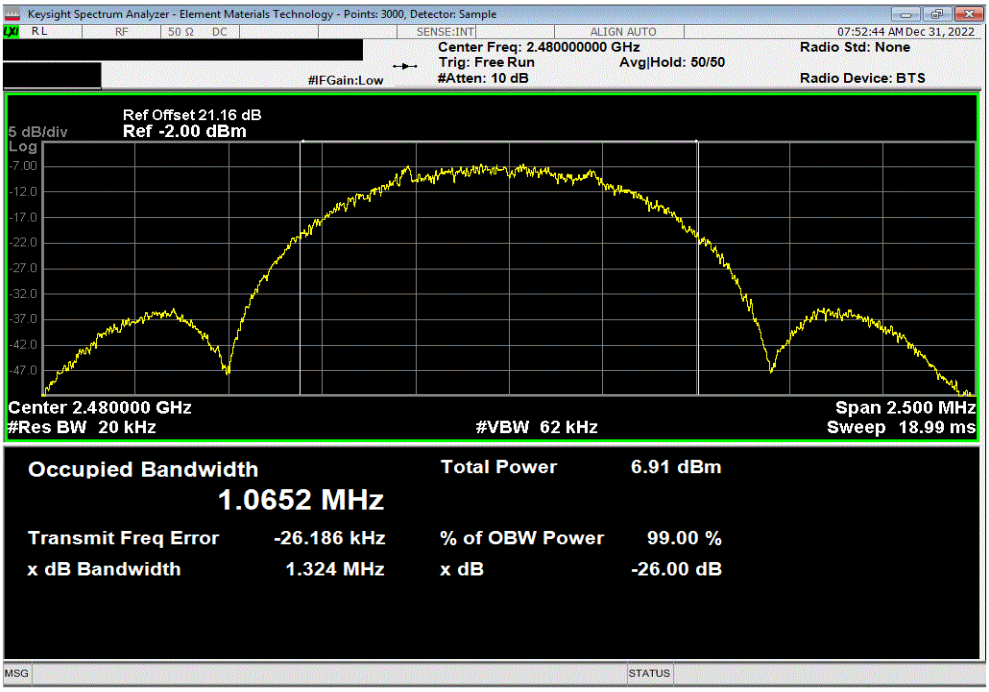
GFSK, 500 kbps, Mid Channel, 2442 MHz

				Value	Limit	Result
				1.059 MHz	N/A	N/A



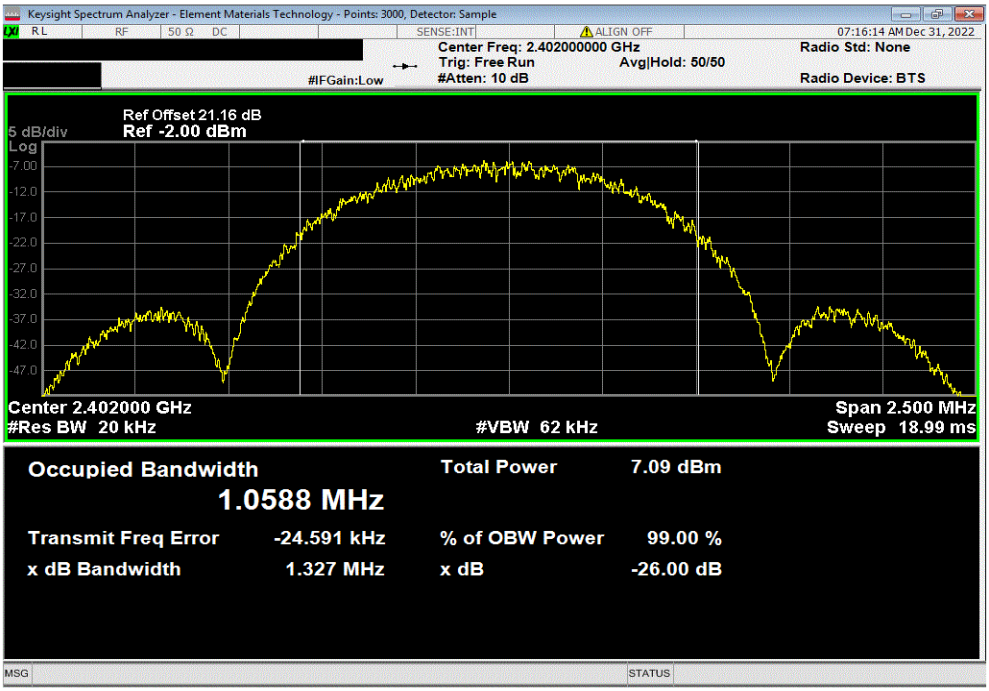
GFSK, 500 kbps, High Channel, 2480 MHz

				Value	Limit	Result
				1.065 MHz	N/A	N/A



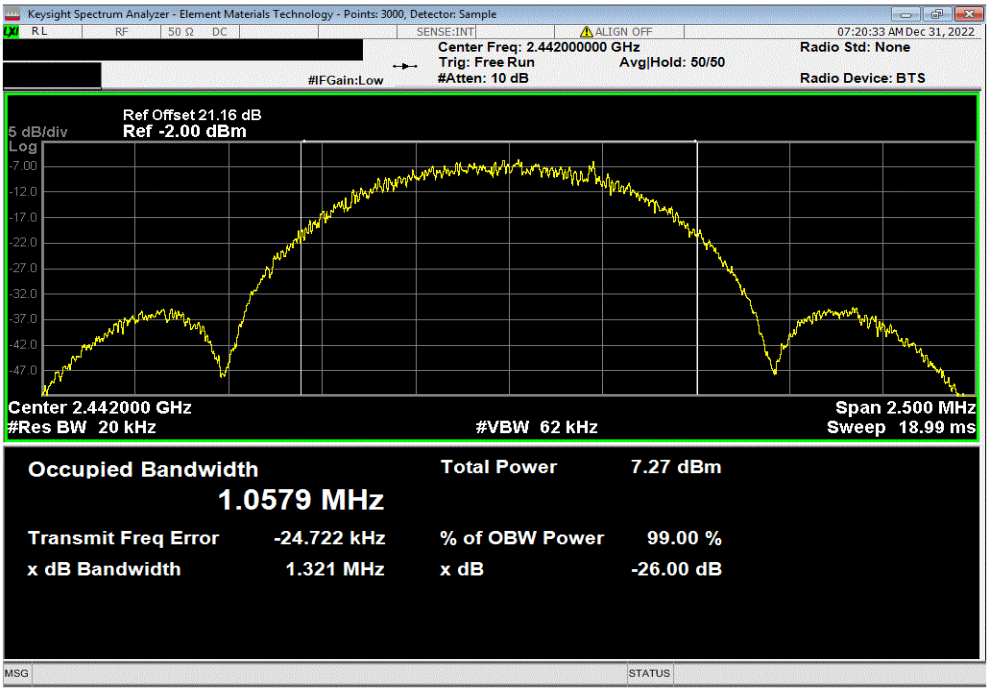
GFSK, 1 Mbps, Low Channel, 2402 MHz

				Value	Limit	Result
				1.059 MHz	N/A	N/A



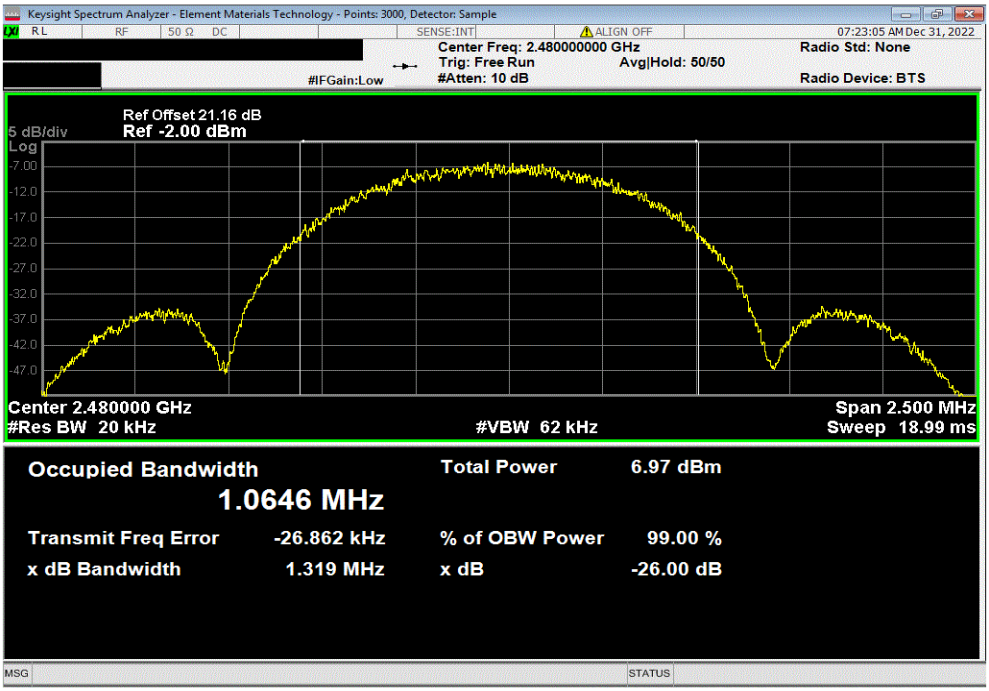
GFSK, 1 Mbps, Mid Channel, 2442 MHz

				Value	Limit	Result
				1.058 MHz	N/A	N/A



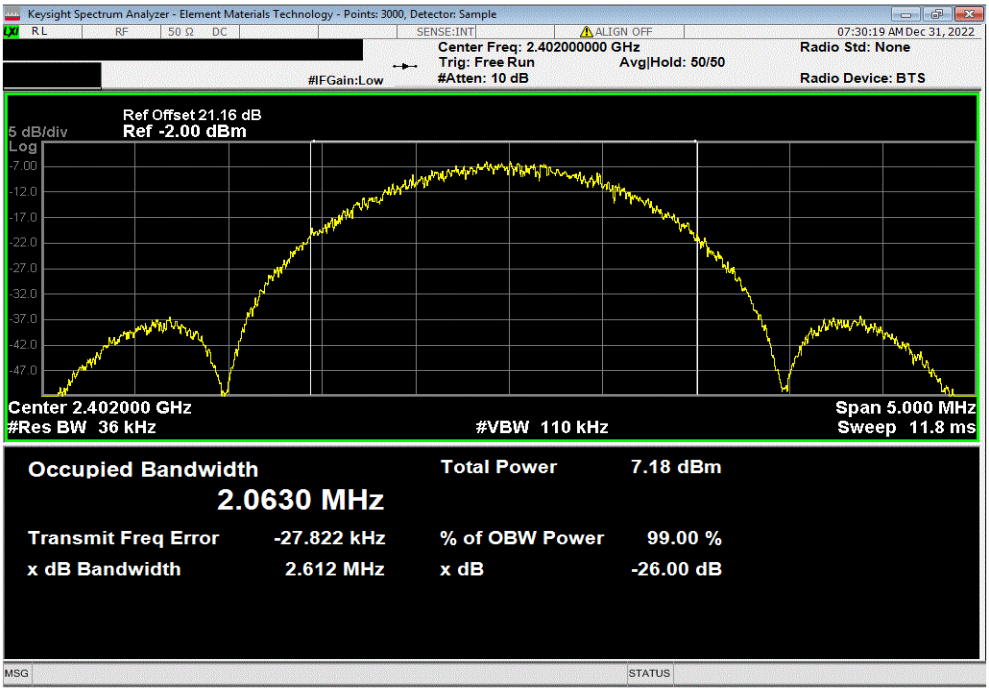
GFSK, 1 Mbps, High Channel, 2480 MHz

				Value	Limit	Result
				1.065 MHz	N/A	N/A



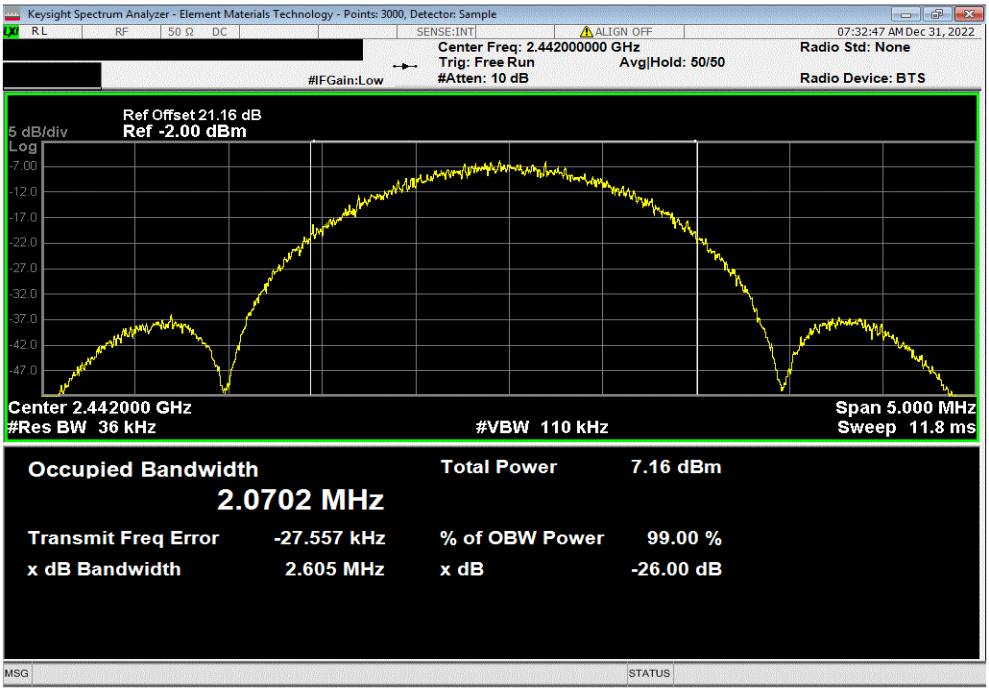
GFSK, 2 Mbps, Low Channel, 2402 MHz

				Value	Limit	Result
				2.063 MHz	N/A	N/A



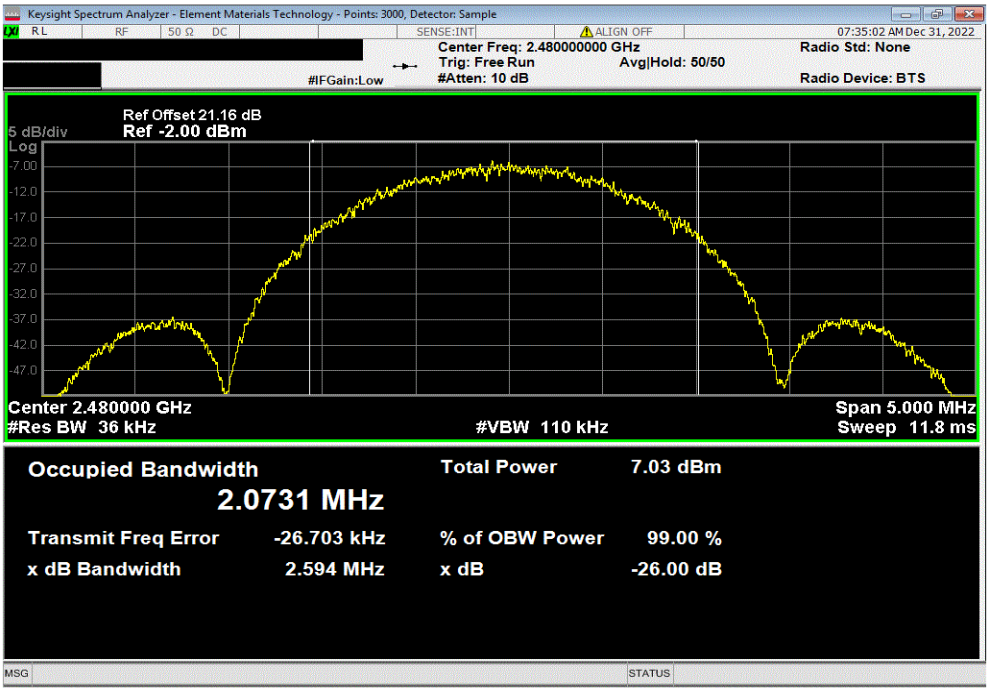
GFSK, 2 Mbps, Mid Channel, 2442 MHz

				Value	Limit	Result
				2.07 MHz	N/A	N/A



GFSK, 2 Mbps, High Channel, 2480 MHz

				Value	Limit	Result
				2.073 MHz	N/A	N/A



DTS BANDWIDTH

XMit 2022.02.07.0

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
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17
Block - DC	Fairview Microwave	SD3379	AMM	2022-09-09	2023-09-09
Attenuator	Fairview Microwave	SA4018-20	TYW	2022-03-01	2023-03-01
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXJ	2022-09-09	2023-09-09
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17

TEST DESCRIPTION

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

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

The 6dB DTS bandwidth was measured using 100 kHz resolution bandwidth and 300 kHz video bandwidth. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.

DTS BANDWIDTH

TbtTx 2022.06.03.0 XMit 2022.02.07.0

EUT:	CAN Go			**Work Order:**	ANNC0001
Serial Number:	EC21-A			**Date:**	30-Dec-22
Customer:	CAN Mobilities Inc.			**Temperature:**	21.9 °C
Attendees:	None			**Humidity:**	38.5% RH
Project:	None			**Barometric Pres.:**	1018 mbar
Tested by:	Jarrod Brenden	**Power:**	4.05 VDC via Battery	**Job Site:**	TX07

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2022	ANSI C63.10:2013

COMMENTS

All losses in the measurment path were accounted for: cable, attenuator, and DC block (21.16 dB).

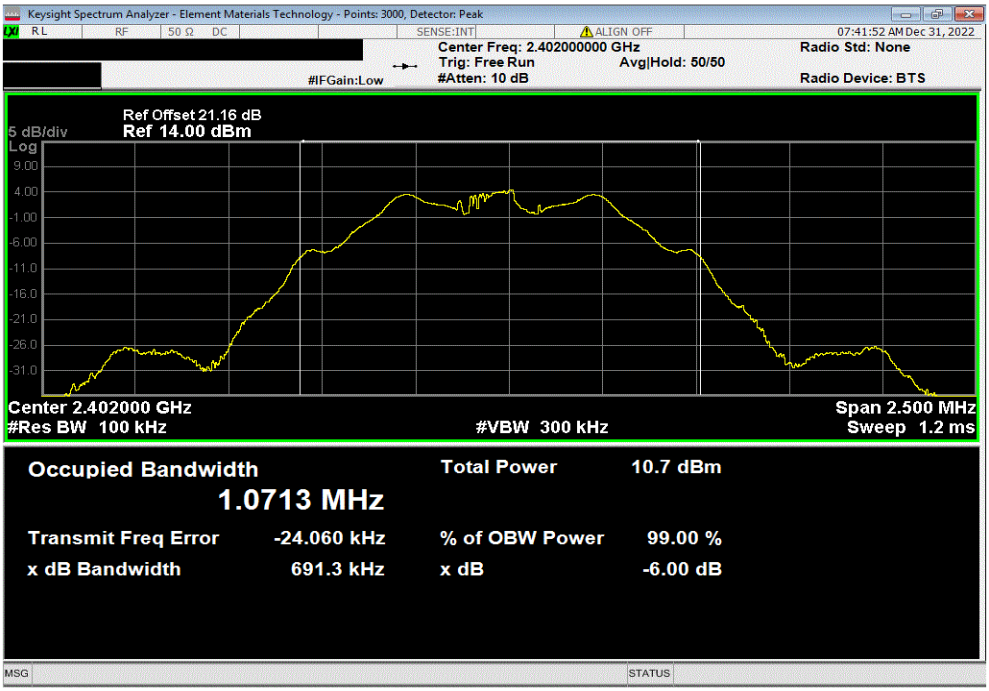
DEVIATIONS FROM TEST STANDARD

None

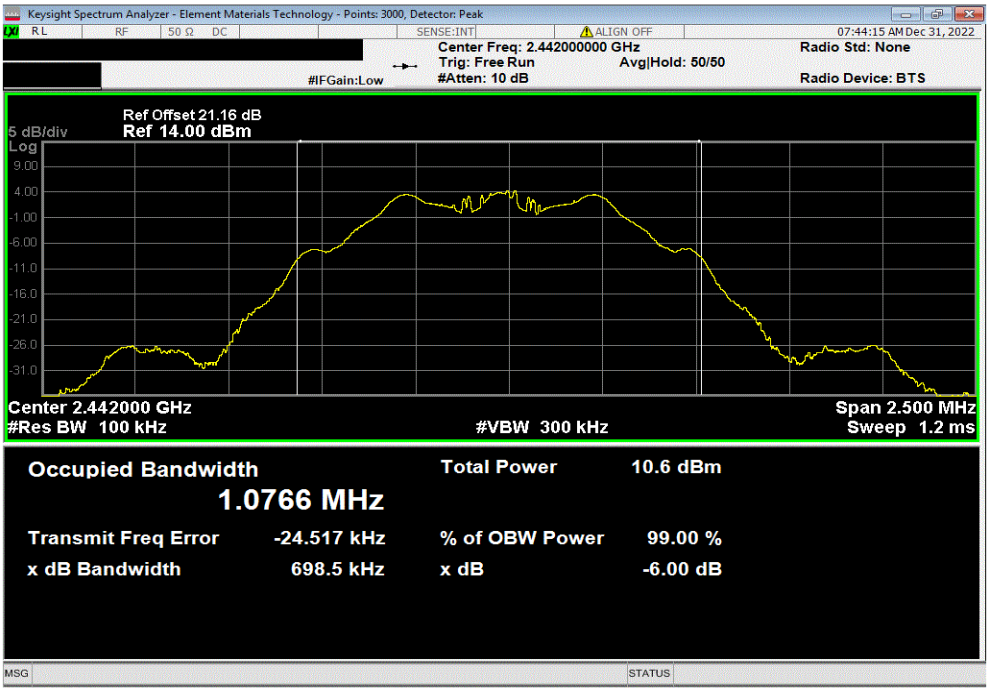
Configuration #	3	*Signature*

		Value	Limit (≥)	Result
GFSK				
	125 kbps			
	Low Channel, 2402 MHz	691.327 kHz	500 kHz	Pass
	Mid Channel, 2442 MHz	698.516 kHz	500 kHz	Pass
	High Channel, 2480 MHz	703.378 kHz	500 kHz	Pass
	500 kbps			
	Low Channel, 2402 MHz	695.853 kHz	500 kHz	Pass
	Mid Channel, 2442 MHz	702.566 kHz	500 kHz	Pass
	High Channel, 2480 MHz	706.019 kHz	500 kHz	Pass
	1 Mbps			
	Low Channel, 2402 MHz	704.933 kHz	500 kHz	Pass
	Mid Channel, 2442 MHz	707.810 kHz	500 kHz	Pass
	High Channel, 2480 MHz	710.535 kHz	500 kHz	Pass
	2 Mbps			
	Low Channel, 2402 MHz	1.291 MHz	500 kHz	Pass
	Mid Channel, 2442 MHz	1.312 MHz	500 kHz	Pass
	High Channel, 2480 MHz	1.300 MHz	500 kHz	Pass

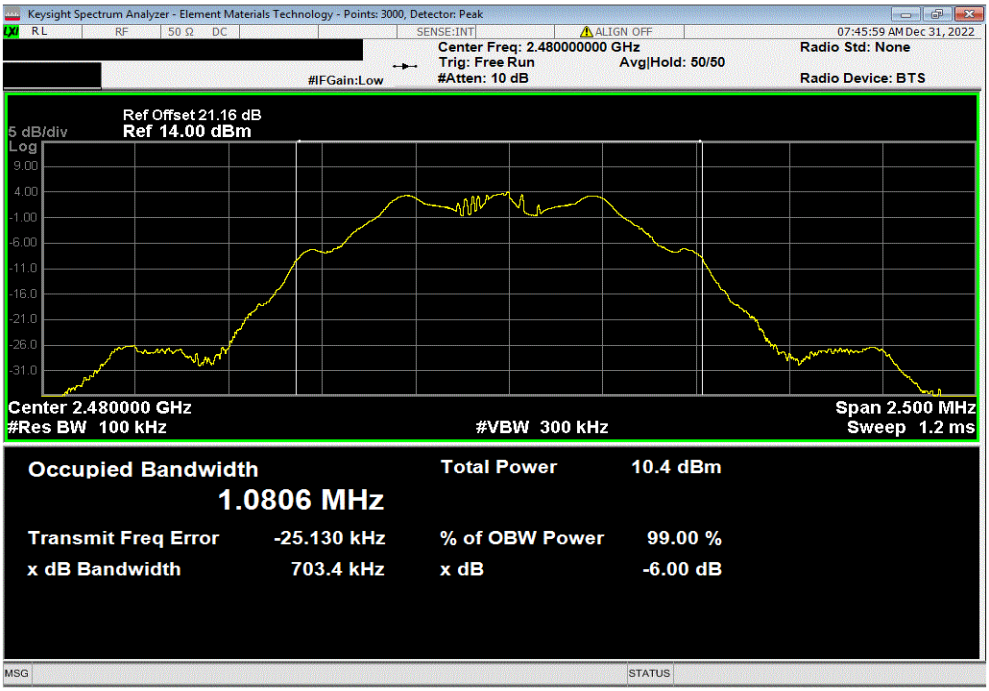
GFSK, 125 kbps, Low Channel, 2402 MHz						
				Value	Limit (≥)	Result
				691.327 kHz	500 kHz	Pass



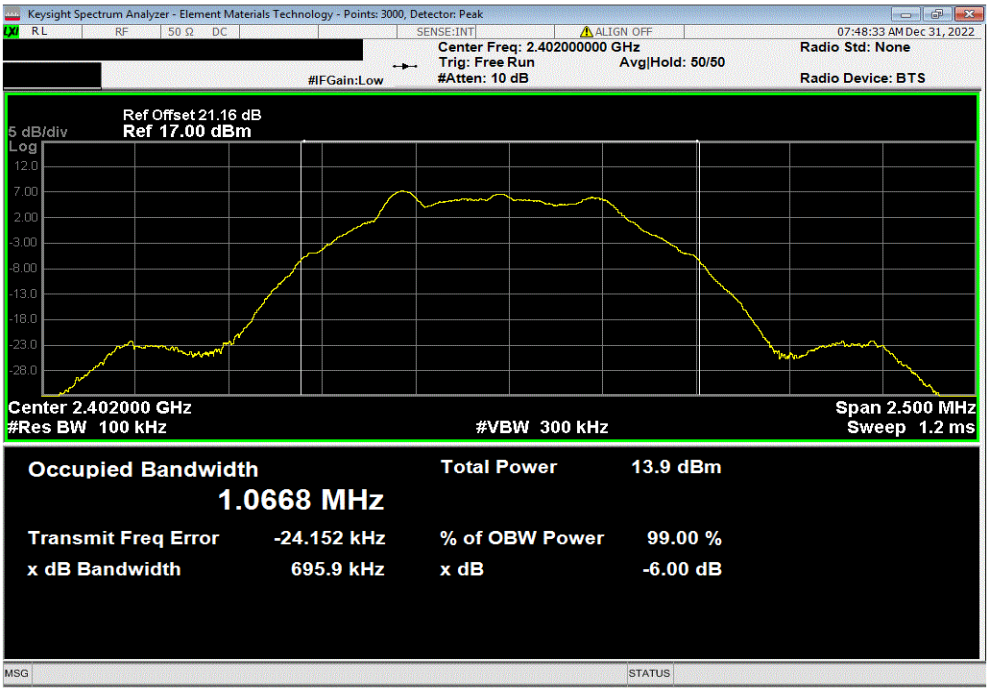
GFSK, 125 kbps, Mid Channel, 2442 MHz						
				Value	Limit (≥)	Result
				698.516 kHz	500 kHz	Pass



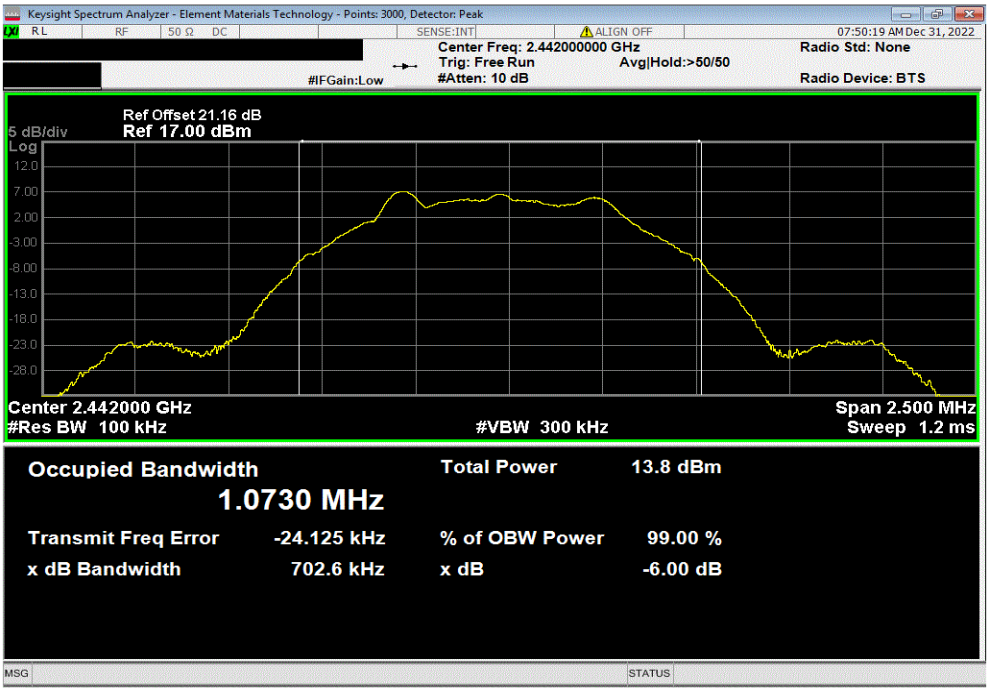
GFSK, 125 kbps, High Channel, 2480 MHz						
				Value	Limit (≥)	Result
				703.378 kHz	500 kHz	Pass



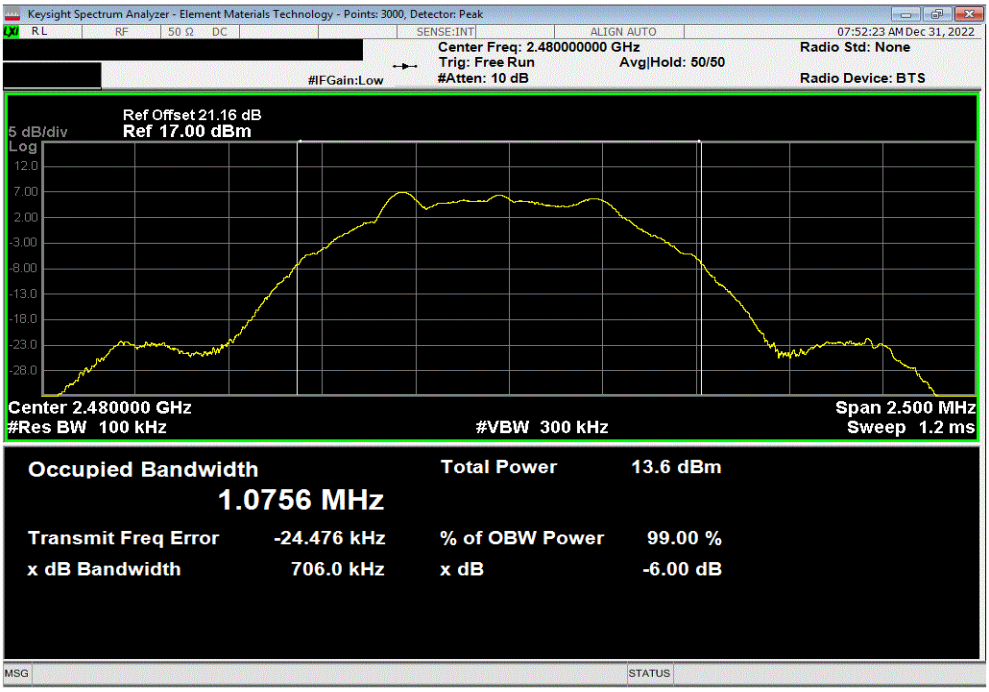
GFSK, 500 kbps, Low Channel, 2402 MHz						
				Value	Limit (≥)	Result
				695.853 kHz	500 kHz	Pass



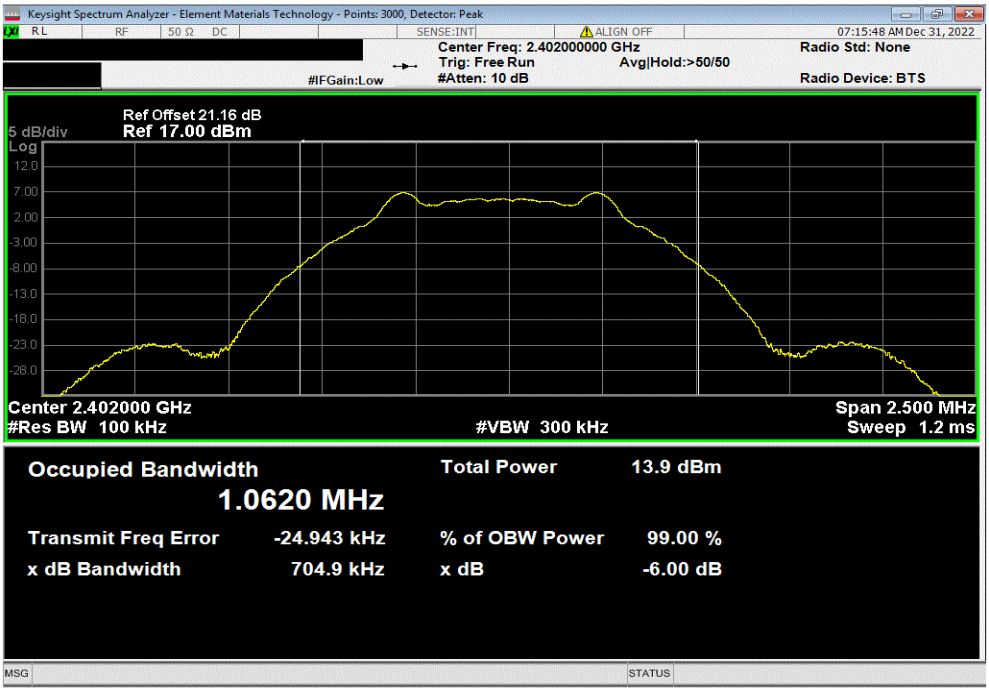
GFSK, 500 kbps, Mid Channel, 2442 MHz						
				Value	Limit (≥)	Result
				702.566 kHz	500 kHz	Pass



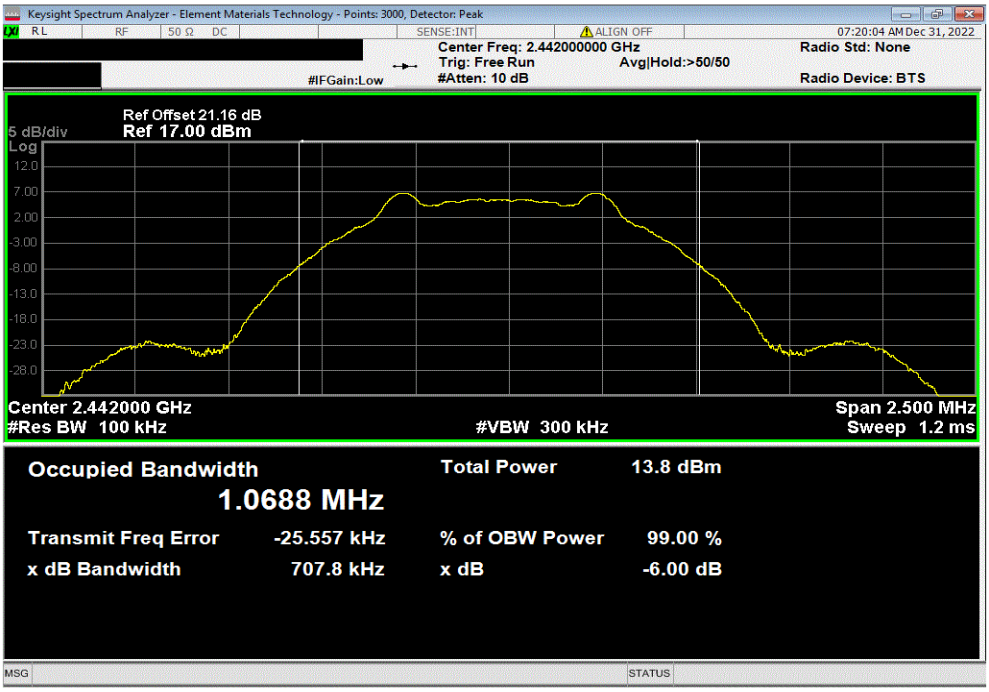
GFSK, 500 kbps, High Channel, 2480 MHz						
				Value	Limit (≥)	Result
				706.019 kHz	500 kHz	Pass



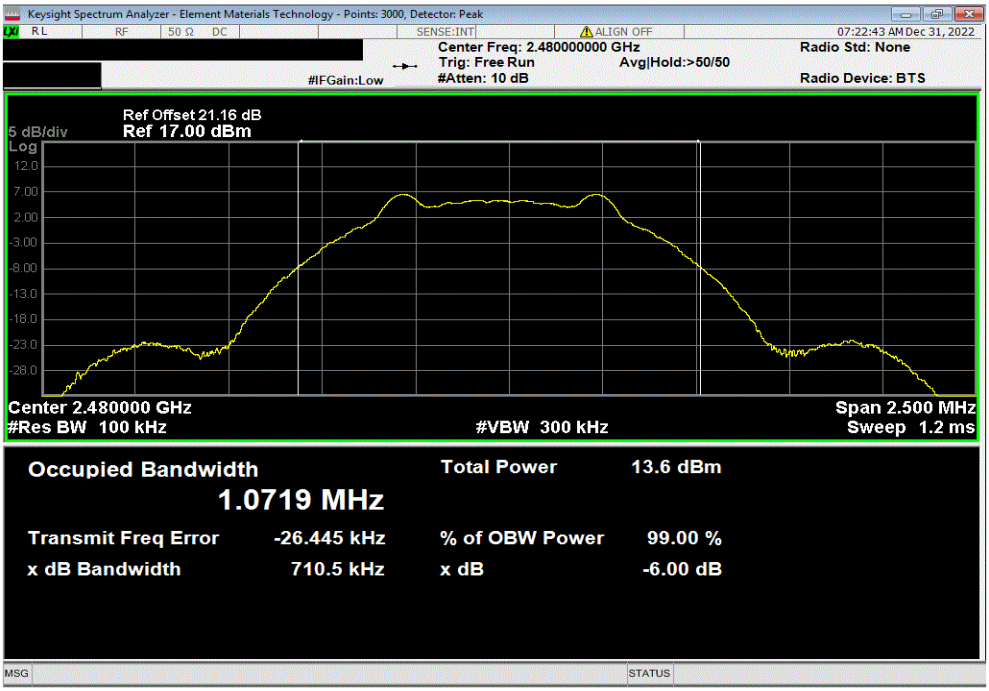
GFSK, 1 Mbps, Low Channel, 2402 MHz							
					Value	Limit (≥)	Result
					704.933 kHz	500 kHz	Pass



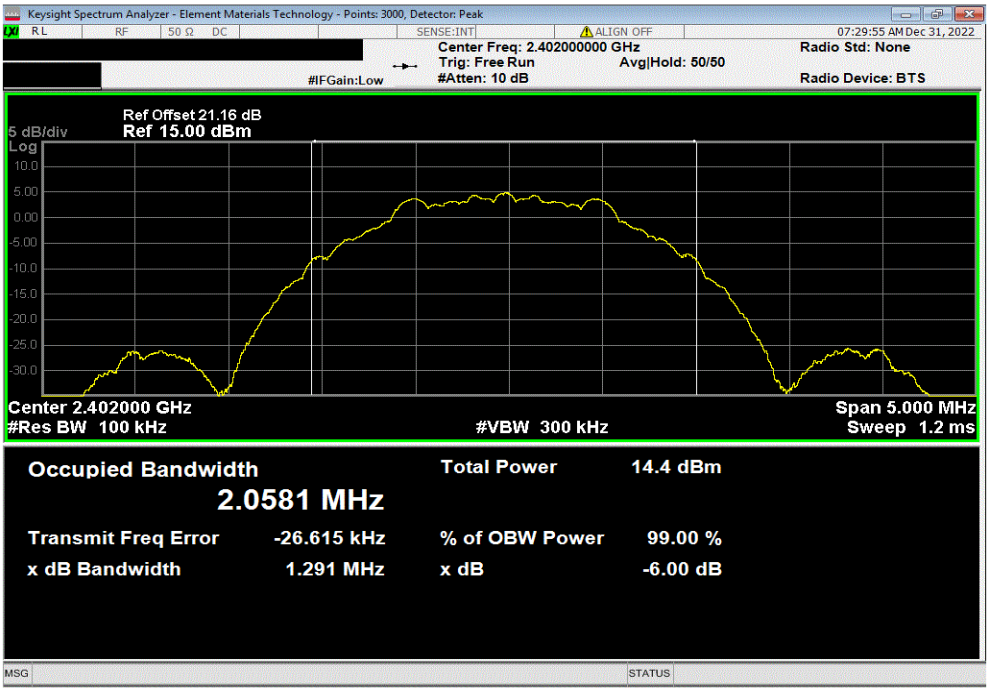
GFSK, 1 Mbps, Mid Channel, 2442 MHz							
					Value	Limit (≥)	Result
					707.810 kHz	500 kHz	Pass



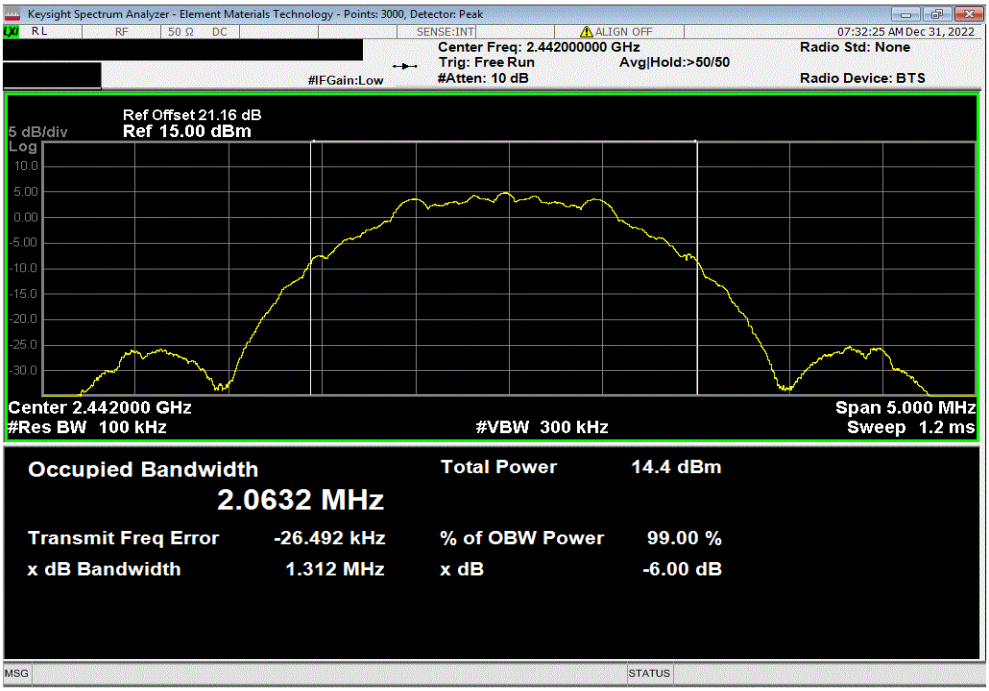
GFSK, 1 Mbps, High Channel, 2480 MHz						
				Value	Limit (≥)	Result
				710.535 kHz	500 kHz	Pass



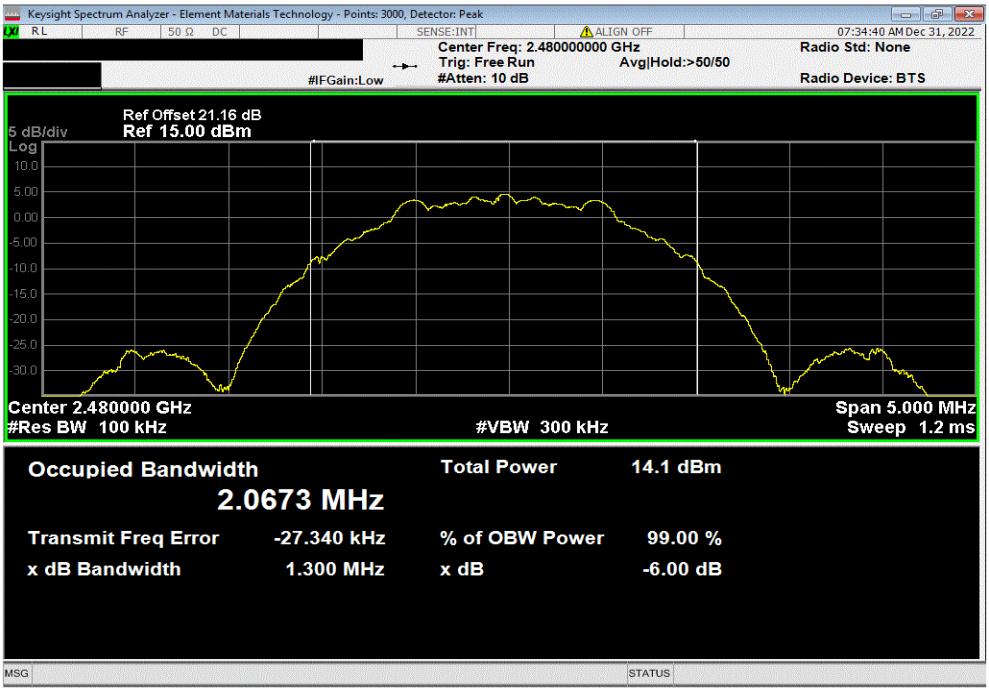
GFSK, 2 Mbps, Low Channel, 2402 MHz						
				Value	Limit (≥)	Result
				1.291 MHz	500 kHz	Pass



GFSK, 2 Mbps, Mid Channel, 2442 MHz						
				Value	Limit (≥)	Result
				1.312 MHz	500 kHz	Pass



GFSK, 2 Mbps, High Channel, 2480 MHz						
				Value	Limit (≥)	Result
				1.300 MHz	500 kHz	Pass



OUTPUT POWER

XMit 2022.02.07.0

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
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17
Block - DC	Fairview Microwave	SD3379	AMM	2022-09-09	2023-09-09
Attenuator	Fairview Microwave	SA4018-20	TYW	2022-03-01	2023-03-01
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXJ	2022-09-09	2023-09-09
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17

TEST DESCRIPTION

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.

OUTPUT POWER

TbtTx 2022.06.03.0 XMit 2022.02.07.0

EUT:	**CAN Go**			**Work Order:**	**ANNC0001**
Serial Number:	**EC21-A**			**Date:**	**30-Dec-22**
Customer:	**CAN Mobilities Inc.**			**Temperature:**	**22.5 °C**
Attendees:	**None**			**Humidity:**	**37.4% RH**
Project:	**None**			**Barometric Pres.:**	**1018 mbar**
Tested by:	**Jarrod Brenden**	**Power:**	**4.05 VDC via Battery**	**Job Site:**	**TX07**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2022	ANSI C63.10:2013

COMMENTS

All losses in the measurment path were accounted for: cable, attenuator, and DC block (21.16 dB).

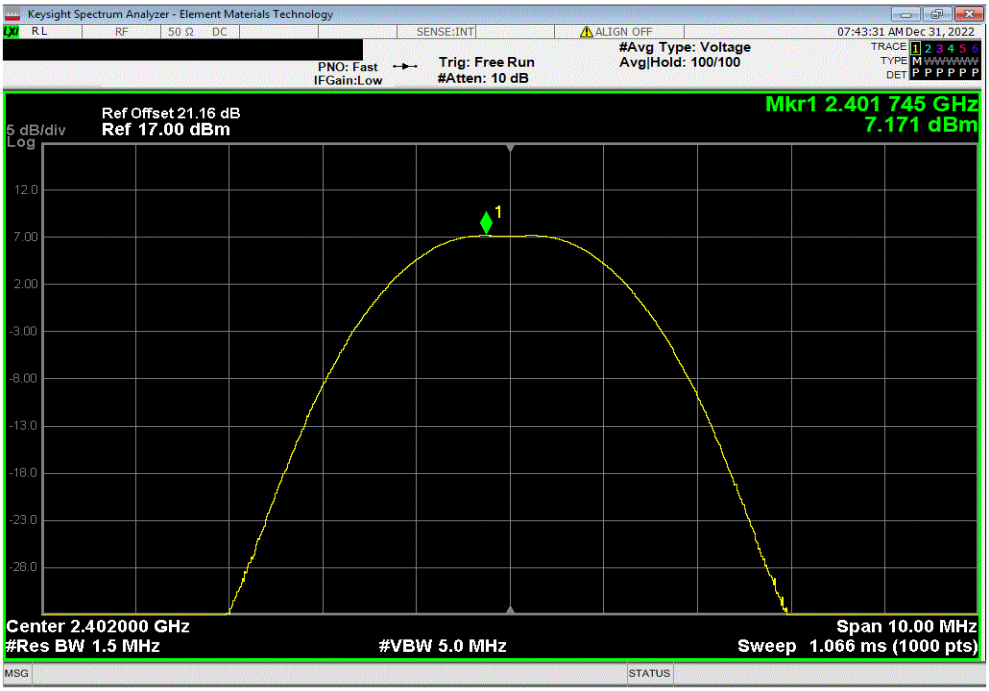
DEVIATIONS FROM TEST STANDARD

None

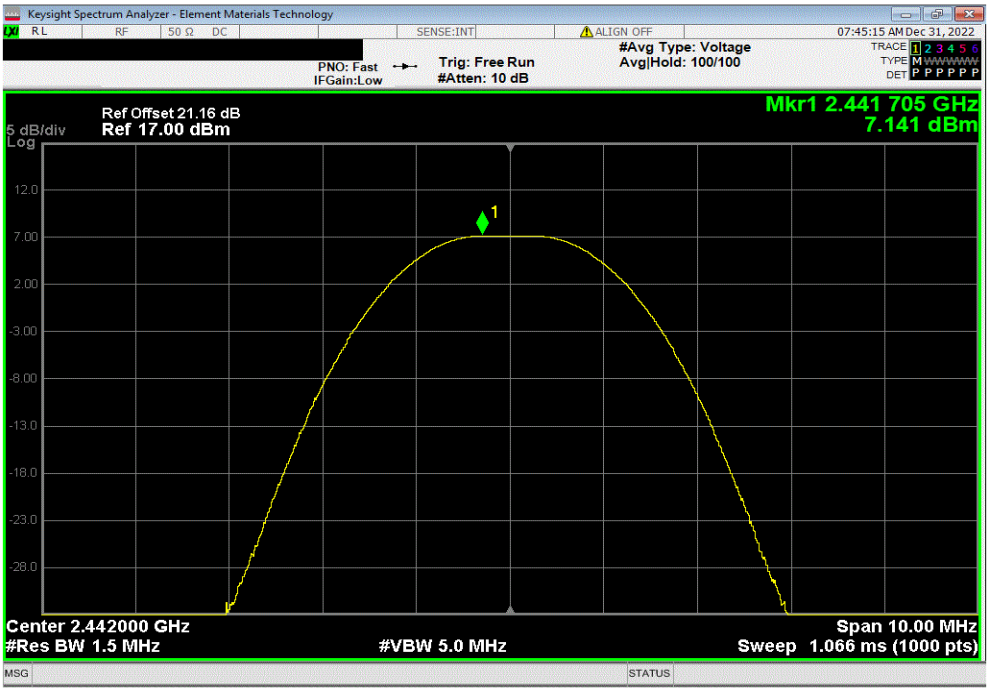
Configuration #	**3**	*Signature*

		Out Pwr (dBm)	**Limit (dBm)**	**Result**
GFSK				
125 kbps				
	Low Channel, 2402 MHz	7.171	30	Pass
	Mid Channel, 2442 MHz	7.141	30	Pass
	High Channel, 2480 MHz	6.916	30	Pass
500 kbps				
	Low Channel, 2402 MHz	7.188	30	Pass
	Mid Channel, 2442 MHz	7.15	30	Pass
	High Channel, 2480 MHz	6.98	30	Pass
1 Mbps				
	Low Channel, 2402 MHz	7.172	30	Pass
	Mid Channel, 2442 MHz	7.136	30	Pass
	High Channel, 2480 MHz	6.904	30	Pass
2 Mbps				
	Low Channel, 2402 MHz	7.163	30	Pass
	Mid Channel, 2442 MHz	7.131	30	Pass
	High Channel, 2480 MHz	6.904	30	Pass

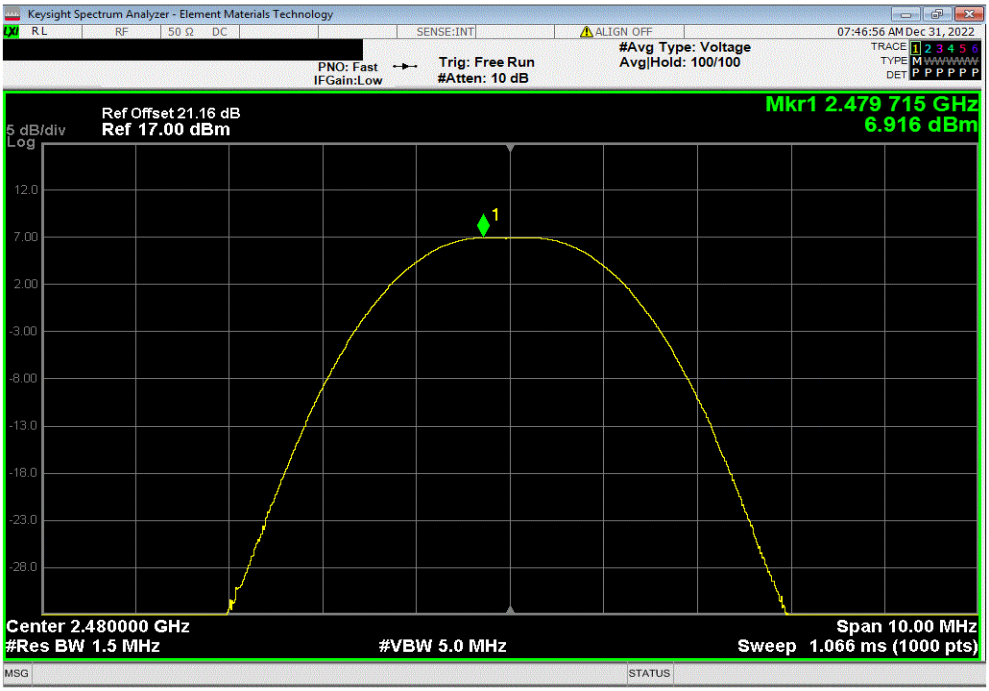
GFSK, 125 kbps, Low Channel, 2402 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				7.171	30	Pass



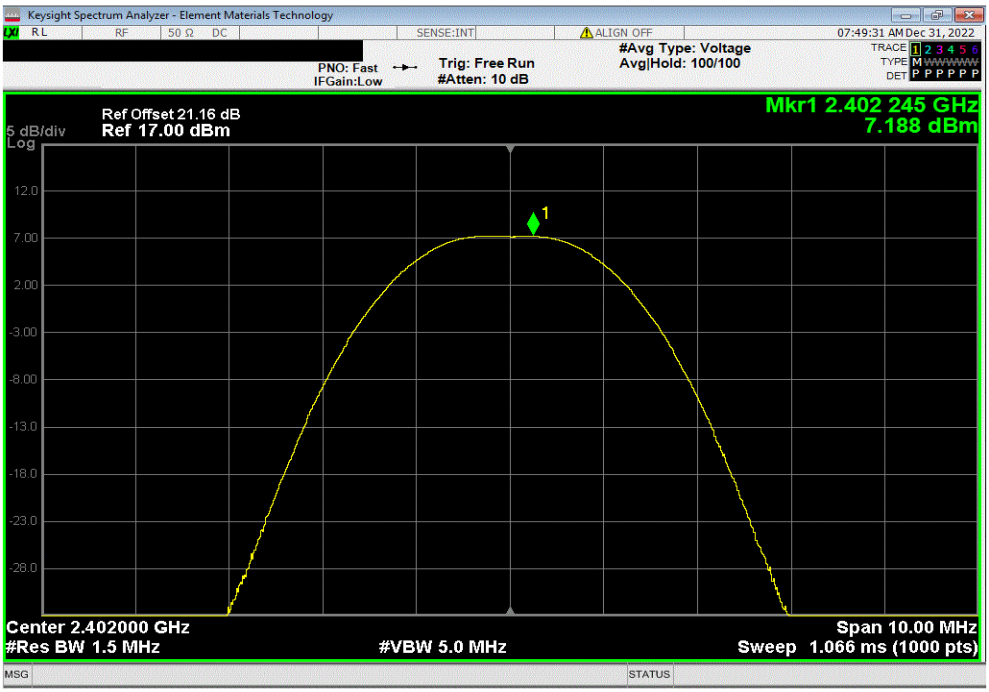
GFSK, 125 kbps, Mid Channel, 2442 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				7.141	30	Pass



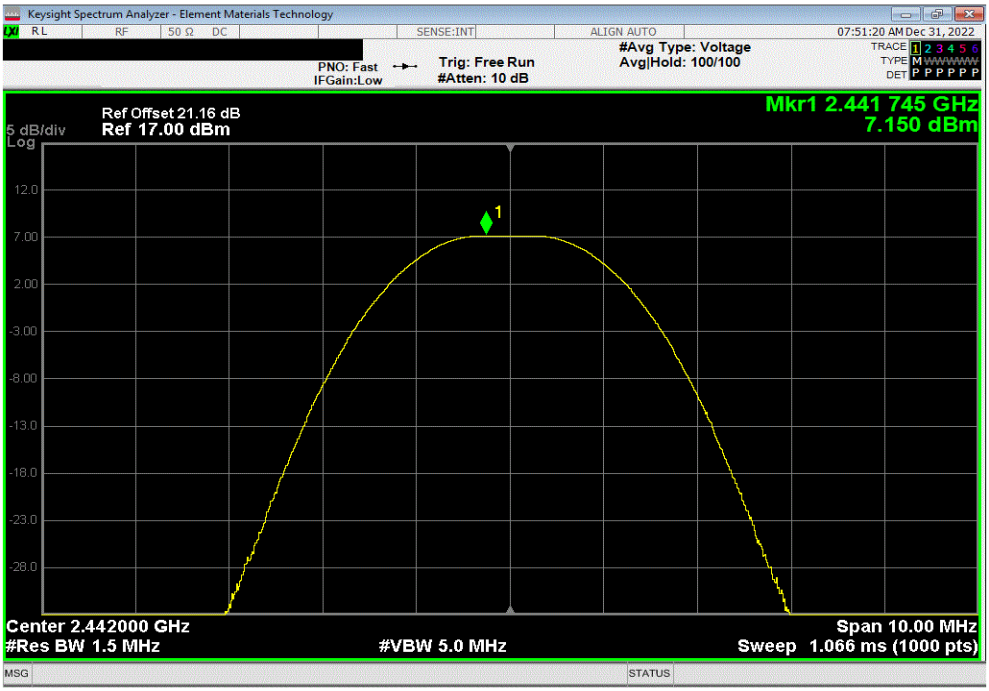
GFSK, 125 kbps, High Channel, 2480 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				6.916	30	Pass



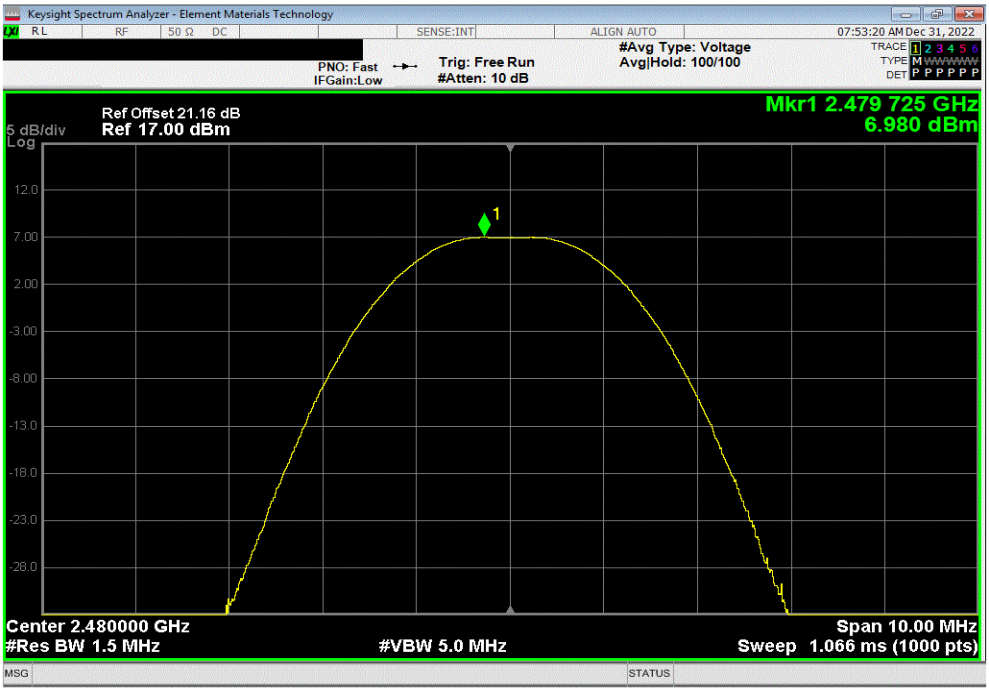
GFSK, 500 kbps, Low Channel, 2402 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				7.188	30	Pass



GFSK, 500 kbps, Mid Channel, 2442 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					7.15	30	Pass

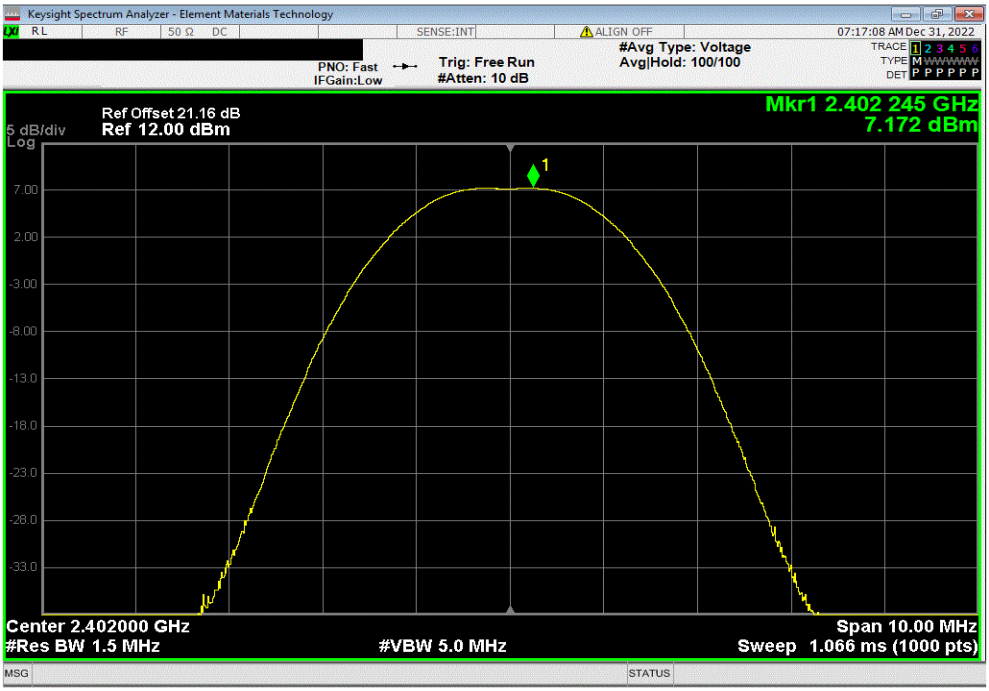


GFSK, 500 kbps, High Channel, 2480 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					6.98	30	Pass

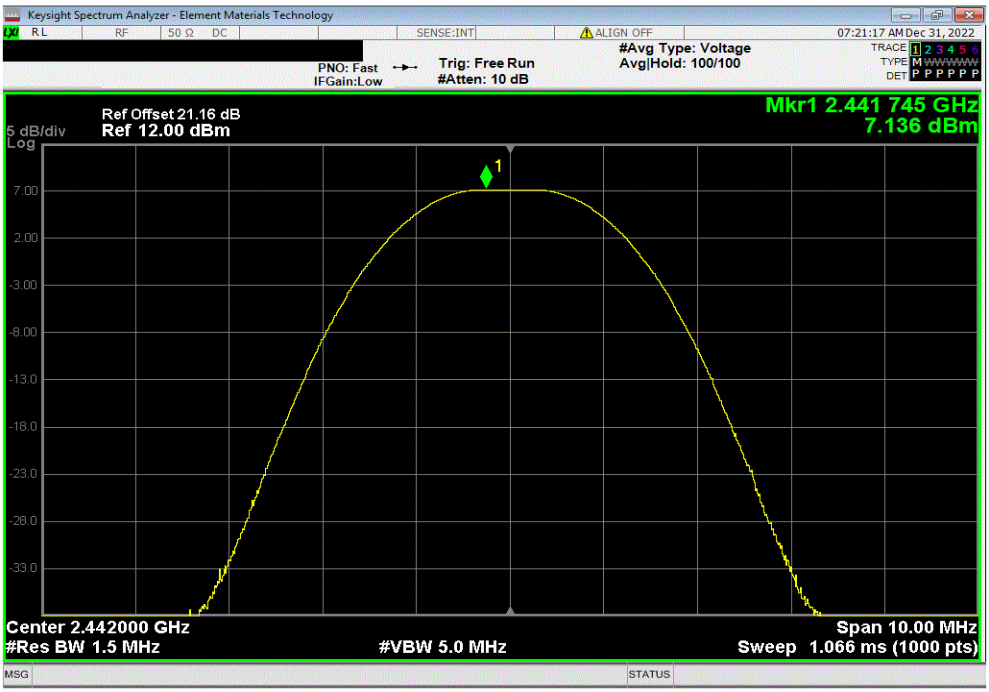


OUTPUT POWER

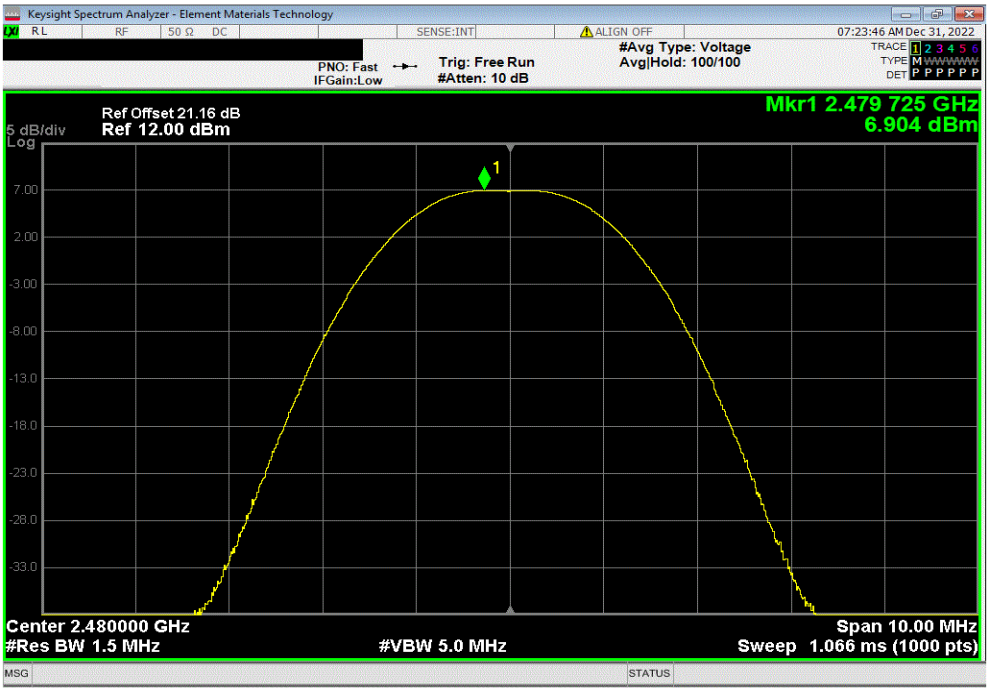
GFSK, 1 Mbps, Low Channel, 2402 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				7.172	30	Pass



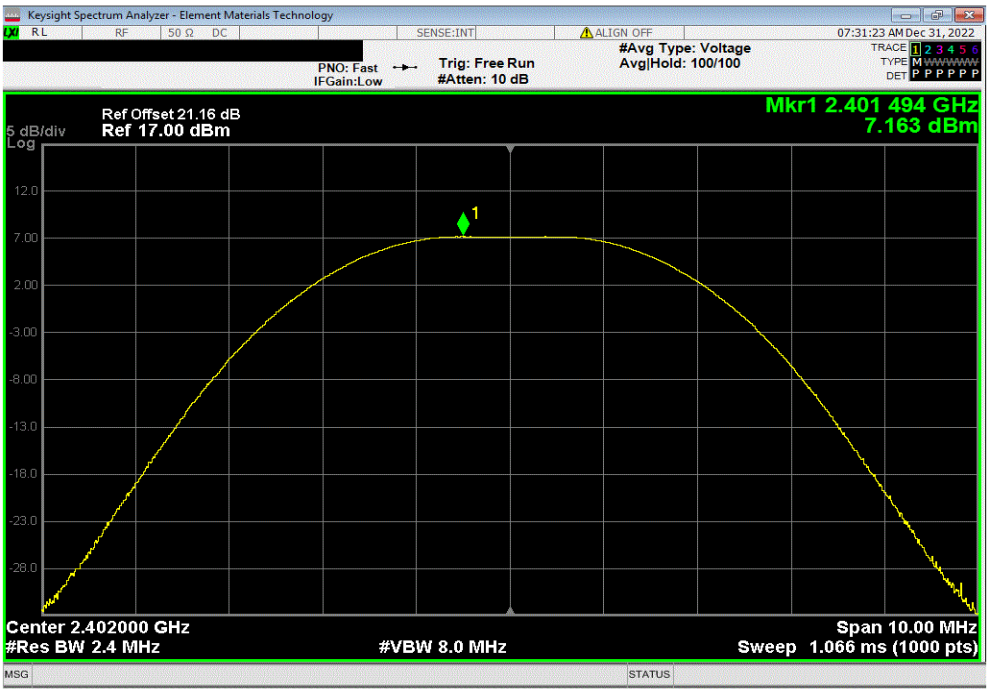
GFSK, 1 Mbps, Mid Channel, 2442 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				7.136	30	Pass



GFSK, 1 Mbps, High Channel, 2480 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					6.904	30	Pass

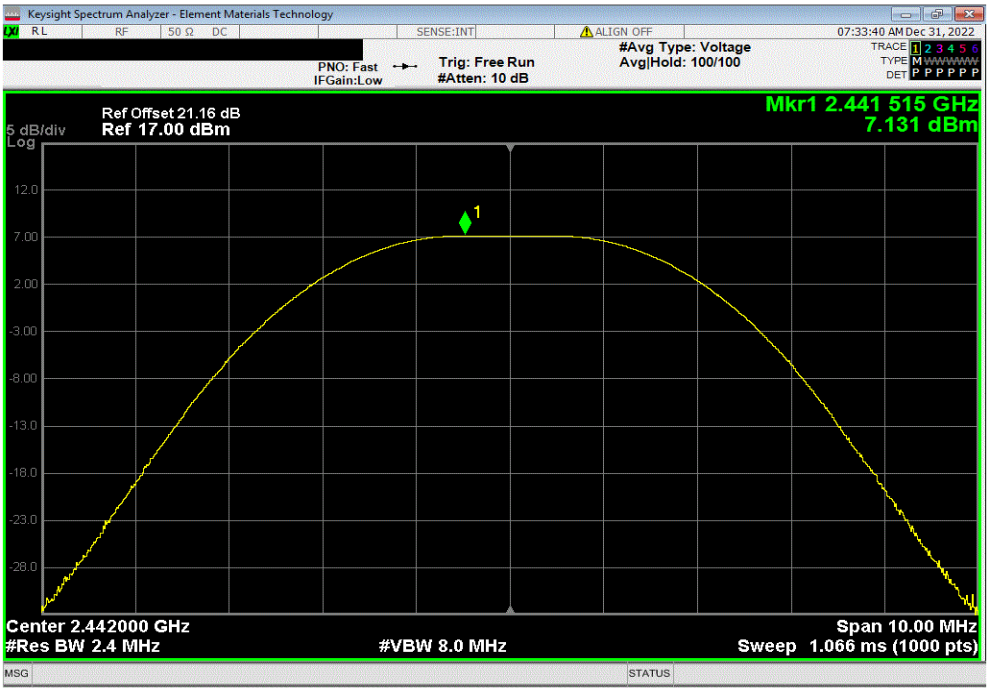


GFSK, 2 Mbps, Low Channel, 2402 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					7.163	30	Pass

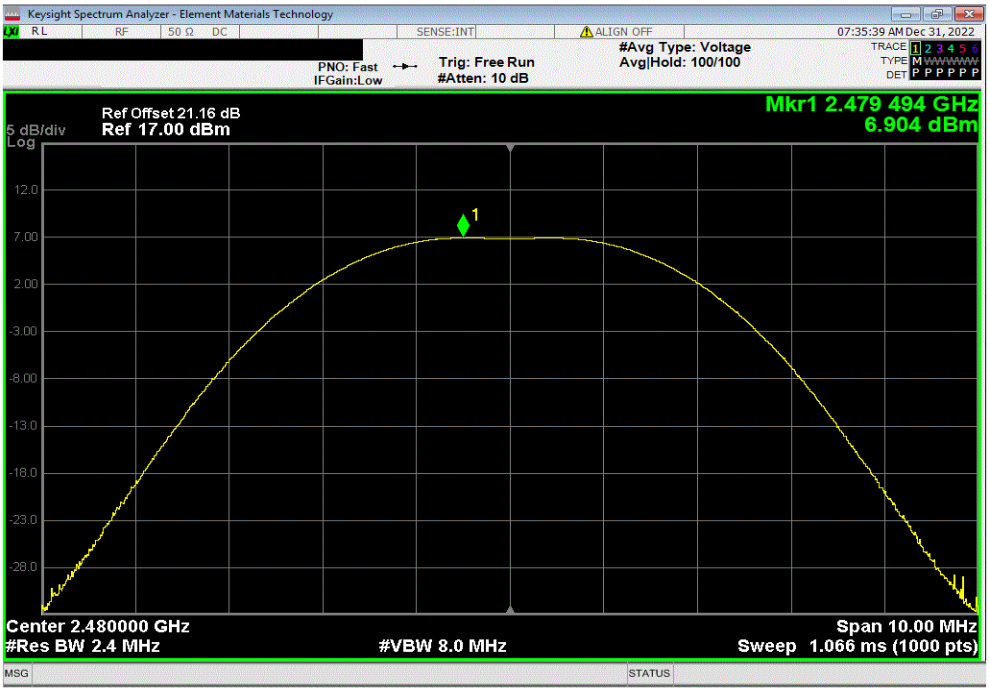


OUTPUT POWER

GFSK, 2 Mbps, Mid Channel, 2442 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					7.131	30	Pass



GFSK, 2 Mbps, High Channel, 2480 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					6.904	30	Pass



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

XMit 2022.02.07.0

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
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17
Block - DC	Fairview Microwave	SD3379	AMM	2022-09-09	2023-09-09
Attenuator	Fairview Microwave	SA4018-20	TYW	2022-03-01	2023-03-01
Cable	UtiFlex Micro-Coax	UFD1150A-1-0720-200200	TXJ	2022-09-09	2023-09-09
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17

TEST DESCRIPTION

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)

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

element

TbtTx 2022.06.03.0 XMit 2022.02.07.0

EUT:	**CAN Go**			**Work Order:**	**ANNC0001**
Serial Number:	**EC21-A**			**Date:**	**30-Dec-22**
Customer:	**CAN Mobilities Inc.**			**Temperature:**	**22.6 °C**
Attendees:	**None**			**Humidity:**	**37.2% RH**
Project:	**None**			**Barometric Pres.:**	**1018 mbar**
Tested by:	**Jarrod Brenden**	**Power:**	**4.05 VDC via Battery**	**Job Site:**	**TX07**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2022	ANSI C63.10:2013

COMMENTS

All losses in the measurment path were accounted for: cable, attenuator, and DC block (21.16 dB).

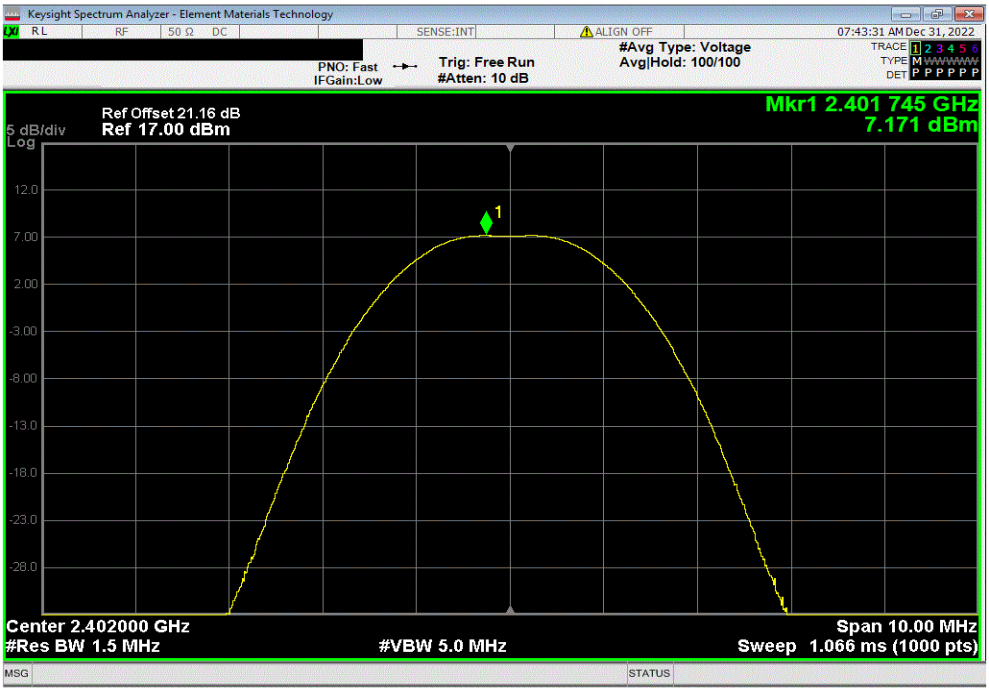
DEVIATIONS FROM TEST STANDARD

None

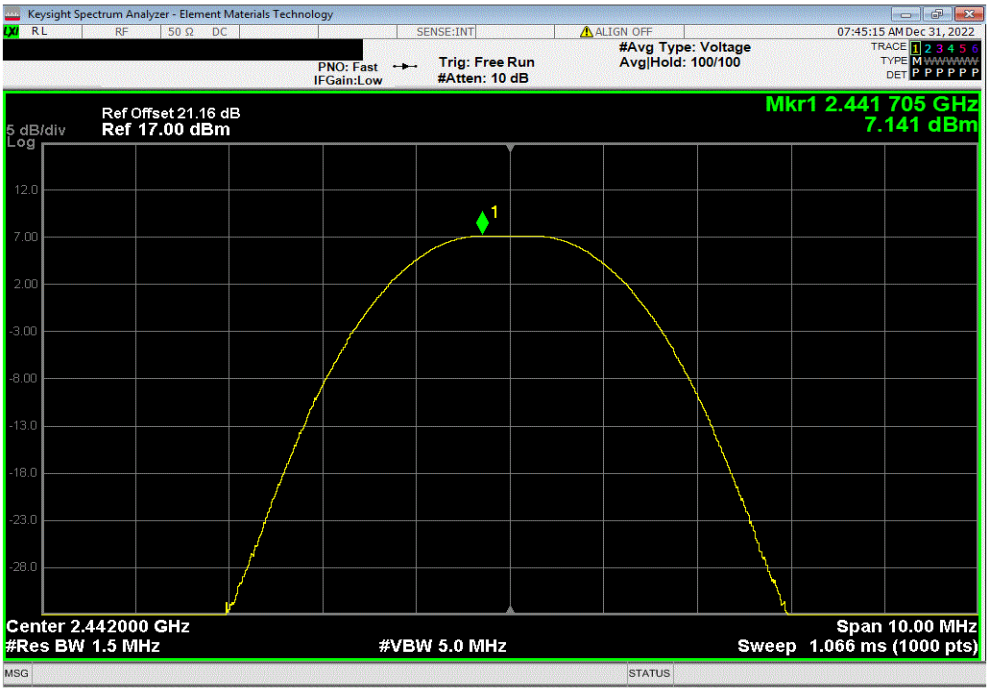
Configuration #	**3**	*Signature*

		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
GFSK						
	125 kbps					
	Low Channel, 2402 MHz	7.171	1.6	8.771	36	Pass
	Mid Channel, 2442 MHz	7.141	1.6	8.741	36	Pass
	High Channel, 2480 MHz	6.916	1.6	8.516	36	Pass
	500 kbps					
	Low Channel, 2402 MHz	7.188	1.6	8.788	36	Pass
	Mid Channel, 2442 MHz	7.15	1.6	8.75	36	Pass
	High Channel, 2480 MHz	6.98	1.6	8.58	36	Pass
	1 Mbps					
	Low Channel, 2402 MHz	7.172	1.6	8.772	36	Pass
	Mid Channel, 2442 MHz	7.136	1.6	8.736	36	Pass
	High Channel, 2480 MHz	6.904	1.6	8.504	36	Pass
	2 Mbps					
	Low Channel, 2402 MHz	7.163	1.6	8.763	36	Pass
	Mid Channel, 2442 MHz	7.131	1.6	8.731	36	Pass
	High Channel, 2480 MHz	6.904	1.6	8.504	36	Pass

GFSK, 125 kbps, Low Channel, 2402 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		7.171	1.6	8.771	36	Pass

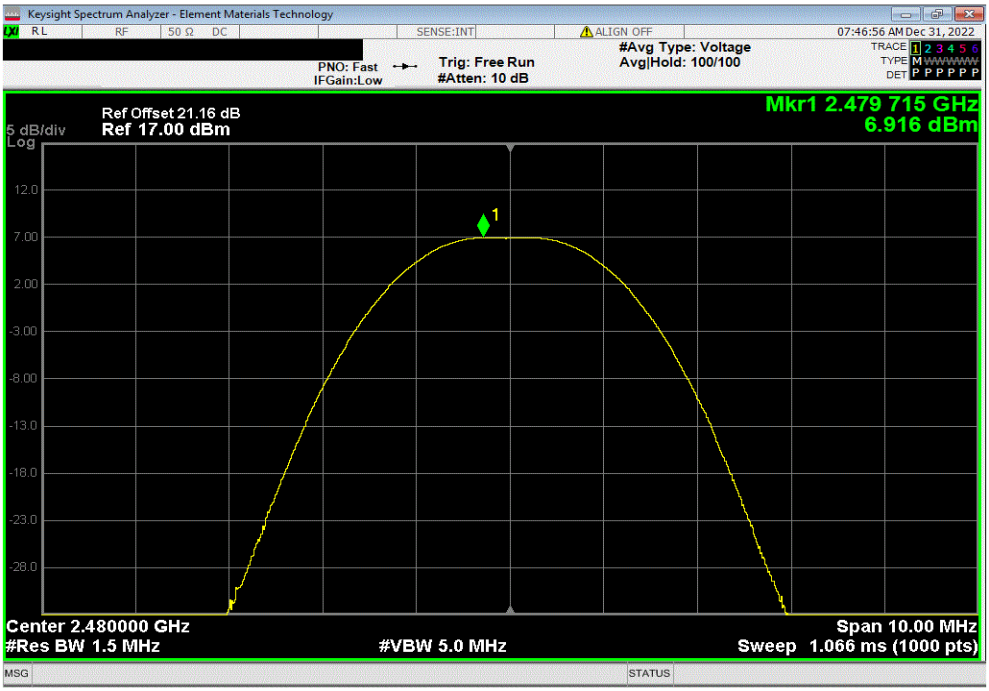


GFSK, 125 kbps, Mid Channel, 2442 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		7.141	1.6	8.741	36	Pass

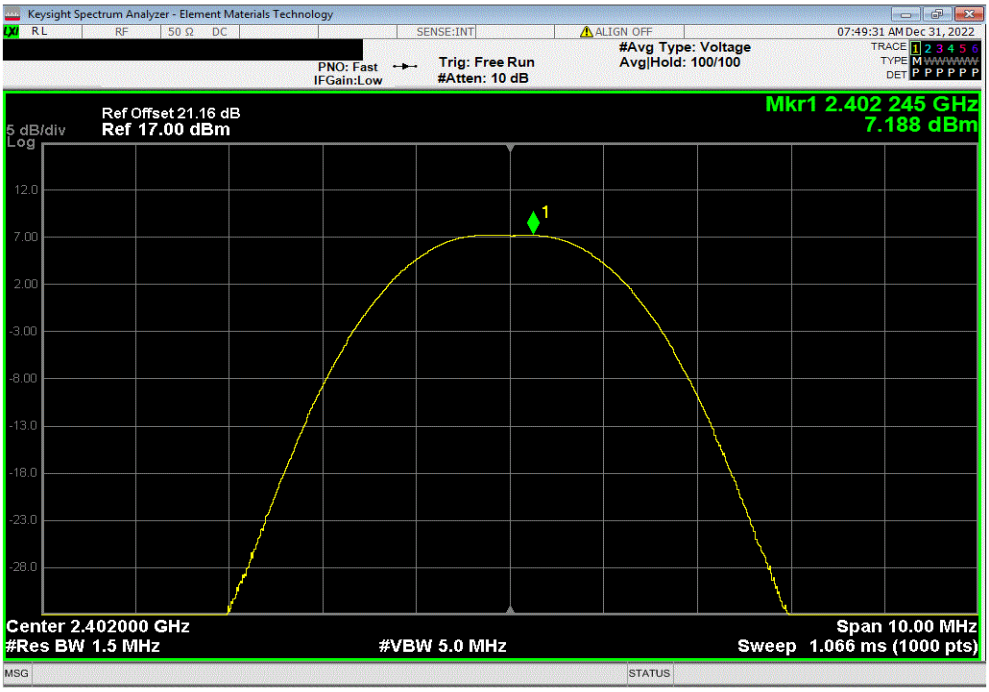


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

GFSK, 125 kbps, High Channel, 2480 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		6.916	1.6	8.516	36	Pass

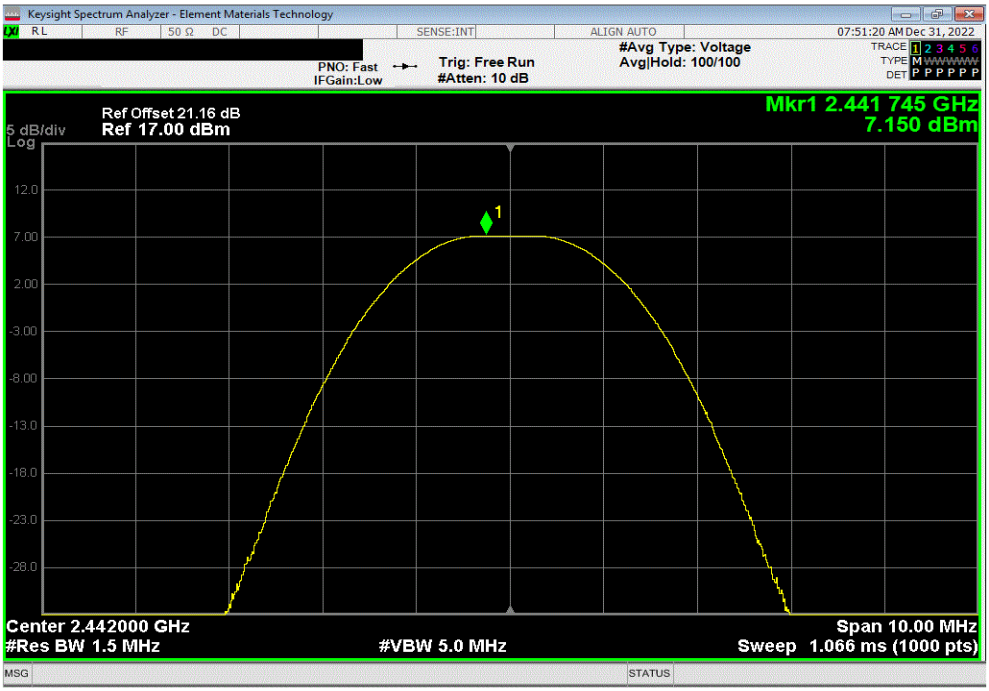


GFSK, 500 kbps, Low Channel, 2402 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		7.188	1.6	8.788	36	Pass

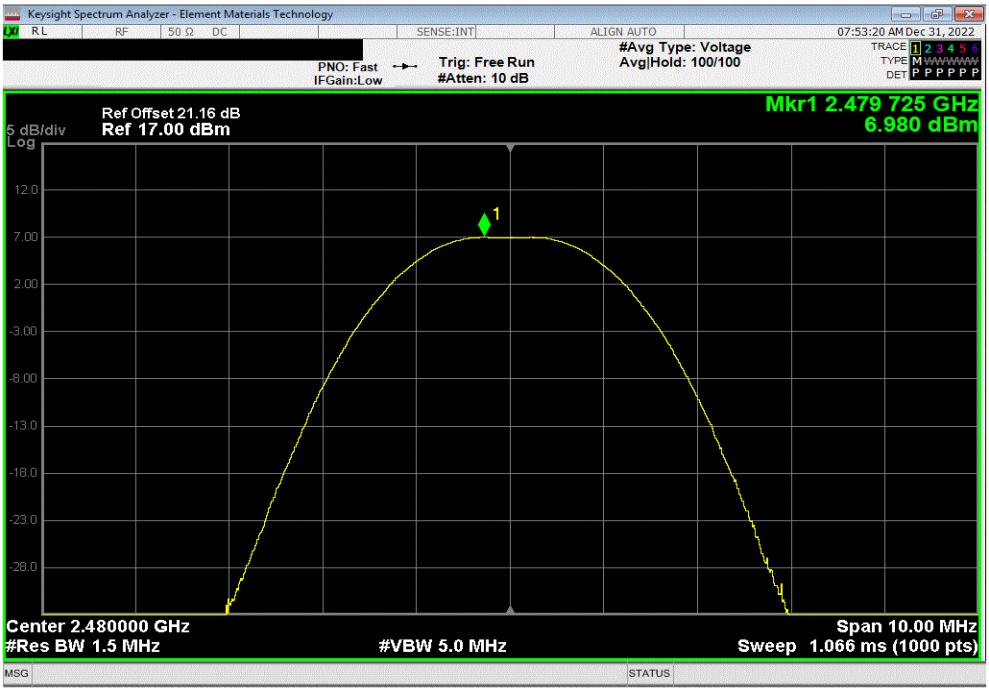


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

GFSK, 500 kbps, Mid Channel, 2442 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		7.15	1.6	8.75	36	Pass

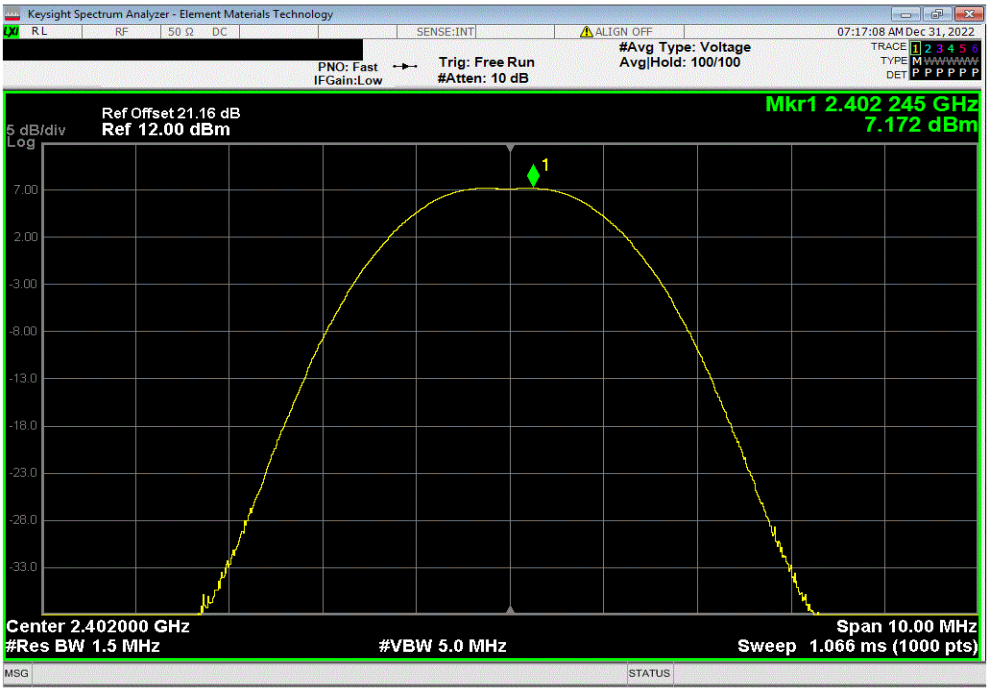


GFSK, 500 kbps, High Channel, 2480 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		6.98	1.6	8.58	36	Pass

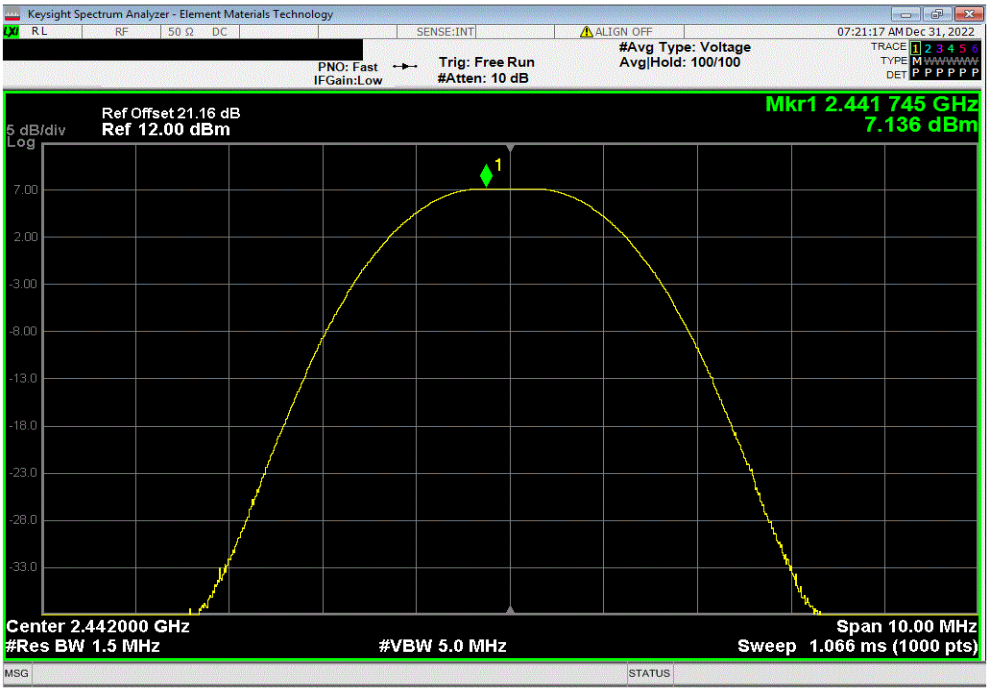


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

GFSK, 1 Mbps, Low Channel, 2402 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		7.172	1.6	8.772	36	Pass

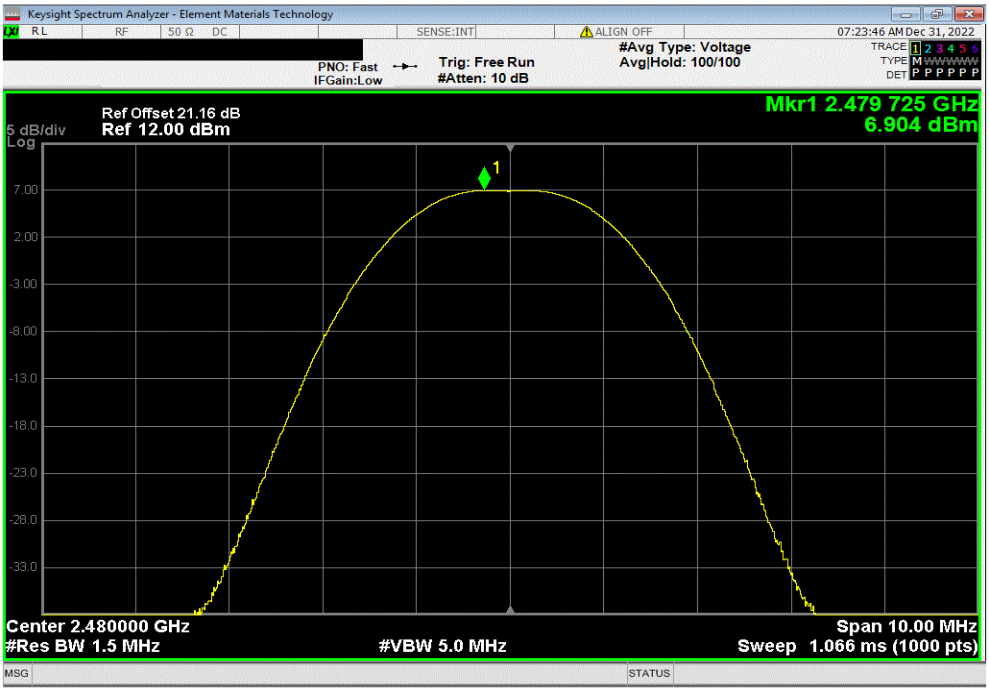


GFSK, 1 Mbps, Mid Channel, 2442 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		7.136	1.6	8.736	36	Pass

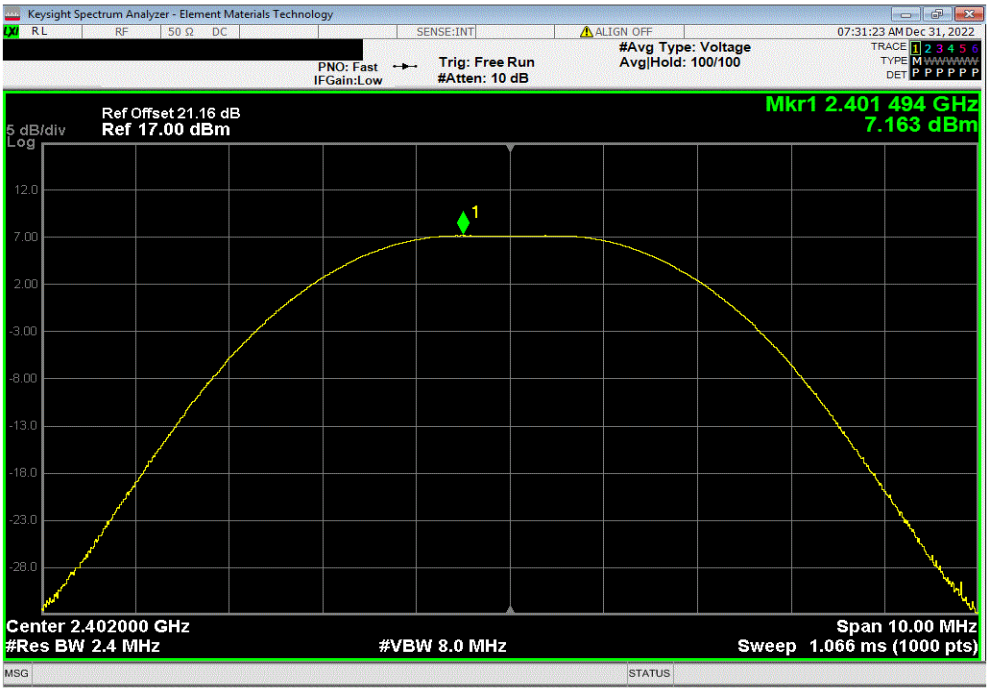


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

GFSK, 1 Mbps, High Channel, 2480 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		6.904	1.6	8.504	36	Pass

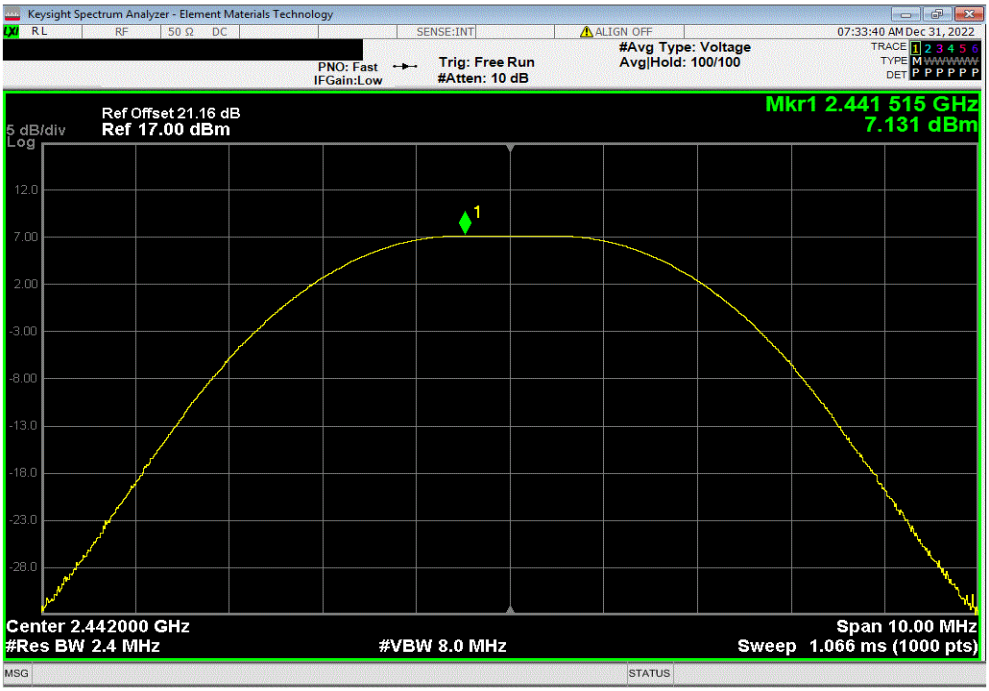


GFSK, 2 Mbps, Low Channel, 2402 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		7.163	1.6	8.763	36	Pass



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

GFSK, 2 Mbps, Mid Channel, 2442 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		7.131	1.6	8.731	36	Pass



GFSK, 2 Mbps, High Channel, 2480 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		6.904	1.6	8.504	36	Pass