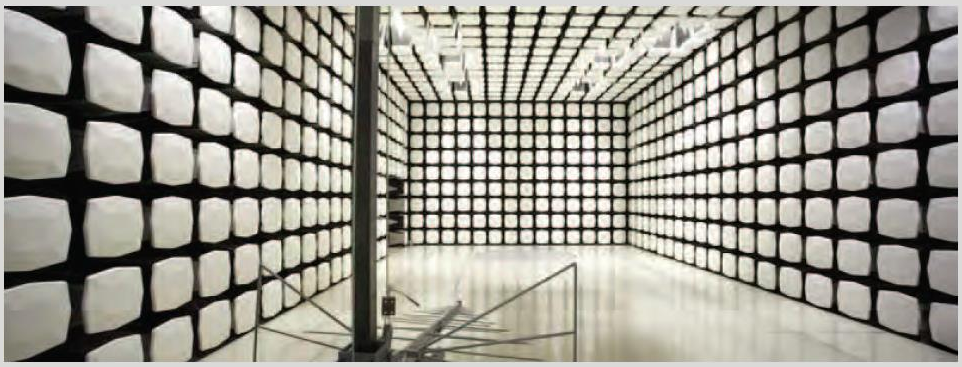
Phyzika Technologies, Inc

Rhino System

FCC 15.247:2022

902 - 928 MHz Other Wideband (DTS) Transceiver

Report: PHYZ0001.1, Issue Date: June 23, 2022



CERT #3310.02

CERTIFICATE OF TEST

Last Date of Test: May 27, 2022
Phyzika Technologies, Inc
EUT: Rhino System

Radio Equipment Testing

Standards

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

Results

Method Clause	Test Description	Applied	Results	Comments
15.207//6.2	Powerline Conducted Emissions (Transmitter)	No	N/A	Not required for a battery powered EUT.
15.247(d), KDB 558074 -12.1, 13.2//6.5, 6.6, 11.12.1, 11.13.2	Spurious Radiated Emissions	Yes	Pass	
15.247, KDB 558074 -6.0//11.6	Duty Cycle	Yes	N/A	Characterization of radio operation.
15.247(a)(1)//7.8.2	Carrier Frequency Separation	No	N/A	Not required for DTS devices.
15.247(a)(1)//7.8.3	Number of Hopping Frequencies	No	N/A	Not required for DTS devices.
15.247(a)(1)//7.8.4	Dwell Time	No	N/A	Not required for DTS devices.
15.247(b), KDB 558074 - 9.1.1//11.9.1.1	Output Power	Yes	Pass	
15.247(b), KDB 558074 - 9.1.1//11.9.1.1	Equivalent Isotropic Radiated Power	Yes	Pass	
15.247(d), KDB 558074 -11//11.11	Band Edge Compliance	Yes	Pass	
15.247(d)//7.8.6	Band Edge Compliance - Hopping Mode	No	N/A	Not required for DTS devices.
15.247(a), KDB 558074 -8.2//11.8.2	Occupied Bandwidth	Yes	N/A	
15.247(a), KDB 558074 -8.2//11.8.2	DTS Bandwidth	Yes	Pass	
15.247(d), KDB 558074 -11//11.11	Spurious Conducted Emissions	Yes	Pass	
15.247(e), KDB 558074 - 10.2//11.10.2	Power Spectral Density	Yes	Pass	

Deviations From Test Standards

None

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

CERTIFICATE OF TEST

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 - 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

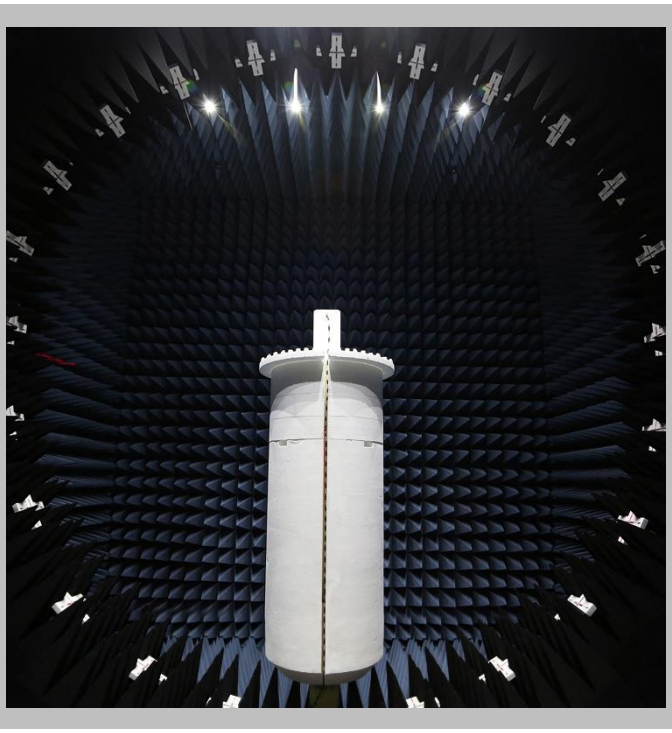
For details on the Scopes of our Accreditations, please visit:

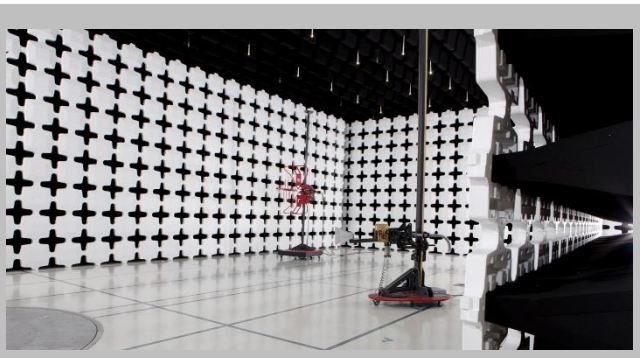
California Minnesota Oregon Texas Washington

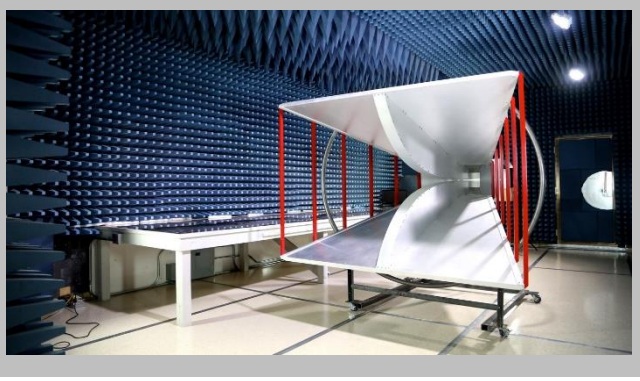
FACILITIES

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

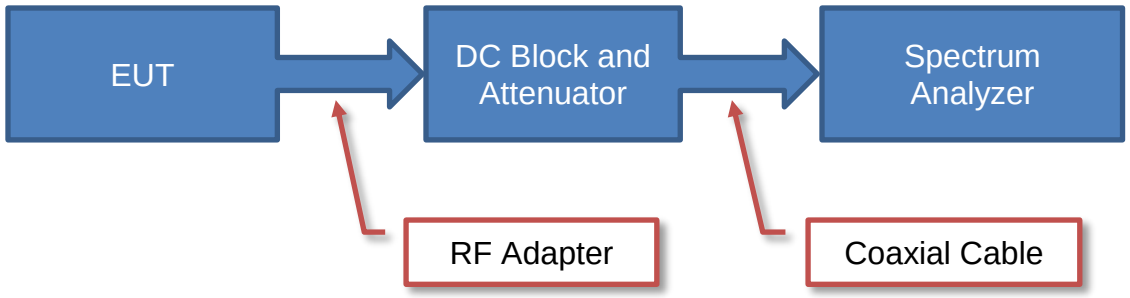
TEST SETUP BLOCK DIAGRAMS

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.

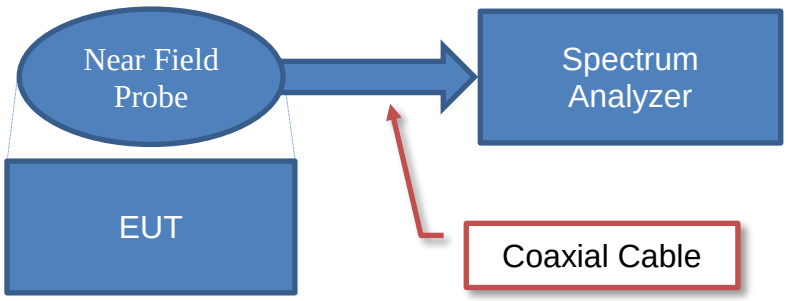
Antenna Port Conducted Measurements



Sample Calculation (logarithmic units)

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

Near Field Test Fixture Measurements

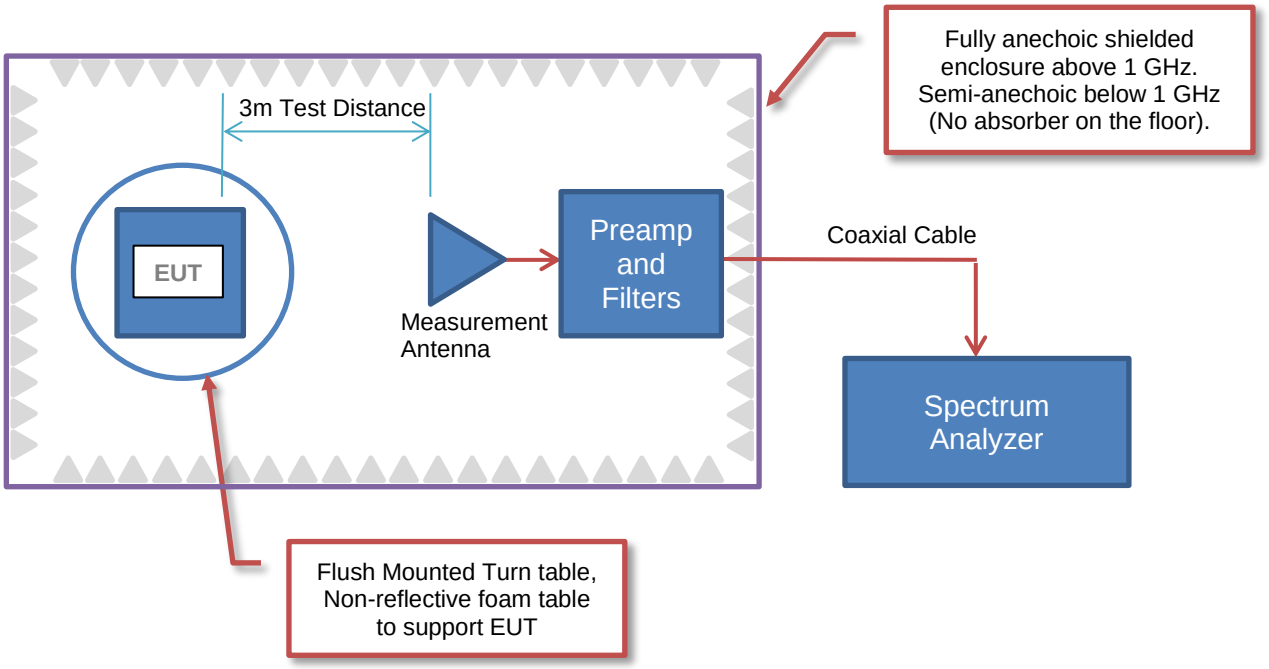


Sample Calculation (logarithmic units)

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**

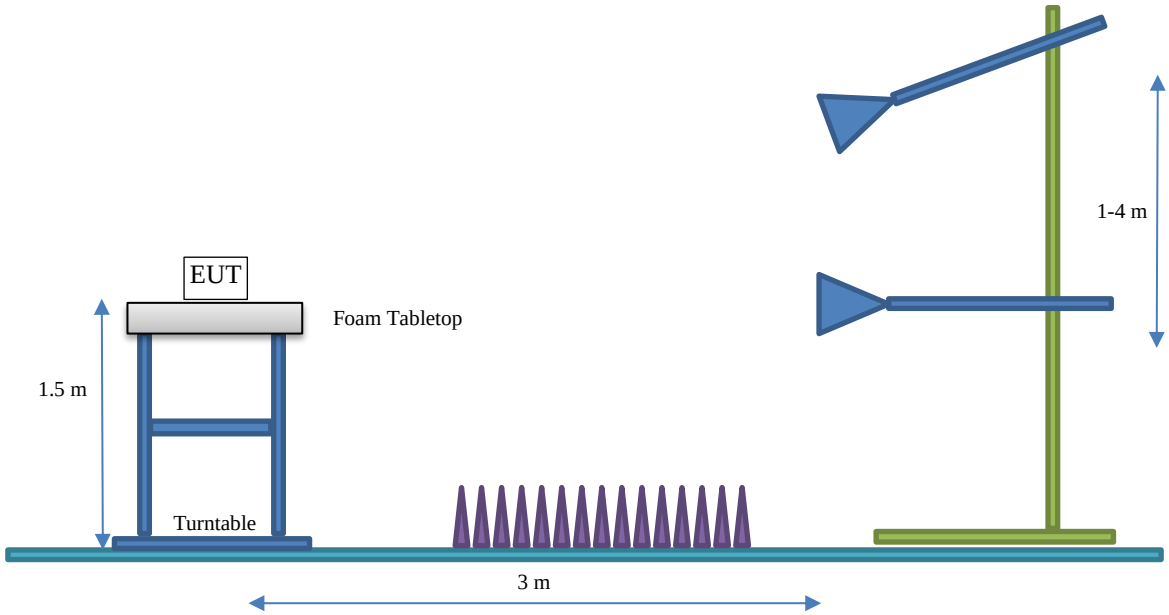
Radiated Power (ERP/EIRP) – Substitution Method:

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

TEST SETUP BLOCK DIAGRAMS

Bore Sighting (>1GHz)

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



PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Phyzika Technologies, Inc
Address:	1480 NW 124th Ave
City, State, Zip:	Portland, OR 97229
Test Requested By:	Santosh Balakrishnan
EUT:	Rhino System
First Date of Test:	May 25, 2022
Last Date of Test:	May 27, 2022
Receipt Date of Samples:	May 25, 2022
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
Vibration data acquisition system targeted for mining and drilling applications. The system consists of two components – transmitter and receiver.

Testing Objective:
Seeking to demonstrate compliance under FCC 15.247:2021 for operation in the 902 - 928 MHz Band.

POWER SETTINGS AND ANTENNAS

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

ANTENNA GAIN (dBi)

Type	Provided by:	Frequency Range (MHz)	Gain (dBi)
Monopole	Manufacturer	824 - 960	1.0

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

X Test software settings Test software/firmware installed on EUT: See configuration
☐ Rated power settings

SETTINGS FOR ALL TESTS IN THIS REPORT

Modulation Types	Position (if multiple channels)	Power Setting
4-GFSK, 1 Mbps	Low Channel 1, 904 MHz	12 dBm
	Mid Channel 7, 916 MHz	12 dBm
	High Channel 13, 926 MHz	12 dBm

CONFIGURATIONS

Configuration PHYZ0001- 1

Software/Firmware Running During Test	
Description	**Version**
Firmware	3.4
Radio Control UI	0.25

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
900 MHz Transmitter	Phyzika Technologies, Inc	Rhino System	S1064
Battery	Phyzika Technologies, Inc	Rhino System	BATT-083
Stubby Antenna	Pulse LARSEN Antennas	W1900	None

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Lenovo	P51S	R9-0NHDCD 17/06

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Power	Yes	0.3 m	No	900 MHz Transmitter	Battery Pack

CONFIGURATIONS

Configuration PHYZ0001- 3

Software/Firmware Running During Test	
Description	**Version**
Firmware	3.4
Radio Control UI	0.25

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
900 MHz Transmitter	Phyzika Technologies, Inc	Rhino System	S1064
Battery	Phyzika Technologies, Inc	Rhino System	BATT-083

Peripherals in Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Lenovo	P51S	R9-0NHDCD 17/06

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
DC Power	Yes	0.3 m	No	900 MHz Transmitter	Battery Pack

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2022-05-25	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	2022-05-27	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.
3	2022-05-27	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.
4	2022-05-27	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.
5	2022-05-27	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	2022-05-27	DTS 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.
7	2022-05-27	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
8	2022-05-27	Power Spectral Density	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

SPURIOIUS RADIATED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	2021-12-09	2022-12-09
Antenna - Biconilog	EMCO	3142B	AXJ	2021-03-03	2023-03-03
Antenna - Double Ridge	EMCO	3115	AHC	2020-07-01	2022-07-01
Antenna - Standard Gain	ETS Lindgren	3160-07	AHU	NCR	NCR
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AOL	2021-11-17	2022-11-17
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAG	2022-05-03	2023-05-03
Amplifier - Pre-Amplifier	L-3 Narda-MITEQ	AMF-6F-08001200-30-10P	PAO	2021-11-17	2022-11-17
Cable	N/A	Bilog Cables	EVA	2021-11-17	2022-11-17
Cable	N/A	Double Ridge Horn Cables	EVB	2022-05-03	2023-05-03
Attenuator	Coaxicom	3910-20	AXZ	2022-02-10	2023-02-10
Attenuator	Coaxicom	3910-10	AWX	2022-02-10	2023-02-10
Filter - Low Pass	Micro-Tronics	LPM50003	LFB	2022-02-10	2023-02-10
Filter - Band Pass/Notch	K&L Microwave	3TNF-500/1000-N/N	HFT	2021-11-12	2022-11-12

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	5.2 dB	-5.2 dB

FREQUENCY RANGE INVESTIGATED

30 MHz TO 12400 MHz

POWER INVESTIGATED

Battery

CONFIGURATIONS INVESTIGATED

PHYZ0001-1

MODES INVESTIGATED

TX, 4-GFSK, 1Mbps, Low Ch = 904 MHz, Mid Ch = 916 MHz, High Ch = 926 MHz

SPURIOIUS RADIATED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

EUT:	Rhino System	Work Order:	PHYZ0001
Serial Number:	S1064	Date:	2022-05-25
Customer:	Phyzika Technologies, Inc	Temperature:	21.7°C
Attendees:	Santosh Balakrishnan	Relative Humidity:	47.3%
Customer Project:	None	Bar. Pressure (PMSL):	1019 mb
Tested By:	Jeff Alcoke	Job Site:	EV01
Power:	Battery	Configuration:	PHYZ0001-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.247:2022	ANSI C63.10:2013

TEST PARAMETERS

Run #:	14	Test Distance (m):	3	Ant. Height(s) (m):	1 to 4(m)

COMMENTS

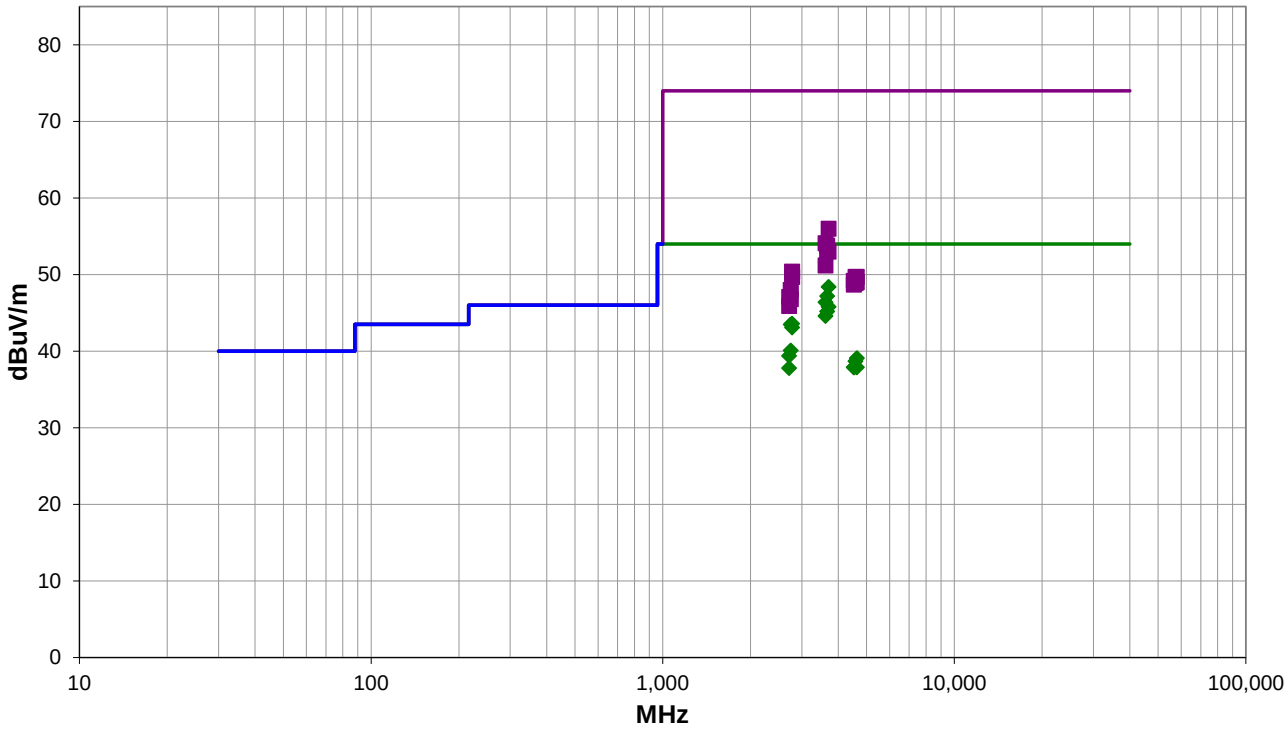
Please reference data comments below for channel and EUT orientation.

EUT OPERATING MODES

TX, 4-GFSK, 1Mbps, Low Ch = 904 MHz, Mid Ch = 916 MHz, High Ch = 926 MHz

DEVIATIONS FROM TEST STANDARD

None



Run #: 14 ■ PK ◆ AV ● QP

SPURIOIUS RADIATED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

RESULTS - Run #14

Freq (MHz)	Amplitude (dBuV)	Factor (dB/m)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
3705.042	41.6	6.8	1.0	286.0	3.0	0.0	Horz	AV	0.0	48.4	54.0	-5.6	High Ch, EUT on Side
3663.383	40.8	6.4	2.74	279.0	3.0	0.0	Horz	AV	0.0	47.2	54.0	-6.8	Mid Ch, EUT on Side
3615.225	40.1	6.3	2.46	300.0	3.0	0.0	Horz	AV	0.0	46.4	54.0	-7.6	Low Ch, EUT on Side
3705.158	39.0	6.8	3.92	36.0	3.0	0.0	Vert	AV	0.0	45.8	54.0	-8.2	High Ch, EUT Vert
3663.233	38.8	6.4	3.36	36.0	3.0	0.0	Vert	AV	0.0	45.2	54.0	-8.8	Mid Ch, EUT Vert
3615.292	38.3	6.3	3.94	44.0	3.0	0.0	Vert	AV	0.0	44.6	54.0	-9.4	Low Ch, EUT Vert
2777.300	43.5	0.1	3.95	354.0	3.0	0.0	Vert	AV	0.0	43.6	54.0	-10.4	High Ch, EUT Vert
2747.525	43.4	0.1	4.0	332.0	3.0	0.0	Vert	AV	0.0	43.5	54.0	-10.5	Mid Ch, EUT Vert
2777.375	43.0	0.1	1.0	335.0	3.0	0.0	Horz	AV	0.0	43.1	54.0	-10.9	High Ch, EUT on Side
2747.542	40.0	0.1	1.5	331.0	3.0	0.0	Horz	AV	0.0	40.1	54.0	-13.9	Mid Ch, EUT on Side
2711.625	39.5	-0.1	1.5	331.0	3.0	0.0	Horz	AV	0.0	39.4	54.0	-14.6	Low Ch, EUT on Side
4631.708	30.6	8.5	3.9	306.0	3.0	0.0	Horz	AV	0.0	39.1	54.0	-14.9	High Ch, EUT on Side
4581.033	30.3	8.4	2.8	307.0	3.0	0.0	Horz	AV	0.0	38.7	54.0	-15.3	Mid Ch, EUT on Side
4581.033	29.6	8.4	1.5	335.0	3.0	0.0	Vert	AV	0.0	38.0	54.0	-16.0	Mid Ch, EUT Vert
4632.167	29.4	8.5	1.5	274.0	3.0	0.0	Vert	AV	0.0	37.9	54.0	-16.1	High Ch, EUT Vert
4522.358	29.5	8.4	1.5	97.0	3.0	0.0	Horz	AV	0.0	37.9	54.0	-16.1	Low Ch, EUT on Side
4521.967	29.5	8.4	1.5	292.0	3.0	0.0	Vert	AV	0.0	37.9	54.0	-16.1	Low Ch, EUT Vert
2711.625	37.9	-0.1	1.5	354.0	3.0	0.0	Vert	AV	0.0	37.8	54.0	-16.2	Low Ch, EUT Vert
3704.675	49.2	6.8	1.0	286.0	3.0	0.0	Horz	PK	0.0	56.0	74.0	-18.0	High Ch, EUT on Side
3614.992	47.8	6.3	2.46	300.0	3.0	0.0	Horz	PK	0.0	54.1	74.0	-19.9	Low Ch, EUT on Side
3663.283	47.4	6.4	2.74	279.0	3.0	0.0	Horz	PK	0.0	53.8	74.0	-20.2	Mid Ch, EUT on Side
3665.192	46.7	6.4	3.36	36.0	3.0	0.0	Vert	PK	0.0	53.1	74.0	-20.9	Mid Ch, EUT Vert
3705.408	46.2	6.8	3.92	36.0	3.0	0.0	Vert	PK	0.0	53.0	74.0	-21.0	High Ch, EUT Vert
3615.108	44.9	6.3	3.94	44.0	3.0	0.0	Vert	PK	0.0	51.2	74.0	-22.8	Low Ch, EUT Vert
2777.642	50.3	0.1	3.95	354.0	3.0	0.0	Vert	PK	0.0	50.4	74.0	-23.6	High Ch, EUT Vert
2776.900	49.6	0.1	1.0	335.0	3.0	0.0	Horz	PK	0.0	49.7	74.0	-24.3	High Ch, EUT on Side
4627.650	41.2	8.5	3.9	306.0	3.0	0.0	Horz	PK	0.0	49.7	74.0	-24.3	High Ch, EUT on Side
4581.933	41.3	8.4	2.8	307.0	3.0	0.0	Horz	PK	0.0	49.7	74.0	-24.3	Mid Ch, EUT on Side
4519.067	40.7	8.5	1.5	292.0	3.0	0.0	Vert	PK	0.0	49.2	74.0	-24.8	Low Ch, EUT Vert
4629.508	40.5	8.5	1.5	274.0	3.0	0.0	Vert	PK	0.0	49.0	74.0	-25.0	High Ch, EUT Vert
4581.417	40.5	8.4	1.5	335.0	3.0	0.0	Vert	PK	0.0	48.9	74.0	-25.1	Mid Ch, EUT Vert
4522.042	40.3	8.4	1.5	97.0	3.0	0.0	Horz	PK	0.0	48.7	74.0	-25.3	Low Ch, EUT on Side
2748.742	47.9	0.1	4.0	332.0	3.0	0.0	Vert	PK	0.0	48.0	74.0	-26.0	Mid Ch, EUT Vert
2712.892	47.2	-0.1	1.5	331.0	3.0	0.0	Horz	PK	0.0	47.1	74.0	-26.9	Low Ch, EUT on Side
2747.458	46.7	0.1	1.5	331.0	3.0	0.0	Horz	PK	0.0	46.8	74.0	-27.2	Mid Ch, EUT on Side
2712.917	46.0	-0.1	1.5	354.0	3.0	0.0	Vert	PK	0.0	45.9	74.0	-28.1	Low Ch, EUT Vert

SPURIOIUS RADIATED EMISSIONS

element
WTD.2021.09.21.0
EmiR5 2022.03.10.0
PSA-ESCI 2022.1.12.0

CONCLUSION
Pass

Tested By

DUTY CYCLE

TEST DESCRIPTION

The Duty Cycle (x) were measured for each of the EUT operating modes. 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.

The EUT operates at 100% Duty Cycle.

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
Generator - Signal	Agilent	N5183A	TID	2021-05-04	2023-05-04
Cable	Micro-Coax	UFD150A-1-0720-200200	EVK	2022-03-14	2023-03-14
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2021-07-06	2022-07-06

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 2022.05.02.0 XMit 2022.02.07.0

EUT:	**Rhino System**			**Work Order:**	**PHYZ0001**
Serial Number:	**S1064**			**Date:**	**27-May-22**
Customer:	**Phyzika Technologies, Inc**			**Temperature:**	**22.1 °C**
Attendees:	**Santosh Balakrishnan**			**Humidity:**	**49.3% RH**
Project:	**None**			**Barometric Pres.:**	**1018 mbar**
Tested by:	**Jeff Alcoke**	**Power:**	**Battery**	**Job Site:**	**EV06**

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

COMMENTS

None.

DEVIATIONS FROM TEST STANDARD

None

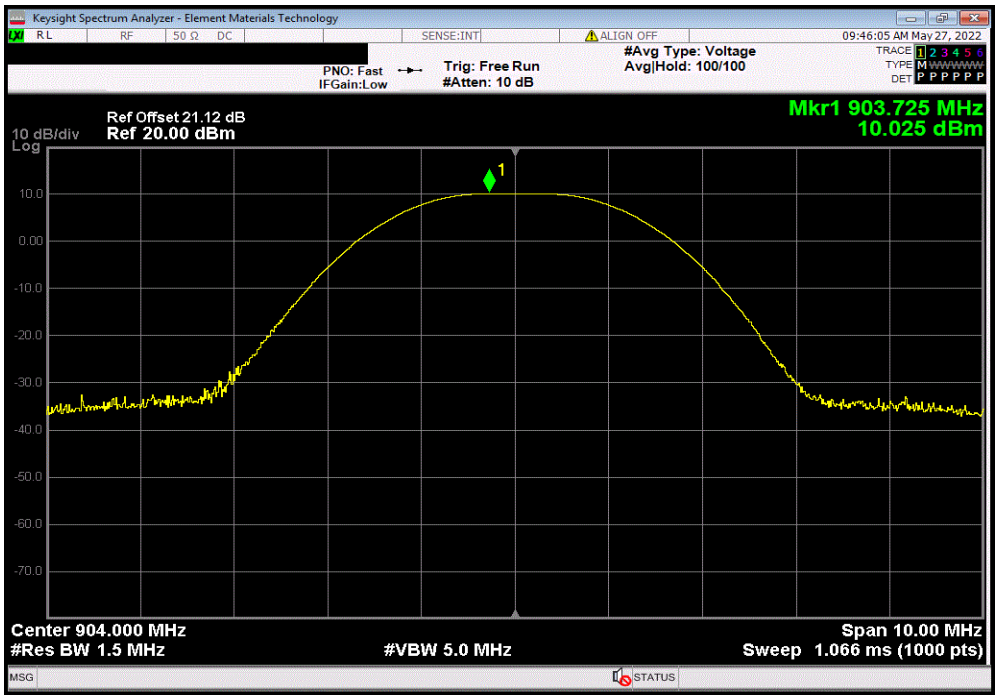
Configuration #	**3**	*Signature*

	Out Pwr (dBm)	**Limit (dBm)**	**Result**
4-GFSK, 1 Mbps			
Low Channel, 904 MHz	10.025	30	Pass
Mid Channel, 916 MHz	9.559	30	Pass
High Channel, 926 MHz	9.236	30	Pass

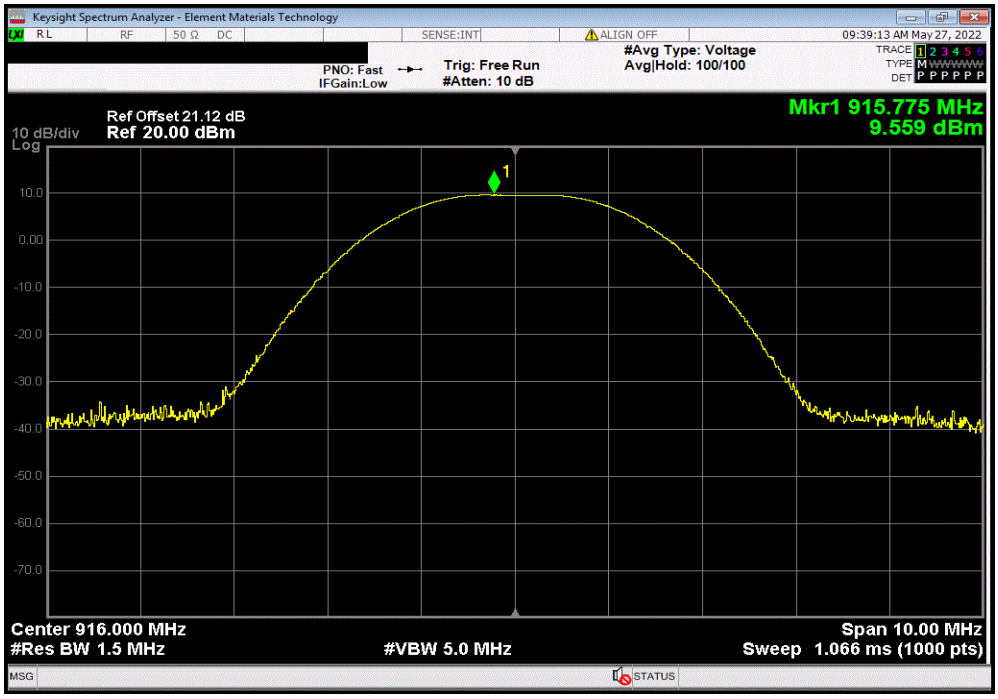
OUTPUT POWER

TbtTx 2022.05.02.0 XMit 2022.02.07.0

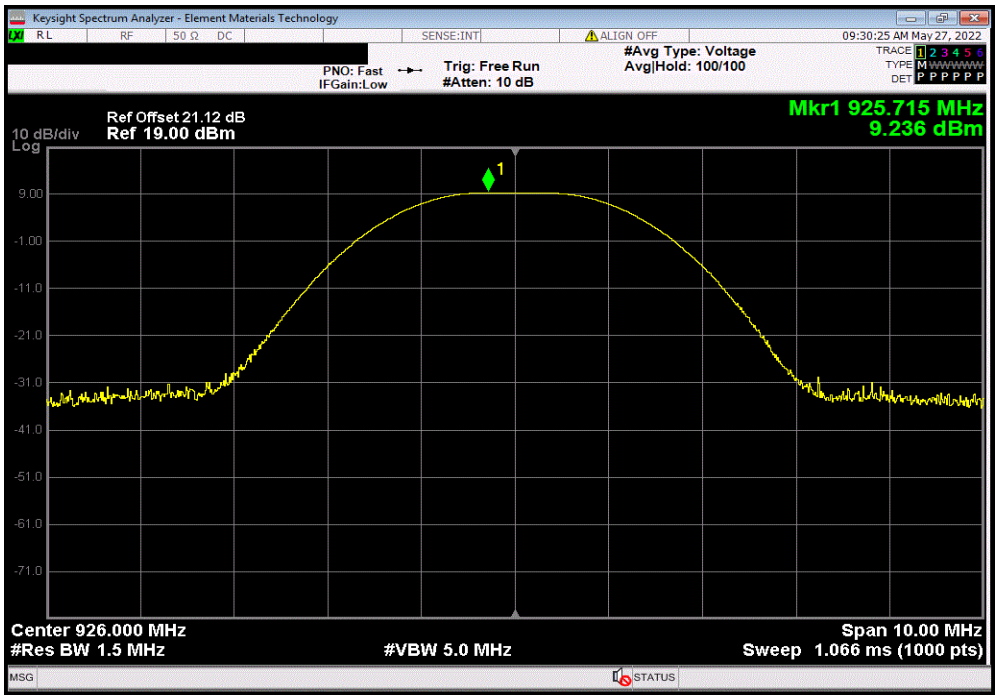
4-GFSK, 1 Mbps, Low Channel, 904 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				10.025	30	Pass



4-GFSK, 1 Mbps, Mid Channel, 916 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				9.559	30	Pass



4-GFSK, 1 Mbps, High Channel, 926 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				9.236	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
Generator - Signal	Agilent	N5183A	TID	2021-05-04	2023-05-04
Cable	Micro-Coax	UFD150A-1-0720-200200	EVK	2022-03-14	2023-03-14
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2021-07-06	2022-07-06

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 2022.05.02.0 XMit 2022.02.07.0

EUT:	**Rhino System**			**Work Order:**	**PHYZ0001**
Serial Number:	**S1064**			**Date:**	**27-May-22**
Customer:	**Phyzika Technologies, Inc**			**Temperature:**	**22.1 °C**
Attendees:	**Santosh Balakrishnan**			**Humidity:**	**49.4% RH**
Project:	**None**			**Barometric Pres.:**	**1018 mbar**
Tested by:	**Jeff Alcoke**	**Power:**	**Battery**	**Job Site:**	**EV06**

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

COMMENTS

None.

DEVIATIONS FROM TEST STANDARD

None

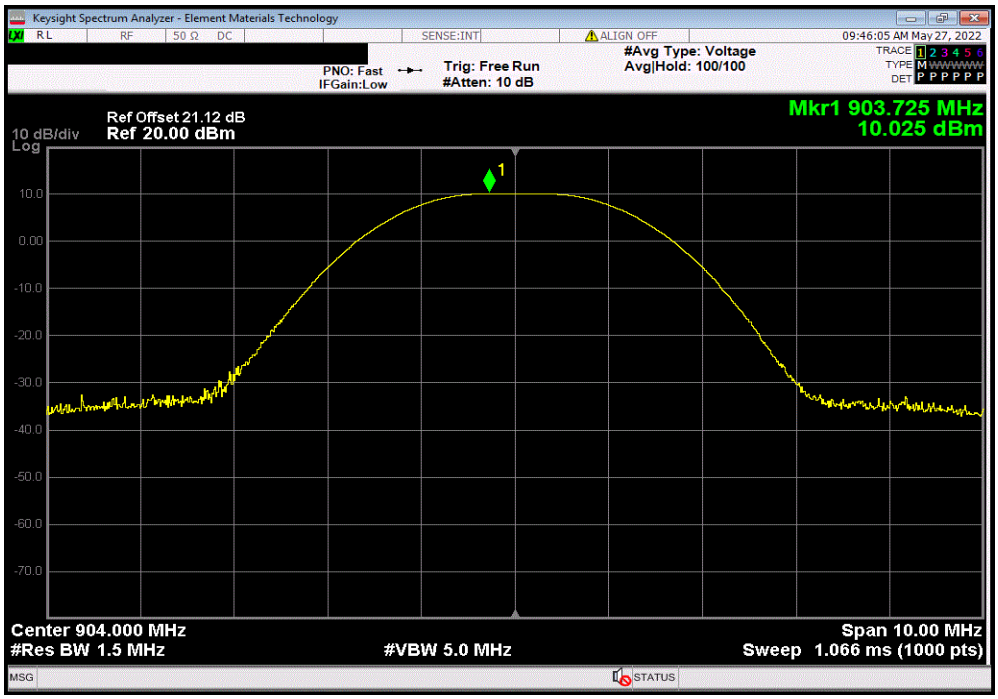
Configuration #	**3**	*Signature*

	Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
4-GFSK, 1 Mbps					
Low Channel, 904 MHz	10.025	1	11.025	36	Pass
Mid Channel, 916 MHz	9.559	1	10.559	36	Pass
High Channel, 926 MHz	9.236	1	10.236	36	Pass

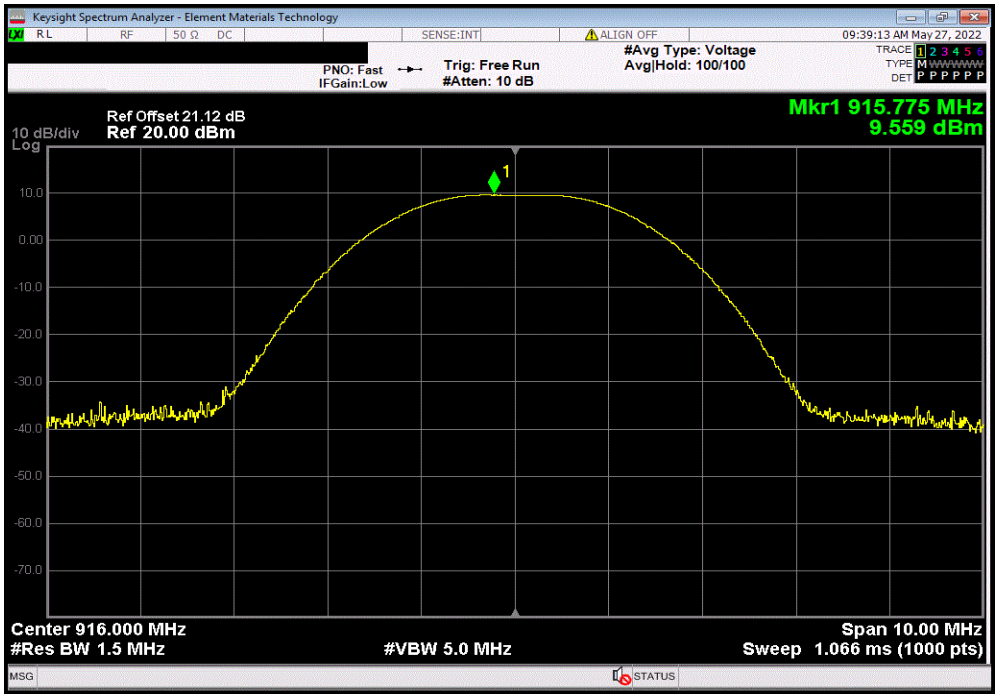
EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

TbtTx 2022.05.02.0 XMit 2022.02.07.0

4-GFSK, 1 Mbps, Low Channel, 904 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		10.025	1	11.025	36	Pass

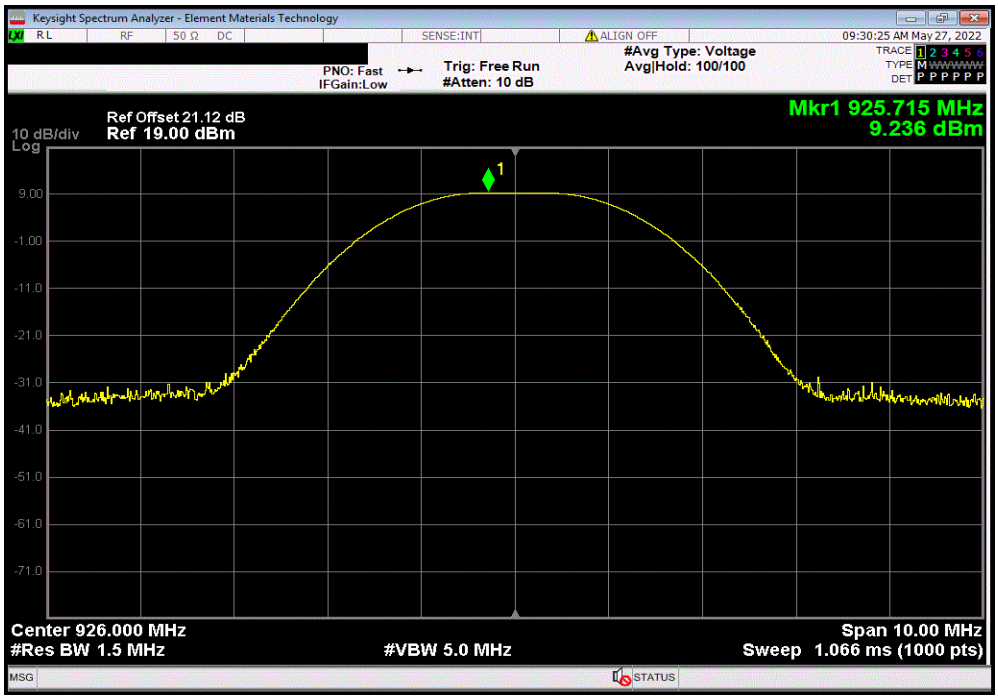


4-GFSK, 1 Mbps, Mid Channel, 916 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		9.559	1	10.559	36	Pass



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

4-GFSK, 1 Mbps, High Channel, 926 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		9.236	1	10.236	36	Pass



BAND EDGE COMPLIANCE

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
Generator - Signal	Agilent	N5183A	TID	2021-05-04	2023-05-04
Cable	Micro-Coax	UFD150A-1-0720-200200	EVK	2022-03-14	2023-03-14
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2021-07-06	2022-07-06

TEST DESCRIPTION

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

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

The spectrum was scanned below the lower band edge and above the higher band edge.

BAND EDGE COMPLIANCE

TbtTx 2022.05.02.0 XMit 2022.02.07.0

EUT:	Rhino System			Work Order:	PHYZ0001
Serial Number:	S1064			Date:	27-May-22
Customer:	Phyzika Technologies, Inc			Temperature:	22.1 °C
Attendees:	Santosh Balakrishnan			Humidity:	49.4% RH
Project:	None			Barometric Pres.:	1018 mbar
Tested by:	Jeff Alcoke	Power:	Battery	Job Site:	EV06

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

COMMENTS

None.

DEVIATIONS FROM TEST STANDARD

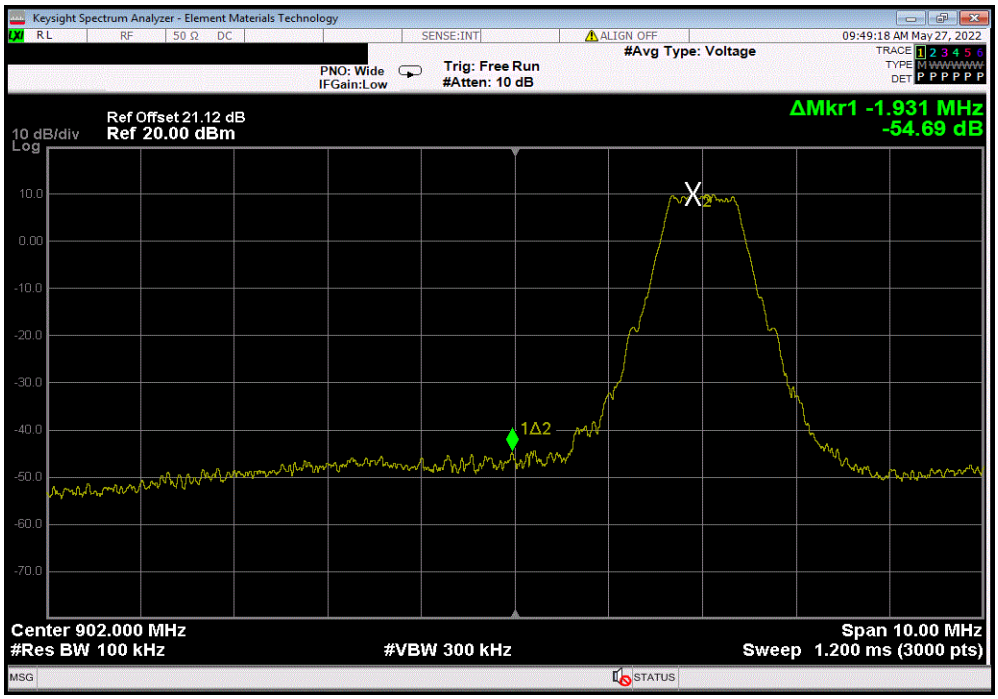
None

Configuration #	3	Signature

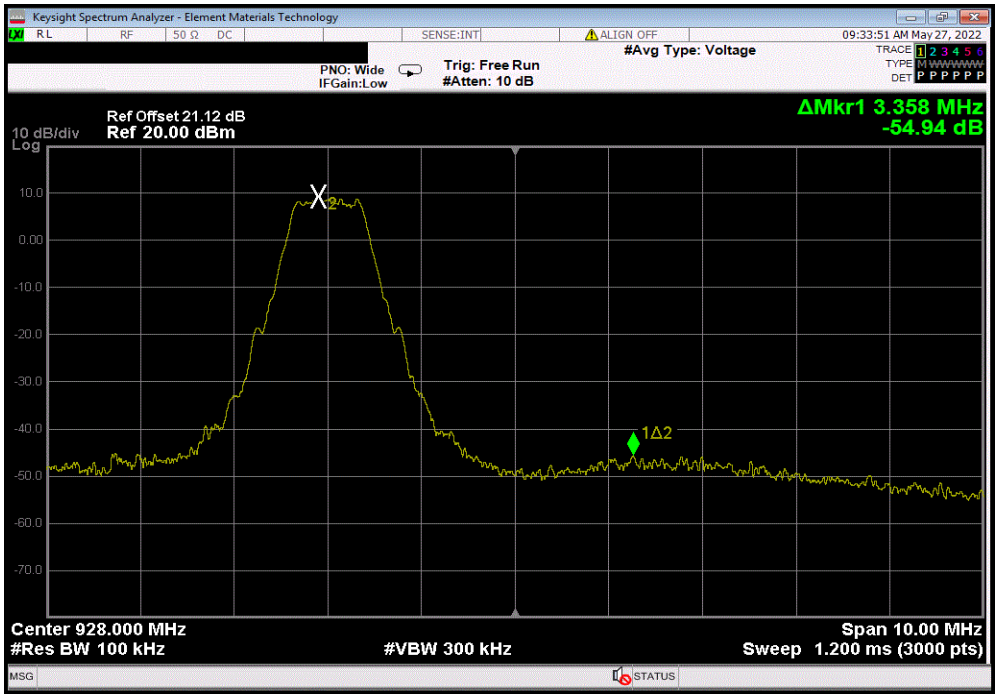
	Value (dBc)	Limit ≤ (dBc)	Result
4-GFSK, 1 Mbps			
Low Channel, 904 MHz	-54.69	-20	Pass
High Channel, 926 MHz	-54.94	-20	Pass

BAND EDGE COMPLIANCE

4-GFSK, 1 Mbps, Low Channel, 904 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-54.69	-20	Pass



4-GFSK, 1 Mbps, High Channel, 926 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-54.94	-20	Pass



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
Generator - Signal	Agilent	N5183A	TID	2021-05-04	2023-05-04
Cable	Micro-Coax	UFD150A-1-0720-200200	EVK	2022-03-14	2023-03-14
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2021-07-06	2022-07-06

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 2022.05.02.0 XMit 2022.02.07.0

EUT:	**Rhino System**			**Work Order:**	**PHYZ0001**
Serial Number:	**S1064**			**Date:**	**27-May-22**
Customer:	**Phyzika Technologies, Inc**			**Temperature:**	**22.1 °C**
Attendees:	**Santosh Balakrishnan**			**Humidity:**	**49.4% RH**
Project:	**None**			**Barometric Pres.:**	**1018 mbar**
Tested by:	**Jeff Alcoke**	**Power:**	**Battery**	**Job Site:**	**EV06**

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

COMMENTS

None.

DEVIATIONS FROM TEST STANDARD

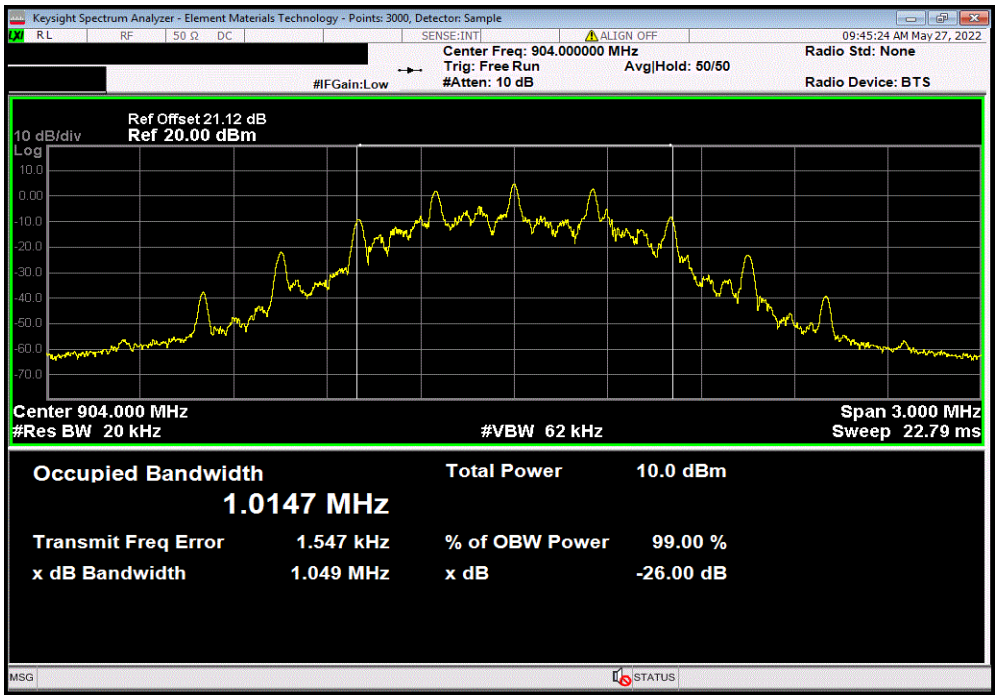
None

Configuration #	**3**	*Signature*

		Value	**Limit**	**Result**
4-GFSK, 1 Mbps				
	Low Channel, 904 MHz	1.015 MHz	N/A	N/A
	Mid Channel, 916 MHz	1.017 MHz	N/A	N/A
	High Channel, 926 MHz	1.016 MHz	N/A	N/A

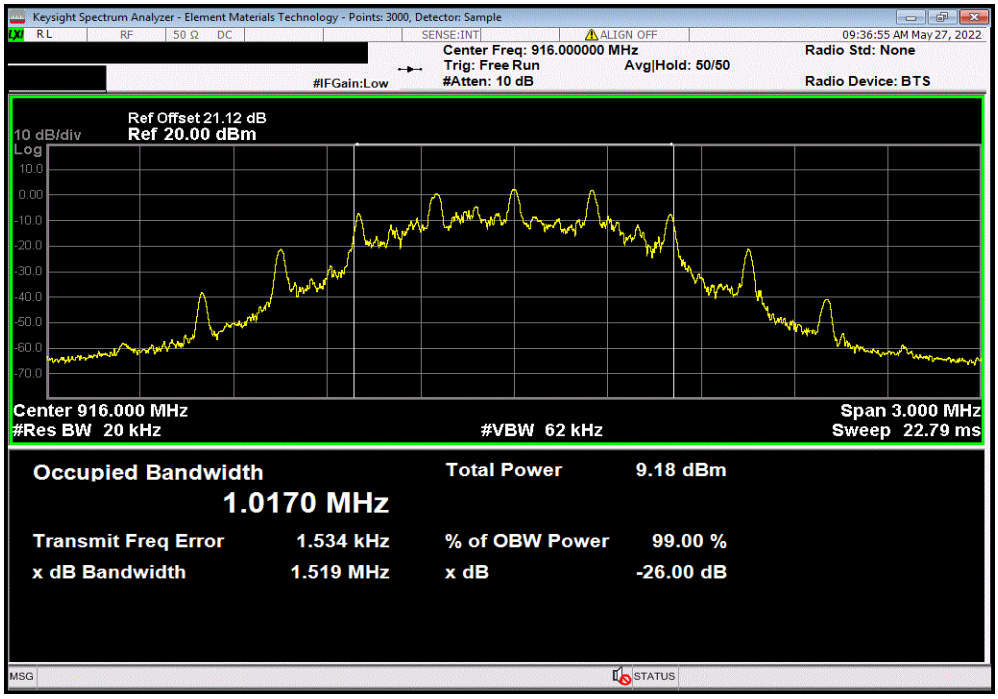
4-GFSK, 1 Mbps, Low Channel, 904 MHz

				Value	Limit	Result
				1.015 MHz	N/A	N/A



4-GFSK, 1 Mbps, Mid Channel, 916 MHz

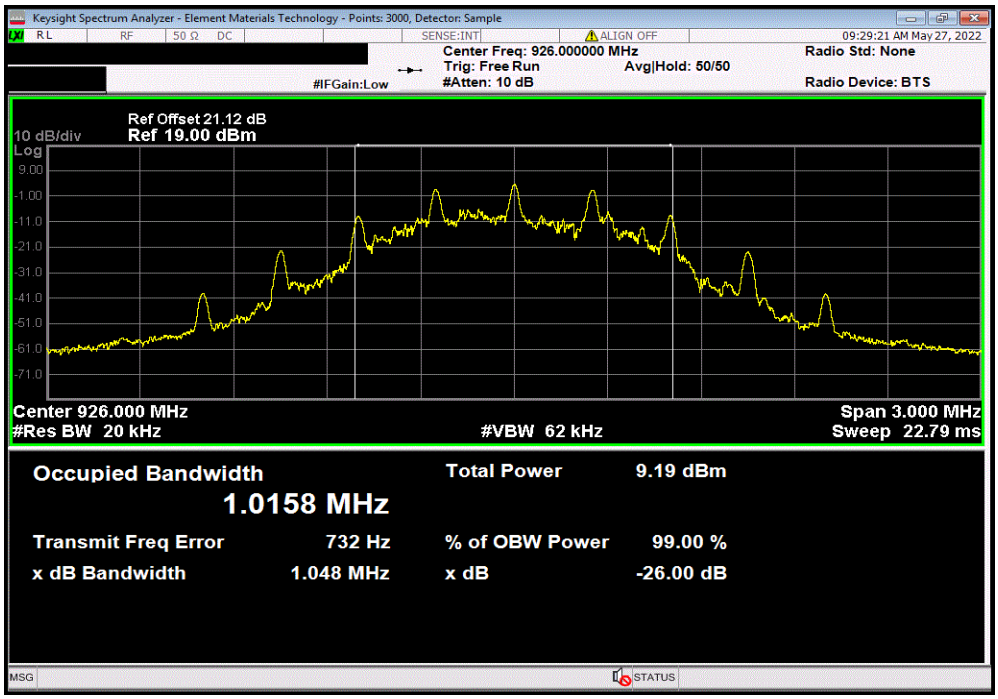
				Value	Limit	Result
				1.017 MHz	N/A	N/A



OCCUPIED BANDWIDTH

TbtTx 2022.05.02.0 XMit 2022.02.07.0

4-GFSK, 1 Mbps, High Channel, 926 MHz						
				Value	Limit	Result
				1.016 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
Generator - Signal	Agilent	N5183A	TID	2021-05-04	2023-05-04
Cable	Micro-Coax	UFD150A-1-0720-200200	EVK	2022-03-14	2023-03-14
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2021-07-06	2022-07-06

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 2022.05.02.0 XMit 2022.02.07.0

EUT:	Rhino System			Work Order:	PHYZ0001
Serial Number:	S1064			Date:	27-May-22
Customer:	Phyzika Technologies, Inc			Temperature:	22.1 °C
Attendees:	Santosh Balakrishnan			Humidity:	49.4% RH
Project:	None			Barometric Pres.:	1018 mbar
Tested by:	Jeff Alcoke	Power:	Battery	Job Site:	EV06

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

COMMENTS

None.

DEVIATIONS FROM TEST STANDARD

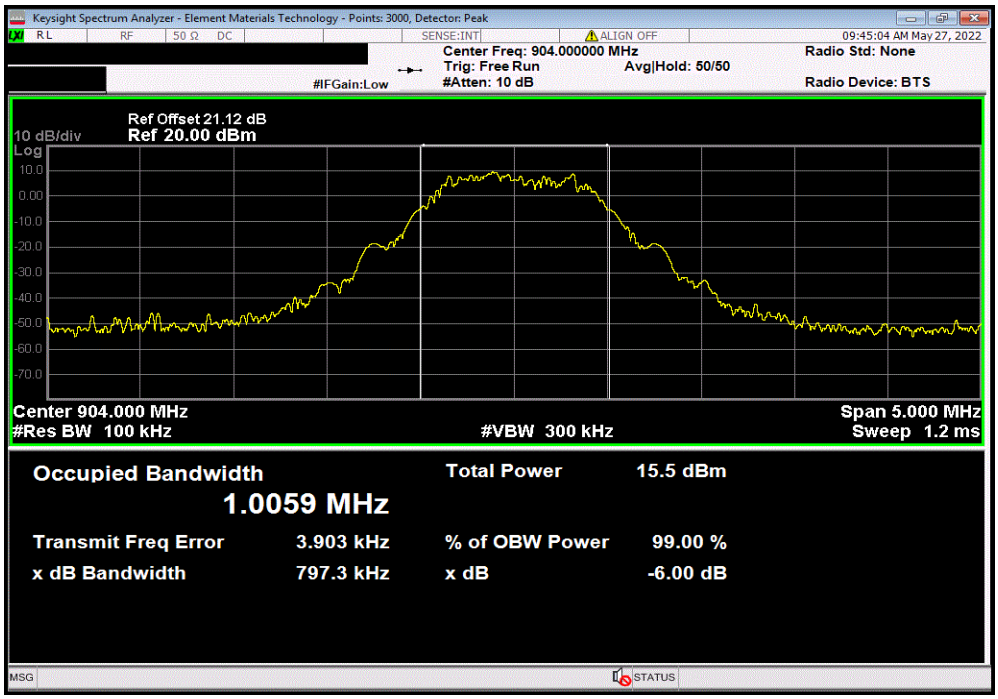
None

Configuration #	3	Signature

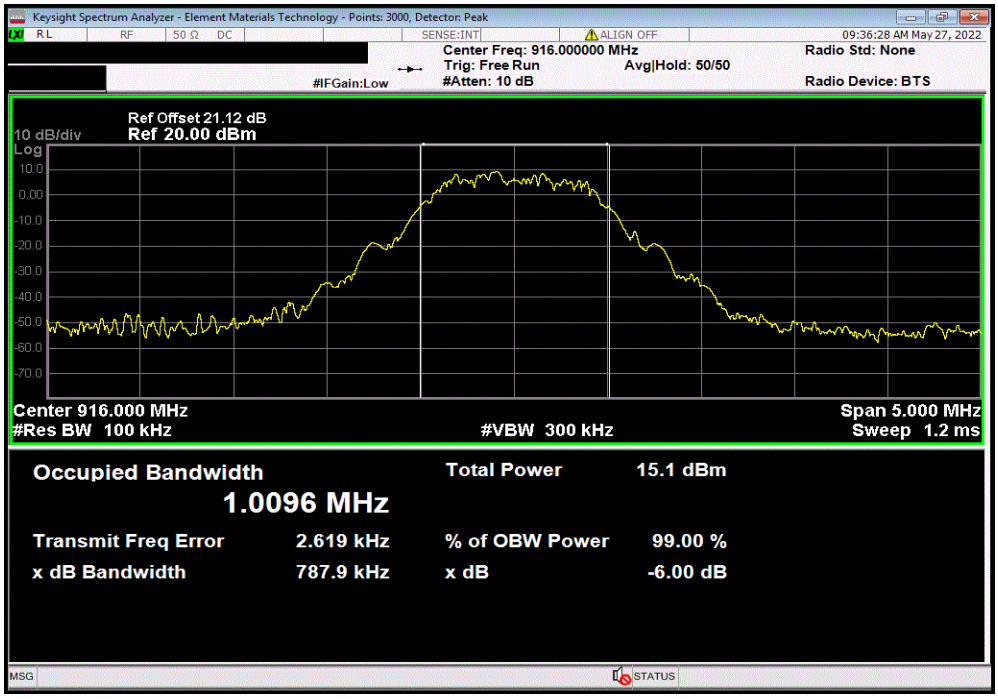
	Value	Limit (≥)	Result
4-GFSK, 1 Mbps			
Low Channel, 904 MHz	797.331 kHz	500 kHz	Pass
Mid Channel, 916 MHz	787.942 kHz	500 kHz	Pass
High Channel, 926 MHz	737.76 kHz	500 kHz	Pass

DTS BANDWIDTH

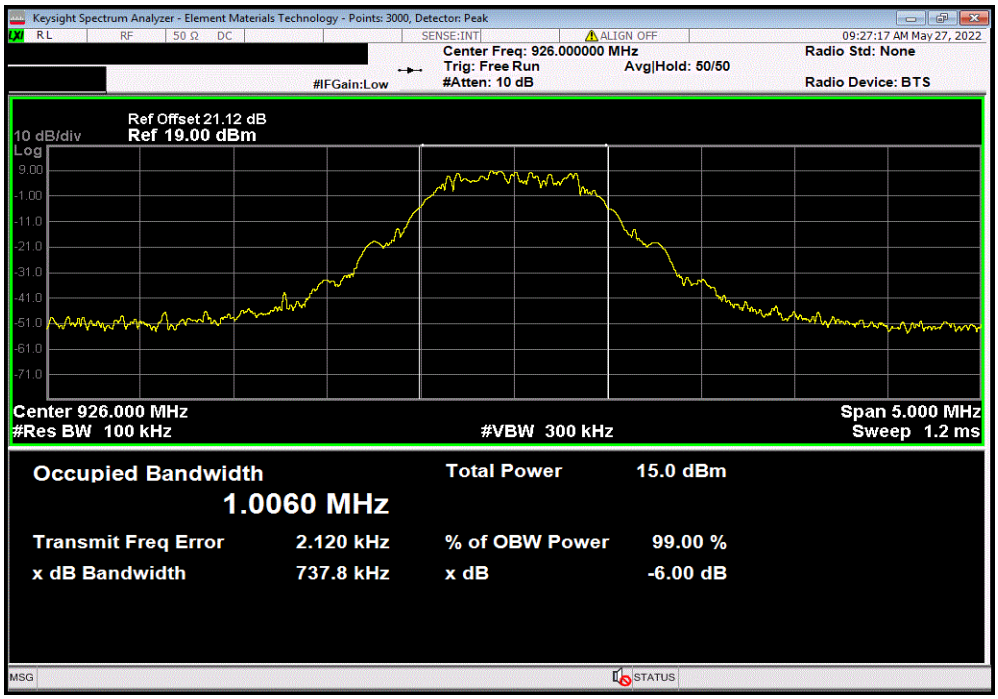
4-GFSK, 1 Mbps, Low Channel, 904 MHz						
				Value	Limit (≥)	Result
				797.331 kHz	500 kHz	Pass



4-GFSK, 1 Mbps, Mid Channel, 916 MHz						
				Value	Limit (≥)	Result
				787.942 kHz	500 kHz	Pass



4-GFSK, 1 Mbps, High Channel, 926 MHz						
				Value	Limit (≥)	Result
				737.76 kHz	500 kHz	Pass



SPURIOUS CONDUCTED EMISSIONS

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
Generator - Signal	Agilent	N5183A	TID	2021-05-04	2023-05-04
Cable	Micro-Coax	UFD150A-1-0720-200200	EVK	2022-03-14	2023-03-14
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2021-07-06	2022-07-06

TEST DESCRIPTION

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

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

SPURIOUS CONDUCTED EMISSIONS

element

TbtTx 2022.05.02.0 XMit 2022.02.07.0

EUT:	**Rhino System**			**Work Order:**	**PHYZ0001**
Serial Number:	**S1064**			**Date:**	**27-May-22**
Customer:	**Phyzika Technologies, Inc**			**Temperature:**	**22.2 °C**
Attendees:	**Santosh Balakrishnan**			**Humidity:**	**49.3% RH**
Project:	**None**			**Barometric Pres.:**	**1018 mbar**
Tested by:	**Jeff Alcoke**	**Power:**	**Battery**	**Job Site:**	**EV06**

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

COMMENTS

None.

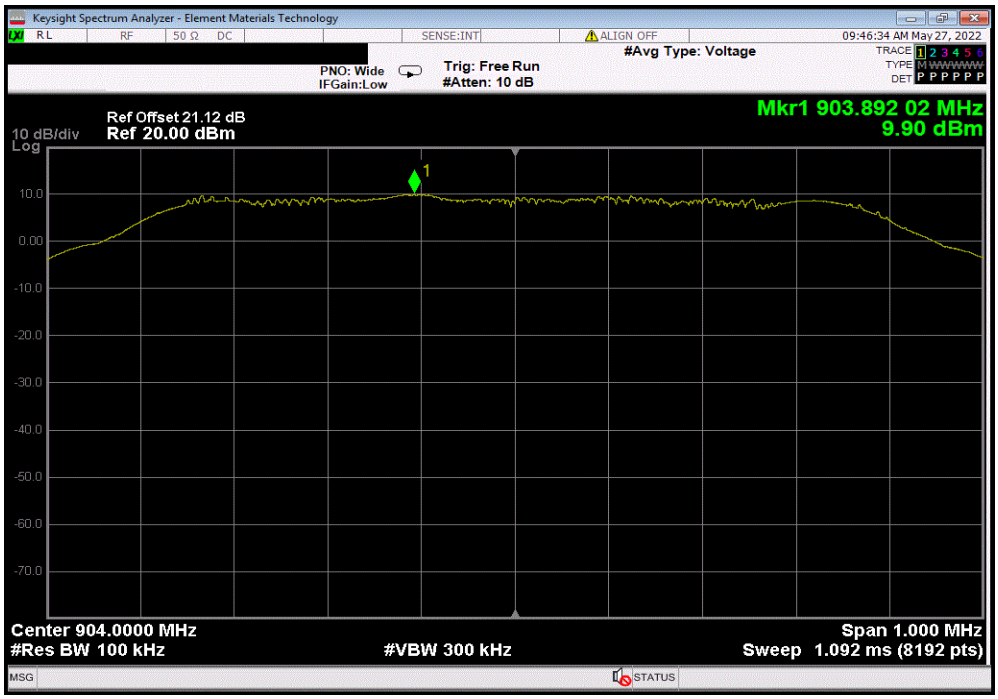
DEVIATIONS FROM TEST STANDARD

None

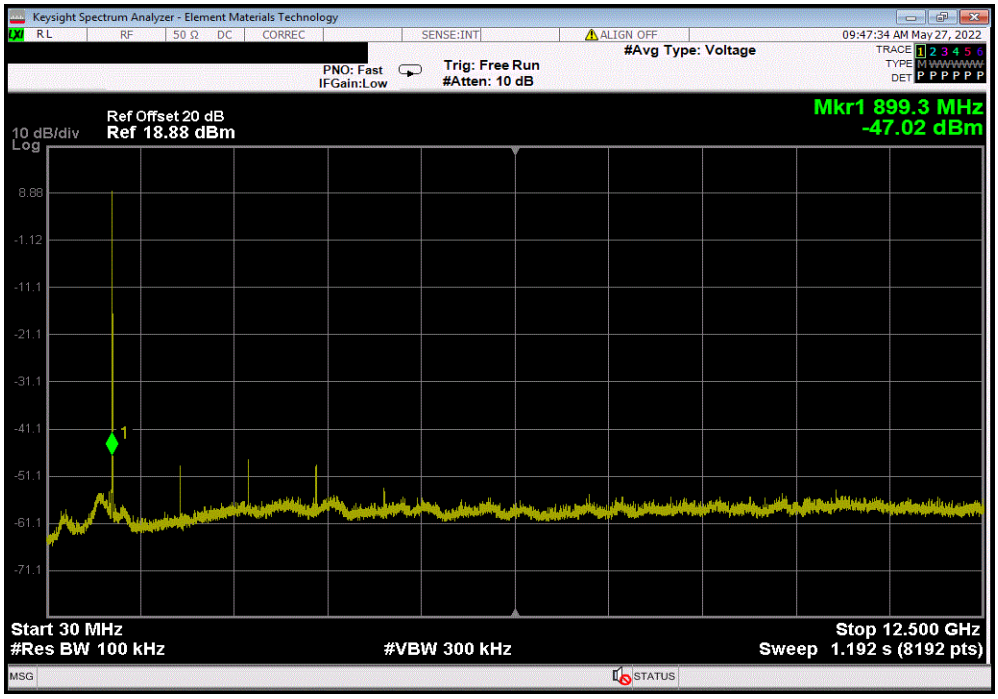
Configuration #	**3**	*Signature*

		Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
4-GFSK, 1 Mbps						
	Low Channel, 904 MHz	Fundamental	903.89	N/A	N/A	N/A
	Low Channel, 904 MHz	30 MHz - 12.5 GHz	899.29	-56.92	-20	Pass
	Low Channel, 904 MHz	12.5 GHz - 25 GHz	24696.31	-60.48	-20	Pass
	Mid Channel, 916 MHz	Fundamental	915.89	N/A	N/A	N/A
	Mid Channel, 916 MHz	30 MHz - 12.5 GHz	3663.98	-57.73	-20	Pass
	Mid Channel, 916 MHz	12.5 GHz - 25 GHz	24990.84	-59.5	-20	Pass
	High Channel, 926 MHz	Fundamental	925.89	N/A	N/A	N/A
	High Channel, 926 MHz	30 MHz - 12.5 GHz	2777.94	-57.6	-20	Pass
	High Channel, 926 MHz	12.5 GHz - 25 GHz	23707.42	-59.09	-20	Pass

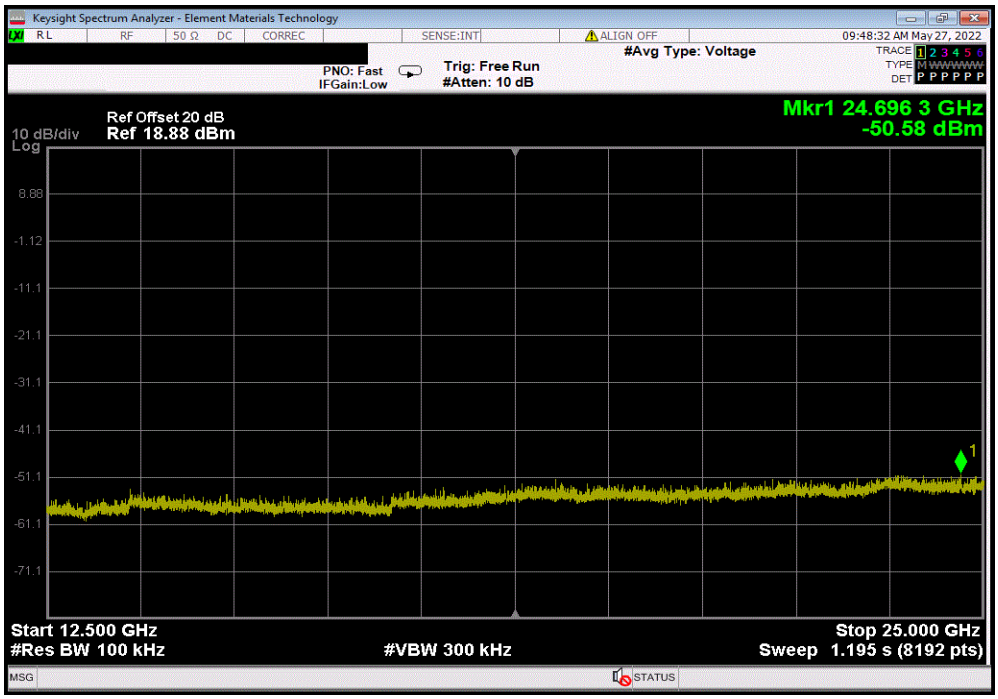
4-GFSK, 1 Mbps, Low Channel, 904 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	903.89	N/A	N/A	N/A



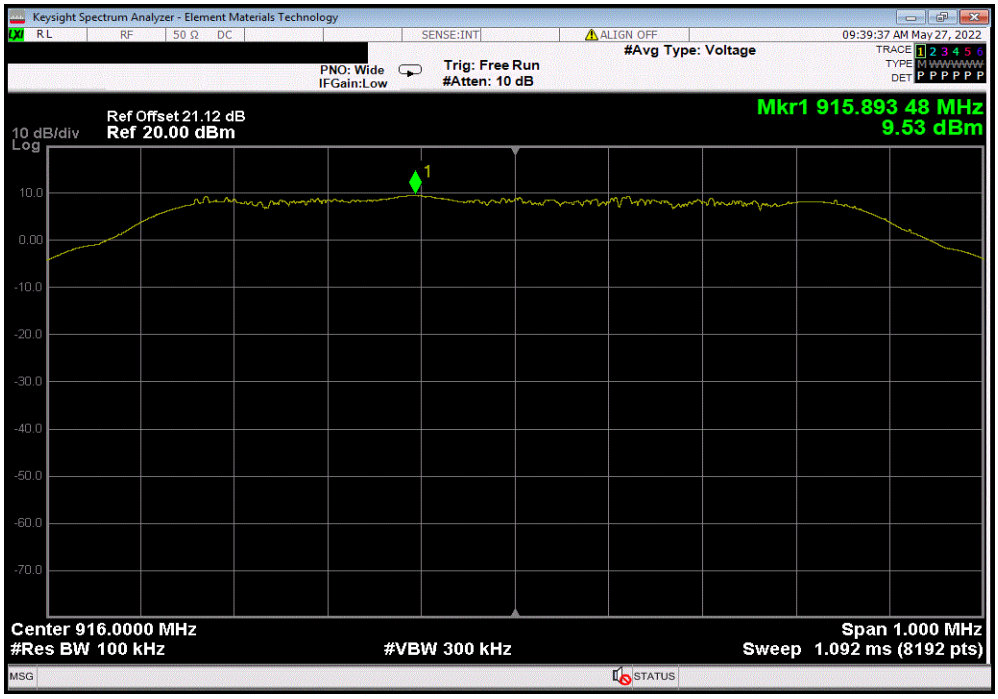
4-GFSK, 1 Mbps, Low Channel, 904 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	899.29	-56.92	-20	Pass



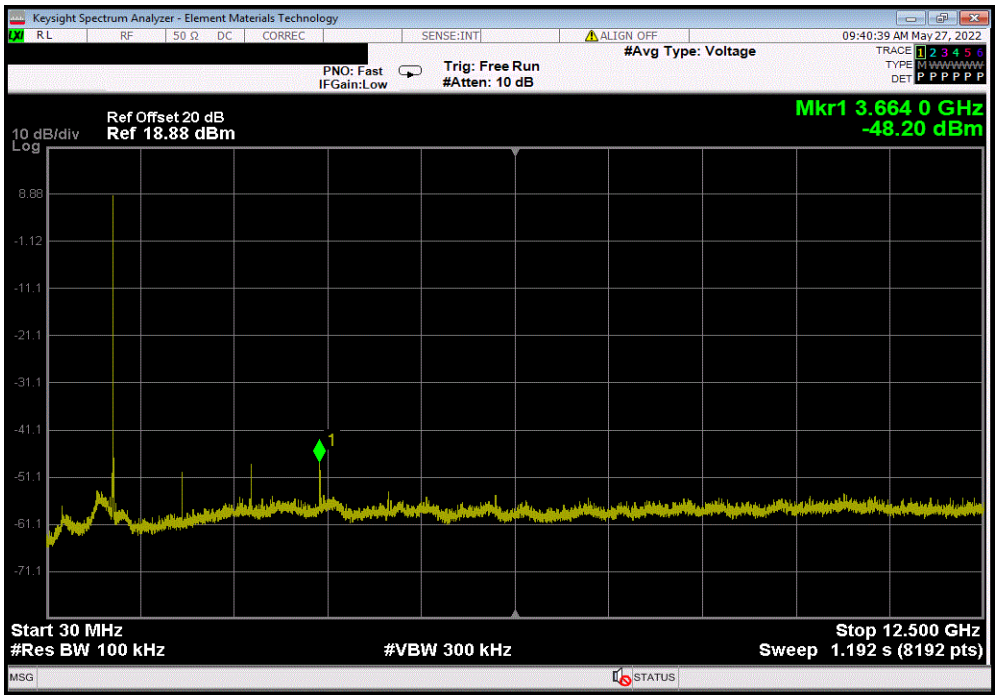
4-GFSK, 1 Mbps, Low Channel, 904 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz	24696.31	-60.48	-20	Pass



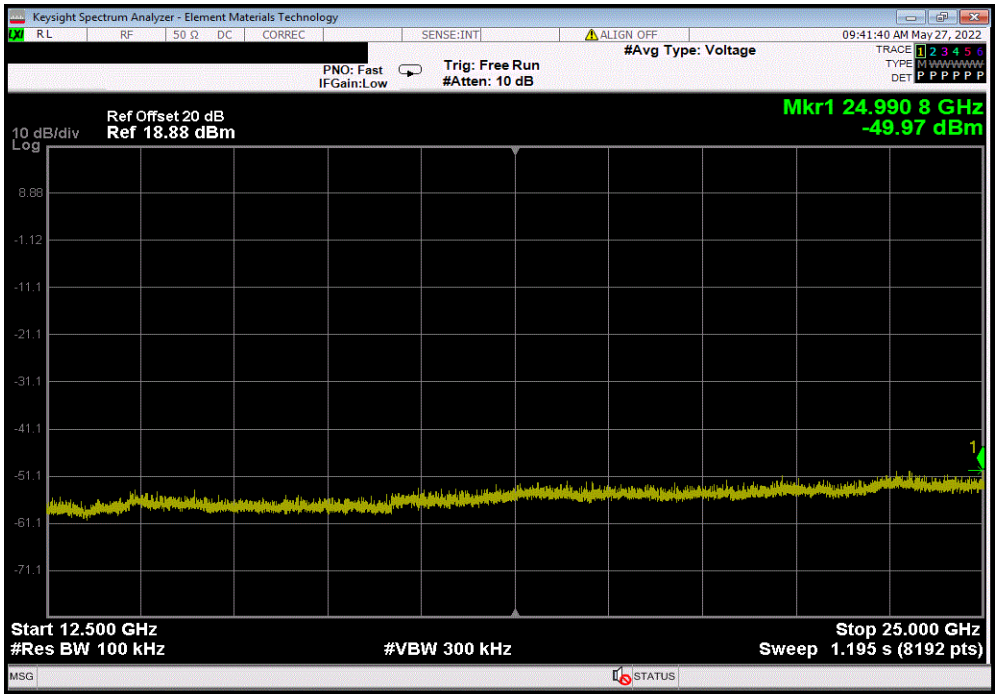
4-GFSK, 1 Mbps, Mid Channel, 916 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
Fundamental	915.89	N/A	N/A	N/A



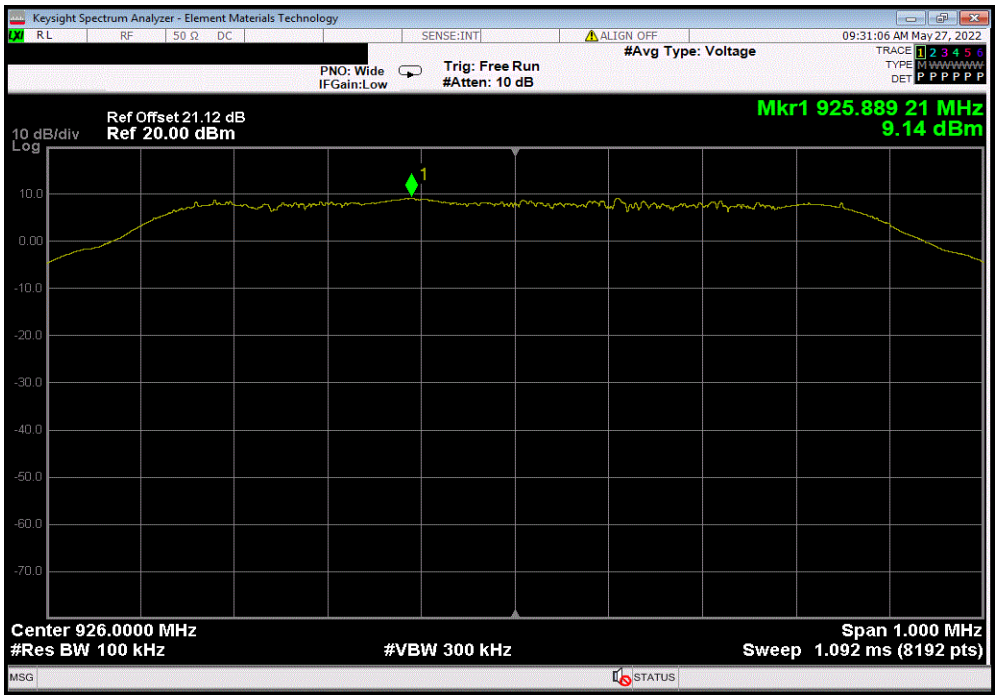
4-GFSK, 1 Mbps, Mid Channel, 916 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	3663.98	-57.73	-20	Pass



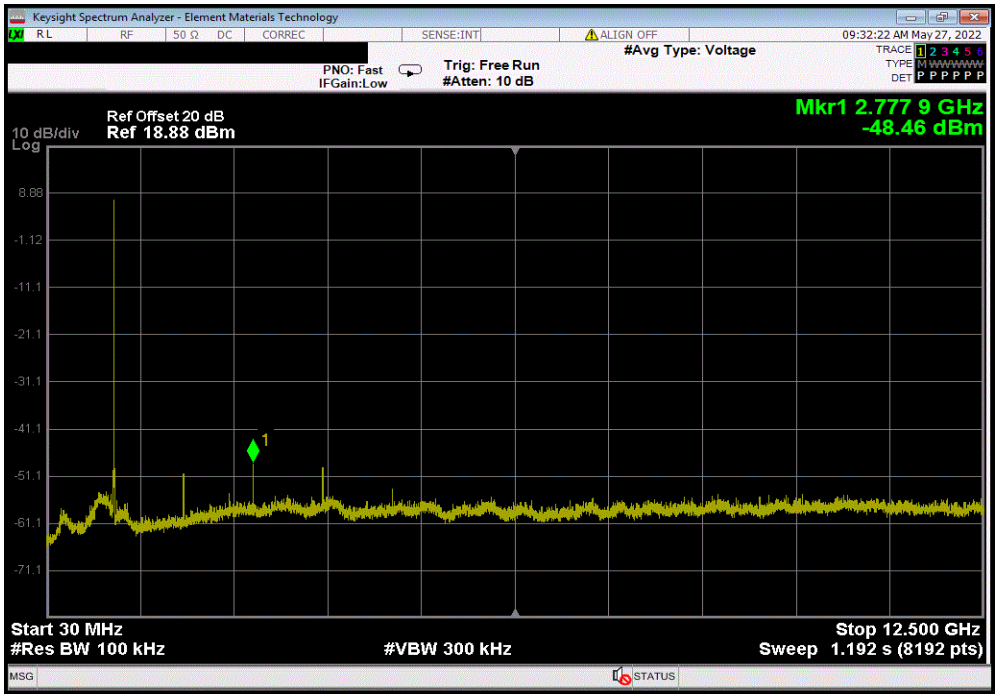
4-GFSK, 1 Mbps, Mid Channel, 916 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz	24990.84	-59.5	-20	Pass



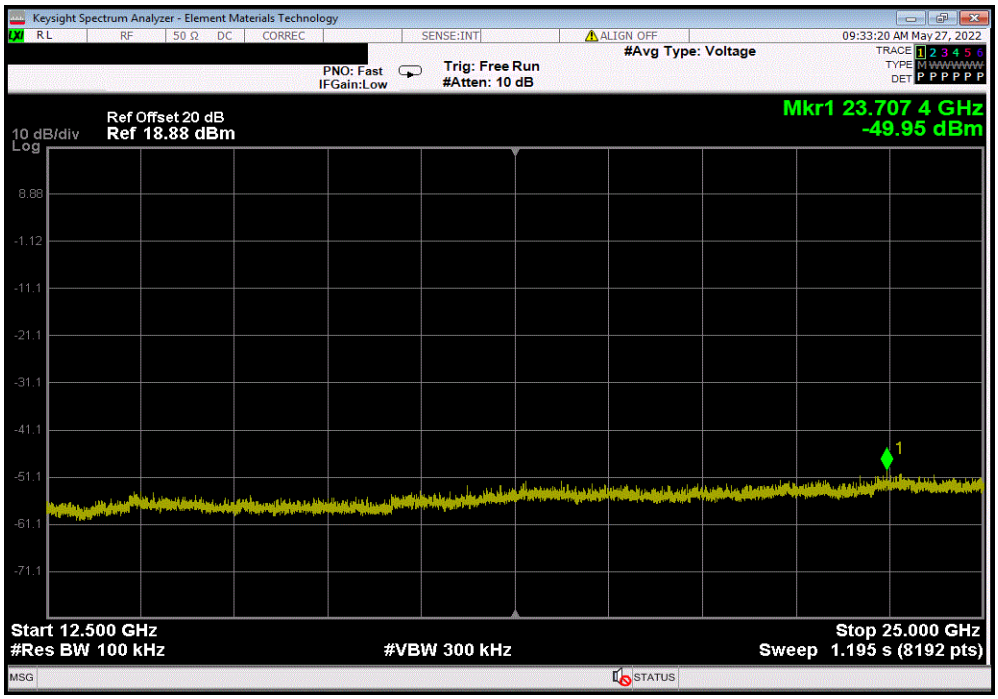
4-GFSK, 1 Mbps, High Channel, 926 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	925.89	N/A	N/A	N/A



4-GFSK, 1 Mbps, High Channel, 926 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	2777.94	-57.6	-20	Pass



4-GFSK, 1 Mbps, High Channel, 926 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	23707.42	-59.09	-20	Pass



POWER SPECTRAL DENSITY

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
Generator - Signal	Agilent	N5183A	TID	2021-05-04	2023-05-04
Cable	Micro-Coax	UFD150A-1-0720-200200	EVK	2022-03-14	2023-03-14
Attenuator	S.M. Electronics	SA26B-20	AUY	2022-03-15	2023-03-15
Block - DC	Fairview Microwave	SD3379	AMW	2022-03-14	2023-03-14
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFO	2021-07-06	2022-07-06

TEST DESCRIPTION

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

The maximum power spectral density measurements 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

TbtTx 2022.05.02.0 XMit 2022.02.07.0

EUT:	Rhino System			Work Order:	PHYZ0001
Serial Number:	S1064			Date:	27-May-22
Customer:	Phyzika Technologies, Inc			Temperature:	22.1 °C
Attendees:	Santosh Balakrishnan			Humidity:	49.3% RH
Project:	None			Barometric Pres.:	1018 mbar
Tested by:	Jeff Alcoke	Power:	Battery	Job Site:	EV06

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

COMMENTS

None.

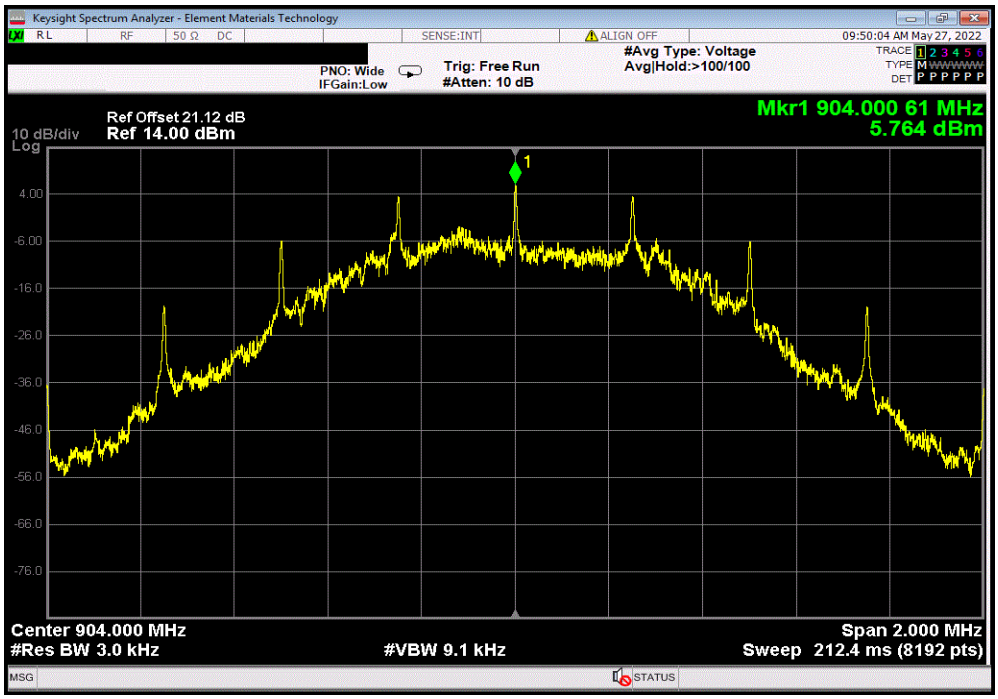
DEVIATIONS FROM TEST STANDARD

None

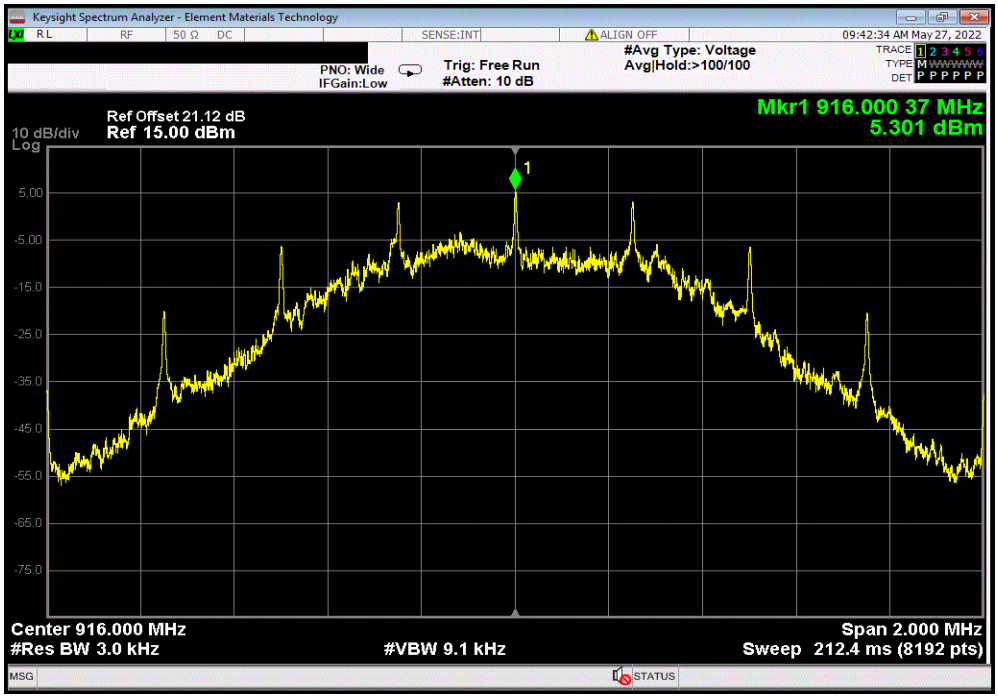
Configuration #	3	Signature

	Value dBm/3kHz	Limit < dBm/3kHz	Results
4-GFSK, 1 Mbps			
Low Channel, 904 MHz	5.764	8	Pass
Mid Channel, 916 MHz	5.301	8	Pass
High Channel, 926 MHz	4.911	8	Pass

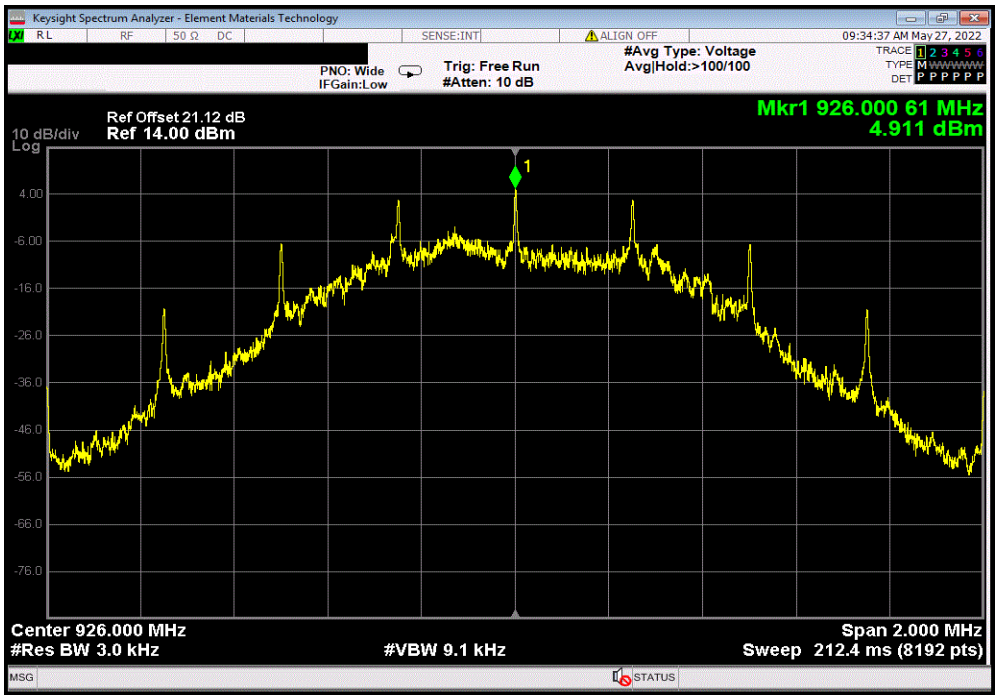
4-GFSK, 1 Mbps, Low Channel, 904 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				5.764	8	Pass



4-GFSK, 1 Mbps, Mid Channel, 916 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				5.301	8	Pass



4-GFSK, 1 Mbps, High Channel, 926 MHz						
				Value dBm/3kHz	Limit < dBm/3kHz	Results
				4.911	8	Pass



End of Test Report