

Motorola Solutions, Inc.

V700

FCC 15.247:2022 RSS-247 Issue 2:2017

2.4 GHz Bluetooth (FHSS) Radio

Report: WTVD0085.5 Rev. 3, Issue Date: June 27, 2023





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Last Date of Test: April 25, 2023 Motorola Solutions, Inc. EUT: V700

Test Lab Location: Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 FCC Designated Number: US1294, Location Registration Number: 561783 ISED Designated number: 2834G-1

Radio Equipment Testing

Standards

Specification	Method	
FCC 15.247:2023		
RSS-247 Issue 2:2017, RSS-Gen Issue 5:2018+A1:2019+A2:2021	ANSI C63.10:2013, FCC KDB 558074 v05r02:2019	

Results

Test Description	Result	FCC Section(s)	RSS Section(s)	ANSI C63.10 Section(s)	Comments
Powerline Conducted Emissions	N/A	15.207	RSS-Gen 8.8	6.2	Not required for a battery powered EUT.
Spurious Radiated Emissions	Pass	15.247(d)	RSS-247 5.5	6.5, 6.6	
Occupied Bandwidth (99%)	Pass	N/A	RSS-Gen 6.7	6.9.3	
Duty Cycle	Pass	15.247	RSS-Gen 3.2	7.5	
Carrier Frequency Separation	Pass	15.247(a)(1)	RSS-247 5.1(b)	7.8.2	
Number of Hopping Frequencies	Pass	15.247(a)(1)(iii)	RSS-247 5.1(d)	7.8.3	
Dwell Time	Pass	15.247(a)(1)(iii)	RSS-247 5.1(d)	7.8.4	
Equivalent Isotropic Radiated Power	Pass	15.247(b)(1)	RSS-247 5.4(b)	7.8.5	
Output Power	Pass	15.247(b)(1)	RSS-247 5.4(b)	7.8.5	
Band Edge Compliance	Pass	15.247(d)	RSS-247 5.5	7.8.6	
Band Edge Compliance - Hopping Mode	Pass	15.247(d)	RSS-247 5.5	7.8.6	
Emissions Bandwidth (20 dB)	Pass	15.247(a)(1)	RSS-247 5.1(a)	7.8.7	
Spurious Conducted Emissions	Pass	15.247(d)	RSS-247 5.5	7.8.8	

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.





Deviations From Test Standards

None

Approved By:

Adam Bruno, Operations Manager

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REVISION HISTORY



Revision Number	Description	Date (yyyy-mm-dd)	Page Number
01	Updated configurations.	2023-06-13	14, 15
01	Updated power settings and antennas table.	2023-06-13	12
02	Added FCC ID, IC ID, applicant address to Product Description page.	2023-06-26	11
	Updated IC ID to just IC.	2023-06-27	11
03	Added model number table to Product Description page.	2023-06-27	12
	Added test lab information to certificate of test.	2023-06-27	2

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.

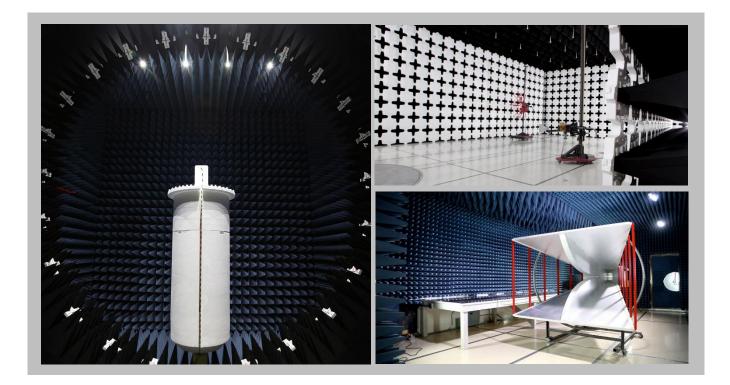
		SCOPE					
	For details on the Scopes of our Accreditations, please visit:						
<u>California</u>	<u>Minnesota</u>	<u>Oregon</u>	<u>Texas</u>	Washington			

FACILITIES





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



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)	5.1 dB	-5.1 dB
AC Powerline Conducted Emissions (dB)	3.1 dB	-3.1 dB

TEST SETUP BLOCK DIAGRAMS

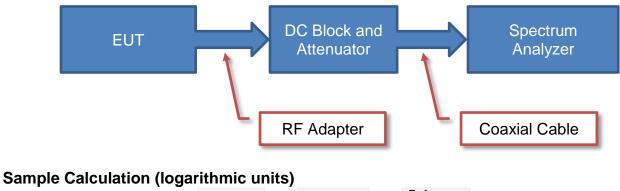


Measurement Bandwidths

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

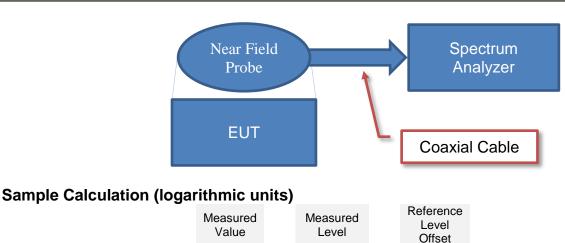


-	Measured Value	-	Measured Level		Reference Level Offset
	71.2	=	42.6	+	28.6

Near Field Test Fixture Measurements

71.2

=



42.6

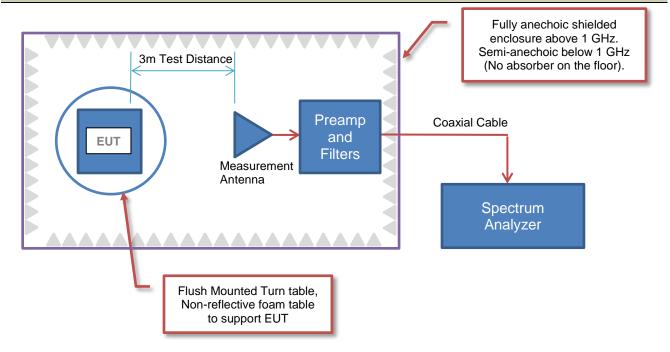
+

28.6

TEST SETUP BLOCK DIAGRAMS



Emissions Measurements

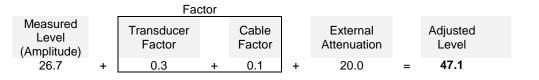


Sample Calculation (logarithmic units)

Radiated Emissions:

			Factor								
Measured Level (Amplitude)	ntenna Factor		Cable 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:



Radiated Power (ERP/EIRP) – Substitution Method:

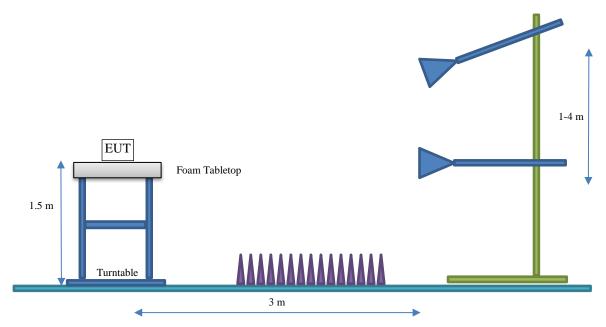
Measured Level into Substitution Antenna (Amplitude dBm)		Substitution Antenna Factor (dBi)		EIRP to ERP (if applicable)		Measured power (dBm ERP/EIRP)
10.0	+	6.0	-	2.15	=	13.9/16.0

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:	Motorola Solutions, Inc.
Manufacturer Address:	415 East Exchange Parkway
City, State, Zip:	Allen, TX 75002
Applicant Name:	Motorola Solutions, Inc.
Applicant Address:	8000 W. Sunrise Blvd
City, State, Zip:	Plantation, FL 33322
Test Requested By:	Navaid Karimi
EUT:	V700
First Date of Test:	December 22, 2022
Last Date of Test:	April 25, 2023
Receipt Date of Samples:	December 21, 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:

Body Worn Camera with BT/BLE, Wi-Fi and LTE

Testing Objective:

To demonstrate compliance of the Bluetooth (FHSS) radio to FCC 15.247 requirements. To demonstrate compliance of the Bluetooth (FHSS) radio to RSS-247 requirements.

FCC ID:

AZ499FT7164

IC:

109U-99FT7164

PRODUCT DESCRIPTION



Models and Descriptions:

FCC Model Number	ISED Model Number (HVIN)	Product Name (PMN)	Description
WGA00735	NA	V700	V700, BWC, 1080P, FN LTE, W/Rem Batt
WGA00725	NA	V700	V700, BWC, 1080P, VzW LTE, W/Rem Batt - USA (Verizon)
NA	WGA00745	V700	V700, BWC, 1080P, BELL LTE, W/Rem Batt Canada (Bell)
WGA00755	WGA00755	V700	BWC, 1080P, WIFI ONLY
NA	WGA00825	V700	V700, BWC, 1080P, BELL READY, W/Rem BATT- Canada (Bell)
WGA00925	NA	V700	V700, BWC, 1080P, FN LTE, W/Rem Batt - USA (AT&T-first net)
WGA01025	NA	V700	V700, BWC, 1080P, FN READY, W/Rem BATT - USA (AT&T-first net)

FCC/ISED details for common reports - Please note tested one highlighted in yellow

Note:

All Models are the same the only difference in the label. No hardware, mechanical or software change. The difference is due to offering to different customers. The model can be selected by configuration. All models (except WGA00755) are different by Carrier's which require the Carrier's SIM card. WGA00755 – includes only the WIFI and BT, no SIM and no Carrier WIFI 2.4GHz and BT do not transmit at the same time.

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)

Antenna Label	Provided by:	Frequency Range	Gain (dBi)
ILA Type Metal Internal Antenna	Motorola Solutions Inc.	2402 – 2480 MHz	2.7

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

 \Box Test software settings

Test software/firmware installed on EUT:_____

□ Rated power settings

SETTINGS FOR ALL TESTS IN THIS REPORT

Modulation Types	Туре	Channel	Position	Frequency (MHz)	Power Setting
DH5 GFSK, 2DH5		0 or 1	Low Channel	2402	
pi/4-DQPSK, 3DH5	FHSS	39	Mid Channel	2440 or 2441	
8-DPSK		78 or 79	High Channel	2480	

CONFIGURATIONS



Configuration WTVD0085-1

Software/Firmware Running During Test				
Description	Version			
V700 WiFi FCC Test Firmware	20221215205940			
V700 BLE and BT Test Firmware	20221201210101			
FVIN	1.0.0.56			

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
V700 Conducted Unit (LTE)	Motorola Solutions, Inc.	V700	BWL7-000968

Peripherals in Test Setup Boundary							
Description Manufacturer Model/Part Number Serial Number							
Laptop	HP	HP ZBOOK POWER G7	5CD145HL94				
Laptop Brick	HP	TPN-CA11	990000005084				
USB Serial Board	Motorola Solutions, Inc.	WGA0707	None				

Cables								
Cable Type Shield Length (m) Ferrite Connection 1 Connection 2								
USB 2.0 A to B Cable	Yes	1.8m	No	Laptop	V700 Dock			
USB 2.0 A to DB9 Cable	Yes	1.8m	No	Laptop	USB to Serial Board			
Ribbon Cable	No	0.15m	No	V700 Conducted Unit	USB Serial Board			

CONFIGURATIONS



Configuration WTVD0086-1

Software/Firmware Running During Test				
Description	Version			
V700 WiFi FCC Test Firmware	20221215205940			
V700 BLE and BT Test Firmware	20221201210101			
FVIN	1.0.0.56			

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
V700 Radiated Unit	Motorola Solutions, Inc.	V700	BWL7-000539

Peripherals in Test Setup Boundary							
Description Manufacturer Model/Part Number Serial Num							
V700 Dock	Motorola Solutions, Inc.	UB02	UB02-028046				
Laptop	HP	HP ZBOOK POWER G7	5CD145HL94				
Laptop Brick	HP	TPN-CA11	990000005084				
USB Serial Board	Motorola Solutions, Inc.	WGA0707	None				
V700 Power Supply	GlobTek, Inc.	GT-21089-1512-W3	708845150/21				

Cables									
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2				
USB 2.0 A to B Cable	Yes	1.8m	No	Laptop	V700 Dock				

MODIFICATIONS



Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
		Spurious	Tested as	No EMI suppression	EUT remained at
1	2022-12-22	Radiated	delivered to	devices were added or	Element following the
		Emissions	test Station.	modified during this test.	test.
		DTS	Tested as	No EMI suppression	EUT remained at
2	2023-04-25	Bandwidth	delivered to	devices were added or	Element following the
		Danawidin	test Station.	modified during this test.	test.
		Occupied	Tested as	No EMI suppression	EUT remained at
3	2023-04-25	Bandwidth	delivered to	devices were added or	Element following the
		Danawidin	test Station.	modified during this test.	test.
		Output	Tested as	No EMI suppression	EUT remained at
4	2023-04-25	Power	delivered to	devices were added or	Element following the
			test Station.	modified during this test.	test.
		Equivalent			
		Isotropic	Tested as	No EMI suppression	EUT remained at
5	2023-04-25	Radiated	delivered to	devices were added or	Element following the
		Power	test Station.	modified during this test.	test.
		(EIRP)			
		Power	Tested as	No EMI suppression	EUT remained at
6	2023-04-25	Spectral	delivered to	devices were added or	Element following the
		Density	test Station.	modified during this test.	test.
		Band Edge	Tested as	No EMI suppression	EUT remained at
7	2023-04-25	Compliance	delivered to	devices were added or	Element following the
		-	test Station.	modified during this test.	test.
		Spurious	Tested as	No EMI suppression	EUT remained at
8	2023-04-25	Conducted	delivered to	devices were added or	Element following the
		Emissions	test Station.	modified during this test.	test.
			Tested as	No EMI suppression	Scheduled testing
9	2023-04-25	Duty Cycle	delivered to	devices were added or	was completed.
			test Station.	modified during this test.	nao sompleted.



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
Attenuator	Fairview Microwave	SA4018-20	TYE	2022-09-13	2023-09-13
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2022-12-08	2023-12-08
Block - DC	Fairview Microwave	SD3239	ANE	2023-02-16	2024-02-16
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17

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.



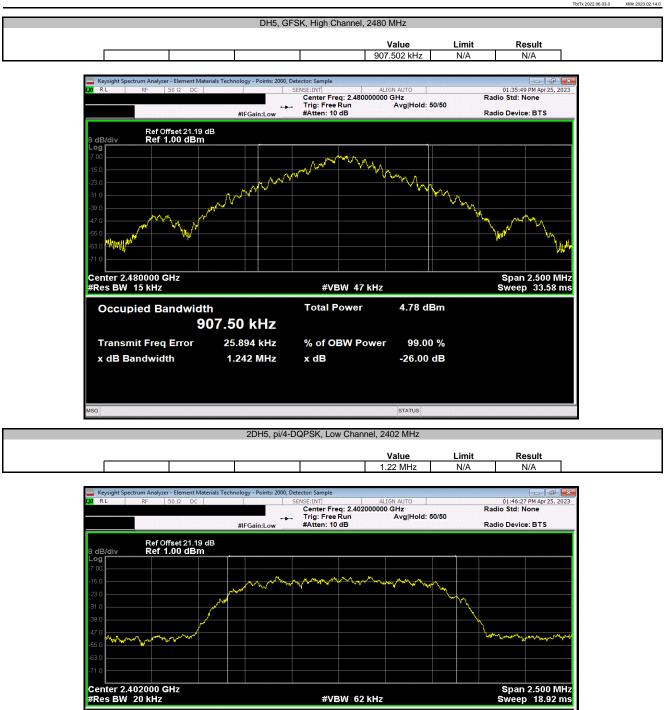
				-	
	V700			: WTVD0085	
Serial Number:				: 04/25/2023	
	Motorola Solutions, Inc.		Temperature		
	Navaid Karimi		Humidity		
Project:			Barometric Pres.		
	Marty Martin	Power: 4.2VDC via Battery	Job Site	: TX07	
TEST SPECIFICAT	IONS	Test Method			
FCC 15.247:2023		ANSI C63.10:2013			
	018+A1:2019+A2:2021	ANSI C63.10:2013			
COMMENTS					
		or in the reference level offset inluding any attenuators, filters, and DC blocks.			
	M TEST STANDARD				
Vone	W IEST STANDARD				
None					
Configuration #	WTVD0085-1	Signature Marty Marti			
Configuration #	WTVD0085-1	Signature Marti	Value	Limit	Result
Configuration #	WTVD0085-1	Signature Monty Mosti	Value	Limit	Result
Configuration #	WTVD0085-1	Signature Marty Marti	Value 909.789 kHz	Limit N/A	Result N/A
Configuration #	Low Channel, 2402 MHz Mid Channel, 2440 MHz	Signature Marty Marti	909.789 kHz 907.16 kHz	N/A N/A	N/A N/A
Configuration # DH5, GFSK	Low Channel, 2402 MHz	Signature Monty Mosti	909.789 kHz	N/A	N/A
Configuration # DH5, GFSK	Low Channel, 2402 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz	Signature Marty Marti	909.789 kHz 907.16 kHz 907.502 kHz	N/A N/A N/A	N/A N/A N/A
Configuration # DH5, GFSK	Low Channel, 2402 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz Low Channel, 2402 MHz	Signature Marty Marti	909.789 kHz 907.16 kHz 907.502 kHz 1.22 MHz	N/A N/A N/A	N/A N/A N/A N/A
Configuration # DH5, GFSK	Low Channel, 2402 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Mid Channel, 2404 MHz	Signature Monty Mosti	909.789 kHz 907.16 kHz 907.502 kHz 1.22 MHz 1.229 MHz	N/A N/A N/A N/A	N/A N/A N/A N/A
Configuration # DH5, GFSK 2DH5, pi/4-DQPSK	Low Channel, 2402 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz Low Channel, 2402 MHz	Signature Marty Marti	909.789 kHz 907.16 kHz 907.502 kHz 1.22 MHz	N/A N/A N/A	N/A N/A N/A N/A
Configuration # DH5, GFSK 2DH5, pi/4-DQPSK	Low Channel, 2402 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz	Signature Marty Marti	909.789 kHz 907.16 kHz 907.502 kHz 1.22 MHz 1.229 MHz 1.235 MHz	N/A N/A N/A N/A	N/A N/A N/A N/A
Configuration # DH5, GFSK 2DH5, pi/4-DQPSK	Low Channel, 2402 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Mid Channel, 2400 MHz High Channel, 2480 MHz Low Channel, 2402 MHz	Signature Monty Mosti	909.789 kHz 907.16 kHz 907.502 kHz 1.22 MHz 1.229 MHz 1.235 MHz 1.235 MHz 1.229 MHz	N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A
	Low Channel, 2402 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz	Signature Marty Marti	909.789 kHz 907.16 kHz 907.502 kHz 1.22 MHz 1.229 MHz 1.235 MHz	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A





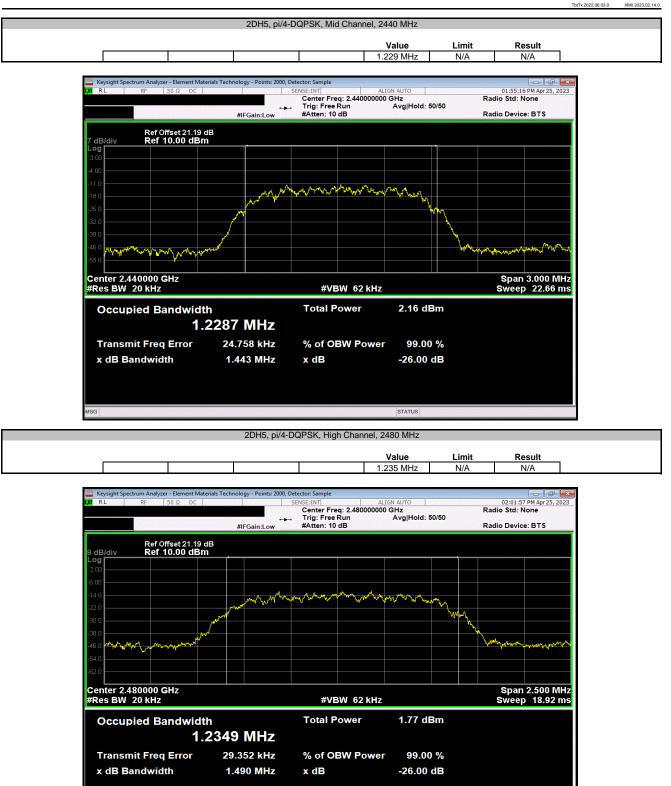
enter 2.440000 GHz Res BW 15 kHz		#VBW 47 kHz		Span 2.500 M Sweep 33.58 (
Occupied Bandwidt 9	^h 07.16 kHz	Total Power	5.56 dBm	
Transmit Freq Error	19.891 kHz	% of OBW Power	99.00 %	
x dB Bandwidth	1.236 MHz	x dB	-26.00 dB	





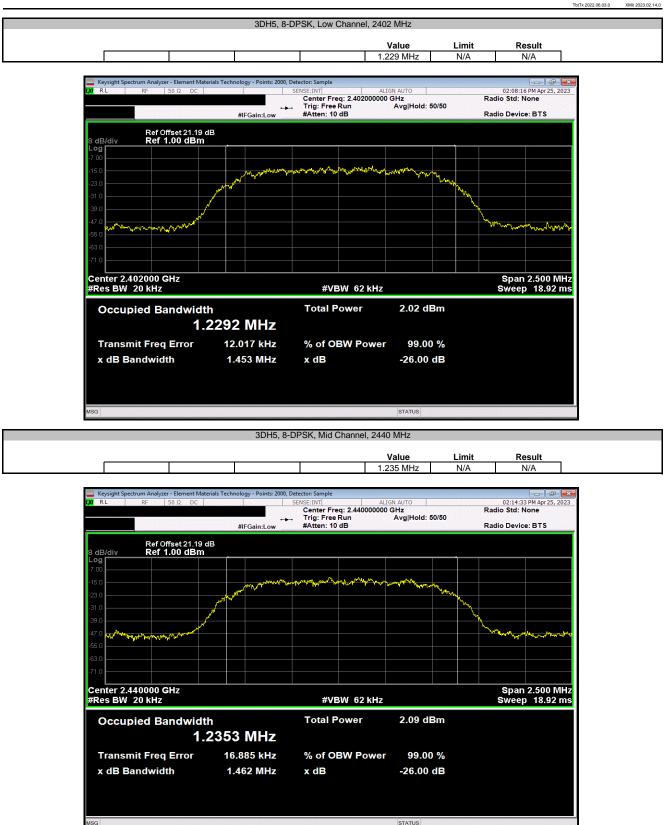
Occupied Bandwidt	^h 2198 MHz	Total Power	2.01 dBm	
Transmit Freq Error	21.183 kHz	% of OBW Power	99.00 %	
x dB Bandwidth	1.436 MHz	x dB	-26.00 dB	





STATUS











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TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Attenuator	Fairview Microwave	SA4018-20	TYE	2022-09-13	2023-09-13
Block - DC	Fairview Microwave	SD3239	ANE	2023-02-16	2024-02-16
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2022-12-08	2023-12-08
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17

TEST DESCRIPTION

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

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

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

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

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

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



								TbtTx 2022.06.03.0	XMit 20
	V700						Work Order:		
Serial Number:								04/25/2023	
	Motorola Solutions, Inc.						Temperature:		
	Navaid Karimi						Humidity:		
Project:						E	Barometric Pres.:		
	Marty Martin		Pov	wer: 4.2VDC via Battery			Job Site:	TX07	
TEST SPECIFICATI	IONS			Test Method					
CC 15.247:2023				ANSI C63.10:2013					
RSS-247 Issue 2:20	017			ANSI C63.10:2013					
COMMENTS									
un measurment pa	ath looses were accounted fo		set muunig any attenue	ators, mers, and De bloc	,no.				
	M TEST STANDARD								
None									
Configuration #	WTVD0085-1	Signature	Monty	Marta					
				Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Resul
DH5, GFSK									
	Low Channel, 2402 MHz			2.876 ms	3.759 ms				
				2.070 113		1	76.5	N/A	N/A
	Low Channel, 2402 MHz			N/A	N/A	5	N/A	N/A	N/A
	Mid Channel, 2440 MHz			N/A 2.871 ms	N/A 3.752 ms	5 1	N/A 76.5	N/A N/A	N/A N/A
	Mid Channel, 2440 MHz Mid Channel, 2440 MHz			N/A 2.871 ms N/A	N/A 3.752 ms N/A	•	N/A 76.5 N/A	N/A N/A N/A	N/A N/A N/A
	Mid Channel, 2440 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz			N/A 2.871 ms N/A 2.871 ms	N/A 3.752 ms N/A 3.751 ms	5 1 5 1	N/A 76.5 N/A 76.6	N/A N/A N/A N/A	N/A N/A N/A N/A
	Mid Channel, 2440 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz High Channel, 2480 MHz			N/A 2.871 ms N/A	N/A 3.752 ms N/A	5 1	N/A 76.5 N/A	N/A N/A N/A	N/A N/A N/A N/A
2DH5, pi/4-DQPSK	Mid Channel, 2440 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz High Channel, 2480 MHz			N/A 2.871 ms N/A 2.871 ms N/A	N/A 3.752 ms N/A 3.751 ms N/A	5 1 5 1 5	N/A 76.5 N/A 76.6 N/A	N/A N/A N/A N/A N/A	N/A N/A N/A N/A
2DH5, pi/4-DQPSK	Mid Channel, 2440 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz High Channel, 2480 MHz Low Channel, 2402 MHz			N/A 2.871 ms N/A 2.871 ms N/A 2.878 ms	N/A 3.752 ms N/A 3.751 ms N/A 3.755 ms	5 1 5 1 5 7 1	N/A 76.5 N/A 76.6 N/A 76.7	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A
2DH5, pi/4-DQPSK	Mid Channel, 2440 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Low Channel, 2402 MHz			N/A 2.871 ms N/A 2.871 ms N/A 2.878 ms N/A	N/A 3.752 ms N/A 3.751 ms N/A 3.755 ms N/A	5 1 5 1 5	N/A 76.5 N/A 76.6 N/A 76.7 N/A	N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A
2DH5, pi/4-DQPSK	Mid Channel, 2440 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Low Channel, 2402 MHz Mid Channel, 2440 MHz			N/A 2.871 ms N/A 2.871 ms N/A 2.878 ms N/A 2.874 ms	N/A 3.752 ms N/A 3.751 ms N/A 3.755 ms N/A 3.751 ms	5 1 5 1 5 1 5 1	N/A 76.5 N/A 76.6 N/A 76.7 N/A 76.6	N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A N/A
2DH5, pi/4-DQPSK	Mid Channel, 2440 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Low Channel, 2402 MHz Mid Channel, 2440 MHz Mid Channel, 2440 MHz			N/A 2.871 ms N/A 2.871 ms N/A 2.878 ms N/A 2.874 ms N/A	N/A 3.752 ms N/A 3.751 ms N/A 3.755 ms N/A 3.751 ms N/A	5 1 5 1 5 7 1	N/A 76.5 N/A 76.6 N/A 76.7 N/A 76.6 N/A	N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A N/A
2DH5, pi/4-DQPSK	Mid Channel, 2440 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Low Channel, 2402 MHz Mid Channel, 2440 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz			N/A 2.871 ms N/A 2.871 ms N/A 2.878 ms N/A 2.874 ms N/A 2.877 ms	N/A 3.752 ms N/A 3.751 ms N/A 3.755 ms N/A 3.751 ms N/A 3.751 ms	5 1 5 1 5 7 5 1 5 1 5 1	N/A 76.5 N/A 76.6 N/A 76.7 N/A 76.6 N/A 76.7	N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A
	Mid Channel, 2440 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Low Channel, 2402 MHz Mid Channel, 2440 MHz Mid Channel, 2440 MHz			N/A 2.871 ms N/A 2.871 ms N/A 2.878 ms N/A 2.874 ms N/A	N/A 3.752 ms N/A 3.751 ms N/A 3.755 ms N/A 3.751 ms N/A	5 1 5 1 5 1 5 1	N/A 76.5 N/A 76.6 N/A 76.7 N/A 76.6 N/A	N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A
	Mid Channel, 2440 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Low Channel, 2402 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz High Channel, 2480 MHz			N/A 2.871 ms N/A 2.871 ms N/A 2.878 ms N/A 2.874 ms N/A 2.877 ms N/A	N/A 3.752 ms N/A 3.751 ms N/A 3.755 ms N/A 3.751 ms N/A 3.751 ms N/A	5 1 5 1 5 1 5 1 5 1 5 1 5	N/A 76.5 N/A 76.6 N/A 76.7 N/A 76.6 N/A 76.7 N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A
2DH5, pi/4-DQPSK 3DH5, 8-DPSK	Mid Channel, 2440 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Low Channel, 2402 MHz Mid Channel, 2440 MHz Migh Channel, 2440 MHz High Channel, 2480 MHz Low Channel, 2402 MHz			N/A 2.871 ms N/A 2.871 ms N/A 2.878 ms N/A 2.874 ms N/A 2.877 ms N/A 2.877 ms	NA 3.752 ms NA 3.751 ms NA 3.755 ms NA 3.751 ms NA 3.751 ms NA 3.751 ms	5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	N/A 76.5 N/A 76.6 N/A 76.7 N/A 76.6 N/A 76.7 N/A 76.7	N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
	Mid Channel, 2440 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Low Channel, 2402 MHz Mid Channel, 2440 MHz High Channel, 2440 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Low Channel, 2402 MHz			N/A 2.871 ms N/A 2.871 ms N/A 2.878 ms N/A 2.877 ms N/A 2.877 ms N/A	N/A 3.752 ms N/A 3.751 ms N/A 3.755 ms N/A 3.751 ms N/A 3.751 ms N/A	5 1 5 1 5 1 5 1 5 1 5 1 5	N/A 76.5 N/A 76.6 N/A 76.7 N/A 76.7 N/A 76.7 N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
	Mid Channel, 2440 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Mid Channel, 2402 MHz Mid Channel, 2440 MHz High Channel, 2440 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Low Channel, 2400 MHz Mid Channel, 2400 MHz			N/A 2.871 ms N/A 2.871 ms N/A 2.878 ms N/A 2.874 ms N/A 2.877 ms N/A 2.877 ms N/A 2.877 ms N/A 2.878 ms	N/A 3.752 ms N/A 3.751 ms N/A 3.755 ms N/A 3.751 ms N/A 3.751 ms N/A 3.751 ms N/A 3.751 ms N/A 3.751 ms	5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	N/A 76.5 N/A 76.6 N/A 76.7 N/A 76.7 N/A 76.7 N/A 76.7	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
	Mid Channel, 2440 MHz Mid Channel, 2440 MHz High Channel, 2480 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Low Channel, 2402 MHz Mid Channel, 2440 MHz High Channel, 2440 MHz High Channel, 2480 MHz Low Channel, 2402 MHz Low Channel, 2402 MHz			N/A 2.871 ms N/A 2.871 ms N/A 2.878 ms N/A 2.877 ms N/A 2.877 ms N/A	N/A 3.752 ms N/A 3.751 ms N/A 3.755 ms N/A 3.751 ms N/A 3.751 ms N/A	5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	N/A 76.5 N/A 76.6 N/A 76.7 N/A 76.7 N/A 76.7 N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A



		DH5, GFC	SK, Low Channel, 3 Number of	Value	Limit	
	Dula Miller	Denie 4				Desertes
	Pulse Width	Period	Pulses	(%)	(%)	Results
	2.876 ms	3.759 ms	1	76.5	N/A	N/A
Keysight Spectrum Analy	yzer - Element Materials Techn	ology				
LXI RL RF	50 Ω DC	SE	ENSE:INT	ALIGN AUTO		12:46:51 PM Apr 25, 20
			Trig Delay-1.000 ms Trig: Video	s #Avg Type	e: Voltage	TRACE 2 3 4 TYPE WWWW
		PNO: Fast +++	#Atten: 10 dB			DET PPPP
		and a second				Mkr3 4.768 m
Ref Off	fset 21.19 dB					6.40 dB
5 dB/div Ref 1 Log v	7.00 dBm					0.40 ab
12.0						
7.00	ه <mark>1</mark>				\diamond^2	3
	γ					
2.00						
-3.00						
-8.00						
-13.0						
-18.0						TRIG L
-23.0						INGL
-28.0						
						<u>{</u>
Center 2.402000					•••••	Span 0 H
Res BW 3.0 MHz		#VBV	/ 30 kHz		Sweep 5	.000 ms (8192 pt
MKR MODE TRC SCL	Х	Y	FUNCTION	FUNCTION WIDTH	FUNCT	ION VALUE
1 1 2 1						
3 1						
4						
6						
7						
8						
10						
11						
				lon on all		han and a second s
MSG				STATUS		

			Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	N/A	N/A	5	N/A	N/A	N/A

Keysight Spectrum Analyzer - Element Materials						
RL RF 50 Ω DC	5	ENSE:INT	ALIGN AUTO	. M-14		59 PM Apr 25, 202
	PNO: Fast ↔→→ IFGain:Low	Trig: Video #Atten: 10 dB	#Avg Type	: voitage	1	RACE 1 2 3 4 5 TYPE WWWW DET P P P P
Ref Offset 21.19 dB dB/div Ref 17.00 dBm				1	1	
2.0						
.00						
.00						
00						
00						
8.0						
.0						
						TRIG L
3.0						
enter 2.402000000 GHz es BW 3.0 MHz	#\/B\	V 30 kHz		Swoo	n 16.03 m	Span 0 H s (8192 pt
S DW 50 WINZ	#VDV	V SV KHZ		Gwee	9 T0:95 III	a to raz hr



CAL RF 50 Ω DC SENSEIMT ALIGN AUTO 01:26:29 TRACE PNO: Fast IFGain:Low Frig: Video #Atten: 10 dB Trig: Video #Atten: 10 dB Trig: Video #Atten: 10 dB Mkr3 4.7 6.2 Corr 1 0<	
2.871 ms 3.752 ms 1 76.5 N/A N/A Keysight Spectrum Analyzer - Element Materials Technology Centre ALIGN AUTO 01:26:29 PM Ref 50 Q DC SENSE:INT ALIGN AUTO 01:26:29 PM PRO: Fast	
Keysight Spectrum Analyzer - Bement Materials Technology C ØR RL RF 59 Ω 0 C ISENSE:INT ALIGN AUTO 01:25:29 PM PNO: Fast → Trig Delay-1.000 ms #Avg Type: Voltage Trace PNO: Fast → Trig Delay-1.000 ms #Avg Type: Voltage Trace S dB/cliv Ref Offset 21.19 dB Mkr3 4.7 6.2 200 1 0 01:20:29 PM 01:20:29 PM 7:00 1 0 02 01 01:20:29 PM 2:00 1 0 02 01:00 ms #Avg Type: Voltage Trig: Video 3:00 1 0 0 0 01:00 ms #0:00 ms 6.2 2:00 1 0 0 0 0 0 0 0 3:00 1 0	ł
OP R.F 50 R OC SENSETINT ALTEN AUTO 01:28:29 PM Trig Delay-1.000 ms #Avg Type: Voltage Trace Trig Delay-1.000 ms #Avg Type: Voltage Trace PNO: Fast	
800 130 <th>MApr25, 2023 E 2 3 4 5 6 E PPPPPPP 763 ms 21 dBm</th>	MApr25, 2023 E 2 3 4 5 6 E PPPPPPP 763 ms 21 dBm
1 1 2 1 3 1 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 -	rio LVL pan 0 Hz 8192 pts)
2 1 3 1 4 5 6 7 8 9 10 11	•
MSG STATUS	
DH5, GFSK, Mid Channel, 2440 MHz	
Number of Value Limit	
Pulse Width Period Pulses (%) (%) Resul	
N/A N/A 5 N/A N/A N/A	lte

		DH5, GFS	K, Mid Channel,	2440 MHz						
			Number of	Value	Limit					
	Pulse Width	Period	Pulses	(%)	(%)	Results				
	N/A	N/A	5	N/A	N/A	N/A				

RL RF 50 Ω DC	SENSE:INT	ALIGN AUTO	01:26:36 PM Apr 25, 202
	PNO: Fast ↔ Trig: Video IFGain:Low #Atten: 10 dB	#Avg Type: Voltage	TRACE 1 2 3 4 5 TYPE WWWWW DET P P P P P
Ref Offset 21.19 dB dB/div Ref 17.00 dBm			
2.0			
00			
00			
.0			
			TRIG L
.0			
enter 2.440000000 GHz			Span 0 H
es BW 3.0 MHz	#VBW 30 kHz	Swe	ep 16.93 ms (8192 pt



		DH5, GFSK	High Channel,	2480 MHz		
			Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	2.871 ms	3.751 ms	1	76.6	N/A	N/A
Ref Offs 5 dB/div Ref 16.	r - Element Materials Technolo 50 Ω DC 	SENS	E:INT 'rig Delay-1.000 m 'rig: Video Atten: 10 dB	ALIGN AUTO S #Avg Type	e: Voltage	01:34:15 PM Apr 25, 202 TRACE 12 34 45 TYPE DET PPPPP Mkr3 4.763 ms 5.46 dBm
.og						
11.0	<u>لم</u>				\diamond^2	3
6.00	Y					
1.00						
-4.00						
-9.00						
-14.0						
-19.0						
-24.0						TRIG LV
-29.0						
Center 2.4800000 Res BW 3.0 MHz	UU GHZ	#VBW 3	0 kHz		Sweep 5	Span 0 H: 5.000 ms (8192 pts
MKR MODE TRC SCL	x	Y	FUNCTION	FUNCTION WIDTH	-	TION VALUE
1 N 1 t	1.011 ms	5.34 dB	n			
2 N 1 t 3 N 1 t	3.883 ms 4.763 ms	5.93 dBr 5.46 dBr	n			
4 5 6 7 8						
9 10 11 *			m			
MSG				STATUS		
		DH5, GFSK	, High Channel,	2480 MHz		
			Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
1	N/A	N/A	5	N/A	N/A	N/A

RL RF	zer - Element Materials T		erree and			
KL KF	50 Ω DC	5	ENSE:INT	ALIGN AUTO #Avg Type: Vo	- 14	01:34:21 PM Apr 25, 202
		PNO: Fast ↔→ IFGain:Low	Trig: Video #Atten: 10 dB	#Avg Type: Vo	bitage	TRACE 1 2 3 4 5 TYPE WWWWW DET P P P P P
Ref Offs dB/div Ref 16	set 21.19 dB 5.00 dBm					
1.0						
00						
00						
.0						
.0						
						TRIG L
.0						
.0						
enter 2.4800000 es BW 3.0 MHz	000 GHz	#\/B\	N 30 kHz		Sween 16	Span 0 H .93 ms (8192 pt
S DW J.V WINZ		#VDV	1 30 KHZ		oweep 10	ao nis to iaz hr



				QPSK, Low Ch Number o		Value	Limit		
	Р	ulse Width	Period	Pulses		(%)	(%)	Results	
		2.878 ms	3.755 ms	1		76.7	N/A	N/A	
1									
			•		12 기억 번 번 번 번 번 번 번 번 번 번 번 번 번 번 번 번 번 번				- 77
	Analyzer - Eler RF 50 Ω	nent Materials Techno		SENSE:INT	ΔΙ	IGN AUTO		01:40:35 PM Apr 25, 2	
				Trig Delay-1.00	00 ms	#Avg Type	e: Voltage	TRACE 1 2 3 4	5.6
			PNO: Fast +++	Trig: Video #Atten: 10 dB				TYPE WWWW DET P P P	P I
			IFGail.LOW	written. To ub				MI	
Re	of Offset 21	19 dB						Mkr3 4.765 n 2.50 dB	
5 dB/div Re Logy	ef 13.00 c	Bm						2.30 06	
8.00									
3.00		(\					$\langle \rangle^2$	3	
-2.00									
-7.00									
-12.0									
-17.0									
-22.0									
-27.0								TRIG	LVL
-32.0		đ						4	
-32.0									
Center 2.402		Hz			******	*********		Span 0	
Res BW 3.0 N	٧Hz		#VB\	A/ 30 kHz			Sweep 5	.000 ms (8192 p	ts)
MKR MODE TRC SC	CL	x	Y	FUNCTION	N FUNCT	ION WIDTH	FUNCT	ON VALUE	•
1 1									
3 1									
4									
6									
7									
9									i
10									
				m				,	•
MSG						STATUS			
						and the second division of the second divisio			-

		20113, pi/4-DC	Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	N/A	N/A	5	N/A	N/A	N/A

RL RF 50 Ω DC	SI	ENSE:INT	ALIGN AUTO		01:40:42 F	M Apr 25, 202
	PNO: Fast ↔→ IFGain:Low	Trig: Video #Atten: 10 dB	#Avg Type:	Voltage	TRA TY	CE 12345 PE W ET P P P P P
Ref Offset 21.19 dB B/div Ref 13.00 dBm						
00						
00						
.0						
0						
0						
0						TRIG L
enter 2.402000000 GHz es BW 3.0 MHz	#VBM	/ 30 kHz		Sweep	ء 16.93 ms	Span 0 F (8192 pt



		201.0, pi/4 D	QPSK, Mid Chann Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	2.874 ms	3.751 ms	1	76.6	N/A	N/A
	2.074 1115	3.731 115		70.0	IN/A	N/A
	yzer - Element Materials Techno					e e
KARL RF	50 Ω DC	SE	Trig Delay-1.000 ms	ALIGN AUTO ALIGN AUTO	e: Voltage	01:51:46 PM Apr 25, 202 TRACE 1 2 3 4 5
		PNO: Fast +++	Trig: Video	· #///8//9P	e. voltage	TYPE WAAAAAAAA
		IFGain:Low	#Atten: 10 dB			DET PPPP
Pof Of	fset 21.19 dB					Mkr3 4.765 m
5 dB/div Ref 1	4.00 dBm					2.60 dBn
Log						
9.00	1				<mark>2</mark>	3
4.00	γ`					<u>_</u>
-1.00						
-6.00						
-11.0						
-16.0						
-21.0						
-26.0						TRIG LV
-31.0	r					
				ļ		
Center 2.440000					-	Span 0 H
Res BW 3.0 MHz		#VBW	/ 30 kHz		Sweep :	5.000 ms (8192 pts
MKR MODE TRC SCL	x	Y	FUNCTION	FUNCTION WIDTH	FUNC	FION VALUE
1 1 2 1						
3 1						
4 5						
6						
7 8						
9						
10						
1			m	numumumumum		•
MSG				STATUS		

			Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	N/A	N/A	5	N/A	N/A	N/A

Keysight Spectrum Analyzer - Element Materials RL RF 50 Ω DC		NSE:INT	ALIGN AUTO		11:51:50 PM Apr 25, 2023
NE NI 5032 DC	36	NOL.INT	#Avg Type: V		TRACE 1 2 3 4 5
	PNO: Fast ↔→ IFGain:Low	Trig: Video #Atten: 10 dB	#Avg Type. V	onuge	TYPE WWWWW DET PPPPP
Ref Offset 21.19 dB dB/div Ref 14.00 dBm					
00					
00					
.0					
6.0					
.0					TRIG L
\$.0 					
enter 2.440000000 GHz es BW 3.0 MHz	#VBW	30 kHz		Sweep 16.9	Span 0 H 3 ms (8192 pt
3			STATUS		



		2DH5, pi/4-D0	QPSK, High Chan			
			Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	2.877 ms	3.751 ms	1	76.7	N/A	N/A
Keysight Spectrum Analyzer	Element Materials Techno	logy				
	0 Ω DC		INSE:INT	ALIGN AUTO		01:59:25 PM Apr 25, 20
			Trig Delay-1.000 m Trig: Video	s #Avg Type	e: Voltage	TRACE 2 3 4 TYPE WWWW DET P P P P
		PNO: Fast +++	#Atten: 10 dB			DET PPPP
						Mkr3 4.763 m
Ref Offset	21.19 dB					2.15 dBi
5 dB/div Ref 13.0						2.10 001
8.00						
3.00	♦'				$\langle \rangle^2$	\
-2.00						
-7.00						
-12.0						
-17.0						
-22.0						
-27.0						TRIG L
	6					4
-32.0						
Center 2.4800000	0 GHz					Span 0 F
Res BW 3.0 MHz		#VBW	/ 30 kHz		Sweep :	5.000 ms (8192 pt
MKR MODE TRC SCL	x	Y	FUNCTION	FUNCTION WIDTH	EUNC	TION VALUE
1 1	~				10110	
2 1 1						
4						
5						
6						
7						
7						
7 8 9 10						
9						
9 10 11 11			m			
9			m	STATUS		
9 10 11 11						
9 10 11 11		2DH5, pi/4-D0	" QPSK, High Chan Number of		Limit	

			Number of	Value	Limit	
_	Pulse Width	Period	Pulses	(%)	(%)	Results
	N/A	N/A	5	N/A	N/A	N/A

RL RF 50 Ω DC		NSE:INT	ALIGN AUTO		01:50:	29 PM Apr 25, 202
10 00 10 00				Type: Voltage		TRACE 1 2 3 4 5
	PNO: Fast ↔ → IFGain:Low	Trig: Video #Atten: 10 dB		.) 8-		
Ref Offset 21.19 dB dB/div Ref 13.00 dBm						
dB/div Ref 13.00 dBm				l l		
.00						
00						
.0						
.0						
.0						
r.o						TRIG L
.0						
						001
enter 2.480000000 GHz es BW 3.0 MHz	#VBW	30 kHz		Swee	ep 16.93 m	span u F is (8192 pt
3			STATL			



		30H5, 8-DF	SK, Low Channe		1.1	
	-	- · ·	Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	2.877 ms	3.751 ms	1	76.7	N/A	N/A
Keysight Spectrum A	Analyzer - Element Materials Techno	logy				- 6 ×
IXI RL RF			NSE:INT	ALIGN AUTO		02:06:34 PM Apr 25, 2023
			Trig Delay-1.000 m Trig: Video	s #Avg Typ	e: Voltage	TRACE 1 2 3 4 5 6 TYPE WWWWW DET P P P P P
		PNO: Fast +++	#Atten: 10 dB			DET PPPPP
		II Guilleow				Mkr2 4 762 mg
Ref	Offset 21.19 dB					Mkr3 4.763 ms 2.27 dBm
5 dB/div Ref Log √	f 13.00 dBm					2.27 0011
8.00						
	6 ¹				\diamond^2	<mark>3</mark>
3.00	Y					
-2.00						
-7.00						
-12.0						
-17.0						
-22.0						
-27.0						TRIG LVL
-32.0						[
4						
Center 2.40200					-	Span 0 Hz
Res BW 3.0 Mi	HZ	#VBW	30 kHz		sweep a	.000 ms (8192 pts)
MKR MODE TRC SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCT	ION VALUE
1 1 2 1						
3 1						
4						
6						E
7						
8						
10						
			m			•
•				la-in-		the second s
MSG				STATUS		

		3DH3, 8-DF	Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	N/A	N/A	5	N/A	N/A	N/A

RL RF 50 Ω DC	SENSE:INT	ALIGN AUTO	02:06:38 PM Apr 25, 202
	PNO: Fast ↔ Trig: Vic IFGain:Low #Atten:	#Avg Type: Voltag deo	PE TRACE 1 2 3 4 5 TYPE WWWW DET P P P P
Ref Offset 21.19 dB IB/div Ref 13.00 dBm			
	er i fra her og ling her og ling her og fra h		enter de la constant de la constant La constant de la const
0			
0			
.0			TRIG L
.0			
nter 2.402000000 GHz s BW 3.0 MHz	#VBW 30 kHz	z s	Span 0 H Sweep 16.93 ms (8192 pt



		02110, 0 2	PSK, Mid Channel, Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	2.878 ms	3.752 ms	1	76.7	N/A	N/A
	2.070 1115	3.752 1115	I	70.7	IN/A	IN/A
	er - Element Materials Techn					
LXI RL RF	50 Ω DC	SI	Trig Delay-1.000 ms	ALIGN AUTO #Avg Type	a: Voltage	02:13:05 PM Apr 25, 202
		PNO: Fast +++	Trig: Video	#Avg iype	e. vonage	TRACE 1 2 3 4 TYPE WWWW DET P P P P P
		IFGain:Low	#Atten: 10 dB			DET PPPP
D-60#-	-+ 04 40 -10					Mkr3 4.764 m
5 dB/div Ref 14.	et 21.19 dB . 00 dBm					2.56 dBr
Log						
9.00	1				<mark>2</mark>	3
4.00	Q'					
-1.00		أ أنَّ محمد الله ا				
-6.00						
-11.0						
-16.0						
-21.0						
-26.0						TRIG L'
-31.0						
-51.0	í.					, i i i i i i i i i i i i i i i i i i i
Center 2.4400000	00 GHz					Span 0 H
Res BW 3.0 MHz		#VBV	V 30 kHz		Sweep :	5.000 ms (8192 pt
MKR MODE TRC SCL	x	Y	FUNCTION	FUNCTION WIDTH	-	TION VALUE
1 1	^	1	FUNCTION		FUNC	HON VALUE
2 1						
3 1 4						
5						
6						
8						
9						
11						
•						۲
MSG				STATUS		
and the second						

			Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	N/A	N/A	5	N/A	N/A	N/A

Keysight Spectrum Analyz RL RF	50 Ω DC		SENS	E:INT	AL	IGN AUTO			02:13	3:10 PM Apr 25, 202
		PNO: IFGai	Fast +++ 1	Frig: Video Atten: 10	,		Type: Volt	age		TRACE 1 2 3 4 5 TYPE WWWWW DET P P P P P
Ref Offs dB/div Ref 14	et 21.19 dB .00 dBm	1								
00										
00	****		y, ing is, then first a first			`		****		-
00										
.0										
.0										
.0										
.0										TRIG L
.0										
enter 2.4400000 es BW 3.0 MHz	00 GHz		#VBW 3	30 kHz				Sweep	16.93	Span 0 H ns (8192 pt
3						STATU	-			



		,	SK, High Channe Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	2.879 ms	3.75 ms	1	76.8	N/A	N/A
Keysight Spectrum Analyze						
K RL RF	50 Ω DC	PNO: Fast +++ IFGain:Low	NSE:INT Trig Delay-1.000 m Trig: Video #Atten: 10 dB	ALIGN AUTO	e: Voltage	02:18:29 PM Apr 25, 202 TRACE 1 2 3 4 5 TYPE WWWWW DET P P P P P
5 dB/div Ref 13	et 21.19 dB .00 dBm					Mkr3 4.761 ms 1.89 dBn
s.oo						
3.00					$\langle \rangle^2$	\
-2.00		ا النفرة نفاط ال		للمعادة القام	<u>المنتقد الأم</u>	
-7.00						
-12.0						
-17.0						
-22.0						
-27.0						TRIG LV
-32.0	f					ſ
Center 2.4800000 Res BW 3.0 MHz	00 GHz	#VBW	30 kHz		Sweep 5	Span 0 H 000 ms (8192 pts
MKR MODE TRC SCL	x	Y	FUNCTION	FUNCTION WIDTH	FUNCT	ION VALUE
1 1 2 1						
3 1 4						
5						
7						
8						
10						
•			III			•
MSG				STATUS		

Number of Value Limit							
	Pulse Width	Period	Pulses	(%)	(%)	Results	
	N/A	N/A	5	N/A	N/A	N/A	

RL RF 50 Ω DC	SE	NSE:INT	ALIGN AUTO #Avg Type: V		02:18:33 PM Apr 25, 2023		
	PNO: Fast +++ IFGain:Low	Trig: Video #Atten: 10 dB	#Avg Type: v	oitage	TRACE 1 2 3 4 5 TYPE WWWW DET P P P P P		
Ref Offset 21.19 dB dB/div Ref 13.00 dBm							
00							
		-	www.waalana		, nalaisinin kausais		
00							
.0							
.0							
.0					TRIG L		
2.0							
enter 2.480000000 GHz es BW 3.0 MHz	#VBN	/ 30 kHz		Sweep 16.93	Span 0 H 8 ms (8192 pt		

CARRIER FREQUENCY SEPARATION



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
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2022-12-08	2023-12-08
Block - DC	Fairview Microwave	SD3239	ANE	2023-02-16	2024-02-16
Attenuator	Fairview Microwave	SA4018-20	TYE	2022-09-13	2023-09-13
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17

TEST DESCRIPTION

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

The channel carrier frequencies in the 2400-2483.5MHz band must be separated by 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Or, if the output power is less than 125 mW, the channel separation can be 25 kHz or 2/3 of the 20dB bandwidth. The EUT was operated in pseudorandom hopping mode. The spectrum was scanned across two adjacent peaks. The separation between the peaks of these channels was measured.

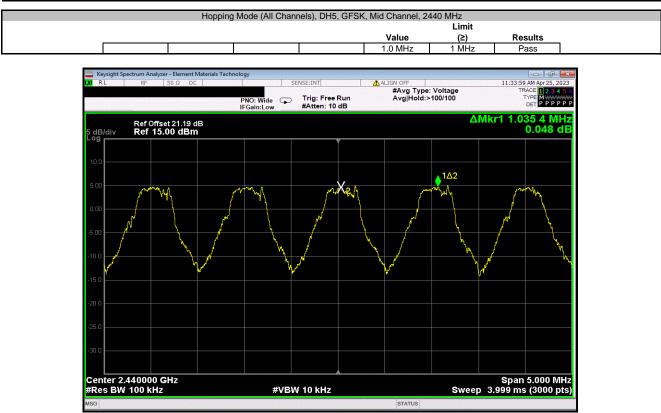
CARRIER FREQUENCY SEPARATION



				TbtTx 2022.06.03.0	XMit 2023.02.14.0
EUT:	V700		Work Order:	WTVD0085	
Serial Number:	BWL7-000968	Date:	04/25/2023		
Customer:	Motorola Solutions, Inc.		Temperature:	23°C	
Attendees:	Navaid Karimi		Humidity:	38.3%	
Project:	None		Barometric Pres.:	1015 mbar	
Tested by:	Marty Martin Power: 4.3	VDC via Battery	Job Site:	TX07	
TEST SPECIFICAT	ONS Te	st Method		• •	
FCC 15.247:2023	A	SI C63.10:2013			
RSS-247 Issue 2:20	17 At	SI C63.10:2013			
COMMENTS					
	th looses were accounted for in the reference level offset inluding any attenuators, fi				
None					
Configuration #	WTVD0085-1 Signature	lasti			
			Value	Limit (≥)	Results
Hopping Mode (All C	Channels) DH5, GFSK				
	Mid Channel, 2440 MHz		1.0 MHz	1 MHz	Pass

CARRIER FREQUENCY SEPARATION





NUMBER OF HOPPING FREQUENCIES



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
Attenuator	Fairview Microwave	SA4018-20	TYE	2022-09-13	2023-09-13
Block - DC	Fairview Microwave	SD3239	ANE	2023-02-16	2024-02-16
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2022-12-08	2023-12-08
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17

TEST DESCRIPTION

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

The number of hopping frequencies was measured across the authorized band. The hopping function of the EUT was enabled.

NUMBER OF HOPPING FREQUENCIES



						TbtTx 2022.06.03.0	XMit 2023.02.14.0
EUT:	V700				Work Order	WTVD0085	
Serial Number:	: BWL7-000968				Date	04/25/2023	
Customer:	Motorola Solutions, Inc.				Temperature	23.2°C	
Attendees:	Navaid Karimi				Humidity	37.9%	
Project:	None				Barometric Pres.	1015 mbar	
Tested by:	: Marty Martin		Pow	er: 4.2VDC via Battery	Job Site	TX07	
TEST SPECIFICAT	IONS			Test Method			
FCC 15.247:2023				ANSI C63.10:2013			
RSS-247 Issue 2:20	017			ANSI C63.10:2013			
COMMENTS							
	M TEST STANDARD	I for in the reference level offset inludi					
None							
Configuration #	WTVD0085-1	Signature	torty	Marti			
					Number of Channels	Limit (≥)	Results
Hopping Mode (All C	Channels) DH5, GFSK						
	Mid Channel	, 2440 MHz			79	15	Pass

NUMBER OF HOPPING FREQUENCIES







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
Attenuator	Fairview Microwave	SA4018-20	TYE	2022-09-13	2023-09-13
Block - DC	Fairview Microwave	SD3239	ANE	2023-02-16	2024-02-16
Cable	Micro-Coax	UFD150A-1-0720-200200	TXG	2022-12-08	2023-12-08
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	2023-03-17	2024-03-17

TEST DESCRIPTION

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

The average dwell time per hopping channel was measured at one hopping channel in the middle of the authorized band. The hopping function of the EUT was enabled.

The dwell time limit is based on the Number of Hopping Channels * 400 mS. For Bluetooth this would be 79 Channels * 400mS = 31.6 Sec.

On Time During 31.6 Sec = Pulse Width * Average Number of Pulses * Scale Factor

Average Number of Pulses is based on 4 samples.

Scale Factor = 31.6 Sec / Screen Capture Sweep Time = 31.6 Sec / 6.32 Sec = 5

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No. Scale es Factor	Work Order: V Date: C Temperature: 2 Humidity: 3 Barometric Pres.: 1 Job Site: T Job Site: T On Time (ms) During 31.6 s	4/25/2023 3.1°C 8.1% 015 mbar	Results
	Temperature: 2 Humidity: 3 Barometric Press: 1 Job Site: 1 On Time (ms) During 31.6 s	3.1°C 8.1% 015 mbar X07 Limit (ms)	
	Humidity: 3 Barometric Pres.: 1 Job Site: 1 On Time (ms) During 31.6 s	8.1% 015 mbar X07 Limit (ms)	
	Barometric Pres.; 1 Job Site: 1 On Time (ms) During 31.6 s	015 mbar X07 Limit (ms)	
	Job Site: 1 On Time (ms) During 31.6 s	Limit (ms)	
	On Time (ms) During 31.6 s	Limit (ms)	
	During 31.6 s	(ms)	
	During 31.6 s	(ms)	
	During 31.6 s	(ms)	
	During 31.6 s	(ms)	
	During 31.6 s	(ms)	
	During 31.6 s	(ms)	
	During 31.6 s	(ms)	
	During 31.6 s	(ms)	
	During 31.6 s	(ms)	
es Factor			
	N/A	N/A	NI/A
	N/A	N/A	N1/A
	NI/A	NI/A	NI/A
N/A			
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
5	318.45	400	Pass
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
			N/A
			N/A
5	332.925	400	Pass
			N/A
			N/A
N/A			N/A
N/A N/A			N/A
N/A	N/A N/A N/A	N/A N/A	N/A
1	A N/A N/A 5 N/A N/A	N/A N/A N/A N/A N/A N/A 5 332.925 N/A N/A N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A N/A N/A 5 332.925 400 N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A



Pulse Width	Number of	Average No.	Scale	On Time (m	s) Limit		
(ms)	Pulses	of Pulses	Factor	During 31.6		Results	
2.895	N/A	N/A	N/A	N/A	N/A	N/A	
Keysight Spectrum Analyzer	- Element Materials Tech 50 Ω DC		SE:INT	ALIGN OFF		11:34:28 AM Apr	
	50 52 DC		Trig Delay-1.000	ms #Avg Ty	ype: Voltage	TRACE	2 3 4 5 6
			Trig: Video #Atten: 10 dB	Avg Ho	ld: 37/100	TYPE M DET P	23456 WWWWW PPPPP
		IFGall.Low	Mattern. To ub			ΔMkr1 2.89	
Ref Offse 5 dB/div Ref 21.1	t 21.19 dB I9 dBm						15 dB
Log							
16.2							
11.2							
6.19							
0.15							
1.19							
	X ₂				2		
-3.81							
-8.81							TRIG LVL
-13.8							
-18.8							
-10.0							
-23.8							
20.0							
Center 2.44000000 Res BW 510 kHz	U GHZ	#VBW	30 kHz		Swee	Spa p 6.130 ms (20	n 0 Hz 00 nts)
NSG		***D94	6-6-KI112	STATUS		p erroe ma (zo	
				STATUS			
	Hopping	g Mode (All Channe	els), DH5, GFS	K, Mid Channel	, 2440 MHz		
Pulse Width	Number of	Average No.	Scale	On Time (m			
(ms) N/A	Pulses 20	of Pulses	Factor N/A	During 31.6	s (ms) N/A	Results N/A	





Pulse Width	Number of	Average No.	Scale	K, Mid Channel, 24 On Time (ms)	Limit	
(ms) N/A	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results
N/A	21	N/A	N/A	N/A	N/A	N/A
Keysight Spectrum Analyzer	- Element Materials Tech	nology				
	50 Ω DC		NSE:INT	ALIGN OFF		11:36:15 AM Apr 25, 2023
		PNO: Fast	Trig Delay-50.00 Trig: Video	ms #Avg Type:	Voltage	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P P P P P
		IFGain:Low	#Atten: 10 dB			DET PPPPP
4 dB/div Ref 21.1	t 21.19 dB 9 dBm					
Log						
17.2						
13.2						
9.19						
5.19						
1.19						
-2.81						
-6.81						
						TRIG LVL
-10.8						
-14.8						
-14.0						
Center 2.44000000			<u>1</u>			Span 0 Hz
Res BW 510 kHz	0 GH2	#VBW	30 kHz		Sweep	6.322 s (30000 pts)
MSG				STATUS		
Pulse Width				K, Mid Channel, 24		
Puise Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	20	N/A	N/A	N/A	N/A	N/A
Keysight Spectrum Analyzer	- Element Materials Tech 50 Ω DC		NSE:INT	ALIGN OFF		11:36:45 AM Apr 25, 2023
14		1 30	Trig Delay-50.00		Voltage	TRACE 1 2 3 4 5 6

XIRL RF	50 Ω DC		SENSE:INT		LIGN OFF		L1:36:45 AM Apr 25, 2023
		PNO: Fast ↔ IFGain:Low	Trig Delay- Trig: Video #Atten: 10		#Avg Type: Volt	age	TRACE 1 2 3 4 5 TYPE WWWWWW DET PPPPP
Ref Offse dB/div Ref 21.1	t 21.19 dB 9 dBm		-				
17.2							
13.2							
9.19							
5.19							
1.19							
2.81							
5.81							TRIG LV
10.8							
14.8				1			
Center 2.44000000 Res BW 510 kHz	0 GHz	#VE	3W 30 kHz			Sweep 6.3	Span 0 Hz 22 s (30000 pts
ISG					STATUS		



Pulse Width	Number of	Average No.	Scale	On Time (ms)	Limit	Decelle
(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results
N/A	28	N/A	N/A	N/A	N/A	N/A
Keysight Spectrum Analyzer						
LX RL RF 5	50 Ω DC	SEN	Trig Delay-50.00 r	ALIGN OFF ns #Avg Type:	Valtaria	11:37:12 AM Apr 25, 2023 TRACE 1 2 3 4 5 6
		PNO: Fast 🔸	Trig: Video	ns #Avg iype:	voitage	TYPE WWWWWW DET PPPPP
		IFGain:Low	#Atten: 10 dB			DET PPPPP
Ref Offset	21 10 48					
4 dB/div Ref 21.1	9 dBm					
Log						
17.2						
13.2						
9.19						
5.19			I			
1,19						
-2.81						
-6.81						
						TRIG LVL
-10.8						
-14.8						
Center 2.44000000	0 GHz					Span 0 Hz
Res BW 510 kHz		#VBW	30 kHz		Sweep	6.322 s (30000 pts)
MSG				STATUS		

Pulse Width	Number of	Average No.	Scale	On Time (ms)	Limit	
(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results
2.895	N/A	0	5	0	400	Pass

Calculation Only

No Screen Capture Required



		Hopping Mo	ode (All Channels), 2DH5, pi/4-DQ	PSK, Mid Channe	el, 2440 MHz		
	Pulse Width	Number of	Average No.	Scale	On Time (ms)	Limit		
	(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results	
	2.895	N/A	N/A	N/A	N/A	N/A	N/A	
	Keysight Spectrum Analyze							
(X	RL RF	50 Ω DC	SE	NSE:INT Trig Delay-1.000	ALIGN AUTO	·Voltage	11:59:34 AM Apr 25, 2023	
			PNO: Fast ++++	Trig: Video	Avg Hold:		TRACE 1 2 3 4 5 6 TYPE M WWWWW DET P P P P P P	
			IFGain:Low	#Atten: 10 dB				
	Ref Offse	et 21.19 dB					ΔMkr1 2.895 ms	
5	dB/div Ref 21.	19 dBm					-2.161 dB	
	- S							
	16.2							
	11.2							
	6.19							
	1.19	- Contraction of the second	ANTIN WATER	hand the bar and the second	In Architecture			
		N / /	in the second second second	di atana atan di Unice	1Δ2			
	3.81	X2						
-	B.81							
							TRIG LVL	
	13.8							
-	18.8							
	23.8							
c	enter 2.4400000	00 GHz					Span 0 Hz	
	les BW 510 kHz		#VBW	30 kHz		Sweep	6.130 ms (2000 pts)	
2.4	SG				STATUS			
					t de la companya de la			
		Hopping Mo	ode (All Channels), 2DH5, pi/4-DC	PSK, Mid Channe	el, 2440 MHz		_
	Pulse Width	Number of	Average No.	Scale	On Time (ms)	Limit		
	(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results	
	N/A	22	N/A	N/A	N/A	N/A	N/A	

Pulse Width	Number of	Average No.	Scale	On Time (ms)	Limit	
(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A

		alyzer - Elemen		chnology				and a star							- 6
RL	RF	<u>50 Ω</u> C	DC 0		SI	ENSE:INT			ALIG	IN AUTO				12:02:10 PN	Apr 25, 202
				PNO: Fast IFGain:Low	•••	Trig Del Trig: Vic #Atten:	leo	ms		#Avg	Type: \	/oltage		TYP	12345 WWWWW PPPPP
dB/div	Ref 0 Ref 1	offset 21.19 6 .59 dBm	dB												
.59															
.59	+ + +		+			1		+ +	-						
590															
41															
41															
41															TRIG L
41															
41															
.4															
							↓1								
enter 2 es BW	510 kH	0000 GHz z	2		¢VΒV	/ 30 kHz	2					Swe	eep 6.3	S 22 s (3	pan 0 H 0000 pt:
3										STATU	IC I				



Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A
Keysight Spectrum Analyzer - Mark RL RF 5	Element Materials Tech 0 Ω DC	SEN	ISE:INT	ALIGN AUTO	Voltage	12:02:51 PM Apr 25, 2023
Ref Offset	21.10 48	PNO: Fast +++	Trig: Video #Atten: 10 dB	is wrig type	Voltage	TRACE 2 3 4 5 6 TYPE WWWWW DET PPPPPP
2 dB/div Ref 6.59	dBm					
4.59						
2.59						
0.590						
-1.41						
-3.41						
-5.41						TRIG LVL
-7.41						
-9.41						
			1			
Center 2.44000000 Res BW 510 kHz) GHz	#VBW	30 kHz		Sweep	Span 0 Hz 6.322 s (30000 pts)
MSG	Liensien Me		2DU5 -:// DO	STATUS		
Pulse Width	Hopping Mo Number of	de (All Channels) Average No.	, 2DH5, pi/4-DQ Scale	On Time (ms)	I, 2440 MHz Limit	
(ms)	Pulses 23	of Pulses	Factor N/A	During 31.6 s	(ms)	Results N/A

Keysight Spectrum Analyzer - Element Materials RL RF 50 Ω DC	SENSE	INT	ALIGN AUTO		12:03:22 PM Apr 25, 2023
	PNO: Fast ↔ Ti	rig Delay-50.00 ms rig: Video Atten: 10 dB	#Avg Type:	Voltage	TRACE 1 2 3 4 5 TYPE WWWWWW DET P P P P P
Ref Offset 21.19 dB dB/div Ref 6.59 dBm			1		
4.59					
2.59					
590					
.41					
.41					
41					TRIGL
41					
1.4					
enter 2.440000000 GHz es BW 510 kHz	#VBW 3	10 kHz		Sweep	Span 0 H: 6.322 s (30000 pts
G			STATUS		



	Ises of Pulses	Factor	During 31.6 s	(ms)	Results
	28 N/A	N/A	N/A	N/A	N/A
Keysight Spectrum Analyzer - Element N					
LX/ RL RF 50Ω DC	SE	Trig Delay-50.00 m	ALIGN AUTO s #Avg Type: \	/oltage	12:03:51 PM Apr 25, 2023 TRACE 1 2 3 4 5 6
	PNO: Fast ↔→ IFGain:Low	Trig: Video #Atten: 10 dB			TYPE WWWWWW DET PPPPP
		#Atten: To db			
Ref Offset 21.19 d 2 dB/div Ref 6.59 dBm	В				
Log					
4.59					
2.59					
2.33					
0.590					
-1.41					
-3.41					
-5.41					
-3.41					TRIG LVL
-7.41					
-9.41					
-11.4					ا کری در پی ا
Center 2.440000000 GHz	<i></i>				Span 0 Hz
Res BW 510 kHz	#VBW	/ 30 kHz	STATUS	Sweep 6	5.322 s (30000 pts)

		Hopping Mo	de (All Channels)	, 2DH5, pi/4-DQI	PSK, Mid Channe	el, 2440 MHz	
Puls	se Width	Number of	Average No.	Scale	On Time (ms)	Limit	
	(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results
	2.895	N/A	0	5	0	400	Pass

Calculation Only

No Screen Capture Required



					SK, Mid Channel, 24		
	Pulse Width	Number of	Average No.	Scale	On Time (ms)	Limit	
	(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results
	2.898	N/A	N/A	N/A	N/A	N/A	N/A
		- Element Materials Tech					
LXI R	L RF	50 Ω DC	SE	Trig Delay-1.000 n	ALIGN AUTO	Voltage	12:07:27 PM Apr 25, 2023 TRACE 2 3 4 5 6
			PNO: Fast 🔸	Trig: Video	Avg Hold: 29		TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P P P P P P
			IFGain:Low	#Atten: 10 dB			
	Ref Offse	t 21.19 dB					ΔMkr1 2.898 ms -2.490 dB
5 dB Log	div Ref 21.	19 dBm		1			-2.490 08
16.2							
11.2							
6.19							
1.19		- Munt Marthan	and have been block and	Working Astronomy Pringer	Amphant		
		1 1 1 1 1	and but the and by	h and A h and			
-3.81		_ <mark>X2</mark>			<u></u> 1∆2		
-8.81							
							TRIG LVL
-13.8							
-18.8							
-23.8							
Cer	ter 2.4400000	0 GHz					Span 0 Hz
	BW 510 kHz	O GHZ	#VBW	30 kHz		Sween	6.130 ms (2000 pts)
MSG					STATUS		
mad					016103		
		Hopping	Mode (All Channe	ls) 3DH5 8-DP	SK, Mid Channel, 24	440 MHz	
	Pulse Width	Number of	Average No.	Scale	On Time (ms)	Limit	
	(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results

RL RF	yzer - Element Materials Te 50 Ω DC	chilology	cr	NSE:INT		ALIGN AUTO		12:09:2	7 PM Apr 25, 202
NC N	0032 00		JL		ay-50.00 ms	#Avg Type:	Voltage		RACE 1 2 3 4 5
		PNO: Fast +	**	Trig: Vid					DET P P P P P
		IFGain:Low		#Atten: 1	l0 dB				DEI
Ref Of	fset 21.19 dB								
dB/div Ref 6	.99 dBm								
^g		1							
39									
99									
)1									
01									
)1									TRIG
)1									
)1									
.0									
							ا تحد اد		
					1				
nter 2.440000	000 GHz								Span 0 H
s BW 510 kHz		#V	/BW	30 kHz			Swee	o 6.322 s	(30000 pt
1						STATUS			



_	Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	SK, Mid Channel, On Time (ms) During 31.6 s	Limit (ms)	Results
	N/A	20	N/A	N/A	N/A	N/A	N/A
Keys		zer - Element Materials Tech 50 Ω DC		SE:INT	ALIGN AUTO		12:08:57 PM Apr 25, 2023
				Trig Delay-50.00 Trig: Video	ns #Avg Type	: Voltage	TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P P P P P
				#Atten: 10 dB			DET PPPPP
2 dB/c		set 21.19 dB 99 dBm					
Log							
4.99 -							
2.99 -							
0.990 -							
-1.01							
-3.01							
-5.01							TRIG LVL
-3.01							
-7.01							
-9.01 -							
-11.0							
				1			
	er 2.440000	000 GHz					Span 0 Hz
Res	3W 510 kHz		#VBW	30 kHz		Sweep	6.322 s (30000 pts)
MSG					STATUS		
		Hopping	Mode (All Channel	s) 3DH5 8-DP	SK Mid Channel	2440 MHz	
	Pulse Width		Average No.	Scale	On Time (ms)	Limit	
-	(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results
	N/A	20	N/A	N/A	N/A	N/A	N/A

	pectrum Ana			ials Techn	ology												
RL	RF	50 Ω	DC				SENSE:I				LIGN AUT				12:0	9:28 PM Apr 25, 2	
					PNO: Fa	ast ↔ .ow	. Tri	g Delay g: Video ten: 10	-50.00 m o dB	s	#Avç	; Type:	: Voltag	le		TRACE 1 2 3 TYPE WWW DET P P P	AWW
dB/div	Ref O Ref (ffset 21. i.99 dE	.19 dB 3m						1				T				
.99																	
.99		1 1						11									
390																	
01																	
D1				_													
01				_												TRIC	GL
01																	
D1																	
.0																	
	.440000 510 kH:		Hz			#V <u>B</u>	W 30	kHz						Swee	ep 6.3 <u>22</u>	Span 0 2 s (30000	p H
											STA						



		e Wic	ith		nber of		Average No.		Scale		Time (m		Limit		_	•	
г		(ms)		P	ulses	-	of Pulses	F	actor	Dur	ing 31.6	s	(ms)			ults	
		N/A			19		N/A		N/A		N/A		N/A		N	/A	
					Materials T	echno											
L <mark>XI</mark> RL		RF	50	DΩ DI	C	199	S	ENSE:INT	elay-50.00		IGN AUTO #Avg Ty	ne: V	oltage		12:09:57	PM Apr 25	5, 2023
							PNO: Fast ↔→ IFGain:Low	Trig: \	/ideo : 10 dB	1113	#Avg I)	pe. v	onage		T I		3456 WWWW PPPP
2 dB/	div	Ref (Ref	Offset: 6.99	21.19 dBm	dB												
Log																	
4.99																	
2.99			1			11											
0.990																	
-1.01																	
-3.01																	
-5.01				_				_								1	IRIG LVL
-7.01		-												_			
0.05																	
-9.01																	
-11.0																	
Cent	er 2.4	4000	0000	GHz					↓ <mark> </mark>							Span	0 Hz
	BW 5						#VBV	V 30 ki	lz				Swee	ep (6.322 s (
MSG											STATUS						
					Llannin	- 14		ala) 25						_			
	Puls	e Wic	dth		nber of		ode (All Chann Average No.		Scale		d Channe Time (ms		Limit				
		(me)					of Pulses		actor		ina 31 6		(me)		Poo	ulte	

	порріпу і	noue (An Channe	IS), SDHS, 6-DFS	or, miu channer,		
Pulse Width	Number of	Average No.	Scale	On Time (ms)	Limit	
(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results
2.898	N/A	0	5	0	400	Pass

Calculation Only

No Screen Capture Required