

Starkey Laboratories, Inc.

The Dash Pro Right FCC 15.247:2017 Bluetooth Radio

Report # STAK0082.1





NVLAP Lab Code: 200881-0

CERTIFICATE OF TEST



Last Date of Test: March 8, 2017 Starkey Laboratories, Inc. Model: The Dash Pro Right

Radio Equipment Testing

Standards

Specification	Method	
FCC 15.247:2017	ANSI C63.10:2013	

Results

Method Clause	I Lest Description		Results	Comments
6.2	AC - Powerline Conducted Emissions	No	N/A	Not required for a battery powered EUT.
6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	
7.5	Duty Cycle	Yes	Pass	
7.8.2	Carrier Frequency Separation	Yes	Pass	
7.8.3	Number of Hopping Frequencies	Yes	Pass	
7.8.4	Dwell Time	Yes	Pass	
7.8.5	Output Power	Yes	Pass	
7.8.6	Band Edge Compliance	Yes	Pass	
7.8.6	Band Edge Compliance - Hopping Mode	Yes	Pass	
7.8.7	Occupied Bandwidth	Yes	Pass	
7.8.8	Spurious Conducted Emissions	Yes	Pass	

Deviations From Test Standards

None

Approved By:

Dean Ghizzone, General 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.

REVISION HISTORY



Revision Number	Description	Date	Page Number
00	None		

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ACCREDITATIONS AND AUTHORIZATIONS



United States

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

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

NVLAP - Each laboratory is accredited by NVLAP to ISO 17025

Canada

ISED - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with ISED.

European Union

European Commission - Validated by the European Commission as a Notified Body under the R&TTE Directive.

Australia/New Zealand

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

Korea

MSIP / 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:

http://portlandcustomer.element.com/ts/scope/scope.htm http://gsi.nist.gov/global/docs/cabs/designations.html

FACILITIES







California
Labs OC01-13
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Irvine, CA 92618
(949) 861-8918

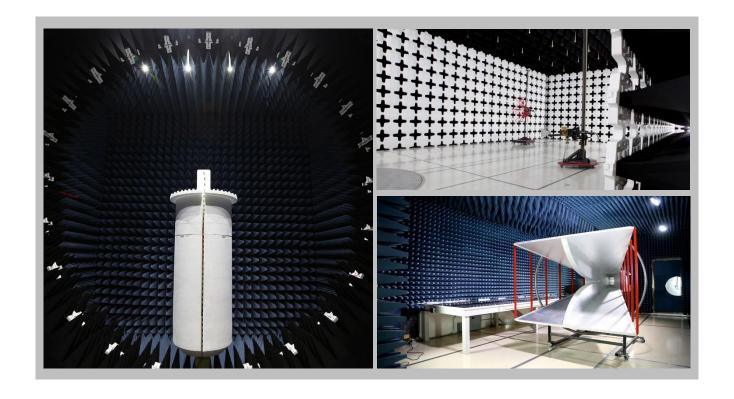
Minnesota Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136 New York Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214 Oregon
Labs EV01-12
22975 NW Evergreen Pkwy
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5/68

Irvine, CA 92618 Brooklyn Park, MN 55445 Elbridge, NY 1306 (949) 861-8918 (612)-638-5136 (315) 554-8214		Elbridge, NY 13060 (315) 554-8214	Hillsboro, OR 97124 (503) 844-4066	Plano, TX 75074 (469) 304-5255	Bothell, WA 98011 (425)984-6600			
	NVLAP							
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code:201049-0	NVLAP Lab Code: 200629-0			
	Innovation, Science and Economic Development Canada							
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-2	2834G-1	2834F-1			
		BS	МІ					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R			
		VC	CI					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110			
	Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA							
US0158	US0175	N/A	US0017	US0191	US0157			



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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 included as part of the applicable test description page. 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.

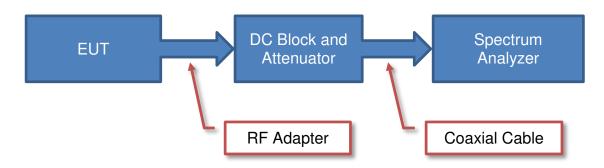
Test	+ MU	- MU
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.4 dB	-2.4 dB

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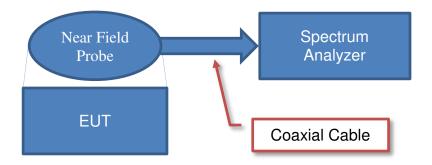
Test Setup Block Diagrams



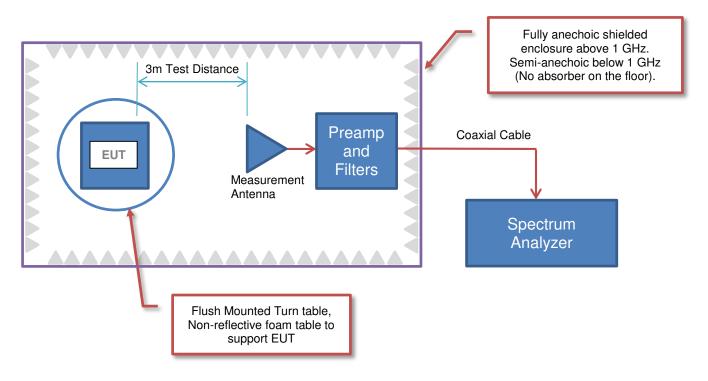
Antenna Port Conducted Measurements



Near Field Test Fixture Measurements



Spurious Radiated Emissions



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PRODUCT DESCRIPTION



Client and Equipment Under Test (EUT) Information

Company Name:	Starkey Laboratories, Inc.	
Address:	6600 Washington Ave. SO.	
City, State, Zip:	Eden Prairie, MN 55344	
Test Requested By:	Bill Mitchell	
Model:	The Dash Pro Right	
First Date of Test:	March 6, 2017	
Last Date of Test:	March 8, 2017	
Receipt Date of Samples:	March 6, 2017	
Equipment Design Stage:	Production	
Equipment Condition:	No Damage	
Purchase Authorization:	Verified	

Information Provided by the Party Requesting the Test

Functional Description of the EUT:

Earphone containing both a 10.6 MHz NFMI radio and a 2.4 GHz Bluetooth Radio utilizing both Bluetooth Classic (BR/EDR) and Bluetooth Low Energy. The BT classic mode does not utilize the 8DPSK Modulation (3-DH5) mode.

Testing Objective:

To demonstrate compliance of the Bluetooth FHSS radio to FCC 15.247 requirements.

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CONFIGURATIONS



Configuration STAK0082-3

EUT						
Description	Manufacturer	Model/Part Number	Serial Number			
Wireless Earphones and Charging Dock	Starkey Laboratories, Inc.	The Dash Pro Right	FCC-1			

Remote Equipment Outside of Test Setup Boundary						
Description Manufacturer Model/Part Number Serial Number						
Bluetooth Testing Unit	Rohde & Schwarz	1153.9000K35	1153.9000K35-100787-gH			

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB Cable	No	.17m	No	Wireless Earphones and Charging Dock	Unterminated
AC Mains Cable (Bluetooth Testing Unit)	No	1.8m	No	AC Mains	Bluetooth Testing Unit

Configuration STAK0082- 6

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Wireless Earphones	Starkey Laboratories, Inc.	The Dash Pro Right	FCC-1C

Peripherals in test setup boundary						
Description	Manufacturer	Model/Part Number	Serial Number			
USB Board	CSR	CNS10020V5A	361972			
Laptop 1	Lenovo	T460p	PF0MVAWB			
AC Adapter (Laptop 1)	Lenovo	ADLX90NCC2A	11S45N0251Z1ZS9C65BJ57			

Cables						
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2	
Serial Cable	No	.30m	No	Wireless Earphones	USB Board	
USB Cable	No	1.3m	Yes	USB Board	Laptop 1	
AC Mains Cable 1	No	1.0m	No	AC Adapter (Laptop 1)	AC Mains	
DC Cable 1	No	1.8m	Yes	AC Adapter (Laptop 1)	Laptop 1	

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MODIFICATIONS



Equipment Modifications

Spurious Radiated Emissions	Item	Date	Test	Modification	Note	Disposition of EUT
3/8/2017 Radiated Emissions Test Station. Tested as delivered to Tested as delivered to Tested as delivered to Tested as delive	пеш	Date			11010	
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2 3/8/2017 Duty Cycle	ı	3/6/2017				
2 3/8/2017 Duty Cycle delivered to Test Station. Carrier Frequency Separation Tested as delivered to Test Station. Tested as del			Emissions			
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Tested as delivered to Test Station. Tested as Tested	5	3/8/2017	Dwell Time		devices were added or	Element following
6 3/8/2017 Output Power delivered to Test Station. 7 3/8/2017 Band Edge Compliance 8 3/8/2017 Band Edge Compliance 8 3/8/2017 Band Edge Compliance - Hopping Mode 8 3/8/2017 Occupied 1 Tested as delivered to Test Station. 8 Algorithms and Edge Compliance Present following the test. 8 Algorithms and Edge Compliance Present following the test. 8 Algorithms and Edge Compliance Present following the test. 8 Algorithms and Edge Compliance Present following the test. 8 Algorithms and Edge Compliance Present following the test. 9 Algorithms and Edge Compliance Present following the test. 8 Algorithms and Edge Compliance Present following the test. 9 Algorithms and Edge Compliance Present following the test. 9 Algorithms and Edge Compliance Present following the test. 1 Algorithms and Edge Compliance Present following the test. 1 Algorithms and Edge Compliance Present following the test. 1 Algorithms and Edge Present following the test. 1 Algorithms and Edge Present following the test. 2 Algorithms and Edge Present following the test. 3 Algorithms and Edge Present following the test. 2 Algorithms and Edge Present following the test. 3 Algorithms and Edge Present following the test. 3 Algorithms and Edge Present following the test. 4 Algorithms and Edge Present following the test. 5 Algorithms and Edge Present following the test. 6 Algorithms and Edge Present following the test. 8 Algorithms and Edge Present following the test. 9 Algorithms and Edge Present following the test. 9 Algorithms and Edge Present following the test. 1 Algorithms and Edge Present following the test. 1 Algorithms and Edge Present following the test. 1 Algorithms and Edge Present following the test. 2 Algorithms and Edge Present following the test. 2 Algorithms and Edge Present following the test. 3 Algorithms and Edge Present following the test. 3 Algorithms and Edge Present following the test. 4 Algorithms and Edge Present following the test. 5 Algorithms and Edge Present following the test. 6 Algorithms a	-			Test Station.	modified during this test.	
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8 3/8/2017 Band Edge Compliance – Hopping Mode Test Station. 8 3/8/2017 Tested as delivered to Test Station. 8 3/8/2017 Occupied Tested as delivered to delivered	7	2/9/2017	Band Edge			home by the client
8 3/8/2017 Band Edge Compliance Hopping Mode Test Station. Band Edge Compliance Hopping Mode Tested as delivered to Test Station. Tested as Mo EMI suppression devices were added or modified during this test. Tested as Mo EMI suppression Tested as Mo EMI suppression Gelivered to delivered to delive	1	3/0/2017	Compliance			before the next
8 3/8/2017 Compliance - Hopping Mode delivered to Test Station. Tested as delivered to Test Station. Tested as delivered to Tested as delivered to				Test Station.	modified during this test.	scheduled test.
8 3/8/2017 Compliance - Hopping Mode delivered to Test Station. delivered to modified during this test. Occupied Delivered to delivered to modified during this test. Tested as No EMI suppression EUT remained at delivered to			Band Edge	Tootod as	No EMI suppression	EUT was taken
Test Station. modified during this test. before the next scheduled test. Tested as No EMI suppression EUT remained at delivered to del	0	2/9/2017	Compliance			home by the client
Tested as No EMI suppression EUT remained at delivered to	0	3/0/2017	Hopping			before the next
9 3/8/2017 Occupied delivered to devices were added or Element following			Mode	rest Station.	modified during this test.	scheduled test.
9 3/8/2017 Occupied delivered to devices were added or Element following	·		Occupied	Tested as		EUT remained at
Dondwidth women to women added to Light to	9	3/8/2017	Bandwidth	delivered to	devices were added or	Element following
Test Station. modified during this test. the test.			Danuwiulii	Test Station.	modified during this test.	
Spurious Tested as No EMI suppression Schoduled testing			Spurious	Tested as	No EMI suppression	Cohodulad tastins
10 3/8/2017 Conducted delivered to devices were added or Scheduled testing	10	3/8/2017		delivered to		•
Emissions Test Station. Test Station. was completed.			Emissions	Test Station.	modified during this test.	was completed.

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SPURIOUS RADIATED EMISSIONS



PSA-ESCI 2017.01.26

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

MODES OF OPERATION

Transmitting low channel (2402 MHz), mid channel (2440 MHz), and high channel (2480 MHz); DH5 and 2DH5 data rates

POWER SETTINGS INVESTIGATED

Battery

CONFIGURATIONS INVESTIGATED

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FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 26500 MHz

SAMPLE CALCULATIONS

Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation

TEST EQUIPMENT

I LOI LOUIT WILLIAM					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Filter - Low Pass	Micro-Tronics	LPM50004	LFK	9/22/2016	12 mo
Filter - High Pass	Micro-Tronics	HPM50111	LFN	9/23/2016	12 mo
Attenuator	Fairview Microwave	SA18E-20	TWZ	9/23/2016	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-08	AIQ	NCR	0 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AXP	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVW	2/14/2017	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	2/14/2017	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVT	2/14/2017	12 mo
Cable	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	12/1/2016	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AJA	6/23/2016	24 mo
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AVO	12/1/2016	12 mo
Cable	ESM Cable Corp.	Bilog Cables	MNH	12/1/2016	12 mo
Antenna - Biconilog	Teseq	CBL 6141B	AYD	1/6/2016	24 mo
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	1/6/2017	12 mo
Amplifier - Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	9/15/2016	12 mo
Cable	Northwest EMC	18-26GHz Standard Gain Horn Cable	MNP	9/15/2016	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-09	AHG	NCR	0 mo

MEASUREMENT BANDWIDTHS

ALAGOREMENT DAND WID THO				
Frequency Range	Peak Data	Quasi-Peak Data	Average Data	
(MHz)	(kHz)	(kHz)	(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	

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TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies and the modes as showed in the data sheets.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These "pre-scans" are not included in the report. Final measurements on individual emissions were then made and included in this test report.

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

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

QP = Quasi-Peak Detector

PK = Peak Detector

AV = RMS Detector

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

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

Measurements at the edges of the allowable band may be presented in an alternative method as provided for in the ANSI C63.10 Marker-Delta method. This method involves performing an in-band fundamental measurement followed by a screen capture of the fundamental and out-of-band emission using reduced measurement instrumentation bandwidths. The amplitude delta measured on this screen capture is applied to the fundamental emission value to show the out-of-band emission level as applied to the limit.

SPURIOUS RADIATED EMISSIONS



					EmiR5 2017.01.25	
Work Order:	STAK0082	Date:	03/06/17	- Q .	, 0	
Project:		Temperature:	21.9 °C	Just	my	ves
Job Site:		Humidity:	38.5% RH		(
Serial Number:		Barometric Pres.:	1000 mbar	Tested b	y: Dustin Sparks	
EUT:	The Dash Pro Right					
Configuration:	3					
	Starkey Laboratories,	Inc.				
	Michael Thompson					
EUT Power:	T 'W DI 1 W	1/0/00 14	1	04401411	1 (0 (0 0 1 1 1 1) DIIIE
Operating Mode:	2DH5 data rates.	h - Iow channel (2402 Mi	Hz), mid channel (2440 MHz), and high o	channel (2480 MHz	z); DH5 and
Budallana	Nana					
Deviations						
	None					
Comments						
st Specifications			Test Me			
C 15.247:2017			ANSI C	63.10:2013		
Run # 54	Test Distance (m)	3 Antenna H	leight(s)	1 to 4(m)	Results	Pass
Run # 54	Test Distance (m)	3 Antenna H	leight(s)	1 to 4(m)	Results	Pass
	Test Distance (m)	3 Antenna F	leight(s)	1 to 4(m)	Results	Pass
80	Test Distance (m)	3 Antenna F	leight(s)	1 to 4(m)	Results	Pass
•	Test Distance (m)	3 Antenna F	leight(s)	1 to 4(m)	Results	Pass
80	Test Distance (m)	3 Antenna F	leight(s)	1 to 4(m)	Results	Pass
70	Test Distance (m)	3 Antenna F	leight(s)	1 to 4(m)	Results	Pass
80	Test Distance (m)	3 Antenna F	leight(s)	1 to 4(m)	Results	Pass
70	Test Distance (m)	3 Antenna F	leight(s)	1 to 4(m)	Results	Pass
70	Test Distance (m)	3 Antenna H			Results	Pass
80 70 60 50	Test Distance (m)	3 Antenna F	leight(s)		Results	Pass
80 70 60 50	Test Distance (m)	3 Antenna F			Results	Pass
80 70 60 50	Test Distance (m)	3 Antenna F			Results	Pass
80 70 60 50	Test Distance (m)	3 Antenna F			Results	Pass
80 70 60 50	Test Distance (m)	3 Antenna F			Results	Pass
80 70 60 50	Test Distance (m)	3 Antenna F			Results	Pass
80 70 60 50 E/Ango	Test Distance (m)	3 Antenna F			Results	Pass
80 70 60 50 E/\ng	Test Distance (m)	3 Antenna F			Results	Pass
80 70 60 50 E/\ng	Test Distance (m)	3 Antenna F			Results	Pass
80 70 60 50 E /\mathrm{\text{Mag}} 30	Test Distance (m)	3 Antenna F			Results	Pass
80 70 60 50 E /\text{\text{MRD}}	Test Distance (m)	3 Antenna F			Results	Pass
80 70 60 50 E M 40 30	Test Distance (m)	3 Antenna F			Results	Pass
80 70 60 50 50 40 30	Test Distance (m)	3 Antenna F			Results	Pass
80 70 60 50 40 30 20	Test Distance (m)	3 Antenna F			Results	Pass
80 70 60 50 50 30 20	Test Distance (m)	3 Antenna F			Results	Pass

1000 MHz

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	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
4882.025	42.9	6.7	1.0	58.1	3.0	0.0	Vert	AV	0.0	49.6	54.0	-4.4	Mid ch, DH5, EUT vert
2484.750	31.2	-2.5	1.1	300.0	3.0	20.0	Horz	AV	0.0	48.7	54.0	-5.3	High ch, DH5, EUT on side
2487.925	31.2	-2.5	1.0	321.0	3.0	20.0	Vert	AV	0.0	48.7	54.0	-5.3	High ch, DH5, EUT on side
2487.208	31.1	-2.5	1.0	33.1	3.0	20.0	Horz	AV	0.0	48.6	54.0	-5.4	High ch, DH5, EUT vert
2487.567	31.1	-2.5	1.0	347.9	3.0	20.0	Vert	AV	0.0	48.6	54.0	-5.4	High ch, DH5, EUT vert
2485.583	31.1	-2.5	1.0	146.0	3.0	20.0	Horz	AV	0.0	48.6	54.0	-5.4	High ch, DH5, EUT horz
2484.542	31.1	-2.5	1.0	73.1	3.0	20.0	Vert	AV	0.0	48.6	54.0	-5.4	High ch, DH5, EUT horz
2483.742	31.0	-2.5	1.0	340.9	3.0	20.0	Horz	AV	0.0	48.5	54.0	-5.5	High ch, 2DH5, EUT on side
2388.767	30.8	-2.3	2.1	0.0	3.0	20.0	Horz	AV	0.0	48.5	54.0	-5.5	Low ch, DH5, EUT on side
7439.275	31.2	15.0	1.2	173.1	3.0	0.0	Horz	AV	0.0	46.2	54.0	-7.8	High ch, 2DH5, EUT on side
7440.733	31.1	15.0	1.0	196.1	3.0	0.0	Vert	AV	0.0	46.1	54.0	-7.9	High ch, 2DH5, EUT vert
4959.733	38.2	6.8	1.0	72.0	3.0	0.0	Vert	AV	0.0	45.0	54.0	-9.0	High ch, 2DH5, EUT vert
4881.733	38.2	6.7	1.0	28.0	3.0	0.0	Vert	AV	0.0	44.9	54.0	-9.1	Mid ch, 2DH5, EUT vert
7317.642	29.6	15.1	1.0	353.0	3.0	0.0	Horz	AV	0.0	44.7	54.0	-9.3	Mid ch, 2DH5, EUT on side
7320.842	29.6	15.1	1.0	252.0	3.0	0.0	Vert	AV	0.0	44.7	54.0	-9.3	Mid ch, 2DH5, EUT vert
4959.750	37.8	6.8	2.2	36.0	3.0	0.0	Horz	AV	0.0	44.6	54.0	-9.4	High ch, 2DH5, EUT on side
4881.775	37.9	6.7	2.3	27.0	3.0	0.0	Horz	AV	0.0	44.6	54.0	-9.4	Mid ch, 2DH5, EUT on side
4959.775	36.5	6.8	2.9	297.0	3.0	0.0	Horz	AV	0.0	43.3	54.0	-10.7	High ch, 2DH5, EUT vert
4959.742	36.1	6.8	2.2	253.0	3.0	0.0	Vert	AV	0.0	42.9	54.0	-11.1	High ch, 2DH5, EUT horz
4803.750	35.0	6.6	1.0	358.0	3.0	0.0	Horz	AV	0.0	41.6	54.0	-12.4	Low ch, 2DH5, EUT on side

• QP

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Freq (MHz)	Amplitude (dBuV)	Factor (dB)	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
4959.650	34.4	6.8	1.0	360.0	3.0	0.0	Horz	AV	0.0	41.2	54.0	-12.8	High ch, 2DH5, EUT horz
4803.758	34.3	6.6	1.0	5.1	3.0	0.0	Vert	AV	0.0	40.9	54.0	-13.1	Low ch, 2DH5, EUT vert
2484.792	43.0	-2.5	1.0	33.1	3.0	20.0	Horz	PK	0.0	60.5	74.0	-13.5	High ch. DH5. EUT vert
2484.283	42.7	-2.5	1.0	340.9	3.0	20.0	Horz	PK	0.0	60.2	74.0	-13.8	High ch, 2DH5, EUT on side
2485,483	42.6	-2.5	1.0	347.9	3.0	20.0	Vert	PK	0.0	60.1	74.0	-13.9	High ch, DH5, EUT vert
2488.050	42.6	-2.5	1.0	146.0	3.0	20.0	Horz	PK	0.0	60.1	74.0	-13.9	High ch, DH5, EUT horz
2485,467	42.6	-2.5	1.0	321.0	3.0	20.0	Vert	PK	0.0	60.1	74.0	-13.9	High ch, DH5, EUT on side
2388.608	42.2	-2.3	2.1	0.0	3.0	20.0	Horz	PK	0.0	59.9	74.0	-14.1	Low ch, DH5, EUT on side
2485.725	42.2	-2.5	1.0	73.1	3.0	20.0	Vert	PK	0.0	59.7	74.0	-14.3	High ch, DH5, EUT horz
4959.667	32.8	6.8	1.0	107.0	3.0	0.0	Vert	AV	0.0	39.6	54.0	-14.4	High ch, 2DH5, EUT on side
2484.200	41.9	-2.5	1.1	300.0	3.0	20.0	Horz	PK	0.0	59.4	74.0	-14.6	High ch, DH5, EUT on side
7439.150	42.6	15.0	1.2	173.1	3.0	0.0	Horz	PK	0.0	57.6	74.0	-16.4	High ch, 2DH5, EUT on side
7441.858	42.5	15.0	1.0	196.1	3.0	0.0	Vert	PK	0.0	57.5	74.0	-16.5	High ch, 2DH5, EUT vert
7322.100	41.6	15.0	1.0	353.0	3.0	0.0	Horz	PK	0.0	56.6	74.0	-17.4	Mid ch, 2DH5, EUT on side
12402.230	29.5	6.1	1.0	272.9	3.0	0.0	Vert	AV	0.0	35.6	54.0	-18.4	High ch, 2DH5, EUT vert
12402.080	29.4	6.1	1.0	199.1	3.0	0.0	Horz	AV	0.0	35.5	54.0	-18.5	High ch, 2DH5, EUT on side
7318.358	40.4	15.1	1.0	252.0	3.0	0.0	Vert	PK	0.0	55.5	74.0	-18.5	Mid ch, 2DH5, EUT vert
4882.033	47.0	6.7	1.0	58.1	3.0	0.0	Vert	PK	0.0	53.7	74.0	-20.3	Mid ch, DH5, EUT vert
4959.492	45.9	6.8	1.0	72.0	3.0	0.0	Vert	PK	0.0	52.7	74.0	-21.3	High ch, 2DH5, EUT vert
4960.317	45.3	6.8	2.2	36.0	3.0	0.0	Horz	PK	0.0	52.1	74.0	-21.9	High ch, 2DH5, EUT on side
4881.692	44.5	6.7	1.0	28.0	3.0	0.0	Vert	PK	0.0	51.2	74.0	-22.8	Mid ch, 2DH5, EUT vert
4959.758	44.3	6.8	2.2	253.0	3.0	0.0	Vert	PK	0.0	51.1	74.0	-22.9	High ch, 2DH5, EUT horz
4959.842	44.3	6.8	2.9	297.0	3.0	0.0	Horz	PK	0.0	51.1	74.0	-22.9	High ch, 2DH5, EUT vert
4882.492	44.1	6.7	2.3	27.0	3.0	0.0	Horz	PK	0.0	50.8	74.0	-23.2	Mid ch, 2DH5, EUT on side
12399.510	29.7	0.9	1.0	190.0	3.0	0.0	Vert	AV	0.0	30.6	54.0	-23.4	High ch, 2DH5, EUT vert
12397.810	29.6	0.9	1.6	274.0	3.0	0.0	Horz	AV	0.0	30.5	54.0	-23.5	High ch. 2DH5. EUT on side
4959.467	43.4	6.8	1.0	360.0	3.0	0.0	Horz	PK	0.0	50.2	74.0	-23.8	High ch, 2DH5, EUT horz
4959.683	42.7	6.8	1.0	107.0	3.0	0.0	Vert	PK	0.0	49.5	74.0	-24.5	High ch, 2DH5, EUT on side
4803.700	42.6	6.6	1.0	358.0	3.0	0.0	Horz	PK	0.0	49.2	74.0	-24.8	Low ch, 2DH5, EUT on side
12202.480	29.1	0.0	1.0	135.0	3.0	0.0	Vert	AV	0.0	29.1	54.0	-24.9	Mid ch, 2DH5, EUT vert
12197.600	29.1	0.0	1.0	360.0	3.0	0.0	Horz	AV	0.0	29.1	54.0	-24.9	Mid ch. 2DH5. EUT on side
4803.667	42.2	6.6	1.0	5.1	3.0	0.0	Vert	PK	0.0	48.8	74.0	-25.2	Low ch, 2DH5, EUT vert
12007.880	29.5	-1.0	1.0	77.1	3.0	0.0	Vert	AV	0.0	28.5	54.0	-25.5	Low ch, 2DH5, EUT vert
12007.880	29.3	-1.0	2.4	91.1	3.0	0.0	Horz	AV	0.0	28.2	54.0	-25.5 -25.8	Low ch, 2DH5, EUT on side
12401.140	40.5	6.1	1.0	199.1	3.0	0.0	Horz	PK	0.0	46.6	74.0	-23.6 -27.4	High ch. 2DH5, EUT on side
12401.140	40.5 40.5	6.1	1.0	272.9	3.0	0.0	Vert	PK PK	0.0	46.6 46.6	74.0 74.0	-27.4 -27.4	High ch, 2DH5, EUT vert
12399.160	41.3	0.9	1.0	190.0	3.0	0.0	Vert	PK	0.0	40.0	74.0	-27.4	High ch, 2DH5, EUT vert
12399.160	40.9	0.9	1.6	274.0	3.0	0.0	Horz	PK PK	0.0	42.2 41.8	74.0 74.0	-31.8	High ch, 2DH5, EUT on side
12399.560	40.9 40.9	0.9	1.0		3.0	0.0		PK PK	0.0	40.9	74.0 74.0		Mid ch, 2DH5, EUT vert
12198.410	40.9 40.4	0.0	1.0	135.0 360.0	3.0	0.0	Vert Horz	PK PK	0.0	40.9 40.4	74.0 74.0	-33.1 -33.6	Mid ch, 2DH5, EUT on side
		-1.0				0.0		PK PK					Low ch, 2DH5, EUT vert
12008.680	40.4 39.9	-1.0 -1.0	1.0 2.4	77.1 91.1	3.0 3.0	0.0	Vert Horz	PK PK	0.0 0.0	39.4 38.9	74.0 74.0	-34.6 -35.1	Low ch, 2DH5, EUT on side
12007.720	39.9	-1.0	2.4	91.1	3.0	0.0	HUIZ	PN	0.0	38.9	74.0	-33.1	LOW CIT, ZDHO, EUT OIT SIDE

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XMit 2017.01.26

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	N5182A	TIF	8/12/2014	8/12/2017
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/15/2016	9/15/2017
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	12/22/2016	12/22/2017

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.

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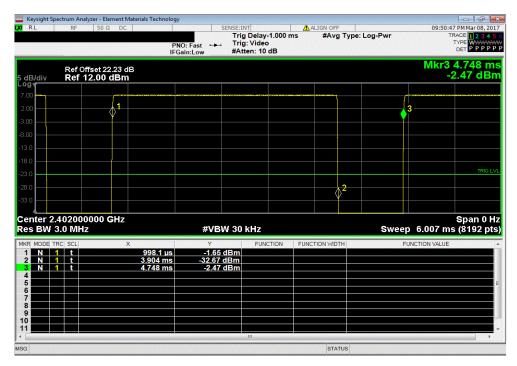
									TbtTx 2017.01.23	7 XMit 2017.01
	The Dash Pro Right							Work Order:		
Serial Number:									03/08/17	
	Starkey Laboratories, Inc	C						Temperature:		
	Michael Thompson							Humidity:		
Project:							E	Barometric Pres.:		
	Dustin Sparks				Power: 110VAC/60Hz			Job Site:	MN08	
TEST SPECIFICATI	IONS				Test Method					
FCC 15.247:2017					ANSI C63.10:2013					
COMMENTS										
Powered by USB co	onnection to laptop				<u> </u>					
•	• •									
	// TEST STANDARD									
DEVIATIONS FROM										
None				6						
	6			Dus	tingsals	-				
None			Signature	Dus	tingparlo	-				
None			Signature	Dus			Number of	Value	Limit	
None Configuration #			Signature	Dus	L'in Roures Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
None Configuration # DH5, GFSK	6		Signature	Dus	Pulse Width	Period		(%)	(%)	
None Configuration # DH5, GFSK	6 Low Channel		Signature	Dus	Pulse Width	Period 3.75 ms		(%) 77.5	(%) N/A	N/A
None Configuration # DH5, GFSK	6 Low Channel Low Channel		Signature	Dus	Pulse Width 2.906 ms N/A	Period 3.75 ms N/A		(%) 77.5 N/A	(%) N/A N/A	N/A N/A
None Configuration # DH5, GFSK	6 Low Channel Low Channel Mid Channel		Signature	Duo	Pulse Width 2.906 ms N/A 2.907 ms	3.75 ms N/A 3.75 ms	Pulses 1	(%) 77.5 N/A 77.5	(%) N/A N/A N/A	N/A N/A N/A
None Configuration # DH5, GFSK	6 Low Channel Low Channel Mid Channel Mid Channel		Signature	Duo	Pulse Width 2.906 ms N/A 2.907 ms N/A	Period 3.75 ms N/A 3.75 ms N/A	Pulses 1	(%) 77.5 N/A 77.5 N/A	(%) N/A N/A N/A N/A	N/A N/A N/A N/A
None Configuration # DH5, GFSK	6 Low Channel Low Channel Mid Channel Mid Channel High Channel		Signature	Dus	Pulse Width 2.906 ms N/A 2.907 ms N/A 2.907 ms	Period 3.75 ms N/A 3.75 ms N/A 3.75 ms	Pulses 1 5 1 5 1	77.5 N/A 77.5 N/A 77.5	(%) N/A N/A N/A N/A	N/A N/A N/A N/A N/A
None Configuration # DH5, GFSK	6 Low Channel Low Channel Mid Channel Mid Channel		Signature	Dus.	Pulse Width 2.906 ms N/A 2.907 ms N/A	Period 3.75 ms N/A 3.75 ms N/A	Pulses 1	(%) 77.5 N/A 77.5 N/A	(%) N/A N/A N/A N/A	N/A N/A N/A N/A
None Configuration # DH5, GFSK 2DH5, pi/4-DQPSK	Low Channel Low Channel Mid Channel Mid Channel High Channel High Channel		Signature	Dus	Pulse Width 2.906 ms N/A 2.907 ms N/A 2.907 ms N/A N/A	Period 3.75 ms N/A 3.75 ms N/A 3.75 ms N/A	Pulses 1 5 1 5 1	77.5 N/A 77.5 N/A 77.5 N/A 77.5	(%) N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A N/A
None Configuration # DH5, GFSK 2DH5, pi/4-DQPSK	Low Channel Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel		Signature	Dus	Pulse Width 2.906 ms N/A 2.907 ms N/A 2.907 ms N/A 2.907 ms N/A	Period 3.75 ms N/A 3.75 ms N/A 3.75 ms N/A 3.75 ms	Pulses 1 5 1 5 1	77.5 N/A 77.5 N/A 77.5 N/A 77.5	(%) 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
None Configuration # DH5, GFSK 2DH5, pi/4-DQPSK	Low Channel Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Low Channel		Signature	Dus	Pulse Width 2.906 ms N/A 2.907 ms N/A 2.907 ms N/A 2.917 ms N/A	9 Period 3.75 ms N/A 3.75 ms N/A 3.75 ms N/A 3.75 ms N/A	Pulses 1 5 1 5 1	77.5 N/A 77.5 N/A 77.5 N/A 77.8 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
None Configuration # DH5, GFSK 2DH5, pi/4-DQPSK	Low Channel Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Low Channel Mid Channel		Signature	Dus	Pulse Width 2.906 ms N/A 2.907 ms N/A 2.907 ms N/A 2.907 ms N/A 2.917 ms N/A 2.917 ms	Period 3.75 ms N/A 3.75 ms	Pulses 1 5 1 5 1	77.5 N/A 77.5 N/A 77.5 N/A 77.5 N/A 77.8	(%) N/A N/A N/A N/A N/A N/A N/A N/	N/A N/A N/A N/A N/A N/A N/A
None Configuration # DH5, GFSK 2DH5, pi/4-DQPSK	Low Channel Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Mid Channel Mid Channel Mid Channel Mid Channel		Signature	Dus	Pulse Width 2.906 ms N/A 2.907 ms N/A 2.907 ms N/A 2.917 ms N/A 2.917 ms N/A	Period 3.75 ms N/A	Pulses 1 5 1 5 1	77.5 N/A 77.5 N/A 77.5 N/A 77.8 N/A 77.8 N/A	(%) N/A N/A N/A N/A N/A N/A N/A N/	N/A N/A N/A N/A N/A N/A N/A N/A
None Configuration # DH5, GFSK 2DH5, pi/4-DQPSK	Low Channel Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Low Channel Mid Channel		Signature	Dus	Pulse Width 2.906 ms N/A 2.907 ms N/A 2.907 ms N/A 2.907 ms N/A 2.917 ms N/A 2.917 ms	Period 3.75 ms N/A 3.75 ms	Pulses 1 5 1 5 1	77.5 N/A 77.5 N/A 77.5 N/A 77.5 N/A 77.8	(%) N/A N/A N/A N/A N/A N/A N/A N/	N/A N/A N/A N/A N/A N/A N/A

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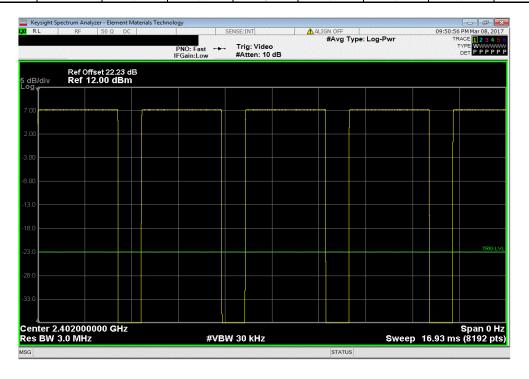


TbtTx 2017.01.27

| DH5, GFSK, Low Channel | Number of Value Limit | Pulse Width | Period | Pulses (%) (%) | Results | Resul



		DH5	, GFSK, Low Cha	annel		
			Number of	Value	Limit	
_	Pulse Width	Period	Pulses	(%)	(%)	Results
ı	N/A	N/A	5	N/A	N/A	N/A



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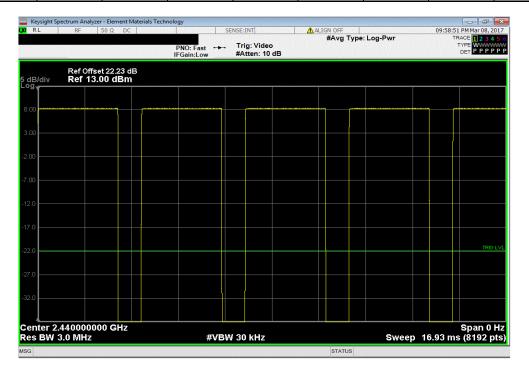


TbtTx 2017.01.27

| DH5, GFSK, Mid Channel | Number of Value Limit | Pulse Width | Period | Pulses (%) (%) | Results | Results | Pulses | Results | Results | Results | Pulses | Results | Results



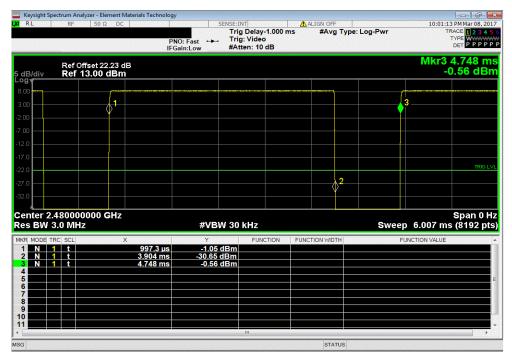
		DHS	5, GFSK, Mid Cha	annel		
			Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	N/A	N/A	5	N/A	N/A	N/A



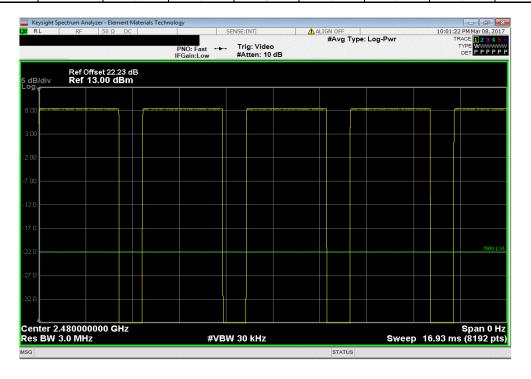
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		DH5	, GFSK, High Ch	annel		
			Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	N/A	N/A	5	N/A	N/A	N/A

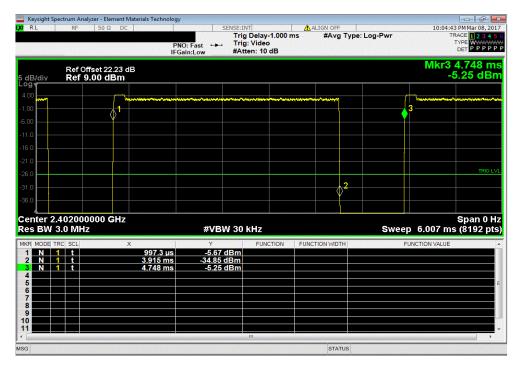


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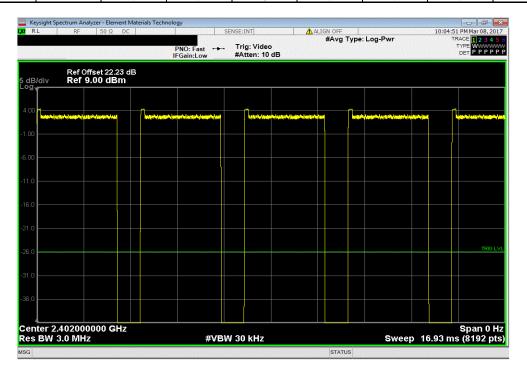


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		2DH5, p	i/4-DQPSK, Low	Channel		
			Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	2.917 ms	3.75 ms	1	77.8	N/A	N/A



	2DH5, pi/4-DQPSK, Low Channel							
		Number of	Value	Limit				
 Pulse Width	Period	Pulses	(%)	(%)	Results			
N/A	N/A	5	N/A	N/A	N/A			

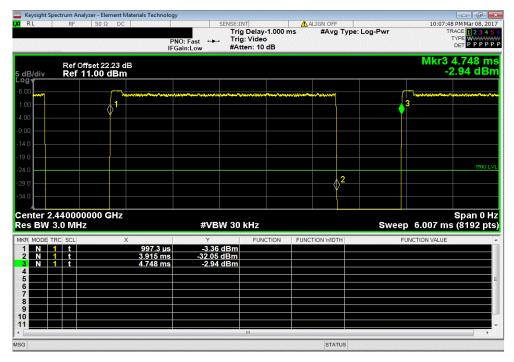


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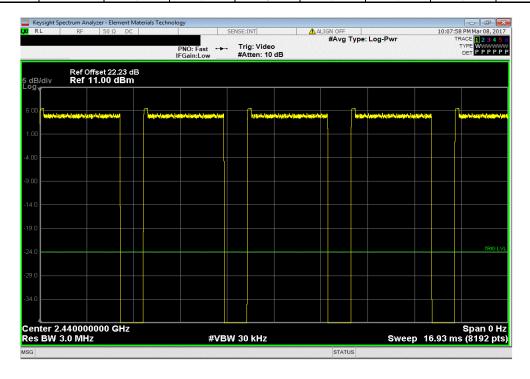


TbtTx 2017.01.27

| 2DH5, pi/4-DQPSK, Mid Channel | Number of Value Limit | Pulse Width | Period | Pulses (%) (%) | Results | Results



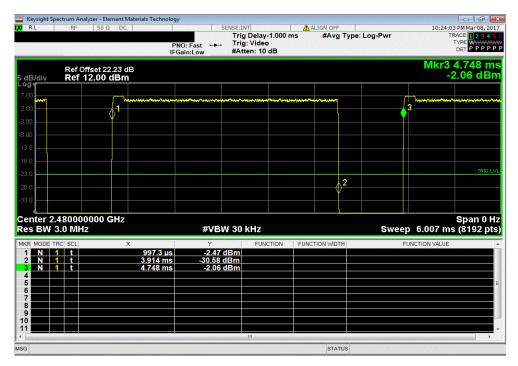
	2DH5, pi/4-DQPSK, Mid Channel								
			Number of	Value	Limit				
	Pulse Width	Period	Pulses	(%)	(%)	Results			
1	N/A	N/A	5	N/A	N/A	N/A			



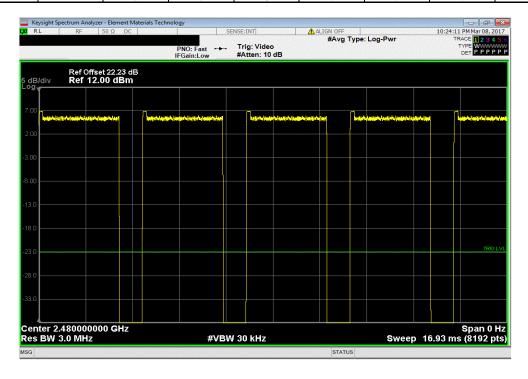
Report No. STAK0082.1 21/68



TbtTx 2017.01.27



	2DH5, pi/4-DQPSK, High Channel							
			Number of	Value	Limit			
	Pulse Width	Period	Pulses	(%)	(%)	Results		
i	N/A	N/A	5	N/A	N/A	N/A		



Report No. STAK0082.1 22/68

CARRIER FREQUENCY SEPARATION



XMit 2017.01.26

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	N5182A	TIF	8/12/2014	8/12/2017
	Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/15/2016	9/15/2017
_	Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018
	Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
	Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	12/22/2016	12/22/2017

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

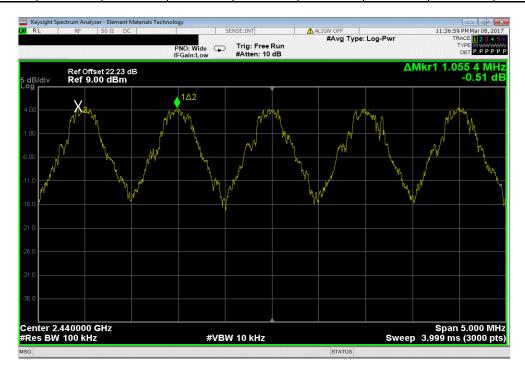


						TbtTx 2017.01.27	XMit 2017.01.26
EUT:	The Dash Pro Right				Work Order:	STAK0082	
Serial Number:	FCC-1C				Date:	03/08/17	
Customer:	Starkey Laboratories, In-	c.			Temperature:	22.7 °C	
Attendees:	Michael Thompson				Humidity:	18.5% RH	
Project:					Barometric Pres.:		
Tested by:	Dustin Sparks			Power: 110VAC/60Hz	Job Site:	MN08	
TEST SPECIFICATI	ONS			Test Method			
FCC 15.247:2017				ANSI C63.10:2013			
COMMENTS							
Powered by USB co							
DEVIATIONS FROM	I TEST STANDARD						
None							
Configuration #	6	Signature	2	Tustingparlo			
						Limit	
					Value	(≥)	Results
Hopping Mode	•	•		_	1.1 MHz	1 MHz	Pass

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CARRIER FREQUENCY SEPARATION





Report No. STAK0082.1 25/68

NUMBER OF HOPPING FREQUENCIES



XMit 2017.01.26

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	N5182A	TIF	8/12/2014	8/12/2017
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/15/2016	9/15/2017
Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	12/22/2016	12/22/2017

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.

Report No. STAK0082.1

NUMBER OF HOPPING FREQUENCIES



						TbtTx 2017.01.27	XMit 2017.01.26
	The Dash Pro Right				Work Order:	STAK0082	
Serial Number:	FCC-1C				Date:	03/08/17	
Customer:	Starkey Laboratories, Inc	c.			Temperature:	22.7 °C	
Attendees:	Michael Thompson				Humidity:	18.6% RH	
Project:					Barometric Pres.:		
	Dustin Sparks			Power: 110VAC/60Hz	Job Site:	MN08	
TEST SPECIFICATI	IONS			Test Method			
FCC 15.247:2017				ANSI C63.10:2013			
COMMENTS							
Powered by USB co	onnection to laptop						
DEVIATIONS FROM	I TEST STANDARD						
None							
Configuration #	6	Signature	~	Tustin Sparls			
	·	·		<u> </u>	Number of	Limit	·
					Channels	≥	Results
Hopping Mode				_	79	15	Pass

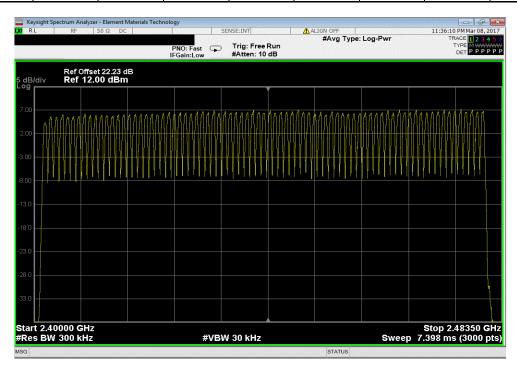
Report No. STAK0082.1 27/68

NUMBER OF HOPPING FREQUENCIES



Hopping Mode

| Hopping Mode | Number of Limit | Channels ≥ Results | Pass | P



Report No. STAK0082.1 28/68



XMit 2017.01.26

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	N5182A	TIF	8/12/2014	8/12/2017
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/15/2016	9/15/2017
Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	12/22/2016	12/22/2017

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 * 400 mS = 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



EUT: The Dash Pro Right
Serial Number: FCC-1C
Customer: Starkey Laboratories, Inc. Work Order: STAK0082 Date: 03/08/17 Temperature: 22.8 °C Humidity: 18.5% RH Barometric Pres.: 1019 mba Attendees: Michael Thompson Project: None
Tested by: Dustin Sparks
TEST SPECIFICATIONS Power: 110VAC/60Hz Test Method Job Site: MN08 FCC 15.247:2017 COMMENTS Powered by USB connection to laptop DEVIATIONS FROM TEST STANDARD Dusti 20 Configuration # 6 Signature Average No. of Pulses Number of Pulses Scale Factor On Time (ms) During 31.6 s Results (ms) (ms) Hopping Mode DH5, GFSK N/A 22 22 22 22 Low Channel, 2402 MHz N/A N/A N/A N/A N/A 2.898 N/A N/A N/A N/A N/A Low Channel, 2402 MHz N/A Low Channel, 2402 MHz N/A N/A N/A N/A N/A N/A Low Channel, 2402 MHz Low Channel, 2402 MHz N/A Low Channel, 2402 MHz High Channel, 2480 MHz N/A N/A 22 N/A 5 N/A 318.78 N/A 400 N/A Pass N/A 2.898 2.901 High Channel, 2480 MHz High Channel, 2480 MHz N/A N/A 22 22 N/A High Channel, 2480 MHz High Channel, 2480 MHz 22 22 N/A High Channel, 2480 MHz High Channel, 2480 MHz 2DH5, pi/4-DQPSK Low Channel, 2402 MHz Low Channel, 2402 MHz 2 901 N/A 22 319.11 400 Pass N/A 22 N/A N/A N/A N/A N/A N/A 2.91 N/A N/A N/A N/A N/A Low Channel, 2402 MHz Low Channel, 2402 MHz N/A 22 22 Low Channel, 2402 MHz Low Channel, 2402 MHz 22 N/A 22 N/A 5 N/A 400 N/A Pass N/A N/A 2.91 N/A 320.1 N/A 22 22 22 22 22 N/A N/A N/A N/A N/A N/A N/A High Channel, 2480 MHz High Channel, 2480 MHz N/A 2.913 N/A N/A N/A N/A N/A N/A N/A N/A High Channel, 2480 MHz N/A N/A High Channel, 2480 MHz N/A N/A N/A N/A High Channel, 2480 MHz High Channel, 2480 MHz N/A N/A N/A N/A N/A N/A 2.913 N/A 320.43 Pass

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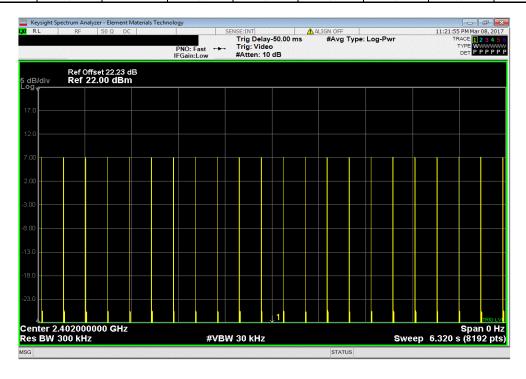


Test's 2017.01.27 XM4 2017.01.26

Hopping Mode, DH5, GFSK, Low Channel, 2402 MHz									
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			



Hopping Mode, DH5, GFSK, Low Channel, 2402 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				

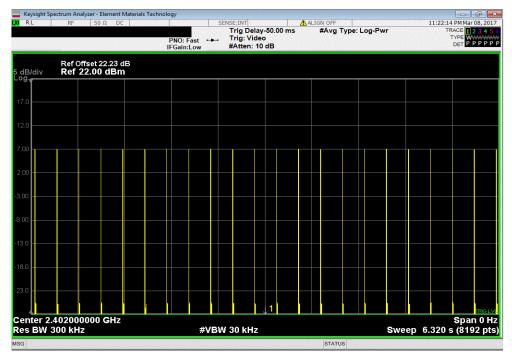


Report No. STAK0082.1 31/68

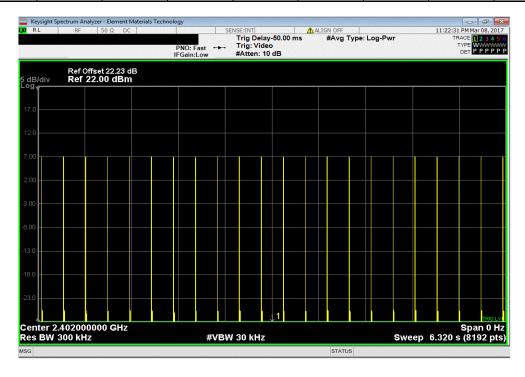


TbtTx 2017.01.27 XMit 2017.01.26

	ŀ	Hopping Mode, DI	H5, GFSK, Low C	Channel, 2402 MH	lz		
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	



Hopping Mode, DH5, GFSK, Low Channel, 2402 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				

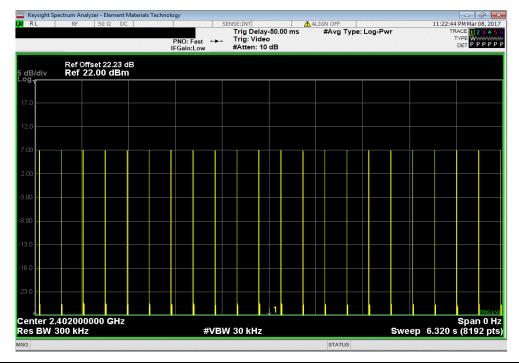


Report No. STAK0082.1 32/68



TbtTx 2017.01.27 XMit 2017.01.26

Hopping Mode, DH5, GFSK, Low Channel, 2402 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			



Hopping Mode, DH5, GFSK, Low Channel, 2402 MHz										
Pulse Width	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	22	5	318.78	400	Pass				

Calculation Only

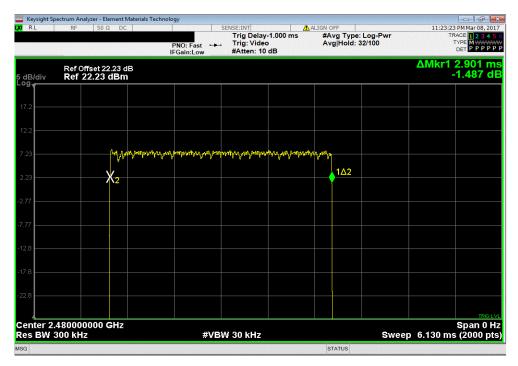
No Screen Capture Required

Report No. STAK0082.1

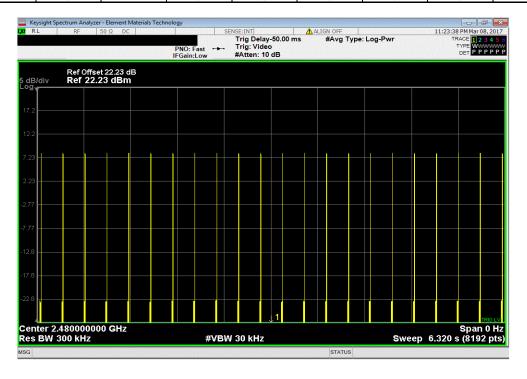


TbtTx 2017.01.27 XMit 2017.01.26

Hopping Mode, DH5, GFSK, High Channel, 2480 MHz									
Pulse Width	Number of	Average No.	Scale	On Time (ms)	Limit				
(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results			
2.901	N/A	N/A	N/A	N/A	N/A	N/A			



Hopping Mode, DH5, GFSK, High Channel, 2480 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			

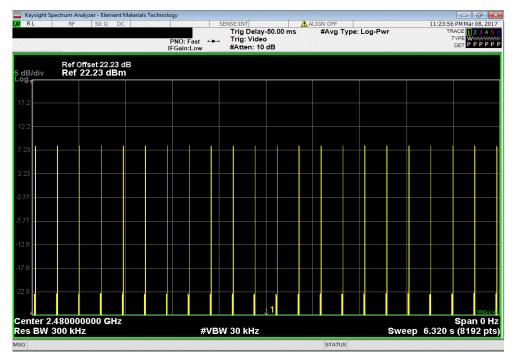


Report No. STAK0082.1 34/68

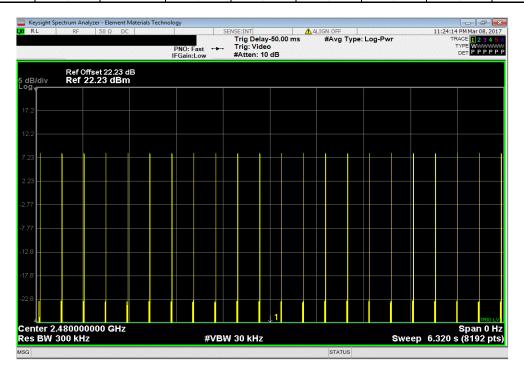


TbtTx 2017.01.27 XMit 2017.01.26

Hopping Mode, DH5, GFSK, High Channel, 2480 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			



Hopping Mode, DH5, GFSK, High Channel, 2480 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			

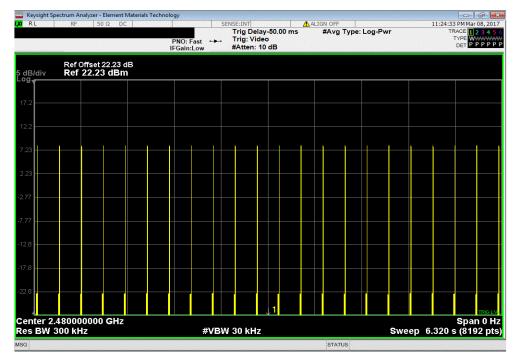


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TbtTx 2017.01.27 XMit 2017.01.26

	Н	lopping Mode, DF	15, GFSK, High (Channel, 2480 MF	łz		
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	I



Hopping Mode, DH5, GFSK, High Channel, 2480 MHz									
Pulse Width	Number of	Average No.	Scale	On Time (ms)	Limit				
(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results			
2.901	N/A	22	5	319.11	400	Pass			

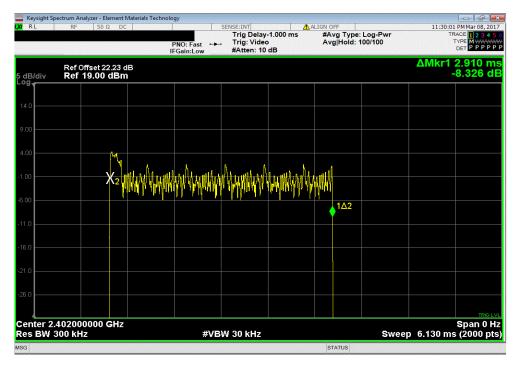
Calculation Only

No Screen Capture Required

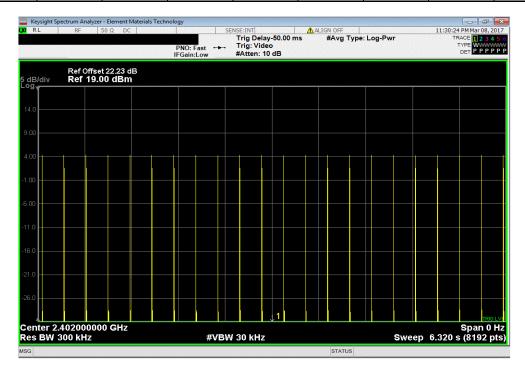


TbtTx 2017.01.27 XMit 2017.01.26

		Hopp	ing Mode, 2DH5	, pi/4-DQPSK, Lo	w Channel, 2402	MHz	
Pt	ulse Width	Number of	Average No.	Scale	On Time (ms)	Limit	
	(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results
	2.91	N/A	N/A	N/A	N/A	N/A	N/A



	Норг	oing Mode, 2DH5	pi/4-DQPSK, Lo	w Channel, 2402	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

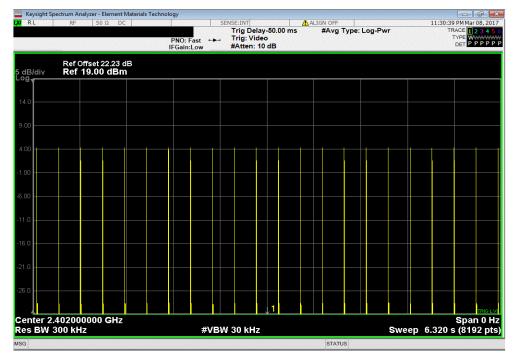


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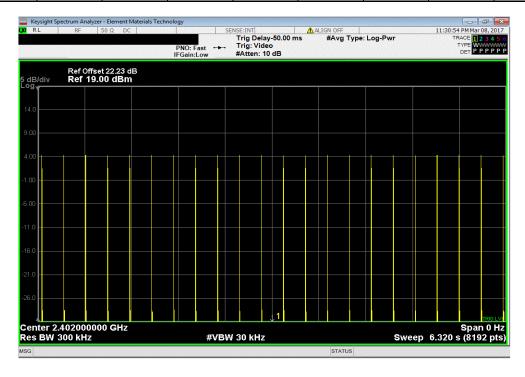


TbtTx 2017.01.27 XMit 2017.01.26

	Hopp	ing Mode, 2DH5	, pi/4-DQPSK, Lo	w Channel, 2402	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	i



	Hopp	oing Mode, 2DH5,	, pi/4-DQPSK, Lo	w Channel, 2402	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

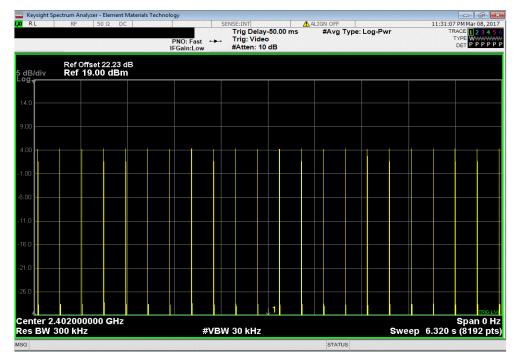


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TbtTx 2017.01.27 XMit 2017.01.26

	Нор	ping Mode, 2DH5	, pi/4-DQPSK, Lo	w Channel, 2402	MHz	
Pulse Wid	Ith 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



		Норр	ing Mode, 2DH5	, pi/4-DQPSK, Lo	w Channel, 2402	MHz	
P	ulse Width	Number of	Average No.	Scale	On Time (ms)	Limit	
	(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results
	2.91	N/A	22	5	320.1	400	Pass

Calculation Only

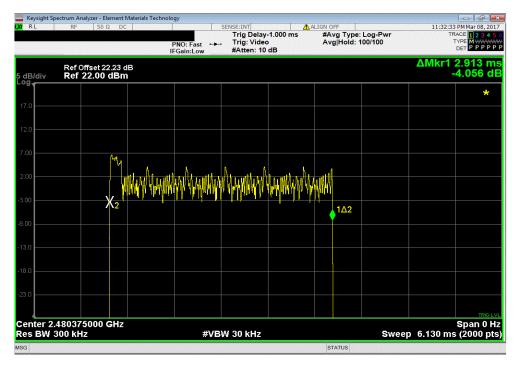
No Screen Capture Required

Report No. STAK0082.1

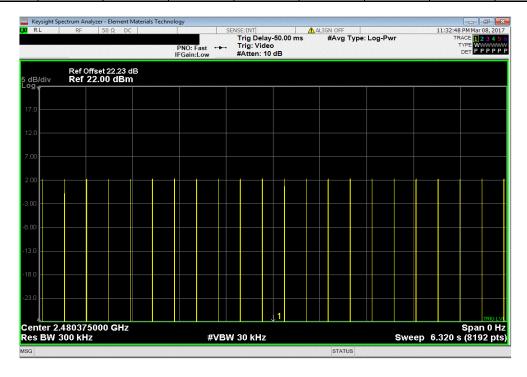


TbtTx 2017.01.27 XMit 2017.01.26

	Норр	ing Mode, 2DH5,	pi/4-DQPSK, Hi	gh Channel, 2480	MHz		
Pulse Width	Number of	Average No.	Scale	On Time (ms)	Limit		
(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results	
2.913	N/A	N/A	N/A	N/A	N/A	N/A	1



	Норр	ing Mode, 2DH5,	pi/4-DQPSK, High	gh Channel, 2480	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

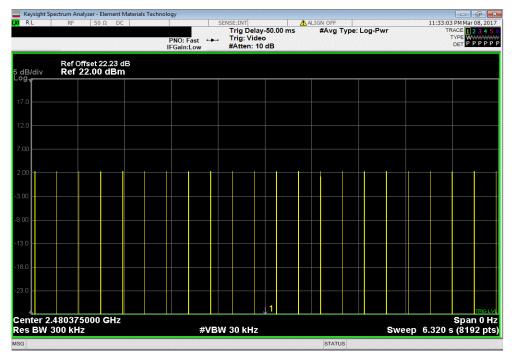


Report No. STAK0082.1 40/68

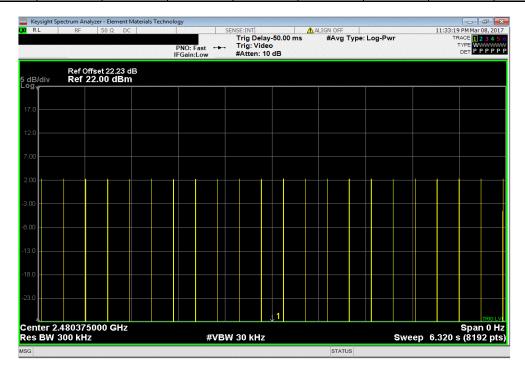


TbtTx 2017.01.27 XMit 2017.01.26

	Нор	ping Mode, 2DH5	, pi/4-DQPSK, Hi	gh Channel, 2480	MHz	
Pulse W	dth 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



	Норр	ing Mode, 2DH5,	pi/4-DQPSK, High	gh Channel, 2480	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

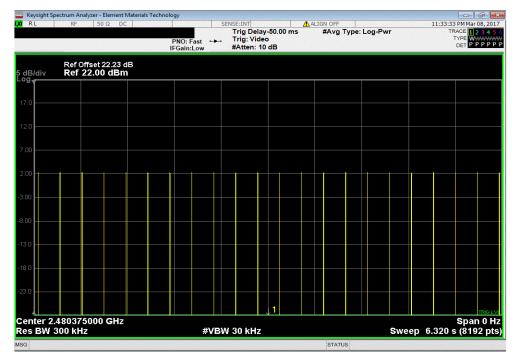


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TbtTx 2017.01.27 XMit 2017.01.26

	Норр	ing Mode, 2DH5,	pi/4-DQPSK, High	gh Channel, 2480	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



		Норр	ing Mode, 2DH5,	pi/4-DQPSK, Hi	gh Channel, 2480	MHz	
P	ulse Width	Number of	Average No.	Scale	On Time (ms)	Limit	
	(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results
	2.913	N/A	22	5	320.43	400	Pass

Calculation Only

No Screen Capture Required



XMit 2017.01.26

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

1201 20011 1112111						
Description	Manufacturer	Model	ID	Last Cal.	Cal. Due	
Generator - Signal	Agilent	N5182A	TIF	8/12/2014	8/12/2017	
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/15/2016	9/15/2017	
Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018	
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017	
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	12/22/2016	12/22/2017	

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The peak output power was measured with the EUT set to low, medium and high transmit frequencies. The EUT was transmitting in a no hop mode at the data rate(s) listed in the datasheet.

The method found in ANSI C63.10:2013 Section 7.8.5 was used for a FHSS radio.

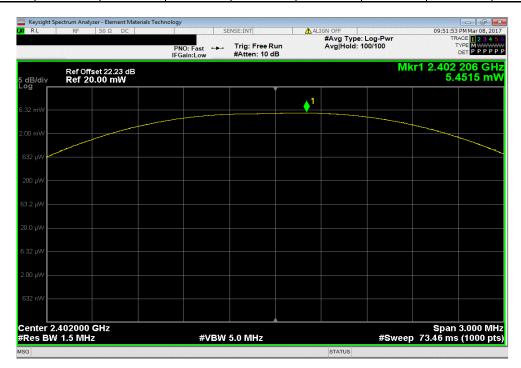
De Facto EIRP Limit: The EUT meets the de facto EIRP limit of +27dBm.

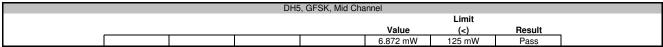


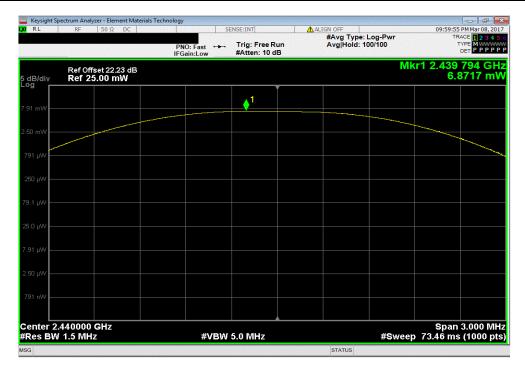
	-	TbtTx 2017.01.27	XMit 2017.01.26
EUT: The Dash Pro Right	Work Order:		
Serial Number: FCC-1C		03/08/17	
Customer: Starkey Laboratories, Inc.	Temperature:		
Attendees: Michael Thompson	Humidity:		
Project: None	Barometric Pres.:		
Tested by: Dustin Sparks Power: 110VAC/60Hz	Job Site:	MN08	
TEST SPECIFICATIONS Test Method			
FCC 15.247:2017 ANSI C63.10:2013			
COMMENTS			
Powered by USB connection to laptop			
DEVIATIONS FROM TEST STANDARD			
None			
A C			
Configuration# 6			
Signature			
		Limit	
	Value	(<)	Result
DH5, GFSK			
Low Channel	5.452 mW	125 mW	Pass
Mid Channel	6.872 mW	125 mW	Pass
High Channel	7.055 mW	125 mW	Pass
2DH5, pi/4-DQPSK			
Low Channel	3.763 mW	125 mW	Pass
LOW ORIGINO			
Mid Channel	5.539 mW	125 mW	Pass

Report No. STAK0082.1 44/68



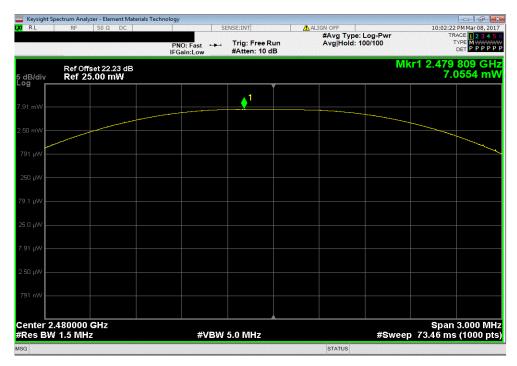


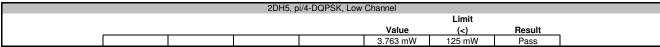


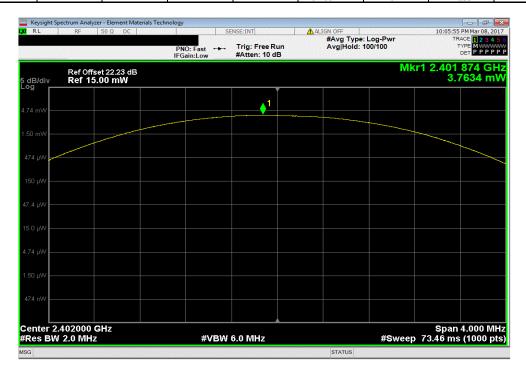


Report No. STAK0082.1 45/68









Report No. STAK0082.1 46/68

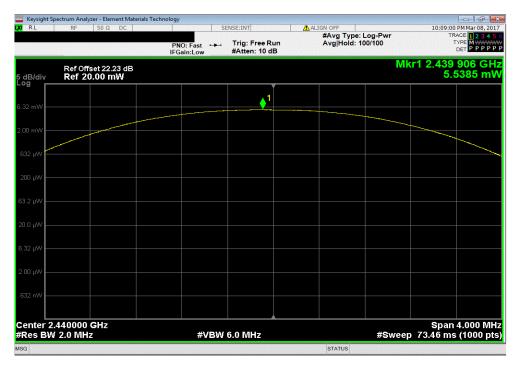


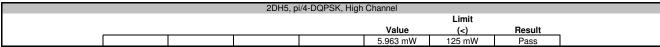
2DH5, pi/4-DQPSK, Mid Channel

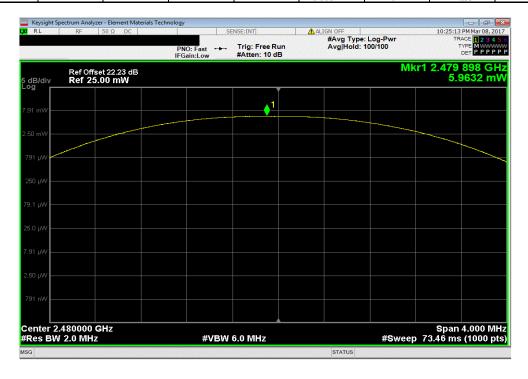
Limit

Value (<) Result

5.539 mW 125 mW Pass







Report No. STAK0082.1 47/68



XMit 2017.01.26

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	N5182A	TIF	8/12/2014	8/12/2017
	Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/15/2016	9/15/2017
	Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018
_	Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
	Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	12/22/2016	12/22/2017

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 band were measured with the EUT set to low and high transmit frequencies. The EUT was transmitting at the data rate(s) listed in the datasheet in a no hop mode. The channels closest to the band edges were selected.

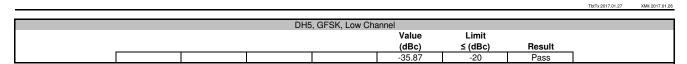
The spectrum was scanned below the lower band edge and above the higher band edge.



						TbtTx 2017.01.27	XMit 2017.01.26
EUT:	The Dash Pro Right				Work Order	STAK0082	
Serial Number:	FCC-1C					03/08/17	
Customer:	Starkey Laboratories, Inc).			Temperature	22.8 °C	
Attendees:	Michael Thompson					18.6% RH	
Project:	None				Barometric Pres.	1019 mbar	
Tested by:	Dustin Sparks		Power: 110	VAC/60Hz	Job Site	MN08	
TEST SPECIFICATION	ONS		Tes	t Method			
FCC 15.247:2017			AN	SI C63.10:2013			
COMMENTS							
DEVIATIONS FROM							
None							
Configuration #	6	Signature	Tusting	ow lo			
		<u> </u>			Value (dBc)	Limit ≤ (dBc)	Result
DH5, GFSK		_		_			
	Low Channel				-35.87	-20	Pass
	High Channel				-54.92	-20	Pass
2DH5, pi/4-DQPSK							
	Low Channel				-39.28	-20	Pass
	High Channel				-56.26	-20	Pass

Report No. STAK0082.1 49/68





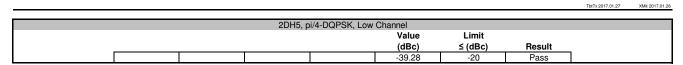


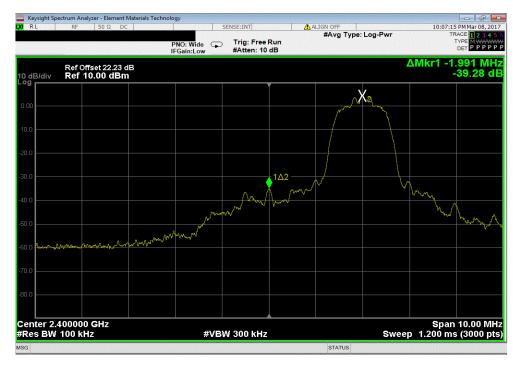
DH5, GFSK, High Channel								
					Value	Limit		
					(dBc)	≤ (dBc)	Result	
					-54.92	-20	Pass	



Report No. STAK0082.1 50/68







2DH5, pi/4-DQPSK, High Channel								
				Value	Limit			
				(dBc)	≤ (dBc)	Result		
				-56.26	-20	Pass		



Report No. STAK0082.1 51/68



XMit 2017.01.26

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	N5182A	TIF	8/12/2014	8/12/2017
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/15/2016	9/15/2017
Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	12/22/2016	12/22/2017

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 band were measured with the EUT set to its normal pseudo-random hopping sequence. The EUT was transmitting at the data rate(s) listed in the datasheet.

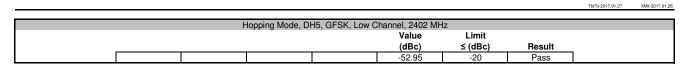
The spectrum was scanned below the lower band edge and above the higher band edge.



			TbtTx 2017.01.27	XMit 2017.01.26
	The Dash Pro Right	Work Order:		
Serial Number	FCC-1C	Date:	03/08/17	
Customer	Starkey Laboratories, Inc.	Temperature:	22.7 °C	
Attendees	Michael Thompson	Humidity:	18.5% RH	
Project	: None	Barometric Pres.:	1019 mbar	
	: Dustin Sparks Power: 110VAC/60Hz	Job Site:	MN08	
TEST SPECIFICAT	TONS Test Method			
FCC 15.247:2017	ANSI C63.10:2013			
		_		
COMMENTS	•			
Powered by USB	connection to laptop			
DEVIATIONS FRO	M TEST STANDARD			
None				
Configuration #	6 Signature			
		Value	Limit	
		(dBc)	≤ (dBc)	Result
Hopping Mode				
	DH5, GFSK			
	Low Channel, 2402 MHz	-52.95	-20	Pass
	High Channel, 2480 MHz	-61.48	-20	Pass
	2DH5, pi/4-DQPSK			
	Low Channel, 2402 MHz	-42.7	-20	Pass
	High Channel, 2480 MHz	-56.05	-20	Pass

Report No. STAK0082.1 53/68







Hopping Mode, DH5, GFSK, High Channel, 2480 MHz								
				Value	Limit			
				(dBc)	≤ (dBc)	Result		
				-61.48	-20	Pass		



Report No. STAK0082.1 54/68



Hopping Mode, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz

Value Limit
(dBc) ≤ (dBc) Result

-42.7 -20 Pass



Hopping Mode, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz								
				Value	Limit			
				(dBc)	≤ (dBc)	Result		
				-56.05	-20	Pass		



Report No. STAK0082.1 55/68



XMit 2017.01.26

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	N5182A	TIF	8/12/2014	8/12/2017	
	Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/15/2016	9/15/2017	
_	Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018	
	Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017	
_	Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	12/22/2016	12/22/2017	

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The 20 dB occupied bandwidth was measured with the EUT set to low, medium and high transmit frequencies in the band. The EUT was transmitting at the data rate(s) listed in the datasheet in a no-hop mode.

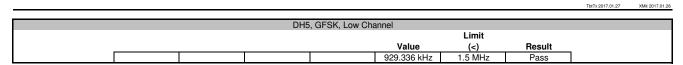
Report No. STAK0082.1

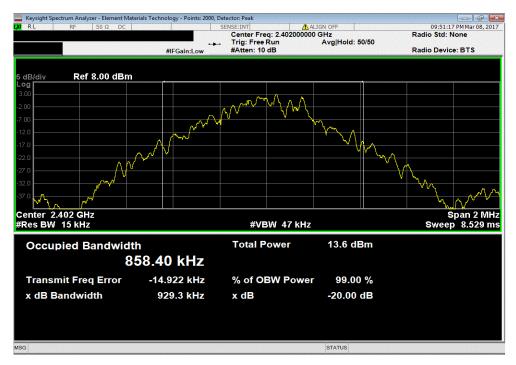


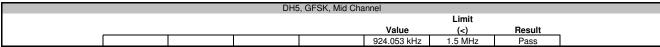
COMMENTS Powered by USB connection to laptop DEVIATIONS FROM TEST STANDARD None Configuration # 6 Signature Value (-c) Result							TbtTx 2017.01.27	XMit 2017.01.26
Customer: Starkey Laboratories, Inc. Temperature: 22.8 °C Attendees: Michael Thompson Humidity: 18.6 % RH Project: None Power: 110VAC/60Hz Barometric Press: 1019 mbar Tested by: Dustin Sparks Power: 110VAC/60Hz Job Site: MN08 Tested by: Dustin Sparks Power: 110VAC/60Hz Job Site: MN08 Test Method								
Attendees: Michael Thompson Humidity: 18.6% RH								
Project: None								
Tested by: Dustin Sparks								
Test Method ANSI C63.10:2013 ANSI C63.10:2013								
ANSI C63.10:2013 COMMENTS				Power:		Job Site	MN08	
COMMENTS Powered by USB connection to laptop	TEST SPECIFICAT	TIONS			Test Method			
Powered by USB connection to laptop	FCC 15.247:2017				ANSI C63.10:2013			
Powered by USB connection to laptop								
DEVIATIONS FROM TEST STANDARD	COMMENTS							
DEVIATIONS FROM TEST STANDARD	Powered by USB	connection to laptop						
None Form	1							
None Form								
Configuration # 6 Signature Signat	DEVIATIONS FRO	M TEST STANDARD						
Signature Limit Value (<) Result	None							
Signature Limit Value (<) Result				D				
Signature Limit Value (<) Result	Configuration #	6		Tusting	Sarla			
Name			Signature		-/			
DH5, GFSK							Limit	
Low Channel 929.336 kHz 1.5 MHz Pass Mid Channel 924.053 kHz 1.5 MHz Pass High Channel 924.053 kHz 1.5 MHz Pass Pass Pid Channel 926.045 kHz 1.5 MHz Pass Pass Pid Channel 1.234 MHz 1.5 MHz Pass Pid Channel 1.237 MHz 1.5 MHz Pass Pid Channel 1.237 MHz 1.5 MHz Pass Pid Channel 1.237 MHz 1.5 MHz Pass Pid Channel Pass Pid Pass Pid Pid Pass Pid Pid Pass Pid						Value	(<)	Result
Mid Channel 924.053 kHz 1.5 MHz Pass High Channel 926.045 kHz 1.5 MHz Pass 2DH5, pi/4-DQPSK Low Channel 1.234 MHz 1.5 MHz Pass Mid Channel 1.237 MHz 1.5 MHz Pass	DH5, GFSK							
High Channel 926.045 kHz 1.5 MHz Pass 2DH5, pi/4-DQPSK Low Channel 1.234 MHz 1.5 MHz Pass Mid Channel 1.237 MHz 1.5 MHz Pass		Low Channel				929.336 kHz	1.5 MHz	Pass
2DH5, pi/4-DQPSK Low Channel Mid Channel 1.234 MHz 1.5 MHz Pass Mid Channel 1.237 MHz 1.5 MHz Pass		Mid Channel				924.053 kHz	1.5 MHz	Pass
Low Channel 1.234 MHz 1.5 MHz Pass Mid Channel 1.237 MHz 1.5 MHz Pass		High Channel				926.045 kHz	1.5 MHz	Pass
Mid Channel 1.237 MHz 1.5 MHz Pass	2DH5, pi/4-DQPSh	<						
		Low Channel				1.234 MHz	1.5 MHz	Pass
High Channel 1.239 MHz 1.5 MHz Pass		Mid Channel				1.237 MHz	1.5 MHz	Pass
		High Channel				1.239 MHz	1.5 MHz	Pass

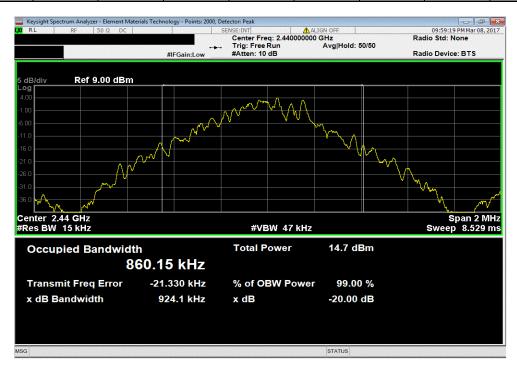
Report No. STAK0082.1 57/68





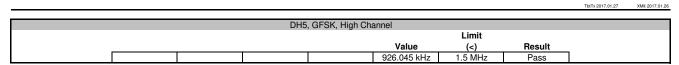


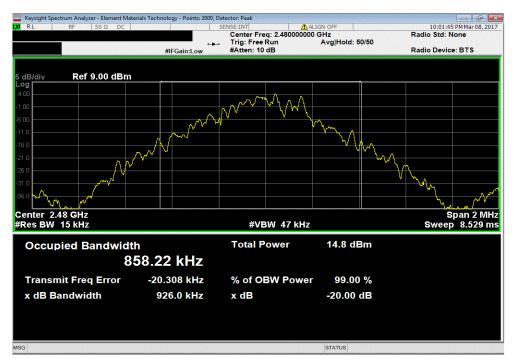


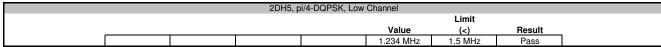


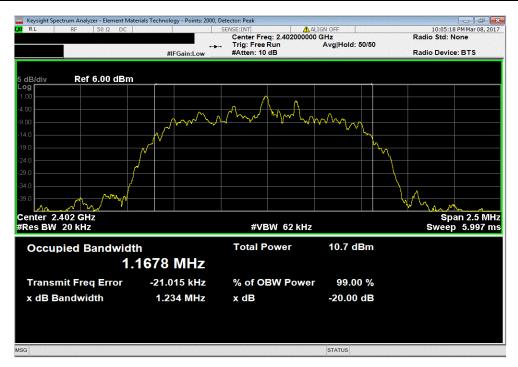
Report No. STAK0082.1 58/68







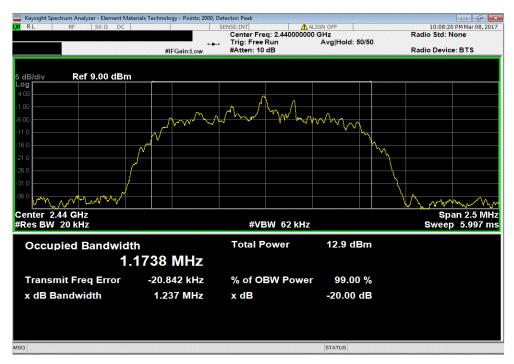


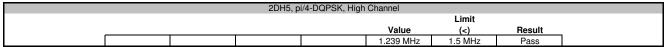


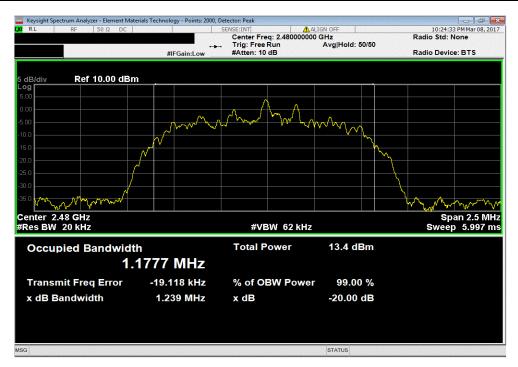
Report No. STAK0082.1 59/68











Report No. STAK0082.1 60/68



XMit 2017.01.26

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	N5182A	TIF	8/12/2014	8/12/2017
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/15/2016	9/15/2017
Attenuator	S.M. Electronics	SA26B-20	RFW	2/14/2017	2/14/2018
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Keysight	N9010A (EXA)	AFQ	12/22/2016	12/22/2017

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 in a no-hop mode. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

Report No. STAK0082.1

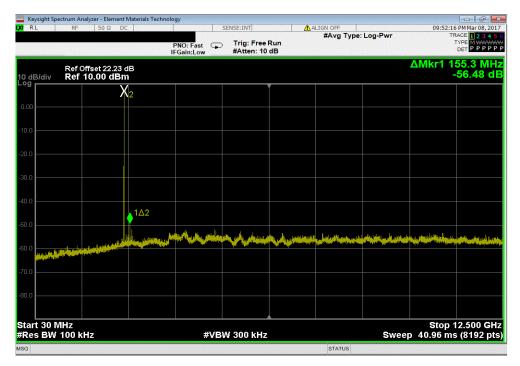


					TbtTx 2017.01.27	
	The Dash Pro Right			Work Order:		
Serial Number:					03/08/17	
	Starkey Laboratories, Inc	c.		Temperature:		
	Michael Thompson				18.3% RH	
Project:				Barometric Pres.:		
	Dustin Sparks		Power: 110VAC/60Hz	Job Site:	MN08	
EST SPECIFICATI	IONS		Test Method			
CC 15.247:2017			ANSI C63.10:2013			
COMMENTS						
owered by USB co	onnection to laptop					
-						
	// TEST STANDARD					
lone						
vone						
			A 11 0			
	6		Dustin Sparls			
Configuration #	6	Signature	Dustin Sparks			
	6	Signature	Frequency	Max Value	Limit	
onfiguration #	6	Signature		Max Value (dBc)	Limit ≤ (dBc)	Result
Configuration #		Signature	Frequency Range	(dBc)	≤ (dBc)	
onfiguration #	Low Channel	Signature	Frequency Range 30 MHz - 12.5 GHz	(dBc) -56.48	≤ (dBc)	Pass
onfiguration #	Low Channel Low Channel	Signature	Frequency Range 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz	-56.48 -56.07	≤ (dBc) -20 -20	Pass Pass
onfiguration #	Low Channel Low Channel Mid Channel	Signature	Frequency Range 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz	-56.48 -56.07 -58.47	≤ (dBc) -20 -20 -20	Pass Pass Pass
onfiguration #	Low Channel Low Channel Mid Channel Mid Channel	Signature	Frequency Range 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz	-56.48 -56.07 -58.47 -57.08	≤ (dBc) -20 -20 -20 -20 -20	Pass Pass Pass Pass
onfiguration #	Low Channel Low Channel Mid Channel Mid Channel High Channel	Signature	Frequency Range 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 35 GHz 30 MHz - 12.5 GHz 30 MHz - 12.5 GHz	(dBc) -56.48 -56.07 -58.47 -57.08 -59.4	-20 -20 -20 -20 -20 -20	Pass Pass Pass Pass Pass
onfiguration #	Low Channel Low Channel Mid Channel Mid Channel	Signature	Frequency Range 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz	-56.48 -56.07 -58.47 -57.08	≤ (dBc) -20 -20 -20 -20 -20	Pass Pass Pass Pass
onfiguration # H5, GFSK DH5, pi/4-DQPSK	Low Channel Low Channel Mid Channel Mid Channel High Channel High Channel	Signature	Frequency Range 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz	(dBc) -56.48 -56.07 -58.47 -57.08 -59.4 -56.53	≤ (dBc) -20 -20 -20 -20 -20 -20 -20	Pass Pass Pass Pass Pass Pass
onfiguration # H5, GFSK DH5, pi/4-DQPSK	Low Channel Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel	Signature	Frequency Range 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 30 MHz - 12.5 GHz	(dBc) -56.48 -56.07 -58.47 -57.08 -59.4 -56.53	≥ (dBc) -20 -20 -20 -20 -20 -20 -20 -20 -20 -2	Pass Pass Pass Pass Pass Pass Pass
configuration # H5, GFSK DH5, pi/4-DQPSK	Low Channel Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel	Signature	Frequency Range 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz	-56.48 -56.07 -58.47 -57.08 -59.4 -56.53 -55.31 -53.16	≤ (dBc) -20 -20 -20 -20 -20 -20 -20 -20 -20 -2	Pass Pass Pass Pass Pass Pass Pass Pass
onfiguration # H5, GFSK DH5, pi/4-DQPSK	Low Channel Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Mid Channel Mid Channel	Signature	Frequency Range 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 30 MHz - 12.5 GHz	-56.48 -56.07 -58.47 -57.08 -59.4 -56.53 -55.31 -55.31 -58.88	≥ (dBc) -20 -20 -20 -20 -20 -20 -20 -20 -20 -2	Pass Pass Pass Pass Pass Pass Pass Pass
Configuration # OH5, GFSK DH5, pi/4-DQPSK	Low Channel Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Mid Channel Mid Channel Mid Channel	Signature	Frequency Range 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz	(dBc) -56.48 -56.07 -58.47 -57.08 -59.4 -56.53 -55.31 -53.16 -58.88 -56.09	≤ (dBc) -20 -20 -20 -20 -20 -20 -20 -20 -20 -2	Pass Pass Pass Pass Pass Pass Pass Pass
Configuration # DH5, GFSK CDH5, pi/4-DQPSK	Low Channel Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Mid Channel Mid Channel	Signature	Frequency Range 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 30 MHz - 12.5 GHz 12.5 GHz - 25 GHz 30 MHz - 12.5 GHz 30 MHz - 12.5 GHz	-56.48 -56.07 -58.47 -57.08 -59.4 -56.53 -55.31 -55.31 -58.88	≥ (dBc) -20 -20 -20 -20 -20 -20 -20 -20 -20 -2	Pass Pass Pass Pass Pass Pass Pass Pass

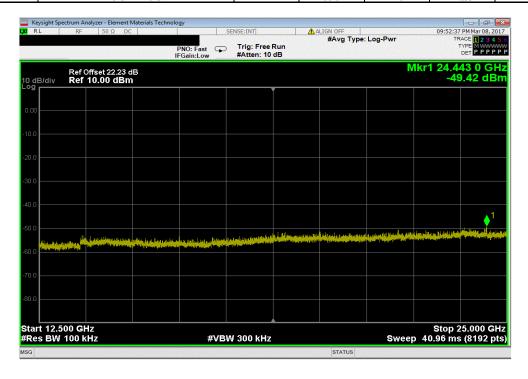
Report No. STAK0082.1 62/68



					TbtTx 2017.01.27	XMit 2017.01.26
	H5, GFSK, Low Ch	annel				
Frequency		Max Value	Limit			
Range		(dBc)	≤ (dBc)	Result		
30 MHz - 12.5 GHz		-56.48	-20	Pass		



D	DH5, GFSK, Low Channel					
Frequency	Max Value	Limit				
Range	(dBc)	≤ (dBc)	Result			
12.5 GHz - 25 GHz	-56.07	-20	Pass			



Report No. STAK0082.1 63/68



TbtTx 2017.01.27

DH5, GFSK, Mid Channel

Frequency
Range
(dBc)

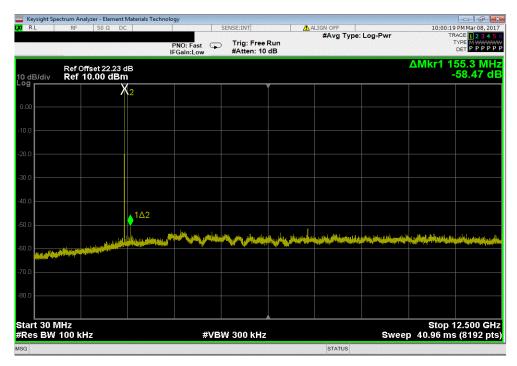
30 MHz - 12.5 GHz

DH5, GFSK, Mid Channel

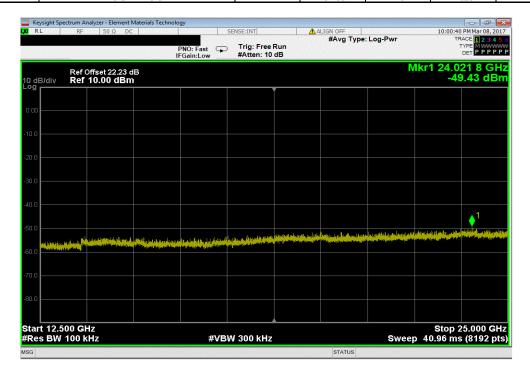
Max Value
Limit

(dBc)
≤ (dBc)
Result

-58.47
-20
Pass



DH5	DH5, GFSK, Mid Channel					
Frequency	Max Value	Limit				
Range	(dBc)	≤ (dBc)	Result			
12.5 GHz - 25 GHz	-57.08	-20	Pass			



Report No. STAK0082.1 64/68



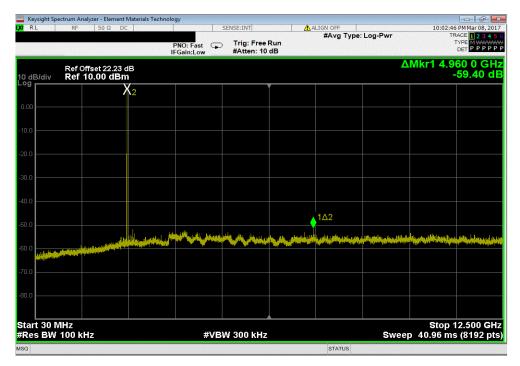
TbtTx 2017.01.27

DH5, GFSK, High Channel

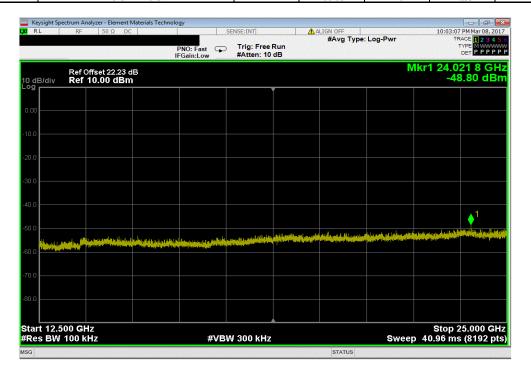
Frequency Max Value Limit

Range (dBc) ≤ (dBc) Result

30 MHz - 12.5 GHz -59.4 -20 Pass



DH5, GFSK, High Channel					
Frequency	Max Value	Limit			
Range	(dBc)	≤ (dBc)	Result		
12.5 GHz - 25 GHz	-56.53	-20	Pass		

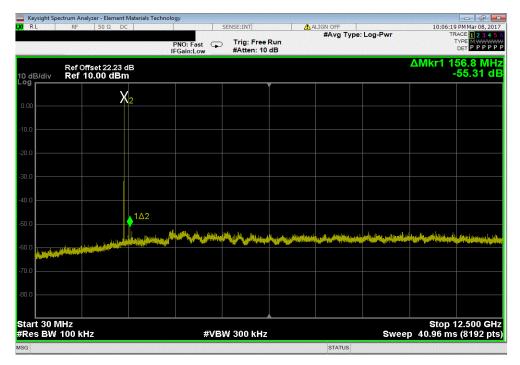


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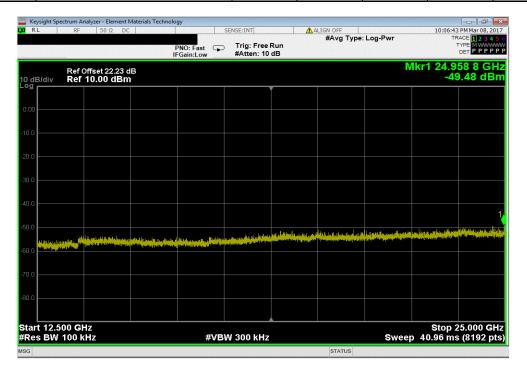


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2DH5, p	i/4-DQPSK, Low	Channel			
Frequency	· ·	Max Value	Limit		
Range		(dBc)	≤ (dBc)	Result	
30 MHz - 12.5 GHz		-55.31	-20	Pass	



2DH5,	pi/4-DQPSK, Low	Channel		
Frequency		Max Value	Limit	
Range		(dBc)	≤ (dBc)	Result
12.5 GHz - 25 GHz		-53.16	-20	Pass

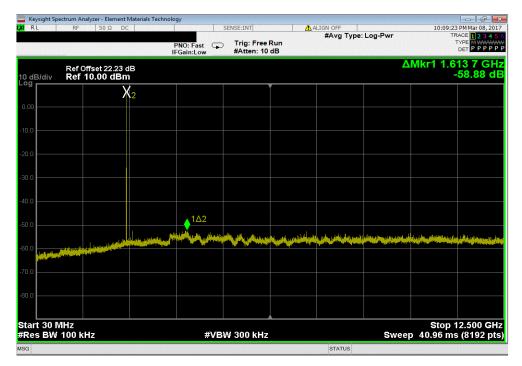


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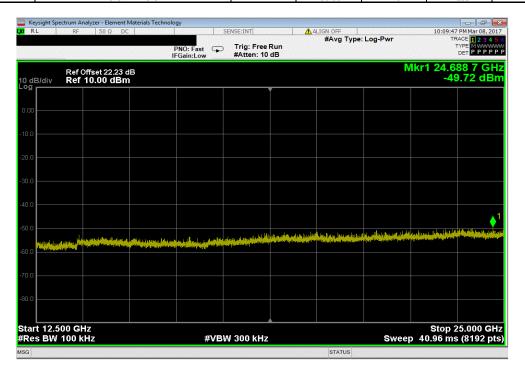


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2DH5. r	oi/4-DQPSK, Mid	Channel			
Frequency	, , ,	Max Value	Limit		
Range		(dBc)	≤ (dBc)	Result	
30 MHz - 12.5 GHz		-58.88	-20	Pass	



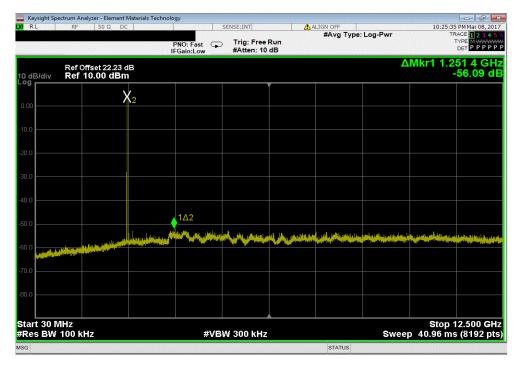
2DH5, pi/4-DQPSK, Mid Channel				
Frequency	Max Value	Limit		
Range	(dBc)	≤ (dBc)	Result	
12.5 GHz - 25 GHz	-56.09	-20	Pass	



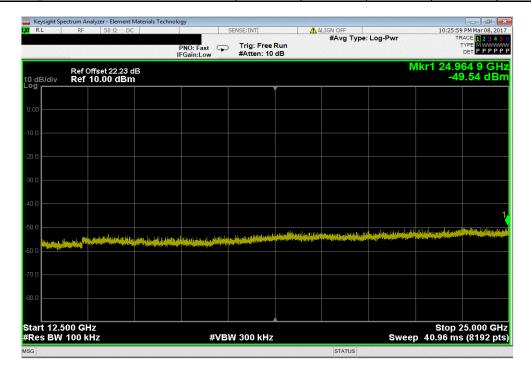
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					TbtTx 2017.01.27	XMit 2017.01.26
2DH5	, pi/4-DQPSK, High	Channel				
Frequency		Max Value	Limit			
Range		(dBc)	≤ (dBc)	Result		
30 MHz - 12.5 GHz		-56.09	-20	Pass		



	2DH5,	oi/4-DQPSK, High	Channel		
	Frequency		Max Value	Limit	
_	Range		(dBc)	≤ (dBc)	Result
ĺ	12.5 GHz - 25 GHz		-53.4	-20	Pass



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