

Starkey Laboratories, Inc.

SurfLink Mini Mobile Adapter

FCC 15.207:2017

FCC 15.247:2017

Bluetooth Radio

Report # STAK0080





NVLAP Lab Code: 200881-0

CERTIFICATE OF TEST



Last Date of Test: February 7, 2017 Starkey Laboratories, Inc. Model: SurfLink Mini Mobile Adapter

Radio Equipment Testing

Standards

- tall tall tall	
Specification	Method
FCC 15.207:2017	ANSI C63.10:2013
FCC 15.247:2017	ANSI 003.10.2013

Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	Yes	Pass	
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.

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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

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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.

<u>Test</u>	+ MU	<u>- MU</u>
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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FACILITIES







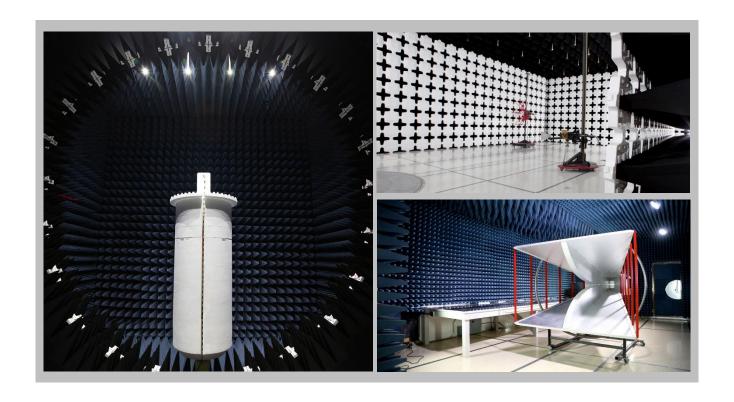
California Labs OC01-13 41 Tesla Irvine, CA 92618

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
Hillsboro, OR 97124
(503) 844-4066

TexasLabs TX01-09
3801 E Plano Pkwy
Plano, TX 75074
(469) 304-5255

WashingtonLabs NC01-05
19201 120th Ave NE
Bothell, WA 98011
(425)984-6600

Irvine, CA 92618 (949) 861-8918	Brooklyn Park, MN 55445 (612)-638-5136	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		
	VCCI						
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		

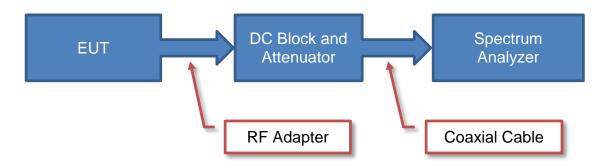


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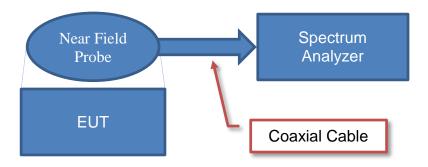
Test Setup Block Diagrams



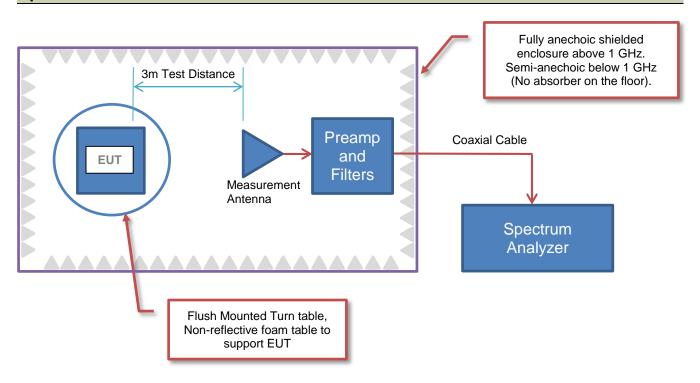
Antenna Port Conducted Measurements



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:	SurfLink Mini Mobile Adapter
First Date of Test:	January 23, 2017
Last Date of Test:	February 7, 2017
Receipt Date of Samples:	January 23, 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:

SurfLink Mini Mobile Adapter attaches to SurfLink Remote Microphone to comprise the SurfLink Mini Mobile system, which is designed to stream audio from a Bluetooth device to 900MHz wireless hearing instruments.

Testing Objective:

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

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CONFIGURATIONS



Configuration STAK0080-1

Software/Firmware Running during test	
Description	Version
BlueTest3	2.5.8.667

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
SurfLink Mini Mobile Adapter	Starkey Laboratories	500	00017006902

Peripherals in test setup boundary				
Description Manufacturer Model/Part Number Serial Number				
Communication Microphone	Starkey Laboratories	400	160493708	
AC Adapter (SurfLink)	Phihon	PSA05F-050Q	DC10003938A2	

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
USB Cable (AC Adapter)	No	0.8m	Yes	AC Adapter (SurfLink)	SurfLink Mini
OSB Cable (AC Adapter)	INO	0.0111	163	AC Adapter (Suitclink)	Mobile Adapter

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CONFIGURATIONS



Configuration STAK0080-2

Software/Firmware Running during test	
Description	Version
BlueTest3	2.5.8.667

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
SurfLink Mini Mobile Adapter	Starkey Laboratories	500	00017006902

Peripherals in test setup boundary							
Description	Manufacturer	Model/Part Number	Serial Number				
Communication Microphone	Starkey Laboratories	400	160493708				
Laptop	Lenovo	T430	11306				
AC Adapter (Laptop)	Lenovo	ADLX90NCT2A	11S45N0311Z1ZLZ633M0T4 Rev C				

Cables							
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2		
DC Cable (Laptop)	No	1.4m	Yes	AC Adapter (Laptop)	Laptop		
AC Cable (Laptop)	No	0.8m	No	AC Mains	AC Adapter (Laptop)		
USB Cable (Laptop)	No	0.8m	Yes	Laptop	SurfLink Mini Mobile Adapter		

Configuration STAK0080- 4

Software/Firmware Running during test			
Description	Version		
BlueTest3	2.5.8.667		

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
SurfLink Mini Mobile Adapter	Starkey Laboratories	500	00017006905

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CONFIGURATIONS



Configuration STAK0080-5

Software/Firmware Running during test	
Description	Version
BlueTest3	2.5.8.667

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
SurfLink Mini Mobile Adapter	Starkey Laboratories	500	00017006902

Peripherals in test setup boundary					
Description Manufacturer Model/Part Number Serial Number					
Communication Microphone	Starkey Laboratories	400	160493708		
AC Adapter (SurfLink)	Phihon	PSA05F-050Q	DC10003938A2		

Cables							
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2		
USB Cable (AC Adapter)	No	0.8m	Yes	AC Adapter (SurfLink)	SurfLink Mini Mobile Adapter		

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MODIFICATIONS



Equipment Modifications

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TEST DESCRIPTION

Using the mode of operation and configuration noted within this report, conducted emissions tests were performed. The frequency range investigated (scanned), is also noted in this report. Conducted power line measurements are made, unless otherwise specified, over the frequency range from 150 kHz to 30 MHz to determine the line-to-ground radio-noise voltage that is conducted from the EUT power-input terminals that are directly (or indirectly via separate transformer or power supplies) connected to a public power network. Per the standard, an insulating material was also added to ground plane between the EUT's power and remote I/O cables. Equipment is tested with power cords that are normally used or that have electrical or shielding characteristics that are the same as those cords normally used. Typically those measurements are made using a LISN (Line Impedance Stabilization Network), the 50ohm measuring port is terminated by a 50ohm EMI meter or a 50ohm resistive load. All 50ohm measuring ports of the LISN are terminated by 50ohm. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Receiver	Rohde & Schwarz	ESR7	ARI	6/14/2016	6/14/2017
LISN	Solar Electronics	9252-50-R-24-BNC	LIY	3/21/2016	3/21/2017
Cable - Conducted Cable Assembly	Element	MNC, HGN, TYK	MNCA	1/29/2016	1/29/2017

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.4 dB	-2.4 dB

CONFIGURATIONS INVESTIGATED

STAK0080-1 STAK0080-2

MODES INVESTIGATED

Tx Modulated on Mid Channel 20 (2442MHz).

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EUT:	SurfLink Mini Mobile Adapter	Work Order:	STAK0080
Serial Number:	00017006902	Date:	01/23/2017
Customer:	Starkey Laboratories, Inc.	Temperature:	23.1°C
Attendees:	Charlie Esch	Relative Humidity:	28%
Customer Project:	None	Bar. Pressure:	1012 mb
Tested By:	Dustin Sparks, Kyle McMullan	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	STAK0080-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2017	ANSI C63.10:2013

TEST PARAMETERS

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

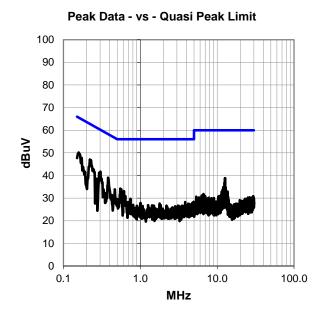
Companion Microphone powered on.

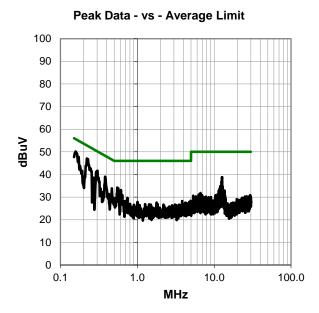
EUT OPERATING MODES

Tx Modulated on Mid Channel 20 (2442MHz).

DEVIATIONS FROM TEST STANDARD

None





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RESULTS - Run #4

Peak Data - vs - Quasi Peak Limit

Peak Data - vs - Quasi Peak Limit					
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.157	29.8	20.4	50.2	65.6	-15.4
0.221	26.8	20.3	47.1	62.8	-15.7
0.303	21.5	20.2	41.7	60.2	-18.5
0.381	18.8	20.2	39.0	58.3	-19.3
12.656	17.9	20.9	38.8	60.0	-21.2
0.549	14.1	20.1	34.2	56.0	-21.8
0.564	13.8	20.1	33.9	56.0	-22.1
0.269	18.4	20.2	38.6	61.1	-22.5
0.467	13.8	20.1	33.9	56.6	-22.7
0.613	13.0	20.1	33.1	56.0	-22.9
12.473	16.1	20.8	36.9	60.0	-23.1
12.667	14.4	20.9	35.3	60.0	-24.7
0.639	10.8	20.1	30.9	56.0	-25.1
12.036	14.0	20.8	34.8	60.0	-25.2
12.831	13.9	20.9	34.8	60.0	-25.2
12.596	13.8	20.9	34.7	60.0	-25.3
12.275	13.8	20.8	34.6	60.0	-25.4
12.753	13.6	20.9	34.5	60.0	-25.5
12.712	13.5	20.9	34.4	60.0	-25.6
0.329	13.6	20.2	33.8	59.5	-25.7
12.409	13.4	20.8	34.2	60.0	-25.8
12.014	13.3	20.8	34.1	60.0	-25.9
12.544	13.2	20.9	34.1	60.0	-25.9
12.693	13.2	20.9	34.1	60.0	-25.9
12.771	13.1	20.9	34.0	60.0	-26.0
12.021	13.0	20.8	33.8	60.0	-26.2

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.157	29.8	20.4	50.2	55.6	-5.4
0.221	26.8	20.3	47.1	52.8	-5.7
0.303	21.5	20.2	41.7	50.2	-8.5
0.381	18.8	20.2	39.0	48.3	-9.3
12.656	17.9	20.9	38.8	50.0	-11.2
0.549	14.1	20.1	34.2	46.0	-11.8
0.564	13.8	20.1	33.9	46.0	-12.1
0.269	18.4	20.2	38.6	51.1	-12.5
0.467	13.8	20.1	33.9	46.6	-12.7
0.613	13.0	20.1	33.1	46.0	-12.9
12.473	16.1	20.8	36.9	50.0	-13.1
12.667	14.4	20.9	35.3	50.0	-14.7
0.639	10.8	20.1	30.9	46.0	-15.1
12.036	14.0	20.8	34.8	50.0	-15.2
12.831	13.9	20.9	34.8	50.0	-15.2
12.596	13.8	20.9	34.7	50.0	-15.3
12.275	13.8	20.8	34.6	50.0	-15.4
12.753	13.6	20.9	34.5	50.0	-15.5

20.9

20.2

20.8

20.8

20.9

20.9

20.9

20.8

Peak Data - vs - Average Limit

CONCLUSION

Pass

Tested By

34.4

33.8

34.2

34.1

34.1

34.1

34.0

33.8

50.0

49.5

50.0

50.0

50.0

50.0

50.0

50.0

-15.6

-15.7

-15.8

-15.9

-15.9

-15.9

-16.0

-16.2

Report No. STAK0080 15/102

12.712

0.329

12.409

12.014

12.544

12.693

12.771

12.021

13.5

13.6

13.4

13.3

13.2

13.2

13.1

13.0



EUT:	SurfLink Mini Mobile Adapter	Work Order:	STAK0080
Serial Number:	00017006902	Date:	01/23/2017
Customer:	Starkey Laboratories, Inc.	Temperature:	23.1°C
Attendees:	Charlie Esch	Relative Humidity:	28%
Customer Project:	None	Bar. Pressure:	1012 mb
Tested By:	Dustin Sparks, Kyle McMullan	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	STAK0080-1

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2017	ANSI C63.10:2013

TEST PARAMETERS

Run #:	5	Line:	High Line	Add. Ext. Attenuation (dB):	0
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COMMENTS

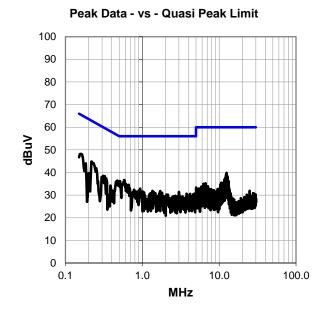
Companion Microphone powered on.

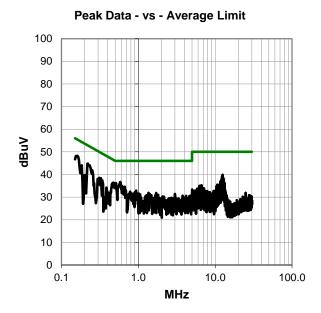
EUT OPERATING MODES

Tx Modulated on Mid Channel 20 (2442MHz).

DEVIATIONS FROM TEST STANDARD

None





Report No. STAK0080 16/102



RESULTS - Run #5 Peak Data -

Peak Data - vs - Quasi Peak Limit					
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.157	27.8	20.4	48.2	65.6	-17.4
0.217	24.5	20.3	44.8	62.9	-18.1
0.583	16.6	20.1	36.7	56.0	-19.3
0.475	16.3	20.1	36.4	56.4	-20.0
12.488	19.0	20.8	39.8	60.0	-20.2
0.184	23.6	20.4	44.0	64.3	-20.3
12.327	18.2	20.8	39.0	60.0	-21.0
0.613	14.8	20.1	34.9	56.0	-21.1
0.325	18.2	20.2	38.4	59.6	-21.2
0.669	14.5	20.1	34.6	56.0	-21.4
12.421	17.8	20.8	38.6	60.0	-21.4
0.310	18.3	20.2	38.5	60.0	-21.5
12.361	17.6	20.8	38.4	60.0	-21.6
12.790	17.4	20.9	38.3	60.0	-21.7
12.305	17.4	20.8	38.2	60.0	-21.8
0.340	17.2	20.2	37.4	59.2	-21.8
12.574	17.2	20.9	38.1	60.0	-21.9
12.383	17.2	20.8	38.0	60.0	-22.0
12.458	17.1	20.8	37.9	60.0	-22.1
12.525	16.9	20.9	37.8	60.0	-22.2
12.753	16.7	20.9	37.6	60.0	-22.4
11.947	16.6	20.8	37.4	60.0	-22.6
11.988	16.6	20.8	37.4	60.0	-22.6
12.894	16.5	20.9	37.4	60.0	-22.6
12.413	16.5	20.8	37.3	60.0	-22.7
12.197	16.4	20.8	37.2	60.0	-22.8

Peak Data - vs - Average Lim	it
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				Spec.	
Freq	Amp.	Factor	Adjusted	Limit	Margin
(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)
0.157	27.8	20.4	48.2	55.6	-7.4
0.217	24.5	20.3	44.8	52.9	-8.1
0.583	16.6	20.1	36.7	46.0	-9.3
0.475	16.3	20.1	36.4	46.4	-10.0
12.488	19.0	20.8	39.8	50.0	-10.2
0.184	23.6	20.4	44.0	54.3	-10.3
12.327	18.2	20.8	39.0	50.0	-11.0
0.613	14.8	20.1	34.9	46.0	-11.1
0.325	18.2	20.2	38.4	49.6	-11.2
0.669	14.5	20.1	34.6	46.0	-11.4
12.421	17.8	20.8	38.6	50.0	-11.4
0.310	18.3	20.2	38.5	50.0	-11.5
12.361	17.6	20.8	38.4	50.0	-11.6
12.790	17.4	20.9	38.3	50.0	-11.7
12.305	17.4	20.8	38.2	50.0	-11.8
0.340	17.2	20.2	37.4	49.2	-11.8
12.574	17.2	20.9	38.1	50.0	-11.9
12.383	17.2	20.8	38.0	50.0	-12.0
12.458	17.1	20.8	37.9	50.0	-12.1
12.525	16.9	20.9	37.8	50.0	-12.2
12.753	16.7	20.9	37.6	50.0	-12.4
11.947	16.6	20.8	37.4	50.0	-12.6
11.988	16.6	20.8	37.4	50.0	-12.6
12.894	16.5	20.9	37.4	50.0	-12.6
12.413	16.5	20.8	37.3	50.0	-12.7
12.197	16.4	20.8	37.2	50.0	-12.8

CONCLUSION

Pass

Tested By

Report No. STAK0080 17/102



EUT:	SurfLink Mini Mobile Adapter	Work Order:	STAK0080
Serial Number:	00017006902	Date:	01/23/2017
Customer:	Starkey Laboratories, Inc.	Temperature:	23.1°C
Attendees:	Charlie Esch	Relative Humidity:	28%
Customer Project:	None	Bar. Pressure:	1012 mb
Tested By:	Dustin Sparks, Kyle McMullan	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	STAK0080-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2017	ANSI C63.10:2013

TEST PARAMETERS

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

COMMENTS

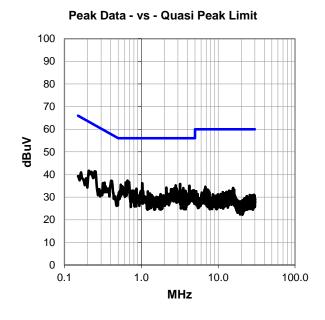
Companion Microphone powered on.

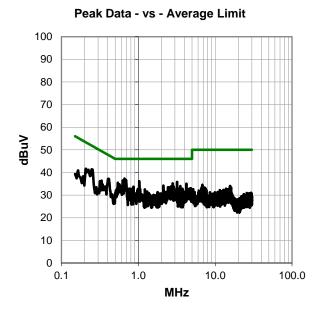
EUT OPERATING MODES

Tx Modulated on Mid Channel 20 (2442MHz).

DEVIATIONS FROM TEST STANDARD

None





Report No. STAK0080 18/102



-13.1

RESULTS - Run #7

Peak Data - vs - Quasi Peak Limit

Peak Data - vs - Quasi Peak Limit									
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)				
0.661	17.2	20.1	37.3	56.0	-18.7				
0.695	16.6	20.1	36.7	56.0	-19.3				
0.628	16.4	20.1	36.5	56.0	-19.5				
1.027	16.0	20.1	36.1	56.0	-19.9				
3.198	15.6	20.2	35.8	56.0	-20.2				
0.542	15.4	20.1	35.5	56.0	-20.5				
0.404	17.0	20.2	37.2	57.8	-20.6				
2.803	15.0	20.2	35.2	56.0	-20.8				
4.231	14.7	20.3	35.0	56.0	-21.0				
0.568	14.7	20.1	34.8	56.0	-21.2				
2.776	14.1	20.2	34.3	56.0	-21.7				
0.206	21.3	20.3	41.6	63.4	-21.8				
2.120	14.0	20.2	34.2	56.0	-21.8				
3.519	13.7	20.3	34.0	56.0	-22.0				
2.672	13.7	20.2	33.9	56.0	-22.1				
2.758	13.6	20.2	33.8	56.0	-22.2				
0.866	13.6	20.1	33.7	56.0	-22.3				
2.888	13.5	20.2	33.7	56.0	-22.3				
2.441	13.3	20.2	33.5	56.0	-22.5				
2.519	13.2	20.2	33.4	56.0	-22.6				
0.333	16.2	20.2	36.4	59.4	-23.0				
4.735	12.7	20.3	33.0	56.0	-23.0				
4.806	12.6	20.4	33.0	56.0	-23.0				
0.758	12.8	20.1	32.9	56.0	-23.1				
2.855	12.7	20.2	32.9	56.0	-23.1				
3.366	12.7	20.2	32.9	56.0	-23.1				

Peak Data - vs - Average Limit									
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)				
0.661	17.2	20.1	37.3	46.0	-8.7				
0.695	16.6	20.1	36.7	46.0	-9.3				
0.628	16.4	20.1	36.5	46.0	-9.5				
1.027	16.0	20.1	36.1	46.0	-9.9				
3.198	15.6	20.2	35.8	46.0	-10.2				
0.542	15.4	20.1	35.5	46.0	-10.5				
0.404	17.0	20.2	37.2	47.8	-10.6				
2.803	15.0	20.2	35.2	46.0	-10.8				
4.231	14.7	20.3	35.0	46.0	-11.0				
0.568	14.7	20.1	34.8	46.0	-11.2				
2.776	14.1	20.2	34.3	46.0	-11.7				
0.206	21.3	20.3	41.6	53.4	-11.8				
2.120	14.0	20.2	34.2	46.0	-11.8				
3.519	13.7	20.3	34.0	46.0	-12.0				
2.672	13.7	20.2	33.9	46.0	-12.1				
2.758	13.6	20.2	33.8	46.0	-12.2				
0.866	13.6	20.1	33.7	46.0	-12.3				
2.888	13.5	20.2	33.7	46.0	-12.3				
2.441	13.3	20.2	33.5	46.0	-12.5				
2.519	13.2	20.2	33.4	46.0	-12.6				
0.333	16.2	20.2	36.4	49.4	-13.0				
4.735	12.7	20.3	33.0	46.0	-13.0				
4.806	12.6	20.4	33.0	46.0	-13.0				
0.758	12.8	20.1	32.9	46.0	-13.1				
2.855	12.7	20.2	32.9	46.0	-13.1				

CONCLUSION

Pass

Tested By

Report No. STAK0080 19/102

3.366



EUT:	SurfLink Mini Mobile Adapter	Work Order:	STAK0080
Serial Number:	00017006902	Date:	01/23/2017
Customer:	Starkey Laboratories, Inc.	Temperature:	23.1°C
Attendees:	Charlie Esch	Relative Humidity:	28%
Customer Project:	None	Bar. Pressure:	1012 mb
Tested By:	Dustin Sparks, Kyle McMullan	Job Site:	MN03
Power:	110VAC/60Hz	Configuration:	STAK0080-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2017	ANSI C63.10:2013

TEST PARAMETERS

Run #:	8	Line:	Neutral	Add. Ext. Attenuation (dB):	n
IXUII #.	0	LITIE.	Neutrai	Add. Ext. Attendation (db).	U

COMMENTS

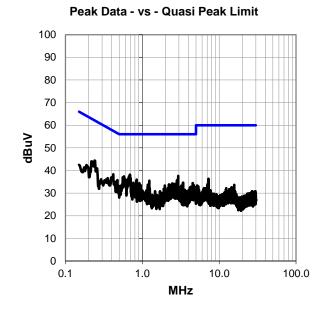
Companion Microphone powered on.

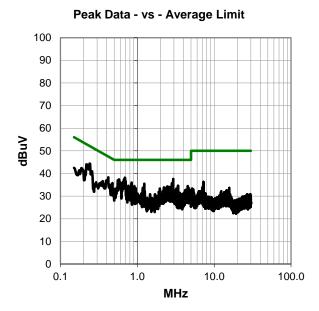
EUT OPERATING MODES

Tx Modulated on Mid Channel 20 (2442MHz).

DEVIATIONS FROM TEST STANDARD

None





Report No. STAK0080 20/102



RESULTS - Run #8

Peak Data - vs - Quasi Peak Limit

Peak Data - vs - Quasi Peak Limit									
Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)				
0.240	24.2	20.2	44.4	62.1	-17.7				
0.691	18.1	20.1	38.2	56.0	-17.8				
2.933	17.4	20.2	37.6	56.0	-18.4				
0.579	17.3	20.1	37.4	56.0	-18.6				
0.557	16.9	20.1	37.0	56.0	-19.0				
0.419	18.2	20.1	38.3	57.5	-19.2				
0.844	15.9	20.1	36.0	56.0	-20.0				
2.836	15.6	20.2	35.8	56.0	-20.2				
1.236	15.4	20.1	35.5	56.0	-20.5				
0.475	15.7	20.1	35.8	56.4	-20.6				
0.833	15.1	20.1	35.2	56.0	-20.8				
2.814	14.6	20.2	34.8	56.0	-21.2				
2.918	14.6	20.2	34.8	56.0	-21.2				
0.762	14.5	20.1	34.6	56.0	-21.4				
3.388	14.4	20.2	34.6	56.0	-21.4				
0.915	14.3	20.1	34.4	56.0	-21.6				
2.888	14.2	20.2	34.4	56.0	-21.6				
4.530	14.1	20.3	34.4	56.0	-21.6				
2.456	14.1	20.2	34.3	56.0	-21.7				
2.765	14.0	20.2	34.2	56.0	-21.8				
0.187	22.0	20.4	42.4	64.2	-21.8				
2.590	13.9	20.2	34.1	56.0	-21.9				
0.810	13.8	20.1	33.9	56.0	-22.1				
2.221	13.7	20.2	33.9	56.0	-22.1				
2.396	13.7	20.2	33.9	56.0	-22.1				
0.355	16.4	20.2	36.6	58.8	-22.2				

Peak Data - vs - Average Li	mit
reak Dala - vs - Average Li	HIIL

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.240	24.2	20.2	44.4	52.1	-7.7
0.691	18.1	20.1	38.2	46.0	-7.8
2.933	17.4	20.2	37.6	46.0	-8.4
0.579	17.3	20.1	37.4	46.0	-8.6
0.557	16.9	20.1	37.0	46.0	-9.0
0.419	18.2	20.1	38.3	47.5	-9.2
0.844	15.9	20.1	36.0	46.0	-10.0
2.836	15.6	20.2	35.8	46.0	-10.2
1.236	15.4	20.1	35.5	46.0	-10.5
0.475	15.7	20.1	35.8	46.4	-10.6
0.833	15.1	20.1	35.2	46.0	-10.8
2.814	14.6	20.2	34.8	46.0	-11.2
2.918	14.6	20.2	34.8	46.0	-11.2
0.762	14.5	20.1	34.6	46.0	-11.4
3.388	14.4	20.2	34.6	46.0	-11.4
0.915	14.3	20.1	34.4	46.0	-11.6
2.888	14.2	20.2	34.4	46.0	-11.6
4.530	14.1	20.3	34.4	46.0	-11.6
2.456	14.1	20.2	34.3	46.0	-11.7
2.765	14.0	20.2	34.2	46.0	-11.8
0.187	22.0	20.4	42.4	54.2	-11.8
2.590	13.9	20.2	34.1	46.0	-11.9
0.810	13.8	20.1	33.9	46.0	-12.1
2.221	13.7	20.2	33.9	46.0	-12.1
2.396	13.7	20.2	33.9	46.0	-12.1
0.355	16.4	20.2	36.6	48.8	-12.2

CONCLUSION

Pass

Tested By

Report No. STAK0080 21/102

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 Bluetooth EDR on Low (2402MHz), Mid (2441MHz), or High Ch (2480MHz) in DH5, 2DH5, and 3DH5.

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

STAK0080 - 5

FREQUENCY RANGE INVESTIGATED

Start Frequency 30 MHz Stop Frequency 25 GHz

SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Cable	Element	18-26GHz Standard Gain Horn Cable	MNP	9/15/2016	12 mo
Amplifier - Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	9/15/2016	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-09	AHG	NCR	0 mo
Attenuator	Fairview Microwave	SA18E-20	TWZ	9/23/2016	12 mo
Cable	ESM Cable Corp.	Standard Gain Horn Cables	MNJ	7/29/2016	12 mo
Cable	ESM Cable Corp.	Double Ridge Guide Horn Cables	MNI	12/1/2016	12 mo
Cable	ESM Cable Corp.	Bilog Cables	MNH	12/1/2016	12 mo
Filter - High Pass	Micro-Tronics	HPM50111	LFN	9/23/2016	12 mo
Filter - Low Pass	Micro-Tronics	LPM50004	LFK	9/22/2016	12 mo
Antenna - Biconilog	Teseq	CBL 6141B	AYD	1/6/2016	24 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AXP	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVW	3/1/2016	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVV	3/1/2016	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVT	3/1/2016	12 mo
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AVO	12/1/2016	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AJA	6/23/2016	24 mo
Antenna - Standard Gain	ETS Lindgren	3160-08	AIQ	NCR	0 mo
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	1/6/2017	12 mo

MEASUREMENT BANDWIDTHS

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.

SPURIOUS RADIATED EMISSIONS

2483.717

2484.460

2484.570

2484.027

2389.927

2483.960

44.3

44.3

44.2

44.0

43.7

43.6

-2.6

-2.6

-2.6

-2.6

109.1

299.0

150.0

87.1

207.0

157.0

0.0

0.0

0.0

0.0

20.0

20.0

20.0

20.0

Horz

Horz

Horz

Vert

Vert

Vert

0.0

0.0

0.0

1.0

1.2 1.0

1.0



74.0

74.0

74.0

74.0

74.0

-12.3

-12.3

-12.4

-12.6

-12.7

-13.0

EUT Vert, High Ch, DH5

EUT Horz, Low Ch, DH5

EUT On Side, High Ch, DH5

EUT On Side, High Ch, DH5 EUT Vert, High Ch, DH5 EUT Vert, High Ch, 2-DH5

61.7

61.6

61.4

61.3

										EmiR5 2017.01.25		PSA-ESCI 2017.01.26	<u>L</u>
Wo	rk Order:	STAK0			Date:	02/0			_		0	0	
	Project:	None			perature:		4 °C		rev	my	13 M	12	
	Job Site:	MN0			Humidity:		% RH					_	1
Serial	Number:	0001700			tric Pres.:	1034	mbar		Tested by:	Kyle McMu	llan, Chris	Patterson,	Trevor Buls
Confi		SurfLink Min	i Modile A	aapter									_
Conn	guration:	Starkey Labo	rotorios	lno									_
		Charlie Esch		Inc.									_
		110VAC/60H											_
		Transmitting		EDP on L	ow (2402MI	H-/ Mid (2	441MHz) c	or High Ch	(2480MHz)	in DHE 2DI	45 and 20)HE	-
Operati	ng Mode:	Transmitting	Diuelootii	LDIX OII L	UW (24021VII	1 12), IVIIU (2	44 HVII IZ), C	or riigir on	(2400IVII IZ)	III DI 13, 2DI	i io, aiiu ol	JI IJ.	
		None											-
De	eviations:	None											
		Duty cycle co	orrection f	actor of -30) 75 dB ann	lied to ave	rage data						=
Co	mments:	2 at, 0,0.0 ot		40.0. 0. 00	o uz upp		ago data.						
Took Coose	£!4!						To at Maste						<u> </u>
Test Specif							Test Meth						=
FCC 15.247	7:2017						ANSI C63.	10:2013					
													_
Run#	35	Test Dista	ance (m)	3	Antenna	Height(s)		1 to 4(m)		Results	Pa	ass	_
80 —													
											-		
70												+++	
									-				
60													
											_		
50													
00													
40													
30 +									ž i				
									3				
20									*				
20													
10								- 1					
									3				
0 +													
-10 [⊥]													
10			100			1000			10000			100000	
.0			100			MHz						. 55566	
						IVI∏∠				■ PK	AV	QP	
			_		5.6.								
					Duty Cycle Correction	External	Polarity/ Transducer		Distance			Compared to	
Freq	Amplitude	Factor An	tenna Height	Azimuth	Factor	Attenuation	Type	Detector	Adjustment	Adjusted	Spec. Limit	Spec.	
(MHz)	(dBuV)	(dB)	(meters)	(degrees)	(dB)	(dB)			(dB)	(dBuV/m)	(dBuV/m)	(dB)	
7000 000	F7.0	45.6	0.5	054.5	0.0	0.0	11.	Di.		70.0	74.0		Comments FLIT On Cide Mid Ch. DUE
7322.692	57.6	15.2	2.5	354.9	0.0	0.0	Horz	PK	0.0	72.8	74.0	-1.2	EUT On Side, Mid Ch, DH5 EUT On Side, High Ch, DH5
7439.575 7322.692	56.9 55.1	15.3 15.2	2.6 2.0	354.0 200.0	0.0 0.0	0.0 0.0	Horz Horz	PK PK	0.0 0.0	72.2 70.3	74.0 74.0	-1.8 -3.7	EUT Horz, Mid Ch, DH5
7322.692	53.7	15.2	1.0	214.1	0.0	0.0	Horz	PK	0.0	68.9	74.0	-5. <i>1</i> -5.1	EUT Vert, Mid Ch, DH5
7322.508	53.4	15.2	1.0	58.1	0.0	0.0	Vert	PK	0.0	68.6	74.0	-5.4	EUT Vert, Mid Ch, DH5
7323.500	53.3	15.2	1.0	121.0	0.0	0.0	Vert	PK	0.0	68.5	74.0	-5.5	EUT On Side, Mid Ch, DH5
7322.608	51.9	15.2	1.1	100.0	0.0	0.0	Vert	PK	0.0	67.1	74.0	-6.9	EUT Horz, Mid Ch, DH5
7440.533	51.7	15.3	1.0	311.9	0.0	0.0	Vert	PK	0.0	67.0	74.0	-7.0	EUT On Side, High Ch, DH5
7322.575	50.7	15.2	2.8	353.0	0.0	0.0	Horz	PK	0.0	65.9	74.0	-8.1	EUT On Side, Mid Ch, 3-DH5
7323.567	48.7	15.2	1.0	357.0	0.0	0.0	Horz	PK PK	0.0	63.9 62.1	74.0	-10.1	EUT On Side, Mid Ch, 2-DH5 EUT Horz, High Ch, DH5
2483.887 2484.243	44.7 44.6	-2.6 -2.6	1.0 1.0	250.0 113.1	0.0 0.0	20.0 20.0	Horz Vert	PK PK	0.0 0.0	62.1	74.0 74.0	-11.9 -12.0	EUT Horz, High Ch, DH5
2484.550	44.6	-2.6	1.0	75.0	0.0	20.0	Horz	PK	0.0	62.0	74.0	-12.0	EUT Vert, High Ch, 3-DH5
2389.692	44.1	-2.4	1.0	143.0	0.0	20.0	Horz	PK	0.0	61.7	74.0	-12.3	EUT Vert, Low Ch, DH5
2483 717	44.3	-2.6	1.0	109.1	0.0	20.0	Horz	PK	0.0	61.7	74.0	-123	FUT On Side High Ch DH5

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PK PK PK PK

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (dB)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
4804.500	46.4	6.7	1.0	72.0	0.0	0.0	Horz	PK	0.0	53.1	74.0	-20.9	EUT On Side, Low Ch, DH5
12401.040	46.8	6.2	2.5	153.0	0.0	0.0	Horz	PK	0.0	53.0	74.0	-21.0	EUT On Side, High Ch, DH5
4959.900	45.9	6.7	2.3	44.1	0.0	0.0	Horz	PK	0.0	52.6	74.0	-21.4	EUT On Side, High Ch, DH5
4882.300	45.1	6.7	1.0	117.0	0.0	0.0	Vert	PK	0.0	51.8	74.0	-22.2	EUT On Side, Mid Ch, DH5
4881.633	45.0	6.7	1.0	87.1	0.0	0.0	Horz	PK	0.0	51.7	74.0	-22.3	EUT On Side, Mid Ch, DH5
7323.067	47.2	15.2	2.5	354.9	-30.8	0.0	Horz	AV	0.0	31.7	54.0	-22.4	EUT On Side, Mid Ch, DH5
4804.100	44.9	6.7	1.0	160.1	0.0	0.0	Vert	PK	0.0	51.6	74.0	-22.4	EUT On Side, Low Ch, DH5
4960.108	44.9	6.7	1.0	159.1	0.0	0.0	Vert	PK	0.0	51.6	74.0	-22.4	EUT On Side, High Ch, DH5
7440.200	46.3	15.3	2.6	354.0	-30.8	0.0	Horz	AV	0.0	30.9	54.0	-23.2	EUT On Side, High Ch, DH5
12399.160	48.6	0.7	2.3	127.1	0.0	0.0	Horz	PK	0.0	49.3	74.0	-24.7	EUT On Side, High Ch, DH5
12400.660	42.9	6.2	1.0	79.0	0.0	0.0	Vert	PK	0.0	49.1	74.0	-24.9	EUT On Side, High Ch, DH5
7323.183	44.3	15.2	2.0	200.0	-30.8	0.0	Horz	AV	0.0	28.8	54.0	-25.3	EUT Horz, Mid Ch, DH5
12204.330	48.5	-0.5	1.0	119.1	0.0	0.0	Horz	PK	0.0	48.0	74.0	-26.0	EUT On Side, Mid Ch, DH5
7323.092	42.9	15.2	1.0	214.1	-30.8	0.0	Horz	AV	0.0	27.4	54.0	-26.7	EUT Vert, Mid Ch, DH5
7323.108	42.6	15.2	1.0	121.0	-30.8	0.0	Vert	AV	0.0	27.1	54.0	-27.0	EUT On Side, Mid Ch, DH5
7323.250	42.0	15.2	1.0	58.1	-30.8	0.0	Vert	AV	0.0	26.5	54.0	-27.6	EUT Vert, Mid Ch, DH5
12399.680	44.9	0.7	1.0	98.1	0.0	0.0	Vert	PK	0.0	45.6	74.0	-28.4	EUT On Side, High Ch, DH5
7323.150	40.8	15.2	1.1	100.0	-30.8	0.0	Vert	AV	0.0	25.3	54.0	-28.8	EUT Horz, Mid Ch, DH5
7440.000	40.5	15.3	1.0	311.9	-30.8	0.0	Vert	AV	0.0	25.1	54.0	-29.0	EUT On Side, High Ch, DH5
12010.940	46.0	-1.1	2.6	115.0	0.0	0.0	Horz	PK	0.0	44.9	74.0	-29.1	EUT On Side, Low Ch, DH5
12204.130	44.8	-0.5	1.0	351.9	0.0	0.0	Vert	PK	0.0	44.3	74.0	-29.7	EUT On Side, Mid Ch, DH5
7323.125	39.5	15.2	2.8	353.0	-30.8	0.0	Horz	AV	0.0	24.0	54.0	-30.1	EUT On Side, Mid Ch, 3-DH5
12011.030	44.0	-1.1	1.0	119.1	0.0	0.0	Vert	PK	0.0	42.9	74.0	-31.1	EUT On Side, Low Ch, DH5
7323.392	37.2	15.2	1.0	357.0	-30.8	0.0	Horz	AV	0.0	21.7	54.0	-32.4	EUT On Side, Mid Ch, 2-DH5
2484.267	33.0	-2.6	1.0	299.0	-30.8	20.0	Horz	AV	0.0	19.7	54.0	-34.4	EUT Vert, High Ch, DH5
2483.667	32.9	-2.6	1.0	109.1	-30.8	20.0	Horz	AV	0.0	19.6	54.0	-34.5	EUT Horz, High Ch, DH5
2484.080	32.9	-2.6	1.0	113.1	-30.8	20.0	Vert	AV	0.0	19.6	54.0	-34.5	EUT Horz, High Ch, DH5
2484.590	32.9	-2.6	1.0	250.0	-30.8	20.0	Horz	AV	0.0	19.6	54.0	-34.5	EUT On Side, High Ch, DH5
2484.277	32.9	-2.6	1.0	157.0	-30.8	20.0	Vert	AV	0.0	19.6	54.0	-34.5	EUT On Side, High Ch, DH5
2484.160	32.9	-2.6	1.0	87.1	-30.8	20.0	Vert	AV	0.0	19.6	54.0	-34.5	EUT Vert, High Ch, DH5
2389.777	32.7	-2.4	1.0	207.0	-30.8	20.0	Vert	AV	0.0	19.6	54.0	-34.5	EUT Horz, Low Ch, DH5
2484.780	32.9	-2.6	1.0	75.0	-30.8	20.0	Horz	AV	0.0	19.6	54.0	-34.5	EUT Vert, High Ch, 3-DH5
2389.707	32.5	-2.4	1.0	143.0	-30.8	20.0	Horz	AV	0.0	19.4	54.0	-34.7	EUT Vert, Low Ch, DH5
2484.077	32.7	-2.6	1.2	150.0	-30.8	20.0	Horz	AV	0.0	19.4	54.0	-34.7	EUT Vert, High Ch, 2-DH5
4804.033	34.9	6.7	1.0	72.0	-30.8	0.0	Horz	AV	0.0	10.9	54.0	-43.2	EUT On Side, Low Ch, DH5
4960.117	34.1	6.7	2.3	44.1	-30.8	0.0	Horz	AV	0.0	10.1	54.0	-44.0	EUT On Side, High Ch, DH5
4881.908	33.8	6.7	1.0	87.1	-30.8	0.0	Horz	AV	0.0	9.8	54.0	-44.3	EUT On Side, Mid Ch, DH5
4882.108	33.6	6.7	1.0	117.0	-30.8	0.0	Vert	AV	0.0	9.6	54.0	-44.5	EUT On Side, Mid Ch, DH5
12400.850	34.1	6.2	2.5	153.0	-30.8	0.0	Horz	AV	0.0	9.6	54.0	-44.5	EUT On Side, High Ch, DH5
4960.075	33.0	6.7	1.0	159.1	-30.8	0.0	Vert	AV	0.0	9.0	54.0	-45.1	EUT On Side, High Ch, DH5
4804.108	32.9	6.7	1.0	160.1 79.0	-30.8	0.0	Vert	AV AV	0.0	8.9 6.2	54.0	-45.2 -47.9	EUT On Side, Low Ch, DH5 EUT On Side, High Ch, DH5
12400.830	30.7	6.2	1.0		-30.8	0.0	Vert		0.0		54.0		
12399.470	35.5	0.7 -0.5	2.3 1.0	127.1 119.1	-30.8 -30.8	0.0	Horz	AV AV	0.0	5.5	54.0 54.0	-48.6 -50.0	EUT On Side, High Ch, DH5 EUT On Side, Mid Ch, DH5
12205.780	35.3					0.0	Horz		0.0	4.1			
12399.470	32.3 32.9	0.7	1.0 2.6	98.1	-30.8	0.0	Vert	AV AV	0.0	2.3	54.0	-51.8 -53.0	EUT On Side, High Ch, DH5 EUT On Side, Low Ch, DH5
12010.830		-1.1		115.0	-30.8	0.0	Horz		0.0	1.1	54.0		
12205.820	32.2	-0.5	1.0	351.9	-30.8	0.0	Vert	AV	0.0	0.9	54.0	-53.1	EUT On Side, Mid Ch, DH5
12010.900	31.7	-1.1	1.0	119.1	-30.8	0.0	Vert	AV	0.0	-0.1	54.0	-54.2	EUT On Side, Low Ch, DH5

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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
Attenuator	S.M. Electronics	SA26B-20	RFW	2/26/2016	2/26/2017
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/24/2016	3/24/2017

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.

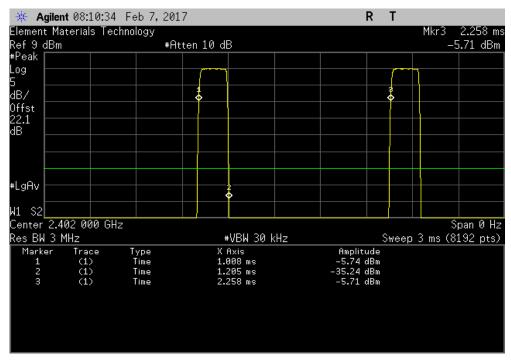
Report No. STAK0080



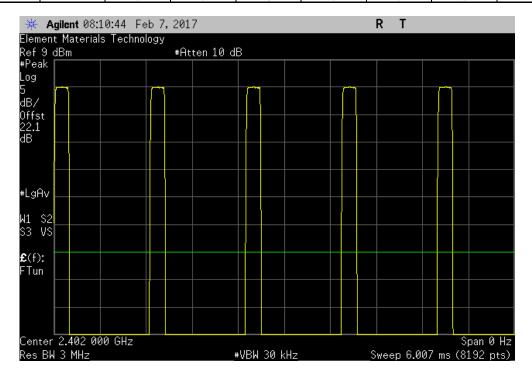
								TbtTx 2017.01.27	7 XMit 2017.01.
	SurfLink Mini Mobile Ada	apter					Work Order:		
Serial Number:	00017006905						Date:	02/07/17	
Customer:	Starkey Laboratories, Inc	c.					Temperature:	23 °C	
Attendees:	Charlie Esch						Humidity:	20.5% RH	
Project:	None						Barometric Pres.:	1004 mbar	
	Dustin Sparks		Power:	Battery			Job Site:	MN08	
TEST SPECIFICAT	IONS			Test Method					
FCC 15.247:2017				ANSI C63.10:2013					
COMMENTS									
None									
DEVIATIONS FROM	M TEST STANDARD								
None									
			0 1 5						
Configuration #	4	\sim	Tusting	Spares					
		Signature		-/					
						Number of	Value	Limit	
				Pulse Width	Period	Pulses	(%)	(%)	Results
DH5, GFSK									
DH5, GFSK	Low Channel			196.3 us	1.25 ms	1	15.7	N/A	N/A
DH5, GFSK	Low Channel			196.3 us N/A	1.25 ms N/A	1 5	15.7 N/A	N/A N/A	N/A N/A
DH5, GFSK	Low Channel Mid Channel			196.3 us N/A 197 us	1.25 ms N/A 1.25 ms	1 5 1	15.7 N/A 15.8	N/A N/A N/A	N/A N/A N/A
DH5, GFSK	Low Channel Mid Channel Mid Channel			196.3 us N/A 197 us N/A	1.25 ms N/A 1.25 ms N/A	1 5	15.7 N/A 15.8 N/A	N/A N/A N/A N/A	N/A N/A N/A N/A
DH5, GFSK	Low Channel Mid Channel Mid Channel High Channel			196.3 us N/A 197 us N/A 197 us	1.25 ms N/A 1.25 ms N/A 1.25 ms	1 5 1 5	15.7 N/A 15.8 N/A 15.8	N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A
	Low Channel Mid Channel Mid Channel High Channel High Channel			196.3 us N/A 197 us N/A	1.25 ms N/A 1.25 ms N/A	1 5 1	15.7 N/A 15.8 N/A	N/A N/A N/A N/A	N/A N/A N/A N/A
	Low Channel Mid Channel Mid Channel High Channel High Channel			196.3 us N/A 197 us N/A 197 us N/A	1.25 ms N/A 1.25 ms N/A 1.25 ms N/A	1 5 1 5 1 5	15.7 N/A 15.8 N/A 15.8 N/A	N/A N/A N/A N/A N/A N/A	N/A N/A N/A N/A N/A
	Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel			196.3 us N/A 197 us N/A 197 us N/A	1.25 ms N/A 1.25 ms N/A 1.25 ms N/A	1 5 1 5 1 5	15.7 N/A 15.8 N/A 15.8 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
DH5, GFSK 2DH5, pi/4-DQPSK	Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel			196.3 us N/A 197 us N/A 197 us N/A 201.4 us N/A	1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A	1 5 1 5 1 5	15.7 N/A 15.8 N/A 15.8 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
	Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Mid Channel Mid Channel			196.3 us N/A 197 us N/A 197 us N/A 201.4 us N/A 201.4 us	1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms	1 5 1 5 1 5	15.7 N/A 15.8 N/A 15.8 N/A 16.1 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
	Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Low Channel Mid Channel Mid Channel Mid Channel			196.3 us N/A 197 us N/A 197 us N/A 201.4 us N/A 201.4 us N/A	1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms	1 5 1 5 1 5	15.7 N/A 15.8 N/A 15.8 N/A 16.1 N/A 16.1 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
	Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Mid Channel Mid Channel High Channel High Channel			196.3 us N/A 197 us N/A 197 us N/A 201.4 us N/A 201.4 us N/A 201.4 us	1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms	1 5 1 5 1 5 1 5	15.7 N/A 15.8 N/A 15.8 N/A 16.1 N/A 16.1 N/A 16.1	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	Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Low Channel Mid Channel Mid Channel Mid Channel			196.3 us N/A 197 us N/A 197 us N/A 201.4 us N/A 201.4 us N/A	1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms	1 5 1 5 1 5	15.7 N/A 15.8 N/A 15.8 N/A 16.1 N/A 16.1 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
	Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Low Channel Mid Channel Mid Channel High Channel High Channel			196.3 us N/A 197 us N/A 197 us N/A 201.4 us N/A 201.4 us N/A 201.4 us N/A	1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A	1 5 1 5 1 5 1 5 1 5	15.7 N/A 15.8 N/A 15.8 N/A 16.1 N/A 16.1 N/A 16.1 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
2DH5, pi/4-DQPSK	Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Mid Channel Mid Channel Mid Channel Mid Channel High Channel High Channel Low Channel			196.3 us N/A 197 us N/A 197 us N/A 201.4 us N/A 201.4 us N/A 201.4 us N/A 194.8 us	1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms	1 5 1 5 1 5 1 5 1 5	15.7 N/A 15.8 N/A 15.8 N/A 16.1 N/A 16.1 N/A 16.1 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
2DH5, pi/4-DQPSK	Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Low Channel			196.3 us N/A 197 us N/A 197 us N/A 201.4 us N/A 201.4 us N/A 201.4 us N/A 201.4 us N/A	1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A	1 5 1 5 1 5 1 5 1 5	15.7 N/A 15.8 N/A 15.8 N/A 16.1 N/A 16.1 N/A 16.1 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
2DH5, pi/4-DQPSK	Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Mid Channel Mid Channel Mid Channel High Channel Low Channel Mid Channel			196.3 us N/A 197 us N/A 197 us N/A 201.4 us N/A 201.4 us N/A 201.4 us N/A 201.4 us N/A 194.8 us N/A 195.6 us	1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A	1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	15.7 N/A 15.8 N/A 15.8 N/A 16.1 N/A 16.1 N/A 16.1 N/A 16.1 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
2DH5, pi/4-DQPSK	Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Mid Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Mid Channel Mid Channel Mid Channel Mid Channel			196.3 us N/A 197 us N/A 197 us N/A 201.4 us N/A 201.4 us N/A 201.4 us N/A 194.8 us N/A 195.6 us N/A	1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A	1 5 1 5 1 5 1 5 1 5	15.7 N/A 15.8 N/A 15.8 N/A 16.1 N/A 16.1 N/A 16.1 N/A 15.6 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 N/A N/A N/A
2DH5, pi/4-DQPSK	Low Channel Mid Channel Mid Channel High Channel High Channel Low Channel Low Channel Mid Channel Mid Channel Mid Channel High Channel Low Channel Mid Channel			196.3 us N/A 197 us N/A 197 us N/A 201.4 us N/A 201.4 us N/A 201.4 us N/A 201.4 us N/A 194.8 us N/A 195.6 us	1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A 1.25 ms N/A	1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5	15.7 N/A 15.8 N/A 15.8 N/A 16.1 N/A 16.1 N/A 16.1 N/A 16.1 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

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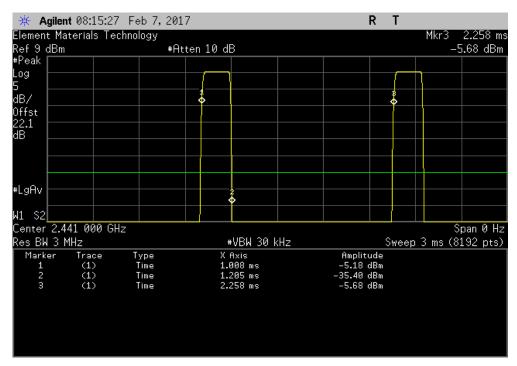
	DH	5, GFSK, Low Ch	annel		
		Number of	Value	Limit	
 Pulse Width	Period	Pulses	(%)	(%)	Results
N/A	N/A	5	N/A	N/A	N/A



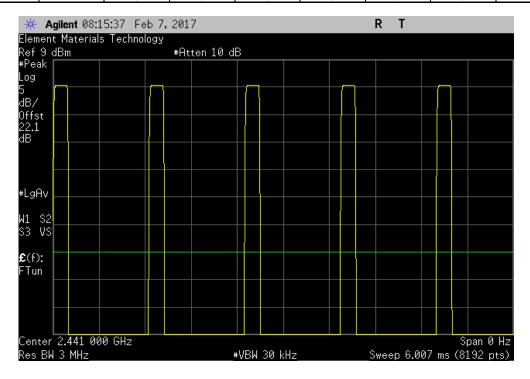
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| DH5, GFSK, Mid Channel | Number of Value Limit | Pulse Width | Period | Pulses (%) (%) | Results | New Year | New Year



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

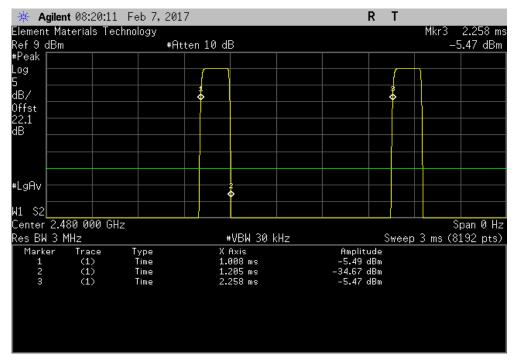


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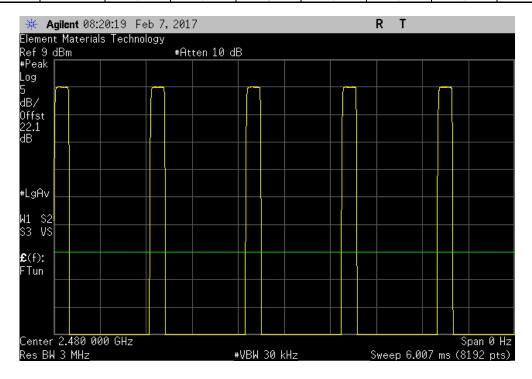


DH5, GFSK, High Channel

| Number of Value Limit
| Pulse Width | Period | Pulses (%) (%) | Results
| 197 us | 1.25 ms | 1 | 15.8 | N/A | N/A |

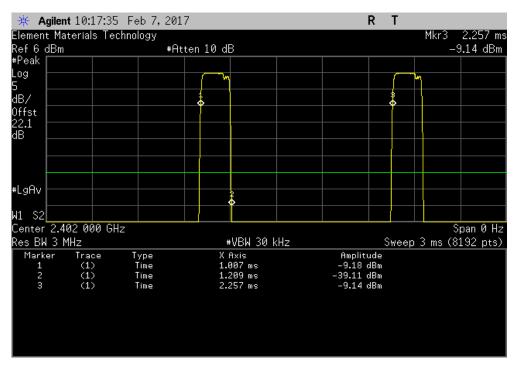


			DH5	, GFSK, High Ch	annel		
				Number of	Value	Limit	
_		Pulse Width	Period	Pulses	(%)	(%)	Results
i	·	N/A	N/A	5	N/A	N/A	N/A

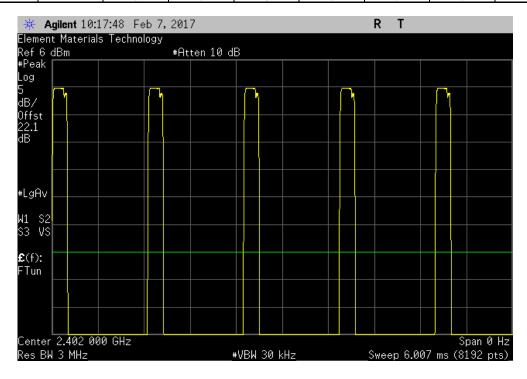


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		2DH5, p	i/4-DQPSK, Low	Channel		
			Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	N/A	N/A	5	N/A	N/A	N/A

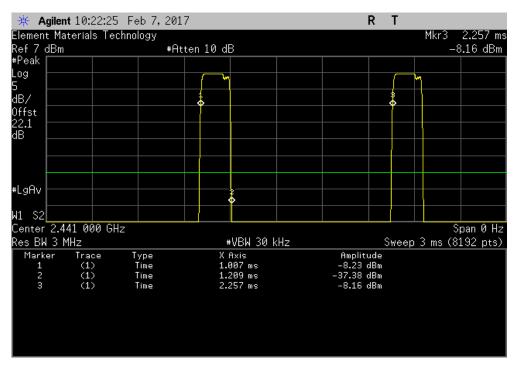


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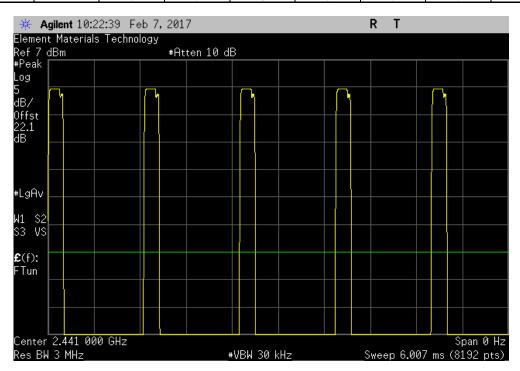


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		2DH5, p	oi/4-DQPSK, Mid	Channel		
			Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	201.4 us	1.25 ms	1	16.1	N/A	N/A



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



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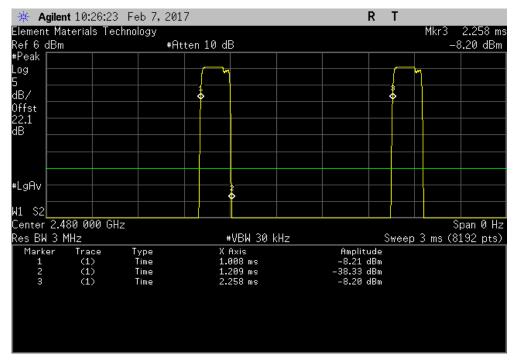


2DH5, pi/4-DQPSK, High Channel

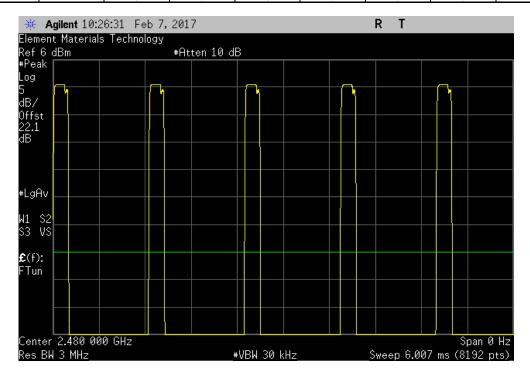
Number of Value Limit

Pulse Width Period Pulses (%) (%) Results

201.4 us 1.25 ms 1 16.1 N/A N/A



		2DH5, p	i/4-DQPSK, High	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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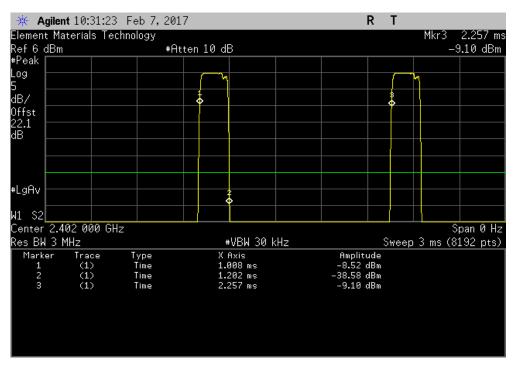


3DH5, 8-DPSK, Low Channel

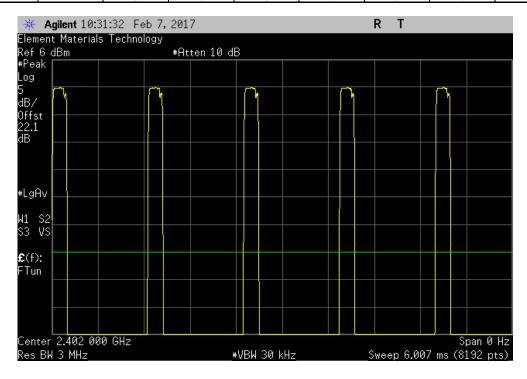
Number of Value Limit

Pulse Width Period Pulses (%) (%) Results

194.8 us 1.25 ms 1 15.6 N/A N/A



		3DH5	, 8-DPSK, Low C	hannel		
			Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	N/A	N/A	5	N/A	N/A	N/A



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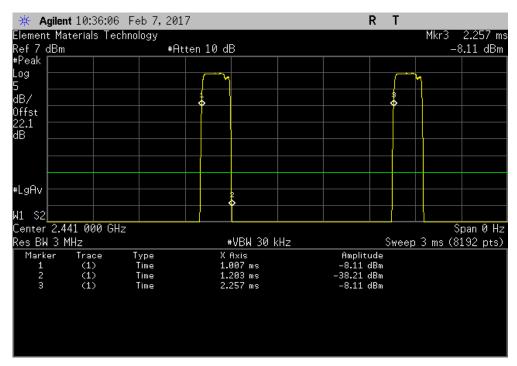


3DH5, 8-DPSK, Mid Channel

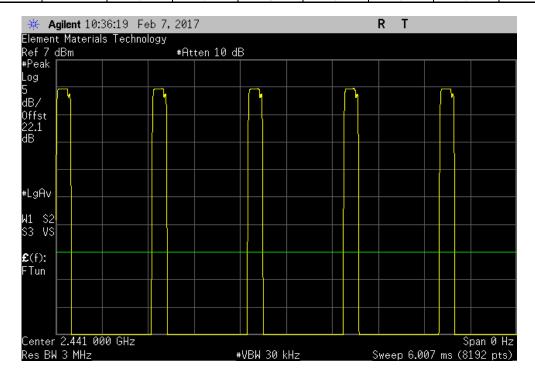
Number of Value Limit

Pulse Width Period Pulses (%) (%) Results

195.6 us 1.25 ms 1 15.6 N/A N/A



		3DH5	, 8-DPSK, Mid Cl	hannel		
			Number of	Value	Limit	
	Pulse Width	Period	Pulses	(%)	(%)	Results
	N/A	N/A	5	N/A	N/A	N/A



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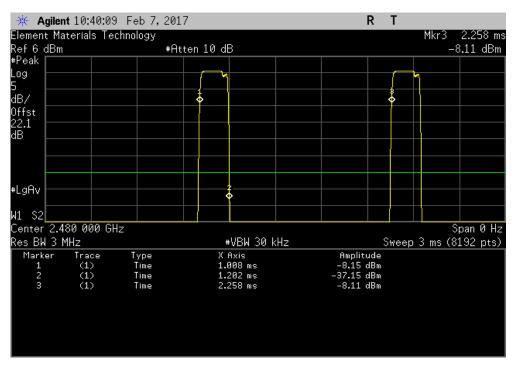


3DH5, 8-DPSK, High Channel

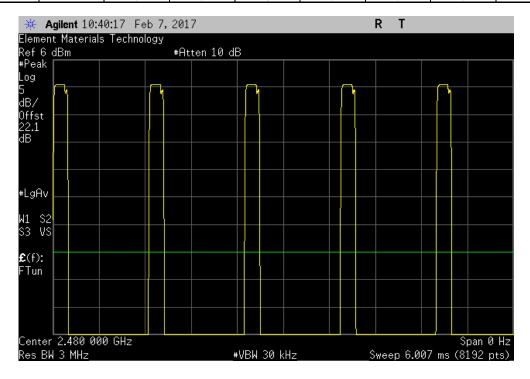
Number of Value Limit

Pulse Width Period Pulses (%) (%) Results

194.8 us 1.25 ms 1 15.6 N/A N/A



3DH5, 8-DPSK, High Channel							
			Number of	Value	Limit		
	Pulse Width	Period	Pulses	(%)	(%)	Results	
	N/A	N/A	5	N/A	N/A	N/A	



Report No. STAK0080 36/102

DUTY CYCLE CORRECTION FACTOR (HOPPING)



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	N5183A	TIK	10/17/2014	10/17/2017
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/15/2016	9/15/2017
Attenuator	S.M. Electronics	SA26B-20	RFW	2/26/2016	2/26/2017
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/24/2016	3/24/2017

TEST DESCRIPTION

The measurement was made in a radiated configuration of the fundamental with the carrier fully maximized for its highest radiated power. 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.

The duty cycle correction factor was calculated using the formula DCCF = 20*log(total on time/100ms).

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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DUTY CYCLE CORRECTION FACTOR (HOPPING)

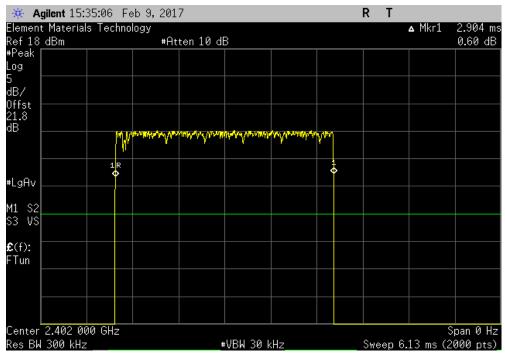


									XMit 2017.01.26
	SurfLink Mini Mobile Ada	apter					Work Order:	STAK0080	
Serial Number:	00017006905						Date:	02/09/17	
Customer:	Starkey Laboratories, Inc).					Temperature:	22.9 °C	
Attendees:	Charlie Esch							20.3% RH	
Project:							Barometric Pres.:		
Tested by:	Dustin Sparks		Power:	Battery			Job Site:	MN08	
TEST SPECIFICATI	IONS			Test Method					
FCC 15.247:2017				ANSI C63.10:2013					
COMMENTS									
		in Spurious Radiated Emissions							
DEVIATIONS FROM	// TEST STANDARD								
None									
Configuration #	5	Signature	Tusting	Spards	-				
				Number of Pulses	Pulse Length (ms)	Total On Time (ms)	Duty Cycle (%)	DCCF (dB)	Result
DH5									
	Pulse Length			N/A	2.904	N/A	N/A	N/A	N/A
	Pulses in 100 ms			1	N/A	100 ms	0.02904	-30.75	N/A

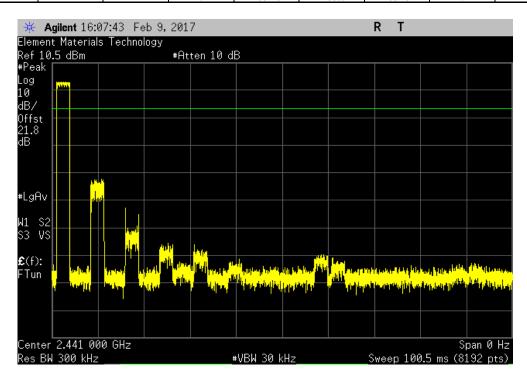
Report No. STAK0080 38/102

DUTY CYCLE CORRECTION FACTOR (HOPPING)





Pulses in 100ms						
Number of	Pulse Length	Total On Time	Duty Cycle	DCCF		
 Pulses	(ms)	(ms)	(%)	(dB)	Result	
1	N/A	100 ms	2.90%	-30.75	N/A	



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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	2/26/2016	2/26/2017
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/24/2016	3/24/2017

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.

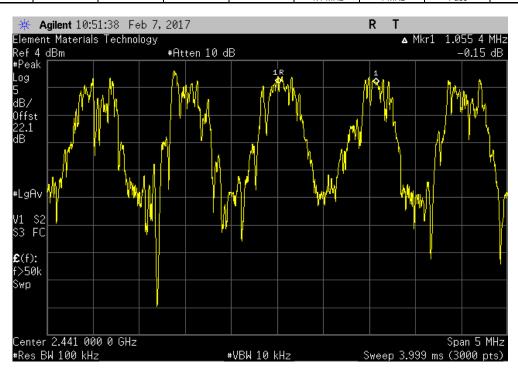
Report No. STAK0080 40/102

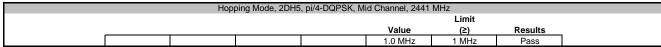


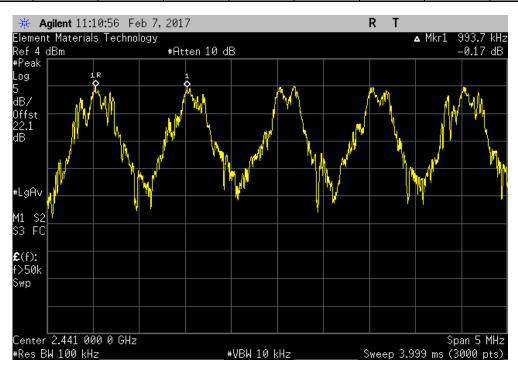
						TbtTx 2017.01.27	XMit 2017.01.26
	SurfLink Mini Mobile Ada	apter			Work Order:		
Serial Number						02/07/17	
	: Starkey Laboratories, Inc	> .			Temperature		
	: Charlie Esch					20.7% RH	
	: None				Barometric Pres.		
	: Dustin Sparks		Power: E		Job Site:	MN08	
TEST SPECIFICAT	TIONS			Test Method			
FCC 15.247:2017			F	ANSI C63.10:2013			
COMMENTS							
None							
	M TEST STANDARD						
None							
			A 11 C				
Configuration #	4		Justin	pardo			
		Signature		(
						Limit	
L					Value	(≥)	Results
Hopping Mode							
	DH5, GFSK						_
	Mid Channel,	, 2441 MHz			1.1 MHz	1 MHz	Pass
	2DH5, pi/4-DQPSK	0.44.1811			4.0.191	4.841.	
	Mid Channel,	, 2441 MHz			1.0 MHz	1 MHz	Pass
	3DH5, 8-DPSK	0.44.1811			4.0.191	4.841.	
	Mid Channel,	, 2441 MHz			1.0 MHz	1 MHz	Pass

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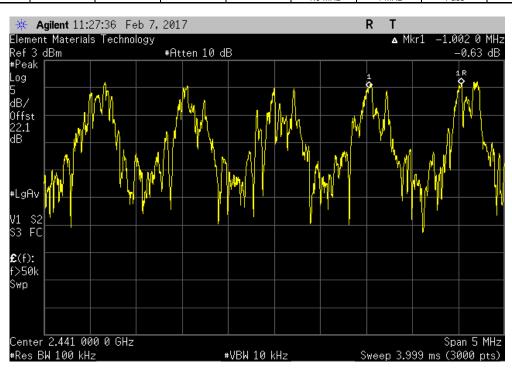




Report No. STAK0080 42/102



| Hopping Mode, 3DH5, 8-DPSK, Mid Channel, 2441 MHz | Limit | Value (2) | Results | | 1.0 MHz | 1 MHz | Pass |



Report No. STAK0080 43/102



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	2/26/2016	2/26/2017
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/24/2016	3/24/2017

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.

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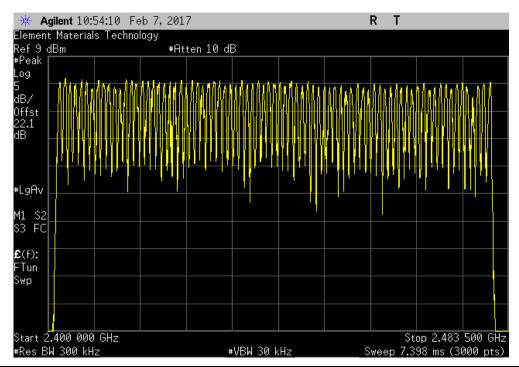


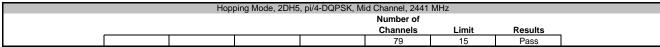
						TbtTx 2017.01.27	XMit 2017.01.26
	SurfLink Mini Mobile Ada	apter			Work Order:		
Serial Number						02/07/17	
	Starkey Laboratories, Inc	> .			Temperature:		
	Charlie Esch					20.4% RH	
Project					Barometric Pres.:		
	: Dustin Sparks		Power: B		Job Site:	MN08	
TEST SPECIFICAT	TONS			est Method			
FCC 15.247:2017			Al	NSI C63.10:2013			
	•	·		·	·		
COMMENTS							
None							
DEVIATIONS FRO	M TEST STANDARD						
None							
			A 11 0				
Configuration #	4		Dusting	Daves			
		Signature	_				
					Number of		
					Channels	Limit	Results
Hopping Mode							
	DH5, GFSK						
	Mid Channel,	, 2441 MHz			79	15	Pass
	2DH5, pi/4-DQPSK						
	Mid Channel,	, 2441 MHz			79	15	Pass
	3DH5, 8-DPSK						
	Mid Channel,	, 2441 MHz			79	15	Pass

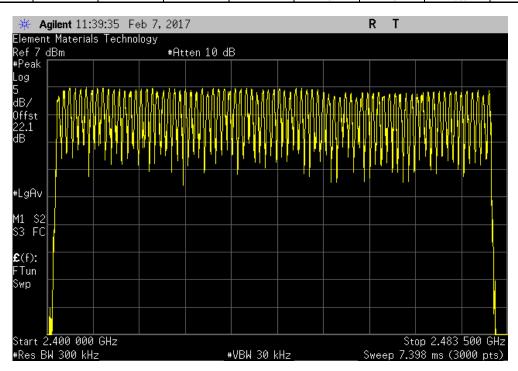
Report No. STAK0080 45/102



Hopping Mode, DH5, GFSK, Mid Channel, 2441 MHz
Number of
Channels Limit Results
79 15 Pass







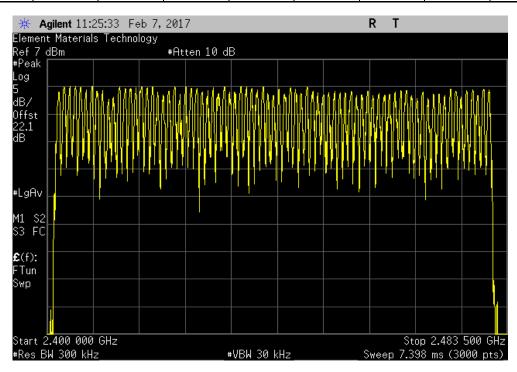
Report No. STAK0080 46/102



Hopping Mode, 3DH5, 8-DPSK, Mid Channel, 2441 MHz

Number of
Channels Limit Results

79 15 Pass



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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	N5183A	TIK	10/17/2014	10/17/2017
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	9/15/2016	9/15/2017
Attenuator	S.M. Electronics	SA26B-20	RFW	2/26/2016	2/26/2017
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/24/2016	3/24/2017

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.



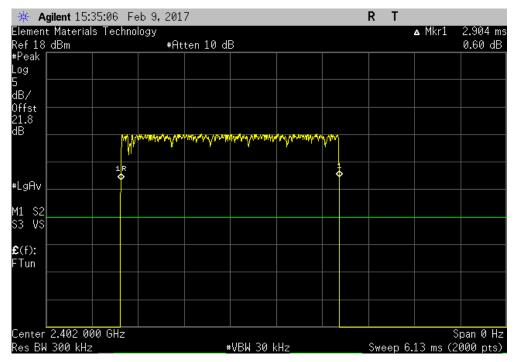
							TbtTx 2017.01.27	XMit 2017
EUT	SurfLink Mini Moblie Adapter					Work Order: S		AMIL 2017
Serial Number						Date: 0		
Customer	: Starkey Laboratories, Inc.					Temperature: 2	3.1 °C	
	: Charlie Esch					Humidity: 10		
Project						Barometric Pres.: 1		
	: Dustin Sparks	Power:	Battery			Job Site: M		
EST SPECIFICAT			Test Method					
CC 15.247:2017			ANSI C63.10:2013					
00 10121112011			71.10. 000.10.2010					
COMMENTS								
lone								
EVIATIONS FRO	M TEST STANDARD							
lone								
		29-1'5) 1					
Configuration #	4 Signature	Custom	Spares	-				
	Signature	Pulse Width	Number of	Average No.	Scale	On Time (ms)	Limit	
		(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results
opping Mode	DH5, GFSK							
	Low Channel, 2402 MHz	2.904	N/A	N/A	N/A	N/A	N/A	N/A
	Low Channel, 2402 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	Low Channel, 2402 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	Low Channel, 2402 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	Low Channel, 2402 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	Low Channel, 2402 MHz	2.904	N/A	22	5	319.44	400	Pass
	High Channel, 2480 MHz	2.904	N/A	N/A	N/A	N/A	N/A	N/A
	High Channel, 2480 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	High Channel, 2480 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	High Channel, 2480 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	High Channel, 2480 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	High Channel, 2480 MHz	2.904	N/A	22	5	319.44	400	Pass
	2DH5, pi/4-DQPSK							
	Low Channel, 2402 MHz	2.913	N/A	N/A	N/A	N/A	N/A	N/A
	Low Channel, 2402 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	Low Channel, 2402 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	Low Channel, 2402 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	Low Channel, 2402 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	Low Channel, 2402 MHz	2.913	N/A	22	5	320.43	400	Pass
	High Channel, 2480 MHz	2.913	N/A	N/A	N/A	N/A	N/A	N/A
					N/A N/A			
	High Channel, 2480 MHz	N/A	22	N/A		N/A	N/A	N/A
	High Channel, 2480 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	High Channel, 2480 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	High Channel, 2480 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	High Channel, 2480 MHz	2.913	N/A	22	5	320.43	400	Pass
	3DH5, 8-DPSK Low Channel, 2402 MHz	2.916	N/A	N/A	N/A	N/A	N/A	N/A
	Low Channel, 2402 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	Low Channel, 2402 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	Low Channel, 2402 MHz	N/A	22	N/A	N/A	N/A N/A	N/A	N/A
			22		N/A N/A			
	Low Channel, 2402 MHz	N/A		N/A		N/A	N/A	N/A
	Low Channel, 2402 MHz	2.916	N/A	22	5	320.76	400	Pass
		2.916	N/A	N/A	N/A	N/A	N/A	N/A
	High Channel, 2480 MHz			N/A	N/A	N/A	N/A	N/A
	High Channel, 2480 MHz	N/A	22					
	High Channel, 2480 MHz High Channel, 2480 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
	High Channel, 2480 MHz		22 22					N/A N/A
	High Channel, 2480 MHz High Channel, 2480 MHz	N/A	22	N/A	N/A	N/A	N/A	

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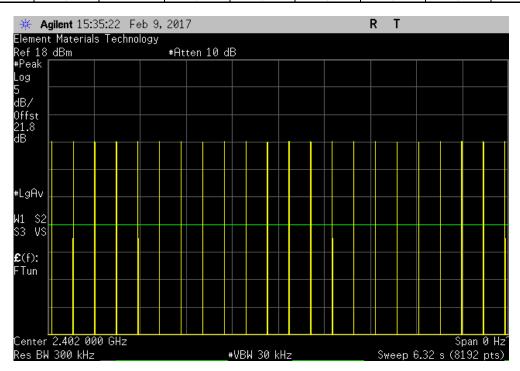


Tests 2017 01.27 XMA 2017 01.26

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			
2.904	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			

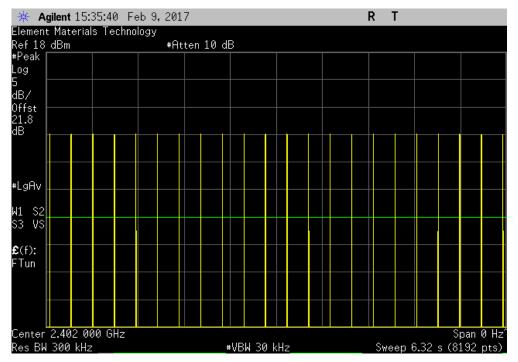


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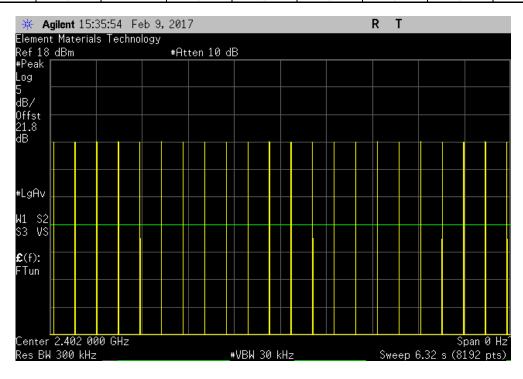


TbtTx 2017.01.27 XMit 2017.01.26

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				



	ŀ	Hopping Mode, DI	15, GFSK, Low C	Channel, 2402 MH	Z							
Pulse Width	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						

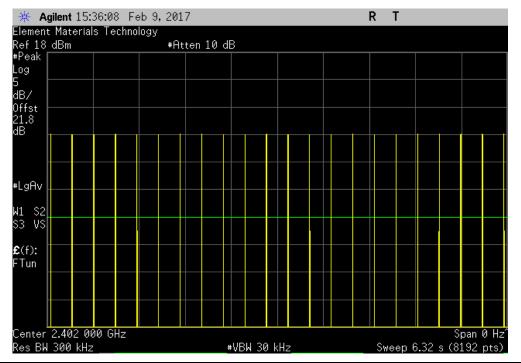


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TbtTx 2017.01.27 XMit 2017.01.26

	ŀ	Hopping Mode, DI	H5, GFSK, Low C	Channel, 2402 MH	łz					
Pulse Width	lse 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				



	ŀ	Hopping Mode, DI	H5, GFSK, Low (Channel, 2402 MH	Z						
Pulse Width Number of Average No. Scale On Time (ms) Limit											
(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results					
2.904	N/A	22	5	319.44	400	Pass					

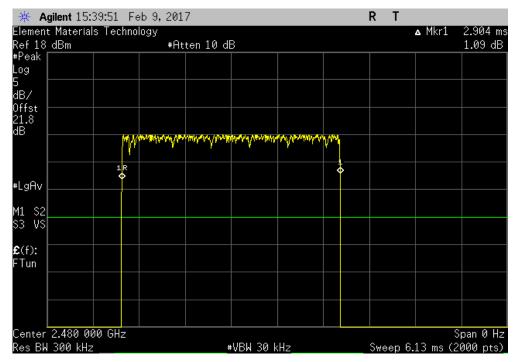
Calculation Only

No Screen Capture Required

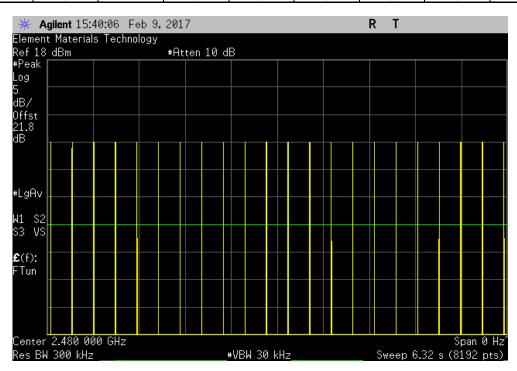
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Hopping Mode, DH5, GFSK, High Channel, 2480 MHz											
Pulse Width Number of Average No. Scale On Time (ms) Limit											
(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results					
2.904	N/A	N/A	N/A	N/A	N/A	N/A	Ī				



	ŀ	Hopping Mode, DI	15, GFSK, High (Channel, 2480 MF	łz						
Pulse Width	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					

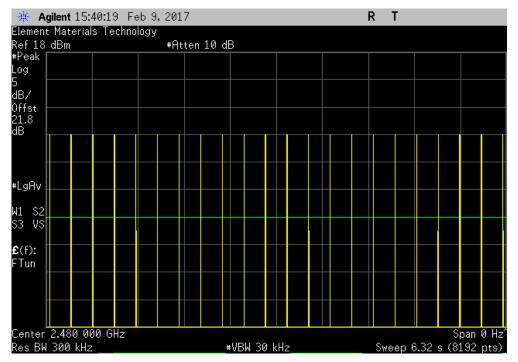


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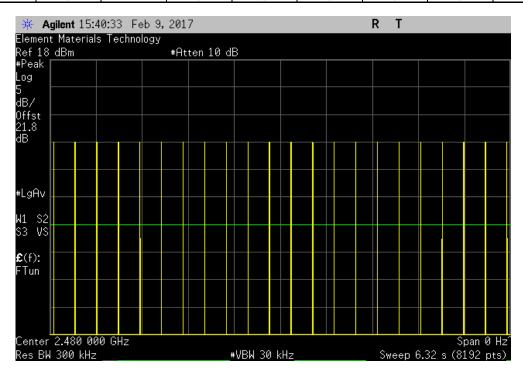


TbtTx 2017.01.27 XMit 2017.01.26

	Н	lopping Mode, Dh	15, GFSK, High C	Channel, 2480 MH	lz	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	l									



	ŀ	Hopping Mode, DI	15, GFSK, High (Channel, 2480 MF	łz						
Pulse Width	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					

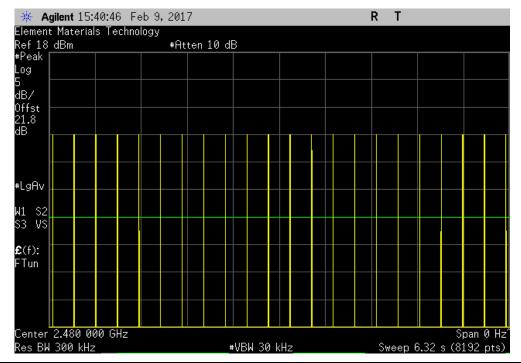


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	H	Hopping Mode, Dh	H5, GFSK, High C	Channel, 2480 MF	lz			
Pulse Width Number of Average No. Scale On Time (ms) Limit								
(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results		
N/A	22	N/A	N/A	N/A	N/A	N/A		



	H	Hopping Mode, DI	H5, GFSK, High (Channel, 2480 MH	lz						
Pulse Width Number of Average No. Scale On Time (ms) Limit											
(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results					
2.904	N/A	22	5	319.44	400	Pass					

Calculation Only

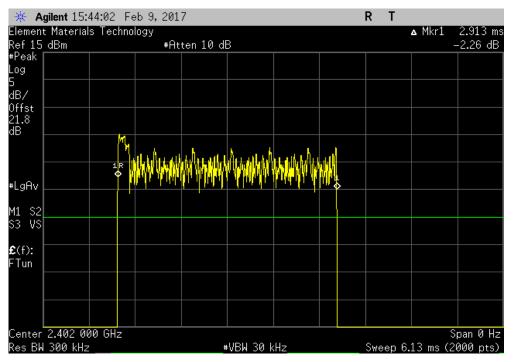
No Screen Capture Required

Report No. STAK0080 55/102

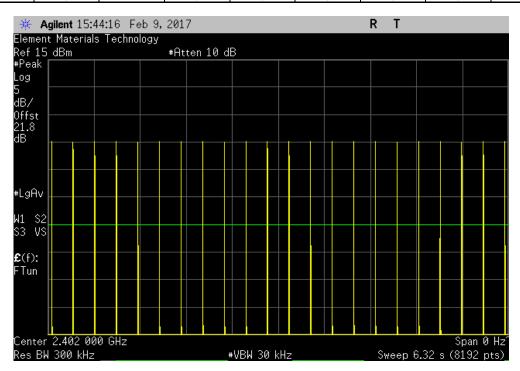


TbtTx 2017.01.27 XMit 2017.01.26

		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			
1	2.913	N/A	N/A	N/A	N/A	N/A	N/A	1		



	Норг	oing Mode, 2DH5	, pi/4-DQPSK, Lo	w Channel, 2402	MHz						
Pulse Width											
(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results					
N/A	22	N/A	N/A	N/A	N/A	N/A					

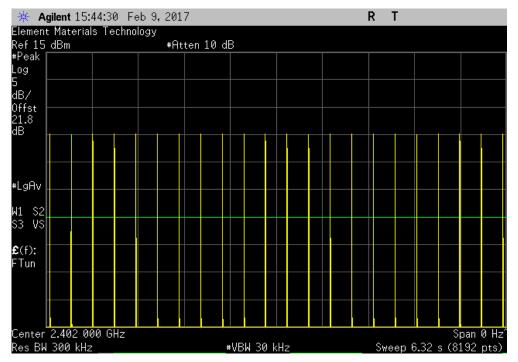


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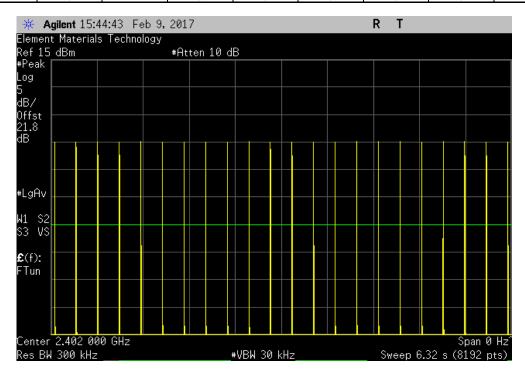


TbtTx 2017.01.27 XMit 2017.01.26

Hopping Mode, 2DH5, pi/4-DQPSK, 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				



	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

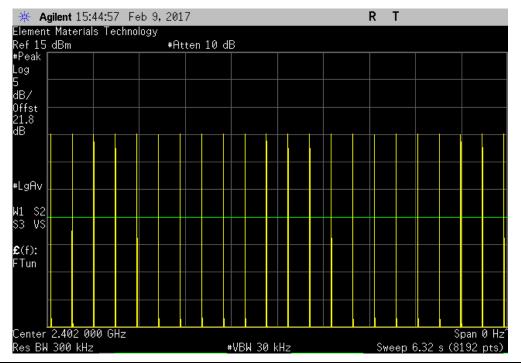


Report No. STAK0080 57/102



TbtTx 2017.01.27 XMit 2017.01.26

	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	



	Hop	oing Mode, 2DH5	, pi/4-DQPSK, Lo	ow 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
2.913	N/A	22	5	320.43	400	Pass

Calculation Only

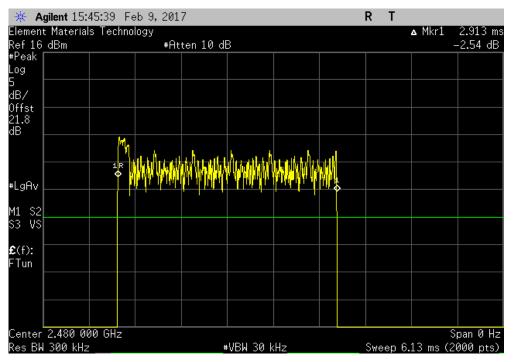
No Screen Capture Required

Report No. STAK0080 58/102

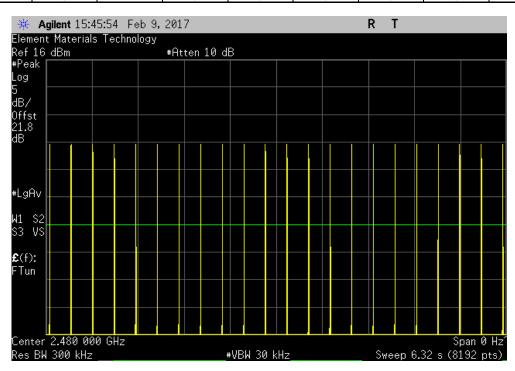


TbtTx 2017.01.27 XMit 2017.01.26

	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, 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
N/A	22	N/A	N/A	N/A	N/A	N/A

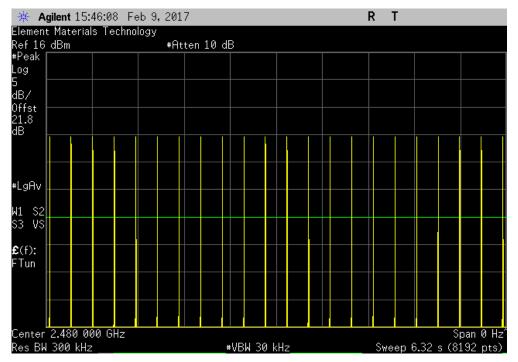


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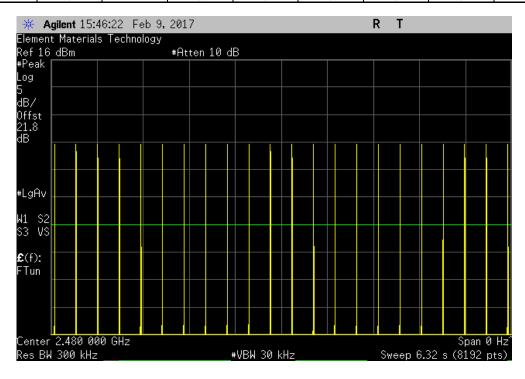


TbtTx 2017.01.27 XMit 2017.01.26

	Норр	ing Mode, 2DH5,	pi/4-DQPSK, 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	
N/A	22	N/A	N/A	N/A	N/A	N/A	1



	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
N/A	22	N/A	N/A	N/A	N/A	N/A

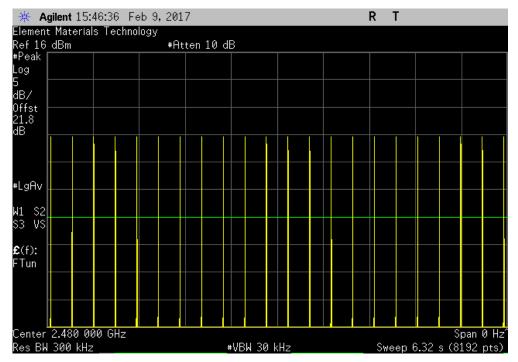


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Th/Tv 2017 01 27 YMR 2017 01 26

	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	
N/A	22	N/A	N/A	N/A	N/A	N/A	1



	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	22	5	320.43	400	Pass

Calculation Only

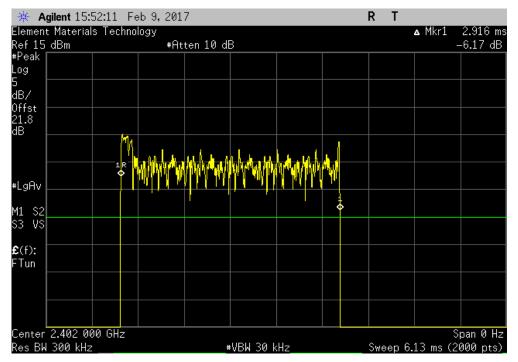
No Screen Capture Required

Report No. STAK0080 61/102

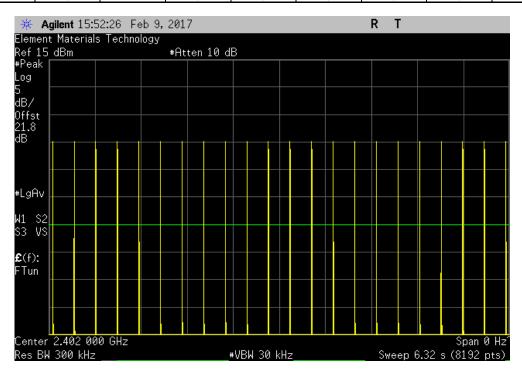


Th/Ty 2017 01 27 YMR 2017 01 26

	Ho	pping Mode, 3DH	15, 8-DPSK, Low	Channel, 2402 M	Hz		
Pulse Width	Number of	Average No.	Scale	On Time (ms)	Limit		
(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results	
2.916	N/A	N/A	N/A	N/A	N/A	N/A	



	Но	opping Mode, 3DF	15, 8-DPSK, Low	Channel, 2402 M	Hz	
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

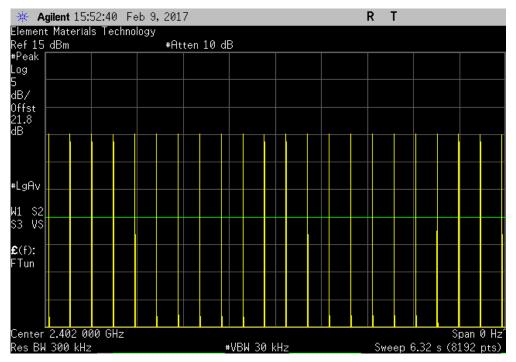


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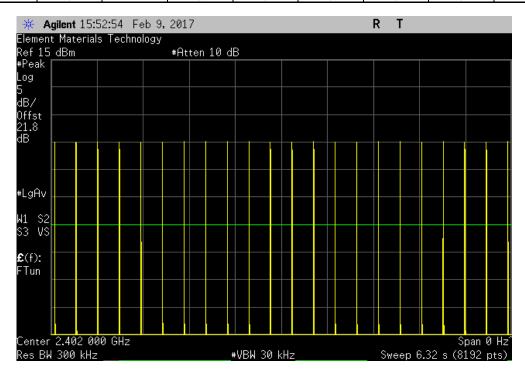


TbtTx 2017.01.27 XMit 2017.01.26

	Ho	pping Mode, 3DF	15, 8-DPSK, Low	Channel, 2402 M	1Hz	
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



	Но	opping Mode, 3DF	15, 8-DPSK, Low	Channel, 2402 M	Hz	
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

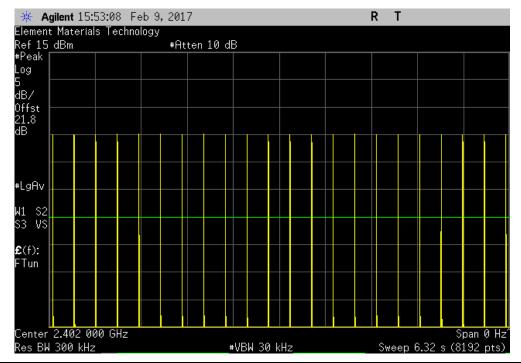


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TNTv 2017 01 27 YM9 2017 01 26

Hopping Mode, 3DH5, 8-DPSK, Low Channel, 2402 MHz								
Pulse Widt	h 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		



	Но	opping Mode, 3DF	15, 8-DPSK, Low	Channel, 2402 M	Hz	
Pulse Width	Number of	Average No.	Scale	On Time (ms)	Limit	
(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results
2.916	N/A	22	5	320.76	400	Pass

Calculation Only

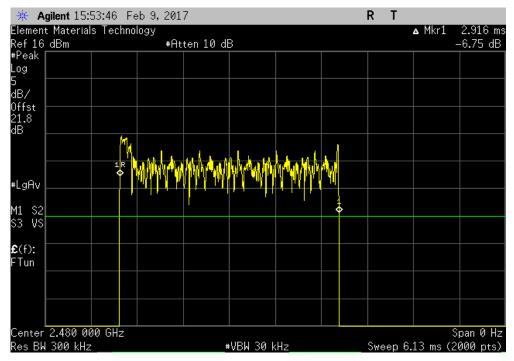
No Screen Capture Required

Report No. STAK0080 64/102



Th/Tv 2017 01 27 YMH 2017 01 26

Hopping Mode, 3DH5, 8-DPSK, 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		
2.916	N/A	N/A	N/A	N/A	N/A	N/A	I	



	Ho	pping Mode, 3DH	5, 8-DPSK, High	Channel, 2480 M	1Hz	
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

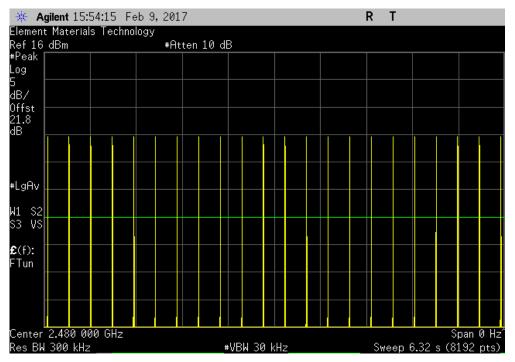


Report No. STAK0080 65/102

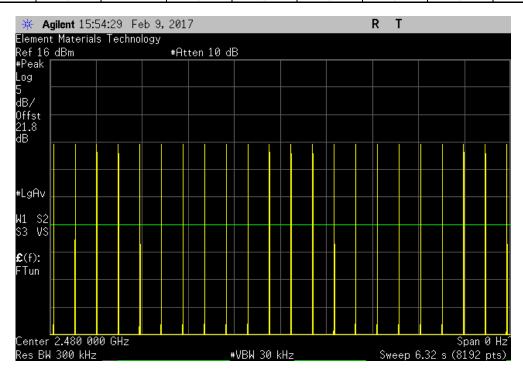


TbtTx 2017.01.27 XMit 2017.01.26

Hopping Mode, 3DH5, 8-DPSK, 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	1	



	Ho	pping Mode, 3DH	l5, 8-DPSK, High	Channel, 2480 M	1Hz	
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

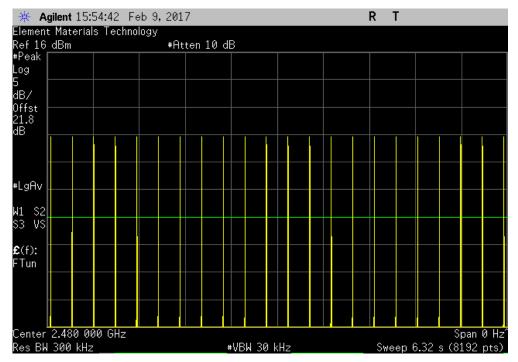


Report No. STAK0080 66/102



TNTv 2017 01 27 YM9 2017 01 26

Hopping Mode, 3DH5, 8-DPSK, 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			



	Ho	pping Mode, 3DH	l5, 8-DPSK, High	Channel, 2480 M	Hz	
Pulse Width	Number of	Average No.	Scale	On Time (ms)	Limit	
(ms)	Pulses	of Pulses	Factor	During 31.6 s	(ms)	Results
2.916	N/A	22	5	320.76	400	Pass

Calculation Only

No Screen Capture Required

Report No. STAK0080 67/102



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	2/26/2016	2/26/2017
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/24/2016	3/24/2017

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.

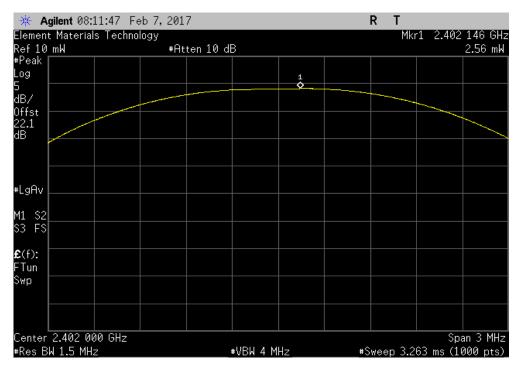
Report No. STAK0080 68/102



COMMENTS Community Configuration From TEST STANDARD Configuration From Te							TbtTx 2017.01.27	XMit 2017.01.26		
Customer Starkey Laboratories, Inc. Temperature 22.5 °C Attendess Charlie Esch Hunidity 21.5 °C Project None Barometric Press 1004 mbar Tested by Dustin Sparks Power: Battery Job Site MNO8 EST SPECIFICATIONS Test Method			pter							
Attendees: Charlie Esch Barometric Press: 1004 mbar										
Project: None Barometric Press. 1004 mbar										
Tested by: Dustin Sparks										
Test Method CC 15.247:2017										
ANSI C63.10:2013 SOMMENTS S						Job Site:	MN08			
COMMENTS Community Configuration From TEST STANDARD Configuration From Te	TEST SPECIFICAT	IONS								
Signature Sign	FCC 15.247:2017				ANSI C63.10:2013					
Signature Sign										
DEVIATIONS FROM TEST STANDARD	COMMENTS									
Nonfiguration # 4 Signature Signat	None									
Nonfiguration # 4 Signature Signat										
Nonfiguration # 4 Signature Signat										
Signature Sign	DEVIATIONS FROM	II TEST STANDARD								
Sylidate Sylidate	None									
Sylidate Sylidate			10	Y	<u> </u>					
Sylidate Sylidate	Configuration #	4	\sim	usting	Saras					
Name			Signature		3/					
Low Channel						Limit				
Low Channel 2.556 mW 125 mW Pass Mid Channel 2.786 mW 125 mW Pass Pa						Value	(<)	Result		
Mid Channel 2.786 mW 125 mW Pass High Channel 2.552 mW 125 mW Pass P	DH5, GFSK									
High Channel 2.552 mW 125 mW Pass DHS, pi/4-DQPSK		Low Channel				2.556 mW	125 mW	Pass		
DH5, pi/4-DQPSK		Mid Channel				2.786 mW	125 mW	Pass		
Low Channel		High Channel				2.552 mW	125 mW	Pass		
Mid Channel 1.708 mW 125 mW Pass High Channel 1.622 mW 125 mW Pass DH5, 8-DPSK Low Channel 1.467 mW 125 mW Pass Mid Channel 1.736 mW 125 mW Pass	2DH5, pi/4-DQPSK									
High Channel 1.622 mW 125 mW Pass DH5, 8-DPSK Low Channel 1.467 mW 125 mW Pass Mid Channel 1.736 mW 125 mW Pass		Low Channel				1.43 mW	125 mW	Pass		
DH5, 8-DPSK Low Channel Low Channel 1.467 mW 125 mW Pass Mid Channel 1.736 mW 125 mW Pass		Mid Channel				1.708 mW	125 mW	Pass		
DH5, 8-DPSK Low Channel Low Channel 1.467 mW 125 mW Pass Mid Channel 1.736 mW 125 mW Pass		High Channel				1.622 mW	125 mW	Pass		
Mid Channel 1.736 mW 125 mW Pass	3DH5, 8-DPSK									
Mid Channel 1.736 mW 125 mW Pass		Low Channel				1.467 mW	125 mW	Pass		
						1.736 mW	125 mW	Pass		
		High Channel					125 mW	Pass		

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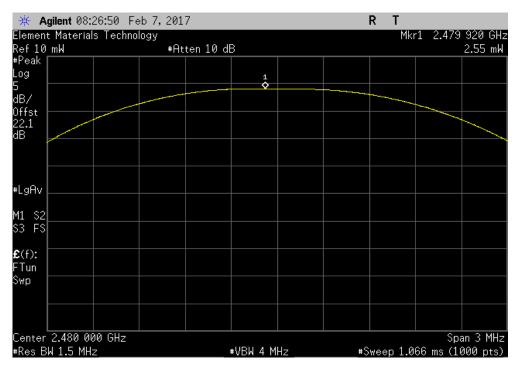


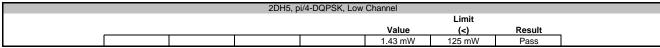


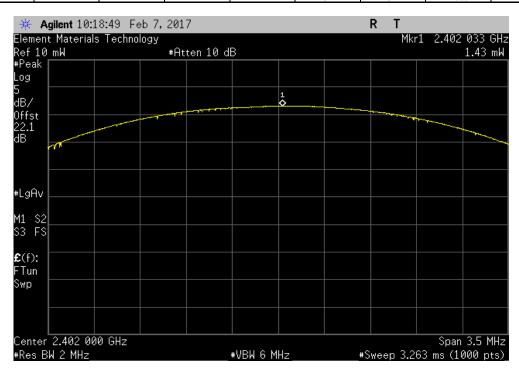


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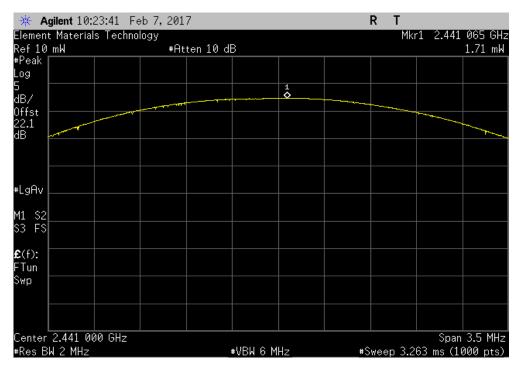


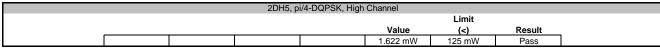
2DH5, pi/4-DQPSK, Mid Channel

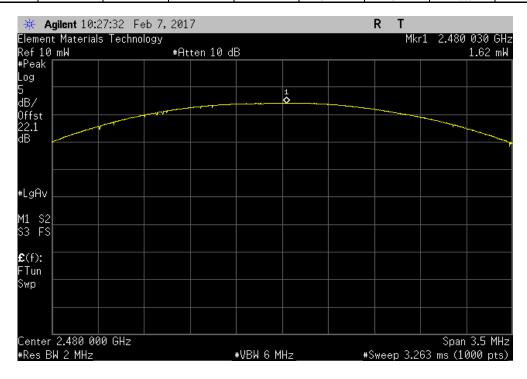
Limit

Value (<) Result

1.708 mW 125 mW Pass







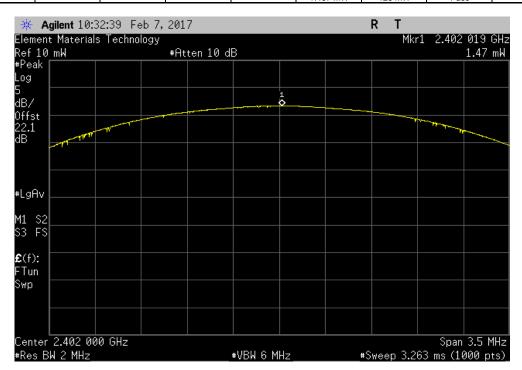
Report No. STAK0080 72/102

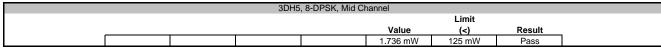
OUTPUT POWER

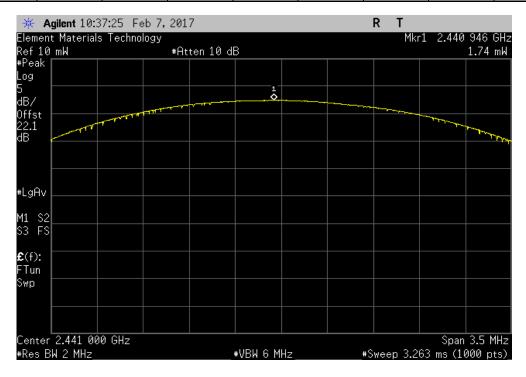


3DH5, 8-DPSK, Low Channel

| Limit |
| Value | (<) | Result |
| 1.467 mW | 125 mW | Pass |







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OUTPUT POWER

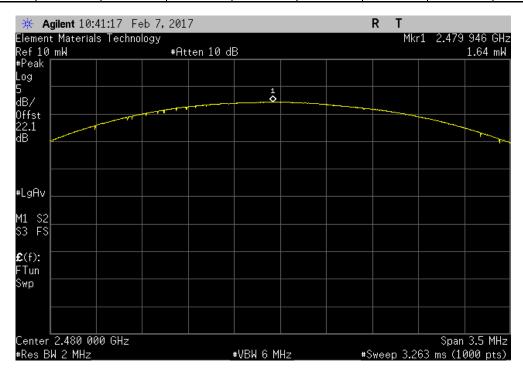


3DH5, 8-DPSK, High Channel

Limit

Value (<) Result

1.642 mW 125 mW Pass



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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
Attenuator	S.M. Electronics	SA26B-20	RFW	2/26/2016	2/26/2017
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/24/2016	3/24/2017

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.

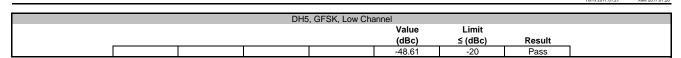
Report No. STAK0080 75/102

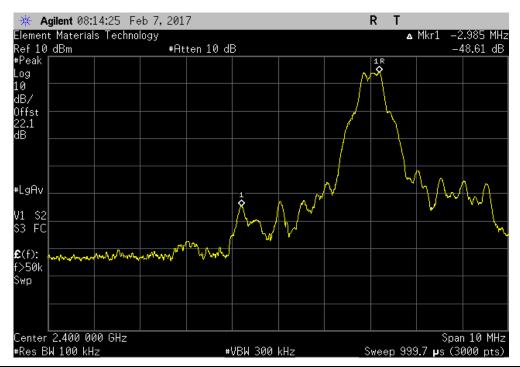


		TbtTx 2017.01.27	XMit 2017.01.26
EUT: SurfLink Mini Mobile Adapter	Work Order:		
Serial Number: 00017006905		02/07/17	
Customer: Starkey Laboratories, Inc.	Temperature:		
Attendees: Charlie Esch	Humidity:		
Project: None	Barometric Pres.:		
Tested by: Dustin Sparks Power: Battery	Job Site:	MN08	
TEST SPECIFICATIONS Test Method			
FCC 15.247:2017 ANSI C63.10:2013			
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
2 2/ 0			
Configuration # 4			
Signature			
	Value	Limit	
	(dBc)	≤ (dBc)	Result
DH5, GFSK			
Low Channel	-48.61	-20	Pass
High Channel	-60.41	-20	Pass
2DH5, pi/4-DQPSK			
Low Channel	-53.17	-20	Pass
High Channel	-58.88	-20	Pass
3DH5, 8-DPSK			
Low Channel	-51.99	-20	Pass
High Channel	-56.7	-20	Pass

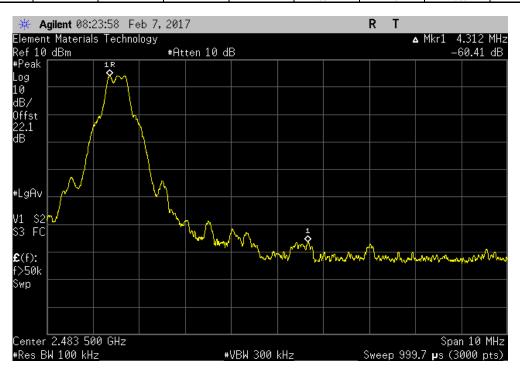
Report No. STAK0080 76/102





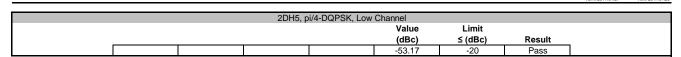


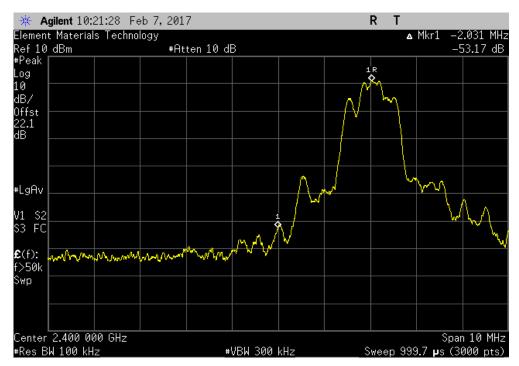
	DH5, GFSK, High Ch	annel		
		Value	Limit	
<u> </u>		(dBc)	≤ (dBc)	Result
		-60.41	-20	Pass



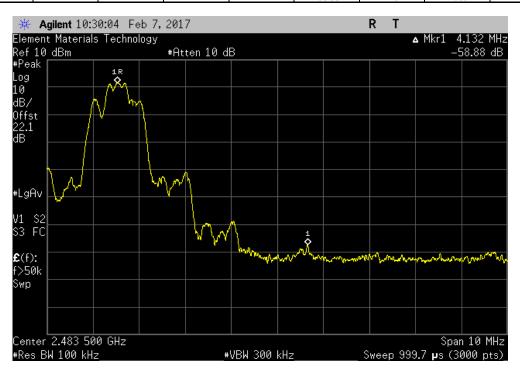
Report No. STAK0080 77/102





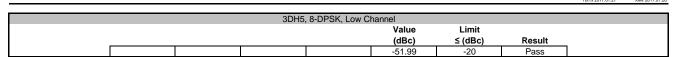


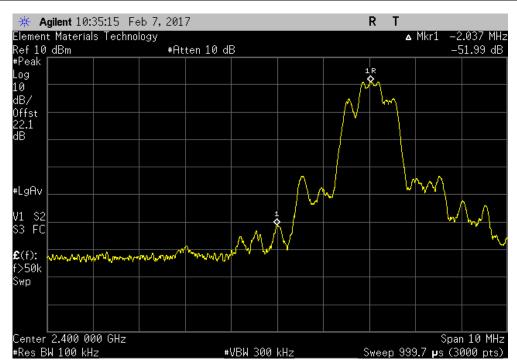
	2DH5, p	i/4-DQPSK, High	Channel		
			Value	Limit	
			(dBc)	≤ (dBc)	Result
			-58.88	-20	Pass



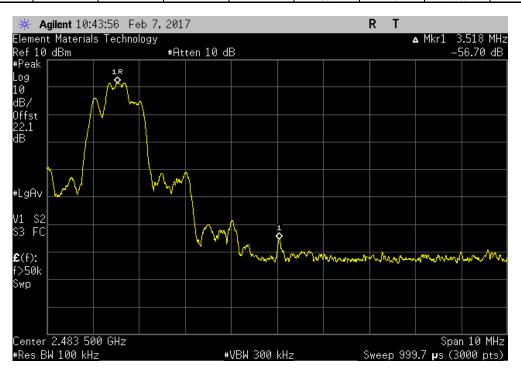
Report No. STAK0080 78/102







	3DH5,	, 8-DPSK, High C	hannel		
			Value	Limit	
			(dBc)	≤ (dBc)	Result
			-56.7	-20	Pass



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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
Attenuator	S.M. Electronics	SA26B-20	RFW	2/26/2016	2/26/2017
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/24/2016	3/24/2017

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.

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				TbtTx 2017.01.27	XMit 2017.01.26
	SurfLink Mini Mobile Adapter		Work Order:		
	: 00017006905			02/07/17	
	: Starkey Laboratories, Inc.		Temperature:		
	Charlie Esch		Humidity:		
Project	None		Barometric Pres.:	1004 mbar	
	Dustin Sparks Power: Battery		Job Site:	MN08	
TEST SPECIFICAT	TIONS Test Metho	d			
FCC 15.247:2017	ANSI C63.1	0:2013			
		_	<u> </u>		
COMMENTS					
None					
DEVIATIONS FRO	M TEST STANDARD				
None					
	A 11 0	2			
Configuration #	4 Singly Dustin Spars				
	Signature				
			Value	Limit	
			(dBc)	≤ (dBc)	Result
Hopping Mode					
	DH5, GFSK				
	Low Channel, 2402 MHz		-55.48	-20	Pass
	High Channel, 2480 MHz		-55.99	-20	Pass
	2DH5, pi/4-DQPSK				_
	Low Channel, 2402 MHz		-53.04	-20	Pass
	High Channel, 2480 MHz		-54.91	-20	Pass
	3DH5, 8-DPSK				_
	Low Channel, 2402 MHz		-55.2	-20	Pass
	High Channel, 2480 MHz		-54.91	-20	Pass

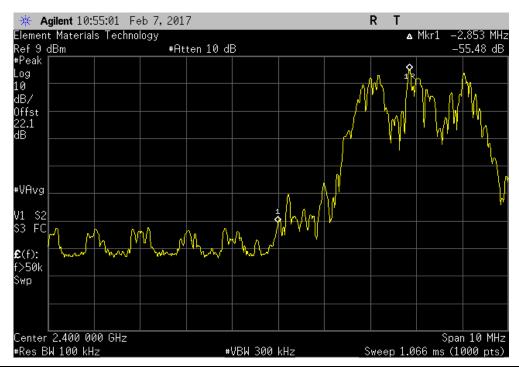
Report No. STAK0080 81/102

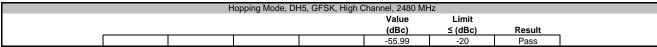


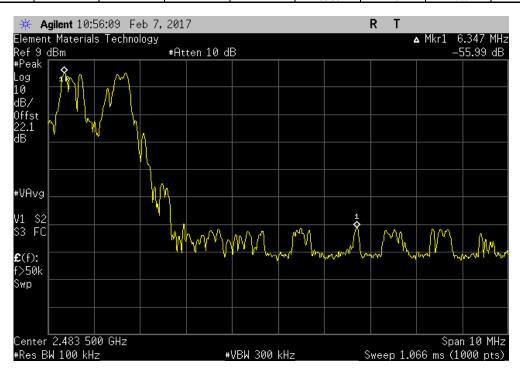
Hopping Mode, DH5, GFSK, Low Channel, 2402 MHz

Value Limit
(dBc) ≤ (dBc) Result

-55.48 -20 Pass







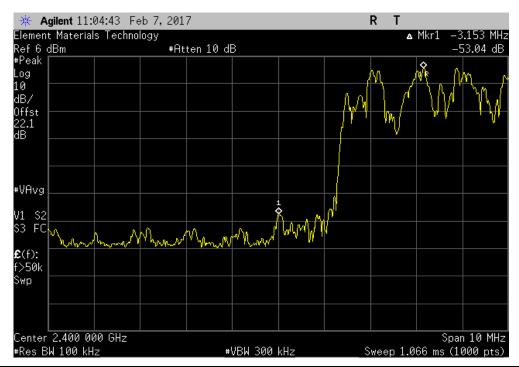
Report No. STAK0080 82/102

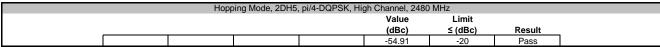


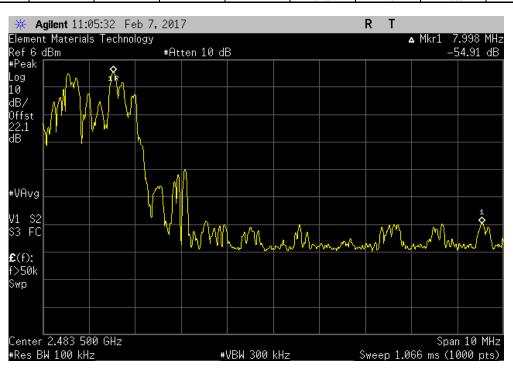
Hopping Mode, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz

Value Limit
(dBc) ≤ (dBc) Result

-53.04 -20 Pass







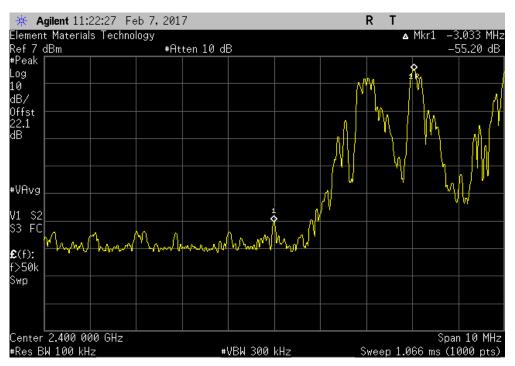
Report No. STAK0080 83/102

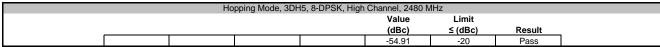


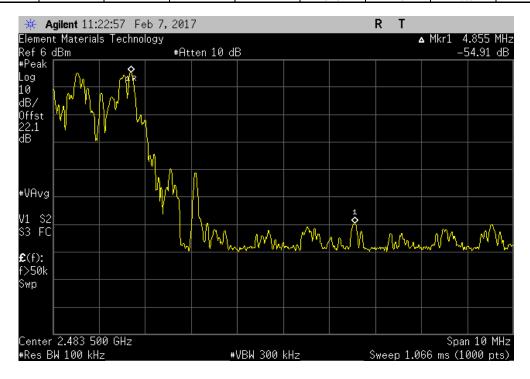
Hopping Mode, 3DH5, 8-DPSK, Low Channel, 2402 MHz

Value Limit
(dBc) ≤ (dBc) Result

-55.2 -20 Pass







Report No. STAK0080 84/102



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	2/26/2016	2/26/2017
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/24/2016	3/24/2017

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.

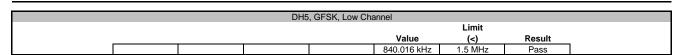
Report No. STAK0080 85/102

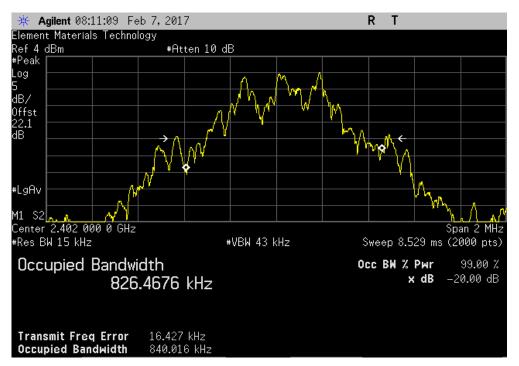


						TbtTx 2017.01.27	XMit 2017.01.2
	SurfLink Mini Mobile Ada	pter				: STAK0080	
Serial Number:						2: 02/07/17	
	Starkey Laboratories, Inc				Temperature	22.4 °C	
	Charlie Esch				Humidity	: 20.9% RH	
Project:					Barometric Pres.		
	Dustin Sparks		Power:		Job Site	: MN08	
TEST SPECIFICATI	IONS			Test Method			
FCC 15.247:2017				ANSI C63.10:2013			
COMMENTS							
None							
DEVIATIONS FROM	M TEST STANDARD						
None							
			0 01 5) -			
Configuration #	4	\sim	Tusting	Daves			
		Signature		_(
						Limit	
					Value	Limit (<)	Result
DH5, GFSK						(<)	
DH5, GFSK	Low Channel				840.016 kHz	(<) 1.5 MHz	Pass
DH5, GFSK	Mid Channel				840.016 kHz 912.389 kHz	(<) 1.5 MHz 1.5 MHz	Pass Pass
DH5, GFSK					840.016 kHz	(<) 1.5 MHz	Pass
.,	Mid Channel High Channel				840.016 kHz 912.389 kHz 921.193 kHz	(<) 1.5 MHz 1.5 MHz 1.5 MHz	Pass Pass
.,	Mid Channel				840.016 kHz 912.389 kHz	(<) 1.5 MHz 1.5 MHz	Pass Pass
DH5, GFSK 2DH5, pi/4-DQPSK	Mid Channel High Channel				840.016 kHz 912.389 kHz 921.193 kHz	(<) 1.5 MHz 1.5 MHz 1.5 MHz	Pass Pass Pass
.,	Mid Channel High Channel Low Channel				840.016 kHz 912.389 kHz 921.193 kHz 1.119 MHz	(<) 1.5 MHz 1.5 MHz 1.5 MHz	Pass Pass Pass
.,	Mid Channel High Channel Low Channel Mid Channel				840.016 kHz 912.389 kHz 921.193 kHz 1.119 MHz 1.105 MHz	1.5 MHz 1.5 MHz 1.5 MHz 1.5 MHz 1.5 MHz	Pass Pass Pass Pass Pass
2DH5, pi/4-DQPSK	Mid Channel High Channel Low Channel Mid Channel				840.016 kHz 912.389 kHz 921.193 kHz 1.119 MHz 1.105 MHz	1.5 MHz 1.5 MHz 1.5 MHz 1.5 MHz 1.5 MHz	Pass Pass Pass Pass Pass
2DH5, pi/4-DQPSK	Mid Channel High Channel Low Channel Mid Channel High Channel				840.016 kHz 912.389 kHz 921.193 kHz 1.119 MHz 1.105 MHz 1.085 MHz	1.5 MHz 1.5 MHz 1.5 MHz 1.5 MHz 1.5 MHz 1.5 MHz 1.5 MHz	Pass Pass Pass Pass Pass Pass
2DH5, pi/4-DQPSK	Mid Channel High Channel Low Channel Mid Channel High Channel Low Channel				840.016 kHz 912.389 kHz 921.193 kHz 1.119 MHz 1.105 MHz 1.085 MHz 1.1 MHz	1.5 MHz 1.5 MHz 1.5 MHz 1.5 MHz 1.5 MHz 1.5 MHz 1.5 MHz	Pass Pass Pass Pass Pass Pass Pass

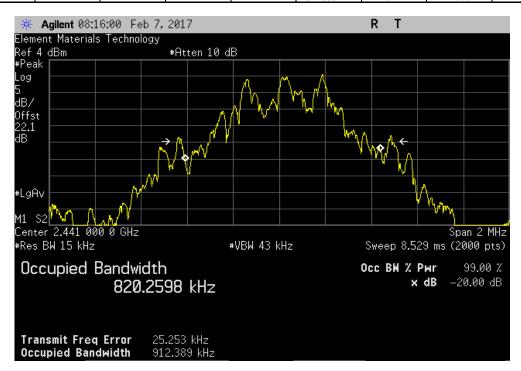
Report No. STAK0080 86/102







		DH5	, GFSK, Mid Cha	innel			
					Limit		
				Value	(<)	Result	_
1				912.389 kHz	1.5 MHz	Pass	İ



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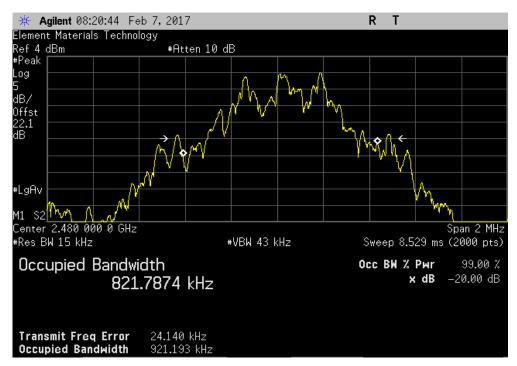


DH5, GFSK, High Channel

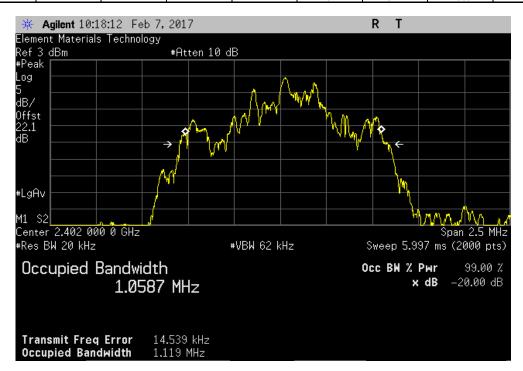
Limit

Value (<) Result

921.193 kHz 1.5 MHz Pass



	2DH5, p	i/4-DQPSK, Low	Channel		
				Limit	
			Value	(<)	Result
			1.119 MHz	1.5 MHz	Pass



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2DH5, pi/4-DQPSK, Mid Channel

Limit

Value (<) Result

1.105 MHz 1.5 MHz Pass



		2DH5, p	i/4-DQPSK, High	Channel		
Limit						
				Value	(<)	Result
				1.085 MHz	1.5 MHz	Pass



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3DH5, 8-DPSK, Low Channel

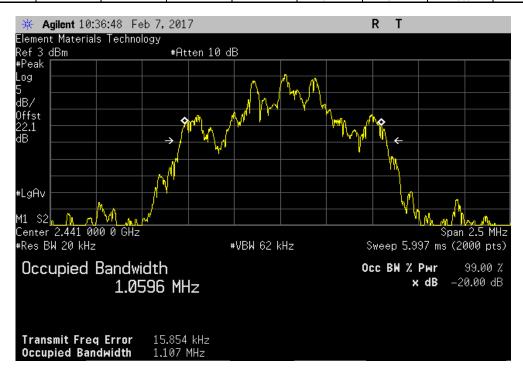
Limit

Value (c) Result

1.1 MHz 1.5 MHz Pass



	3DH5	, 8-DPSK, Mid Cl	hannel		
				Limit	
			Value	(<)	Result
			1.107 MHz	1.5 MHz	Pass



Report No. STAK0080 90/102

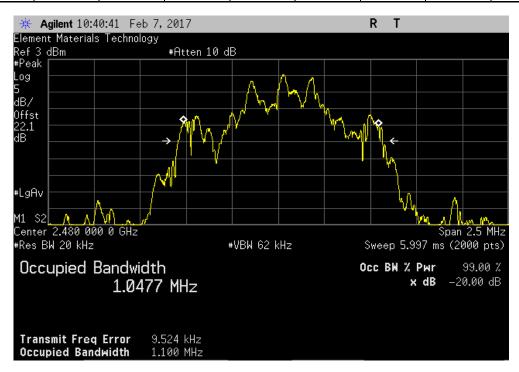


3DH5, 8-DPSK, High Channel

Limit

Value (<) Result

1.1 MHz 1.5 MHz Pass



Report No. STAK0080 91/102



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	2/26/2016	2/26/2017
Block - DC	Fairview Microwave	SD3379	AMI	9/15/2016	9/15/2017
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	3/24/2016	3/24/2017

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.

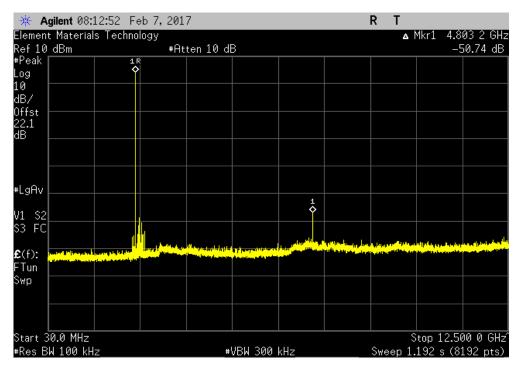
Report No. STAK0080 92/102



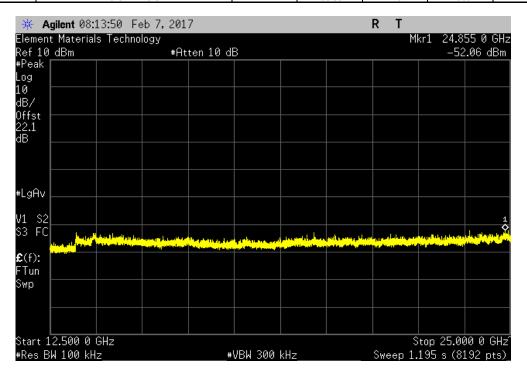
			TbtTx 2017.01.27	7 XMit 2017
	: SurfLink Mini Moblie Ad		der: STAK0080	
Serial Number:			ate: 02/07/17	
	: Starkey Laboratories, Inc		ure: 22.9 °C	
	: Charlie Esch		lity: 20.5% RH	
Project:			es.: 1004 mbar	
	: Dustin Sparks		Site: MN08	
ST SPECIFICAT	TONS	Test Method		
C 15.247:2017		ANSI C63.10:2013		
OMMENTS				
ne				
ne				
	M TEST STANDARD			
ne				
onfiguration #	4	Dustin Sparls		
5		Signature		
	_	Frequency Max Valu		
		Range (dBc)	≤ (dBc)	Result
15, GFSK				
	Low Channel	30 MHz - 12.5 GHz -50.74	-20	Pass
	Low Channel	12.5 GHz - 25 GHz -55.96	-20	Pass
	Mid Channel	30 MHz - 12.5 GHz -46.67	-20	Pass
	Mid Channel	12.5 GHz - 25 GHz53.99	-20	Pass
	High Channel	30 MHz - 12.5 GHz -49.79	-20	Pass
	High Channel	12.5 GHz - 25 GHz -54.97	-20	Pass
H5, pi/4-DQPSK				
.,	Low Channel	30 MHz - 12.5 GHz -52.01	-20	Pass
	Low Channel	12.5 GHz - 25 GHz -52.94	-20	Pass
	Mid Channel	30 MHz - 12.5 GHz -52.6	-20	Pass
	Mid Channel	12.5 GHz - 25 GHz - 53.32	-20	Pass
	High Channel	30 MHz - 12.5 GHz -51.1	-20	Pass
	High Channel	12.5 GHz - 25 GHz - 51.64	-20	Pass
H5. 8-DPSK	. ng Ondinio	12.5 57/2 25 57/2 -51.04	20	1 433
,	Low Channel	30 MHz - 12.5 GHz -52.49	-20	Pass
	Low Channel	12.5 GHz - 25 GHz -52.7	-20	Pass
	Mid Channel	30 MHz - 12.5 GHz -52.53	-20	Pass
	Mid Channel	-02.35 12.5 GHz - 25 GHZ - 53.6	-20	Pass
	High Channel	30 MHz - 12.5 GHz -50.09	-20	Pass
		30 MHZ - 12.5 GHZ -50.09 12.5 GHz - 25 GHz -53.73	-20 -20	Pass
	High Channel	12.5 GHZ - 25 GHZ -53./3	-20	Pass

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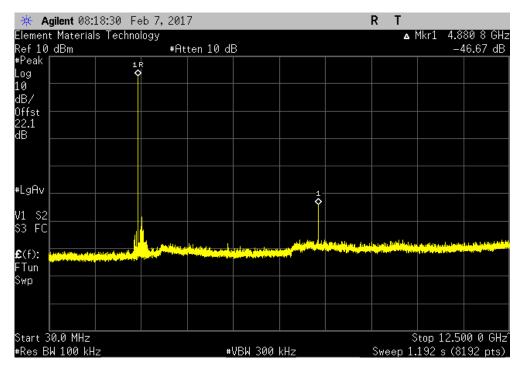
	DH	, GFSK, Low Cha	annel		
	Frequency		Max Value	Limit	
	Range		(dBc)	≤ (dBc)	Result
,	12.5 GHz - 25 GHz		-55.96	-20	Pass



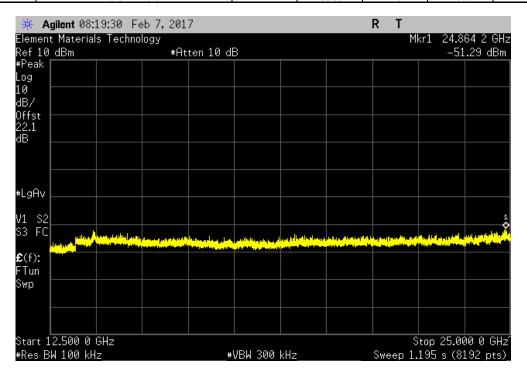
Report No. STAK0080 94/102



					TbtTx 2017.01.27	XMit 2017.01.26
	H5, GFSK, Mid Ch	annel				
Frequency		Max Value	Limit			
Range		(dBc)	≤ (dBc)	Result		
30 MHz - 12.5 GHz		-46.67	-20	Pass		



DHS	5, GFSK, Mid Channel		
Frequency	Max Value	Limit	
Range	(dBc)	≤ (dBc)	Result
12.5 GHz - 25 GHz	-53.99	-20	Pass



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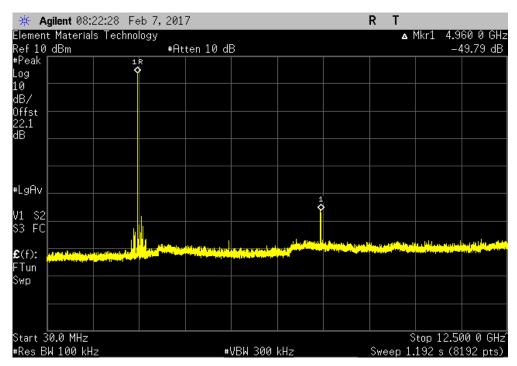


DH5, GFSK, High Channel

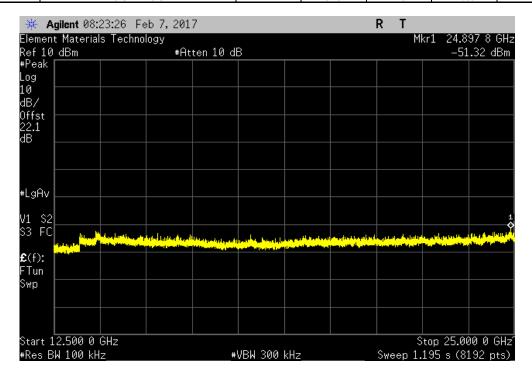
Frequency Max Value Limit

Range (dBc) ≤ (dBc) Result

30 MHz - 12.5 GHz -49.79 -20 Pass

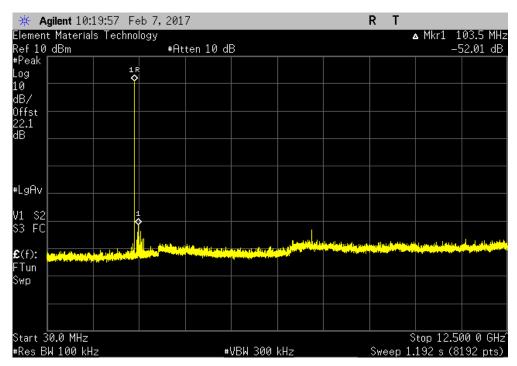


	DH	5, GFSK, High Ch	annel		
	Frequency		Max Value	Limit	
	Range		(dBc)	≤ (dBc)	Result
i l	12.5 GHz - 25 GHz		-54.97	-20	Pass

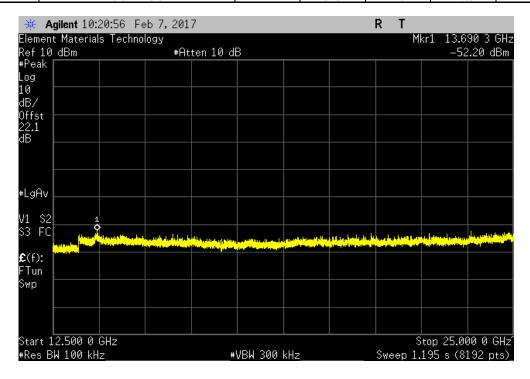


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	2DH5, p	oi/4-DQPSK, Low	Channel		
	Frequency		Max Value	Limit	
	Range		(dBc)	≤ (dBc)	Result
i	12.5 GHz - 25 GHz		-52.94	-20	Pass

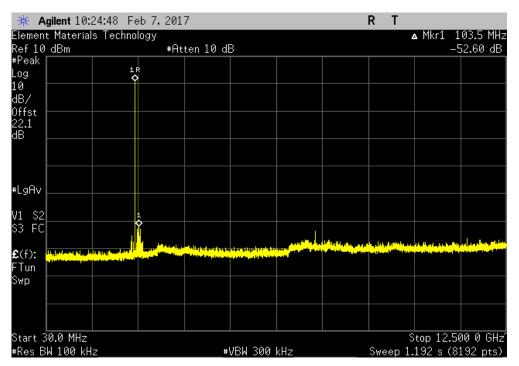


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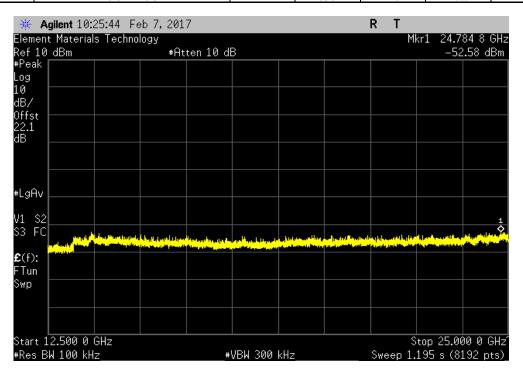


TbtTx 2017.01.27

anus.	:// DODOK N: I	01 1			
2DH5, (oi/4-DQPSK, Mid	Channel			
Frequency		Max Value	Limit		
Range		(dBc)	≤ (dBc)	Result	
30 MHz - 12.5 GHz		-52.6	-20	Pass	



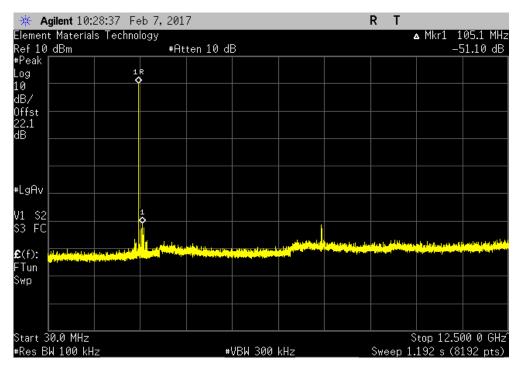
	2DH5, _I	oi/4-DQPSK, Mid	Channel		
	Frequency		Max Value	Limit	
	Range		(dBc)	≤ (dBc)	Result
1	12.5 GHz - 25 GHz		-53.32	-20	Pass



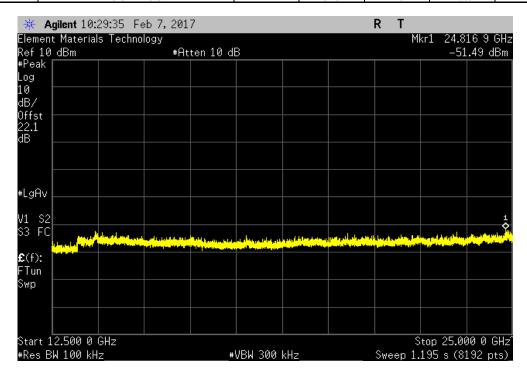
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2DH5 r	i/4-DQPSK, High	Channel			
Frequency	.,	Max Value	Limit		
Range		(dBc)	≤ (dBc)	Result	
30 MHz - 12.5 GHz		-51.1	-20	Pass	



	2DH5, p	i/4-DQPSK, High	Channel		
F	requency		Max Value	Limit	
	Range		(dBc)	≤ (dBc)	Result
12.5	GHz - 25 GHz		-51.64	-20	Pass

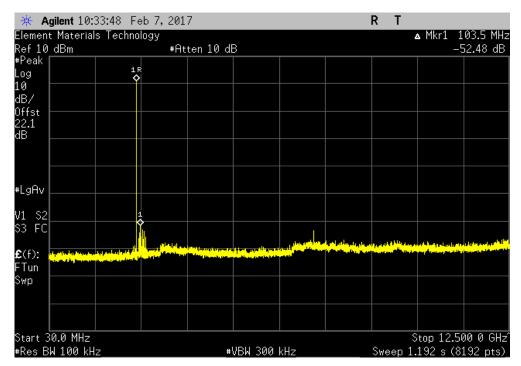


Report No. STAK0080 99/102

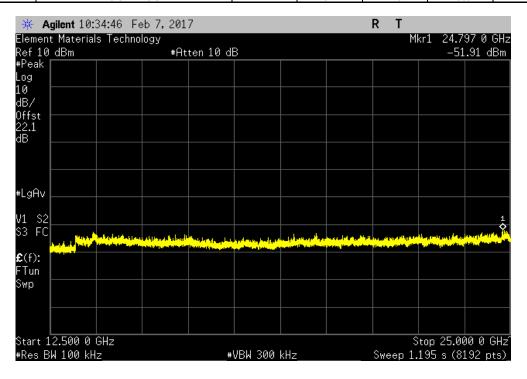


TbtTx 2017.01.27

3DH5	, 8-DPSK, Low C	hannel			
35113	, o bi oit, Low o	I CI II I CI			
Frequency		Max Value	Limit		
Range		(dBc)	≤ (dBc)	Result	
30 MHz - 12.5 GHz		-52.49	-20	Pass	



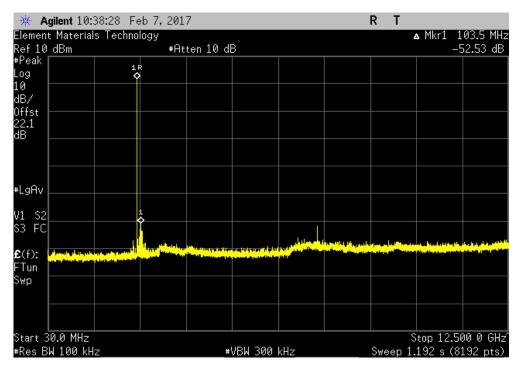
	3DH5	i, 8-DPSK, Low C	hannel		
	Frequency			Limit	
	Range		(dBc)	≤ (dBc)	Result
1	12.5 GHz - 25 GHz		-52.7	-20	Pass



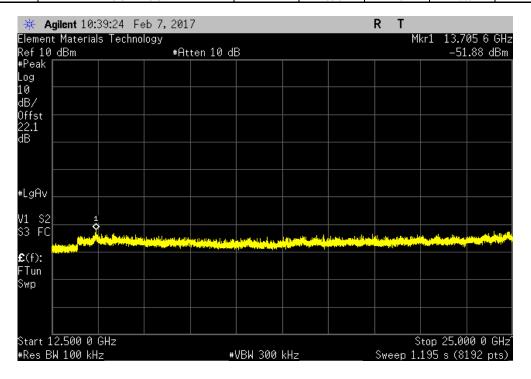
Report No. STAK0080 100/102



					TbtTx 2017.01.27	XMit 2017.01.26
3DF	5, 8-DPSK, Mid Cha	nnel				
Frequency		Max Value	Limit			
Range		(dBc)	≤ (dBc)	Result		
30 MHz - 12.5 GHz		-52.53	-20	Pass		



3DH5, 8-DPSK, Mid Channel						
Frequency			Limit			
Range		(dBc)	≤ (dBc)	Result		
12.5 GHz - 25 GHz		-53.6	-20	Pass		

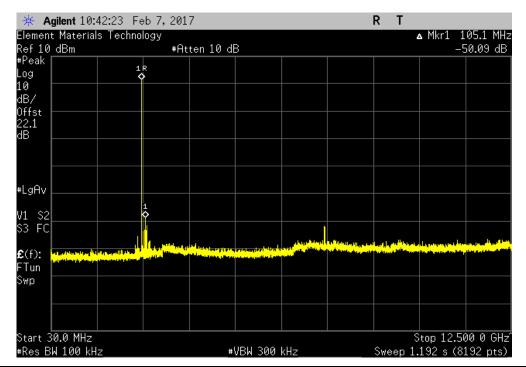


Report No. STAK0080 101/102

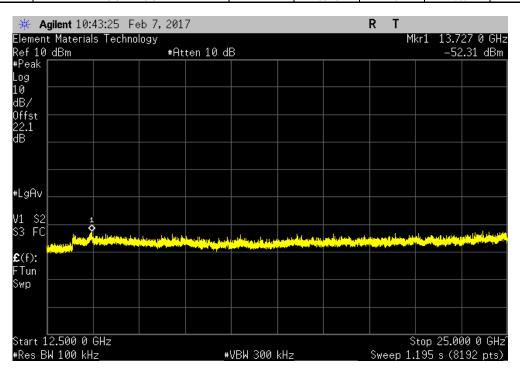


TbtTx 2017.01.27

3DH5, 8-DPSK, High Channel							
	Frequency	, ,	Max Value	Limit			
	Range		(dBc)	≤ (dBc)	Result		
	30 MHz - 12.5 GHz		-50.09	-20	Pass		



3DH5, 8-DPSK, High Channel							
Frequency	Max Value	Limit					
Range	(dBc)	≤ (dBc)	Result				
12.5 GHz - 25 GHz	-53.73	-20	Pass				



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