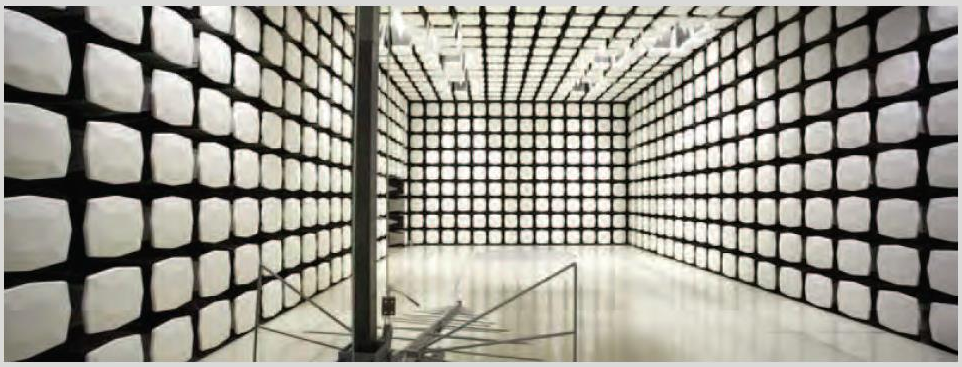
Audio Precision

APX517B

FCC 15.247:2020

Bluetooth Radio

Report: AUDI0269, Issue Date: December 3, 2020



NVLAP LAB CODE: 200630-0

CERTIFICATE OF TEST

Last Date of Test: September 18, 2020
Audio Precision
EUT: APX517B

Radio Equipment Testing

Standards

Specification	Method
FCC 15.207:2020	ANSI C63.10:2013
FCC 15.247:2020	

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	
7.8.5	Equivalent Isotropic Radiated 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:

Kyle Holgate, Operations Manager

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

REVISION HISTORY

Revision Number	Description	Date (yyyy-mm-dd)	Page Number
00	None		

ACCREDITATIONS AND AUTHORIZATIONS

United States

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

A2LA - 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) and as a CAB for the acceptance of test data.

European Union

European Commission – Within Element, we have a EU Notified Body validated for the EMCD and RED Directives.

Australia/New Zealand

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

Korea

MSIT / RRA - Recognized by KCC's RRA as a CAB for the acceptance of test data.

Japan

VCCI - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

Taiwan

BSMI – Recognized by BSMI as a CAB for the acceptance of test data.

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

Singapore

IDA – Recognized by IDA as a CAB for the acceptance of test data.

Israel

MOC – Recognized by MOC as a CAB for the acceptance of test data.

Hong Kong

OFCA – Recognized by OFCA as a CAB for the acceptance of test data.

Vietnam

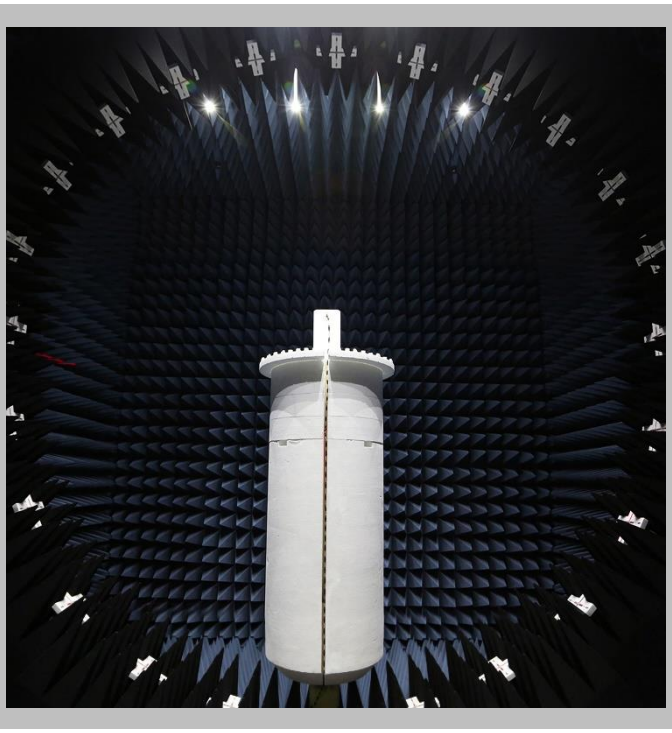
MIC – Recognized by MIC as a CAB for the acceptance of test data.

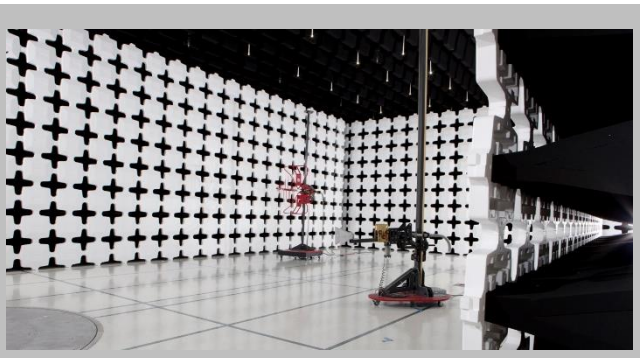
SCOPE

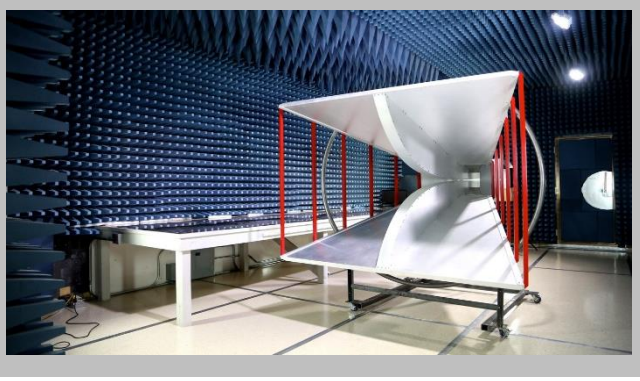
For details on the Scopes of our Accreditations, please visit:
https://www.nwemc.com/emc-testing-accreditations

FACILITIES

California	Minnesota	Oregon	Texas	Washington
Labs OC01-17 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs EV01-12 6775 NE Evergreen Pkwy #400 Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120th Ave NE Bothell, WA 98011 (425)984-6600
NVLAP				
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	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, 2834E-3	2834D-1	2834G-1	2834F-1
BSMI				
SL2-IN-E-1154R	SL2-IN-E-1152R	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
VCCI				
A-0029	A-0109	A-0108	A-0201	A-0110
Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA				
US0158	US0175	US0017	US0191	US0157







MEASUREMENT UNCERTAINTY

element
TMU.2015.07.10

Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

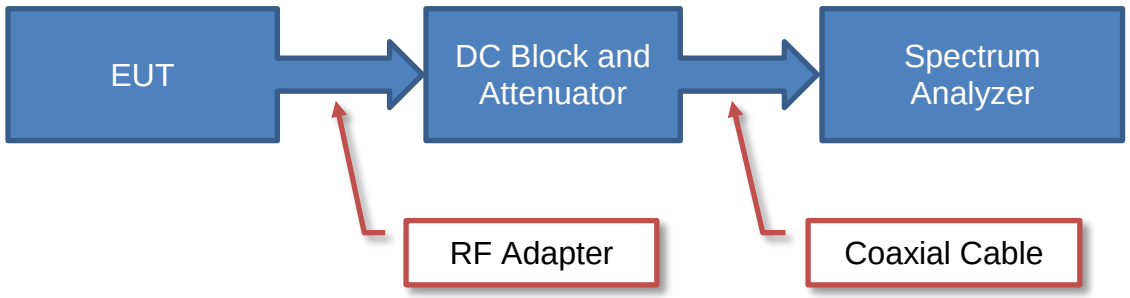
A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) can be found included as part of the applicable test description page. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

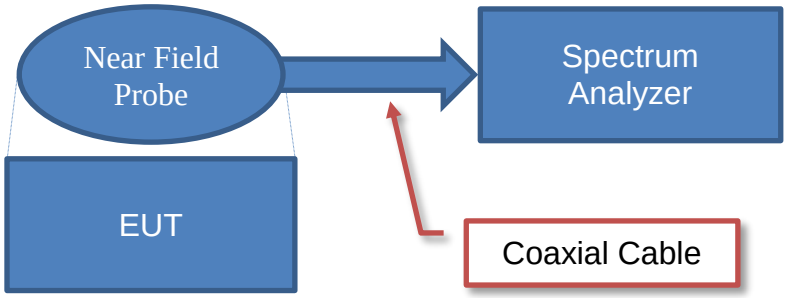
Test	+ MU	- MU
Frequency Accuracy	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	1.2 dB	-1.2 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	5.2 dB	-5.2 dB
AC Powerline Conducted Emissions (dB)	2.6 dB	-2.6 dB

Test Setup Block Diagrams

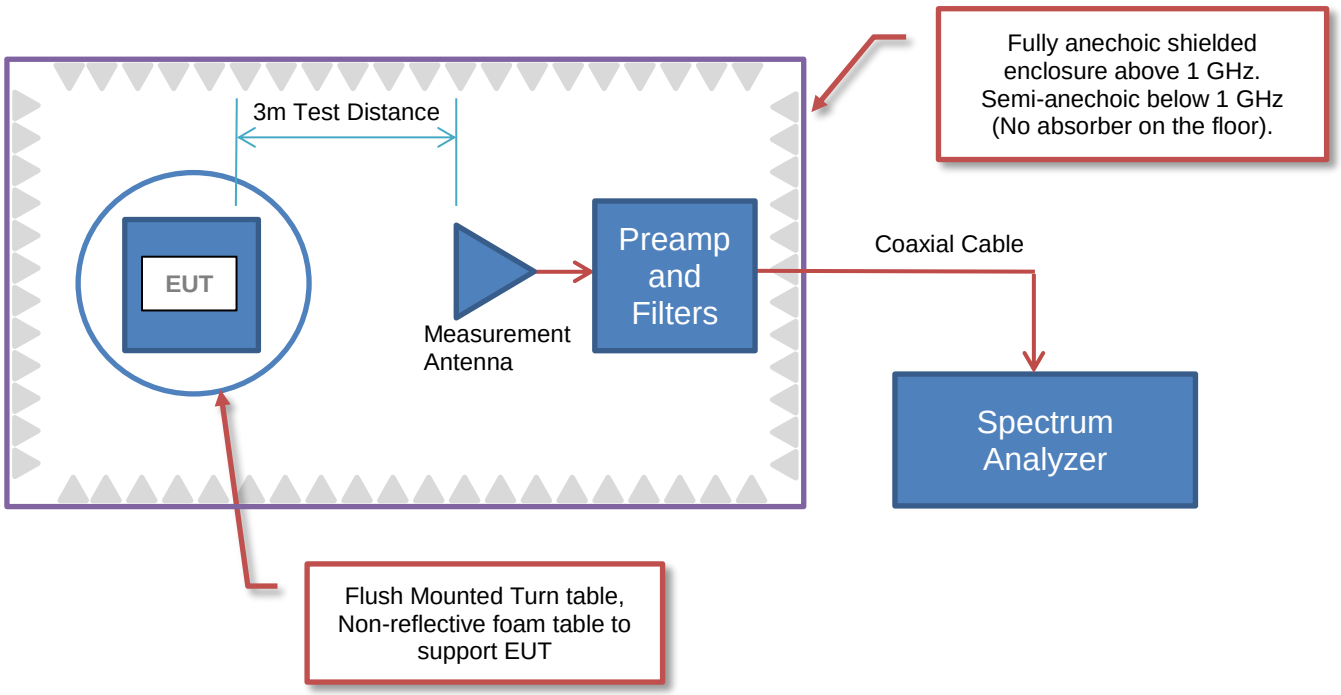
Antenna Port Conducted Measurements



Near Field Test Fixture Measurements



Spurious Radiated Emissions



PRODUCT DESCRIPTION

Client and Equipment Under Test (EUT) Information

Company Name:	Audio Precision
Address:	5750 SW Arctic Drive
City, State, Zip:	Beaverton, OR 97005
Test Requested By:	Bill Bunnell
EUT:	APX517B
First Date of Test:	September 16, 2020
Last Date of Test:	September 18, 2020
Receipt Date of Samples:	September 16, 2020
Equipment Design Stage:	Production
Equipment Condition:	No Damage
Purchase Authorization:	Verified

Information Provided by the Party Requesting the Test

Functional Description of the EUT:
Bluetooth Radio

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

CONFIGURATIONS

Configuration AUDI0269- 1

Software/Firmware Running during test	
Description	**Version**
APx500	V6.01.458 Beta
BlueTest3	2.6.6

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Acoustic Audio Analyzer	Audio Precision	APX517B	APX517B 008 Rev. B

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Dell	Inspiron 15	333670744446
AC Adapter	Dell	HA45NM140	None
SPI to Ethernet Adapter #1	CSR	M1616V2	None
USB to SPI Converter	CSR	1324 USB-SPI Converter	373641

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Mains	No	2.3 m	No	Acoustic Audio Analyzer	AC Mains
USB	Yes	1.8 m	Yes	Acoustic Audio Analyzer	Laptop
Cat5e flat cable	No	1.8 m	No	SPI to Ethernet Adapter #1	USB to SPI converter
USB	Yes	2.0 m	No	USB to SPI converter	Laptop

Configuration AUDI0269- 2

Software/Firmware Running during test	
Description	**Version**
APx500	V6.01.458 Beta
BlueTest3	2.6.6

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Acoustic Audio Analyzer	Audio Precision	APX517B	APX517B 008 Rev. B

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Dell	Inspiron 15	333670744446

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Mains	No	2.3 m	No	Acoustic Audio Analyzer	AC Mains
USB	Yes	1.8 m	Yes	Acoustic Audio Analyzer	Laptop

CONFIGURATIONS

Configuration AUDI0269- 3

Software/Firmware Running during test	
Description	**Version**
APx500	V6.01.458 Beta
BlueTest3	2.6.6

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Acoustic Audio Analyzer	Audio Precision	APX517B	APX517B 008 Rev. B

Peripherals in test setup boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Dell	Inspiron 15	333670744446
AC Adapter	Dell	HA45NM140	None
SPI to Ethernet Adapter #1	CSR	M1616V2	None
USB to SPI Converter	CSR	1324 USB-SPI Converter	373641

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Mains	No	2.3 m	No	Acoustic Audio Analyzer	AC Mains
USB	Yes	1.8 m	Yes	Acoustic Audio Analyzer	Laptop
DC Power	No	1.8 m	Yes	Laptop	AC Adapter
AC Mains	No	1.8 m	No	AC Adapter	AC Mains
Cat5e flat cable	No	1.8 m	No	SPI to Ethernet Adapter #1	USB to SPI converter

CONFIGURATIONS

Configuration AUDI0269- 4

Software/Firmware Running during test	
Description	**Version**
APx500	V6.01.458 Beta
BlueTest3	2.6.6

EUT			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Acoustic Audio Analyzer	Audio Precision	APX517B	APX517B 008 Rev. B

Remote Equipment Outside of Test Setup Boundary			
Description	**Manufacturer**	**Model/Part Number**	**Serial Number**
Laptop	Dell	Inspiron 15	333670744446
AC Adapter	Dell	HA45NM140	None
SPI to Ethernet Adapter #1	CSR	M1616V2	None
USB to SPI Converter	CSR	1324 USB-SPI Converter	373641

Cables					
Cable Type	**Shield**	**Length (m)**	**Ferrite**	**Connection 1**	**Connection 2**
AC Mains	No	2.3 m	No	Acoustic Audio Analyzer	AC Mains
USB	Yes	1.8 m	Yes	Acoustic Audio Analyzer	USB Extension
USB Extension	Yes	4.2 m	No	USB	Laptop
DC Power	No	1.8 m	Yes	Laptop	AC Adapter
AC Mains	No	1.8 m	No	AC Adapter	AC Mains
Cat5e flat cable	No	1.8 m	No	SPI to Ethernet Adapter #1	USB to SPI converter

MODIFICATIONS

Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	2020-09-16	Duty Cycle	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
2	2020-09-16	Carrier Frequency Separation	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
3	2020-09-16	Number of Hopping Frequencies	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
4	2020-09-16	Dwell Time	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
5	2020-09-16	Output Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
6	2020-09-16	Equivalent Isotropic Radiated Power	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
7	2020-09-16	Band Edge Compliance	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
8	2020-09-16	Band Edge Compliance - Hopping Mode	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
9	2020-09-16	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
10	2020-09-16	Spurious Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
11	2020-09-17	Powerline Conducted Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Element following the test.
12	2020-09-18	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

POWER SETTINGS AND ANTENNAS

The power settings, antenna gain value(s) and cable loss (if applicable) used for the testing contained in this report were provided by the customer and will affect the validity of the results. Element assumes no responsibility for the accuracy of this information.

ANTENNA GAIN (dBi)

Type	Provided by:	Frequency Range (MHz)	Gain (dBi)
¼ Wave Helical	Manufacturer	2400 - 2500	2.6

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

SETTINGS FOR ALL TESTS IN THIS REPORT

Modulation Types	Type	Channel	Position	Frequency (MHz)	Power Setting
DH5, 2DH5, 3DH5	FHSS	0 or 1	Low Channel	2402	[255 , 63]
		39	Mid Channel	2441	[255 , 63]
		78 or 79	High Channel	2480	[255 , 63]

POWERLINE CONDUCTED EMISSIONS

element
WTD.2020.03.25.0

TEST DESCRIPTION

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Receiver	Rohde & Schwarz	ESCI	ARH	2020-05-13	2021-05-13
Cable - Conducted Cable Assembly	Northwest EMC	EVG, HHD, RKT	EVGA	2020-01-06	2021-01-06
LISN	Solar Electronics	9252-50-R-24-BNC	LIN	2019-11-20	2020-11-20

MEASUREMENT UNCERTAINTY

Description		
Expanded k=2	2.6 dB	-2.6 dB

CONFIGURATIONS INVESTIGATED

AUDI0269-2

MODES INVESTIGATED

Bluetooth - Tx: Sink, Mid Channel = 2441 MHz, GFSK (DH5). Software power settings [(ext),(int)] = [255 , 63]
Bluetooth - Tx: Source, Mid Channel = 2441 MHz, GFSK (DH5). Software power settings [(ext),(int)] = [255 , 63]

POWERLINE CONDUCTED EMISSIONS

element
WTD.2020.03.25.0

EUT:	APX517B	Work Order:	AUDI0269
Serial Number:	APX517B 008 Rev. B	Date:	2020-09-17
Customer:	Audio Precision	Temperature:	22.1°C
Attendees:	None	Relative Humidity:	49.9%
Customer Project:	None	Bar. Pressure:	1018 mb
Tested By:	Jeff Alcoke	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	AUDI0269-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2020	ANSI C63.10:2013

TEST PARAMETERS

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

COMMENTS

None

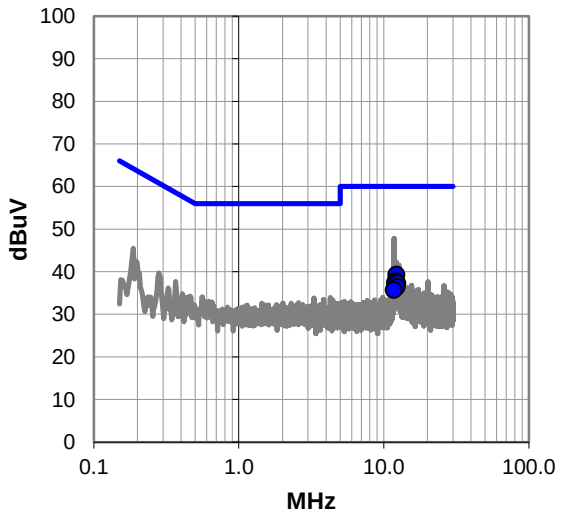
EUT OPERATING MODES

Bluetooth - Tx: Source, Mid Channel = 2441 MHz, GFSK (DH5). Software power settings [(ext),(int)] = [255 , 63]

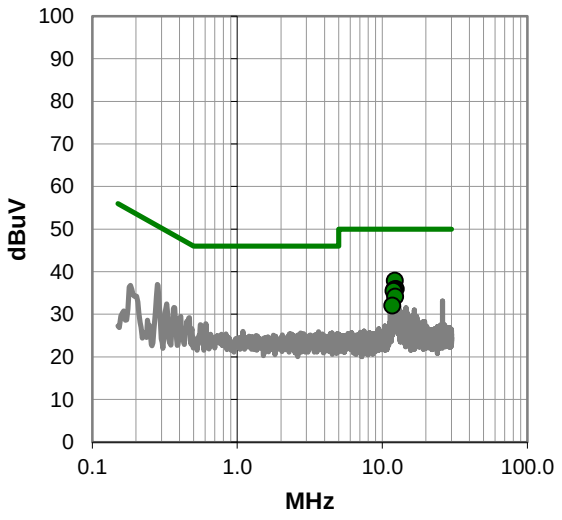
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

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WTD.2020.03.25.0

RESULTS - Run #3

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
12.230	18.9	20.4	39.3	60.0	-20.7
12.086	17.3	20.4	37.7	60.0	-22.3
11.992	17.0	20.4	37.4	60.0	-22.6
12.420	16.9	20.4	37.3	60.0	-22.7
12.275	16.0	20.4	36.4	60.0	-23.6
11.753	15.3	20.4	35.7	60.0	-24.3

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
12.230	17.5	20.4	37.9	50.0	-12.1
12.420	15.5	20.4	35.9	50.0	-14.1
12.086	15.4	20.4	35.8	50.0	-14.2
11.992	15.1	20.4	35.5	50.0	-14.5
12.275	13.7	20.4	34.1	50.0	-15.9
11.753	11.6	20.4	32.0	50.0	-18.0

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

element
WTD.2020.03.25.0

EUT:	APX517B	Work Order:	AUDI0269
Serial Number:	APX517B 008 Rev. B	Date:	2020-09-17
Customer:	Audio Precision	Temperature:	22.1°C
Attendees:	None	Relative Humidity:	49.9%
Customer Project:	None	Bar. Pressure:	1018 mb
Tested By:	Jeff Alcoke	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	AUDI0269-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2020	ANSI C63.10:2013

TEST PARAMETERS

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

COMMENTS

None

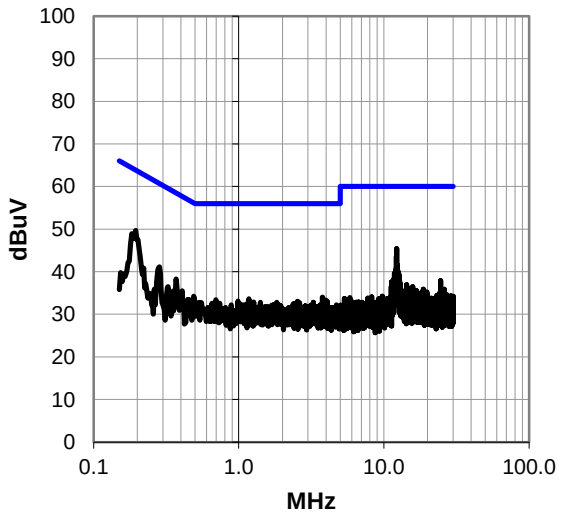
EUT OPERATING MODES

Bluetooth - Tx: Source, Mid Channel = 2441 MHz, GFSK (DH5). Software power settings [(ext),(int)] = [255 , 63]

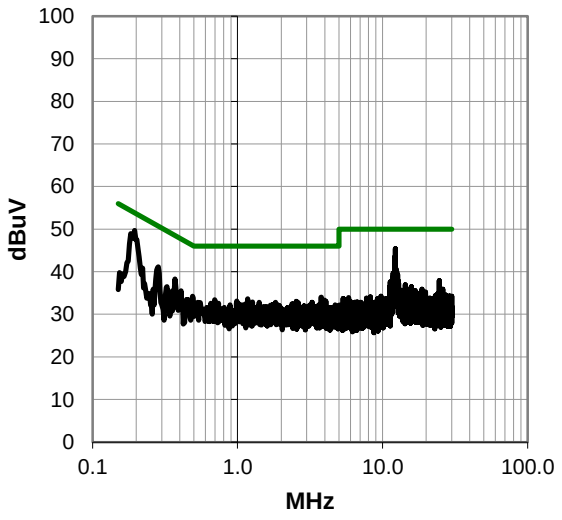
DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2020.03.25.0

RESULTS - Run #4

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.195	29.8	19.9	49.7	63.8	-14.1
12.249	25.0	20.4	45.4	60.0	-14.6
12.219	23.2	20.4	43.6	60.0	-16.4
12.182	20.5	20.4	40.9	60.0	-19.1
12.372	20.2	20.4	40.6	60.0	-19.4
12.342	20.1	20.4	40.5	60.0	-19.5
0.284	21.2	19.9	41.1	60.7	-19.6
12.283	19.8	20.4	40.2	60.0	-19.8
12.047	19.7	20.4	40.1	60.0	-19.9
12.514	19.7	20.4	40.1	60.0	-19.9
0.370	18.4	19.9	38.3	58.5	-20.2
12.324	19.4	20.4	39.8	60.0	-20.2
11.992	19.3	20.4	39.7	60.0	-20.3
11.824	19.2	20.4	39.6	60.0	-20.4
11.954	19.0	20.4	39.4	60.0	-20.6
12.085	19.0	20.4	39.4	60.0	-20.6
12.700	18.9	20.4	39.3	60.0	-20.7
11.898	18.6	20.4	39.0	60.0	-21.0
12.413	18.6	20.4	39.0	60.0	-21.0
12.562	18.4	20.4	38.8	60.0	-21.2
11.846	18.3	20.4	38.7	60.0	-21.3
11.921	18.3	20.4	38.7	60.0	-21.3
12.465	18.3	20.4	38.7	60.0	-21.3
12.607	18.2	20.4	38.6	60.0	-21.4
12.141	18.1	20.4	38.5	60.0	-21.5

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.195	29.8	19.9	49.7	53.8	-4.1
12.249	25.0	20.4	45.4	50.0	-4.6
12.219	23.2	20.4	43.6	50.0	-6.4
12.182	20.5	20.4	40.9	50.0	-9.1
12.372	20.2	20.4	40.6	50.0	-9.4
12.342	20.1	20.4	40.5	50.0	-9.5
0.284	21.2	19.9	41.1	50.7	-9.6
12.283	19.8	20.4	40.2	50.0	-9.8
12.047	19.7	20.4	40.1	50.0	-9.9
12.514	19.7	20.4	40.1	50.0	-9.9
0.370	18.4	19.9	38.3	48.5	-10.2
12.324	19.4	20.4	39.8	50.0	-10.2
11.992	19.3	20.4	39.7	50.0	-10.3
11.824	19.2	20.4	39.6	50.0	-10.4
11.954	19.0	20.4	39.4	50.0	-10.6
12.085	19.0	20.4	39.4	50.0	-10.6
12.700	18.9	20.4	39.3	50.0	-10.7
11.898	18.6	20.4	39.0	50.0	-11.0
12.413	18.6	20.4	39.0	50.0	-11.0
12.562	18.4	20.4	38.8	50.0	-11.2
11.846	18.3	20.4	38.7	50.0	-11.3
11.921	18.3	20.4	38.7	50.0	-11.3
12.465	18.3	20.4	38.7	50.0	-11.3
12.607	18.2	20.4	38.6	50.0	-11.4
12.141	18.1	20.4	38.5	50.0	-11.5

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	APX517B	Work Order:	AUDI0269
Serial Number:	APX517B 008 Rev. B	Date:	2020-09-17
Customer:	Audio Precision	Temperature:	22.1°C
Attendees:	None	Relative Humidity:	49.9%
Customer Project:	None	Bar. Pressure:	1018 mb
Tested By:	Jeff Alcoke	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	AUDI0269-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2020	ANSI C63.10:2013

TEST PARAMETERS

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

COMMENTS

None

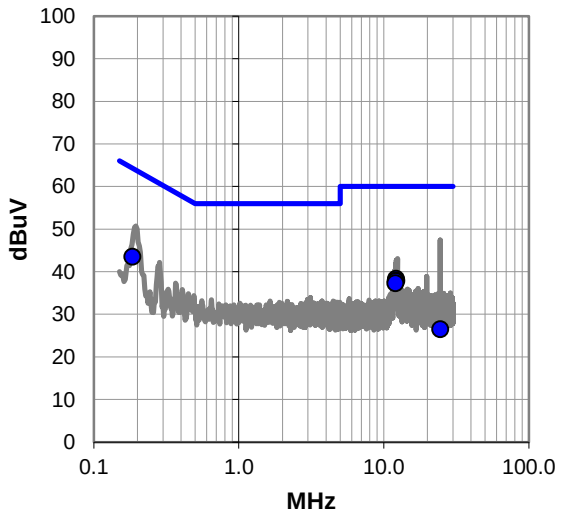
EUT OPERATING MODES

Bluetooth - Tx: Sink, Mid Channel = 2441 MHz, GFSK (DH5). Software power settings [(ext),(int)] = [255 , 63]

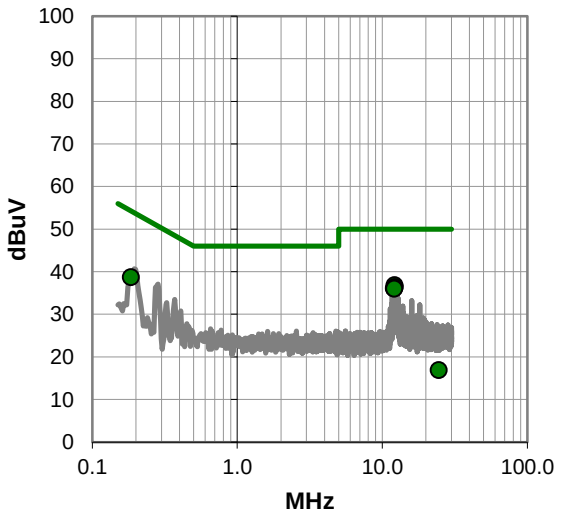
DEVIATIONS FROM TEST STANDARD

None

Quasi Peak Data - vs - Quasi Peak Limit



Average Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2020.03.25.0

RESULTS - Run #5

Quasi Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
0.185	23.6	19.9	43.5	64.3	-20.8
12.182	17.9	20.4	38.3	60.0	-21.7
12.229	17.5	20.4	37.9	60.0	-22.1
12.087	17.4	20.4	37.8	60.0	-22.2
12.040	16.9	20.4	37.3	60.0	-22.7
24.531	5.6	20.9	26.5	60.0	-33.5

Average Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
12.182	16.4	20.4	36.8	50.0	-13.2
12.229	16.0	20.4	36.4	50.0	-13.6
12.040	15.7	20.4	36.1	50.0	-13.9
12.087	15.6	20.4	36.0	50.0	-14.0
0.185	18.8	19.9	38.7	54.3	-15.6
24.531	-4.0	20.9	16.9	50.0	-33.1

CONCLUSION

Pass

Tested By

POWERLINE CONDUCTED EMISSIONS

EUT:	APX517B	Work Order:	AUDI0269
Serial Number:	APX517B 008 Rev. B	Date:	2020-09-17
Customer:	Audio Precision	Temperature:	22.1°C
Attendees:	None	Relative Humidity:	49.9%
Customer Project:	None	Bar. Pressure:	1018 mb
Tested By:	Jeff Alcoke	Job Site:	EV07
Power:	110VAC/60Hz	Configuration:	AUDI0269-2

TEST SPECIFICATIONS

Specification:	Method:
FCC 15.207:2020	ANSI C63.10:2013

TEST PARAMETERS

Run #:	6	Line:	High Line	Add. Ext. Attenuation (dB):	0

COMMENTS

None

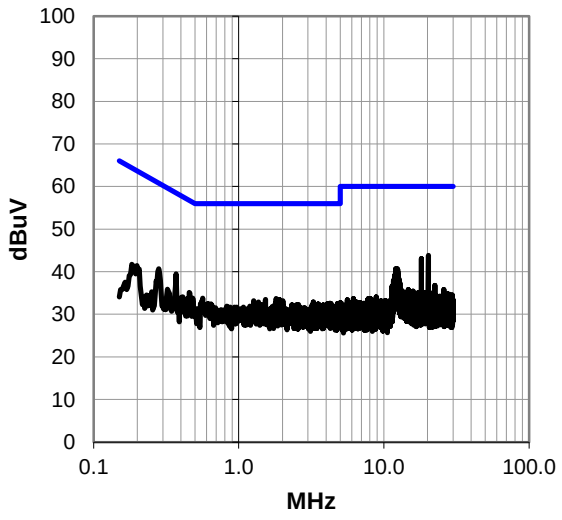
EUT OPERATING MODES

Bluetooth - Tx: Sink, Mid Channel = 2441 MHz, GFSK (DH5). Software power settings [(ext),(int)] = [255 , 63]

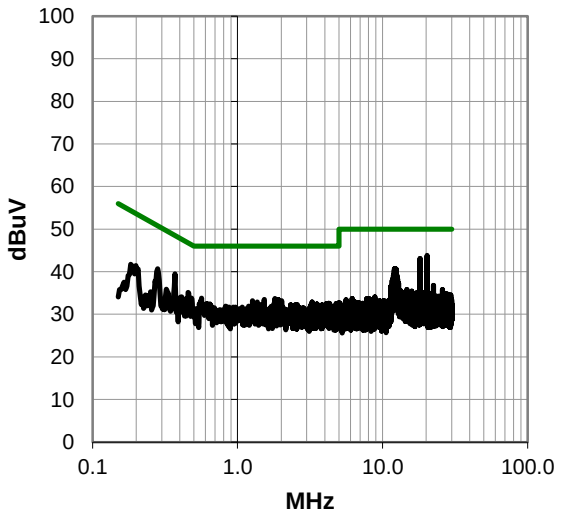
DEVIATIONS FROM TEST STANDARD

None

Peak Data - vs - Quasi Peak Limit



Peak Data - vs - Average Limit



POWERLINE CONDUCTED EMISSIONS

element
WTD.2020.03.25.0

RESULTS - Run #6

Peak Data - vs - Quasi Peak Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
20.233	23.0	20.8	43.8	60.0	-16.2
18.162	22.5	20.6	43.1	60.0	-16.9
0.370	19.6	19.9	39.5	58.5	-19.0
12.044	20.3	20.4	40.7	60.0	-19.3
12.230	20.3	20.4	40.7	60.0	-19.3
12.241	20.3	20.4	40.7	60.0	-19.3
12.294	20.3	20.4	40.7	60.0	-19.3
12.182	20.2	20.4	40.6	60.0	-19.4
12.465	20.1	20.4	40.5	60.0	-19.5
12.085	19.9	20.4	40.3	60.0	-19.7
12.368	19.7	20.4	40.1	60.0	-19.9
12.417	19.7	20.4	40.1	60.0	-19.9
0.281	20.8	19.9	40.7	60.8	-20.1
12.514	18.9	20.4	39.3	60.0	-20.7
11.895	18.8	20.4	39.2	60.0	-20.8
12.059	18.5	20.4	38.9	60.0	-21.1
12.559	18.5	20.4	38.9	60.0	-21.1
12.275	18.3	20.4	38.7	60.0	-21.3
11.846	18.1	20.4	38.5	60.0	-21.5
0.456	15.2	19.9	35.1	56.8	-21.7
11.992	17.9	20.4	38.3	60.0	-21.7
12.111	17.9	20.4	38.3	60.0	-21.7
12.704	17.9	20.4	38.3	60.0	-21.7
12.163	17.8	20.4	38.2	60.0	-21.8
11.659	17.5	20.4	37.9	60.0	-22.1

Peak Data - vs - Average Limit

Freq (MHz)	Amp. (dBuV)	Factor (dB)	Adjusted (dBuV)	Spec. Limit (dBuV)	Margin (dB)
20.233	23.0	20.8	43.8	50.0	-6.2
18.162	22.5	20.6	43.1	50.0	-6.9
0.370	19.6	19.9	39.5	48.5	-9.0
12.044	20.3	20.4	40.7	50.0	-9.3
12.230	20.3	20.4	40.7	50.0	-9.3
12.241	20.3	20.4	40.7	50.0	-9.3
12.294	20.3	20.4	40.7	50.0	-9.3
12.182	20.2	20.4	40.6	50.0	-9.4
12.465	20.1	20.4	40.5	50.0	-9.5
12.085	19.9	20.4	40.3	50.0	-9.7
12.368	19.7	20.4	40.1	50.0	-9.9
12.417	19.7	20.4	40.1	50.0	-9.9
0.281	20.8	19.9	40.7	50.8	-10.1
12.514	18.9	20.4	39.3	50.0	-10.7
11.895	18.8	20.4	39.2	50.0	-10.8
12.059	18.5	20.4	38.9	50.0	-11.1
12.559	18.5	20.4	38.9	50.0	-11.1
12.275	18.3	20.4	38.7	50.0	-11.3
11.846	18.1	20.4	38.5	50.0	-11.5
0.456	15.2	19.9	35.1	46.8	-11.7
11.992	17.9	20.4	38.3	50.0	-11.7
12.111	17.9	20.4	38.3	50.0	-11.7
12.704	17.9	20.4	38.3	50.0	-11.7
12.163	17.8	20.4	38.2	50.0	-11.8
11.659	17.5	20.4	37.9	50.0	-12.1

CONCLUSION

Pass

Tested By

SPURIOUS RADIATED EMISSIONS

PSA-ESCI 2020.04.03.0

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

MODES OF OPERATION

Bluetooth - Tx: Low Ch = 2402 MHz, Mid Ch = 2441 MHz, High Ch = 2480 MHz. Software power settings [(ext),(int)] = [255 , 63]

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

AUDI0269 - 3
AUDI0269 - 4

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	26.5 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
Filter - Low Pass	Micro-Tronics	LPM50004	LFD	2020-02-15	12 mo
Filter - High Pass	Micro-Tronics	HPM50111	HFO	2019-11-18	12 mo
Attenuator	Coaxicom	3910-20	AXZ	2020-02-15	12 mo
Cable	ESM Cable Corp.	TTBJ141-KMKM-72	EVY	2020-07-25	12 mo
Cable	None	Standard Gain Horns Cable	EVF	2019-11-19	12 mo
Cable	N/A	Double Ridge Horn Cables	EVB	2019-11-18	12 mo
Cable	N/A	Bilog Cables	EVA	2019-11-18	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-18002650-25-10P	AVU	2020-07-25	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	AVD	2019-11-19	12 mo
Amplifier - Pre-Amplifier	L-3 Narda-MITEQ	AMF-6F-08001200-30-10P	PAO	2019-11-19	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAG	2019-11-18	12 mo
Amplifier - Pre-Amplifier	Miteq	AM-1616-1000	AOL	2019-11-18	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-09	AIV	NCR	0 mo
Antenna - Standard Gain	ETS Lindgren	3160-08	AHV	NCR	0 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AHU	NCR	0 mo
Antenna - Double Ridge	EMCO	3115	AHC	2020-07-01	24 mo
Antenna - Biconilog	Teseq	CBL 6141B	AXR	2018-10-02	24 mo
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFI	2019-12-13	12 mo

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 (in no-hop, single channel mode) and the modes as showed in the data sheets.

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

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

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

QP = Quasi-Peak Detector
PK = Peak Detector
AV = RMS Detector

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

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

Measurements within 2 MHz of the allowable band may have been taken using the integration method from ANSI C63.10 clause 11.13.3. This procedure uses the channel power feature of the spectrum analyzer to integrate the power of the emission within a 1 MHz bandwidth.

Where the radio test software does not provide for a duty cycle at continuous transmit conditions (> 98%) and the RMS (power average) measurements were made across the on and off times of the EUT transmissions, a duty cycle correction is added to the measurements using the formula of 10*log(1/dc).

RMS measurements taken for a FHSS radio also may have a duty cycle correction subtracted using the formula 20*log(dc), based on the requirements for pulsed operation from ANSI C63.10 section 7.5.

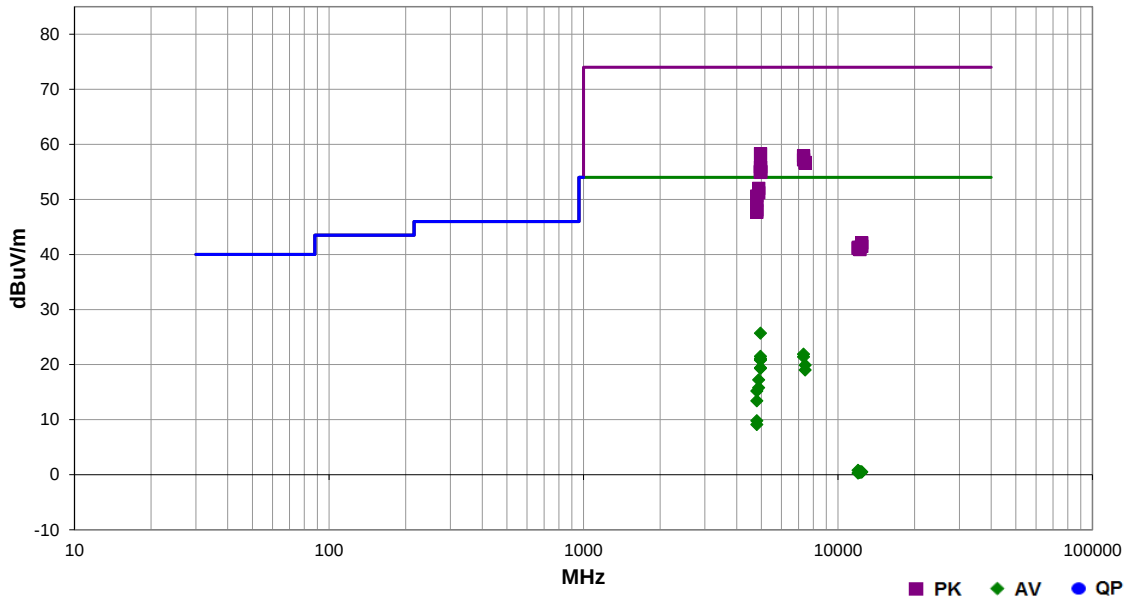
SPURIOUS RADIATED EMISSIONS

EmiR5 2020.04.20.0 PSA-ESCI 2020.04.03.0

Work Order:	AUDI0269	**Date:**	2020-09-18		
Project:	None	**Temperature:**	22.7 °C		
Job Site:	EV01	**Humidity:**	51.9% RH		
Serial Number:	APX517B 008 Rev. B	**Barometric Pres.:**	1015 mbar	**Tested by:**	Jeff Alcoke
EUT:	APX517B				
Configuration:	3, 4				
Customer:	Audio Precision				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Bluetooth - Tx: Low Ch = 2402 MHz, Mid Ch = 2441 MHz, High Ch = 2480 MHz. Software power settings [(ext),(int)] = [255 , 63]				
Deviations:	None				
Comments:	The EUT is rack mounted equipment. Only the transmit antenna orientations were manipulated during testing. See comments below for; antenna port, channel, data rate, and antenna orientation. Test mode operates at 77.4% duty cycle, upward DCCF correction applied based on 10*log(1/Duty cycle) = 1.1 dB. When operating in FHSS mode, the worst-case transmission time over any 100 ms period is 2.91 ms. Downward DCCF correction applied based on 20*log(On Time/100 ms) = -30.7 dB. Total correction applied = -29.6 dB.				

Test Specifications	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

Run #	21	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



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
4959.592	51.4	6.9	1.6	77.0	0.0	0.0	Vert	PK	0.0	58.3	74.0	-15.7	Source, High Ch, DH5, Ant Vert
7322.250	44.8	13.1	3.0	24.0	0.0	0.0	Horz	PK	0.0	57.9	74.0	-16.1	Source, Mid Ch, DH5, Ant on Side
7322.608	44.1	13.1	1.7	28.0	0.0	0.0	Vert	PK	0.0	57.2	74.0	-16.8	Source, Mid Ch, DH5, Ant Vert
7440.525	42.9	13.8	3.5	4.0	0.0	0.0	Horz	PK	0.0	56.7	74.0	-17.3	Source, High Ch, DH5, Ant on Side
7440.475	42.8	13.8	1.9	28.0	0.0	0.0	Vert	PK	0.0	56.6	74.0	-17.4	Source, High Ch, DH5, Ant Vert
4959.475	49.0	6.9	1.5	76.0	0.0	0.0	Vert	PK	0.0	55.9	74.0	-18.1	Source, High Ch, 2DH5, Ant Vert
4960.075	49.0	6.9	1.5	76.0	0.0	0.0	Vert	PK	0.0	55.9	74.0	-18.1	Source, High Ch, 3DH5, Ant Vert
4959.733	48.2	6.9	1.0	319.0	0.0	0.0	Vert	PK	0.0	55.1	74.0	-18.9	Sink, High Ch, 2DH5, Ant Vert
4959.575	48.2	6.9	1.0	319.0	0.0	0.0	Vert	PK	0.0	55.1	74.0	-18.9	Sink, High Ch, DH5, Ant Vert
4960.283	48.1	6.9	3.1	55.0	0.0	0.0	Horz	PK	0.0	55.0	74.0	-19.0	Source, High Ch, DH5, Ant on Side
4959.692	48.0	6.9	1.0	319.0	0.0	0.0	Vert	PK	0.0	54.9	74.0	-19.1	Sink, High Ch, 3DH5, Ant Vert
4882.200	45.2	6.8	1.5	60.0	0.0	0.0	Vert	PK	0.0	52.0	74.0	-22.0	Source, Mid Ch, DH5, Ant Vert
4882.217	44.4	6.8	3.1	45.0	0.0	0.0	Horz	PK	0.0	51.2	74.0	-22.8	Source, Mid Ch, DH5, Ant on Side
4803.725	44.8	5.8	1.5	67.0	0.0	0.0	Vert	PK	0.0	50.6	74.0	-23.4	Source, Low Ch, DH5, Ant Vert
4803.925	44.1	5.8	2.8	54.0	0.0	0.0	Horz	PK	0.0	49.9	74.0	-24.1	Source, Low Ch, DH5, Ant on Side
4804.575	42.2	5.9	3.7	24.0	0.0	0.0	Vert	PK	0.0	48.1	74.0	-25.9	Source, Low Ch, DH5, Ant on Side
4803.942	41.9	5.8	1.5	60.0	0.0	0.0	Horz	PK	0.0	47.7	74.0	-26.3	Source, Low Ch, DH5, Ant Vert
4959.983	48.4	6.9	1.6	77.0	-29.6	0.0	Vert	AV	0.0	25.7	54.0	-28.3	Source, High Ch, DH5, Ant Vert
12398.200	41.0	1.1	2.4	165.0	0.0	0.0	Horz	PK	0.0	42.1	74.0	-31.9	Source, High Ch, DH5, Ant on Side

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
7322.917	38.4	13.1	3.0	24.0	-29.6	0.0	Horz	AV	0.0	21.9	54.0	-32.1	Source, Mid Ch, DH5, Ant on Side
12397.520	40.4	1.1	1.5	142.0	0.0	0.0	Vert	PK	0.0	41.5	74.0	-32.5	Source, High Ch, DH5, Ant Vert
4959.983	44.2	6.9	3.1	55.0	-29.6	0.0	Horz	AV	0.0	21.5	54.0	-32.5	Source, High Ch, DH5, Ant on Side
7322.942	37.9	13.1	1.7	28.0	-29.6	0.0	Vert	AV	0.0	21.4	54.0	-32.6	Source, Mid Ch, DH5, Ant Vert
12012.420	40.3	1.0	3.9	48.0	0.0	0.0	Vert	PK	0.0	41.3	74.0	-32.7	Source, Low Ch, DH5, Ant Vert
12207.330	40.5	0.8	1.7	111.0	0.0	0.0	Vert	PK	0.0	41.3	74.0	-32.7	Source, Low Ch, DH5, Ant Vert
12008.810	40.1	1.0	1.5	31.0	0.0	0.0	Horz	PK	0.0	41.1	74.0	-32.9	Source, Low Ch, DH5, Ant on Side
4960.008	43.8	6.9	1.0	319.0	-29.6	0.0	Vert	AV	0.0	21.1	54.0	-32.9	Sink, High Ch, DH5, Ant Vert
12203.130	40.1	0.8	1.5	276.0	0.0	0.0	Horz	PK	0.0	40.9	74.0	-33.1	Source, Mid ch, DH5, Ant on Side
4960.008	43.6	6.9	1.5	76.0	-29.6	0.0	Vert	AV	0.0	20.9	54.0	-33.1	Source, High Ch, 2DH5, Ant Vert
4960.083	43.5	6.9	1.5	76.0	-29.6	0.0	Vert	AV	0.0	20.8	54.0	-33.2	Source, High Ch, 3DH5, Ant Vert
7439.950	35.7	13.8	1.9	28.0	-29.6	0.0	Vert	AV	0.0	19.9	54.0	-34.1	Source, High Ch, DH5, Ant Vert
4959.975	42.1	6.9	1.0	319.0	-29.6	0.0	Vert	AV	0.0	19.4	54.0	-34.6	Sink, High Ch, 3DH5, Ant Vert
4960.042	42.0	6.9	1.0	319.0	-29.6	0.0	Vert	AV	0.0	19.3	54.0	-34.7	Sink, High Ch, 2DH5, Ant Vert
7439.933	34.8	13.8	3.5	4.0	-29.6	0.0	Horz	AV	0.0	19.0	54.0	-35.0	Source, High Ch, DH5, Ant on Side
4881.967	40.0	6.8	1.5	60.0	-29.6	0.0	Vert	AV	0.0	17.2	54.0	-36.8	Source, Mid Ch, DH5, Ant Vert
4881.967	38.6	6.8	3.1	45.0	-29.6	0.0	Horz	AV	0.0	15.8	54.0	-38.2	Source, Mid Ch, DH5, Ant on Side
4803.992	39.0	5.8	1.5	67.0	-29.6	0.0	Vert	AV	0.0	15.2	54.0	-38.8	Source, Low Ch, DH5, Ant Vert
4803.950	37.2	5.8	2.8	54.0	-29.6	0.0	Horz	AV	0.0	13.4	54.0	-40.6	Source, Low Ch, DH5, Ant on Side
4804.008	33.6	5.8	3.7	24.0	-29.6	0.0	Vert	AV	0.0	9.8	54.0	-44.2	Source, Low Ch, DH5, Ant on Side
4803.975	32.9	5.8	1.5	60.0	-29.6	0.0	Horz	AV	0.0	9.1	54.0	-44.9	Source, Low Ch, DH5, Ant Vert
12007.680	29.4	1.0	1.5	31.0	-29.6	0.0	Horz	AV	0.0	0.8	54.0	-53.2	Source, Low Ch, DH5, Ant on Side
12206.520	29.4	0.8	1.5	276.0	-29.6	0.0	Horz	AV	0.0	0.6	54.0	-53.4	Source, Mid ch, DH5, Ant on Side
12398.640	29.0	1.1	2.4	165.0	-29.6	0.0	Horz	AV	0.0	0.5	54.0	-53.5	Source, High Ch, DH5, Ant on Side
12398.930	29.0	1.1	1.5	142.0	-29.6	0.0	Vert	AV	0.0	0.5	54.0	-53.5	Source, High Ch, DH5, Ant Vert
12205.040	29.2	0.8	1.7	111.0	-29.6	0.0	Vert	AV	0.0	0.4	54.0	-53.6	Source, Mid Ch, DH5, Ant Vert
12007.860	28.9	1.0	3.9	48.0	-29.6	0.0	Vert	AV	0.0	0.3	54.0	-53.7	Source, Low Ch, DH5, Ant Vert

SPURIOUS RADIATED EMISSIONS

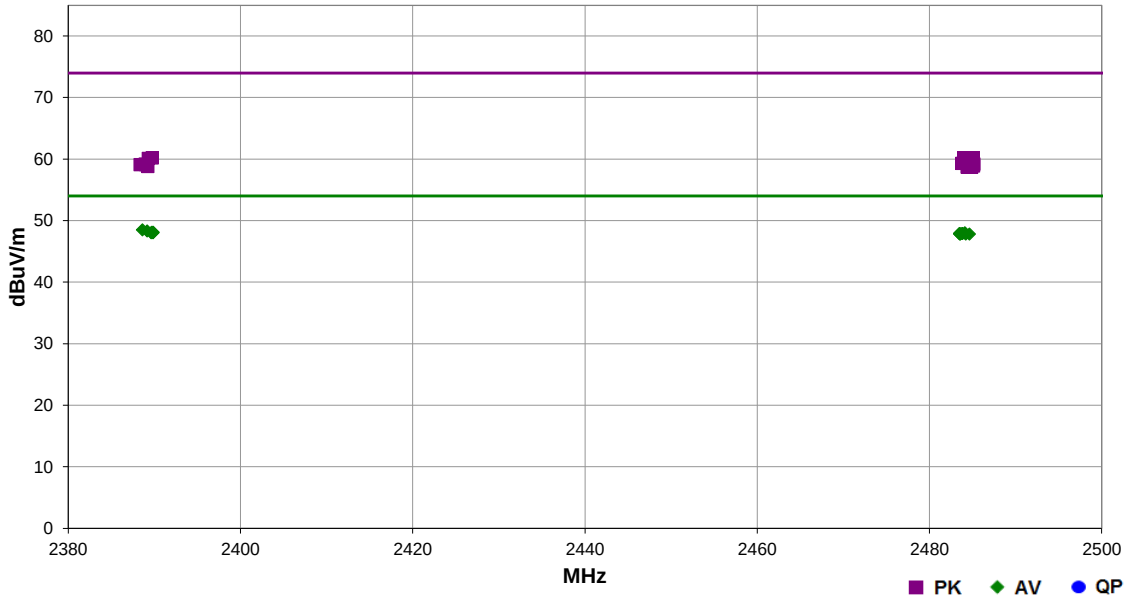
element

EmiR5 2020.04.20.0 PSA-ESCI 2020.04.03.0

Work Order:	AUDI0269	**Date:**	2020-09-18		
Project:	None	**Temperature:**	22.7 °C		
Job Site:	EV01	**Humidity:**	51.9% RH		
Serial Number:	APX517B 008 Rev. B	**Barometric Pres.:**	1015 mbar	**Tested by:**	Jeff Alcoke
EUT:	APX517B				
Configuration:	3				
Customer:	Audio Precision				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Bluetooth - Tx: Low Ch = 2402 MHz, Mid Ch = 2441 MHz, High Ch = 2480 MHz. Software power settings [(ext),(int)] = [255 , 63]				
Deviations:	None				
Comments:	The EUT is rack mounted equipment. Only the transmit antenna orientations were manipulated during testing. See comments below for; antenna port, channel, data rate, and antenna orientation. All emissions were noise floor, therefore no DCCF was applied to the AVG data points.				

Test Specifications	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

Run #	22	**Test Distance (m)**	3	**Antenna Height(s)**	1 to 4(m)	**Results**	Pass



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2388.633	31.7	-3.2	3.43	156.0	3.0	20.0	Vert	AV	0.0	48.5	54.0	-5.5	Source, Low Ch, 2DH5, Ant on Side
2389.173	31.5	-3.2	1.5	301.0	3.0	20.0	Vert	AV	0.0	48.3	54.0	-5.7	Source, Low Ch, 3DH5, Ant on Side
2389.720	31.3	-3.2	1.81	20.0	3.0	20.0	Vert	AV	0.0	48.1	54.0	-5.9	Sink, Low Ch, 2DH5, Ant on Side
2389.863	31.3	-3.2	1.81	20.0	3.0	20.0	Vert	AV	0.0	48.1	54.0	-5.9	Sink, Low Ch, DH5, Ant on Side
2389.847	31.2	-3.2	1.81	20.0	3.0	20.0	Vert	AV	0.0	48.0	54.0	-6.0	Sink, Low Ch, 3DH5, Ant on Side
2484.107	31.2	-3.2	2.61	198.0	3.0	20.0	Vert	AV	0.0	48.0	54.0	-6.0	Source, High Ch, DH5, Ant on Side
2389.637	31.2	-3.2	1.5	215.0	3.0	20.0	Vert	AV	0.0	48.0	54.0	-6.0	Source, Low Ch, DH5, Ant on Side
2483.847	31.1	-3.2	1.5	156.0	3.0	20.0	Vert	AV	0.0	47.9	54.0	-6.1	Sink, High Ch, DH5, Ant on Side
2483.510	31.1	-3.2	1.5	156.0	3.0	20.0	Vert	AV	0.0	47.9	54.0	-6.1	Sink, High Ch, 2DH5, Ant on Side
2483.503	31.1	-3.2	1.5	156.0	3.0	20.0	Vert	AV	0.0	47.9	54.0	-6.1	Sink, High Ch, 3DH5, Ant on Side
2483.800	31.1	-3.2	1.5	336.0	3.0	20.0	Horz	AV	0.0	47.9	54.0	-6.1	Source, High Ch, DH5, Ant Vert
2484.647	31.0	-3.2	1.24	143.0	3.0	20.0	Vert	AV	0.0	47.8	54.0	-6.2	Source, High Ch, DH5, Ant Vert
2483.583	31.0	-3.2	2.13	304.0	3.0	20.0	Horz	AV	0.0	47.8	54.0	-6.2	Source, High Ch, DH5, Ant on Side
2483.523	31.0	-3.2	1.73	179.0	3.0	20.0	Vert	AV	0.0	47.8	54.0	-6.2	Source, High Ch, 2DH5, Ant on Side
2484.223	31.0	-3.2	1.73	179.0	3.0	20.0	Vert	AV	0.0	47.8	54.0	-6.2	Source, High Ch, 3DH5, Ant on Side
2485.067	43.3	-3.1	1.5	336.0	3.0	20.0	Horz	PK	0.0	60.2	74.0	-13.8	Source, High Ch, DH5, Ant Vert
2483.993	43.4	-3.2	2.61	198.0	3.0	20.0	Vert	PK	0.0	60.2	74.0	-13.8	Source, High Ch, DH5, Ant on Side
2389.740	43.4	-3.2	1.5	301.0	3.0	20.0	Vert	PK	0.0	60.2	74.0	-13.8	Source, Low Ch, 3DH5, Ant on Side
2389.310	43.3	-3.2	3.43	156.0	3.0	20.0	Vert	PK	0.0	60.1	74.0	-13.9	Source, Low Ch, 2DH5, Ant on Side
2485.000	43.0	-3.1	1.5	156.0	3.0	20.0	Vert	PK	0.0	59.9	74.0	-14.1	Sink, High Ch, DH5, Ant on Side
2483.747	42.5	-3.2	1.5	156.0	3.0	20.0	Vert	PK	0.0	59.3	74.0	-14.7	Sink, High Ch, 2DH5, Ant on Side
2485.150	42.3	-3.1	1.5	156.0	3.0	20.0	Vert	PK	0.0	59.2	74.0	-14.8	Sink, High Ch, 3DH5, Ant on Side
2388.930	42.4	-3.2	1.81	20.0	3.0	20.0	Vert	PK	0.0	59.2	74.0	-14.8	Sink, Low Ch, 2DH5, Ant on Side

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2388.997	42.3	-3.2	1.81	20.0	3.0	20.0	Vert	PK	0.0	59.1	74.0	-14.9	Sink, Low Ch, 3DH5, Ant on Side
2388.337	42.3	-3.2	1.5	215.0	3.0	20.0	Vert	PK	0.0	59.1	74.0	-14.9	Source, Low Ch, DH5, Ant on Side
2485.103	42.0	-3.1	2.13	304.0	3.0	20.0	Horz	PK	0.0	58.9	74.0	-15.1	Source, High Ch, DH5, Ant on Side
2389.237	42.0	-3.2	1.81	20.0	3.0	20.0	Vert	PK	0.0	58.8	74.0	-15.2	Sink, Low Ch, DH5, Ant on Side
2484.523	42.0	-3.2	1.24	143.0	3.0	20.0	Vert	PK	0.0	58.8	74.0	-15.2	Source, High Ch, DH5, Ant Vert
2484.373	41.9	-3.2	1.73	179.0	3.0	20.0	Vert	PK	0.0	58.7	74.0	-15.3	Source, High Ch, 2DH5, Ant on Side
2484.903	41.9	-3.2	1.73	179.0	3.0	20.0	Vert	PK	0.0	58.7	74.0	-15.3	Source, High Ch, 3DH5, Ant on Side

DUTY CYCLE

XMit 2020.03.25.0

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	5-Nov-18	5-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	13-Mar-20	13-Mar-21
Attenuator	S.M. Electronics	SA26B-20	AUY	13-Mar-20	13-Mar-21
Block - DC	Fairview Microwave	SD3379	AMW	13-Mar-20	13-Mar-21
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	28-Feb-20	28-Feb-21

TEST DESCRIPTION

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.

DUTY CYCLE

TbtTx 2019.08.30.0 XMit 2020.03.25.0

EUT:	**APX517B**			**Work Order:**	**AUDI0269**
Serial Number:	**APX517B 008 Rev. B**			**Date:**	**16-Sep-20**
Customer:	**Audio Precision**			**Temperature:**	**22.4 °C**
Attendees:	**None**			**Humidity:**	**47.7% RH**
Project:	**None**			**Barometric Pres.:**	**1020 mbar**
Tested by:	**Jeff Alcoke**	**Power:**	**110VAC/60Hz**	**Job Site:**	**EV06**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

Reference level offset includes: measurement cable, DC block, and 20 dB attenuator. Software power settings [(ext),(int)] = [255 , 63]

DEVIATIONS FROM TEST STANDARD

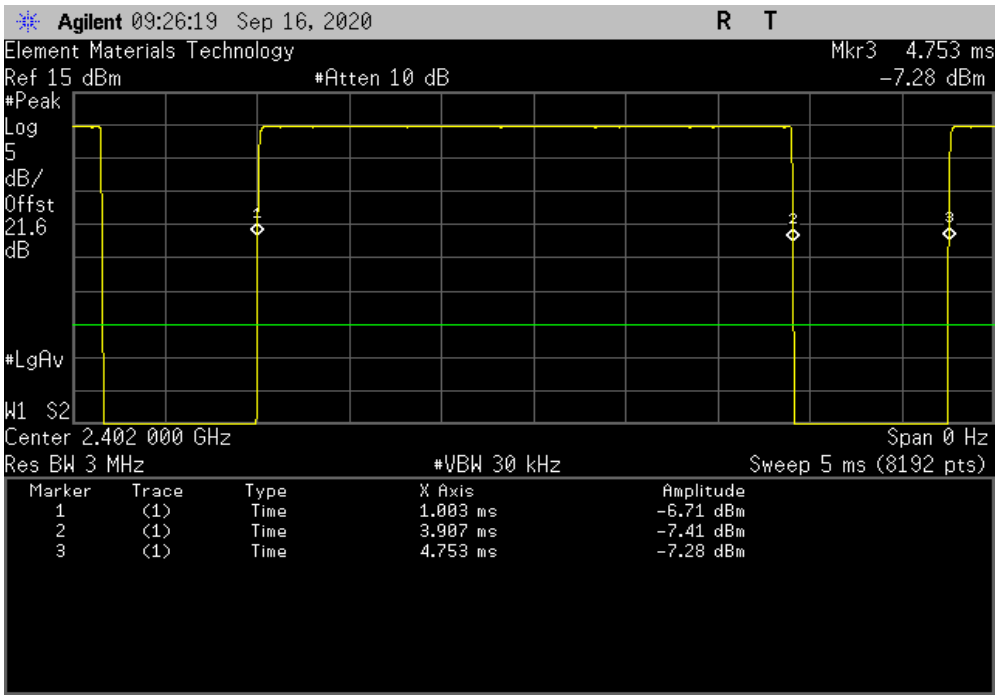
None

Configuration #	**1**	*Signature*

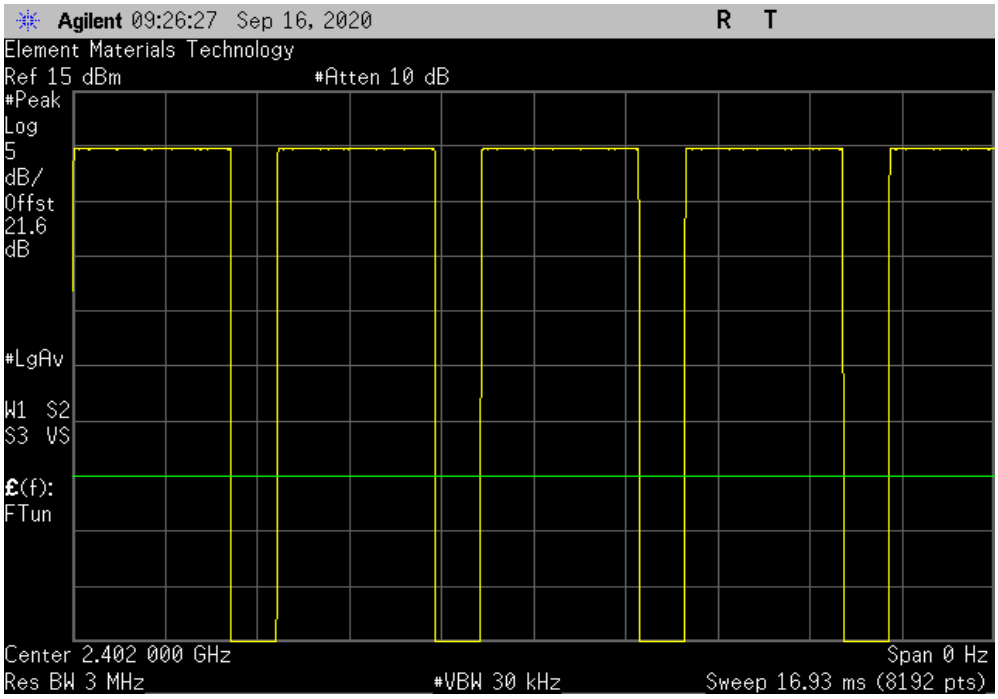
		Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
Source							
	DH5, GFSK						
	Low Channel, 2402 MHz	2.904 ms	3.75 ms	1	77.5	N/A	N/A
	Low Channel, 2402 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel, 2441 MHz	2.904 ms	3.75 ms	1	77.5	N/A	N/A
	Mid Channel, 2441 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel, 2480 MHz	2.904 ms	3.75 ms	1	77.5	N/A	N/A
	High Channel, 2480 MHz	N/A	N/A	5	N/A	N/A	N/A
	2DH5, pi/4-DQPSK						
	Low Channel, 2402 MHz	2.913 ms	3.75 ms	1	77.7	N/A	N/A
	Low Channel, 2402 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel, 2441 MHz	2.913 ms	3.75 ms	1	77.7	N/A	N/A
	Mid Channel, 2441 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel, 2480 MHz	2.913 ms	3.75 ms	1	77.7	N/A	N/A
	High Channel, 2480 MHz	N/A	N/A	5	N/A	N/A	N/A
	3DH5, 8-DPSK						
	Low Channel, 2402 MHz	2.914 ms	3.75 ms	1	77.7	N/A	N/A
	Low Channel, 2402 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel, 2441 MHz	2.914 ms	3.75 ms	1	77.7	N/A	N/A
	Mid Channel, 2441 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel, 2480 MHz	2.914 ms	3.75 ms	1	77.7	N/A	N/A
	High Channel, 2480 MHz	N/A	N/A	5	N/A	N/A	N/A
Sink							
	DH5, GFSK						
	Low Channel, 2402 MHz	2.904 ms	3.75 ms	1	77.5	N/A	N/A
	Low Channel, 2402 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel, 2441 MHz	2.904 ms	3.75 ms	1	77.5	N/A	N/A
	Mid Channel, 2441 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel, 2480 MHz	2.901 ms	3.75 ms	1	77.4	N/A	N/A
	High Channel, 2480 MHz	N/A	N/A	5	N/A	N/A	N/A
	2DH5, pi/4-DQPSK						
	Low Channel, 2402 MHz	2.913 ms	3.75 ms	1	77.7	N/A	N/A
	Low Channel, 2402 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel, 2441 MHz	2.913 ms	3.75 ms	1	77.7	N/A	N/A
	Mid Channel, 2441 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel, 2480 MHz	2.913 ms	3.75 ms	1	77.7	N/A	N/A
	High Channel, 2480 MHz	N/A	N/A	5	N/A	N/A	N/A
	3DH5, 8-DPSK						
	Low Channel, 2402 MHz	2.914 ms	3.75 ms	1	77.7	N/A	N/A
	Low Channel, 2402 MHz	N/A	N/A	5	N/A	N/A	N/A
	Mid Channel, 2441 MHz	2.914 ms	3.751 ms	1	77.7	N/A	N/A
	Mid Channel, 2441 MHz	N/A	N/A	5	N/A	N/A	N/A
	High Channel, 2480 MHz	2.914 ms	3.75 ms	1	77.7	N/A	N/A
	High Channel, 2480 MHz	N/A	N/A	5	N/A	N/A	N/A

DUTY CYCLE

Source, DH5, GFSK, Low Channel, 2402 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.904 ms	3.75 ms	1	77.5	N/A	N/A

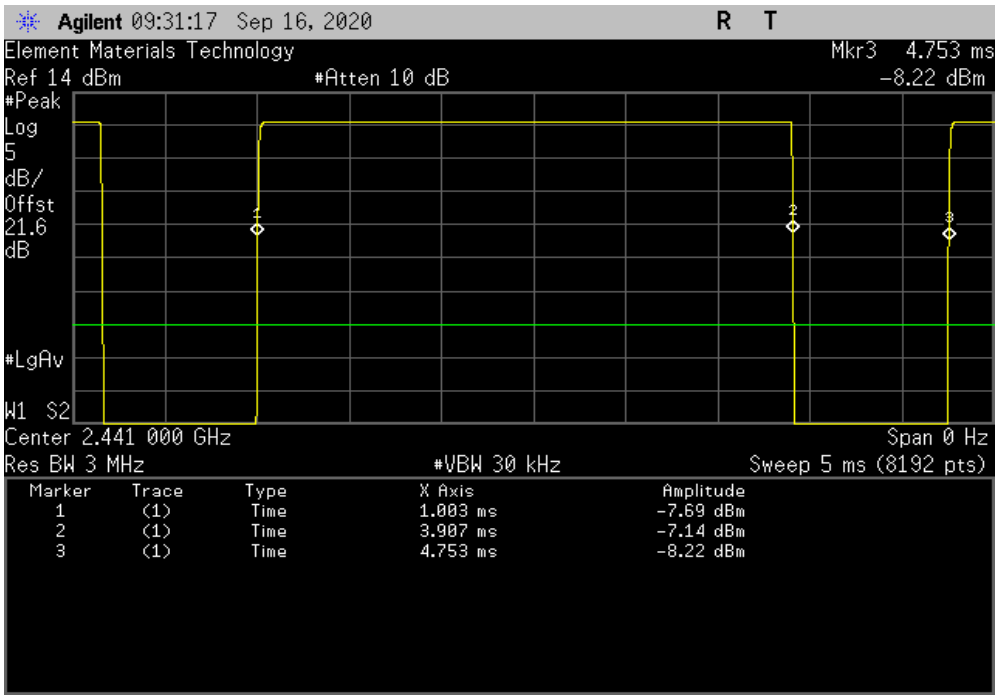


Source, DH5, GFSK, Low Channel, 2402 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

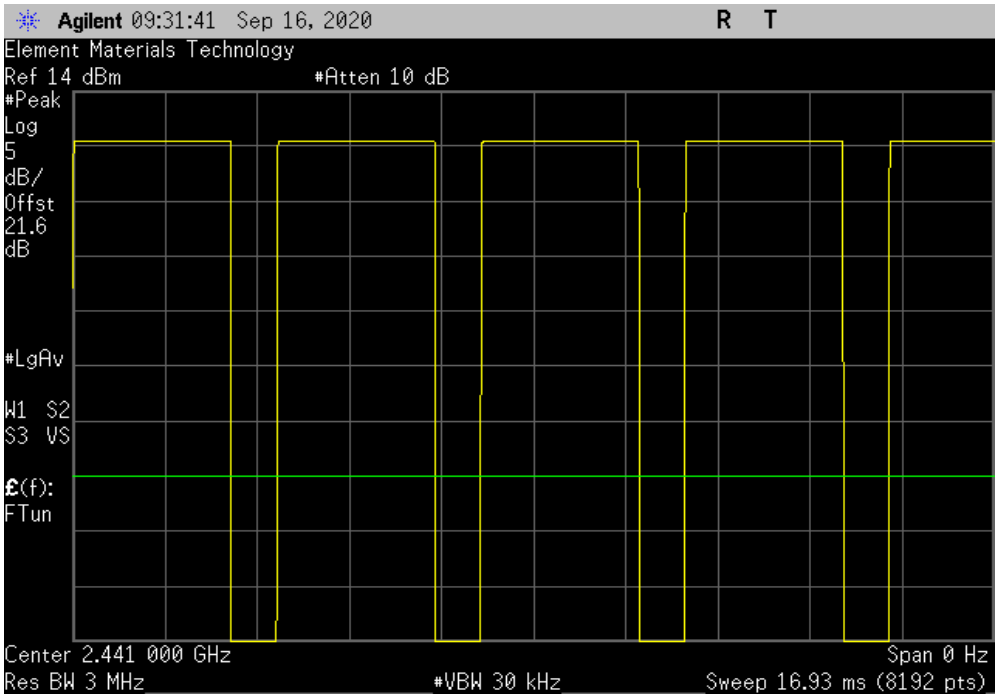


DUTY CYCLE

Source, DH5, GFSK, Mid Channel, 2441 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.904 ms	3.75 ms	1	77.5	N/A	N/A

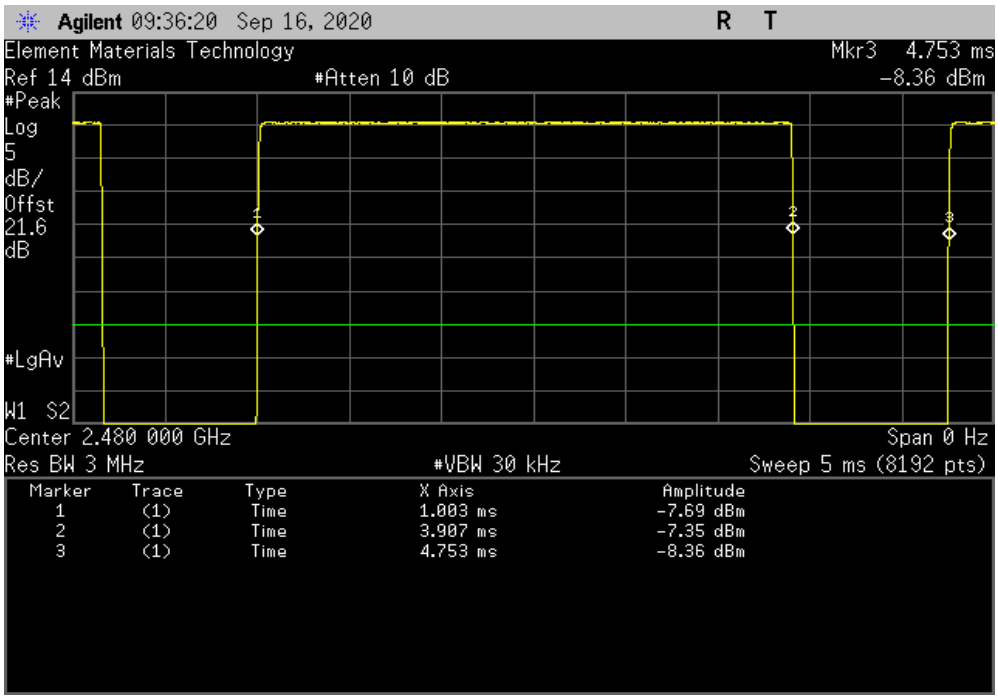


Source, DH5, GFSK, Mid Channel, 2441 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

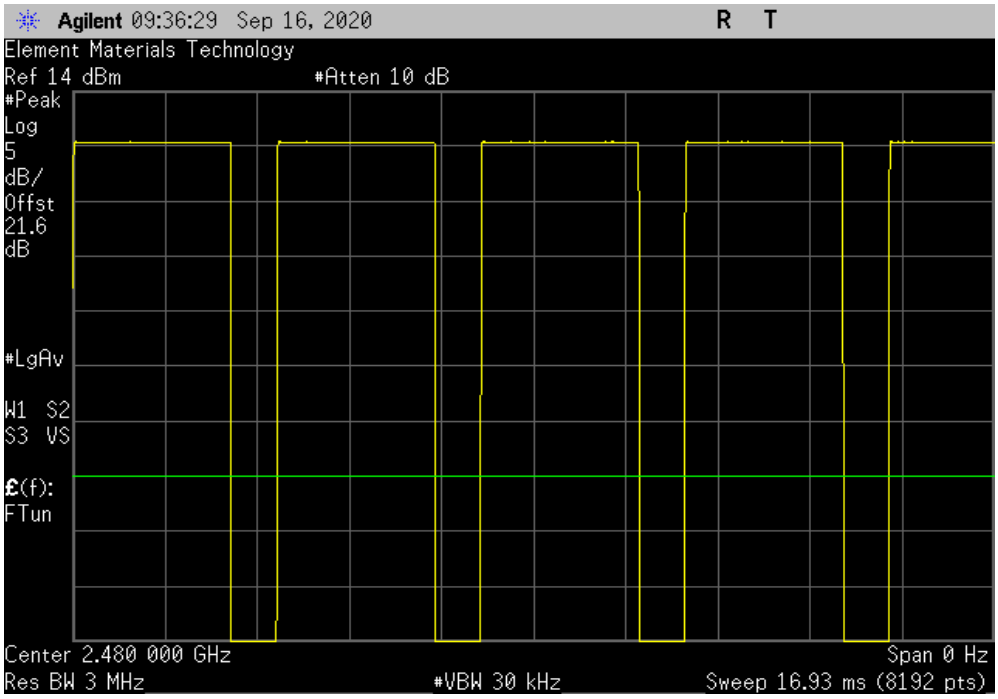


DUTY CYCLE

Source, DH5, GFSK, High Channel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.904 ms	3.75 ms	1	77.5	N/A	N/A

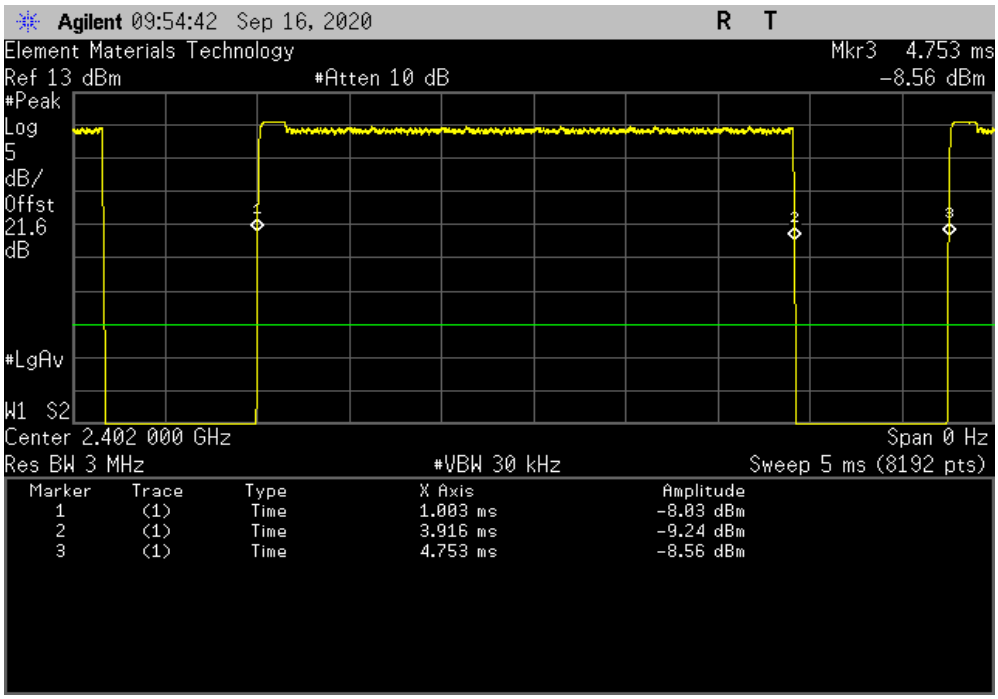


Source, DH5, GFSK, High Channel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

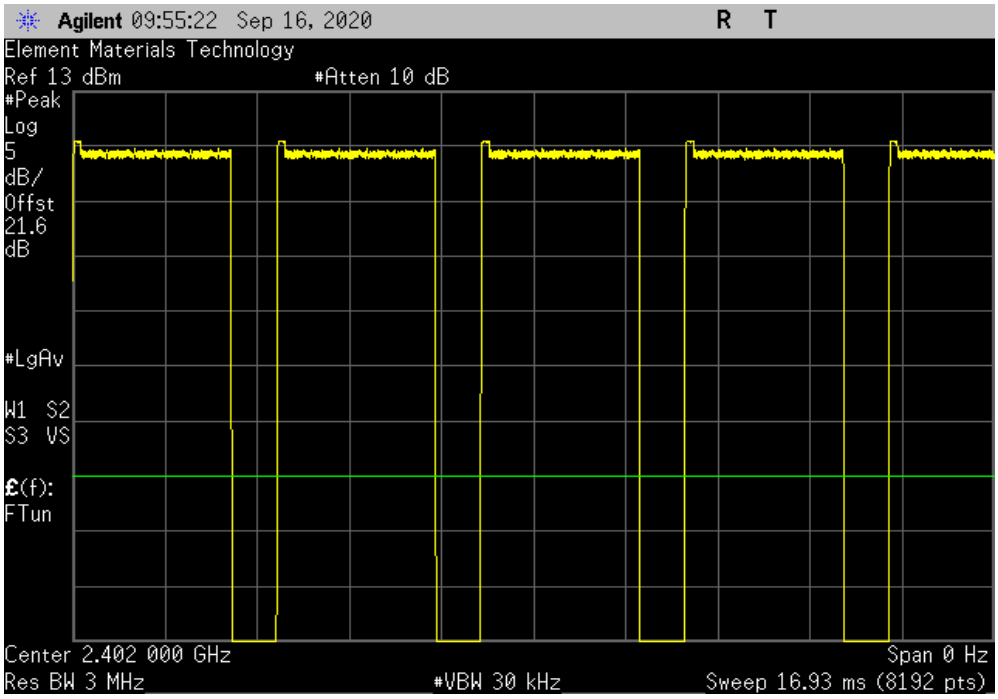


DUTY CYCLE

Source, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.913 ms	3.75 ms	1	77.7	N/A	N/A



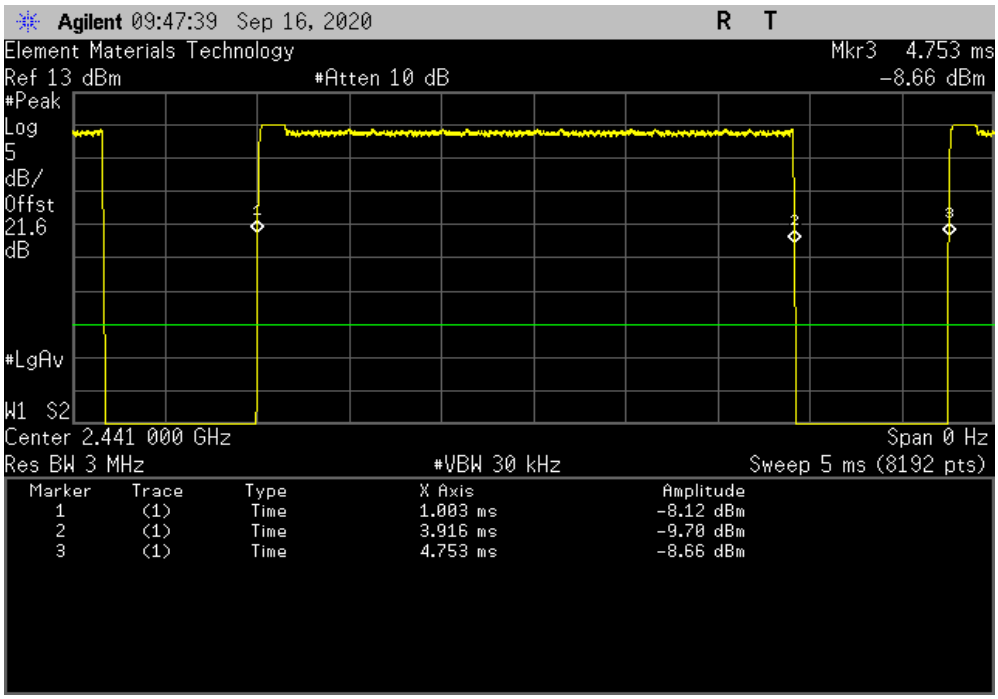
Source, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



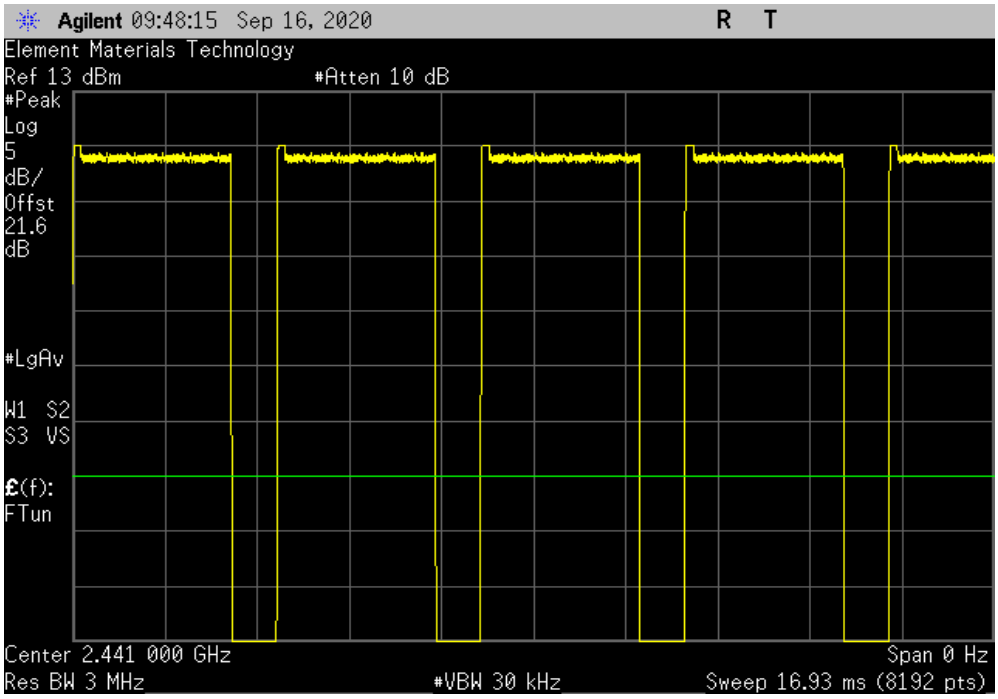
DUTY CYCLE

TbtTx 2019.08.30.0 XMit 2020.03.25.0

Source, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.913 ms	3.75 ms	1	77.7	N/A	N/A

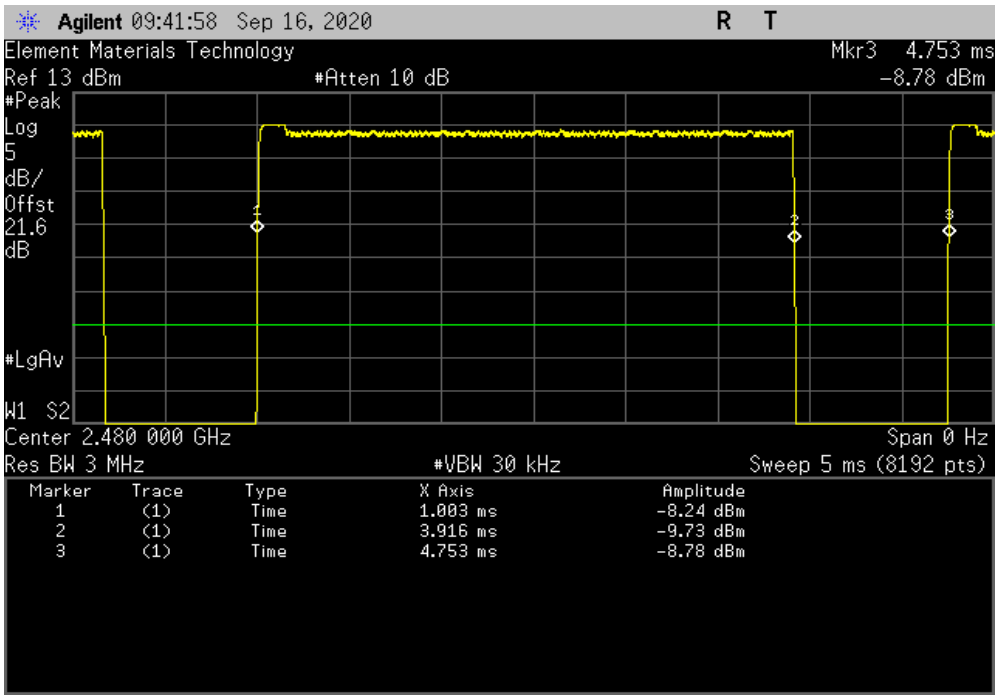


Source, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

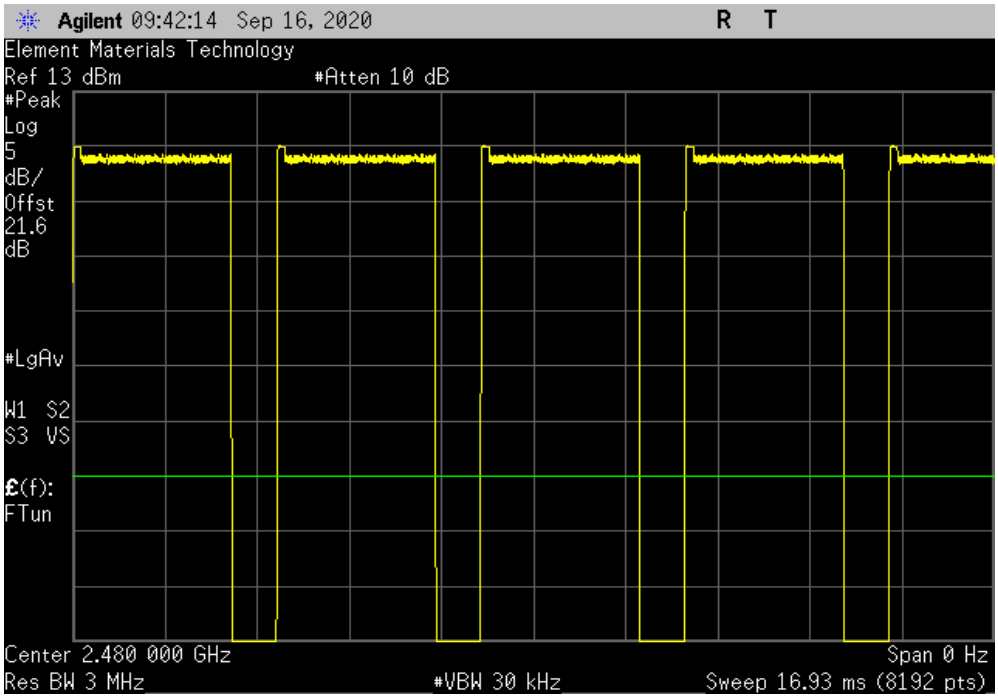


DUTY CYCLE

Source, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.913 ms	3.75 ms	1	77.7	N/A	N/A

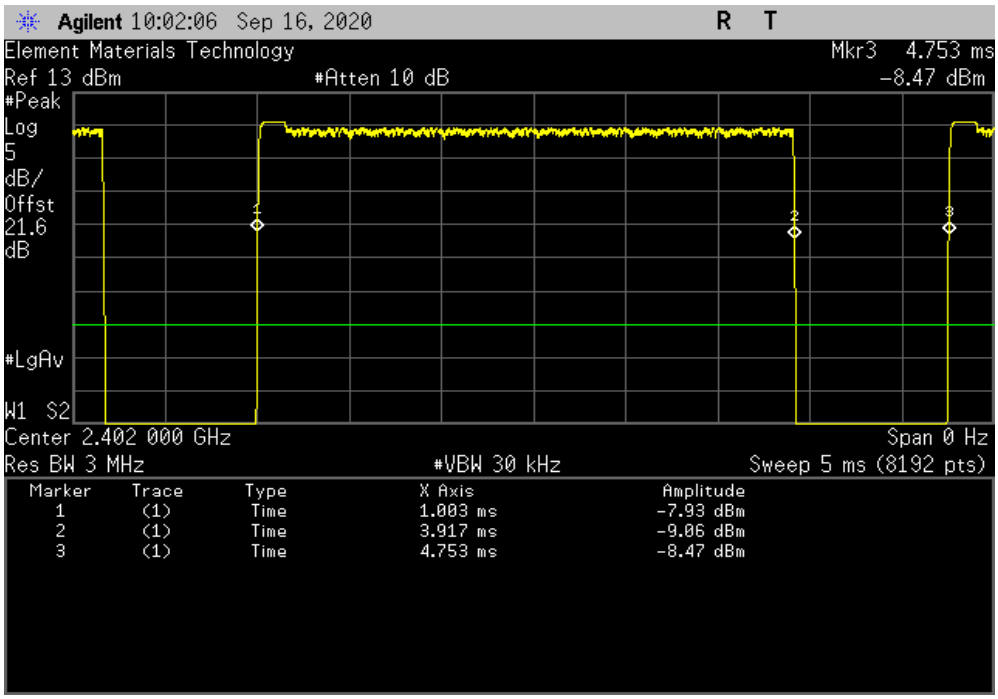


Source, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

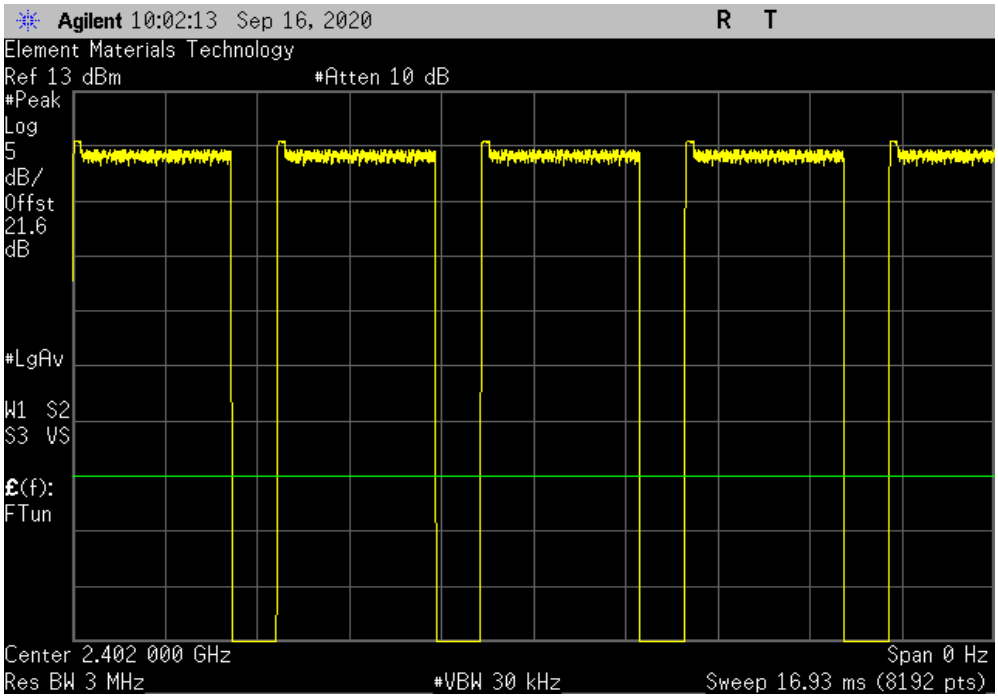


DUTY CYCLE

Source, 3DH5, 8-DPSK, Low Channel, 2402 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.914 ms	3.75 ms	1	77.7	N/A	N/A



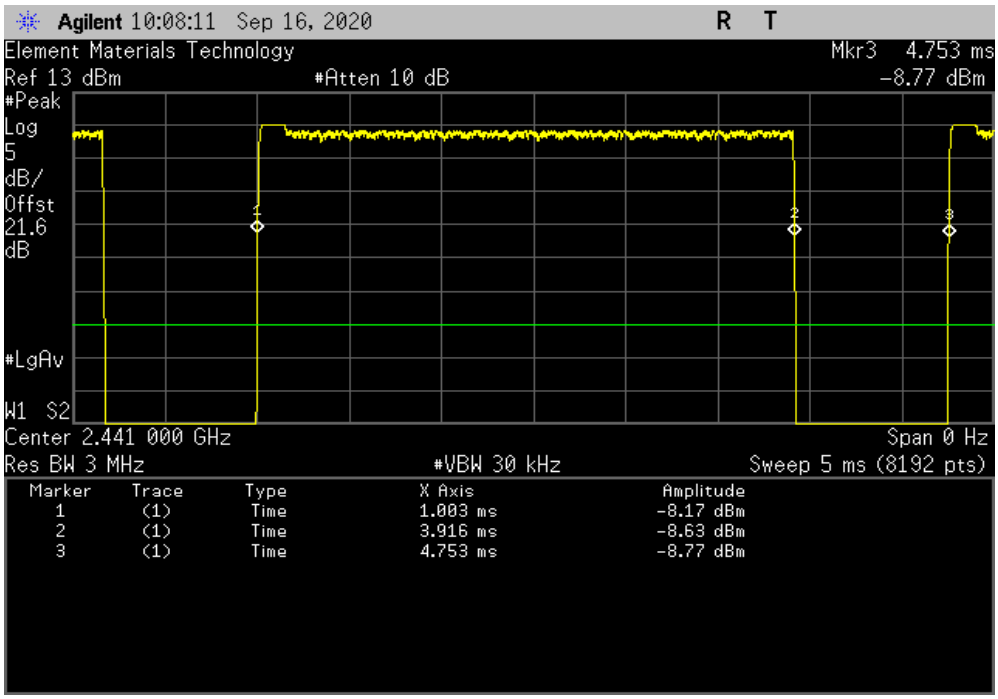
Source, 3DH5, 8-DPSK, Low Channel, 2402 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



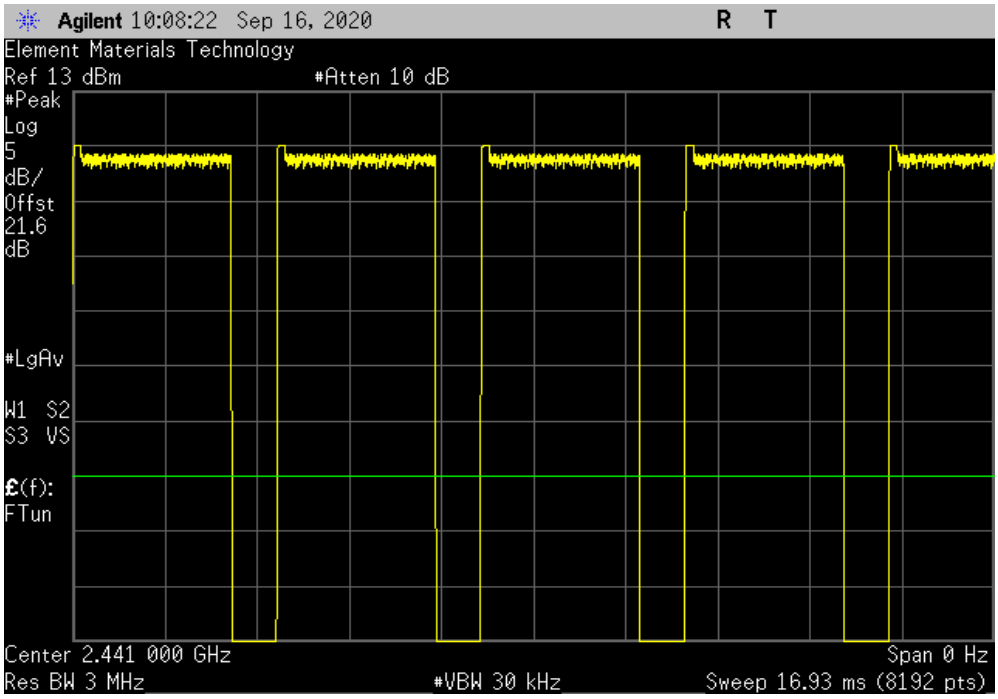
DUTY CYCLE

TbtTx 2019.08.30.0 XMit 2020.03.25.0

Source, 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.914 ms	3.75 ms	1	77.7	N/A	N/A

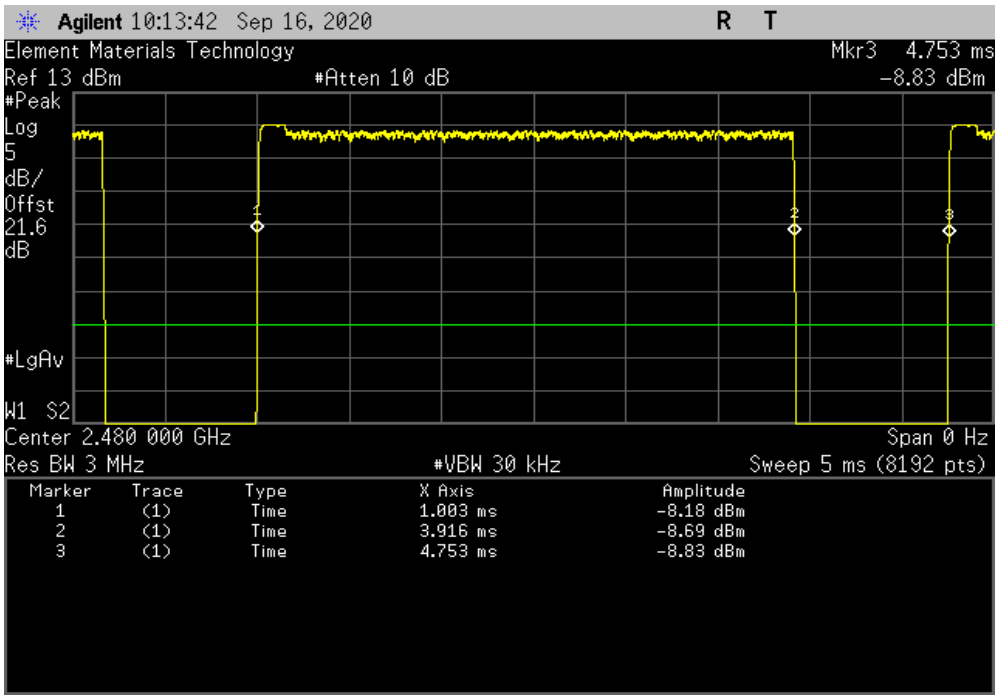


Source, 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

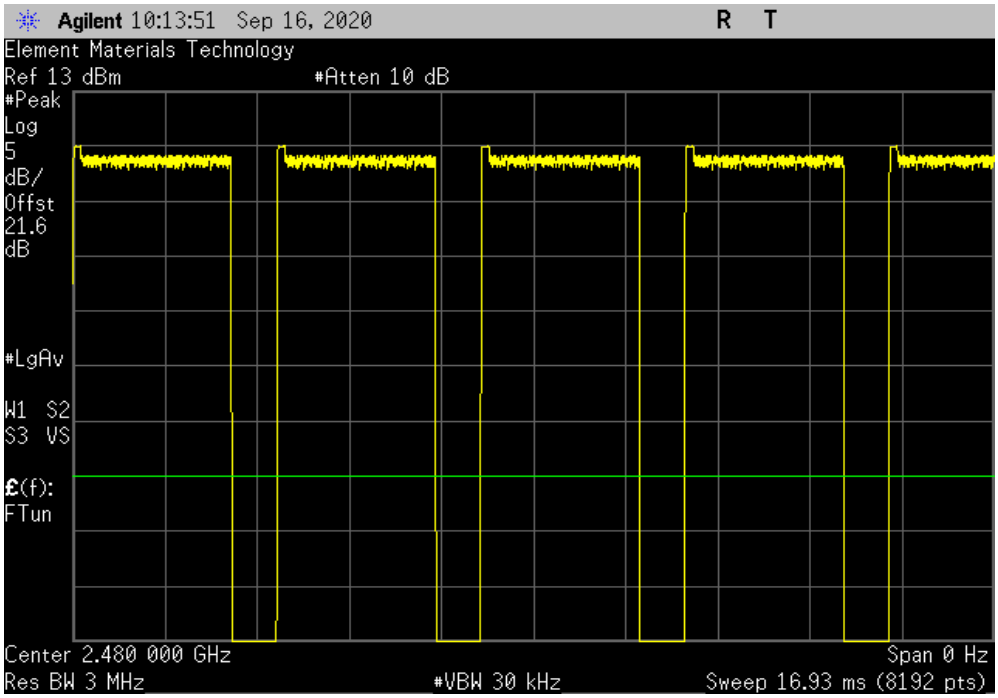


DUTY CYCLE

Source, 3DH5, 8-DPSK, High Channel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.914 ms	3.75 ms	1	77.7	N/A	N/A

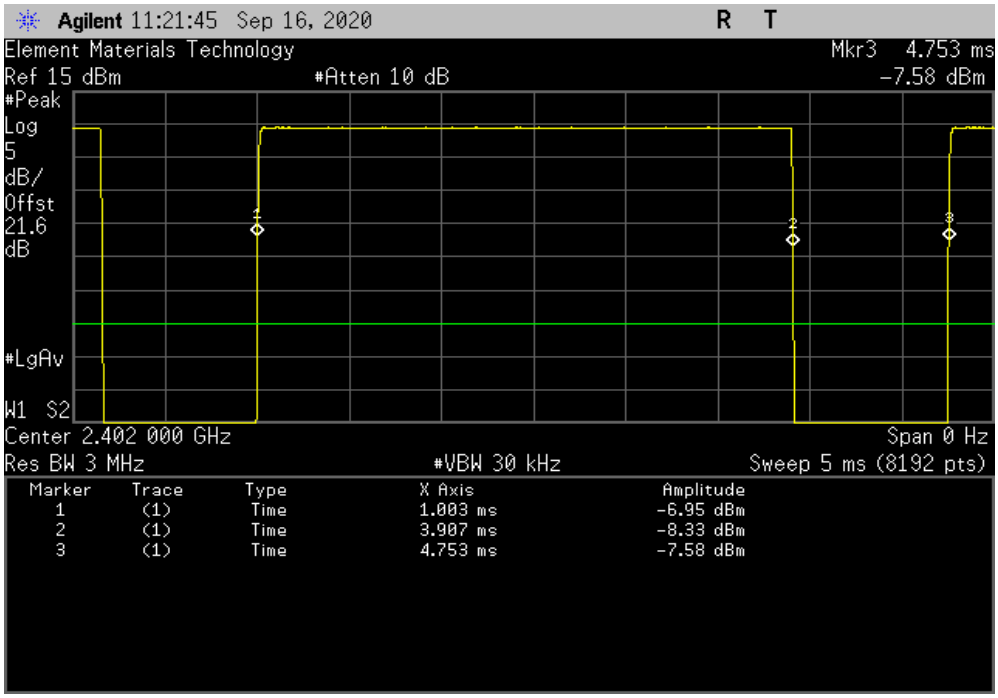


Source, 3DH5, 8-DPSK, High Channel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

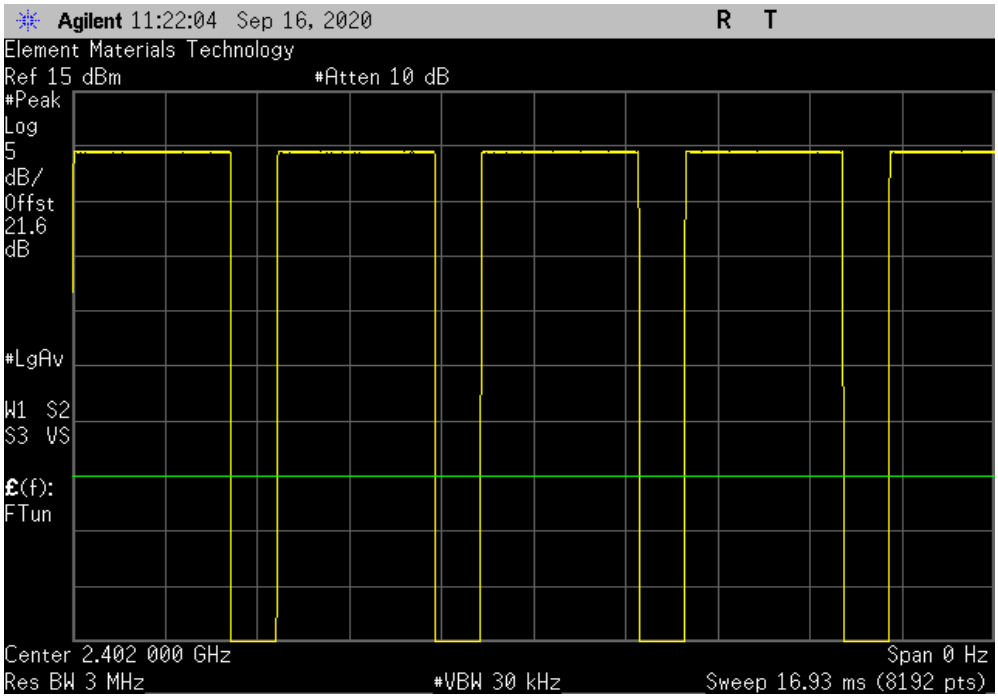


DUTY CYCLE

Sink, DH5, GFSK, Low Channel, 2402 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.904 ms	3.75 ms	1	77.5	N/A	N/A

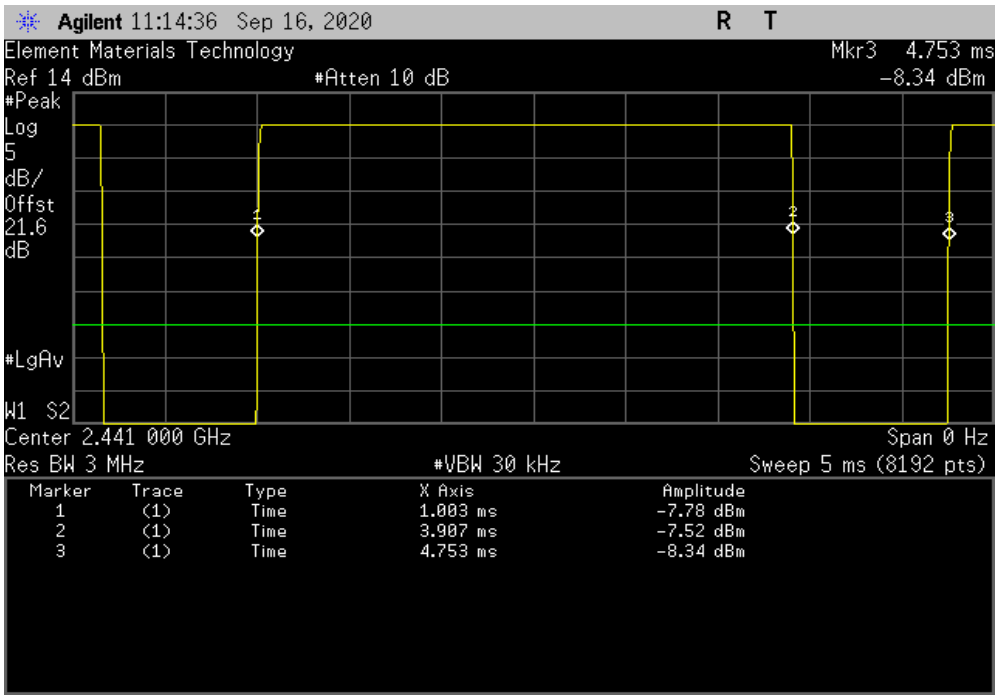


Sink, DH5, GFSK, Low Channel, 2402 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

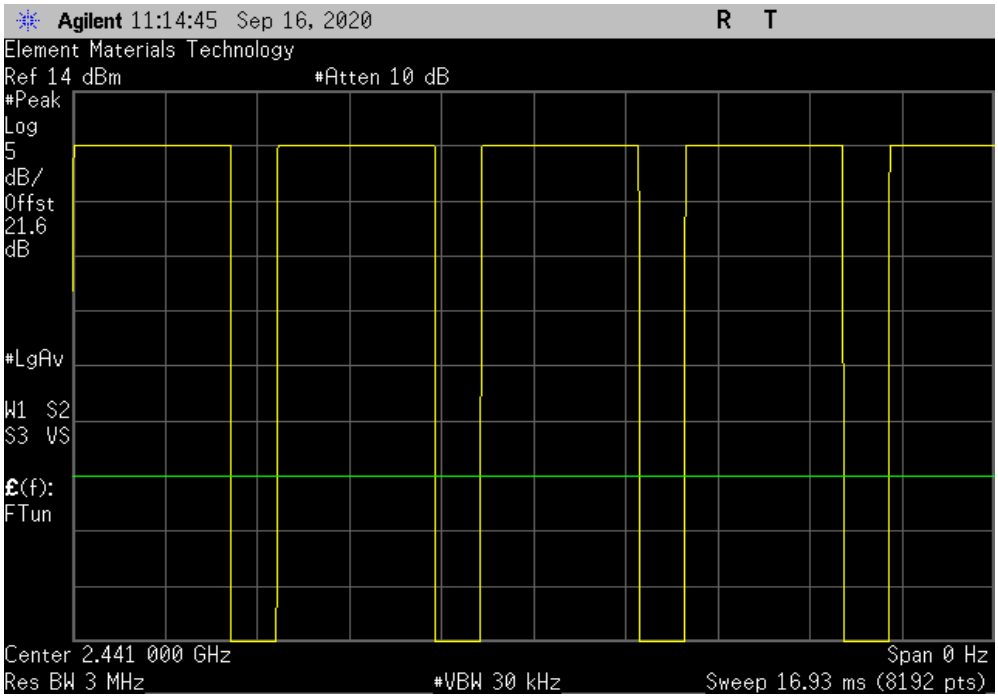


DUTY CYCLE

Sink, DH5, GFSK, Mid Channel, 2441 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.904 ms	3.75 ms	1	77.5	N/A	N/A

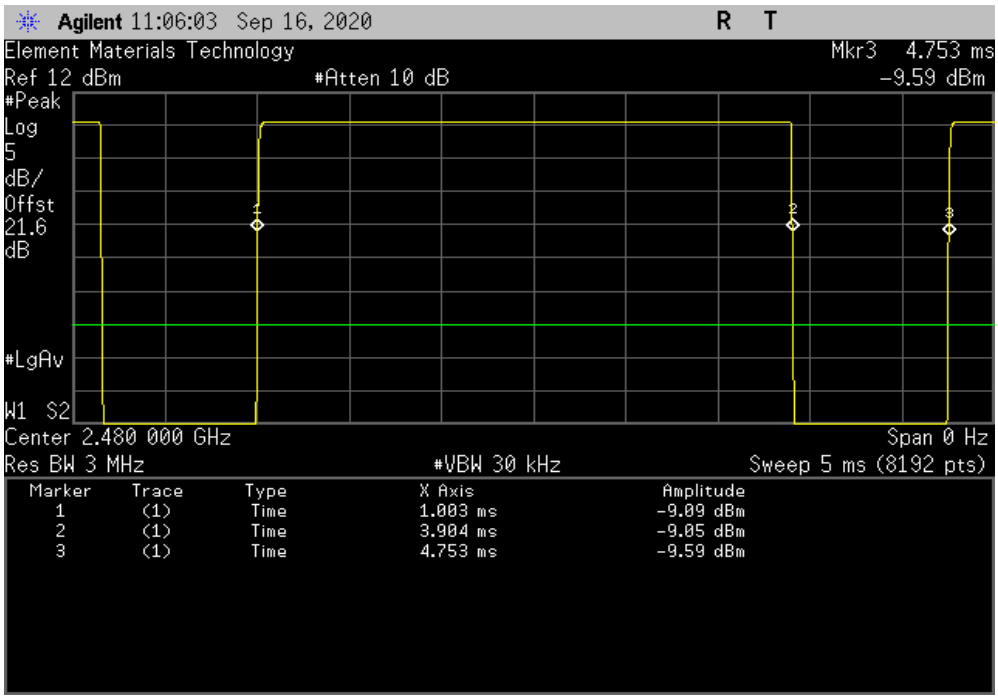


Sink, DH5, GFSK, Mid Channel, 2441 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

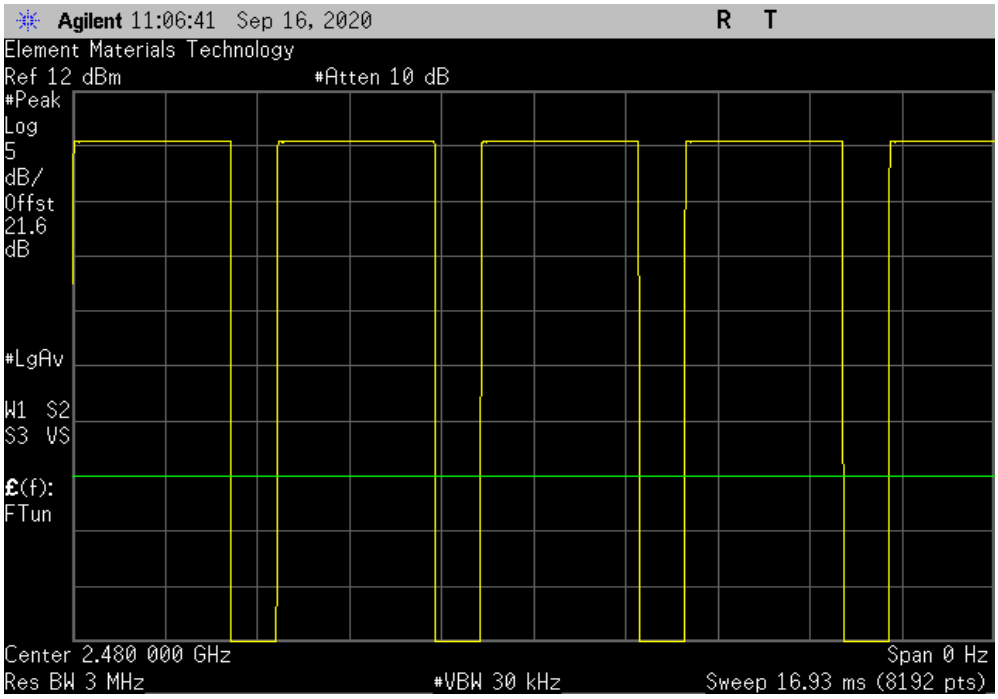


DUTY CYCLE

Sink, DH5, GFSK, High Channel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.901 ms	3.75 ms	1	77.4	N/A	N/A

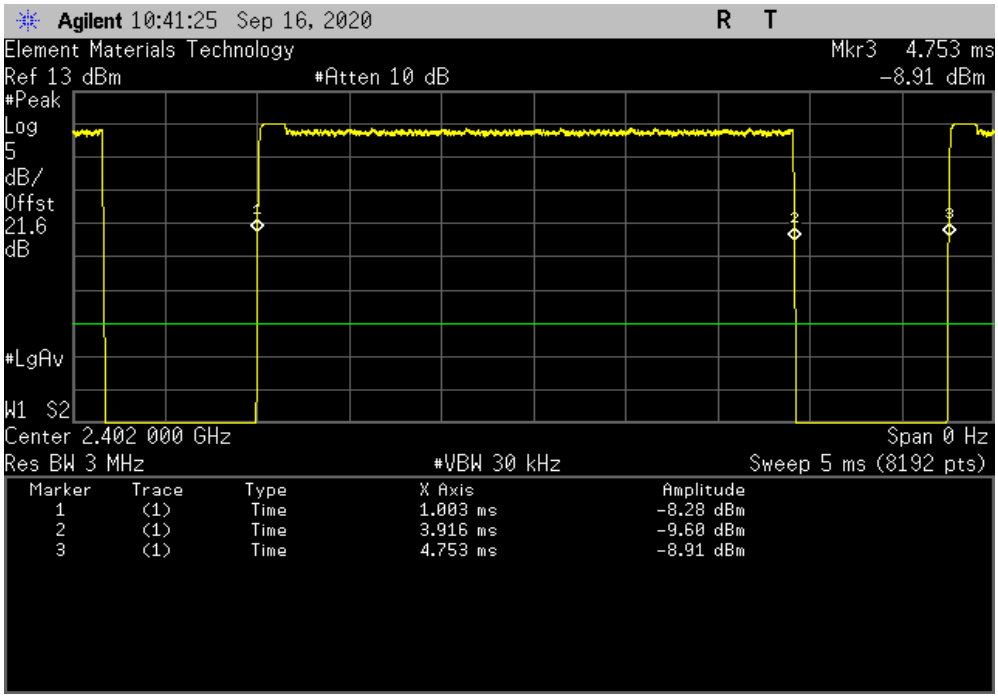


Sink, DH5, GFSK, High Channel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

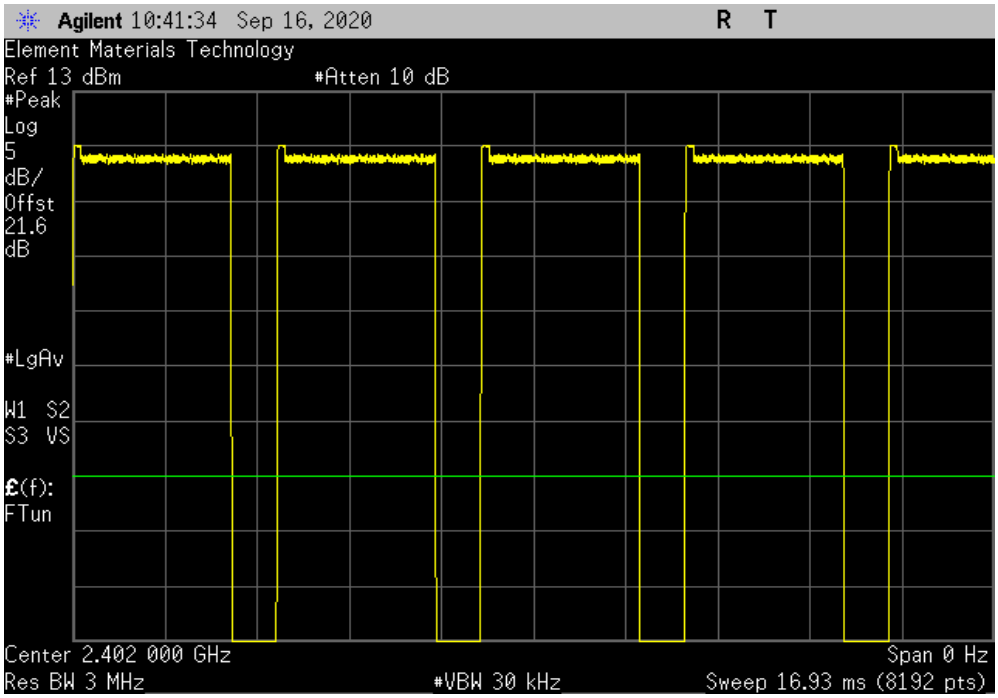


DUTY CYCLE

Sink, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.913 ms	3.75 ms	1	77.7	N/A	N/A

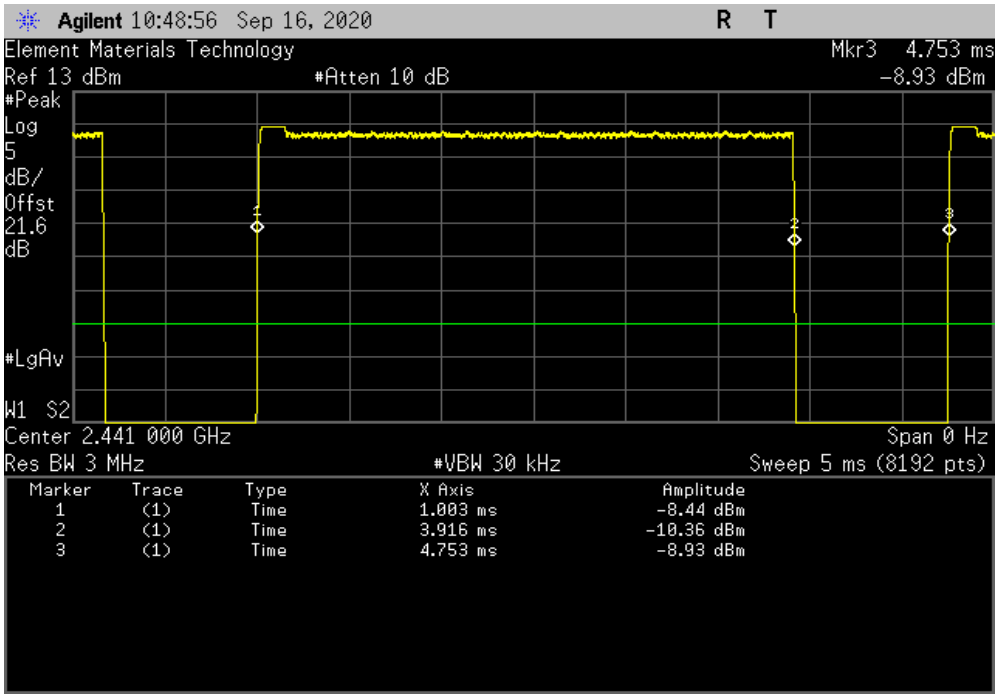


Sink, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

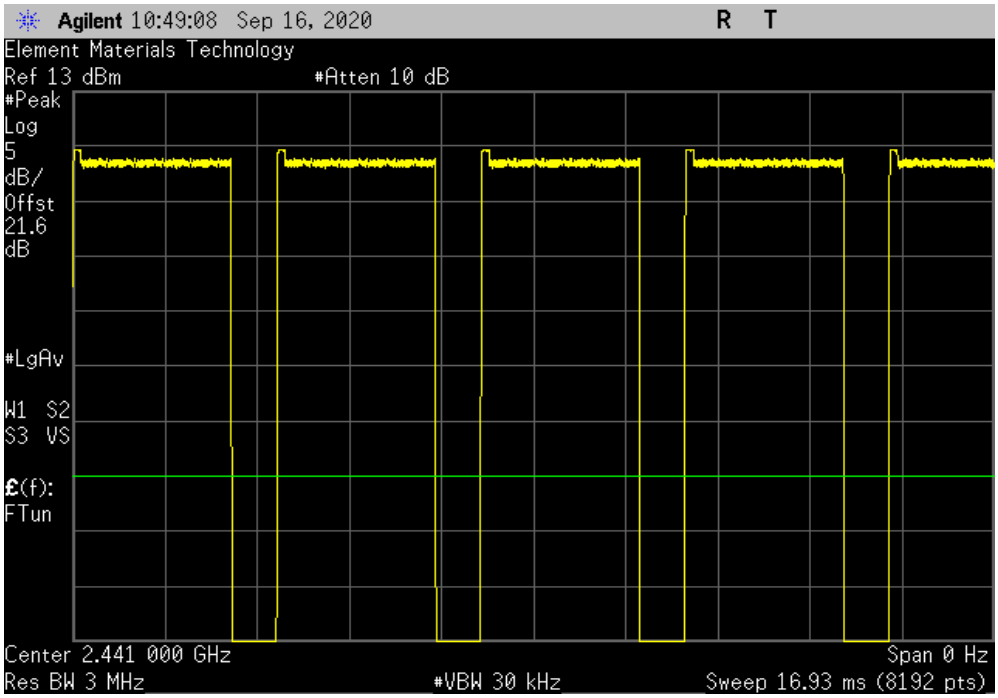


DUTY CYCLE

Sink, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.913 ms	3.75 ms	1	77.7	N/A	N/A

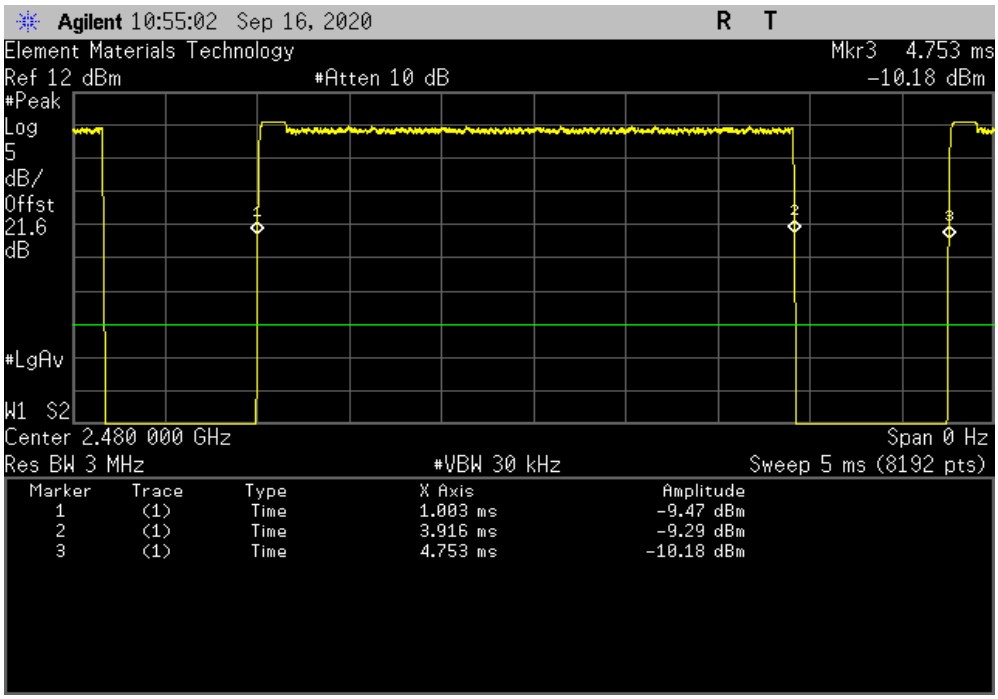


Sink, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

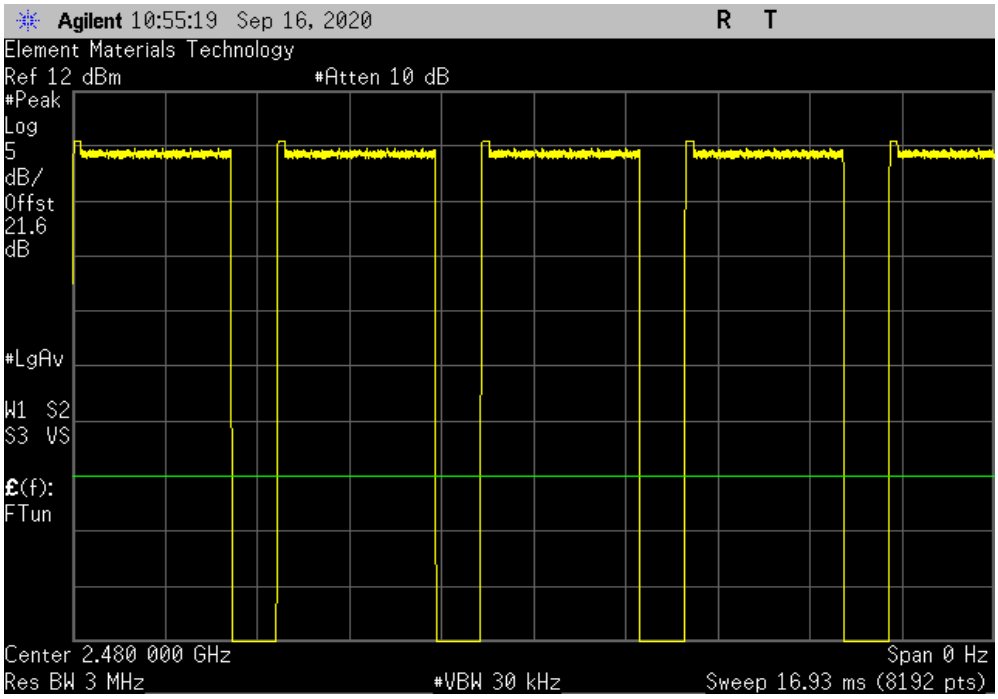


DUTY CYCLE

Sink, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.913 ms	3.75 ms	1	77.7	N/A	N/A

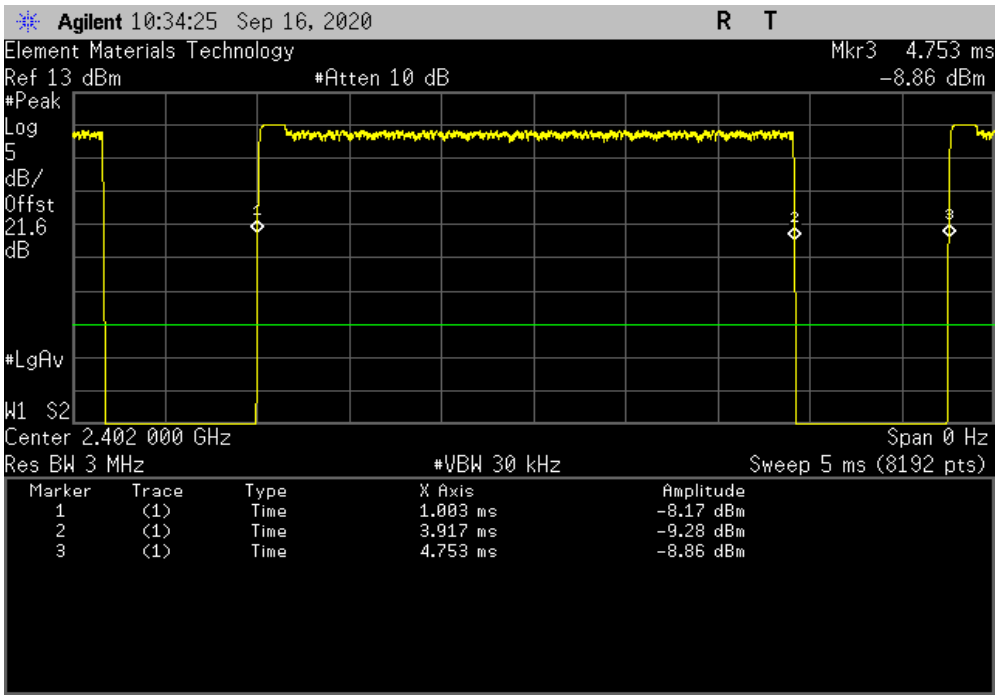


Sink, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

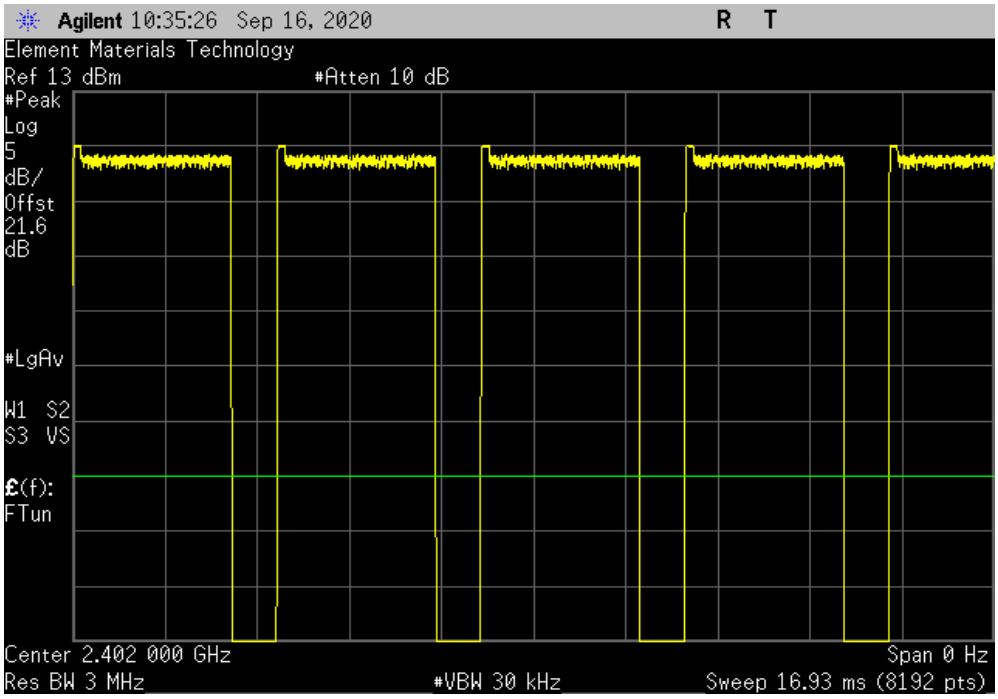


DUTY CYCLE

Sink, 3DH5, 8-DPSK, Low Channel, 2402 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.914 ms	3.75 ms	1	77.7	N/A	N/A

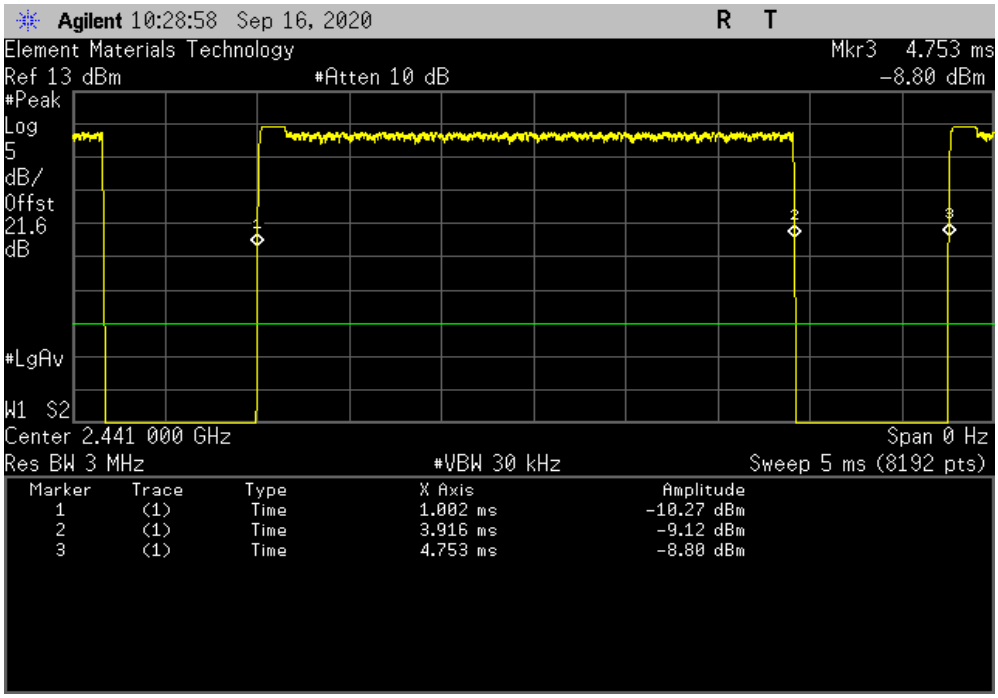


Sink, 3DH5, 8-DPSK, Low Channel, 2402 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

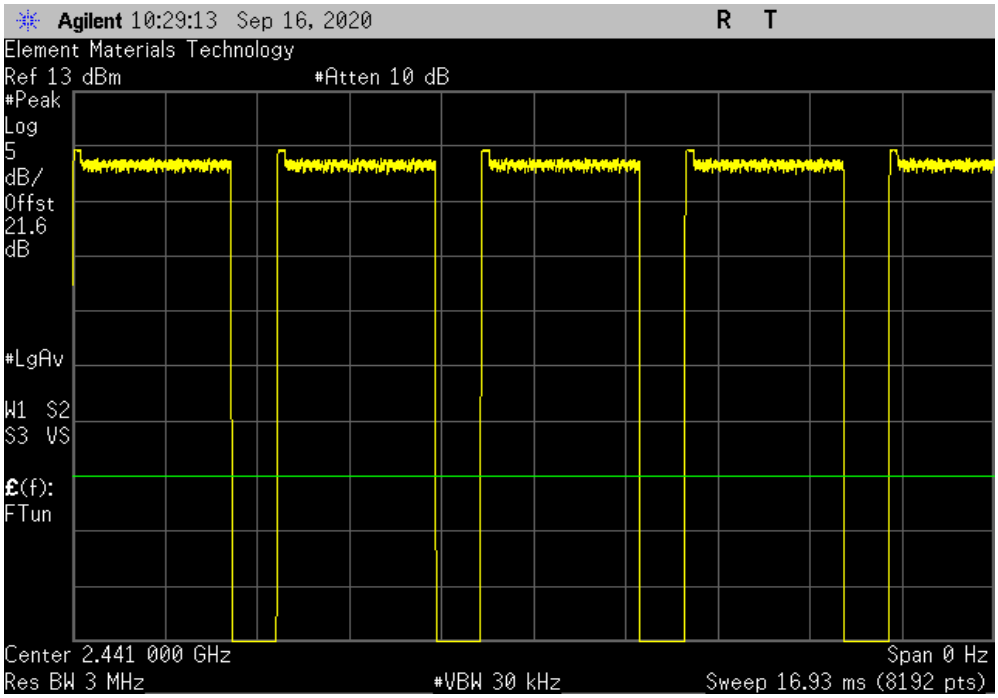


DUTY CYCLE

Sink, 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.914 ms	3.751 ms	1	77.7	N/A	N/A

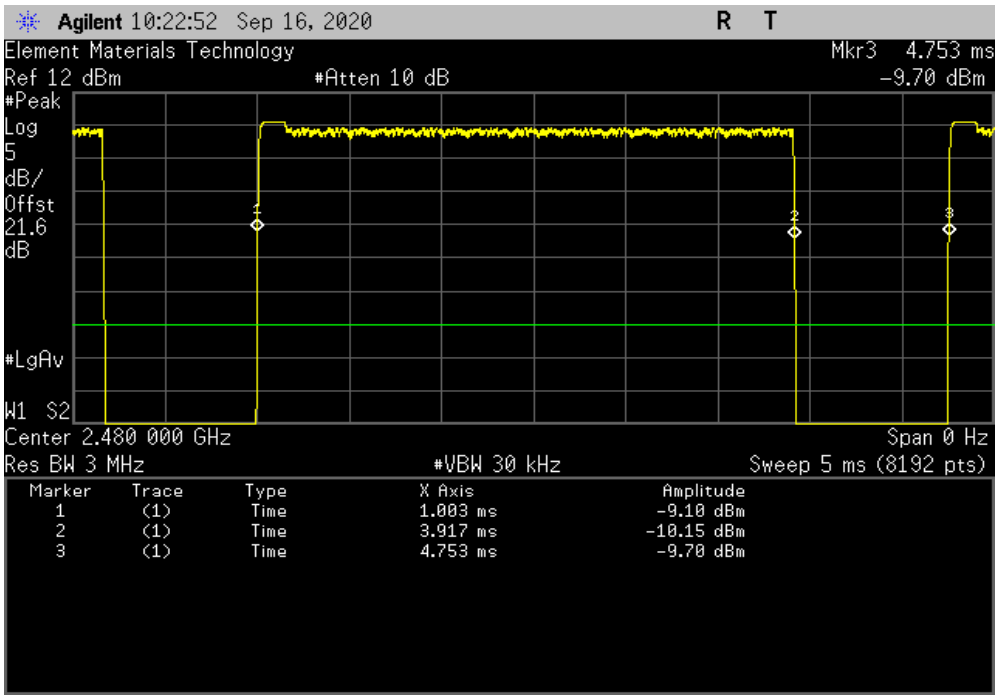


Sink, 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A

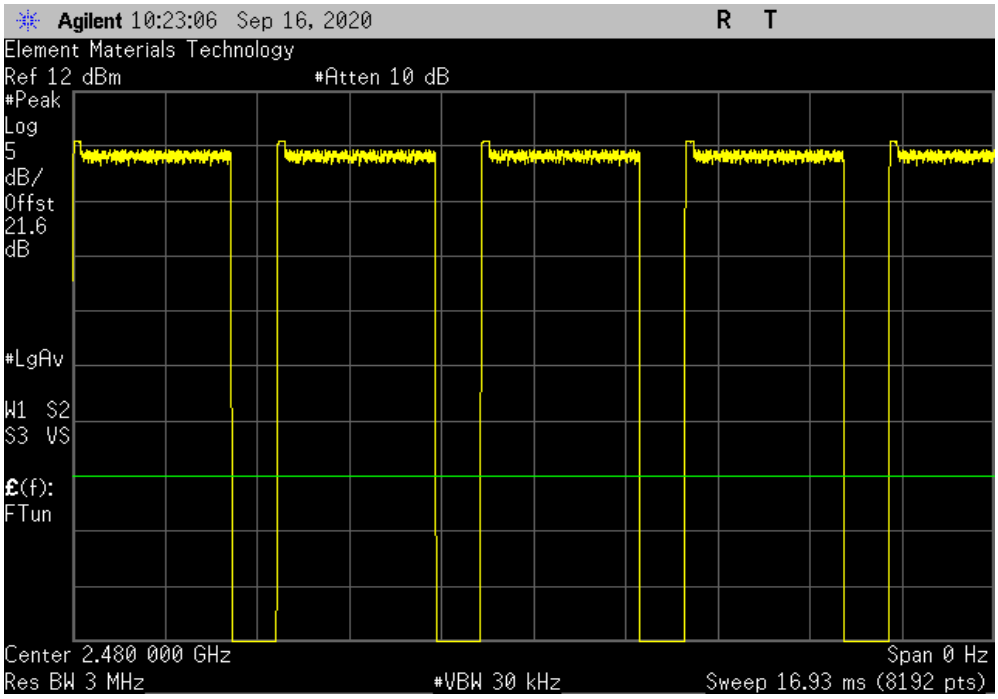


DUTY CYCLE

Sink, 3DH5, 8-DPSK, High Channel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	2.914 ms	3.75 ms	1	77.7	N/A	N/A



Sink, 3DH5, 8-DPSK, High Channel, 2480 MHz						
	Pulse Width	Period	Number of Pulses	Value (%)	Limit (%)	Results
	N/A	N/A	5	N/A	N/A	N/A



CARRIER FREQUENCY SEPARATION

XMit 2020.03.25.0

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	5-Nov-18	5-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	13-Mar-20	13-Mar-21
Attenuator	S.M. Electronics	SA26B-20	AUY	13-Mar-20	13-Mar-21
Block - DC	Fairview Microwave	SD3379	AMW	13-Mar-20	13-Mar-21
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	28-Feb-20	28-Feb-21

TEST DESCRIPTION

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

CARRIER FREQUENCY SEPARATION

TbtTx 2019.08.30.0 XMit 2020.03.25.0

EUT:	**APX517B**			**Work Order:**	**AUDI0269**
Serial Number:	**APX517B 008 Rev. B**			**Date:**	**16-Sep-20**
Customer:	**Audio Precision**			**Temperature:**	**22.5 °C**
Attendees:	**None**			**Humidity:**	**47.8% RH**
Project:	**None**			**Barometric Pres.:**	**1020 mbar**
Tested by:	**Jeff Alcoke**	**Power:**	**110VAC/60Hz**	**Job Site:**	**EV06**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

Reference level offset includes: measurement cable, DC block, and 20 dB attenuator. Software power settings [(ext),(int)] = [255 , 63]. The limit is 2/3 * largest 20 dB Occupied Bandwidth. From this report, the worst case (largest) occupied bandwidth is 1.293 MHz. 2/3 * 1.293 MHz = 0.862 MHz.

DEVIATIONS FROM TEST STANDARD

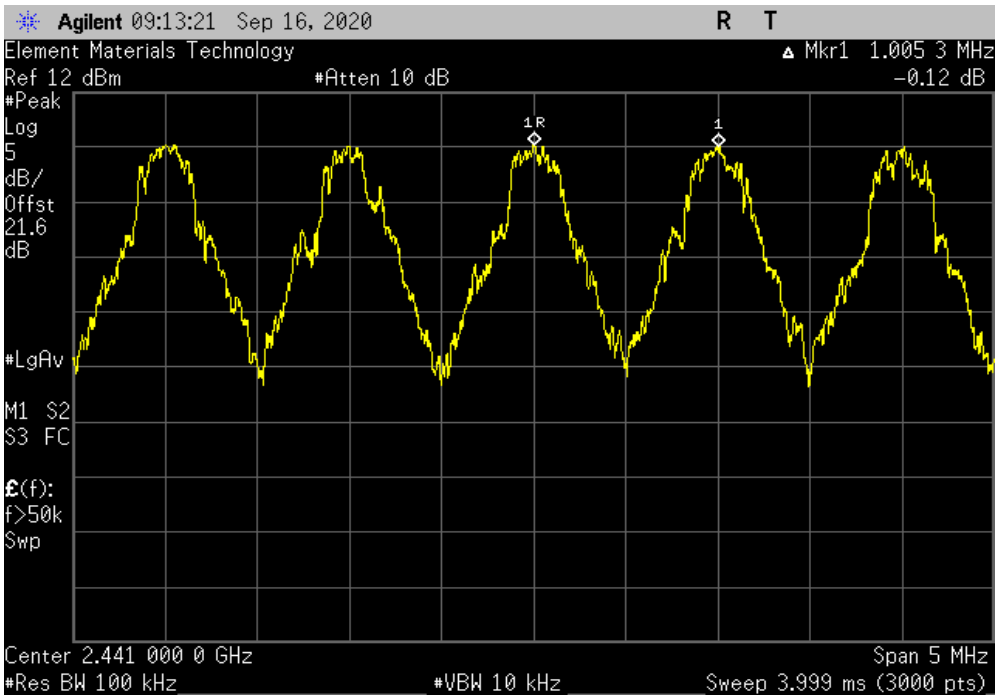
None

Configuration #	**1**	*Signature*

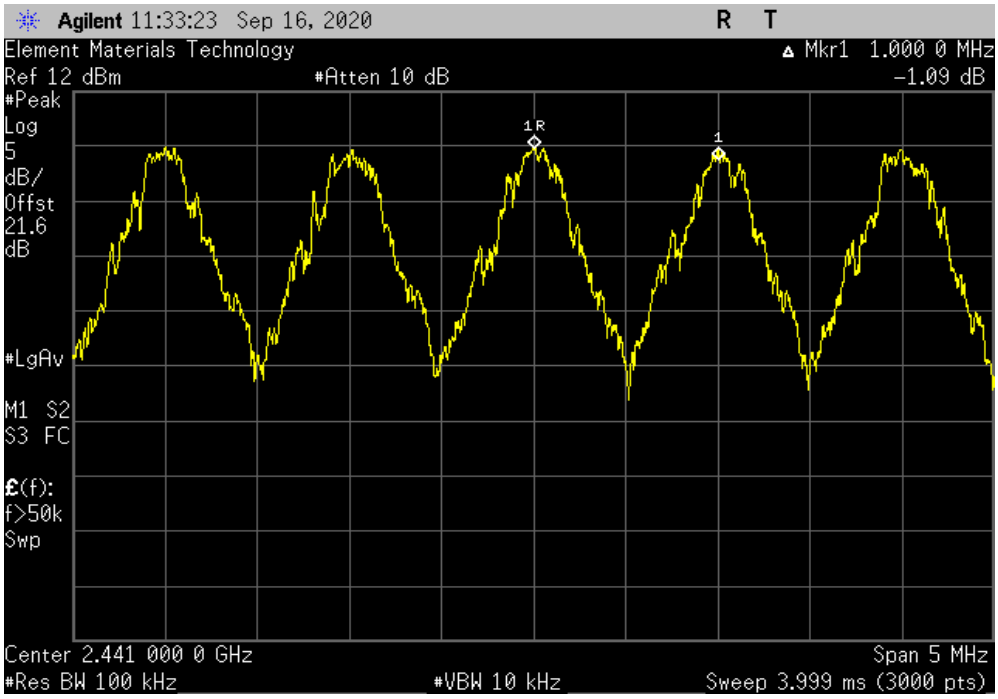
		Value	**Limit (≥)**	**Results**
Source				
	Hopping Mode (All Channels)			
	DH5, GFSK			
	Mid Channel, 2441 MHz	1.0 MHz	0.862 MHz	Pass
Sink				
	Hopping Mode (All Channels)			
	DH5, GFSK			
	Mid Channel, 2441 MHz	1.0 MHz	0.862 MHz	Pass

CARRIER FREQUENCY SEPARATION

Source, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
				Value	Limit (≥)	Results
				1.0 MHz	0.862 MHz	Pass



Sink, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
				Value	Limit (≥)	Results
				1.0 MHz	0.862 MHz	Pass



NUMBER OF HOPPING FREQUENCIES

XMit 2020.03.25.0

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	5-Nov-18	5-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	13-Mar-20	13-Mar-21
Attenuator	S.M. Electronics	SA26B-20	AUY	13-Mar-20	13-Mar-21
Block - DC	Fairview Microwave	SD3379	AMW	13-Mar-20	13-Mar-21
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	28-Feb-20	28-Feb-21

TEST DESCRIPTION

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

NUMBER OF HOPPING FREQUENCIES

TbtTx 2019.08.30.0 XMit 2020.03.25.0

EUT:	**APX517B**			**Work Order:**	**AUDI0269**
Serial Number:	**APX517B 008 Rev. B**			**Date:**	**16-Sep-20**
Customer:	**Audio Precision**			**Temperature:**	**22.6 °C**
Attendees:	**None**			**Humidity:**	**47.8% RH**
Project:	**None**			**Barometric Pres.:**	**1020 mbar**
Tested by:	**Jeff Alcoke**	**Power:**	**110VAC/60Hz**	**Job Site:**	**EV06**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

Reference level offset includes: measurement cable, DC block, and 20 dB attenuator. Software power settings [(ext),(int)] = [255 , 63]

DEVIATIONS FROM TEST STANDARD

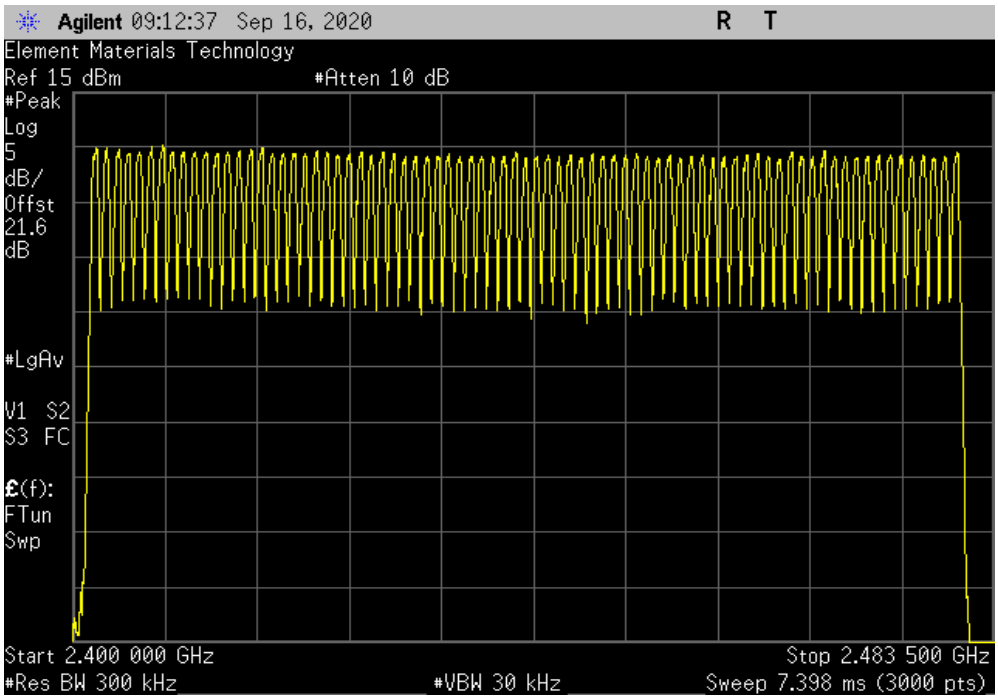
None

Configuration #	**1**	*Signature*

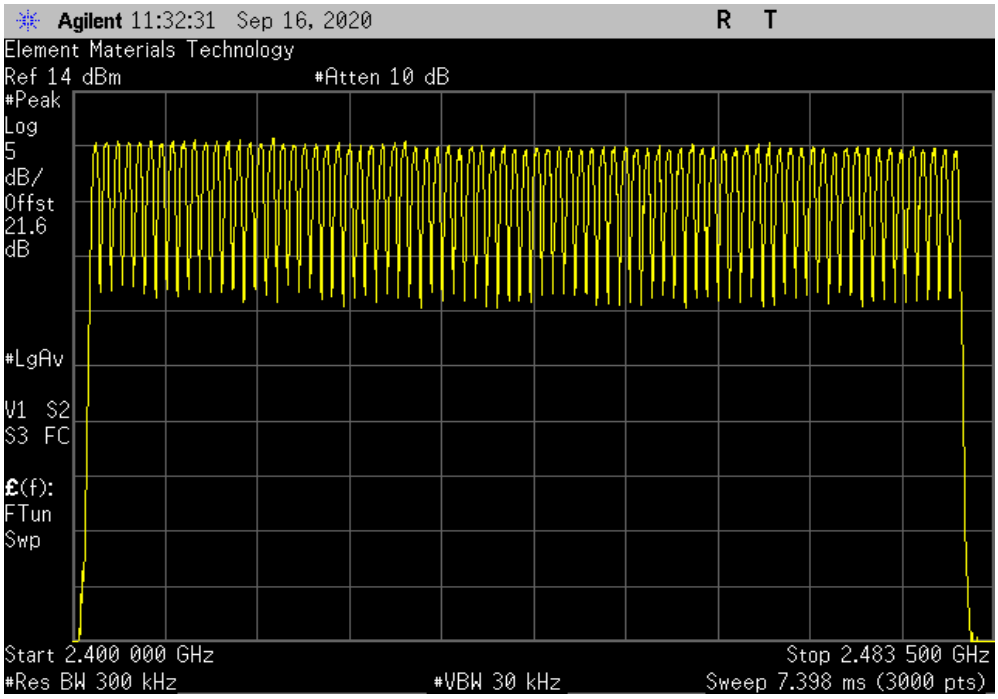
	Number of Channels	**Limit (≥)**	**Results**
Source			
Hopping Mode (All Channels)			
DH5, GFSK			
Mid Channel, 2441 MHz	79	15	Pass
Sink			
Hopping Mode (All Channels)			
DH5, GFSK			
Mid Channel, 2441 MHz	79	15	Pass

NUMBER OF HOPPING FREQUENCIES

Source, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
				Number of Channels	Limit (≥)	Results
				79	15	Pass



Sink, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
				Number of Channels	Limit (≥)	Results
				79	15	Pass



DWELL TIME

XMit 2020.03.25.0

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TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	5-Nov-18	5-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	13-Mar-20	13-Mar-21
Attenuator	S.M. Electronics	SA26B-20	AUY	13-Mar-20	13-Mar-21
Block - DC	Fairview Microwave	SD3379	AMW	13-Mar-20	13-Mar-21
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	28-Feb-20	28-Feb-21

TEST DESCRIPTION

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

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

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

- Average Number of Pulses is based on 4 samples.
- Scale Factor = 31.6 Sec / Screen Capture Sweep Time = 31.6 Sec / 6.32 Sec = 5

DWELL TIME

TbtTx 2019.08.30.0 XMit 2020.03.25.0

EUT:	**APX517B**			**Work Order:**	**AUDI0269**
Serial Number:	**APX517B 008 Rev. B**			**Date:**	**16-Sep-20**
Customer:	**Audio Precision**			**Temperature:**	**22.6 °C**
Attendees:	**None**			**Humidity:**	**47.8% RH**
Project:	**None**			**Barometric Pres.:**	**1020 mbar**
Tested by:	**Jeff Alcoke**	**Power:**	**110VAC/60Hz**	**Job Site:**	**EV06**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

Reference level offset includes: measurement cable, DC block, and 20 dB attenuator. Software power settings [(ext),(int)] = [255 , 63]

DEVIATIONS FROM TEST STANDARD

None

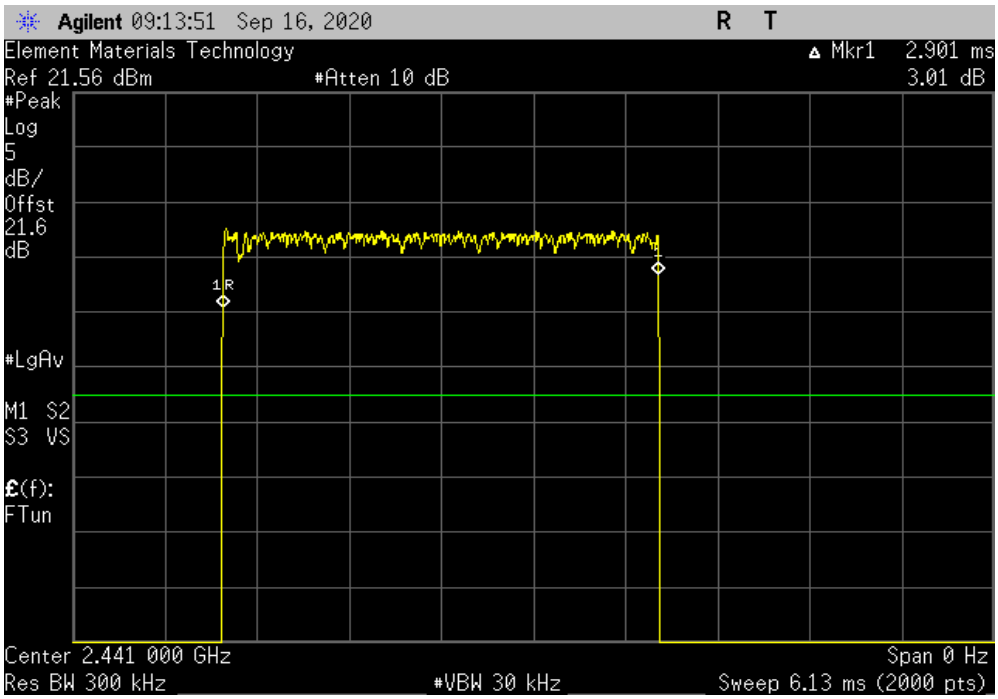
Configuration #	**1**	*Signature*

	Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
Source							
Hopping Mode (All Channels)							
DH5, GFSK							
Mid Channel, 2441 MHz	2.901	N/A	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	2.901	N/A	22	5	319.11	400	Pass
2DH5, pi/4-DQPSK							
Mid Channel, 2441 MHz	2.91	N/A	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	2.91	N/A	22	5	320.1	400	Pass
3DH5, 8-DPSK							
Mid Channel, 2441 MHz	2.91	N/A	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	2.91	N/A	22	5	320.1	400	Pass
Sink							
Hopping Mode (All Channels)							
DH5, GFSK							
Mid Channel, 2441 MHz	2.901	N/A	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	2.901	N/A	22	5	319.11	400	Pass
2DH5, pi/4-DQPSK							
Mid Channel, 2441 MHz	2.91	N/A	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	2.91	N/A	22	5	320.1	400	Pass
3DH5, 8-DPSK							
Mid Channel, 2441 MHz	2.91	N/A	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	N/A	22	N/A	N/A	N/A	N/A	N/A
Mid Channel, 2441 MHz	2.91	N/A	22	5	320.1	400	Pass

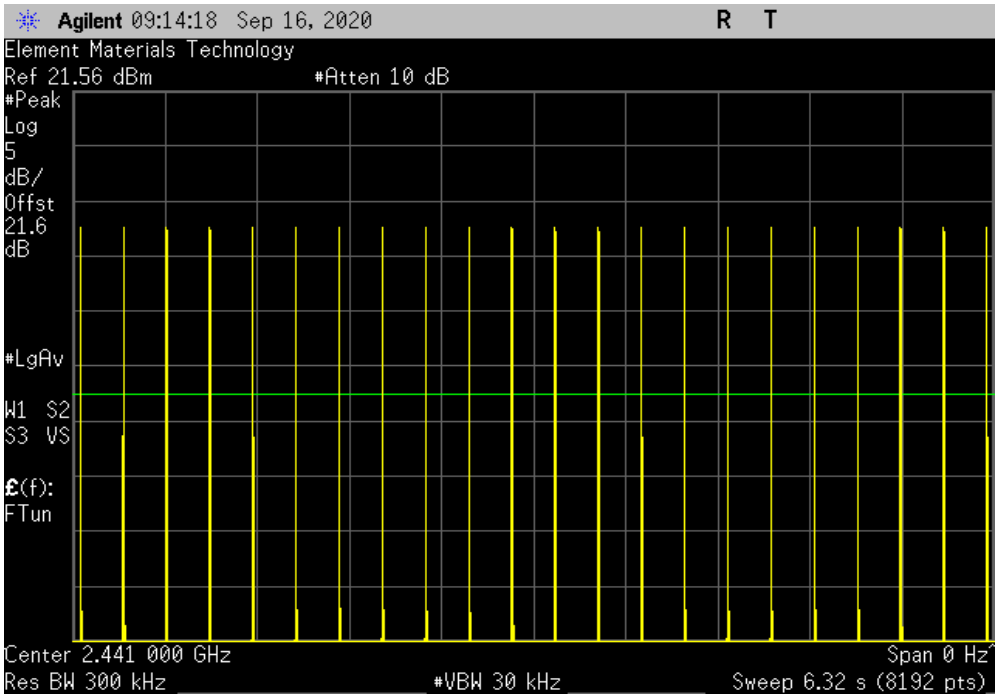
DWELL TIME

TbtTx 2019.08.30.0 XMit 2020.03.25.0

Source, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.901	N/A	N/A	N/A	N/A	N/A	N/A



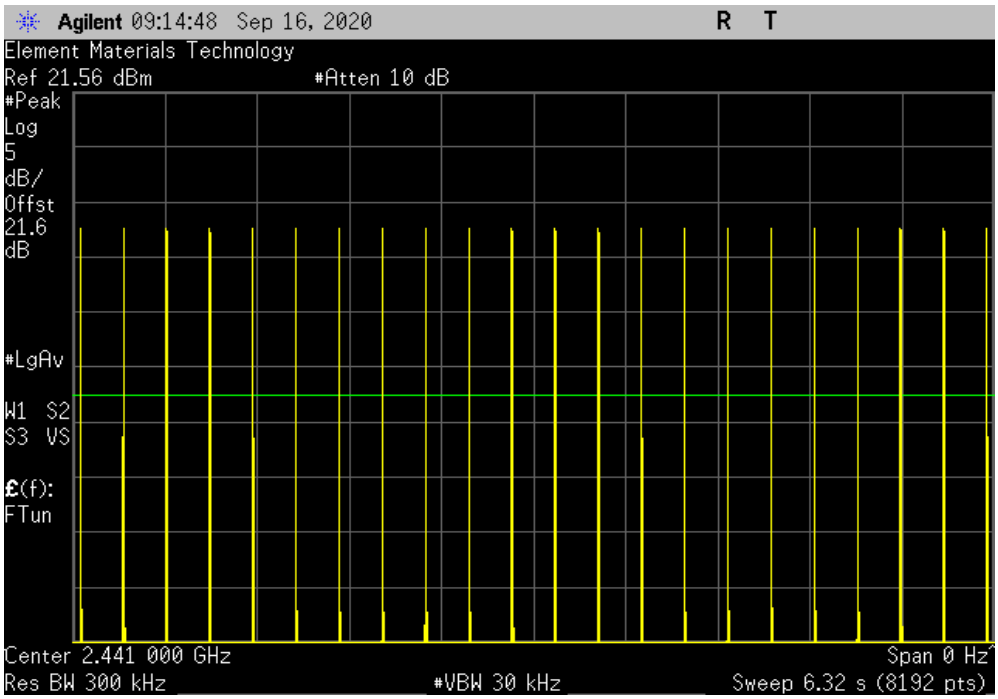
Source, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



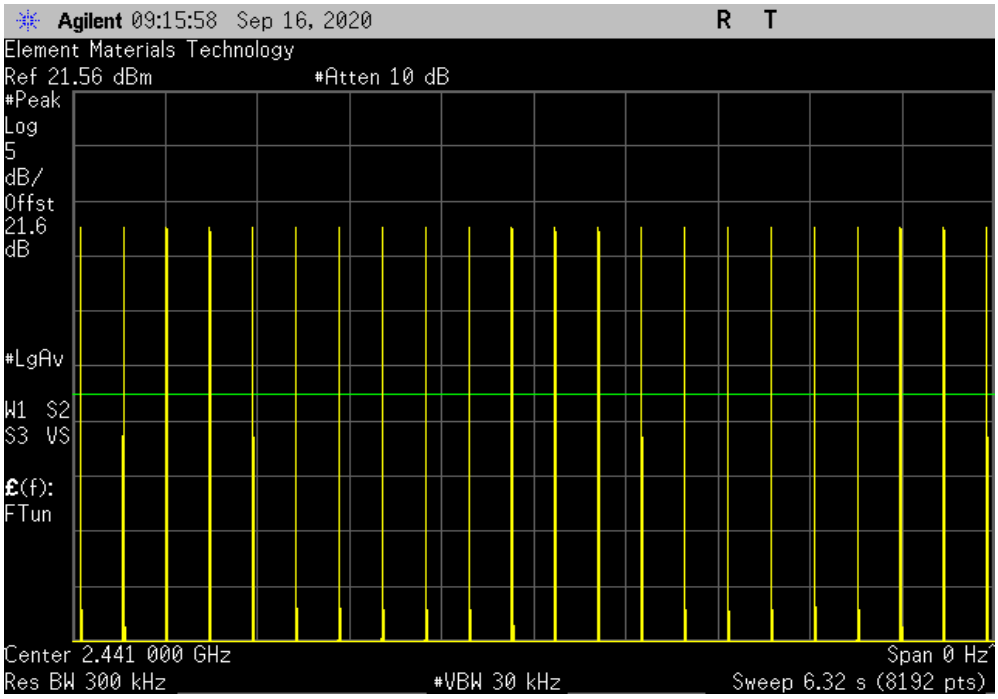
DWELL TIME

TbtTx 2019.08.30.0 XMit 2020.03.25.0

Source, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



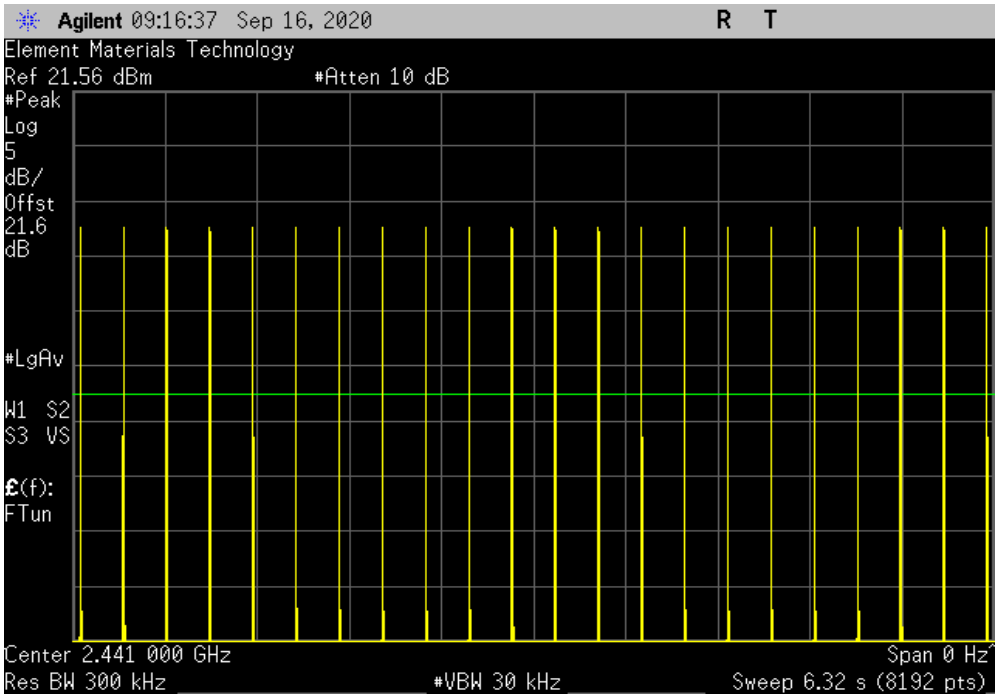
Source, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



DWELL TIME

TbtTx 2019.08.30.0 XMit 2020.03.25.0

Source, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



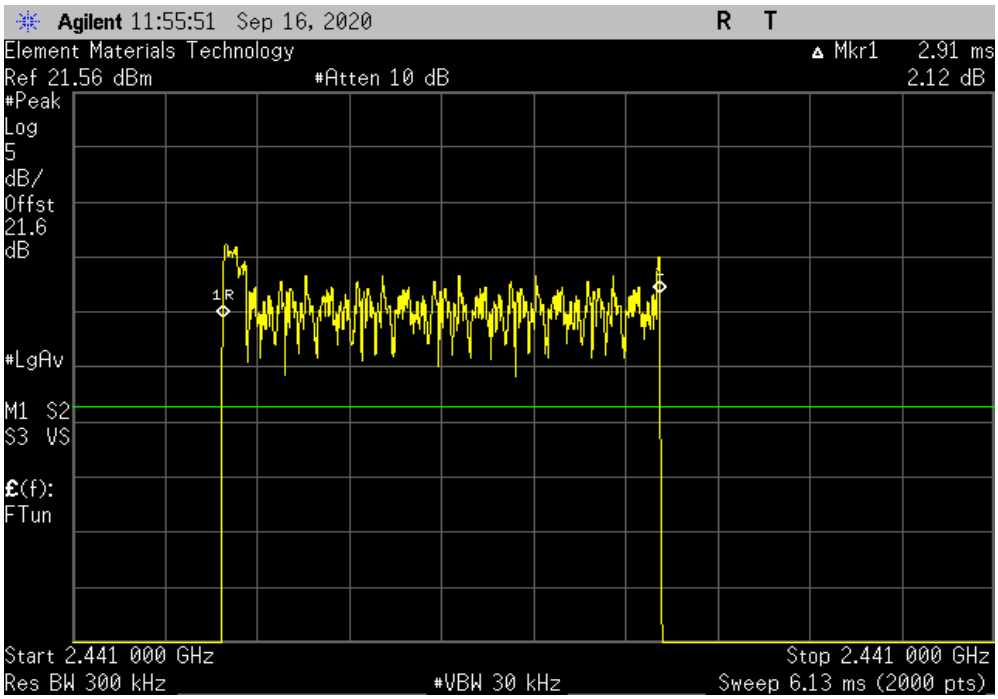
Source, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.901	N/A	22	5	319.11	400	Pass

Calculation Only

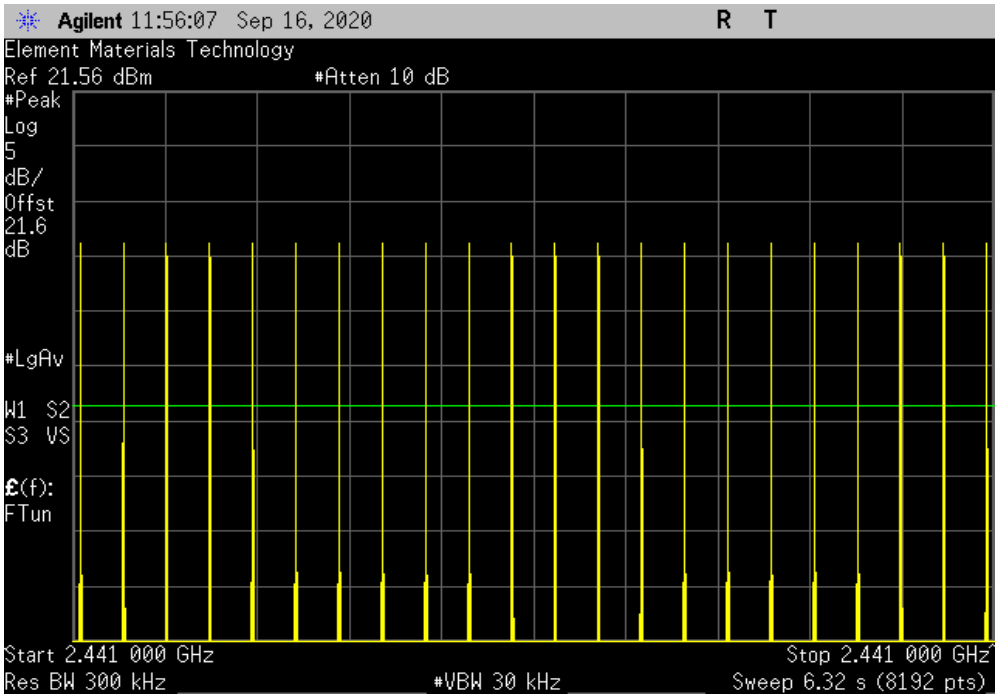
No Screen Capture Required

DWELL TIME

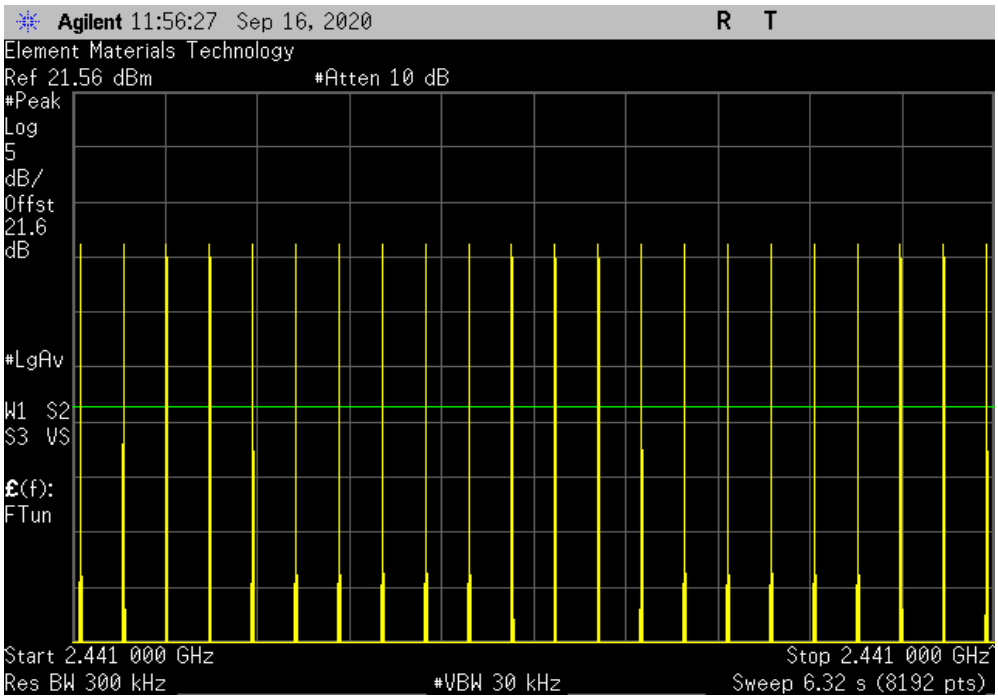
Source, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.91	N/A	N/A	N/A	N/A	N/A	N/A



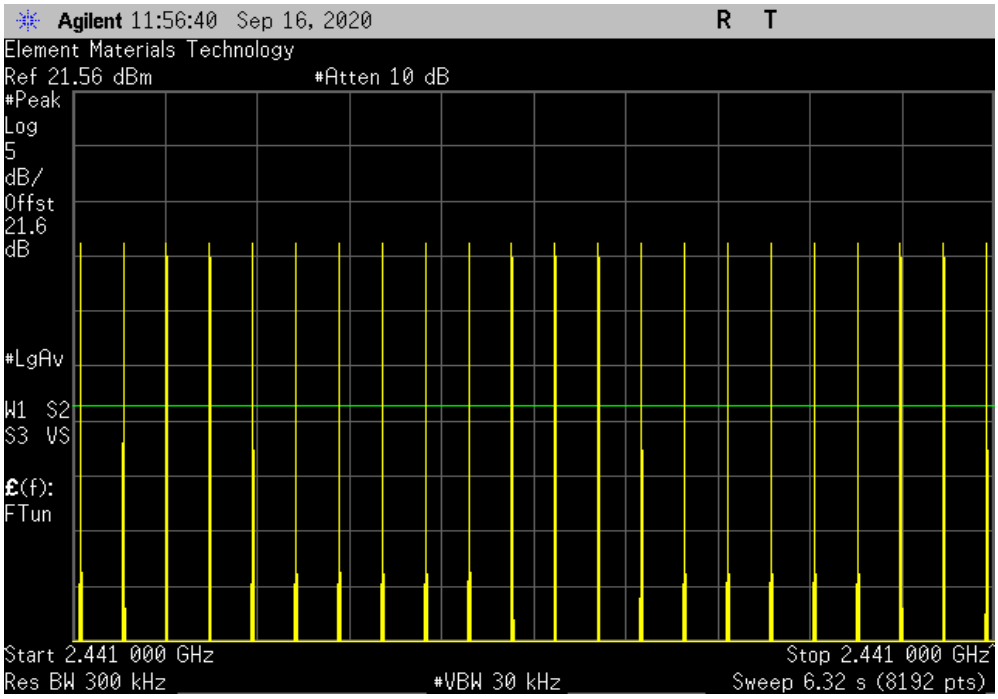
Source, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



Source, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A

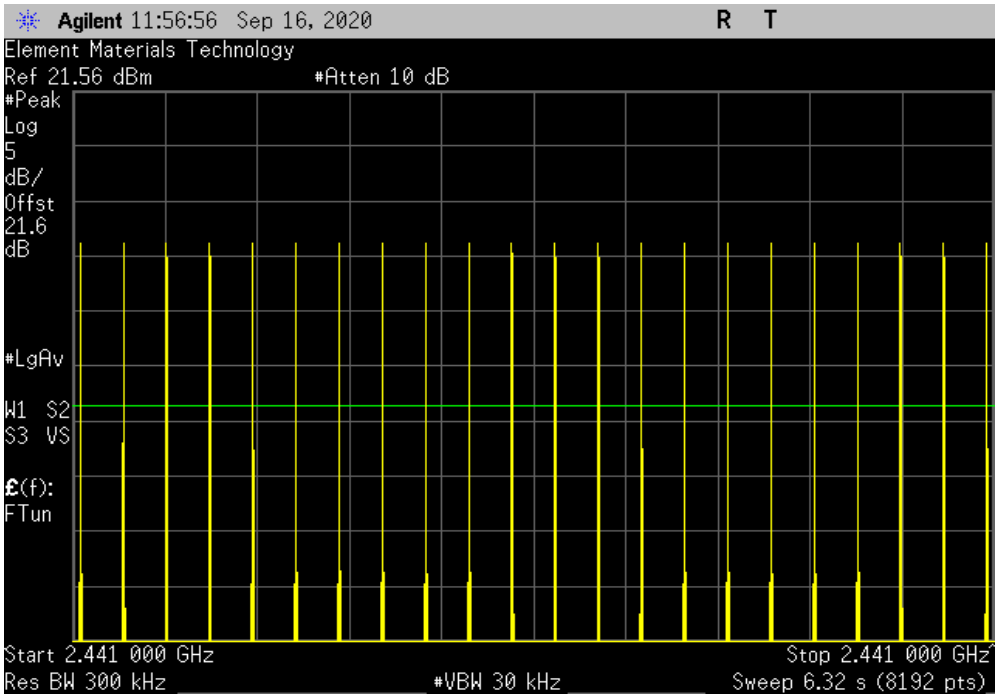


Source, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



DWELL TIME

Source, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



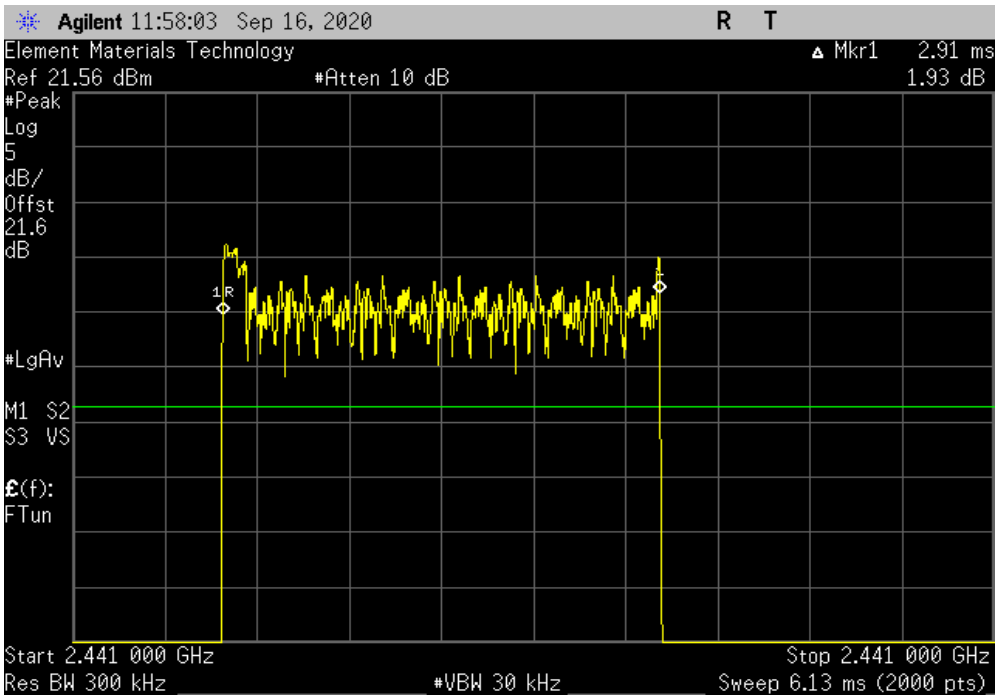
Source, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.91	N/A	22	5	320.1	400	Pass

Calculation Only

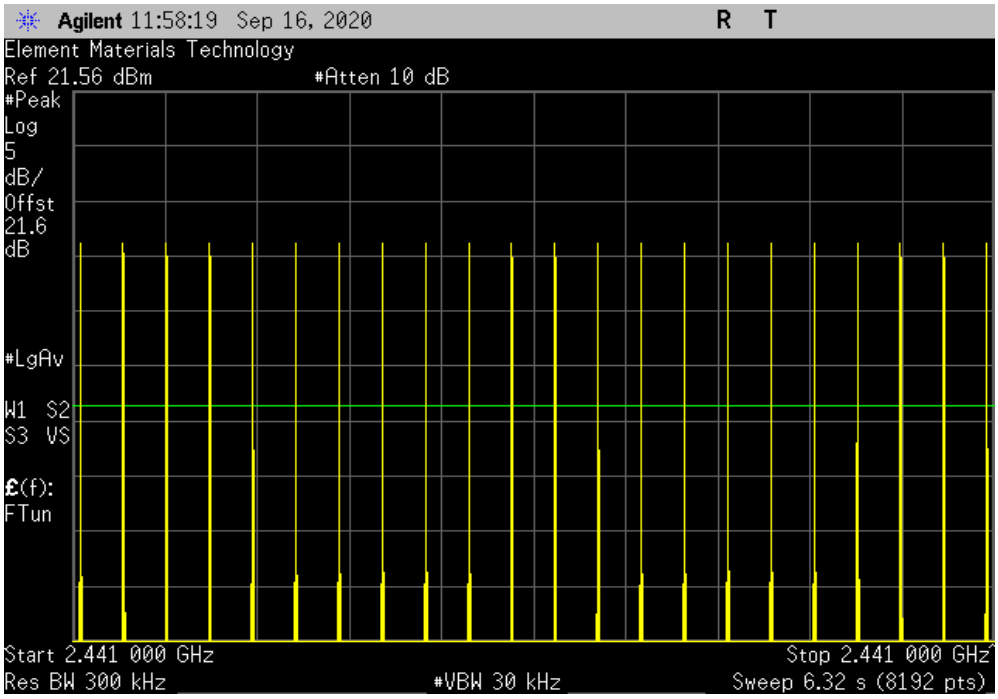
No Screen Capture Required

DWELL TIME

Source, Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.91	N/A	N/A	N/A	N/A	N/A	N/A

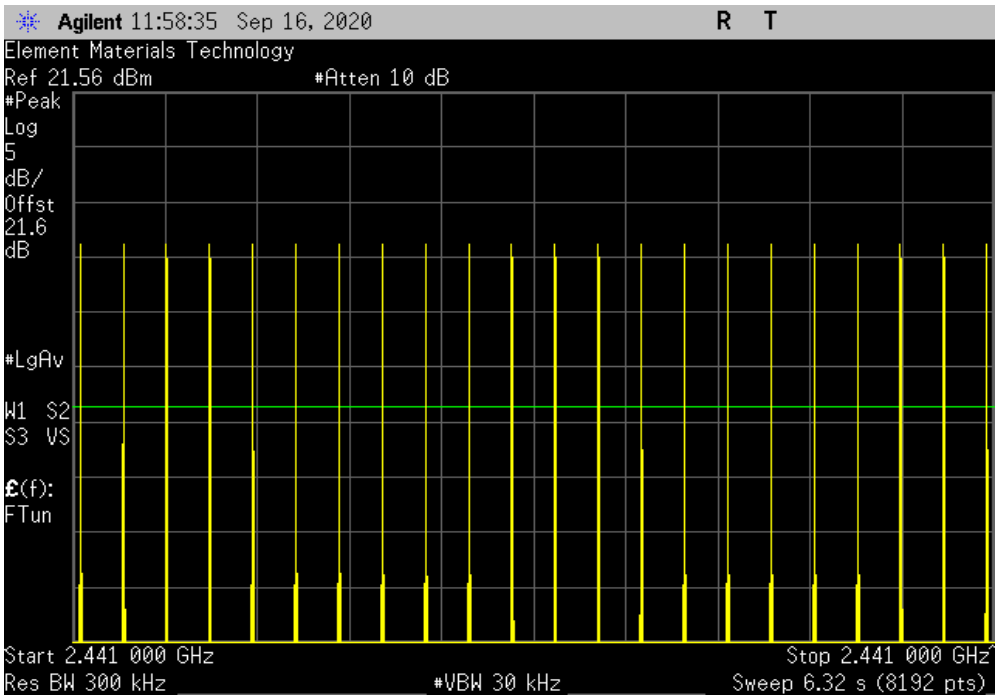


Source, Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A

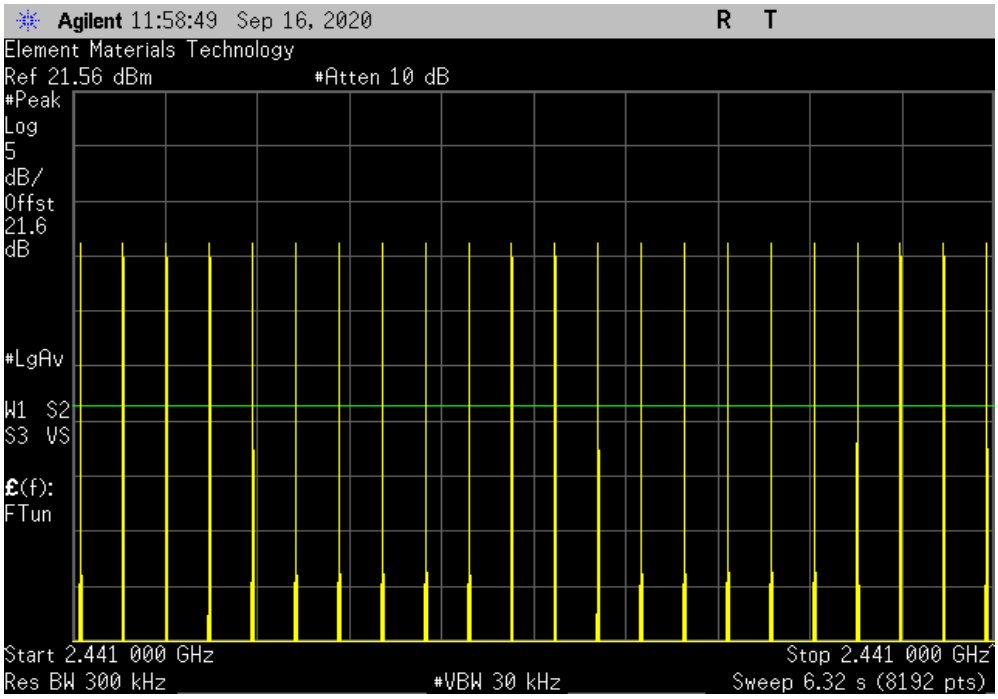


DWELL TIME

Source, Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



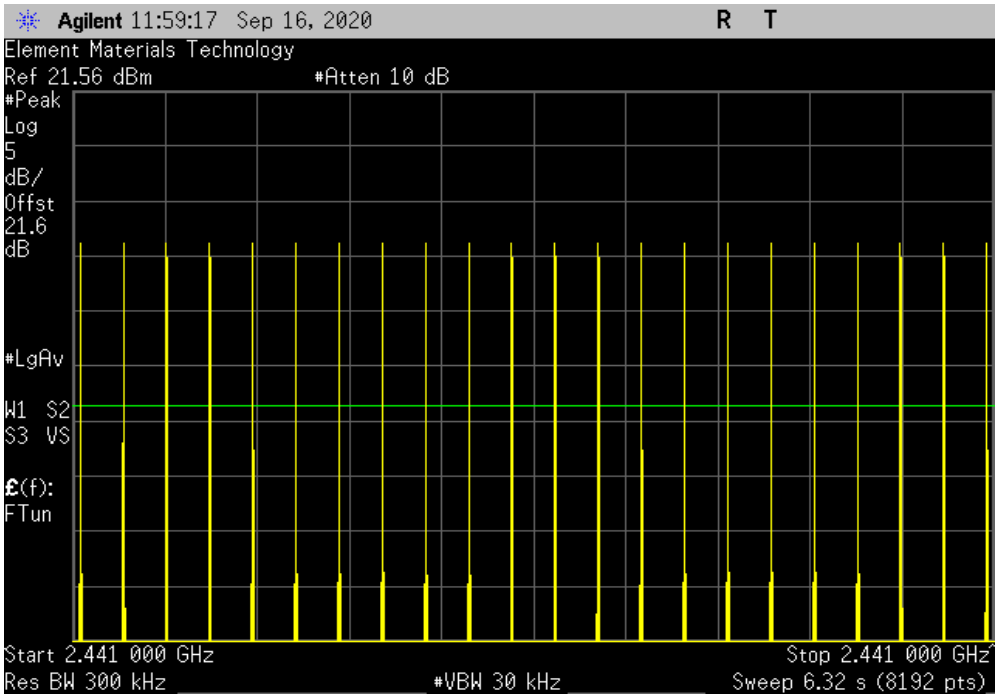
Source, Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



DWELL TIME

TbtTx 2019.08.30.0 XMit 2020.03.25.0

Source, Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A

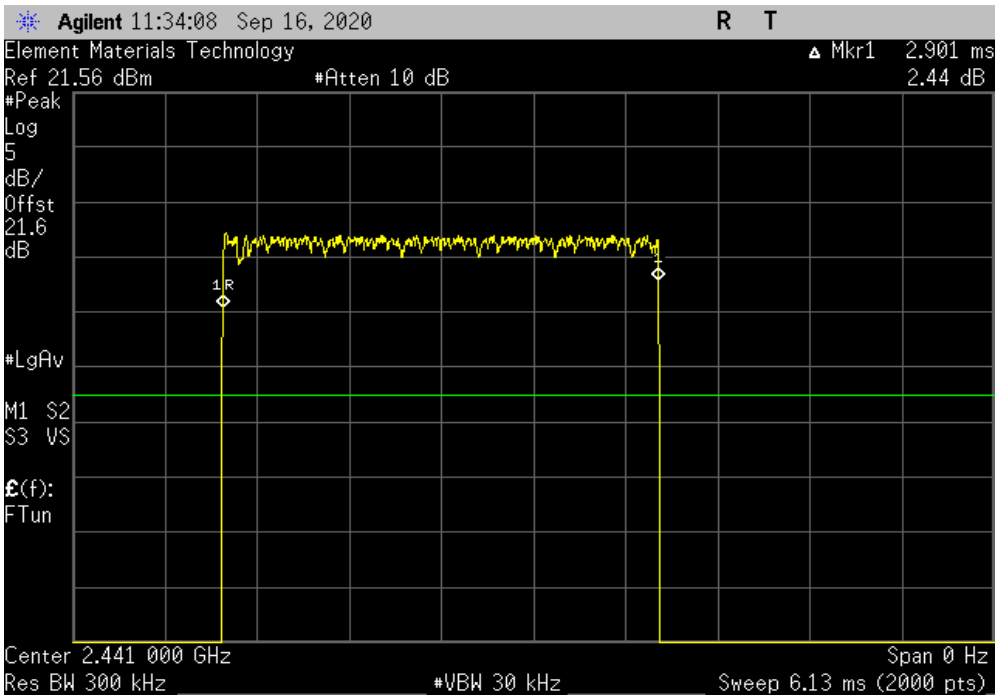


Source, Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.91	N/A	22	5	320.1	400	Pass

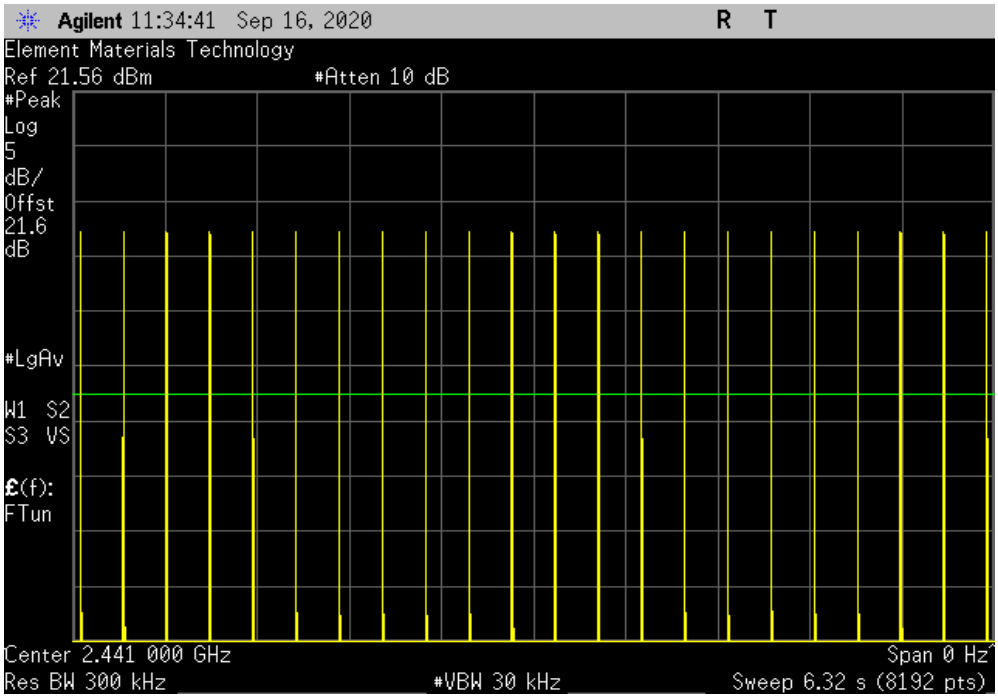
Calculation Only

No Screen Capture Required

Sink, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.901	N/A	N/A	N/A	N/A	N/A	N/A

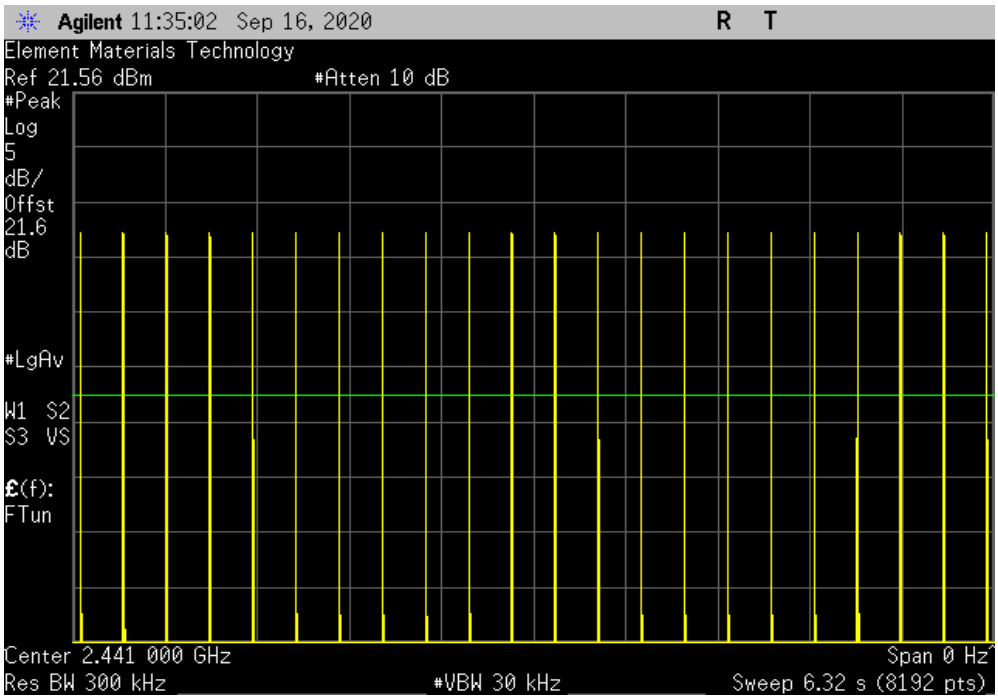


Sink, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A

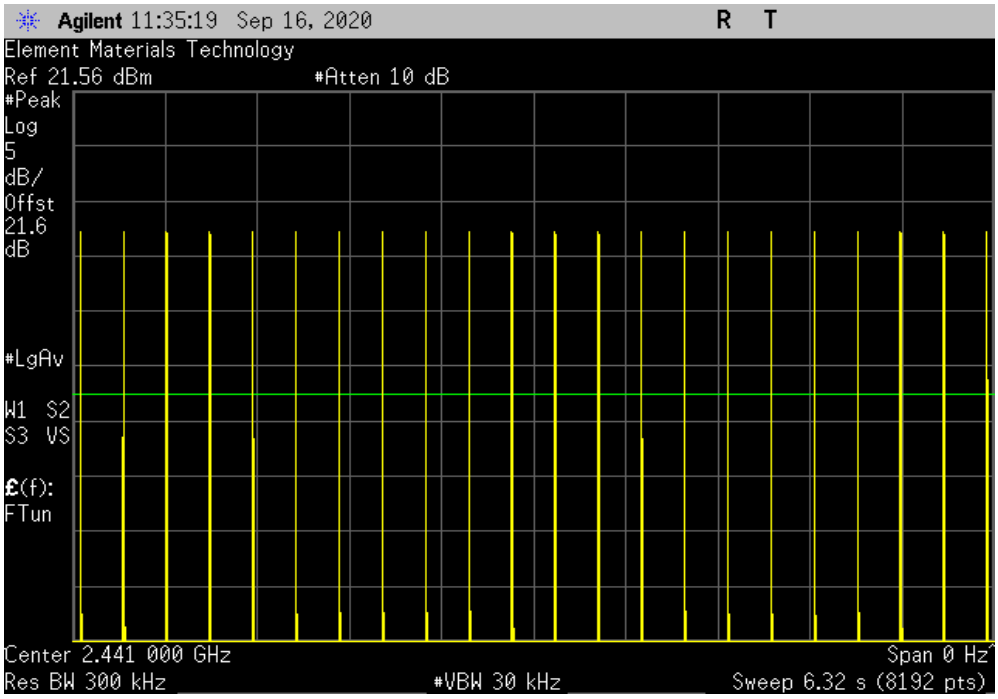


DWELL TIME

Sink, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A

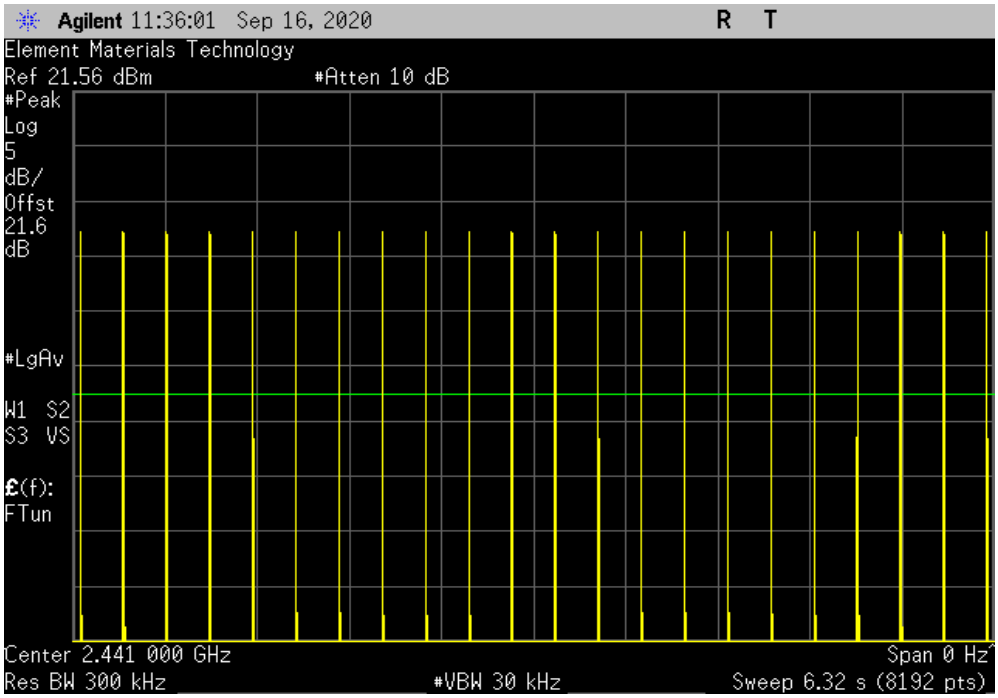


Sink, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



DWELL TIME

Sink, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



Sink, Hopping Mode (All Channels), DH5, GFSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.901	N/A	22	5	319.11	400	Pass

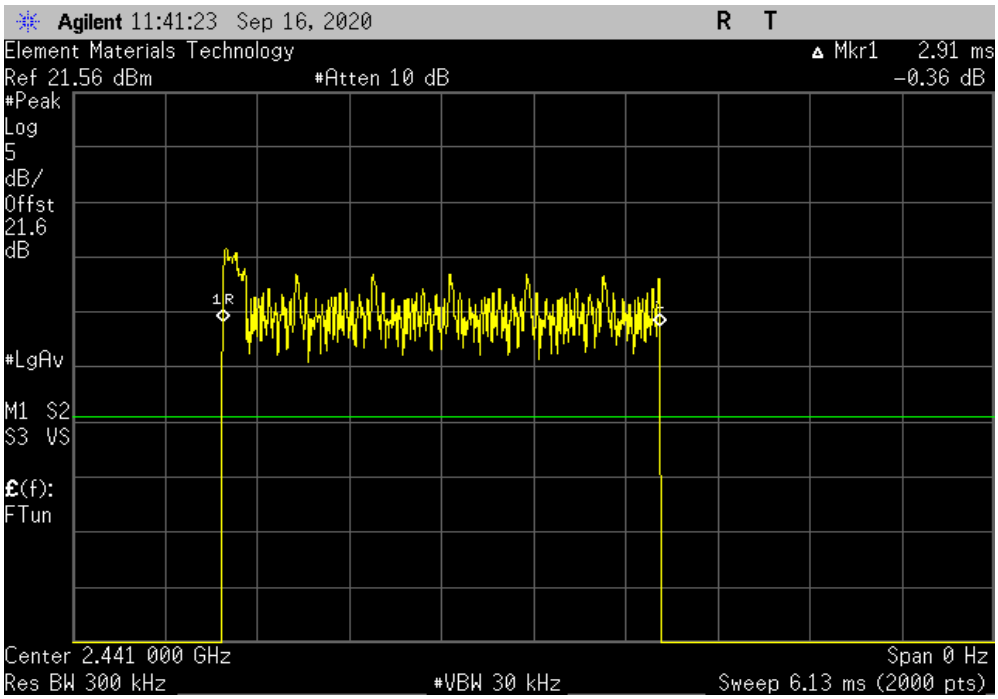
Calculation Only

No Screen Capture Required

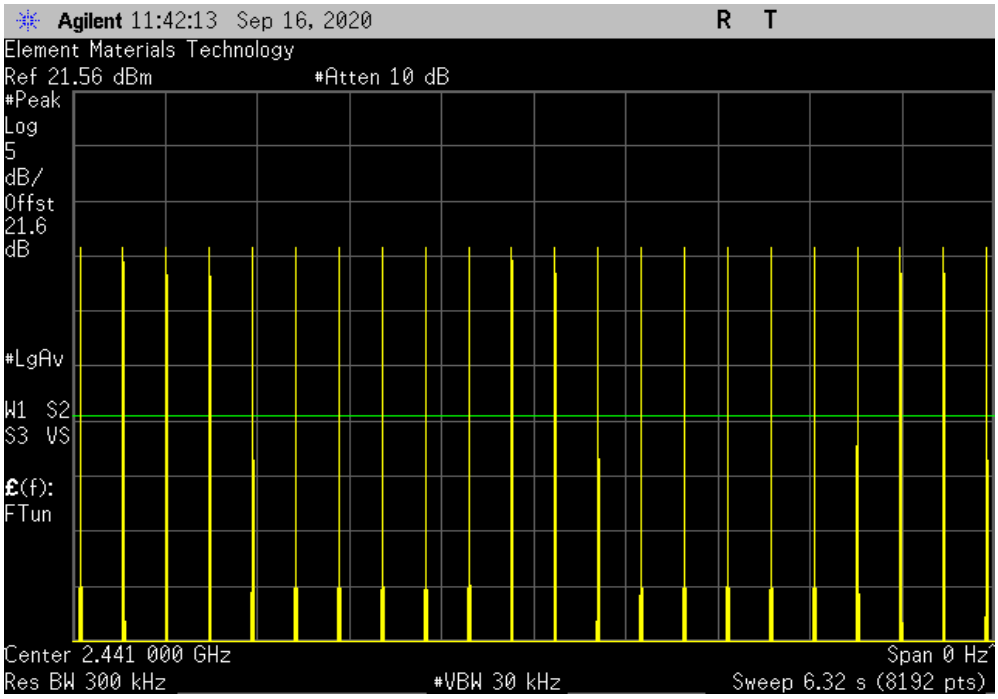
DWELL TIME

TbtTx 2019.08.30.0 XMit 2020.03.25.0

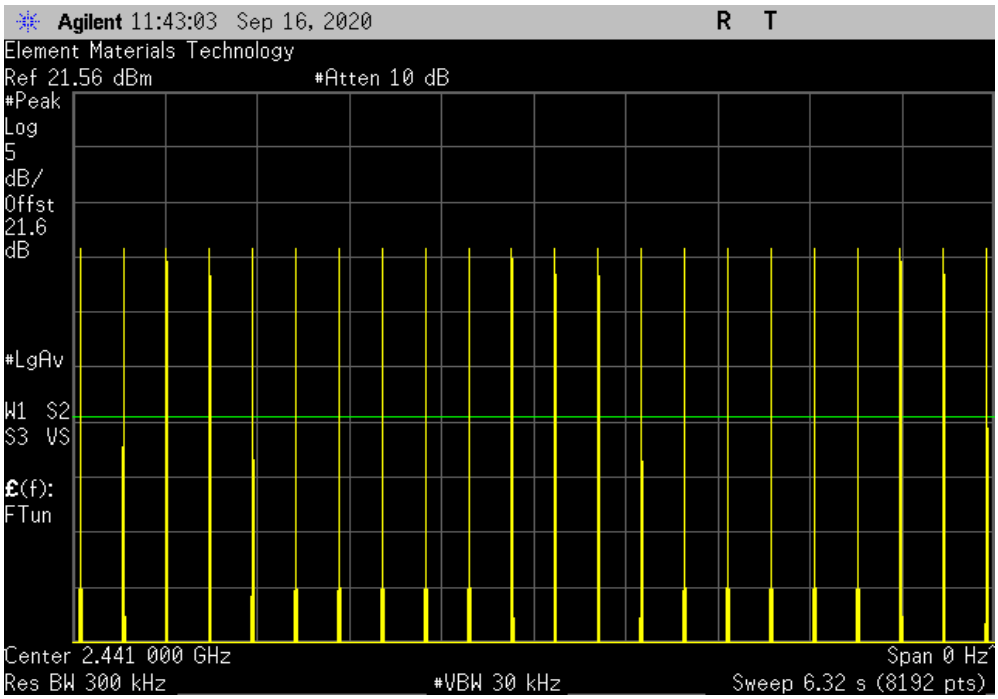
Sink, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.91	N/A	N/A	N/A	N/A	N/A	N/A



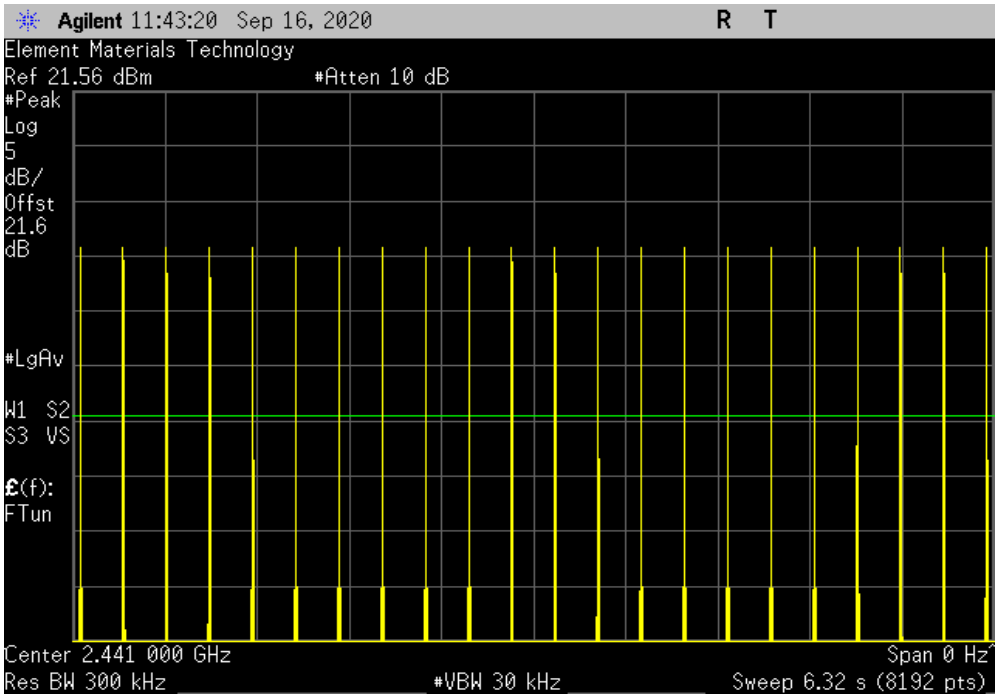
Sink, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



Sink, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A

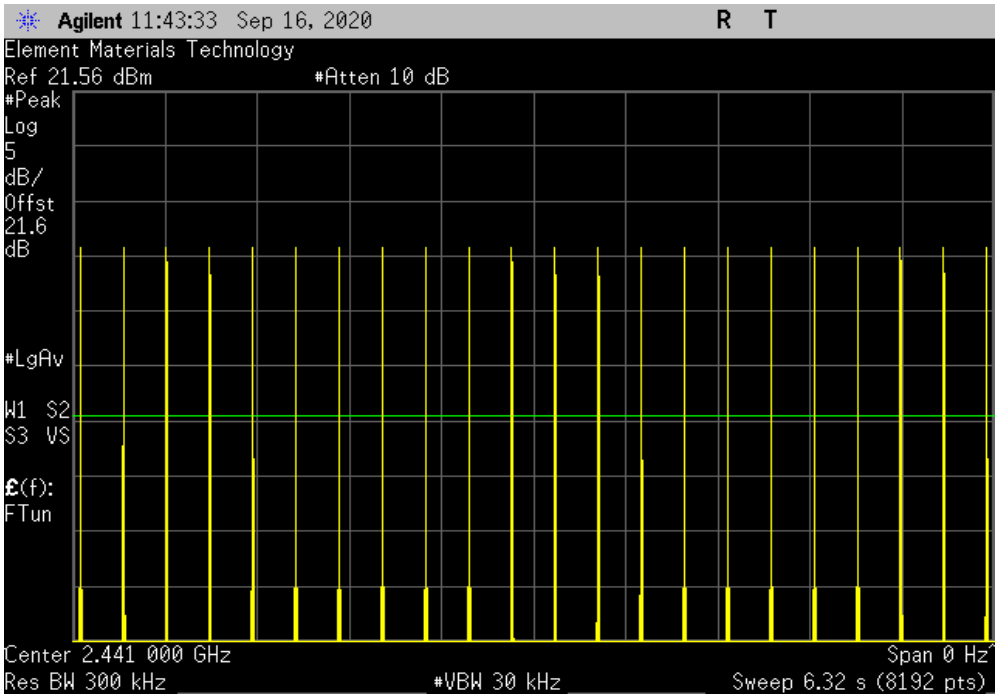


Sink, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



DWELL TIME

Sink, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



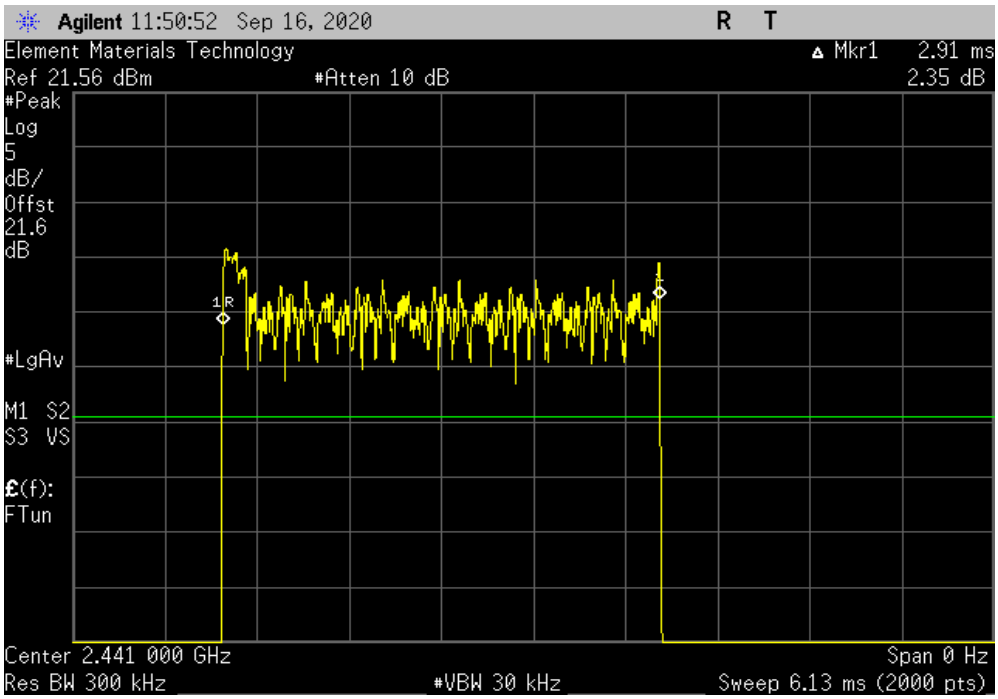
Sink, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.91	N/A	22	5	320.1	400	Pass

Calculation Only

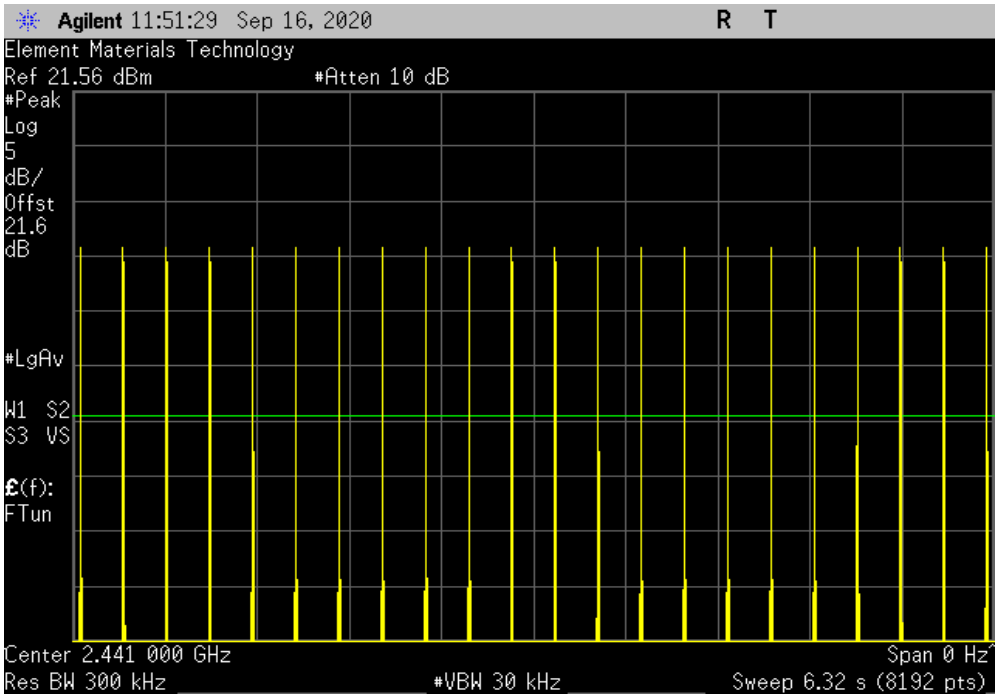
No Screen Capture Required

DWELL TIME

Sink, Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.91	N/A	N/A	N/A	N/A	N/A	N/A

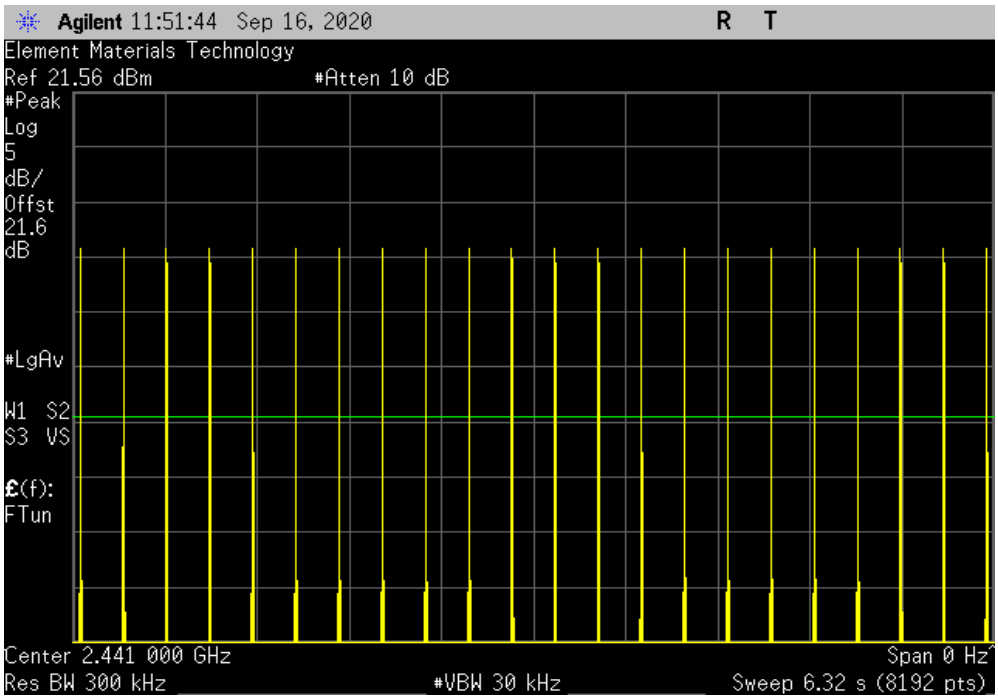


Sink, Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A

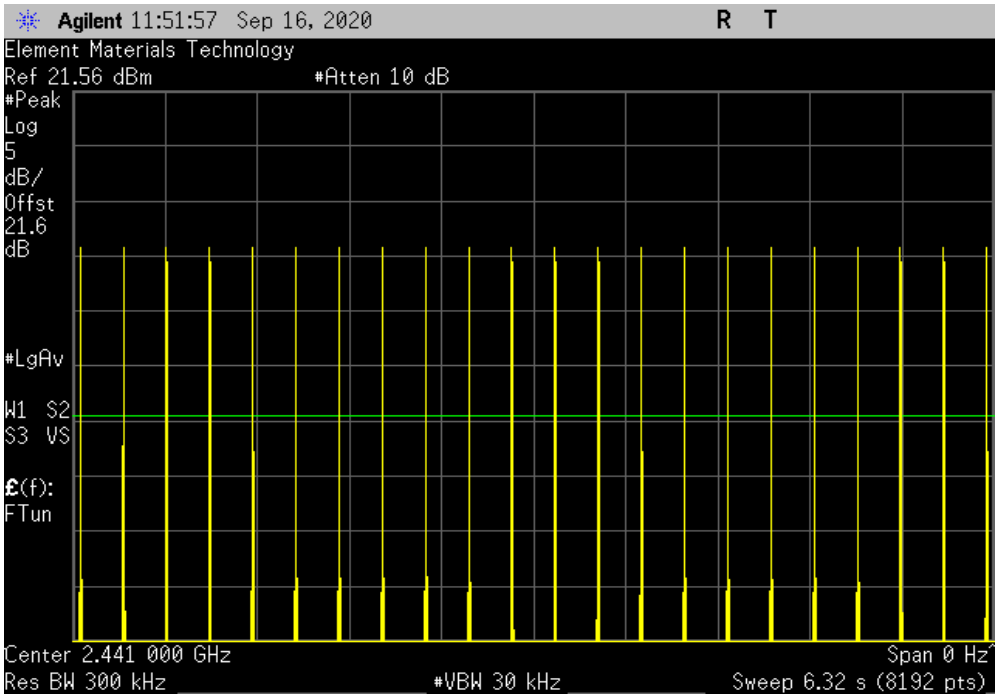


DWELL TIME

Sink, Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A

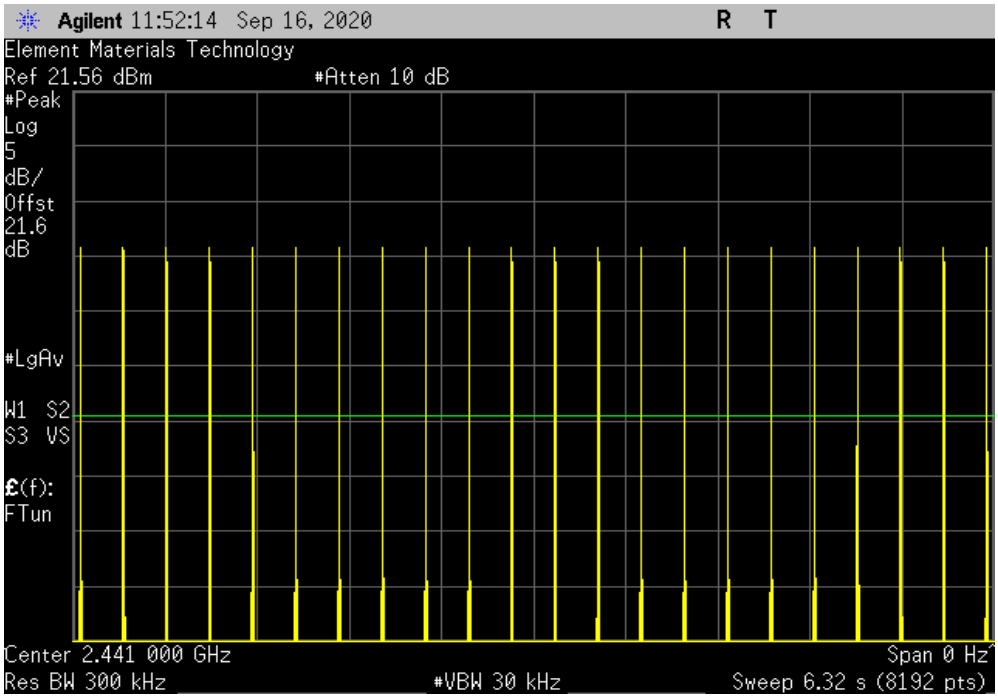


Sink, Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



DWELL TIME

Sink, Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



Sink, Hopping Mode (All Channels), 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.91	N/A	22	5	320.1	400	Pass

Calculation Only

No Screen Capture Required

OUTPUT POWER

XMit 2020.03.25.0

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	5-Nov-18	5-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	13-Mar-20	13-Mar-21
Attenuator	S.M. Electronics	SA26B-20	AUY	13-Mar-20	13-Mar-21
Block - DC	Fairview Microwave	SD3379	AMW	13-Mar-20	13-Mar-21
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	28-Feb-20	28-Feb-21

TEST DESCRIPTION

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.

OUTPUT POWER

TbtTx 2019.08.30.0 XMit 2020.03.25.0

EUT:	**APX517B**			**Work Order:**	**AUDI0269**
Serial Number:	**APX517B 008 Rev. B**			**Date:**	**16-Sep-20**
Customer:	**Audio Precision**			**Temperature:**	**22.4 °C**
Attendees:	**None**			**Humidity:**	**47.7% RH**
Project:	**None**			**Barometric Pres.:**	**1020 mbar**
Tested by:	**Jeff Alcoke**	**Power:**	**110VAC/60Hz**	**Job Site:**	**EV06**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

Reference level offset includes: measurement cable, DC block, and 20 dB attenuator. Software power settings [(ext),(int)] = [255 , 63]

DEVIATIONS FROM TEST STANDARD

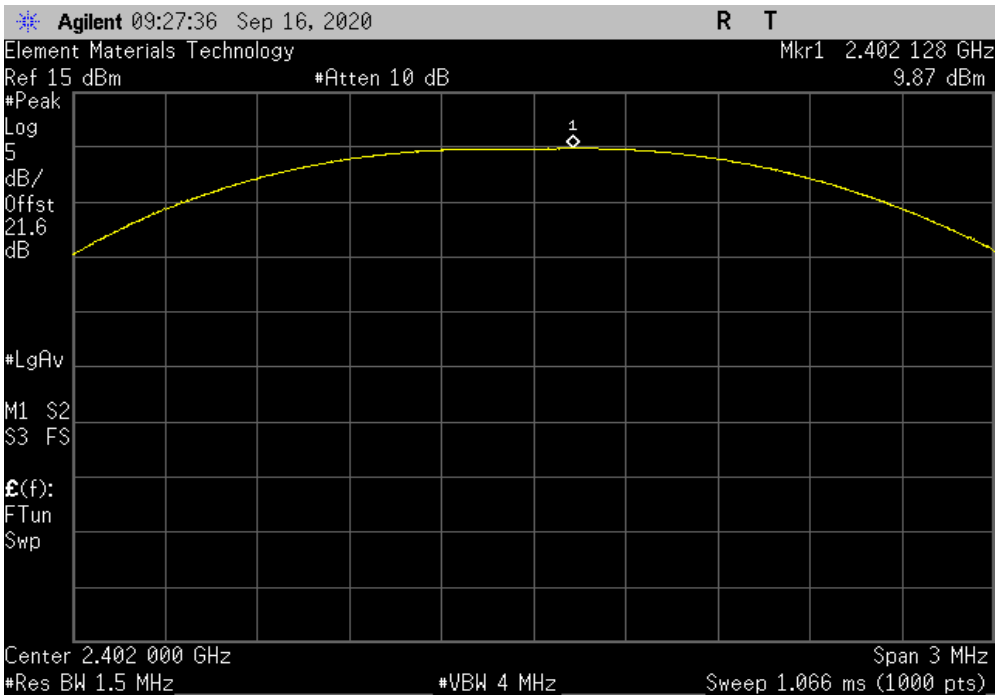
None

Configuration #	**1**	*Signature*

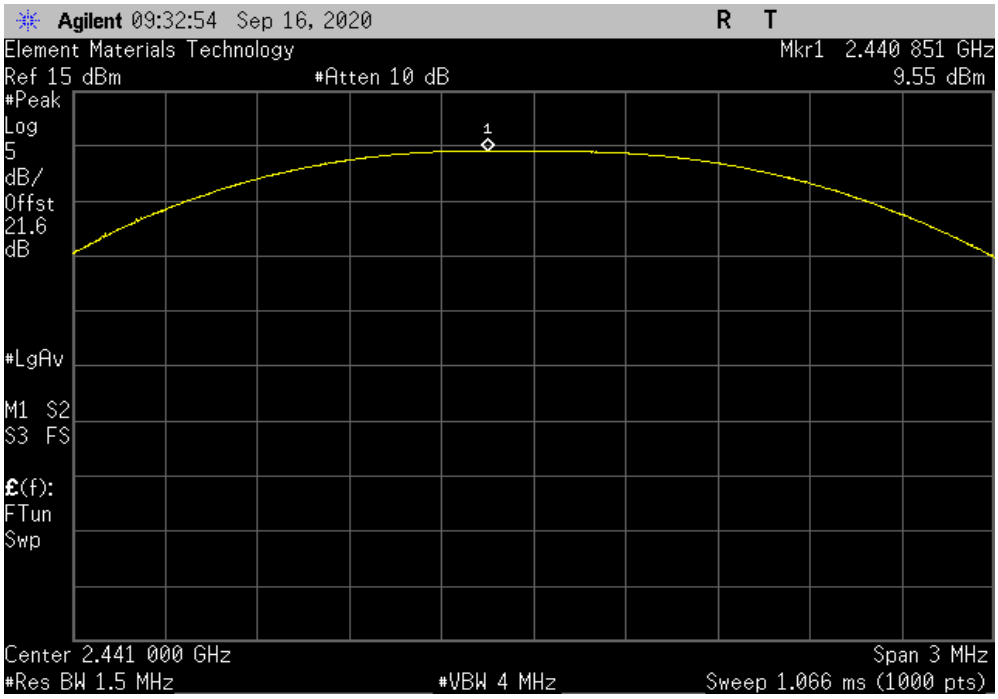
		Out Pwr (dBm)	**Limit (dBm)**	**Result**
Source				
	DH5, GFSK			
	Low Channel, 2402 MHz	9.872	21	Pass
	Mid Channel, 2441 MHz	9.550	21	Pass
	High Channel, 2480 MHz	9.464	21	Pass
	2DH5, pi/4-DQPSK			
	Low Channel, 2402 MHz	9.167	21	Pass
	Mid Channel, 2441 MHz	8.806	21	Pass
	High Channel, 2480 MHz	8.709	21	Pass
	3DH5, 8-DPSK			
	Low Channel, 2402 MHz	9.313	21	Pass
	Mid Channel, 2441 MHz	8.971	21	Pass
	High Channel, 2480 MHz	8.888	21	Pass
Sink				
	DH5, GFSK			
	Low Channel, 2402 MHz	9.612	21	Pass
	Mid Channel, 2441 MHz	9.221	21	Pass
	High Channel, 2480 MHz	7.675	21	Pass
	2DH5, pi/4-DQPSK			
	Low Channel, 2402 MHz	8.860	21	Pass
	Mid Channel, 2441 MHz	8.459	21	Pass
	High Channel, 2480 MHz	8.345	21	Pass
	3DH5, 8-DPSK			
	Low Channel, 2402 MHz	9.013	21	Pass
	Mid Channel, 2441 MHz	8.619	21	Pass
	High Channel, 2480 MHz	8.447	21	Pass

OUTPUT POWER

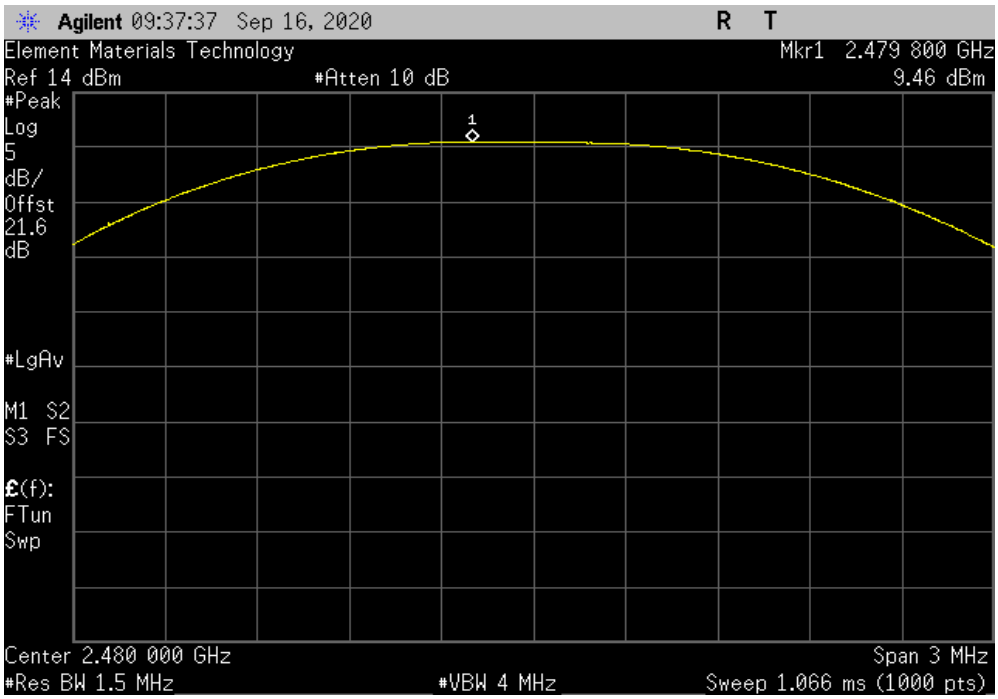
Source, DH5, GFSK, Low Channel, 2402 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					9.872	21	Pass



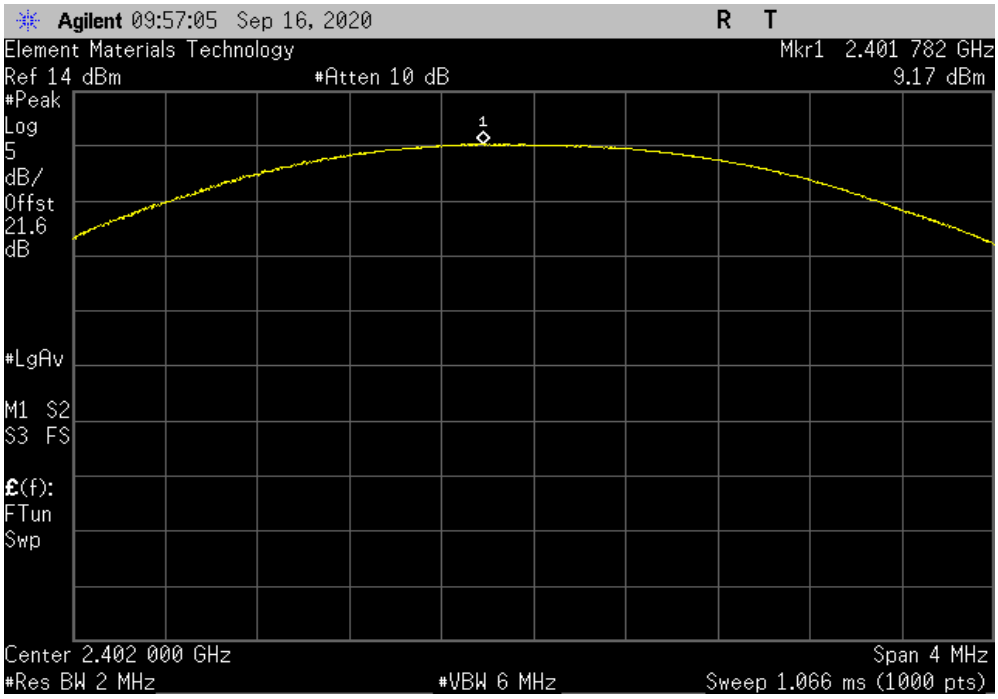
Source, DH5, GFSK, Mid Channel, 2441 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					9.55	21	Pass



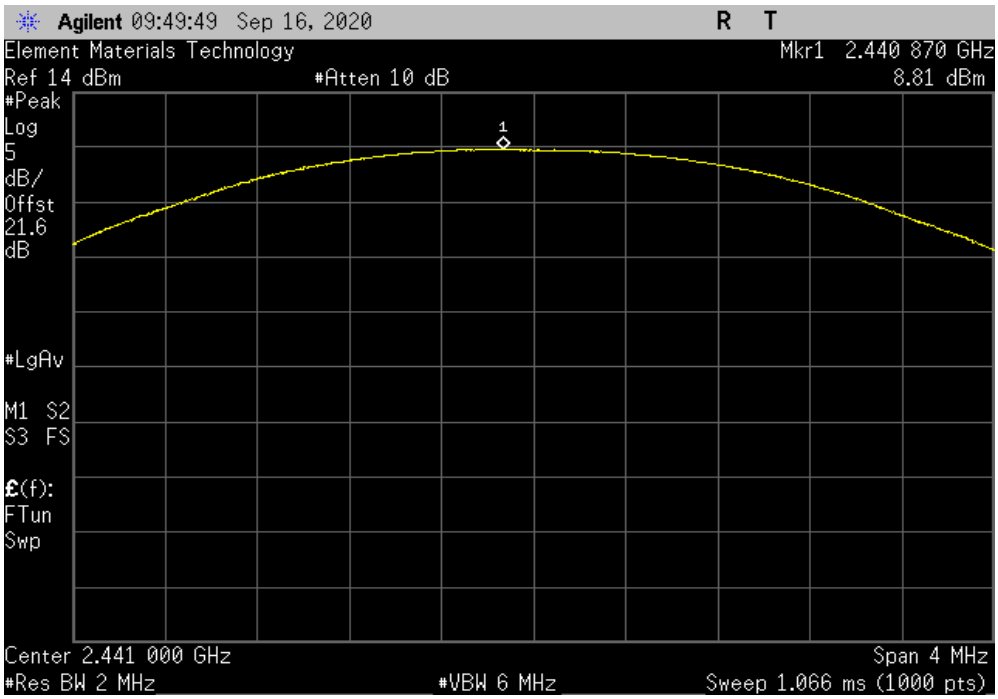
Source, DH5, GFSK, High Channel, 2480 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				9.464	21	Pass



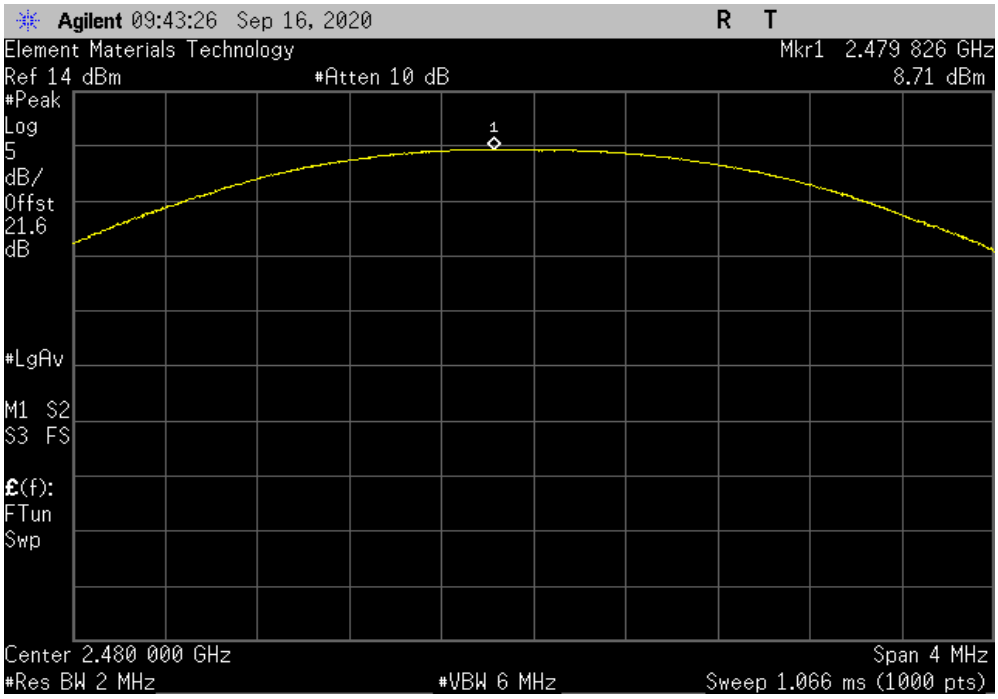
Source, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				9.167	21	Pass



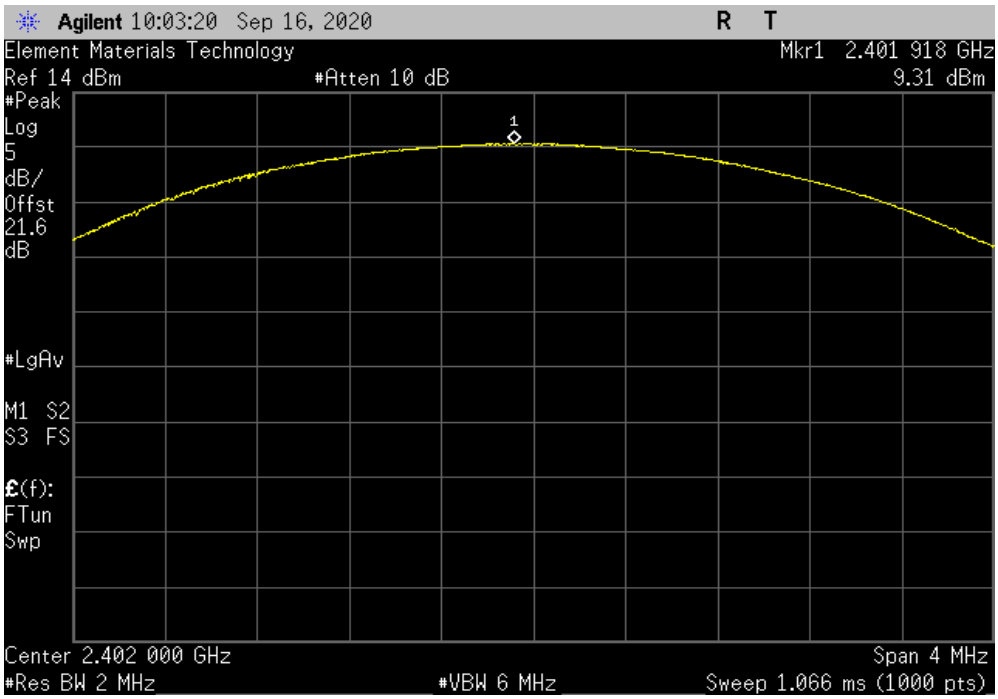
Source, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					8.806	21	Pass



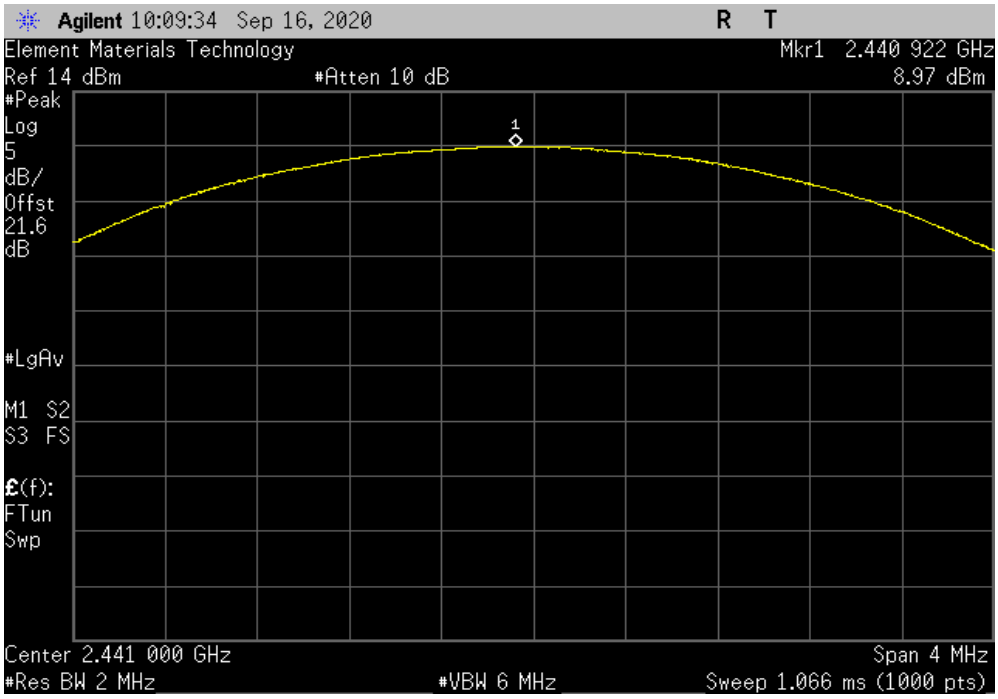
Source, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					8.709	21	Pass



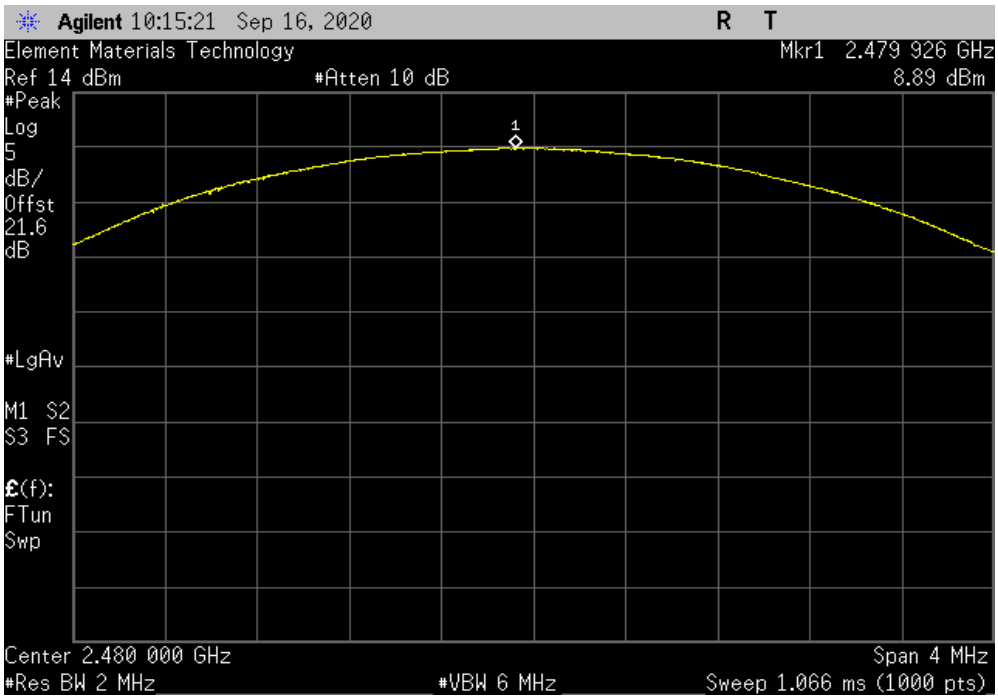
Source, 3DH5, 8-DPSK, Low Channel, 2402 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					9.313	21	Pass



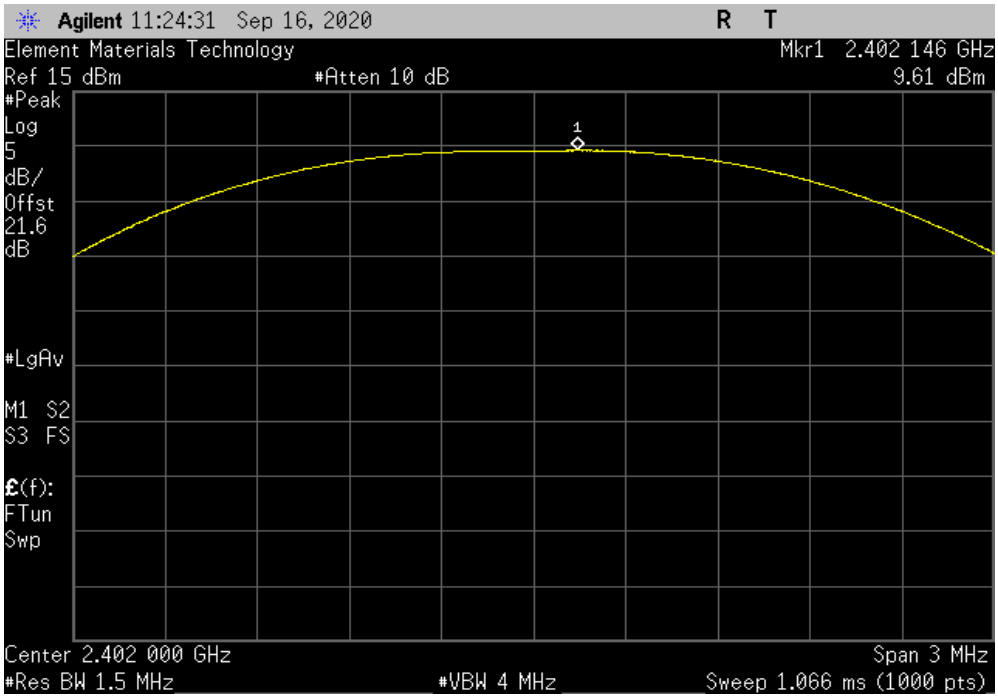
Source, 3DH5, 8-DPSK, Mid Channel, 2441 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					8.971	21	Pass



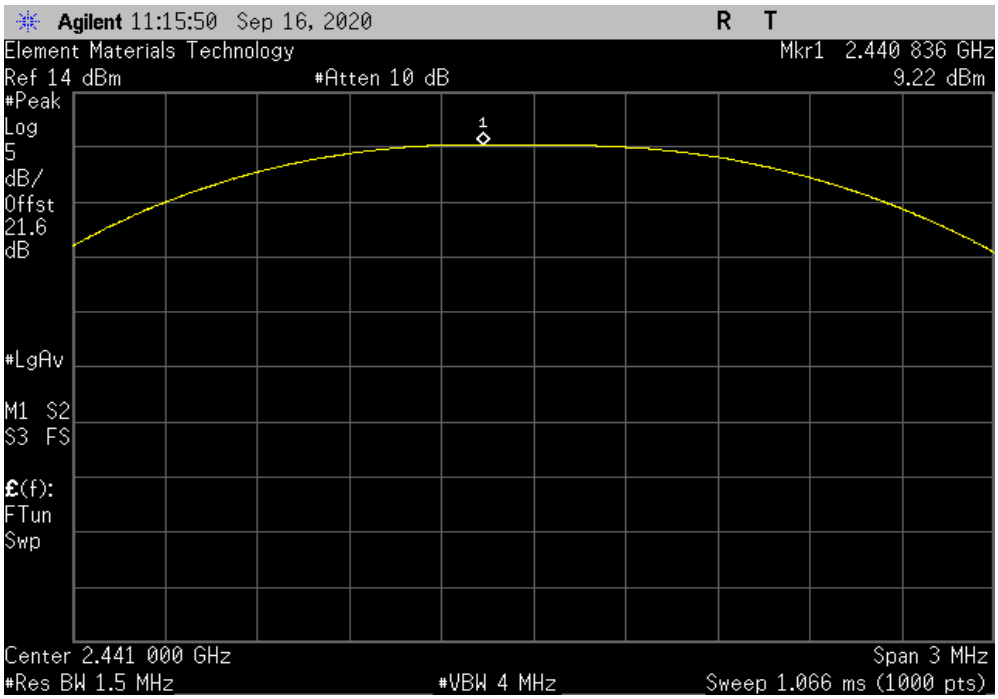
Source, 3DH5, 8-DPSK, High Channel, 2480 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				8.888	21	Pass



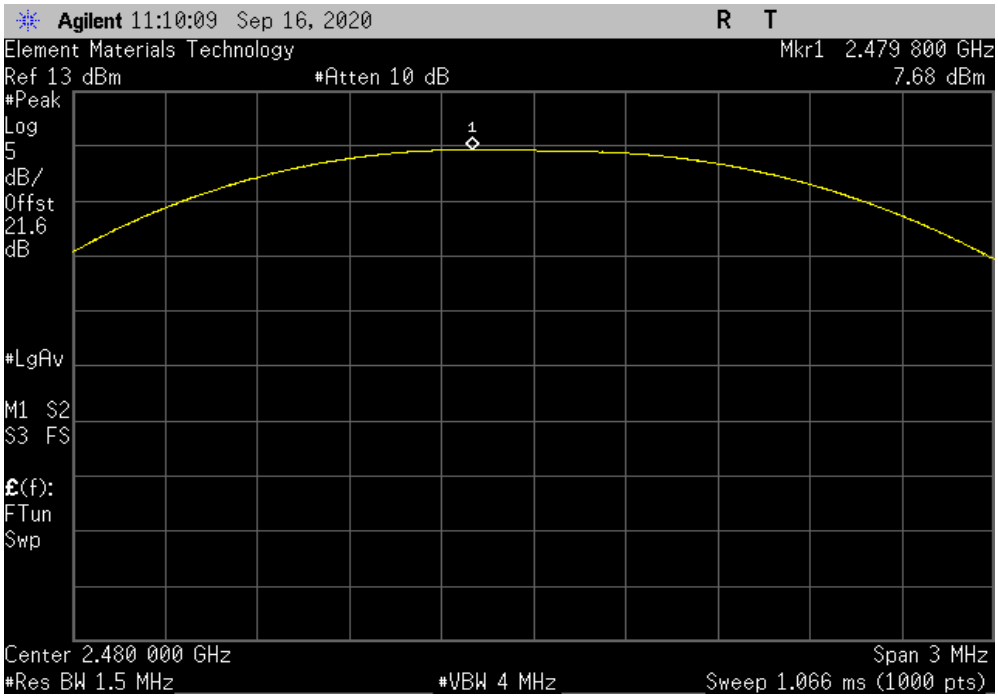
Sink, DH5, GFSK, Low Channel, 2402 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				9.612	21	Pass



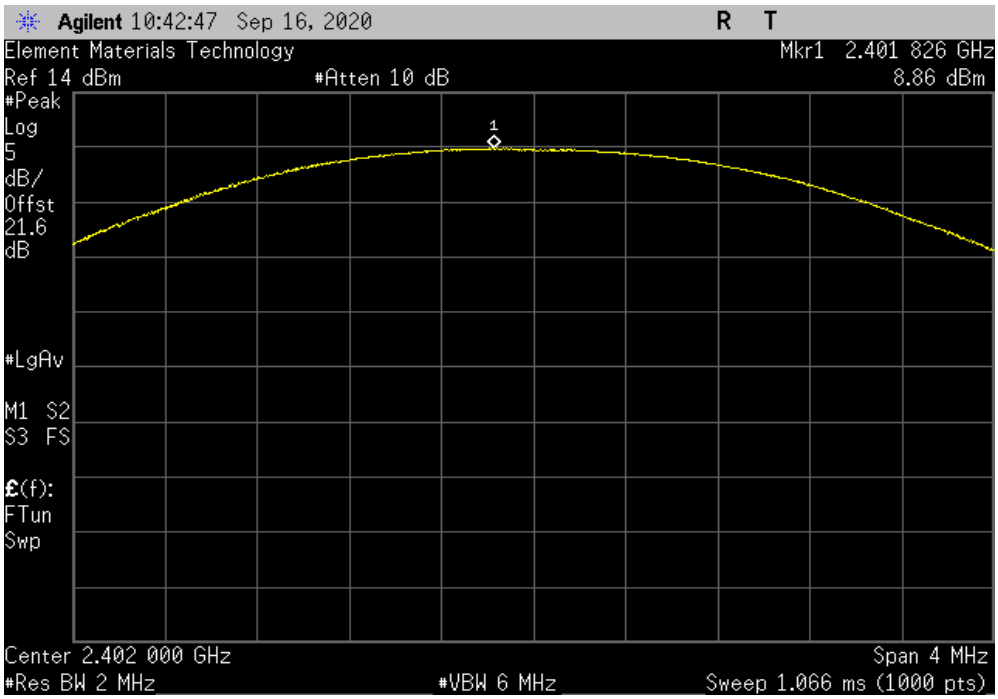
Sink, DH5, GFSK, Mid Channel, 2441 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					9.221	21	Pass



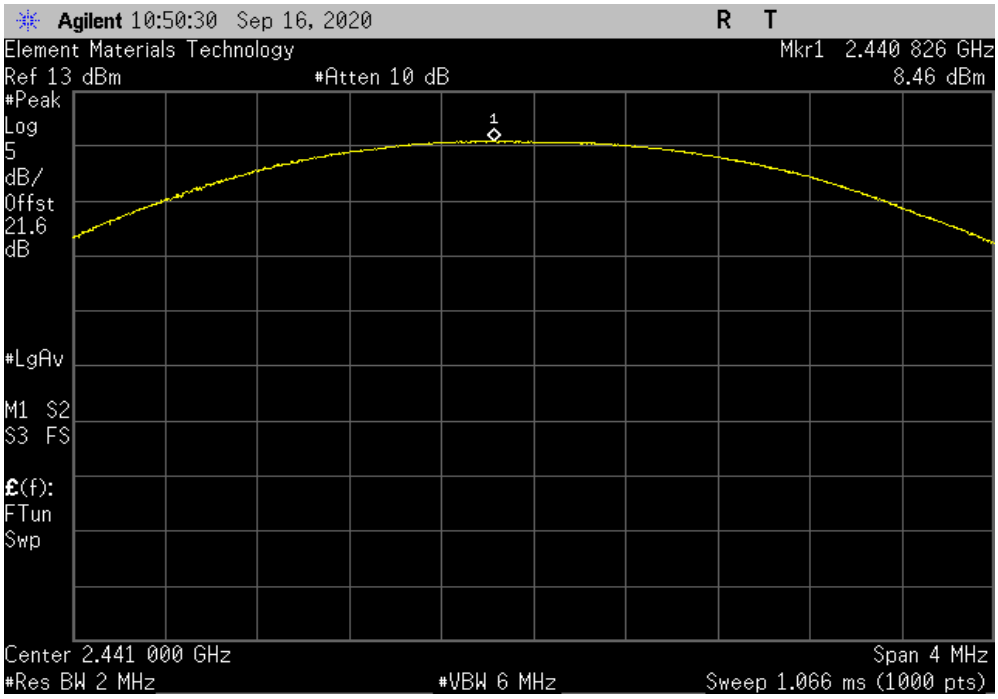
Sink, DH5, GFSK, High Channel, 2480 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					7.675	21	Pass



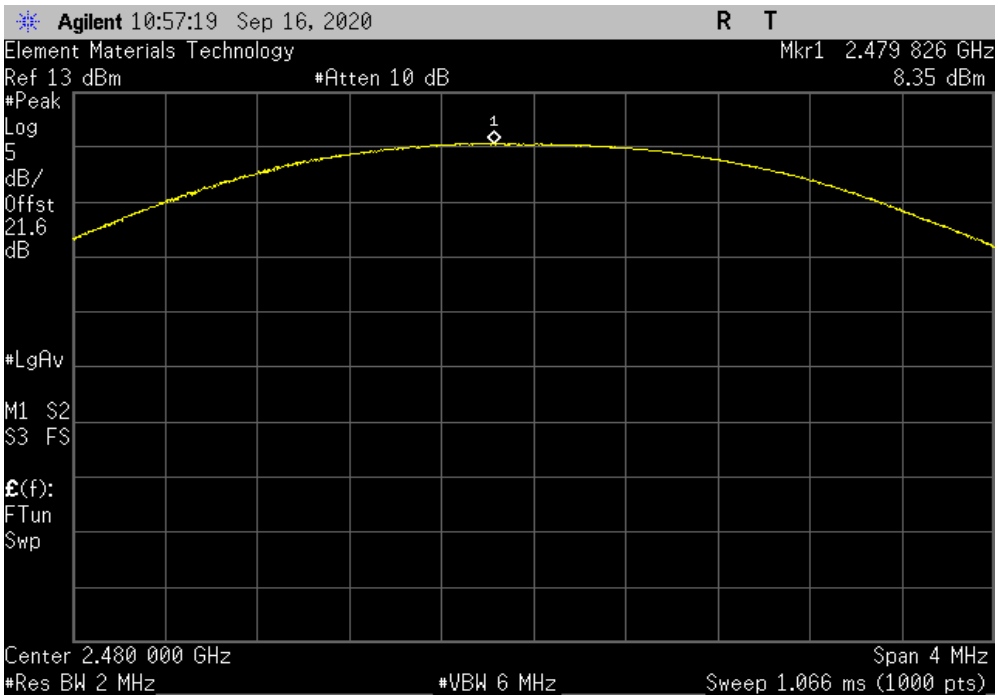
Sink, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				8.86	21	Pass



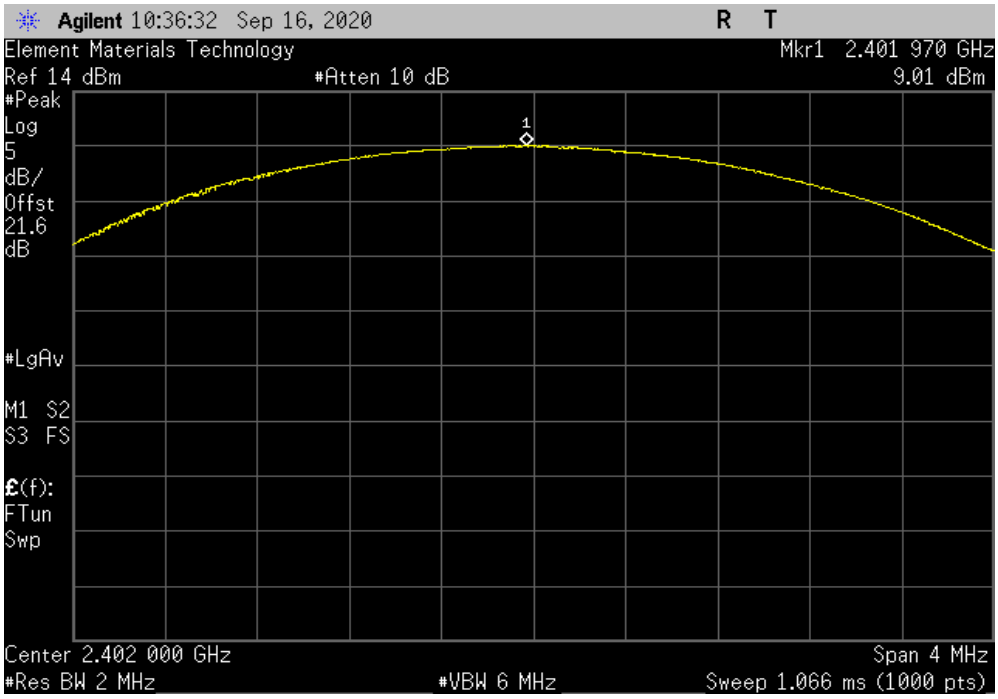
Sink, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				8.459	21	Pass



Sink, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				8.345	21	Pass

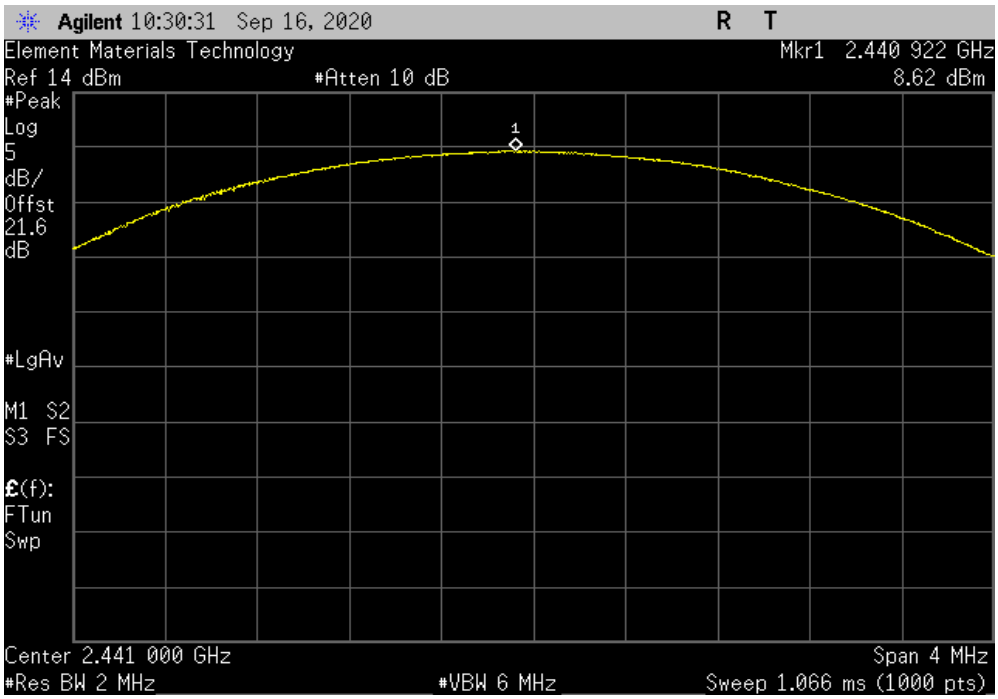


Sink, 3DH5, 8-DPSK, Low Channel, 2402 MHz						
				Out Pwr (dBm)	Limit (dBm)	Result
				9.013	21	Pass

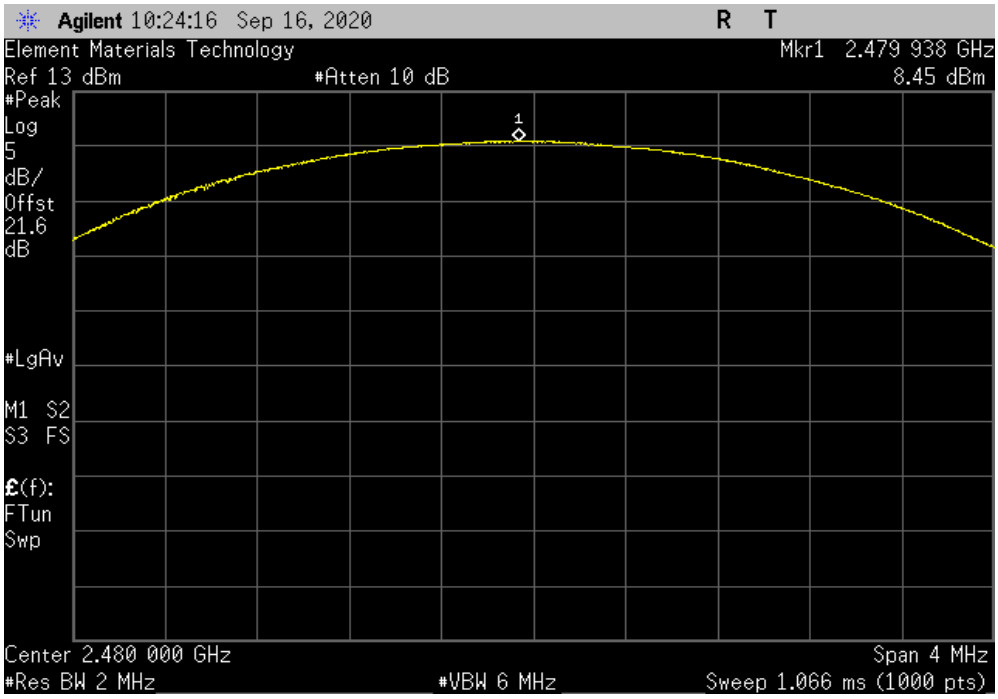


OUTPUT POWER

Sink, 3DH5, 8-DPSK, Mid Channel, 2441 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					8.619	21	Pass



Sink, 3DH5, 8-DPSK, High Channel, 2480 MHz							
					Out Pwr (dBm)	Limit (dBm)	Result
					8.447	21	Pass



EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

XMit 2020.03.25.0

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	5-Nov-18	5-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	13-Mar-20	13-Mar-21
Attenuator	S.M. Electronics	SA26B-20	AUY	13-Mar-20	13-Mar-21
Block - DC	Fairview Microwave	SD3379	AMW	13-Mar-20	13-Mar-21
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	28-Feb-20	28-Feb-21

TEST DESCRIPTION

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.

Equivalent Isotropic Radiated Power (EIRP) = Max Measured Power + Antenna gain (dBi)

EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

element

TbtTx 2019.08.30.0 XMit 2020.03.25.0

EUT:	**APX517B**			**Work Order:**	**AUDI0269**
Serial Number:	**APX517B 008 Rev. B**			**Date:**	**16-Sep-20**
Customer:	**Audio Precision**			**Temperature:**	**22.4 °C**
Attendees:	**None**			**Humidity:**	**47.7% RH**
Project:	**None**			**Barometric Pres.:**	**1020 mbar**
Tested by:	**Jeff Alcoke**	**Power:**	**110VAC/60Hz**	**Job Site:**	**EV06**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

Reference level offset includes: measurement cable, DC block, and 20 dB attenuator. Software power settings [(ext),(int)] = [255 , 63]

DEVIATIONS FROM TEST STANDARD

None

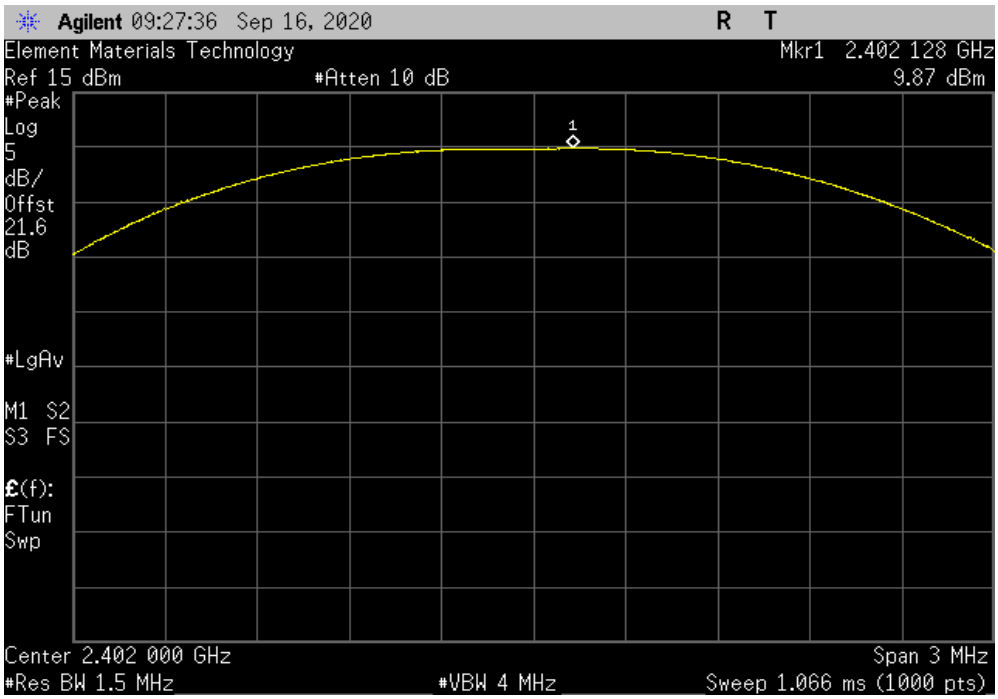
Configuration #	**1**	*Signature*

		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
Source						
	DH5, GFSK					
	Low Channel, 2402 MHz	9.872	2.6	12.47	27	Pass
	Mid Channel, 2441 MHz	9.550	2.6	12.15	27	Pass
	High Channel, 2480 MHz	9.464	2.6	12.06	27	Pass
	2DH5, pi/4-DQPSK					
	Low Channel, 2402 MHz	9.167	2.6	11.77	27	Pass
	Mid Channel, 2441 MHz	8.806	2.6	11.41	27	Pass
	High Channel, 2480 MHz	8.709	2.6	11.31	27	Pass
	3DH5, 8-DPSK					
	Low Channel, 2402 MHz	9.313	2.6	11.91	27	Pass
	Mid Channel, 2441 MHz	8.971	2.6	11.57	27	Pass
	High Channel, 2480 MHz	8.888	2.6	11.49	27	Pass
Sink						
	DH5, GFSK					
	Low Channel, 2402 MHz	9.612	2.6	12.21	27	Pass
	Mid Channel, 2441 MHz	9.221	2.6	11.82	27	Pass
	High Channel, 2480 MHz	7.675	2.6	10.28	27	Pass
	2DH5, pi/4-DQPSK					
	Low Channel, 2402 MHz	8.860	2.6	11.46	27	Pass
	Mid Channel, 2441 MHz	8.459	2.6	11.06	27	Pass
	High Channel, 2480 MHz	8.345	2.6	10.95	27	Pass
	3DH5, 8-DPSK					
	Low Channel, 2402 MHz	9.013	2.6	11.61	27	Pass
	Mid Channel, 2441 MHz	8.619	2.6	11.22	27	Pass
	High Channel, 2480 MHz	8.447	2.6	11.05	27	Pass

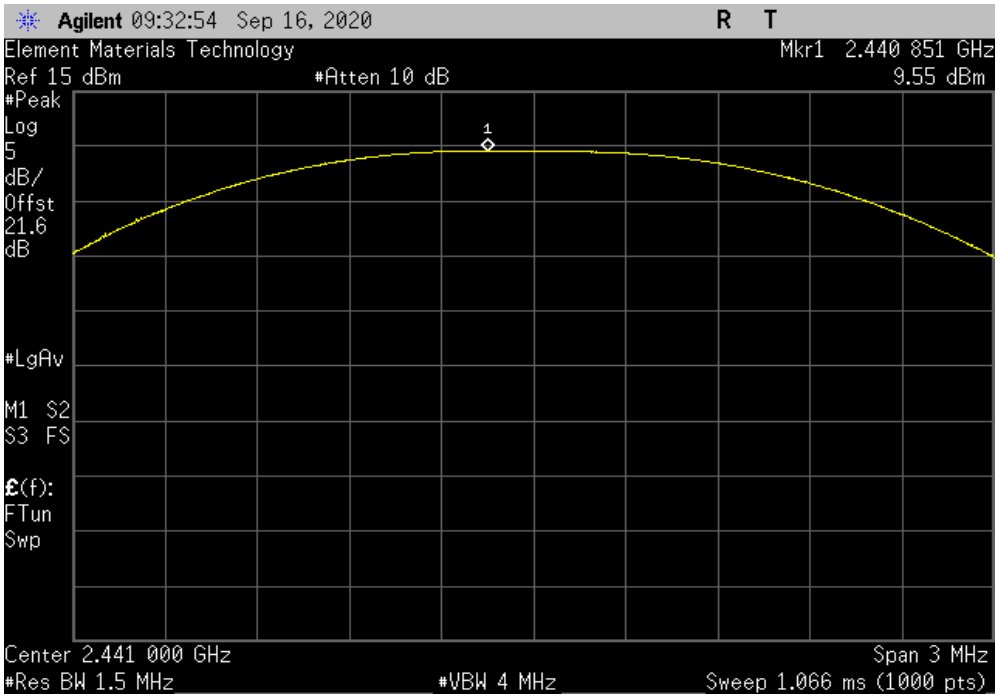
EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

TbtTx 2019.08.30.0 XMit 2020.03.25.0

Source, DH5, GFSK, Low Channel, 2402 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		9.872	2.6	12.47	27	Pass

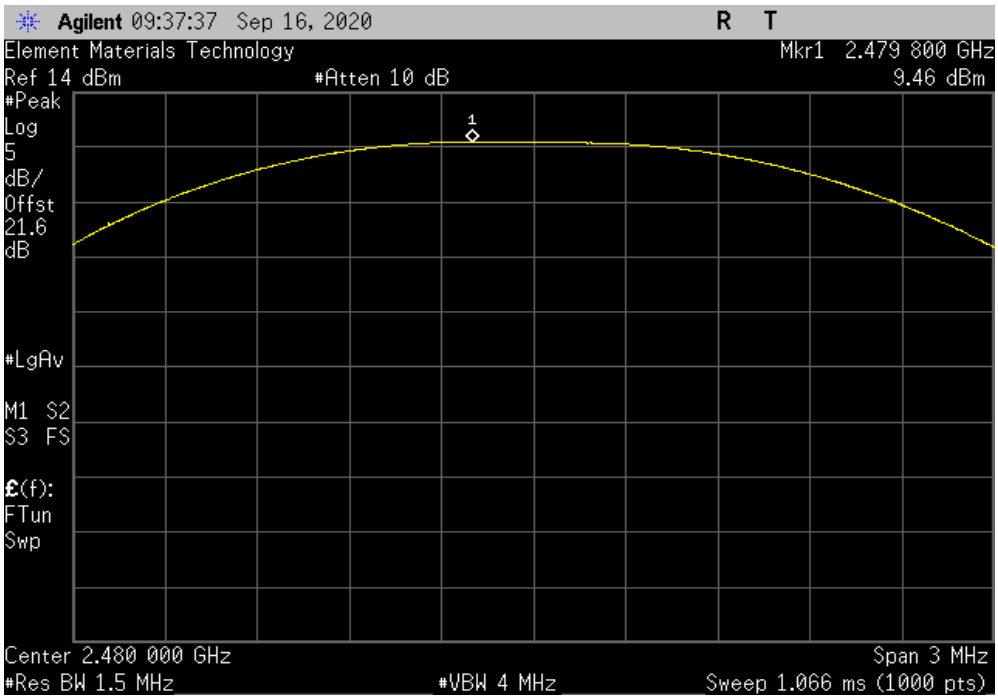


Source, DH5, GFSK, Mid Channel, 2441 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		9.55	2.6	12.15	27	Pass

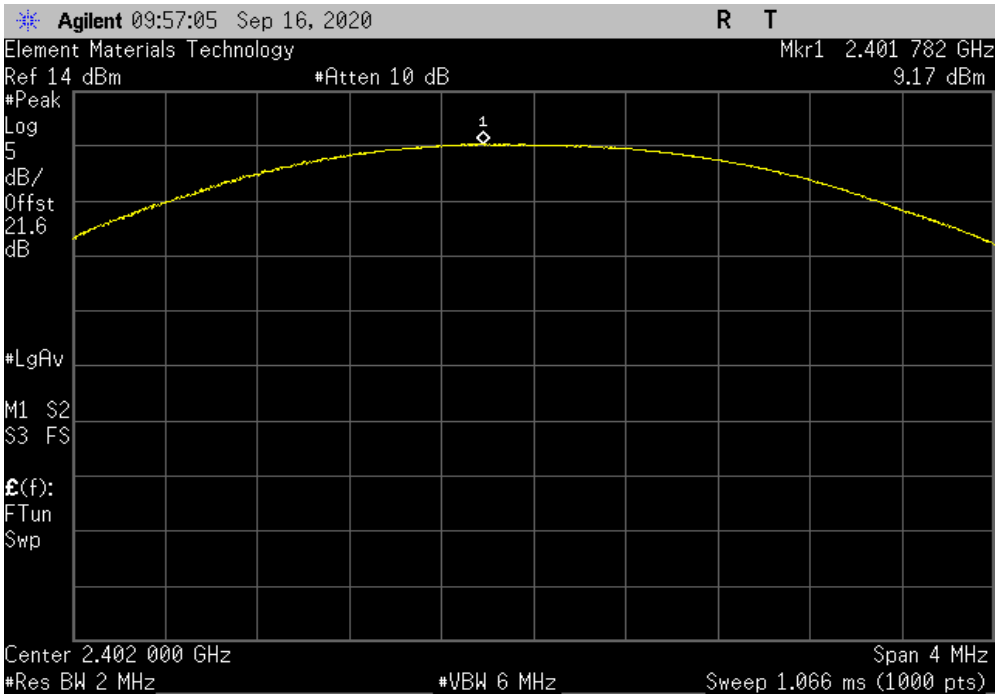


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

Source, DH5, GFSK, High Channel, 2480 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		9.464	2.6	12.06	27	Pass

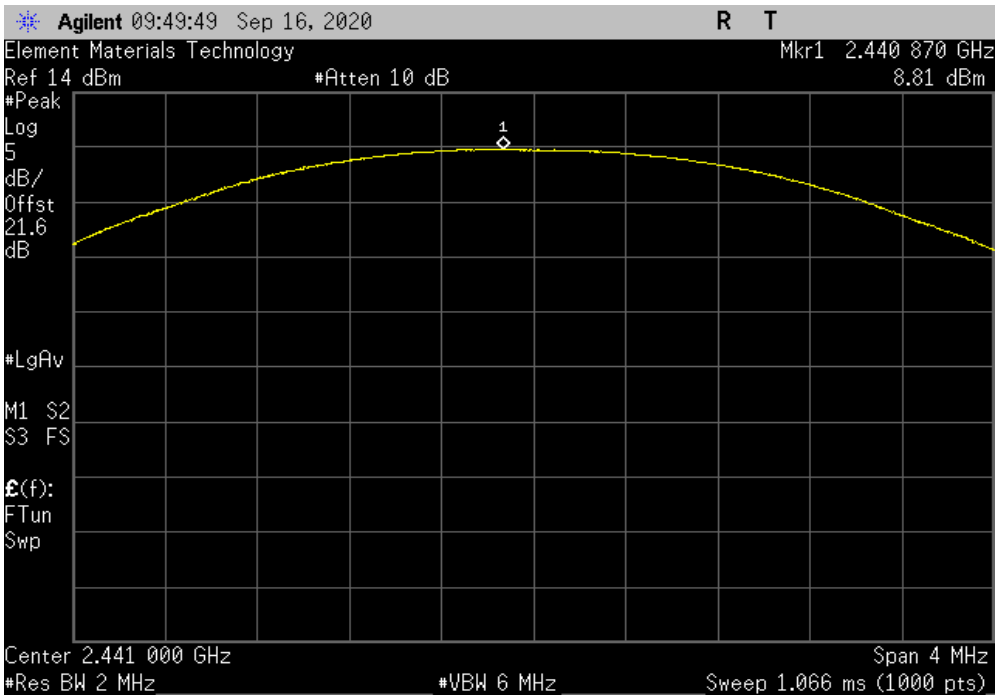


Source, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		9.167	2.6	11.77	27	Pass

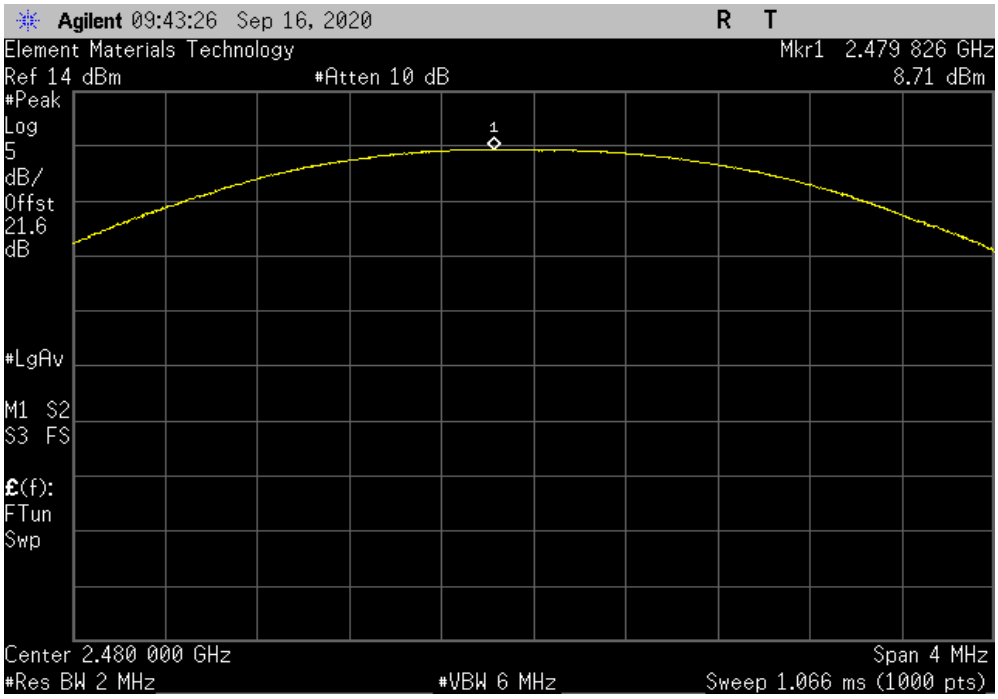


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

Source, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		8.806	2.6	11.41	27	Pass

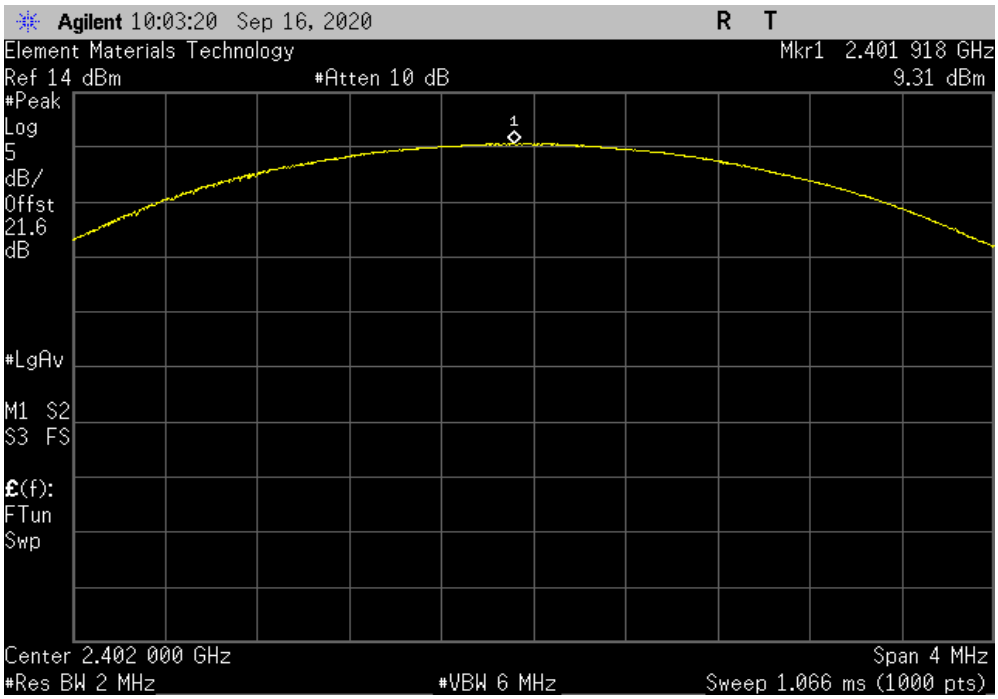


Source, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		8.709	2.6	11.31	27	Pass

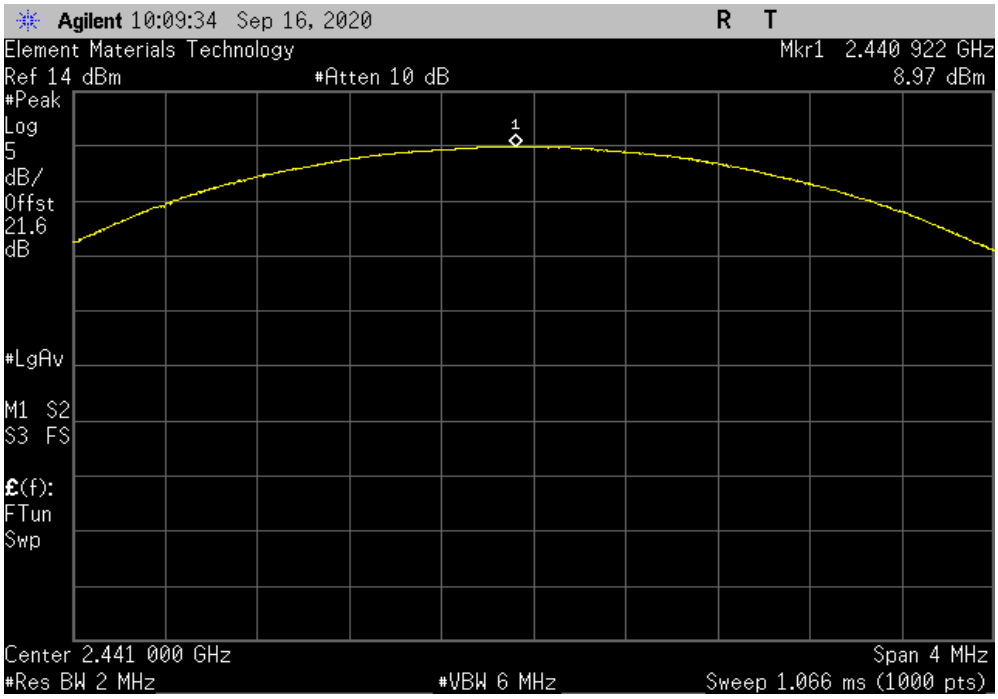


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

Source, 3DH5, 8-DPSK, Low Channel, 2402 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		9.313	2.6	11.91	27	Pass

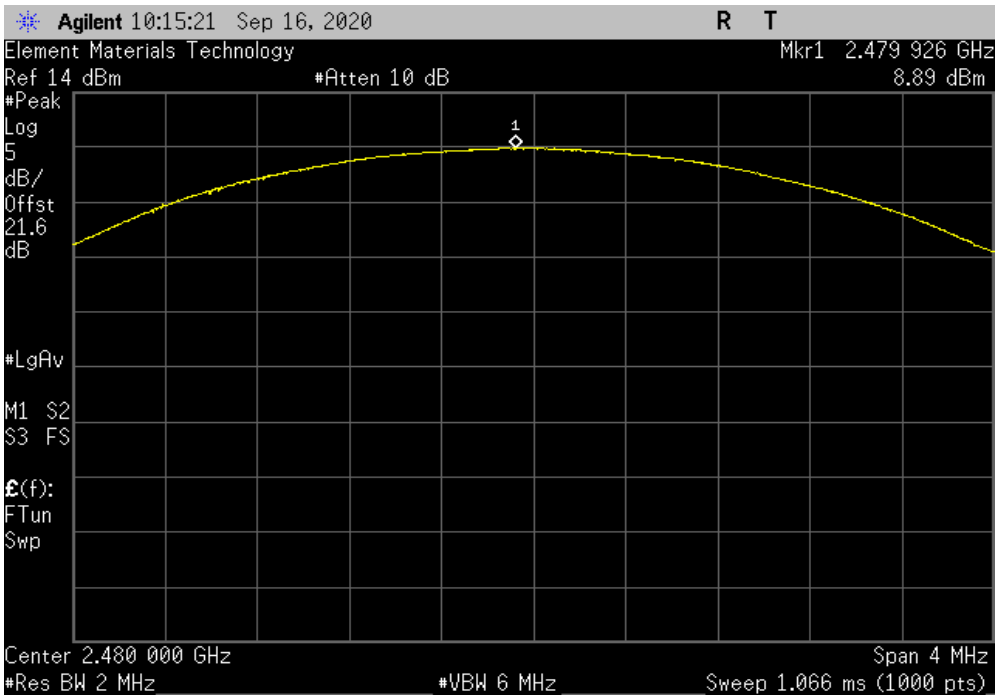


Source, 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		8.971	2.6	11.57	27	Pass

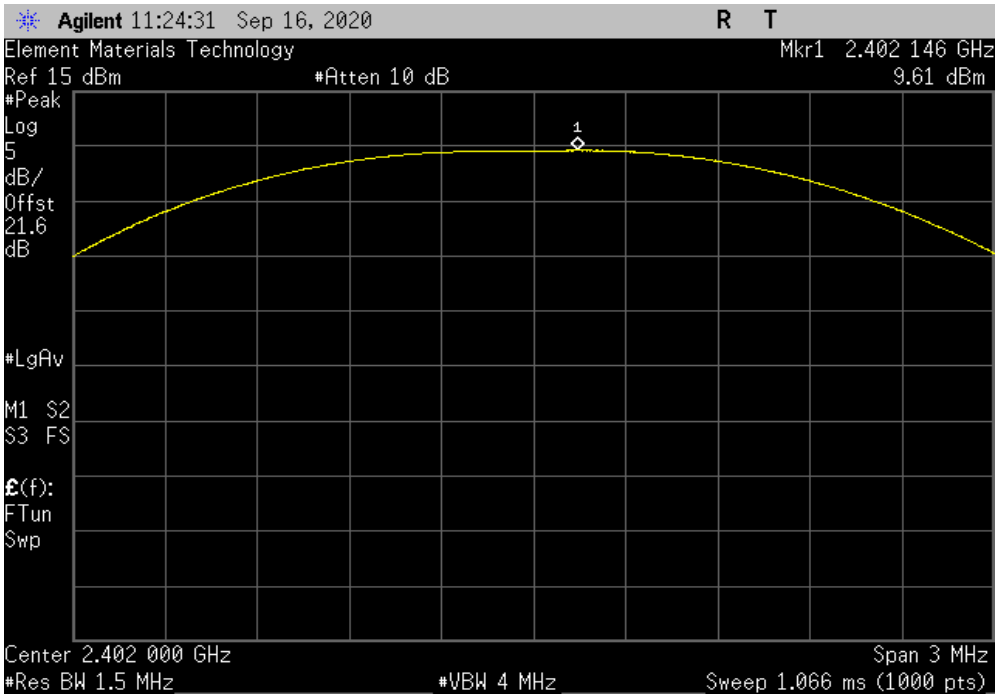


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

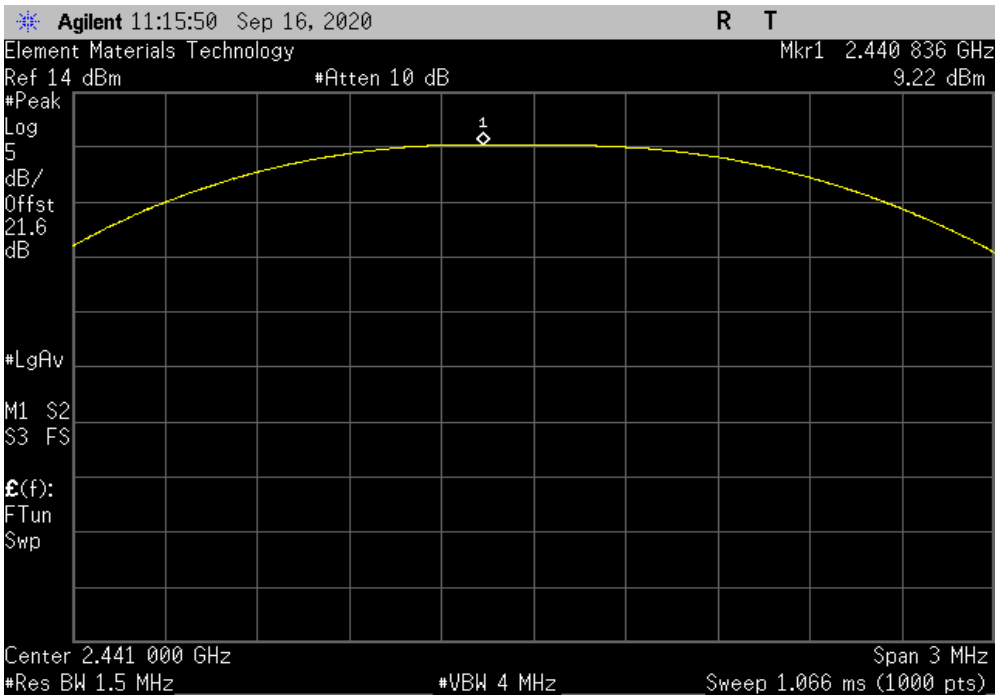
Source, 3DH5, 8-DPSK, High Channel, 2480 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		8.888	2.6	11.49	27	Pass



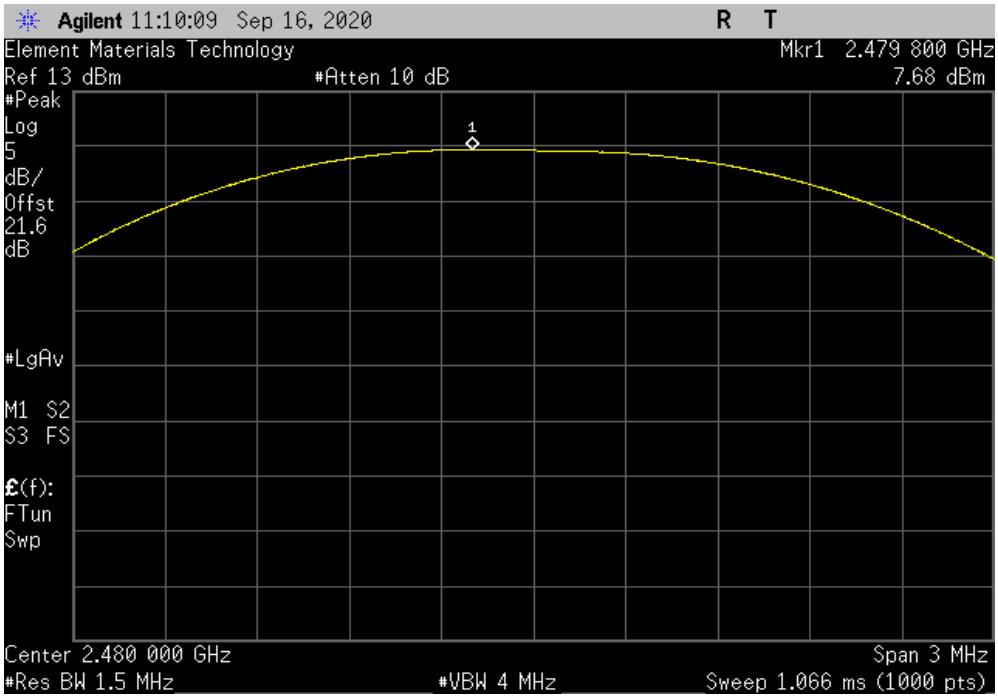
Sink, DH5, GFSK, Low Channel, 2402 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		9.612	2.6	12.21	27	Pass



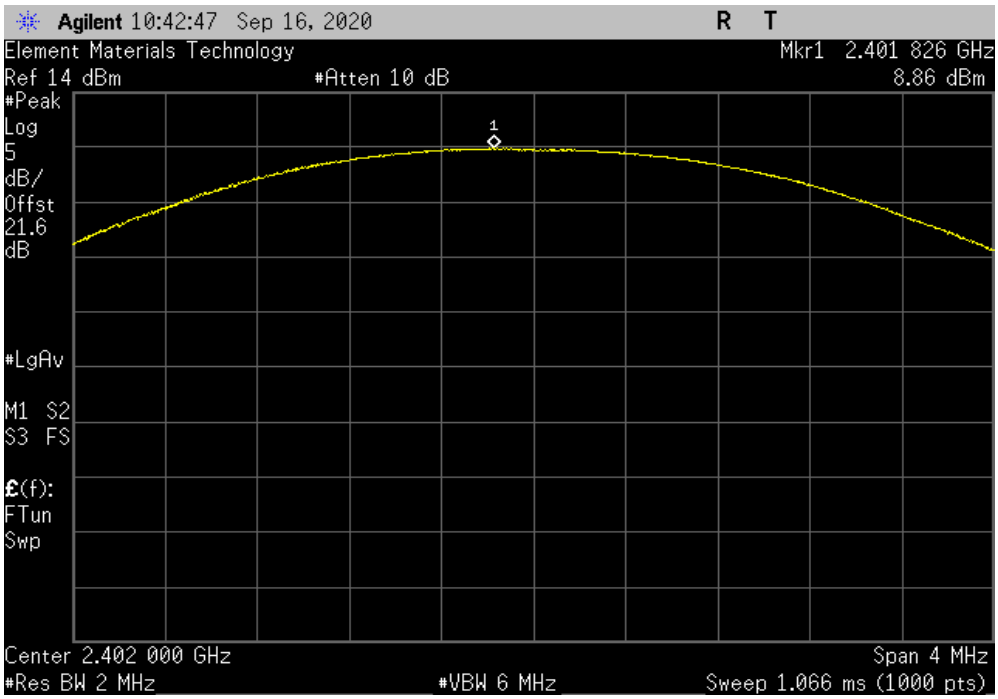
Sink, DH5, GFSK, Mid Channel, 2441 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		9.221	2.6	11.82	27	Pass



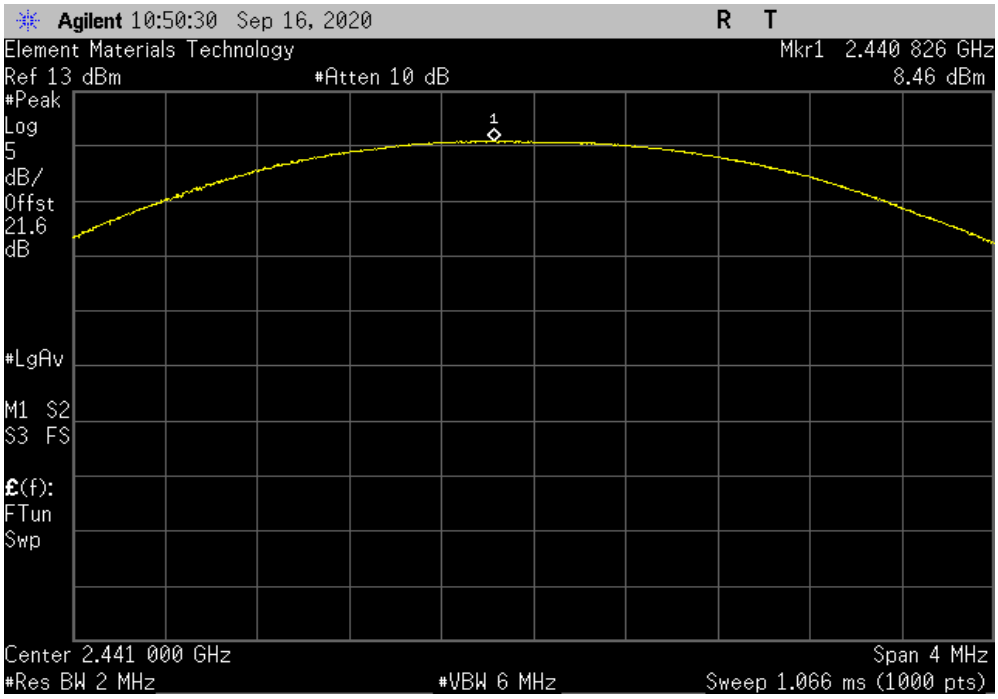
Sink, DH5, GFSK, High Channel, 2480 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		7.675	2.6	10.28	27	Pass



Sink, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		8.86	2.6	11.46	27	Pass

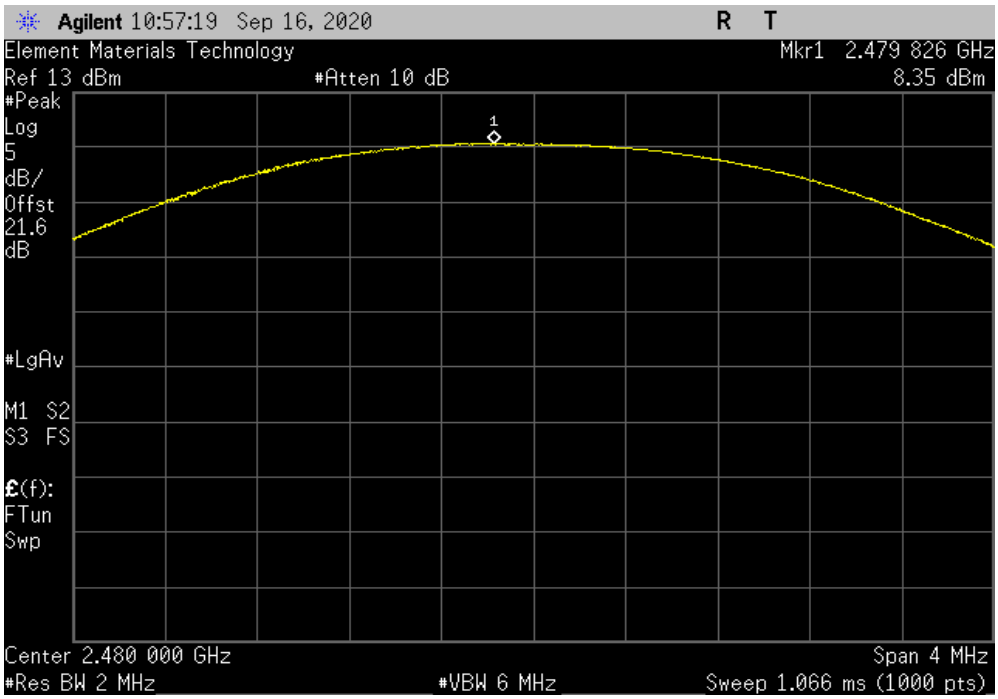


Sink, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		8.459	2.6	11.06	27	Pass

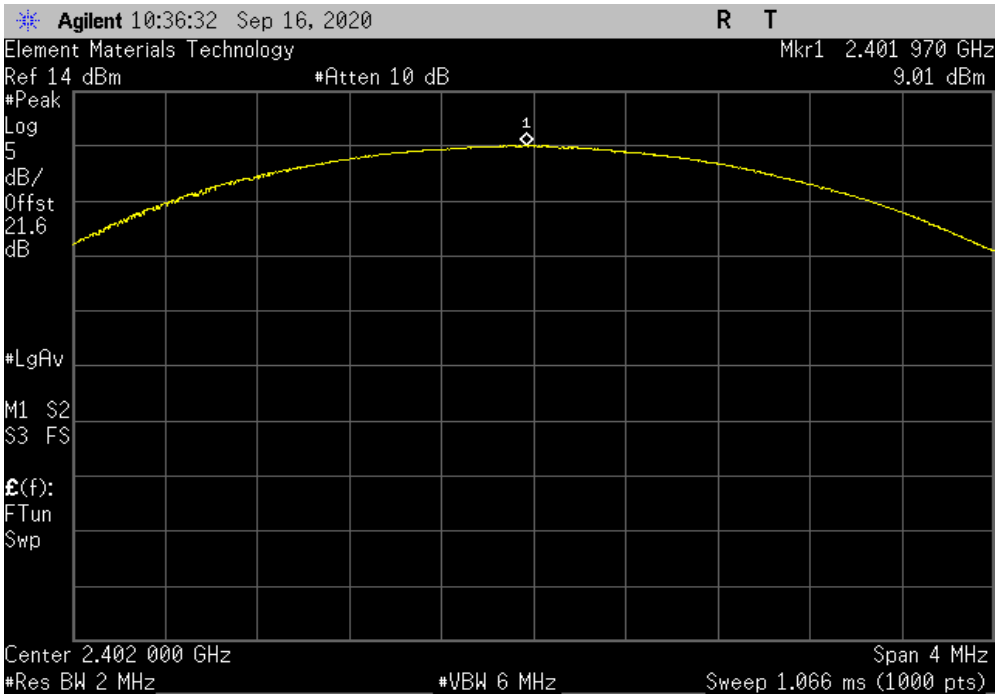


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

Sink, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		8.345	2.6	10.95	27	Pass

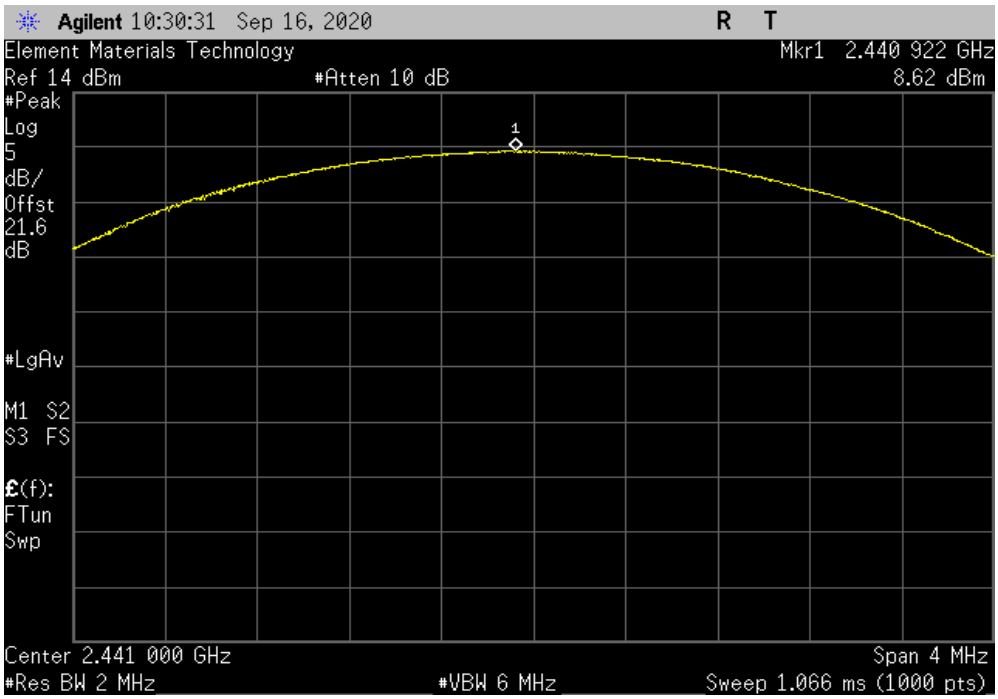


Sink, 3DH5, 8-DPSK, Low Channel, 2402 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		9.013	2.6	11.61	27	Pass

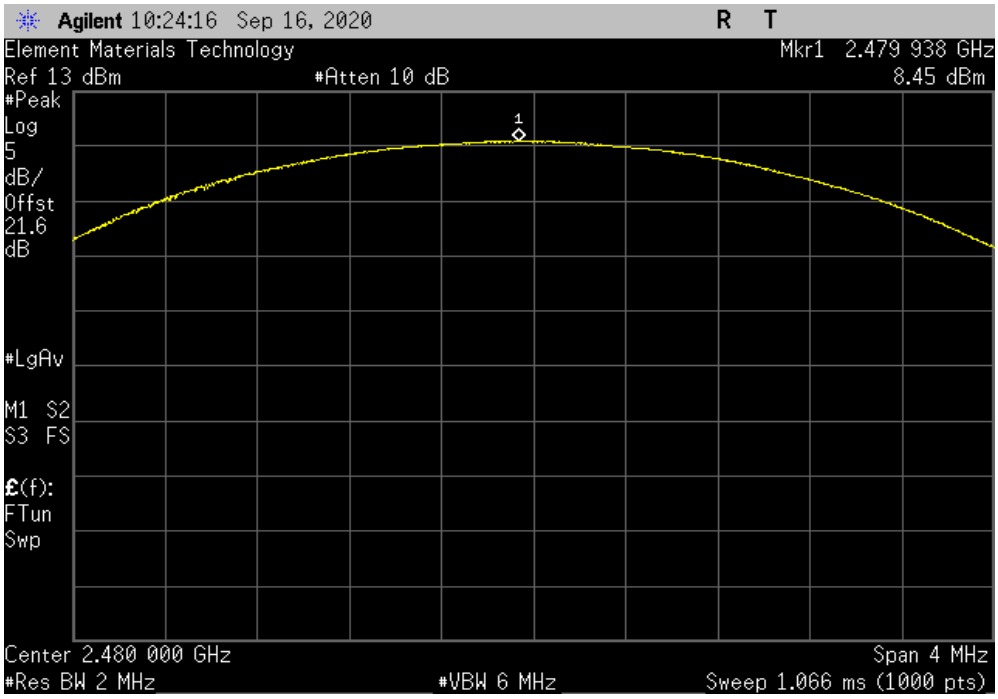


EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

Sink, 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		8.619	2.6	11.22	27	Pass



Sink, 3DH5, 8-DPSK, High Channel, 2480 MHz						
		Out Pwr (dBm)	Antenna Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Result
		8.447	2.6	11.05	27	Pass



BAND EDGE COMPLIANCE

XMit 2020.03.25.0

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	5-Nov-18	5-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	13-Mar-20	13-Mar-21
Attenuator	S.M. Electronics	SA26B-20	AUY	13-Mar-20	13-Mar-21
Block - DC	Fairview Microwave	SD3379	AMW	13-Mar-20	13-Mar-21
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	28-Feb-20	28-Feb-21

TEST DESCRIPTION

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

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

BAND EDGE COMPLIANCE

element

TbtTx 2019.08.30.0 XMit 2020.03.25.0

EUT:	**APX517B**			**Work Order:**	**AUDI0269**
Serial Number:	**APX517B 008 Rev. B**			**Date:**	**16-Sep-20**
Customer:	**Audio Precision**			**Temperature:**	**22.4 °C**
Attendees:	**None**			**Humidity:**	**47.7% RH**
Project:	**None**			**Barometric Pres.:**	**1020 mbar**
Tested by:	**Jeff Alcoke**	**Power:**	**110VAC/60Hz**	**Job Site:**	**EV06**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

Reference level offset includes: measurement cable, DC block, and 20 dB attenuator. Software power settings [(ext),(int)] = [255 , 63]

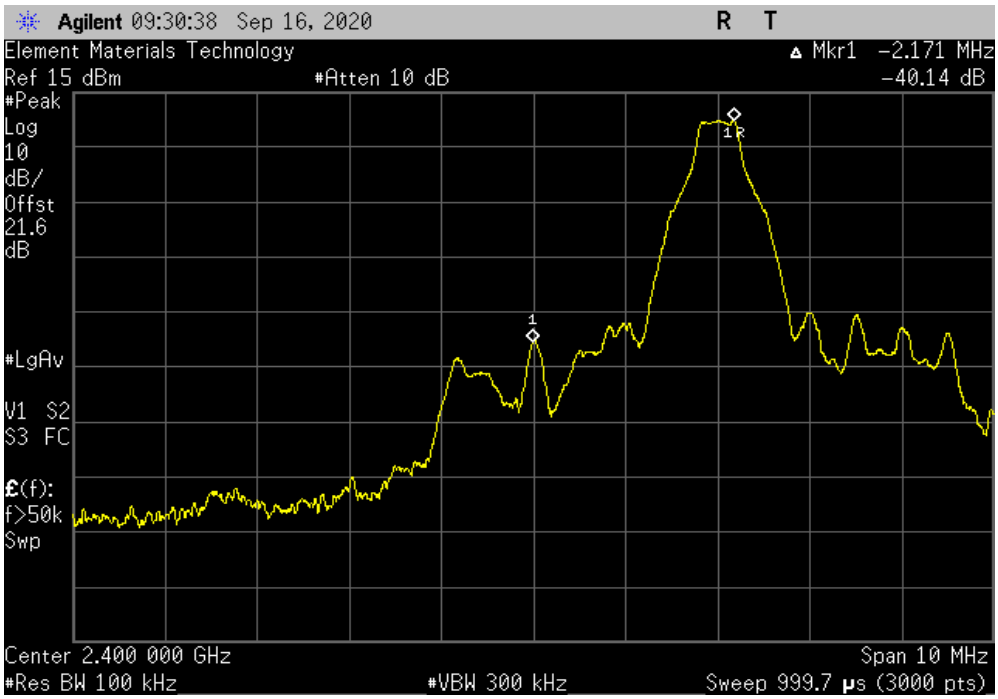
DEVIATIONS FROM TEST STANDARD

None

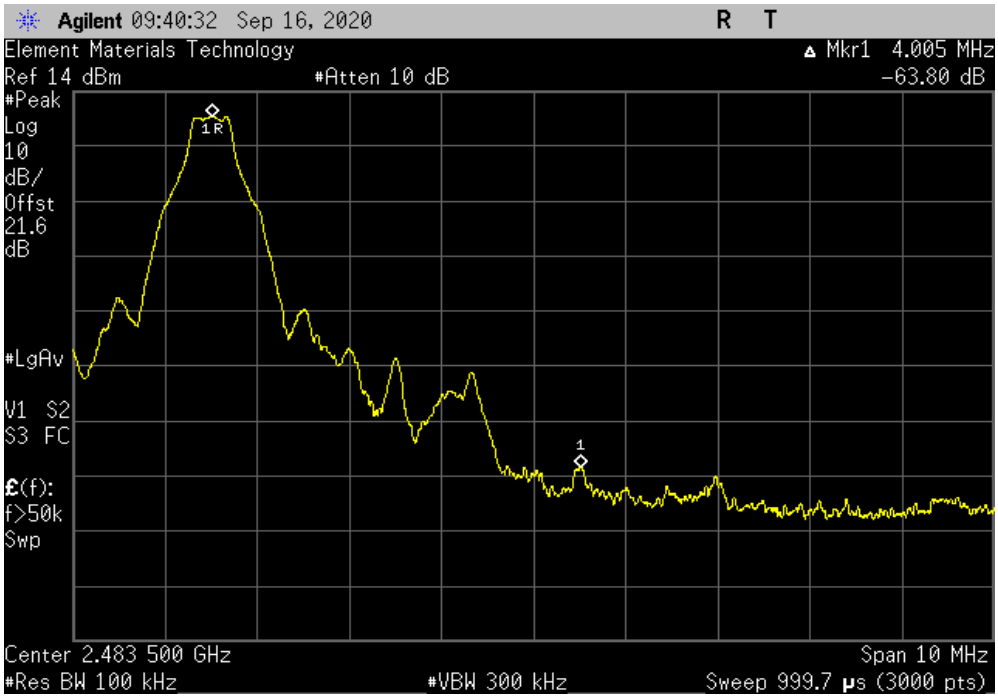
Configuration #	**1**	*Signature*

		Value (dBc)	**Limit ≤ (dBc)**	**Result**
Source				
	DH5, GFSK			
	Low Channel, 2402 MHz	-40.14	-20	Pass
	High Channel, 2480 MHz	-63.8	-20	Pass
	2DH5, pi/4-DQPSK			
	Low Channel, 2402 MHz	-40.07	-20	Pass
	High Channel, 2480 MHz	-57.3	-20	Pass
	3DH5, 8-DPSK			
	Low Channel, 2402 MHz	-39.71	-20	Pass
	High Channel, 2480 MHz	-57.31	-20	Pass
Sink				
	DH5, GFSK			
	Low Channel, 2402 MHz	-42.98	-20	Pass
	High Channel, 2480 MHz	-65.12	-20	Pass
	2DH5, pi/4-DQPSK			
	Low Channel, 2402 MHz	-40.79	-20	Pass
	High Channel, 2480 MHz	-55.71	-20	Pass
	3DH5, 8-DPSK			
	Low Channel, 2402 MHz	-41.2	-20	Pass
	High Channel, 2480 MHz	-56.26	-20	Pass

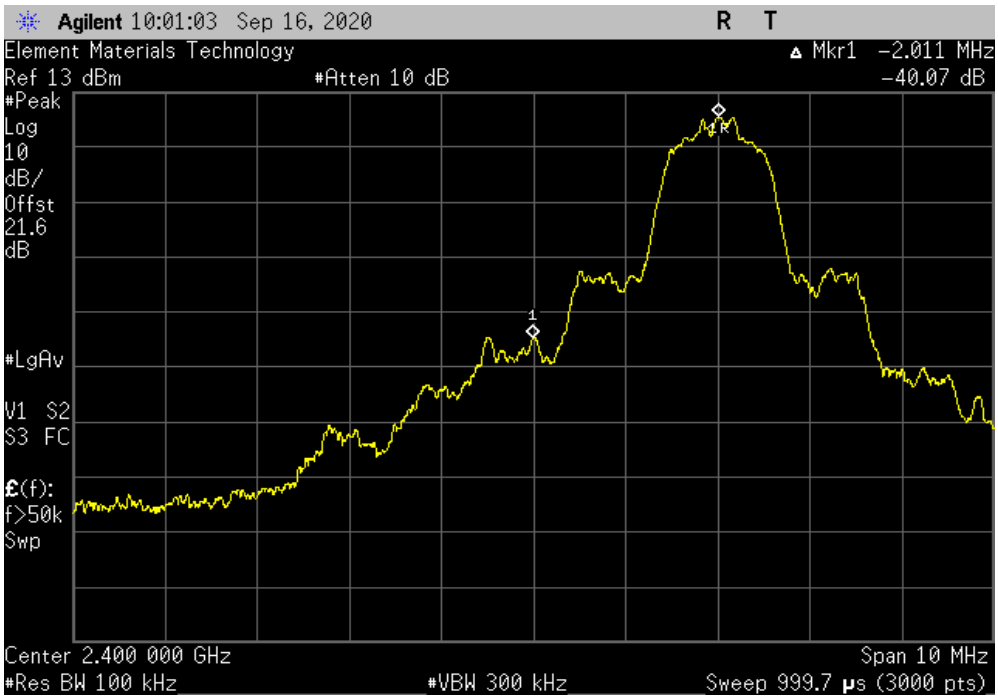
Source, DH5, GFSK, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-40.14	-20	Pass



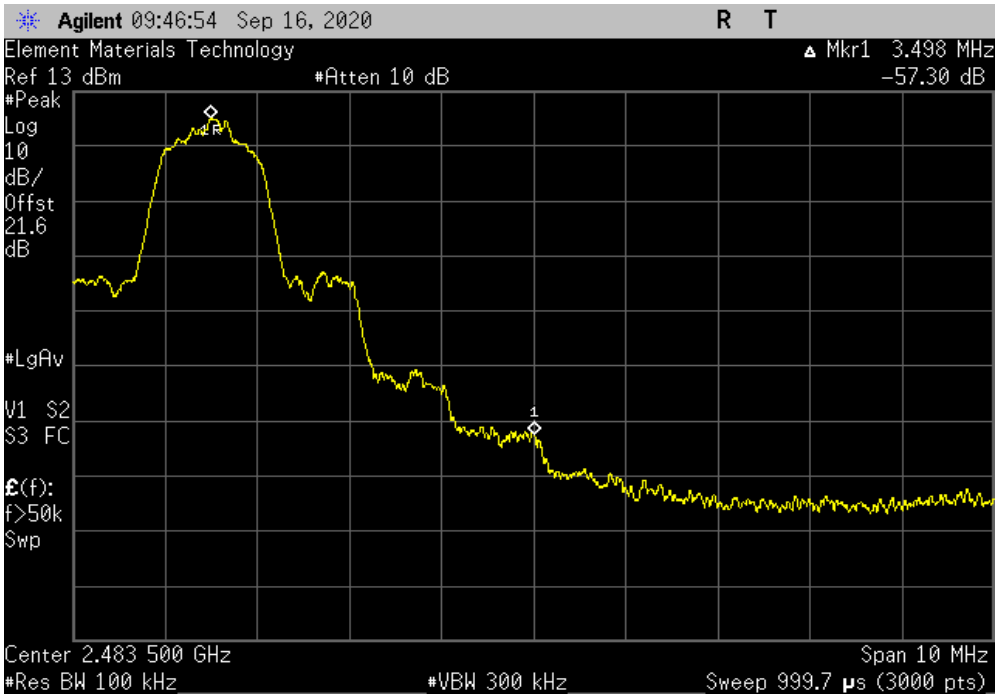
Source, DH5, GFSK, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-63.8	-20	Pass



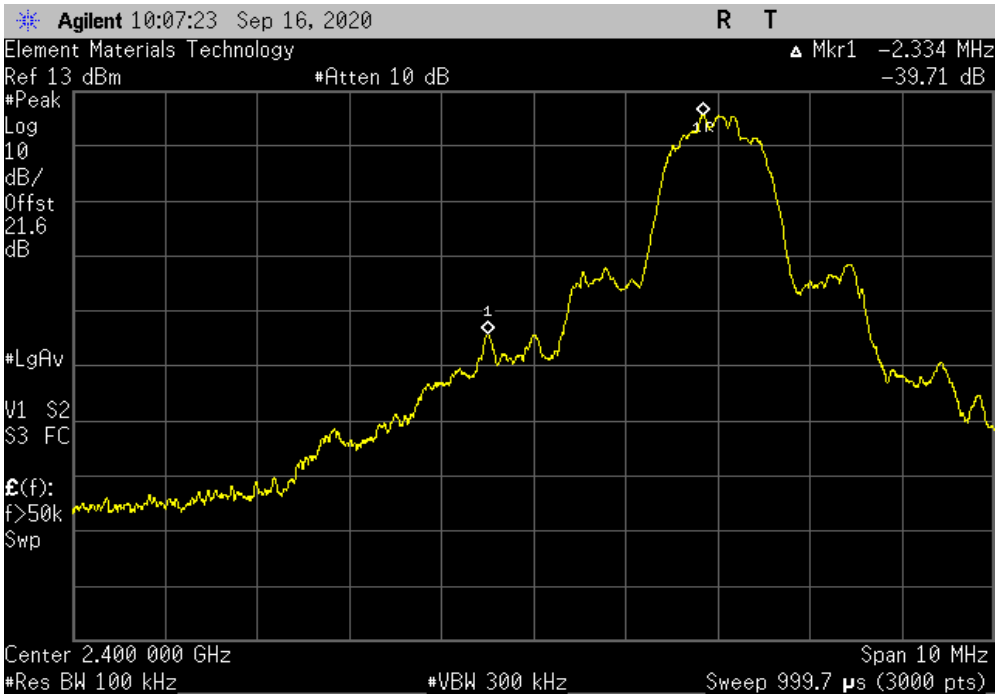
Source, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-40.07	-20	Pass



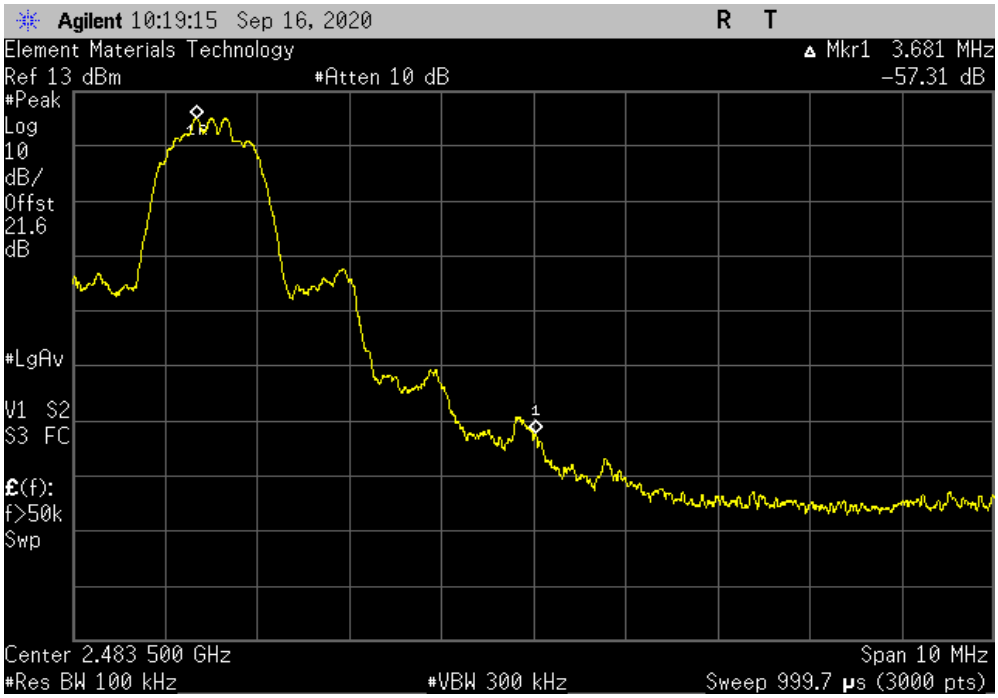
Source, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-57.3	-20	Pass



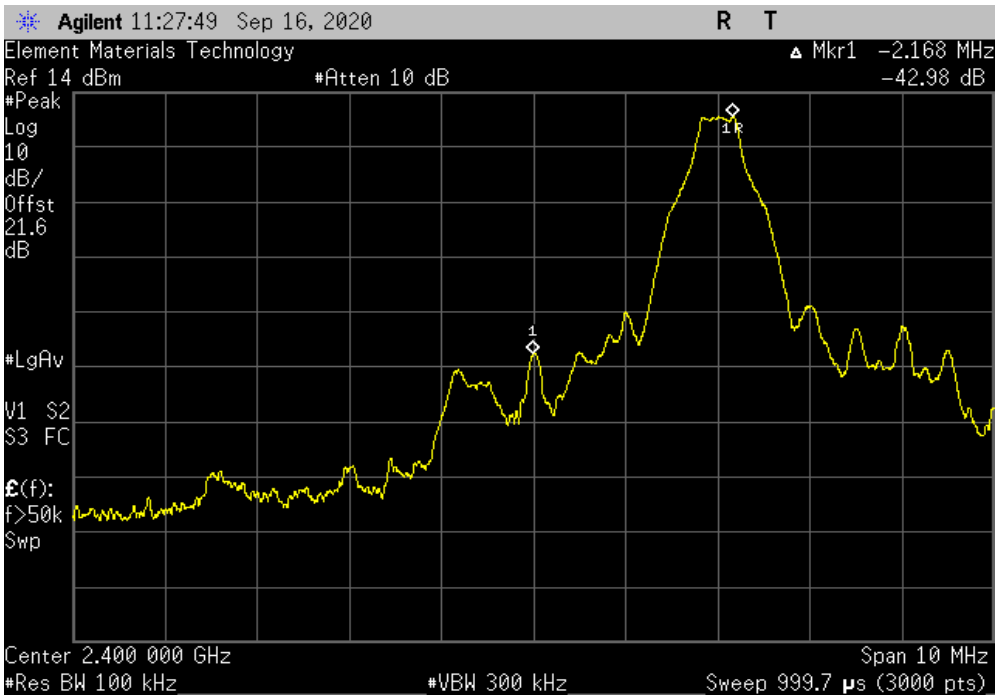
Source, 3DH5, 8-DPSK, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-39.71	-20	Pass



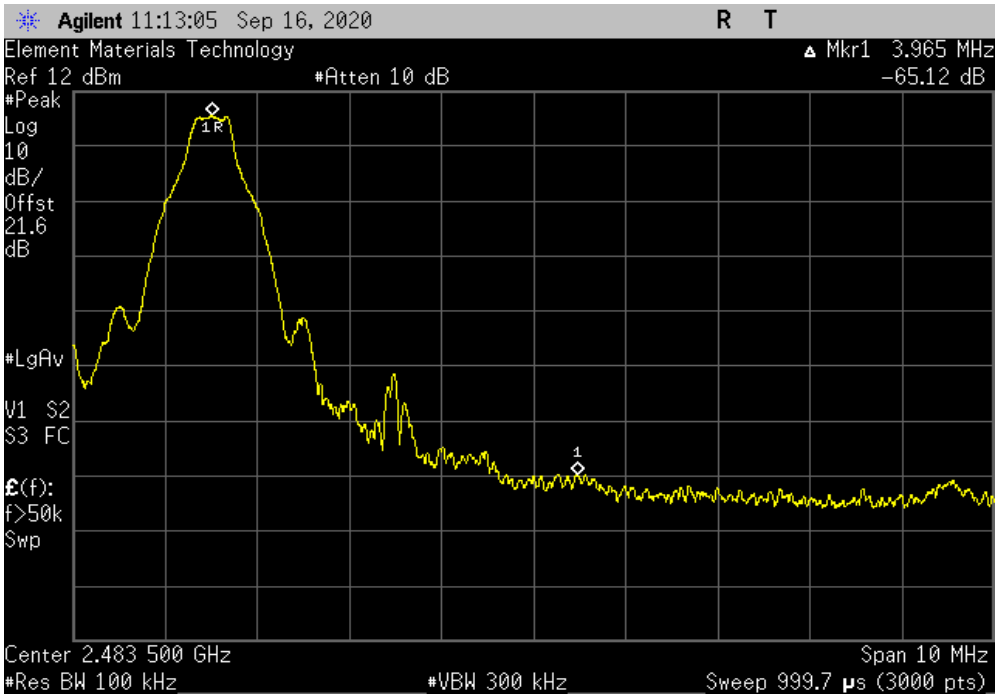
Source, 3DH5, 8-DPSK, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-57.31	-20	Pass



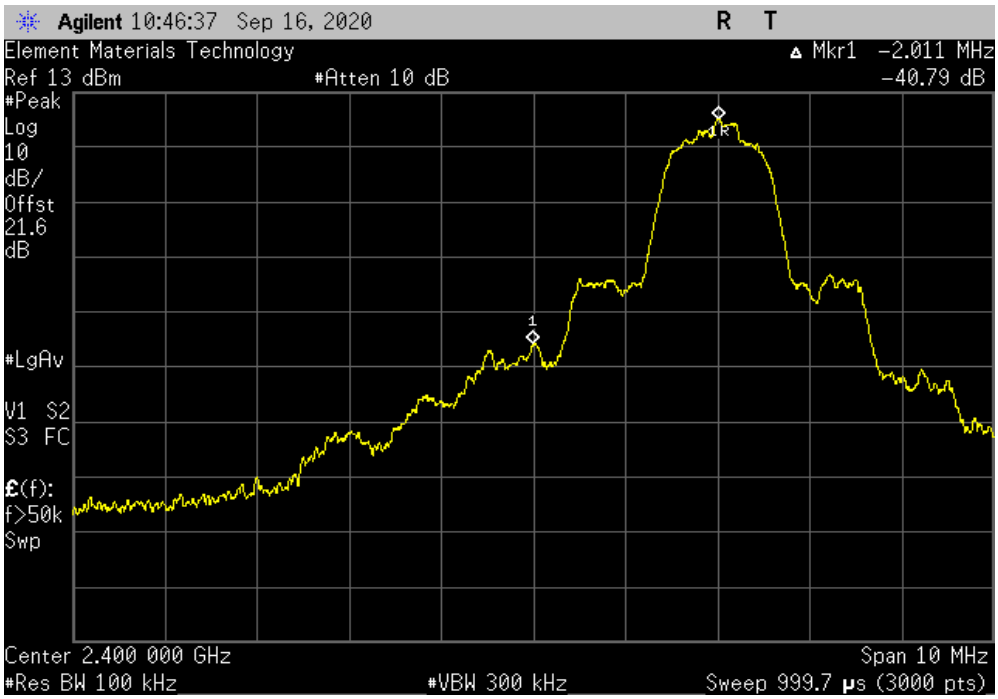
Sink, DH5, GFSK, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-42.98	-20	Pass



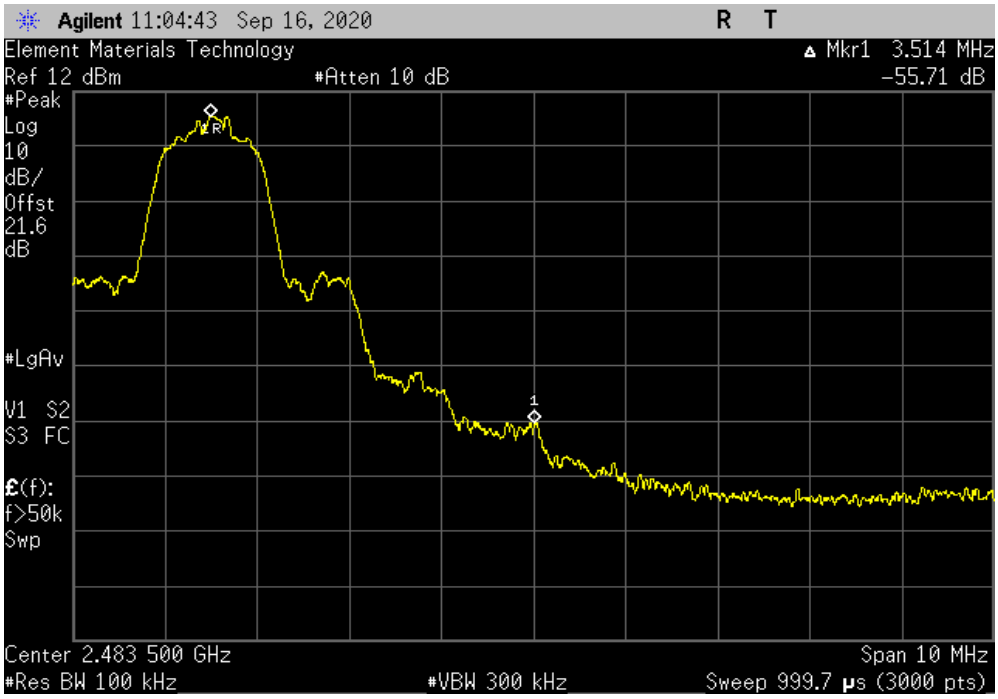
Sink, DH5, GFSK, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-65.12	-20	Pass



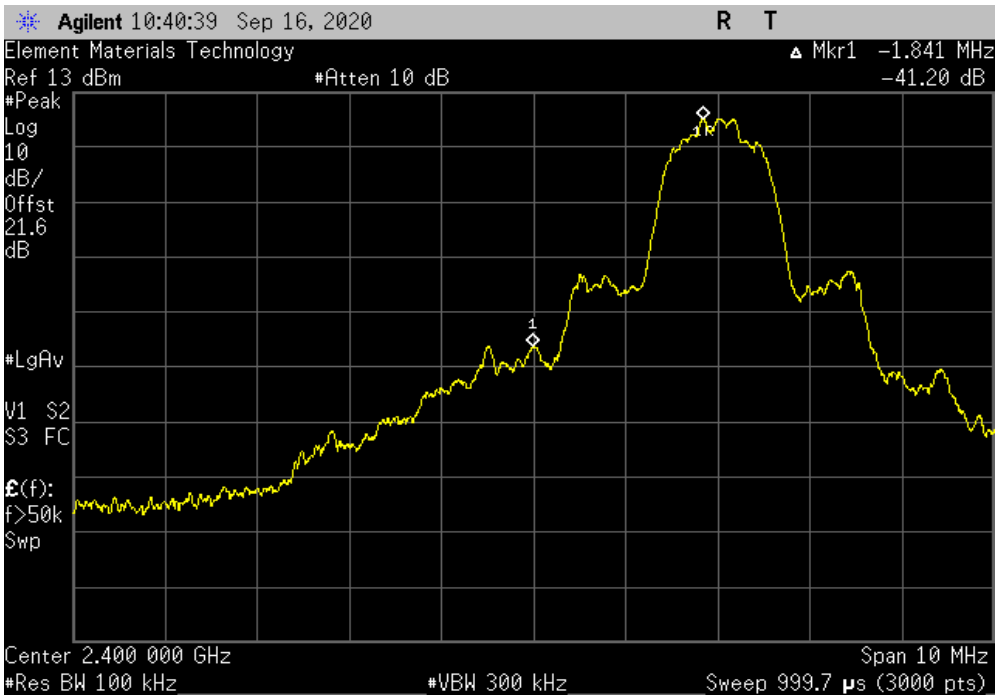
Sink, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-40.79	-20	Pass



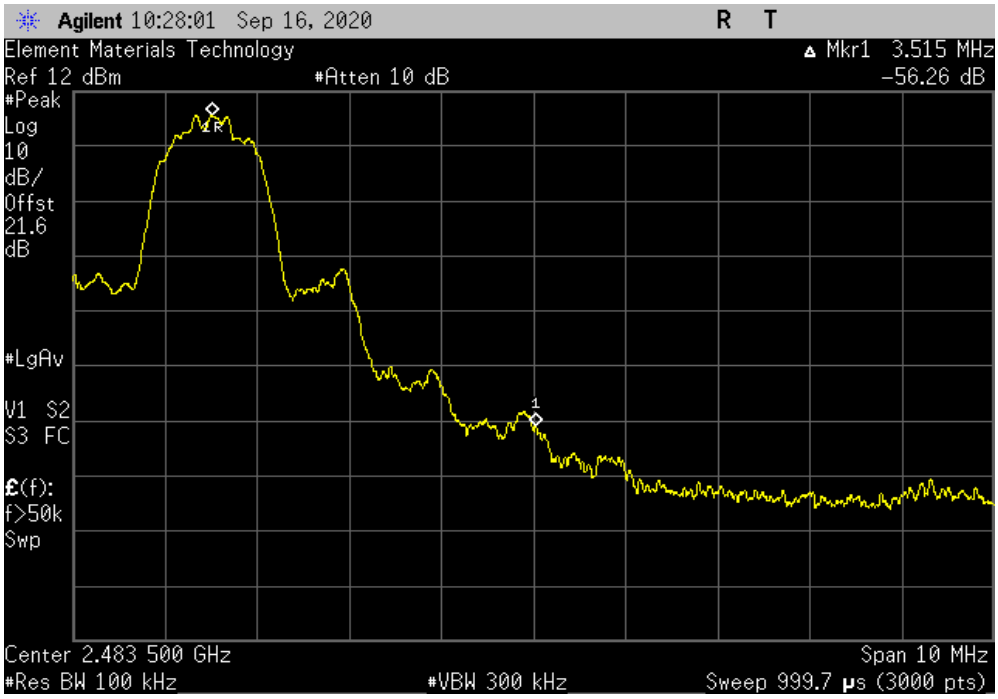
Sink, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-55.71	-20	Pass



Sink, 3DH5, 8-DPSK, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-41.2	-20	Pass



Sink, 3DH5, 8-DPSK, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-56.26	-20	Pass



BAND EDGE COMPLIANCE -HOPPING MODE

XMit 2020.03.25.0

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	5-Nov-18	5-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	13-Mar-20	13-Mar-21
Attenuator	S.M. Electronics	SA26B-20	AUY	13-Mar-20	13-Mar-21
Block - DC	Fairview Microwave	SD3379	AMW	13-Mar-20	13-Mar-21
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	28-Feb-20	28-Feb-21

TEST DESCRIPTION

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

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

BAND EDGE COMPLIANCE -HOPPING MODE

element

TbtTx 2019.08.30.0 XMit 2020.03.25.0

EUT:	**APX517B**			**Work Order:**	**AUDI0269**
Serial Number:	**APX517B 008 Rev. B**			**Date:**	**16-Sep-20**
Customer:	**Audio Precision**			**Temperature:**	**22.6 °C**
Attendees:	**None**			**Humidity:**	**47.8% RH**
Project:	**None**			**Barometric Pres.:**	**1020 mbar**
Tested by:	**Jeff Alcoke**	**Power:**	**110VAC/60Hz**	**Job Site:**	**EV06**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

Reference level offset includes: measurement cable, DC block, and 20 dB attenuator. Software power settings [(ext),(int)] = [255 , 63]

DEVIATIONS FROM TEST STANDARD

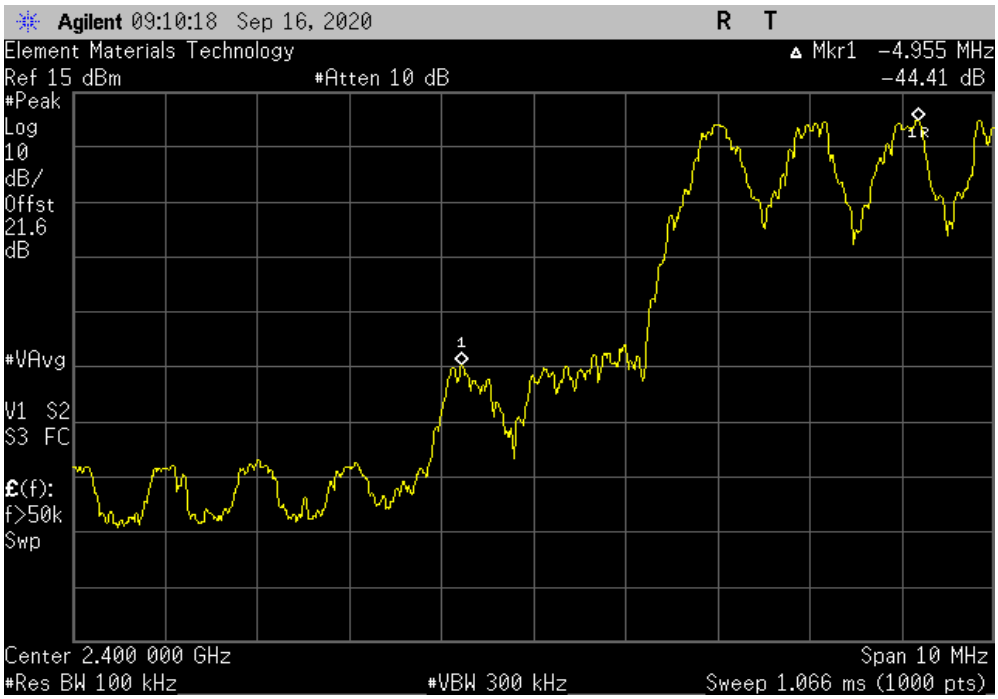
None

Configuration #	**1**	*Signature*

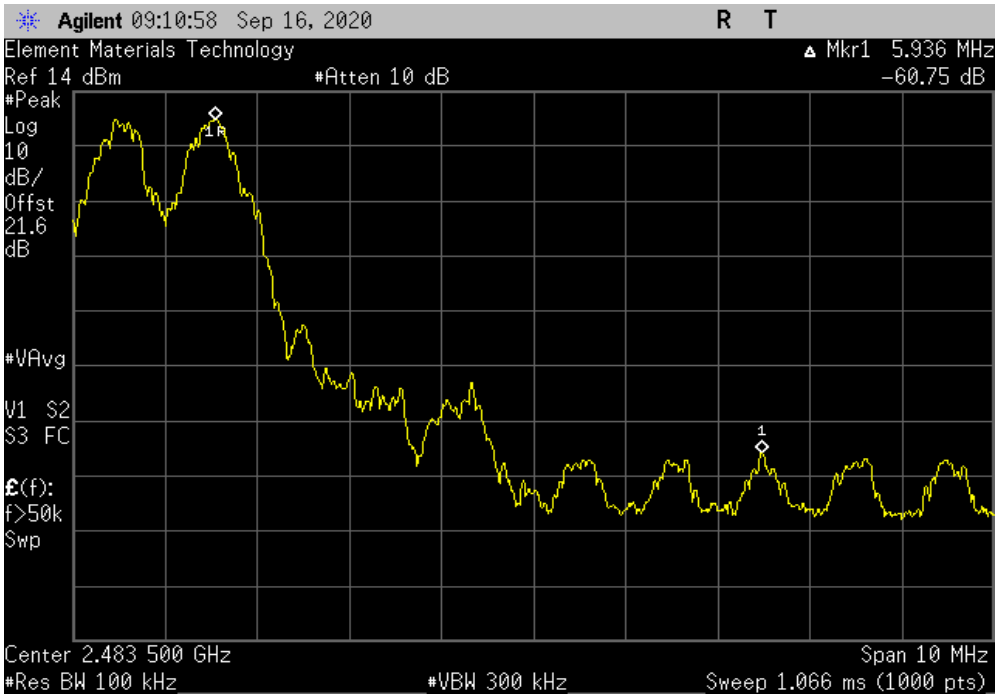
		Value (dBc)	**Limit ≤ (dBc)**	**Result**
Source				
	Hopping Mode (All Channels)			
	DH5, GFSK			
	Low Channel, 2402 MHz	-44.41	-20	Pass
	High Channel, 2480 MHz	-60.75	-20	Pass
	2DH5, pi/4-DQPSK			
	Low Channel, 2402 MHz	-43.21	-20	Pass
	High Channel, 2480 MHz	-60.66	-20	Pass
	3DH5, 8-DPSK			
	Low Channel, 2402 MHz	-43.02	-20	Pass
	High Channel, 2480 MHz	-62.56	-20	Pass
Sink				
	Hopping Mode (All Channels)			
	DH5, GFSK			
	Low Channel, 2402 MHz	-48.52	-20	Pass
	High Channel, 2480 MHz	-59.78	-20	Pass
	2DH5, pi/4-DQPSK			
	Low Channel, 2402 MHz	-42.12	-20	Pass
	High Channel, 2480 MHz	-59.86	-20	Pass
	3DH5, 8-DPSK			
	Low Channel, 2402 MHz	-40.22	-20	Pass
	High Channel, 2480 MHz	-59.1	-20	Pass

BAND EDGE COMPLIANCE -HOPPING MODE

Source, Hopping Mode (All Channels), DH5, GFSK, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-44.41	-20	Pass



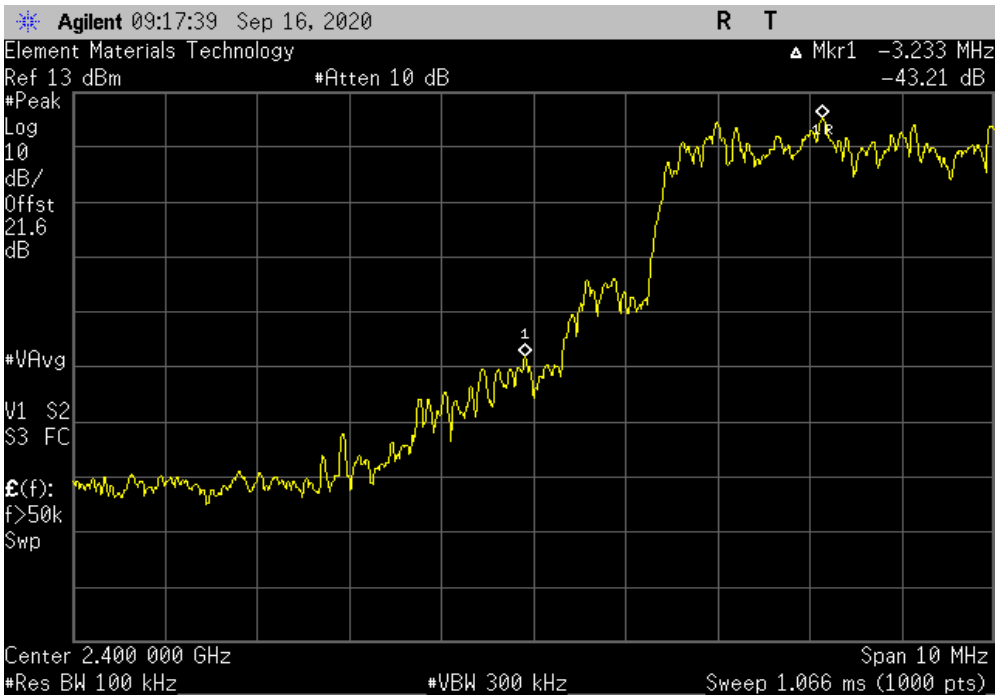
Source, Hopping Mode (All Channels), DH5, GFSK, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-60.75	-20	Pass



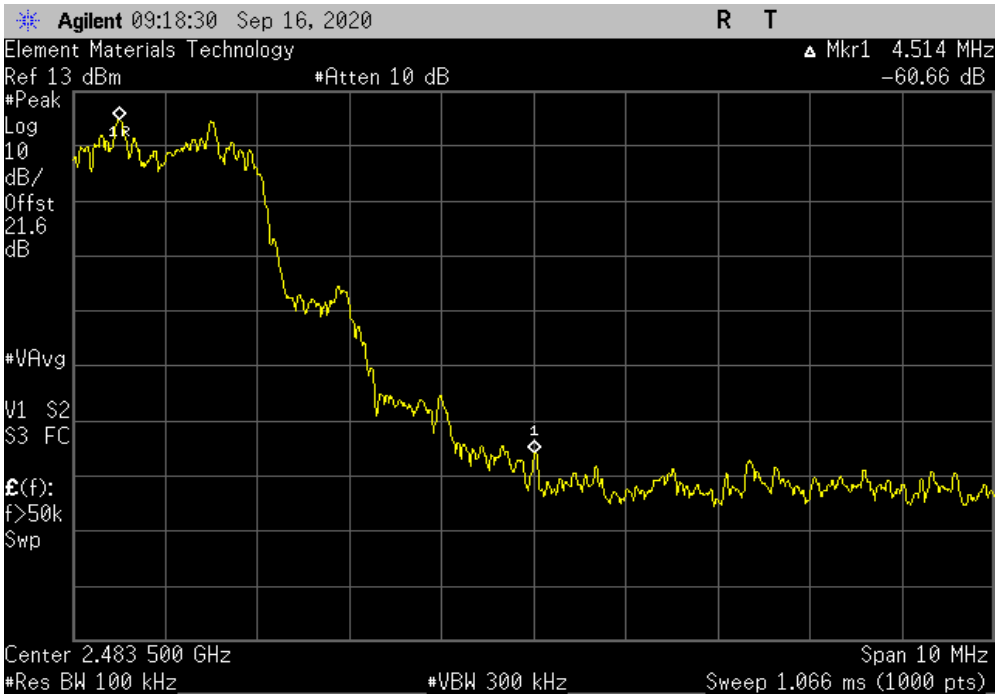
BAND EDGE COMPLIANCE -HOPPING MODE

TbtTx 2019.08.30.0 XMit 2020.03.25.0

Source, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-43.21	-20	Pass

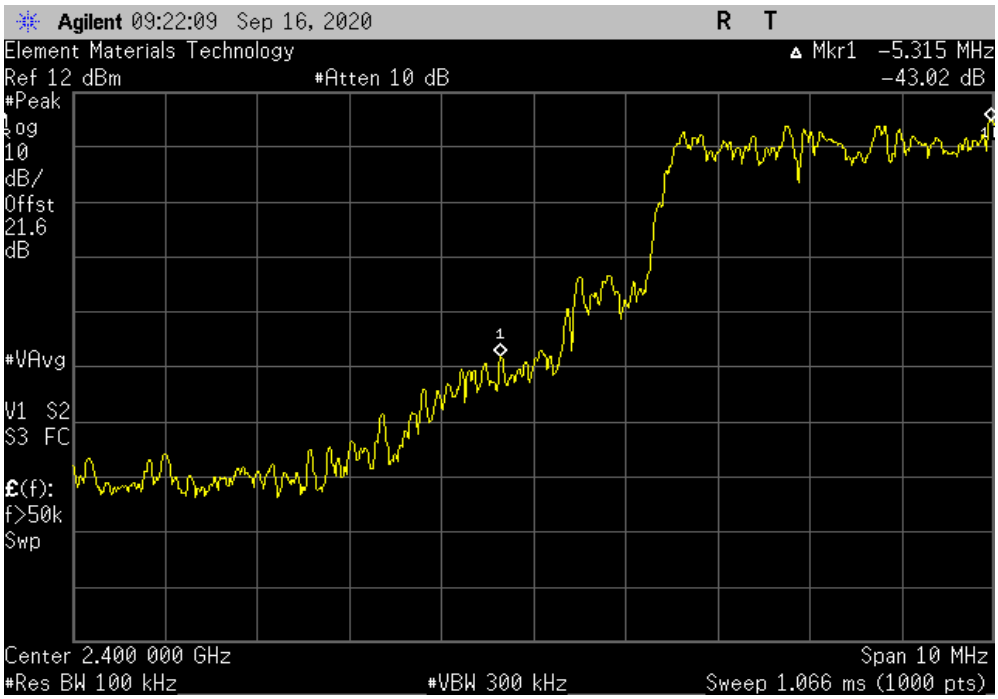


Source, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-60.66	-20	Pass

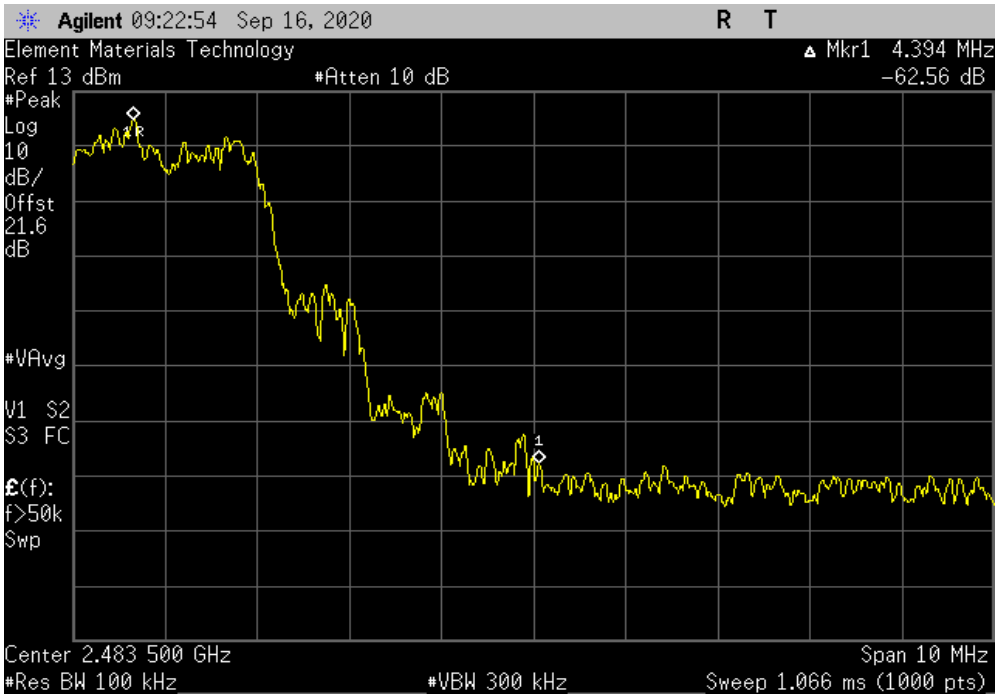


BAND EDGE COMPLIANCE -HOPPING MODE

Source, Hopping Mode (All Channels), 3DH5, 8-DPSK, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-43.02	-20	Pass

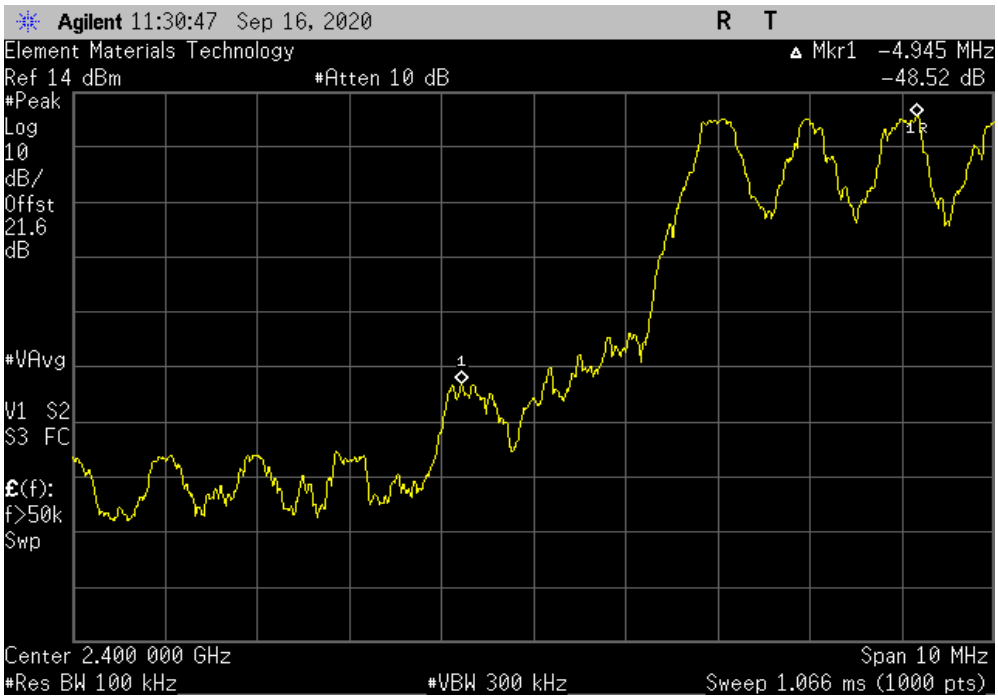


Source, Hopping Mode (All Channels), 3DH5, 8-DPSK, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-62.56	-20	Pass

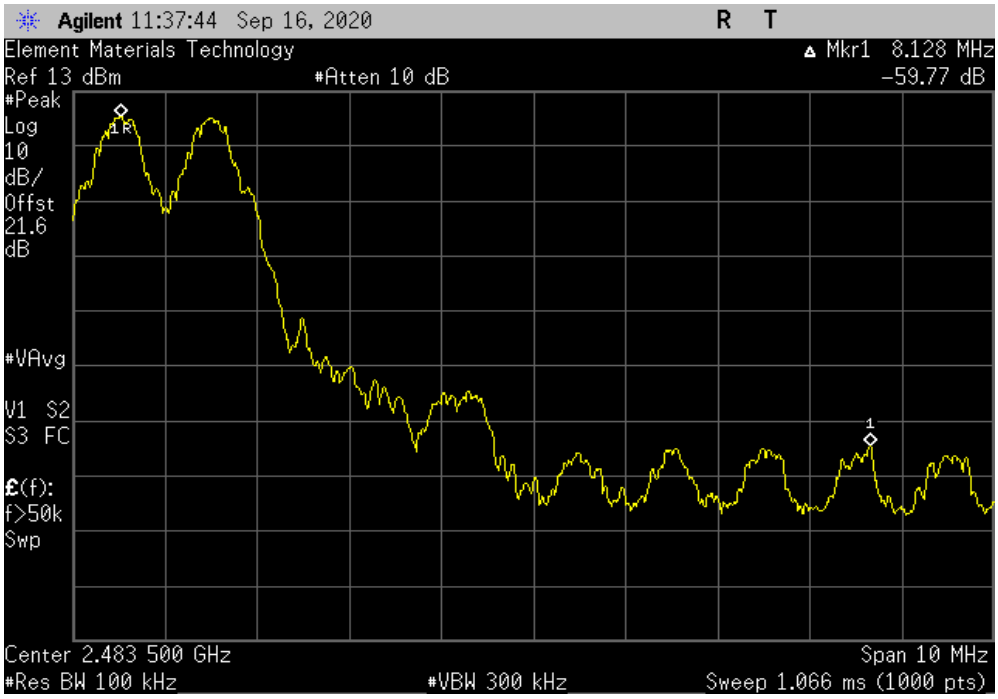


BAND EDGE COMPLIANCE -HOPPING MODE

Sink, Hopping Mode (All Channels), DH5, GFSK, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-48.52	-20	Pass

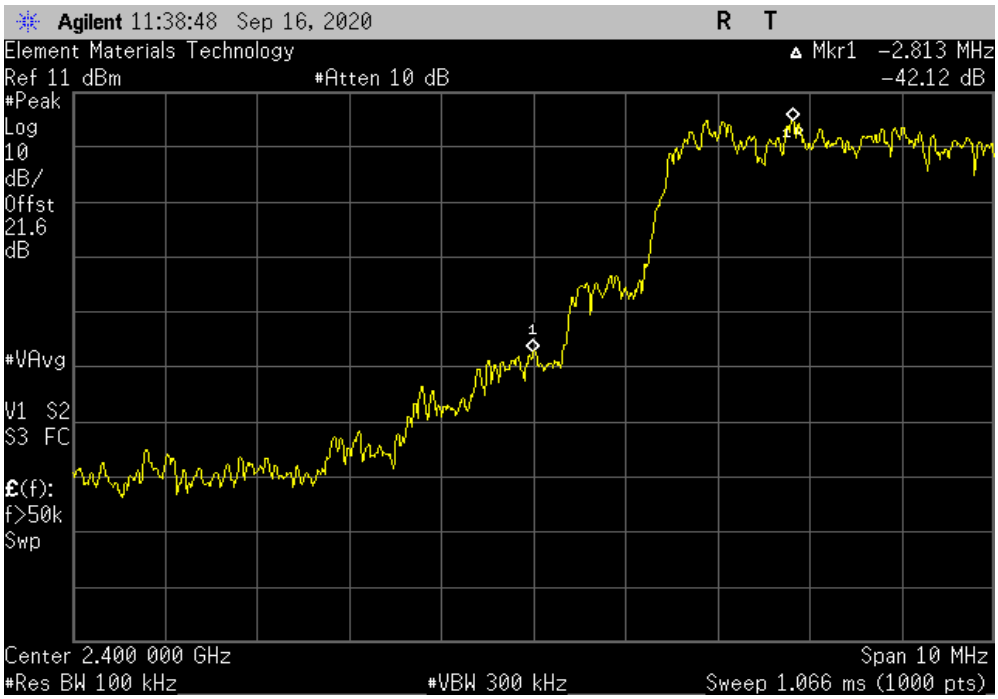


Sink, Hopping Mode (All Channels), DH5, GFSK, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-59.78	-20	Pass

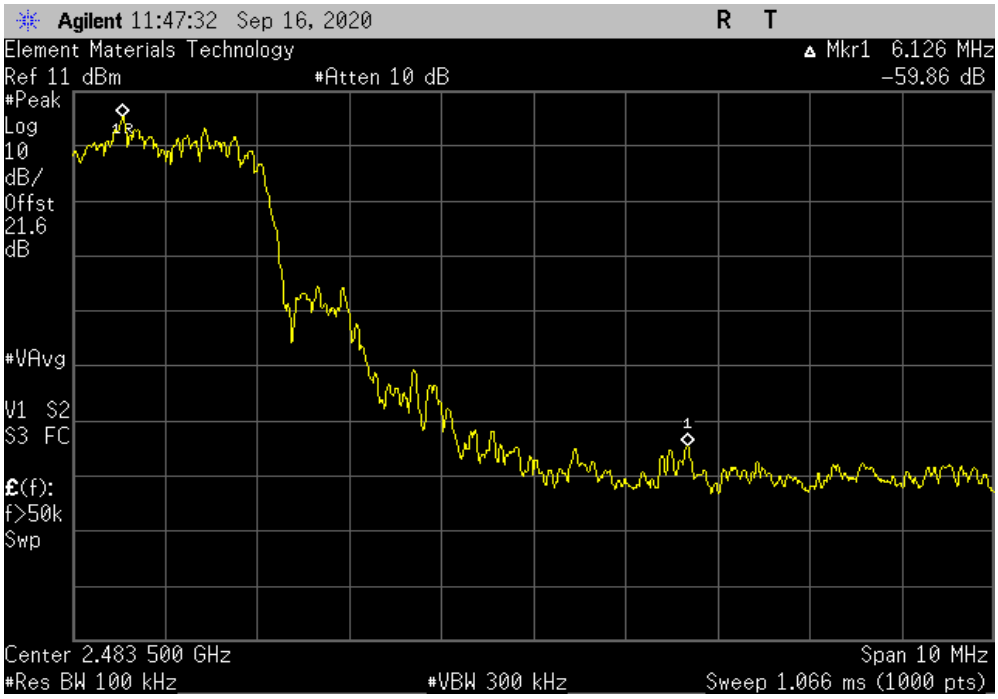


BAND EDGE COMPLIANCE -HOPPING MODE

Sink, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-42.12	-20	Pass

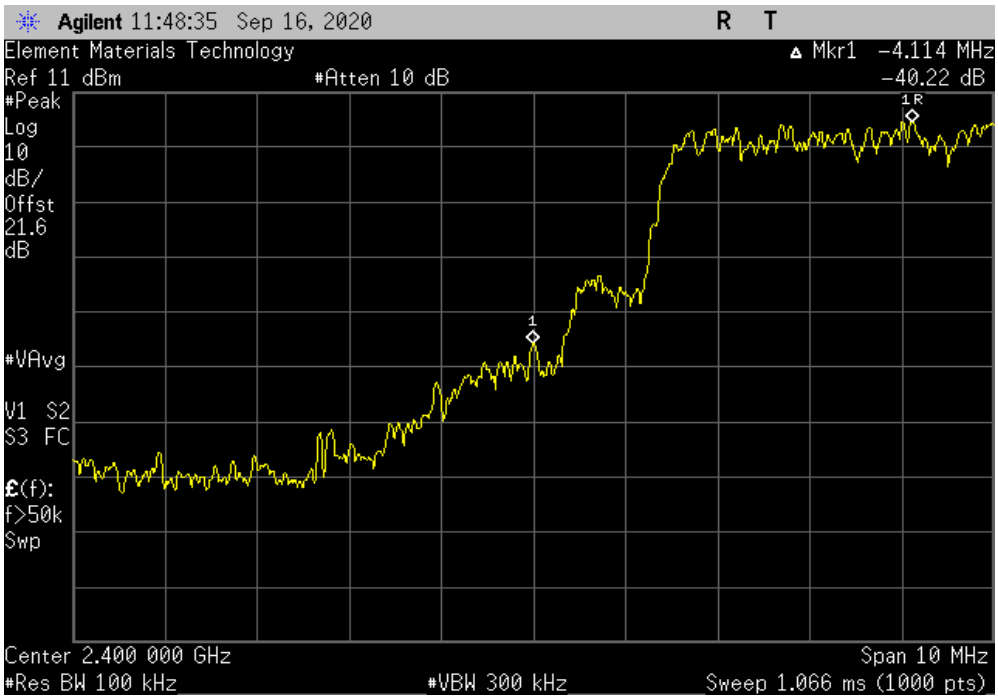


Sink, Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-59.86	-20	Pass

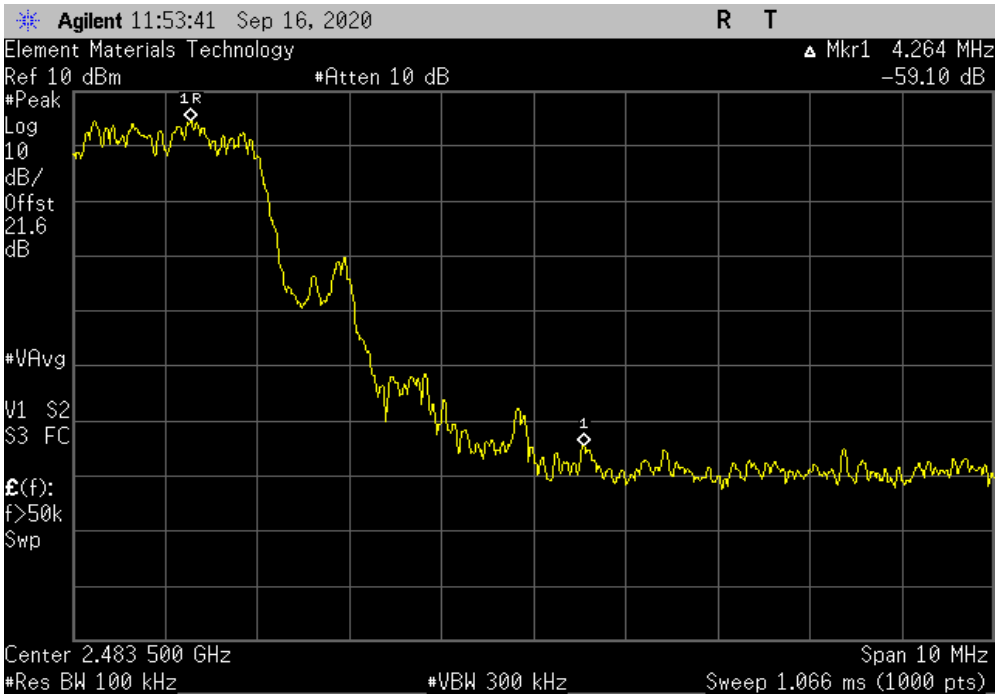


BAND EDGE COMPLIANCE -HOPPING MODE

Sink, Hopping Mode (All Channels), 3DH5, 8-DPSK, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-40.22	-20	Pass



Sink, Hopping Mode (All Channels), 3DH5, 8-DPSK, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-59.1	-20	Pass



OCCUPIED BANDWIDTH

XMit 2020.03.25.0

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	5-Nov-18	5-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	13-Mar-20	13-Mar-21
Attenuator	S.M. Electronics	SA26B-20	AUY	13-Mar-20	13-Mar-21
Block - DC	Fairview Microwave	SD3379	AMW	13-Mar-20	13-Mar-21
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	28-Feb-20	28-Feb-21

TEST DESCRIPTION

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.

OCCUPIED BANDWIDTH

TbtTx 2019.08.30.0 XMit 2020.03.25.0

EUT:	**APX517B**			**Work Order:**	**AUDI0269**
Serial Number:	**APX517B 008 Rev. B**			**Date:**	**16-Sep-20**
Customer:	**Audio Precision**			**Temperature:**	**22.4 °C**
Attendees:	**None**			**Humidity:**	**47.7% RH**
Project:	**None**			**Barometric Pres.:**	**1020 mbar**
Tested by:	**Jeff Alcoke**	**Power:**	**110VAC/60Hz**	**Job Site:**	**EV06**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

Reference level offset includes: measurement cable, DC block, and 20 dB attenuator. Software power settings [(ext),(int)] = [255 , 63]

DEVIATIONS FROM TEST STANDARD

None

Configuration #	**1**	*Signature*

		Value	**Limit (<)**	**Result**
Source				
	DH5, GFSK			
	Low Channel, 2402 MHz	927.313 kHz	1.5 MHz	Pass
	Mid Channel, 2441 MHz	921.833 kHz	1.5 MHz	Pass
	High Channel, 2480 MHz	919.442 kHz	1.5 MHz	Pass
	2DH5, pi/4-DQPSK			
	Low Channel, 2402 MHz	1.24 MHz	1.5 MHz	Pass
	Mid Channel, 2441 MHz	1.239 MHz	1.5 MHz	Pass
	High Channel, 2480 MHz	1.286 MHz	1.5 MHz	Pass
	3DH5, 8-DPSK			
	Low Channel, 2402 MHz	1.263 MHz	1.5 MHz	Pass
	Mid Channel, 2441 MHz	1.262 MHz	1.5 MHz	Pass
	High Channel, 2480 MHz	1.258 MHz	1.5 MHz	Pass
Sink				
	DH5, GFSK			
	Low Channel, 2402 MHz	925.96 kHz	1.5 MHz	Pass
	Mid Channel, 2441 MHz	925.214 kHz	1.5 MHz	Pass
	High Channel, 2480 MHz	926.632 kHz	1.5 MHz	Pass
	2DH5, pi/4-DQPSK			
	Low Channel, 2402 MHz	1.279 MHz	1.5 MHz	Pass
	Mid Channel, 2441 MHz	1.282 MHz	1.5 MHz	Pass
	High Channel, 2480 MHz	1.235 MHz	1.5 MHz	Pass
	3DH5, 8-DPSK			
	Low Channel, 2402 MHz	1.293 MHz	1.5 MHz	Pass
	Mid Channel, 2441 MHz	1.264 MHz	1.5 MHz	Pass
	High Channel, 2480 MHz	1.261 MHz	1.5 MHz	Pass

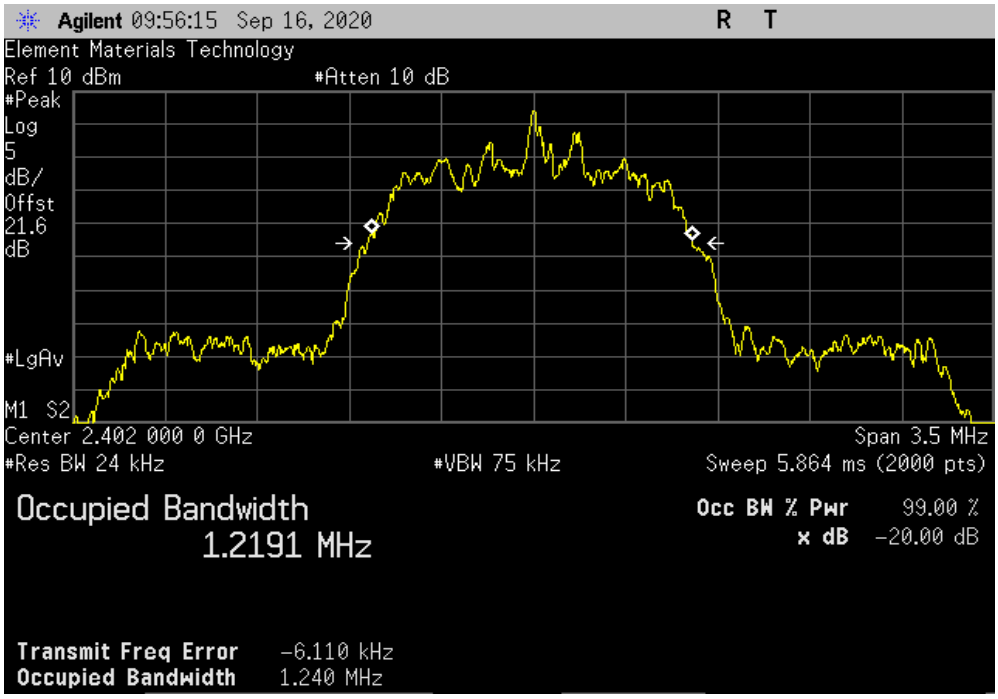
Source, DH5, GFSK, Low Channel, 2402 MHz						
				Value	Limit (<)	Result
				927.313 kHz	1.5 MHz	Pass

Source, DH5, GFSK, Mid Channel, 2441 MHz						
				Value	Limit (<)	Result
				921.833 kHz	1.5 MHz	Pass

OCCUPIED BANDWIDTH

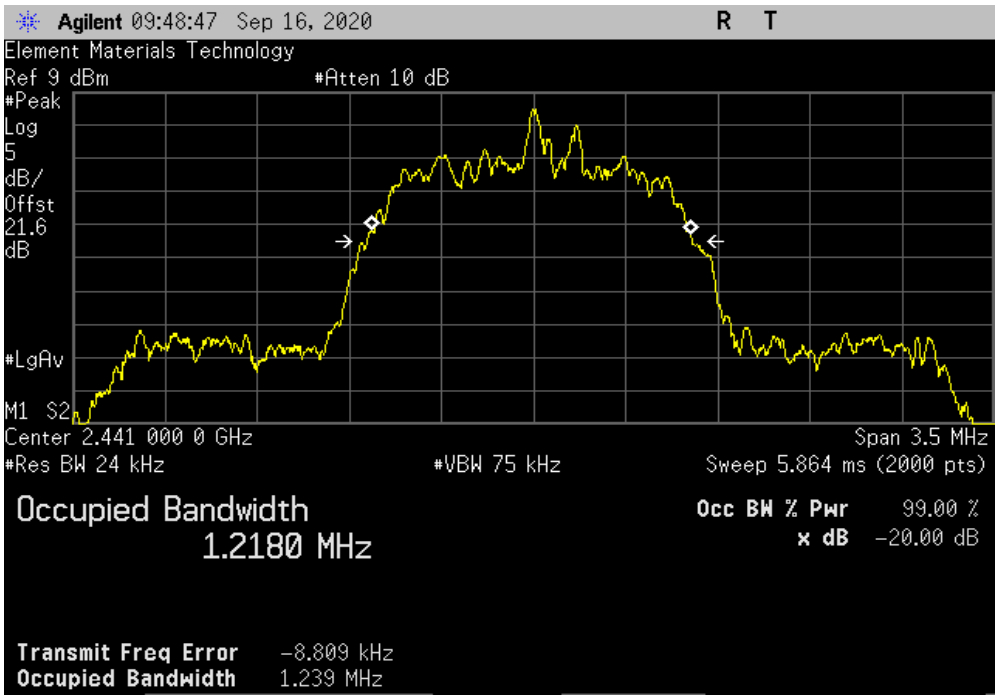
Source, DH5, GFSK, High Channel, 2480 MHz						
				Value	Limit (<)	Result
				919.442 kHz	1.5 MHz	Pass

Source, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
				Value	Limit (<)	Result
				1.24 MHz	1.5 MHz	Pass

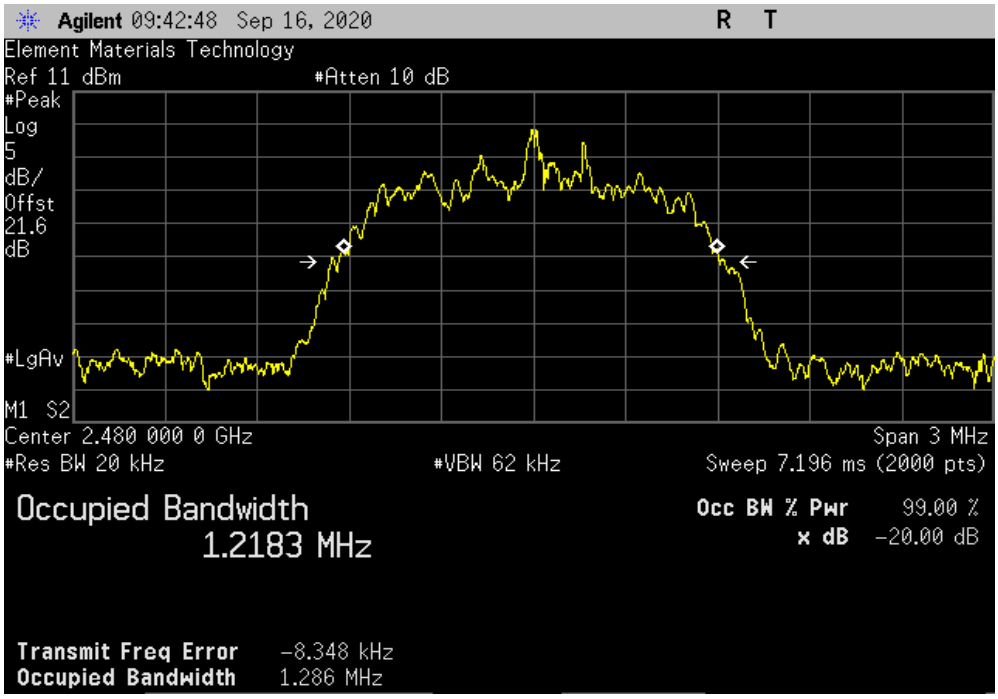


OCCUPIED BANDWIDTH

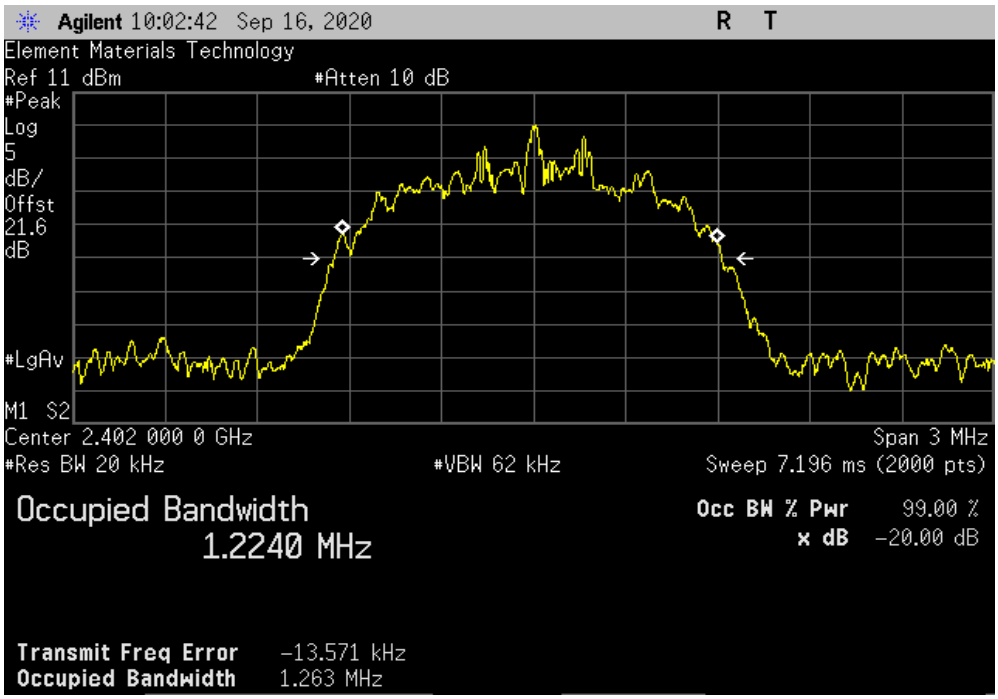
Source, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
				Value	Limit (<)	Result
				1.239 MHz	1.5 MHz	Pass



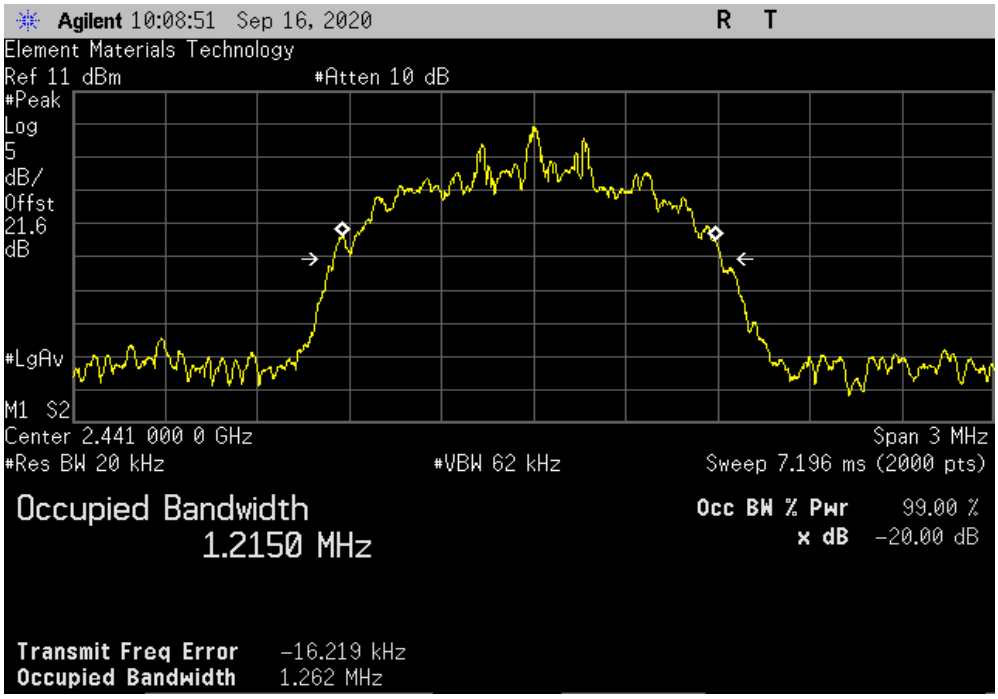
Source, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz						
				Value	Limit (<)	Result
				1.286 MHz	1.5 MHz	Pass



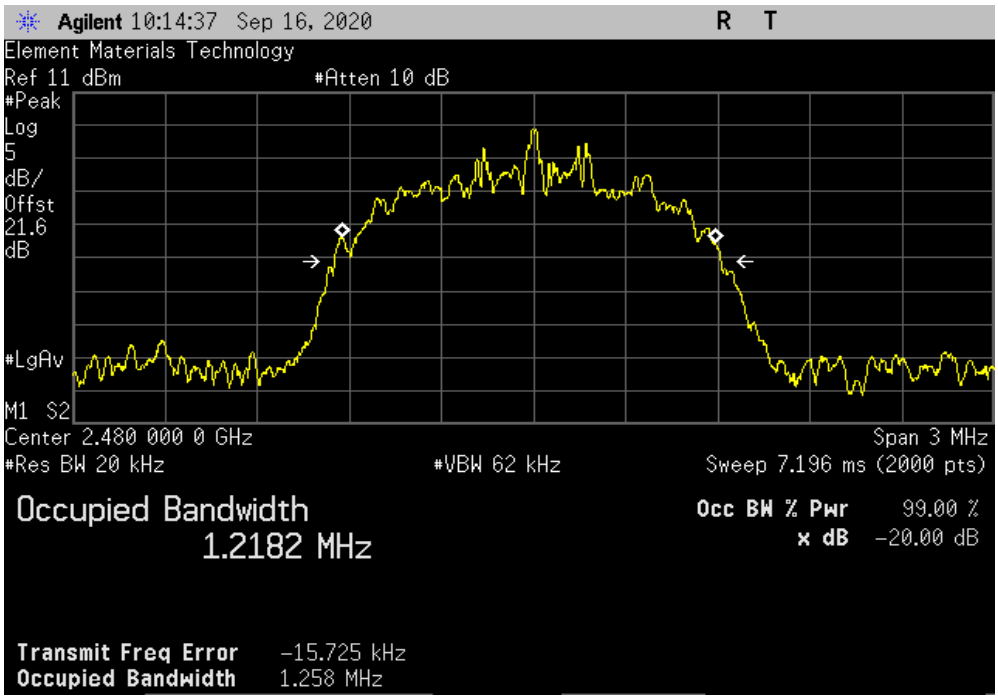
Source, 3DH5, 8-DPSK, Low Channel, 2402 MHz						
				Value	Limit (<)	Result
				1.263 MHz	1.5 MHz	Pass



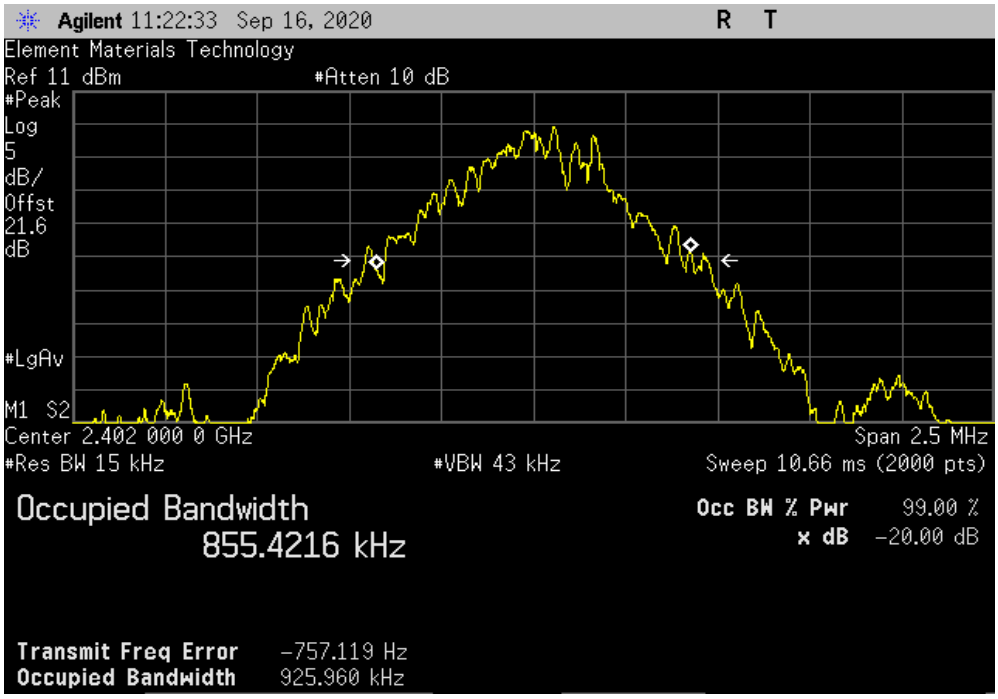
Source, 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
				Value	Limit (<)	Result
				1.262 MHz	1.5 MHz	Pass



Source, 3DH5, 8-DPSK, High Channel, 2480 MHz						
				Value	Limit (<)	Result
				1.258 MHz	1.5 MHz	Pass



Sink, DH5, GFSK, Low Channel, 2402 MHz						
				Value	Limit (<)	Result
				925.96 kHz	1.5 MHz	Pass



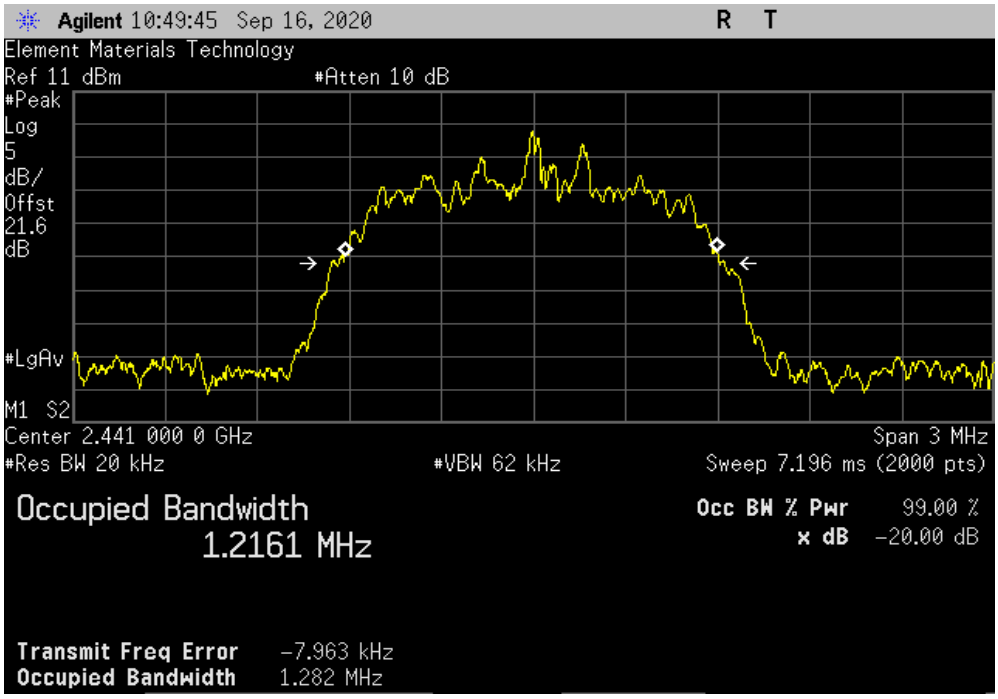
Sink, DH5, GFSK, Mid Channel, 2441 MHz							
					Value	Limit (<)	Result
					925.214 kHz	1.5 MHz	Pass

Sink, DH5, GFSK, High Channel, 2480 MHz							
					Value	Limit (<)	Result
					926.632 kHz	1.5 MHz	Pass

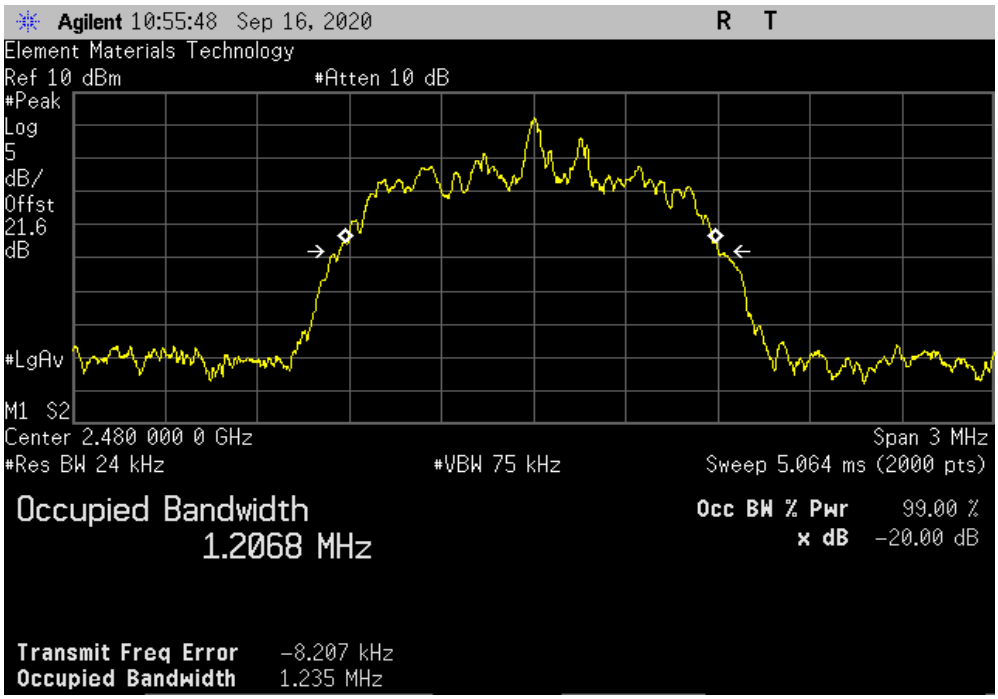
OCCUPIED BANDWIDTH

Sink, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
				Value	Limit (<)	Result
				1.279 MHz	1.5 MHz	Pass

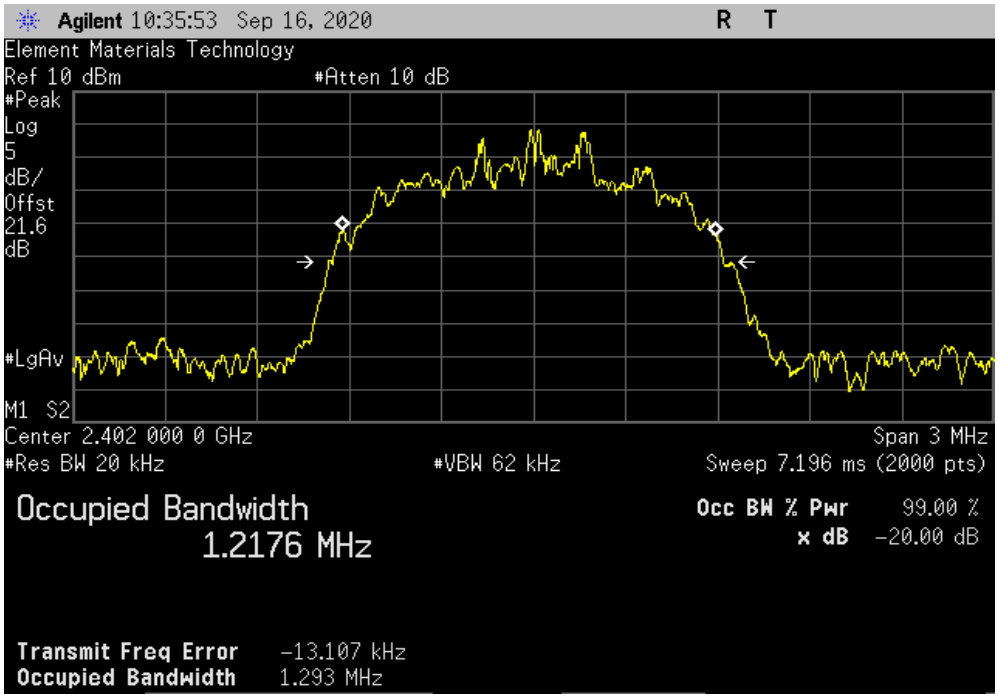
Sink, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
				Value	Limit (<)	Result
				1.282 MHz	1.5 MHz	Pass



Sink, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz						
				Value	Limit (<)	Result
				1.235 MHz	1.5 MHz	Pass

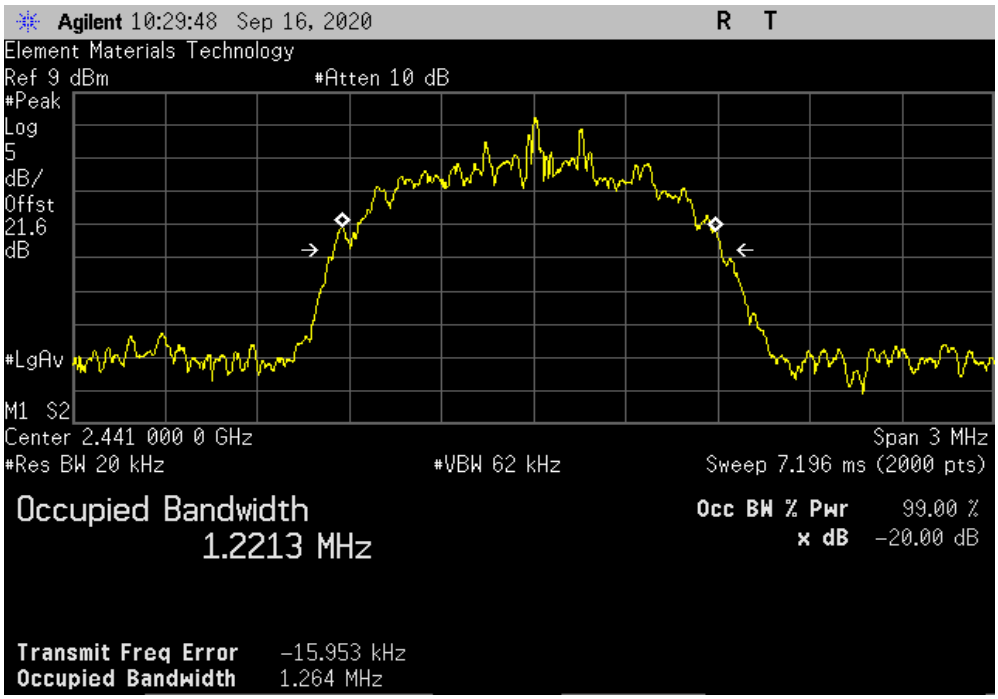


Sink, 3DH5, 8-DPSK, Low Channel, 2402 MHz						
				Value	Limit (<)	Result
				1.293 MHz	1.5 MHz	Pass

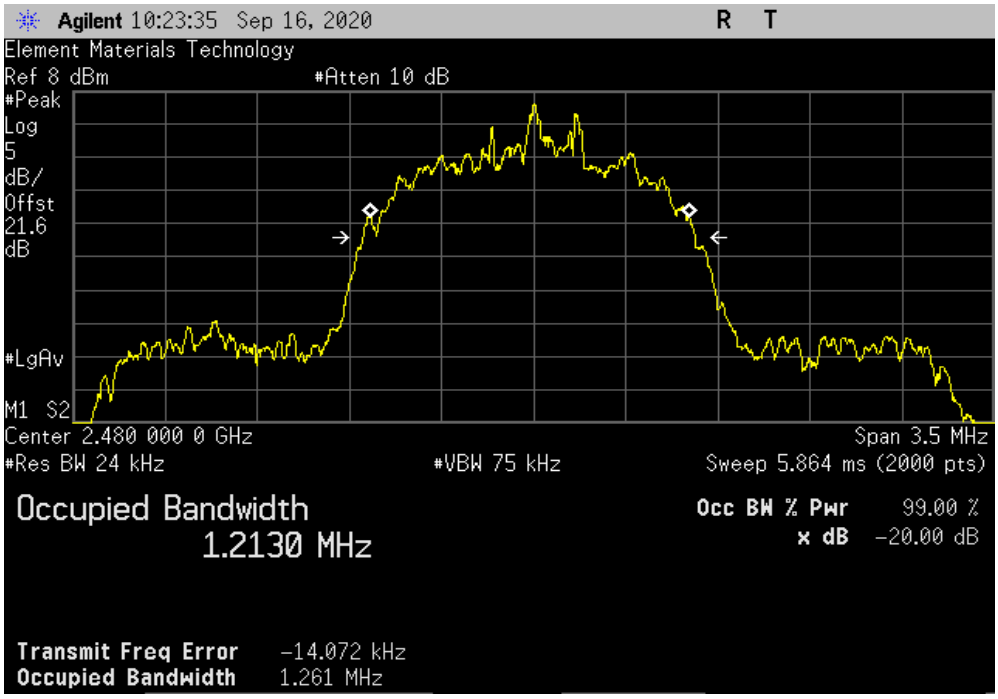


OCCUPIED BANDWIDTH

Sink, 3DH5, 8-DPSK, Mid Channel, 2441 MHz						
				Value	Limit (<)	Result
				1.264 MHz	1.5 MHz	Pass



Sink, 3DH5, 8-DPSK, High Channel, 2480 MHz						
				Value	Limit (<)	Result
				1.261 MHz	1.5 MHz	Pass



SPURIOUS CONDUCTED EMISSIONS

XMit 2020.03.25.0

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Keysight	N5182B	TFU	5-Nov-18	5-Nov-20
Cable	Micro-Coax	UFD150A-1-0720-200200	EVH	13-Mar-20	13-Mar-21
Attenuator	S.M. Electronics	SA26B-20	AUY	13-Mar-20	13-Mar-21
Block - DC	Fairview Microwave	SD3379	AMW	13-Mar-20	13-Mar-21
Analyzer - Spectrum Analyzer	Agilent	E4440A	AFA	28-Feb-20	28-Feb-21

TEST DESCRIPTION

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.

SPURIOUS CONDUCTED EMISSIONS

TbtTx 2019.08.30.0 XMit 2020.03.25.0

EUT:	**APX517B**			**Work Order:**	**AUDI0269**
Serial Number:	**APX517B 008 Rev. B**			**Date:**	**16-Sep-20**
Customer:	**Audio Precision**			**Temperature:**	**22.4 °C**
Attendees:	**None**			**Humidity:**	**47.7% RH**
Project:	**None**			**Barometric Pres.:**	**1020 mbar**
Tested by:	**Jeff Alcoke**	**Power:**	**110VAC/60Hz**	**Job Site:**	**EV06**

TEST SPECIFICATIONS	**Test Method**
FCC 15.247:2020	ANSI C63.10:2013

COMMENTS

Reference level offset includes: measurement cable, DC block, and 20 dB attenuator. Software power settings [(ext),(int)] = [255 , 63]

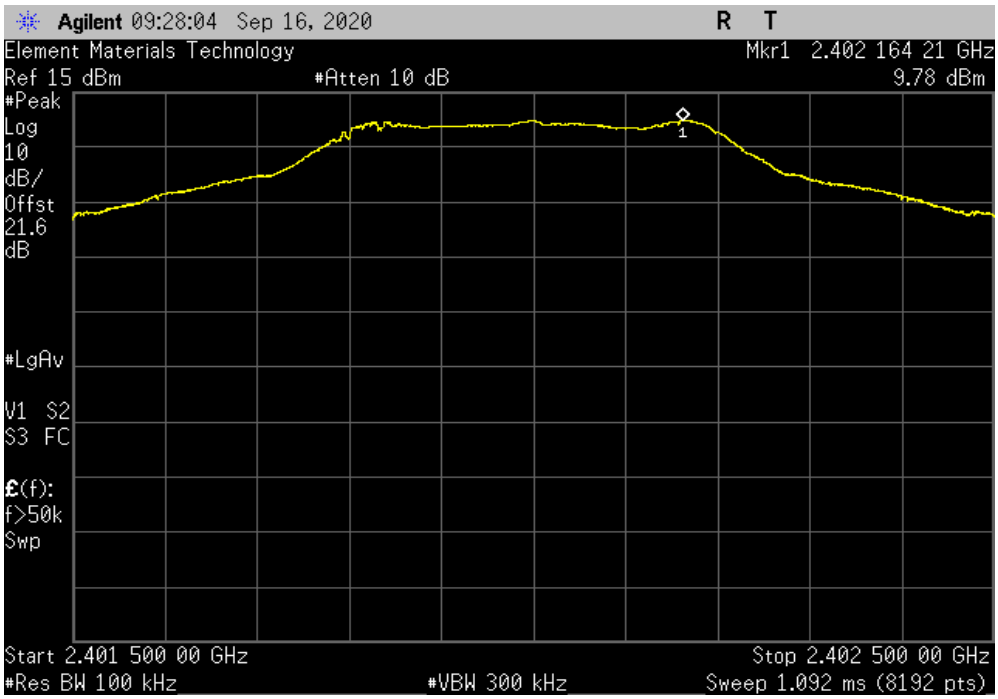
DEVIATIONS FROM TEST STANDARD

None

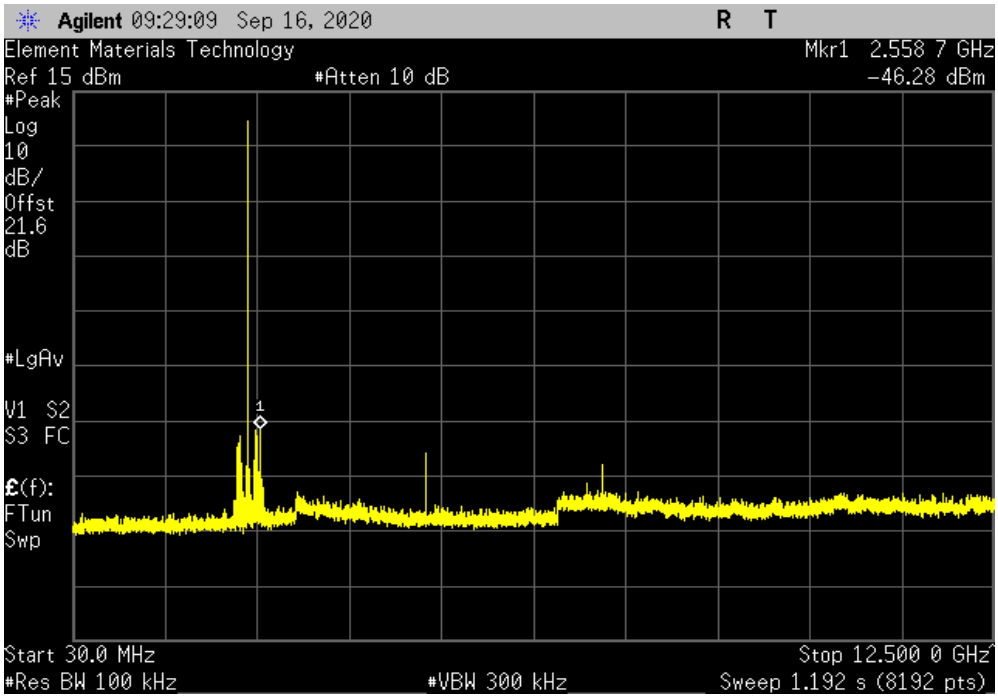
Configuration #	**1**	*Signature*

		Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
Source						
	DH5, GFSK					
	Low Channel, 2402 MHz	Fundamental	2402.16	N/A	N/A	N/A
	Low Channel, 2402 MHz	30 MHz - 12.5 GHz	2558.7	-56.06	-20	Pass
	Low Channel, 2402 MHz	12.5 GHz - 25 GHz	23992.8	-63.91	-20	Pass
	Mid Channel, 2441 MHz	Fundamental	2441.16	N/A	N/A	N/A
	Mid Channel, 2441 MHz	30 MHz - 12.5 GHz	2336.4	-55.75	-20	Pass
	Mid Channel, 2441 MHz	12.5 GHz - 25 GHz	24968	-62.72	-20	Pass
	High Channel, 2480 MHz	Fundamental	2480.16	N/A	N/A	N/A
	High Channel, 2480 MHz	30 MHz - 12.5 GHz	2376	-55.05	-20	Pass
	High Channel, 2480 MHz	12.5 GHz - 25 GHz	20824.7	-63.2	-20	Pass
	2DH5, pi/4-DQPSK					
	Low Channel, 2402 MHz	Fundamental	2402	N/A	N/A	N/A
	Low Channel, 2402 MHz	30 MHz - 12.5 GHz	2558.7	-55.88	-20	Pass
	Low Channel, 2402 MHz	12.5 GHz - 25 GHz	24165.2	-61.77	-20	Pass
	Mid Channel, 2441 MHz	Fundamental	2441	N/A	N/A	N/A
	Mid Channel, 2441 MHz	30 MHz - 12.5 GHz	2336.4	-55.11	-20	Pass
	Mid Channel, 2441 MHz	12.5 GHz - 25 GHz	25000	-61.72	-20	Pass
	High Channel, 2480 MHz	Fundamental	2480	N/A	N/A	N/A
	High Channel, 2480 MHz	30 MHz - 12.5 GHz	2376	-54.47	-20	Pass
	High Channel, 2480 MHz	12.5 GHz - 25 GHz	24090.5	-61.93	-20	Pass
	3DH5, 8-DPSK					
	Low Channel, 2402 MHz	Fundamental	2402	N/A	N/A	N/A
	Low Channel, 2402 MHz	30 MHz - 12.5 GHz	2505.4	-56.13	-20	Pass
	Low Channel, 2402 MHz	12.5 GHz - 25 GHz	24972.5	-62	-20	Pass
	Mid Channel, 2441 MHz	Fundamental	2440.83	N/A	N/A	N/A
	Mid Channel, 2441 MHz	30 MHz - 12.5 GHz	2336.4	-56.91	-20	Pass
	Mid Channel, 2441 MHz	12.5 GHz - 25 GHz	20777.4	-61.73	-20	Pass
	High Channel, 2480 MHz	Fundamental	2479.83	N/A	N/A	N/A
	High Channel, 2480 MHz	30 MHz - 12.5 GHz	2324.3	-54.74	-20	Pass
	High Channel, 2480 MHz	12.5 GHz - 25 GHz	21186.4	-62.38	-20	Pass
Sink						
	DH5, GFSK					
	Low Channel, 2402 MHz	Fundamental	2402.16	N/A	N/A	N/A
	Low Channel, 2402 MHz	30 MHz - 12.5 GHz	2558.7	-55.63	-20	Pass
	Low Channel, 2402 MHz	12.5 GHz - 25 GHz	18262.4	-63.36	-20	Pass
	Mid Channel, 2441 MHz	Fundamental	2441.16	N/A	N/A	N/A
	Mid Channel, 2441 MHz	30 MHz - 12.5 GHz	2310.6	-56.09	-20	Pass
	Mid Channel, 2441 MHz	12.5 GHz - 25 GHz	24990.8	-63.27	-20	Pass
	High Channel, 2480 MHz	Fundamental	2480.16	N/A	N/A	N/A
	High Channel, 2480 MHz	30 MHz - 12.5 GHz	2350.1	-54.4	-20	Pass
	High Channel, 2480 MHz	12.5 GHz - 25 GHz	13630.8	-61.33	-20	Pass
	2DH5, pi/4-DQPSK					
	Low Channel, 2402 MHz	Fundamental	2402	N/A	N/A	N/A
	Low Channel, 2402 MHz	30 MHz - 12.5 GHz	2505.4	-56.37	-20	Pass
	Low Channel, 2402 MHz	12.5 GHz - 25 GHz	24047.7	-62.05	-20	Pass
	Mid Channel, 2441 MHz	Fundamental	2441	N/A	N/A	N/A
	Mid Channel, 2441 MHz	30 MHz - 12.5 GHz	2336.4	-56.09	-20	Pass
	Mid Channel, 2441 MHz	12.5 GHz - 25 GHz	24085.9	-61.12	-20	Pass
	High Channel, 2480 MHz	Fundamental	2480	N/A	N/A	N/A
	High Channel, 2480 MHz	30 MHz - 12.5 GHz	2350.1	-54.44	-20	Pass
	High Channel, 2480 MHz	12.5 GHz - 25 GHz	24720.7	-61.42	-20	Pass
	3DH5, 8-DPSK					
	Low Channel, 2402 MHz	Fundamental	2401.83	N/A	N/A	N/A
	Low Channel, 2402 MHz	30 MHz - 12.5 GHz	2558.7	-56.66	-20	Pass
	Low Channel, 2402 MHz	12.5 GHz - 25 GHz	24281.2	-62.25	-20	Pass
	Mid Channel, 2441 MHz	Fundamental	2440.83	N/A	N/A	N/A
	Mid Channel, 2441 MHz	30 MHz - 12.5 GHz	2336.4	-55.89	-20	Pass
	Mid Channel, 2441 MHz	12.5 GHz - 25 GHz	16580.7	-61.32	-20	Pass
	High Channel, 2480 MHz	Fundamental	2479.83	N/A	N/A	N/A
	High Channel, 2480 MHz	30 MHz - 12.5 GHz	2350.1	-55	-20	Pass
	High Channel, 2480 MHz	12.5 GHz - 25 GHz	24012.6	-61.32	-20	Pass

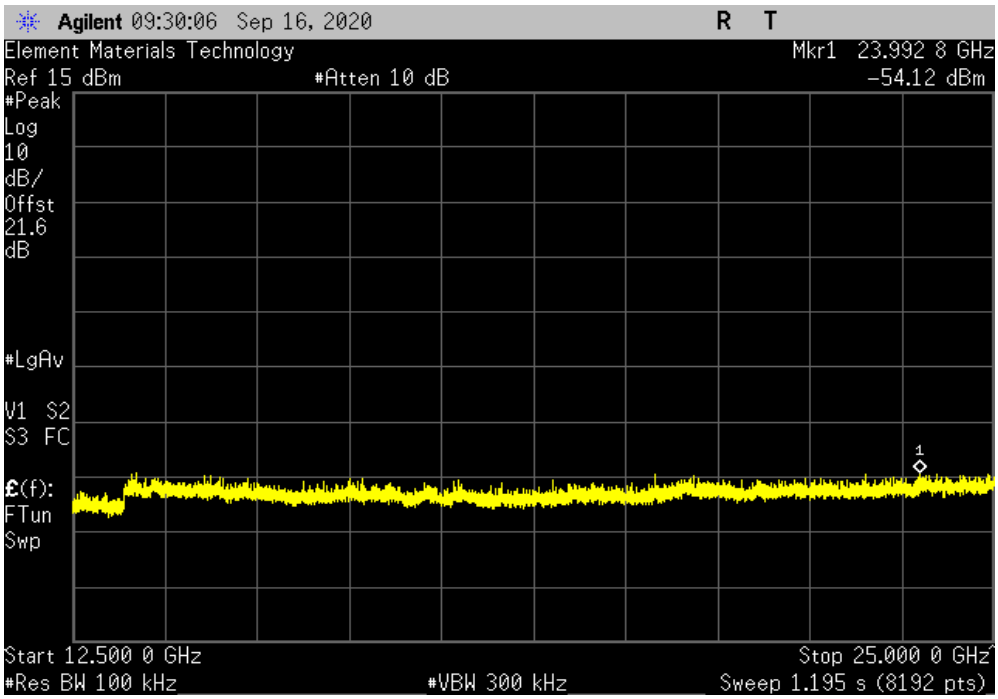
Source, DH5, GFSK, Low Channel, 2402 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2402.16	N/A	N/A	N/A



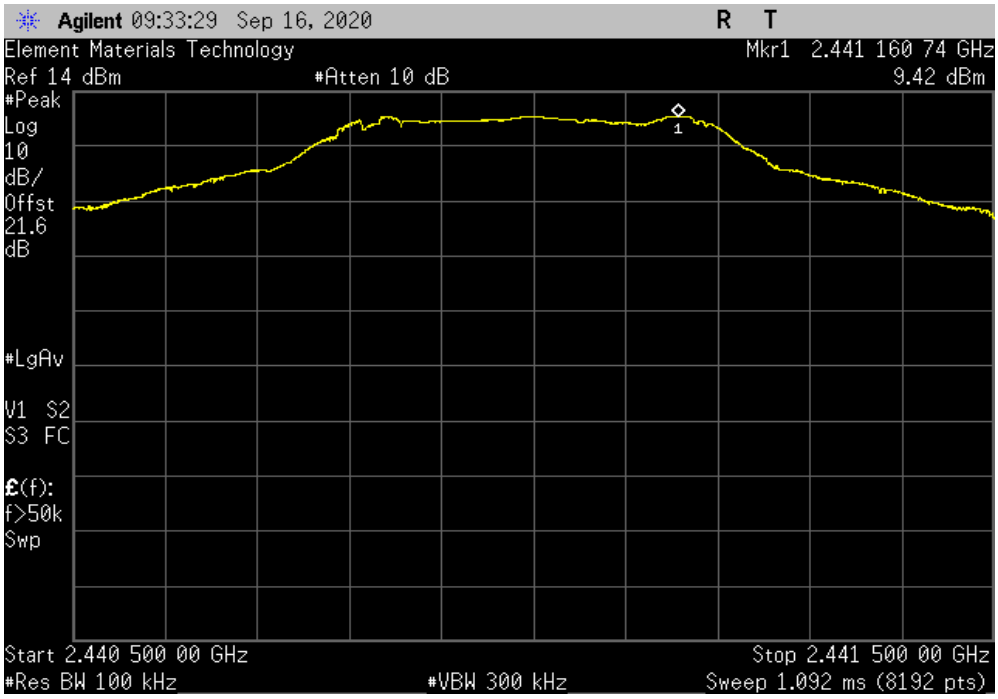
Source, DH5, GFSK, Low Channel, 2402 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	2558.7	-56.06	-20	Pass



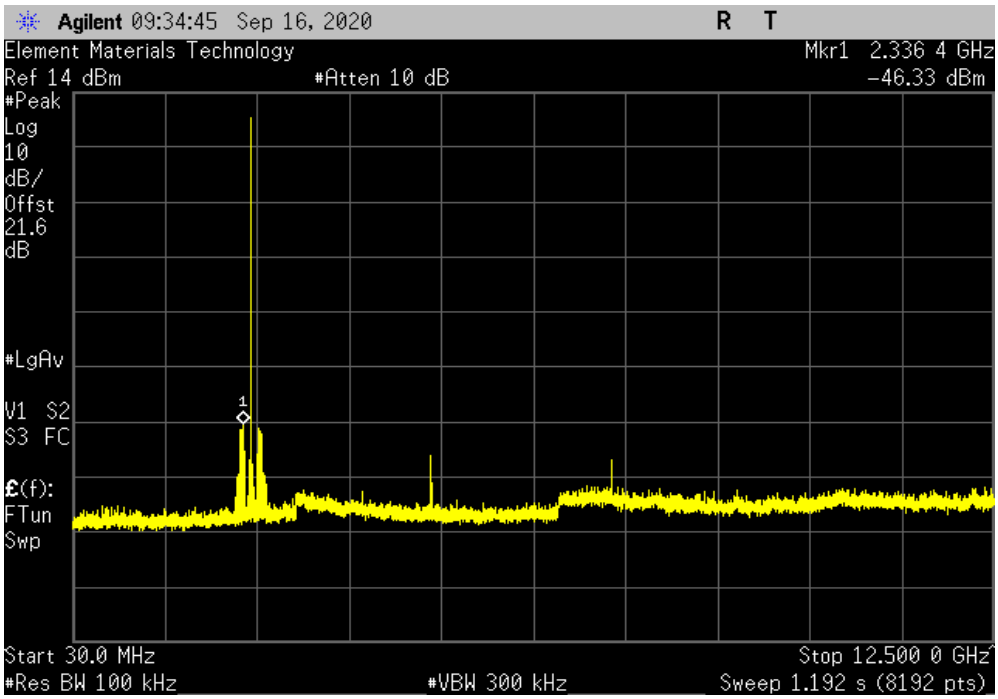
Source, DH5, GFSK, Low Channel, 2402 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz	23992.8	-63.91	-20	Pass



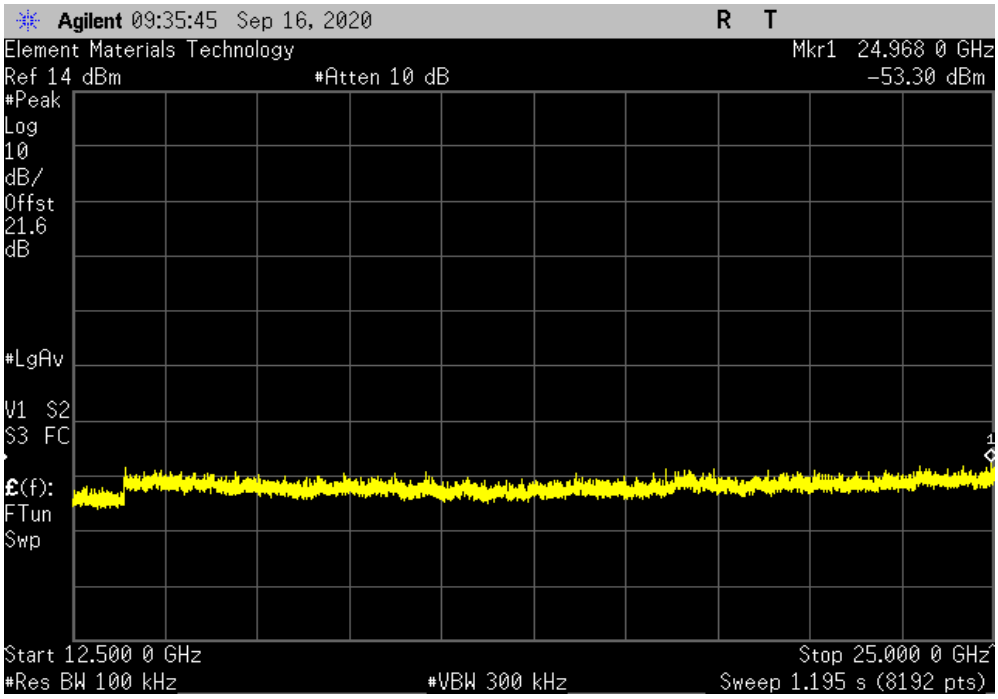
Source, DH5, GFSK, Mid Channel, 2441 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
Fundamental		2441.16	N/A	N/A	N/A



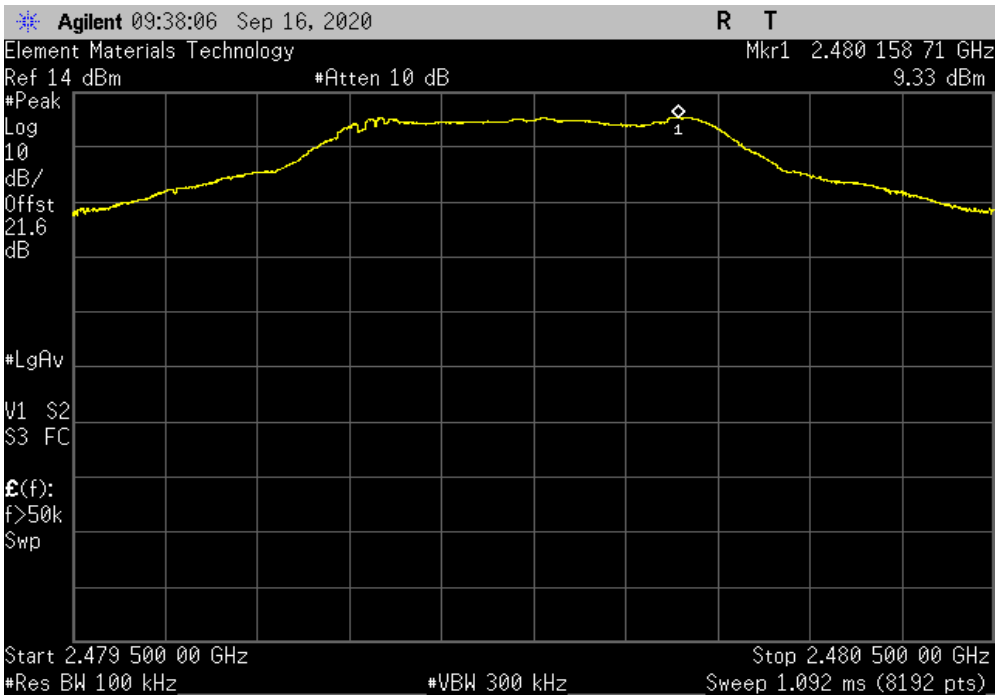
Source, DH5, GFSK, Mid Channel, 2441 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	2336.4	-55.75	-20	Pass



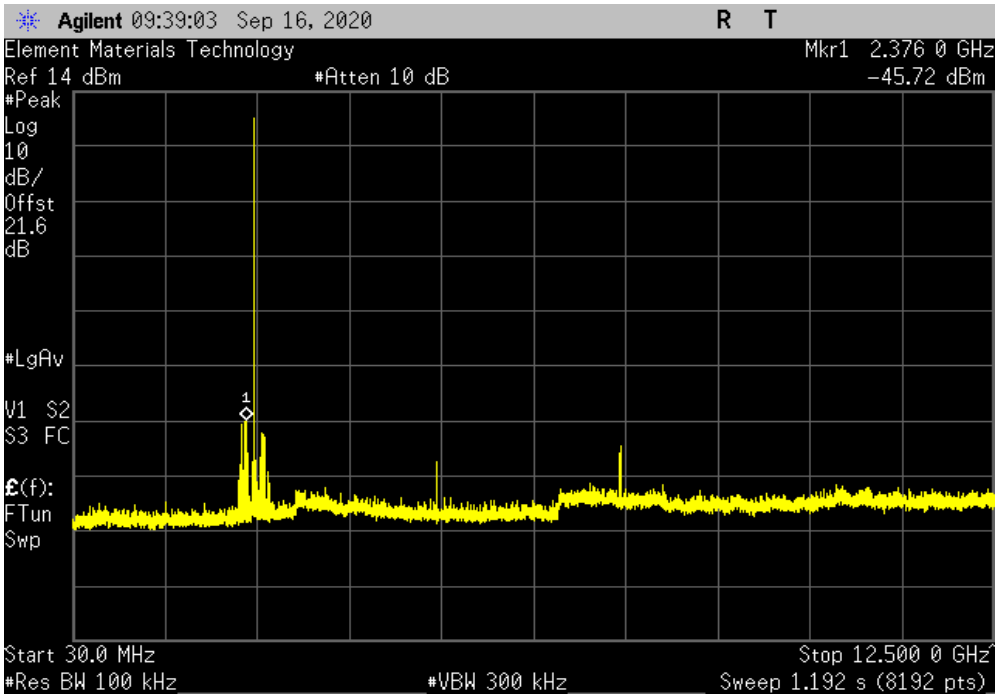
Source, DH5, GFSK, Mid Channel, 2441 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24968	-62.72	-20	Pass



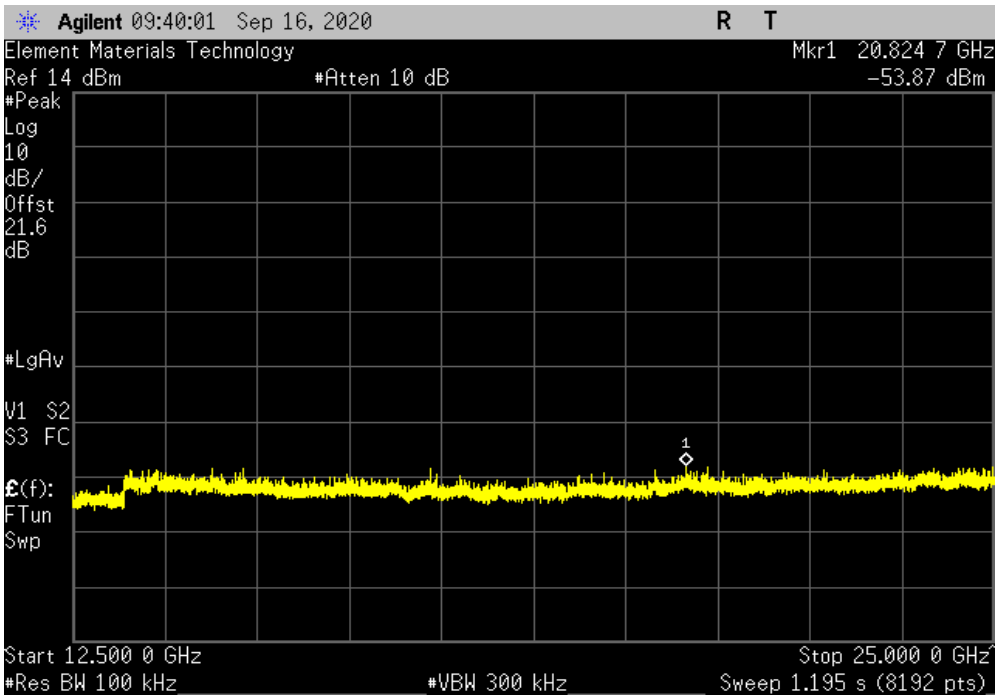
Source, DH5, GFSK, High Channel, 2480 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2480.16	N/A	N/A	N/A



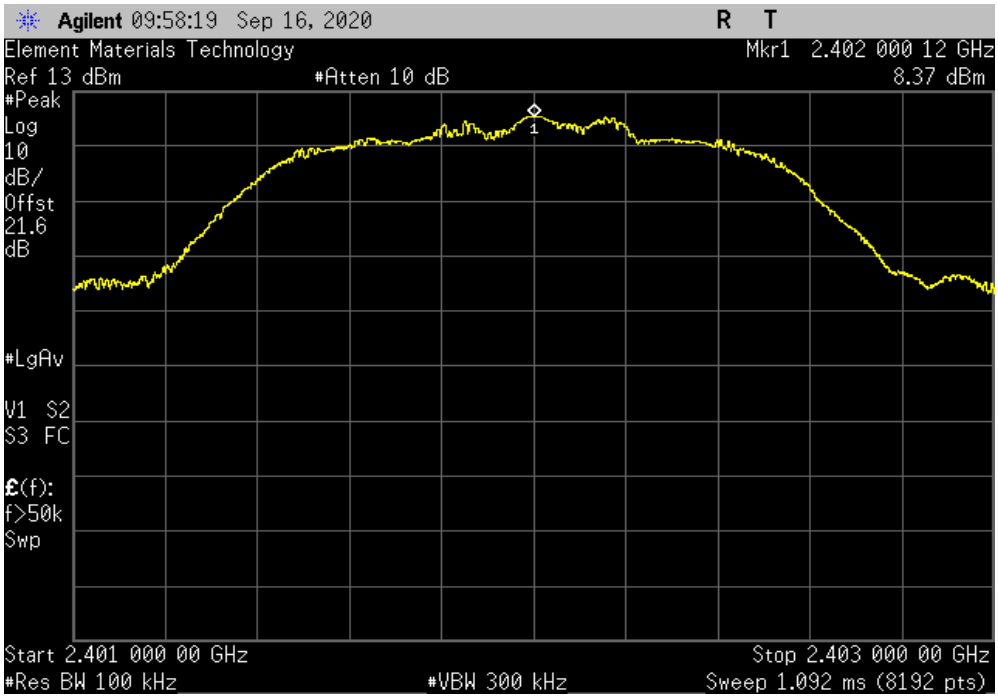
Source, DH5, GFSK, High Channel, 2480 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	2376	-55.05	-20	Pass



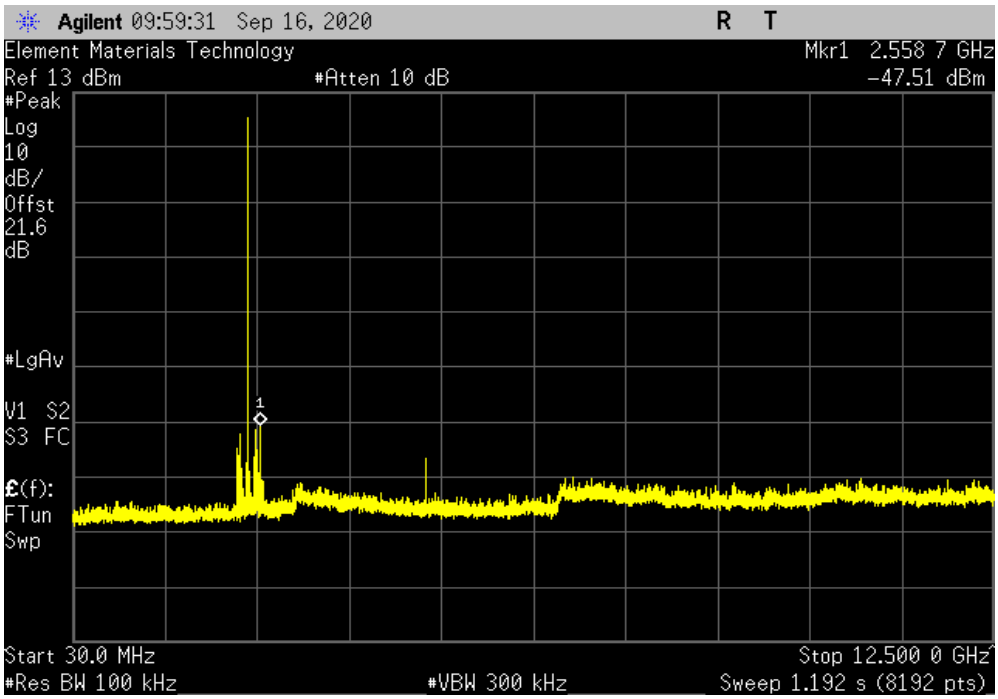
Source, DH5, GFSK, High Channel, 2480 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	20824.7	-63.2	-20	Pass



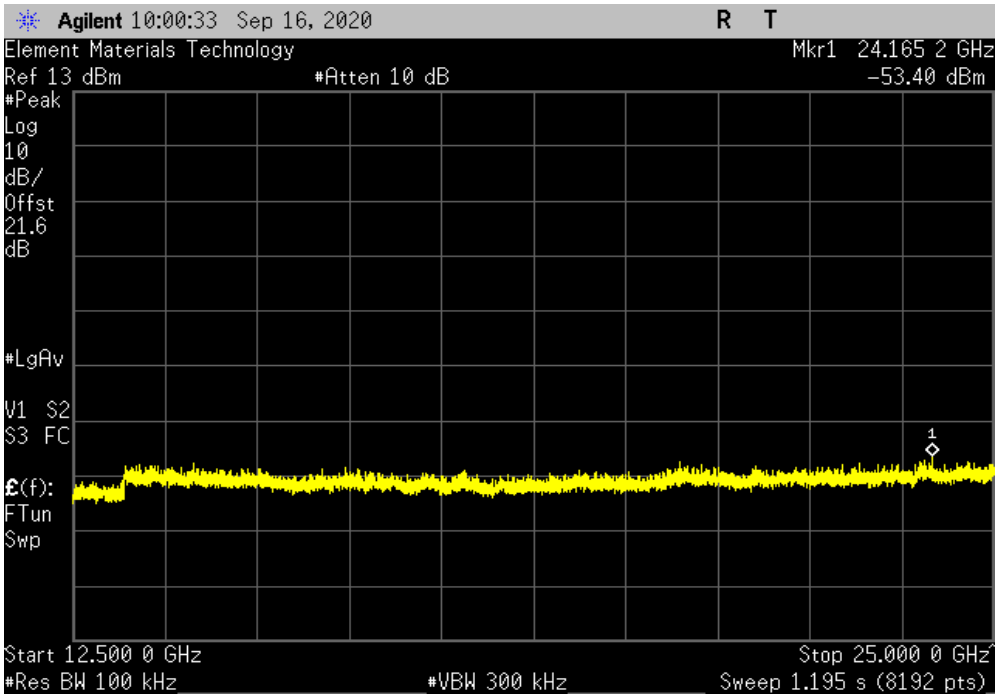
Source, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
Fundamental	2402	N/A	N/A	N/A



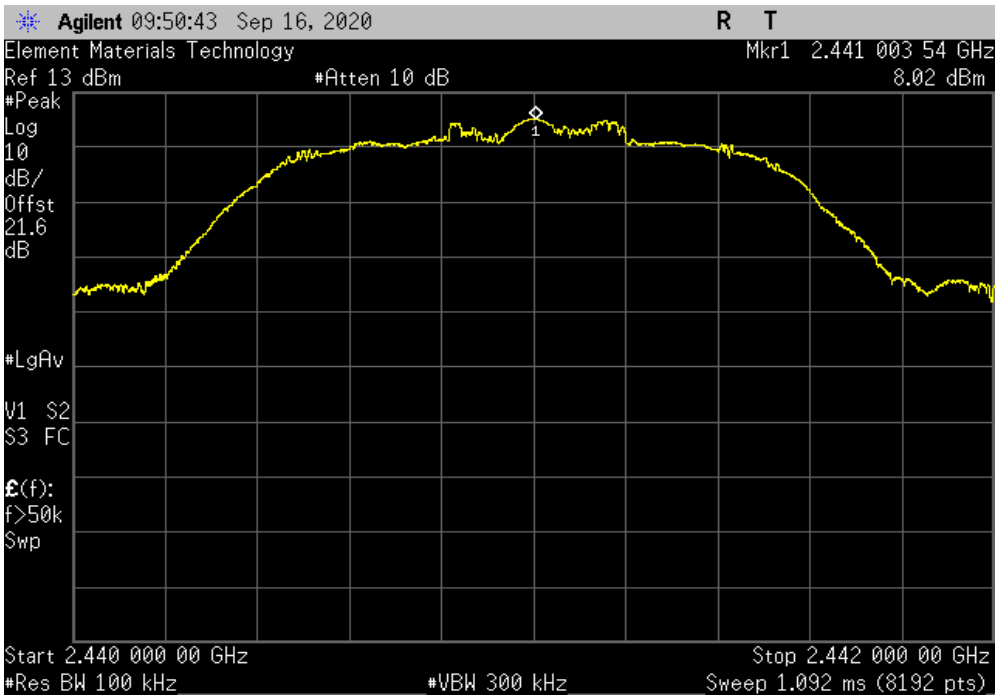
Source, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	2558.7	-55.88	-20	Pass



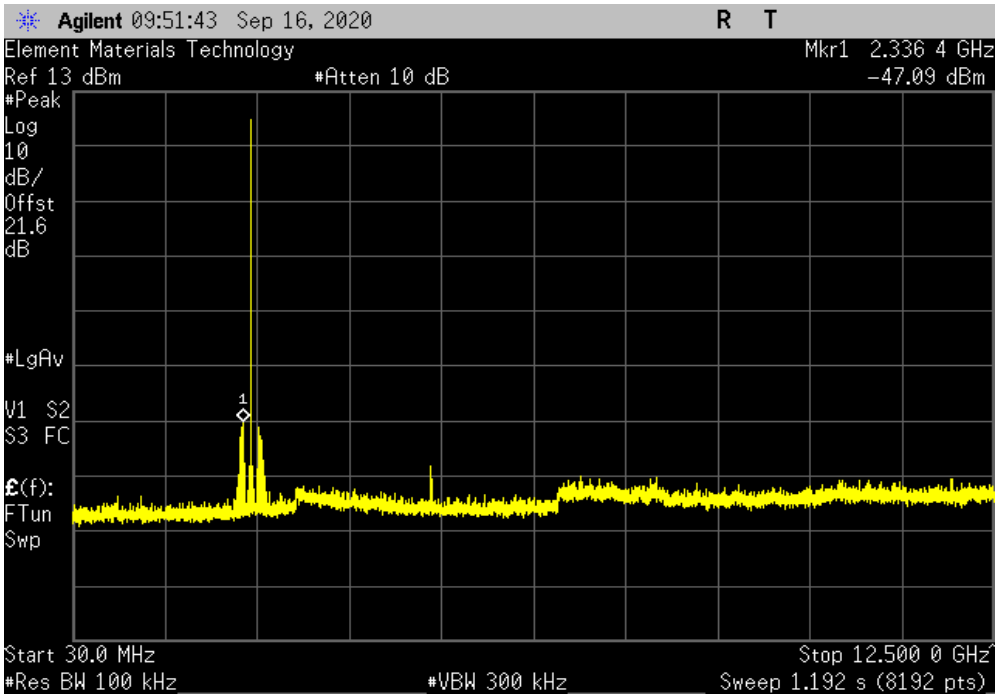
Source, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24165.2	-61.77	-20	Pass



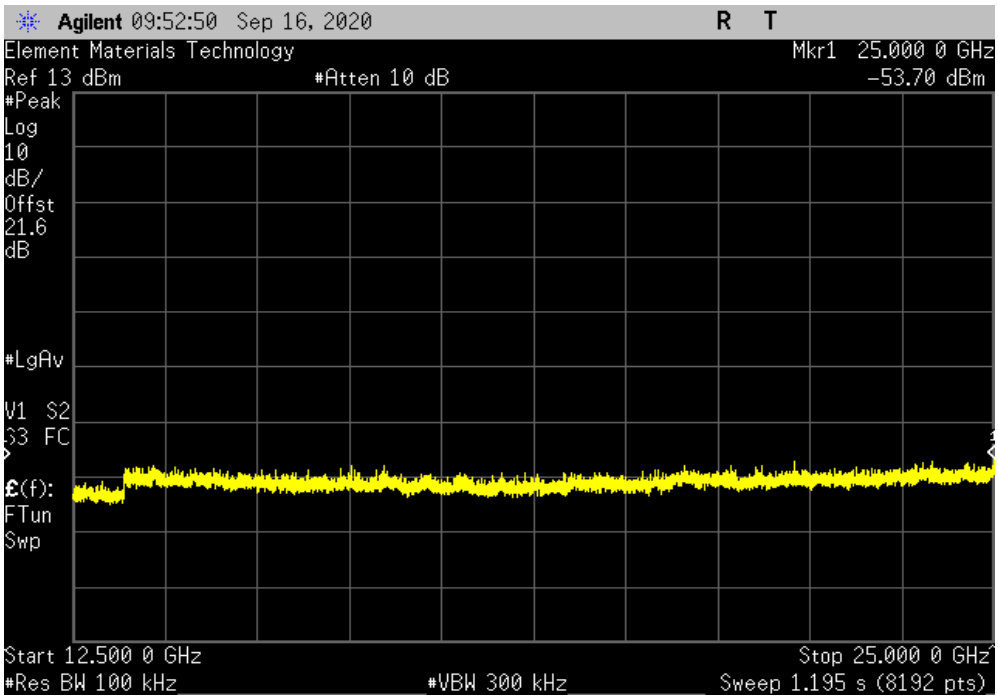
Source, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz						
	Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental		2441	N/A	N/A	N/A



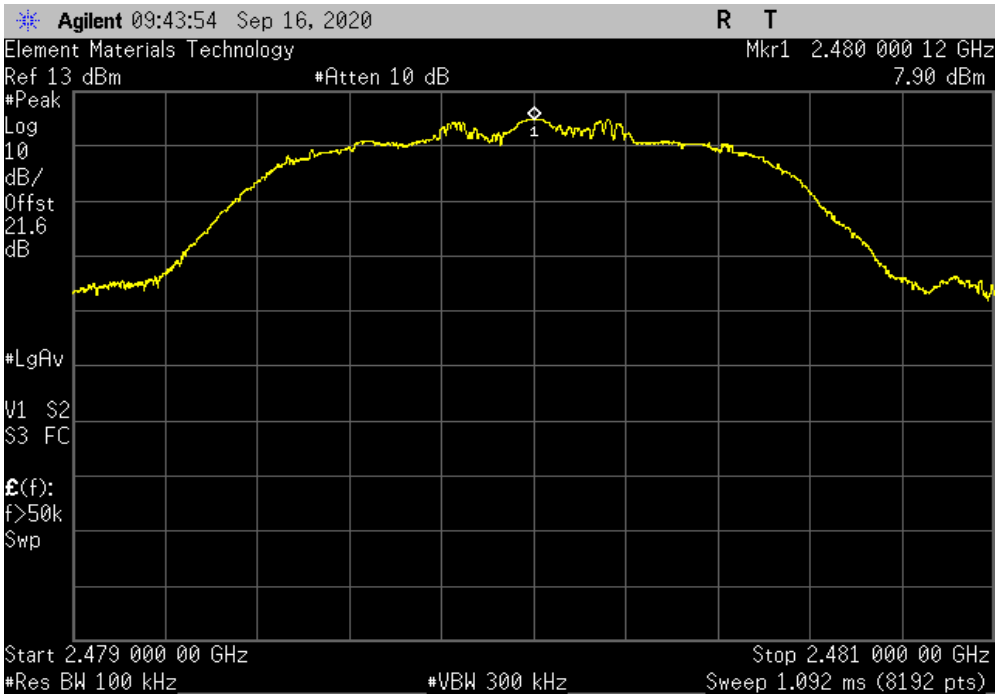
Source, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	2336.4	-55.11	-20	Pass



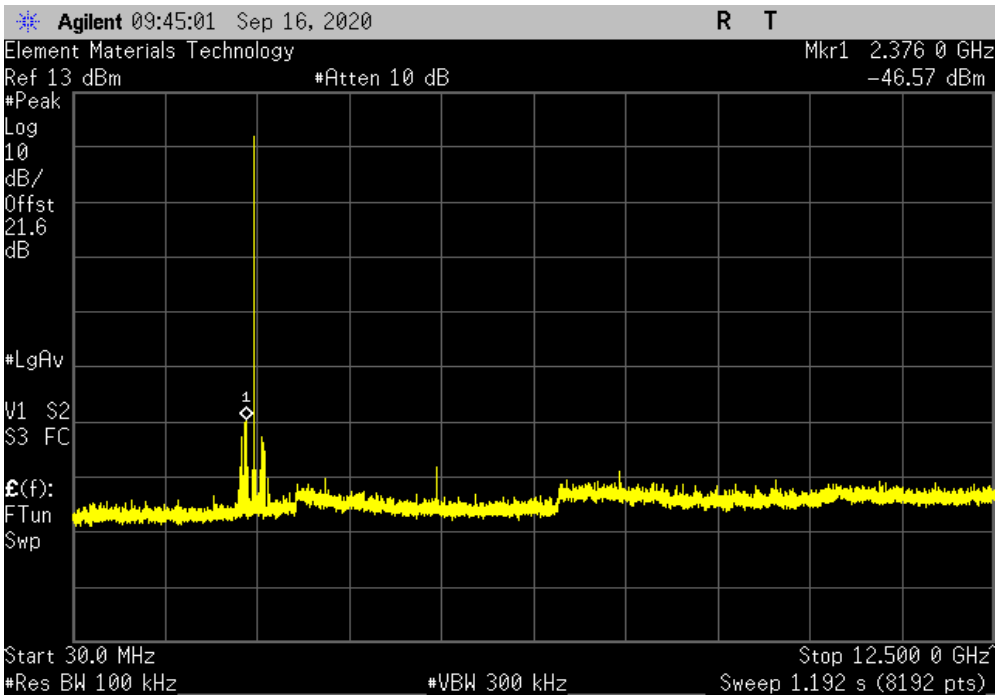
Source, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz	25000	-61.72	-20	Pass



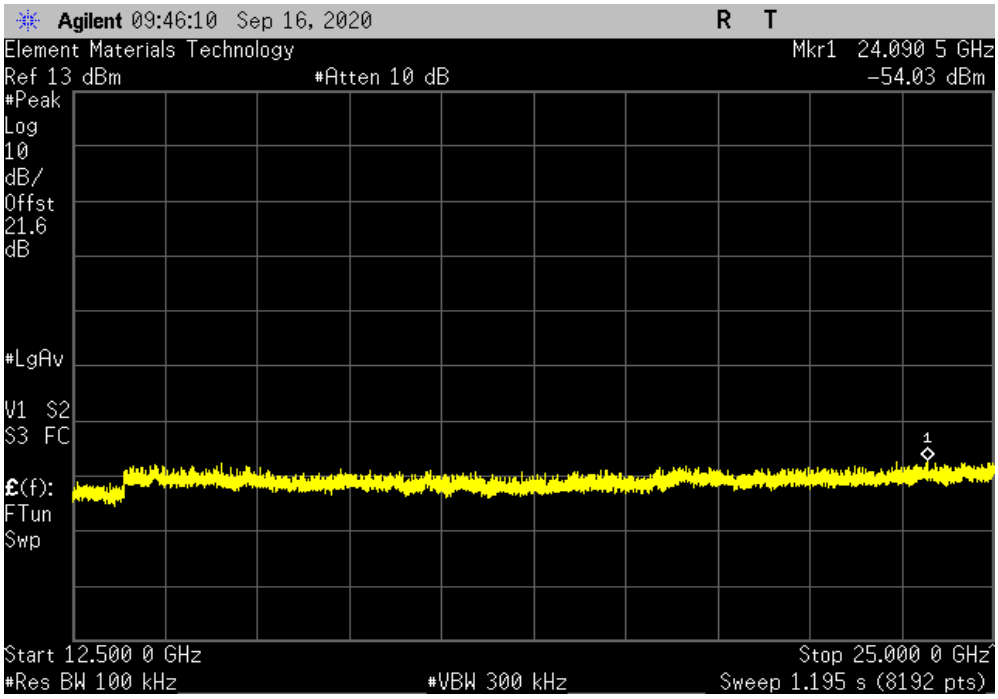
Source, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
Fundamental		2480	N/A	N/A	N/A



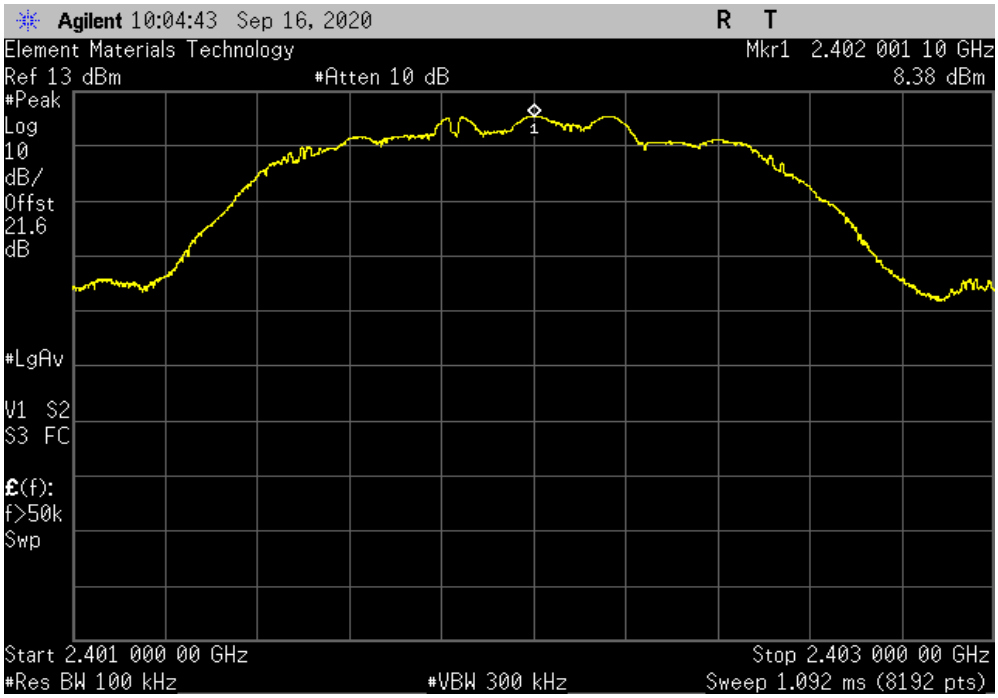
Source, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	2376	-54.47	-20	Pass



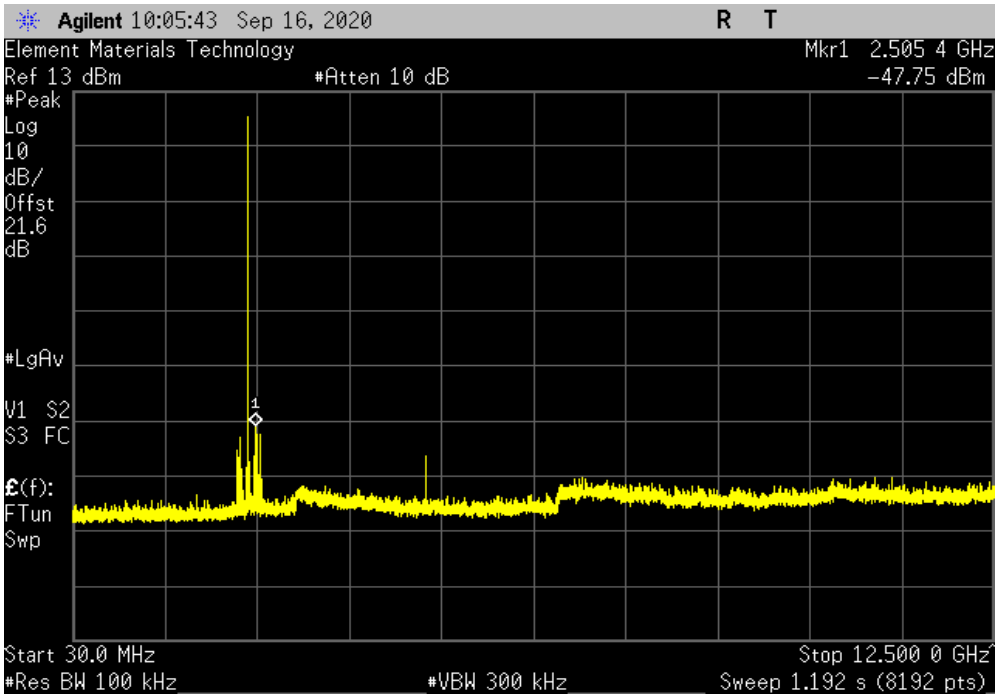
Source, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24090.5	-61.93	-20	Pass



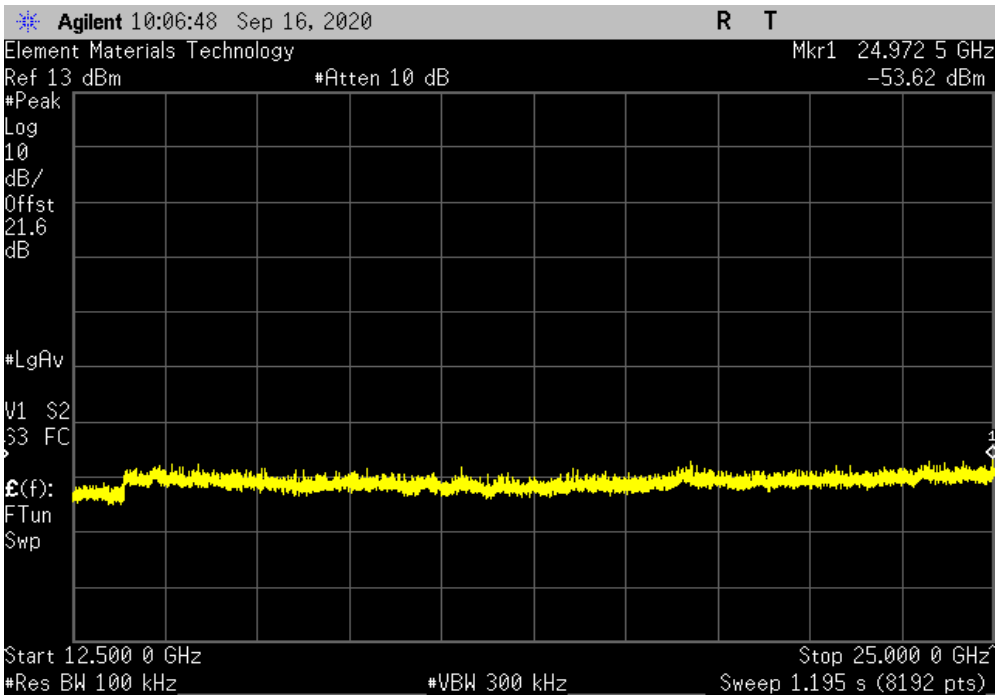
Source, 3DH5, 8-DPSK, Low Channel, 2402 MHz						
	Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental		2402	N/A	N/A	N/A



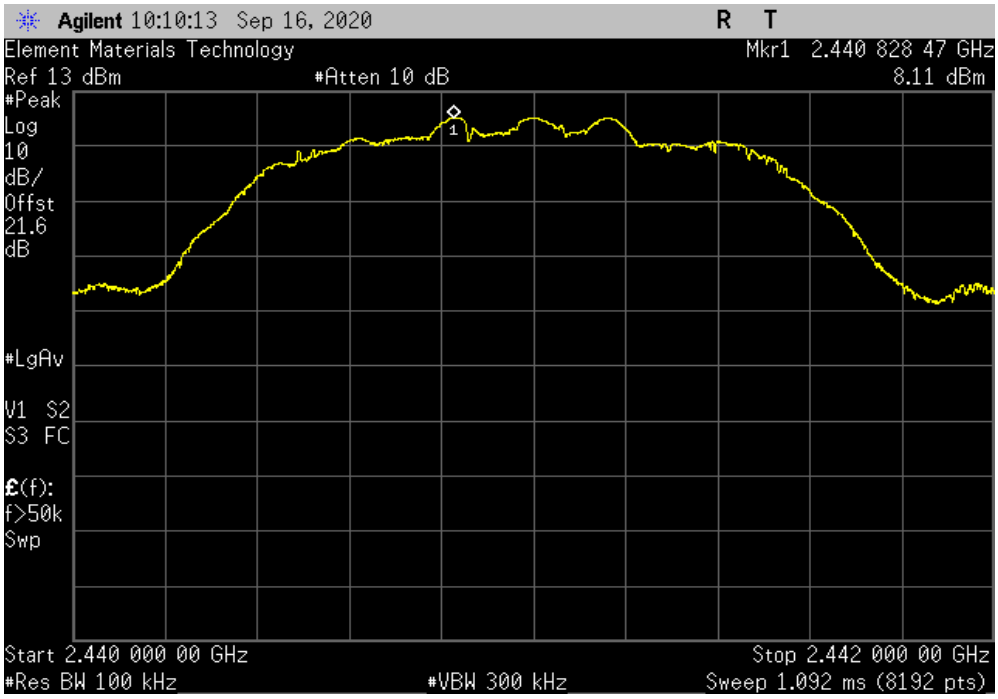
Source, 3DH5, 8-DPSK, Low Channel, 2402 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	2505.4	-56.13	-20	Pass



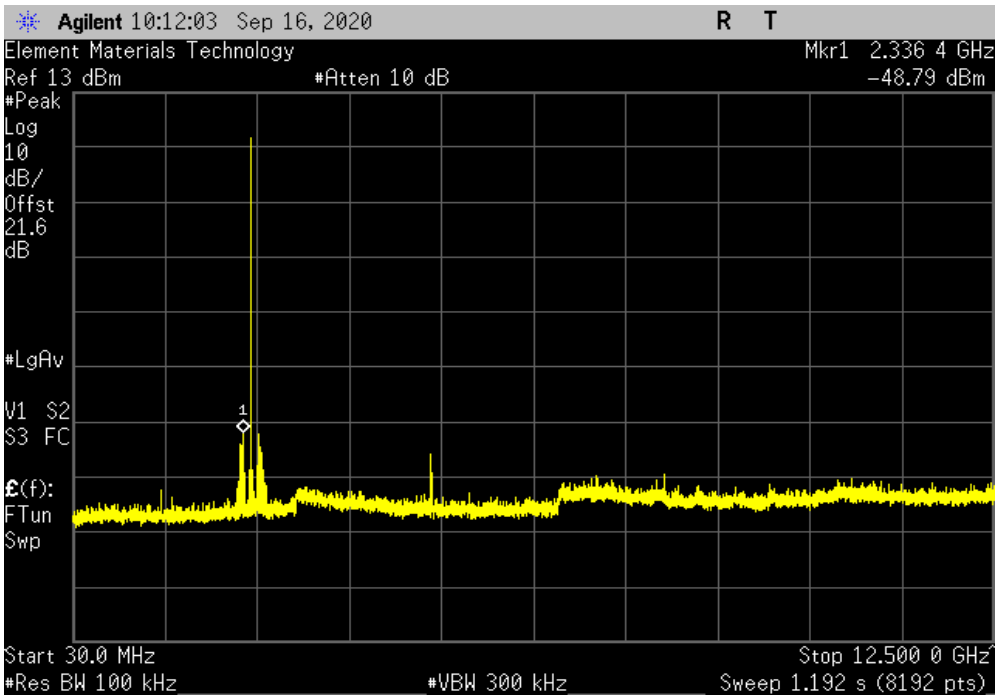
Source, 3DH5, 8-DPSK, Low Channel, 2402 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24972.5	-62	-20	Pass



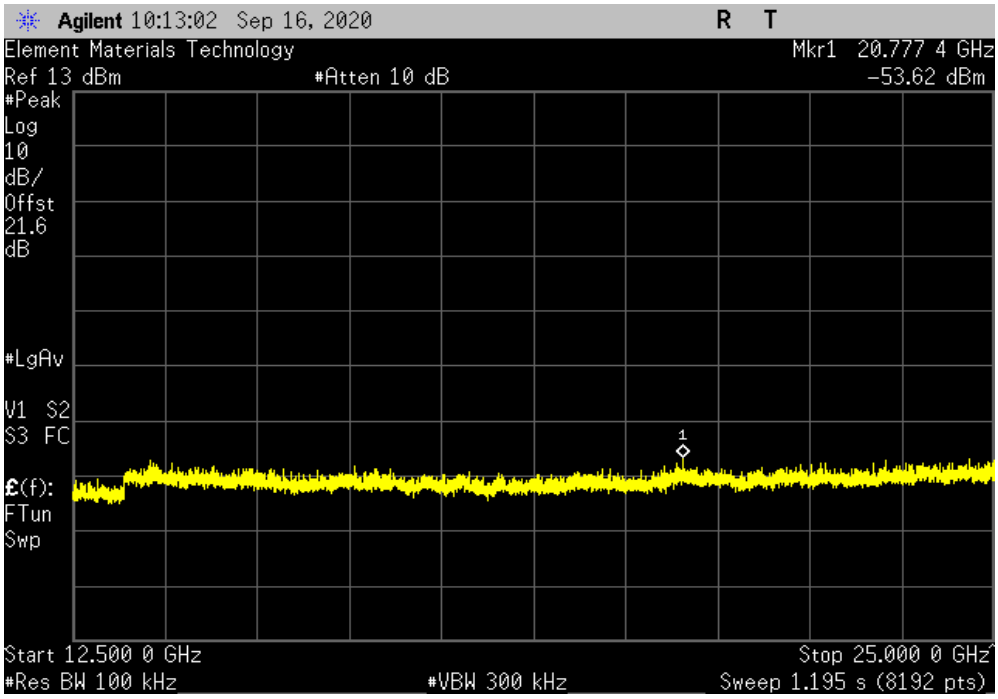
Source, 3DH5, 8-DPSK, Mid Channel, 2441 MHz					
Frequency Range		**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
	Fundamental	2440.83	N/A	N/A	N/A



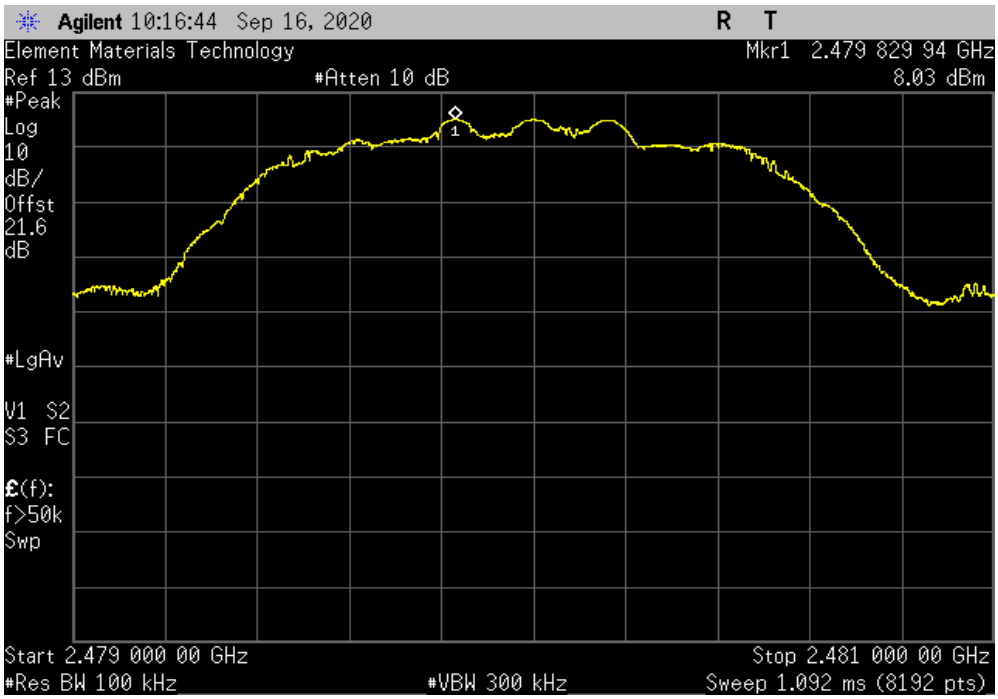
Source, 3DH5, 8-DPSK, Mid Channel, 2441 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	2336.4	-56.91	-20	Pass



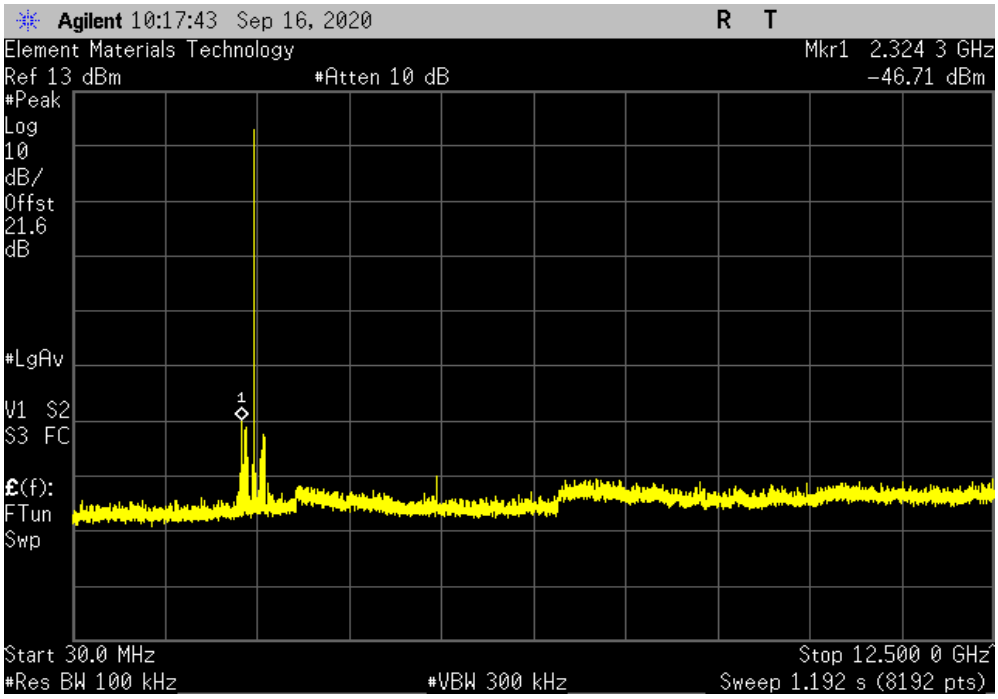
Source, 3DH5, 8-DPSK, Mid Channel, 2441 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	20777.4	-61.73	-20	Pass



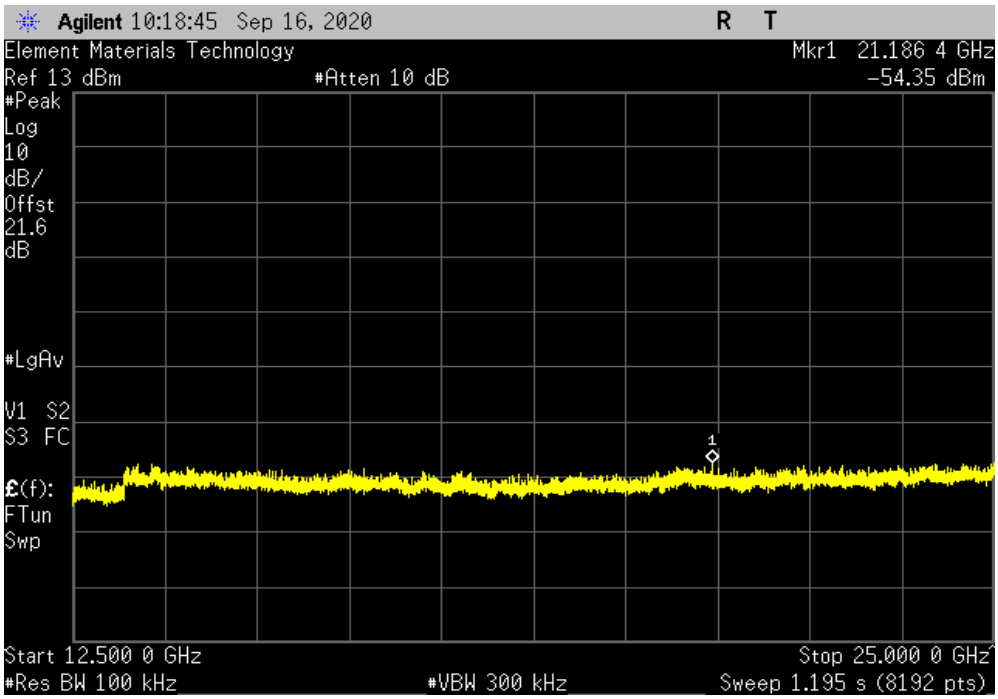
Source, 3DH5, 8-DPSK, High Channel, 2480 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
Fundamental		2479.83	N/A	N/A	N/A



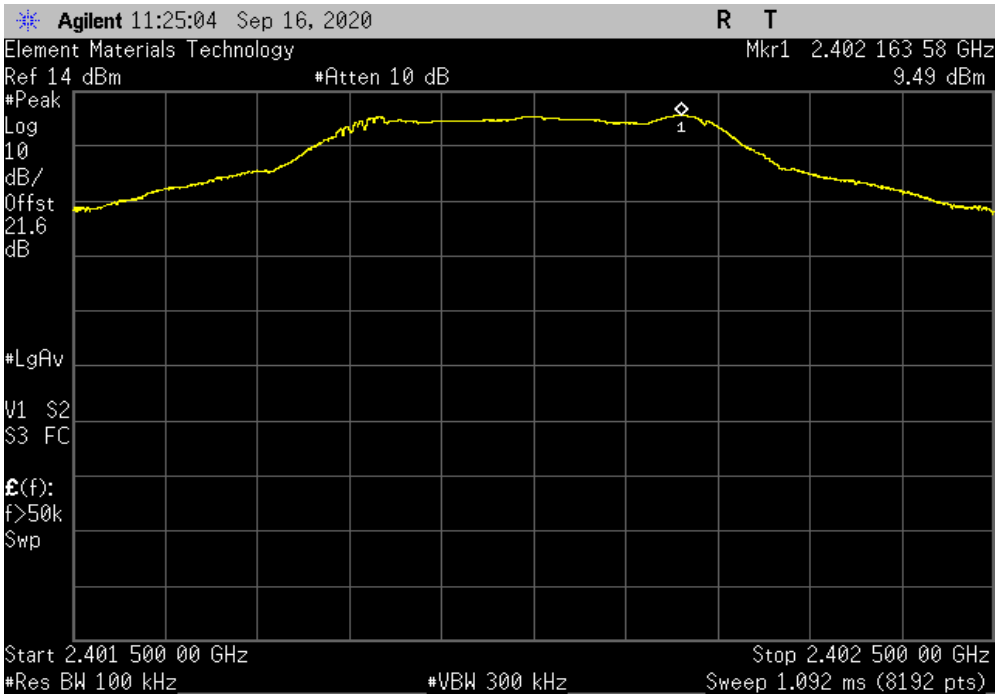
Source, 3DH5, 8-DPSK, High Channel, 2480 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	2324.3	-54.74	-20	Pass



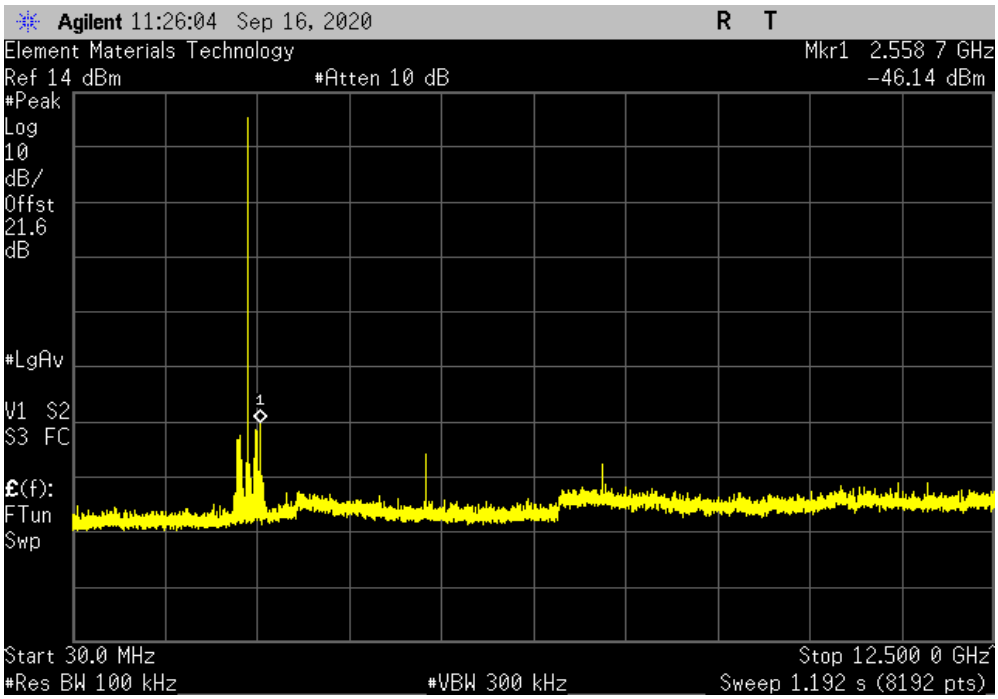
Source, 3DH5, 8-DPSK, High Channel, 2480 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	21186.4	-62.38	-20	Pass



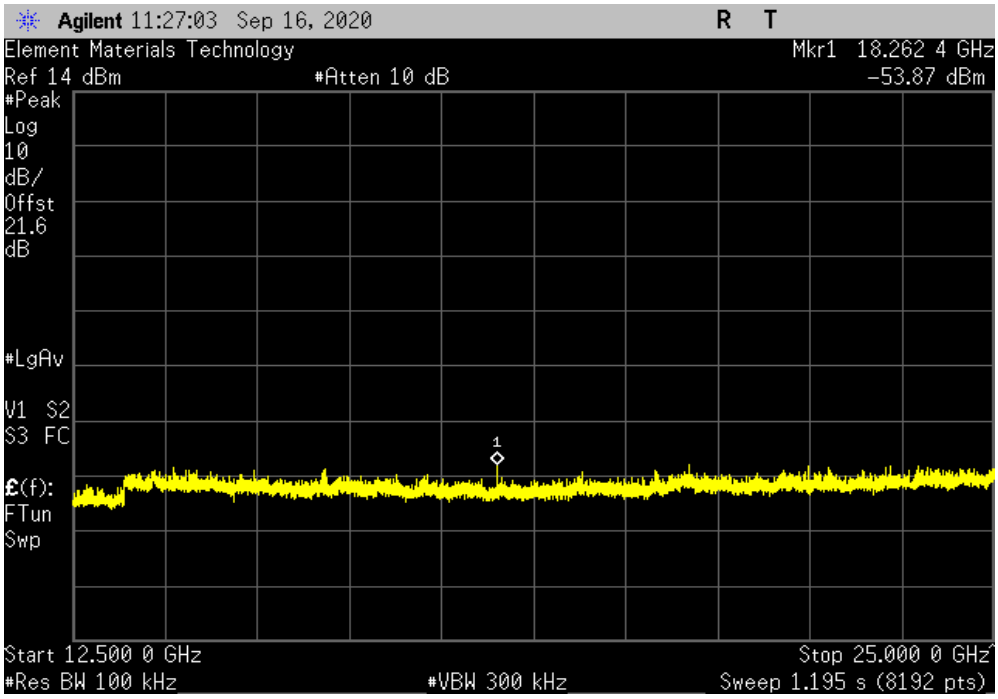
Sink, DH5, GFSK, Low Channel, 2402 MHz					
Frequency Range		**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
Fundamental		2402.16	N/A	N/A	N/A



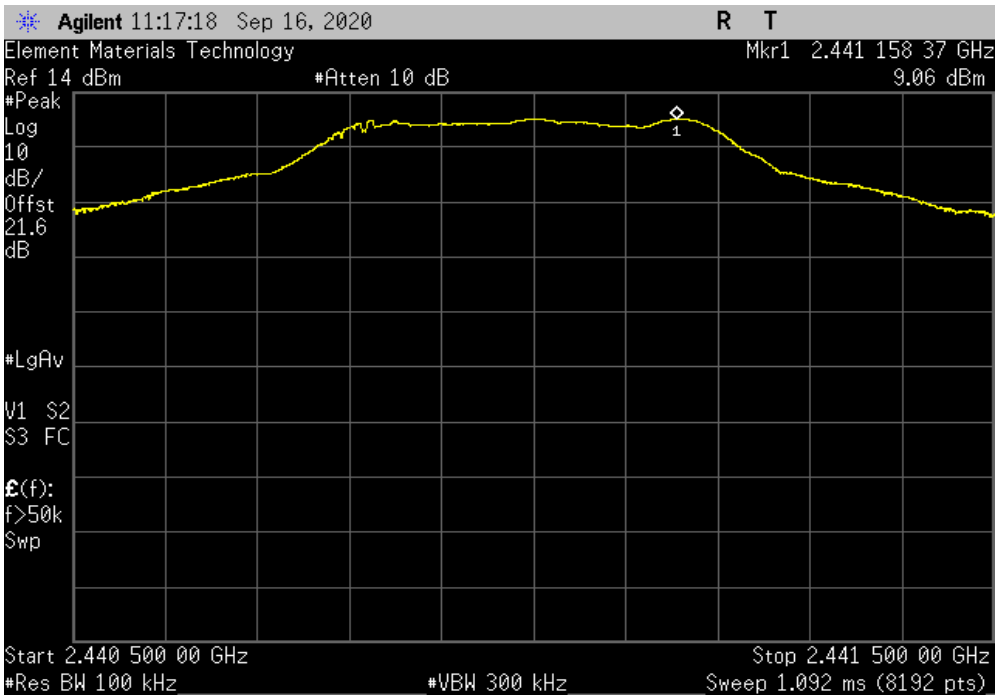
Sink, DH5, GFSK, Low Channel, 2402 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	2558.7	-55.63	-20	Pass



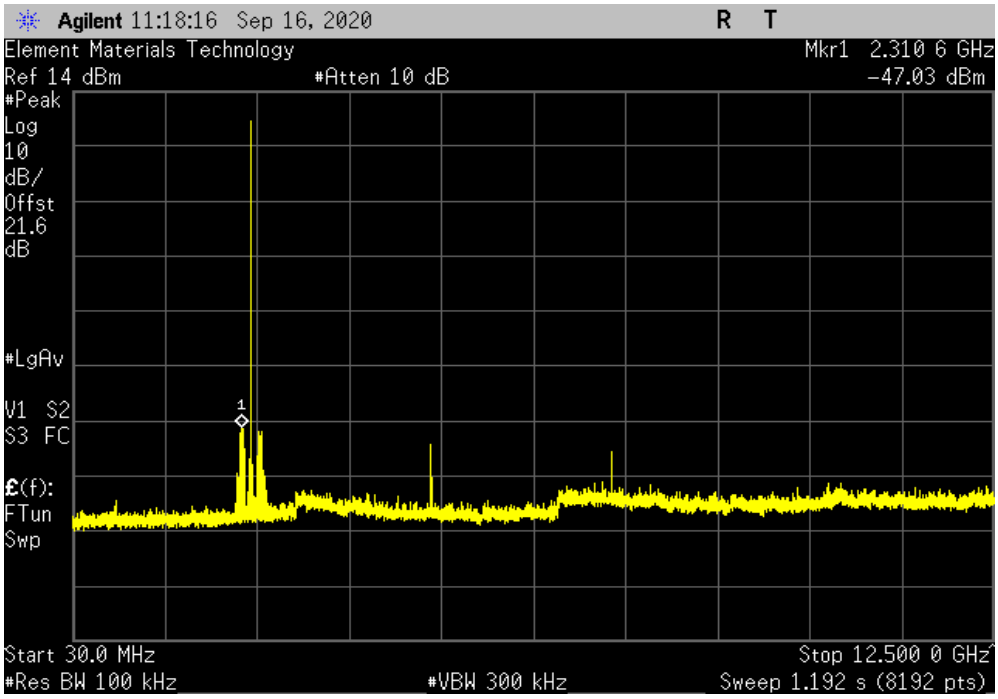
Sink, DH5, GFSK, Low Channel, 2402 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	18262.4	-63.36	-20	Pass



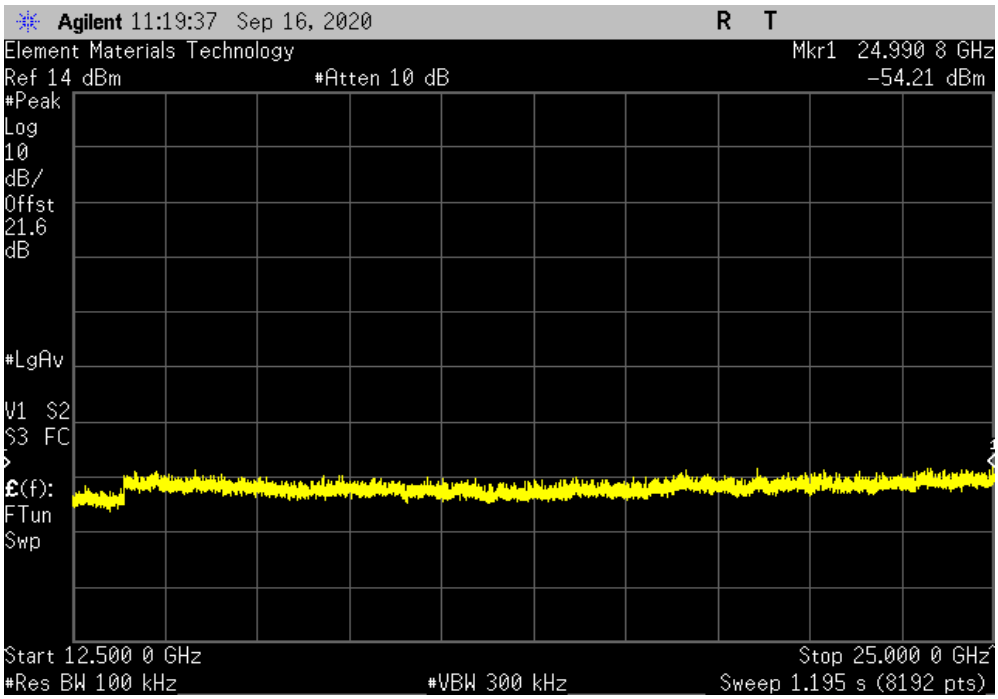
Sink, DH5, GFSK, Mid Channel, 2441 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2441.16	N/A	N/A	N/A



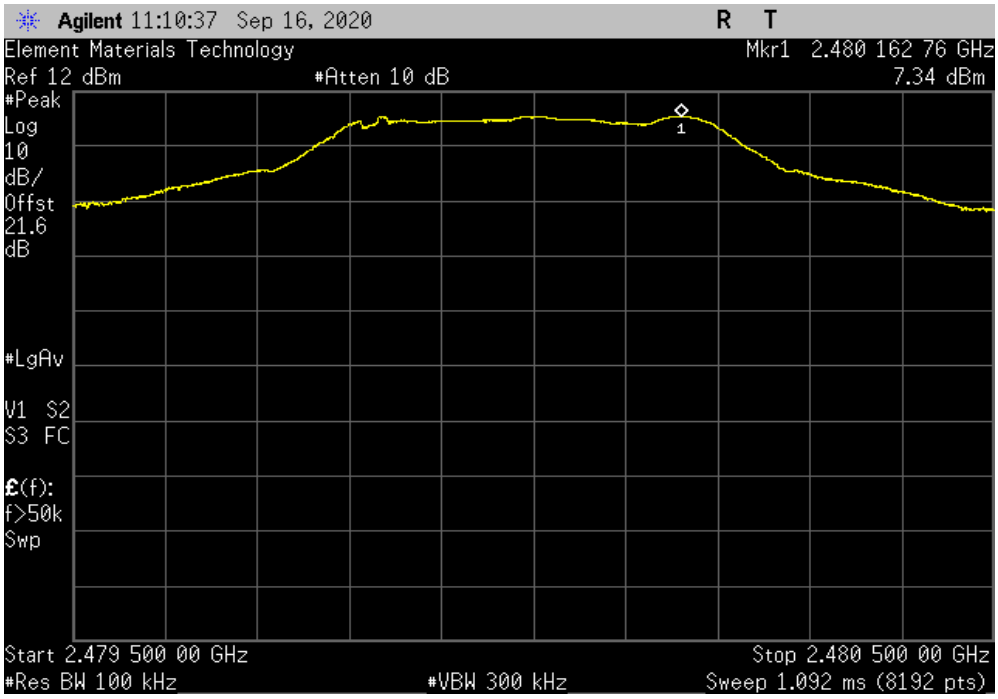
Sink, DH5, GFSK, Mid Channel, 2441 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	2310.6	-56.09	-20	Pass



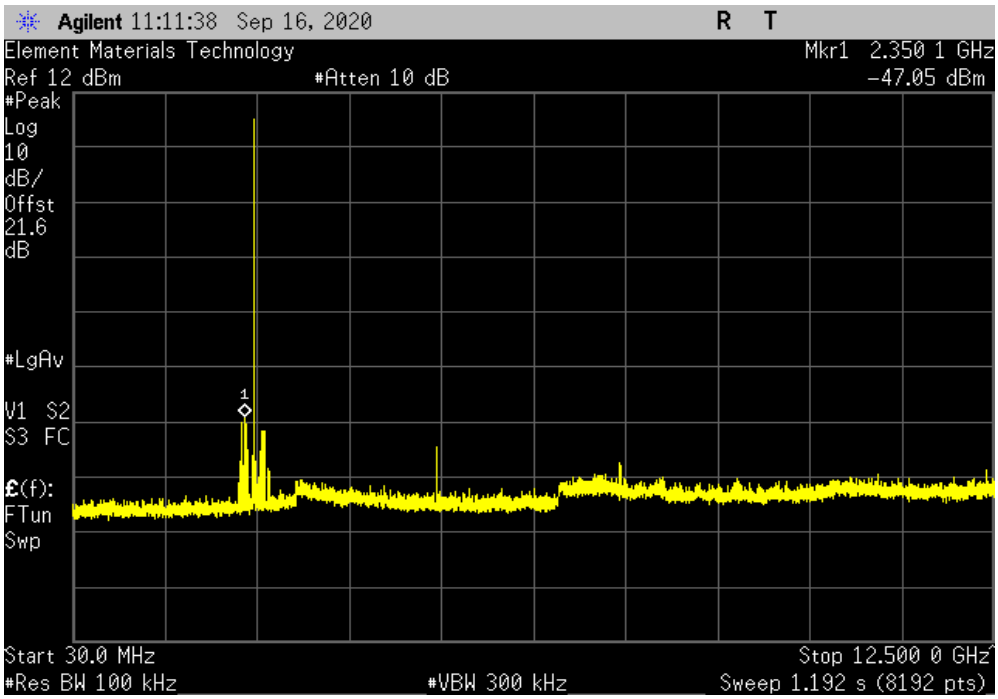
Sink, DH5, GFSK, Mid Channel, 2441 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz	24990.8	-63.27	-20	Pass



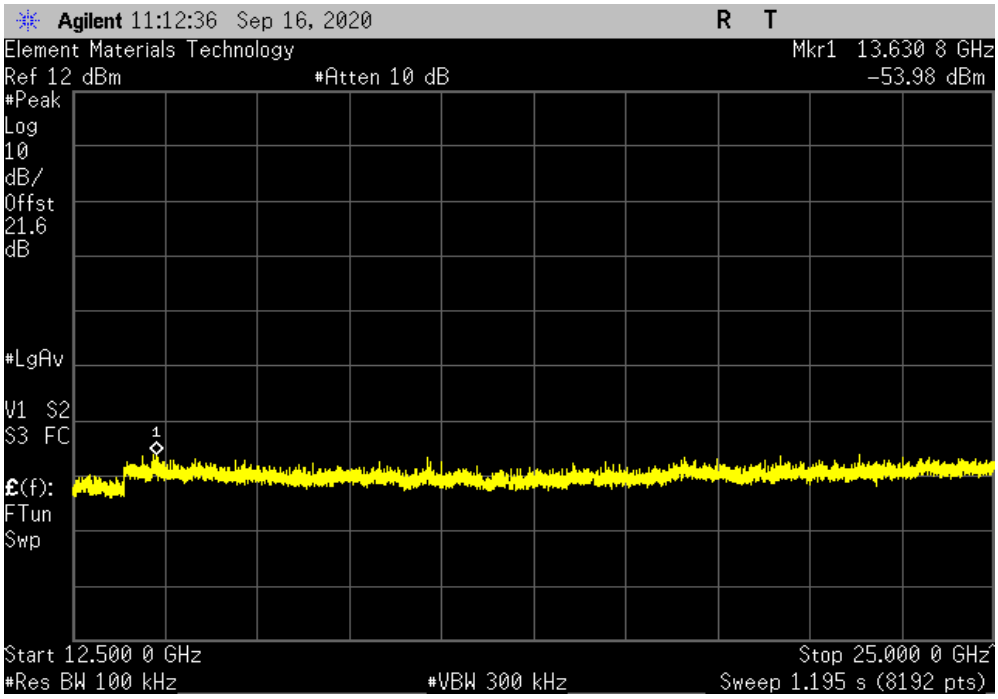
Sink, DH5, GFSK, High Channel, 2480 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
Fundamental	2480.16	N/A	N/A	N/A



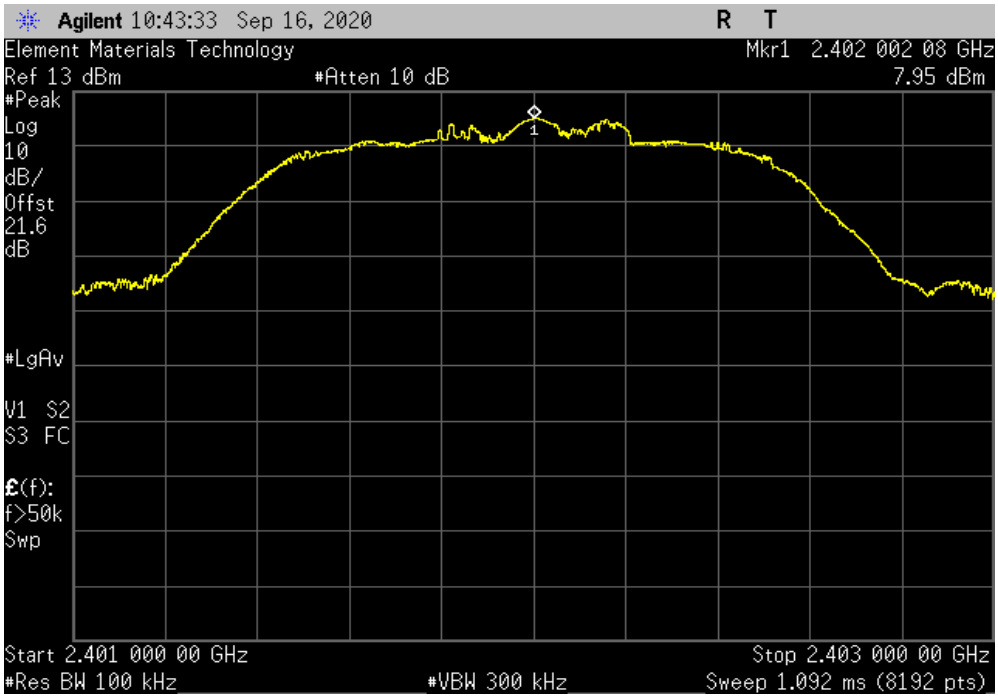
Sink, DH5, GFSK, High Channel, 2480 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	2350.1	-54.4	-20	Pass



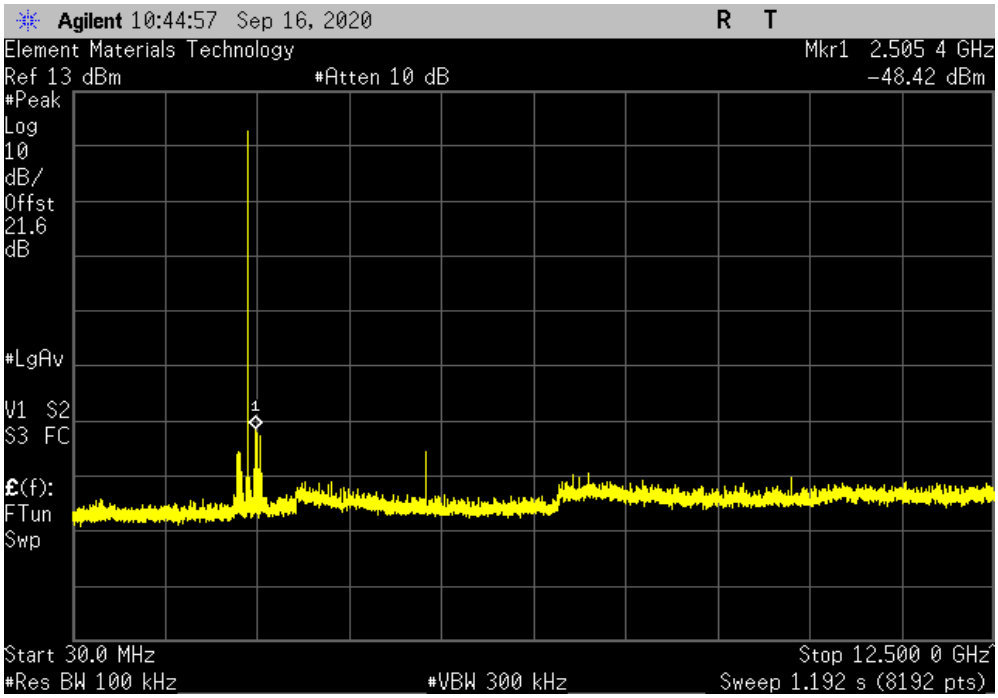
Sink, DH5, GFSK, High Channel, 2480 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz	13630.8	-61.33	-20	Pass



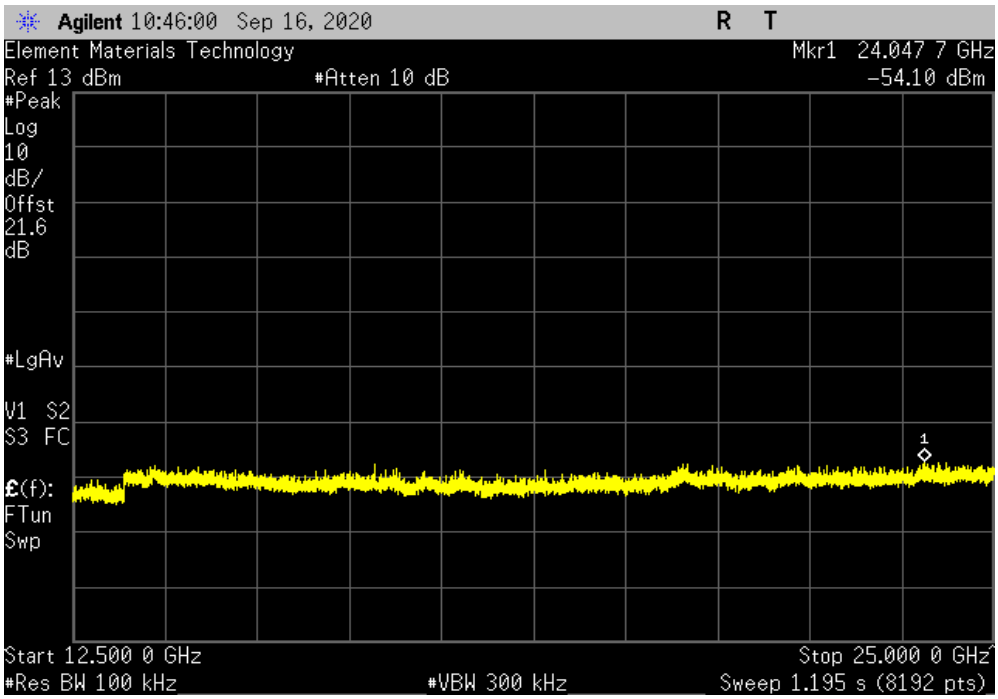
Sink, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
	Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental		2402	N/A	N/A	N/A



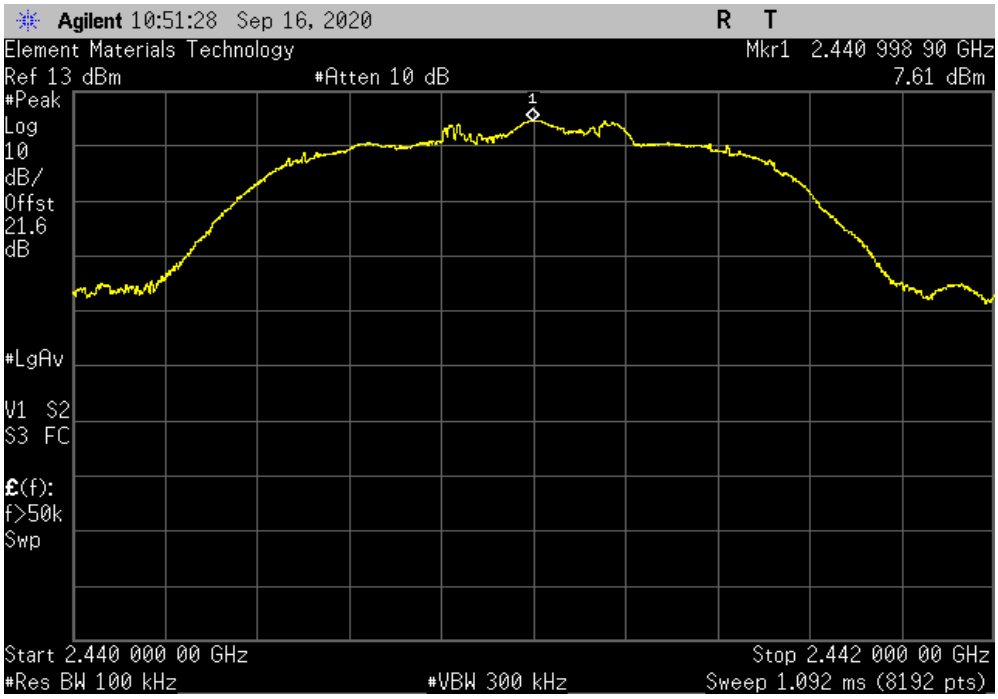
Sink, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	2505.4	-56.37	-20	Pass



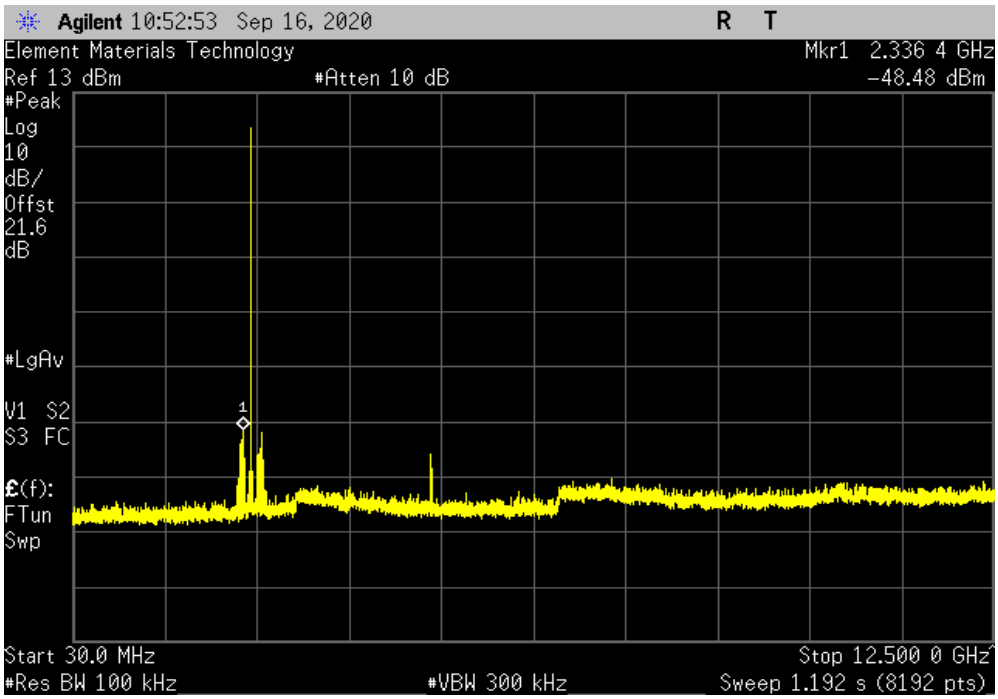
Sink, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz	24047.7	-62.05	-20	Pass



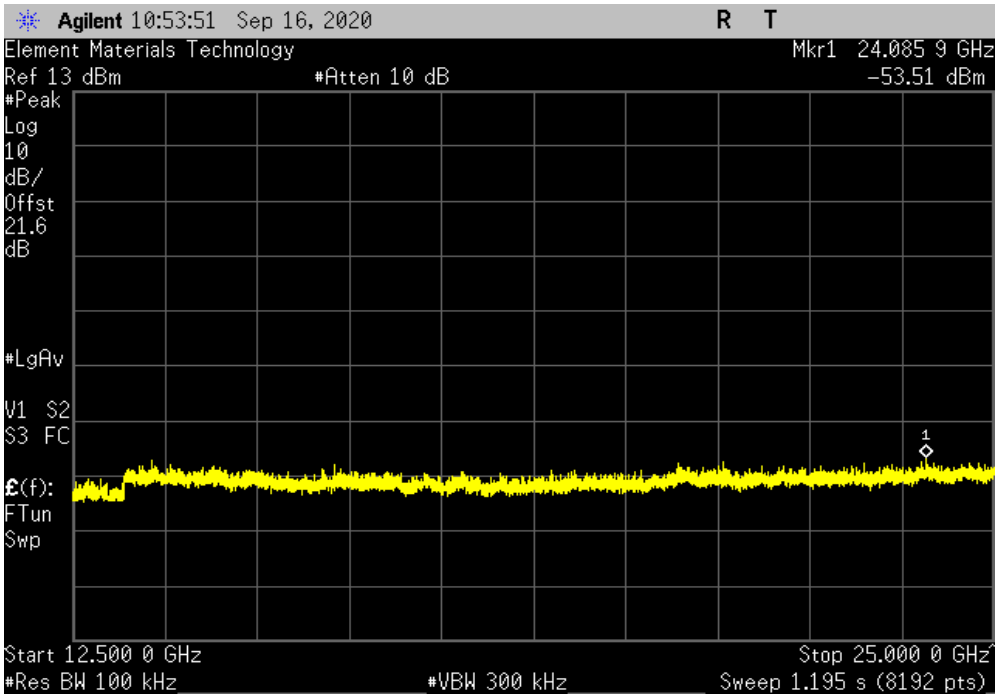
Sink, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
Fundamental	2441	N/A	N/A	N/A



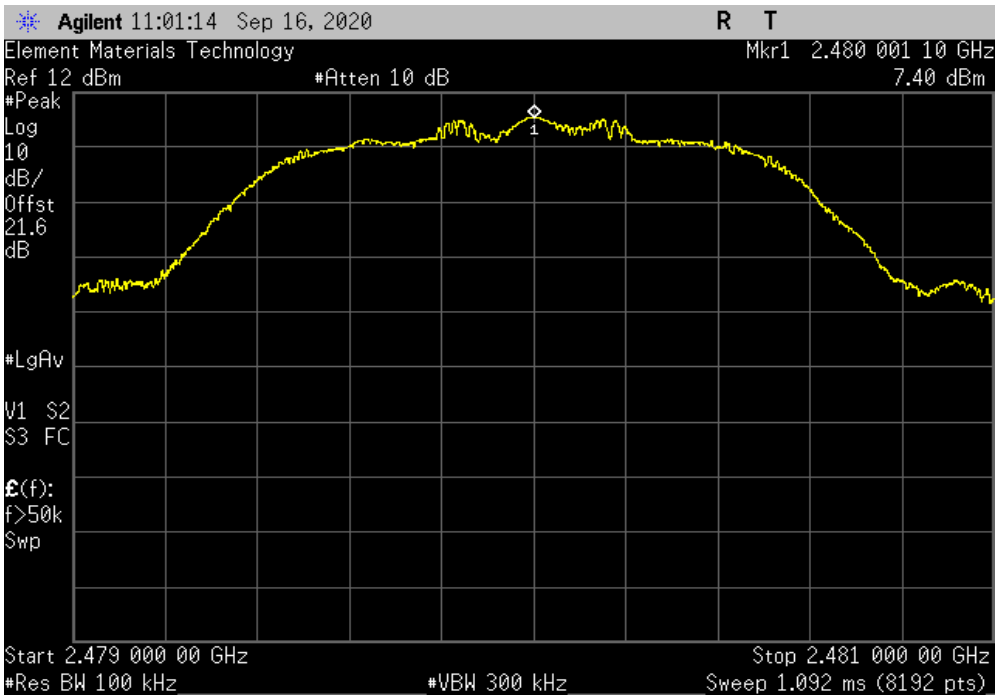
Sink, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	2336.4	-56.09	-20	Pass



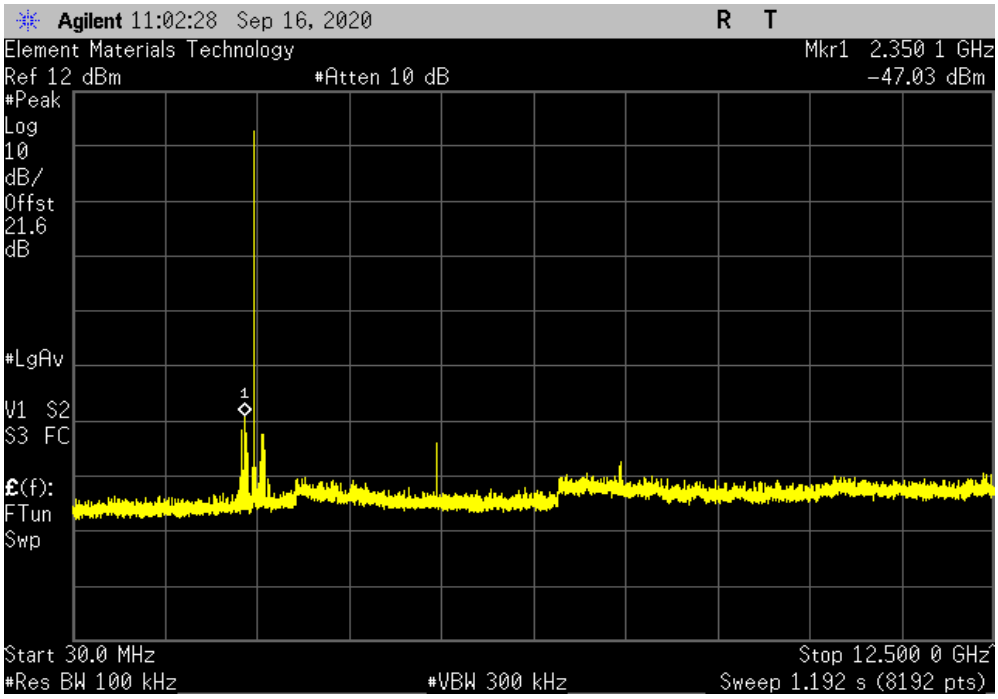
Sink, 2DH5, pi/4-DQPSK, Mid Channel, 2441 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24085.9	-61.12	-20	Pass



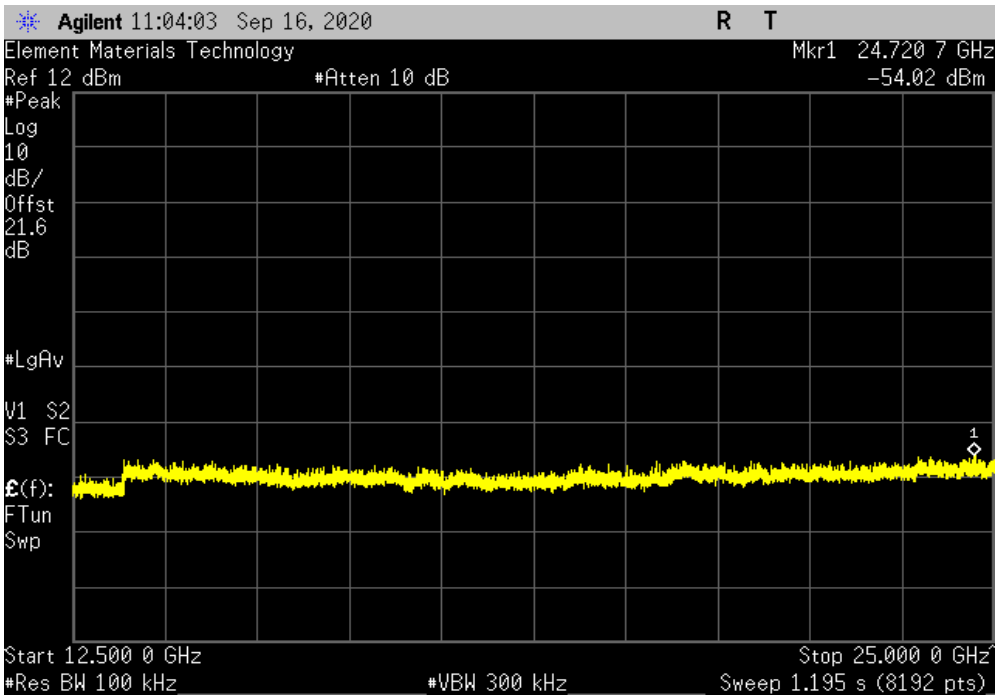
Sink, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz						
	Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental		2480	N/A	N/A	N/A



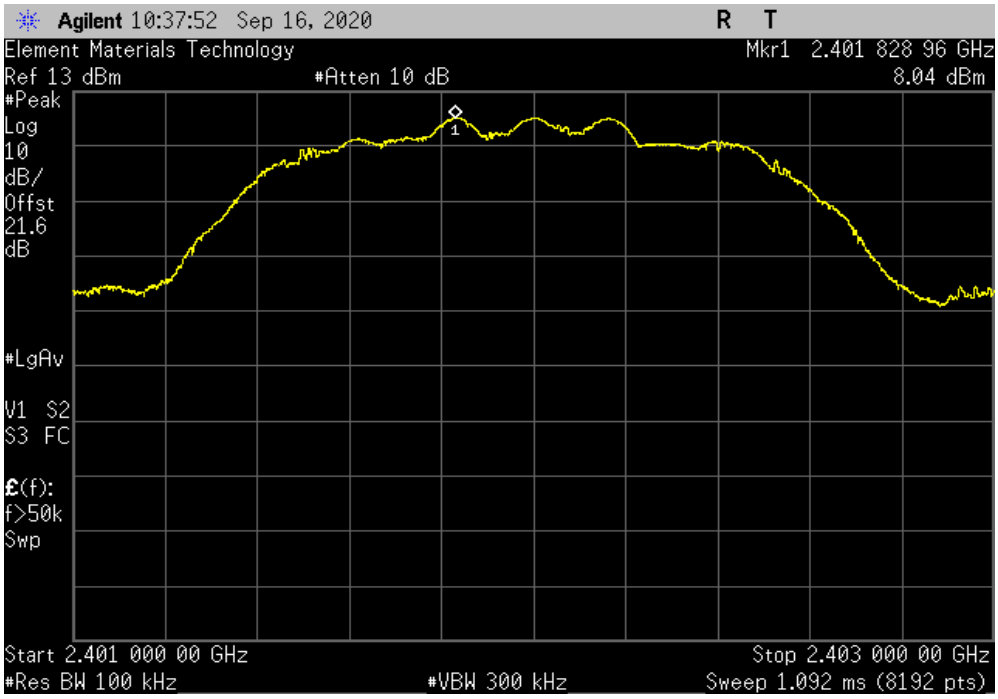
Sink, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz					
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	2350.1	-54.44	-20	Pass



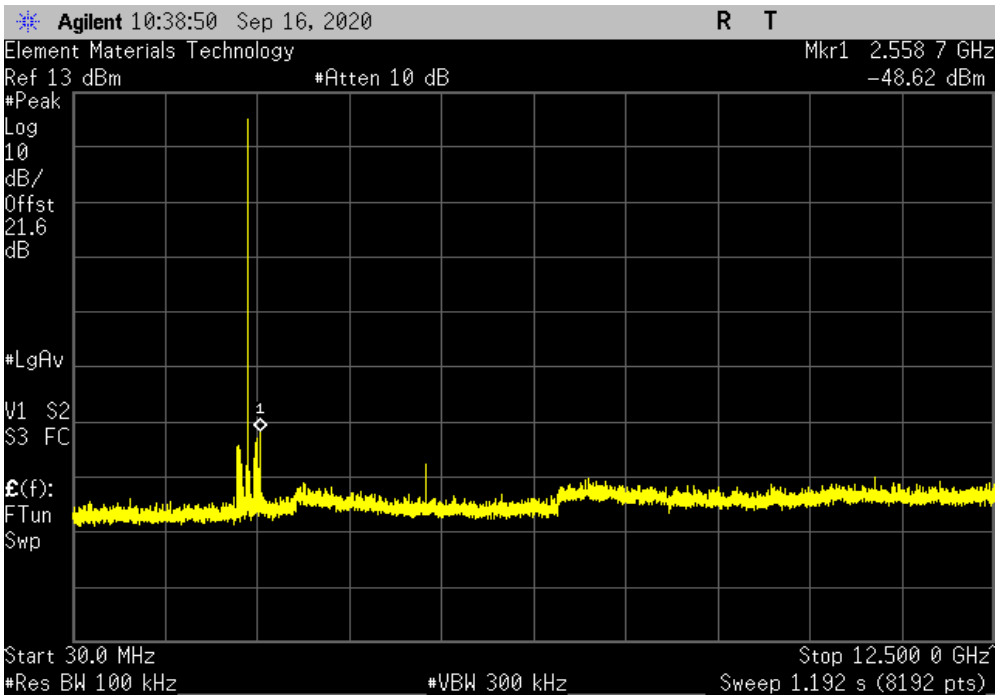
Sink, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz	24720.7	-61.42	-20	Pass



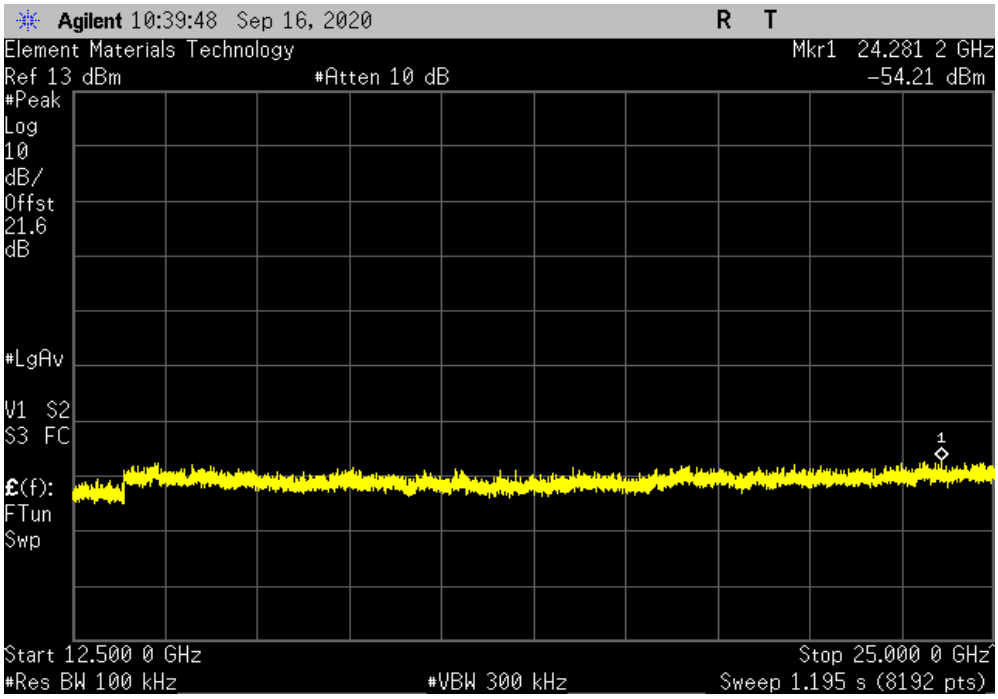
Sink, 3DH5, 8-DPSK, Low Channel, 2402 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
Fundamental		2401.83	N/A	N/A	N/A



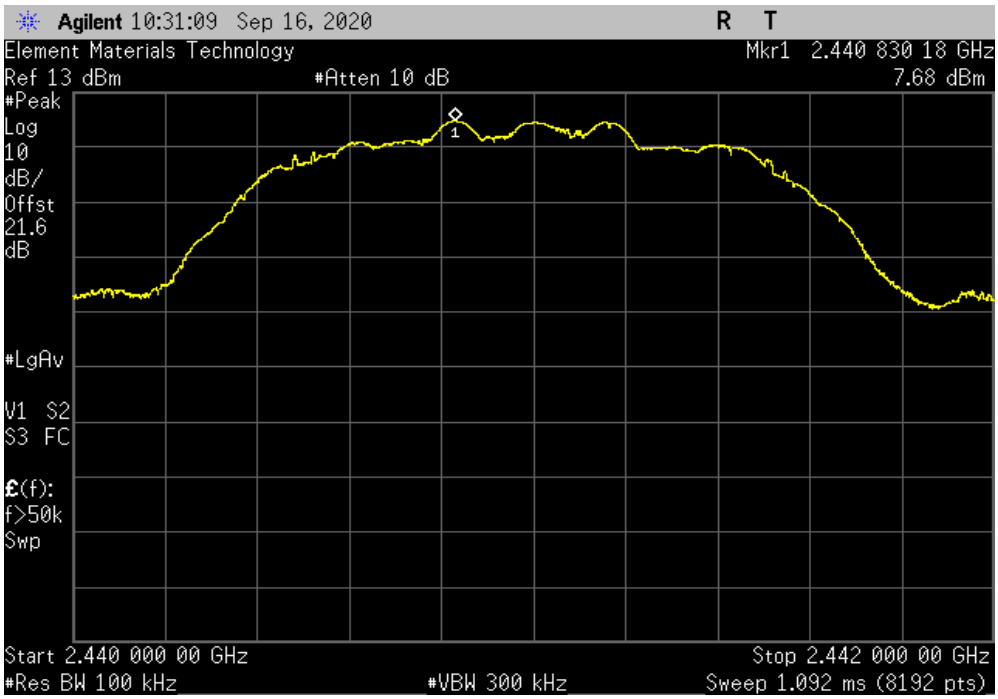
Sink, 3DH5, 8-DPSK, Low Channel, 2402 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	2558.7	-56.66	-20	Pass



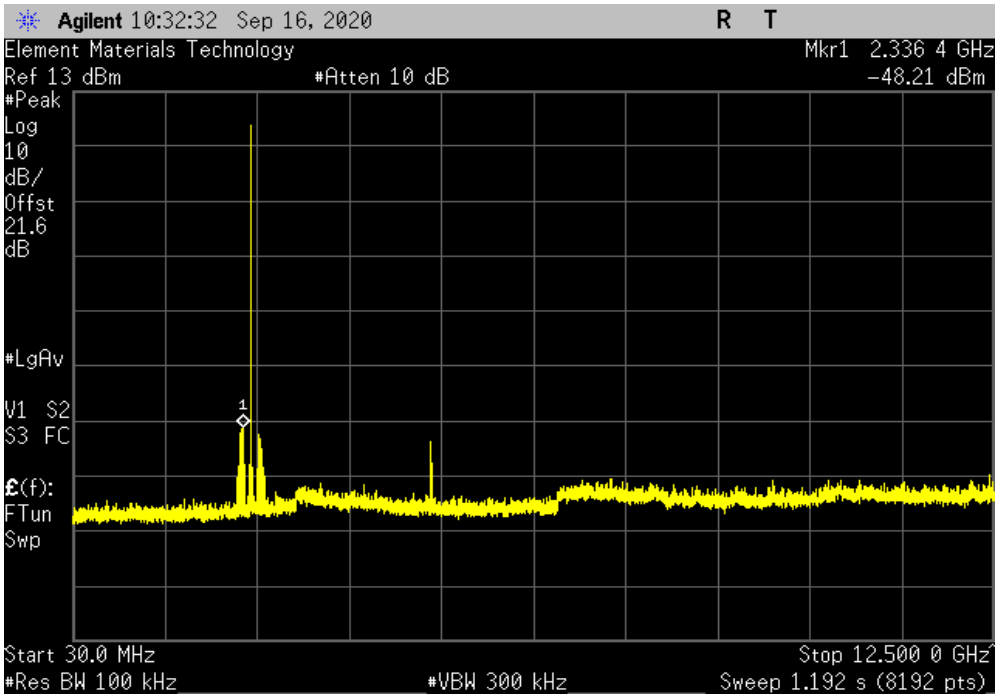
Sink, 3DH5, 8-DPSK, Low Channel, 2402 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24281.2	-62.25	-20	Pass



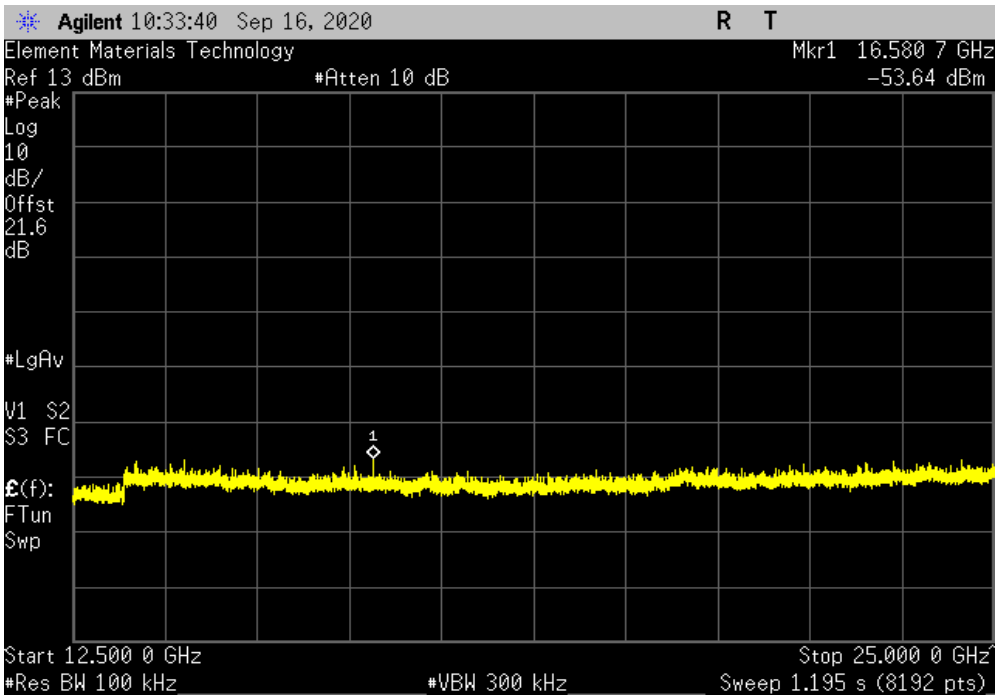
Sink, 3DH5, 8-DPSK, Mid Channel, 2441 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
	Fundamental	2440.83	N/A	N/A	N/A



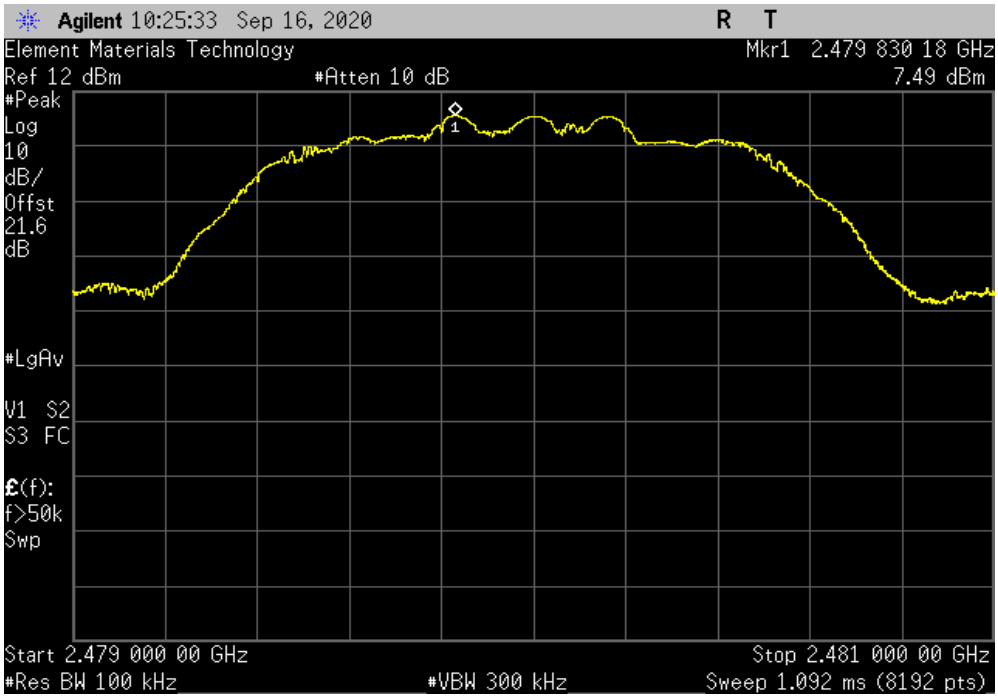
Sink, 3DH5, 8-DPSK, Mid Channel, 2441 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
30 MHz - 12.5 GHz	2336.4	-55.89	-20	Pass



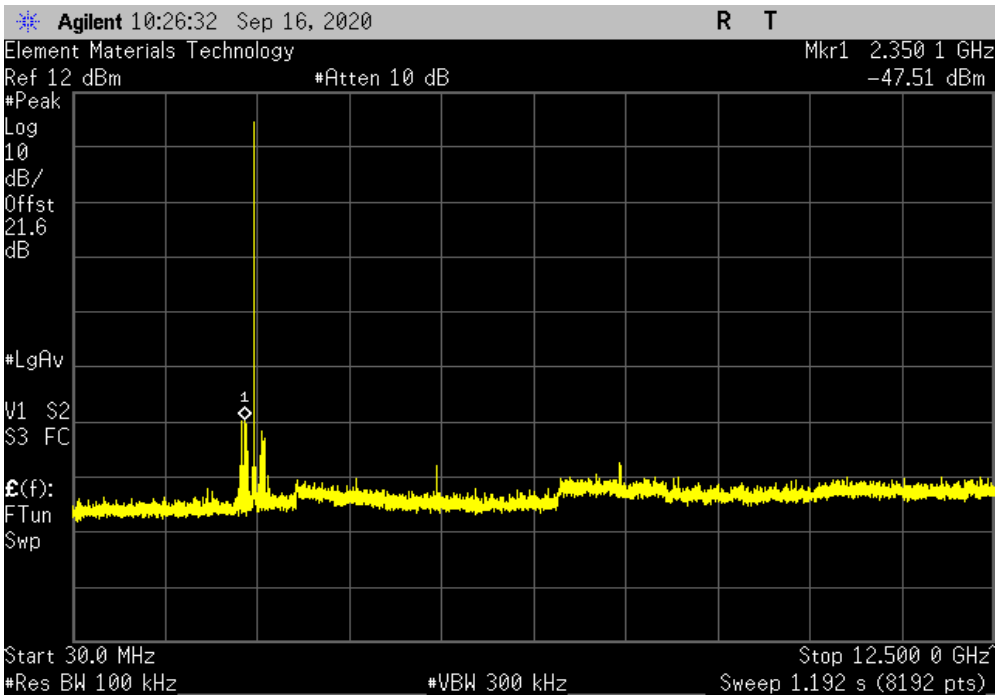
Sink, 3DH5, 8-DPSK, Mid Channel, 2441 MHz				
Frequency Range	Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
12.5 GHz - 25 GHz	16580.7	-61.32	-20	Pass



Sink, 3DH5, 8-DPSK, High Channel, 2480 MHz					
Frequency Range		Measured Freq (MHz)	Max Value (dBc)	Limit ≤ (dBc)	Result
Fundamental		2479.83	N/A	N/A	N/A



Sink, 3DH5, 8-DPSK, High Channel, 2480 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
30 MHz - 12.5 GHz	2350.1	-55	-20	Pass



Sink, 3DH5, 8-DPSK, High Channel, 2480 MHz				
Frequency Range	**Measured Freq (MHz)**	**Max Value (dBc)**	**Limit ≤ (dBc)**	**Result**
12.5 GHz - 25 GHz	24012.6	-61.32	-20	Pass