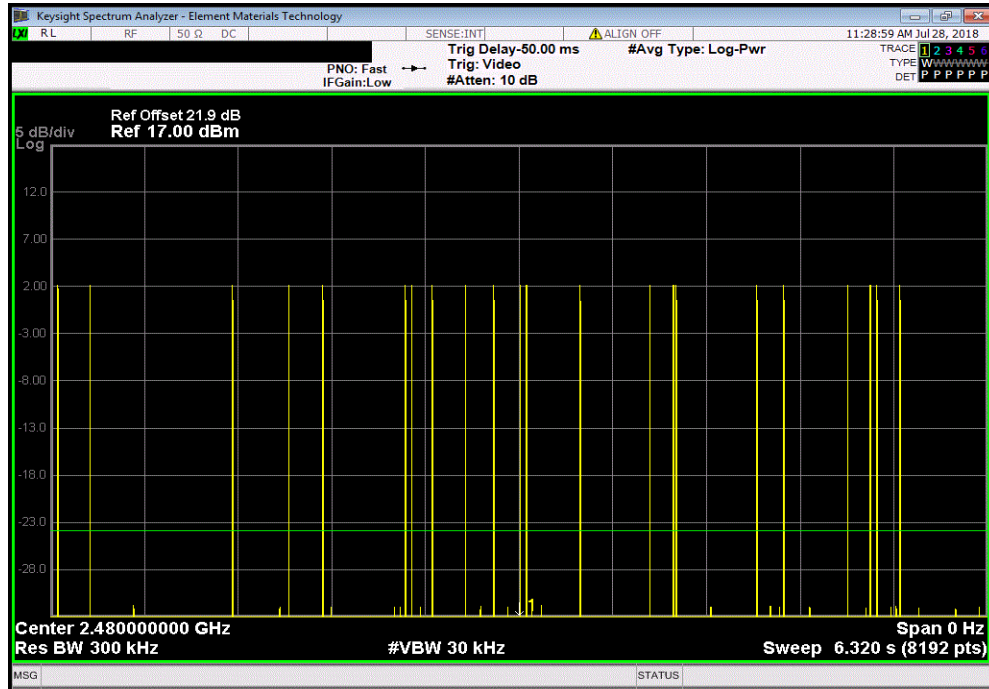


DWELL TIME



TMTx 2017.12.14 XMI 2017.12.13

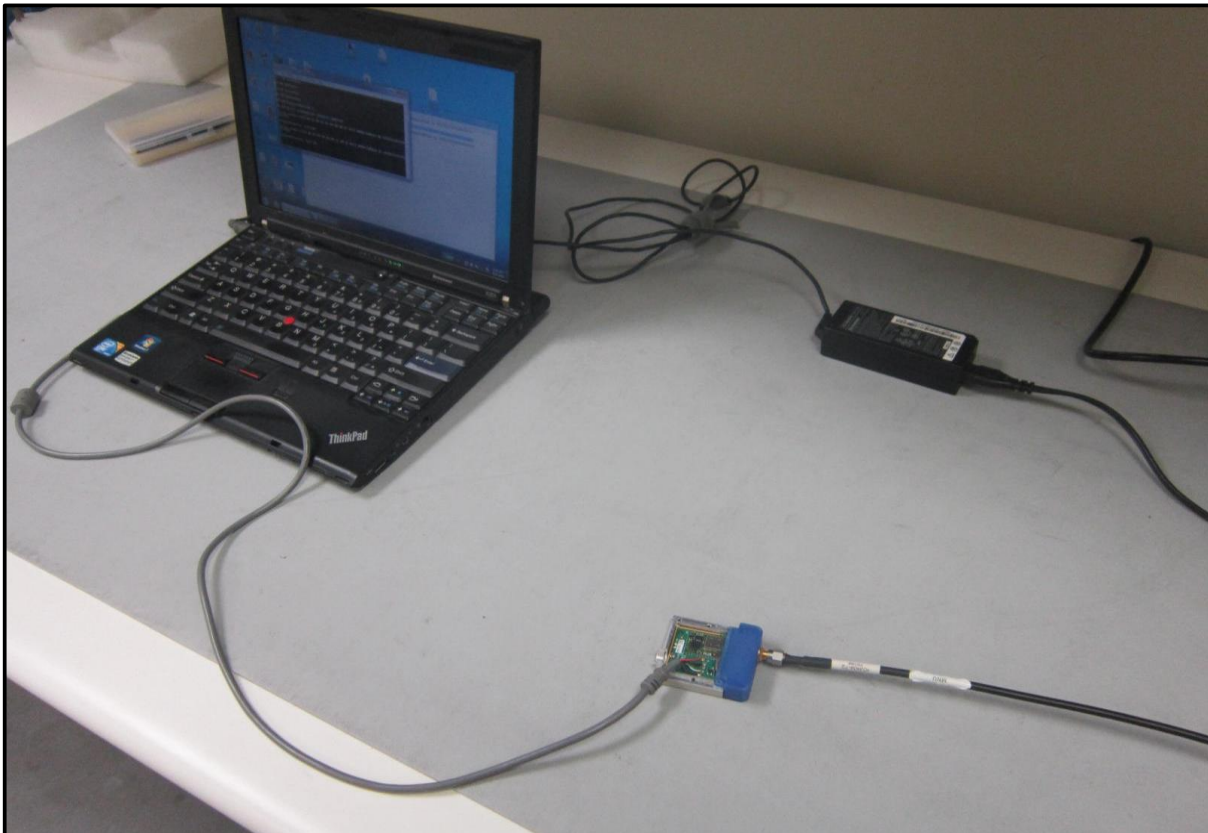
Hopping Mode, 8DPSK, 3DH5, High Channel, 2480 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
N/A	22	N/A	N/A	N/A	N/A	N/A



Hopping Mode, 8DPSK, 3DH5, High Channel, 2480 MHz						
Pulse Width (ms)	Number of Pulses	Average No. of Pulses	Scale Factor	On Time (ms) During 31.6 s	Limit (ms)	Results
2.903	N/A	21.5	5	312.07	400	Pass

Calculation Only

No Screen Capture Required



OUTPUT POWER



XMR 2017.12.13

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E4422B	TGQ	15-Mar-18	15-Mar-21
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-18	13-Feb-19
Block - DC	Fairview Microwave	SD3379	AMI	12-Sep-17	12-Sep-18
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	27-Apr-18	27-Apr-19

TEST DESCRIPTION

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

OUTPUT POWER



THtTx 2017.12.14 XMtM 2017.12.13

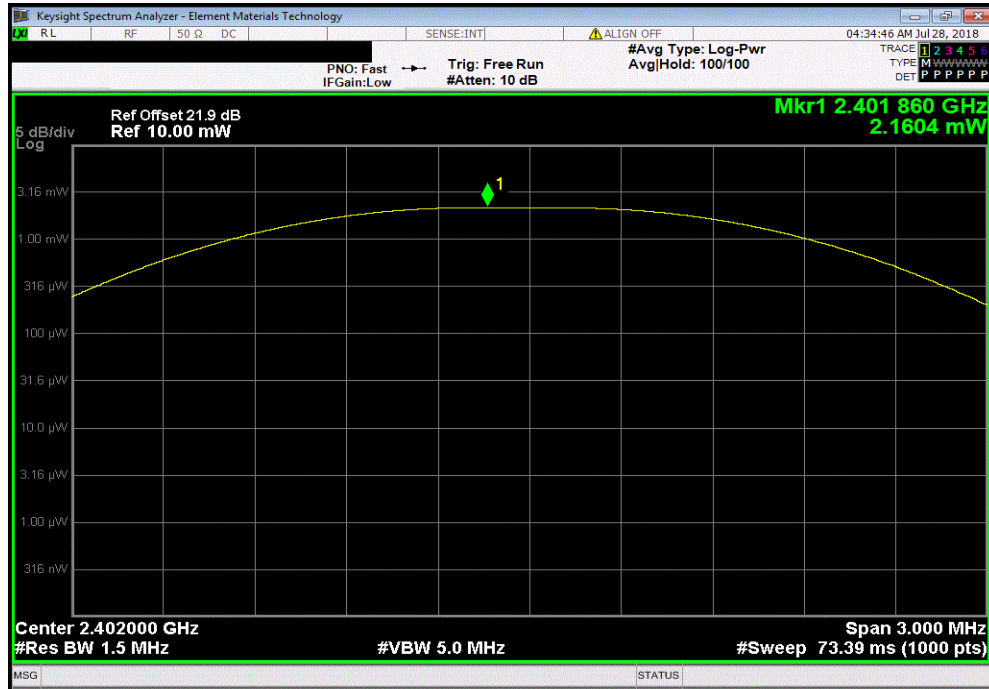
EUT: SPBT2632C1A.AT2		Work Order: BSTN0852	
Serial Number: NA		Date: 27-Jul-18	
Customer: Boston Scientific Corporation		Temperature: 21.6 °C	
Attendees: None		Humidity: 49.4% RH	
Project: None		Barometric Pres.: 1021 mbar	
Tested by: Dustin Sparks	Power: 110VAC/60Hz	Job Site: MN08	
TEST SPECIFICATIONS			
LP0002:2018		Test Method	
LP0002:2018		LP0002:2018	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	3	Signature <i>Dustin Sparks</i>	
		Value	Limit (<) Result
DH5, GFSK			
	Low Channel	2.16 mW	125 mW Pass
	Mid Channel	2.956 mW	125 mW Pass
	High Channel	3.998 mW	125 mW Pass
2DH5, pi/4-DQPSK			
	Low Channel	1.34 mW	125 mW Pass
	Mid Channel	1.875 mW	125 mW Pass
	High Channel	2.627 mW	125 mW Pass
3DH5, 8-DPSK			
	Low Channel	1.387 mW	125 mW Pass
	Mid Channel	1.937 mW	125 mW Pass
	High Channel	2.736 mW	125 mW Pass

OUTPUT POWER

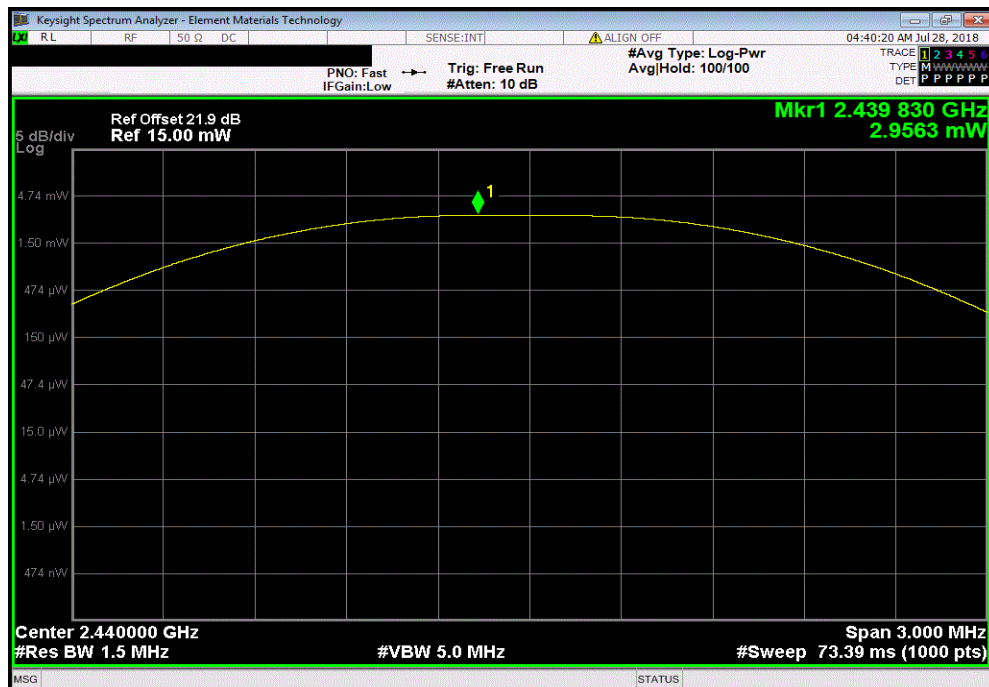


TMTx 2017.12.14 XMI 2017.12.13

DH5, GFSK, Low Channel						
				Value	Limit (<)	Result
				2.16 mW	125 mW	Pass



DH5, GFSK, Mid Channel						
				Value	Limit (<)	Result
				2.956 mW	125 mW	Pass

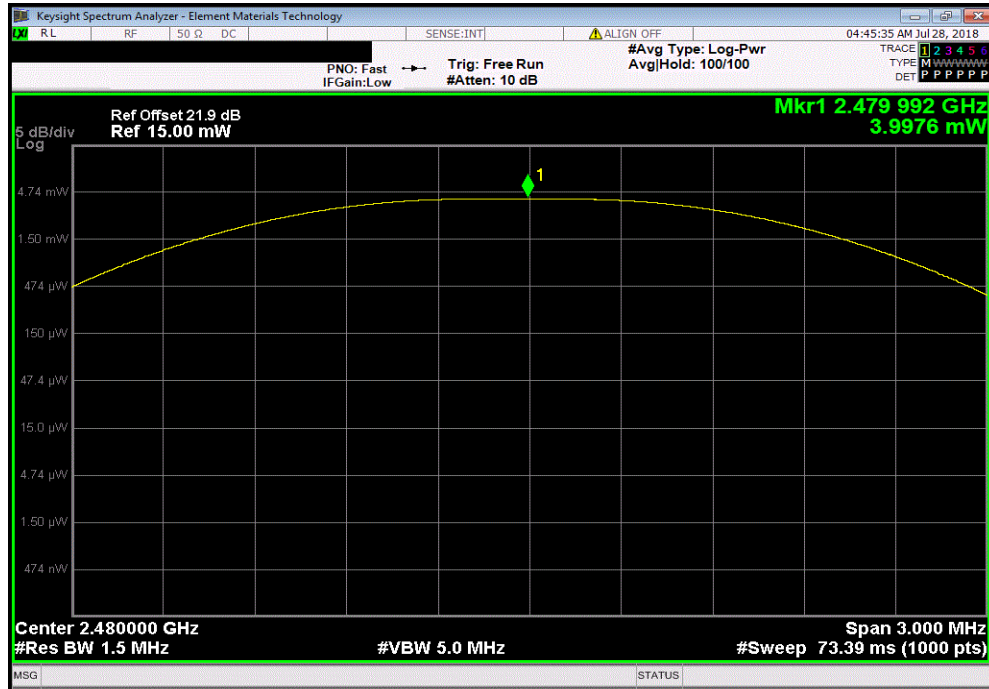


OUTPUT POWER

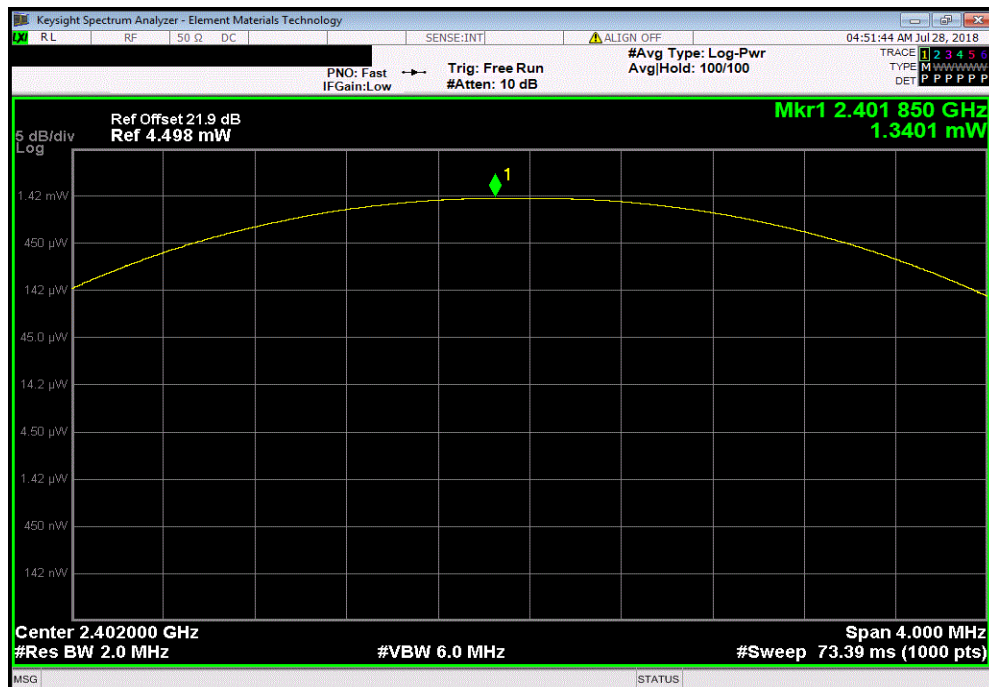


TMTx 2017.12.14 XMI 2017.12.13

DH5, GFSK, High Channel						
				Value	Limit	Result
				3.998 mW	125 mW	Pass



2DH5, pi/4-DQPSK, Low Channel						
				Value	Limit	Result
				1.34 mW	125 mW	Pass

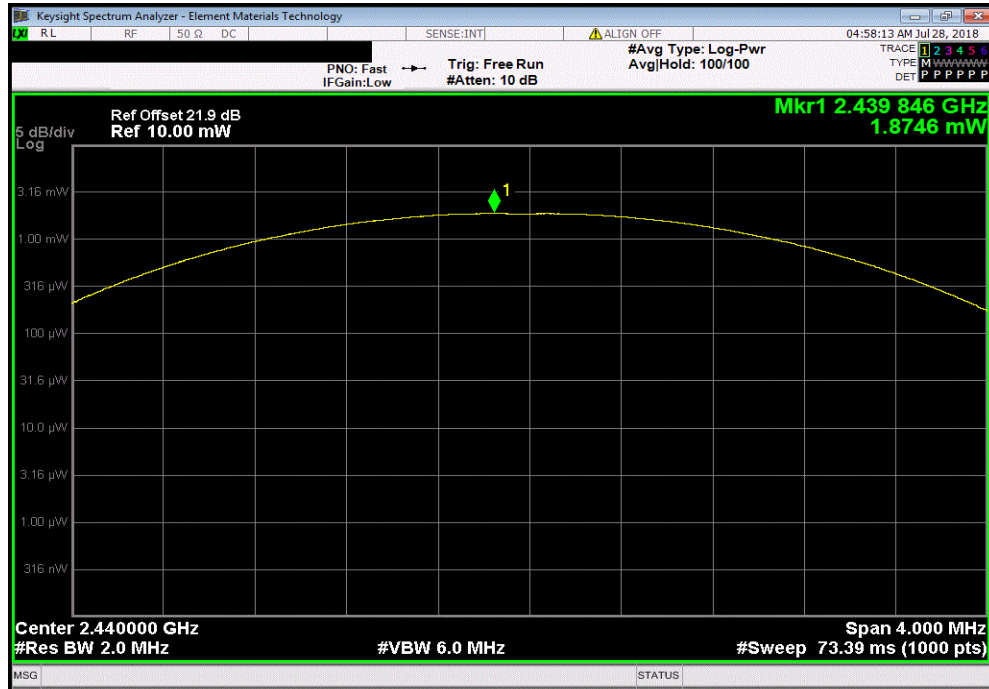


OUTPUT POWER

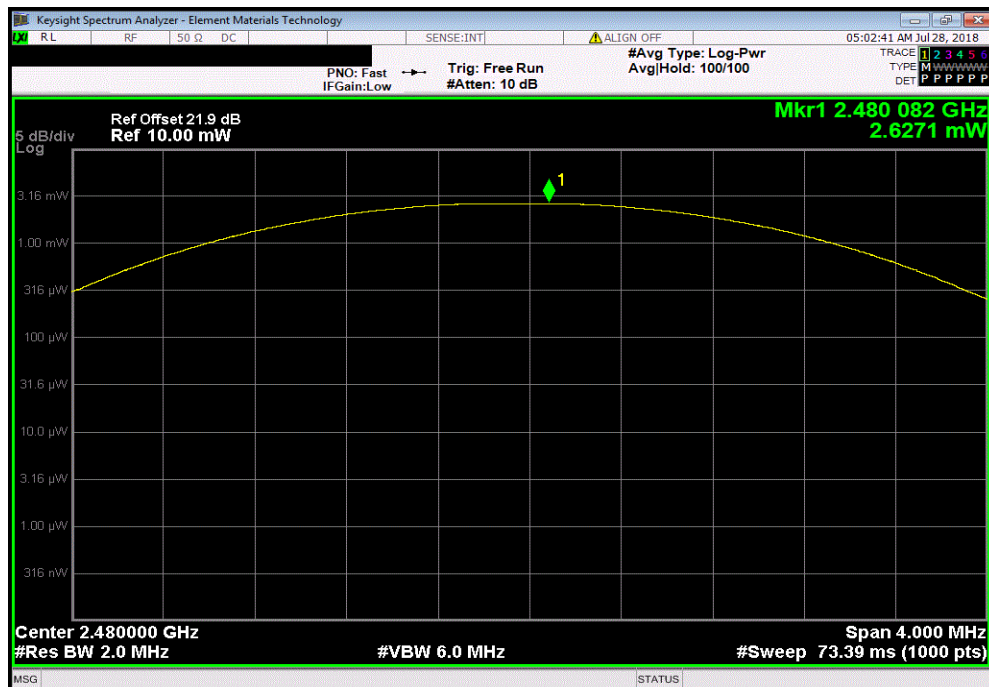


TMTx 2017.12.14 XMI 2017.12.13

2DH5, pi/4-DQPSK, Mid Channel						
				Value	Limit (<)	Result
				1.875 mW	125 mW	Pass



2DH5, pi/4-DQPSK, High Channel						
				Value	Limit (<)	Result
				2.627 mW	125 mW	Pass

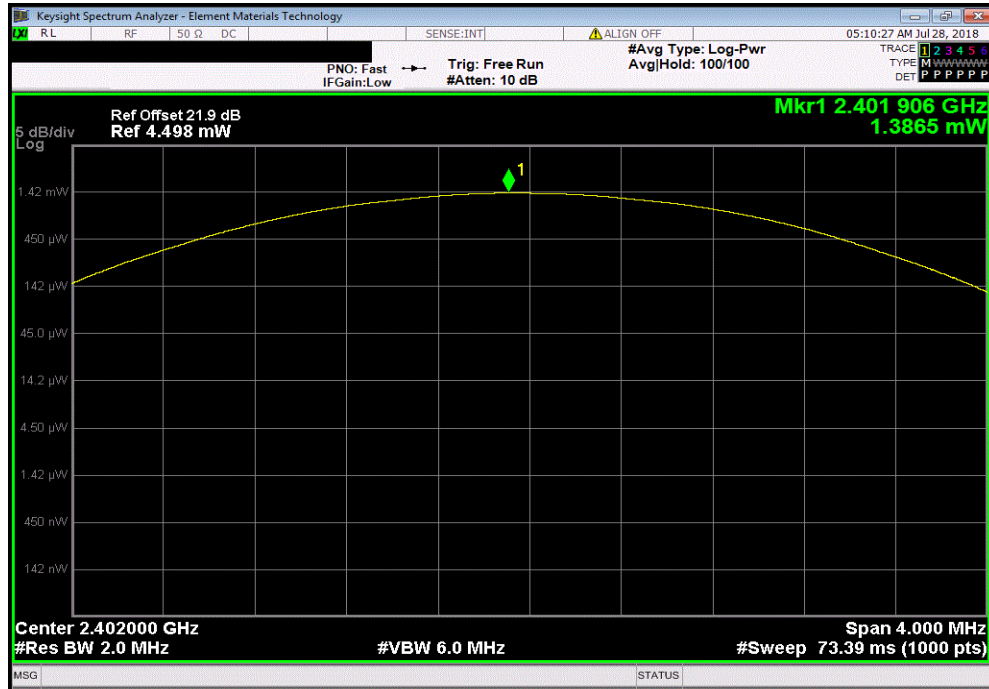


OUTPUT POWER

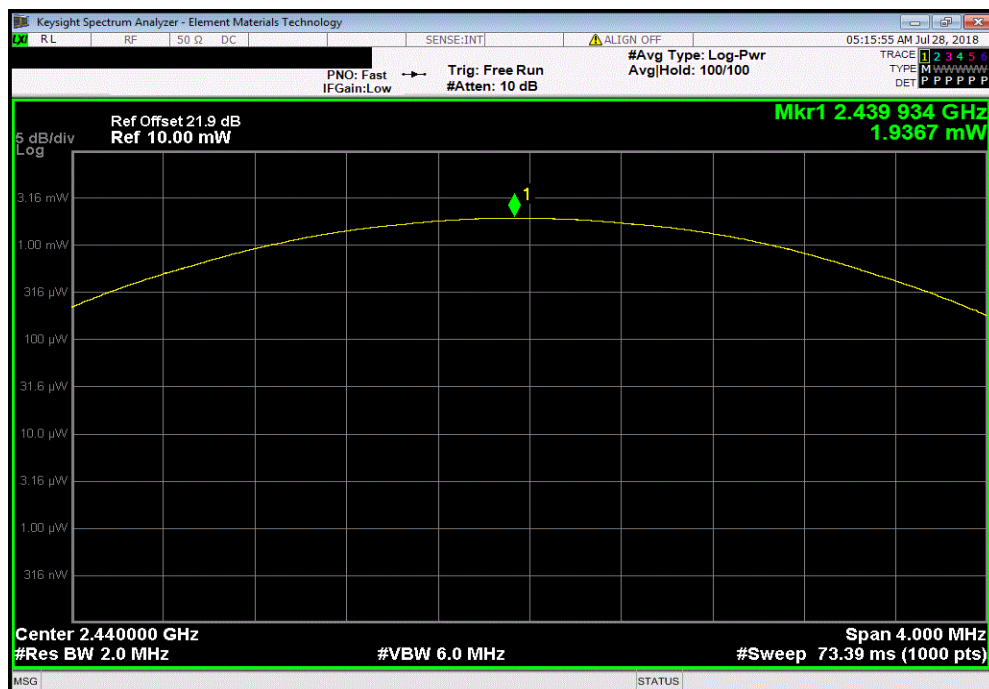


TMTx 2017.12.14 XMI 2017.12.13

3DH5, 8-DPSK, Low Channel						
				Value	Limit (<)	Result
				1.387 mW	125 mW	Pass



3DH5, 8-DPSK, Mid Channel						
				Value	Limit (<)	Result
				1.937 mW	125 mW	Pass

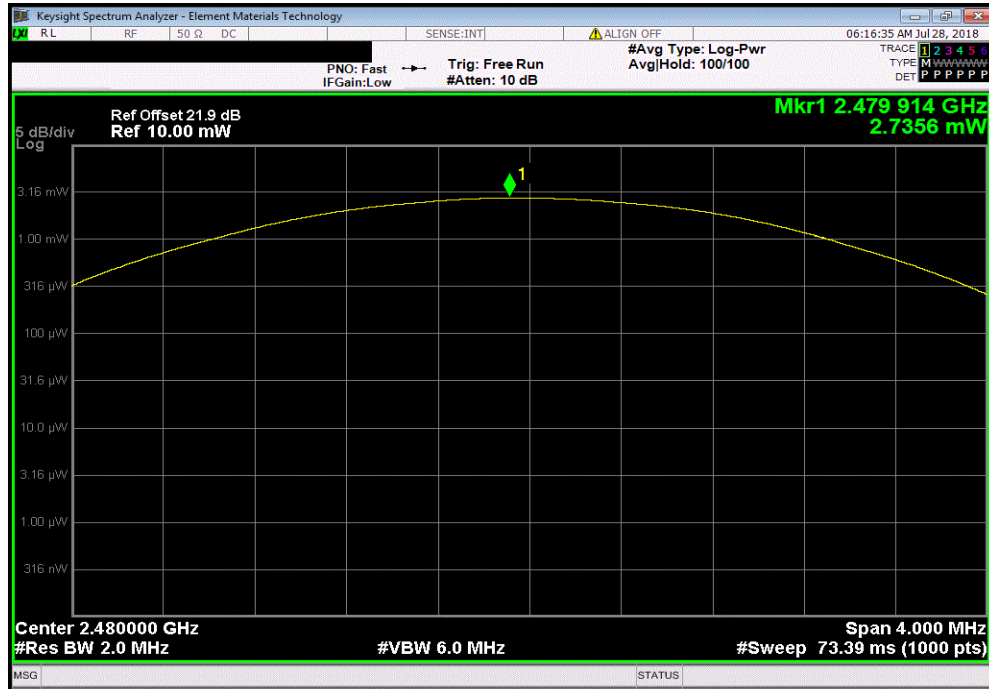


OUTPUT POWER



TMTx 2017.12.14 XMI 2017.12.13

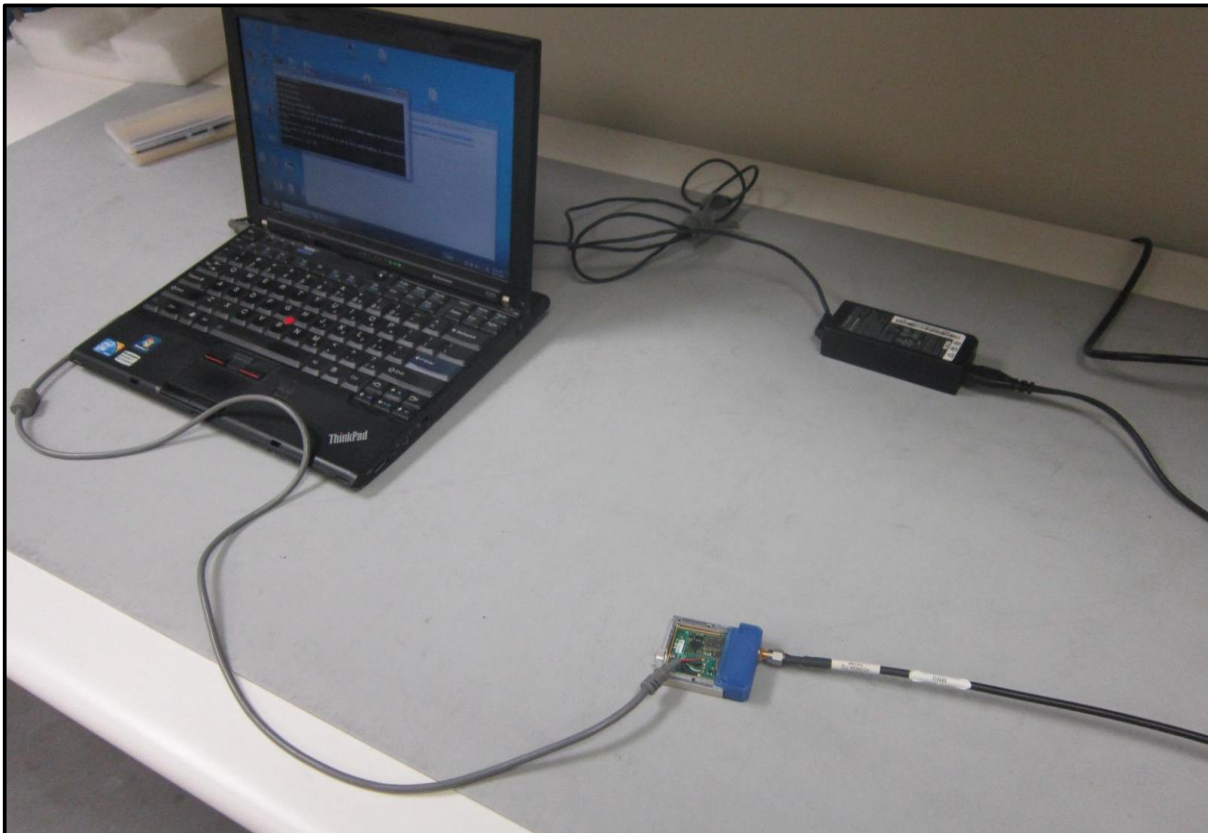
3DH5, 8-DPSK, High Channel						
				Value	Limit (<)	Result
				2.736 mW	125 mW	Pass



OUTPUT POWER



XMit 2017.12.13



BAND EDGE COMPLIANCE



XMR 2017.12.13

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E4422B	TGQ	15-Mar-18	15-Mar-21
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-18	13-Feb-19
Block - DC	Fairview Microwave	SD3379	AMI	12-Sep-17	12-Sep-18
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	27-Apr-18	27-Apr-19

TEST DESCRIPTION

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

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

BAND EDGE COMPLIANCE



THxTx 2017.12.14 XMx 2017.12.13

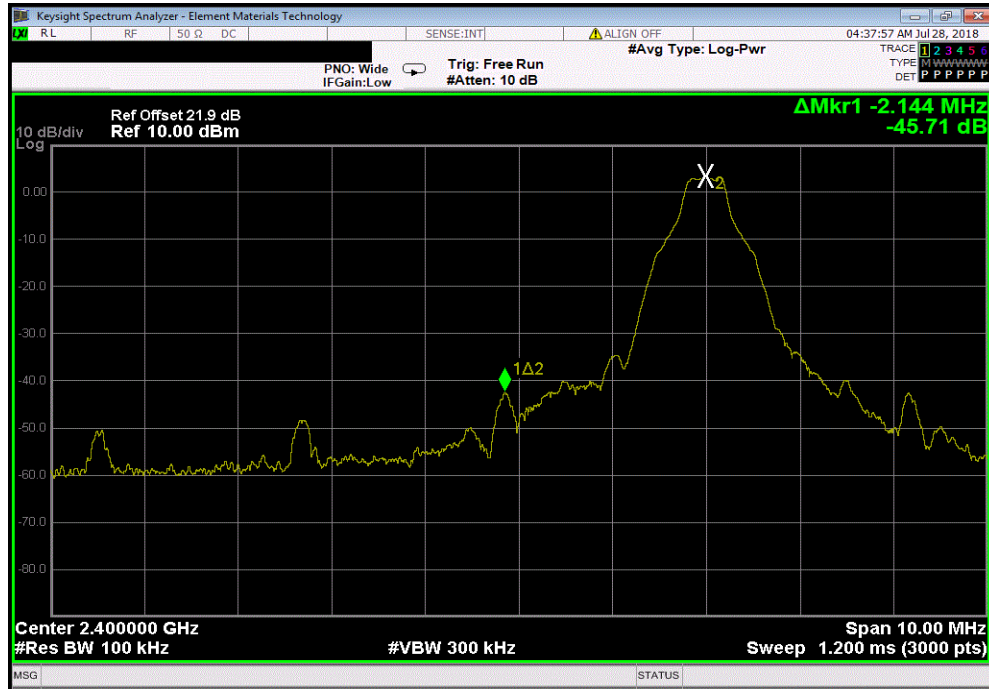
EUT: SPBT2632C1A.AT2		Work Order: BSTN0852	
Serial Number: NA		Date: 27-Jul-18	
Customer: Boston Scientific Corporation		Temperature: 21.5 °C	
Attendees: None		Humidity: 49.5% RH	
Project: None		Barometric Pres.: 1021 mbar	
Tested by: Dustin Sparks	Power: 110VAC/60Hz	Job Site: MN08	
TEST SPECIFICATIONS			
LP0002:2018		Test Method	
LP0002:2018		LP0002:2018	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	3	Signature <i>Dustin Sparks</i>	
		Value (dBc)	Limit ≤ (dBc) Result
DH5, GFSK			
	Low Channel	-45.71	-20 Pass
	High Channel	-51.4	-20 Pass
2DH5, pi/4-DQPSK			
	Low Channel	-45.86	-20 Pass
	High Channel	-50.47	-20 Pass
3DH5, 8-DPSK			
	Low Channel	-46.64	-20 Pass
	High Channel	-50.47	-20 Pass

BAND EDGE COMPLIANCE



TMTx 2017.12.14 XMI 2017.12.13

DH5, GFSK, Low Channel						
				Value (dBc)	Limit ≤ (dBc)	Result
				-45.71	-20	Pass



DH5, GFSK, High Channel						
				Value (dBc)	Limit ≤ (dBc)	Result
				-51.4	-20	Pass

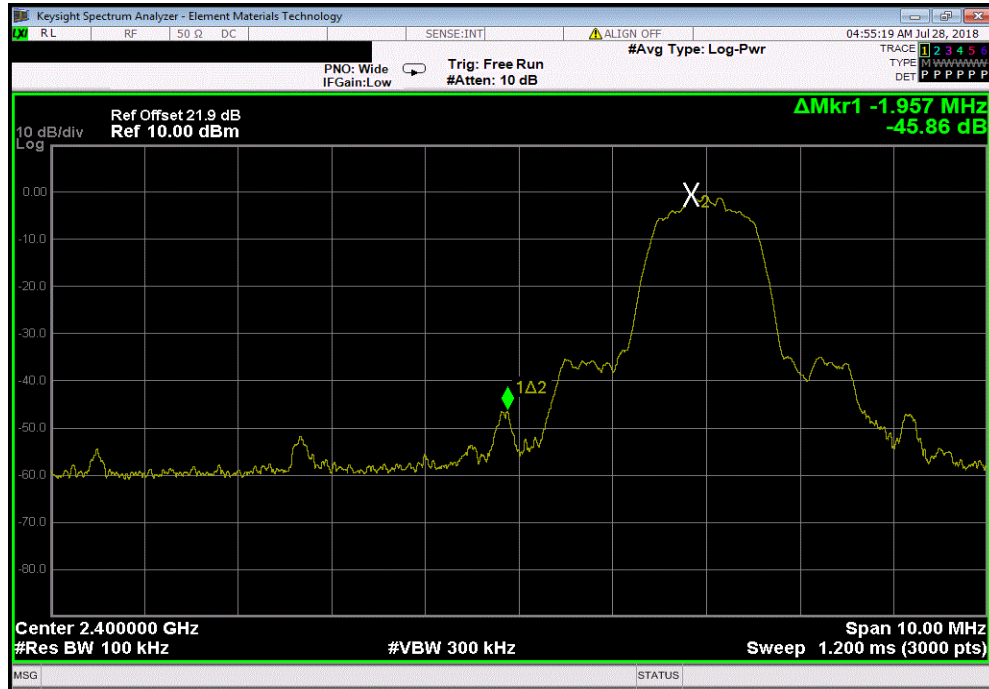


BAND EDGE COMPLIANCE



TMTx 2017.12.14 XMI 2017.12.13

2DH5, pi/4-DQPSK, Low Channel						
				Value (dBc)	Limit ≤ (dBc)	Result
				-45.86	-20	Pass



2DH5, pi/4-DQPSK, High Channel						
				Value (dBc)	Limit ≤ (dBc)	Result
				-50.47	-20	Pass

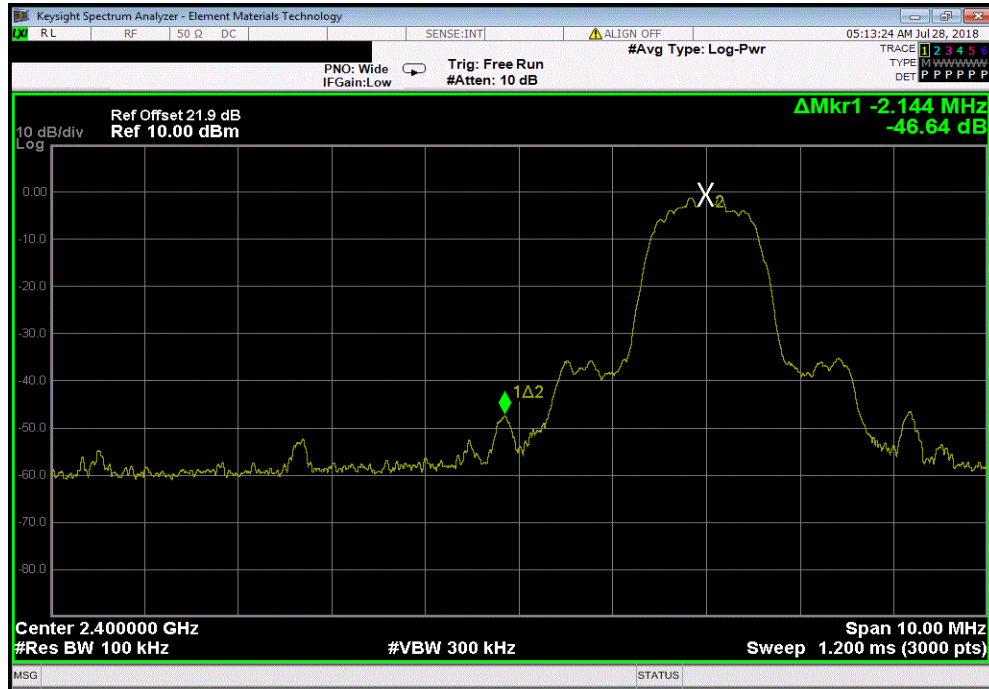


BAND EDGE COMPLIANCE



TMTx 2017.12.14 XMI 2017.12.13

3DH5, 8-DPSK, Low Channel						
				Value (dBc)	Limit ≤ (dBc)	Result
				-46.64	-20	Pass



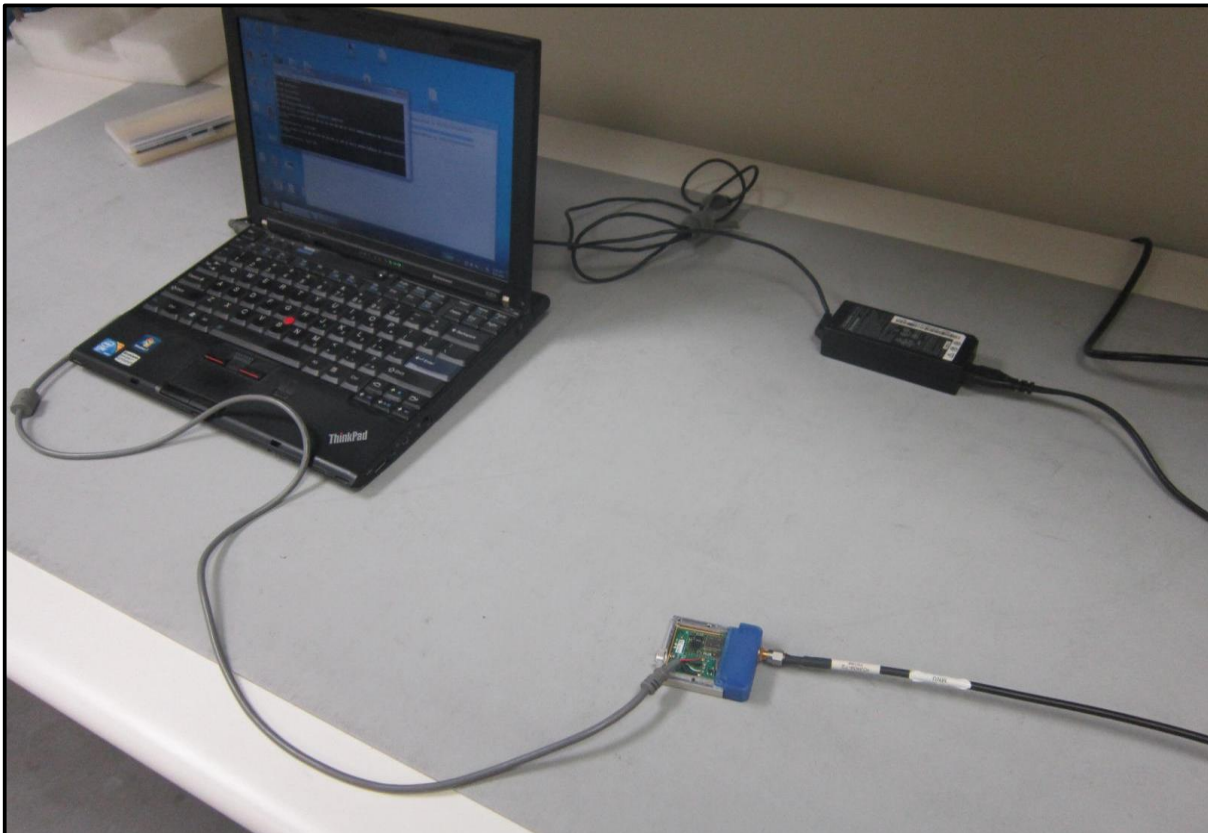
3DH5, 8-DPSK, High Channel						
				Value (dBc)	Limit ≤ (dBc)	Result
				-50.47	-20	Pass



BAND EDGE COMPLIANCE



XMit 2017.12.13



BAND EDGE COMPLIANCE -HOPPING MODE



XMIT 2017.12.13

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E4422B	TGQ	15-Mar-18	15-Mar-21
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-18	13-Feb-19
Block - DC	Fairview Microwave	SD3379	AMI	12-Sep-17	12-Sep-18
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	27-Apr-18	27-Apr-19

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions at the edges of the authorized band were measured with the EUT set to its normal pseudo-random hopping sequence. The EUT was transmitting at the data rate(s) listed in the datasheet.

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



BAND EDGE COMPLIANCE -HOPPING MODE

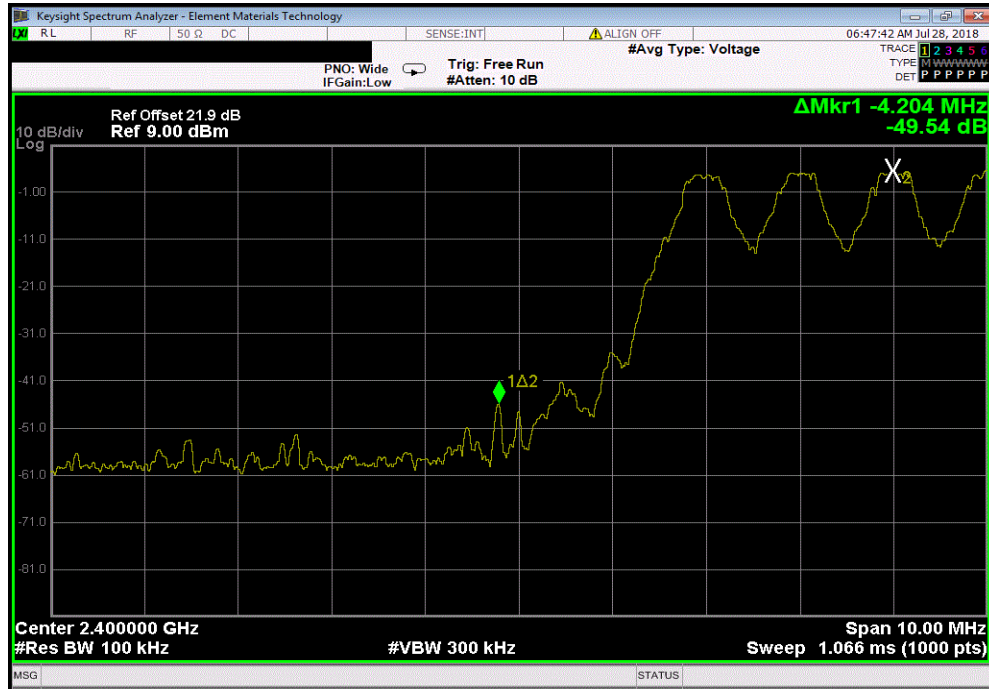
EUT: SPBT2632C1A.AT2		Work Order: BSTN0852	
Serial Number: NA		Date: 27-Jul-18	
Customer: Boston Scientific Corporation		Temperature: 21.5 °C	
Attendees: None		Humidity: 49.5% RH	
Project: None		Barometric Pres.: 1021 mbar	
Tested by: Dustin Sparks		Power: 110VAC/60Hz	
		Job Site: MN08	
TEST SPECIFICATIONS			
LP0002:2018		Test Method	
LP0002:2018		LP0002:2018	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	3	Signature <i>Dustin Sparks</i>	
		Value (dBc)	Limit ≤ (dBc)
			Result
Hopping Mode			
DH5, GFSK			
Low Channel, 2402 MHz		-49.54	-20 Pass
High Channel, 2480 MHz		-53.44	-20 Pass
2DH5, pi/4-DQPSK			
Low Channel, 2402 MHz		-46.85	-20 Pass
High Channel, 2480 MHz		-51.17	-20 Pass
3DH5, 8-DPSK			
Low Channel, 2402 MHz		-49.81	-20 Pass
High Channel, 2480 MHz		-53.01	-20 Pass

BAND EDGE COMPLIANCE -HOPPING MODE

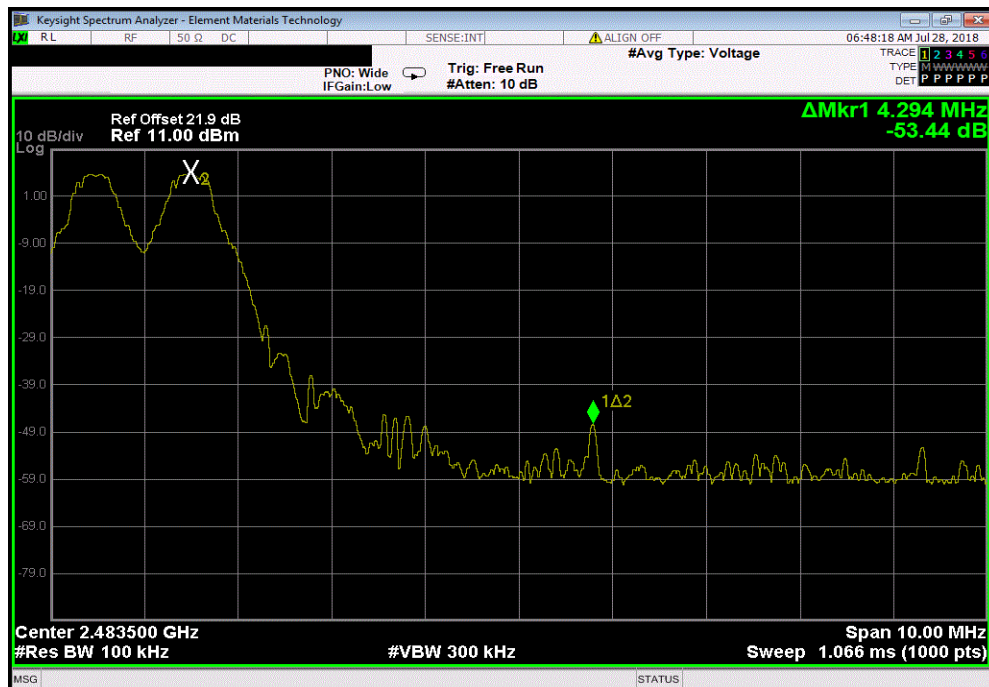


TMTx 2017.12.14 XMI 2017.12.13

Hopping Mode, DH5, GFSK, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-49.54	-20	Pass



Hopping Mode, DH5, GFSK, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-53.44	-20	Pass

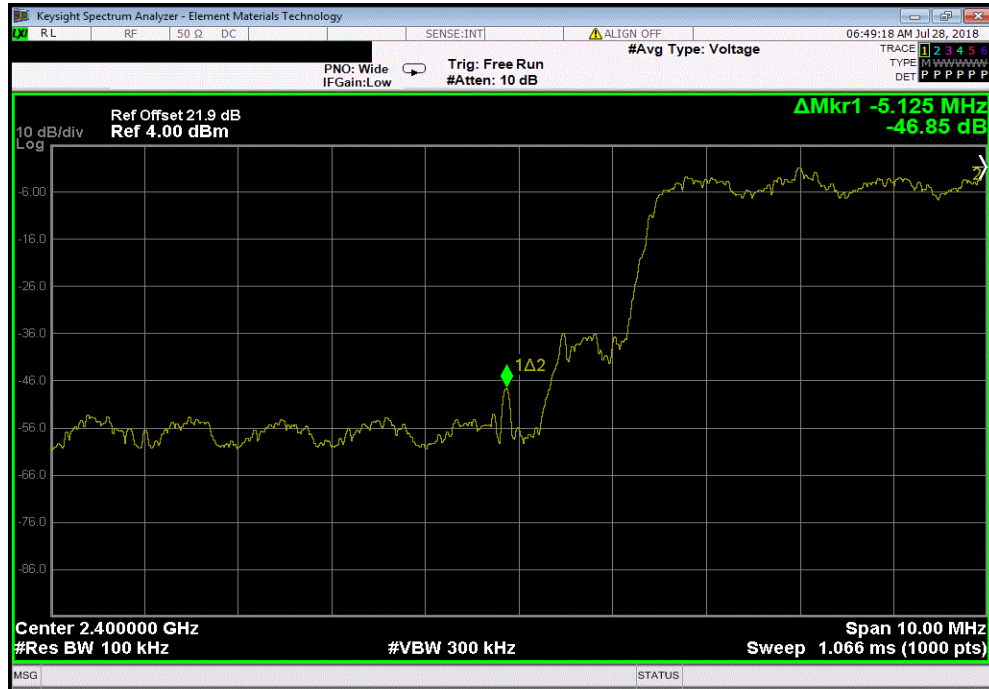


BAND EDGE COMPLIANCE -HOPPING MODE

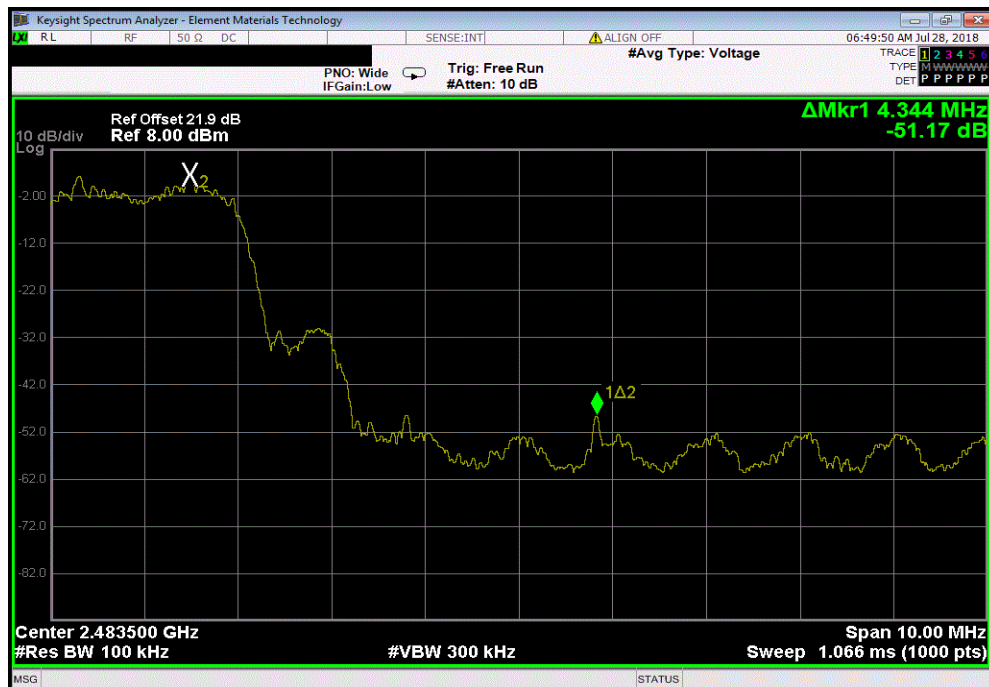


TMTx 2017.12.14 XMI 2017.12.13

Hopping Mode, 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-46.85	-20	Pass



Hopping Mode, 2DH5, pi/4-DQPSK, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-51.17	-20	Pass

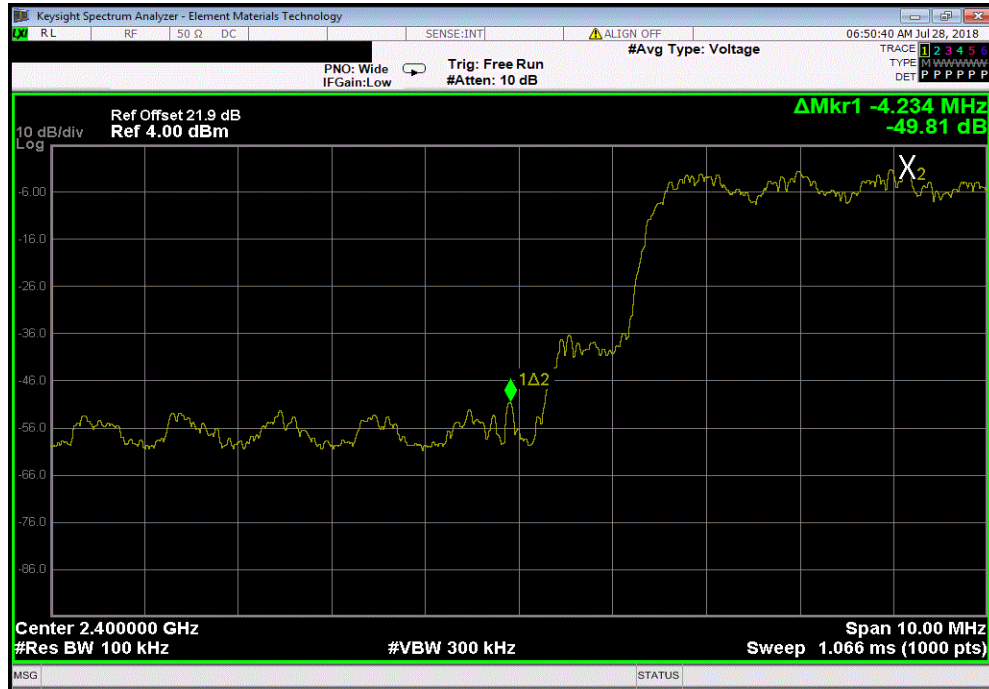


BAND EDGE COMPLIANCE -HOPPING MODE

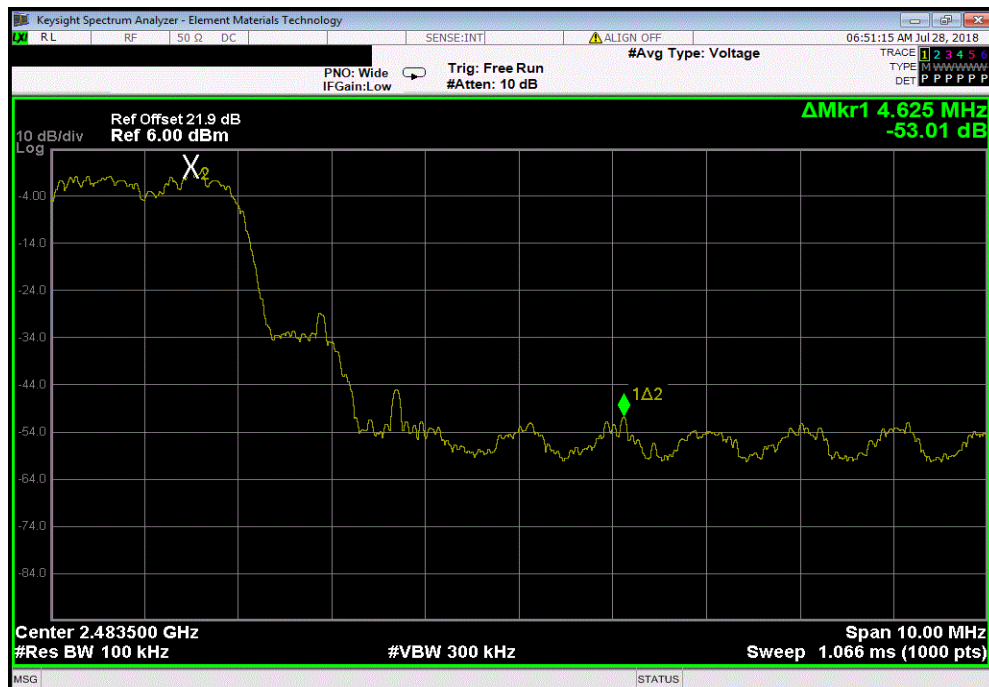


TMTx 2017.12.14 XMt 2017.12.13

Hopping Mode, 3DH5, 8-DPSK, Low Channel, 2402 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-49.81	-20	Pass



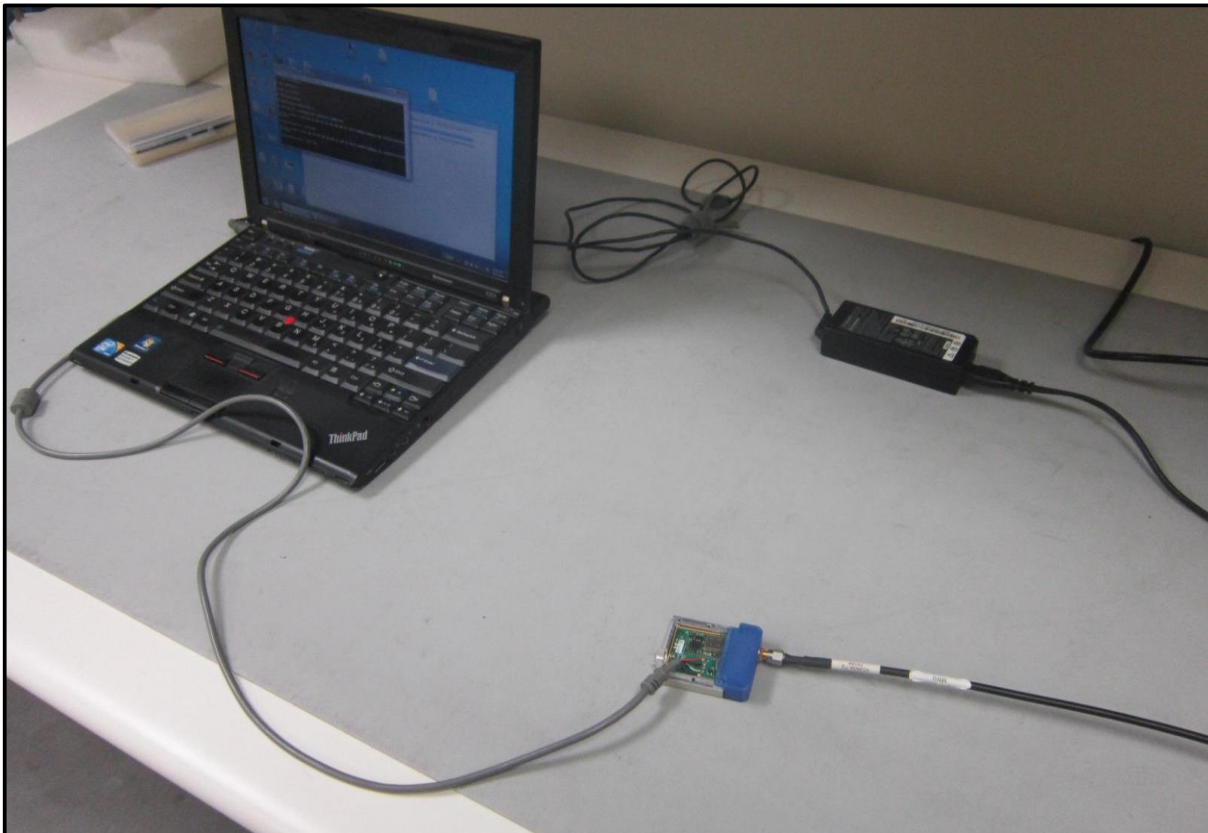
Hopping Mode, 3DH5, 8-DPSK, High Channel, 2480 MHz						
				Value (dBc)	Limit ≤ (dBc)	Result
				-53.01	-20	Pass



BAND EDGE COMPLIANCE -HOPPING MODE



XMit 2017.12.13



OCCUPIED BANDWIDTH



XMR 2017.12.13

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E4422B	TGQ	15-Mar-18	15-Mar-21
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-18	13-Feb-19
Block - DC	Fairview Microwave	SD3379	AMI	12-Sep-17	12-Sep-18
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	27-Apr-18	27-Apr-19

TEST DESCRIPTION

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

OCCUPIED BANDWIDTH



THxTx 2017.12.14 XMx 2017.12.13

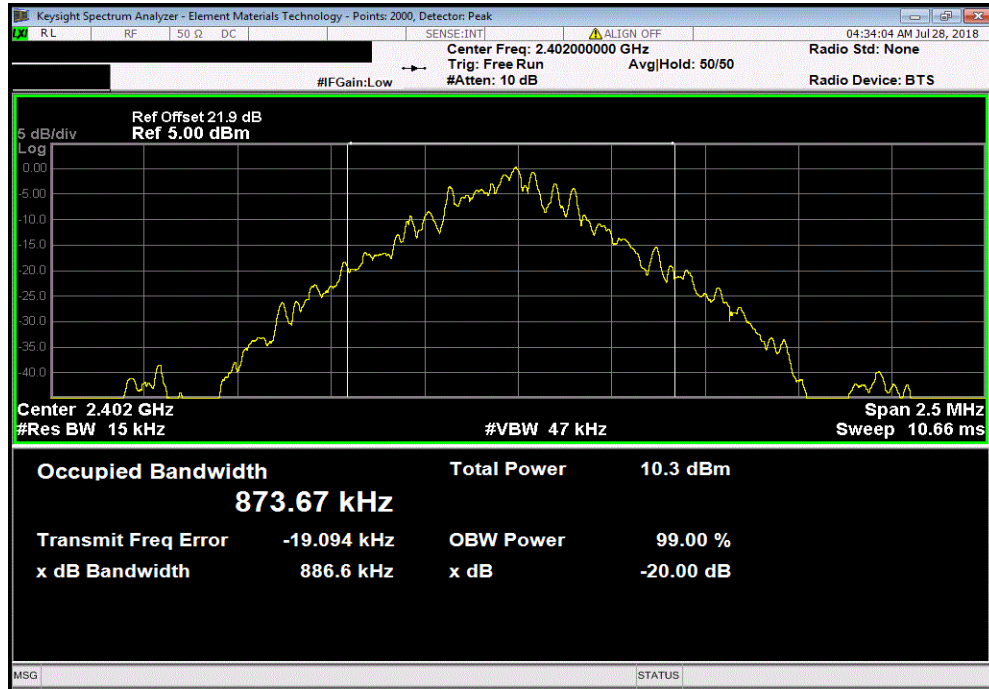
EUT: SPBT2632C1A.AT2		Work Order: BSTN0852	
Serial Number: NA		Date: 27-Jul-18	
Customer: Boston Scientific Corporation		Temperature: 21.5 °C	
Attendees: None		Humidity: 49.5% RH	
Project: None		Barometric Pres.: 1021 mbar	
Tested by: Dustin Sparks	Power: 110VAC/60Hz	Job Site: MN08	
TEST SPECIFICATIONS			
LP0002:2018		Test Method	
LP0002:2018		LP0002:2018	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	3	Signature <i>Dustin Sparks</i>	
		Value	Limit (<) Result
DH5, GFSK			
	Low Channel	886.573 kHz	1.5 MHz Pass
	Mid Channel	924.918 kHz	1.5 MHz Pass
	High Channel	926.014 kHz	1.5 MHz Pass
2DH5, pi/4-DQPSK			
	Low Channel	1.259 MHz	1.5 MHz Pass
	Mid Channel	1.282 MHz	1.5 MHz Pass
	High Channel	1.304 MHz	1.5 MHz Pass
3DH5, 8-DPSK			
	Low Channel	1.258 MHz	1.5 MHz Pass
	Mid Channel	1.26 MHz	1.5 MHz Pass
	High Channel	1.262 MHz	1.5 MHz Pass

OCCUPIED BANDWIDTH

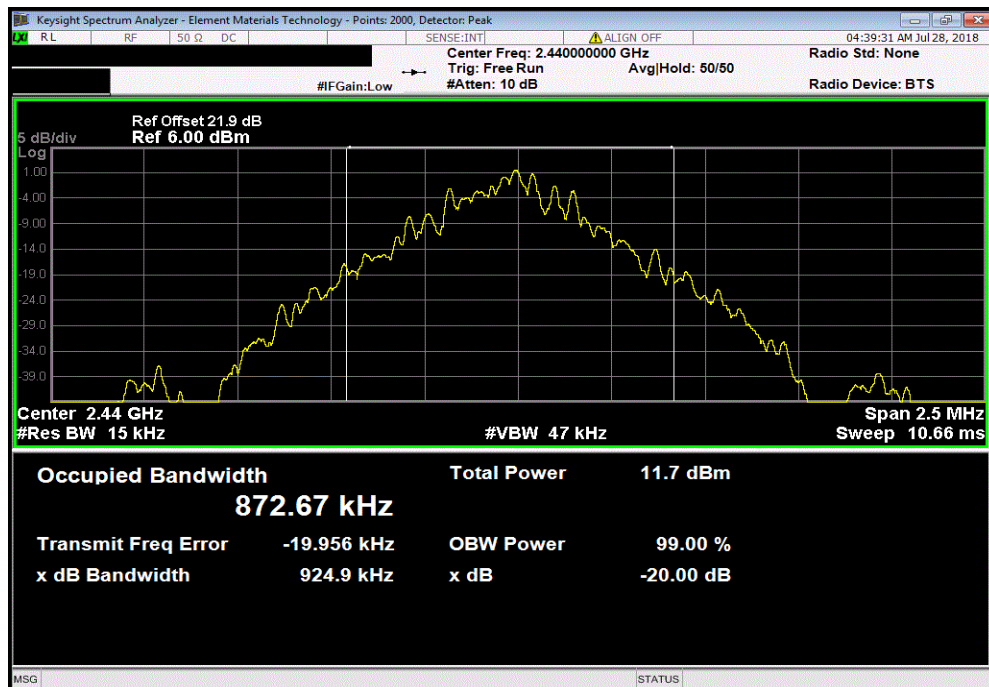


TMTx 2017.12.14 XMM 2017.12.13

DH5, GFSK, Low Channel						
				Value	Limit (<)	Result
				886.573 kHz	1.5 MHz	Pass



DH5, GFSK, Mid Channel						
				Value	Limit (<)	Result
				924.918 kHz	1.5 MHz	Pass

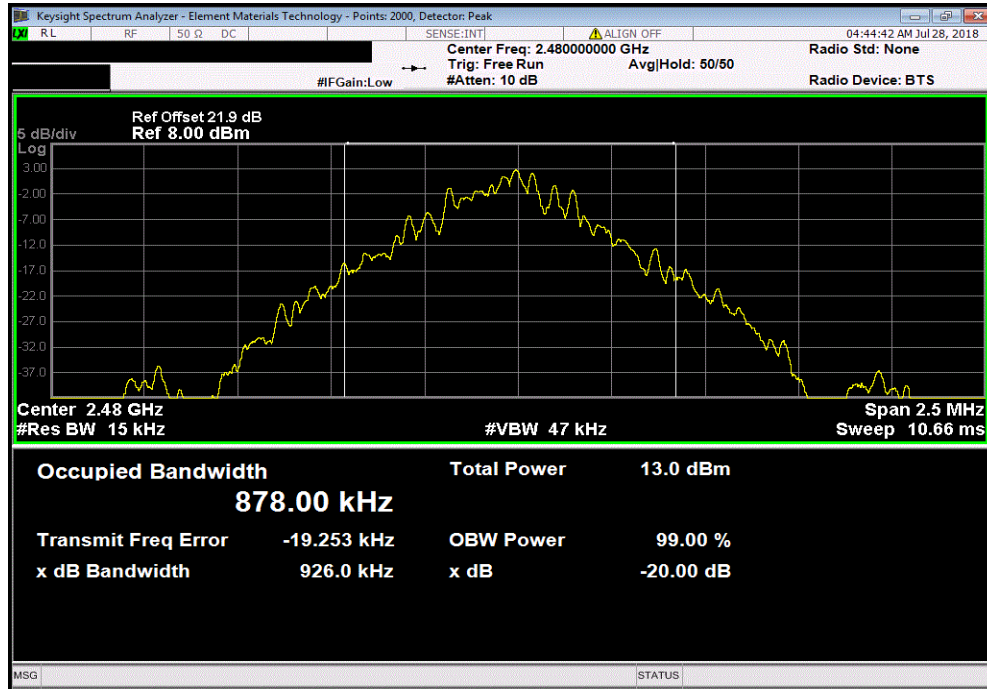


OCCUPIED BANDWIDTH

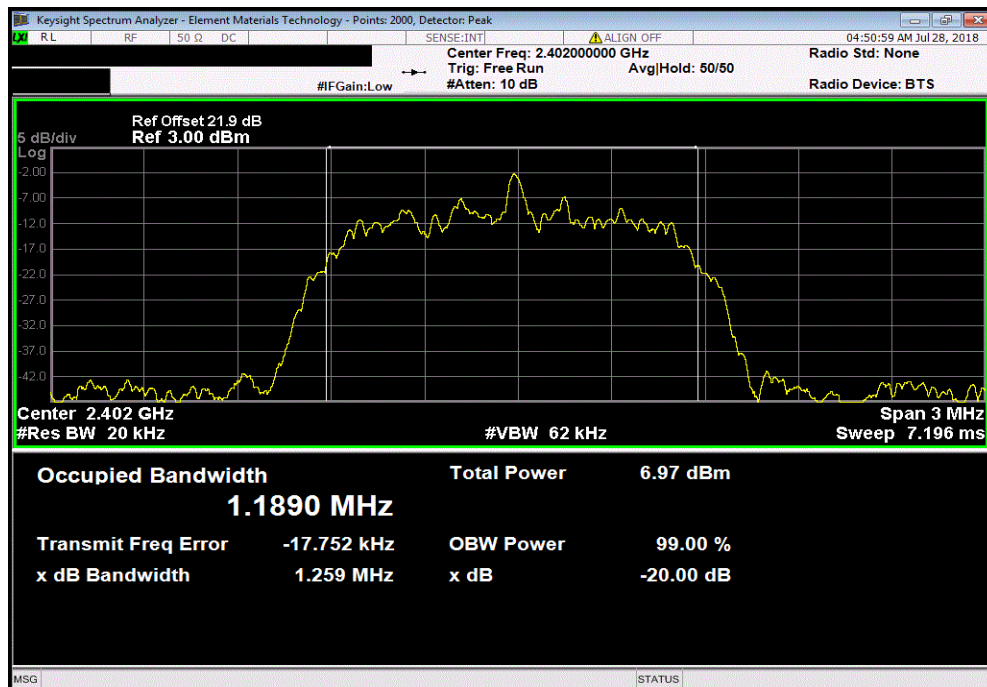


TMTx 2017.12.14 XMI 2017.12.13

DH5, GFSK, High Channel						
				Value	Limit (<)	Result
				926.014 kHz	1.5 MHz	Pass



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

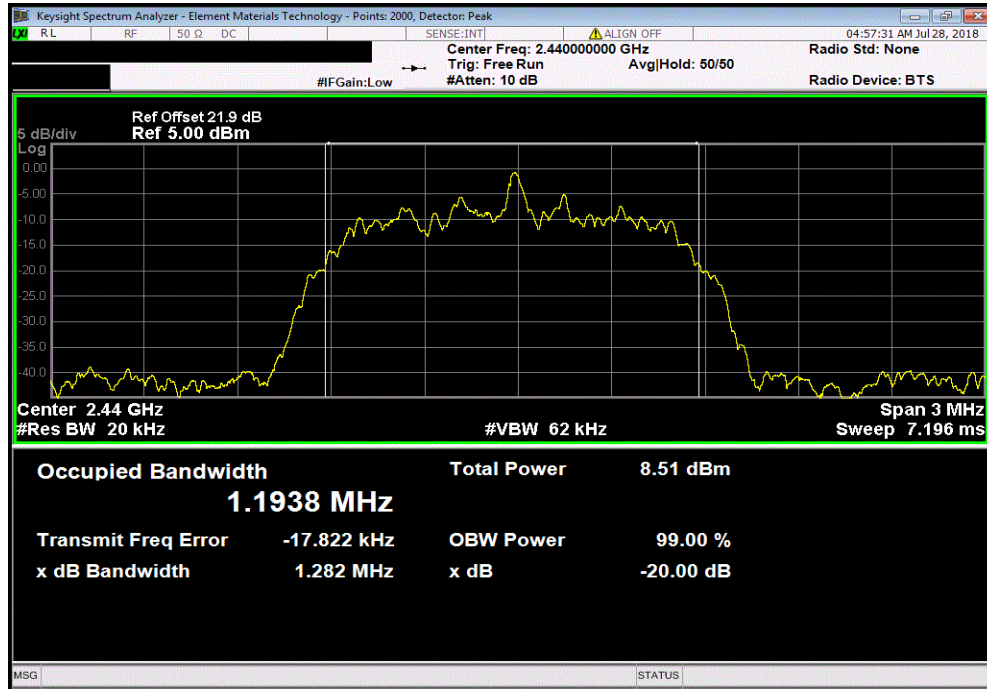


OCCUPIED BANDWIDTH

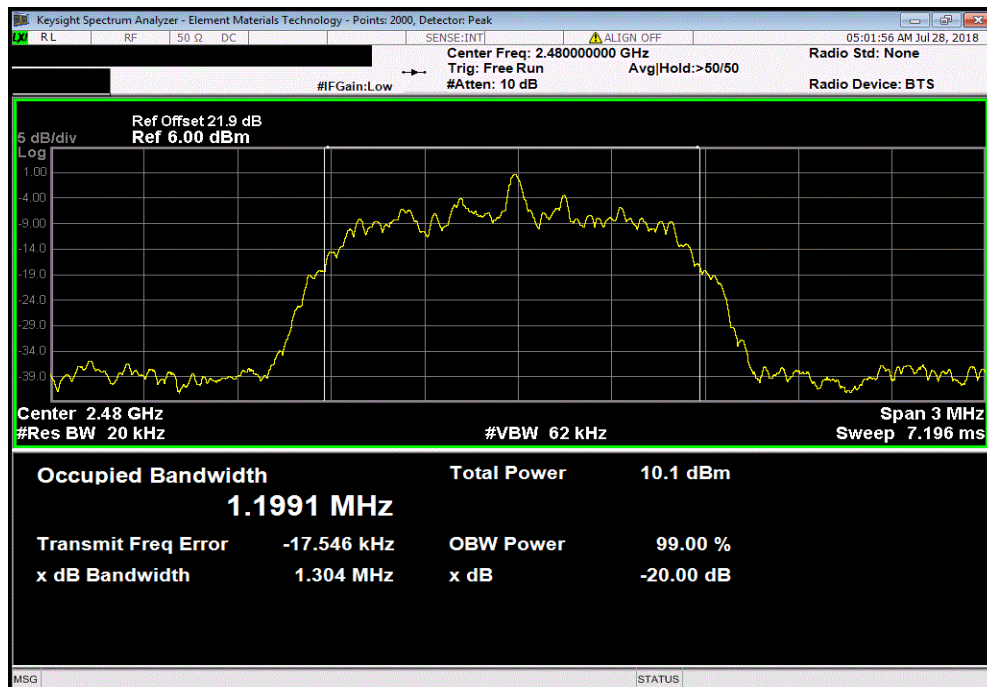


TMTx 2017.12.14 XMM 2017.12.13

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



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

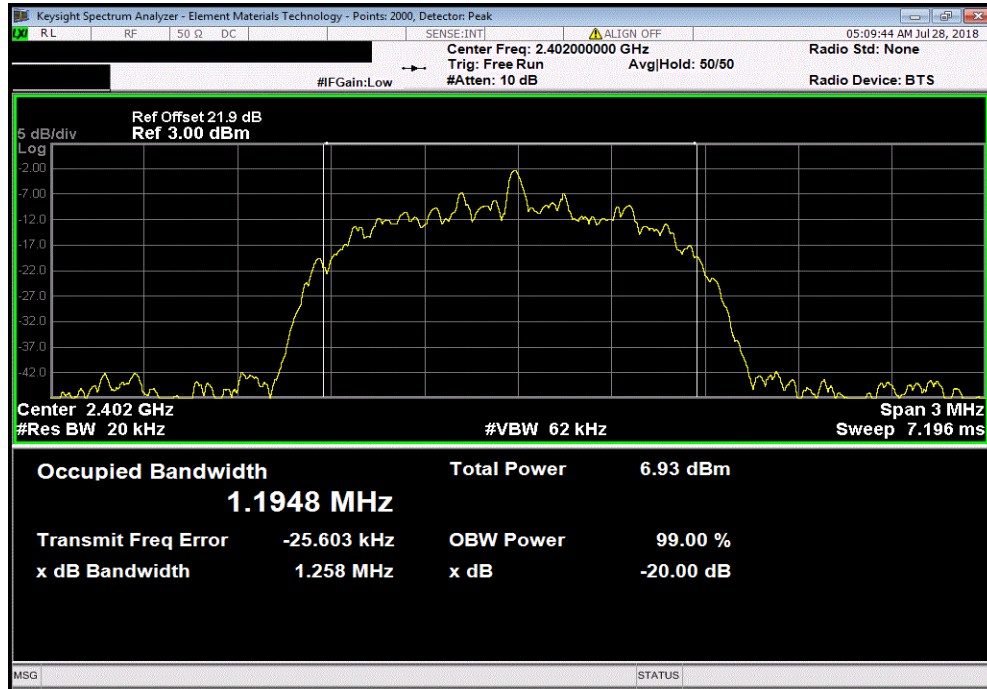


OCCUPIED BANDWIDTH

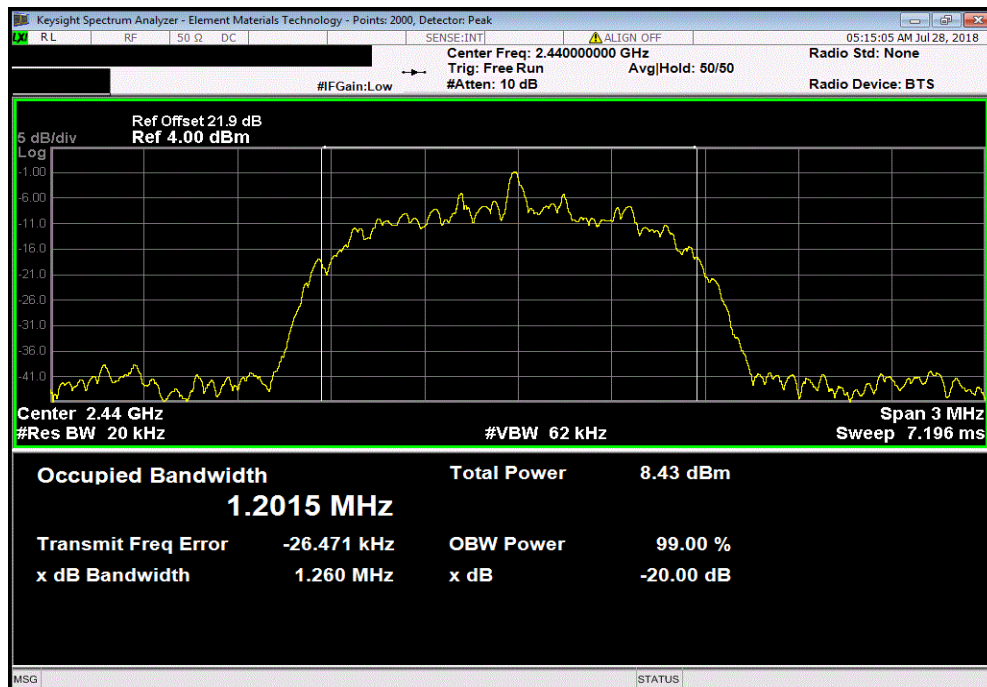


TMTx 2017.12.14 XMM 2017.12.13

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



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

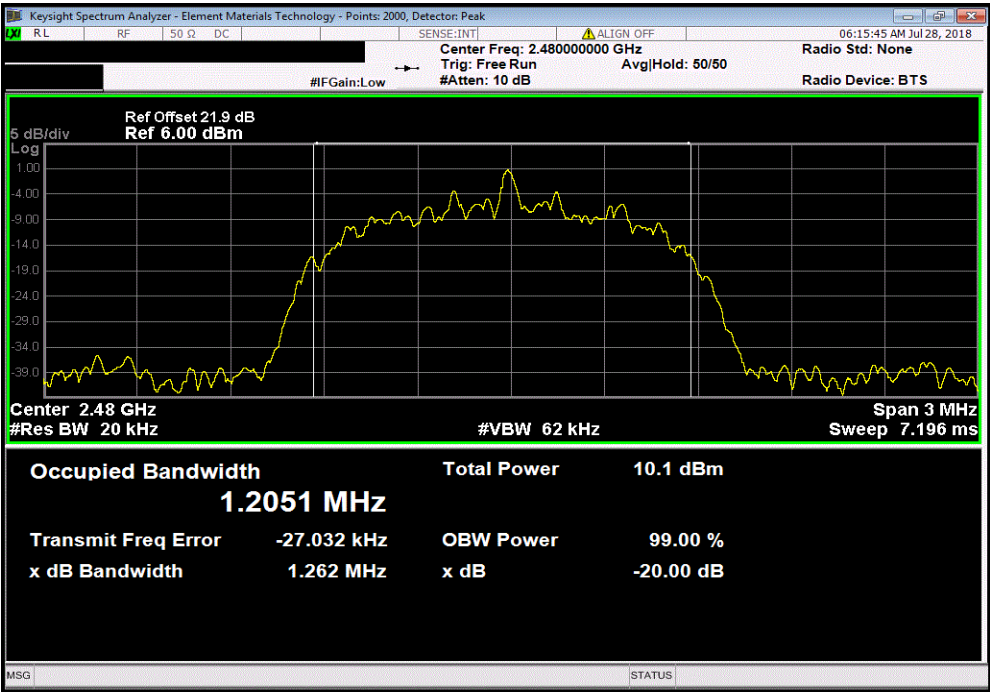


OCCUPIED BANDWIDTH



TMTx 2017.12.14 XMt 2017.12.13

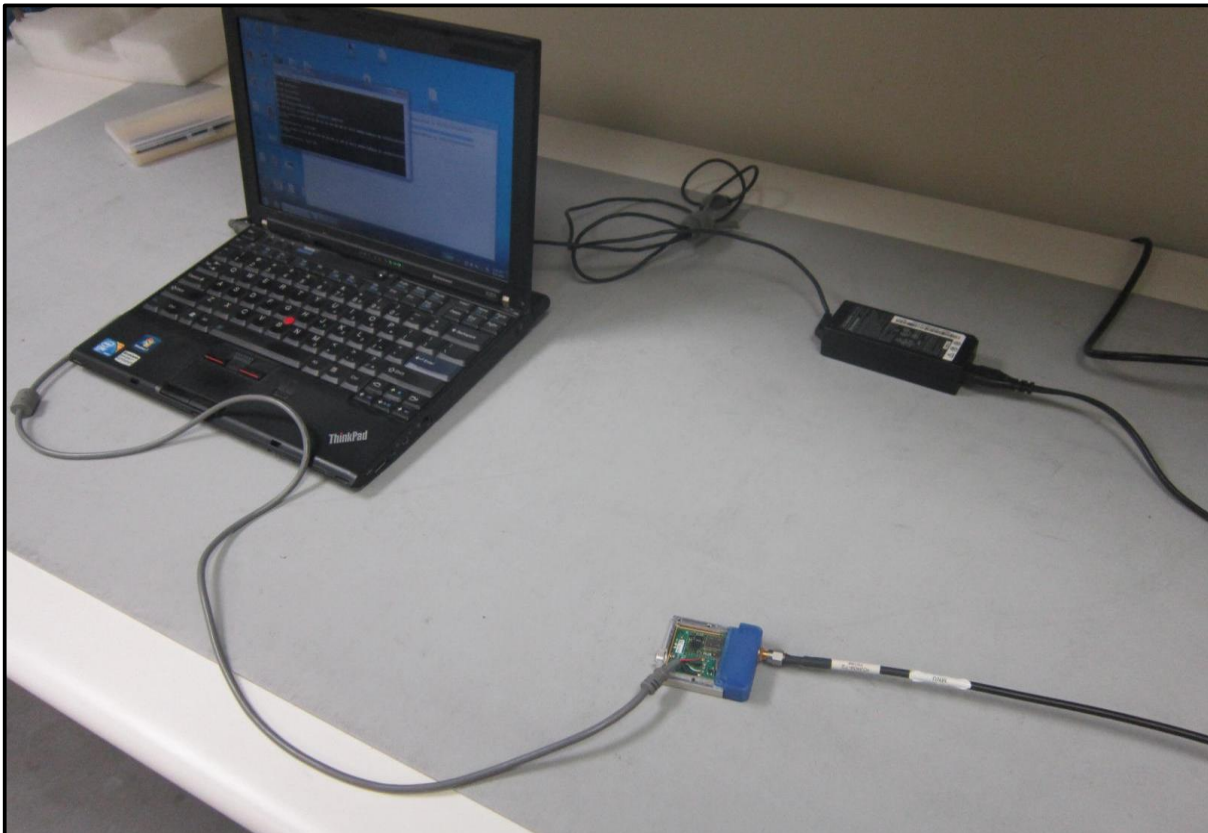
3DH5, 8-DPSK, High Channel						
				Value	Limit (<)	Result
				1.262 MHz	1.5 MHz	Pass



OCCUPIED BANDWIDTH



XMit 2017.12.13



SPURIOUS CONDUCTED EMISSIONS



XMR 2017.12.13

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Generator - Signal	Agilent	E4422B	TGQ	15-Mar-18	15-Mar-21
Cable	ESM Cable Corp.	TTBJ141 KMKM-72	MNU	15-Mar-18	15-Mar-19
Attenuator	S.M. Electronics	SA26B-20	RFW	13-Feb-18	13-Feb-19
Block - DC	Fairview Microwave	SD3379	AMI	12-Sep-17	12-Sep-18
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFN	27-Apr-18	27-Apr-19

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions were measured with the EUT set to low, medium and high transmit frequencies. The EUT was transmitting at the data rate(s) listed in the datasheet in a no-hop mode. For each transmit frequency, the spectrum was scanned throughout the specified frequency range.

SPURIOUS CONDUCTED EMISSIONS



TM17x 2017.12.14 XM16 2017.12.13

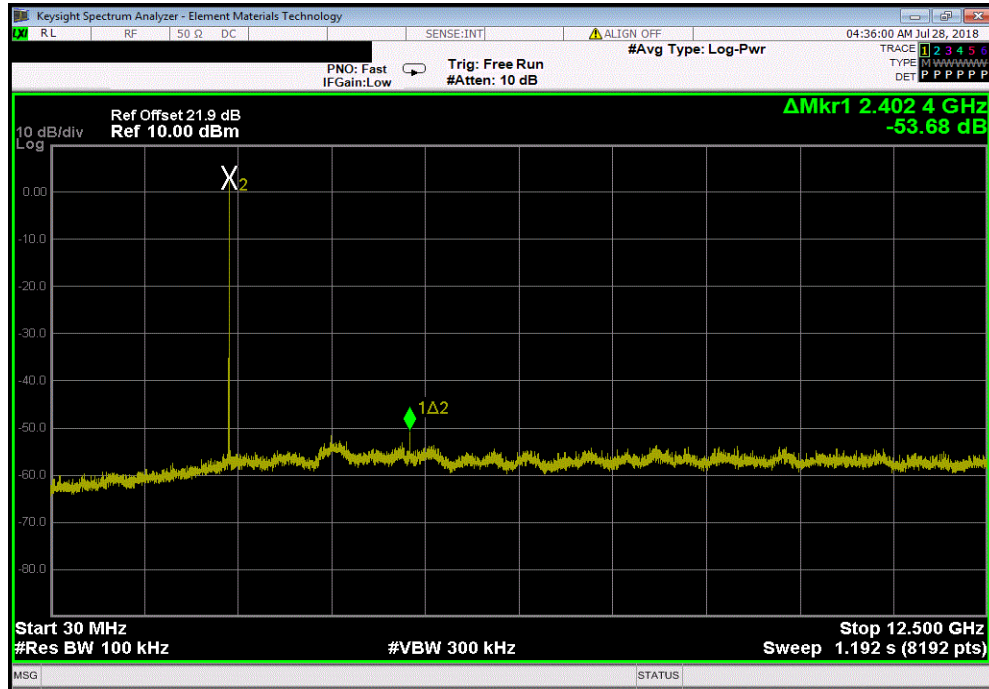
EUT: SPBT2632C1A.AT2		Work Order: BSTN0852	
Serial Number: NA		Date: 27-Jul-18	
Customer: Boston Scientific Corporation		Temperature: 21.6 °C	
Attendees: None		Humidity: 49.4% RH	
Project: None		Barometric Pres.: 1021 mbar	
Tested by: Dustin Sparks		Power: 110VAC/60Hz	
		Job Site: MN08	
TEST SPECIFICATIONS			
LP0002:2018		Test Method	
LP0002:2018		LP0002:2018	
COMMENTS			
None			
DEVIATIONS FROM TEST STANDARD			
None			
Configuration #	3	Signature <i>Dustin Sparks</i>	
		Frequency Range	Max Value (dBc) Limit ≤ (dBc) Result
DH5, GFSK			
	Low Channel	30 MHz - 12.5 GHz	-53.68 -20 Pass
	Low Channel	12.5 GHz - 25 GHz	-53.77 -20 Pass
	Mid Channel	30 MHz - 12.5 GHz	-55.81 -20 Pass
	Mid Channel	12.5 GHz - 25 GHz	-55.12 -20 Pass
	High Channel	30 MHz - 12.5 GHz	-55.8 -20 Pass
	High Channel	12.5 GHz - 25 GHz	-55.85 -20 Pass
2DH5, pi/4-DQPSK			
	Low Channel	30 MHz - 12.5 GHz	-51.48 -20 Pass
	Low Channel	12.5 GHz - 25 GHz	-49.48 -20 Pass
	Mid Channel	30 MHz - 12.5 GHz	-49.56 -20 Pass
	Mid Channel	12.5 GHz - 25 GHz	-48.96 -20 Pass
	High Channel	30 MHz - 12.5 GHz	-52.92 -20 Pass
	High Channel	12.5 GHz - 25 GHz	-51.73 -20 Pass
3DH5, 8-DPSK			
	Low Channel	30 MHz - 12.5 GHz	-51.58 -20 Pass
	Low Channel	12.5 GHz - 25 GHz	-50.34 -20 Pass
	Mid Channel	30 MHz - 12.5 GHz	-51.46 -20 Pass
	Mid Channel	12.5 GHz - 25 GHz	-50.21 -20 Pass
	High Channel	30 MHz - 12.5 GHz	-51.53 -20 Pass
	High Channel	12.5 GHz - 25 GHz	-50.91 -20 Pass

SPURIOUS CONDUCTED EMISSIONS

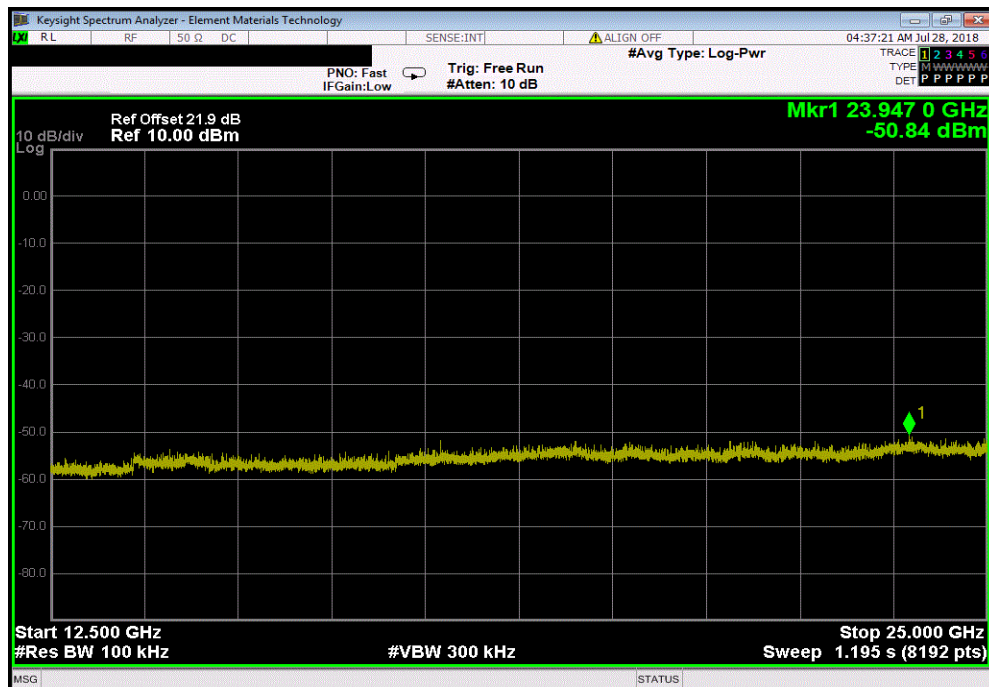


TMTx 2017.12.14 XMI 2017.12.13

DH5, GFSK, Low Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-53.68	-20	Pass	



DH5, GFSK, Low Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-53.77	-20	Pass	

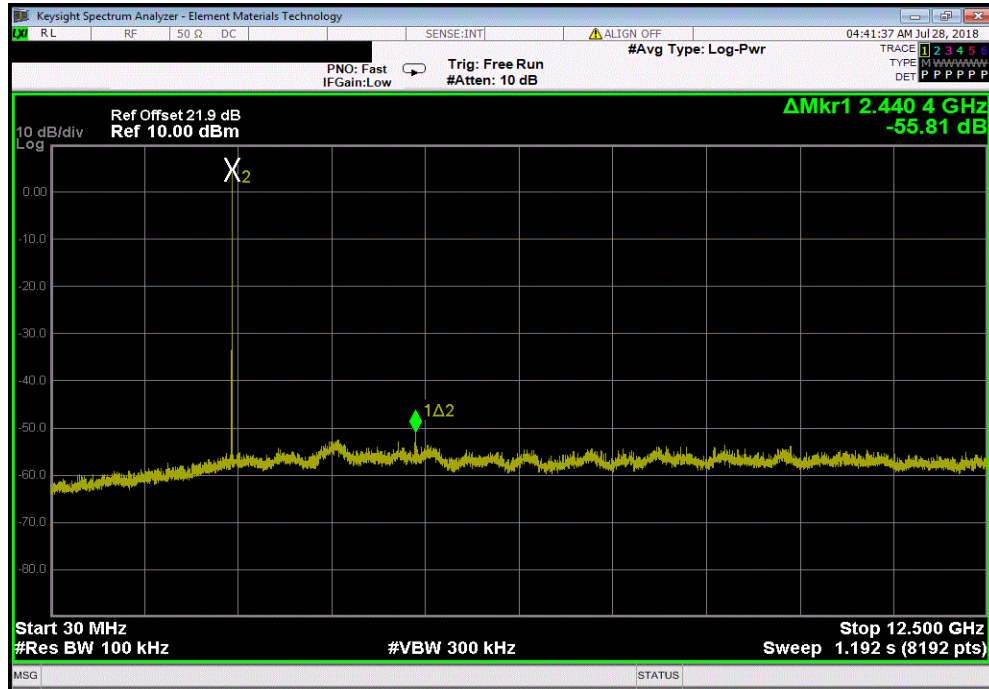


SPURIOUS CONDUCTED EMISSIONS

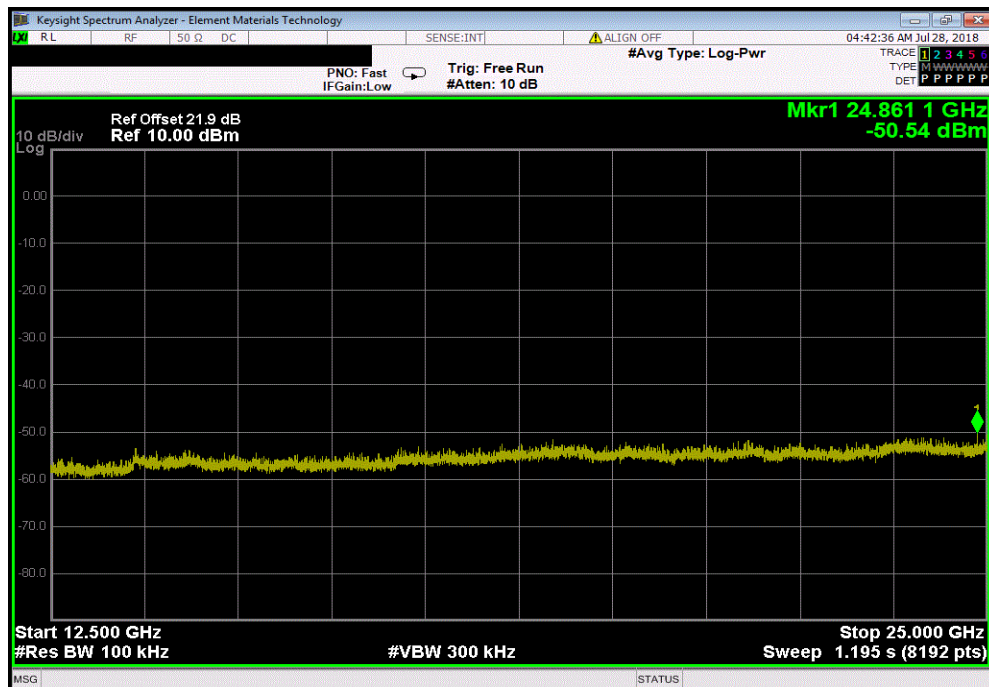


TMTx 2017.12.14 XMI 2017.12.13

DH5, GFSK, Mid Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-55.81	-20	Pass	



DH5, GFSK, Mid Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-55.12	-20	Pass	

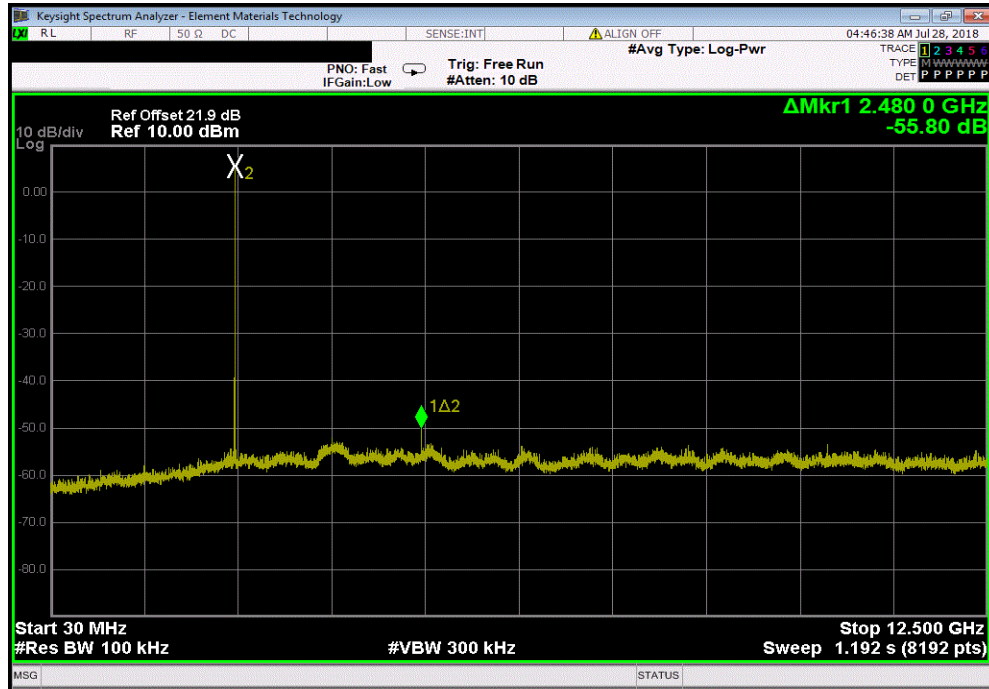


SPURIOUS CONDUCTED EMISSIONS

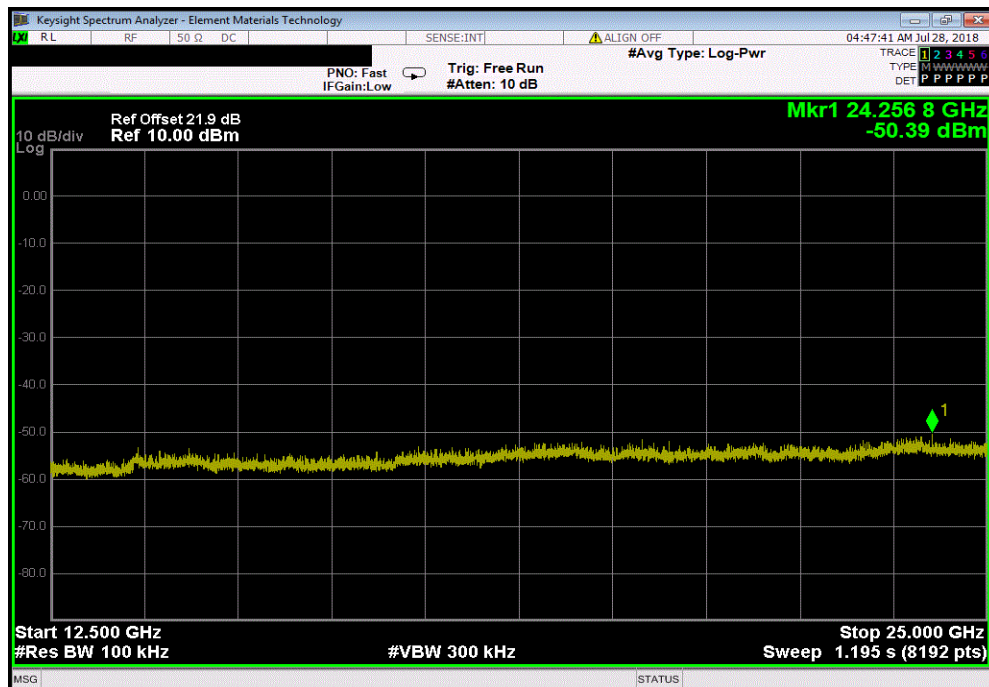


TMTx 2017.12.14 XMI 2017.12.13

DH5, GFSK, High Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-55.8	-20	Pass	



DH5, GFSK, High Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-55.85	-20	Pass	

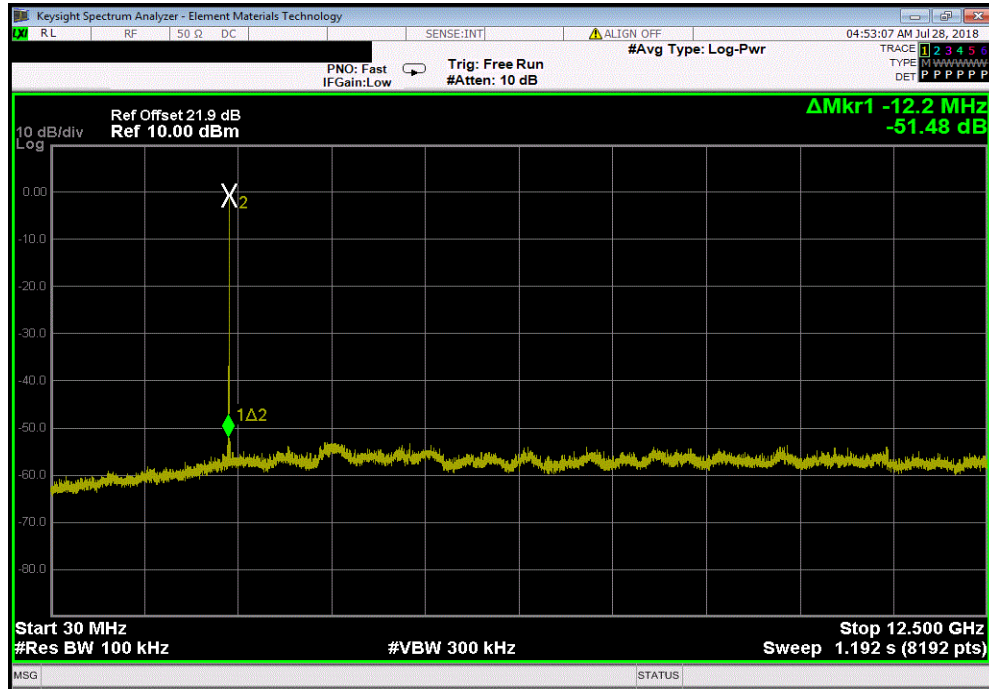


SPURIOUS CONDUCTED EMISSIONS

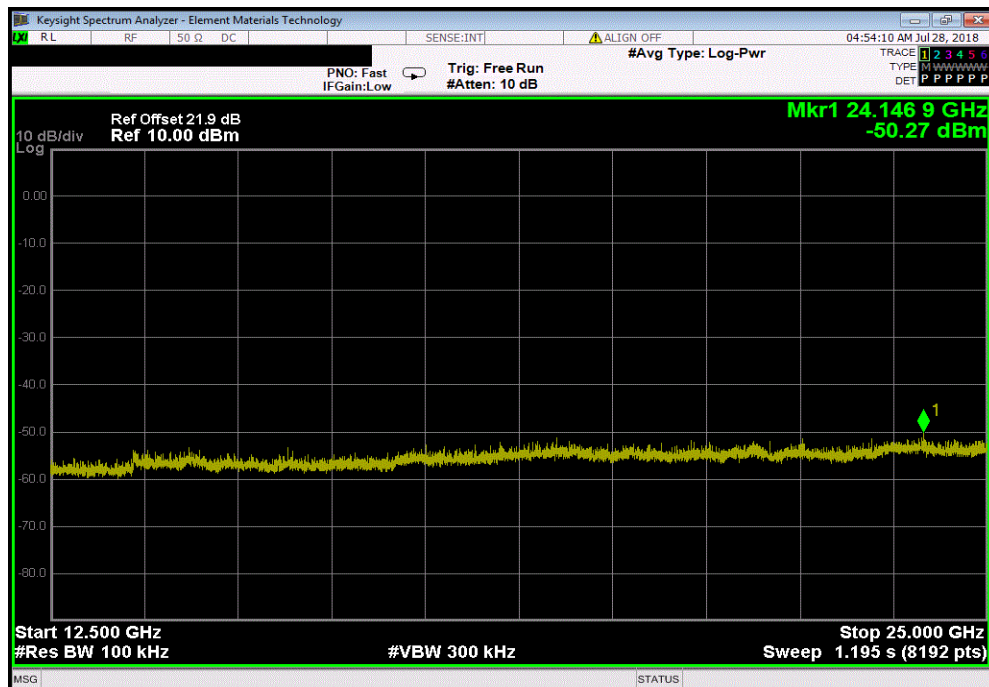


TMTx 2017.12.14 XMI 2017.12.13

2DH5, pi/4-DQPSK, Low Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-51.48	-20	Pass	



2DH5, pi/4-DQPSK, Low Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-49.48	-20	Pass	

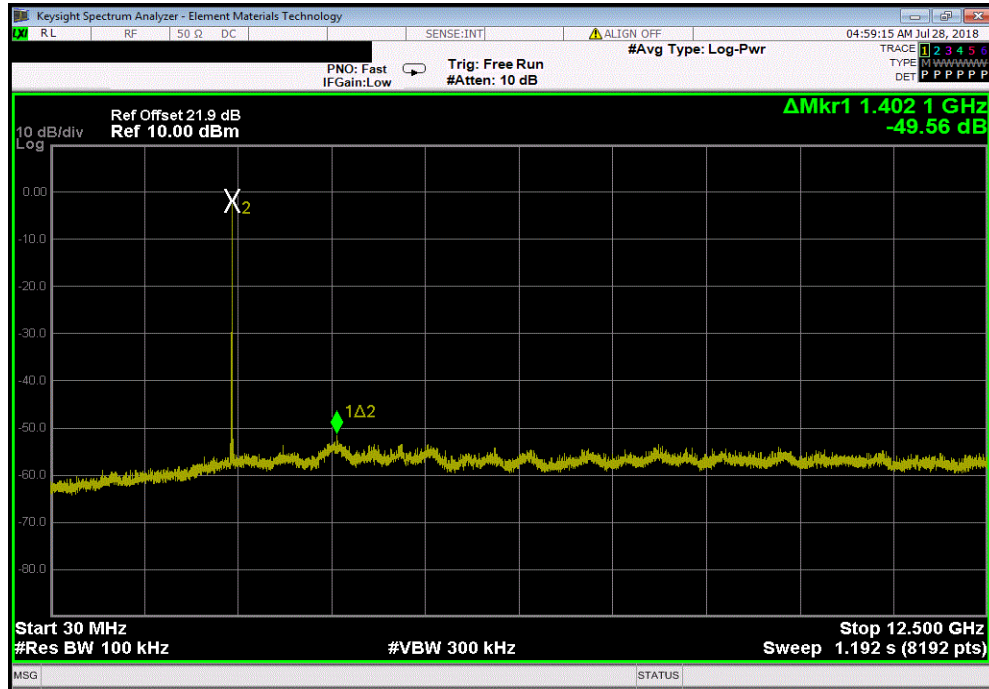


SPURIOUS CONDUCTED EMISSIONS

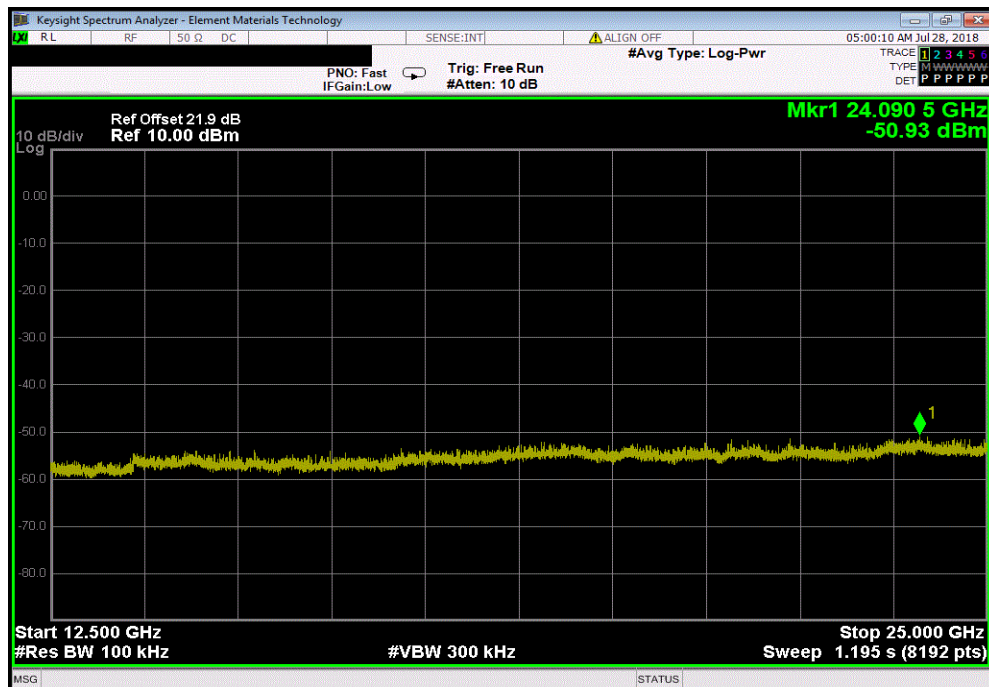


TMTx 2017.12.14 XMI 2017.12.13

2DH5, pi/4-DQPSK, Mid Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-49.56	-20	Pass	



2DH5, pi/4-DQPSK, Mid Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-48.96	-20	Pass	

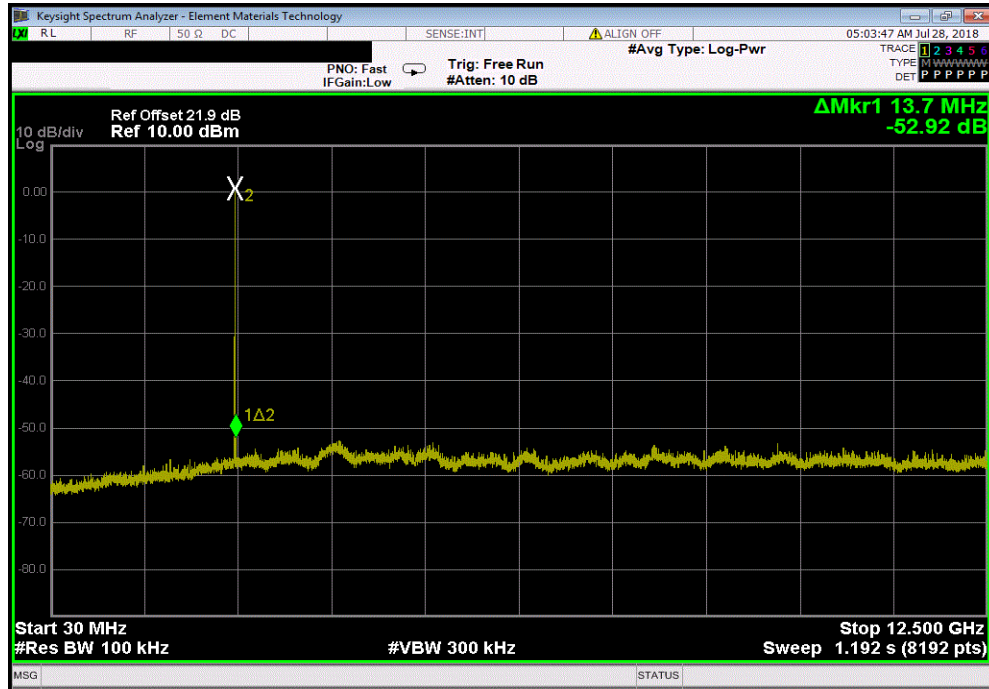


SPURIOUS CONDUCTED EMISSIONS

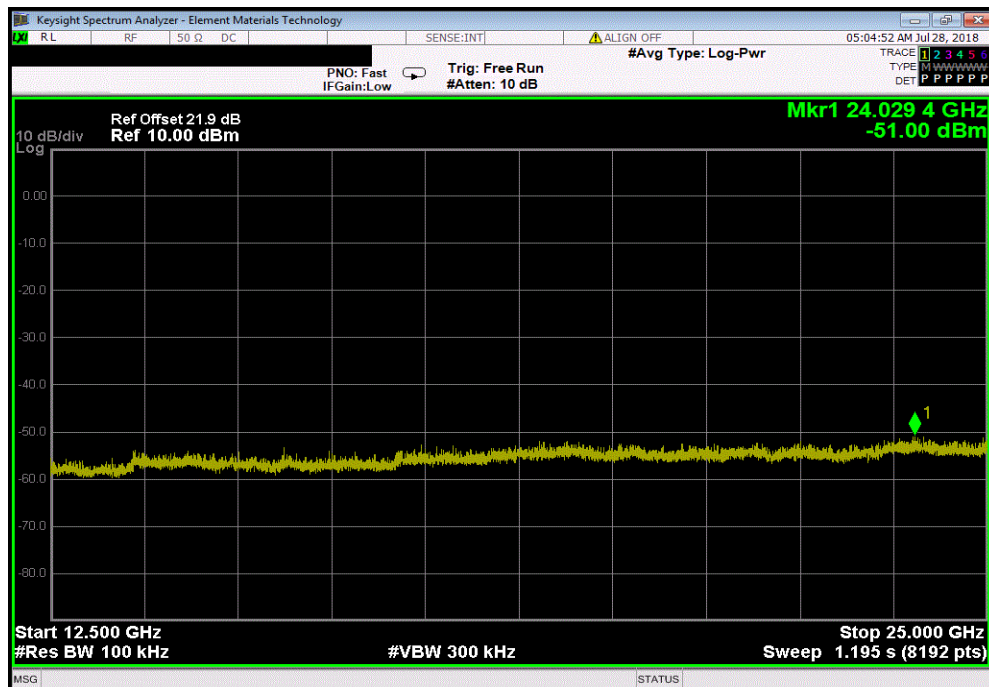


TMTx 2017.12.14 XMI 2017.12.13

2DH5, pi/4-DQPSK, High Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-52.92	-20	Pass	



2DH5, pi/4-DQPSK, High Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-51.73	-20	Pass	

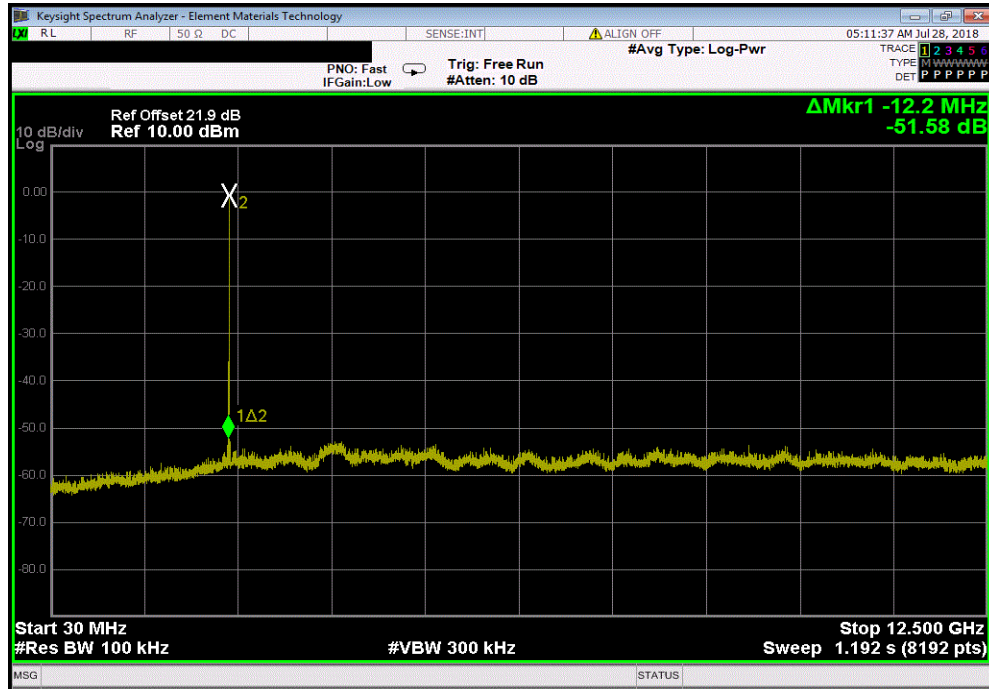


SPURIOUS CONDUCTED EMISSIONS

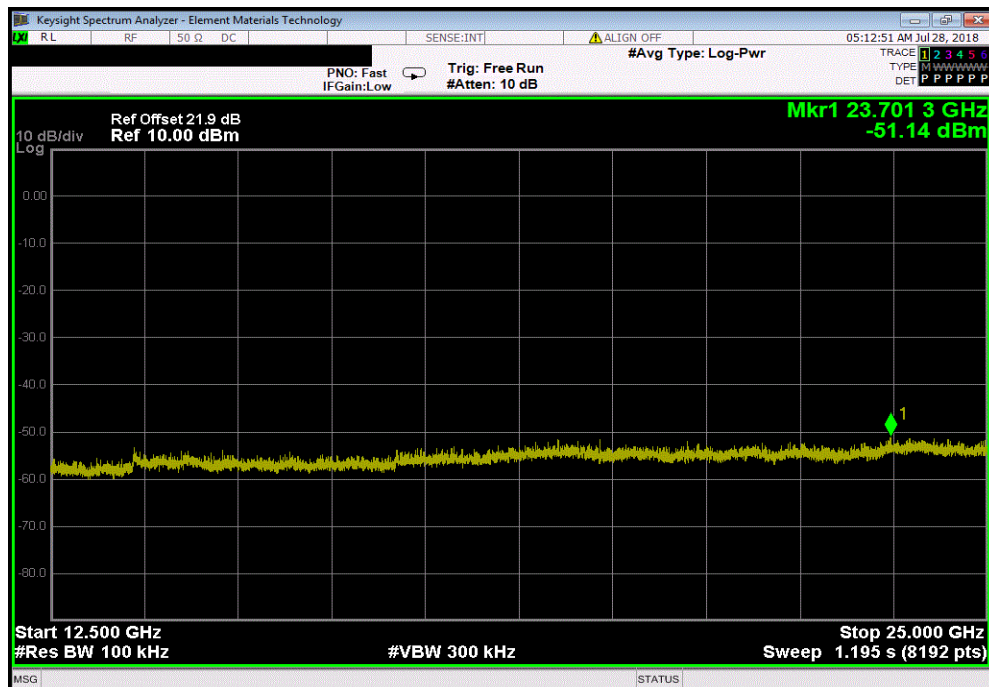


TMTx 2017.12.14 XMI 2017.12.13

3DH5, 8-DPSK, Low Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-51.58	-20	Pass	



3DH5, 8-DPSK, Low Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-50.34	-20	Pass	

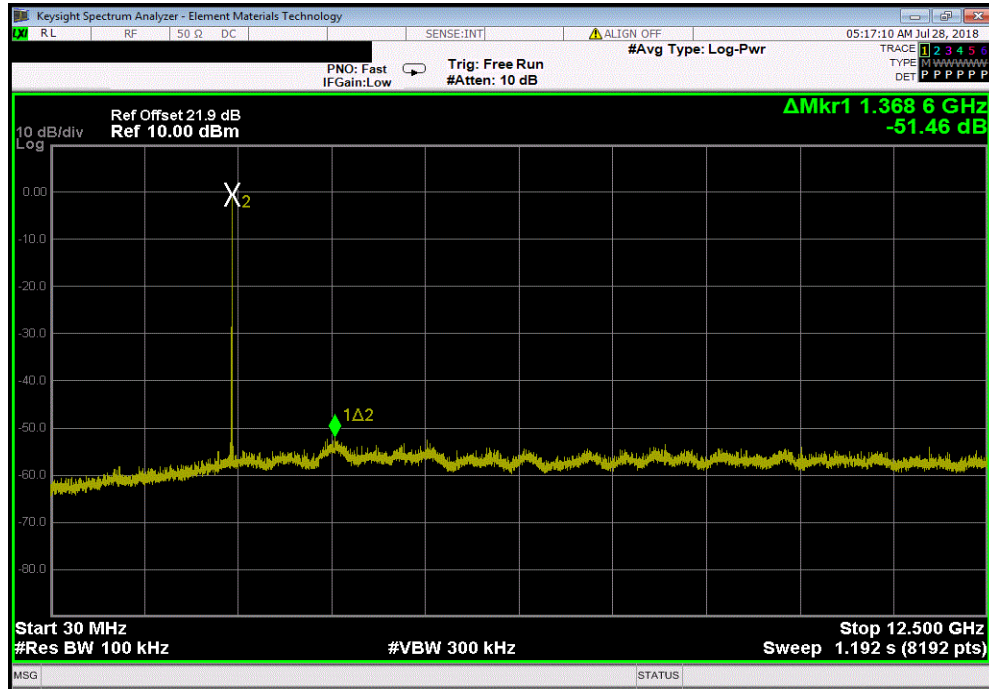


SPURIOUS CONDUCTED EMISSIONS

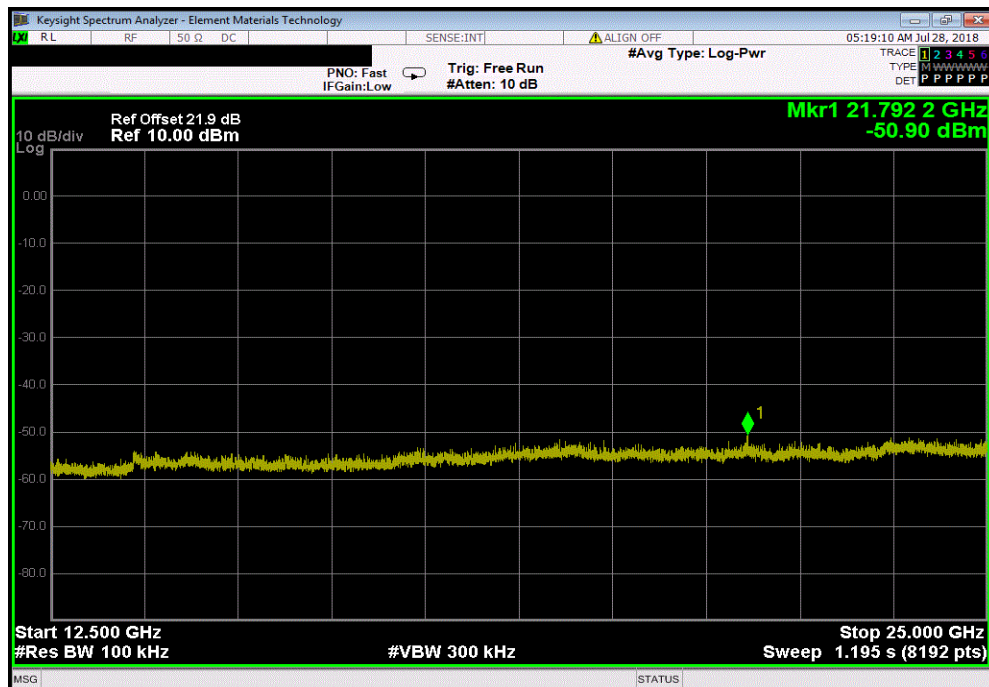


TMTx 2017.12.14 XMI 2017.12.13

3DH5, 8-DPSK, Mid Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-51.46	-20	Pass	



3DH5, 8-DPSK, Mid Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-50.21	-20	Pass	

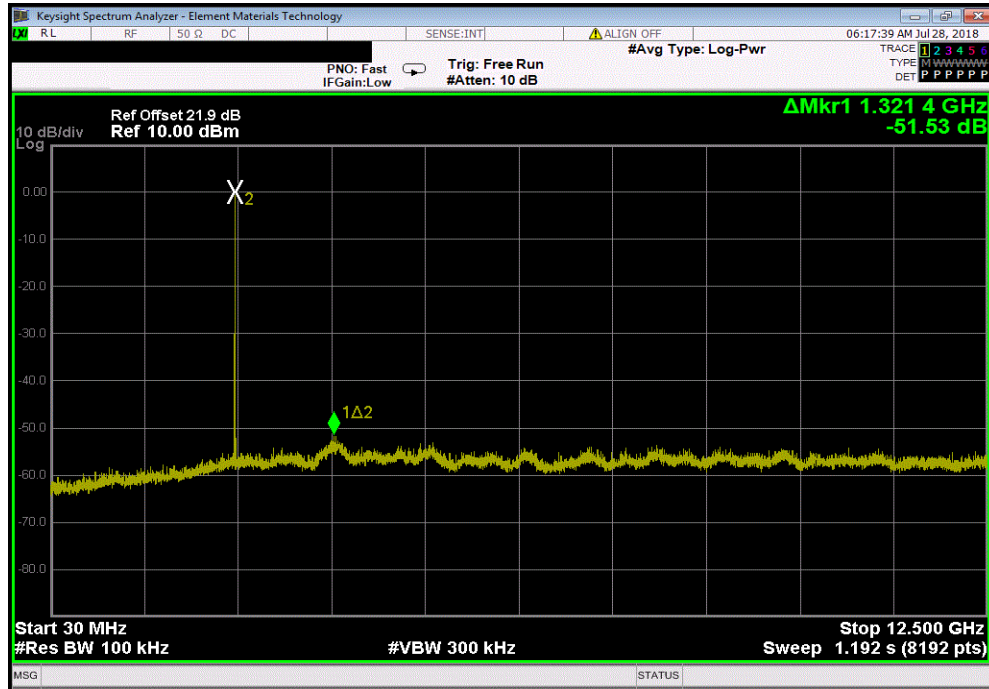


SPURIOUS CONDUCTED EMISSIONS

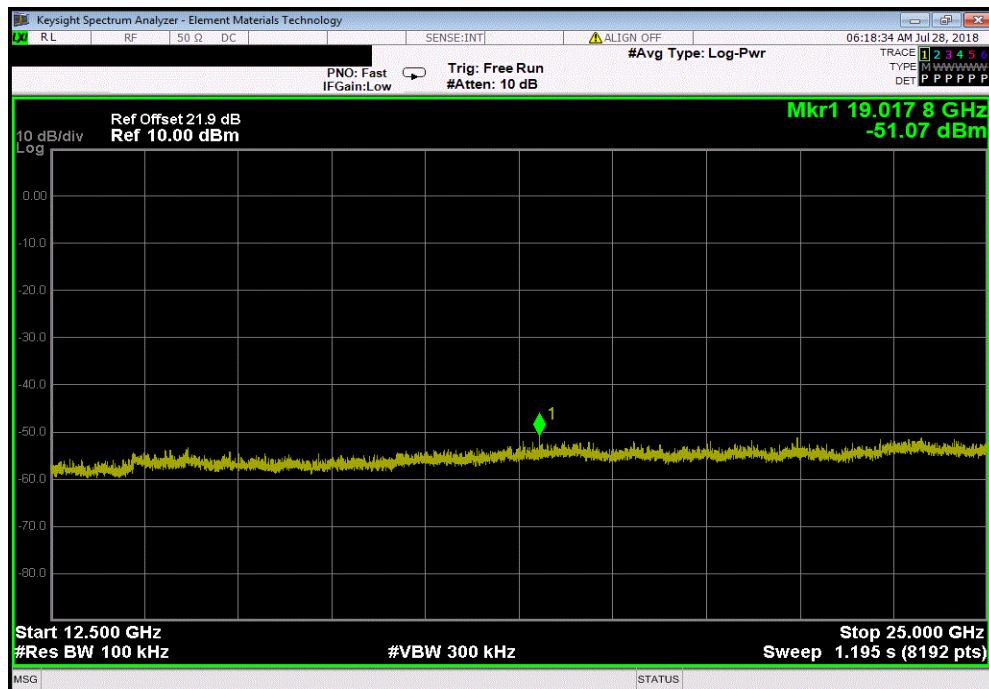


TMTx 2017.12.14 XMI 2017.12.13

3DH5, 8-DPSK, High Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
30 MHz - 12.5 GHz	-51.53	-20	Pass	



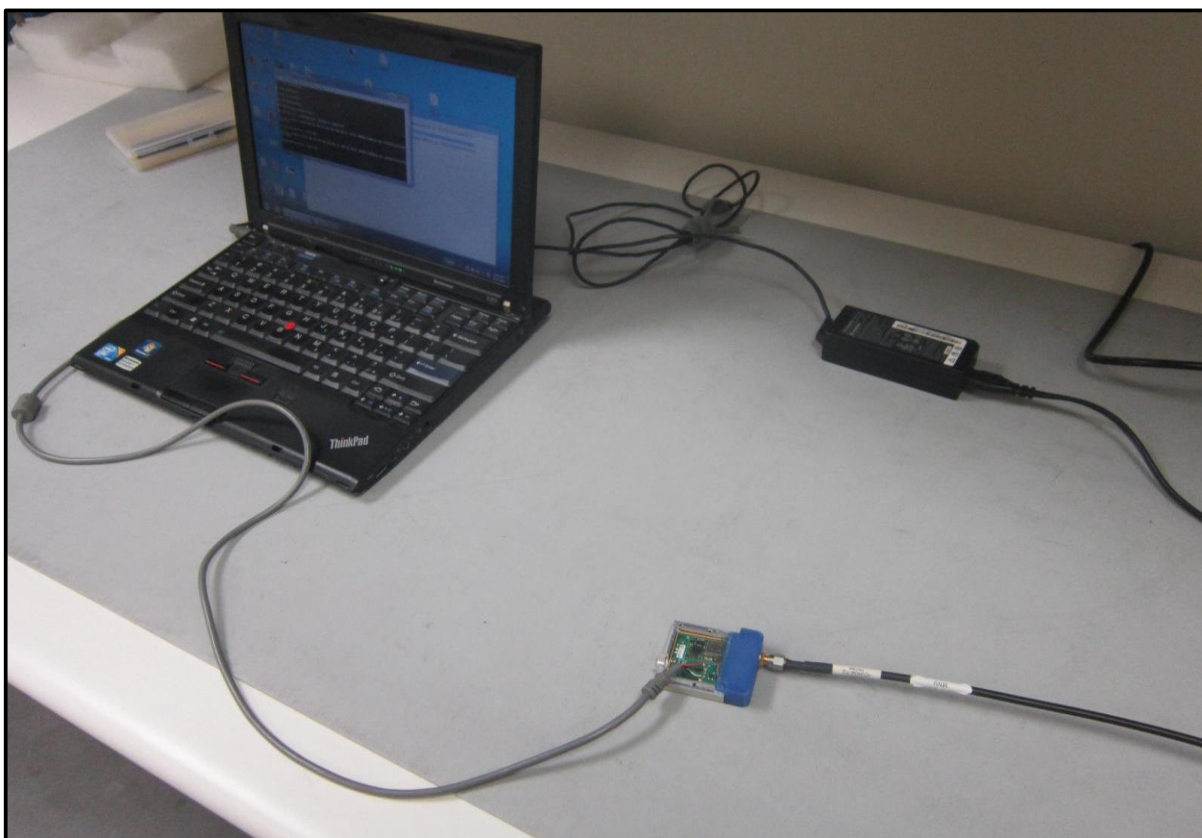
3DH5, 8-DPSK, High Channel				
Frequency Range	Max Value (dBc)	Limit ≤ (dBc)	Result	
12.5 GHz - 25 GHz	-50.91	-20	Pass	



SPURIOUS CONDUCTED EMISSIONS



XMit 2017.12.13



SPURIOUS RADIATED EMISSIONS



PSA-ESCI 2018.05.04

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

MODES OF OPERATION

Transmitting Bluetooth - low channel (2402 MHz), mid channel (2440 MHz), or high channel (2480 MHz) with DH5, 2DH5, or 3DH5 modulation.

POWER SETTINGS INVESTIGATED

110VAC/60Hz

CONFIGURATIONS INVESTIGATED

BSTN0852 - 2

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	25 GHz
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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	LPM50003	HGL	21-Sep-2017	12 mo
Filter - High Pass	Micro-Tronics	HPM50111	HFM	24-Feb-2018	12 mo
Attenuator	Coaxicom	3910-20	AXY	24-Feb-2018	12 mo
Cable	ESM Cable Corp	TTBJ141 KMKM-72	MNP	12-Sep-2017	12 mo
Amplifier - Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	12-Sep-2017	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-09	AHG	NCR	0 mo
Amplifier - Pre-Amplifier	L-3 Narda-MITEQ	AMF-6F-12001800-30-10P	PAP	24-Feb-2018	12 mo
Antenna	ETS-Lindgren	3160-08	AJP	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVC	24-Feb-2018	12 mo
Cable	Element	Standard Gain Cable	MNW	24-Feb-2018	12 mo
Antenna	ETS-Lindgren	3160-07	AJJ	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	AVX	24-Feb-2018	12 mo
Cable	Element	Double Ridge Guide Horn Cables	MNV	24-Feb-2018	12 mo
Antenna - Double Ridge	ETS-Lindgren	3115	AJQ	14-Nov-2016	24 mo
Amplifier - Pre-Amplifier	Miteq	AM-1064-9079 and SA18E-10	AOO	24-Feb-2018	12 mo
Cable	Element	Biconilog Cable	MXN	24-Feb-2018	12 mo
Antenna - Biconilog	ETS Lindgren	3142D	AXO	15-Dec-2017	24 mo
Analyzer - Spectrum Analyzer	Agilent	E4440A	AAX	26-Mar-2018	12 mo

MEASUREMENT BANDWIDTHS

Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

SPURIOUS RADIATED EMISSIONS



TEST DESCRIPTION

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

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

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization. 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:

PK = Peak Detector
AV = RMS Detector

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

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

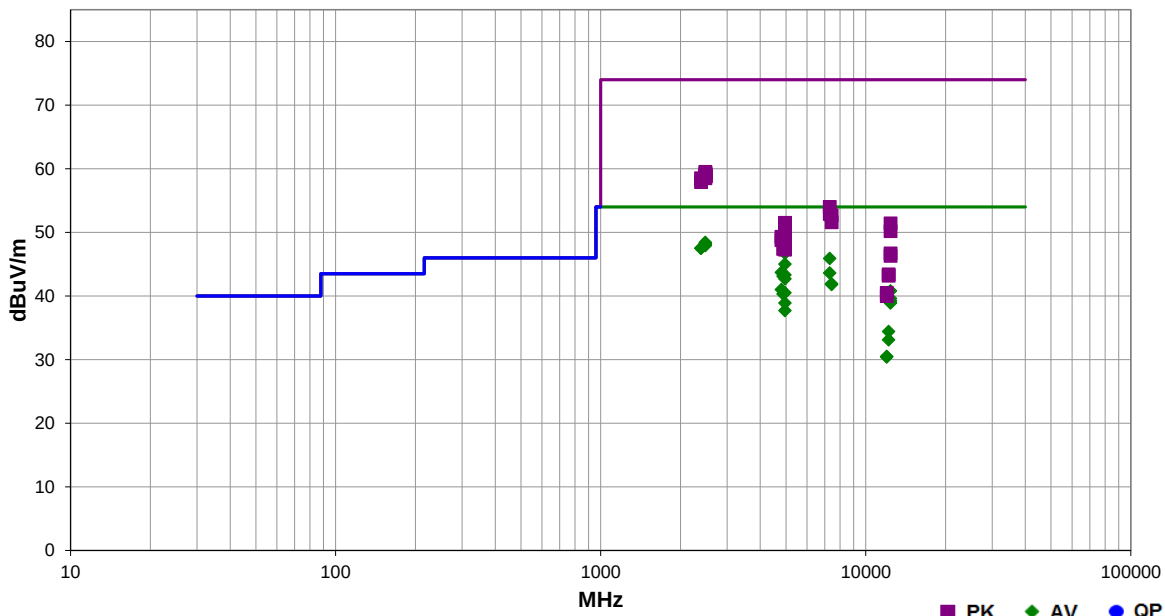
SPURIOUS RADIATED EMISSIONS



Work Order:	BSTN0852	Date:	24-Jul-2018		
Project:	None	Temperature:	21.5 °C		
Job Site:	MN09	Humidity:	54.6% RH		
Serial Number:	NA	Barometric Pres.:	1020 mbar	Tested by:	Dustin Sparks, Kyle McMullan
EUT:	SPBT2632C1A.AT2				
Configuration:	2				
Customer:	Boston Scientific Corporation				
Attendees:	None				
EUT Power:	110VAC/60Hz				
Operating Mode:	Transmitting Bluetooth - low channel (2402 MHz), mid channel (2440 MHz), or high channel (2480 MHz) with DH5, 2DH5, or 3DH5 modulation.				
Deviations:	None				
Comments:	None				

Test Specifications	LP0002:2016	Test Method	LP0002:2016
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Run #	19	Test Distance (m)	3	Antenna Height(s)	1 to 4(m)	Results	Pass
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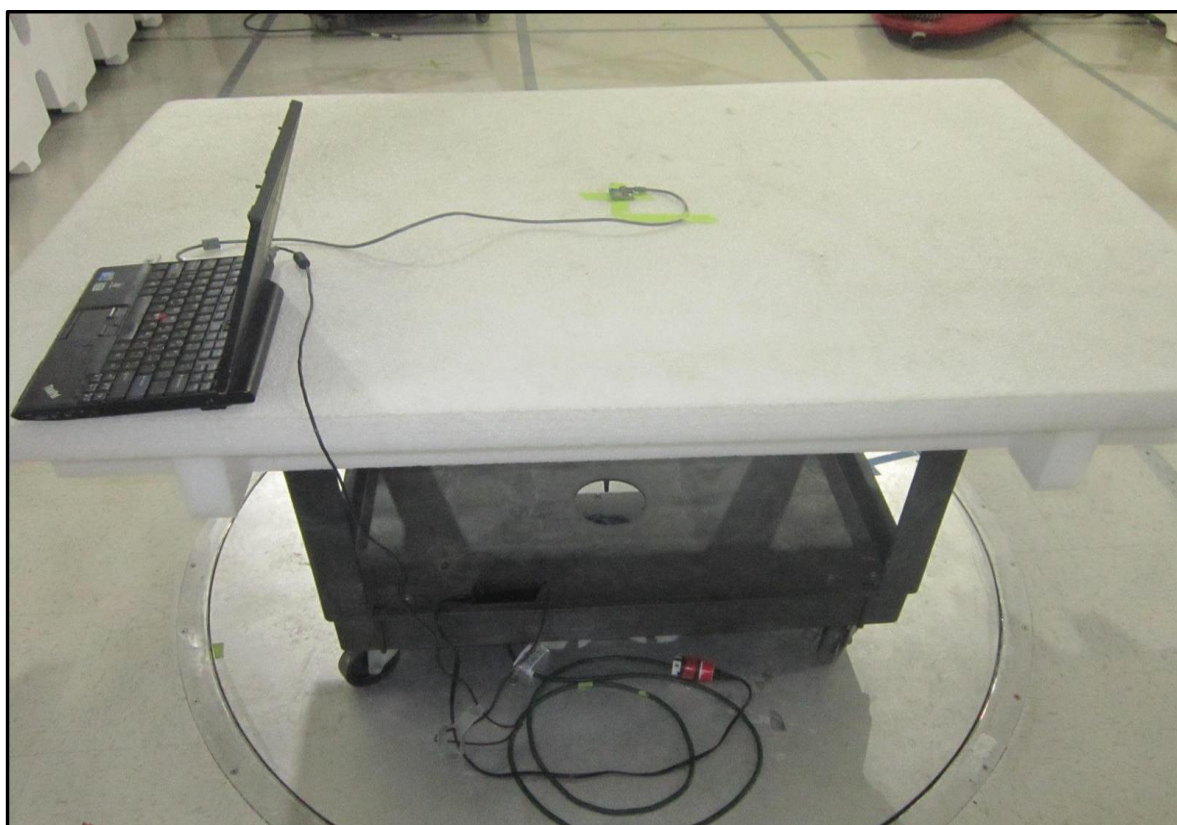
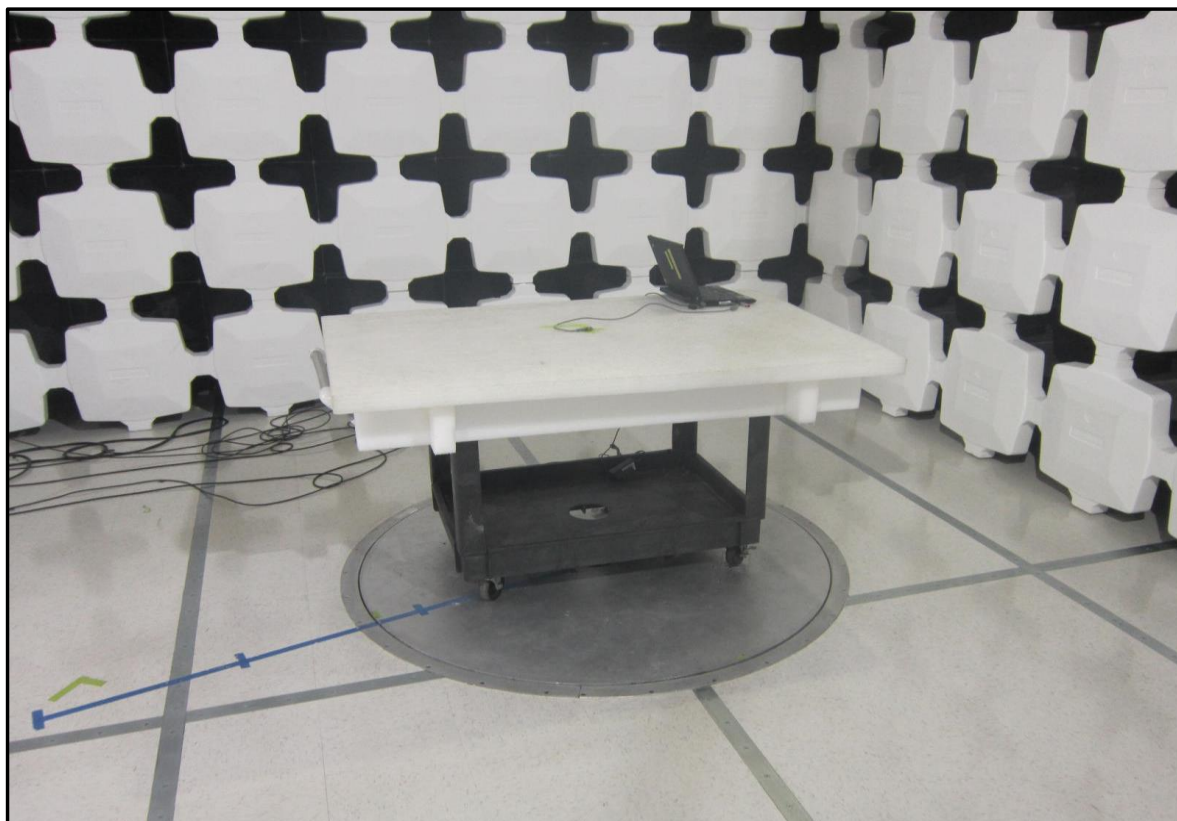
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2483.500	31.5	-4.2	1.0	133.0	1.1	20.0	Vert	AV	0.0	48.4	54.0	-5.6	High ch, DH5, EUT vert
2483.570	31.3	-4.2	1.0	166.0	1.1	20.0	Horz	AV	0.0	48.2	54.0	-5.8	High ch, DH5, EUT on side
2483.563	31.2	-4.2	1.0	1.0	1.1	20.0	Vert	AV	0.0	48.1	54.0	-5.9	High ch, DH5, EUT on side
2483.500	31.2	-4.2	1.0	71.0	1.1	20.0	Horz	AV	0.0	48.1	54.0	-5.9	High ch, DH5, EUT horz
2483.617	31.2	-4.2	1.0	250.0	1.1	20.0	Vert	AV	0.0	48.1	54.0	-5.9	High ch, 3DH5, EUT vert
2483.543	31.2	-4.2	1.0	250.0	1.1	20.0	Vert	AV	0.0	48.1	54.0	-5.9	High ch, 2DH5, EUT vert
2483.993	31.1	-4.2	1.0	265.0	1.1	20.0	Horz	AV	0.0	48.0	54.0	-6.0	High ch, DH5, EUT horz
2483.590	31.0	-4.2	3.0	204.0	1.1	20.0	Vert	AV	0.0	47.9	54.0	-6.1	High ch, DH5, EUT horz
2388.597	30.9	-4.5	4.0	77.0	1.1	20.0	Horz	AV	0.0	47.5	54.0	-6.5	Low ch, DH5, EUT on side
2388.793	30.9	-4.5	3.7	184.0	1.1	20.0	Vert	AV	0.0	47.5	54.0	-6.5	Low ch, DH5, EUT vert
4959.983	41.9	4.0	1.3	252.0	1.1	0.0	Horz	AV	0.0	47.0	54.0	-7.0	High ch, DH5, EUT on side
4960.017	41.6	4.0	3.8	141.0	1.1	0.0	Horz	AV	0.0	46.7	54.0	-7.3	High ch, DH5, EUT horz
7319.967	32.7	12.1	1.3	262.0	1.1	0.0	Horz	AV	0.0	45.9	54.0	-8.1	Mid ch, DH5, EUT on side
4960.008	39.9	4.0	1.0	223.0	1.1	0.0	Vert	AV	0.0	45.0	54.0	-9.0	High ch, DH5, EUT vert
4803.967	38.3	4.3	1.8	275.0	1.1	0.0	Horz	AV	0.0	43.7	54.0	-10.3	Low ch, DH5, EUT on side
7320.000	30.4	12.1	2.1	220.0	1.1	0.0	Vert	AV	0.0	43.6	54.0	-10.4	Mid ch, DH5, EUT on side
4960.025	38.2	4.0	2.4	189.0	1.1	0.0	Vert	AV	0.0	43.3	54.0	-10.7	High ch, DH5, EUT on side
4879.975	38.0	4.0	1.4	248.0	1.1	0.0	Horz	AV	0.0	43.1	54.0	-10.9	Mid ch, DH5, EUT on side
4959.958	37.6	4.0	3.2	159.0	1.1	0.0	Vert	AV	0.0	42.7	54.0	-11.3	High ch, DH5, EUT horz
7439.650	28.3	12.5	1.0	10.0	1.1	0.0	Vert	AV	0.0	41.9	54.0	-12.1	High ch, DH5, EUT on side

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Duty Cycle Correction Factor (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
7437.533	28.2	12.5	1.0	336.0	1.1	0.0	Horz	AV	0.0	41.8	54.0	-12.2	High ch, DH5, EUT on side
4803.892	35.6	4.3	2.2	242.0	1.1	0.0	Vert	AV	0.0	41.0	54.0	-13.0	Low ch, DH5, EUT on side
12400.490	27.3	12.4	1.0	87.0	1.1	0.0	Vert	AV	0.0	40.8	54.0	-13.2	High ch, DH5, EUT on side
4960.025	35.4	4.0	1.2	156.0	1.1	0.0	Horz	AV	0.0	40.5	54.0	-13.5	High ch, DH5, EUT vert
4879.942	35.2	4.0	1.0	161.0	1.1	0.0	Vert	AV	0.0	40.3	54.0	-13.7	Mid ch, DH5, EUT on side
12400.340	26.1	12.4	1.9	252.0	1.1	0.0	Horz	AV	0.0	39.6	54.0	-14.4	High ch, DH5, EUT on side
2483.753	43.7	-4.2	1.0	133.0		20.0	Vert	PK	0.0	59.5	74.0	-14.5	High ch, DH5, EUT vert
2484.597	43.5	-4.2	1.0	1.0		20.0	Vert	PK	0.0	59.3	74.0	-14.7	High ch, DH5, EUT on side
12399.500	38.6	-0.5	1.0	99.0	1.1	0.0	Vert	AV	0.0	39.2	54.0	-14.8	High ch, DH5, EUT on side
2484.450	43.2	-4.2	1.0	166.0		20.0	Horz	PK	0.0	59.0	74.0	-15.0	High ch, DH5, EUT on side
2485.360	43.2	-4.2	1.0	250.0		20.0	Vert	PK	0.0	59.0	74.0	-15.0	High ch, 3DH5, EUT vert
12399.370	38.3	-0.5	2.3	196.0	1.1	0.0	Horz	AV	0.0	38.9	54.0	-15.1	High ch, DH5, EUT on side
2484.710	43.1	-4.2	1.0	250.0		20.0	Vert	PK	0.0	58.9	74.0	-15.1	High ch, 2DH5, EUT vert
4959.967	33.8	4.0	2.6	274.0	1.1	0.0	Horz	AV	0.0	38.9	54.0	-15.1	High ch, 2DH5, EUT on side
2485.157	43.0	-4.2	1.0	265.0		20.0	Horz	PK	0.0	58.8	74.0	-15.2	High ch, DH5, EUT vert
2484.043	43.0	-4.2	3.0	204.0		20.0	Vert	PK	0.0	58.8	74.0	-15.2	High ch, DH5, EUT horz
2483.787	42.7	-4.2	1.0	71.0		20.0	Horz	PK	0.0	58.5	74.0	-15.5	High ch, DH5, EUT horz
2388.560	43.0	-4.5	3.7	184.0		20.0	Vert	PK	0.0	58.5	74.0	-15.5	Low ch, DH5, EUT vert
2388.830	42.4	-4.5	4.0	77.0		20.0	Horz	PK	0.0	57.9	74.0	-16.1	Low ch, DH5, EUT on side
4960.003	32.6	4.0	2.6	274.0	1.1	0.0	Horz	AV	0.0	37.7	54.0	-16.3	High ch, 3DH5, EUT on side
12200.480	33.5	-0.2	2.4	163.0	1.1	0.0	Horz	AV	0.0	34.4	54.0	-19.6	Mid ch, DH5, EUT on side
7320.383	41.9	12.1	1.3	262.0		0.0	Horz	PK	0.0	54.0	74.0	-20.0	Mid ch, DH5, EUT on side
12200.470	32.2	-0.2	1.0	83.0	1.1	0.0	Vert	AV	0.0	33.1	54.0	-20.9	Mid ch, DH5, EUT on side
7320.233	40.8	12.1	2.1	220.0		0.0	Vert	PK	0.0	52.9	74.0	-21.1	Mid ch, DH5, EUT on side
7438.417	40.2	12.5	1.0	336.0		0.0	Horz	PK	0.0	52.7	74.0	-21.3	High ch, DH5, EUT on side
7439.117	39.1	12.5	1.0	10.0		0.0	Vert	PK	0.0	51.6	74.0	-22.4	High ch, DH5, EUT on side
4960.292	47.5	4.0	1.3	252.0		0.0	Horz	PK	0.0	51.5	74.0	-22.5	High ch, DH5, EUT on side
4960.317	47.4	4.0	3.8	141.0		0.0	Horz	PK	0.0	51.4	74.0	-22.6	High ch, DH5, EUT horz
12400.840	39.0	12.4	1.0	87.0		0.0	Vert	PK	0.0	51.4	74.0	-22.6	High ch, DH5, EUT on side
12009.890	31.2	-1.8	2.1	76.0	1.1	0.0	Vert	AV	0.0	30.5	54.0	-23.5	Low ch, DH5, EUT on side
12009.920	31.1	-1.8	1.0	194.0	1.1	0.0	Horz	AV	0.0	30.4	54.0	-23.6	Low ch, DH5, EUT on side
4959.833	46.3	4.0	1.0	223.0		0.0	Vert	PK	0.0	50.3	74.0	-23.7	High ch, DH5, EUT vert
12400.120	37.8	12.4	1.9	252.0		0.0	Horz	PK	0.0	50.2	74.0	-23.8	High ch, DH5, EUT on side
4803.625	45.0	4.3	1.8	275.0		0.0	Horz	PK	0.0	49.3	74.0	-24.7	Low ch, DH5, EUT on side
4960.200	45.1	4.0	2.6	274.0		0.0	Horz	PK	0.0	49.1	74.0	-24.9	High ch, 2DH5, EUT on side
4880.125	45.0	4.0	1.4	248.0		0.0	Horz	PK	0.0	49.0	74.0	-25.0	Mid ch, DH5, EUT on side
4959.883	44.9	4.0	2.4	189.0		0.0	Vert	PK	0.0	48.9	74.0	-25.1	High ch, DH5, EUT on side
4804.267	44.5	4.3	2.2	242.0		0.0	Vert	PK	0.0	48.8	74.0	-25.2	Low ch, DH5, EUT on side
4960.040	44.7	4.0	2.6	274.0		0.0	Horz	PK	0.0	48.7	74.0	-25.3	High ch, 3DH5, EUT on side
4959.875	44.4	4.0	3.2	159.0		0.0	Vert	PK	0.0	48.4	74.0	-25.6	High ch, DH5, EUT horz
4880.400	43.5	3.9	1.0	161.0		0.0	Vert	PK	0.0	47.4	74.0	-26.6	Mid ch, DH5, EUT on side
4960.192	43.3	4.0	1.2	156.0		0.0	Horz	PK	0.0	47.3	74.0	-26.7	High ch, DH5, EUT vert
12398.930	47.2	-0.5	1.0	99.0		0.0	Vert	PK	0.0	46.7	74.0	-27.3	High ch, DH5, EUT on side
12399.300	46.8	-0.5	2.3	196.0		0.0	Horz	PK	0.0	46.3	74.0	-27.7	High ch, DH5, EUT on side
12200.330	43.6	-0.2	2.4	163.0		0.0	Horz	PK	0.0	43.4	74.0	-30.6	Mid ch, DH5, EUT on side
12200.030	43.4	-0.2	1.0	83.0		0.0	Vert	PK	0.0	43.2	74.0	-30.8	Mid ch, DH5, EUT on side
12012.180	42.2	-1.7	1.0	194.0		0.0	Horz	PK	0.0	40.5	74.0	-33.5	Low ch, DH5, EUT on side
12010.320	41.7	-1.7	2.1	76.0		0.0	Vert	PK	0.0	40.0	74.0	-34.0	Low ch, DH5, EUT on side

SPURIOUS RADIATED EMISSIONS



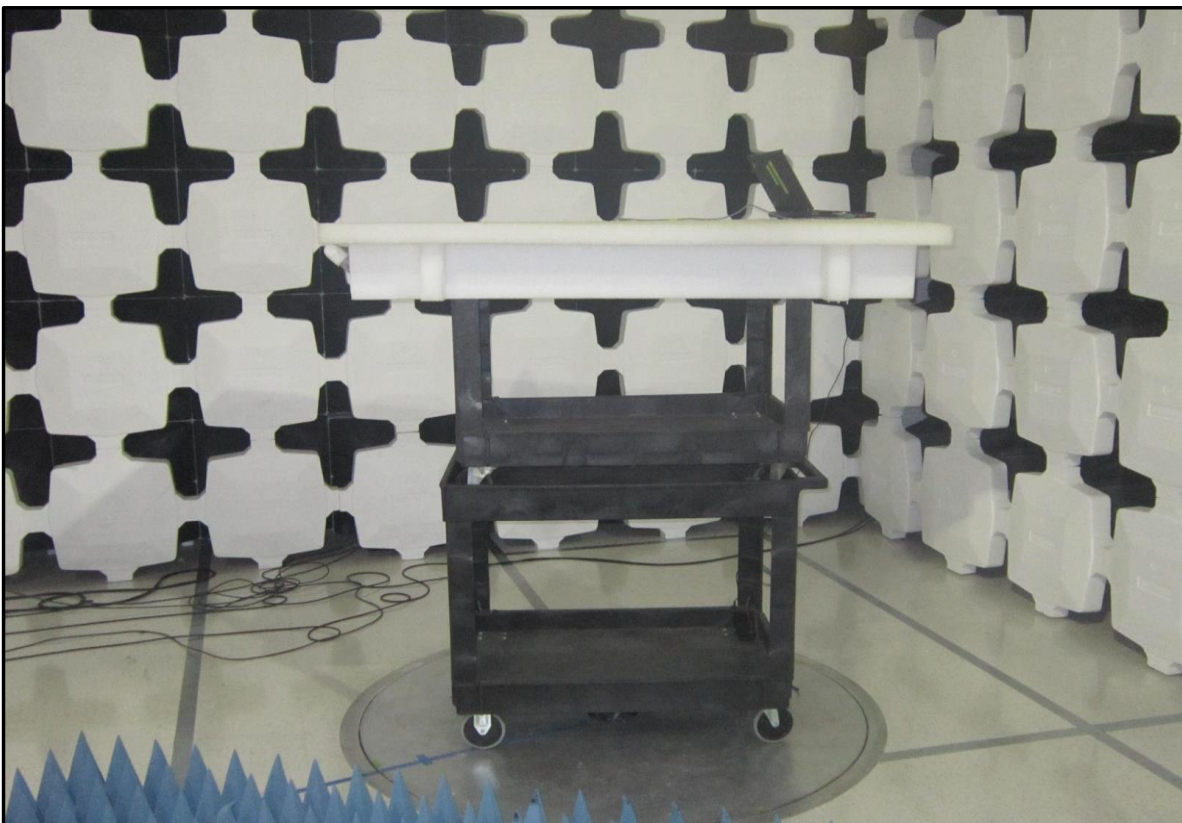
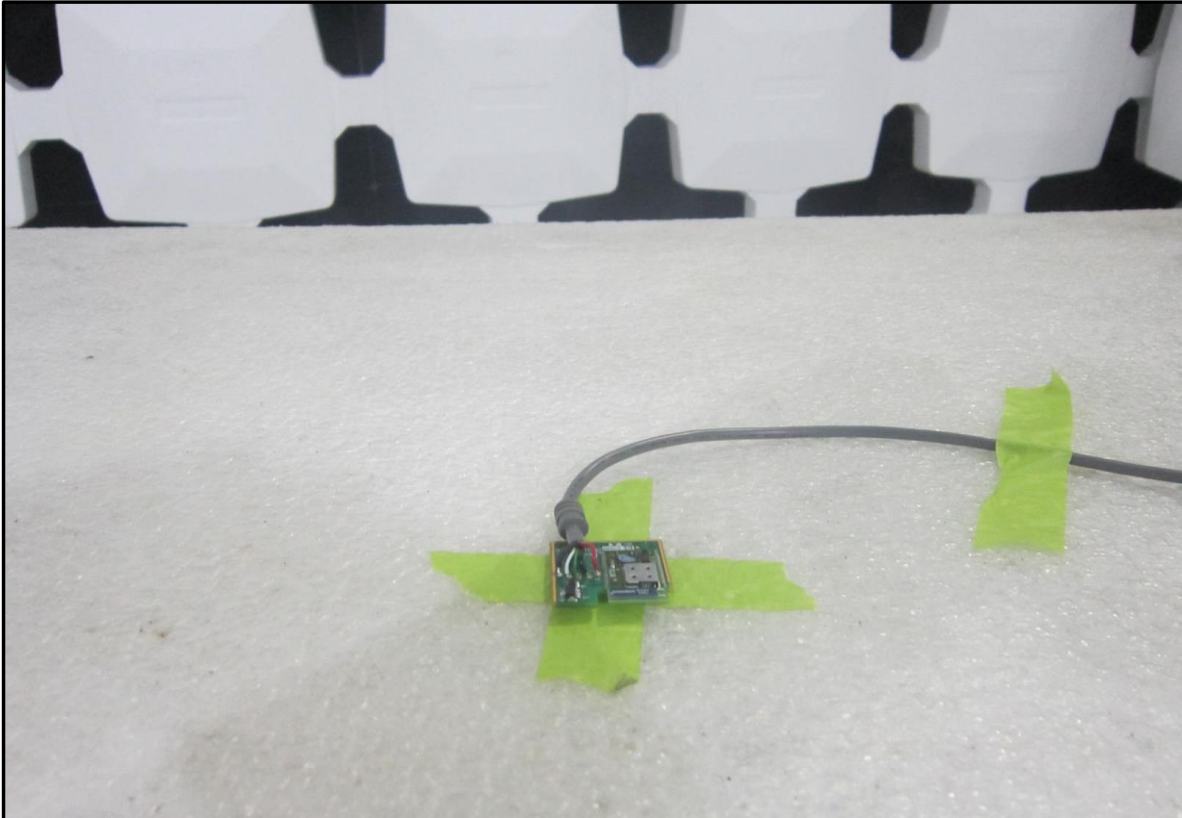
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