

XMit 2019.09.05

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

TEST EQUIPMENT

1201 24011 1112111					
Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Power Supply - DC	Agilent	E3648A	TPE	NCR	NCR
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Fairview Microwave	SD3379	AMV	3-Jan-19	3-Jan-20
Attenuator	Fairview Microwave	SA18H-20	TKR	20-Dec-18	20-Dec-19
Generator - Signal	Agilent	E8257D	TGU	15-Feb-18	15-Feb-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFP	2-Jul-19	2-Jul-20

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 clo sest to the band edges were selected.

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

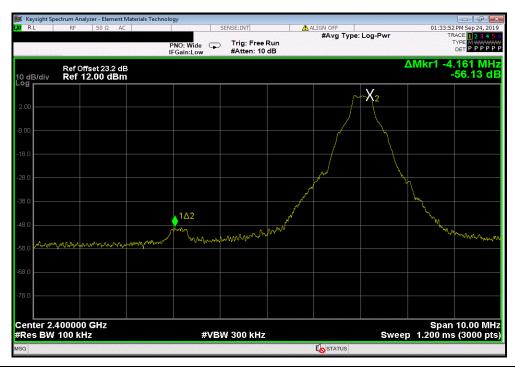


Serial Number: ENG-1
Customer: Masimo Corporation
Attendees: Anami Joshi Work Order: MASI0553
Date: 23-Sep-19
Temperature: 23.3 °C Humidity: 51.4% RH
Barometric Pres.: 1015 mbar Project: None
Tested by: Mark Baytan
TEST SPECIFICATIONS Power: 3.6 VDC Test Method Job Site: OC13 FCC 15.247:2019 ANSI C63.10:2013 COMMENTS Reference Level Offset: DC Block + 20dB Attenuator + RF Test Cable + Patch Cable = 23.2 dB DEVIATIONS FROM TEST STANDARD 1464 Configuration # 2 Signature Limit ≤ (dBc) Value (dBc) Result DH5, GFSK Low Channel High Channel -56.13 -57.2 -20 -20 Pass Pass 2DH5, pi/4-DQPSK -45.92 -56.27 Low Channel -20 Pass High Channel -20 Pass 3DH5, 8-DPSK Low Channel High Channel -45.13 -55.98 -20 -20 Pass Pass

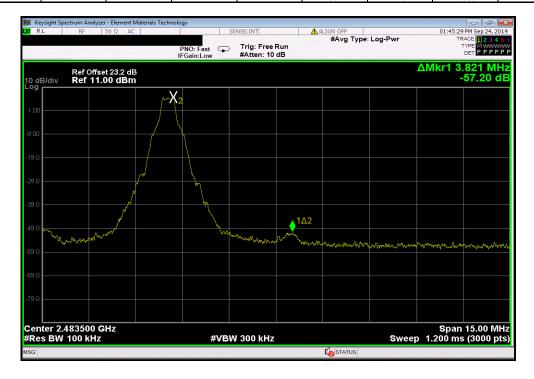


DH5, GFSK, Low Channel

Value	Limit	
(dBc)	≤ (dBc)	Result
-56.13	-20	Pass



		DH5	, GFSK, High Cha	annel			
				Value	Limit		
				(dBc)	≤ (dBc)	Result	
i				-57.2	-20	Pass	





2DH5, pi/4-DQPSK, Low Channel

Value Limit
(dBc) ≤ (dBc) Result

-45.92 -20 Pass



2DH5, pi/4-DQPSK, High Channel						
Value					Limit	
				(dBc)	≤ (dBc)	Result
				-56.27	-20	Pass

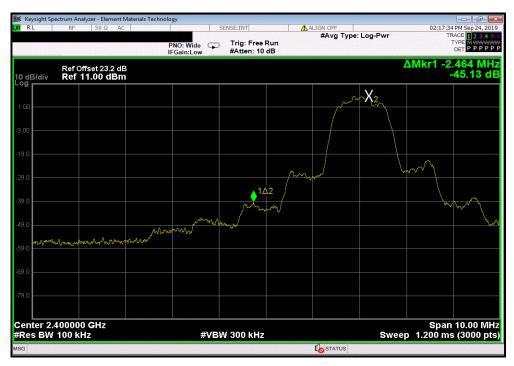




3DH5, 8-DPSK, Low Channel

Value Limit
(dBc) ≤ (dBc) Result

-45.13 -20 Pass



3DH5, 8-DPSK, High Channel						
				Value	Limit	
				(dBc)	≤ (dBc)	Result
				-55.98	-20	Pass





XMit 2019.06.11

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
Power Supply - DC	Agilent	E3648A	TPE	NCR	NCR
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Block - DC	Fairview Microwave	SD3379	AMV	3-Jan-19	3-Jan-20
Attenuator	Fairview Microwave	SA18H-20	TKR	20-Dec-18	20-Dec-19
Generator - Signal	Agilent	E8257D	TGU	15-Feb-18	15-Feb-21
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFP	2-Jul-19	2-Jul-20

TEST DESCRIPTION

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

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



						TbtTx 2018.09.13	XMit 2019.06.1
EUT: MWMII					Work Order:		
Serial Number: ENG-1						23-Sep-19	
Customer: Masimo					Temperature:		
Attendees: Anami	Joshi					41.6% RH	
Project: None					Barometric Pres.:		
Tested by: Mark B	aytan		Power:	3.6 VDC	Job Site:	OC13	
TEST SPECIFICATIONS				Test Method			
FCC 15.247:2019				ANSI C63.10:2013			
COMMENTS							
Reference level offset: DC	block + 20dB attenuator	+ coax cable + client	provided patch cable = 23.7	IB Total Offset			
	bioon i zouz unondato.	. coux cubic : ciloni	provided parent educe = zerr				
DEVIATIONS FROM TEST:	STANDARD						
None							
Configuration #	2	Signature	MARE	3,+-			
					Value (dBc)	Limit ≤ (dBc)	Result
Hopping Mode (All Channels							
DH5, G							
	Low Channel, 2402 N				-47.38	-20	Pass
	High Channel, 2480 I	MHz			-47.27	-20	Pass
2DH5, p	pi/4-DQPSK						
	Low Channel, 2402 N	MHz			-45.43	-20	Pass
	High Channel, 2480 I	MHz			-44.53	-20	Pass
3DH5, 8	8-DPSK						
	Low Channel, 2402 N	MHz			-45.56	-20	Pass

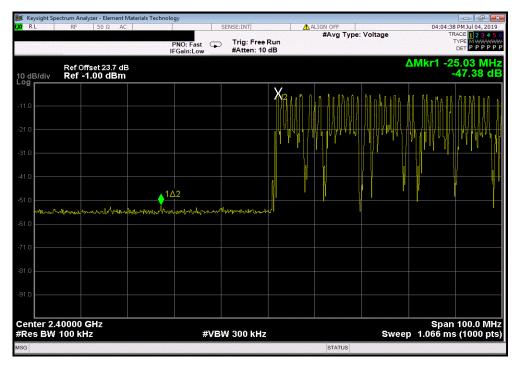


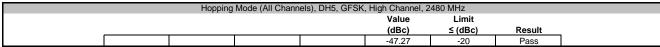
Hopping Mode (All Channels), DH5, GFSK, Low Channel, 2402 MHz

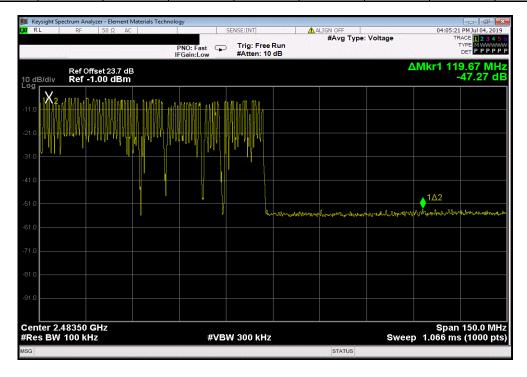
Value Limit

(dBc) ≤ (dBc) Result

-47.38 -20 Pass







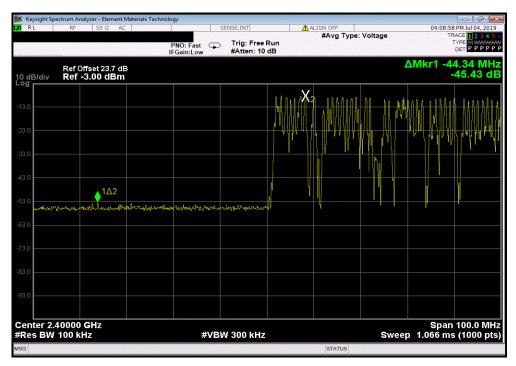


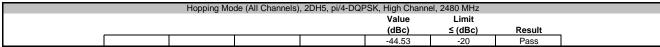
Hopping Mode (All Channels), 2DH5, pi/4-DQPSK, Low Channel, 2402 MHz

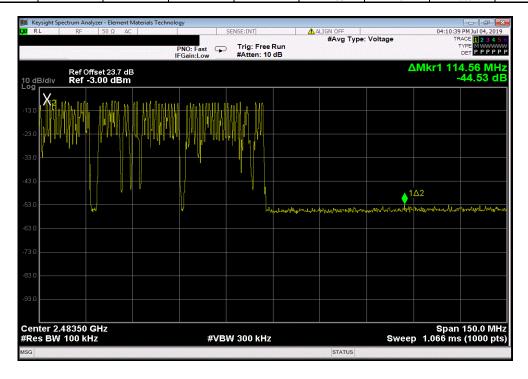
Value Limit

(dBc) ≤ (dBc) Result

-45.43 -20 Pass

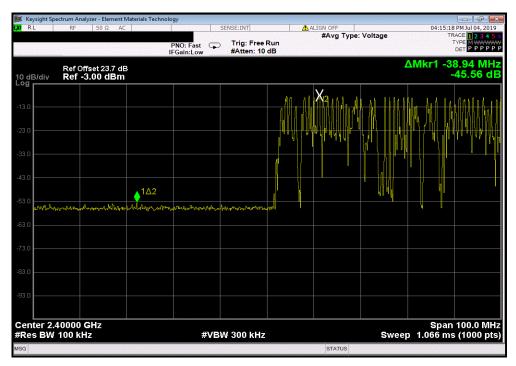


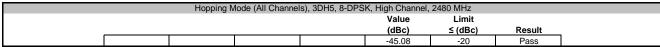


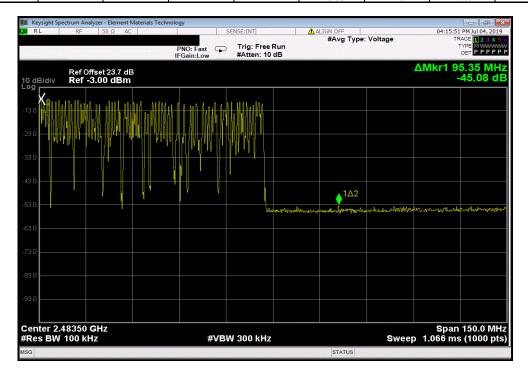




| Hopping Mode (All Channels), 3DH5, 8-DPSK, Low Channel, 2402 MHz
| Value Limit (dBc) ≤ (dBc) Result | -45.56 -20 Pass









XMit 2019.09.05

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TEST EQUIPMENT

	Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
	Power Supply - DC	Agilent	E3648A	TPE	NCR	NCR
	Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
	Block - DC	Fairview Microwave	SD3379	AMV	3-Jan-19	3-Jan-20
	Attenuator	Fairview Microwave	SA18H-20	TKR	20-Dec-18	20-Dec-19
	Generator - Signal	Agilent	E8257D	TGU	15-Feb-18	15-Feb-21
_	Analyzer - Spectrum Analyzer	Keysight	N9010A	AFP	2-Jul-19	2-Jul-20

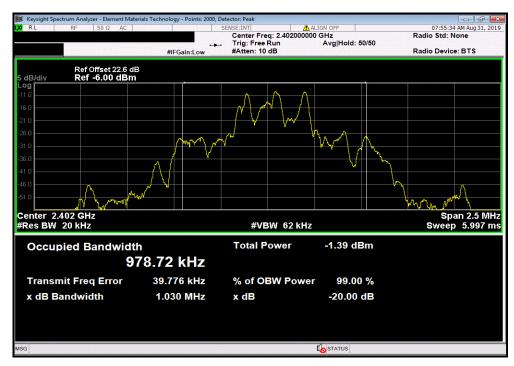
TEST DESCRIPTION

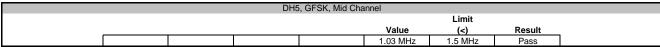
The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The 20 dB occupied bandwidth was measured with the EUT set to low, medium and high transmit frequencies in the band. The EUT was transmitting at the data rate(s) listed in the datasheet in a no-hop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



Serial Number: ENG-1
Customer: Masimo Corporation
Attendees: Anami Joshi Work Order: MASI0553
Date: 3-Jul-19
Temperature: 26.4 °C Humidity: 41.6% RH
Barometric Pres.: 1012 mbar Project: None
Tested by: Luis Flores and Mark Baytan
TEST SPECIFICATIONS Power: 3.6VDC Test Method Job Site: OC13 FCC 15.247:2019 COMMENTS Reference level offset accounted for during measurements. DEVIATIONS FROM TEST STANDARD 1467+ Configuration # 2 Signature Value Result (<) DH5, GFSK 1.03 MHz 1.03 MHz 1.027 MHz Low Channel Mid Channel 1.5 MHz 1.5 MHz 1.5 MHz Pass Pass High Channel Pass 2DH5, pi/4-DQPSK Low Channel Mid Channel 1.116 MHz 1.5 MHz Pass 1.119 MHz 1.5 MHz Pass High Channel 1.126 MHz 1.5 MHz Pass 3DH5, 8-DPSK Low Channel Mid Channel 1.5 MHz 1.5 MHz Pass Pass 1.115 MHz 1.5 MHz 1.115 MHz High Channel Pass

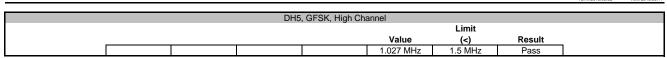


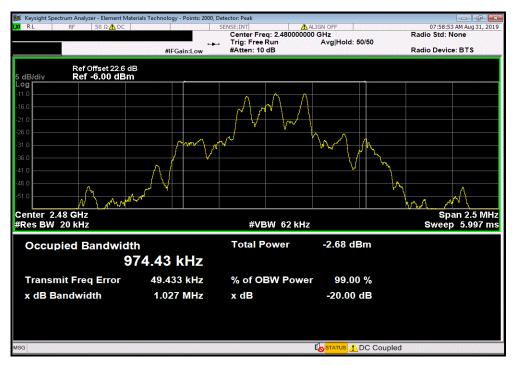


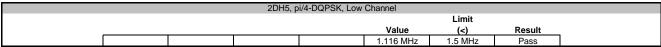






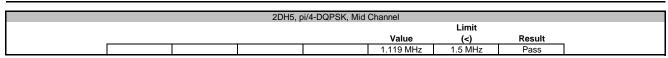




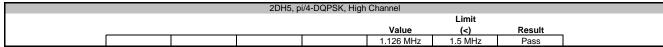


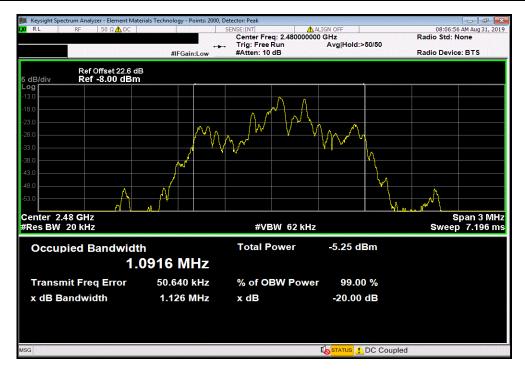




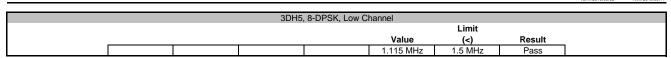




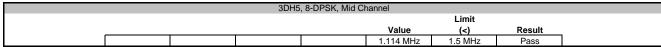
















3DH5, 8-DPSK, High Channel

Limit

Value (<) Result

1.115 MHz 1.5 MHz Pass





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TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFP	2-Jul-19	2-Jul-20
Block - DC	Fairview Microwave	SD3379	AMV	3-Jan-19	3-Jan-20
Attenuator	Fairview Microwave	SA18H-20	TKR	20-Dec-18	20-Dec-19
Cable	Fairview Microwave	SCA1814-0101-120	OCZ	NCR	NCR
Generator - Signal	Agilent	E8257D	TGU	15-Feb-18	15-Feb-21

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.



EUT: MWMII
Serial Number: ENG-1
Customer: Masimo Corporation Work Order: MASI0553
Date: 23-Sep-19
Temperature: 22.2 °C Humidity: 48.3% RH Barometric Pres.: 1013 mbar Project: None
Tested by: Mark Baytan
TEST SPECIFICATIONS Power: Battery - 3.6 VDC Test Method Job Site: OC13 FCC 15.247:2019 ANSI C63.10:201 COMMENTS Reference Level Offset: DC Block + 20 dB Attenuator + RF Test Cable + Patch Cable = 23.2 dB DEVIATIONS FROM TEST STANDARD Configuration # 2 Signature Measured Freq (MHz) ≤ (<u>dBc</u>) Result (dBc) Range DH5, GFSK Low Channel Low Channel Fundamental 30 MHz - 12.5 GHz 2402.19 N/A N/A N/A 2685.07 -57.73 -20 Pass Pass Low Channel 12.5 GHz - 25 GHz 24974 06 -43.25 -20 Mid Channel 2441.2 N/A N/A Fundamental N/A 30 MHz - 12.5 GHz -57.75 -20 -20 Pass Pass Mid Channel 7648.1 Mid Channel 12.5 GHz - 25 GHz 24917.59 -42.97 High Channel High Channel Fundamental 30 MHz - 12.5 GHz N/A -20 2480.2 N/A N/A 2517.61 Pass High Channel 12.5 GHz - 25 GHz 24911.49 -42 31 -20 Pass 2DH5, pi/4-DQPSK Low Channel Low Channel Fundamental 30 MHz - 12.5 GHz 2402.19 5850.15 N/A -20 N/A Pass N/A -55.96 Low Channel 12.5 GHz - 25 GHz 24954 22 -40 71 -20 Pass Mid Channel N/A N/A N/A Fundamental 30 MHz - 12.5 GHz -20 -20 Pass Pass Mid Channel 5722.26 -55.67 Mid Channel 12.5 GHz - 25 GHz 24957.27 -40.64 High Channel High Channel Fundamental 30 MHz - 12.5 GHz 2480.2 5626.35 N/A -54.34 N/A -20 N/A Pass High Channel 12.5 GHz - 25 GHz 24951.17 -40.37 -20 Pass 3DH5, 8-DPSK Low Channel Low Channel Fundamental 30 MHz - 12.5 GHz 2402.19 N/A N/A N/A -56.03 -41.48 12268.59 -20 Pass Low Channel 12.5 GHz - 25 GHz 24967 95 -20 Pass Mid Channel Fundamental 2441.2 N/A N/A N/A -55.34 30 MHz - 12.5 GHz -20 -20 Pass Pass Mid Channel 6294.69 Mid Channel 12.5 GHz - 25 GHz 24932.85 -41.37 High Channel High Channel Fundamental 30 MHz - 12.5 GHz N/A -20 N/A Pass 2480.2 N/A 6206.39 High Channel 12.5 GHz - 25 GHz 25000 -41.21 Pass





DH5, GFSK, Low Channel						
	Frequency	Max Value	Limit			
_	Range	Freq (MHz)	(dBc)	≤ (dBc)	Result	
l	30 MHz - 12.5 GHz	2685.07	-57.73	-20	Pass	





 DH5, GFSK, Low Channel

 Frequency
 Measured
 Max Value
 Limit

 Range
 Freq (MHz)
 (dBc)
 ≤ (dBc)
 Result

 12.5 GHz - 25 GHz
 24974.06
 -43.25
 -20
 Pass



DH5, GFSK, Mid Channel					
Frequency	Measured	Max Value	Limit		
Range	Freq (MHz)	(dBc)	≤ (dBc)	Result	
Fundamental	2441.2	N/A	N/A	N/A	



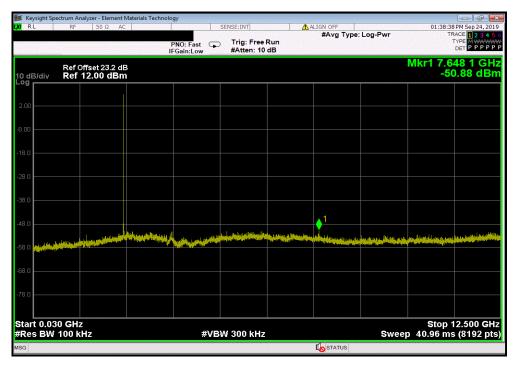


 DH5, GFSK, Mid Channel

 Frequency
 Measured
 Max Value
 Limit

 Range
 Freq (MHz)
 (dBc)
 ≤ (dBc)
 Result

 30 MHz - 12.5 GHz
 7648.1
 -57.75
 -20
 Pass



DH5, GFSK, Mid Channel						
	Frequency	Max Value	Limit			
	Range	Freq (MHz)	(dBc)	≤ (dBc)	Result	
1	12.5 GHz - 25 GHz	24917.59	-42.97	-20	Pass	





 DH5, GFSK, High Channel

 Frequency
 Measured
 Max Value
 Limit

 Range
 Freq (MHz)
 (dBc)
 ≤ (dBc)
 Result

 Fundamental
 2480.2
 N/A
 N/A
 N/A



DH5, GFSK, High Channel						
	Frequency	Max Value	Limit			
	Range	Freq (MHz)	(dBc)	≤ (dBc)	Result	
	30 MHz - 12.5 GHz	2517.61	-57.28	-20	Pass	





 DH5, GFSK, High Channel

 Frequency
 Measured
 Max Value
 Limit

 Range
 Freq (MHz)
 (dBc)
 ≤ (dBc)
 Result

 12.5 GHz - 25 GHz
 24911.49
 -42.31
 -20
 Pass



2DI	H5, pi/4-DQPSK, Low	Channel		
Frequency	Measured	Max Value	Limit	
Range	Freq (MHz)	(dBc)	≤ (dBc)	Result
Fundamental	2402.19	N/A	N/A	N/A





2DH5, pi/4-DQPSK, Low Channel

Frequency Measured Max Value Limit

Range Freq (MHz) (dBc) ≤ (dBc) Result

30 MHz - 12.5 GHz 5850.15 -55.96 -20 Pass



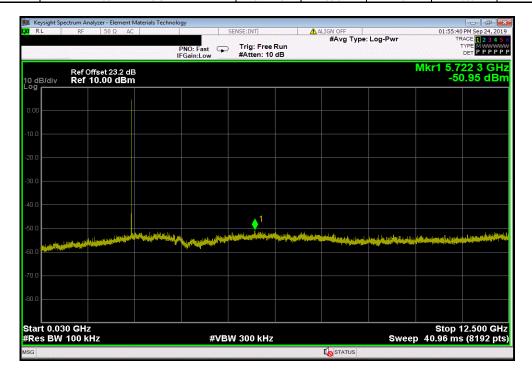
2DH	5, pi/4-DQPSK, Low	Channel		
Frequency	Measured	Max Value	Limit	
Range	Freq (MHz)	(dBc)	≤ (dBc)	Result
12.5 GHz - 25 GHz	24954.22	-40.71	-20	Pass







	2DH5, pi/4-DQPSK, Mid Channel						
	Frequency	Measured	Max Value	Limit			
_	Range	Freq (MHz)	(dBc)	≤ (dBc)	Result		
	30 MHz - 12.5 GHz	5722.26	-55.67	-20	Pass		





2DH5, pi/4-DQPSK, Mid Channel

Frequency Measured Max Value Limit

Range Freq (MHz) (dBc) ≤ (dBc) Result

12.5 GHz - 25 GHz 24957.27 -40.64 -20 Pass



	2DH5, pi/4-DQPSK, High Channel					
	Frequency	Measured	Max Value	Limit		
	Range	Freq (MHz)	(dBc)	≤ (dBc)	Result	
1	Fundamental	2480.2	N/A	N/A	N/A	



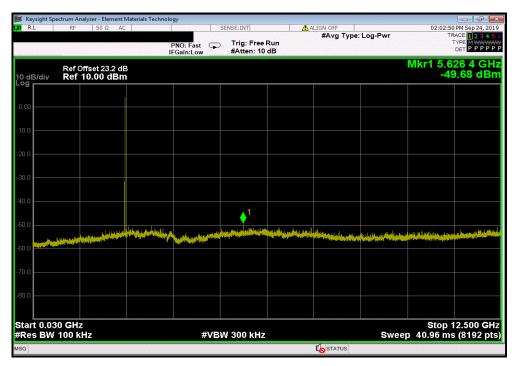


2DH5, pi/4-DQPSK, High Channel

Frequency Measured Max Value Limit

Range Freq (MHz) (dBc) ≤ (dBc) Result

30 MHz - 12.5 GHz 5626.35 -54.34 -20 Pass



	2DH5, pi/4-DQPSK, High Channel					
Fr	equency	Measured	Max Value	Limit		
	Range	Freq (MHz)	(dBc)	≤ (dBc)	Result	
12.5 (GHz - 25 GHz	24951.17	-40.37	-20	Pass	





3DH5, 8-DPSK, Low Channel

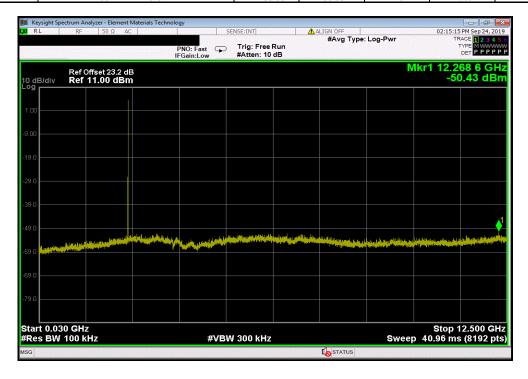
Frequency Measured Max Value Limit

Range Freq (MHz) (dBc) ≤ (dBc) Result

Fundamental 2402.19 N/A N/A N/A



3DH5, 8-DPSK, Low Channel						
Frequency	Measured	Max Value	Limit			
Range	Freq (MHz)	(dBc)	≤ (dBc)	Result		
30 MHz - 12.5 GHz	12268.59	-56.03	-20	Pass		



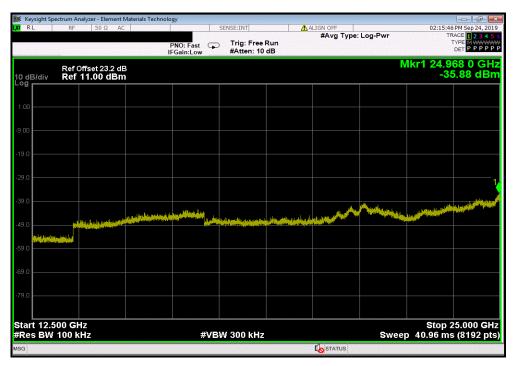


3DH5, 8-DPSK, Low Channel

Frequency Measured Max Value Limit

Range Freq (MHz) (dBc) ≤ (dBc) Result

12.5 GHz - 25 GHz 24967.95 -41.48 -20 Pass



3DH5, 8-DPSK, Mid Channel				
Frequency	Measured	Max Value	Limit	
Range	Freq (MHz)	(dBc)	≤ (dBc)	Result
Fundamental	2441.2	N/A	N/A	N/A



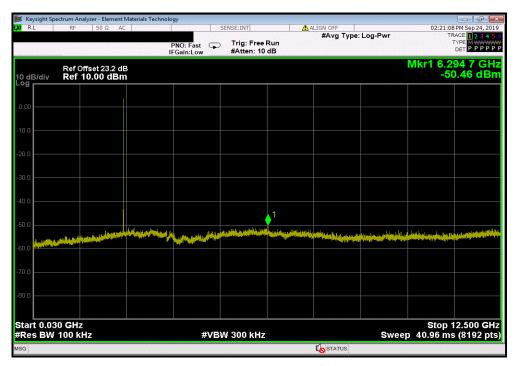


3DH5, 8-DPSK, Mid Channel

Frequency Measured Max Value Limit

Range Freq (MHz) (dBc) ≤ (dBc) Result

30 MHz - 12.5 GHz 6294.69 -55.34 -20 Pass



	3DH5, 8-DPSK, Mid Channel					
	Frequency	Measured	Max Value	Limit		
	Range	Freq (MHz)	(dBc)	≤ (dBc)	Result	
i	12.5 GHz - 25 GHz	24932.85	-41.37	-20	Pass	



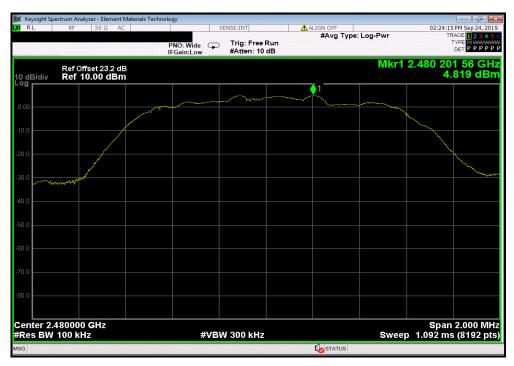


3DH5, 8-DPSK, High Channel

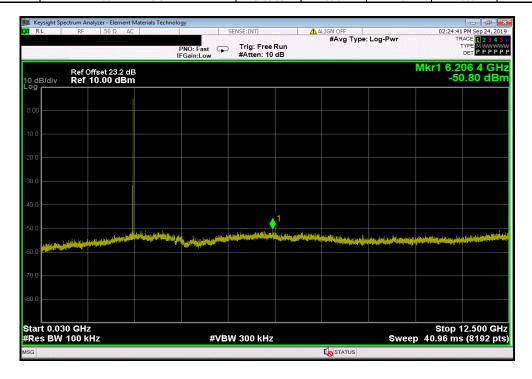
Frequency Measured Max Value Limit

Range Freq (MHz) (dBc) ≤ (dBc) Result

Fundamental 2480.2 N/A N/A N/A



	3DH5, 8-DPSK, High Channel					
	Frequency	Measured	Max Value	Limit		
	Range	Freq (MHz)	(dBc)	≤ (dBc)	Result	
1	30 MHz - 12.5 GHz	6206.39	-55.62	-20	Pass	





3DH5, 8-DPSK, High Channel

Frequency Measured Max Value Limit

Range Freq (MHz) (dBc) ≤ (dBc) Result

12.5 GHz - 25 GHz 25000 -41.21 -20 Pass

