

TEST REPORT



EUT Description	WLAN and BT, 2x2 PCIe M.2 adapter card		
Brand Name	Intel		
Model Name	Intel® Dual-Band Wireless-AC 8260		
Serial Number FCC/IC ID	TA#: H76739-001 / H76739-001 WF MAC: 34:13:E8:42:D2:27 / 34:13:E8:42:D2:F4 BT MAC: 34:13:E8:42:D2:2B / 34:13:E8:42:D2:F8 (see section 4) FCC ID: PD98260NGH / PD98260NGHU		
	IC ID: 1000M-8260NGH		
Antenna type	SkyCross WIMAX/WLAN Reference Antenna		
Hardware/Software Version	HW: TF5 – cfg20.1HE Test SW: DRTU version 1.8.3 Op SW: 18.10.0.19 / 18.11.0.8		
Date of Sample Receipt	2015-06-01		
Date of Test	2015-06-18 / 2015-08-17		
Features	802.11 a/b/g/n/ac Wireless LAN + BDR/EDR 2.1 + BLE 4.0 (see section 5)		
Applicant	Intel Mobile Communications		
Applicant	100 Center Point Circle, Suite 200		
Address	Columbia, South Carolina 29210 USA		
Contact Person	Steven Hackett		
Telephone/Fax/ Email	steven.c.hackett@intel.com		
Reference Standards	FCC CFR Title 47 Part 15C RSS-247 issue 1, RSS-Gen issue 4 (see section 1)		
Test Report number	15051101.TR06		
Revision Control	Rev. 00		

The test results relate only to the samples tested. The test report shall not be reproduced in full, without written approval of the laboratory.

Issued by

Reviewed by

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Table of Contents

1.	Standards, reference documents and applicable test methods	3
2.	General conditions, competences and guarantees	3
3.	Environmental Conditions	
4.	Test samples	4
5.	EUT features	
6.	Remarks and comments	
о. 7.	Test Verdicts summary	
	BT Enhanced Data Rate	
8.	Document Revision History	2
Anr	nex A. Test & System Description	6
A	.1 MEASUREMENT SYSTEM	6
A	.2 Test Equipment List	8
A	.3 MEASUREMENT UNCERTAINTY EVALUATION	8
Anr	nex B. Test Results	9
B.	.1 20DB BANDWIDTH AND CARRIER FREQUENCY SEPARATION	9
B.		
В.	.3 TIME OF OCCUPANCY (DWELL TIME)	7
Β.		
В.	.5 OUT-OF-BAND EMISSIONS (CONDUCTED)	7
B	.6 RADIATED SPURIOUS EMISSION	4
Anr	nex C. Photographs62	2



1. Standards, reference documents and applicable test methods

- 1. FCC 47 CFR part 15 Subpart C §15.247 Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.
- 2. FCC 47 CFR part 15 Subpart C §15.209 Radiated emission limits; general requirements.
- 3. Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems DA 00-705 Released March 30, 2000
- 4. RSS-247 Issue 1 Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment.
- 5. RSS-Gen Issue 4 General Requirements for Compliance of Radio Apparatus.
- ANSI C63.10-2009 American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

2. General conditions, competences and guarantees

- ✓ Intel Mobile Communications Wireless RF Lab (Intel WRF Lab) is a testing laboratory accredited by the American Association for Laboratory Accreditation (A2LA).
- ✓ Intel Mobile Communications Wireless RF Lab (Intel WRF Lab) is an Accredited Test Firm listed by the FCC, with Designation Number FR0011.
- ✓ Intel Mobile Communications Wireless RF Lab (Intel WRF Lab) is a Registered Test Site listed by IC, with IC Assigned Code 1000Y.
- ✓ Intel WRF Lab only provides testing services and is committed to providing reliable, unbiased test results and interpretations.
- ✓ Intel WRF Lab is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.
- ✓ Intel WRF Lab has developed calibration and proficiency programs for its measurement equipment to ensure correlated and reliable results to its customers.
- \checkmark This report is only referred to the item that has undergone the test.
- ✓ This report does not imply an approval of the product by the Certification Bodies or competent Authorities.
- Complete or partial reproduction of the report cannot be made without written permission of Intel WRF Lab.

3. Environmental Conditions

✓ At the site where the measurements were performed the following limits were not exceeded during the tests:

Temperature	22°C ± 2°C
Humidity	52% ± 5%



4. Test samples

Sample	Control #	Description	Model	Serial #	Date of reception	Note	
	15051101.S23	WiFi/BT High End Module	8260NGW H	WF MAC: 34:13:E8:42:D2:27	2015-06-12		
#04	15051101.S19	Extender board	PCB00495	ASS0495-001, 4955013-084	2015-05-20	Used for	
#01	15051101.S18	AC/DC Adapter	90W 19.5V 4.62A	CN-06C3W2- 72438-4C8-44DD- A01	2015-05-20	conducted tests	
	15051101.S17	Laptop	DELL E5440	7CSYN32	2015-05-20		
	15051101.S32	WiFi/BT High End Module	8260NGW H	WF MAC: 3413E8369322	2015-05-11		
	15051101.S05	Switching power supply SINPRO 5V 6A	SPU60-102	07990495-1249	2015-06-12		
	15051101.S06	Extender board	PCB00495	ASS0495-001, 4950414-019	2015-05-12	Used for	
#02	15051101.S07	USB Cable	E154336	NA	2015-05-12	radiated	
	15051101.S08	PCI Cable	Blue cable 1 meter	NA	2015-05-12	tests	
	15051101.S09	Laptop	Dell E5440	9FSYN32	2015-05-12		
	15051101.S10	AC/DC Adapter	90W 19.5V 4.62A	CN-OJCF3V- 48661-51S-OPIC- A02	2015-05-12		

NA: Not Applicable

5. EUT features

These are the detailed bands and modes supported by the Equipment Under Test:

802.11b/g/n	2.4GHz (2400.0 – 2483.5 MHz)
802.11a/n/ac	5.3GHz (5250.0 – 5350.0 MHz)
	5.6GHz (5470.0 – 5725.0 MHz)
	5.8GHz (5725.0 – 5850.0 MHz)
BDR/EDR 2.1	2.4GHz (2400.0 – 2483.5 MHz)
BLE 4.0	

6. Remarks and comments

N/A



7. Test Verdicts summary

7.1. BT Enhanced Data Rate

FCC part	RSS part	Test name	Verdict
15.247 (a) (1)	RSS-247 Clause 5.1 (1) and (2)	20dB Bandwidth and Carrier frequency separation	Р
15.247 (a) (1) (iii)	RSS-247 Clause 5.1 (4)	Number of hopping channels	Р
15.247 (a) (1) (iii)	RSS-247 Clause 5.1 (4)	Time of Occupancy (Dwell Time)	Р
15.247 (b) (1)	RSS-247 Clause 5.4 (2)	Maximum Peak Output Power and antenna gain	Р
15.247 (d)	RSS-247 Clause 5.5	Out-of-band Emissions (conducted)	Р
15.247 (d) 15.209	RSS-247 Clause 5.5	Out-of-band Emissions (radiated)	Р

P: Pass

F: Fail NM: Not Measured NA: Not Applicable

8. Document Revision History

Revision #	Date	Modified by	Details
Rev. 00	2015-08-19	O.Fargant	First Issue



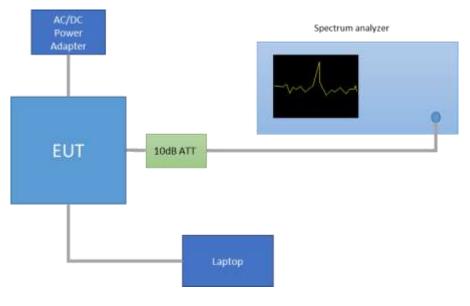
Annex A. Test & System Description

A.1 Measurement system

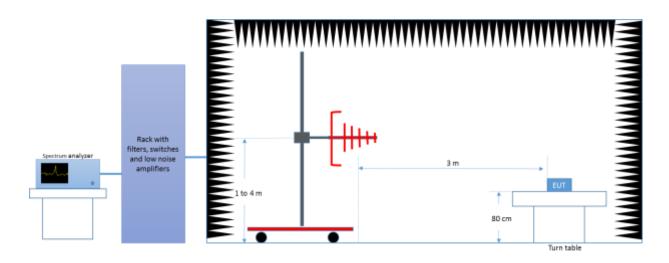
Measurements were performed using the following setups.

The DUT was installed in a test fixture and this test fixture is connected to a laptop computer and AC/DC power adapter. The laptop computer was used to configure the EUT to continuously transmit at a specified output power using all different modes and modulation schemes.



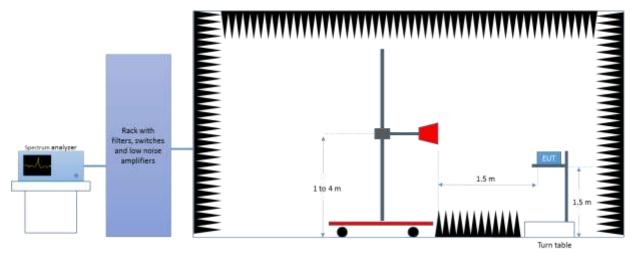


Radiated Setup < 1GHz





Radiated Setup > 1GHz





A.2 Test Equipment List

Conducted Setup

ID#	Device	Type/Model	Serial Number	Manufacturer	Cal. Date	Cal. Due Date
0033	Spectrum analyzer	FSV40	101072	Rohde & Schwarz	2014-01-30	2016-01-30

Radiated Setup

ID#	Device	Type/Model	Serial Number	Manufacturer	Cal. Date	Cal. Due Date
0133	Spectrum analyzer	FSV40	101358	Rohde & Schwarz	2014-05-09	2016-05-09
0137	Log antenna 30 MHz – 1 GHz	3142E	00156946	ETS Lindgren	2014-03-05	2016-03-05
0138	Hors antenna 1 GHz – 6.4 GHz	3117	00152266	ETS Lindgren	2014-03-04	2016-03-04
0141	Horn Antenna 6.4 GHz – 18 GHz	3117-PA	00157736	ETS Lindgren	2014-06-03	2016-06-03
0248	Horn Antenna 1 GHz – 18 GHz	3117-PA	00167062	ETS Lindgren	2014-08-13	2016-08-13
0139	Horn Antenna 18GHz – 26GHz	114514	00167100	ETS Lindgren	2014-04-25	2016-04-25
0140	Horn Antenna 26GHz – 40GHz	120722	00169638	ETS Lindgren	2014-08-14	2016-08-14
0135	Anechoic chamber	FACT 3	RFD_FA_100	ETS Lindgren	2014-05-06	2016-05-06
0329	Measurement Software	EMC32	1300.7027.00 (100401)	Rohde & Schwarz	N/A	N/A
0133	Spectrum analyzer	FSV40	101358	Rohde & Schwarz	2014-05-09	2016-05-09

A.3 Measurement Uncertainty Evaluation

The system uncertainty evaluation is shown in the below table:

Measurement type	Uncertainty [±dB]
Conducted Power (power meter)	± 1.0
Conducted spurious emission	± 2.9
Radiated test < 1GHz	± 3.8
Radiated test 1GHz -26 GHz	± 4.7



Annex B. Test Results

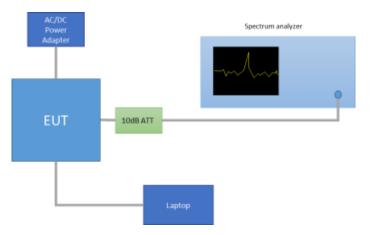
B.1 20dB Bandwidth and Carrier frequency separation

Test limits:

FCC part	RSS part	Limits
15.247 (a) (1)	RSS-247 Clause 5.1 (1) and (2)	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

Test procedure:

The setup below was used to measure the 20dB Bandwidth and Carrier frequency separation. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



Results tables:

Mode	Channel Number	Frequency [MHz]	20dB BW [MHz]	Freq. Separation [kHz]
EDR	0	2402	1.463	
EDR π/4-DQPSK	39	2441	1.489	1000.00
	78	2480	1.489	
EDR 8-DPSK	0	2402	1.433	
	39	2441	1.437	1000.00
	78	2480	1.441	



Results screenshot:

		20dB BW	- 0110		
Spectrum	r.				(
Ref Level 20.0	0 dBm	RBW 30 kHz			1
🖶 Att	30 dB 🥌 SWT 100 ms 🖷		Mode Auto Swe	ep	
TDF 1Pk Max				Ω	
The mids		1 1	D3[1]		-0.28
10 d8m-			and the second		1.40310 M
a to tachin		- A	A M1[1]		5.89 d
0 dBm	your t	ann 1	- mary		2.40201300 0
-10 dBm-	~~~~			42	
	4.110 dam 😤 — — — -				
-20 dBm	1	1.0		1	m
-30 d8m	m			-	ma
10.000					
-4D dBm					
-50 d8m-				-	
-60 dBm-					
-WARDON					
-70 d8m					
CE 2 402 CU14					Span 3.0 Mi
CF 2.402 GHz Marker		691 pts			apan a.u Mi
Type Ref Tro		Y-value	Function	Functio	an Result
and the second se	1 2,402013 GHz	5.89 dBm	· · · · · · · · · · · · · · · · · · ·	5	and an and a second
	1 -751.1 kHz 1 1.4631 MHz	-19.97 d8 -0.28 d8		[
1				CONTRACTOR OF	M3
Date: 18.JUN.2015 1	995501×1	OdB BW	- CH39		
Date: 18 JUN 2015 1	995501×1	20dB BW	- CH39		
Spectrum	995501×1	20dB BW	- CH39		(
Spectrum Ref Level 20.00	2 0. d8m	RBW 30 kHz			(
Spectrum Ref Level 20.0	2	RBW 30 kHz		эр	(
Spectrum Ref Level 20.00	2 0. d8m	RBW 30 kHz		2 9	
Spectrum Ref Level 20.0 Att TDF	2 0. d8m	RBW 30 kHz		2 9	-0.19
Spectrum Ref Level 20.0 Att TDF	2 0. d8m	RBW 30 kHz	Mode Auto Swe D3[1]	≈p	-0.19 1.48910 M
Spectrum Ref Level 20.00 Att TDF 1Pk Max	2 0. d8m	RBW 30 kHz	Mode Auto Swe	°P	-0.19
Spectrum Ref Level 20.0 Att TDF 1Pk Max 10 dam- 0 dBm-	2 0. d8m	RBW 30 kHz	Mode Auto Swe D3[1]	ep	-0.19 1.48910 M 5.28 d
Spectrum Ref Level 20.0 Att TDF 1Pk Max 10 dBm -10 dBm	2 0 dBm 30 dB • SWT 100 ms •	RBW 30 kHz	Mode Auto Swe D3[1]	ep	-0.19 1.48910 M 5.28 d
Spectrum Ref Level 20.0 Att TDF 1Pk Max 10 dBm -10 dBm	2 0 dBm 30 dB • SWT 100 ms •	RBW 30 kHz	Mode Auto Swe D3[1]	ep	-0.19 1.48910 M 5.28 d
Spectrum Ref Level 20.0 Att TDF 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm D1 -1	2 0 dBm 30 dB • SWT 100 ms •	RBW 30 kHz	Mode Auto Swe D3[1]	9p	-0.19 1.48910 M 5.28 d
Spectrum Ref Level 20.04 Att TDF 1Pk Max 1D dBm -10 dBm -10 dBm -10 dBm	2 0 dBm 30 dB • SWT 100 ms •	RBW 30 kHz	Mode Auto Swe D3[1]	ab	-0.19 1.48910 M 5.28 d
Spectrum Ref Level 20.0 Att TDF 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm D1 -1	2 0 dBm 30 dB • SWT 100 ms •	RBW 30 kHz	Mode Auto Swe D3[1]	ab	-0.19 1.48910 M 5.28 d
Spectrum Ref Level 20.04 Att TDF 10 dBm -10 dBm -10 dBm -20 dBm -30 dBm	2 0 dBm 30 dB • SWT 100 ms •	RBW 30 kHz	Mode Auto Swe D3[1]	ep	-0.19 1.48910 M 5.28 d
Spectrum Ref Level 20.00 Att TDF 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -50 dBm	2 0 dBm 30 dB • SWT 100 ms •	RBW 30 kHz	Mode Auto Swe D3[1]	2p	-0.19 1.48910 M 5.28 d
Spectrum Ref Level 20.0 Att TDF 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	2 0 dBm 30 dB • SWT 100 ms •	RBW 30 kHz	Mode Auto Swe D3[1]	2p	-0.19 1.48910 M 5.28 d
Spectrum Ref Level 20.00 Att TDF 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -50 dBm	2 0 dBm 30 dB • SWT 100 ms •	RBW 30 kHz	Mode Auto Swe D3[1]	2P	-0.19 1.48910 M 5.28 d
Spectrum Ref Level 20.0 Att TDF 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -50 dBm -60 dBm	2 0 dBm 30 dB • SWT 100 ms •	RBW 30 kHz	Mode Auto Swe D3[1]	ab	-0.19 1.48910 M 5.28 d 2.44099130 (
Spectrum Ref Level 20.0 Att TDF 1Pk Max 10 dBm -10 dBm -10 dBm -20 dBm -30 dBm -50 dBm -50 dBm -70 dBm -70 dBm -70 dBm	2 0 dBm 30 dB • SWT 100 ms •	RBW 30 kHz	Mode Auto Swee		-0.19 1.48910 M 5.28 d
Spectrum Ref Level 20.00 Att TDF 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm -50 dBm -70 dBm -70 dBm -70 dBm -70 dBm	4,720 dBm	RBW 30 kHz VBW 100 kHz	D3[1]		-0.19 1.48910 N 5.28 d 2.44099130 (
Spectrum Ref Level 20.0 Att TDF 1Pk Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -60 dBm -70 dBm	2 0 05m 30 dB • SWT 100 ms • 4,720 dBm 4,720 dBm 1 2,4409913 GHz	RBW 30 kHz VBW 100 kHz 1 100 kHz 100 k	Mode Auto Swee		-0.19 1.48910 M 5.28 d 2.44099130 (
Spectrum Ref Level 20.00 Att TDF 1Pk Max 1D dBm 0 dBm -1D dBm -2D dBm -30 dBm -30 dBm -50 dBm -60 dBm -70 dBm -70 dBm -70 dBm -70 dBm 02 M1	2 0 dBm 30 dB • SWT 100 ms • 4,720 dBm 4,720 dBm 1 2.4409913 GHz 1 2.4409913 GHz 1 2.4409913 GHz	RBW 30 kHz VBW 100 kHz 100 kHz	D3[1]		-0.19 1.48910 N 5.28 d 2.44099130 (
Spectrum Ref Level 20.00 Att TDF 1Pk Max 1D dBm 0 dBm -1D dBm -2D dBm -30 dBm -30 dBm -50 dBm -60 dBm -70 dBm -70 dBm -70 dBm -70 dBm 02 M1	2 0 05m 30 dB • SWT 100 ms • 4,720 dBm 4,720 dBm 1 2,4409913 GHz	RBW 30 kHz VBW 100 kHz 1 100 kHz 100 k	D3[1]		-0.19 1.48910 M 5.28 d 2.44099130 (





EDR – 8-DPSK







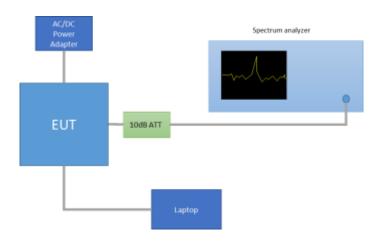
B.2 Number of hopping channels

Test limits:

FCC part	RSS part	Limits
15.247 (a) (1) (iii)	RSS-247 Clause 5.1 (4)	Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

Test procedure:

The setup below was used to measure the number of hopping channels. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



Results tables:

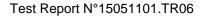
Mode	Number of hopping channels
EDR π/4-DQPSK	79
EDR 8-DPSK	79

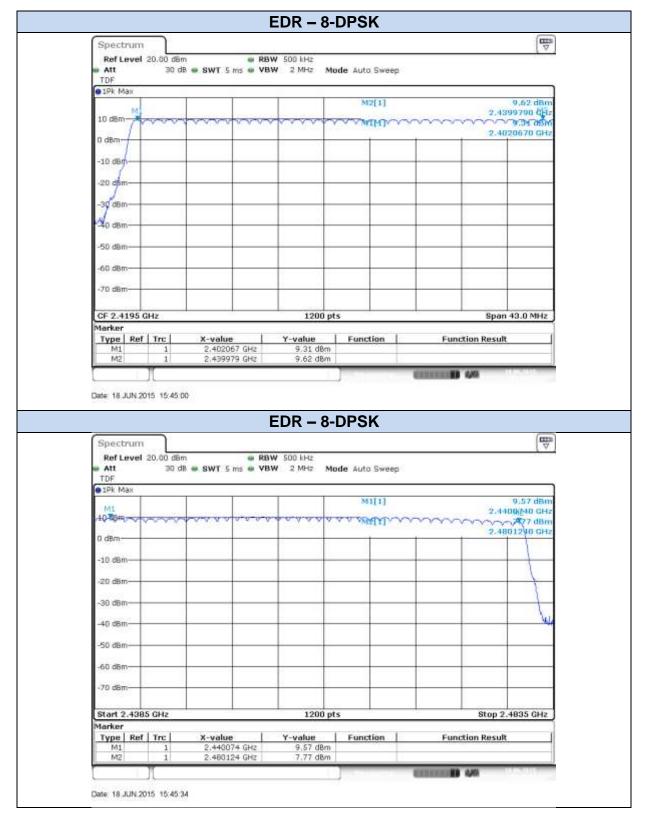


Results screenshot:

Number of hopping channels

				DR – π/					
Spectrun									₩.
N. State of the second	1 20.00 dBr	n	· RB	W 500 kHz					
Att					Mode Auto Sw	еер			
TDF									-
1Pk Max	_			-	M2[1]				5 dBm
M					suz[1]			2.439970	
10 d8m	0000	~~~~	2000		MIL	mm	mm	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
0 dBm	Later - Charles				Andrew Million			2.402067	70 CHz
o open				1					
-10 dbm-	-								
-20 dBm									
-30 dBm									
1				1					
40 dBm-									
-50 dBm									
-60 dBm									
-70 dBm				-		-			
2012-02-02-02-02-02-02-02-02-02-02-02-02-02				11 1101/03					
CF 2.4195	GHz	N 10		1200	pts			Span 43.0	MHz
Marker		12000200		122001210	V. Storeger			20.000 eA	-
Type Re M1	f Trc	2.40206		Y-value 9.26 dB	Function		Function I	Result	
M2	1	2:43997		9.15 dB					
	1				-		CAN BUILDING		
late: 18 JUN.	2015 15:41.3		E	DR – π/	4-DQPS	ĸ			
ate 18 JUN: Spectrum	_	1	E	DR – π/	4-DQPS	K			
Spectrun	_			DR – π/	4-DQPS	K			
Spectrun Ref Leve	1 20.00 dBr	n	e RB	W 500 kHz	4-DQPS				
Spectrun Ref Leve Att TDF	1 20.00 dBr	n	e RB	W 500 kHz					
Spectrun Ref Leve	1 20.00 dBr	n	e RB	W 500 kHz	Mode Auto Sw	еер		0.4	
Spectrun Ref Leve Att TDF 1Pk Max M1	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz	Mode Auto Sw M1[1]	еер		9,4 2.4400g4	9 dBm
Spectrun Ref Leve Att TDF 1Pk Max	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz	Mode Auto Sw	еер	www	2.4400(P)	9 dBm 10 GHz 0 dBm
Spectrun Ref Leve Att TDF 1Pk Max M1	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]	еер	·····	2.44000	9 dBm 10 GHz 0 dBm
Spectrum Ref Leve Att TDF 1Pk Max M1 40 0 m	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]	еер	·····	2.4400(P)	9 dBm 10 GHz 0 dBm
Spectrun Ref Leve Att TDF 1Pk Max M1 40 BR0-00	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]	еер	·····	2.4400(P)	9 dBm 10 GHz 0 dBm
Spectrun Ref Leve Att TDF 1Pk Max M1 40 0Pm - 0 dBm -10 dBm	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]	еер	·····	2.4400(P)	9 dBm 10 GHz 0 dBm
Spectrum Ref Leve Att TDF 1Pk Max M1 40 0 m	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]	еер	·····	2.4400(P)	9 dBm 10 GHz 0 dBm
Spectrun Ref Leve Att TDF 1Pk Max M1 40 0Pm - 0 dBm -10 dBm	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]	еер	·····	2.4400(P)	9 dBm 10 GHz 0 dBm
Spectrun Ref Leve Att TDF 1Pk Max 0 dBm -10 dBm -20 dBm -30 dBm	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]	еер		2.4400(P)	9 dBm 10 GHz 0 dBm
Spectrum Ref Leve Att TDF 1Pk Max M1 10 @Pm 0 dBm -10 dBm -20 dBm	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]	еер		2.4400(P)	9 dBm 10 GHz 0 dBm
Spectrum Ref Leve Att TDF 1Pk Max M1 10 @Pm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]	еер		2.4400(P)	9 dBm 10 GHz 0 dBm
Spectrun Ref Leve Att TDF 1Pk Max 0 dBm -10 dBm -20 dBm -30 dBm	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]	еер		2.4400(P)	9 dBm 10 GHz 0 dBm
Spectrum Ref Leve Att TDF 1Pk Max M1 10 @Pm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]	еер		2.4400(P)	9 dBm 10 GHz 0 dBm
Spectrum Ref Leve Att TDF 1Pk Max 0 dBm -10 dBm -20 dBm -30 dBm -50 dBm -60 dBm	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]	еер		2.4400(P)	9 dBm 10 GHz 0 dBm
Spectrun Ref Leve Att TDF 1Pk Max 0 dBm -10 dBm -20 dBm -30 dBm -50 dBm	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]	еер		2.4400(P)	9 dBm 10 GHz 0 dBm
Spectrum Ref Leve Att TDF 1Pk Max 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm -60 dBm -70 dBm	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw	еер		2.4400/24	0 dām 10 GHz 0 dBm 40 GHz
Spectrum Ref Leve Att TDF 1Pk Max 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm -60 dBm -70 dBm -70 dBm	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw	еер		2.4400(P)	0 dām 10 GHz 0 dBm 40 GHz
Spectrun Ref Leve Att TDF 1Pk Max 0 dBm -10 dBm -20 dBm -20 dBm -30 dBm -50 dBm -70 dBm -70 dBm -70 dBm	1 20.00 dBr 30 d	n B • SWT S)	e RB	W 500 kHz W 2 MHz	Mode Auto Sw Mil[1]	eep	nin ossan and	2.48012 2.48012	0 dām 10 GHz 0 dBm 40 GHz
Spectrum Ref Leve Att TDF 1Pk Max 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm -60 dBm -70 dBm -70 dBm	1 20.00 dBr 30 d	n 9 e swt 5 i	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]	eep	S Function F	2.48012 2.48012	0 dām 10 GHz 0 dBm 40 GHz
Spectrum Ref Leve Att TDF 1Pk Max 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm -50 dBm -70 dBm -70 dBm -70 dBm -70 dBm	85 GHz	x-value	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]	eep	nin ossan and	2.48012 2.48012	0 dām 10 GHz 0 dBm 40 GHz
Spectrum Ref Leve Att TDF 1Pk Max M1 10 @sc 0 dBm -10 dBm -20 dBm -30 dBm -30 dBm -50 dBm -50 dBm -70 dBm	1 20.00 dBr 30 d	B ● SWT 5	e RB	W 500 kHz W 2 MHz	Mode Auto Sw M1[1]		nin ossan and	2.48012 2.48012	0 dām 10 GHz 0 dBm 40 GHz





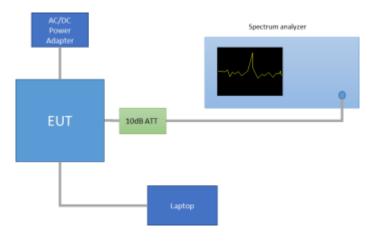
B.3 Time of Occupancy (Dwell Time)



FCC part	RSS part	Limits
15.247 (a) (1) (iii)	RSS-247 Clause 5.1 (4)	The average time of occupancy (Dwell Time) on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

Test procedure:

The setup below was used to measure the dwell time. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



In the worst case, the system makes 1600 hops per second with 79 channels, providing a 1 timeslot length of 625μ s.

A DH1 packet, with independence of the modulation, needs 1 time slot for transmitting and 1 time slot for receiving. Then, the system makes in the worst case 1600/2 = 800 hops per second with 79 channels. So each channel appears 800/79 = 10.13 times per second and, for a period of $0.4 \times 79 = 31.6$ seconds, each channel appears $10.13 \times 31.6 = 320.11$ times.

A DH3 packet, with independence of the modulation, needs 3 time slots for transmitting and 1 time slot for receiving. Then, the system makes in the worst case 1600/4 = 400 hops per second with 79 channels. So each channel appears 400/79 = 5.1 times per second and, for a period of $0.4 \times 79 = 31.6$ seconds, each channel appears $5.1 \times 31.6 = 161.16$ times.

A DH5 packet, with independence of the modulation, needs 5 time slots for transmitting and 1 time slot for receiving. Then, the system makes in the worst case 1600/6 = 266.67 hops per second with 79 channels. So each channel appears 166.67/79 = 3.37 times per second and, for a period of $0.4 \times 79 = 31.6$ seconds, each channel appears $3.37 \times 31.6 = 106.49$ times.

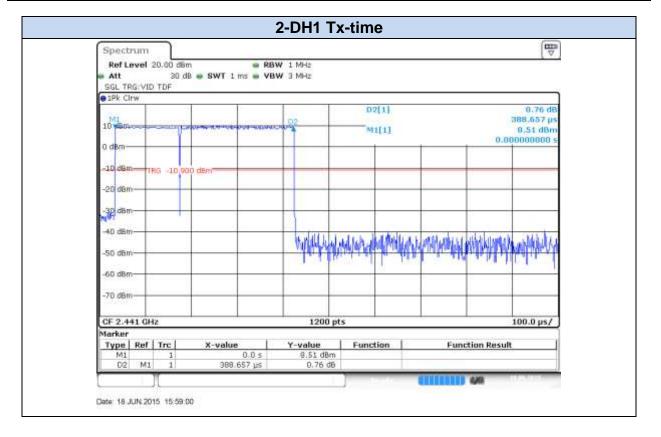
Thus, the total time of occupancy is obtained by multiplying the calculated maximum number of appearances per packet type and the measured Tx-time, as shown in the results screenshots.

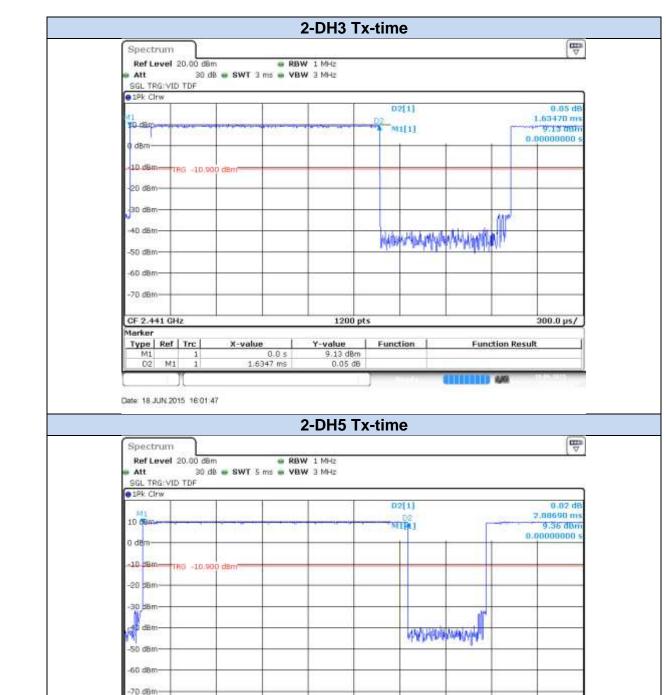


Results tables:

Mode	Packet Type	Times of appearance	Tx-time [ms]	Dwell Time [ms]
EDR	2-DH1	320.11	0.389	124.52
π/4-DQPSK	2-DH3	161.16	1.635	263.50
11/4-DQF SK	2-DH5	106.49	2.887	307.44
	3-DH1	320.11	0.390	124.84
EDR 8-DPSK	3-DH3	161.16	1.636	263.66
0-DF3K	3-DH5	106.49	2.887	307.44

Results Screenshot:







CF 2.441 GHz

Type | Ref | Trc |

Date: 18 JUN 2015 16:04:51

1

X-value

0.0.5

2.8869 ms

Marker

M1

02 M1

1200 pts

Function

Y-value

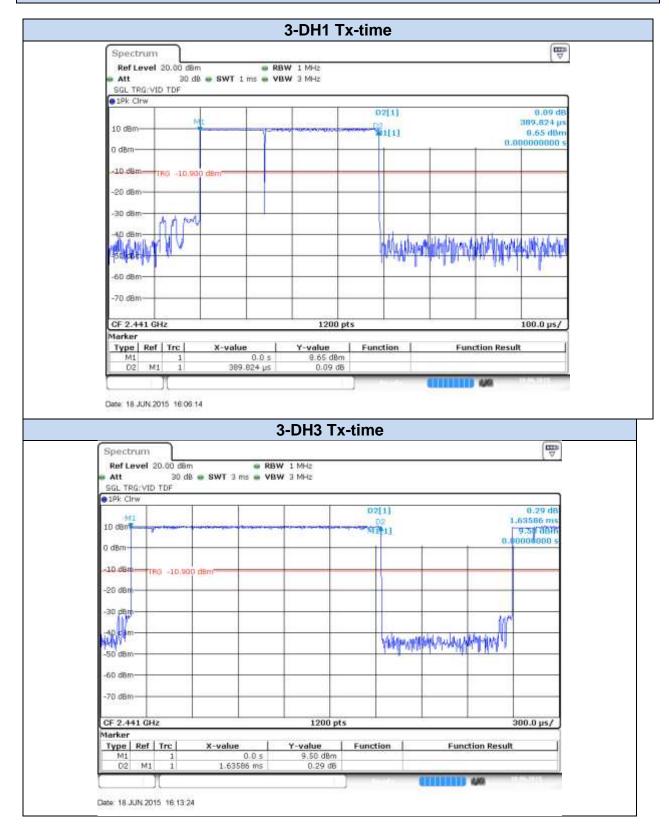
9.36 dBm 0.02 dB 500.0 µs/

Function Result

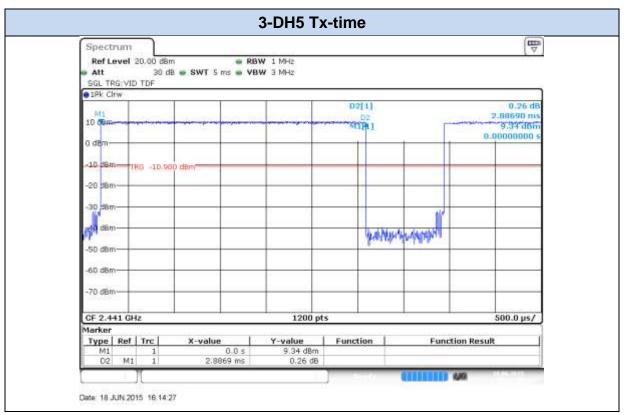
10



EDR – 8-DPSK









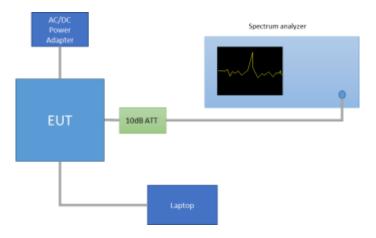
B.4 Maximum Peak Output Power and antenna gain

Test limits:

FCC part	RSS part	Limits
		(b) The maximum peak conducted output power of the intentional radiator shall not exceed the following:
15.247 (b) (1)	RSS-247 Clause 5.4 (2)	 (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. () (4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi.

Test procedure:

The setup below was used to measure the maximum peak output power. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



The declared maximum antenna gain is 3.24dBi.

Results tables:

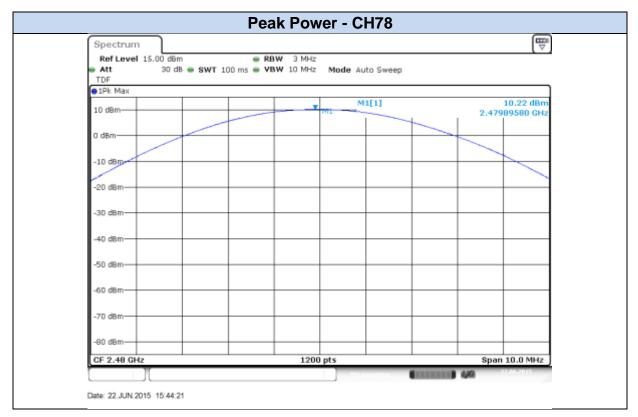
Mode	Channel Number	Frequency [MHz]	Peak Power [dBm]
EDD	0	2402	11.48
EDR π/4-DQPSK	39	2441	10.72
11/4-DQFSK	78	2480	10.22
	0	2402	11.11
EDR 8-DPSK	39	2441	10.82
0-DFSK	78	2480	10.31



Results Screenshot:





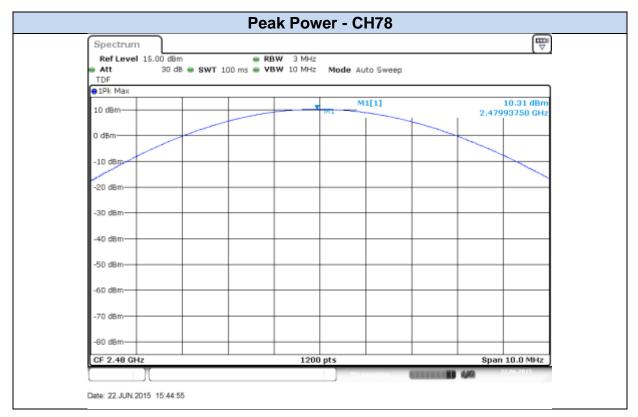




EDR – 8-DPSK









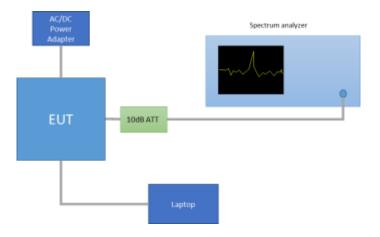
B.5 Out-of-band emissions (conducted)

Test limits:

FCC part	RSS part	Limits
15.247 (d)	RSS-247 Clause 5.5	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

Test procedure:

The setup below was used to measure the maximum peak output power. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.

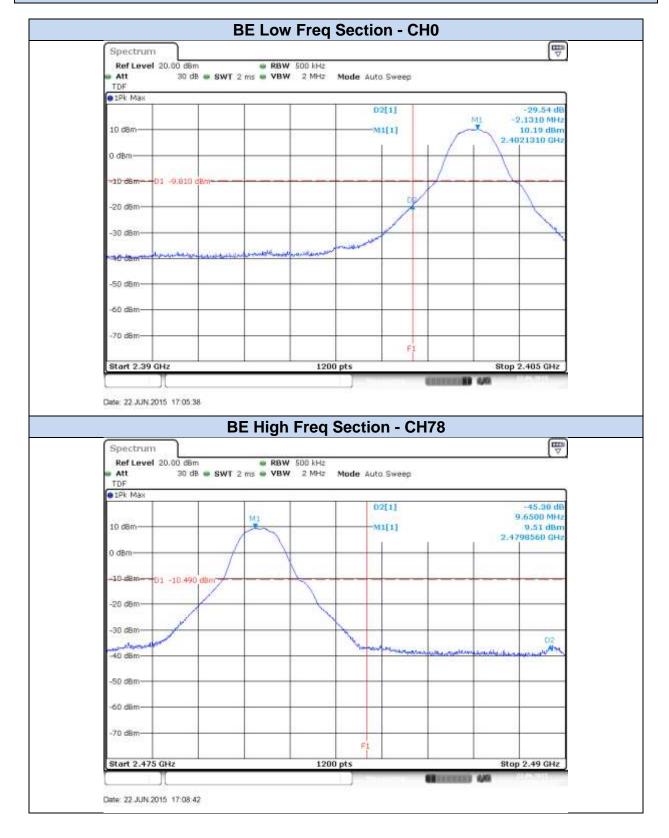


All values reported are converted in dBm, the table below shows the limits of the radiated emission (FCC part 15.209(a)) converted from dBµV/m to dBm.

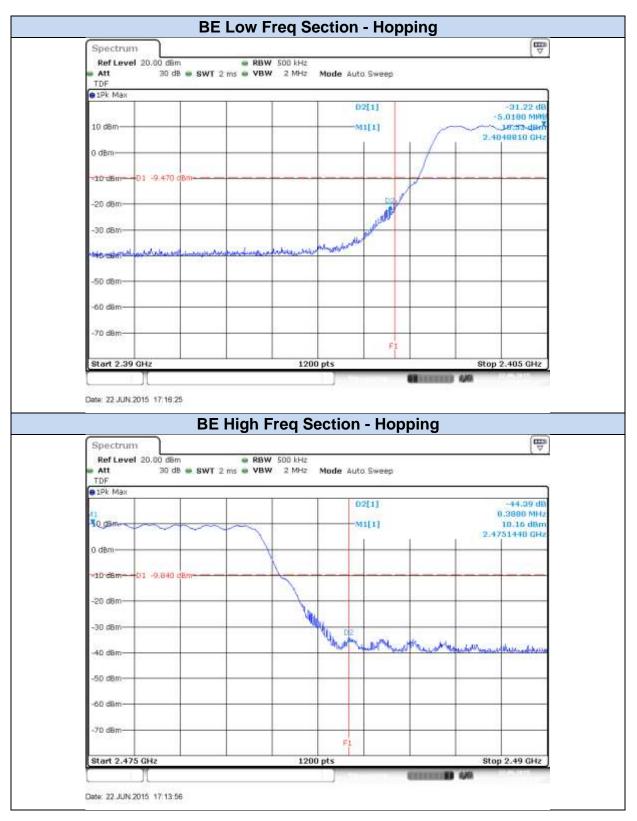
FCC	part 15.209 (a)	Converted value	Jes
Distance (m)	Field strength (microvolts/meter)	Field strength (dB microvolts/meter)	Power (dBm)
3	500	53.98	-41.2
3	200	46.02	-49.2
3	150	43.52	-51.7
3	100	40.00	-55.2



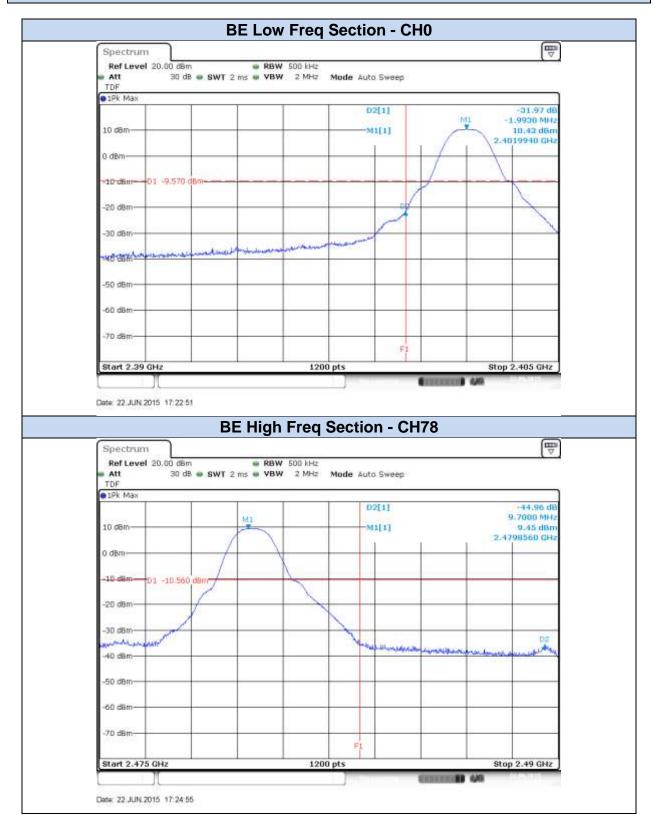
Band Edge results Screenshot:

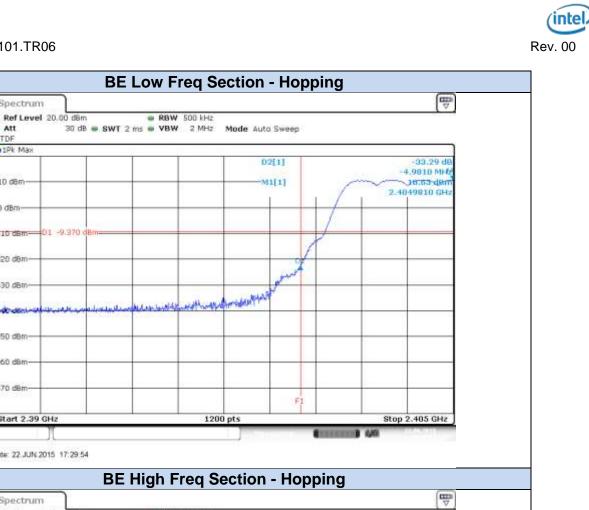






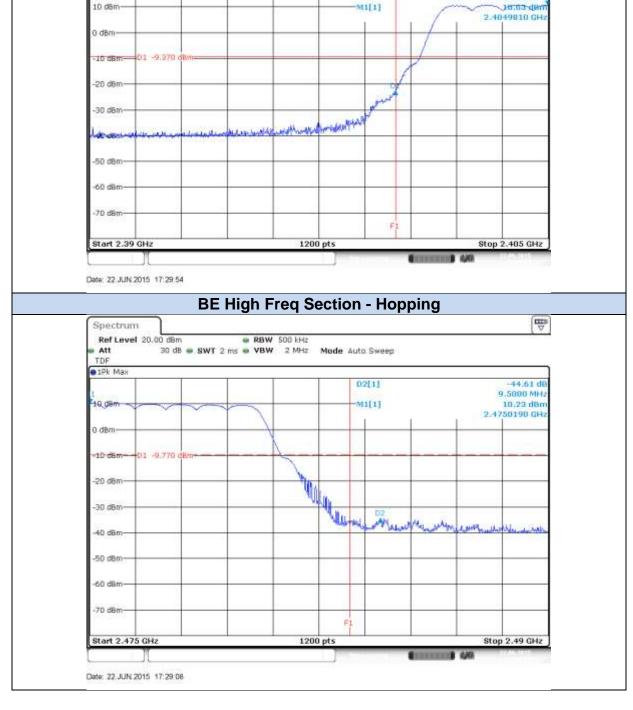
EDR – 8-DPSK





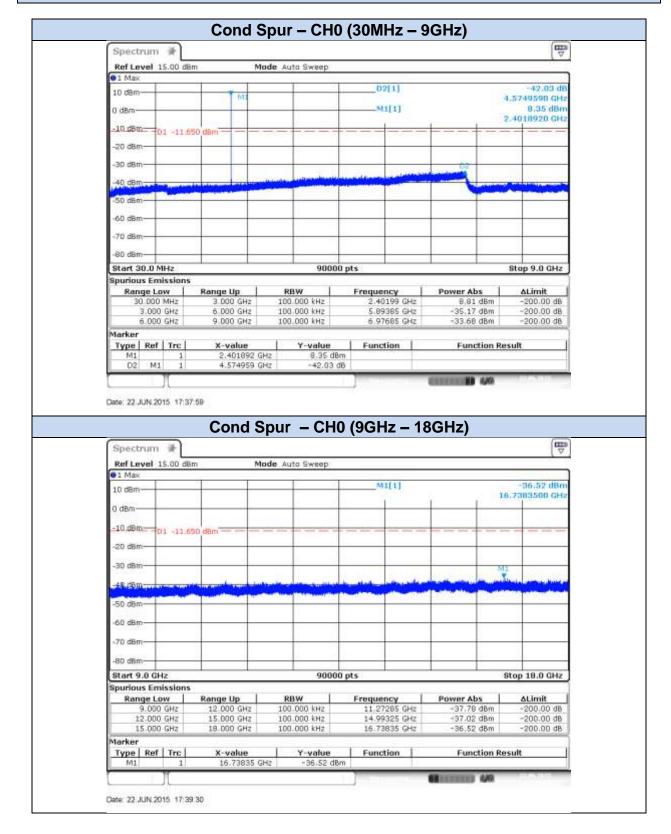
Spectrum

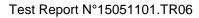
Att TDF 1Pk Max

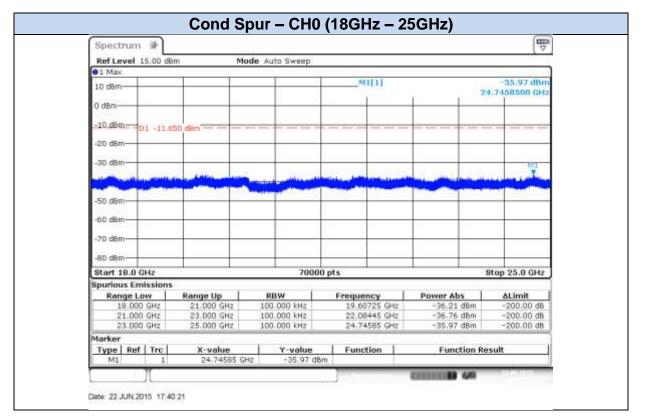




Conducted Spurious results Screenshot:



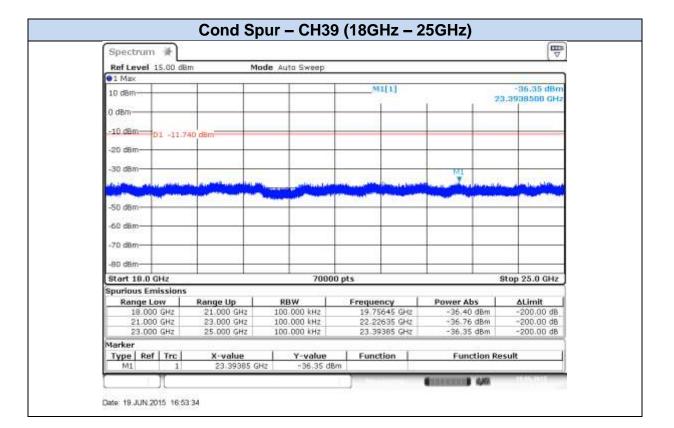






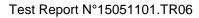
Spectrum 🕷					E →
Ref Level 15.00 d	Bm M	ode Auto Sweep			1.
1 Max					
10 d8m-	TM		_02[1]	4	-41.42 dB
0 dBm			-M1[1]		0.26 dBm
-10 dBm 01 11	740 dBm			2	.4409970 GHz
D4 744	740.0800				
-20 dBm-					i i
-3D dBm		1975		102	-
-40 dBm	and the state of the state			a summer and	and the second se
-50 dBm	And the state of the				
-60 dBm-					_
+70 dBm					
-80 dBm Start 30.0 MHz		0000	0 pts		Stop 9.0 GHz
Spurious Emission	5	9000	or heavy		orup stu uriz
Range Low	Range Up	RBW	Frequency	Power Abs	∆Limit
30.000 MHz 3.000 GHz	3.000 GHz 6.000 GHz	100.000 kHz 100.000 kHz	2.44100 GHz 5.88875 GHz	8.26 dBm -34.81 dBm	-200.00 dB -200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.97405 GHz	-33.16 dBm	-200.00 dB
Marker Type Ref Trc	X-value	Y-value	Function	Function Re	sult
M1 1	2.440997 G	H2 8.26 di	Bm	r sanssion RB	
02 M1 1	4.533054 G	Hz ~41.42	d6		
Date: 19.JUN 2015 16:		pur - CH3	9 (9GHz – 1	8GHz)	(
Spectrum *	Cond S	pur - CH3	9 (9GHz – 1	8GHz)	
Spectrum # Ref Level 15.00 d	Cond S			8GHz)	
Spectrum #	Cond S		9 (9GHz – 1)		-35.13 dBm .2928500 GHz
Spectrum # Ref Level 15.00 d	Cond S				-35.13 dBm
Spectrum Ref Level 15.00 d 1 Max 10 dBm 0 dBm	Cond S				-35.13 dBm
Spectrum Ref Level 15.00 d 1 Max 10 dBm 0 dBm	Cond S				-35.13 dBm
Spectrum Ref Level 15.00 d 1 Max 10 dBm 0 dBm -10.dBm 01 -11, -20 dBm	Cond S				-35.13 dBm
Spectrum ₩ Ref Level 15.00 d ●1 Max 10 d8m 0 d8m -10 d8m p1 -11. -20 d8m -30 d8m	Cond S				-35.13 dBm
Spectrum Ref Level 15.00 d 1 Max 10 dBm 0 dBm -10.dBm 01 -11, -20 dBm	Cond S				-35.13 dBm
Spectrum ₩ Ref Level 15.00 d ●1 Max 10 d8m 0 d8m -10 d8m p1 -11. -20 d8m -30 d8m	Cond S				-35.13 dBm
Spectrum ⊮ Ref Level 15.00 d ●1 Max 10 d8m 0 d8m -10.d8m D1 -11. -20 d8m -30 d8m -40 d8m	Cond S				-35.13 dBm
Spectrum Ref Level 15.00 d ●1 Max 10 dBm -10 dBm -10 dBm -20 dBm -30 dBm -50 dBm -60 dBm	Cond S				-35.13 dBm
Spectrum Imax Ref Level 15.00 d ●1 Max 10 dBm 10 dBm p1 -10 dBm p1 -20 dBm -30 dBm -30 dBm -50 dBm -50 dBm -70 dBm	Cond S				-35.13 dBm
Spectrum Imax Ref Level 15.00 d Imax 10 dBm 10 dBm p1 -10 dBm p1 -20 dBm -30 dBm -30 dBm -50 dBm -50 dBm -70 dBm -70 dBm -70 dBm	Cond S	ode Auto Sweep	M1[1]		-35,13 dBm .2928500 GHz
Spectrum Imax Ref Level 15.00 d ●1 Max 10 dBm 10 dBm p1 -10 dBm p1 -20 dBm -30 dBm -30 dBm -50 dBm -50 dBm -70 dBm	Cond S	ode Auto Sweep			-35.13 dBm
Spectrum Ref Level 15.00 d P1 Max 10 dBm 0 dBm -10 dBm -10 dBm -10 dBm -10 dBm -30 dBm -30 dBm -50 dBm -50 dBm -50 dBm -70 dBm -70 dBm -80 dBm	Cond S	ode Auto Sweep	MI[1]	16 Vi Vi Vi Vi Vi Vi Vi Vi Vi Vi Vi Vi Vi	-35.13 dBm .2928500 GHz
Spectrum Ref Level 15.00 d Ref Level 15.00 d I Max 10 dam 10 dam 0 -10 dBm p1 +11. -20 dBm -30 dBm -30 dBm -60 dBm -50 dBm -60 dBm -70 dBm -80 dBm -80 dBm -80 dBm -90 GHz Spurious Emission Range Low 9.000 GHz	Cond S	ode Auto Sweep 9000 RBW 100.000 kHz		16	-35.13 dBm .2928500 GHz cop 18.0 GHz ALimit -200.00 dB
Spectrum Image: Constraint of the sector of t	Cond S	ode Auto Sweep	MI[1]	16	-35.13 dBm .2928500 GHz
Spectrum Image: Construction of the sector of	Cond S	ode Auto Sweep 9000 RBW 100.000 kHz 100.000 kHz	MI[1] MI[1] 0 pts Frequency 11.96675 GHz 14.55295 GHz 16.29285 GHz	16 16 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-35.13 dBm .2928500 GHz .2928500 GHz .2928500 GHz .2928500 GHz .200.00 dB .200.00 dB .200.00 dB
Spectrum Imax Ref Level 15.00 d Imax 10 d8m 10 d8m p1 -10 d8m p1 -20 d8m p1 -30 d8m p1 -40 d5m p1 -50 d8m -60 d8m -70 d8m -70 d8m -80 d8m -80 d8m -80 d8m -80 d8m -70 d8m -80 d8m -80 d8m -80 d8m -10 d8m -70 d8m -10 d8m -70 d8m -10 d8m -70 d8m -10 d8m -80 d8m -10 d8m -90 00 GHz 50 d8m -90 00 GHz 12.000 GHz 15.000 GHz	Cond S	ode Auto Sweep 9000 RBW 100.000 kHz 100.000 kHz 100.000 kHz 100.000 kHz 100.000 kHz	MI[1] MI[1] 0 pts Frequency 11.96675 GHz 14.55295 GHz 16.29285 GHz 16.29285 GHz	16 16 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	-35.13 dBm .2928500 GHz .2928500 GHz .2928500 GHz .2928500 GHz .200.00 dB .200.00 dB .200.00 dB
Spectrum Image: Construction of the sector of	Cond S Bm Mr 740 dBm 1 8 Range Up 12.000 GHz 1 15.000 GHz 1 18.000 GHz 1 X-value X-value	ode Auto Sweep 9000 RBW 100.000 kHz 100.000 kHz 100.000 kHz 100.000 kHz	MI[1] MI[1] 0 pts Frequency 11.96675 GHz 14.55295 GHz 16.29285 GHz 16.29285 GHz	16 16 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-35.13 dBm .2928500 GHz .2928500 GHz .2928500 GHz .2928500 GHz .200.00 dB .200.00 dB .200.00 dB

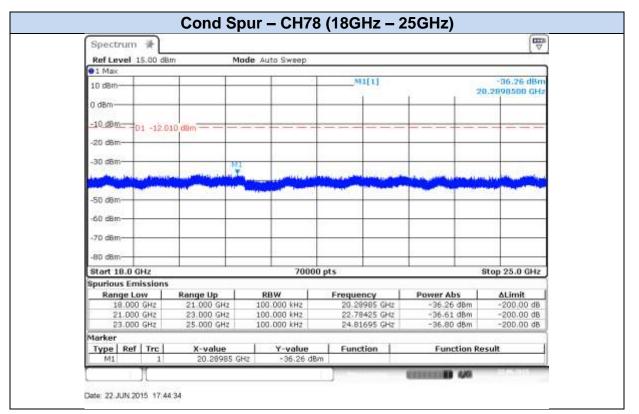






			8 (30MHz – 9	/	(m)
Spectrum 🗰					
Ref Level 15.00 dl	ām Mo	de Auto Sweep			
10 d8m-			02[1]		-41,94 dB
	ML			4	.4892488 GHz 7.99 dBm
0 dBm			-out[1]	2	4000030 GHz
-10 dBm -01 -123	10 dBm				
-20 dBm-		-		-	-
-30 d8m-		_		02-	_
-40 dBm	and the second	Line and the state	and the second second second	A CONTRACTOR	www.ore.com
the state of the s					
-50 dBm-					
-60 dBm-					
=70 dBm-	1	-			-
-80 dBm-	+ +	-			-
Start 30.0 MHz	4 1	9000	0 pts	·	Stop 9.0 GHz
Spurious Emission Range Low		RBW	Employment	Power Abs	ΔLimit
30.000 MHz	Range Up 3.000 GHz	100.000 kHz	2.48000 GHz	7.99 dBm	-200.00 dB
3.000 GHz 6.000 GHz	6.000 GHz 9.000 GHz	100.000 kHz 100.000 kHz	5.77935 GHz 6.96925 GHz	-35.37 dBm -33.95 dBm	-200.00 dB -200.00 dB
Marker	3.000 dHz	100.000 Mit	0.50762 GHE	Ser 30, upm	200.00 00
Type Ref Trc	X-value	Y-value	Function	Function Res	sult
M1 1 02 M1 1	2.400003 GF 4.409248 GF				
			1000	CALL BRIDGE CALL	
Spectrum	96553) ()	our – CH7	78 (9GHz – 1	8GHz)	(m)
	Cond S		78 (9GHz – 1	8GHz)	(m) V
Spectrum *	Cond S	our – CH7 de Auto Sweep		8GHz)	
Spectrum # Ref Level 15.00 d	Cond S		78 (9GHz – 1		-36.81 dBm .8386500 GHz
Spectrum # Ref Level 15.00 d	Cond S				-36.81 dBm
Spectrum Ref Level 15.00 d 1 Max 10 d8m 0 d8m 10 d8m	Cond Sp				-36.81 dBm
Spectrum (#) Ref Level 15.00 d 1 Max 10 d8m 0 d8m -10 d8m -10 d8m -10 d8m -10 d8m -10 d8m	Cond S				-36.81 dBm
Spectrum Ref Level 15.00 d 1 Max 10 dBm 0 dBm -10 dBm -10 dBm -10 dBm -20 dBm	Cond Sp				-36.81 dBm
Spectrum (#) Ref Level 15.00 d 1 Max 10 d8m 0 d8m -10 d8m -10 d8m -10 d8m -10 d8m -10 d8m	Cond Sp			16	-36.81 dBm .8386500 GHz
Spectrum Ref Level 15.00 d 1 Max 10 dBm 0 dBm -10 dBm -10 dBm -10 dBm -20 dBm	Cond Sp				-36.81 dBm .8386500 GHz
Spectrum Ref Level 15.00 d 1 Max 10 d8m -10 d8m -10 d8m -20 d8m -30 d8m	Cond Sp			16	-36.81 dBm .8386500 GHz
Spectrum (*) Ref Level 15.00 d •1 Max 10 dBm 0 dBm -10 dBm -10 dBm -20 dBm -30 dBm -49 dBm	Cond Sp			16	-36.81 dBm .8386500 GHz
Spectrum Ref Level 15.00 d ●1 Max 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -50 dBm -60 dBm	Cond Sp			16	-36.81 dBm .8386500 GHz
Spectrum	Cond Sp			16	-36.81 dBm .8386500 GHz
Spectrum Imax Ref Level 15.00 dl ●1 Max 10 dlam 10 dlam 0 0 dlam 01 -12.0 -20 dlam 01 -12.0 -30 dlam 01 -12.0 -50 dlam -50 dlam -70 dlam -70 dlam	Cond Sp	ide Auto Sweep	M1[1]	16	-36.81 dBm .8386500 GHz
Spectrum Imax Ref Level 15.00 dl ●1 Max 10 dlm 10 dlm 01 -12.0 -20 dlm -01 -12.0 -30 dlm -01 -12.0 -30 dlm -01 -12.0 -50 dlm -01 -12.0 -50 dlm -01 -12.0 -80 dlm -01 -12.0	Cond Sp	ide Auto Sweep		16	-36.81 dBm .8386500 GHz
Spectrum Image: Constraint of the sector of t	Cond Sp	9000 RBW	M1[1]	16	-36.81 dBm .8386500 GHz
Spectrum Image: Constraint of the sector of t	Cond Sp am Me	Ide Auto Sweep		16	-36.31 dBm .8386500 GHz 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Spectrum Image: Constraint of the sector of t	Cond Sp	9000 RBW	M1[1]	16	-36.81 dBm .8386500 GHz
Spectrum Image: Constraint of the sector of t	Cond Sp am Mo 010 dBm	9000 RBW 100.000 kHz 100.000 kHz	M1[1] M1[1] 0 pts Frequency 11.23495 GHz 14.83965 GHz	16 16 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19	-36.81 dBm .8386500 GHz 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Spectrum Imax Ref Level 15.00 dl ●1 Max 10 dlm 10 dlm 01 -12.0 -20 dlm -01 -12.0 -30 dlm -01 -12.0 -30 dlm -01 -12.0 -50 dllm -01 -12.0 -50 dllm -01 -12.0 -80 dllm -01 -12.0 -80 dllm -01 -12.0 -70 dllm -01 -12.0 -80 dllm -01 -12.0 -9 000 GHz -00 GHz Spurious Emission: Range Low 9.000 GHz 15.000 GHz	Cond Sp am Mc	9000 RBW 100.000 kHz 100.000 kHz 100.000 kHz 100.000 kHz	M1[1] M1[1] 0 pts Frequency 11.23495 GHz 14.55245 GHz 16.83865 GHz Function	16 16 16 16 16 16 16 16 16 16 16 16 16 1	-36.81 dBm .8386500 GHz 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Spectrum Imax Ref Level 15.00 dl ● 1 Max 10 dlam 10 dlam 01 -12.0 -20 dlam -01 -12.0 -20 dlam -01 -12.0 -30 dlam -01 -12.0 -50 dlam -00 dlam -70 dlam -90 dlam -80 dlam -90 GHz Spurious Emission: -80 dlam 9.000 GHz 12.000 GHz 12.000 GHz 15.000 GHz Marker Type Ref Trc	Cond Sp am Me 310 dBm 310 d	9000 RBW 100.000 kHz 100.000 kHz 100.000 kHz 100.000 kHz	M1[1] M1[1] 0 pts Frequency 11.23495 GHz 14.55245 GHz 16.83865 GHz Function	16 16 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19	-36.81 dBm .8386500 GHz 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

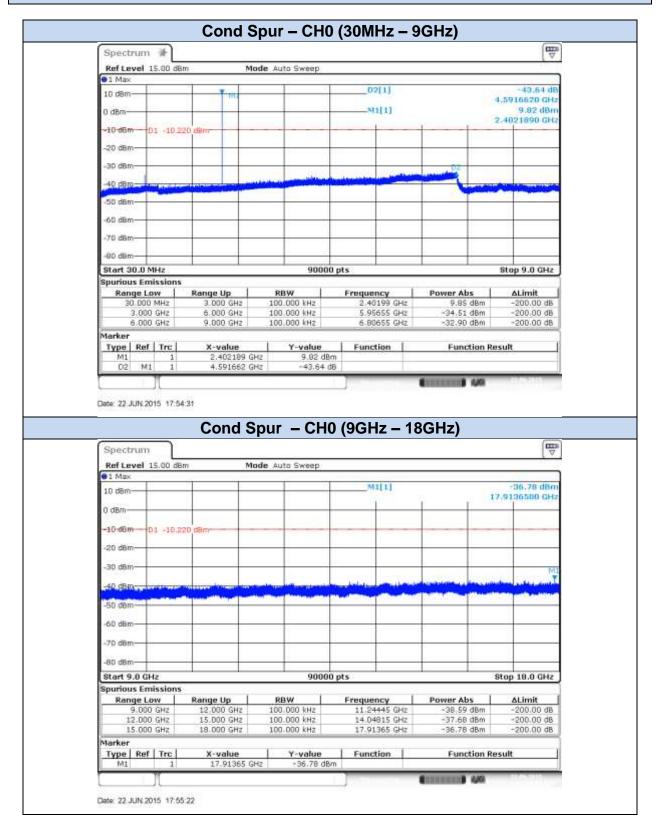


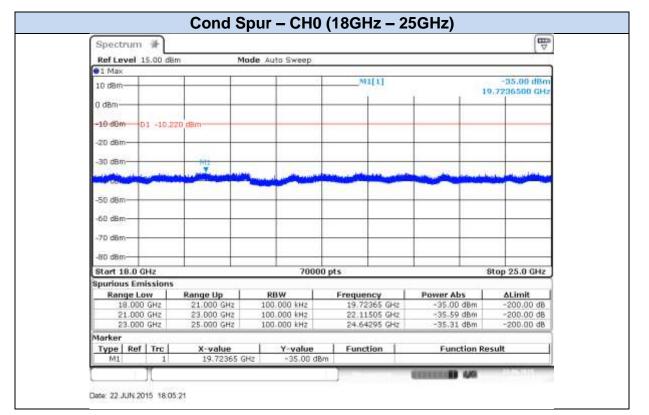






EDR – 8-DPSK

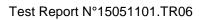






Spectrum #	ām Me	ode Auto Sweep			
•1 Max	п п	1	Dol(1)		
10 d8m-	M	-	.02[1]	4	-41.94 dB
0 dBm			-M1[1]		8.54 dBm
-10.dBm-D1 -11.0	460, d8m				.4411950 GHz
-20 dBm					
09 0163522.05					Ĵ.
-30 dBm			and the second	a standard	-
-40 dBm	and and and and and			- Andrews	And and a strength
SU BBm					
-60 dBm-	-				-
«70 dBm					_
-80 dBm					
Start 30.0 MHz		9000	0 pts		Stop 9.0 GHz
Spurious Emission		5400			and the second
Range Low	Range Up	RBW	Frequency	Power Abs	ALimit
30.000 MHz 3.000 GHz	3.000 GHz 6.000 GHz	100.000 kHz 100.000 kHz	2.44119 GHz 5.96215 GHz	8,54 dBm -34,95 dBm	-200.00 dB -200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.73595 GHz	-33,39 dBm	-200.00 dB
Marker Type Ref Trc	X-value	Y-value	Function	Function Re	sult
M1 1	2.441195 G	H2 8.54 d	Bm		990 ¹ 0
02 M1 1	4.294756 G	Hz ~41.94	db		
Date: 19.JUN 2015 10.4		pur - CH3	89 (9GHz – 1	BGHz)	(****
Spectrum #	Cond S	pur - CH3	9 (9GHz – 1	8GHz)	(m) V
Spectrum # Ref Level 15.00 d	Cond S			BGHz)	
Spectrum #	Cond S		89 (9GHz – 1		-36.75 dBm .5067500 GHz
Spectrum # Ref Level 15.00 d	Cond S				-36.75 dBm
Spectrum Ref Level 15.00 d 1 Max 10 d8m 0 d8m 0 d8m	Cond S				-36.75 dBm
Spectrum Ref Level 15.00 d 1 Max 10 d8m 0 d8m 0 d8m	Cond S				-36.75 dBm
Spectrum Ref Level 15.00 d 1 Max 10 dBm 0 dBm -10.dBm -11.dBm -20 dBm	Cond S				-36.75 dBm .6067500 GHz
Spectrum Ref Level 15.00 df 1 Max 10 d8m 0 d8m -10 d8m -10 d8m -10 d8m -30 d8m -30 d8m	Cond S				-36.75 dBm
Spectrum Ref Level 15.00 d 1 Max 10 dBm 0 dBm -10.dBm -11.dBm -20 dBm	Cond S				-36.75 dBm .6067500 GHz
Spectrum Ref Level 15.00 df 1 Max 10 d8m 0 d8m -10 d8m -10 d8m -10 d8m -30 d8m -30 d8m	Cond S				-36.75 dBm .6067500 GHz
Spectrum Imax Ref Level 15.00 df I Max 10 d8m 0 d8m 01 -11. -20 d8m 01 -11. -30 d8m -40 d8m	Cond S				-36.75 dBm .6067500 GHz
Spectrum Ref Level 15.00 db ●1 Max 10 dBm 0 dBm -10.dBm -10.dBm -20 dBm -30 dBm -40 dBm -50 dBm	Cond S				-36.75 dBm .6067500 GHz
Spectrum Imax Ref Level 15.00 dl I Max 10 dlm 10 dlm 0 -10.dBm 01 -11. -20 dlm 01 -11. -30 dlm -11. -50 dlm -60 dlm -70 dlm -70 dlm	Cond S				-36.75 dBm .6067500 GHz
Spectrum Imax Ref Level 15.00 dl I Max 10 dlm 10 dlm 0 -10.dBm 01 -11. -20 dBm 01 -11. -30 dBm 01 -11. -50 dBm 01 -11. -50 dBm 0.0000 -80 dBm 0.0000	Cond S	ode Auto Sweep			-36.75 dBm .5067500 GHz
Spectrum Imax Ref Level 15.00 dl I Max 10 dlm 10 dlm 0 -10.dBm 01 -11. -20 dBm -30 dBm -30 dBm -50 dBm -50 dBm -60 dBm	Cond S	ode Auto Sweep			-36.75 dBm .6067500 GHz
Spectrum Ref Level 15.00 df 1 Max 10 d8m 0 d8m -10.d8m -20 d8m -30 d8m -40 d8m -50 d8m -60 d8m -70 d8m -80 d8m	Cond S	ode Auto Sweep	MI[1]	17	-36.75 dBm .6067500 GHz
Spectrum Imax Ref Level 15.00 dl I Max 10 dlm 10 dlm p1 -11.0 -20 dlm -20 dlm -30 dlm -30 dlm -40 dlm -11.0 -50 dlm -30 dlm -30 dlm -30 dlm -30 dlm -30 dlm -50 dlm -30 dlm -70 dlm -30 dlm -80 dlm -30 dlm -70 dlm -30 dlm -80 dlm -30 dlm	Cond S	ode Auto Sweep	M1[1]	17	-36.75 dBm .5067500 GHz
Spectrum Imax Ref Level 15.00 df I Max 10 d8m 10 d8m 01 -11.4 -20 d8m -01 -11.4 -20 d8m -01 -11.4 -30 d8m -01 -11.4 -50 d8m -60 d8m -70 d8m -70 d8m -80 d8m -80 d8m -70 d8m -80 d8m -80 d8m -80 d8m -80 d8m -80 d8m -10.0 GHz Spurious Emission: Range Low 9.000 GHz 12.000 GHz 15.000 GHz	Cond S	ode Auto Sweep		17	-36.75 dBm .5067500 GHz MI2 Top 18.0 GHz ALImit -200.00 dB
Spectrum Ref Level 15.00 dl 1 Max 10 dlm 0 dlm -10 dlm -20 dlm -30 dlm -40 dlm -50 dlm -60 dlm -70 dlm -80 dlm -80 dlm -80 dlm -80 dlm -9.00 GHz Spurious Emission: Range Low 9.000 GHz 15.000 GHz 15.000 GHz Marker	Cond S	ede Auto Sweep 9000 RBW 100.000 kHz 100.000 kHz	MI[1] MI[1] 0 pts Frequency 11.17665 GHz 14.55335 GHz 17.60675 GHz	17 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19	-36.75 dBm .6067500 GHz M2 M2 top 18.0 GHz ALimit -200.00 dB -200.00 dB
Spectrum Imax Ref Level 15.00 df I Max 10 d8m 10 d8m 01 -11.4 -20 d8m -01 -11.4 -20 d8m -01 -11.4 -30 d8m -01 -11.4 -50 d8m -60 d8m -70 d8m -70 d8m -80 d8m -80 d8m -70 d8m -80 d8m -80 d8m -80 d8m -80 d8m -80 d8m -10.0 GHz Spurious Emission: Range Low 9.000 GHz 12.000 GHz 15.000 GHz	Cond S	000 Auto Sweep 9000 88W 100.000 kHz 100.000 kHz 100.000 kHz 100.000 kHz	M1[1] M1	17 17 19 19 19 19 10 10 10 10 10 10 10 10 10 10 10 10 10	-36.75 dBm .6067500 GHz M2 M2 top 18.0 GHz ALimit -200.00 dB -200.00 dB





10 dBm 10,70195 0 dBm 11,460 dBm -10 dBm 01 -11,460 dBm -20 dBm -10 dBm -30 dBm -10 dBm -50 dBm -10 dBm	
10 dBm M1[1] -35.6 10 dBm 19.70195 0 dBm 19.70195 0 dBm 19.70195 -10 dBm 19.70195 -20 dBm 19.70195 -30 dBm 19.70195 -50 dBm 19.70195 -60 dBm 19.70195 -70 dBm 19.70195 -80 dBm 19.7000 pts Stort 18.0 GHz 70000 pts	
10 dBm 19,70195 0 dBm 11,460 dBm -10 dBm 1 -20 dBm 1 -30 dBm 1 -50 dBm 1 -60 dBm 1 -60 dBm 1 -70 dBm 1 -80 dBm 1 -90 dBm 1	
0 dBm -10 dBm -20 dBm -20 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm -30 dBm -50 dBm -50 dBm -60 dBm -60 dBm -60 dBm -60 dBm -50 d	
-10.dBm	
-20 dBm	
-20 dBm	
-50 dBm	
-50 dBm	
-50 dBm -60 dBm -70 dBm -70 dBm -80 dB	
-60 dBm -70 dBm -70 dBm -80 dB	The second se
-70 dBm- -80 dBm- Start 18.0 GHz 70000 pts Stop 25.	have a finite the set of the set
-80 d8m	
Start 18.0 GHz 70000 pts Stop 25.	
	70000 pts Stop 25.0 G
Spurious Emissions	
23.000 GHz 25.000 GHz 100.000 kHz 23.35955 GHz -36.70 dBm -200	100.000 kHz 23.35955 GHz -36.70 dBm -200.00
Marker	
Type Ref Trc X-value Y-value Function Function Result M1 1 19.70195 GHz ~35.69 dBm	
MT 1 13.70155 GHZ 535.05 00m	

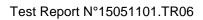


Spectrum 🗰					
Ref Level 15.00 dB	m Me	ode Auto Sweep			1.
1 Max					
10 d8m-	TAL		_02[1]	4	-41.66 dB
0 dBm-			-M1[1]		0.20 dBm
10 dBm	1.000			2	.4000030 GHa
-10 dBm 01 -11,7	70 dam				
-20 dBm-					
-30 d8m				02	
-40 dBm		Second and the second	information of the initial initial		
-50 dBm-			and the second second		
100 C 100					
-60 dBm-		1			
«70 dBm	-	-			-
-80 dBm-					-
Start 30.0 MHz		9000	0 pts	.t	Stop 9.0 GHz
Spurious Emissions					
Range Low 30.000 MHz	Ronge Up 3.000 GHz	RBW 100.000 kHz	2.48000 GHz	Power Abs 8.23 dBm	△Limit -200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.88475 GHz	-35.48 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.82815 GHz	~33.44 dBm	-200.00 dB
Marker	and the second second	1. Martin	Country I	Franklin P.	
Type Ref Trc M1 1	2.400003 G	Y-value Hz 8,23 d	Function	Function Re-	suit
02 M1 1	4.348148 G	Hz ~41.66	dB		
10				CONTRACTOR AND	
Date: 22 JUN 2015 18:0	2263	pur – CH7	78 (9GHz – 18	8GHz)	(mg
Spectrum 🕷	Cond S		78 (9GHz – 18	8GHz)	(m)
	Cond S	pur – CH7 ode Auto Sweep		8GHz)	
Spectrum # Ref Level 15.00 dB	Cond S		/8 (9GHz – 18		-36.22 dBn
Spectrum # Ref Level 15.00 dB 1 Max 10 dBm	Cond S				
Spectrum Ref Level 15.00 dB 1 Max 10 dBm 0 dBm	Cond S				-36.22 dBn
Spectrum # Ref Level 15.00 dB 1 Max 10 dBm	Cond S				-36.22 dBn
Spectrum Ref Level 15.00 dB 1 Max 10 dBm 0 dBm 10 dBm	Cond S				-36.22 dBn
Spectrum Ref Level 15.00 dB @1 Max 10 dBm 0 dBm -10 dBm 01 -11.7	Cond S				-36.22 dBn
Spectrum Ref Level 15.00 dB 1 Max 10 dBm -10 dBm -10 dBm 01 -11.7 -20 dBm -30 dBm	Cond S				-36.22 dBn
Spectrum Ref Level 15.00 dB 1 Max 10 dBm 0 dBm -10 dBm 01 -11.7 -20 dBm -30 dBm r49 dBm	Cond S				-36.22 dBn
Spectrum Ref Level 15.00 dB 1 Max 10 dBm -10 dBm -10 dBm 01 -11.7 -20 dBm -30 dBm	Cond S				-36.22 dBn
Spectrum Ref Level 15.00 dB 1 Max 10 dBm 0 dBm -10 dBm 01 -11.7 -20 dBm -30 dBm r49 dBm	Cond S				-36.22 dBn
Spectrum ₩ Ref Level 15.00 dB ●1 Max 10 dBm 10 dBm 01 -11.7 -20 dBm 01 -11.7 -30 dBm -10.40m -50 dBm -50 dBm	Cond S				-36.22 dBn
Spectrum Image: Constraint of the sector of t	Cond S				-36.22 dBn
Spectrum Image: Constraint of the sector of t	Cond S	ade Auto Sweep			-36.22 dBm .4933500 GHz
Spectrum Image: Constraint of the sector of t	Cond S	ade Auto Sweep			-36.22 dBn
Spectrum Image: Constraint of the sector of t	Cond S	ade Auto Sweep			-36.22 dBm .4933500 GHz
Spectrum Imax Ref Level 15.00 dB Imax 10 dBm 0 0 dBm 01 -11.7 -20 dBm 01 -11.7 -20 dBm -30 dBm -30 dBm -60 dBm -50 dBm -60 dBm -70 dBm -80 dBm -80 dBm -80 dBm	Cond S	ade Auto Sweep		15 15 19 19 19 19 19 19 19 19 19 19 19 19 19	-36.72 dBm -4933500 GHz
Spectrum Imax Ref Level 15.00 dB ●1 Max 10 dBm 10 dBm 01 -11.7 -20 dBm 01 -11.7 -20 dBm -10.4Bm -30 dBm -11.7 -20 dBm -11.7 -20 dBm -11.7 -30 dBm -11.7 -50 dBm -10.7 -50 dBm -10.7 -50 dBm -10.7 -80 dBm -70.7 -80 dBm -70.0 GHz Spurious Emissions Range Low 9.000 GHz 12.000 GHz	Cond S	ode Auto Sweep		15 15 15 15 15 15 15 15 15 15 15 15 15 1	-36.22 dBm -4933500 GHz top 18.0 GHz -200.00 dB -200.00 dB
Spectrum Image: Constraint of the sector of t	Cond S	2000 200 2000 2		15 15 19 19 19 19 19 19 19 19 19 19 19 19 19	-36.72 dBm -4933500 GHz
Spectrum Image: Spectrum Ref Level 15.00 dB 1 Max 10 dBm 10 dBm 01 -11.7 20 dBm 01 -11.7 -20 dBm 01 -11.7 -30 dBm 01 -11.7 -20 dBm -55 dBm -50 dBm -60 dBm -70 dBm -80 dBm -80 dBm -80 dBm -9.000 GHz 12.000 GHz 12.000 GHz 12.000 GHz 12.000 GHz 12.000 GHz Marker Type Ref Trc	Range Up 12.000 GHz 13.000 GHz 13.000 GHz 18.000 GHz 18.000 GHz	9000 RBW 100.000 kHz 100.000 kHz 100.000 kHz 100.000 kHz 100.000 kHz 100.000 kHz	MI[1] MI[1] 0 pts Frequency 11.2565 GHz 14.88475 GHz 15.49335 GHz Function	15 15 15 15 15 15 15 15 15 15 15 15 15 1	-36.72 dBm .4933500 GH2 .4933500 GH2 .4933500 GH2 .4933500 GH2 .200.00 dB .200.00 dB .200.00 dB
Spectrum Image: Constraint of the sector of t	Cond S	9000 RBW 100.000 kHz 100.000 kHz 100.000 kHz 100.000 kHz 100.000 kHz 100.000 kHz	MI[1] MI[1] 0 pts Frequency 11.2565 GHz 14.88475 GHz 15.49335 GHz Function	15 M12 M12 M12 M12 M12 M12 M12 M12	-36.72 dBm .4933500 GH2 .4933500 GH2 .4933500 GH2 .4933500 GH2 .200.00 dB .200.00 dB .200.00 dB

Rev. 00

Spectrum 🕷						l	
Ref Level 15.00) dBm	Mode Auto Sweep				105	
1 Max							
10 d8m-			M1[1]		14	-35.99 dBm 19.6105500 GHz	
0 dBm		-	-	1	1		
-10 dBm 01 -	11.770 dBm		-	_			
-20 d8m				_		_	
-30 dBm	100	1			· · · · ·		
-50 08/11	MI				and the second se	and the second	
and the state of the	State of the local division of the	Statement Statement	and the second second		Street and the second street of the	the state of the s	
-50 d8m		2.844					
-60 dBm	_					_	
-70 dBm			-	-			
-80 dBm-	-		-	_		_	
Start 18.0 GHz		700	00 pts			Stop 25.0 GHz	
Spurious Emissi	ons	2			20	- ^	
Range Low	Range Up	RBW		quency	Power Abs	∆Limit	
18.000 GH		100.000 kHz		9.61055 GHz	-35.99 dBm	-200.00 dB	
21.000 GH		100.000 kHz 100.000 kHz		1.52185 GHz 4.35735 GHz	-36.20 dBm	-200.00 dB -200.00 dB	
Marker		ACCIVED HILL				000100 00	
Type Ref Tr	c X-value	Y-value	I F	unction	Function Re	sult	
M1	1 19.61055						
					\$1000 BOOM \$1400		







B.6 Radiated spurious emission

Standard references:

FCC part	RSS part	Limits								
		Radiated emissions which fall in the restricted bands, as defined ir §15.205(a), must also comply with the radiated emission limits specified in §15.209(a):								
		Freq Range (MHz)	Field Stregth (μV/m)	Field Stregth (dBµV/m)	Meas. Distance (m)					
		0.009-0.490	2400/f(kHz)	-	300					
		0.490-1.705	24000/f(kHz)	-	300					
		1.705-30.0	30	-	30					
		30-88	100	40	3					
		88-216	150	43.5	3					
	RSS-247	216-960	200	46	3					
15.247 (d)			Clause 5.5				960-25000	500	54	3
		The emission limits shown in the above table are based measurements employing CISPR quasi-peak detector except the frequency bands 9-90 kHz, 110-490 kHz and above 10 MHz. Radiated emission limits in these three bands are based measurements employing an average detector. For average radiated emission measurements above 1000 M there is also a limit specified when measuring with peak detect function, corresponding to 20 dB above the indicated values in table.								

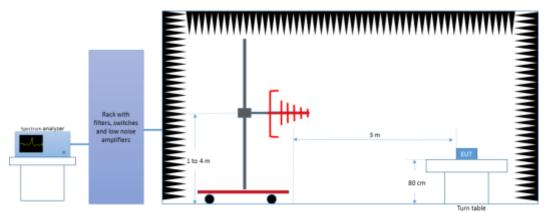
Test procedure:

The setups below were used to measure the radiated spurious emissions.

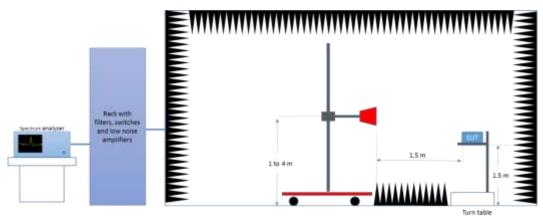
Depending of the frequency range and bands being tested, different antennas and filters were used. The final measurement is done by varying the antenna height from 1 to 4 meters, the EUT azimuth over 360° and for both Vertical and Horizontal polarizations.

The radiated spurious emission was measured on the worst case configuration found.

Radiated Setup < 1GHz



Radiated Setup > 1GHz

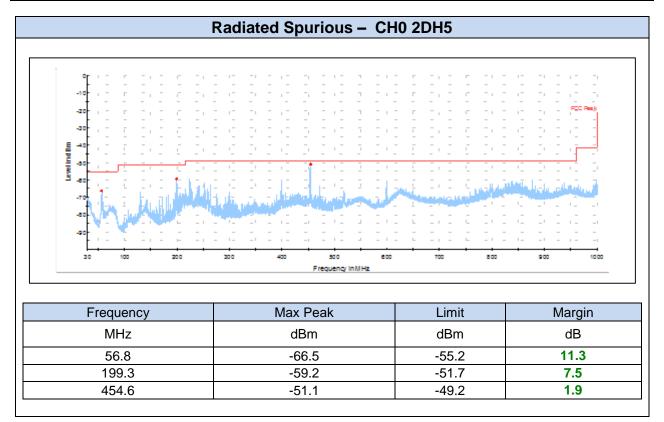


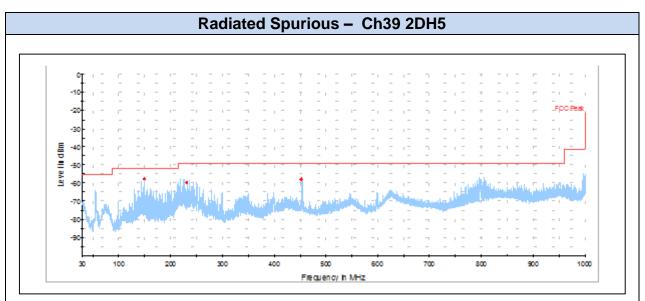
All values reported are converted in dBm, the table below shows the limits of the radiated emission (FCC part 15.209(a)) converted from $dB\mu V/m$ to dBm.

FCC part 15.209 (a)		Converted values	
Distance (m)	Field strength (microvolts/meter)	Field strength (dB microvolts/meter)	Power (dBm)
3	500	53.98	-41.2
3	200	46.02	-49.2
3	150	43.52	-51.7
3	100	40.00	-55.2

Test result:

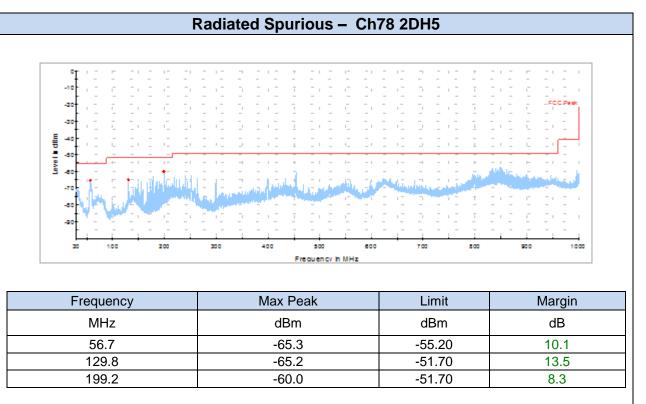






Frequency	Max Peak	Limit	Margin
MHz	dBm	dBm	dB
149.5	-57.7	-51.7	6.0
231.6	-59.8	-49.2	10.6
452.7	-57.8	-49.2	8.6

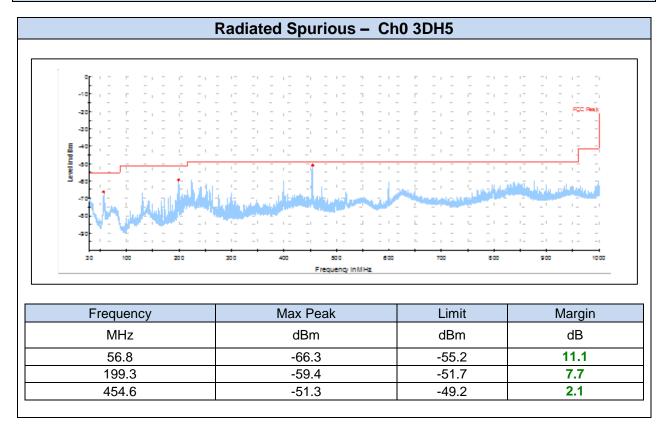
Test Report N°15051101.TR06

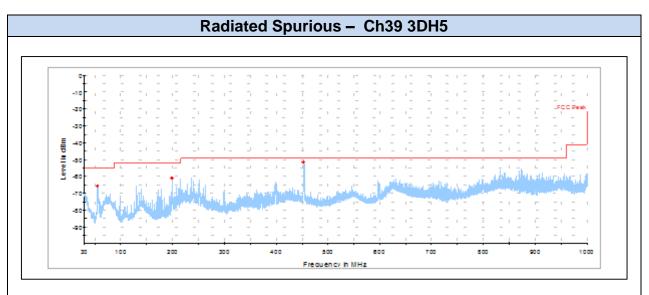




Test results:

EDR – 8-DPSK – 30MHz-1GHz

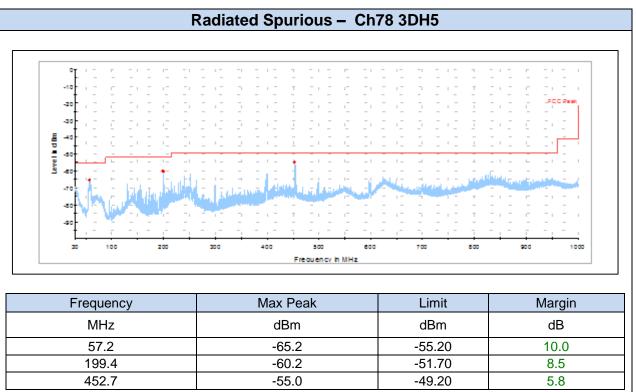


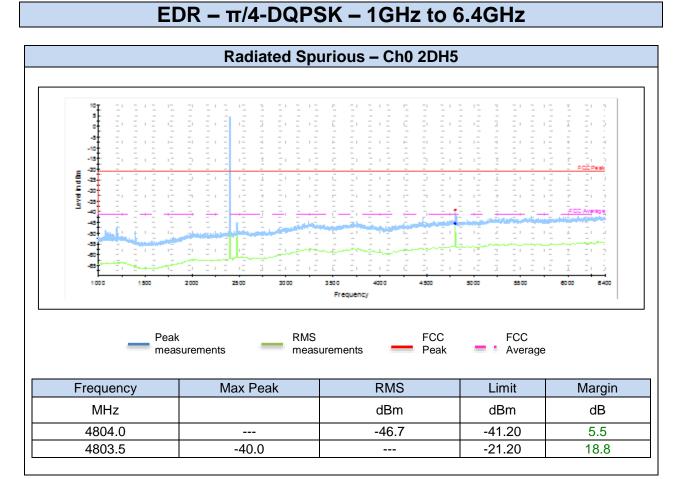


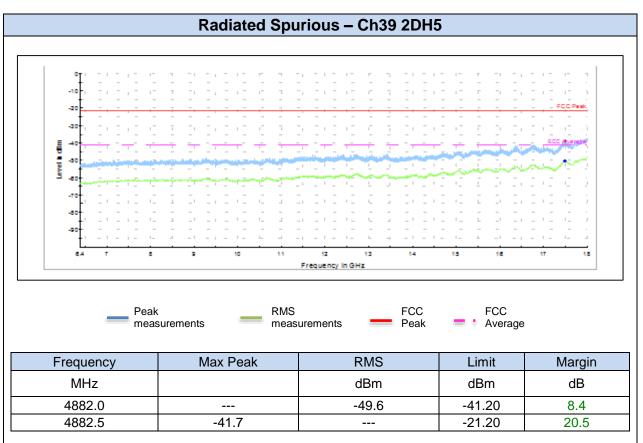
Frequency	Max Peak	Limit	Margin
MHz	dBm	dBm	dB
55.7	-65.5	-55.2	10.3
199.2	-60.9	-51.7	9.2
452.7	-51.6	-49.2	2.4





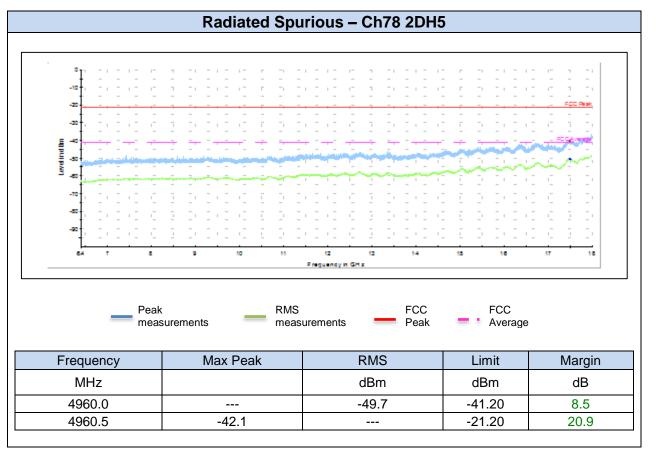






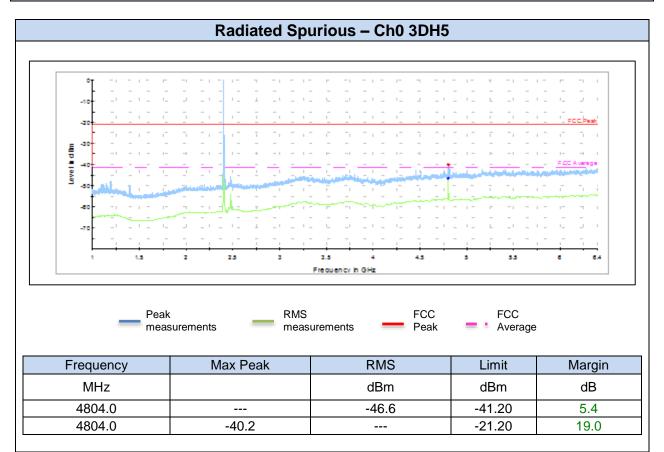
FO-014: Test Report

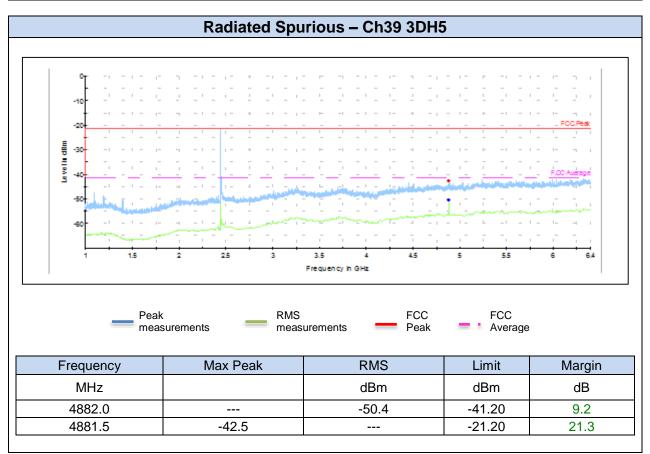






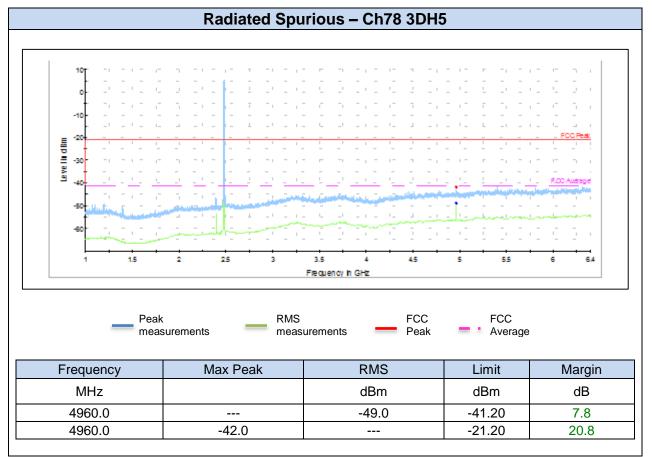
EDR – 8-DPSK – 1GHz to 6.4GHz



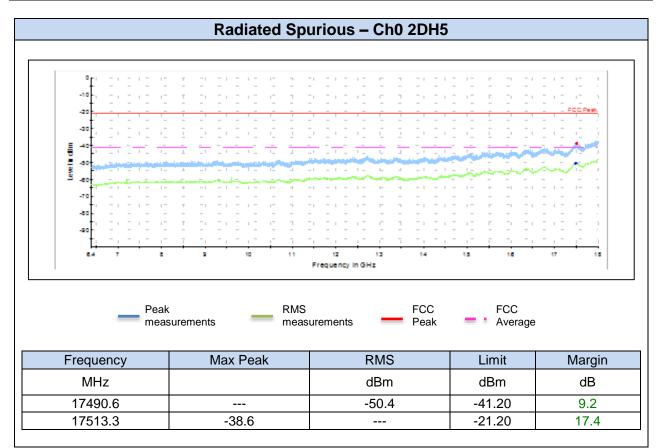


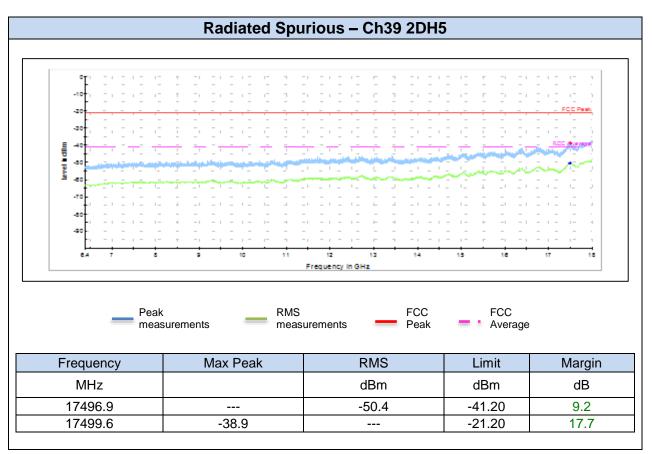




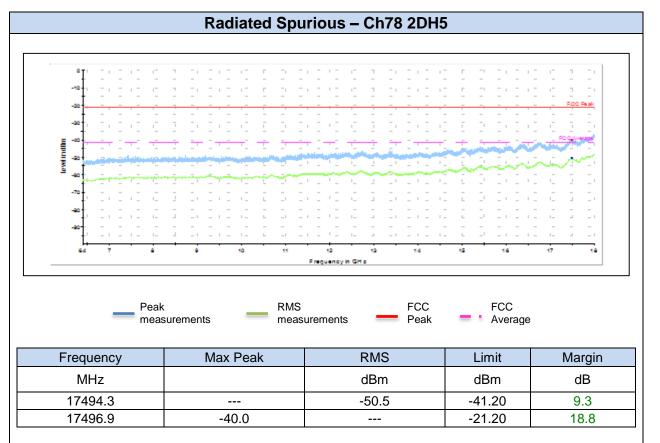


EDR – $\pi/4$ -DQPSK – 6.4GHz to 18GHz



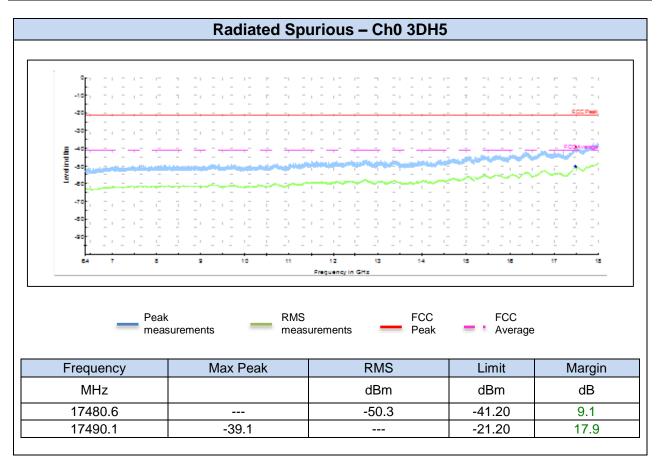


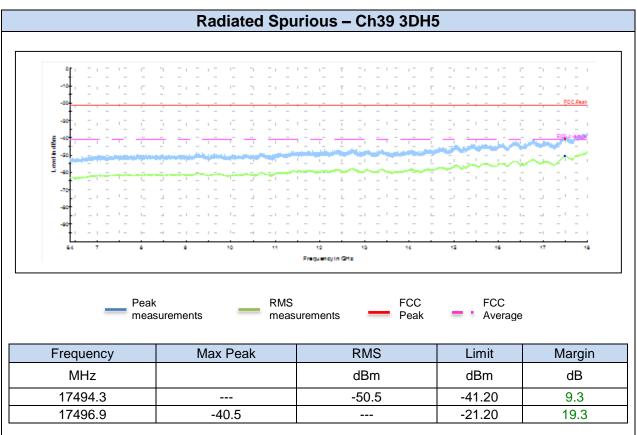




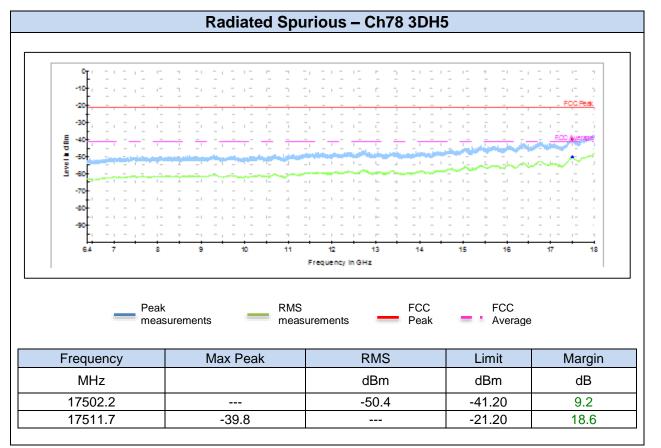


EDR - 8-DPSK - 6.4GHz to 18GHz

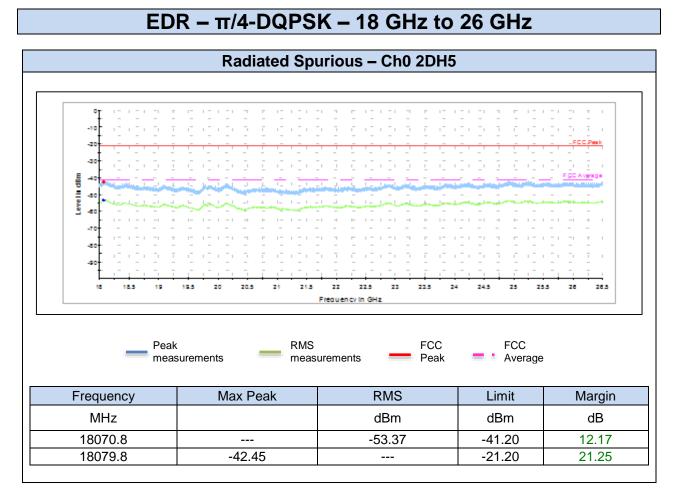


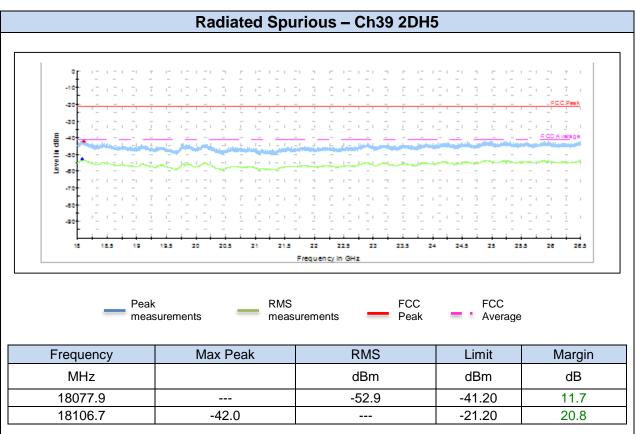












FO-014: Test Report





