



TEST REPORT

EUT Description	WiGig, WLAN and BT, 2x2 PCIe M.2 2230 adapter card
Brand Name	Intel® Tri-Band Wireless-AC 18265
Model Name	1865NGW, 18265NGW LC
Serial Number	TA#: J30458-002 WF MAC: 34:13:E8:34:53:E4 / 34:13:E8:44:A8:B2 / 34:13:E8:34:54:98 / 34:13:E8:44:CF:34 (see section 4)
FCC ID	FCC ID: PD918265NG
Antenna type	Universe Technology
Hardware/Software Version	HW Cfg:33.10 Test SW: DRTU version 03789_1_9_0G (driver version: 19.1.0.1)
Date of Sample Receipt	2016-08-30
Date of Test Start/End	2016-09-07 / 2016-10-28
Features	WiGig + 802.11 a/b/g/n/ac Wireless LAN + BDR/EDR 2.1 + BLE 4.2 (see section 5)
Applicant	Intel Mobile Communications
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Reference Standards	FCC CFR Title 47 Part 15 E RSS-247 issue 1, RSS-Gen issue 4 (see section 1)
Test Report number	160830-01.TR01
Revision Control	Rev. 00

The test results relate only to the samples tested.

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Issued by

Reviewed by

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1. Standards, reference documents and applicable test methods

- 1. FCC 47 CFR part 15 Subpart E Unlicensed National Information Infrastructure Devices.
- 2. FCC 47 CFR part 15 Subpart C §15.209 Radiated emission limits; general requirements.
- 3. FCC OET KDB 789033 D02 General UNII Test Procedures New Rules Guidelines for compliance testing of Unlicensed National Information Infrastructure (U-NII) Devices.
- FCC OET KDB 644545 D03 Guidance for IEEE 802.11ac v01 GUIDANCE FOR IEEE Std 802.11ac[™] DEVICES EMISSION TESTING.
- 5. ANSI C63.10-2013 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 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.
- ✓ 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	22.5 °C ± 4 °C
Humidity	50 % ± 20 %



4. Test samples

Sample	Control #	Description	Model	Serial #	Date of reception	Note	
#01	160830-01.S05	WiGig/ WiFi/BT Module	18265NGW	WFM: 34:13:E8:34:53:E4 BDM: 34:13:E8:34:53:E8 WGM: 34:13:E8:34:53:E9	2016-08-30	Used for conducted	
	15081801.S05	Extender board	PCB00469	4694213-0134	2016-08-30	tests	
	160107-01.S18	AC/DC Adapter	SPU60-102	08741164 1350	2016-01-07		
	160107-01.S15	Laptop	DELL Latitude	4Z2YG12	2016-01-07		
	160830-01.S06	WiGig/ WiFi/BT Module	18265NGW	WFM: 34:13:E8:44:A8:B2 BDM: 34:13:E8:44:A8:B6 WGM: 34:13:E8:44:A8:B7	2016-08-30	Used for all radiated tests (from 30MHz to 1 GHz and 18GHz to 40GHz)	
#02	160830-01.S38	Extender board	PCB00469	ASS00469-001 4694213-099	2016-09-27	and for 802.11n20,HT 0, CH48,CH56 Chain A from 6.4GHz to	
	15051101.S09	Laptop	DELL E5440	9FSYN32	2015-05-12	18GHz	
	160830-01.S12	WiGig/ WiFi/BT Module	18265NGW	WFM: 34:13:E8:34:54:98 BDM: 34:13:E8:34:54:9C WGM: 34:13:E8:34:54:9D	2016-08-30	Used for	
#03	160830-01.S21	Extender Rev-2	PCB00469	4694213-245	2016-09-02	radiated tests (from 1GHz to	
	160202-02.S29	Control Laptop	Dell Latitude E6430	D41QVY1	2016-03-18	6.4GHz)	
	160202-02.S19	PCI Extender	PCB00284	ASS0248 2480614- 071	2016-02-10		
	160202-02.S20	ExpressCard Adapter	Not available	600010757	2016-02-12		

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Sample	Control #	Description	Model	Serial #	Date of reception	Note
	160830-01.S11	WiGig/ WiFi/BT Module	18265NGW	WFM: 34:13:E8:44:CF:34 BDM: 34:13:E8:44:CF:38 WGM: 34:13:E8:44:CF:39	2016-08-30	Used for radiated tests (from 6.4GHz
#04	160830-01.S21	Extender Rev-2	PCB00469	PCB00469 4694213-245 2016-09-02	2016-09-02	to 18GHz) except the cases indicated in sample #02
	160202-02.S29	Control Laptop	Dell Latitude E6430	D41QVY1	2016-03-18	
	160202-02.S19	PCI Extender	PCB00284	ASS0248 2480614- 071	2016-02-10	notes
	160202-02.S20	ExpressCard Adapter	Not available	600010757	2016-02-12	

NA: Not Applicable

5. EUT features

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

WiGig	60GHz (57.24 – 63.72 GHz)
802.11b/g/n	2.4GHz (2400.0 – 2483.5 MHz)
802.11a/n/ac	5.2GHz (5150.0 – 5250.0 MHz)
	5.3GHz (5250.0 – 5350.0 MHz)
	5.6GHz (5470.0 – 5725.0 MHz)
	5.8GHz (5725.0 – 5850.0 MHz)
BDR/EDR/BLE 4.2	2.4GHz (2400.0 – 2483.5 MHz)

6. Remarks and comments

N/A



7. Test Verdicts summary

7.1. 802.11 a/n/ac – U-NII-1

FCC part	Test name	Verdict
15.407 (a) (1)	Power Limits. Maximum output power	Р
15.407 (a) (1)	Peak power spectral density	Р
15.407 (b) (1) 15.209	Undesirable emissions limits: Band Edge (conducted)	Р
15.407 (b) (1) 15.209	Undesirable emissions limits (radiated)	Р

7.2. 802.11 a/n/ac – U-NII-2A

FCC part	Test name	Verdict
15.407 (a) (2)	Power Limits. Maximum output power	Р
15.407 (a) (2)	Peak power spectral density	Р
15.407 (b) (2) 15.209	Undesirable emissions limits: Band Edge (conducted)	Р
15.407 (b) (2) 15.209	Undesirable emissions limits (radiated)	Р

P: Pass F: Fail NM: Not Measured NA: Not Applicable

8. Document Revision History

Revision #	Date	Modified by	Details
Rev. 00	2016/10/28	I.Kharrat M.Lefebvre E. Garcia	First issue Radiated spurious emission section Radiated spurious emission section Conducted section



Annex A.Test & System Description

A.1 Test Conditions

For 802.11a mode the EUT can transmit at both CHAIN A and CHAIN B RF outputs individually, but not simultaneously.

For 802.11n20 (20 MHz channel bandwidth), 802.11n40 (40MHz channel bandwidth) and 802.11ac80 (80MHz channel bandwidth) modes the EUT can transmit at both CHAIN A and CHAIN B RF outputs individually, and also simultaneously.

The conducted RF output power at chain A was adjusted according to the client's supplied Target values (see following table) using the Intel DRTU tool and measuring the power by using a spectrum analyser with the channel integration method according to point II) E) 2) e) (Method SA-2 Alternative) of Guidance 789033 D02.

Measured values for adjustment were within +/- 0.25 dB from the declared Target values.

U-NII-1			Conducted Power, Target Value (dBm)				
Mode	BW (MHz)	Data Rate	CH #	Freq. (MHz)	SISO Chain A	SISO Chain B	MIMO at both ports A and B
			36	5180	19.0	19.0	-
802.11a	20	6Mbps	40	5200	21.0	20.0	-
			48	5240	19.5	20.5	-
		μтο	36	5180	18.5	19.0	17.0
	20	HT0 HT8*	40	5200	20.5	20.0	19.0
802.11n		1110	48	5240	19.5	20.5	19.0
	40	HT0	38F	5190	16.0	17.0	15.0
	40	HT8*	46F	5230	21.0	21.0	19.0
802.11ac	80	VHT0	42ac80	5210	15.0	14.5	13.0

U-NII-2A

U-INII-ZA			Conducted Power, Target Value (dBm)				
Mode	BW (MHz)	Data Rate	CH #	Freq. (MHz)	SISO Chain A	SISO Chain B	MIMO at both ports A and B
			52	5260	20.5	20.0	-
802.11a	20	6Mbps	56	5280	20.0	20.0	-
			64	5320	18.5	18.5	-
		HT0	52	5260	20.5	20.0	18.5
	20	HT8*	56	5280	19.0	20.0	18.5
802.11n		По	64	5320	18.5	18.5	15.0
	40	HT0	54F	5270	20.5	20.5	18.5
	40	HT8*	62F	5310	13.5	13.5	12.5
802.11ac	80	VHT0	58ac80	5290	13.0	12.5	11.0

The following data rates were selected based on preliminary testing that identified those rates as the worst cases for output power and spurious levels at the band edges:

802.11a → 6Mbps 802.11n20 and 802.11n40 (SISO) → HT0 802.11n20 and 802.11n40 (MIMO) → HT8 802.11ac80 (SISO) → VHT0 802.11ac80 (MIMO) → VHT0

Alternative channels to the lowest and highest channels per band have been also tested for Band Edge compliance.

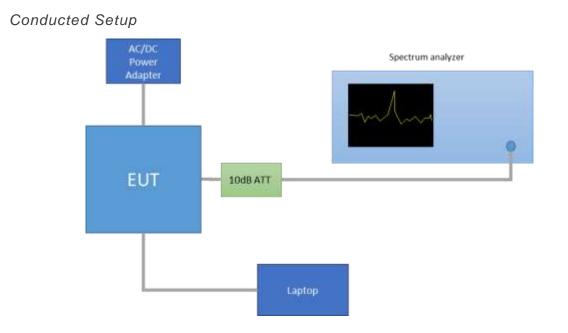
Conducted Power Target Value (dBm)



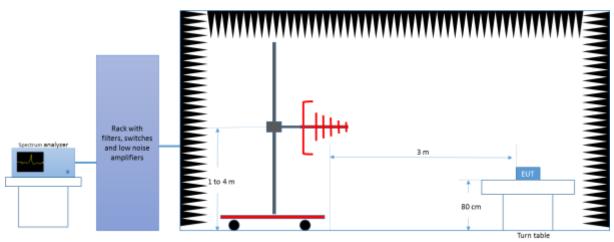
A.2 Measurement system

Measurements were performed using the following setups, made in accordance to the general provisions of FCC KDB 789033 D02 General UNII Test Procedures.

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, using the Intel proprietary tool DRTU.

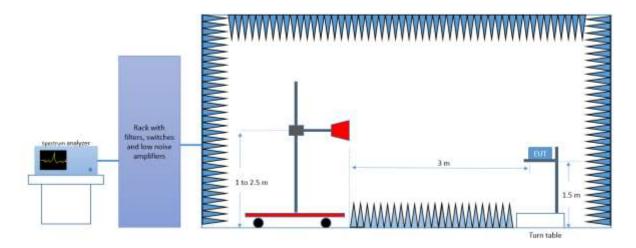




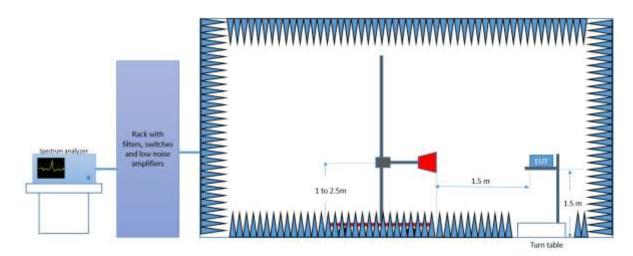




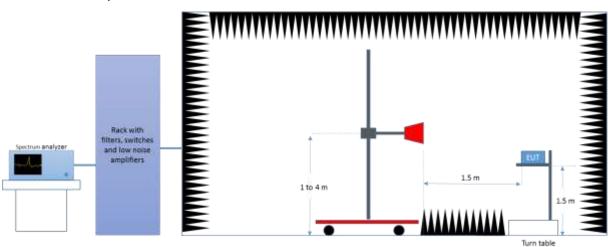
Radiated Setup 1 GHz - 18 GHz



Radiated Setup 18 GHz - 26.5 GHz







A.3 Test Equipment List

Conducted Setup

ID#	Device	Type/Model	Serial Number	Manufacturer	Cal. Date	Cal. Due Date
0316	Spectrum Analyser	FSV30	103309	Rohde & Schwarz	2015-03-20	2017-03-20

Radiated Setup

ID#	Device	Type/Model	Serial Number	Manufacturer	Cal. Date	Cal. Due Date
0420	Spectrum analyzer	FSV40	101556	Rohde & Schwarz	2016-04-15	2018-04-15
0133	Spectrum analyzer	FSV40	101358	Rohde & Schwarz	2016-04-15	2018-04-15
0137	Log antenna 30 MHz – 1 GHz	3142E	00156946	ETS Lindgren	2015-12-11	2017-12-11
0138	Horn antenna 1 GHz – 6.4 GHz	3117	00152266	ETS Lindgren	2016-03-14	2018-03-14
0248	Double Ridge Antenna with preamplifier 1 GHz – 18 GHz	3117	00167062	ETS Lindgren	2016-07-26	2018-07-26
0141	Double Ridge Horn Antenna 1 GHz – 18 GHz	3117	00157736	ETS Lindgren	2016-04-13	2018-04-13
0409	PreAmplifier	3117-PA	00157993	ETS Lindgren	N/A	N/A
0139	Horn Antenna 18 GHz - 26.5 GHz	114514	00167100	ETS Lindgren	2016-03-16	2018-03-16
0140	Horn Antenna 26.5 GHz – 40 GHz	120722	00169638	ETS Lindgren	2016-07-26	2018-07-26
0135	Semi Anechoic chamber	FACT 3	5720	ETS Lindgren	2016-04-28	2018-04-28
0337	Full Anechoic chamber	RFD_FA_100	5996	ETS Lindgren	2016-04-28	2018-04-28
0329	Measurement Software	EMC32	100401	Rohde & Schwarz	N/A	N/A
0530	Measurement Software	EMC32	100623	Rohde & Schwarz	N/A	N/A
0296	Power Supply	6673A	MY41000318	Agilent	N/A	N/A
0346	Multimeter	34401A	US36054685	HP	2016-02-04	2018-02-04
0038	Power Meter	ML2487B	952010	ANRITSU	2015-09-24	2017-09-24



A.4 Measurement Uncertainty Evaluation

The system uncertainty evaluation is shown in the below table:

Measurement type	Uncertainty [±dB]
Conducted Power	±1.0
Conducted Spurious Emission	±2.9
Radiated tests <1GHz	±3.8
Radiated tests 1GHz - 40 GHz	±4.7

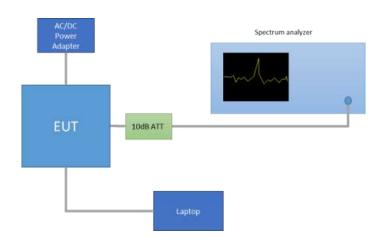


Annex B.Test Results UNII-1

B.1 26dB & 99% Bandwidth

Test procedure

The setup below was used to measure the 26dB & 99% Bandwidth. The antenna terminal of the EUT is connected to the spectrum analyzer through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



Results tables

Mode	Rate	Antenna	Channel	Frequency [MHz]	26dB BW [MHz]	99% BW [MHz]
			36	5180	27.70	17.24
		SISO CHAIN A	40	5200	31.90	20.16
802.11a	6 Mbno		48	5240	27.80	18.16
002.11a	6Mbps		36	5180	27.15	17.04
		SISO CHAIN B	40	5200	30.30	19.00
			48	5240	32.30	20.20
			36	5180	27.25	18.04
		SISO CHAIN A	40	5200	32.30	20.28
802.11n20	нто		48	5240	27.80	18.16
002.111120	піо		36	5180	27.70	18.08
		SISO CHAIN B	40	5200	32.45	19.80
			48	5240	34.50	20.68
			36	5180	25.05	17.80
		MIMO CHAIN A	40	5200	28.55	18.24
802.11n20	ЦΤο		48	5240	28.95	18.20
ouz.11n20	HT8		36	5180	24.40	17.76
		MIMO CHAIN B	40	5200	24.70	17.92
			48	5240	25.75	17.88

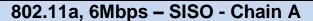


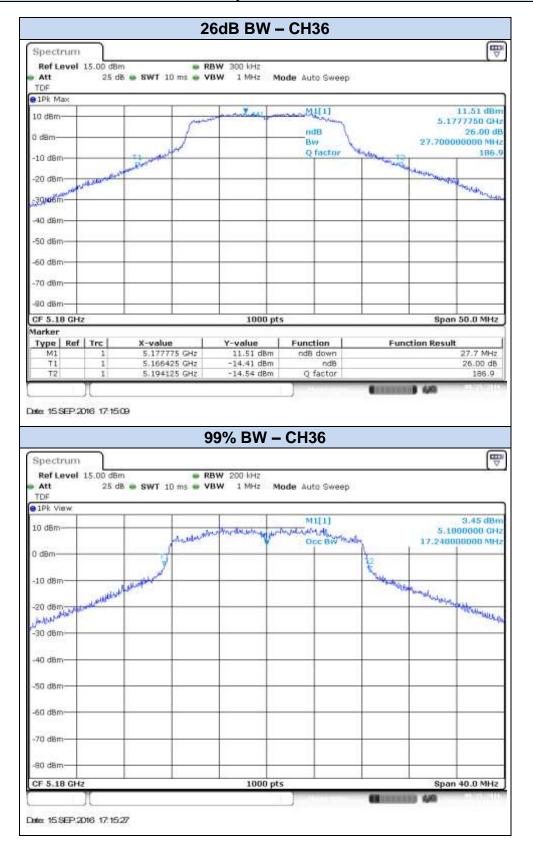
Mode	Rate	Antenna	Channel	Frequency [MHz]	26dB BW [MHz]	99% BW [MHz]
		SISO CHAIN A	38F	5190	46.44	36.40
	НТО	SISO CHAIN A	46F	5230	67.23	40.80
	піо	SISO CHAIN B	38F	5190	46.62	36.40
802 11-10		SISO CHAIN B	46F	5230	59.76	38.00
802.11n40		MIMO CHAIN A	38F	5190	46.17	36.32
	цтο		46F	5230	49.32	36.72
	HT8		38F	5190	43.74	36.08
		MIMO CHAIN B	46F	5230	45.45	36.24
		SISO CHAIN A	42ac80	5210	85.69	75.00
902 11 2000	VHT0	SISO CHAIN B	42ac80	5210	85.12	74.88
802.11ac80		MIMO CHAIN A	42ac80	5210	86.07	75.00
	VHT0	MIMO CHAIN B	42ac80	5210	84.74	74.88

Max Value



Results screenshot

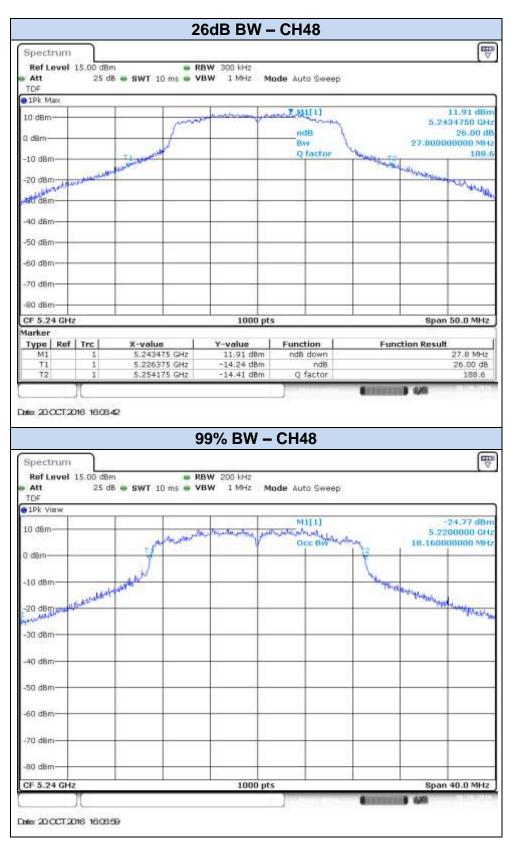






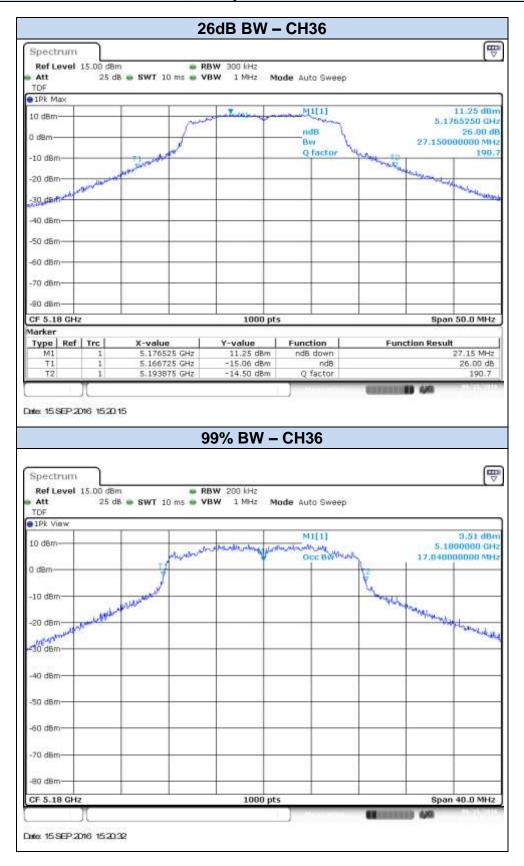
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e 15 SEP 2 pectrum Ref Level Att O dBm dBm dBm dBm dBm dBm dBm dBm) 016 17:20: 15:00 dBn 25 di	₽ 3 ● SWT 10	9 	9% BW -	- CH40 Mode Auto Sw	eep		5.1	-19,50 dt 800000 C 000000 M
e 15 SEP 2 pectrum Ref Level Att O dBm dBm dBm dBm dBm dBm dBm dBm) 016 17:20: 15:00 dBn 25 di	₽ 3 ● SWT 10	9 	9% BW -	- CH40 Mode Auto Sw Occ Bw	eep		5.1 20.160	-19,50 dt 800000 G



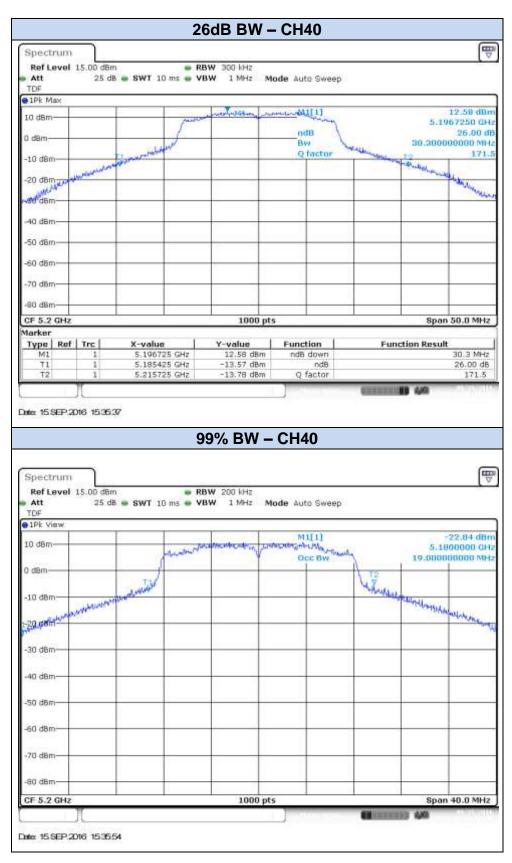




802.11a, 6Mbps – SISO - Chain B





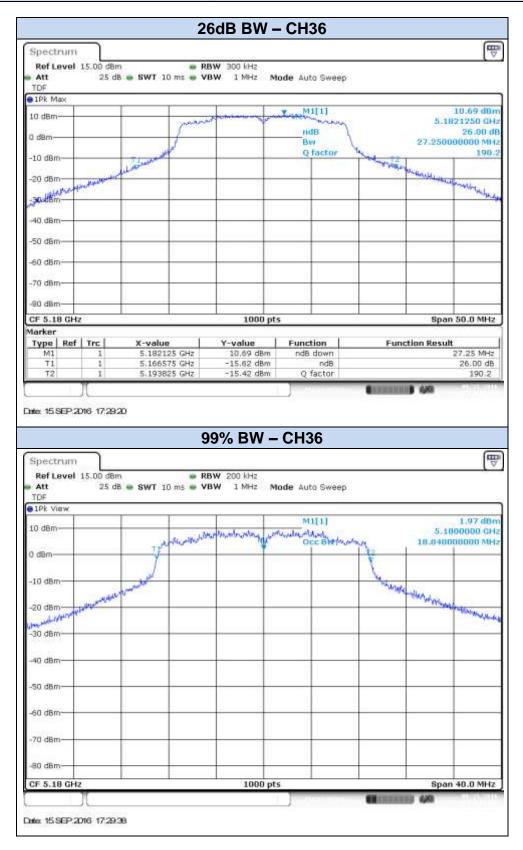








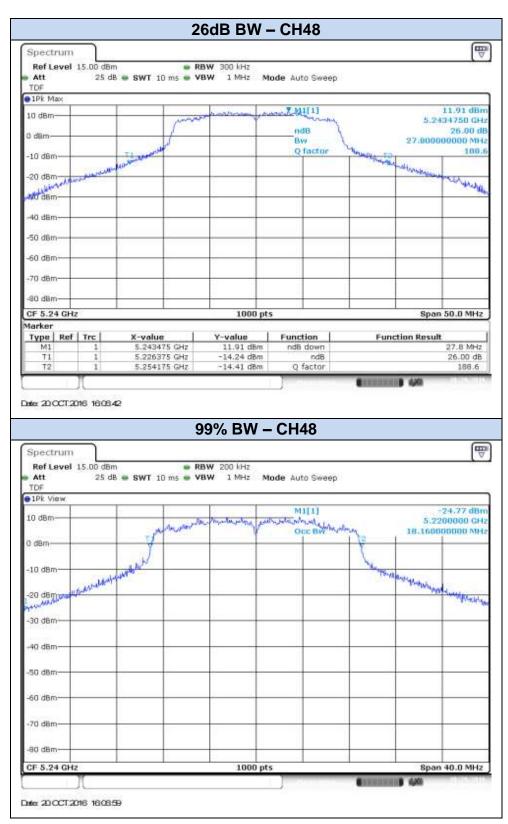
802.11n20, HT0 - SISO - Chain A





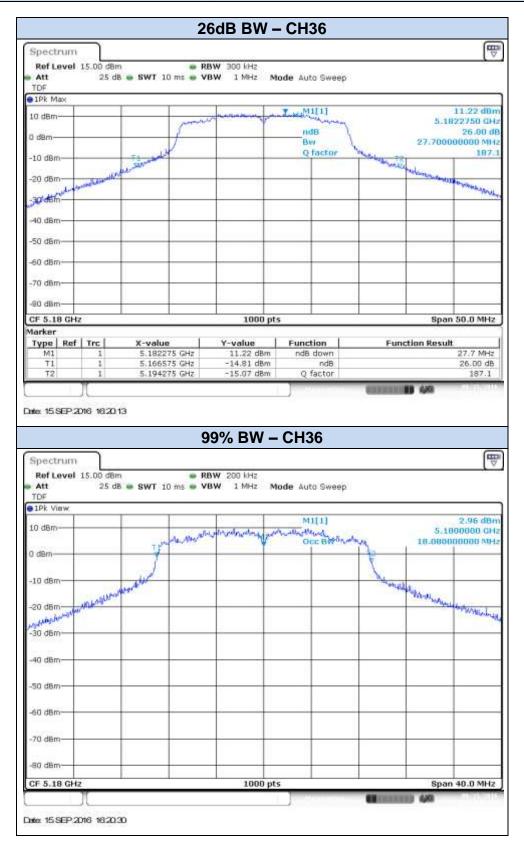
				6dB BW				
Spectrum								E
Ref Level				BW 300 kHz				100
TDF	25.0	s - swi it	J ms 🖝 VI	BW 1 MHZ P	Node Auto Sweep			
1Pk Max								
10 dBm			and the second	- survey	malalill		13.1 5.20352	to dB
) dBm			8		ndB	1	26	5.00 d
J dam	20		4	10 - N	Bw	Charles and	32,3000000	00 MI
-10 dBm	الم المع الله ال	- Aller			Q factor	and a state	and Walder	161
20 dBalland	protection of the	- Mariana Maria				_	32.3000000	Red of
					Q.	1		
30 dBm-								
-40.d8m		-	-					
50 d8m		-				_		
60 dBm								
70 dBm-				+ +				
90 dBm						_		
CF 5.2 GHz				1000 p	ts		Span 50.	0 MH
larker								-
Type Ref M1	Trc 1	X-value 5.20353		Y-value 13.10 dBm	Function ndB down	Fun	ction Result	5.14.1
T1	1	5,18422		-12.98 dBm	ndB			3 MH:
T2	1	5.21652	2E CH2	-13.01 dBm	Q factor			161.1
te 15SEP.2	π			9% BW -	- CH40		10 449	
tte 15SEP.2 Spectrum	π				- CH40		ii) éa	P
Spectrum Ref Level) 016 17:38 15:00 dBr	24 n	9 • RI	9% BW -			II da	٩
Spectrum Ref Level Att) 016 17:38 15:00 dBr	24 n	9 • RI	9% BW -	- CH40 Mode Auto Sweep		II da	(R
Spectrum Ref Level Att TDF) 016 17:38 15:00 dBr	24 n	9 • RI	9% BW -	fode Auto Sweep		ED 498	[P
Spectrum Ref Level Att TDF 1Pk View) 016 17:38 15:00 dBr	24 n B ⇔ SWT 10	9 	9% BW -	fode Auto Sweep			29 dB
Spectrum Ref Level Att TDF 1Pk View) 016 17:38 15:00 dBr	24 n B ⇔ SWT 10	9 • RI	9% BW -			-20.5 5.18000 20.2800000	29 dB
Spectrum Ref Level Att TDF 1Pk View 10 dBm)() 016 17:38 15:00 dBr 25 d	24 n B = SWT 10	9 	9% BW -	Node Auto Sweep	wy	5.18000	00 GI 29 dB 29 dB
Spectrum Ref Level Att TDF 1Pk View 10 dBm)() 016 17:38 15:00 dBr 25 d	24 n B = SWT 10	9 	9% BW -	Node Auto Sweep	wy	5.18000	00 GI 29 dB 29 dB
Spectrum Ref Level Att TDF 1Pk View 10 dBm)() 016 17:38 15:00 dBr 25 d	24 n B = SWT 10	9 	9% BW -	Node Auto Sweep	wy	5.18000	00 GI 29 dB 29 dB
Spectrum Ref Level Att TDF 1Pk View 0 dBm)() 016 17:38 15:00 dBr 25 d	24 n B = SWT 10	9 	9% BW -	Node Auto Sweep	wy	5.18000	00 GI 29 dB 29 dB
Spectrum Ref Level Att TDF 1Pk View 0 dBm)() 016 17:38 15:00 dBr 25 d	24 n B = SWT 10	9 	9% BW -	Node Auto Sweep	wy	5.18000	00 GI 29 dB 29 dB
Spectrum Ref Level Att TDF 1Pk View 10 dBm 10 dBm 10 dBm)() 016 17:38 15:00 dBr 25 d	24 n B = SWT 10	9 	9% BW -	Node Auto Sweep	wy	5.18000	00 GI 29 dB 29 dB
Spectrum Ref Level Att TDF 1Pk View 10 dBm 10 dBm 20 dBm 30 dBm)() 016 17:38 15:00 dBr 25 d	24 n B = SWT 10	9 	9% BW -	Node Auto Sweep	wy	5.18000	00 GI 29 dB 29 dB
Spectrum Ref Level Att TDF 1Pk View 10 dBm 10 dBm 20 dBm 30 dBm)() 016 17:38 15:00 dBr 25 d	24 n B = SWT 10	9 	9% BW -	Node Auto Sweep	wy	5.18000	00 GI 29 dB 29 dB
Spectrum Ref Level Att TDF 1Pk View 10 dBm 10 dBm 20 dBm 30 dBm 40 dBm)() 016 17:38 15:00 dBr 25 d	24 n B = SWT 10	9 	9% BW -	Node Auto Sweep	wy	5.18000	00 GI 29 dB 29 dB
Spectrum Ref Level Att TDF 1Pk View 10 dBm 10 dBm 20 dBm 30 dBm 40 dBm)() 016 17:38 15:00 dBr 25 d	24 n B = SWT 10	9 	9% BW -	Node Auto Sweep	wy	5.18000	00 GI 29 dB 29 dB
Spectrum Ref Level Att TDF 1Pk View 10 dBm 10 dBm 10 dBm 30 dBm 30 dBm 30 dBm 50 dBm)() 016 17:38 15:00 dBr 25 d	24 n B = SWT 10	9 	9% BW -	Node Auto Sweep	wy	5.18000	29 dB 00 GF 00 NB
Spectrum Ref Level Att TDF 1Pk View 10 dBm 10 dBm 10 dBm 30 dBm 30 dBm 40 dBm 50 dBm 60 dBm)() 016 17:38 15:00 dBr 25 d	24 n B = SWT 10	9 	9% BW -	Node Auto Sweep	wy	5.18000	29 dB 00 GF 00 NB
Spectrum Ref Level)() 016 17:38 15:00 dBr 25 d	24 n B = SWT 10	9 	9% BW -	Node Auto Sweep	wy	5.18000	29 dB 00 GF 00 MF
Spectrum Ref Level Att TDF 1Pk View 10 dBm 10 dBm 10 dBm 20 dBm 30 dBm 40 dBm 40 dBm 50 dBm 50 dBm 60 dBm)() 016 17:38 15:00 dBr 25 d	24 n B = SWT 10	9 	9% BW -	Node Auto Sweep	wy	5.18000	DE MI
Spectrum Ref Level Att TDF 1Pk View 0 dBm 10 dBm 10 dBm 30 dBm 30 dBm 40 dBm 40 dBm 40 dBm)() 016 17:38 15:00 dBr 25 d	24 n B = SWT 10	9 	9% BW -	Mode Auto Sweep	wy	5.18000	29 dB



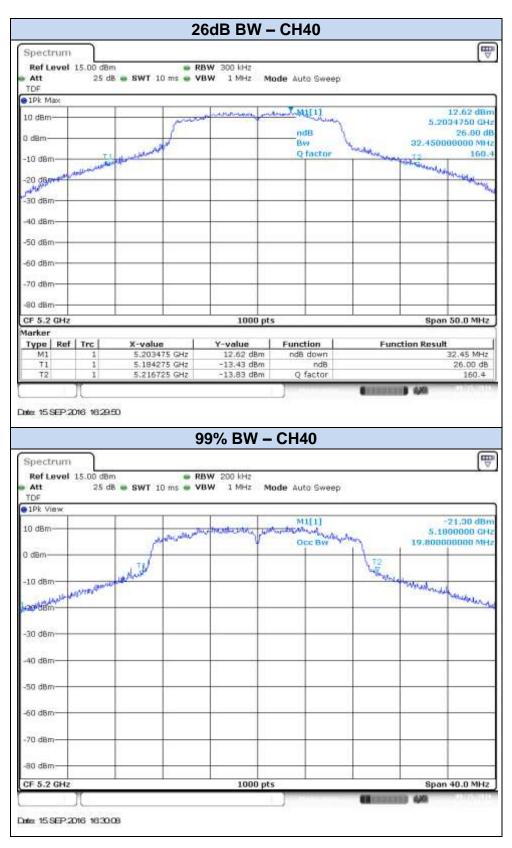




802.11n20, HT0 - SISO - Chain B





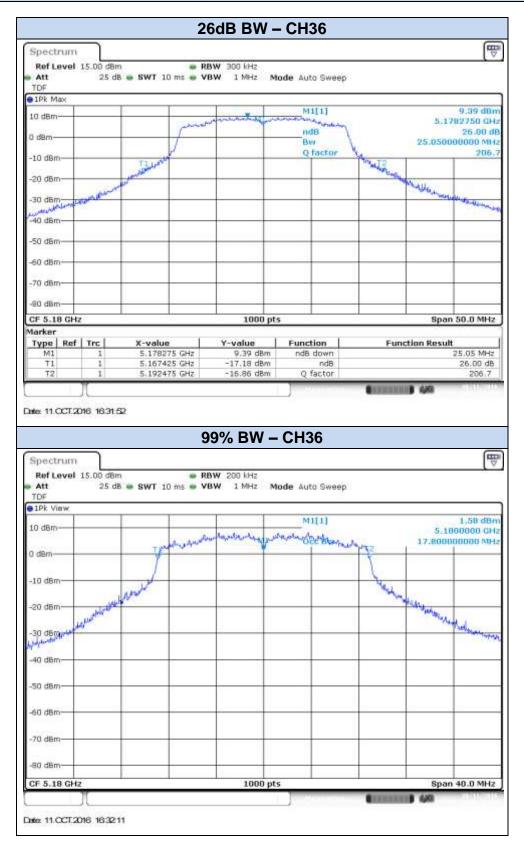




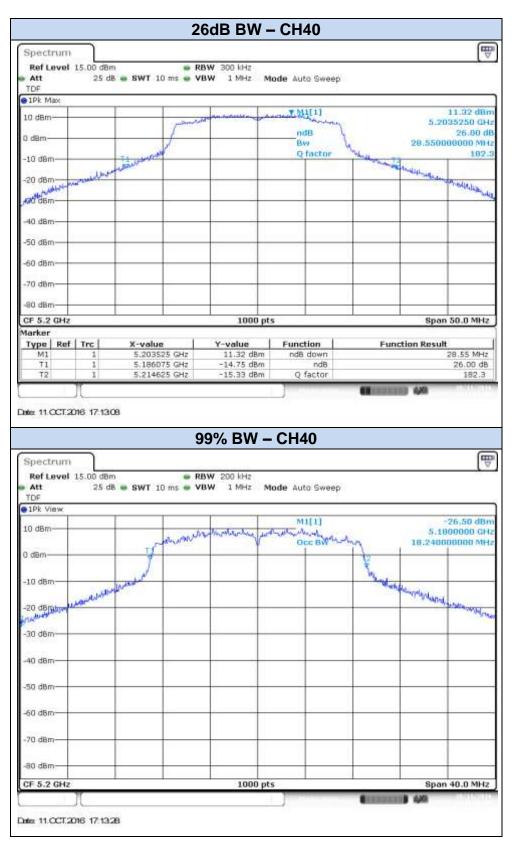
			26dB BW -	- 6840		
Spectrum		_				Q
Ref Level Att			RBW 300 kHz VBW 1 MHz M	nde Auto Swaan		
TDF			Ton 1 min p	dae Hats Sweep		
1Pk Max						12.89 dB
LO dBm		jan jan	marinan n	dimension [1]		5.2434250 G
) dBm		1		ndB	L.	26.00 (34.50000000 Mi
10 40 m	T1	andread		Q factor	manner	152 152
10 080	and a starting to	and a start of the				34.50000000 Mi 34.50000000 Mi 12 152
29 demi						and the second states
30 dBm						
40 d8m-						
40.0011						
50 dBm					-	
50 dBm			_		_	
70 dBm-				1		
80 dBm					-	
F 5.24 GHz	e -		1000 pt	s		Span 50.0 MH
arker Type Ref	Tec	X-value	Y-value	Function	Euro	ction Result
M1	1	5.243425 GHz	12.89 dBm	ndB down	. un	34.5 MH
T1 T2	1	5.222975 GHz 5.257475 GHz	-13.25 dBm -13.37 dBm	ndB O factor		26.00 d 152.0
te 15 SEP:2)[016 18:33		99% BW -	CH48		10 4AR
to 15SEP.2 Spectrum)[016 1638		99% BW -	CH48		1
Spectrum Ref Level	15.00 d8r	24 n •	RBW 200 kHz			(E
špectrum Ref Level Att	15.00 d8r	24	RBW 200 kHz	CH48		(10) (10)
Spectrum Ref Level Att IDF	15.00 d8r	24 n •	RBW 200 kHz			
Spectrum Ref Level Att IDF 1Pk View	15.00 d8r	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	ode Auto Sweep		-18.97 dB
ipectrum Ref Level Att IDF 1Pk View	15.00 d8r	24 n B • SWT 10 ms •	RBW 200 kHz	ode Auto Sweep	• HHH	-18.97 de 5.2200000 G
Pectrum Ref Level Att IPk View 0 dBm	15.00 dBr 25 d	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	MI[1]	1	-18.97 de 5.2200000 G 20.68000000 M
Pectrum Ref Level Att IPk View 0 dBm	15.00 dBr 25 d	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	MI[1]	1	-18.97 de 5.2200000 G 20.68000000 M
Spectrum Ref Level Att TDF 1Pk View 0 dBm	15.00 dBr 25 d	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	MI[1]	1	-18.97 de 5.2200000 G 20.68000000 M
Pectrum Ref Level Att IPk View 0 dBm	15.00 dBr 25 d	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	MI[1]	1	-18.97 de 5.2200000 G 20.68000000 M
Pectrum Ref Level Att IPk View 0 dBm	15.00 dBr 25 d	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	MI[1]	1	-18.97 de 5.2200000 G 20.68000000 M
ipectrum Ref Level Att DF IPk View 0 dBm dBm dBm dBm dBm dBm	15.00 dBr 25 d	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	MI[1]	1	-18.97 de 5.2200000 G 20.68000000 M
ipectrum Ref Level Att IDF IPk View 0 dBm dBm dBm 0 dBm 0 dBm 10 dBm 10 dBm	15.00 dBr 25 d	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	MI[1]	1	-18.97 de 5.2200000 G 20.68000000 M
ipectrum Ref Level Att IDF IPk View 0 dBm dBm dBm 0 dBm 0 dBm 10 dBm 10 dBm	15.00 dBr 25 d	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	MI[1]	1	-18.97 de 5.2200000 G 20.68000000 M
ipectrum Ref Level Att DF IPk View 0 dBm dBm dBm 0 dBm 0 dBm 10 dBm 10 dBm	15.00 dBr 25 d	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	MI[1]	1	-18.97 de 5.2200000 G 20.68000000 M
ipectrum Ref Level Att DF IPk View 0 dBm dBm dBm 0 dBm 0 dBm 10 dBm 10 dBm	15.00 dBr 25 d	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	MI[1]	1	-18.97 de 5.2200000 G 20.68000000 M
ipectrum Ref Level Att IPk View 0 dBm dBm dBm 0 dBm 10 dBm 10 dBm 10 dBm 10 dBm	15.00 dBr 25 d	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	MI[1]	1	-18.97 de 5.2200000 G 20.68000000 M
Epectrum Ref Level Att TDF DF DF DF DF DF DF DF DF DF	15.00 dBr 25 d	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	MI[1]	1	-18.97 dB 5.2200000 G 20.68000000 M
Epectrum Ref Level Att TDF DF DF DF DF DF DF DF DF DF	15.00 dBr 25 d	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	MI[1]	1	-18.97 de 5.2200000 G 20.68000000 M
Spectrum Ref Level Att TDF DF DF DF DF DF DF DF DF DF DF DF DF D	15.00 dBr 25 d	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	MI[1]	1	-18.97 dB 5.2200000 G 20.68000000 M
Spectrum	15.00 dBr 25 d	24 n B • SWT 10 ms •	RBW 200 kHz VBW 1 MHz M	Accellent Auto Sweep	1	-10.97 dB 5.220000 G 20.68000000 M 4440004444444444444444444444444



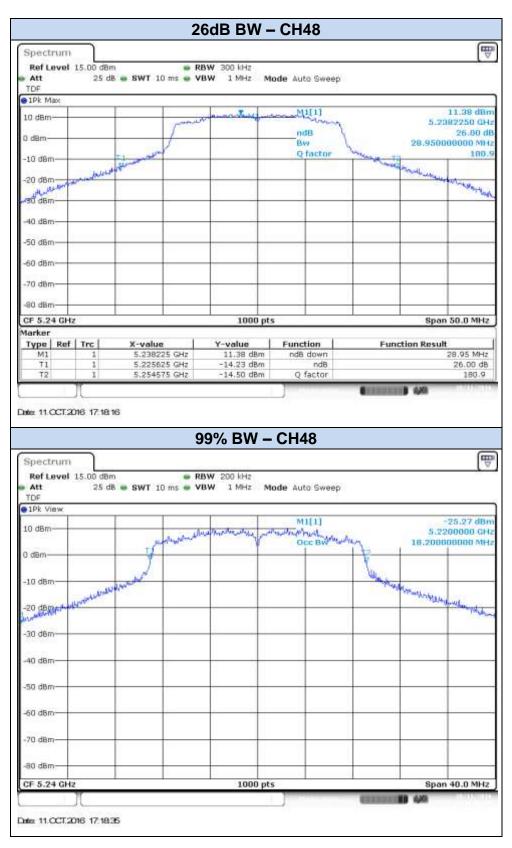
802.11n20, HT0 - MIMO - Chain A





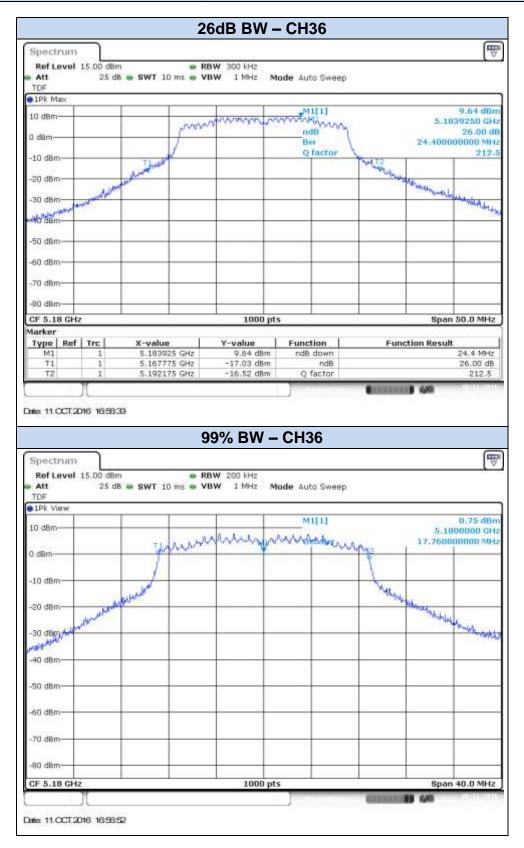




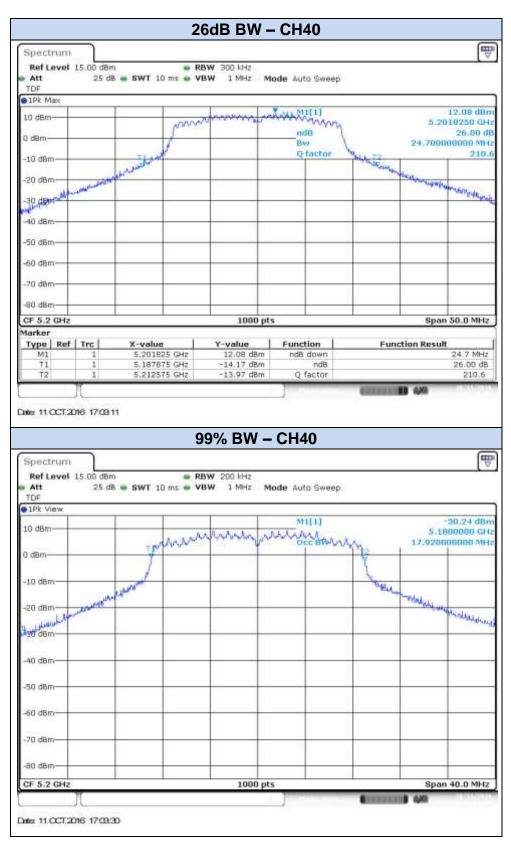




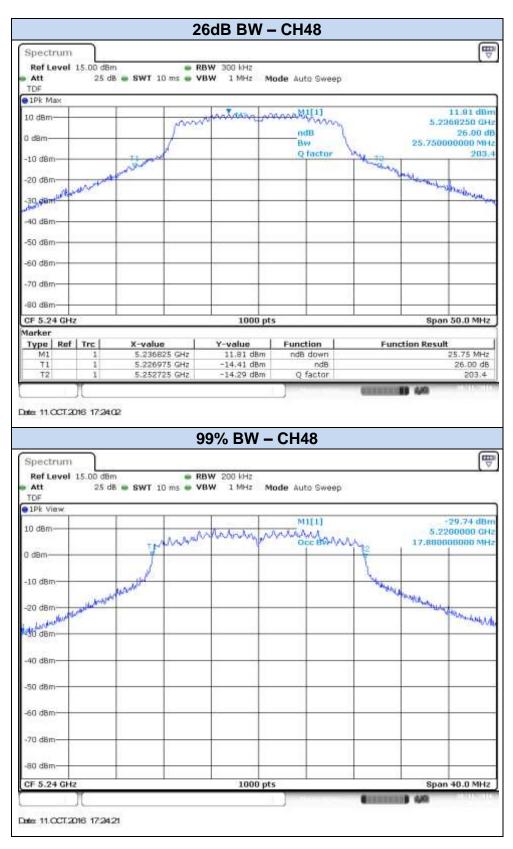
802.11n20, HT0 - MIMO - Chain B













802.11n40, HT0 - SISO - Chain A





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Spectrum	L					[¹
Ref Level Att		n B 🖶 SWT 10 ms 🖷	RBW 500 kHz	nde Auto Sween		
TDF		o o o o o o o o o o o o o o o o o o o	TOTO A MELLEN M	one Horo sweep		
1Pk Max						
10 dBm		in		- Lamuella	~	12.24 dB 5.2347250 G
) d8m		1		ndB	1	26.00 (
		and and		Bw Q factor	Lamas	67.230000000 MI
10 dBm	mound	-				- when the
and matrices					-	
30 dBm-						
115-5-392550						
40 d8m						
50 dBm						
60 dBm						
902-021						
70 dBm						
80 dBm				1	-	
CF 5.23 GHz	e		1000 pt	s		Span 90.0 MH
tarker	14.1	and the second second	1920.004.005	- more average de	12000	
Type Ref M1	1	X-value 5.234725 GHz	Y-value 12.24 dBm	Function ndB down	Fund	tion Result 67.23 MH
T1	1	5.198545 GHz	-13.86 dBm	ndB		26.00 dt
T2		5.265775 GHz	-14.02 dBm	Q factor		77.9
	1	69	99% BW -			i) 40
te 158P2 Spectrum	π	69				
te 15 SEP 2 Spectrum Ref Level) 016 17:58 15:00 dBr	69 C	99% BW -	CH46F		i) 40
ter 15SEP 2 Spectrum Ref Level Att) 016 17:58 15:00 dBr	99 (99% BW -	CH46F		i) 40
for 15 SEP.2 Spectrum Ref Level Att TDF) 016 17:58 15:00 dBr	69 C	99% BW -	CH46F	G ENDER	i) 40
te 15SEP.2 Spectrum Ref Level Att TDF 1Pk View) 016 17:58 15:00 dBr	69 C	99% BW -	CH46F		-17.70 dB
te 15SEP.2 Spectrum Ref Level Att TDF 1Pk View) 016 17:58 15:00 dBr	69 C	99% BW -	CH46F ode Auto Sweep	••••••••••••••••••••••••••••••••••••••	-17.70 dB 5.1900000 G
tter 15 SEP.2 Spectrum Ref Level Att TDF 1Pk View 10 dBm) 016 17:58 15:00 dBr	69 C	99% BW -	CH46F ode Auto Sweep		-17.70 dB 5.1900000 CH 40.80000000 M
tte 15SEP.2 Spectrum Ref Level Att TDF 1Pk View 10 dBm- 0 dBm-) 016 17:58 15:00 dBr	69 C	99% BW -	CH46F ode Auto Sweep		-17.70 dB 5.1900000 M
ter 15 SEP 2 Spectrum Ref Level Att TDF 10 dBm 10 dBm)() 016 17:68 15:00 dBr 25 d	69 C	99% BW -	CH46F ode Auto Sweep		-17,70 dB 5.1900000 G 40.80000000 MR
te 15 SEP.2 Spectrum Ref Level Att TDF IPk View 10 dBm 10 dBm MMM) 016 17:58 15:00 dBr	69 C	99% BW -	CH46F ode Auto Sweep		-17,70 dB 5.1900000 G 40.80000000 MR
te 15 SEP.2 Spectrum Ref Level Att TDF IPk View 10 dBm 10 dBm 10 dBm)() 016 17:68 15:00 dBr 25 d	69 C	99% BW -	CH46F ode Auto Sweep		-17.70 dB 5.1900000 GP 40.80000000 MP
for 15 SEP 2 Spectrum Ref Level Att TDF 10 dBm 10 dBm 20 dBm 20 dBm)() 016 17:68 15:00 dBr 25 d	69 C	99% BW -	CH46F ode Auto Sweep		-17,70 dB 5.1900000 G 40.80000000 MR
te 15 SEP 2 Spectrum Ref Level Att TDF 10 dBm 10 dBm 20 dBm 20 dBm)() 016 17:68 15:00 dBr 25 d	69 C	99% BW -	CH46F ode Auto Sweep		-17,70 dB 5.1900000 G 40.80000000 MR
ter 15 SEP 2 Spectrum Ref Level Att TDF 10 dBm 10 dBm 20 dBm 30 d6m)() 016 17:68 15:00 dBr 25 d	69 C	99% BW -	CH46F ode Auto Sweep		-17,70 dB 5.1900000 G 40.80000000 MR
for 15 SEP 2 Spectrum Ref Level Att TDF 10 dBm 10 dBm 20 dBm 30 dBm 40 dBm)() 016 17:68 15:00 dBr 25 d	69 C	99% BW -	CH46F ode Auto Sweep		-17,70 dB 5.1900000 G 40.80000000 MR
for 15 SEP 2 Spectrum Ref Level Att TDF 10 dBm 10 dBm 20 dBm 30 dBm 40 dBm)() 016 17:68 15:00 dBr 25 d	69 C	99% BW -	CH46F ode Auto Sweep		-17,70 dB 5.1900000 G 40.80000000 MR
ter 15 SEP 2 Spectrum Ref Level Att TDF 1Pk View 10 dBm 10 dBm 20 dBm 30 dBm 40 dBm 50 dBm)() 016 17:68 15:00 dBr 25 d	69 C	99% BW -	CH46F ode Auto Sweep		-17,70 dB 5.1900000 G 40.80000000 MR
ter 15 SEP 2 Spectrum Ref Level Att TDF 1Pk View 10 dBm 10 dBm 20 dBm 30 dBm 40 dBm 50 dBm)() 016 17:68 15:00 dBr 25 d	69 C	99% BW -	CH46F ode Auto Sweep		-17.70 dB 5.1900000 GP 40.80000000 MP
te 15 SEP 2 Spectrum Ref Level Att TDF 1Pk View 10 dBm 10 dBm 20 dBm 30 dBm 40 dBm 50 dBm 60 dBm)() 016 17:68 15:00 dBr 25 d	69 C	99% BW -	CH46F ode Auto Sweep		-17.70 dB 5.1900000 M
te 15 SEP 2 Spectrum Ref Level Att TDF 1Pk View 10 dBm 10 dBm 20 dBm 30 dBm 40 dBm 50 dBm 60 dBm)() 016 17:68 15:00 dBr 25 d	69 C	99% BW -	CH46F ode Auto Sweep		-17.70 dB 5.1900000 GP 40.80000000 MP
te 15 SEP 2 Spectrum Ref Level Att TDF 10 dBm- 10 dBm- 10 dBm-)() 016 17:68 15:00 dBr 25 d	69 C	99% BW -	CH46F ode Auto Sweep		-17.70 dB 5.1900000 GP 40.80000000 MP
te 15 SEP 2 Spectrum Ref Level Att TDF 1Pk View 10 dBm 10 dBm 20 dBm 30 dBm 40 dBm 50 dBm 50 dBm 70 dBm)() 016 17:58 15:00 dBr 25 d	69 C	99% BW -	CH46F		-17.70 dB 5.1900000 GP 40.80000000 MP



802.11n40, HT0 - SISO - Chain B





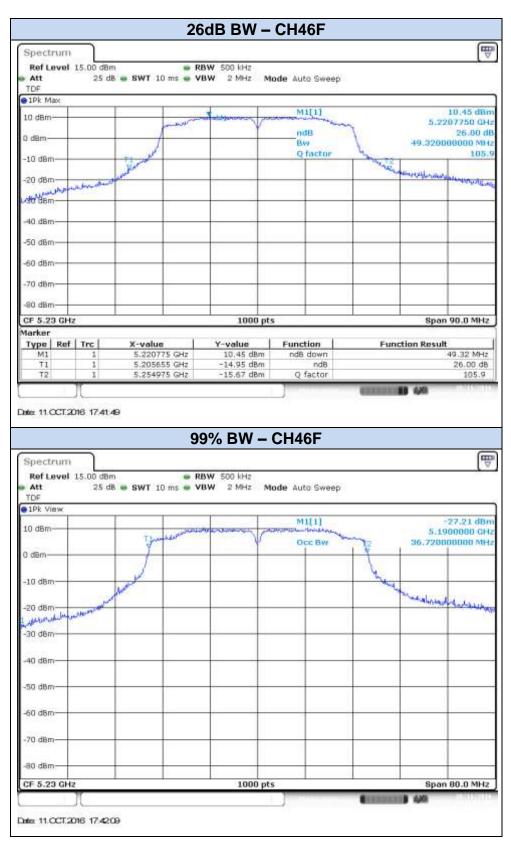
	_						1
Spectrum Ref Level	15 00 dBa		- 01	W 500 kHz			
Att					tode Auto Swee	p	
TDF)	
1Pk Max		1			MILL		12.50 0
0 dBm		1.11		-		inen	5.2408450
d8m-		(ndB		26.00 59.760000000
10 dBm		and and			Q factor	have	70 1
	www	e man			-		margino more
so dam	22.6 0.8.						
10 dBm							
12-5332330							
10 d8m							
50 dBm		-				_	
i0 dBm							
70 dBm							+ +
0 dBm				· ·	0		
F 5.23 GHz				1000 p	-		Span 90.0 M
arker				1000 p	ls .		span 90.0 M
ype Ref	Trc	X-value		Y-value	Function	Fu	nction Result
M1 T1	1	5.2408 5.2030		12.50 dBm -13.54 dBm	ndB down ndB		59.76 M 26.00
T2	1	5.2030		-13.54 dBm	Q factor		20.00
te 15.5EP.2	I.	20		9% BW –	CH46F		an) ee
te 15SEP.2 ipectrum)()16 1843:	33	9(CH46F		
ipectrum Ref Level Att)()16 1843:	33 n	99 • RE	3W 500 kHz	CH46F	P	an) 40
e 15 SEP 2 pectrum Ref Level Att)()16 1843:	33 n	99 • RE	3W 500 kHz		p	
e 15 SEP.2 Spectrum Ref Level Att IDF IPk View)()16 1843:	33 n	99 • RE	3W 500 kHz	NILL	ý.	-18.75 6
∞ 15SEP.2 ipectrum Ref Level Att IPF View)()16 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	p mm	-18,75 c 5,190000
∞ 15SEP.2 pectrum Ref Level Att DF IPk View 0 dBm)()16 1843:	33 n	99 • RE	3W 500 kHz	NILL	ý.	
∞ 15SEP.2 pectrum Ref Level Att DF IPk View 0 dBm)()16 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	ý.	5.1900000
∞ 15SEP.2 pectrum Ref Level Att DF IPk View 0 dBm dBm)()16 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	ý.	5.1900000
e 15 SEP 2 pectrum Ref Level Att DF IPk View 0 dBm 0 dBm)()16 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	ý.	5.1900000
α 15 SEP 2 pectrum Ref Level Att DF IPk View 0 dBm dBm 0 dBm	Die 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	ý.	5.1900000
e 15 SEP 2 pectrum Ref Level Att DF IPk View 0 dBm dBm dBm	Die 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	ý.	5.1900000
e 15 SEP 2 pectrum Ref Level Att DF 1Pk View 0 dBm dBm 0 dBm 0 dBm	Die 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	ý.	5.1900000
e 15 SEP 2 pectrum Ref Level Att DF 1Pk View 0 dBm dBm dBm dBm dBm dBm	Die 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	ý.	5.1900000
e 15 SEP 2 pectrum Ref Level Att DF IPk View D dBm dBm 0 dBm 0 dBm 0 dBm	Die 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	ý.	5.1900000
e 15 SEP 2 pectrum Ref Level Att DF IPk View 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm	Die 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	ý.	5.1900000
e 15 SEP 2 pectrum Ref Level Att DF IPk View D dBm dBm 0 dBm 0 dBm 0 dBm	Die 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	ý.	5.1900000
e 15 SEP 2 pectrum Ref Level Att O dBm dBm dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm	Die 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	ý.	5.1900000
e 15 SEP 2 pectrum Ref Level Att DF IPk View D dBm dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm	Die 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	ý.	5.1900000
e 15 SEP 2 pectrum Ref Level Att O dBm dBm dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm	Die 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	ý.	5.1900000
e 15 SEP 2 pectrum Ref Level Att 1Pk View 0 dBm dBm 0 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm	Die 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	ý.	5.1900000
e 15 SEP 2 pectrum Ref Level Att 1Pk View 0 dBm dBm 0 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm 10 dBm	Die 1843:	33 n	99 • RE	3W 500 kHz	Node Auto Swee	ý.	5.1900000
ipectrum Ref Level Att IPk View dBm 10 dBm	715.00 dBn	33 n	99 • RE	3W 500 kHz	Aode Auto Swee	ý.	5.1900000



802.11n40, HT0 - MIMO - Chain A









802.11n40, HT0 - MIMO - Chain B

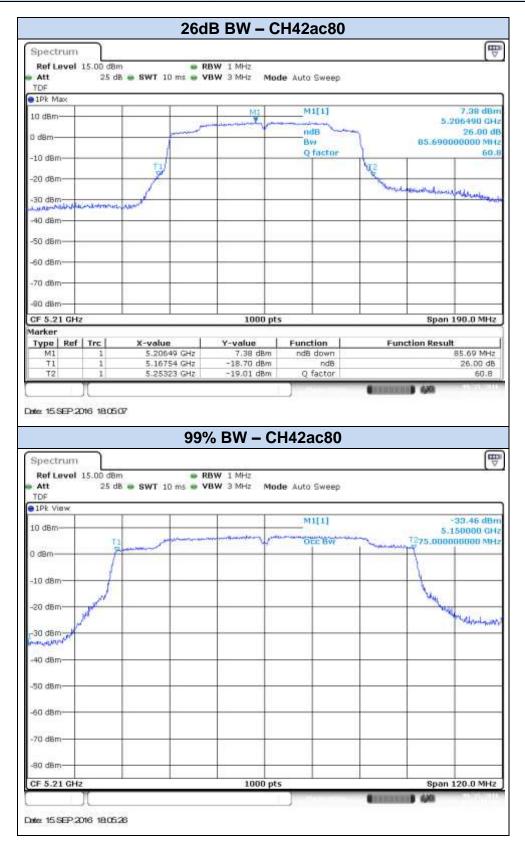








802.11ac80, VHT0 - SISO - Chain A



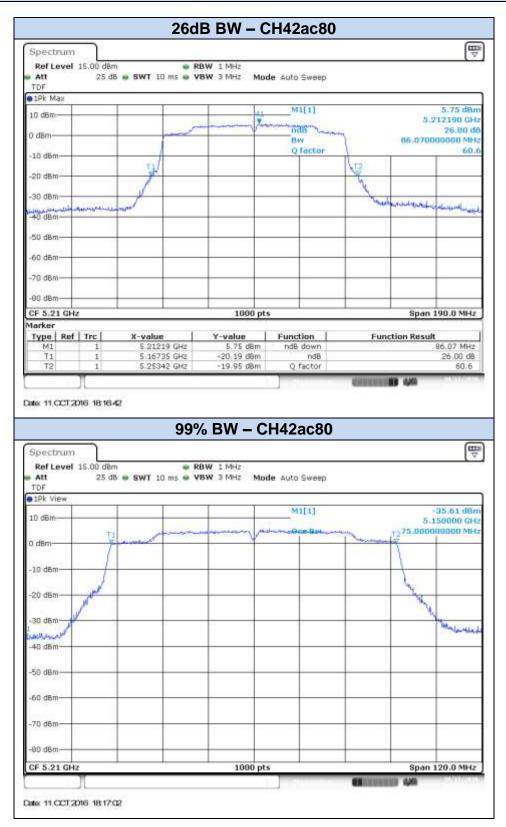


802.11ac80, VHT0 - SISO - Chain B



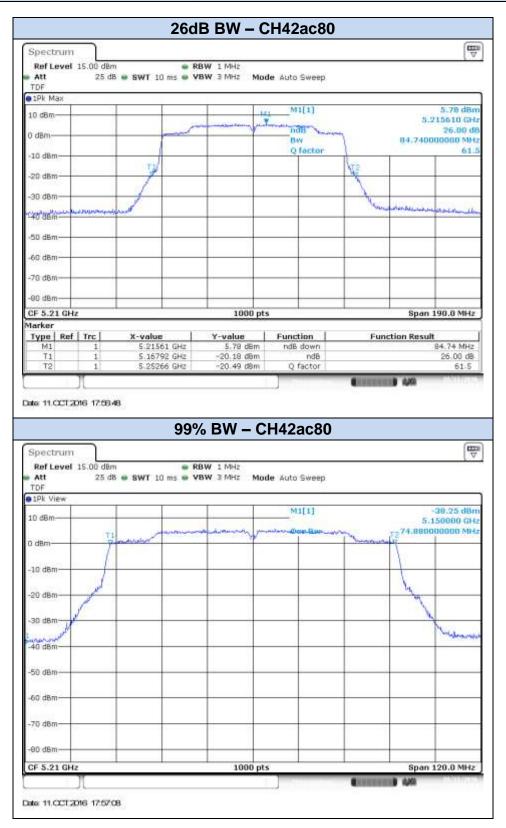


802.11ac80, VHT0 - MIMO - Chain A





802.11ac80, VHT0 - MIMO - Chain B





B.2 Power Limits. Maximum Output power & Maximum power spectral density

Test limits

FCC part	Limits
15.407 (a) (1) (iv)	For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

Test procedure

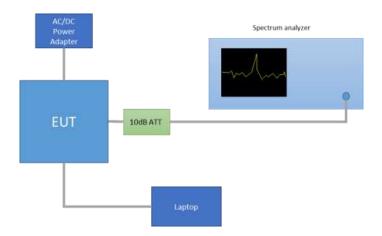
The Maximum Conducted Output Power was measured using the channel integration method according to point E) 2) e) (Method SA-2 Alternative) of KDB 789033 D02. The maximum power spectral density (PSD) was measured using the method according to point F) (Method SA-2 Alternative) of KDB 789033 D02.

In the measure-and-sum approach for MIMO mode, the conducted emission level (e.g., transmit power or power in specified bandwidth) is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically in linear power units to determine the total emission level from the device.

The EIRP power (dBm) is calculated by adding the declared maximum antenna gain to the measured conducted power.

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

The declared maximum antenna gain is 5dBi.





Duty cycle

Mode	Rate	Antenna	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
802.11a	6Mbps	SISO-A	2.03	2.07	98.0%
002.11a	olviops	SISO-B	2.04	2.07	98.2%
	НТО	SISO-A	1.90	1.93	98.4%
802.11n20	ню	SISO-B	1.90	1.94	98.2%
002.111120	HT8	MIMO-A	0.97	1.01	96.1%
	пю	MIMO-B	0.97	1.01	96.1%
	HT0	SISO-A	0.93	0.96	96.5%
802.11n40	піо	SISO-B	0.94	0.97	96.8%
002.111140	HT8	MIMO-A	0.49	0.53	92.3%
	пю	MIMO-B	0.49	0.53	92.1%
		SISO-A	0.46	0.49	93.5%
902 110090	VHT0	SISO-B	0.45	0.49	93.2%
802.11ac80	VHIU	MIMO-A	0.26	0.29	87.3%
		MIMO-B	0.25	0.29	86.6%





Maximum output power

Mode	Rate	Channel	Freq. [MHz]	Antenna	Average Conducted Output Power [dBm]	Maximum* Conducted Output Power [dBm]	Maximum* Conducted Output Power [mW]	Max of EIRP [dBm]	
		36	5180	SISO CHAIN A	19.12	19.12	81.66	24.12	
		50	5160	SISO CHAIN B	18.85	18.85	76.74	23.85	
802.11a	6Mbps	40	5200	SISO CHAIN A	20.91	20.91	123.31	25.91	
302	olviops	40	5200	SISO CHAIN B	19.99	19.99	99.77	24.99	
~		48	5240	SISO CHAIN A	20.99	20.99	125.60	25.99	
		40	5240	SISO CHAIN B	20.40	20.40	109.65	25.40	
		36	5180	SISO CHAIN A	18.47	18.47	70.31	23.47	
		50	5100	SISO CHAIN B	18.85	18.85	76.74	23.85	
	HT0	40	40 5200	SISO CHAIN A	20.56	20.56	113.76	25.56	
	IIIO	40	5200	SISO CHAIN B	20.03	20.03	100.69	25.03	
		48	5240	SISO CHAIN A	19.39	19.39	86.90	24.39	
		40	5240	SISO CHAIN B	20.38	20.38	109.14	25.38	
802.11n20				MIMO CHAIN A	17.20	17.37	54.63	22.37	
11		36		MIMO CHAIN B	16.65	16.82	48.12	21.82	
802				Combined A+B	19.94	20.12	102.75	25.12	
				MIMO CHAIN A	19.01	19.18	82.88	24.18	
	HT8	40	5200	MIMO CHAIN B	18.31	18.48	70.52	23.48	
				Combined A+B	21.68	21.86	153.40	26.86	
				MIMO CHAIN A	18.46	18.63	73.02	23.63	
		48	5240	MIMO CHAIN B	18.71	18.88	77.33	23.88	
				Combined A+B	21.60	21.77	150.35	26.77	
		38F	5190	SISO CHAIN A	15.77	15.92	39.11	20.92	
	НТ0	501	0100	SISO CHAIN B	16.78	16.92	49.20	21.92	
	mo	46F	5230	SISO CHAIN A	20.92	21.07	128.02	26.07	
6		101	0200	SISO CHAIN B	20.68	20.82	120.78	25.82	
802.11n40				MIMO CHAIN A	14.70	15.05	31.99	20.05	
02.1		38F	5190	MIMO CHAIN B	14.25	14.61	28.90	19.61	
8	HT8			Combined A+B	17.49	17.85	60.89	22.85	
	1110			MIMO CHAIN A	18.75	19.10	81.28	24.10	
		46F	5230	MIMO CHAIN B	18.02	18.38	68.86	23.38	
				Combined A+B	21.41	21.77	150.14	26.77	
				SISO CHAIN A	14.55	14.84	30.50	19.84	
ac8(SISO CHAIN B	14.41	14.72	29.62	19.72	
116	VHT0	42ac80	5210	MIMO CHAIN A	12.59	13.18	20.80	18.18	
802.11ac80					MIMO CHAIN B	12.31	12.93	19.65	17.93
~				Combined A+B	15.46	16.07	40.45	21.07	

* Maximum values are the duty cycle compensated values calculated from the average (measured) values Max Value

Min Value



Mode	Rate	Channel	Freq. [MHz]	Antenna	Average conducted PSD [dBm/MHz]	Maximum* conducted PSD [dBm/MHz]	Maximum* EIRP PSD [dBm/MHz]
		36	E100	SISO CHAIN A	8.23	8.23	13.23
м		30	5180	SISO CHAIN B	7.98	7.98	12.98
116	GMbpa	40	F200	SISO CHAIN A	10.00	10.00	15.00
802.11a	6Mbps	40	5200	SISO CHAIN B	9.08	9.08	14.08
œ		48	5240	SISO CHAIN A	10.07	10.07	15.07
		40	5240	SISO CHAIN B	9.48	9.48	14.48
		36	5180	SISO CHAIN A	7.41	7.41	12.41
		30	0010	SISO CHAIN B	7.79	7.79	12.79
		40	5000	SISO CHAIN A	9.45	9.45	14.45
	HT0	40	5200	SISO CHAIN B	8.91	8.91	13.91
		40	5040	SISO CHAIN A	8.31	8.31	14.66
		48	5240	SISO CHAIN B	9.24	9.24	14.24
n20				MIMO CHAIN A	6.19	6.36	11.36
7		36	5180	MIMO CHAIN B	5.66	5.83	10.83
802.11n20				Combined A+B	8.94	9.12	14.12
œ				MIMO CHAIN A	7.98	8.15	13.15
	HT8	40	5200	MIMO CHAIN B	7.29	7.46	12.46
				Combined A+B	10.66	10.83	15.83
				MIMO CHAIN A	7.42	7.59	12.59
		48	5240	MIMO CHAIN B	7.65	7.82	12.82
				Combined A+B	10.55	10.72	15.72
		38F	F100	SISO CHAIN A	1.48	1.63	6.63
	цтο	JOF	5190	SISO CHAIN B	2.44	2.58	7.58
	HT0	46F	5230	SISO CHAIN A	6.55	6.70	11.70
6		406	5230	SISO CHAIN B	6.29	6.43	11.43
802.11n40				MIMO CHAIN A	0.37	0.72	5.72
2.1		38F	5190	MIMO CHAIN B	-0.03	0.33	5.33
80	цтο			Combined A+B	3.18	3.54	8.54
	HT8			MIMO CHAIN A	4.36	4.71	9.71
		46F	5230	MIMO CHAIN B	3.66	4.02	9.02
				Combined A+B	7.03	7.39	12.39
0				SISO CHAIN A	-2.61	-2.32	2.68
ac8				SISO CHAIN B	-2.70	-2.39	2.61
116	VHT0	42ac80	5210	MIMO CHAIN A	-4.46	-3.87	1.13
802.11ac80				MIMO CHAIN B	-4.73	-4.11	0.89
õ				Combined A+B	-1.58	-0.98	4.02

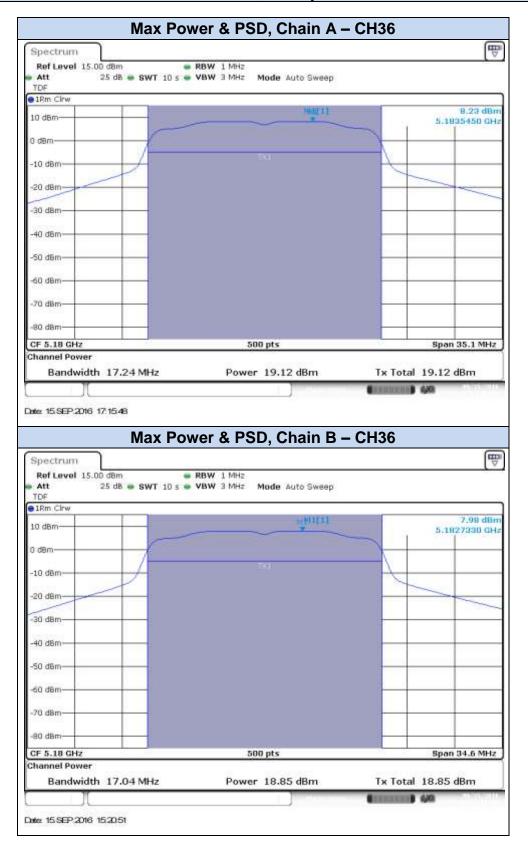
* Maximum values are the duty cycle compensated values calculated from the measured average values



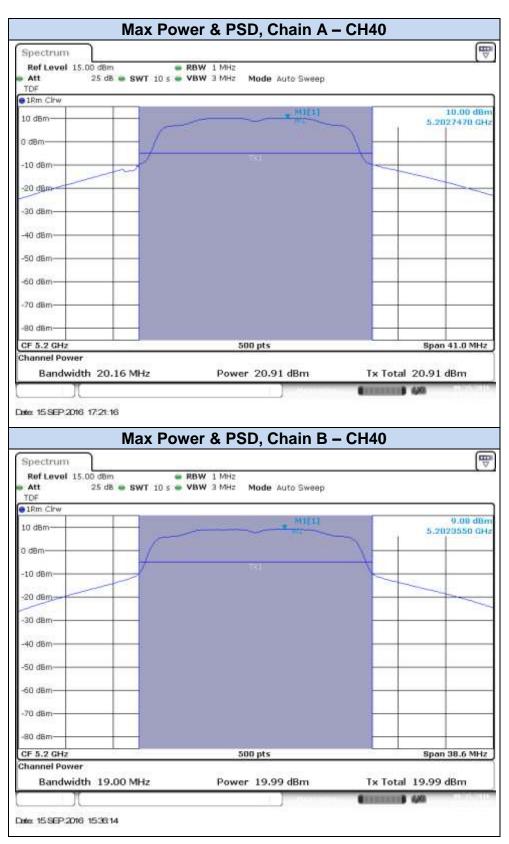


Results screenshot

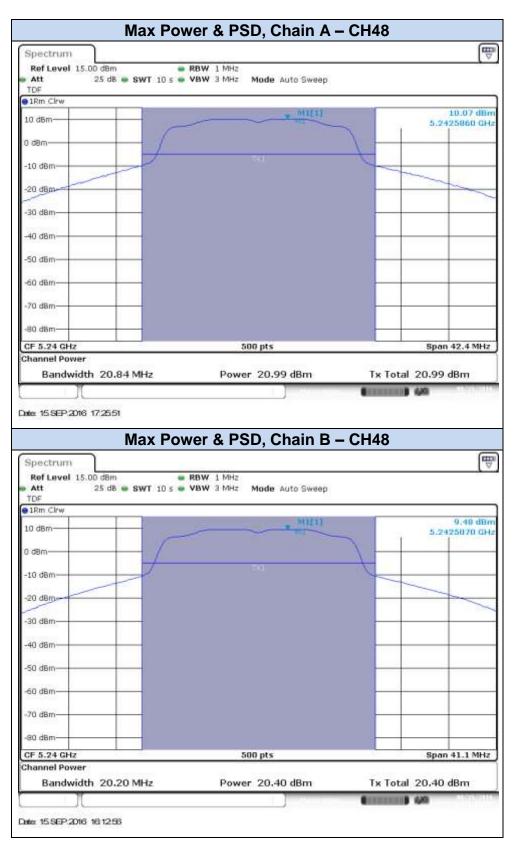
802.11a, 6Mbps





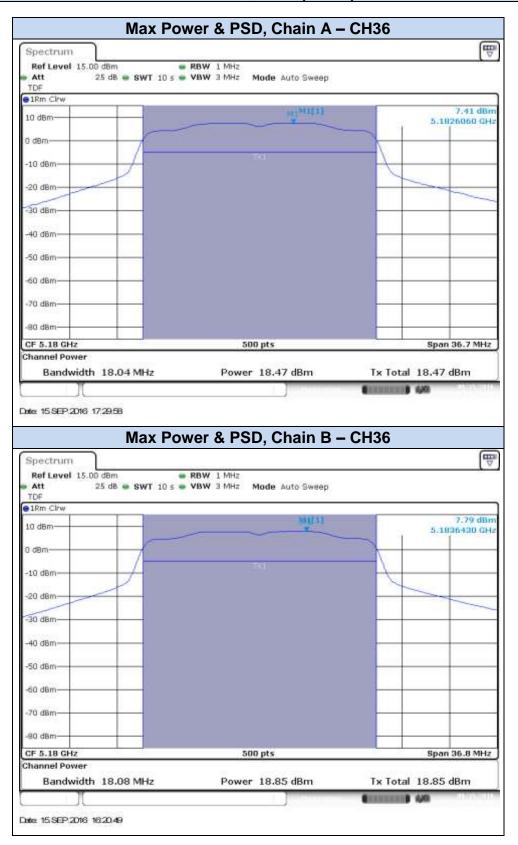




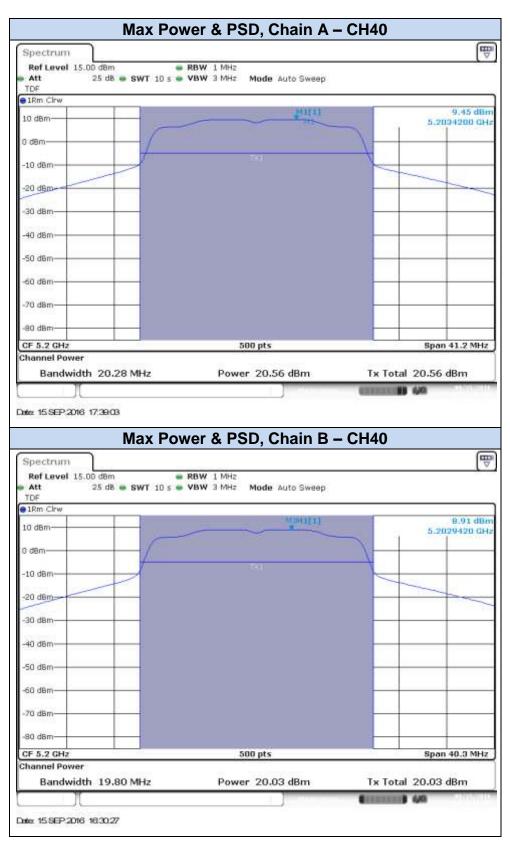




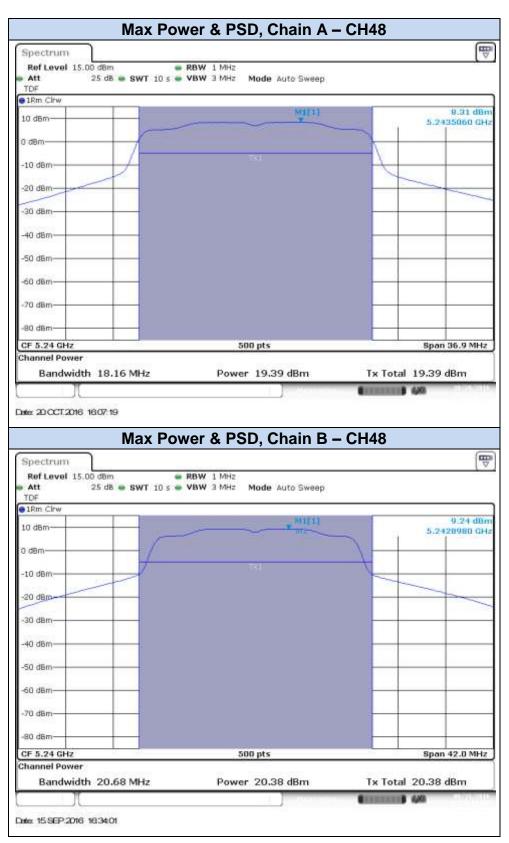
802.11n20, HT0 (SISO)





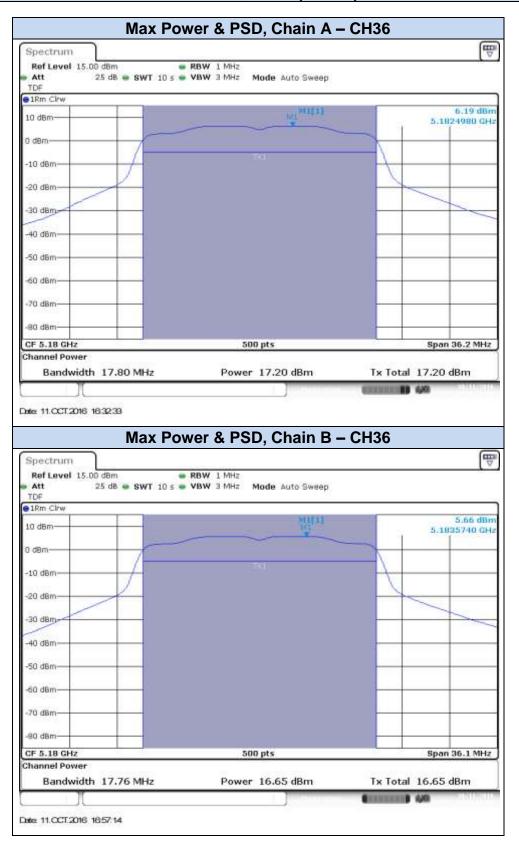




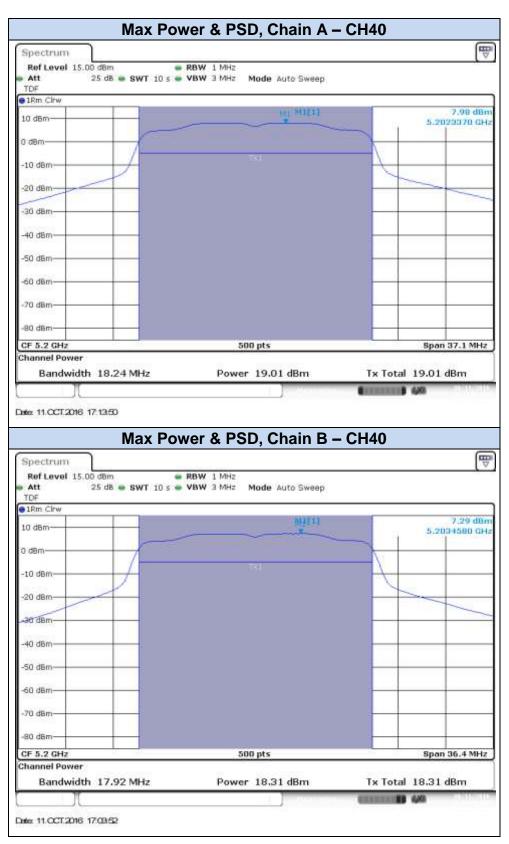




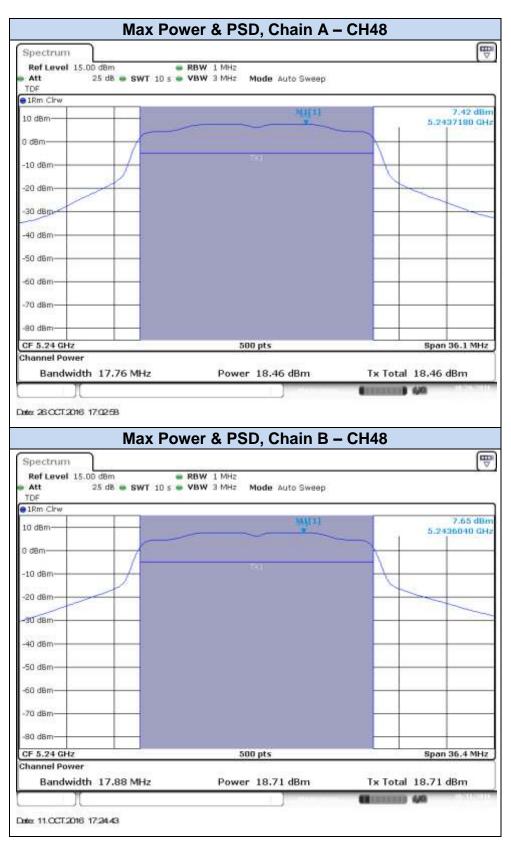
802.11n20, HT8 (MIMO)





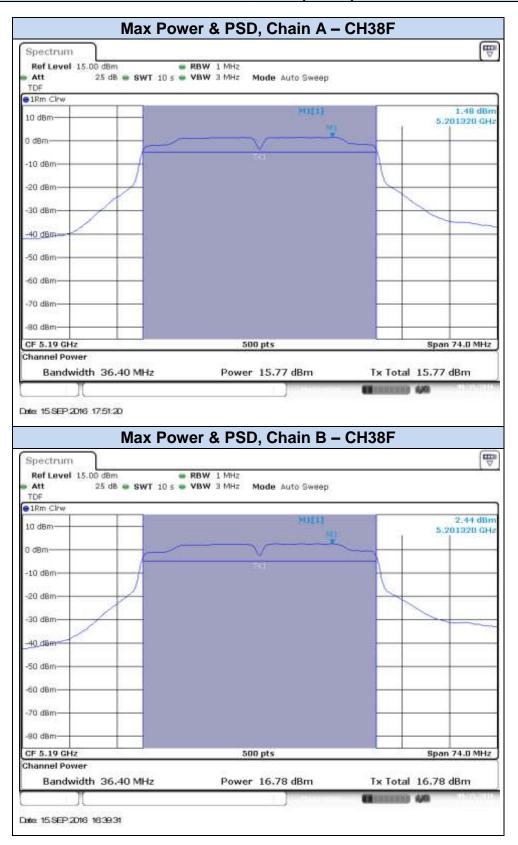




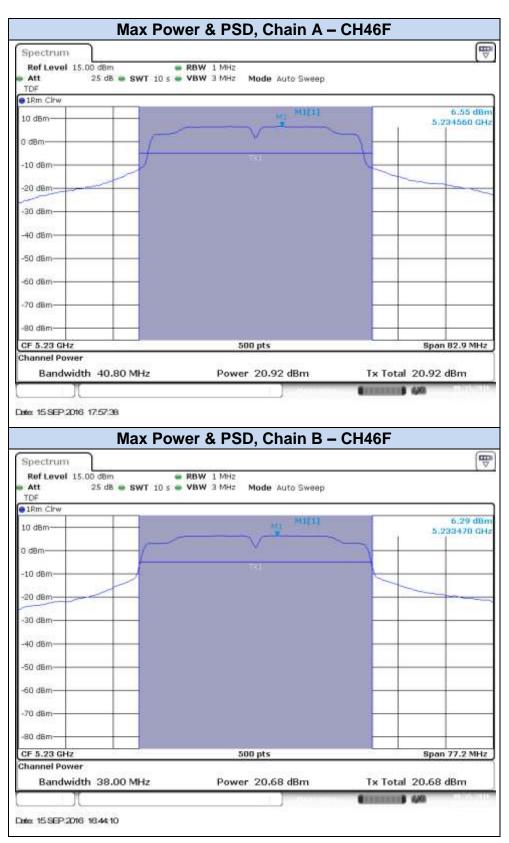




802.11n40, HT0 (SISO)

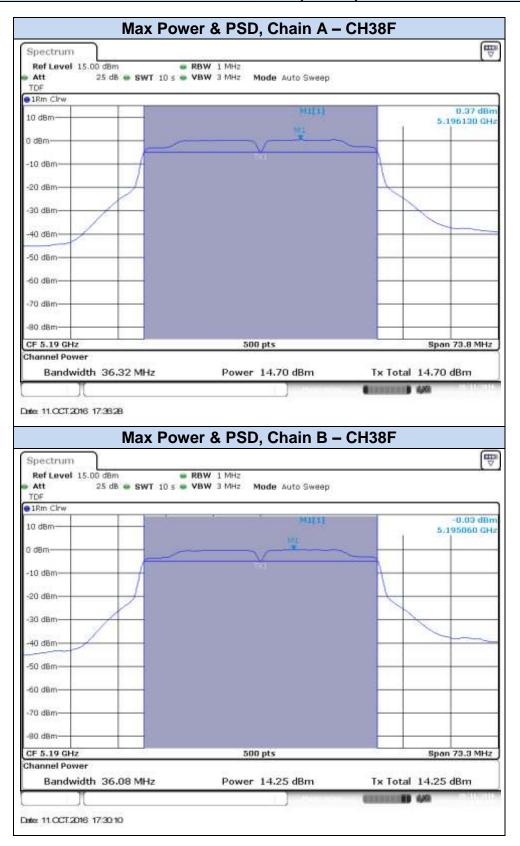




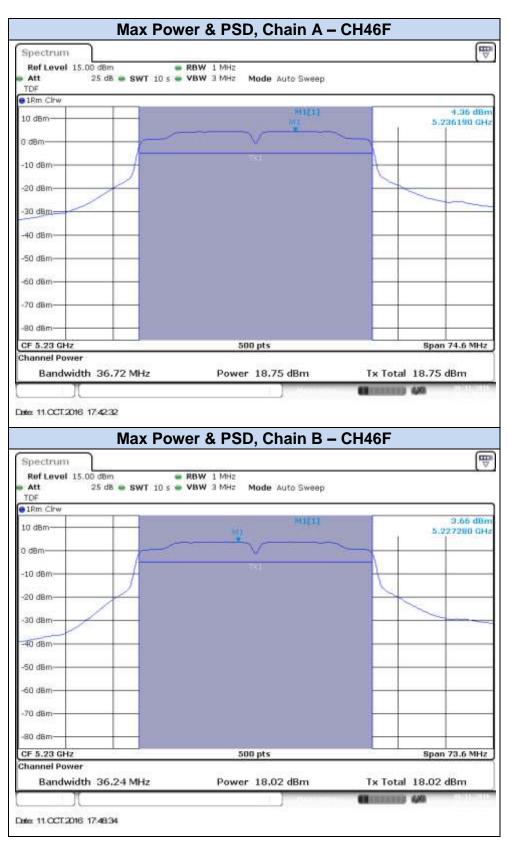




802.11n40, HT8 (MIMO)

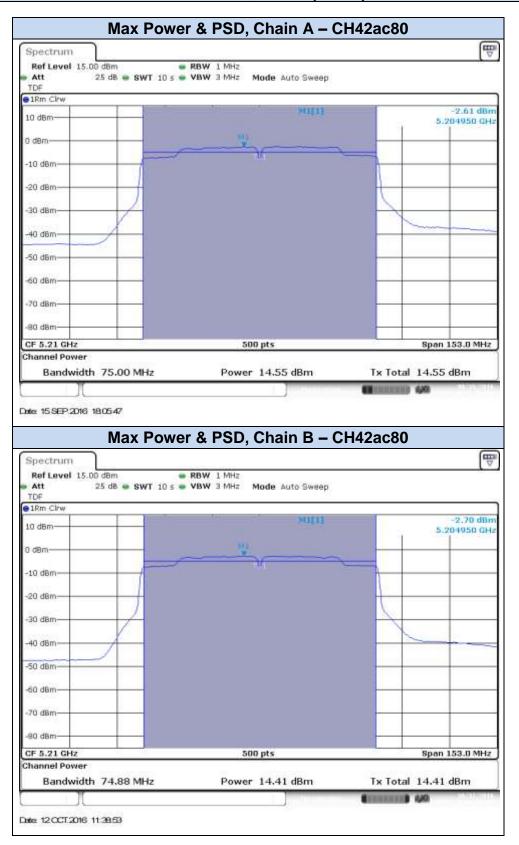






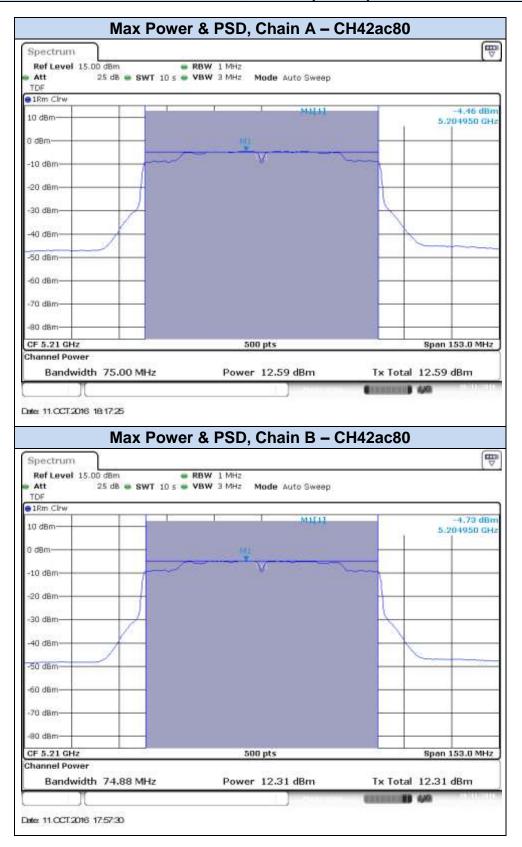


802.11ac80, VHT0 (SISO)





802.11ac80, VHT0 (MIMO)





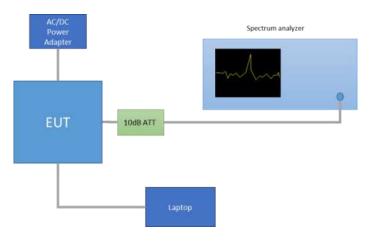
B.3 Undesirable emissions limits: Band Edge (conducted)

Test limits

FCC part			Lin	nits		
15.407 (b) (1)		e of the 5.15-		5.15-5.25 GHz I shall not excee		
		05(a), must als		he restricted ba e radiated emissi		
		Freq Range	Field Strength	Field Strength	Meas.]
		(MHz)	(μV/m)	(dBµV/m)	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	
15.209		216-960	200	46	3	
		Above 960	500	54	3	
	employ 90 kH these detecte For av also a	ying CISPR qu z, 110-490 kH three bands a or. /erage radiated a limit specifi	uasi-peak detect Iz and above 10 are based on m d emission meas ed when meas	ve table are base or except for the 00 MHz. Radiate easurements em surements above uring with peak licated values in	frequency band ed emission limit aploying an aver 1000 MHz, there detector func	s 9- ts in rage re is

Test procedure

The setup below was used to measure undesirable emissions on the Band Edge domain. The antenna terminal of the EUT is connected to the spectrum analyzer through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss and the declared Antenna Gain.



Band Edge measurements in average mode on the low frequency section was done with the Video Bandwidth Method was used according to section G) 6) (KDB 789033 D02), with the following parameters:

- When the duty cycle is > 98 %, VBW = 10Hz
- When the duty cycle is < 98 %, VBW > 1/T, where T is defined in section II.B.1.a

In case of Band Edge measurements falling in restricted bands, the declared Antenna Gain is also compensated in the graph. The declared maximum antenna gain is 5dBi.

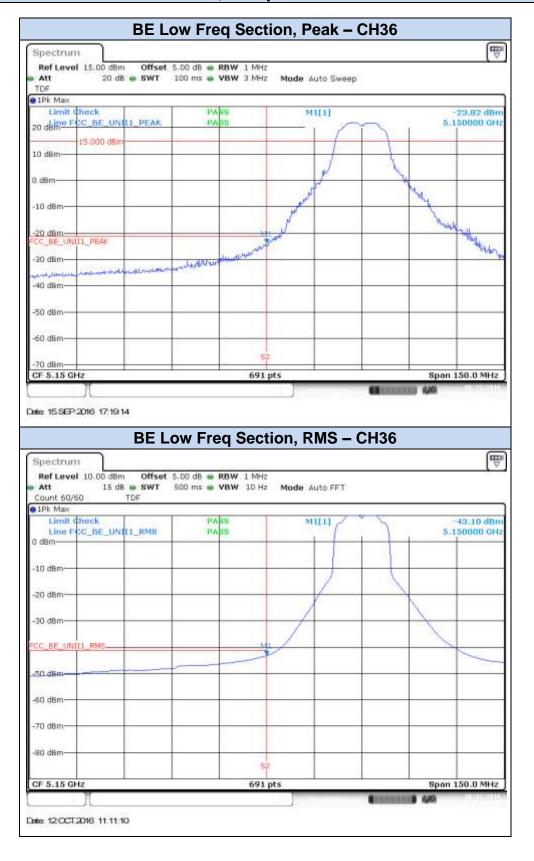
For Band Edge measurements falling in restricted bands, the following limits in dBm were applied for the average detector after the conversion from the limits detailed above in dBµV/m, according to FCC 47 CFR part 15 - Subpart C – §15.209(a). The limits in dBm for peak detector are 20dB above the indicated values in the table.

	§15.209(a)		Converted v	/alues
Freq Range (MHz)	Distance (m)	Field strength (microvolts/meter)	Field strength (dB microvolts/meter)	Power (dBm)
Above 960	3	500	54.0	-41.2

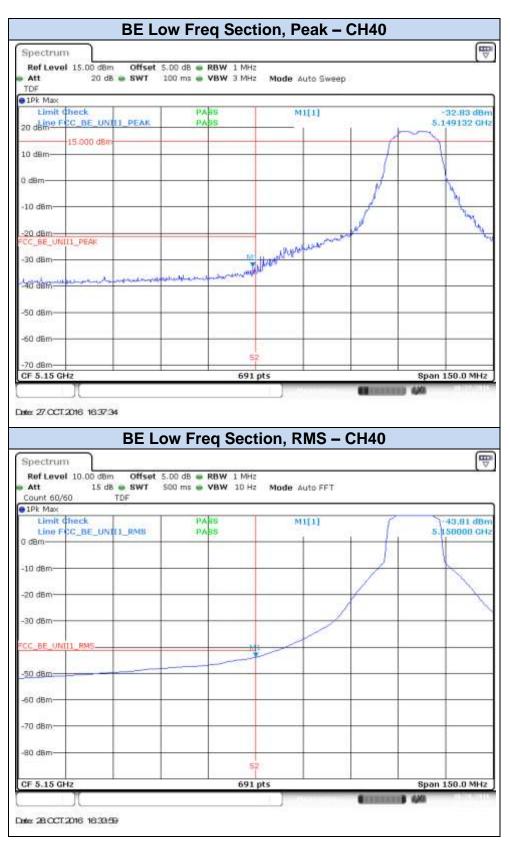


Results Screenshot

802.11a, 6Mbps – Chain A

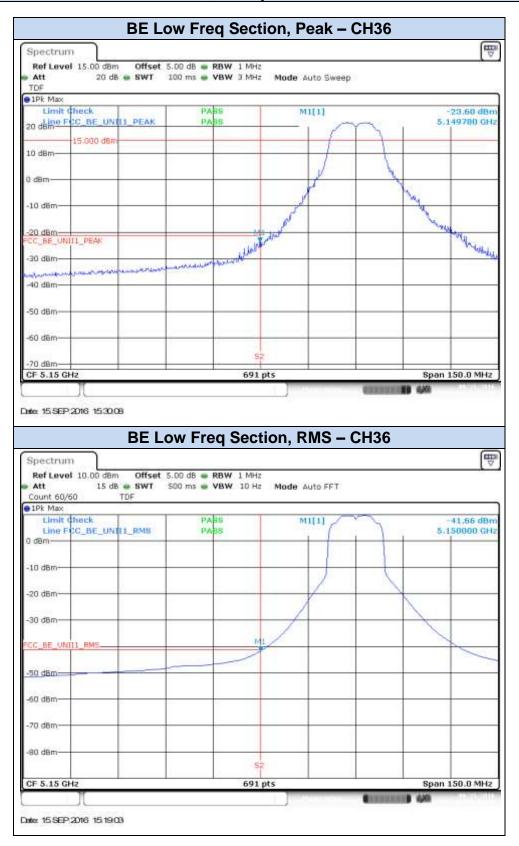








802.11a, 6Mbps – Chain B

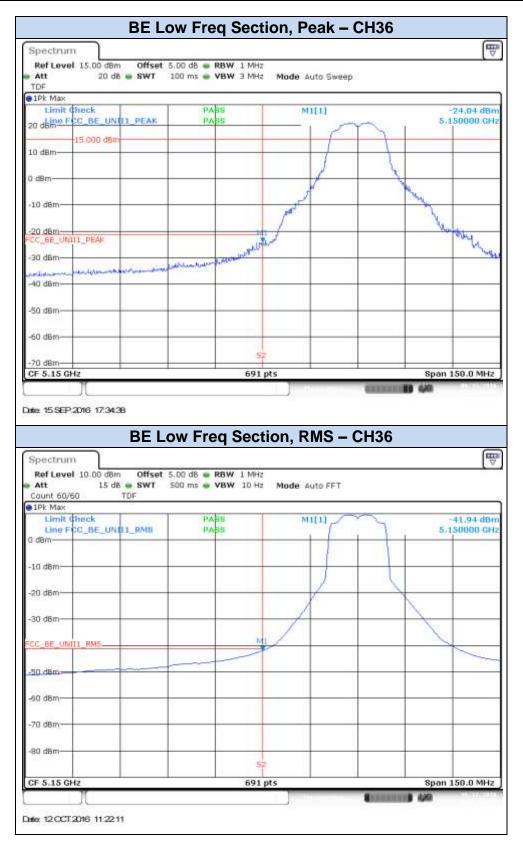




Bet Level 15.00 dm Offset 5.00 db PRW 1 Metz Node Auto Sweep Def 20 db BWT 100 ms VBW Mode Auto Sweep Def Def Stood Bas MILLI -26 23 dt Def 15.000 dbs PABS MILLI -26 23 dt Def 15.000 dbs PABS MILLI -26 23 dt Def 15.000 dbs PABS MILLI -26 23 dt Bas Def Stood dbs Def -26 23 dt Odbs Def PABS MILLI -26 23 dt Bas Def Stood dbs Def -26 23 dt Odbs Def PABS MILLI -26 23 dt Od dbs Def PABS MILLI -26 23 dt Od dbs Cast Att Def PABS MILLI -26 23 dt Od dbs Cast Att Def PABS PABS <td< th=""><th>pectrum</th><th></th><th></th><th>F</th></td<>	pectrum			F
Def Max 26 - 23 - 31 Linnit Gheck PABS 15 5000 dbm 9 - 485 0 dbm 9 - 485 10 dbm 9 - 485	2008 Weiters all the same stress	00 dB 👄 RBW 1 MHz		<u> </u>
UPL Max -26.23 dl 15.000 dBm -26.23 dl 0 dBm -27.23 dl 10 dl		0 ms 🖶 VBW 3 MHz M	ode Auto Sweep	
Link (Prock b) dB/0 T/C, DE, UNIT) PEAR PARS M1[1] -76,23 dl (S, 149570 C) 0 dBm 5000 dBm 51,49570 C) 51,49570 C) 51,49570 C) 0 dBm 0 dBm 51,000 dBm 51,49570 C) 51,49570 C) 0 dBm 0 dBm 0 dBm 51,49570 C) 51,49570 C) 0 dBm 0 dBm 0 dBm 51,000 M) 51,49570 C) 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 52 50,000 M) 52 51,000 M) 0 dBm 52 0,000 M) 52 51,000 M) 52 0 dBm 52 0,000 M) 52 51,000 M) 52 0 dBm 52 0,000 M) 10,000 M) 10,000 M) 10,000 M) pectrum F5.15 CHz 691 pts 80 m) 10,000 M) 10,000 M) pectrum 11,000 M) 10,000 M) 10,000 M) 10,000 M) 10,000 M) pectrum 11,000 M) 10,000 M) 10,000 M)				
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15.000 d8m 15.000 d8m d8m d8m 0 d8m 0 d8m 0 d8m 691 pts Span 150.0 MP 0 d8m 691 pts 0 d8m 691 pts 0 d8m 691 pts Span 150.0 MP	BER FCC BE UNEL PEAK	PABS	and the second sec	5,149570 G
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dBin	15 Common Comm			
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0 dBm 0 dBm 15 5.15 GHz 55.15 GHz 15 dB 8 WT 50 ms 9 VBW 10 Hz 10 dBm 10 dBm			1	3
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a d8m a d8m a d8m a d8m a d8m c m 52 c m 53 c m 52 c m			/	
a d8m a d8m a d8m a d8m a d8m c m 52 c m 53 c m 52 c m	0 dBm		and and a second	
a d8m a d8m a d8m a d8m a d8m c m 52 c m 53 c m 52 c m	C_BE_UNII1_PEAK	MI ALL	Anuna	
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0 dBm	man and maintain the man	Marrie Married		
0 dBm 0 dBm 52 691 pts Span 150.0 MF 5 5.15 GHz 691 pts Span 150.0 MF 691 pts Span 150.0 MF 2 t5 SEP 2016 t5:047 BE Low Freq Section, RMS – CH40 6<	0 dBm-			
D dBm Spen 150.0 Mi 0 dBm 691 pts Spen 150.0 Mi 5.15 CHz 691 pts Spen 150.0 Mi x 15 SEP 2016 15:0047 BE Low Freq Section, RMS – CH40 Image: Spen 150.0 Mi Dectrum Image: Spen 150.0 Mi Spen 150.0 Mi Ref Level 10.00 dBm Offset 5.00 dB = RBW 1 MHz Mode Auto FFT Nut 60/60 TDF TDF PK Max Image: Spen 160 mi Spen 160 mi D dBm Spen 10 mi Spen 10 mi				
D dBm Span 150.0 Mi 5.15 GHz 691 pts Span 150.0 Mi * 15SEP 2016 15:39.47 BE Low Freq Section, RMS – CH40 Image: Character State Stat	0 dBm			_
D dBm Span 150.0 Mi 5.15 GHz 691 pts Span 150.0 Mi * 15SEP 2016 15:39.47 BE Low Freq Section, RMS – CH40 Image: Character State Stat				
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Span 150.0 MF Span 150.0 MF BE Low Freq Section, RMS – CH40 Pectrum Ref Level 10.00 dBm Offset 5.00 dB @ RBW 1 MHz Att Mode Auto FFT Out 60/60 TOF PABS M1[1] -43.93 db Out 60/60 TOF PABS M1[1] -43.93 db Offset 5.00 dB @ RBW 1 MHz Att Mode Auto FFT Out 60/60 TOF PABS M1[1] 5.450000 C Other CBE_UNITI_RMS PABS M1[1] 5.150000 C O dBm O dBm O dBm O dBm O dBm S O dBm S O dBm S		52		
x 15SEP.2016 1538.47 BE Low Freq Section, RMS – CH40 Pectrum Ref Level 10.00 dBm Offset 5.00 dB = RBW 1 MHz Mode Auto FFT Ount 60/60 TDF PK Max Limit Gheck DABS MI[1] 0 dBm 0 dBm O dBm				
BE Low Freq Section, RMS – CH40 Pectrum Ref Level 10.00 dBm Offset 5.00 dB = RBW 10 Hz Mode Auto FFT ount 50/60 TDF PABS M1[1] ABS M1[1] Offset 5.00 dB = RBW 10 Hz Mode Auto FFT Out 50/60 DE INITI RMS PABS M1[1] O dBm 0 O dBm	- 5.15 GH2	691 pts		Span 150.0 MH
Att 15 dB • SWT S00 ms • VBW 10 Hz Mode Auto FFT ount 60/60 TDF TDF 10 Hz Mode Auto FFT Lime FC_BE_UNITI_RMS PABS M1[1] -43.93 dB 5,150000 G 0Bm 0		w Freq Section	n, RMS – CH4	
ount 60/60 TDF LPk Max PABS M1[1] 5-43.93 dt Line FOC_BE_UNID1_RMS PABS M1[1] 5-15.0000 dt 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm	BE Lo	w Freq Section	n, RMS – CH4	1.00
Limit Check PABS M1[1] -49.93 dt Line FOC_BE_UNITI_RMS PABS M1[1] 5.150000 dt 0 d8m 0 d8m 0 d8m 0 d8m 0 d8m 0 d8m 0 d8m 0 d8m 0 d8m 0 d8m 0 d8m 0 d8m 0 d8m 5.2 0 d8m	BE Lov pectrum Ref Level 10.00 dBm Offset 5.1	00 dB 🖷 RBW 1 MHz		1.00
Limit Check PABS M1[1]43.93 db Jam	BE LO pectrum Ref Level 10.00 dBm Offset 5.1 Att 15 dB SWT 50	00 dB 🖷 RBW 1 MHz		1.00
Line FCC_BE_UNIT1_RMS PASS 5.150000 C d8m 0 d6m 0 d6m C_BE_UNIT1_RMS Int 0 d6m 0 d8m	BE LOY pectrum Ref Level 10.00 dBm Offset 5.1 Att 15 dB SWT 50 ount 60/60 TDF	00 dB 🖷 RBW 1 MHz		1.00
0 dBm 0 dBm	BE LO pectrum Ref Level 10.00 dBm Offset 5.1 Att 15 dB SWT 50 ount 60/60 TDF Pk Max	00 dB • RBW 1 MHz 10 ms • VBW 10 Hz M	ode Auto FFT	[
0 dBm 0 dBm	BE Lov pectrum Ref Level 10.00 dBm Offset 5.1 Att 15 dB e SWT 50 ount 60/60 TDF Pk Max Limit Check Line FCC_BE_UNTI1_PMB	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	43.93 dt
0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 52	BE Lov Dectrum Ref Level 10.00 dBm Offset 5.1 Att 15 dB e SWT 50 Sunt 60/60 TDF Pk Max Limit Check Line FCC_BE_UNTI1_RMB	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	-43.93 dt
D d8m D d8m D d8m D d8m D d8m S2	BE Lov Dectrum Ref Level 10.00 dBm Offset 5.1 Att 15 dB e SWT 50 Sount 60/60 TDF Pk Max Limit Check Line FC_BE_UNT11_RMB SBM	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	-43.93 dt
D d8m D d8m D d8m D d8m D d8m S2	BE Lov Dectrum Ref Level 10.00 dBm Offset 5.1 Att 15 dB e SWT 50 Sount 60/60 TDF Pk Max Limit Check Line FC_BE_UNT11_RMB SBM	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	-43.93 dt
2 dBm 0 dBm	BE Lov Dectrum Ref Level 10.00 dBm Offset 5.1 Att 15 dB e SWT 50 Sunt 60/60 TDF Pk Max Limit Check Line FCC_BE_UNIT1_RMB SBM	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	-43.93 dt
2 dBm 0 dBm	BE Lov Dectrum Ref Level 10.00 dBm Offset 5.1 Att 15 dB e SWT 50 Sunt 60/60 TDF Pk Max Limit Check Line FCC_BE_UNIT1_RMB SBM	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	-43.93 dt
2 dBm- 0 dBm- 0 dBm- 0 dBm- 0 dBm- 52	BE Lov Dectrum Ref Level 10.00 dBm Offset 5.1 Att 15 dB SWT 50 Dunt 60/60 TDF Pk Max Line FCC_BE_UNITI_RMB SBM D dBm	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	-43.93 dt
9 dBm- 0 dBm- 0 dBm- 0 dBm- 0 dBm- 52	BE Lov pectrum Ref Level 10.00 d8m Offset 5.1 Att 15 d8 9 SWT 50 ount 60/60 TDF Pk Max Lime FCC_BE_UNIT1_RMB d8m 0 d8m 0 d8m	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	-43.93 dt
0 dBm 0 dBm 0 dBm 0 dBm 52	BE Lov Dectrum Ref Level 10.00 dBm Offset 5.1 Att 15 dB SWT 50 Dunt 60/60 TDF Pk Max Line FCC_BE_UNIT1_RMB SBM 0 dBm 0 dBm	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	-43.93 dt
0 dBm	BE Lov pectrum Ref Level 10.00 d8m Offset 5.1 Att 15 d8 • SwT 50 ount 60/60 TDF Pk Max Limit Check Line FCC_BE_UNIT1_RMB d8m 0 d8m 0 d8m	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	-43.93 dt
0 dBm	BE Lov pectrum Ref Level 10.00 d8m Offset 5.1 Att 15 d8 9 SWT 50 ount 60/60 TDF Pk Max Limet Check Line FCC_BE_UNIT1_RMB d8m 0 d8m 0 d8m 0 d8m	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	-43.93 dt
0 dBm	BE Lov pectrum Ref Level 10.00 d8m Offset 5.1 Att 15 d8 9 SWT 50 ount 60/60 TDF Pk Max Limet Check Line FCC_BE_UNIT1_RMB d8m 0 d8m 0 d8m 0 d8m	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	-43.93 dt
0 d8mS2	BE Lov pectrum Ref Level 10.00 d8m Offset 5.1 Att 15 d8 • SwT 50 ount 60/60 TDF Pk Max Lime FCC_BE_UNIT1_RMB d8m 0	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	43.93 dt
52	BE Lov pectrum Ref Level 10.00 d8m Offset 5.1 Att 15 d8 • SwT 50 ount 60/60 TDF Pk Max Limet Check Line FCC_BE_UNIT1_RMB d8m 0	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	43.93 dt
52	BE LOV	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	43.93 dt
	BE LOV	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	0 (************************************
5 15 0U2	BE Lovel 10.00 dBm Offset 5.1 Att 15 dB 9 SWT 50 ount 60/60 TDF Pik Max Limit Check Line FCC_BE_UNTI1_RMB 0 dBm 0 dB	DO dB RBW 1 MHz 20 ms VBW 10 Hz M PABS	ode Auto FFT	43.93 dt
0.10 MPZ 091 015 S0A0 150 J MP	BE Lovel 10.00 dBm Offset 5.1 Att 15 dB 9 SWT 50 ount 60/60 TDF Pik Max Limit Check Line FCC_BE_UNTI1_RMB 0 dBm 0 dB	PABS PABS	ode Auto FFT	43.93 dt
	BE Lovel 10.00 dBm Offset 5.1 Att 15 dB 9 SWT 50 ount 60/60 TDF PR Max Limit Check Line FCC_BE_UNTI1_RMB 08m 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm	PABS PABS	ode Auto FFT	43.93 dt



802.11n20, HT0 (SISO) - Chain A

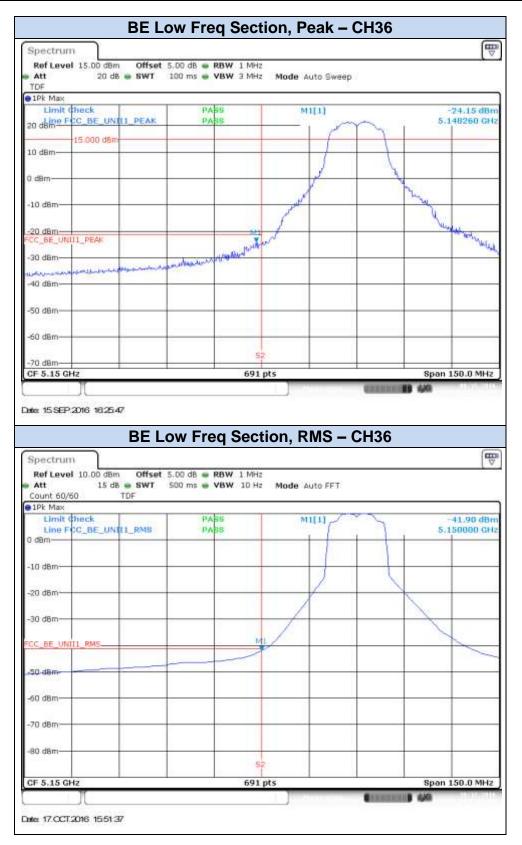








802.11n20, HT0 (SISO) - Chain B

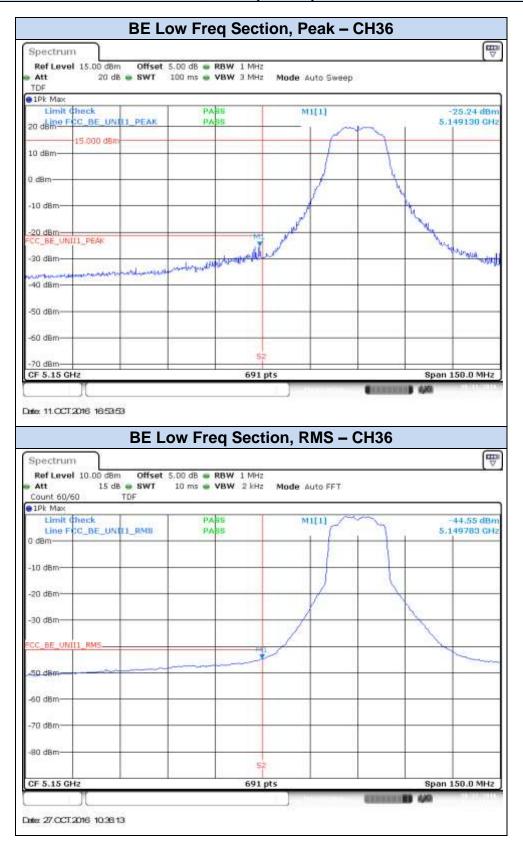




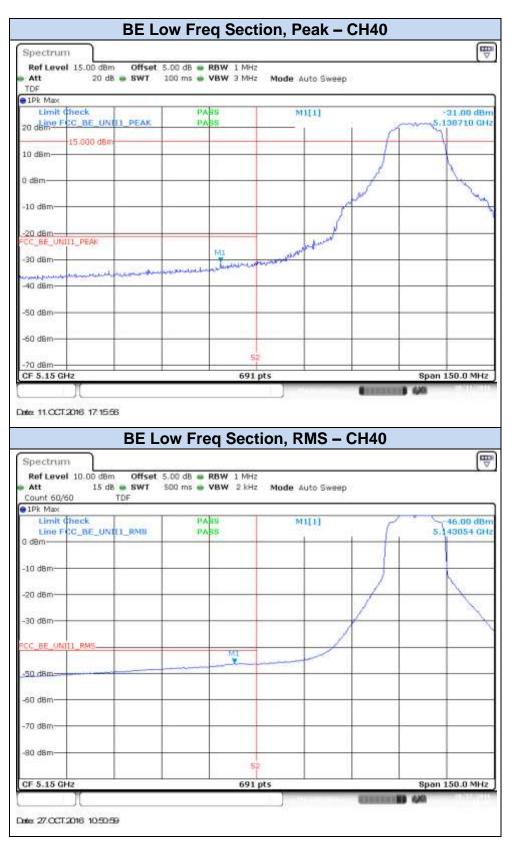




802.11n20, HT8 (MIMO) - Chain A









802.11n20, HT8 (MIMO) - Chain B





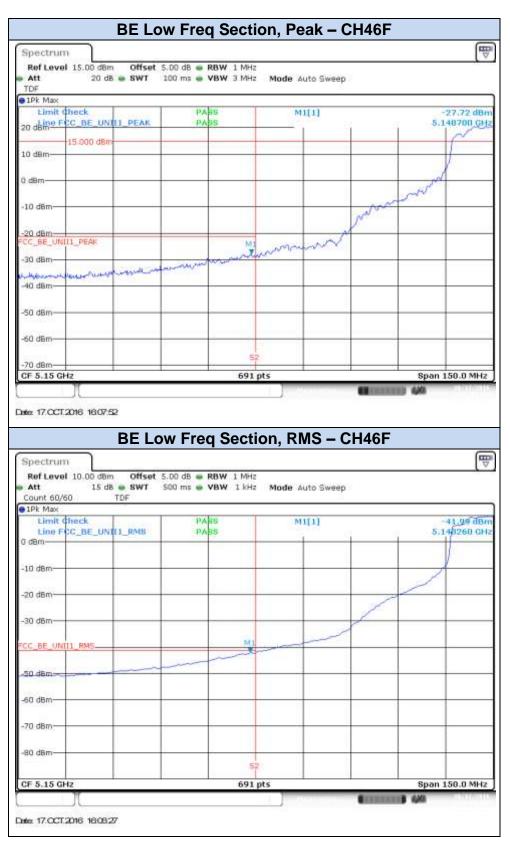
pectrum	ow Freq Sectio	,		٦
	5.00 dB . RBW 1 MHz			
	100 ms 🖷 VBW 3 MHz	Mode Auto Sweep		
DF 1Pk Max				
Limit Check	PABS	M1[1]		-29.90 dt
D dame FCC_BE_UNE1_PEAK	PASS		1	5.150000 G
15.000 dBm				
) dBm-	C 0 0			1
<u></u>				
dBm			1	2
0 d8m			N	~
		1		
O dBm C_6E_UNII1_PEAK				
	MEL	plant		
0 dBm	menceneration to the	to the for		
0 dBm	Manager and A so washing the			
u dam				
0 dBm				
3-80%.				
0 dBm				
22022	SP			
0 dBm	(01 - t)			0
F 5.15 GHz	691 pt	5		Span 150.0 MH
	ow Freq Section	on, RMS – (CH40	44
∞ 11.0CT.2016 17:10.49 BE L		D, RMS – (CH40	
BE L	ow Freq Sectio		CH40	449 [
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB • SWT	ow Freq Sectio		CH40	449 [
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB • SWT count 60/60 TDF	ow Freq Sectio		CH40	4469 [*
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT ount 60/60 TDF IPK Max Limit dheck	OW Freq Section		CH40	° _46,04 di
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT ount 60/60 TDF LPK Max Limit Check Line FCC_BE_UNUI1_RMB	ow Freq Sectio	Mode Auto Sweep	CH40	° _46,04 di
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT ount 60/60 TDF LPK Max Limit Check Line FCC_BE_UNUI1_RMB	OW Freq Section	Mode Auto Sweep	CH40	° _46,04 di
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT ount 60/60 TDF IPk Max Limit Check Line FCC_BE_UNTI1_RMB dBm	OW Freq Section	Mode Auto Sweep		° _46,04 di
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT ount 60/60 TDF LPK Max Limit Check Line FCC_BE_UNELL_RMB dBm 0 dBm	OW Freq Section	Mode Auto Sweep		° _46,04 di
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT ount 60/60 TDF LPK Max Limit Check Line FCC_BE_UNELL_RMB dBm 0 dBm	OW Freq Section	Mode Auto Sweep		° _46,04 di
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT ount 60/60 TDF UPk Max Limit Check Line FCC_BE_UNIT1_RMB dBm 0 dBm 0 dBm 0 dBm	OW Freq Section	Mode Auto Sweep	CH40	° _46,04 di
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT ount 60/60 TDF UPk Max Limit Check Line FCC_BE_UNIT1_RMB dBm 0 dBm 0 dBm 0 dBm	OW Freq Section	Mode Auto Sweep	CH40	° _46,04 di
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT ount 60/60 TDF UPk Max Limet Check Line FCC_BE_UNIT1_RMB dBm 0 dBm	ow Freq Section	Mode Auto Sweep	CH40	° _46,04 di
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT Jount 60/60 TDF Limit Check Line FCC_BE_UNIT1_RMB dBm 0 dBm	OW Freq Section	Mode Auto Sweep		° _46,04 di
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT ount 60/60 TDF IPk Max Limit Check Line FCC_BE_UNIT1_RMB dBm 0 dBm 0 dBm 0 dBm	ow Freq Section	Mode Auto Sweep		° _46,04 dt
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT Jount 60/60 TDF IPk Max Limit Gheck Line F*C_BE_UNIT1_RMB dBm 0 d	ow Freq Section	Mode Auto Sweep		° _46,04 dt
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT Jount 60/60 TDF IPk Max Limit Gheck Line F*C_BE_UNIT1_RMB dBm 0 d	ow Freq Section	Mode Auto Sweep		46.04 dt 5.145224 G
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT ount 60/60 TDF IPk Max Limit Check Line F*C_BE_UNITI_RMB dBm 0 dB	ow Freq Section	Mode Auto Sweep		° _46,04 di
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB • SWT count 60/60 TDF IPk Max Limit dheck	ow Freq Section	Mode Auto Sweep		° _46,04 dt
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT ount 60/60 TDF IPk Max Limit Check Line FCC_BE_UNIT1_RMB dBm 0 dB	ow Freq Section	Mode Auto Sweep		° _46,04 dt
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT ount 60/60 TDF IPK Max Limit Check Line FCC_BE_UNIT1_RMS dBm 0 dB	ow Freq Section	Mode Auto Sweep		° _46,04 di
BE L pectrum Ref Level 10.00 dBm Offset Att 15 dB SWT ount 60/60 TDF IPk Max Limit Check Line F*C_BE_UNITI_RMB dBm 0 dB	ow Freq Section	Mode Auto Sweep		° _46,04 dt



802.11n40, HT0 (SISO) - Chain A





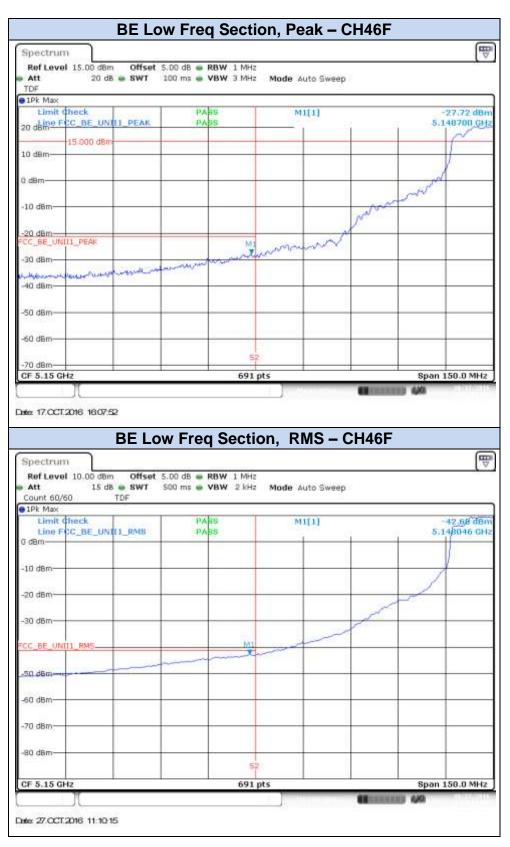




802.11n40, HT0 (SISO) - Chain B

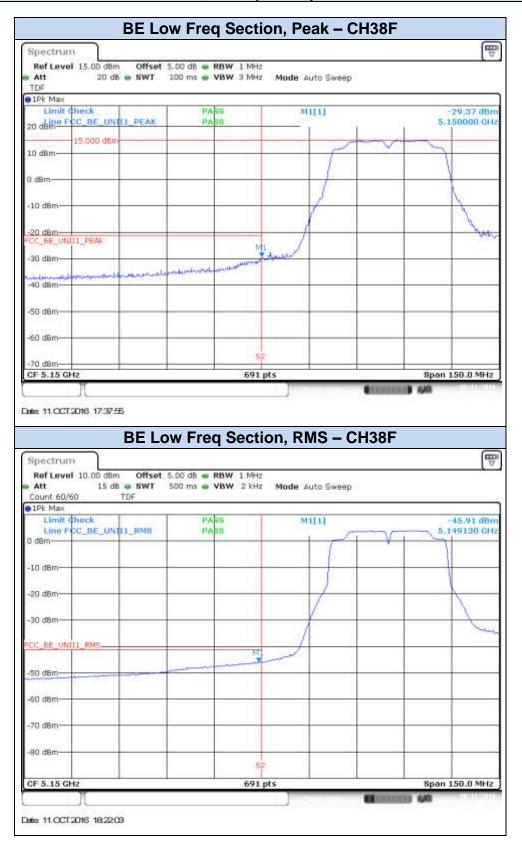








802.11n40, HT8 (MIMO) - Chain A





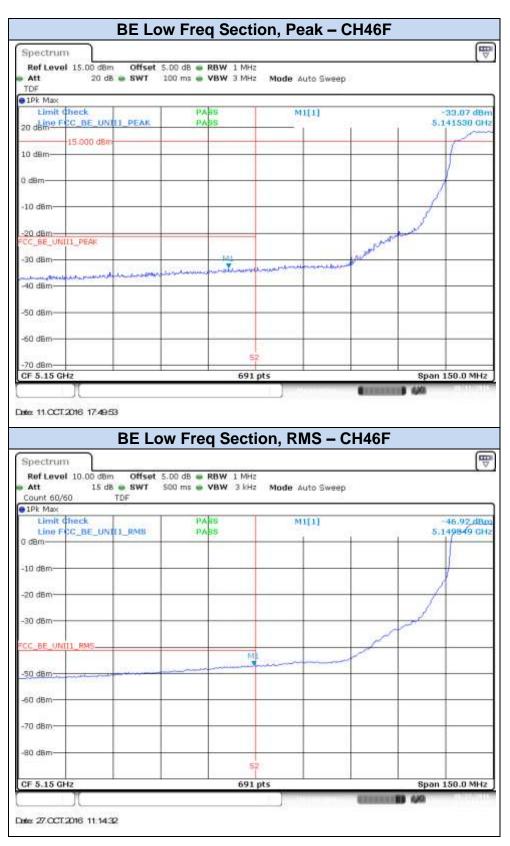
pectrum		on, Peak – Cł	ſ
South Manager and States	00 dB 👄 RBW 1 MHz		
	00 ms 🖷 VBW 3 MHz	Mode Auto Sweep	
DF IPk Max			
Limit Check	PASS	M1[1]	-31.09 di
BING FCC_BE_UNE1_PEAK	PASS		5,146530 0
15.000 dBm			1
0 dBm-			
dBm			
0 d8m			
			Amoren
0 dBm C_BE_UNII1_PEAK			-M
C_BE_UNITI_PEAK	MIL	manund	
0 dBm	ameter	energe and the second second	
man you to be have been been to	multiplant day and	CONCUSA-	
0 d8m-			
0 dBm			
2-25/0			
0 d6m			
1	SZ		
0 dBm			
F 5.15 GHz	691 p	AS	Span 150.0 MH
	w Freq Section	on, RMS – CH	(a)
BE Lov	w Freq Section	on, RMS – CH	(a)
BE Lov pectrum Ref Level 10.00 d8m Offset 5.	00 dB 🖶 RBW 1 MHz		146F
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB • SWT 5			(a)
BE Lov pectrum Ref Level 10.00 d8m Offset 5. Att 15 d8 swr 5 ount 60/60 TDF	.00 dB 👄 RBW 1 MHz 00 ms 🖷 VBW 3 kHz		[
BE Lov pectrum Ref Level 10.00 d8m Offset 5. Att 15 d8 e SWT 5 ount 60/60 TDF IPk Max Limit dheck	00 dB • RBW 1 MHz 00 ms • VBW 3 kHz PABS		-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB e SWT S ount 60/60 TDF IPk Max Limit Check Lime FPC_BE_UN[11_RMB	.00 dB 👄 RBW 1 MHz 00 ms 🖷 VBW 3 kHz	Mode Auto Sweep	[
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB e SWT S ount 60/60 TDF IPk Max Limit Check Line FCC_BE_UN[11_RMB	00 dB • RBW 1 MHz 00 ms • VBW 3 kHz PABS	Mode Auto Sweep	-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB e SWT S ount 60/60 TDF IPk Max Limit Check Line FCC_BE_UNU1_RMB dBm	00 dB • RBW 1 MHz 00 ms • VBW 3 kHz PABS	Mode Auto Sweep	-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB 8 SWT 5 ount 60/60 TDF Limit Check Line FCC_BE_UN[11_RMB dBm 0 dBm	00 dB • RBW 1 MHz 00 ms • VBW 3 kHz PABS	Mode Auto Sweep	-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB SWT S ount 60/60 TDF IPk Max Limit Check Line FCC_BE_UN[11_RMB dBm 0 dBm	00 dB • RBW 1 MHz 00 ms • VBW 3 kHz PABS	Mode Auto Sweep	-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB SWT S ount 60/60 TDF LPK Max Limet Check Line FCC_BE_UNICI_RMB dBm 0 dBm 0 dBm	00 dB • RBW 1 MHz 00 ms • VBW 3 kHz PABS	Mode Auto Sweep	-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB SWT 5 ount 60/60 TDF Link Max Line FC_BE_UNITI_RMB dBm 0 dBm 0 dBm	00 dB • RBW 1 MHz 00 ms • VBW 3 kHz PABS	Mode Auto Sweep	-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB SWT 5 ount 60/60 TDF IPk Max Line FC_BE_UNIT1_RMB dBm 0 dB	DO dB • RBW 1 MHz DO ms • VBW 3 kHz PABS PABS	Mode Auto Sweep	-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB SWT 5 ount 60/60 TDF IPk Max Line FC_BE_UNIT1_RMB dBm 0 dB	00 dB • RBW 1 MHz 00 ms • VBW 3 kHz PABS	Mode Auto Sweep	-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB # SWT 5 ount 60/60 TDF UPk Max Limet Check Line FCC_BE_UNIT1_RMB dBm 0 dBm 0 dBm 0 dBm	DO dB • RBW 1 MHz DO ms • VBW 3 kHz PABS PABS	Mode Auto Sweep	-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB SWT 5 Sount 60/60 TDF DF Max Limit Check Line F C_BE_UNIT1_RMS dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm	DO dB • RBW 1 MHz DO ms • VBW 3 kHz PABS PABS	Mode Auto Sweep	-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB SWT 5 Sount 60/60 TDF DF Max Limit Check Line F C_BE_UNIT1_RMS dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm	DO dB • RBW 1 MHz DO ms • VBW 3 kHz PABS PABS	Mode Auto Sweep	-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB SWT S ount 60/60 TDF Pk Max Limit Check Line F CC_BE_UNIT1_RMS dBm 0 d	DO dB • RBW 1 MHz DO ms • VBW 3 kHz PABS PABS	Mode Auto Sweep	-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB SWT S ount 60/60 TDF Pk Max Limit Check Line F CC_BE_UNIT1_RMS dBm 0 d	DO dB • RBW 1 MHz DO ms • VBW 3 kHz PABS PABS	Mode Auto Sweep	-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB SWT S ount 60/60 TDF DF Max Limit Check Line FCC_BE_UNID1_RMS dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm 0 dBm	DO dB • RBW 1 MHz DO ms • VBW 3 kHz PABS PABS	Mode Auto Sweep	-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB SWT S ount 60/60 TDF IPK Max Limet Check Line FCC_BE_UNITI_RMB dBm 0 dB	DO dB • RBW 1 MHz DO ms • VBW 3 kHz PABS PABS	Mode Auto Sweep	-47.01.di
BE Lov pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB 9 SWT 5 ount 60/60 TDF UPk Max Limit Check Line PCC_BE_UNU1_RMB dBm 0 d	DO dB RBW 1 MHz DO ms VBW 3 kHz PABS PABS M1	Mode Auto Sweep	-47.01.di
pectrum Ref Level 10.00 dBm Offset 5. Att 15 dB SWT 5 iount 60/60 TDF IPk Max Limit Check	DO dB • RBW 1 MHz DO ms • VBW 3 kHz PABS PABS	Mode Auto Sweep	-47.01.4 5.149783 0



802.11n40, HT8 (MIMO) - Chain B

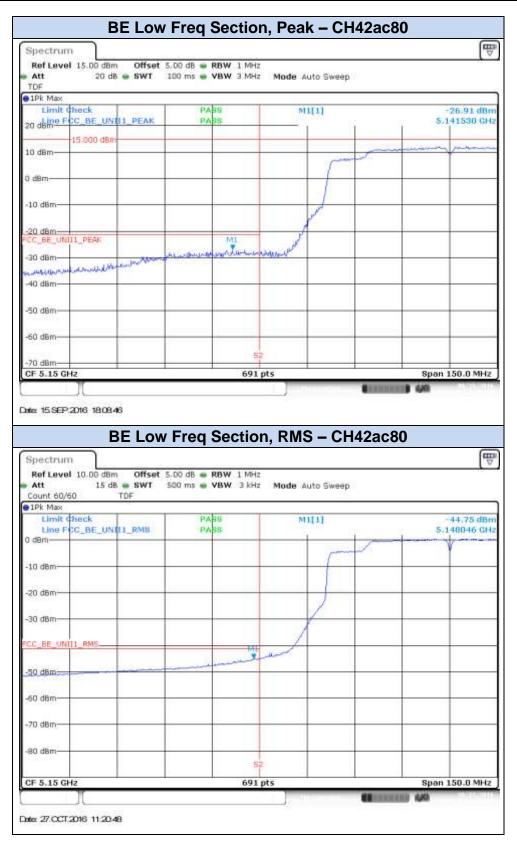








802.11ac80, VHT0 (SISO)- Chain A





802.11ac80, VHT0 (SISO)- Chain B



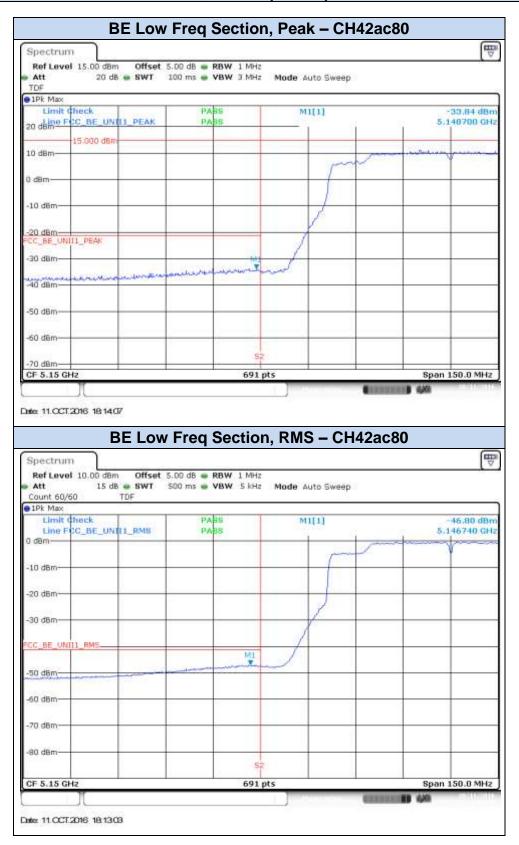


802.11ac80, VHT0 (MIMO)- Chain A





802.11ac80, VHT0 (MIMO)- Chain B





B.4 Radiated spurious emission

Standard references

FCC part	Limits								
15.407 (b) (1)	For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.								
	Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a):								
		Freq Range	Field Strength	Field Strength	Meas.				
		(MHz)	(μV/m)	(dBµV/m)	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				
15.209					216-960	200	46	3	
		Above 960	500	54	3				
	emp 90 k thes dete For also	oloying CISPR q kHz, 110-490 kH e three bands a ector. average radiated a limit specifi	uasi-peak detect Iz and above 10 are based on m d emission meas ed when meas	ve table are base or except for the 00 MHz. Radiate easurements em surements above uring with peak licated values in	frequency band ed emission limit pploying an aver 1000 MHz, there detector func	ls 9- ts in rage re is			

Test procedure

The setup below was used to measure the radiated spurious emissions.

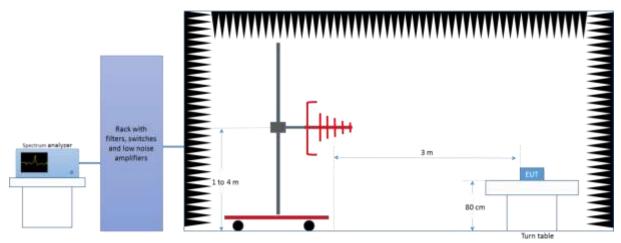
Depending of the frequency range and bands being tested, different antennas and filters were used. The final measurement is done by varying the antenna height, the EUT azimuth over 360° and for both Vertical and Horizontal polarizations.

The radiated spurious emission was measured on the worst case configuration selected from the chapter B.2 and using the low, middle and high channel.

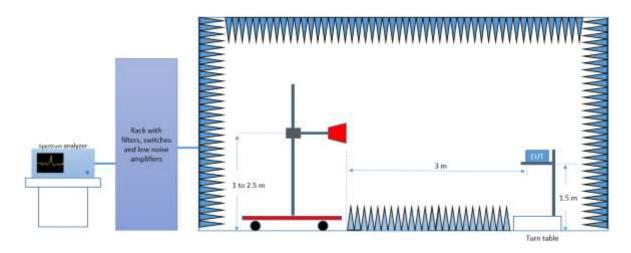
For technologies 802.n20, 802.n40 and 802.ac80 the worst case in terms of spurious emissions found among the low, mid and high channels when tested on chain A and B separately is used to perform the test in MIMO mode (Chain A+B).



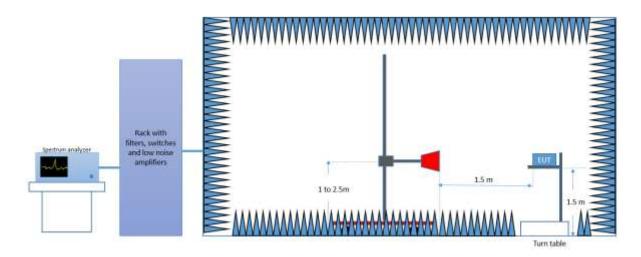
Radiated Setup < 1GHz



Radiated Setup 1 GHz - 18 GHz

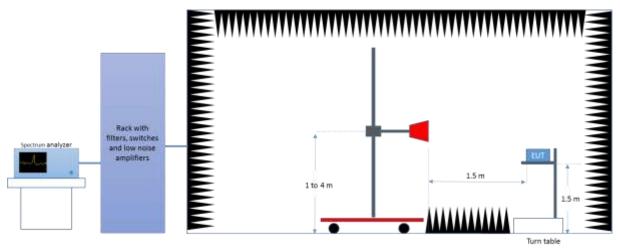


Radiated Setup 18 GHz - 26.5 GHz



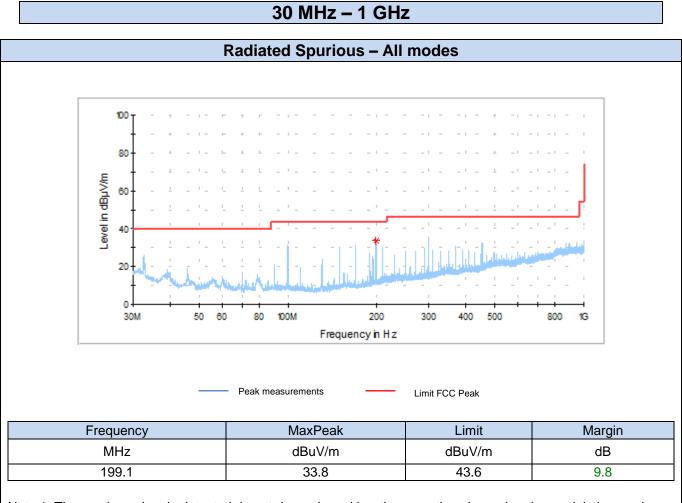


Radiated Setup > 26.5 GHz



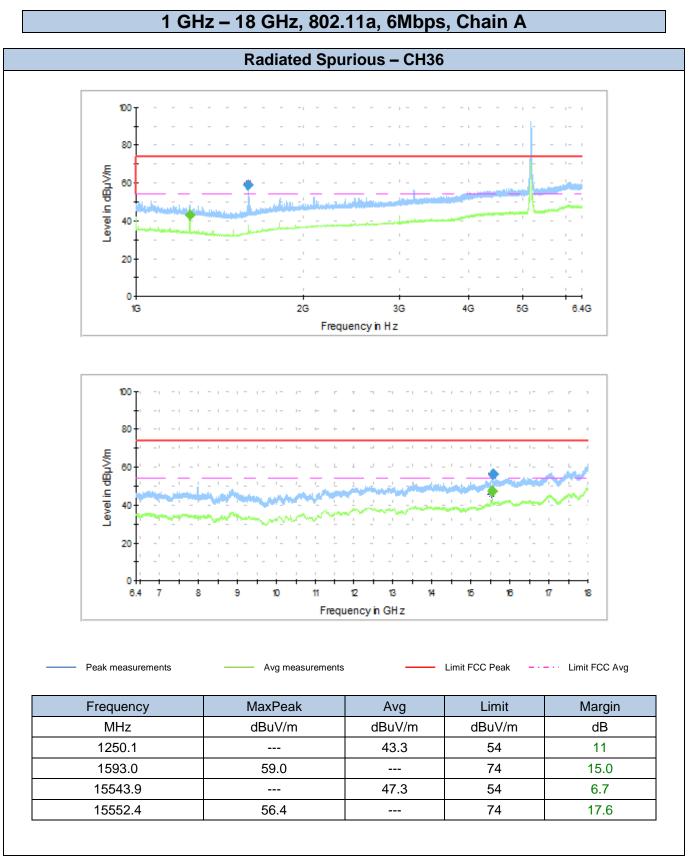


Test Results

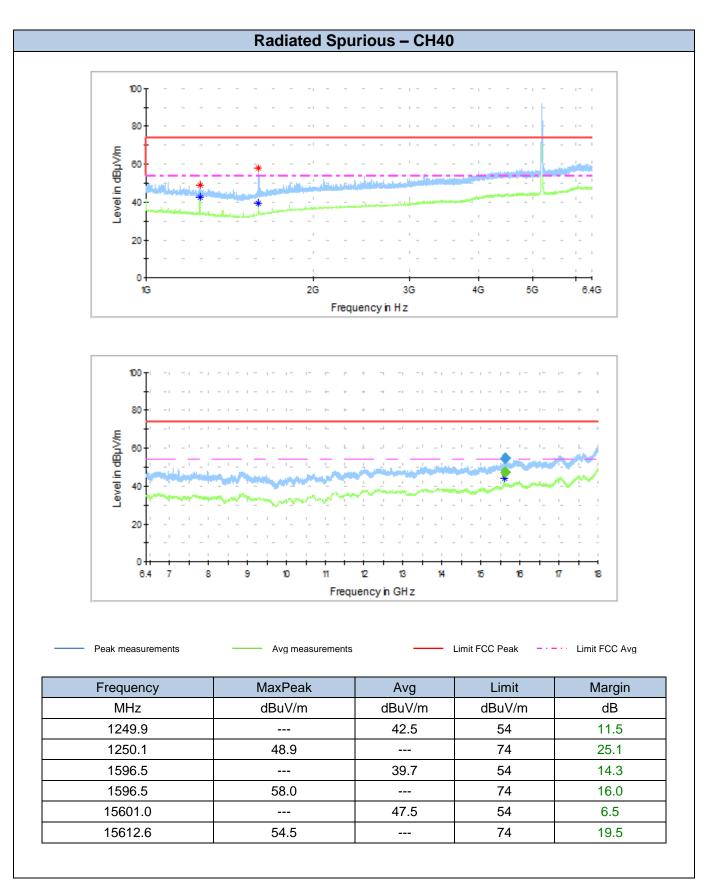


Note 1: The spurious signals detected do not depend on either the operating channel or the modulation mode.

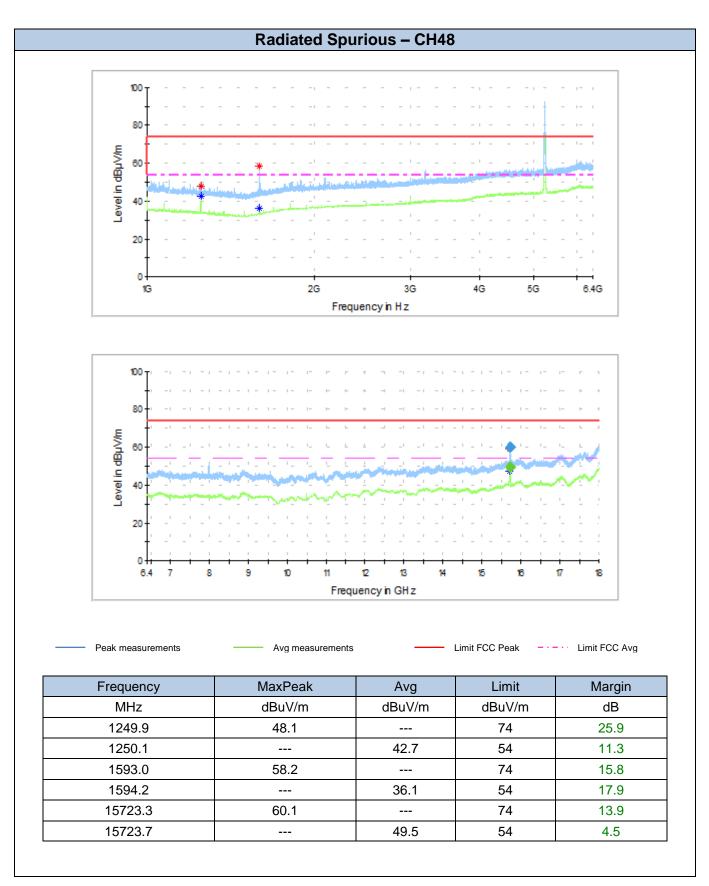




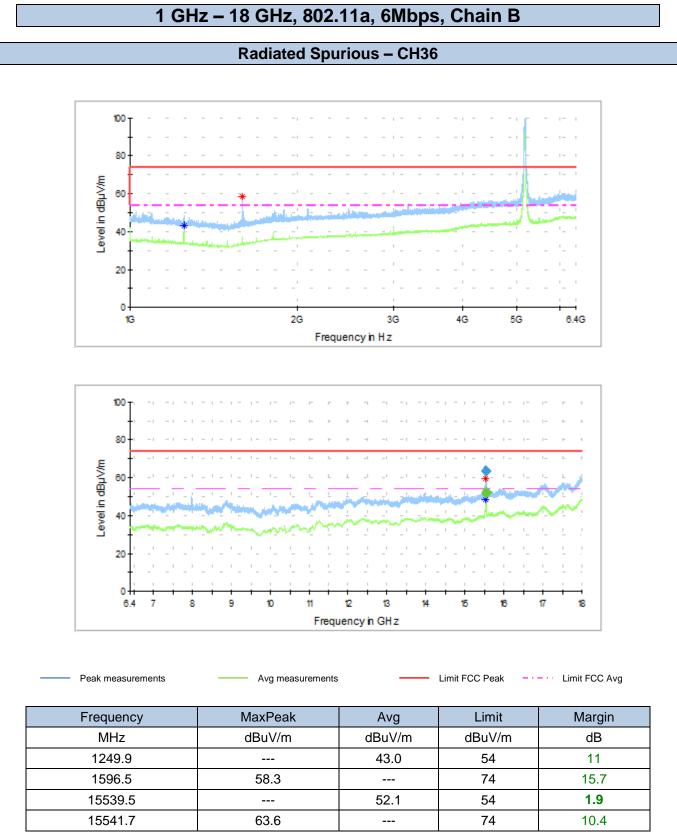




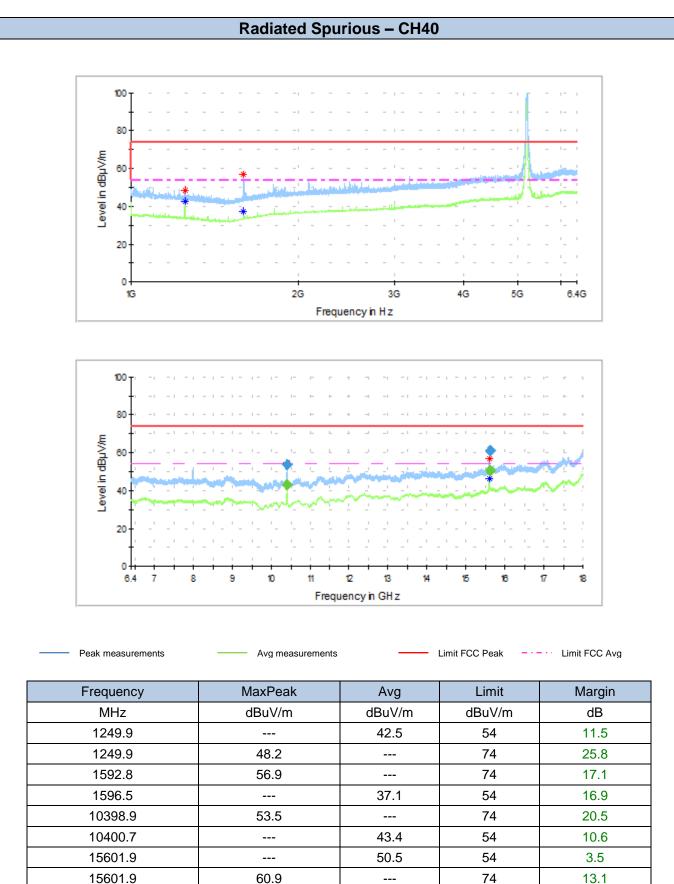




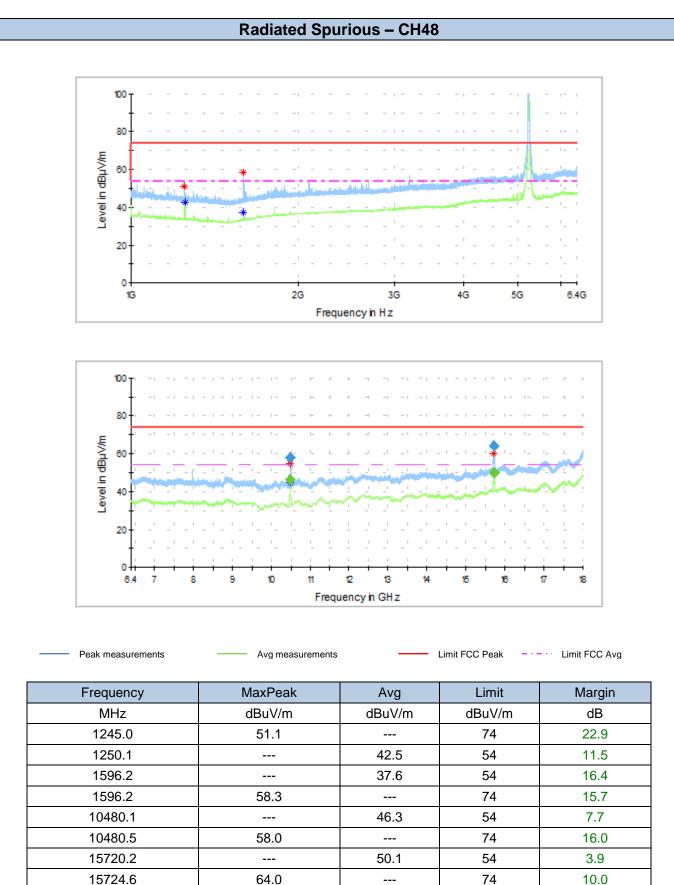












64.0

100

80

60

40

20

0

100

80

60

40

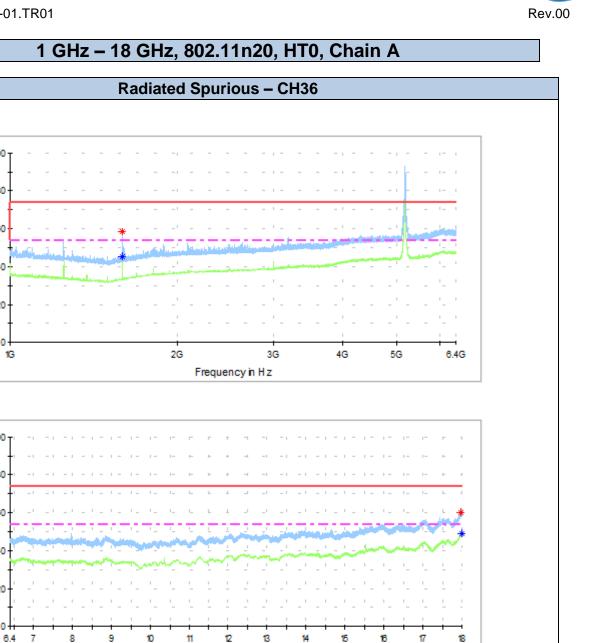
20

0

Level in dBµ\//m

1G

Level in dBµV/m



Peak measurements

Avg measurements

Limit FCC Peak

- · - · · Limit FCC Avg

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
1596.0		45.2	54	8.8
1596.2	58.6		74	15.4
17985.3	59.9		74	14.1
17990.2		48.9	54	5.1

Frequency in GHz



