



FCC Test Report

Equipment Name : Wireless .11ac Smart Ultra-Broadband Gateway with Integrated Video Bridge

Trade Name : technicolor

Model Number : C2100T

Product Code : BAC2100T

FCC ID : RSE-C2100T

Standard : 47 CFR FCC Part 15.407

Operating Band : 5150 MHz – 5250 MHz
5725 MHz – 5850 MHz

FCC Classification : UNII

Applicant : Technicolor Delivery Technologies Belgium
: Prins Boudewijnlaan 47
B-2650 Edegem
Belgium

Function : Outdoor AP; Indoor AP; Fixed P2P AP
 Portable Client

The product sample received on Jun. 24, 2014 and completely tested on Jan. 18, 2015. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2009 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:


Kevin Liang / Assistant Manager





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APPENDIX A. TEST PHOTOS

APPENDIX B. PHOTOGRAPHS OF EUT



Summary of Test Result

Applied Standard: 47 CFR FCC Part 15 Subpart E					
Report Clause	Ref. Std. Clause	Description	Measured	Limit	Result
3.1	15.407(b) (6)	AC Power Conducted Emissions	[dBuV]: 0.496734MHz 42.87 (Margin 3.18dB) - AV 46.67 (Margin 9.38dB) - QP	FCC 15.207	Complied
3.2	15.407(e)	Emission bandwidth	26dBandwidth [MHz] 20M: 40.30 / 40M: 76.56 80M: 83.92 6dBandwidth [MHz] 20M: 16.42 / 40M: 36.16 80M: 74.40	Information only	Complied
3.4	15.407 (a)(1/2/3)	Max Average Transmit Power	Power [dBm] 20M: 27.09 / 40M: 27.54 80M: 23.32	Power [dBm] 5150-5250MHz:30 5725-5850MHz:30	Complied
3.5	15.407 (a)(1/2/3)	Peak Power Spectral Density	PPSD 5150-5250MHz[dBm/MHz]: 20M: 14.87 / 40M: 12.16 80M: 5.10 5725-5850MHz[dBm/500kHz]: 20M: 19.60 / 40M: 18.28 80M: 8.14	PPSD: 5150-5250MHz: 17 [dBm/MHz] 5725-5850MHz: 30 [dBm/500kHz]	Complied
4.7	15.407 (b) (1/2/3/4/6)	Transmitter Unwanted Emissions	Restricted Bands [dBuV/m at 1m]: 15540MHz 67.02 (Margin 6.98dB) – PK 53.71 (Margin 0.29dB) - AV	Non-Restricted Bands: ≤ -27dBm (68.3dBuV/m@3m) Restricted Bands: FCC 15.209	Complied
4.11	15.407 (b) (1/2/3/4/6)	Band Edge Measurement	Non-Restricted [dBuV/m at 3m]: 5706.16MHz 68.08 (Margin 0.12dB) - PK Restricted Bands [dBuV/m at 3m]: 5150.00MHz 71.10 (Margin 2.90dB) - PK 53.80 (Margin 0.20dB) - AV	Non-Restricted Bands: ≤ -27dBm (68.3dBuV/m@3m) Restricted Bands: FCC 15.209	Complied
5	15.407(g)	Frequency Stability	7.42 ppm	Signal shall remain in-band	Complied



Test Items	Uncertainty	Remark
AC Power Line Conducted Emissions	±2.3dB	Confidence levels of 95%
Maximum Peak Conducted Output Power	±0.8dB	Confidence levels of 95%
Power Spectral Density	±0.5dB	Confidence levels of 95%
6dB Spectrum Bandwidth	±8.5×10 ⁻⁸	Confidence levels of 95%
Radiated Emissions (9kHz~30MHz)	±0.8dB	Confidence levels of 95%
Radiated Emissions (30MHz~1000MHz)	±1.9dB	Confidence levels of 95%
Radiated / Band Edge Emissions (1GHz~18GHz)	±1.9dB	Confidence levels of 95%
Radiated Emissions (18GHz~40GHz)	±1.9dB	Confidence levels of 95%
Temperature	±0.7°C	Confidence levels of 95%
Humidity	±3.2%	Confidence levels of 95%
DC / AC Power Source	±1.4%	Confidence levels of 95%



1 General Description

1.1 Information

1.1.1 Equipment under Test

Equipment Name: Wireless .11ac Smart Ultra-Broadband Gateway with Integrated Video Bridge

Model Number: C2100T

Trade Name: technicolor

Product Code: BAC2100T

Power Supply: 1. Switching-Type, 12Vdc, 2.8A, Manufacturer: Ac Bel, Model: WAC011
P/N: DSL37288710

AC Power Cord: Wall-mount, 2pin

Hardware Version: LAB2

Interface Availability

Interface	DC 12Vdc 2.8A	HPNA	Ethernet 10/100/ 1000Mbps	LAN/WAN 10/100/ 1000Mbps	USB 2.0	FXS	DSL	WLAN IEEE 802.11a/b/g/n/ ac(2.4GHz2*2/ 5GHz 4*4)
Model								
C2100T	●	●	●(4 port)	●(1 port)	●(1 port)	●(2 port)	●(1 port)	●

- : Equipped
- : Not Equipped

1.2 Application of standard

US Standard: 47 CFR FCC Part 15 Subpart E § 15.407

ANSI C63.4-2003

ANSI C63.10-2009

KDB662911 D01 Multiple Transmitter Output v02r01, 10/31/2013

KDB789033 D02 General UNII Test Procedures New Rules v01, 06/06/2014

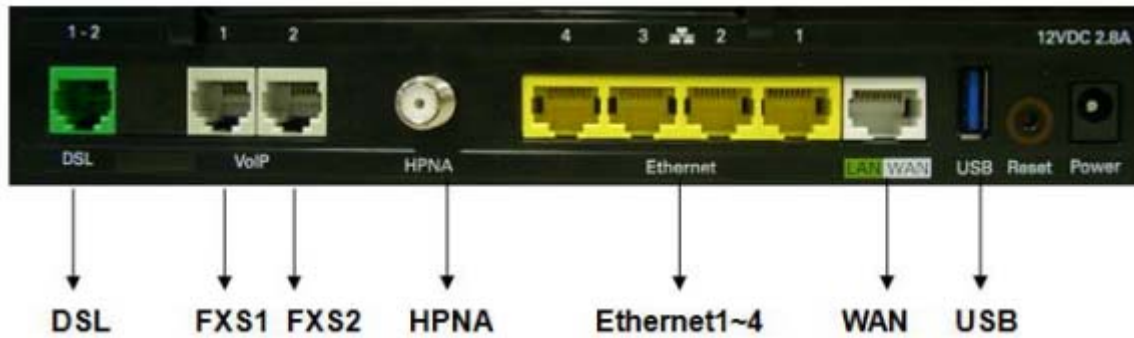
KDB644545 D03 Guidance for 802 11ac New Rules v01, 08/14/2014

1.3 Cabling Attached to the Equipment

Table 1- Cable and Interconnection

Interface	Cable type	Cable length delivered with the modem	“Real life” Cable length that can be attached to this type of interface	Cable length to be used for testing	Internal/ external connection
DSL	UTP Cat 3	2 meter flat cable	> 10 meter	10 meter	External
Eth1, WAN	UTP Cat 5	2 meter	> 10 meter	Two 10 meter cables;	Internal
Line 1/2	UTP Cat 3	2 meter	> 10 meter	1 meter flat cable	Internal
USB	STP	1 meter	< 3 meter	1 meter	Internal
HPNA	coaxial	2 meter	> 10 meter	10 meter	Internal
AC power					External

1.4 Panel Drawing



2 General Information

2.1 Product Details

Items	Description	
PRODUCT	Stand alone	
MODEL NO.	C2100T	
FCC ID	RSE- C2100T	
Power Type	From power adapter	
EUT Stage	<input checked="" type="checkbox"/> Product Unit	<input type="checkbox"/> Pre-Sample
ANTENNA TYPE	Please see Section 2.4	
Operating Band, EIRP power	U-NII-1 5150~5250MHz	<input checked="" type="checkbox"/> IEEE 802.11a
		<input checked="" type="checkbox"/> IEEE 802.11n (20MHz)
		<input checked="" type="checkbox"/> IEEE 802.11n (40MHz)
		<input checked="" type="checkbox"/> IEEE 802.11ac (20MHz)
		<input checked="" type="checkbox"/> IEEE 802.11ac (40MHz)
		<input checked="" type="checkbox"/> IEEE 802.11ac (80MHz)
	U-NII-2A 5250~5350MHz	<input type="checkbox"/> IEEE 802.11a
		<input type="checkbox"/> IEEE 802.11n (20MHz)
		<input type="checkbox"/> IEEE 802.11n (40MHz)
		<input type="checkbox"/> IEEE 802.11ac (20MHz)
		<input type="checkbox"/> IEEE 802.11ac (40MHz)
		<input type="checkbox"/> IEEE 802.11ac (80MHz)
	U-NII-2C 5470~ 5725 MHz	<input type="checkbox"/> IEEE 802.11a
		<input type="checkbox"/> IEEE 802.11n (20MHz)
		<input type="checkbox"/> IEEE 802.11n (40MHz)
		<input type="checkbox"/> IEEE 802.11ac (20MHz)
		<input type="checkbox"/> IEEE 802.11ac (40MHz)
		<input type="checkbox"/> IEEE 802.11ac (80MHz)
	U-NII-3 5725~ 5850 MHz	<input checked="" type="checkbox"/> IEEE 802.11a
		<input checked="" type="checkbox"/> IEEE 802.11n (20MHz)
		<input checked="" type="checkbox"/> IEEE 802.11n (40MHz)
		<input checked="" type="checkbox"/> IEEE 802.11ac (20MHz)
		<input checked="" type="checkbox"/> IEEE 802.11ac (40MHz)
		<input checked="" type="checkbox"/> IEEE 802.11ac (80MHz)
Product Type	For IEEE 802.11a: WLAN(4TX, 4RX) For IEEE 802.11n: WLAN(4TX, 4RX) For IEEE 802.11ac: WLAN (4TX, 4RX)	



Nominal Channel Bandwidth	20MHz / 40MHz/ 80MHz
Modulation	802.11a: OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11n: (BPSK / QPSK / 16QAM / 64QAM)See the below table. 802.11ac:(BPSK / QPSK / 16QAM / 64QAM/ 256QAM)See the below table
Data Rate (Mbps)	11a mode :OFDM (6/9/12/18/24/36/48/54) 11n(20MHz) mode(MCS0~MCS23); 11n(40MHz) mode(MCS0~MCS23) 11ac(20MHz) mode (MCS0~MCS9 for Nss1~Nss4) 11ac(40MHz) mode (MCS0~MCS9 for Nss1~Nss4) 11ac(80MHz) mode (MCS0~MCS9 for Nss1~Nss4)
I/O Ports	LAN Port x 4 LAN/WAN Port x 1 USB Host Port x 1 FXS Port x 2 DSL Port x 1 HPNA Port x 1(Coaxial type)
Software Version	v36.7.1.23
Associated Devices	Switching-Type DC power supply



802.11n Data Rate spec

Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)	
		LGI (800ns)	SGL (400ns)			LGI (800ns)	SGL (400ns)
11n 20MHz 4 stream	MCS0	6.5	7.2	11n 40MHz 4 stream	MCS0	13.5	15
	MCS1	13	14.4		MCS1	27	30
	MCS2	19.5	21.7		MCS2	40.5	45
	MCS3	26	28.9		MCS3	54	60
	MCS4	39	43.3		MCS4	81	90
	MCS5	52	57.8		MCS5	108	120
	MCS6	58.5	65		MCS6	121.5	135
	MCS7	65	72.2		MCS7	135	150
11n 20MHz 4 stream	MCS8	13	14.4	11n 40MHz 4 stream	MCS8	27	30
	MCS9	26	28.9		MCS9	54	60
	MCS10	39	43.3		MCS10	81	90
	MCS11	52	57.8		MCS11	108	120
	MCS12	78	86.7		MCS12	162	180
	MCS13	104	115.6		MCS13	216	240
	MCS14	117	130		MCS14	243	270
	MCS15	130	144.4		MCS15	270	300
11n 20MHz 4 stream	MCS16	19.5	21.7	11n 40MHz 4 stream	MCS16	40.5	45
	MCS17	39	43.3		MCS17	81	90
	MCS18	58.5	65		MCS18	121.5	135
	MCS19	78	86.7		MCS19	162	180
	MCS20	117	130		MCS20	243	270
	MCS21	156	173.3		MCS21	324	360
	MCS22	175.5	195		MCS22	364.5	405
	MCS23	195	216.7		MCS23	405	450
11n 20MHz 4 stream	MCS24	26	28.9	11n 40MHz 4 stream	MCS24	54	60
	MCS25	52	57.8		MCS25	108	120
	MCS26	78	86.7		MCS26	162	180
	MCS27	104	115.6		MCS27	216	240
	MCS28	156	173.3		MCS28	324	360
	MCS29	208	231.1		MCS29	432	480
	MCS30	234	260		MCS30	486	540
	MCS31	260	288.9		MCS31	540	600



802.11ac Data Rate spec

Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)	
		LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)
11ac 20MHz N _{ss} = 1	MCS0	6.5	7.2	11ac 40MHz N _{ss} = 1	MCS0	13.5	15.0	11ac 80MHz N _{ss} = 1	MCS0	29.3	32.5
	MCS1	13.0	14.4		MCS1	27	30.0		MCS1	58.5	65.0
	MCS2	19.5	21.7		MCS2	40.5	45.0		MCS2	87.8	97.5
	MCS3	26	28.9		MCS3	54	60.0		MCS3	117.0	130.0
	MCS4	39	43.3		MCS4	81	90.0		MCS4	175.5	195.0
	MCS5	52	57.8		MCS5	108	120.0		MCS5	234.0	260.0
	MCS6	58.5	65		MCS6	121.5	135.0		MCS6	263.3	292.5
	MCS7	65	72.2		MCS7	135.0	150.0		MCS7	292.5	325.0
	MCS8	78	86.7		MCS8	162.0	180.0		MCS8	351.0	390.0
	MCS9	Note	Note		MCS9	180.0	200.0		MCS9	390.0	433.3

NOTE: MCS 9 is invalid due to mod(N_{CBPS}/N_{ES}, D_R) not being equal to 0.

Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)	
		LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)
11ac 20MHz N _{ss} = 2	MCS0	13.0	14.4	11ac 40MHz N _{ss} = 2	MCS0	27.0	30.0	11ac 80MHz N _{ss} = 2	MCS0	58.5	65.0
	MCS1	26.0	28.9		MCS1	54.0	60.0		MCS1	117.0	130.0
	MCS2	39.0	43.3		MCS2	81.0	90.0		MCS2	175.5	195.0
	MCS3	52.0	57.8		MCS3	108.0	120.0		MCS3	234.0	260.0
	MCS4	78.0	86.7		MCS4	162.0	180.0		MCS4	351.0	390.0
	MCS5	104.0	115.6		MCS5	216.0	240.0		MCS5	468.0	520.0
	MCS6	117.0	130.0		MCS6	243.0	270.0		MCS6	526.5	585.0
	MCS7	130.0	144.4		MCS7	270.0	300.0		MCS7	585.0	650.0
	MCS8	156.0	173.3		MCS8	324.0	360.0		MCS8	702.0	780.0
	MCS9	13.0	14.4		MCS9	360.0	400.0		MCS9	780.0	866.7



Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)	
		LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)
11ac 20MHz N _{ss} = 3	MCS0	19.5	21.7	11ac 40MHz N _{ss} = 3	MCS0	40.5	45.0	11ac 80MHz N _{ss} = 3	MCS0	87.8	97.5
	MCS1	39.0	43.3		MCS1	81.0	90.0		MCS1	175.5	195.0
	MCS2	58.5	65.0		MCS2	121.5	135.0		MCS2	263.3	292.5
	MCS3	78.0	86.7		MCS3	162.0	180.0		MCS3	351.0	190.0
	MCS4	117.0	130		MCS4	243.0	270.0		MCS4	526.5	585.0
	MCS5	156.0	173.3		MCS5	324.0	360.0		MCS5	702.0	780.0
	MCS6	175.5	195.0		MCS6	364.5	405.0		MCS6	Note	Note
	MCS7	195.0	216.7		MCS7	405.0	450.0		MCS7	877.5	975.0
	MCS8	234.0	260.0		MCS8	486.0	540.0		MCS8	1053.0	1170.0
	MCS9	260.0	228.9		MCS9	540.0	600.0		MCS9	1170.0	1300.0

NOTE: MCS 6 is invalid due to mod(N_{CBPS}/N_{ES}, D_R) not being equal to 0.

Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)		Standard	INDEX	Data Rate (Mbps)	
		LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)			LGI (800ns)	SGI (400ns)
11ac 20MHz N _{ss} = 4	MCS0	26.0	28.9	11ac 40MHz N _{ss} = 4	MCS0	54.0	60.0	11ac 80MHz N _{ss} = 4	MCS0	117.0	130.0
	MCS1	52.0	57.8		MCS1	108.0	120.0		MCS1	234.0	260.0
	MCS2	78.0	86.7		MCS2	162.0	180.0		MCS2	351.0	390.0
	MCS3	104.0	115.6		MCS3	216.0	240.0		MCS3	468.0	520.0
	MCS4	156.0	173.3		MCS4	324.0	360.0		MCS4	702.0	780.0
	MCS5	208.0	231.1		MCS5	432.0	480.0		MCS5	936.0	1040.0
	MCS6	234.0	260.0		MCS6	486.0	540.0		MCS6	1053.0	1170.0
	MCS7	260.0	288.9		MCS7	540.0	600.0		MCS7	1170.0	1300.0
	MCS8	312.0	346.7		MCS8	648.0	720.0		MCS8	1404.0	1560.0
	MCS9	Note	Note		MCS9	720.0	800.0		MCS9	1560.0	1733.3

NOTE: MCS 9 is invalid due to mod(N_{CBPS}/N_{ES}, D_R) not being equal to 0.


2.2 Transmit Operating Modes

Transmit Operating Mode				Transmit Multiple Antennas						
<input type="checkbox"/>	Operating mode 1 (single antenna)			<input type="checkbox"/>	1TX					
<input type="checkbox"/>	Operating mode 2 (multiple antenna, no beam forming)			<input type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input checked="" type="checkbox"/>	4TX	
<input type="checkbox"/>	Operating mode 3 (multiple antenna, with beam forming)			<input type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input checked="" type="checkbox"/>	4TX	
<input type="checkbox"/>	802.11a	Operating mode	<input type="checkbox"/>	1TX	<input type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input checked="" type="checkbox"/>	4TX
<input type="checkbox"/>	802.11n(HT20)	Operating mode	<input type="checkbox"/>	1TX	<input type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input checked="" type="checkbox"/>	4TX
<input type="checkbox"/>	802.11n(HT40)	Operating mode	<input type="checkbox"/>	1TX	<input type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input checked="" type="checkbox"/>	4TX
<input type="checkbox"/>	802.11ac(VHT20)	Operating mode	<input type="checkbox"/>	1TX	<input type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input checked="" type="checkbox"/>	4TX
<input type="checkbox"/>	802.11ac(VHT40)	Operating mode	<input type="checkbox"/>	1TX	<input type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input checked="" type="checkbox"/>	4TX
<input type="checkbox"/>	802.11ac(VHT80)	Operating mode	<input type="checkbox"/>	1TX	<input type="checkbox"/>	2TX	<input type="checkbox"/>	3TX	<input checked="" type="checkbox"/>	4TX

For IEEE802.11n, MCS0~MCS31: 4TX only

For IEEE802.11ac VHT20/40/80, Nss1MCS0~Nss1MCS9: 1 Stream 4TX; Nss2MCS0~Nss2MCS9: 2 Stream 4TX; Nss3MCS0~Nss3MCS9: 3 Stream 3TX; Nss4MCS0~Nss4MCS9: 4 Stream 4TX

2.3 Accessories

Power	Brand	Model	Rating
Adapter	Ac Bel	WAC011	I/P: 100-240V~50-60Hz 1A; O/P: 12V  2.8A

2.4 Antenna Requirements

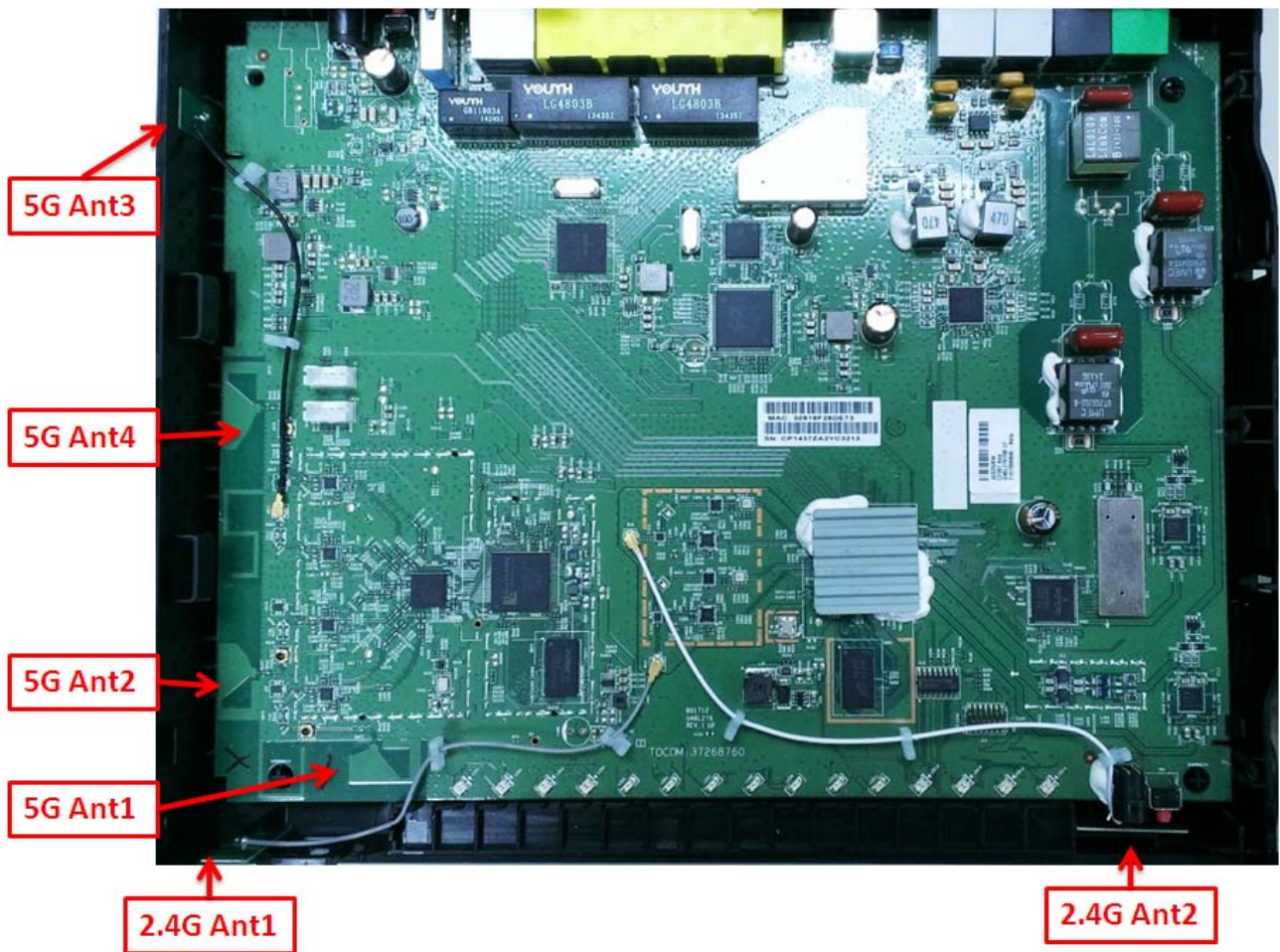
Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

2.5 Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector
1	-	NA	Print Antenna	NA
2	-	NA	Print Antenna	NA
3	M.gear	C107-511102-A	PCB Antenna	I-PEX
4	-	NA	Print Antenna	NA

Antenna & Bandwidth

Antenna	1st (TX)			2nd (TX)			3rd (TX)			4th (TX)		
	20 MHz	40 MHz	80 MHz	20 MHz	40 MHz	80 MHz	20 MHz	40 MHz	80 MHz	20 MHz	40 MHz	80 MHz
802.11a	V	X	X	V	X	X	V	X	X	V	X	X
802.11n	V	V	X	V	V	X	V	V	X	V	V	X
802.11ac	V	V	V	V	V	V	V	V	V	V	V	V





Frequency	Maximum Gain (dBi) for CDD and TxBF mode					
	CDD mode (1 Stream 4 TX) for Power & PSD Gain			TxBF mode (2 Stream 4 TX) for Power & PSD Gain		
	20 MHz	40 MHz	80MHz	20 MHz	40 MHz	80MHz
5180MHz	6.10			3.25		
5190MHz		6.00			2.99	
5200MHz	6.08			3.26		
5210MHz			6.21			3.40
5230MHz		6.05			3.29	
5240MHz	6.16			3.51		
5260MHz	5.94			3.15		
5270MHz		5.84			3.04	
5290MHz			5.79			3.04
5300MHz	5.94			3.09		
5310MHz		6.11			3.44	
5320MHz	5.69			2.99		
5500MHz	6.48			3.53		
5510MHz		6.38			3.43	
5530MHz			6.35			3.41
5550MHz		6.35			3.39	
5580MHz	6.41			3.44		
5670MHz		6.69			3.72	
5690MHz			6.92			3.92
5700MHz	6.49			3.49		
5710MHz		7.09			4.09	
5720MHz	7.21			4.22		
5745MHz	6.95			3.96		
5755MHz		6.84			3.86	
5775MHz			6.80			3.83
5785MHz			6.30			3.32
5795MHz		6.77			3.78	
5825MHz	6.56			3.73		



Frequency	Maximum Gain (dBi) for TxBF mode					
	TxBF mode (3 Stream 4 TX) for Power & PSD Gain			TxBF mode (4 Stream 4 TX) for Power & PSD Gain		
	20 MHz	40 MHz	80MHz	20 MHz	40 MHz	80MHz
5180MHz	5.38			0.45		
5190MHz		5.48			0.61	
5200MHz	5.35			0.28		
5210MHz			5.50			0.43
5230MHz		5.43			0.33	
5240MHz	5.70			0.52		
5260MHz	5.28			0.45		
5270MHz		5.11			0.25	
5290MHz			5.24			0.30
5300MHz	5.35			0.10		
5310MHz		5.73			0.44	
5320MHz	5.27			0.52		
5500MHz	4.98			0.60		
5510MHz		4.93			0.49	
5530MHz			4.91			0.46
5550MHz		4.74			0.42	
5580MHz	4.74			0.47		
5670MHz		4.36			0.75	
5690MHz			5.08			0.98
5700MHz	4.41			0.53		
5710MHz		5.10			1.15	
5720MHz	5.19			1.26		
5745MHz	5.04			1.03		
5755MHz		4.83			0.90	
5775MHz			4.86			0.86
5785MHz			4.25			0.33
5795MHz		5.16			1.10	
5825MHz	5.33			1.07		

Note: Please refer to Antenna report "C2100T antenna table_20141126.xls".

$$\text{Maximum Correlated Directional Gain} = 10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] \text{ dBi}$$

$$\text{Maximum Uncorrelated Directional Gain} = 10 \log[(10^{G1/10} + 10^{G2/10} + \dots + 10^{GN/10}) / N_{ANT}] \text{ dBi}$$

2.6 Table for Carrier Frequencies

22 channels are provided for 802.11a / 802.11n / 802.11ac (20MHz):

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5150~5250 MHz Band 1	36	5180 MHz	44	5220 MHz
	40	5200 MHz	48	5240 MHz
5250~5350 MHz Band 2	52	5260 MHz	60	5300 MHz
	56	5280 MHz	64	5320 MHz
5470~5725 MHz Band 3	100	5500 MHz	132	5660 MHz
	104	5520 MHz	136	5680 MHz
	108	5540 MHz	140	5700 MHz
	112	5560 MHz	144	5720 MHz
	116	5580 MHz	-	-
5725~5850 MHz Band 4	149	5745 MHz	161	5805 MHz
	153	5765 MHz	165	5825 MHz
	157	5785 MHz	-	-

10 channels are provided for 802.11n / 802.11ac (40MHz):

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5150~5250 MHz Band 1	38	5190 MHz	46	5230 MHz
5250~5350 MHz Band 2	54	5270 MHz	62	5310 MHz
5470~5725 MHz Band 3	102	5510 MHz	134	5670 MHz
	110	5550 MHz	142	5710 MHz
5725~5850 MHz Band 4	151	5755 MHz	159	5795 MHz

5 channels are provided for 802.11ac (80MHz):

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
5150~5250 MHz Band 1	42	5210 MHz	138	5690 MHz
5250~5350 MHz Band 2	58	5290 MHz	-	-
5470~5725 MHz Band 3	106	5530 MHz	-	-
5725MHz ~ 5850 MHz Band 4	155	5775 MHz	-	-

2.7 Table for Test Modes

Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Note	Channel	Data Rate	Antenna		
AC Power Conducted Emissions	11ac(80MHz)	OFDM/BPSK	155	Nss1 MCS0	1+2+3+4 (CDD)		
				Nss2 MCS0	1+2+3+4 (TxBF)		
				Nss3 MCS0	1+2+3+4 (TxBF)		
Emission bandwidth 6dB bandwidth for U-NII-3	11a	OFDM/BPSK	36/40/48 149/157/165	6Mbps	1+2+3+4 (CDD)		
				11ac(20MHz)	36/40/48 149/157/165	Nss1 MCS0	1+2+3+4 (CDD)
						Nss2 MCS0	1+2+3+4 (TxBF)
	Nss3 MCS0		1+2+3+4 (TxBF)				
	11ac(40MHz)		38/46 151/159	Nss1 MCS0	1+2+3+4 (CDD)		
				Nss2 MCS0	1+2+3+4 (TxBF)		
				Nss3 MCS0	1+2+3+4 (TxBF)		
	11ac(80MHz)		42 155	Nss1 MCS0	1+2+3+4 (CDD)		
				Nss2 MCS0	1+2+3+4 (TxBF)		
				Nss3 MCS0	1+2+3+4 (TxBF)		
	Maximum Peak Output Power Maximum Average Output Power		11a	OFDM/BPSK	36/40/48 149/157/165	6Mbps	1+2+3+4 (CDD)
						11ac(20MHz)	36/40/48 149/157/165
Nss2 MCS0		1+2+3+4 (TxBF)					
Nss3 MCS0		1+2+3+4 (TxBF)					
11ac(40MHz)		38/46 151/159	Nss1 MCS0		1+2+3+4 (CDD)		
			Nss2 MCS0		1+2+3+4 (TxBF)		
			Nss3 MCS0		1+2+3+4 (TxBF)		
11ac(80MHz)		42 155	Nss1 MCS0		1+2+3+4 (CDD)		
			Nss2 MCS0		1+2+3+4 (TxBF)		
			Nss3 MCS0		1+2+3+4 (TxBF)		
Power Spectral Density		11a	OFDM/BPSK		36/40/48 149/157/165	6Mbps	1+2+3+4 (CDD)
						11ac(20MHz)	36/40/48 149/157/165
	Nss2 MCS0			1+2+3+4 (TxBF)			
	Nss3 MCS0	1+2+3+4 (TxBF)					
	11ac(40MHz)	38/46 151/159		Nss1 MCS0	1+2+3+4 (CDD)		
				Nss2 MCS0	1+2+3+4 (TxBF)		
				Nss3 MCS0	1+2+3+4 (TxBF)		
	11ac(80MHz)	42 155		Nss1 MCS0	1+2+3+4 (CDD)		
				Nss2 MCS0	1+2+3+4 (TxBF)		
				Nss3 MCS0	1+2+3+4 (TxBF)		



Unwanted Emission in the restricted bands Above 1GHz (Radiated)	11a	OFDM/BPSK	36/40/48 149/157/165	6Mbps	1+2+3+4 (CDD)		
	11ac(20MHz)			36/40/48 149/157/165	Nss1 MCS0	1+2+3+4 (CDD)	
					Nss2 MCS0	1+2+3+4 (TxBF)	
			Nss3 MCS0		1+2+3+4 (TxBF)		
	11ac(40MHz)		38/46 151/159	Nss1 MCS0	1+2+3+4 (CDD)		
				Nss2 MCS0	1+2+3+4 (TxBF)		
				Nss3 MCS0	1+2+3+4 (TxBF)		
	11ac(80MHz)		42 155	Nss1 MCS0	1+2+3+4 (CDD)		
				Nss2 MCS0	1+2+3+4 (TxBF)		
				Nss3 MCS0	1+2+3+4 (TxBF)		
	Unwanted Emission out of the restricted bands Above 1GHz (Radiated)		11a	OFDM/BPSK	36/40/48 149/157/165	6Mbps	1+2+3+4 (CDD)
			11ac(20MHz)			36/40/48 149/157/165	Nss1 MCS0
Nss2 MCS0		1+2+3+4 (TxBF)					
Nss3 MCS0		1+2+3+4 (TxBF)					
11ac(40MHz)		38/46 151/159	Nss1 MCS0		1+2+3+4 (CDD)		
			Nss2 MCS0		1+2+3+4 (TxBF)		
			Nss3 MCS0		1+2+3+4 (TxBF)		
11ac(80MHz)		42 155	Nss1 MCS0		1+2+3+4 (CDD)		
			Nss2 MCS0		1+2+3+4 (TxBF)		
			Nss3 MCS0		1+2+3+4 (TxBF)		
Radiated Emissions Below 1GHz(Radiated)		11ac(80MHz)	OFDM/BPSK		155	Nss1 MCS0	1+2+3+4 (CDD)
						Nss2 MCS0	1+2+3+4 (TxBF)
	Nss3 MCS0			1+2+3+4 (TxBF)			
Frequency Stability	20MHz	Un-modulation	36/40/48 149/157/165	-	1, 2, 3, 4		
	40MHz		38/46 151/159	-	1, 2, 3, 4		
	80MHz		42 155	-	1, 2, 3, 4		

2.8 Table for Parameters of Test Software Setting

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

The Power Setting Parameter					
Test Software Version	v36.7.1.23				
Worst Modulation Mode	Number of Transmit Chains (NTX)	Frequency (MHz)	Maximum Output Power (dBm)	Power Setting	Data Rate / MCS
802.11a (CDD)	1 stream 4TX	5180	25.93	21	6Mbps
802.11a (CDD)	1 stream 4TX	5200	26.00	21	6Mbps
802.11a (CDD)	1 stream 4TX	5240	26.34	21	6Mbps
802.11a (CDD)	1 stream 4TX	5745	23.28	17	6Mbps
802.11a (CDD)	1 stream 4TX	5785	25.64	20	6Mbps
802.11a (CDD)	1 stream 4TX	5825	23.75	18	6Mbps
802.11ac 20MHz (CDD)	1 stream 4TX	5180	29.90	21	Nss1MCS0 (6.5)
802.11ac 20MHz (CDD)	1 stream 4TX	5200	29.92	21	Nss1MCS0 (6.5)
802.11ac 20MHz (CDD)	1 stream 4TX	5240	29.84	21	Nss1MCS0 (6.5)
802.11ac 20MHz (CDD)	1 stream 4TX	5745	23.33	17	Nss1MCS0 (6.5)
802.11ac 20MHz (CDD)	1 stream 4TX	5785	25.98	20	Nss1MCS0 (6.5)
802.11ac 20MHz (CDD)	1 stream 4TX	5825	24.10	19	Nss1MCS0 (6.5)
802.11ac 40MHz (CDD)	1 stream 4TX	5190	23.27	18	Nss1MCS0 (13.5)
802.11ac 40MHz (CDD)	1 stream 4TX	5230	26.82	21	Nss1MCS0 (13.5)
802.11ac 40MHz (CDD)	1 stream 4TX	5755	21.79	15	Nss1MCS0 (13.5)
802.11ac 40MHz (CDD)	1 stream 4TX	5795	26.18	20	Nss1MCS0 (13.5)
802.11ac 80MHz (CDD)	1 stream 4TX	5210	22.01	16	Nss1MCS0 (29.3)
802.11ac 80MHz (CDD)	1 stream 4TX	5775	19.15	13	Nss1MCS0 (29.3)



The Power Setting Parameter					
Test Software Version	v36.7.1.23				
Worst Modulation Mode	Number of Transmit Chains (NTX)	Frequency (MHz)	Maximum Output Power (dBm)	Power Setting	Data Rate / MCS
802.11ac 20MHz (TXBF)	2 stream 4TX	5180	23.50	21	Nss2MCS0(6.5)
802.11ac 20MHz (TXBF)	2 stream 4TX	5200	26.99	21	Nss2MCS0(6.5)
802.11ac 20MHz (TXBF)	2 stream 4TX	5240	27.03	21	Nss2MCS0(6.5)
802.11ac 20MHz (TXBF)	2 stream 4TX	5745	20.41	15	Nss2MCS0(6.5)
802.11ac 20MHz (TXBF)	2 stream 4TX	5785	25.70	19	Nss2MCS0(6.5)
802.11ac 20MHz (TXBF)	2 stream 4TX	5825	19.90	15	Nss2MCS0(6.5)
802.11ac 40MHz (TXBF)	2 stream 4TX	5190	23.17	17	Nss2MCS0(13.5)
802.11ac 40MHz (TXBF)	2 stream 4TX	5230	27.46	21	Nss2MCS0(29.3)
802.11ac 40MHz (TXBF)	2 stream 4TX	5755	19.08	14	Nss2MCS0(29.3)
802.11ac 40MHz (TXBF)	2 stream 4TX	5795	26.74	20	Nss2MCS0(29.3)
802.11ac 80MHz (TXBF)	2 stream 4TX	5210	5.07	16	Nss2MCS0(29.3)
802.11ac 80MHz (TXBF)	2 stream 4TX	5775	19.84	13	Nss2MCS0(29.3)

The Power Setting Parameter					
Test Software Version	v36.7.1.23				
Worst Modulation Mode	Number of Transmit Chains (NTX)	Frequency (MHz)	Maximum Output Power (dBm)	Power Setting	Data Rate / MCS
802.11ac 20MHz (TXBF)	3 stream 4TX	5180	25.11	19	Nss3MCS0(6.5)
802.11ac 20MHz (TXBF)	3 stream 4TX	5200	26.85	21	Nss3MCS0(6.5)
802.11ac 20MHz (TXBF)	3 stream 4TX	5240	27.09	21	Nss3MCS0(6.5)
802.11ac 20MHz (TXBF)	3 stream 4TX	5745	21.85	15	Nss3MCS0(6.5)
802.11ac 20MHz (TXBF)	3 stream 4TX	5785	24.89	19	Nss3MCS0(6.5)
802.11ac 20MHz (TXBF)	3 stream 4TX	5825	22.18	15	Nss3MCS0(6.5)
802.11ac 40MHz (TXBF)	3 stream 4TX	5190	23.48	16	Nss3MCS0(13.5)
802.11ac 40MHz (TXBF)	3 stream 4TX	5230	27.54	21	Nss3MCS0(29.3)
802.11ac 40MHz (TXBF)	3 stream 4TX	5755	19.48	14	Nss3MCS0(29.3)
802.11ac 40MHz (TXBF)	3 stream 4TX	5795	26.90	20	Nss3MCS0(29.3)
802.11ac 80MHz (TXBF)	3 stream 4TX	5210	22.71	16	Nss3MCS0(29.3)
802.11ac 80MHz (TXBF)	3 stream 4TX	5775	19.21	13	Nss3MCS0(29.3)

3 TEST RESULT

3.1 AC Power Line Conducted Emissions Measurement

3.1.1 Limit

For this product which is designed to be connected to the AC power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed below limits table.

Frequency (MHz)	QP Limit (dBuV)	AV Limit (dBuV)
0.15~0.5	66~56	56~46
0.5~5	56	46
5~30	60	50

3.1.2 Measuring Instruments and Setting

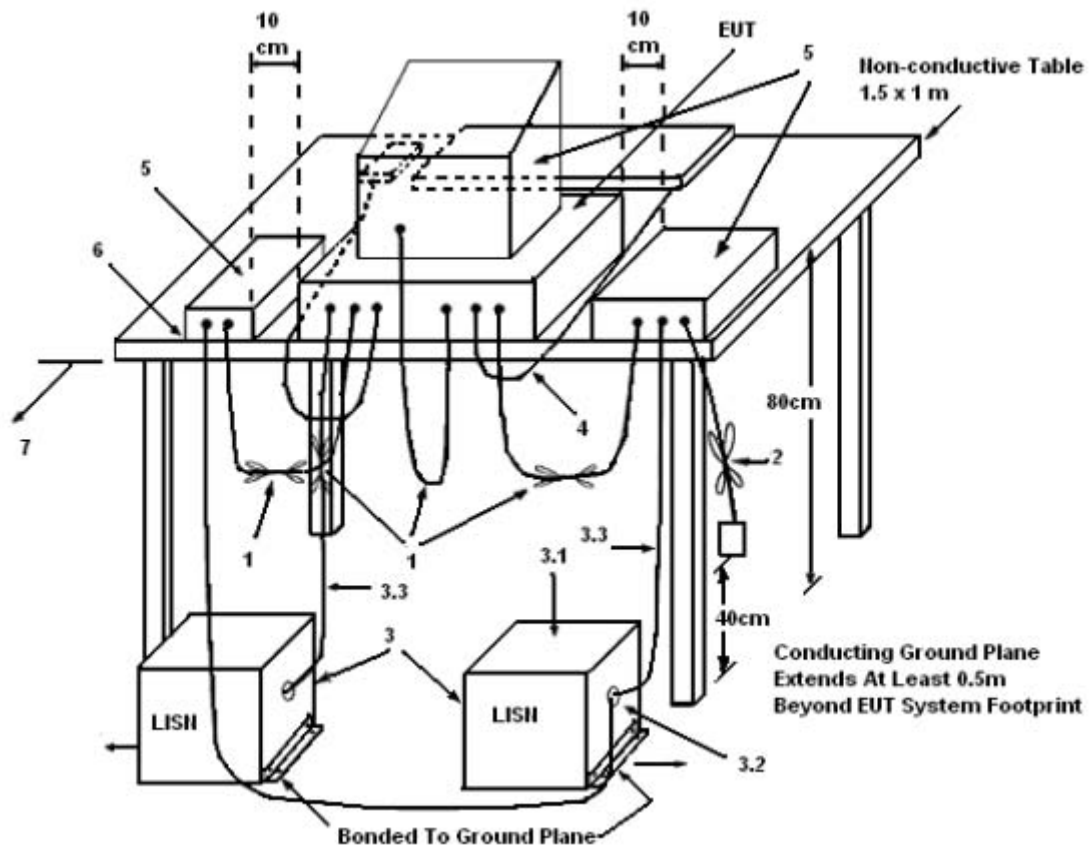
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 KHz

3.1.3 Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150 KHz to 30 MHz was searched.
5. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

3.1.4 Test Setup Layout



LEGEND:

1. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
2. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
3. EUT connected to one LISN. Unused LISN measuring port connectors shall be terminated in 50 Ω . LISN can be placed on top of, or immediately beneath, reference ground plane.
4. All other equipment powered from additional LISN(s).
5. Multiple outlet strip can be used for multiple power cords of non-EUT equipment.
6. LISN at least 80 cm from nearest part of EUT chassis.
7. Cables of hand-operated devices, such as keyboards, mice, etc., shall be placed as for normal use.
8. Non-EUT components of EUT system being tested.
9. Rear of EUT, including peripherals, shall all be aligned and flush with rear of tabletop.
10. Rear of tabletop shall be 40 cm removed from a vertical conducting plane that is bonded to the ground plane.



3.1.5 Test Deviation

There is no deviation with the original standard.

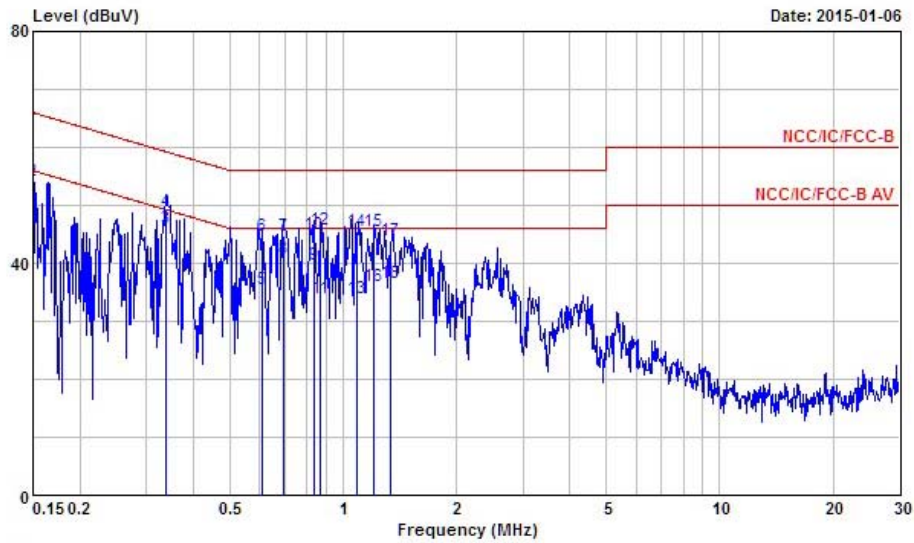
3.1.6 EUT Operation during Test

The EUT was placed on the test table and programmed in normal function.



3.1.7 Results of AC Power Line Conducted Emissions Measurement

Temperature	24°C	Humidity	44%
Test Engineer	Zeus	PHASE	Line
Configuration	802.11ac 80MHz, 5775MHz, CDD, Ant.1+2+3+4		

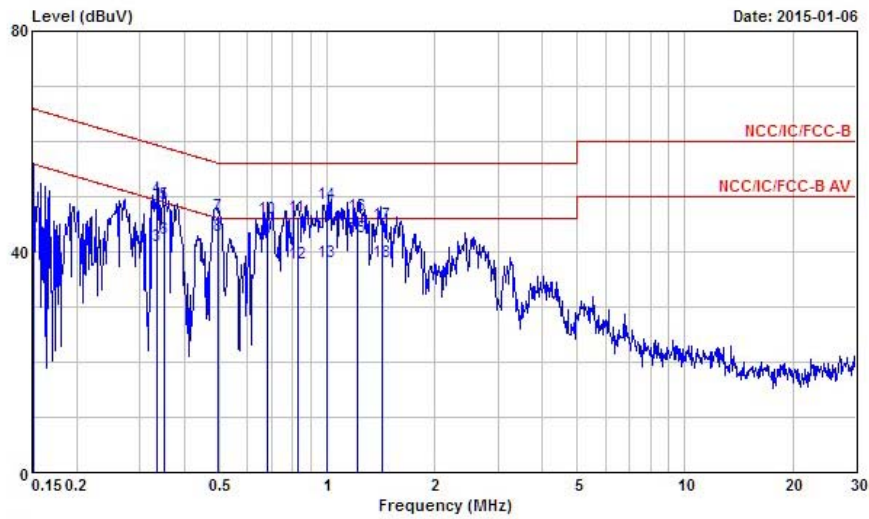


	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.1500000	37.95	-18.05	56.00	37.58	0.03	0.34	Average
2	0.1500000	54.16	-11.84	66.00	53.79	0.03	0.34	QP
3	0.3391950	45.97	-3.25	49.22	45.36	0.03	0.58	Average
4	0.3391950	48.88	-10.34	59.22	48.27	0.03	0.58	QP
5	0.6075240	35.56	-10.44	46.00	34.83	0.04	0.69	Average
6	0.6075240	44.75	-11.25	56.00	44.02	0.04	0.69	QP
7	0.6935680	44.71	-11.29	56.00	43.94	0.05	0.72	QP
8	0.6935680	40.68	-5.32	46.00	39.91	0.05	0.72	Average
9	0.8348820	39.77	-6.23	46.00	38.96	0.05	0.76	Average
10	0.8348820	44.99	-11.01	56.00	44.18	0.05	0.76	QP
11	0.8710300	33.93	-12.07	46.00	33.10	0.06	0.77	Average
12	0.8710300	45.77	-10.23	56.00	44.94	0.06	0.77	QP
13	1.090	33.84	-12.16	46.00	32.98	0.06	0.80	Average
14	1.090	45.58	-10.42	56.00	44.72	0.06	0.80	QP
15	1.210	45.53	-10.47	56.00	44.67	0.06	0.80	QP
16	1.210	36.12	-9.88	46.00	35.26	0.06	0.80	Average
17	1.340	43.97	-12.03	56.00	43.11	0.06	0.80	QP
18	1.340	36.47	-9.53	46.00	35.61	0.06	0.80	Average

Note 1: The test was passed at the minimum margin that marked by the frame in the following data
 Note 2: The emission levels of other frequencies were very low against the limit.
 Note 3: Q.P. and AV. are abbreviations of quasi-peak and average individually.
 Note 4: Corrected Reading (dBµV) = LISN Factor + Cable Loss + Read Level = Level
 Note 5: Over Limit value = level - Limit value



Temperature	24°C	Humidity	44%
Test Engineer	Zeus	PHASE	Neutral
Configuration	802.11ac 80MHz, 5775MHz, CDD, Ant.1+2+3+4		

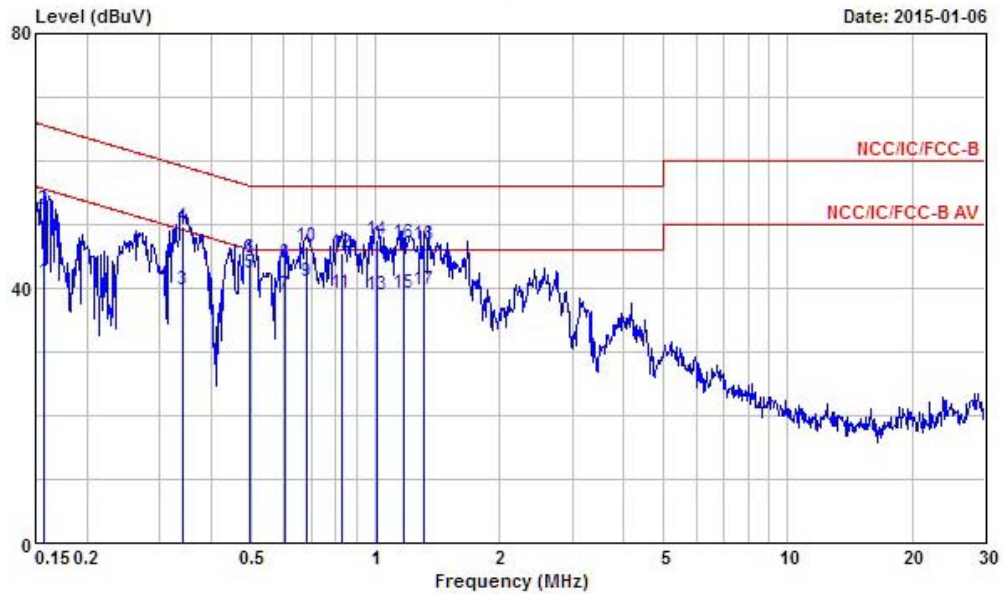


	Freq	Level	Over	Limit	Read	LISN	Cable	Remark
	MHz	dBuV	Limit	Line	Level	Factor	Loss	
			dB	dBuV	dBuV	dB	dB	
1	0.1515980	51.98	-13.93	65.91	51.62	0.02	0.34	QP
2	0.1515980	41.63	-14.28	55.91	41.27	0.02	0.34	Average
3	0.3356200	41.00	-8.31	49.31	40.40	0.03	0.57	Average
4	0.3356200	49.79	-9.52	59.31	49.19	0.03	0.57	QP
5	0.3501520	48.59	-10.37	58.96	47.98	0.03	0.58	QP
6	0.3501520	42.34	-6.62	48.96	41.73	0.03	0.58	Average
7	0.4967340	46.67	-9.38	56.05	45.99	0.03	0.65	QP
8	0.4967340	42.87	-3.18	46.05	42.19	0.03	0.65	Average
9	0.6790240	42.40	-3.60	46.00	41.64	0.04	0.72	Average
10	0.6790240	46.17	-9.83	56.00	45.41	0.04	0.72	QP
11	0.8260820	46.21	-9.79	56.00	45.40	0.05	0.76	QP
12	0.8260820	37.76	-8.24	46.00	36.95	0.05	0.76	Average
13	1.000	38.08	-7.92	46.00	37.23	0.05	0.80	Average
14	1.000	48.67	-7.33	56.00	47.82	0.05	0.80	QP
15	1.220	42.50	-3.50	46.00	41.65	0.05	0.80	Average
16	1.220	46.64	-9.36	56.00	45.79	0.05	0.80	QP
17	1.420	44.91	-11.09	56.00	44.05	0.06	0.80	QP
18	1.420	38.04	-7.96	46.00	37.18	0.06	0.80	Average

Note 1: The test was passed at the minimum margin that marked by the frame in the following data
 Note 2: The emission levels of other frequencies were very low against the limit.
 Note 3: Q.P. and AV. are abbreviations of quasi-peak and average individually.
 Note 4: Corrected Reading (dBuV) = LISN Factor + Cable Loss + Read Level = Level
 Note 5: Over Limit value = level - Limit value



Temperature	24°C	Humidity	44%
Test Engineer	Zeus	PHASE	Line
Configuration	802.11ac 80MHz, 5775MHz, TxBF, Ant.1+2+3+4		

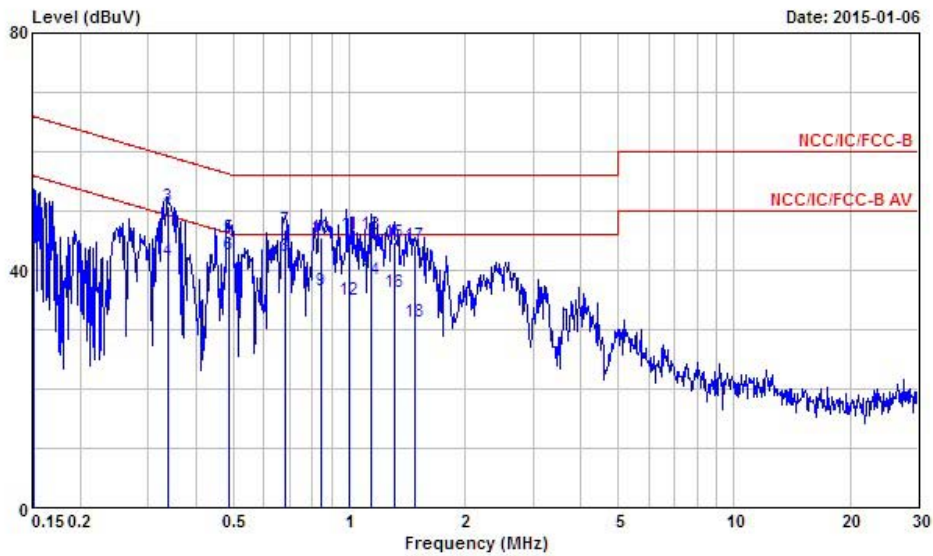


	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.1564950	41.08	-14.57	55.65	40.69	0.03	0.36	Average
2	0.1564950	52.50	-13.15	65.65	52.11	0.03	0.36	QP
3	0.3409970	39.66	-9.52	49.18	39.05	0.03	0.58	Average
4	0.3409970	49.74	-9.44	59.18	49.13	0.03	0.58	QP
5	0.4941090	42.46	-3.64	46.10	41.77	0.04	0.65	Average
6	0.4941090	44.70	-11.40	56.10	44.01	0.04	0.65	QP
7	0.6011200	38.88	-7.12	46.00	38.15	0.04	0.69	Average
8	0.6011200	44.07	-11.93	56.00	43.34	0.04	0.69	QP
9	0.6826310	40.97	-5.03	46.00	40.20	0.05	0.72	Average
10	0.6826310	46.55	-9.45	56.00	45.78	0.05	0.72	QP
11	0.8260820	39.29	-6.71	46.00	38.48	0.05	0.76	Average
12	0.8260820	45.51	-10.49	56.00	44.70	0.05	0.76	QP
13	1.010	39.02	-6.98	46.00	38.16	0.06	0.80	Average
14	1.010	47.53	-8.47	56.00	46.67	0.06	0.80	QP
15	1.170	39.09	-6.91	46.00	38.23	0.06	0.80	Average
16	1.170	47.14	-8.86	56.00	46.28	0.06	0.80	QP
17	1.310	39.63	-6.37	46.00	38.77	0.06	0.80	Average
18	1.310	46.95	-9.05	56.00	46.09	0.06	0.80	QP

Note 1: The test was passed at the minimum margin that marked by the frame in the following data
 Note 2: The emission levels of other frequencies were very low against the limit.
 Note 3: Q.P. and AV. are abbreviations of quasi-peak and average individually.
 Note 4: Corrected Reading (dBμV) = LISN Factor + Cable Loss + Read Level = Level
 Note 5: Over Limit value = level - Limit value



Temperature	24°C	Humidity	44%
Test Engineer	Zeus	PHASE	Neutral
Configuration	802.11ac 80MHz, 5775MHz, TxBF, Ant.1+2+3+4		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1515980	36.41	-19.50	55.91	36.05	0.02	0.34	Average
2	0.1515980	48.64	-17.27	65.91	48.28	0.02	0.34	QP
3	0.3374030	50.71	-8.56	59.27	50.10	0.03	0.58	QP
4	0.3374030	41.54	-7.73	49.27	40.93	0.03	0.58	Average
5	0.4863180	45.54	-10.69	56.23	44.87	0.03	0.64	QP
6	0.4863180	42.52	-3.71	46.23	41.85	0.03	0.64	Average
7	0.6790240	46.92	-9.08	56.00	46.16	0.04	0.72	QP
8	0.6790240	42.44	-3.56	46.00	41.68	0.04	0.72	Average
9	0.8437760	36.59	-9.41	46.00	35.78	0.05	0.76	Average
10	0.8437760	45.61	-10.39	56.00	44.80	0.05	0.76	QP
11	1.000	45.94	-10.06	56.00	45.09	0.05	0.80	QP
12	1.000	35.10	-10.90	46.00	34.25	0.05	0.80	Average
13	1.140	45.93	-10.07	56.00	45.08	0.05	0.80	QP
14	1.140	38.32	-7.68	46.00	37.47	0.05	0.80	Average
15	1.310	44.69	-11.31	56.00	43.84	0.05	0.80	QP
16	1.310	36.27	-9.73	46.00	35.42	0.05	0.80	Average
17	1.480	44.15	-11.85	56.00	43.29	0.06	0.80	QP
18	1.480	31.35	-14.65	46.00	30.49	0.06	0.80	Average

Note 1: The test was passed at the minimum margin that marked by the frame in the following data
 Note 2: The emission levels of other frequencies were very low against the limit.
 Note 3: Q.P. and AV. are abbreviations of quasi-peak and average individually.
 Note 4: Corrected Reading (dBµV) = LISN Factor + Cable Loss + Read Level = Level
 Note 5: Over Limit value = level - Limit value

3.2 Emission bandwidth Measurement

3.2.1 Limit

No restriction limits

3.2.2 26dB Bandwidth Measuring Instruments and Setting

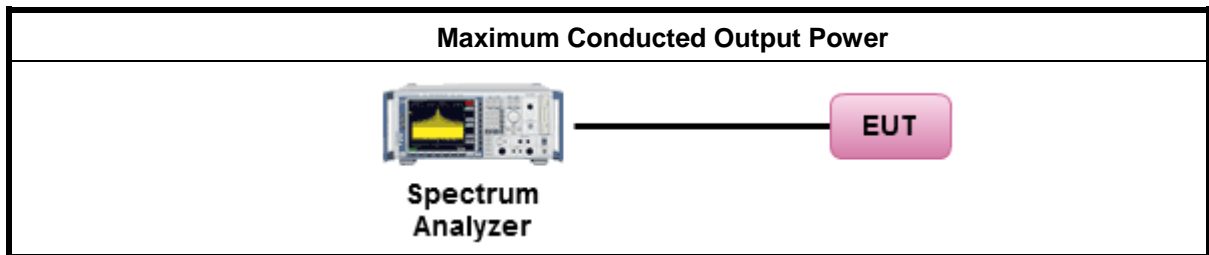
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Power Meter Parameter	Setting
Attenuation	Auto
Span Frequency	> 26dB Bandwidth
RB	Approximately 1% of the emission bandwidth.
VB	> RBW.
Detector	peak
Trace	max hold
Sweep Time	Auto

3.2.3 Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Test was performed in accordance with Measurement of Digital Transmission Systems Operating under 789033 D02 General UNII Test Procedures New Rules v01, in section "Emission bandwidth (C)(1)", 06/06/2014
3. When measuring Emission bandwidth with multiple antenna systems, add every result of the values by mathematic formula.

3.2.4 Test Setup Layout



3.2.5 Test Deviation

There are no deviation with the original standard.

3.2.6 EUT Operation during Test

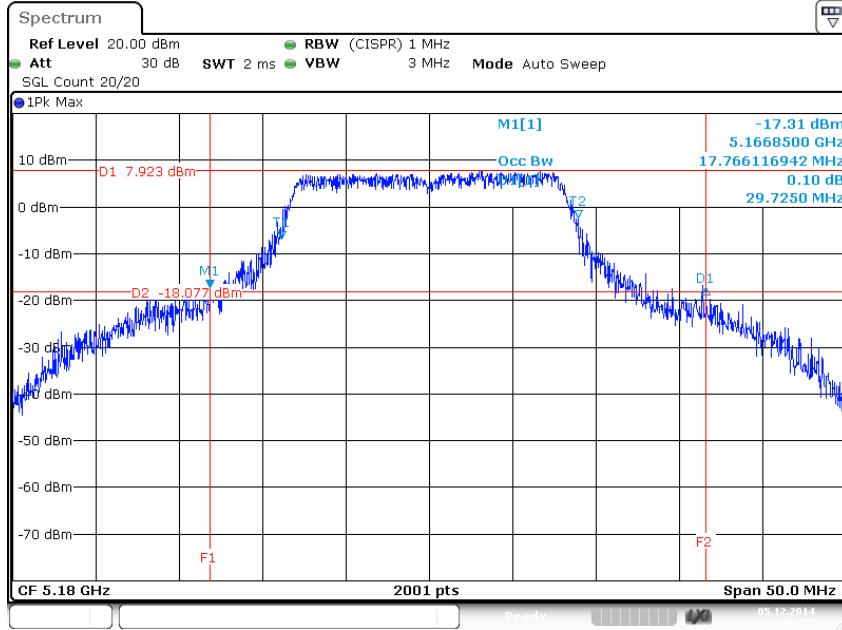
The EUT was programmed to be in continuously transmitting mode.

3.2.7 Test Result for Emission bandwidth

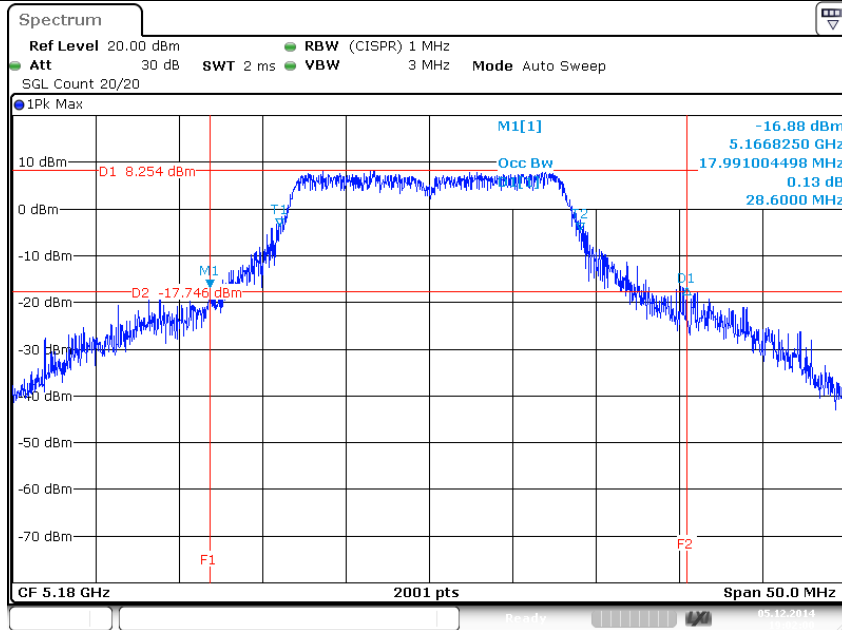
26dB Emission Bandwidth						
Worst Modulation Mode	Number of Transmit Chains (NTX)	Frequency (MHz)	26dB Emission Bandwidth			
			Ant1	Ant 2	Ant 3	Ant 4
802.11a (CDD)	1 stream 4TX	5180	29.72	28.60	25.95	25.55
802.11a (CDD)	1 stream 4TX	5200	33.72	28.00	28.92	25.45
802.11a (CDD)	1 stream 4TX	5240	33.17	29.07	29.00	25.17
802.11a (CDD)	1 stream 4TX	5745	25.15	25.40	24.50	25.27
802.11a (CDD)	1 stream 4TX	5785	25.70	32.70	27.75	25.77
802.11a (CDD)	1 stream 4TX	5825	25.22	25.32	24.97	25.27
802.11ac 20MHz (CDD)	1 stream 4TX	5180	35.75	33.97	24.35	29.65
802.11ac 20MHz (CDD)	1 stream 4TX	5200	35.17	35.60	31.42	25.97
802.11ac 20MHz (CDD)	1 stream 4TX	5240	35.57	35.65	29.35	25.62
802.11ac 20MHz (CDD)	1 stream 4TX	5745	26.30	26.07	25.47	24.82
802.11ac 20MHz (CDD)	1 stream 4TX	5785	31.97	30.80	33.32	30.17
802.11ac 20MHz (CDD)	1 stream 4TX	5825	27.60	25.97	25.92	25.15
802.11ac 40MHz (CDD)	1 stream 4TX	5190	42.92	42.28	43.28	42.28
802.11ac 40MHz (CDD)	1 stream 4TX	5230	63.16	66.20	68.32	48.96
802.11ac 40MHz (CDD)	1 stream 4TX	5755	43.08	42.68	43.04	42.56
802.11ac 40MHz (CDD)	1 stream 4TX	5795	59.68	69.60	70.40	69.24
802.11ac 80MHz (CDD)	1 stream 4TX	5210	83.04	79.68	80.72	81.60
802.11ac 80MHz (CDD)	1 stream 4TX	5775	82.16	79.36	81.04	83.92



802.11a/ 6Mbps/ Ch36/ Ant1

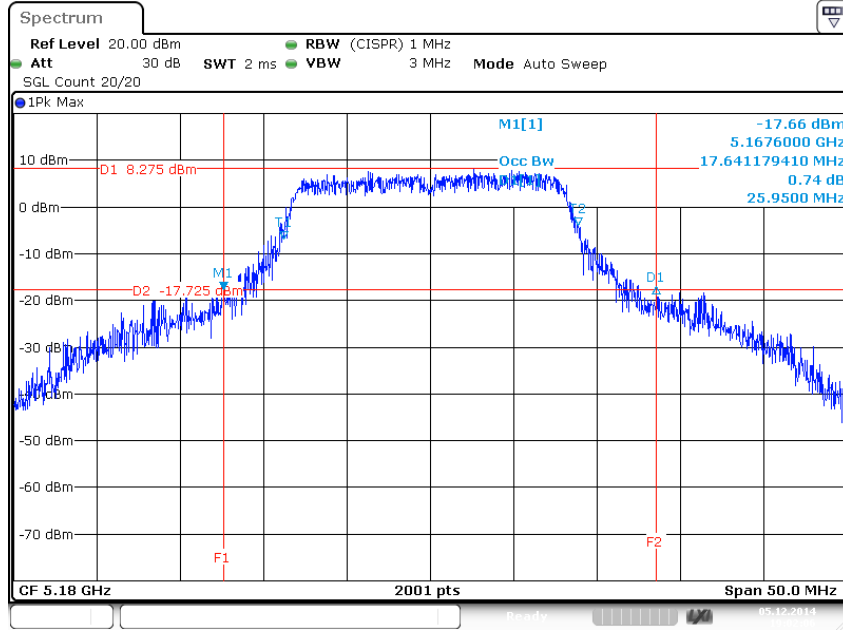


802.11a/ 6Mbps/ Ch36/ Ant2

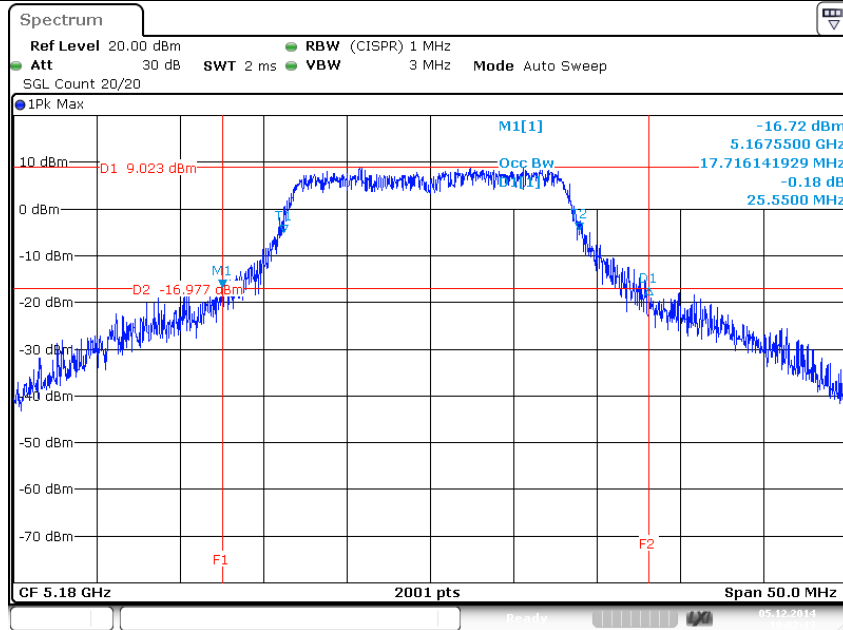




802.11a/ 6Mbps/ Ch36/ Ant3

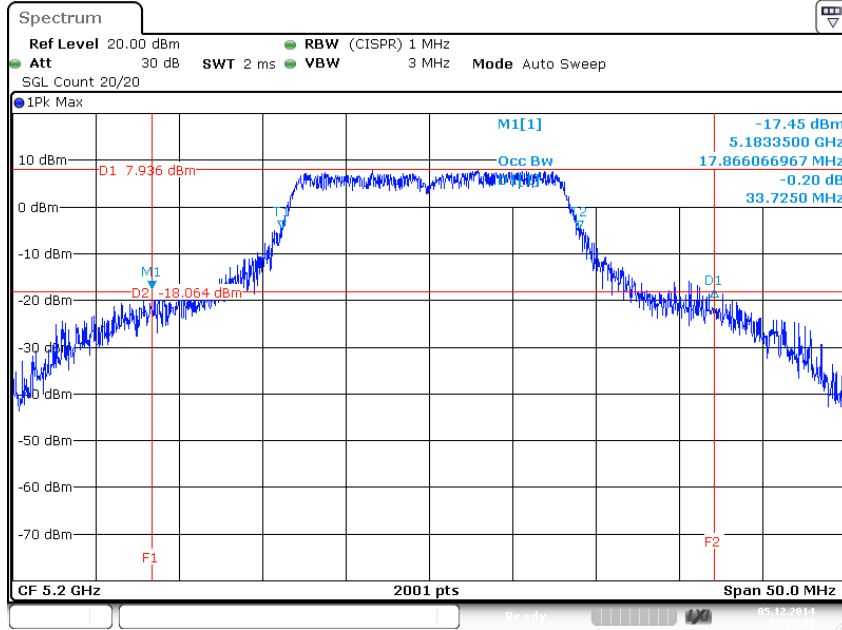


802.11a/ 6Mbps/ Ch36/ Ant4

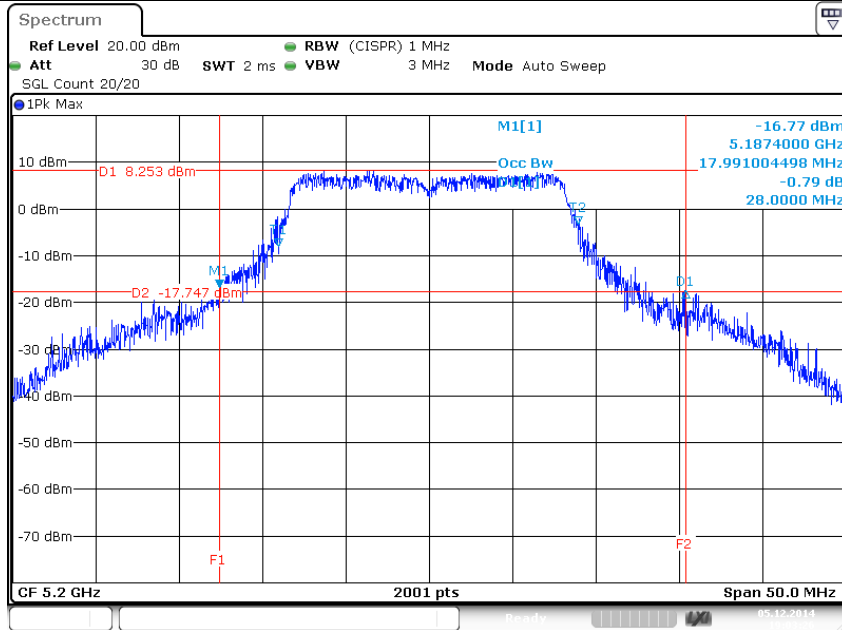




802.11a/ 6Mbps/ Ch40/ Ant1

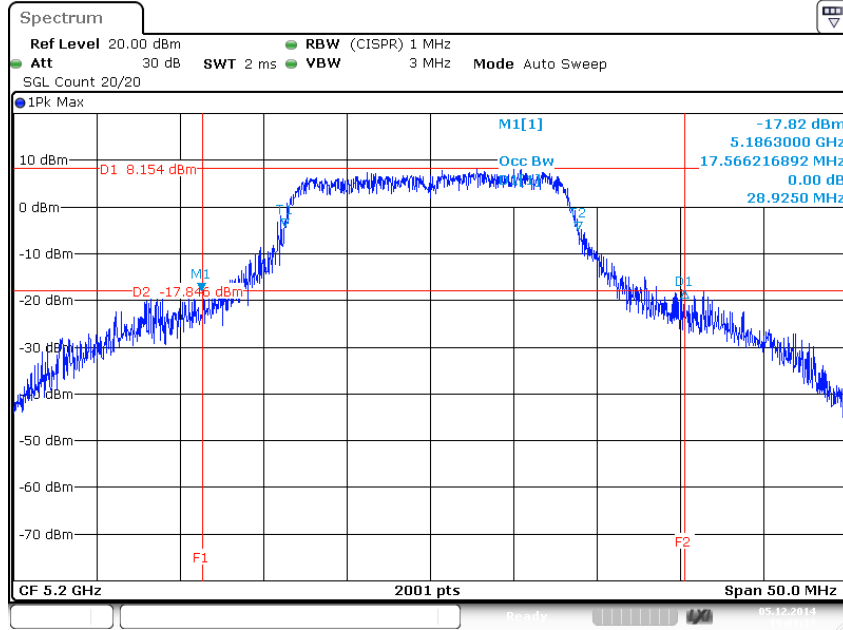


802.11a/ 6Mbps/ Ch40/ Ant2



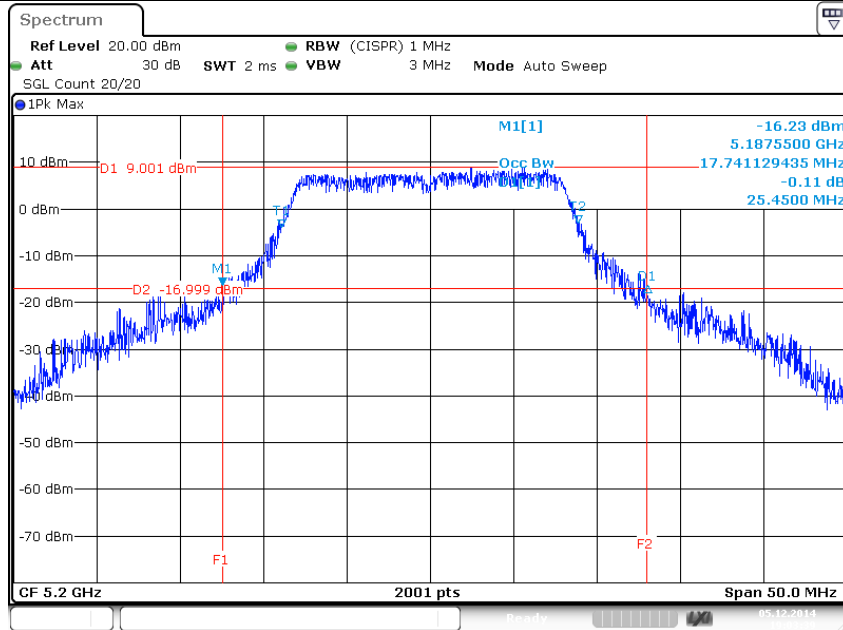


802.11a/ 6Mbps/ Ch40/ Ant3



Date: 5.DEC.2014 19:03:33

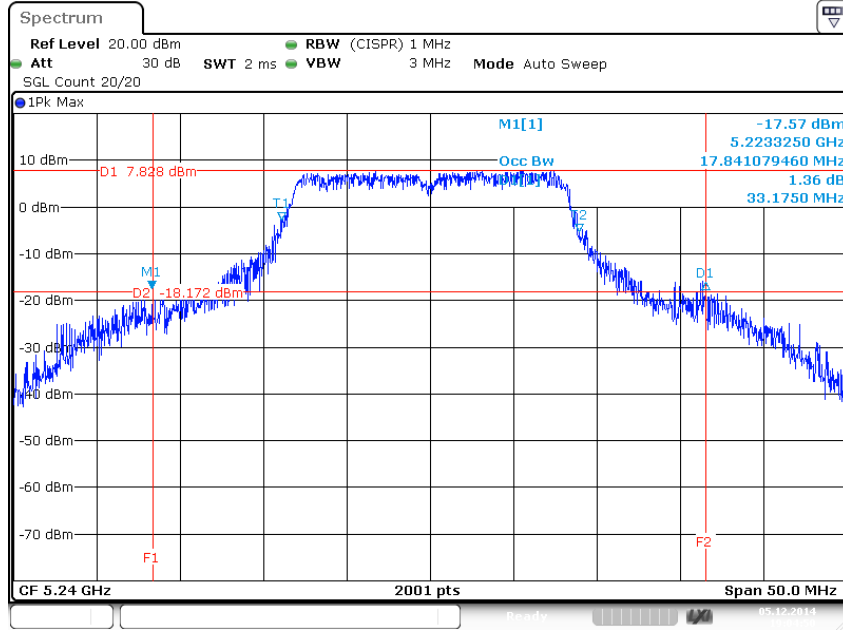
802.11a/ 6Mbps/ Ch40/ Ant4



Date: 5.DEC.2014 19:03:40

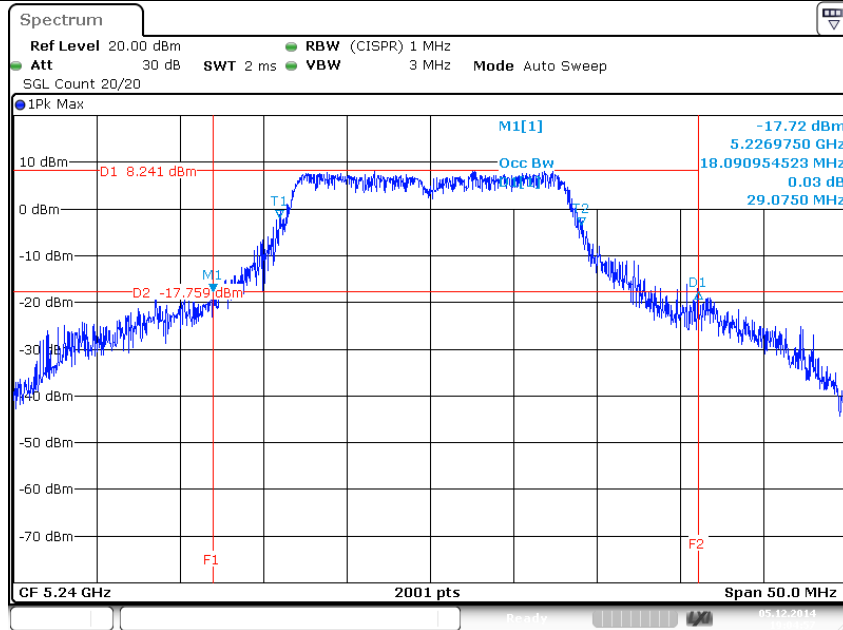


802.11a/ 6Mbps/ Ch48/ Ant1



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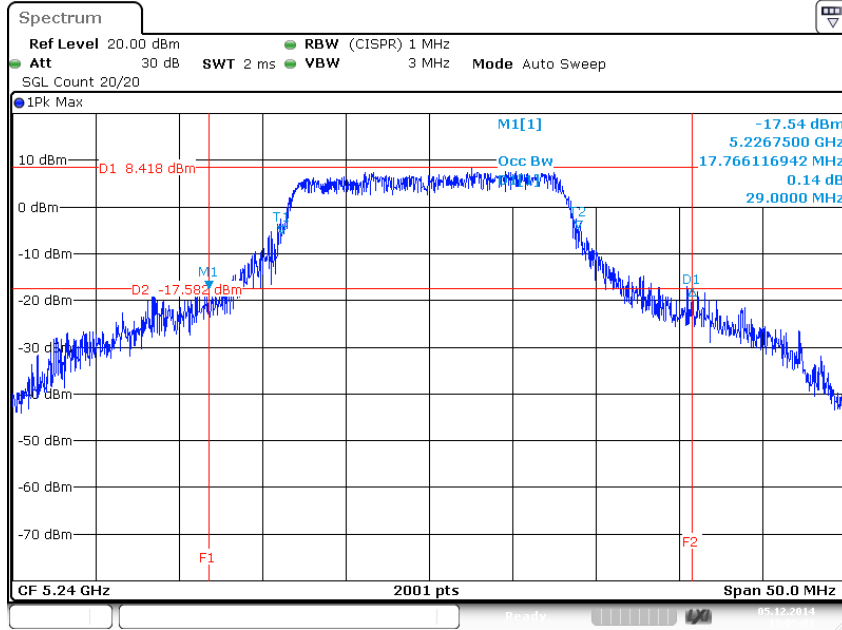
802.11a/ 6Mbps/ Ch48/ Ant2



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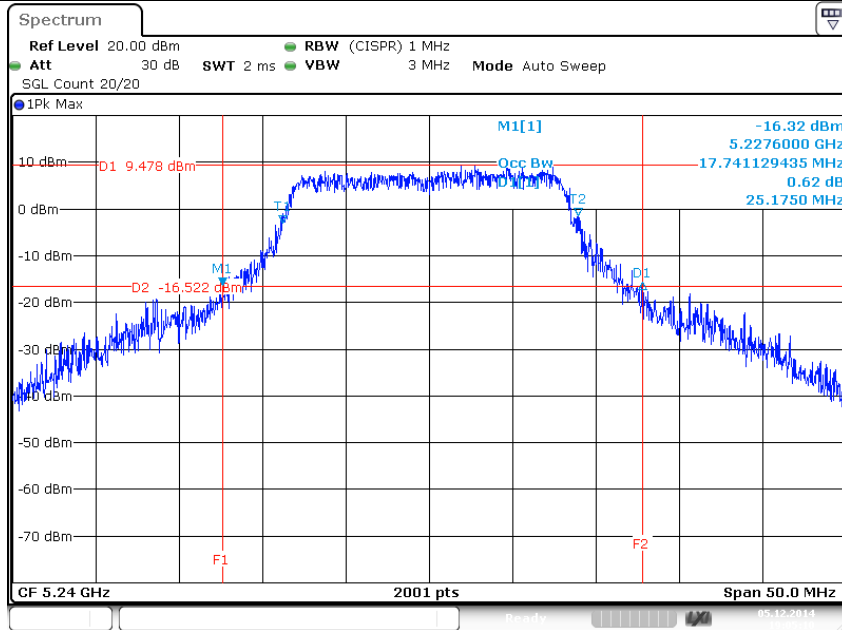


802.11a/ 6Mbps/ Ch48/ Ant3



Date: 5.DEC.2014 19:05:04

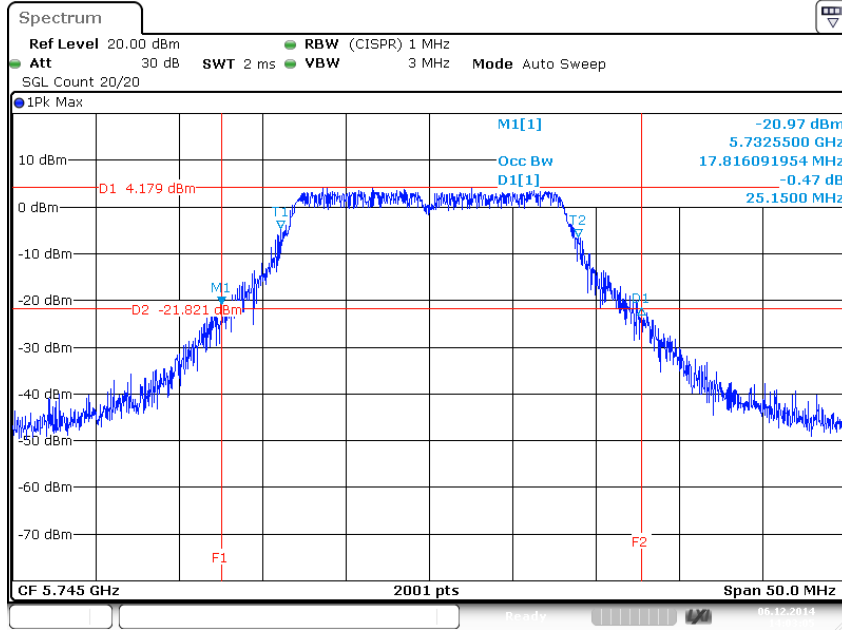
802.11a/ 6Mbps/ Ch48/ Ant4



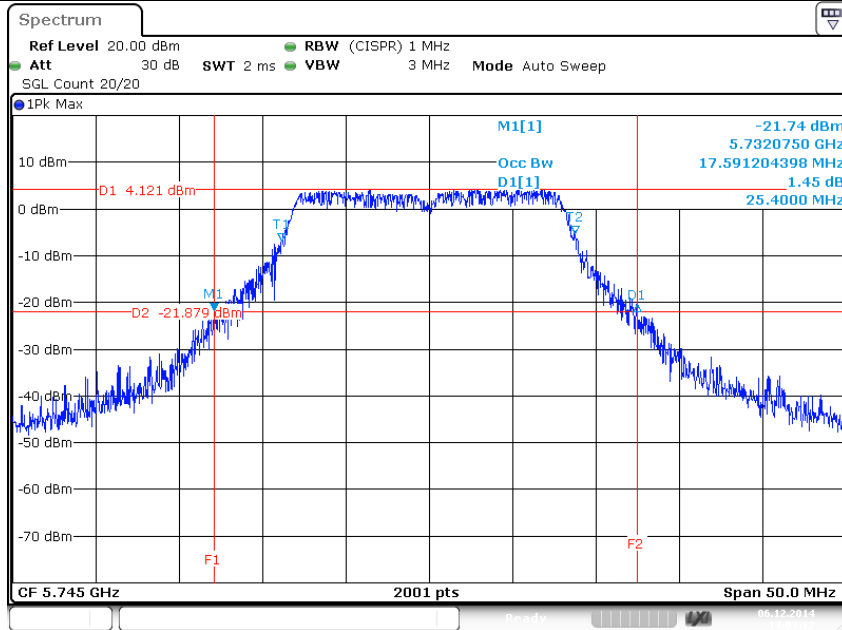
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802.11a/ 6Mbps/ Ch149/ Ant1

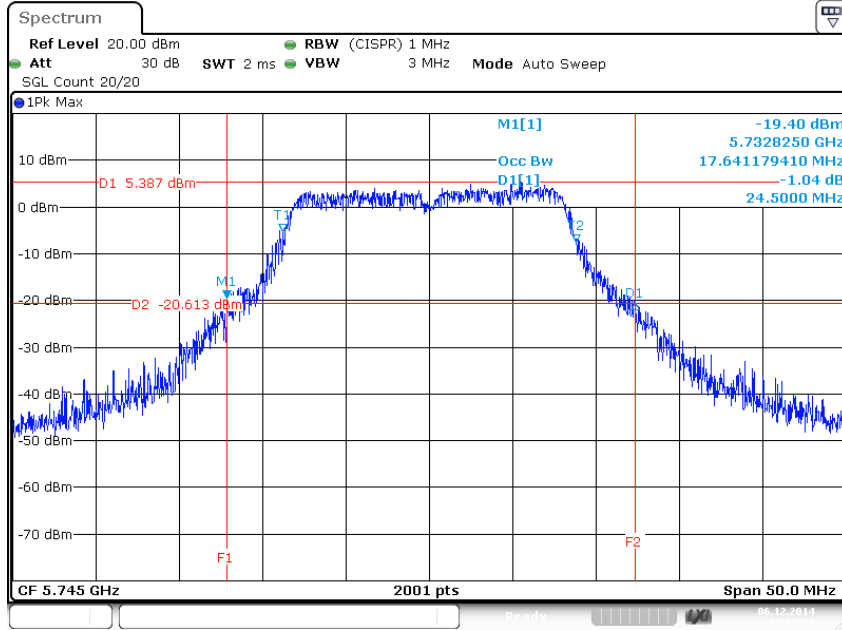


802.11a/ 6Mbps/ Ch149/ Ant2



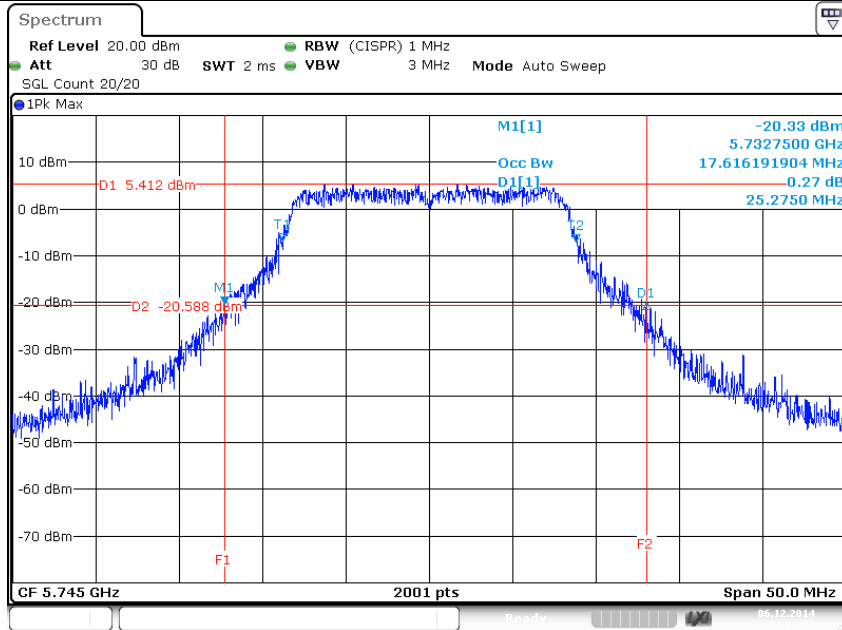


802.11a/ 6Mbps/ Ch149/ Ant3



Date: 6.DEC.2014 14:03:18

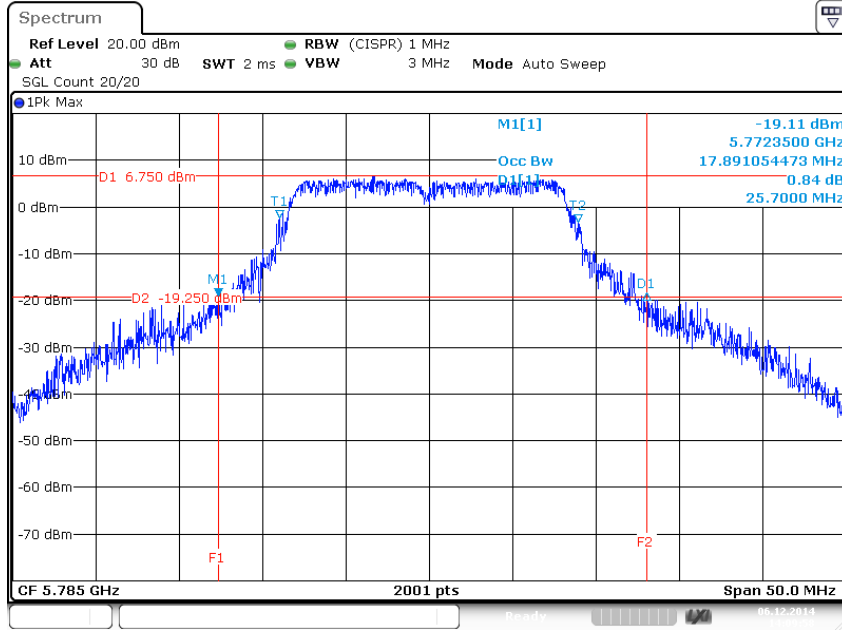
802.11a/ 6Mbps/ Ch149/ Ant4



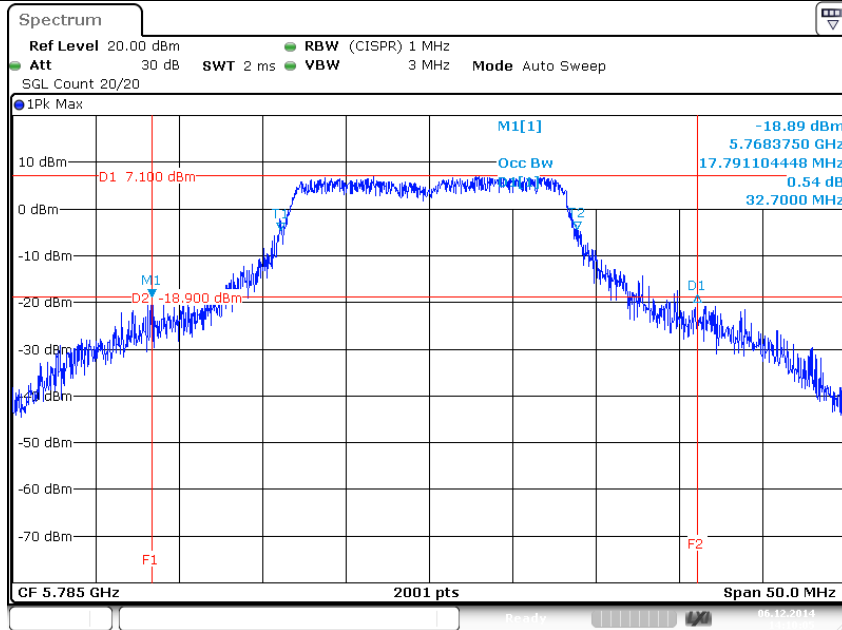
Date: 6.DEC.2014 14:03:24



802.11a/ 6Mbps/ Ch157/ Ant1

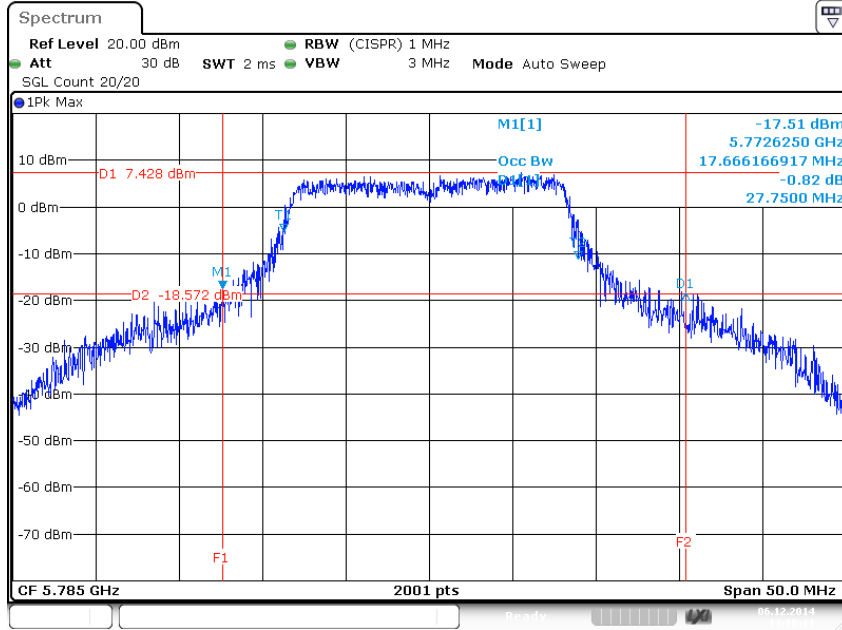


802.11a/ 6Mbps/ Ch157/ Ant2

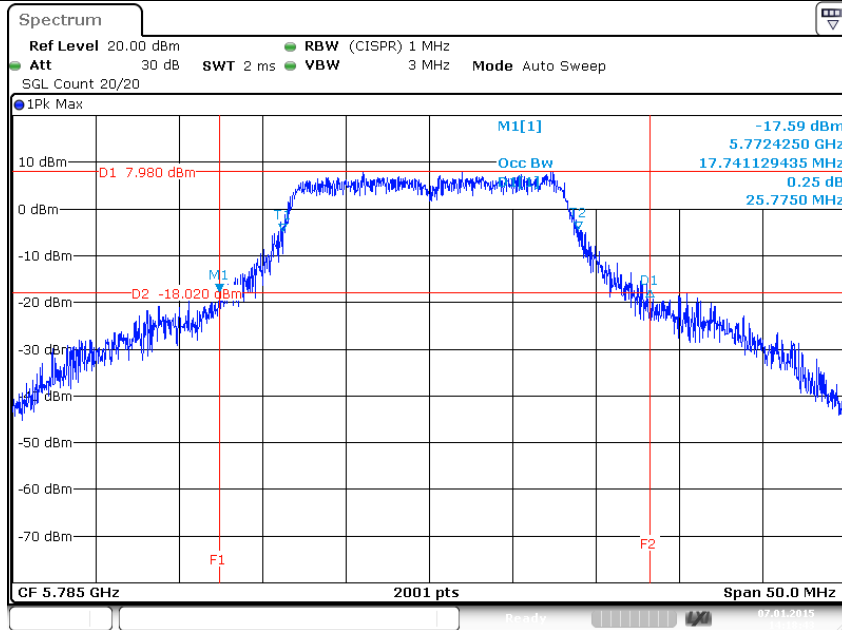




802.11a/ 6Mbps/ Ch157/ Ant3

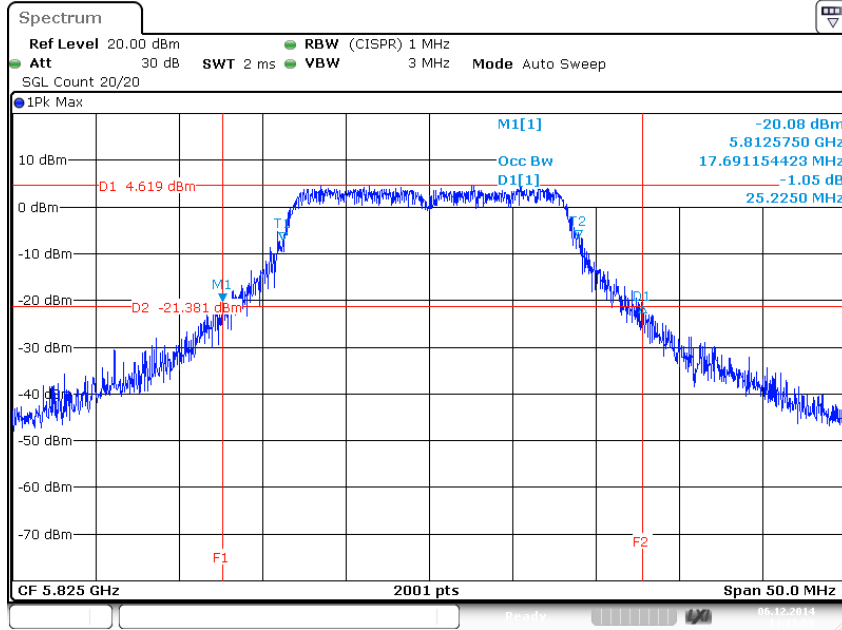


802.11a/ 6Mbps/ Ch157/ Ant4

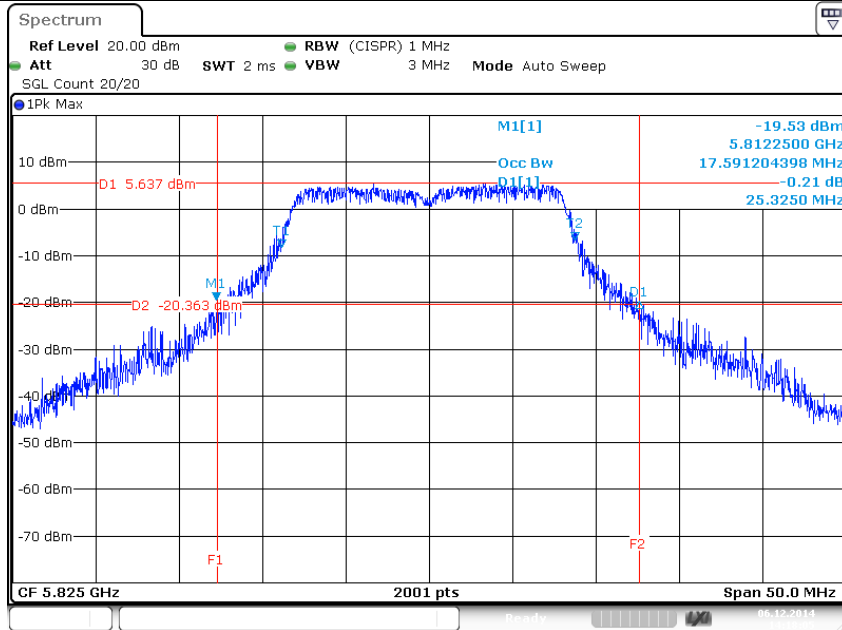




802.11a/ 6Mbps/ Ch165/ Ant1

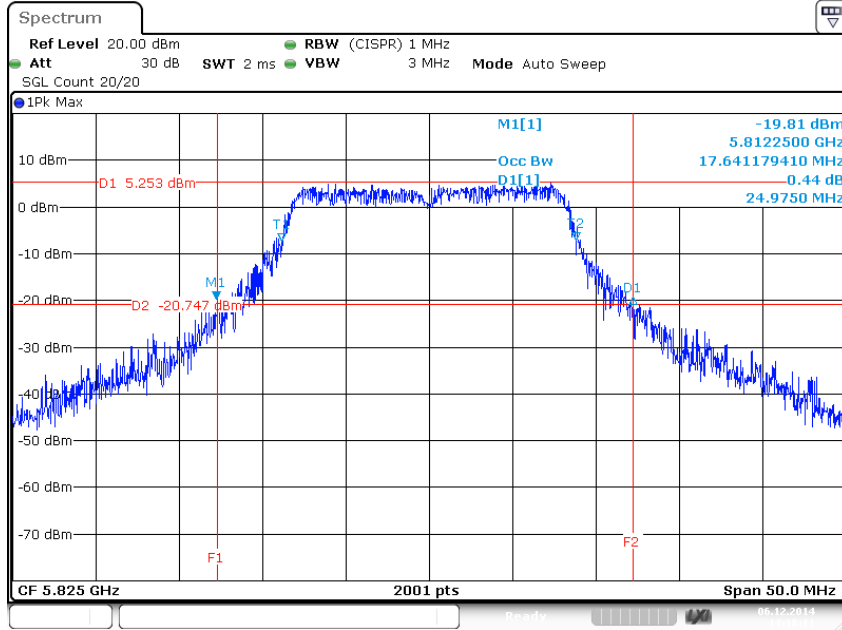


802.11a/ 6Mbps/ Ch165/ Ant2

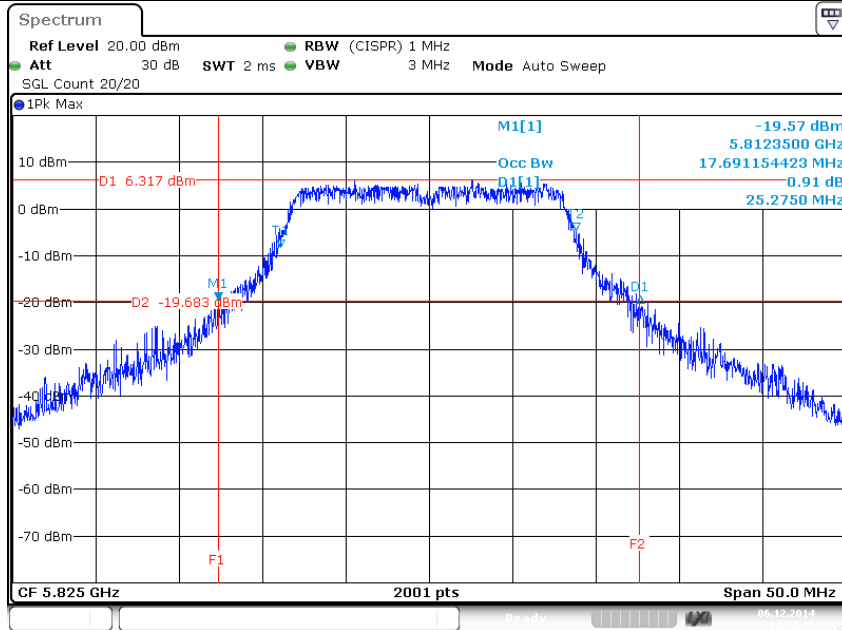




802.11a/ 6Mbps/ Ch165/ Ant3

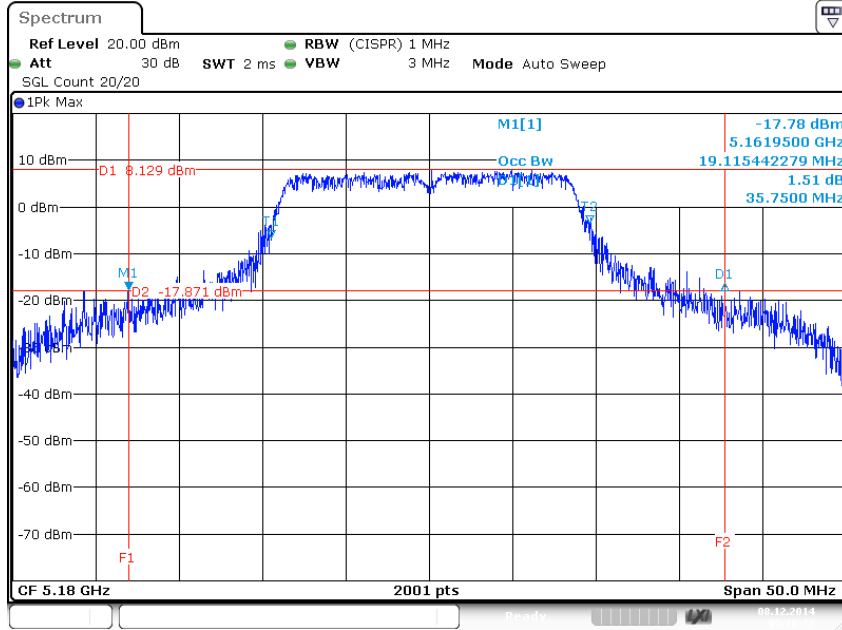


802.11a/ 6Mbps/ Ch165/ Ant4

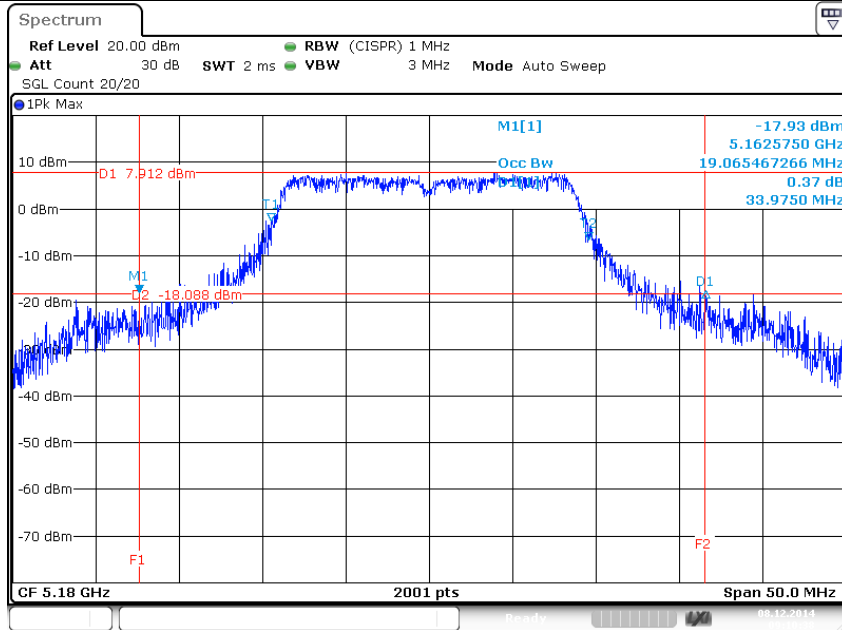




802.11ac 20MHz/ Nss1 MCS0/ Ch36/ Ant1

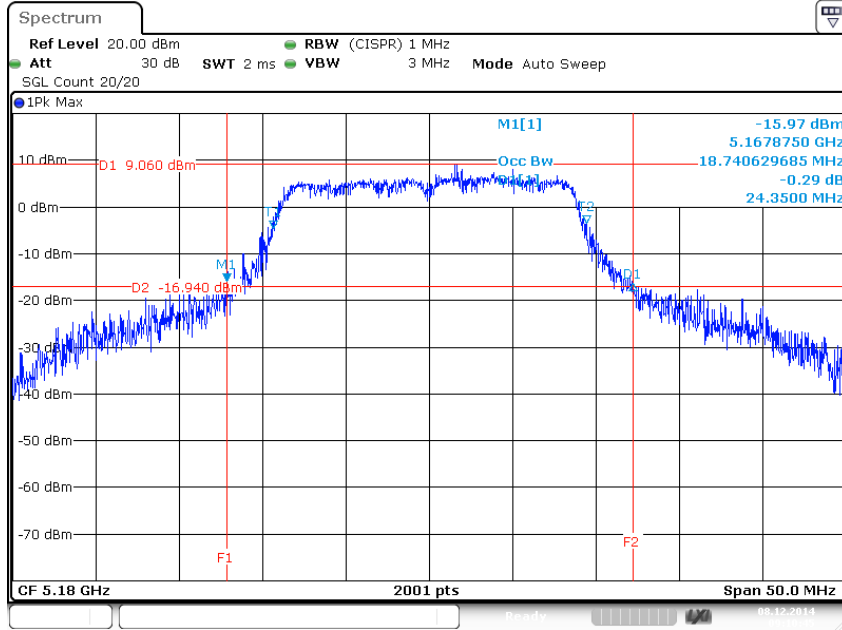


802.11ac 20MHz/ Nss1 MCS0/ Ch36/ Ant2

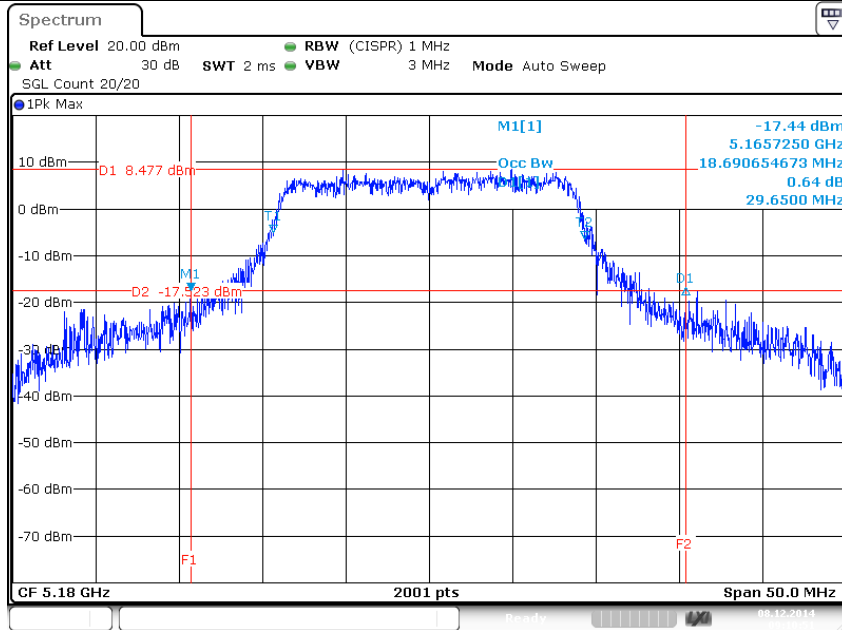




802.11ac 20MHz/ Nss1 MCS0/ Ch36/ Ant3

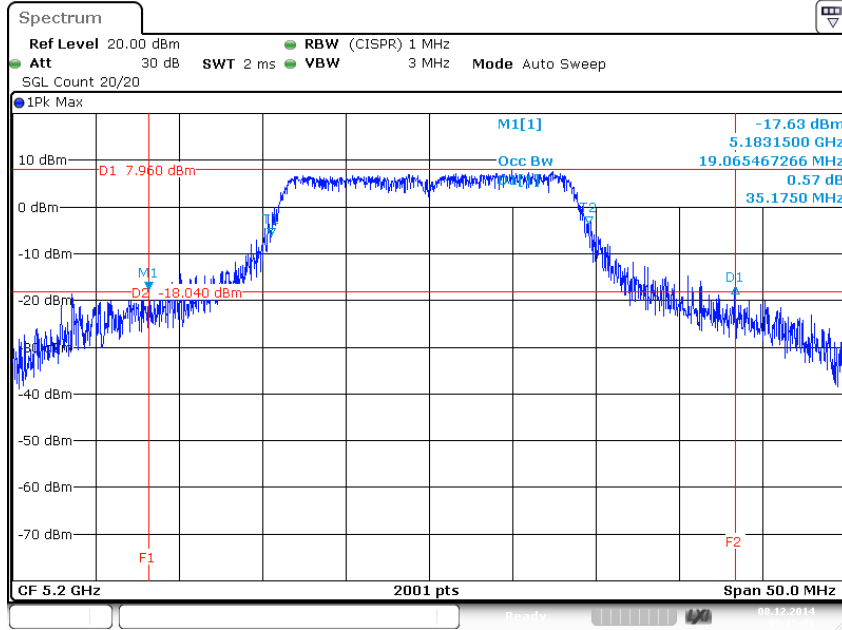


802.11ac 20MHz/ Nss1 MCS0/ Ch36/ Ant4

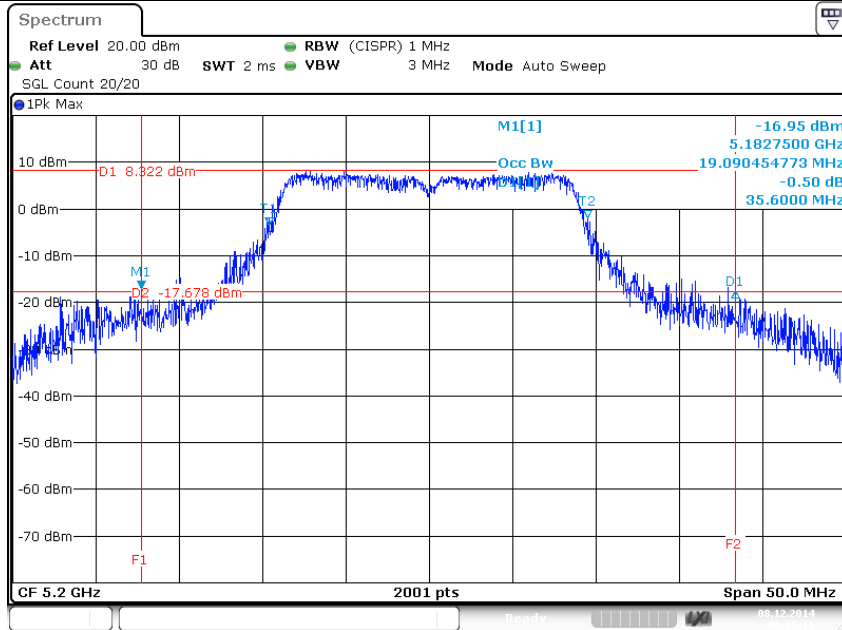




802.11ac 20MHz/ Nss1 MCS0/ Ch40/ Ant1

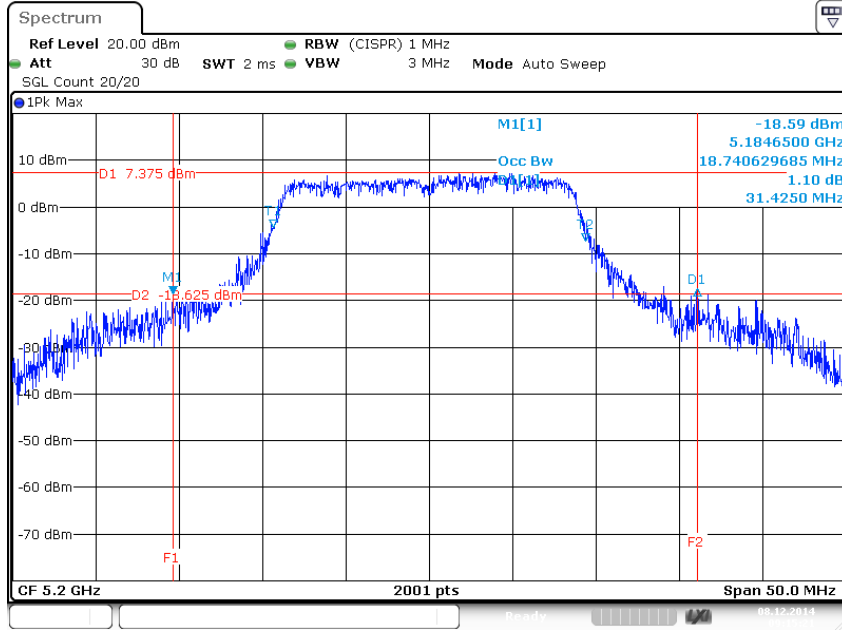


802.11ac 20MHz/ Nss1 MCS0/ Ch40/ Ant2



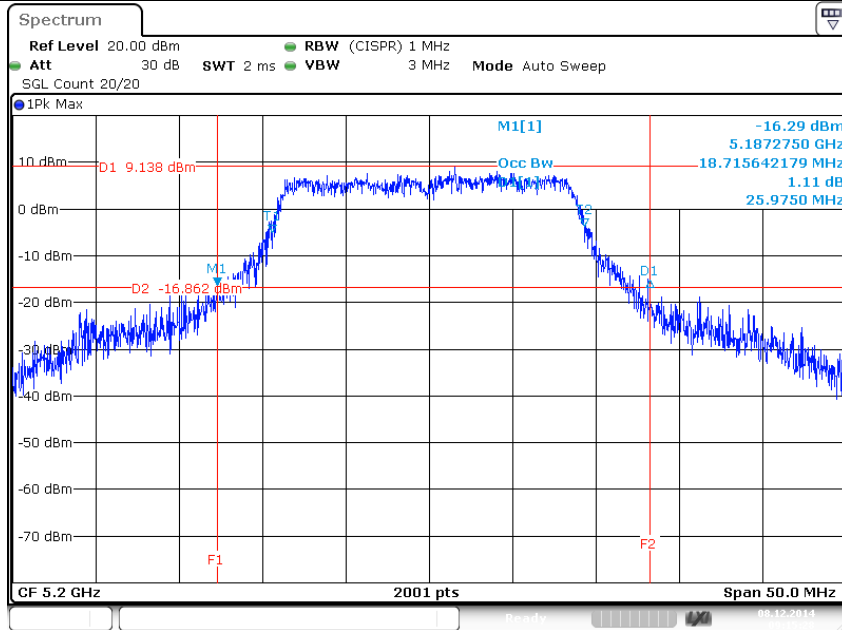


802.11ac 20MHz/ Nss1 MCS0/ Ch40/ Ant3



Date: 8.DEC.2014 09:15:22

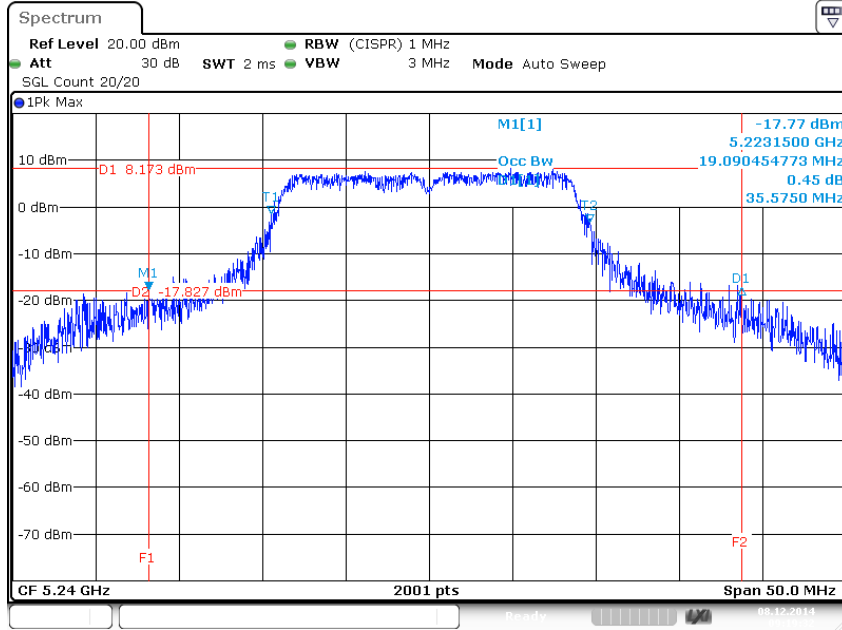
802.11ac 20MHz/ Nss1 MCS0/ Ch40/ Ant4



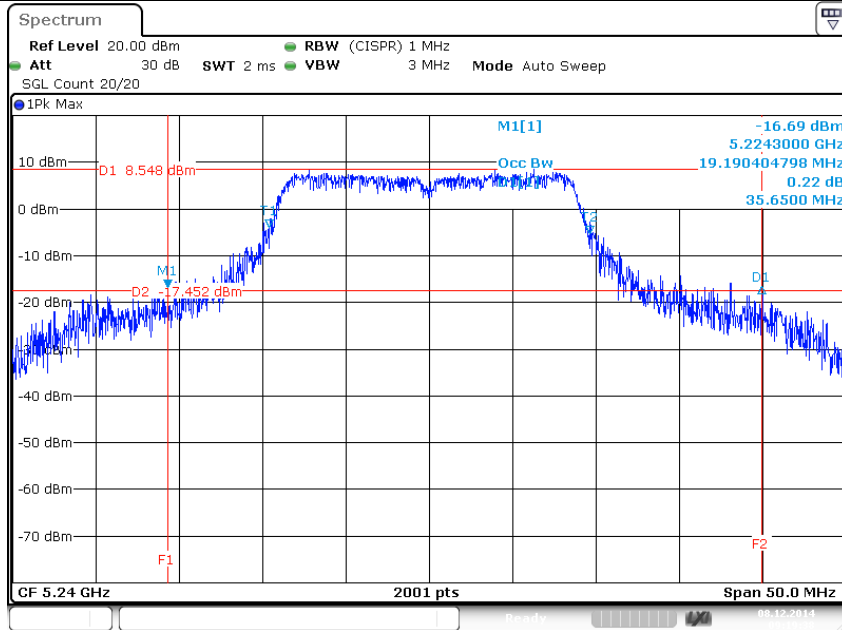
Date: 8.DEC.2014 09:15:28



802.11ac 20MHz/ Nss1 MCS0/ Ch48/ Ant1

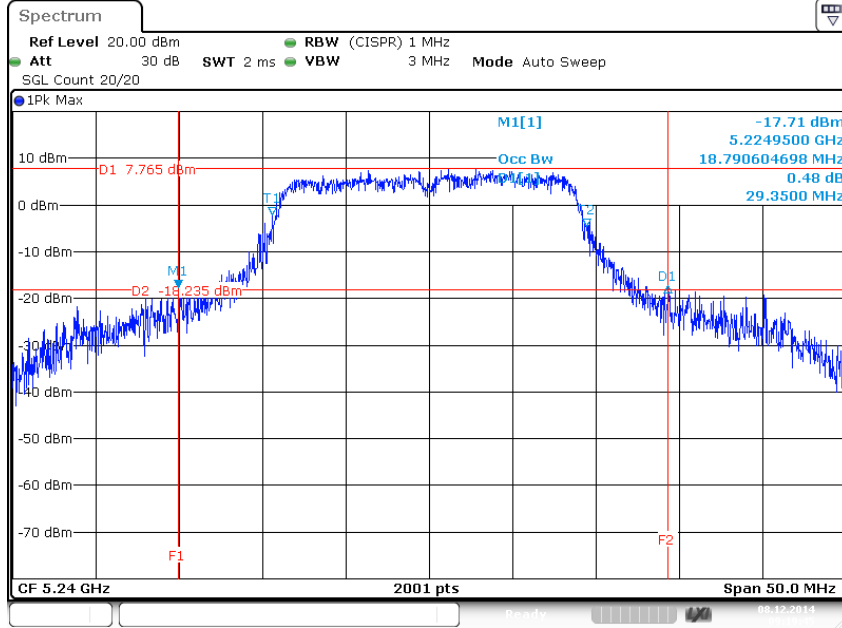


802.11ac 20MHz/ Nss1 MCS0/ Ch48/ Ant2

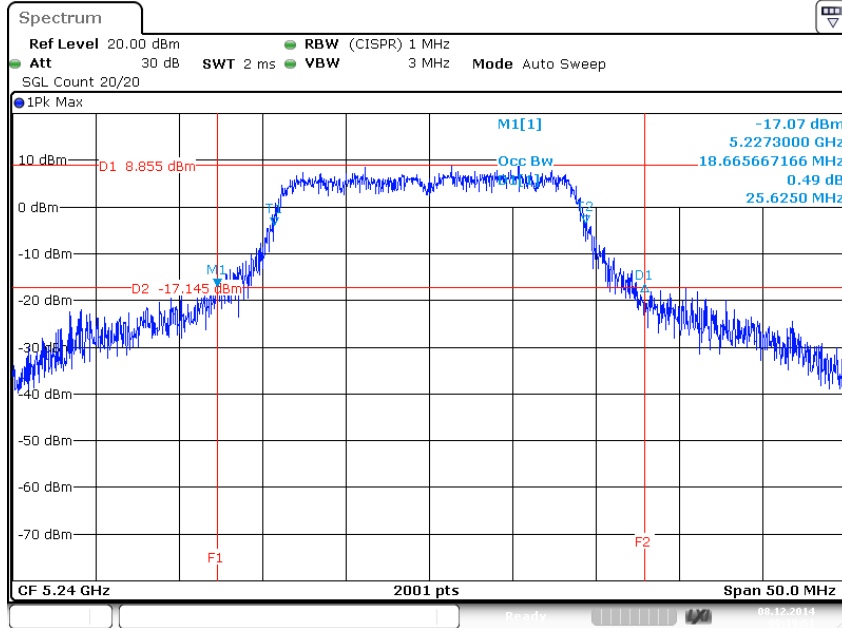




802.11ac 20MHz/ Nss1 MCS0/ Ch48/ Ant3

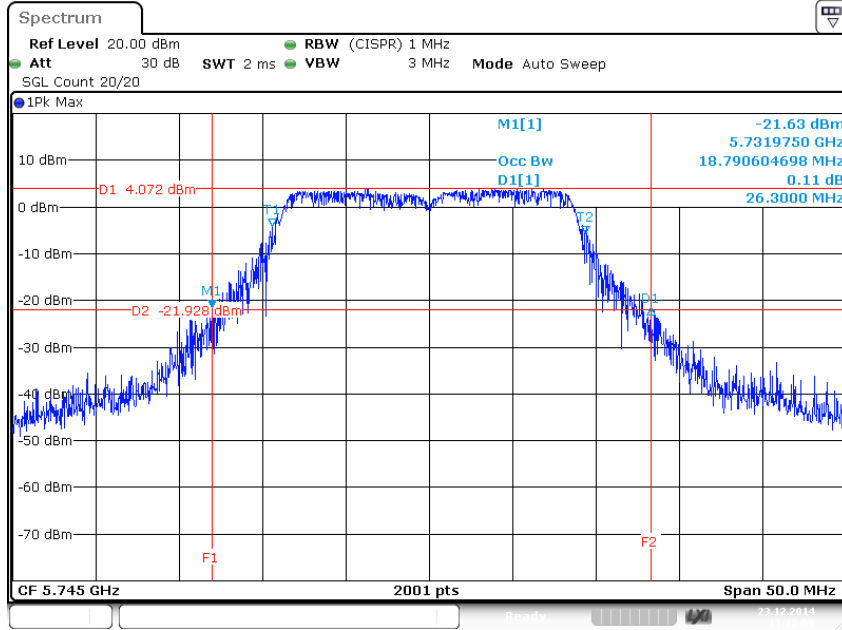


802.11ac 20MHz/ Nss1 MCS0/ Ch48/ Ant4



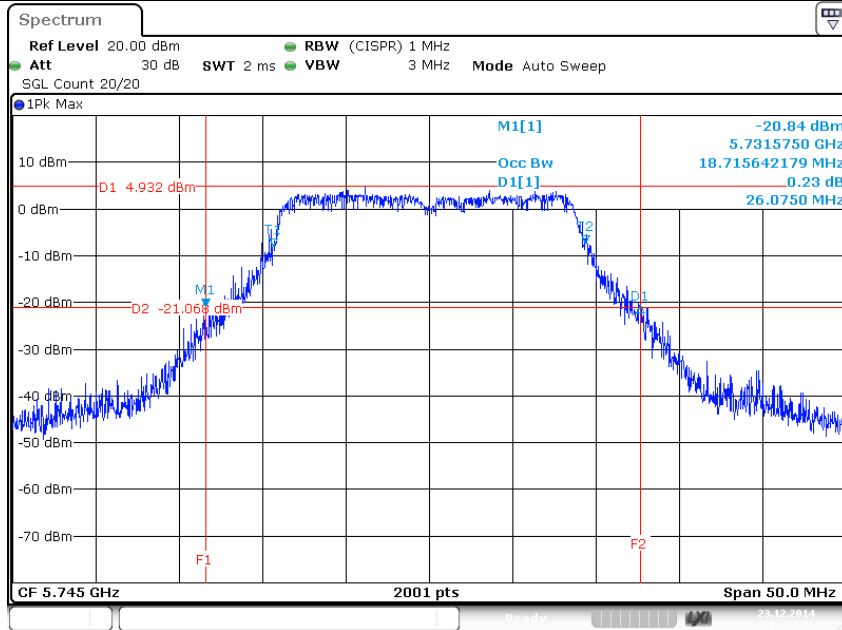


802.11ac 20MHz/ Nss1 MCS0/ Ch149/ Ant1



Date: 23.DEC.2014 13:12:50

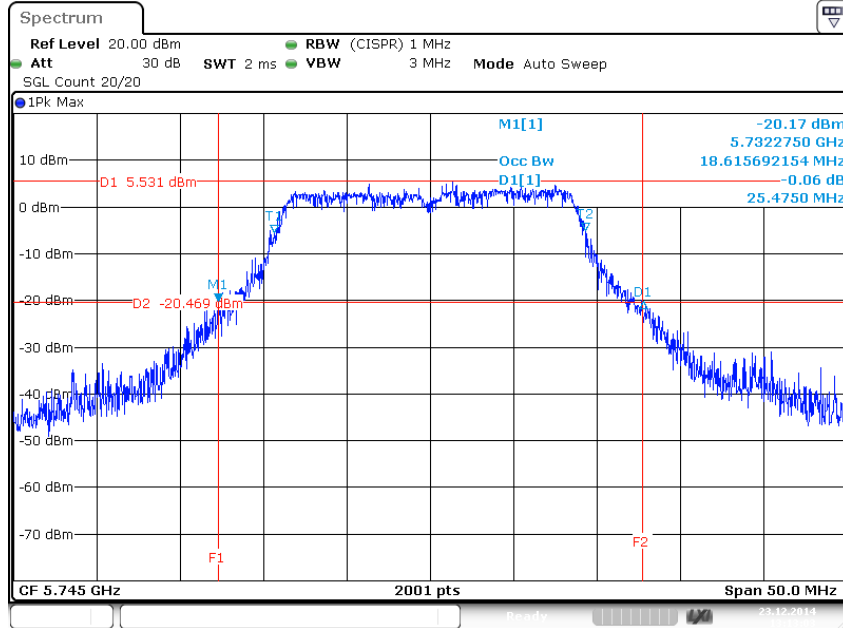
802.11ac 20MHz/ Nss1 MCS0/ Ch149/ Ant2



Date: 23.DEC.2014 13:12:56

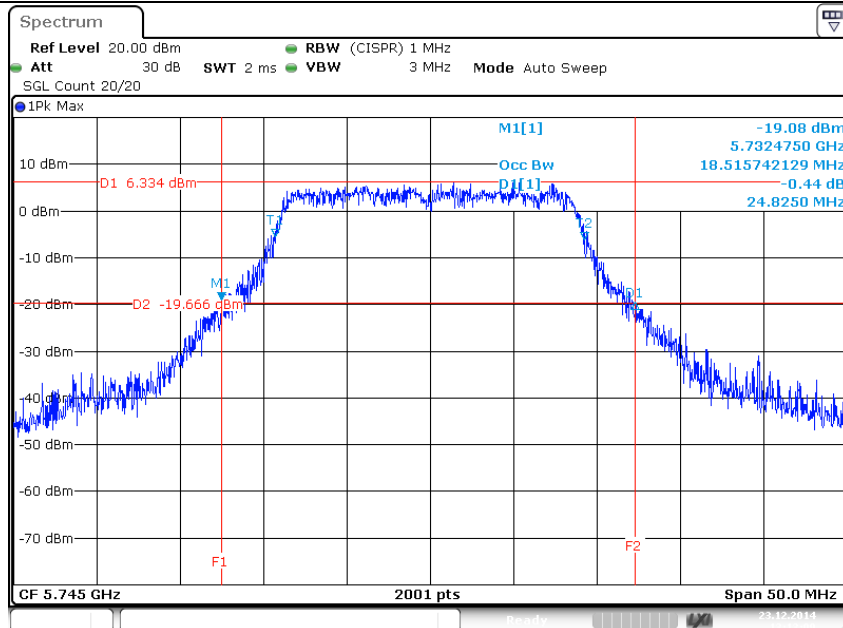


802.11ac 20MHz/ Nss1 MCS0/ Ch149/ Ant3



Date: 23.DEC.2014 13:13:03

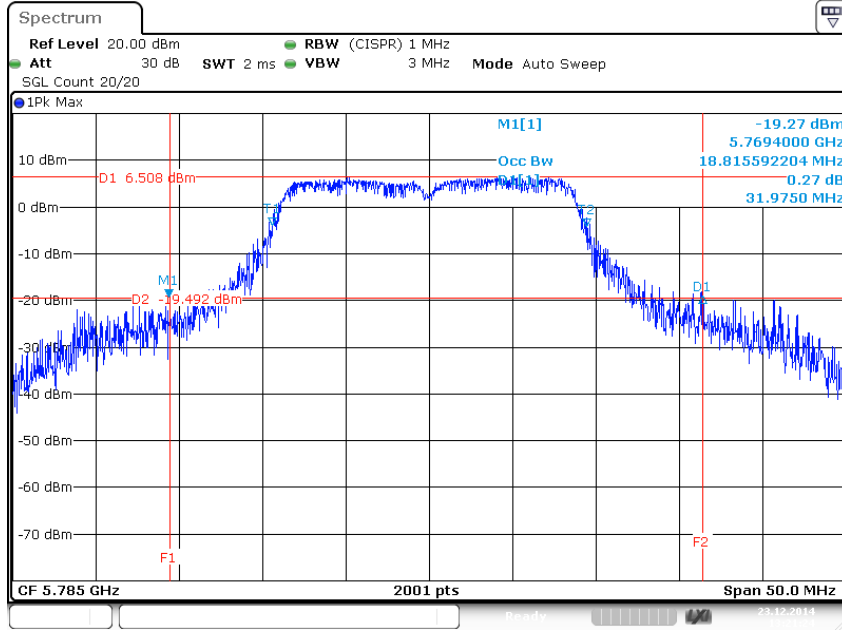
802.11ac 20MHz/ Nss1 MCS0/ Ch149/ Ant4



Date: 23.DEC.2014 13:13:09

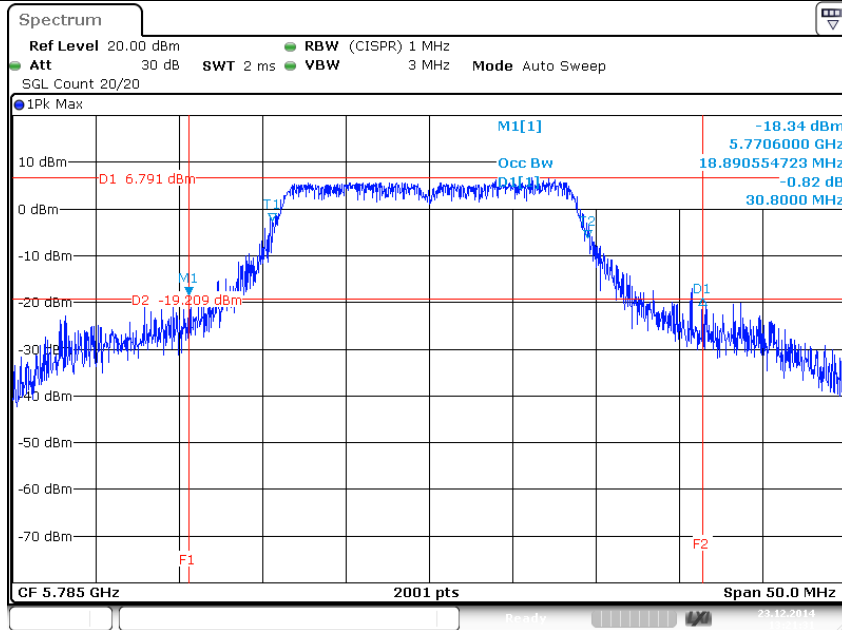


802.11ac 20MHz/ Nss1 MCS0/ Ch157/ Ant1



Date: 23.DEC.2014 13:21:24

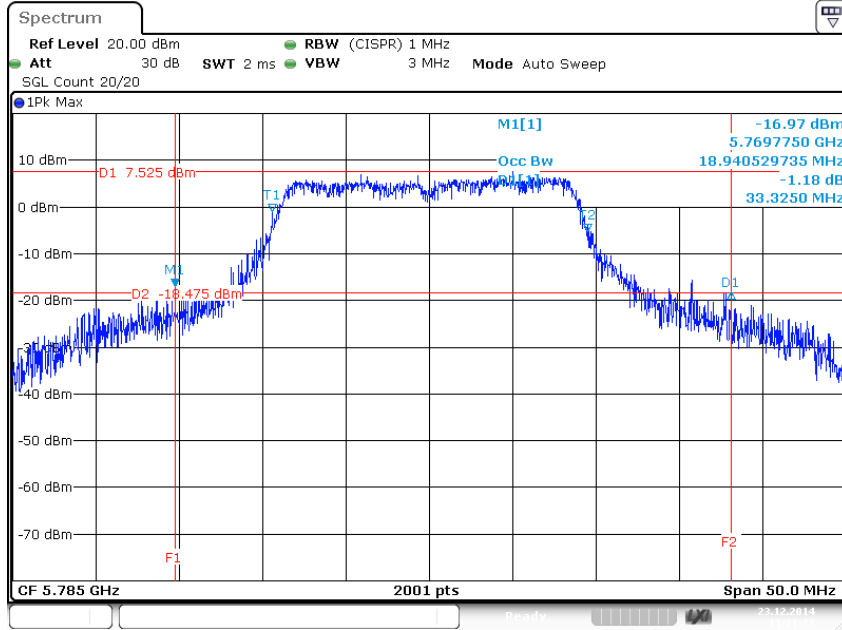
802.11ac 20MHz/ Nss1 MCS0/ Ch157/ Ant2



Date: 23.DEC.2014 13:21:31

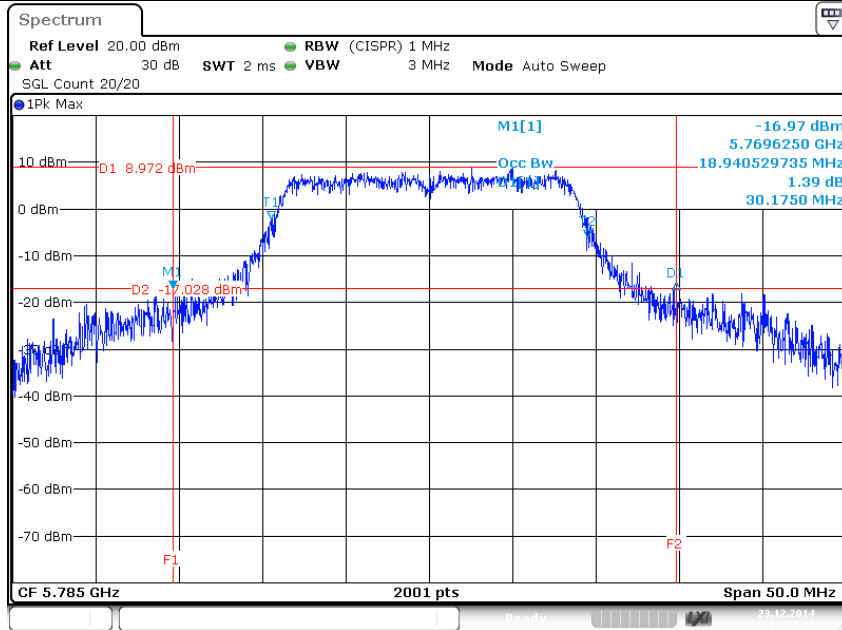


802.11ac 20MHz/ Nss1 MCS0/ Ch157/ Ant3



Date: 23.DEC.2014 13:21:37

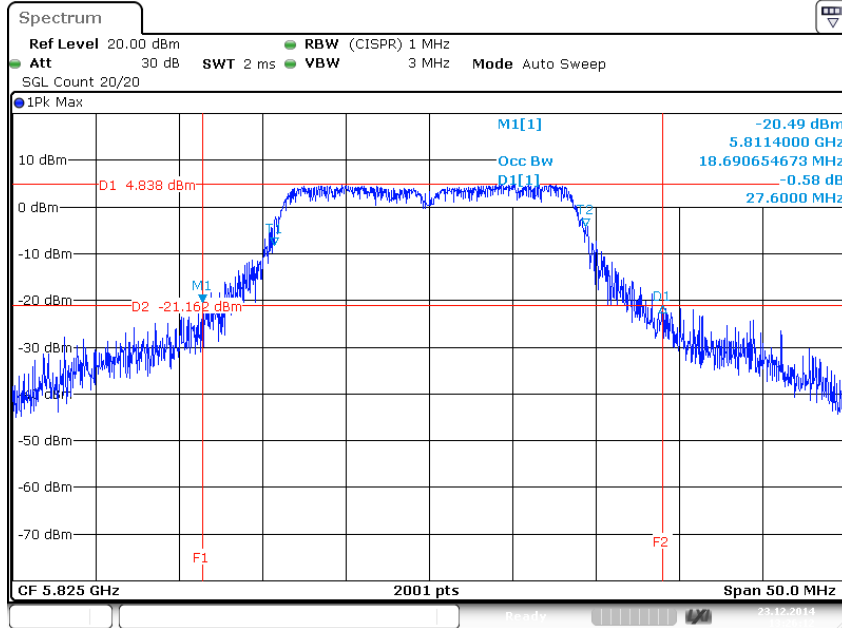
802.11ac 20MHz/ Nss1 MCS0/ Ch157/ Ant4



Date: 23.DEC.2014 13:21:43

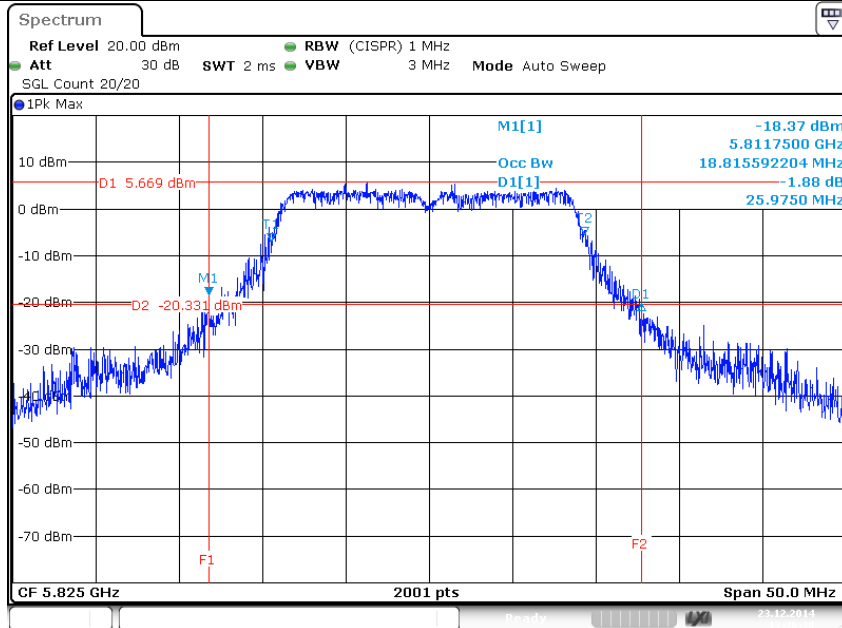


802.11ac 20MHz/ Nss1 MCS0/ Ch165/ Ant1



Date: 23.DEC.2014 13:26:12

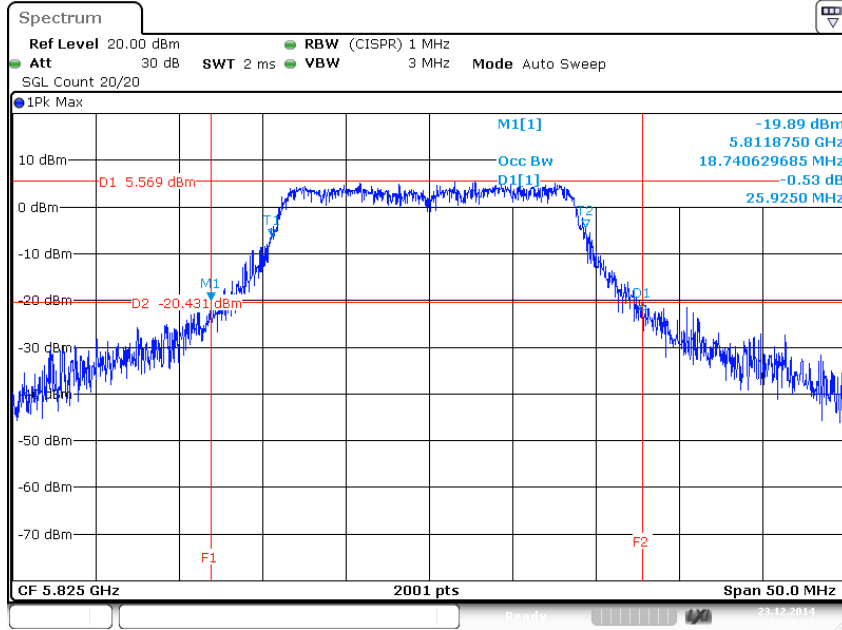
802.11ac 20MHz/ Nss1 MCS0/ Ch165/ Ant2



Date: 23.DEC.2014 13:26:18

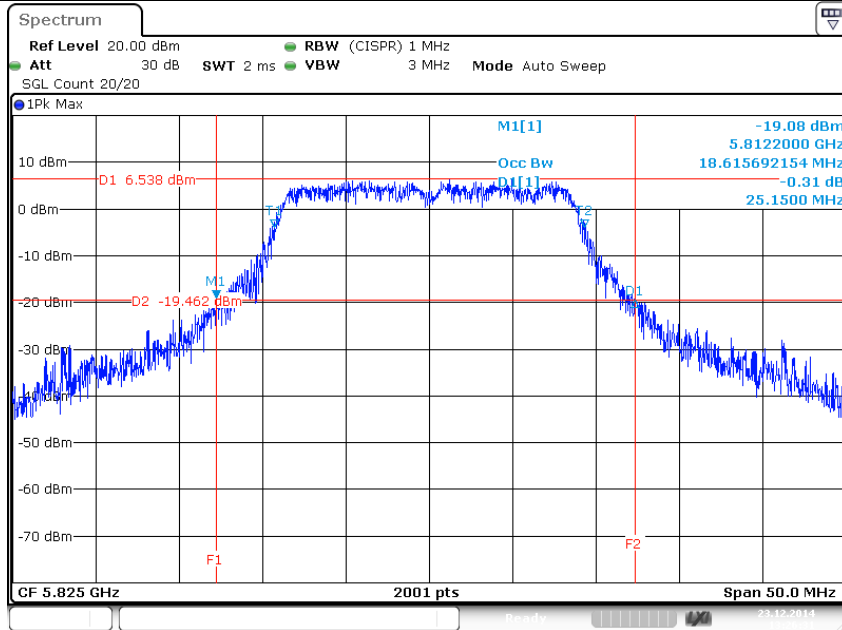


802.11ac 20MHz/ Nss1 MCS0/ Ch165/ Ant3



Date: 23.DEC.2014 13:26:25

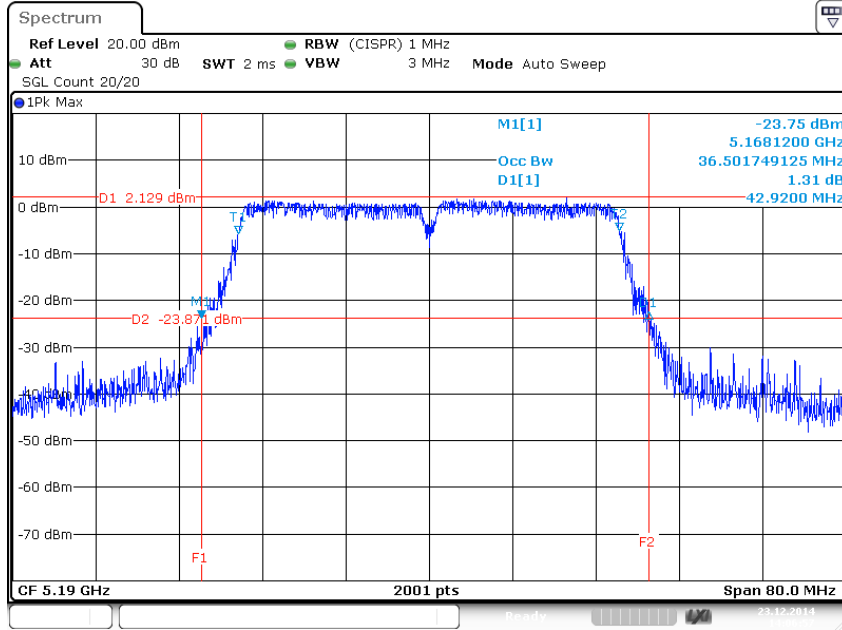
802.11ac 20MHz/ Nss1 MCS0/ Ch165/ Ant4



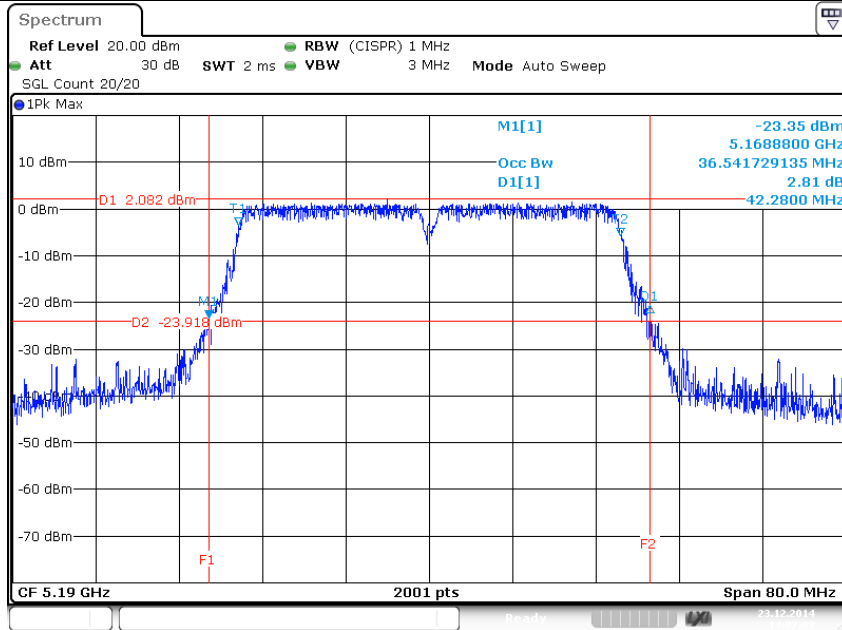
Date: 23.DEC.2014 13:26:31



802.11ac 40MHz/ Nss1 MCS0/ Ch38/ Ant1

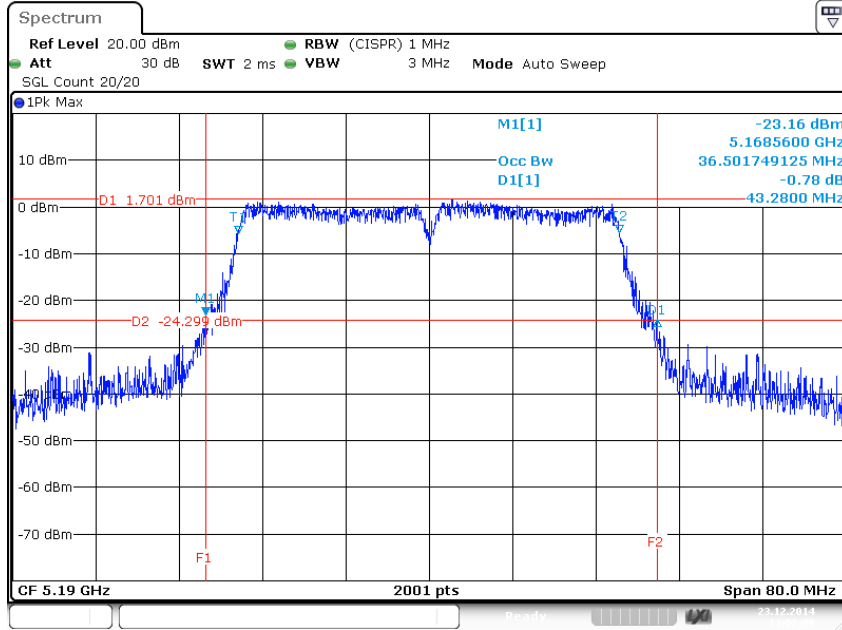


802.11ac 40MHz/ Nss1 MCS0/ Ch38/ Ant2



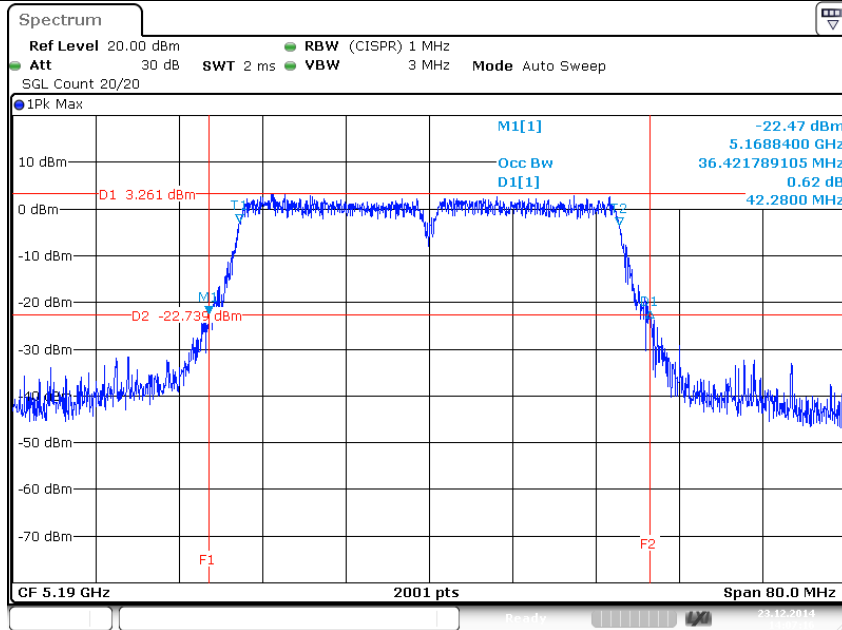


802.11ac 40MHz/ Nss1 MCS0/ Ch38/ Ant3



Date: 23.DEC.2014 14:07:09

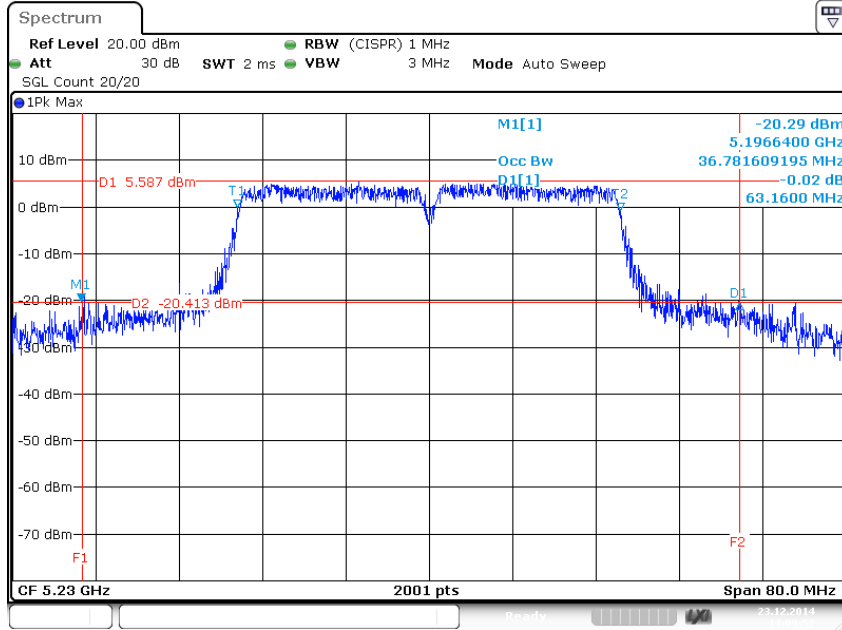
802.11ac 40MHz/ Nss1 MCS0/ Ch38/ Ant4



Date: 23.DEC.2014 14:07:16

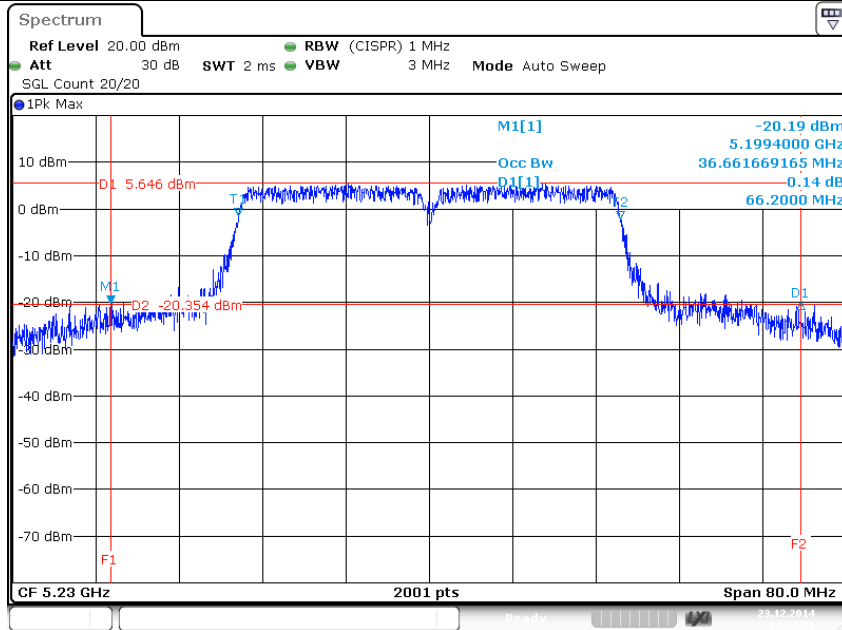


802.11ac 40MHz/ Nss1 MCS0/ Ch46/ Ant1



Date: 23.DEC.2014 14:09:52

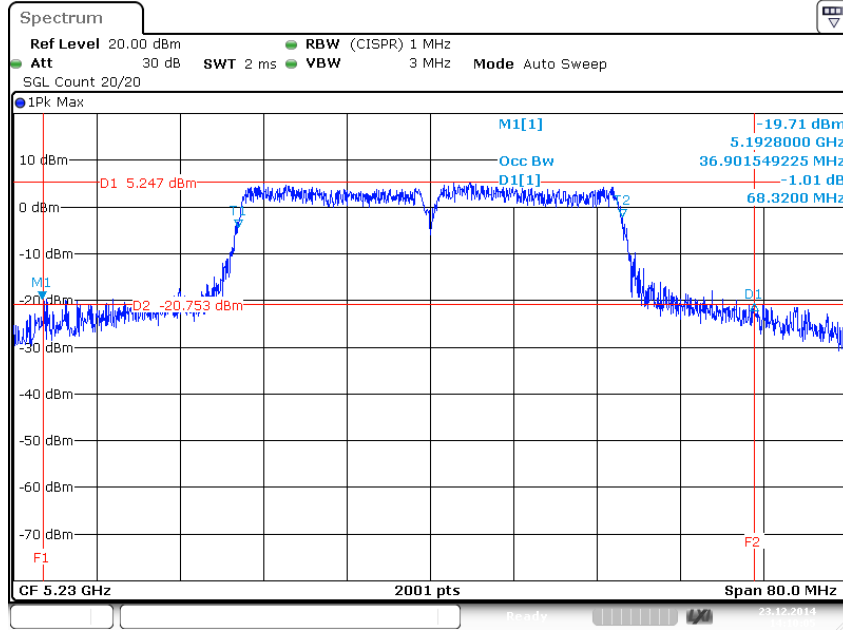
802.11ac 40MHz/ Nss1 MCS0/ Ch46/ Ant2



Date: 23.DEC.2014 14:09:59

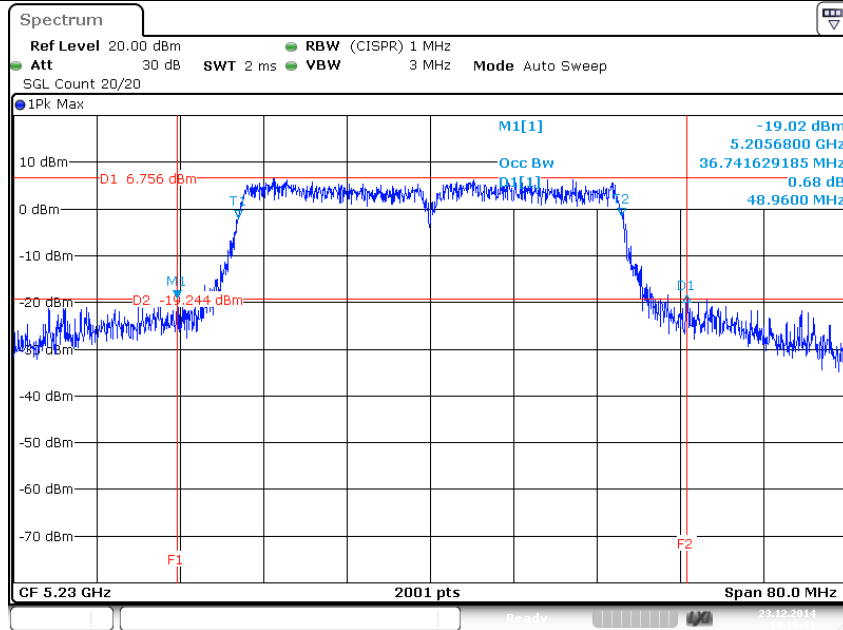


802.11ac 40MHz/ Nss1 MCS0/ Ch46/ Ant3



Date: 23.DEC.2014 14:10:05

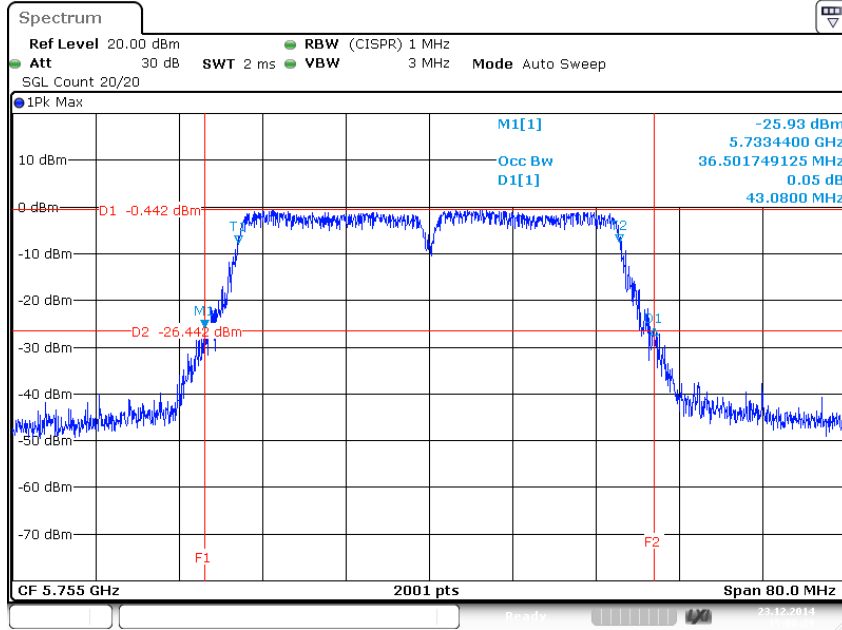
802.11ac 40MHz/ Nss1 MCS0/ Ch46/ Ant4



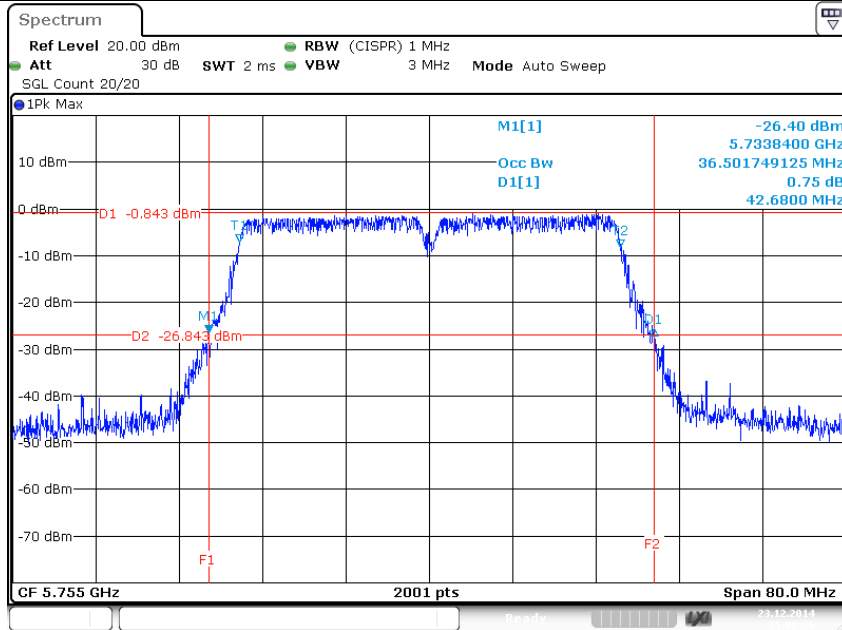
Date: 23.DEC.2014 14:10:12



802.11ac 40MHz/ Nss1 MCS0/ Ch151/ Ant1

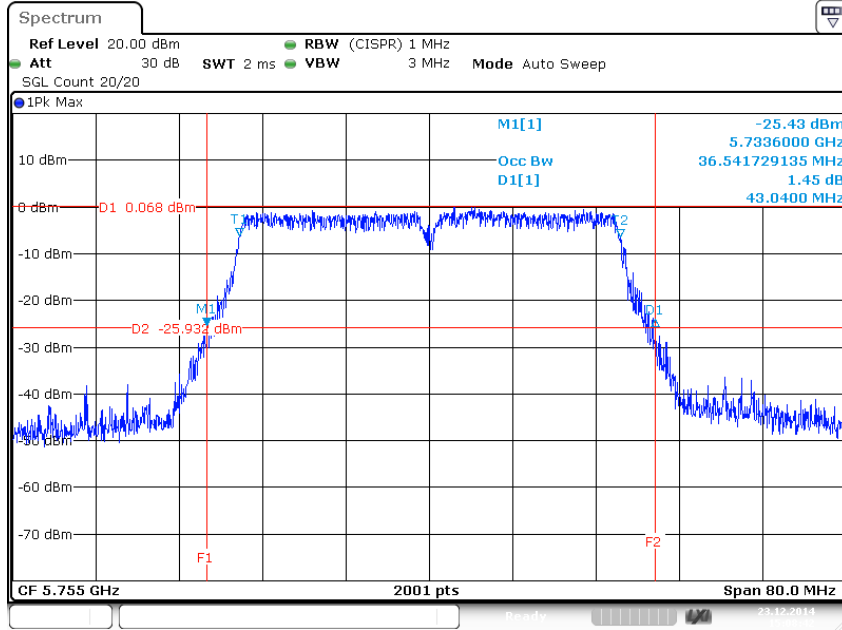


802.11ac 40MHz/ Nss1 MCS0/ Ch151/ Ant2

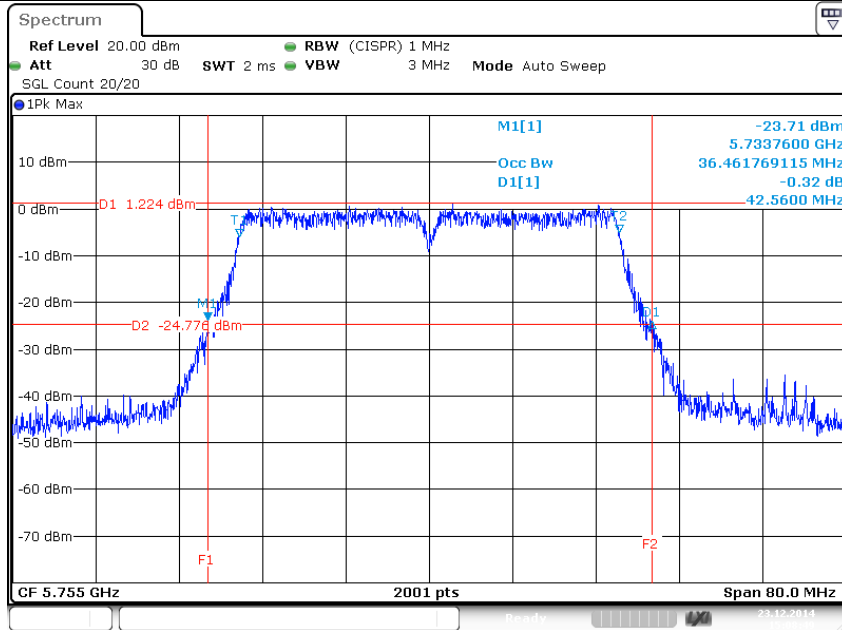




802.11ac 40MHz/ Nss1 MCS0/ Ch151/ Ant3

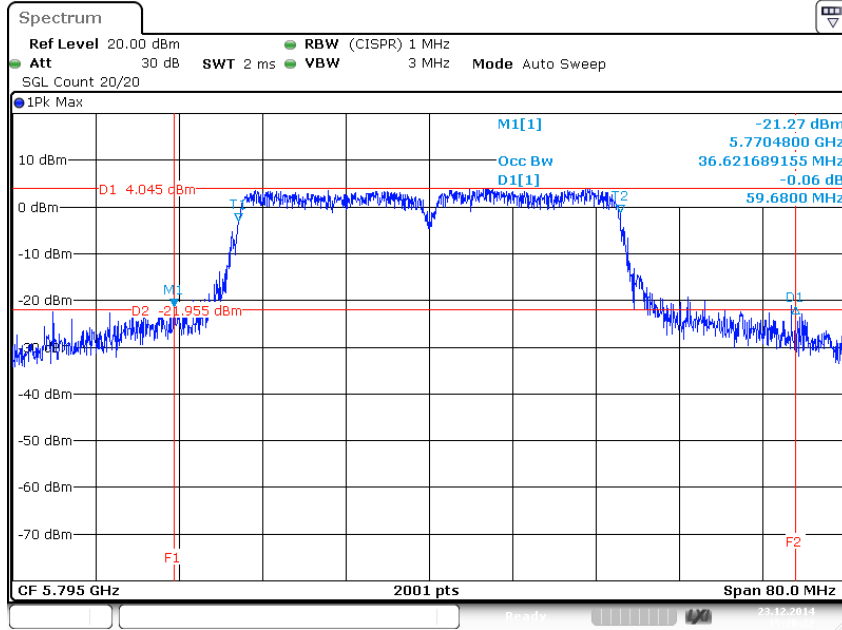


802.11ac 40MHz/ Nss1 MCS0/ Ch151/ Ant4



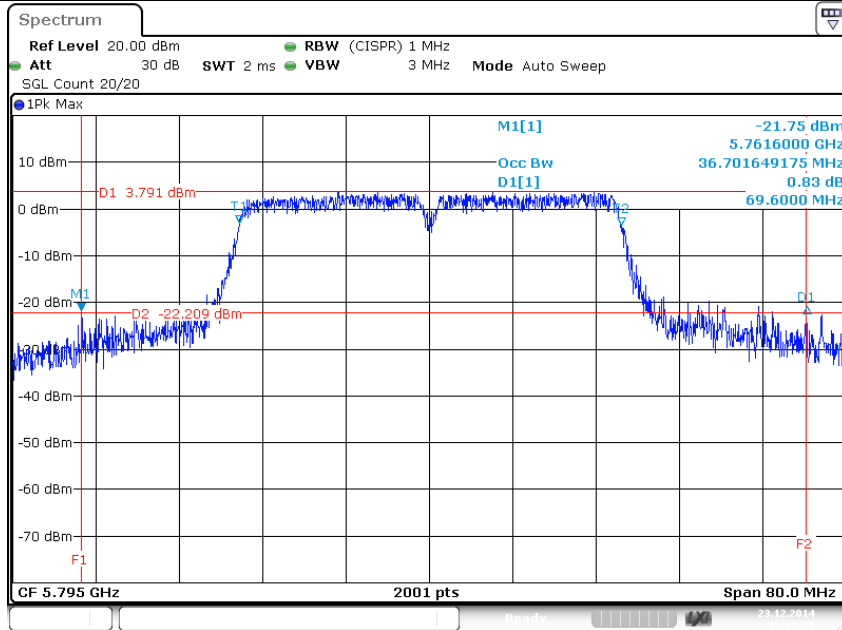


802.11ac 40MHz/ Nss1 MCS0/ Ch159/ Ant1



Date: 23.DEC.2014 15:20:22

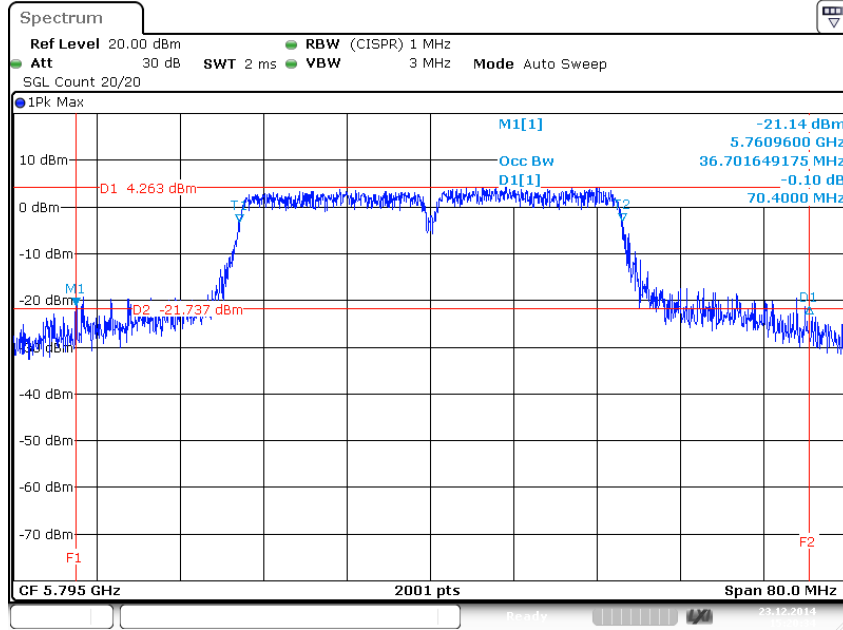
802.11ac 40MHz/ Nss1 MCS0/ Ch159/ Ant2



Date: 23.DEC.2014 15:20:28

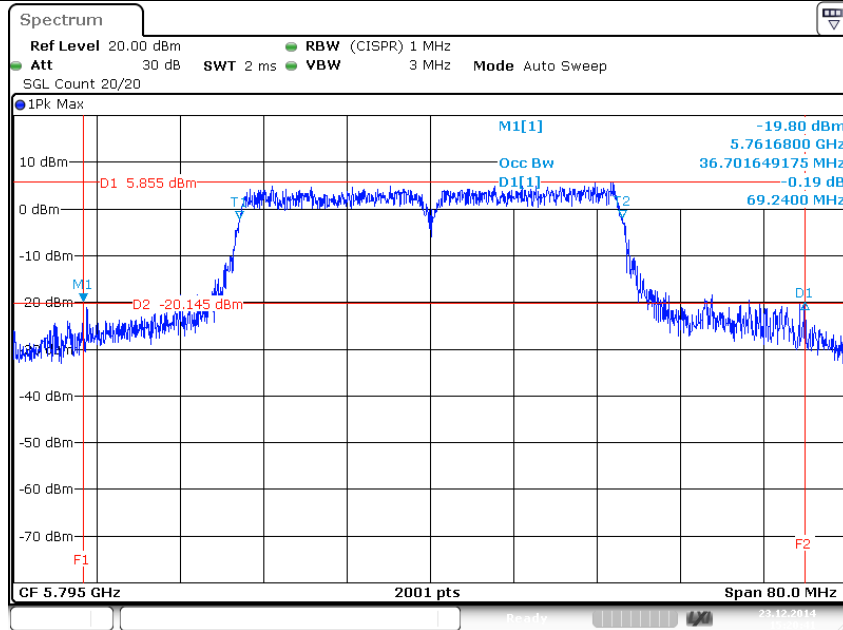


802.11ac 40MHz/ Nss1 MCS0/ Ch159/ Ant3



Date: 23.DEC.2014 15:20:34

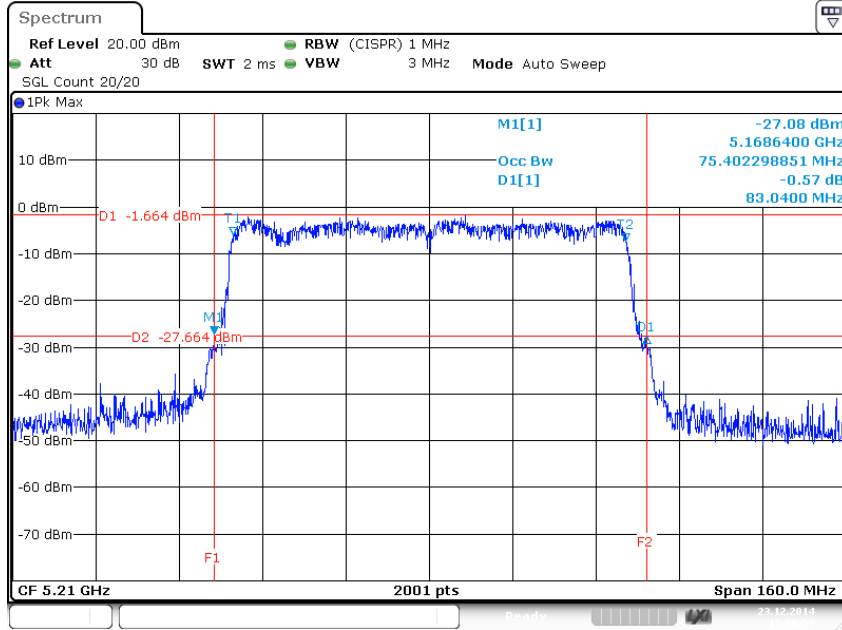
802.11ac 40MHz/ Nss1 MCS0/ Ch159/ Ant4



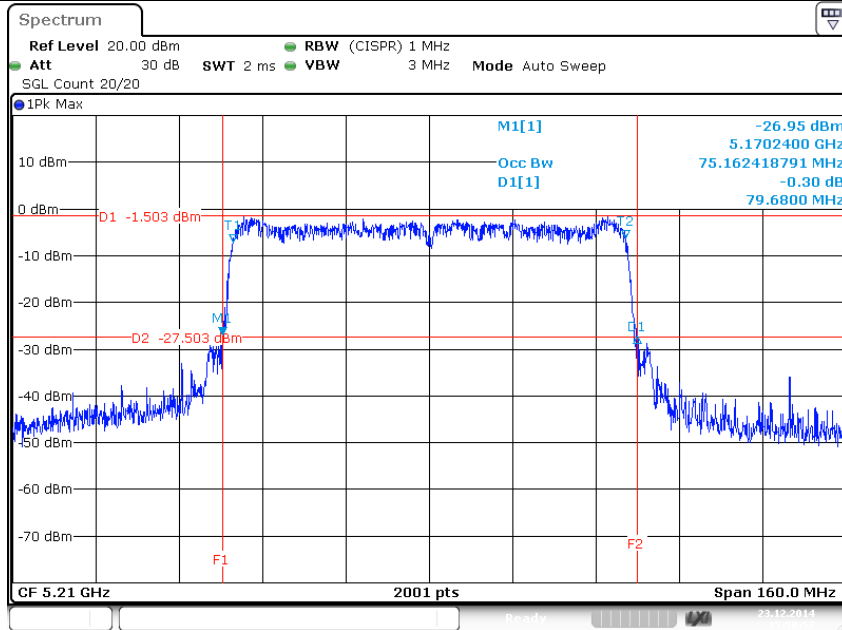
Date: 23.DEC.2014 15:20:41



802.11ac 80MHz/ Nss1 MCS0/ Ch42/ Ant1

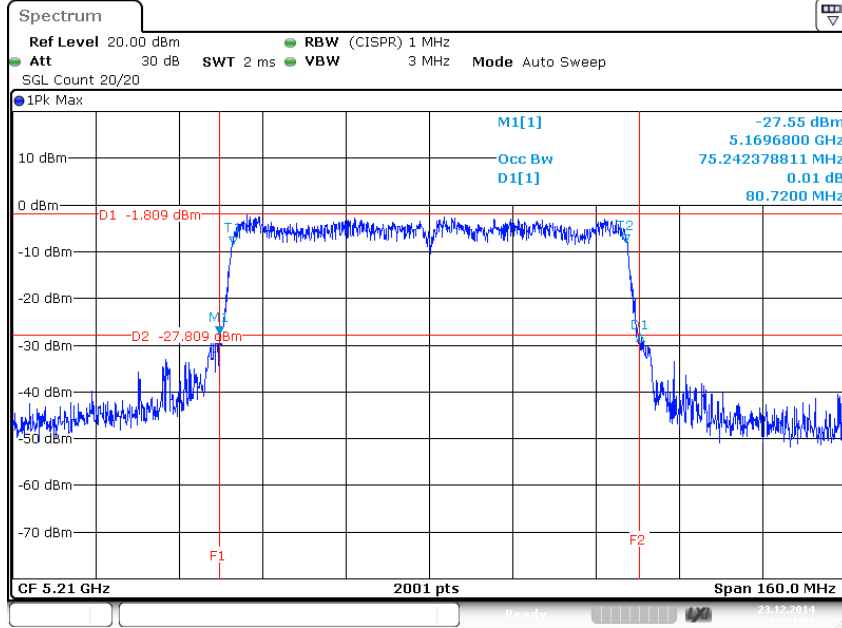


802.11ac 80MHz/ Nss1 MCS0/ Ch42/ Ant2

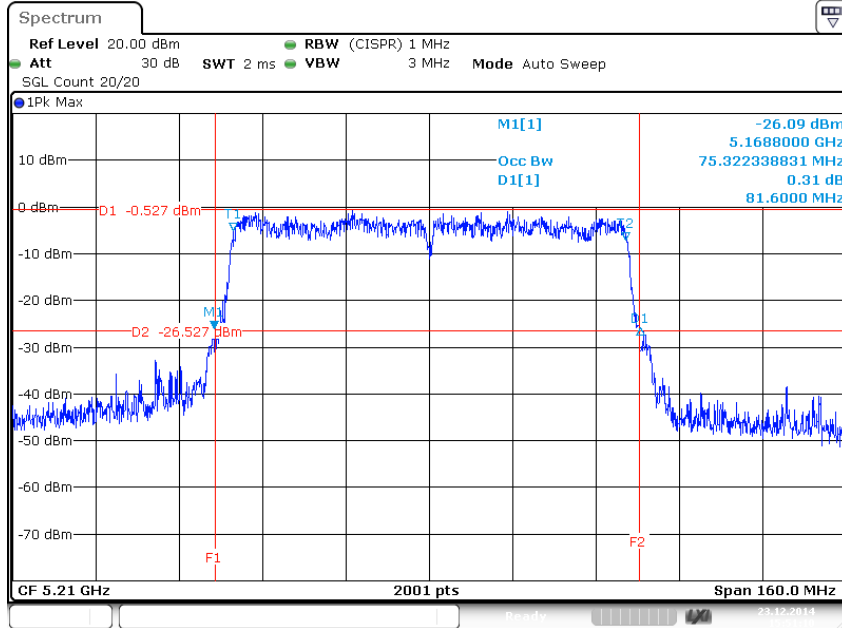




802.11ac 80MHz/ Nss1 MCS0/ Ch42/ Ant3

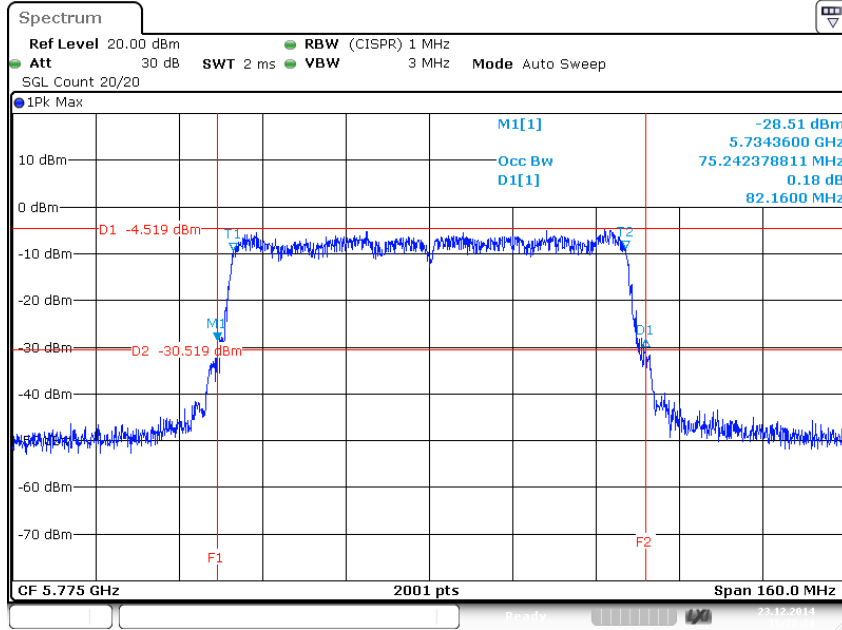


802.11ac 80MHz/ Nss1 MCS0/ Ch42/ Ant4



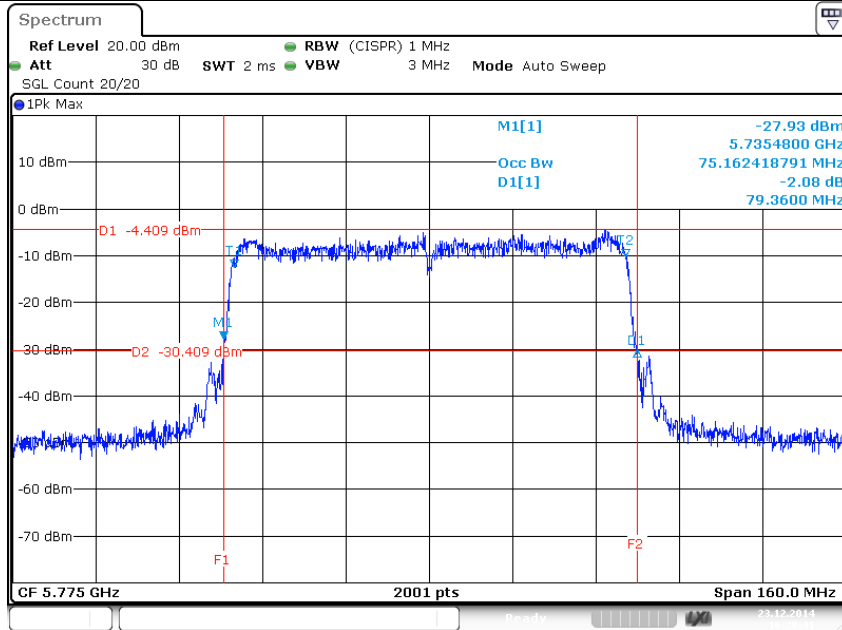


802.11ac 80MHz/ Nss1 MCS0/ Ch155/ Ant1



Date: 23.DEC.2014 16:28:34

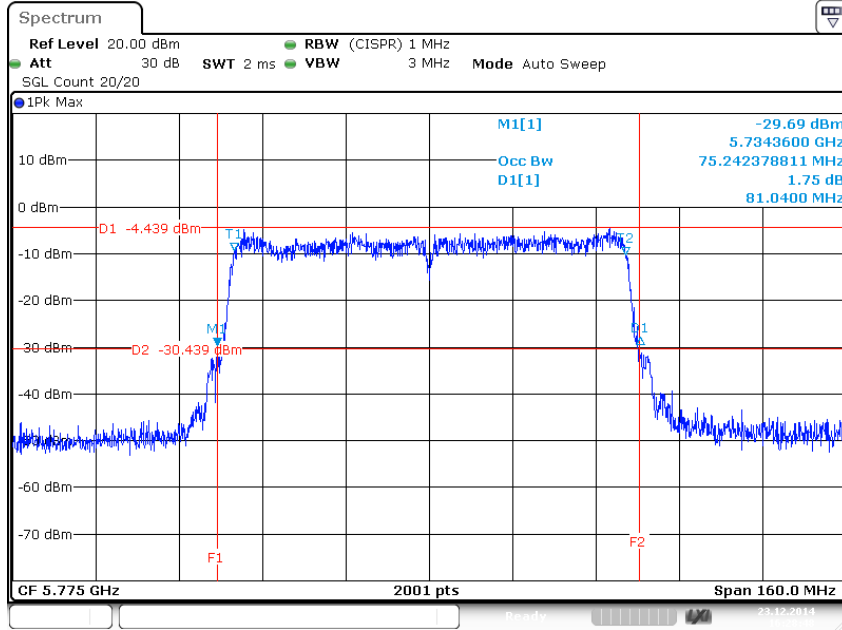
802.11ac 80MHz/ Nss1 MCS0/ Ch155/ Ant2



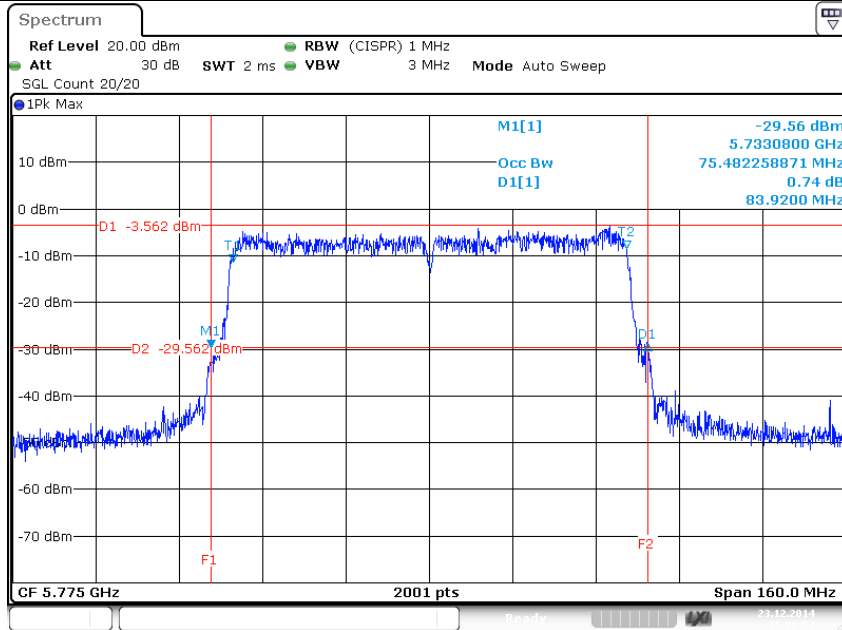
Date: 23.DEC.2014 16:28:41



802.11ac 80MHz/ Nss1 MCS0/ Ch155/ Ant3



802.11ac 80MHz/ Nss1 MCS0/ Ch155/ Ant4

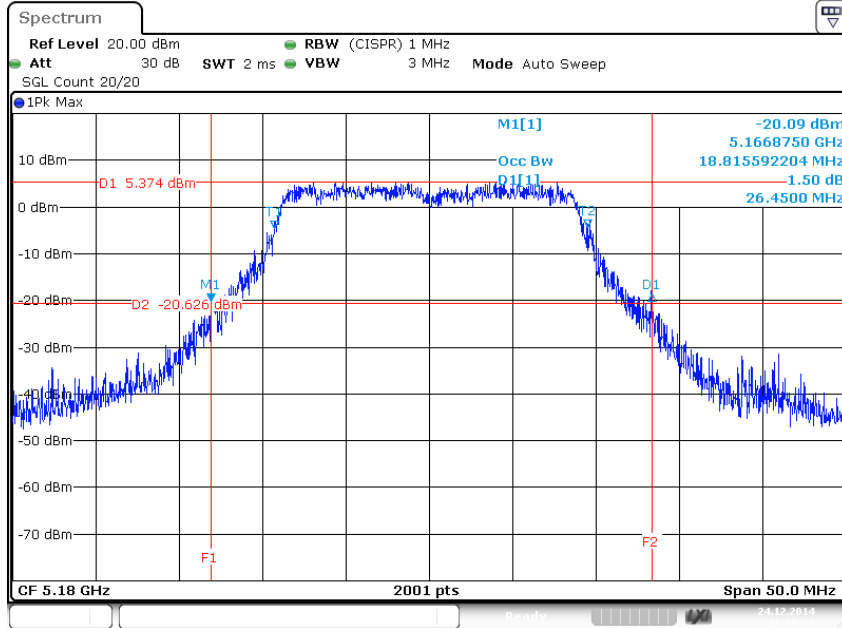




26dB Emission Bandwidth						
Worst Modulation Mode	Number of Transmit Chains (NTX)	Frequency (MHz)	26dB Emission Bandwidth			
			Ant 1	Ant 2	Ant 3	Ant 4
802.11ac 20MHz (TXBF)	2 stream 4TX	5180	26.45	24.90	25.02	25.45
802.11ac 20MHz (TXBF)	2 stream 4TX	5200	28.07	40.30	40.02	31.82
802.11ac 20MHz (TXBF)	2 stream 4TX	5240	32.82	32.90	39.42	32.52
802.11ac 20MHz (TXBF)	2 stream 4TX	5745	25.42	25.32	24.72	24.70
802.11ac 20MHz (TXBF)	2 stream 4TX	5785	27.57	28.02	31.45	26.72
802.11ac 20MHz (TXBF)	2 stream 4TX	5825	25.12	25.75	25.52	24.45
802.11ac 40MHz (TXBF)	2 stream 4TX	5190	42.00	42.04	42.32	41.84
802.11ac 40MHz (TXBF)	2 stream 4TX	5230	57.52	56.08	67.56	48.68
802.11ac 40MHz (TXBF)	2 stream 4TX	5755	43.00	42.40	42.20	42.68
802.11ac 40MHz (TXBF)	2 stream 4TX	5795	67.12	52.08	76.56	67.76
802.11ac 80MHz (TXBF)	2 stream 4TX	5210	80.24	80.40	81.60	80.48
802.11ac 80MHz (TXBF)	2 stream 4TX	5775	80.96	80.16	80.64	81.60

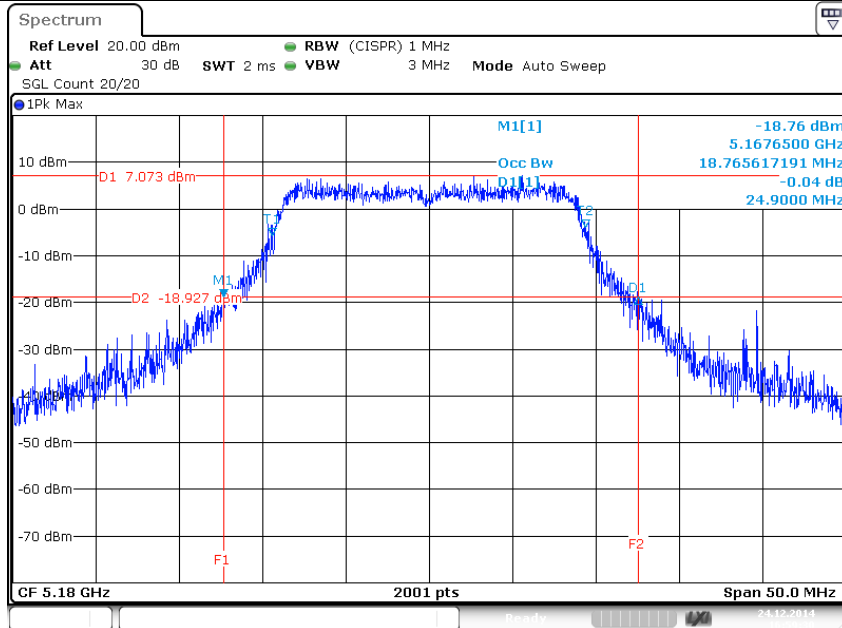


802.11ac 20MHz/ Nss2 MCS0/ Ch36/ Ant1



Date: 24.DEC.2014 16:59:24

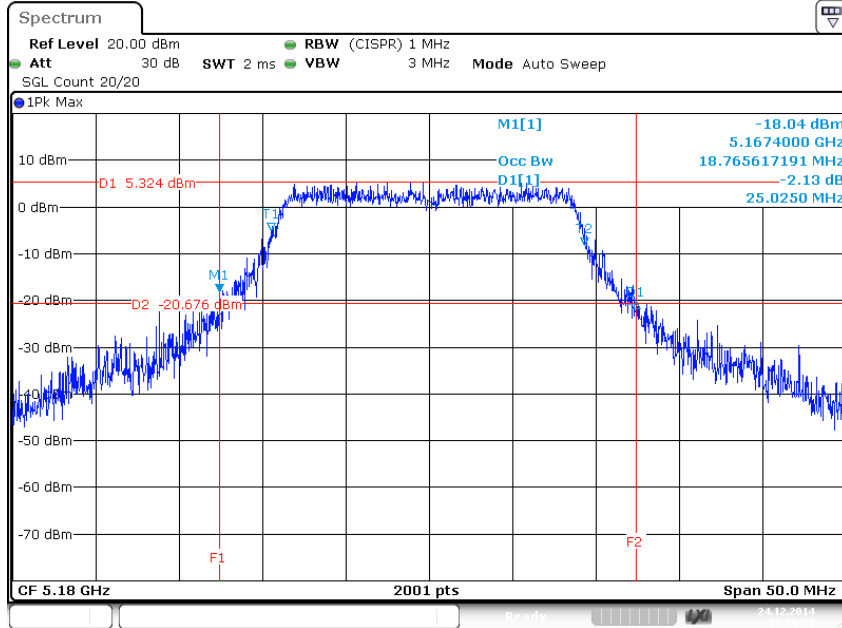
802.11ac 20MHz/ Nss2 MCS0/ Ch36/ Ant2



Date: 24.DEC.2014 16:59:30

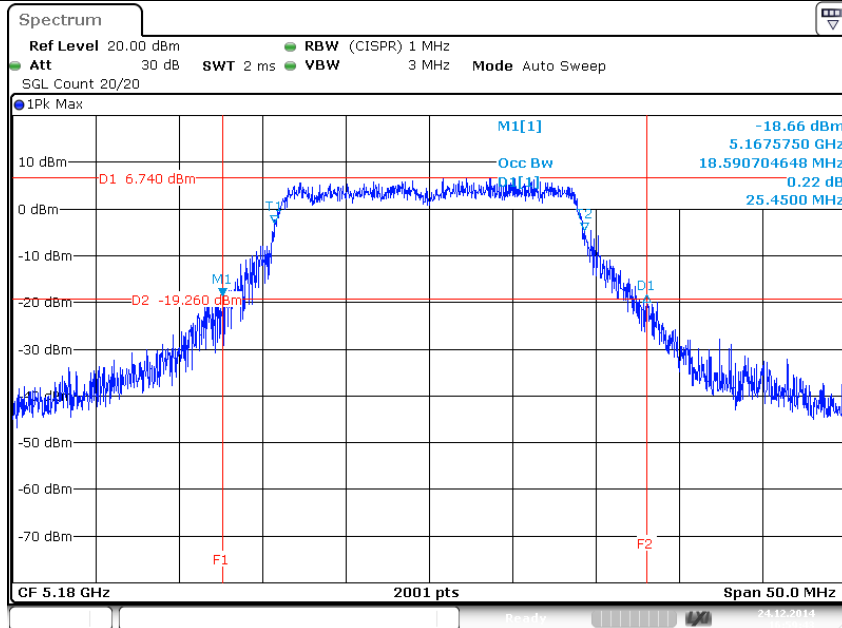


802.11ac 20MHz/ Nss2 MCS0/ Ch36/ Ant3



Date: 24.DEC.2014 16:59:37

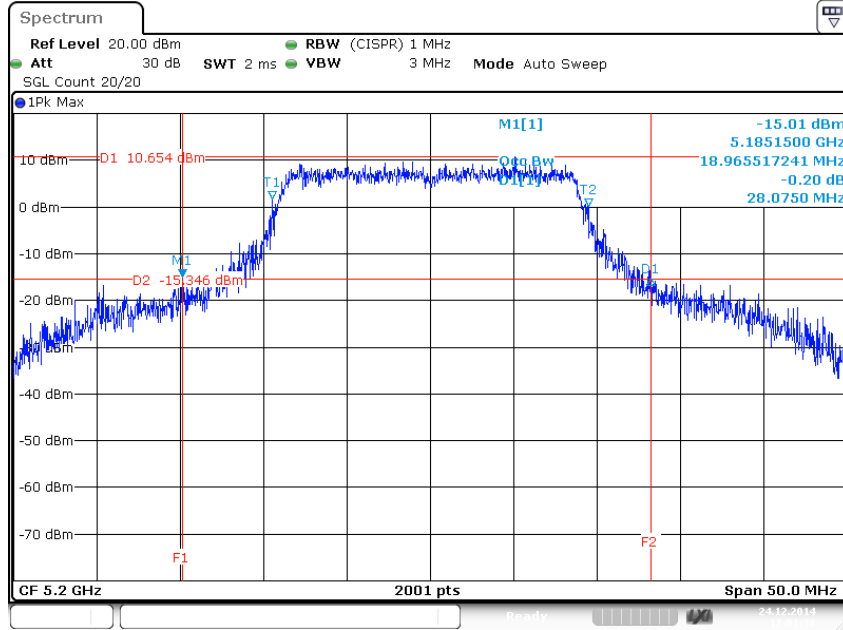
802.11ac 20MHz/ Nss2 MCS0/ Ch36/ Ant4



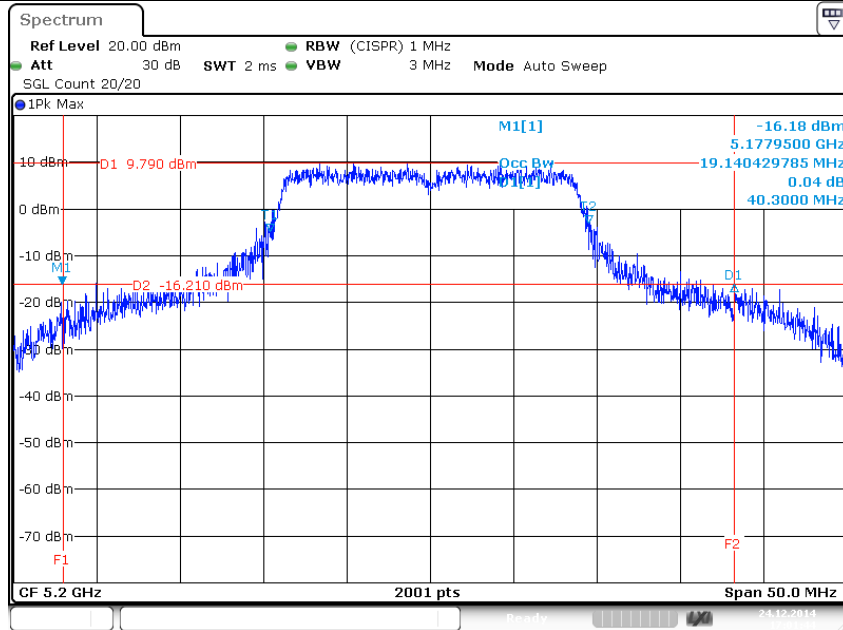
Date: 24.DEC.2014 16:59:43



802.11ac 20MHz/ Nss2 MCS0/ Ch40/ Ant1

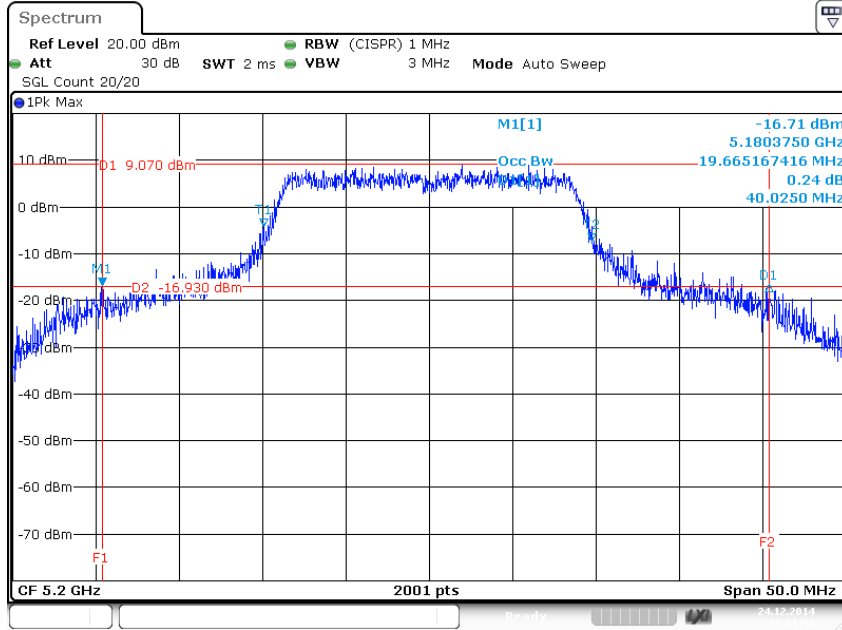


802.11ac 20MHz/ Nss2 MCS0/ Ch40/ Ant2

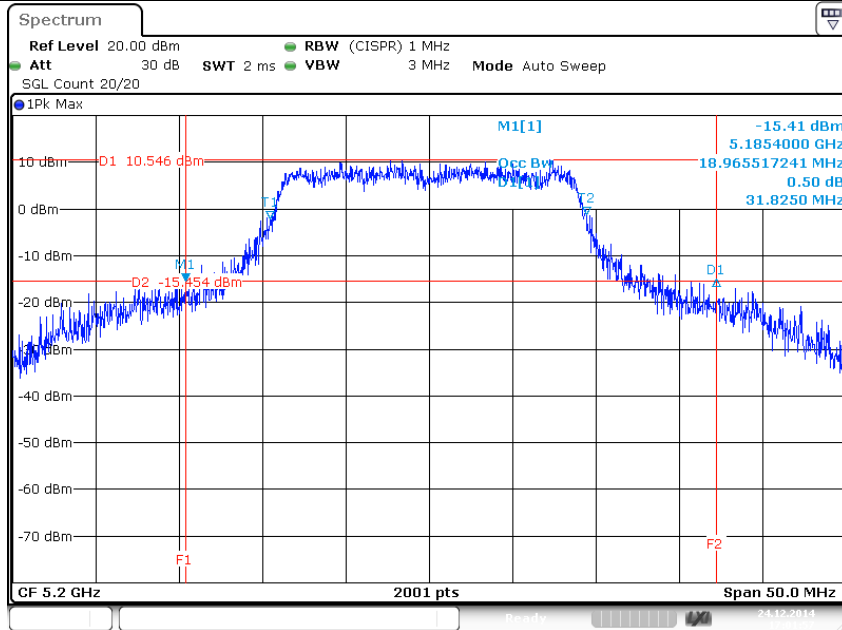




802.11ac 20MHz/ Nss2 MCS0/ Ch40/ Ant3

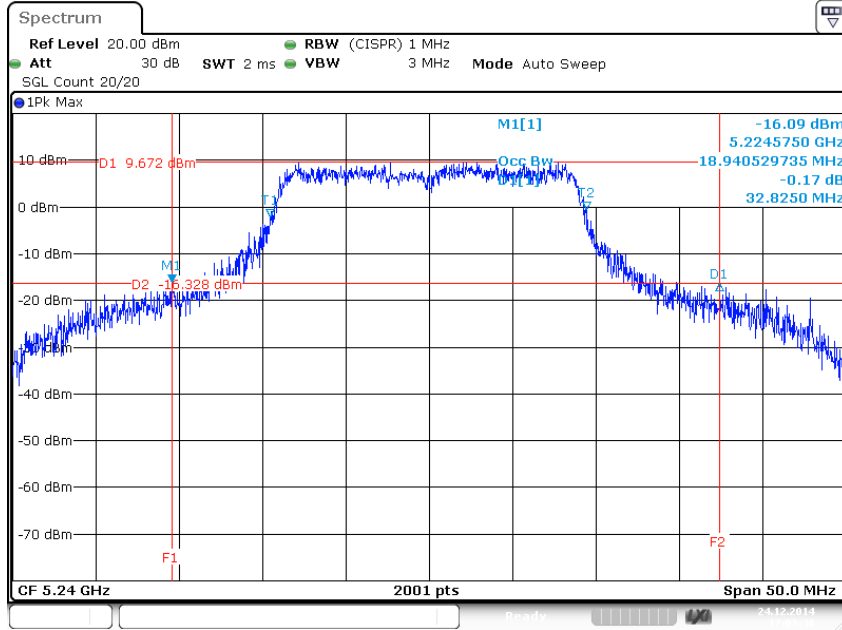


802.11ac 20MHz/ Nss2 MCS0/ Ch40/ Ant4



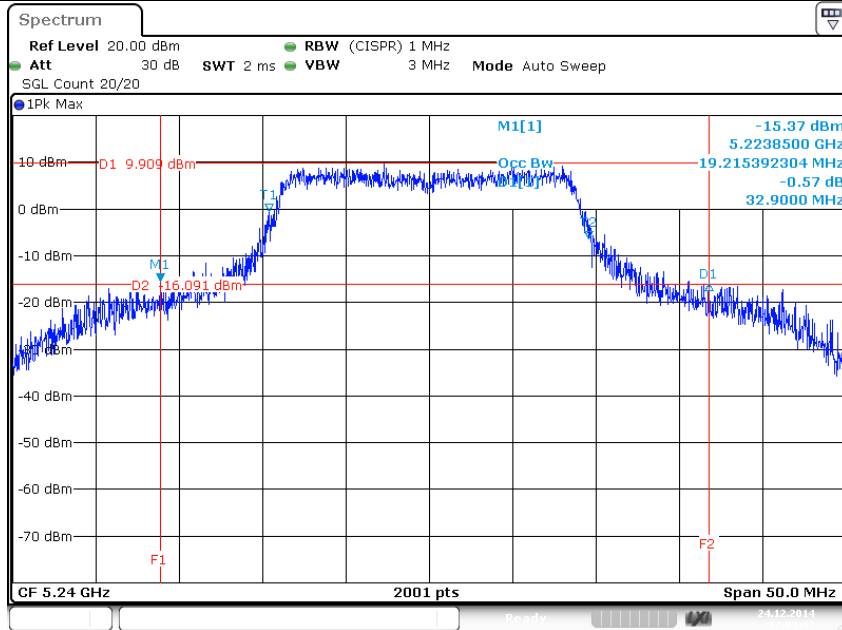


802.11ac 20MHz/ Nss2 MCS0/ Ch48/ Ant1



Date: 24.DEC.2014 17:03:41

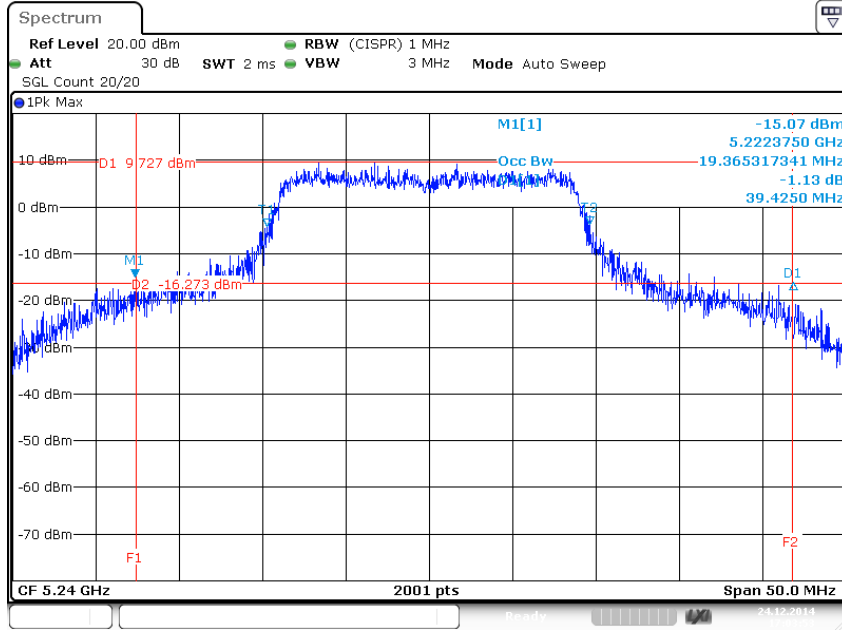
802.11ac 20MHz/ Nss2 MCS0/ Ch48/ Ant2



Date: 24.DEC.2014 17:03:47

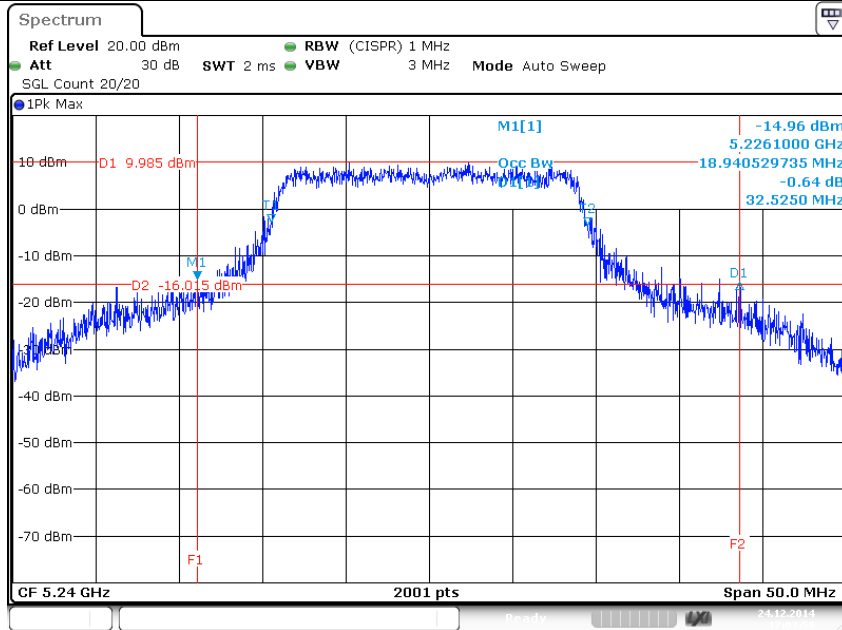


802.11ac 20MHz/ Nss2 MCS0/ Ch48/ Ant3



Date: 24.DEC.2014 17:03:53

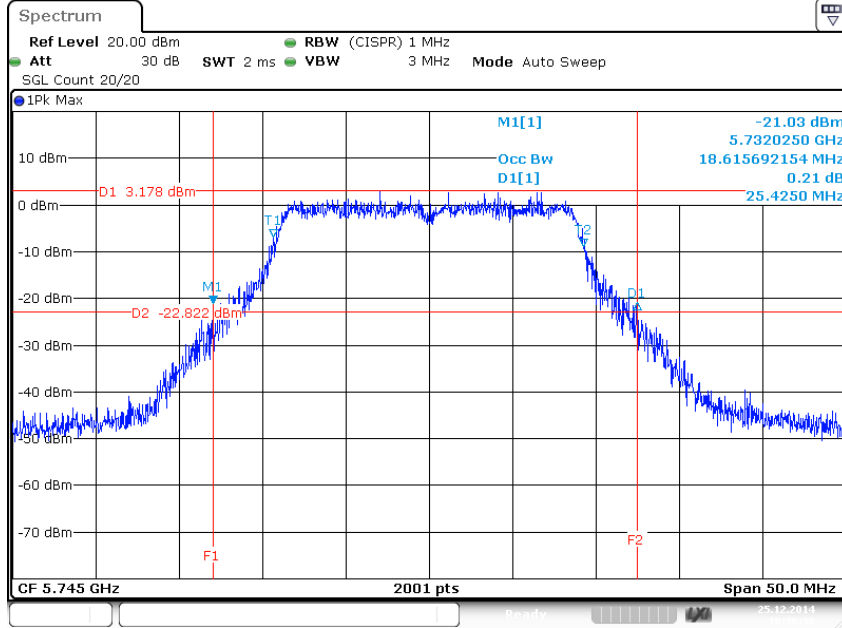
802.11ac 20MHz/ Nss2 MCS0/ Ch48/ Ant4



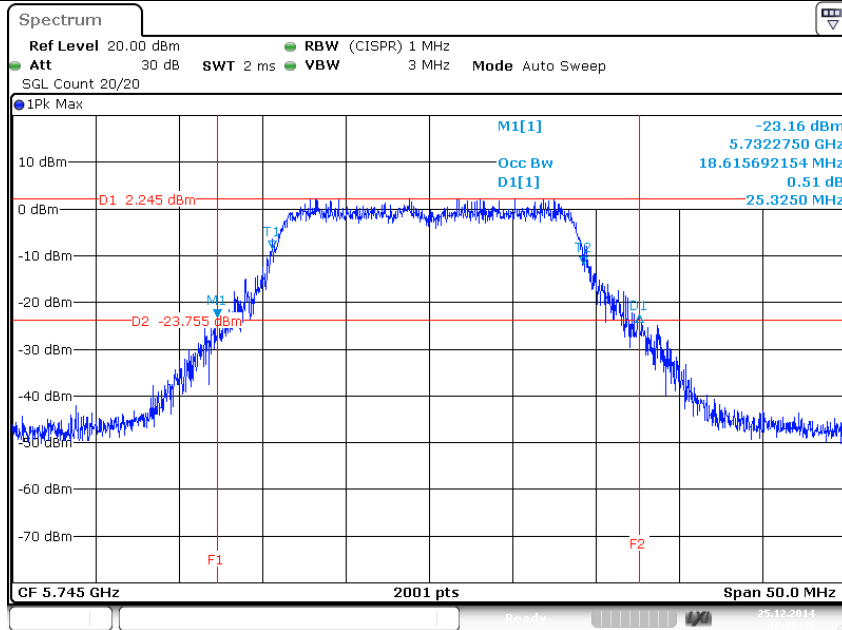
Date: 24.DEC.2014 17:04:00



802.11ac 20MHz/ Nss2 MCS0/ Ch149/ Ant1

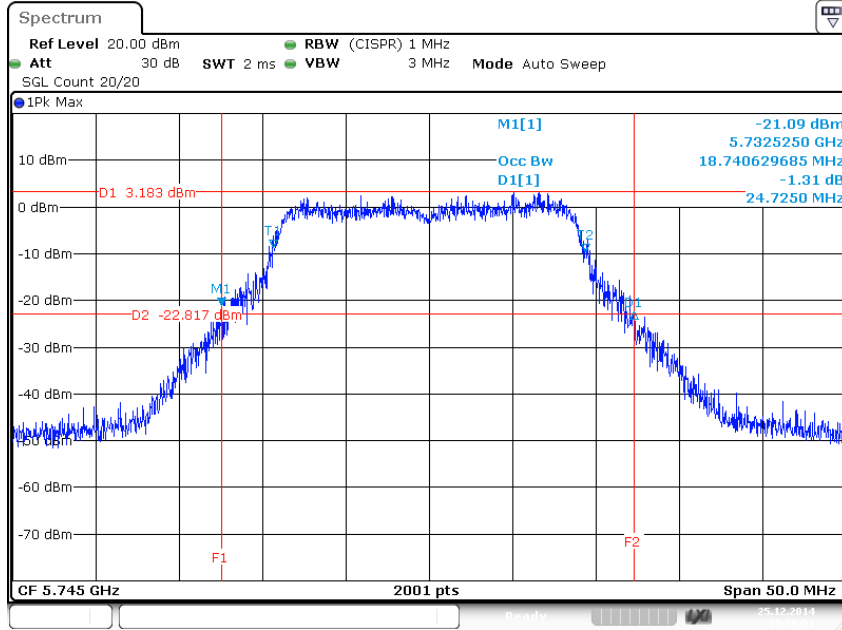


802.11ac 20MHz/ Nss2 MCS0/ Ch149/ Ant2



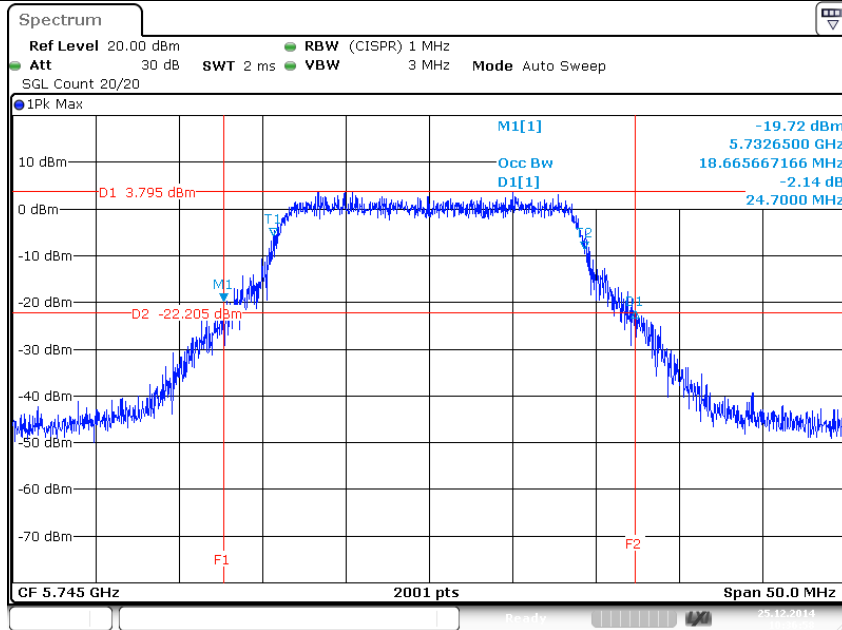


802.11ac 20MHz/ Nss2 MCS0/ Ch149/ Ant3



Date: 25.DEC.2014 10:36:51

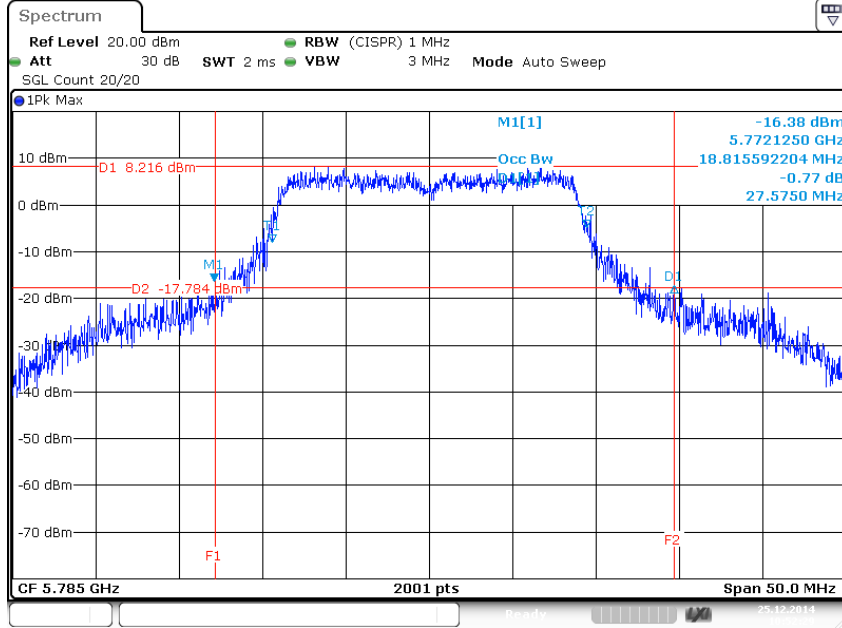
802.11ac 20MHz/ Nss2 MCS0/ Ch149/ Ant4



Date: 25.DEC.2014 10:36:58

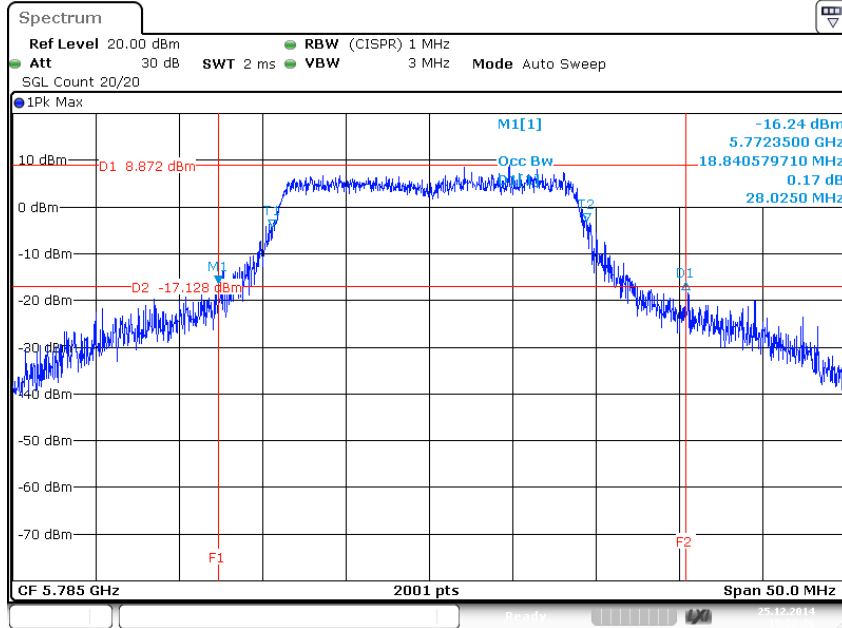


802.11ac 20MHz/ Nss2 MCS0/ Ch157/ Ant1



Date: 25.DEC.2014 10:52:29

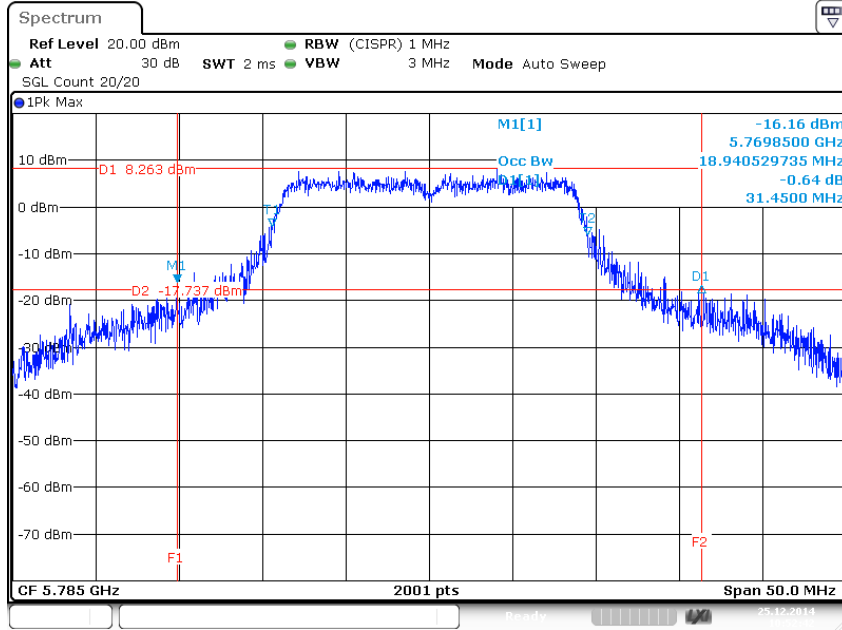
802.11ac 20MHz/ Nss2 MCS0/ Ch157/ Ant2



Date: 25.DEC.2014 10:52:35

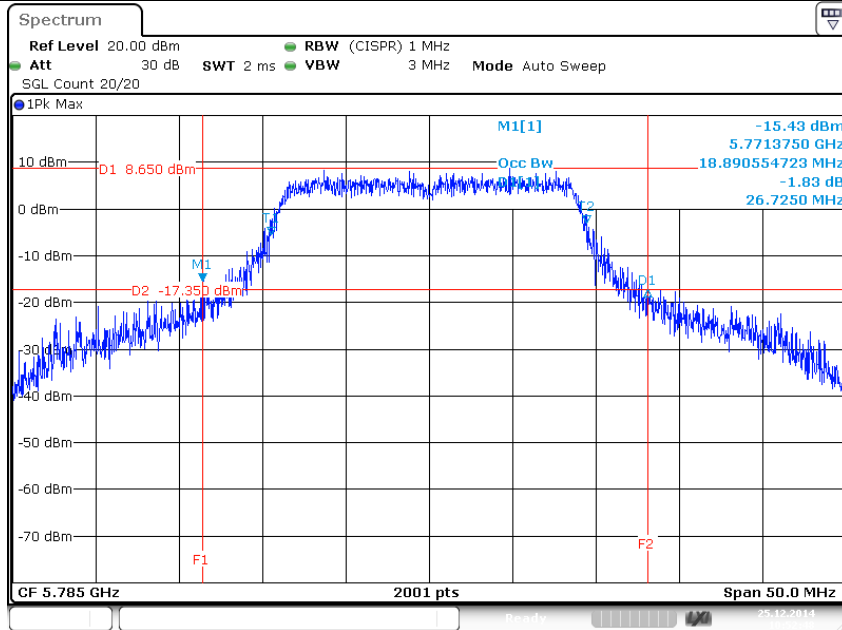


802.11ac 20MHz/ Nss2 MCS0/ Ch157/ Ant3



Date: 25.DEC.2014 10:52:42

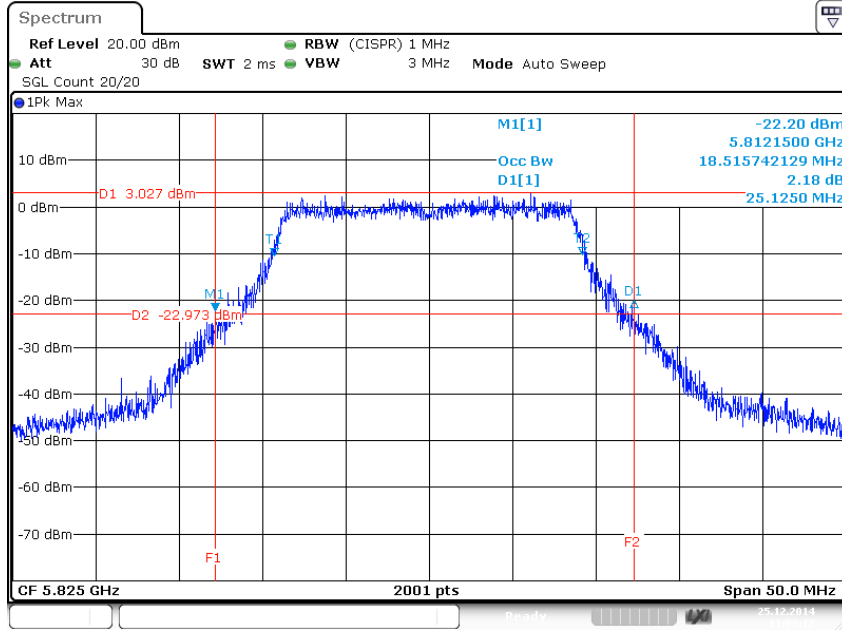
802.11ac 20MHz/ Nss2 MCS0/ Ch157/ Ant4



Date: 25.DEC.2014 10:52:48

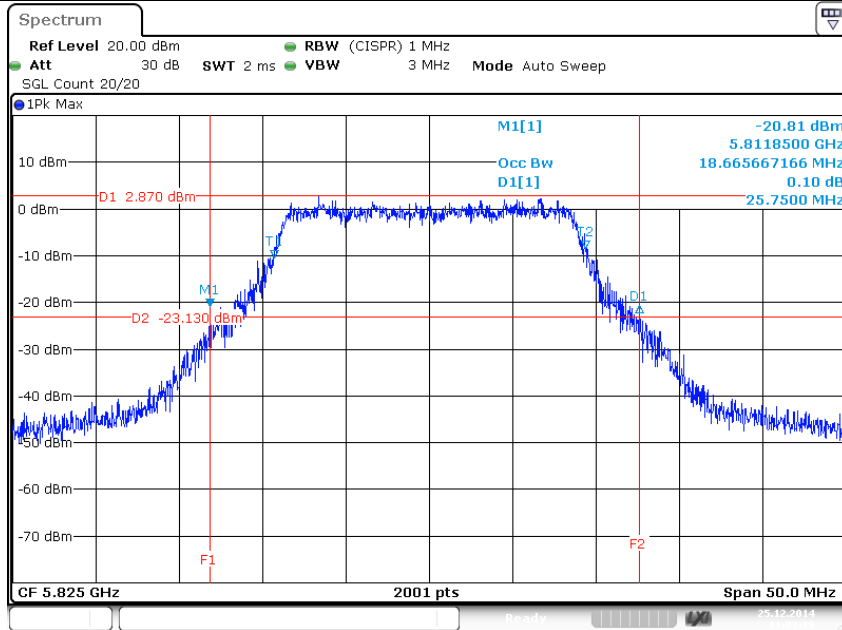


802.11ac 20MHz/ Nss2 MCS0/ Ch165/ Ant1



Date: 25.DEC.2014 11:03:12

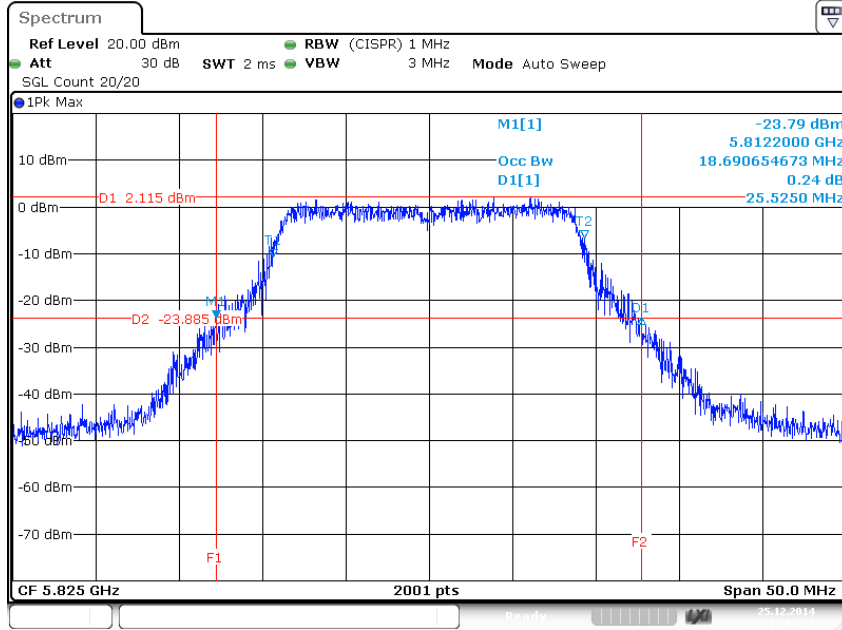
802.11ac 20MHz/ Nss2 MCS0/ Ch165/ Ant2



Date: 25.DEC.2014 11:03:18

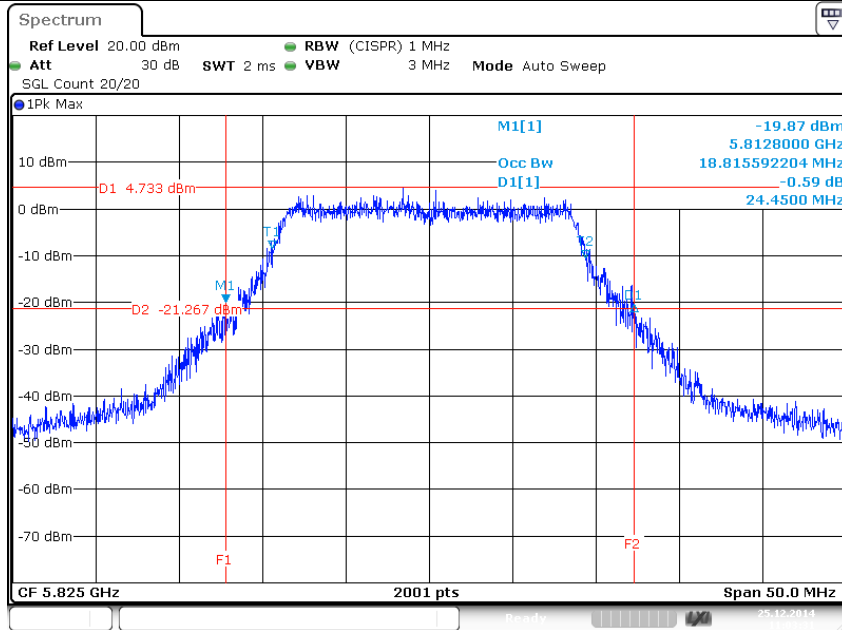


802.11ac 20MHz/ Nss2 MCS0/ Ch165/ Ant3



Date: 25.DEC.2014 11:03:25

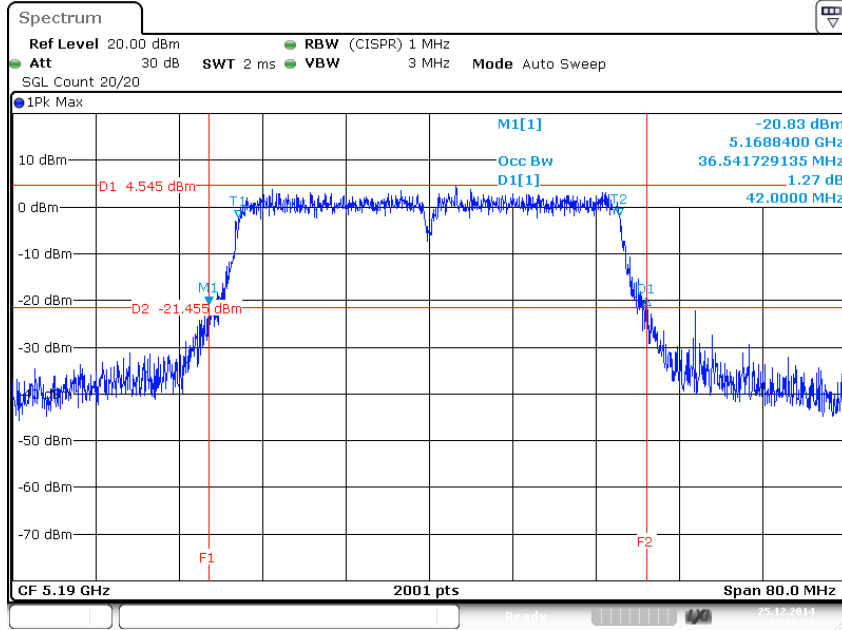
802.11ac 20MHz/ Nss2 MCS0/ Ch165/ Ant4



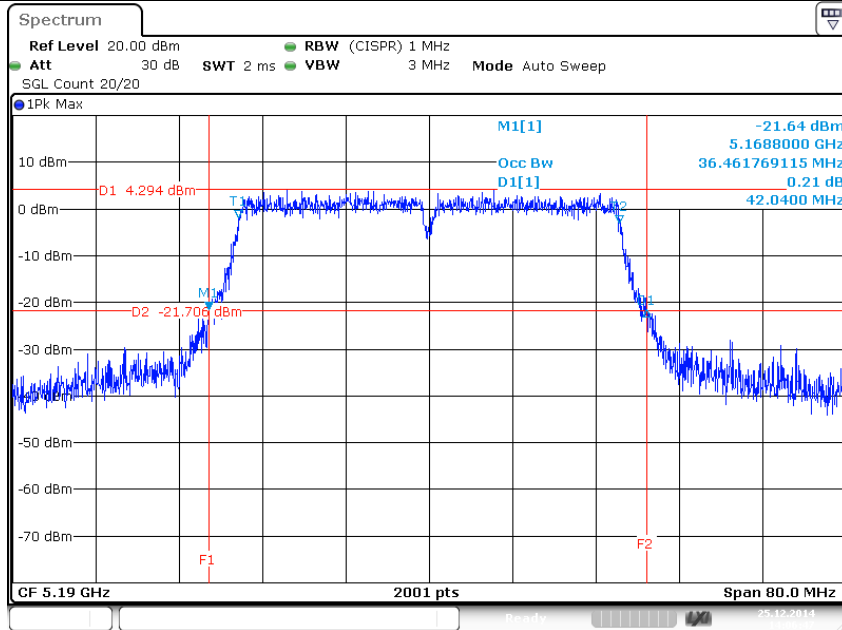
Date: 25.DEC.2014 11:03:31



802.11ac 40MHz/ Nss2 MCS0/ Ch38/ Ant1

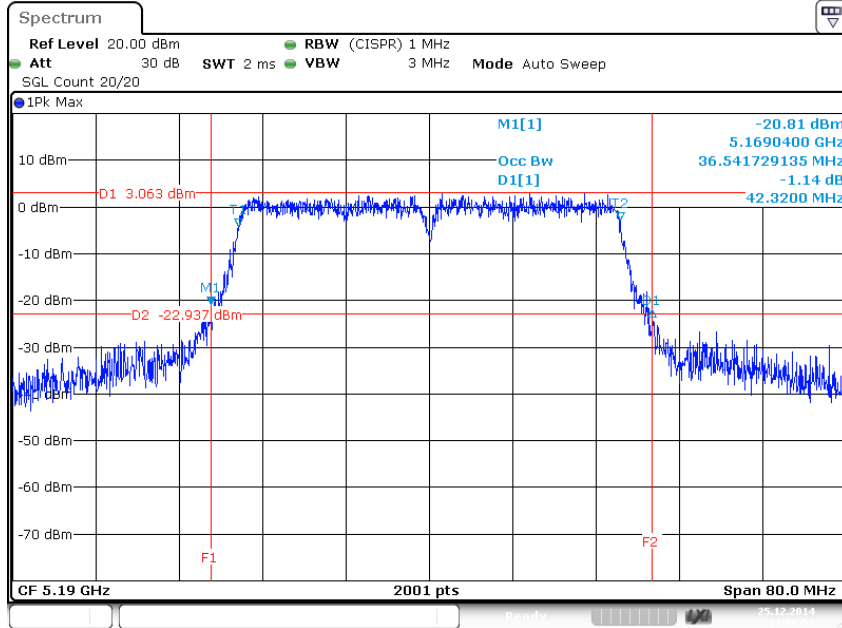


802.11ac 40MHz/ Nss2 MCS0/ Ch38/ Ant2



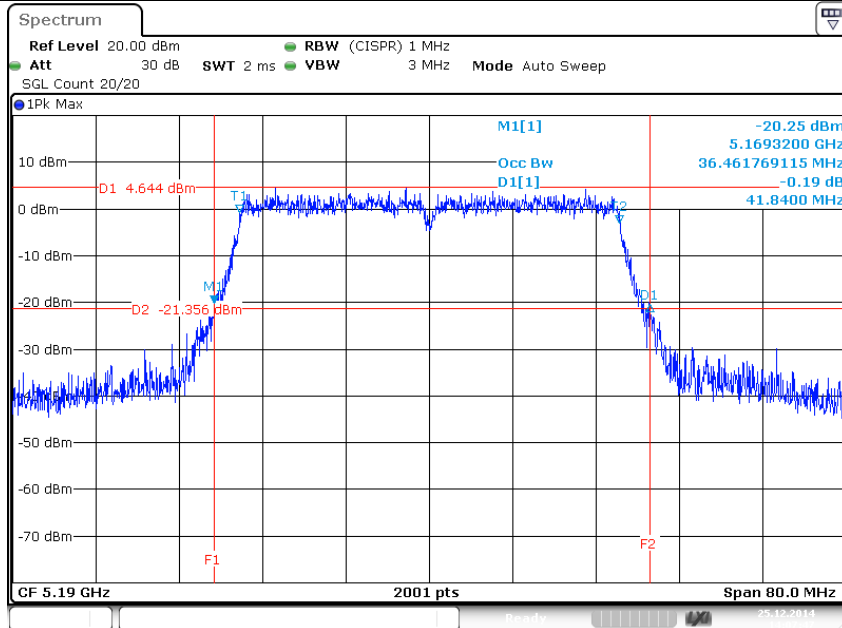


802.11ac 40MHz/ Nss2 MCS0/ Ch38/ Ant3



Date: 25.DEC.2014 14:06:53

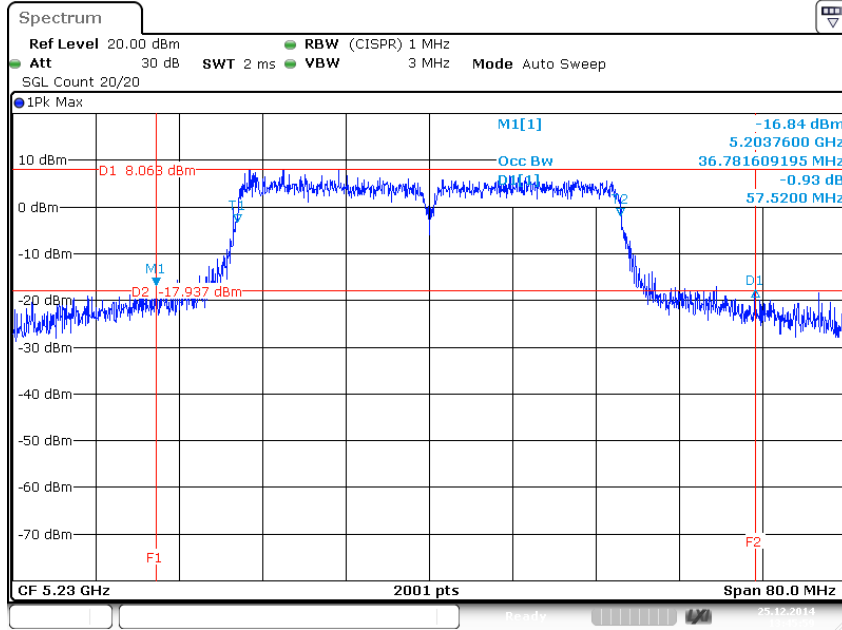
802.11ac 40MHz/ Nss2 MCS0/ Ch38/ Ant4



Date: 25.DEC.2014 14:07:46

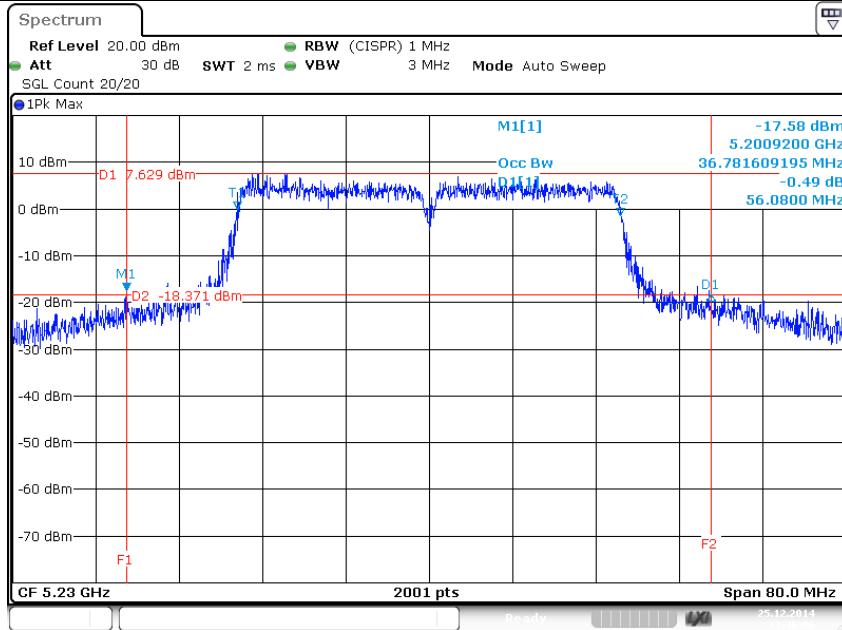


802.11ac 40MHz/ Nss2 MCS0/ Ch46/ Ant1



Date: 25.DEC.2014 13:45:59

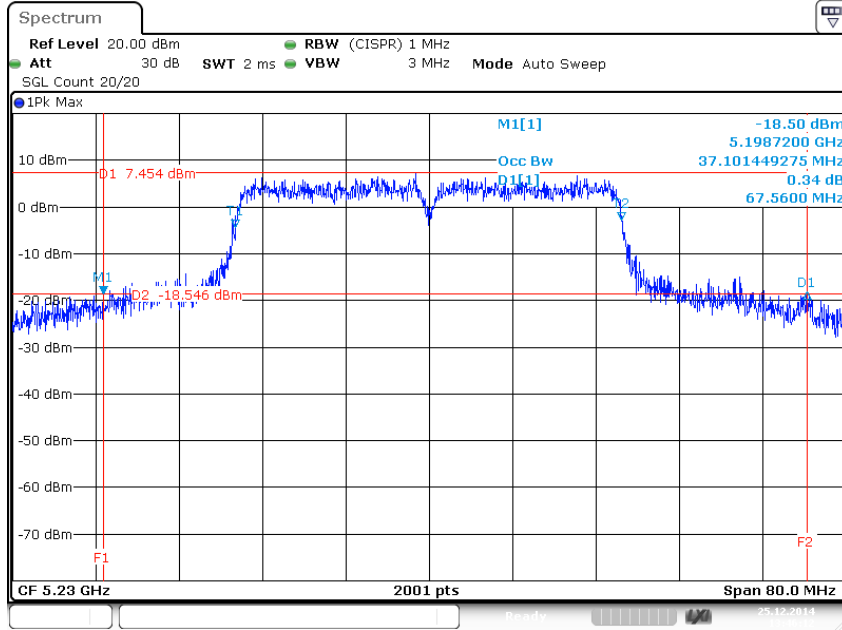
802.11ac 40MHz/ Nss2 MCS0/ Ch46/ Ant2



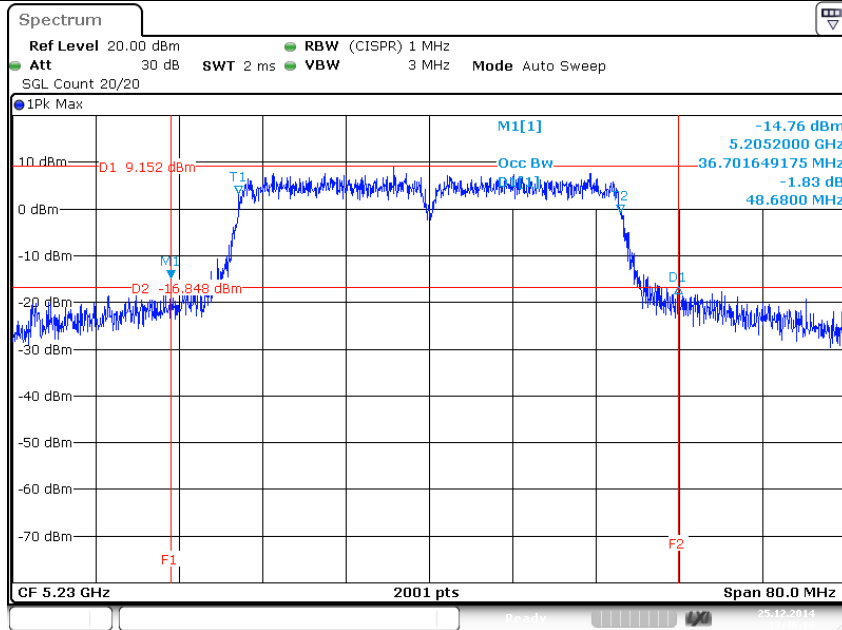
Date: 25.DEC.2014 13:46:06



802.11ac 40MHz/ Nss2 MCS0/ Ch46/ Ant3

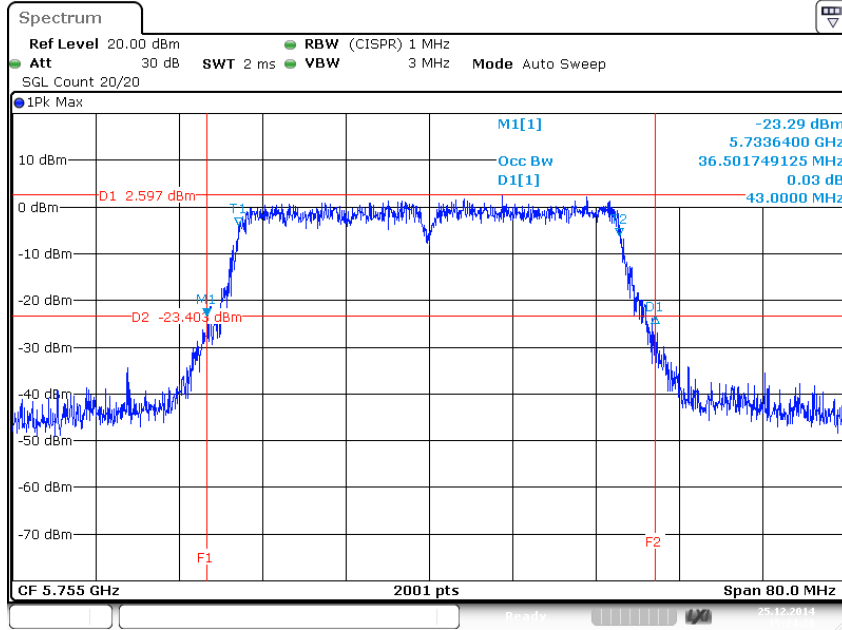


802.11ac 40MHz/ Nss2 MCS0/ Ch46/ Ant4



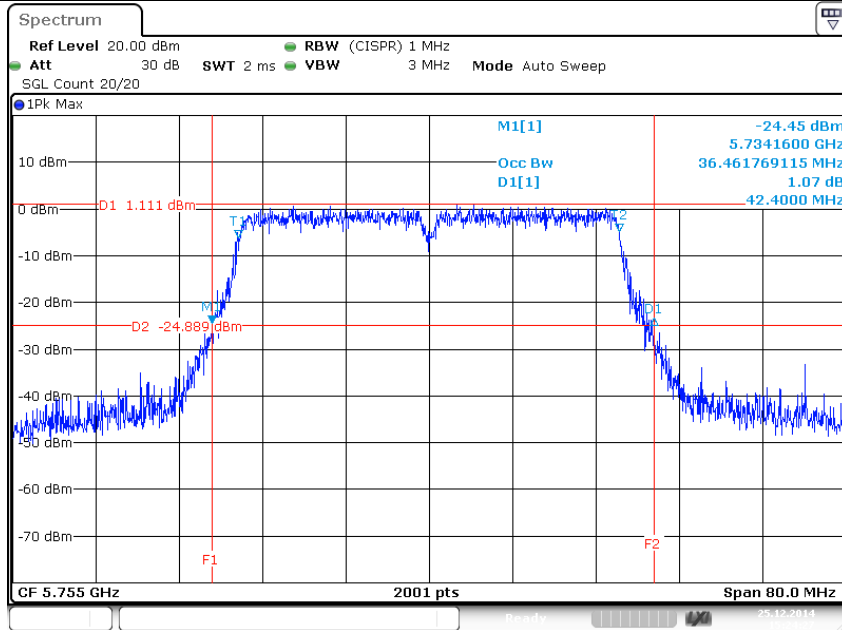


802.11ac 40MHz/ Nss2 MCS0/ Ch151/ Ant1



Date: 25.DEC.2014 15:24:20

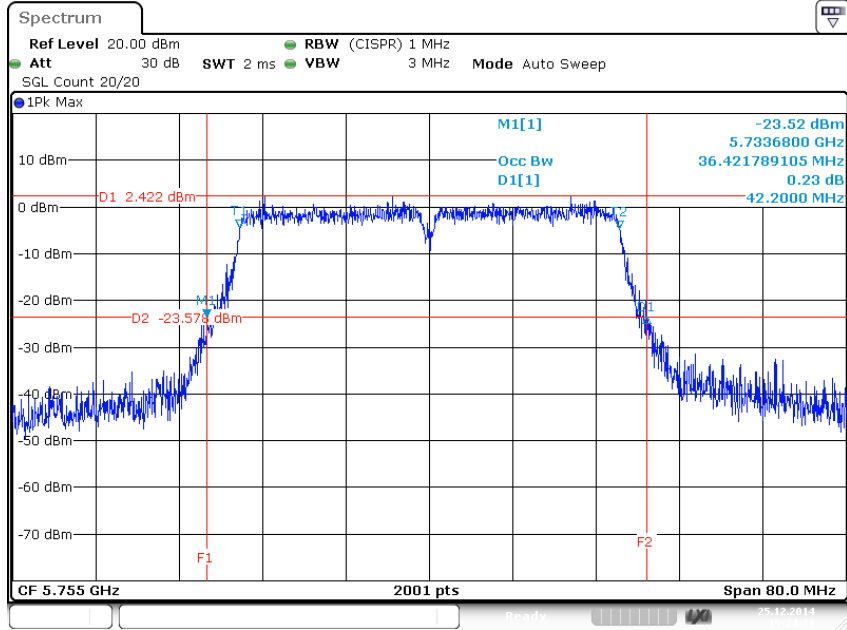
802.11ac 40MHz/ Nss2 MCS0/ Ch151/ Ant2



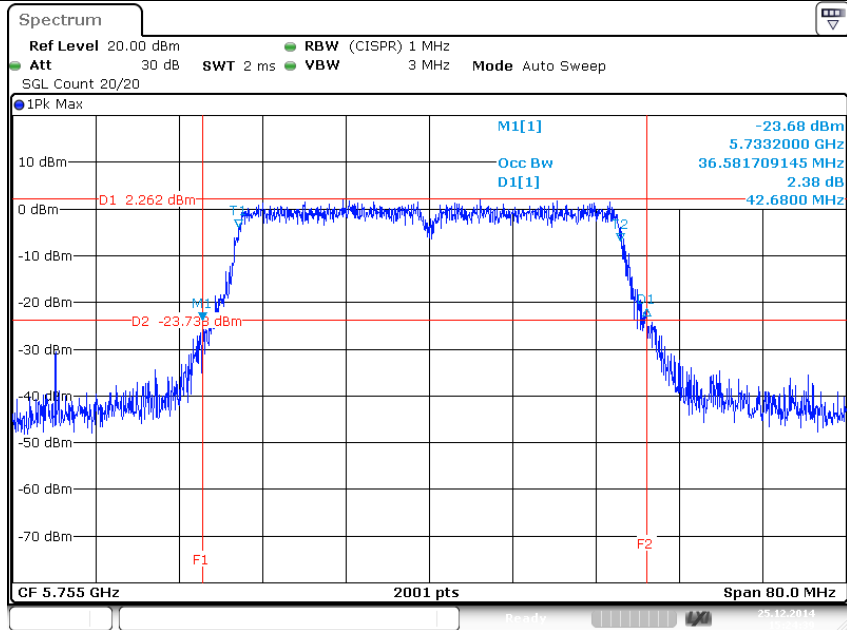
Date: 25.DEC.2014 15:24:27



802.11ac 40MHz/ Nss2 MCS0/ Ch151/ Ant3

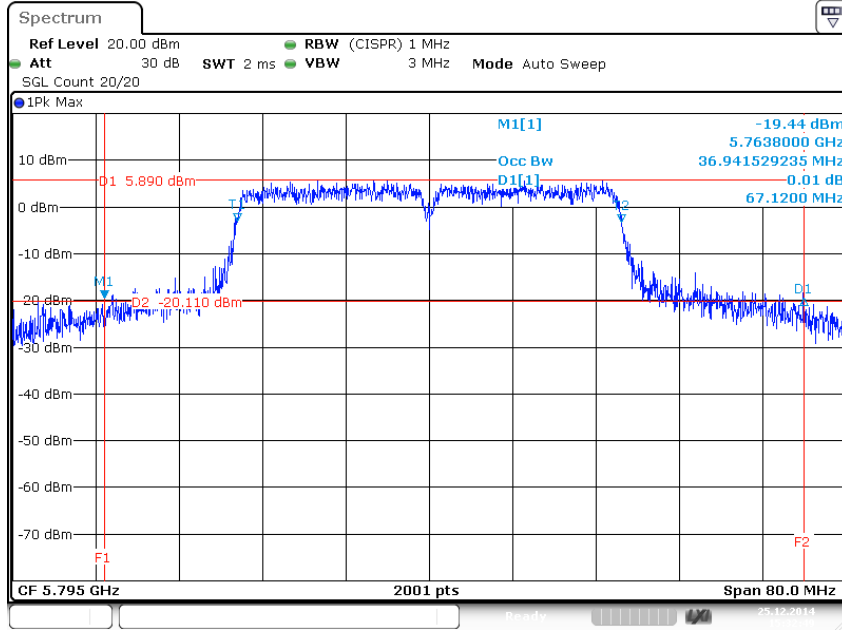


802.11ac 40MHz/ Nss2 MCS0/ Ch151/ Ant4

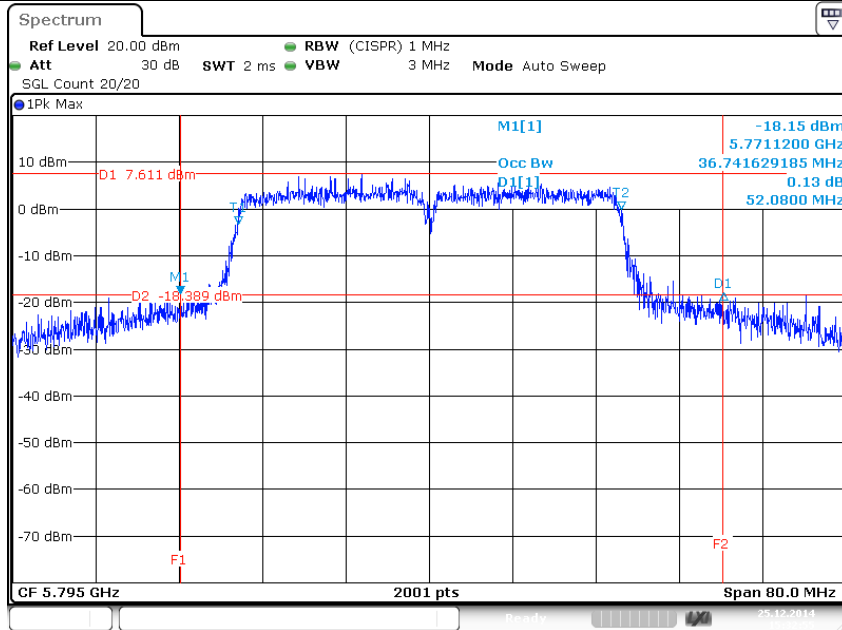




802.11ac 40MHz/ Nss2 MCS0/ Ch159/ Ant1

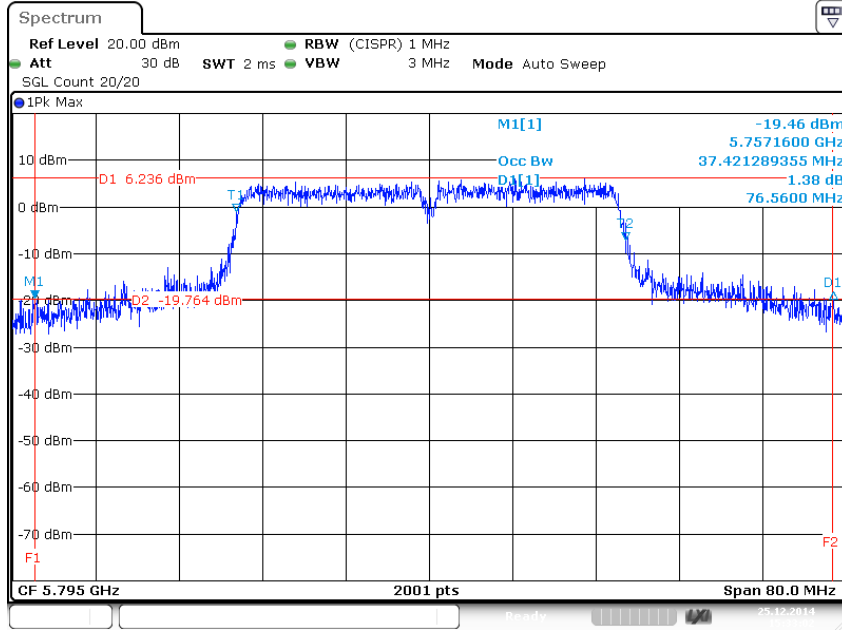


802.11ac 40MHz/ Nss2 MCS0/ Ch159/ Ant2



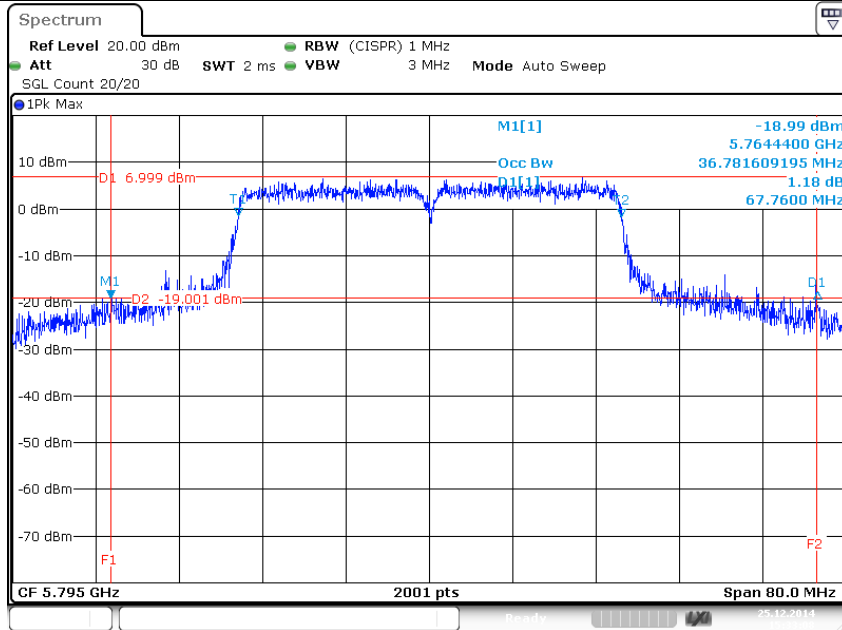


802.11ac 40MHz/ Nss2 MCS0/ Ch159/ Ant3



Date: 25.DEC.2014 15:33:02

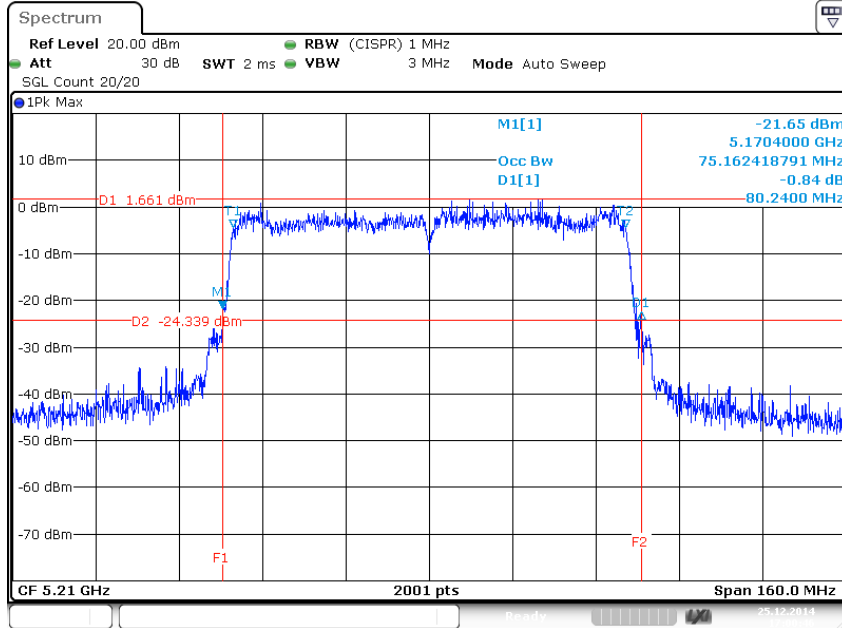
802.11ac 40MHz/ Nss2 MCS0/ Ch159/ Ant4



Date: 25.DEC.2014 15:33:08

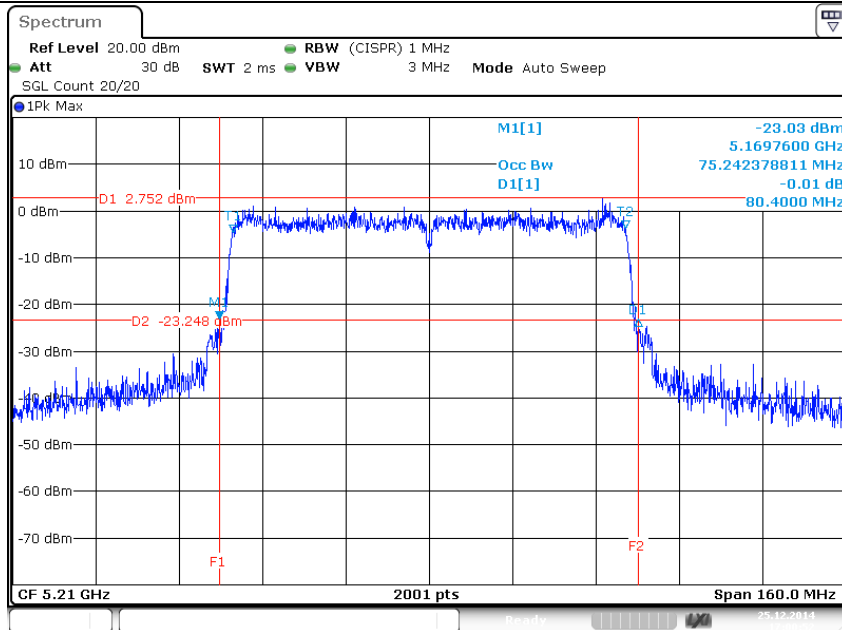


802.11ac 80MHz/ Nss2 MCS0/ Ch42/ Ant1



Date: 25.DEC.2014 17:00:45

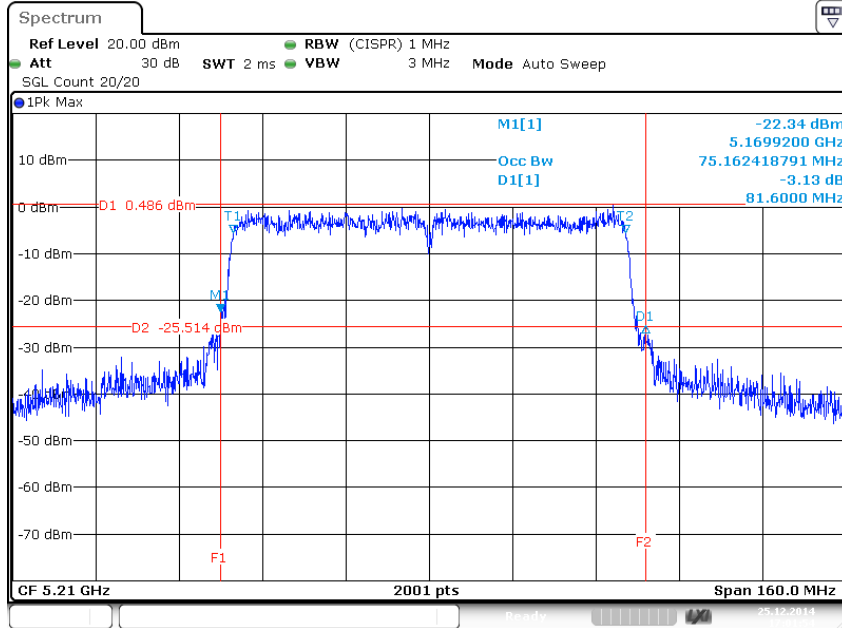
802.11ac 80MHz/ Nss2 MCS0/ Ch42/ Ant2



Date: 25.DEC.2014 17:00:52

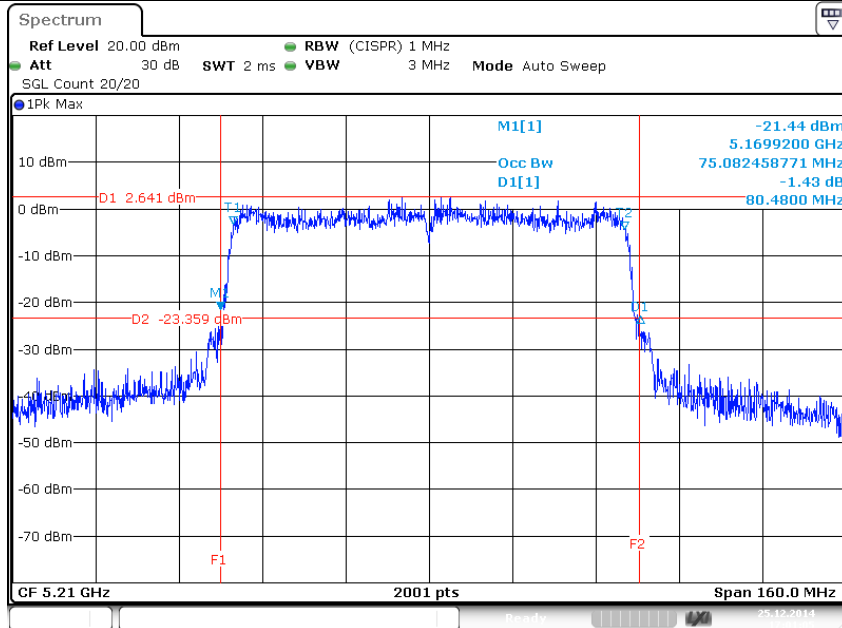


802.11ac 80MHz/ Nss2 MCS0/ Ch42/ Ant3



Date: 25.DEC.2014 17:01:54

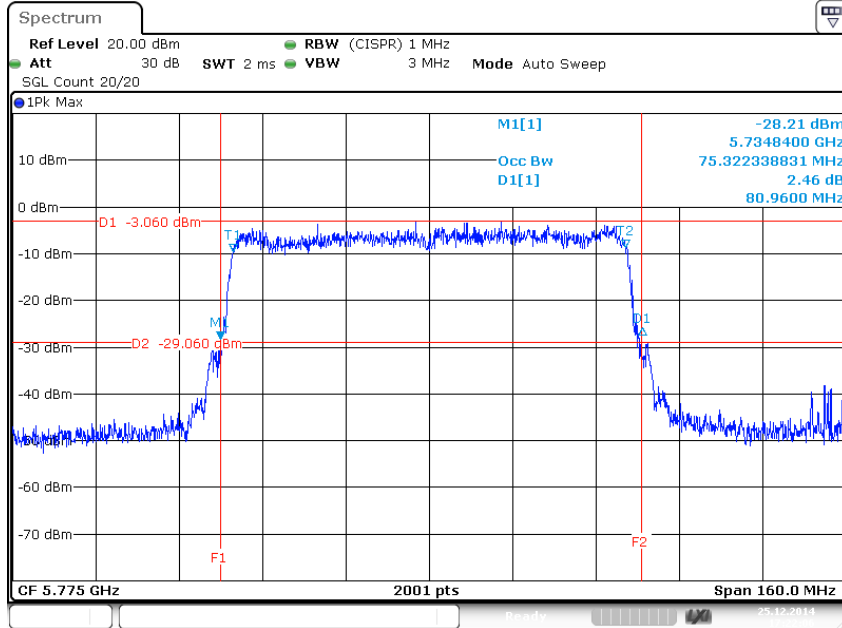
802.11ac 80MHz/ Nss2 MCS0/ Ch42/ Ant4



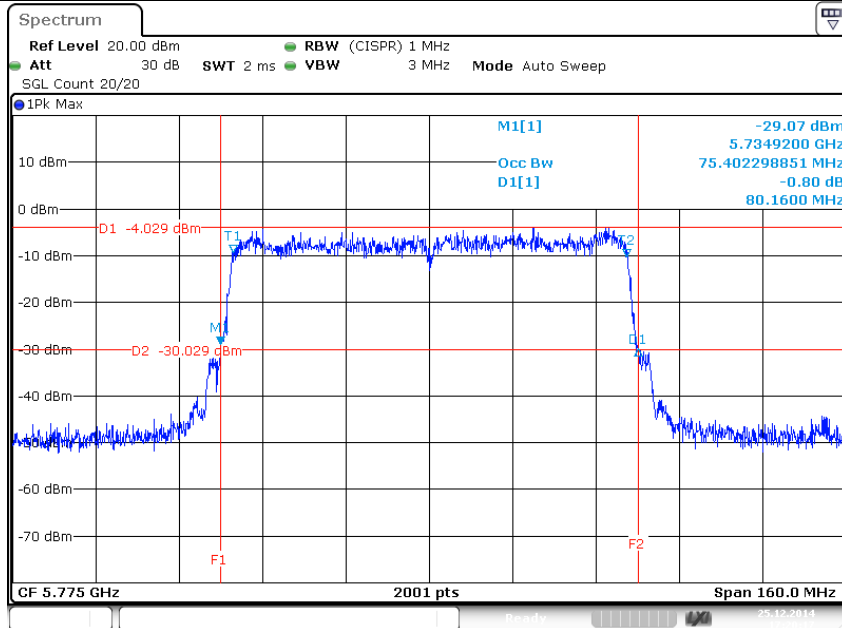
Date: 25.DEC.2014 17:01:05



802.11ac 80MHz/ Nss2 MCS0/ Ch155/ Ant1

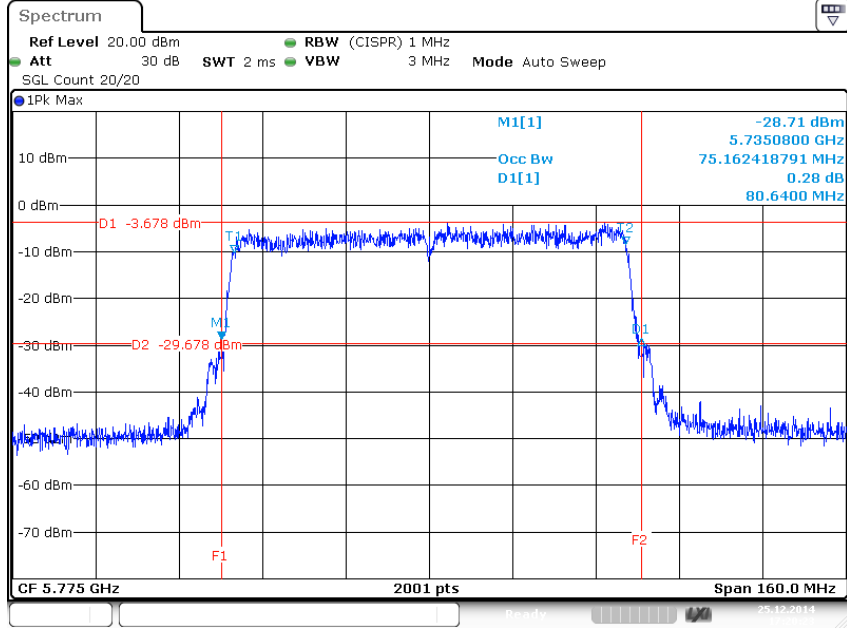


802.11ac 80MHz/ Nss2 MCS0/ Ch155/ Ant2

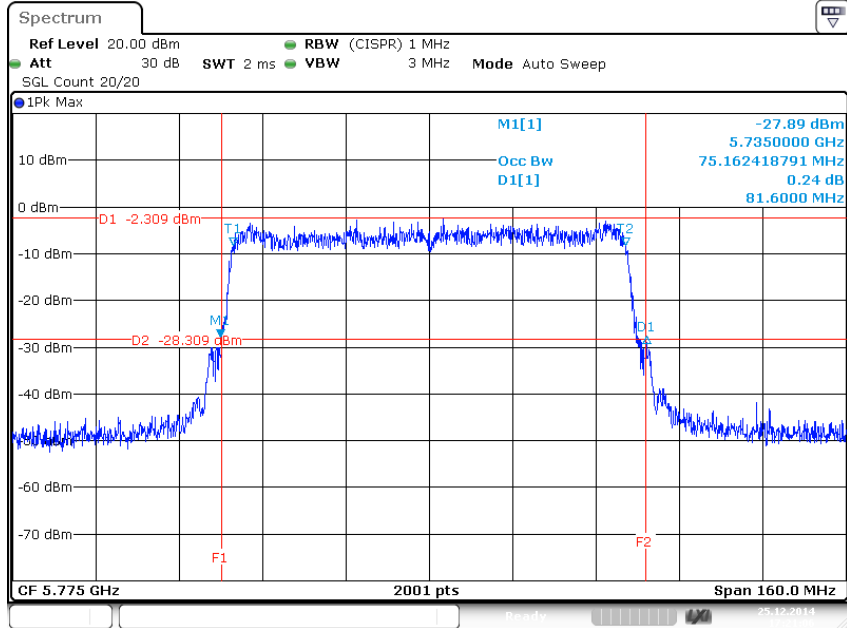




802.11ac 80MHz/ Nss2 MCS0/ Ch155/ Ant3



802.11ac 80MHz/ Nss2 MCS0/ Ch155/ Ant4

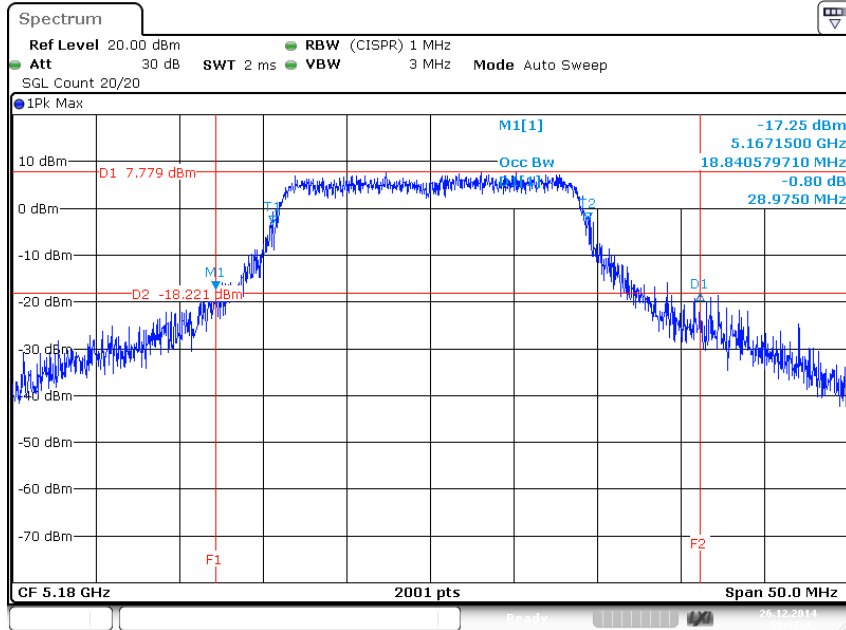




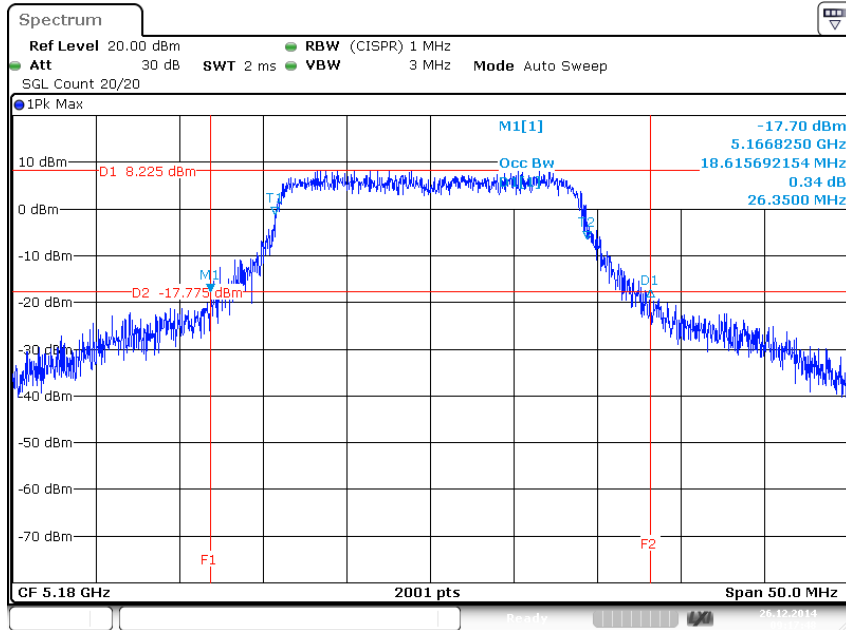
26dB Emission Bandwidth						
Worst Modulation Mode	Number of Transmit Chains (NTX)	Frequency (MHz)	26dB Emission Bandwidth			
			Ant 1	Ant 2	Ant 3	Ant 4
802.11ac 20MHz (TXBF)	3 stream 4TX	5180	28.97	26.35	26.45	25.20
802.11ac 20MHz (TXBF)	3 stream 4TX	5200	30.55	34.67	30.70	27.30
802.11ac 20MHz (TXBF)	3 stream 4TX	5240	32.25	35.35	37.60	25.95
802.11ac 20MHz (TXBF)	3 stream 4TX	5745	25.95	25.02	25.37	24.40
802.11ac 20MHz (TXBF)	3 stream 4TX	5785	29.62	26.07	28.37	24.82
802.11ac 20MHz (TXBF)	3 stream 4TX	5825	25.10	25.07	25.00	24.82
802.11ac 40MHz (TXBF)	3 stream 4TX	5190	42.60	42.16	45.32	42.00
802.11ac 40MHz (TXBF)	3 stream 4TX	5230	63.32	60.64	75.60	57.32
802.11ac 40MHz (TXBF)	3 stream 4TX	5755	42.64	43.20	42.52	41.36
802.11ac 40MHz (TXBF)	3 stream 4TX	5795	66.32	60.76	66.08	59.20
802.11ac 80MHz (TXBF)	3 stream 4TX	5210	81.84	80.56	82.00	82.40
802.11ac 80MHz (TXBF)	3 stream 4TX	5775	80.56	81.28	82.40	79.84



802.11ac 20MHz/ Nss3 MCS0/ Ch36/ Ant1

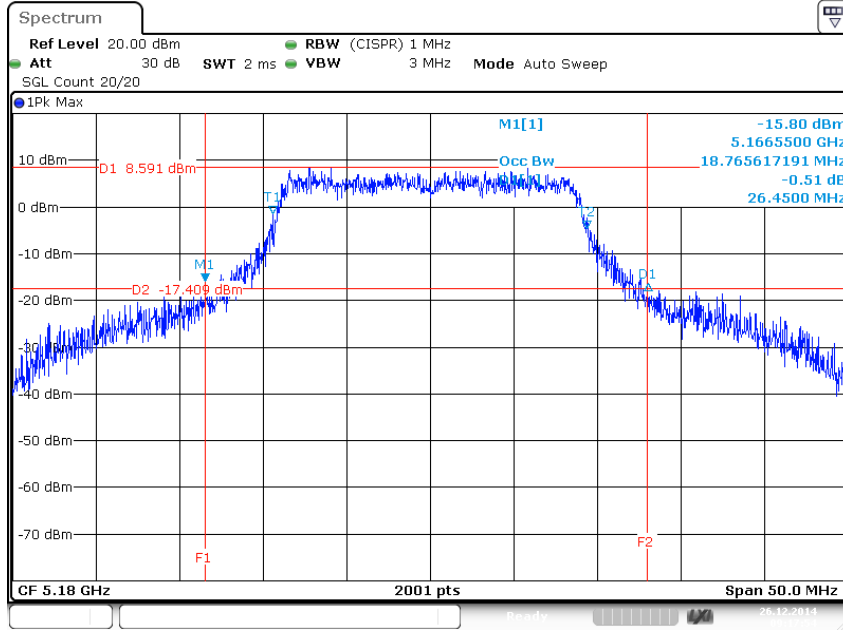


802.11ac 20MHz/ Nss3 MCS0/ Ch36/ Ant2

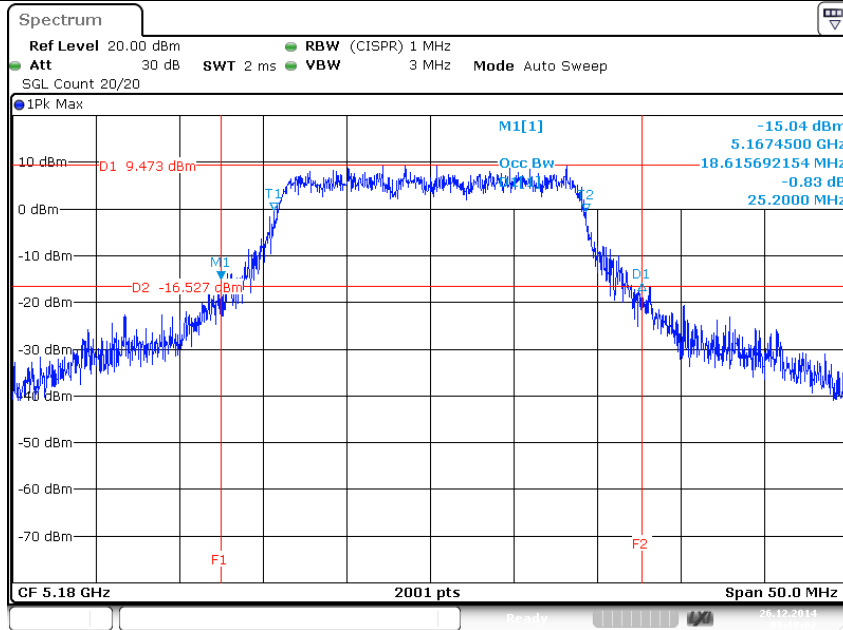




802.11ac 20MHz/ Nss3 MCS0/ Ch36/ Ant3

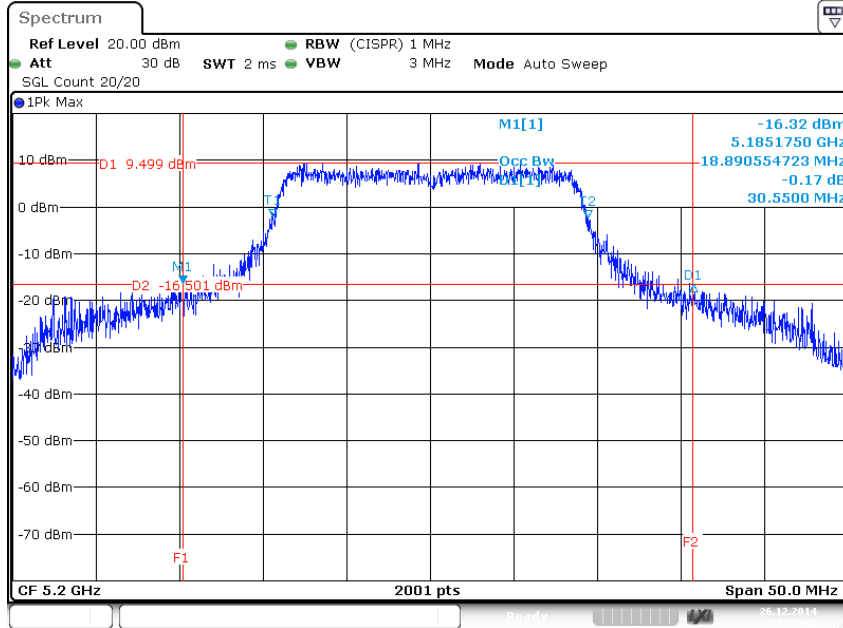


802.11ac 20MHz/ Nss3 MCS0/ Ch36/ Ant4

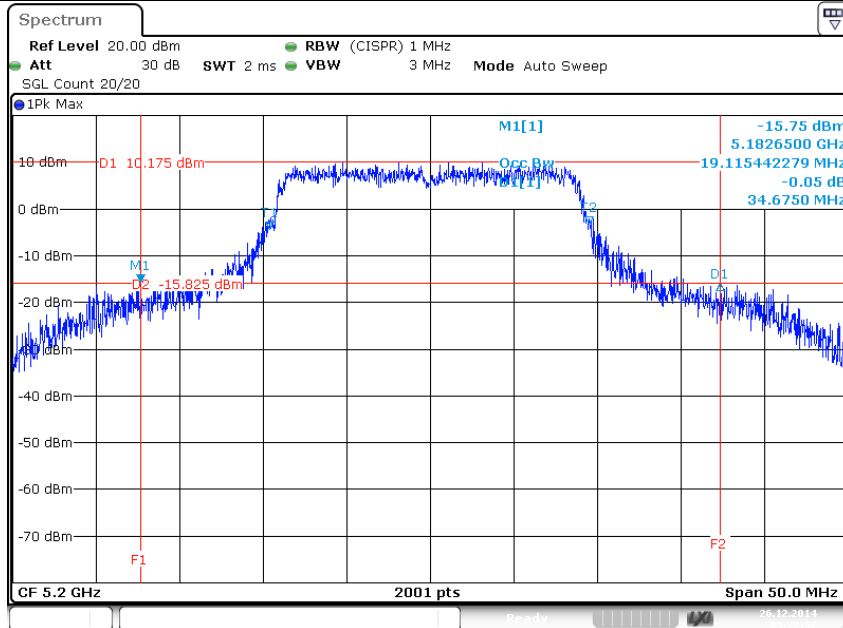




802.11ac 20MHz/ Nss3 MCS0/ Ch40/ Ant1

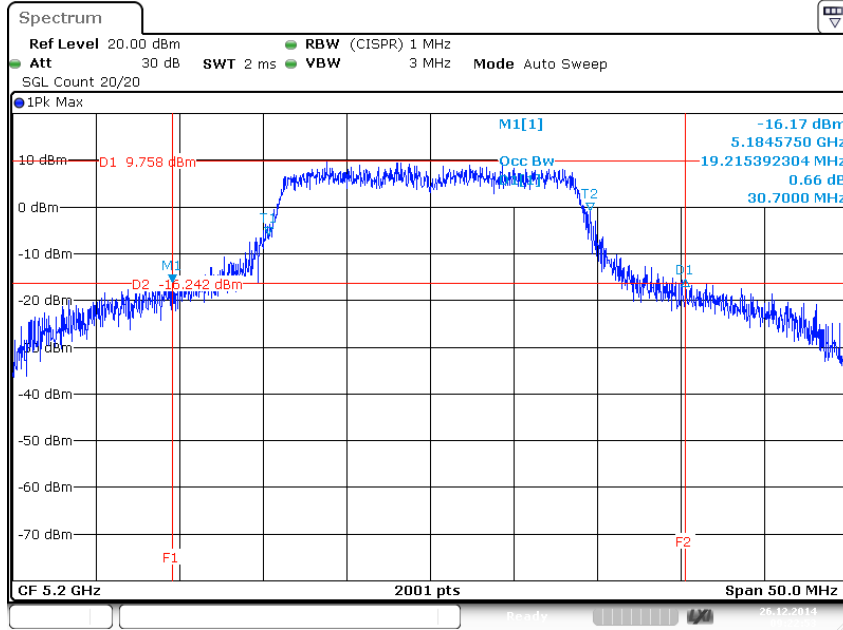


802.11ac 20MHz/ Nss3 MCS0/ Ch40/ Ant2

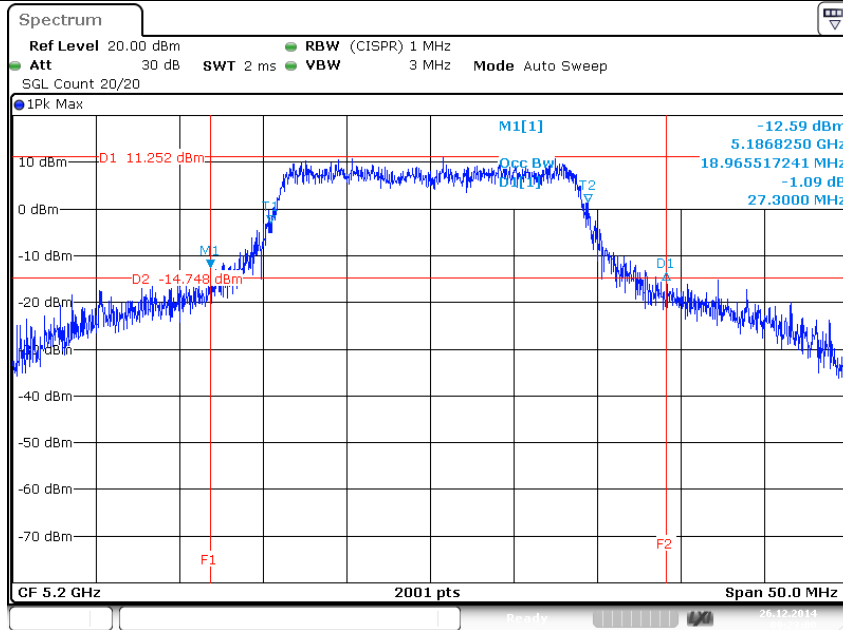




802.11ac 20MHz/ Nss3 MCS0/ Ch40/ Ant3

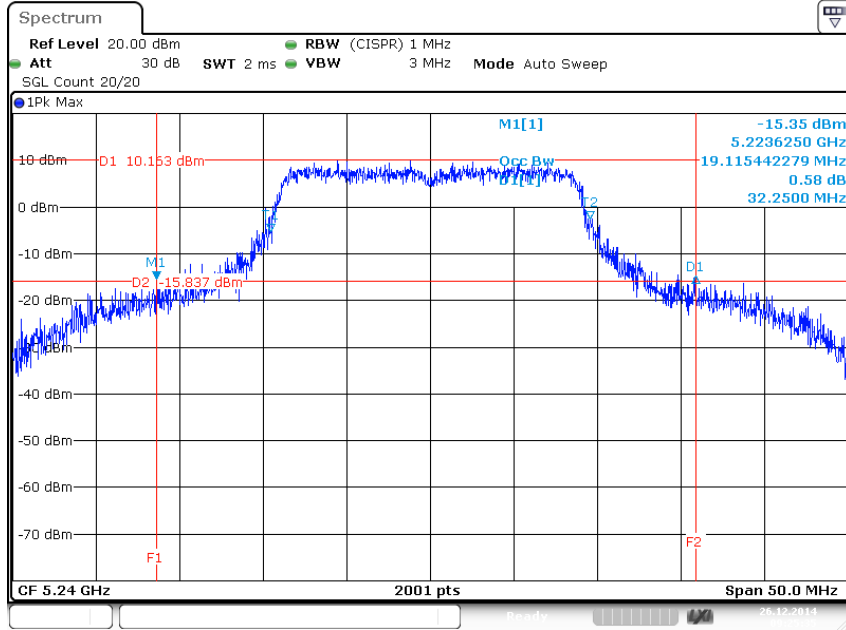


802.11ac 20MHz/ Nss3 MCS0/ Ch40/ Ant4



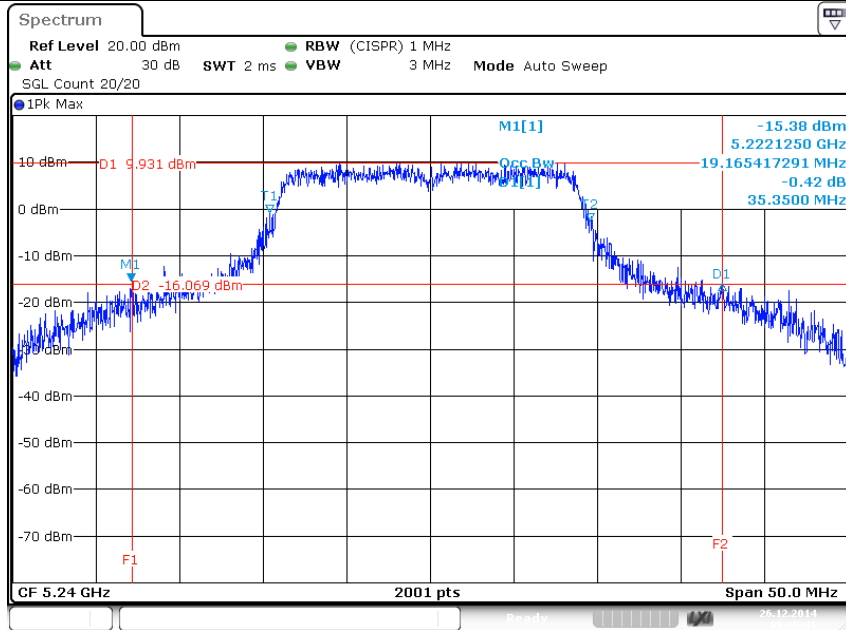


802.11ac 20MHz/ Nss3 MCS0/ Ch48/ Ant1



Date: 26.DEC.2014 09:25:35

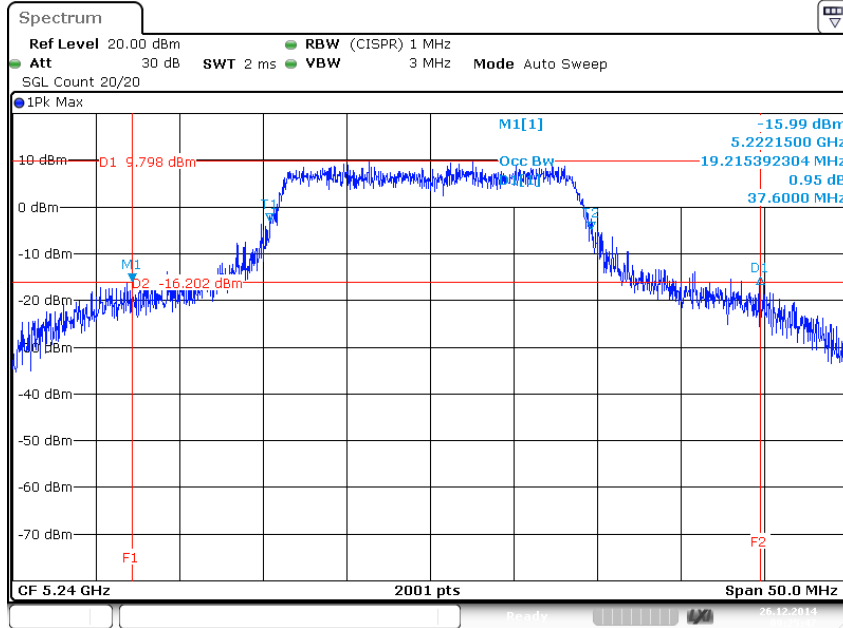
802.11ac 20MHz/ Nss3 MCS0/ Ch48/ Ant2



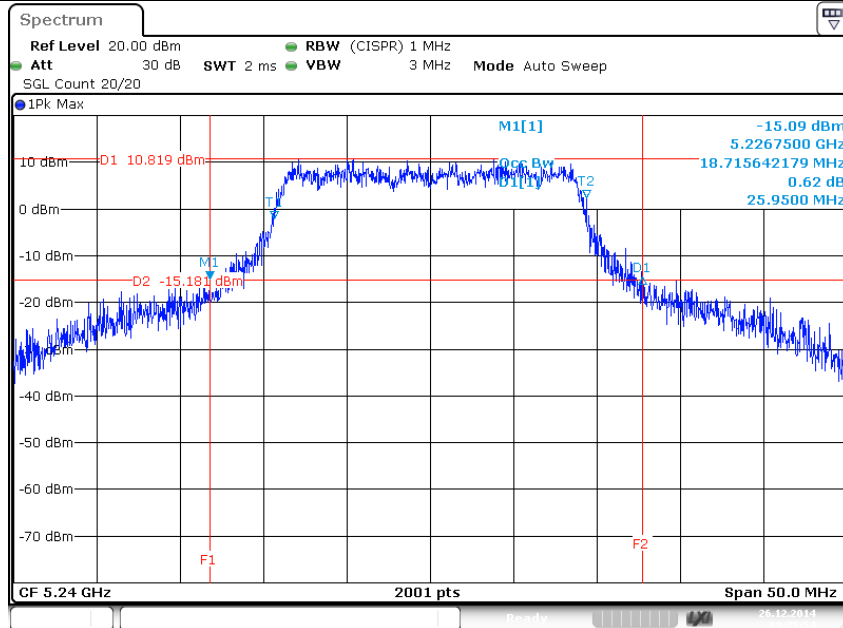
Date: 26.DEC.2014 09:25:42



802.11ac 20MHz/ Nss3 MCS0/ Ch48/ Ant3

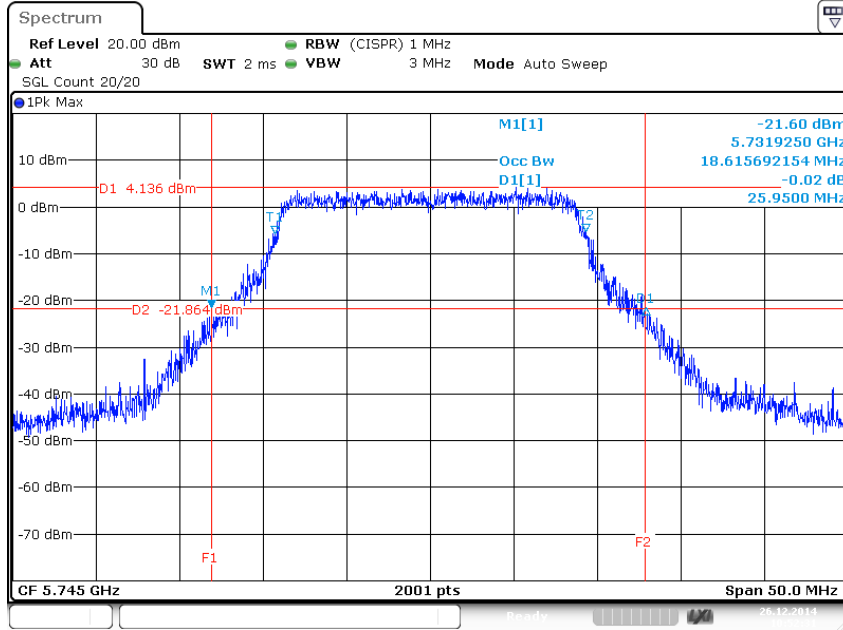


802.11ac 20MHz/ Nss3 MCS0/ Ch48/ Ant4

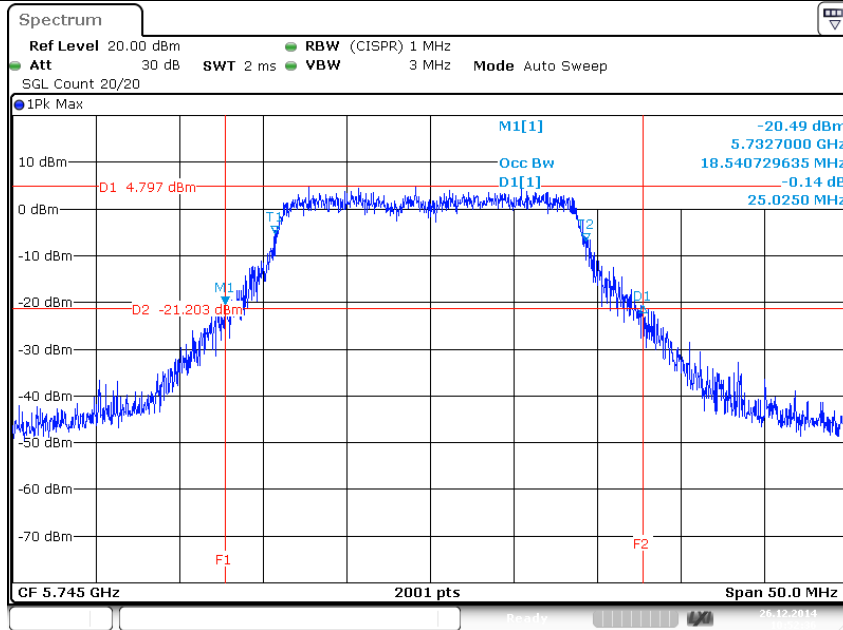




802.11ac 20MHz/ Nss3 MCS0/ Ch149/ Ant1

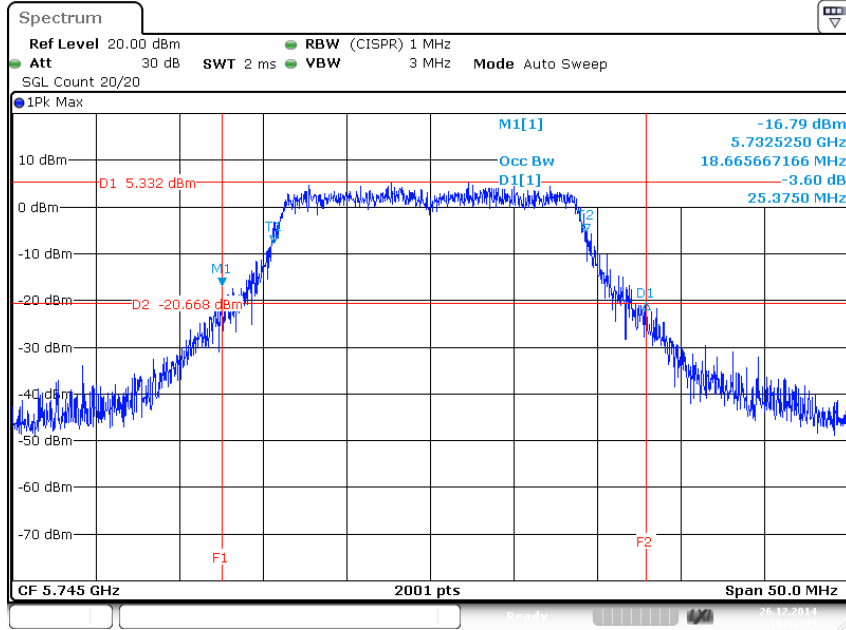


802.11ac 20MHz/ Nss3 MCS0/ Ch149/ Ant2



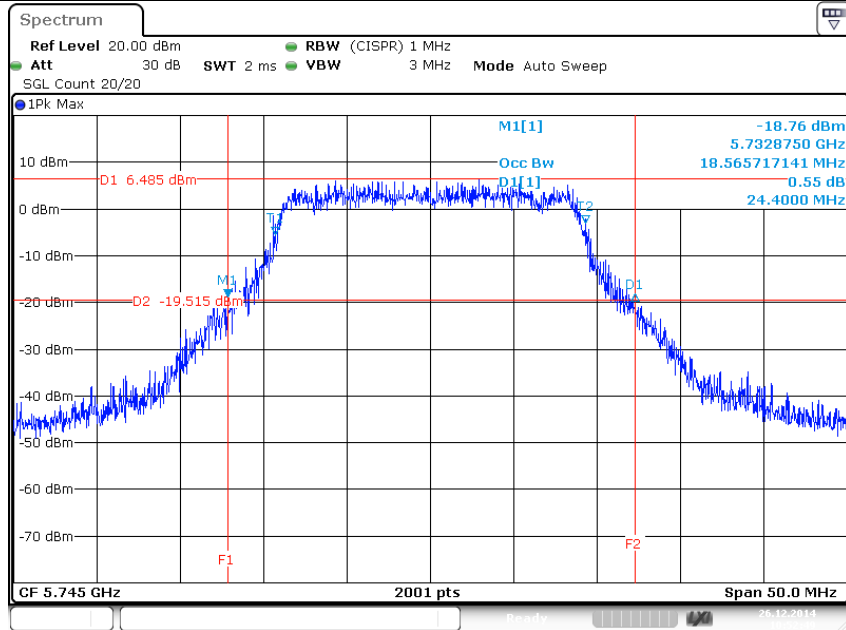


802.11ac 20MHz/ Nss3 MCS0/ Ch149/ Ant3



Date: 26.DEC.2014 10:52:43

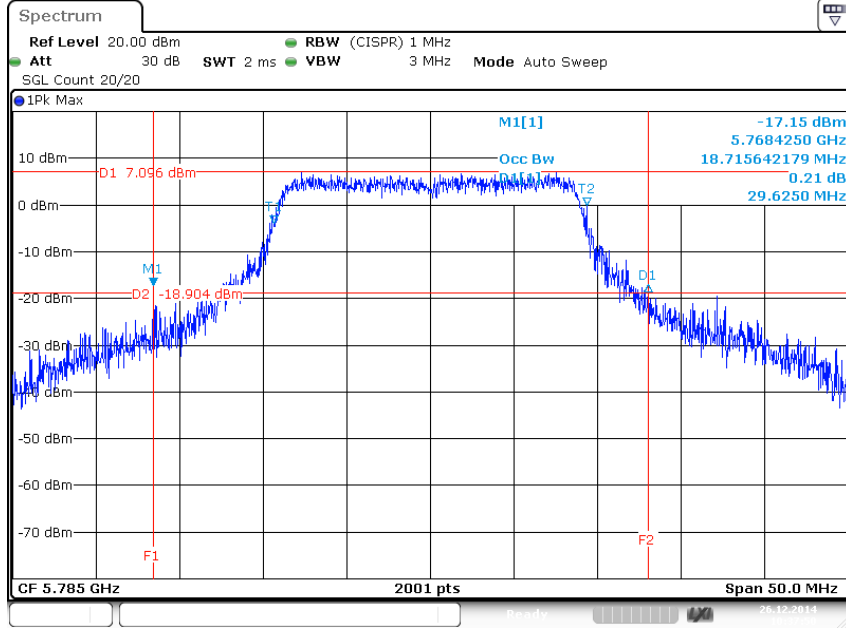
802.11ac 20MHz/ Nss3 MCS0/ Ch149/ Ant4



Date: 26.DEC.2014 10:52:50

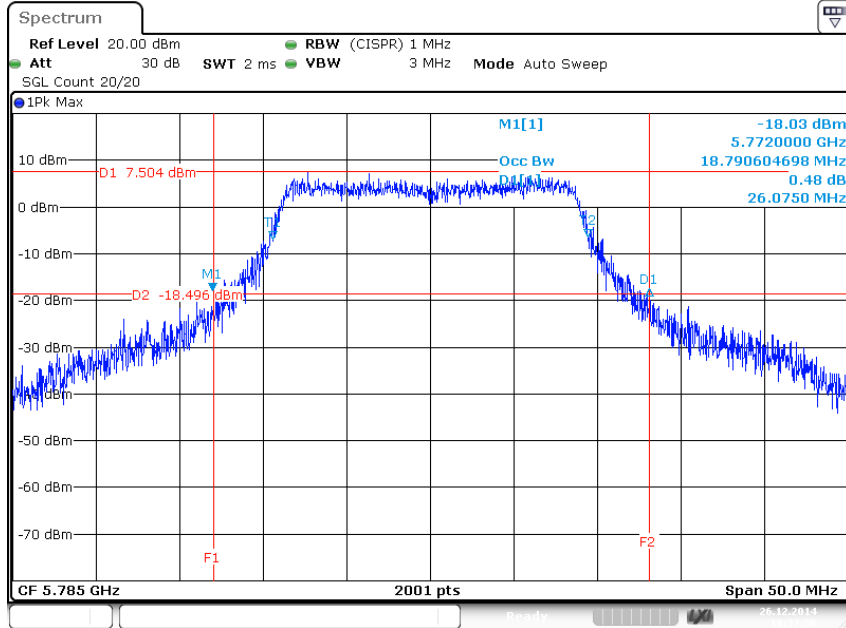


802.11ac 20MHz/ Nss3 MCS0/ Ch157/ Ant1



Date: 26.DEC.2014 10:37:50

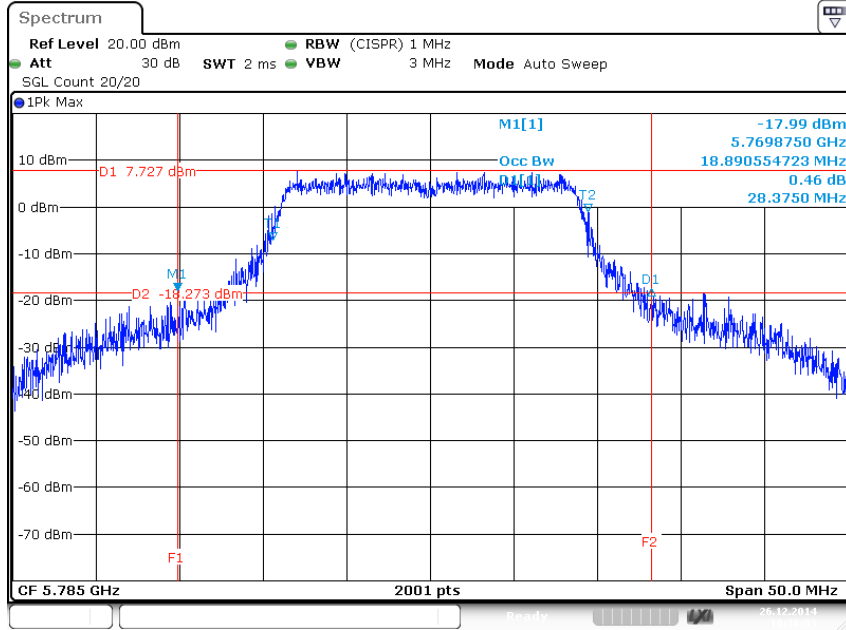
802.11ac 20MHz/ Nss3 MCS0/ Ch157/ Ant2



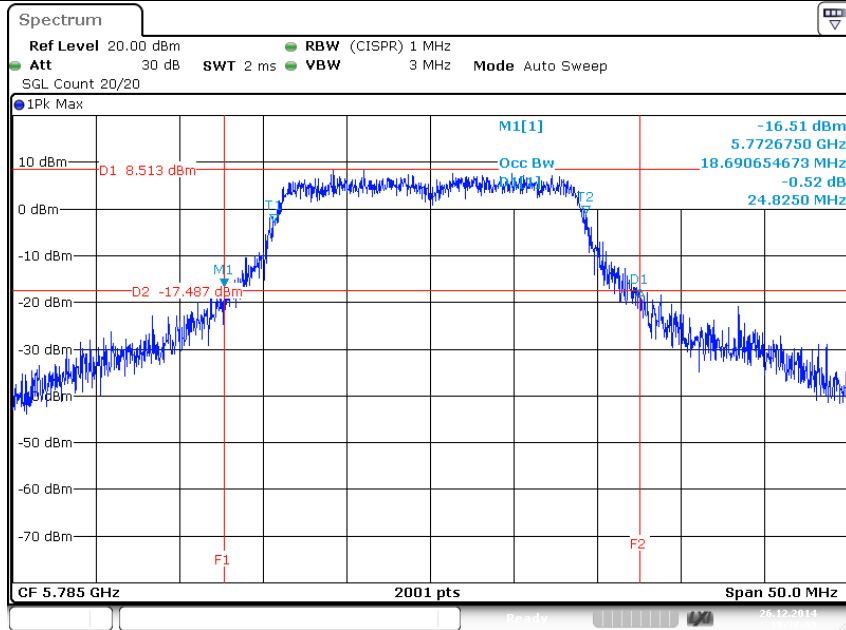
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802.11ac 20MHz/ Nss3 MCS0/ Ch157/ Ant3

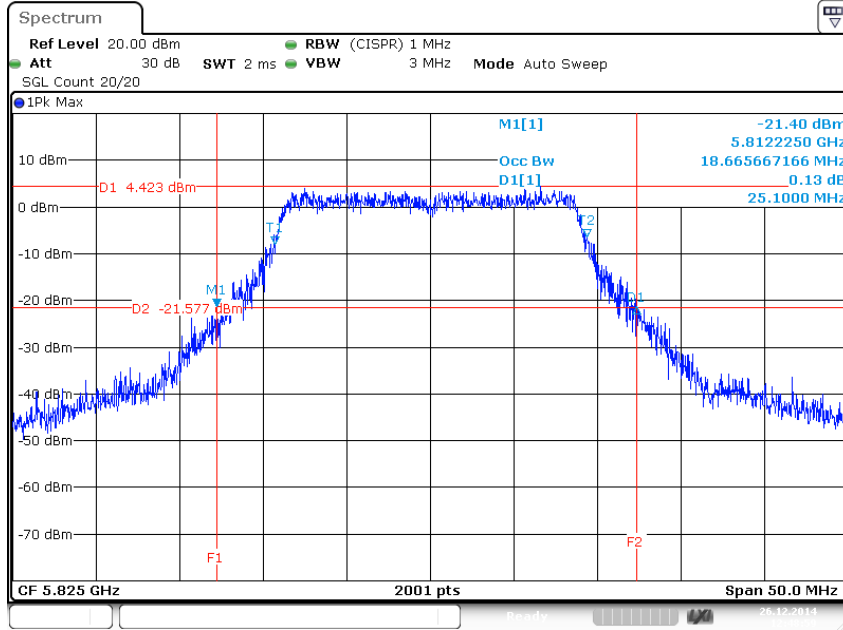


802.11ac 20MHz/ Nss3 MCS0/ Ch157/ Ant4



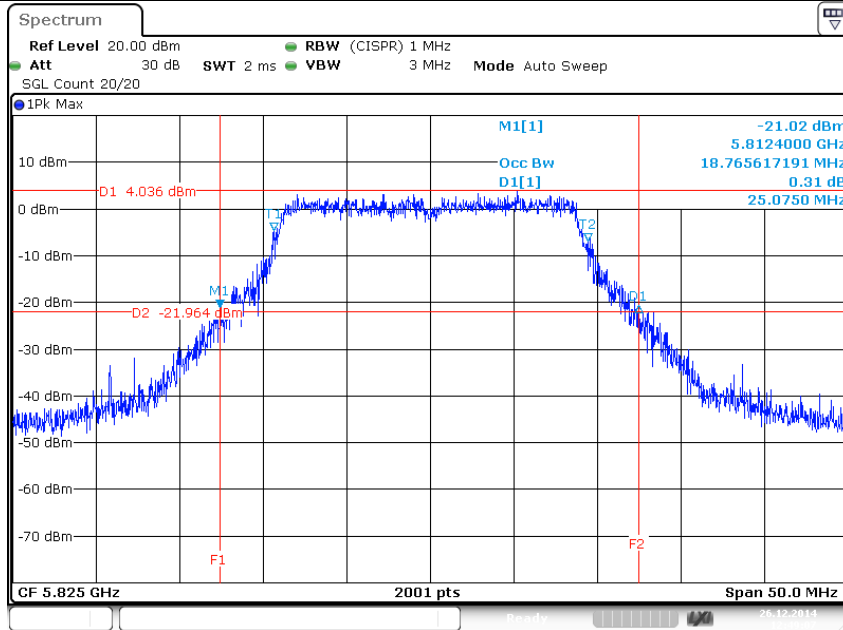


802.11ac 20MHz/ Nss3 MCS0/ Ch165/ Ant1



Date: 26.DEC.2014 12:49:00

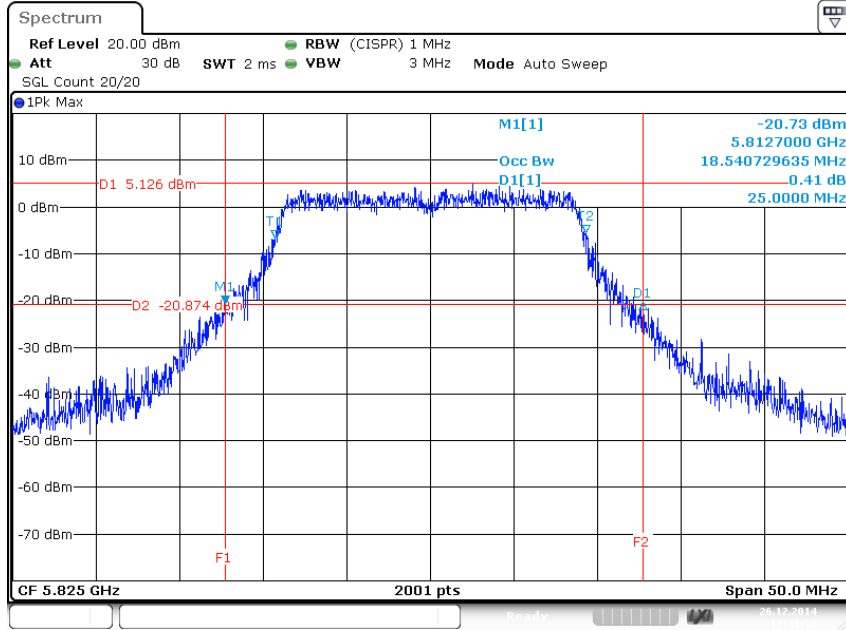
802.11ac 20MHz/ Nss3 MCS0/ Ch165/ Ant2



Date: 26.DEC.2014 12:49:06

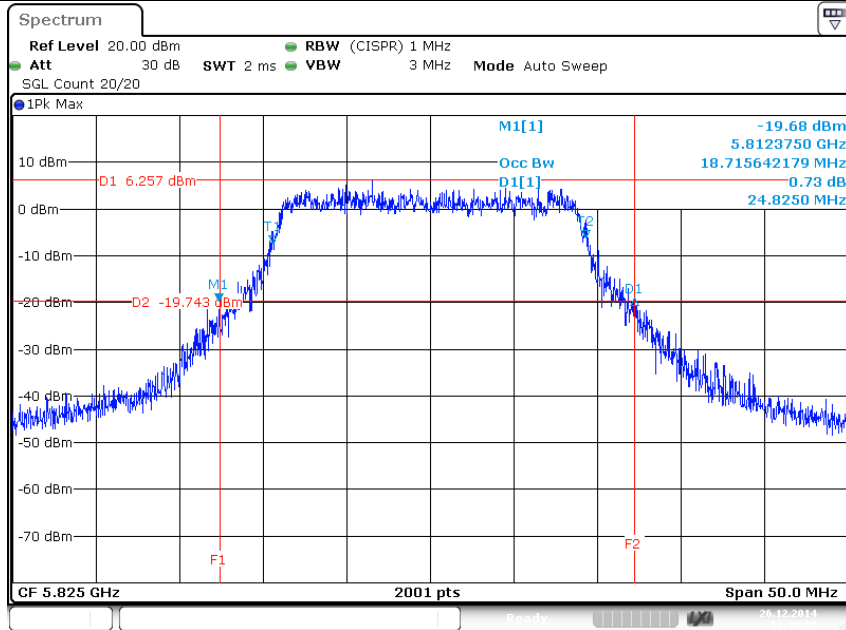


802.11ac 20MHz/ Nss3 MCS0/ Ch165/ Ant3



Date: 26.DEC.2014 12:49:13

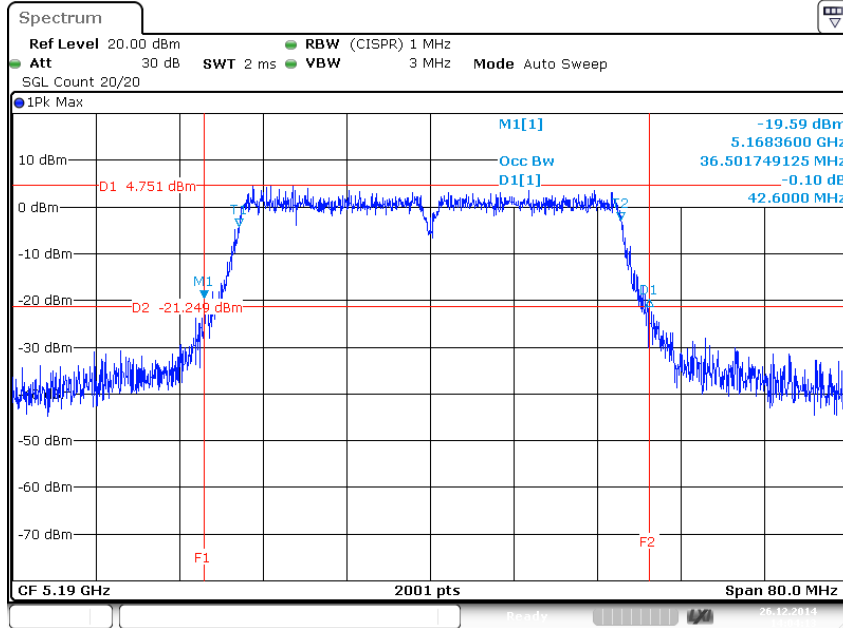
802.11ac 20MHz/ Nss3 MCS0/ Ch165/ Ant4



Date: 26.DEC.2014 12:49:19

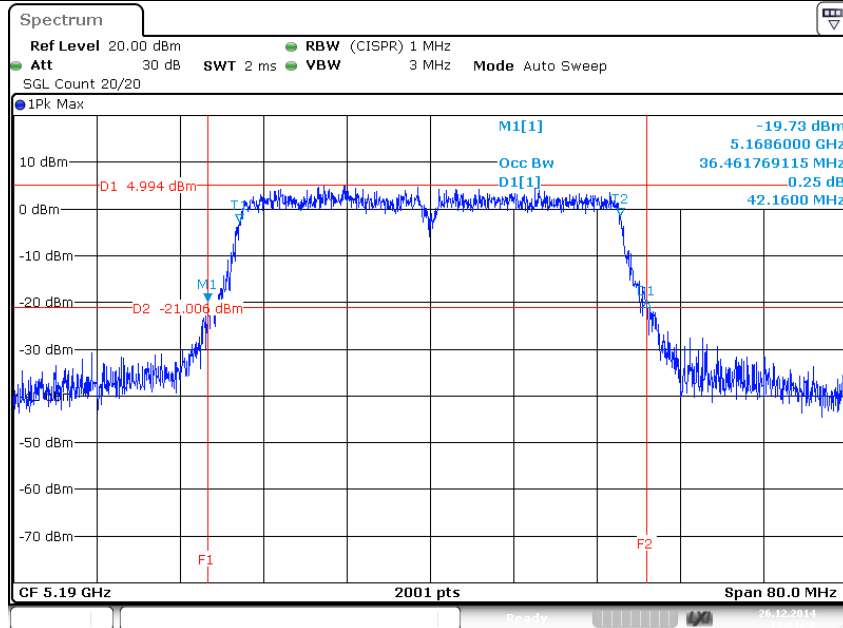


802.11ac 40MHz/ Nss3 MCS0/ Ch38/ Ant1



Date: 26.DEC.2014 14:04:14

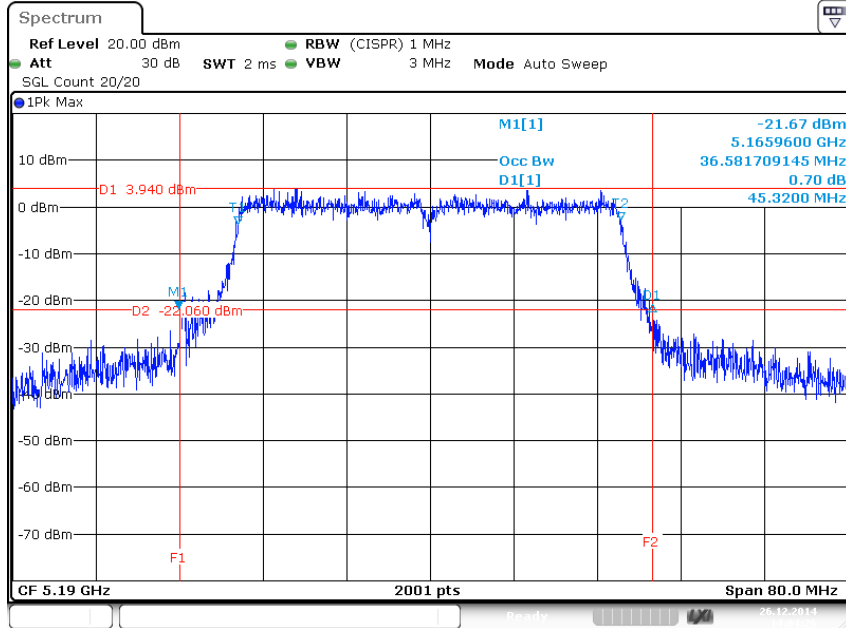
802.11ac 40MHz/ Nss3 MCS0/ Ch38/ Ant2



Date: 26.DEC.2014 14:04:20

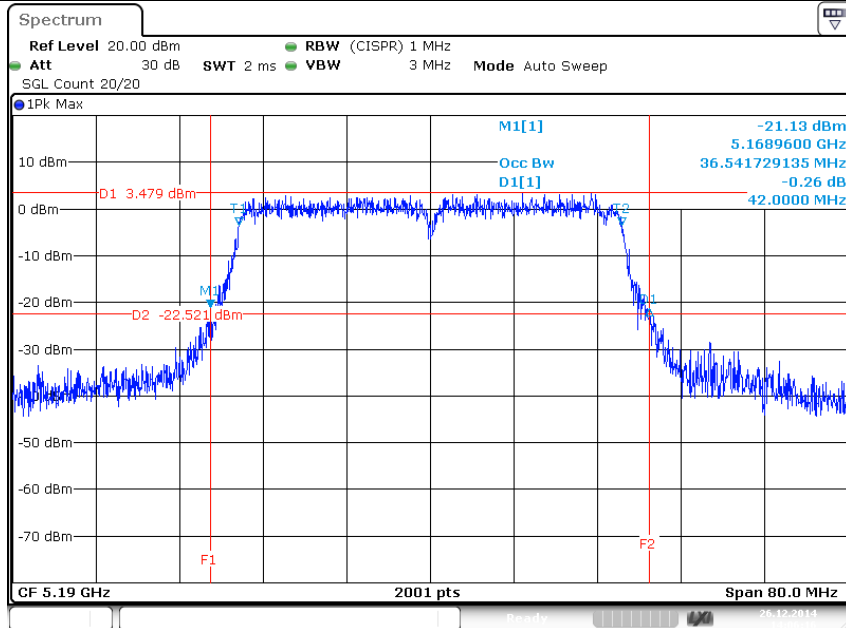


802.11ac 40MHz/ Nss3 MCS0/ Ch38/ Ant3



Date: 26.DEC.2014 14:04:27

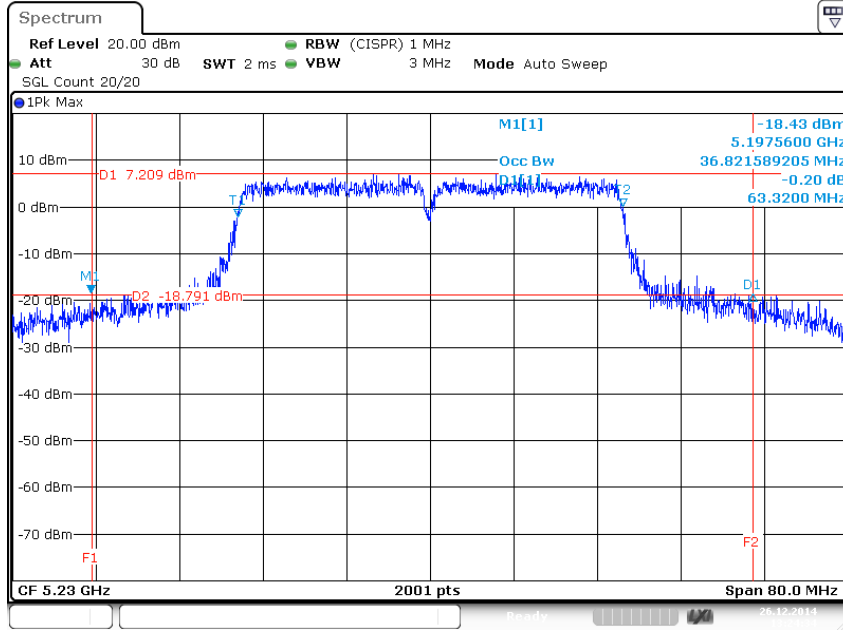
802.11ac 40MHz/ Nss3 MCS0/ Ch38/ Ant4



Date: 26.DEC.2014 14:06:16

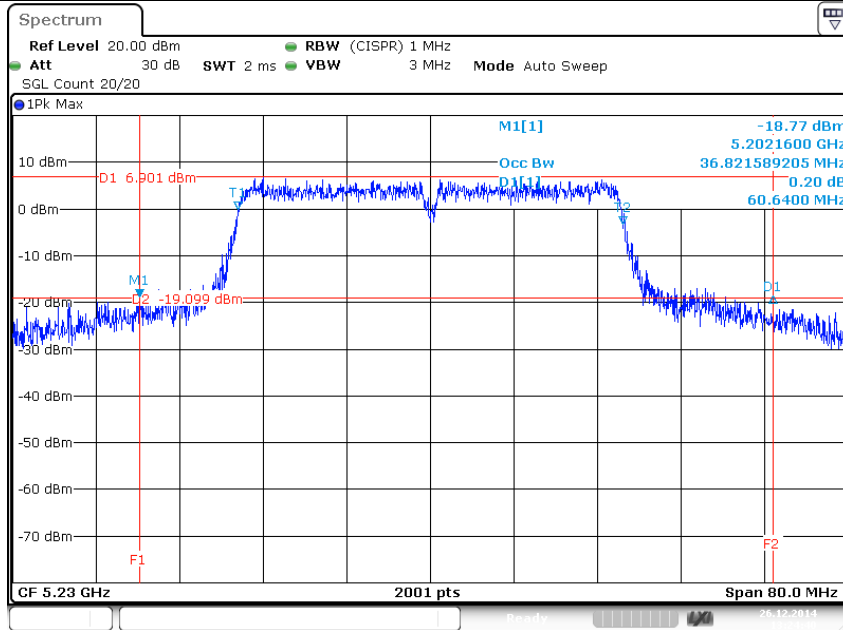


802.11ac 40MHz/ Nss3 MCS0/ Ch46/ Ant1



Date: 26.DEC.2014 13:24:35

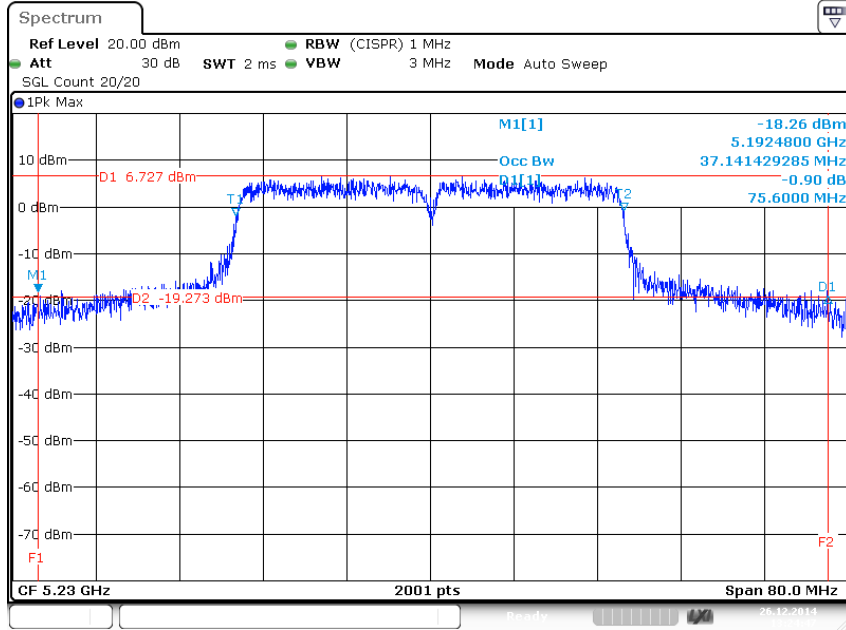
802.11ac 40MHz/ Nss3 MCS0/ Ch46/ Ant2



Date: 26.DEC.2014 13:24:41

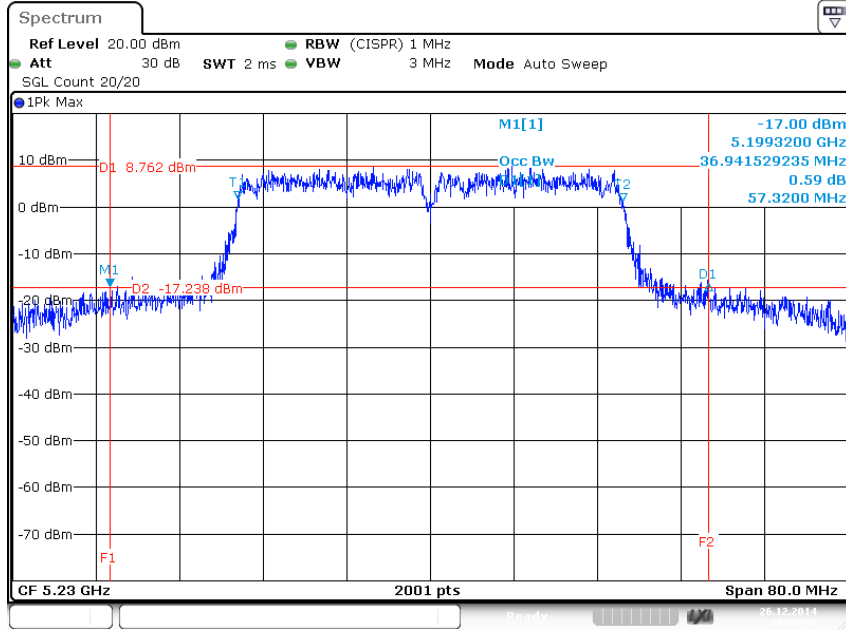


802.11ac 40MHz/ Nss3 MCS0/ Ch46/ Ant3



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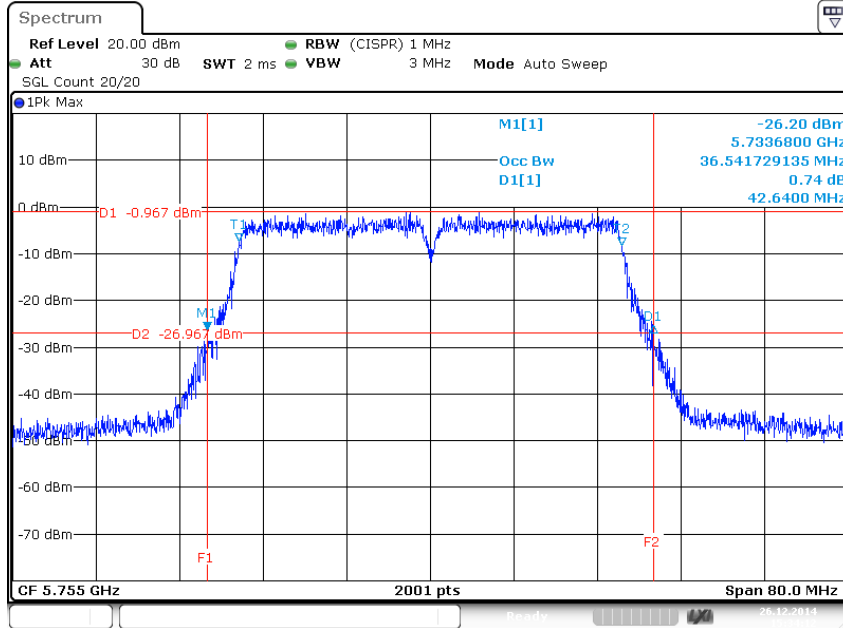
802.11ac 40MHz/ Nss3 MCS0/ Ch46/ Ant4



Date: 26.DEC.2014 13:24:54

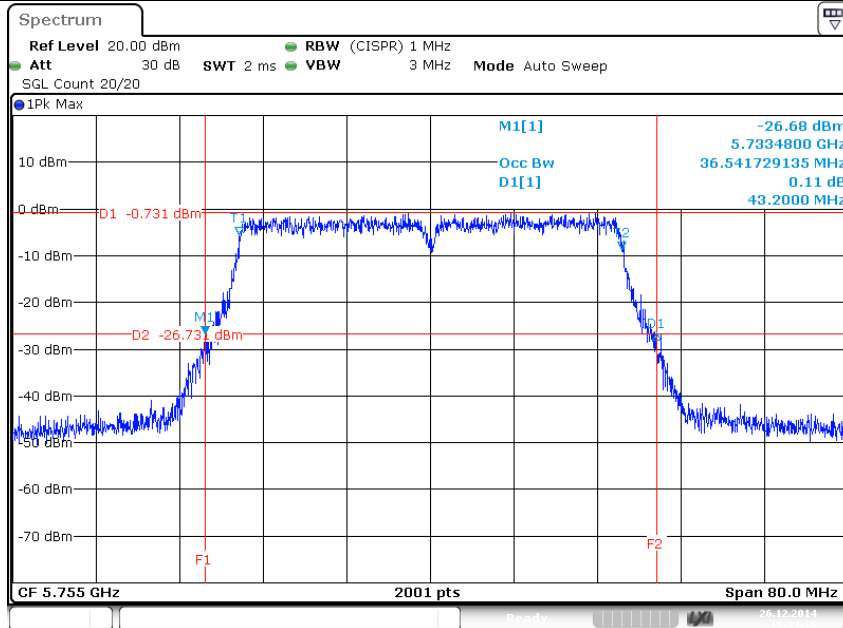


802.11ac 40MHz/ Nss3 MCS0/ Ch151/ Ant1



Date: 26.DEC.2014 15:34:12

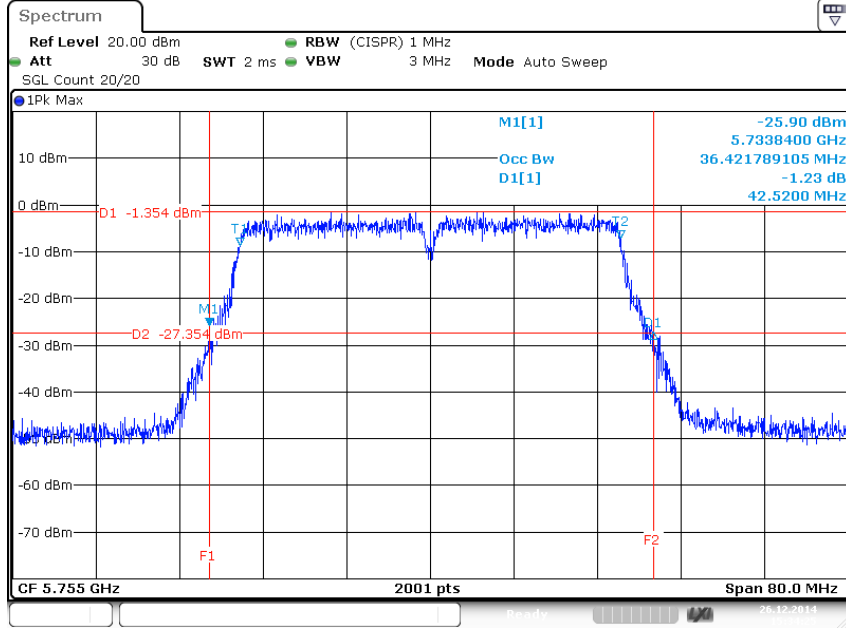
802.11ac 40MHz/ Nss3 MCS0/ Ch151/ Ant2



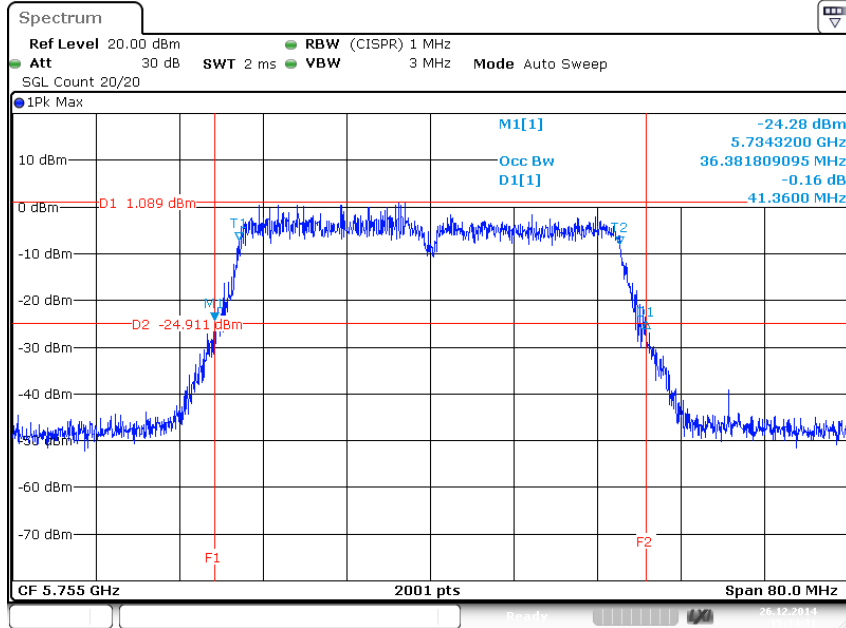
Date: 26.DEC.2014 15:34:18



802.11ac 40MHz/ Nss3 MCS0/ Ch151/ Ant3

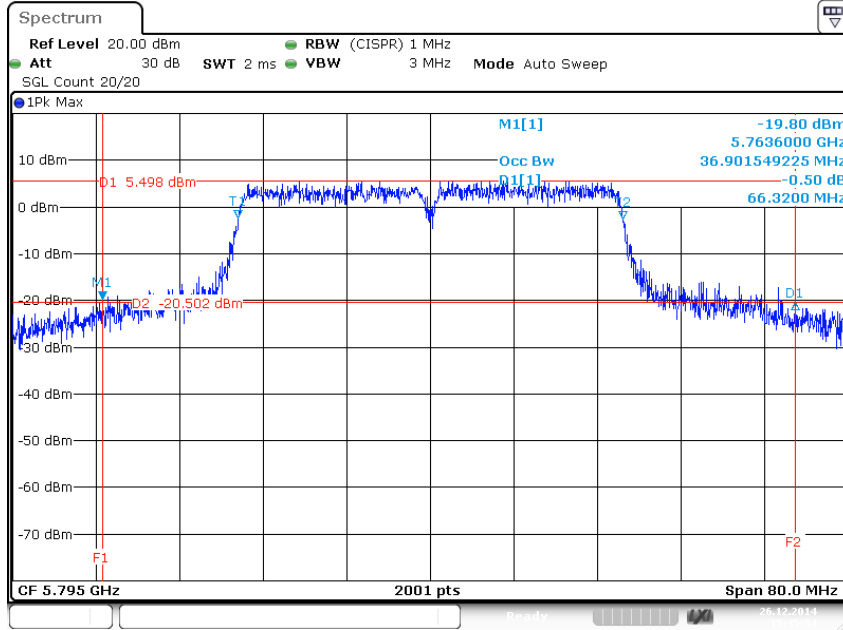


802.11ac 40MHz/ Nss3 MCS0/ Ch151/ Ant4



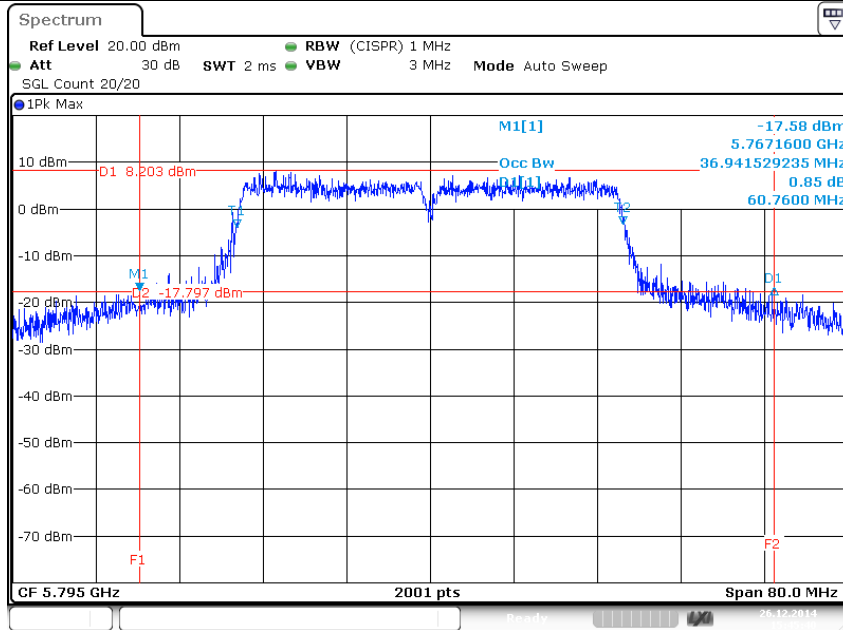


802.11ac 40MHz/ Nss3 MCS0/ Ch159/ Ant1



Date: 26.DEC.2014 15:45:34

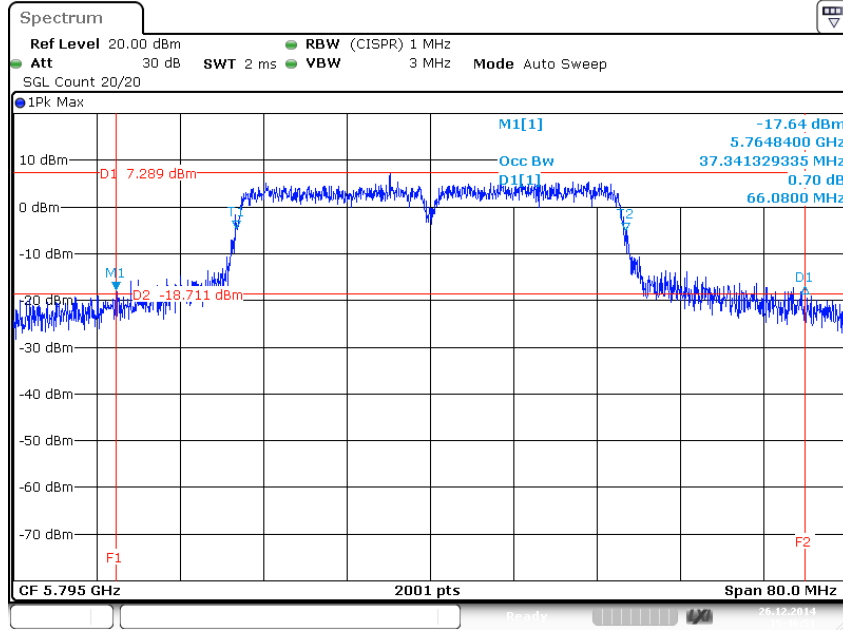
802.11ac 40MHz/ Nss3 MCS0/ Ch159/ Ant2



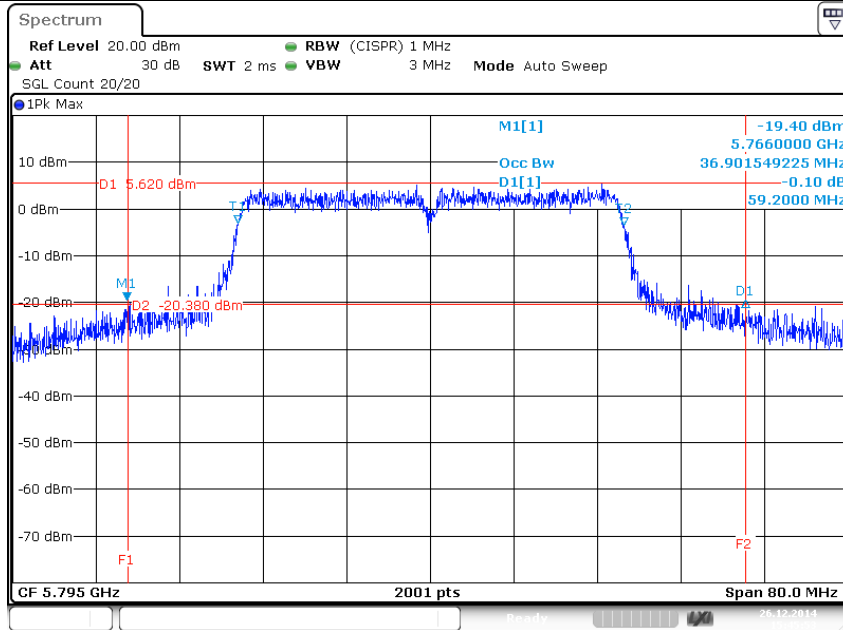
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802.11ac 40MHz/ Nss3 MCS0/ Ch159/ Ant3

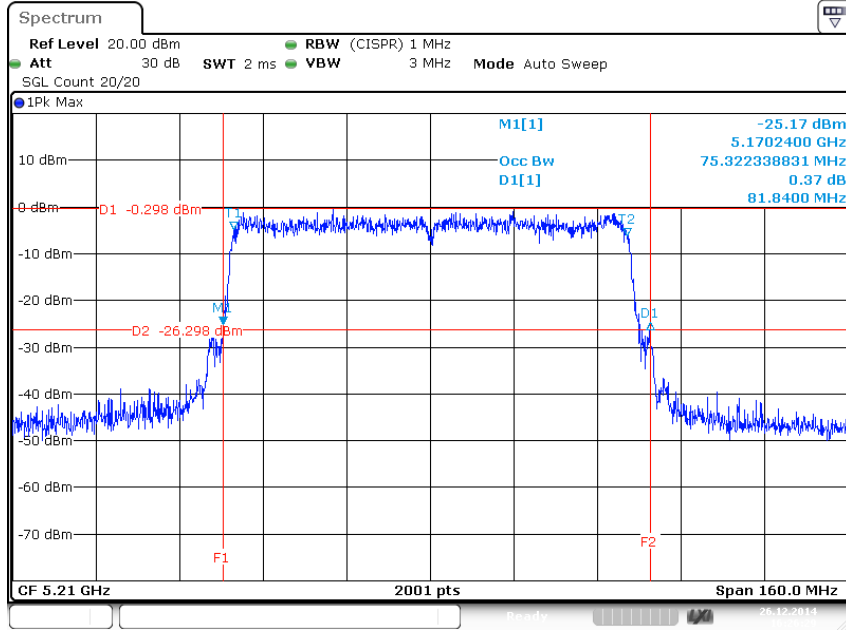


802.11ac 40MHz/ Nss3 MCS0/ Ch159/ Ant4



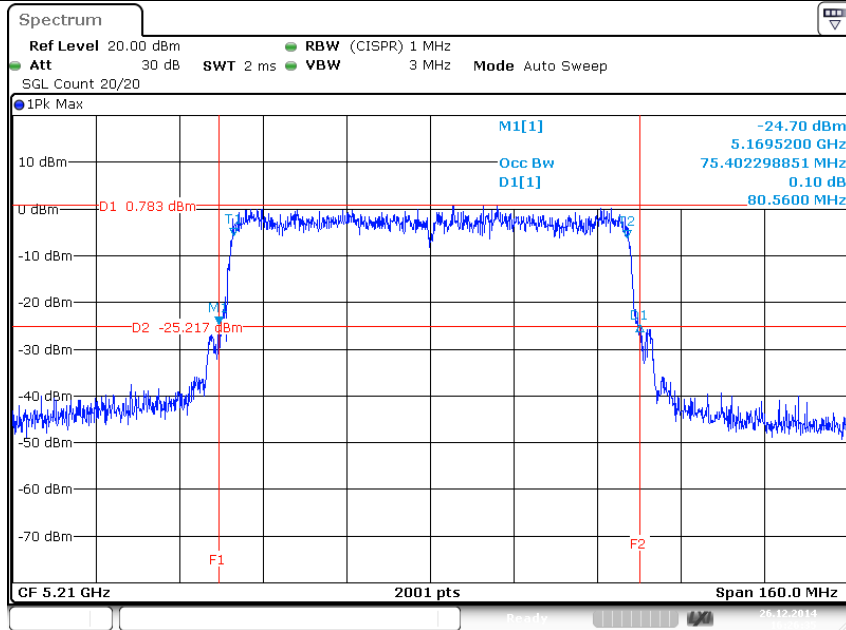


802.11ac 80MHz/ Nss3 MCS0/ Ch42/ Ant1



Date: 26.DEC.2014 16:26:29

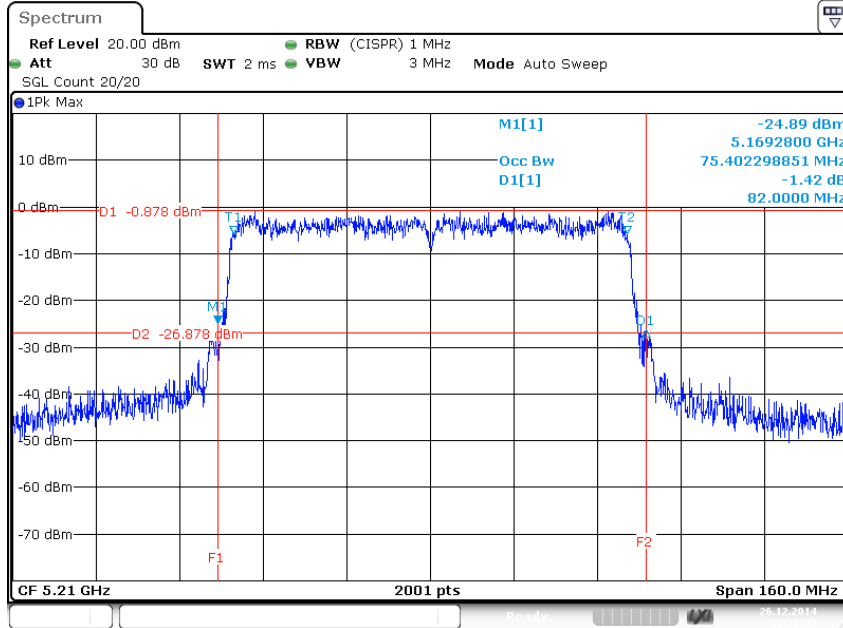
802.11ac 80MHz/ Nss3 MCS0/ Ch42/ Ant2



Date: 26.DEC.2014 16:26:35

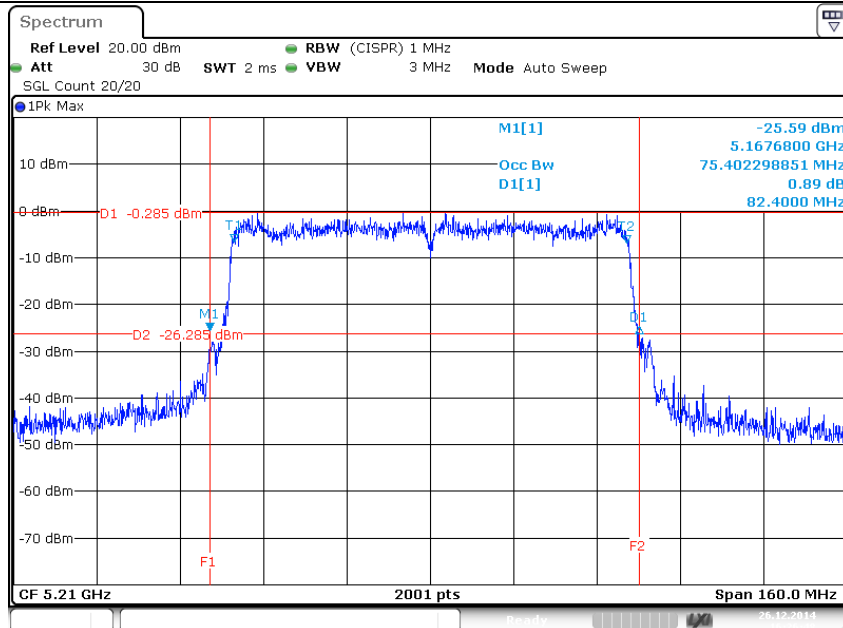


802.11ac 80MHz/ Nss3 MCS0/ Ch42/ Ant3



Date: 26.DEC.2014 16:26:42

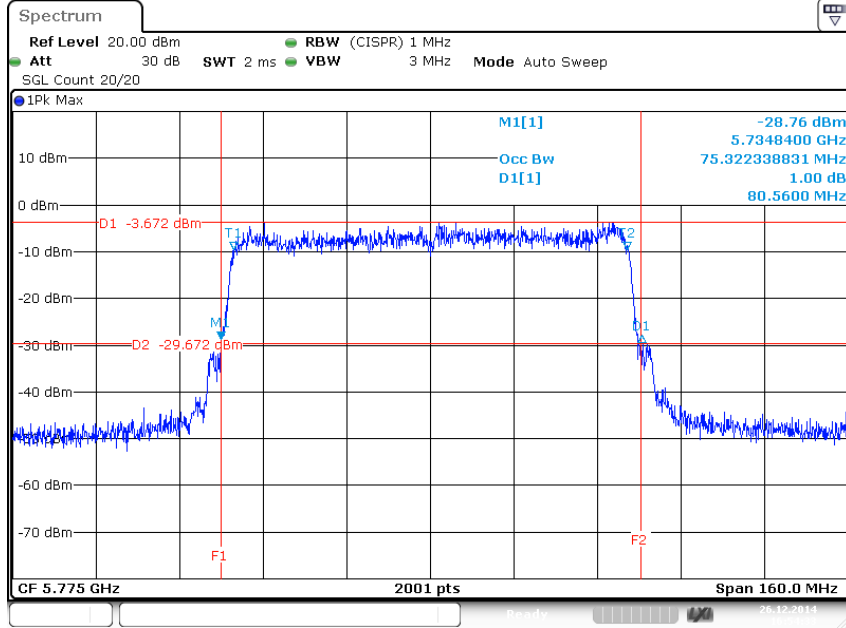
802.11ac 80MHz/ Nss3 MCS0/ Ch42/ Ant4



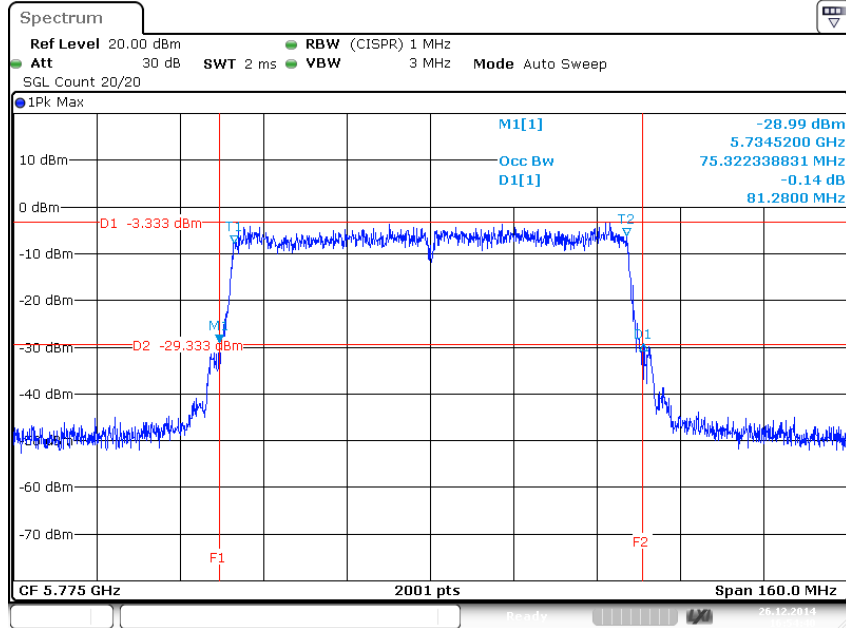
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802.11ac 80MHz/ Nss3 MCS0/ Ch155/ Ant1

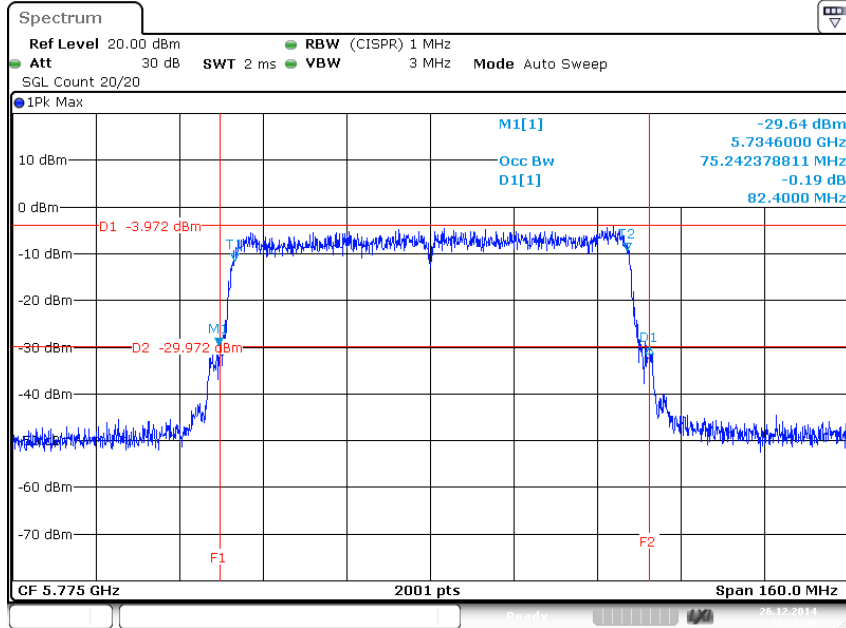


802.11ac 80MHz/ Nss3 MCS0/ Ch155/ Ant2



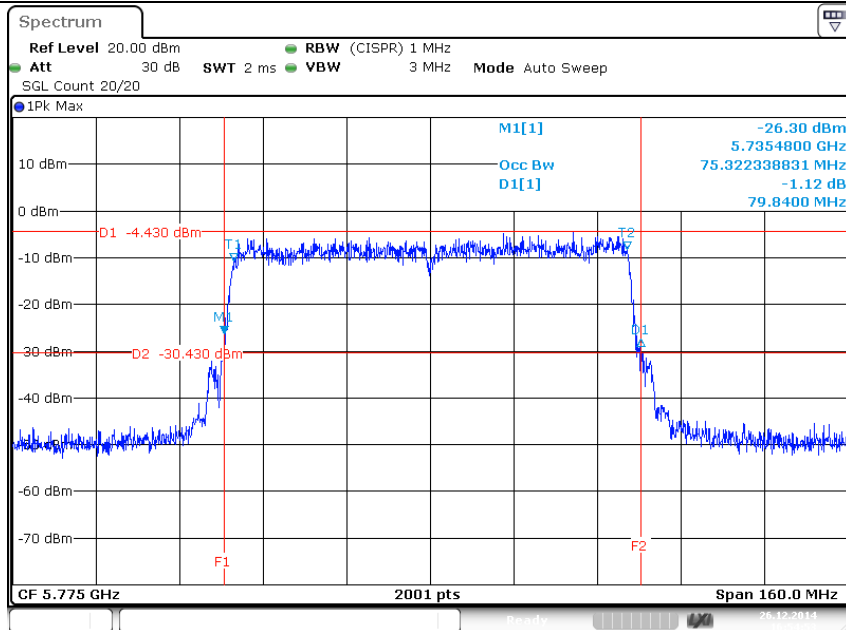


802.11ac 80MHz/ Nss3 MCS0/ Ch155/ Ant3



Date: 26.DEC.2014 16:55:38

802.11ac 80MHz/ Nss3 MCS0/ Ch155/ Ant4



Date: 26.DEC.2014 16:54:52

3.3 Minimum Emission Bandwidth for the band 5.725-5.85 GHz

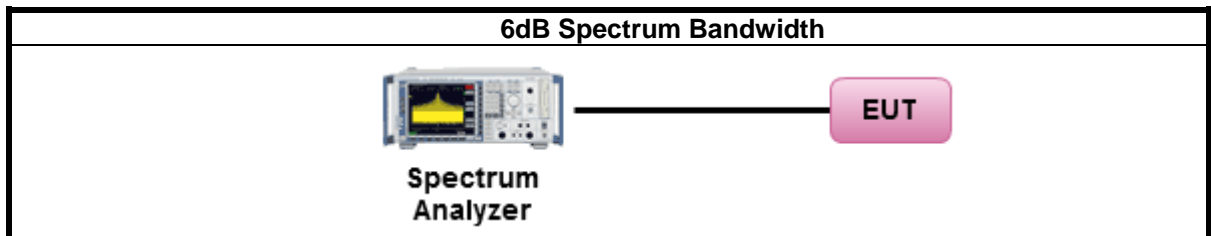
The following table is the setting of the spectrum analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 6dB Bandwidth
RB	100 kHz
VB	$\geq 3 \times \text{RBW}$
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.3.1 Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. Test was performed in accordance with Measurement of Digital Transmission Systems Operating under 789033 D02 General UNII Test Procedures New Rules v01, in section "Emission bandwidth (C)(2)", 06/06/2014
3. Measured the spectrum width with power higher than 6dB account by this measurement.

3.3.2 Test Setup Layout



3.3.3 Test Deviation

There are no deviation with the original standard.

3.3.4 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.



3.3.5 Test Result of 6dB Spectrum Bandwidth

Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11a	Duty Cycle	100%
Test Engineer	Leo		

Configuration IEEE 802.11a

<ANT1+2+3+4, CDD>

Channel	Frequency	6dB Bandwidth (MHz)				99% Occupied Bandwidth (MHz)				Max. Limit (kHz)
		Ant 1	Ant 2	Ant 3	Ant 4	Ant 1	Ant 2	Ant 3	Ant 4	
149	5745 MHz	16.59	16.51	16.51	16.42	17.60	17.63	17.52	17.63	≥ 500
157	5785 MHz	16.56	16.75	16.63	16.57	17.66	17.69	17.69	17.61	≥ 500
165	5825 MHz	16.72	16.71	16.74	16.59	17.57	17.67	17.57	17.60	≥ 500
Result		Complied								



Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11ac 20MHz	Duty Cycle	100%
Test Engineer	Leo		

Configuration IEEE 802.11ac 20MHz

<NSS1MCS 0, ANT1+2+3+4, CDD>

Channel	Frequency	6dB Bandwidth (MHz)				99% Occupied Bandwidth (MHz)				Max. Limit (kHz)
		Ant 1	Ant 2	Ant 3	Ant 4	Ant 1	Ant 2	Ant 3	Ant 4	
149	5745 MHz	17.75	17.85	17.87	17.67	18.74	18.69	18.56	18.59	≥ 500
157	5785 MHz	17.85	17.57	17.65	17.82	18.91	18.91	18.94	18.66	≥ 500
165	5825 MHz	18.12	17.90	17.90	17.67	18.79	18.71	18.66	18.54	≥ 500
Result		Complied								



Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11ac 40MHz	Duty Cycle	100%
Test Engineer	Leo		

Configuration IEEE 802.11ac 40MHz

<NSS1MCS 0, ANT1+2+3+4, CDD>

Channel	Frequency	6dB Bandwidth (MHz)				99% Occupied Bandwidth (MHz)				Max. Limit (kHz)
		Ant 1	Ant 2	Ant 3	Ant 4	Ant 1	Ant 2	Ant 3	Ant 4	
151	5755 MHz	36.40	36.48	36.24	36.36	36.50	36.38	36.46	36.54	≥ 500
159	5795 MHz	36.48	36.32	36.32	36.44	36.66	36.62	36.74	36.70	≥ 500
Result		Complied								



Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11ac 80MHz	Duty Cycle	100%
Test Engineer	Leo		

Configuration IEEE 802.11ac 80MHz

<NSS1MCS 0, ANT1+2+3+4, CDD>

Channel	Frequency	6dB Bandwidth (MHz)				99% Occupied Bandwidth (MHz)				Max. Limit (kHz)
		Ant 1	Ant 2	Ant 3	Ant 4	Ant 1	Ant 2	Ant 3	Ant 4	
155	5775 MHz	75.76	75.60	76.00	74.56	75.32	75.16	75.32	75.40	≥ 500
Result		Complied								



Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11ac 20MHz	Duty Cycle	96.26%
Test Engineer	Leo		

Configuration IEEE 802.11ac 20MHz

<NSS2MCS 0, ANT1+2+3+4, TXBF>

Channel	Frequency	6dB Bandwidth (MHz)				99% Occupied Bandwidth (MHz)				Max. Limit (kHz)
		Ant 1	Ant 2	Ant 3	Ant 4	Ant 1	Ant 2	Ant 3	Ant 4	
149	5745 MHz	17.40	17.67	17.70	17.57	18.56	18.71	18.84	18.66	≥ 500
157	5785 MHz	17.60	17.82	17.75	17.47	18.86	18.76	19.11	19.16	≥ 500
165	5825 MHz	17.47	17.72	17.52	17.62	18.61	18.71	18.66	18.84	≥ 500
Result		Complied								



Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11ac 40MHz	Duty Cycle	98.27%
Test Engineer	Leo		

Configuration IEEE 802.11ac 40MHz

<NSS2MCS 0, ANT1+2+3+4, TXBF>

Channel	Frequency	6dB Bandwidth (MHz)				99% Occupied Bandwidth (MHz)				Max. Limit (kHz)
		Ant 1	Ant 2	Ant 3	Ant 4	Ant 1	Ant 2	Ant 3	Ant 4	
151	5755 MHz	36.72	36.16	36.56	36.32	36.58	36.62	36.54	36.42	≥ 500
159	5795 MHz	36.20	36.40	36.56	36.32	37.02	36.78	37.38	36.86	≥ 500
Result		Complied								



Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11ac 80MHz	Duty Cycle	96.47%
Test Engineer	Leo		

Configuration IEEE 802.11ac 80MHz

<NSS2MCS 0, ANT1+2+3+4, TXBF>

Channel	Frequency	6dB Bandwidth (MHz)				99% Occupied Bandwidth (MHz)				Max. Limit (kHz)
		Ant 1	Ant 2	Ant 3	Ant 4	Ant 1	Ant 2	Ant 3	Ant 4	
155	5775 MHz	75.20	75.84	75.44	75.68	75.32	75.24	75.16	75.24	≥ 500
Result		Complied								



Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11ac 20MHz	Duty Cycle	100%
Test Engineer	Leo		

Configuration IEEE 802.11ac 20MHz

<NSS3MCS 0, ANT1+2+3+4, TXBF>

Channel	Frequency	6dB Bandwidth (MHz)				99% Occupied Bandwidth (MHz)				Max. Limit (kHz)
		Ant 1	Ant 2	Ant 3	Ant 4	Ant 1	Ant 2	Ant 3	Ant 4	
149	5745 MHz	17.77	17.65	17.82	17.80	18.31	18.74	18.56	18.54	≥ 500
157	5785 MHz	18.05	18.22	17.70	17.60	18.69	18.64	18.86	18.61	≥ 500
165	5825 MHz	17.70	17.62	17.32	17.57	18.49	18.66	18.66	18.59	≥ 500
Result		Complied								



Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11ac 40MHz	Duty Cycle	100%
Test Engineer	Leo		

Configuration IEEE 802.11ac 40MHz

<NSS3MCS 0, ANT1+2+3+4, TXBF>

Channel	Frequency	6dB Bandwidth (MHz)				99% Occupied Bandwidth (MHz)				Max. Limit (kHz)
		Ant 1	Ant 2	Ant 3	Ant 4	Ant 1	Ant 2	Ant 3	Ant 4	
151	5755 MHz	36.36	36.36	36.40	36.52	36.46	36.54	36.46	36.46	≥ 500
159	5795 MHz	36.36	36.64	36.48	36.52	36.82	36.98	37.34	36.86	≥ 500
Result		Complied								



Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11ac 80MHz	Duty Cycle	100%
Test Engineer	Leo		

Configuration IEEE 802.11ac 80MHz

<NSS3MCS 0, ANT1+2+3+4, TXBF>

Channel	Frequency	6dB Bandwidth (MHz)				99% Occupied Bandwidth (MHz)				Max. Limit (kHz)
		Ant 1	Ant 2	Ant 3	Ant 4	Ant 1	Ant 2	Ant 3	Ant 4	
155	5755 MHz	75.44	75.68	75.76	74.40	75.40	75.32	75.16	75.32	≥ 500
Result		Complied								

3.4 Maximum Conducted Output Power Measurement

3.4.1 Limit

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≤ 125mW (21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
	v	Indoor Access Point	1 Watt (30 dBm)
		Mobile and Portable client device	250mW (24 dBm)
U-NII-2A	v	---	250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	v	---	250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	v	---	1 Watt (30 dBm)

NOTE: *B is the 26 dB emission bandwidth in megahertz

3.4.2 Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of Power Meter

Power Meter Parameter	Setting
Filter No.	Auto
Measurement time	0.135 s ~ 26 s
Power Sensor	MA2411B

3.4.3 Measuring Instruments and Setting

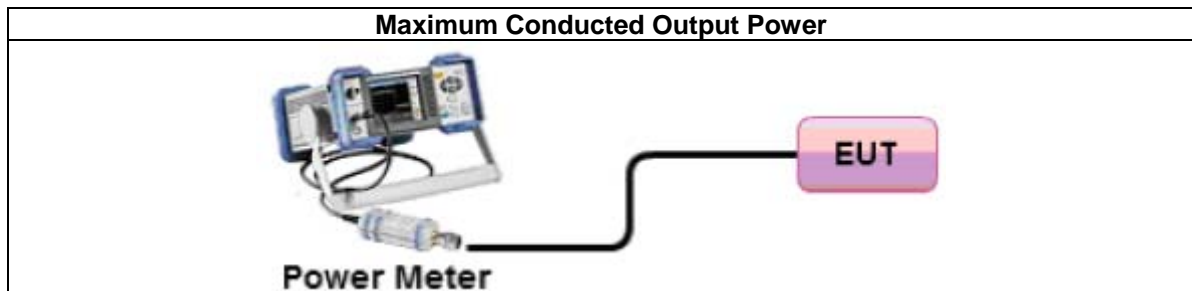
Please refer to section 5 of equipments list in this report. The following table is the setting of Power Meter

Power Meter Parameter	Setting
Filter No.	Auto
Measurement time	0.135 s ~ 26 s
Power Sensor	MA2411B

Test Procedures

1. Test was performed in accordance with Measurement of Digital Transmission Systems Operating under 789033 D02 General UNII Test Procedures New Rules v01, in section "Maximum conducted output power Method (3)", 06/06/2014
2. The average power sensor was used on the output port of the EUT. A power meter was used to read the response of the average power sensor to get the all on time transmission. Record the average power level.
3. When measuring maximum conducted output power with multiple antenna systems, add every result of the values by mathematic formula.
4. Adjust the measurement in dBm by adding 10 log(1/x) where x is the duty cycle. Record the average

3.4.4 Test Setup Layout



3.4.5 Test Deviation

There are no deviation with the original standard.

3.4.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.



3.4.7 Test Result for Maximum Conducted Output Power

Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11a	Duty Cycle	100%
Test Engineer	Leo		

Configuration IEEE 802.11a

<Ant. 1+2+3+4, CDD>

Channel	Frequency	Conducted Power (dBm)				Directional Gain	Max. Limit (dBm)	Total Conducted Power (dBm)
		Ant1	Ant2	Ant3	Ant4			
36	5180 MHz	19.63	19.87	19.93	20.20	6.10	29.90	25.93
40	5200 MHz	19.84	19.73	19.93	20.37	6.08	29.92	26.00
48	5240 MHz	19.94	20.40	20.44	20.48	6.16	29.84	26.34
149	5745 MHz	16.54	17.06	17.64	17.69	6.95	29.05	23.28
157	5785 MHz	18.94	19.75	19.63	20.09	6.30	29.70	25.64
165	5825 MHz	16.91	17.70	18.25	17.96	6.56	29.44	23.75
Result	Complied							



Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11ac 20MHz	Duty Cycle	100% 96.26% (only for NSS2MCS0, TXBF)
Test Engineer	Leo		

Configuration IEEE 802.11ac 20MHz

< NSS1MCS0, ANT1+2+3+4, CDD >

Channel	Frequency	Conducted Power (dBm)				Directional Gain	Max. Limit (dBm)	Total Conducted Power (dBm)
		Ant1	Ant2	Ant3	Ant4			
36	5180 MHz	20.20	19.91	19.65	19.73	6.10	29.90	25.90
40	5200 MHz	19.92	20.25	19.65	19.73	6.08	29.92	25.91
48	5240 MHz	20.37	20.41	20.00	19.79	6.16	29.84	26.17
149	5745 MHz	16.99	16.57	17.49	18.05	6.95	29.05	23.33
157	5785 MHz	19.76	19.28	20.29	20.40	6.30	29.70	25.98
165	5825 MHz	18.14	17.17	18.28	18.59	6.56	29.44	24.10
Result	Complied							

< NSS2MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Conducted Power (dBm)				Directional Gain	Max. Limit (dBm)	Total Conducted Power (dBm)
		Ant1	Ant2	Ant3	Ant4			
36	5180 MHz	17.55	17.45	17.31	17.63	3.25	30.00	23.50
40	5200 MHz	21.25	20.78	20.52	21.29	3.26	30.00	26.99
48	5240 MHz	21.11	21.01	20.72	21.21	3.51	30.00	27.03
149	5745 MHz	14.20	14.06	14.38	14.88	3.96	30.00	20.41
157	5785 MHz	19.53	19.33	19.88	19.97	3.32	30.00	25.70
165	5825 MHz	13.63	13.54	13.96	14.35	3.73	30.00	19.90
Result	Complied							

< NSS3MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Conducted Power (dBm)				Directional Gain	Max. Limit (dBm)	Total Conducted Power (dBm)
		Ant1	Ant2	Ant3	Ant4			
36	5180 MHz	18.72	19.22	19.23	19.17	5.38	30.00	25.11
40	5200 MHz	20.83	21.00	20.43	21.05	5.35	30.00	26.85
48	5240 MHz	21.06	21.09	21.10	21.04	5.70	30.00	27.09
149	5745 MHz	15.81	15.44	16.33	15.68	5.04	30.00	21.85
157	5785 MHz	18.90	18.33	19.48	18.67	4.25	30.00	24.89
165	5825 MHz	16.31	15.78	16.07	16.46	5.33	30.00	22.18
Result	Complied							



Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2°C	Humidity	61%
Configurations	802.11ac 40MHz	Duty Cycle	100% 98.27% (only for NSS2MCS0, TXBF)
Test Engineer	Leo		

Configuration IEEE 802.11ac 40MHz

< NSS1MCS0, ANT1+2+3+4, CDD >

Channel	Frequency	Conducted Power (dBm)				Directional Gain	Max. Limit (dBm)	Total Conducted Power (dBm)
		Ant1	Ant2	Ant3	Ant4			
38	5190 MHz	17.05	17.32	17.05	17.56	6.00	30.00	23.27
46	5230 MHz	20.50	20.60	20.61	21.42	6.05	29.95	26.82
151	5755 MHz	15.62	15.07	15.93	16.34	6.84	29.16	21.79
159	5795 MHz	20.30	19.46	20.19	20.61	6.77	29.23	26.18
Result	Complied							

< NSS2MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Conducted Power (dBm)				Directional Gain	Max. Limit (dBm)	Total Conducted Power (dBm)
		Ant1	Ant2	Ant3	Ant4			
38	5190 MHz	16.84	17.25	17.24	17.28	2.99	30.00	23.17
46	5230 MHz	21.23	21.41	21.25	21.86	3.29	30.00	27.46
151	5755 MHz	12.87	12.57	13.33	13.44	3.86	30.00	19.08
159	5795 MHz	20.62	19.98	20.85	21.34	3.78	30.00	26.74
Result	Complied							

< NSS3MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Conducted Power (dBm)				Directional Gain	Max. Limit (dBm)	Total Conducted Power (dBm)
		Ant1	Ant2	Ant3	Ant4			
38	5190 MHz	17.39	17.48	17.53	17.43	5.48	30.00	23.48
46	5230 MHz	21.17	21.56	21.45	21.88	5.43	30.00	27.54
151	5755 MHz	13.63	14.08	13.51	12.44	4.83	30.00	19.48
159	5795 MHz	20.93	21.57	21.12	19.70	5.16	30.00	26.90
Result	Complied							



Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11ac 80MHz	Duty Cycle	100% 96.47% (only for NSS2MCS0, TXBF)
Test Engineer	Leo		

Configuration IEEE 802.11ac 80MHz

< NSS1MCS0, ANT1+2+3+4, CDD >

Channel	Frequency	Conducted Power (dBm)				Directional Gain	Max. Limit (dBm)	Total Conducted Power (dBm)
		Ant1	Ant2	Ant3	Ant4			
42	5210 MHz	15.88	16.00	15.75	16.31	6.21	29.79	22.01
155	5775 MHz	12.98	12.37	13.35	13.69	6.80	29.20	19.15
Result	Complied							

< NSS2MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Conducted Power (dBm)				Directional Gain	Max. Limit (dBm)	Total Conducted Power (dBm)
		Ant1	Ant2	Ant3	Ant4			
42	5210 MHz	17.31	17.49	17.29	17.11	3.40	30.00	23.32
155	5775 MHz	13.73	13.37	14.20	13.94	3.83	30.00	19.84
Result	Complied							

< NSS3MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Conducted Power (dBm)				Directional Gain	Max. Limit (dBm)	Total Conducted Power (dBm)
		Ant1	Ant2	Ant3	Ant4			
42	5210 MHz	16.77	17.21	16.57	16.13	5.50	30.00	22.71
155	5775 MHz	13.12	13.67	13.72	12.06	4.86	30.00	19.21
Result	Complied							

3.5 Power Spectral Density Measurement

3.5.1 Limit

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
	v	Indoor Access Point	
		Mobile and Portable client device	
U-NII-2A	v	---	11dBm/ MHz
U-NII-2C	v	---	11dBm/ MHz
U-NII-3	v	---	30 dBm/500kHz (=23.01dBm/100kHz)

Note: $23.01\text{dBm}/100\text{kHz} = 30\text{dBm}/500\text{kHz} - 10\log\left(\frac{500\text{kHz}}{100\text{kHz}}\right)$

3.5.2 Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter Setting	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1 MHz
VB	≥ 3 MHz
Detector	RMS
Trace	Average
Sweep Time	Auto, trigger set to "free run"
Trace average	100 times

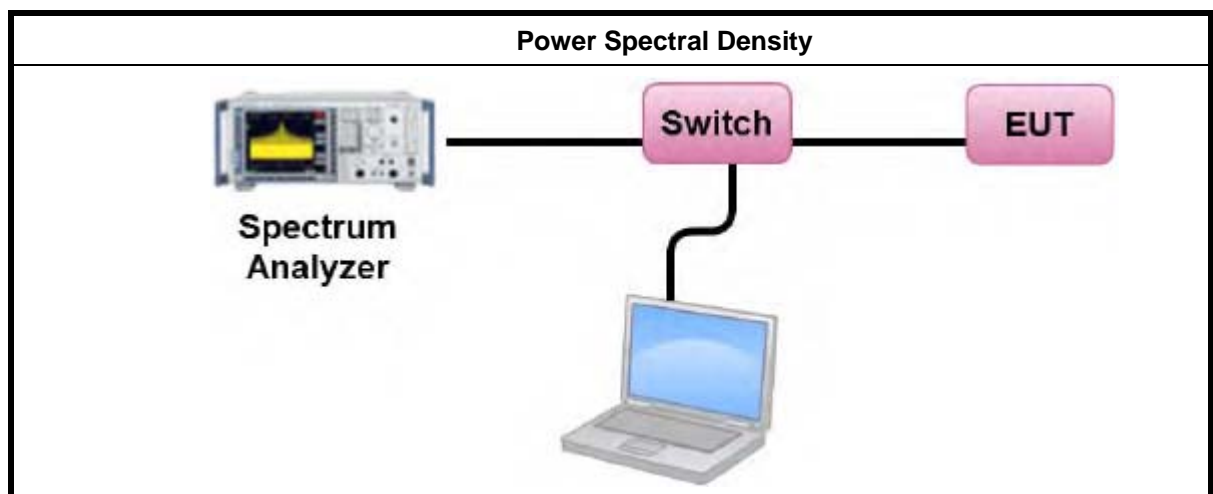
For U-NII-3 band:

Spectrum Parameter Setting	Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	100kHz
VB	≥ 3 RBW
Detector	RMS
Trace	Average
Sweep Time	Auto, trigger set to "free run"
Trace average	100 times

3.5.3 Test Procedures

1. The transmitter output (antenna port) was connected RF switch to the spectrum analyzer.
2. For U-NII-1, U-NII-2A & U-NII-2C Bands, PSD Measure was performed in accordance with 789033 D02 General UNII Test Procedures New Rules v01, in section “Maximum conducted output power (E)(2)(d) Method SA-2”, 06/06/2014
3. For U-NII-3 Band, PSD Measure was performed in accordance with 789033 D02 General UNII Test Procedures New Rules v01, in section “Maximum Power Spectral Density (F)(5)” , 10/31/2013
4. Multiple antenna systems was performed in accordance 662911 D01 Multiple Transmitter Output v02r01 in-Band Power Spectral Density (PSD) Measurements (a) Measure and sum the spectra across the outputs (bin-by-bin summing).
5. When measuring first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3 and so on up to the Nth output to obtain the value for the first
6. frequency bin of the summed spectrum. The summed spectrum value for each of the other frequency bins is computed in the same way.

3.5.4 Test Setup Layout



3.5.5 Test Deviation

There are no deviation with the original standard.

3.5.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.



3.5.7 Test Result of Power Spectral Density

Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11a	Duty Cycle	100%
Test Engineer	Leo		

Configuration IEEE 802.11a

<Ant. 1+2+3+4, CDD>

Channel	Frequency	Power Density (dBm/MHz)				Total Power Density (dBm/MHz)	Directional Gain	Max. Limit (dBm/MHz)
		Ant1	Ant2	Ant3	Ant4			
36	5180 MHz	7.35	7.47	7.65	7.89	13.62	6.10	16.90
40	5200 MHz	7.53	7.55	7.64	7.99	13.70	6.08	16.92
48	5240 MHz	7.66	8.02	8.22	8.19	14.05	6.16	16.84
Result	Complied							

<Ant. 1+2+3+4, CDD>

Channel	Frequency	Power Density (dBm/500kHz)				Total Power Density (dBm/500kHz)	Directional Gain	Max. Limit (dBm/500kHz)
		Ant1	Ant2	Ant3	Ant4			
149	5745 MHz	1.60	1.95	2.44	3.10	8.33	6.95	29.05
157	5785 MHz	4.04	5.02	4.72	5.22	10.79	6.30	29.70
165	5825 MHz	2.09	2.49	3.85	3.16	8.97	6.56	29.44
Result	Complied							



Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11ac 20MHz	Duty Cycle	100% 96.26% (only for NSS2MCS0,TXBF)
Test Engineer	Leo		

Configuration IEEE 802.11ac 20MHz

<Ant. 1+2+3+4, CDD>

Channel	Frequency	Power Density (dBm/MHz)				Total Power Density (dBm/MHz)	Directional Gain	Max. Limit (dBm/MHz)
		Ant1	Ant2	Ant3	Ant4			
36	5180 MHz	7.45	7.39	7.25	7.49	13.42	6.10	16.90
40	5200 MHz	7.37	7.46	7.23	7.12	13.32	6.08	16.92
48	5240 MHz	7.80	7.81	7.53	7.22	13.62	6.16	16.84
Result	Complied							

<Ant. 1+2+3+4, CDD>

Channel	Frequency	Power Density (dBm/500kHz)				Total Power Density (dBm/500kHz)	Directional Gain	Max. Limit (dBm/500kHz)
		Ant1	Ant2	Ant3	Ant4			
149	5745 MHz	10.17	9.91	11.26	11.56	16.80	6.95	29.05
157	5785 MHz	12.28	12.39	13.54	14.07	19.16	6.30	29.70
165	5825 MHz	11.24	10.08	12.06	12.26	17.51	6.56	29.44
Result	Complied							



< NSS2MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Power Density (dBm/MHz)				Total Power Density (dBm/MHz)	Directional Gain	Max. Limit (dBm/MHz)
		Ant1	Ant2	Ant3	Ant4			
36	5180 MHz	4.99	4.97	4.56	5.32	10.98	3.25	17.00
40	5200 MHz	8.76	8.49	7.69	8.90	14.50	3.26	17.00
48	5240 MHz	8.39	8.76	8.07	9.19	14.64	3.51	17.00
Result	Complied							

< NSS2MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Power Density (dBm/500kHz)				Total Power Density (dBm/500kHz)	Directional Gain	Max. Limit (dBm/500kHz)
		Ant1	Ant2	Ant3	Ant4			
149	5745 MHz	9.03	9.46	8.71	9.12	15.10	6.95	29.05
157	5785 MHz	13.23	13.34	13.66	14.04	19.60	6.30	29.70
165	5825 MHz	7.93	7.51	8.23	9.35	14.33	6.56	29.44
Result	Complied							



< NSS3MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Power Density (dBm/MHz)				Total Power Density (dBm/MHz)	Directional Gain	Max. Limit (dBm/MHz)
		Ant1	Ant2	Ant3	Ant4			
36	5180 MHz	6.16	7.44	6.97	6.68	12.86	5.38	17.00
40	5200 MHz	8.19	8.62	8.64	8.42	14.49	5.35	17.00
48	5240 MHz	9.20	8.73	8.93	8.50	14.87	5.70	17.00
Result	Complied							

< NSS3MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Power Density (dBm/500kHz)				Total Power Density (dBm/500kHz)	Directional Gain	Max. Limit (dBm/500kHz)
		Ant1	Ant2	Ant3	Ant4			
149	5745 MHz	2.19	1.79	2.73	3.44	8.60	5.04	30.00
157	5785 MHz	5.08	6.17	6.65	5.57	11.93	4.25	30.00
165	5825 MHz	1.85	0.27	2.30	2.19	7.74	5.33	30.00
Result	Complied							



Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2°C	Humidity	61%
Configurations	802.11ac 40MHz	Duty Cycle	100% 98.27% (only for NSS2MCS0, TXBF)
Test Engineer	Leo		

Configuration IEEE 802.11ac 40MHz

<Ant. 1+2+3+4, CDD>

Channel	Frequency	Power Density (dBm/MHz)				Total Power Density (dBm/MHz)	Directional Gain	Max. Limit (dBm/MHz)
		Ant1	Ant2	Ant3	Ant4			
38	5190 MHz	1.40	1.47	1.67	1.89	7.63	6.00	17.00
46	5230 MHz	4.76	4.74	5.17	5.78	11.15	6.05	16.95
Result	Complied							

<Ant. 1+2+3+4, CDD>

Channel	Frequency	Power Density (dBm/500kHz)				Total Power Density (dBm/500kHz)	Directional Gain	Max. Limit (dBm/500kHz)
		Ant1	Ant2	Ant3	Ant4			
151	5755 MHz	5.04	5.48	5.97	7.07	11.98	6.84	29.16
159	5795 MHz	9.96	10.09	10.71	11.52	16.64	6.77	29.23
Result	Complied							



< NSS2MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Power Density (dBm/MHz)				Total Power Density (dBm/MHz)	Directional Gain	Max. Limit (dBm/MHz)
		Ant1	Ant2	Ant3	Ant4			
38	5190 MHz	1.14	1.84	2.16	1.98	7.81	2.99	17.00
46	5230 MHz	5.36	6.25	6.74	6.13	12.16	3.29	17.00
Result	Complied							

< NSS2MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Power Density (dBm/500kHz)				Total Power Density (dBm/500kHz)	Directional Gain	Max. Limit (dBm/500kHz)
		Ant1	Ant2	Ant3	Ant4			
151	5755 MHz	7.24	6.03	4.53	5.38	11.93	3.86	30.00
159	5795 MHz	11.58	12.11	12.14	13.07	18.28	3.78	30.00
Result	Complied							



< NSS3MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Power Density (dBm/MHz)				Total Power Density (dBm/MHz)	Directional Gain	Max. Limit (dBm/MHz)
		Ant1	Ant2	Ant3	Ant4			
38	5190 MHz	1.77	1.95	1.87	1.93	7.90	5.48	17.00
46	5230 MHz	5.20	5.92	5.87	6.26	11.85	5.43	17.00
Result	Complied							

< NSS3MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Power Density (dBm/500kHz)				Total Power Density (dBm/500kHz)	Directional Gain	Max. Limit (dBm/500kHz)
		Ant1	Ant2	Ant3	Ant4			
151	5755 MHz	-1.60	-0.08	-1.71	-1.84	4.78	4.83	30.00
159	5795 MHz	5.55	4.67	5.98	3.22	11.00	5.16	30.00
Result	Complied							



Final Test Date	Jan. 18, 2015	Test Site No.	TH06-HY
Temperature	23.2 °C	Humidity	61 %
Configurations	802.11ac 80MHz	Duty Cycle	100% 96.47% (only for NSS2MCS0, TXBF)
Test Engineer	Leo		

Configuration IEEE 802.11ac 80MHz

<Ant. 1+2+3+4, CDD>

Channel	Frequency	Power Density (dBm/MHz)				Total Power Density (dBm/MHz)	Directional Gain	Max. Limit (dBm/MHz)
		Ant1	Ant2	Ant3	Ant4			
42	5210 MHz	-2.33	-2.30	-2.05	-1.92	3.87	6.21	16.79
Result	Complied							

<Ant. 1+2+3+4, CDD>

Channel	Frequency	Power Density (dBm/500kHz)				Total Power Density (dBm/500kHz)	Directional Gain	Max. Limit (dBm/500kHz)
		Ant1	Ant2	Ant3	Ant4			
155	5775 MHz	0.46	-0.23	1.87	2.48	7.30	6.80	29.20
Result	Complied							



< NSS2MCS 0, ANT1+2+3+4, TXBF >

Channel	Frequency	Power Density (dBm/MHz)				Total Power Density (dBm/MHz)	Directional Gain	Max. Limit (dBm/MHz)
		Ant1	Ant2	Ant3	Ant4			
42	5210 MHz	-1.10	-0.67	-0.98	-1.05	5.07	3.40	17.00
Result	Complied							

< NSS2MCS 0, ANT1+2+3+4, TXBF >

Channel	Frequency	Power Density (dBm/500kHz)				Total Power Density (dBm/500kHz)	Directional Gain	Max. Limit (dBm/500kHz)
		Ant1	Ant2	Ant3	Ant4			
155	5775 MHz	1.97	1.34	2.64	2.44	8.14	3.83	30.00
Result	Complied							



< NSS3MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Power Density (dBm/MHz)				Total Power Density (dBm/MHz)	Directional Gain	Max. Limit (dBm/MHz)
		Ant1	Ant2	Ant3	Ant4			
42	5210 MHz	-0.56	-0.58	-0.72	-1.97	5.10	5.50	17.00
Result	Complied							

< NSS3MCS0, ANT1+2+3+4, TXBF >

Channel	Frequency	Power Density (dBm/500kHz)				Total Power Density (dBm/500kHz)	Directional Gain	Max. Limit (dBm/500kHz)
		Ant1	Ant2	Ant3	Ant4			
155	5775 MHz	-5.55	-4.73	-4.84	-2.78	1.67	4.86	30.00
Result	Complied							

4 Radiated Emissions Measurement

4.1 Limit of Unwanted emissions in the restricted bands

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed..

Frequency Range (MHz)	Field Strength (micровolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

4.2 Measuring Instruments and Setting

The following table is the setting of spectrum analyzer and receiver.

Spectrum Analyzer	Setting
Attenuation	Auto
Start Frequency	1GHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 3MHz for Peak, 1MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	100kHz / 300kHz for peak

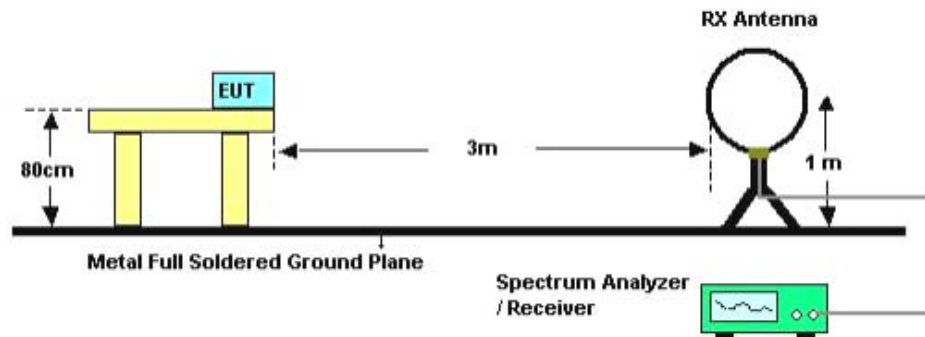
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1GHz / RB 120kHz for QP

4.3 Test Procedures

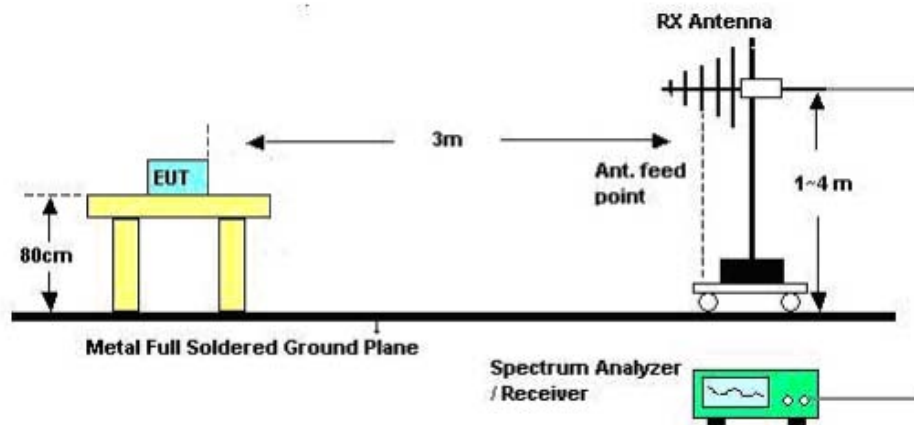
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 m to 4 m) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and 3MHz RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

4.4 Test Setup Layout

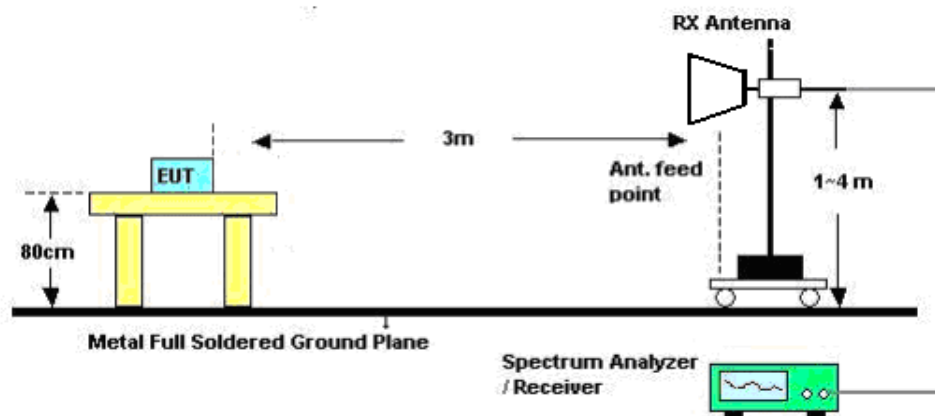
For Radiated Emissions below 1GHz (9kHz~30MHz)



For Radiated Emissions below 1GHz (30MHz~1GHz)



For Radiated Emissions above 1GHz





4.5 Test Deviation

There are no deviations with the original standard.

4.6 EUT Operation during Test

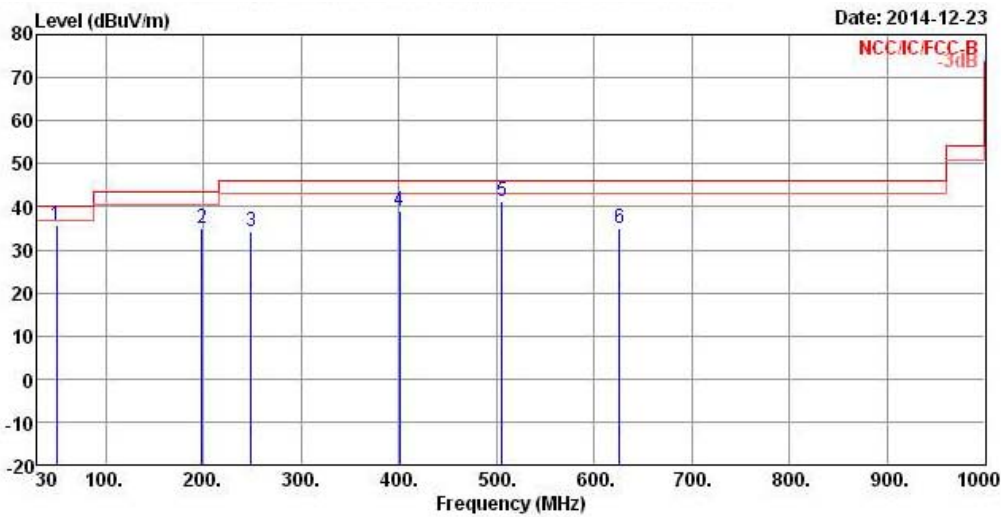
The EUT was programmed to be in continuously transmitting mode.

4.7 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

4.8 Results of Radiated Emissions (Below 1GHz) CDD Mode

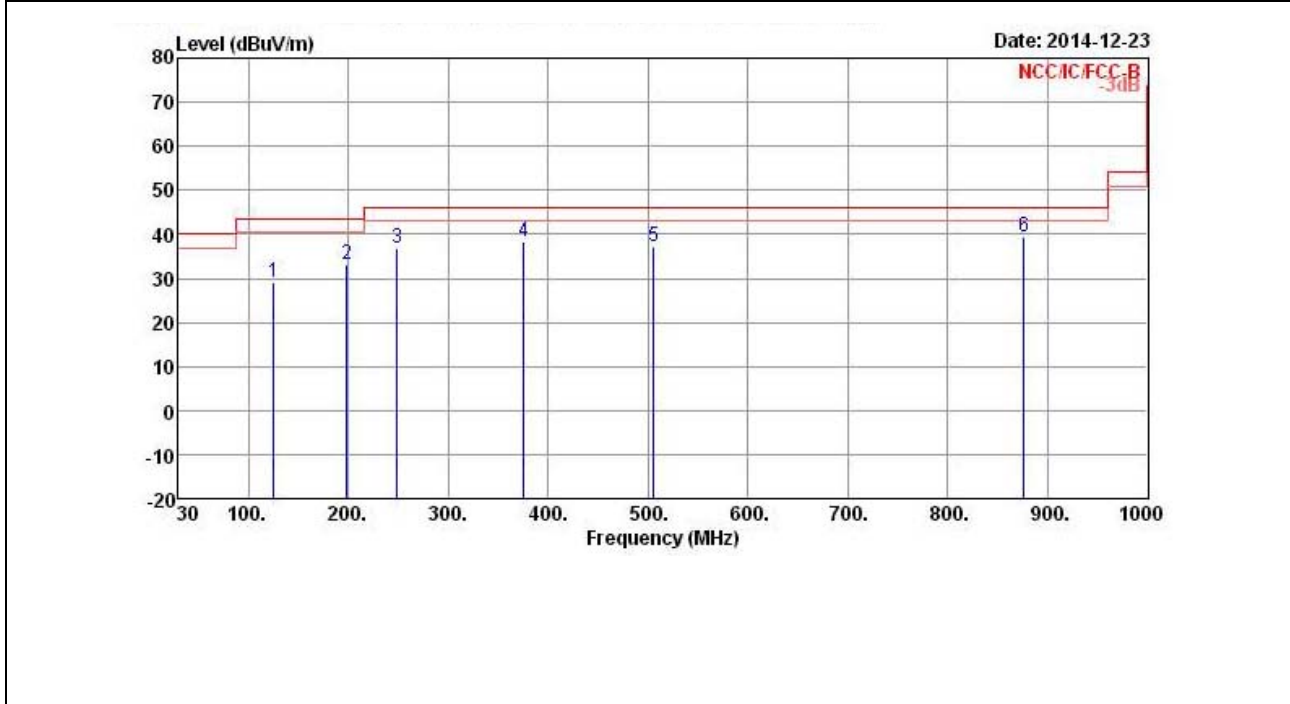
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

Transmitter Radiated Emissions (Below 1GHz)											
Operating Mode	802.11ac 80MHz/ Nss1 MCS0/ Ch. 155/ Ant. 1+2+3+4						Polarization	V			
											
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	49.400	35.90	-4.10	40.00	53.46	8.74	1.13	27.43	QP	---	---
2	198.780	34.96	-8.54	43.50	50.55	9.22	2.32	27.13	Peak	---	---
3	249.220	34.30	-11.70	46.00	45.97	12.64	2.60	26.91	Peak	---	---
4	400.540	38.98	-7.02	46.00	47.26	15.70	3.34	27.32	Peak	---	---
5	505.300	41.33	-4.67	46.00	48.33	17.17	3.79	27.96	QP	---	---
6	625.580	35.08	-10.92	46.00	39.93	18.67	4.25	27.77	Peak	---	---
<p>Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit. Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.) Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)</p>											



Transmitter Radiated Emissions (Below 1GHz)

Operating Mode	802.11ac 80MHz/ Nss1 MCS0/ Ch. 155/ Ant. 1+2+3+4	Polarization	H
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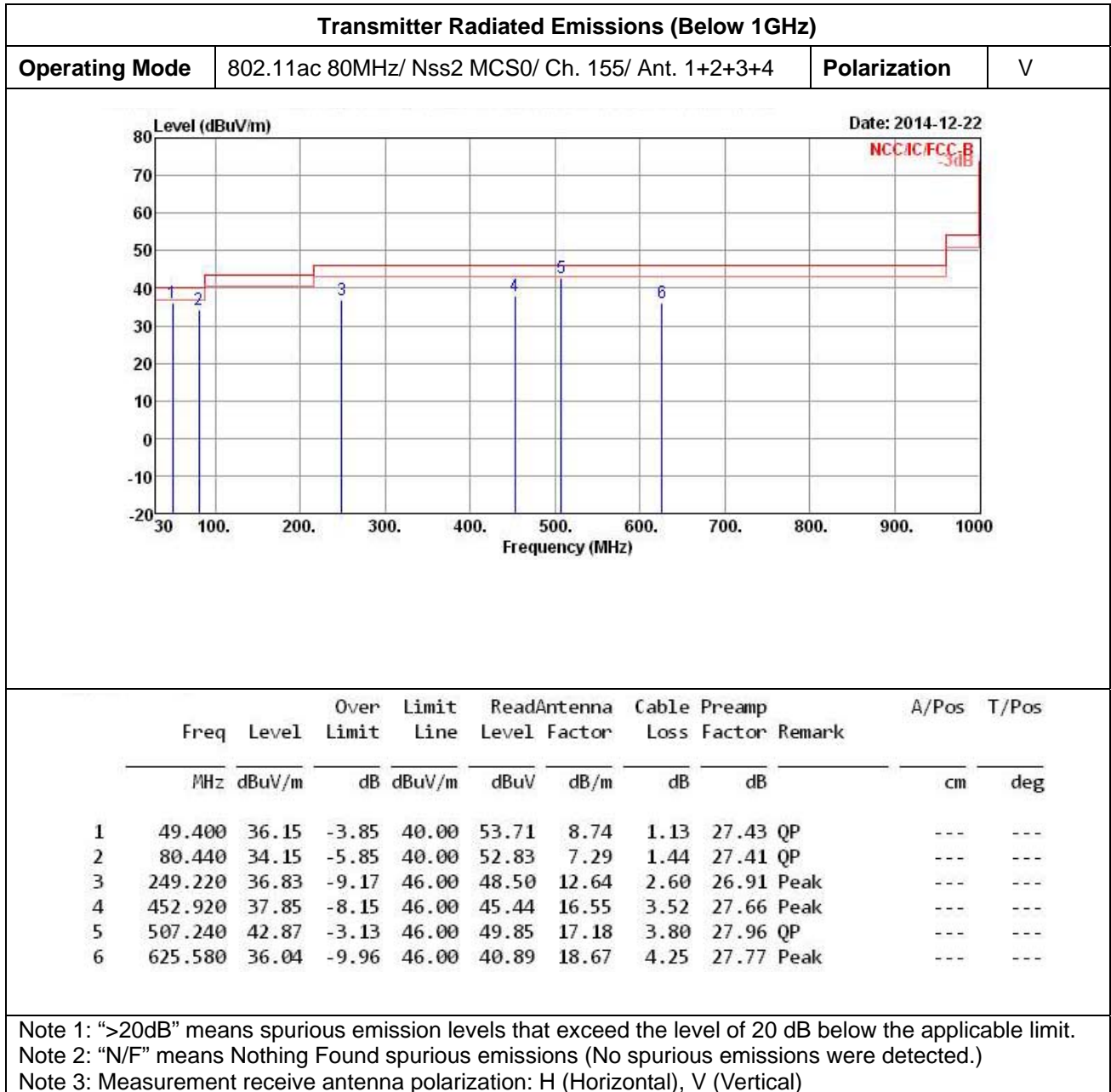


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	125.060	28.96	-14.54	43.50	41.82	12.49	1.83	27.18	Peak	---	---
2	198.780	33.03	-10.47	43.50	48.62	9.22	2.32	27.13	Peak	---	---
3	249.220	36.98	-9.02	46.00	48.65	12.64	2.60	26.91	Peak	---	---
4	375.320	38.32	-7.68	46.00	47.44	14.81	3.23	27.16	Peak	---	---
5	505.300	37.21	-8.79	46.00	44.21	17.17	3.79	27.96	Peak	---	---
6	875.840	39.27	-6.73	46.00	41.10	20.47	5.07	27.37	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



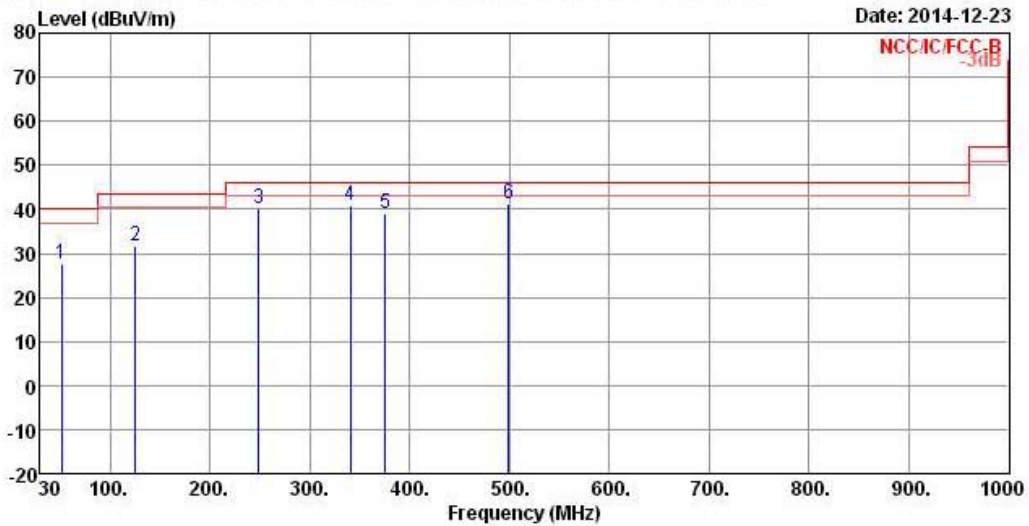
4.9 Results of Radiated Emissions (Below 1GHz) TXBF Mode





Transmitter Radiated Emissions (Below 1GHz)

Operating Mode	802.11ac 80MHz/ Nss2 MCS0/ Ch. 155/ Ant. 1+2+3+4	Polarization	H
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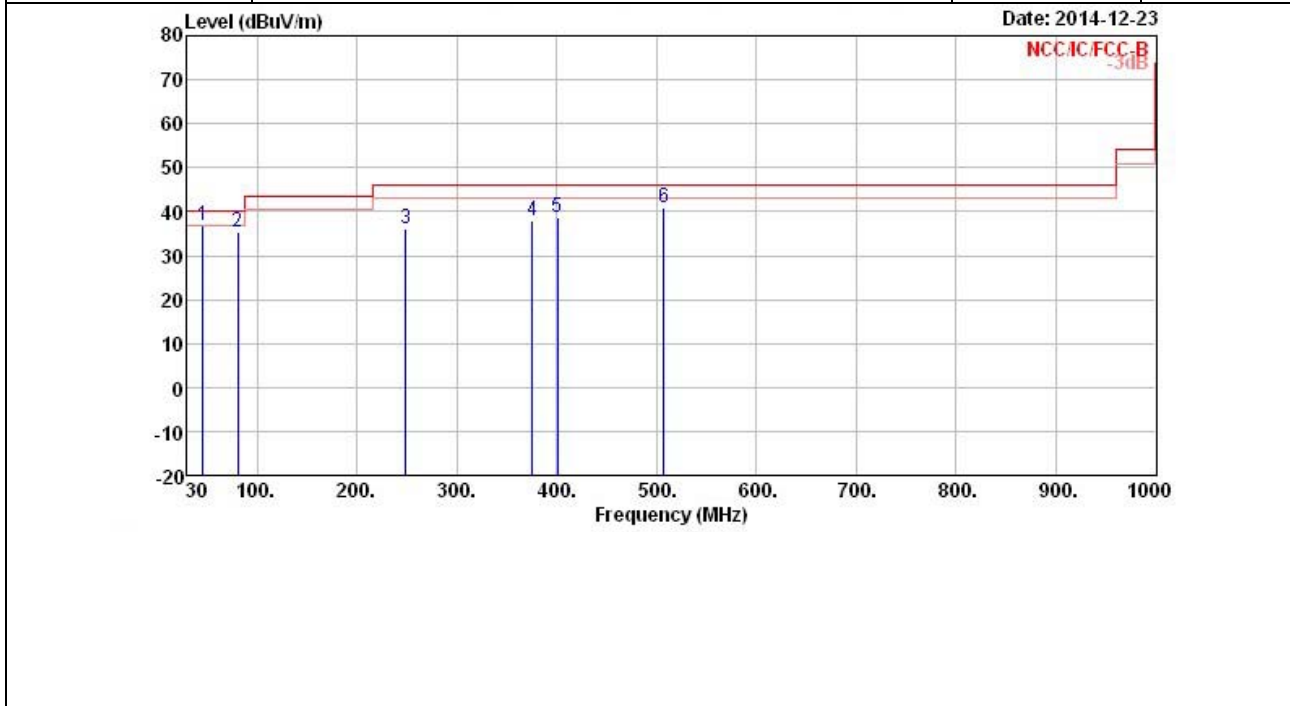
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	51.340	27.58	-12.42	40.00	45.70	8.14	1.15	27.41	Peak	---	---
2	125.060	31.61	-11.89	43.50	44.47	12.49	1.83	27.18	Peak	---	---
3	249.220	40.24	-5.76	46.00	51.91	12.64	2.60	26.91	Peak	---	---
4	340.400	40.81	-5.19	46.00	50.70	13.97	3.08	26.94	Peak	---	---
5	375.320	39.17	-6.83	46.00	48.29	14.81	3.23	27.16	Peak	---	---
6	499.480	41.07	-4.93	46.00	48.12	17.14	3.77	27.96	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



Transmitter Radiated Emissions (Below 1GHz)

Operating Mode	802.11ac 80MHz/ Nss3 MCS0/ Ch. 155/ Ant. 1+2+3+4	Polarization	V
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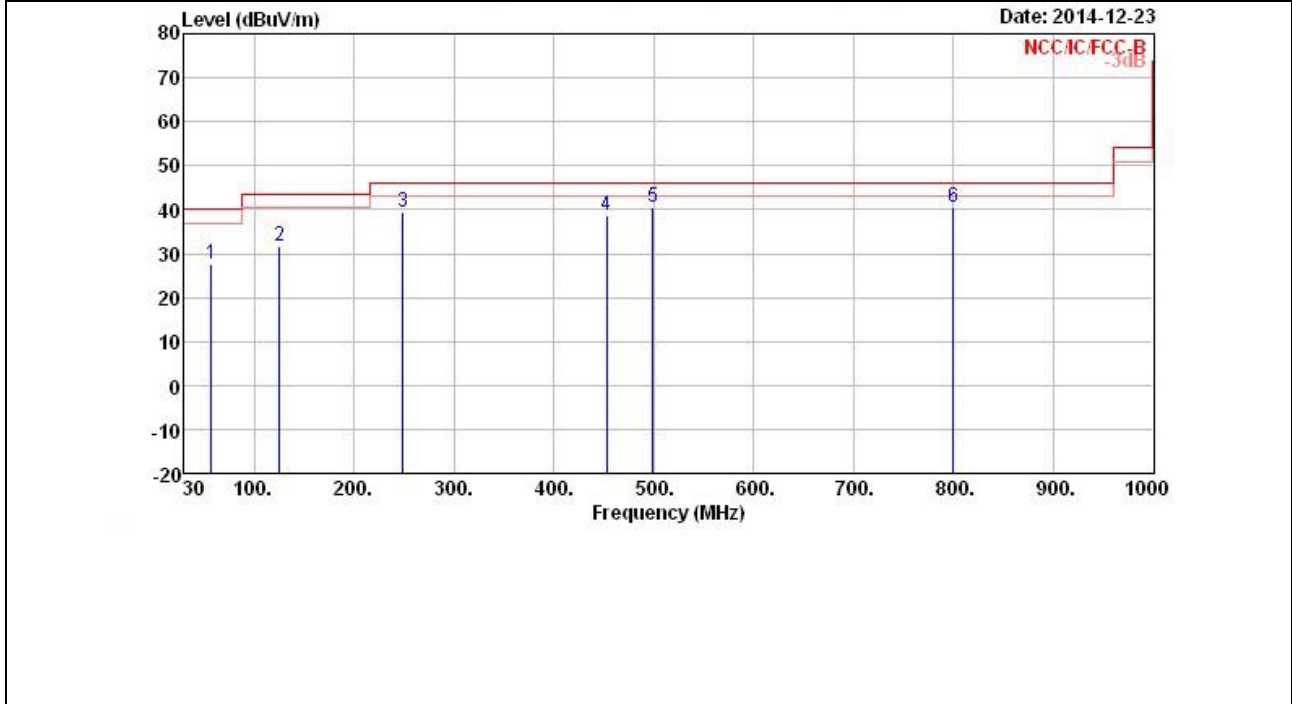
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	45.520	36.97	-3.03	40.00	53.28	9.96	1.09	27.36	QP	---	---
2	80.440	35.42	-4.58	40.00	54.10	7.29	1.44	27.41	QP	---	---
3	249.220	36.01	-9.99	46.00	47.68	12.64	2.60	26.91	Peak	---	---
4	375.320	37.84	-8.16	46.00	46.96	14.81	3.23	27.16	Peak	---	---
5	400.540	38.76	-7.24	46.00	47.04	15.70	3.34	27.32	Peak	---	---
6	507.240	40.83	-5.17	46.00	47.81	17.18	3.80	27.96	QP	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



Transmitter Radiated Emissions (Below 1GHz)

Operating Mode	802.11ac 80MHz/ Nss3 MCS0/ Ch. 155/ Ant. 1+2+3+4	Polarization	H
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	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	57.160	27.65	-12.35	40.00	46.93	6.93	1.21	27.42	Peak	---	---
2	125.060	31.61	-11.89	43.50	44.47	12.49	1.83	27.18	Peak	---	---
3	249.220	39.53	-6.47	46.00	51.20	12.64	2.60	26.91	Peak	---	---
4	452.920	38.55	-7.45	46.00	46.14	16.55	3.52	27.66	Peak	---	---
5	499.480	40.57	-5.43	46.00	47.62	17.14	3.77	27.96	Peak	---	---
6	800.180	40.45	-5.55	46.00	43.52	19.64	4.92	27.63	Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

4.9.1 Results for Unwanted emissions in the restricted bands

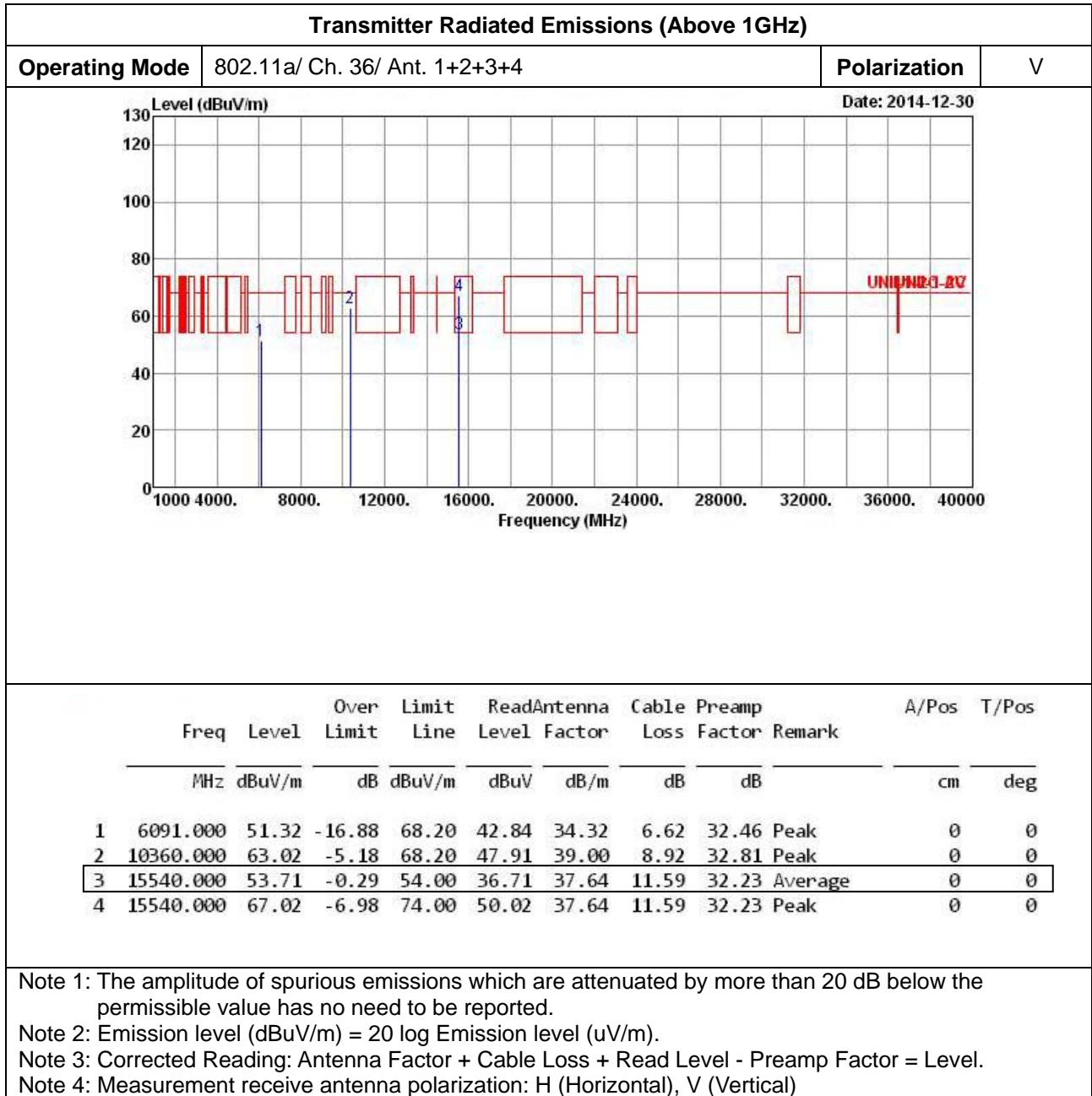
Following channel(s) was (were) selected for the final test as listed below.

MODE	TX Chain	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11a	Ant.1+2+3+4 (CDD)	36, 40, 48 149, 157, 165	OFDM	BPSK	6
802.11ac 20MHz	Ant.1+2+3+4 (CDD)	36, 40, 48 149, 157, 165	OFDM	BPSK	Nss1MCS0 (6.5)
802.11ac 40MHz	Ant.1+2+3+4 (CDD)	38, 46 151, 159	OFDM	BPSK	Nss1MCS0 (13.5)
802.11ac 80MHz	Ant.1+2+3+4 (CDD)	42, 155	OFDM	BPSK	Nss1MCS0 (29.3)

MODE	TX Chain	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11ac 20MHz	Ant.1+2+3+4 (TXBF)	36, 40, 48 149, 157, 165	OFDM	BPSK	Nss2MCS0 (13.0)
802.11ac 40MHz	Ant.1+2+3+4 (TXBF)	38, 46 151, 159	OFDM	BPSK	Nss2MCS0 (27.0)
802.11ac 80MHz	Ant.1+2+3+4 (TXBF)	42, 155	OFDM	BPSK	Nss2MCS0 (58.5)

MODE	TX Chain	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
802.11ac 20MHz	Ant.1+2+3+4 (TXBF)	36, 40, 48 149, 157, 165	OFDM	BPSK	Nss3MCS0 (19.5)
802.11ac 40MHz	Ant.1+2+3+4 (TXBF)	38, 46 151, 159	OFDM	BPSK	Nss3MCS0 (40.5)
802.11ac 80MHz	Ant.1+2+3+4 (TXBF)	42, 155	OFDM	BPSK	Nss3MCS0 (87.8)

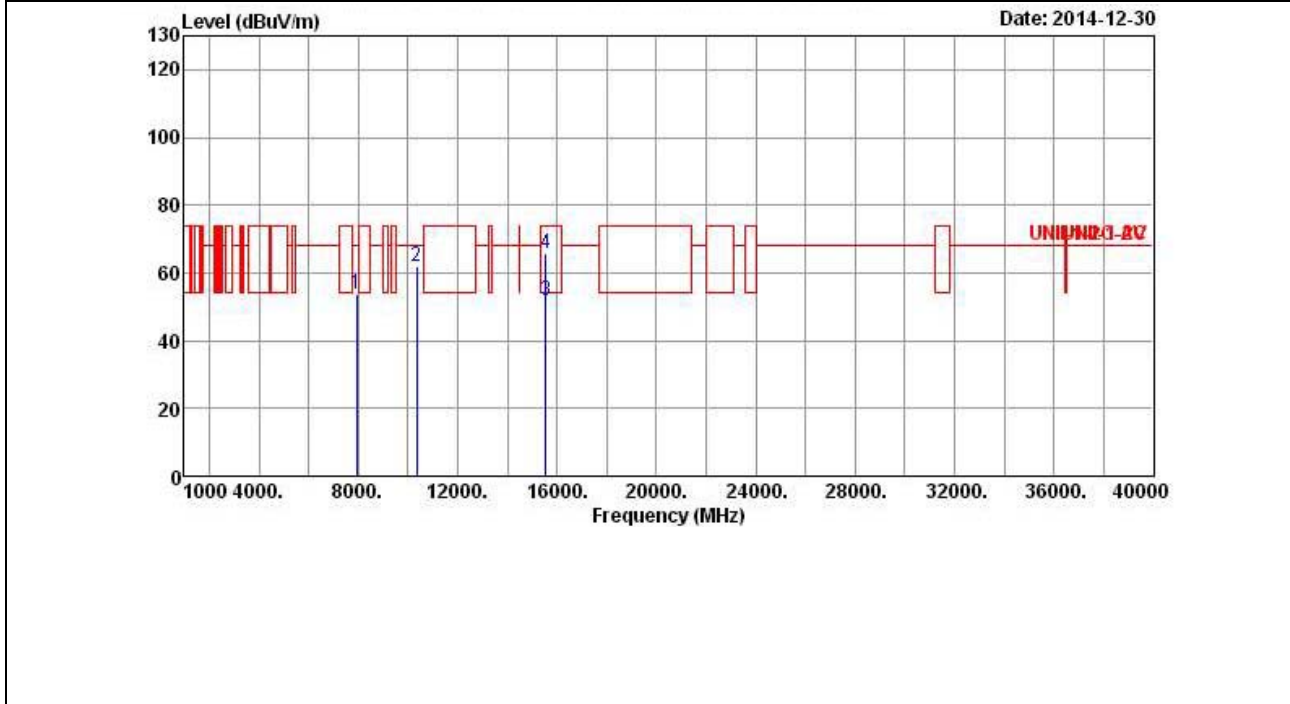
4.9.2 Results of Radiated Emissions (Above 1GHz) CDD Mode





Transmitter Radiated Emissions (Above 1GHz)

Operating Mode	802.11a/ Ch. 36/ Ant. 1+2+3+4	Polarization	H
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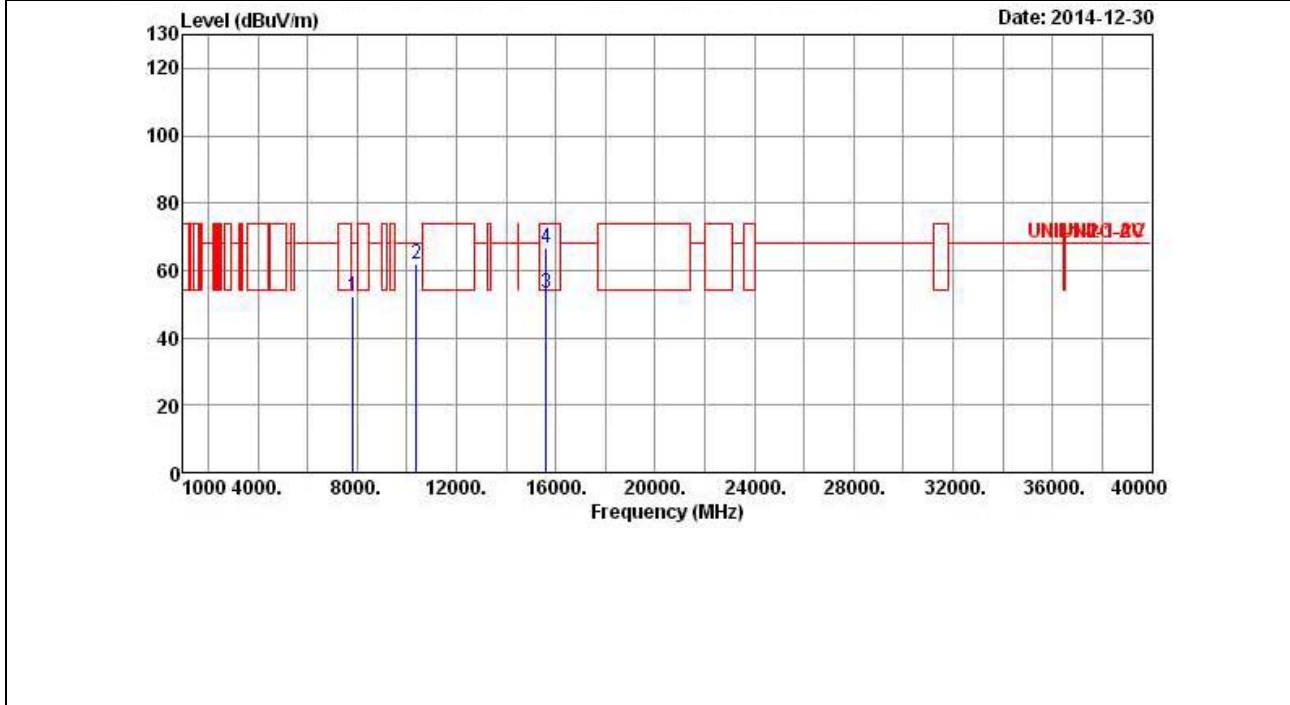
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBUV/m	dB	dBUV/m	dBuV	dB/m	dB	dB		cm	deg
1	7924.000	53.74	-14.46	68.20	41.37	37.02	8.21	32.86	Peak	0	0
2	10360.000	62.10	-6.10	68.20	46.99	39.00	8.92	32.81	Peak	0	0
3	15540.000	51.61	-2.39	54.00	34.61	37.64	11.59	32.23	Average	0	0
4	15540.000	65.66	-8.34	74.00	48.66	37.64	11.59	32.23	Peak	0	0

Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
 Note 2: Emission level (dBUV/m) = 20 log Emission level (uV/m).
 Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.
 Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



Transmitter Radiated Emissions (Above 1GHz)

Operating Mode	802.11a/ Ch. 40/ Ant. 1+2+3+4	Polarization	V
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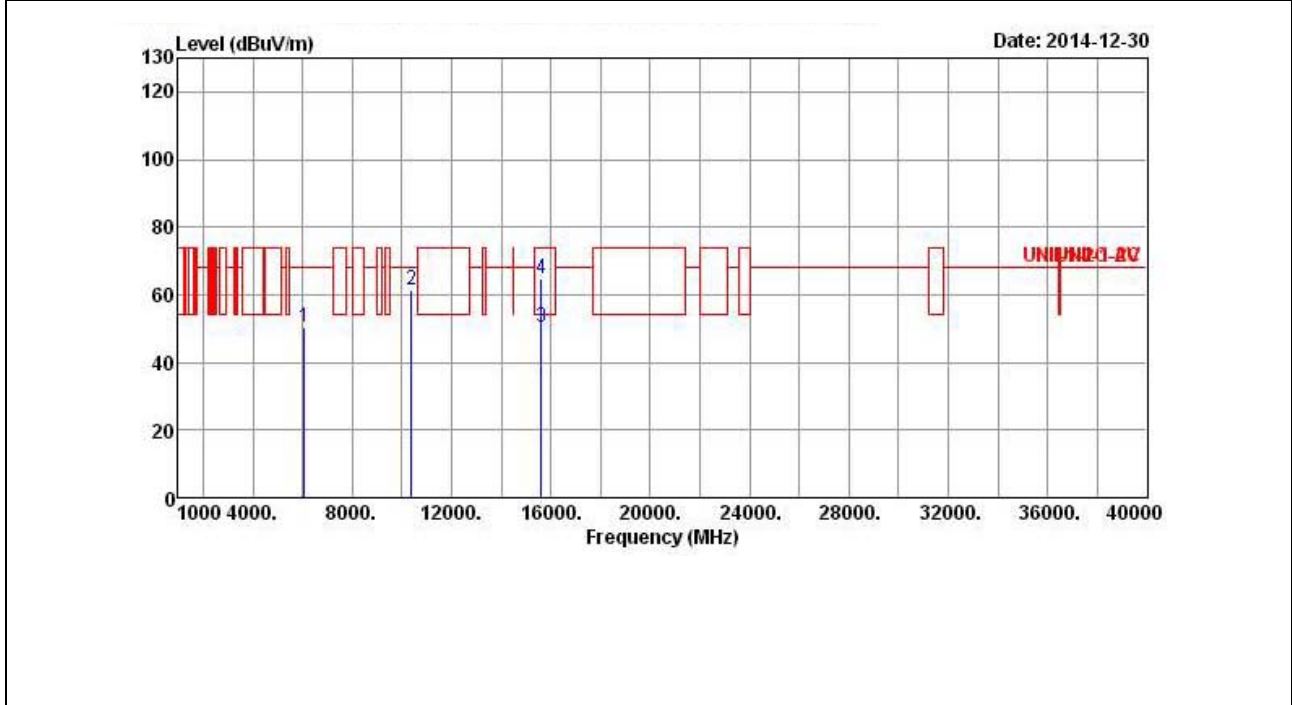
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7845.000	52.07	-16.13	68.20	39.89	36.95	8.07	32.84	Peak	0	0
2	10400.000	61.69	-6.51	68.20	46.52	39.00	8.94	32.77	Peak	0	0
3	15600.000	53.12	-0.88	54.00	36.26	37.53	11.59	32.26	Average	0	0
4	15600.000	66.66	-7.34	74.00	49.80	37.53	11.59	32.26	Peak	0	0

Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
 Note 2: Emission level (dBuV/m) = 20 log Emission level (uV/m).
 Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.
 Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



Transmitter Radiated Emissions (Above 1GHz)

Operating Mode	802.11a/ Ch. 40/ Ant. 1+2+3+4	Polarization	H
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	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	A/Pos	T/Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6060.000	50.57	-17.63	68.20	42.10	34.31	6.62	32.46	Peak	0	0
2	10400.000	61.56	-6.64	68.20	46.39	39.00	8.94	32.77	Peak	0	0
3	15600.000	50.56	-3.44	54.00	33.70	37.53	11.59	32.26	Average	0	0
4	15600.000	64.98	-9.02	74.00	48.12	37.53	11.59	32.26	Peak	0	0

Note 1: The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
 Note 2: Emission level (dBUV/m) = 20 log Emission level (uV/m).
 Note 3: Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.
 Note 4: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

