EMC
TEST REPORT

Report No. : **150400018TWN-001**
Model No. : **NBG6515**
Issued Date : **Jun. 17, 2015**

Applicant: **ZyXEL Communications Corporation**
No.2, Gongye E. 9th Road, Hsinchu Science Park, Hsinchu, Taiwan

Test Method/ Standard: **47 CFR FCC Part 15.407**
KDB 789033 D02 v01
KDB 644545 D03 v01

ANSI C63.10 2013.

Test By: **Intertek Testing Services Taiwan Ltd.**
No. 11, Lane 275, Ko-Nan 1 Street, Chia-Tung Li, Shiang-Shan District, Hsinchu City, Taiwan

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Ricky Lee / Engineer

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Title Senior Engineer

Revision History

Report No.	Issue Date	Revision Summary
150400018TWN-001	Jun. 17, 2015	Original report

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1. Summary of Test Data

Test Requirement	Applicable Rule (Section 15.407)	Result
Maximum Conducted Output Power	15.407 (a)(1)/(2)/(3) KDB 789033 D02 v01	Pass
Power Spectrum Density	15.407 (a)(1)/(2)/(3) KDB 789033 D02 v01	Pass
Minimum Emission Bandwidth	15.407(a)(5), 15.407(e) KDB 789033 D02 v01	Pass
Emissions In Restricted Frequency Bands (Radiated emission measurements)	15.407(b), 15.209	Pass
Emission on The Band Edge	15.407(b), 15.209	Pass
AC Line Conducted Emission	15.407(b)(6) 15.207	Pass
Antenna requirement	15.203	Pass

2. General information

2.1 Identification of the EUT

Product:	AC750 Dual-Band Wireless Gigabit Router
Model No.:	NBG6515
FCC ID:	I88NBG6515
Manufacturer:	ZyXEL Communications Corporation
Address:	No.2, Gongye E. 9th Road, Hsinchu Science Park, Hsinchu, Taiwan
Operating Frequency:	1. 5180 MHz ~ 5240 MHz for 802.11a, 802.11n(HT20),802.11ac(VHT20) 2. 5190 MHz ~ 5230 MHz for 802.11n (HT40), 802.11ac(VHT40) 3. 5745 MHz ~ 5825 MHz for 802.11a, 802.11n (HT20), 802.11ac(VHT20) 4. 5755 MHz ~ 5795 MHz for 802.11n (HT40), 802.11ac(VHT40) 5. 5210 MHz, 5775 MHz for 802.11ac (VHT80)
Channel Number:	1. 4 channels for 5180 MHz ~ 5240 MHz for 802.11a,802.11n (HT20), 802.11ac(VHT20) 2. 2 channels for 5190 MHz ~ 5230 MHz for 802.11n (HT40), 802.11ac(VHT40) 3. 5 channels for 5745 MHz ~ 5825 MHz for 802.11a, 802.11n (HT20), 802.11ac(VHT20) 4. 2 channels for 5755 MHz ~ 5795 MHz for 802.11n (HT40), 802.11ac(VHT40) 5. 1 channel for 5210 MHz, 5775 MHz for 802.11ac (VHT80)
Access scheme:	DSSS, OFDM
Modulation	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
Rated Power:	DC 12 V from adapter
Power Cord:	N/A
Sample Received:	Mar. 23, 2015
Test Date(s):	Apr. 02, 2015 ~ Jun. 16, 2015
Note 1:	This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.
Note 2:	When determining the test conclusion, the Measurement Uncertainty of test has been considered.

2.2 Description of EUT

Modulation mode	Transmit path
	Chain 0 /Main
802.11a	V
802.11n HT20	V
802.11n HT40	V
802.11ac VHT20	V
802.11ac VHT40	V
802.11ac VHT80	V

Note: Chain 0 can be used as transmitting/receiving antennas. Chain 0 could transmit/receive simultaneously.

2.3 Additional information of EUT

Product SW & HW version : 1.00(AAXS.0)C0
Test SW Version : MT76xxE QA V2.0.3.0(0205)

2.4 Antenna description

The antenna is affixed to the EUT using a unique connector, which allows for replacement of a broken antenna, but DOES NOT use a standard antenna jack or electrical connector.

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Antenna Gain : 5 dBi max for 5GHz
Antenna Type : Dipole antenna
Connector Type : I-pex

2.5 Adapter information

The EUT will be supplied with a power supply from below list:

No.	Brand	Model no.	Specification
Adapter	APD	WA-12M12FU	I/P: 100-240Vac, 50-60Hz, 0.5A O/P: 12Vdc, 1A

The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

2.6 Peripherals equipment

Peripherals	Brand	Model No.	Serial No.	Data cable
Notebook PC	DELL	Latitude D610	4YWZK1S	RJ-45 STP Cat.5 1 meter × 1
USB Disk	SanDisk	CZ33	N/A	USB Cable 0.2 meter × 1

2.7 Operation mode

The EUT was supplied with DC 12 V from adapter (Test voltage: 120 Vac, 60 Hz) and the TX mode is based on a specific test program "MT76xxE QA V2.0.3.0(0205)", and the program can select different frequency and modulation.

With individual verifying, the maximum output power were found out 6 Mbps data rate for 802.11a mode, 6.5 Mbps data rate for 802.11n(HT20) mode, 13.5 Mbps data rate for 802.11n(HT40) mode and 29.2 Mbps data rate for 802.11ac (VHT80) mode, the final tests were executed under these conditions recorded in this report individually.

802.11a ch40 chain0		**802.11n HT20 ch40 chain0**		**802.11n HT40 ch38 chain0**		**802.11ac VHT80 ch42 chain0**	
Data rate (Mbps)	**AV (dBm)**	**Data rate (Mbps)**	**AV (dBm)**	**Data rate (Mbps)**	**AV (dBm)**	**Data rate**	**AV (dBm)**
6	17.49	6.5	17.16	13.5	17.41	MCS0	17.16
9	17.35	13	17.01	27	17.31	MCS1	17.09
12	16.42	19.5	16.25	40.5	16.55	MCS2	16.23
18	16.29	26	16.14	54	16.42	MCS3	16.11
24	15..62	39	15.22	81	15.37	MCS4	15.37
36	15.48	52	15.27	108	15.24	MCS5	15.25
48	14.36	58.5	14.41	121.5	14.37	MCS6	14.38
54	14.27	65	14.29	135	14.22	MCS7	14.26

2.8 Applied test modes and channels

Test items	Mode	Data Rate (Mbps)	Channel	Antenna
Maximum Conducted Output Power	802.11a	6	36, 40, 48, 149, 157, 165	Chain0
	802.11n (HT20)	6.5	36, 40, 48, 149, 157, 165	Chain0
	802.11n (HT40)	13.5	38, 46, 151, 159	Chain0
	802.11ac (VHT80)	29.2	42, 155	Chain0
Minimum Emission Bandwidth	802.11a	6	36, 40, 48, 149, 157, 165	Chain0
	802.11n (HT20)	6.5	36, 40, 48, 149, 157, 165	Chain0
	802.11n (HT40)	13.5	38, 46, 151, 159	Chain0
	802.11ac (VHT80)	29.2	42, 155	Chain0
Power Spectrum Density	802.11a	6	36, 40, 48, 149, 157, 165	Chain0
	802.11n (HT20)	6.5	36, 40, 48, 149, 157, 165	Chain0
	802.11n (HT40)	13.5	38, 46, 151, 159	Chain0
	802.11ac (VHT80)	29.2	42, 155	Chain0
Emissions In Restricted Frequency Bands (Radiated emission measurements)	802.11a	6	36, 40, 48, 149, 157, 165	Chain0
	802.11n (HT20)	6.5	36, 40, 48, 149, 157, 165	Chain0
	802.11n (HT40)	13.5	38, 46, 151, 159	Chain0
	802.11ac (VHT80)	29.2	42, 155	Chain0
Emission on The Band Edge	802.11a	6	36, 40, 48, 149, 157, 165	Chain0
	802.11n (HT20)	6.5	36, 40, 48, 149, 157, 165	Chain0
	802.11n (HT40)	13.5	38, 46, 151, 159	Chain0
	802.11ac (VHT80)	29.2	42, 155	Chain0
AC Line Conducted Emission	Normal Link			

With individual verifying, the spurious emissions of 802.11n HT20 mode are greater than the spurious emissions of 802.11ac VHT20 mode under the same power setting. The spurious emissions of 802.11n HT40 mode are greater than the spurious emissions of 802.11ac VHT40 mode under the same power setting. We choose the 802.11n HT20/40 mode as the worse mode for 20/40 MHz Bandwidth.

2.9 Power setting of test software

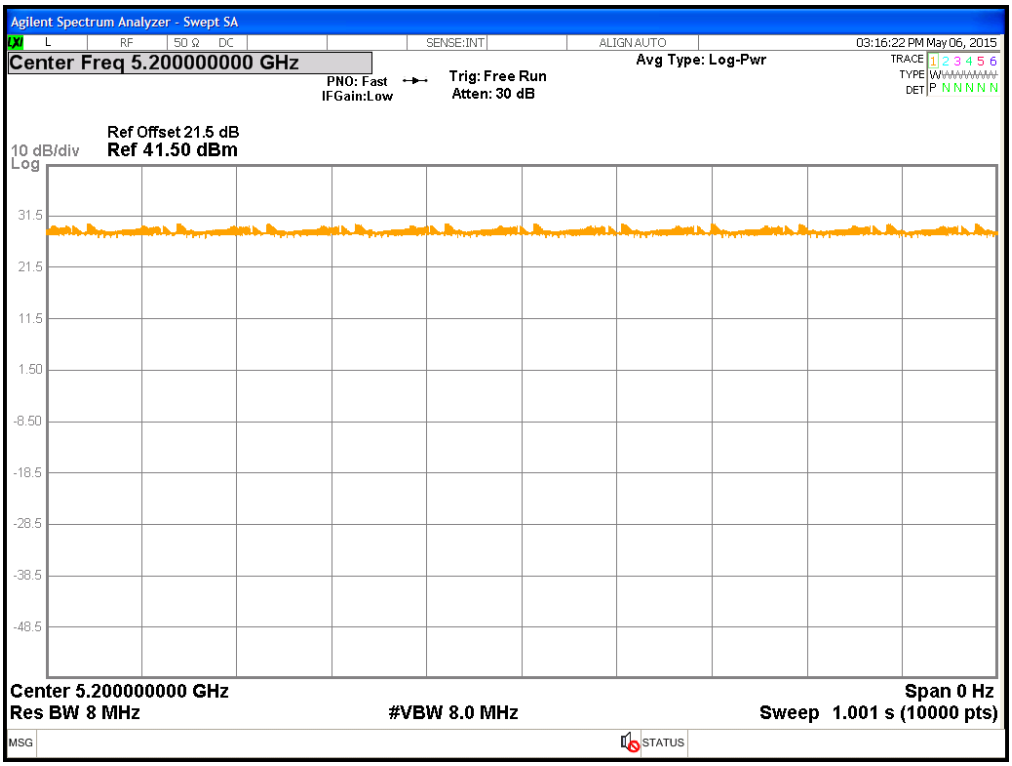
Channels & power setting software provided by the client was used to change the operating channels as well as the output power level and is going to be installed in the final end product.

Mode	Software Version: MT76xxE QA V2.0.3.0(0205)		
	Channel	Frequency	Power setting
802.11a	36	5180	17
	40	5200	16
	48	5240	15
	149	5745	1C
	157	5785	1C
	165	5825	1C
802.11n (HT 20)	36	5180	16
	40	5200	16
	48	5240	15
	149	5745	1D
	157	5785	1D
	165	5825	1D
802.11n (HT 40)	38	5190	17
	46	5230	15
	151	5755	1B
	159	5795	1B
802.11ac (VHT 80)	42	5210	14
	155	5775	1A

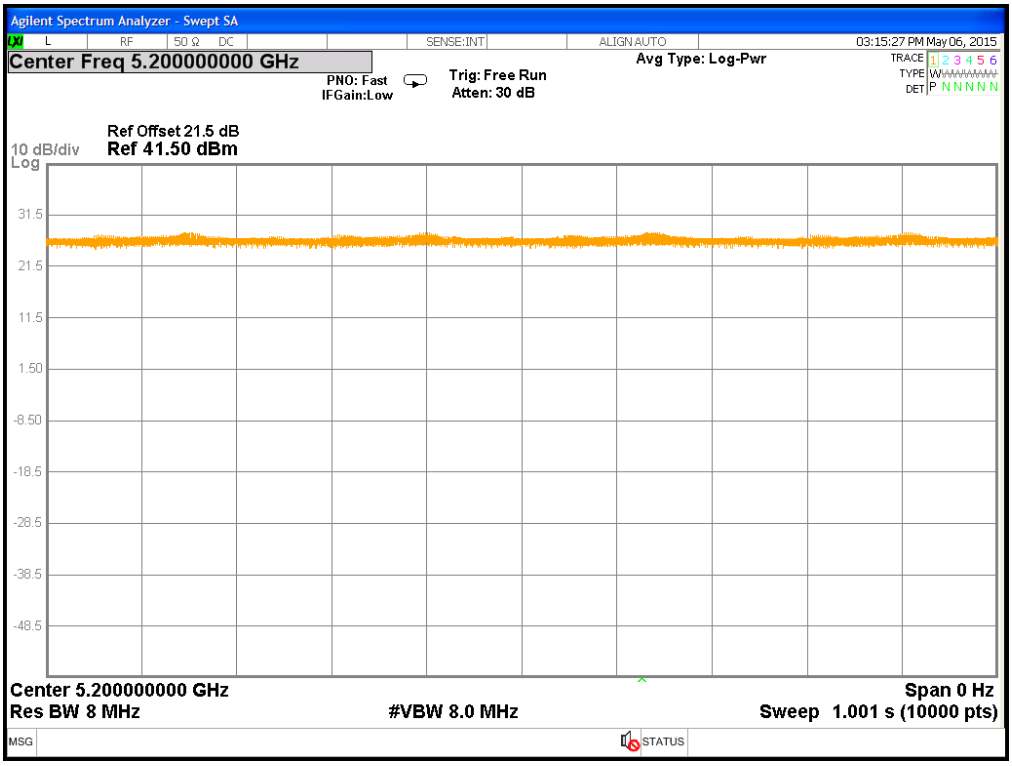
Note: The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.

Mode	Channel	Frequency (MHz)	Data rate	Signal on time(s)	Total signal transmit time(s)	Duty cycle	Duty Cycle factor
802.11a	40	5200	6	1.001	1.001	1.000	0.000
802.11n (HT20)	40	5200	6.5	1.001	1.001	1.000	0.000
802.11n (HT40)	46	5230	13.5	1.001	1.001	1.000	0.000
802.11ac (VHT80)	42	5210	29	1.001	1.001	1.000	0.000

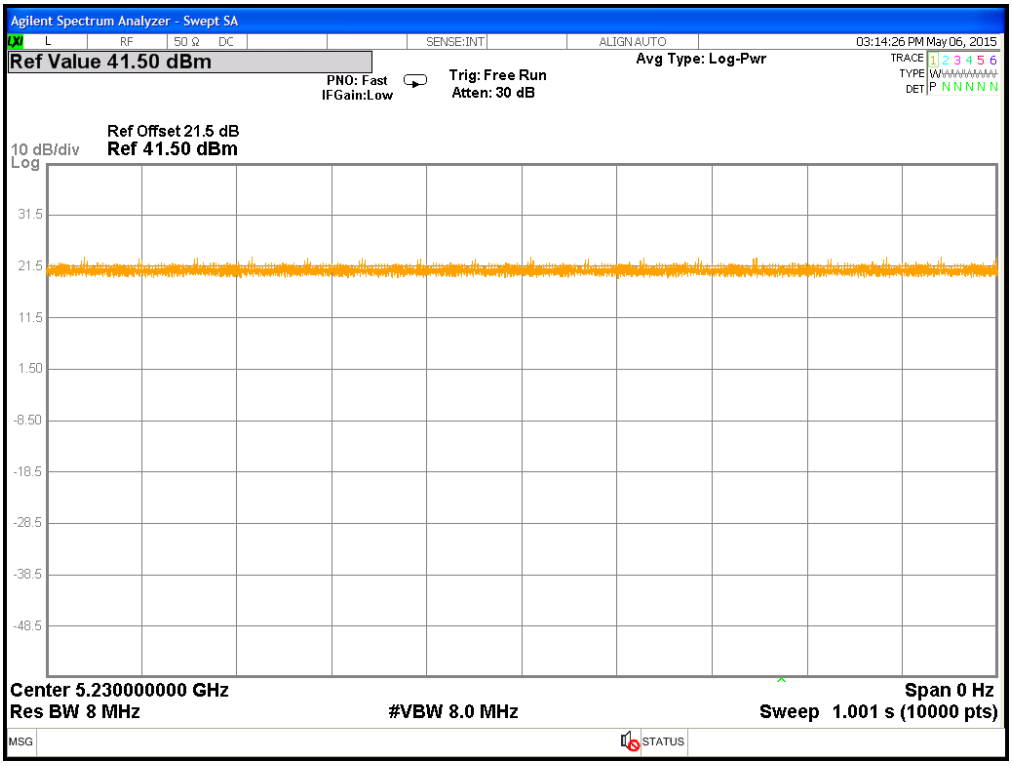
Duty Cycle @ 802.11a mode Ch 40



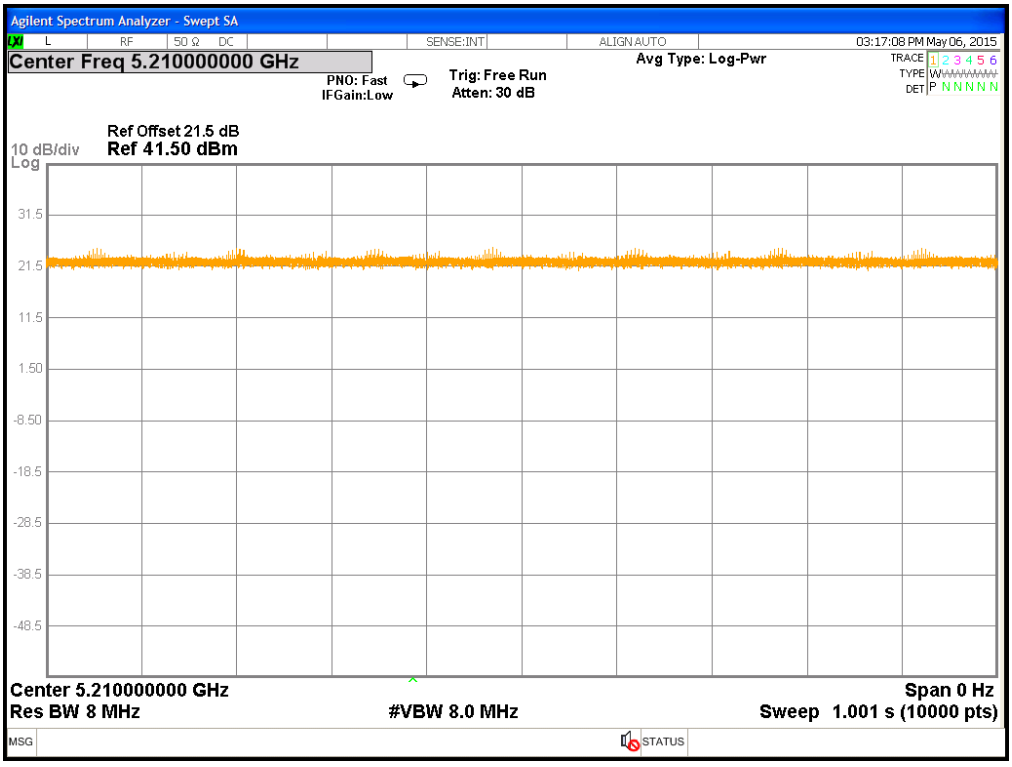
Duty Cycle @ 802.11n(HT20) mode Ch 40



Duty Cycle @ 802.11n(HT40) mode Ch 46



Duty Cycle @ 802.11ac(VHT80) mode Ch 42



3. Maximum Conducted Output Power

3.1 Operating environment

Temperature:	25	℃
Relative Humidity:	50	%
Atmospheric Pressure	1008	hPa
Channel number	36,40,48,149,157,165 for 20MHz 38,46,151,159 for 40MHz 42, 155 for 80MHz	

3.2 Limit for maximum output power

Operating Frequency (MHz)	Conducted output power limit
5150~5250	< 1 W (30 dBm)
5725~5850	< 1 W (30 dBm)

Operating Frequency (MHz)	Maximum E.I.R.P. limit
5150~5250	< 4 W (36 dBm)
5725~5850	< 4 W (36 dBm)

3.3 Measuring instrument setting

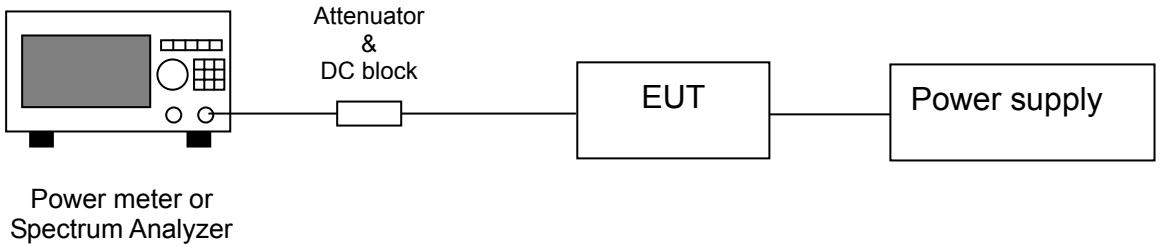
Power meter for Nominal Bandwidth less than 65MHz	
Power meter	**Setting**
Bandwidth	65MHz bandwidth is greater than the EUT emission bandwidth
Detector	Average

Spectrum Analyzer for Nominal Bandwidth greater than 65MHz	
Power meter	**Setting**
Span	Encompass the entire emission bandwidth
RBW	1MHz
VBW	≧ 3MHz
Sweep point	≧ 2 Span/RBW
Sweep time	auto
Detector	RMS or Sample
Video trigger	free run or specific level
Trace average mode	At least 100 traces
Bandwidth of Integrating Power mode	Equal to the emission bandwidth

3.4 Test procedure

Test procedures refer to clause E) 3) b) measurement using a gated RF average power meter of KDB 789033 D02 v01
Test procedures refer to clause E) 2) b) Method SA-1 of KDB 789033 D02 v01

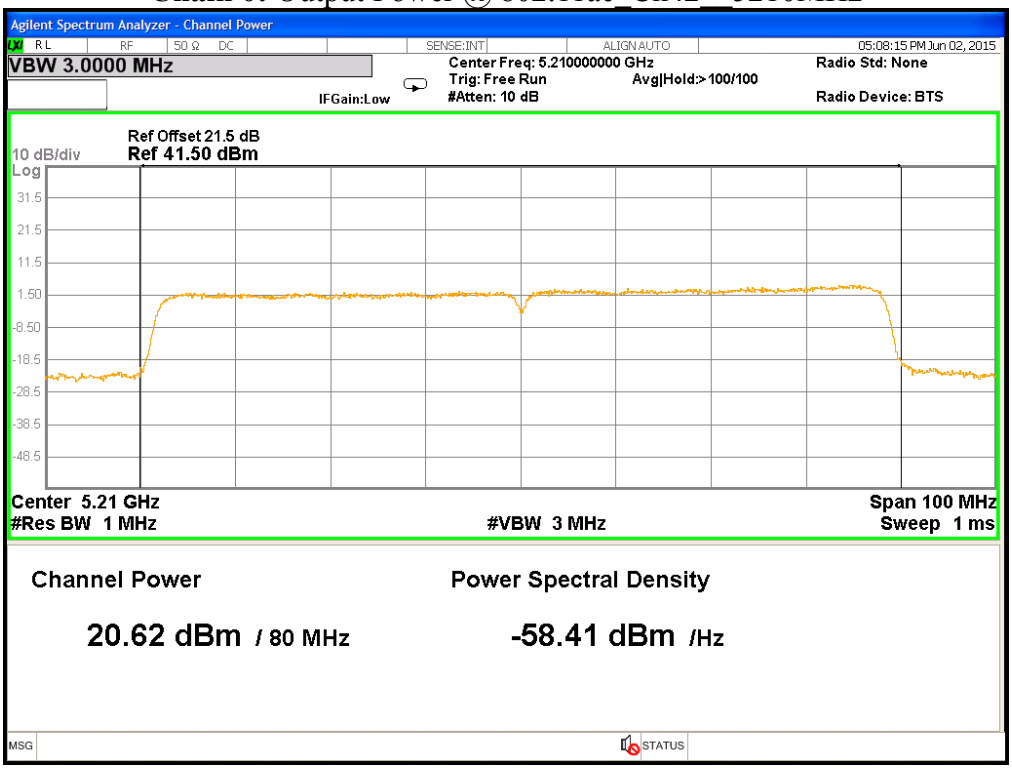
3.5 Test diagram



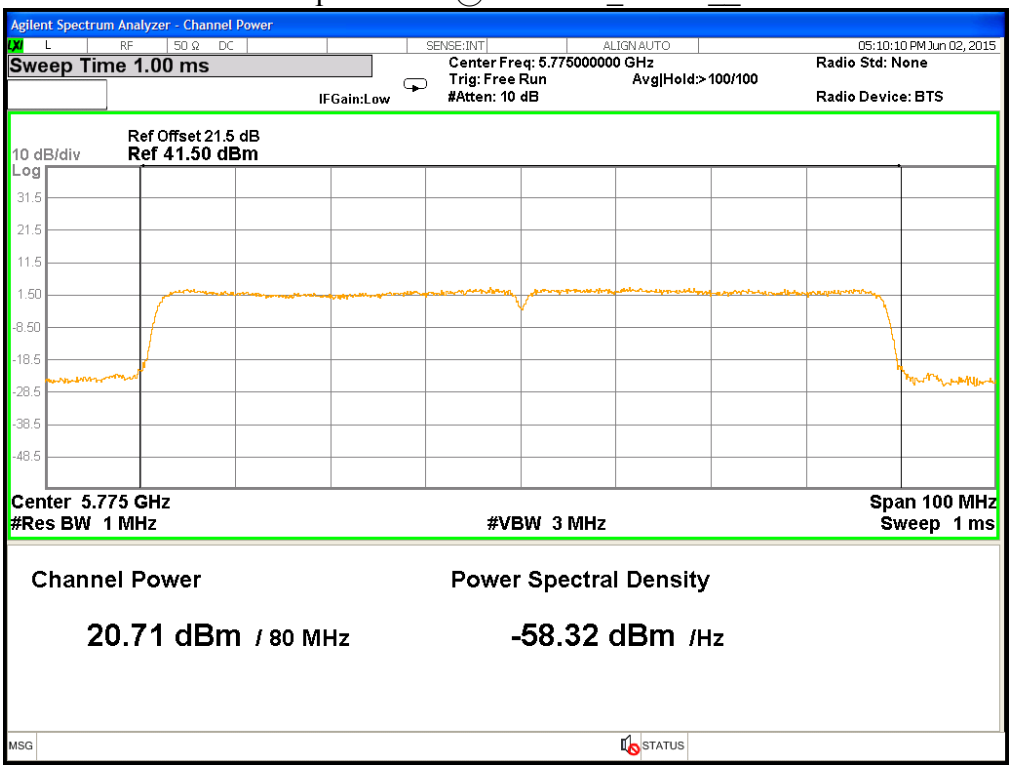
3.6 Test results

Mode	Channel	Freq. (MHz)	Data Rate (Mbps)	Output Power (AV)		Antenna Gain (dBi)	E.I.R.P. (dBm)	Limit of Conducted Power (dBm)	Margin (dB)	Limit of E.I.R.P. (dBm)	Margin (dB)
				dBm	mW						
802.11a	36	5180	6	22.25	167.88	5	27.25	30.00	-7.75	36.00	-8.75
	40	5200		22.17	164.82	5	27.17	30.00	-7.83	36.00	-8.83
	48	5240		22.39	173.38	5	27.39	30.00	-7.61	36.00	-8.61
	149	5745		22.36	172.19	5	27.36	30.00	-7.64	36.00	-8.64
	157	5785		22.33	171.00	5	27.33	30.00	-7.67	36.00	-8.67
	165	5825		22.26	168.27	5	27.26	30.00	-7.74	36.00	-8.74
802.11n (HT 20)	36	5180	6.5	21.10	128.82	5	26.10	30.00	-8.90	36.00	-9.90
	40	5200		21.07	127.94	5	26.07	30.00	-8.93	36.00	-9.93
	48	5240		21.24	133.05	5	26.24	30.00	-8.76	36.00	-9.76
	149	5745		21.33	135.83	5	26.33	30.00	-8.67	36.00	-9.67
	157	5785		21.20	131.83	5	26.20	30.00	-8.80	36.00	-9.80
	165	5825		21.05	127.35	5	26.05	30.00	-8.95	36.00	-9.95
802.11n (HT 40)	38	5190	13.5	21.40	138.04	5	26.40	30.00	-8.60	36.00	-9.60
	46	5230		21.25	133.35	5	26.25	30.00	-8.75	36.00	-9.75
	151	5755		21.22	132.43	5	26.22	30.00	-8.78	36.00	-9.78
	159	5795		21.17	130.92	5	26.17	30.00	-8.83	36.00	-9.83
802.11ac (VHT 80)	42	5210	29.2	20.62	115.35	5	25.62	30.00	-9.38	36.00	-10.38
	155	5775		20.71	117.76	5	25.71	30.00	-9.29	36.00	-10.29

Chain 0: Output Power @ 802.11ac_Ch42__5210MHz



Chain 0: Output Power @ 802.11ac_Ch155__5775MHz



4. Power Spectrum Density

4.1 Operating environment

Temperature:	25	℃
Relative Humidity:	50	%
Atmospheric Pressure	1008	hPa
Channel number	36,40,48,149,157,165 for 20MHz 38,46,151,159 for 40MHz 42, 155 for 80MHz	

4.2 Limit for power spectrum density

Operating Frequency (MHz)	Power density limit
5150~5250	< 17 dBm/MHz
5725~5850	< 30 dBm/500kHz

4.3 Measuring instrument setting

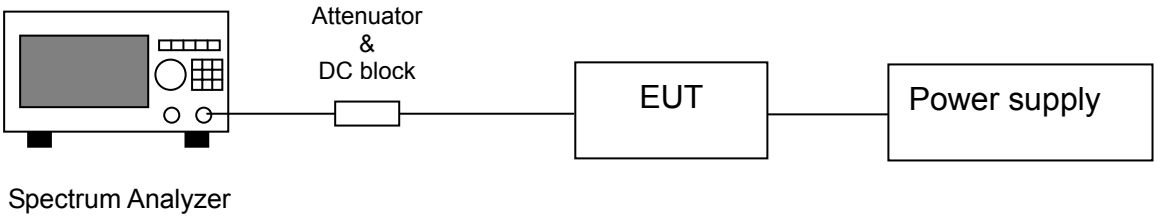
Spectrum analyzer settings (5150~5250MHz)	
Spectrum Analyzer function	**Setting**
Detector	RMS
RBW	=1MHz
VBW	≧3 MHz
Sweep	Auto couple
Trace	Average
Span	Encompass the 26 dB EBW
Attenuation	Auto
Sweep point	≥ 2 Span / RBW

Spectrum analyzer settings (5725~5850MHz)	
Spectrum Analyzer function	**Setting**
Detector	RMS
RBW	=100kHz
VBW	≧300 kHz
Sweep	Auto couple
Trace	Average
Span	Encompass the 6 dB EBW
Attenuation	Auto
Sweep point	≥ 2 Span / RBW

4.4 Test procedure

1. Set relevant parameter according to clause 4.3.
2. Trace average at least 100 traces in power averaging mode.
3. Compute power by integrating the spectrum across the 26 dB or 6dB EBW of the signal using the instrument's band power measurement function with band limits set equal to the EBW band edges
4. If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement. The RBW is 100 kHz. So, we will add 6.989 to the results.

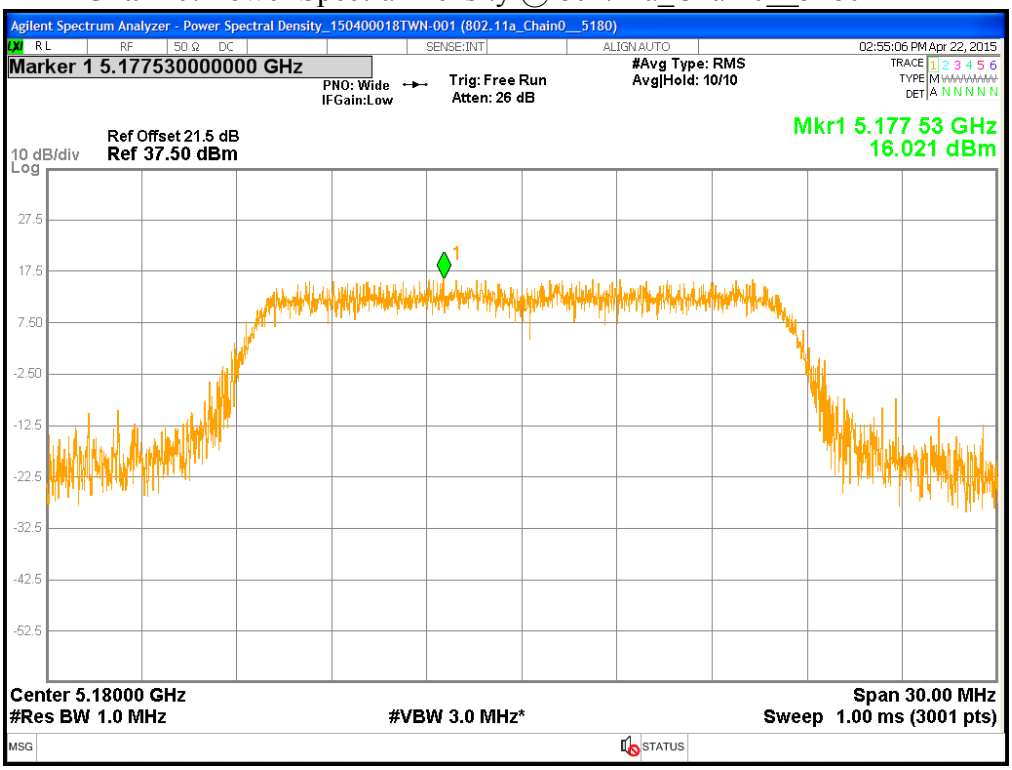
4.5 Test diagram



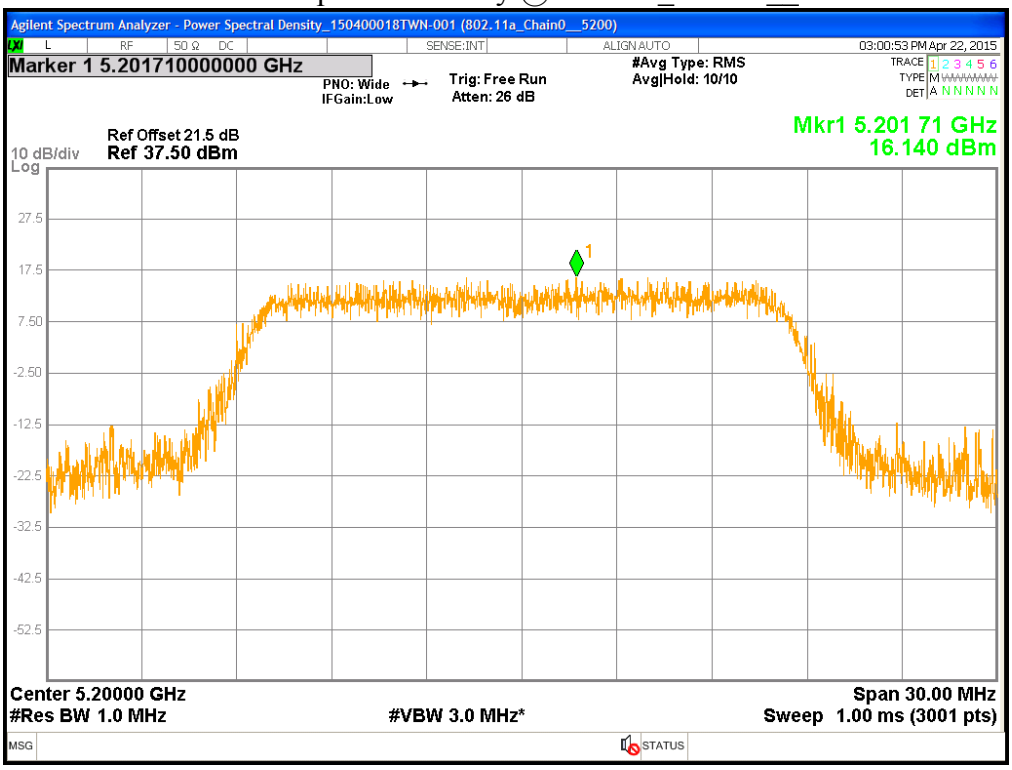
4.6 Test results

Mode	Ch.	Freq. (MHz)	Data rate (Mbps)	PSD	Limit	Margin (dB)
802.11a	36	5180	6	16.021 dBm/MHz	17 dBm/MHz	-0.98
	40	5200		16.140 dBm/MHz	17 dBm/MHz	-0.86
	48	5240		16.160 dBm/MHz	17 dBm/MHz	-0.84
	149	5745		14.764 dBm/500kHz	30 dBm/500kHz	-15.24
	157	5785		14.777 dBm/500kHz	30 dBm/500kHz	-15.22
	165	5825		14.780 dBm/500kHz	30 dBm/500kHz	-15.22
802.11n (HT20)	36	5180	6.5	16.252 dBm/MHz	17 dBm/MHz	-0.75
	40	5200		16.117 dBm/MHz	17 dBm/MHz	-0.88
	48	5240		16.131 dBm/MHz	17 dBm/MHz	-0.87
	149	5745		13.118 dBm/500kHz	30 dBm/500kHz	-16.88
	157	5785		13.069 dBm/500kHz	30 dBm/500kHz	-16.93
	165	5825		13.189 dBm/500kHz	30 dBm/500kHz	-16.81
802.11n (HT40)	38	5190	13.5	12.472 dBm/MHz	17 dBm/MHz	-4.53
	46	5230		12.954 dBm/MHz	17 dBm/MHz	-4.05
	151	5755		10.444 dBm/500kHz	30 dBm/500kHz	-19.56
	159	5795		10.005 dBm/500kHz	30 dBm/500kHz	-20.00
802.11ac (VHT80)	42	5210	29.2	9.954 dBm/MHz	17 dBm/MHz	-7.05
	155	5775		8.061 dBm/500kHz	30 dBm/500kHz	-21.94

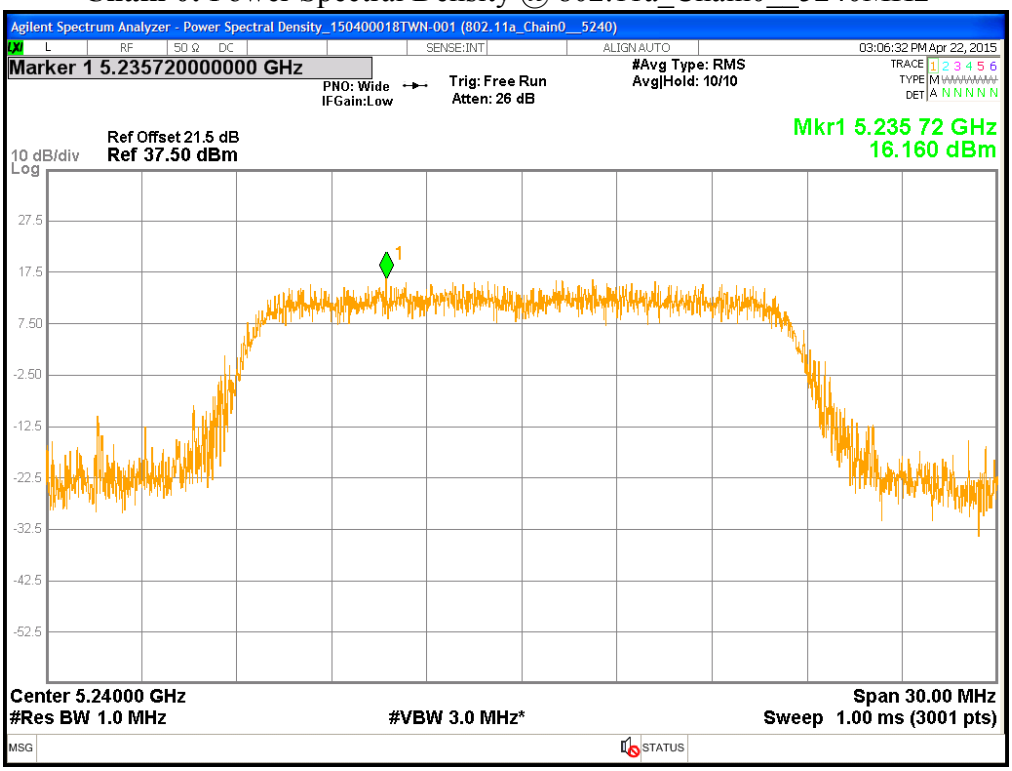
Chain 0: Power Spectral Density @ 802.11a_Chain0__5180MHz



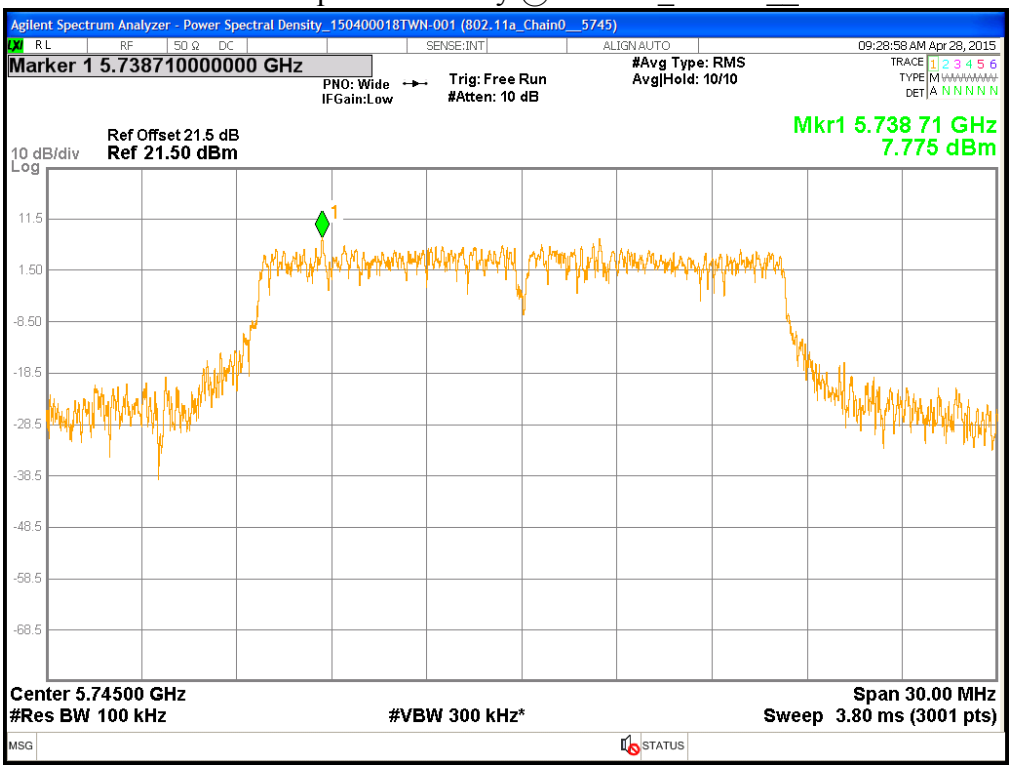
Chain 0: Power Spectral Density @ 802.11a_Chain0__5200MHz



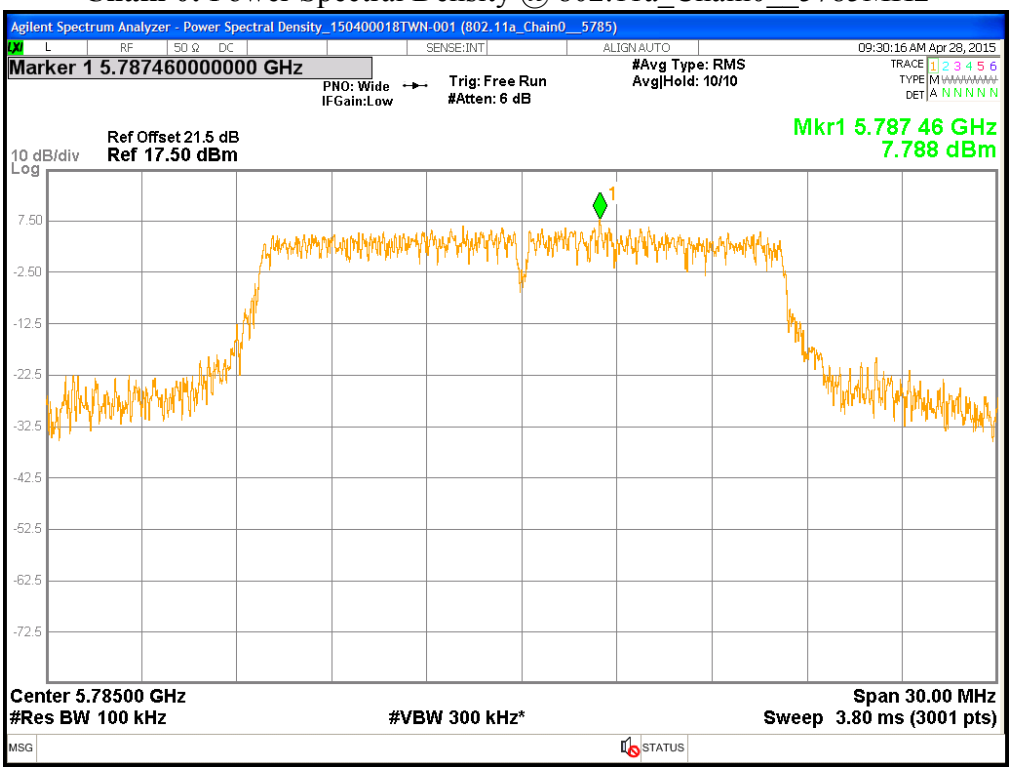
Chain 0: Power Spectral Density @ 802.11a_Chain0__5240MHz



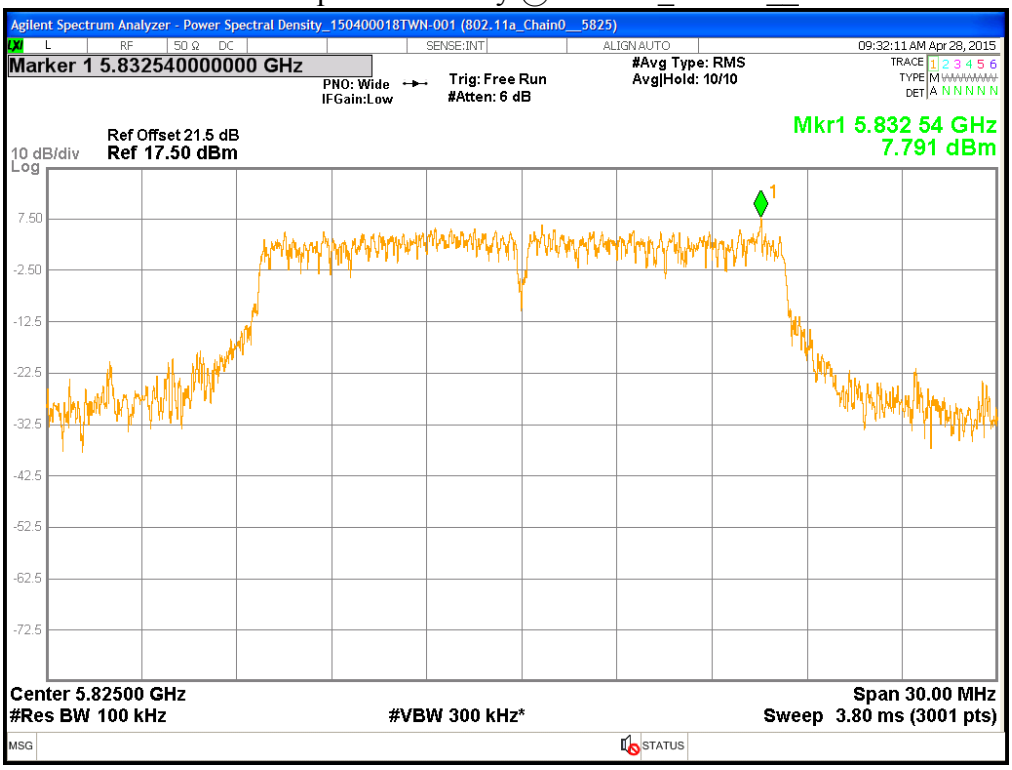
Chain 0: Power Spectral Density @ 802.11a_Chain0__5745MHz



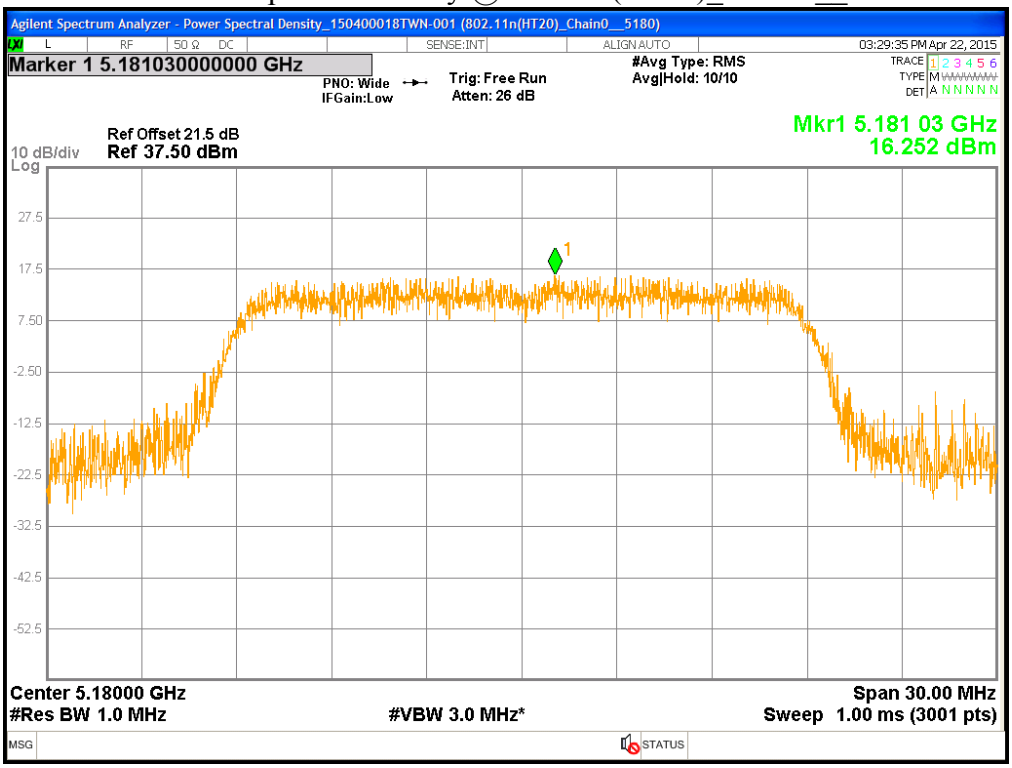
Chain 0: Power Spectral Density @ 802.11a_Chain0__5785MHz



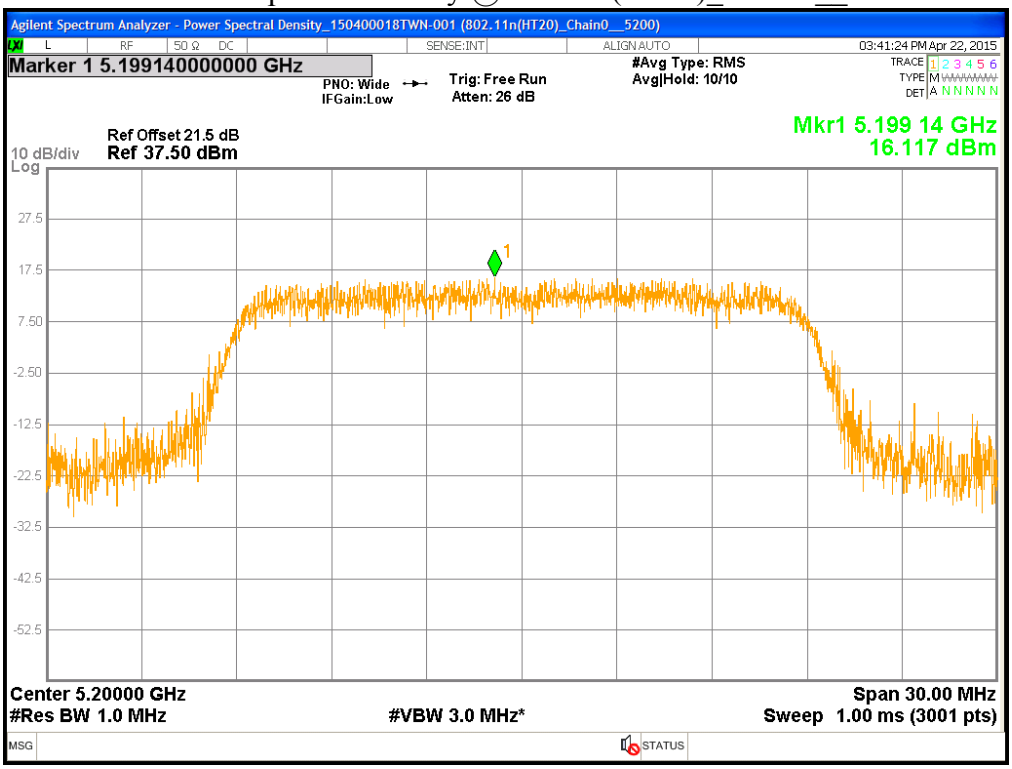
Chain 0: Power Spectral Density @ 802.11a_Chain0__5825MHz



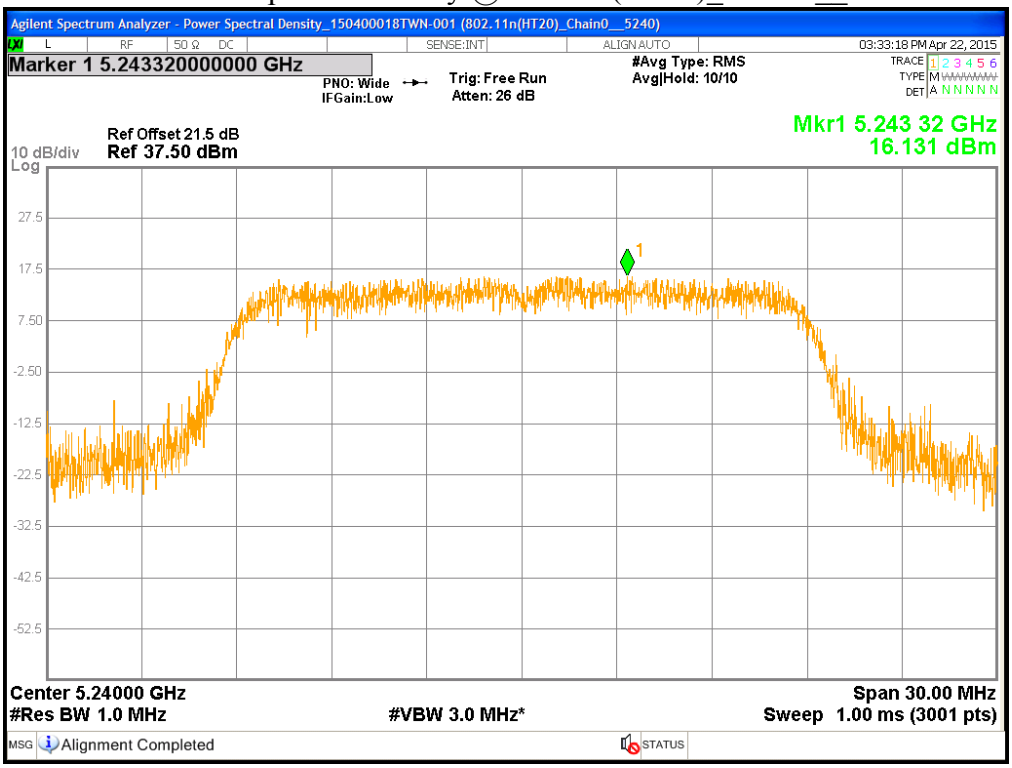
Chain 0: Power Spectral Density @ 802.11n(HT20)_Chain0__5180MHz



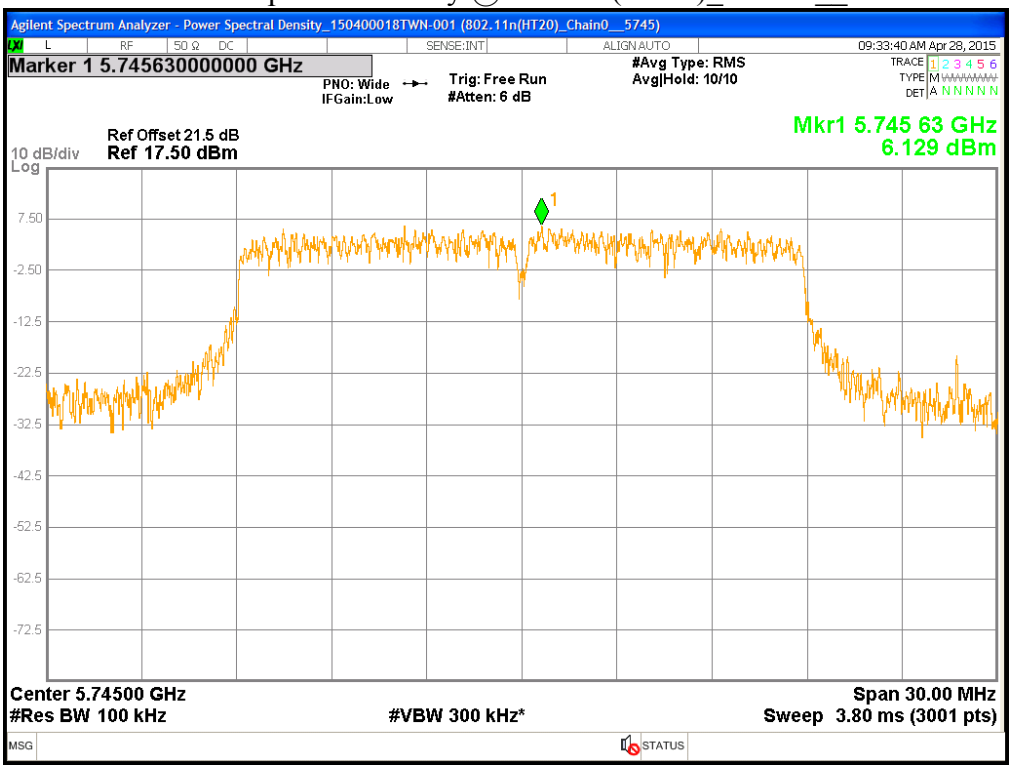
Chain 0: Power Spectral Density @ 802.11n(HT20)_Chain0__5200MHz



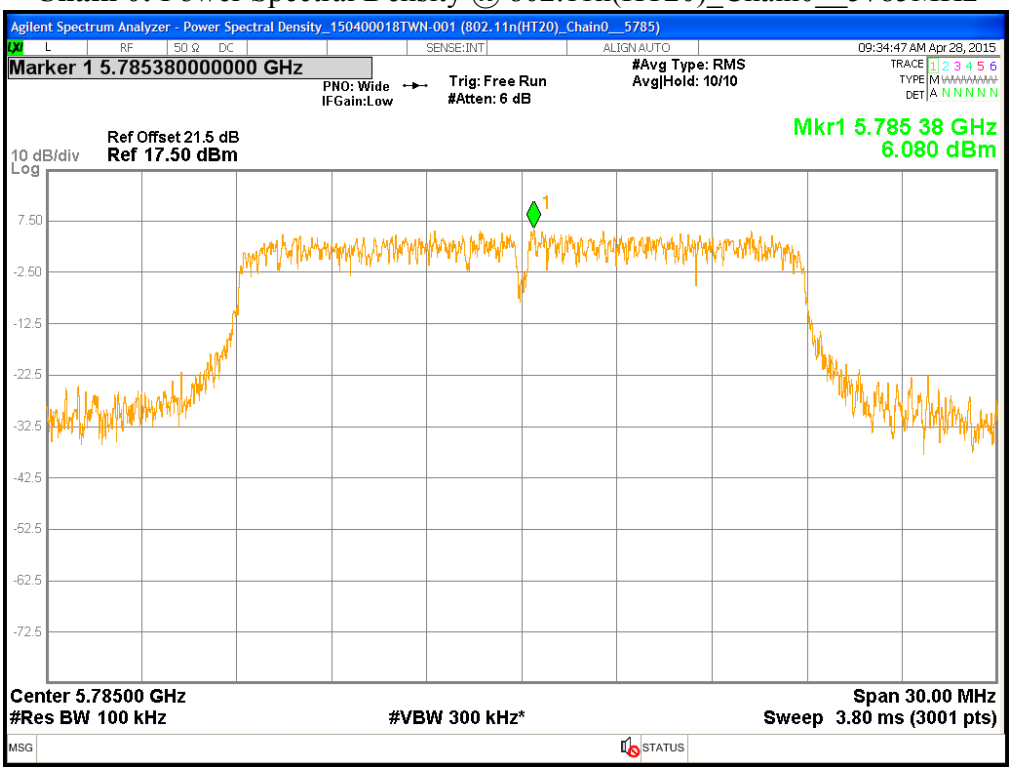
Chain 0: Power Spectral Density @ 802.11n(HT20)_Chain0__5240MHz



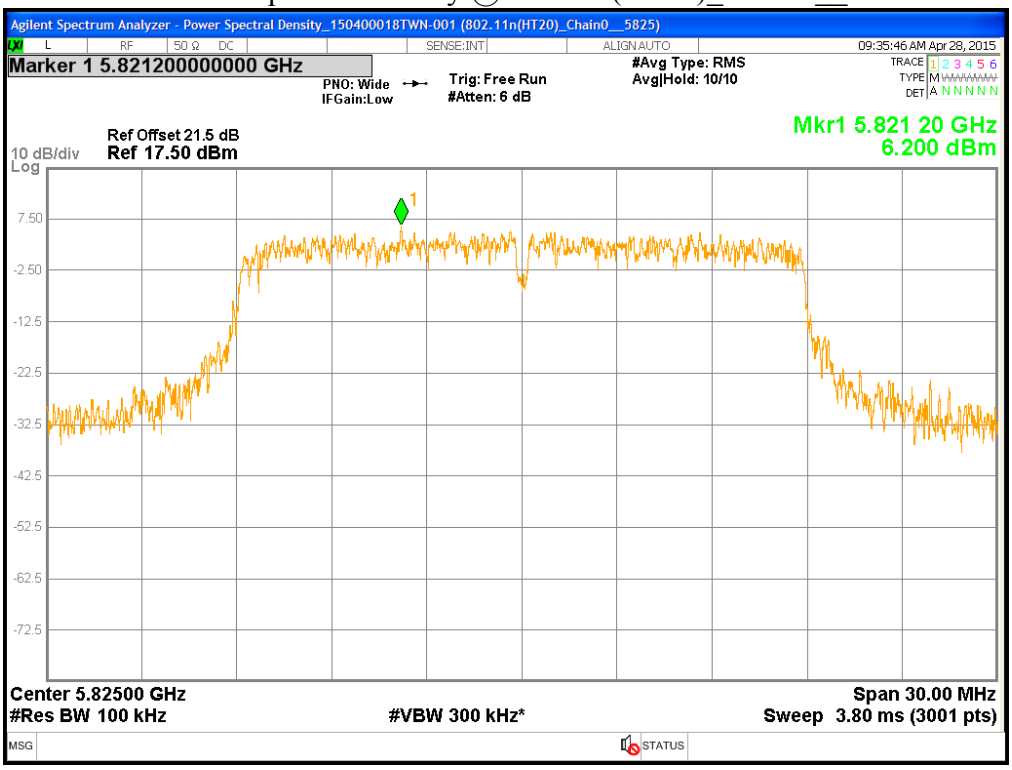
Chain 0: Power Spectral Density @ 802.11n(HT20)_Chain0__5745MHz



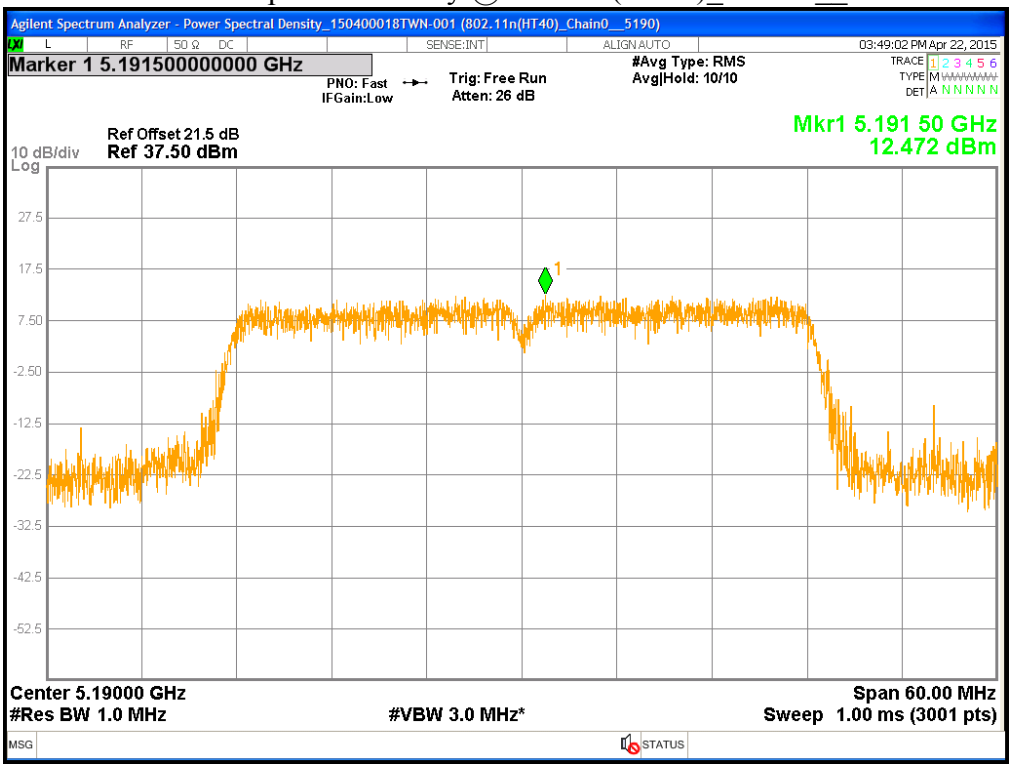
Chain 0: Power Spectral Density @ 802.11n(HT20)_Chain0__5785MHz



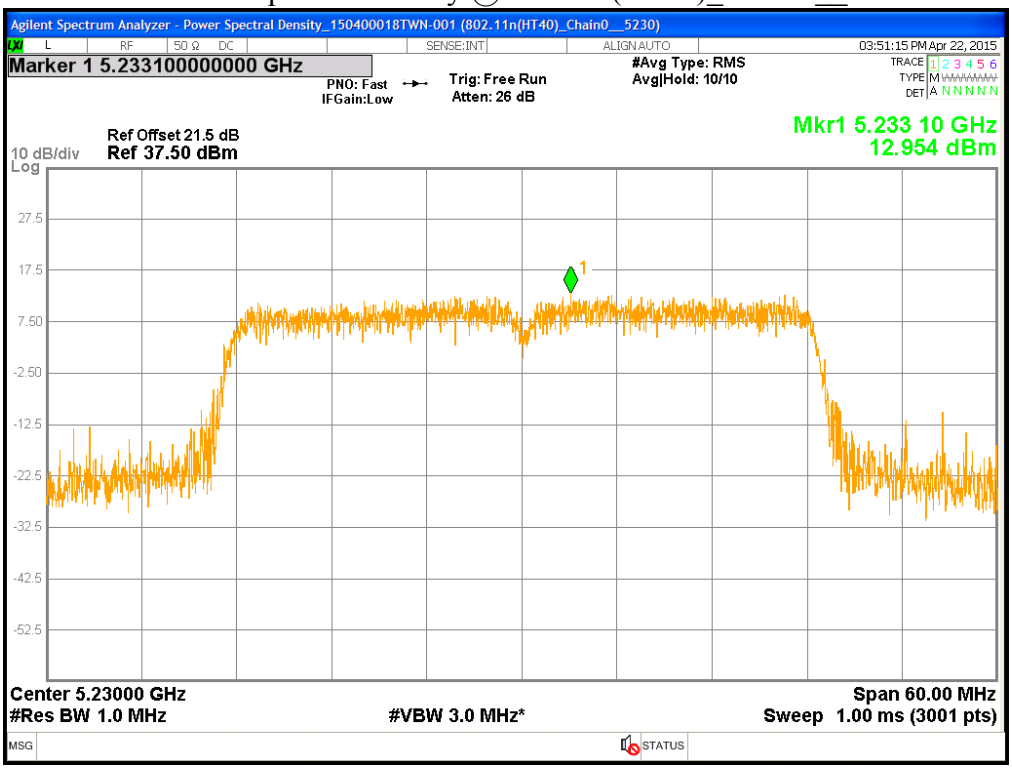
Chain 0: Power Spectral Density @ 802.11n(HT20)_Chain0__5825MHz



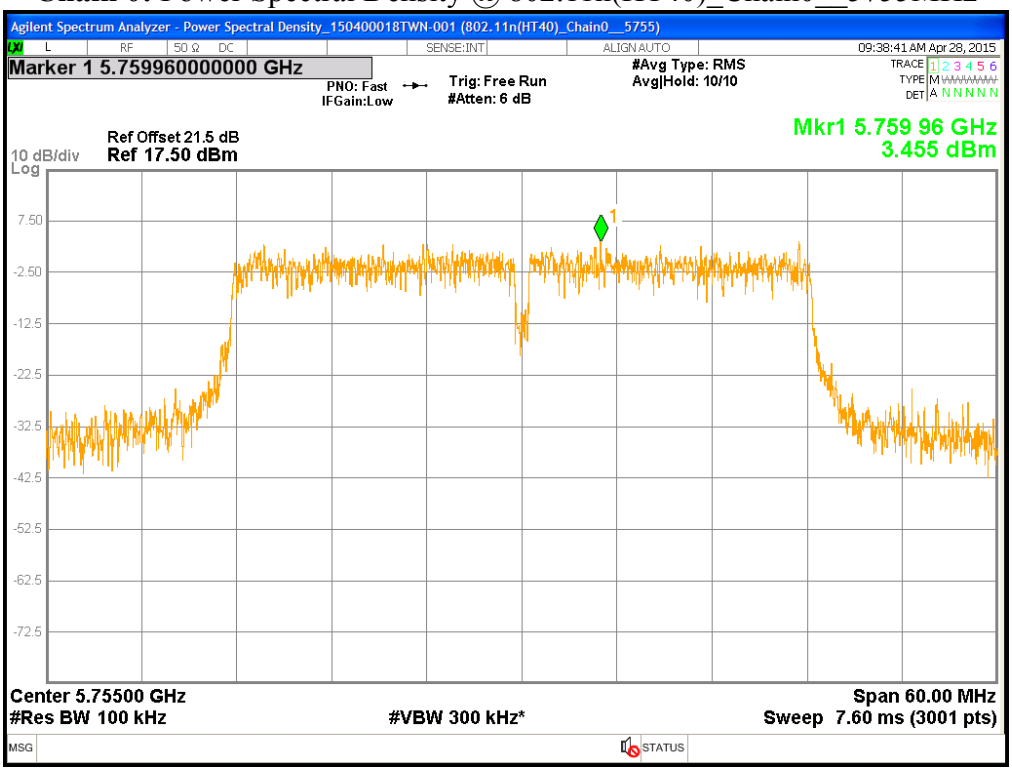
Chain 0: Power Spectral Density @ 802.11n(HT40)_Chain0__5190MHz



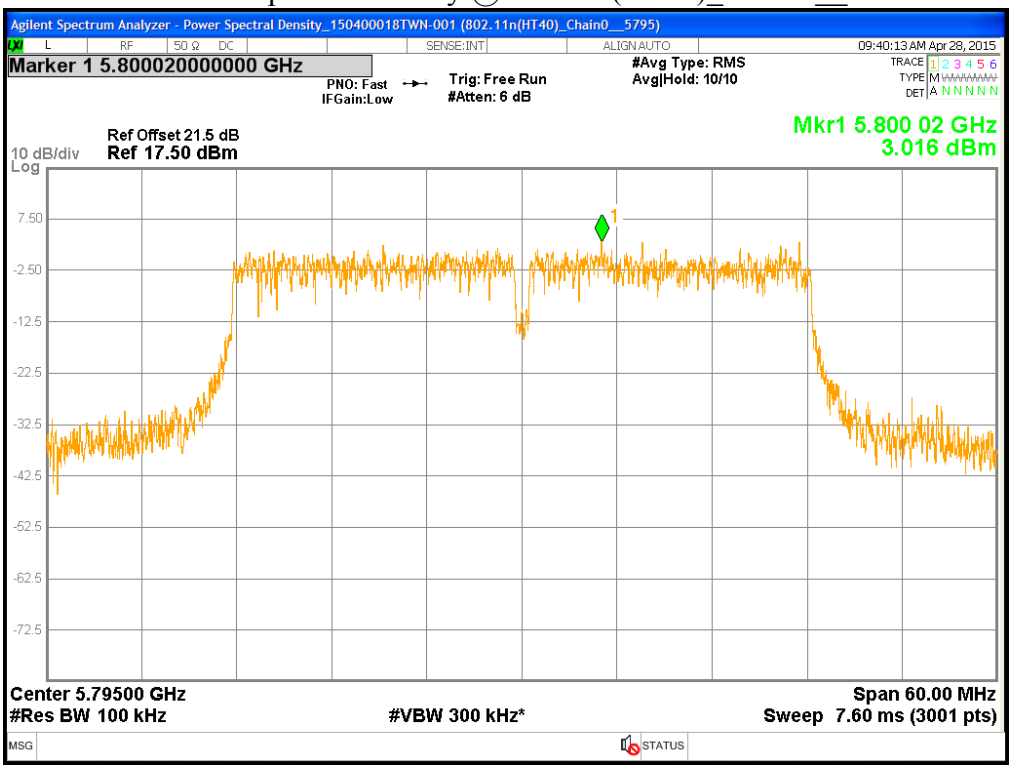
Chain 0: Power Spectral Density @ 802.11n(HT40)_Chain0__5230MHz



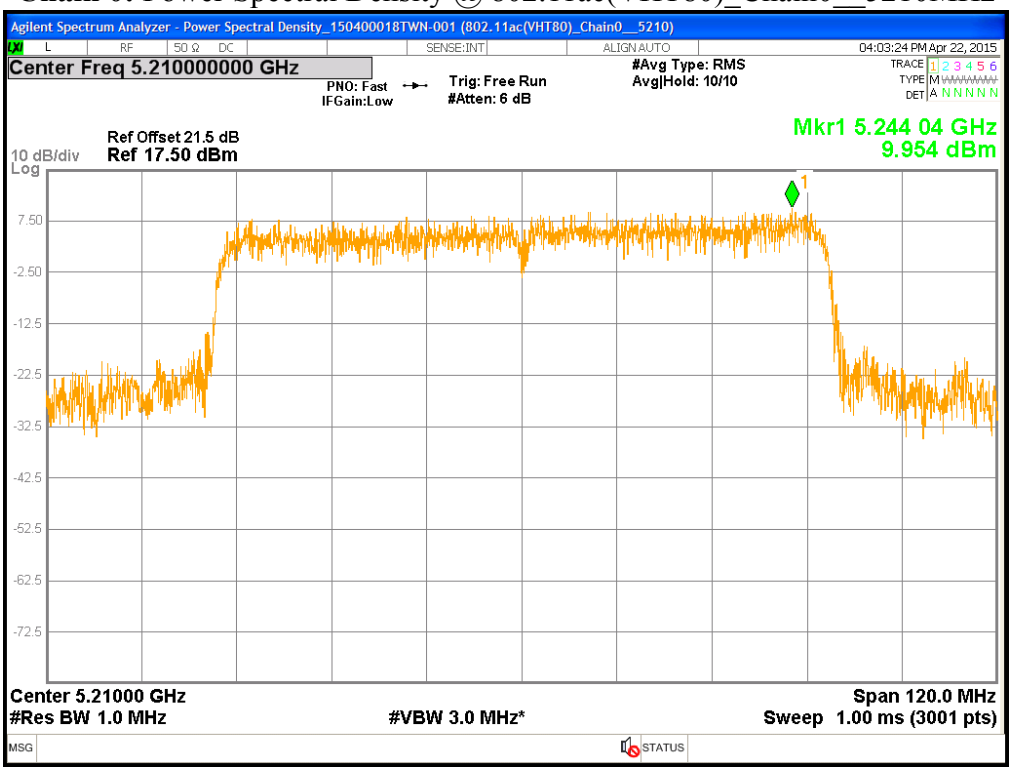
Chain 0: Power Spectral Density @ 802.11n(HT40)_Chain0__5755MHz



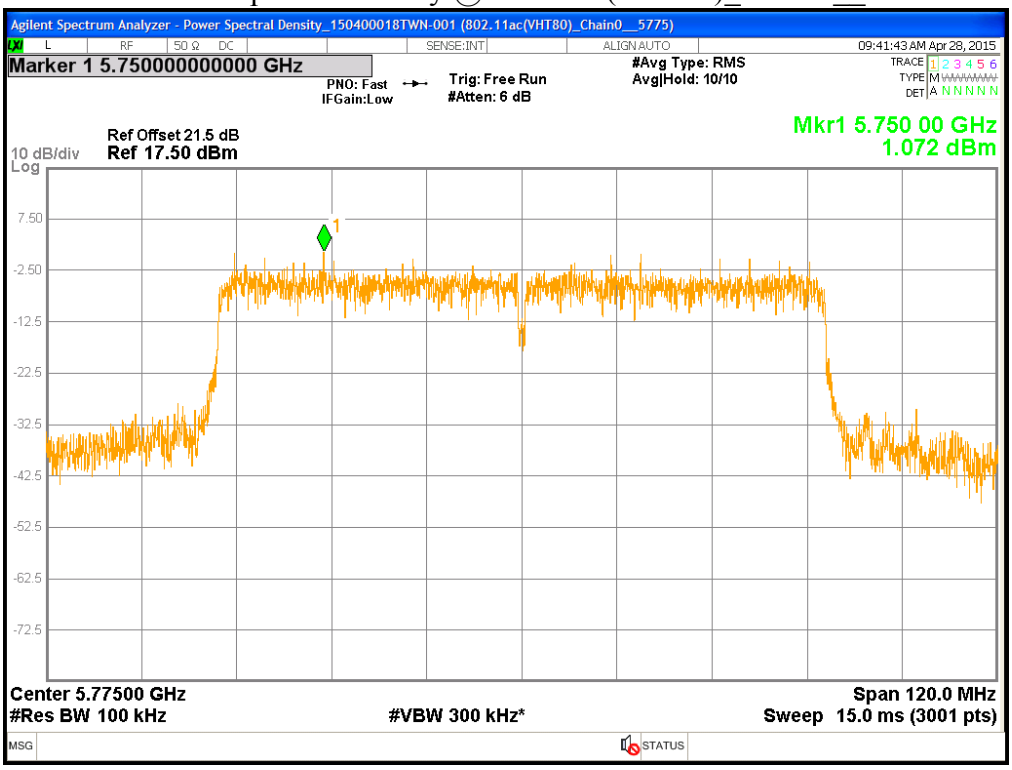
Chain 0: Power Spectral Density @ 802.11n(HT40)_Chain0__5795MHz



Chain 0: Power Spectral Density @ 802.11ac(VHT80)_Chain0__5210MHz



Chain 0: Power Spectral Density @ 802.11ac(VHT80)_Chain0__5775MHz



5. Minimum Bandwidth

5.1 Operating environment

Temperature:	25	℃
Relative Humidity:	50	%
Atmospheric Pressure	1008	hPa
Requirement & Test method	15.407(a)(5) 15.407(e) KDB 789033 D02 v01	

5.2 Limit for minimum emission bandwidth.

Within the 5.15-5.25 GHz, the 26 dB bandwidth is for reporting purpose only.
Within the 5.725-5.85 GHz, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

5.3 Measuring instrument setting

For 5.15-5.25 GHz

Spectrum analyzer settings	
Spectrum Analyzer function	**Setting**
Detector	Peak
RBW	Approximately 1% of the EBW
VBW	> RBW
Trace mode	Max hold

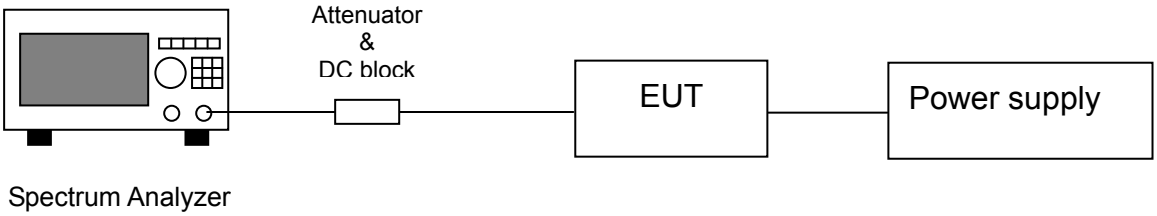
For 5.725-5.85 GHz

Spectrum analyzer settings	
Spectrum Analyzer function	**Setting**
Detector	Peak
RBW	100kHz
VBW	≧3 x RBW
Sweep	Auto couple
Trace mode	Max hold

5.4 Test procedure

1. The transmitter output was connected to the spectrum analyzer.
2. Test was performed in accordance with section C of KDB 789033 D02 v01.
3. For the 5.725-5.85 GHz, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
4. For the 5.15-5.25 GHz and 5.725-5.85 GHz, measure the maximum width of the emission that is 26 dB down from the maximum of the emission.

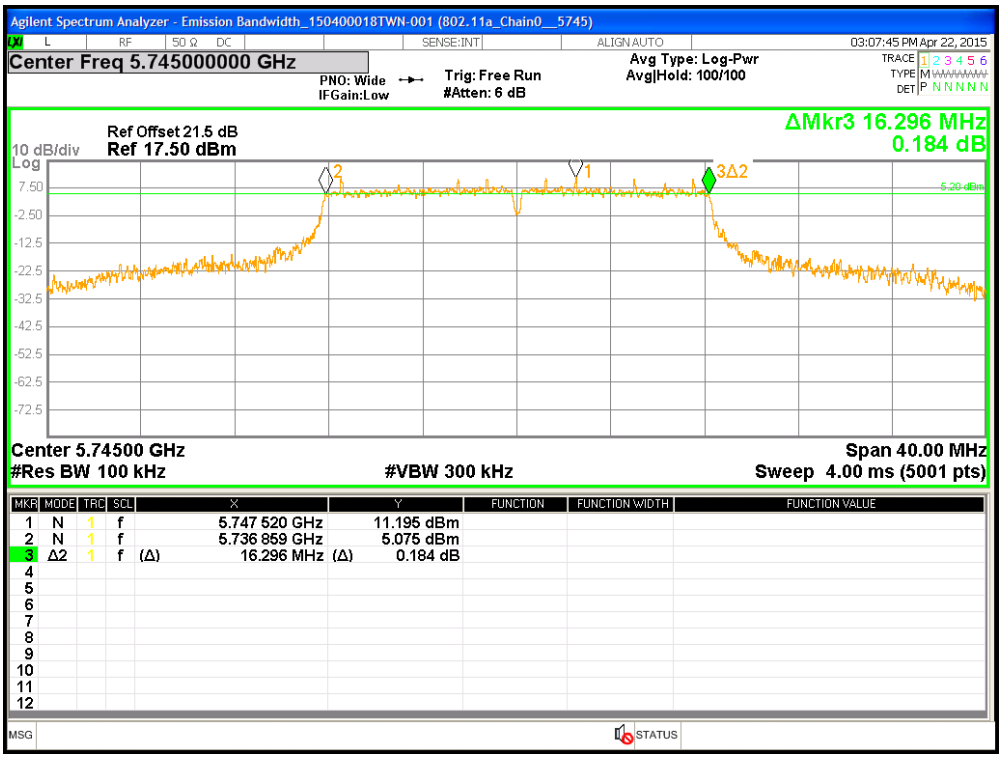
5.5 Test diagram



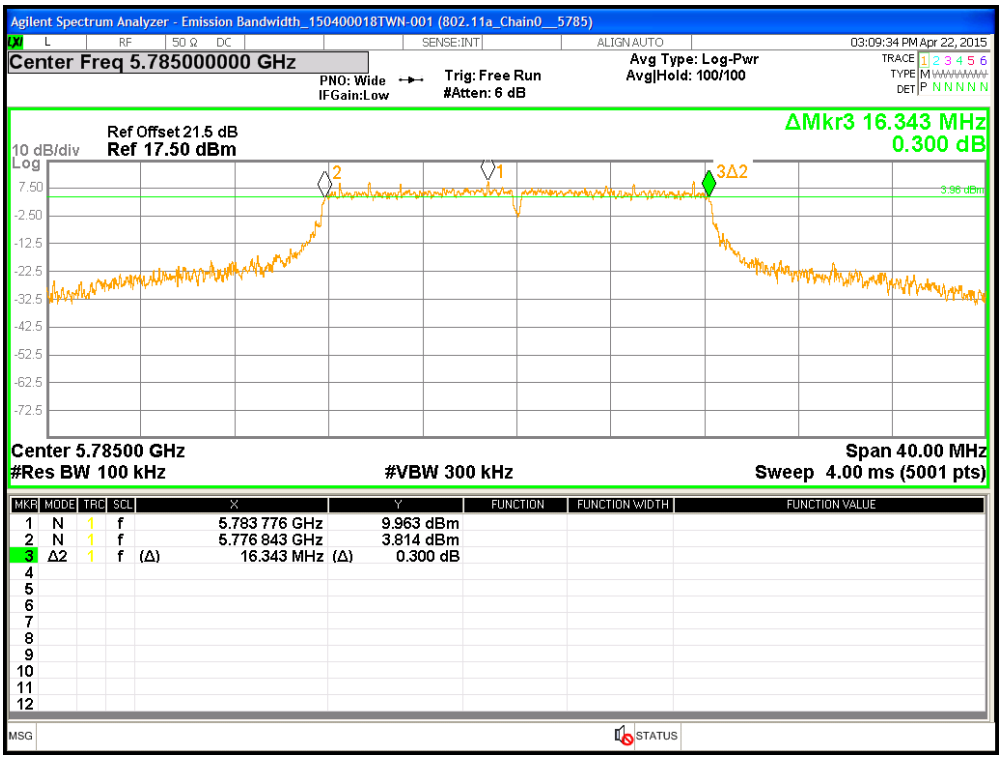
5.6 Test results

Mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	26dB Bandwidth (MHz)	6dB Bandwidth Limit (MHz)	Pass/Fail
802.11a	36	5180		30.24	N/A	N/A
	40	5200		26.19		
	48	5240		25.19		
	149	5745	16.296	22.96	0.5	Pass
	157	5785	16.343	25.37	0.5	Pass
	165	5825	16.332	19.76	0.5	Pass
802.11n (HT 20)	36	5180		20.8	N/A	N/A
	40	5200		23.42		
	48	5240		20.64		
	149	5745	16.876	22.84	0.5	Pass
	157	5785	16.971	20.54	0.5	Pass
	165	5825	16.87	20.52	0.5	Pass
802.11n (HT 40)	38	5190		56.46	N/A	N/A
	46	5230		40.84		
	151	5755	35.373	61.97	0.5	Pass
	159	5795	35.59	40.26	0.5	Pass
802.11ac (VHT80)	42	5210		81.55	N/A	N/A
	155	5775	75.179	82.8	0.5	Pass

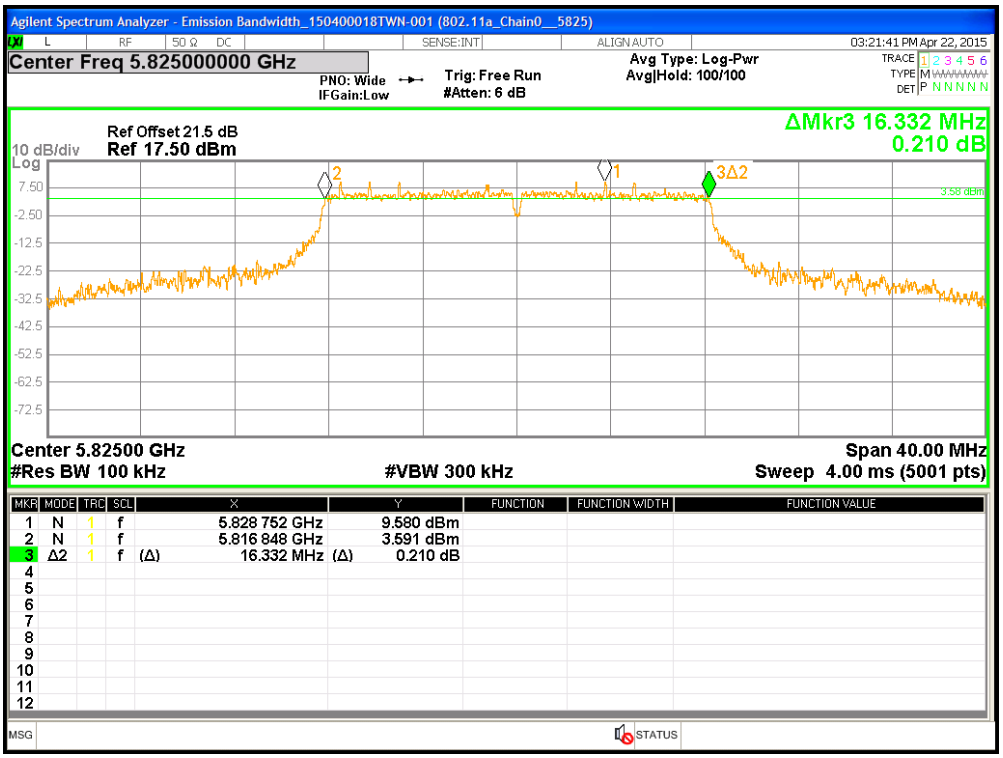
Chain0 : Emission Bandwidth @ 802.11a Ch149_5745MHz



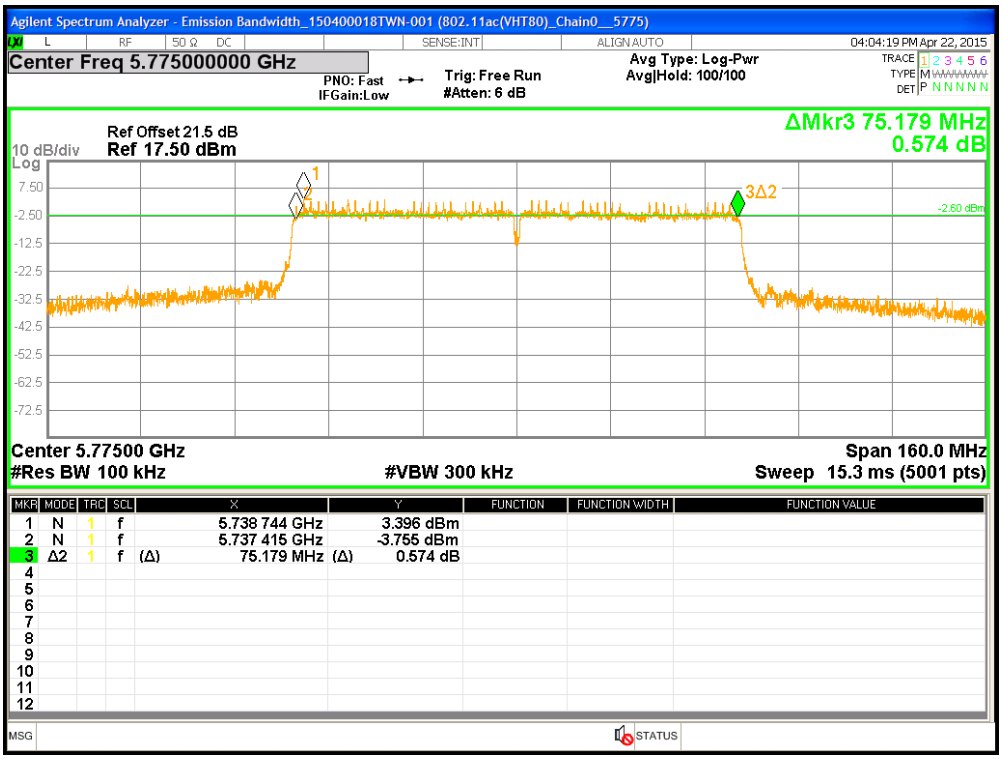
Chain0 : Emission Bandwidth @ 802.11a Ch157_5785MHz



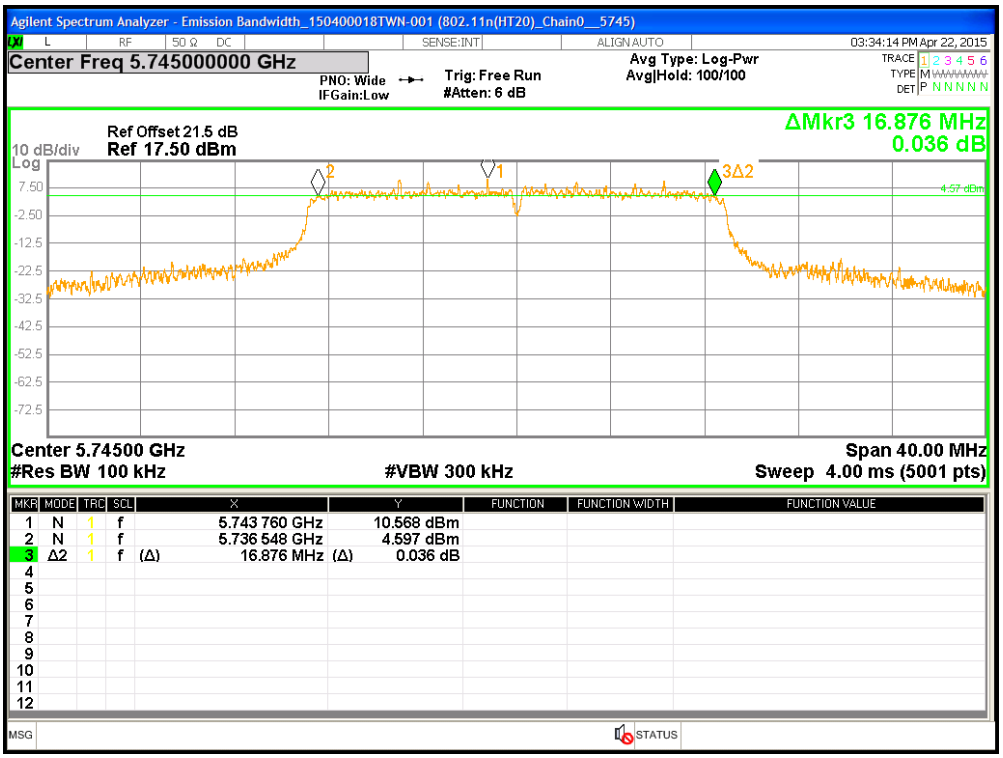
Chain0 : Emission Bandwidth @ 802.11a Ch165_5825MHz



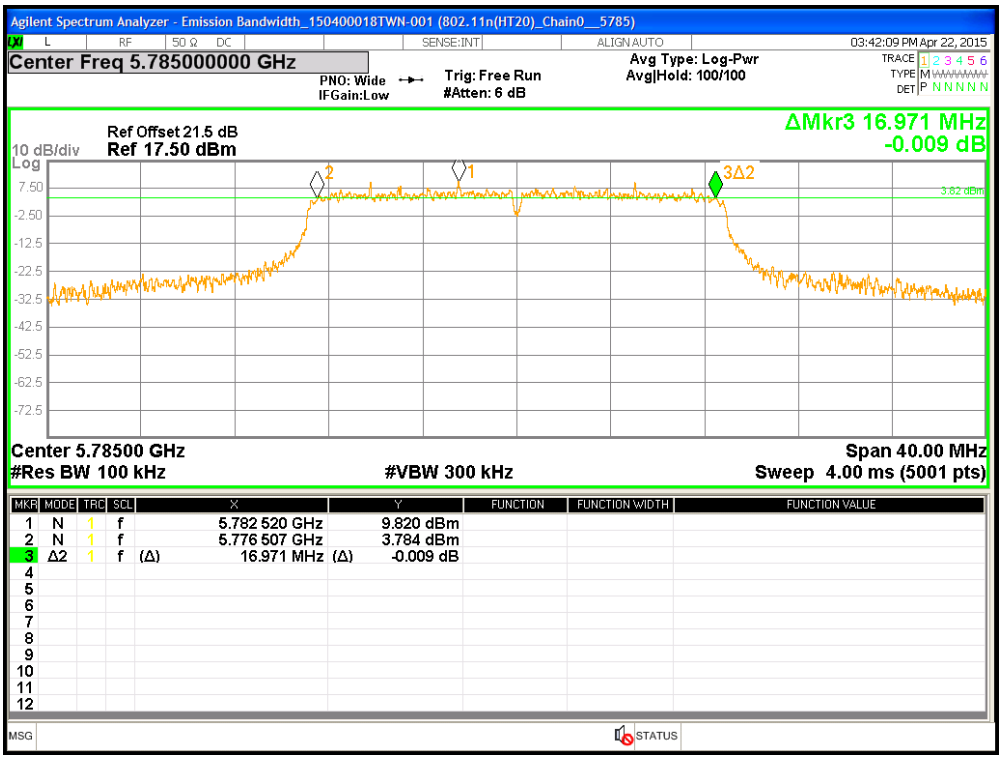
Chain0 : Emission Bandwidth @ 802.11ac(VHT80) Ch155_5775MHz



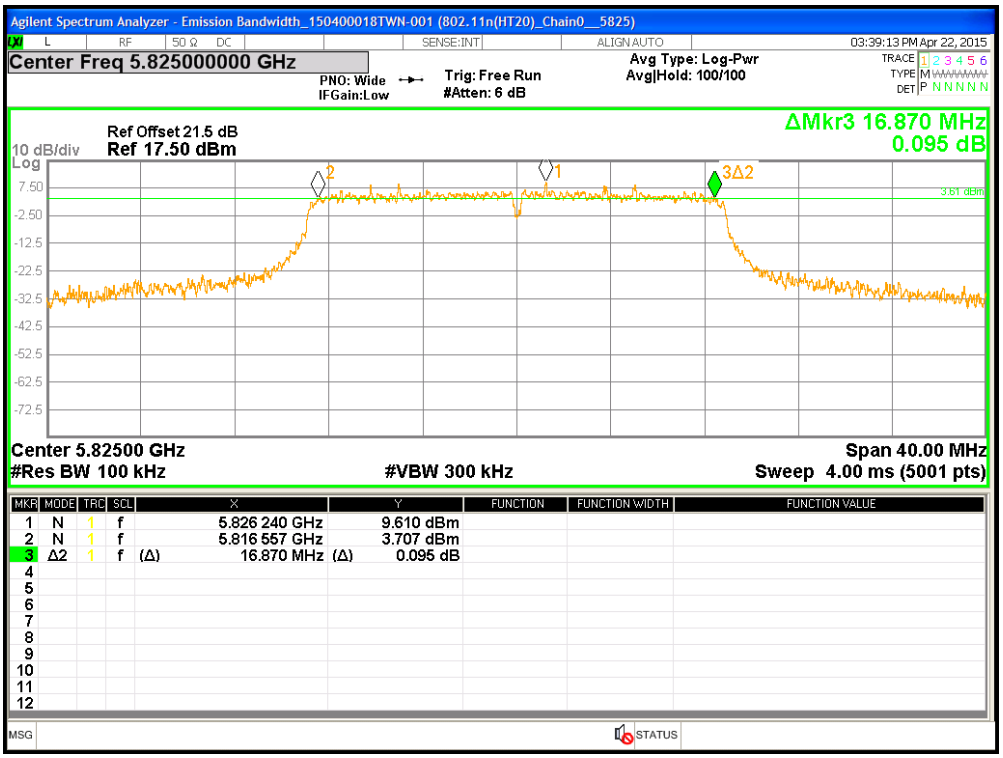
Chain0 : Emission Bandwidth @ 802.11n(HT20) Ch149_5745MHz



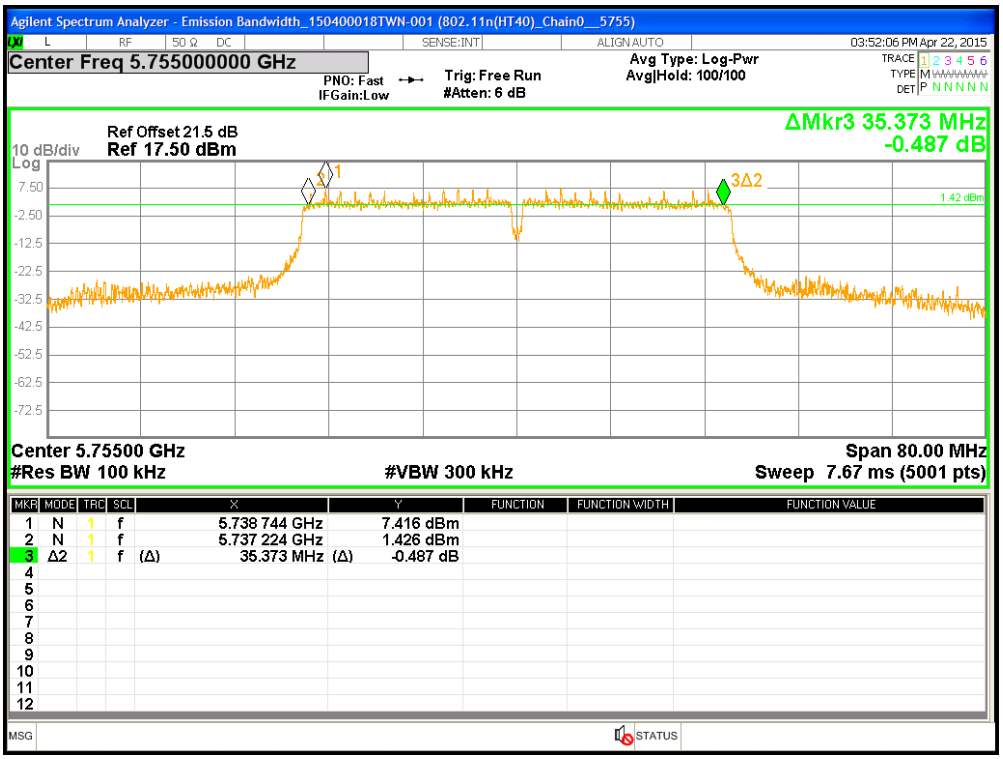
Chain0 : Emission Bandwidth @ 802.11n(HT20) Ch157_5785MHz



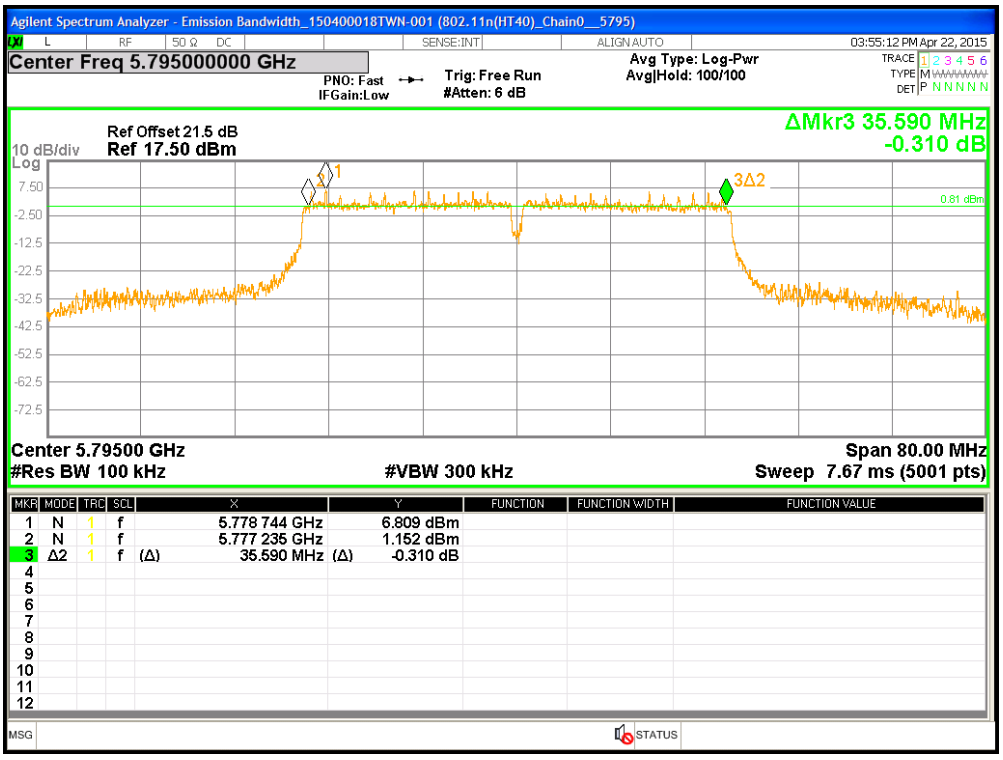
Chain0 : Emission Bandwidth @ 802.11n(HT20) Ch165_5825MHz



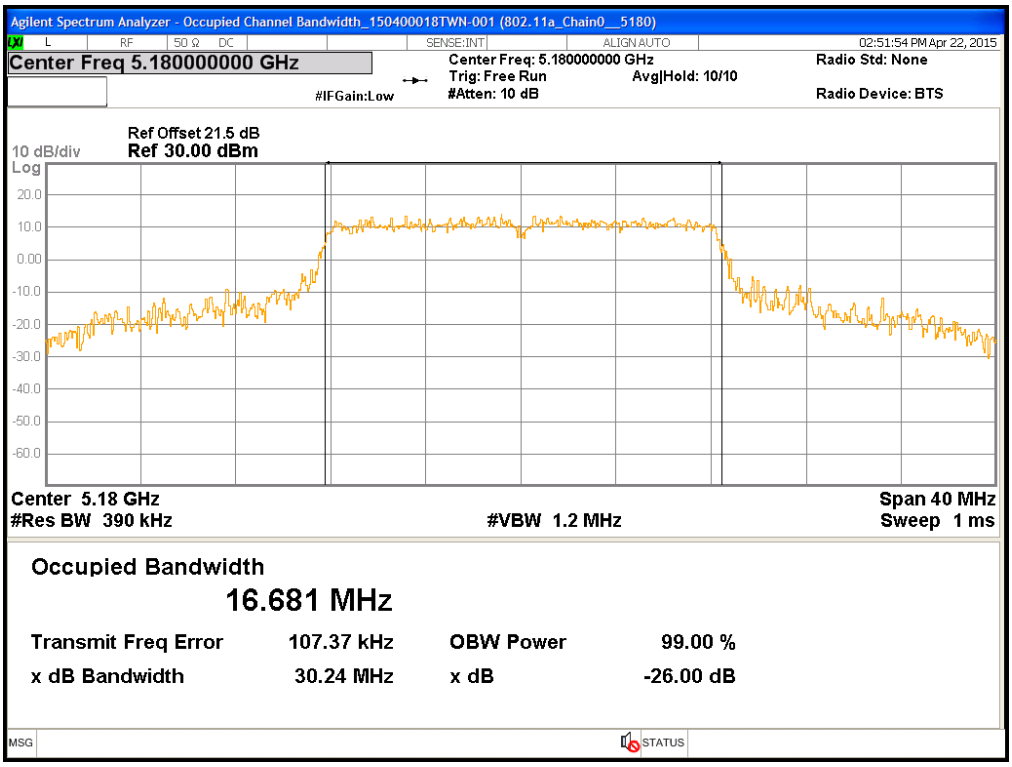
Chain0 : Emission Bandwidth @ 802.11n(HT40) Ch151_5755MHz



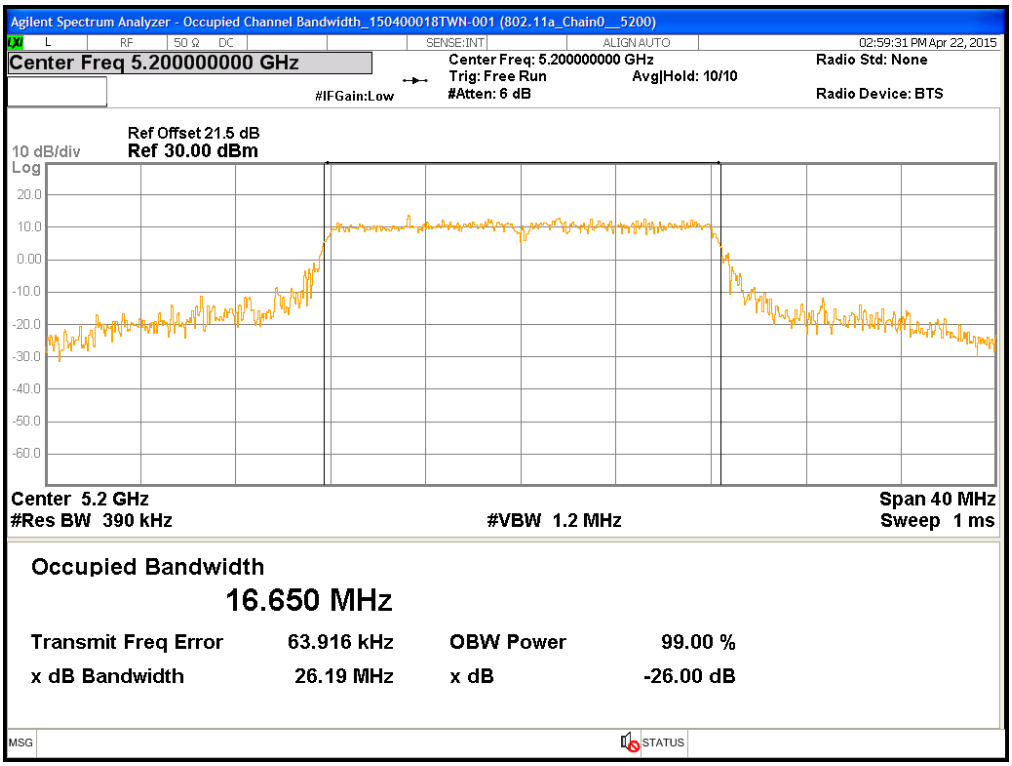
Chain0 : Emission Bandwidth @ 802.11n(HT40) Ch159_5795MHz



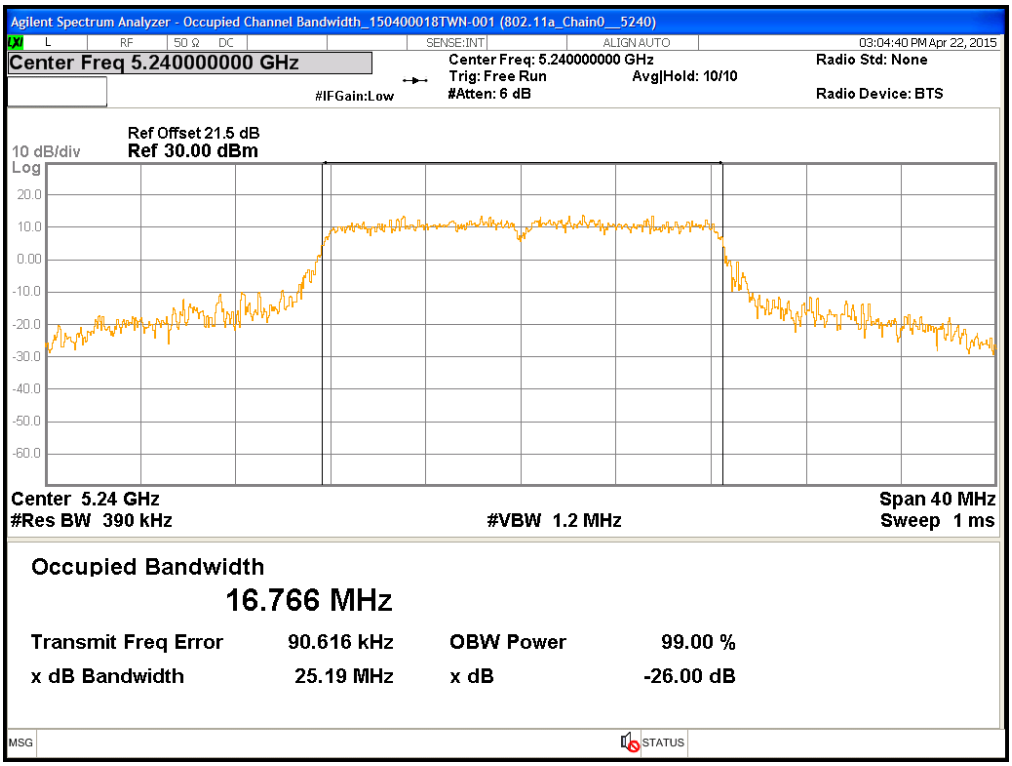
Chain0: 26dB Emission Bandwidth @ 802.11a_Chain0__5180MHz



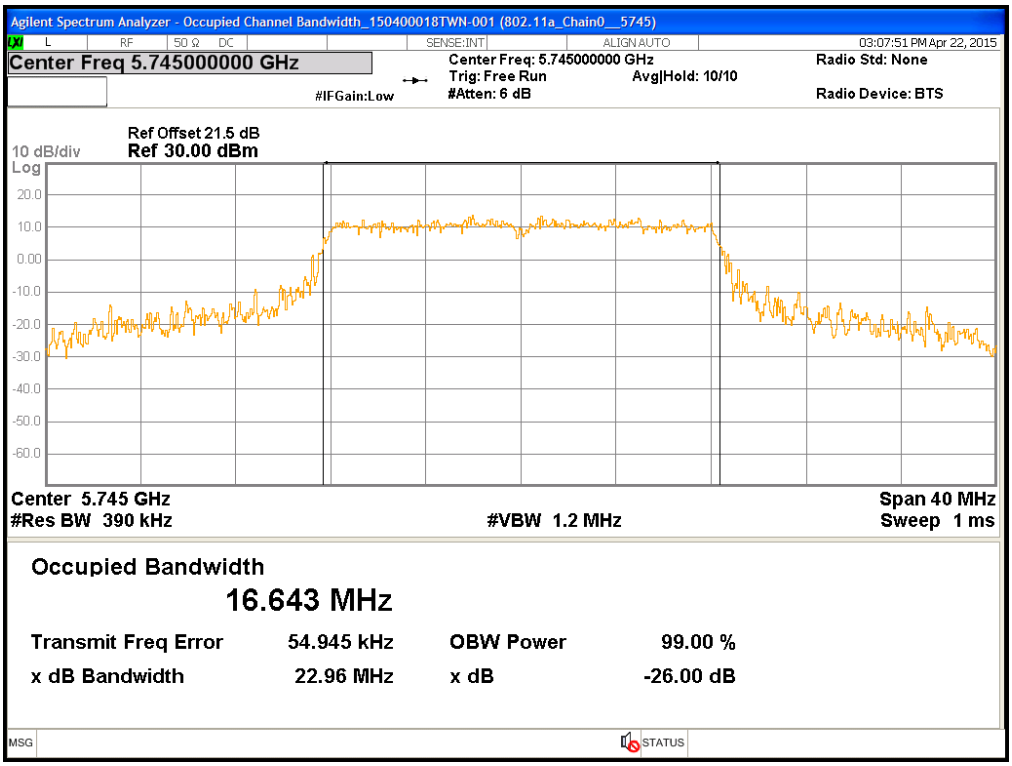
Chain0: 26dB Emission Bandwidth @ 802.11a_Chain0__5200MHz



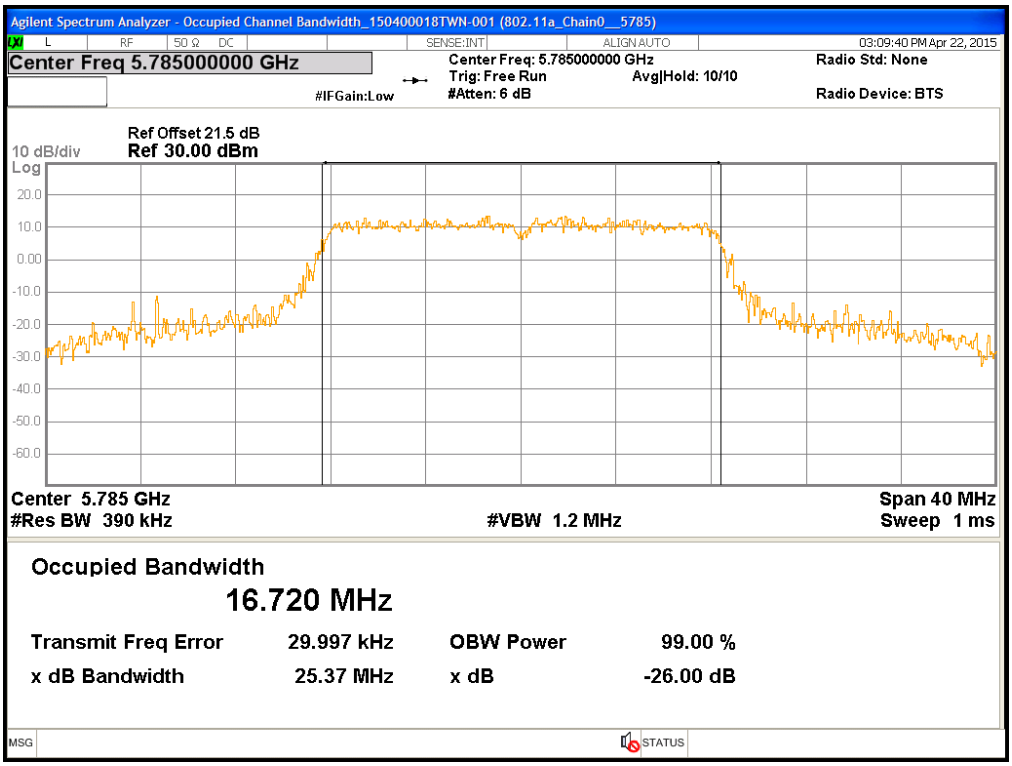
Chain0: 26dB Emission Bandwidth @ 802.11a_Chain0__5240MHz



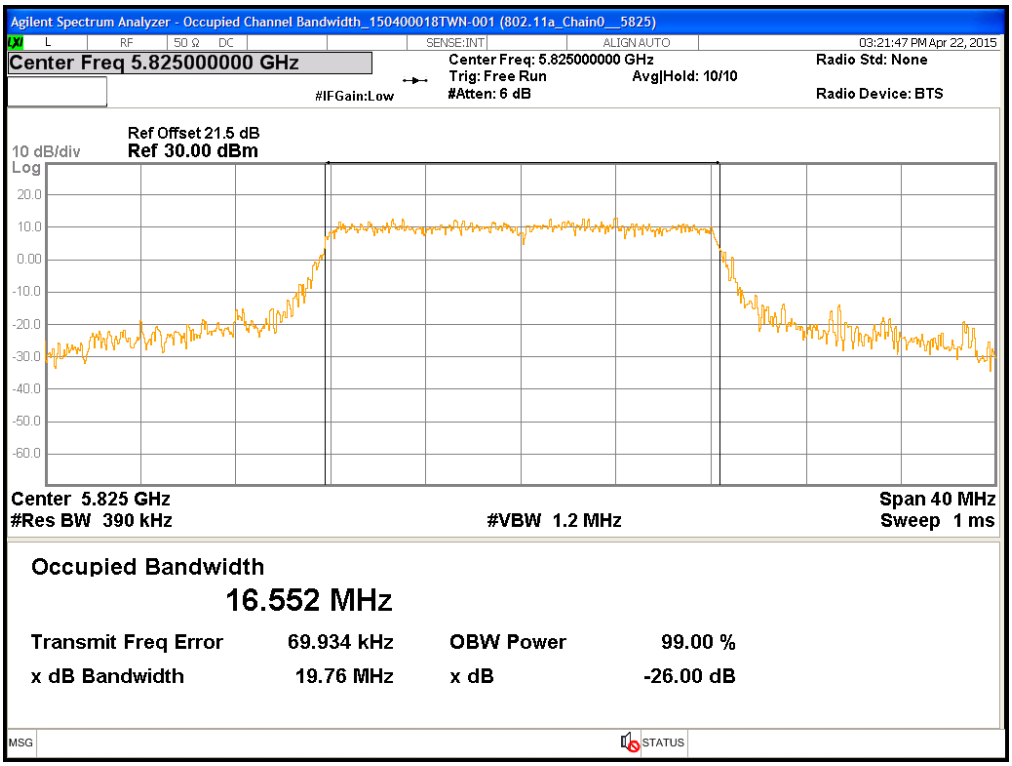
Chain0: 26dB Emission Bandwidth @ 802.11a_Chain0__5745MHz



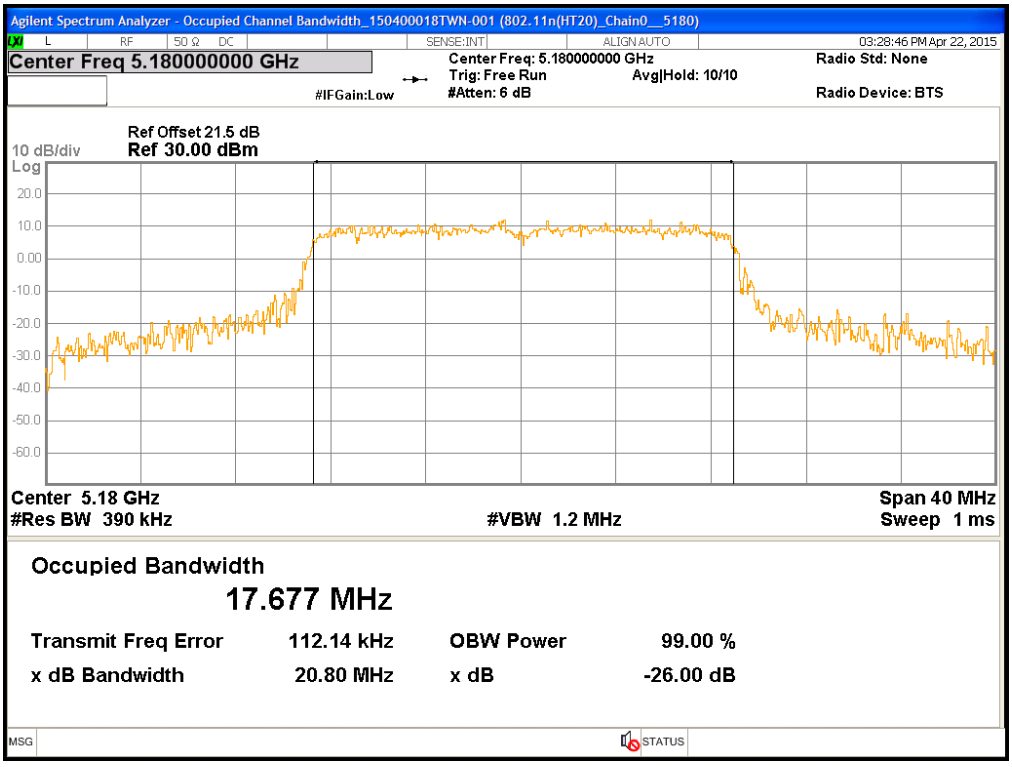
Chain0: 26dB Emission Bandwidth @ 802.11a_Chain0__5785MHz



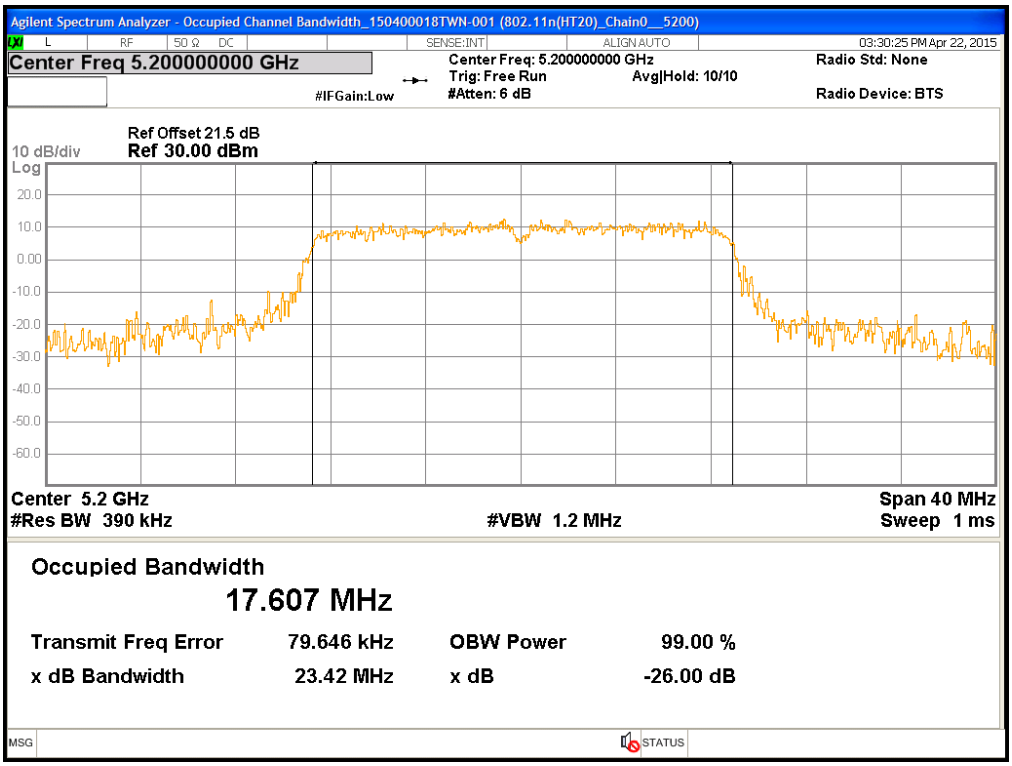
Chain0: 26dB Emission Bandwidth @ 802.11a_Chain0__5825MHz



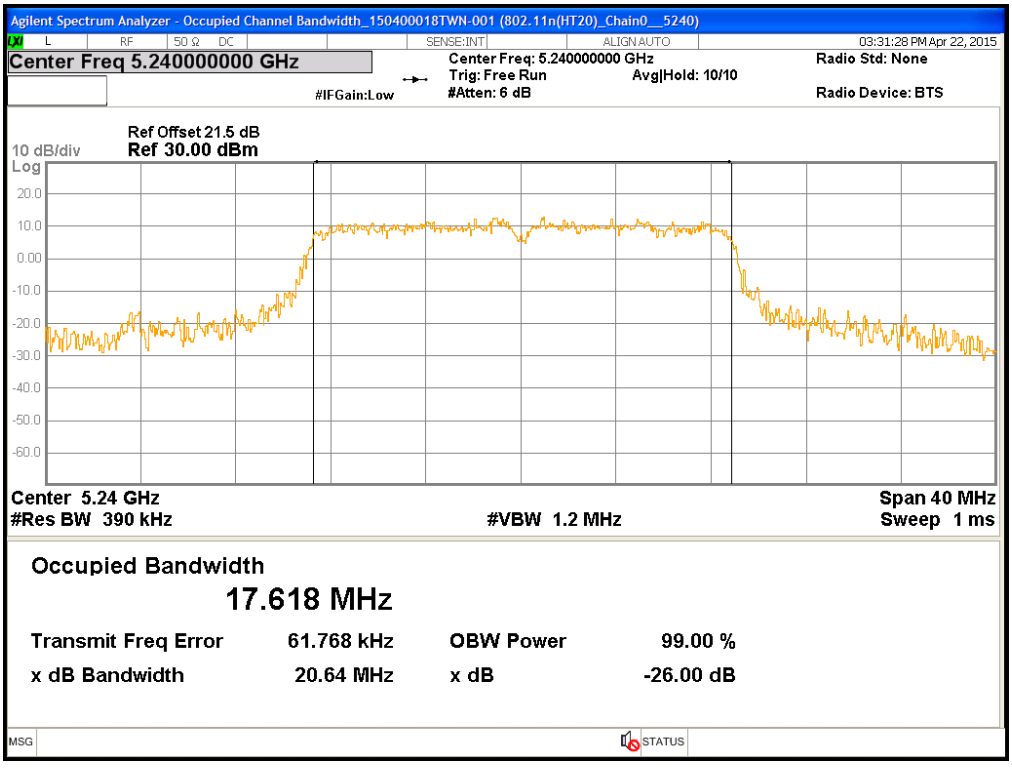
Chain0: 26dB Emission Bandwidth @ 802.11n(HT20)_Chain0__5180MHz



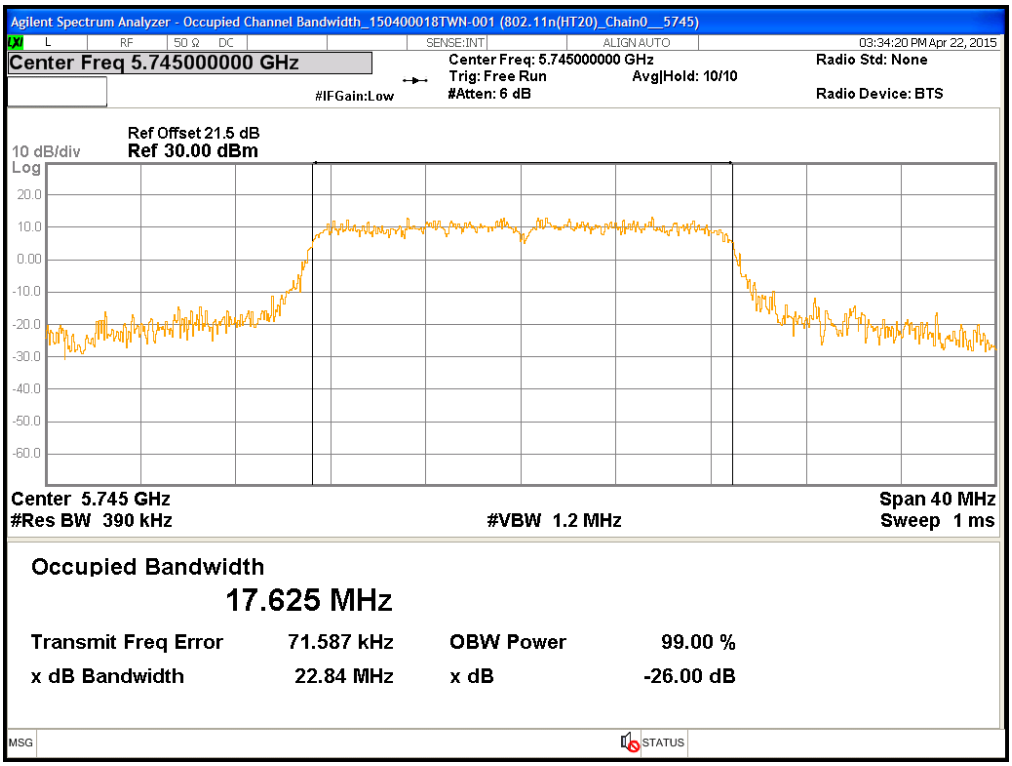
Chain0: 26dB Emission Bandwidth @ 802.11n(HT20)_Chain0__5200MHz



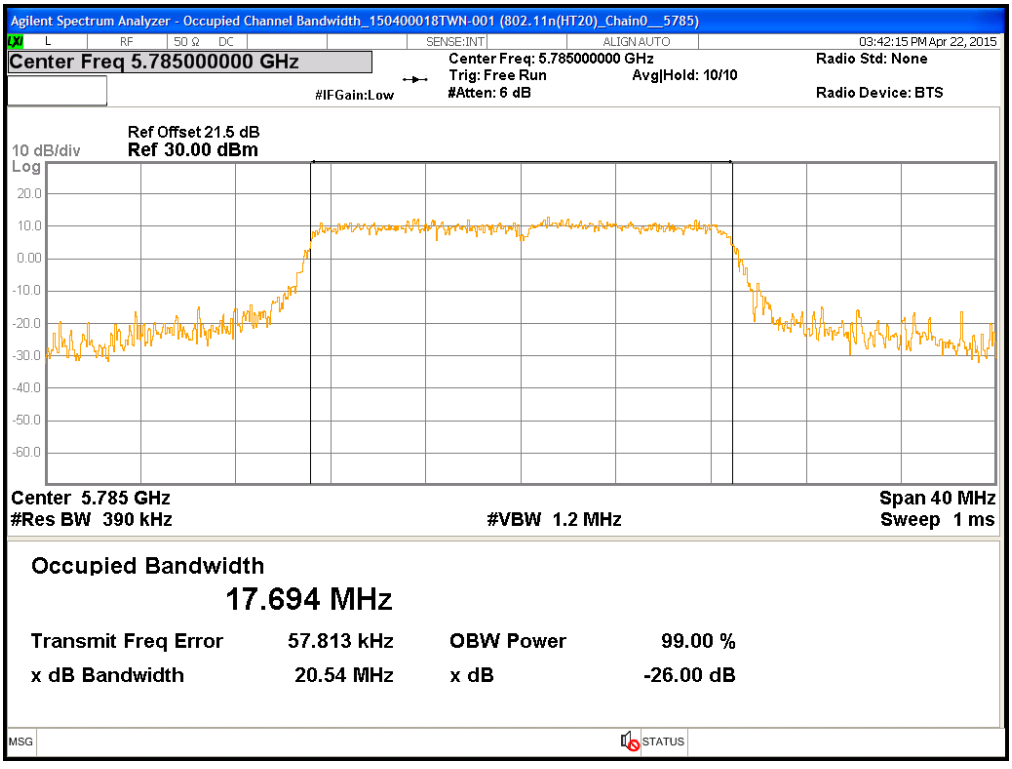
Chain0: 26dB Emission Bandwidth @ 802.11n(HT20)_Chain0__5240MHz



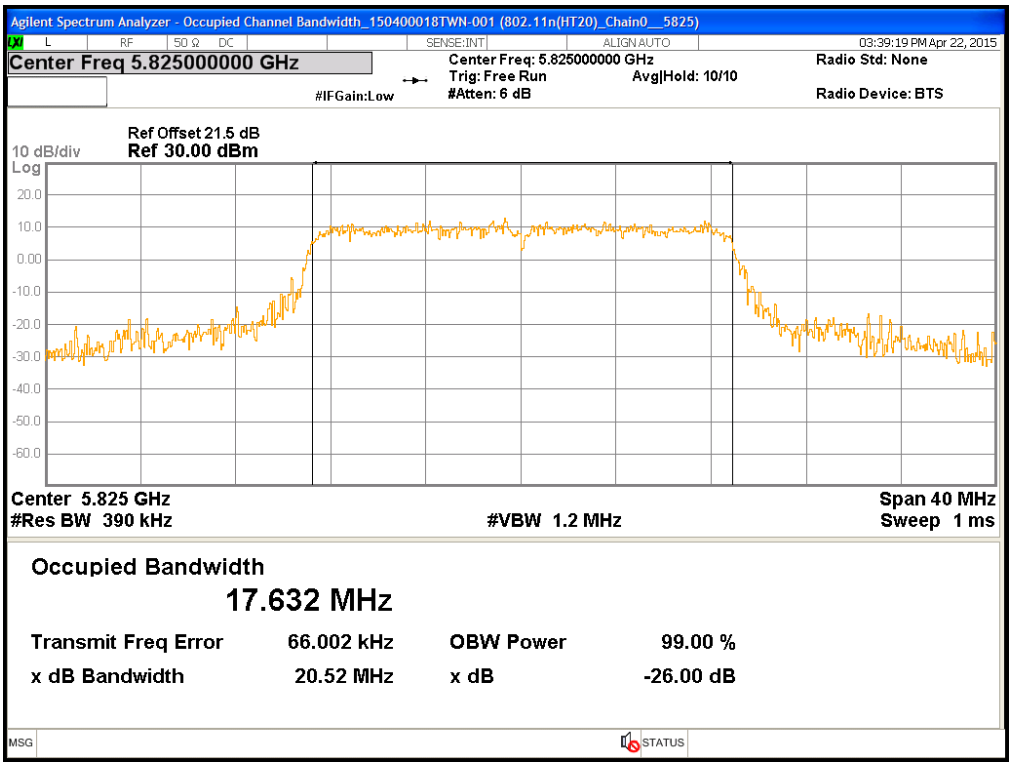
Chain0: 26dB Emission Bandwidth @ 802.11n(HT20)_Chain0__5745 MHz



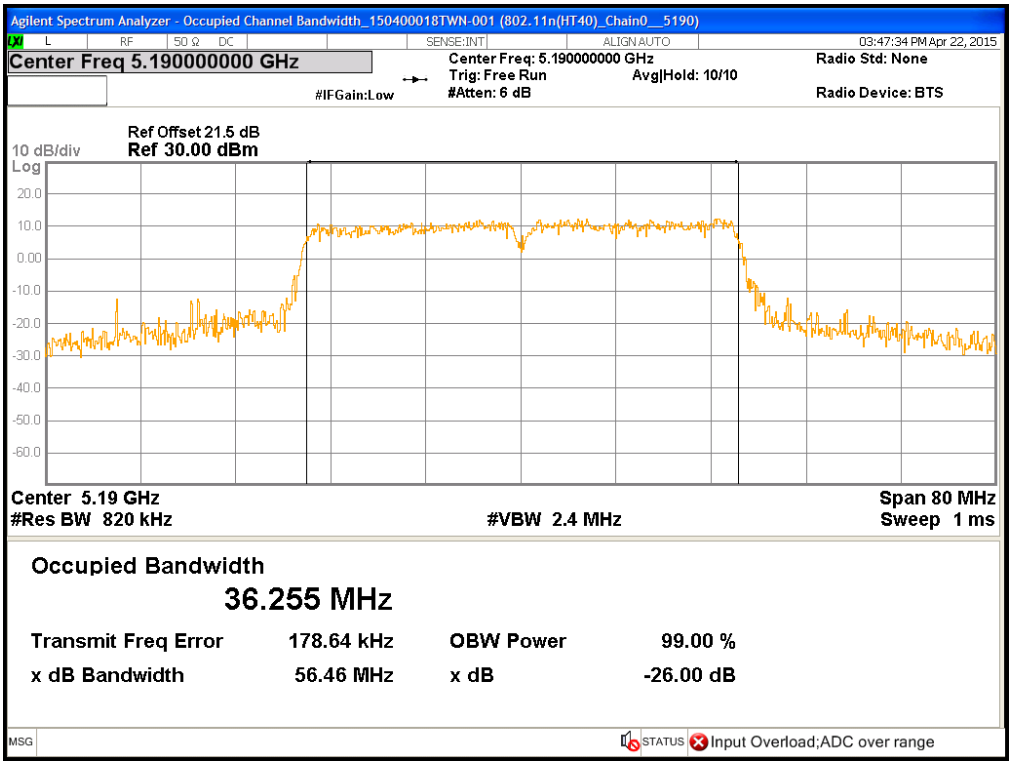
Chain0: 26dB Emission Bandwidth @ 802.11n(HT20)_Chain0__5785 MHz



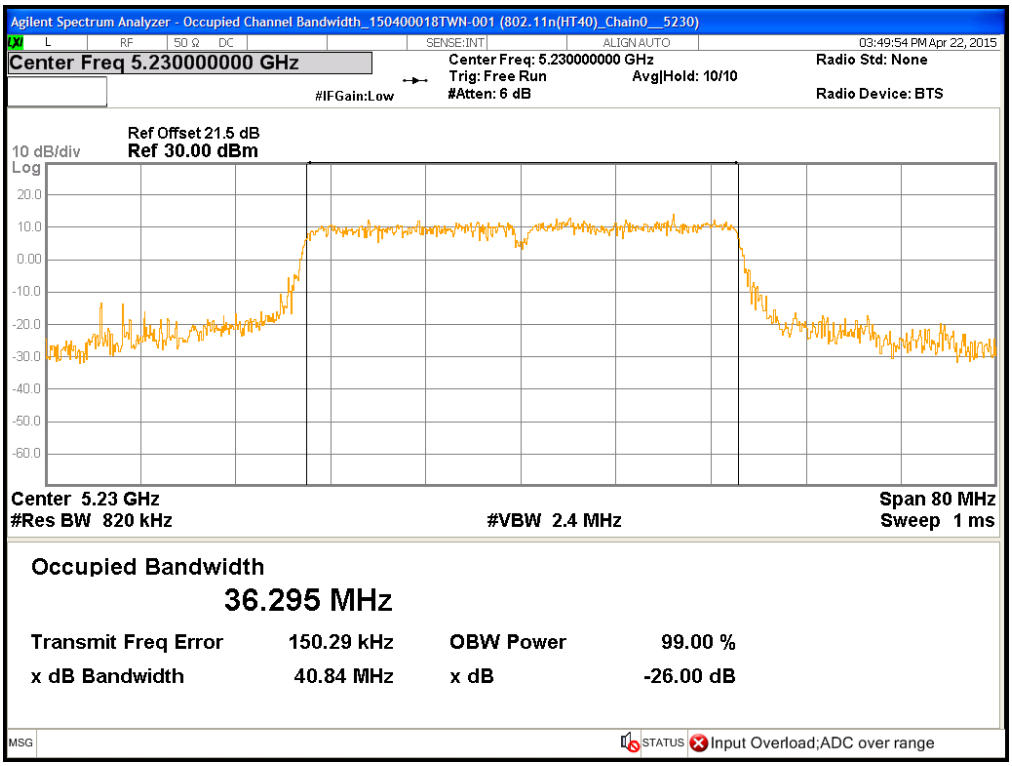
Chain0: 26dB Emission Bandwidth @ 802.11n(HT20)_Chain0__5825MHz



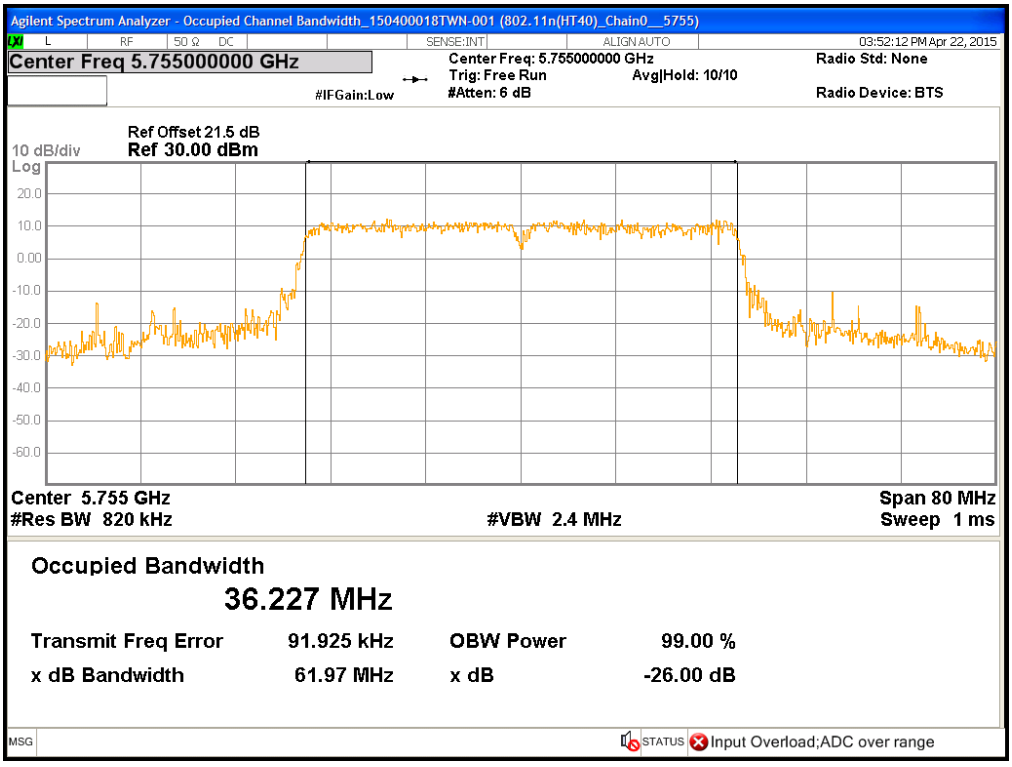
Chain0: 26dB Emission Bandwidth @ 802.11n(HT40)_Chain0__5190 MHz



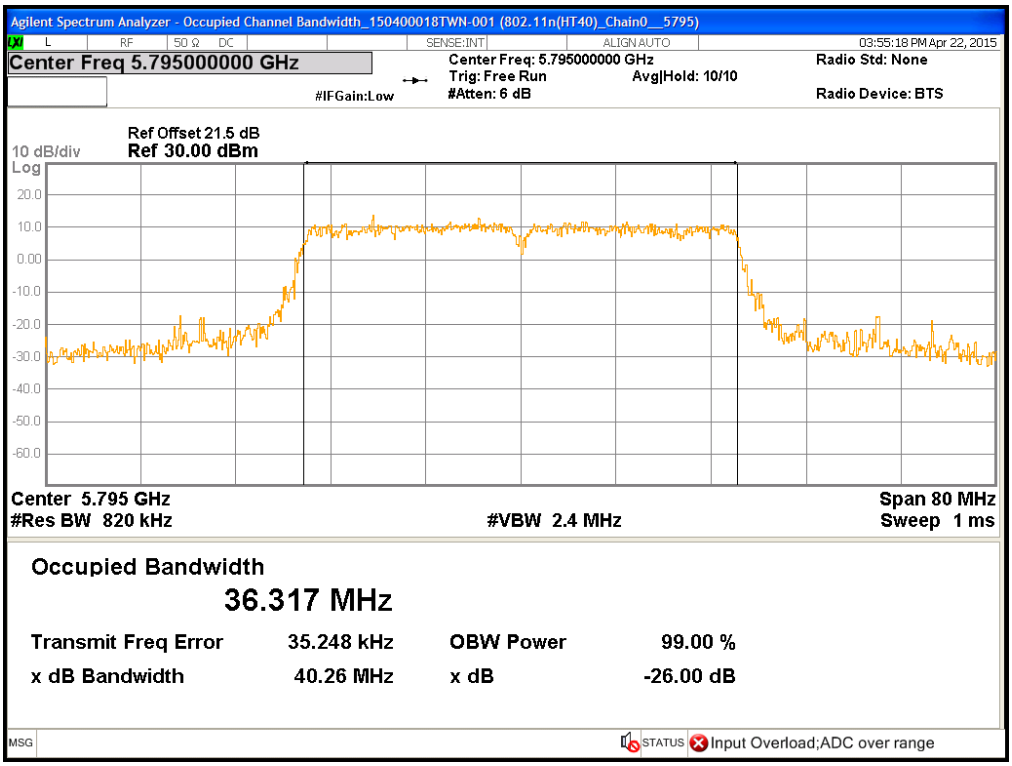
Chain0: 26dB Emission Bandwidth @ 802.11n(HT40)_Chain0__5230 MHz



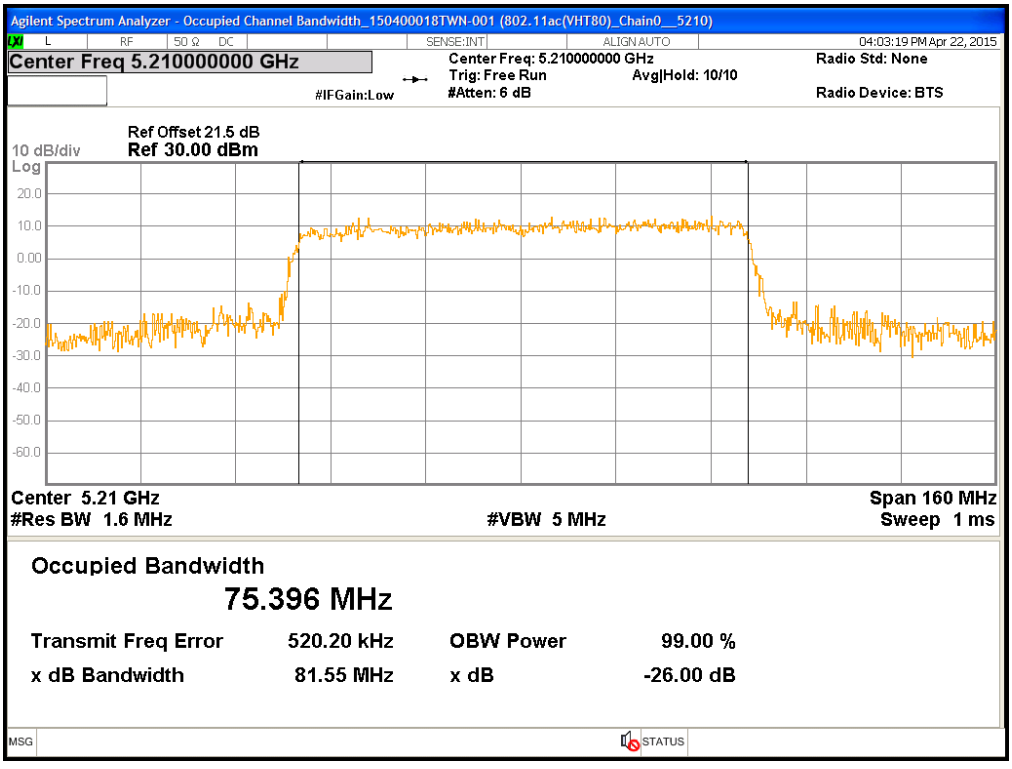
Chain0: 26dB Emission Bandwidth @ 802.11n(HT40)_Chain0__5755 MHz



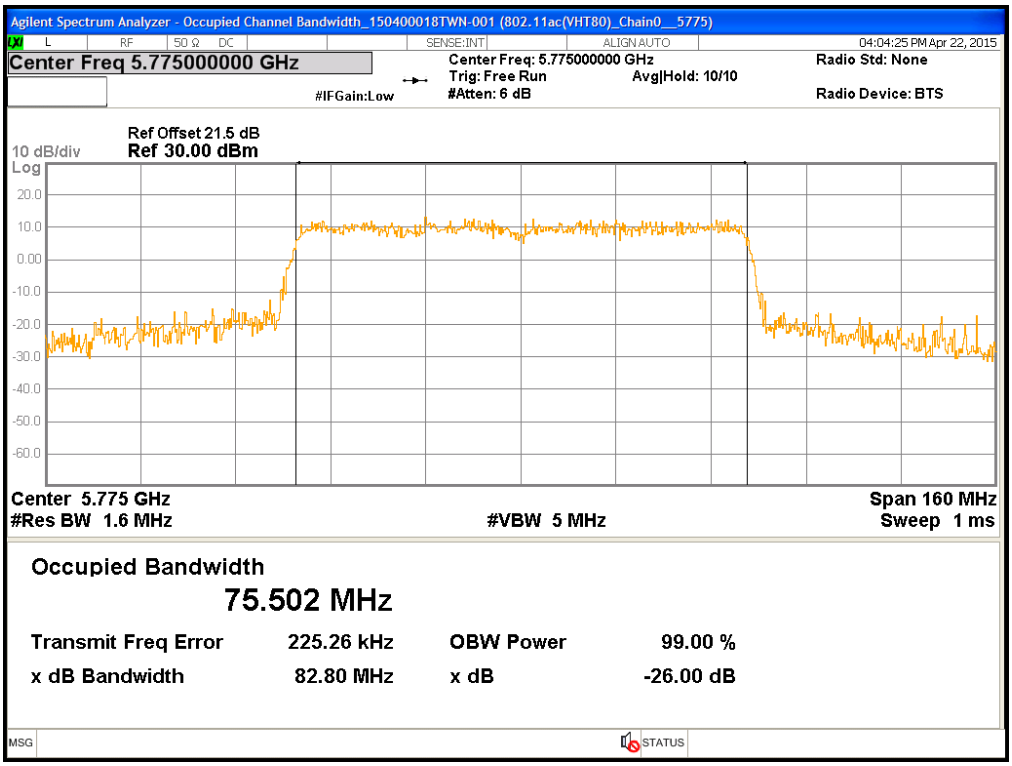
Chain0: 26dB Emission Bandwidth @ 802.11n(HT40)_Chain0__5795 MHz



Chain0: 26dB Emission Bandwidth @ 802.11ac(VHT80)_Chain0__5210MHz



Chain0: 26dB Emission Bandwidth @ 802.11ac(VHT80)_Chain0__5775MHz



6. Emissions in Restricted Frequency Bands (Radiated emission measurements)

6.1 Operating environment

Temperature:	25	℃
Relative Humidity:	55	%
Atmospheric Pressure	1008	hPa
Channel number	36,40,48,149,157,161 for 20MHz 38,46,151,159 for 40MHz 42, 155 for 80 MHz	

6.2 Limit for emission in restricted frequency bands (Radiated emission measurement)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	2400/F(kHz)	30
1.705~30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark:

1. In the above table, the tighter limit applies at the band edges.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

As specified in 15.407(b), emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit of -27 dBm/MHz (or -17 dBm/MHz as specified in 15.407(b)(4)). However, an out-of-band emission that complies with both the average and peak limits of 15.209 is not required to satisfy the -27 dBm/MHz or -17 dBm/MHz peak emission limit

Applicable to	**Limit**	
	Field strength at 3m (dBμV/m)	
V	PK	AV
	74	54
	EIRP Limit (dBm)	**Equivalent Field Strength at 3m (dBμV/m)**
	PK	PK
	-27	68.2

Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength: E = 1000000(√30P)/3 (μV/m), where P is the eirp (Watt)

6.3 Measuring instrument setting

Below 1GHz measurement

Receiver settings	
Receiver function	**Setting**
Detector	QP
RBW	9-150 kHz ; 200-300 Hz 0.15-30 MHz; 9-10 kHz 30-1000 MHz; 100-120 kHz
VBW	≧3 x RBW
Sweep	Auto couple
Attenuation	Auto

Above 1GHz measurement

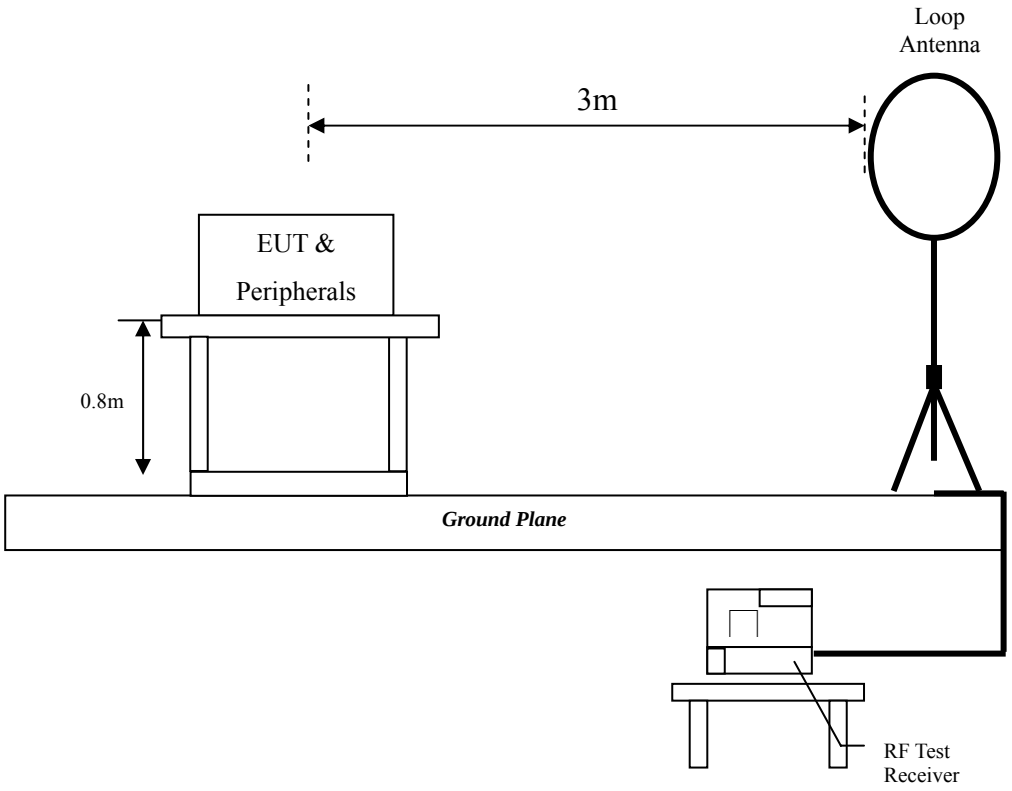
Spectrum analyzer settings	
Spectrum Analyzer function	**Setting**
Detector	Peak
RBW	1MHz
VBW	3MHz for Peak; 10Hz for Average
Sweep	Auto couple
Start Frequency	1GHz
Stop Frequency	Tenth harmonic
Attenuation	Auto

6.4 Test procedure

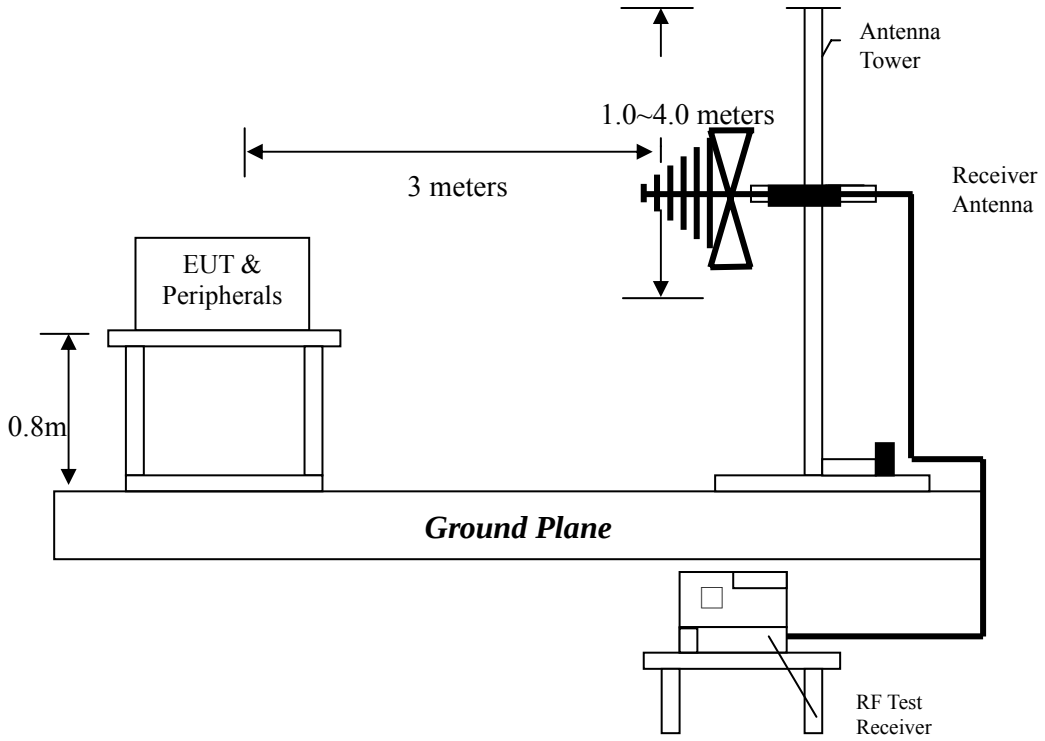
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 1.5 meter above ground for above 1GHz and placed on the top of the turntable 0.8 meter above ground for below 1GHz. The center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the companion devices. The turntable was rotated by 360 degree to find the position of the maximum emission level.
3. The height of the receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of the both horizontal and vertical polarization
4. If find the frequencies above the limit or below within 3dB, the antenna tower was scan (from 1m to 4m) and then the turntable was rotated to find the maximum reading.
5. Set the test-receiver system to peak or CISPR quasi-peak detector 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.
   Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.
7. If the emissions level of the EUT in peak mode was 3dB lower than the average limit specified then testing will be stopped and peak values of the EUT will be reported. Otherwise, the emissions which do not have 3dB margin will be measured using the quasi-peak method for below 1GHz.
8. For testing above 1GHz, The emissions level of the EUT in peak mode was lower than average limit, then testing will be stopped and peak values of the EUT will be reported, otherwise, the emission will be measured in average mode again and reported.
9. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be quasi-peak measured by receiver.

6.5 Test configuration

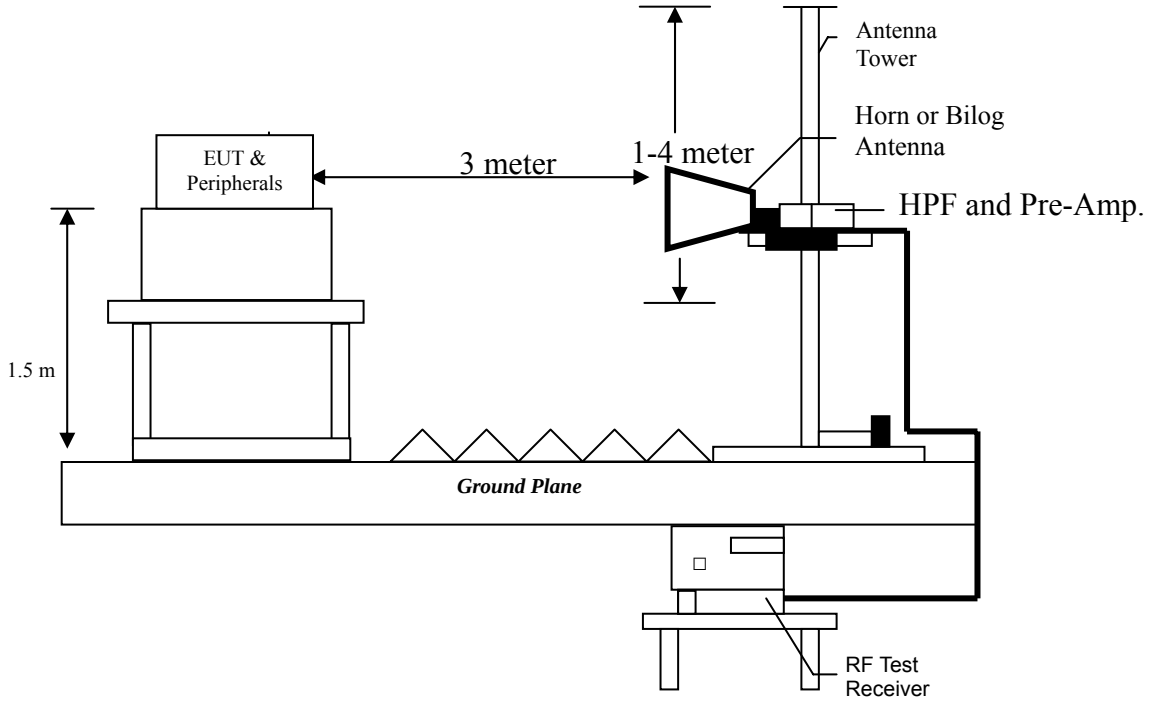
6.5.1 Radiated emission from 9 kHz to 30MHz using Loop Antenna



6.5.2 Radiated emission below 1GHz using Bilog Antenna



6.5.3 Radiated emission above 1GHz using Horn Antenna



6.6 Test results

6.6.1 Measurement results: frequencies from 9 kHz to 30MHz

Worst case: 802.11a ch 48

Frequency (MHz)	Detection value	Factor (dB/m)	Reading (dBμV)	Value (dBμV/m)	Limit @ 3m (dBμV/m)	Tolerance (dB)
2.15	QP	18.17	34.94	53.11	69.54	-16.43
16.36	QP	7.15	24.59	31.74	69.54	-37.80
20.00	QP	6.60	16.09	22.69	69.54	-46.85
2.06	QP	18.58	32.04	50.62	69.54	-18.92
14.48	QP	7.44	20.99	28.43	69.54	-41.11
21.10	QP	6.57	13.59	20.16	69.54	-49.38

Remark: Corr. Factor = Antenna Factor + Cable Loss - PreAmplifier Gain

6.6.2 Measurement results: frequencies from 30 MHz to 1GHz

The test was performed on EUT under 802.11a/an continuously transmitting mode. The worst case occurred at 802.11a Tx channel 48.

EUT : NBG6515
Worst Case : 802.11a Tx channel 48

Antenna Polariz. (V/H)	Freq. (MHz)	Receiver Detector	Corr. Factor (dB/m)	Reading (dBuV)	Corrected Level (dBuV/m)	Limit @ 3 m (dBuV/m)	Margin (dB)
Vertical	64.92	QP	15.28	15.76	31.04	40.00	-8.96
Vertical	142.52	QP	16.16	12.59	28.75	43.50	-14.75
Vertical	154.16	QP	16.48	18.22	34.70	43.50	-8.80
Vertical	375.32	QP	19.33	14.38	33.71	46.00	-12.29
Vertical	625.58	QP	24.50	7.91	32.41	46.00	-13.59
Vertical	875.84	QP	28.33	9.65	37.98	46.00	-8.02
Horizontal	105.66	QP	14.50	13.16	27.66	43.50	-15.84
Horizontal	154.16	QP	15.35	20.63	35.98	43.50	-7.52
Horizontal	375.32	QP	19.23	16.70	35.93	46.00	-10.07
Horizontal	625.58	QP	23.62	10.81	34.43	46.00	-11.57
Horizontal	875.84	QP	28.01	10.26	38.27	46.00	-7.73
Horizontal	1000.00	QP	30.19	9.22	39.41	54.00	-14.59

Remark:

1. Corr. Factor = Antenna Factor + Cable Loss
2. Corrected Level = Reading + Corr. Factor

6.6.3 Measurement results: frequency above 1GHz to 40GHz

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
802.11a Ch_36	10360	PK	V	38.95	12.23	54.84	67.07	74.00	-6.93
	10360	AV	V	38.95	12.23	40.64	52.87	54.00	-1.13
	15540	PK	V	38.21	15.50	44.18	59.68	74.00	-14.32
	15540	AV	V	38.21	15.50	30.85	46.35	54.00	-7.65
	10360	PK	H	38.95	12.23	40.34	52.57	74.00	-21.43
802.11a Ch_40	10400	PK	V	38.97	12.36	54.36	66.72	74.00	-7.28
	10400	AV	V	38.97	12.36	40.87	53.23	54.00	-0.77
	10400	PK	H	38.97	12.36	42.68	55.04	74.00	-18.96
	10400	AV	H	38.97	12.36	30.85	43.21	54.00	-10.79
802.11a Ch_48	10480	PK	V	39.03	12.62	54.40	67.02	74.00	-6.98
	10480	AV	V	39.03	12.62	40.75	53.37	54.00	-0.63
	10480	PK	H	39.03	12.62	42.05	54.67	74.00	-19.33
	10480	AV	H	39.03	12.62	29.00	41.62	54.00	-12.38
802.11a Ch_149	11490	PK	V	39.01	14.46	50.86	65.32	74.00	-8.68
	11490	AV	V	39.01	14.46	36.81	51.27	54.00	-2.73
	11490	PK	H	39.01	14.46	42.99	57.45	74.00	-16.55
	11490	AV	H	39.01	14.46	30.75	45.21	54.00	-8.79
802.11a Ch_157	11570	PK	V	38.98	14.33	50.17	64.50	74.00	-9.50
	11570	AV	V	38.98	14.33	37.45	51.78	54.00	-2.22
	11570	PK	H	38.98	14.33	43.53	57.86	74.00	-16.14
	11570	AV	H	38.98	14.33	31.04	45.37	54.00	-8.63
802.11a Ch_165	11650	PK	V	38.94	14.16	50.90	65.06	74.00	-8.94
	11650	AV	V	38.94	14.16	37.93	52.09	54.00	-1.91
	11650	PK	H	38.94	14.16	41.37	55.53	74.00	-18.47
	11650	AV	H	38.94	14.16	27.91	42.07	54.00	-11.93

Remark:

Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
802.11n(HT20) Ch_36	10360	PK	V	38.95	12.23	53.63	65.86	74.00	-8.14
	10360	AV	V	38.95	12.23	38.62	50.85	54.00	-3.15
	10360	PK	H	38.95	12.23	39.41	51.64	74.00	-22.36
802.11n(HT20) Ch_40	10400	PK	V	38.97	12.36	53.60	65.96	74.00	-8.04
	10400	AV	V	38.97	12.36	39.71	52.07	54.00	-1.93
	10400	PK	H	38.97	12.36	40.72	53.08	74.00	-20.92
802.11n(HT20) Ch_48	10480	PK	V	39.03	12.62	53.68	66.30	74.00	-7.70
	10480	AV	V	39.03	12.62	38.39	51.01	54.00	-2.99
	10480	PK	H	39.03	12.62	39.82	52.44	74.00	-21.56
802.11n(HT20) Ch_149	11490	PK	V	39.01	14.46	52.30	66.76	74.00	-7.24
	11490	AV	V	39.01	14.46	38.53	52.99	54.00	-1.01
	11490	PK	H	39.01	14.46	44.29	58.75	74.00	-15.25
	11490	AV	H	39.01	14.46	30.92	45.38	54.00	-8.62
802.11n(HT20) Ch_157	11570	PK	V	38.98	14.33	53.68	68.01	74.00	-5.99
	11570	AV	V	38.98	14.33	38.64	52.97	54.00	-1.03
	11570	PK	H	38.98	14.33	45.11	59.44	74.00	-14.56
	11570	AV	H	38.98	14.33	31.25	45.58	54.00	-8.42
802.11n(HT20) Ch_165	11650	PK	V	38.94	14.16	52.66	66.82	74.00	-7.18
	11650	AV	V	38.94	14.16	38.57	52.73	54.00	-1.27
	11650	PK	H	38.94	14.16	46.18	60.34	74.00	-13.66
	11650	AV	H	38.94	14.16	31.27	45.43	54.00	-8.57
802.11n(HT40) Ch_38	11380	PK	V	39.02	14.31	48.57	62.88	74.00	-11.12
	11380	AV	V	39.02	14.31	32.36	46.67	54.00	-7.33
	11380	PK	H	39.02	14.31	35.70	50.01	74.00	-23.99
802.11n(HT40) Ch_46	10460	PK	V	39.01	12.56	50.26	62.82	74.00	-11.18
	10460	AV	V	39.01	12.56	36.57	49.13	54.00	-4.87
	10460	PK	H	39.01	12.56	36.99	49.55	74.00	-24.45
802.11n(HT40) Ch_151	11510	PK	V	39.01	14.46	55.78	70.24	74.00	-3.76
	11510	AV	V	39.01	14.46	36.65	51.11	54.00	-2.89
	11510	PK	H	39.01	14.46	44.64	59.10	74.00	-14.90
	11510	AV	H	39.01	14.46	25.75	40.21	54.00	-13.79
802.11n(HT40) Ch_159	11590	PK	V	38.97	14.29	55.45	69.74	74.00	-4.26
	11590	AV	V	38.97	14.29	36.78	51.07	54.00	-2.93
	11590	PK	H	38.97	14.29	44.10	58.39	74.00	-15.61
	11590	AV	H	38.97	14.29	28.72	43.01	54.00	-10.99
802.11ac(VHT80) Ch_42	10420	PK	V	38.99	12.43	47.90	60.33	74.00	-13.67
	10420	AV	V	38.99	12.43	32.28	44.71	54.00	-9.29
	10420	PK	H	38.99	12.43	36.94	49.37	74.00	-24.63
802.11ac(VHT80) Ch_155	11550	PK	V	38.99	14.37	53.67	68.04	74.00	-5.96
	11550	AV	V	38.99	14.37	35.88	50.25	54.00	-3.75
	11550	PK	H	38.99	14.37	41.79	56.16	74.00	-17.84
	11550	AV	H	38.99	14.37	26.26	40.63	54.00	-13.37
Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain									

7. Emission on The Band Edge

7.1 Operating environment

Temperature:	25	℃
Relative Humidity:	50	%
Atmospheric Pressure	1008	hPa
Requirement	15.407(b), 15.209	
Channel	36, 38, 42, 46, 48 149, 157, 165, 151, 159, 155	

7.2 Measuring instrument setting

Spectrum analyzer settings	
Spectrum Analyzer function	**Setting**
Detector	Peak
RBW	1MHz
VBW	3MHz for Peak; 10Hz for Average
Sweep	Auto couple
Restrict bands	4500~5150MHz
	5350 ~5460MHz
Attenuation	Auto

Applicable to	**Limit**	
	EIRP Limit (dBm)	**Equivalent Field Strength at 3m (dBμV/m)**
5715-5725MHz	PK	PK
5850-5860MHz	-17	78.2

7.3 Test procedure

The test procedure is the same as clause 6.4

7.4 Test Result

Mode	CH	Freq.	Spectrum Analyzer	Ant. Pol.	Preamp. Gain	Correction Factor	Reading	Corrected Reading	Limit @ 3 m	Margin	Restricted band
		(MHz)	Detector	(H/V)	(dB)	(dB/m)	(dBμV)	(dBμV/m)	(dBμV/m)	(dB)	(MHz)
802.11a	36	5148.50	PK	V	39.27	1.49	65.57	67.06	74	-6.94	4500~5150
		5150.00	AV	V	39.27	1.50	48.90	50.40	54	-3.60	
	48	5450.40	PK	V	38.33	3.32	58.05	61.37	74	-12.63	5350~5460
		5447.29	AV	V	38.34	3.30	45.28	48.58	54	-5.42	
802.11n (HT20)	36	5150.00	PK	V	39.27	1.50	68.08	69.58	74	-4.42	4500~5150
		5150.00	AV	V	39.27	1.50	49.06	50.56	54	-3.44	
	48	5376.69	PK	V	38.56	2.87	58.93	61.80	74	-12.20	5350~5460
		5447.29	AV	V	38.34	3.30	45.40	48.70	54	-5.30	
802.11n (HT40)	38	5150.00	PK	V	39.27	1.50	70.65	72.15	74	-1.85	4500~5150
		5150.00	AV	V	39.27	1.50	51.59	53.09	54	-0.91	
	46	5383.58	PK	V	38.54	2.91	57.03	59.94	74	-14.06	5350~5460
		5446.70	AV	V	38.35	3.30	45.16	48.46	54	-5.54	
802.11ac (VHT80)	42	5147.50	PK	V	39.27	1.48	69.19	70.67	74	-3.33	4500~5150
		5150.00	AV	V	39.27	1.50	50.65	52.15	54	-1.85	

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

Mode	Freq. (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)	Restricted band (MHz)
802.11a 5745MHz	5725.00	PK	V	38.18	3.70	59.78	63.48	78.2	-14.72	5715~5725
	5856.71	PK	V	38.18	3.74	43.96	47.70	78.2	-30.50	5850~5860
802.11a 5785MHz	5716.31	PK	V	38.18	3.70	44.89	48.59	78.2	-29.61	5715~5725
	5853.83	PK	V	38.18	3.74	44.21	47.95	78.2	-30.25	5850~5860
802.11a 5825MHz	5717.71	PK	V	38.18	3.70	44.51	48.21	78.2	-29.99	5715~5725
	5852.63	PK	V	38.18	3.74	48.90	52.64	78.2	-25.56	5850~5860
802.11n (HT20) 5745MHz	5725.00	PK	V	38.18	3.70	60.28	63.98	78.2	-14.22	5715~5725
	5857.78	PK	V	38.18	3.74	43.98	47.72	78.2	-30.48	5850~5860
802.11n (HT20) 5785MHz	5724.41	PK	V	38.18	3.70	44.97	48.67	78.2	-29.53	5715~5725
	5855.27	PK	V	38.18	3.74	44.23	47.97	78.2	-30.23	5850~5860
802.11n (HT20) 5825MHz	5716.52	PK	V	38.18	3.70	44.63	48.33	78.2	-29.87	5715~5725
	5850.00	PK	V	38.18	3.74	48.93	52.67	78.2	-25.53	5850~5860
802.11n (HT40) 5755MHz	5720.64	PK	V	38.18	3.70	56.20	59.90	78.2	-18.30	5715~5725
	5857.07	PK	V	38.18	3.74	44.08	47.82	78.2	-30.38	5850~5860
802.11n (HT40) 5795MHz	5720.36	PK	V	38.18	3.70	45.16	48.86	78.2	-29.34	5715~5725
	5852.51	PK	V	38.18	3.74	45.59	49.33	78.2	-28.87	5850~5860
802.11ac (VHT80) 5775MHz	5721.92	PK	V	38.18	3.70	55.02	58.72	78.2	-19.48	5715~5725
	5855.15	PK	V	38.18	3.74	49.97	53.71	78.2	-24.49	5850~5860

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

8. Power Line Conducted Emission

8.1 Operating environment

Temperature:	20	℃
Relative Humidity:	55	%
Atmospheric Pressure	1008	hPa
Requirement	15.207	

8.2 Limit for AC power line conducted emission

Freq. (MHz)	Conducted Limit (dBuV)	
	Q.P.	Ave.
0.15~0.50	66 – 56*	56 – 46*
0.50~5.00	56	46
5.00~30.0	60	50

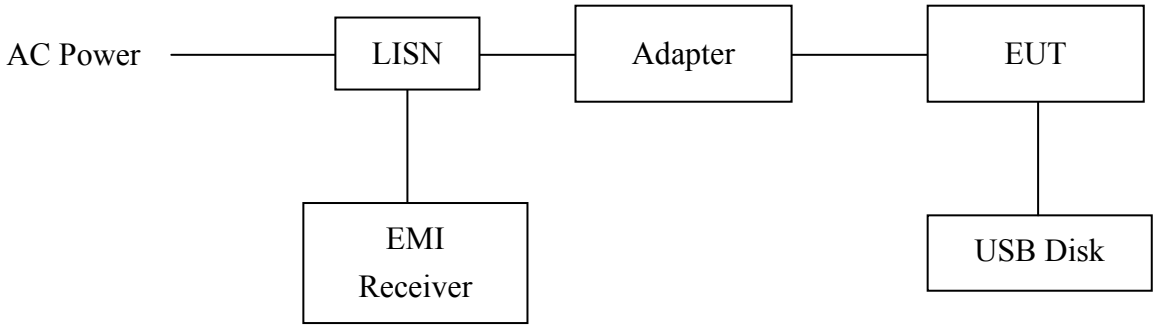
8.3 Measuring instrument setting

Receiver settings	
Receiver function	**Setting**
Detector	QP
Start frequency	0.15MHz
Stop frequency	30MHz
IF bandwidth	9 kHz
Attenuation	10dB

8.4 Test procedure

1. Configure the EUT according to ANSI C63.10. The EUT or host of EHT 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.
3. All the companion devices are connected to the other LISN. The LISN should provide 50Uh/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30MHz was searched
5. Set the test-receiver system to peak detector and specified bandwidth with maximum hold mode.
6. The measurement has to be done between each power line and ground at the power terminal.

8.5 Test diagram



Note: The EUT was tested while in normal communication mode.

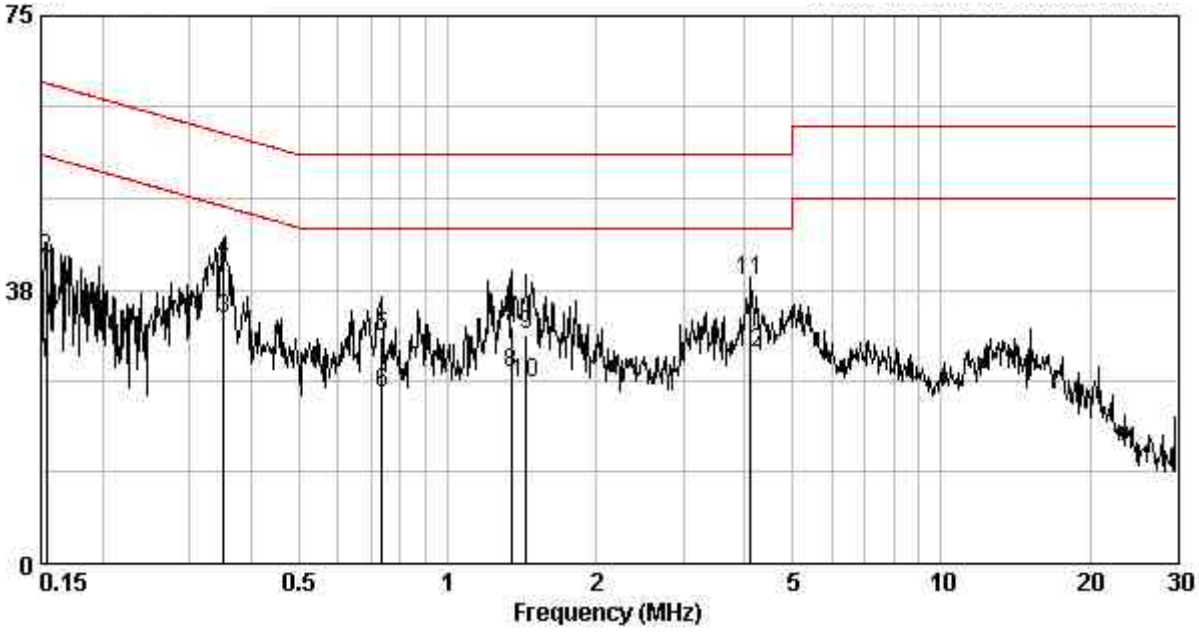
8.6 Test results

Phase	: Line
EUT	: NBG6515
Test Condition	: Normal communication mode

Frequency (MHz)	Corr. Factor (dB)	Level Qp (dBuV)	Limit Qp (dBuV)	Level Av (dBuV)	Limit Av (dBuV)	Over Limit (dB) Qp	Av
0.154	9.74	41.63	65.78	27.41	55.78	-24.15	-28.37
0.352	9.73	41.48	58.91	33.42	48.91	-17.44	-15.50
0.735	9.79	30.98	56.00	23.30	46.00	-25.02	-22.70
1.345	9.84	32.36	56.00	26.16	46.00	-23.64	-19.84
1.441	9.85	31.33	56.00	24.83	46.00	-24.67	-21.17
4.114	9.85	38.71	56.00	28.74	46.00	-17.29	-17.26

Remark:

1. Correction Factor (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Over Limit (dB) = Level (dBuV) – Limit (dBuV)

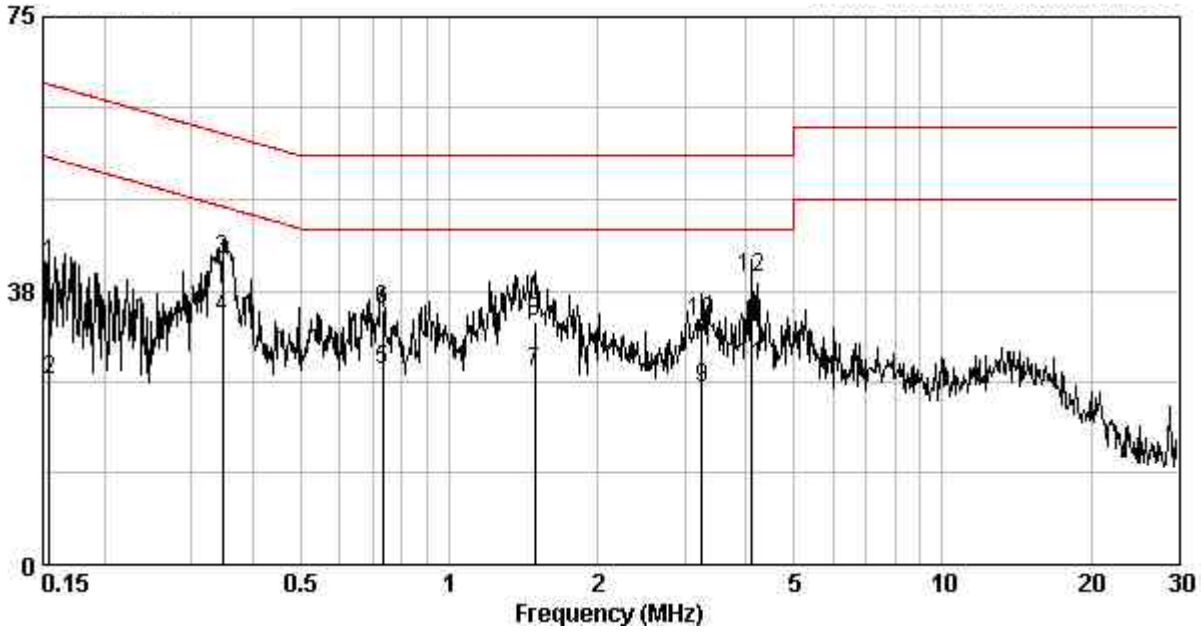


Phase	: Neutral
EUT	: NBG6515
Test Condition	: Normal communication mode

Frequency (MHz)	Corr. Factor (dB)	Level Qp (dBuV)	Limit Qp (dBuV)	Level Av (dBuV)	Limit Av (dBuV)	Over Limit (dB) Qp	Av
0.155	9.75	41.18	65.74	25.29	55.74	-24.56	-30.44
0.346	9.73	41.79	59.05	33.91	49.05	-17.25	-15.13
0.731	9.79	34.76	56.00	26.61	46.00	-21.24	-19.39
1.487	9.85	33.29	56.00	26.51	46.00	-22.71	-19.49
3.258	9.86	33.31	56.00	24.04	46.00	-22.69	-21.96
4.114	9.86	39.19	56.00	27.15	46.00	-16.81	-18.85

Remark:

1. Correction Factor (dB)= LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Level (dBuV) – Limit (dBuV)



Appendix A: Test equipment list

Equipment	Brand	Model No.	Serial No.	Calibration Date	Next Calibration Date
ESCI EMI Test Receiver	Rohde & Schwarz	ESCI	100018	2014/12/02	2015/12/01
Spectrum Analyzer	Rohde & Schwarz	FSP30	100137	2014/06/16	2015/06/15
Horn Antenna (1-18G)	Schwarzbeck	BBHA 9120 D	9120D-456	2014/08/29	2017/08/27
Horn Antenna (14-42G)	SHWARZBECK	BBHA 9170	BBHA9170159	2014/09/16	2017/09/14
Broadband Antenna	Schwarzbeck	VULB 9168	9168-172	2013/08/08	2015/08/07
Loop Antenna	RolfHeine	LA-285	02/10033	2014/03/18	2016/03/16
Pre-Amplifier	MITEQ	JS4-26004000--27-8A	828825	2014/09/15	2015/09/14
EMI Test Receiver	Rohde & Schwarz	ESR-7	101232	2014/12/1	2015/11/30
Power Meter	Anritsu	ML2495A	0844001	2014/11/12	2015/11/11
Power Senor	Anritsu	MA2411B	0738452	2014/11/12	2015/11/11
Two-Line V-Network	Rohde & Schwarz	ESH3-Z5	838979/014	2014/10/05	2015/10/04
Signal Analyzer	Agilent	N9030A	MY51380492	2014/09/19	2015/09/18
966-2(A) Cable 9kHz~26.5GHz	SUHNER	SMA / EX 100	N/A	2014/05/06	2015/05/05
966-2(B) Cable 9kHz~26.5GHz	JUNFLON	SMA / J12J100880-00	AUG-26-08-002	2014/05/06	2015/05/05
966-2(A) Cable 9kHz~26.5GHz	SUHNER	SMA / EX 100	N/A	2015/05/06	2016/05/05
966-2(B) Cable 9kHz~26.5GHz	JUNFLON	SMA / J12J100880-00	AUG-26-08-002	2015/05/06	2016/05/05
RF Cable 9kHz~26.5GHz	SUHNER	SUCOFLEX 102	CB0006	2014/05/06	2015/05/05
RF Cable 9kHz~26.5GHz	SUHNER	SUCOFLEX 102	CB0006	2015/05/06	2016/05/05
966-2_3m Semi-Anechoic Chamber	966_2	CEM-966_2	N/A	2015/02/24	2016/02/23
Brand		Software		Version	
ADT		Radiated test system		7.5.14	
Audix		e3		4.2004-1-12k	

Appendix B: Measurement Uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of *k*=2.

Item	Uncertainty
Vertically polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m	5.15 dB
Horizontally polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m	5.23 dB
Vertically polarized Radiated disturbances from 1GHz~18GHz in a semi-anechoic chamber at a distance of 3m	4.19 dB
Horizontally polarized Radiated disturbances from 1GHz~18GHz in a semi-anechoic chamber at a distance of 3m	4.3 dB
Vertically polarized Radiated disturbances from 18GHz~40GHz in a semi-anechoic chamber at a distance of 3m	4.19 dB
Horizontally polarized Radiated disturbances from 18GHz~40GHz in a semi-anechoic chamber at a distance of 3m	4.3 dB
Conducted Output power	0.86 dB
Radiated electromagnetic disturbances in the frequency range from 9kHz to 30MHz	2.92 dB
Conducted disturbance measurements at a mains port from 9 kHz to 30 MHz using a 50 Ω/50 μH +5Ω artificial mains network (AMN)	2.5dB