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检测
TESTING
CNAS L8469

APPLICATION FOR CERTIFICATION

On Behalf of
Hewlett Packard Enterprise
Server

Model No. : HSTNS-5231
Brand : HEWLETT PACKARD ENTERPRISE
FCC ID : 2ARBSEL8000530S

Prepared for

Hewlett Packard Enterprise
11445 Compaq Center Dr W Houston TX 77070 United States

Prepared by

Audix Technology (Wujiang) Co., Ltd. EMC Dept.
No. 1289 Jiangxing East Road, the Part of Wujiang Economic Development Zone
Jiangsu China 215200

Tel : +86-512-63403993
Fax : +86-512-63403339

Report No. : ACWE-F1906005
Date of Test : May 18~27, 2019
Date of Report : Jun.13, 2019

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TEST REPORT CERTIFICATION

Applicant : Hewlett Packard Enterprise
 Manufacturer : Hewlett Packard Enterprise
 Factory : Refer to section 3.1
 EUT Description : Server
 FCC ID : 2ARBSEL8000530S
 (A) Model No. : HSTNS-5231
 (B) Brand : HEWLETT PACKARD ENTERPRISE
 (C) Power Supply : AC 120V/60Hz
 (D) Test Voltage : AC 120V/60Hz

Applicable Standards:

47CFRFCC Part 15 Subpart E
 ANSIC63.10:2013
 KDB 789033 D02 General UNII Test Procedures New Rules v02r01

The device described above was tested by Audix Technology (Wujiang) Co., Ltd. EMC Dept.to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart C section 15.207, 15.205, 15.209&15.407 limits.

The measurement results are contained in this test report and Audix Technology (Wujiang) Co., Ltd. EMC Dept. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Wujiang) Co., Ltd. EMC Dept.

Date of Test: May 18~27, 2019

Date of Report: Jun.13, 2019

Prepared by :

Emma Hu
 (Emma Hu/Assistant Administrator)

Approved & Authorized Signer :

Ken Lu
 (Ken Lu/Assistant General Manager)



1. DESCRIPTION OF VERSION

Edition No.	Date of Rev.	Summary	Report No.
0	Jun.13, 2019	Original Report.	ACWE-F1906005

2. SUMMARY OF MEASUREMENTS AND RESULTS

The EUT have been tested according to the applicable standards as referenced below.

Rule	Description	Results
15.207	Conducted Emission	PASS
15.205/15.209	Radiated Band Edge and Radiated Spurious Emission	PASS
15.407(a)(5)/15.407(e)	Emission Bandwidth Measurement	PASS
15.407(a)	Maximum Output Power	PASS
15.407(b)	Conducted Band Edges and Conducted Spurious Emission	PASS
15.407(a)	Power Spectral Density	PASS
15.203	Antenna Requirement	Compliance
15.407	Frequency Stability	PASS

3. GENERAL INFORMATION

3.1. Description of Device (EUT)

Description	:	Server
Model No.	:	HSTNS-5231
FCC ID	:	2ARBSEL8000530S
Brand	:	HEWLETT PACKARD ENTERPRISE
Applicant	:	Hewlett Packard Enterprise 11445 Compaq Center Dr W Houston TX 77070 United States
Manufacturer	:	Hewlett Packard Enterprise 11445 Compaq Center Dr W Houston TX 77070 United States
Factory#1	:	INVENTEC (PUDONG) TECHNOLOGY CORPORATION NO.789, PUXING ROAD, CAOHEJING EXPORT PROCESSING ZONE, MINHANG DISTRICT, SHANGHAI, CHINA
Factory#2	:	IEC TECHNOLOGIES, S. DE R.L. DE C.V. DEL NORTE INDUSTRIAL CENTER #1,BOULEVARD INDEPENDENCIA #10150,COL. MUNICIPIO LIBRE, C.P. 32450 GIUDAD JUAREZ, CHIHUAHUA, MEXICO
Factory#3	:	FOXCONN CZ S R O KARLOV 245 284 01 KUTNA HORA CZECH REPUBLIC
Factory#4	:	HEWLETT PACKARD ENTERPRISE SINGAPORE PTE LTD 452 ALEXANDRA RD SINGAPORE 119961 SINGAPORE
Factory#5	:	ECMMS S A DE C V BLVD OSCAR FLORES SANCHEZ 8951 COL PUENTE ALTO 32690 JUAREZ CHIH MEXICO
Factory#6	:	HEWLETT PACKARD ENTERPRISE COMPANY 100 NORTH CASHMAN DRIVE,CHIPPEWA FALLS, WI 54729, USA
Factory#7	:	FLEXTRONICS AMERICA, LLC 12455 RESEARCH BOULEVARD AUSTIN TX 78759 UNITED STATES OF AMERICA
Factory#8	:	FLEXTRONICS INTERNATIONAL TECNOLOGIA LTDA. AV LIBERDADE N6315.BAIRRO IPORANGA SP SOROCABA.18087-170 BRAZIL
Factory#9	:	NEC PLATFORMS LTD 1088-3 OTSU-MACHI, KOFU-SHI YAMANASHI, 400-0055 JAPAN

3.2. Antenna Information

Frequency (MHz)	Gain(dBi)
2400-2500	2.38
5150-5250	3.25
5250-5350	3.25
5470-5725	3.78
5725-5850	3.94

3.3. EUT Specification Assessed in Current Report

Mode	UNII Band	Fundamental Range (MHz)	Channel Number
802.11a	I	5180-5240	4
	II-2A	5260-5320	4
	II-2C	5500-5700	11
	III	5745-5825	5
802.11n-HT20	I	5180-5240	4
	II-2A	5260-5320	4
	II-2C	5500-5700	11
	III	5745-5825	5
802.11n-HT40	I	5190-5230	2
	II-2A	5270-5310	2
	II-2C	5510-5670	5
	III	5755-5795	2

Mode	Modulation	Data Rate (Mbps)
802.11a	OFDM (BPSK/QPSK/16QAM/64QAM)	Up to 54
802.11n-HT20	OFDM (BPSK/QPSK/16QAM/64QAM)	Up to 144.4
802.11n-HT40		Up to 300

Channel List						
802.11a/802.11n-HT20						
UNII Band	Channel Number	Frequency (MHz)	UNII Band	Channel Number	Frequency (MHz)	
I	36	5180	II-2C	120	5600	
	40	5200		124	5620	
	44	5220		128	5640	
	48	5240		132	5660	
II-2A	52	5260		136	5680	
	56	5280		140	5700	
	60	5300		III	149	5745
	64	5320			153	5765
II-2C	100	5500	157		5785	
	104	5520	161		5805	
	108	5540	165		5825	
	112	5560				
	116	5580				

Channel List					
802.11n-HT40					
UNII Band	Channel Number	Frequency (MHz)	UNII Band	Channel Number	Frequency (MHz)
I	38	5190	II-2C	118	5590
	46	5230		126	5630
II-2A	54	5270		134	5670
	62	5310	III	151	5755
II-2C	102	5510		159	5795
	110	5550			

3.4. Test Power Setting&Software

Mode	Channel	Power Setting
802.11a	36	13
	40	13
	48	13
	52	13
	60	13
	64	13
	100	13
	116	13
	140	14
	149	10
	157	10
	165	10
802.11n-HT20	36	13
	40	13
	48	13
	52	13
	60	13
	64	13
	100	13
	116	13
	140	14
	149	10
	157	10
	165	10
802.11n-HT40	38	13
	46	13
	54	13
	62	13
	102	14
	110	14
	134	14
	151	14
159	14	
Test Software	Putty	

3.5. EUT's Configuration

	Item	Brand	Model	Spec
2U node(Top)	Memory*12	Micron	MTA144ASQ16G72LSZ-2S9E1TG , 2933	128G*12
	M.2*6	HP	MS000400KWDUR	400G
			VS000480KWDUP	480G
			VS000960KWDVQ	960G
			MS000400KWDVR	400G
		ADATA	IM2S33D4-120GP	120G
	Toshiba	KXG50ZNV512G	512G	
Optical fiber Card*1	Foxconn	P09500-001		
CPU*1	Intel	Cascade Lake 3.7 GHz 8c, 6244,QPKX	3.7GHz	
2U node(Bottom)	Memory*1	Micron	MTA9ASF1G72PZ-2G9E1VG, 2933	8G
	M.2*1	ADATA	IM2S33D4-120GP	120G
	Optical fiber Card*1	Foxconn	P09500-001	
	CPU*1	Intel	Cascade Lake 3.7 GHz 8c, 6244, QPKX	3.7GHz
Management module*1		Foxconn	P09478-001	
Power Supply*2		Murata	D1U54P-W-1500-12-HC4TC-HP *2	

3.6. Data Rate Relative to Output Power

802.11a		
Channel	Data Rate	Power(dBm)
36	6	11.23
36	9	11.99
36	12	11.99
36	18	11.90
36	24	12.29
36	36	12.12
36	48	11.97
36	54	11.95

802.11n-HT20		
Channel	Data Rate	Power(dBm)
36	MCS0	12.76
36	MCS1	12.63
36	MCS2	12.56
36	MCS3	12.46
36	MCS4	12.32
36	MCS5	12.20
36	MCS6	12.13
36	MCS7	12.06

802.11n-HT40		
Channel	Data Rate	Power(dBm)
38	MCS0	12.44
38	MCS1	12.42
38	MCS2	12.38
38	MCS3	12.29
38	MCS4	12.32
38	MCS5	12.16
38	MCS6	12.29
38	MCS7	12.33

3.7. Duty Cycle

Mode	Duty Cycle	Duty Cycle Factor
802.11a	97%	0.13
802.11n-HT20	97%	0.13
802.11n-HT40	97%	0.13

3.8. Description of Test Facility

Name of Firm : **Audix Technology (Wujiang) Co., Ltd. EMC Dept.**

Site Location : No. 1289 Jiangxing East Road, the Eastern Part of Wujiang Economic Development Zone
Jiangsu China 215200

Test Facilities : **No.1 Conducted Shielding Enclosure
No.2 3m Semi-anechoic Chamber
RF Fully Chamber**

NVLAP Lab Code : 200786-0
Valid until on Sep.30, 2019
(NVLAP is a signatory member of ILAC MRA)
Remark: This report shall not be imply endorsement, certification or approval by NVLAP, NIST, or any agency of the U.S. Federal Government.

3.9. Measurement Uncertainty

Test Item	Range Frequency	Uncertainty
No.1 Conducted Disturbance Measurement	0.15MHz ~ 30MHz	± 2.65dB
Radiated Disturbance Measurement (At 3m Chamber)	30MHz ~ 300MHz	± 3.18dB
	300MHz ~ 1GHz	± 3.12dB
Radiated Disturbance Measurement (At 3m Chamber)	1GHz ~ 6GHz	± 4.56dB
	6GHz ~ 18GHz	± 5.03dB

Remark: Uncertainty = $ku_c(y)$

Test Item	Uncertainty
6 dB Bandwidth	± 0.16 MHz
Maximum Peak Output Power	± 0.12dB
Band Edges	± 0.38dB
Power Spectral Density	± 0.38dB
Emission Limitations	± 0.38dB

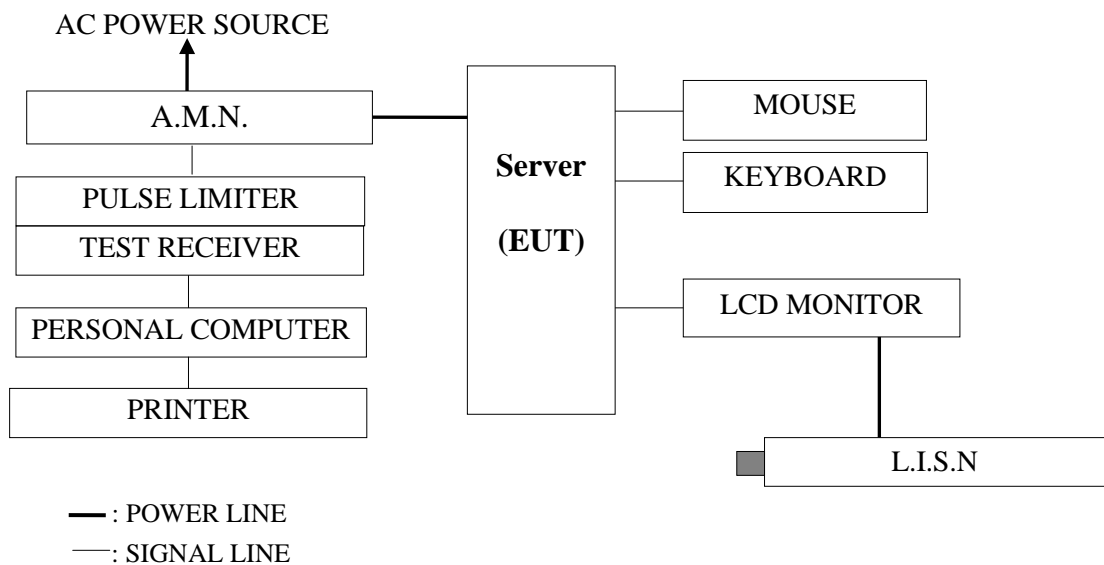
Remark: Uncertainty = $ku_c(y)$

4. CONDUCTED EMISSION MEASUREMENT

4.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Period
1.	Test Receiver	R & S	ESCI	100351	2018-09-05	1 Year
2.	A.M.N.	R & S	ESH2-Z5	100153	2018-12-25	1 Year
3.	L.I.S.N.	Kyoritsu	KNW-407	8-1793-3	2019-04-04	1 Year
4.	Pulse Limiter	R&S	ESH3-Z2	100605	2018-12-25	1 Year
5.	RF Cable	Shengxuan	SX-ROS400	Cable 59/2+Switch	2018-12-25	1 Year
6.	Software	Audix /e3 (9.160323)				

4.2. Block Diagram of Test Setup



4.3. Power line Conducted Emission Limit

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dB μ V	56 ~ 46 dB μ V
500kHz ~ 5MHz	56 dB μ V	46 dB μ V
5MHz ~ 30MHz	60 dB μ V	50 dB μ V

Remark1: If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.

2: The lower limit applies at the band edges.

4.4. Test Procedure

The measuring process is according to ANSI C63.10-2013 and laboratory internal procedure TKC-301-004.

In the conducted emission measurement, the EUT and all peripheral devices were set up on a non-metallic table which was 0.8 meter height above the ground plane, and 0.4 meter far away from the vertical plane. The mains cable of the EUT connected to one Artificial Main Network(AMN). All other unit of the EUT and AE connected to a second Line Impedance Stabilization Network(L.I.S.N.). The telecommunication cable connected to the AE through a Impedance Stabilization Network(ISN) which terminated a 50Ω resistor. For the measurement, the A.M.N measuring port was terminated by a 50Ω measuring equipment and the second L.I.S.N measuring port was terminated by a 50Ω terminator. All measurements were done between the phase lead and the reference ground, and between the neutral lead and the reference ground. All cables or wires placement were verified to find out the maximum emission.

The bandwidth of measuring receiver was set at 9 kHz.

The required frequency band (0.15 MHz ~ 30 MHz) was pre-scanned with peak detector; the final measurement was measured with quasi-peak detector and average detector. (If the average limit is met when using a quasi-peak detector, the average detector is unnecessary).

The emission level is calculated automatically by the test system which uses the following equation:

Emission level (dBμV) = Reading (dBμV) + A.M.N factor (dB) + Cable loss (dB).
(Cable loss includes Pulse Att+Cable+Switch)

4.5. Conducted Emission Measurement Results

PASSED.

EUT was performed during this section testing and all the test results are attached in next pages.

Test Date: May 18, 2019

Temperature: 20.4°C

Humidity: 47%

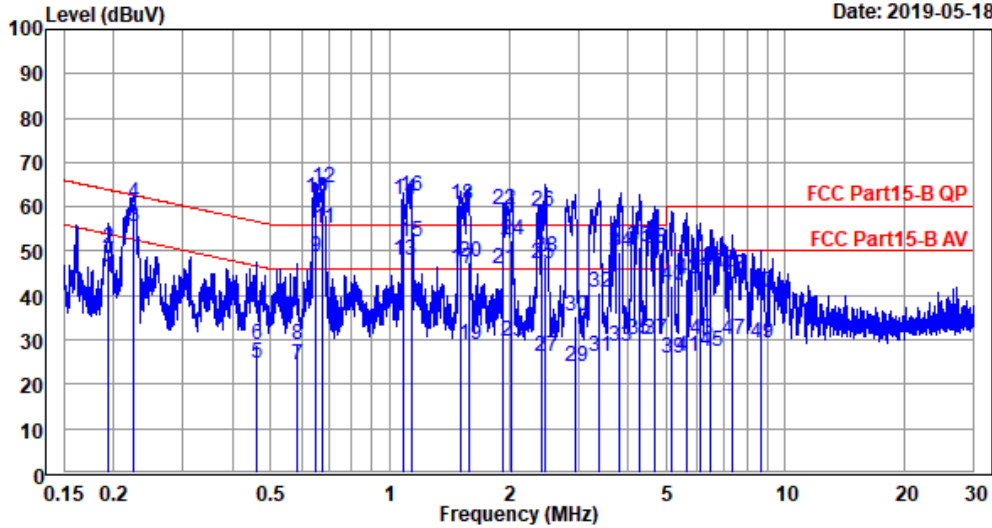
Mode	Test Condition	Reference Test Data No.	
		Neutral	Line
1	TX	# 1	# 2



Audix Technology (Wu Jiang) Co.,Ltd
 No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

File: F:\TEST DATA\2019\Report\05\C1W1905061\0518_00001.EMI

Date: 2019-05-18



Site NO. : NO.1 Shielded Room phase.: Neutral Data NO.:1
 AMN/LISN : ESH2-Z5 -ADP-1812 Engineer : HANYU
 Limit : FCC Part15-B QP
 Env. / Ins. : 20.4°C47%/ESCI
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX
 Memo :

Freq. MHz	AMN. Factor dB	Cable Loss dB	Reading dBuV	Emission Level dBuV	Limits dBuV	Margin dB	Remark
0.1943	0.18	9.90	33.89	43.97	53.85	9.88	Average
0.1943	0.18	9.90	40.65	50.73	63.85	13.12	QP
0.2247	0.18	9.90	45.57	55.65	52.64	-3.01	Average *
0.2247	0.18	9.90	50.78	60.86	62.64	1.78	QP
0.4600	0.20	9.91	14.42	24.53	46.69	22.16	Average
0.4600	0.20	9.91	18.86	28.97	56.69	27.72	QP
0.5819	0.20	9.91	14.30	24.41	46.00	21.59	Average
0.5819	0.20	9.91	18.87	28.98	56.00	27.02	QP
0.6506	0.21	9.92	38.55	48.68	46.00	-2.68	Average *
0.6506	0.21	9.92	51.75	61.88	56.00	-5.88	QP *
0.6772	0.21	9.92	45.11	55.24	46.00	-9.24	Average *
0.6772	0.21	9.92	54.28	64.41	56.00	-8.41	QP *
1.0788	0.22	9.92	37.61	47.75	46.00	-1.75	Average *
1.0788	0.22	9.92	51.54	61.68	56.00	-5.68	QP *
1.1315	0.23	9.92	41.81	51.96	46.00	-5.96	Average *
1.1315	0.23	9.92	52.14	62.29	56.00	-6.29	QP *
1.5096	0.24	9.93	35.71	45.88	46.00	0.12	Average

marks:Emission Level =AMN factor+Cable loss(Pulse Att+Cable+Switch)+Reading



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 No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Freq. MHz	AMN. Factor dB	Cable Loss dB	Reading dBuV	Emission Level dBuV	Limits dBuV	Margin dB	Remark
1.5096	0.24	9.93	50.16	60.33	56.00	-4.33	QP *
1.5846	0.24	9.93	18.55	28.72	46.00	17.28	Average
1.5846	0.24	9.93	37.50	47.67	56.00	8.33	QP
1.9372	0.25	9.94	35.71	45.90	46.00	0.10	Average
1.9372	0.25	9.94	49.15	59.34	56.00	-3.34	QP *
2.0249	0.25	9.94	19.33	29.52	46.00	16.48	Average
2.0249	0.25	9.94	42.38	52.57	56.00	3.43	QP
2.4220	0.27	9.95	36.79	47.01	46.00	-1.01	Average *
2.4220	0.27	9.95	48.57	58.79	56.00	-2.79	QP *
2.4759	0.27	9.95	16.05	26.27	46.00	19.73	Average
2.4759	0.27	9.95	38.27	48.49	56.00	7.51	QP
2.9463	0.29	9.96	13.69	23.94	46.00	22.06	Average
2.9463	0.29	9.96	24.93	35.18	56.00	20.82	QP
3.3926	0.31	9.96	15.88	26.15	46.00	19.85	Average
3.3926	0.31	9.96	30.41	40.68	56.00	15.32	QP
3.8237	0.32	9.97	18.05	28.34	46.00	17.66	Average
3.8237	0.32	9.97	39.53	49.82	56.00	6.18	QP
4.2642	0.33	9.97	19.69	29.99	46.00	16.01	Average
4.2642	0.33	9.97	40.83	51.13	56.00	4.87	QP
4.6975	0.34	9.98	19.81	30.13	46.00	15.87	Average
4.6975	0.34	9.98	40.24	50.56	56.00	5.44	QP
5.1825	0.36	9.98	15.66	26.00	50.00	24.00	Average
5.1825	0.36	9.98	31.97	42.31	60.00	17.69	QP
5.6228	0.38	9.99	15.85	26.22	50.00	23.78	Average
5.6228	0.38	9.99	33.45	43.82	60.00	16.18	QP
6.1035	0.40	10.00	19.47	29.87	50.00	20.13	Average
6.1035	0.40	10.00	35.31	45.71	60.00	14.29	QP
6.4997	0.41	10.00	16.96	27.37	50.00	22.63	Average
6.4997	0.41	10.00	34.40	44.81	60.00	15.19	QP
7.3757	0.44	10.01	19.47	29.92	50.00	20.08	Average
7.3757	0.44	10.01	33.90	44.35	60.00	15.65	QP
8.7053	0.49	10.03	18.75	29.27	50.00	20.73	Average
8.7053	0.49	10.03	30.28	40.80	60.00	19.20	QP

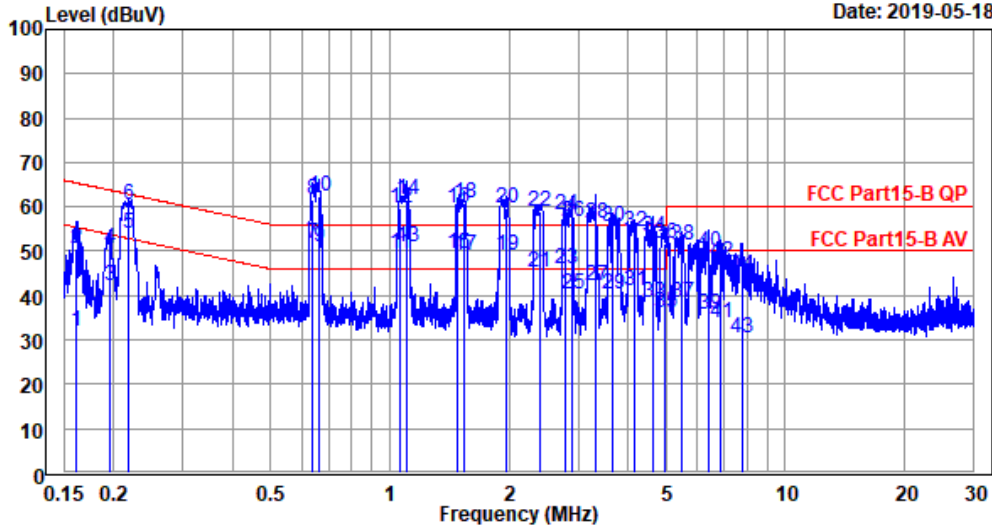
marks:Emission Level =AMN factor+Cable loss(Pulse Att+Cable+Switch)+Reading
 "*" means the emission higher than limit were confirmed not emitted from RF
 transmitter are subject to FCC 15.107.



Audix Technology (Wu Jiang) Co.,Ltd
 No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

File: F:\TEST DATA\2019\Report\05\C1W1905061\0518_00002.EMI

Date: 2019-05-18



Site NO. : NO.1 Shielded Room phase.: Line Data NO.:2
 AMN/LISN : ESH2-Z5 -ADP-1812 Engineer : HANYU
 Limit : FCC Part15-B QP
 Env. / Ins. : 20.4°C47%/ESCI
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX
 Memo :

Freq. MHz	AMN. Factor dB	Cable Loss dB	Reading dBuV	Emission Level dBuV	Limits dBuV	Margin dB	Remark
0.1618	0.30	9.90	21.81	32.01	55.37	23.36	Average
0.1618	0.30	9.90	40.22	50.42	65.37	14.95	QP
0.1952	0.30	9.90	32.02	42.22	53.81	11.59	Average
0.1952	0.30	9.90	40.29	50.49	63.81	13.32	QP
0.2189	0.30	9.90	43.92	54.12	52.86	-1.26	Average *
0.2189	0.30	9.90	50.08	60.28	62.86	2.58	QP
0.6368	0.33	9.92	41.49	51.74	46.00	-5.74	Average *
0.6368	0.33	9.92	51.27	61.52	56.00	-5.52	QP *
0.6639	0.33	9.92	40.61	50.86	46.00	-4.86	Average *
0.6639	0.33	9.92	52.16	62.41	56.00	-6.41	QP *
1.0604	0.34	9.92	39.33	49.59	46.00	-3.59	Average *
1.0604	0.34	9.92	49.55	59.81	56.00	-3.81	QP *
1.1019	0.34	9.92	40.75	51.01	46.00	-5.01	Average *
1.1019	0.34	9.92	51.19	61.45	56.00	-5.45	QP *
1.4877	0.36	9.93	39.01	49.30	46.00	-3.30	Average *
1.4877	0.36	9.93	49.58	59.87	56.00	-3.87	QP *
1.5435	0.36	9.93	38.92	49.21	46.00	-3.21	Average *

marks:Emission Level =AMN factor+Cable loss(Pulse Att+Cable+Switch)+Reading



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 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Freq. MHz	AMN. Factor dB	Cable Loss dB	Reading dBuV	Emission Level dBuV	Limits dBuV	Margin dB	Remark
1.5435	0.36	9.93	50.38	60.67	56.00	-4.67	QP
1.9736	0.37	9.94	38.64	48.95	46.00	-2.95	Average
1.9736	0.37	9.94	49.50	59.81	56.00	-3.81	QP
2.3883	0.39	9.95	35.09	45.43	46.00	0.57	Average
2.3883	0.39	9.95	48.47	58.81	56.00	-2.81	QP
2.7721	0.40	9.95	35.76	46.11	46.00	-0.11	Average
2.7721	0.40	9.95	47.99	58.34	56.00	-2.34	QP
2.8807	0.40	9.96	29.80	40.16	46.00	5.84	Average
2.8807	0.40	9.96	46.38	56.74	56.00	-0.74	QP
3.3105	0.41	9.96	31.73	42.10	46.00	3.90	Average
3.3105	0.41	9.96	46.02	56.39	56.00	-0.39	QP
3.6611	0.42	9.97	29.94	40.33	46.00	5.67	Average
3.6611	0.42	9.97	45.17	55.56	56.00	0.44	QP
4.1713	0.43	9.97	30.54	40.94	46.00	5.06	Average
4.1713	0.43	9.97	43.91	54.31	56.00	1.69	QP
4.6376	0.44	9.98	28.16	38.58	46.00	7.42	Average
4.6376	0.44	9.98	42.90	53.32	56.00	2.68	QP
4.9617	0.45	9.98	25.80	36.23	46.00	9.77	Average
4.9617	0.45	9.98	41.14	51.57	56.00	4.43	QP
5.4800	0.47	9.99	27.94	38.40	50.00	11.60	Average
5.4800	0.47	9.99	40.96	51.42	60.00	8.58	QP
6.3986	0.50	10.00	25.40	35.90	50.00	14.10	Average
6.3986	0.50	10.00	39.19	49.69	60.00	10.31	QP
6.8548	0.52	10.01	23.15	33.68	50.00	16.32	Average
6.8548	0.52	10.01	37.11	47.64	60.00	12.36	QP
7.7586	0.55	10.02	19.74	30.31	50.00	19.69	Average
7.7586	0.55	10.02	34.08	44.65	60.00	15.35	QP

marks:Emission Level =AMN factor+Cable loss(Pulse Att+Cable+Switch)+Reading

“*” means the emission higher than limit were confirmed not emitted from RF transmitter are subject to FCC 15.107.

5. RADIATED EMISSION MEASUREMENT

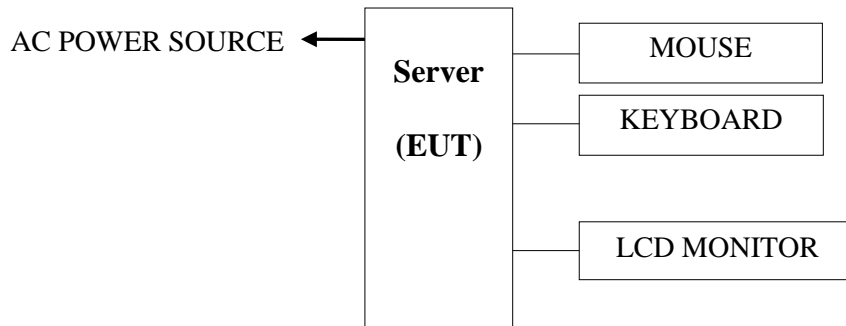
5.1. Test Equipment

The following test equipment was used during the radiated emission measurement:
At 3m Semi-Anechoic Chamber

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Period
1.	Preamplifier	Agilent	8447D	2944A10922	2019-04-04	1 Year
2.	Bi-log Antenna	SCHWARZBECK	VULB 9168	706	2019-02-21	1 Year
3.	Horn Antenna	ETS	3117	00218586	2019-02-21	1 Year
4.	Horn Antenna	ETS	3116	0062639	2018-09-13	1 Year
5.	Microwave Preamplifier	Agilent	8449B	3008A02233	2019-04-12	1 Year
6.	EMI Test Receiver	R&S	ESR7	101956	2019-04-10	1 Year
7.	RF Cable	Shengxuan	SX-ROS400	3m(50/2+59/5)	2018-12-25	1 Year
8.	RF Cable	Huber+Shuner	SUCOFLEX 104	MY2865/2+MY 2863/2	2018-12-25	1 Year
9.	Software	Audix /e3 (9.160323)				

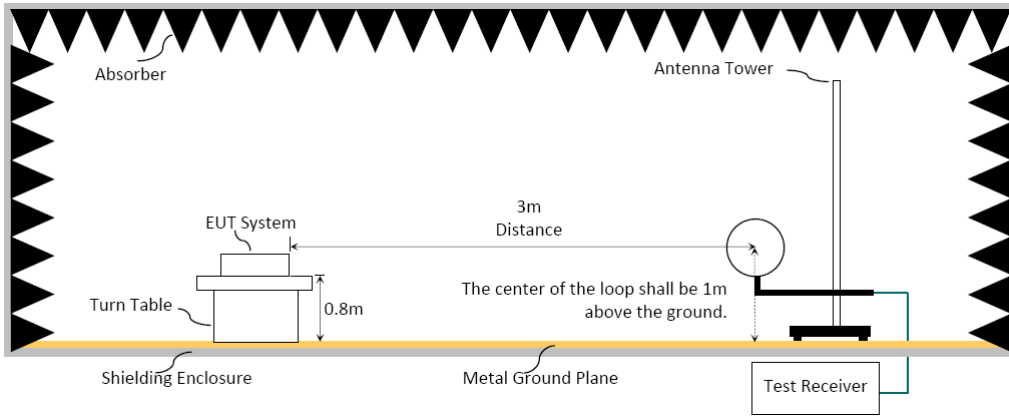
5.2. Block Diagram of Test Setup

5.2.1. Block Diagram of Test Setup between EUT and simulators

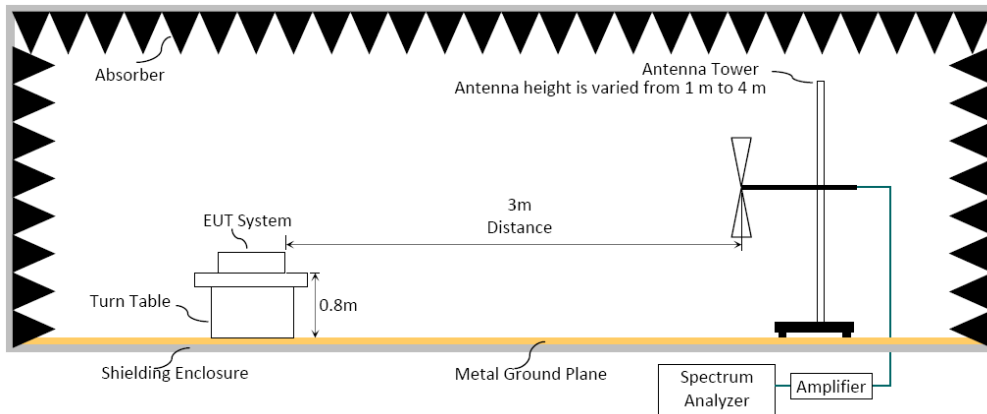


— : POWER LINE
— : SIGNAL LINE

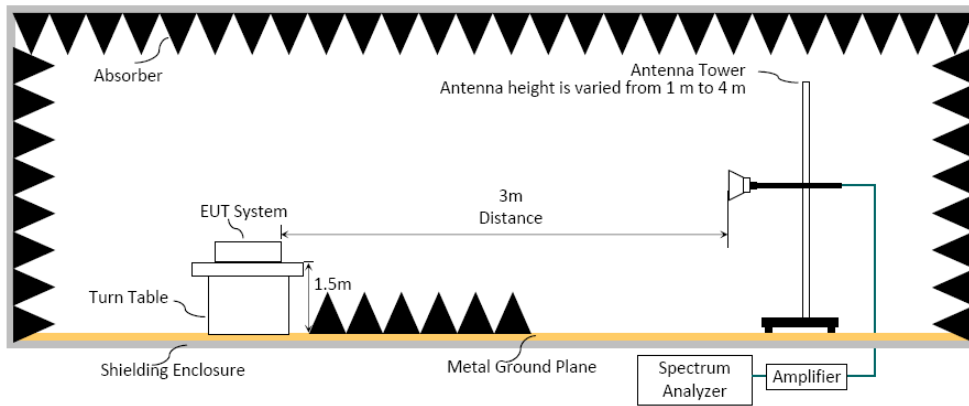
5.2.2. No. 1 3m Semi-Anechoic Chamber Setup Diagram (Test distance: 3m) for 9kHz-30MHz



5.2.3. No. 1 3m Semi-Anechoic Chamber Setup Diagram (Test distance: 3m) for 30MHz-1GHz



5.2.4. No. 1 3m Semi-Anechoic Chamber Setup Diagram (Test distance: 3m) for Above 1GHz



5.3. Radiated Emission Limits

Radiated emissions fall in restricted bands, as defined in Section 15.205 must be in compliance with the radiated emission limits specified in 15.209 as below.

5.3.1. General Limit

Frequency (MHz)	Distance (m)	Limits	
		dB μ V/m	μ V/m
0.009 - 0.490	300	67.6-20 log f(kHz)	2400/f kHz
0.490 - 1.705	30	87.6-20 log f(kHz)	24000/f kHz
1.705 - 30	30	29.5	30
30 - 88	3	40.0	100
88- 216	3	43.5	150
216- 960	3	46.0	200
Above 960	3	54.0	500
Above 1000	3	74.0 dB μ V/m (Peak) 54.0 dB μ V/m (Average)	

Remark: (1) dB μ V/m = 20 log (μ V/m)

(2)The tighter limit applies to the edge between two frequency bands.

(3)Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

(4)Fundamental and emission fall within operation band are exempted from this section.

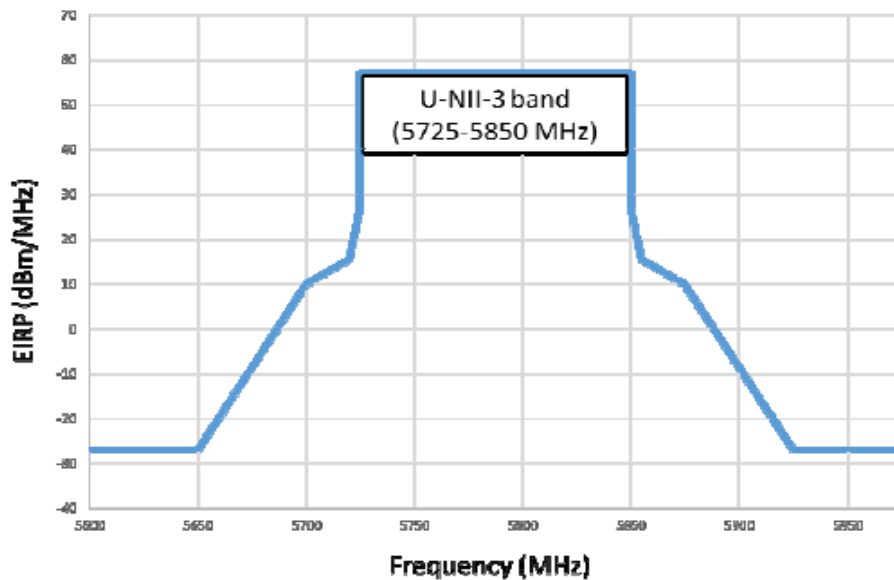
(5)Pursuant to ANSI C63.10: 6.6.4.3, if the maximized peak measured value complies with the average limit, then it is unnecessary to perform an average measurement.

5.3.2. Limit for non-restricted frequency above 1 GHz

Frequency Band (MHz)	E.I.R.P. Limit	Field Strength Limit at 3 m
5150 to 5250	-27 dBm	68.2
5250 to 5350		68.2
5470 to 5725		68.2

Note: Field Strength at 3 m= E.I.R.P. + 95.2 dB

Frequency Band (MHz)	Field Strength Limit at 3 m	
5725 to 5850	<input checked="" type="checkbox"/>	15.407(b)(4)(i) All emissions shall be limited to a level of 68.2 dB μ V/m at 75 MHz or more above or below the band edge increasing linearly to 105.2dB μ V/m at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 110.8 dB μ V/m at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 68.2 dB μ V/m at the band edge.
	<input type="checkbox"/>	15.407(b)(4)(ii), compliance with the emission limits in § 15.247(d) Shall be at least 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power,. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c))



5.4. Test Procedure

Frequency Range 9kHz~30MHz:

The EUT setup on the turn table which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level.

In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

- (1) RBW = 9kHz with peak and average detector.
- (2) Detector: average and peak (9kHz-490kHz)
Q.P. (490kHz-30MHz)

Frequency Range 30MHz ~ 40GHz:

The EUT setup on the turn table which has 80cm (for 30-1000MHz) and 1.5m (for above 1GHz) height to the ground. The turn table rotated 360 degrees and antenna varied from 1 m to 4 m to find the maximum emission level. Both horizontal and vertical polarization are required. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

Frequency below 1 GHz:

Spectrum Analyzer is used for pre-testing with following setting:

- (1)RBW = 120KHz
- (2)VBW \geq 3 x RBW.
- (3)Detector = Peak.
- (4)Sweep time = auto.
- (5)Trace mode = max hold.
- (6)Allow sweeps to continue until the trace stabilizes.
- (7)When peak-detected value is lower than limit that the measurement using the Q.P. detector is not required, otherwise using Q.P. for final measurement.

Frequency above 1GHz to 10th harmonic (up to 40GHz):

Peak Dector:

- (1)RBW = 1MHz
- (2)VBW \geq 3 x RBW.
- (3)Detector = Peak.
- (4)Sweep time = auto.
- (5)Trace mode = max hold.
- (6)Allow sweeps to continue until the trace stabilizes.
- (7)When peak-detected value is lower than limit that the measurement using the average detector is not required, otherwise using average detector for final measurement.

5.5. Measurement Results

PASSED

The EUT was tested in restricted bands and all the test results are listed in next page.

The frequency range from 9kHz to 10th harmonic(40GHz) are checked, and the emission (9kHz~30MHz,18GHz~40GHz)not reported for there is no emission be found.

5.5.1. Emission Measurement Results (For Below 1GHz)



Audix Technology (Wu Jiang) Co.,Ltd
 No.1289,Jiang Xing East Road,The Eastern Part of Wujiang
 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 9168-706-1902-3M
 Limit : FCC PART 15B QP
 Env. / Ins. : 20.9°C & 48% /ESR
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 5GHz
 Memo :

Ant. pol.: Vertical Data NO.:150
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
33.88	18.4	0.6	44.5	28.1	35.4	40.0	4.6	Peak
81.41	14.5	1.0	51.0	27.6	38.9	40.0	1.1	Peak
261.78	17.6	1.7	52.9	26.6	45.6	46.0	0.4	QP
312.27	18.9	1.8	45.1	26.7	39.1	46.0	6.9	Peak
500.45	23.5	2.3	45.5	28.0	43.3	46.0	2.7	Peak
750.71	27.6	2.9	35.1	27.9	37.7	46.0	8.3	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 9168-706-1902-3M
 Limit : FCC PART 15B QP
 Env. / Ins. : 20.9*C & 48% /ESR
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 5GHz
 Memo :

Ant. pol.: Horizontal Data NO.:151
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
79.47	14.6	0.9	45.5	27.6	33.4	40.0	6.6	Peak
158.04	18.6	1.3	43.4	27.0	36.3	43.5	7.2	Peak
258.92	17.5	1.7	50.0	26.6	42.6	46.0	3.4	Peak
320.03	19.1	1.8	44.0	26.7	38.2	46.0	7.8	Peak
464.56	22.9	2.2	44.4	27.8	41.7	46.0	4.3	Peak
500.45	23.5	2.3	42.3	28.0	40.1	46.0	5.9	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

5.5.2. Emission Measurement Results (For Above 1GHz)

Mode	802.11a	Frequency	TX 5240MHz
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 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5240MHz
 Memo :

Ant. pol.: Horizontal Data NO.:84
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1901.00	31.8	6.9	44.4	33.8	49.3	74.0	24.7	Peak
4876.00	35.7	7.3	41.1	33.3	50.8	74.0	23.2	Peak
10316.00	39.3	10.2	37.7	33.6	53.6	74.0	20.4	Peak
10316.89	39.3	10.3	31.2	33.6	47.2	54.0	6.8	Average
12849.00	40.6	10.8	34.3	31.9	53.8	74.0	20.2	Peak
12849.68	40.6	10.8	28.6	31.9	48.1	54.0	5.9	Average
13903.00	40.4	11.2	30.7	31.4	50.9	74.0	23.1	Peak
14600.00	40.6	12.0	31.5	32.0	52.1	74.0	21.9	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9*C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5240MHz
 Memo :

Ant. pol.: Vertical Data NO.:83
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1238.00	29.3	4.1	52.4	34.2	51.6	74.0	22.4	Peak
1901.00	31.8	6.9	47.2	33.8	52.1	74.0	21.9	Peak
3465.00	34.6	5.7	44.8	33.5	51.6	74.0	22.4	Peak
6916.00	36.5	8.1	40.5	33.4	51.7	74.0	22.3	Peak
10503.00	39.7	11.2	37.0	33.5	54.4	74.0	19.6	Peak
10504.10	39.7	11.2	31.0	33.5	48.4	54.0	5.6	Average
14532.00	40.5	11.9	31.1	31.9	51.6	74.0	22.4	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Mode	802.11a	Frequency	TX 5260MHz
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 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5260MHz
 Memo :

Ant. pol.: Horizontal Data NO.:85
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1238.00	29.3	4.1	50.7	34.2	49.9	74.0	24.1	Peak
2700.00	33.5	5.7	44.3	33.6	49.9	74.0	24.1	Peak
4876.00	35.7	7.3	41.6	33.3	51.3	74.0	22.7	Peak
7664.00	36.3	8.7	36.4	33.5	47.9	74.0	26.1	Peak
11030.00	39.5	13.6	32.9	33.3	52.7	74.0	21.3	Peak
14277.00	40.5	11.6	29.9	31.7	50.3	74.0	23.7	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5260MHz
 Memo :

Ant. pol.: Vertical Data NO.:86
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1238.00	29.3	4.1	50.6	34.2	49.8	74.0	24.2	Peak
1901.00	31.8	6.9	47.5	33.8	52.4	74.0	21.6	Peak
3465.00	34.6	5.7	44.3	33.5	51.1	74.0	22.9	Peak
6916.00	36.5	8.1	39.3	33.4	50.5	74.0	23.5	Peak
8021.00	37.4	9.0	35.9	33.6	48.7	74.0	25.3	Peak
14311.00	40.5	11.6	30.1	31.7	50.5	74.0	23.5	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Mode	802.11a	Frequency	TX 5500MHz
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 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5500MHz
 Memo :

Ant. pol.: Vertical Data NO.:91
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1238.00	29.3	4.1	50.3	34.2	49.5	74.0	24.5	Peak
1901.00	31.8	6.9	47.7	33.8	52.6	74.0	21.4	Peak
3465.00	34.6	5.7	46.1	33.5	52.9	74.0	21.1	Peak
8650.00	37.7	9.3	35.0	33.7	48.3	74.0	25.7	Peak
10503.00	39.7	11.2	36.4	33.5	53.8	74.0	20.2	Peak
10504.02	39.7	11.2	29.9	33.5	47.3	54.0	6.7	Average
14413.00	40.5	11.7	29.7	31.8	50.1	74.0	23.9	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5500MHz
 Memo :

Ant. pol.: Horizontal Data NO.:92
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1238.00	29.3	4.1	48.3	34.2	47.5	74.0	26.5	Peak
4927.00	35.7	7.4	41.3	33.3	51.1	74.0	22.9	Peak
6916.00	36.5	8.1	37.8	33.4	49.0	74.0	25.0	Peak
11081.00	39.5	13.4	33.5	33.3	53.1	74.0	20.9	Peak
11081.80	39.5	13.4	27.6	33.3	47.2	54.0	6.8	Average
12900.00	40.7	10.9	33.9	31.8	53.7	74.0	20.3	Peak
12900.59	40.7	10.9	27.0	31.8	46.8	54.0	7.2	Average
14821.00	41.0	12.2	30.3	32.2	51.3	74.0	22.7	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Mode	802.11a	Frequency	TX 5825MHz
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 No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5825MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:101
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1238.00	29.3	4.1	48.9	34.2	48.1	74.0	25.9	Peak
3465.00	34.6	5.7	41.8	33.5	48.6	74.0	25.4	Peak
4927.00	35.7	7.4	40.3	33.3	50.1	74.0	23.9	Peak
9024.00	38.4	9.4	35.9	33.8	49.9	74.0	24.1	Peak
11013.00	39.5	13.7	34.0	33.3	53.9	74.0	20.1	Peak
11013.46	39.5	13.7	27.0	33.3	46.9	54.0	7.1	Average
14600.00	40.6	12.0	29.9	32.0	50.5	74.0	23.5	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



Audix Technology (Wu Jiang) Co.,Ltd
 No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5825MHz
 Memo :
 Ant. pol.: Vertical Data NO.:102
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1238.00	29.3	4.1	52.0	34.2	51.2	74.0	22.8	Peak
3465.00	34.6	5.7	46.7	33.5	53.5	74.0	20.5	Peak
3465.87	34.6	5.7	39.2	33.5	46.0	54.0	8.0	Average
6916.00	36.5	8.1	41.0	33.4	52.2	74.0	21.8	Peak
9092.00	38.4	9.3	36.3	33.8	50.2	74.0	23.8	Peak
10962.00	39.5	13.6	33.8	33.3	53.6	74.0	20.4	Peak
10962.93	39.5	13.6	27.0	33.3	46.8	54.0	7.2	Average
13665.00	40.5	11.2	30.4	31.5	50.6	74.0	23.4	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Mode	802.11nHT20	Frequency	TX 5240MHz
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 No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5240MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:108
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission			Remark
					Level dBuV/m	Limits dBuV/m	Margin dB	
1765.00	30.9	6.5	47.3	33.8	50.9	74.0	23.1	Peak
5811.00	36.1	7.8	42.0	33.4	52.5	74.0	21.5	Peak
8990.00	38.4	9.4	37.1	33.8	51.1	74.0	22.9	Peak
10809.00	39.6	12.8	34.3	33.4	53.3	74.0	20.7	Peak
10809.10	39.6	12.8	27.8	33.4	46.8	54.0	7.2	Average
12186.00	39.9	10.0	31.5	32.9	48.5	74.0	25.5	Peak
14379.00	40.5	11.7	33.2	31.8	53.6	74.0	20.4	Peak
14379.07	40.5	11.7	26.5	31.8	46.9	54.0	7.1	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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 No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5240MHz
 Memo :
 Ant. pol.: Vertical Data NO.:109
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1731.00	30.6	6.3	48.8	33.8	51.9	74.0	22.1	Peak
6117.00	36.5	7.9	37.6	33.4	48.6	74.0	25.4	Peak
7086.00	36.4	8.2	37.4	33.4	48.6	74.0	25.4	Peak
9075.00	38.4	9.3	36.8	33.8	50.7	74.0	23.3	Peak
10622.00	39.7	11.8	36.3	33.5	54.3	74.0	19.7	Peak
10622.09	39.7	11.8	29.3	33.5	47.3	54.0	6.7	Average
12305.00	40.1	10.1	33.7	32.7	51.2	74.0	22.8	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Mode	802.11nHT20	Frequency	TX 5260MHz
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 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5260MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:111
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1765.00	30.9	6.5	46.5	33.8	50.1	74.0	23.9	Peak
1901.00	31.8	6.9	45.3	33.8	50.2	74.0	23.8	Peak
4825.00	35.6	7.3	38.6	33.3	48.2	74.0	25.8	Peak
7324.00	36.0	8.4	37.8	33.5	48.7	74.0	25.3	Peak
10316.00	39.3	10.2	37.2	33.6	53.1	74.0	20.9	Peak
10316.16	39.3	10.2	30.4	33.6	46.3	54.0	7.7	Average
14260.00	40.5	11.5	34.3	31.7	54.6	74.0	19.4	Peak
14260.65	40.5	11.5	27.7	31.7	48.0	54.0	6.0	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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 No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5260MHz
 Memo :
 Ant. pol.: Vertical Data NO.:110
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1731.00	30.6	6.3	45.8	33.8	48.9	74.0	25.1	Peak
6457.00	36.7	8.0	36.1	33.4	47.4	74.0	26.6	Peak
8225.00	37.4	9.1	37.0	33.6	49.9	74.0	24.1	Peak
9160.00	38.4	9.3	37.2	33.8	51.1	74.0	22.9	Peak
10690.00	39.6	12.2	36.1	33.4	54.5	74.0	19.5	Peak
10690.66	39.6	12.2	29.1	33.4	47.5	54.0	6.5	Average
15178.00	41.3	12.4	30.6	32.5	51.8	74.0	22.2	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Mode	802.11nHT20	Frequency	TX 5500MHz
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 No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5500MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:116
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1765.00	30.9	6.5	46.6	33.8	50.2	74.0	23.8	Peak
1901.00	31.8	6.9	46.7	33.8	51.6	74.0	22.4	Peak
4332.00	35.2	6.6	38.9	33.4	47.3	74.0	26.7	Peak
11030.00	39.5	13.6	33.8	33.3	53.6	74.0	20.4	Peak
11030.43	39.5	13.6	26.9	33.3	46.7	54.0	7.3	Average
12934.00	40.7	10.9	34.5	31.8	54.3	74.0	19.7	Peak
12934.54	40.7	10.9	27.6	31.8	47.4	54.0	6.6	Average
15059.00	41.2	12.4	30.4	32.4	51.6	74.0	22.4	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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 No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5500MHz
 Memo :
 Ant. pol.: Vertical Data NO.:117
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1901.00	31.8	6.9	45.0	33.8	49.9	74.0	24.1	Peak
4944.00	35.7	7.4	42.0	33.3	51.8	74.0	22.2	Peak
7086.00	36.4	8.2	38.8	33.4	50.0	74.0	24.0	Peak
8276.00	37.4	9.1	37.6	33.7	50.4	74.0	23.6	Peak
11285.00	39.5	12.6	34.8	33.3	53.6	74.0	20.4	Peak
11285.37	39.5	12.6	28.7	33.3	47.5	54.0	6.5	Average
13461.00	40.5	11.1	33.4	31.6	53.4	74.0	20.6	Peak
13461.46	40.5	11.1	26.9	31.6	46.9	54.0	7.1	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Mode	802.11nHT20	Frequency	TX 5825MHz
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 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5825MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:127
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1901.00	31.8	6.9	47.0	33.8	51.9	74.0	22.1	Peak
5794.00	36.0	7.8	42.6	33.4	53.0	74.0	21.0	Peak
7919.00	37.1	8.9	37.3	33.6	49.7	74.0	24.3	Peak
10894.00	39.5	13.2	34.4	33.4	53.7	74.0	20.3	Peak
10894.51	39.5	13.2	28.1	33.4	47.4	54.0	6.6	Average
13019.00	40.7	11.0	33.1	31.7	53.1	74.0	20.9	Peak
13019.32	40.7	11.0	27.9	31.7	47.9	54.0	6.1	Average
14940.00	41.1	12.4	28.9	32.3	50.1	74.0	23.9	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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 No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5825MHz
 Memo :
 Ant. pol.: Vertical Data NO.:126
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1901.00	31.8	6.9	46.3	33.8	51.2	74.0	22.8	Peak
4842.00	35.6	7.3	41.6	33.3	51.2	74.0	22.8	Peak
9177.00	38.4	9.2	39.0	33.8	52.8	74.0	21.2	Peak
11149.00	39.5	13.1	35.1	33.3	54.4	74.0	19.6	Peak
11149.54	39.5	13.1	27.7	33.3	47.0	54.0	7.0	Average
12424.00	40.4	10.3	36.0	32.5	54.2	74.0	19.8	Peak
12424.32	40.4	10.3	29.0	32.5	47.2	54.0	6.8	Average
14940.00	41.1	12.4	29.5	32.3	50.7	74.0	23.3	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Mode	802.11nHT40	Frequency	TX 5230MHz
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 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5230MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:128
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1884.00	31.7	6.9	46.7	33.8	51.5	74.0	22.5	Peak
5811.00	36.1	7.8	43.2	33.4	53.7	74.0	20.3	Peak
10129.00	38.8	9.2	37.4	33.7	51.7	74.0	22.3	Peak
11030.00	39.5	13.6	34.1	33.3	53.9	74.0	20.1	Peak
11030.63	39.5	13.6	26.6	33.3	46.4	54.0	7.6	Average
12781.00	40.6	10.7	34.8	32.0	54.1	74.0	19.9	Peak
12781.31	40.6	10.8	28.0	32.0	47.4	54.0	6.6	Average
14141.00	40.4	11.4	29.9	31.5	50.2	74.0	23.8	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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 No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5230MHz
 Memo :
 Ant. pol.: Vertical Data NO.:129
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5794.00	36.0	7.8	41.5	33.4	51.9	74.0	22.1	Peak
8157.00	37.4	9.0	37.1	33.6	49.9	74.0	24.1	Peak
9211.00	38.4	9.2	36.7	33.8	50.5	74.0	23.5	Peak
10843.00	39.6	13.0	32.8	33.4	52.0	74.0	22.0	Peak
10843.35	39.6	13.0	27.2	33.4	46.4	54.0	7.6	Average
13019.00	40.7	11.0	33.6	31.7	53.6	74.0	20.4	Peak
13019.64	40.7	11.0	27.7	31.7	47.7	54.0	6.3	Average
14073.00	40.4	11.3	31.5	31.5	51.7	74.0	22.3	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Mode	802.11nHT40	Frequency	TX 5270MHz
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 No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5270MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:131
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1901.00	31.8	6.9	44.3	33.8	49.2	74.0	24.8	Peak
8973.00	38.3	9.4	37.2	33.8	51.1	74.0	22.9	Peak
10962.00	39.5	13.6	33.9	33.3	53.7	74.0	20.3	Peak
10962.90	39.5	13.6	26.8	33.3	46.6	54.0	7.4	Average
12288.00	40.1	10.1	36.2	32.8	53.6	74.0	20.4	Peak
12288.96	40.1	10.1	29.3	32.8	46.7	54.0	7.3	Average
13121.00	40.7	11.1	33.0	31.7	53.1	74.0	20.9	Peak
13121.64	40.7	11.1	27.3	31.7	47.4	54.0	6.6	Average
14192.00	40.4	11.5	31.2	31.6	51.5	74.0	22.5	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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 No.1289,Jiang Xing East Road,The Eastern Part of WuJiang
 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5270MHz
 Memo :
 Ant. pol.: Vertical Data NO.:130
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1901.00	31.8	6.9	47.5	33.8	52.4	74.0	21.6	Peak
3346.00	34.3	5.5	41.1	33.5	47.4	74.0	26.6	Peak
9041.00	38.4	9.4	37.7	33.8	51.7	74.0	22.3	Peak
11030.00	39.5	13.6	34.3	33.3	54.1	74.0	19.9	Peak
11030.68	39.5	13.6	27.9	33.3	47.7	54.0	6.3	Average
13087.00	40.7	11.0	31.9	31.7	51.9	74.0	22.1	Peak
13971.00	40.4	11.2	33.9	31.4	54.1	74.0	19.9	Peak
13971.64	40.4	11.2	27.4	31.4	47.6	54.0	6.4	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Mode	802.11nHT40	Frequency	TX 5550MHz
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 Economic Development Zone,JiangSu,China
 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5550MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:132
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
4706.00	35.6	7.1	39.9	33.3	49.3	74.0	24.7	Peak
6083.00	36.5	7.9	36.8	33.4	47.8	74.0	26.2	Peak
9296.00	38.5	9.1	37.1	33.8	50.9	74.0	23.1	Peak
10911.00	39.5	13.3	33.5	33.3	53.0	74.0	21.0	Peak
10911.39	39.5	13.3	27.4	33.3	46.9	54.0	7.1	Average
12492.00	40.5	10.4	35.3	32.4	53.8	74.0	20.2	Peak
12492.64	40.5	10.4	28.5	32.4	47.0	54.0	7.0	Average
14005.00	40.4	11.2	30.9	31.4	51.1	74.0	22.9	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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 Tel : (0512)63403993 Fax:(0512)63403339

Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5550MHz
 Memo :
 Ant. pol.: Vertical Data NO.:133
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5369.00	35.6	7.6	41.3	33.3	51.2	74.0	22.8	Peak
5811.00	36.1	7.8	41.4	33.4	51.9	74.0	22.1	Peak
8089.00	37.4	9.0	38.6	33.6	51.4	74.0	22.6	Peak
9296.00	38.5	9.1	37.7	33.8	51.5	74.0	22.5	Peak
11064.00	39.5	13.5	33.6	33.3	53.3	74.0	20.7	Peak
11064.16	39.5	13.5	27.7	33.3	47.4	54.0	6.6	Average
13121.00	40.7	11.1	31.2	31.7	51.3	74.0	22.7	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Mode	802.11nHT40	Frequency	TX 5795MHz
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Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5795MHz
 Memo :

Ant. pol.: Vertical Data NO.:134
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5658.00	35.8	7.7	40.5	33.4	50.6	74.0	23.4	Peak
6644.00	36.6	8.0	36.9	33.4	48.1	74.0	25.9	Peak
8072.00	37.4	9.0	38.1	33.6	50.9	74.0	23.1	Peak
9262.00	38.5	9.2	36.7	33.8	50.6	74.0	23.4	Peak
10809.00	39.6	12.8	35.1	33.4	54.1	74.0	19.9	Peak
10809.75	39.6	12.8	28.1	33.4	47.1	54.0	6.9	Average
13121.00	40.7	11.1	30.2	31.7	50.3	74.0	23.7	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5795MHz
 Memo :

Ant. pol.: Horizontal Data NO.:135
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
4825.00	35.6	7.3	38.7	33.3	48.3	74.0	25.7	Peak
5896.00	36.2	7.8	38.0	33.4	48.6	74.0	25.4	Peak
8208.00	37.4	9.1	37.8	33.6	50.7	74.0	23.3	Peak
10877.00	39.5	13.1	35.8	33.4	55.0	74.0	19.0	Peak
10877.32	39.5	13.1	28.0	33.4	47.2	54.0	6.8	Average
11897.00	39.5	10.1	34.0	33.2	50.4	74.0	23.6	Peak

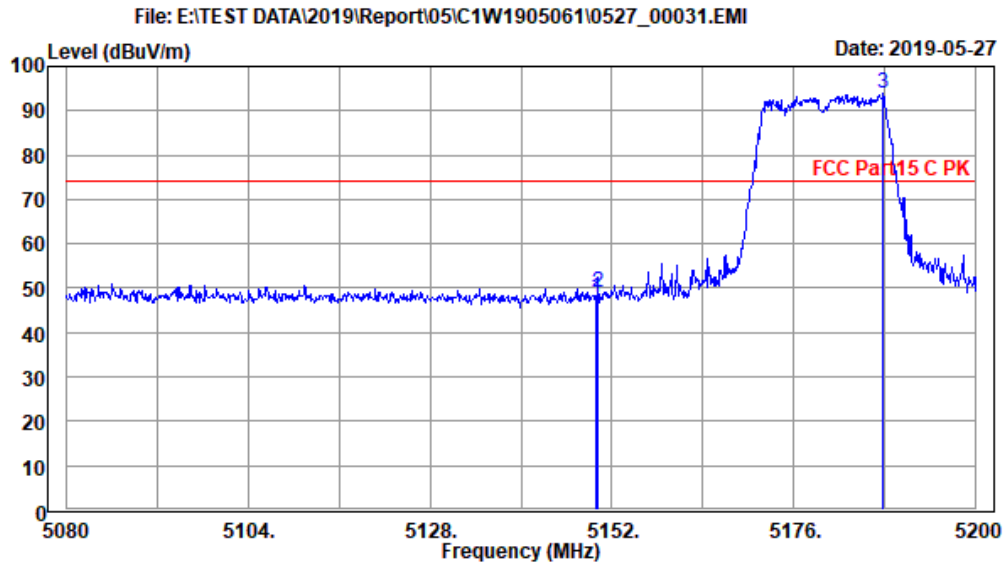
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

5.5.3. Spurious Emission Measurement Results in Band Edge Emission

Mode	802.11a	Frequency	TX 5180MHz
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Site NO. : NO.2 3M chamber Ant. pol.: Horizontal Data NO.:31
 Dis. / Ant. : 3117-586-1902 Engineer : Zhangjiahui
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5180MHz
 Memo :

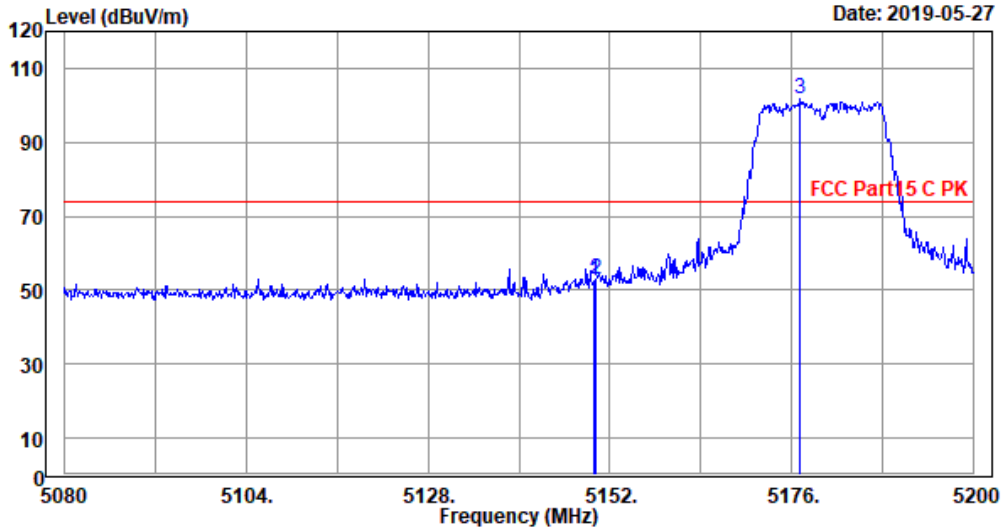
Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5149.96	35.6	7.6	38.1	33.3	48.0	74.0	26.0	Peak
5150.08	35.6	7.6	39.2	33.3	49.1	74.0	24.9	Peak
5187.76	35.6	7.6	83.9	33.3	93.8	74.0	-19.8	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00029.EMI



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5180MHz
 Memo :
 Ant. pol.: Vertical Data NO.:29
 Engineer : Zhangjiahui

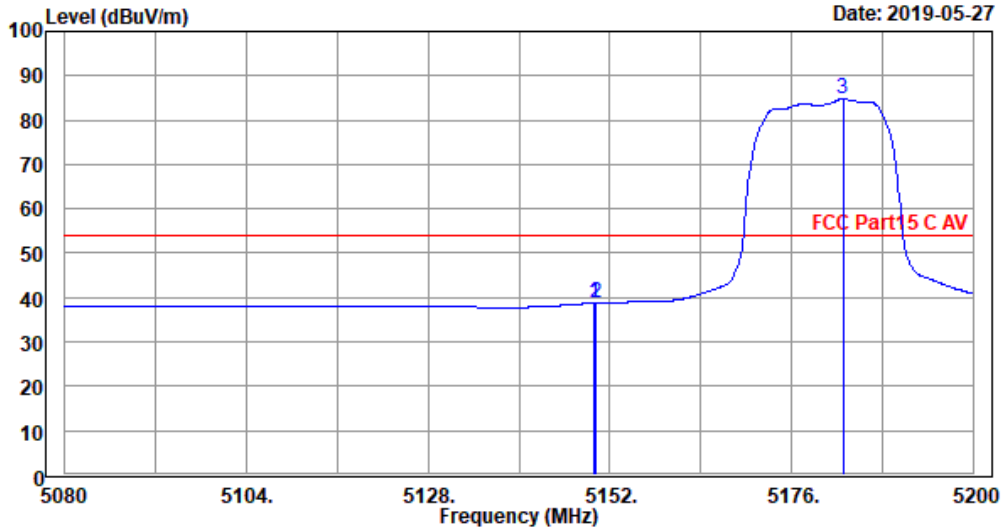
Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5149.96	35.6	7.6	42.5	33.3	52.4	74.0	21.6	Peak
5150.08	35.6	7.6	42.9	33.3	52.8	74.0	21.2	Peak
5177.08	35.6	7.6	91.7	33.3	101.6	74.0	-27.6	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00032.EMI



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5180MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:32
 Engineer : Zhangjiahui

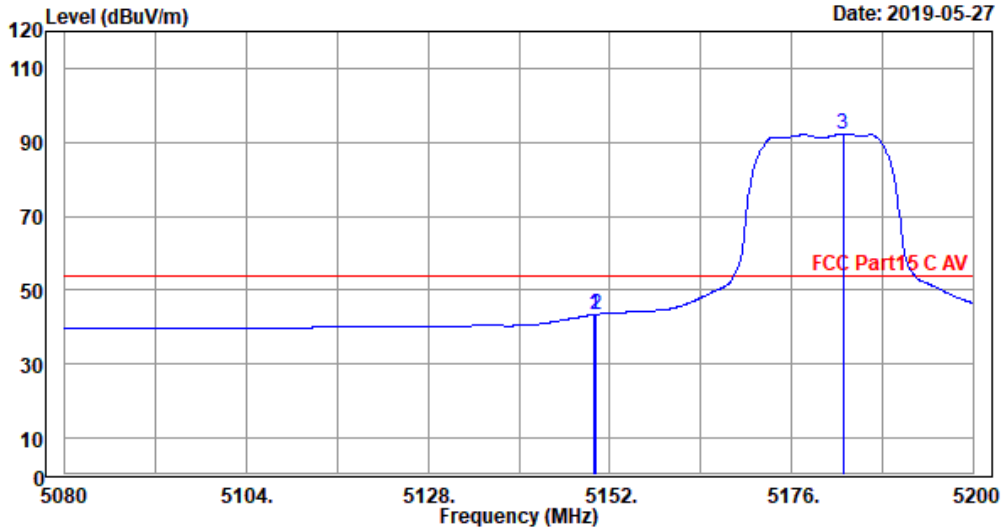
Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5149.96	35.6	7.6	28.9	33.3	38.8	54.0	15.2	Average
5150.08	35.6	7.6	28.9	33.3	38.8	54.0	15.2	Average
5182.72	35.6	7.6	74.8	33.3	84.7	54.0	-30.7	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00030.EMI



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5180MHz
 Memo :
 Ant. pol.: Vertical Data NO.:30
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5149.96	35.6	7.6	33.5	33.3	43.4	54.0	10.6	Average
5150.08	35.6	7.6	33.5	33.3	43.4	54.0	10.6	Average
5182.72	35.6	7.6	82.4	33.3	92.3	54.0	-38.3	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

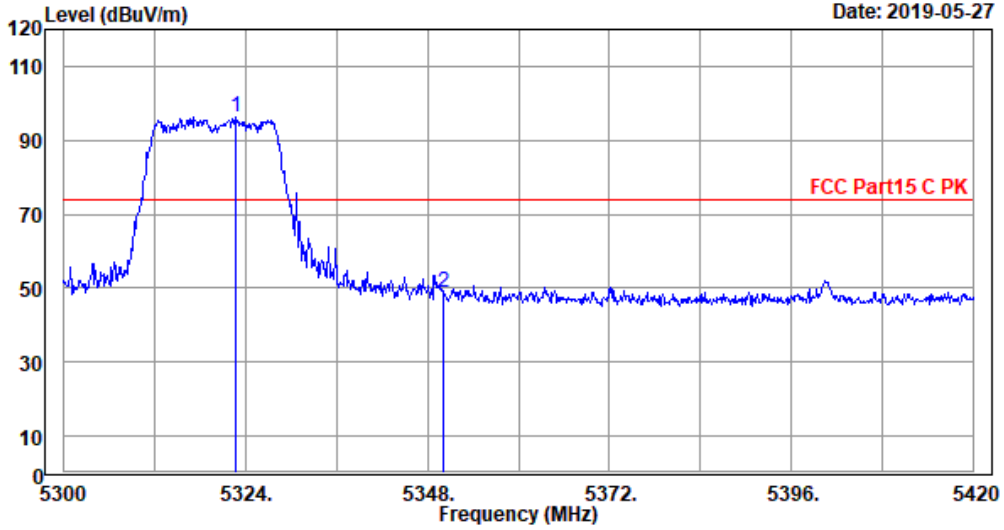
Mode	802.11a	Frequency	TX 5320MHz
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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00033.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5320MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:33
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5322.68	35.6	7.6	86.2	33.3	96.1	74.0	-22.1	Peak
5350.04	35.6	7.6	38.9	33.3	48.8	74.0	25.2	Peak

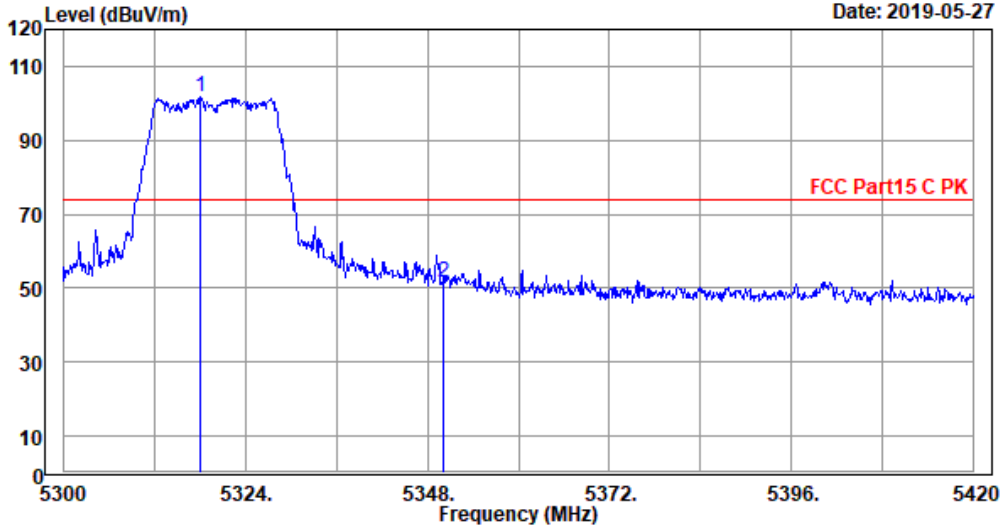
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00035.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5320MHz
 Memo :
 Ant. pol.: Vertical Data NO.:35
 Engineer : Zhangjiahui

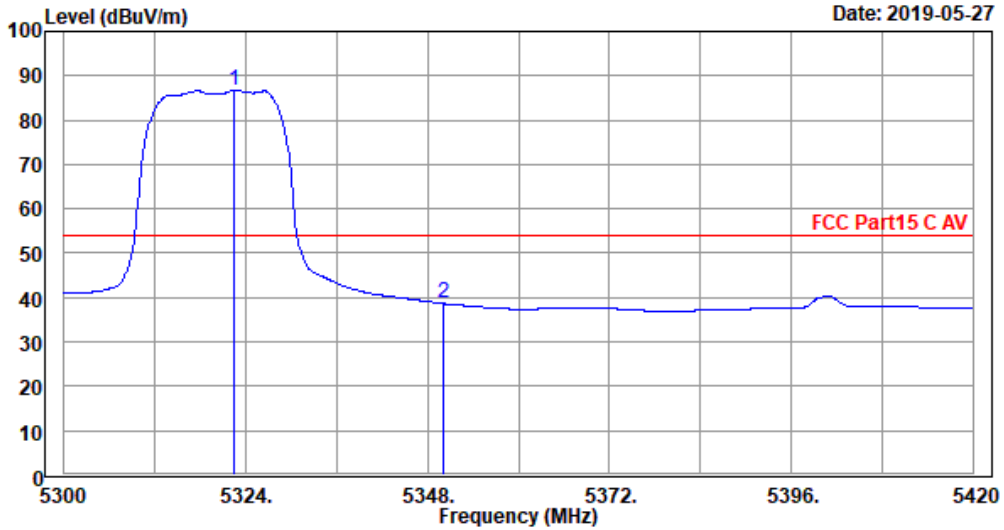
Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5318.12	35.6	7.6	92.0	33.3	101.9	74.0	-27.9	Peak
5350.04	35.6	7.6	41.7	33.3	51.6	74.0	22.4	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00034.EMI



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5320MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:34
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5322.56	35.6	7.6	76.8	33.3	86.7	54.0	-32.7	Average
5350.04	35.6	7.6	28.7	33.3	38.6	54.0	15.4	Average

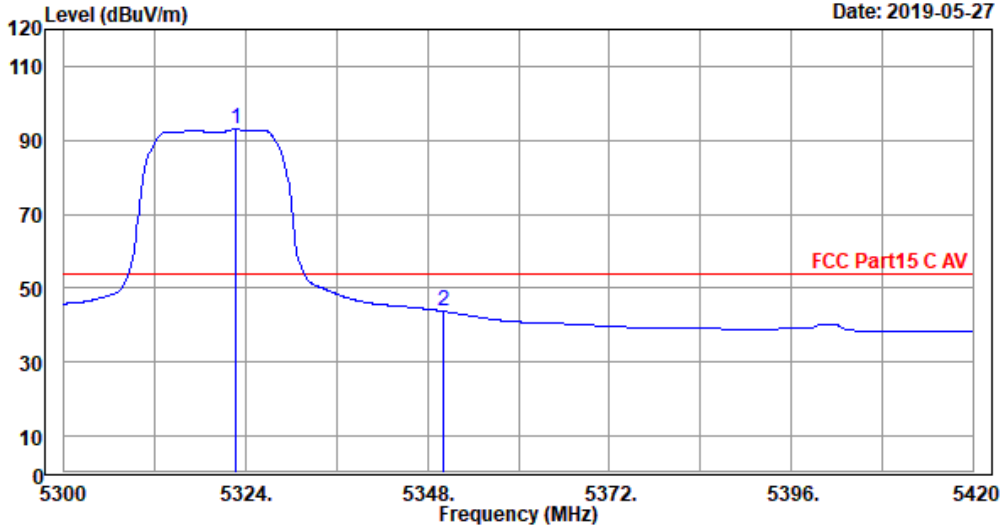
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00036.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5320MHz
 Memo :
 Ant. pol.: Vertical Data NO.:36
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5322.68	35.6	7.6	83.0	33.3	92.9	54.0	-38.9	Average
5350.04	35.6	7.6	33.9	33.3	43.8	54.0	10.2	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

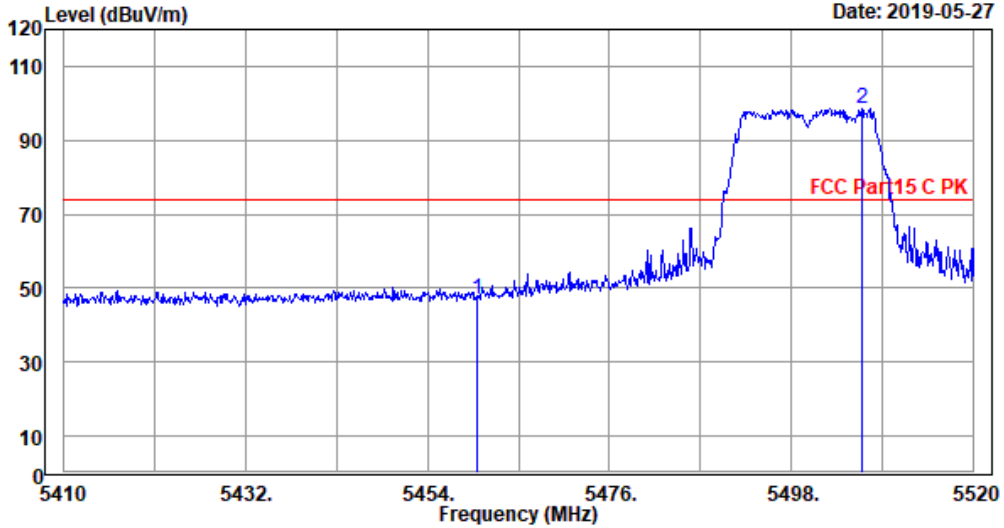
Mode	802.11a	Frequency	TX 5500MHz
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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00039.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5500MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:39
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5460.05	35.5	7.7	37.1	33.3	47.0	74.0	27.0	Peak
5506.58	35.5	7.7	88.7	33.4	98.5	74.0	-24.5	Peak

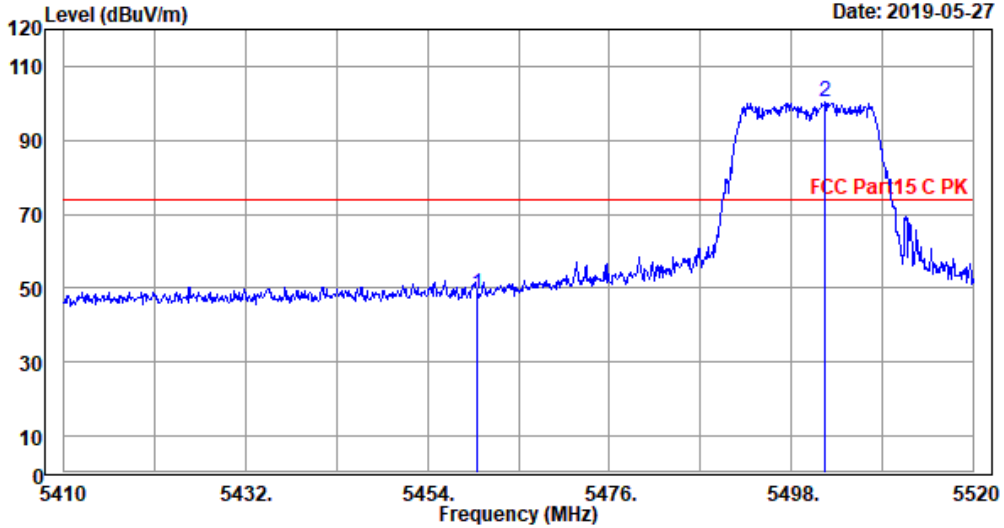
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00037.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5500MHz
 Memo :
 Ant. pol.: Vertical Data NO.:37
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5460.05	35.5	7.7	38.5	33.3	48.4	74.0	25.6	Peak
5502.07	35.5	7.7	90.6	33.4	100.4	74.0	-26.4	Peak

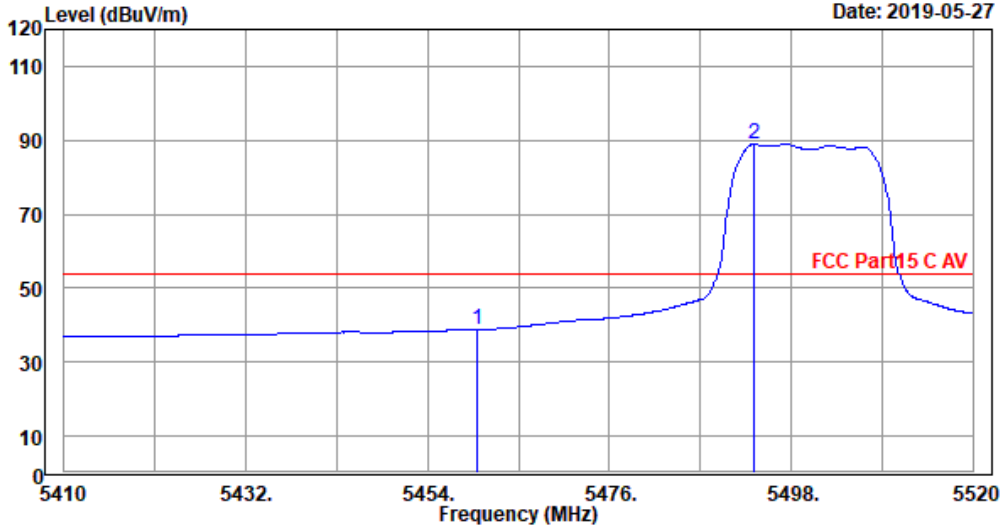
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00040.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5500MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:40
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5460.05	35.5	7.7	28.9	33.3	38.8	54.0	15.2	Average
5493.38	35.5	7.7	79.2	33.4	89.0	54.0	-35.0	Average

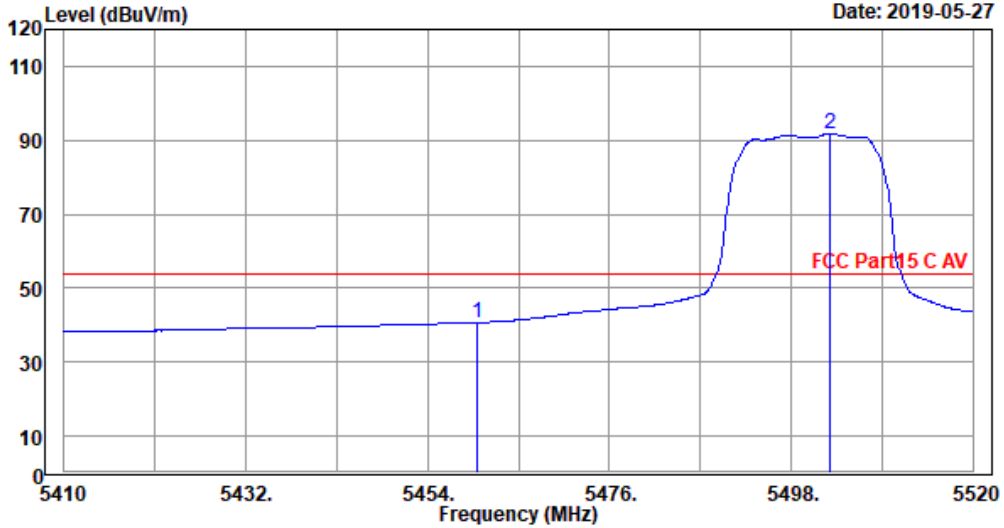
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00038.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5500MHz
 Memo :
 Ant. pol.: Vertical Data NO.:38
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5460.05	35.5	7.7	30.8	33.3	40.7	54.0	13.3	Average
5502.62	35.5	7.7	81.9	33.4	91.7	54.0	-37.7	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

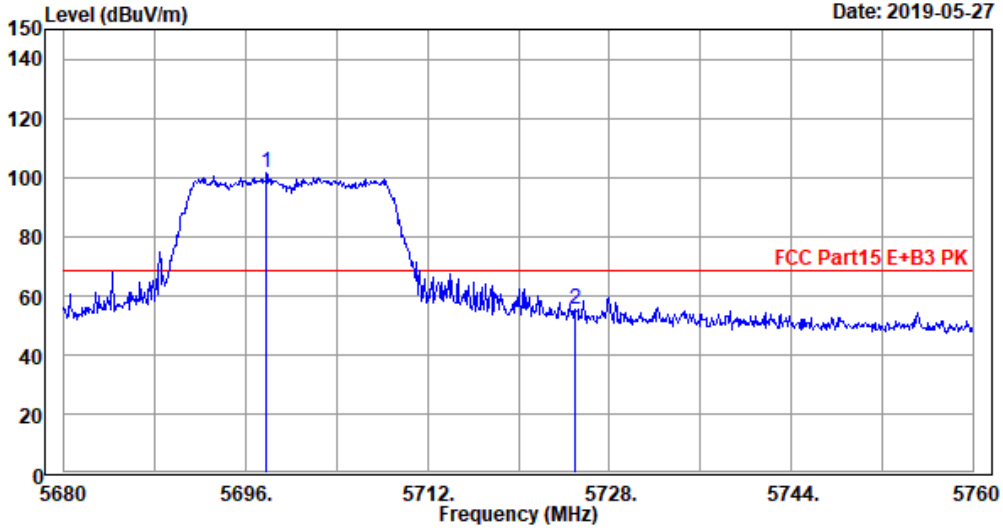
Mode	802.11a	Frequency	TX 5700MHz
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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00041.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 E+B3 PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5700MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:41
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBUV	Preamp Factor dB	Emission Level dBUV/m	Limits dBUV/m	Margin dB	Remark
5697.84	35.9	7.7	91.1	33.4	101.3	68.2	-33.1	Peak
5725.04	35.9	7.8	44.8	33.4	55.1	68.2	13.1	Peak

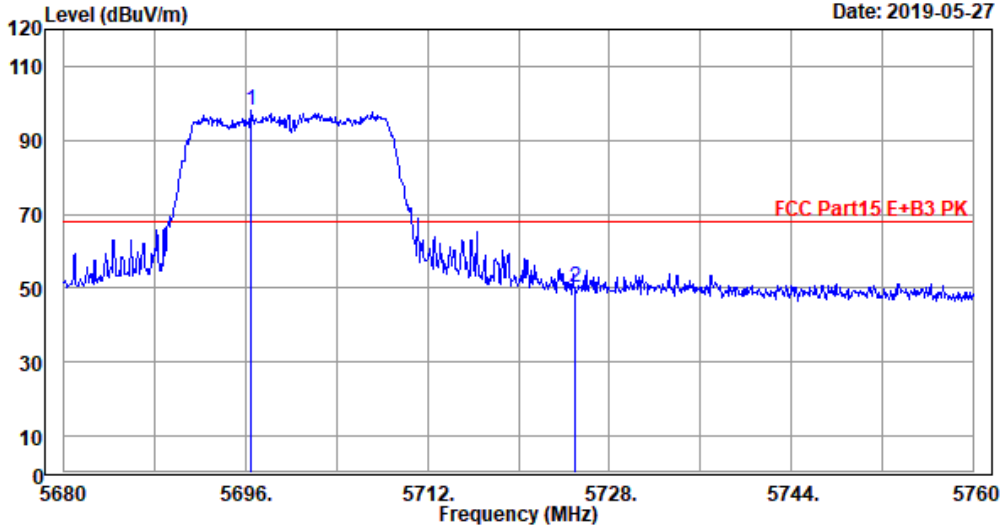
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00043.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 E+B3 PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5700MHz
 Memo :
 Ant. pol.: Vertical Data NO.:43
 Engineer : Zhangjiahui

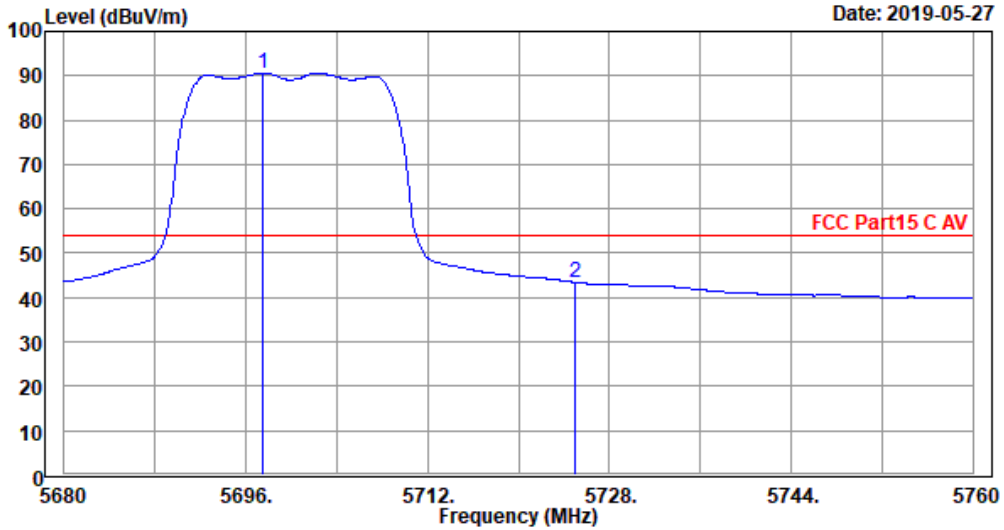
Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5696.56	35.9	7.7	88.1	33.4	98.3	68.2	-30.1	Peak
5725.04	35.9	7.8	39.9	33.4	50.2	68.2	18.0	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00042.EMI



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5700MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:42
 Engineer : Zhangjiahui

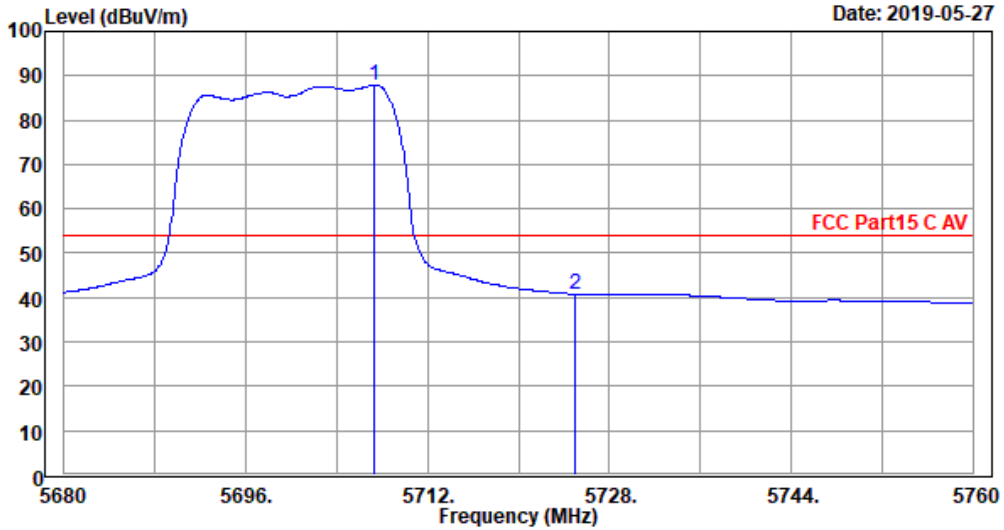
Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5697.52	35.9	7.7	80.3	33.4	90.5	54.0	-36.5	Average
5725.04	35.9	7.8	33.1	33.4	43.4	54.0	10.6	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00044.EMI



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11a 5700MHz
 Memo :
 Ant. pol.: Vertical Data NO.:44
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5707.36	35.9	7.7	77.6	33.4	87.8	54.0	-33.8	Average
5725.04	35.9	7.8	30.4	33.4	40.7	54.0	13.3	Average

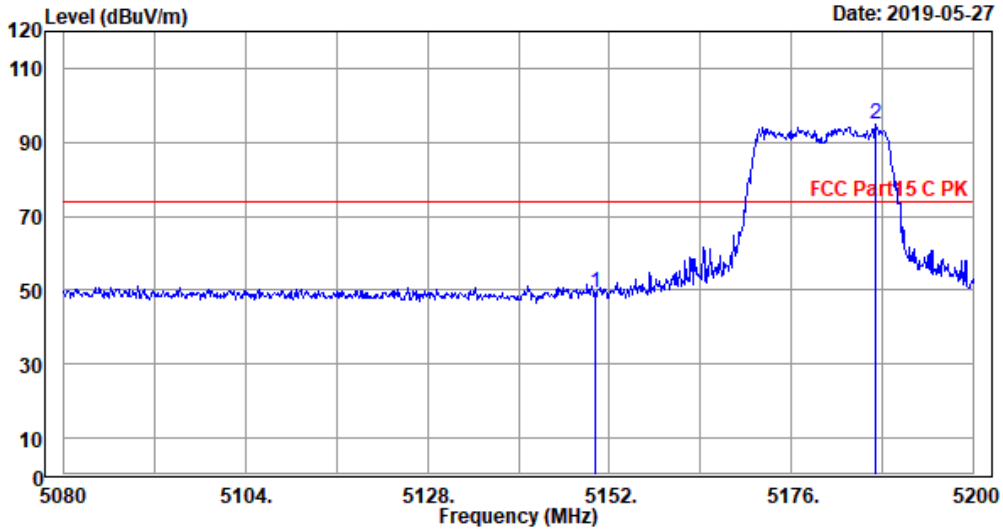
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

Mode	802.11nHT20	Frequency	TX 5180MHz
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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00047.EMI



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5180MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:47
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5150.08	35.6	7.6	39.3	33.3	49.2	74.0	24.8	Peak
5187.16	35.6	7.6	84.8	33.3	94.7	74.0	-20.7	Peak

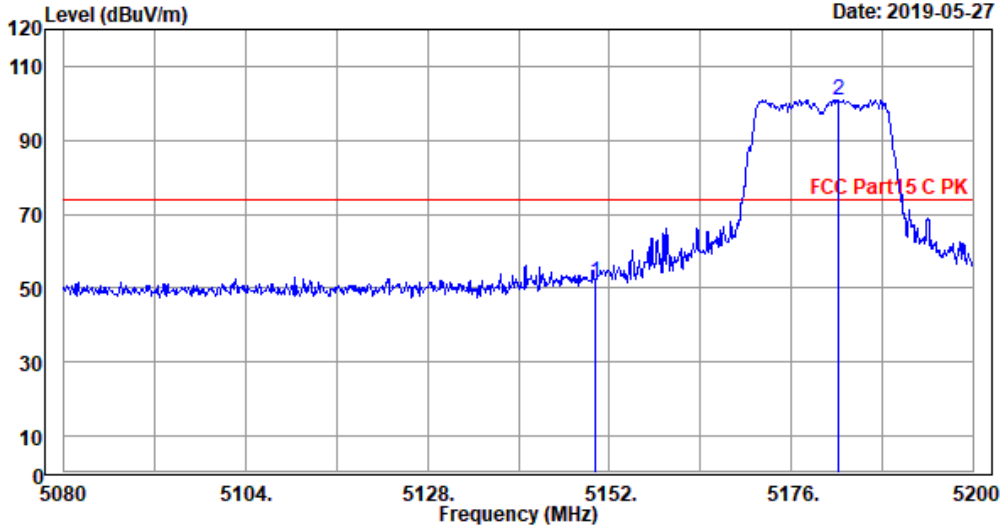
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00045.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5180MHz
 Memo :
 Ant. pol.: Vertical Data NO.:45
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5150.08	35.6	7.6	41.9	33.3	51.8	74.0	22.2	Peak
5182.24	35.6	7.6	91.1	33.3	101.0	74.0	-27.0	Peak

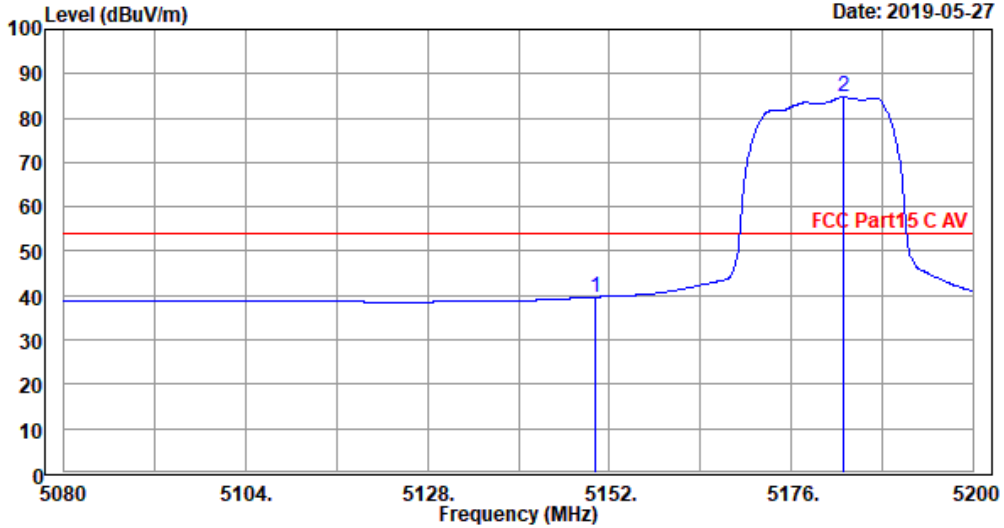
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00048.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5180MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:48
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5150.08	35.6	7.6	29.8	33.3	39.7	54.0	14.3	Average
5182.84	35.6	7.6	74.8	33.3	84.7	54.0	-30.7	Average

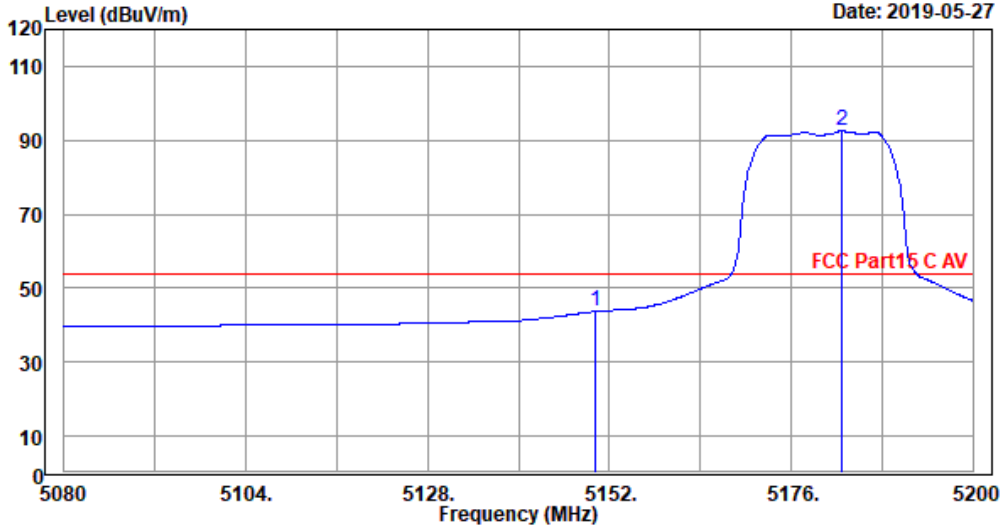
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00046.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5180MHz
 Memo :
 Ant. pol.: Vertical Data NO.:46
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5150.08	35.6	7.6	33.8	33.3	43.7	54.0	10.3	Average
5182.60	35.6	7.6	82.5	33.3	92.4	54.0	-38.4	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

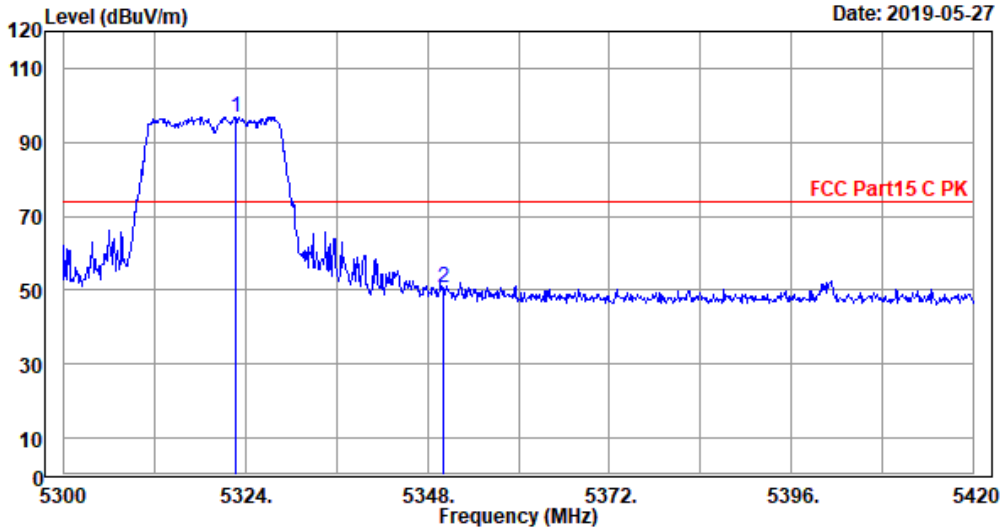
Mode	802.11nHT20	Frequency	TX 5320MHz
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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00049.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5320MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:49
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5322.68	35.6	7.6	87.0	33.3	96.9	74.0	-22.9	Peak
5350.04	35.6	7.6	40.9	33.3	50.8	74.0	23.2	Peak

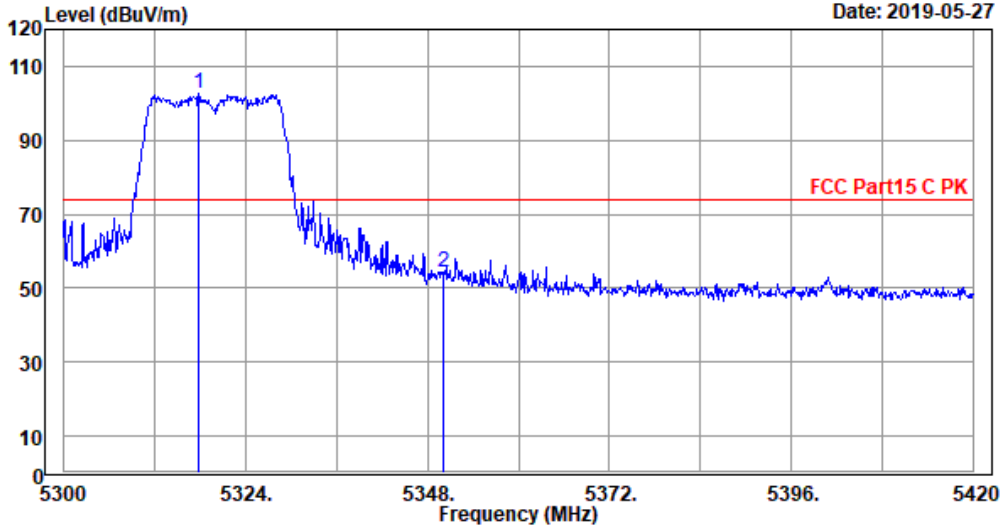
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00051.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5320MHz
 Memo :
 Ant. pol.: Vertical Data NO.:51
 Engineer : Zhangjiahui

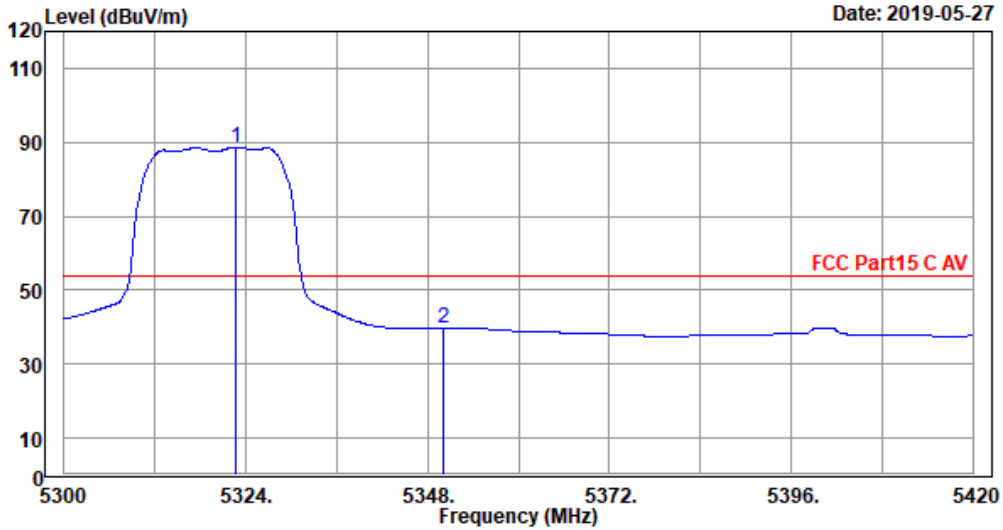
Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5317.76	35.6	7.6	92.7	33.3	102.6	74.0	-28.6	Peak
5350.04	35.6	7.6	44.3	33.3	54.2	74.0	19.8	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5320MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:50
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5322.68	35.6	7.6	78.8	33.3	88.7	54.0	-34.7	Average
5350.04	35.6	7.6	29.8	33.3	39.7	54.0	14.3	Average

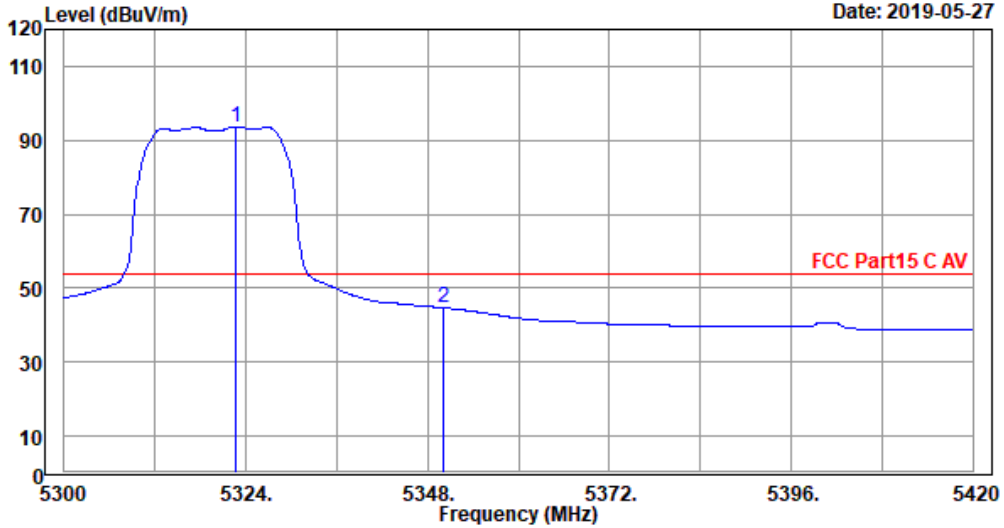
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00052.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5320MHz
 Memo :
 Ant. pol.: Vertical Data NO.:52
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5322.68	35.6	7.6	83.7	33.3	93.6	54.0	-39.6	Average
5350.04	35.6	7.6	34.8	33.3	44.7	54.0	9.3	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

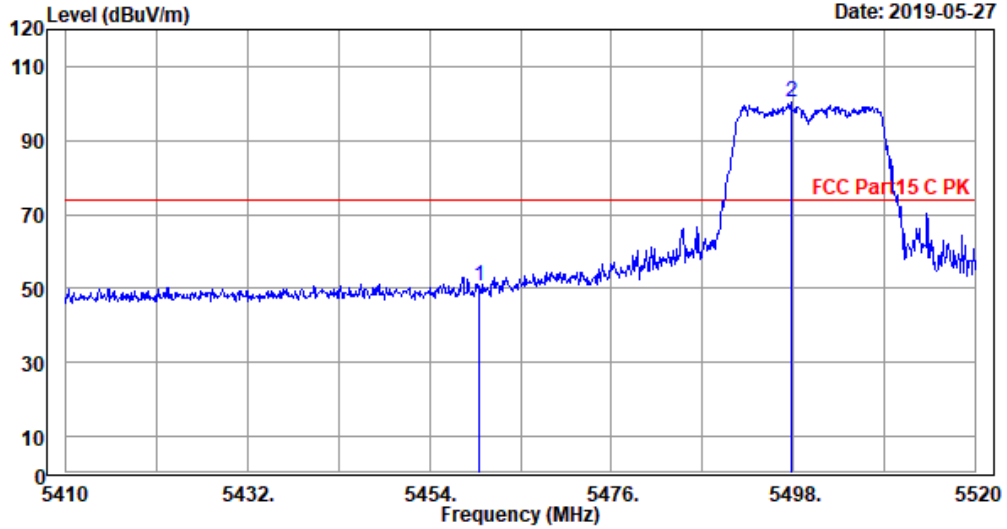
Mode	802.11nHT20	Frequency	TX 5500MHz
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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00055.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5500MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:55
 Engineer : Zhangjiahui

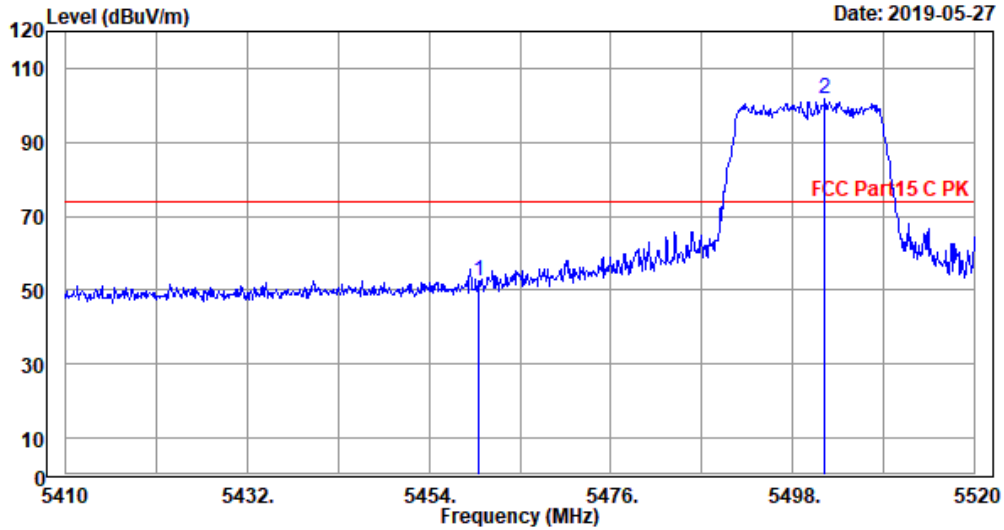
Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5460.05	35.5	7.7	40.8	33.3	50.7	74.0	23.3	Peak
5497.67	35.5	7.7	90.7	33.4	100.5	74.0	-26.5	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5500MHz
 Memo :
 Ant. pol.: Vertical Data NO.:53
 Engineer : Zhangjiahui

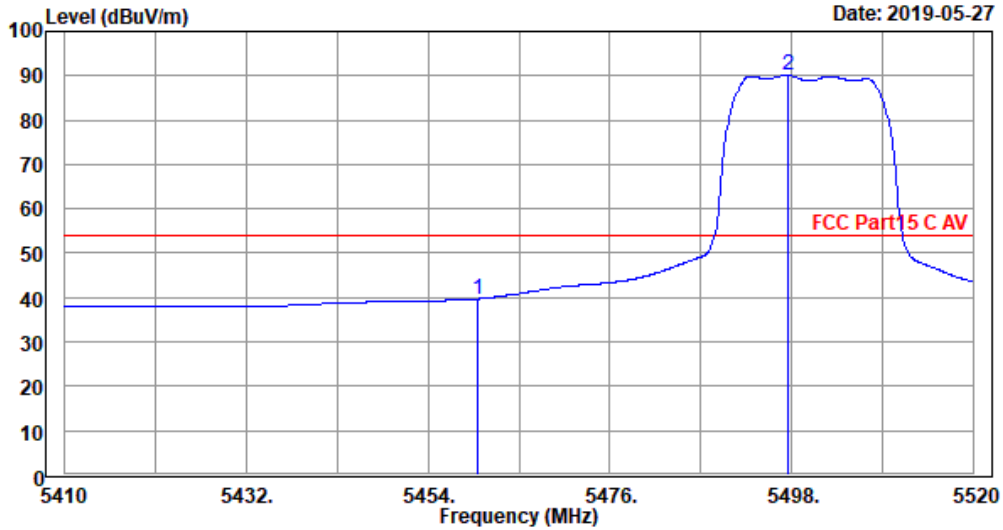
Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5460.05	35.5	7.7	42.5	33.3	52.4	74.0	21.6	Peak
5501.85	35.5	7.7	91.7	33.4	101.5	74.0	-27.5	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\051C1W1905061\0527_00056.EMI



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5500MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:56
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5460.05	35.5	7.7	29.8	33.3	39.7	54.0	14.3	Average
5497.45	35.5	7.7	80.3	33.4	90.1	54.0	-36.1	Average

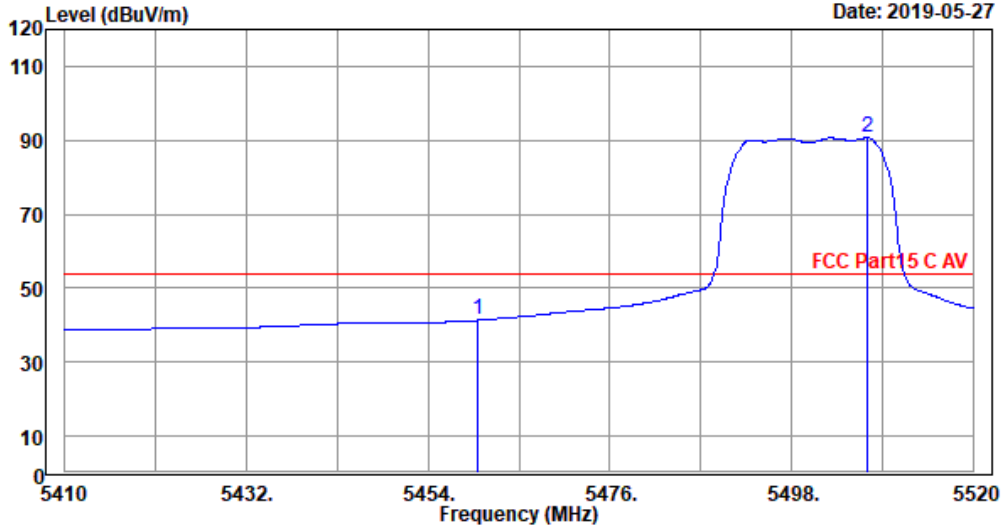
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00054.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5500MHz
 Memo :
 Ant. pol.: Vertical Data NO.:54
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5460.05	35.5	7.7	31.4	33.3	41.3	54.0	12.7	Average
5507.13	35.5	7.7	80.9	33.4	90.7	54.0	-36.7	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

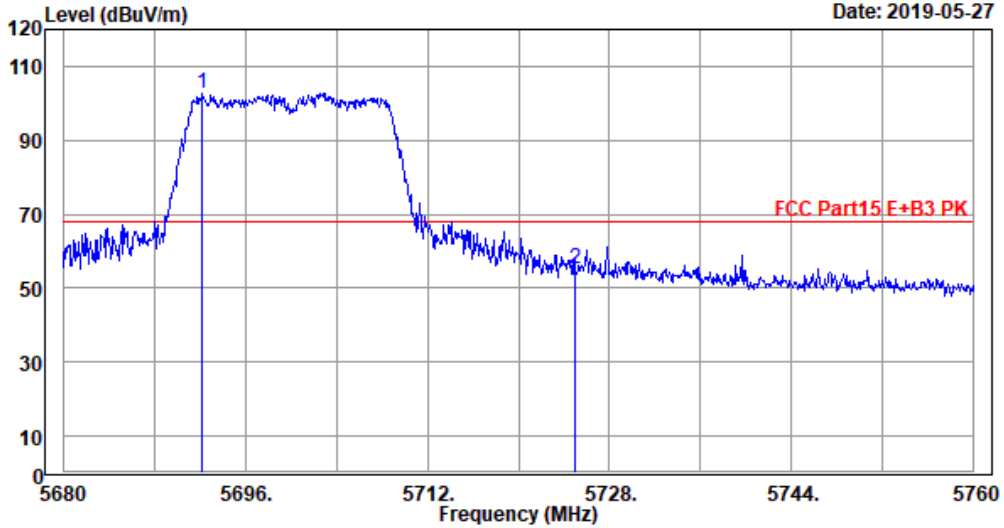
Mode	802.11nHT20	Frequency	TX 5700MHz
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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00057.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 E+B3 PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5700MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:57
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5692.24	35.9	7.7	92.6	33.4	102.8	68.2	-34.6	Peak
5725.04	35.9	7.8	45.0	33.4	55.3	68.2	12.9	Peak

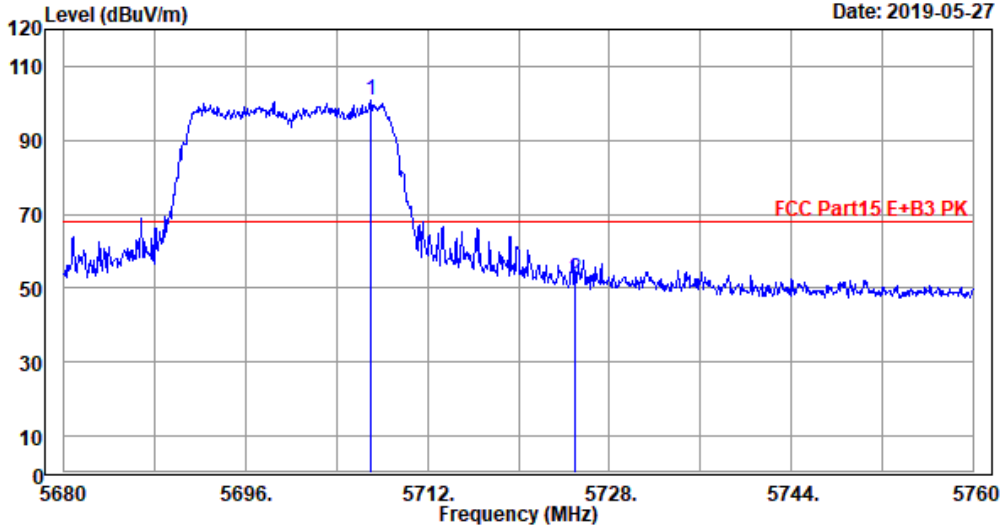
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00059.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 E+B3 PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5700MHz
 Memo :
 Ant. pol.: Vertical Data NO.:59
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5706.96	35.9	7.7	90.5	33.4	100.7	68.2	-32.5	Peak
5725.04	35.9	7.8	42.1	33.4	52.4	68.2	15.8	Peak

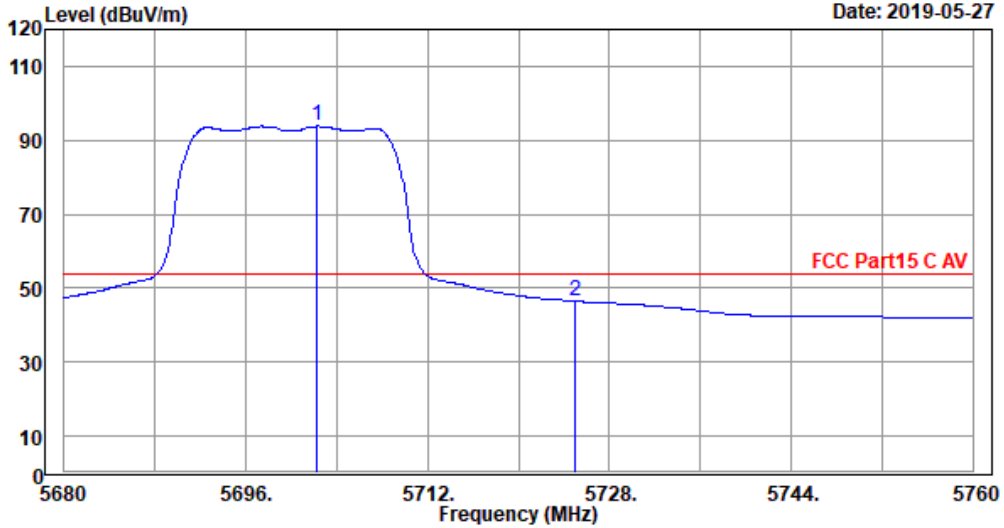
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00058.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5700MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:58
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5702.32	35.9	7.7	83.6	33.4	93.8	54.0	-39.8	Average
5725.04	35.9	7.8	36.2	33.4	46.5	54.0	7.5	Average

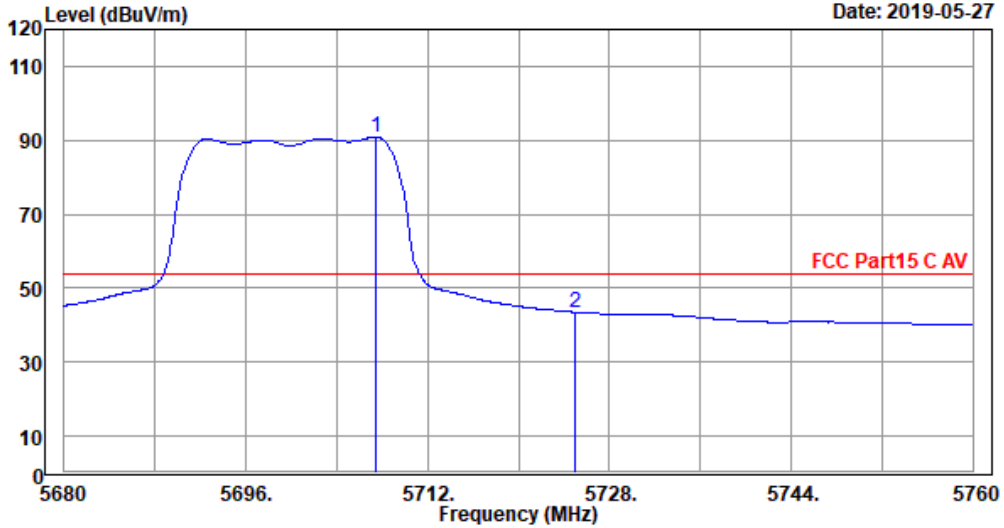
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00060.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT20 5700MHz
 Memo :
 Ant. pol.: Vertical Data NO.:60
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5707.44	35.9	7.7	80.7	33.4	90.9	54.0	-36.9	Average
5725.04	35.9	7.8	33.2	33.4	43.5	54.0	10.5	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

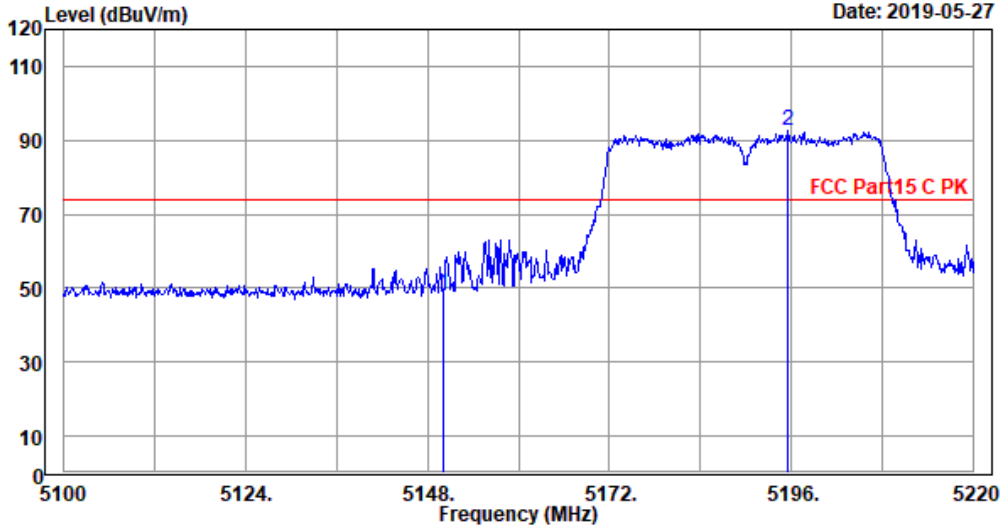
Mode	802.11nHT40	Frequency	TX 5190MHz
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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00063.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5190MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:63
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBUV	Preamp Factor dB	Emission Level dBUV/m	Limits dBUV/m	Margin dB	Remark
5150.04	35.6	7.6	38.4	33.3	48.3	74.0	25.7	Peak
5195.52	35.6	7.6	82.6	33.3	92.5	74.0	-18.5	Peak

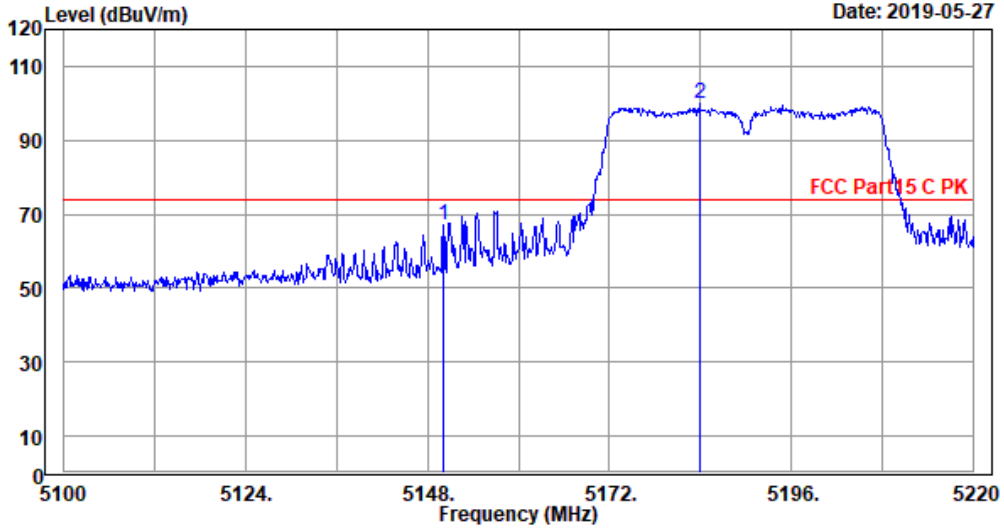
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5190MHz
 Memo :
 Ant. pol.: Vertical Data NO.:61
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5150.04	35.6	7.6	57.4	33.3	67.3	74.0	6.7	Peak
5183.88	35.6	7.6	90.2	33.3	100.1	74.0	-26.1	Peak

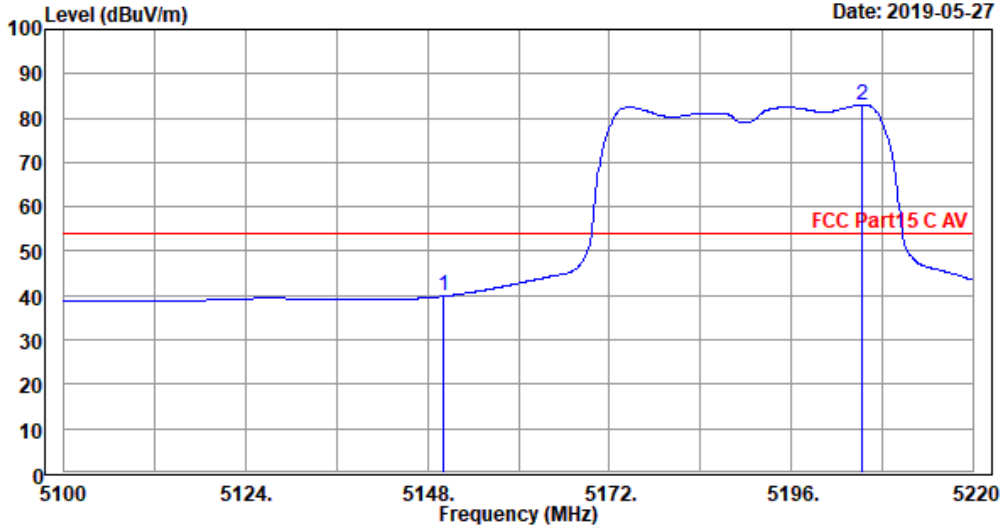
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00064.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5190MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:64
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5150.04	35.6	7.6	29.9	33.3	39.8	54.0	14.2	Average
5205.24	35.6	7.6	73.0	33.3	82.9	54.0	-28.9	Average

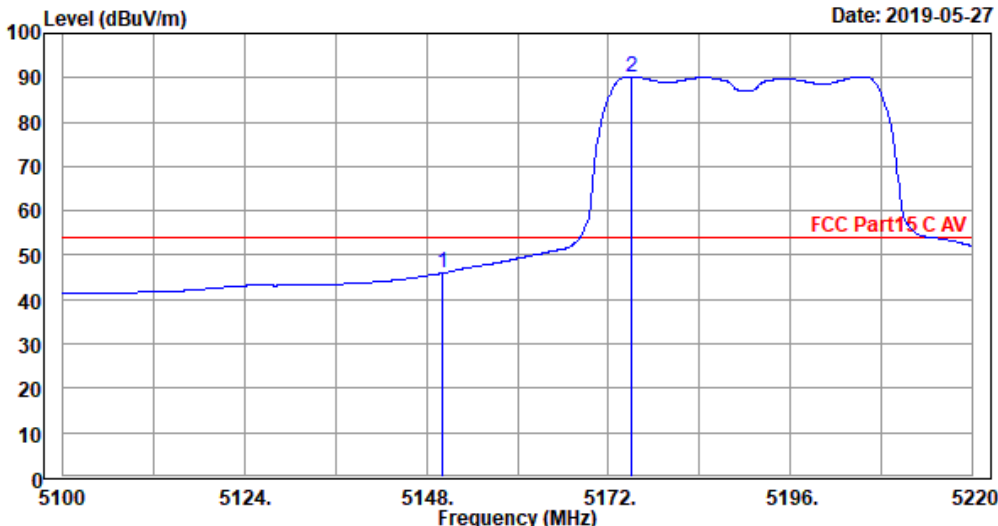
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00062.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5190MHz
 Memo :
 Ant. pol.: Vertical Data NO.:62
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5150.04	35.6	7.6	36.0	33.3	45.9	54.0	8.1	Average
5175.00	35.6	7.6	80.4	33.3	90.3	54.0	-36.3	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

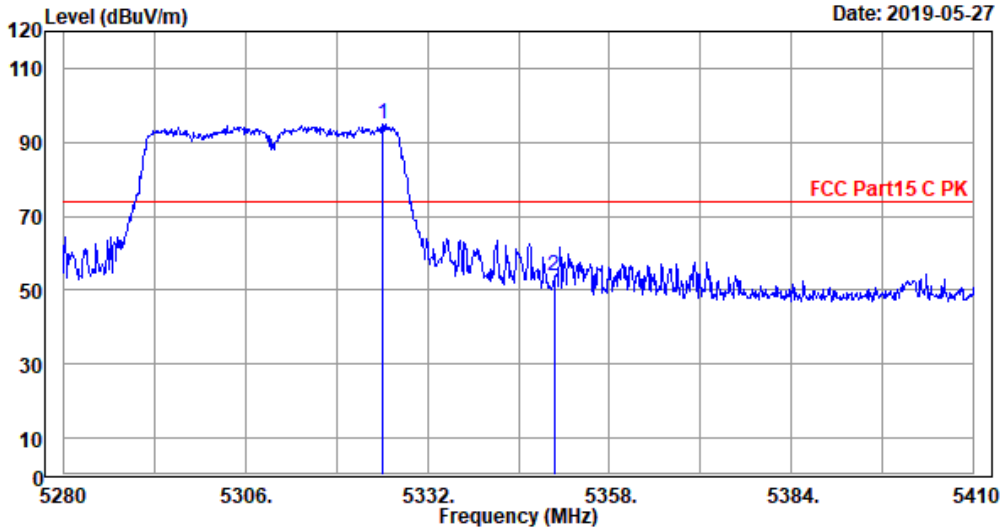
Mode	802.11nHT40	Frequency	TX 5310MHz
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Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5310MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:65
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5325.63	35.6	7.6	85.0	33.3	94.9	74.0	-20.9	Peak
5350.07	35.6	7.6	44.1	33.3	54.0	74.0	20.0	Peak

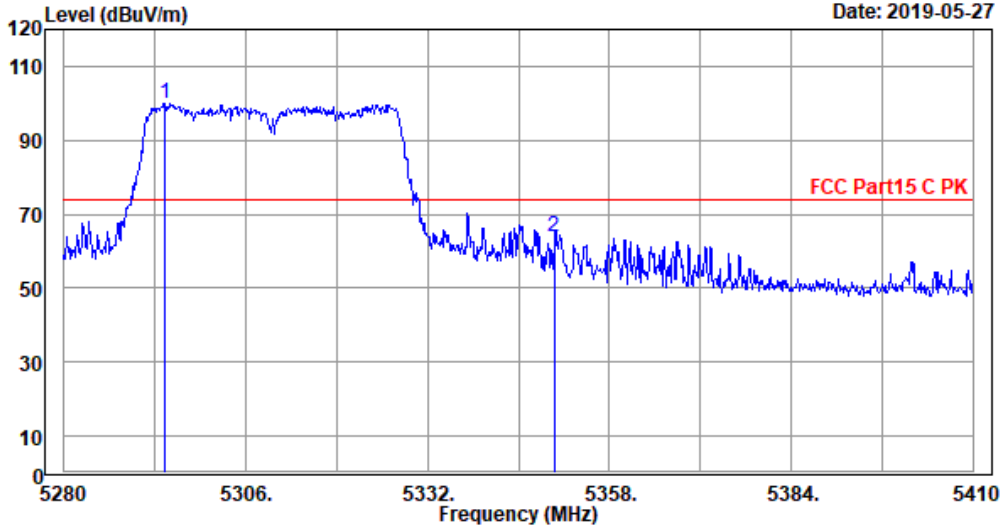
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00067.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5310MHz
 Memo :
 Ant. pol.: Vertical Data NO.:67
 Engineer : Zhangjiahui

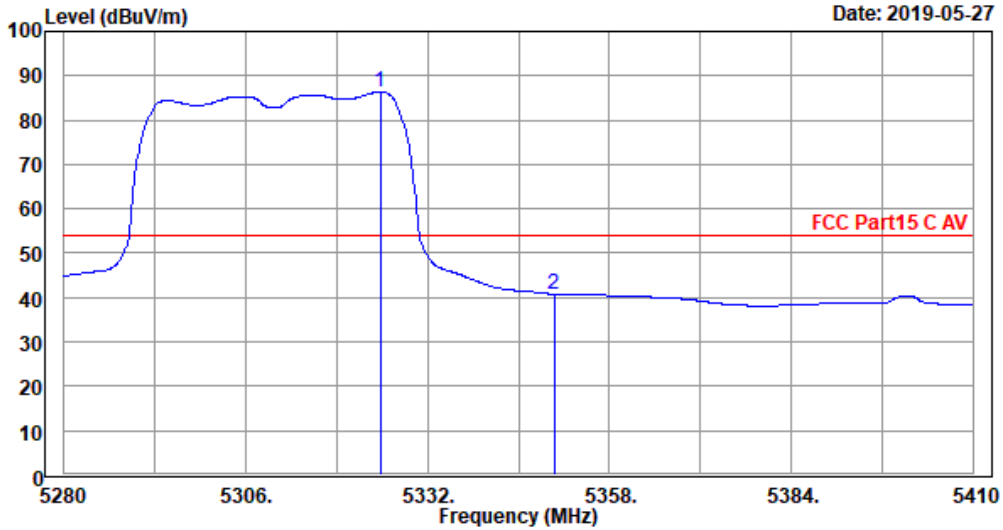
Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5294.56	35.6	7.6	90.1	33.3	100.0	74.0	-26.0	Peak
5350.07	35.6	7.6	54.0	33.3	63.9	74.0	10.1	Peak

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00066.EMI



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5310MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:66
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5325.24	35.6	7.6	76.4	33.3	86.3	54.0	-32.3	Average
5350.07	35.6	7.6	30.9	33.3	40.8	54.0	13.2	Average

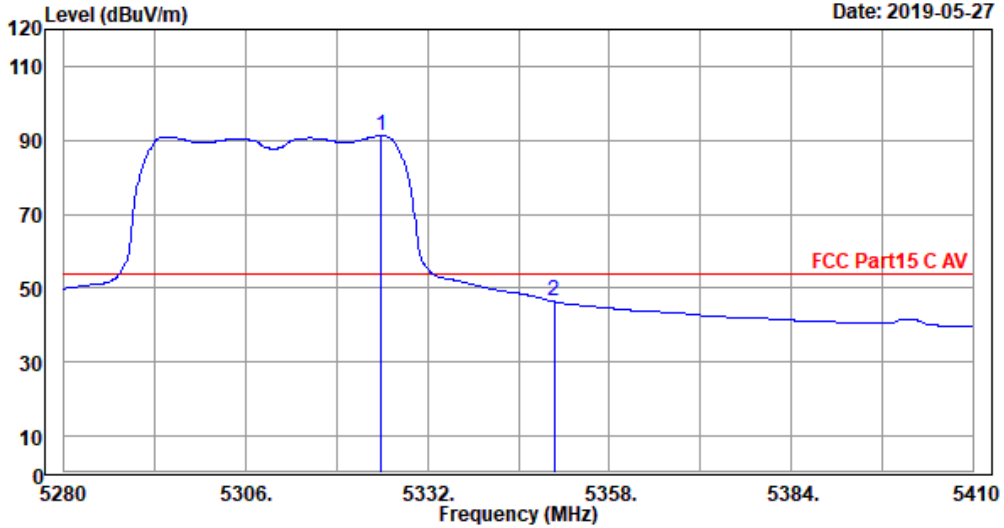
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00068.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5310MHz
 Memo :
 Ant. pol.: Vertical Data NO.:68
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5325.37	35.6	7.6	81.3	33.3	91.2	54.0	-37.2	Average
5350.07	35.6	7.6	36.4	33.3	46.3	54.0	7.7	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

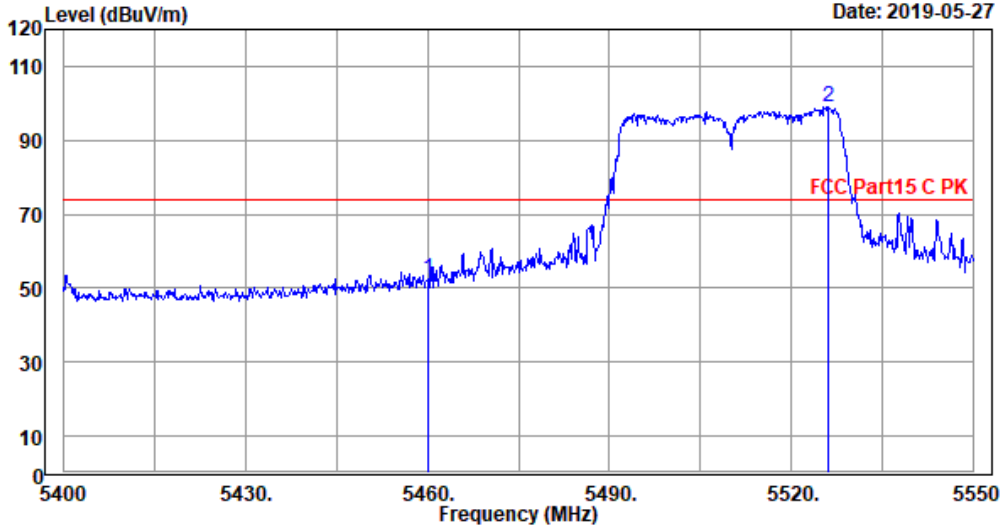
Mode	802.11nHT40	Frequency	TX 5510MHz
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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00071.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5510MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:71
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5460.00	35.5	7.7	42.4	33.3	52.3	74.0	21.7	Peak
5526.15	35.5	7.7	89.1	33.4	98.9	74.0	-24.9	Peak

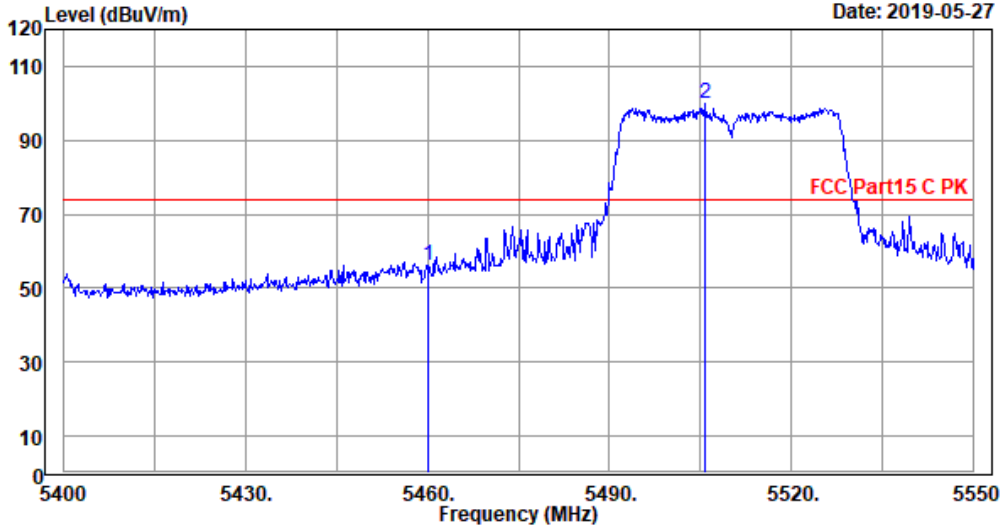
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00069.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5510MHz
 Memo :
 Ant. pol.: Vertical Data NO.:69
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBUV	Preamp Factor dB	Emission Level dBUV/m	Limits dBUV/m	Margin dB	Remark
5460.00	35.5	7.7	46.3	33.3	56.2	74.0	17.8	Peak
5505.75	35.5	7.7	90.1	33.4	99.9	74.0	-25.9	Peak

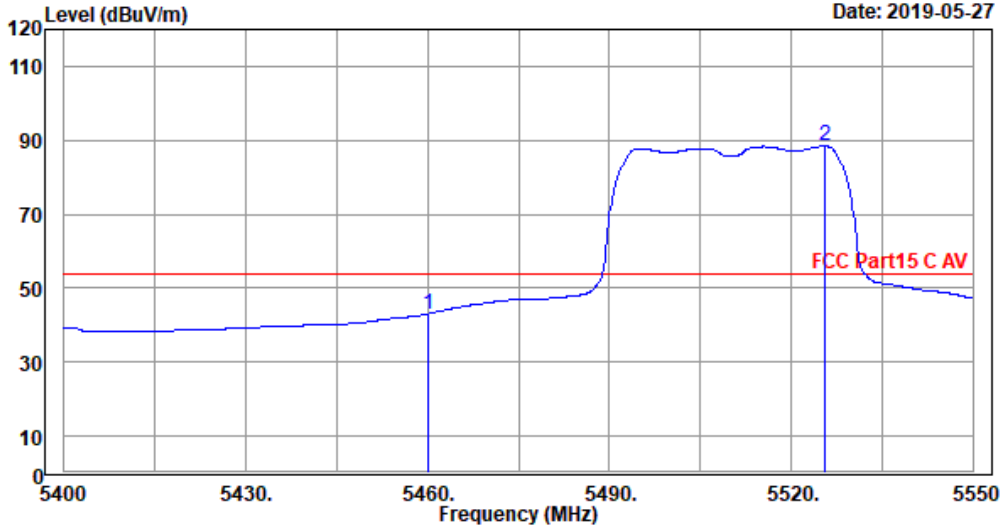
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00072.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5510MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:72
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5460.00	35.5	7.7	33.1	33.3	43.0	54.0	11.0	Average
5525.40	35.5	7.7	78.6	33.4	88.4	54.0	-34.4	Average

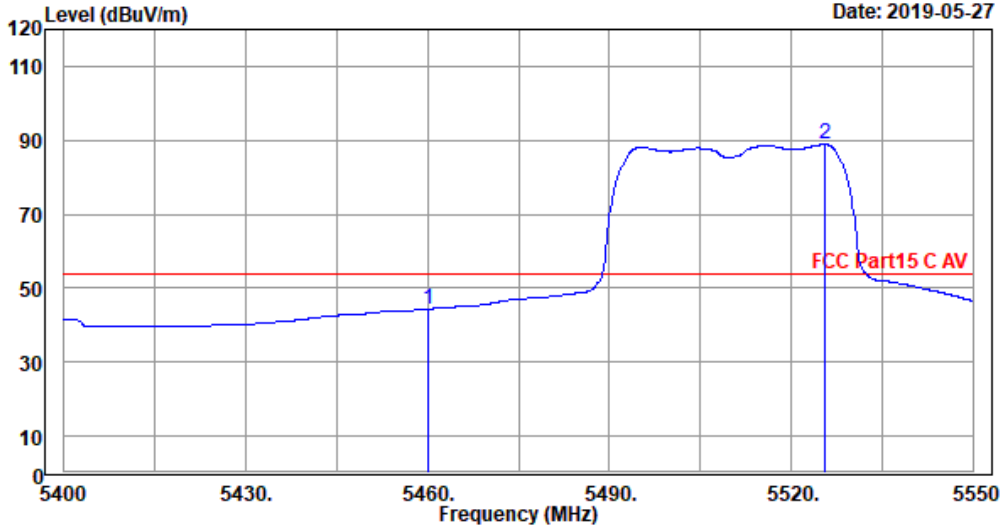
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00070.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5510MHz
 Memo :
 Ant. pol.: Vertical Data NO.:70
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5460.00	35.5	7.7	34.4	33.3	44.3	54.0	9.7	Average
5525.55	35.5	7.7	79.1	33.4	88.9	54.0	-34.9	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

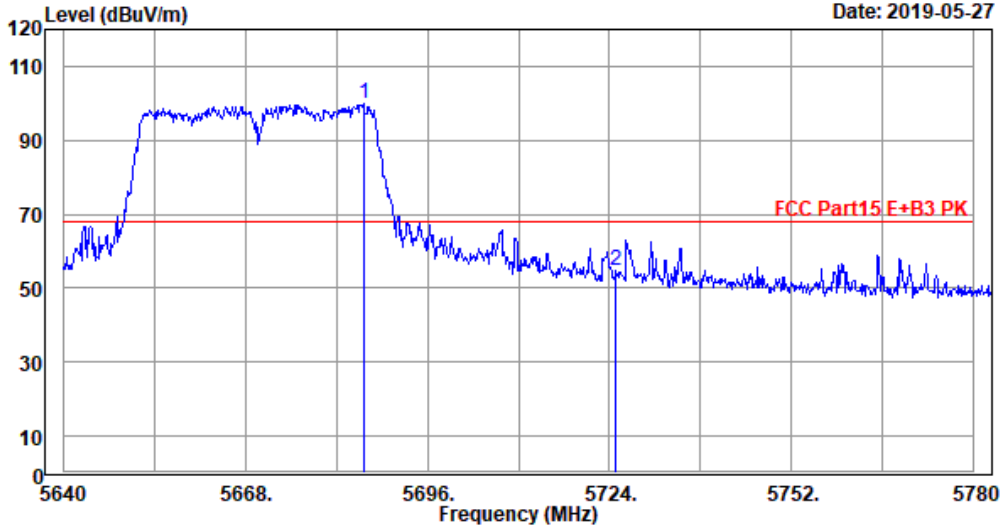
Mode	802.11nHT40	Frequency	TX 5670MHz
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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00073.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 E+B3 PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5670MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:73
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5686.20	35.8	7.7	89.6	33.4	99.7	68.2	-31.5	Peak
5725.05	35.9	7.8	44.3	33.4	54.6	68.2	13.6	Peak

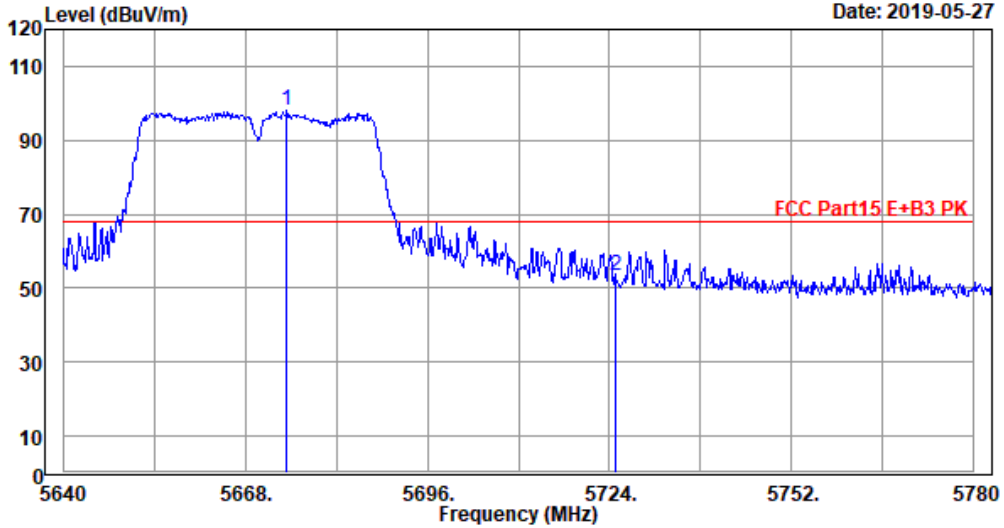
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 E+B3 PK
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5670MHz
 Memo :
 Ant. pol.: Vertical Data NO.:75
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5674.35	35.8	7.7	87.9	33.4	98.0	68.2	-29.8	Peak
5725.05	35.9	7.8	43.2	33.4	53.5	68.2	14.7	Peak

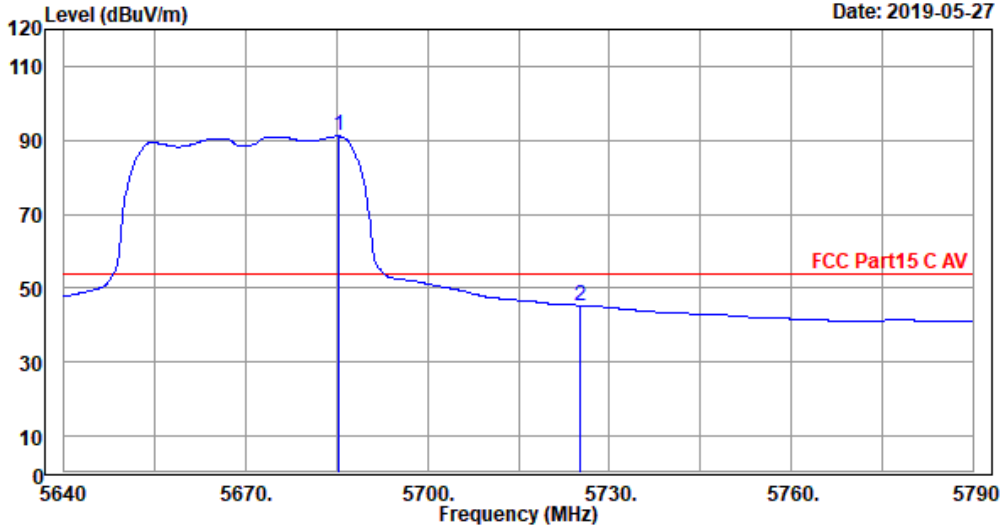
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00074.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5670MHz
 Memo :
 Ant. pol.: Horizontal Data NO.:74
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5685.30	35.8	7.7	81.0	33.4	91.1	54.0	-37.1	Average
5725.05	35.9	7.8	35.1	33.4	45.4	54.0	8.6	Average

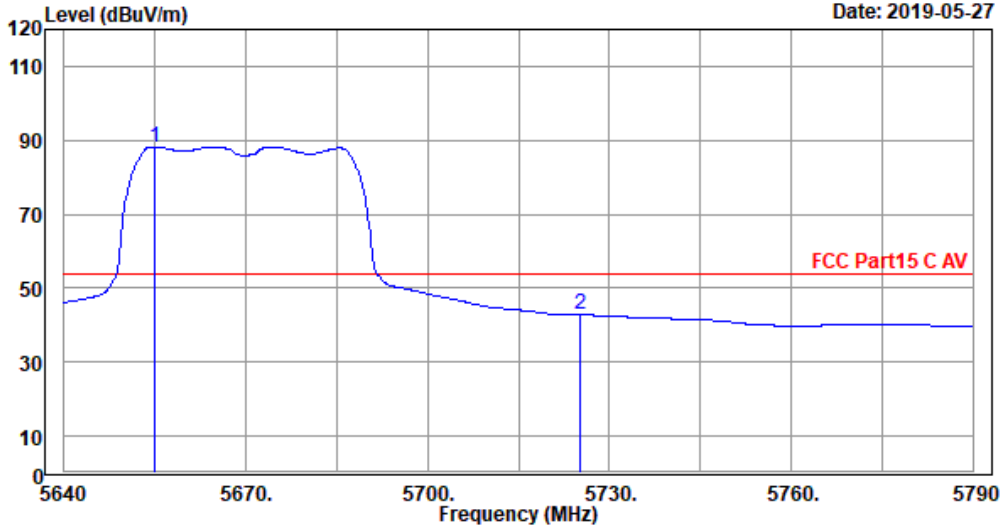
marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor



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File: E:\TEST DATA\2019\Report\05\C1W1905061\0527_00076.EMI

Date: 2019-05-27



Site NO. : NO.2 3M chamber
 Dis. / Ant. : 3117-586-1902
 Limit : FCC Part15 C AV
 Env. / Ins. : 20.9°C & 48% /N9030A
 EUT : Server
 M/N : HSTNS-5231
 Power Rating : 120Vac/60Hz
 Test Mode : TX 802.11n-HT40 5670MHz
 Memo :
 Ant. pol.: Vertical Data NO.:76
 Engineer : Zhangjiahui

Freq. MHz	Ant. Factor dB/m	Cable Loss dB	Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
5655.00	35.8	7.7	78.2	33.4	88.3	54.0	-34.3	Average
5725.05	35.9	7.8	32.5	33.4	42.8	54.0	11.2	Average

marks:Emission Level = Antenna factor+Cable loss+Reading-Preamp Factor

6. EMISSION BANDWIDTH MEASUREMENT

6.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Period
1.	PXA signal analyzer	Agilent	N9030A	MY53120217	2019-04-12	1 Year

6.2. Block Diagram of Test Setup



— : SIGNAL LINE

6.3. Specification Limits

Frequency Band (MHz)	Limit
5150 to 5250	Reference only
5250 to 5350	
5470 to 5725	
5725 to 5850	$\geq 500\text{kHz}$

6.4. Test Procedure

Following measurement procedure is reference to KDB 789033 D02 General UNII Test Procedures New Rules v02r01:

■ Applicable to all bands except to 5150 MHz- 5725 MHz

- (1) Set RBW= 1% of the emission bandwidth
- (2) Set VBW > RBW
- (3) Detector = Peak
- (4) Trace mode = max hold
- (5) Setting channel bandwidth function x dB to -26 dB to record the final bandwidth.

■ 5725 MHz- 5850 MHz

- (1) Set RBW = 100 kHz.
- (2) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- (3) Detector = Peak.
- (4) Trace mode = max hold.
- (5) Sweep = auto couple.
- (6) Allow the trace to stabilize.
- (7) Setting channel bandwidth function x dB to -6 dB to record the final bandwidth.

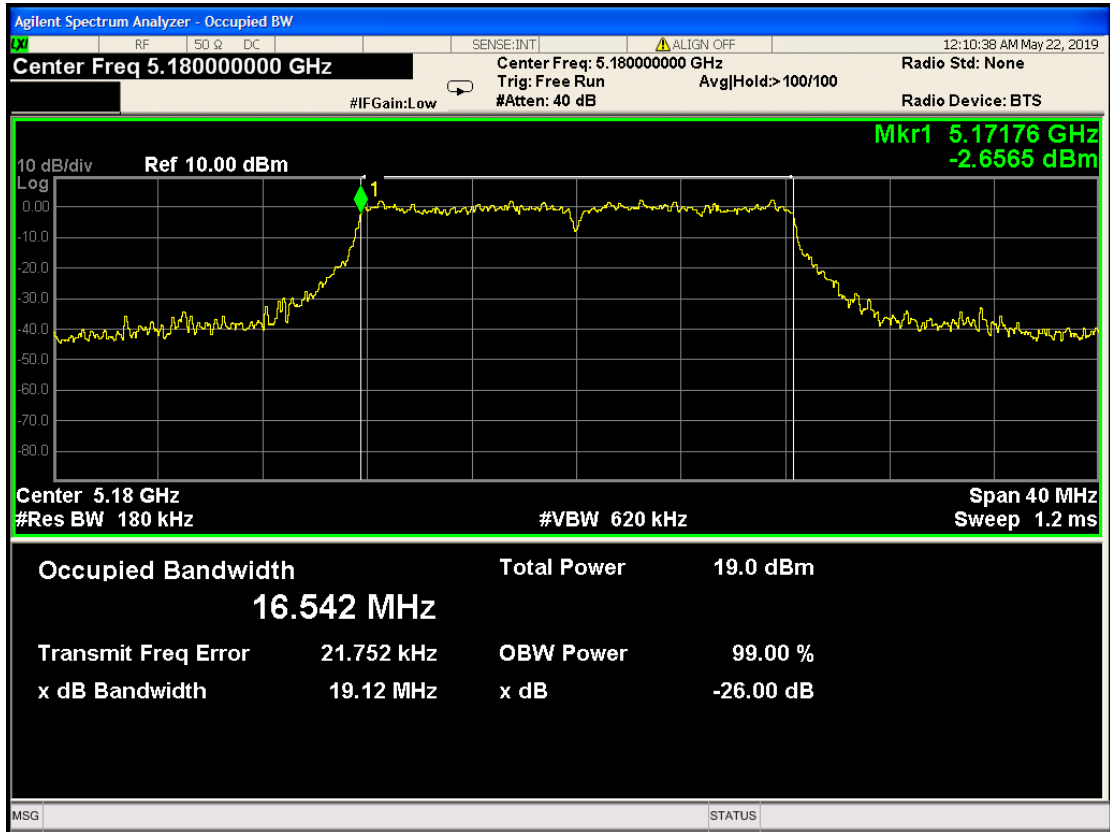
6.5. Test Results

PASSED. All the test results are attached in next pages.

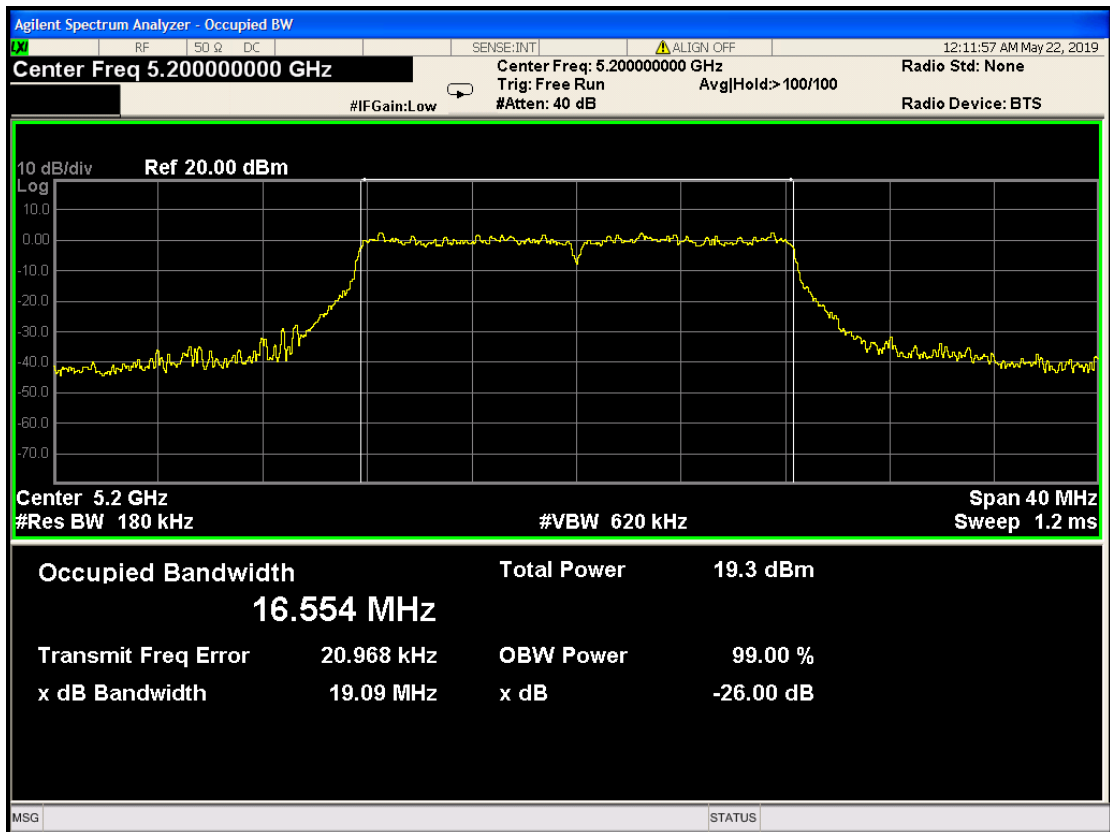
Item	UNII Band	Test Frequency (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	I	5180	19.12	16.542
		5200	19.09	16.554
		5240	19.18	16.530
	II-2A	5260	19.09	16.551
		5300	19.14	16.553
		5320	19.23	16.550
	II-2C	5500	19.24	16.559
		5580	19.10	16.575
		5700	19.14	16.537
802.11 nHT20	I	5180	24.08	17.670
		5200	19.79	17.633
		5240	19.70	17.645
	II-2A	5260	19.72	17.602
		5300	19.88	17.609
		5320	19.74	17.617
	II-2C	5500	19.79	17.625
		5580	19.74	17.634
		5700	19.64	17.627
802.11 nHT40	I	5190	41.03	36.238
		5230	40.25	36.246
	II-2A	5270	40.34	36.233
		5310	40.27	36.218
	II-2C	5510	39.23	36.156
		5550	40.35	36.229
		5670	39.19	36.140

Item	UNII Band	Test Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	III	5745	16.51	16.461
		5785	16.49	16.448
		5825	16.49	16.463
802.11 nHT20	III	5745	17.54	17.586
		5785	17.57	17.574
		5825	17.55	17.599
802.11 nHT40	III	5755	35.73	36.072
		5795	35.82	36.055

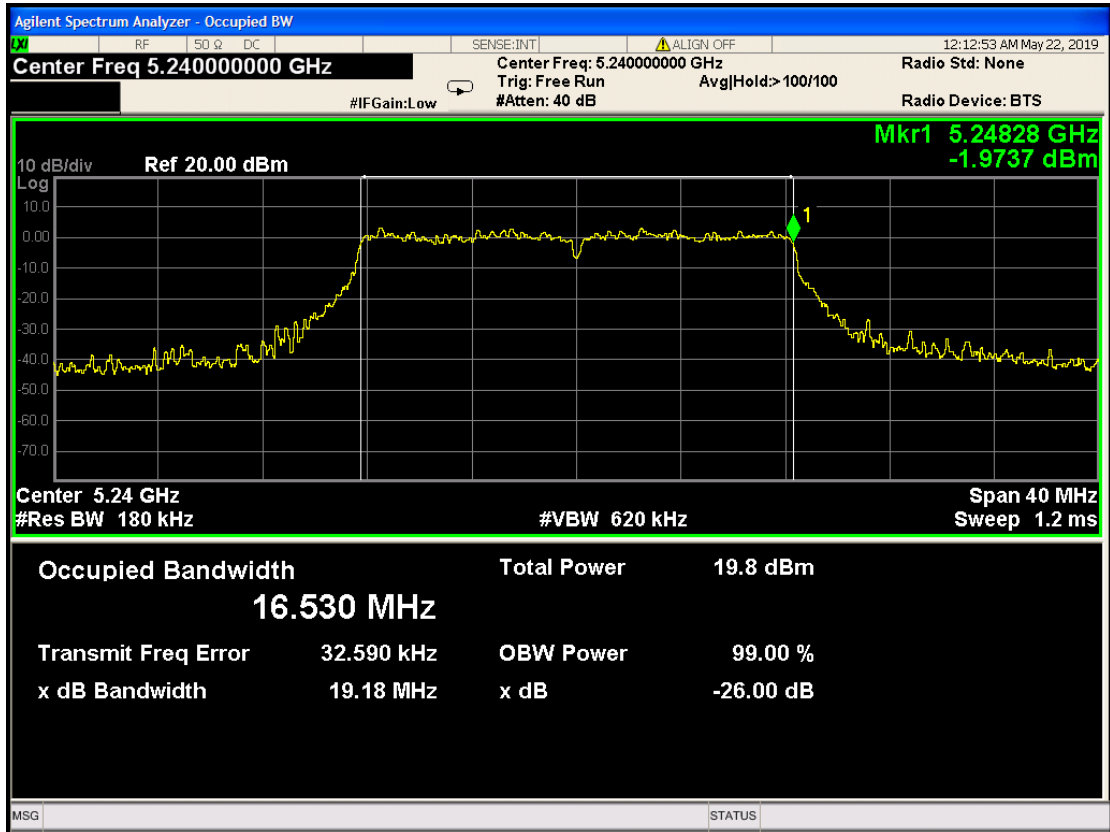
802.11a 5180



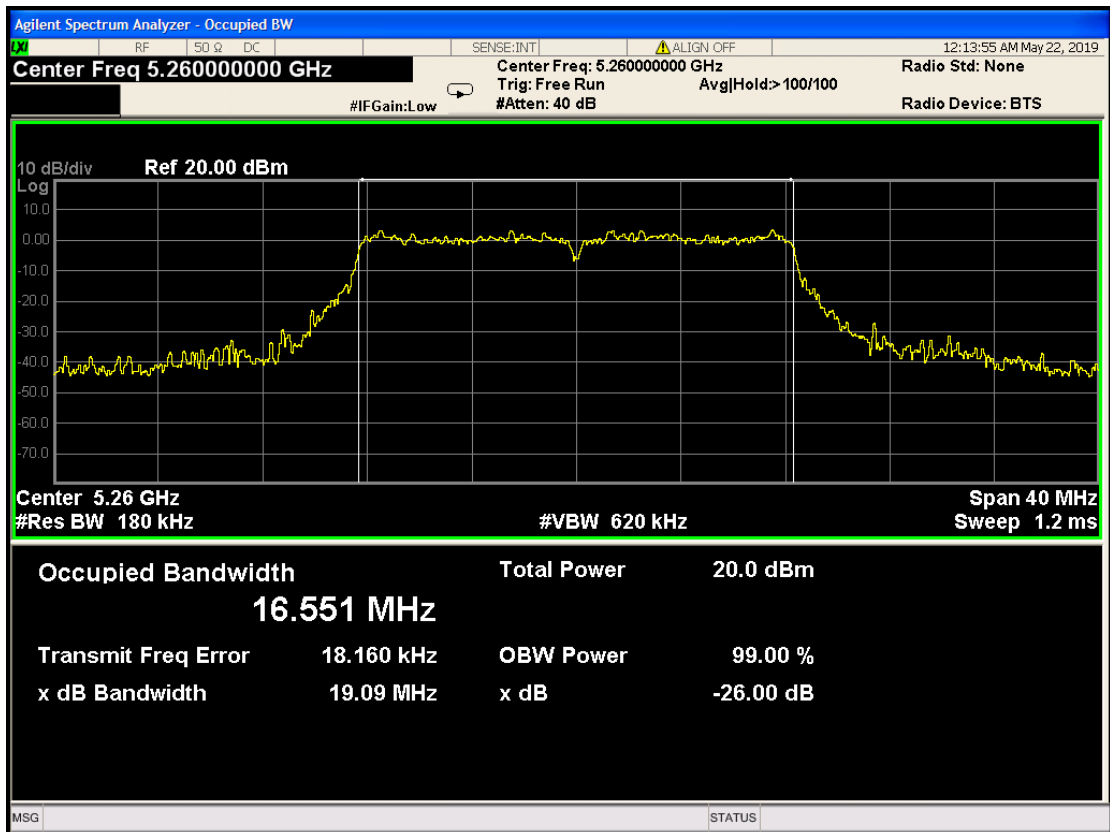
802.11a 5220



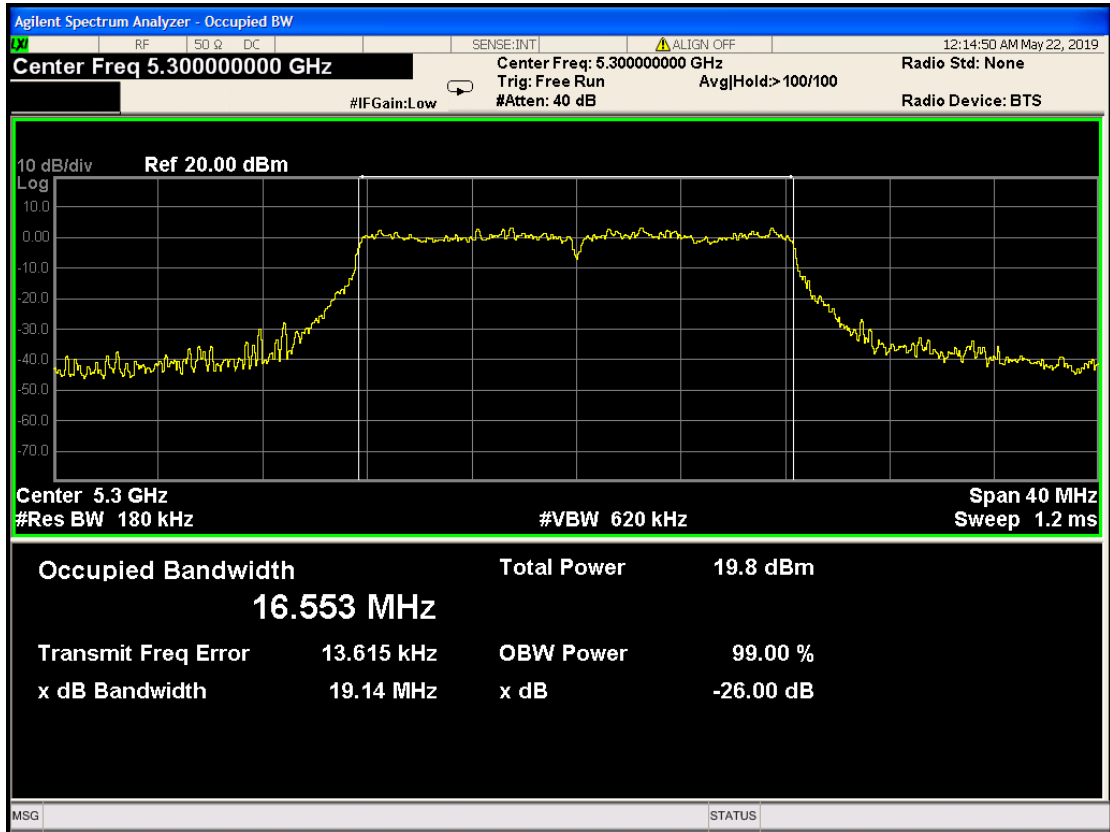
802.11a 5240



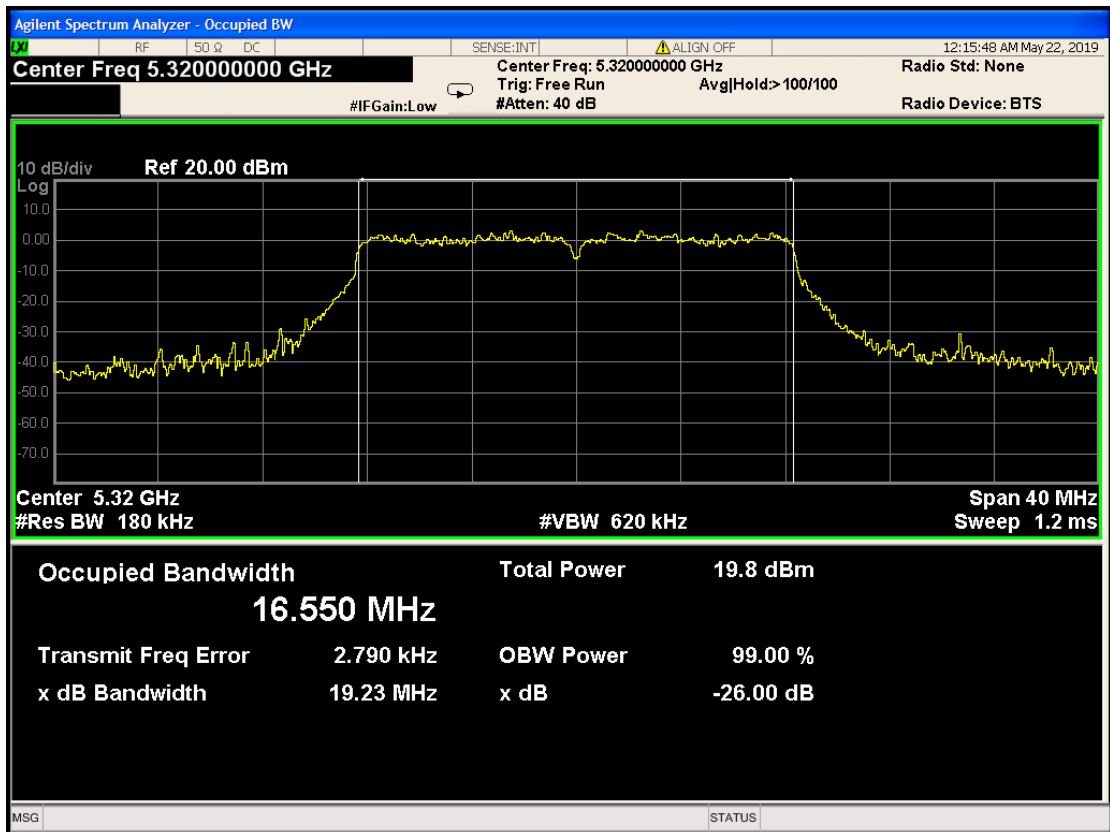
802.11a 5260



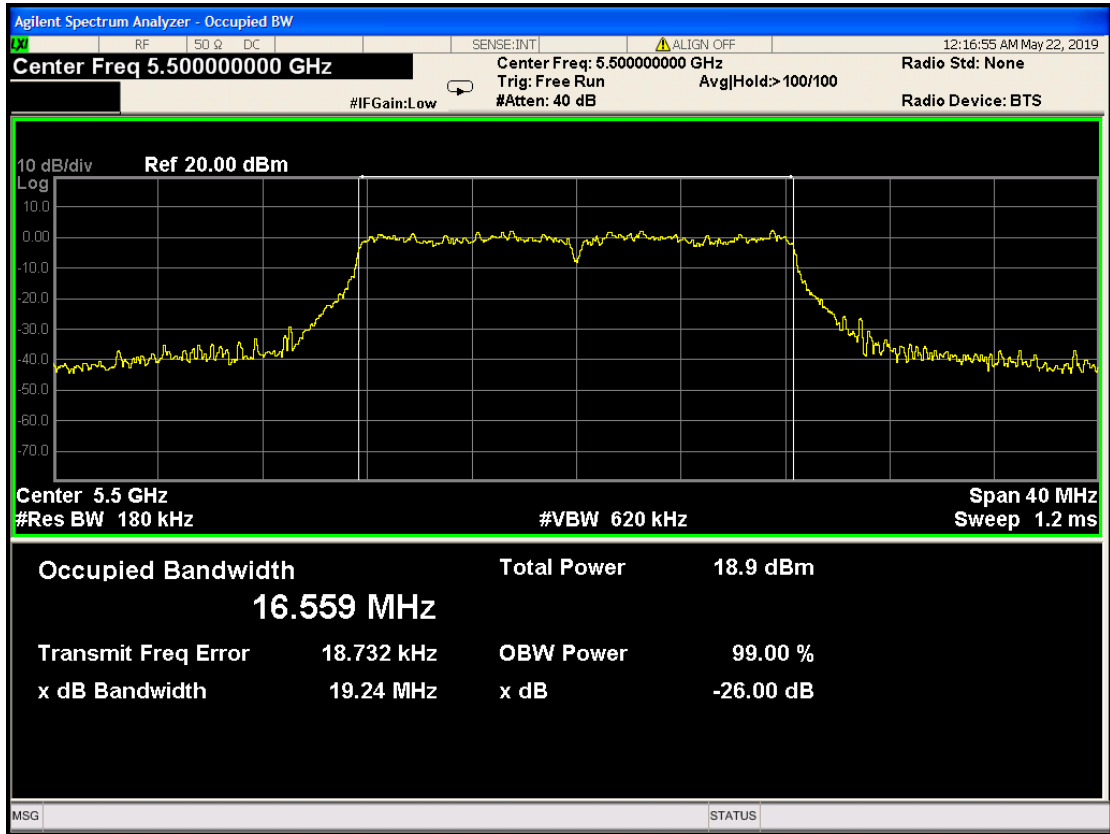
802.11a 5300



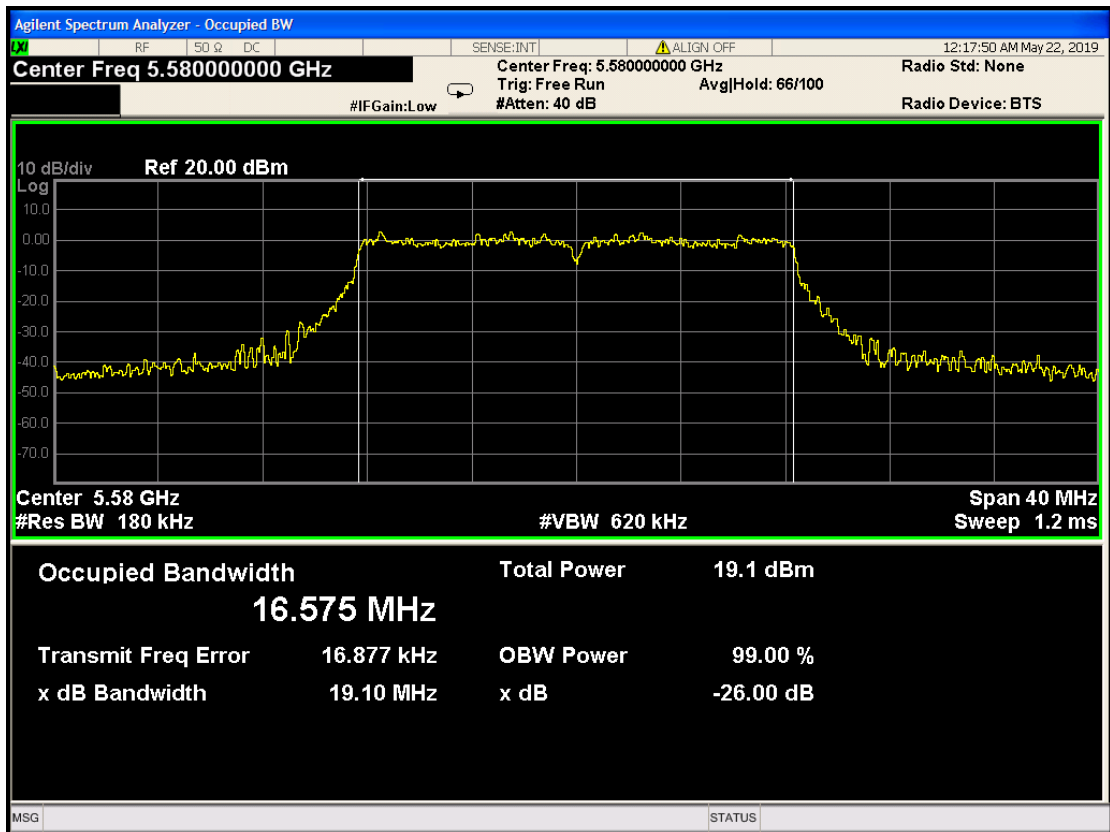
802.11a 5320



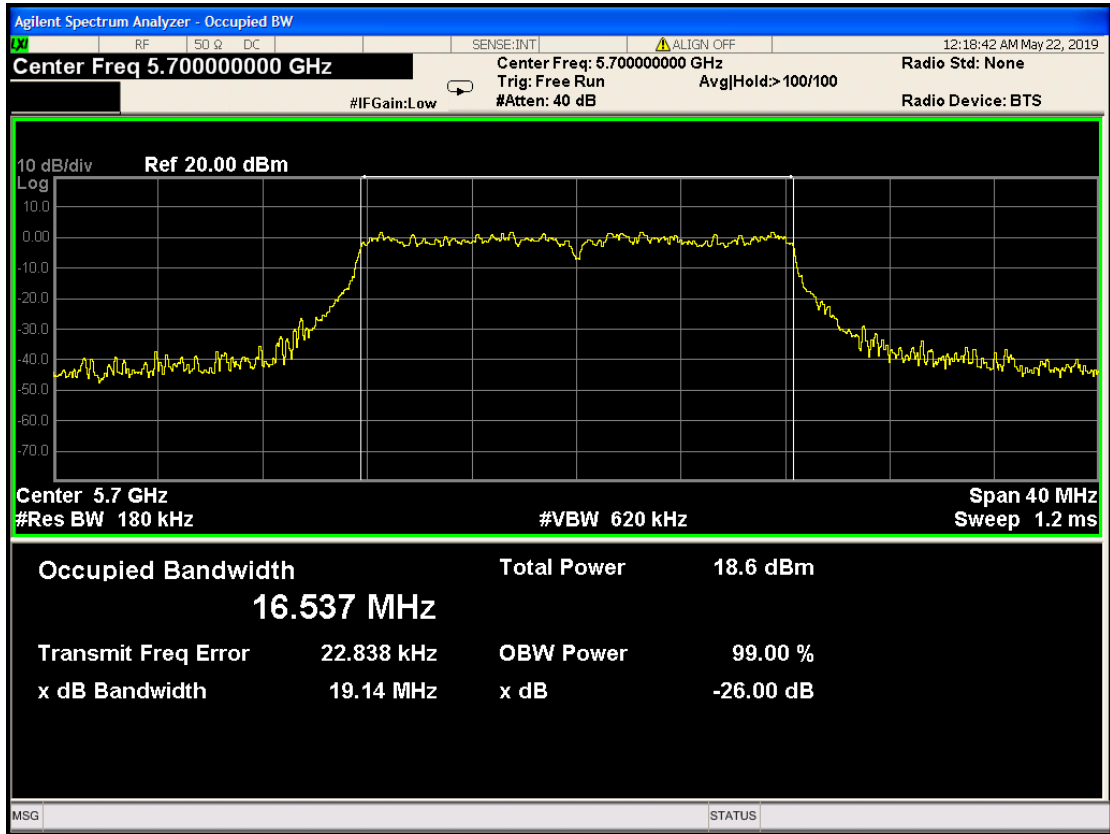
802.11a 5500



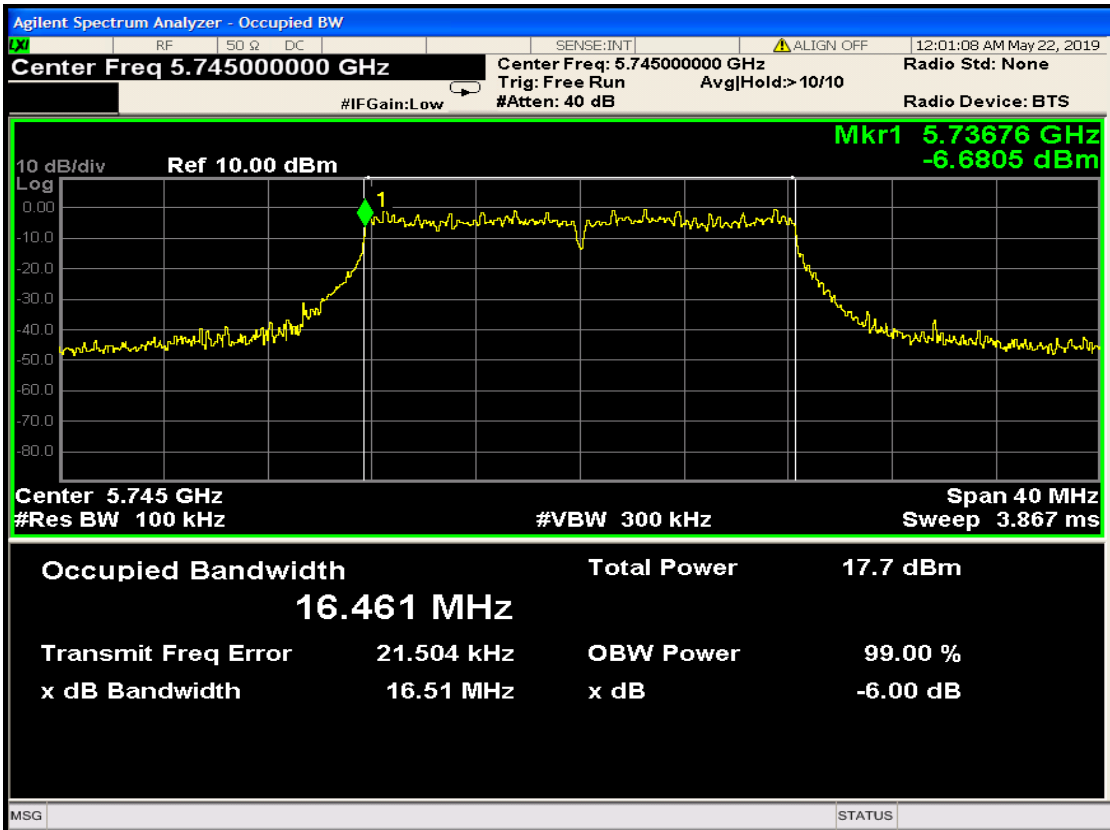
802.11a 5580



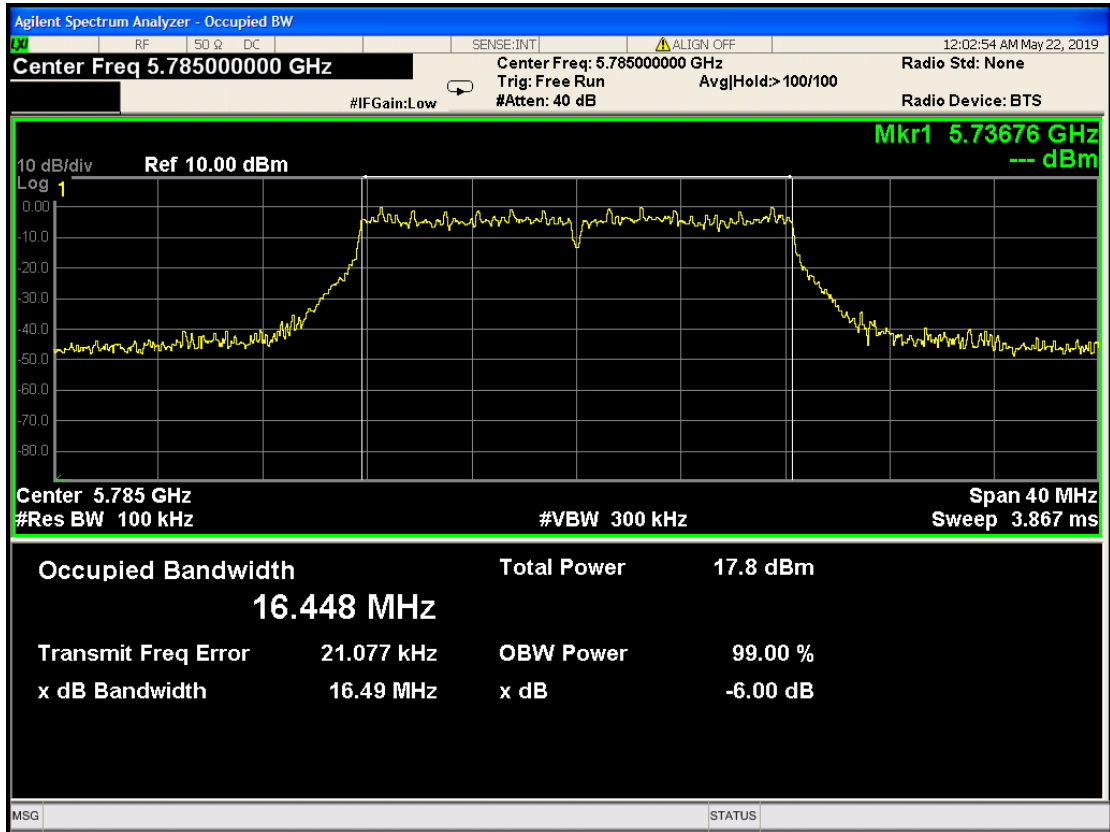
802.11a 5700



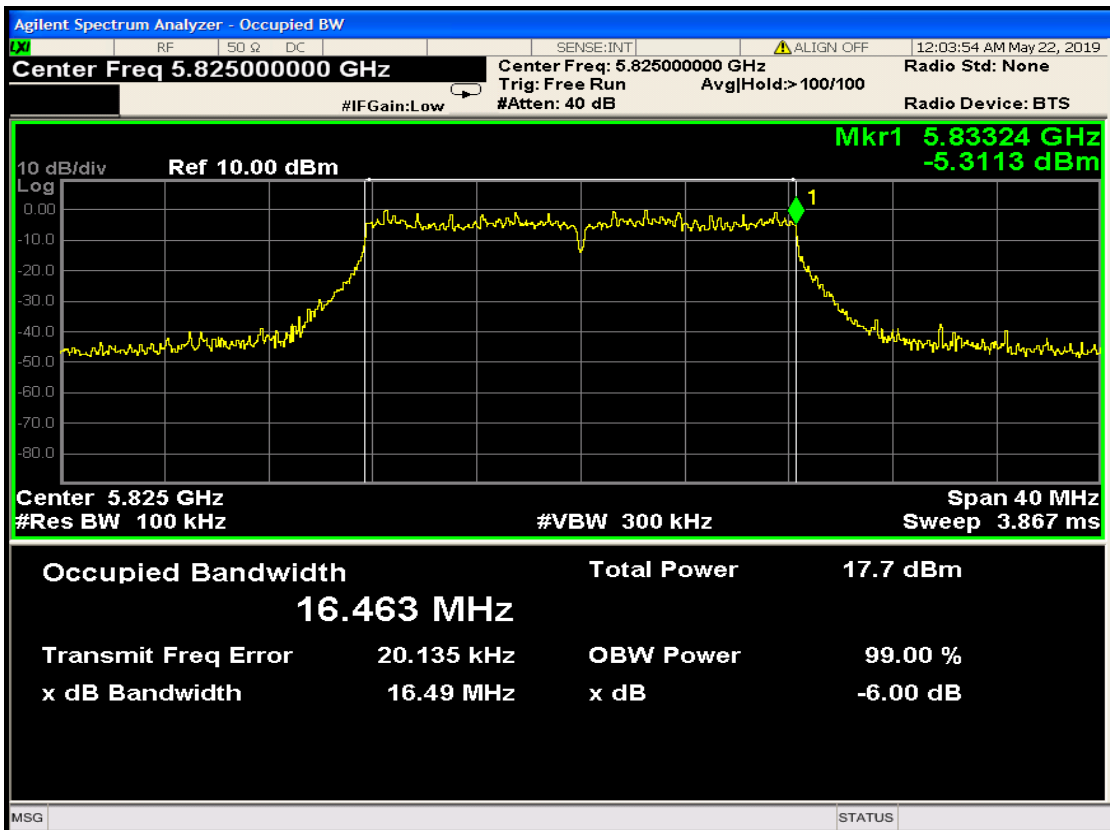
802.11a 5745



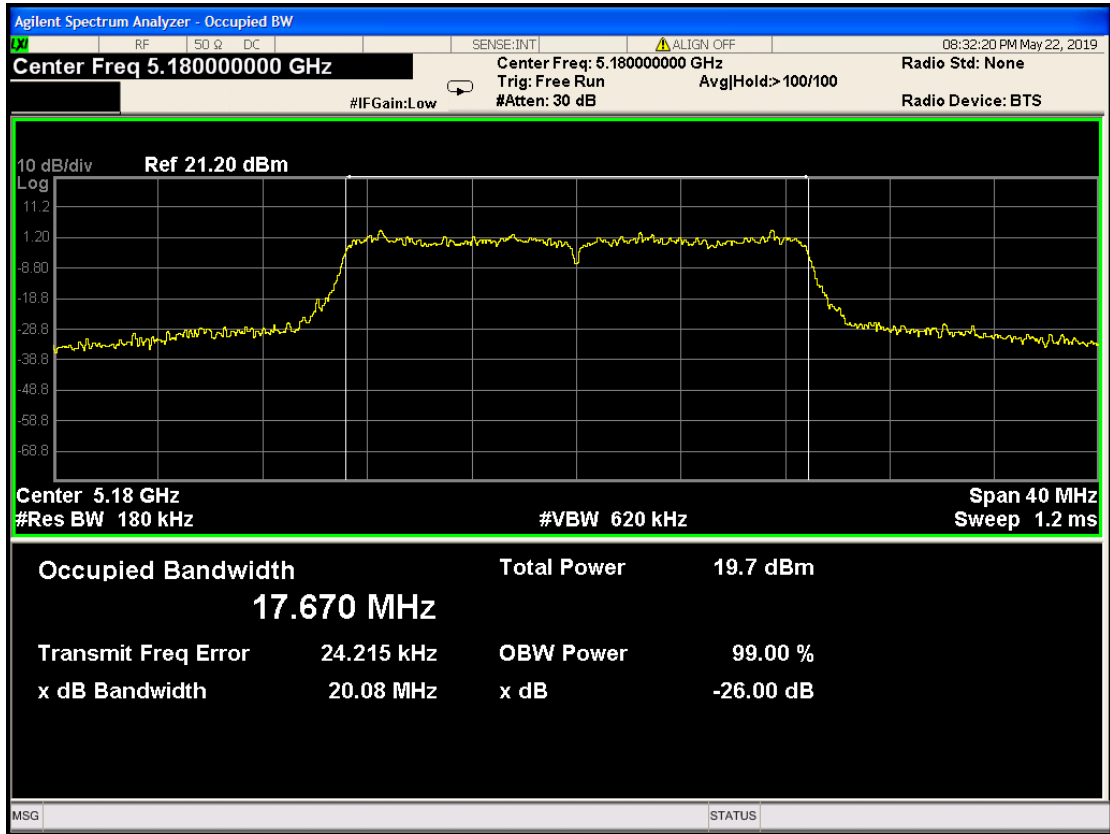
802.11a 5785



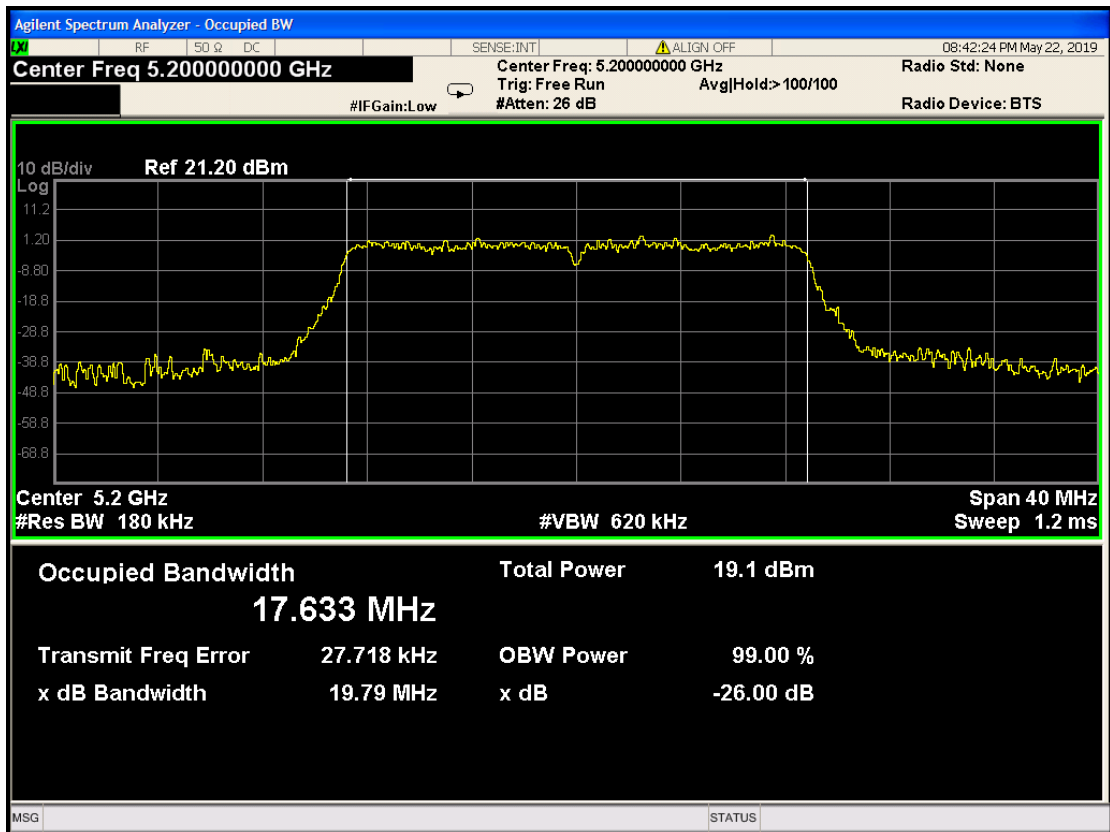
802.11a 5825



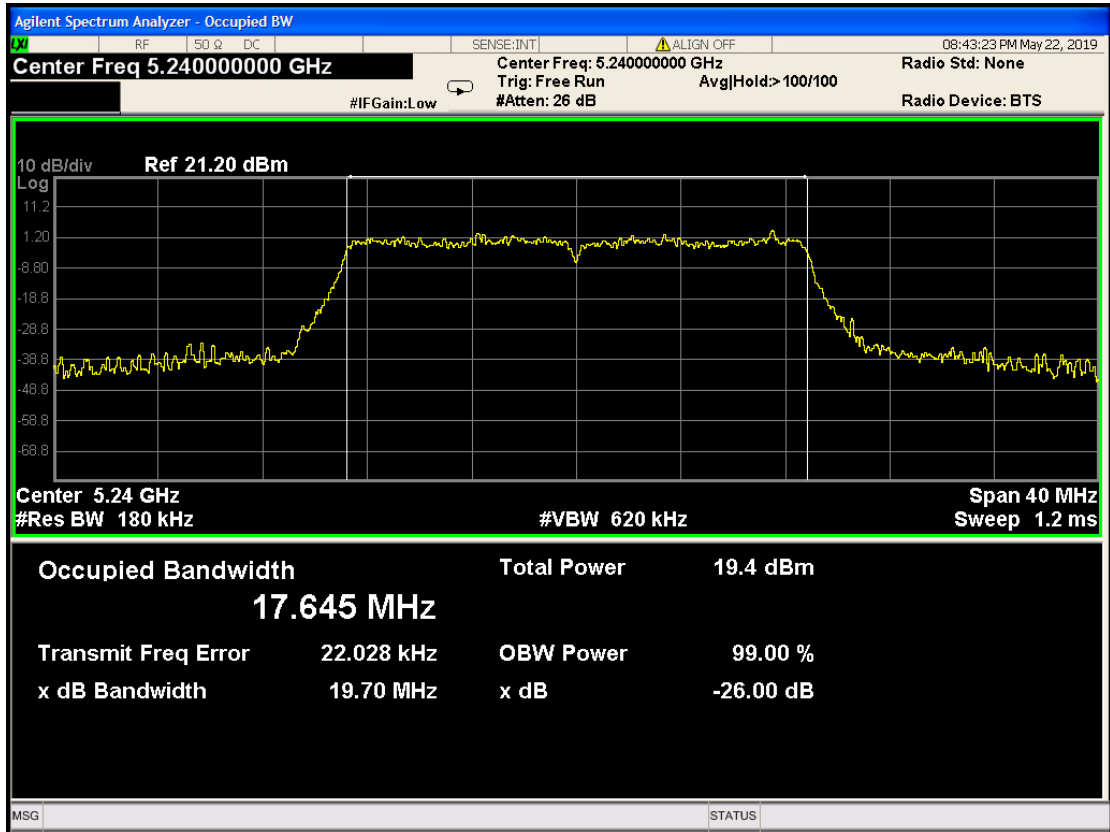
802.11nHT20 5180



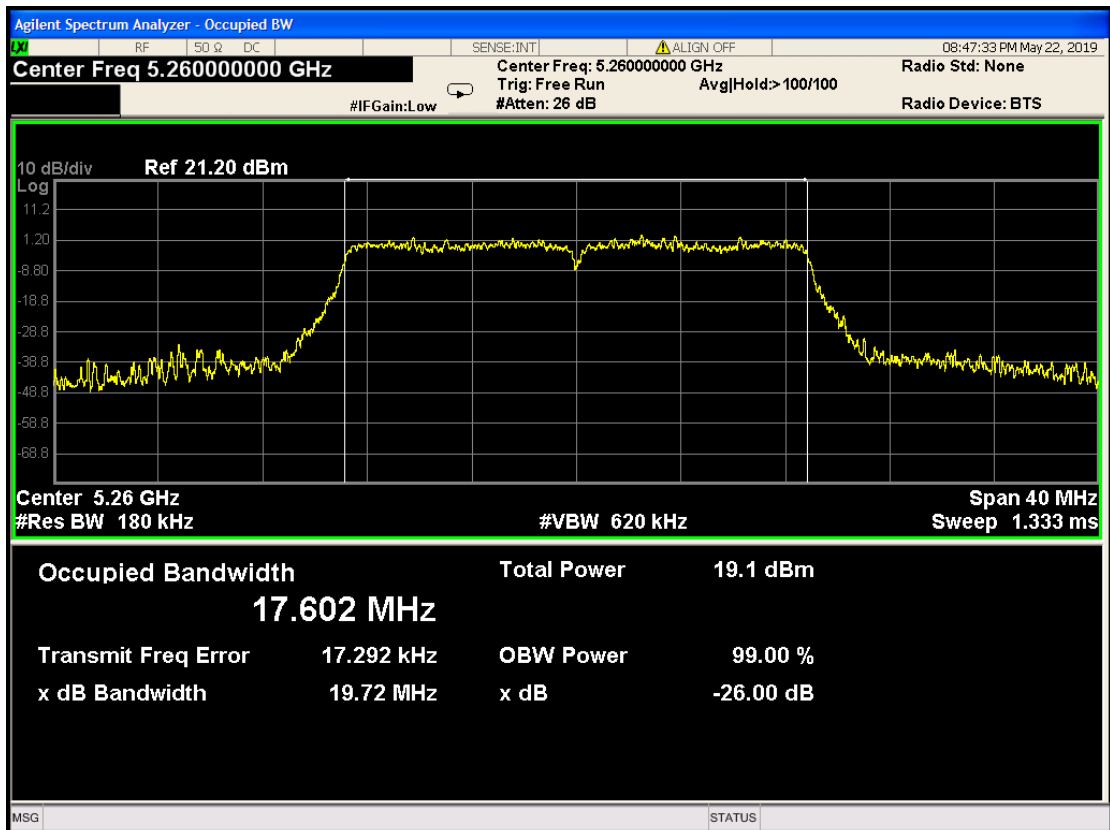
802.11nHT20 5200



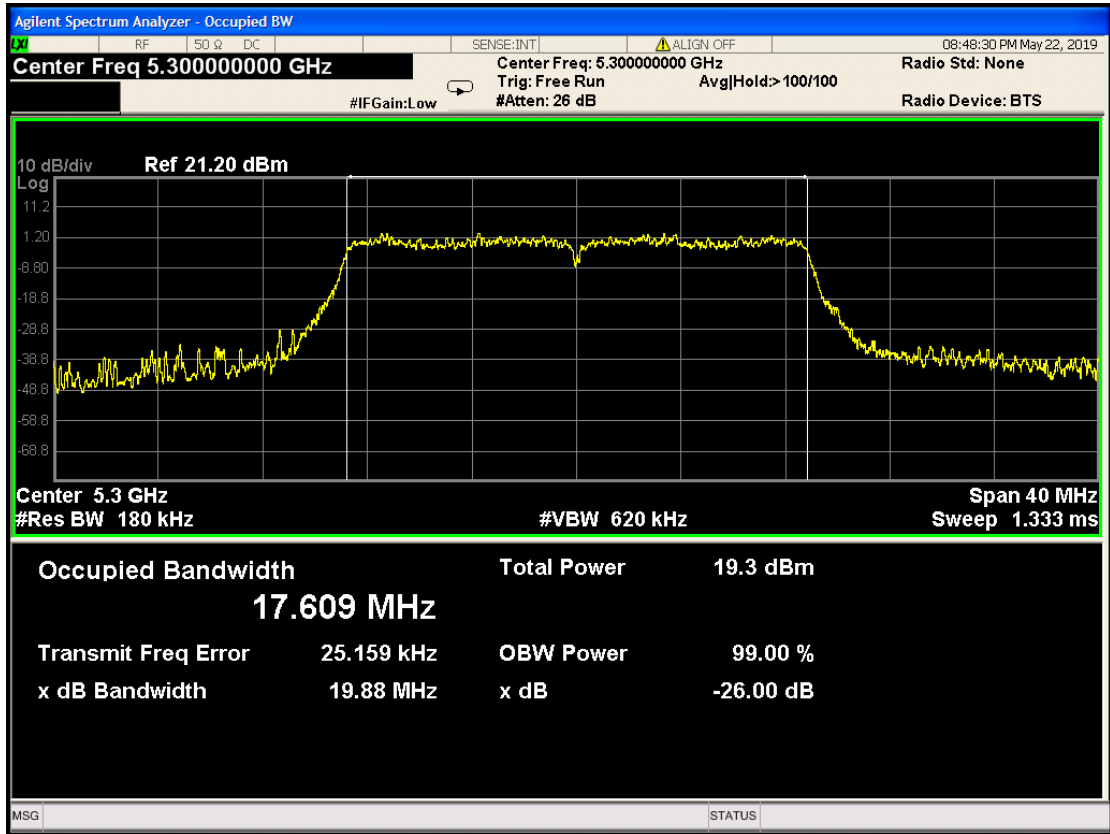
802.11nHT20 5240



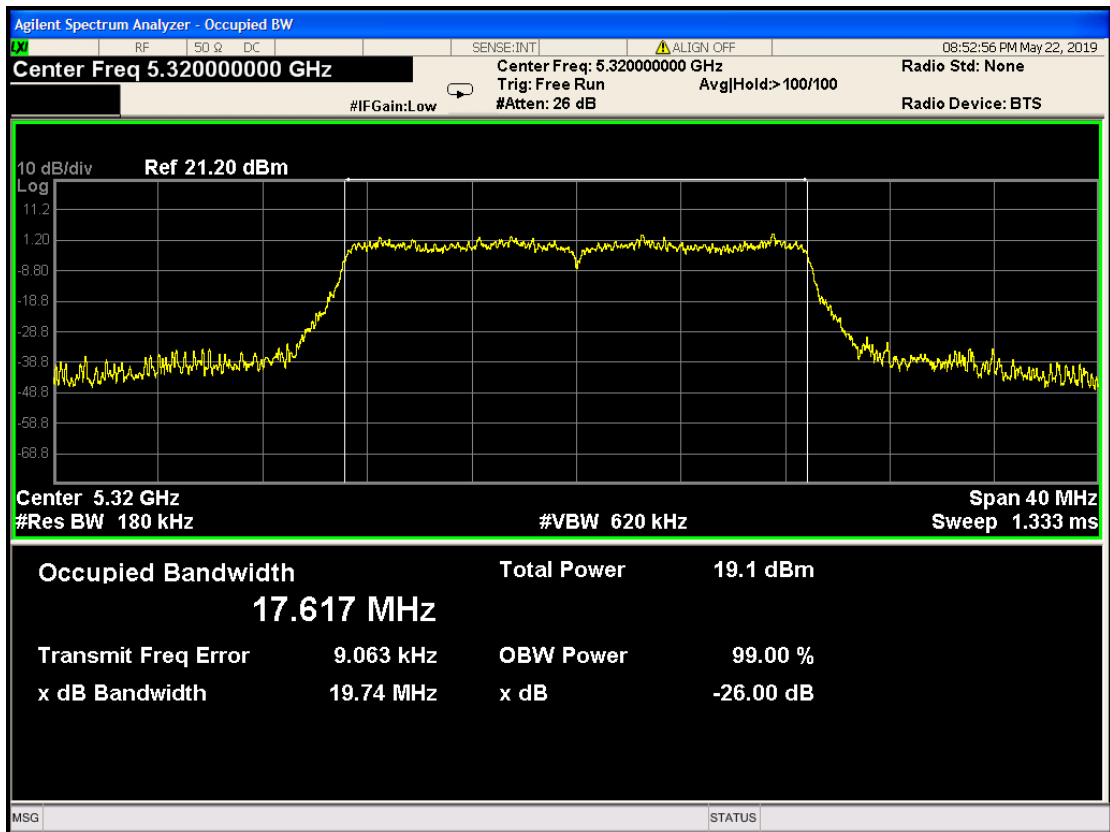
802.11nHT20 5260



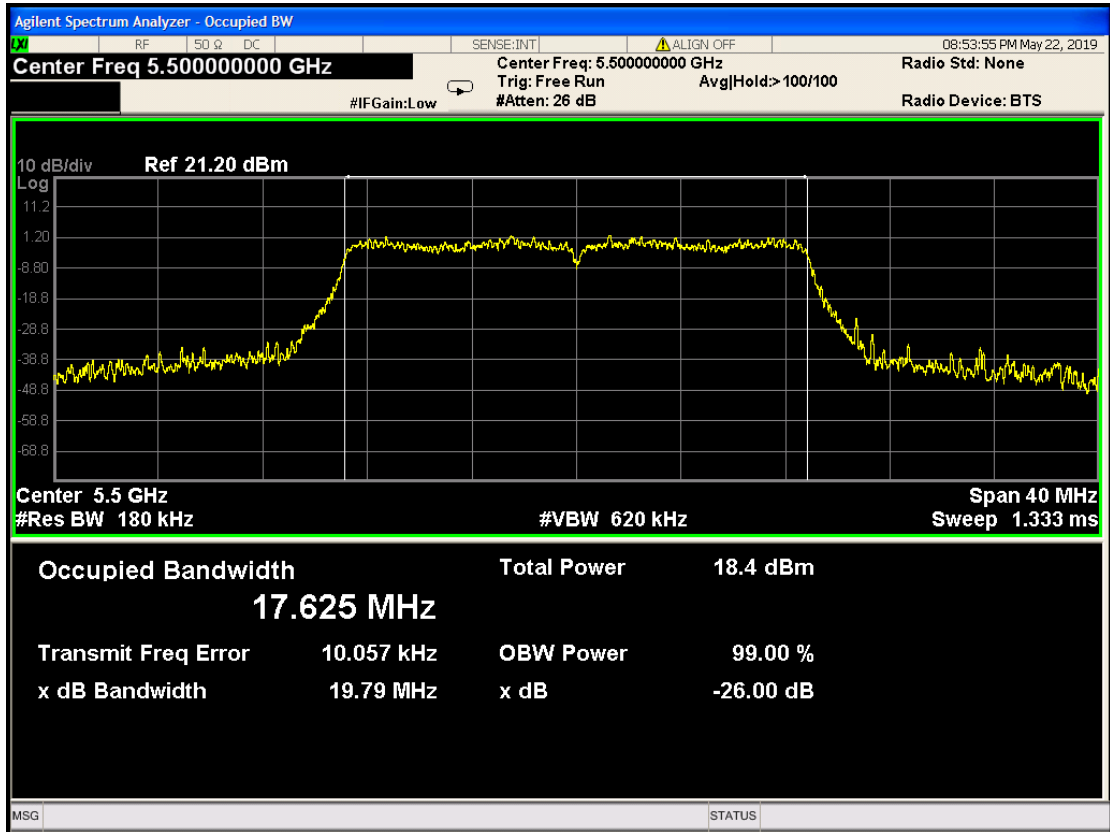
802.11nHT20 5300



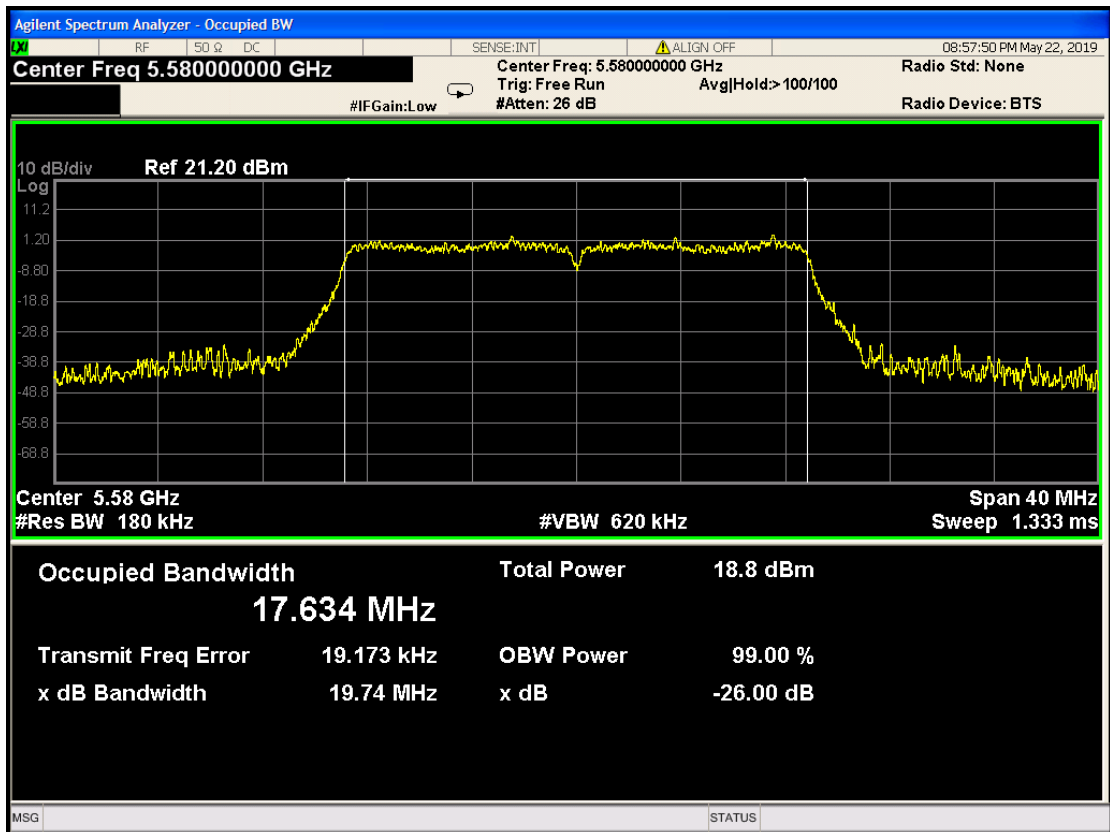
802.11nHT20 5320



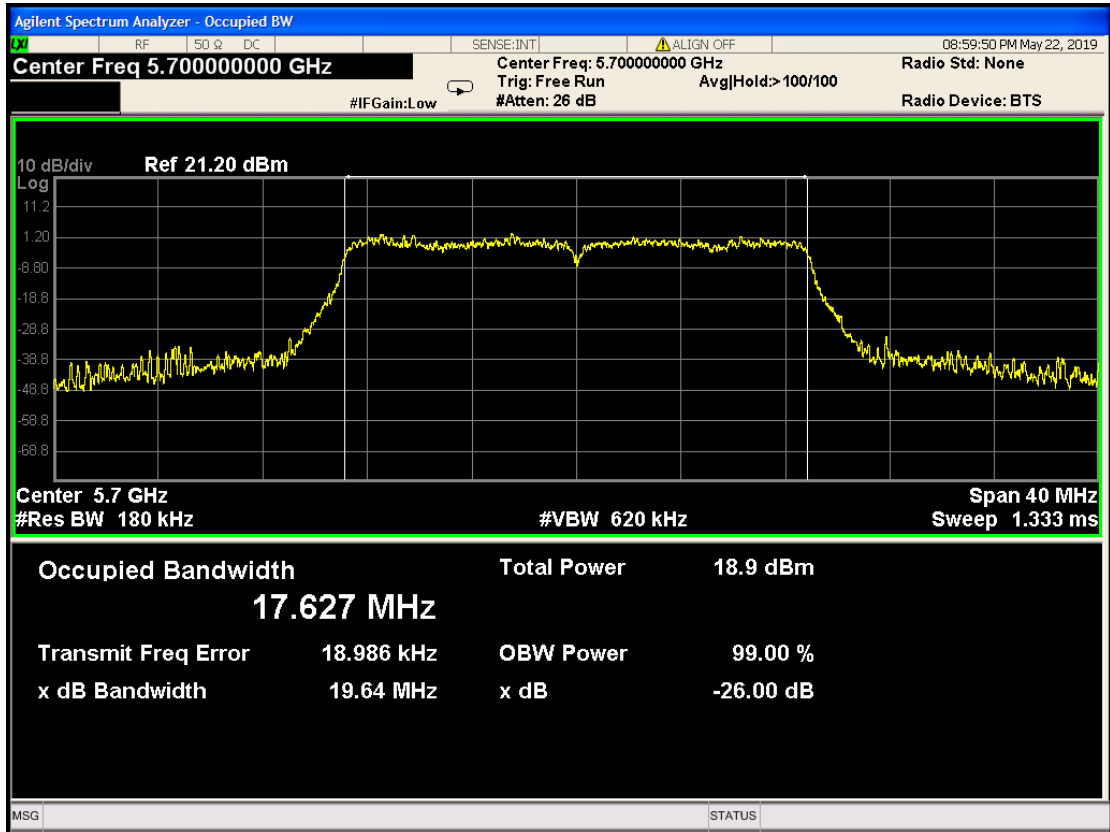
802.11nHT20 5500



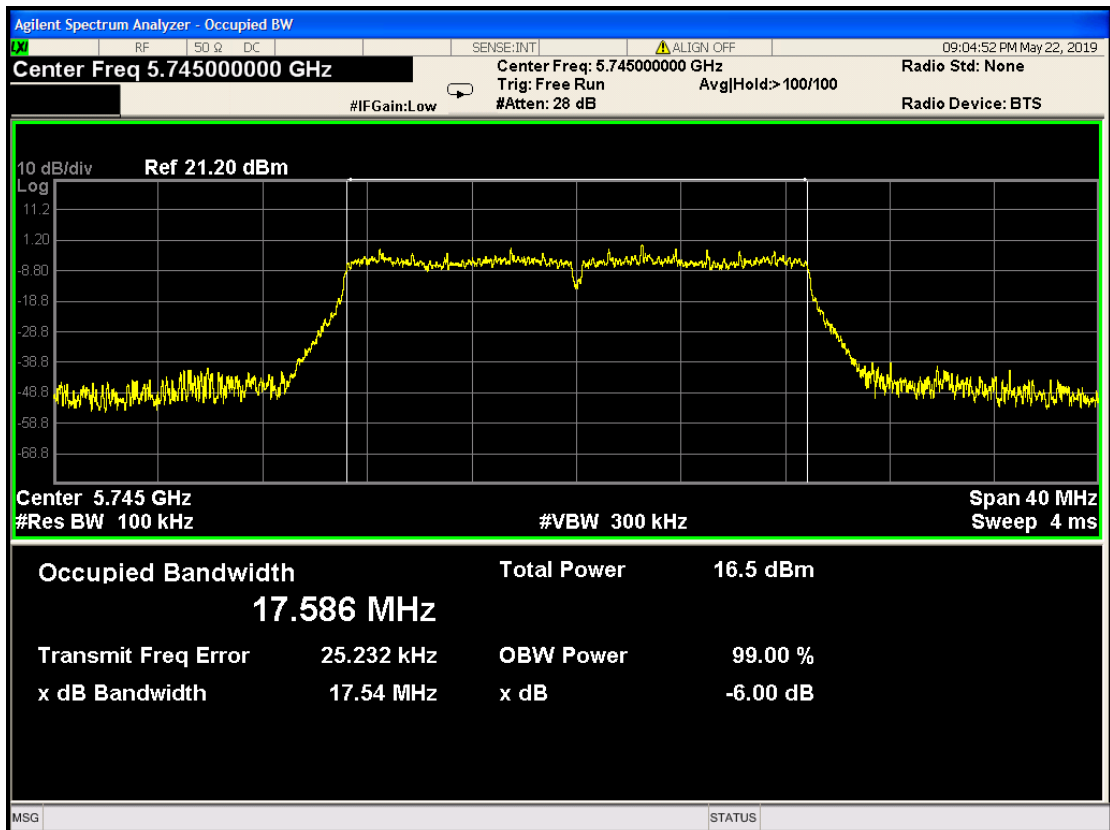
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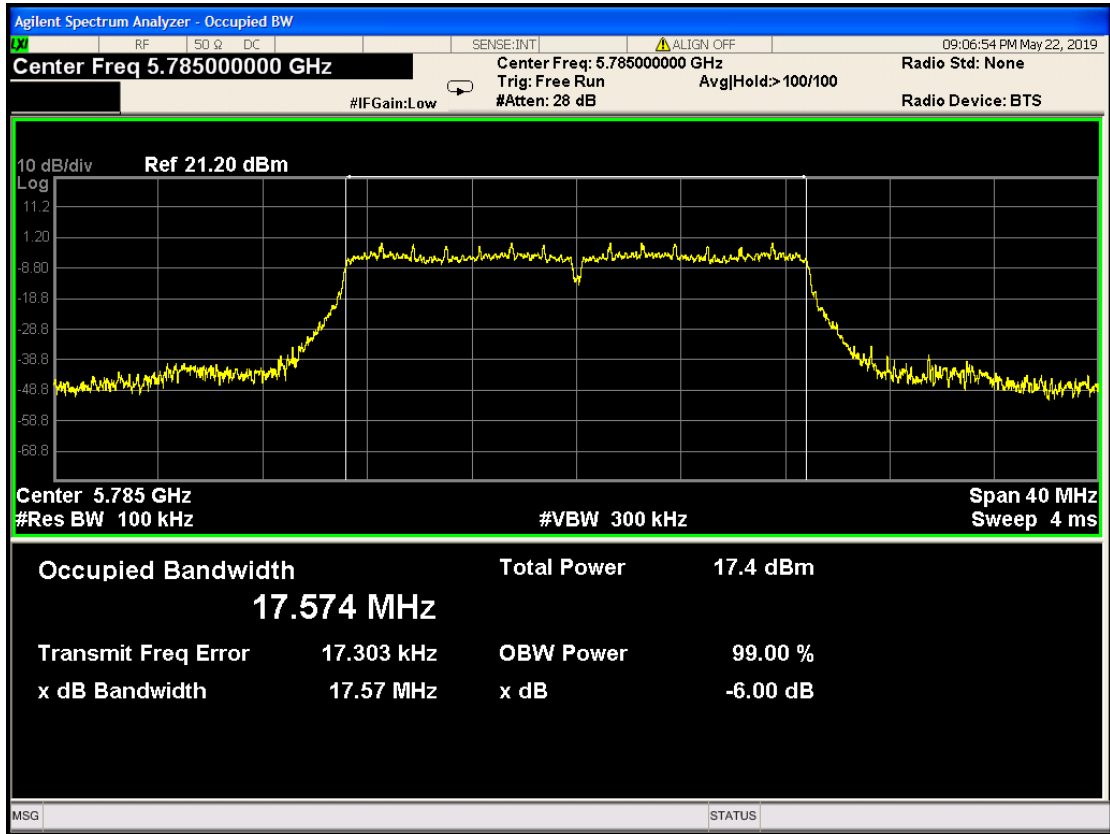
802.11nHT20 5700



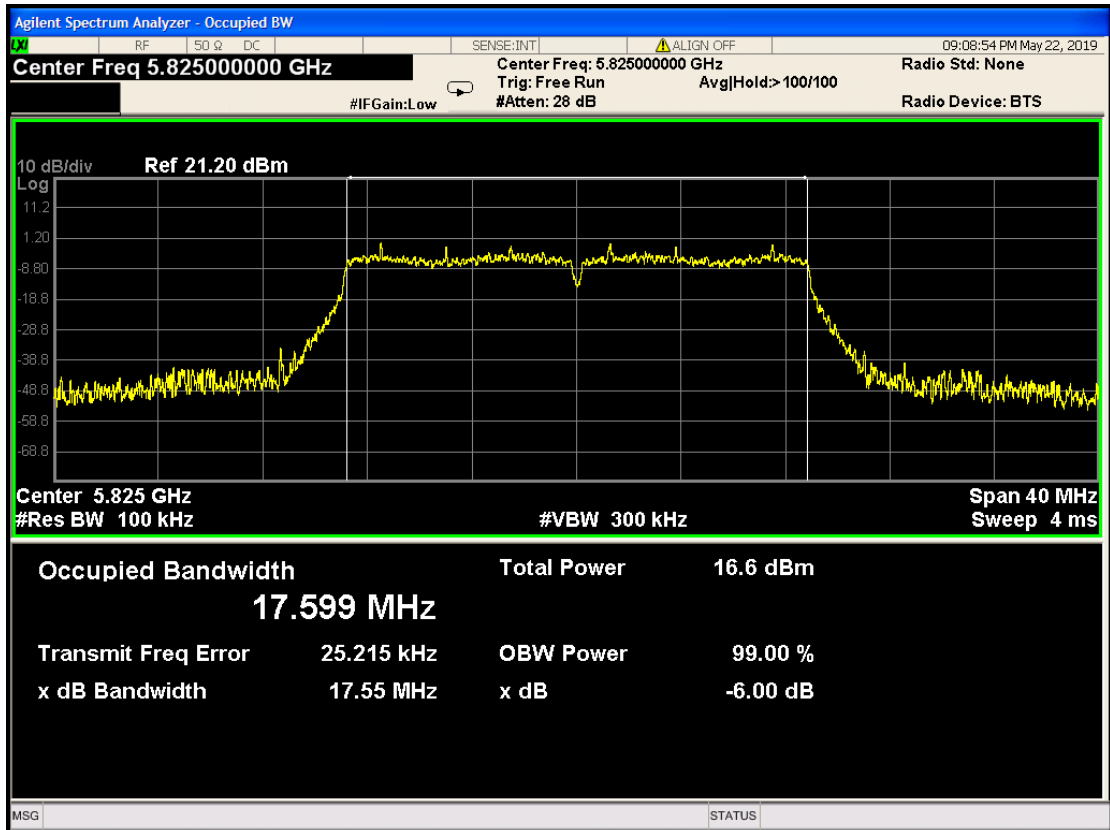
802.11nHT20 5745



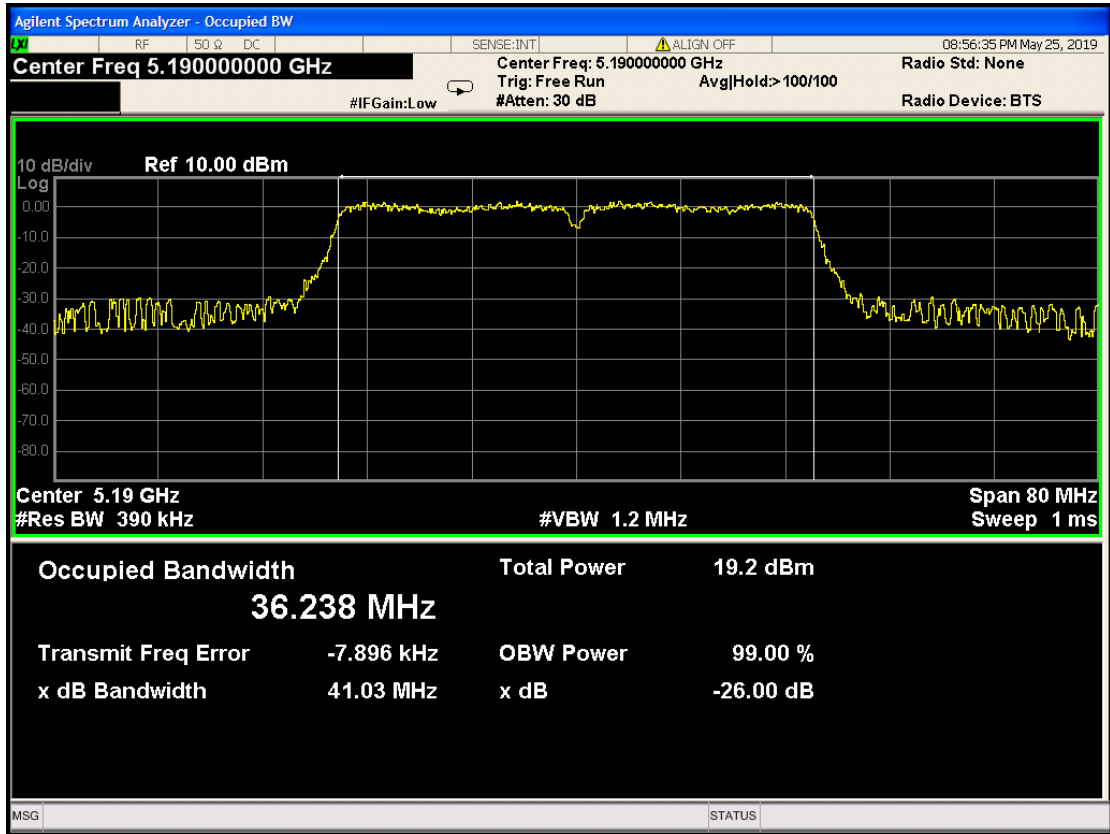
802.11nHT20 5785



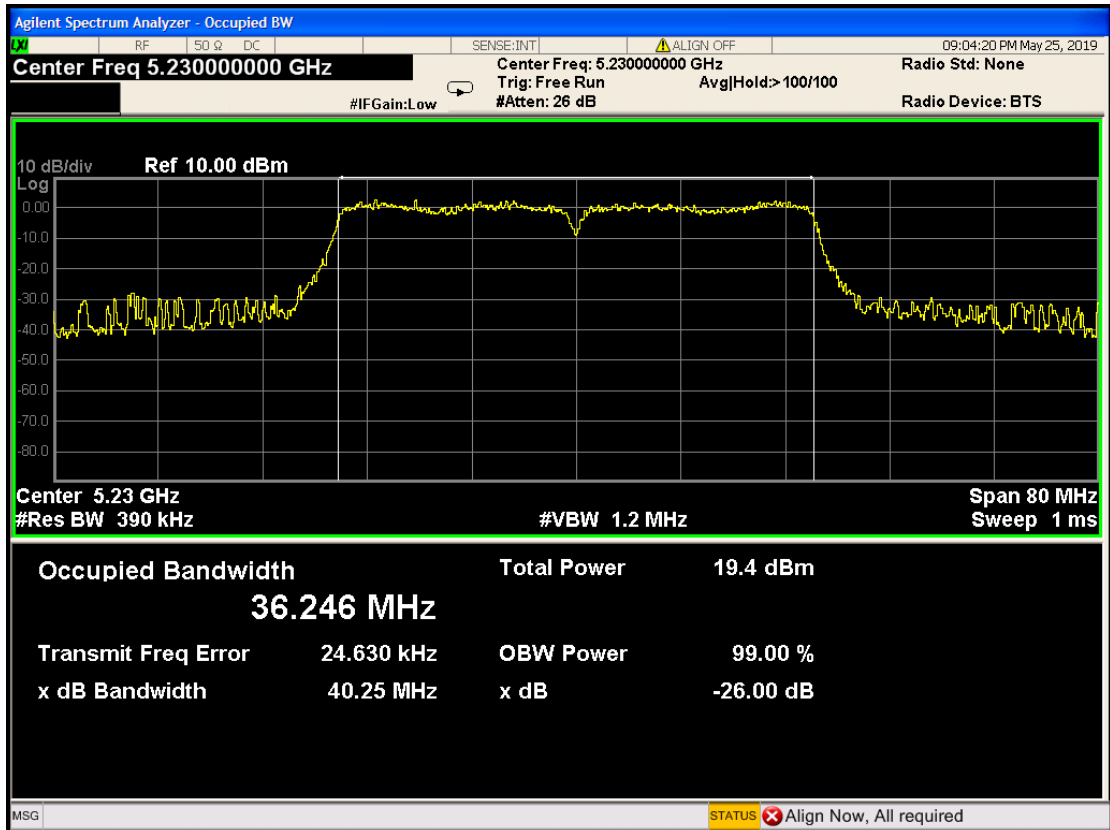
802.11nHT20 5825



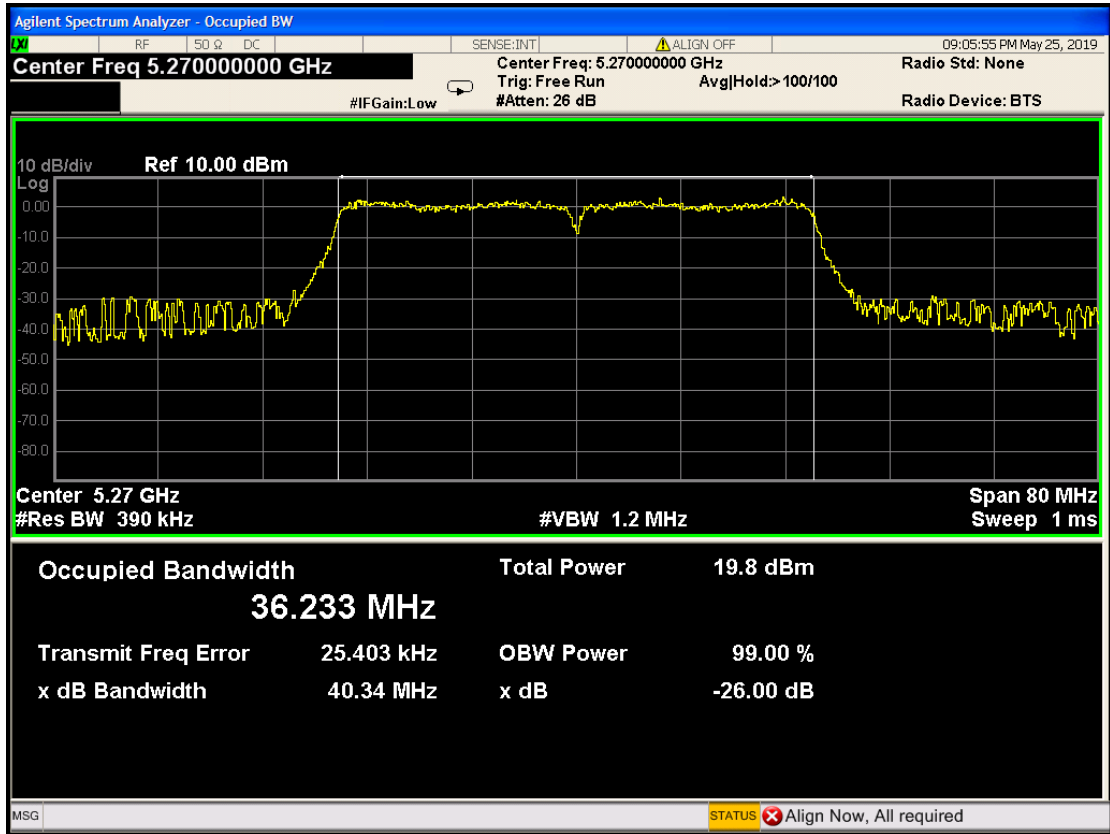
802.11nHT40 5190



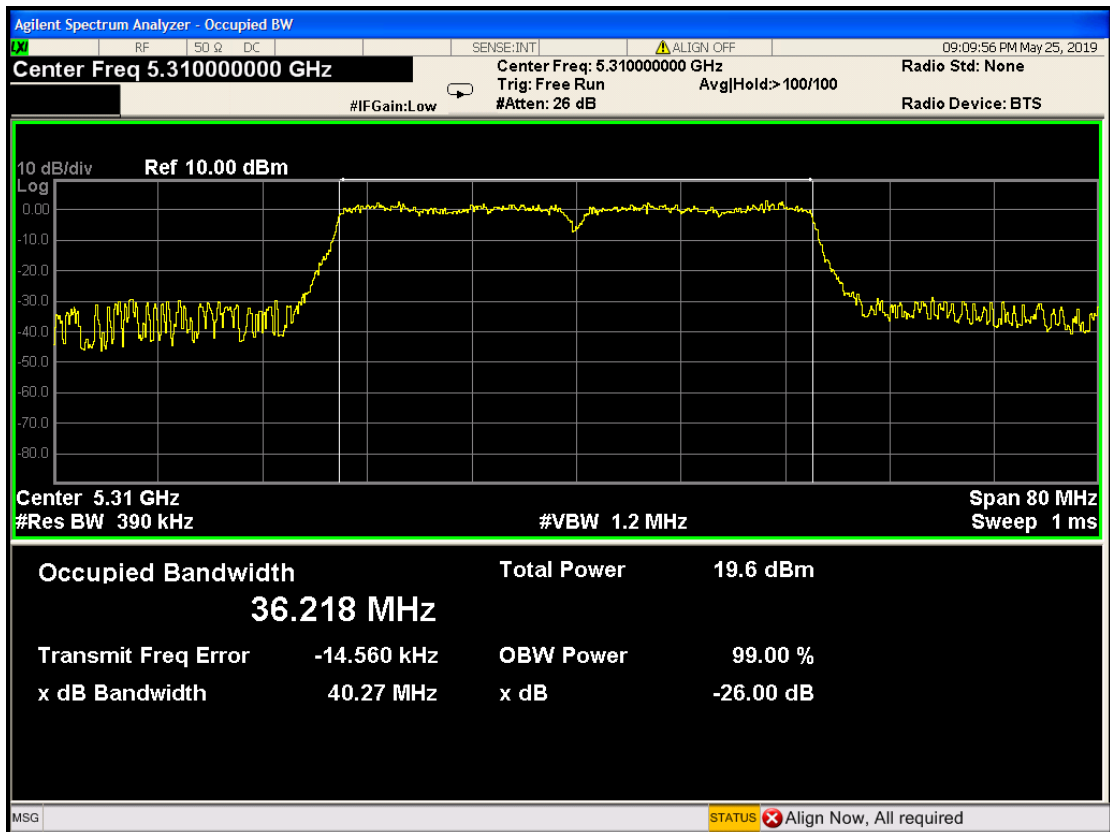
802.11nHT40 5230



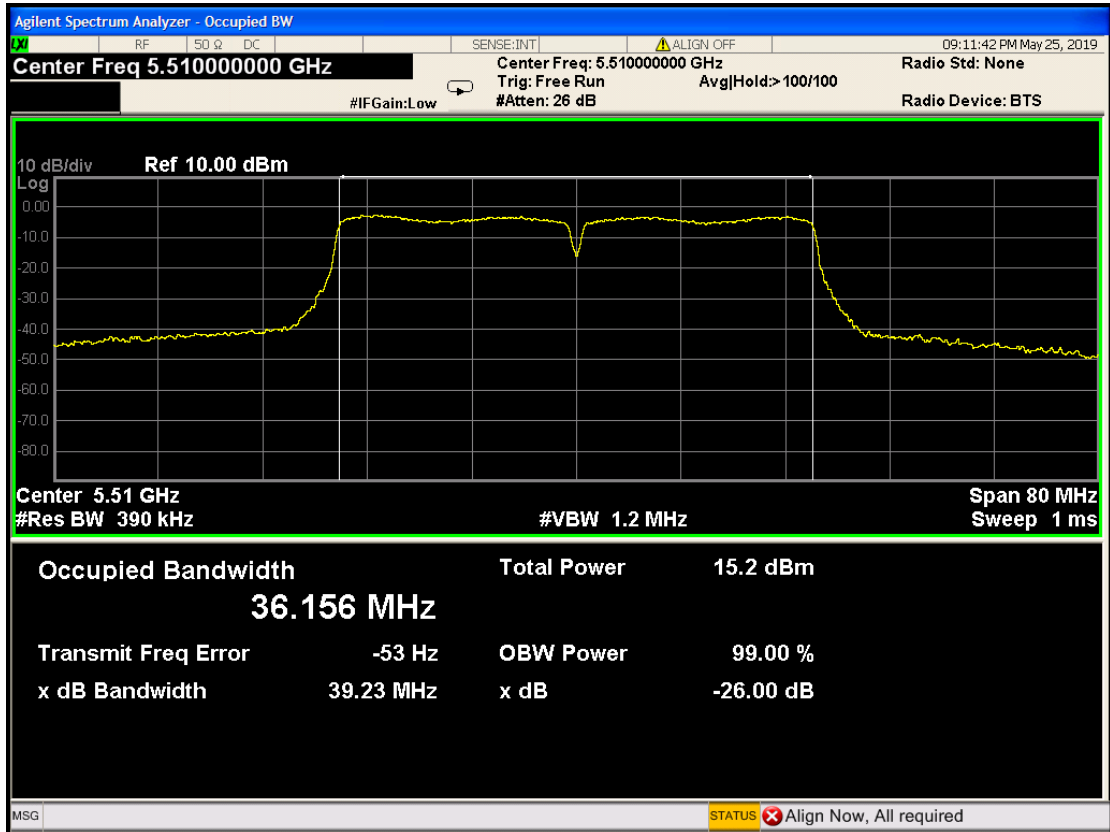
802.11nHT40 5270



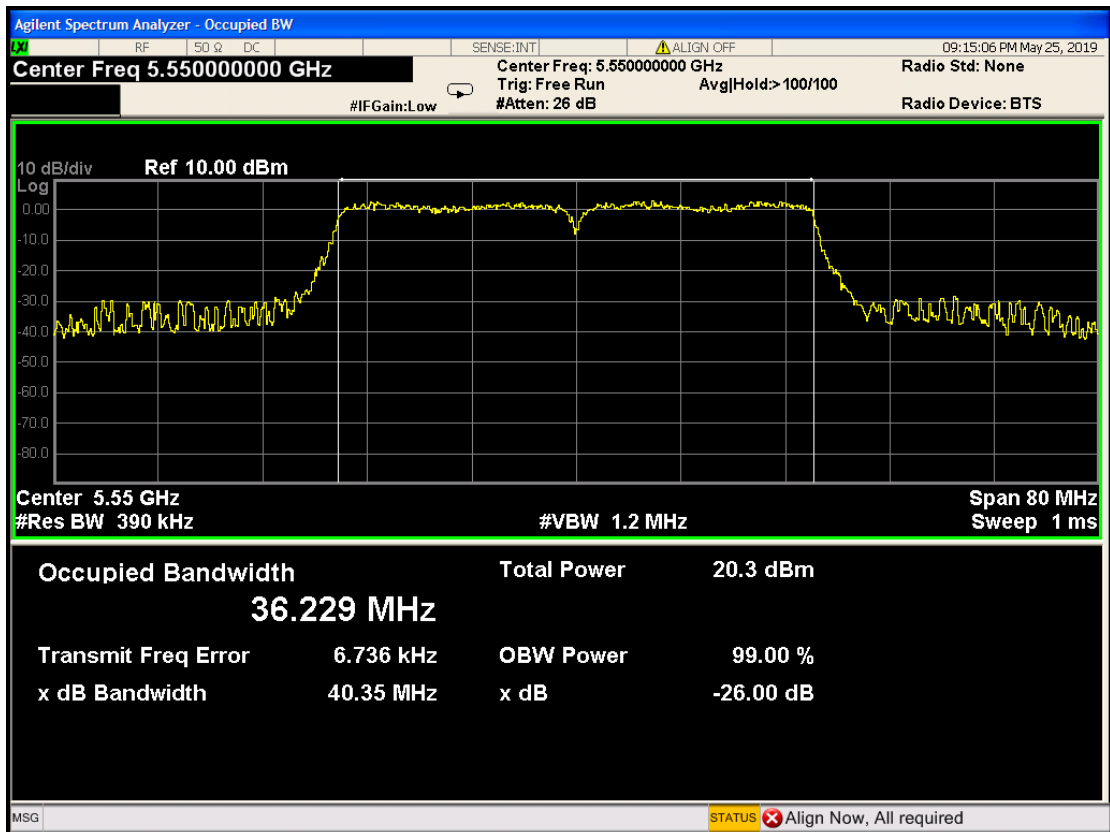
802.11nHT40 5310



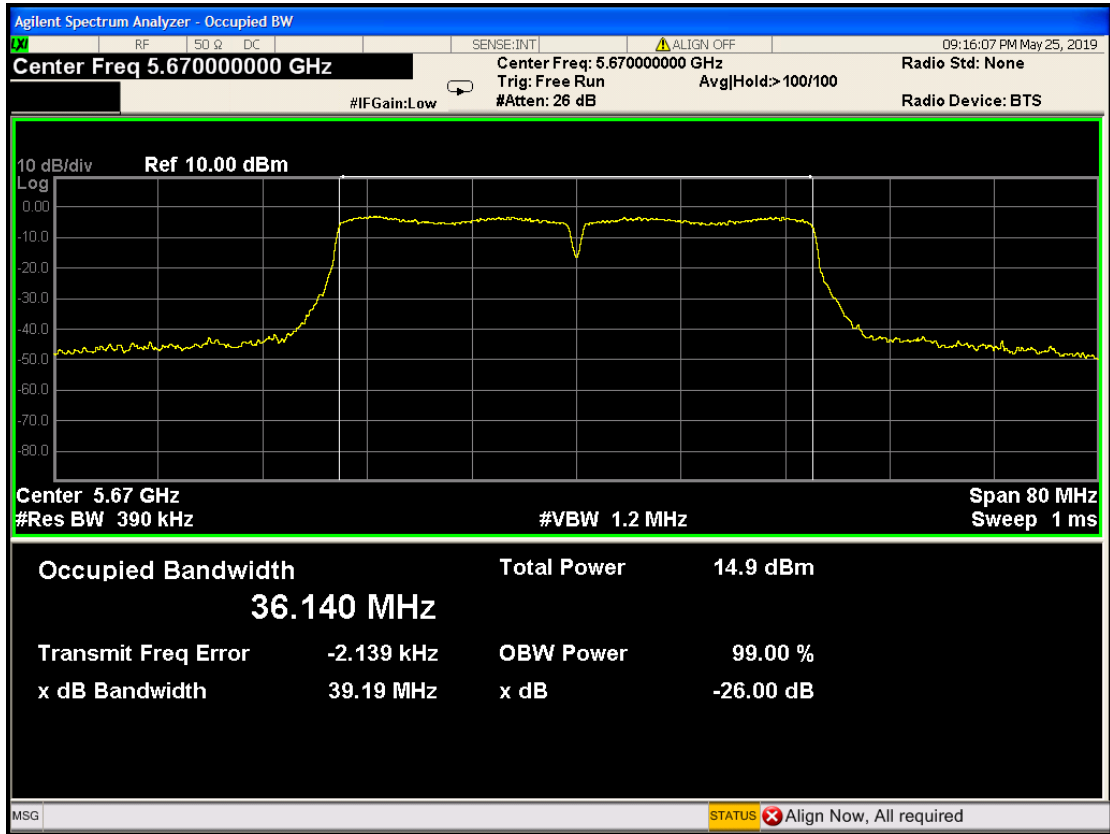
802.11nHT40 5510



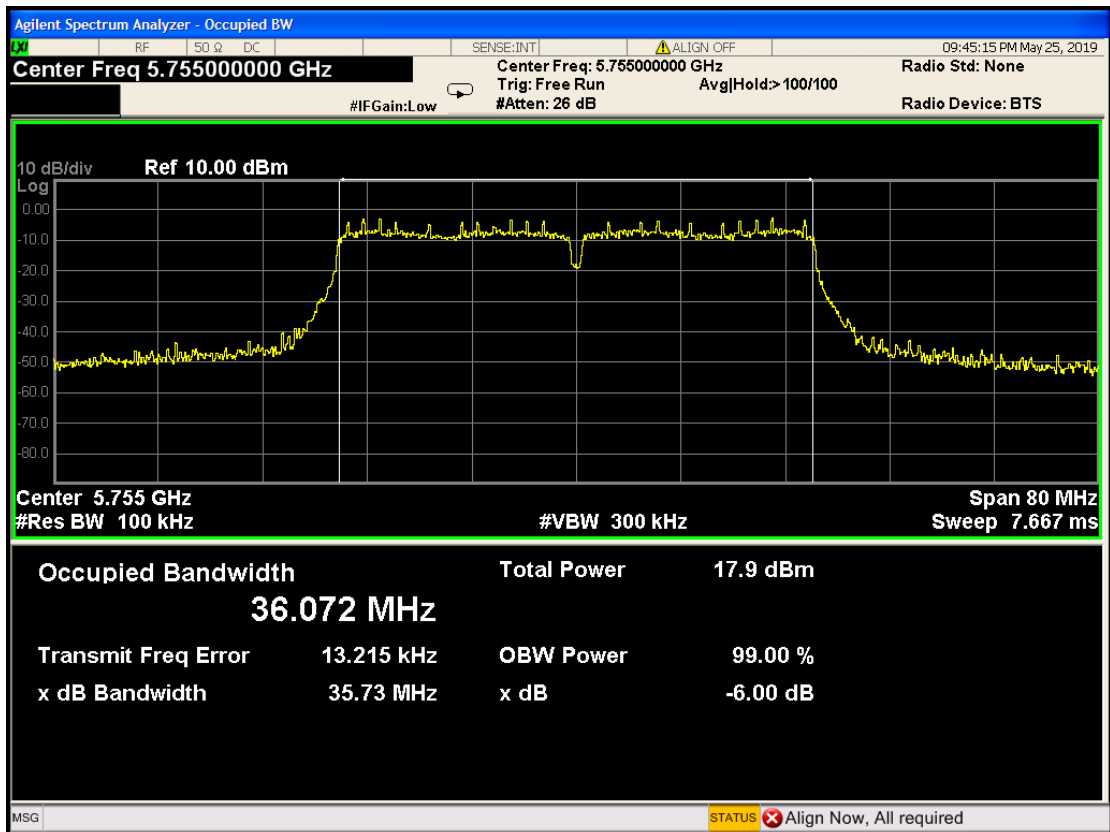
802.11nHT40 5550



802.11nHT40 5670



802.11nHT40 5755



802.11nHT40 5795

