



FCC RADIO TEST REPORT-WIFI

FCC ID:LNQSBWD700A

Product : ScreenBeam Enterprise Wireless Display Receiver

Trade Name : Actiontec

Model Name : SBWD700A

Serial Model : N/A

Report No. : NTEK-2014NT09281643F3

Prepared for

Actiontec Electronics, Inc.

760 North Mary Ave., Sunnyvale, CA 94085 USA

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name Actiontec Electronics, Inc.

Address 760 North Mary Ave., Sunnyvale, CA 94085 USA

Manufacturer's Name... Actiontec Electronics, Inc.

Address 760 North Mary Ave., Sunnyvale, CA 94085 USA

Product description

Product name ScreenBeam Enterprise Wireless Display Receiver

Model and/or type SBWD700A
reference

Serial Model N/A

Standards FCC Part15.247: 01 Oct. 2013

Test procedure ANSI C63.4-2003 and KDB 558074: June 5, 2014

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test

Date (s) of performance of tests 28 Sep. 2014 ~16 Oct. 2014

Date of Issue 16 Oct. 2014

Test Result **Pass**

Testing Engineer : Kyle Xu
(Kyle Xu)

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(Brown Lu)

Authorized Signatory : Bill Yao
(Bill Yao)

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247 (a)(2)	6dB Bandwidth	PASS	
15.247 (b)	Peak Output Power	PASS	
15.247 (c)	Radiated Spurious Emission	PASS	
15.247 (d)	Power Spectral Density	PASS	
15.205	Band Edge Emission	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

1.1 TEST FACILITY

NTEK Testing Technology Co., Ltd

Add.:1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.

FCC Registration No.:238937; IC Registration No.:9270A-1

CNAS Registration No.:L5516

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 1.38\text{dB}$
2	RF power,conducted	$\pm 0.16\text{dB}$
3	Spurious emissions,conducted	$\pm 0.21\text{dB}$
4	All emissions,radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	ScreenBeam Enterprise Wireless Display Receiver	
Trade Name	Actiontec	
Model Name	SBWD700A	
Product Description	The EUT is a ScreenBeam Enterprise Wireless Display Receiver	
	Operation Frequency:	802.11b/g/n(20MHz):2412~2462 MHz 802.11n(40MHz):2422~2452 MHz
	Modulation Type:	CCK/OFDM/DBPSK/DAPSK
	Bit Rate of Transmitter	802.11b:11/5.5/2/1 Mbps 802.11g:54/48/36/24/18/12/9/6Mbps 802.11n(20MHz):150/144.44/130/117/115.56/104/86.67/78/52/6.5Mbps 802.11n(40MHz):300/270/240/180/150/120/108/90/54 Mbps
	Number Of Channel	802.11b/g/n20MHz:11CH 802.11n40MHz:7CH
	Max.Output Power(Conducted):	17.26 dBm
	Operation Frequency:	5725 MHz ~ 5850 MHz
	Modulation Type:	OFDM (BPSK / QPSK / 16QAM / 64QAM)
	Max.Output Power(Conducted):	12.50 dBm
	Antenna Designation:	Please see Note 3.
	Antenna Gain (dBi)	Please see Note 3.
	Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.	
Channel List	Please refer to the Note 2.	
Ratings	DC 5.0V,2.0A	
Adapter	Mode: WA-10P05FU Input: 100-240V~, 50/60Hz, 0.3A MAX Output: 5.0V---, 2.0A	
Battery	N/A	
Connecting I/O Port(s)	Please refer to the User's Manual	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2. 2.4GHz

Channel List for 802.11b/g/n(20 MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452	-	-

Channel List for 802.11n(40MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
03	2422	06	2437	09	2452	-	-
04	2427	07	2442	-	-	-	-
05	2432	08	2447	-	-	-	-

5GHz

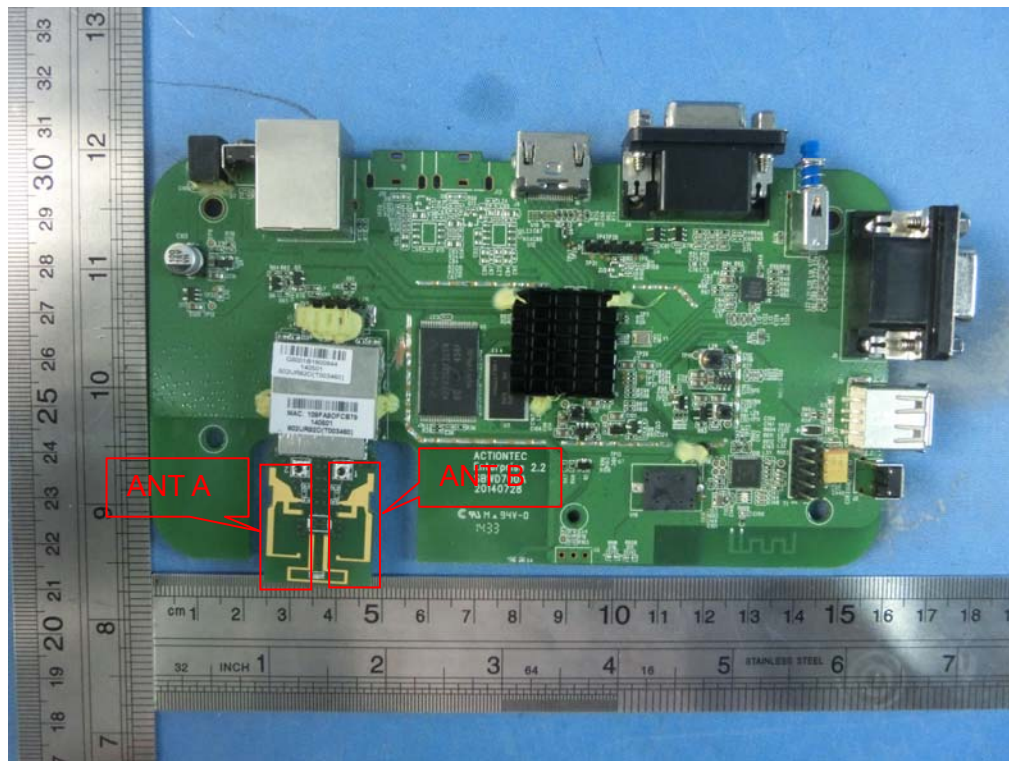
802.11a/n20 MHz Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	153	5765	157	5785	161	5805
165	5825	-	-	-	-	-	-

802.11n 40MHzCarrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	155	5775	159	5795	-	-

3.

Table for Filed Antenna

Brand	Model Name	Antenna Type	Gain (dBi)	NOTE
N/A	N/A	PCB antenna	2.4G:3.6	Wifi Antenna
N/A	N/A	PCB antenna	5G:3.2	Wifi Antenna



The Control software(tool_WIFI.exe) can control antenna A B ,

For 2.4GHz mode, antenna A B are transmitting,two antennas simultaneously transmit.
And the data is recorded for radiated emission and band edge.

For 5GHz mode,antenna A B are transmitting Two antennas simultaneously transmit.
And the data is recorded for radiated emission, and band edge.

For MIMO mode , Directional gain= $G_{ANT} + 10\log(N)$ dbi =6.61dbi in 2.4GHz

Directional gain= $G_{ANT} + 10\log(N)$ dbi =6.21dbi in 5GHz

802.11a/b/g/n 2.4GHz & 5GHz has MIMO mode.

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11n20 CH1/ CH6/ CH11
Mode 4	802.11n40 CH3/ CH6/ CH9
Mode 5	Link Mode
Mode 6	802.11a /n 20 CH149/ CH157/ CH 165
Mode 7	802.11n40 CH 151 / CH 159

For Conducted Emission	
Final Test Mode	Description
Mode 5	Link Mode

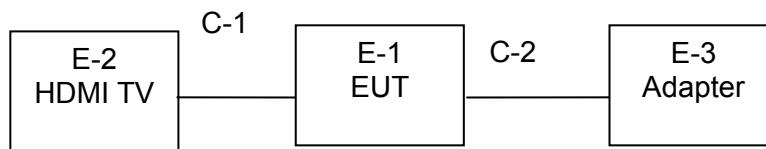
For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11n20 CH1/ CH6/ CH11
Mode 4	802.11n40 CH3/ CH6/ CH 9
Mode 5	Link Mode
Mode 6	802.11a /n20 CH149/ CH157/ CH165
Mode 7	802.11n40 CH151 / CH159

Note:

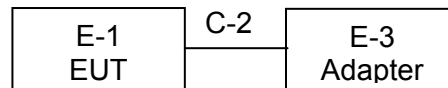
- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission Test



Radiated Emission Test



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Brand	Model/Type No.	Series No.	Note
E-1	ScreenBeam Enterprise Wireless Display Receiver	Actiontec	SBWD700A	N/A	EUT
E-2	TV	SONY	KDL-24EX520	N/A	
E-3	Adapter	Actiontec	WA-10P05FU	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	100cm	
C-2	NO	NO	80cm	

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2014.07.06	2015.07.05	1 year
2	Test Receiver	R&S	ESPI	101318	2014.06.06	2015.06.05	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2014.07.06	2015.07.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2014.06.06	2015.06.05	1 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2014.06.06	2015.06.05	1 year
6	Horn Antenna	EM	EM-AH-10180	2011071402	2014.07.06	2015.07.05	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2014.07.06	2015.07.05	1 year
8	Amplifier	EM	EM-30180	060538	2013.12.22	2014.12.21	1 year
9	Loop Antenna	ARA	PLA-1030/B	1029	2014.06.06	2015.06.05	1 year
10	Power Meter	R&S	NRVS	100696	2014.07.06	2015.07.05	1 year
11	Power Sensor	R&S	URV5-Z4	0395.1619.05	2014.07.06	2015.07.05	1 year

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2014.06.06	2015.06.05	1 year
2	LISN	R&S	ENV216	101313	2014.08.24	2015.08.23	1 year
3	LISN	EMCO	3816/2	00042990	2014.06.06	2015.06.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2014.06.06	2015.06.05	1 year
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	2014.06.06	2015.06.05	1 year
6	Absorbing clamp	R&S	MOS-21	100423	2014.06.06	2015.06.05	1 year

1	Attenuation	MCE	24-10-34	BN9258	2014.06.06	2015.06.05	1 year
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3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

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

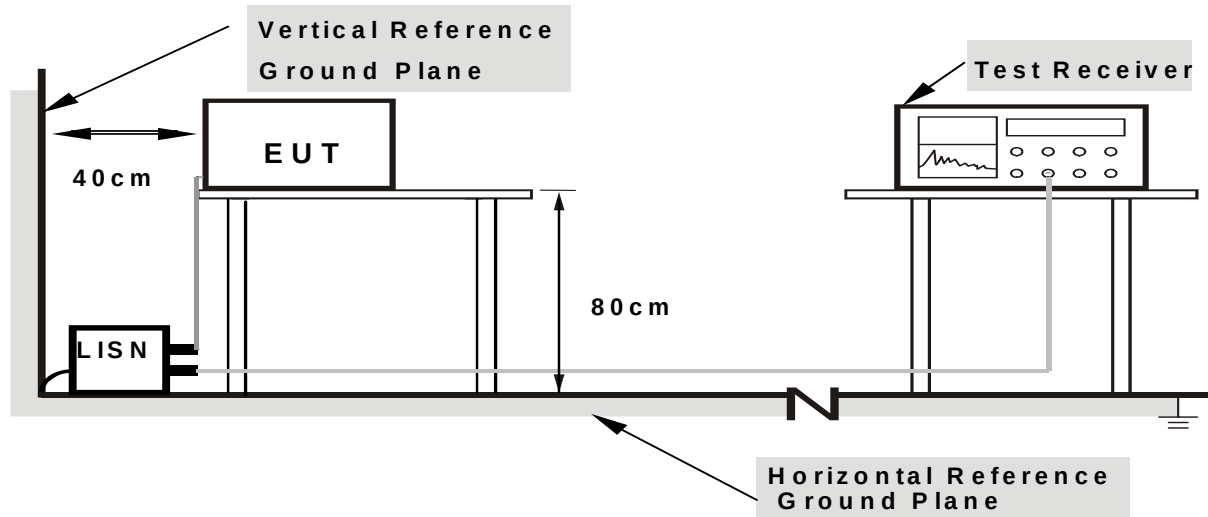
3.1.2 TEST PROCEDURE

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

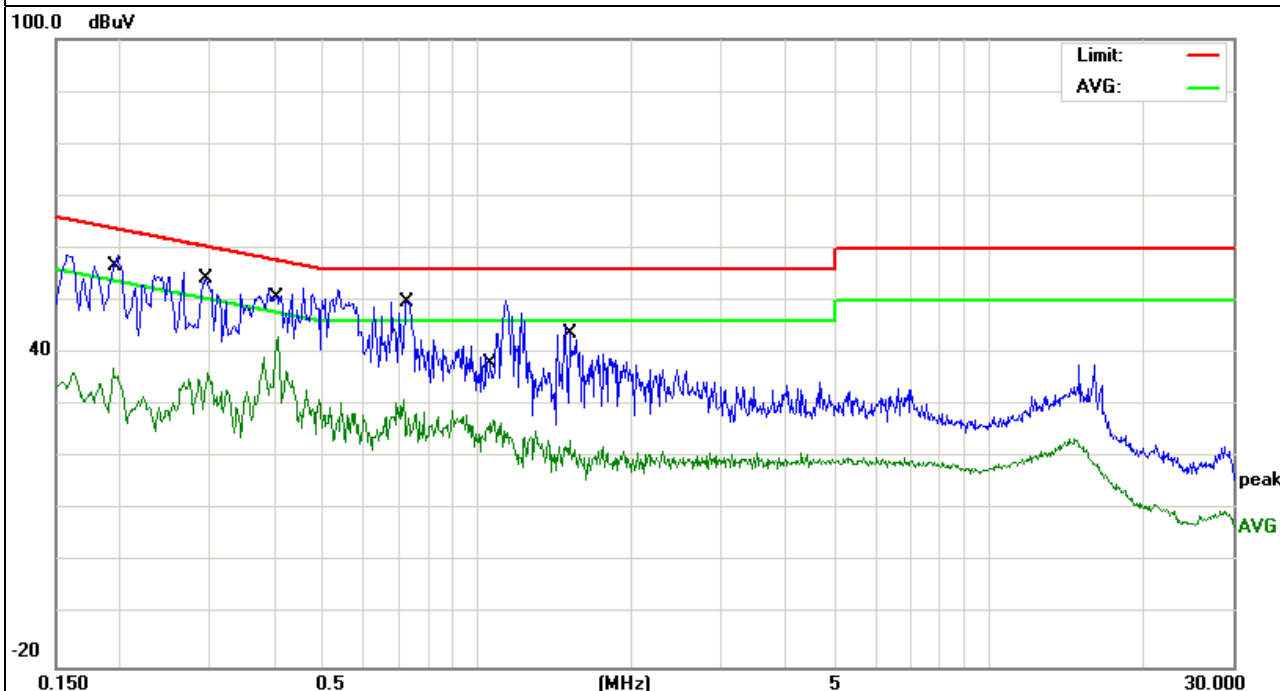
3.1.6 TEST RESULTS

EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name. :	SBWD700A
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V From adapter AC120V/60Hz	Test Mode :	Mode 5(2.4G)

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1940	47.11	9.51	56.62	63.86	-7.24	QP
0.1940	27.74	9.51	37.25	53.86	-16.61	AVG
0.2977	43.65	9.50	53.15	60.30	-7.15	QP
0.2977	26.65	9.50	36.15	50.30	-14.15	AVG
0.4061	41.08	9.50	50.58	57.73	-7.15	QP
0.4061	33.68	9.50	43.18	47.73	-4.55	AVG
0.7178	31.98	9.53	41.51	56.00	-14.49	QP
0.7178	21.58	9.53	31.11	46.00	-14.89	AVG
1.0740	25.77	9.53	35.30	56.00	-20.70	QP
1.0740	17.86	9.53	27.39	46.00	-18.61	AVG
1.5180	34.06	9.54	43.60	56.00	-12.40	QP
1.5180	13.82	9.54	23.36	46.00	-22.64	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

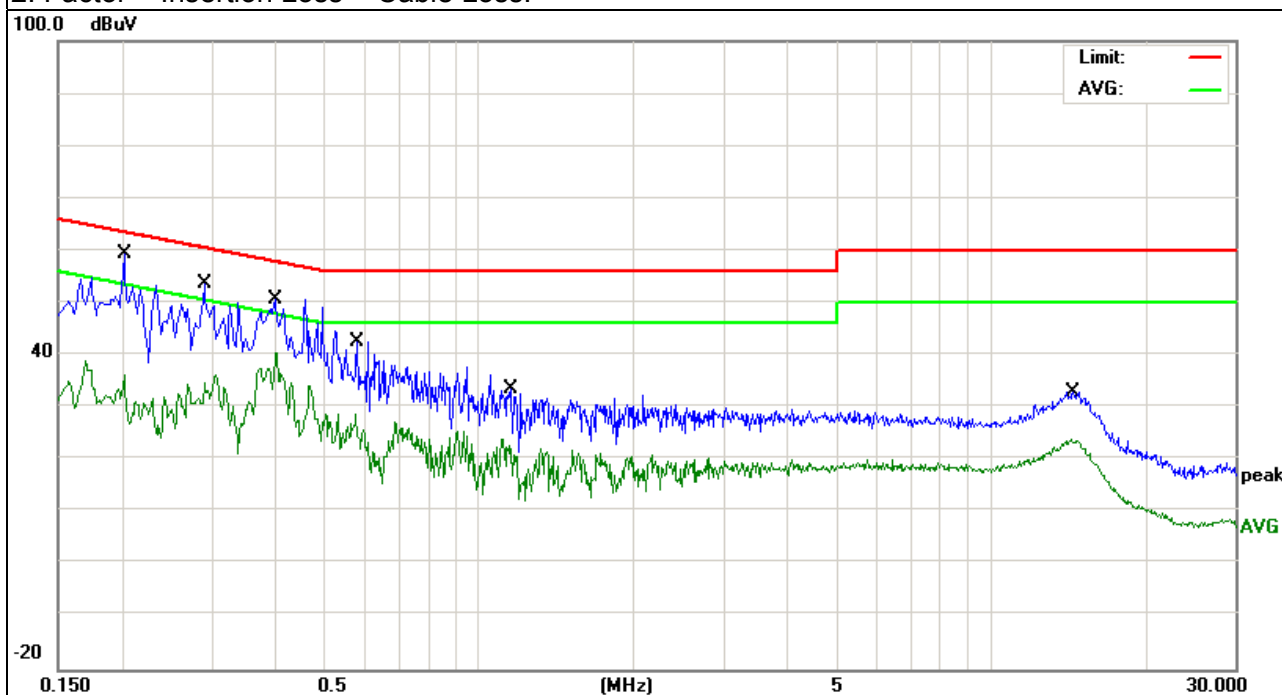


EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name. :	SBWD700A
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V From adapter AC120V/60Hz	Test Mode :	Mode 5(2.4G)

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.2020	49.86	9.49	59.35	63.52	-4.17	QP
0.2020	26.68	9.49	36.17	53.52	-17.35	AVG
0.2898	44.21	9.50	53.71	60.53	-6.82	QP
0.2898	25.21	9.50	34.71	50.53	-15.82	AVG
0.3996	39.89	9.50	49.39	57.86	-8.47	QP
0.3996	30.98	9.50	40.48	47.86	-7.38	AVG
0.5738	28.31	9.51	37.82	56.00	-18.18	QP
0.5738	19.19	9.51	28.70	46.00	-17.30	AVG
1.1458	23.41	9.53	32.94	56.00	-23.06	QP
1.1458	13.12	9.53	22.65	46.00	-23.35	AVG
14.4298	22.41	9.83	32.24	60.00	-27.76	QP
14.4298	14.00	9.83	23.83	50.00	-26.17	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

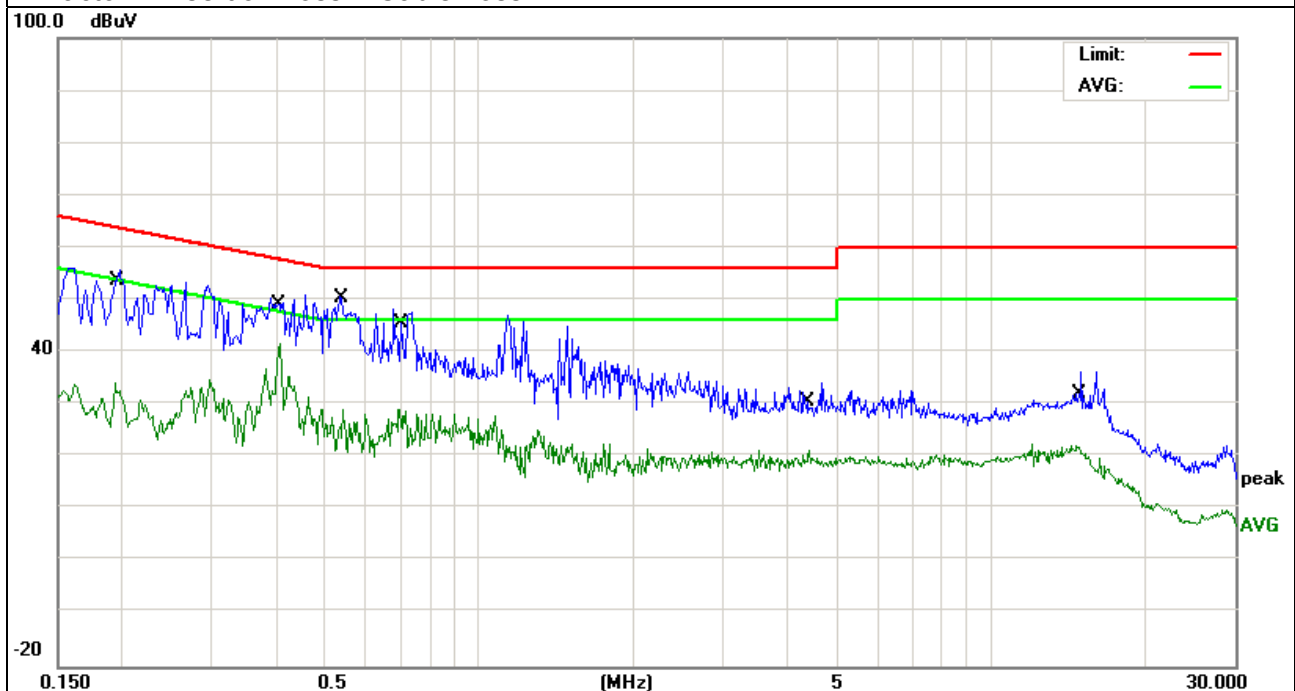


EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name. :	SBWD700A
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V From adapter AC120V/60Hz	Test Mode :	Mode 5(5G)

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1940	44.11	9.51	53.62	63.86	-10.24	QP
0.1940	24.74	9.51	34.25	53.86	-19.61	AVG
0.4061	39.58	9.50	49.08	57.73	-8.65	QP
0.4061	32.18	9.50	41.68	47.73	-6.05	AVG
0.5420	38.21	9.51	47.72	56.00	-8.28	QP
0.5420	19.52	9.51	29.03	46.00	-16.97	AVG
0.6935	31.12	9.53	40.65	56.00	-15.35	QP
0.6935	19.66	9.53	29.19	46.00	-16.81	AVG
4.4218	19.65	9.60	29.25	56.00	-26.75	QP
4.4218	11.62	9.60	21.22	46.00	-24.78	AVG
14.7096	22.09	9.83	31.92	60.00	-28.08	QP
14.7096	12.28	9.83	22.11	50.00	-27.89	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

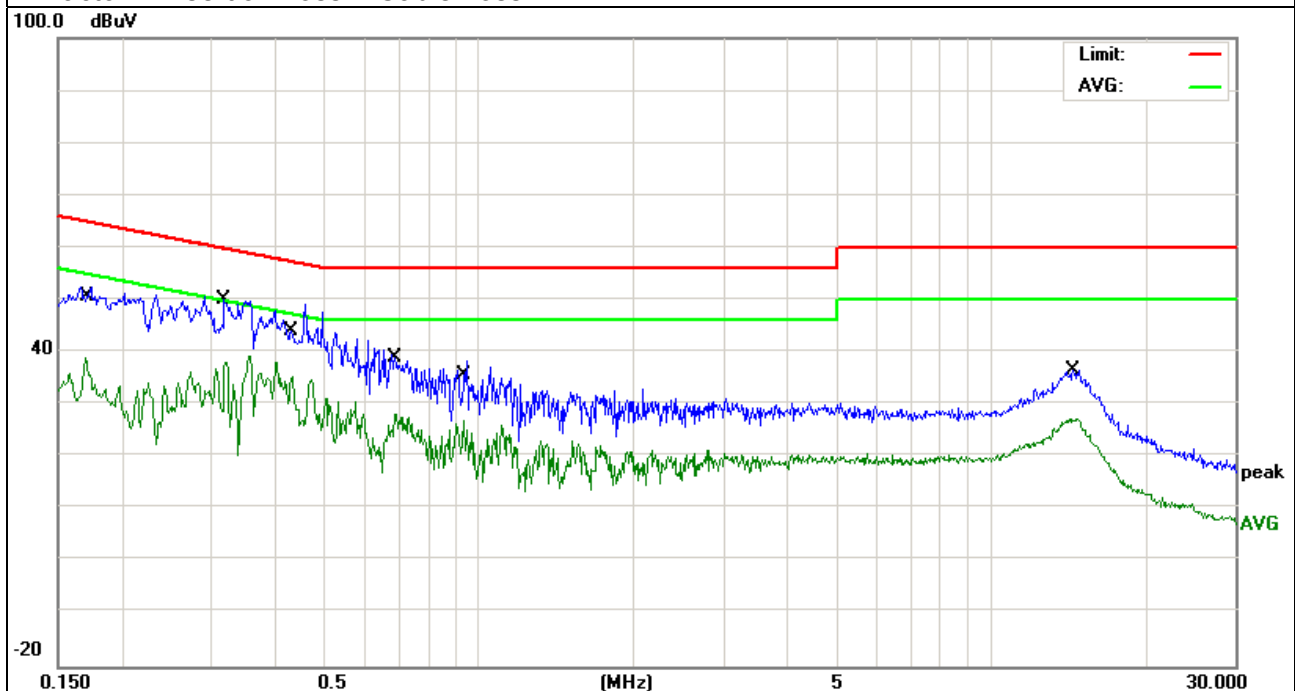


EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name. :	SBWD700A
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V From adapter AC120V/60Hz	Test Mode :	Mode 5(5G)

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1700	40.30	9.57	49.87	64.96	-15.09	QP
0.1700	29.52	9.57	39.09	54.96	-15.87	AVG
0.3183	40.07	9.50	49.57	59.75	-10.18	QP
0.3183	28.64	9.50	38.14	49.75	-11.61	AVG
0.4304	33.95	9.51	43.46	57.24	-13.78	QP
0.4304	25.99	9.51	35.50	47.24	-11.74	AVG
0.6860	29.51	9.53	39.04	56.00	-16.96	QP
0.6860	18.76	9.53	28.29	46.00	-17.71	AVG
0.9300	24.27	9.53	33.80	56.00	-22.20	QP
0.9300	17.46	9.53	26.99	46.00	-19.01	AVG
14.4298	25.91	9.83	35.74	60.00	-24.26	QP
14.4298	17.50	9.83	27.33	50.00	-22.67	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

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

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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	dBuV/m@at 3M	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

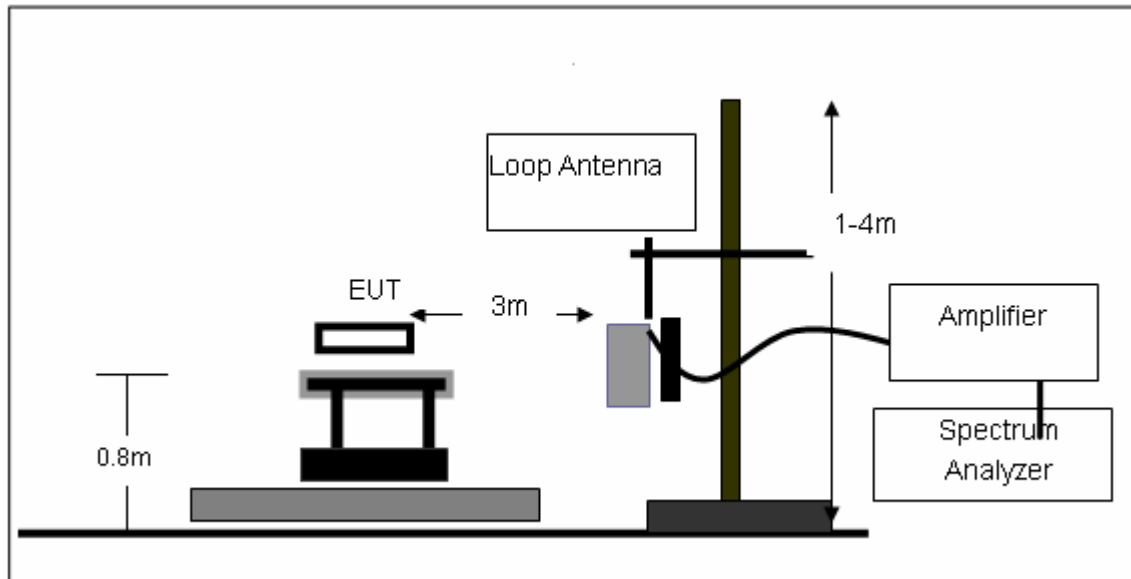
Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	100 kHz	100 kHz
Above 1000	Peak	1 MHz	1 MHz
	Peak	1 MHz	10 Hz

3.2.3 DEVIATION FROM TEST STANDARD

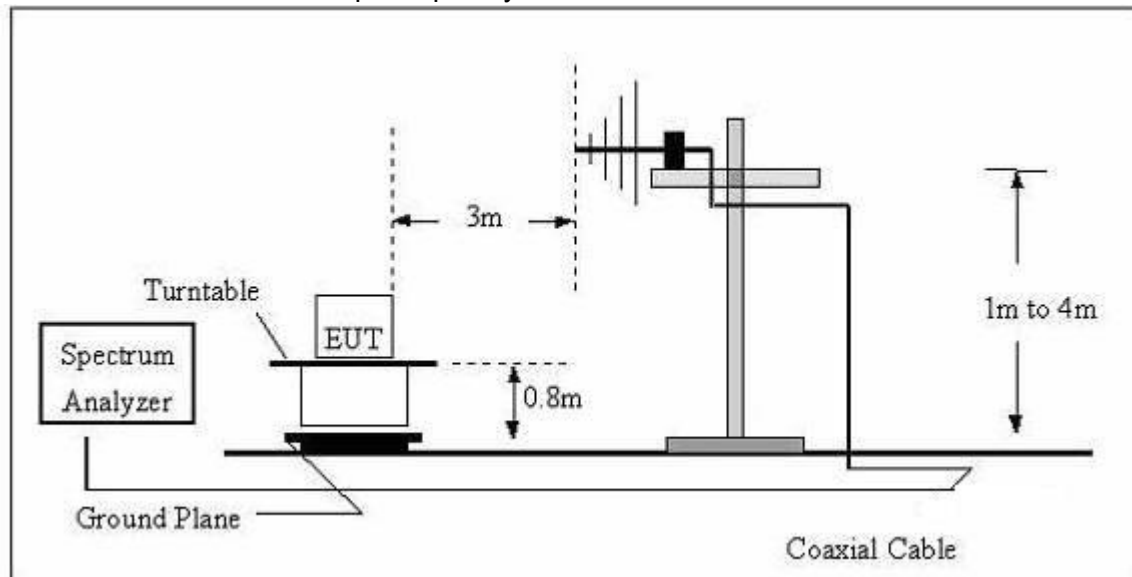
No deviation

3.2.4 TEST SETUP

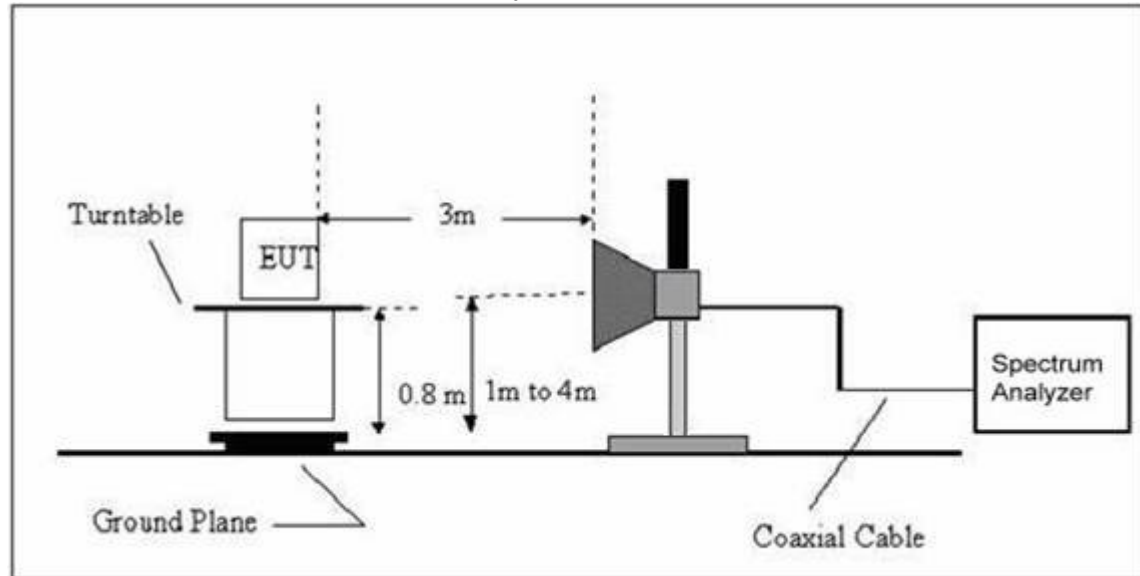
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz

**3.2.5 EUT OPERATING CONDITIONS**

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

EUT:	ScreenBeam Enterprise Wireless Display Receiver	Model Name. :	SBWD700A
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX	Polarization :	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	N/A
--	--	--	--	N/A

NOTE:

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

Distance extrapolation factor = $40 \log (\text{specific distance/test distance})(\text{dB})$;

Limit line = specific limits(dBuv) + distance extrapolation factor.

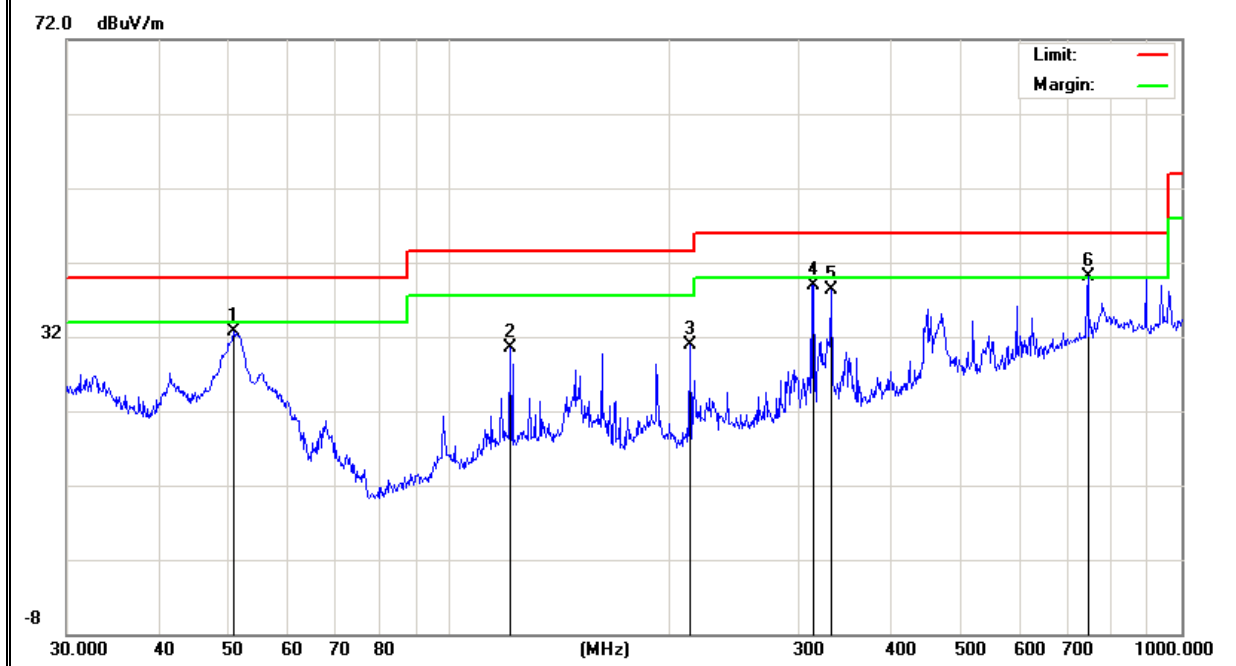
3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX (2.4G)		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	50.7637	22.28	10.47	32.75	40.00	-7.25	QP
V	121.1230	18.40	12.07	30.47	43.50	-13.03	QP
V	213.0149	19.29	11.66	30.95	43.50	-12.55	QP
V	314.3765	24.13	14.75	38.88	46.00	-7.12	QP
V	332.5187	22.77	15.51	38.28	46.00	-7.72	QP
V	744.8659	14.06	25.96	40.02	46.00	-5.98	QP

Remark:

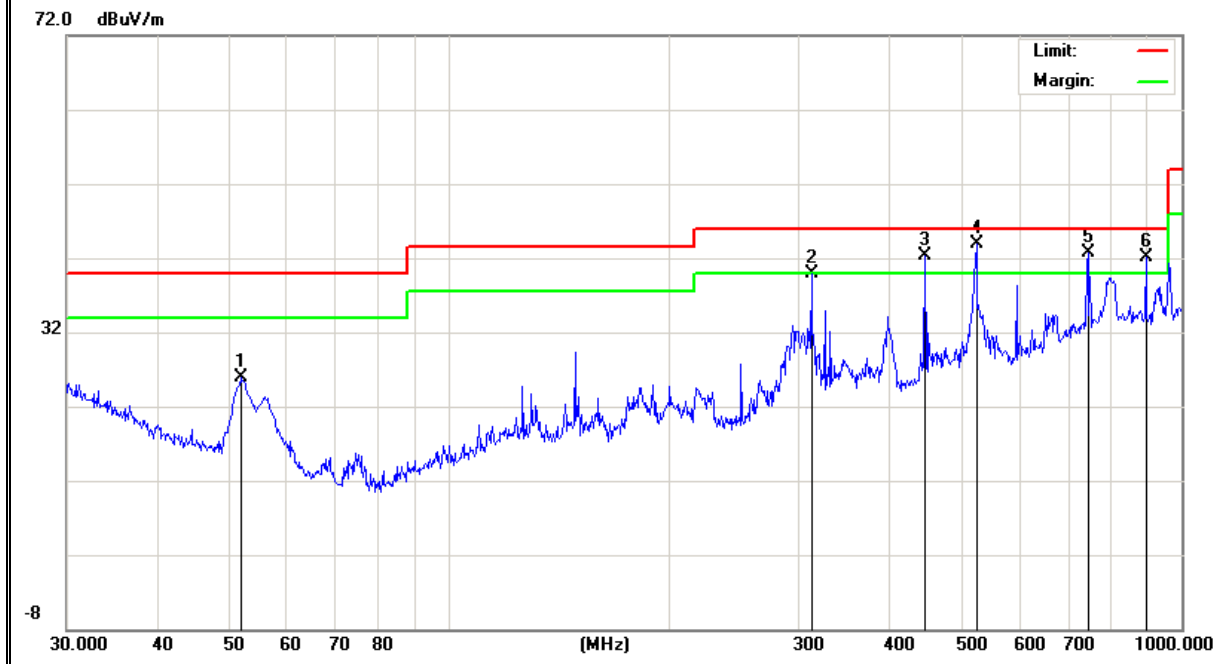
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	51.8430	15.81	10.16	25.97	40.00	-14.03	QP
H	312.1792	25.29	14.66	39.95	46.00	-6.05	QP
H	446.4141	23.01	19.23	42.24	46.00	-3.76	QP
H	524.5538	23.06	20.81	43.87	46.00	-2.13	QP
H	744.8659	16.65	25.96	42.61	46.00	-3.39	QP
H	893.8567	15.11	27.03	42.14	46.00	-3.86	QP

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit

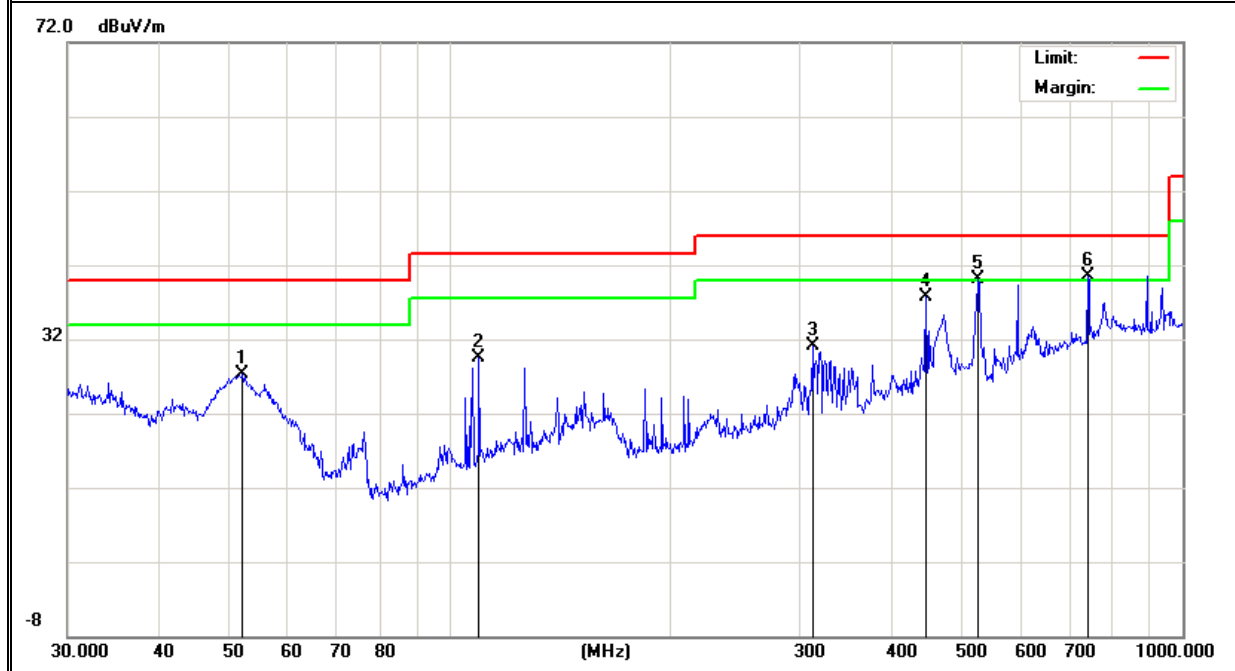


EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX(5.0G)		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	52.0251	17.16	10.11	27.27	40.00	-12.73	QP
V	109.4116	19.66	9.89	29.55	43.50	-13.95	QP
V	312.1792	16.49	14.66	31.15	46.00	-14.85	QP
V	446.4141	18.45	19.23	37.68	46.00	-8.32	QP
V	526.3967	19.28	20.84	40.12	46.00	-5.88	QP
V	742.2586	14.66	25.90	40.56	46.00	-5.44	QP

Remark:

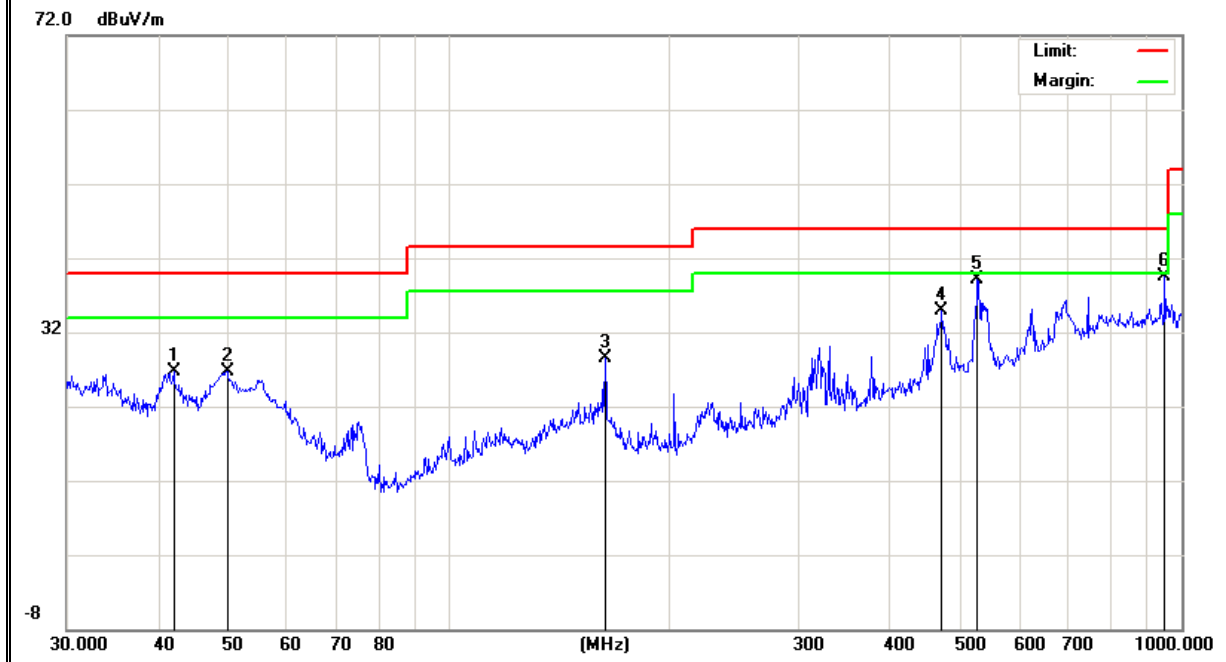
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	42.0065	13.86	12.90	26.76	40.00	-13.24	QP
H	49.7068	15.87	10.77	26.64	40.00	-13.36	QP
H	163.1818	18.06	10.51	28.57	43.50	-14.93	QP
H	470.5230	15.25	19.70	34.95	46.00	-11.05	QP
H	526.3967	18.25	20.84	39.09	46.00	-6.91	QP
H	948.7608	12.18	27.32	39.50	46.00	-6.50	QP

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



3.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX (2.4G)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
Low Channel (2412 MHz)-Above 1G							
Vertical	4824.000	45.13	10.44	55.57	74	-18.43	Pk
Vertical	4824.000	28.38	10.44	38.82	54	-15.18	Av
Vertical	7236.000	37.12	12.39	49.51	74	-24.49	Pk
Horizontal	4824.000	44.67	10.44	55.11	74	-18.89	Pk
Horizontal	4824.000	25.59	10.44	36.03	54	-17.97	Av
Horizontal	7236.000	32.17	12.39	44.56	74	-29.44	Pk
Mid Channel (2437 MHz)-Above 1G							
Vertical	4874.000	45.98	10.4	56.38	74	-17.62	Pk
Vertical	4874.000	34.84	10.4	45.24	54	-8.76	Av
Vertical	7311.000	37.71	12.75	50.46	74	-23.54	Pk
Horizontal	4874.000	45.32	10.4	55.72	74	-18.28	Pk
Horizontal	4874.000	29.19	10.4	39.59	54	-14.41	Av
Horizontal	7311.000	31.56	12.75	44.31	74	-29.69	Pk
High Channel (2462 MHz)- Above 1G							
Vertical	4924.000	43.63	10.39	54.02	74	-19.98	Pk
Vertical	4924.000	34.38	10.39	44.77	54	-9.23	Av
Vertical	7386.000	37.24	12.68	49.92	74	-24.08	Pk
Horizontal	4924.000	46.96	10.39	57.35	74	-16.65	Pk
Horizontal	4924.000	28.92	10.39	39.31	54	-14.69	Av
Horizontal	7386.000	38.23	12.68	50.91	74	-23.09	Pk

Note:"802.11b" mode is the worst mode. When PK value is lower than the Average value limit, average didn't record.

EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX (5.0G)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
Low Channel (5745 MHz)-Above 1G							
Vertical	11490.000	35.77	14.21	49.98	74	-24.02	Pk
Vertical	17235.000	32.14	16.09	48.23	74	-25.77	Pk
Horizontal	11490.000	35.47	14.21	49.68	74	-24.32	Pk
Horizontal	17235.000	33.38	16.09	49.47	74	-24.53	Pk
middle Channel (5785 MHz)-Above 1G							
Vertical	11570.000	34.76	14.51	49.27	74	-24.73	Pk
Vertical	17355.000	36.89	16.15	53.04	74	-20.96	Pk
Horizontal	11570.000	35.42	14.51	49.93	74	-24.07	Pk
Horizontal	17355.000	35.18	16.15	51.33	74	-22.67	Pk
High Channel (5825 MHz)-Above 1G							
Vertical	11590.000	36.53	14.55	51.08	74	-22.92	Pk
Vertical	17385.000	34.64	16.18	50.82	74	-23.18	Pk
Horizontal	11590.000	35.72	14.55	50.27	74	-23.73	Pk
Horizontal	17385.000	36.62	16.18	52.80	74	-21.20	Pk

Note:"802.11a(5G)" mode is the worst mode. When PK value is lower than the Average value limit average didn't record.

4. POWER SPECTRAL DENSITY TEST

4.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

4.1.1 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. 3 kHz $\leq$ Set the RBW $\leq$ 100 kHz.
4. Set the VBW $\geq$ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

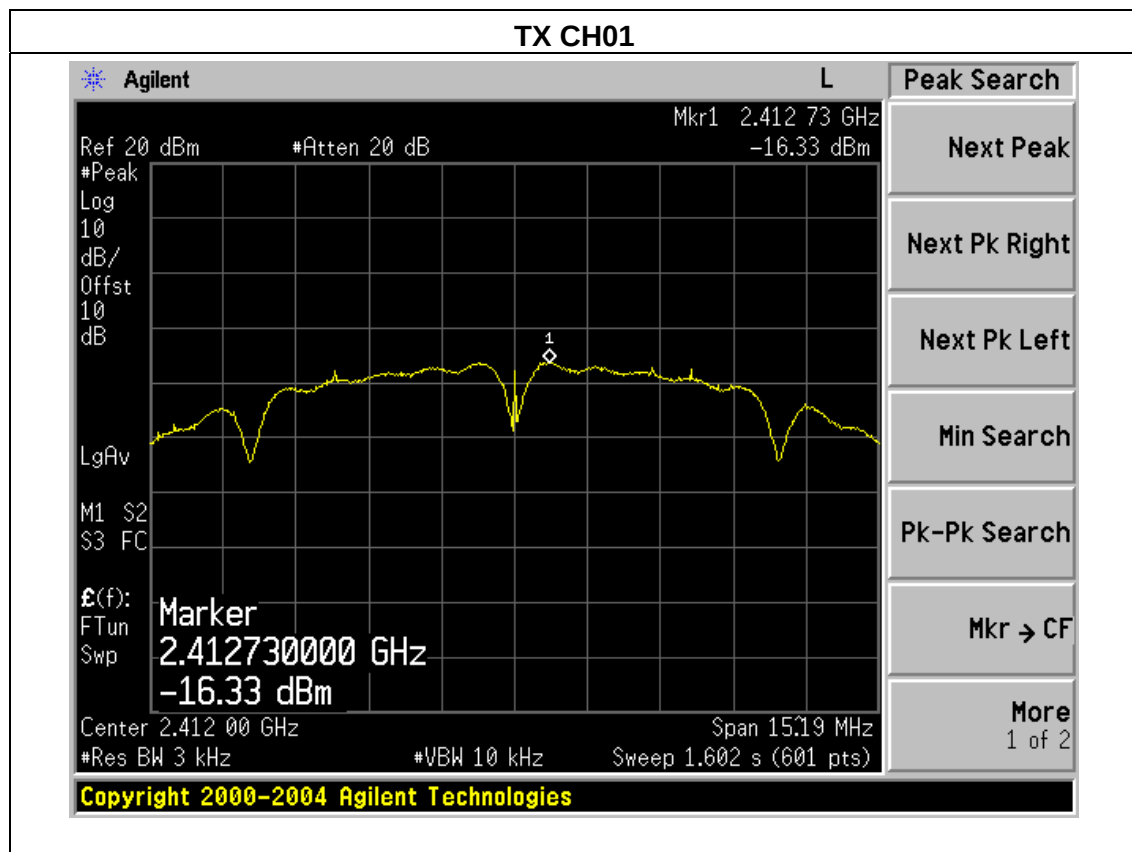
4.1.5 TEST RESULTS

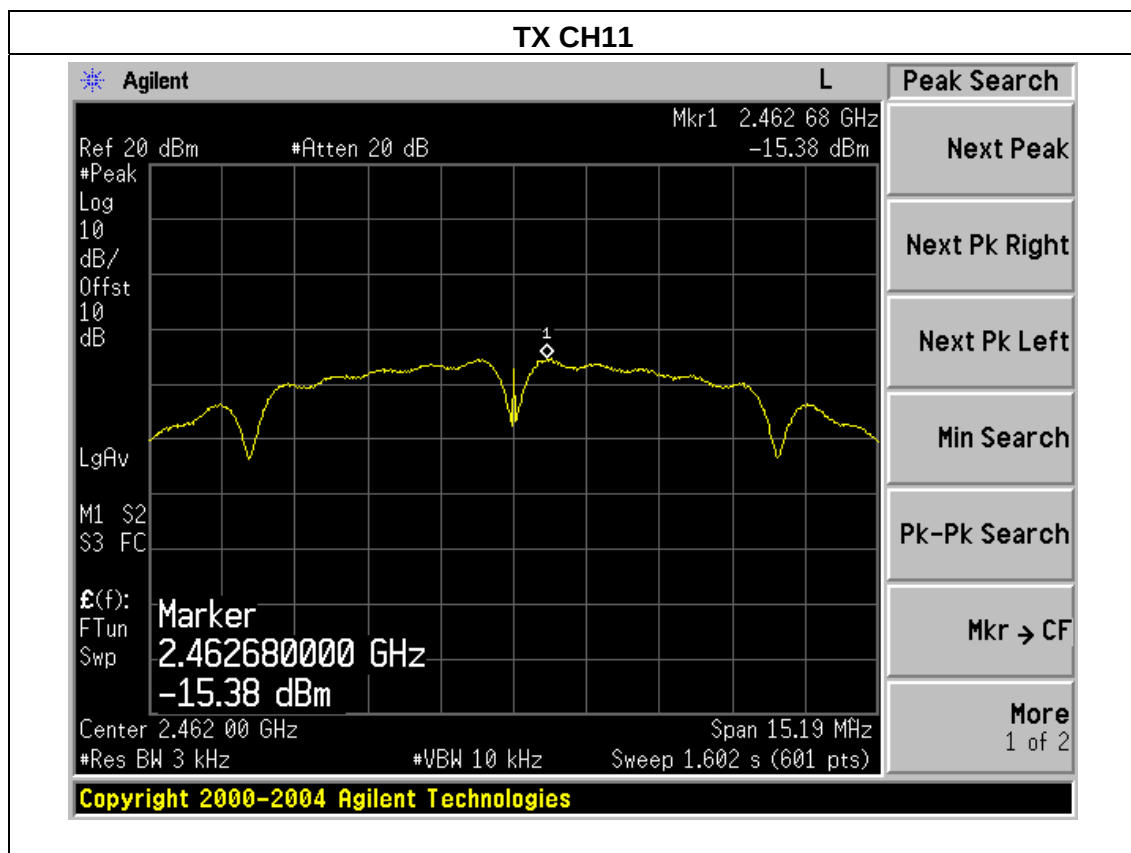
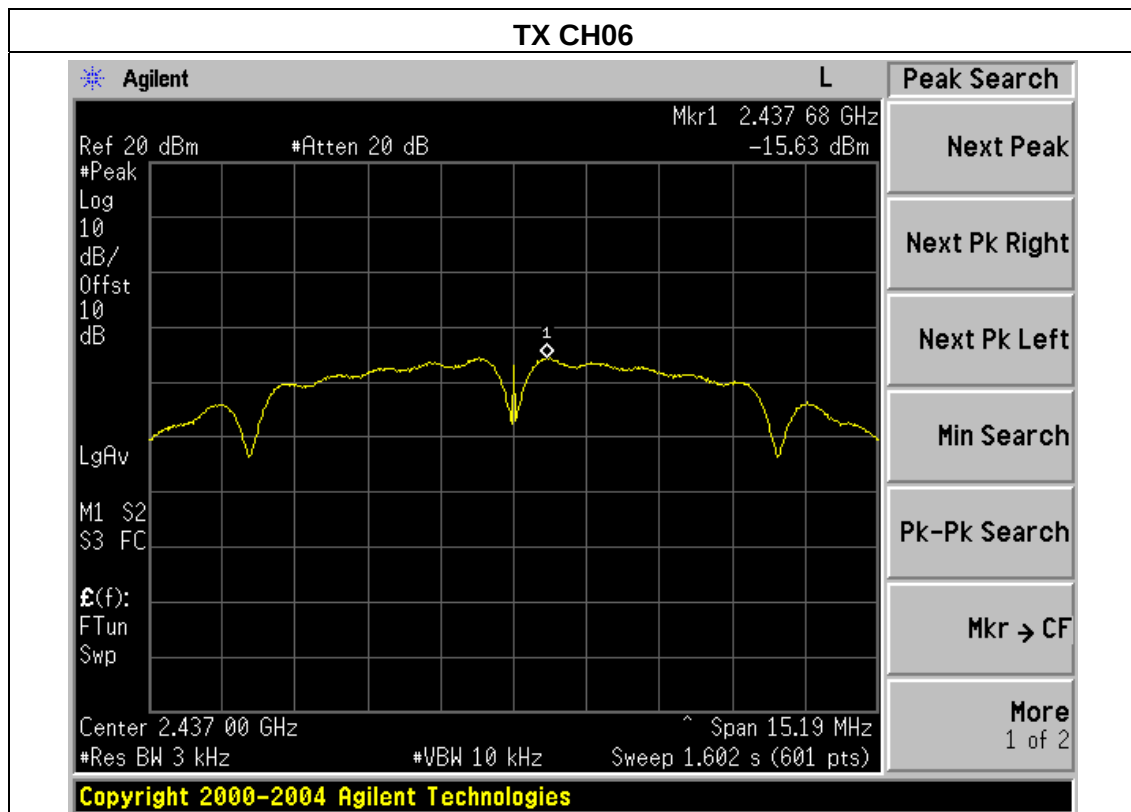
EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX b Mode /CH01, CH06, CH11		

Frequency	Power Density A (dBm)	Power Density B (dBm)	total power density (dBm)	Limit (dBm)	Result
2412 MHz	-16.33	-16.64	-13.47	7.39	PASS
2437 MHz	-15.63	-16.12	-13.21	7.39	PASS
2462 MHz	-15.38	-15.76	-12.56	7.39	PASS

NOTE: A(B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.

For 2.4G mode , Limit = $8-6.61+6=7.39$ dBm for output power.



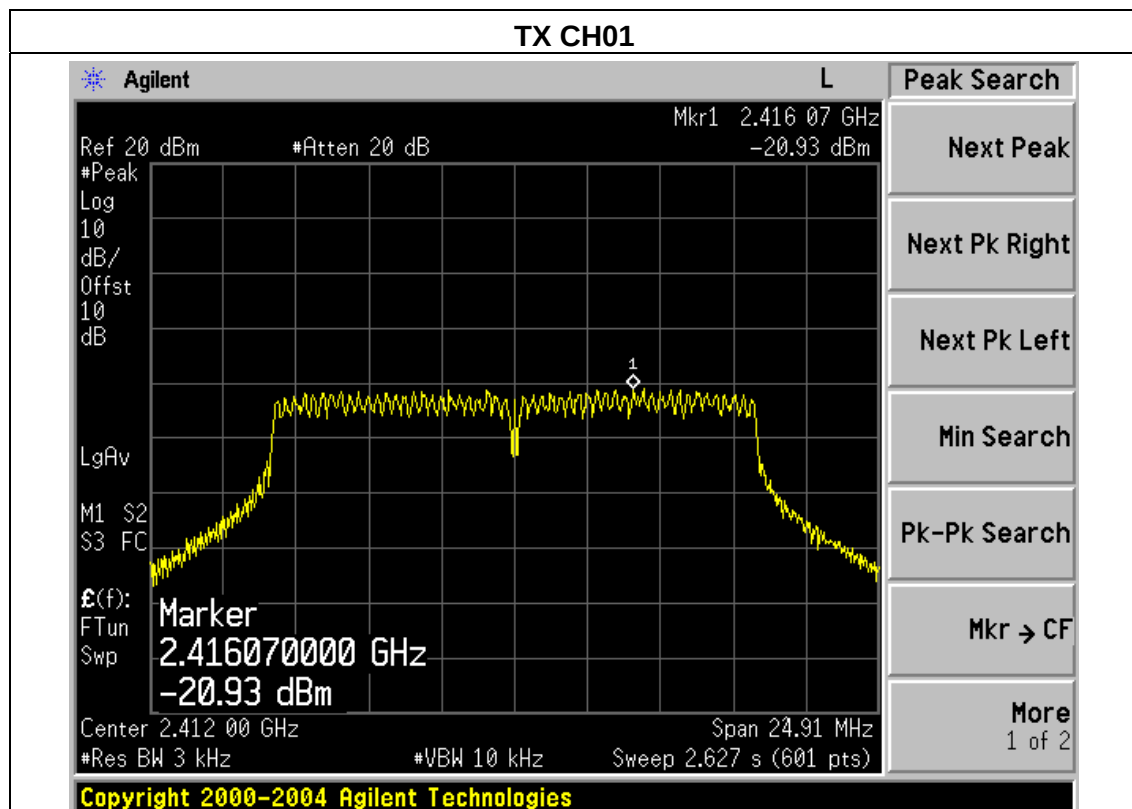


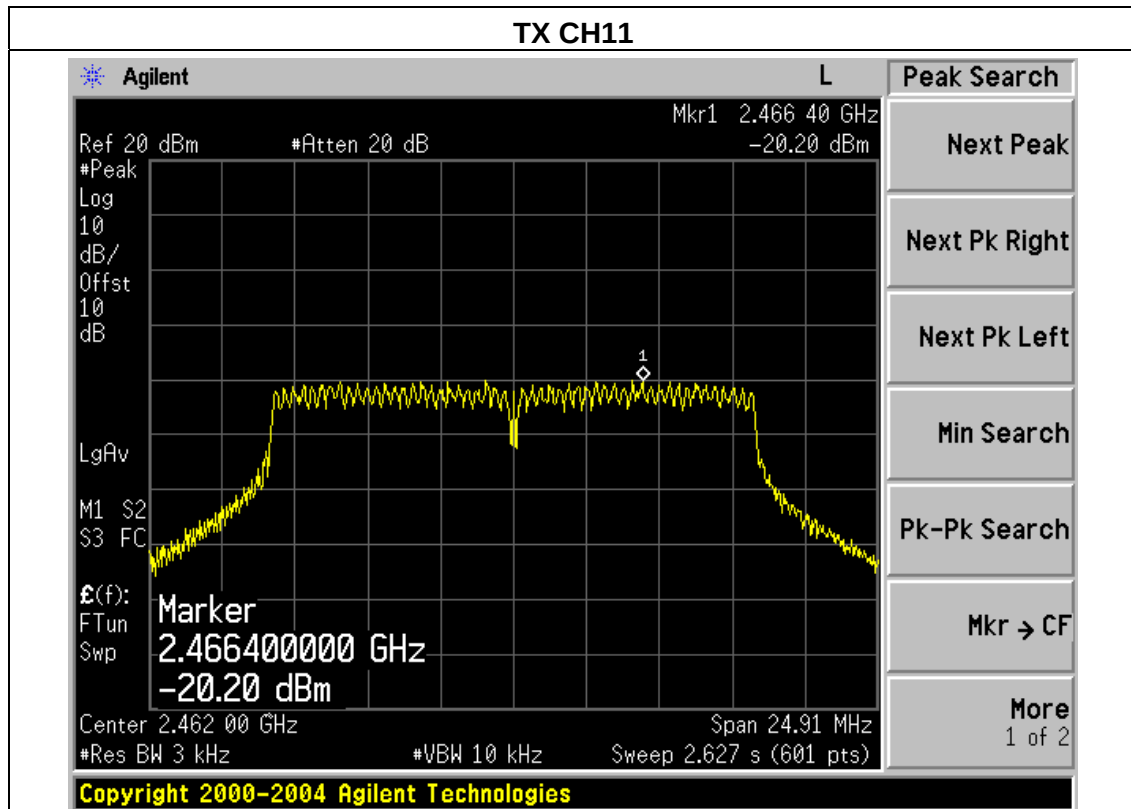
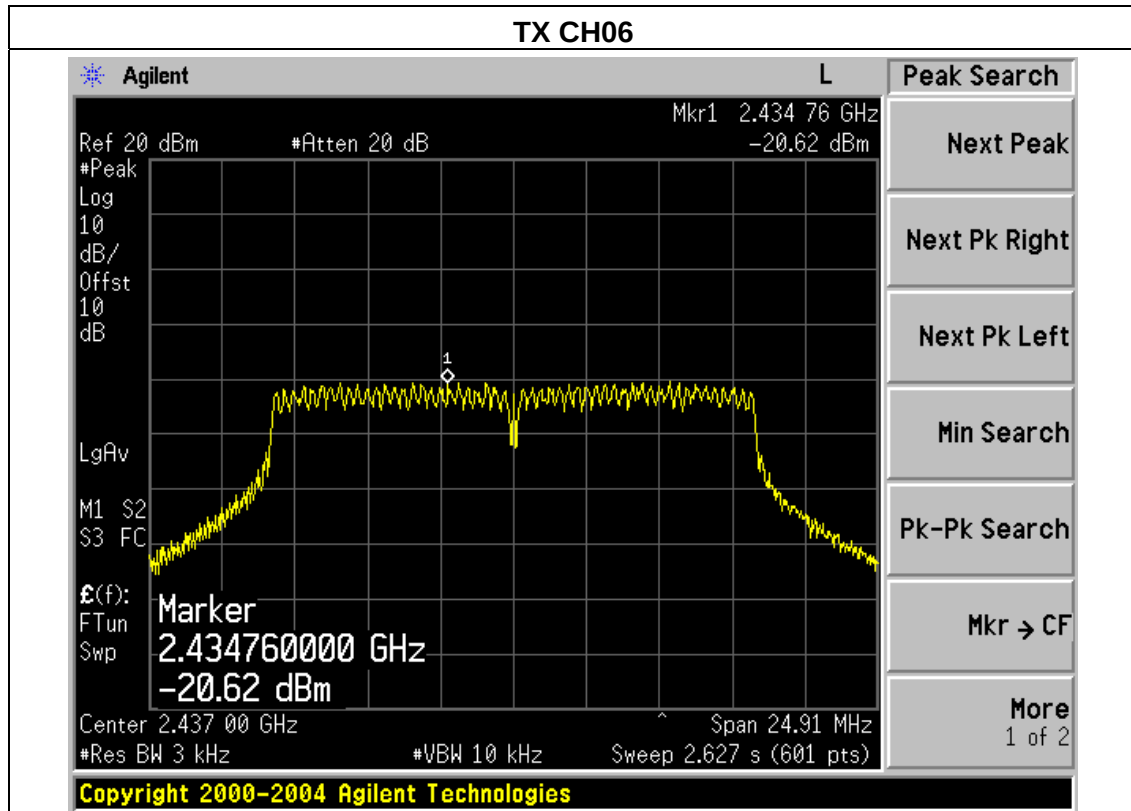
EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX g Mode /CH01, CH06, CH11		

Frequency	Power Density A (dBm)	Power Density B (dBm)	total power density (dBm)	Limit (dBm)	Result
2412 MHz	-20.93	-21.41	-18.15	7.39	PASS
2437 MHz	-20.62	-21.13	-18.02	7.39	PASS
2462 MHz	-20.20	-20.76	-17.46	7.39	PASS

NOTE: A(B) Represent the value of antenna A and B, The worst data is A Antenna ,only shown Antenna A Plot.

For 2.4G mode , Limit = $8-6.61+6=7.39$ dBm for output power..



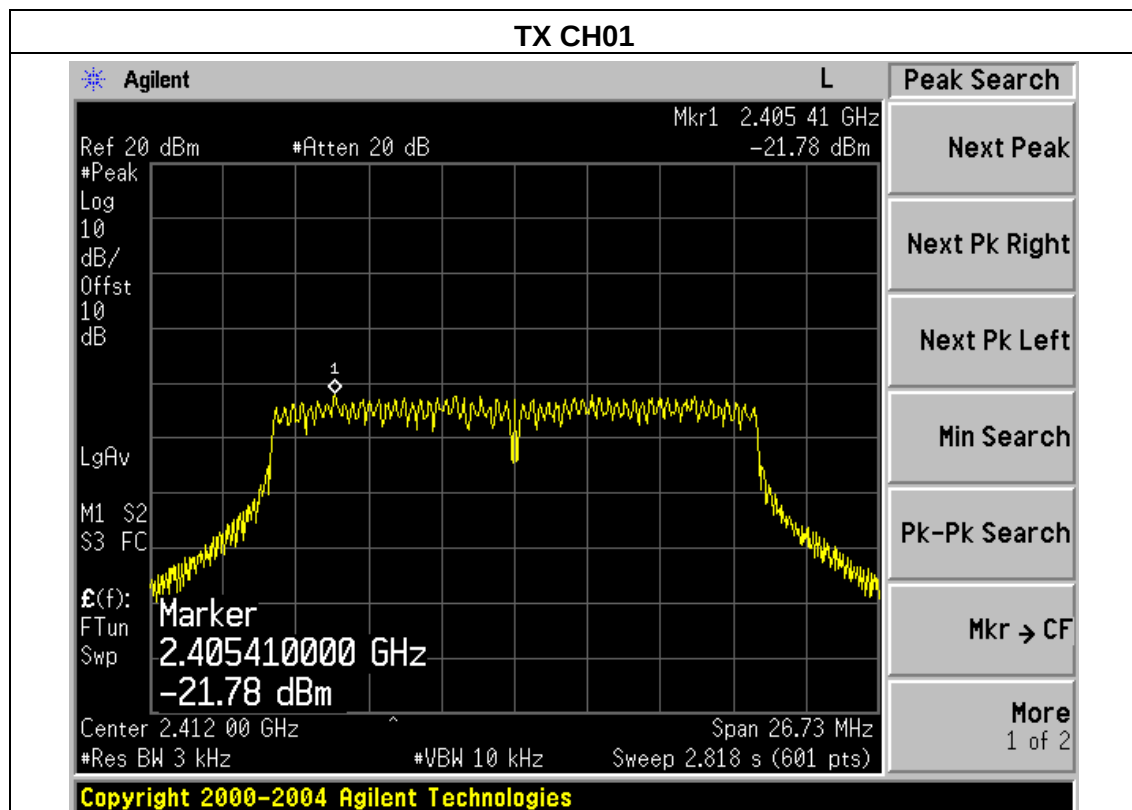


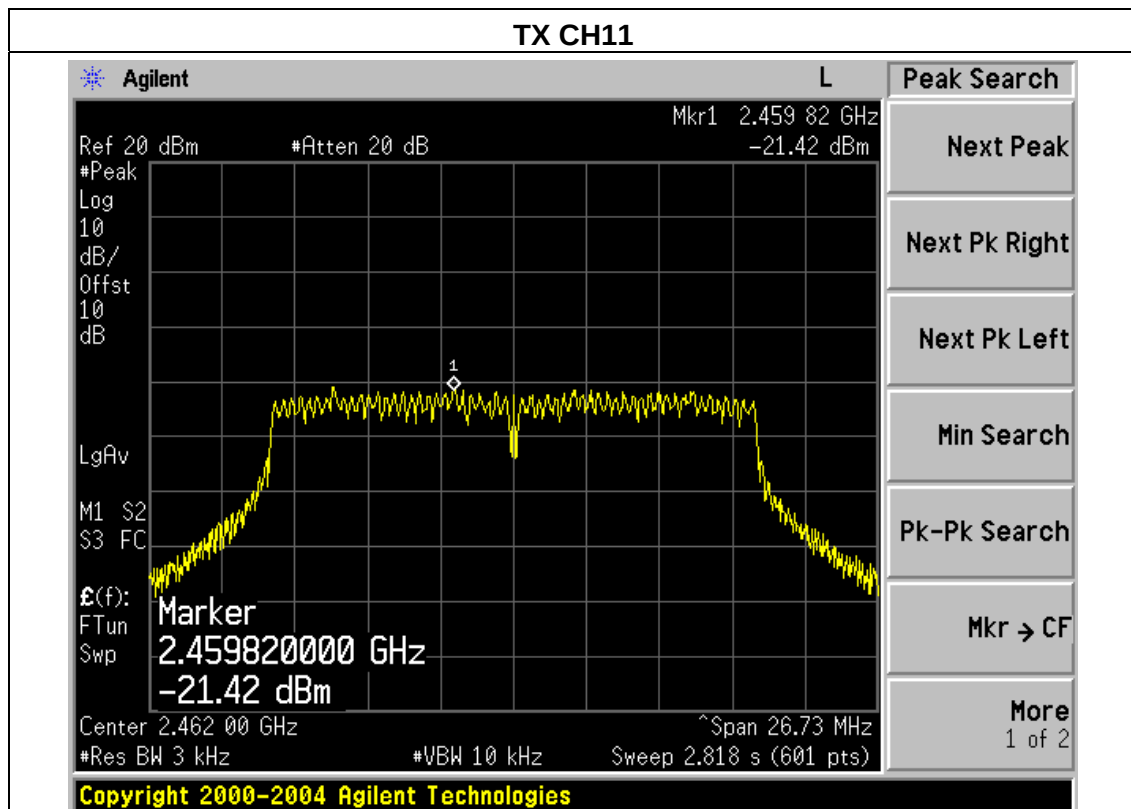
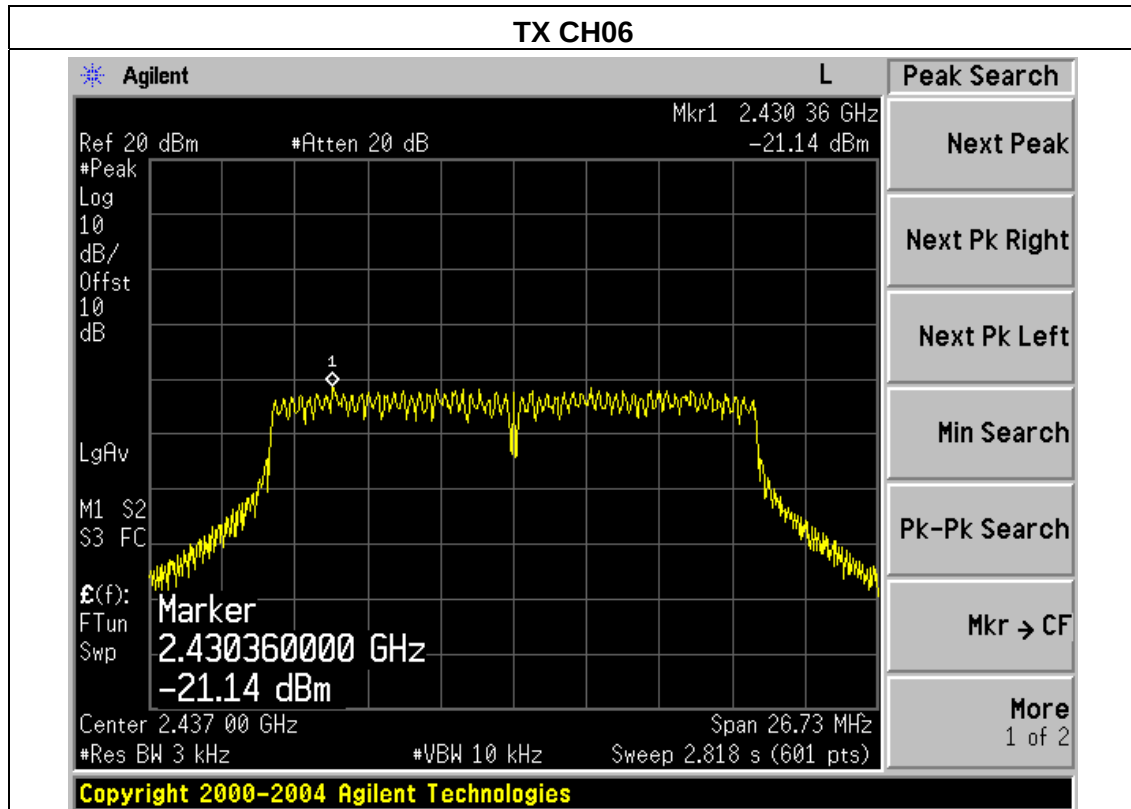
EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX n Mode (20MHz)/CH01, CH06, CH11		

Frequency	Power Density A (dBm)	Power Density B (dBm)	total power density (dBm)	Limit (dBm)	Result
2412 MHz	-21.78	-22.31	-19.03	7.39	PASS
2437 MHz	-21.14	-21.82	-18.79	7.39	PASS
2462 MHz	-21.42	-22.03	-18.70	7.39	PASS

NOTE: A(B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.

For 2.4G mode , Limit $8-6.61+6=7.39\text{dBm}$ for output power.



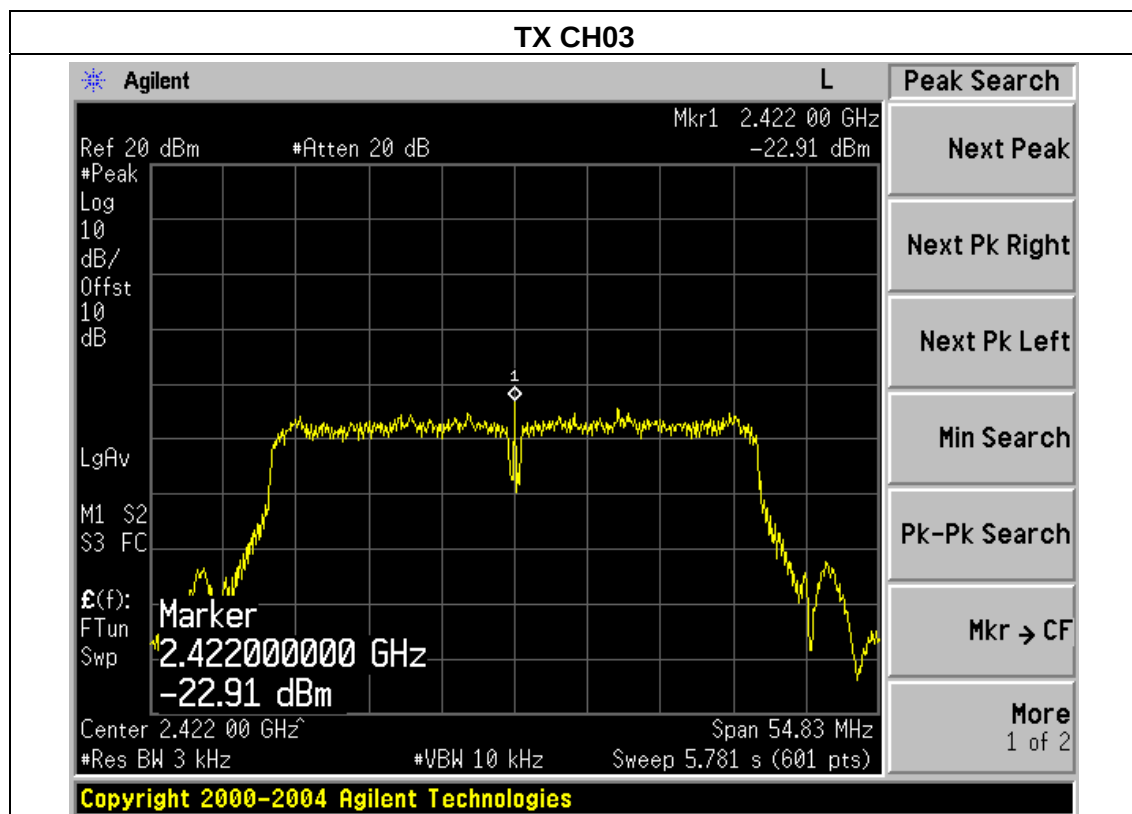


EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX n Mode (40MHz)/CH03, CH06, CH09		

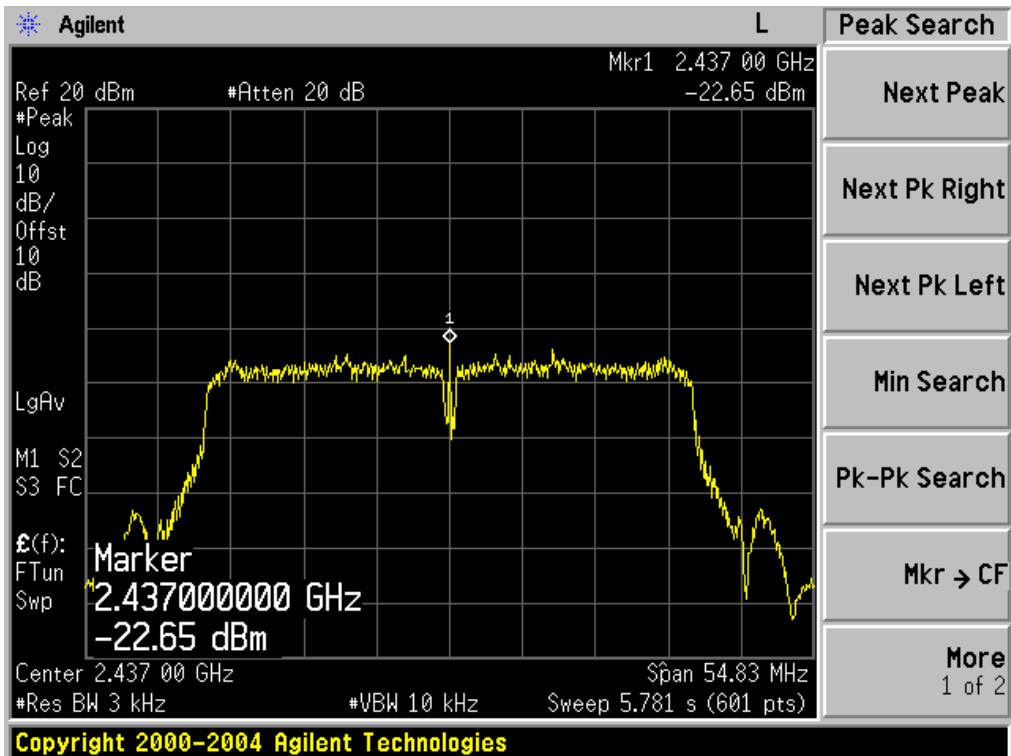
Frequency	Power Density A (dBm)	Power Density B (dBm)	total power density (dBm)	Limit (dBm)	Result
2422 MHz	-22.91	-23.45	-20.16	7.39	PASS
2437 MHz	-22.65	-23.16	-20.02	7.39	PASS
2452 MHz	-22.44	-22.92	-19.66	7.39	PASS

NOTE: A(B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.

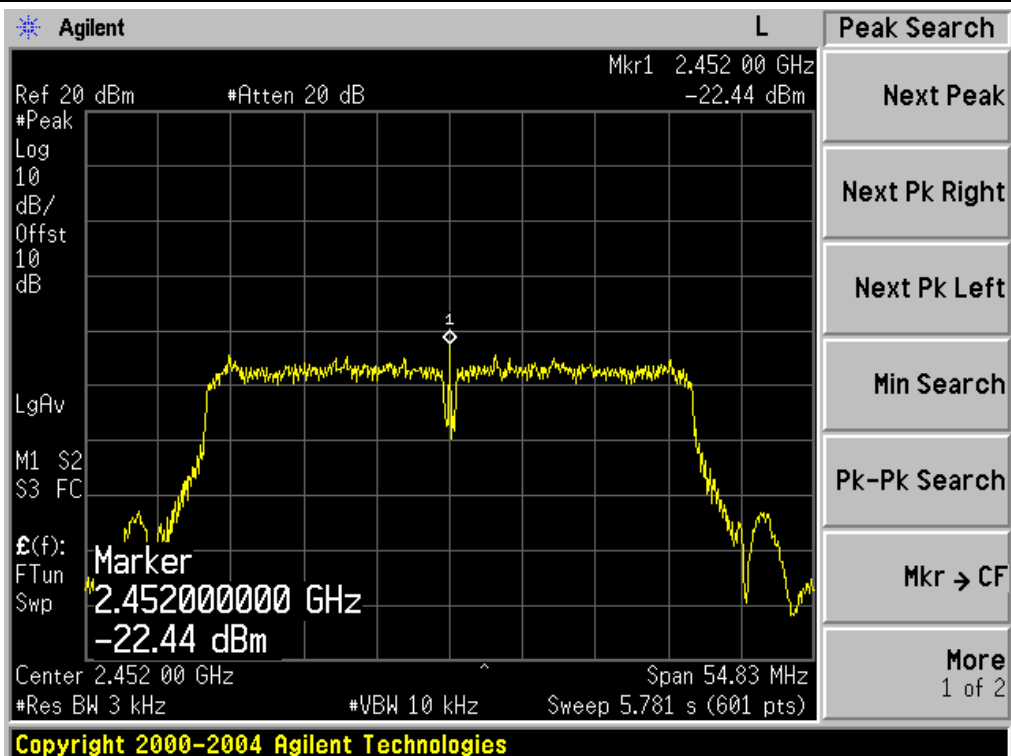
. For 2.4G mode , Limit =8-6.61+6=7.39dBm for output power.



TX CH06



TX CH09

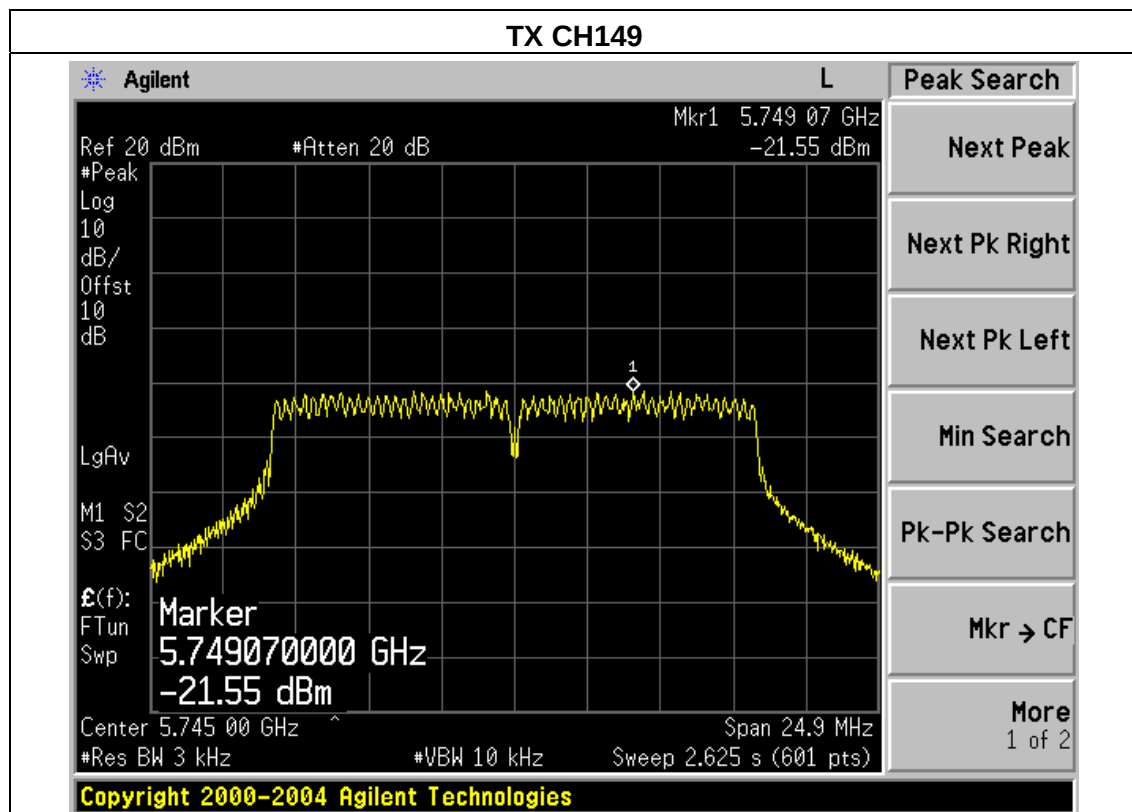


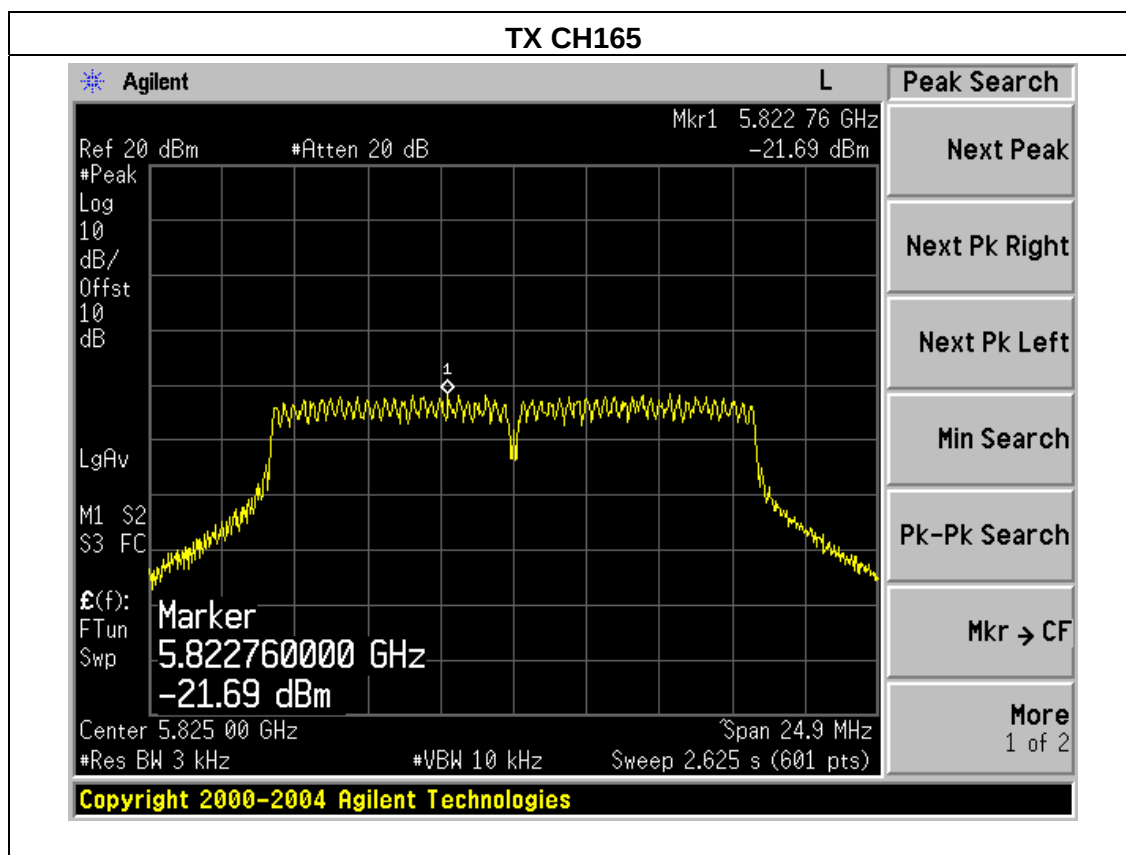
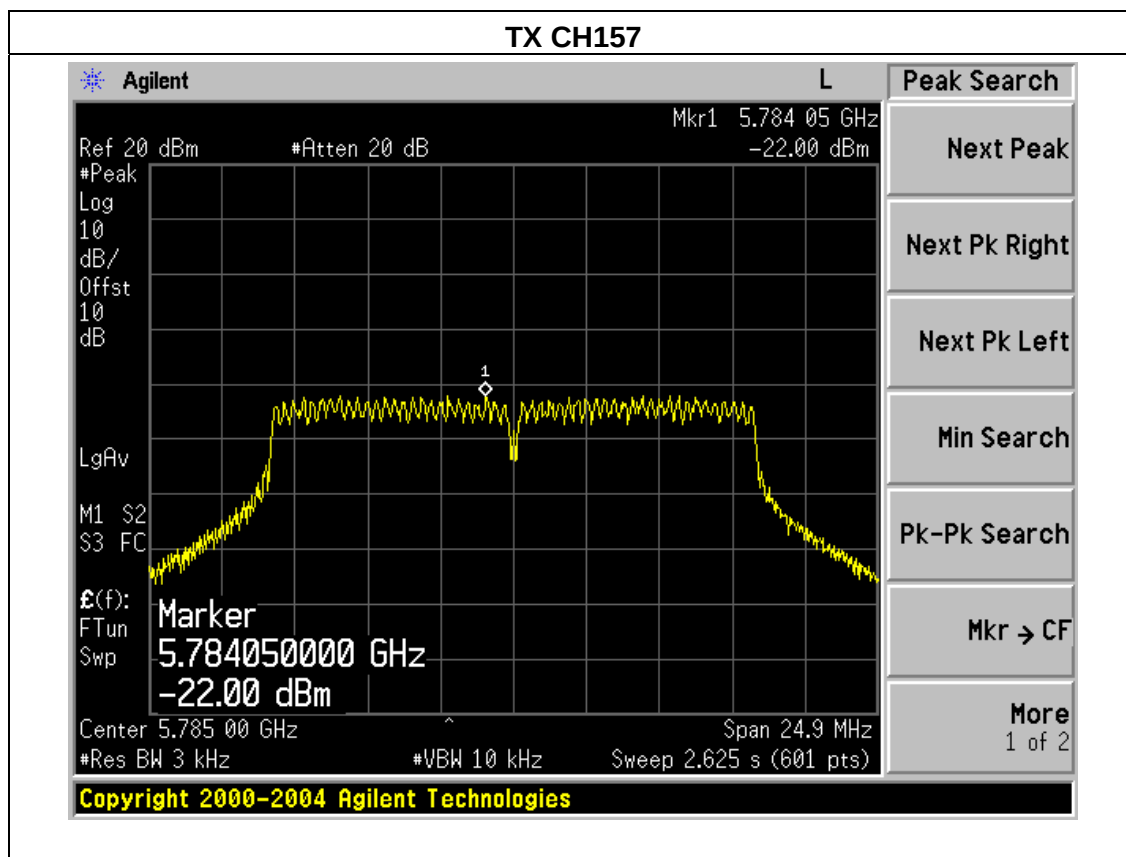
EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX a Mode /CH149, CH157, CH165		

Frequency	Power Density A (dBm)	Power Density B (dBm)	total power density (dBm)	Limit (dBm)	Result
5745MHz	-21.55	-22.01	-18.76	7.79	PASS
5785 MHz	-22.00	-22.46	-18.97	7.79	PASS
5825 MHz	-21.69	-22.13	-18.89	7.79	PASS

Note: A (B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.

For 5G mode , Limit = $8-6.21+6=7.79$ dBm for output power.



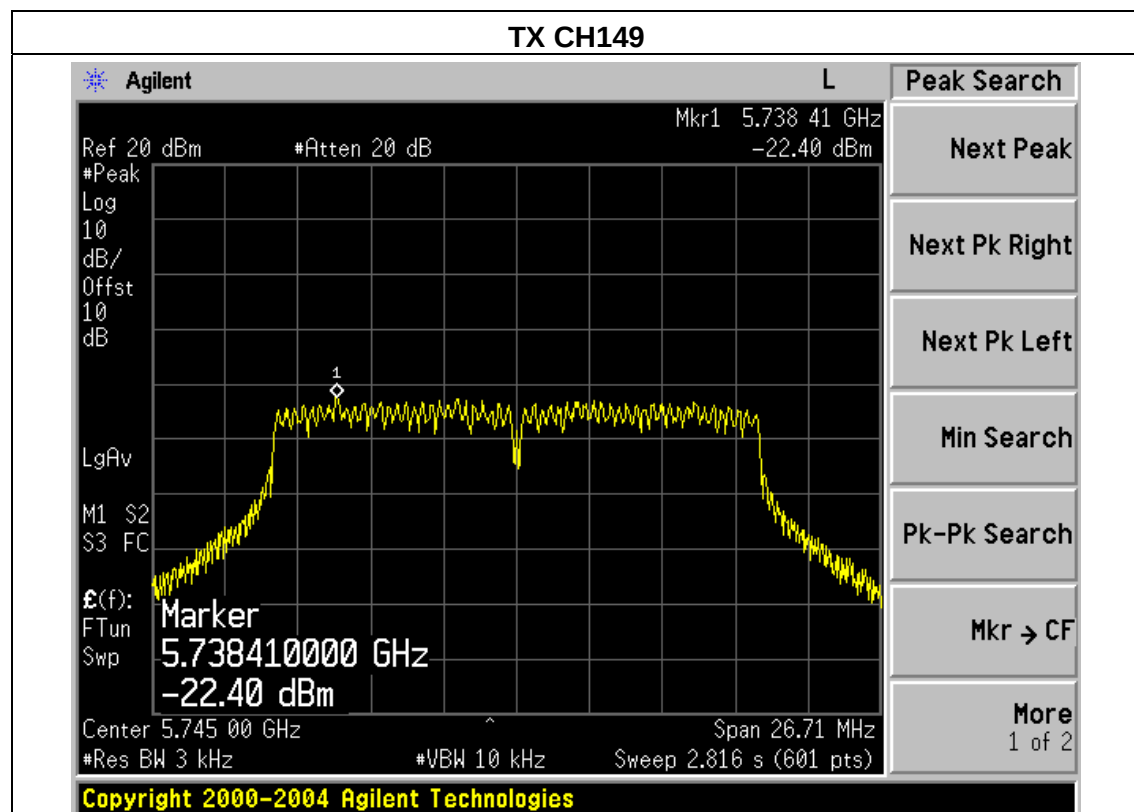


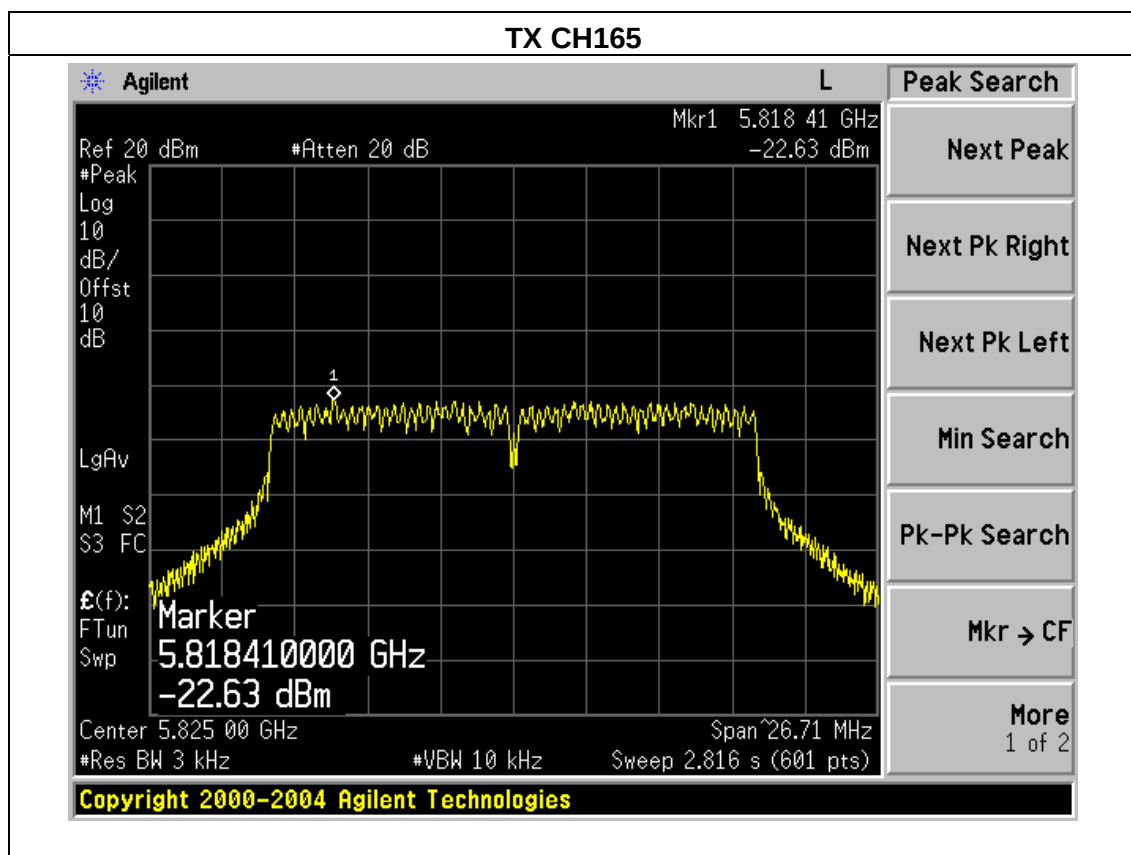
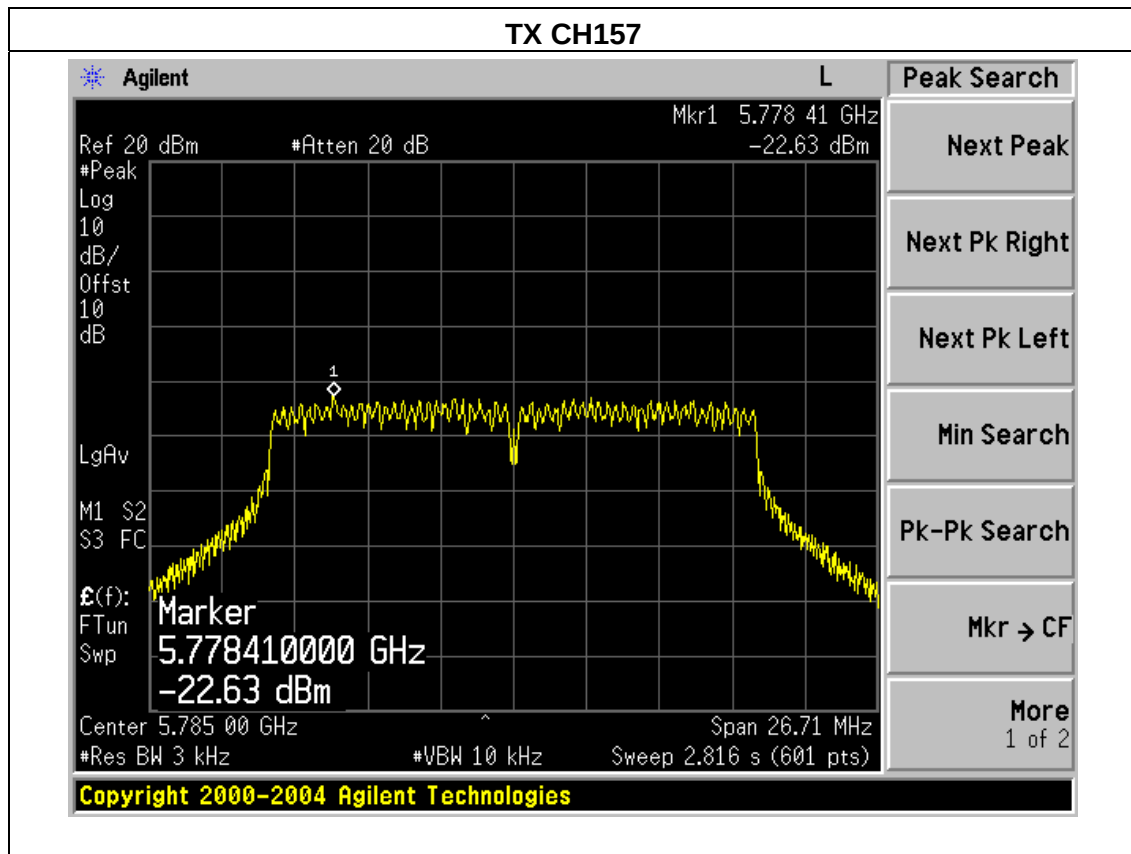
EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX n(20) Mode(5G) /CH149, CH157, CH165		

Frequency	Power Density A (dBm)	Power Density B (dBm)	total power density (dBm)	Limit (dBm)	Result
5745MHz	-22.40	-22.97	-19.67	7.79	PASS
5785 MHz	-22.63	-23.06	-19.71	7.79	PASS
5825 MHz	-22.63	-23.12	-19.86	7.79	PASS

Note: A (B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.

For 5G mode , Limit = $8-6.21+6=7.79$ dBm for output power.



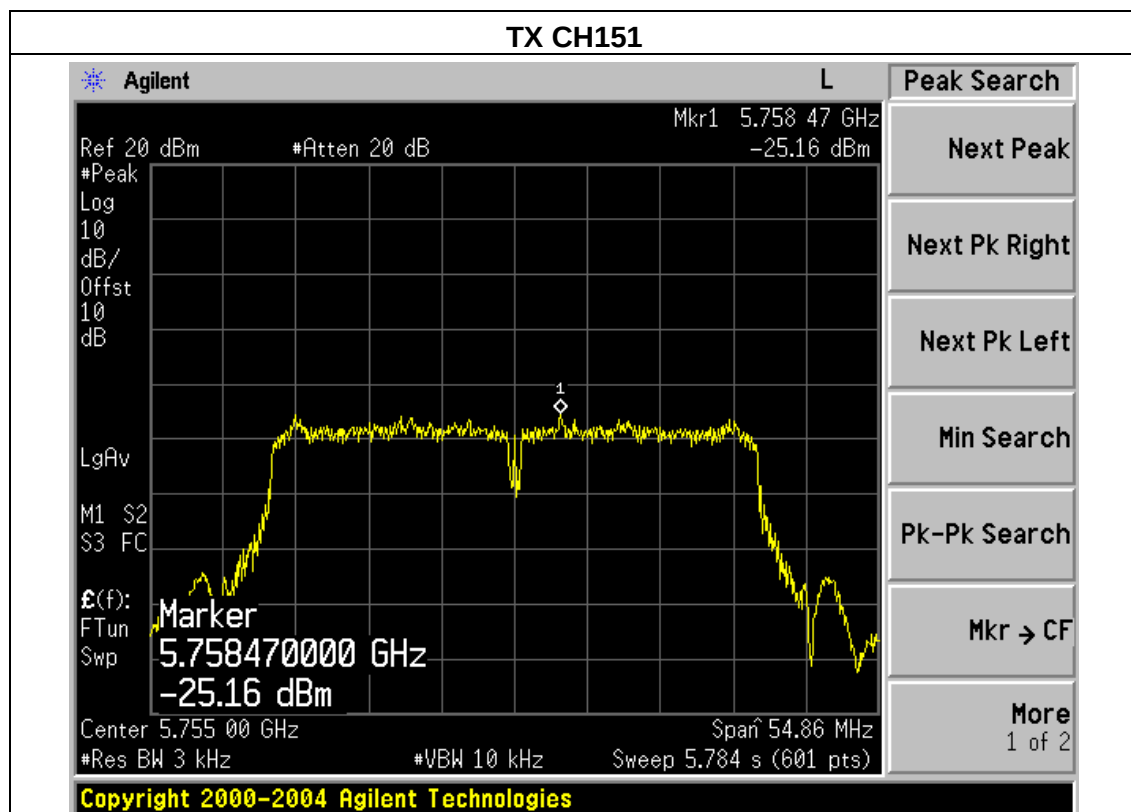


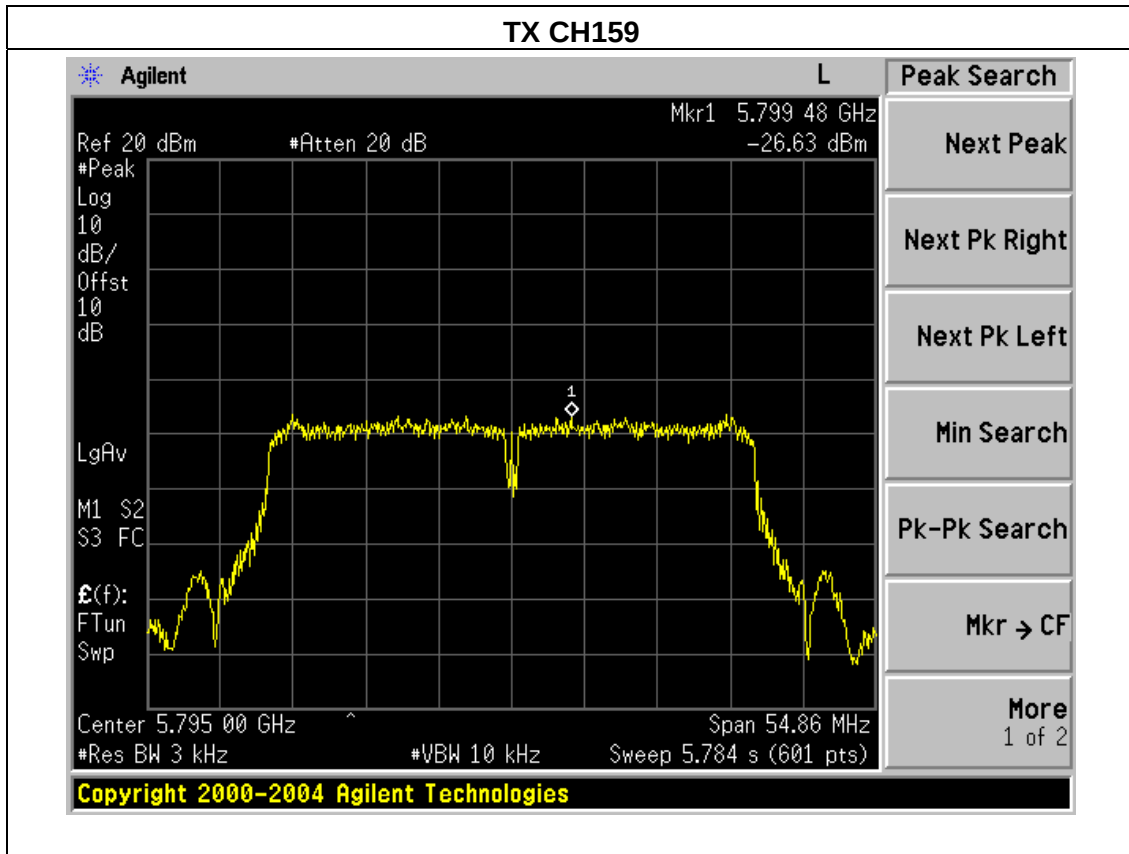
EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX n40 Mode(5G) /CH151, CH159		

Frequency	Power Density A (dBm)	Power Density B (dBm)	total power density (dBm)	Limit (dBm)	Result
5755 MHz	-25.16	-25.76	-22.44	7.79	PASS
5795 MHz	-26.63	-27.11	-23.02	7.79	PASS

Note: A (B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.

For5G mode , Limit = $8-6.21+6=7.79$ dBm for output power.





5. BANDWIDTH TEST

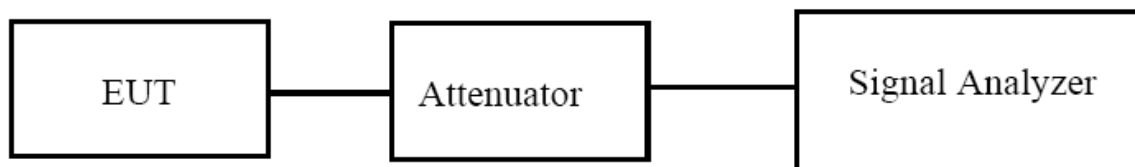
5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS

5.1.1 TEST PROCEDURE

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. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

TEST SETUP



5.1.2 EUT OPERATION CONDITIONS

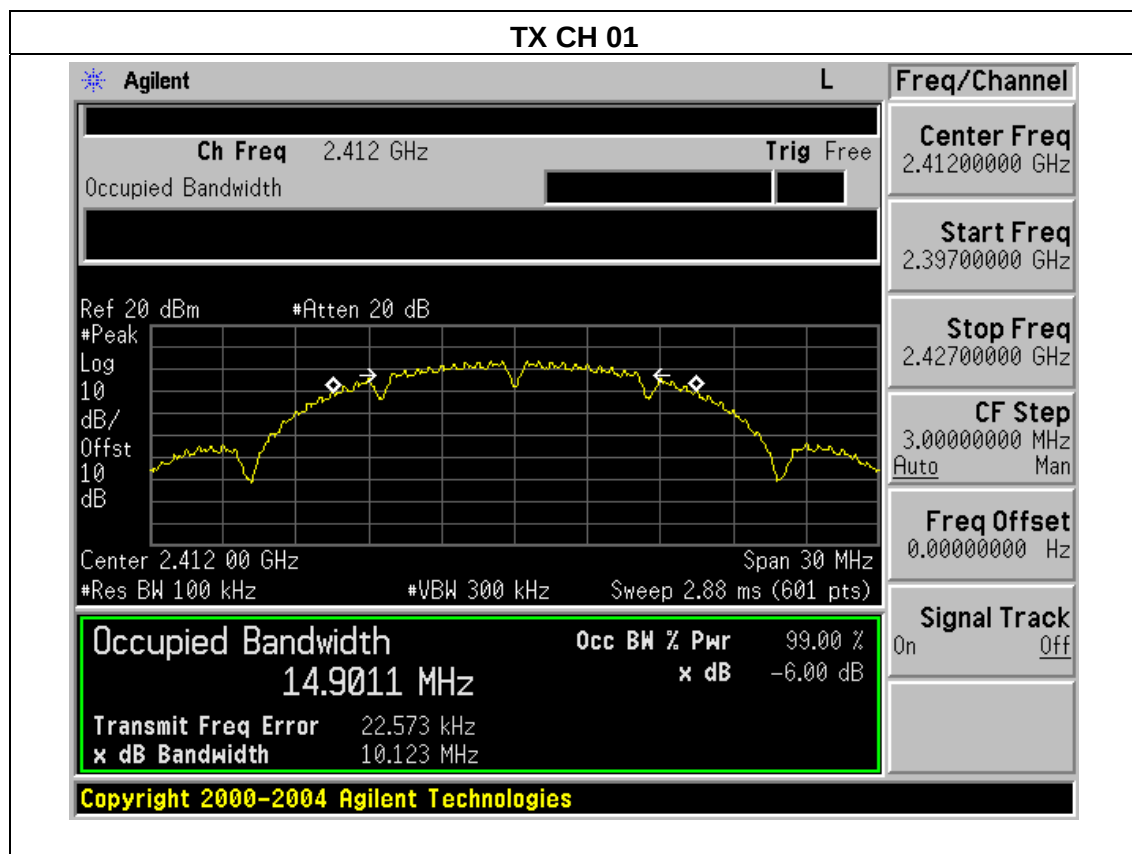
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.3 TEST RESULTS

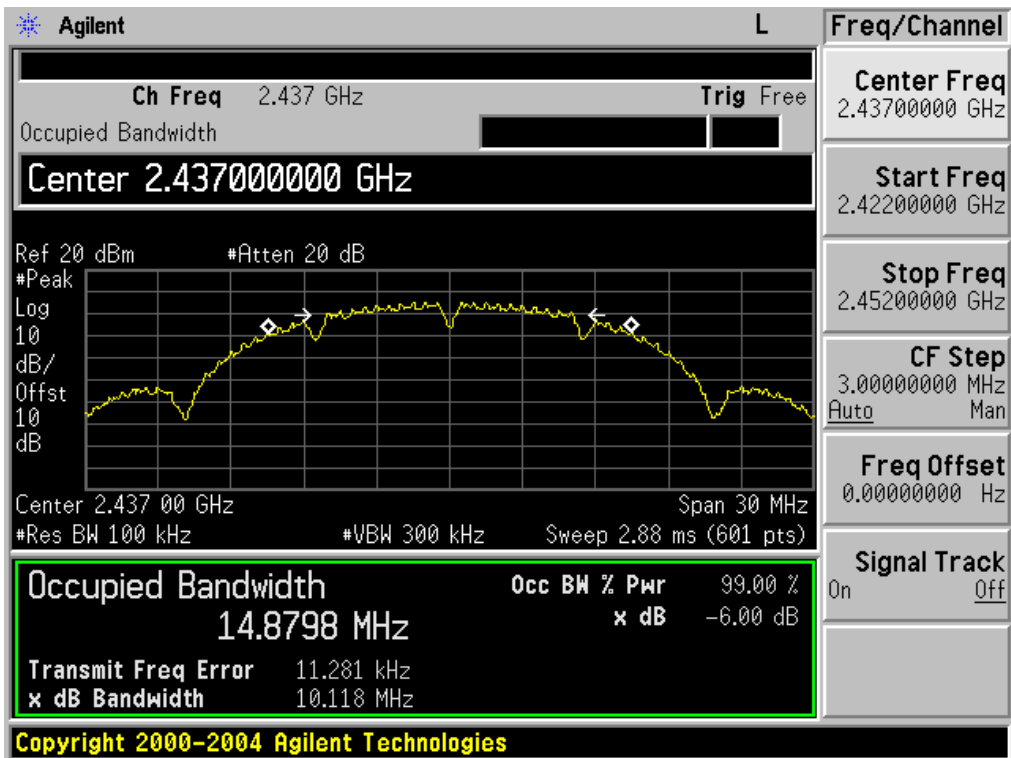
EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX b Mode /CH01, CH06, CH11		

Channel	Frequency (MHz)	6dB bandwidth (MHz)		Limit (kHz)	Result
		ANT A	ANT B		
Low	2412	10.123	10.037	500	Pass
Middle	2437	10.118	10.058	500	Pass
High	2462	10.123	10.063	500	Pass

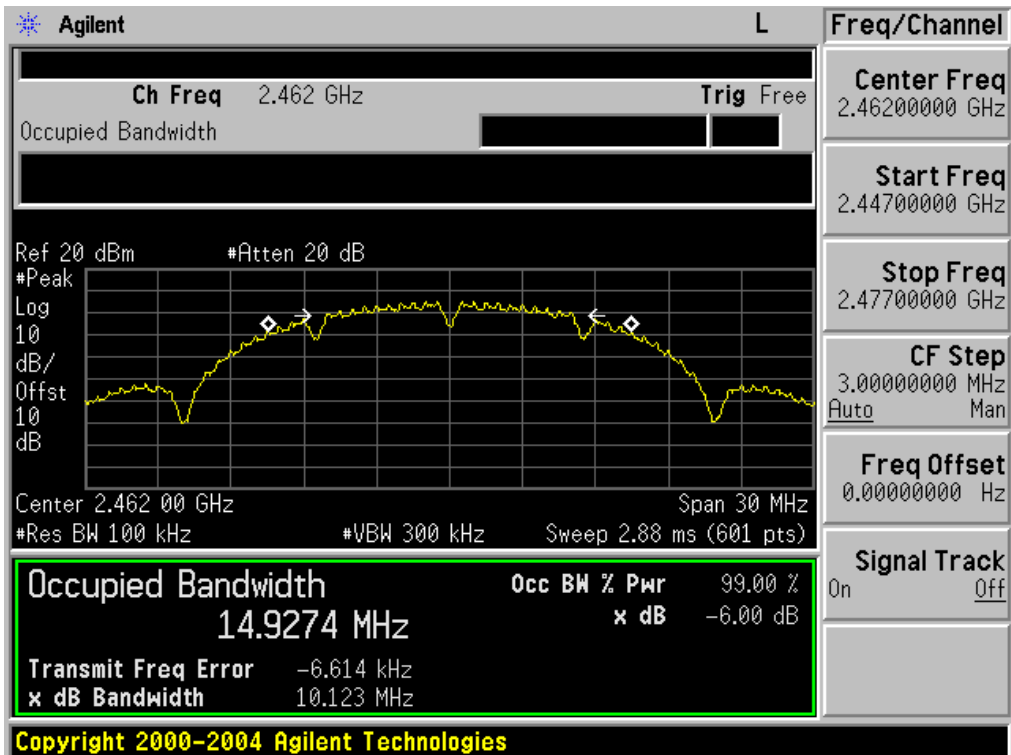
Note: A (B) Represent the value of antenna A and B, The worst data is A Antenna a , only shown Antenna A Plot.



TX CH 06



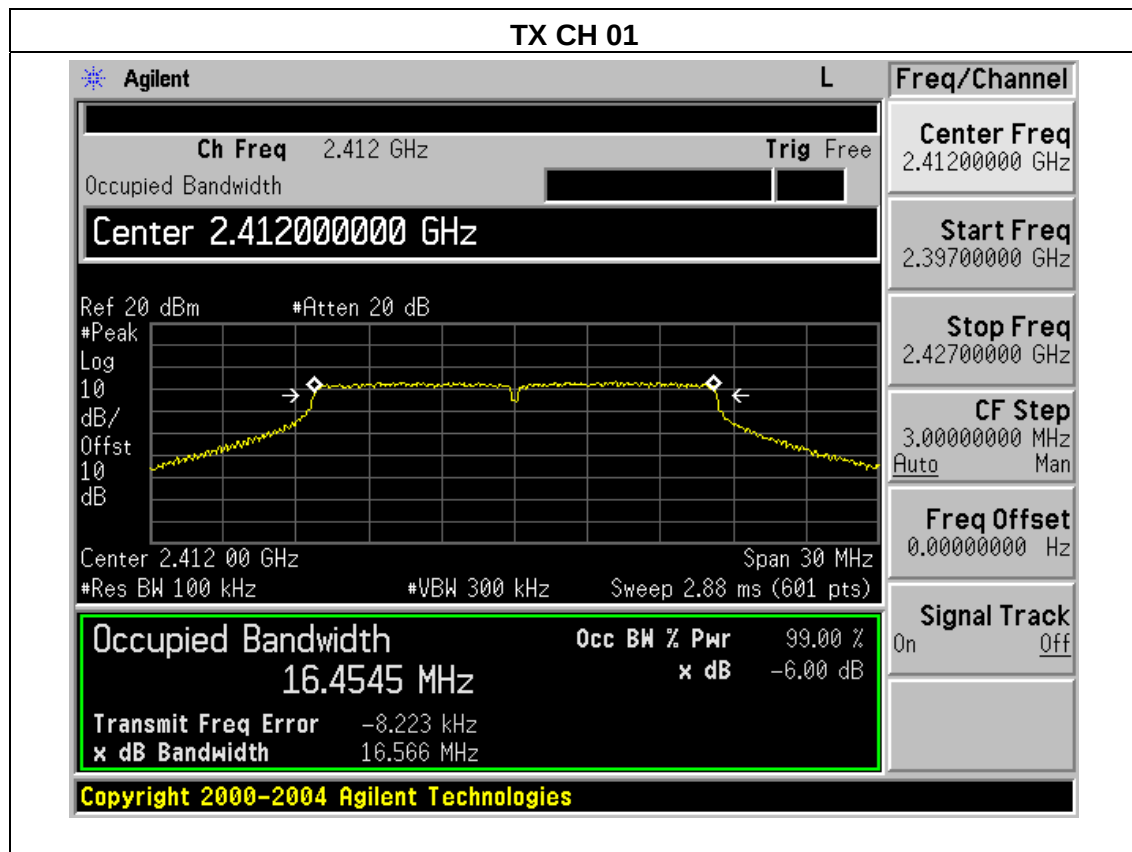
TX CH 11



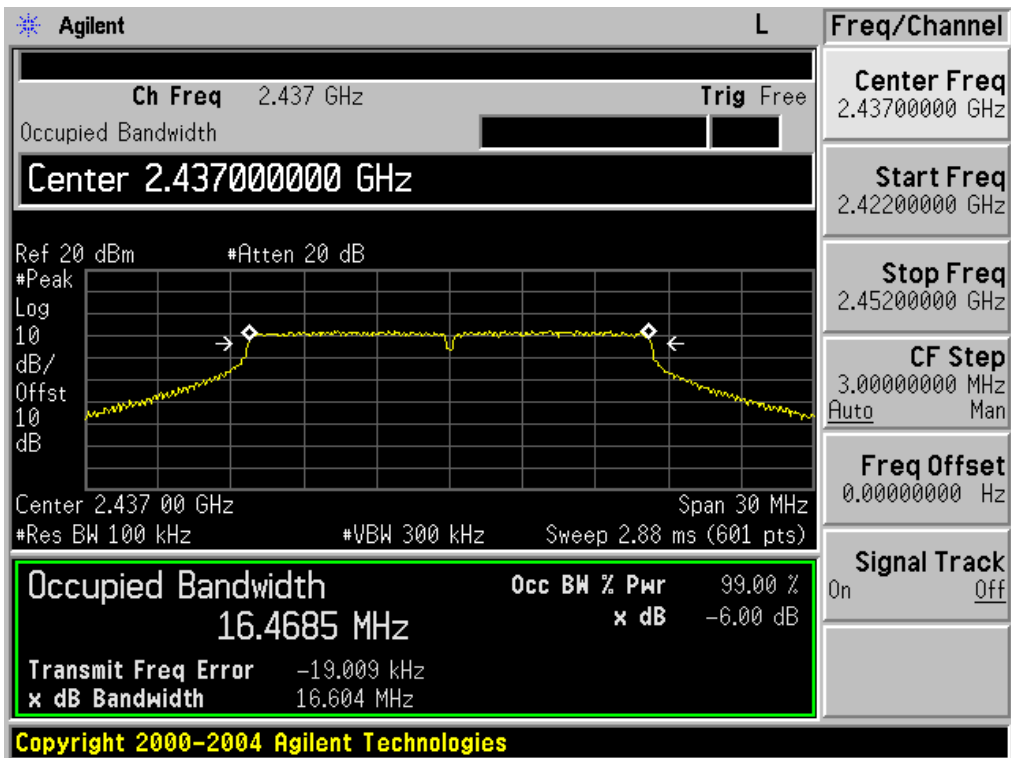
EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX g Mode /CH01, CH06, CH11		

Channel	Frequency (MHz)	6dB bandwidth (MHz)		Limit (kHz)	Result
		ANT A	ANT B		
Low	2412	16.566	16.342	500	Pass
Middle	2437	16.604	16.353	500	Pass
High	2462	16.581	16.251	500	Pass

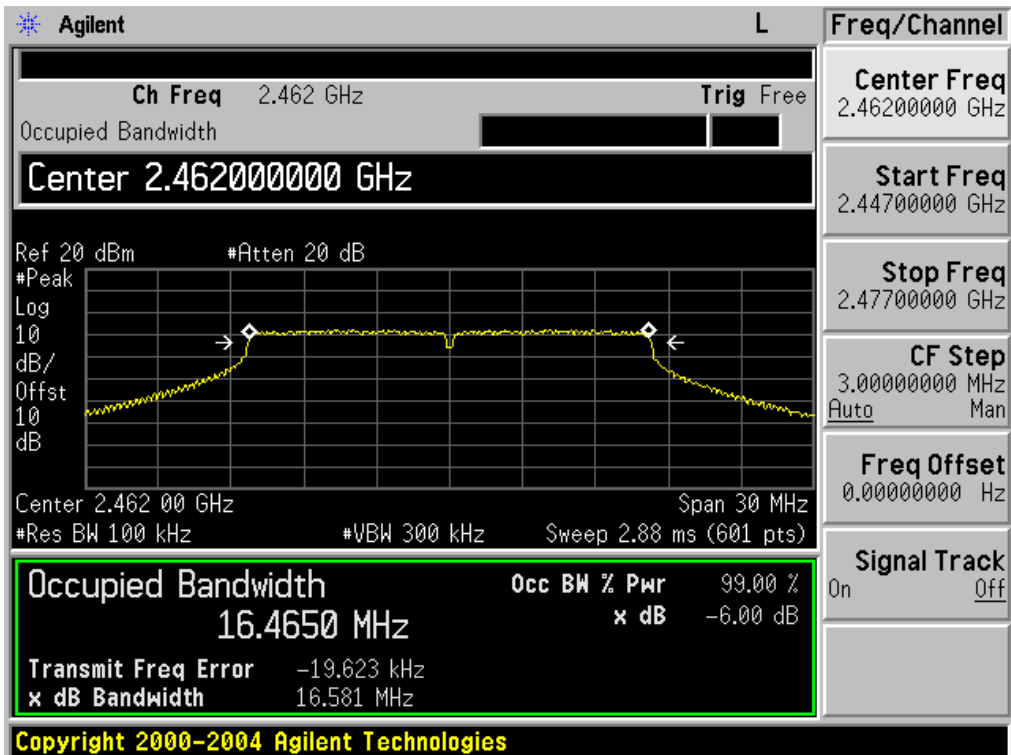
Note: A (B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.



TX CH 06



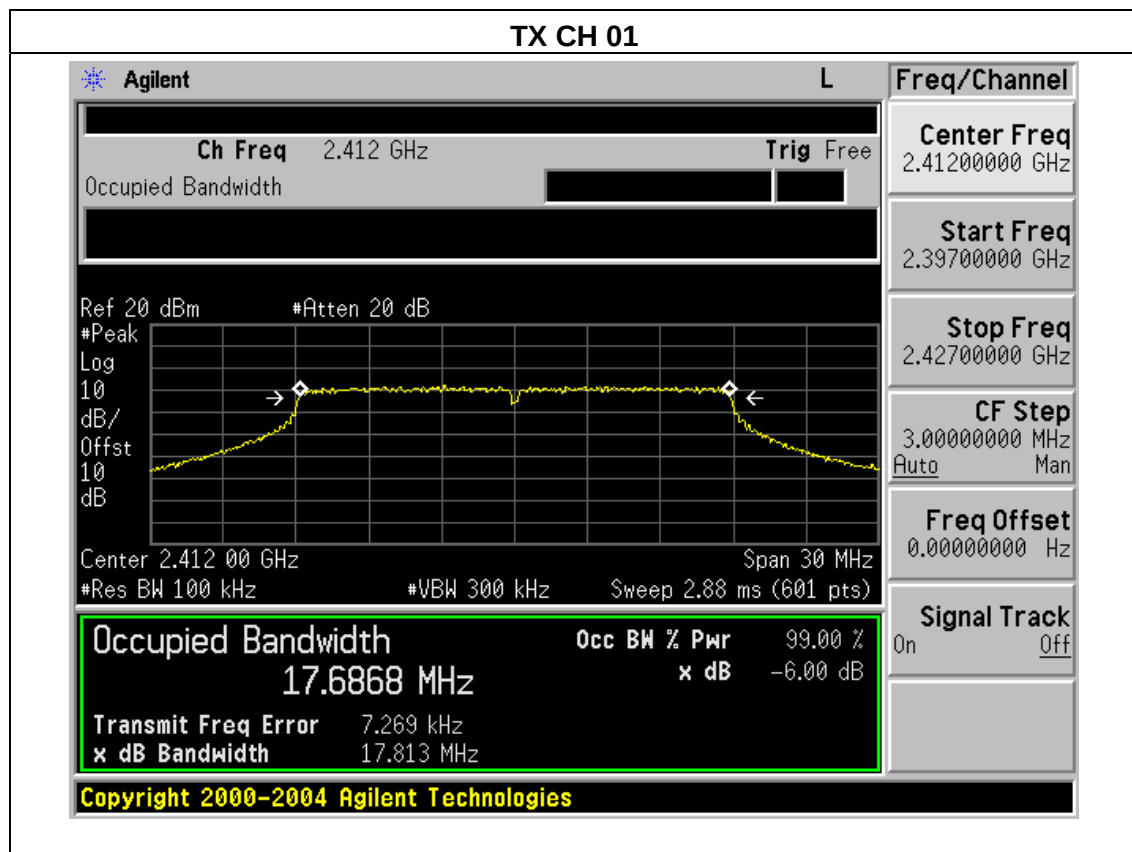
TX CH 11



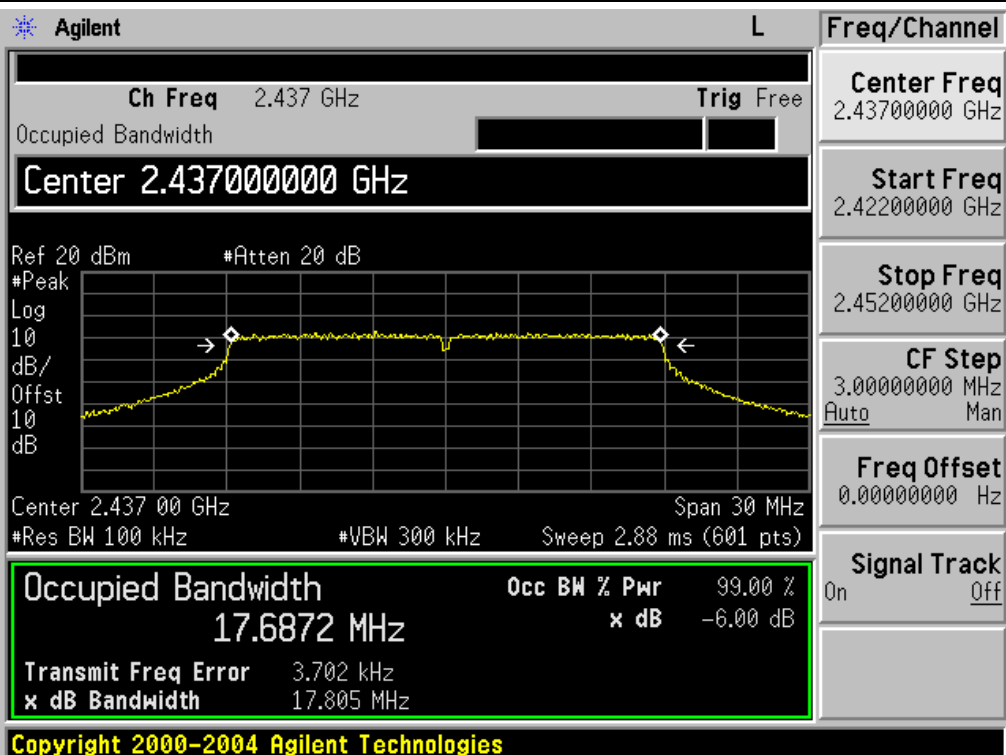
EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX n Mode(20M) /CH01, CH06, CH11		

Channel	Frequency (MHz)	6dB bandwidth (MHz)		Limit (kHz)	Result
		ANT A	ANT B		
Low	2412	17.813	17.578	500	Pass
Middle	2437	17.805	17.479	500	Pass
High	2462	17.816	17.523	500	Pass

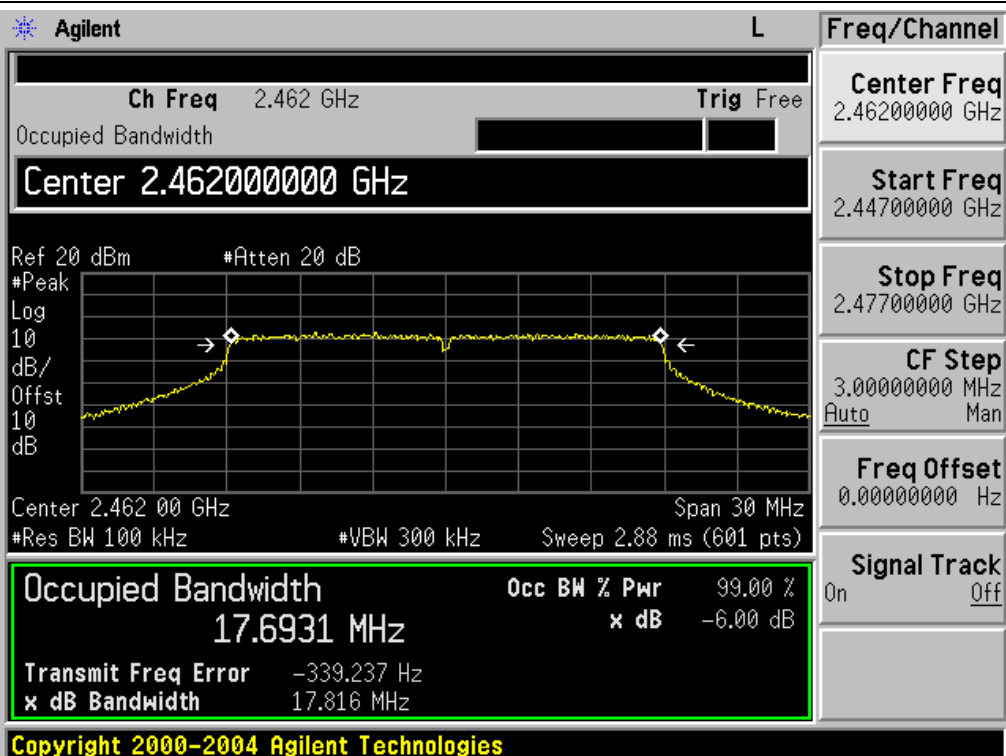
Note: A (B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.



TX CH 06



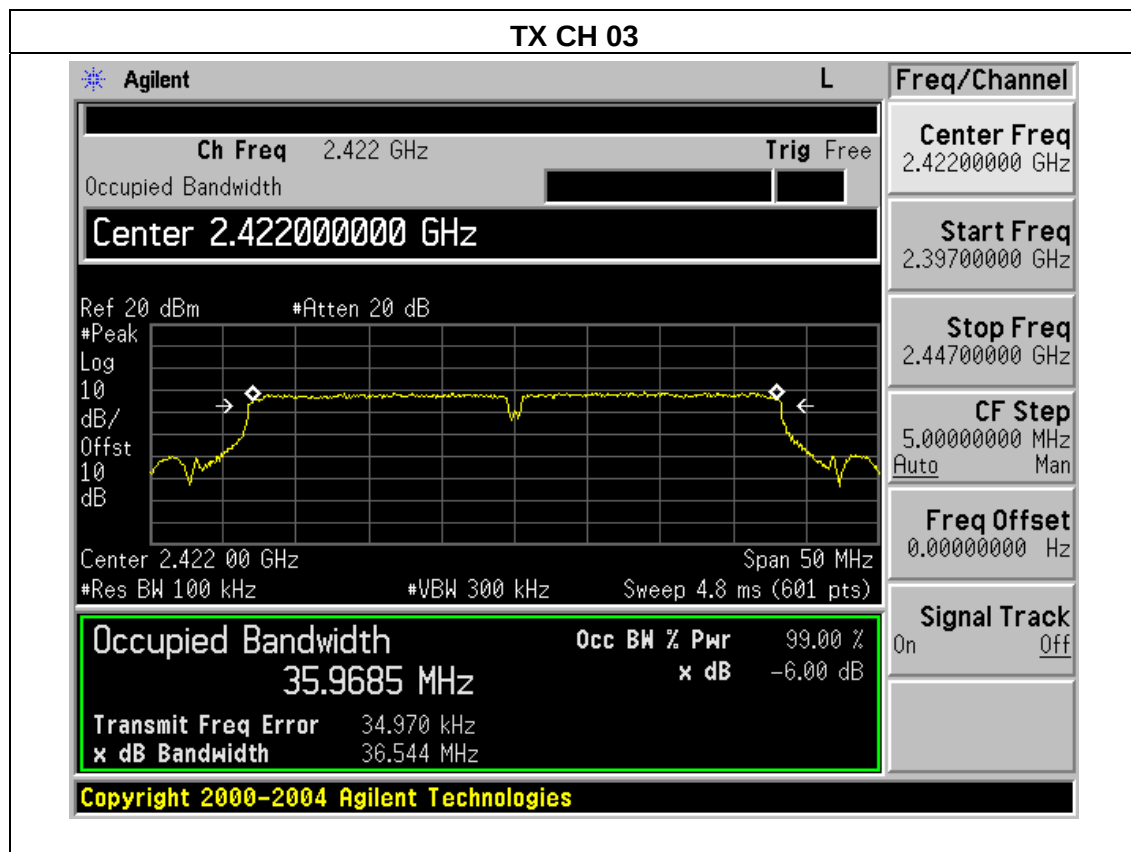
TX CH 11



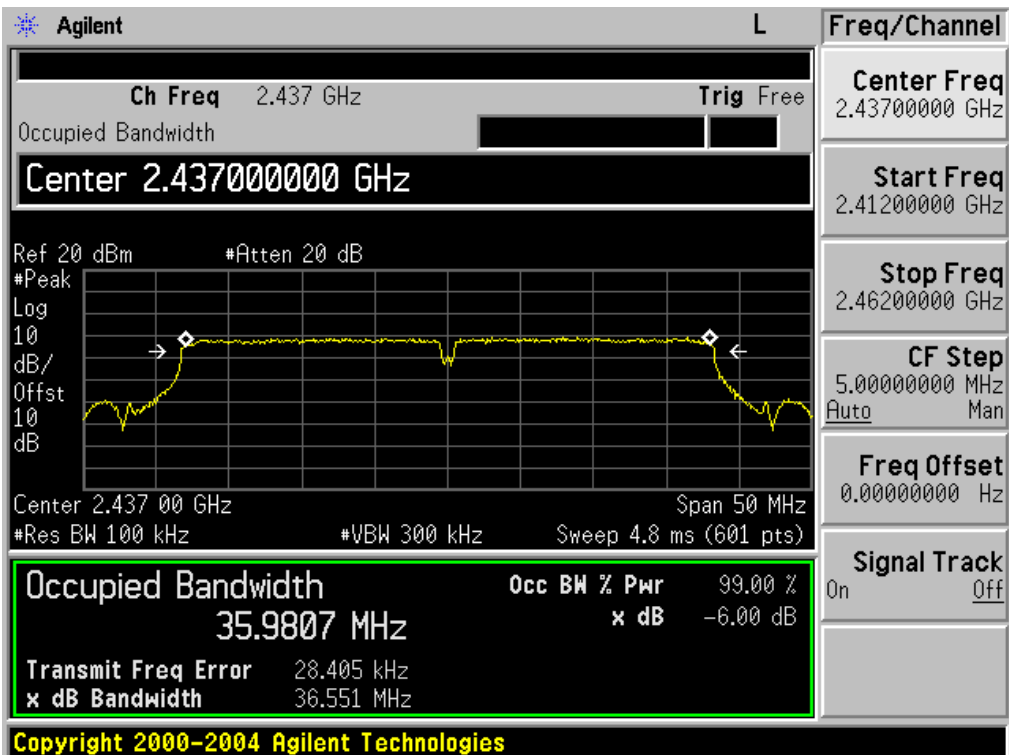
EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX n Mode(40M) /CH03, CH06, CH09		

Channel	Frequency (MHz)	6dB bandwidth (MHz)		Limit (kHz)	Result
		ANT A	ANT B		
Low	2422	36.544	36.464	500	Pass
Middle	2437	36.551	36.349	500	Pass
High	2452	36.541	36.463	500	Pass

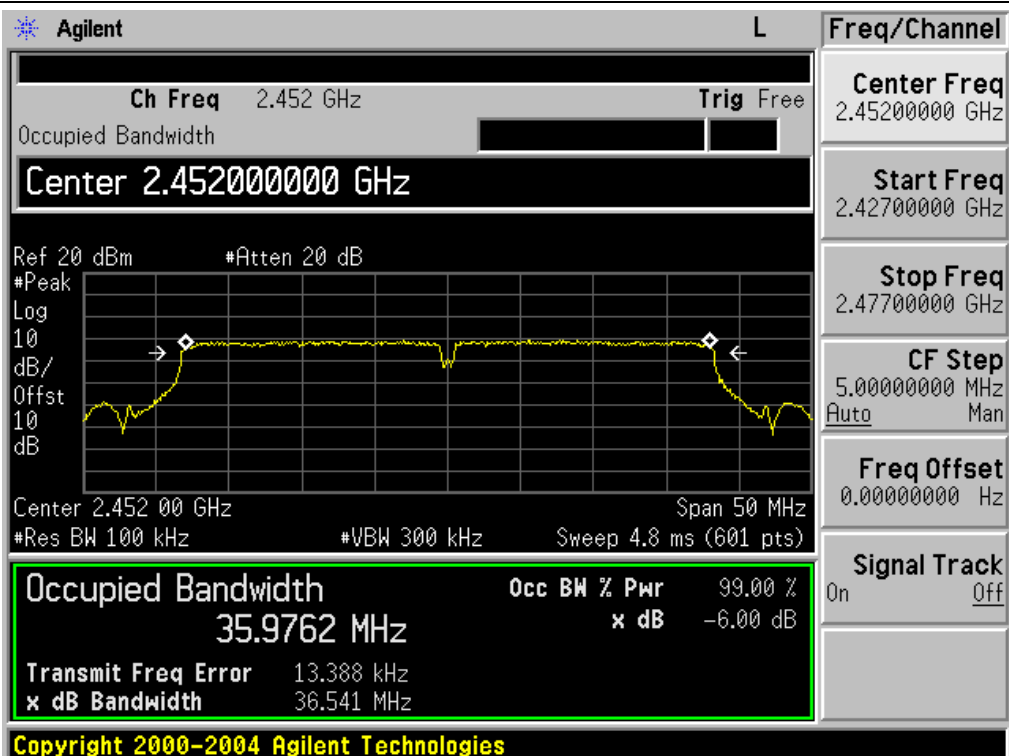
Note: A (B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.



TX CH 06



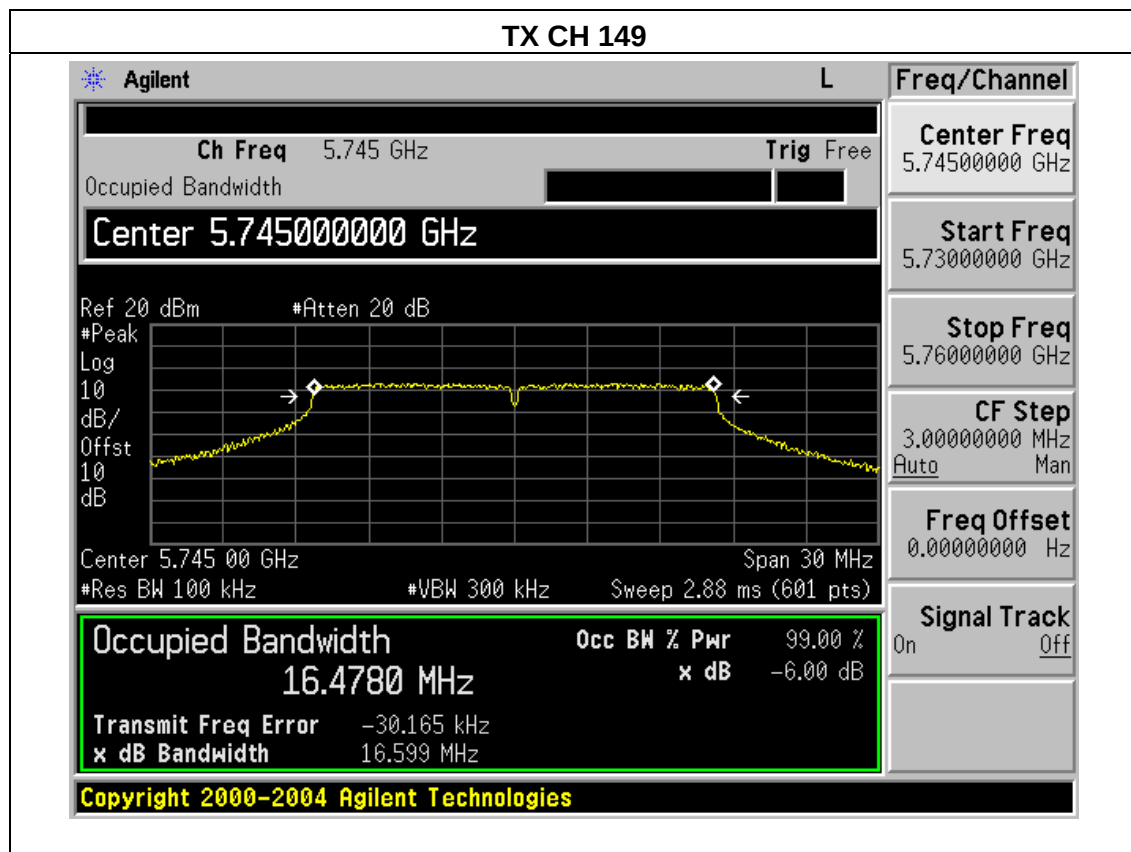
TX CH 09



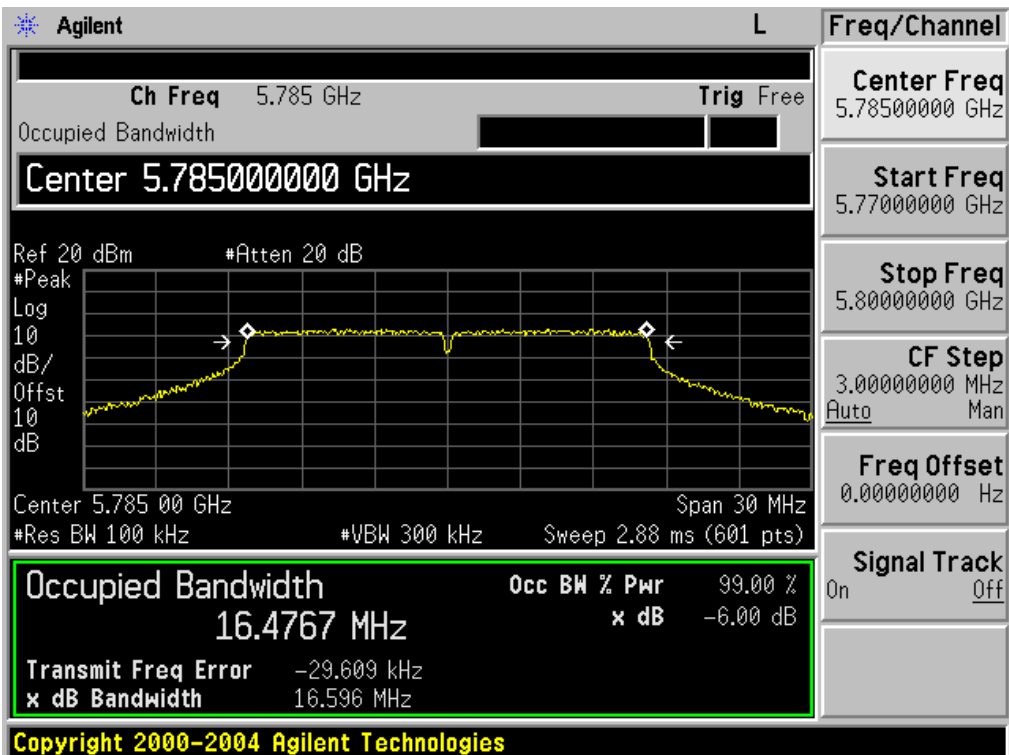
EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX a Mode /CH149, CH157, CH165		

Channel	Frequency (MHz)	6dB bandwidth (MHz)		Limit (kHz)	Result
		ANT A	ANT B		
Low	5745	16.599	16.365	500	Pass
Middle	5785	16.596	16.454	500	Pass
High	5825	16.596	16.368	500	Pass

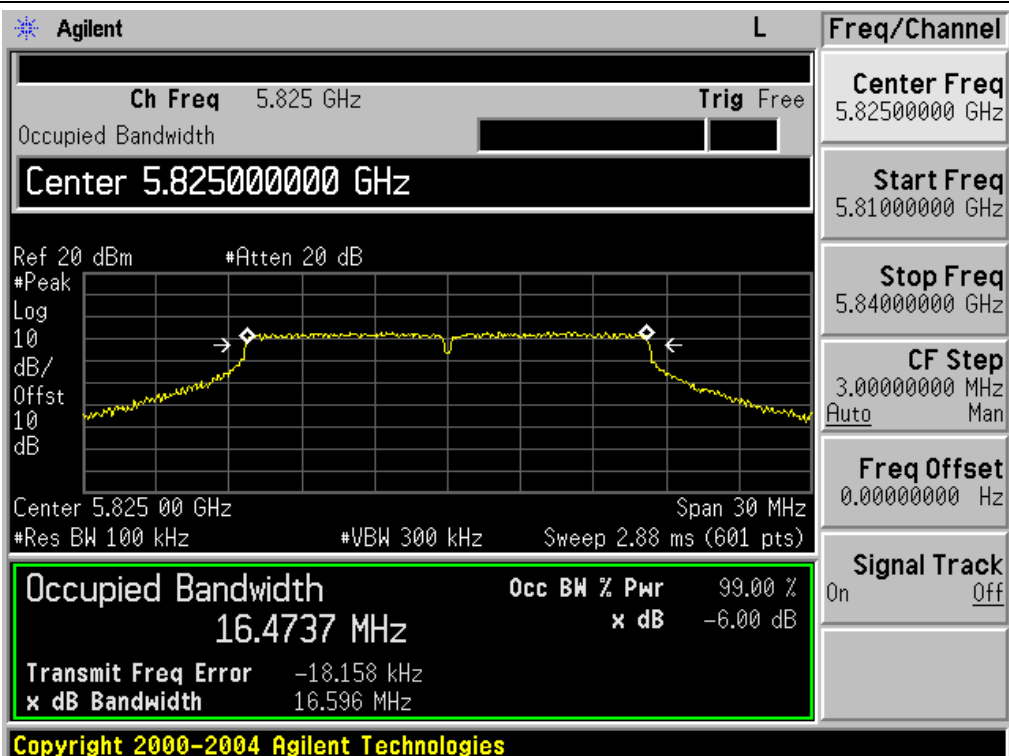
Note: A (B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.



TX CH 157



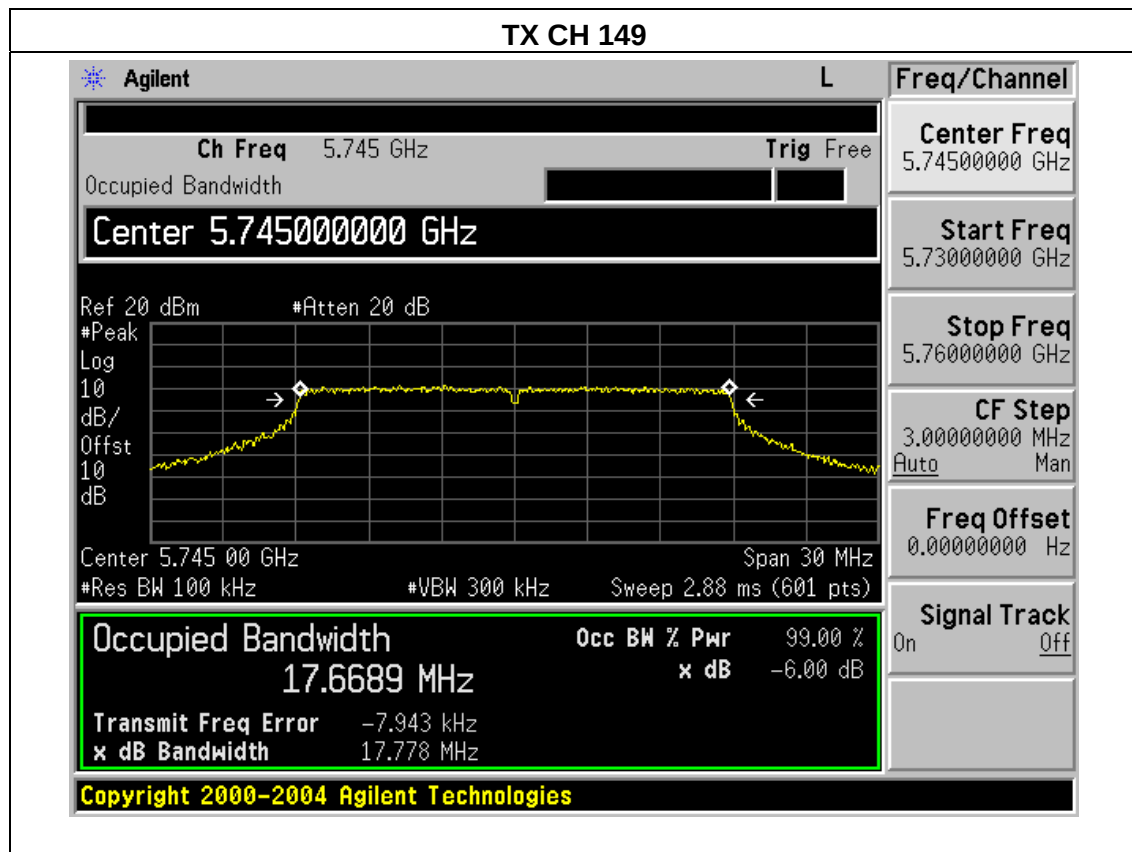
TX CH 165



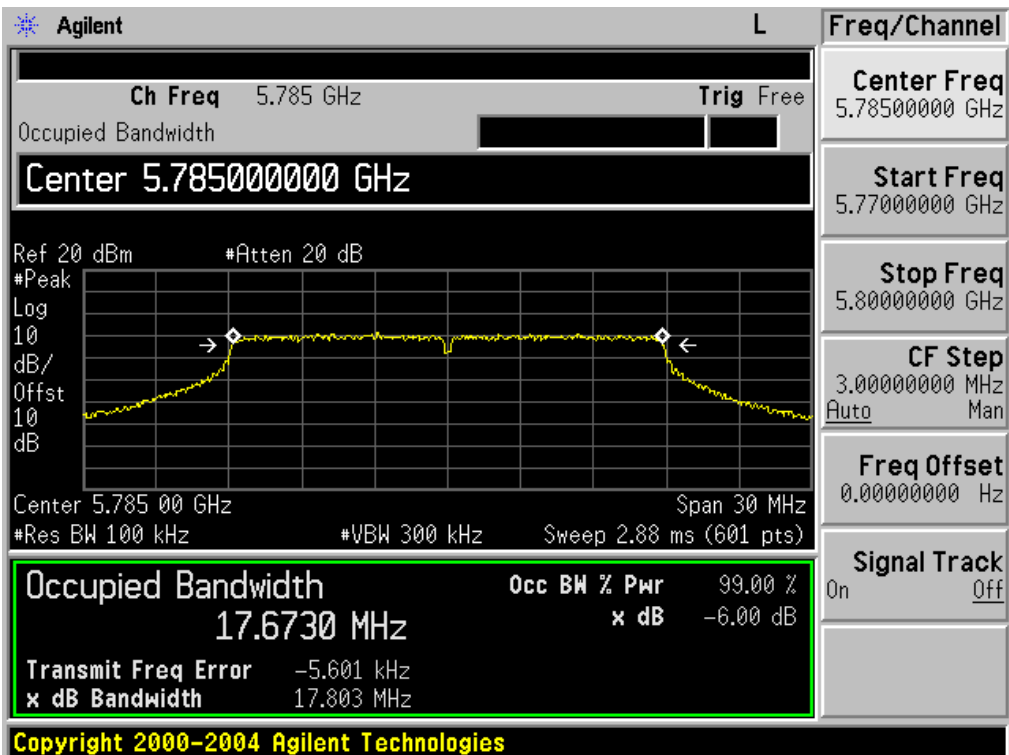
EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX n(20) Mode(5G) /CH149, CH157, CH165		

Channel	Frequency (MHz)	6dB bandwidth (MHz)		Limit (kHz)	Result
		ANT A	ANT B		
Low	5745	17.778	17.531	500	Pass
Middle	5785	17.803	17.493	500	Pass
High	5825	17.806	17.611	500	Pass

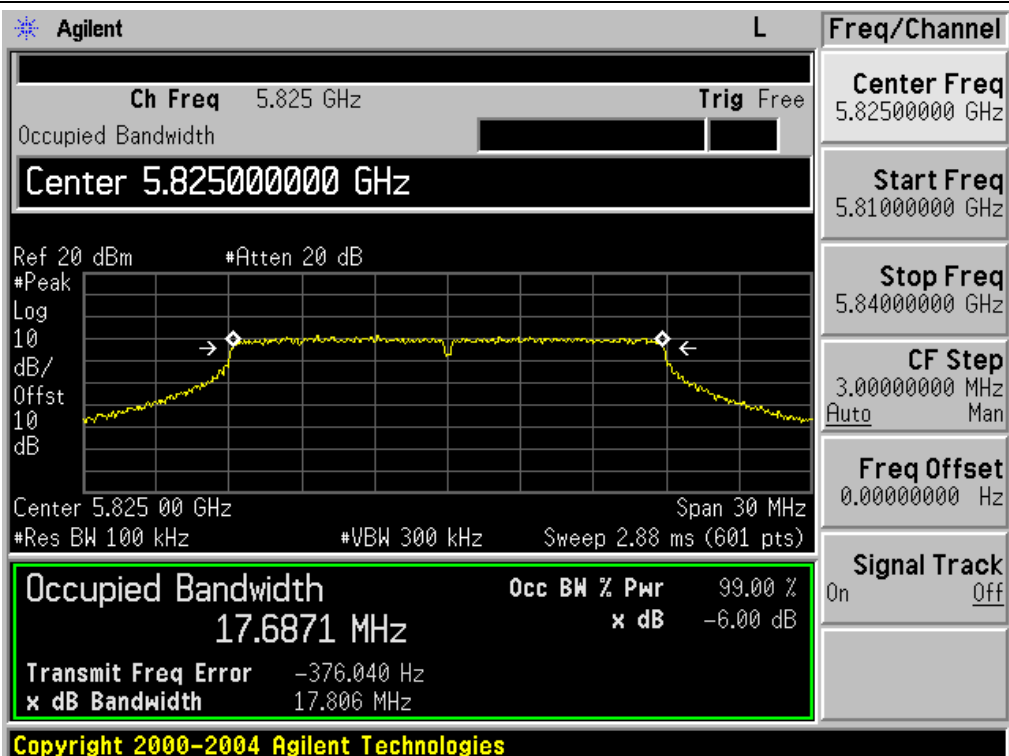
Note: A (B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.



TX CH 157



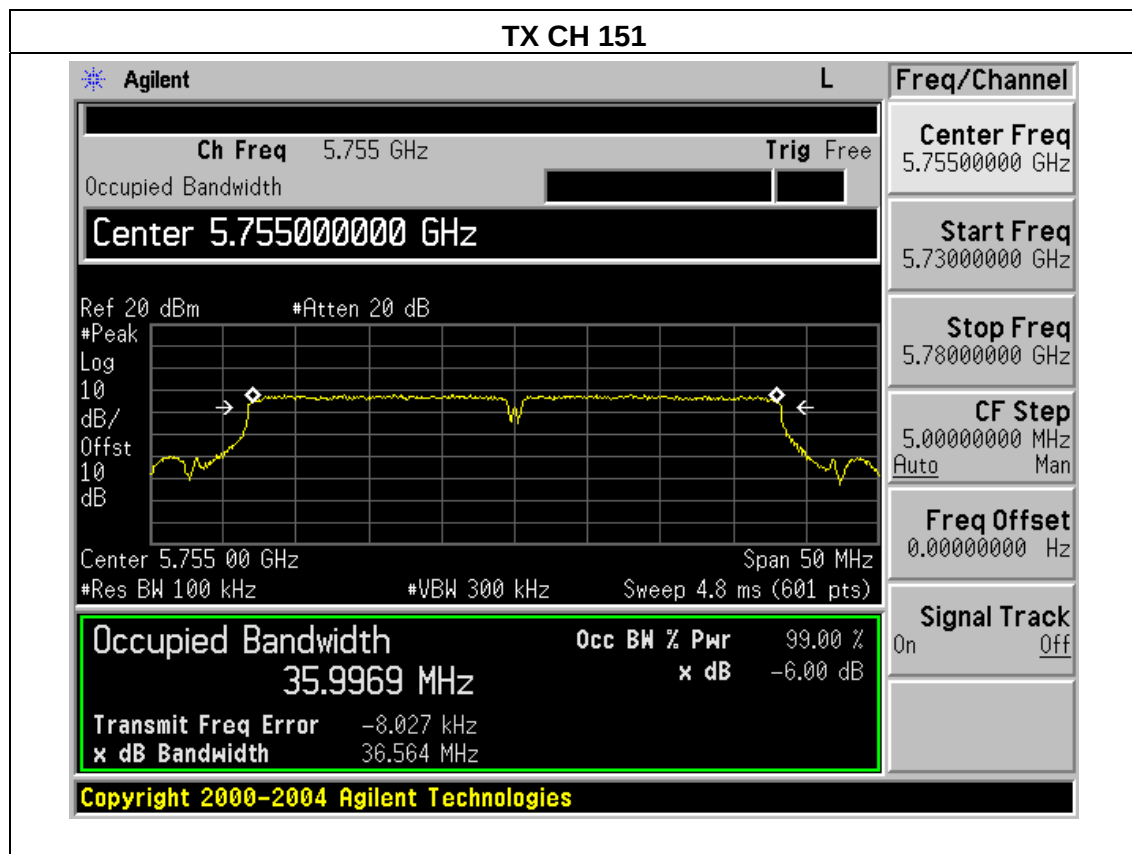
TX CH 165

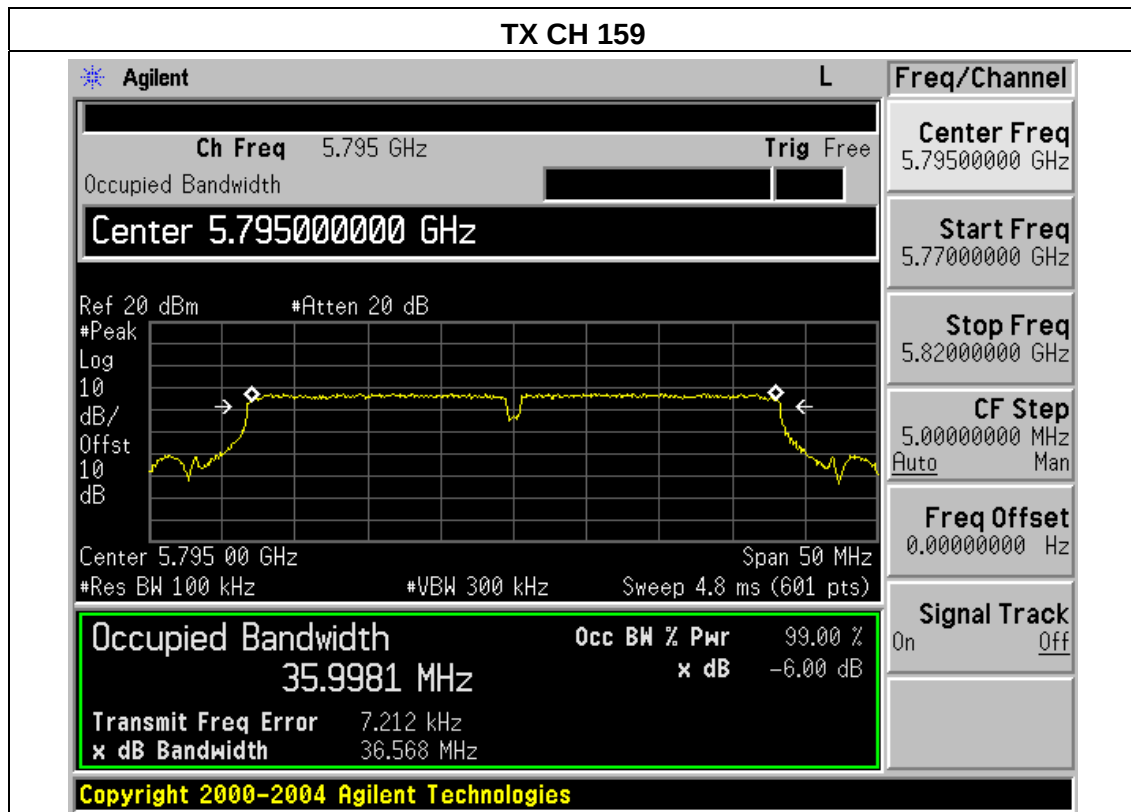


EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX n40 Mode(5G) /CH151, CH159		

Channel	Frequency (MHz)	6dB bandwidth (MHz)		Limit (kHz)	Result
		ANT A	ANT B		
Low	5755	36.564	36.352	500	Pass
High	5795	36.568	36.344	500	Pass

Note: A (B) Represent the value of antenna A and B, The worst data is A Antenna a ,only shown Antenna A Plot.





6. PEAK OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

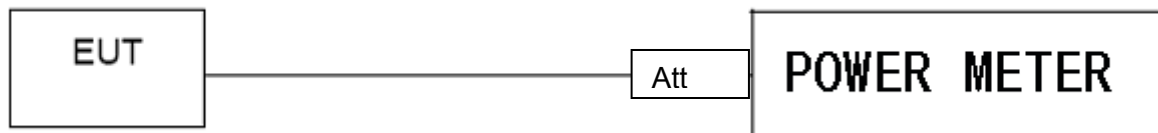
6.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the Power meter

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.1.5 TEST RESULTS

EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX b/g/n(20M, 40M) Mode		

Test Channel	Frequency	Maximum output power. Antenna port				Total Power		LIMIT
		(PK) (dBm)		(AV) (dBm)		(PK)	(AV)	
	(MHz)	ANT A	ANT B	ANT A	ANT B	dBm	dBm	dBm
TX 802.11b Mode								
CH01	2412	14.62	13.69	11.25	10.52	17.19	13.91	29.39
CH06	2437	14.74	13.84	11.31	10.11	17.26	13.73	29.39
CH11	2462	14.51	13.71	11.43	10.42	17.14	13.96	29.39
TX 802.11g Mode								
CH01	2412	11.73	10.35	8.24	7.22	14.10	10.77	29.39
CH06	2437	11.71	10.42	8.46	7.45	14.13	10.87	29.39
CH11	2462	11.75	10.47	8.31	7.36	14.17	10.87	29.39
TX 802.11n/20M Mode								
CH01	2412	9.92	8.73	6.76	5.31	12.38	9.11	29.39
CH06	2437	9.91	8.58	6.84	5.42	12.31	9.15	29.39
CH11	2462	9.92	8.72	6.61	5.72	12.37	9.20	29.39
TX 802.11n/40M Mode								
CH03	2422	9.23	8.24	6.21	5.61	11.77	8.93	29.39
CH06	2437	9.46	8.53	6.37	5.52	11.90	8.89	29.39
CH09	2452	9.52	8.65	6.32	5.44	12.12	8.91	29.39

For 2.4G mode , Limit =30-6.61+6=29.39dBm for output power.

EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX a/n(5G) Mode		

Test Channe	Frequency	Maximum output power. Antenna port				Total Power		LIMIT
		(PK) (dBm)		(AV) (dBm)		(PK)	(AV)	
	(MHz)	ANT A	ANT B	ANT A	ANT B	dBm	dBm	dBm
TX 802.11a Mode								
CH149	5745	9.76	9.21	7.02	6.71	12.50	9.88	29.79
CH157	5785	9.52	9.13	7.37	6.69	12.47	9.87	29.79
CH165	5825	9.67	9.02	7.24	6.72	12.37	10.00	29.79
TX 802.11 n20 Mode								
CH149	5745	9.31	8.56	6.42	5.42	11.96	8.96	29.79
CH157	5785	9.35	8.65	6.48	5.58	12.00	9.03	29.79
CH165	5825	9.16	8.35	6.22	5.47	11.78	8.87	29.79
TX 802.11 n40 Mode								
CH151	5755	8.52	7.76	5.26	4.55	11.17	7.93	29.79
CH159	5795	8.37	7.52	5.17	4.38	11.06	7.85	29.79

For 5G mode,Limit =30-6.21+6=29.79dBm for output power

7. 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE

APPLICABLE STANDARD

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. 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)).

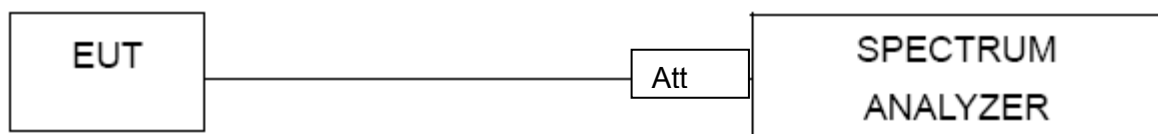
TEST PROCEDURE

- a) Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b) Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- c) Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
- d) Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
- e) Repeat above procedures until all measured frequencies were complete.

7.1 DEVIATION FROM STANDARD

No deviation.

7.2 TEST SETUP



7.3 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

7.4 TEST RESULTS

EUT :	ScreenBeam Enterprise Wireless Display Receiver	Model Name :	SBWD700A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz

Frequency Band	Delta Peak to band emission (dBc)	> Limit (dBc)	Result
802.11b mode			
Left-band	37.80	20	Pass
Right-band	57.44	20	Pass
802.11g mode			
Left-band	28.89	20	Pass
Right-band	49.25	20	Pass
802.11n-HT20 mode			
Left-band	29.46	20	Pass
Right-band	50.96	20	Pass
802.11n-HT40 mode			
Left-band	29.80	20	Pass
Right-band	45.94	20	Pass

Frequency Band	Delta Peak to band emission (dBc)	> Limit (dBc)	Result
802.11a mode			
Left-band	43.94	20	Pass
Right-band	51.07	20	Pass
802.11n20 mode			
Left-band	43.56	20	Pass
Right-band	49.16	20	Pass
802.11n40 mode			
Left-band	39.26	20	Pass
Right-band	44.31	20	Pass

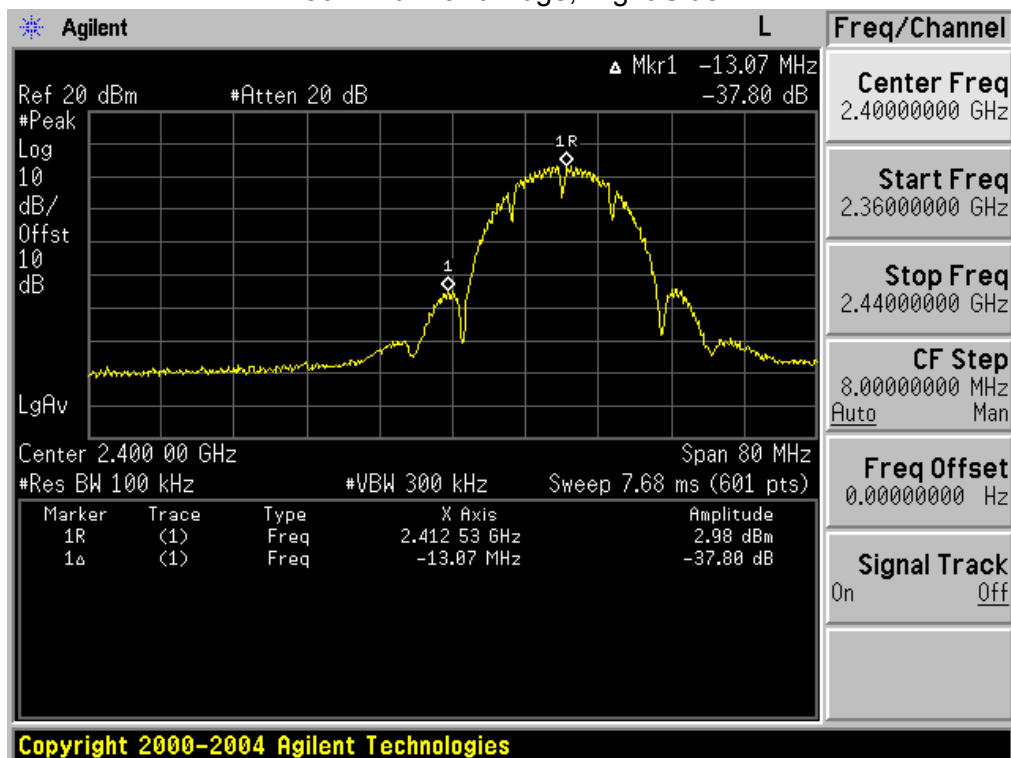
Radiated band edge:

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
802.11b							
2390	53.91	-13.06	40.85	74	-33.15	peak	Vertical
2390	55.75	-13.06	42.69	74	-31.31	peak	Horizontal
2483.5	55.56	-12.78	42.78	74	-31.22	peak	Vertical
2483.5	56.35	-12.78	43.57	74	-30.43	peak	Horizontal
802.11g							
2390	53.34	-13.06	40.28	74	-33.72	peak	Vertical
2390	53.41	-13.06	40.35	74	-33.65	peak	Horizontal
2483.5	52.31	-12.78	39.53	74	-34.47	peak	Vertical
2483.5	54.43	-12.78	41.65	74	-32.35	peak	Horizontal
802.11n (20)							
2390	55.42	-13.06	42.36	74	-31.64	peak	Vertical
2390	53.34	-13.06	40.28	74	-33.72	peak	Horizontal
2483.5	55.24	-12.78	42.46	74	-31.54	peak	Vertical
2483.5	57.32	-12.78	44.54	74	-29.46	peak	Horizontal
802.11n (40)							
2390	54.29	-13.06	41.23	74	-32.77	54.29	Vertical
2390	48.38	-13.06	35.32	74	-38.68	48.38	Horizontal
2483.5	53.71	-12.78	40.93	74	-33.07	53.71	Vertical
2483.5	51.45	-12.78	38.67	74	-35.33	51.45	Horizontal

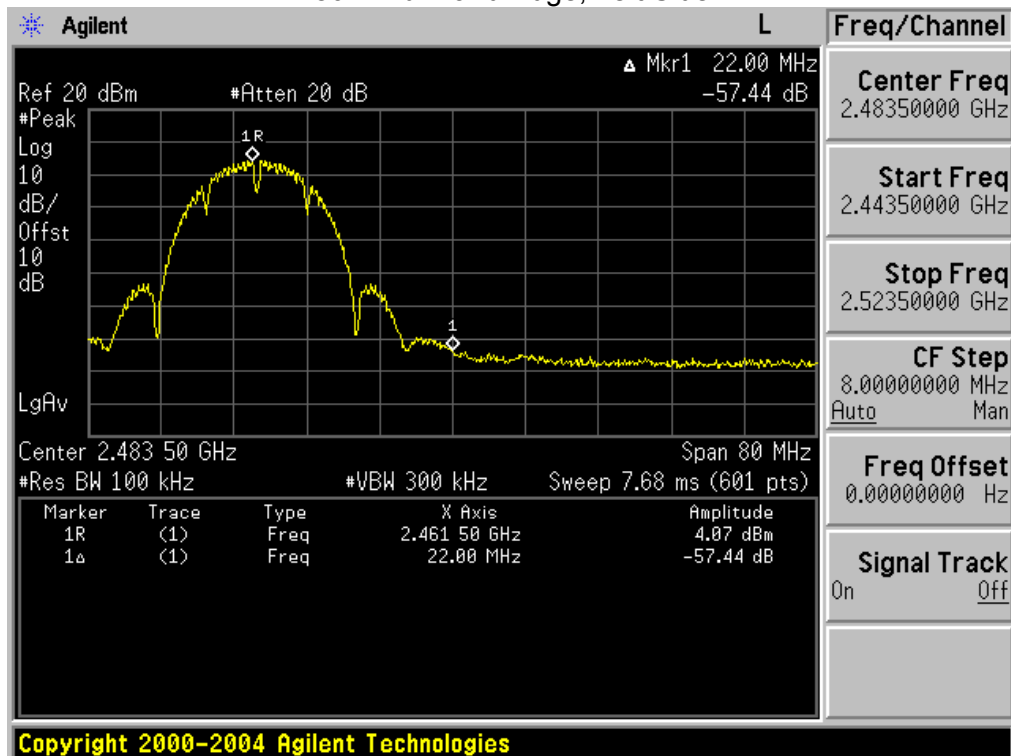
Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
802.11a-5G							
5725	42.13	11.79	53.92	74	-20.08	peak	Vertical
5725	41.54	11.79	53.33	74	-20.67	peak	Horizontal
5850	40.21	11.93	52.14	74	-21.86	peak	Vertical
5850	41.04	11.93	52.97	74	-21.03	peak	Horizontal
802.11n20-5G							
5725	41.85	11.79	53.64	74	-20.36	peak	Vertical
5725	40.19	11.79	51.98	74	-22.02	peak	Horizontal
5850	41.71	11.93	53.64	74	-20.36	peak	Vertical
5850	40.81	11.93	52.74	74	-21.26	peak	Horizontal
802.11n40-5G							
5725	39.62	11.79	51.41	74	-22.59	peak	Vertical
5725	38.32	11.79	50.11	74	-23.89	peak	Horizontal
5850	37.76	11.93	49.69	74	-24.31	peak	Vertical
5850	33.26	11.93	45.19	74	-28.81	peak	Horizontal

Note: Test method to see chapter 3.2 . When PK value is lower than the Average value limit, average not record.

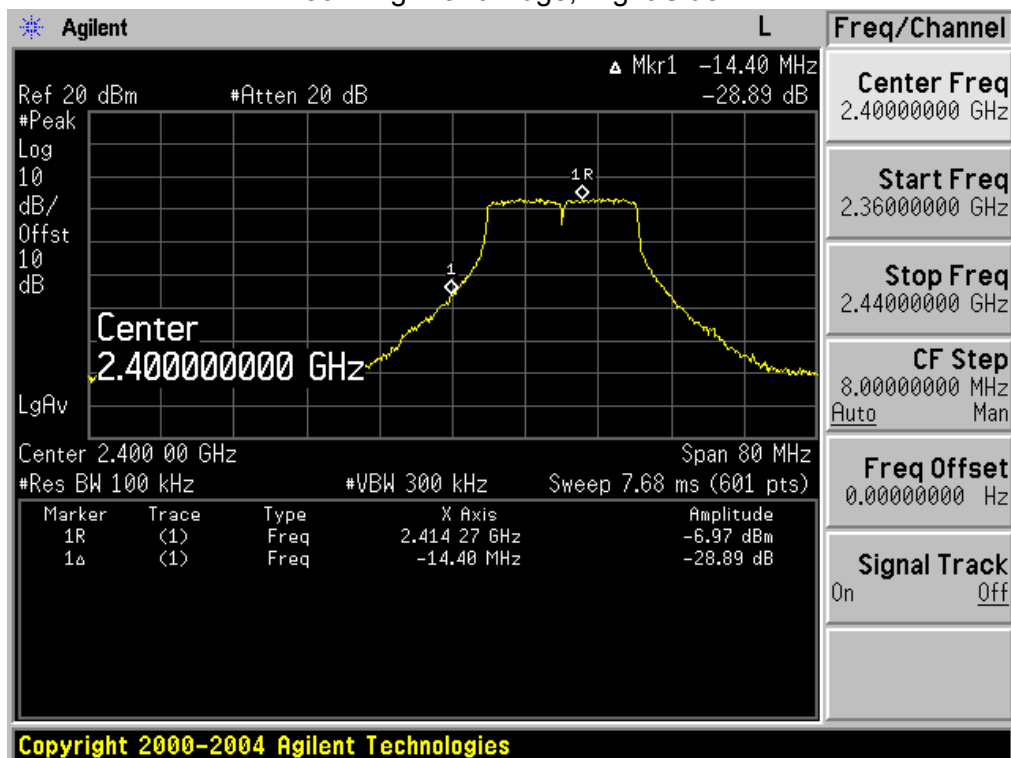
802.11b: Band Edge, Right Side



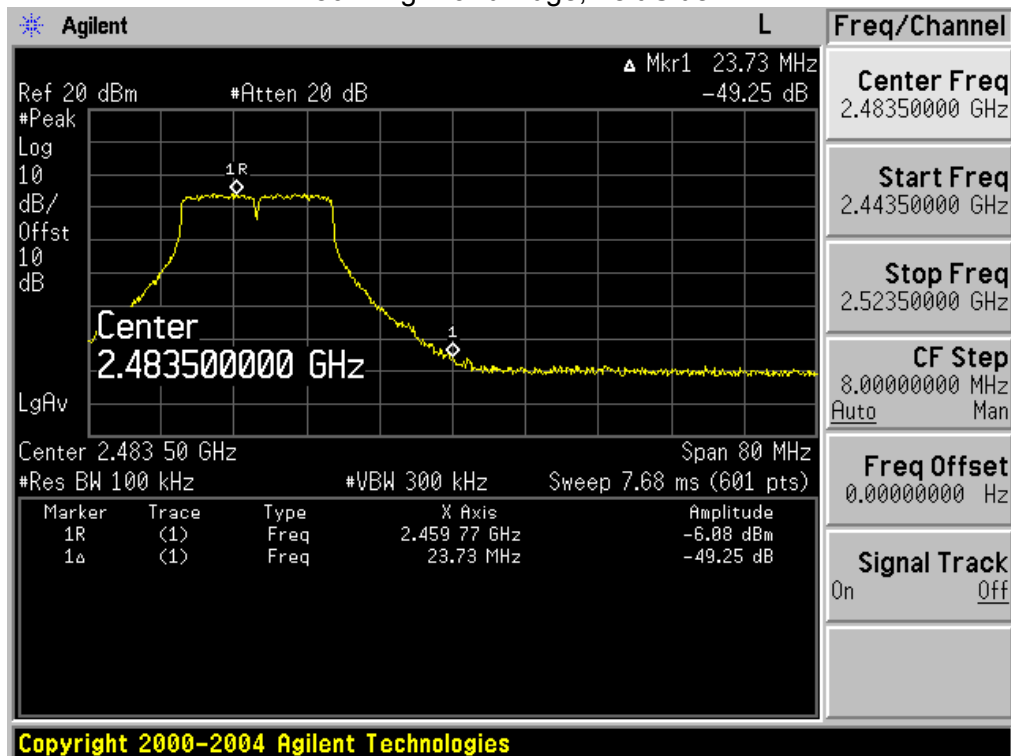
802.11b: Band Edge, Left Side



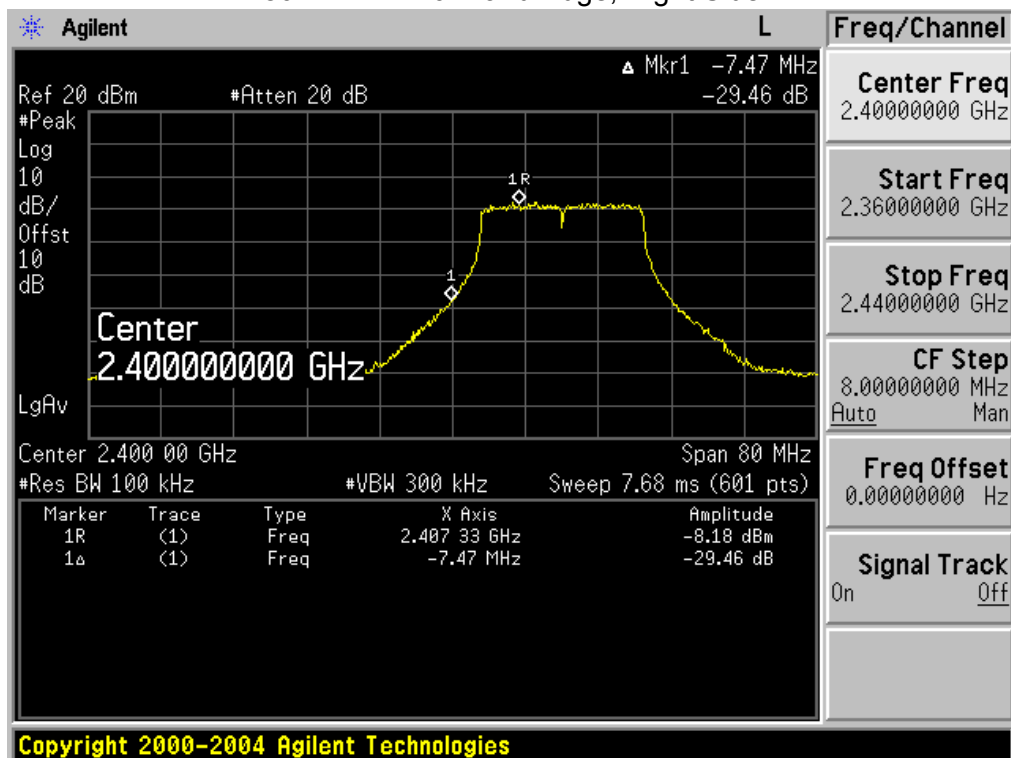
802.11g: Band Edge, Right Side



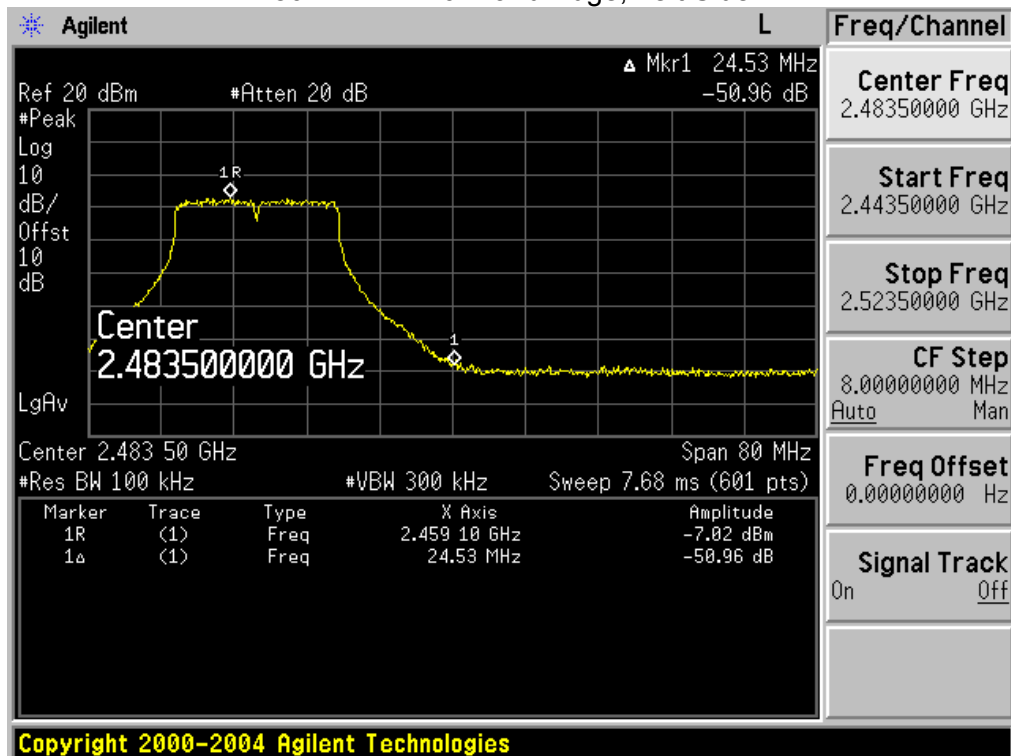
802.11g: Band Edge, Left Side



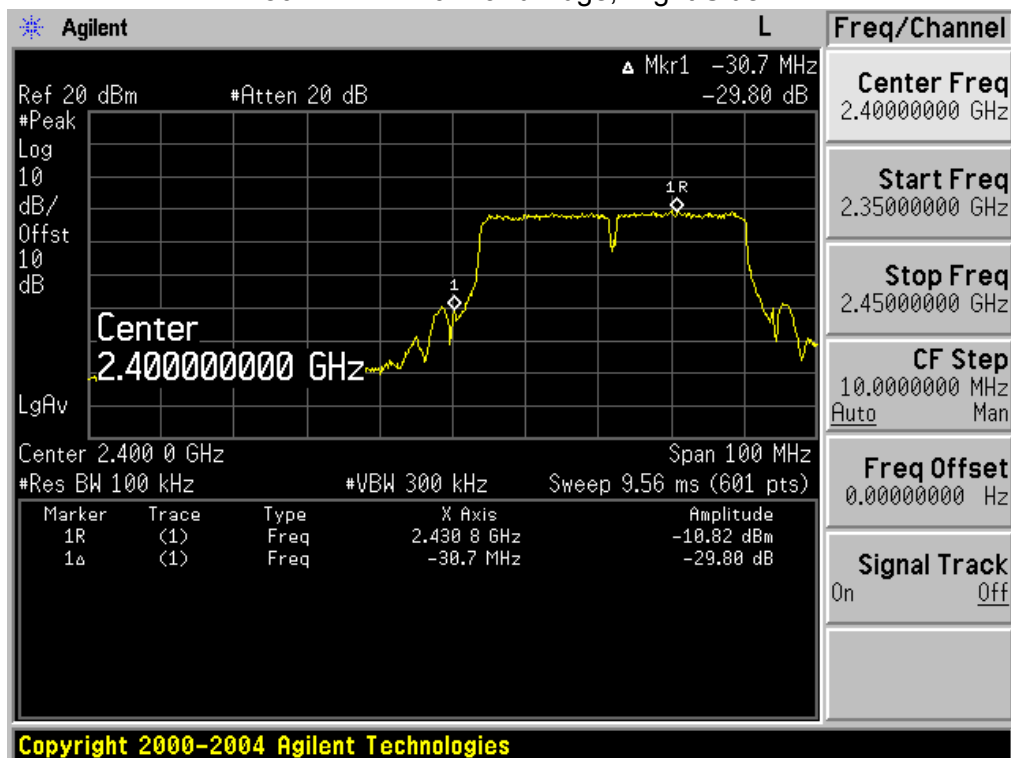
802.11n-HT20: Band Edge, Right Side



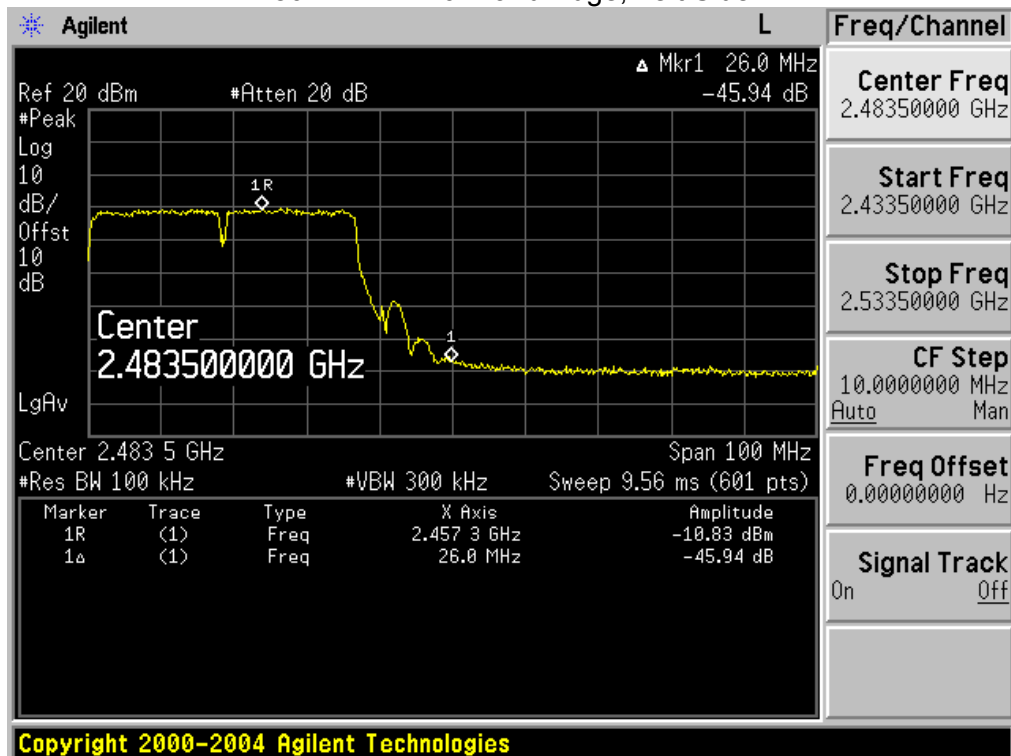
802.11n-HT20: Band Edge, Left Side



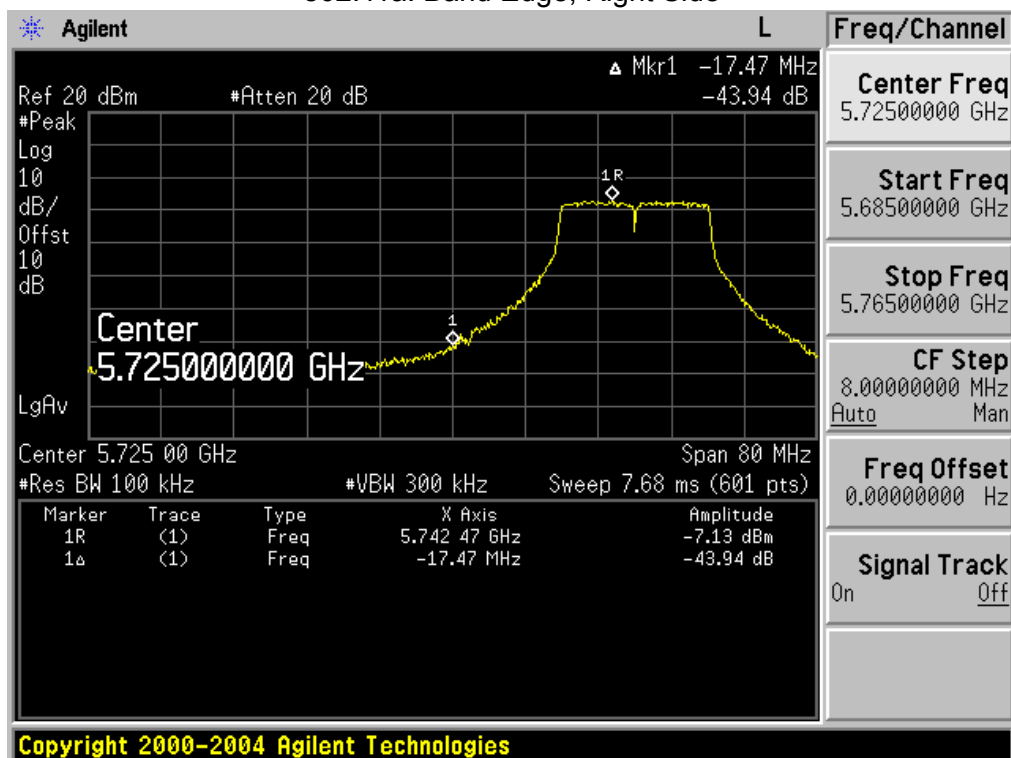
802.11n-HT40: Band Edge, Right Side



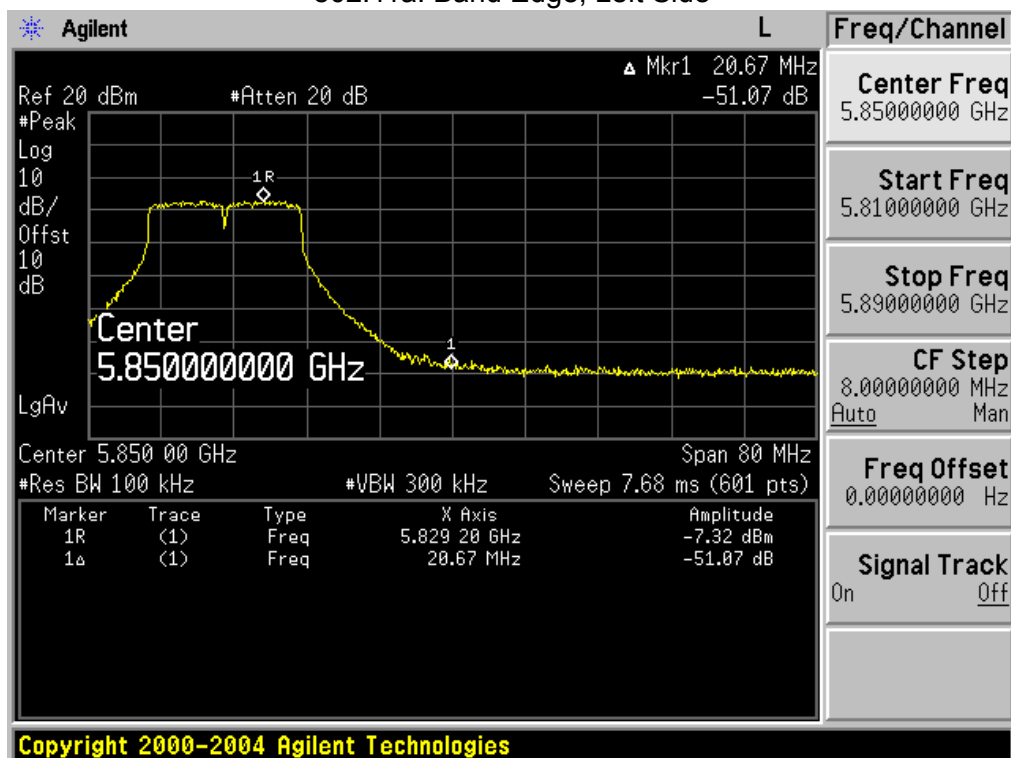
802.11n-HT40: Band Edge, Left Side



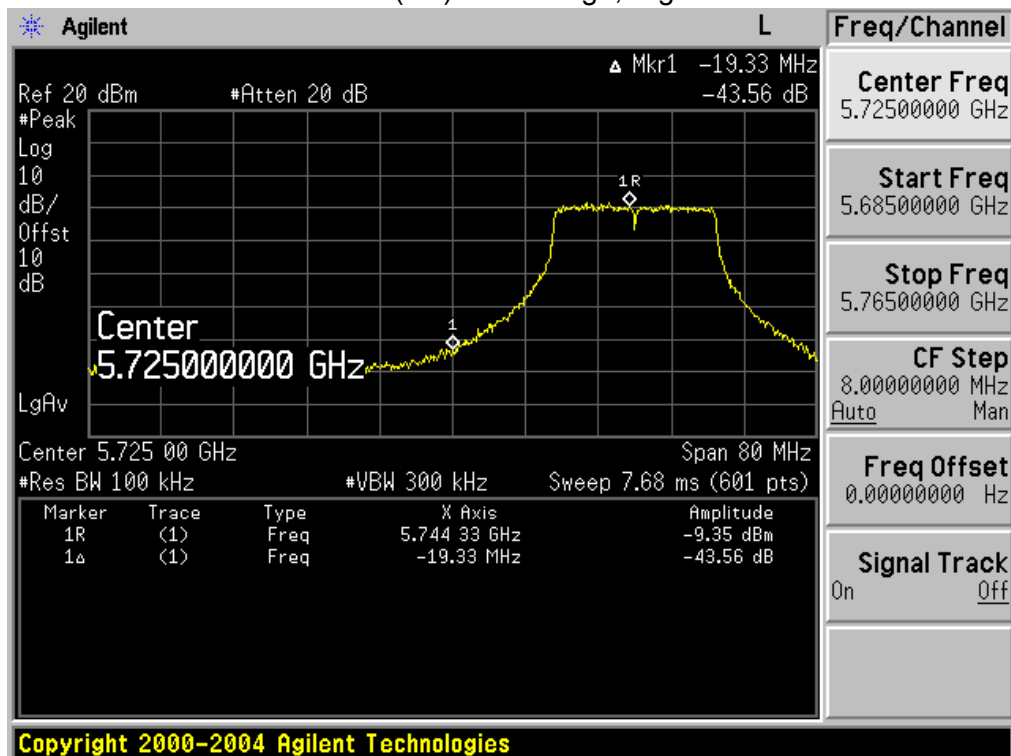
802.11a: Band Edge, Right Side



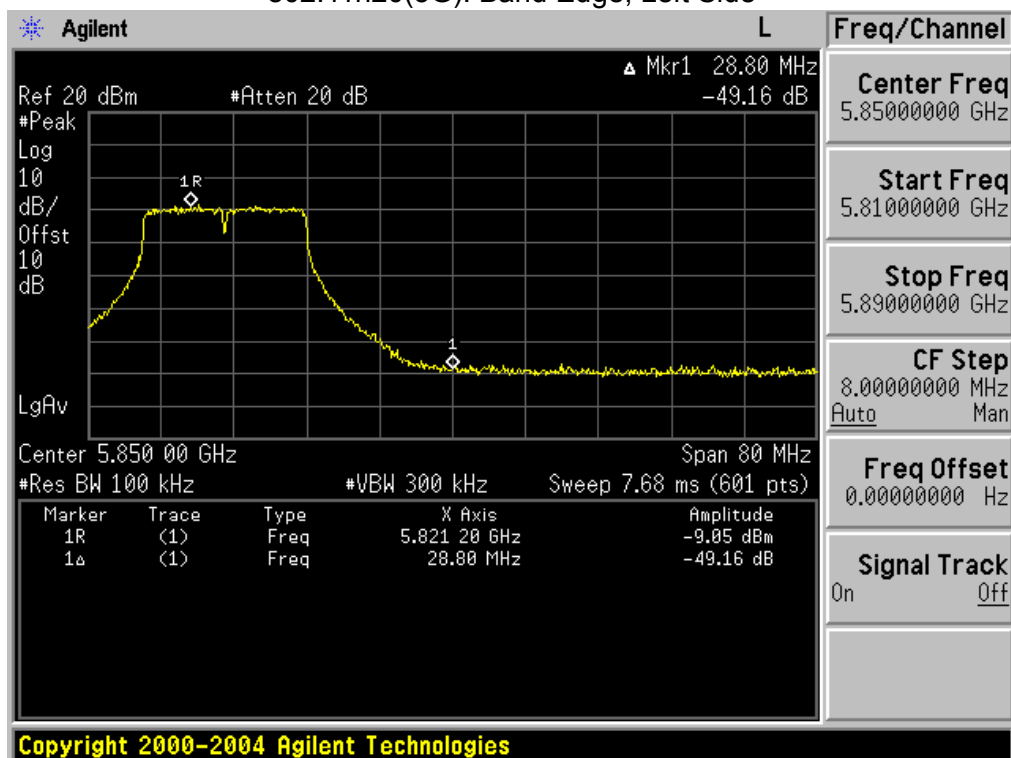
802.11a: Band Edge, Left Side



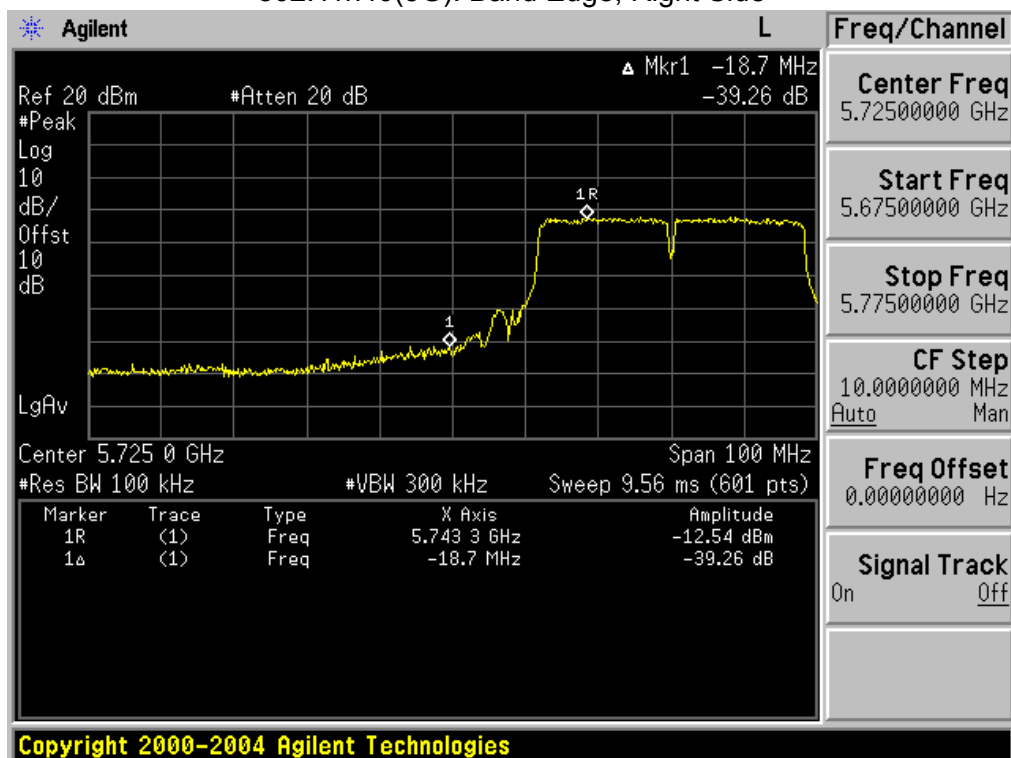
802.11n20(5G): Band Edge, Right Side



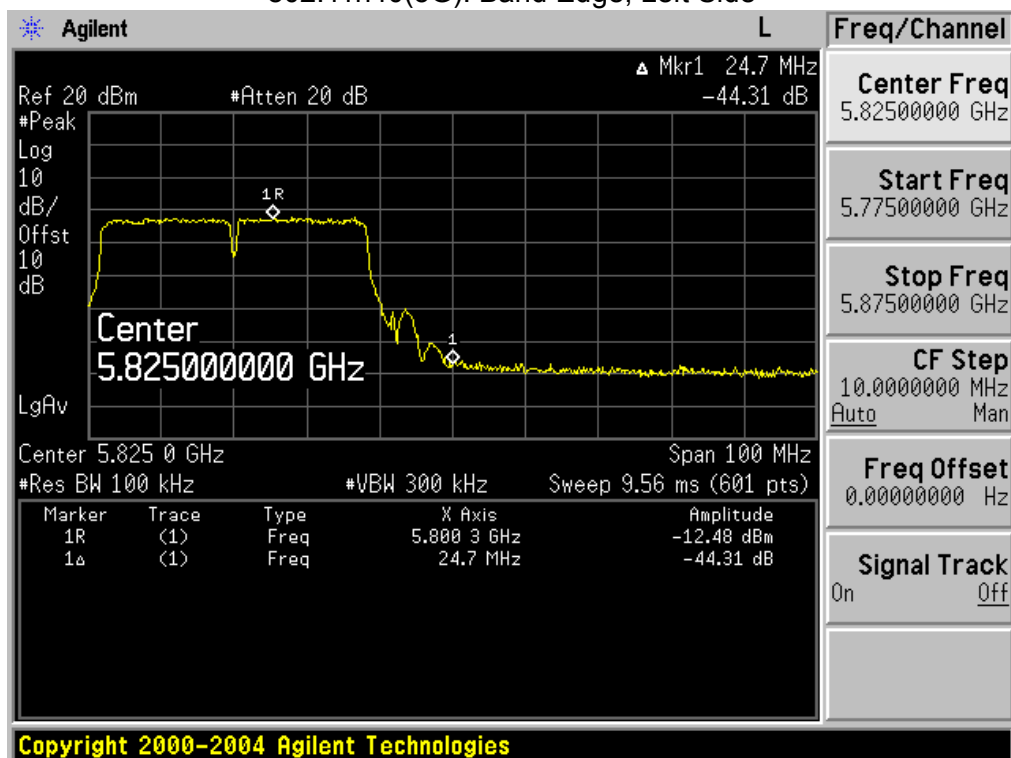
802.11n20(5G): Band Edge, Left Side



802.11n40(5G): Band Edge, Right Side



802.11n40(5G): Band Edge, Left Side



8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

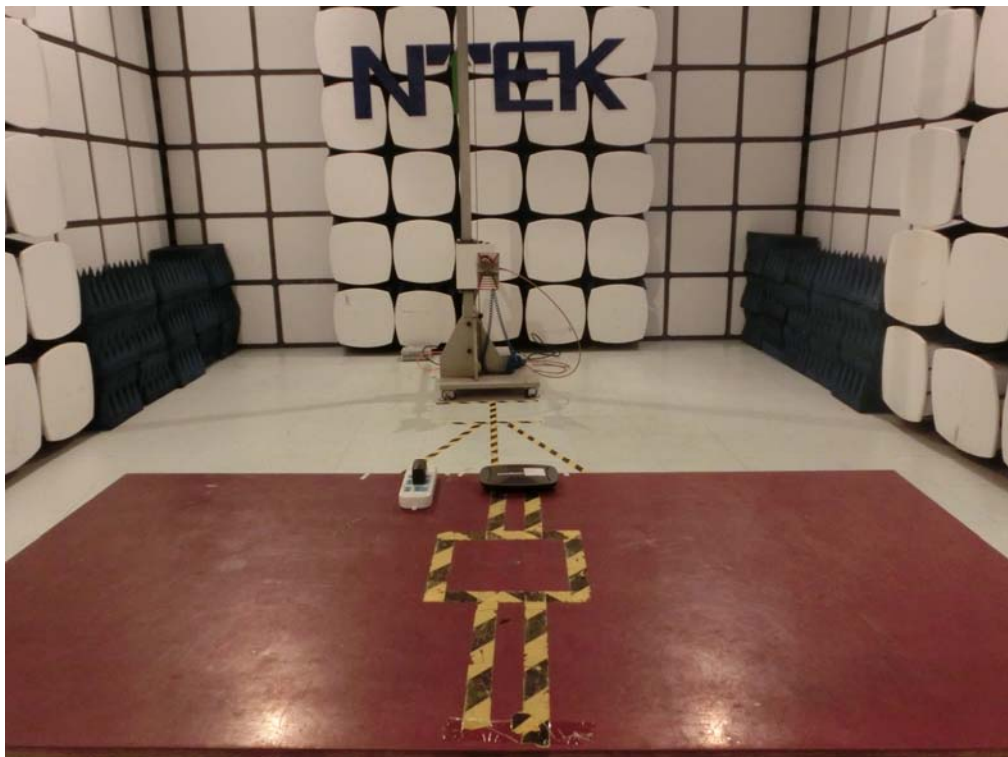
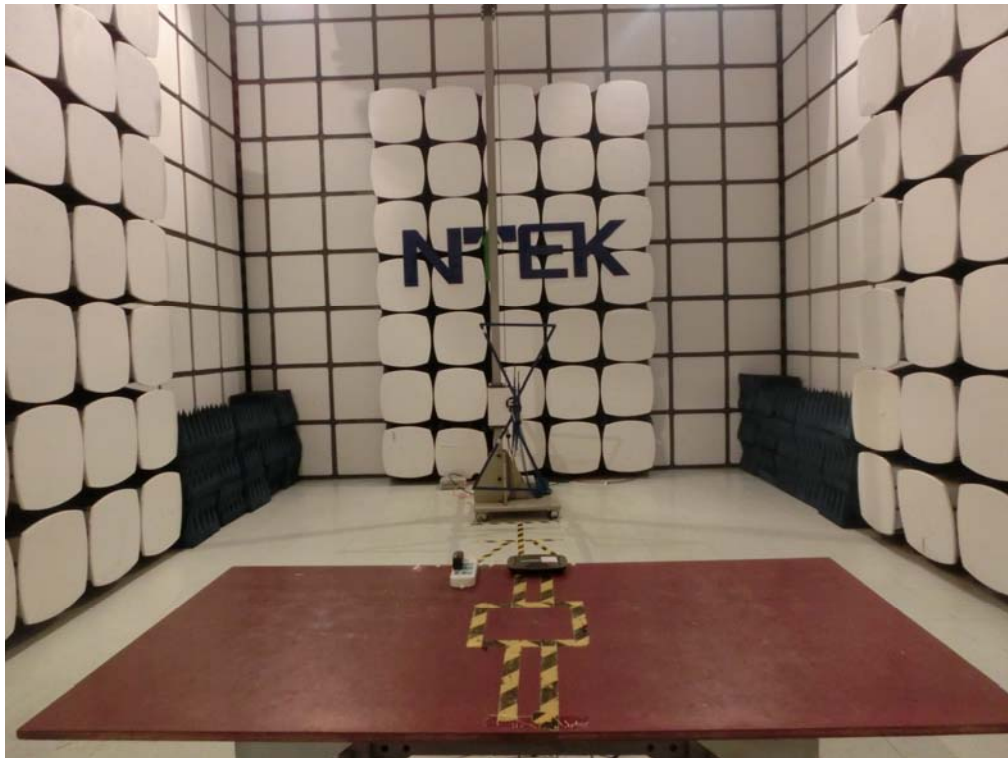
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

8.2 EUT ANTENNA

The EUT antenna is PCB antenna. It comply with the standard requirement.

9. EUT TEST PHOTO

Radiated Measurement Photos



Conducted Measurement Photos

