



FCC/IC RADIO TEST REPORT

FCC ID:LNQSBWD950A

IC:2496A-SBWD950A

Product : ScreenBeam Pro Enterprise Edition

Trade Name : Actiontec

Model Name : SBWD950A

Serial Model : N/A

Report No. : NTEK-2015NT06182085F3

Prepared for

Actiontec Electronics, Inc.

760 North Mary Ave., Sunnyvale, California 94085 United States

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name Actiontec Electronics, Inc.

Address 760 North Mary Ave., Sunnyvale, California 94085 United States

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

Address 760 North Mary Ave., Sunnyvale, California 94085 United States

Product description

Product name ScreenBeam Pro Enterprise Edition

Model and/or type SBWD950A
reference

Serial Model N/A

Standards FCC Part15.407: 01 Oct. 2014
RSS-247 Issue 1 May 28, 2015

Test procedure ANSI C63.10-2013 and KDB 789033 D01 v01r04
RSS GEN Issue 4

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/ the Industry Canada 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 18 Jun. 2015 ~31 Jul. 2015

Date of Issue..... 31 Jul. 2015

Test Result..... **Pass**

Testing Engineer : Jason Chen
(Jason Chen)

Technical Manager : Brown Lu
(Brown Lu)

Authorized Signatory : Sam. Chen
(Sam Chen)

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.407) , Subpart E/RSS-247 Issue 1			
Standard Section	Test Item	Judgment	Remark
FCC §15.207/ RSS-Gen §8.8/RSS-247 §6.2	AC Power Line Conducted Emissions	PASS	
FCC §15.209(a), 15.407(b)/ RSS 247§6.2	Spurious Radiated Emissions	PASS	
FCC §15.407(a)/ RSS 247§6.2.1(2)	26 dB and 99% Emission Bandwidth	PASS	
FCC §407(a)(1)/ RSS 247§6.2.1(1)	Peak Output Power Measurement	PASS	
FCC §2.1051, §15.407(b)/ RSS 247§6.2.1(2)	Band Edges	PASS	
FCC §15.407(a)(1)/RSS 247§6.2.1(1)	Power Spectral Density	PASS	
FCC §15.407(a)(6)/ RSS 247§6.2.1(2)	Peak Excursion Ratio	PASS	
FCC §2.1051, §15.407(b)/ RSS 247§6.2.1(2)	Spurious Emissions at Antenna Terminals	PASS	
FCC §15.203/ RSS-Gen §7.1.2	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 Pro Enterprise Edition												
Trade Name	Actiontec												
Model Name	SBWD950A												
Product Description	The EUT is a ScreenBeam Pro Enterprise Edition <table border="1"> <tr> <td>Operation Frequency:</td><td>5180 MHz ~ 5240 MHz</td></tr> <tr> <td>Modulation Type:</td><td>802.11a:OFDM (BPSK / QPSK / 16QAM) 802.11n:OFDM (QPSK/BPSK/16QAM/64QAM) 802.11ac:OFDM (QPSK/BPSK/16QAM/64QAM/256QAM)</td></tr> <tr> <td>Bit Rate of Transmitter</td><td>802.11a: 6/9/12/18/24/36/48/54 Mbps 802.11n: up to 150Mbps 802.11ac: at most 433.3 Mbps</td></tr> <tr> <td>Number Of Channel</td><td>Please see Note 2.</td></tr> <tr> <td>Antenna Designation :</td><td>Please see Note 3.</td></tr> <tr> <td>Antenna Gain (dBi)</td><td>Please see Note 3.</td></tr> </table> 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.	Operation Frequency:	5180 MHz ~ 5240 MHz	Modulation Type:	802.11a:OFDM (BPSK / QPSK / 16QAM) 802.11n:OFDM (QPSK/BPSK/16QAM/64QAM) 802.11ac:OFDM (QPSK/BPSK/16QAM/64QAM/256QAM)	Bit Rate of Transmitter	802.11a: 6/9/12/18/24/36/48/54 Mbps 802.11n: up to 150Mbps 802.11ac: at most 433.3 Mbps	Number Of Channel	Please see Note 2.	Antenna Designation :	Please see Note 3.	Antenna Gain (dBi)	Please see Note 3.
Operation Frequency:	5180 MHz ~ 5240 MHz												
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Bit Rate of Transmitter	802.11a: 6/9/12/18/24/36/48/54 Mbps 802.11n: up to 150Mbps 802.11ac: at most 433.3 Mbps												
Number Of Channel	Please see Note 2.												
Antenna Designation :	Please see Note 3.												
Antenna Gain (dBi)	Please see Note 3.												
Channel List	Please refer to the Note 2.												
Ratings	DC 5.0V,2.0A												
Adapter	Adapter 1 Mode: WA-10P05FU Input: 100-240V~, 50/60Hz, 0.3A MAX Output: 5.0V$\overline{\text{---}}$, 2.0A Adapter 2 Mode: KSAS0120500200HU Input: 100-240V~, 50/60Hz, 0.4A Output: 5.0V$\overline{\text{---}}$, 2.0A												
Connecting I/O Port(s)	Please refer to the User's Manual												
Radio firmware Version	RTL8192DU:v4.0.0_756324.20150428 RTL8812AU-VS:v4.2.0-aei-20150409; BT: 1.0.0.0												
Radio software Version	Wifi: 9.2.4.102 ; BT: 1.0.0.0												
Test program power setting	44												
Product Hardware Version	2A												
Product Software Version	9.2.4.102												

Note:

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

2.

5GHz

802.11a/n/ac(20MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	38	5190	40	5200	42	5210
44	5220	46	5230	48	5240	-	-

802.11n/ac (40MHz) Carrier Frequency Channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	40	5200	42	5210	44	5220
46	5230	-	-	-	-	-	-

802.11ac (80MHz) Carrier Frequency Channel	
Channel	Frequency (MHz)
42	5210

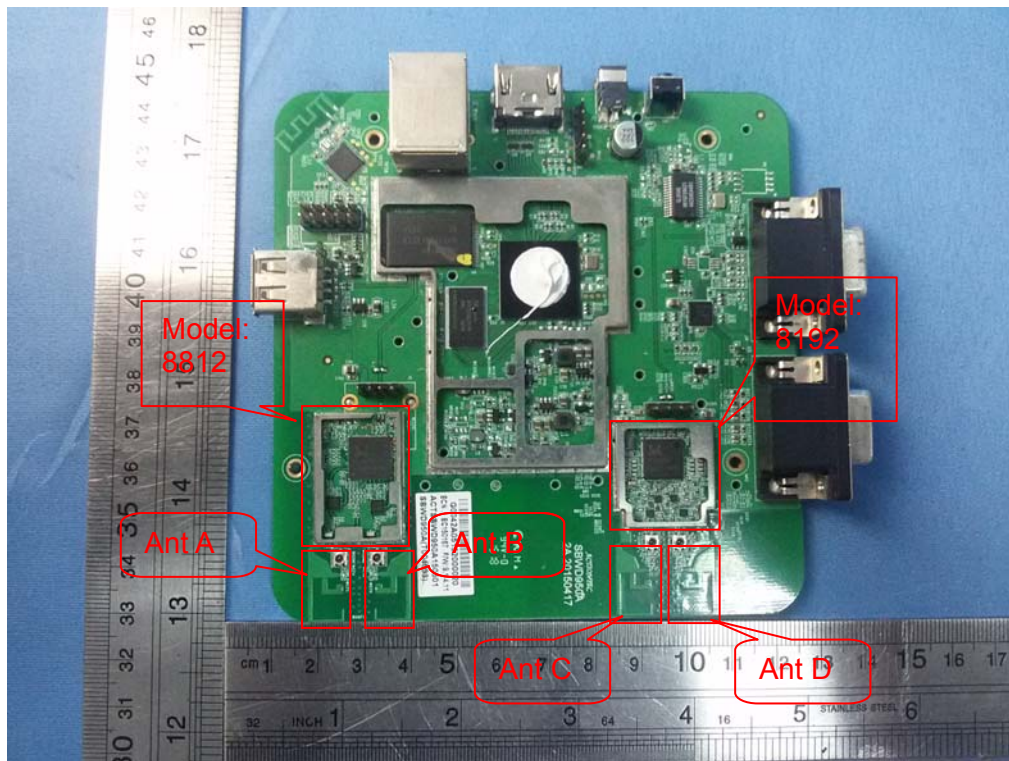
3.

Table for Filed Antenna for RF Model 8812

Ant.	Brand	Model Name	Antenna Type	Gain (dBi)	NOTE
A/B	N/A	N/A	PCB antenna	2.4G:2.91	Wifi Antenna
	N/A	N/A	PCB antenna	5G:5.9	Wifi Antenna

Table for Filed Antenna for RF Model 8192

Ant.	Brand	Model Name	Antenna Type	Gain (dBi)	NOTE
C/D	N/A	N/A	PCB antenna	2.4G:3.47	Wifi Antenna
	N/A	N/A	PCB antenna	5G:5.37	Wifi Antenna



The Control software(tool_WIFI.exe) can control Model 8812/8192 antenna A B,C,D ,
For 2.4GHz mode, antenna A B C D are transmitting, antenna A and B or antenna C and D
May simultaneously transmit.
And the data is recorded for radiated emission and band edge.

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

Model 8812 For MIMO mode , Directional gain= $G_{ANT} + 10\log(N)$ dbi =5.92dbi in 2.4GHz
Directional gain= $G_{ANT} + 10\log(N)$ dbi =8.91dbi in 5GHz
802.11a/b/g/n/ac 2.4GHz & 5GHz has MIMO mode.

Model 8192 For MIMO mode , Directional gain= $G_{ANT} + 10\log(N)$ dbi =6.48dbi in 2.4GHz
Directional gain= $G_{ANT} + 10\log(N)$ dbi =8.38dbi in 5GHz
802.11a/b/g/n/ac 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	802.11a /n CH36/ CH40/ CH 48
Mode 2	802.11n CH38/ CH 46
Mode 3	Link Mode
Mode 4	802.11AC 20 CH36/ CH40/ CH 48
Mode 5	802.11AC40 CH38/ CH 46
Mode 6	802.11 AC80 CH 42

For Conducted Emission	
Final Test Mode	Description
Mode 3	Link Mode

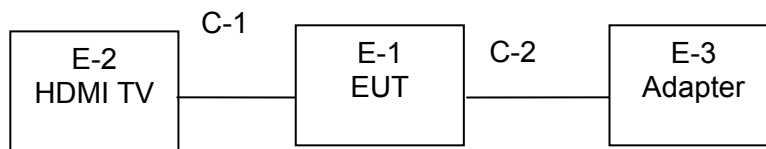
For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11a /n CH36/ CH40/ CH 48
Mode 2	802.11n38/ CH 46
Mode 3	Link Mode
Mode 4	802.11AC 20 CH36/ CH40/ CH 48
Mode 5	802.11AC40 CH38/ CH 46
Mode 6	802.11 AC80 CH 42

Note:

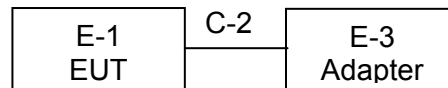
- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

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 Pro Enterprise Edition	Actiontec	SBWD950A	N/A	EUT
E-2	TV	SONY	KDL-24EX520	N/A	
E-3	Adapter 1	Actiontec	WA-10P05FU	N/A	
E-3	Adapter 2	Actiontec	KSAS0120500200HU	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	2015.07.06	2016.07.05	1 year
2	Test Receiver	R&S	ESPI	101318	2015.06.06	2016.06.05	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2015.07.06	2016.07.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2015.06.06	2016.06.05	1 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2015.06.06	2016.06.05	1 year
6	Horn Antenna	EM	EM-AH-10180	2011071402	2015.07.06	2016.07.05	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2015.07.06	2016.07.05	1 year
8	Amplifier	EM	EM-30180	060538	2014.12.22	2015.12.21	1 year
9	Loop Antenna	ARA	PLA-1030/B	1029	2015.06.06	2016.06.05	1 year
10	Power Meter	R&S	NRVS	100696	2015.07.06	2016.07.05	1 year
11	Power Sensor	R&S	URV5-Z4	0395.1619.05	2015.07.06	2016.07.05	1 year

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
3	Bilog Antenna	TESEQ	CBL6111D	31216	2014.07.06	2015.07.05	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
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	2015.06.06	2016.06.05	1 year
2	LISN	R&S	ENV216	101313	2014.08.24	2015.08.23	1 year
3	LISN	EMCO	3816/2	00042990	2015.06.06	2016.06.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2015.06.06	2016.06.05	1 year
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	2015.06.06	2016.06.05	1 year
6	Absorbing clamp	R&S	MOS-21	100423	2015.06.06	2016.06.05	1 year

1	Attenuation	MCE	24-10-34	BN9258	2015.06.06	2016.06.05	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/ RSS-247
0.50 -5.0	73.00	60.00	56.00	46.00	FCC/ RSS-247
5.0 -30.0	73.00	60.00	60.00	50.00	FCC/ RSS-247

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

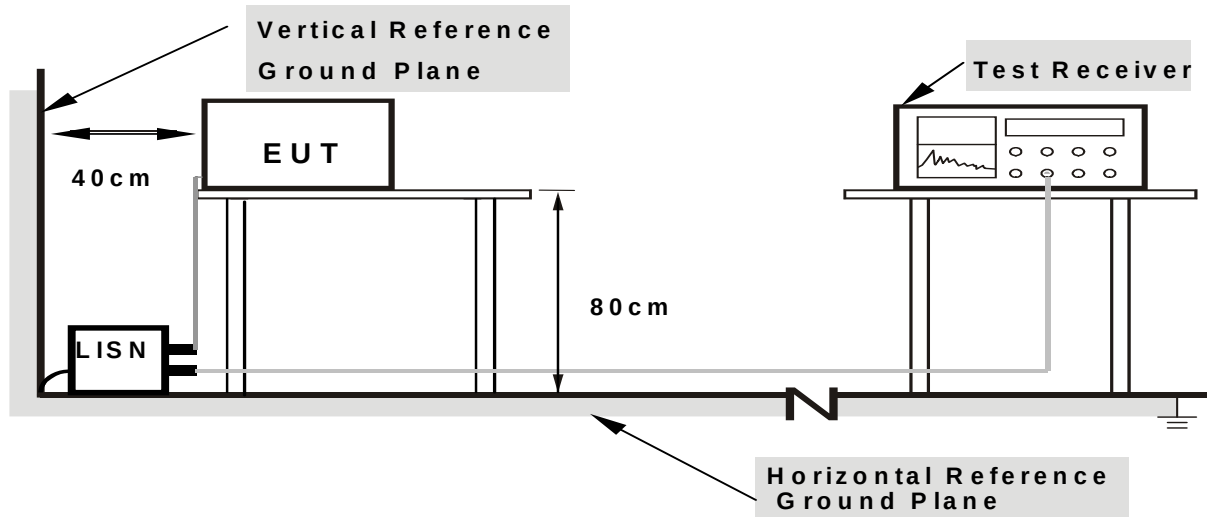
3.1.2 TEST PROCEDURE

- 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.

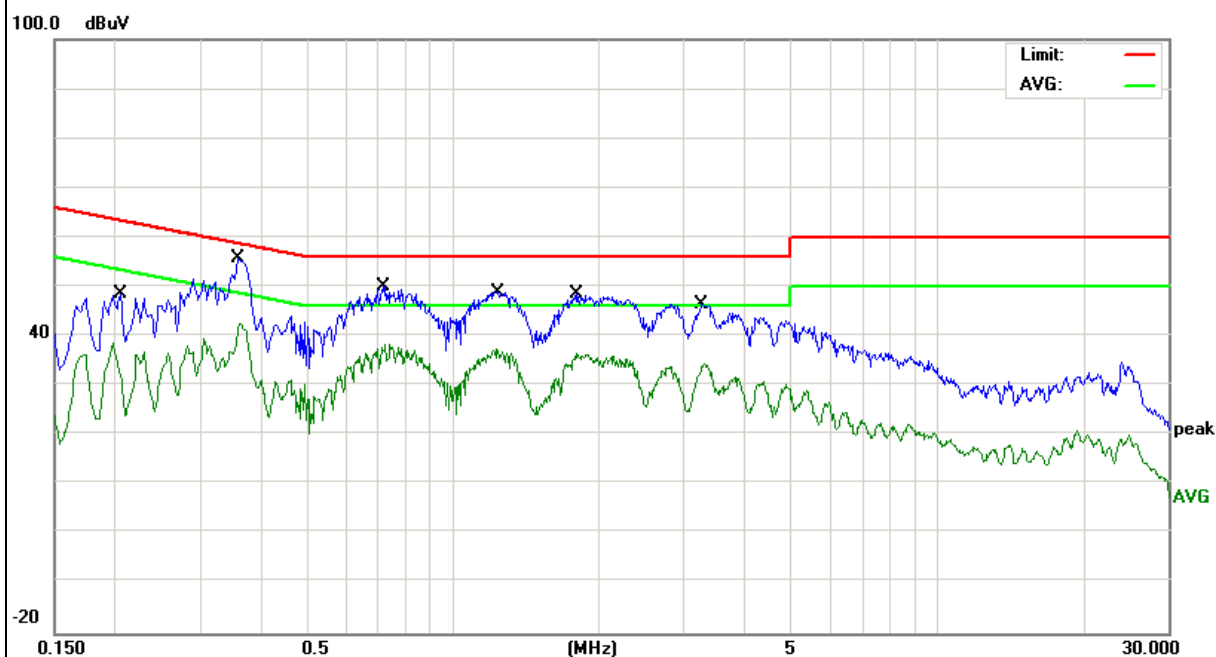
3.1.6 TEST RESULTS

EUT :	ScreenBeam Pro Enterprise Edition	Model Name. :	SBWD950A
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V From adapter AC120V/60Hz	Test Mode :	Mode 3-Adapter 1

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.2060	38.92	9.61	48.53	63.36	-14.83	QP
0.2060	29.10	9.61	38.71	53.36	-14.65	AVG
0.3580	46.16	9.52	55.68	58.77	-3.09	QP
0.3580	33.16	9.52	42.68	48.77	-6.09	AVG
0.7180	40.26	9.78	50.04	56.00	-5.96	QP
0.7180	28.53	9.78	38.31	46.00	-7.69	AVG
1.2420	39.23	9.71	48.94	56.00	-7.06	QP
1.2420	27.73	9.71	37.44	46.00	-8.56	AVG
1.8060	38.76	9.66	48.42	56.00	-7.58	QP
1.8060	26.99	9.66	36.65	46.00	-9.35	AVG
3.2700	36.84	9.68	46.52	56.00	-9.48	QP
3.2700	24.83	9.68	34.51	46.00	-11.49	AVG

Remark:

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

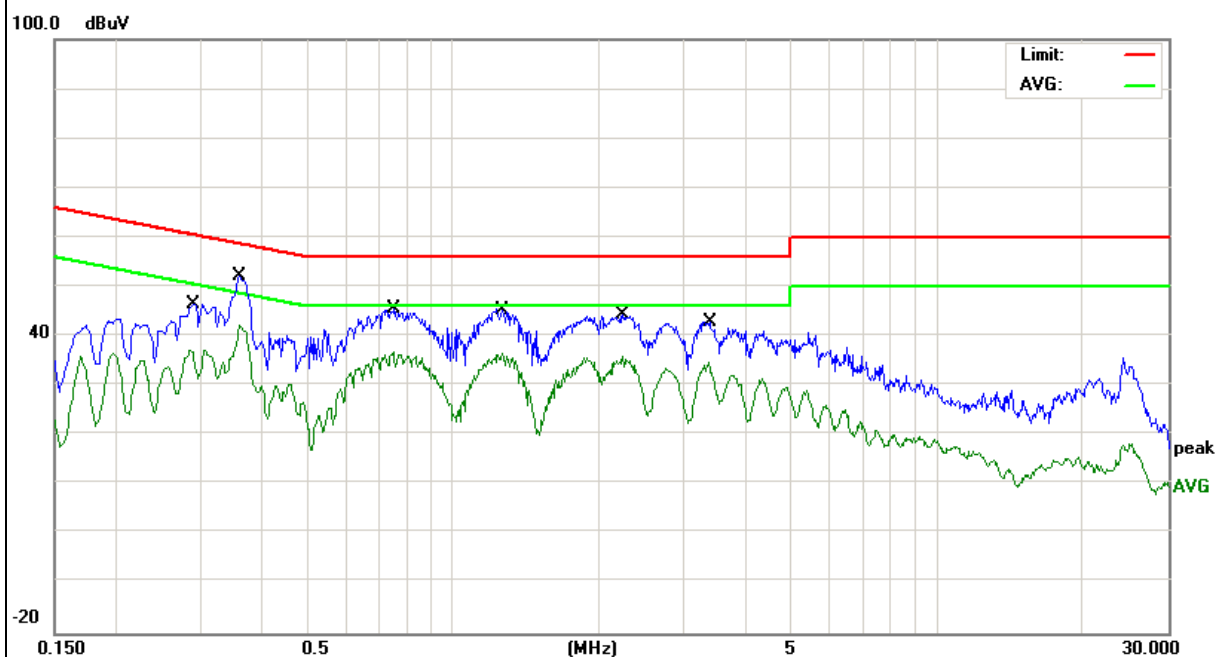


EUT :	ScreenBeam Pro Enterprise Edition	Model Name. :	SBWD950A
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V From adapter AC120V/60Hz	Test Mode :	Mode 3-Adapter 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.2860	36.80	9.61	46.41	60.64	-14.23	QP
0.2860	27.59	9.61	37.20	50.64	-13.44	AVG
0.3620	42.60	9.63	52.23	58.68	-6.45	QP
0.3620	32.69	9.63	42.32	48.68	-6.36	AVG
0.7539	35.82	9.63	45.45	56.00	-10.55	QP
0.7539	27.11	9.63	36.74	46.00	-9.26	AVG
1.2660	35.89	9.59	45.48	56.00	-10.52	QP
1.2660	26.94	9.59	36.53	46.00	-9.47	AVG
2.2380	34.91	9.53	44.44	56.00	-11.56	QP
2.2380	26.39	9.53	35.92	46.00	-10.08	AVG
3.3700	33.35	9.51	42.86	56.00	-13.14	QP
3.3700	25.15	9.51	34.66	46.00	-11.34	AVG

Remark:

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

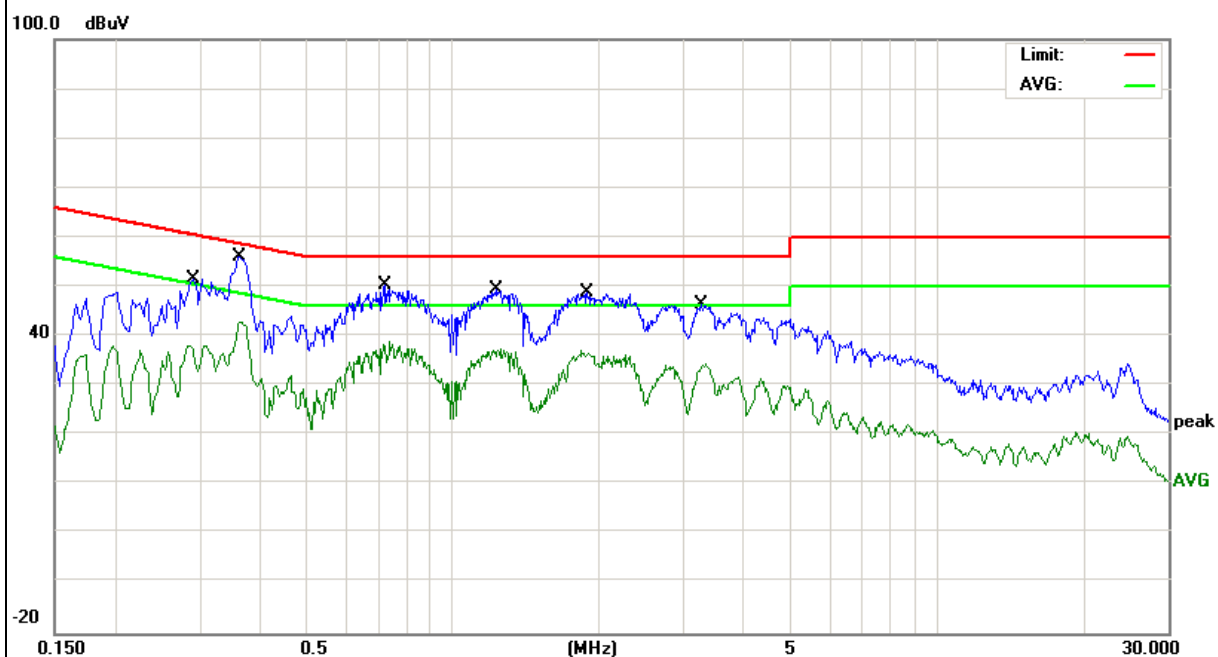


EUT :	ScreenBeam Pro Enterprise Edition	Model Name. :	SBWD950A
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V From adapter AC240V/60Hz	Test Mode :	Mode 3-Adapter 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.2899	41.88	9.73	51.61	60.52	-8.91	QP
0.2899	28.39	9.73	38.12	50.52	-12.40	AVG
0.3620	45.69	9.51	55.20	58.68	-3.48	QP
0.3620	33.46	9.51	42.97	48.68	-5.71	AVG
0.7260	40.50	9.77	50.27	56.00	-5.73	QP
0.7260	29.08	9.77	38.85	46.00	-7.15	AVG
1.2340	39.67	9.71	49.38	56.00	-6.62	QP
1.2340	27.89	9.71	37.60	46.00	-8.40	AVG
1.8899	39.21	9.66	48.87	56.00	-7.13	QP
1.8899	27.47	9.66	37.13	46.00	-8.87	AVG
3.2580	36.91	9.68	46.59	56.00	-9.41	QP
3.2580	24.66	9.68	34.34	46.00	-11.66	AVG

Remark:

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

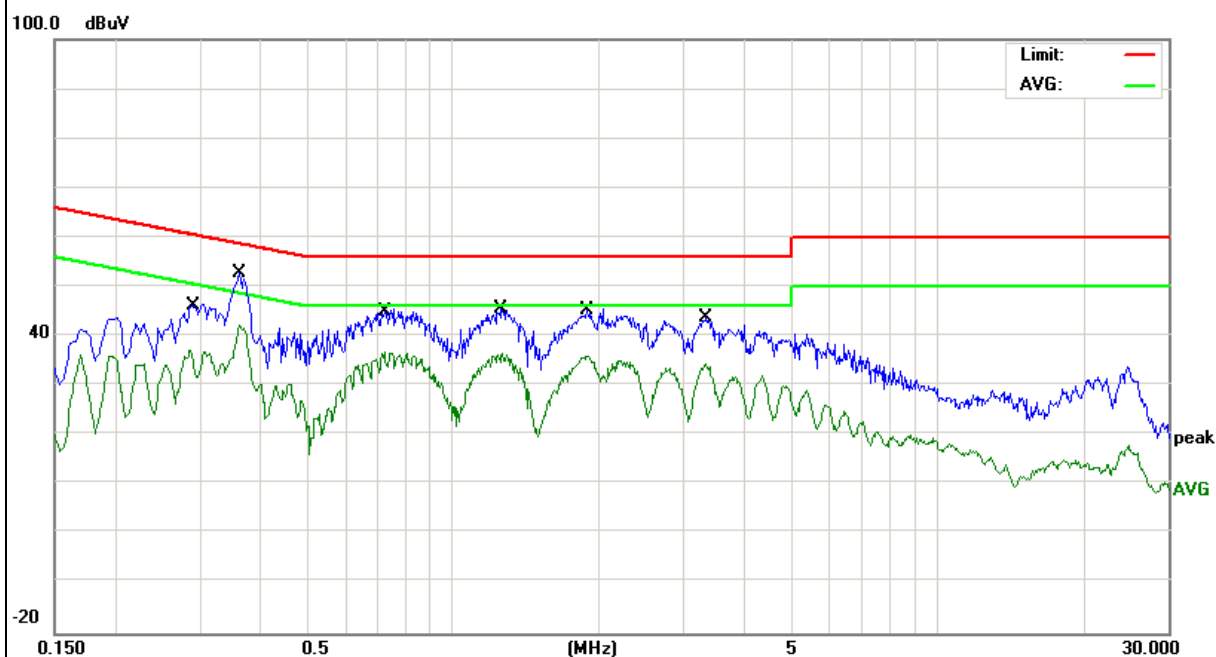


EUT :	ScreenBeam Pro Enterprise Edition	Model Name. :	SBWD950A
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V From adapter AC240V/60Hz	Test Mode :	Mode 3-Adapter 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.2859	36.49	9.61	46.10	60.64	-14.54	QP
0.2859	27.58	9.61	37.19	50.64	-13.45	AVG
0.3620	43.05	9.63	52.68	58.68	-6.00	QP
0.3620	32.73	9.63	42.36	48.68	-6.32	AVG
0.7220	35.79	9.64	45.43	56.00	-10.57	QP
0.7220	27.16	9.64	36.80	46.00	-9.20	AVG
1.2660	35.92	9.59	45.51	56.00	-10.49	QP
1.2660	26.94	9.59	36.53	46.00	-9.47	AVG
1.9019	35.91	9.55	45.46	56.00	-10.54	QP
1.9019	26.33	9.55	35.88	46.00	-10.12	AVG
3.3220	34.16	9.51	43.67	56.00	-12.33	QP
3.3220	24.86	9.51	34.37	46.00	-11.63	AVG

Remark:

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

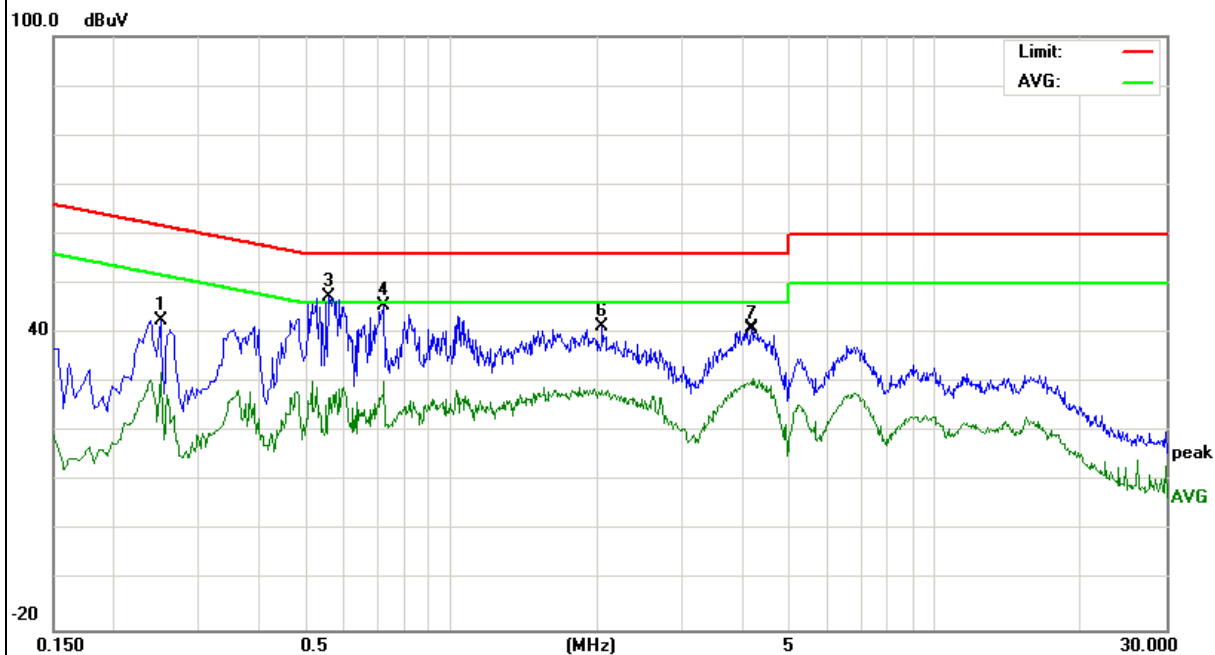


EUT :	ScreenBeam Pro Enterprise Edition	Model Name. :	SBWD950A
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V From adapter AC120V/60Hz	Test Mode :	Mode 3-Adapter 2

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.2500	33.02	9.67	42.69	61.75	-19.06	QP
0.2500	22.42	9.67	32.09	51.75	-19.66	AVG
0.5580	37.56	9.78	47.34	56.00	-8.66	QP
0.7260	35.76	9.77	45.53	56.00	-10.47	QP
0.7260	20.42	9.77	30.19	46.00	-15.81	AVG
2.0460	31.68	9.65	41.33	56.00	-14.67	QP
4.1579	31.20	9.70	40.90	56.00	-15.10	QP
4.1898	21.20	9.70	30.90	46.00	-15.10	AVG

Remark:

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

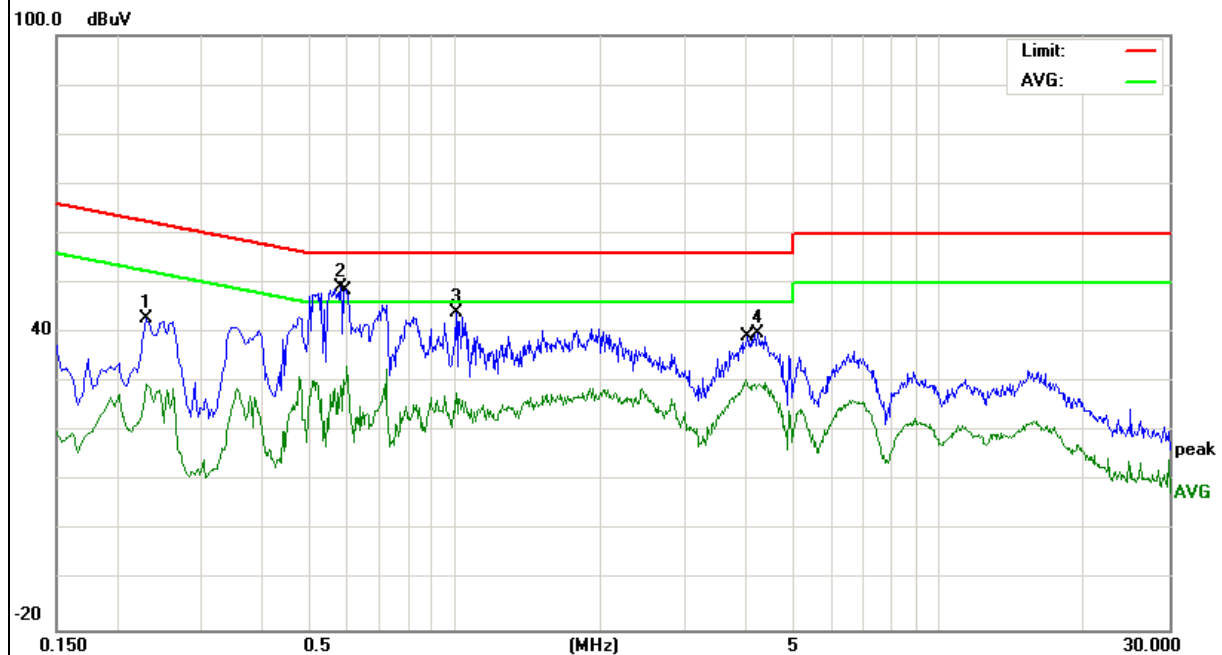


EUT :	ScreenBeam Pro Enterprise Edition	Model Name. :	SBWD950A
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V From adapter AC120V/60Hz	Test Mode :	Mode 3-Adapter 2

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.2300	33.12	9.61	42.73	62.45	-19.72	QP
0.5820	39.36	9.66	49.02	56.00	-6.98	QP
1.0100	34.58	9.61	44.19	56.00	-11.81	QP
4.2299	30.32	9.51	39.83	56.00	-16.17	QP
0.2300	19.92	9.61	29.53	52.45	-22.92	AVG
0.5980	23.60	9.66	33.26	46.00	-12.74	AVG
4.0060	20.96	9.51	30.47	46.00	-15.53	AVG

Remark:

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

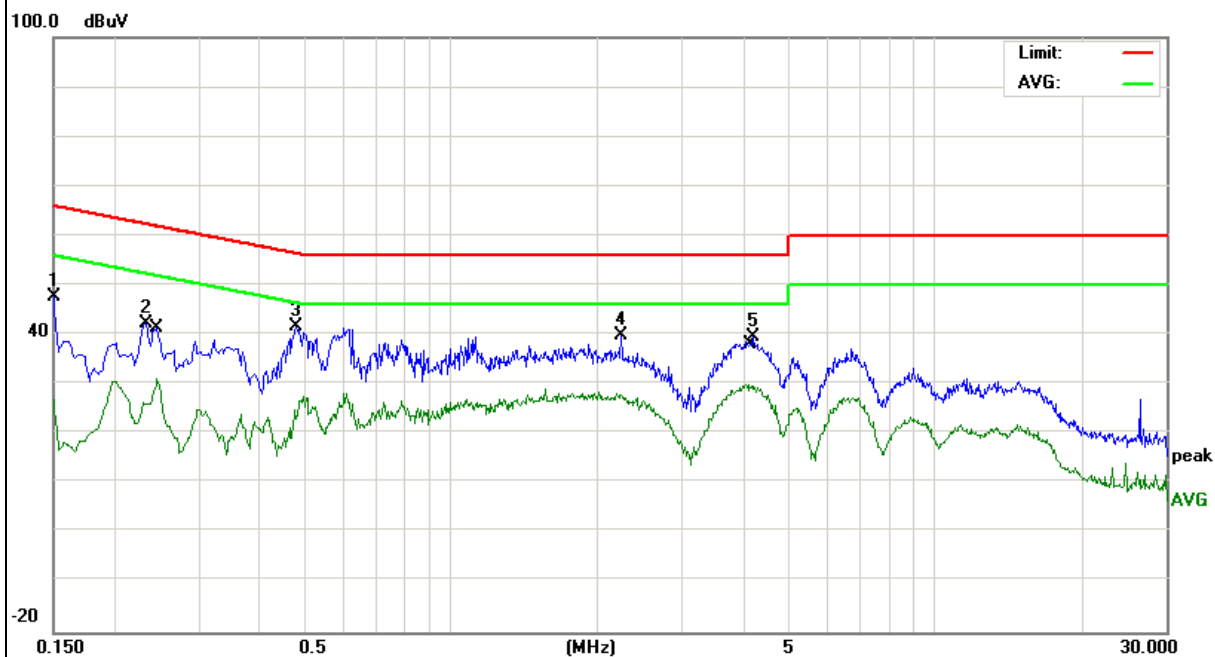


EUT :	ScreenBeam Pro Enterprise Edition	Model Name. :	SBWD950A
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V From adapter AC240V/60Hz	Test Mode :	Mode 3-Adapter 2

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1499	38.10	9.63	47.73	66.00	-18.27	
0.2340	32.58	9.65	42.23	62.30	-20.07	QP
0.4780	31.83	9.68	41.51	56.37	-14.86	QP
2.2460	30.13	9.65	39.78	56.00	-16.22	QP
4.1859	29.90	9.70	39.60	56.00	-16.40	QP
0.2460	21.53	9.67	31.20	51.89	-20.69	AVG
4.1139	20.32	9.70	30.02	46.00	-15.98	AVG

Remark:

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

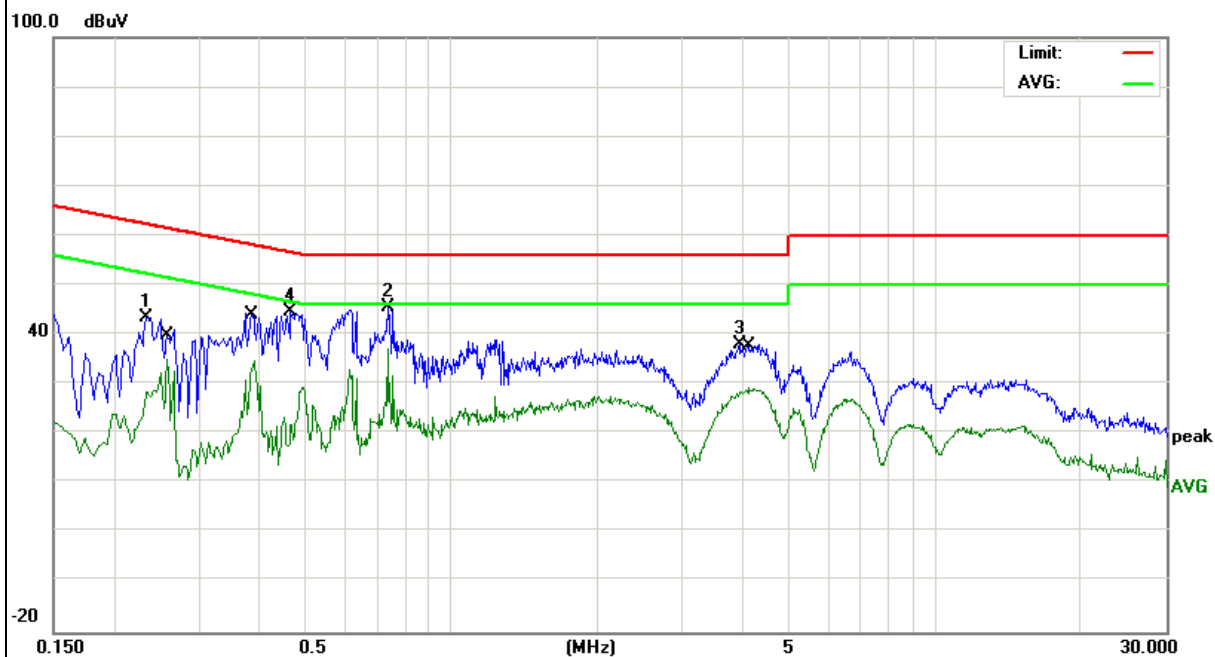


EUT :	ScreenBeam Pro Enterprise Edition	Model Name. :	SBWD950A
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V From adapter AC240V/60Hz	Test Mode :	Mode 3-Adapter 2

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.2340	33.90	9.61	43.51	62.30	-18.79	QP
0.7380	35.90	9.63	45.53	56.00	-10.47	QP
3.9300	28.68	9.51	38.19	56.00	-17.81	QP
0.4660	34.97	9.66	44.63	56.58	-11.95	QP
0.2580	25.55	9.62	35.17	51.49	-16.32	AVG
0.3899	25.24	9.64	34.88	48.06	-13.18	AVG
0.7380	27.58	9.63	37.21	46.00	-8.79	AVG
4.1179	19.79	9.51	29.30	46.00	-16.70	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)/ RSS 247§6.2, then the 15.209(a)/ RSS-Gen 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)	Class A (dBuV/m) (at 3M)		Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C/ RSS-Gen.
- (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 m for below 1GHz and 1.5m for above 1GHz 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 for below 1GHz and 1.5m for above 1GHz; 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:

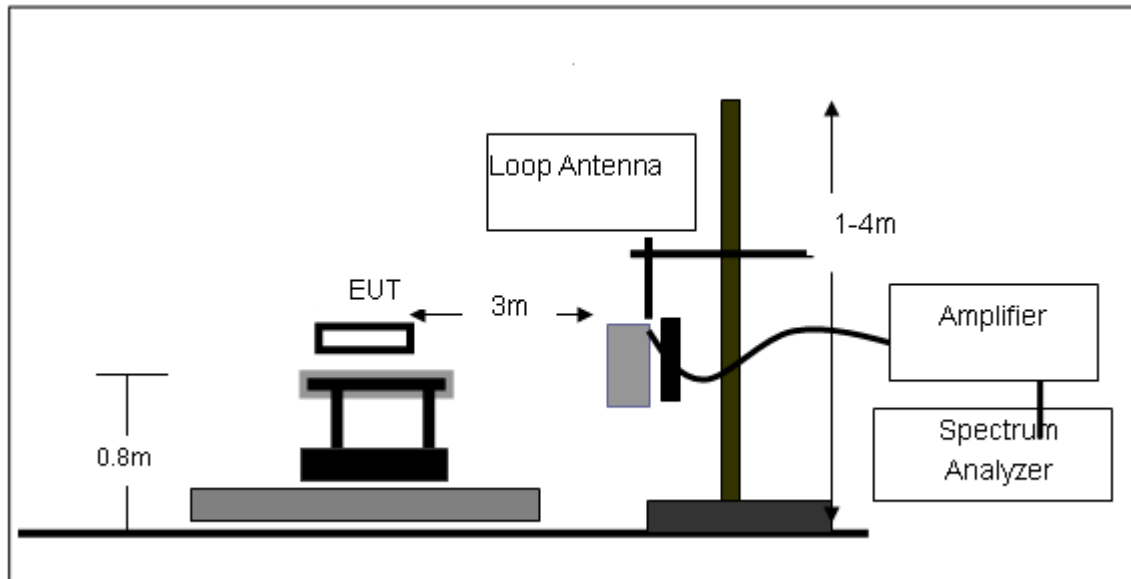
Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Peak	1 MHz	10 Hz

3.2.3 DEVIATION FROM TEST STANDARD

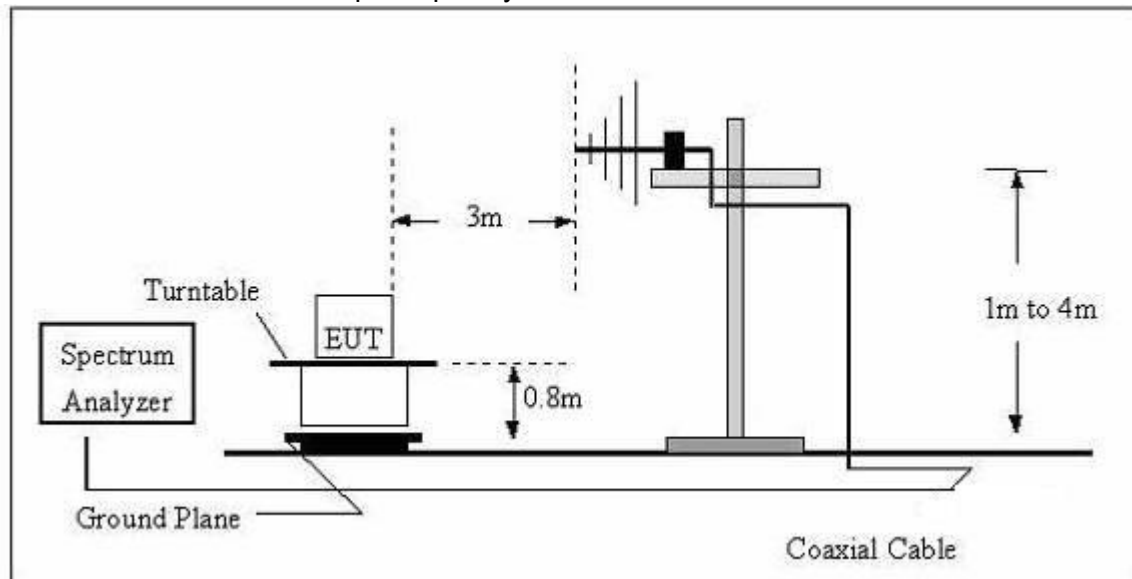
No deviation

3.2.4 TEST SETUP

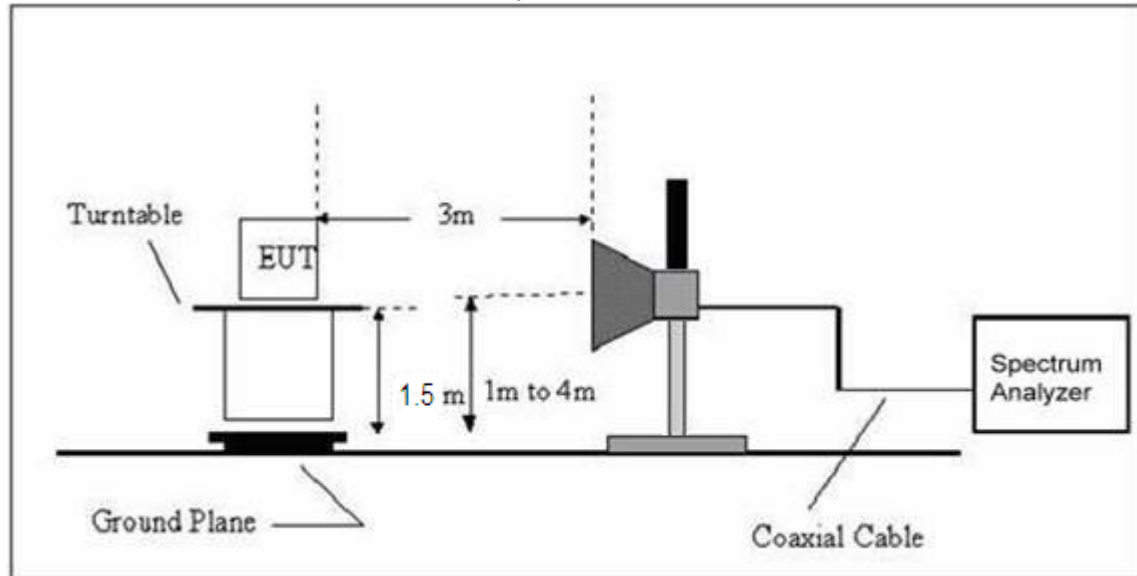
(A) Radiated Emission Test-Up Frequency Below 30MHz



(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 Pro Enterprise Edition	Model Name. :	SBWD950A
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.

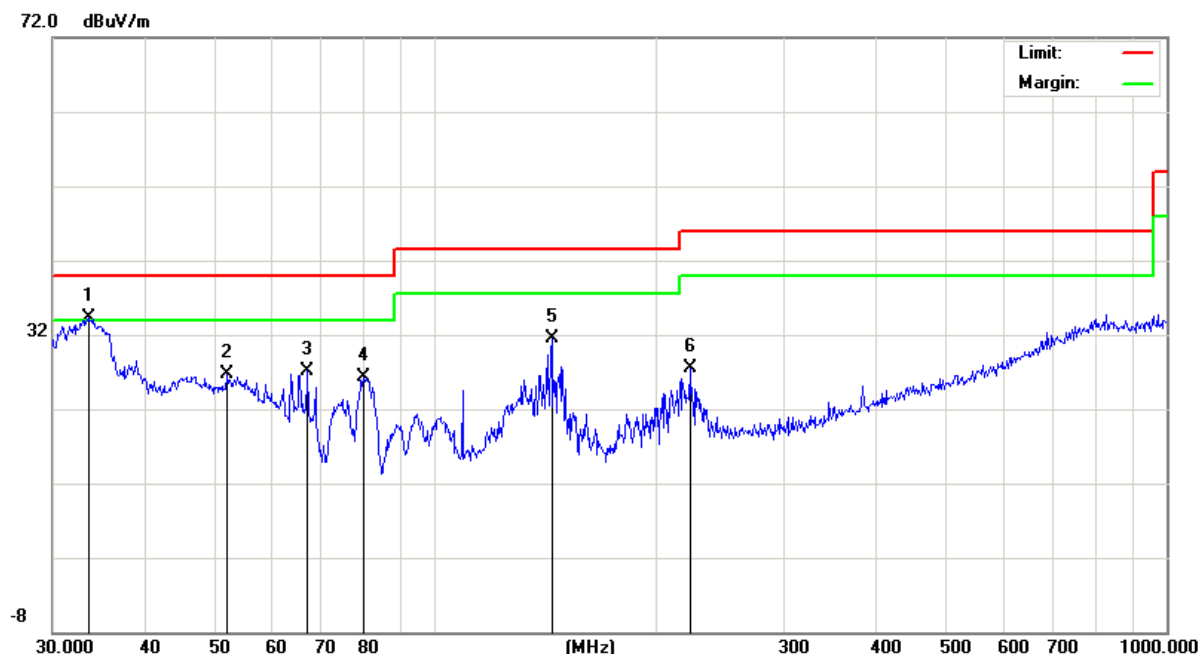
3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX (5.0G) -8812 module		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBUV)	(dB)	(dBUV/m)	(dBUV/m)	(dB)	
V	33.5624	16.92	17.48	34.40	40.00	-5.60	QP
V	52.0251	16.52	10.11	26.63	40.00	-13.37	QP
V	66.9669	20.76	6.26	27.02	40.00	-12.98	QP
V	79.8003	20.39	5.85	26.24	40.00	-13.76	QP
V	144.3348	20.58	10.98	31.56	43.50	-11.94	QP
V	222.9502	15.21	12.33	27.54	46.00	-18.46	QP

Remark:

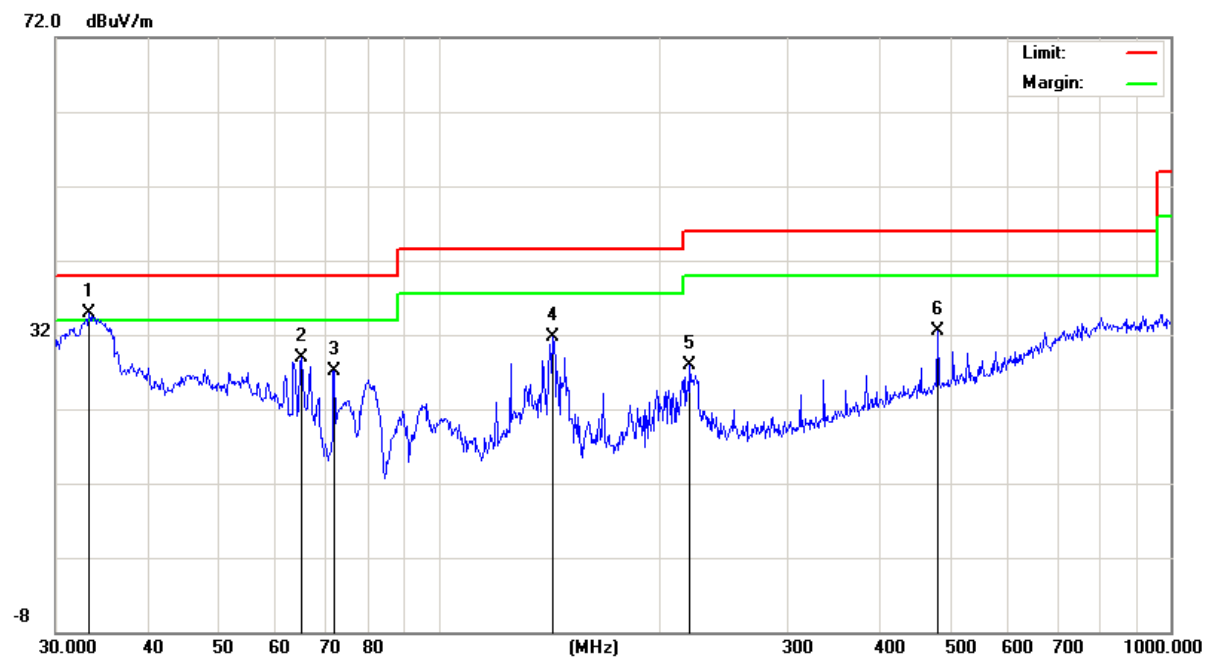
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level – Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	33.3279	17.33	17.61	34.94	40.00	-5.06	QP
H	64.8865	22.19	6.73	28.92	40.00	-11.08	QP
H	72.0843	21.55	5.63	27.18	40.00	-12.82	QP
H	143.3261	20.65	11.07	31.72	43.50	-11.78	QP
H	220.6171	15.67	12.17	27.84	46.00	-18.16	QP
H	480.5276	12.54	19.91	32.45	46.00	-13.55	QP

Remark:

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

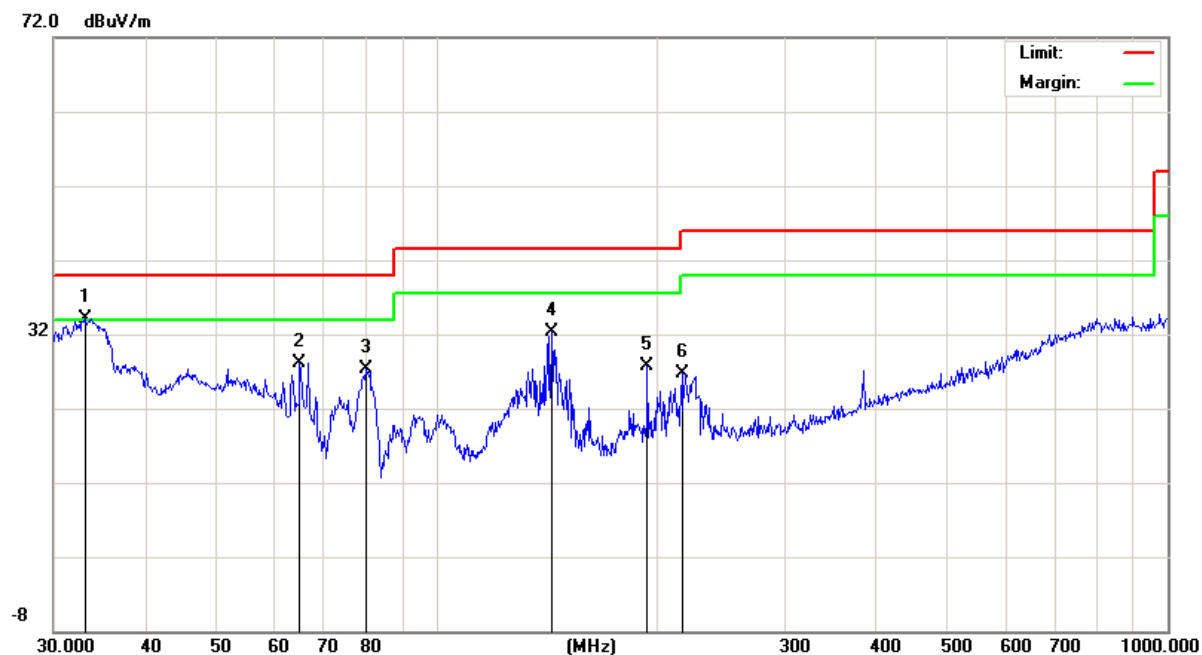


EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX (5.0G) -8192 module		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	33.0950	16.44	17.73	34.17	40.00	-5.83	QP
V	65.1145	21.49	6.68	28.17	40.00	-11.83	QP
V	80.0806	21.40	5.87	27.27	40.00	-12.73	QP
V	143.8295	21.37	11.03	32.40	43.50	-11.10	QP
V	194.4534	17.06	10.74	27.80	43.50	-15.70	QP
V	217.5443	14.71	11.97	26.68	46.00	-19.32	QP

Remark:

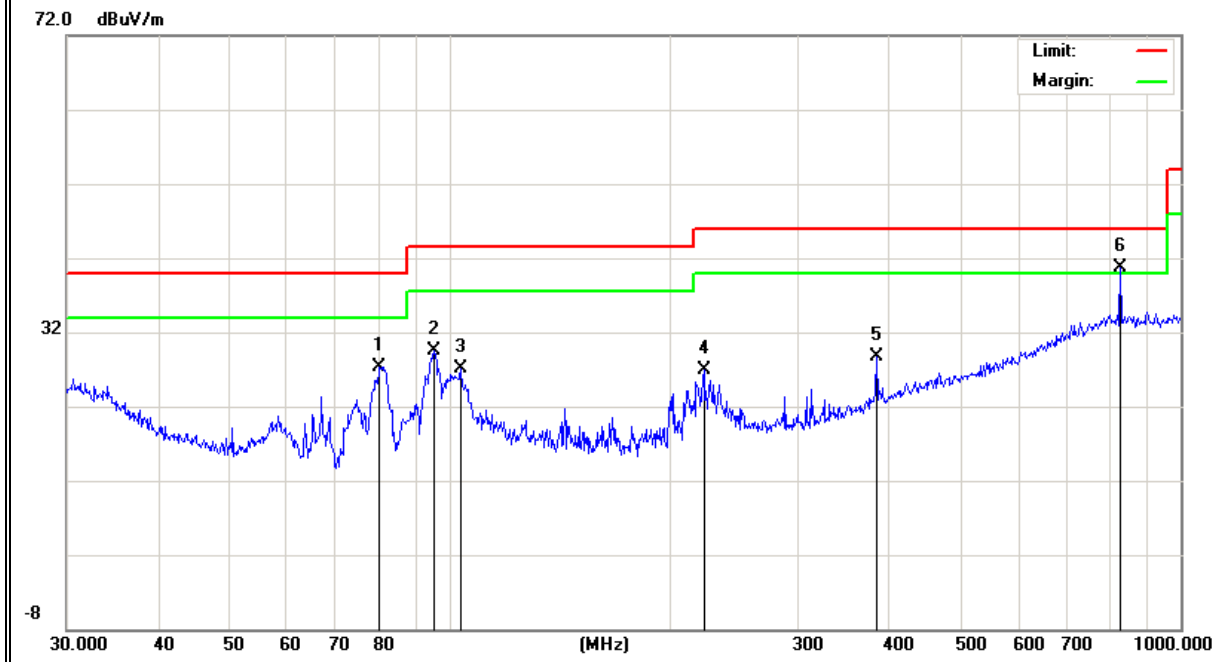
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	80.3619	21.40	5.92	27.32	40.00	-12.68	QP
H	95.4270	21.00	8.50	29.50	43.50	-14.00	QP
H	103.8055	17.78	9.35	27.13	43.50	-16.37	QP
H	222.9502	14.61	12.33	26.94	46.00	-19.06	QP
H	383.9318	11.15	17.64	28.79	46.00	-17.21	QP
H	827.4934	13.40	27.31	40.71	46.00	-5.29	QP

Remark:

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



3.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX (5.0G) -8812 module		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark	Comment
Low Channel (2402 MHz)-Above 1G							
4804.185	60.55	-3.64	56.91	74.00	-17.09	Pk	Vertical
4804.185	42.18	-3.64	38.54	54.00	-15.46	AV	Vertical
7206.291	59.31	-0.95	58.36	74.00	-15.64	Pk	Vertical
7206.291	40.76	-0.95	39.81	54.00	-14.19	AV	Vertical
4804.199	61.58	-3.64	57.94	74.00	-16.06	Pk	Horizontal
4804.199	43.35	-3.64	39.71	54.00	-14.29	AV	Horizontal
7206.248	60.12	-0.95	59.17	74.00	-14.83	Pk	Horizontal
7206.248	42.27	-0.95	41.32	54.00	-12.68	AV	Horizontal
Mid Channel (2441 MHz)-Above 1G							
4882.243	61.49	-3.68	57.81	74.00	-16.19	Pk	Vertical
4882.243	46.22	-3.68	42.54	54.00	-11.46	AV	Vertical
7323.467	62.34	-0.82	61.52	74.00	-12.48	Pk	Vertical
7323.467	43.96	-0.82	43.14	54.00	-10.86	AV	Vertical
4882.176	63.81	-3.68	60.13	74.00	-13.87	Pk	Horizontal
4882.176	45.01	-3.68	41.33	54.00	-12.67	AV	Horizontal
7323.169	60.51	-0.82	59.69	74.00	-14.31	Pk	Horizontal
7323.169	43.62	-0.82	42.80	54.00	-11.20	AV	Horizontal
High Channel (2480 MHz)- Above 1G							
4960.089	63.21	-3.59	59.62	74.00	-14.38	Pk	Vertical
4960.089	44.18	-3.59	40.59	54.00	-13.41	AV	Vertical
7440.202	57.86	-0.68	57.18	74.00	-16.82	Pk	Vertical
7440.202	42.35	-0.68	41.67	54.00	-12.33	AV	Vertical
4960.284	62.59	-3.59	59.00	74.00	-15.00	Pk	Horizontal
4960.284	43.77	-3.59	40.18	54.00	-13.82	AV	Horizontal
7440.205	60.08	-0.68	59.40	74.00	-14.60	Pk	Horizontal
7440.205	43.26	-0.68	42.58	54.00	-11.42	AV	Horizontal

Note:"802.11a(5G)" mode is the worst mode.

EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX (5.0G) -8192 module		

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark	Comment
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
Low Channel (2402 MHz)-Above 1G							
4824.158	50.48	10.44	60.92	74.00	-13.08	Pk	Vertical
4824.158	36.12	10.44	46.56	54.00	-7.44	AV	Vertical
7236.245	47.14	12.39	59.53	74.00	-14.47	Pk	Vertical
7236.245	31.26	12.39	43.65	54.00	-10.35	AV	Vertical
4824.296	52.44	10.44	62.88	74.00	-11.12	Pk	Horizontal
4824.296	31.65	10.44	42.09	54.00	-11.91	AV	Horizontal
7236.079	48.26	12.39	60.65	74.00	-13.35	Pk	Horizontal
7236.079	30.12	12.39	42.51	54.00	-11.49	AV	Horizontal
Mid Channel (2441 MHz)-Above 1G							
4874.194	52.03	10.40	62.43	74.00	-11.57	Pk	Vertical
4874.194	31.94	10.40	42.34	54.00	-11.66	AV	Vertical
7311.243	48.15	12.75	60.90	74.00	-13.10	Pk	Vertical
7311.243	30.86	12.75	43.61	54.00	-10.39	AV	Vertical
4874.162	51.17	10.40	61.57	74.00	-12.43	Pk	Horizontal
4874.162	33.08	10.40	43.48	54.00	-10.52	AV	Horizontal
7311.301	48.77	12.75	61.52	74.00	-12.48	Pk	Horizontal
7311.301	31.09	12.75	43.84	54.00	-10.16	AV	Horizontal
High Channel (2480 MHz)- Above 1G							
4924.138	51.24	10.39	61.63	74.00	-12.37	Pk	Vertical
4924.138	32.55	10.39	42.94	54.00	-11.06	AV	Vertical
7386.119	46.18	12.68	58.86	74.00	-15.14	Pk	Vertical
7386.119	31.16	12.68	43.84	54.00	-10.16	AV	Vertical
4924.337	51.44	10.39	61.83	74.00	-12.17	Pk	Horizontal
4924.337	31.95	10.39	42.34	54.00	-11.66	AV	Horizontal
7386.185	49.01	12.68	61.69	74.00	-12.31	Pk	Horizontal
7386.185	31.62	12.68	44.30	54.00	-9.70	AV	Horizontal

Note:"802.11a(5G)" mode is the worst mode.

4. POWER SPECTRAL DENSITY TEST

4.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(a)(1)

For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.1.1 TEST PROCEDURE

- (i) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- (ii) Set RBW = 1 MHz.
- (iii) Set VBW $\geq$ 3 MHz.
- (iv) Number of points in sweep $\geq$ 2 Span / RBW. (This ensures that bin-to-bin spacing is $\leq$ RBW/2, so that narrowband signals are not lost between frequency bins.)
- (v) Sweep time = auto.
- (vi) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
- (vii) If transmit duty cycle < 98 percent, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle $\geq$ 98 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run".
- (viii) Trace average at least 100 traces in power averaging (i.e., RMS) mode.
- (ix) Compute power by integrating the spectrum across the 26 dB EBW of the signal using the spectrum analyzer's band power measurement function with band limits set equal to the EBW band edges. If the spectrum analyzer does not have a band power function, sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW of the spectrum.

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

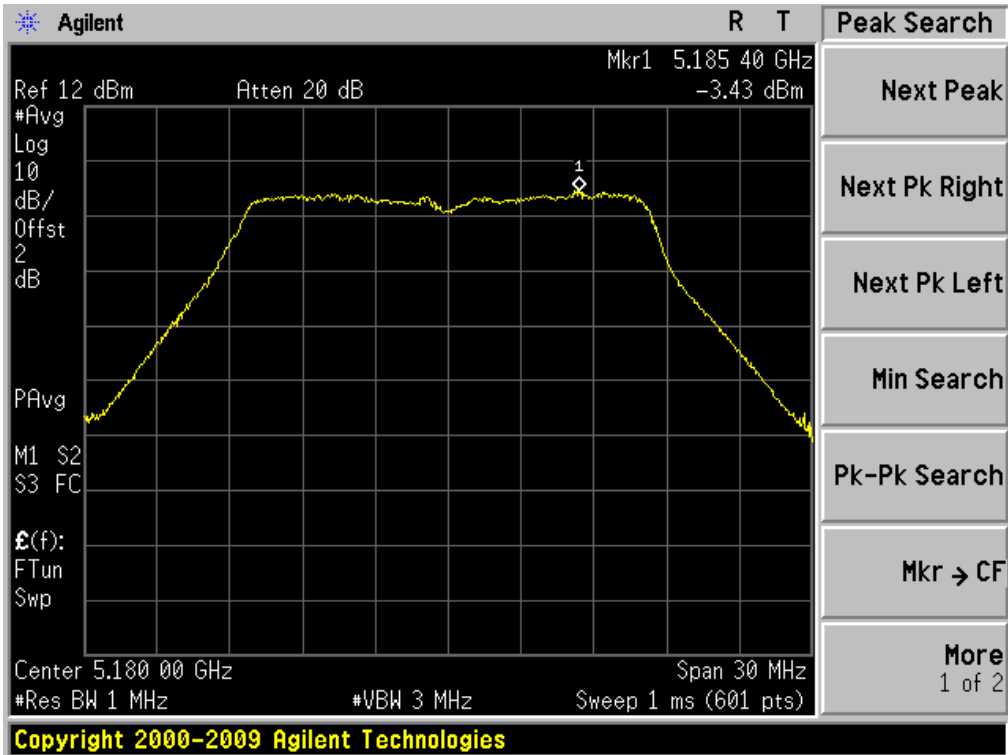
EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX a Mode /CH36, CH40, CH48		

RF Model	Frequency	Power Density A (dBm/MHz)	Power Density B (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
8812	5180 MHz	-3.43	-3.17	-0.29	11	PASS
	5200 MHz	-2.84	-3.06	0.06	11	PASS
	5240 MHz	-2.09	-2.64	0.65	11	PASS
RF Model	Frequency	Power Density C (dBm/MHz)	Power Density D (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
8192	5180 MHz	-5.84	-4.48	-2.10	11	PASS
	5200 MHz	-6.89	-4.75	-2.68	11	PASS
	5240 MHz	-8.72	-5.32	-3.69	11	PASS

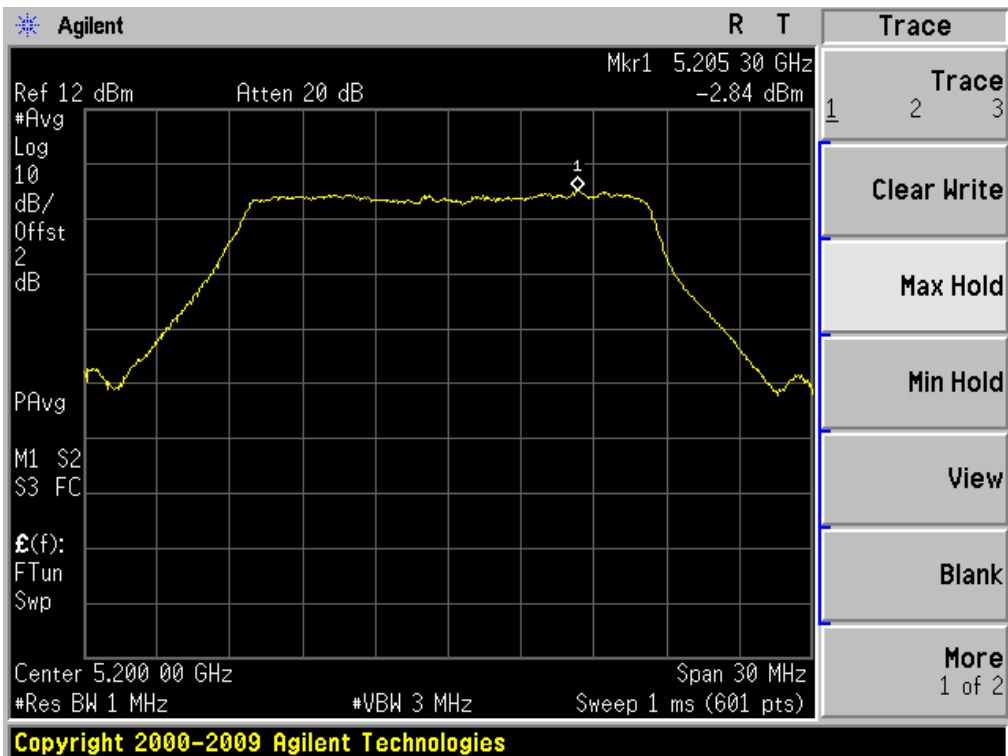
RF Model 8812

Antenna A

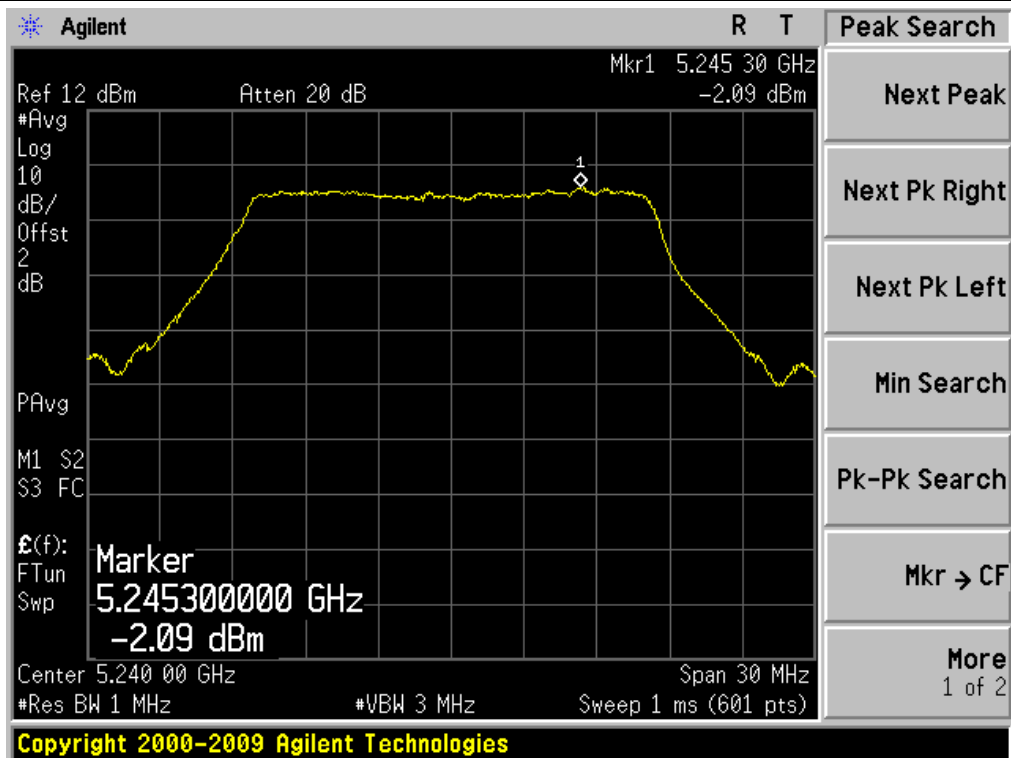
TX CH36



TX CH40

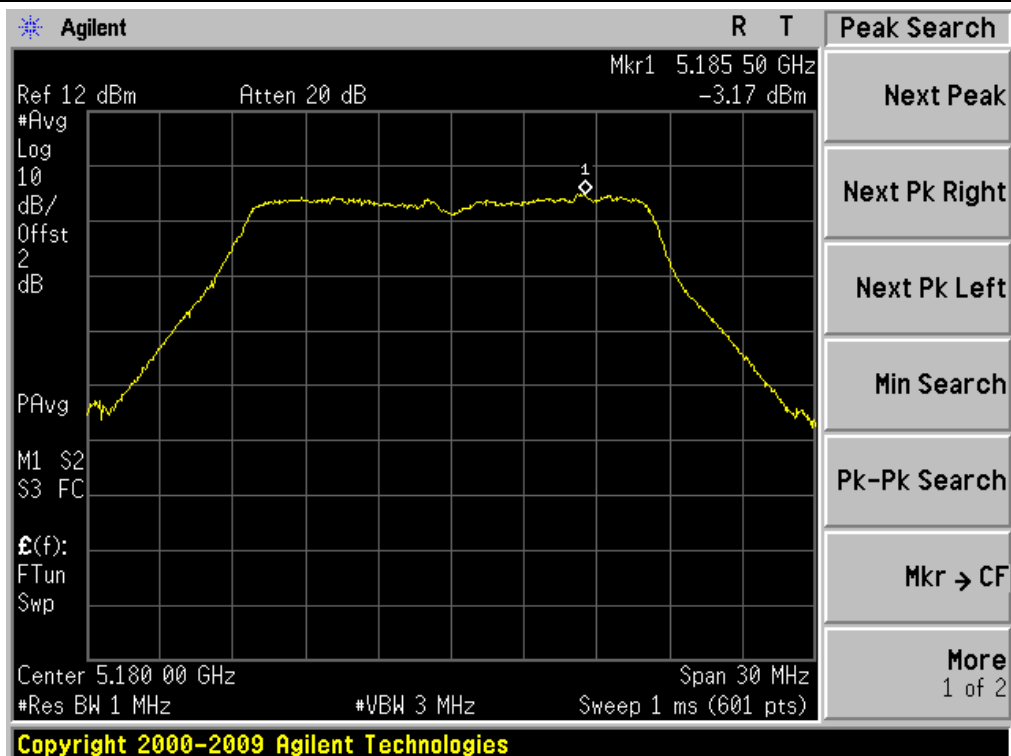


TX CH48

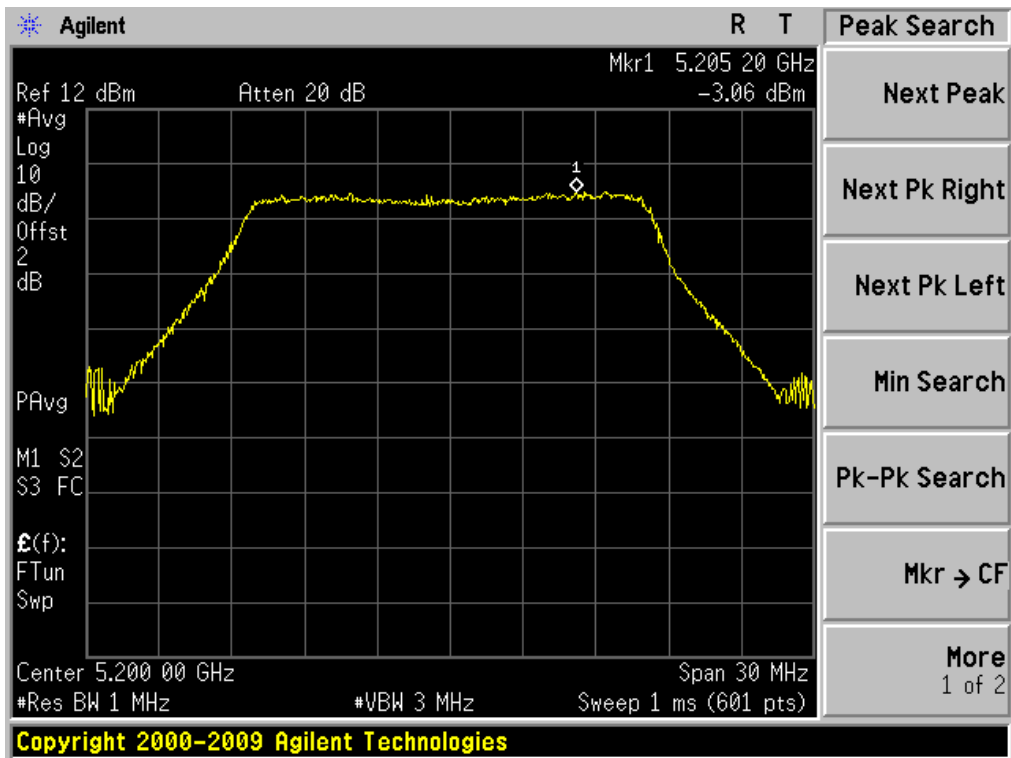


Antenna B

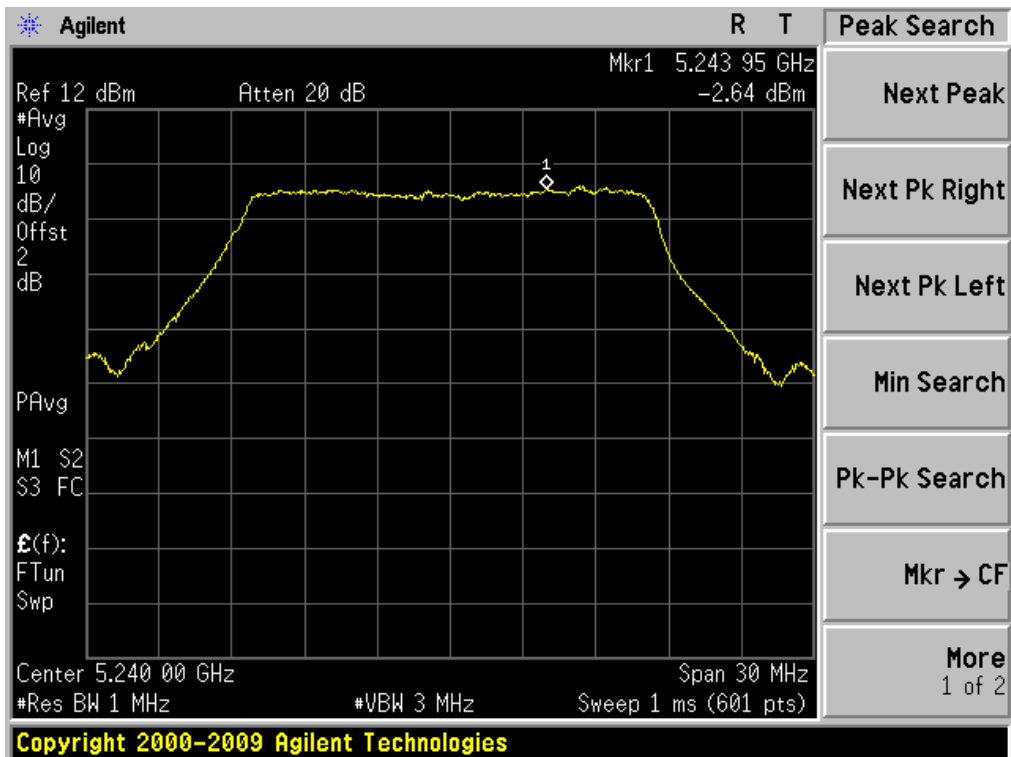
TX CH36



TX CH40



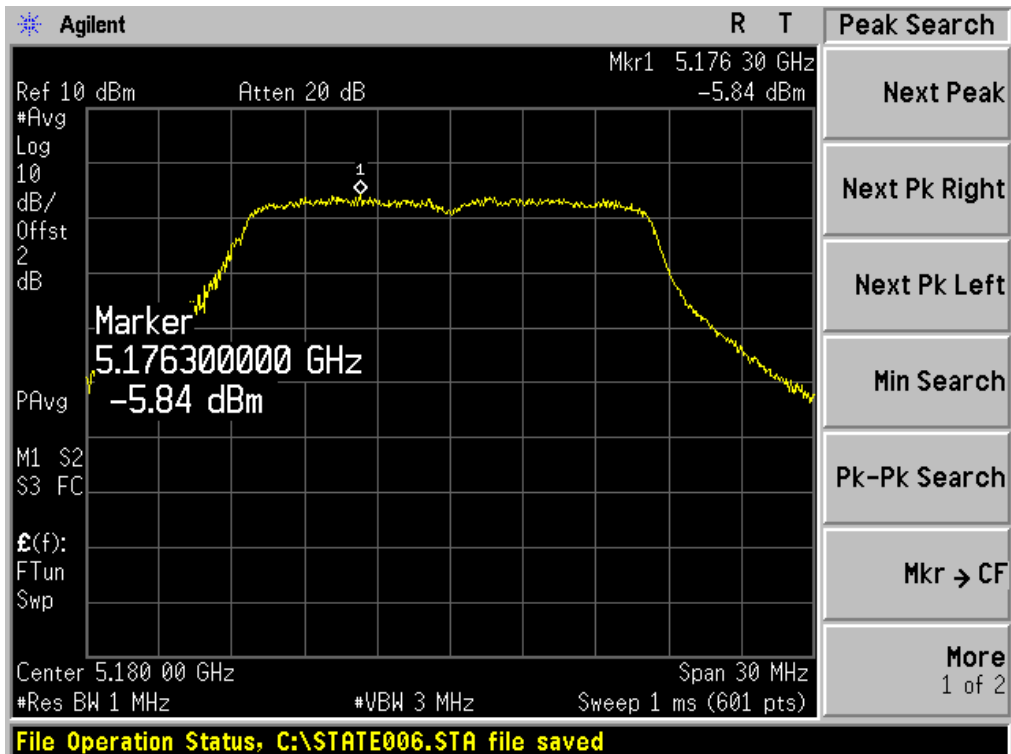
TX CH48



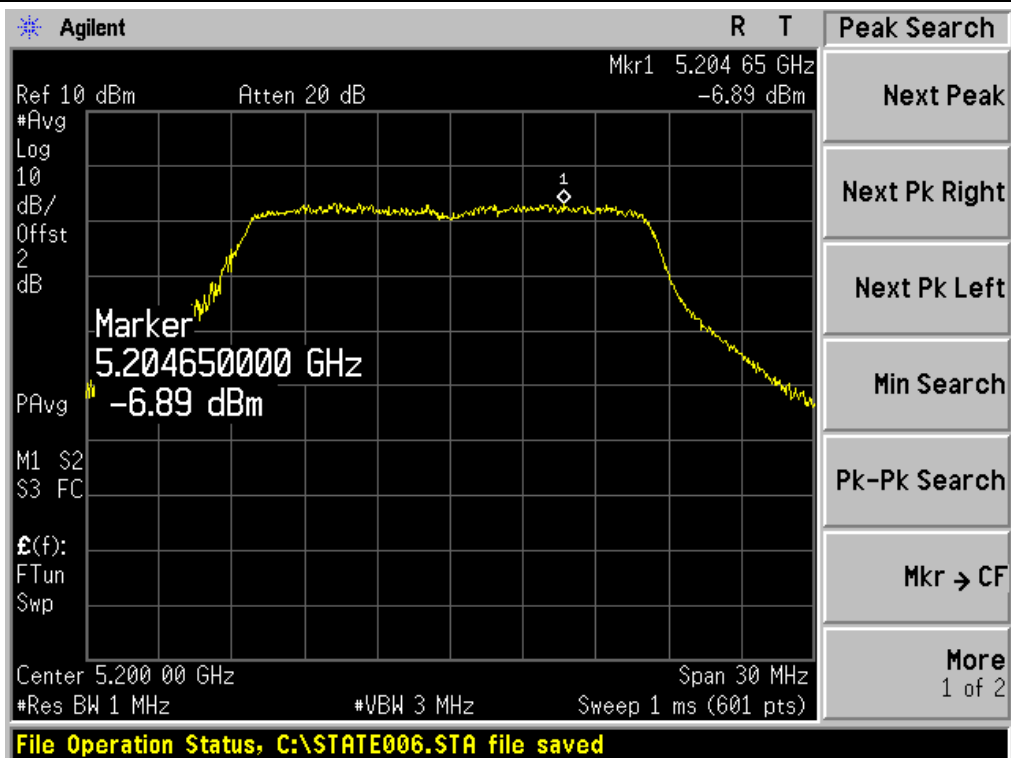
RF Model 8192

Antenna C

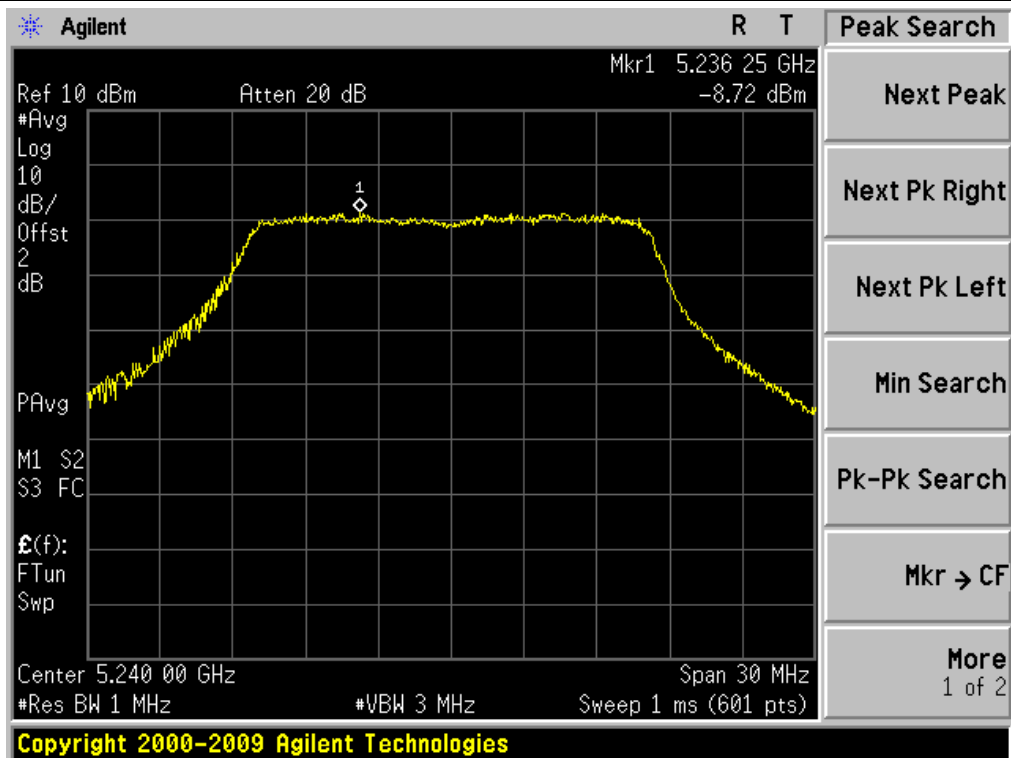
TX CH36



TX CH40

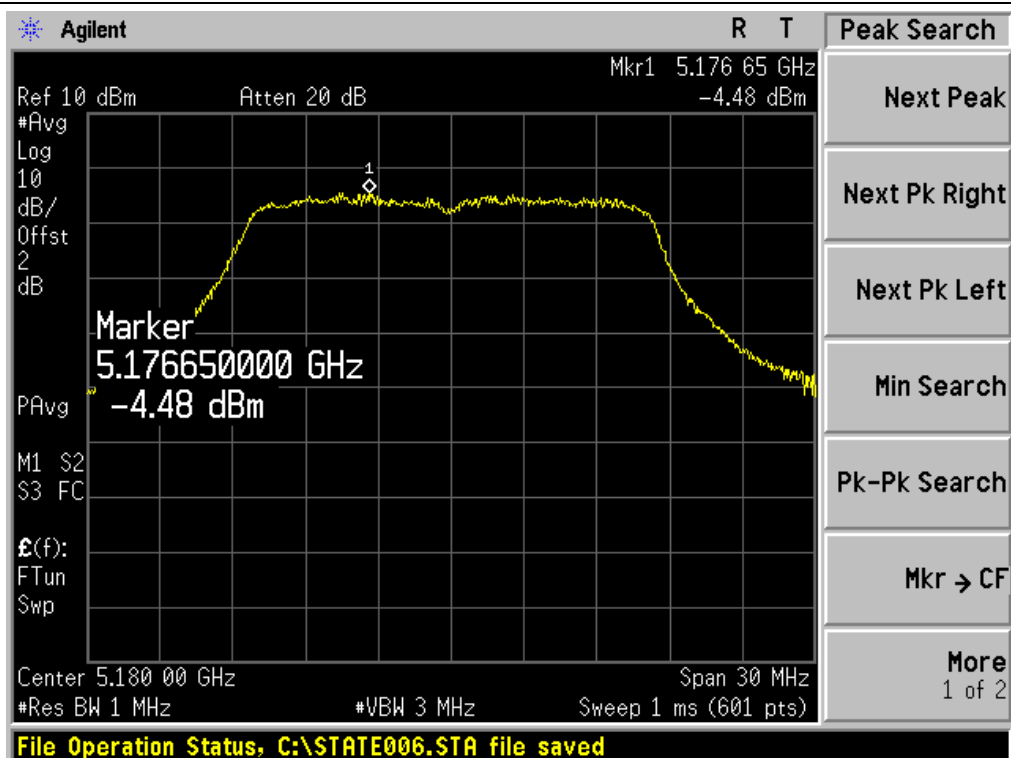


TX CH48

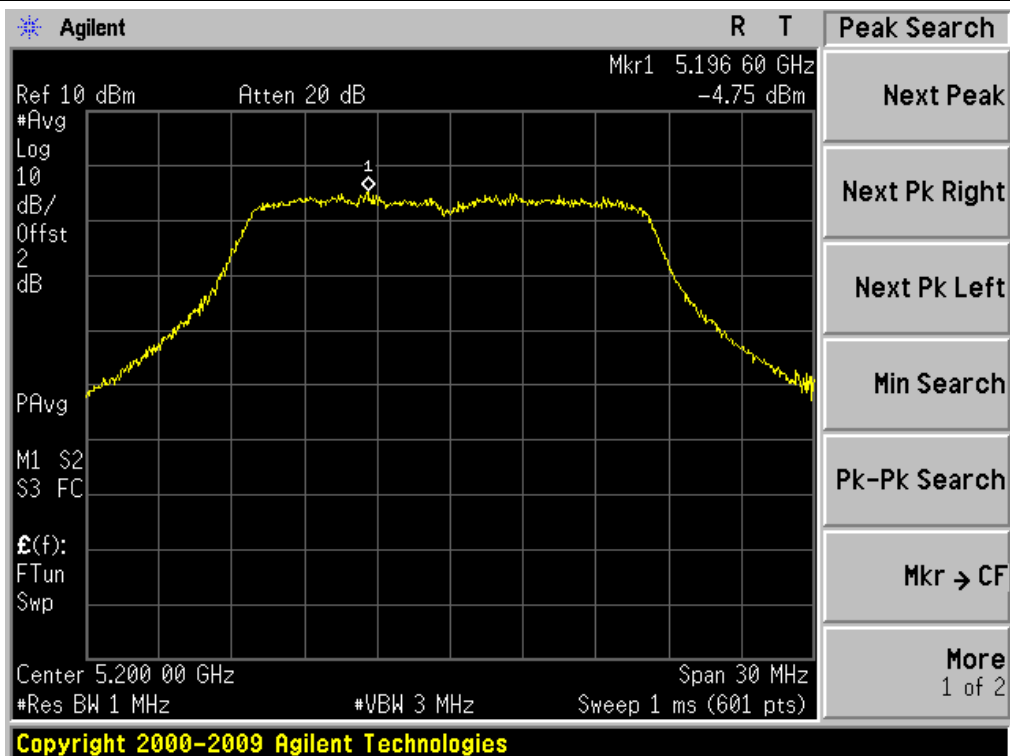


Antenna D

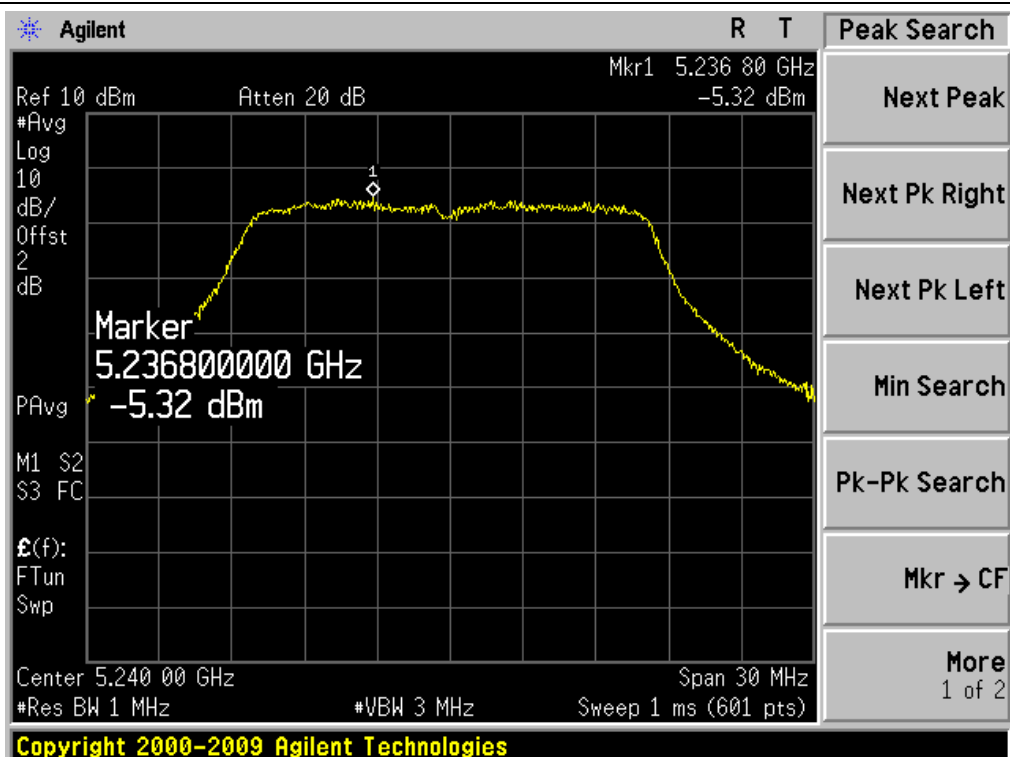
TX CH36



TX CH40



TX CH48



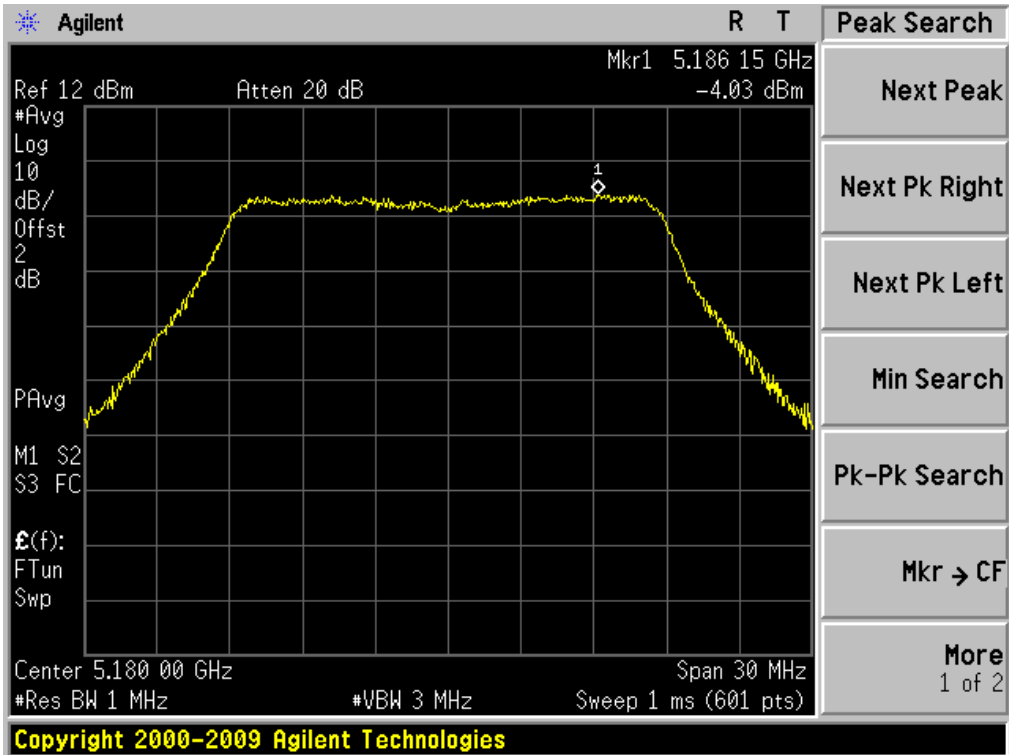
EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX n(20) Mode(5G) /CH36, CH40, CH48		

RF Model	Frequency	Power Density A (dBm/MHz)	Power Density B (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
8812	5180 MHz	-4.03	-4.00	-1.0	11	PASS
	5200 MHz	-4.49	-4.13	-1.30	11	PASS
	5240 MHz	-2.92	-3.01	0.05	11	PASS
RF Model	Frequency	Power Density C (dBm/MHz)	Power Density D (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
8192	5180 MHz	-6.20	-4.42	-2.21	11	PASS
	5200 MHz	-7.02	-5.55	-3.21	11	PASS
	5240 MHz	-7.76	-5.52	-3.49	11	PASS

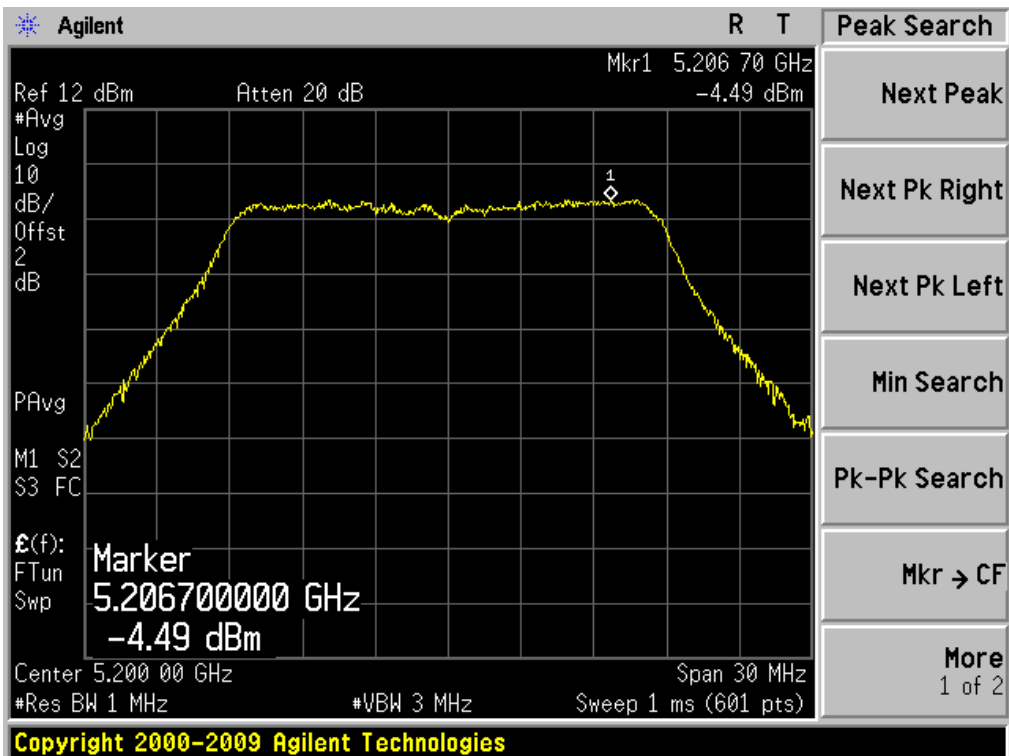
RF Model 8812

Antenna A

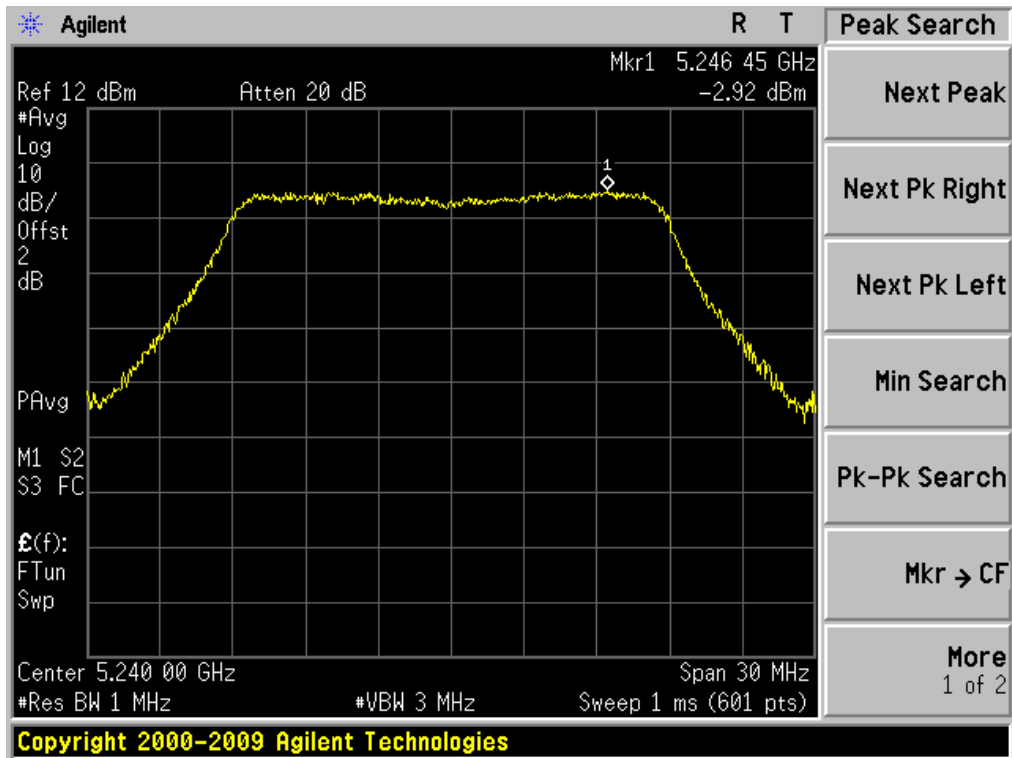
TX CH36



TX CH40

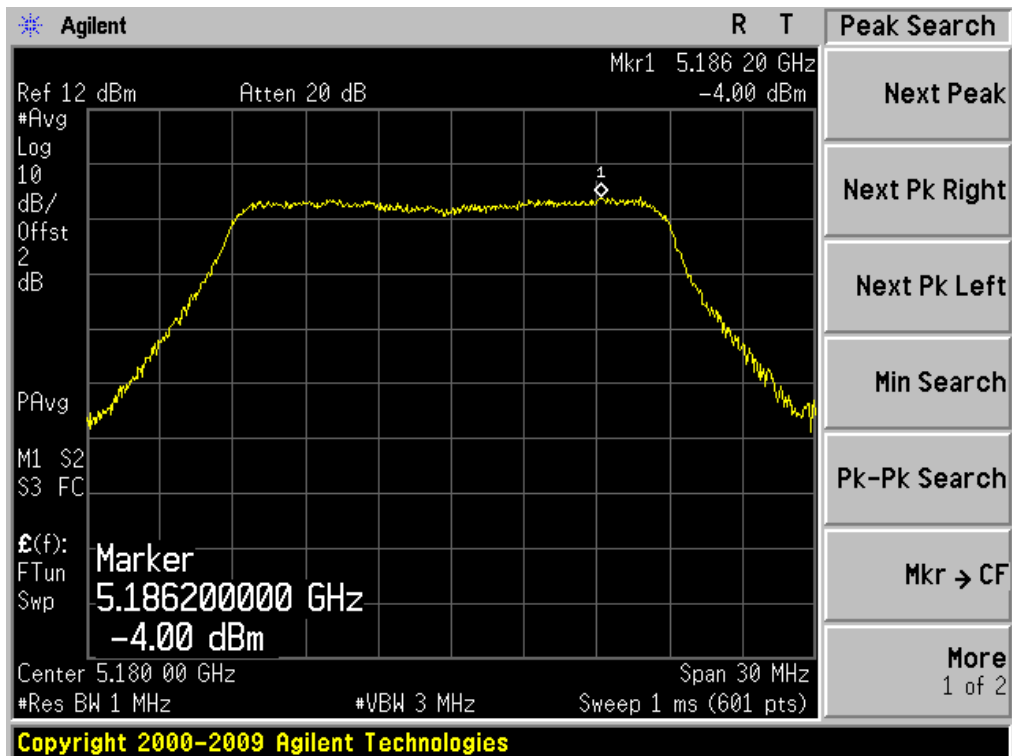


TX CH48

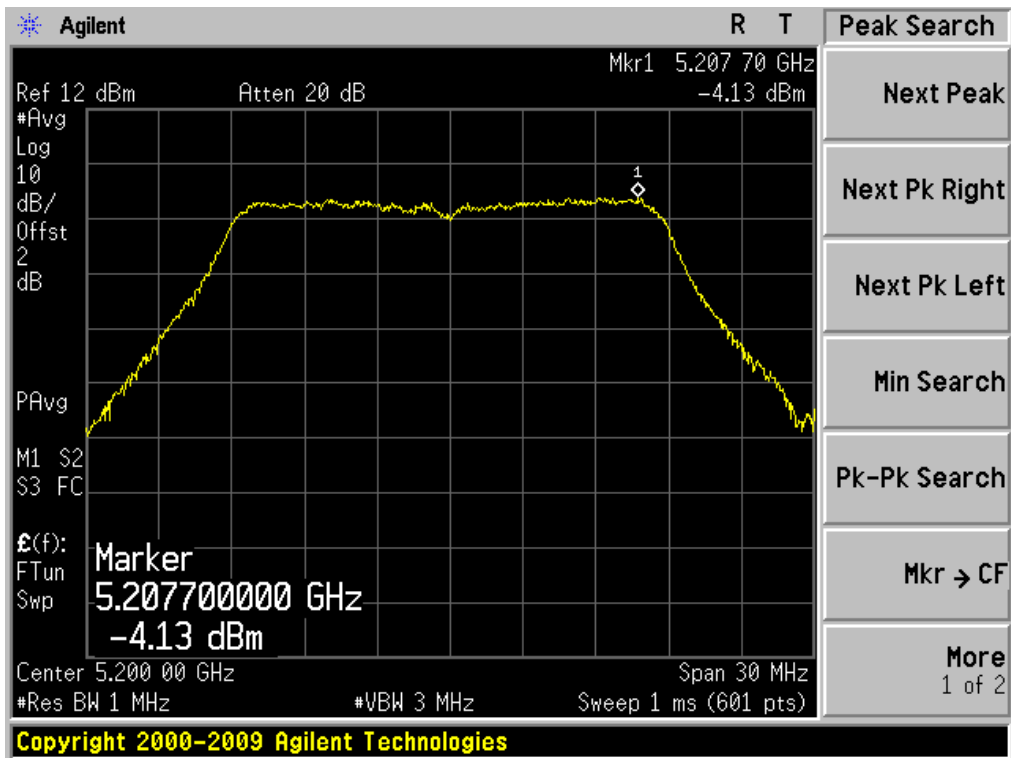


Antenna B

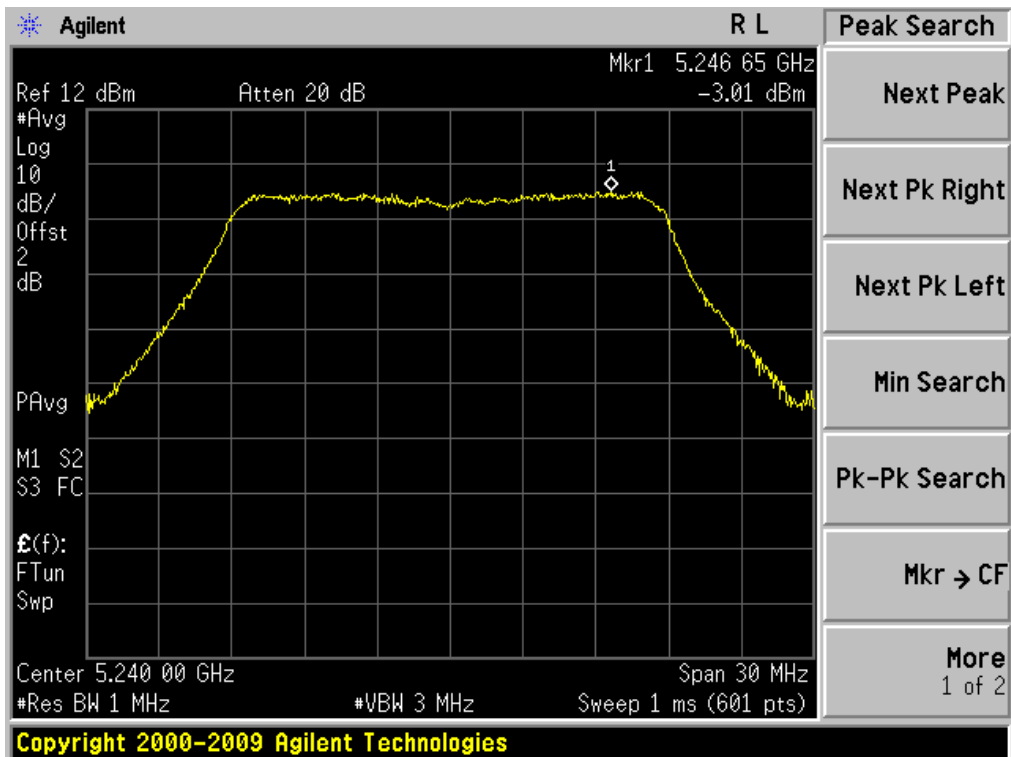
TX CH36



TX CH40



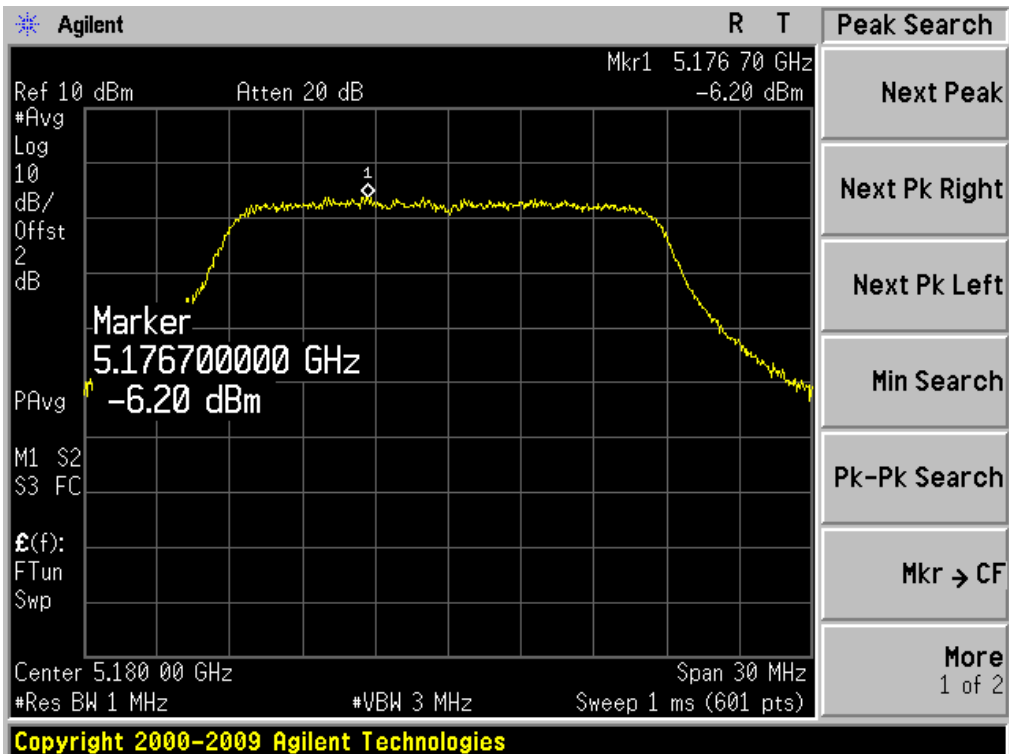
TX CH48



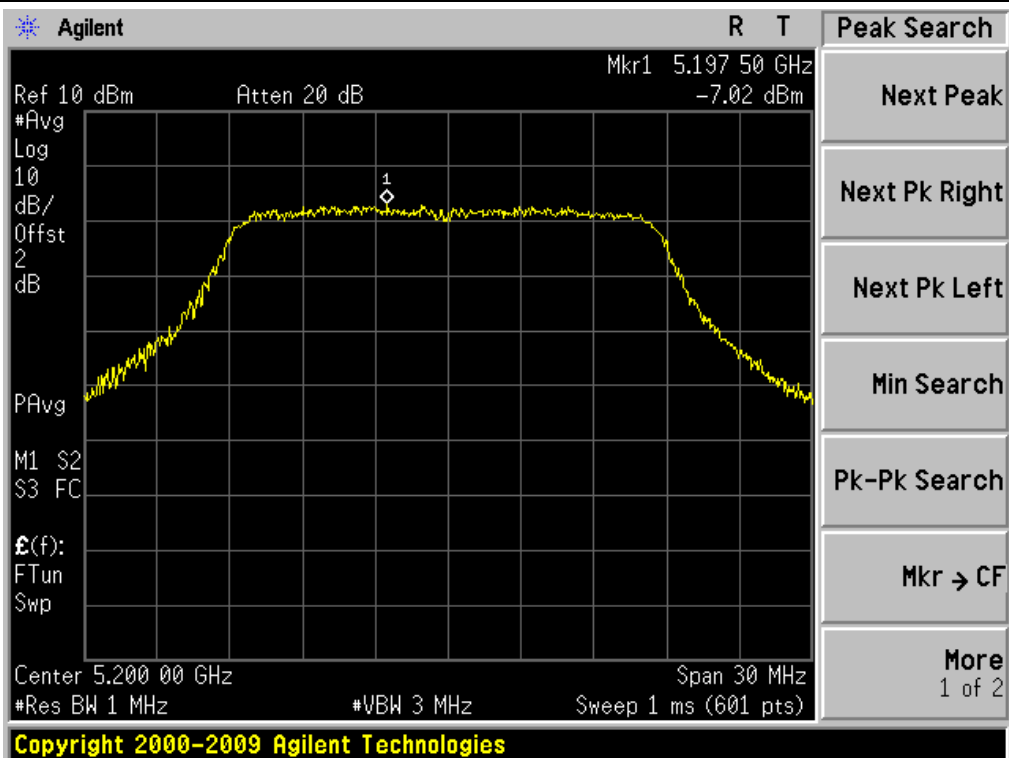
RF Model 8192

Antenna C

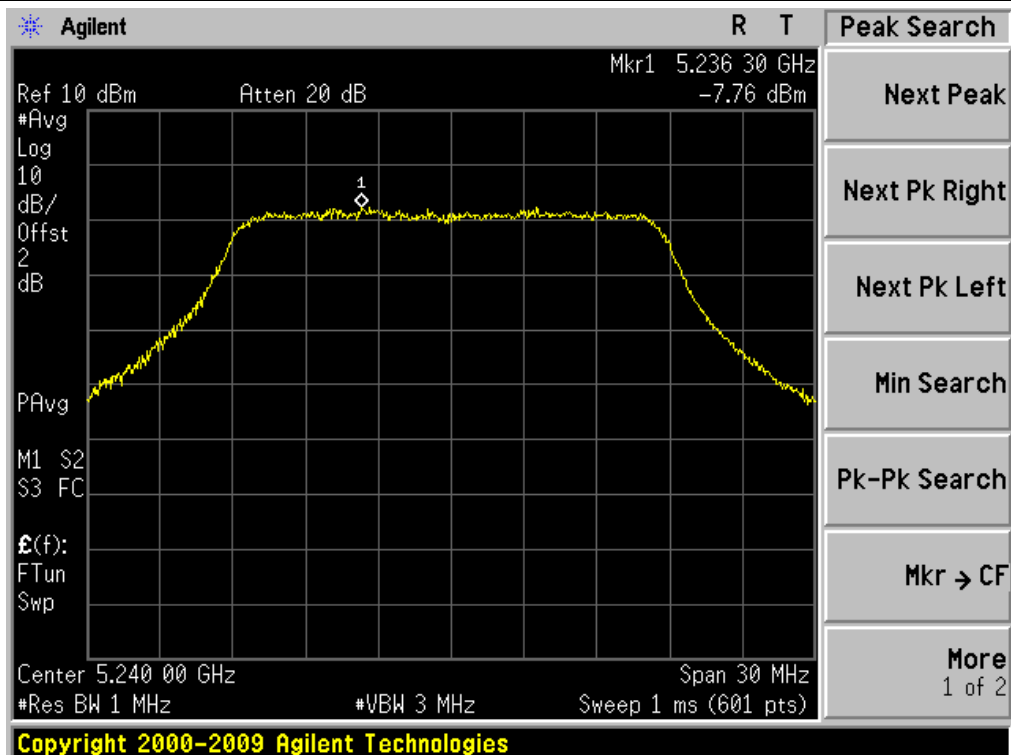
TX CH36



TX CH40

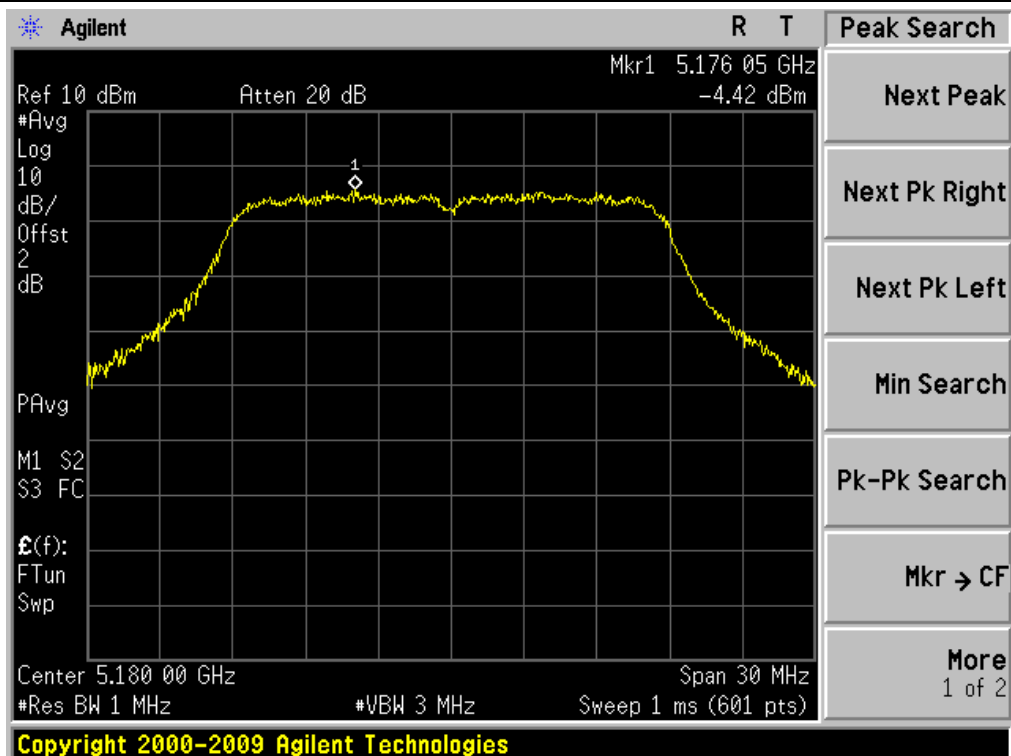


TX CH48

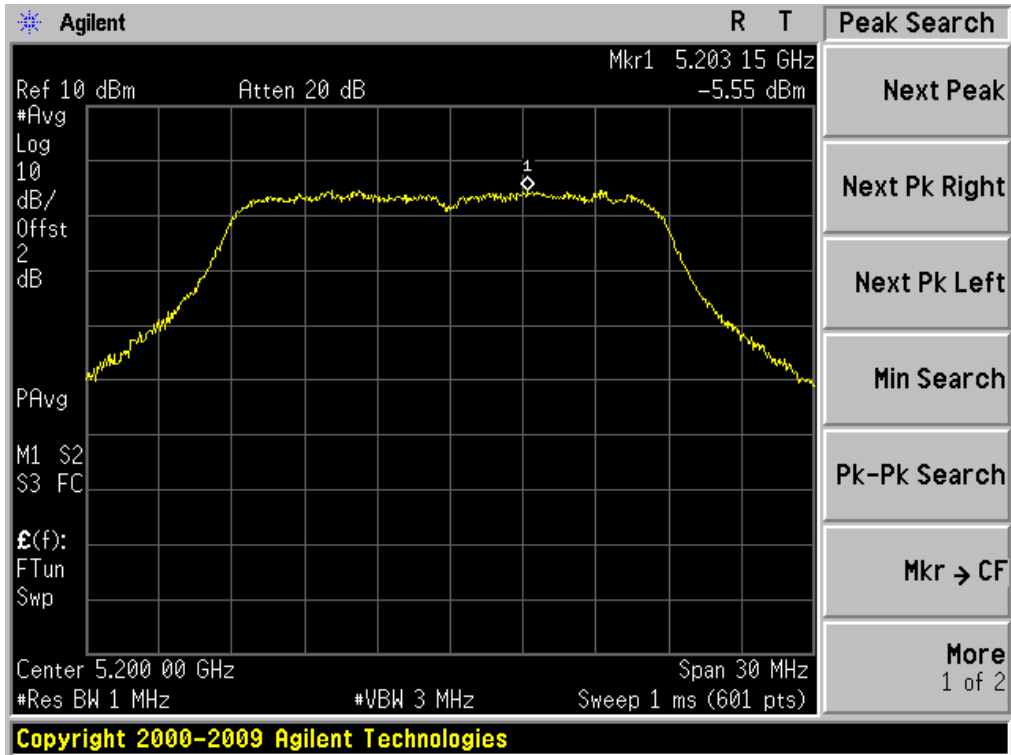


Antenna D

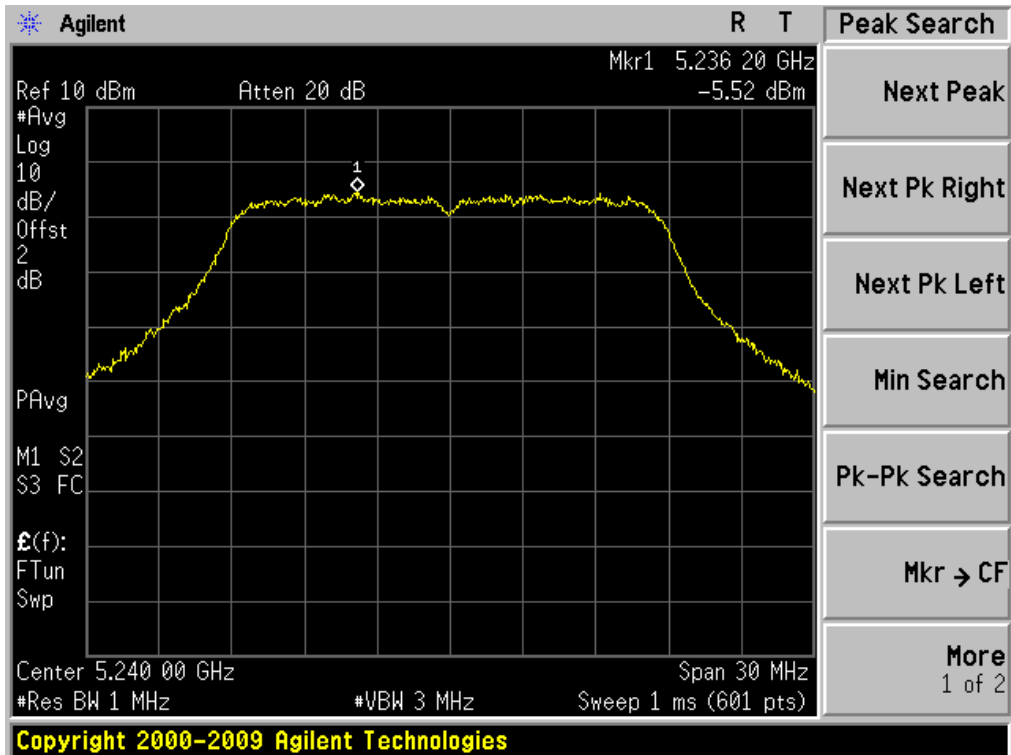
TX CH36



TX CH40

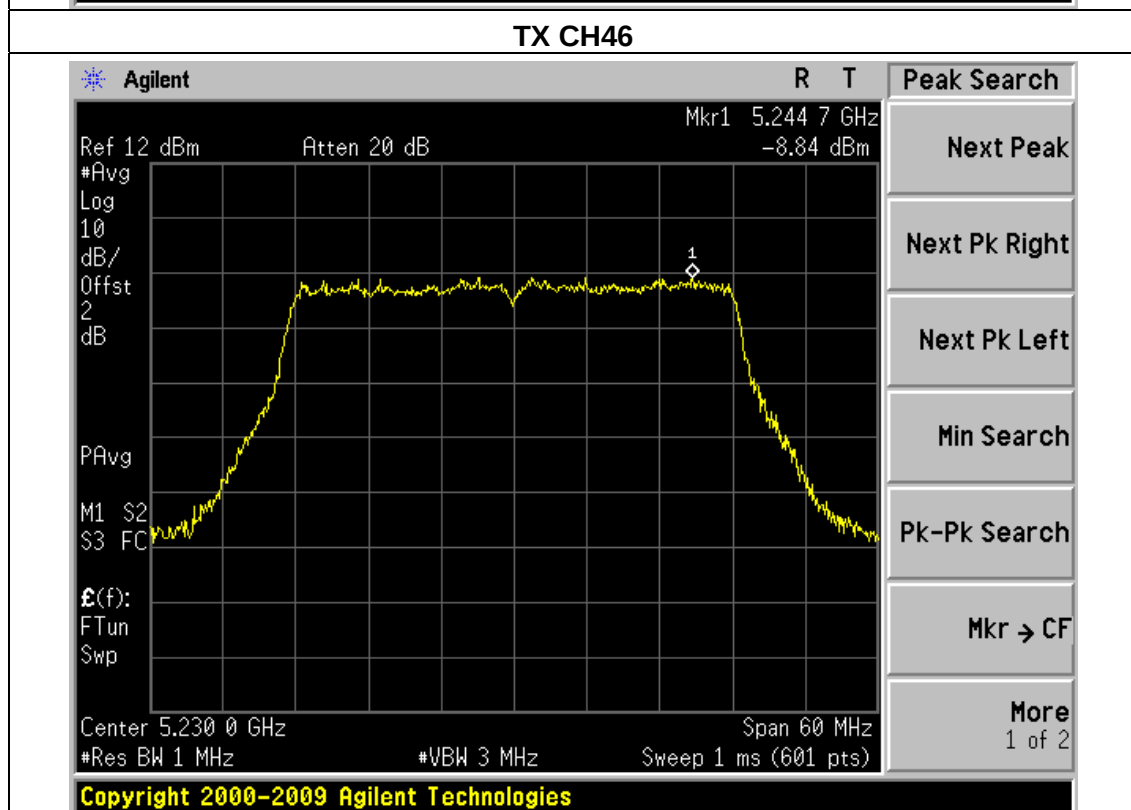
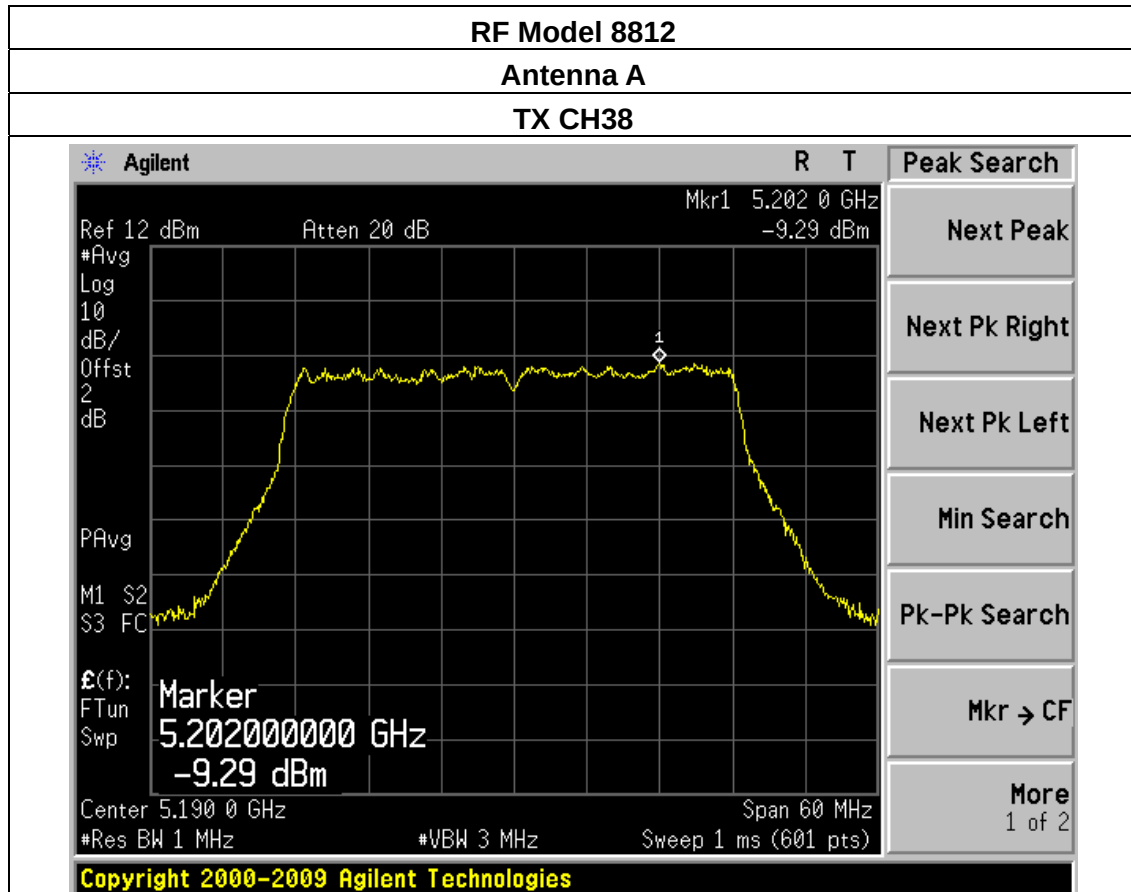


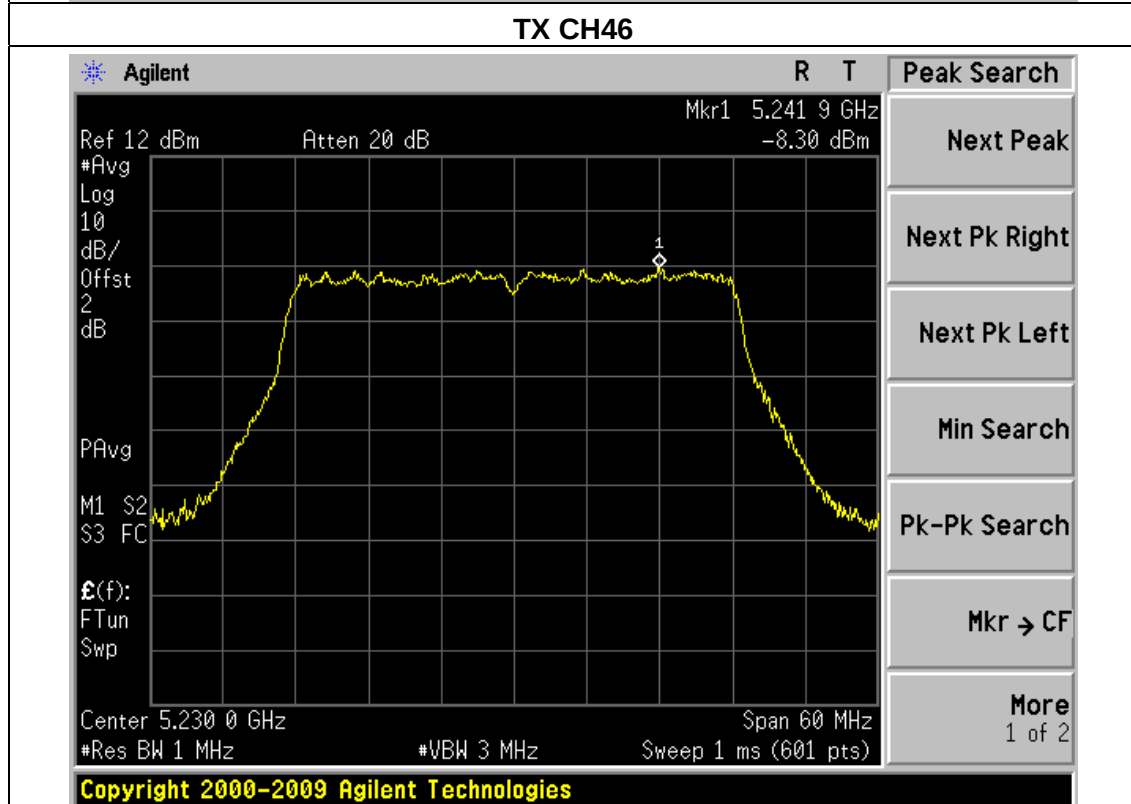
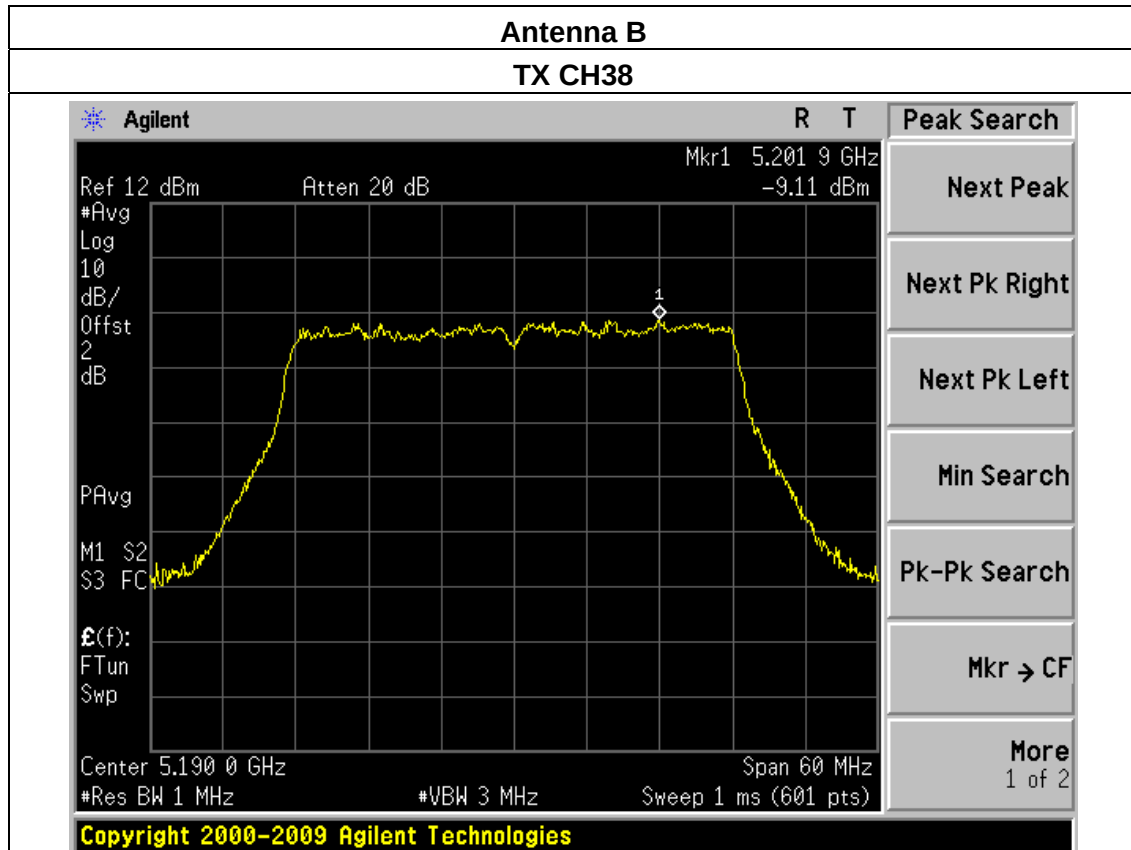
TX CH48

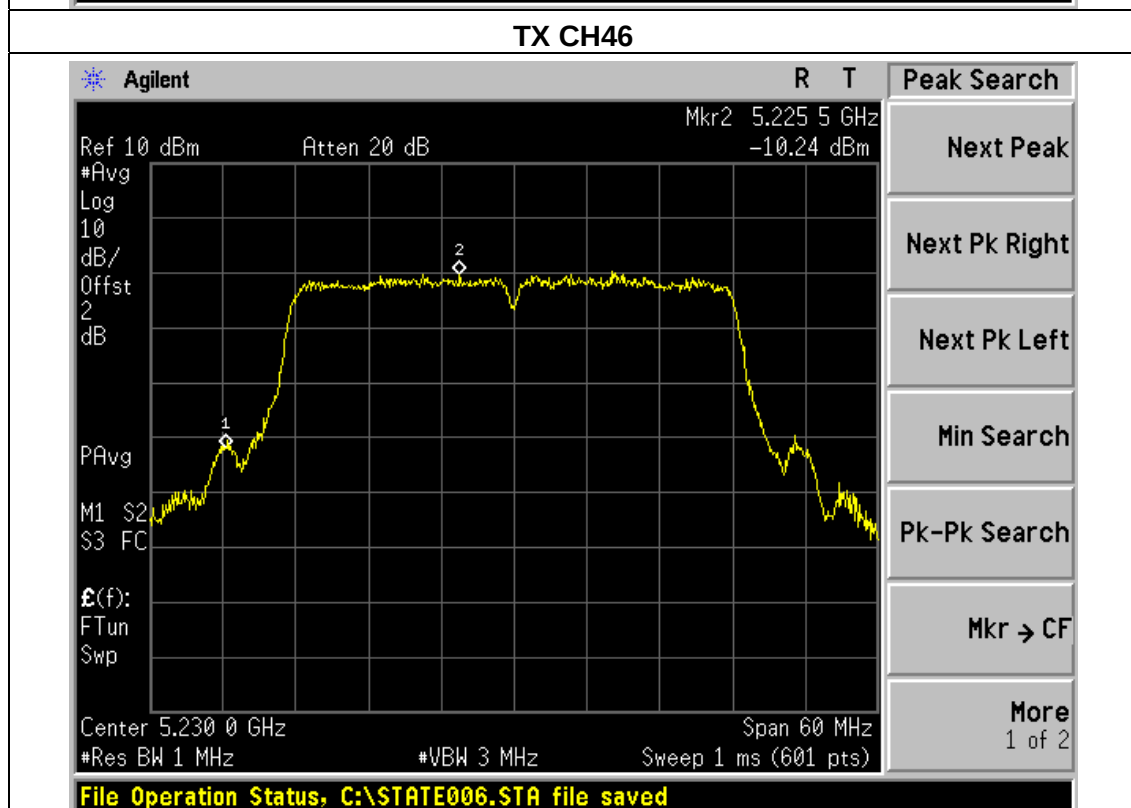
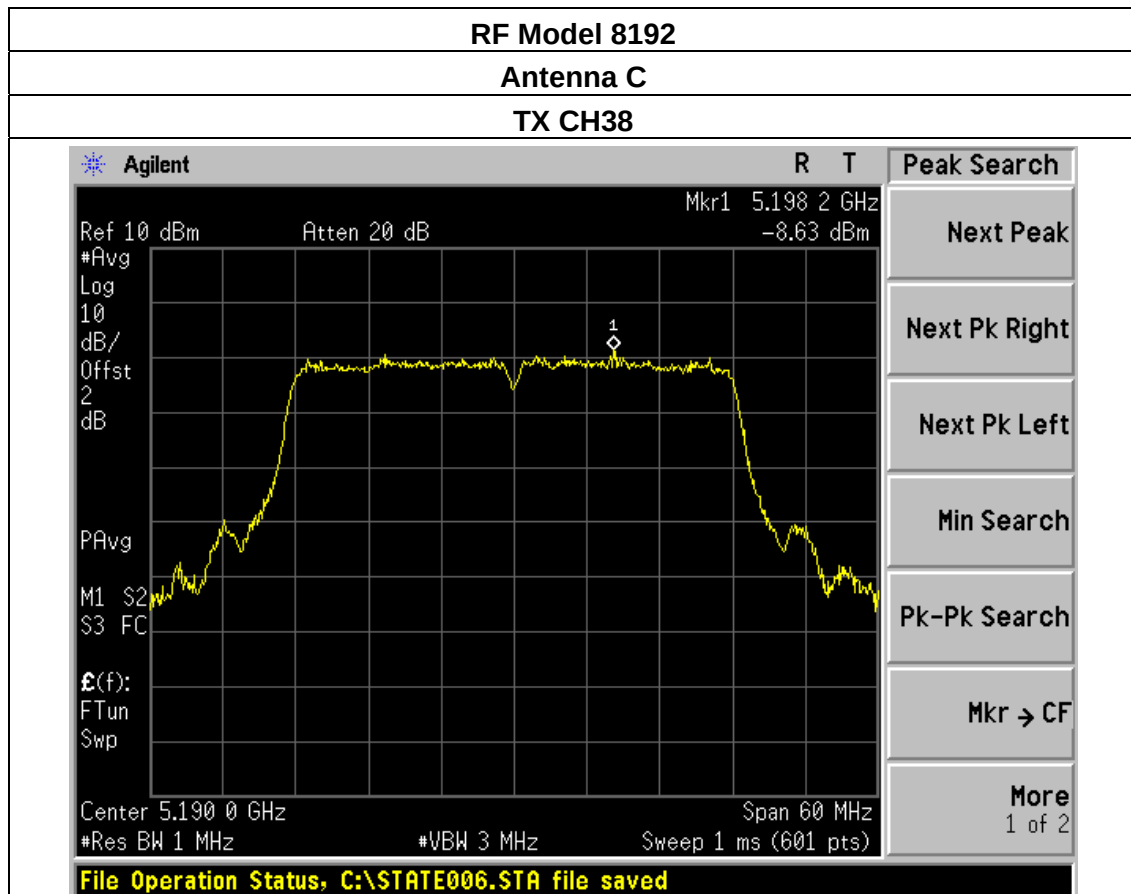


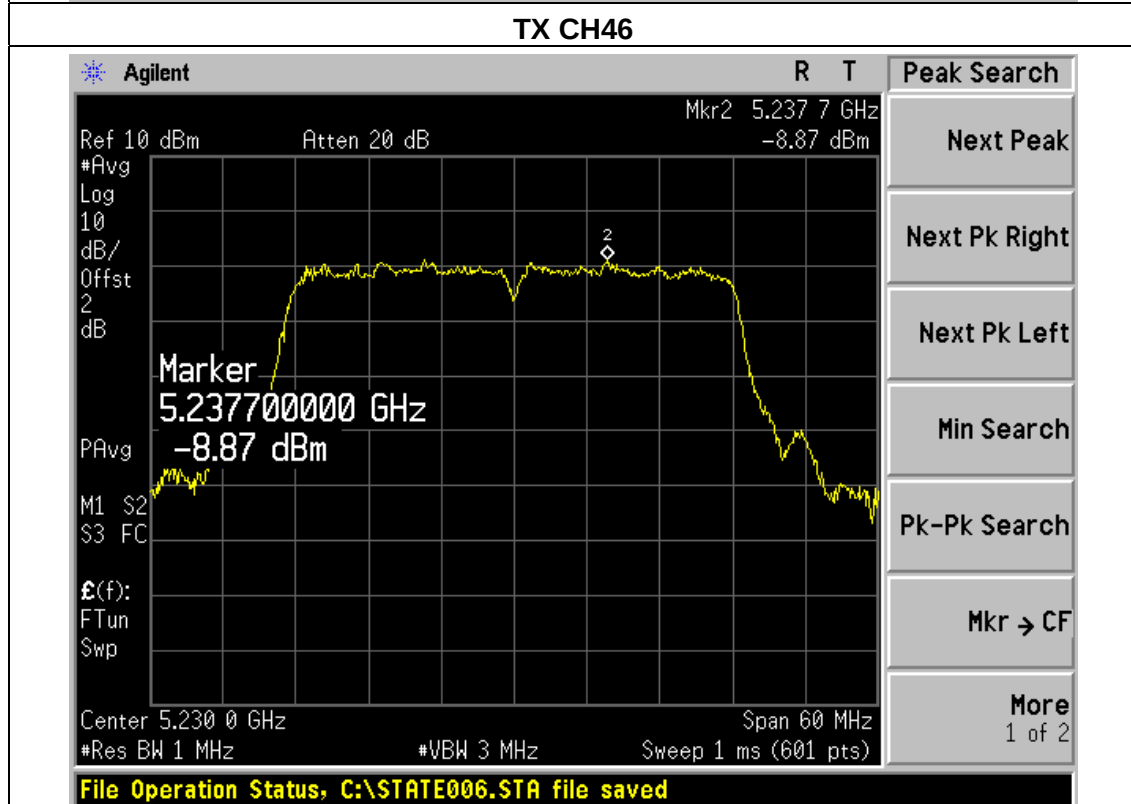
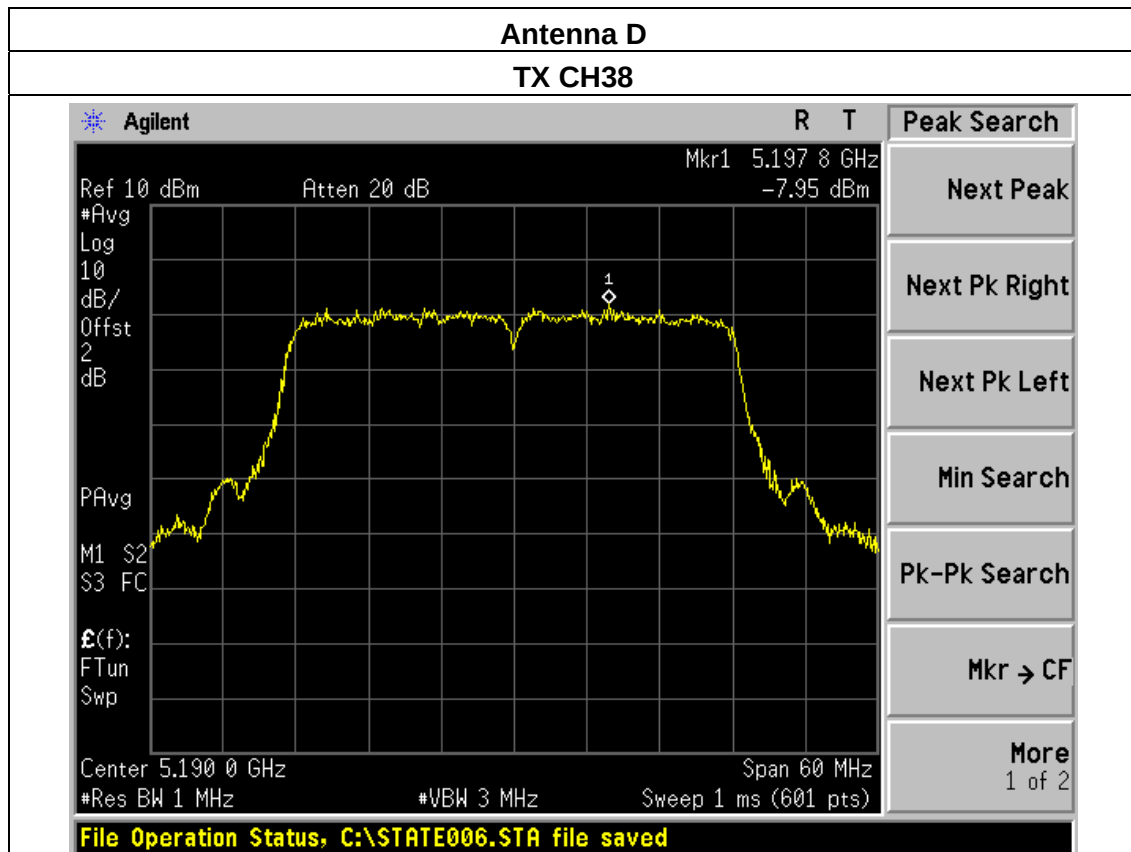
EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX n40 Mode(5G) /CH38, CH46		

RF Model	Frequency	Power Density A (dBm/MHz)	Power Density B (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
8812	5190 MHz	-9.29	-9.11	-6.19	11	PASS
	5230 MHz	-8.84	-8.30	-5.55	11	PASS
RF Model	Frequency	Power Density C (dBm/MHz)	Power Density D (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
8192	5190 MHz	-8.63	-7.95	-5.27	11	PASS
	5230 MHz	-10.24	-8.87	-6.49	11	PASS









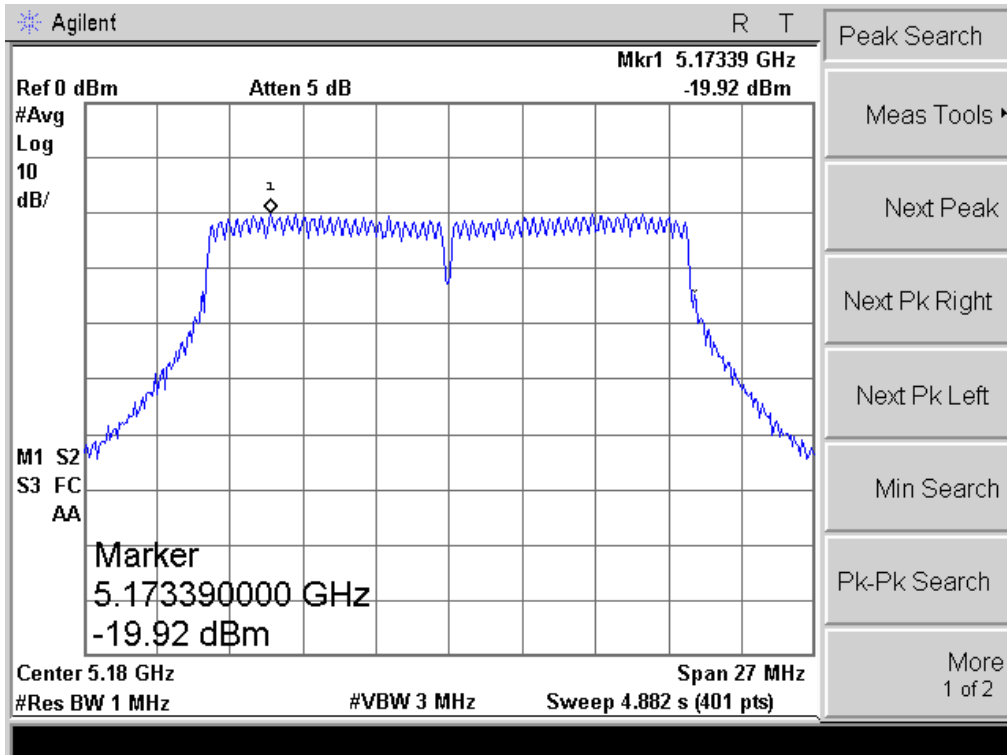
EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX AC(20M) Mode(5G) /CH36, CH40, CH48		

RF Model	Frequency	Power Density A (dBm/MHz)	Power Density B (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
8812	5180 MHz	-19.92	-19.92	-16.91	11	PASS
	5200 MHz	-19.48	-18.51	-15.96	11	PASS
	5240 MHz	-15.57	-16.60	-13.04	11	PASS

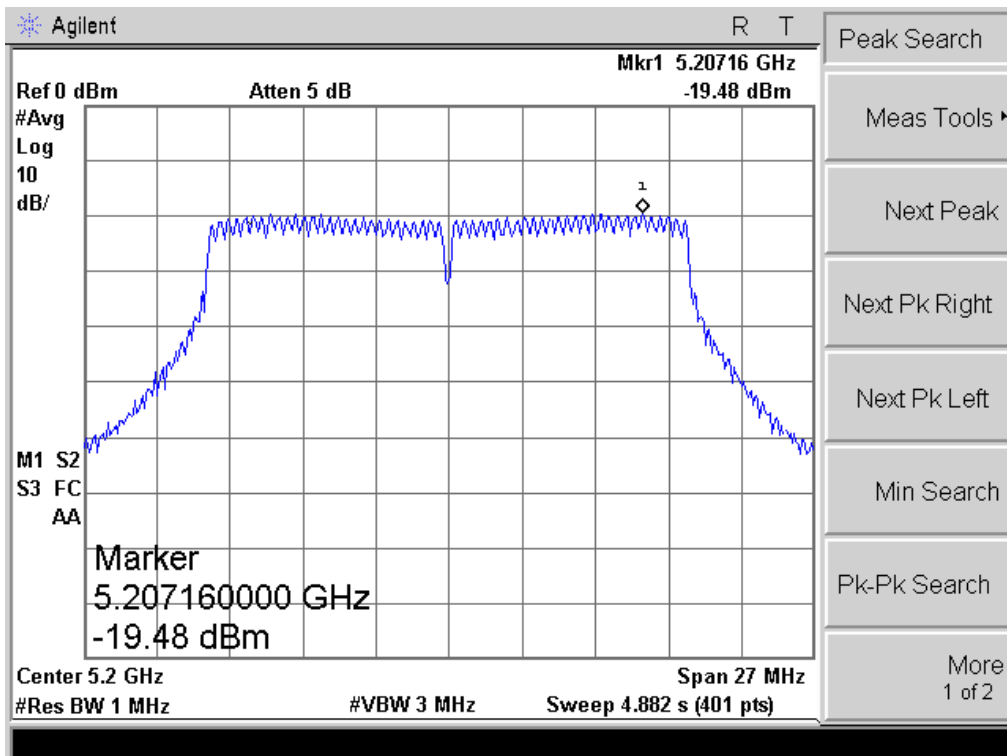
RF Model 8812

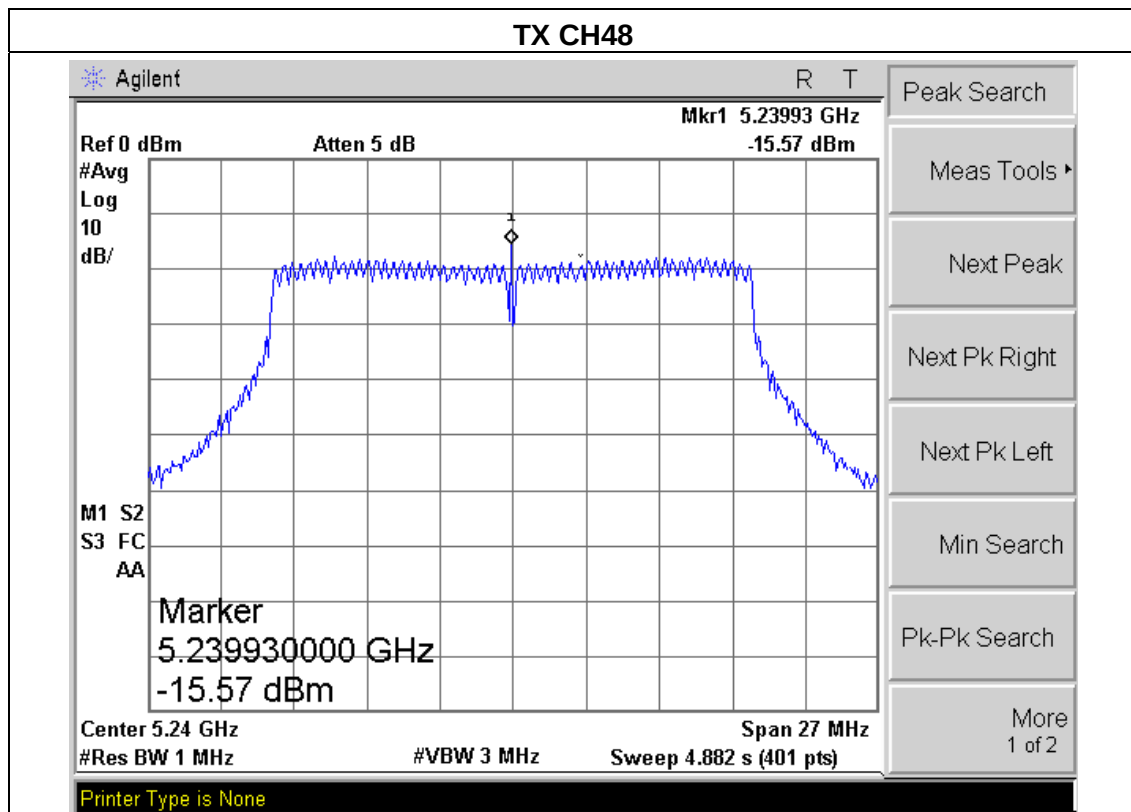
Antenna A

TX CH36

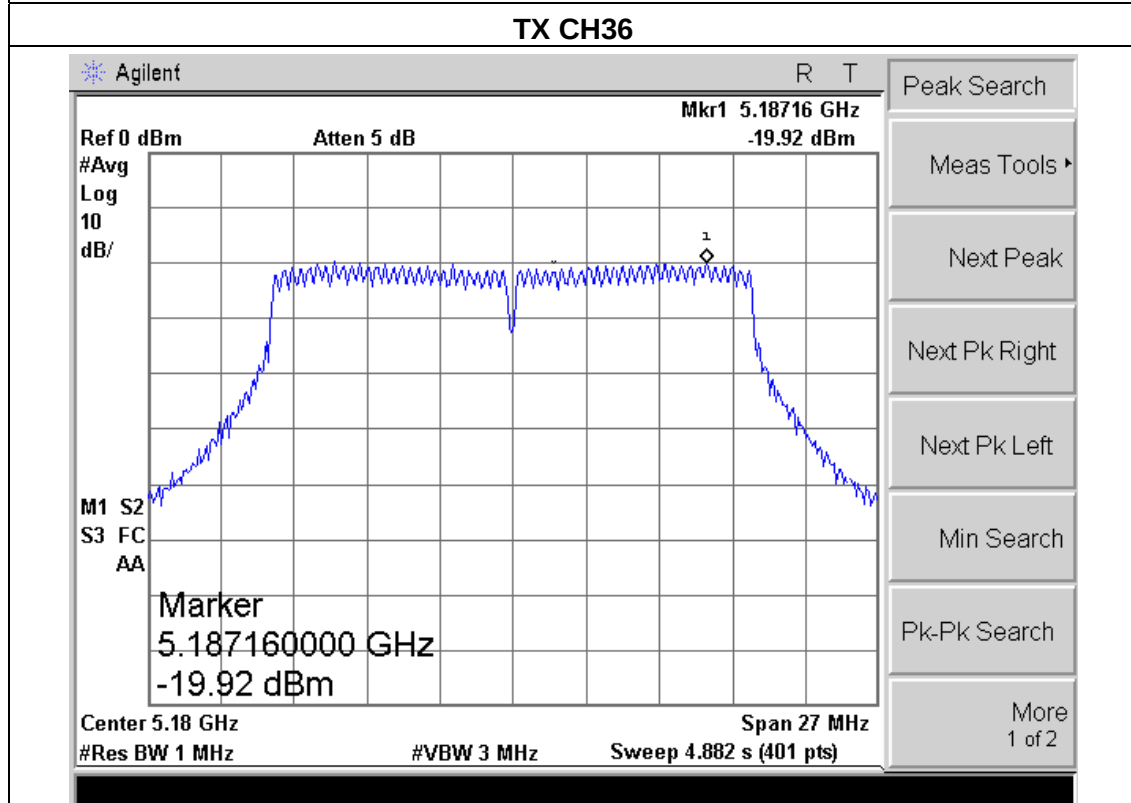


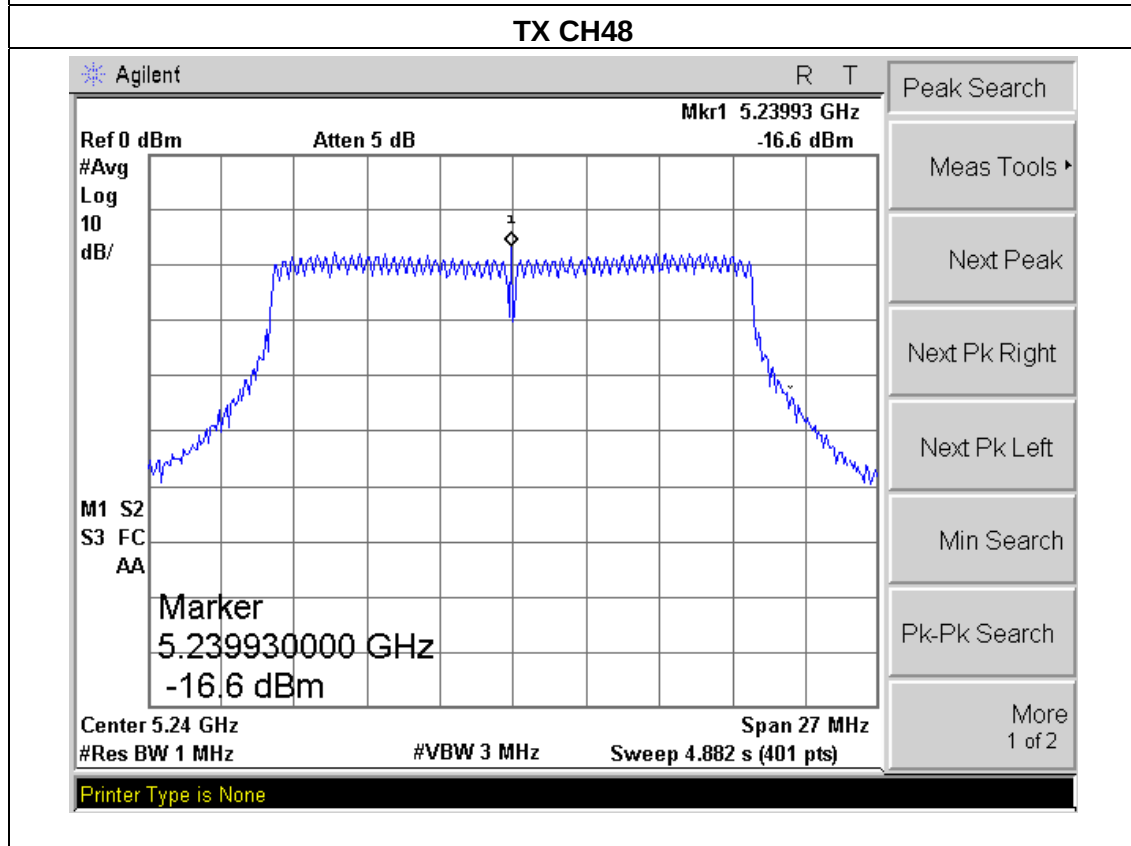
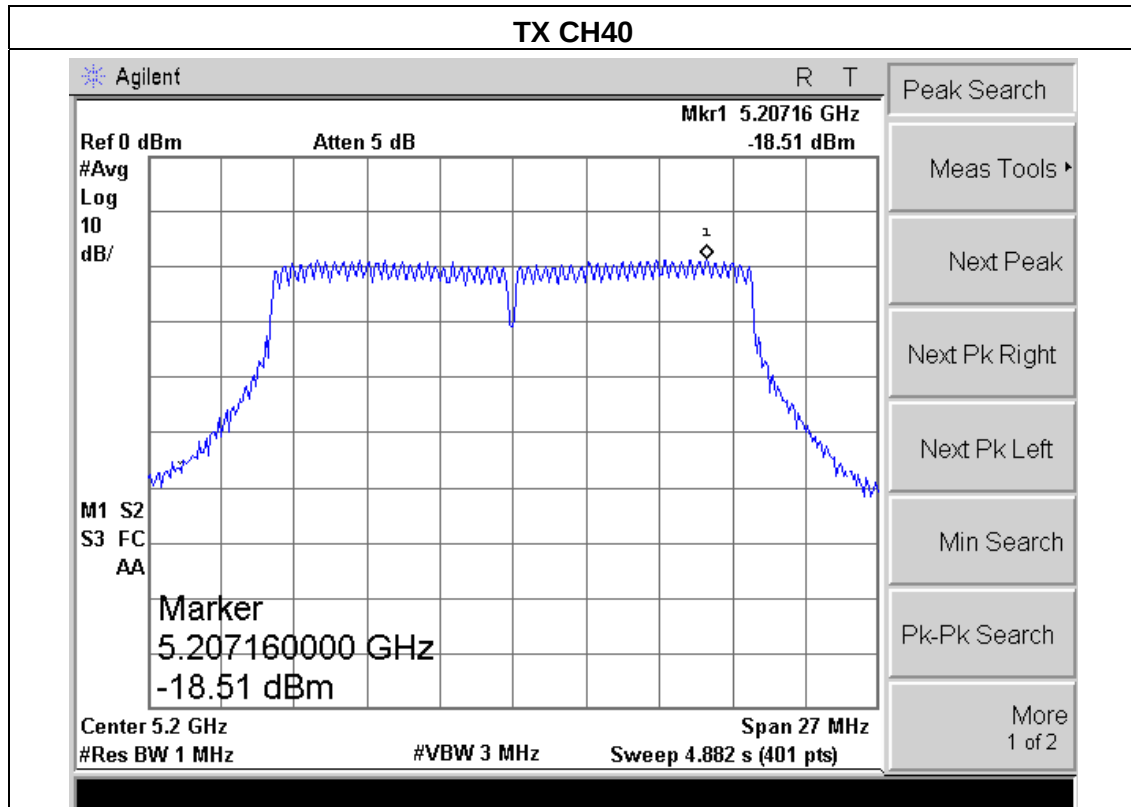
TX CH40





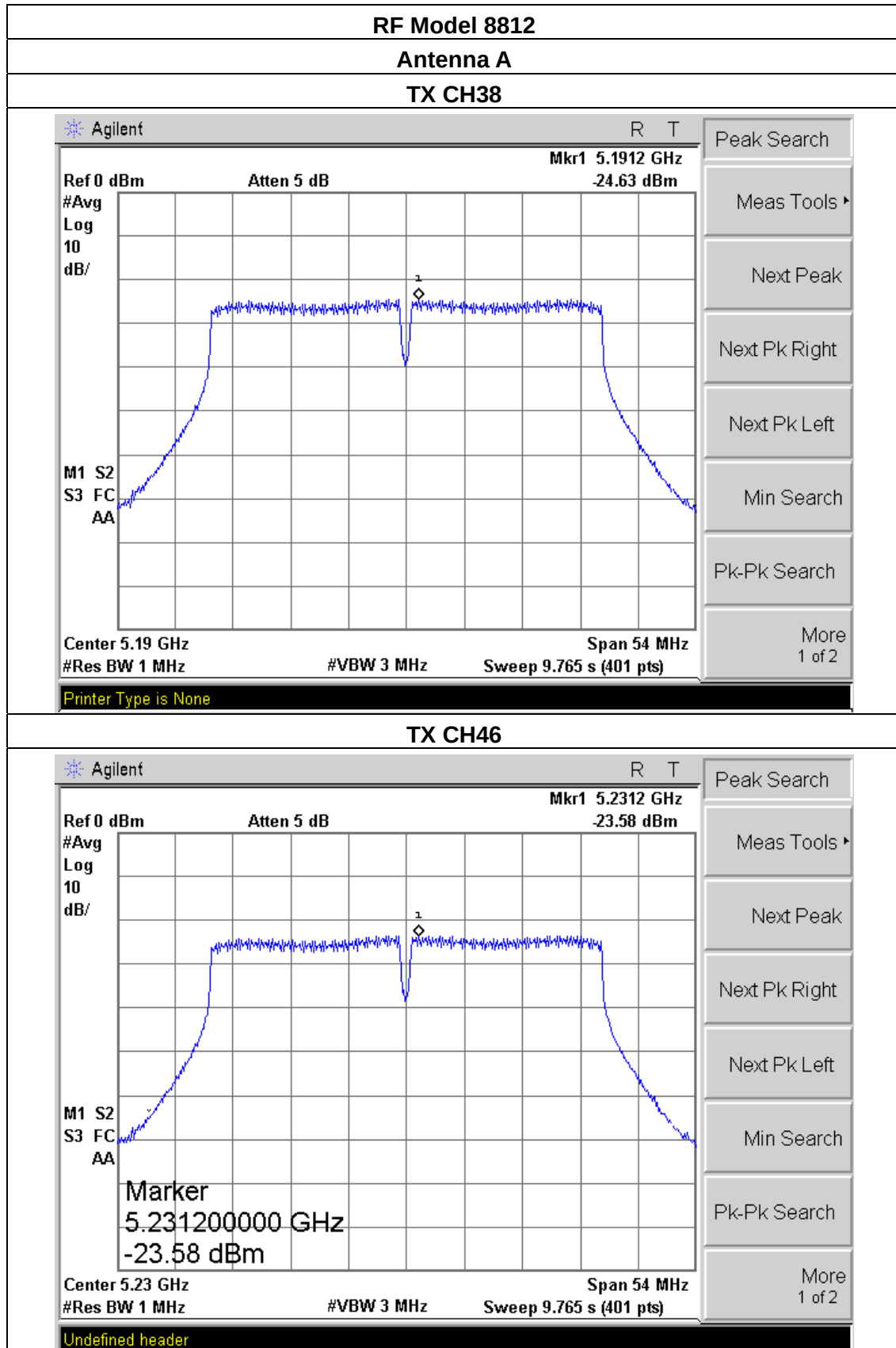
Antenna B

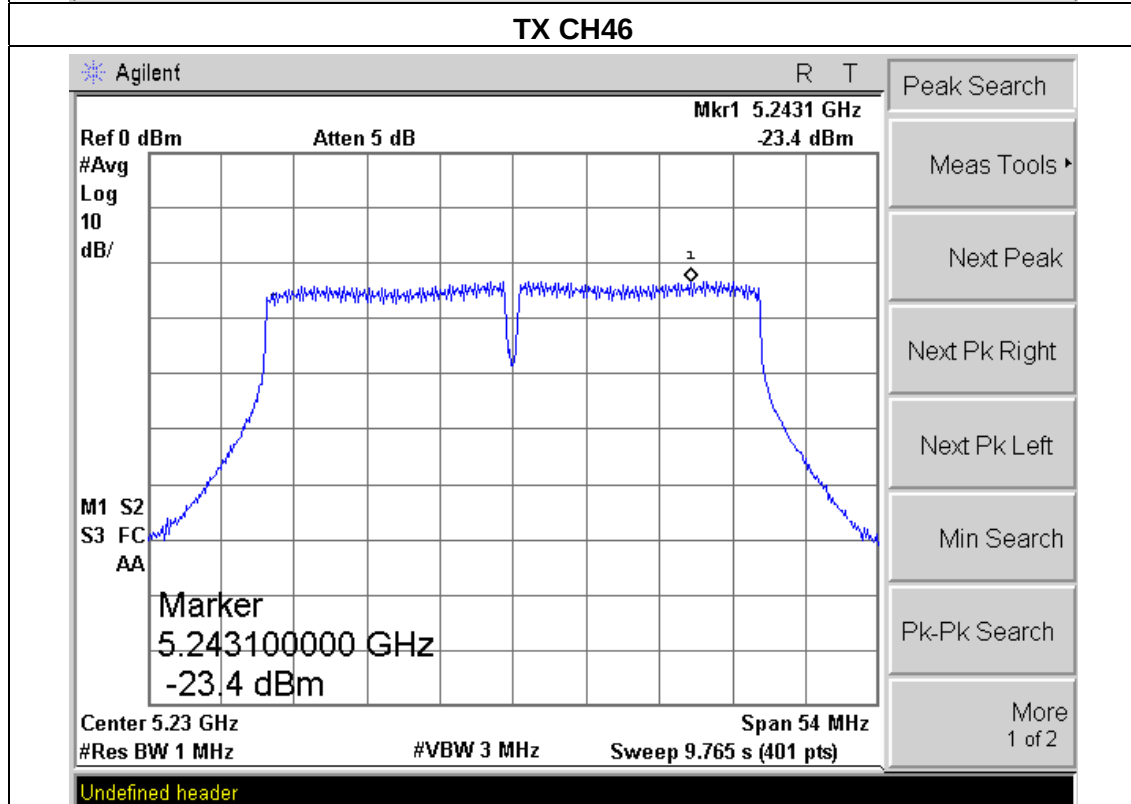
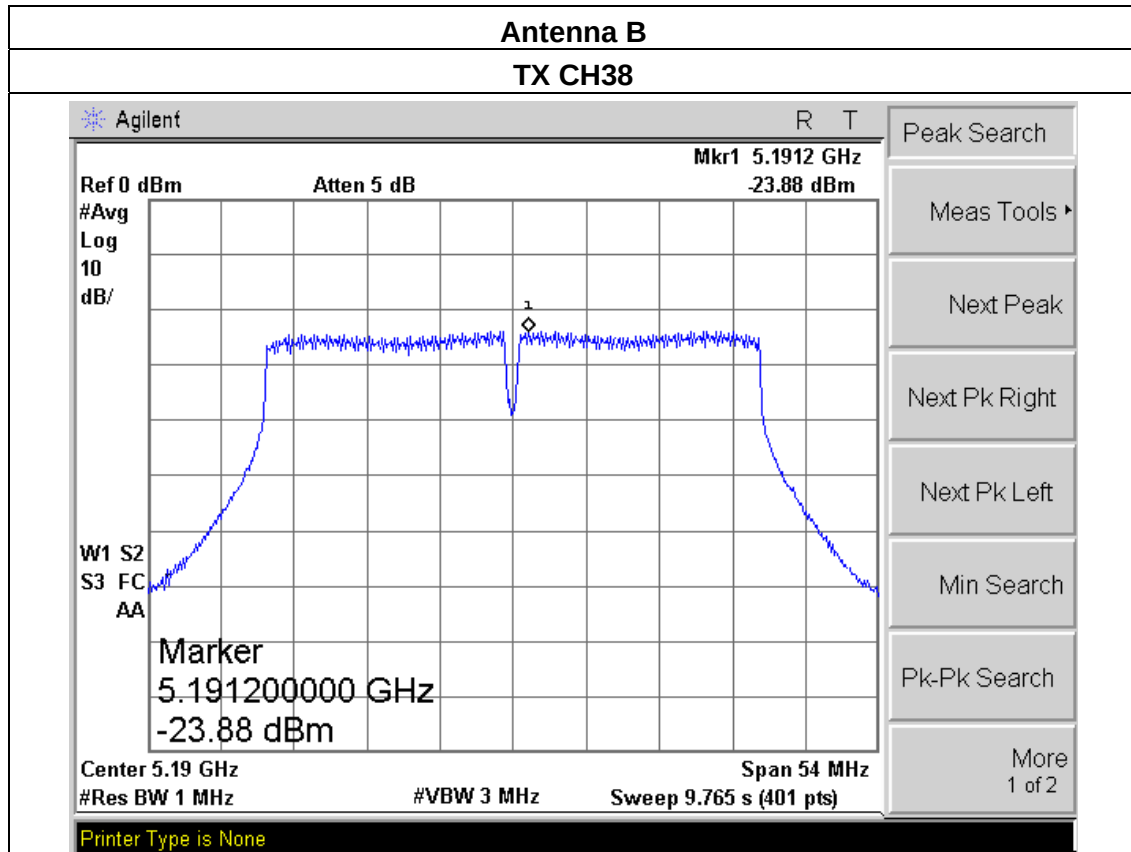




EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX AC(40M) Mode(5G) /CH38, CH46		

RF Model	Frequency	Power Density A (dBm/MHz)	Power Density B (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
8812	5190 MHz	-24.63	-23.88	-21.23	11	PASS
	5230 MHz	-23.58	-23.40	-20.48	11	PASS





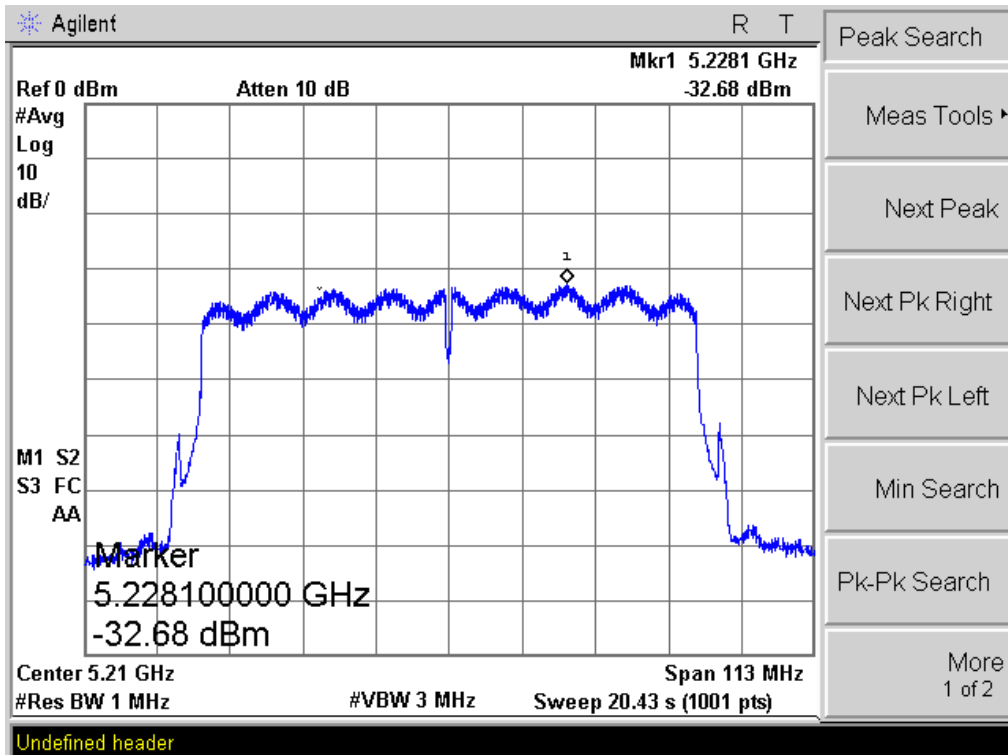
EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX AC(80M) Mode(5G) /CH42		

RF Model	Frequency	Power Density A (dBm/MHz)	Power Density B (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
8812	5210 MHz	-32.68	-33.31	-29.97	11	PASS

RF Model 8812

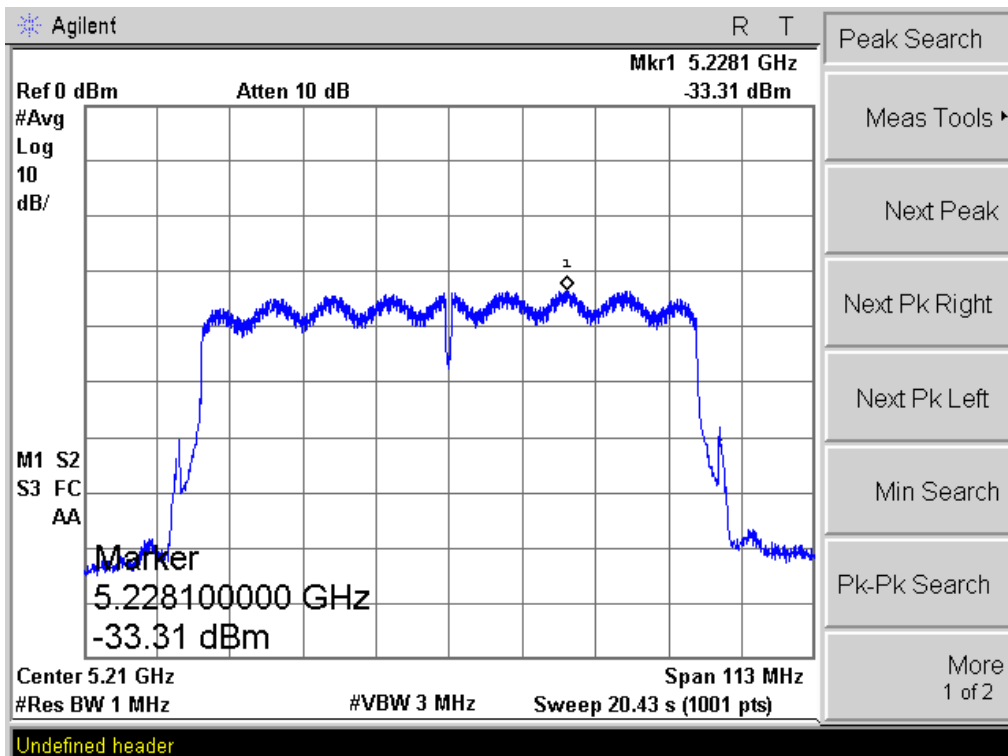
Antenna A

TX CH42



Antenna B

TX CH42



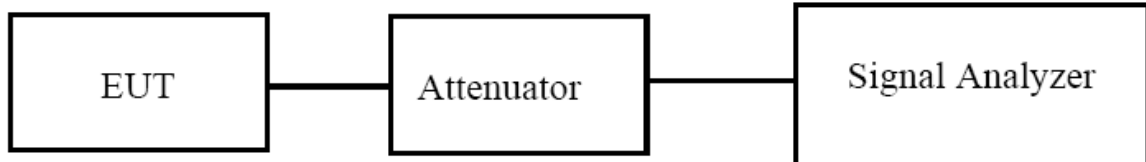
5. 26 DB & 99% EMISSION BANDWIDTH

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.407) , Subpart E/RSS 247§6.2.1(2)			
Section	Test Item	Limit	Result
15.407(a)	Bandwidth	$\geq 500\text{KHz}$ (26dB bandwidth)	PASS

5.1.1 TEST PROCEDURE

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.



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 Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX a Mode /CH36, CH40, CH48		

RF Model	Channel	Frequency (MHz)	99% bandwidth (MHz)		26dB bandwidth (MHz)		Limit (kHz)	Result
			ANT A	ANT B	ANT A	ANT B		
8812	Low	5180	16.773	16.651	21.063	21.334	500	Pass
	Middle	5200	16.774	16.662	21.057	21.127	500	Pass
	High	5240	16.759	16.639	21.208	21.226	500	Pass
RF Model	Channel	Frequency (MHz)	99% bandwidth (MHz)		26dB bandwidth (MHz)		Limit (kHz)	Result
			ANT C	ANT D	ANT C	ANT D		
8192	Low	5180	16.793	16.710	22.039	21.481	500	Pass
	Middle	5200	16.760	16.738	21.947	21.704	500	Pass
	High	5240	16.767	16.717	21.674	21.691	500	Pass

NOTE: Model A/C (B/D) represent two different modules,

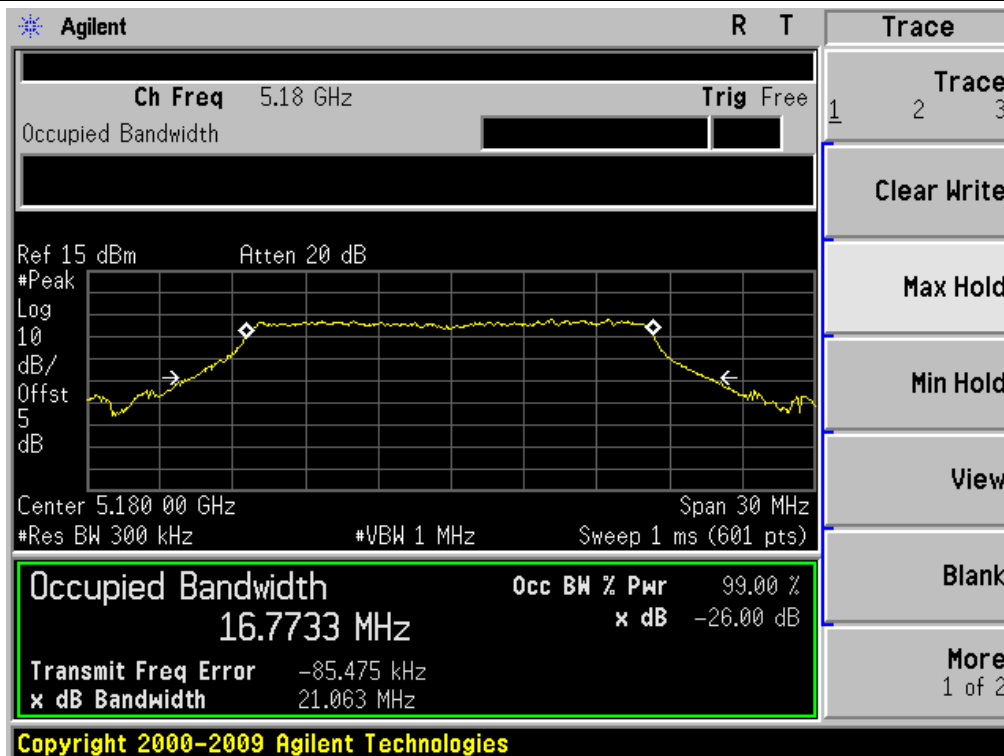
A(B) Represent the value of antenna A and B,The worst data is A Antenna a ,only shown Antenna A Plot.

C(D) Represent the value of antenna C and D,The worst data is C Antenna a ,only shown Antenna C Plot.

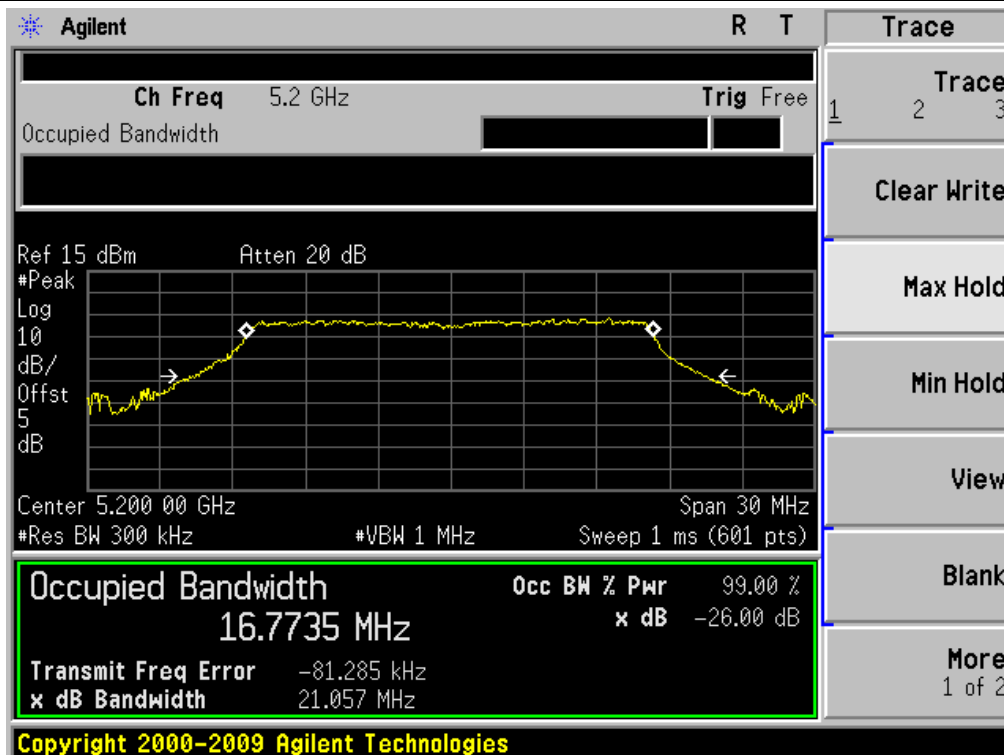
RF Model 8812

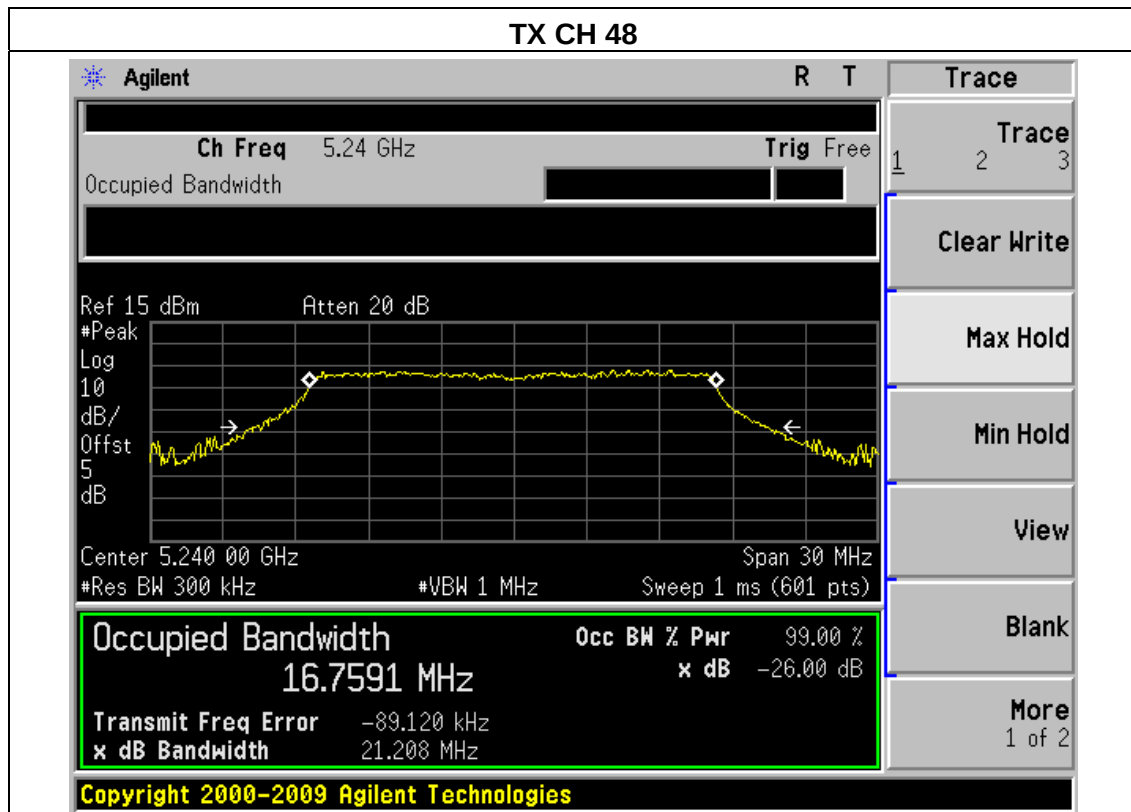
Antenna A

TX CH 36



TX CH 40

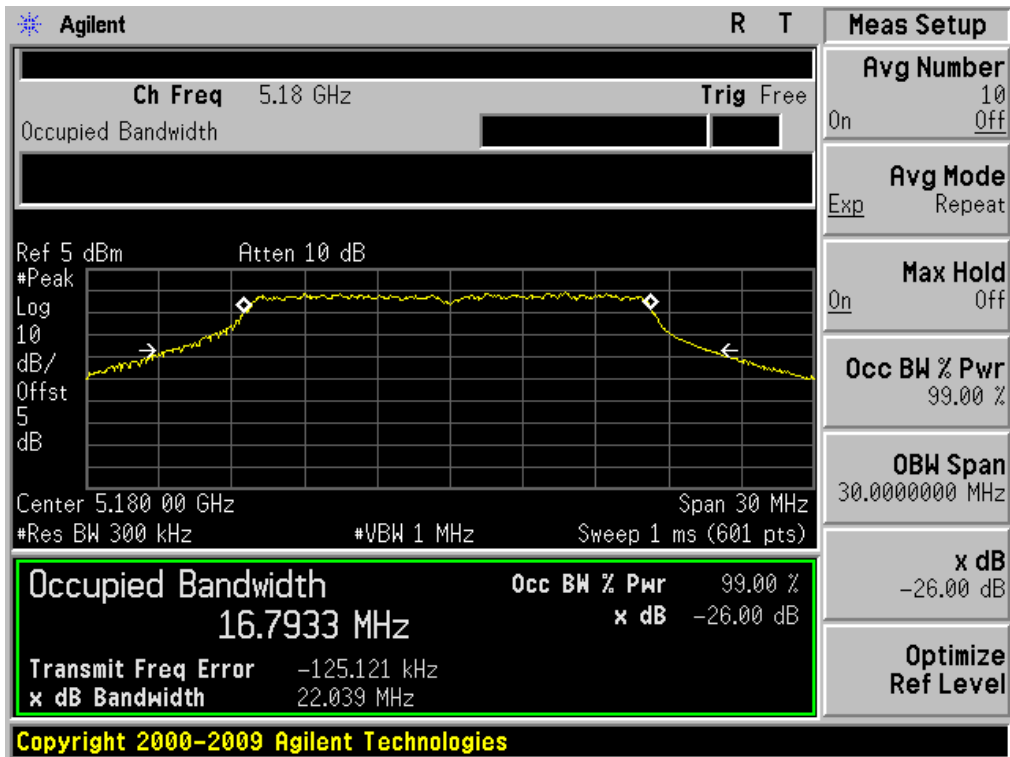




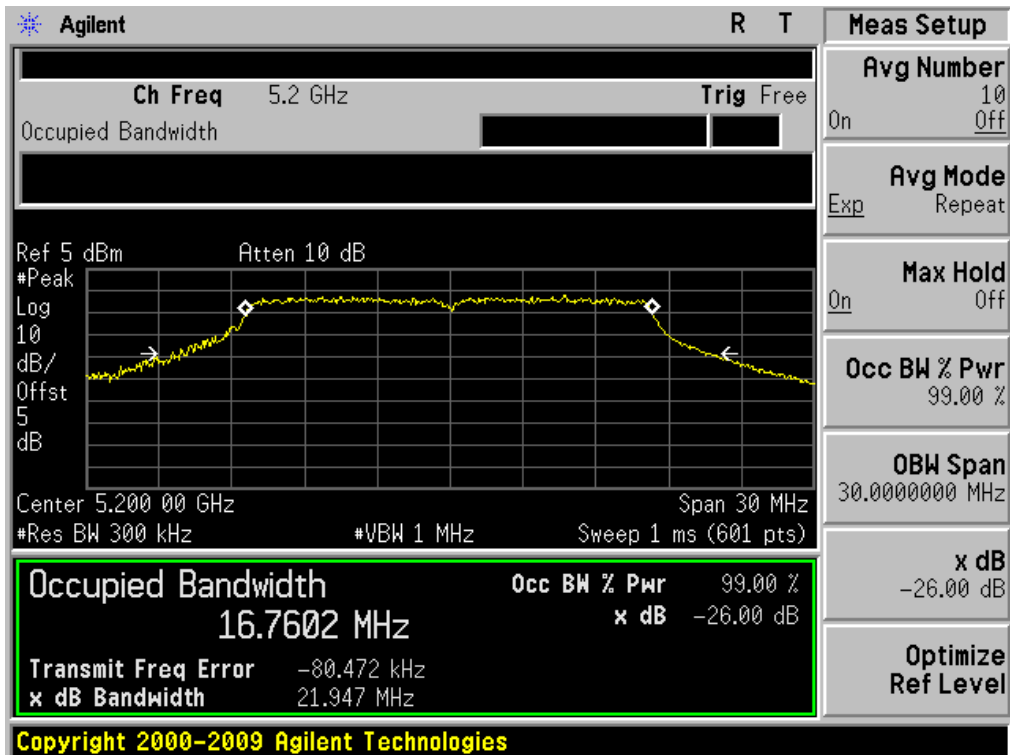
RF Model 8192

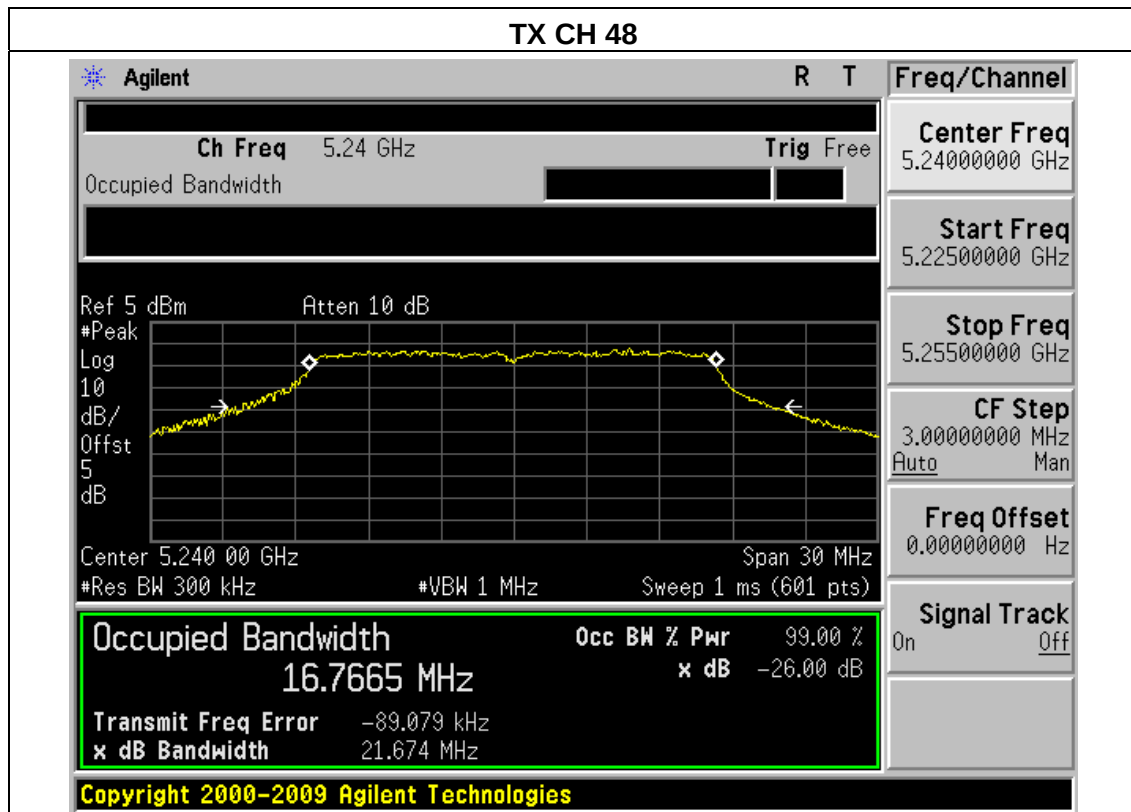
Antenna C

TX CH 36



TX CH 40





EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX n(20) Mode(5G) /CH36, CH40, CH48		

RF Model	Channel	Frequency (MHz)	99% bandwidth (MHz)		26dB bandwidth (MHz)		Limit (kHz)	Result
			ANT A	ANT B	ANT A	ANT B		
8812	Low	5180	17.832	17.638	21.465	21.329	500	Pass
	Middle	5200	17.812	17.564	21.802	21.564	500	Pass
	High	5240	17.843	17.667	21.810	21.462	500	Pass
RF Model	Channel	Frequency (MHz)	99% bandwidth (MHz)		26dB bandwidth (MHz)		Limit (kHz)	Result
			ANT C	ANT D	ANT C	ANT D		
8192	Low	5180	17.911	17.882	22.722	22.743	500	Pass
	Middle	5200	17.860	17.849	22.671	22.639	500	Pass
	High	5240	17.898	17.880	22.706	22.893	500	Pass

NOTE: Model A/C (B/D) represent two different modules,

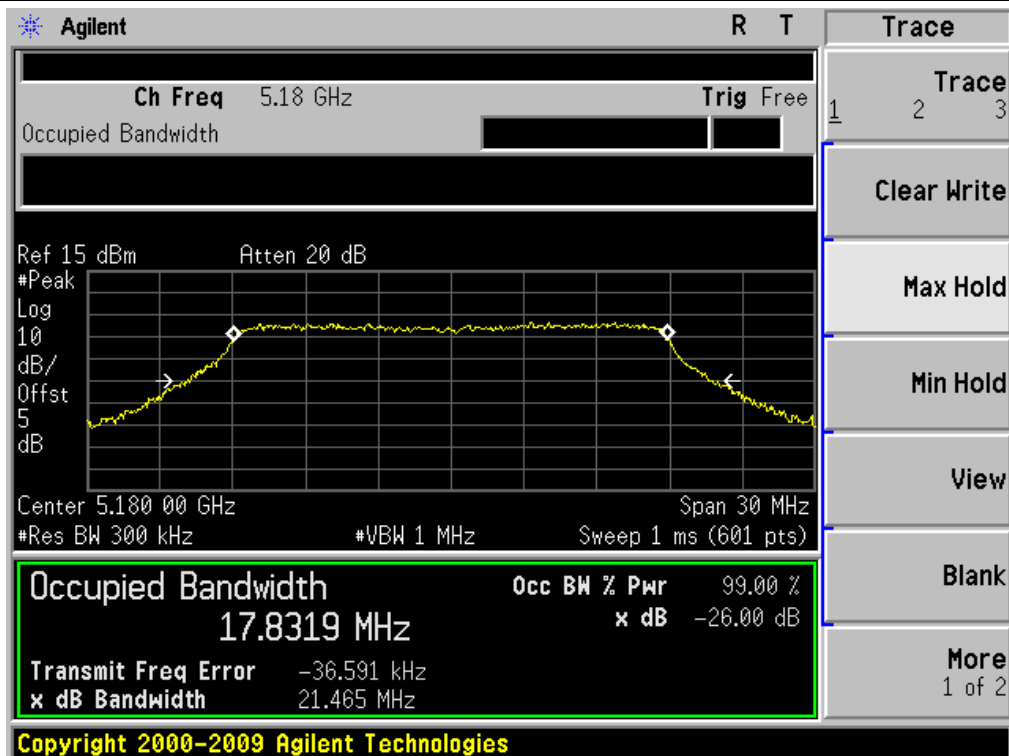
A(B) Represent the value of antenna A and B,The worst data is A Antenna a ,only shown Antenna A Plot.

C(D) Represent the value of antenna C and D,The worst data is C Antenna a ,only shown Antenna C Plot.

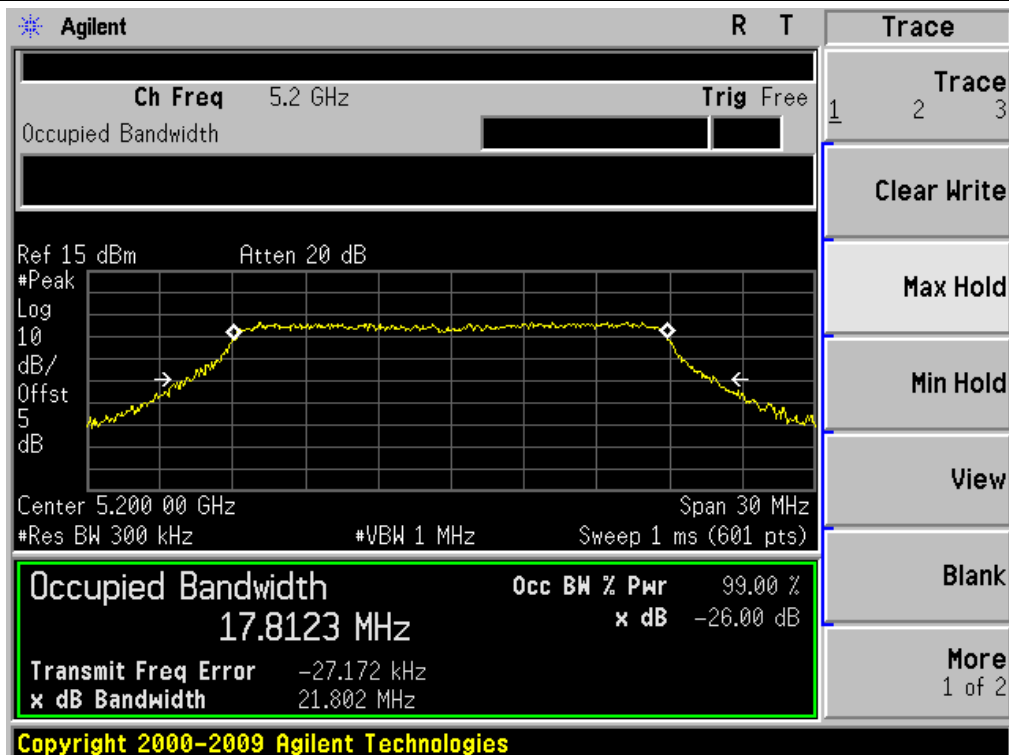
RF Model 8812

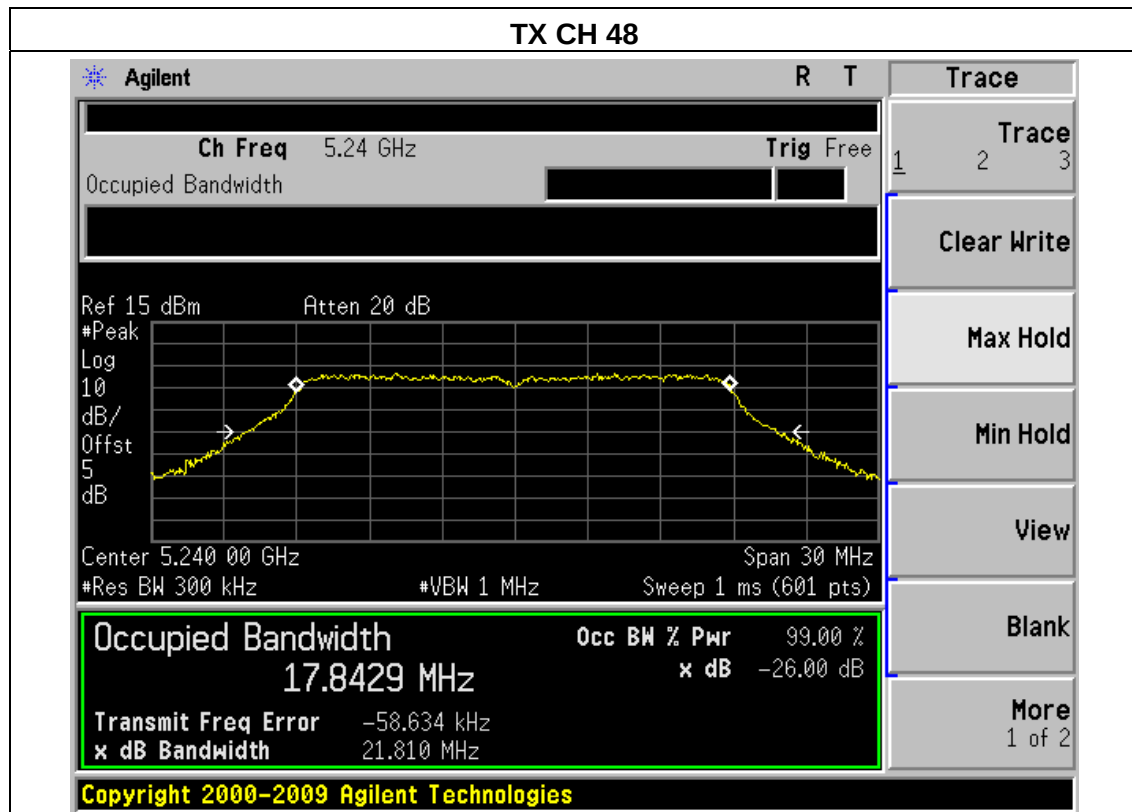
Antenna A

TX CH 36



TX CH 40

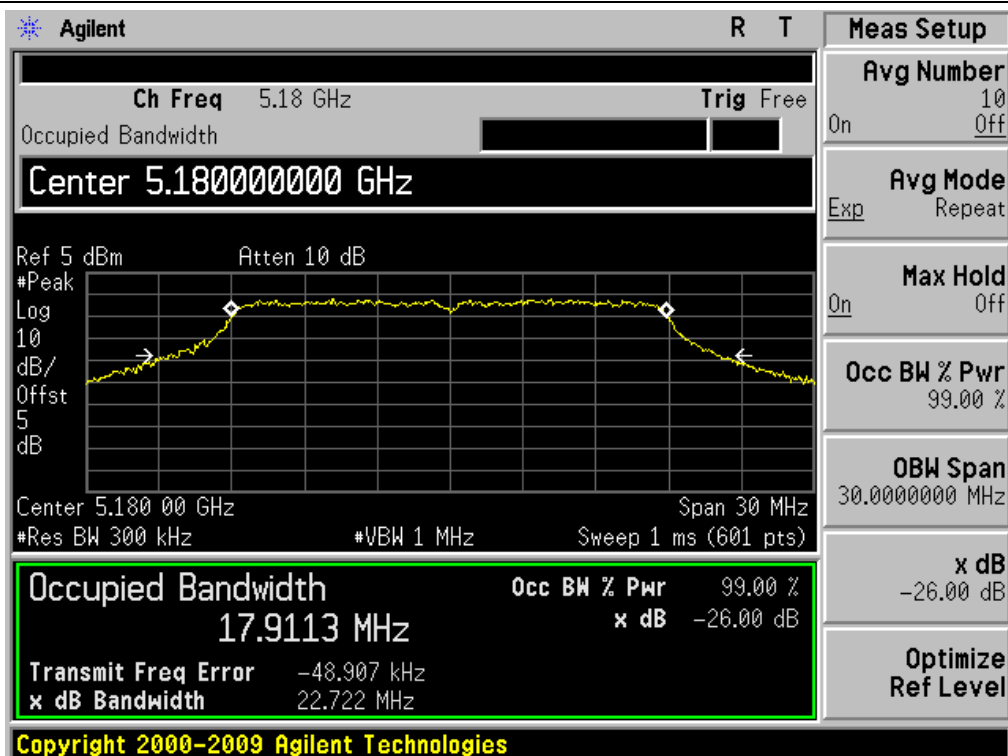




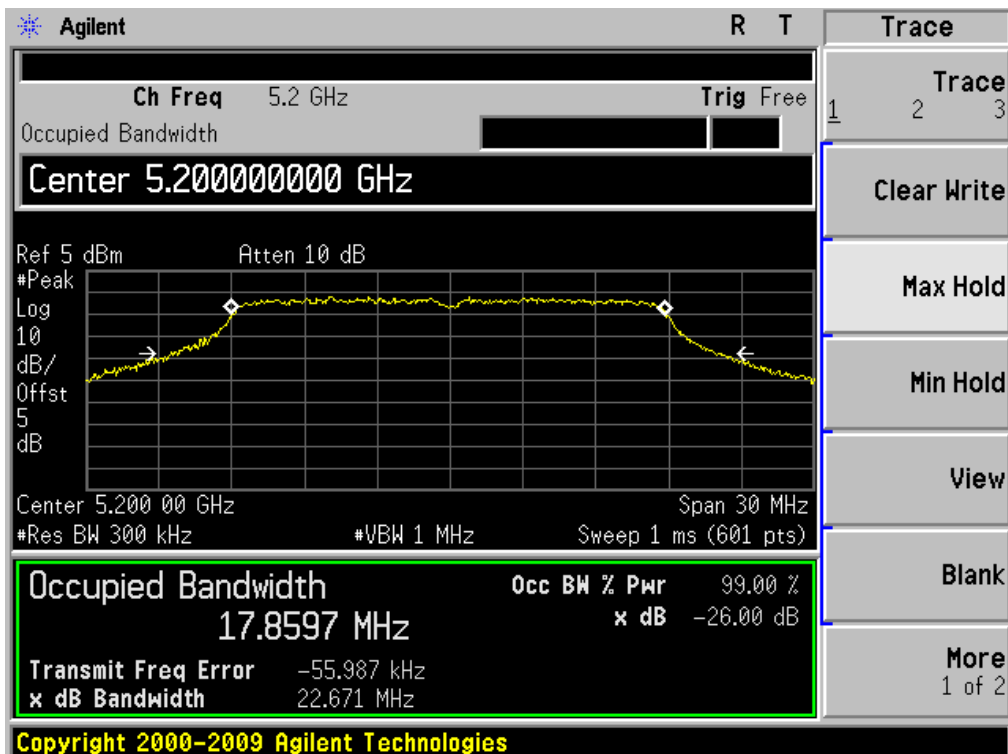
RF Model 8192

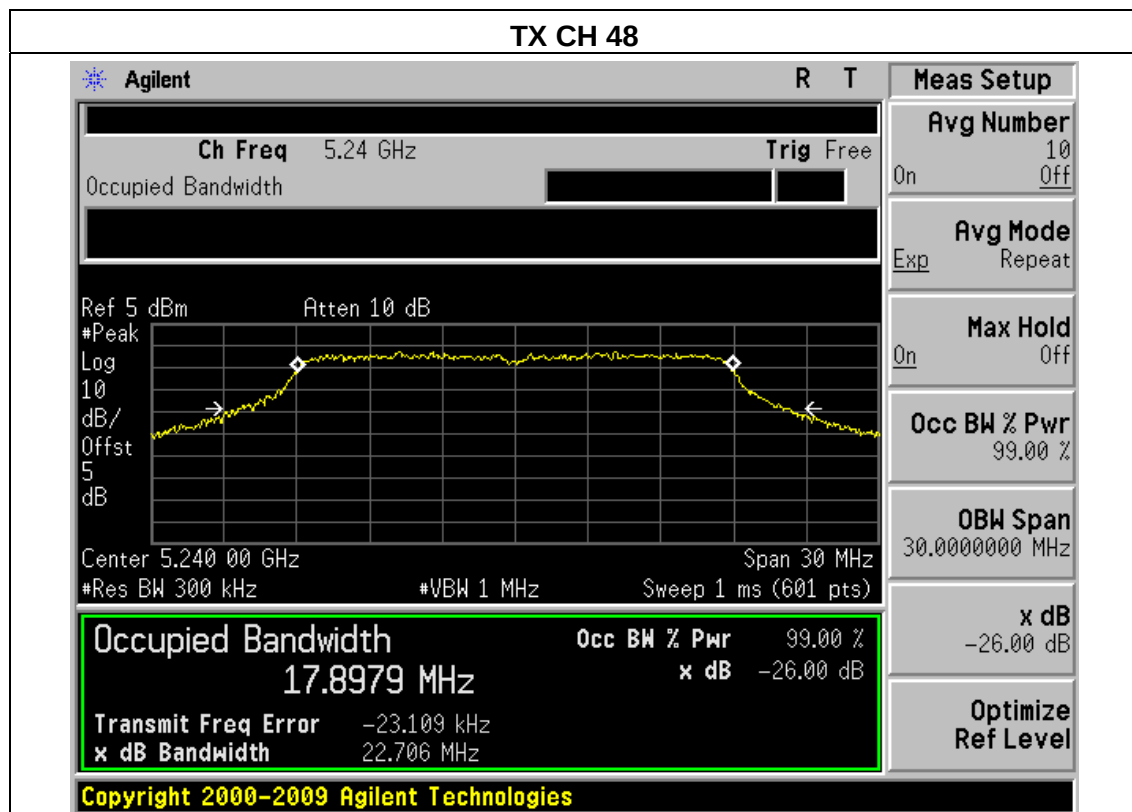
Antenna C

TX CH 36



TX CH 40





EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX n40 Mode(5G) /CH38, CH46		

RF Model	Channel	Frequency (MHz)	99% bandwidth (MHz)		26dB bandwidth (MHz)		Limit (kHz)	Result
			ANT A	ANT B	ANT A	ANT B		
8812	Low	5190	36.171	36.551	41.003	41.053	500	Pass
	High	5230	36.211	36.439	41.603	41.268	500	Pass
RF Model	Channel	Frequency (MHz)	6dB bandwidth (MHz)		26dB bandwidth (MHz)		Limit (kHz)	Result
			ANT C	ANT D	ANT C	ANT D		
8192	Low	5190	36.225	36.278	41.225	41.957	500	Pass
	High	5230	36.293	36.183	41.510	40.943	500	Pass

NOTE: Model A/C (B/D) represent two different modules,

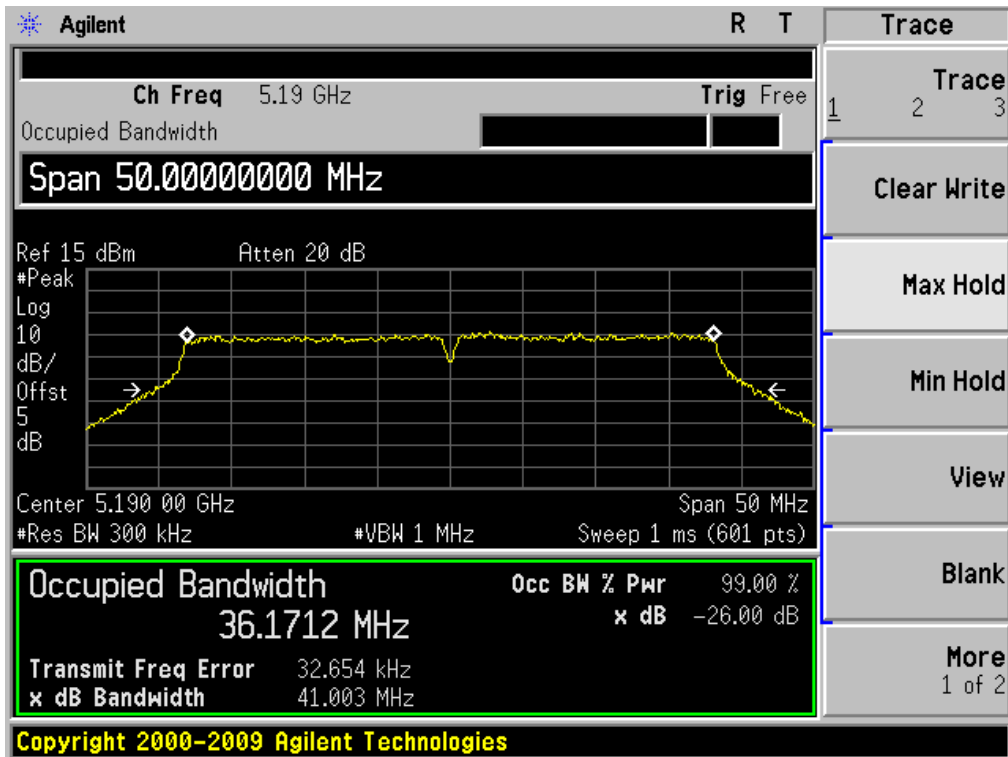
A(B) Represent the value of antenna A and B,The worst data is A Antenna a ,only shown Antenna A Plot.

C(D) Represent the value of antenna C and D,The worst data is C Antenna a ,only shown Antenna C Plot.

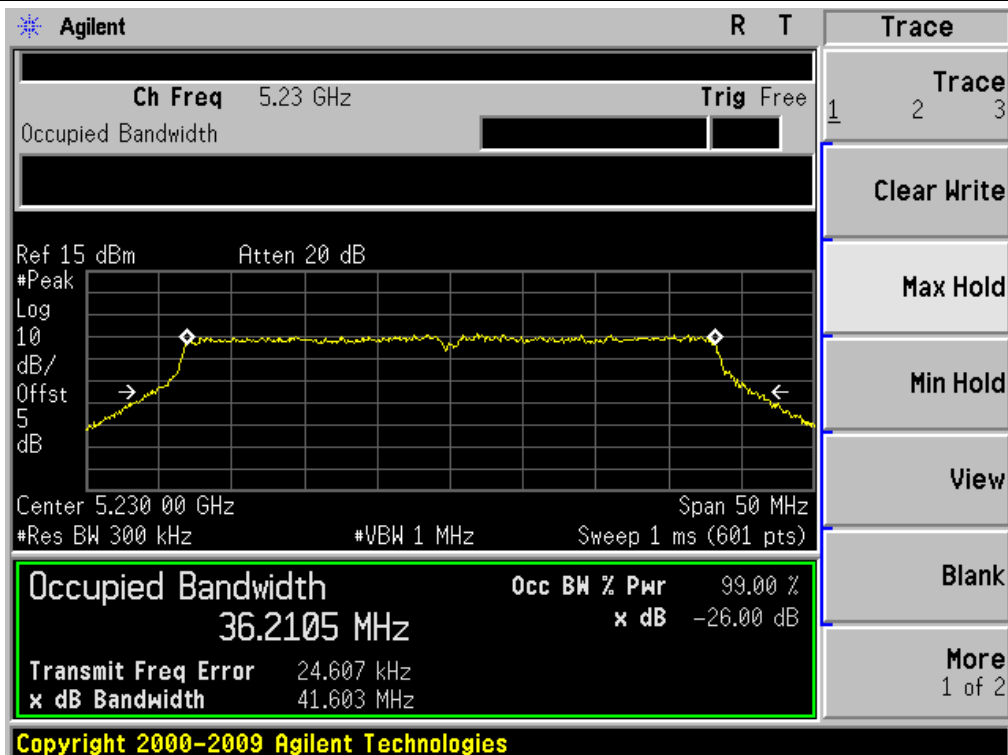
RF Model 8812

Antenna A

TX CH 38



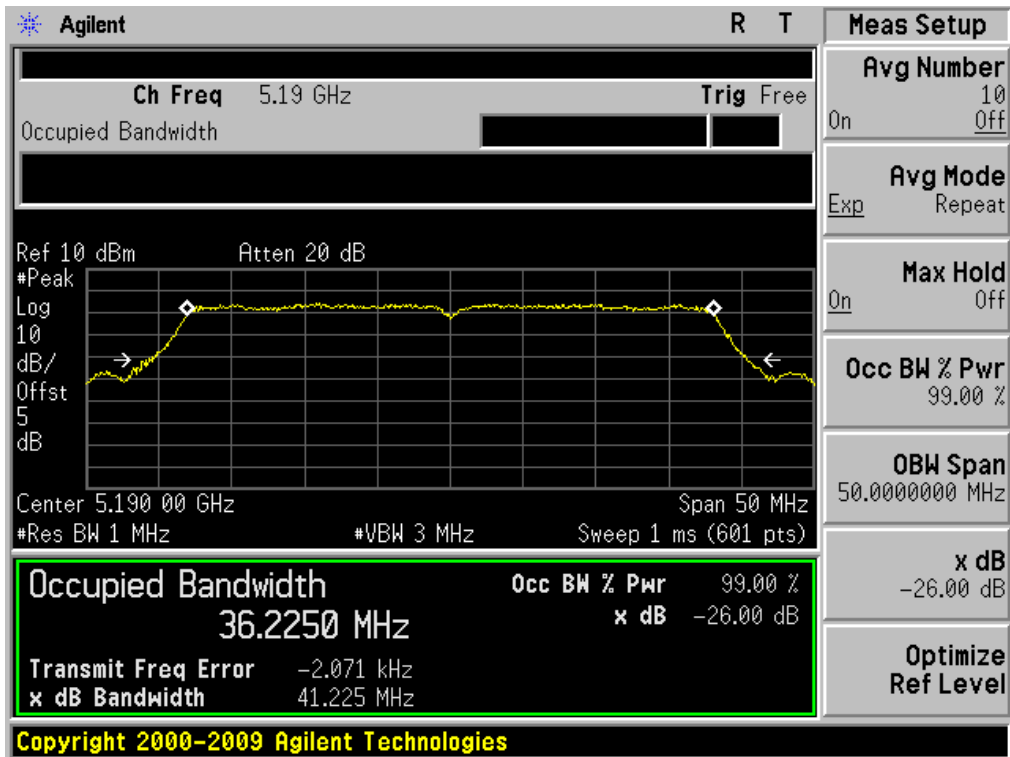
TX CH 46



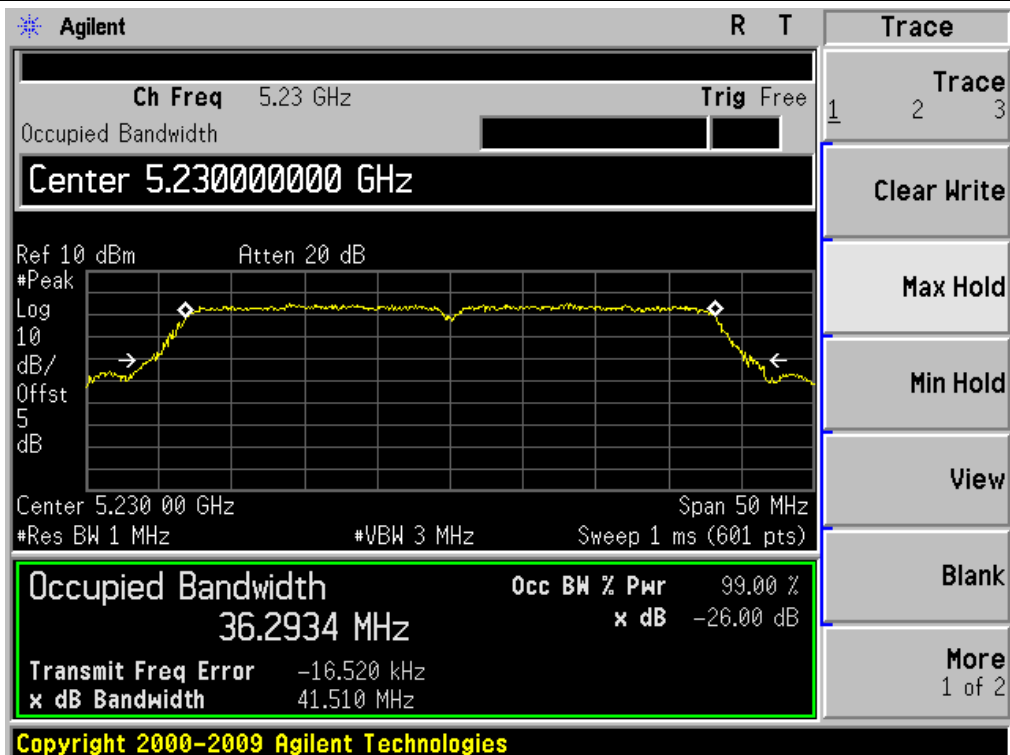
RF Model 8192

Antenna C

TX CH 38



TX CH 46



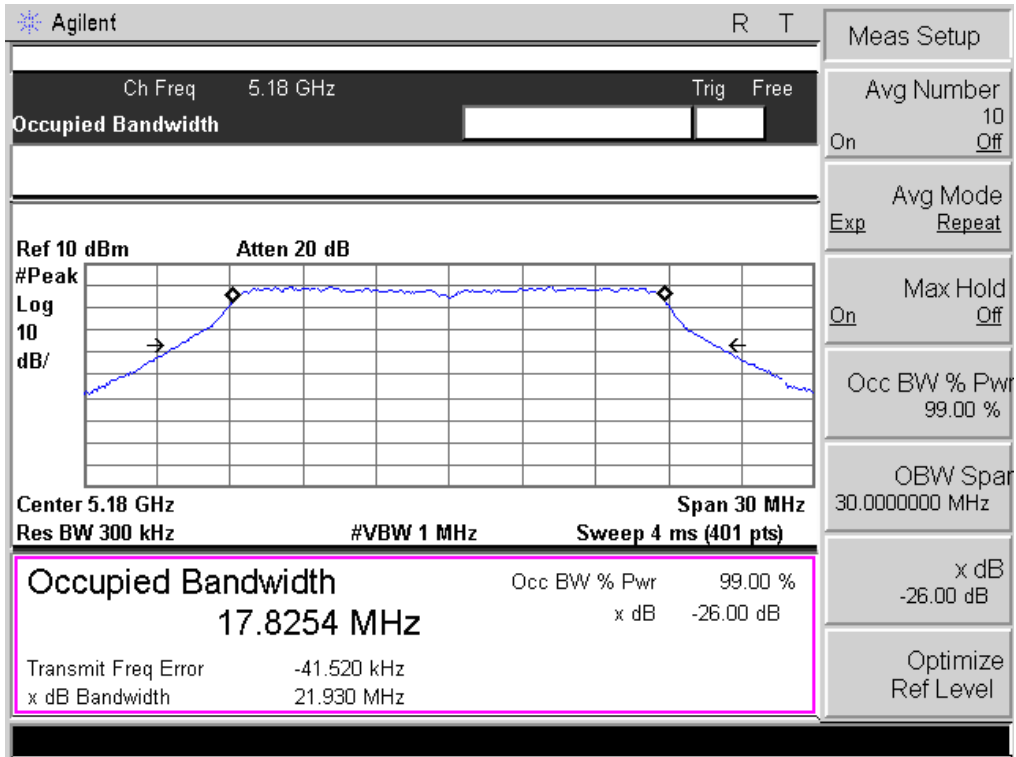
EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX AC(20M) Mode(5G) /CH36, CH40, CH48		

RF Model	Channel	Frequency (MHz)	99% bandwidth (MHz)		26dB bandwidth (MHz)		Limit (kHz)	Result
			ANT A	ANT B	ANT A	ANT B		
8812	Low	5180	17.825	17.814	21.930	22.041	500	Pass
	Middle	5200	17.876	17.846	22.046	21.984	500	Pass
	High	5240	17.833	17.824	21.987	22.148	500	Pass

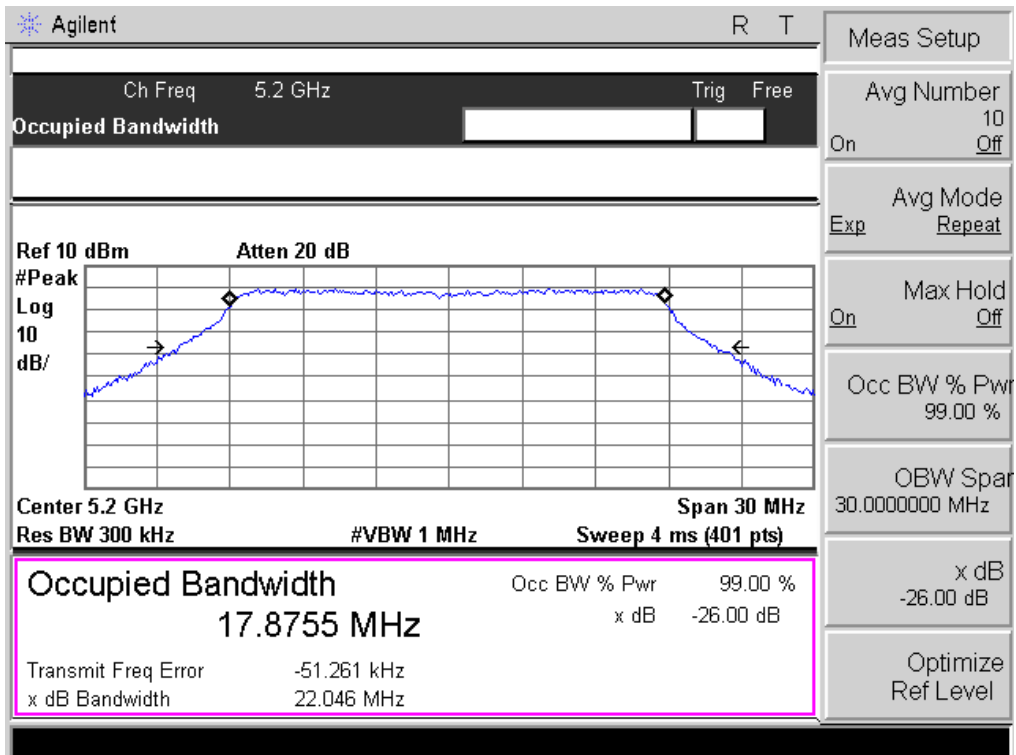
RF Model 8812

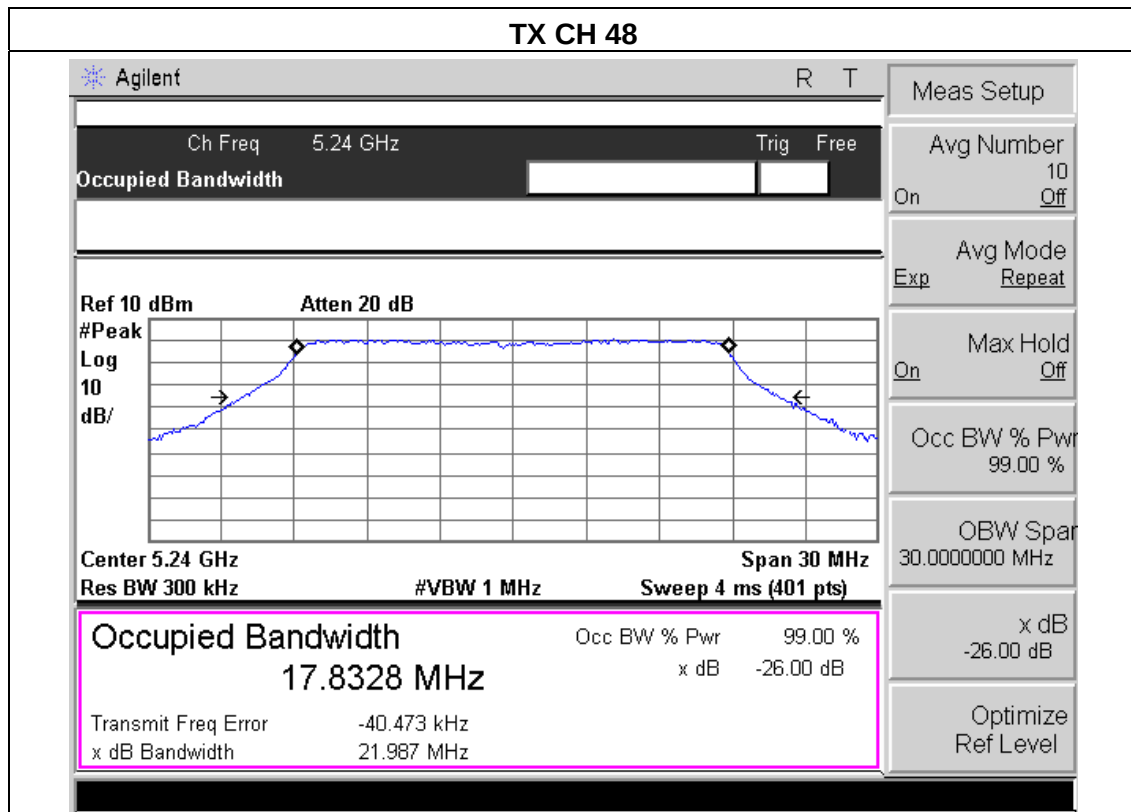
Antenna A

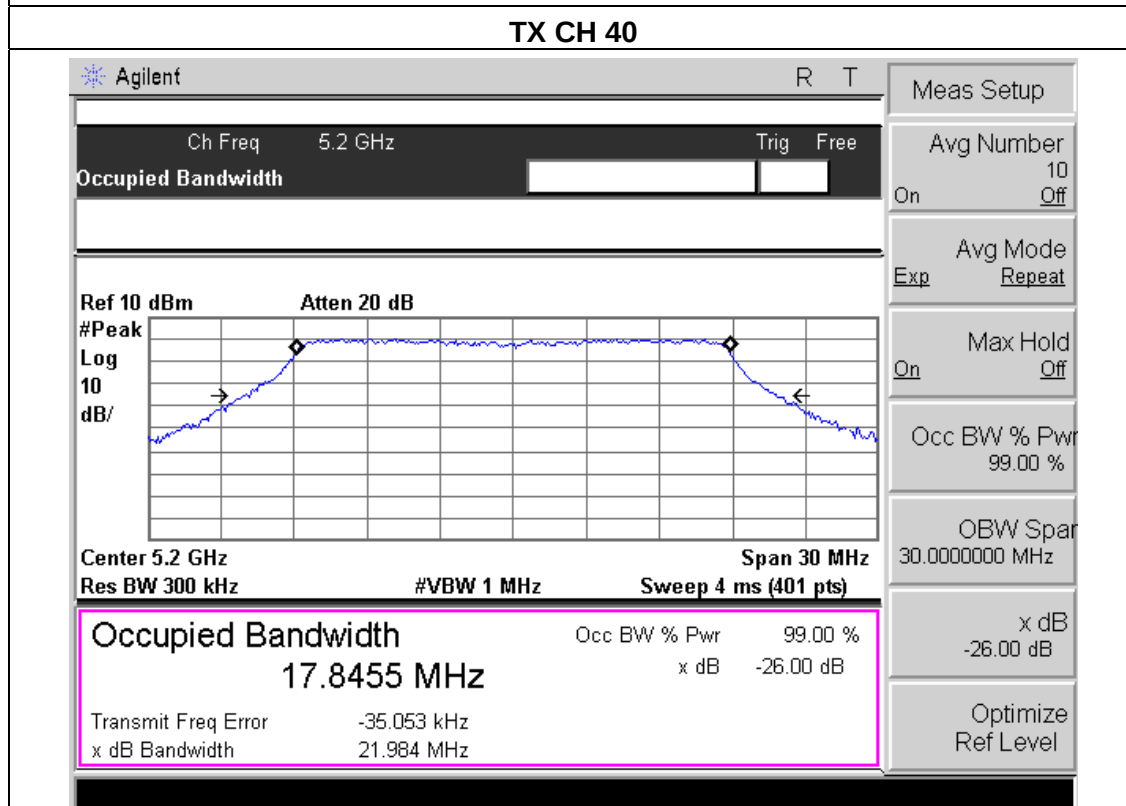
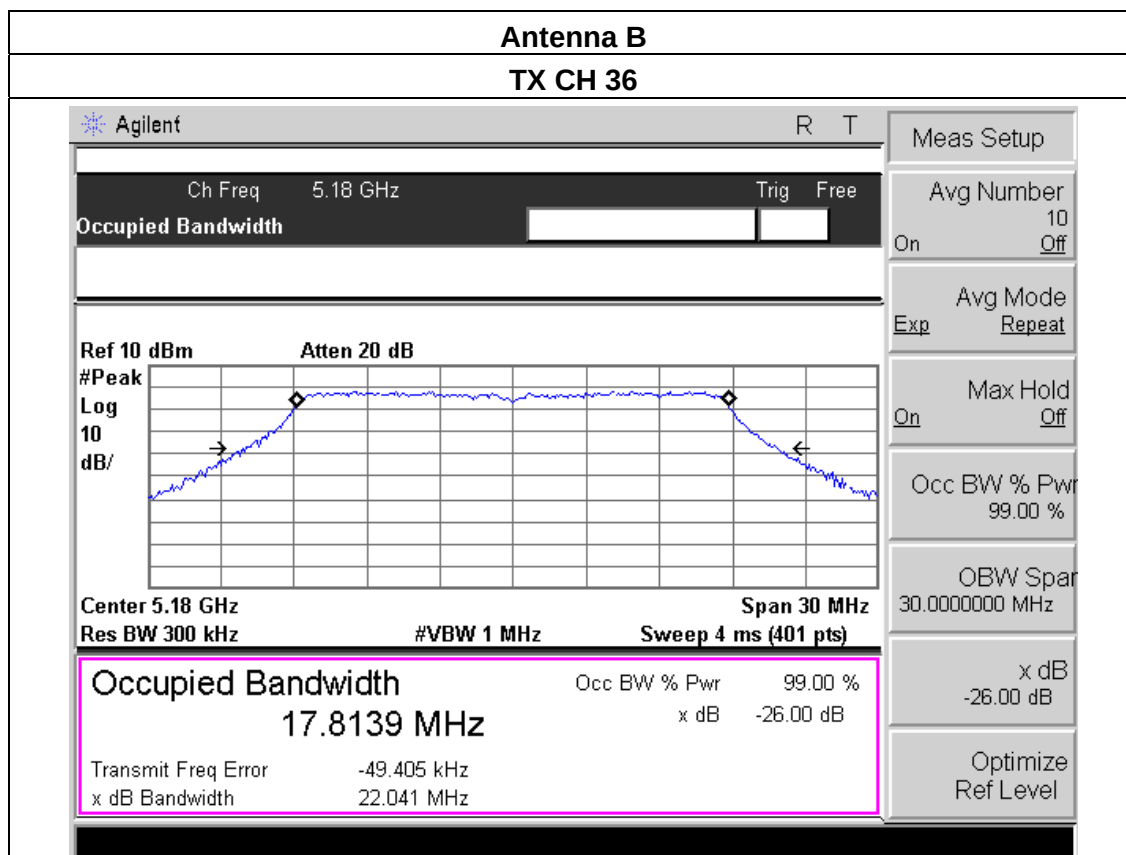
TX CH 36

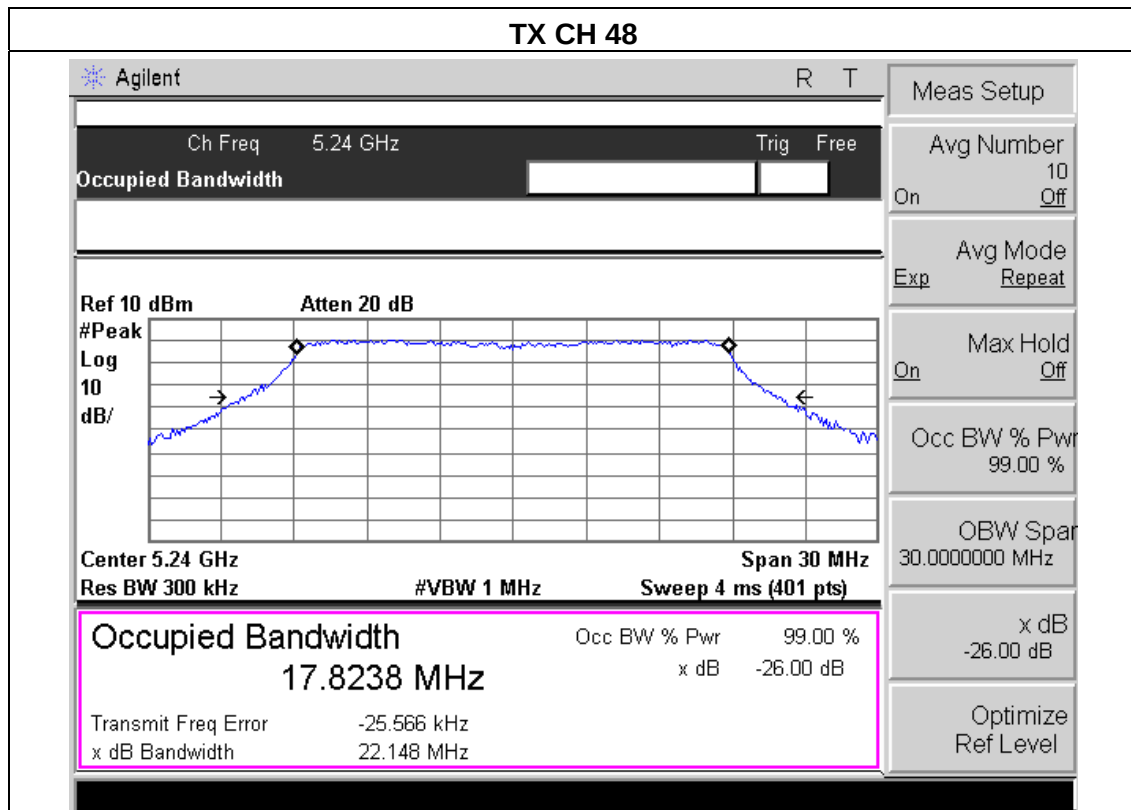


TX CH 40









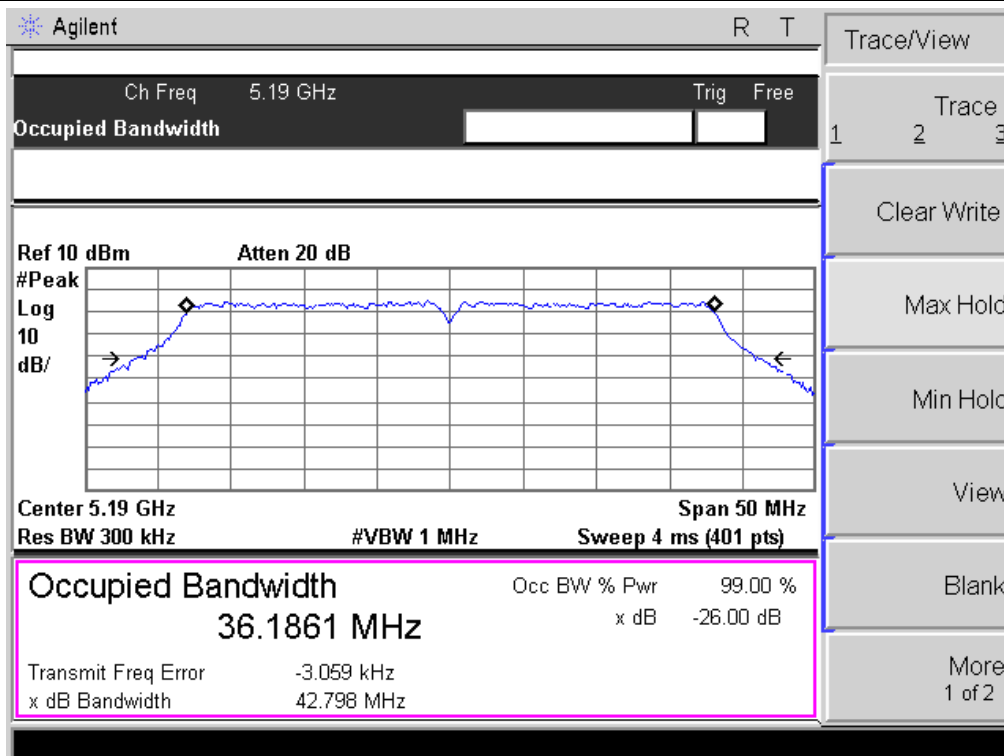
EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX AC(40M)Mode(5G) /CH38, CH46		

RF Model	Channel	Frequency (MHz)	99% bandwidth (MHz)		26dB bandwidth (MHz)		Limit (kHz)	Result
			ANT A	ANT B	ANT A	ANT B		
8812	Low	5190	36.186	36.155	42.798	42.690	500	Pass
	High	5230	36.169	36.222	42.714	42.829	500	Pass

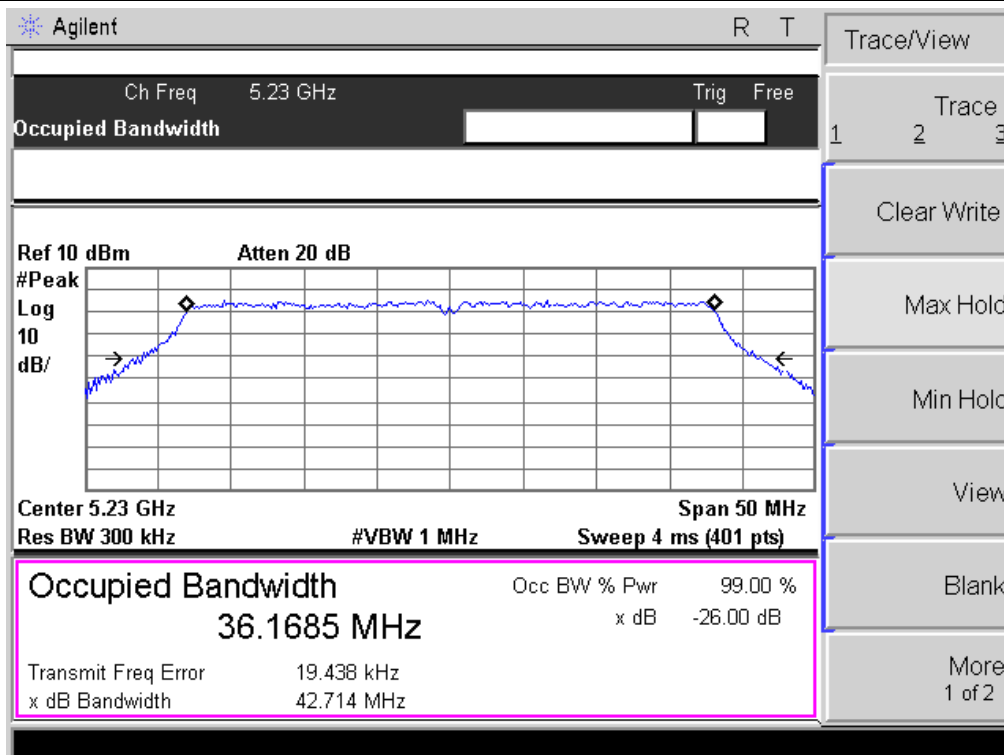
RF Model 8812

Antenna A

TX CH 38

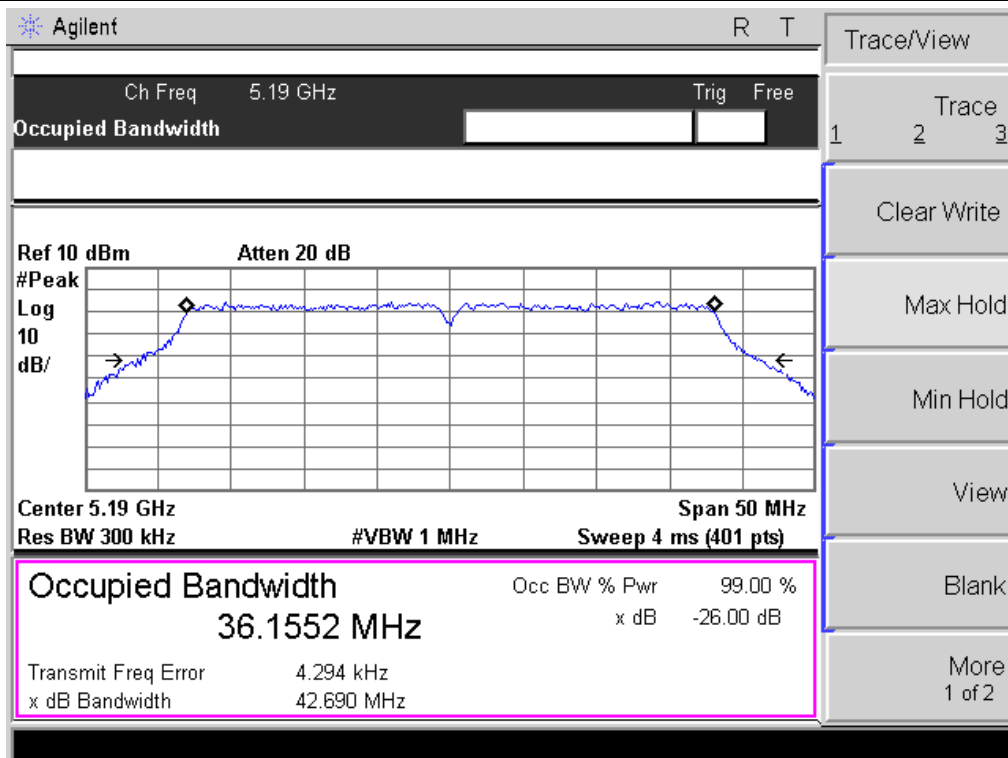


TX CH 46

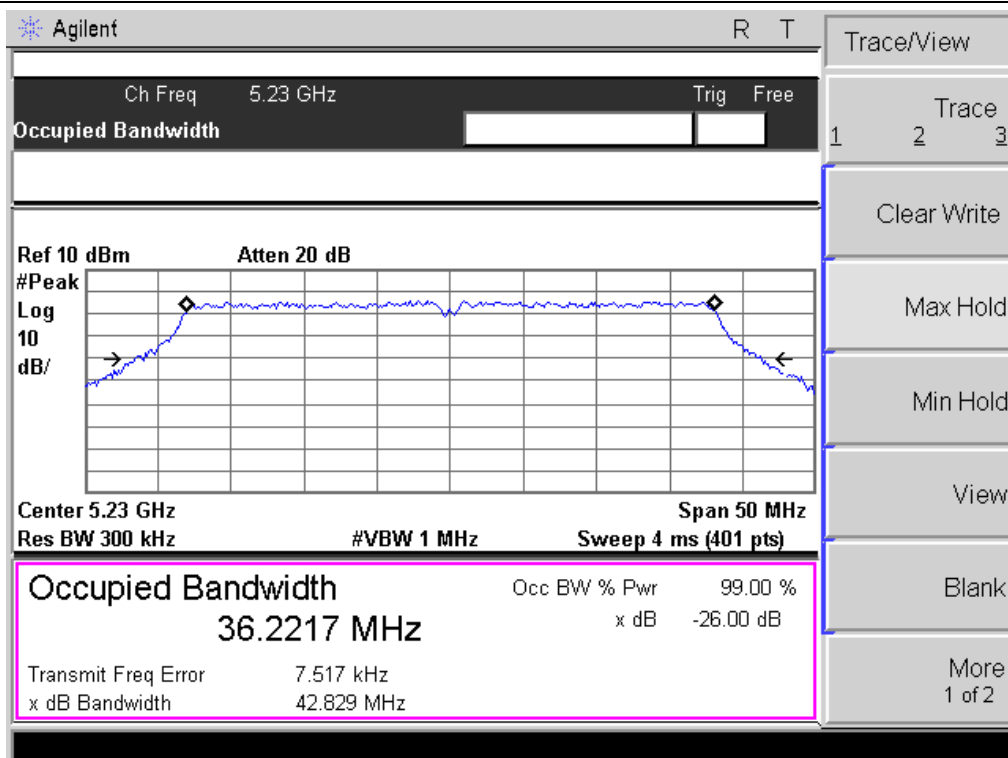


Antenna B

TX CH 38



TX CH 46



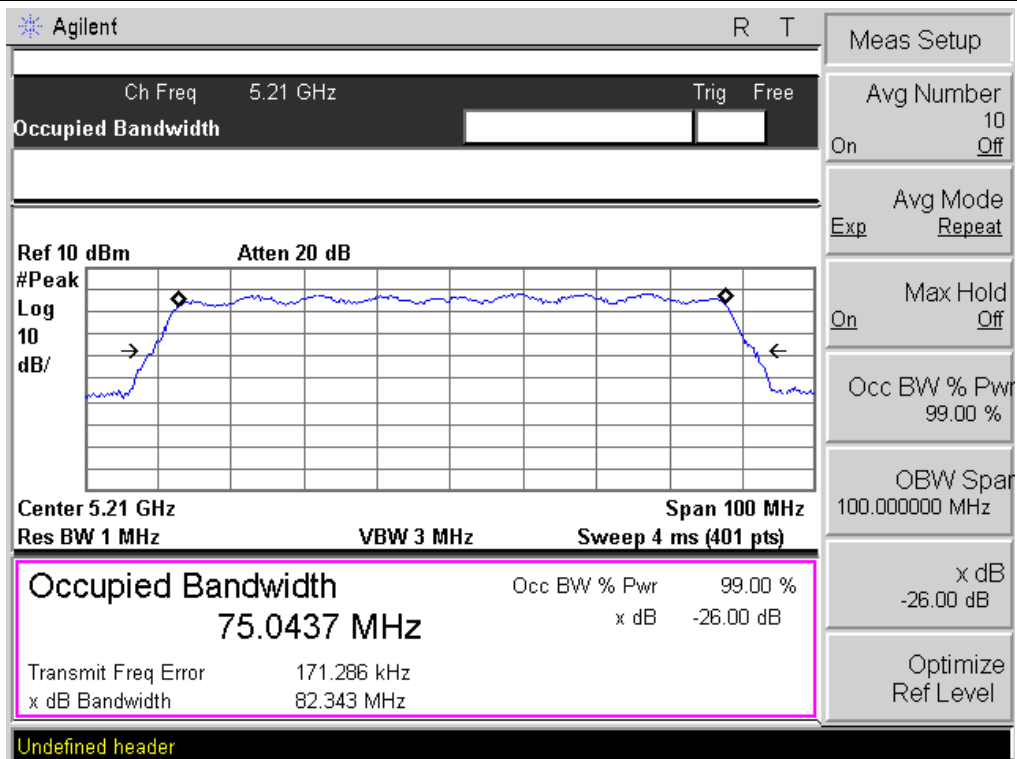
EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX AC(80M)Mode(5G) /CH42		

RF Model	Channel	Frequency (MHz)	99% bandwidth (MHz)		26dB bandwidth (MHz)		Limit (kHz)	Result
			ANT A	ANT B	ANT A	ANT B		
8812	CH42	5210	75.044	75.088	82.343	82.619	500	Pass

RF Model 8812

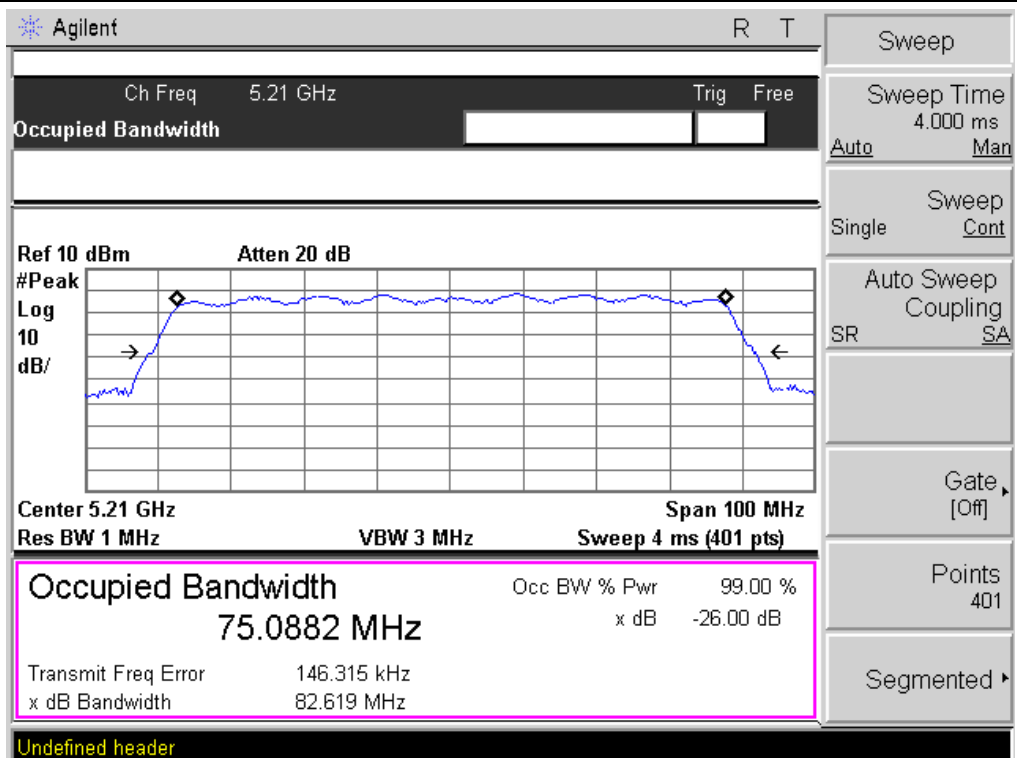
Antenna A

TX CH 42



Antenna B

TX CH 42



6. PEAK OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(a)(1)

For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

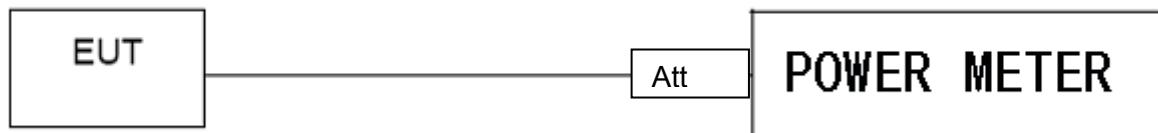
6.1.1 TEST PROCEDURE

- 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 Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz
Test Mode :	TX a/n(5G) Mode		

Model 8812

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								
CH36	5180	9.94	9.75	6.71	6.24	12.86	9.49	21.07
CH40	5200	9.41	9.36	6.55	6.31	12.40	9.44	21.07
CH48	5240	9.68	9.13	6.83	6.29	12.42	9.58	21.07
TX 802.11 n20M Mode								
CH36	5180	8.03	8.52	5.88	5.77	11.29	8.84	21.07
CH40	5200	8.08	8.81	5.62	5.00	11.47	8.33	21.07
CH48	5240	8.05	8.54	5.01	5.83	11.31	8.45	21.07
TX 802.11 n40M Mode								
CH38	5190	7.36	7.11	3.41	3.39	10.25	6.41	21.07
CH46	5230	7.28	7.15	3.56	3.25	10.23	6.42	21.07

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 802.11 AC20M Mode								
CH36	5180	10.83	10.10	7.72	7.67	13.49	10.71	21.07
CH40	5200	10.13	10.36	7.01	7.60	13.26	10.33	21.07
CH48	5240	10.15	10.26	7.90	7.15	13.22	10.55	21.07
TX 802.11 AC40M Mode								
CH38	5190	8.73	8.34	7.47	7.93	11.55	10.72	21.07
CH46	5230	8.65	8.01	7.19	7.70	11.35	10.46	21.07
TX 802.11 AC80M Mode								
CH42	5210	10.88	10.32	7.45	7.71	13.62	10.59	21.07

For 5G mode, Limit = 23.98 - 8.91 + 6 = 21.07 dBm for output power

Model 8192

Test Channe	Frequency	Maximum output power. Antenna port				Total Power		LIMIT
		(PK) (dBm)		(AV) (dBm)		(PK)	(AV)	
	(MHz)	ANT C	ANT D	ANT C	ANT D	dBm	dBm	dBm
TX 802.11a Mode								
CH36	5180	8.18	7.84	5.78	5.23	11.02	8.52	21.6
CH40	5200	8.93	7.78	5.32	5.68	11.40	8.51	21.6
CH48	5240	8.27	7.33	5.01	5.87	10.84	8.47	21.6
TX 802.11 n20M Mode								
CH36	5180	8.23	7.87	5.91	5.45	11.06	8.70	21.6
CH40	5200	8.90	7.80	5.54	5.80	11.40	8.68	21.6
CH48	5240	8.11	7.38	5.10	4.97	10.77	8.05	21.6
TX 802.11 n40M Mode								
CH38	5190	6.60	6.51	3.84	3.14	9.57	6.51	21.6
CH46	5230	6.25	6.24	3.83	3.93	9.26	6.89	21.6

For 5G mode, Limit = $23.98 - 8.38 + 6 = 21.6$ dBm for output power

7. OUT OF BAND EMISSIONS

APPLICABLE STANDARD

According to FCC §15.407(b)

For transmitters operating in the 5.15–5.25 GHz band: all emissions outside of the 5.15–5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz

According to RSS-247 §6.2.1(2)

For transmitters operating in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. However, any unwanted emissions that fall into the band 5250-5350 MHz must be 26 dBc, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth, above 5.25 GHz. Otherwise, the transmission is considered as intentional and the devices shall implement dynamic frequency selection (DFS) and transmitter power control (TPC) as per the requirements for the band 5250-5350 MHz.

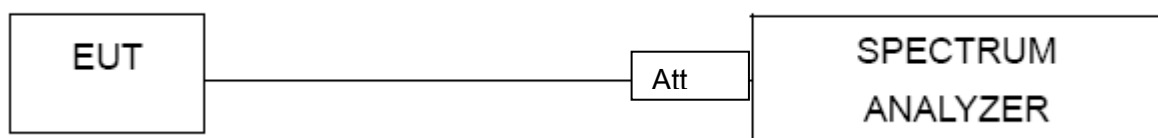
TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. 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.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. 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.
5. 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

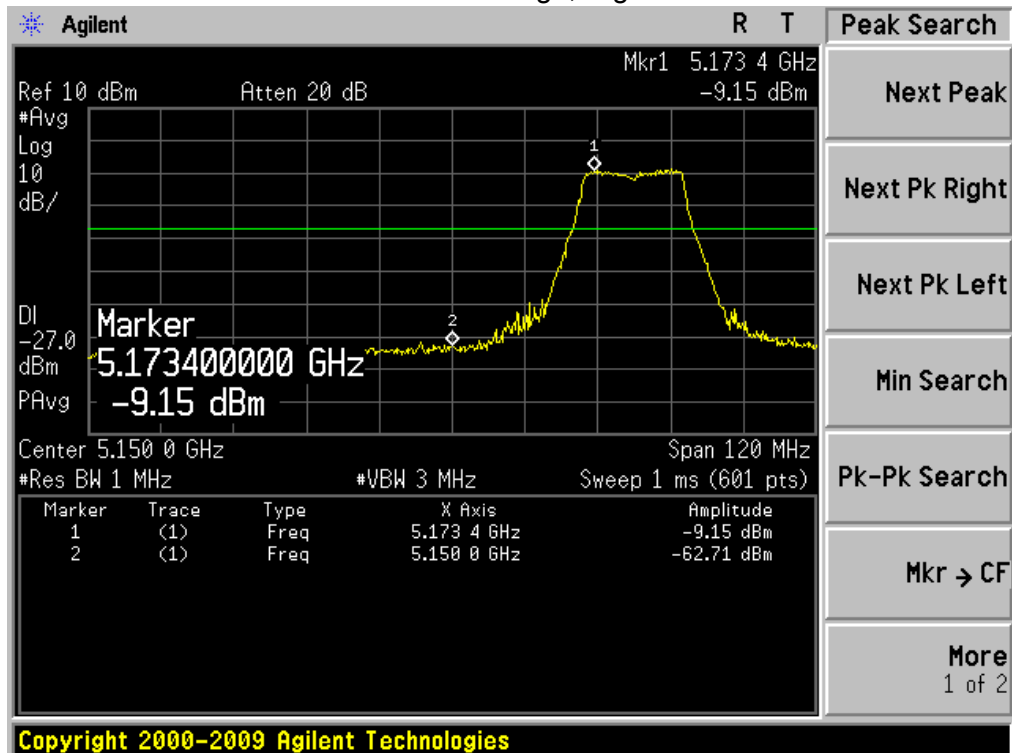
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

7.4 TEST RESULTS

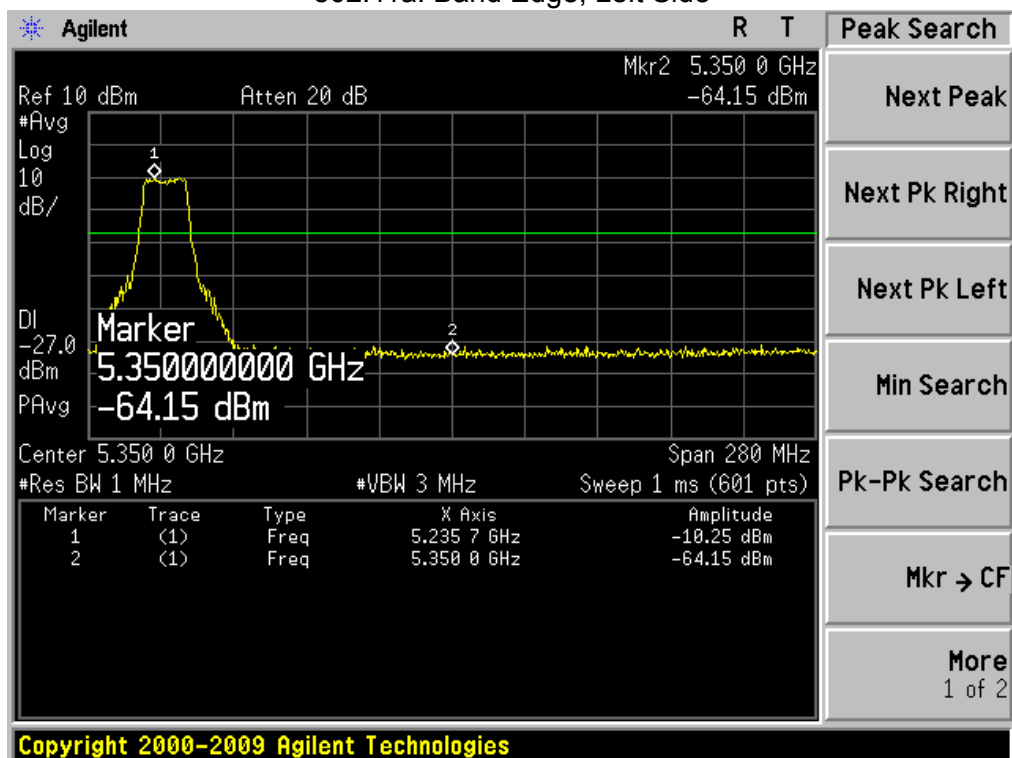
EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz

Model 8812 Antenna A

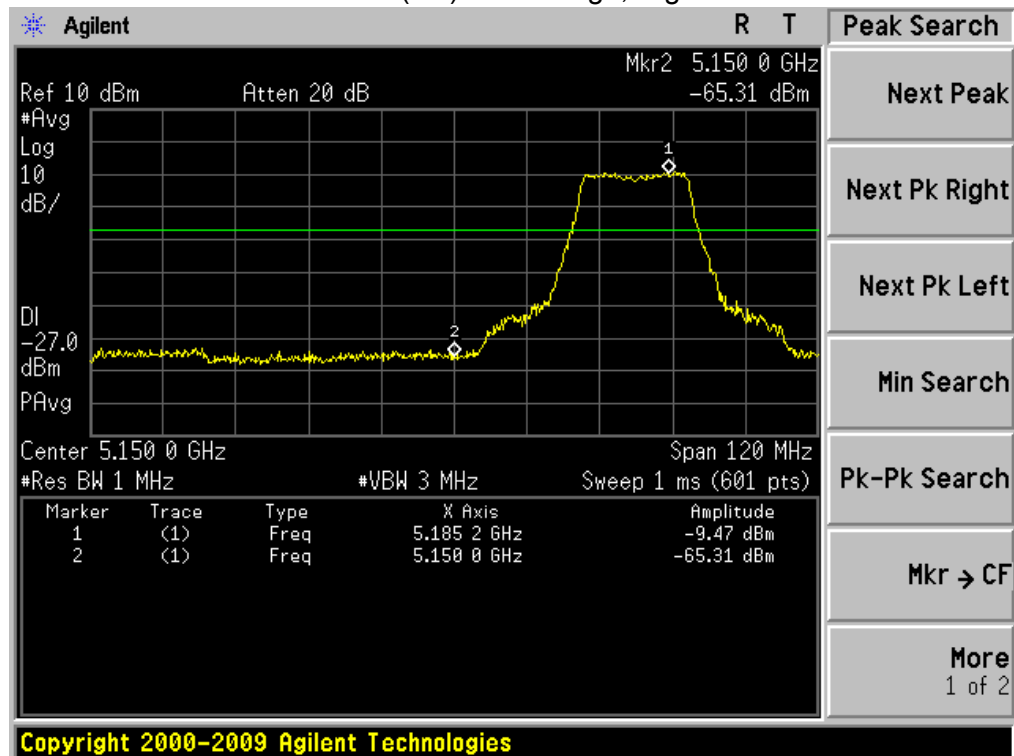
802.11a: Band Edge, Right Side



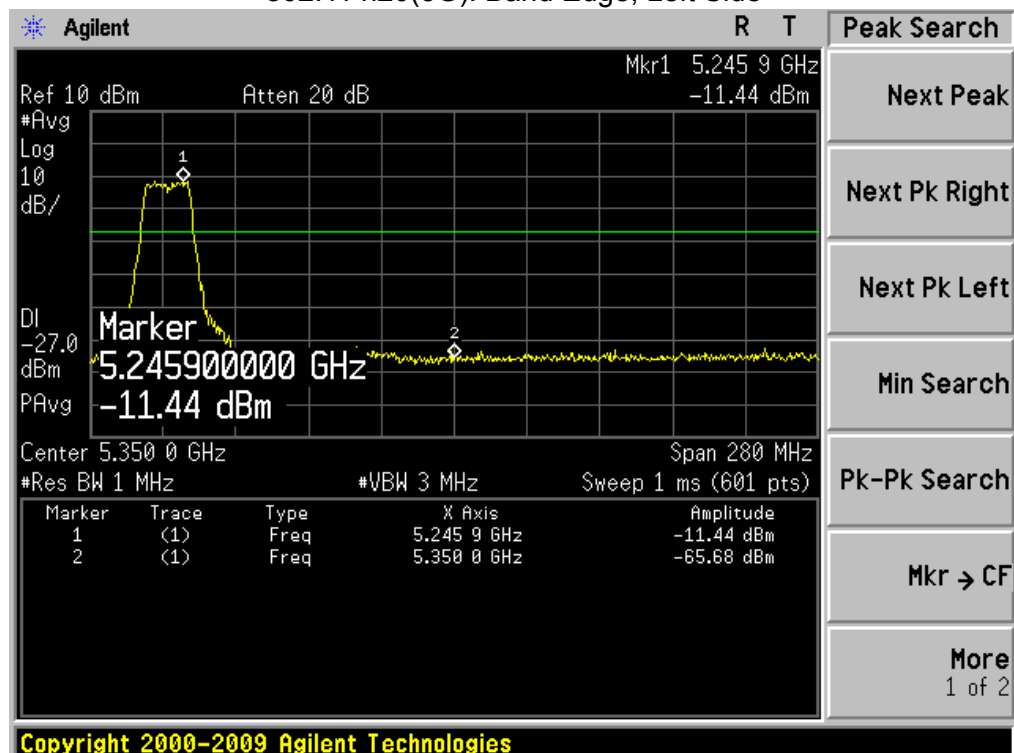
802.11a: Band Edge, Left Side



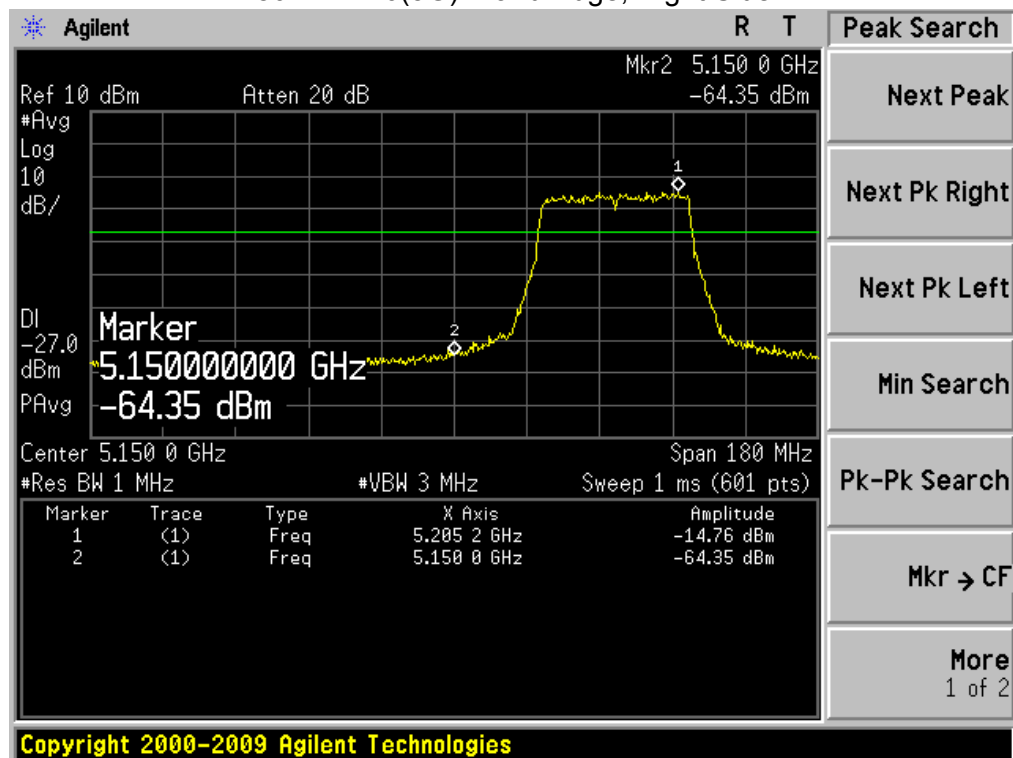
802.11 n20(5G): Band Edge, Right Side



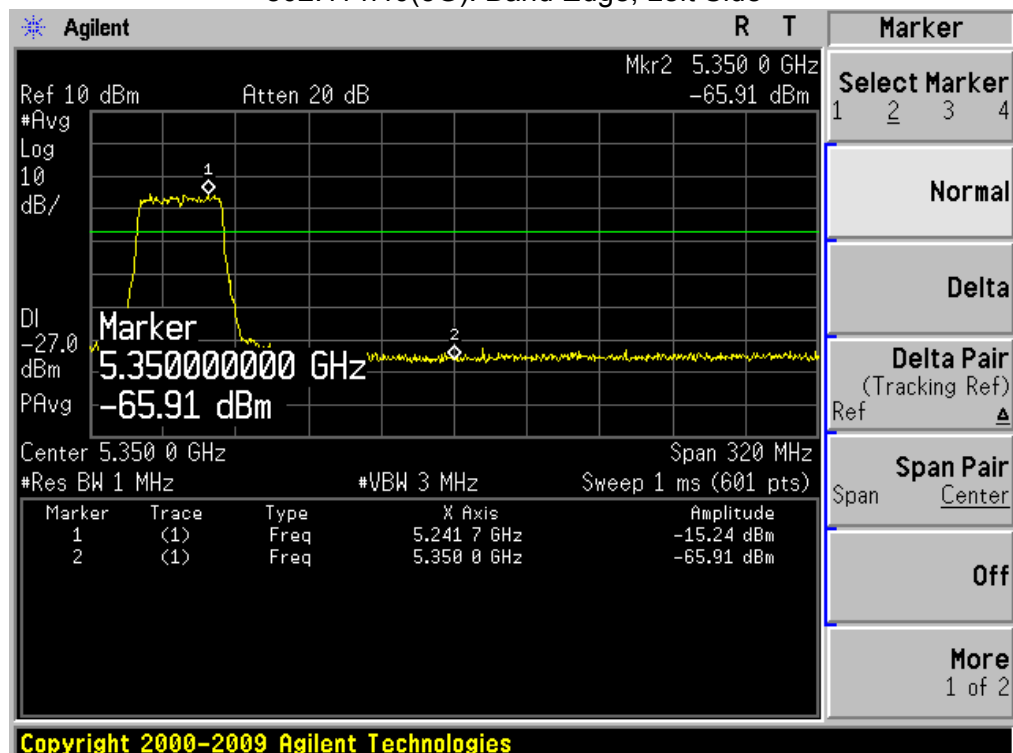
802.11 n20(5G): Band Edge, Left Side



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

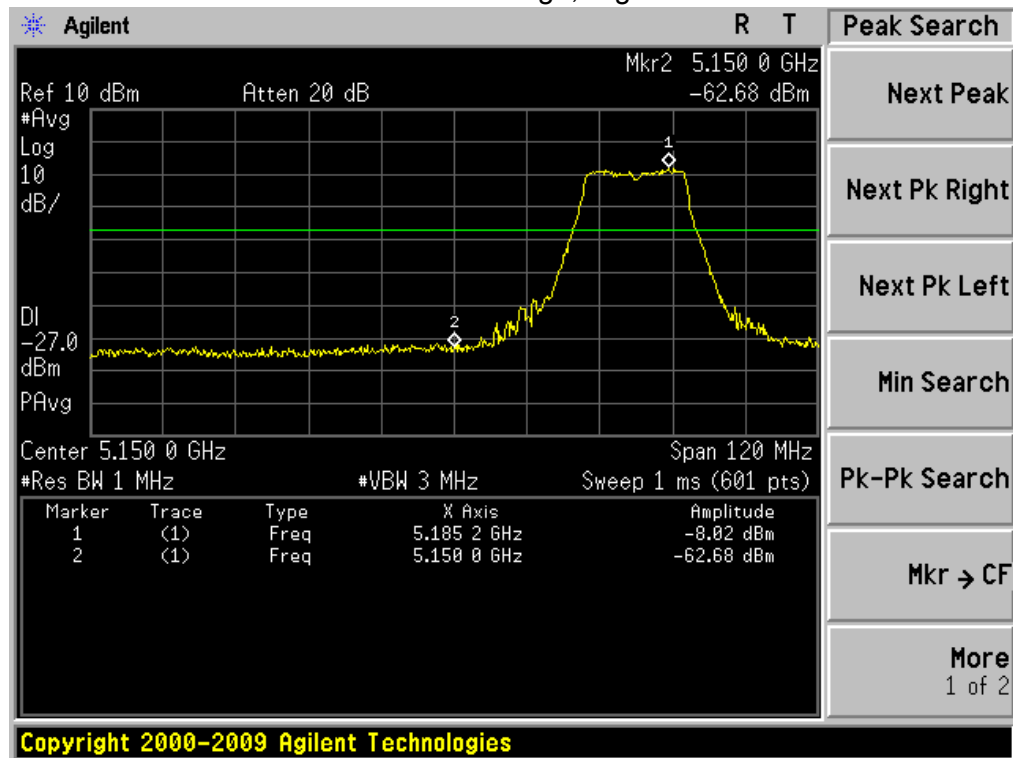


802.11 n40(5G): Band Edge, Left Side

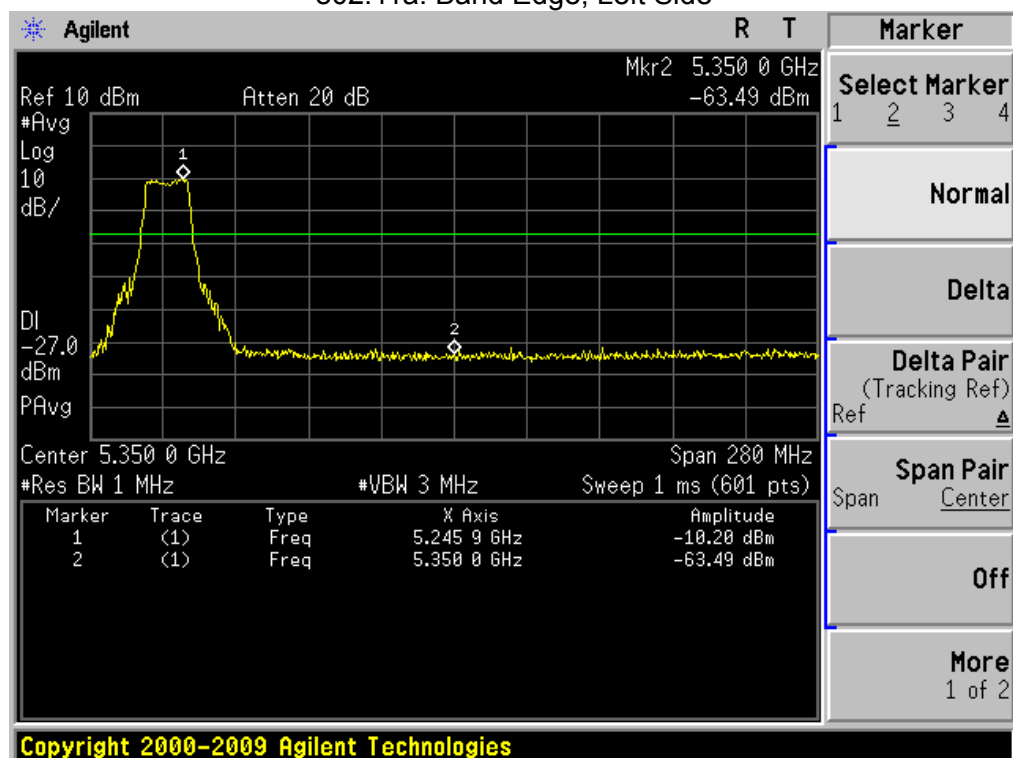


Antenna B

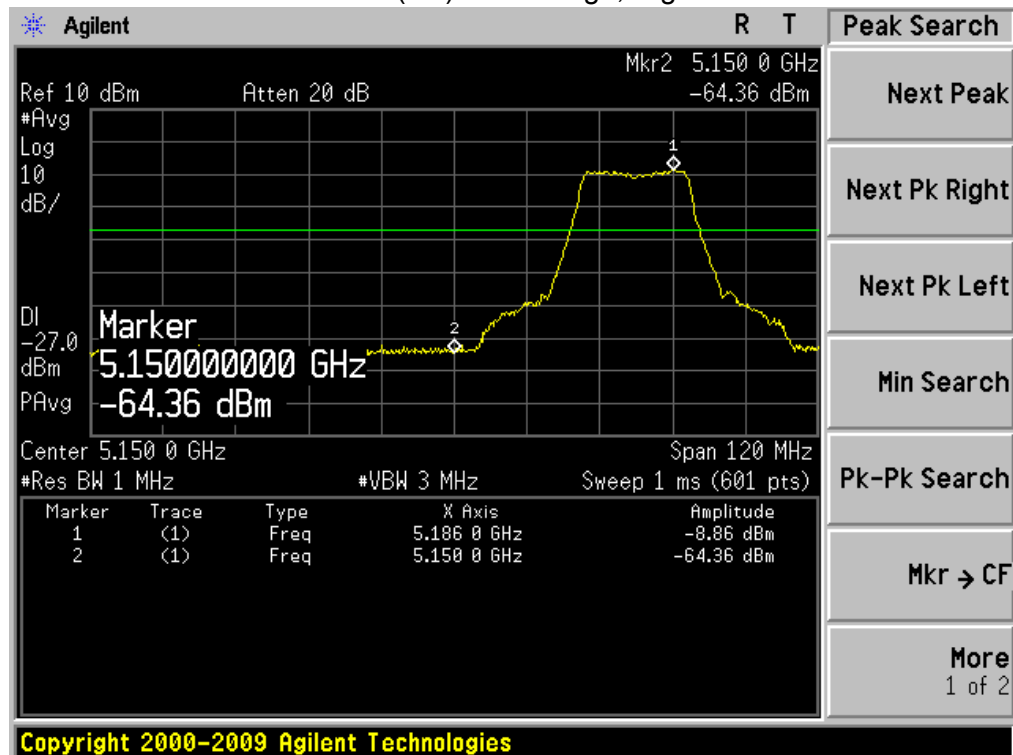
802.11a: Band Edge, Right Side



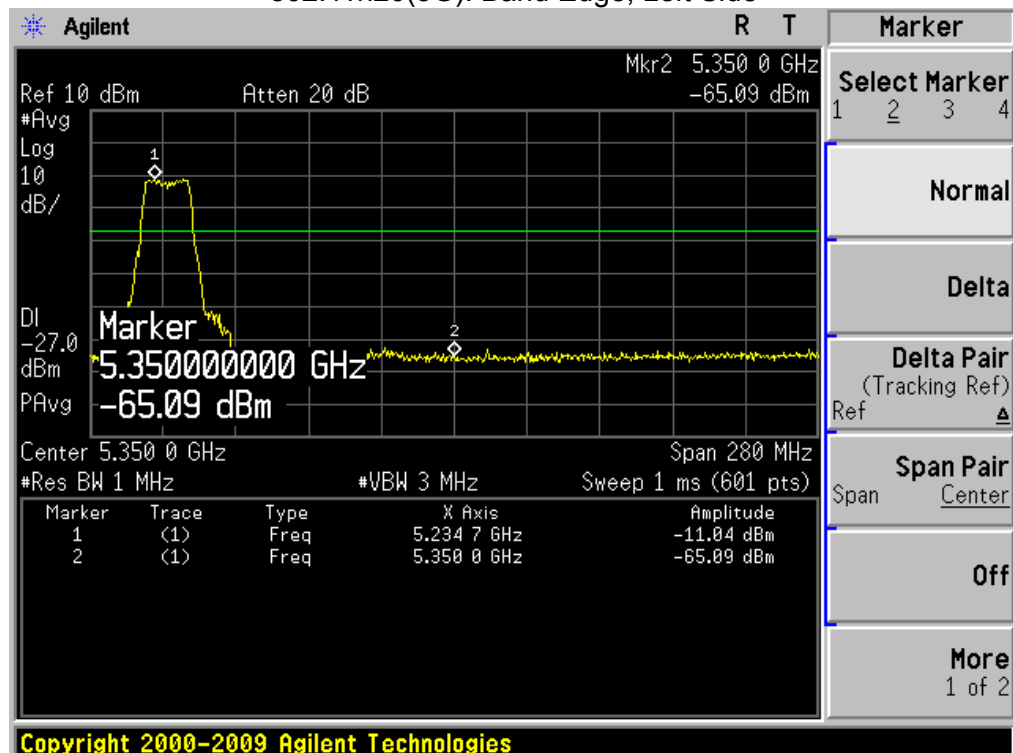
802.11a: Band Edge, Left Side



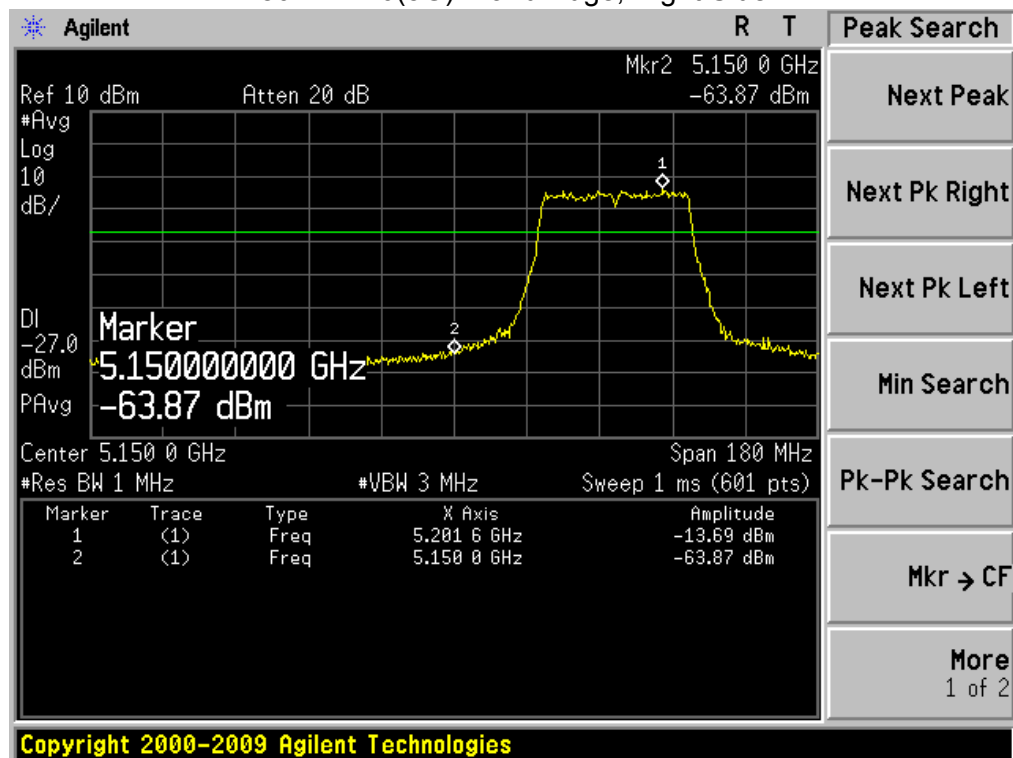
802.11n20(5G): Band Edge, Right Side



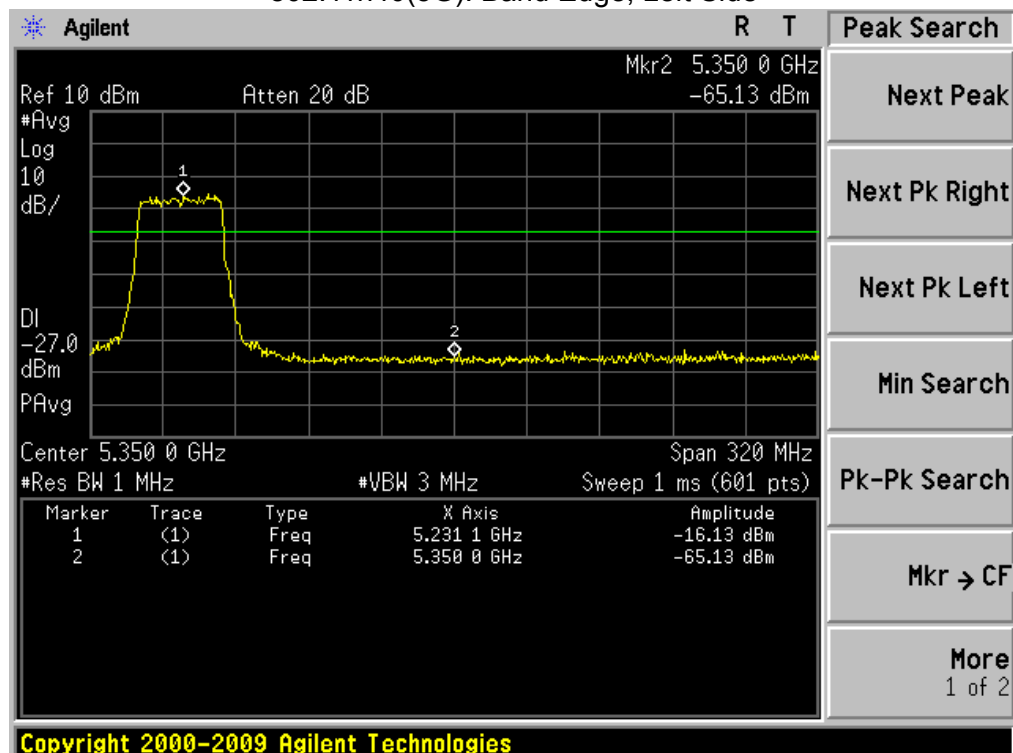
802.11n20(5G): Band Edge, Left Side



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

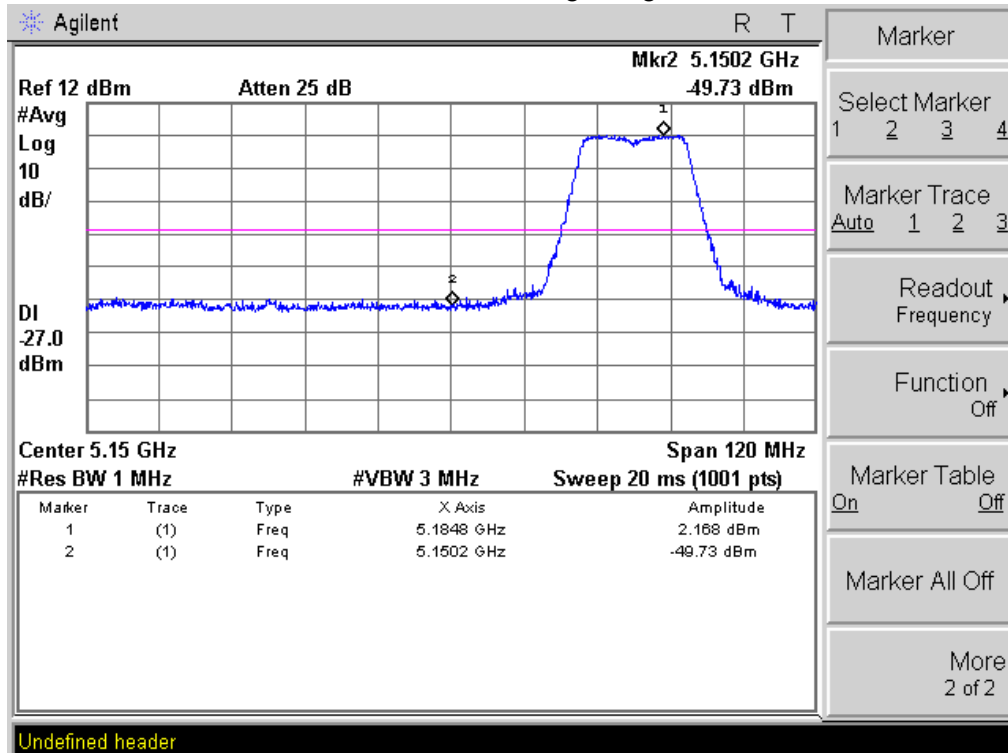


802.11n40(5G): Band Edge, Left Side

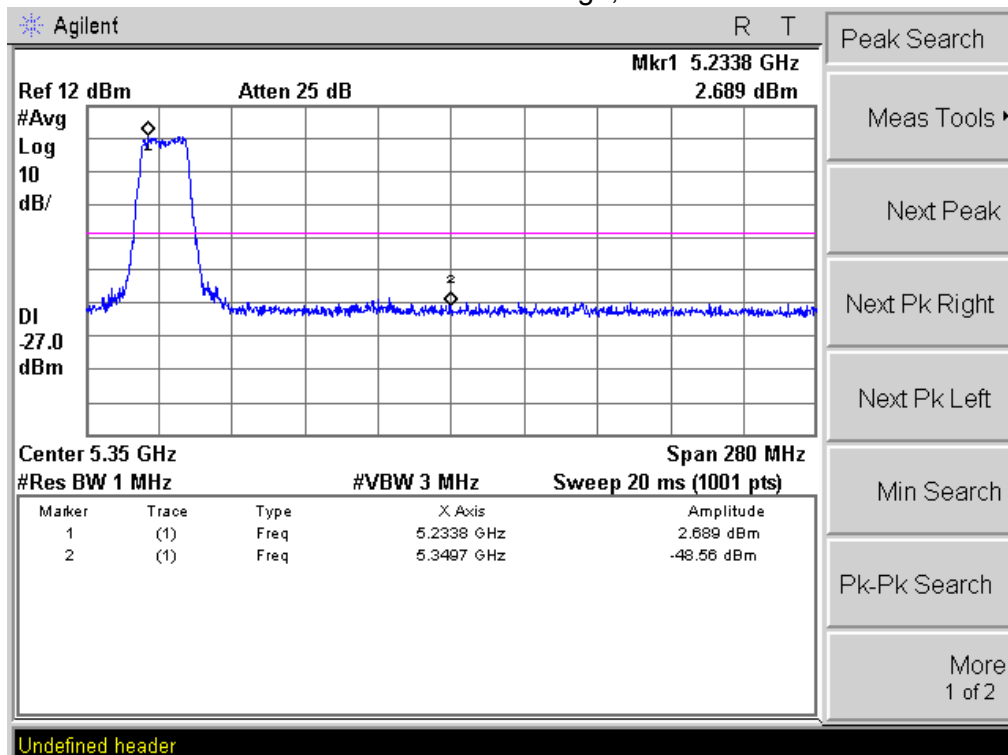


Model 8812 Antenna A

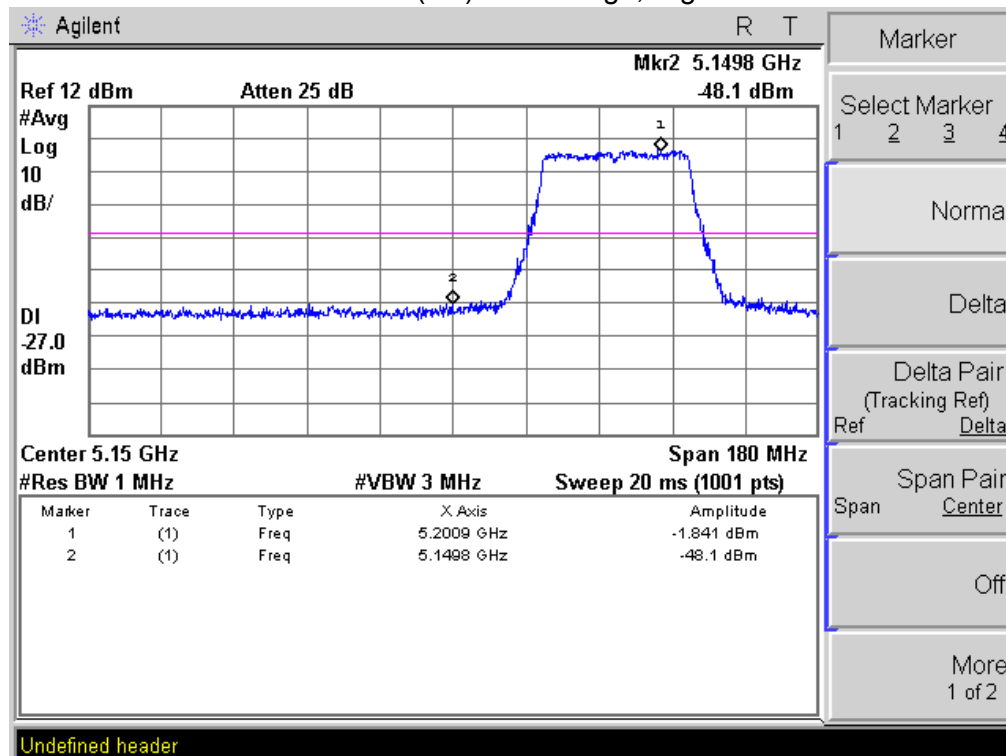
802.11AC20: Band Edge, Right Side



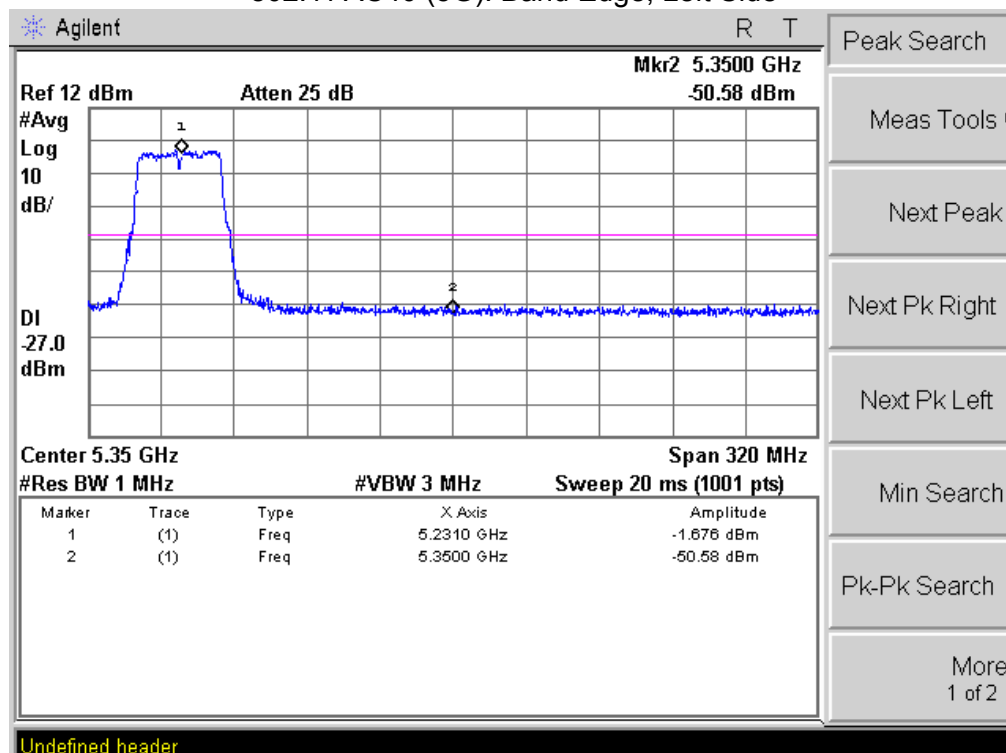
802.11 AC20: Band Edge, Left Side



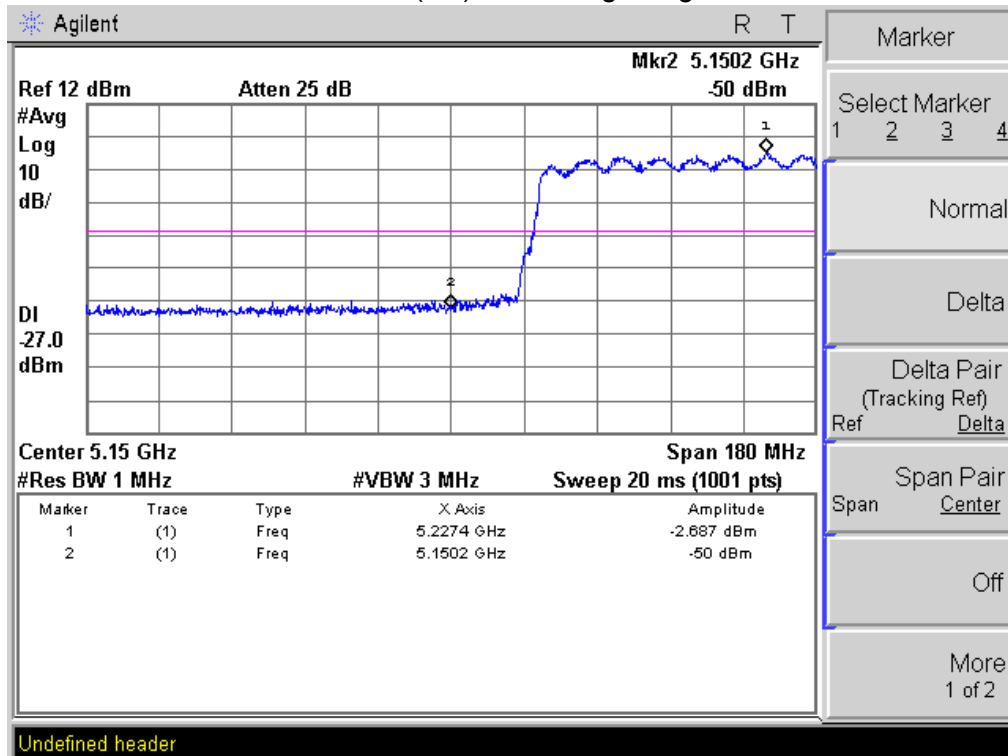
802.11 AC40 (5G): Band Edge, Right Side



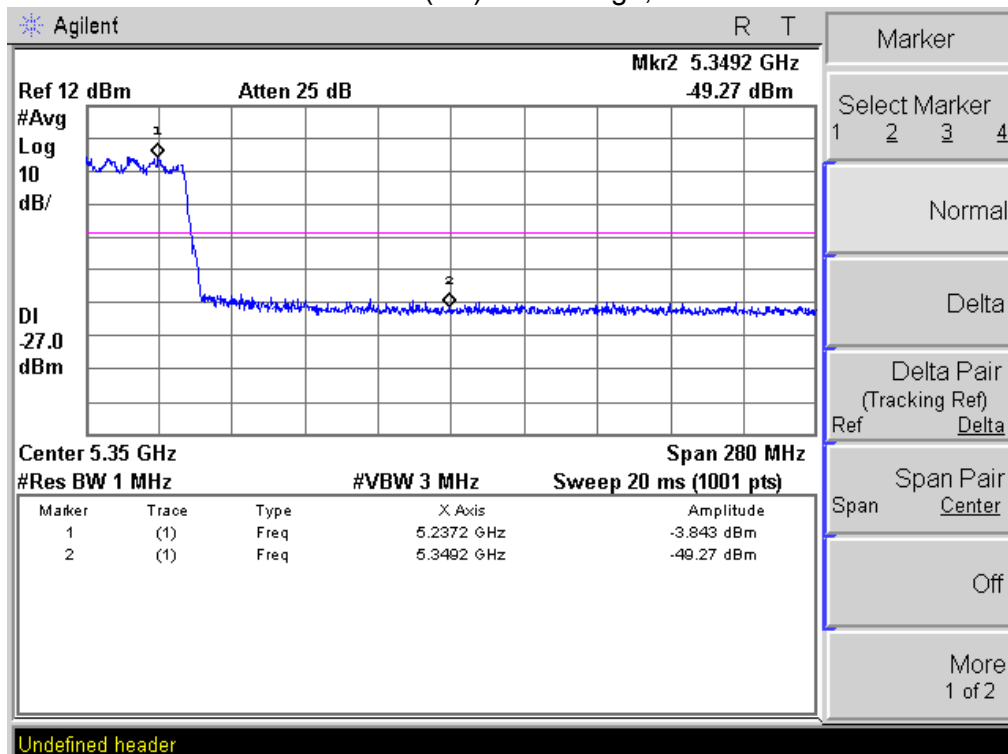
802.11 AC40 (5G): Band Edge, Left Side



802.11 AC80 (5G): Band Edge, Right Side

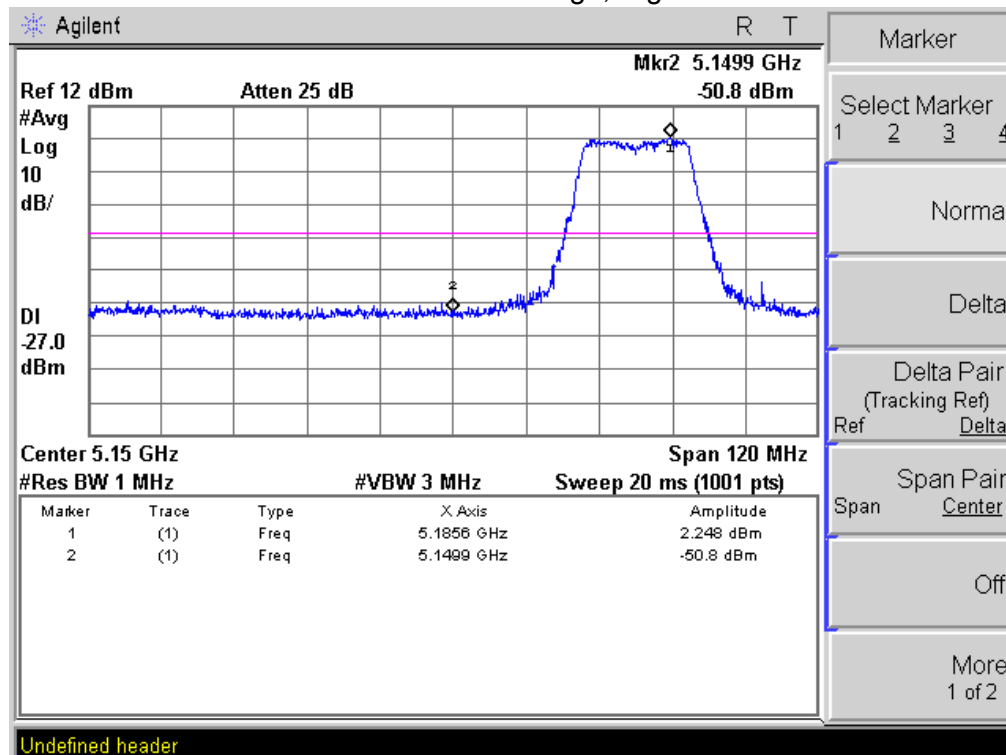


802.11 AC80 (5G): Band Edge, Left Side

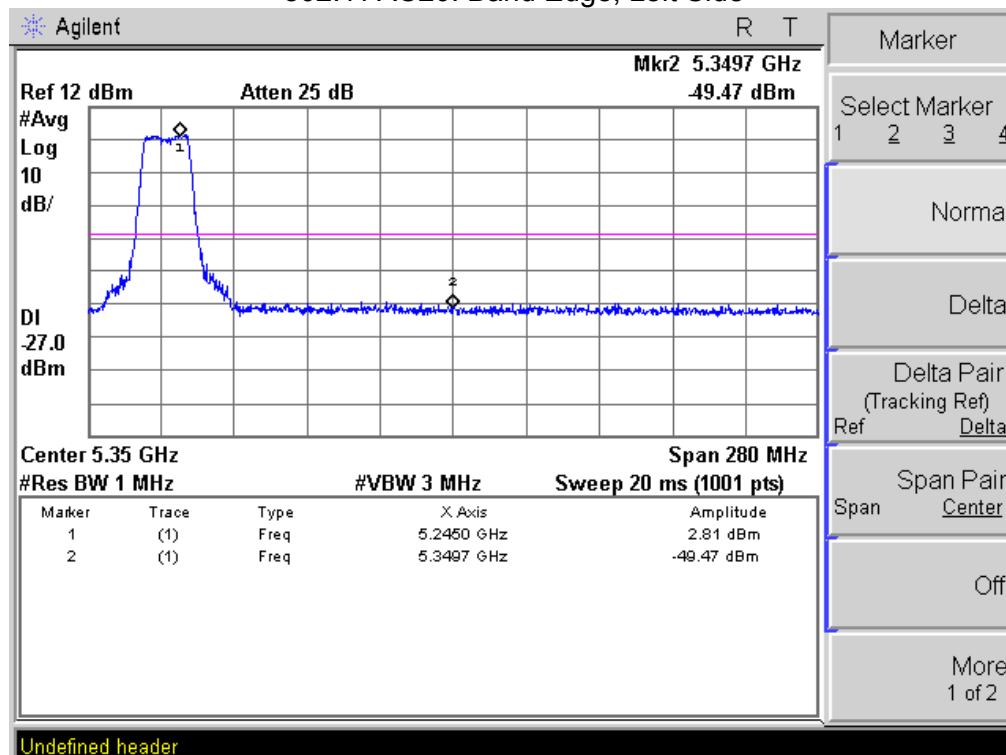


Antenna B

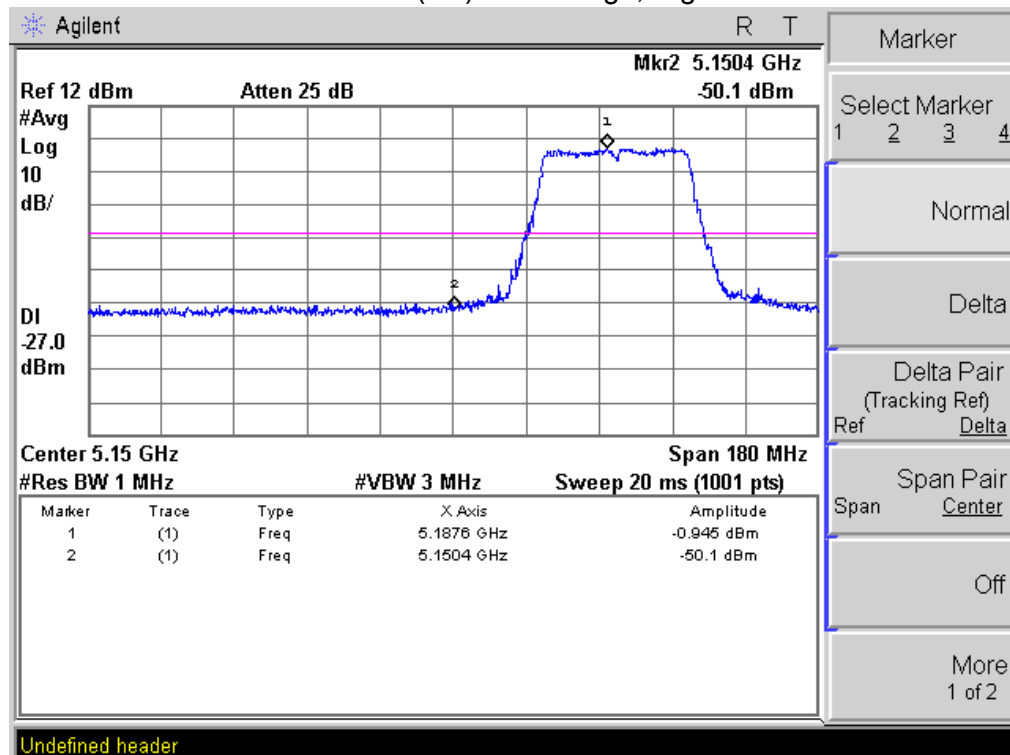
802.11 AC20: Band Edge, Right Side



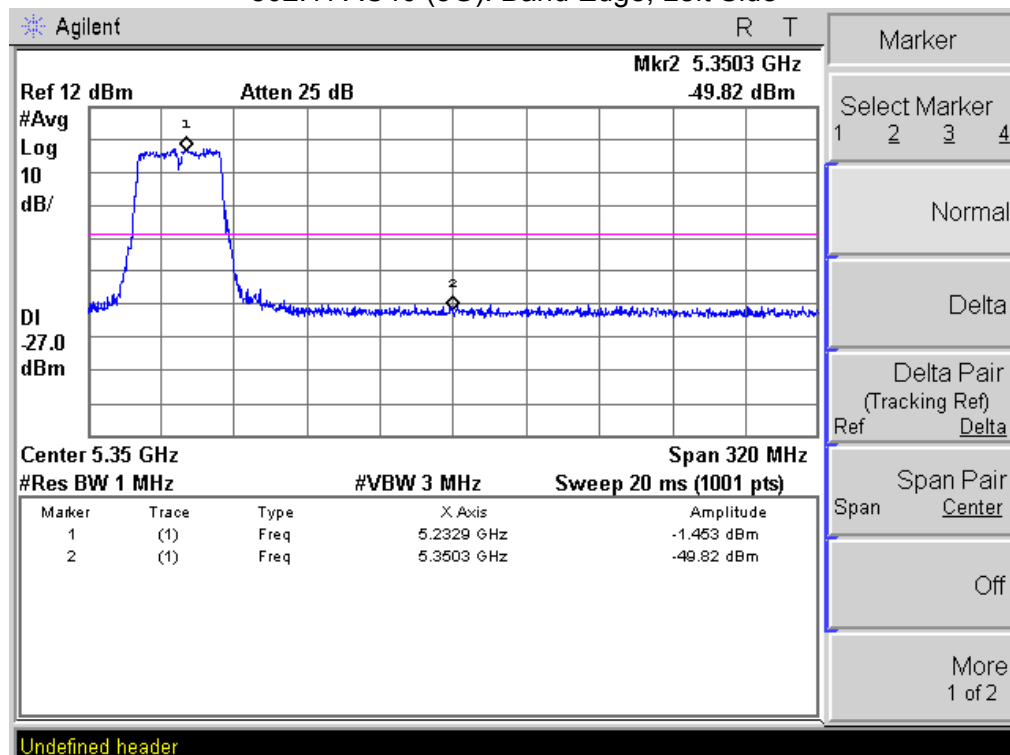
802.11 AC20: Band Edge, Left Side



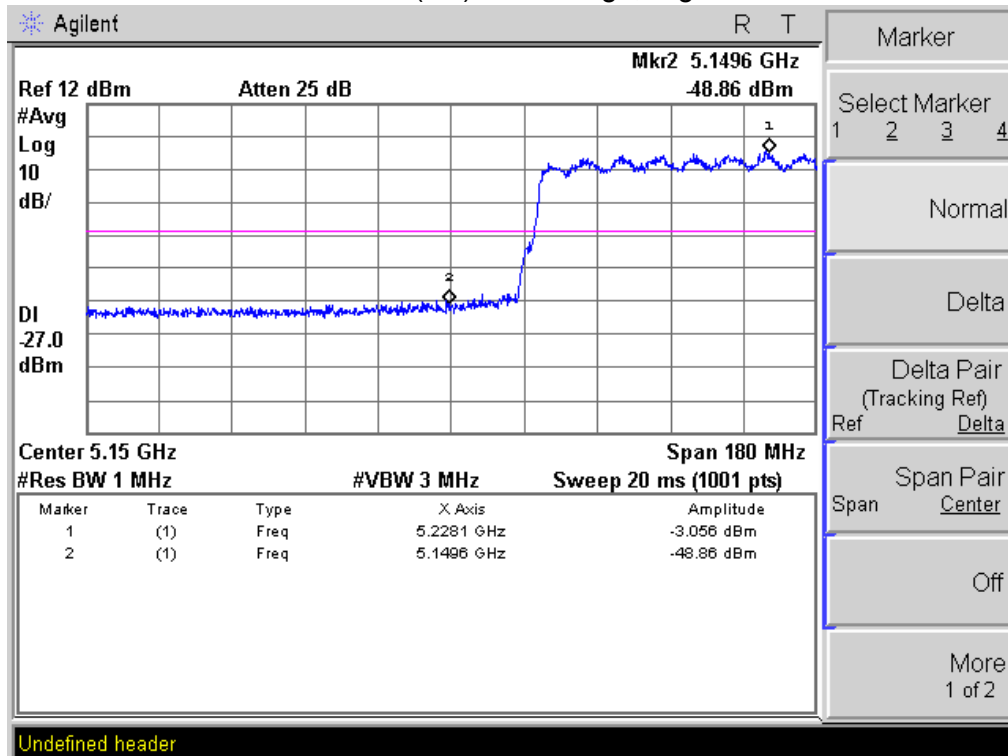
802.11 AC40 (5G): Band Edge, Right Side



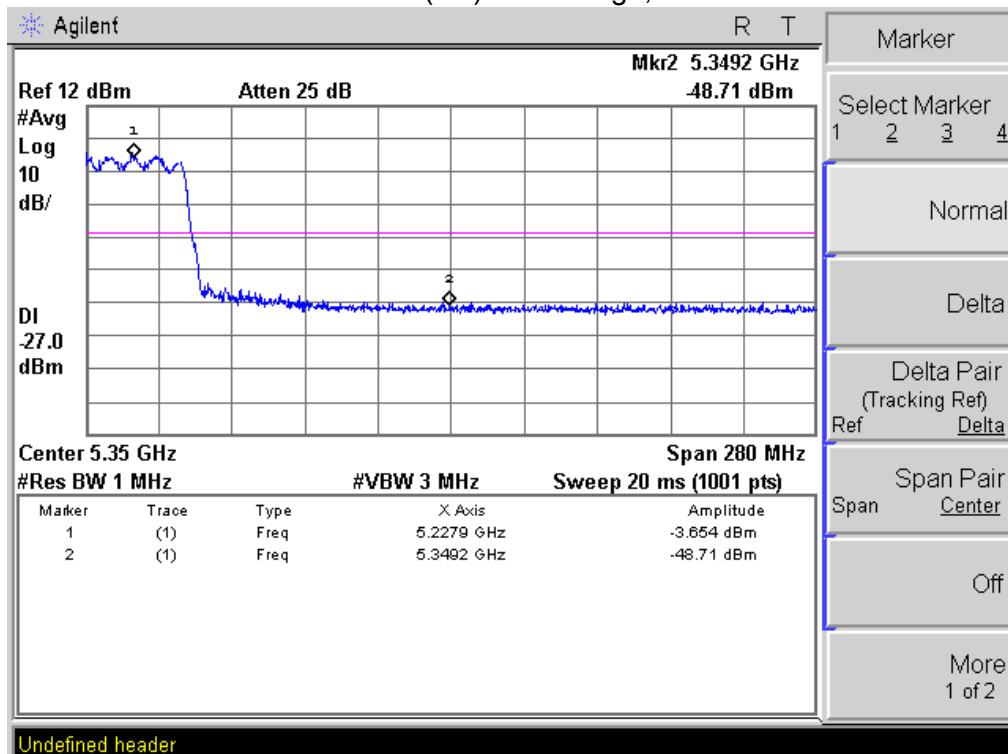
802.11 AC40 (5G): Band Edge, Left Side



802.11 AC80 (5G): Band Edge, Right Side

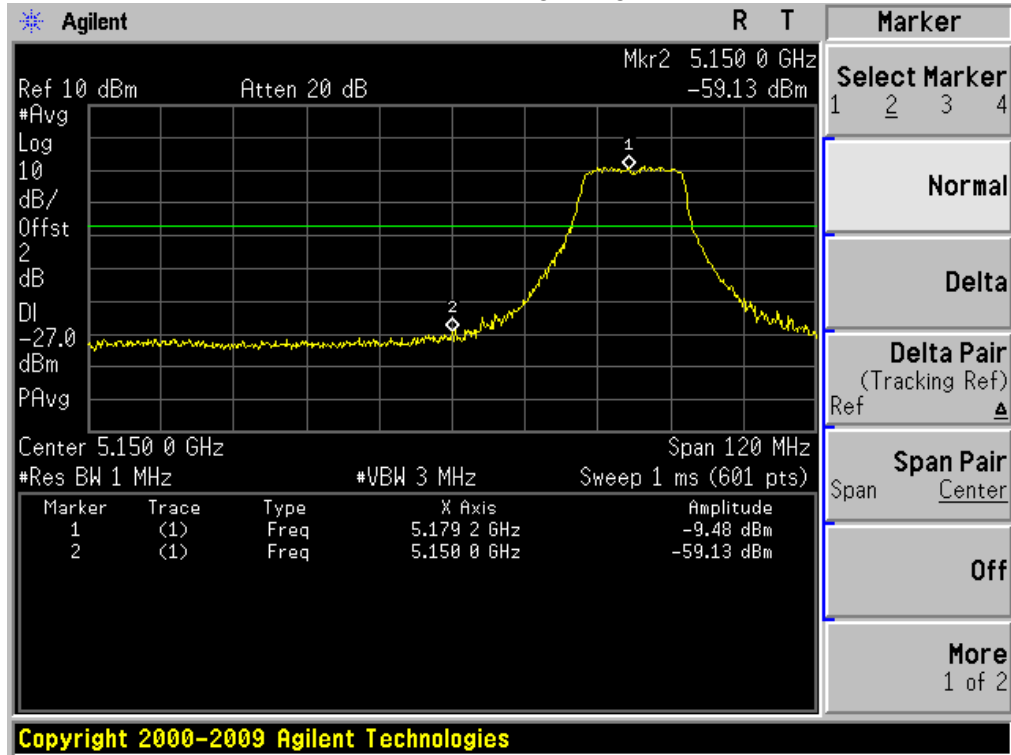


802.11 AC80 (5G): Band Edge, Left Side

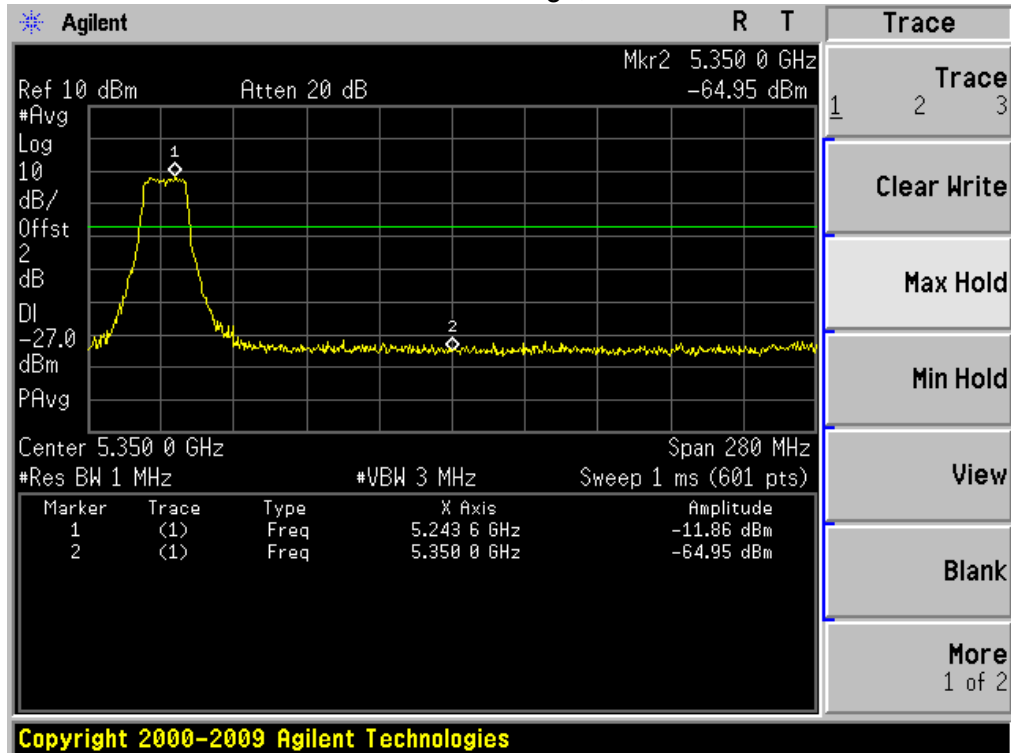


Model 8192 AntennaC

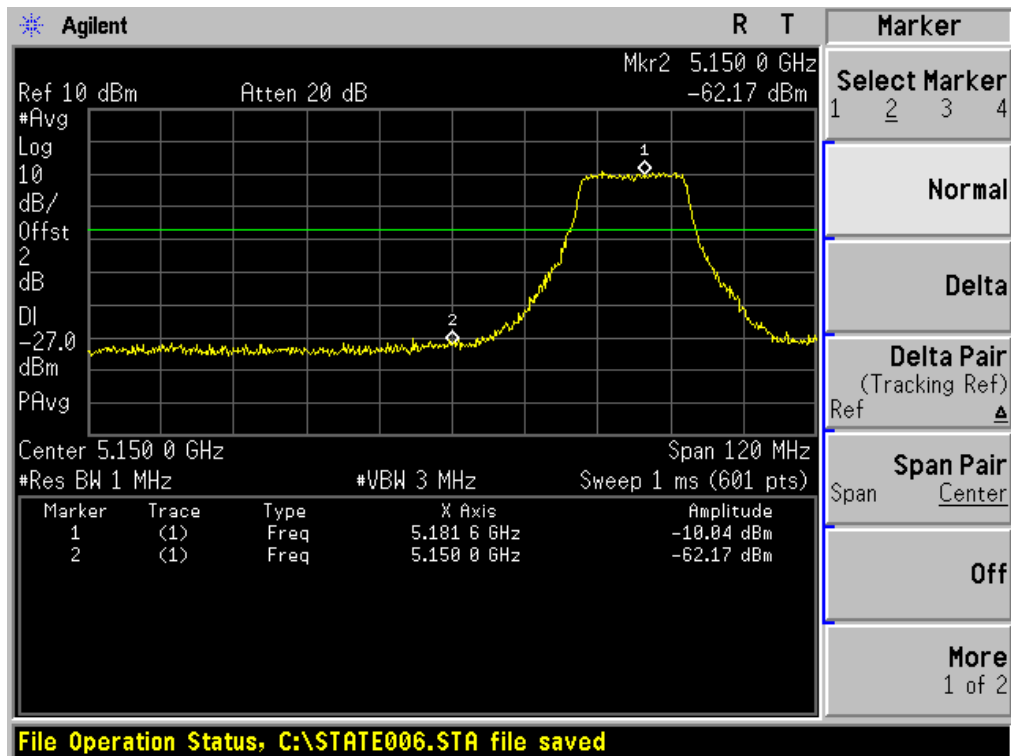
802.11a: Band Edge, Right Side



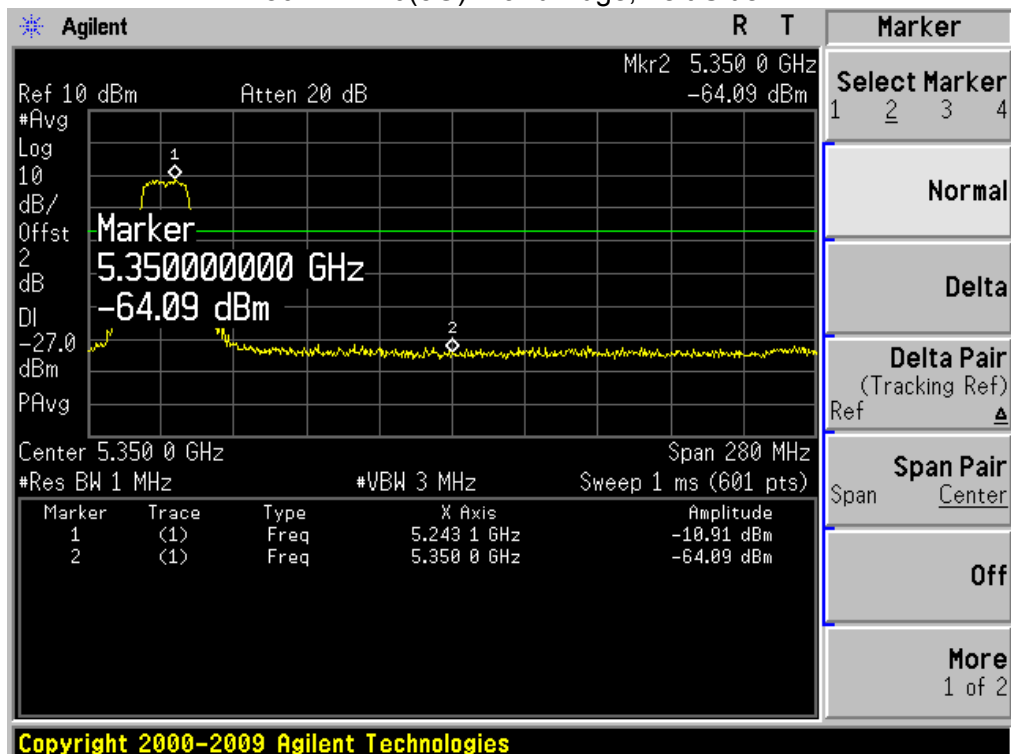
802.11a: Band Edge, Left Side



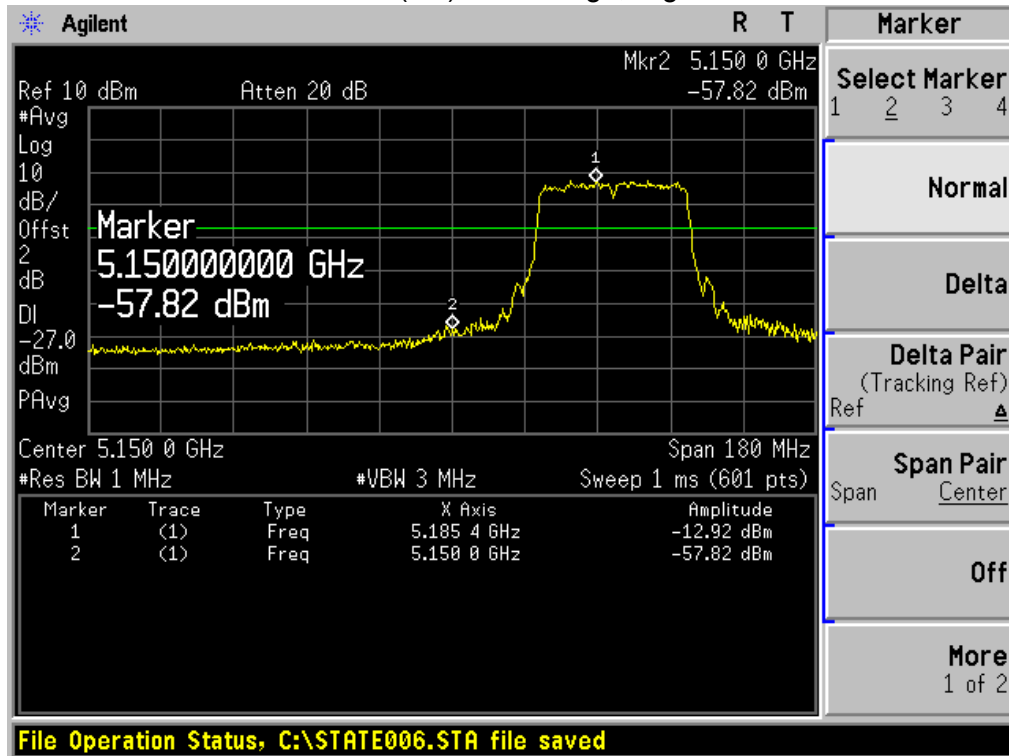
802.11 n20(5G): Band Edge, Right Side



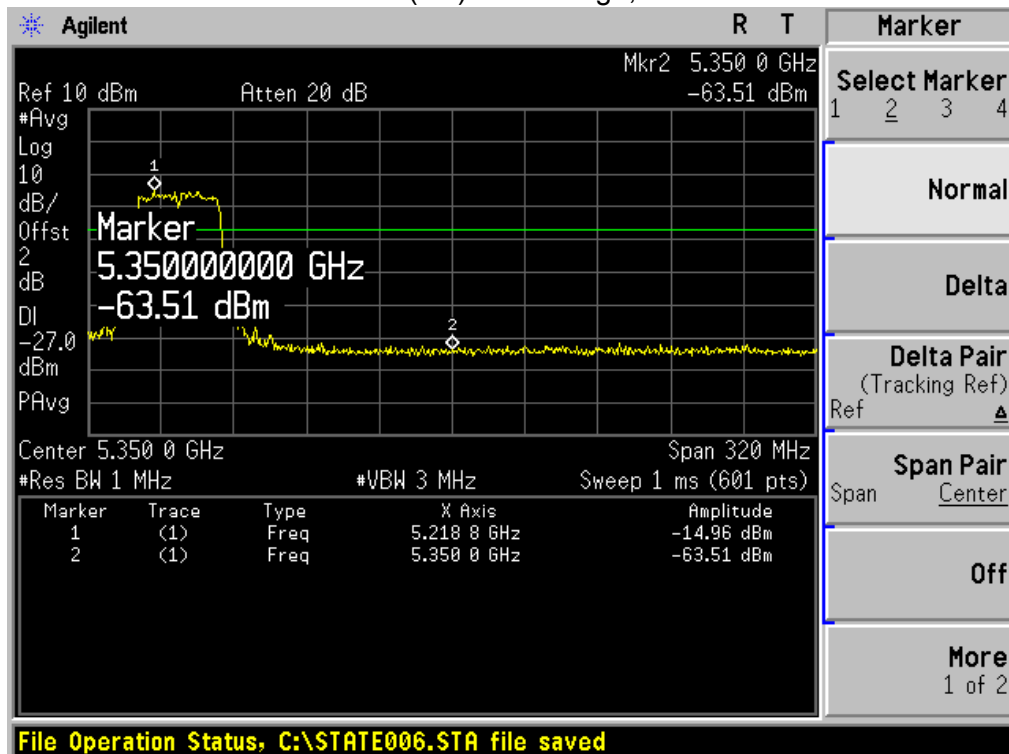
802.11 n20(5G): Band Edge, Left Side



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

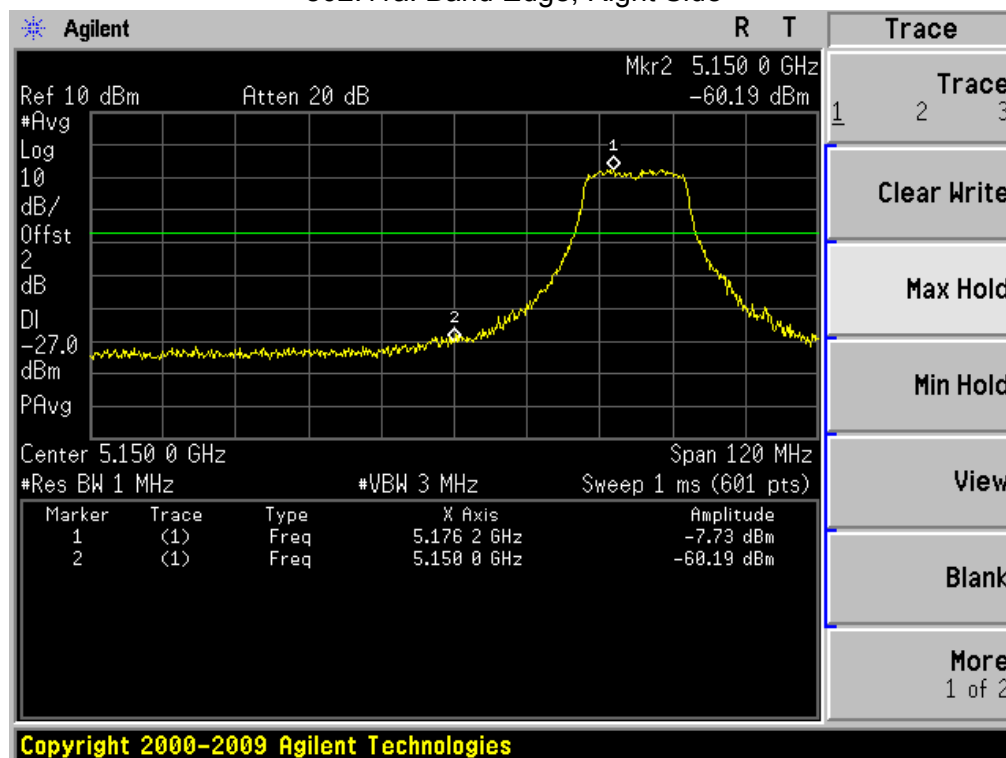


802.11 n40(5G): Band Edge, Left Side

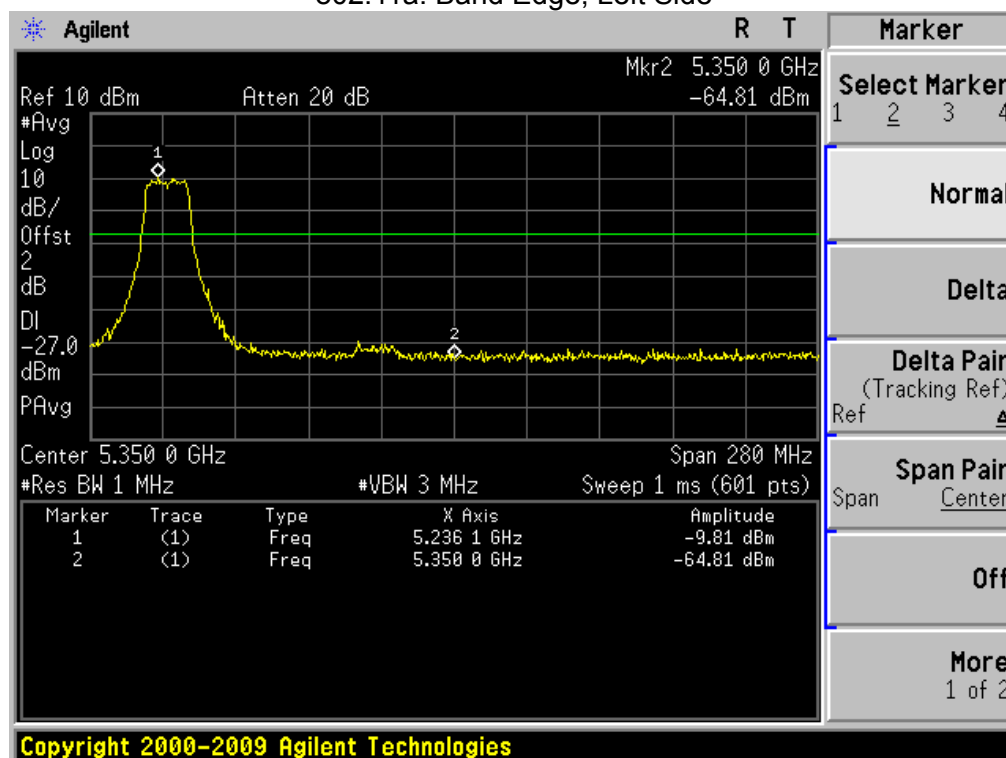


Antenna D

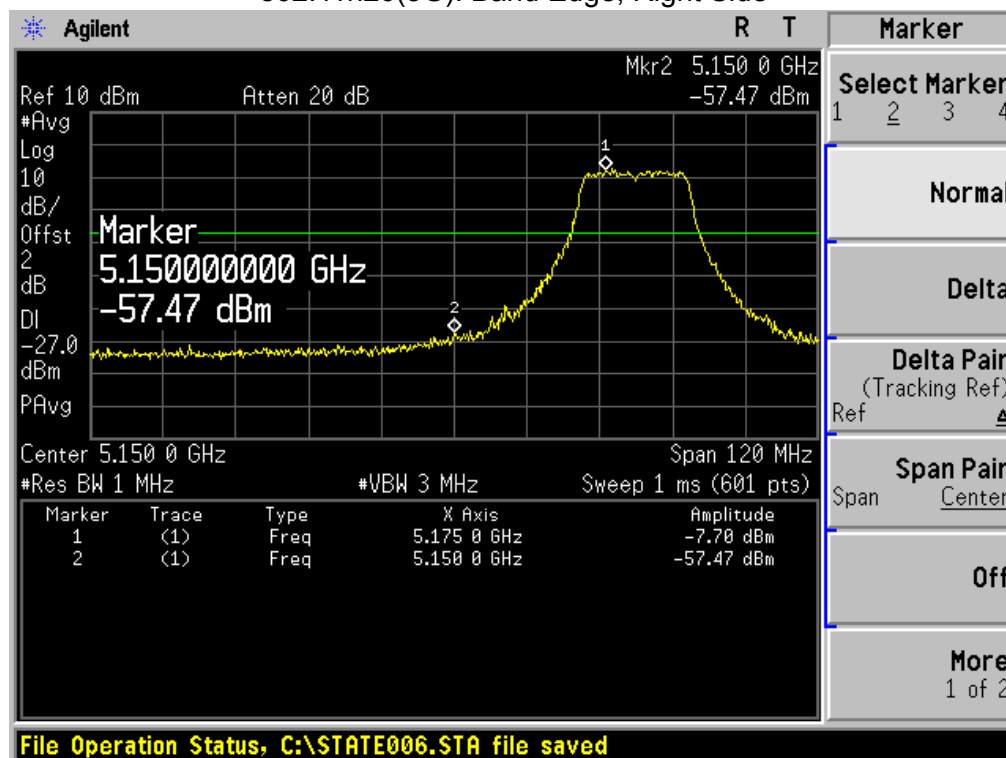
802.11a: Band Edge, Right Side



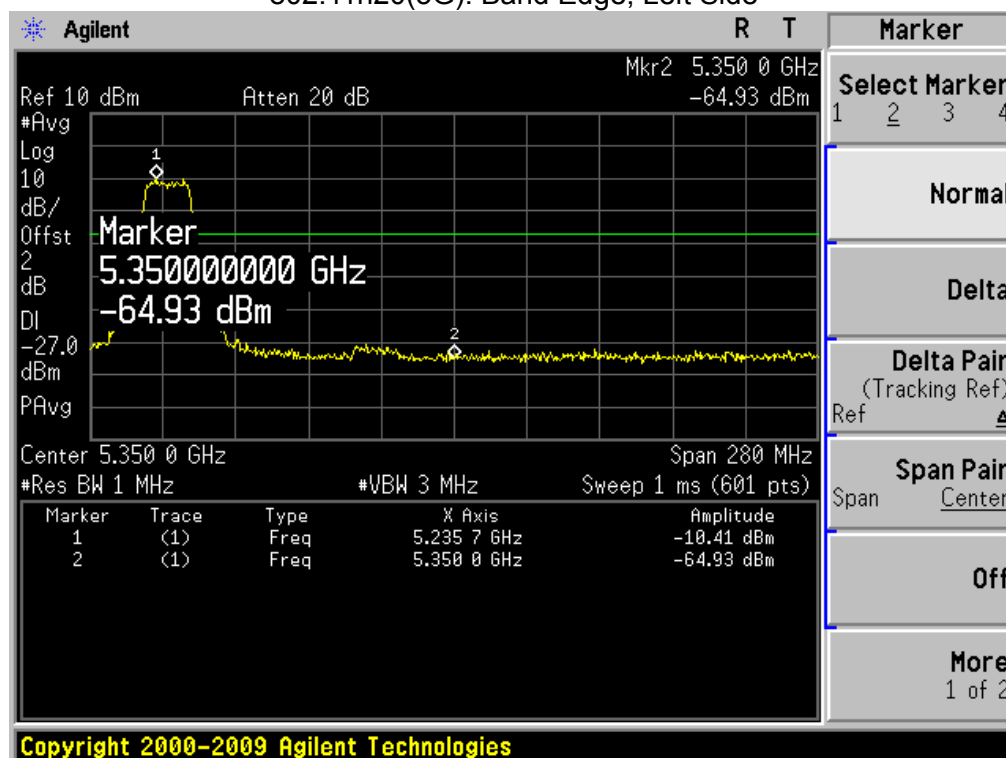
802.11a: Band Edge, Left Side



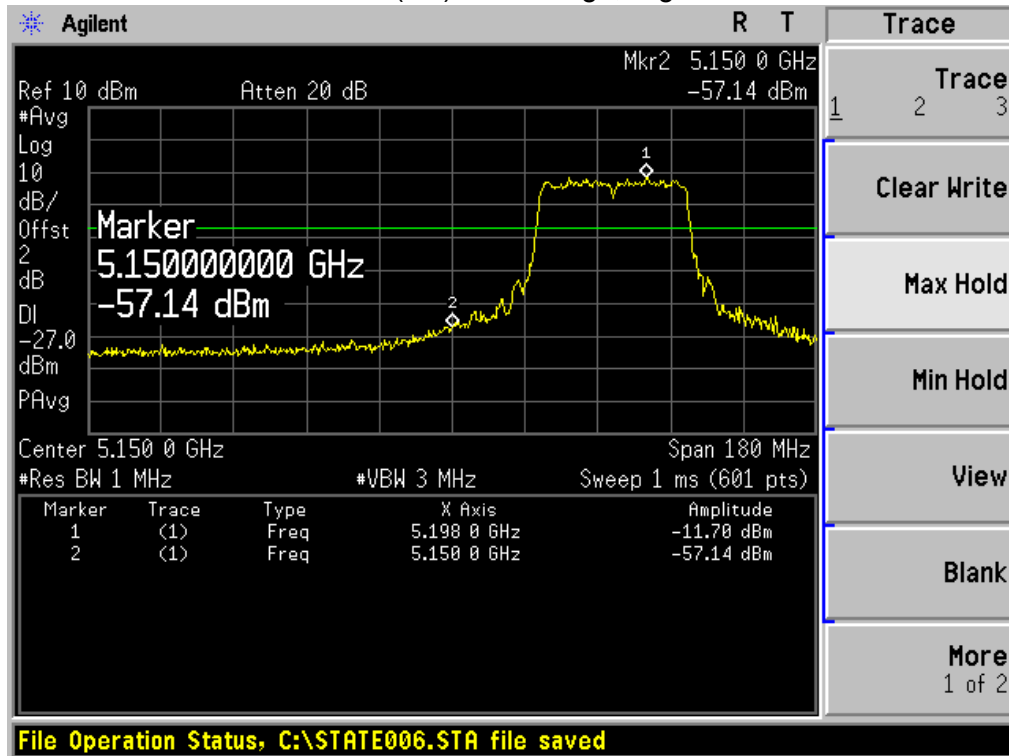
802.11n20(5G): Band Edge, Right Side



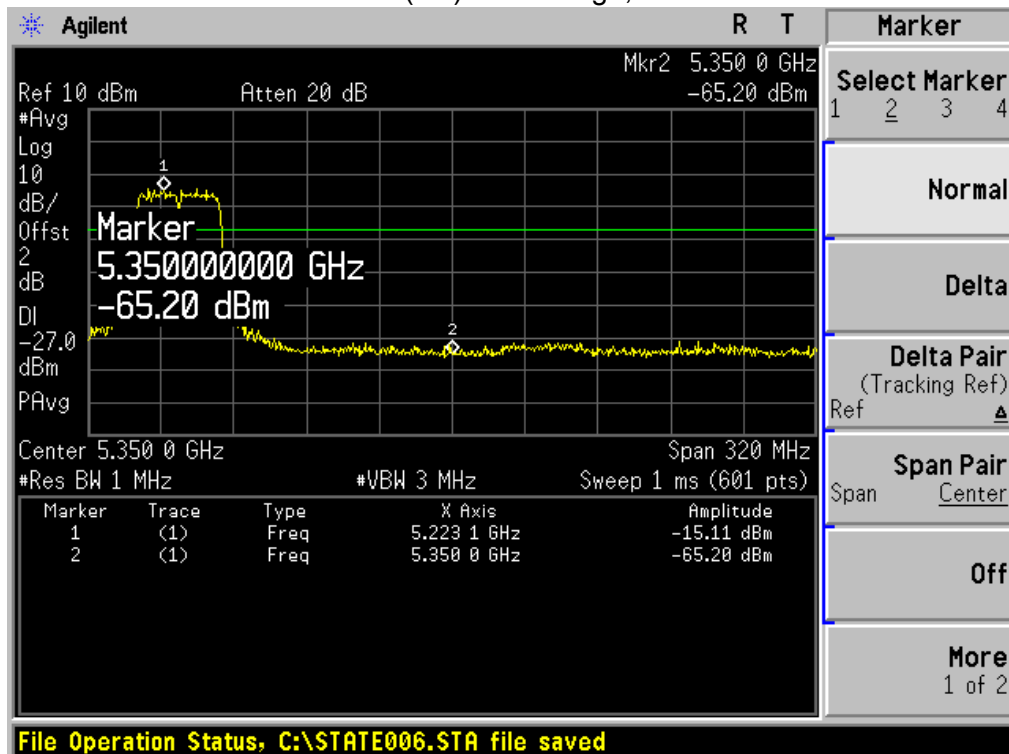
802.11n20(5G): Band Edge, Left Side



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



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



8. PEAK EXCURSION RATIO

8.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(a) (6)/ RSS 247§6.2.1(1), the ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

8.1.1 TEST PROCEDURE

The largest difference between the following two traces must be ≤ 13 dB for all frequencies across the emission

bandwidth. Submit a plot.

1st Trace:

- Set RBW = 1 MHz, VBW ≥ 3 MHz with peak detector and maxhold settings.

2nd Trace:

- create the 2nd trace using the settings described in the setion “FCC §15.407(a)(1)(2) –

CONDUCTED

TRANSMITTER OUTPUT POWER”.

8.1.2 DEVIATION FROM STANDARD

No deviation.

8.1.3 TEST SETUP



8.1.4 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.

8.1.5 TEST RESULTS

EUT :	ScreenBeam Pro Enterprise Edition	Model Name :	SBWD950A
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 5V From adapter AC120V/60Hz

Model 8812

Channel	Frequency (MHz)	TX ANT A PER(dB)	TX ANT B PER(dB)	Limit (dB)
802.11a mode				
Low	5180	3.08	3.40	13
Middle	5200	3.31	3.04	
High	5240	3.47	3.77	
802.11n HT20 mode				
Low	5180	3.33	3.38	13
Middle	5200	2.99	3.32	
High	5240	3.27	3.47	
802.11n HT40 mode				
Low	5190	3.87	3.43	13
High	5230	3.57	3.11	

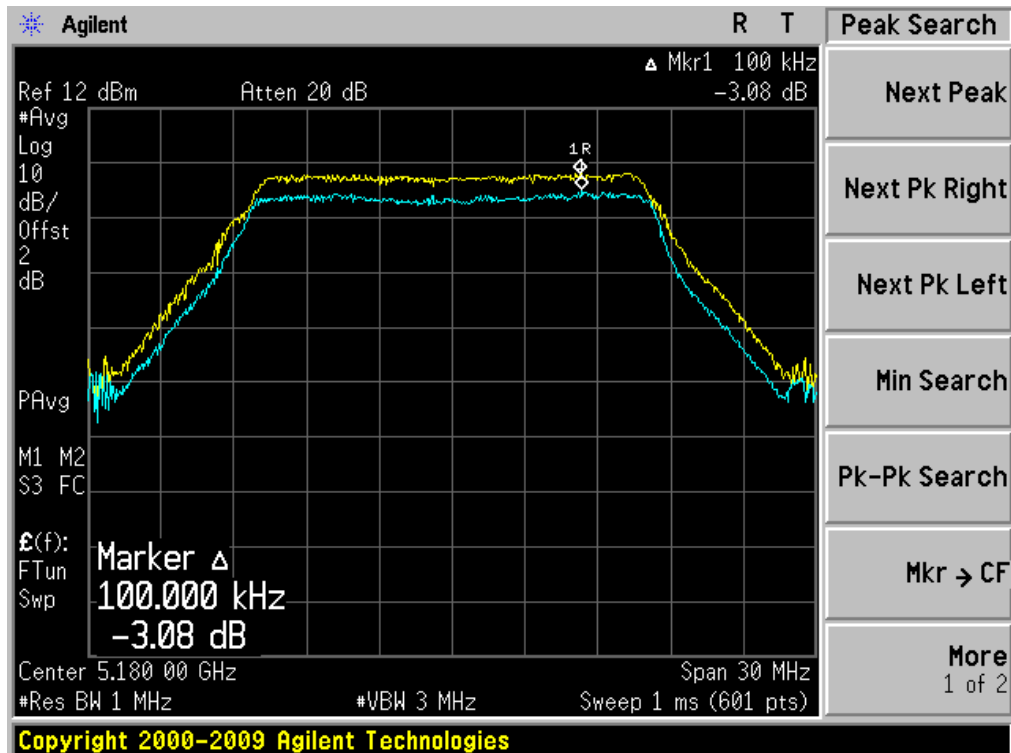
Channel	Frequency (MHz)	TX ANT A PER(dB)	TX ANT B PER(dB)	Limit (dB)
802.11AC20 mode				
Low	5180	2.58	2.23	13
Middle	5200	2.40	2.56	
High	5240	2.18	2.43	
802.11AC40 mode				
Low	5190	2.51	2.58	13
High	5230	2.71	2.42	
802.11AC80 mode				
Middle	5210	3.04	3.02	13

Model 8192

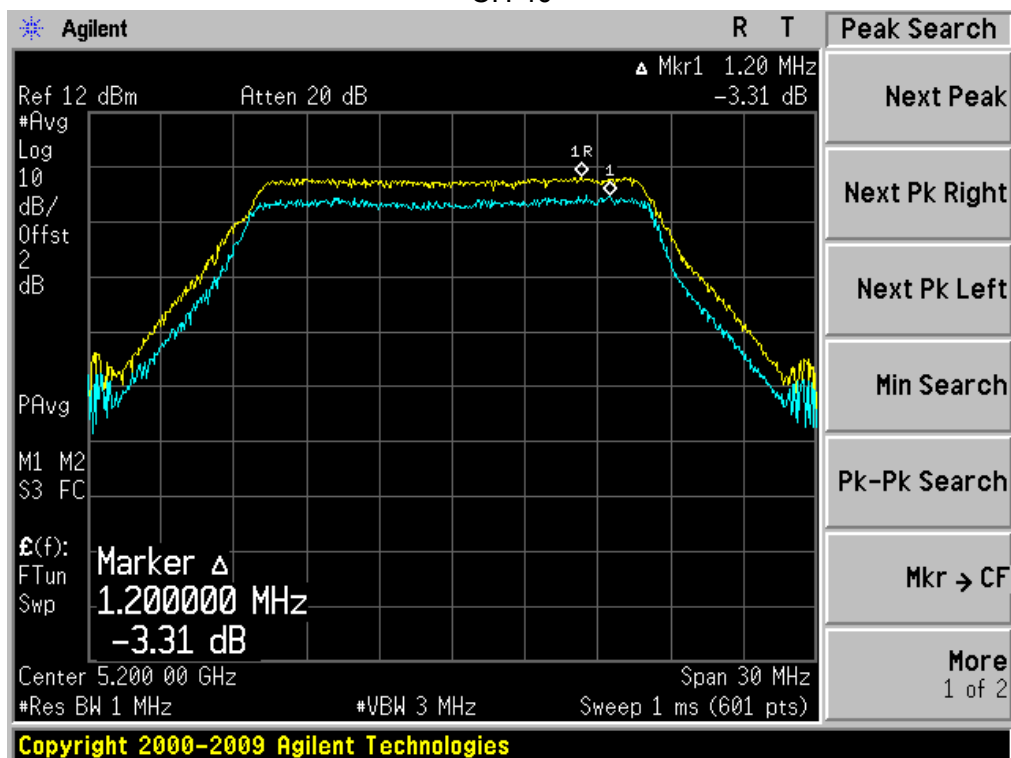
Channel	Frequency (MHz)	TX ANT C PER(dB)	TX ANT D PER(dB)	Limit (dB)
802.11a mode				
Low	5180	3.10	3.50	13
Middle	5200	3.59	3.21	
High	5240	3.58	2.71	
802.11n HT20 mode				
Low	5180	3.00	3.04	13
Middle	5200	3.04	2.46	
High	5240	3.28	3.50	
802.11n HT40 mode				
Low	5190	3.36	3.47	13
High	5230	3.49	2.99	

Model 8812 Antenna A

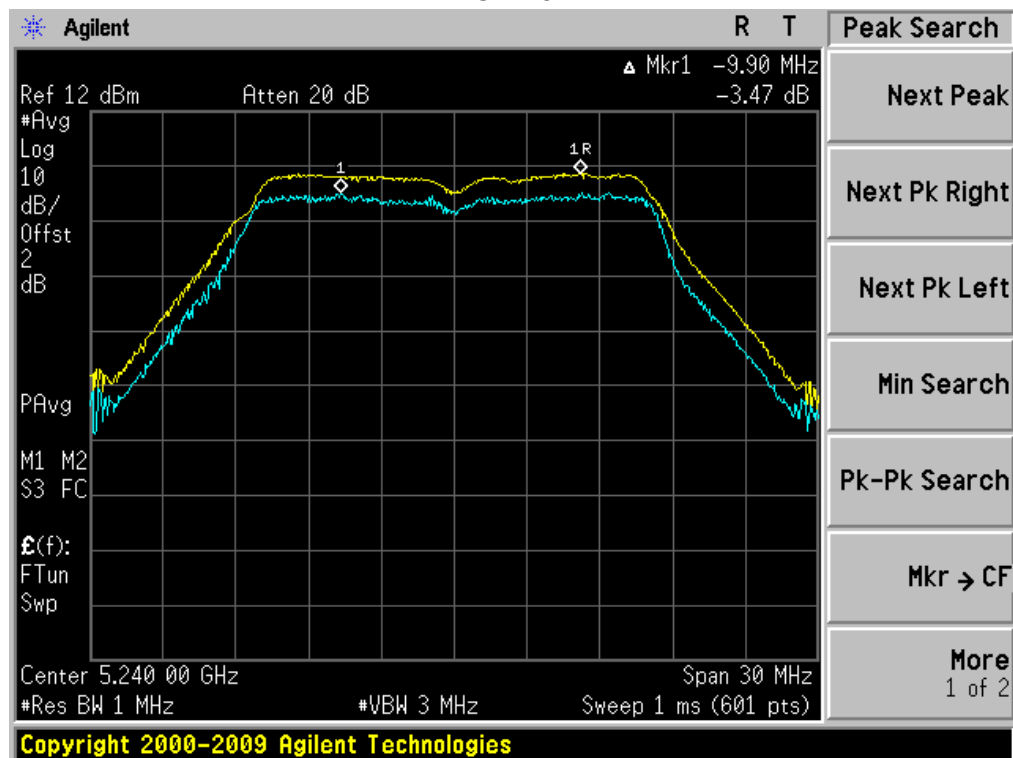
802.11a:CH 36



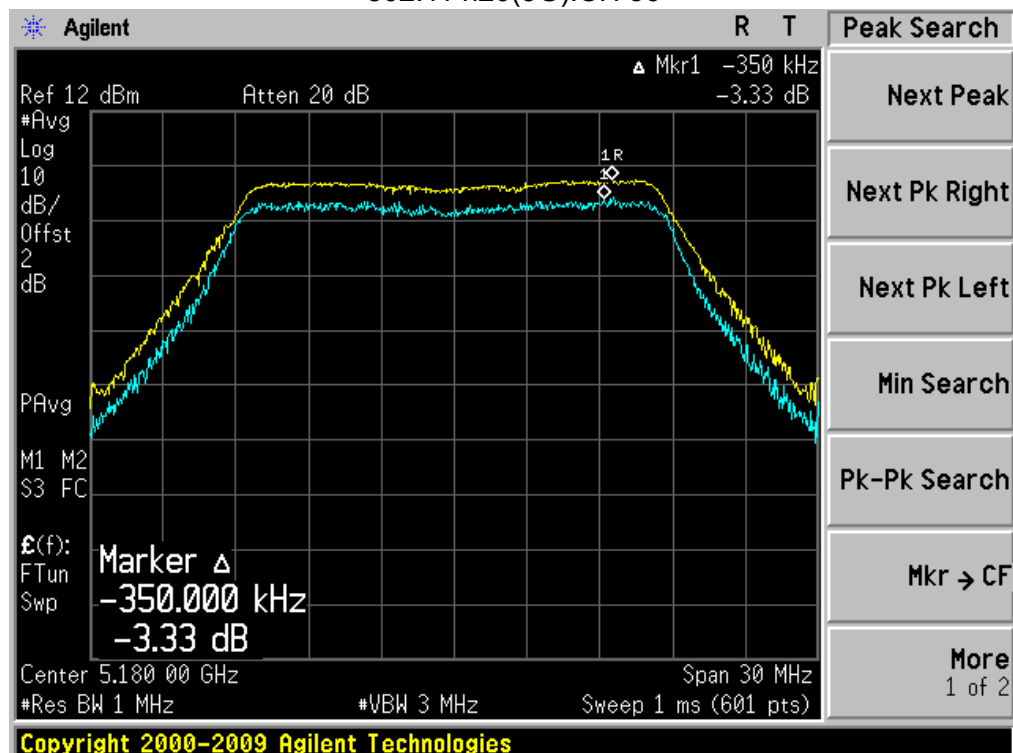
CH 40



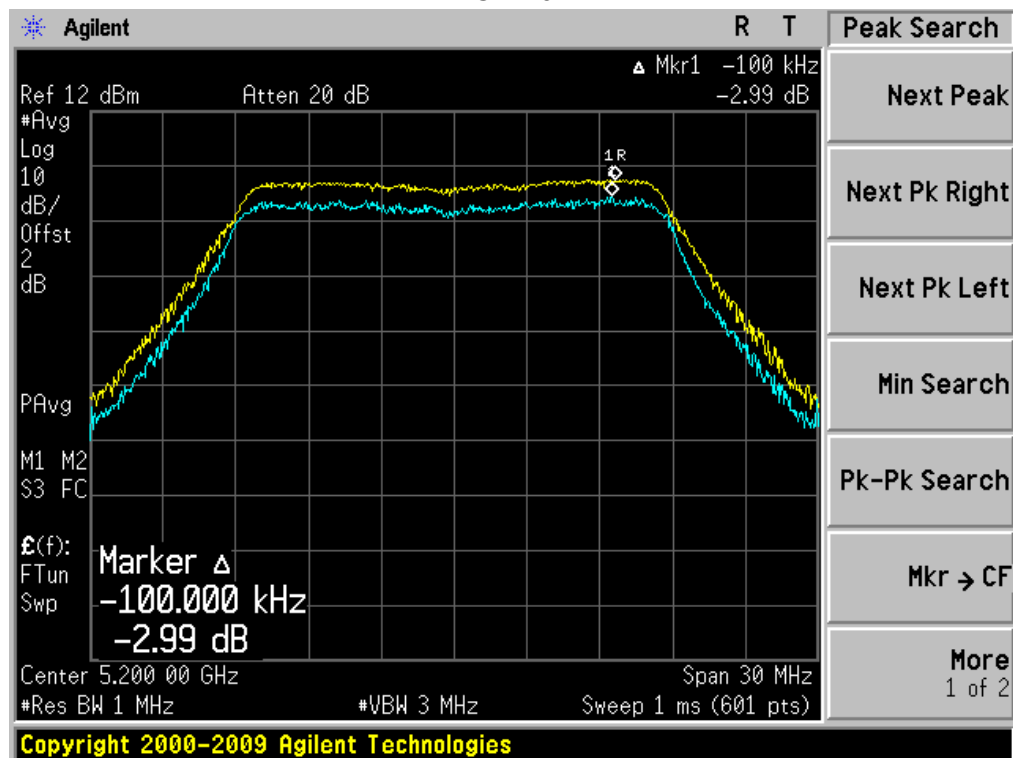
CH 48



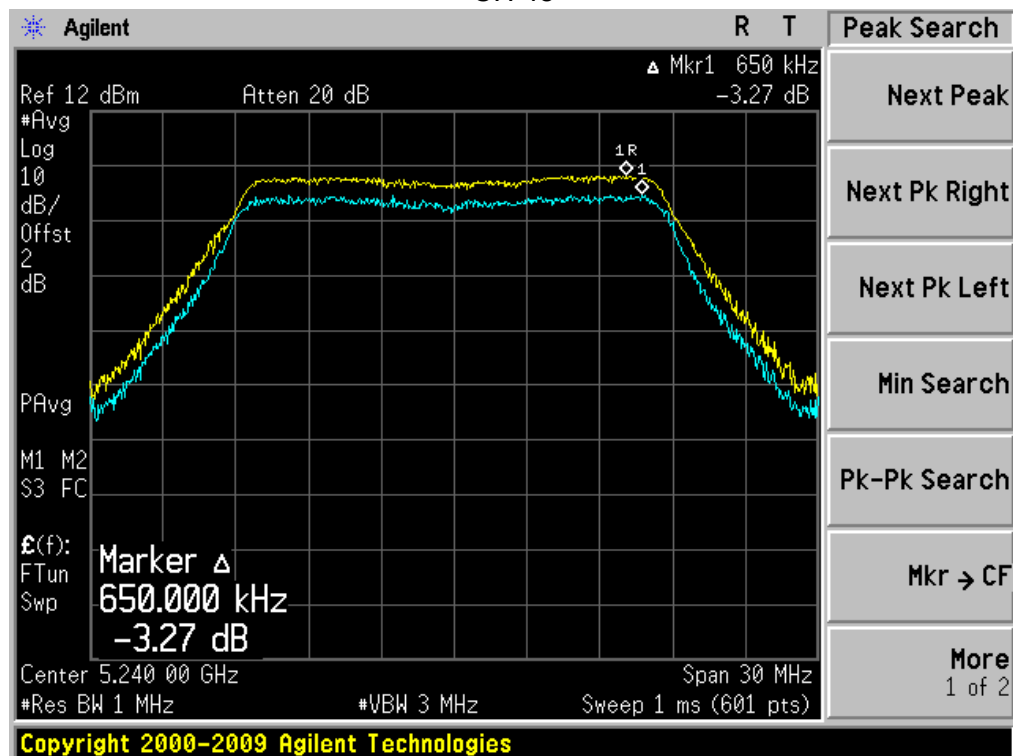
802.11 n20(5G):CH 36



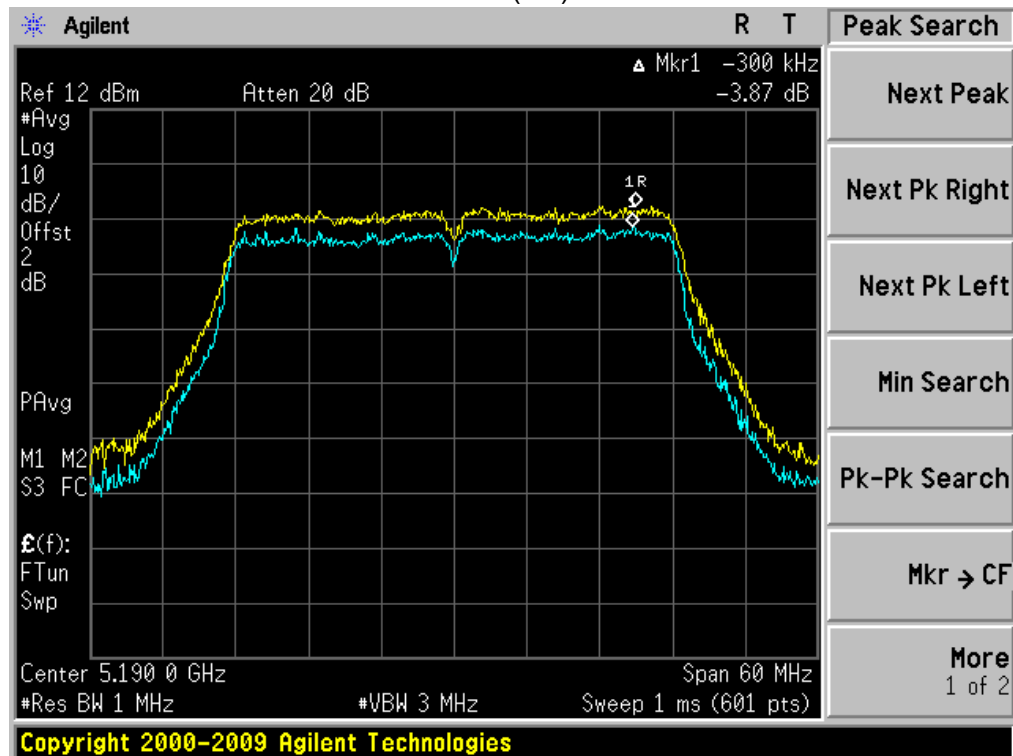
CH 40



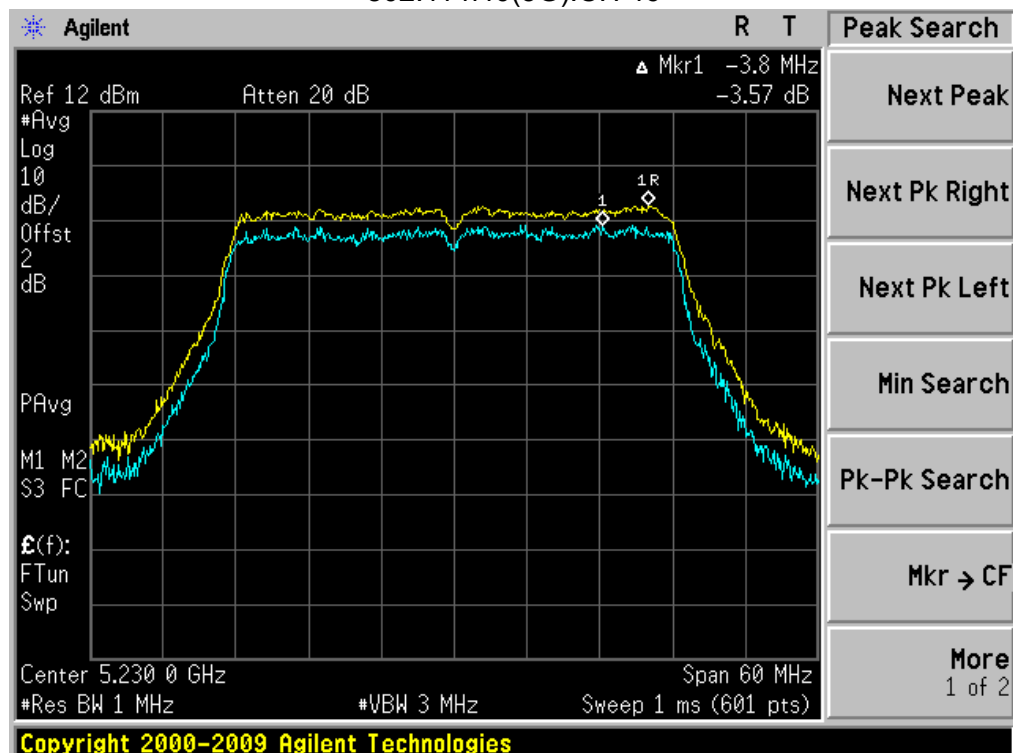
CH 48



802.11 n40(5G):CH 38

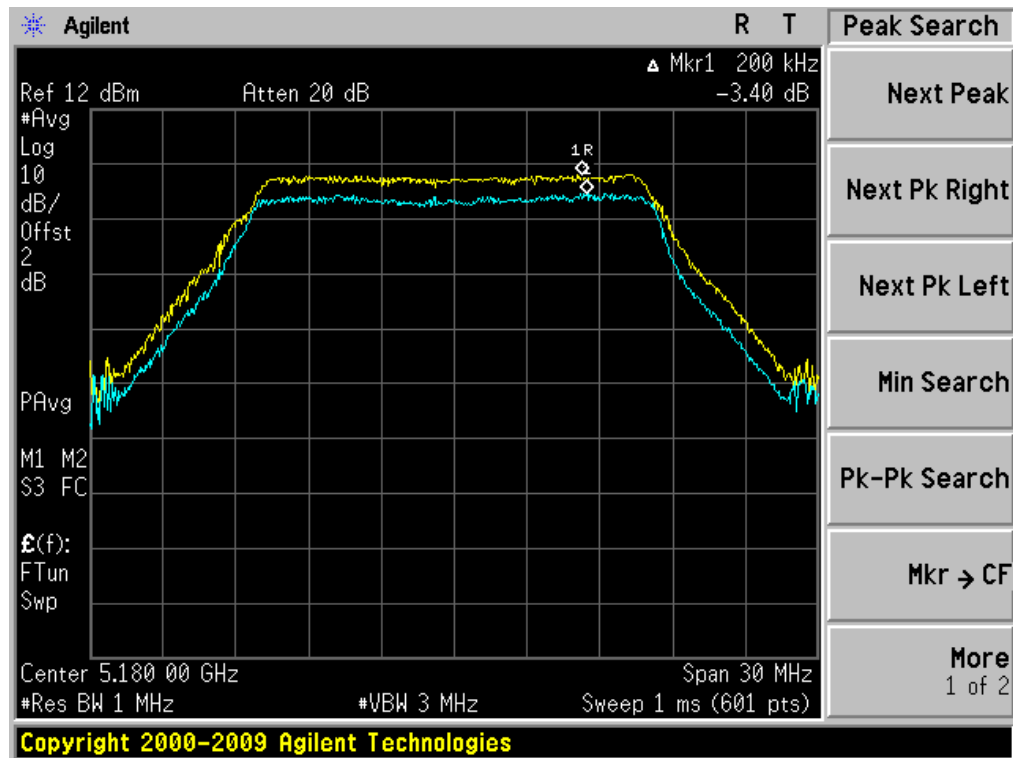


802.11 n40(5G):CH 46

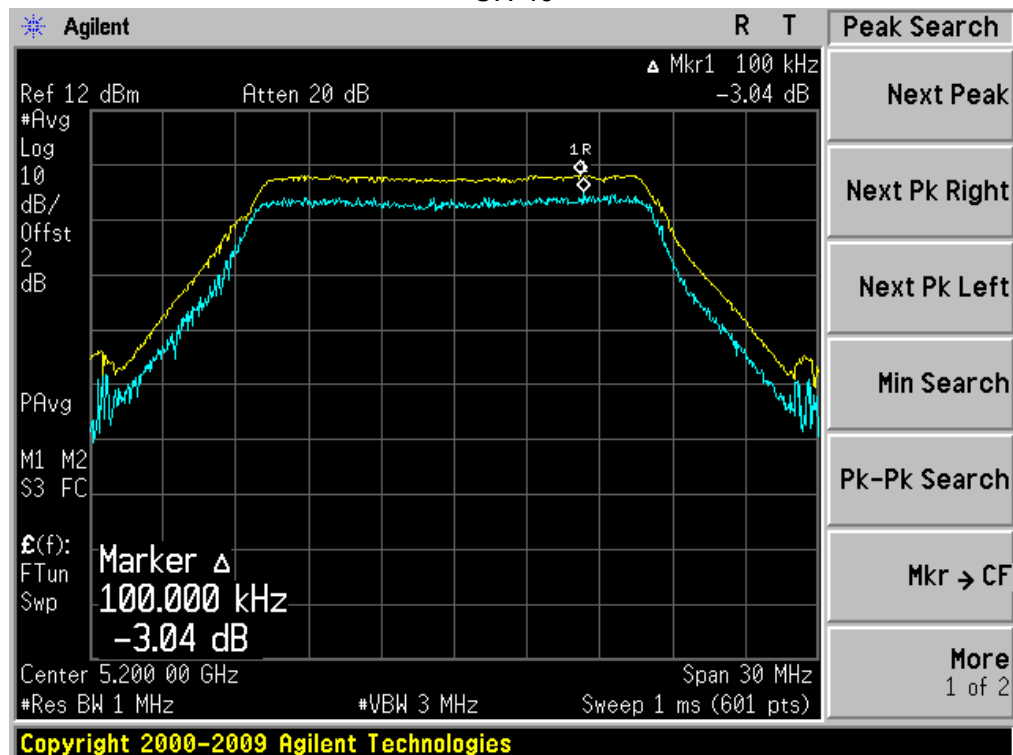


Antenna B

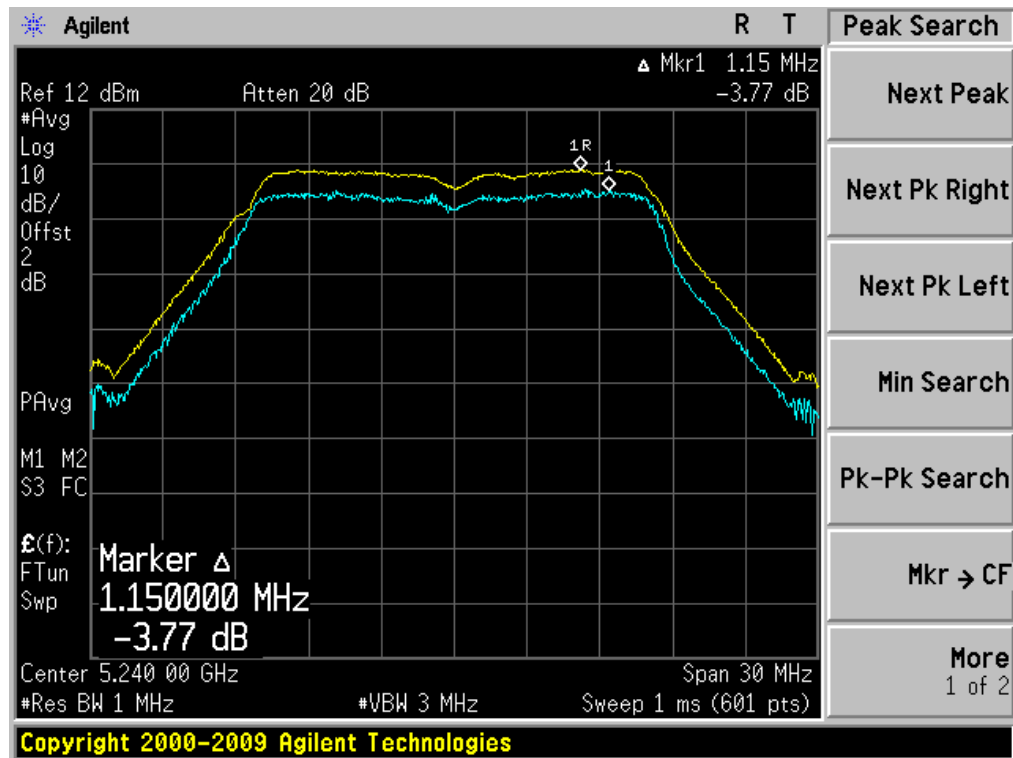
802.11a: CH 36



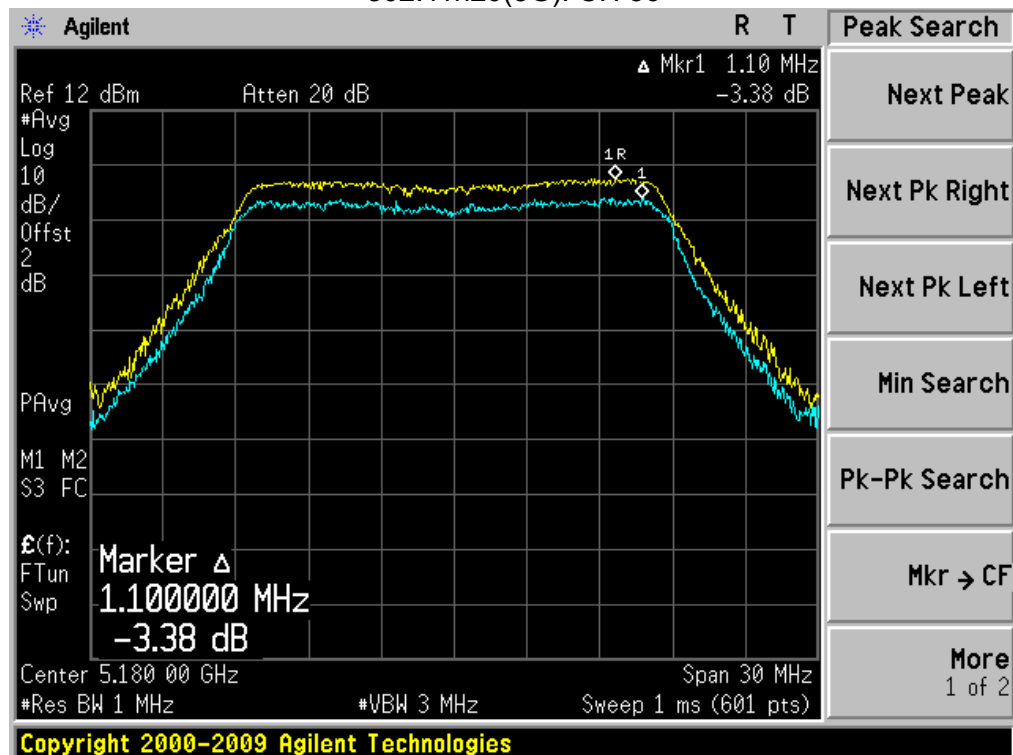
CH 40



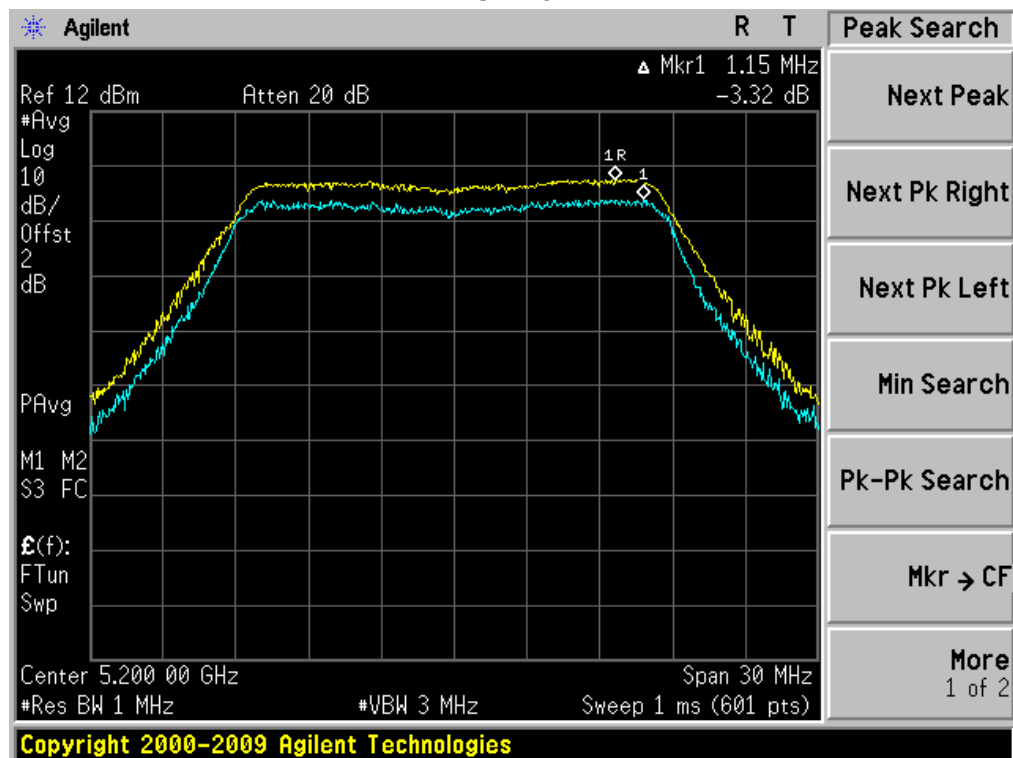
CH 48



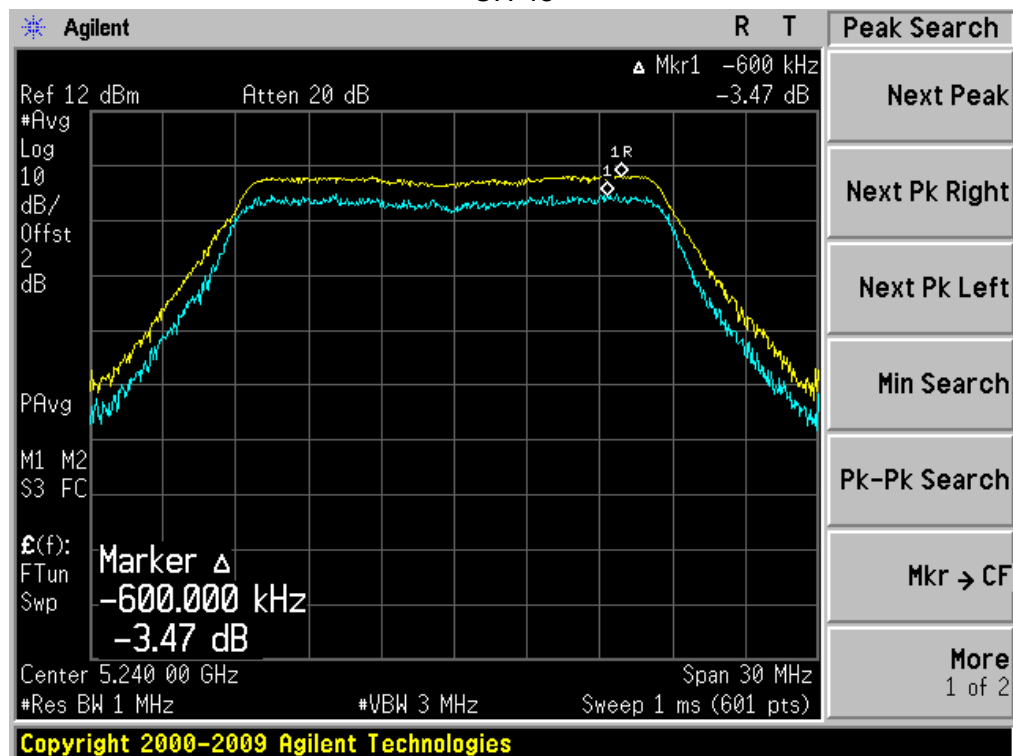
802.11n20(5G): CH 36



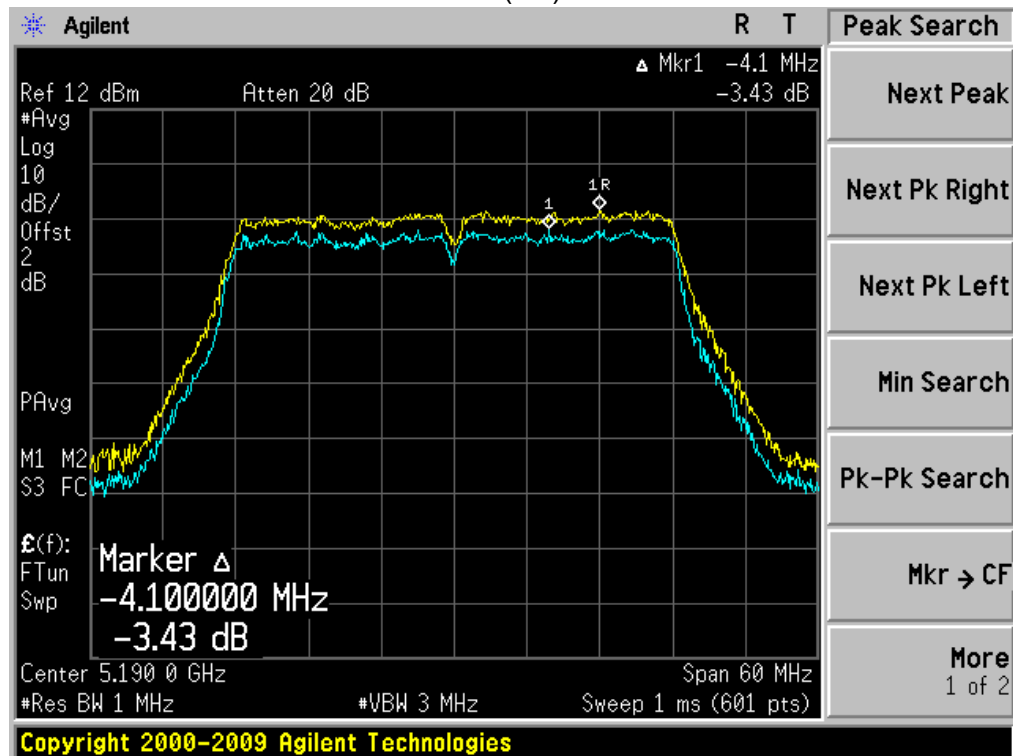
CH 40



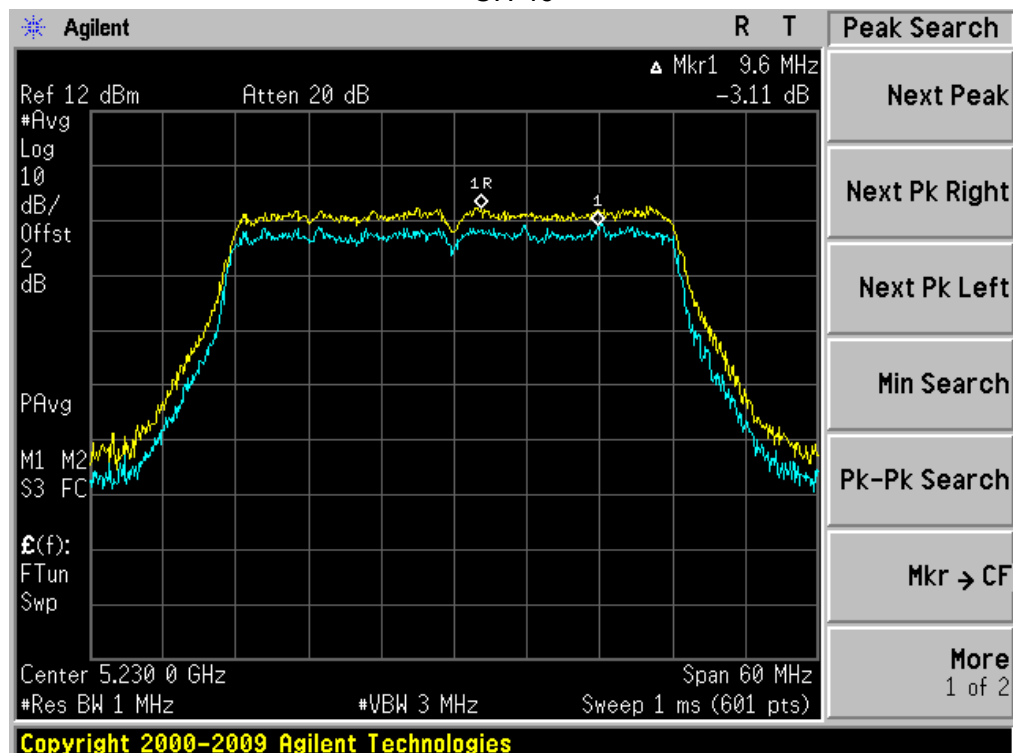
CH 48



802.11n40(5G): CH 38

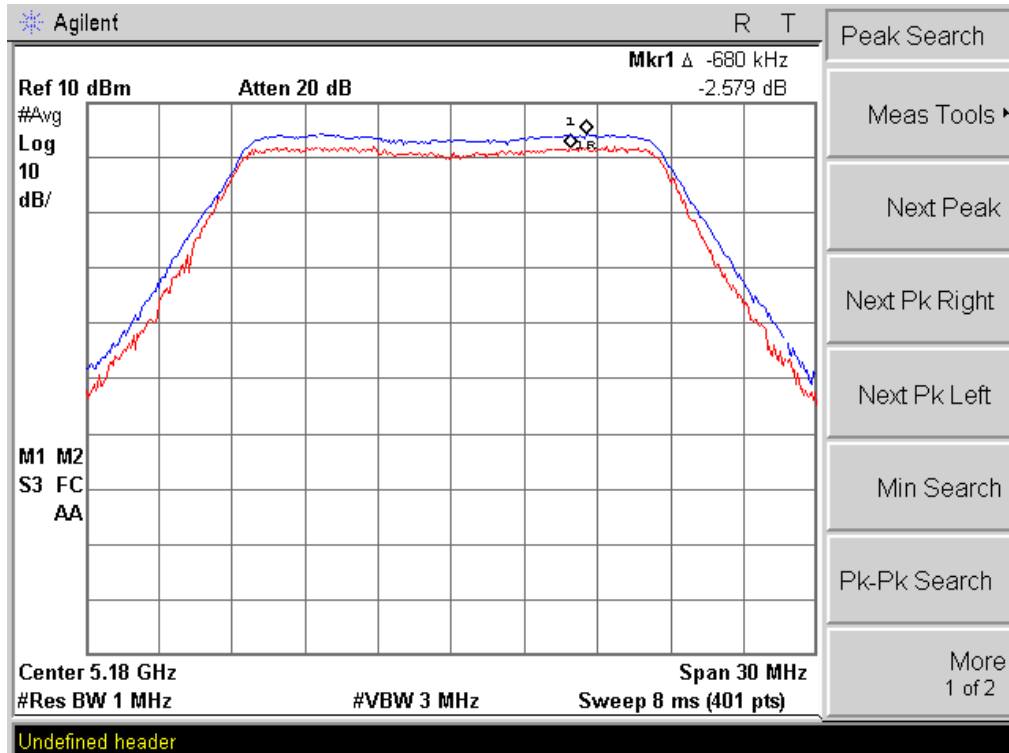


CH 46

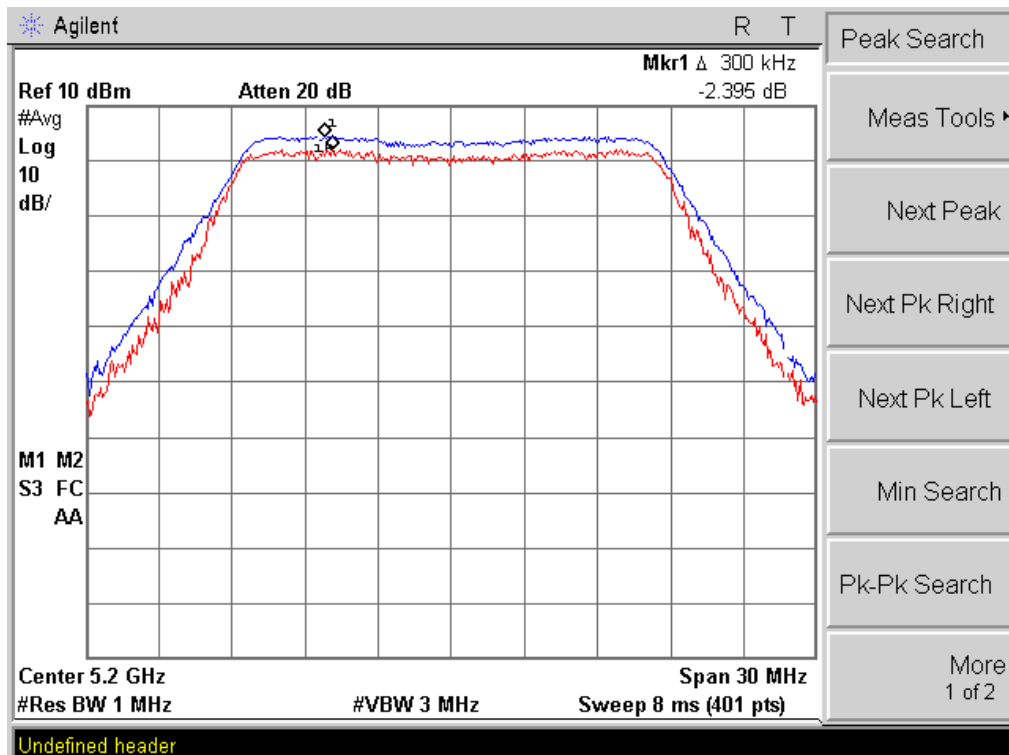


Model 8812 Antenna A

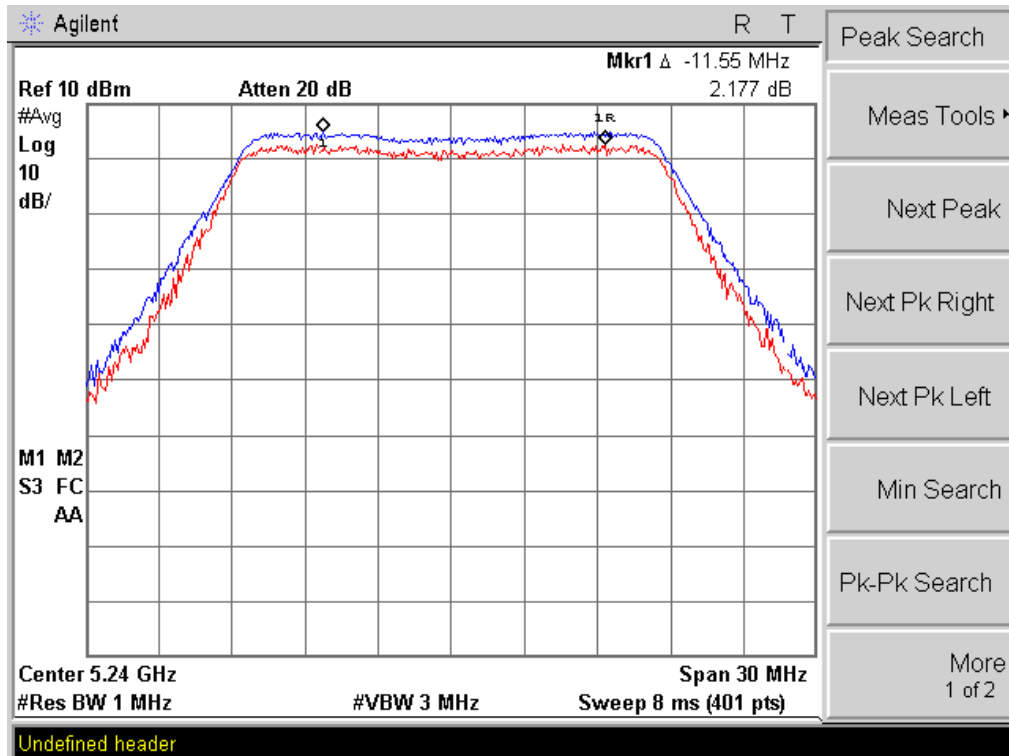
802.11AC20:CH 36



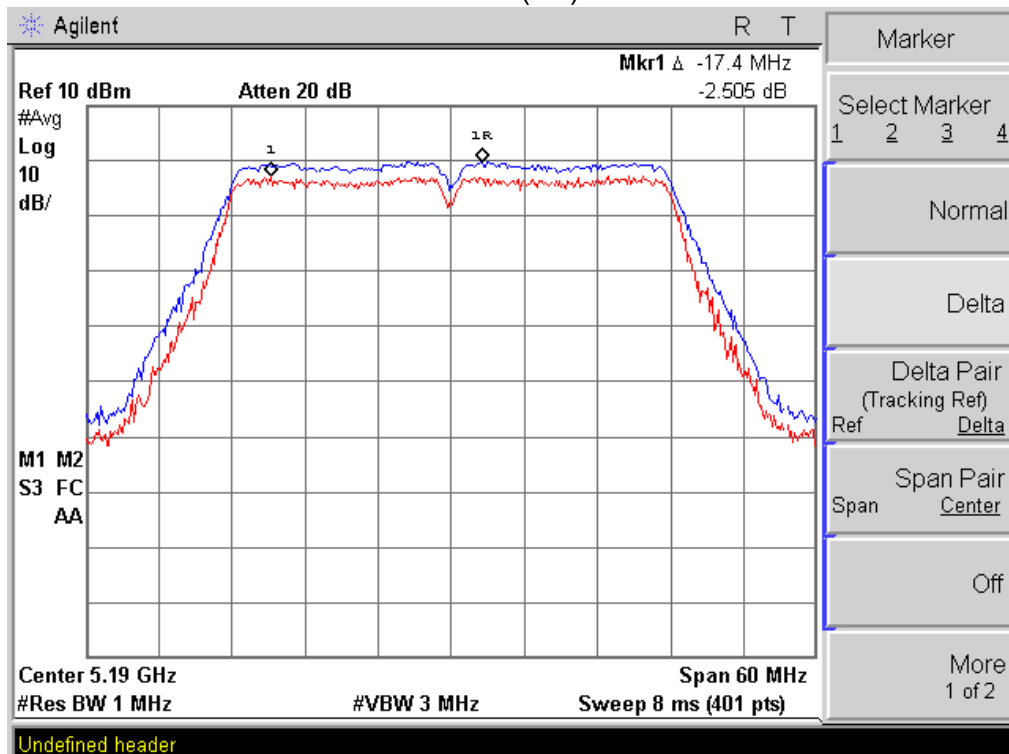
CH 40



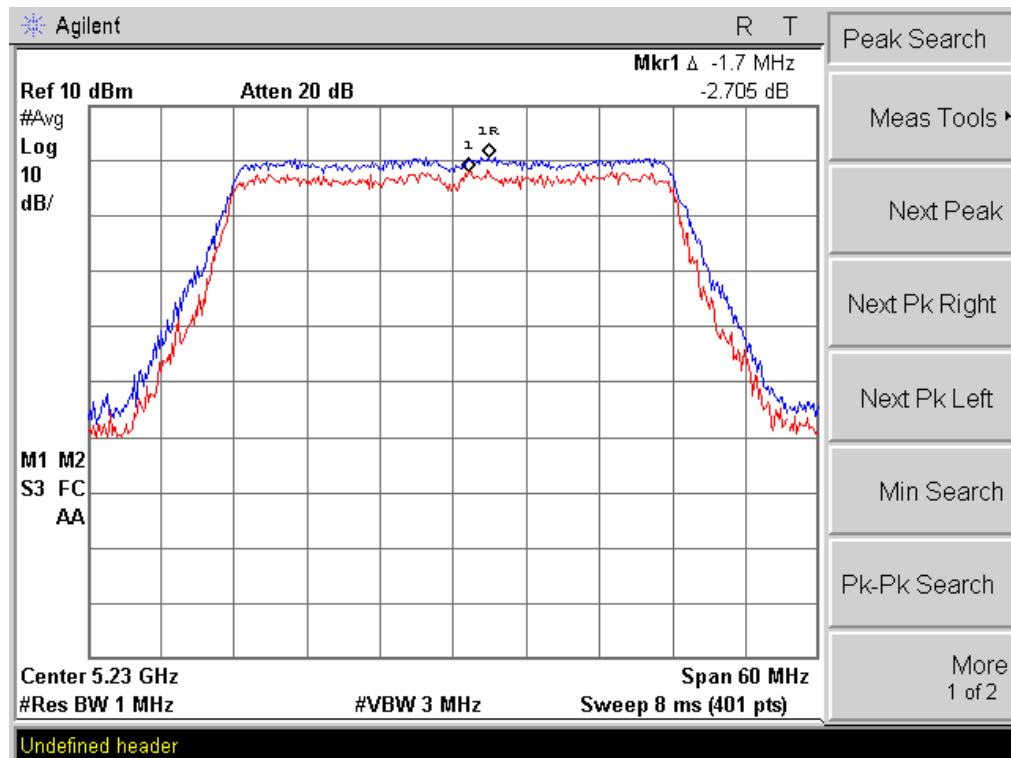
CH 48



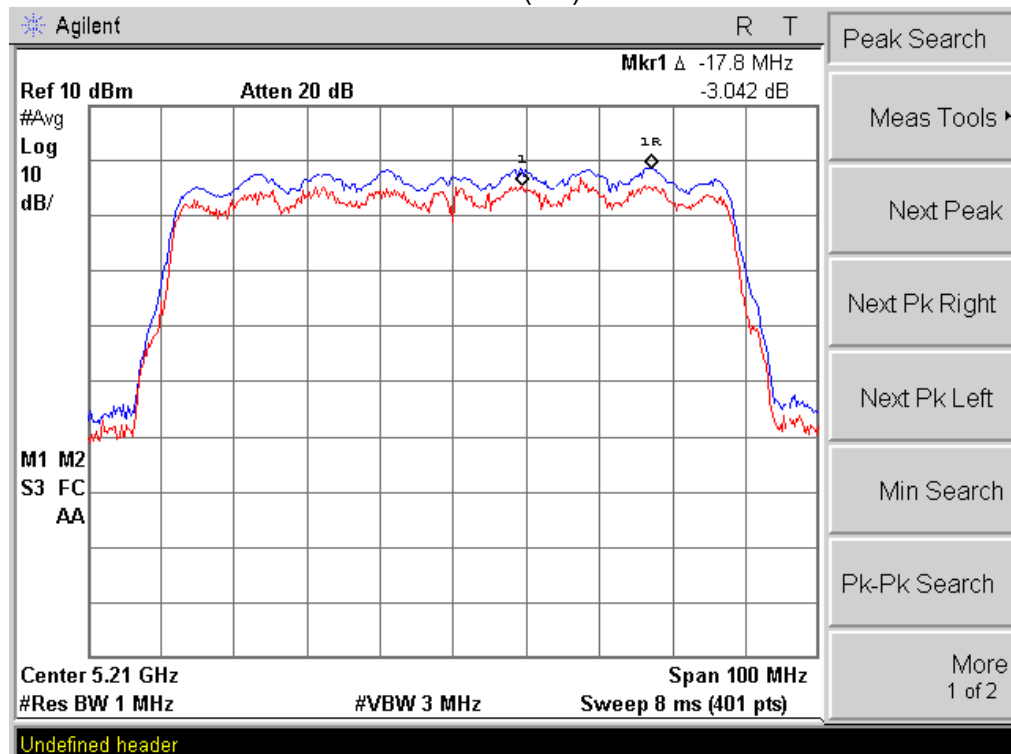
802.11 AC40(5G):CH 38



CH 46

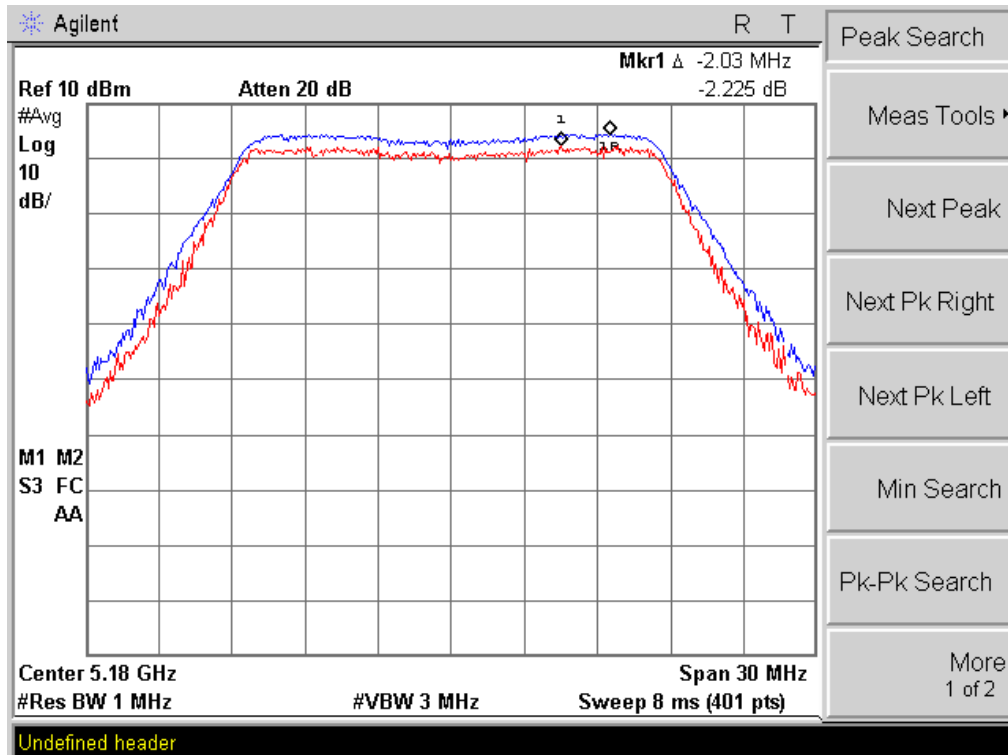


802.11 AC80(5G):CH 42

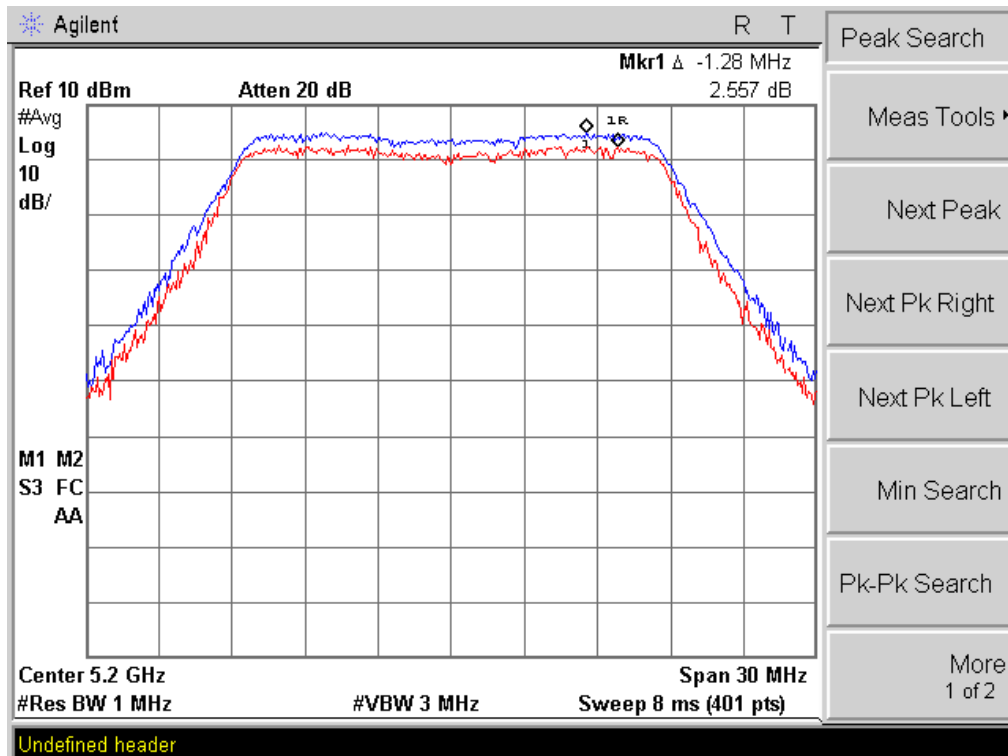


Antenna B

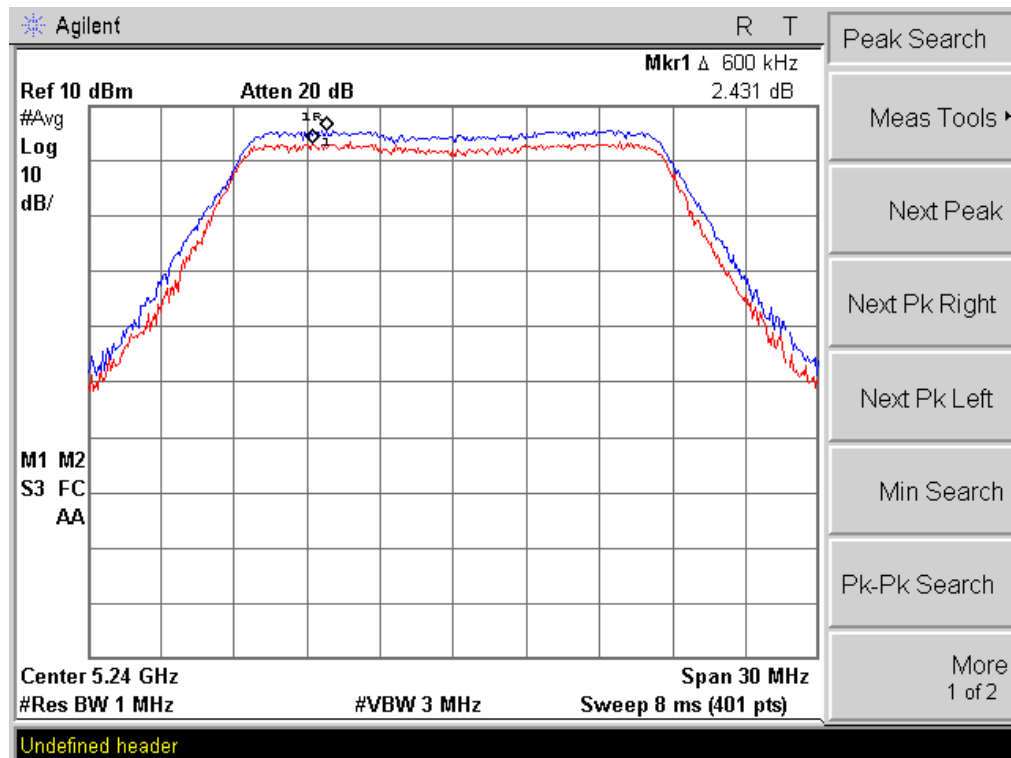
802.11AC20: CH 36



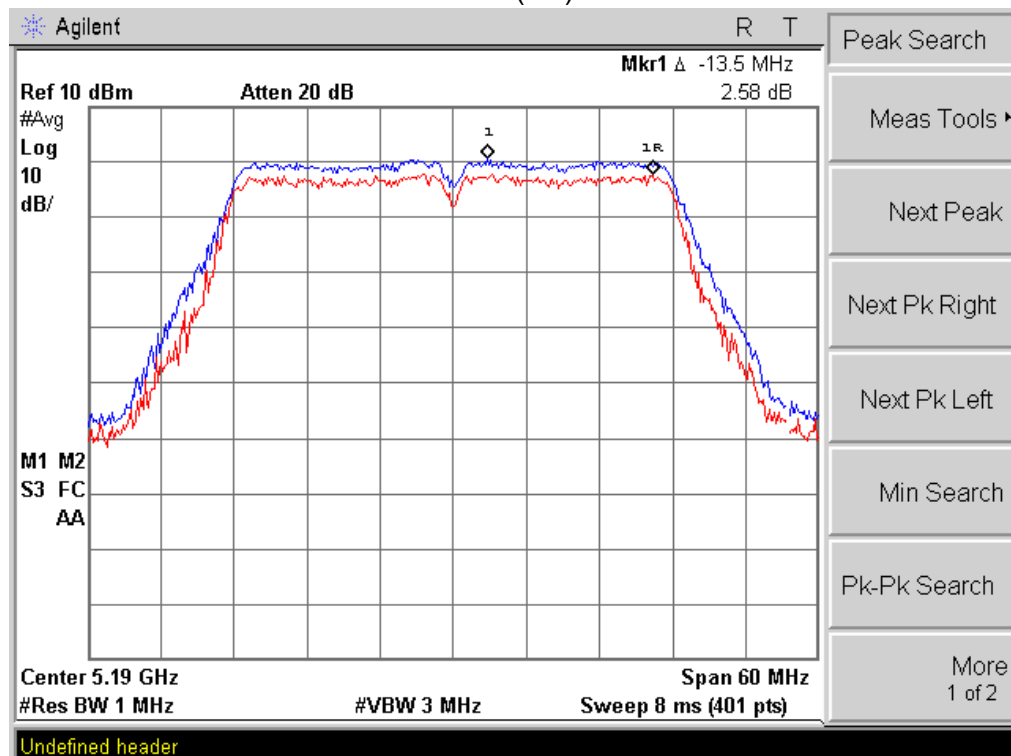
CH 40



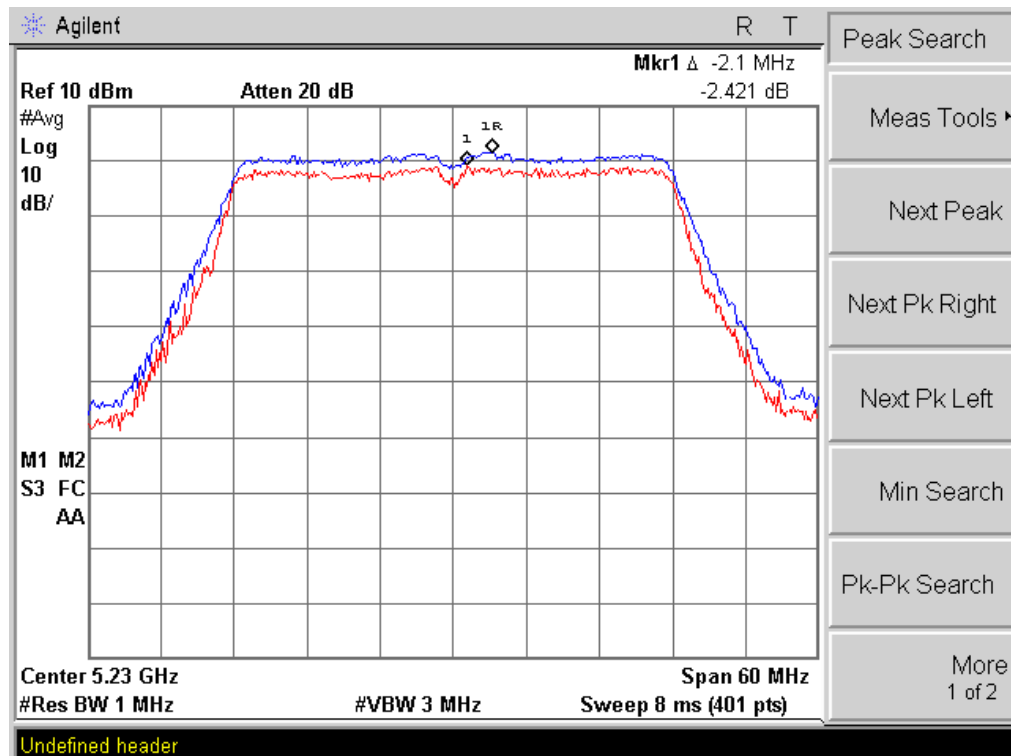
CH 48



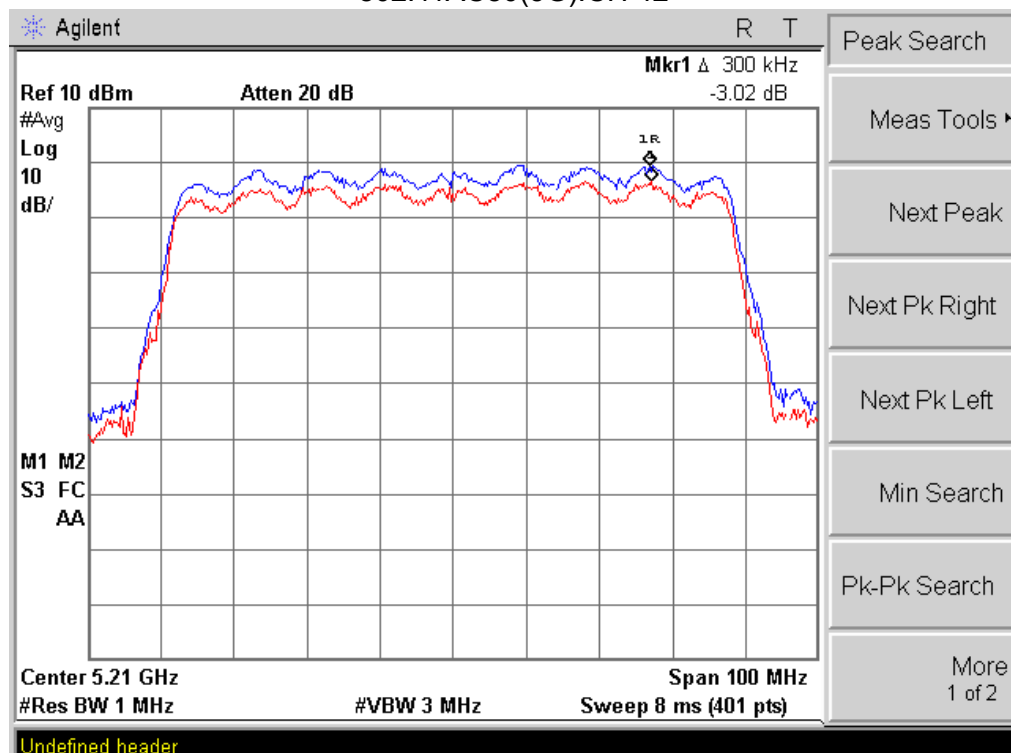
802.11AC40(5G): CH 38



CH 46

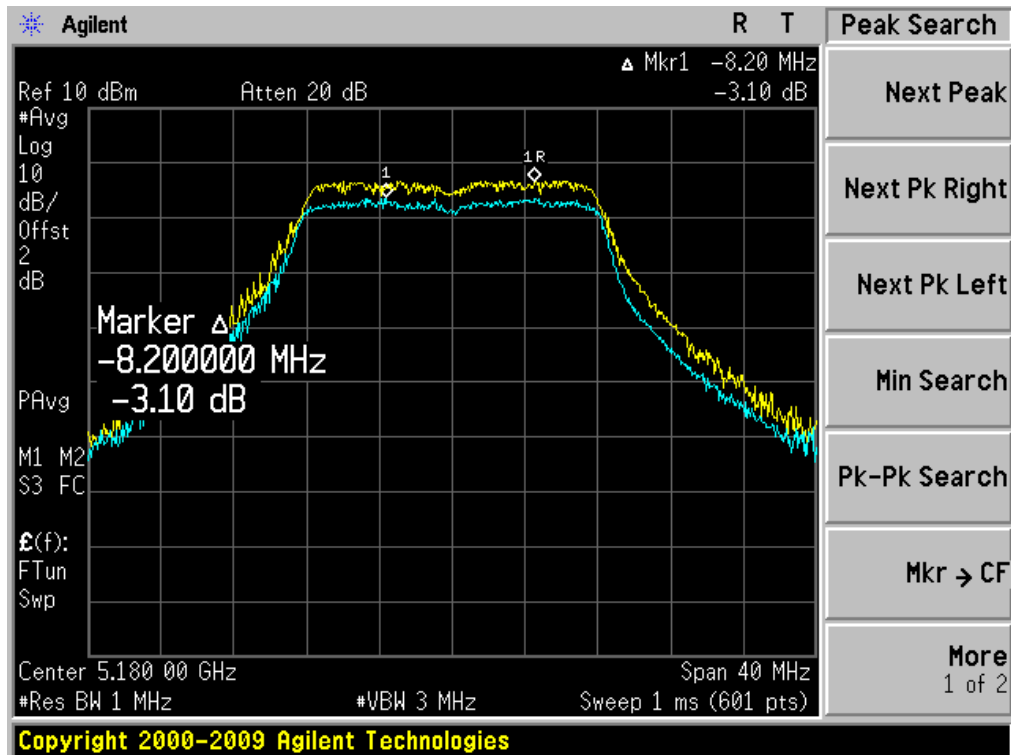


802.11AC80(5G):CH 42

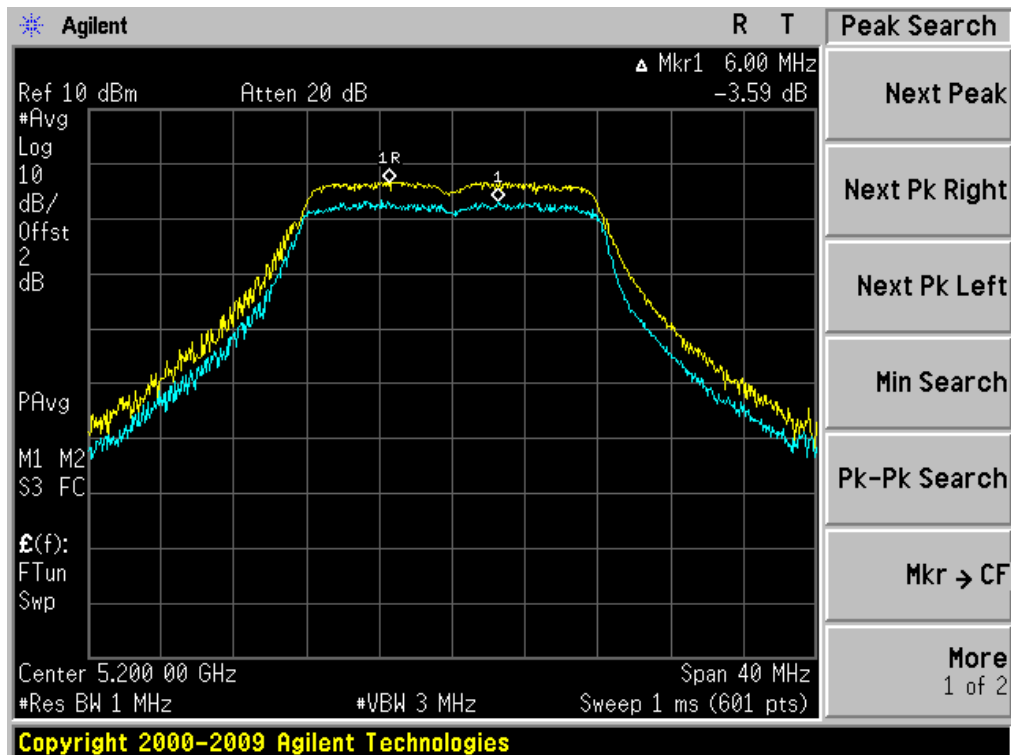


Model 8812 Antenna C

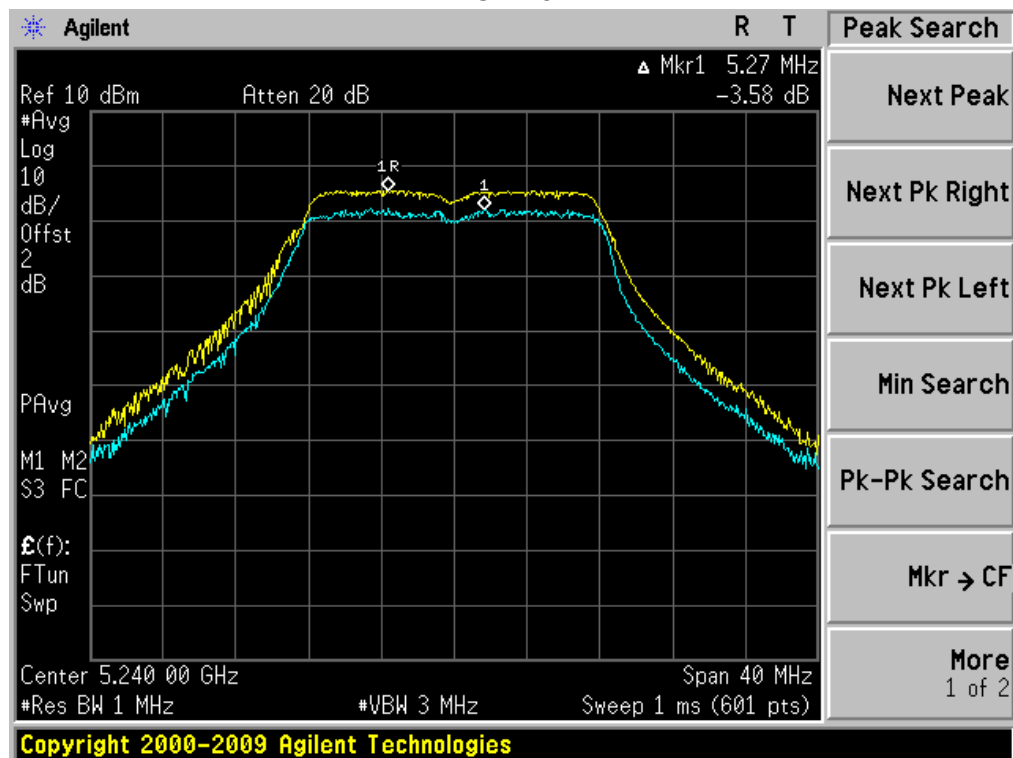
802.11a:CH 36



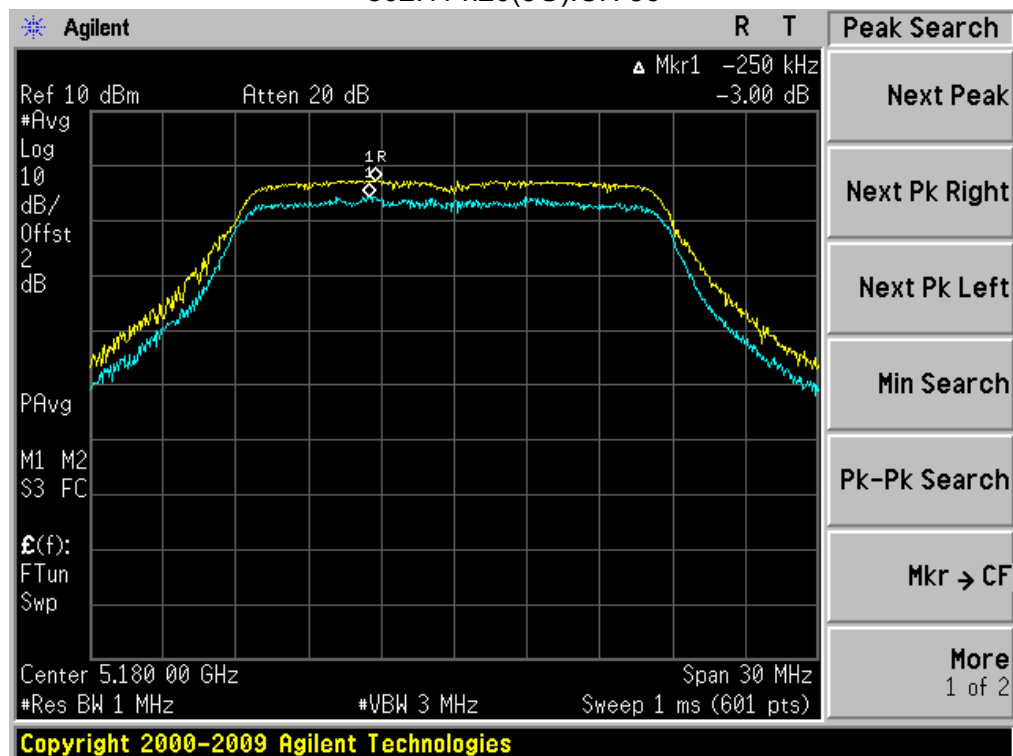
CH 40



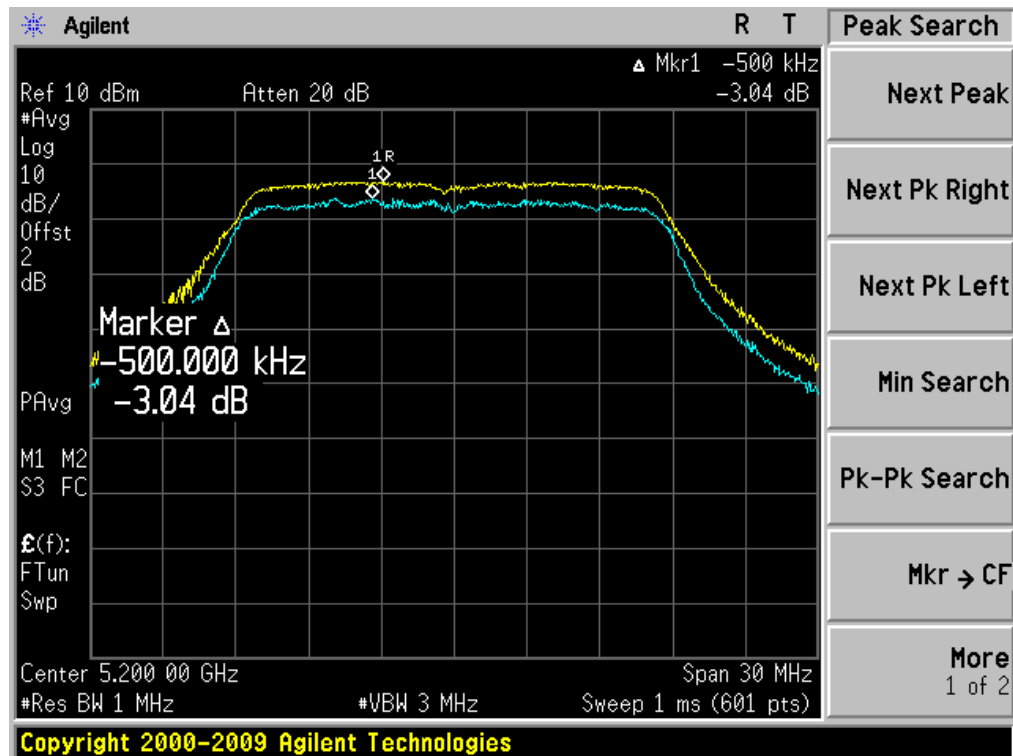
CH 48



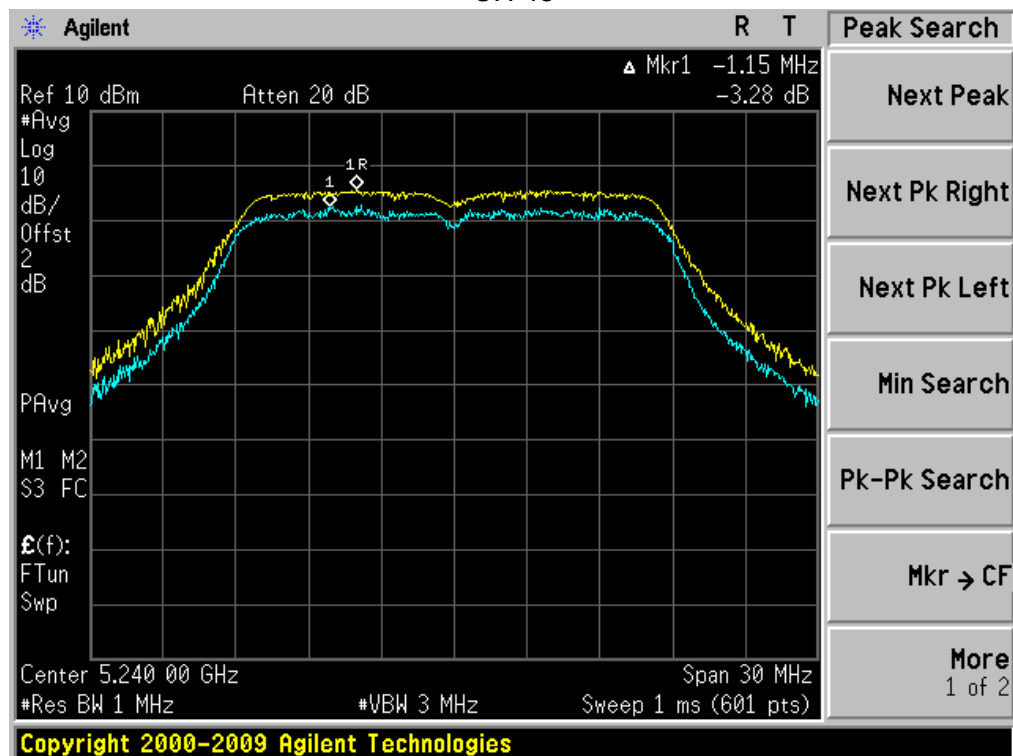
802.11 n20(5G):CH 36



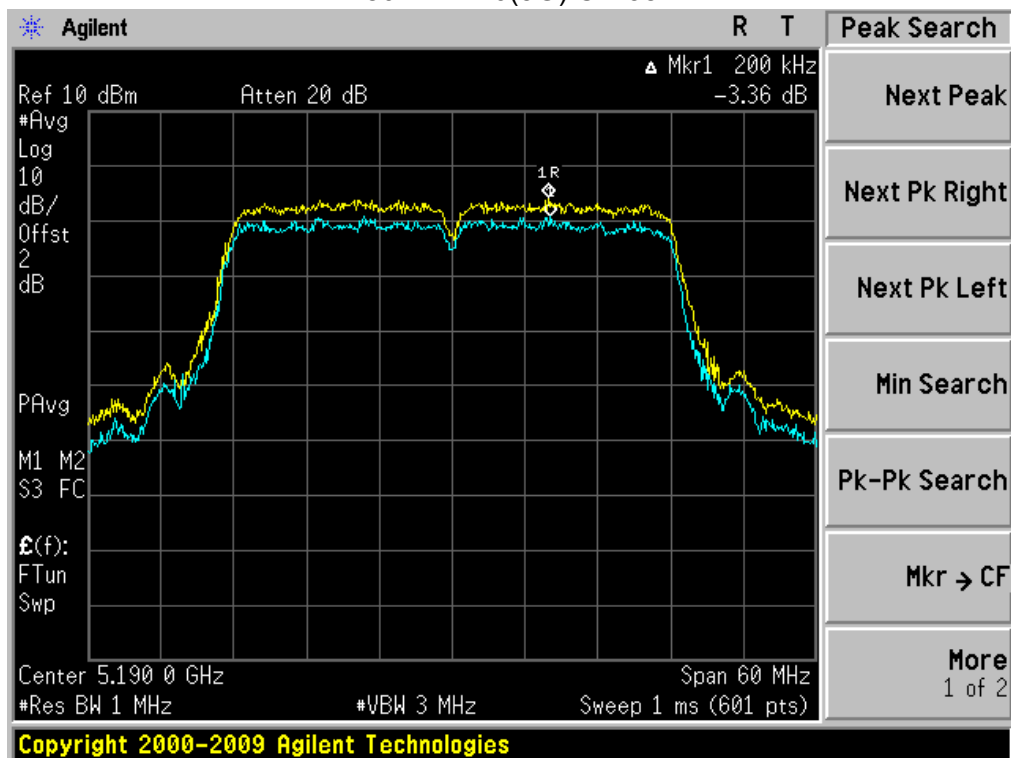
CH 40



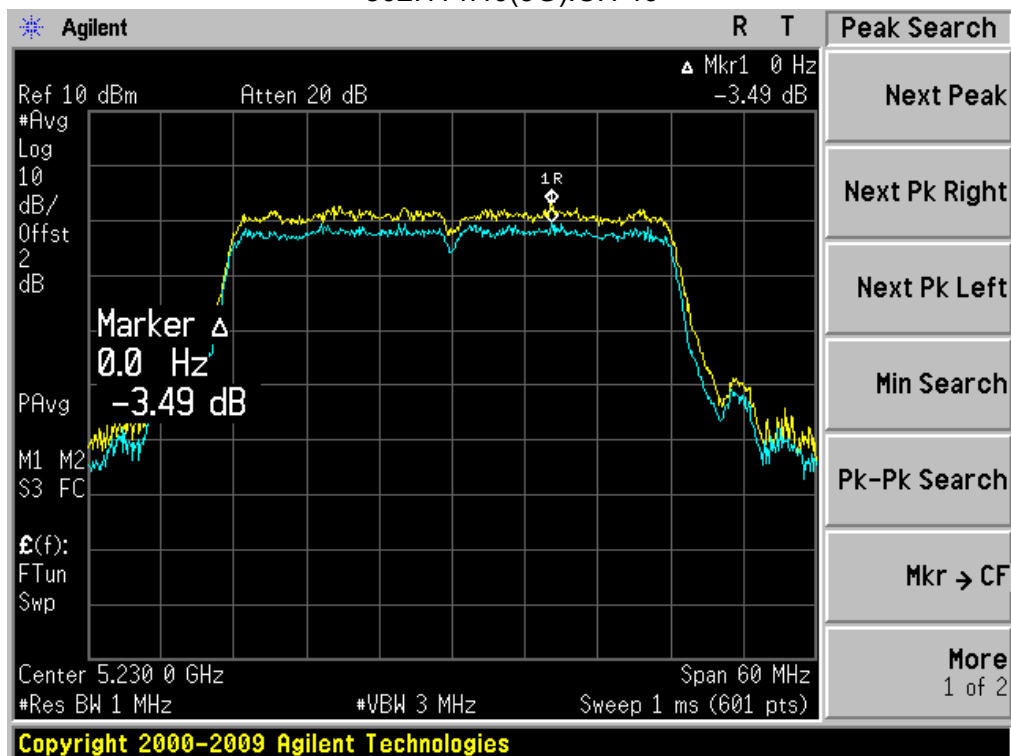
CH 48



802.11 n40(5G):CH 38

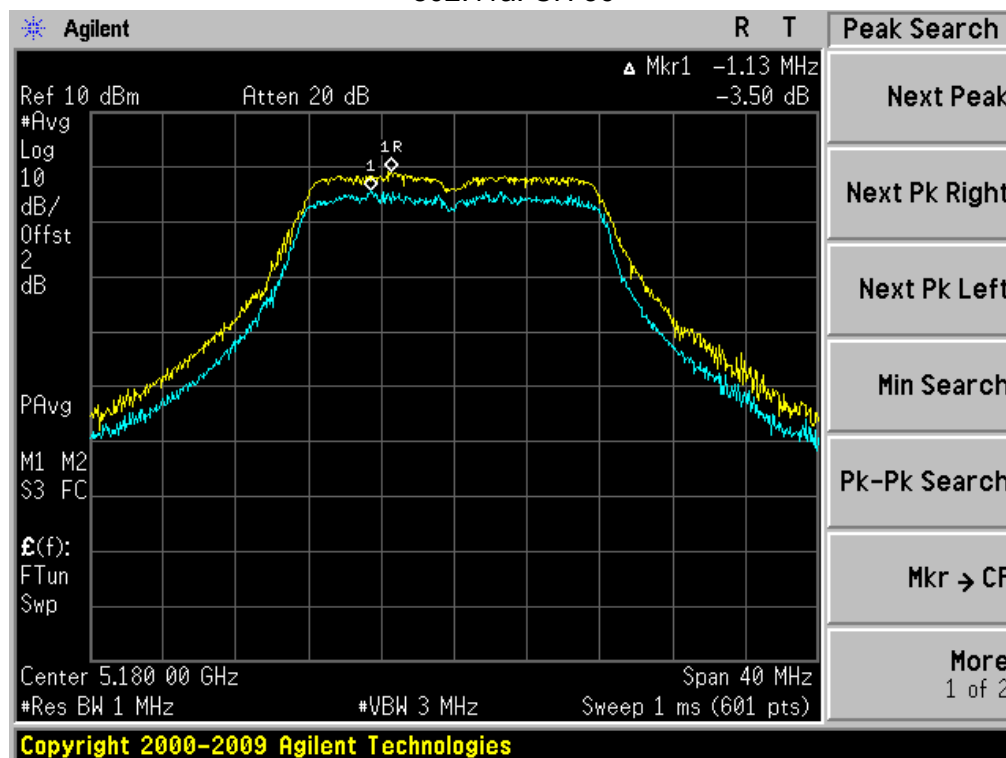


802.11 n40(5G):CH 46

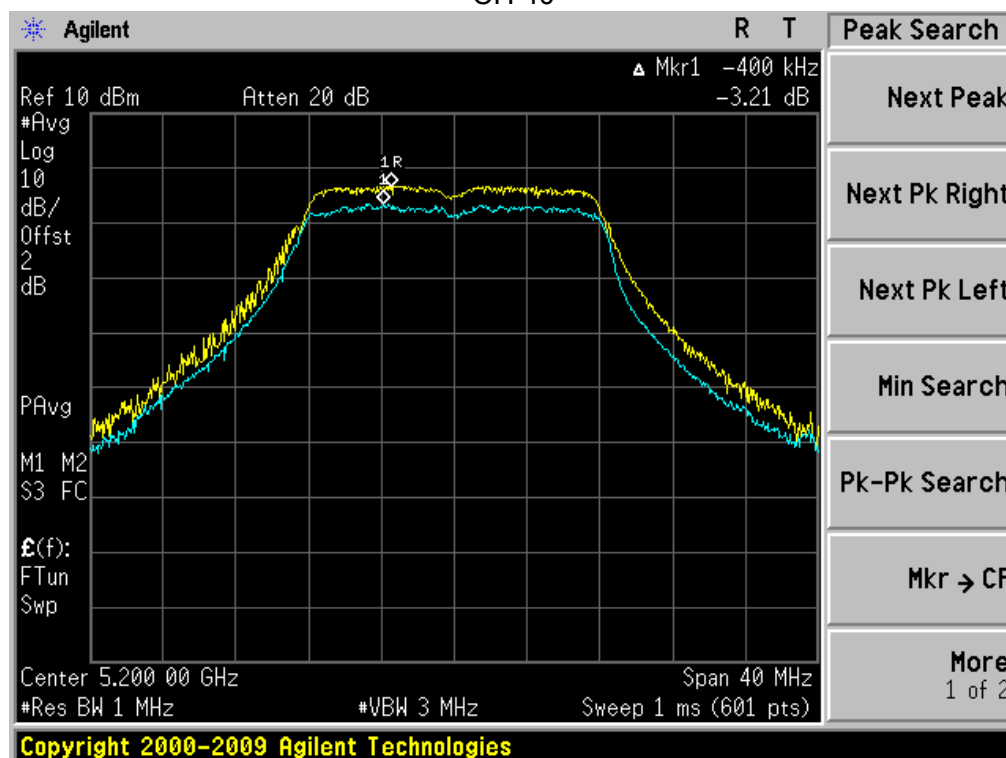


Antenna D

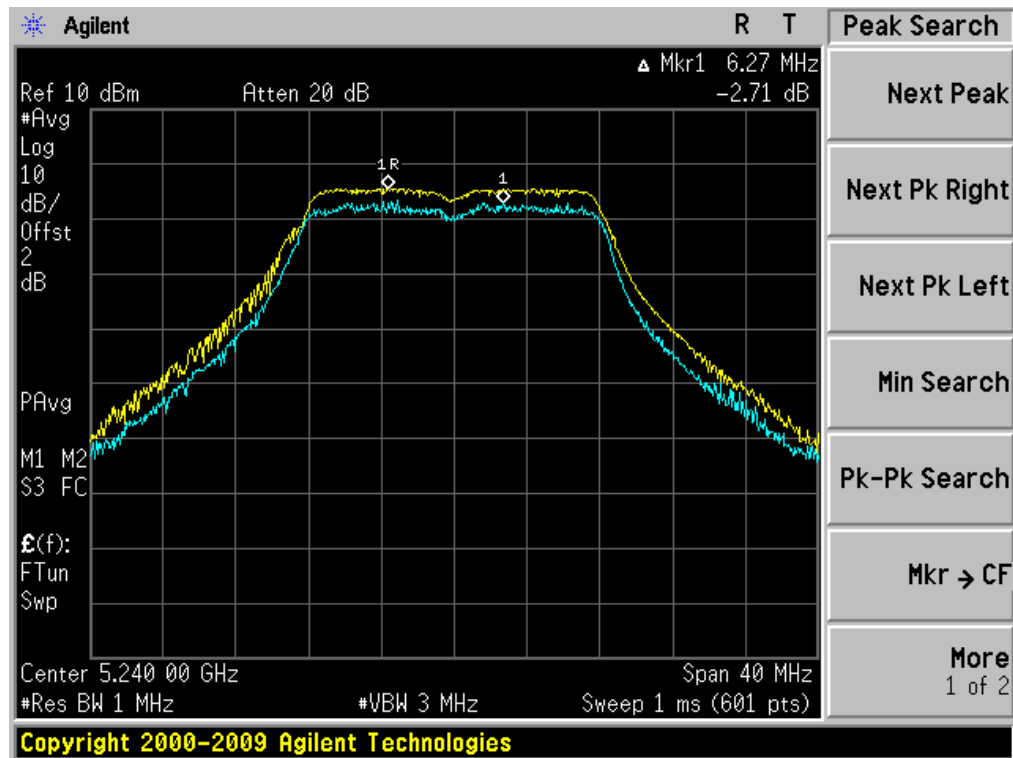
802.11a: CH 36



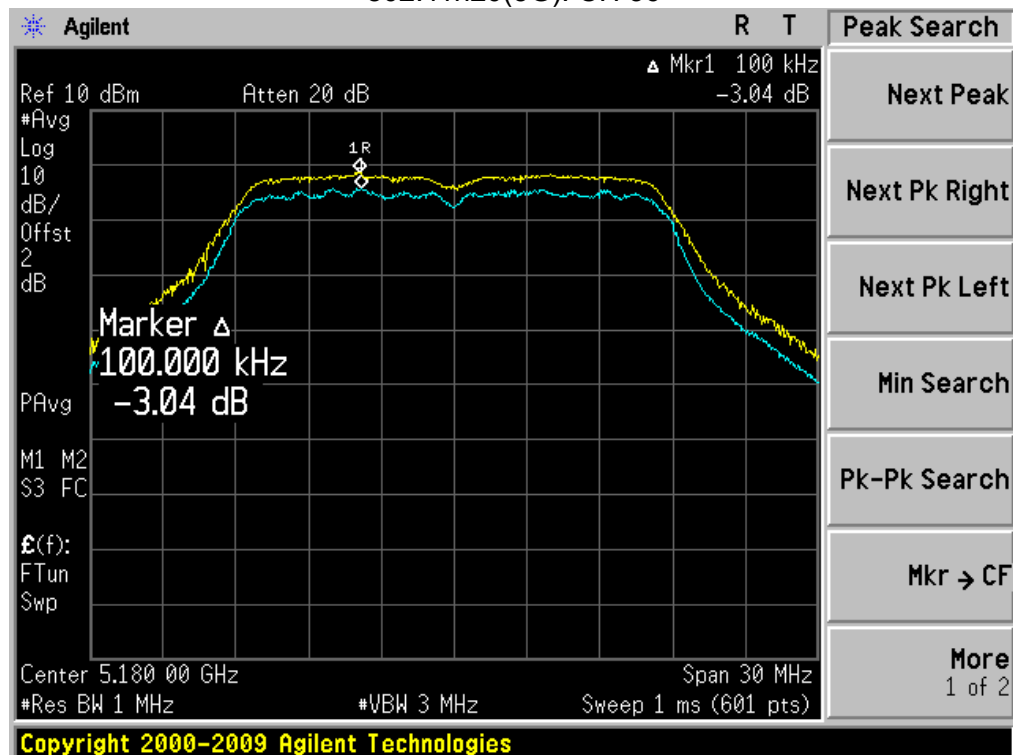
CH 40



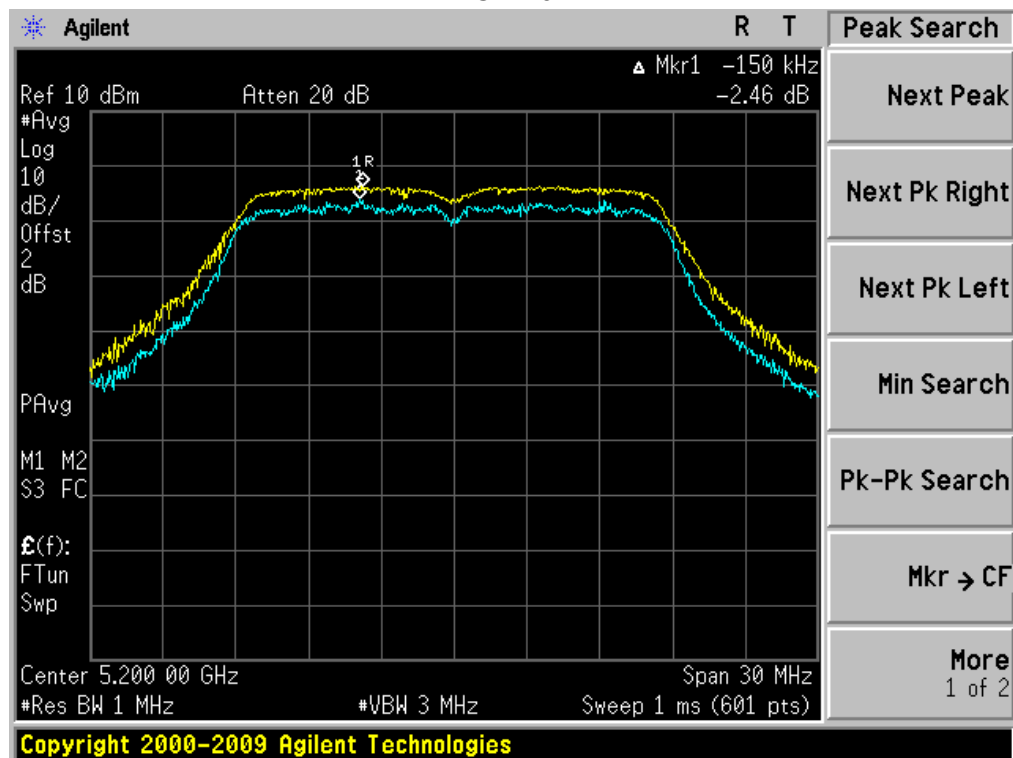
CH 48



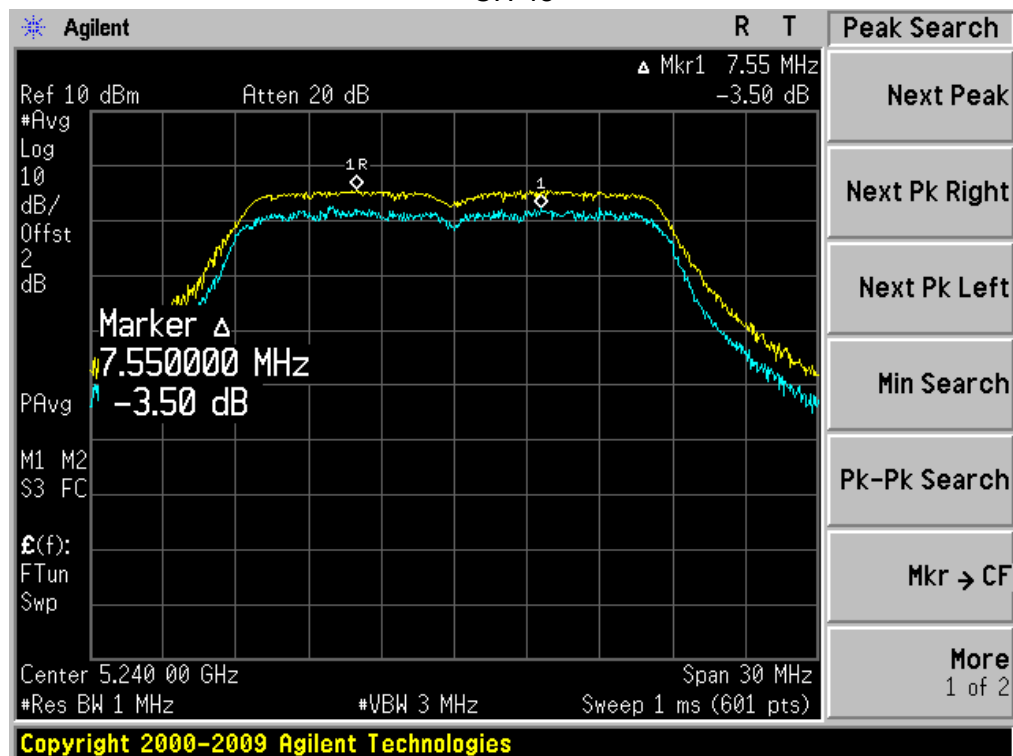
802.11n20(5G): CH 36



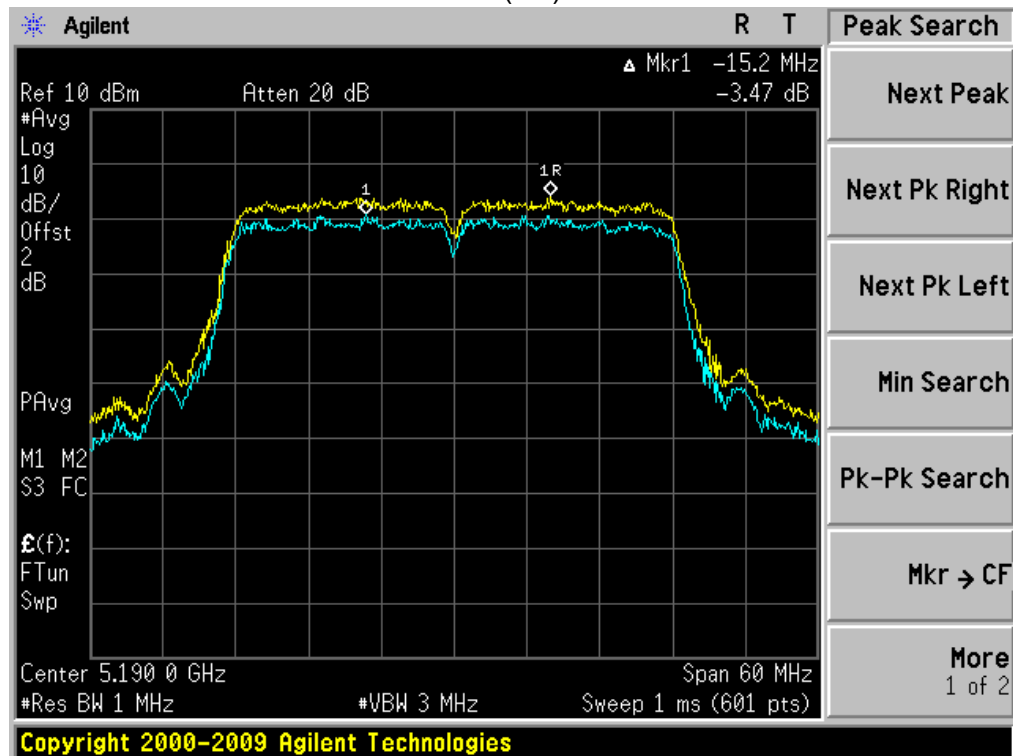
CH 40



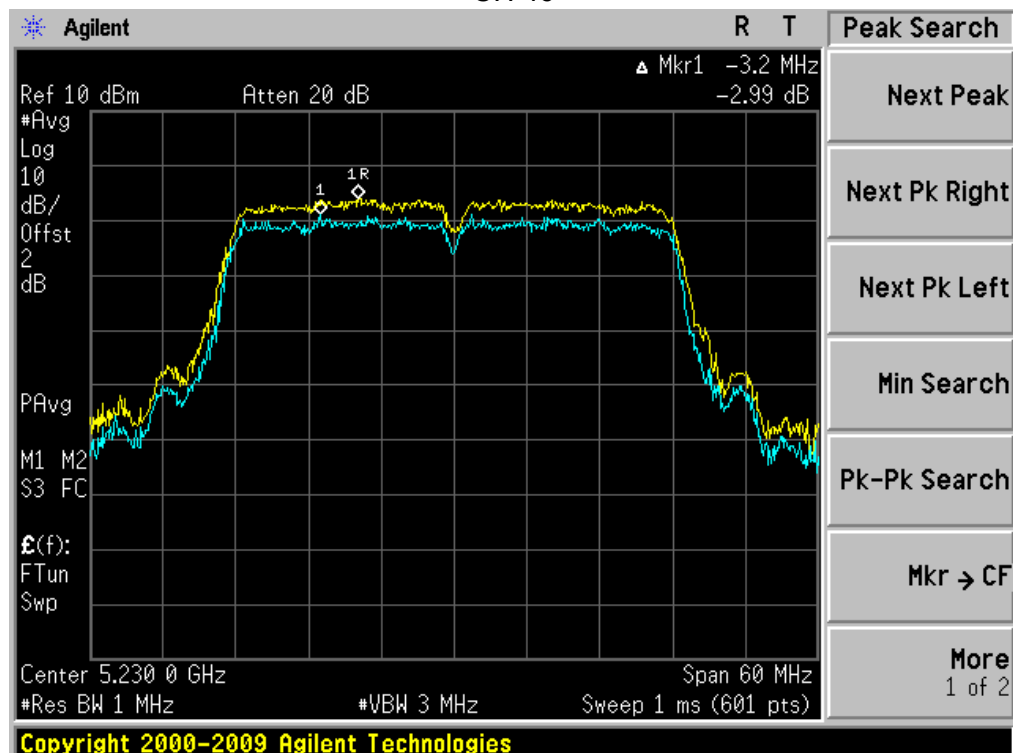
CH 48



802.11n40(5G): CH 38



CH 46



9. ANTENNA REQUIREMENT

9.1 STANDARD REQUIREMENT

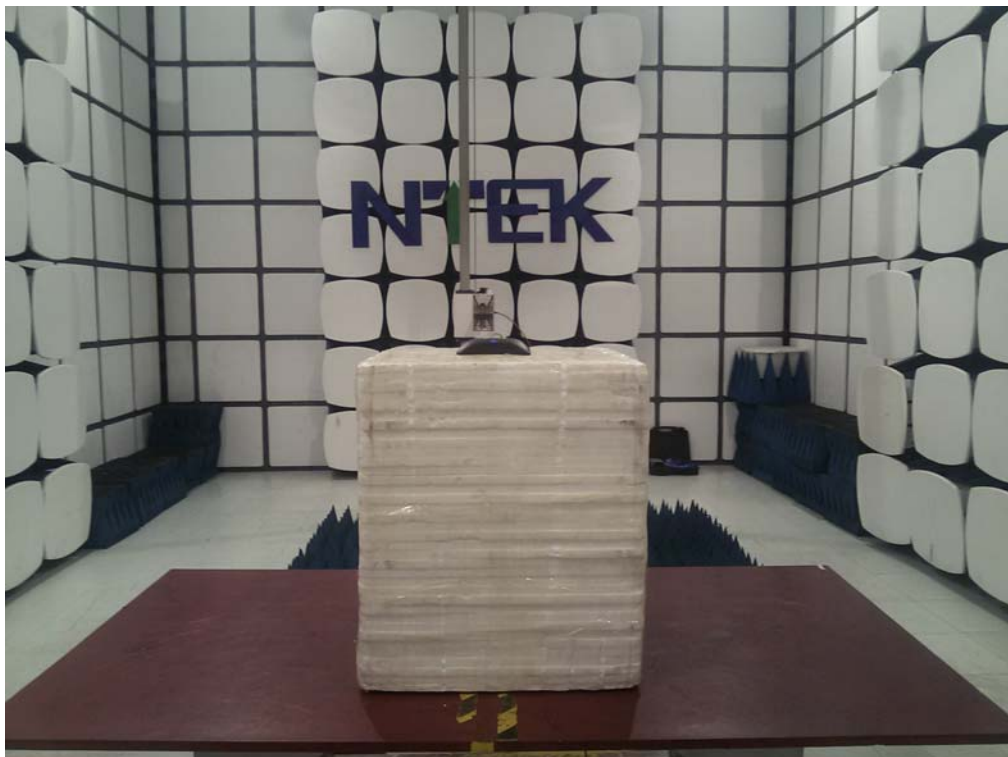
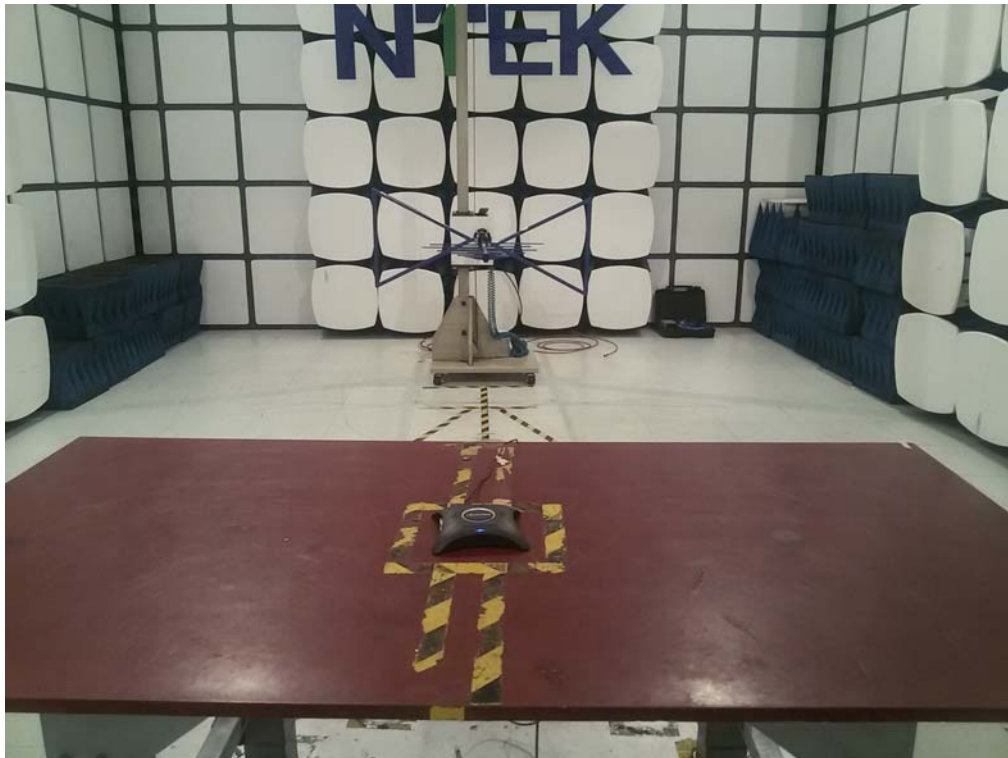
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

9.2 EUT ANTENNA

The EUT antenna is permanent attached antenna. It comply with the standard requirement.

10. EUT TEST PHOTO

Radiated Measurement Photos



Conducted Measurement Photos