



FCC RADIO TEST REPORT

FCC ID:O86T1500

Product : 10.1 Inch Full Ruggedized Tablet

Trade Name : N/A

Model Name : xTablet T1500

Serial Model : N/A

Report No. : NTEK-2015NT1211614F1

Prepared for

MobileDemand, LC.

1501 Boyson Square Drive Suite 101 Hiawatha, Iowa52233, United States.

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name MobileDemand, LC.

Address 1501 Boyson Square Drive Suite 101 Hiawatha, Iowa 52233, United States.

Manufacture's Name... Emdoor Information Co., Ltd.

Address 3A 1/F Jinfulai Tower, No. 49-1, Dabao Road, Baoan 28 District, Shenzhen, China.

Product description

Product name 10.1 Inch Full Ruggedized Tablet

Model and/or type reference xTablet T1500

Serial Model N/A

Standards FCC Part 15.407: 01 Oct. 2015

Test procedure ANSI C63.10-2013 and KDB 789033 D02 General UNII Test Procedures New Rules v01r01

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 11 Dec. 2015 ~ 15 Jan. 2016

Date of Issue 15 Jan. 2016

Test Result **Pass**

Testing Engineer : Susan
(Susan Su)

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			
Standard Section	Test Item	Judgment	Remark
15.207	AC Power Line Conducted Emissions	PASS	
15.209(a), 15.407 (b)(1) 15.407 (b)(4) 15.407 (b)(6)	Spurious Radiated Emissions	PASS	
15.407 (a)(1) 15.407 (a)(3) 15.1049	26 dB and 99% Emission Bandwidth	PASS	
15.407(e)	Minimum 6 dB bandwidth	PASS	
15.407 (a)(1) 15.407 (a)(3)	Maximum Conducted Output Power	PASS	
2.1051, 15.407(b)(1) 15.407(b)(4)	Band Edges	PASS	
15.407 (a)(1) 15.407 (a)(3)	Power Spectral Density	PASS	
2.1051, 15.407(b)	Spurious Emissions at Antenna Terminals	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	10.1 Inch Full Ruggedized Tablet		
Trade Name	N/A		
Model Name	xTablet T1500		
Product Description	IEEE 802.11 WLAN Mode Supported	☒ 802.11a(20MHz channel bandwidth) ☒ 802.11n(20MHz channel bandwidth) ☒ 802.11n(40MHz channel bandwidth)	
	Data Rate	802.11 a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20):MCS0-MCS7; 802.11n(HT40):MCS8-MCS15;	
	Modulation	OFDM with BPSK/QPSK/16QAM/64QAM for 802.11a/n;	
	Operating Frequency Range	☒ 5180-5240MHz for 802.11a/n(HT20); 5190-5230MHz for 802.11n(HT40); ☒ 5745-5825 MHz for 802.11a/n(HT20); 5755-5795 MHz for 802.11a/n(HT40);	
	Number of Channels	☒ 7 channels for 802.11a/(HT20) in the 5180-5240MHz band ; 5 channels for 802.11a/(HT40) in the 5190-5230MHz band ; ☒ 5 channels for 802.11a/(HT20) in the 5745-5825MHz band ; 3 channels for 802.11a/(HT40) in the 5755-5795MHz band ;	
	Antenna Type	PCB Antenna	
	Smart system	☒ SISO for 802.11a/n ☐ MIMO for 802.11n	
	Antenna Gain	1.0dBi	
	Based on the application, features, or specification exhibited in User's Manual, More details of EUT technical specification, please refer to the User's Manual.		
Ratings	DC 3.7V		
Adapter	Model:AW018WR-0500300UH Input: AC100-240V~, 50/60Hz,0.5A Output: 5V---, 3A		
Battery	DC 3.7V,10000mAh		
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. Frequency and Channel list for 802.11a/n(20MHz) band I (5180-5240MHz):

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

Frequency and Channel list for 802.11n(40MHz) band I (5190-5230MHz):

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

Frequency and Channel list for 802.11a/n(20 MHz) band III (5745-5825MHz):

802.11a/n(20 MHz) Carrier Frequency Channel							
Channel	Frequen cy (MHz)	Channel	Frequen cy (MHz)	Channel	Frequen cy (MHz)	Channel	Frequen cy (MHz)
149	5745	153	5765	157	5785	161	5805
165	5825	-	-	-	-	-	-

Frequency and Channel list for 802.11n(40MHz) band III (5755-5795MHz):

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

3.

Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Gain (dBi)	NOTE
A	N/A	N/A	FPCB antenna	5G:1.0	Wifi Antenna

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	Link Mode
Mode 2	802.11a / n 20 CH36/ CH40/ CH 48 802.11a /n 20 CH149/ CH157/ CH 165
Mode 3	802.11n40 CH38/ CH 46 802.11n40 CH 151 / CH 159

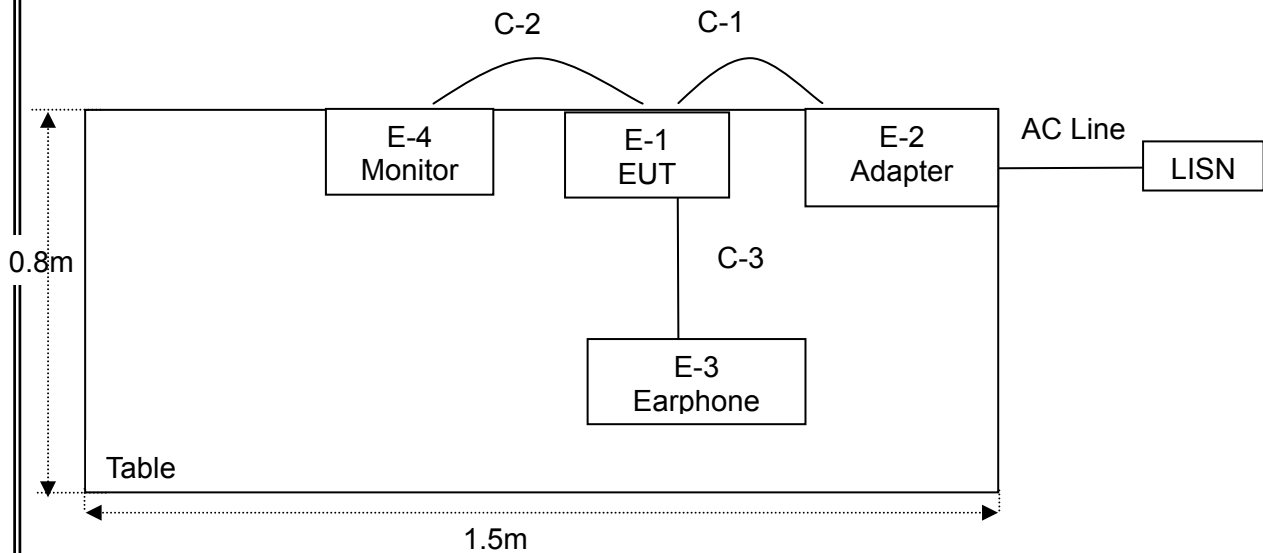
For Radiated Emission	
Final Test Mode	Description
Mode 1	Link Mode
Mode 2	802.11a / n 20 CH36/ CH40/ CH 48 802.11a /n 20 CH149/ CH157/ CH 165
Mode 3	802.11n40 CH38/ CH 46 802.11n40 CH 151 / CH 159

Note:

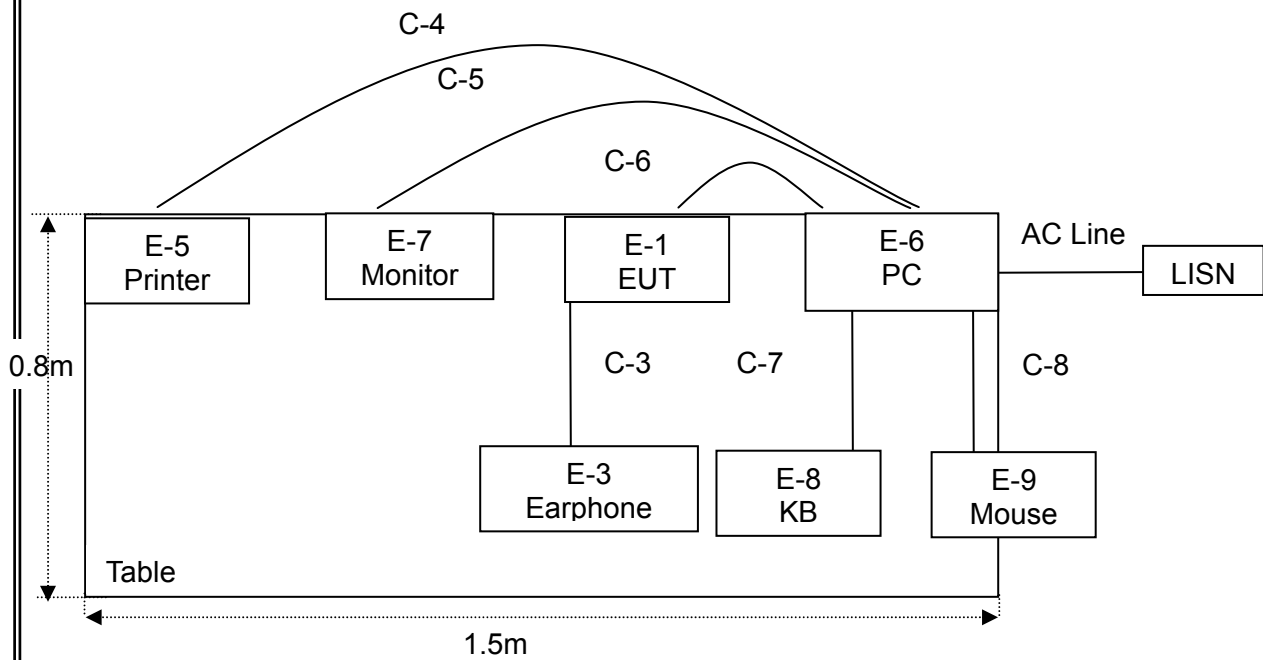
- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission Test 1



Conducted Emission Test 2



Radiated Spurious Emission Test

E-1 EUT

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	10.1 Inch Full Ruggedized Tablet	N/A	xTablet T1500	N/A	EUT
E-2	ADAPTER	N/A	AW018WR-0500300UH	N/A	
E-3	Earphone	N/A	2688	N/A	
E-4	Monitor	SONY	KDL-24EX520	N/A	
E-5	Printer	Canon	L11121E	LBP2900	
E-6	Personal computer	DELL	FT4Y23X	34413561645	
E-7	Monitor	DELL	IN2020MB	cn-0y6mhx-74261-11f-67es	
E-8	Keyboard	DELL	SK-8185	OY526KUS	
E-9	Mouse	DELL	MS111-P	cn-011d3v-71581-11e-1th7	

Item	Cable Type	Shielded Type	Ferrite Core	Length	Note
C-1	Power line	NO	YES	1.2m	
C-2	HDMI	NO	NO	1.0m	
C-3	Earphone	NO	NO	1.0m	
C-4	USB Cable	NO	NO	1.0m	
C-5	HDMI	NO	NO	1.0m	
C-6	USB Cable	NO	NO	1.0m	
C-7	USB Cable	NO	NO	1.0m	
C-8	USB Cable	NO	NO	1.0m	

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	Spectrum Analyzer	Agilent	N9020A	MY49100060	2015.07.06	2016.07.05	1 year
3	Test Receiver	R&S	ESPI	101318	2015.06.06	2016.06.05	1 year
4	Bilog Antenna	TESEQ	CBL6111D	31216	2015.07.06	2016.07.05	1 year
5	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2015.06.06	2016.06.05	1 year
6	Spectrum Analyzer	ADVANTEST	R3132	150900201	2015.06.06	2016.06.05	1 year
7	Horn Antenna	EM	EM-AH-10180	2011071402	2015.07.06	2016.07.05	1 year
8	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2015.07.06	2016.07.05	1 year
9	Amplifier	EM	EM-30180	060538	2015.12.22	2016.12.21	1 year
10	Loop Antenna	ARA	PLA-1030/B	1029	2015.06.06	2016.06.05	1 year
11	Power Meter	R&S	NRVS	100696	2015.07.06	2016.07.05	1 year
12	Power Sensor	R&S	URV5-Z4	0395.1619.05	2015.07.06	2016.07.05	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	2015.08.24	2016.08.23	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

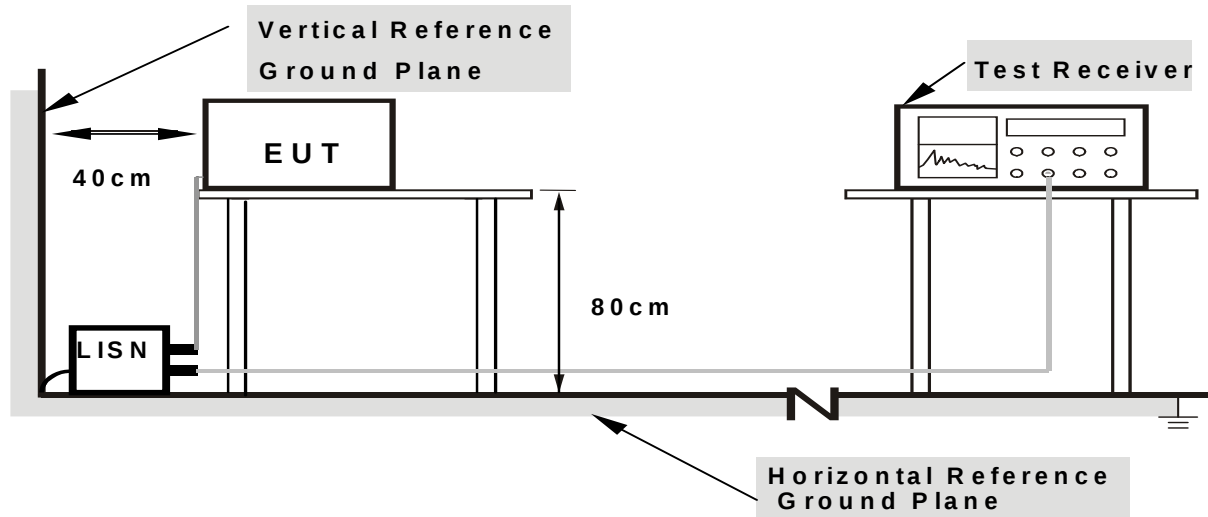
3.1.2 TEST PROCEDURE

- 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.

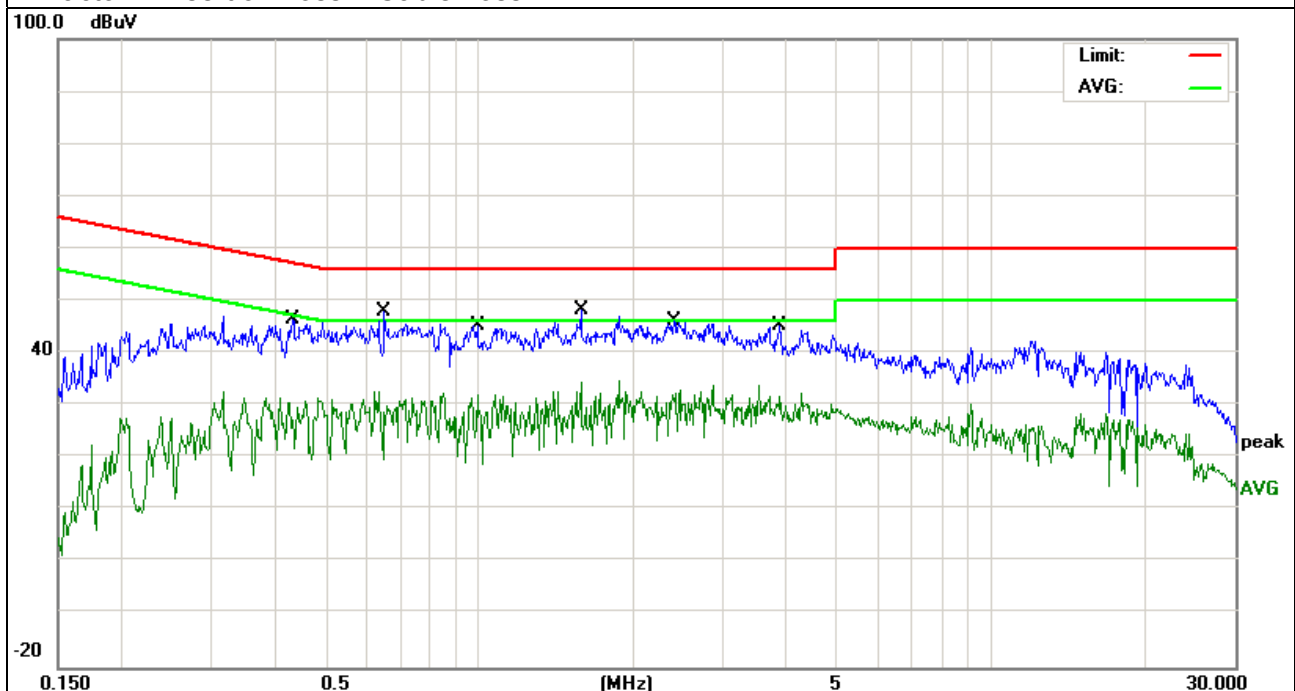
3.1.6 TEST RESULTS

EUT :	10.1 Inch Full Ruggedized Tablet	Model Name. :	xTablet T1500
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V From adapter AC120V/60Hz	Test Mode :	Mode 1

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.4304	37.22	9.28	46.50	57.24	-10.74	QP
0.4304	16.48	9.28	25.76	47.24	-21.48	AVG
0.6540	38.43	9.57	48.00	56.00	-8.00	QP
0.6540	16.68	9.57	26.25	46.00	-19.75	AVG
0.9899	35.84	9.56	45.40	56.00	-10.60	QP
0.9899	18.38	9.56	27.94	46.00	-18.06	AVG
1.5820	38.64	9.56	48.20	56.00	-7.80	QP
1.5820	21.02	9.56	30.58	46.00	-15.42	AVG
2.3980	36.51	9.59	46.10	56.00	-9.90	QP
2.3980	22.56	9.59	32.15	46.00	-13.85	AVG
3.8660	35.57	9.66	45.23	56.00	-10.77	QP
3.8660	20.05	9.66	29.71	46.00	-16.29	AVG

Remark:

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

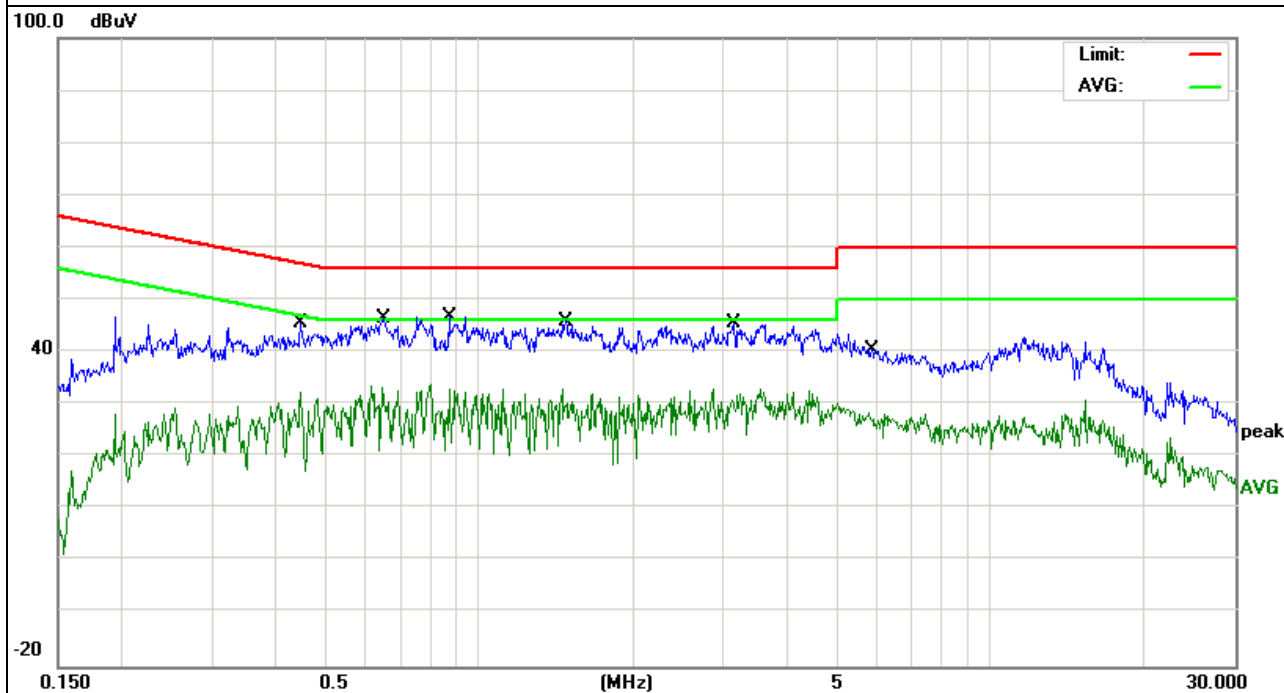


EUT :	10.1 Inch Full Ruggedized Tablet	Model Name. :	xTablet T1500
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V From adapter AC120V/60Hz	Test Mode :	Mode 1

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.4465	36.05	9.45	45.50	56.94	-11.44	QP
0.4465	22.81	9.45	32.26	46.94	-14.68	AVG
0.6540	37.16	9.44	46.60	56.00	-9.40	QP
0.6540	23.88	9.44	33.32	46.00	-12.68	AVG
0.8739	37.46	9.44	46.90	56.00	-9.10	QP
0.8739	21.10	9.44	30.54	46.00	-15.46	AVG
1.4778	36.55	9.45	46.00	56.00	-10.00	QP
1.4778	20.33	9.45	29.78	46.00	-16.22	AVG
3.1499	36.23	9.47	45.70	56.00	-10.30	QP
3.1499	20.42	9.47	29.89	46.00	-16.11	AVG
5.8658	30.84	9.50	40.34	60.00	-19.66	QP
5.8658	17.39	9.50	26.89	50.00	-23.11	AVG

Remark:

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

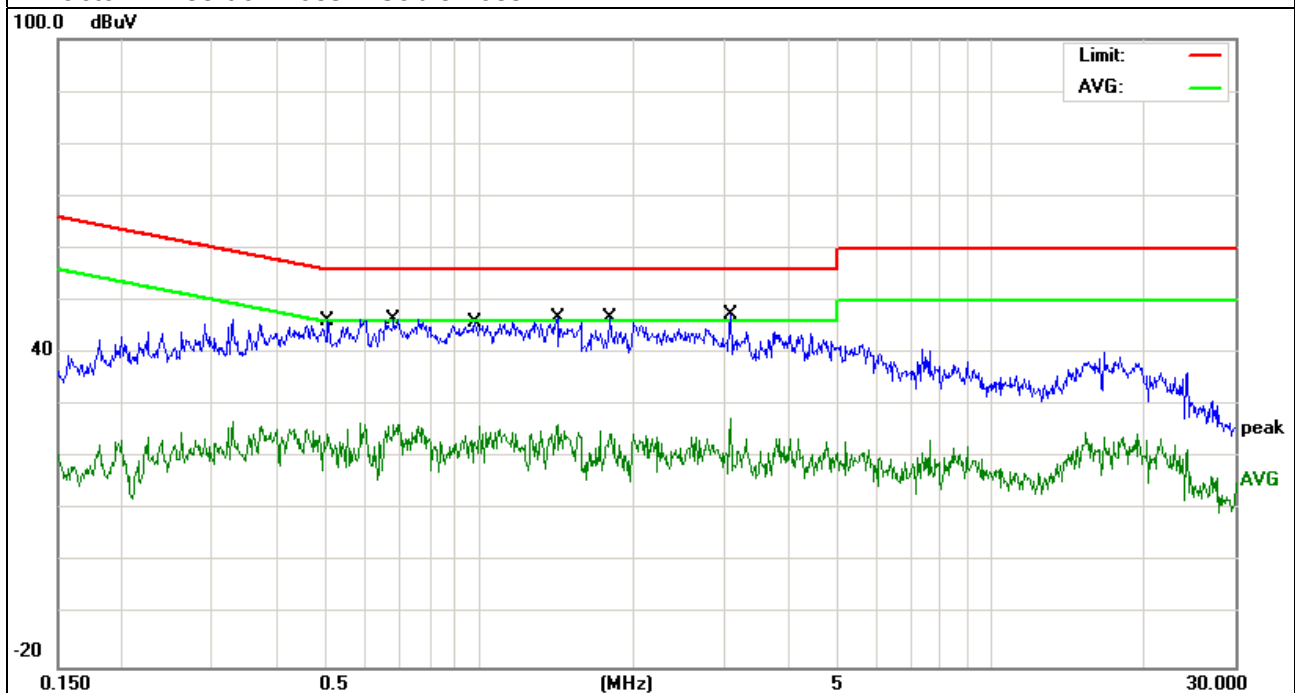


EUT :	10.1 Inch Full Ruggedized Tablet	Model Name. :	xTablet T1500
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V From adapter AC240V/60Hz	Test Mode :	Mode 1

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.5060	36.55	9.55	46.10	56.00	-9.90	QP
0.5060	15.15	9.55	24.70	46.00	-21.30	AVG
0.6820	37.03	9.57	46.60	56.00	-9.40	QP
0.6820	16.85	9.57	26.42	46.00	-19.58	AVG
0.9818	36.44	9.56	46.00	56.00	-10.00	QP
0.9818	13.19	9.56	22.75	46.00	-23.25	AVG
1.4213	37.33	9.57	46.90	56.00	-9.10	QP
1.4213	12.08	9.57	21.65	46.00	-24.35	AVG
1.8020	37.23	9.57	46.80	56.00	-9.20	QP
1.8020	14.38	9.57	23.95	46.00	-22.05	AVG
3.1059	37.78	9.62	47.40	56.00	-8.60	QP
3.1059	17.84	9.62	27.46	46.00	-18.54	AVG

Remark:

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

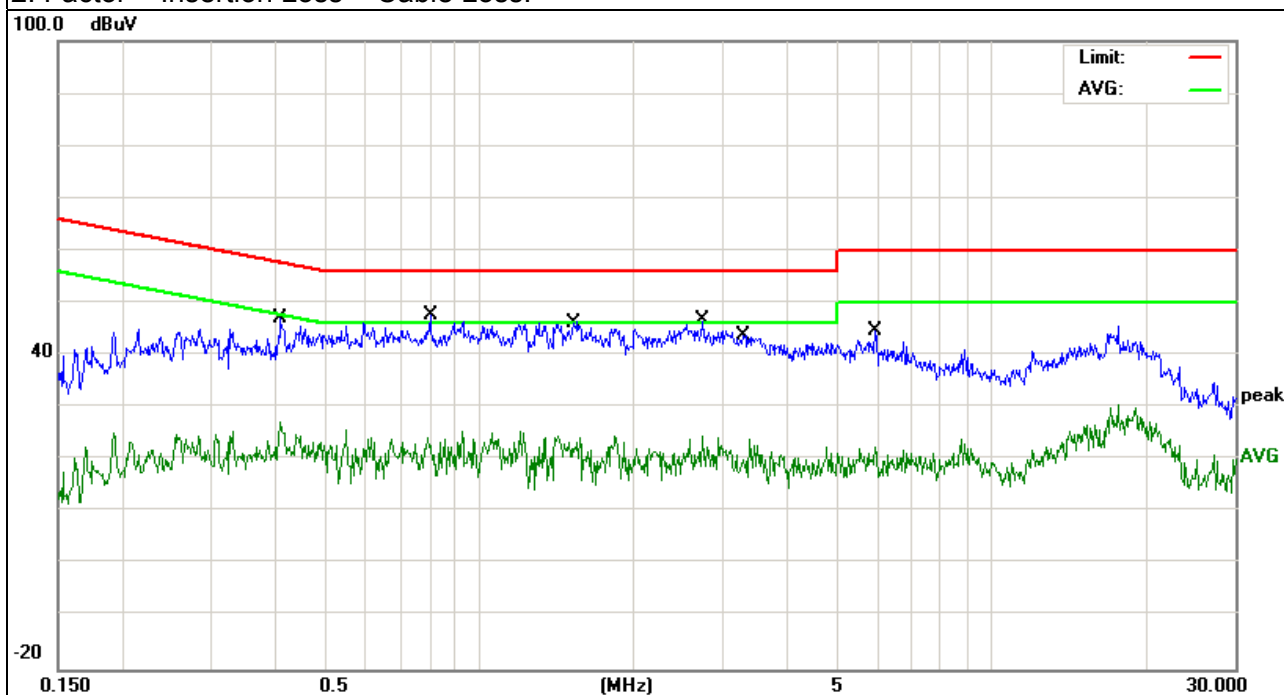


EUT :	10.1 Inch Full Ruggedized Tablet	Model Name. :	xTablet T1500
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V From adapter AC240V/60Hz	Test Mode :	Mode 1

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.4097	37.56	9.44	47.00	57.65	-10.65	QP
0.4097	17.82	9.44	27.26	47.65	-20.39	AVG
0.8020	38.37	9.43	47.80	56.00	-8.20	QP
0.8020	10.63	9.43	20.06	46.00	-25.94	AVG
1.5300	36.85	9.45	46.30	56.00	-9.70	QP
1.5300	12.78	9.45	22.23	46.00	-23.77	AVG
2.7339	37.13	9.47	46.60	56.00	-9.40	QP
2.7339	15.20	9.47	24.67	46.00	-21.33	AVG
3.2900	34.43	9.47	43.90	56.00	-12.10	QP
3.2900	9.02	9.47	18.49	46.00	-27.51	AVG
5.9378	35.10	9.50	44.60	60.00	-15.40	QP
5.9378	10.25	9.50	19.75	50.00	-30.25	AVG

Remark:

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

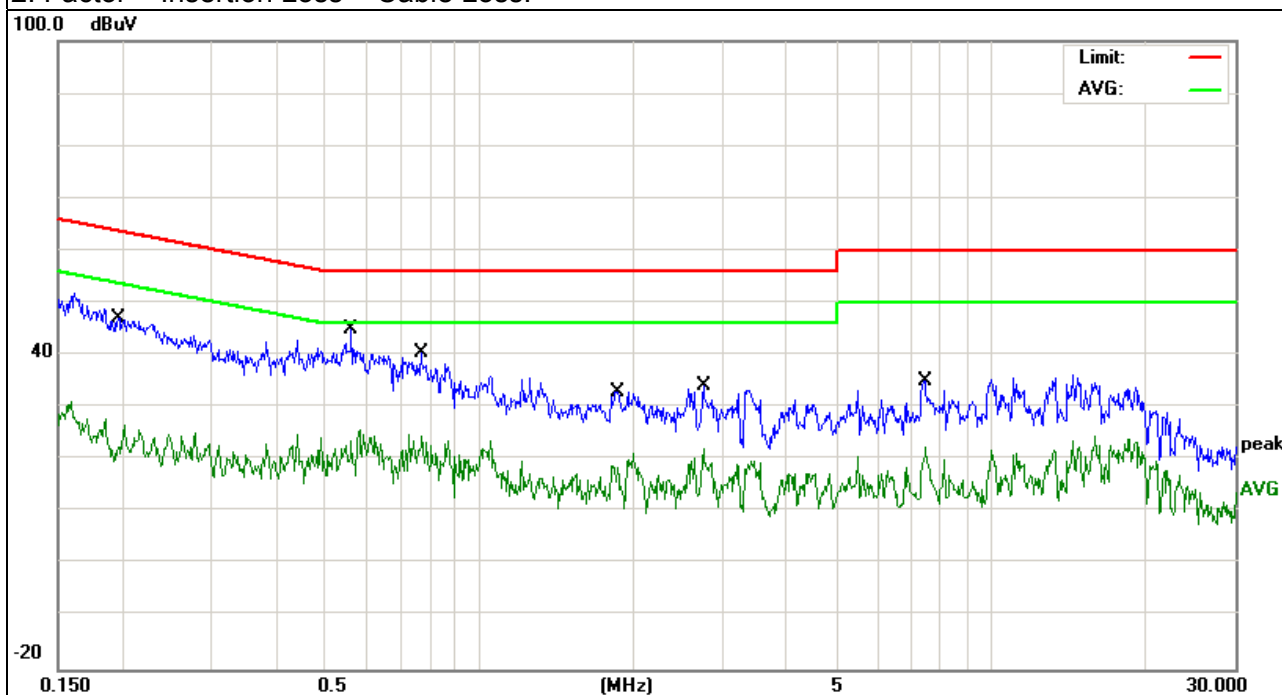


EUT :	10.1 Inch Full Ruggedized Tablet	Model Name. :	xTablet T1500
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V From PC AC120V/60Hz	Test Mode :	Mode 1

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.1965	37.74	9.46	47.20	63.75	-16.55	QP
0.1965	13.03	9.46	22.49	53.75	-31.26	AVG
0.5620	35.55	9.45	45.00	56.00	-11.00	QP
0.5620	14.10	9.45	23.55	46.00	-22.45	AVG
0.7740	29.87	9.43	39.30	56.00	-16.70	QP
0.7740	15.17	9.43	24.60	46.00	-21.40	AVG
1.8660	23.64	9.46	33.10	56.00	-22.90	QP
1.8660	8.98	9.46	18.44	46.00	-27.56	AVG
2.7458	24.84	9.46	34.30	56.00	-21.70	QP
2.7458	10.57	9.46	20.03	46.00	-25.97	AVG
7.4218	25.67	9.53	35.20	60.00	-24.80	QP
7.4218	10.01	9.53	19.54	50.00	-30.46	AVG

Remark:

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



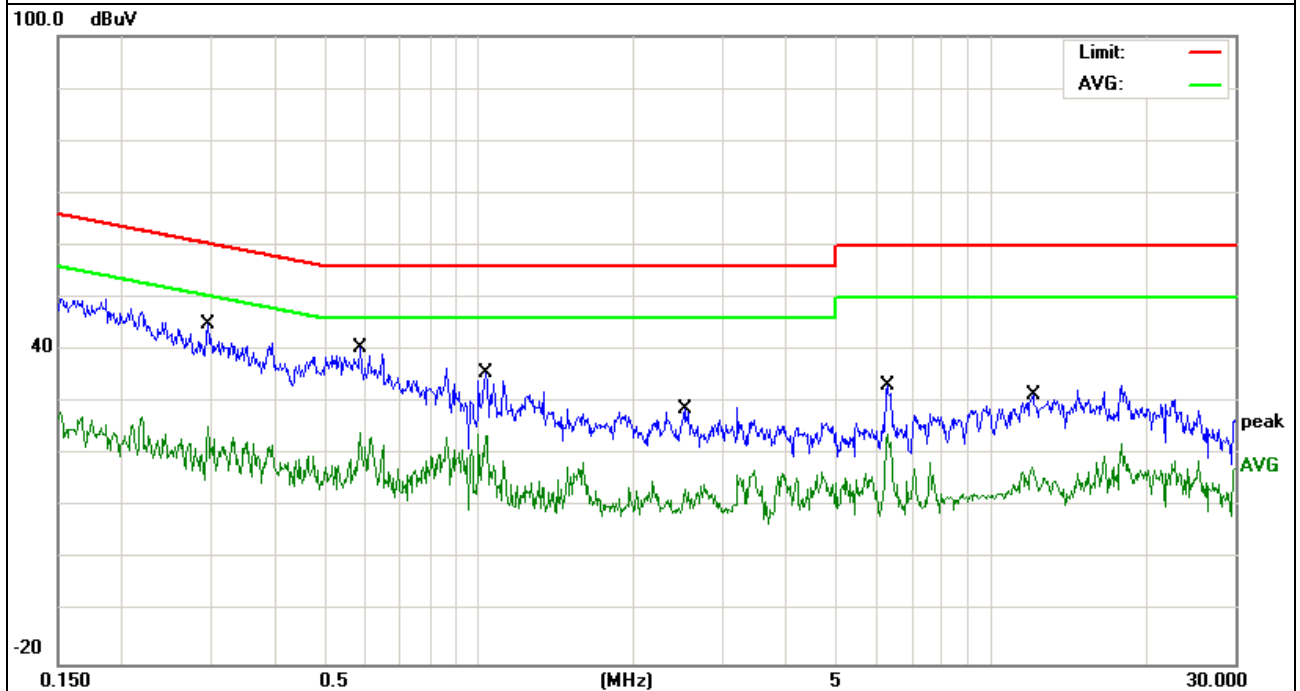
EUT :	10.1 Inch Full Ruggedized Tablet	Model Name. :	xTablet T1500
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V From PC AC120V/60Hz	Test Mode :	Mode 1

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector Type
0.2938	35.56	9.44	45.00	60.41	-15.41	QP
0.2938	9.89	9.44	19.33	50.41	-31.08	AVG
0.5856	31.05	9.45	40.50	56.00	-15.50	QP
0.5856	13.95	9.45	23.40	46.00	-22.60	AVG
1.0300	26.16	9.44	35.60	56.00	-20.40	QP
1.0300	14.22	9.44	23.66	46.00	-22.34	AVG
2.5259	19.33	9.47	28.80	56.00	-27.20	QP
2.5259	2.28	9.47	11.75	46.00	-34.25	AVG
6.2819	23.80	9.50	33.30	60.00	-26.70	QP
6.2819	12.12	9.50	21.62	50.00	-28.38	AVG
12.1097	21.88	9.72	31.60	60.00	-28.40	QP
12.1097	6.41	9.72	16.13	50.00	-33.87	AVG

Remark:

1. All readings are Quasi-Peak and Average values.

2. Factor = Insertion Loss + Cable Loss.

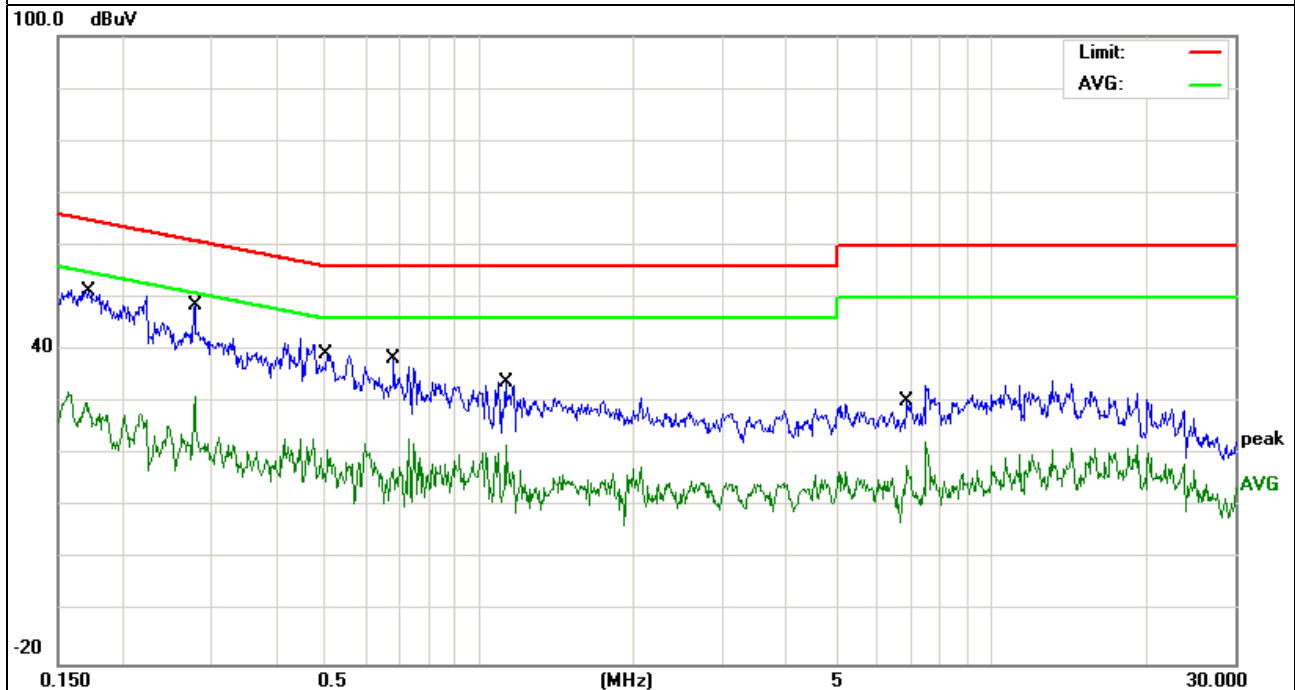


EUT :	10.1 Inch Full Ruggedized Tablet	Model Name. :	xTablet T1500
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V From PC AC240V/60Hz	Test Mode :	Mode1

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1720	41.84	9.46	51.30	64.86	-13.56	QP
0.1720	17.67	9.46	27.13	54.86	-27.73	AVG
0.2779	39.06	9.44	48.50	60.88	-12.38	QP
0.2779	14.10	9.44	23.54	50.88	-27.34	AVG
0.5020	29.94	9.46	39.40	56.00	-16.60	QP
0.5020	5.52	9.46	14.98	46.00	-31.02	AVG
0.6820	28.85	9.43	38.28	56.00	-17.72	QP
0.6820	7.30	9.43	16.73	46.00	-29.27	AVG
1.1250	24.46	9.44	33.90	56.00	-22.10	QP
1.1250	4.95	9.44	14.39	46.00	-31.61	AVG
6.8578	20.79	9.51	30.30	60.00	-29.70	QP
6.8578	6.91	9.51	16.42	50.00	-33.58	AVG

Remark:

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

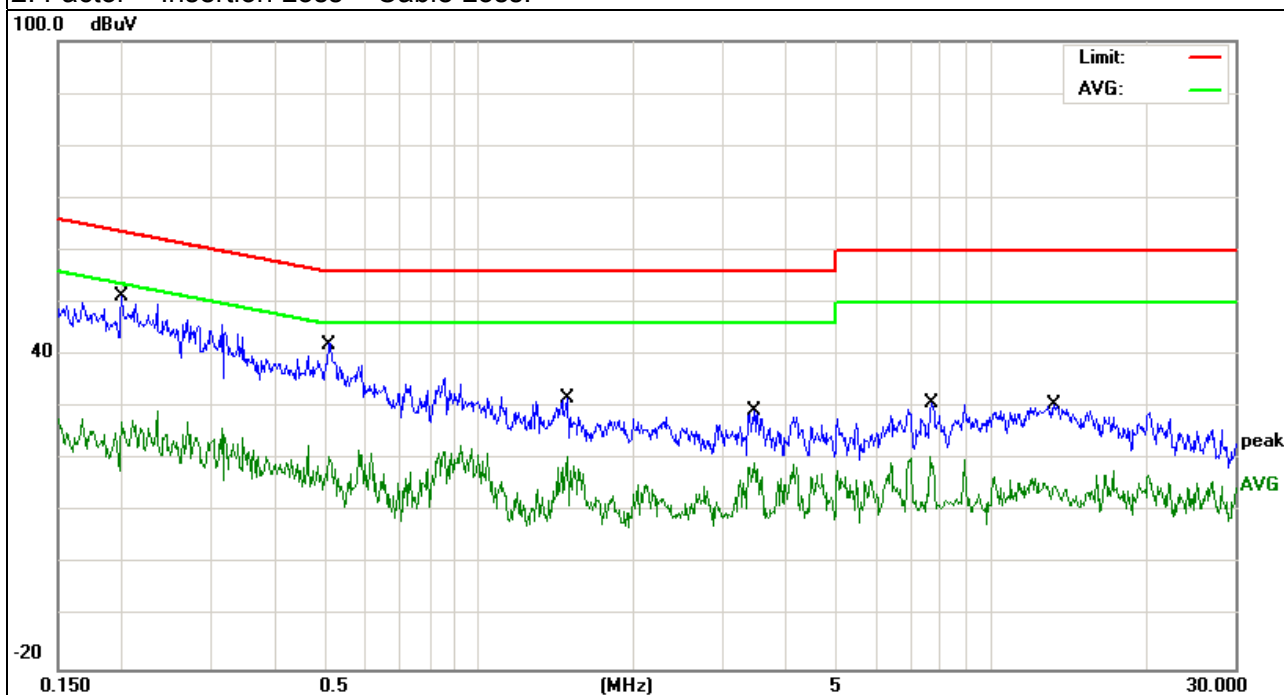


EUT :	10.1 Inch Full Ruggedized Tablet	Model Name. :	xTablet T1500
Temperature :	26 °C	Relative Humidity :	56%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5V From PC AC240V/60Hz	Test Mode :	Mode 1

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1995	41.84	9.46	51.30	63.63	-12.33	QP
0.1995	17.74	9.46	27.20	53.63	-26.43	AVG
0.5100	32.64	9.46	42.10	56.00	-13.90	QP
0.5100	11.18	9.46	20.64	46.00	-25.36	AVG
1.4939	22.25	9.45	31.70	56.00	-24.30	QP
1.4939	11.18	9.45	20.63	46.00	-25.37	AVG
3.4460	19.83	9.47	29.30	56.00	-26.70	QP
3.4460	10.10	9.47	19.57	46.00	-26.43	AVG
7.6497	21.35	9.55	30.90	60.00	-29.10	QP
7.6497	9.04	9.55	18.59	50.00	-31.41	AVG
13.3299	20.68	9.74	30.42	60.00	-29.58	QP
13.3299	5.33	9.74	15.07	50.00	-34.93	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. 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:

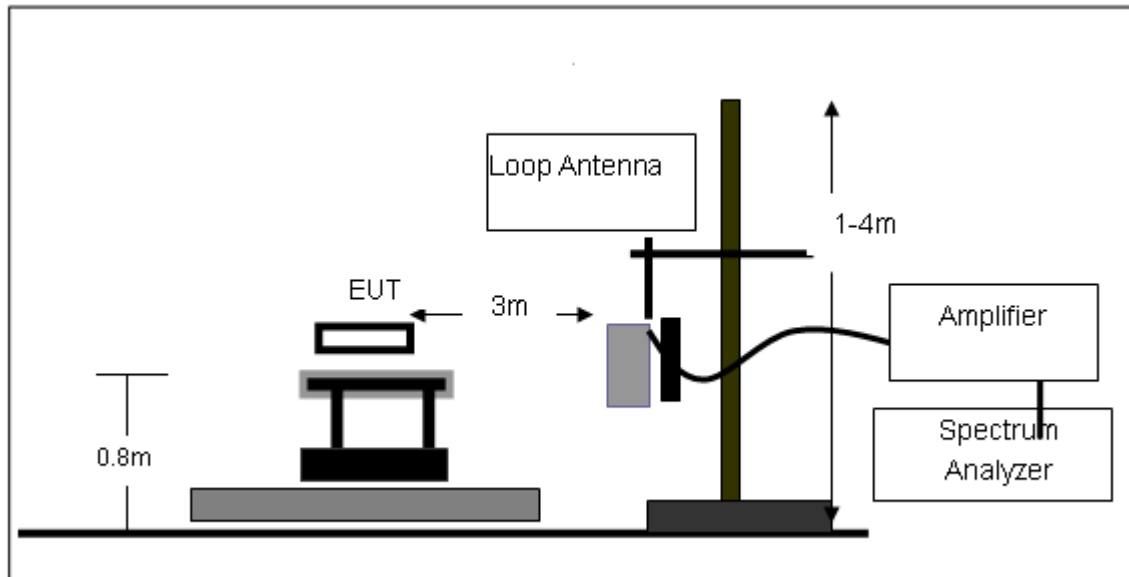
Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Peak	1 MHz	10 Hz

3.2.3 DEVIATION FROM TEST STANDARD

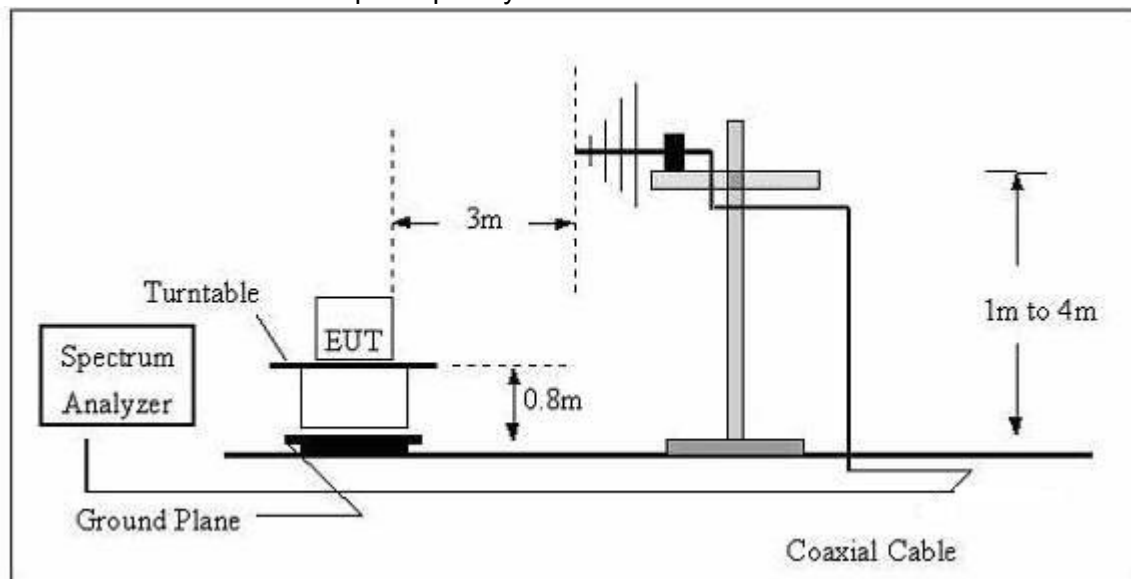
No deviation

3.2.4 TEST SETUP

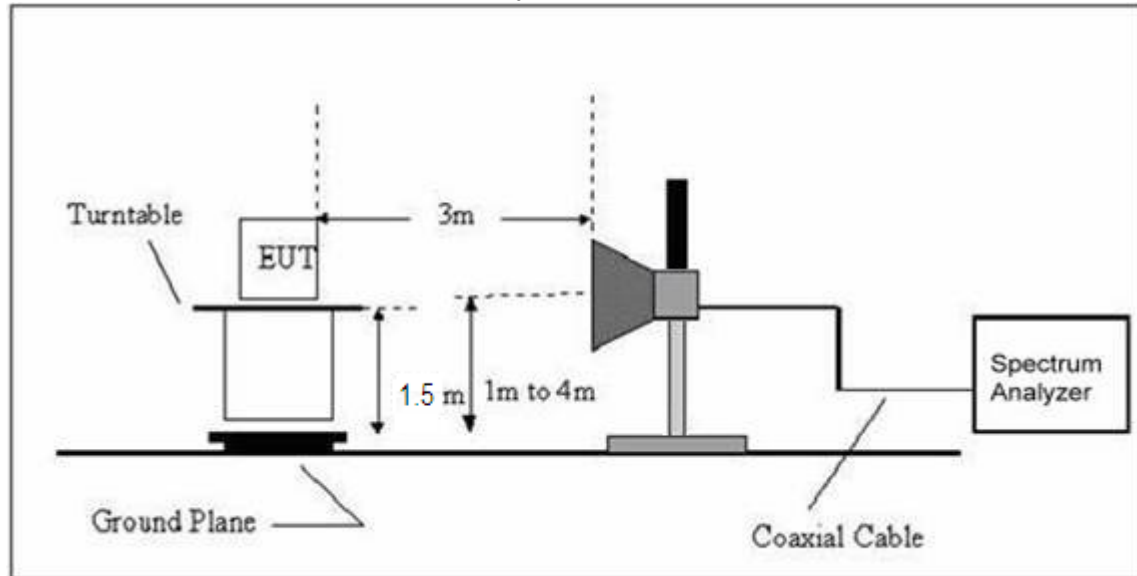
(A) Radiated Emission Test-Up Frequency Below 30MHz



(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:	10.1 Inch Full Ruggedized Tablet	Model Name. :	xTablet T1500
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 3.7V
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.

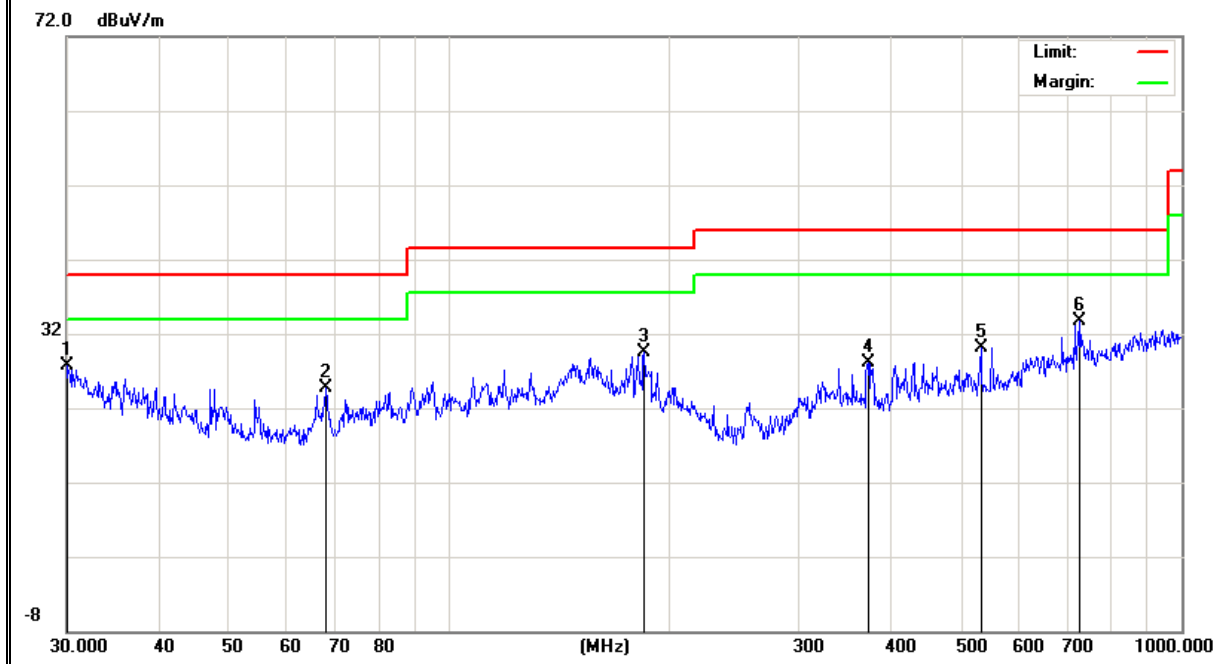
3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

EUT :	10.1 Inch Full Ruggedized Tablet	Model Name :	xTablet T1500
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX(5.2G)- 802.11a (High CH)		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	30.0000	8.13	19.57	27.70	40.00	-12.30	QP
V	67.9128	16.62	8.00	24.62	40.00	-15.38	QP
V	184.4898	17.68	11.82	29.50	43.50	-14.00	QP
V	373.3110	13.43	14.77	28.20	46.00	-17.80	QP
V	531.9633	12.50	17.70	30.20	46.00	-15.80	QP
V	726.8052	12.14	21.66	33.80	46.00	-12.20	QP

Remark:

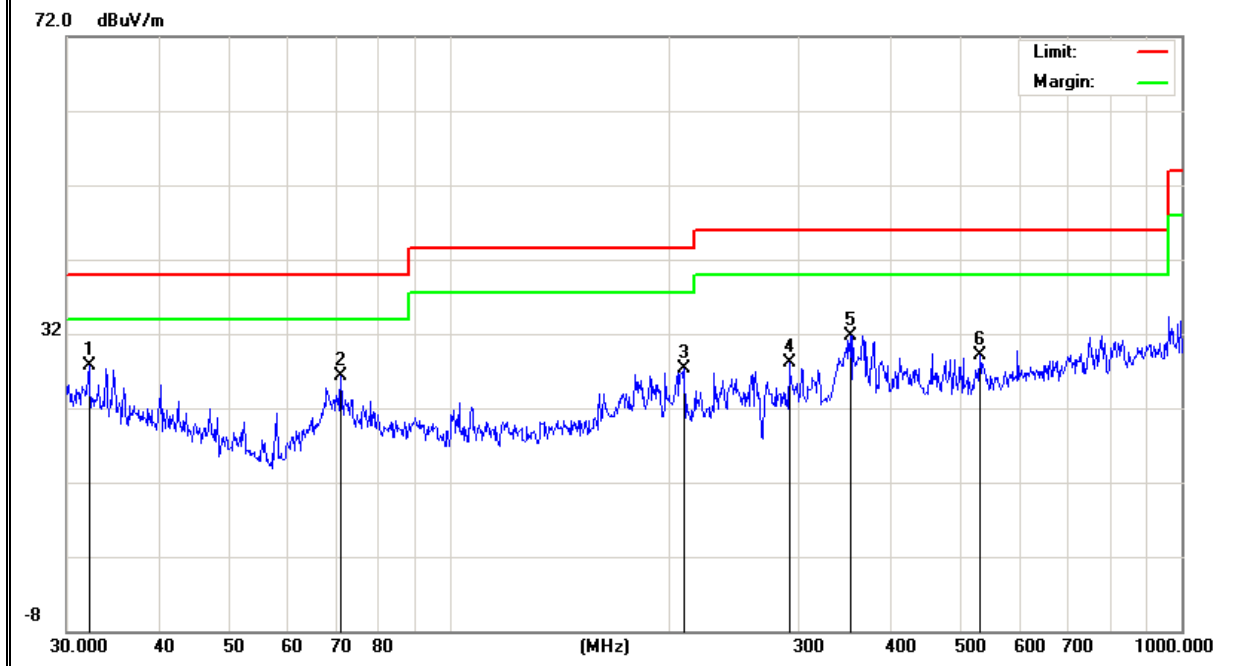
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	32.1794	8.97	18.73	27.70	40.00	-12.30	QP
H	71.0802	17.09	9.31	26.40	40.00	-13.60	QP
H	209.3129	16.20	11.10	27.30	43.50	-16.20	QP
H	291.036	15.88	12.30	28.18	46.00	-17.82	QP
H	352.9433	17.63	14.17	31.80	46.00	-14.20	QP
H	530.1014	11.54	17.66	29.20	46.00	-16.80	QP

Remark:

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

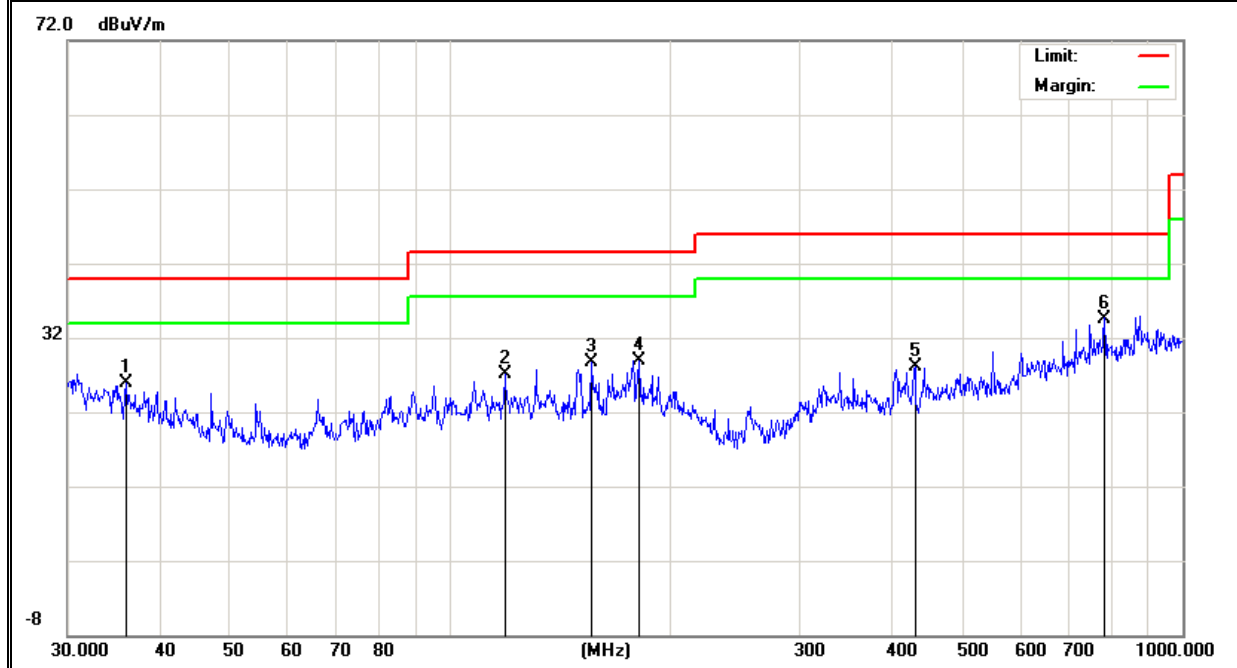


EUT :	10.1 Inch Full Ruggedized Tablet	Model Name :	xTablet T1500
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX(5.8G) - 802.11a (High CH)		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	36.0007	9.04	16.96	26.00	40.00	-14.00	QP
V	118.6012	16.63	10.42	27.05	43.50	-16.45	QP
V	155.9096	17.01	11.79	28.80	43.50	-14.70	QP
V	181.2834	17.11	11.89	29.00	43.50	-14.50	QP
V	431.0316	13.15	14.95	28.10	46.00	-17.90	QP
V	782.3451	12.57	22.03	34.60	46.00	-11.40	QP

Remark:

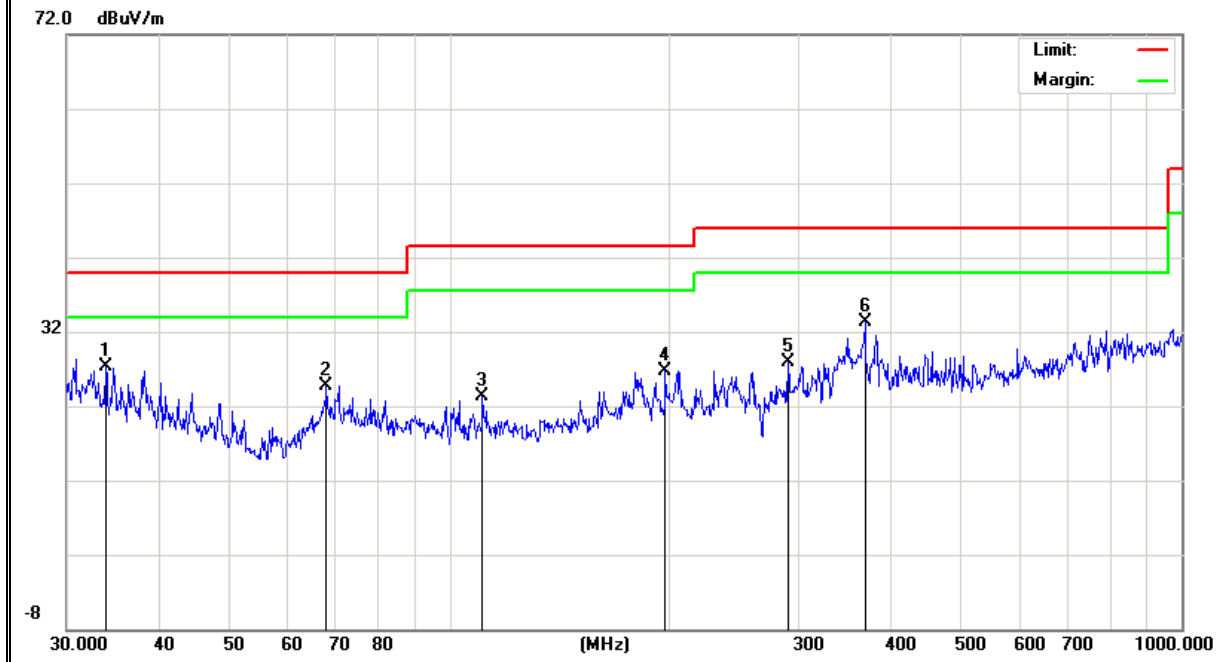
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	33.9174	9.81	17.59	27.40	40.00	-12.60	QP
H	67.9128	16.80	8.00	24.80	40.00	-15.20	QP
H	110.9569	13.07	10.23	23.30	43.50	-20.20	QP
H	197.1999	15.35	11.45	26.80	43.50	-16.70	QP
H	290.0172	15.64	12.26	27.90	46.00	-18.10	QP
H	369.4045	18.77	14.63	33.40	46.00	-12.60	QP

Remark:

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



3.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT :	10.1 Inch Full Ruggedized Tablet	Model Name :	xTablet T1500
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX (5.2G)-802.11N(20) 5180MHz~5240MHz		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5180 MHz)-Above 1G							
Vertical	10360	56.89	-3.64	53.25	74.00	-20.75	Pk
Vertical	10360	41.65	-3.64	38.01	54.00	-15.99	AV
Vertical	15540	50.37	-0.95	49.42	74.00	-24.58	Pk
Vertical	15540	36.45	-0.95	35.50	54.00	-18.50	AV
Horizontal	10360	59.41	-3.64	55.77	74.00	-18.23	Pk
Horizontal	10360	41.57	-3.64	37.93	54.00	-16.07	AV
Horizontal	15540	50.68	-0.95	49.73	74.00	-24.27	Pk
Horizontal	15540	37.54	-0.95	36.59	54.00	-17.41	AV
middle Channel (5200 MHz)-Above 1G							
Vertical	10400	57.62	-3.68	53.94	74.00	-20.06	Pk
Vertical	10400	40.37	-3.68	36.69	54.00	-17.31	AV
Vertical	15600	54.28	-0.82	53.46	74.00	-20.54	Pk
Vertical	15600	39.15	-0.82	38.33	54.00	-15.67	AV
Horizontal	10400	58.38	-3.68	54.70	74.00	-19.30	Pk
Horizontal	10400	40.27	-3.68	36.59	54.00	-17.41	AV
Horizontal	15600	55.63	-0.82	54.81	74.00	-19.19	Pk
Horizontal	15600	41.57	-0.82	40.75	54.00	-13.25	AV
High Channel (5240 MHz)-Above 1G							
Vertical	10480	57.62	-3.59	54.03	74.00	-19.97	Pk
Vertical	10480	41.27	-3.59	37.68	54.00	-16.32	AV
Vertical	15720	52.74	-0.68	52.06	74.00	-21.94	Pk
Vertical	15720	37.42	-0.68	36.74	54.00	-17.26	AV
Horizontal	10480	58.75	-3.59	55.16	74.00	-18.84	Pk
Horizontal	10480	40.64	-3.59	37.05	54.00	-16.95	AV
Horizontal	15720	54.46	-0.68	53.78	74.00	-20.22	Pk
Horizontal	15720	38.25	-0.68	37.57	54.00	-16.43	AV

Note:"802.11N(20)(5G)" mode is the worst mode. PK value is lower than the Average value limit, So average didn't record.

EUT :	10.1 Inch Full Ruggedized Tablet	Model Name :	xTablet T1500
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX (5.8G) -802.11N(20) 5745MHz~5825MHz		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low Channel (5745 MHz)-Above 1G							
Vertical	11490	56.89	-3.64	53.25	74.00	-20.75	Pk
Vertical	11490	41.65	-3.64	38.01	54.00	-15.99	AV
Vertical	17235	50.37	-0.95	49.42	74.00	-24.58	Pk
Vertical	17235	36.45	-0.95	35.50	54.00	-18.50	AV
Horizontal	11490	59.41	-3.64	55.77	74.00	-18.23	Pk
Horizontal	11490	41.57	-3.64	37.93	54.00	-16.07	AV
Horizontal	17235	50.68	-0.95	49.73	74.00	-24.27	Pk
Horizontal	17235	37.54	-0.95	36.59	54.00	-17.41	AV
middle Channel (5785 MHz)-Above 1G							
Vertical	11570	57.62	-3.68	53.94	74.00	-20.06	Pk
Vertical	11570	40.37	-3.68	36.69	54.00	-17.31	AV
Vertical	17355	54.28	-0.82	53.46	74.00	-20.54	Pk
Vertical	17355	39.15	-0.82	38.33	54.00	-15.67	AV
Horizontal	11570	58.38	-3.68	54.70	74.00	-19.30	Pk
Horizontal	11570	40.27	-3.68	36.59	54.00	-17.41	AV
Horizontal	17355	55.63	-0.82	54.81	74.00	-19.19	Pk
Horizontal	17355	41.57	-0.82	40.75	54.00	-13.25	AV
High Channel (5825 MHz)-Above 1G							
Vertical	11650	57.62	-3.59	54.03	74.00	-19.97	Pk
Vertical	11650	41.27	-3.59	37.68	54.00	-16.32	AV
Vertical	17475	52.74	-0.68	52.06	74.00	-21.94	Pk
Vertical	17475	37.42	-0.68	36.74	54.00	-17.26	AV
Horizontal	11650	58.75	-3.59	55.16	74.00	-18.84	Pk
Horizontal	11650	40.64	-3.59	37.05	54.00	-16.95	AV
Horizontal	17475	54.46	-0.68	53.78	74.00	-20.22	Pk
Horizontal	17475	38.25	-0.68	37.57	54.00	-16.43	AV

Note: "802.11N(20)(5G)" mode is the worst mode. PK value is lower than the Average value limit, So average didn't record.

4. POWER SPECTRAL DENSITY TEST

4.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(a)(3)

For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 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.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, 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.

For the band 5.725-5.85 GHz

(3) For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz 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.

4.2 TEST PROCEDURE

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

- a) Set $RBW \geq 1/T$, where T is defined in section II.B.I.a).
- b) Set $VBW \geq 3$ RBW.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/RBW)$ to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10\log(1\text{MHz}/RBW)$ to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since RBW=100 KHz is available on nearly all spectrum analyzers.

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP



4.5 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.

4.6 TEST RESULTS

EUT :	10.1 Inch Full Ruggedized Tablet	Model Name :	xTablet T1500
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Frequency Band I (5150-5250MHz)		

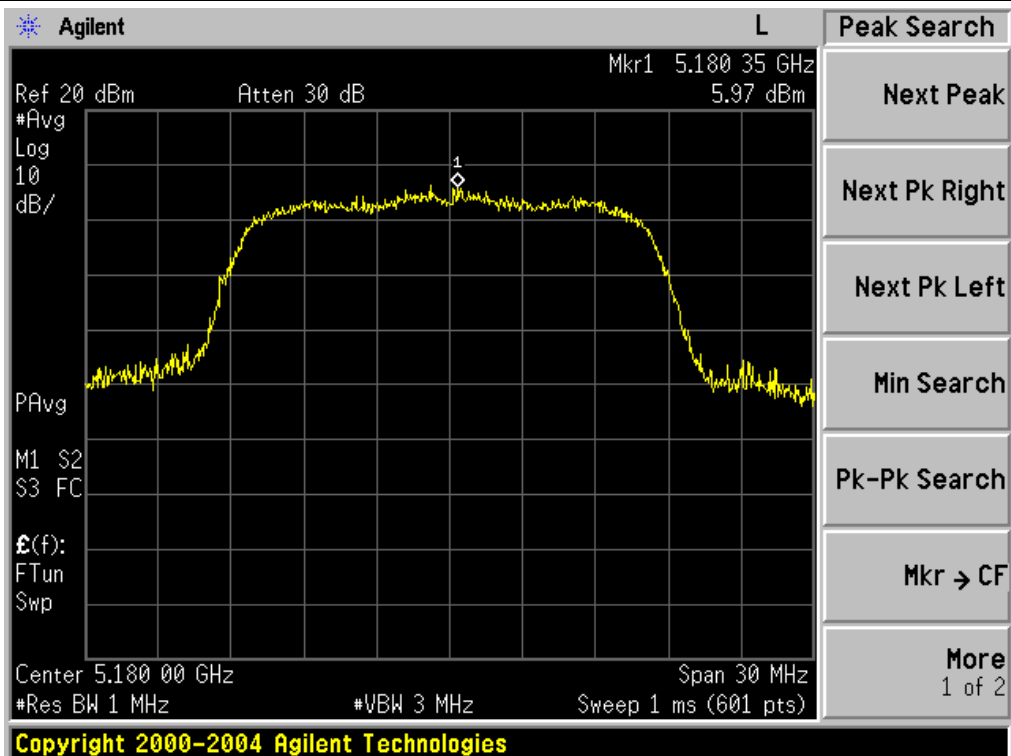
Mode	Frequency	Measured Power Density (dBm)	Calculate power density (dBm)(Note 1)	Limit (dBm)	Result
802.11 a	5185 MHz	5.97	5.97	11	PASS
	5200 MHz	4.88	4.88	11	PASS
	5240 MHz	5.96	5.96	11	PASS
802.11 n20	5185 MHz	4.47	4.47	11	PASS
	5200 MHz	3.52	3.52	11	PASS
	5240 MHz	3.91	3.91	11	PASS
802.11 n40	5190 MHz	0.36	0.36	11	PASS
	5230 MHz	1.94	1.94	11	PASS

Note:

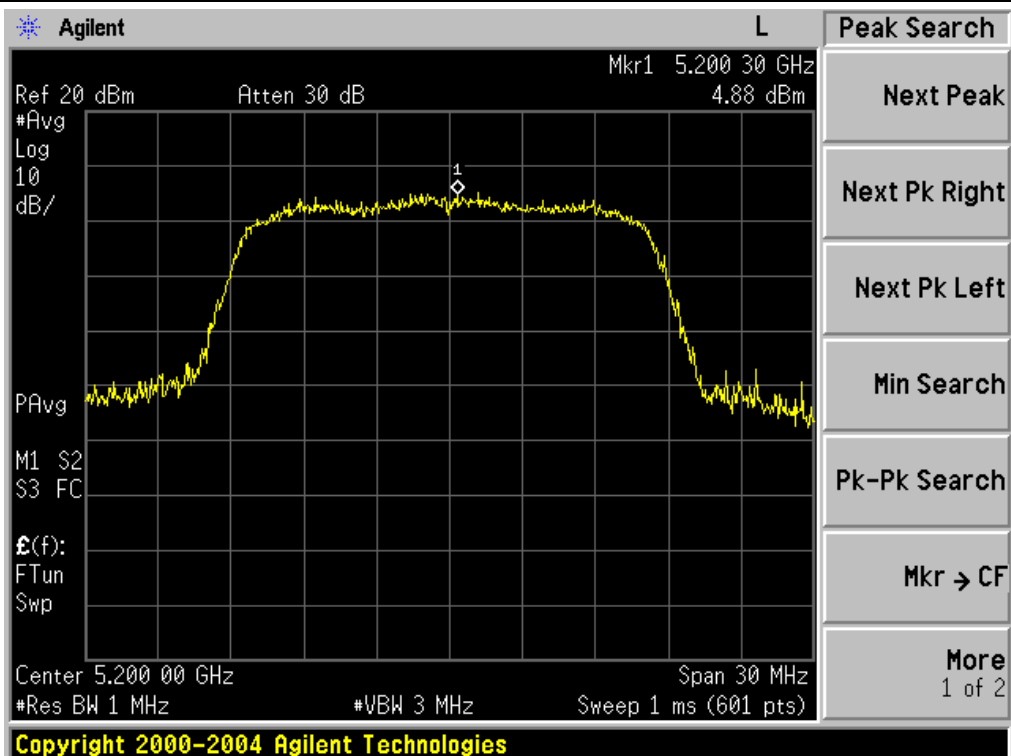
- (1) Calculate power density= Measured Power Density+10log(1MHz/RBW)
RBW=1MHz

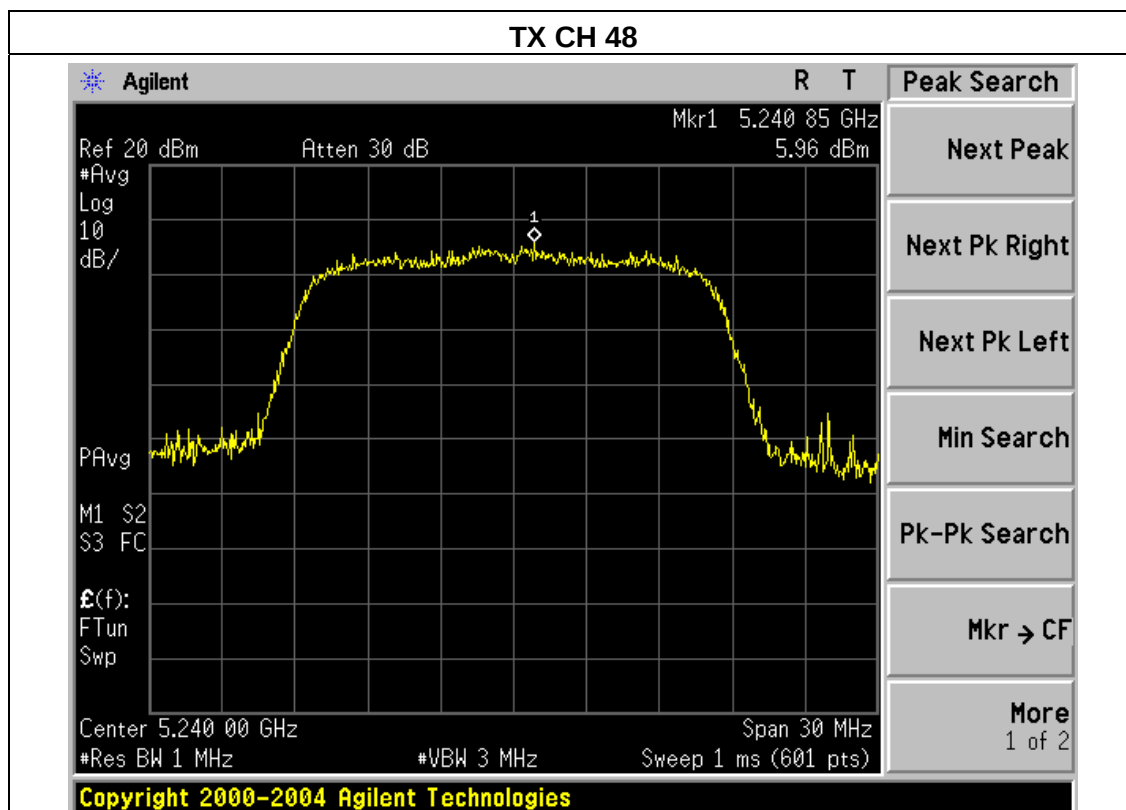
802.11 a Mode

TX CH 36

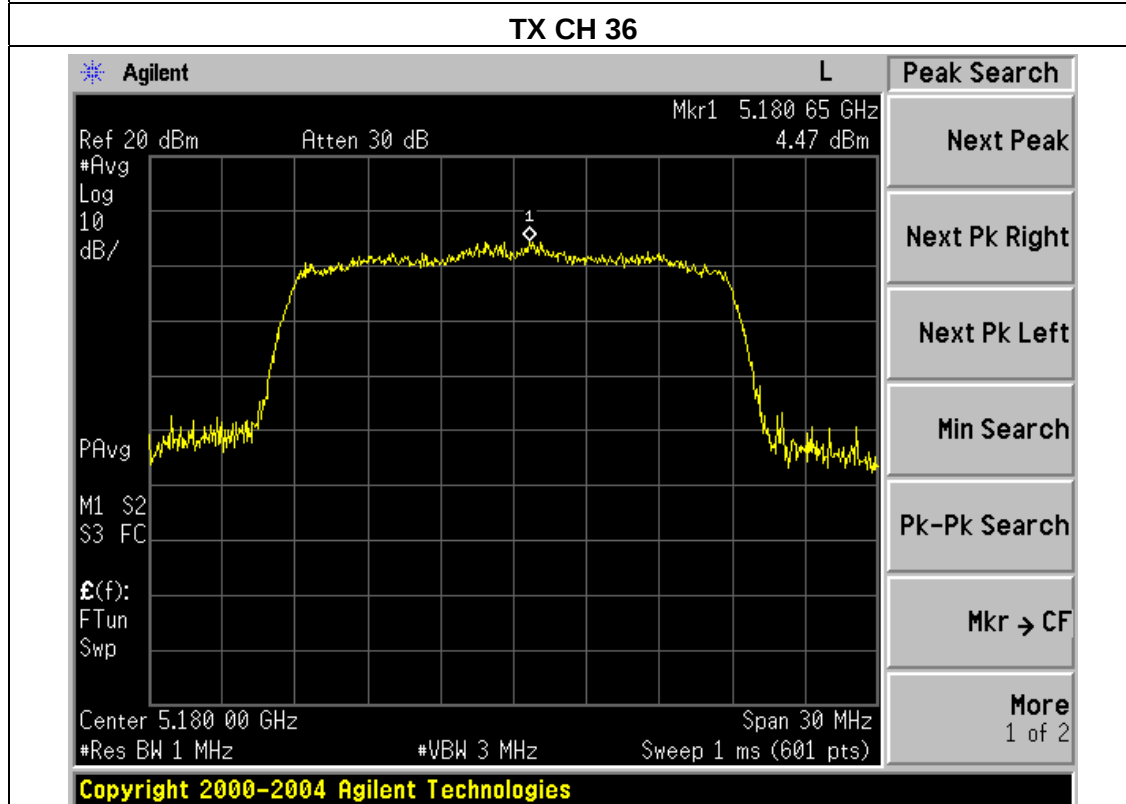


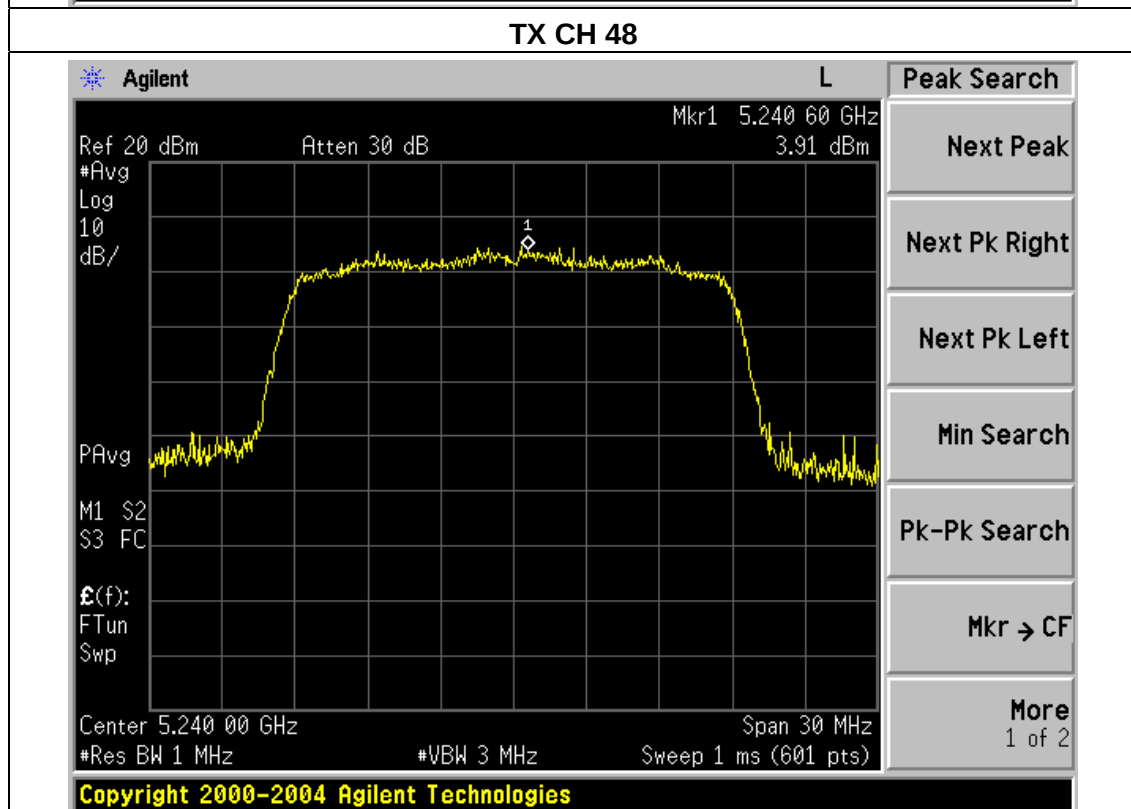
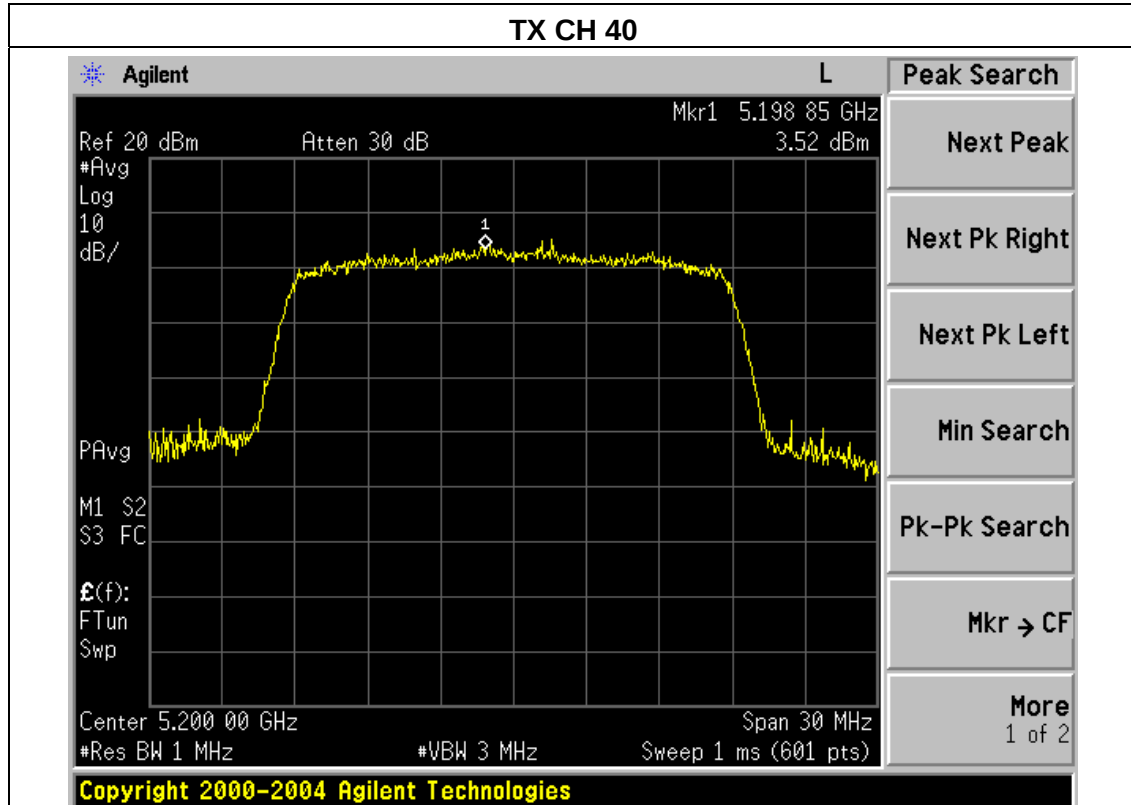
TX CH 40

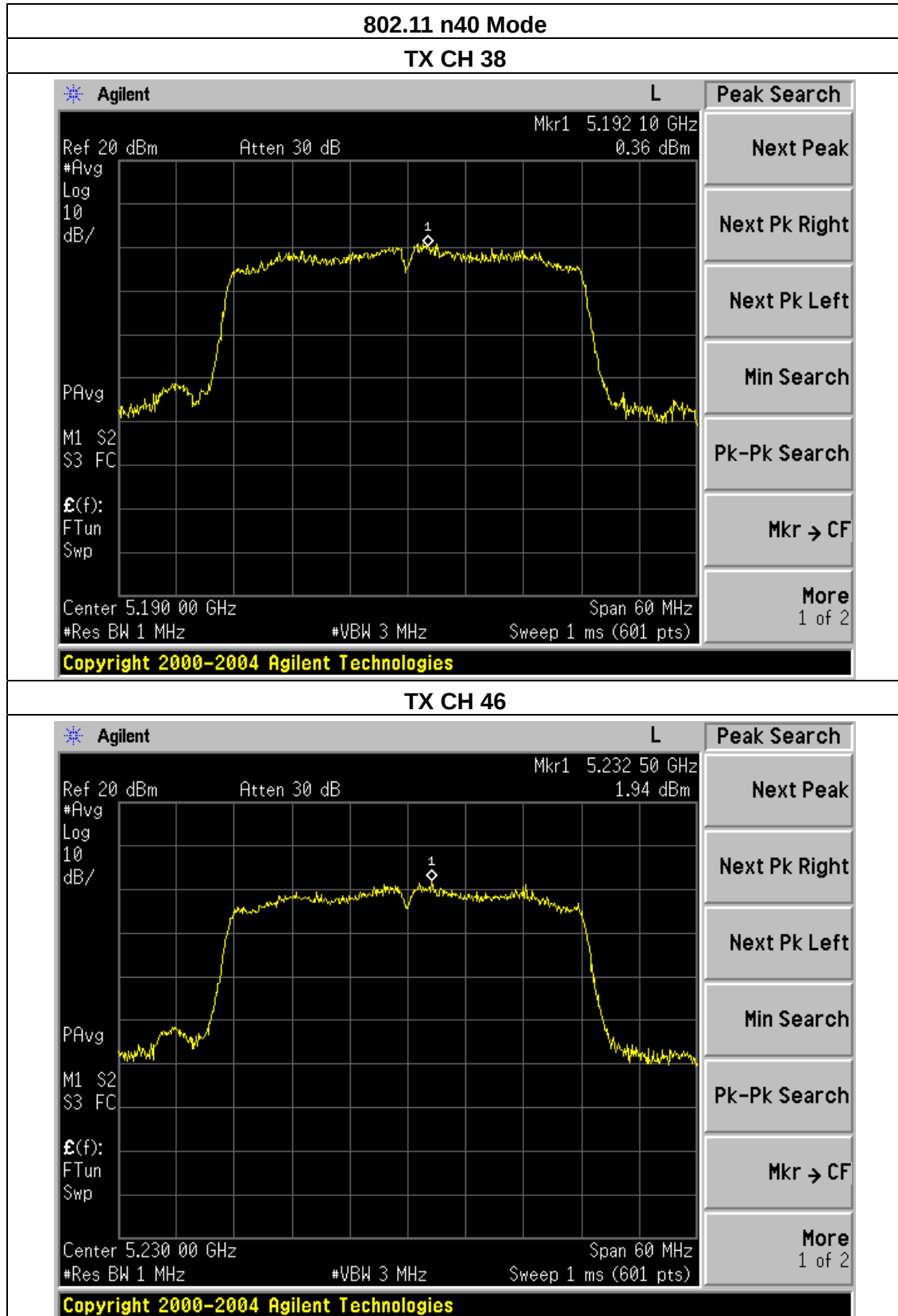




802.11 n20 Mode







EUT :	10.1 Inch Full Ruggedized Tablet	Model Name :	xTablet T1500
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Frequency Band III (5725-5825MHz)		

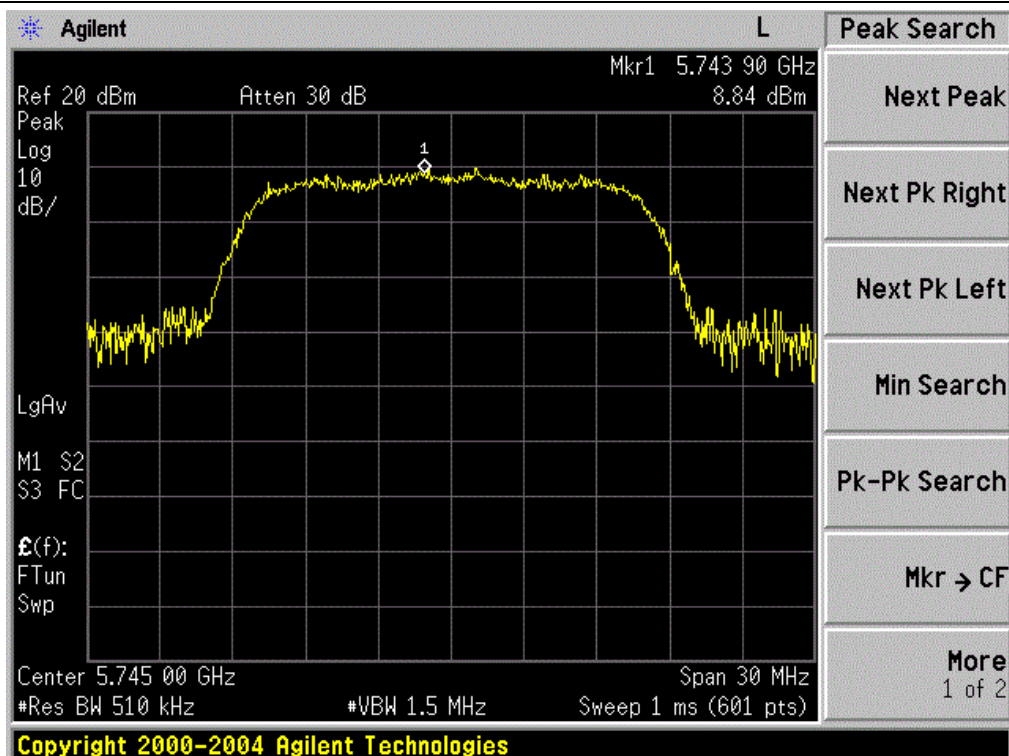
Mode	Frequency	Measured Power Density (dBm)	Calculate power density (dBm)(Note 1)	Limit (dBm)	Result
802.11 a	5745 MHz	8.84	11.764	30	PASS
	5785 MHz	9.26	12.184	30	PASS
	5825 MHz	10.60	13.524	30	PASS
802.11 n20	5745 MHz	8.54	11.464	30	PASS
	5785 MHz	8.37	11.294	30	PASS
	5825 MHz	8.12	11.044	30	PASS
802.11 n40	5755 MHz	4.22	7.144	30	PASS
	5795 MHz	3.60	6.524	30	PASS

Note:

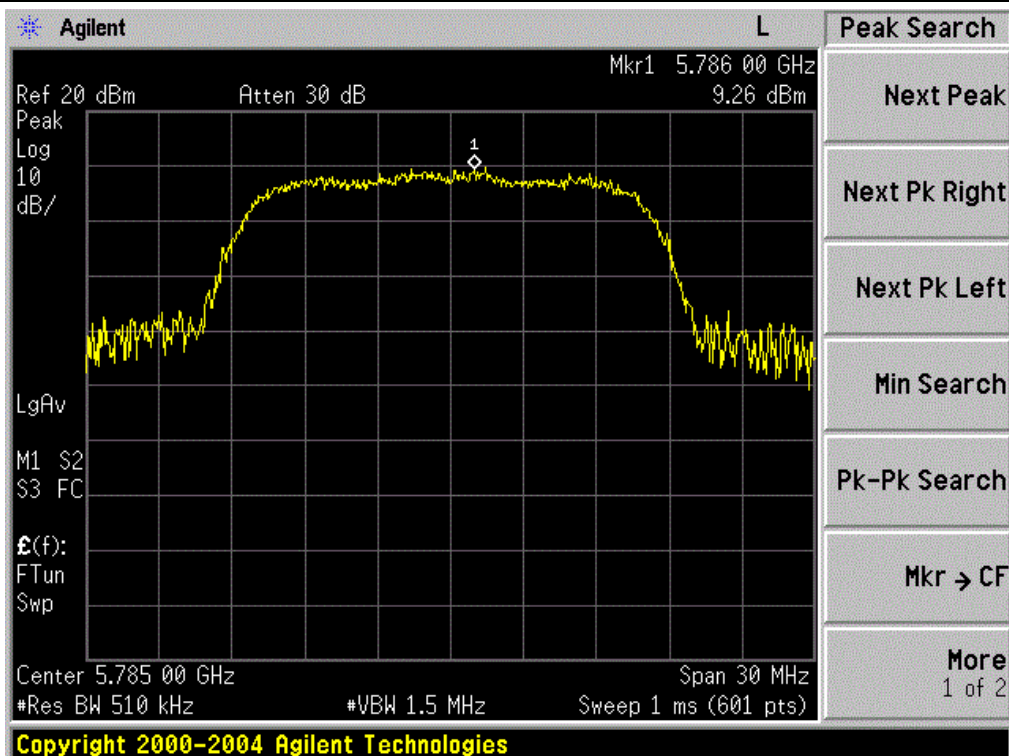
- (2) Calculate power density= Measured Power Density+10log(1MHz/RBW)
RBW=0.51MHz

802.11 a Mode

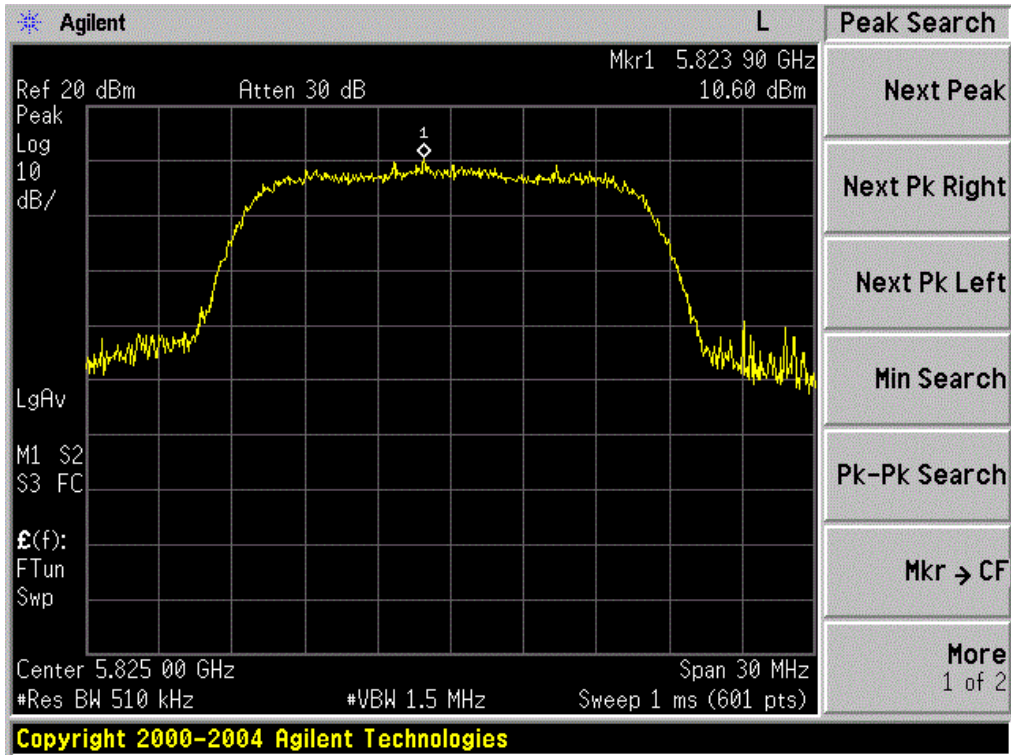
TX CH 149



TX CH 157

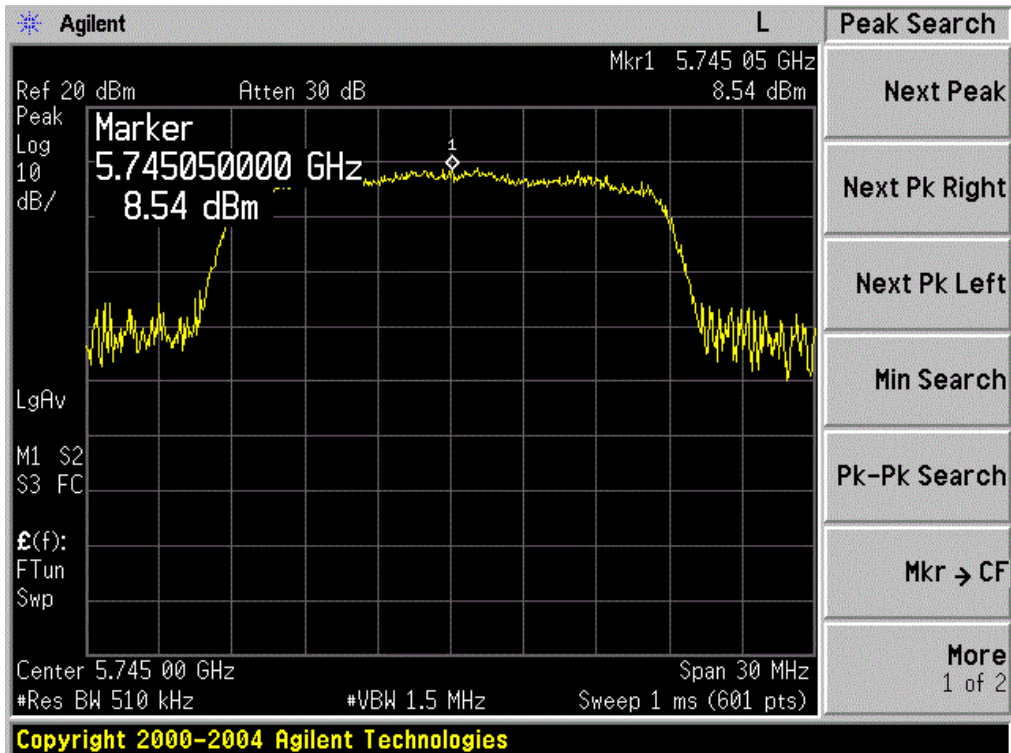


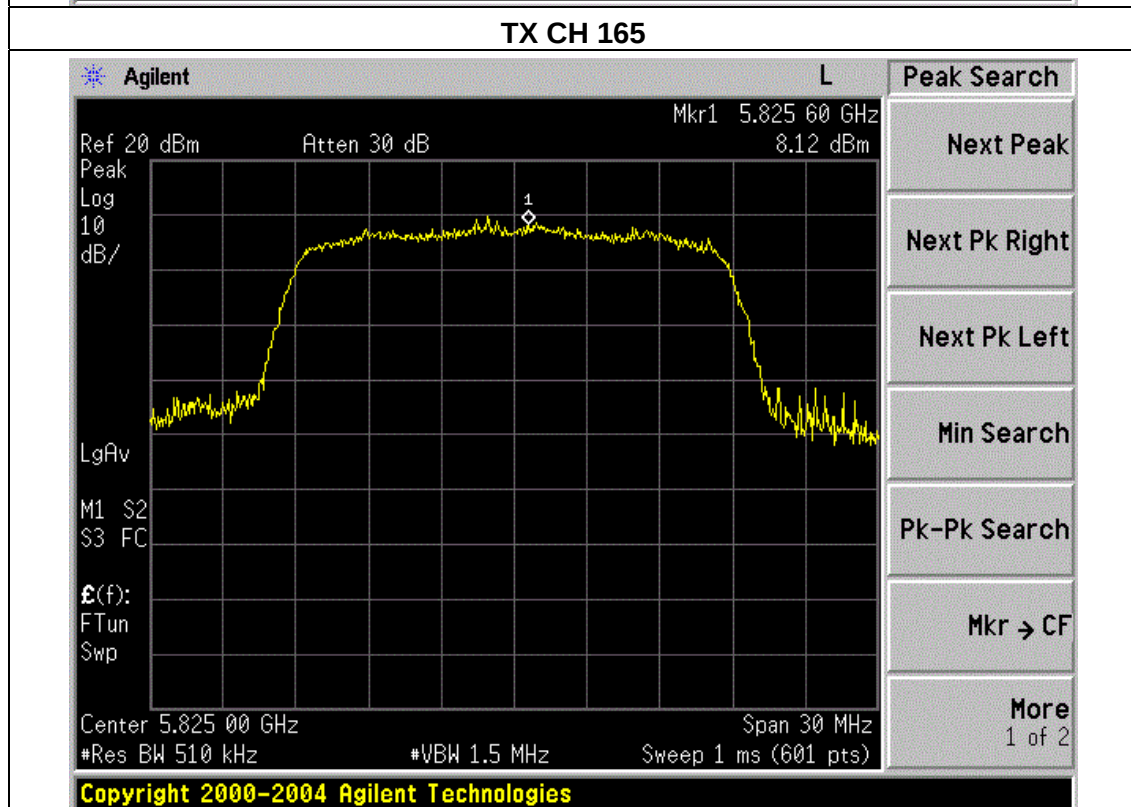
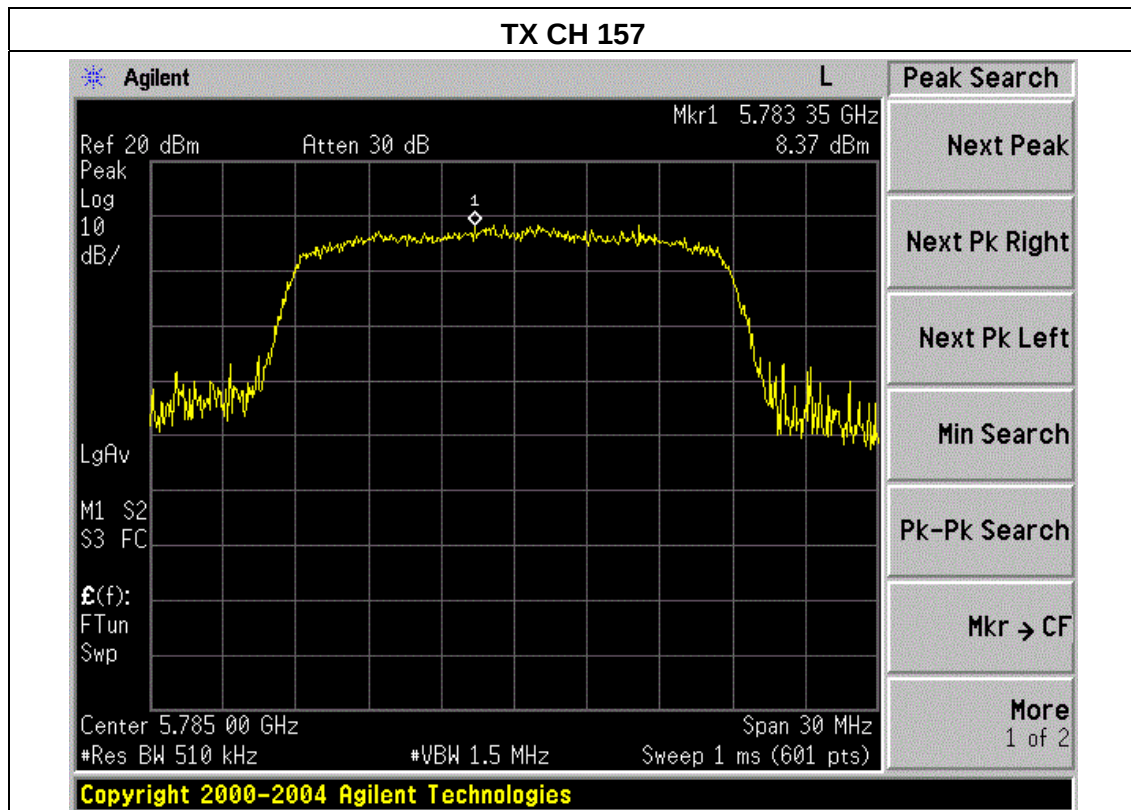
TX CH 165



802.11 n20 Mode

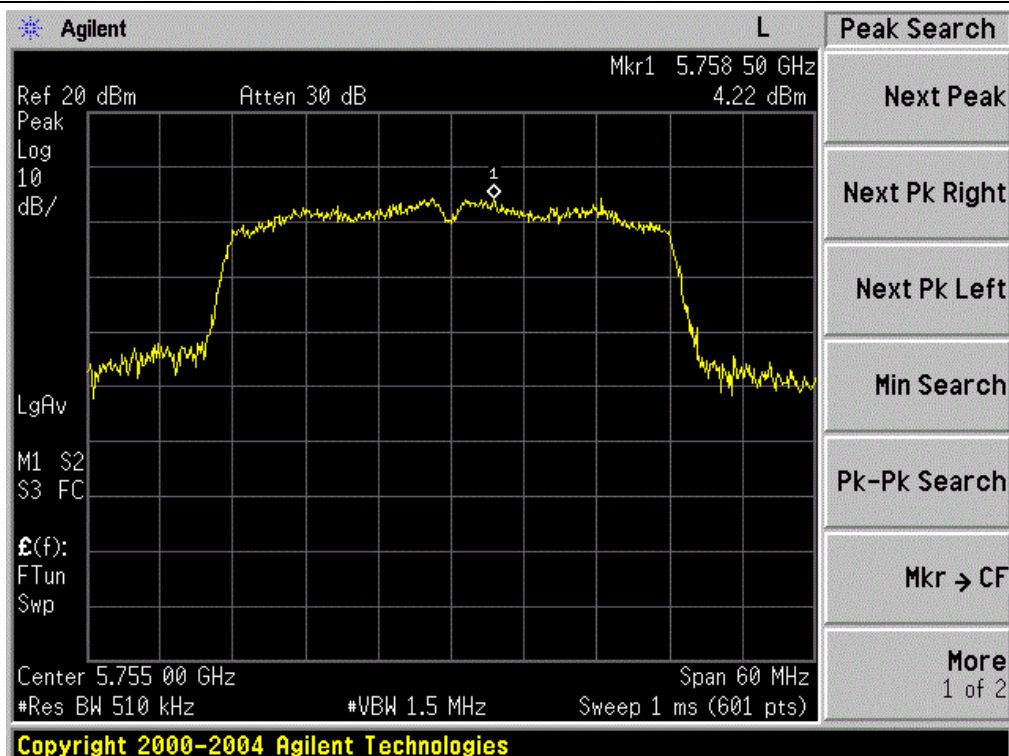
TX CH 149



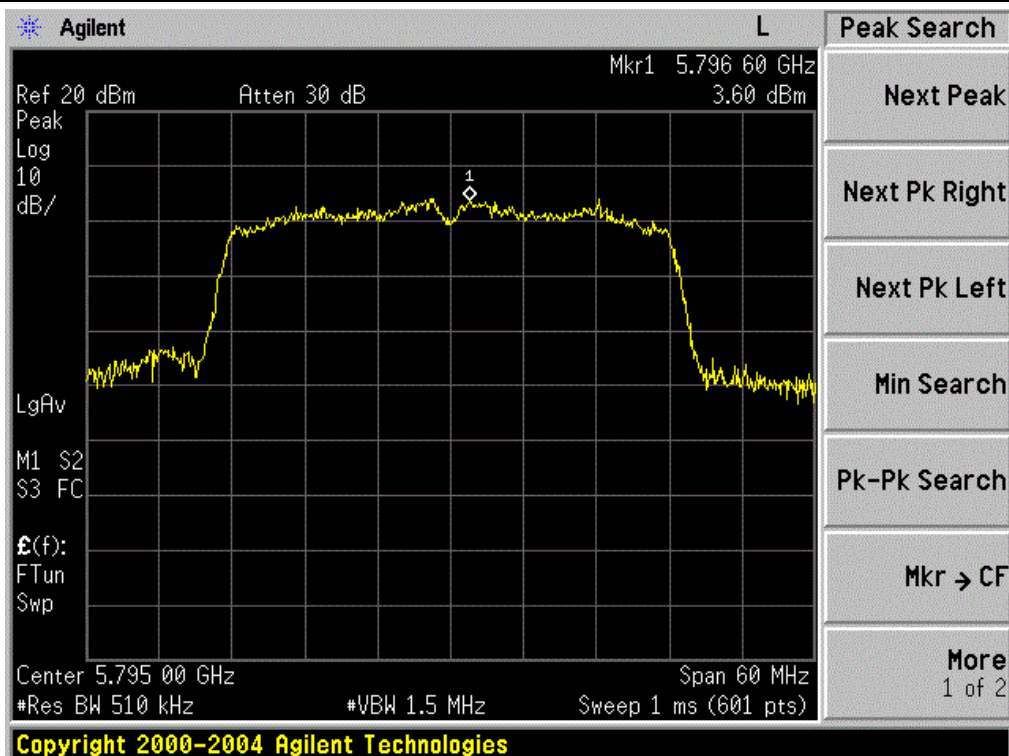


802.11 n40 Mode

TX CH 151



TX CH 159



5. 26 DB & 99% EMISSION BANDWIDTH

5.1 APPLIED PROCEDURES / LIMIT

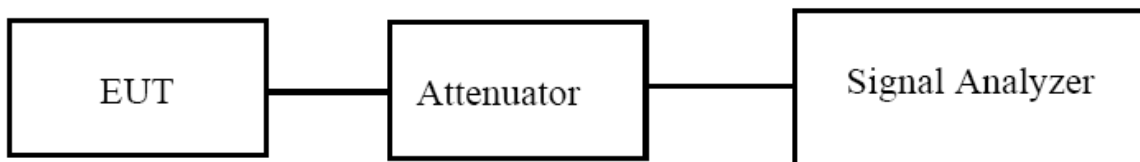
The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

5.2 TEST PROCEDURE

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) 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%.

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW $\geq 3 \cdot$ RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.



5.3 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.

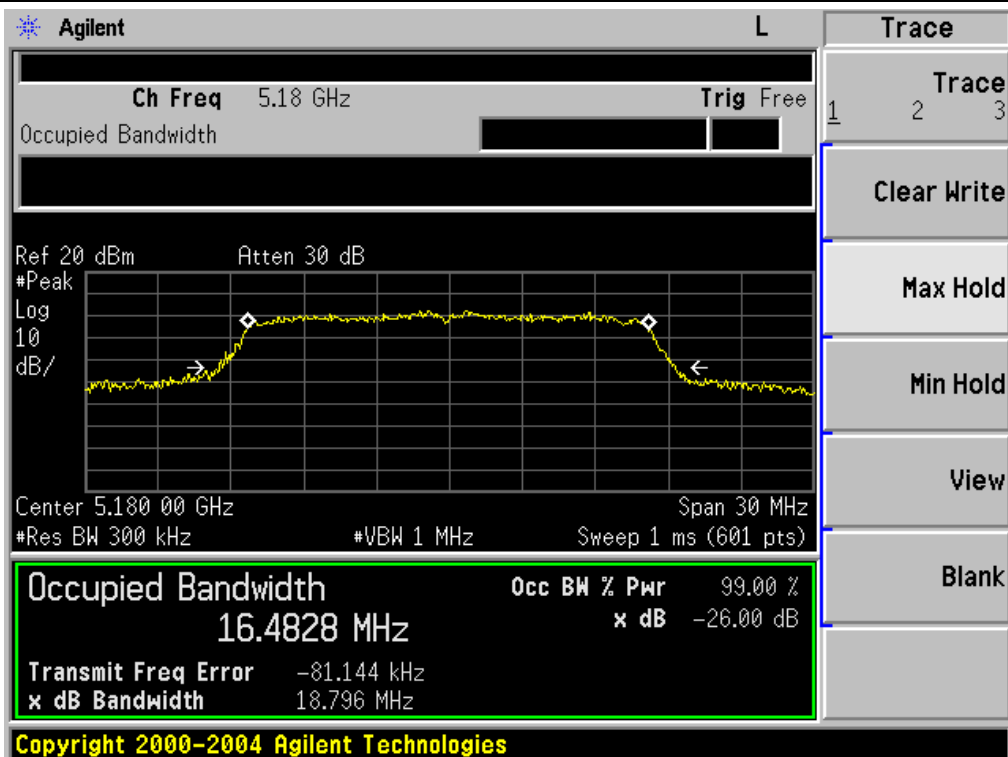
5.4 TEST RESULTS

EUT :	10.1 Inch Full Ruggedized Tablet	Model Name :	xTablet T1500
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Frequency Band I (5150-5250MHz)		

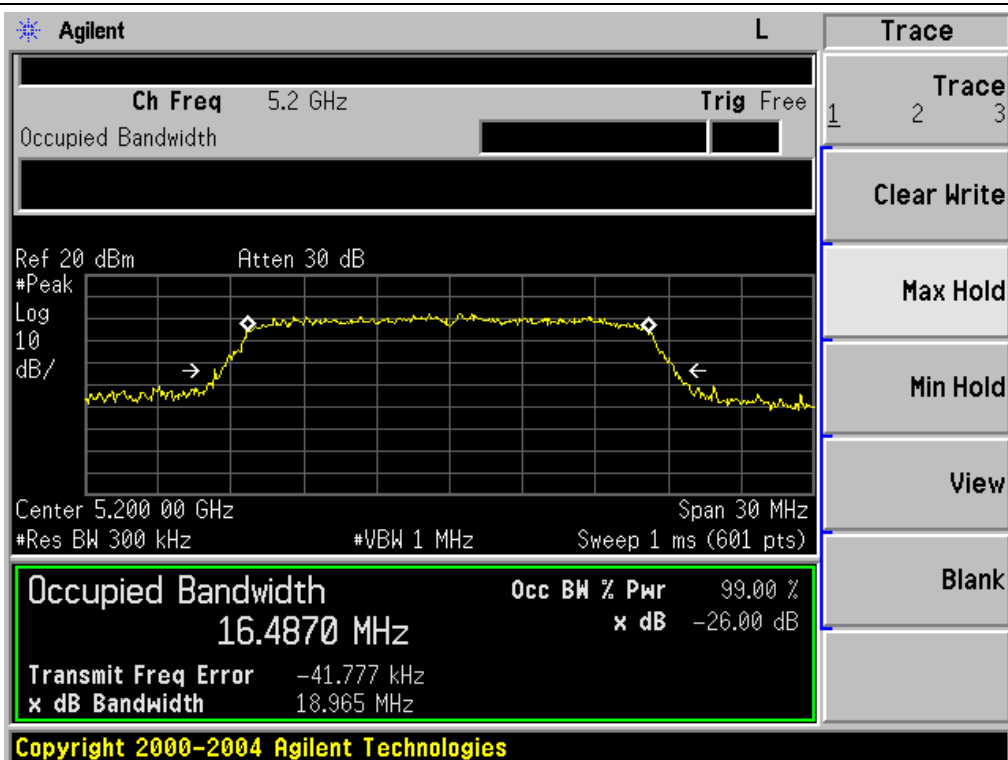
Mode	Channel	Frequency (MHz)	99% bandwidth (MHz)	26dB bandwidth (MHz)	Result
802.11a	CH36	5180	16.483	18.796	Pass
	CH40	5200	16.487	18.965	Pass
	CH48	5240	16.450	18.662	Pass
802.11 n20	CH36	5180	17.563	19.075	Pass
	CH40	5200	17.575	19.007	Pass
	CH48	5240	17.508	19.108	Pass
802.11 n40	CH 38	5190	35.982	38.779	Pass
	CH 46	5230	35.905	38.468	Pass

802.11 a Mode

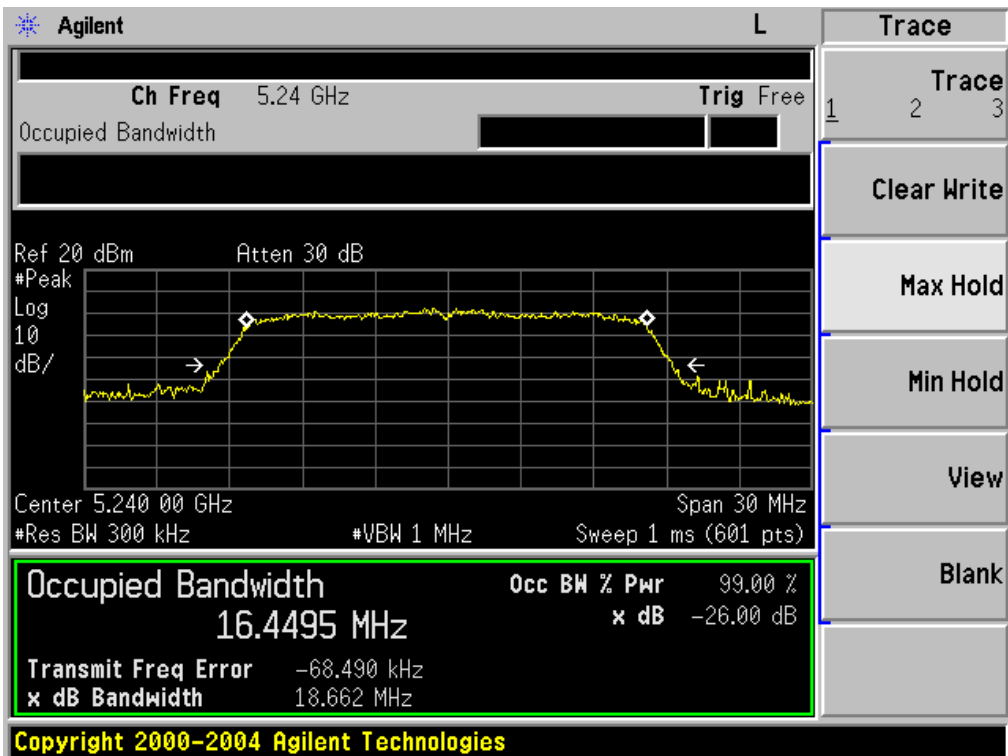
TX CH 36



TX CH 40

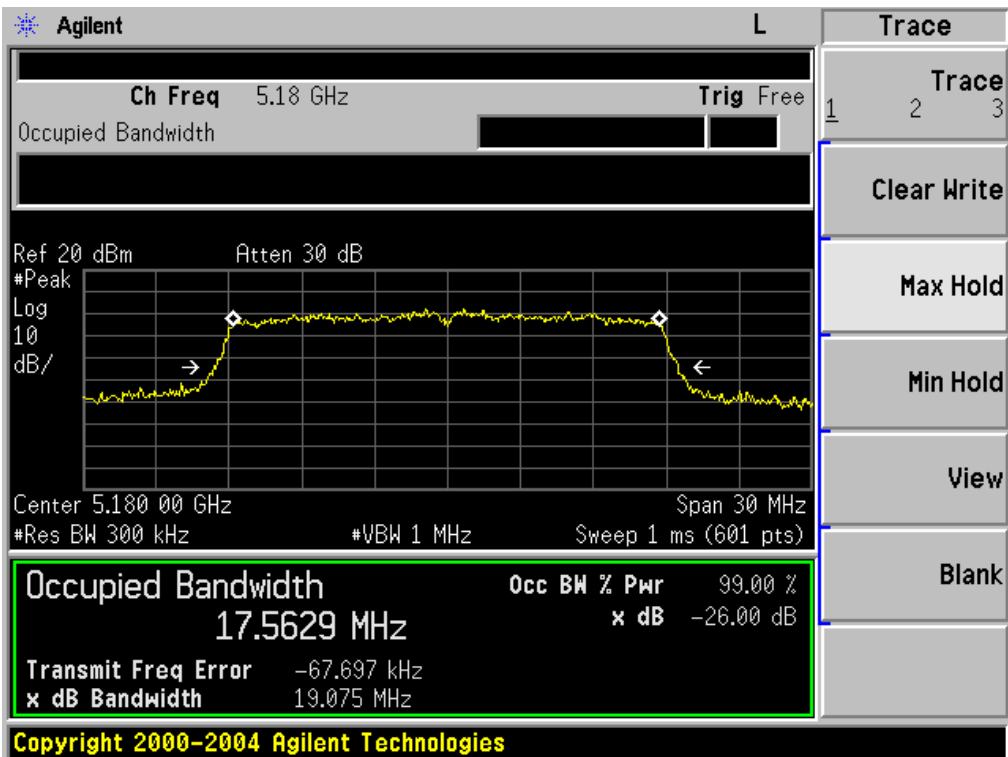


TX CH 48

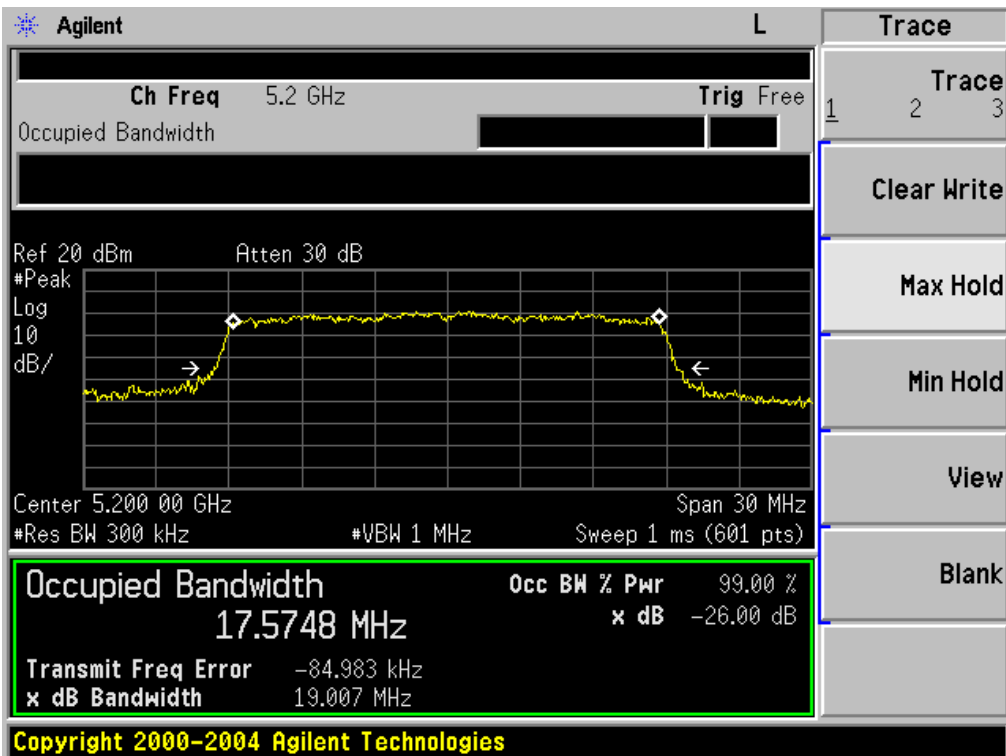


802.11 n20 Mode

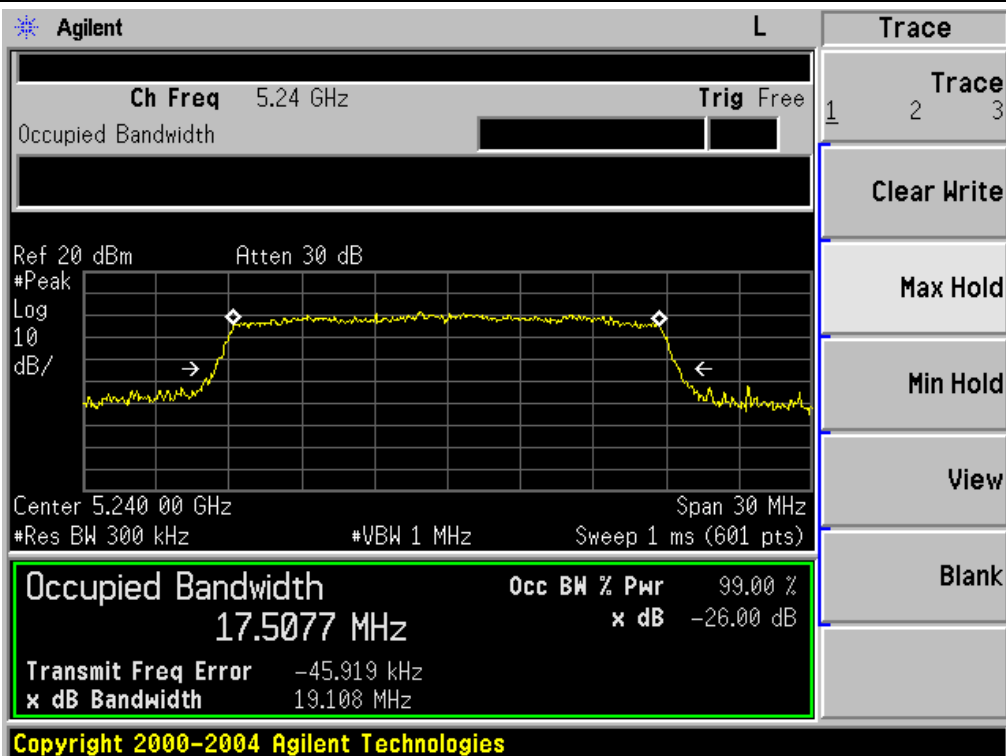
TX CH 36



TX CH 40

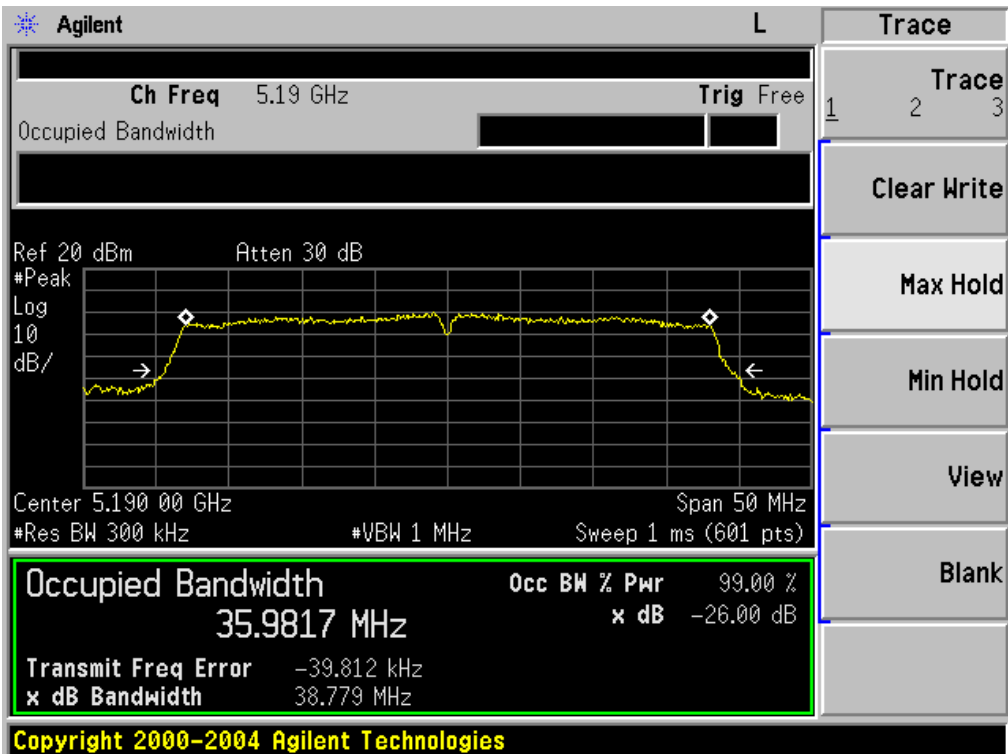


TX CH 48

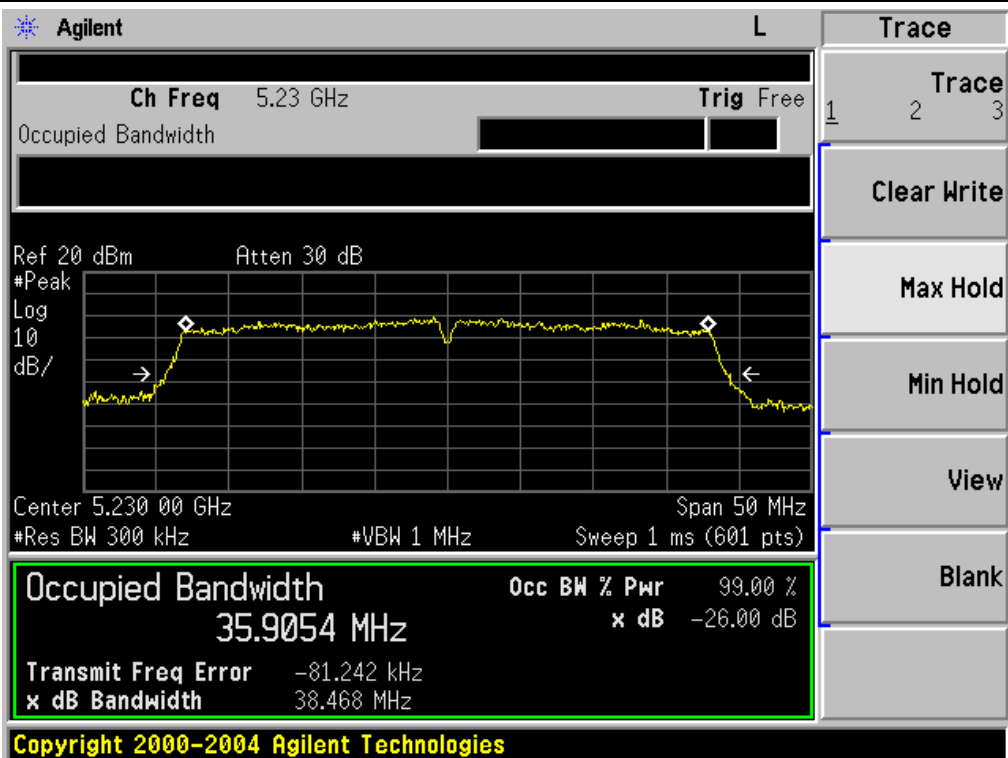


802.11 n40 Mode

TX CH 38



TX CH 46

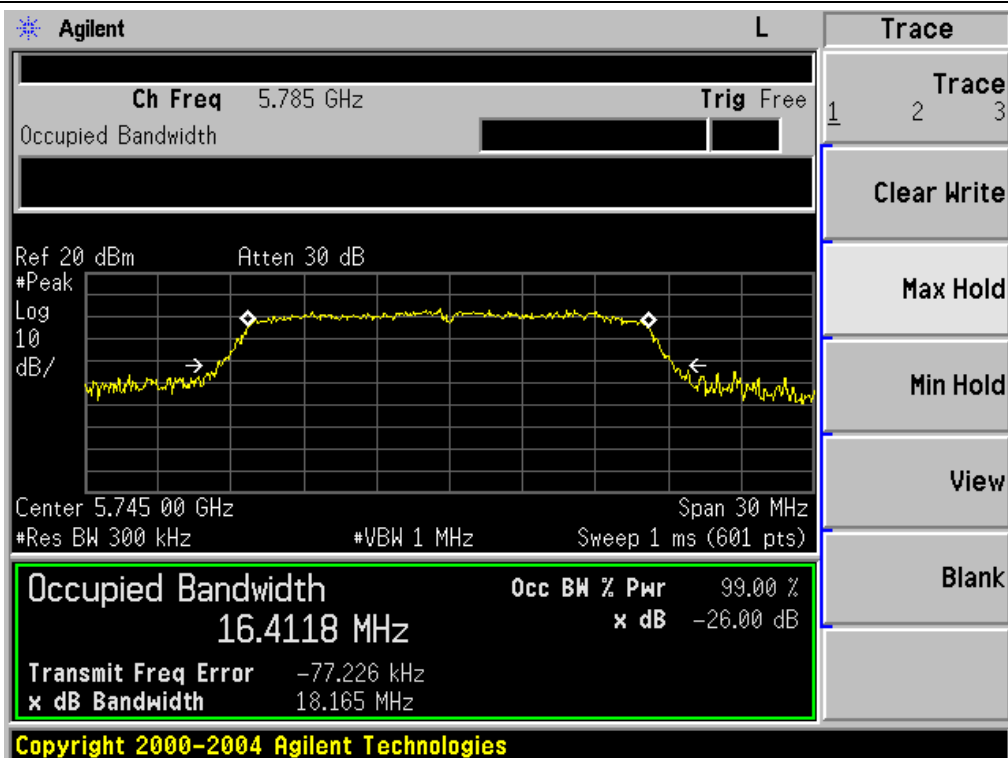


EUT :	10.1 Inch Full Ruggedized Tablet	Model Name :	xTablet T1500
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Frequency Band III (5745-5850MHz)		

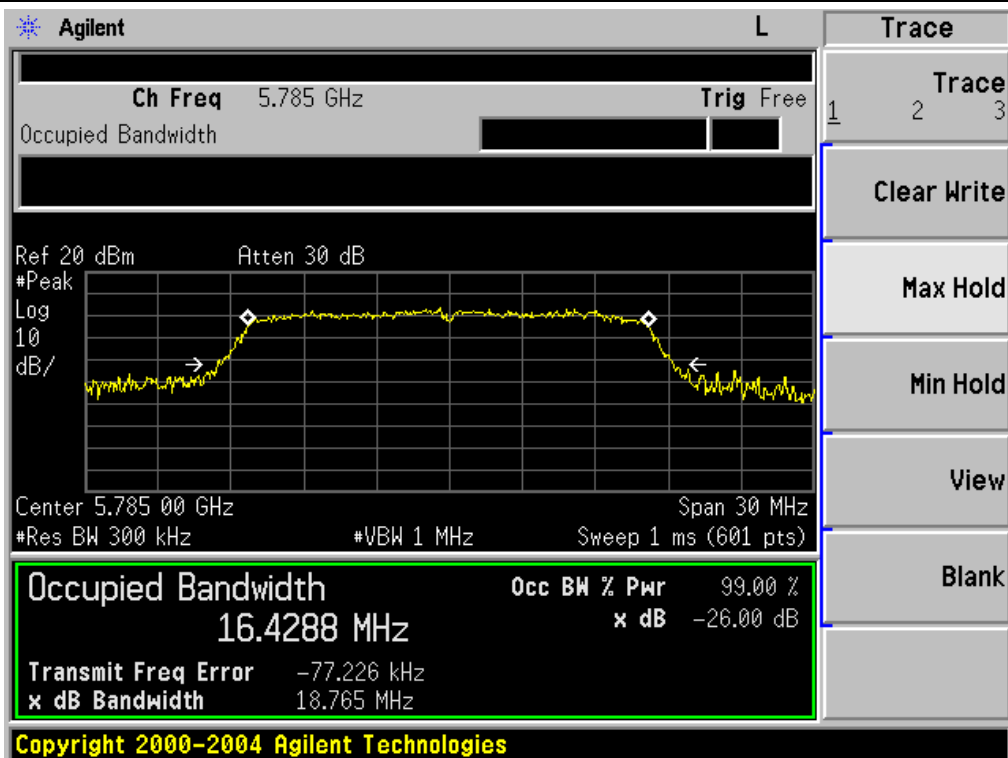
Mode	Channel	Frequency (MHz)	99% bandwidth (MHz)	26dB bandwidth (MHz)	Result
802.11a	149	5745	16.412	18.165	Pass
	157	5785	16.429	18.765	Pass
	165	5825	16.445	18.848	Pass
802.11 n20	149	5745	17.568	19.076	Pass
	157	5785	17.559	19.101	Pass
	165	5825	17.578	19.025	Pass
802.11 n40	151	5755	36.020	38.656	Pass
	159	5795	35.908	38.189	Pass

802.11 a Mode

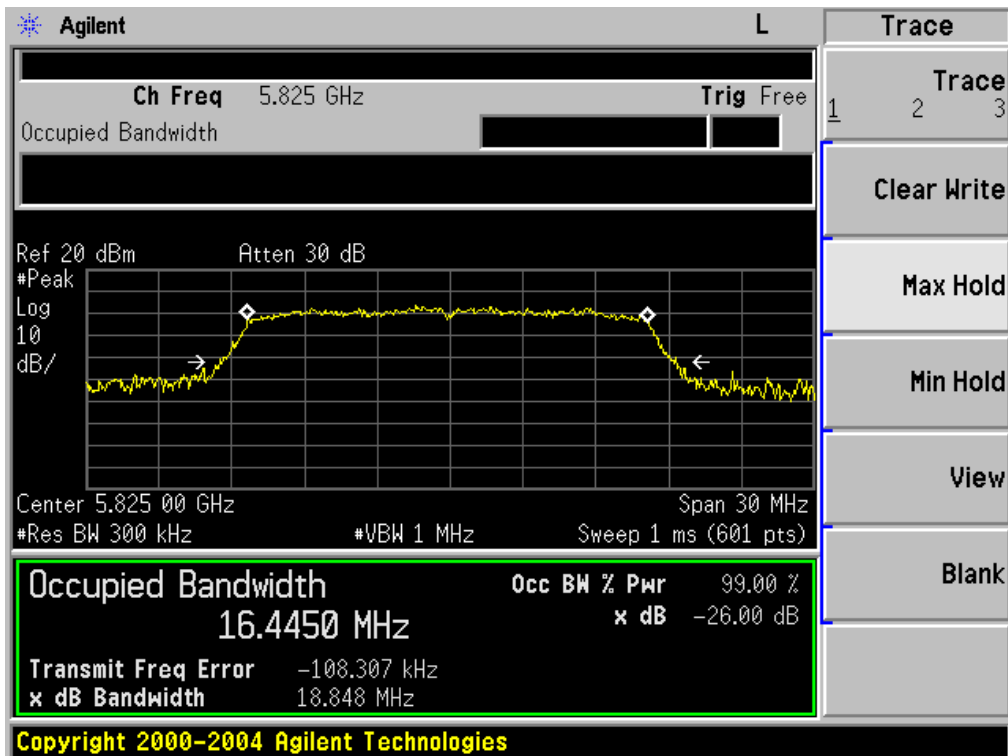
TX CH 149



TX CH 157

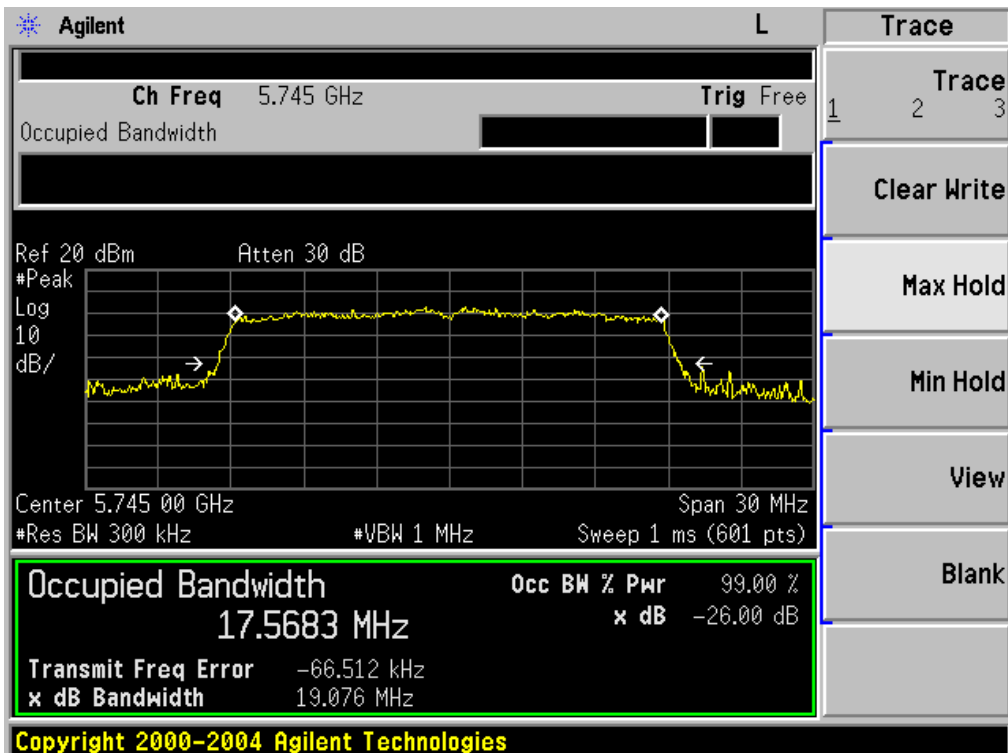


TX CH 165

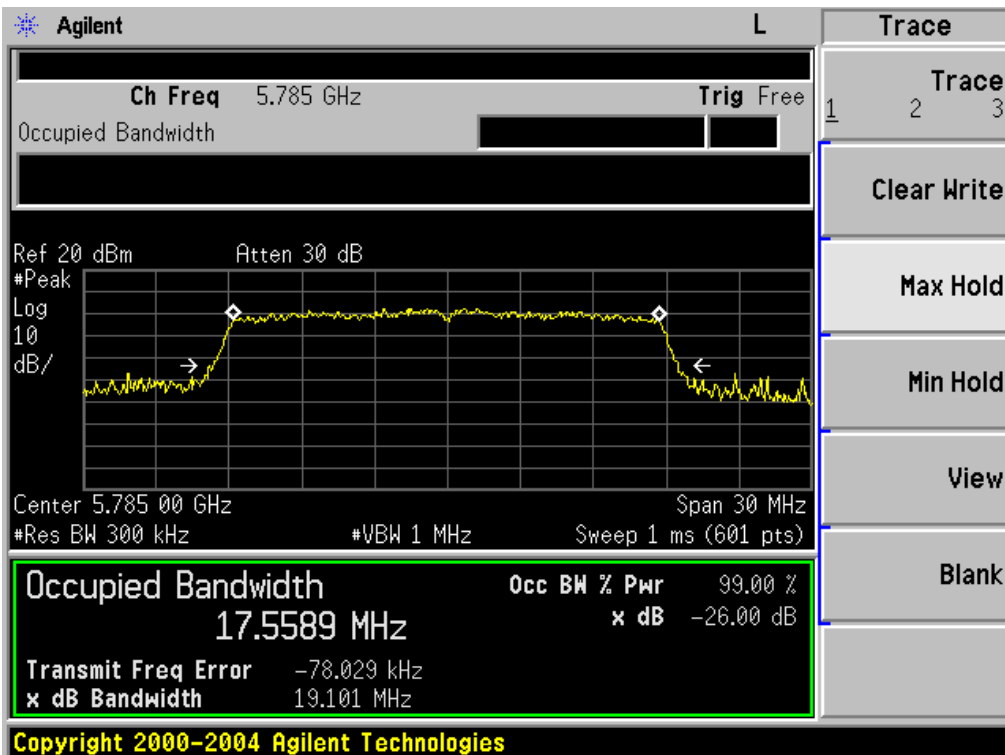


802.11 n20 Mode

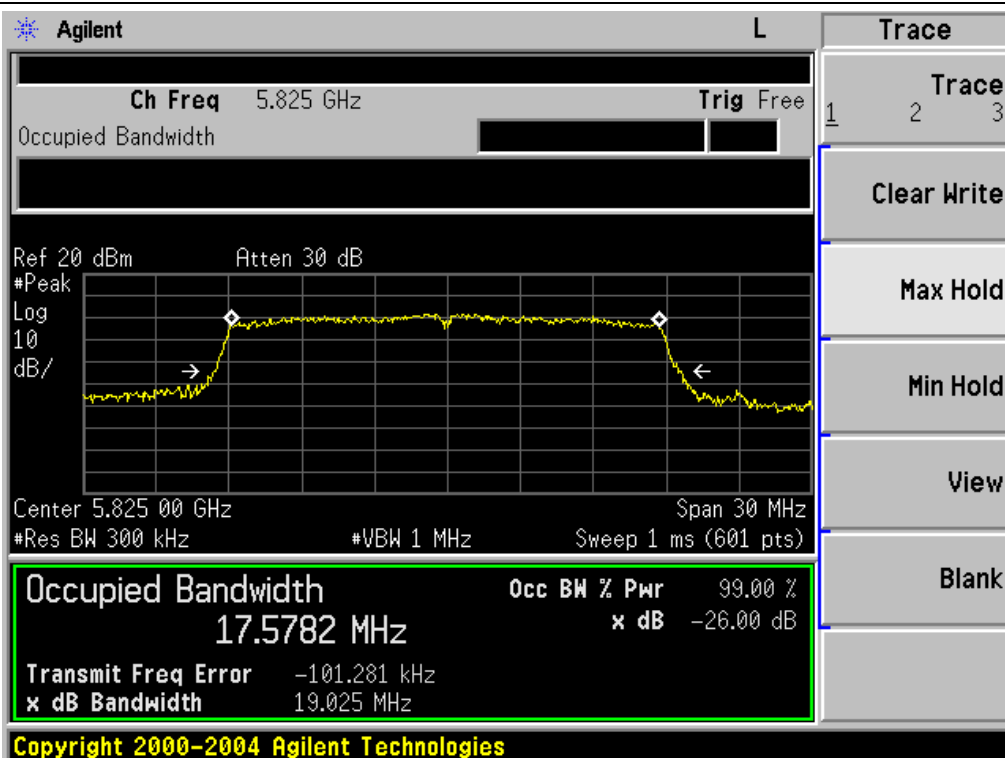
TX CH 149



TX CH 157

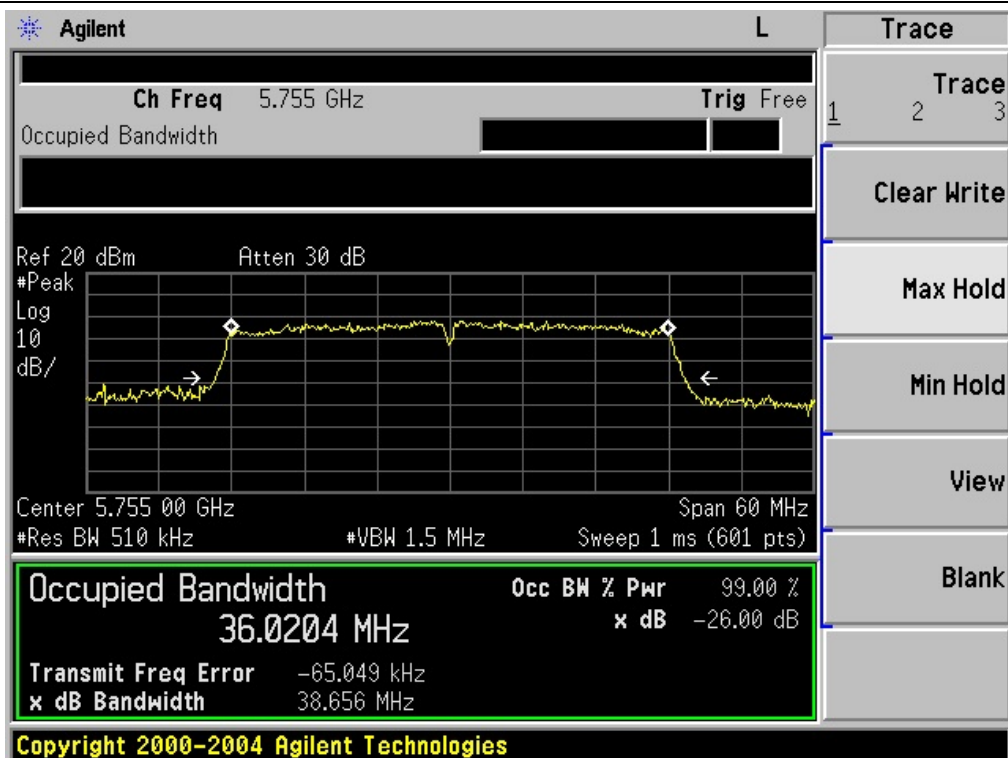


TX CH 165

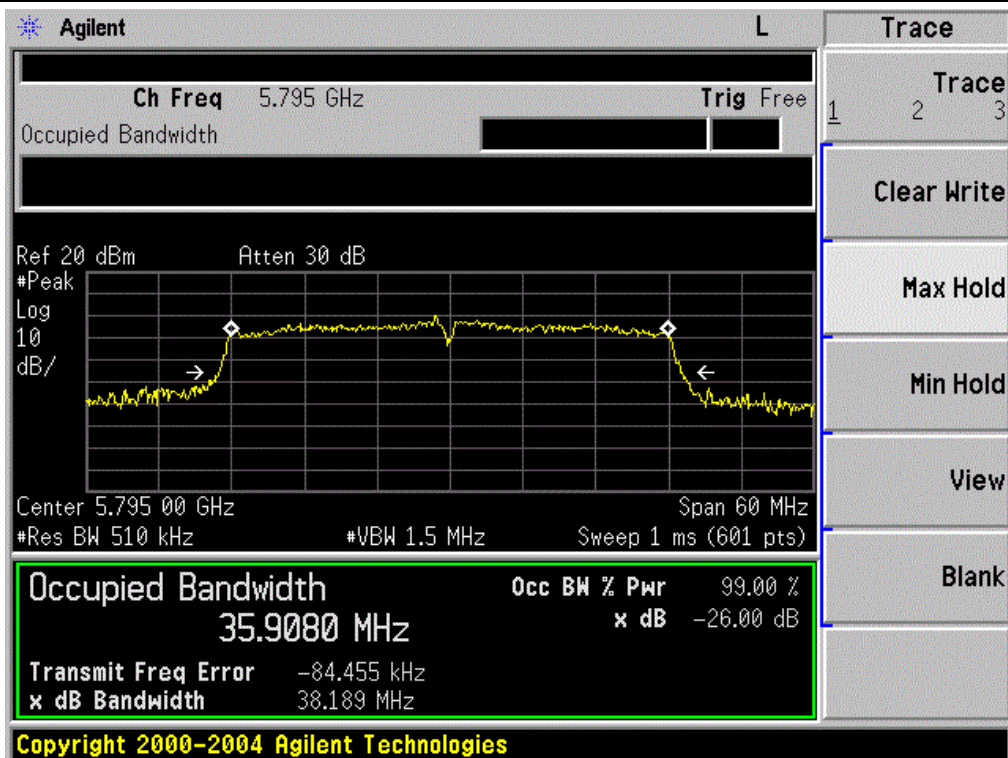


802.11 n40 Mode

TX CH 151



TX CH 159



6. MINIMUM 6 DB BANDWIDTH

6.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(e)

(e) Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

6.2 TEST PROCEDURE

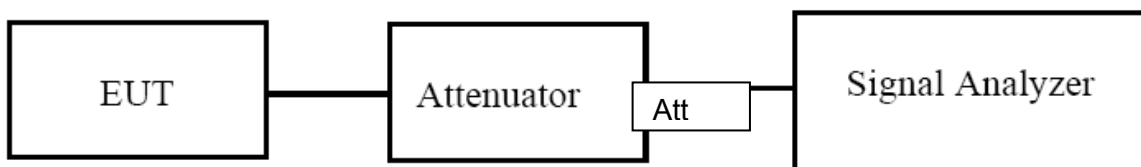
Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 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.

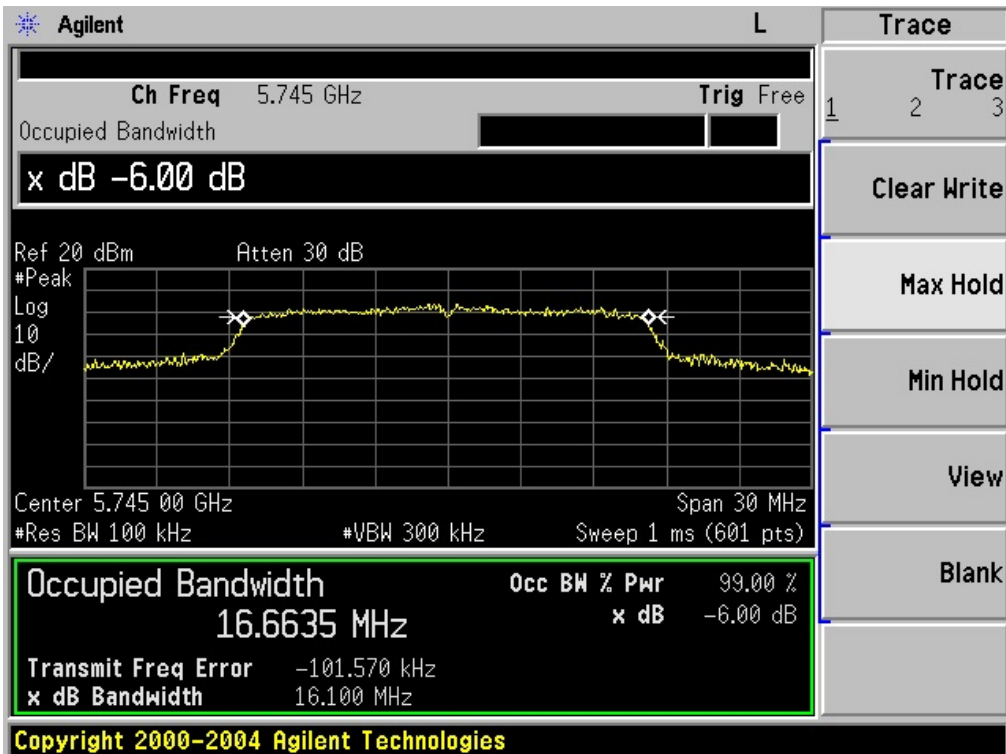
6.6 TEST RESULTS

EUT :	10.1 Inch Full Ruggedized Tablet	Model Name :	xTablet T1500
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX (5G) Mode Frequency Band III (5725-5825MHz)		

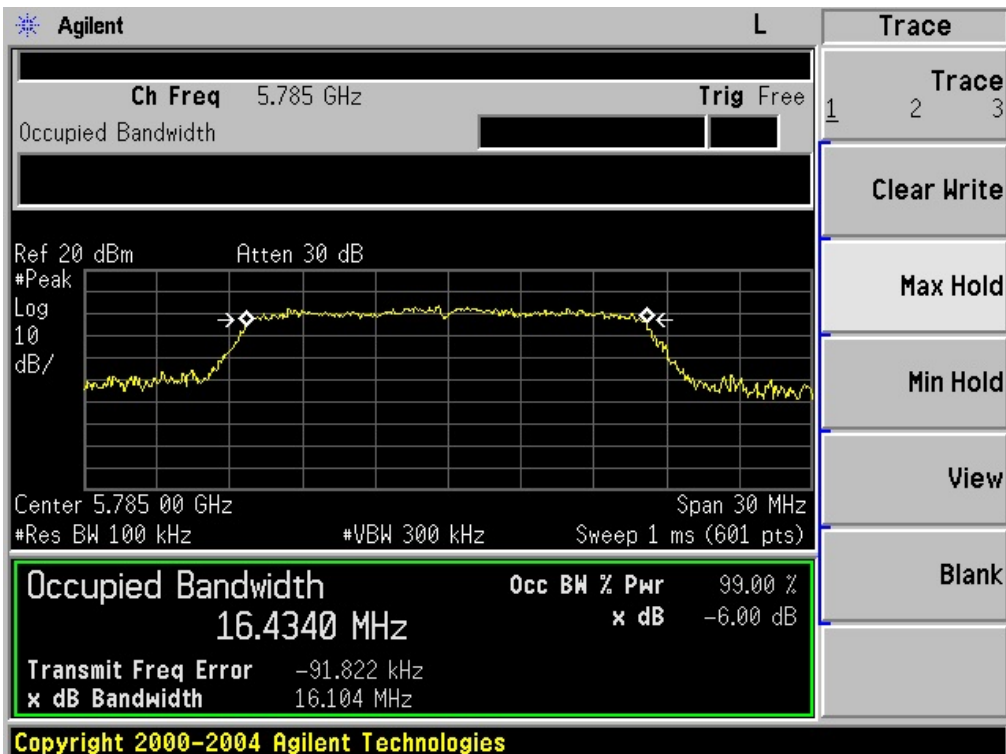
Mode	Channel	Frequency (MHz)	-6dB bandwidth (MHz)	Result
802.11a	149	5745	16.100	Pass
	157	5785	16.104	Pass
	165	5825	16.151	Pass
802.11 n20	149	5745	17.593	Pass
	157	5785	17.503	Pass
	165	5825	16.752	Pass
802.11 n40	151	5755	35.762	Pass
	159	5795	35.825	Pass

802.11 a Mode

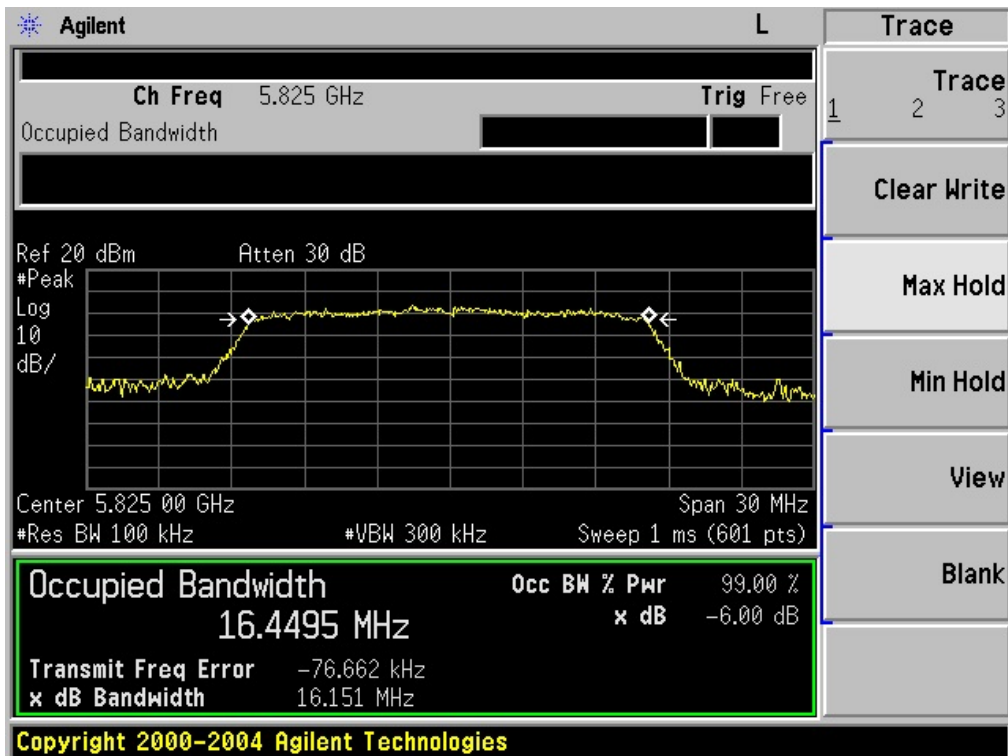
TX CH 149



TX CH 157

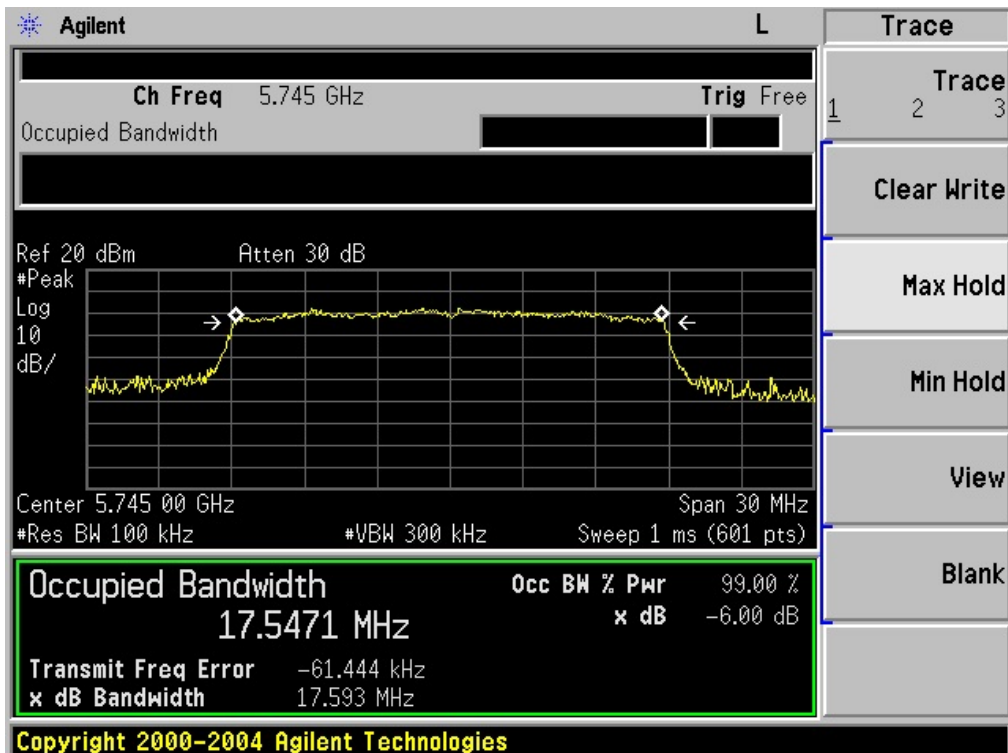


TX CH 165

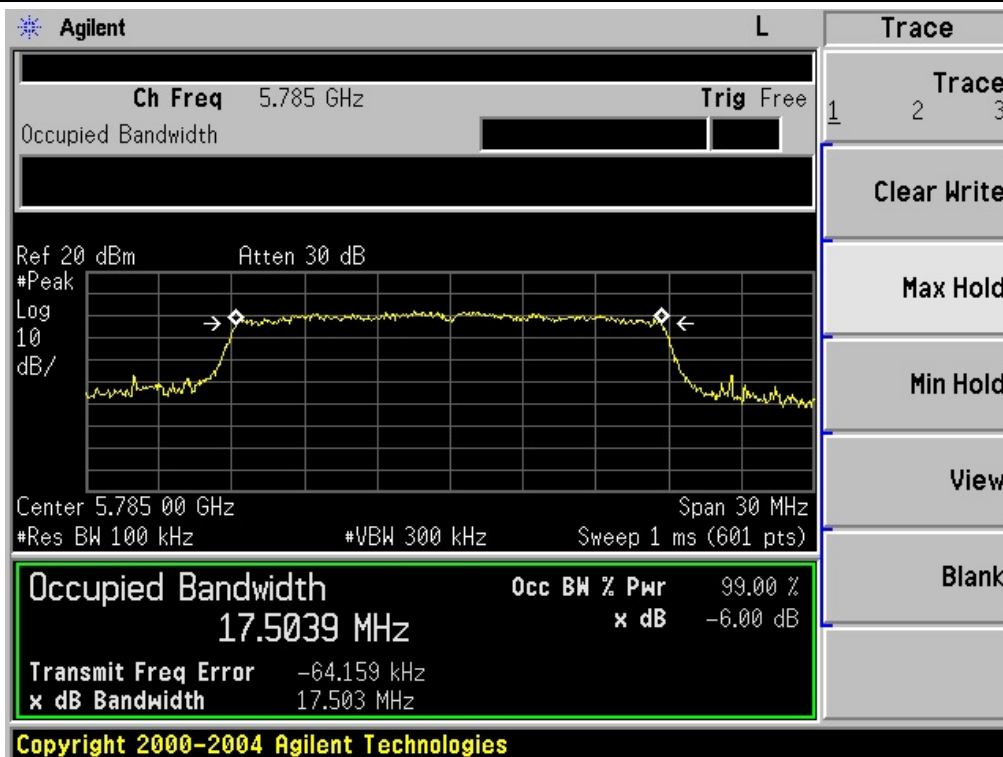


802.11 n20 Mode

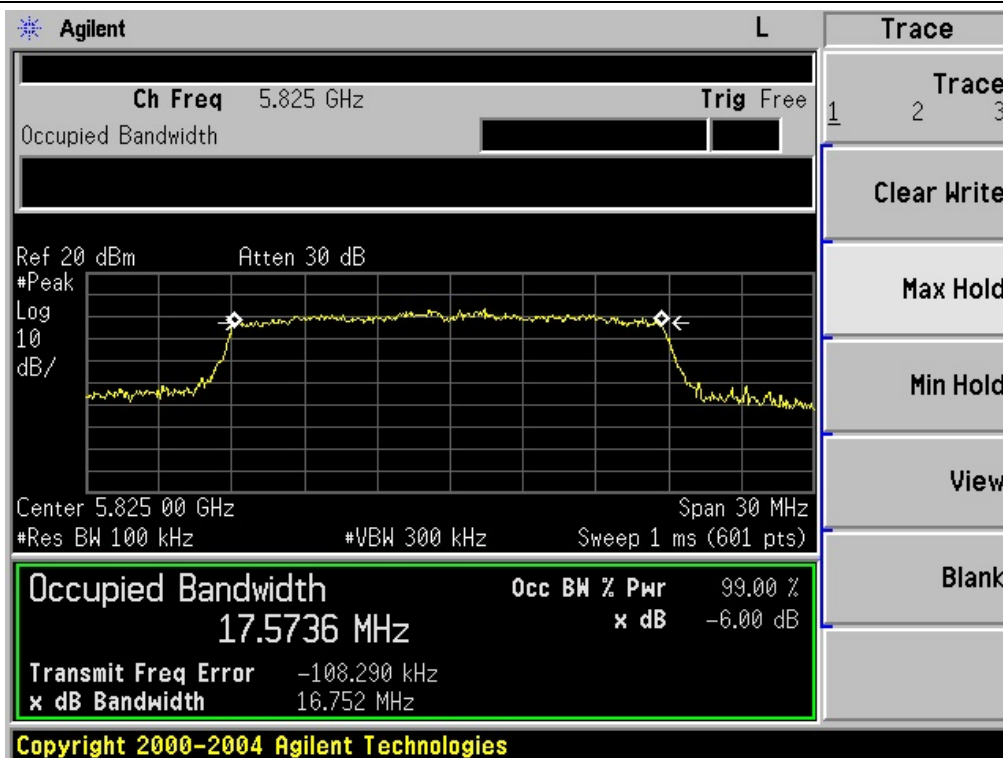
TX CH 149

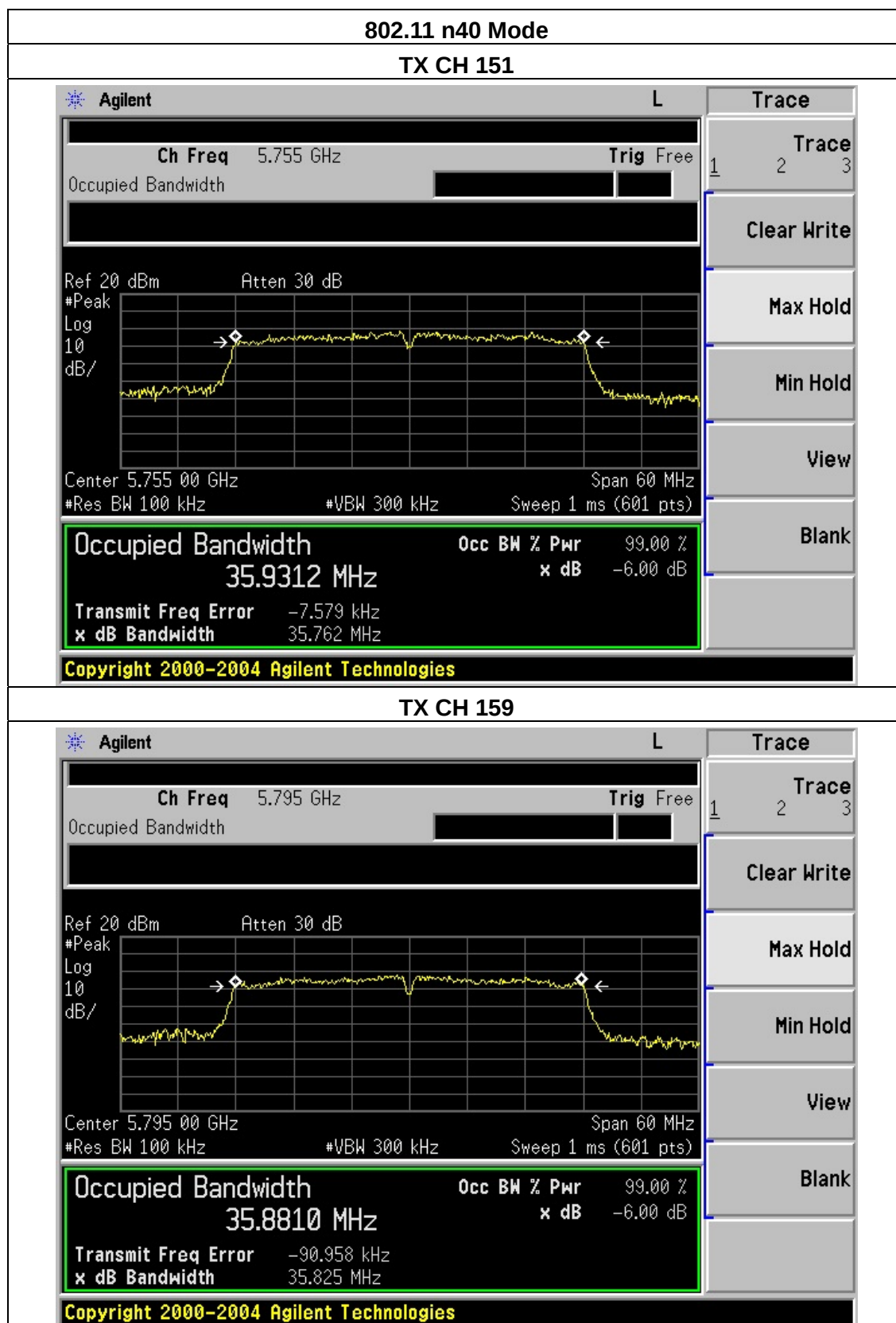


TX CH 157



TX CH 165





7. MAXIMUM CONDUCTED OUTPUT POWER

7.1 PPLIED PROCEDURES / LIMIT

According to FCC §15.407

According to FCC §15.407

The maximum conducted output power should not exceed:

Frequency Band(MHz)	Limit
5150~5250	250mW
5725~5850	1W

The maximum e.i.r.p should not exceed:

Frequency Band(MHz)	Limit
5150~5250	200mW or 10dBm +10logB whichever is less
5725~5850	N/A

Note: Where "B" is the 99% emission bandwidth in MHz

7.2 TEST PROCEDURE

- Maximum conducted output power may be measured using a spectrum analyzer/EMI receiver or an RF power meter.

1. Device Configuration

If possible, configure or modify the operation of the EUT so that it transmits continuously at its maximum power control level (see section II.B.).

a) The intent is to test at 100 percent duty cycle; however a small reduction in duty cycle (to no lower than 98 percent) is permitted if required by the EUT for amplitude control purposes. Manufacturers are expected to provide software to the test lab to permit such continuous operation.

b) If continuous transmission (or at least 98 percent duty cycle) cannot be achieved due to hardware limitations (e.g., overheating), the EUT shall be operated at its maximum power control level with the transmit duration as long as possible and the duty cycle as high as possible.

2. Measurement using a Spectrum Analyzer or EMI Receiver (SA)

Measurement of maximum conducted output power using a spectrum analyzer requires integrating the spectrum across a frequency span that encompasses, at a minimum, either the EBW or the 99-percent occupied bandwidth of the signal.¹ However, the EBW must be used to determine bandwidth dependent limits on maximum conducted output power in accordance with § 15.407(a).

a) The test method shall be selected as follows: (i) Method SA-1 or SA-1 Alternative (averaging with the EUT transmitting at full power throughout each sweep) shall be applied if either of the following conditions can be satisfied:

- The EUT transmits continuously (or with a duty cycle ≥ 98 percent).
- Sweep triggering or gating can be implemented in a way that the device transmits at the maximum power control level throughout the duration of each of the instrument sweeps to be averaged. This condition can generally be achieved by triggering the instrument's sweep if the duration of the sweep (with the analyzer configured as in Method SA-1, below) is equal to or shorter than the duration T of each transmission from the EUT and if those transmissions exhibit full power throughout their durations.

(ii) Method SA-2 or SA-2 Alternative (averaging across on and off times of the EUT transmissions, followed by duty cycle correction) shall be applied if the conditions of (i) cannot be achieved and the transmissions exhibit a constant duty cycle during the measurement duration. Duty cycle will be considered to be constant if variations are less than ± 2 percent.

(iii) Method SA-3 (RMS detection with max hold) or SA-3 Alternative (reduced VBW with max hold) shall be applied if the conditions of (i) and (ii) cannot be achieved.

b) Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep): (i) Set span to encompass the entire emission bandwidth (EBW) (or, alternatively, the entire 99% occupied bandwidth) of the signal.

(ii) Set RBW = 1 MHz.

(iii) Set VBW ≥ 3 MHz.

(iv) Number of points in sweep ≥ 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 ≥ 98 percent, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run".

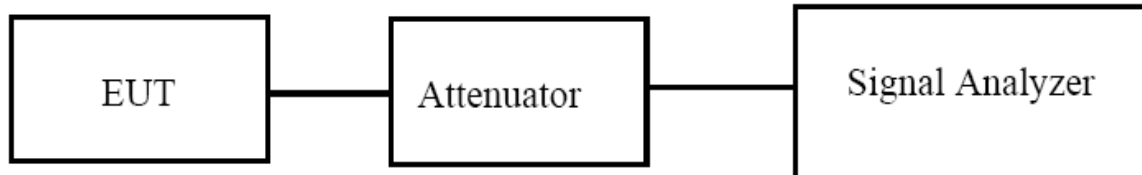
(viii) Trace average at least 100 traces in power averaging (i.e., RMS) mode.

(ix) Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges. If the instrument does not have a band power function, sum the spectrum

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP



7.5 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.

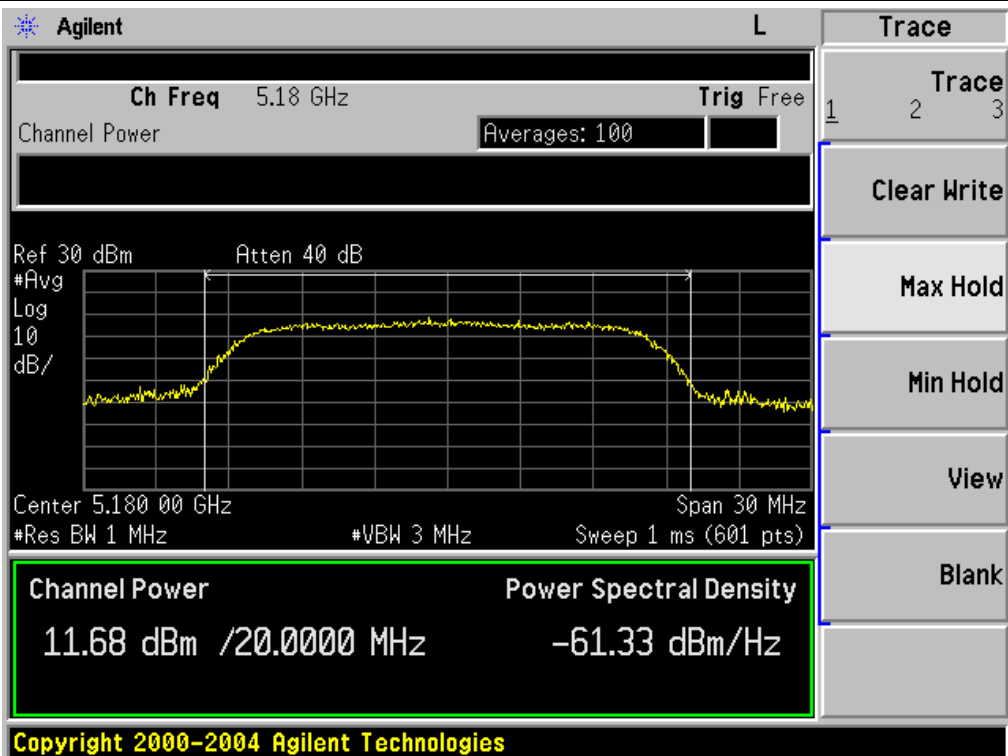
7.6 TEST RESULTS

EUT :	10.1 Inch Full Ruggedized Tablet	Model Name :	xTablet T1500
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX (5G) Mode Frequency Band I (5150-5250MHz)		

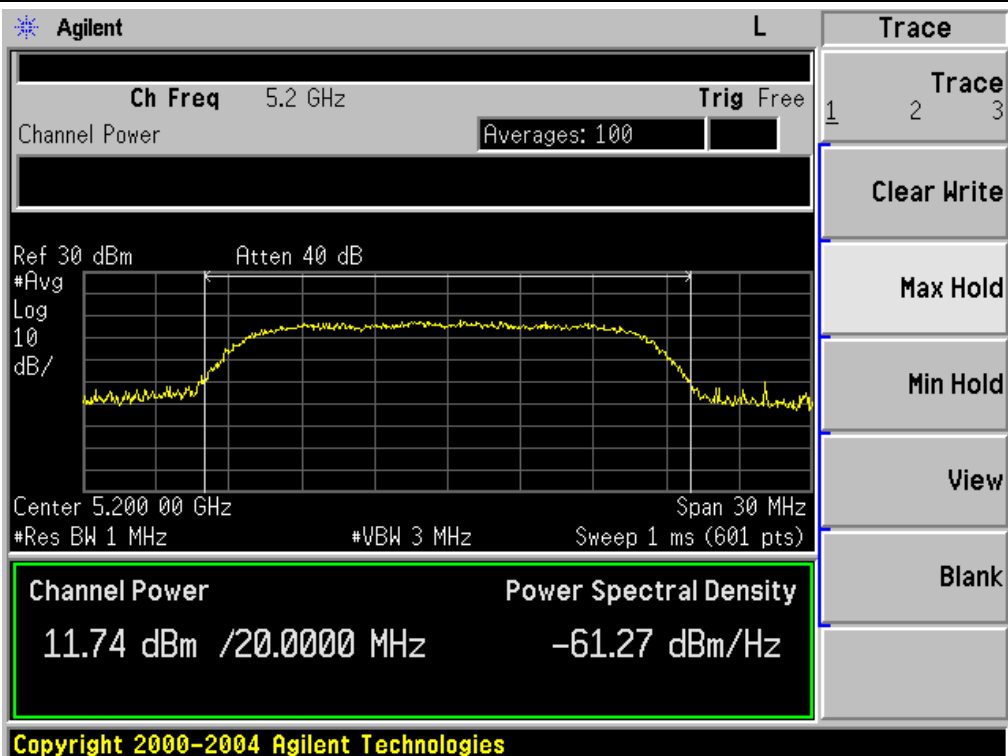
Test Channe	Frequency	Maximum output power. Antenna port (PK)	LIMIT
	(MHz)	(dBm)	dBm
TX 802.11a Mode			
CH36	5180	11.68	23.98
CH40	5200	11.74	23.98
CH48	5240	12.31	23.98
TX 802.11 n20M Mode			
CH36	5180	10.96	23.98
CH40	5200	11.05	23.98
CH48	5240	11.16	23.98
TX 802.11 n40M Mode			
CH38	5190	9.66	23.98
CH46	5230	8.86	23.98

802.11 a Mode

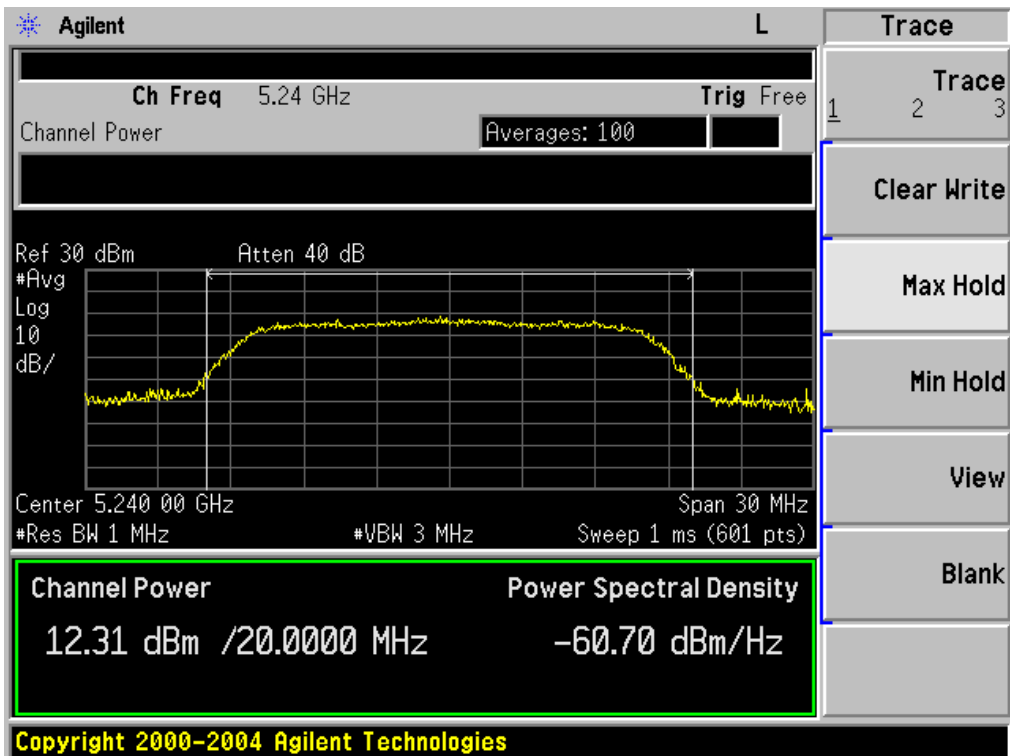
TX CH 36



TX CH 40

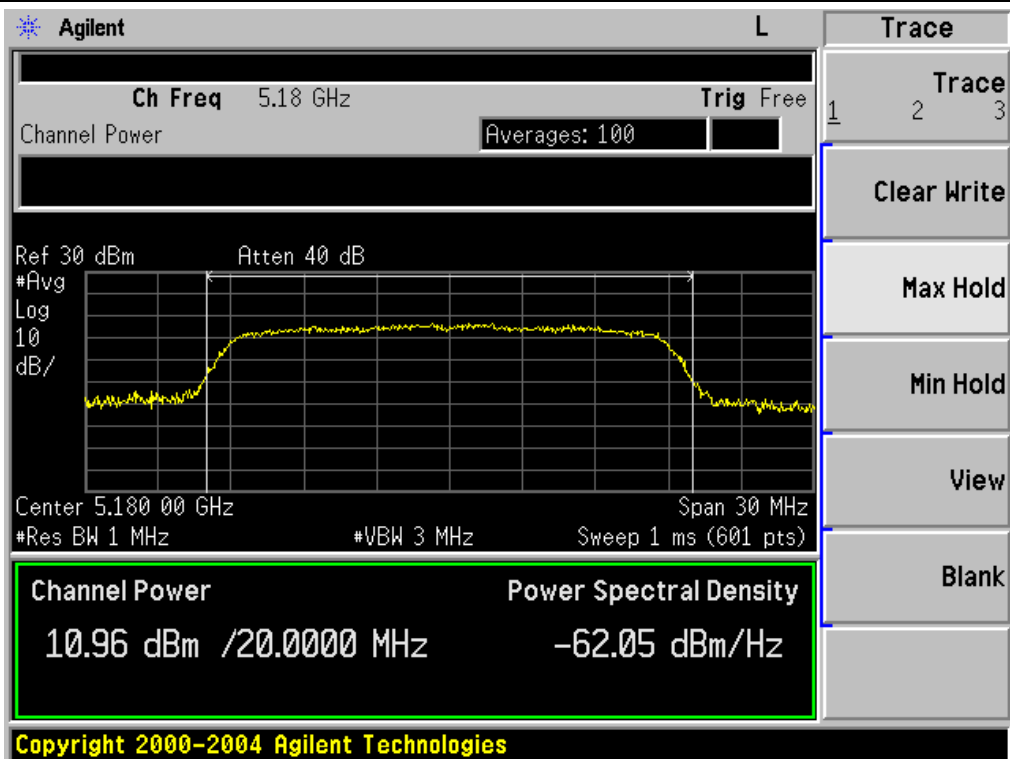


TX CH 48

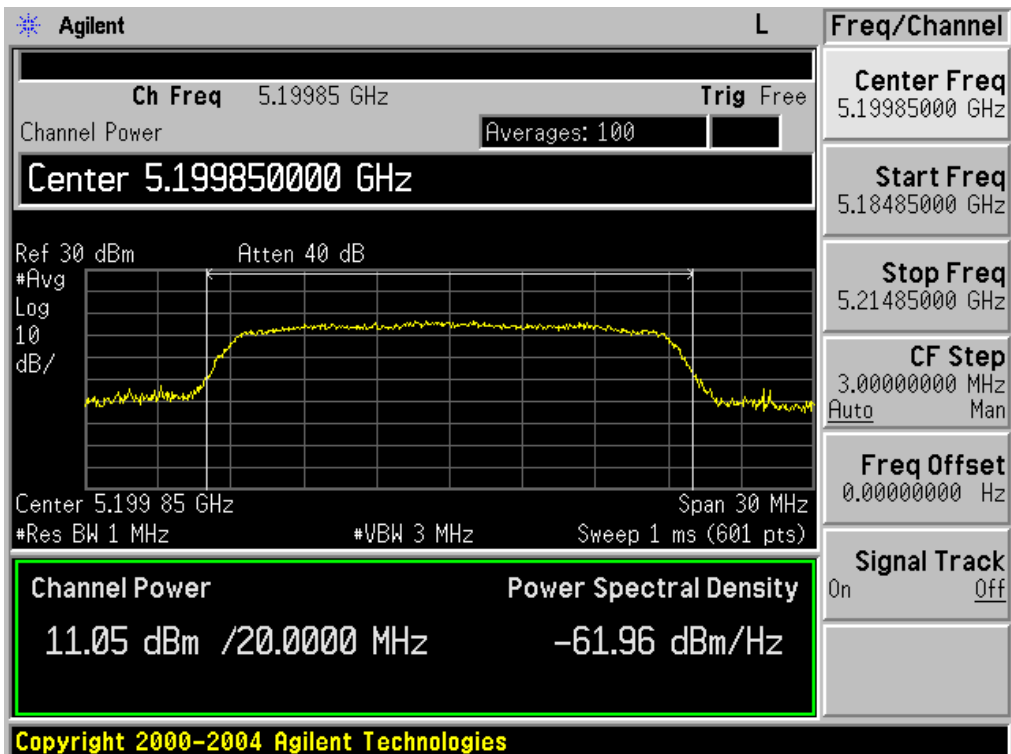


802.11 n20 Mode

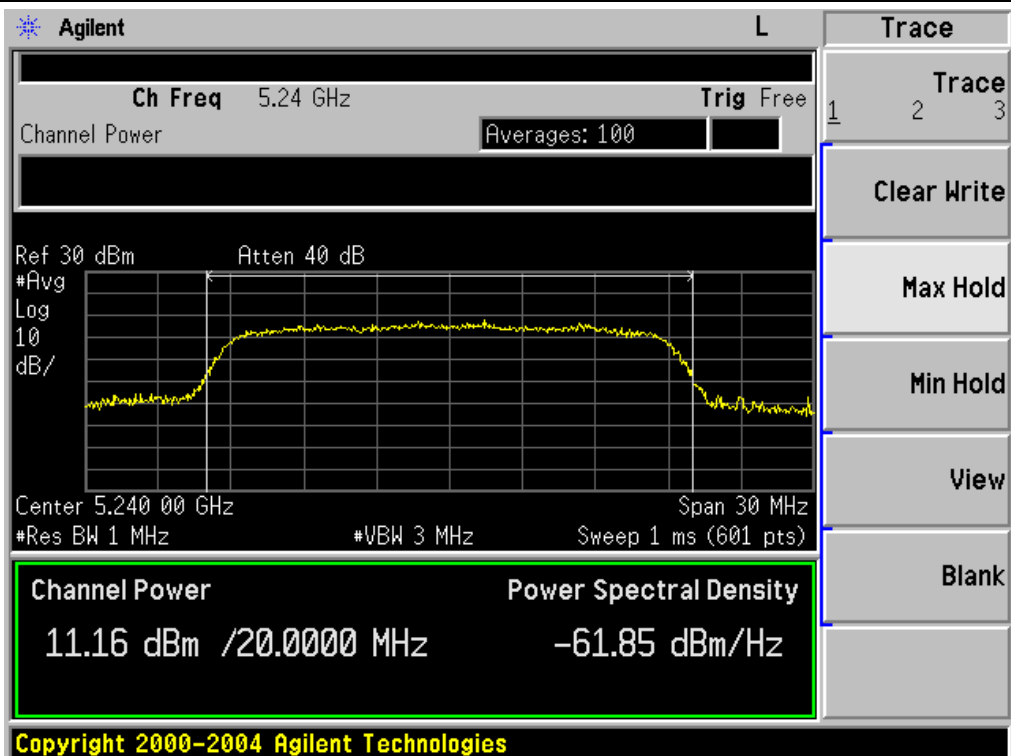
TX CH 36

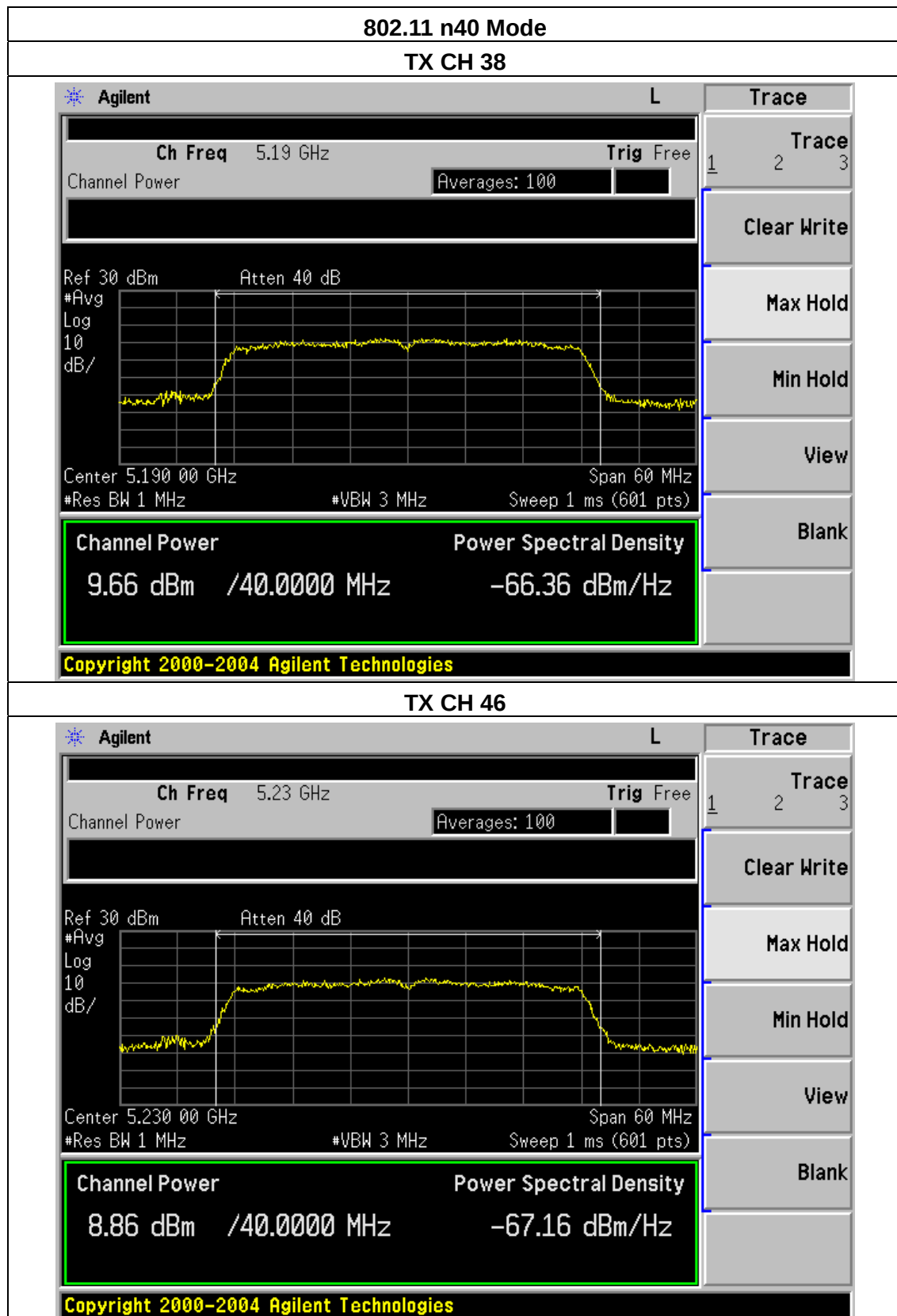


TX CH 40



TX CH 48



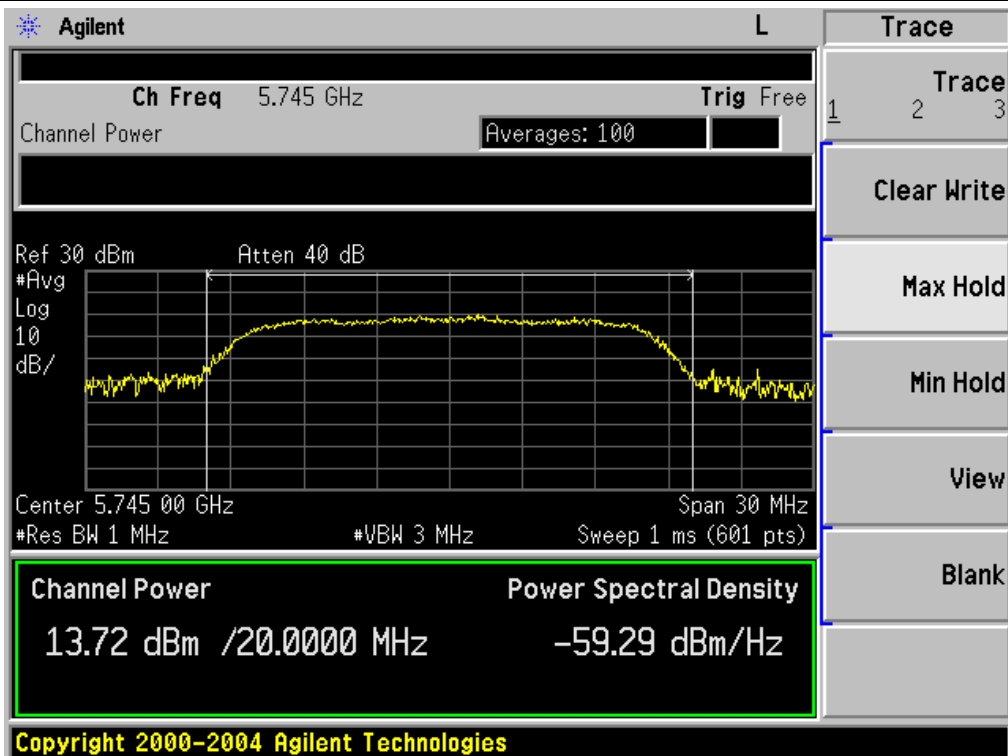


EUT :	10.1 Inch Full Ruggedized Tablet	Model Name :	xTablet T1500
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX (5G) Mode Frequency Band III (5725-5825MHz)		

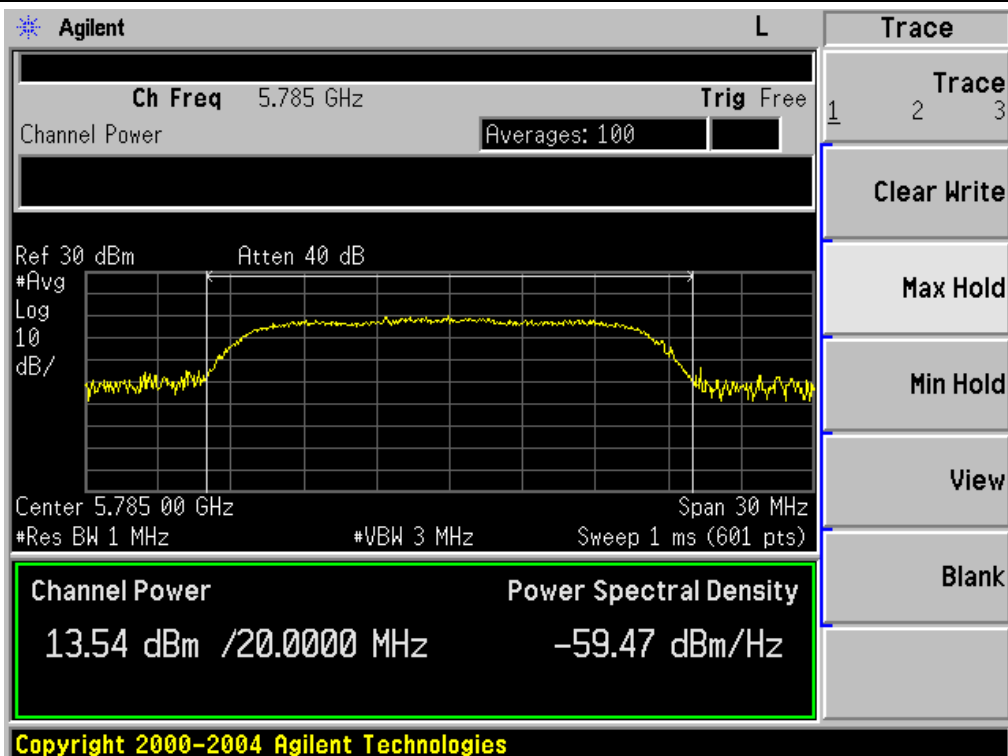
Test Channe	Frequency	Maximum output power. Antenna port (PK)	LIMIT
	(MHz)	(dBm)	dBm
TX 802.11a Mode			
CH 149	5745	13.72	30
CH 157	5785	13.54	30
CH 165	5825	13.09	30
TX 802.11 n20M Mode			
CH 149	5745	13.02	30
CH 157	5785	13.17	30
CH 165	5825	12.73	30
TX 802.11 n40M Mode			
CH 151	5755	10.69	30
CH 159	5795	9.88	30

802.11 a Mode

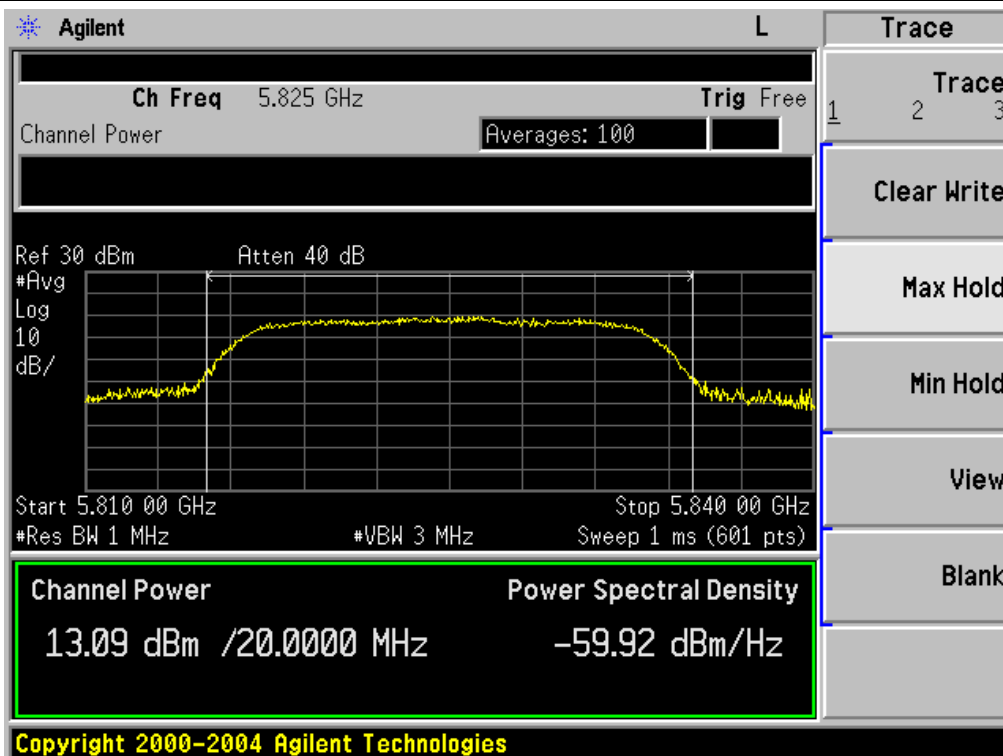
TX CH 149



TX CH 157

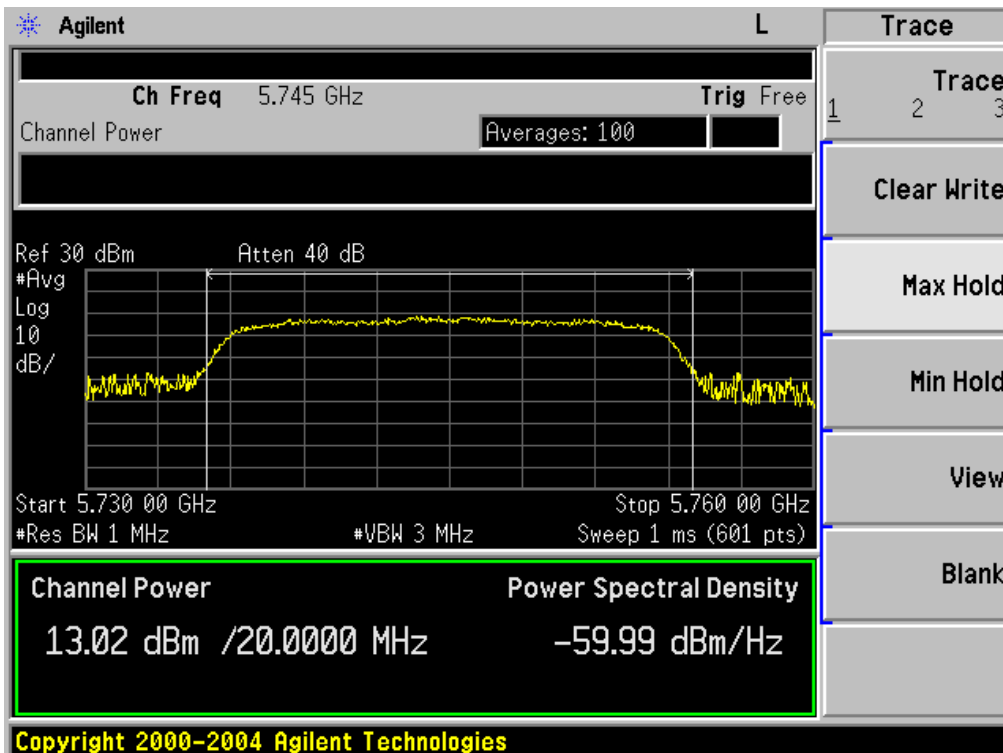


TX CH 165

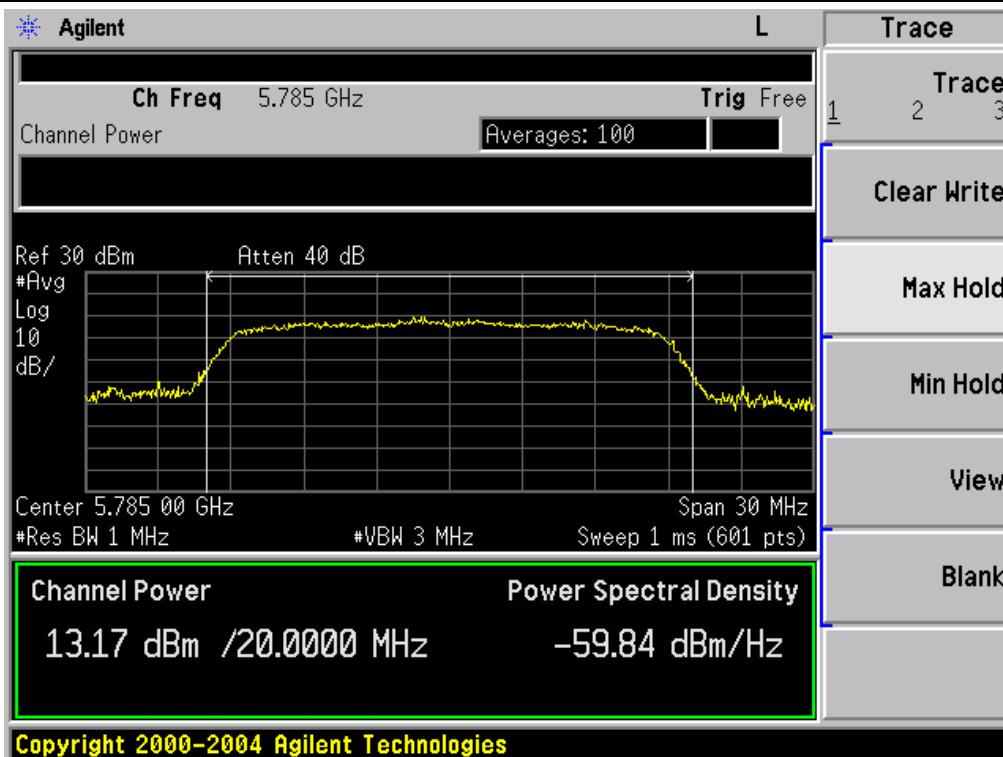


802.11 n20 Mode

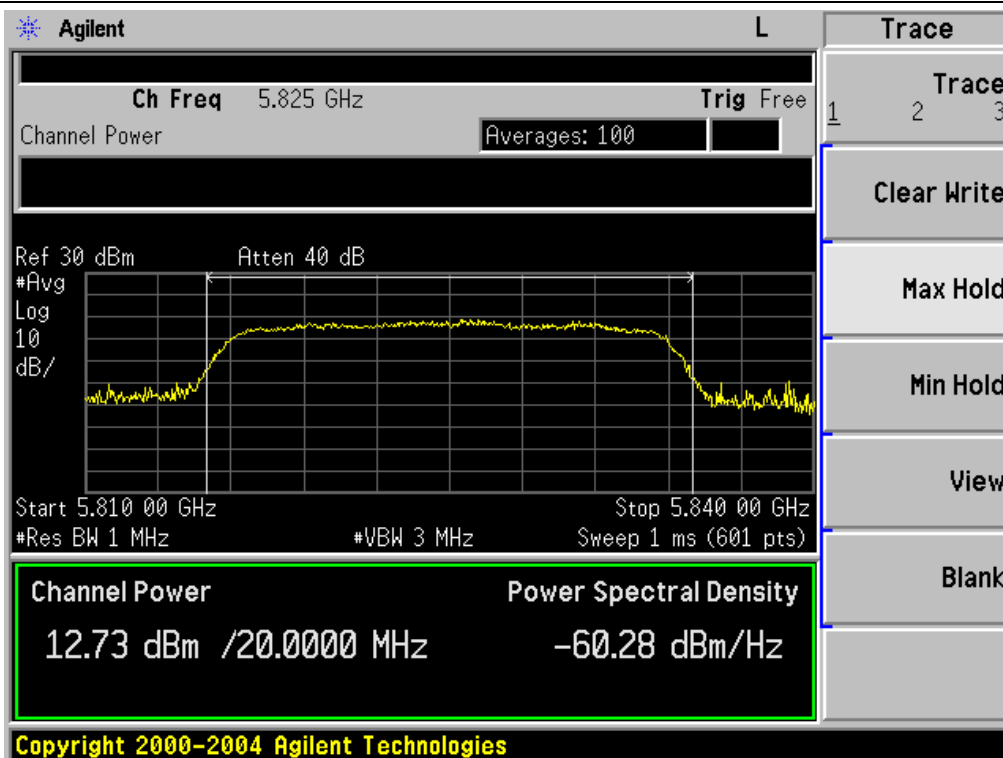
TX CH 149

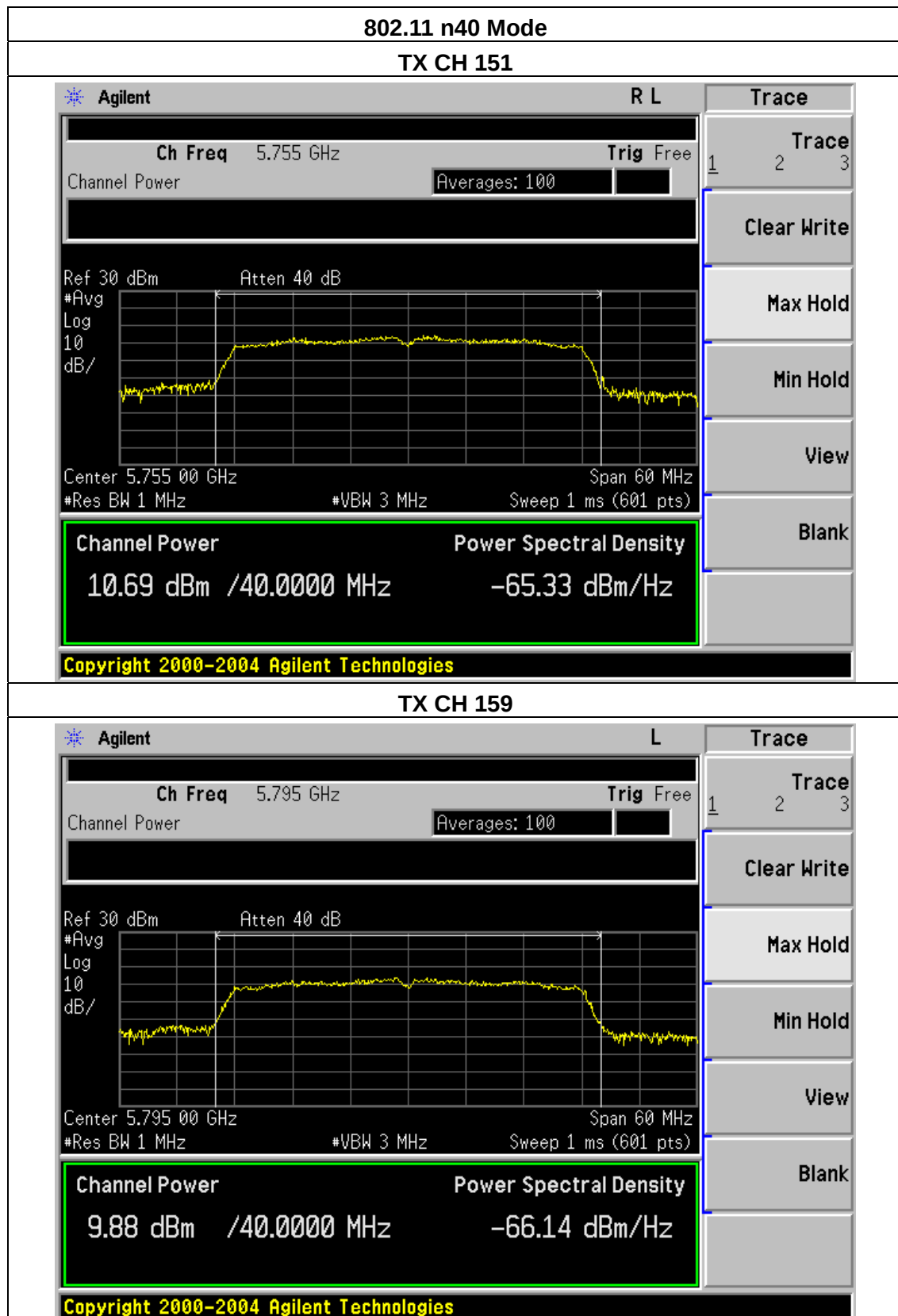


TX CH 157



TX CH 165




TX CH 159

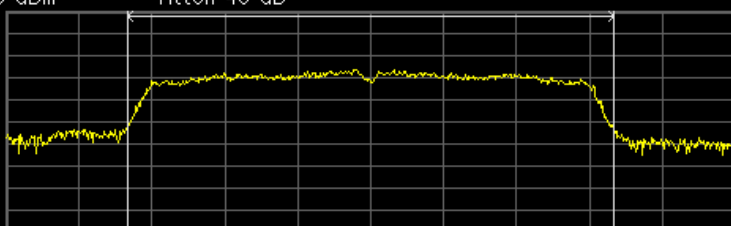
 Agilent
L

Ch Freq 5.795 GHz
Trig Free

Channel Power
Averages: 100

Ref 30 dBm Atten 40 dB

#Avg Log 10 dB/



Center 5.795 00 GHz Span 60 MHz

#Res BW 1 MHz #VBW 3 MHz Sweep 1 ms (601 pts)

Channel Power
Power Spectral Density

9.88 dBm /40.0000 MHz
-66.14 dBm/Hz

Copyright 2000-2004 Agilent Technologies

Trace

Trace
1
2
3

Clear Write

Max Hold

Min Hold

View

Blank

8. OUT OF BAND EMISSIONS

8.1 APPLICABLE STANDARD

According to FCC §15.407(b)

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) 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 e.i.r.p. of -27 dBm/MHz.

(2) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

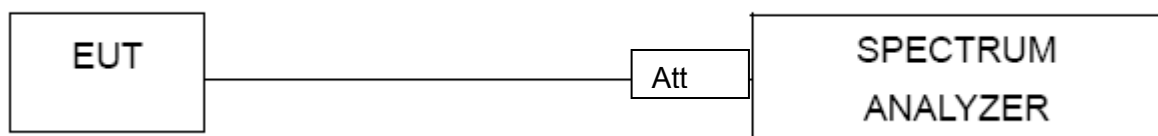
8.2 TEST PROCEDURE

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.

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATION CONDITIONS

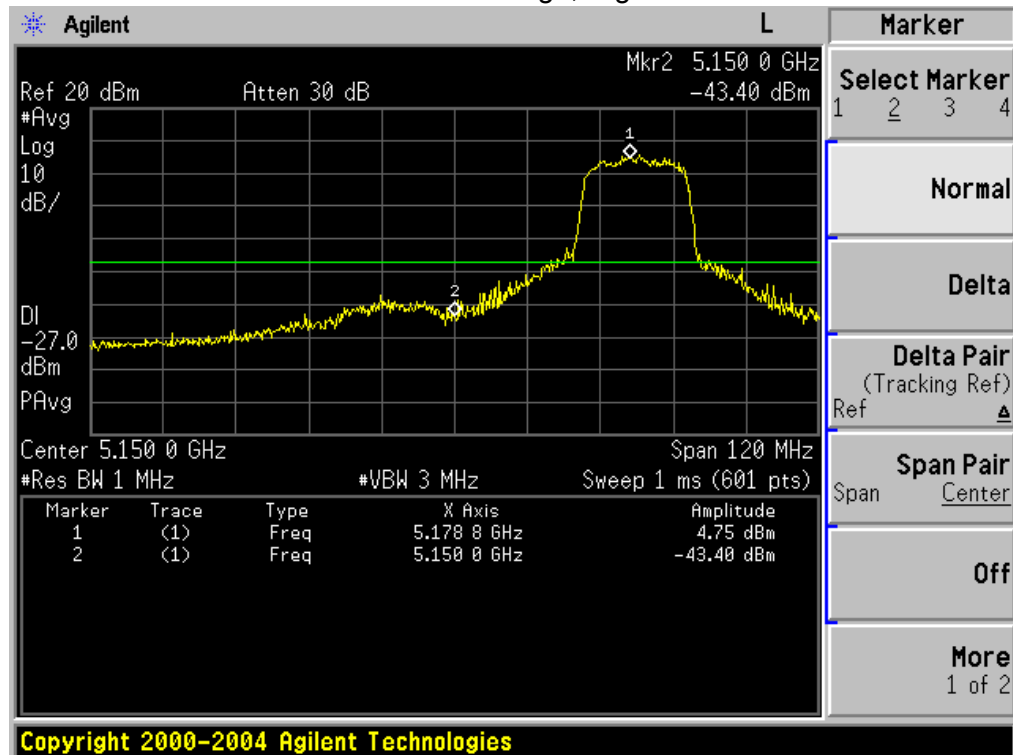
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

8.6 TEST RESULTS

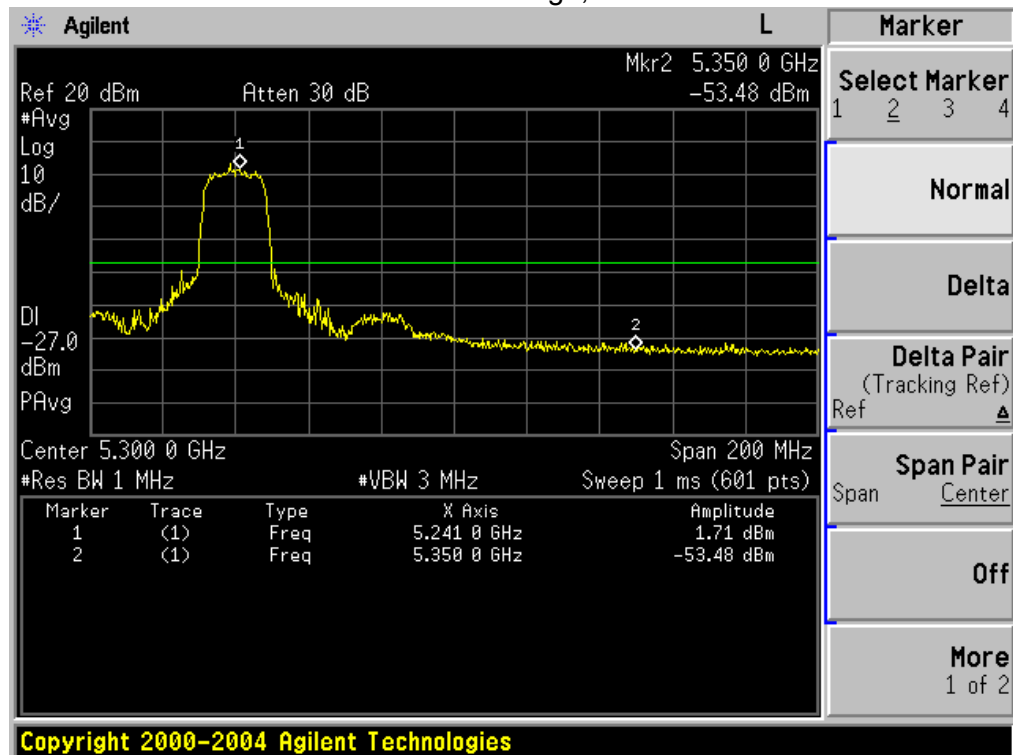
EUT :	10.1 Inch Full Ruggedized Tablet	Model Name :	xTablet T1500
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V

5.2G

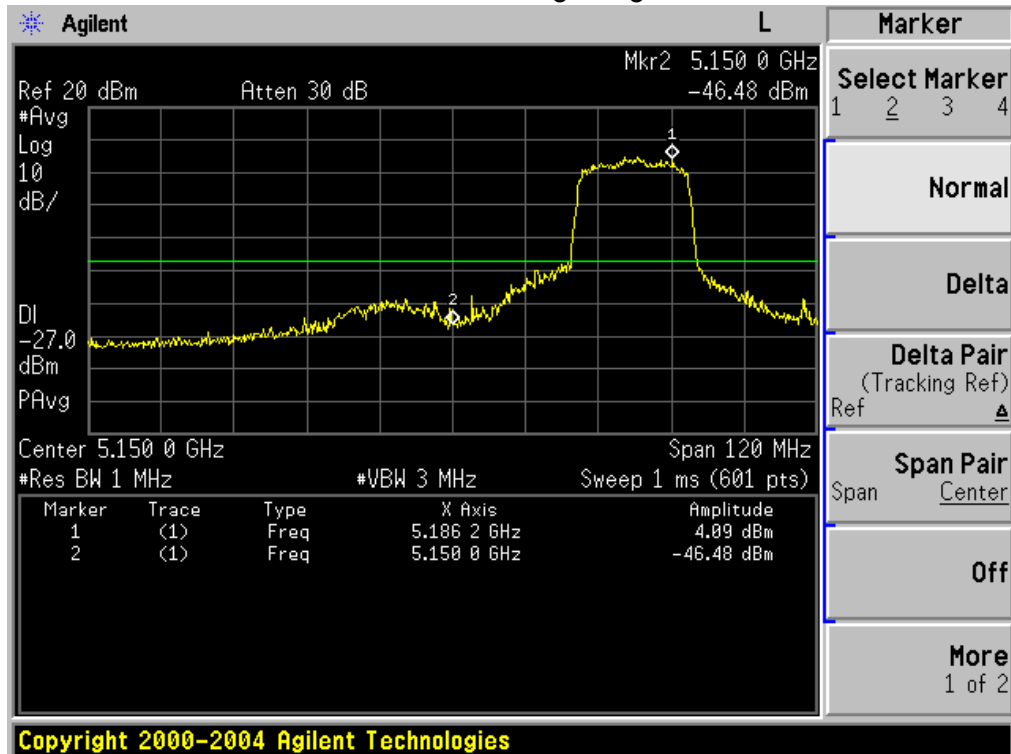
802.11a: Band Edge, Right Side



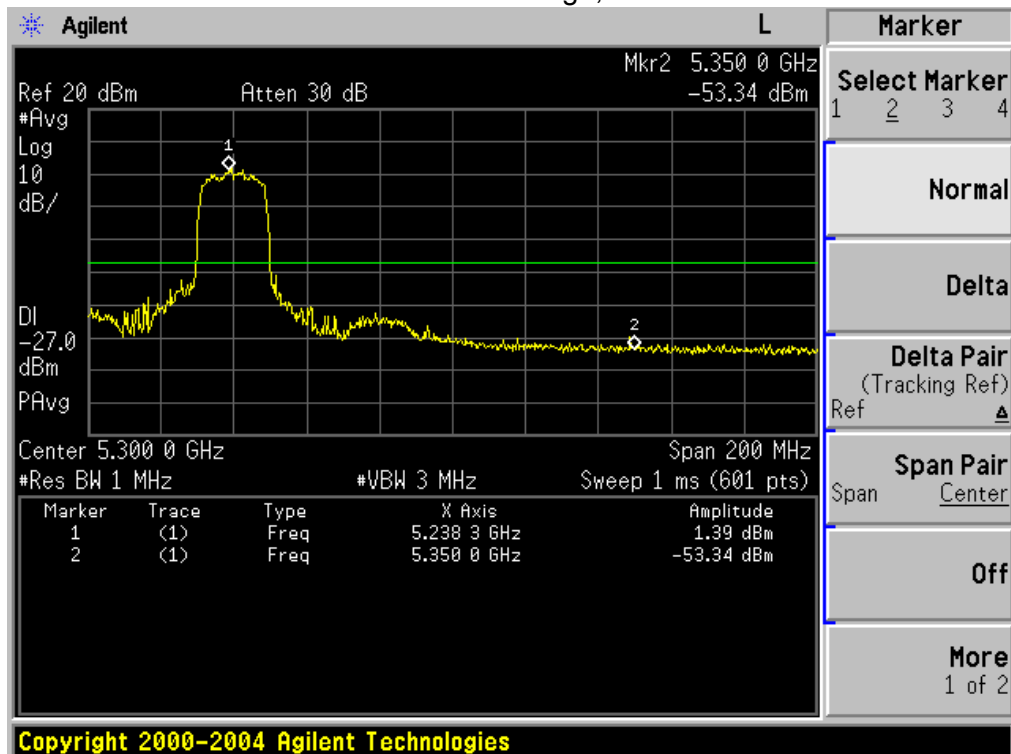
802.11a: Band Edge, Left Side



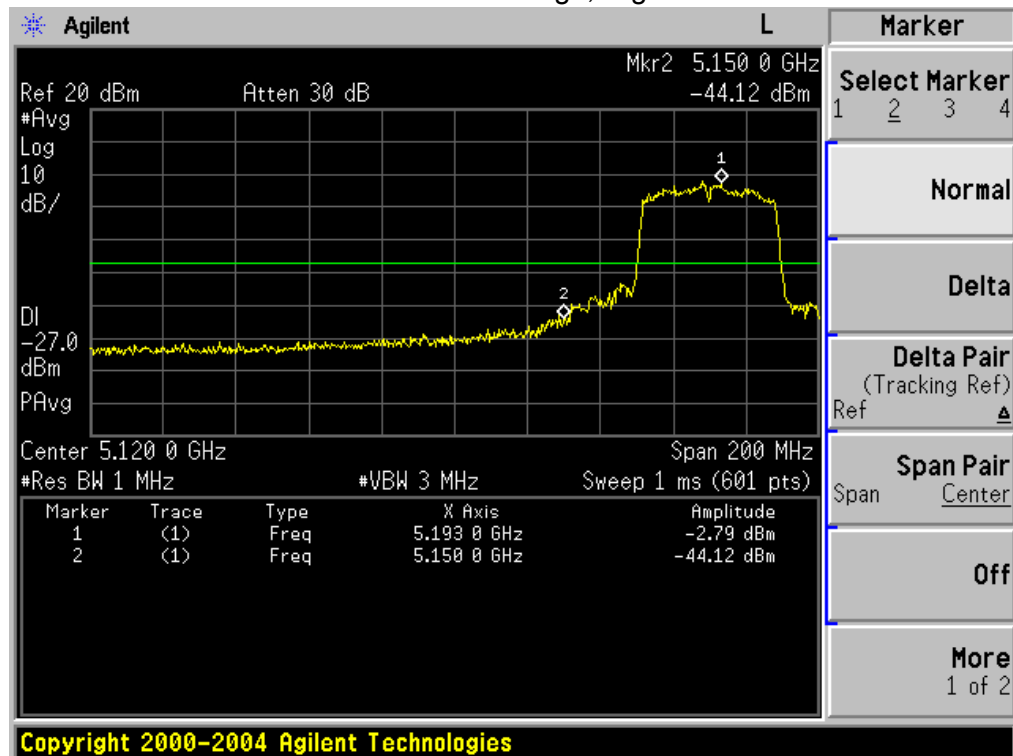
802.11n20: Band Edge, Right Side



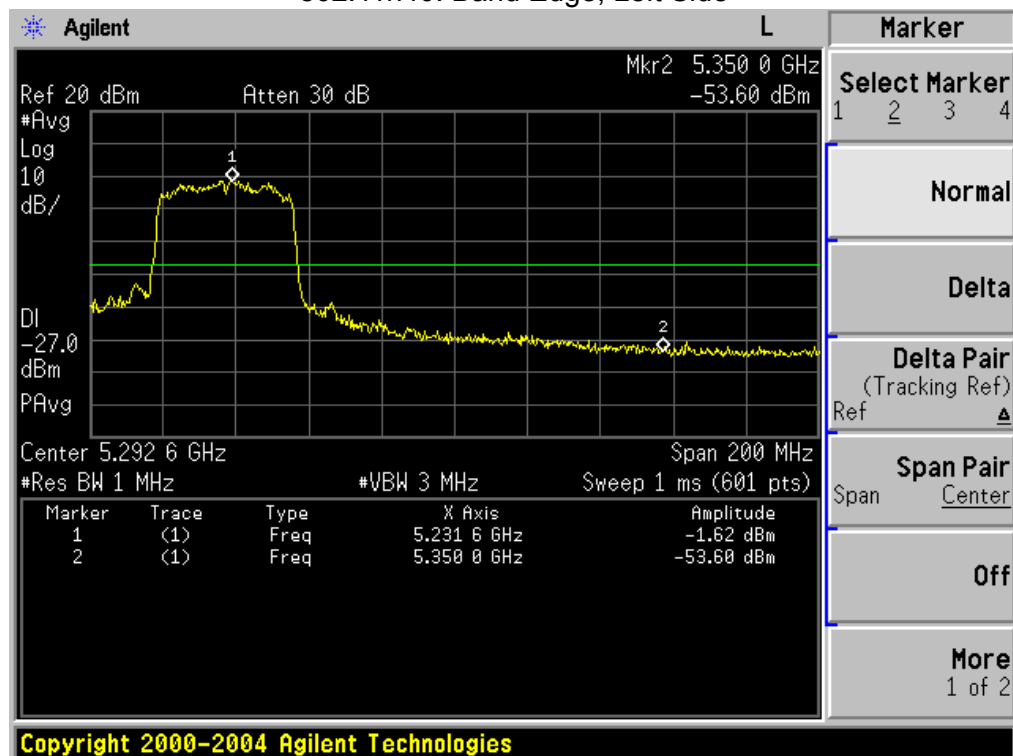
802.11n20: Band Edge, Left Side



802.11n40: Band Edge, Right Side

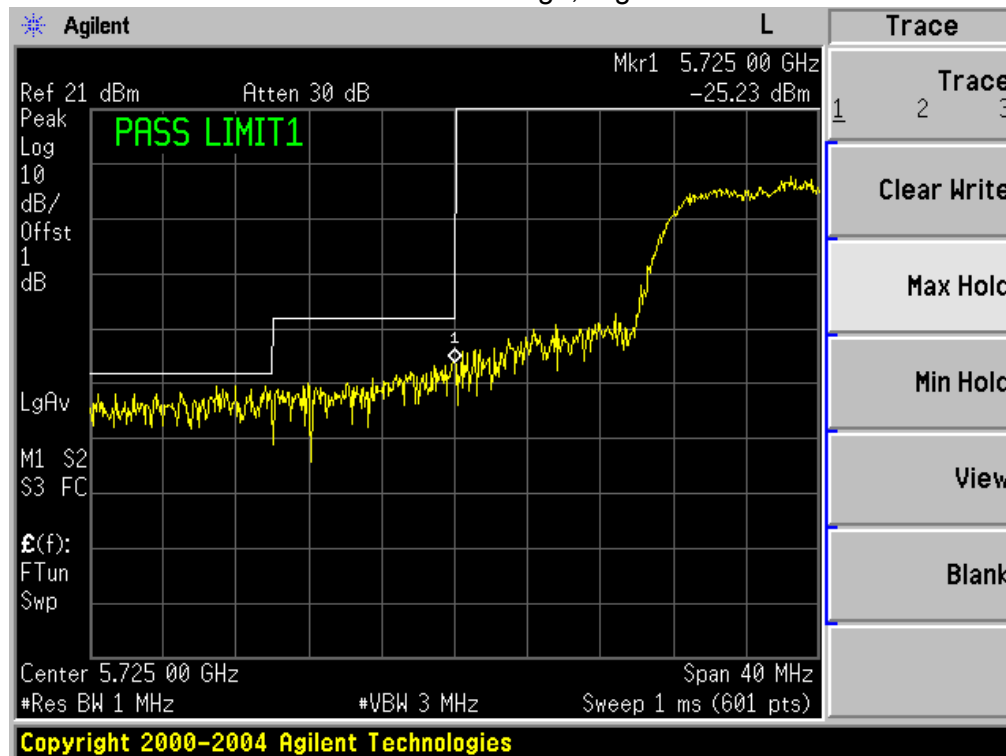


802.11n40: Band Edge, Left Side

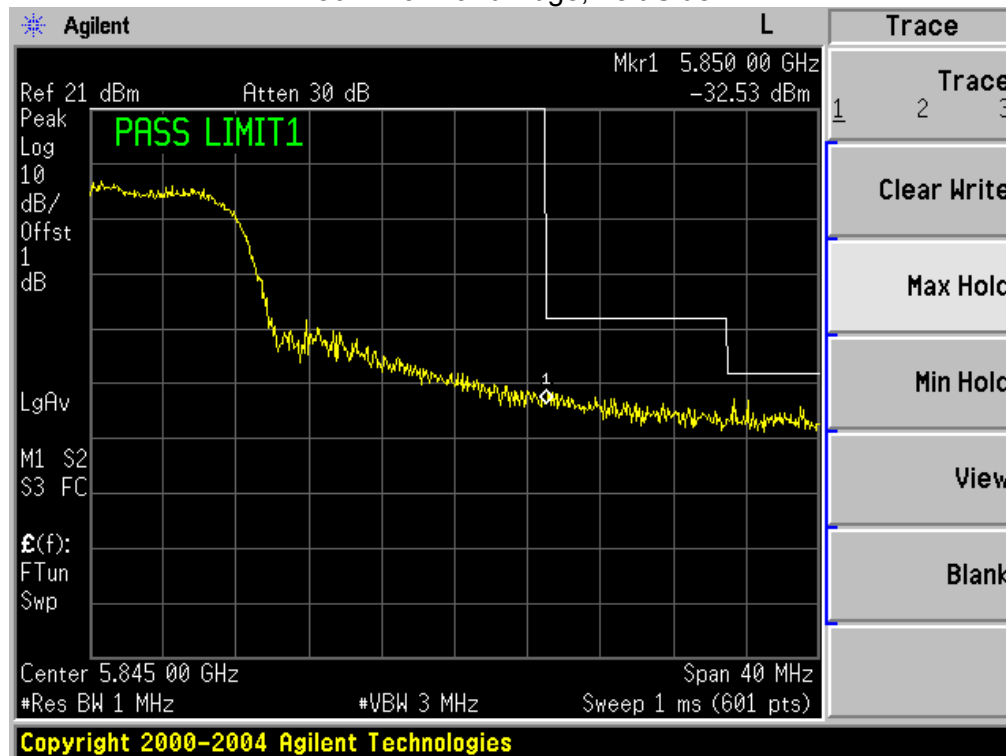


5.8G

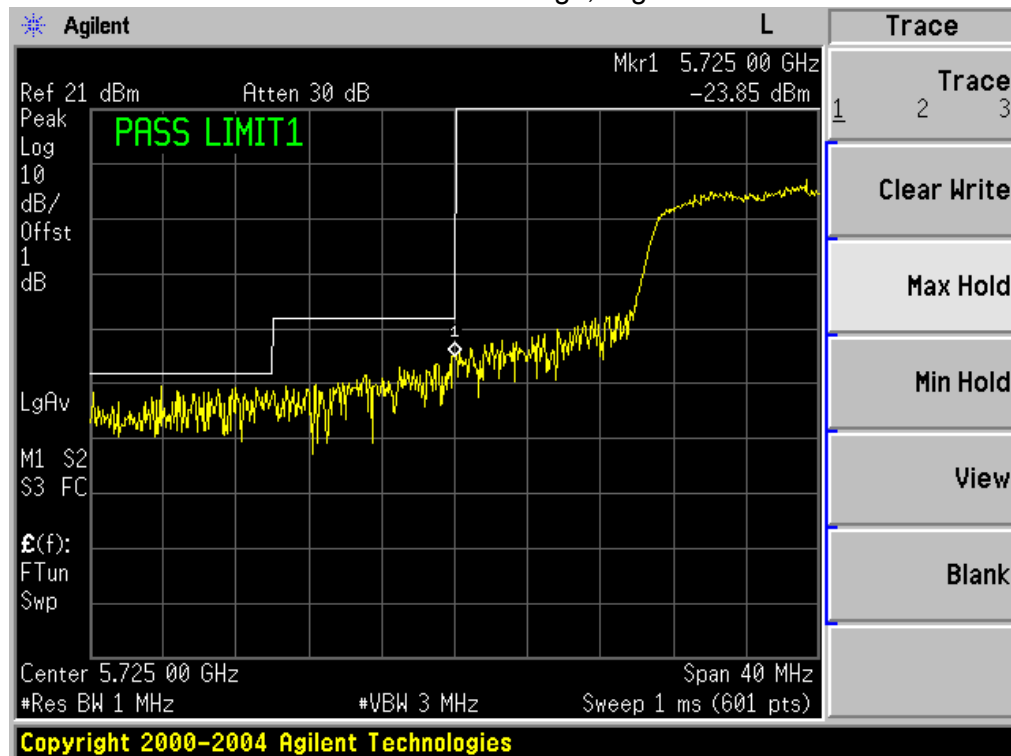
802.11a: Band Edge, Right Side



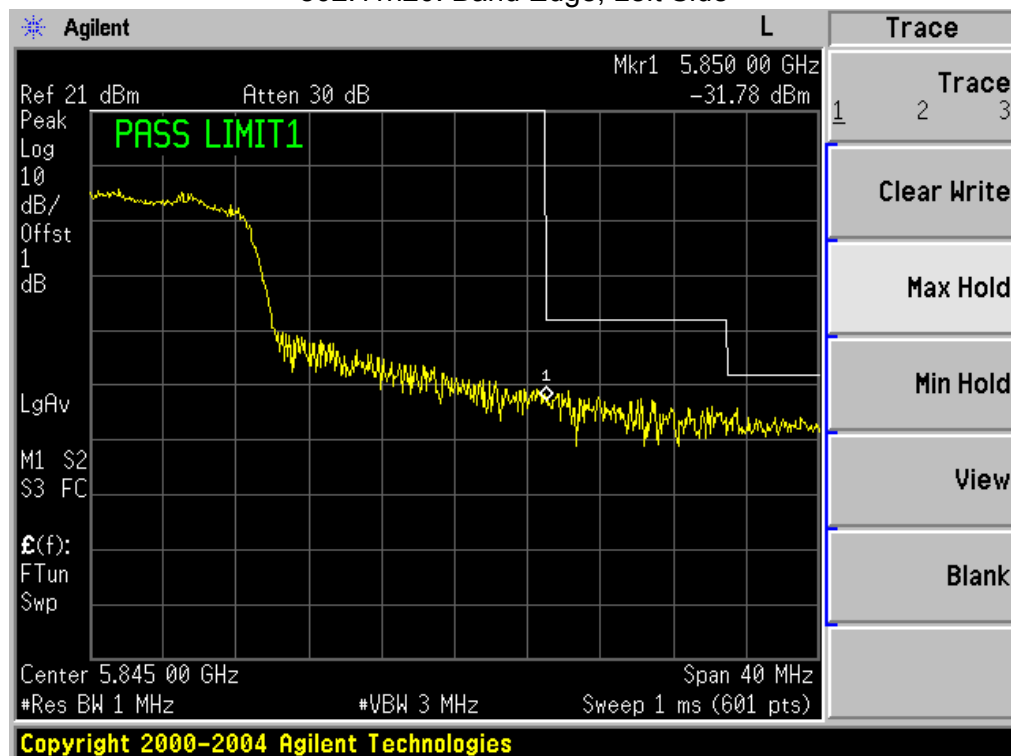
802.11a: Band Edge, Left Side



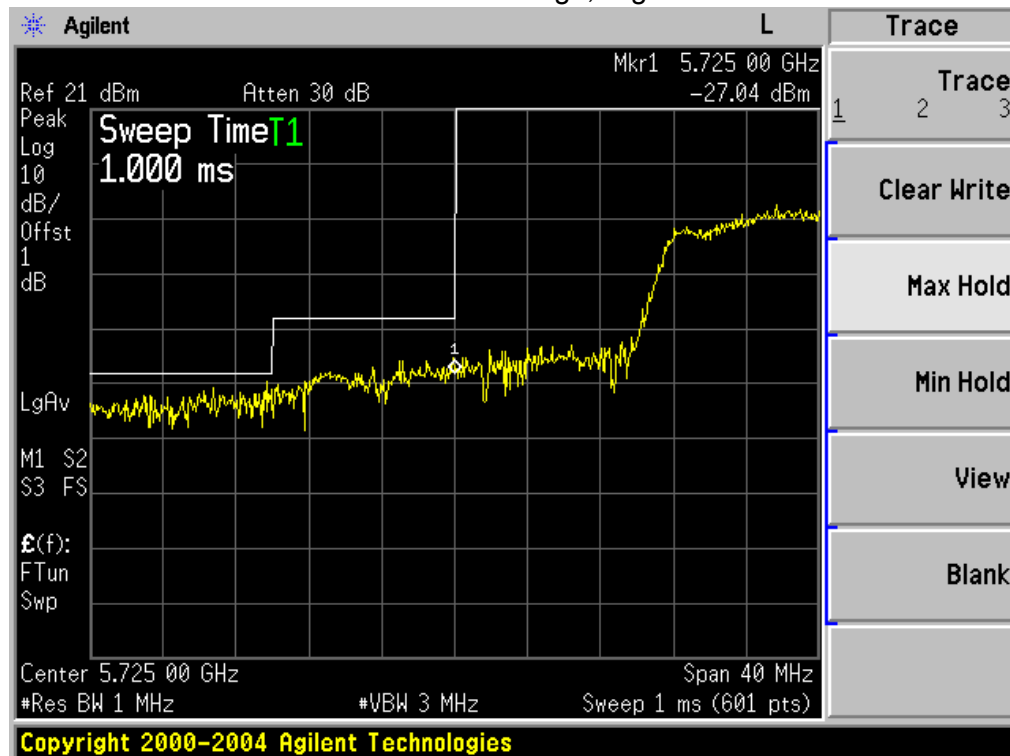
802.11n20: Band Edge, Right Side



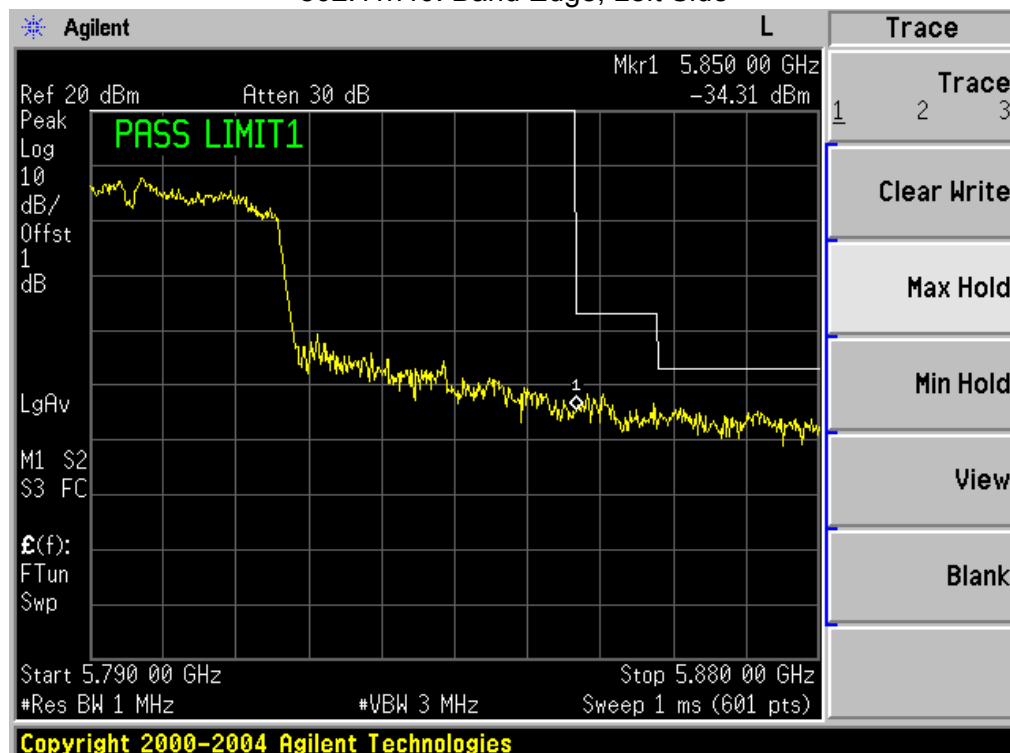
802.11n20: Band Edge, Left Side



802.11n40: Band Edge, Right Side



802.11n40: Band Edge, Left Side



9. ANTENNA REQUIREMENT

9.1 STANDARD REQUIREMENT

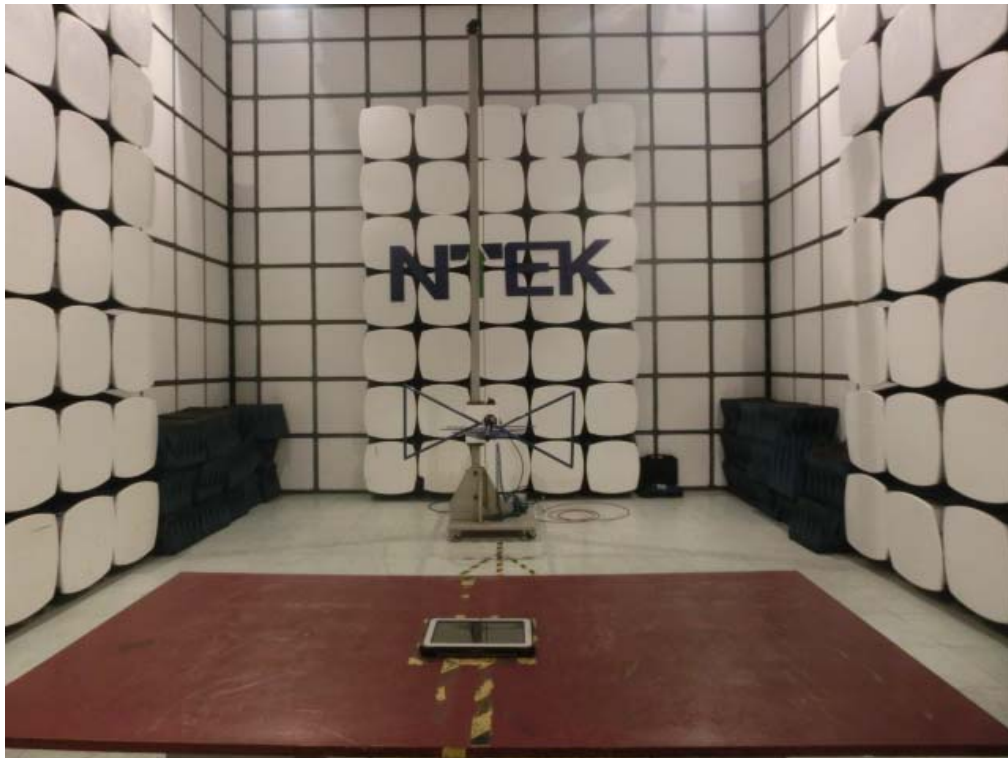
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

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 EMISSION Photos

