Neutron Engineering Inc.

FCC Radio Test Report

FCC ID: HLEPA520BTNF

This report concerns (check one) : ☒ **Original Grant** ☐ **Class II Change**

Issued Date	:	Feb. 11, 2014
Project No.	:	1312155
Equipment	:	Rugged Mobile Computer
Model Name	:	PA520
Applicant	:	unitech electronics co., ltd.
Address	:	5F, No. 136, Lane 235, Pao-Chiao Rd., Hsin-Tien Dist., New Taipei City, Taiwan

Tested by: Neutron Engineering Inc. EMC Laboratory
Date of Receipt: Dec. 23, 2013
Date of Test: Dec. 23, 2013 ~ Jan. 22, 2014

Testing Engineer : (Josh Lin)

Technical Manager : (Jeff Yang)

Authorized Signatory : (Andy Chiu)

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Testing Laboratory
0659

Declaration

Neutron represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**., or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

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Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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REPORT ISSUED HISTORY

Revised Version No.	Description	Issued Date
-	Initial Issue.	Feb. 11, 2014

1 CERTIFICATION

Equipment	: Rugged Mobile Computer
Brand Name	: unitech
Model Name	: PA520
Applicant	: unitech electronics co., ltd.
Date of Test	: Dec. 23, 2013 ~ Jan. 22, 2014
Standards	: FCC Part 15, Subpart E: 2010
	ANSI C63.4: 2009
	FCC KDB 789033 D01 General UNII Test Procedures v01r03

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-2-1312155) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Standard Clause	Test Item	Result
15.207	Conducted Emission	**PASS**
15.407 (a)	Antenna conducted Spurious Emission	**PASS**
15.407 (a)	26 dB Bandwidth	**PASS**
15.407 (a)	Maximum Peak Conducted Output Power	**PASS**
15.407 (a)	Radiated Spurious Emission	**PASS**
15.407 (a)	Power Spectral Density	**PASS**
15.407 (a)	Peak Excursion	**PASS**
15.407 (b)	Band Edge Emissions	**PASS**
15.407 (b)	Frequency Stability	**PASS**
15.205	Restricted Bands	**PASS**
15.203	Antenna Requirement	**PASS**

NOTE:

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

(2) Portable device; SAR report is required.

(3) This test report only covers radio operating bands: 5150-5250 MHz, 5250-5350 MHz and 5470-5725 MHz (IEEE 802.11a/n).
The test for radio operating bands: 2400-2483.5 MHz (IEEE 802.11b/g/n) and 5725-5825 MHz (IEEE 802.11a/n) is covered in another test report: NEI-FCCP-1-1312155.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report:

Conducted emission Test:
C02: (VCCI RN: C-3477; FCC RN: 614388; FCC DN: TW1054)
1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

Radiated emission Test (Below 1 GHz):
CB08: (FCC RN: 614388; FCC DN: TW1054; IC Assigned Code: 4428C-1)
1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

Radiated emission Test (Above 1 GHz):
CB08: (VCCI RN: G-91; FCC RN: 614388; FCC DN: TW1054; IC Assigned Code: 4428C-1)
1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

2.2 MEASUREMENT UNCERTAINTY

The measurement uncertainty is not specified by FCC rules and for reference only.
The reported uncertainty of measurement **y** ± **U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95**%.
The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2.

A. Conducted emission test:

Test Site	Measurement Frequency Range	U，(dB)	NOTE
C02	150 kHz ~ 30 MHz	2.59	

B. Radiated emission test:

Test Site	Item	Measurement Frequency Range		Uncertainty	NOTE
CB08	Radiated emission at 3m	Horizontal Polarization	30 - 200MHz	3.35 dB	
			200 - 1000MHz	3.11 dB	
			1 - 18GHz	3.97 dB	
			18 - 40GHz	4.01 dB	
		Vertical Polarization	30 - 200MHz	3.22 dB	
			200 - 1000MHz	3.24 dB	
			1 - 18GHz	4.05 dB	
			18 - 40GHz	4.04 dB	

Our calculated Measurement Instrumentation Uncertainty is shown in the tables above.
These are our U_{lab} values in CISPR 16-4-2 terminology.
Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called U_{CISPR}, as follows:

Conducted Disturbance (mains port) – 150 kHz – 30 MHz : 3.6 dB
Radiated Disturbance (electric field strength on an open area test site or alternative test site) – 30 MHz – 1000 MHz : 5.2 dB

It can be seen that our U_{lab} values are smaller than U_{CISPR}.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td>Rugged Mobile Computer</td></tr>
<tr><td>Brand Name</td><td>unitech</td></tr>
<tr><td>Model Name</td><td>PA520</td></tr>
<tr><td>OEM Brand/Model Name</td><td>N/A</td></tr>
<tr><td>Model Difference</td><td>N/A</td></tr>
<tr><td>Product Description</td><td>The EUT is a Rugged Mobile Computer.
<table>
<tr><td>Operation Frequency</td><td>5180 MHz to 5240 MHz, 5260 MHz to 5320 MHz, 5500 MHz to 5700 MHz</td></tr>
<tr><td>Modulation Type</td><td>DBPSK, DQPSK, CCK, BPSK, QPSK, 16QAM, 64QAM, MIMO
IEEE 802.11a: OFDM
IEEE 802.11n: BPSK (1 TX & 1 RX)</td></tr>
<tr><td>Bit Rate of Transmitter</td><td>IEEE 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps
IEEE 802.11n: HT20: 6.5, 7.2, 13.0, 14.4, 19.5, 21.7, 26.0, 28.9, 39.0, 43.3, 52.0, 57.8, 58.5, 65.0, 72.2 Mbps</td></tr>
<tr><td>Number Of Channel</td><td>Please refer to the Note 2.</td></tr>
<tr><td>Antenna Designation</td><td>Please refer to the Note 3.</td></tr>
<tr><td>Antenna Gain(Peak)</td><td>Please refer to the Note 3.</td></tr>
<tr><td>Maximum Peak Conducted Output Power:</td><td>5180 MHz to 5240 MHz Band:
IEEE 802.11a: 8.39 dBm (0.0069 W)
IEEE 802.11n(20 MHz): 8.66 dBm (0.0073 W)
5260 MHz to 5320 MHz Band:
IEEE 802.11a: 10.39 dBm (0.0109 W)
IEEE 802.11n(20 MHz): 10.92 dBm (0.0124 W)
5500 MHz to 5700 MHz Band:
IEEE 802.11a: 13.35 dBm (0.0216 W)
IEEE 802.11n(20 MHz): 13.35 dBm (0.0216 W)</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.</td></tr>
<tr><td>Power Source</td><td>1. Battery supplied.
2. DC Voltage supplied from External Power Supply.</td></tr>
<tr><td>Power Rating</td><td>1. Li-ion BATTERY PACK: 3.7V
2. External Power Supply:
I/P: AC 100-240V 50-60Hz 0.6A / O/P: DC 5V 3.0A</td></tr>
<tr><td>Connecting I/O Port(s)</td><td>Please refer to the User's Manual</td></tr>
<tr><td>Products Covered</td><td>1 * Reader (optional): 2D or 1D
1 * WLAN + Bluetooth Module
1 * RFID Module
1 * Li-ion BATTERY PACK: 3.7V 2200mAh, 8.14Wh
1 * USB Charging Cable
1 * External Power Supply: ENG, 3A-182WP05</td></tr>
<tr><td>EUT Modification(s)</td><td>N/A</td></tr>
</table>

NOTE:

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

5180 MHz to 5240 MHz Band (IEEE 802.11a/n (20MHz))					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220		
40	5200	48	5240		

5260 MHz to 5320 MHz Band (IEEE 802.11a/n (20MHz))					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	60	5300		
56	5280	64	5320		

5500 MHz to 5700 MHz Band (IEEE 802.11a/n (20MHz))					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	112	5560	140	5700
104	5520	116	5580		
108	5540	136	5680		

3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	
					2.4G	5G
1	SINBON Electronics Co., Ltd.	204842G	Monopole antenna	N/A	2.40	5.60

4. The EUT incorporates MIMO function. Physically, the EUT provides two completed transmitters and two receivers (1T1R).

Modulated type	TX Function
IEEE 802.11a	1 TX
IEEE 802.11n (20MHz)	1 TX

3.2 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.

Test Items	IEEE	Mode	Data Rate	Channel	Note
Conducted Emission	802.11a	OFDM	6 Mbps	---	
Antenna conducted Spurious Emission	802.11a	OFDM	6 Mbps	36/40/48/52/60/64/100/116/140	
	802.11n (20 MHz)	BPSK	MCS8	36/40/48/52/60/64/100/116/140	
26 dB Bandwidth	802.11a	OFDM	6 Mbps	36/40/48/52/60/64/100/116/140	
	802.11n (20 MHz)	BPSK	MCS8	36/40/48/52/60/64/100/116/140	
Maximum Peak Conducted Output Power	802.11a	OFDM	6 Mbps	36/40/48/52/60/64/100/116/140	
	802.11n (20 MHz)	BPSK	MCS8	36/40/48/52/60/64/100/116/140	
Radiated Spurious Emission (30 MHz to 1 GHz)	802.11a	OFDM	6 Mbps	40	
	802.11n (20 MHz)	BPSK	MCS8	60/116	
Radiated Spurious Emission (above 1 GHz)	802.11a	OFDM	6 Mbps	36/40/48/52/60/64/100/116/140	
	802.11n (20 MHz)	BPSK	MCS8	36/40/48/52/60/64/100/116/140	
Restricted Bands	802.11a	OFDM	6 Mbps	36/48/52/64/100/140	
	802.11n (20 MHz)	BPSK	MCS8	36/48/52/64/100/140	
Power Spectral Density	802.11a	OFDM	6 Mbps	36/40/48/52/60/64/100/116/140	
	802.11n (20 MHz)	BPSK	MCS8	36/40/48/52/60/64/100/116/140	
Peak Excursion	802.11a	OFDM	6 Mbps	36/40/48/52/60/64/100/116/140	
	802.11n (20 MHz)	BPSK	MCS8	36/40/48/52/60/64/100/116/140	
Band Edge Emissions	802.11a	OFDM	6 Mbps	36/64/100	
	802.11n (20 MHz)	BPSK	MCS8	36/64/100	
Frequency Stability	802.11a	OFDM	6 Mbps	40	
Antenna Requirement	---	---	---	---	

NOTE: The measurements are performed at the highest, middle, lowest available channels.

3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

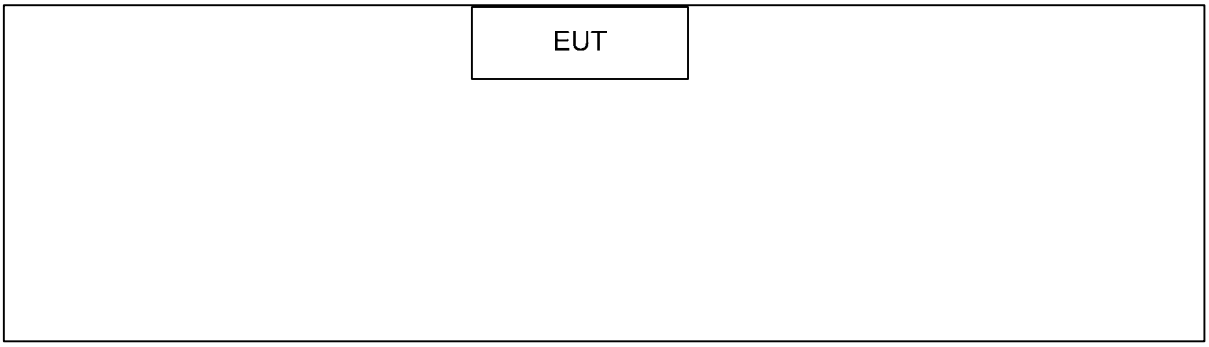
During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

5180 MHz to 5240 MHz Band						
IEEE	802.11a			802.11n (20 MHz)		
Test software Version	SRU v3.03.10			SRU v3.03.10		
Frequency	5180 MHz	5200 MHz	5240 MHz	5180 MHz	5200 MHz	5240 MHz
Parameter	100	100	100	100	100	100

5260 MHz to 5320 MHz Band						
IEEE	802.11a			802.11n (20 MHz)		
Test software Version	SRU v3.03.10			SRU v3.03.10		
Frequency	5260 MHz	5300 MHz	5320 MHz	5260 MHz	5300 MHz	5320 MHz
Parameter	100	100	100	100	100	100

5500 MHz to 5700 MHz Band						
IEEE	802.11a			802.11n (20 MHz)		
Test software Version	SRU v3.03.10			SRU v3.03.10		
Frequency	5500 MHz	5580 MHz	5700 MHz	5500 MHz	5580 MHz	5700 MHz
Parameter	80	100	80	80	100	80

3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 DESCRIPTION OF SUPPORT UNITS

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	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	Rugged Mobile Computer	unitech	PA520	HLEPA520BTNF	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note
N/A	-	-	-	-

NOTE: The support equipment was authorized by Declaration of Conformity (DOC).

4 CONDUCTED EMISSION

4.1 LIMIT

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

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.
3. The test result calculated as following:
   Measurement Value = Reading Level + Correct Factor
   Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)
   Margin Level = Measurement Value – Limit Value

4.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	Schwarzbeck	NSLK 8127	8127685	Feb. 24, 2014
2	Test Cable	TIMES	CFD300-NL	C01	Jun. 16, 2014
3	EMI Test Receiver	Agilent	N9038A	MY51210215	Mar. 21, 2014
4	Measurement Software	EZ	EZ_EMC (Version NB-02A)	N/A	N/A

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

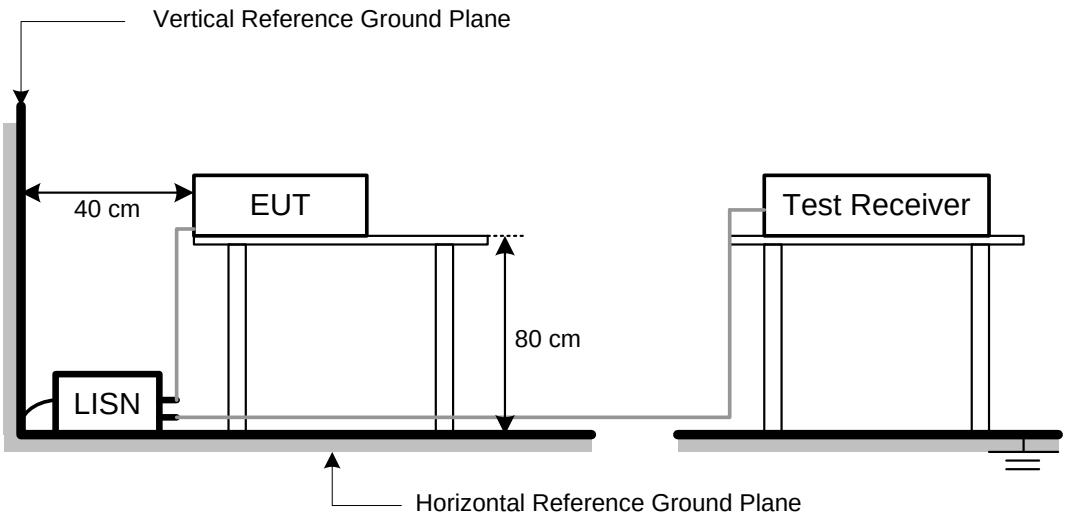
4.3 TEST PROCEDURES

a. 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.
b. 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.
c. 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.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

NOTE:

a. Reading in which marked as Peak, QP or AVG means measurements by using are Quasi-Peak or Average Mode with Detector BW=9 kHz (6 dB Bandwidth).
b. All readings are Peak Mode value unless otherwise stated QP or AVG in column of Note. If the Peak or QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only Peak or QP Mode was measured, but AVG Mode didn‘t perform.

4.4 TEST SETUP LAYOUT



4.5 DEVIATION FROM TEST STANDARD

No deviation

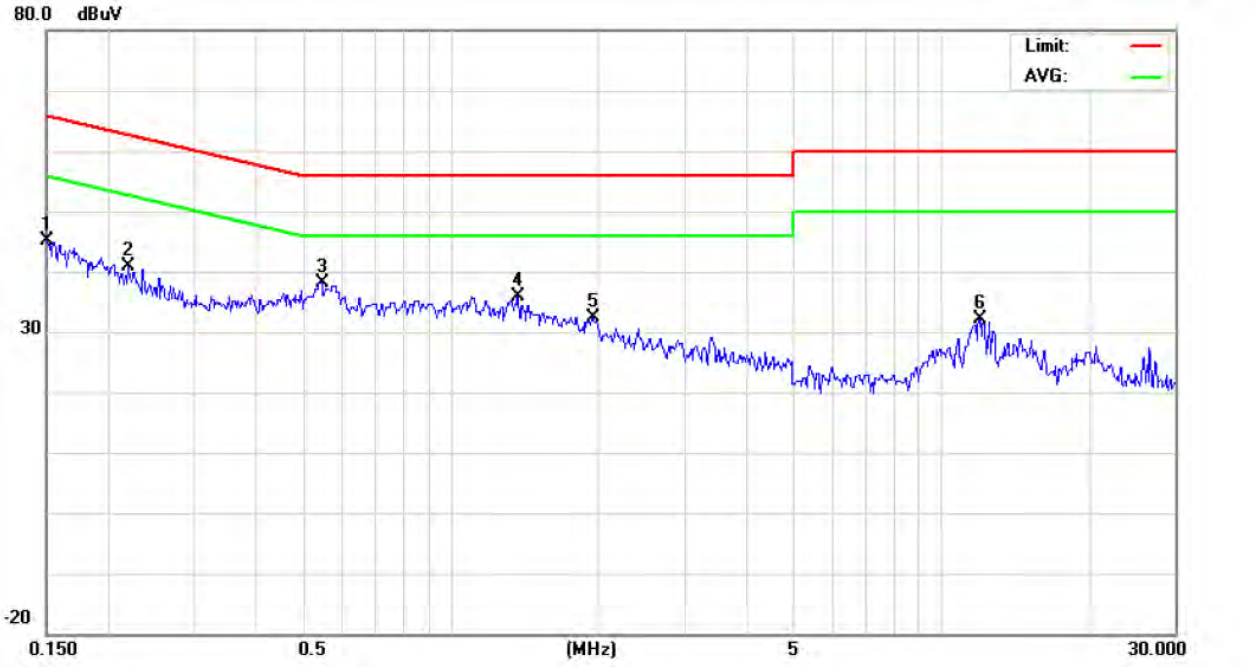
4.6 EUT OPERATING CONDITIONS

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.

4.7 TEST RESULTS

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	5320 MHz		

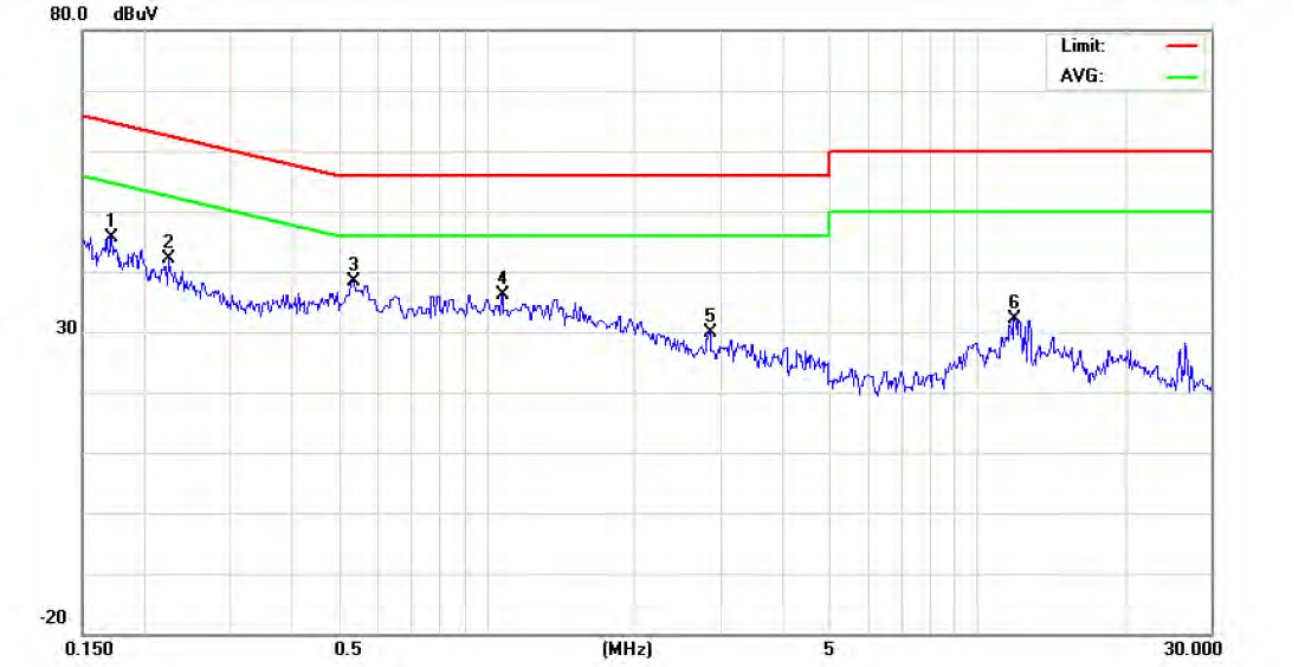
Phase: Line



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1500	36.57	8.68	45.25	66.00	-20.75	peak	
2		0.2192	31.68	9.18	40.86	62.85	-21.99	peak	
3	*	0.5450	29.53	8.63	38.16	56.00	-17.84	peak	
4		1.3729	26.35	9.55	35.90	56.00	-20.10	peak	
5		1.9399	23.02	9.36	32.38	56.00	-23.62	peak	
6		11.9500	22.74	9.35	32.09	60.00	-27.91	peak	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	5320 MHz		

Phase: Neutral



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1716	36.08	9.47	45.55	64.88	-19.33	peak	
2		0.2248	32.26	9.84	42.10	62.64	-20.54	peak	
3	*	0.5360	29.67	8.60	38.27	56.00	-17.73	peak	
4		1.0759	26.38	9.66	36.04	56.00	-19.96	peak	
5		2.8399	20.61	9.39	30.00	56.00	-26.00	peak	
6		11.9000	22.69	9.35	32.04	60.00	-27.96	peak	

5 ANTENNA CONDUCTED SPURIOUS EMISSION

5.1 LIMIT

Test Item	Frequency Range (MHz)	Limit
Antenna conducted Spurious Emission	30-40000	20 dB less than the peak value of fundamental frequency

5.2 MEASUREMENT INSTRUMENTS LIST

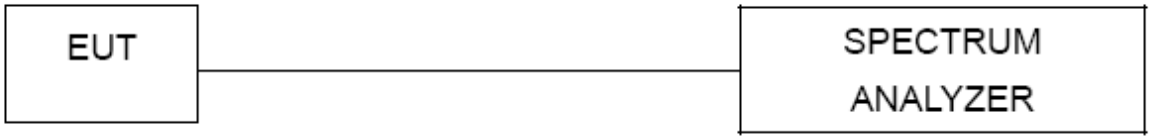
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

5.3 TEST PROCEDURES

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting: RBW = 1000 kHz, VBW = 1000 kHz, Sweep time = Auto.

5.4 TEST SETUP LAYOUT



5.5 DEVIATION FROM TEST STANDARD

No deviation

5.6 EUT OPERATING CONDITIONS

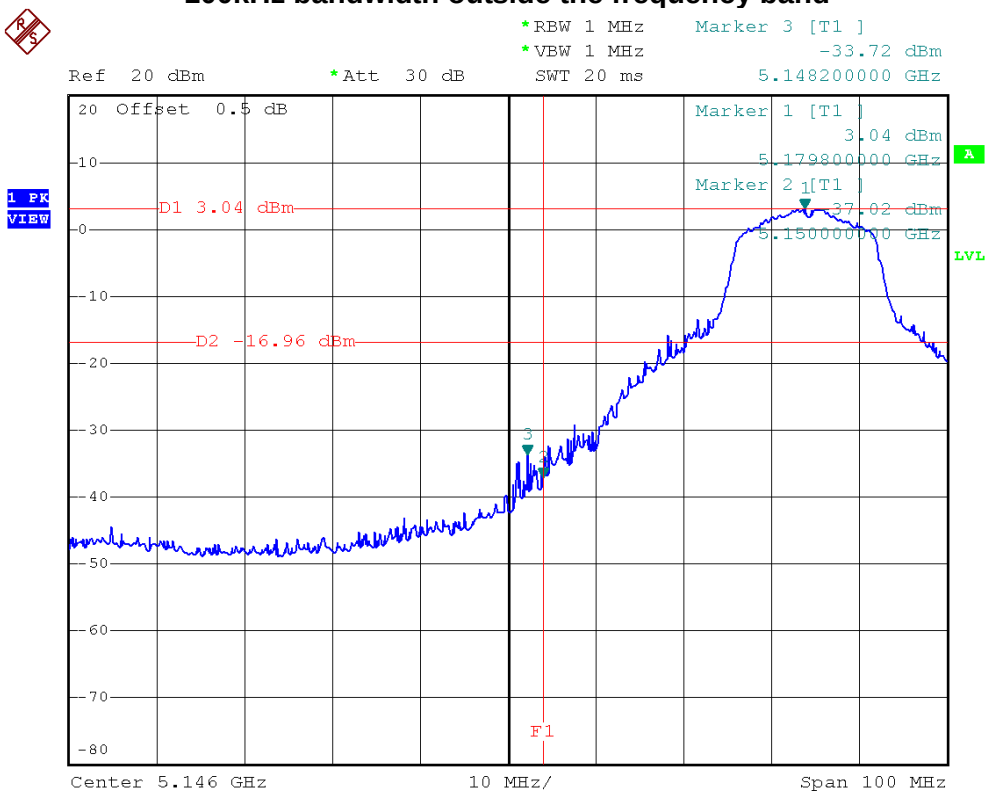
The software provided by client to enable the EUT under transmission condition continuously at lowest and highest channel frequencies individually.

5.7 TEST RESULTS - 5180 MHZ TO 5320 MHZ BAND

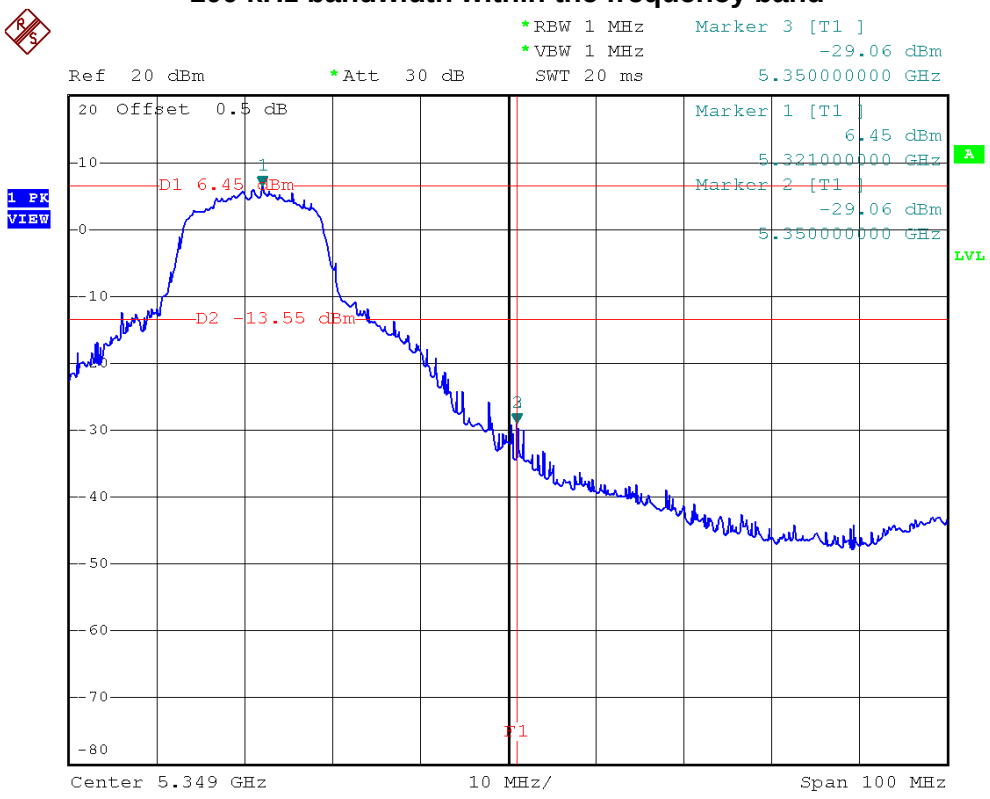
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a		

Channel of Worst Data			
The max. radio frequency power in any 100 kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
5148.20	-33.72	5350.00	-29.06
Result			
In any 100 kHz bandwidth outside the frequency band, the radio frequency power is at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest lever of the desired power.			

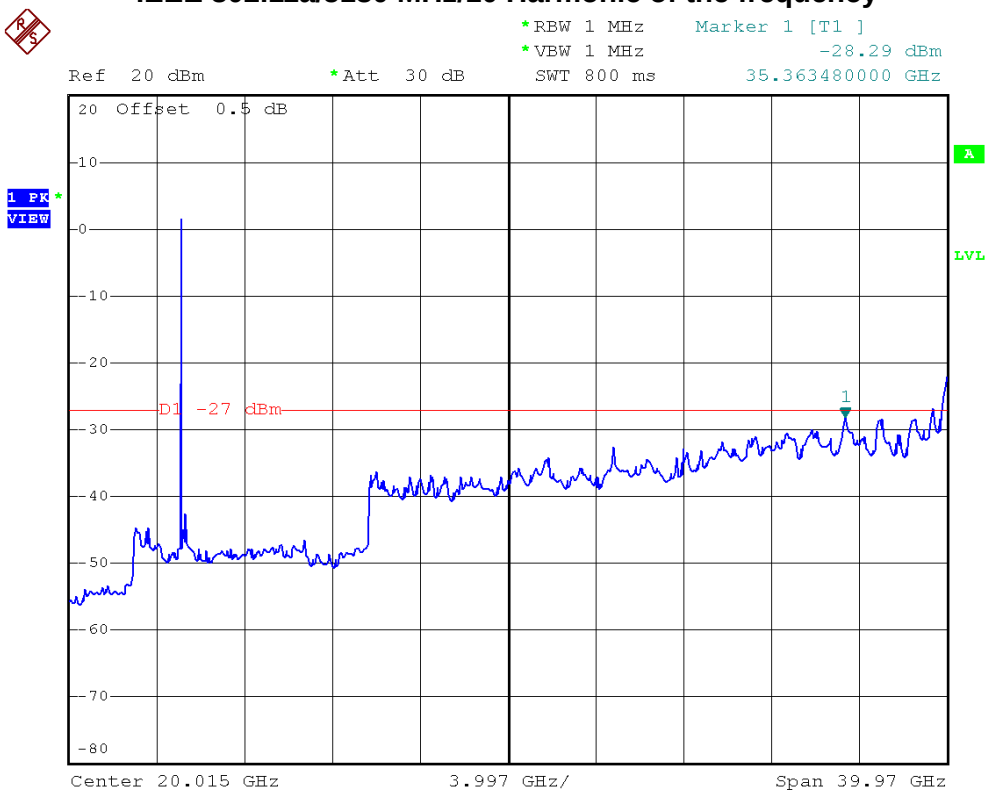
IEEE 802.11a/The max. radio frequency power in any 100kHz bandwidth outside the frequency band



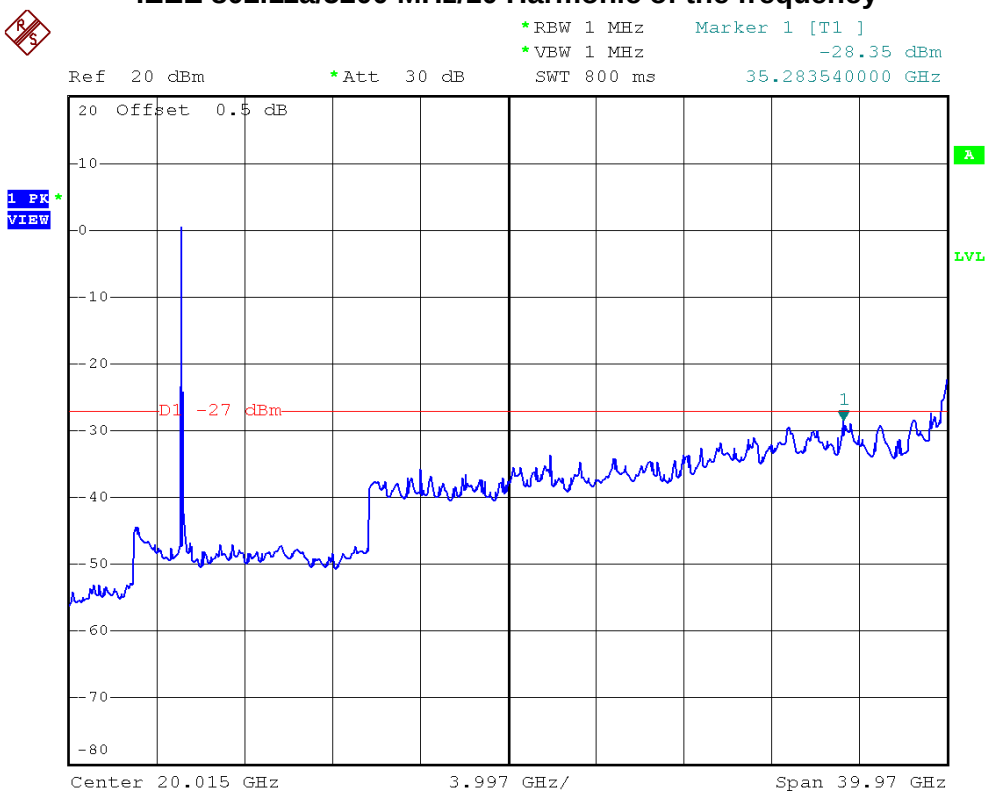
IEEE 802.11a/The max. radio frequency power in any 100 kHz bandwidth within the frequency band



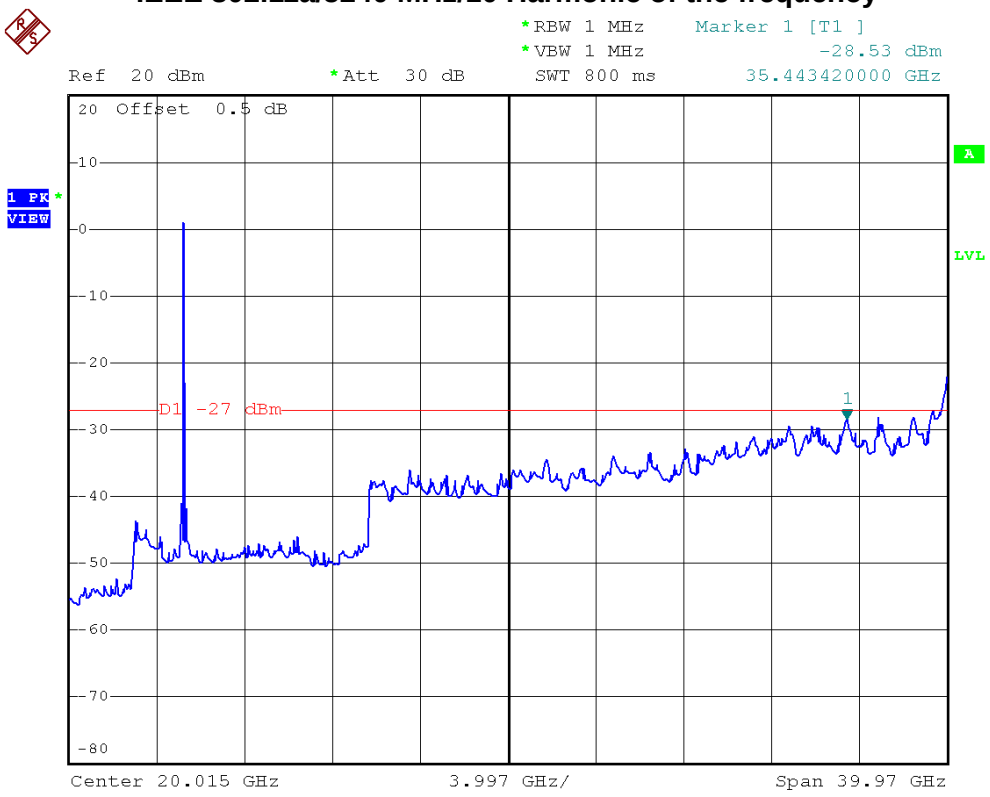
IEEE 802.11a/5180 MHz/10 Harmonic of the frequency



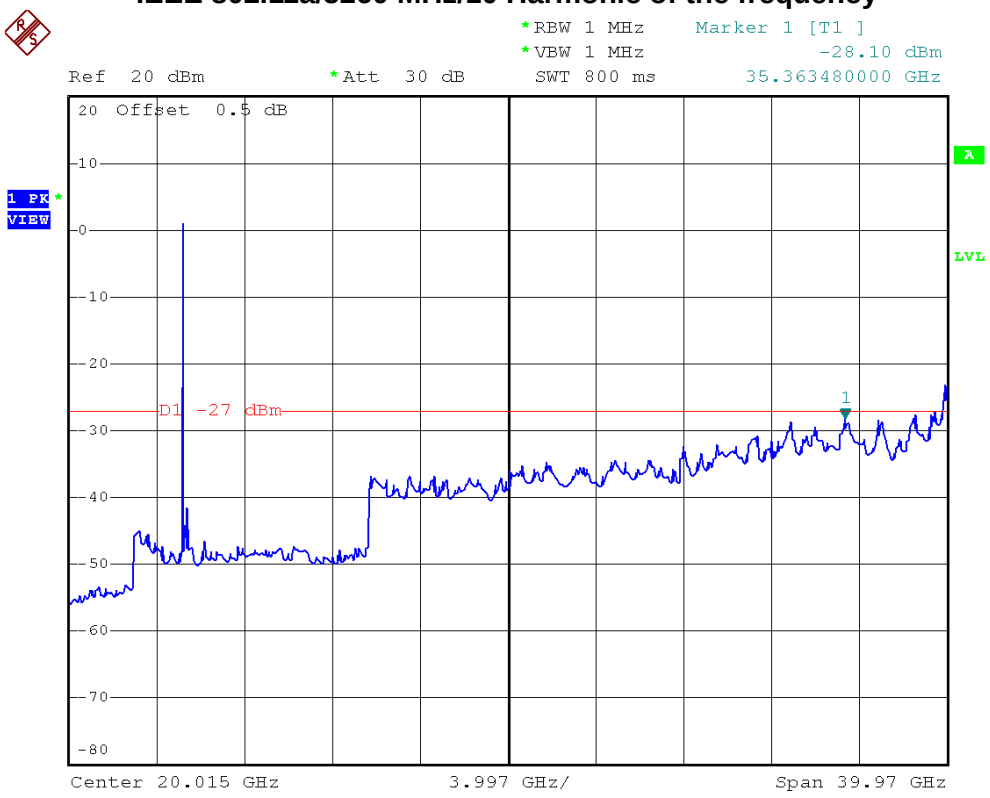
IEEE 802.11a/5200 MHz/10 Harmonic of the frequency



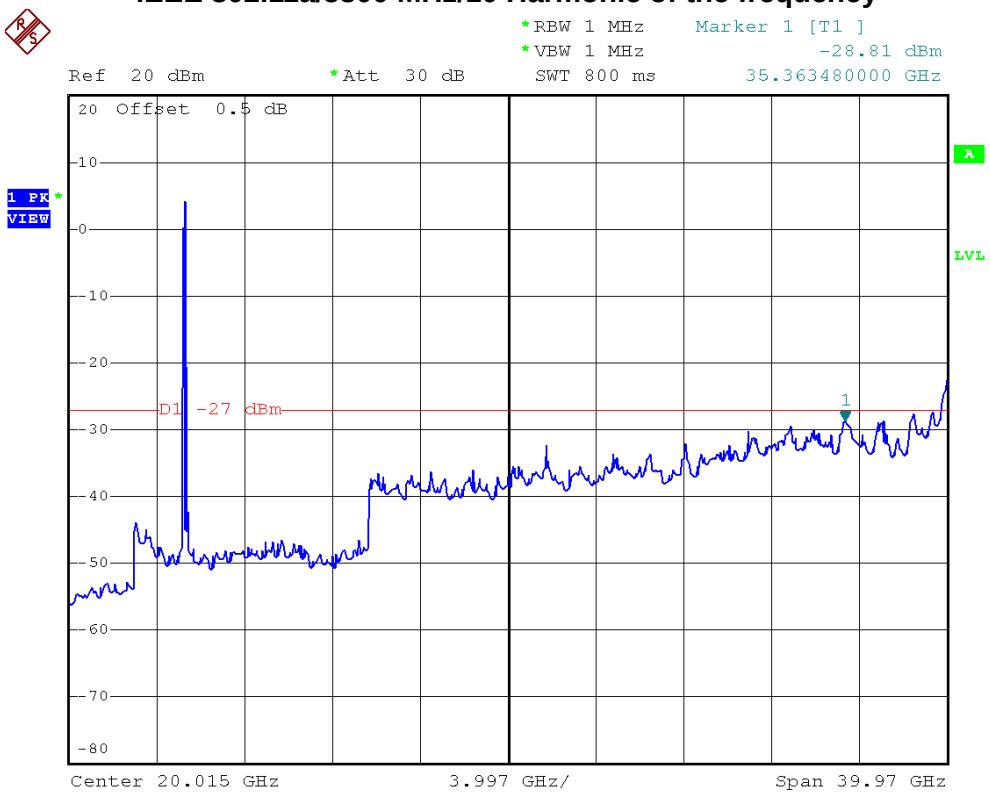
IEEE 802.11a/5240 MHz/10 Harmonic of the frequency



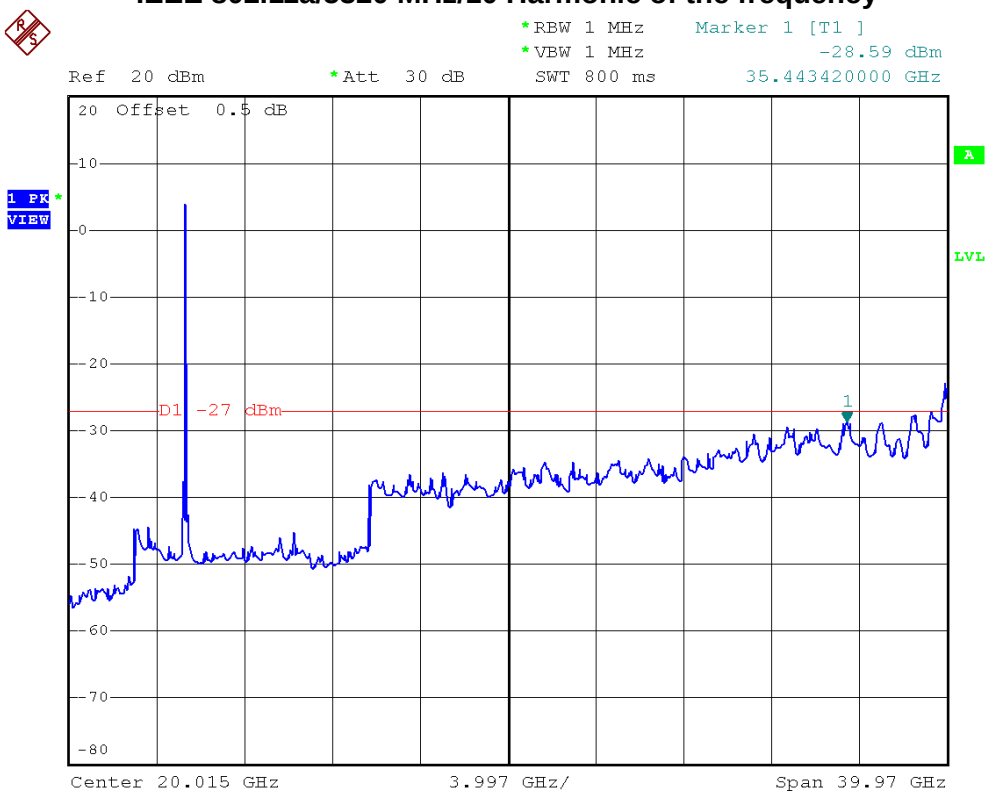
IEEE 802.11a/5260 MHz/10 Harmonic of the frequency



IEEE 802.11a/5300 MHz/10 Harmonic of the frequency



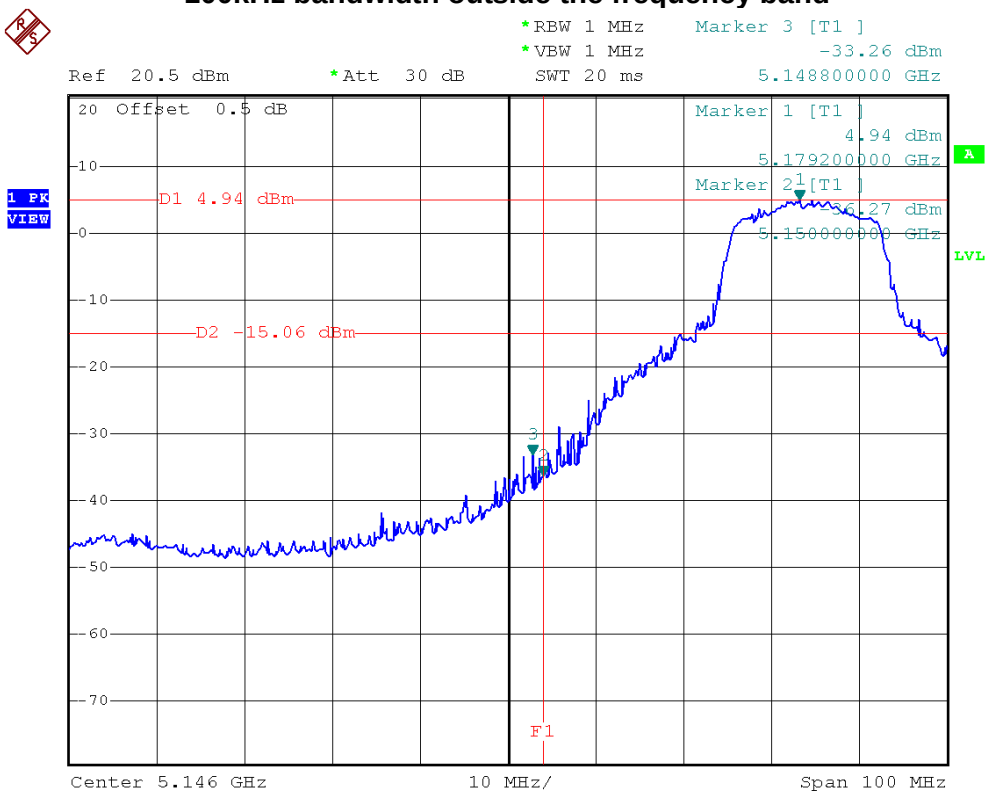
IEEE 802.11a/5320 MHz/10 Harmonic of the frequency



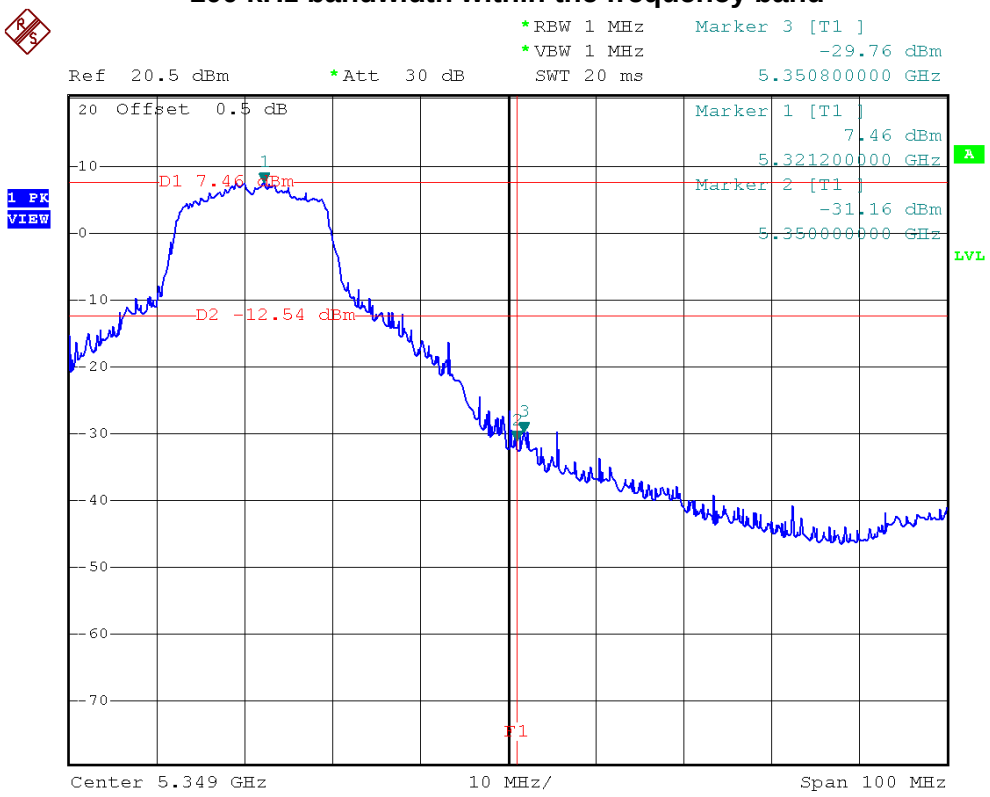
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)		

Channel of Worst Data			
The max. radio frequency power in any 100 kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
5148.80	-33.26	5350.80	-29.76
Result			
In any 100 kHz bandwidth outside the frequency band, the radio frequency power is at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest lever of the desired power.			

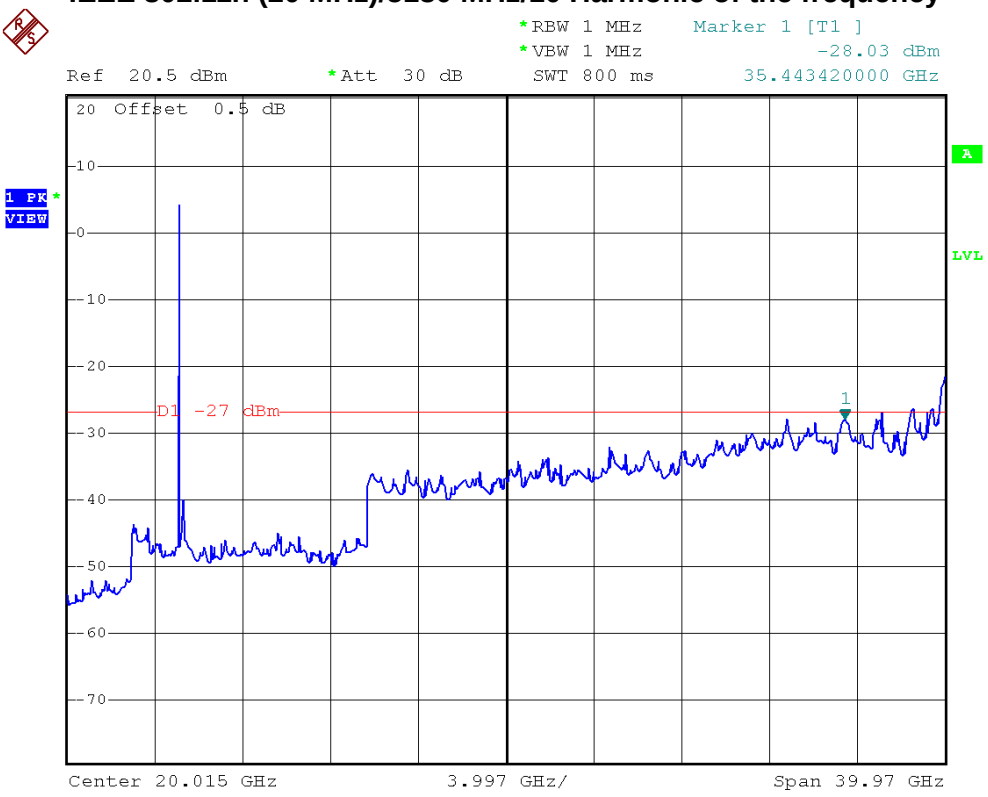
IEEE 802.11n (20 MHz)/The max. radio frequency power in any 100kHz bandwidth outside the frequency band



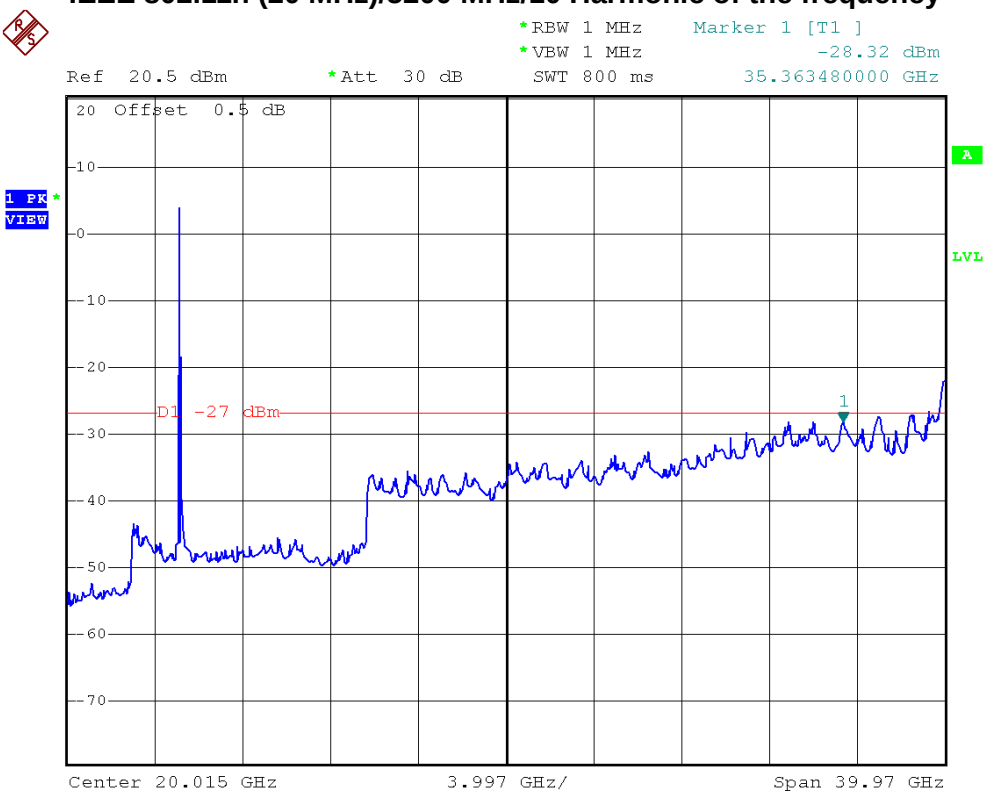
IEEE 802.11n (20 MHz)/The max. radio frequency power in any 100 kHz bandwidth within the frequency band



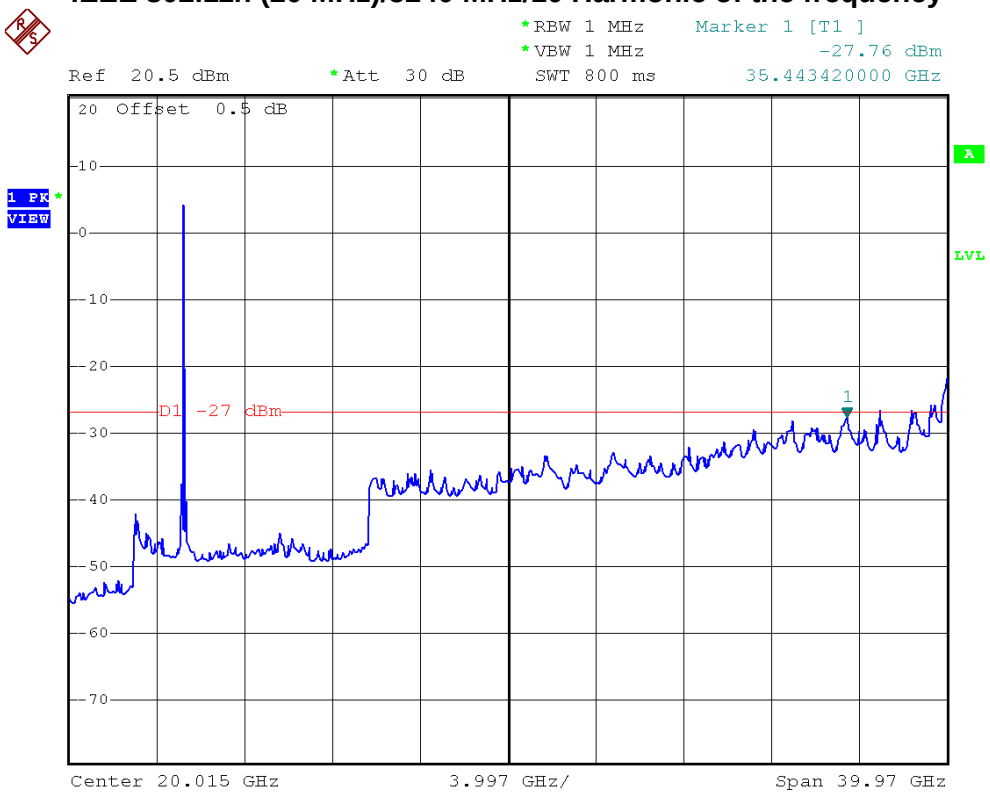
IEEE 802.11n (20 MHz)/5180 MHz/10 Harmonic of the frequency



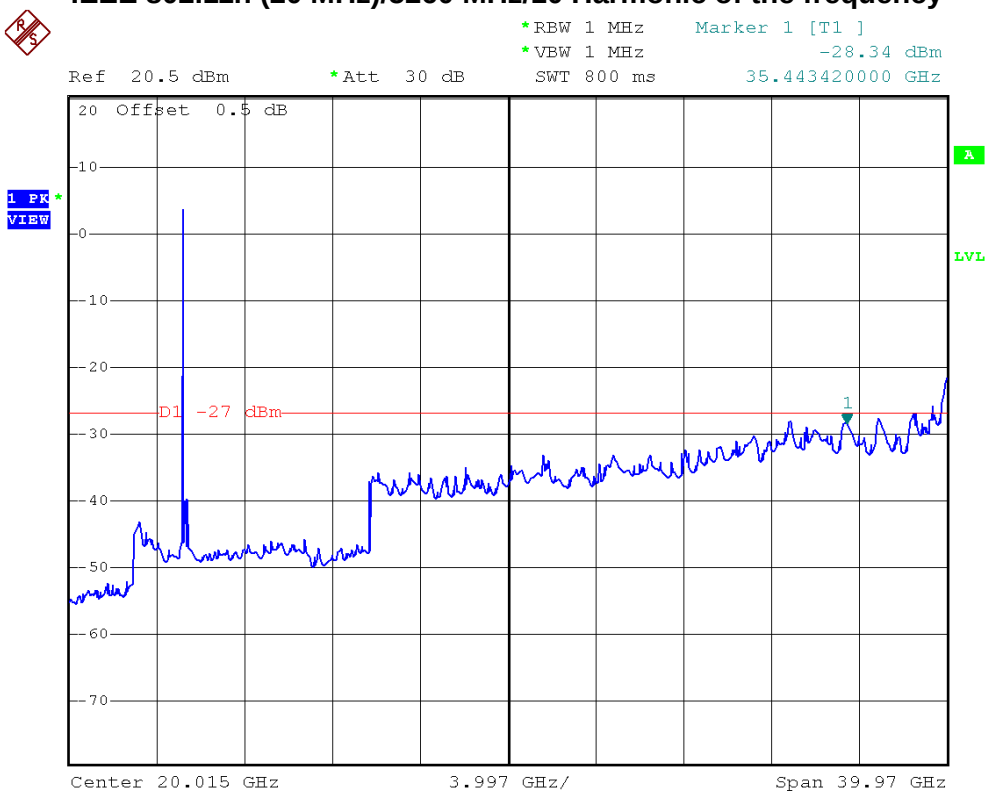
IEEE 802.11n (20 MHz)/5200 MHz/10 Harmonic of the frequency



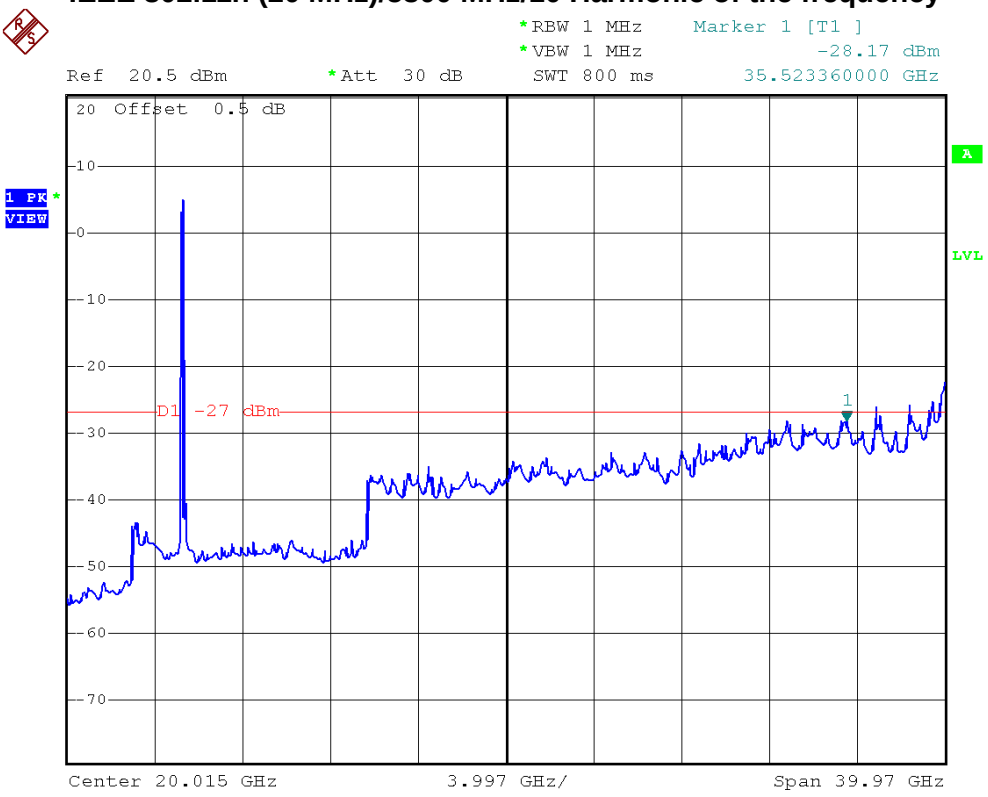
IEEE 802.11n (20 MHz)/5240 MHz/10 Harmonic of the frequency



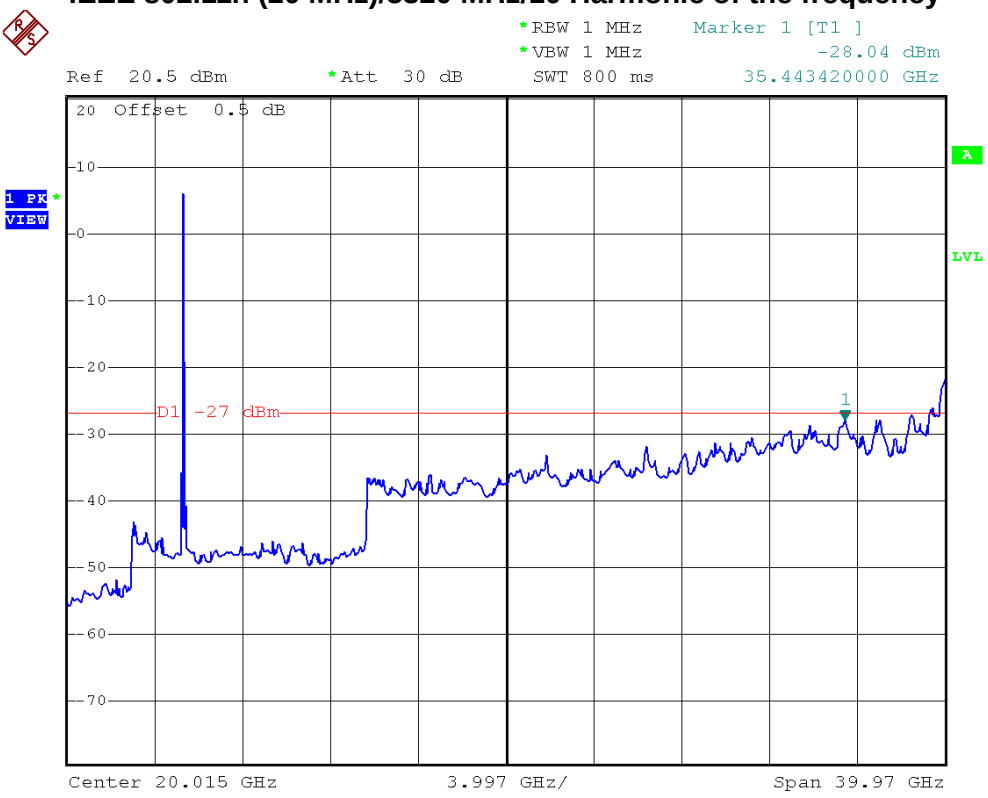
IEEE 802.11n (20 MHz)/5260 MHz/10 Harmonic of the frequency



IEEE 802.11n (20 MHz)/5300 MHz/10 Harmonic of the frequency



IEEE 802.11n (20 MHz)/5320 MHz/10 Harmonic of the frequency

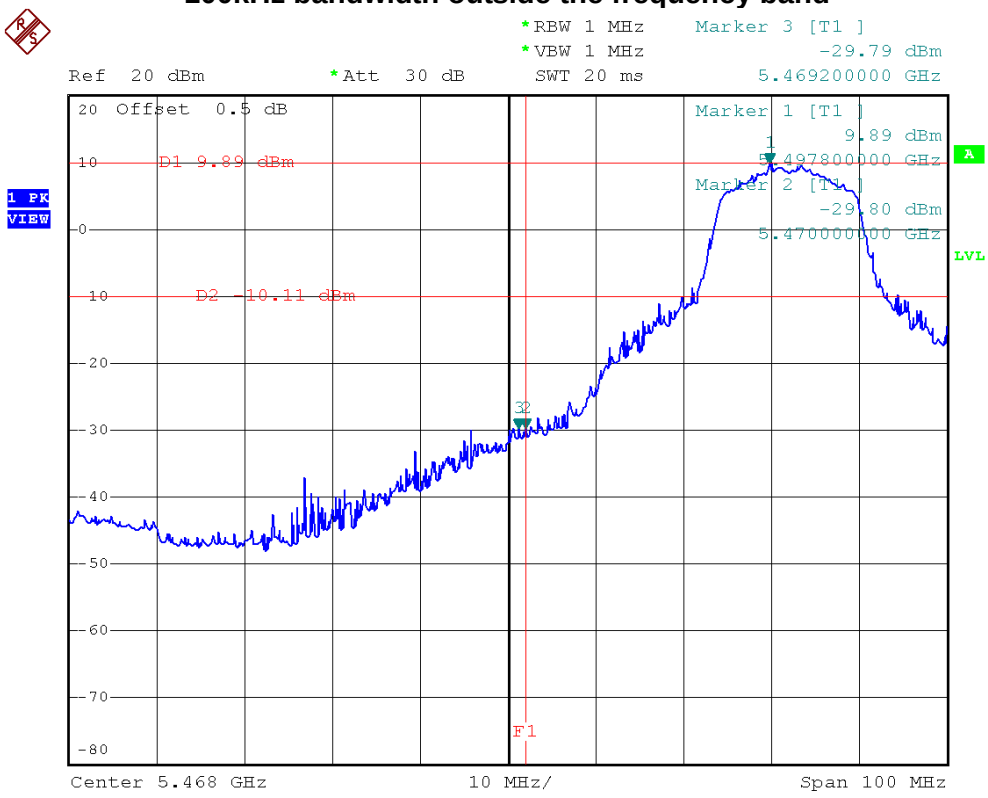


5.8 TEST RESULTS - 5500 MHZ TO 5700 MHZ BAND

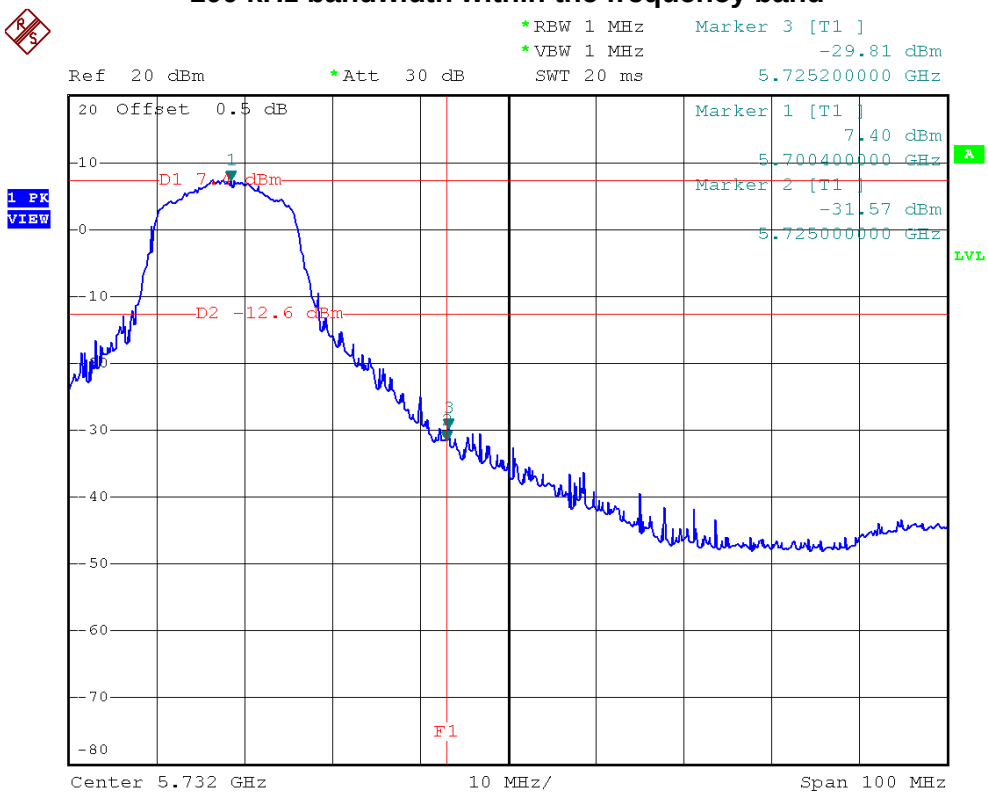
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a		

Channel of Worst Data			
The max. radio frequency power in any 100 kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
5469.20	-29.79	5725.20	-29.81
Result			
In any 100 kHz bandwidth outside the frequency band, the radio frequency power is at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest lever of the desired power.			

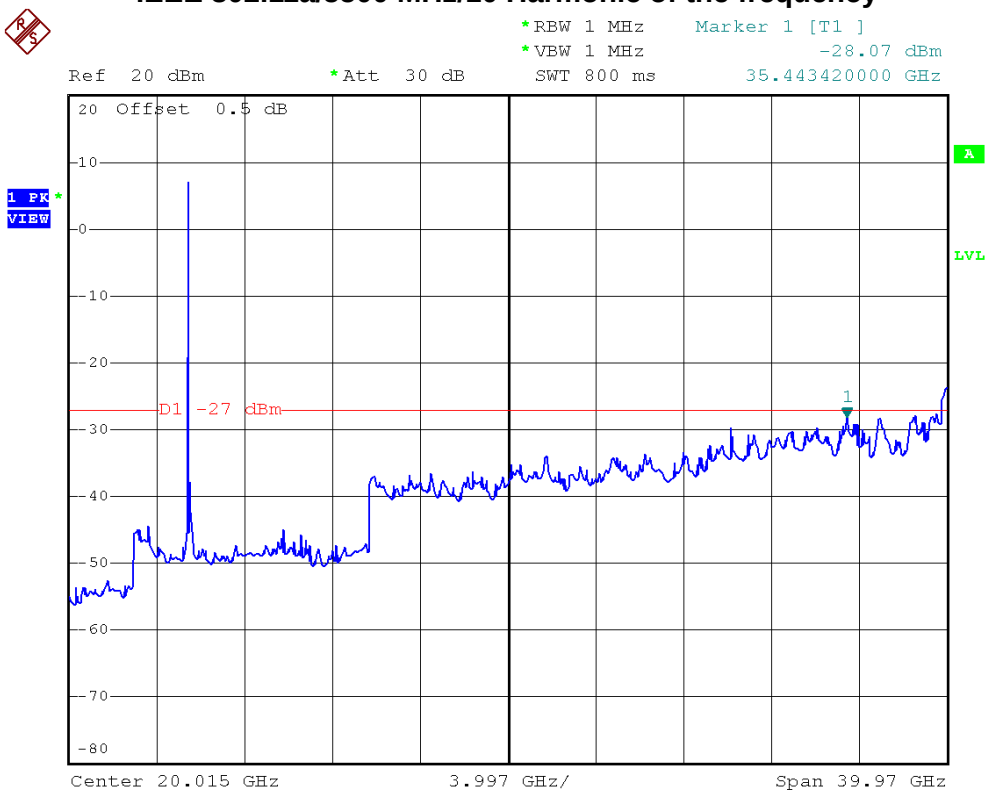
IEEE 802.11a/The max. radio frequency power in any 100kHz bandwidth outside the frequency band



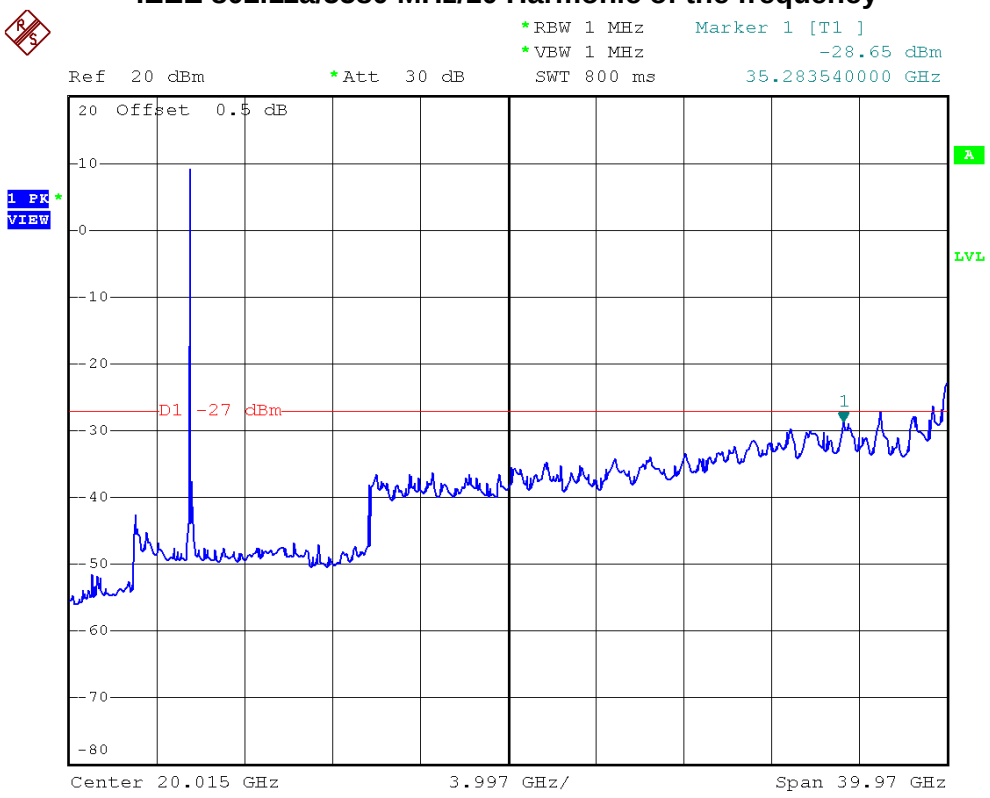
IEEE 802.11a/The max. radio frequency power in any 100 kHz bandwidth within the frequency band



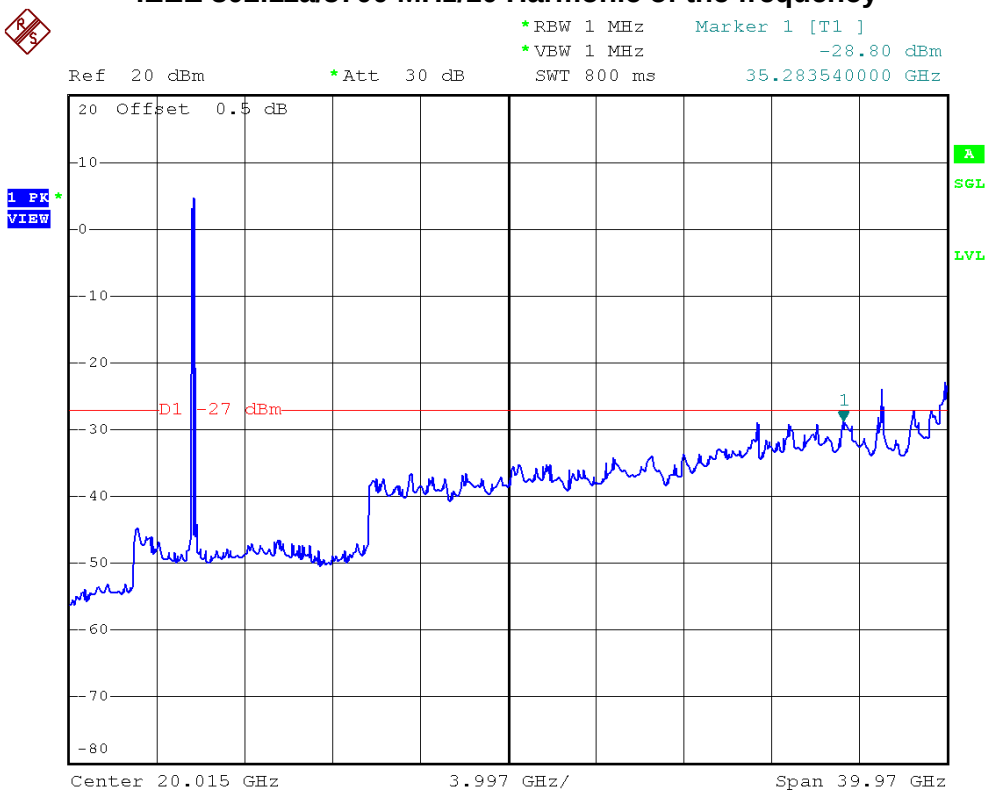
IEEE 802.11a/5500 MHz/10 Harmonic of the frequency



IEEE 802.11a/5580 MHz/10 Harmonic of the frequency



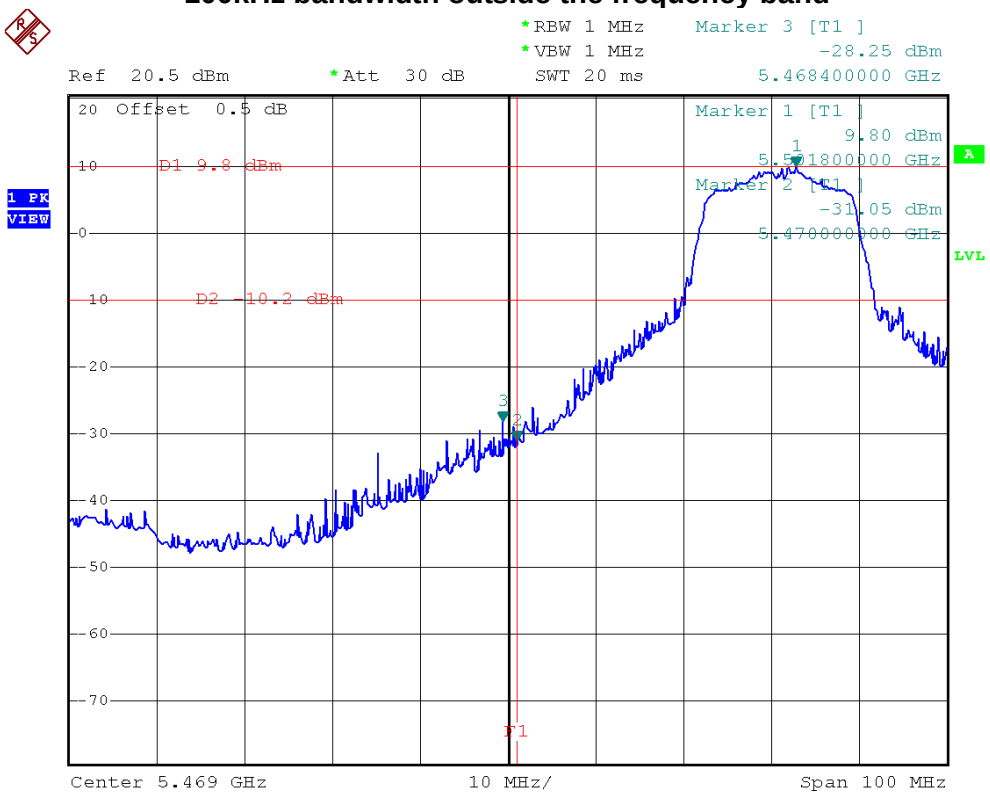
IEEE 802.11a/5700 MHz/10 Harmonic of the frequency



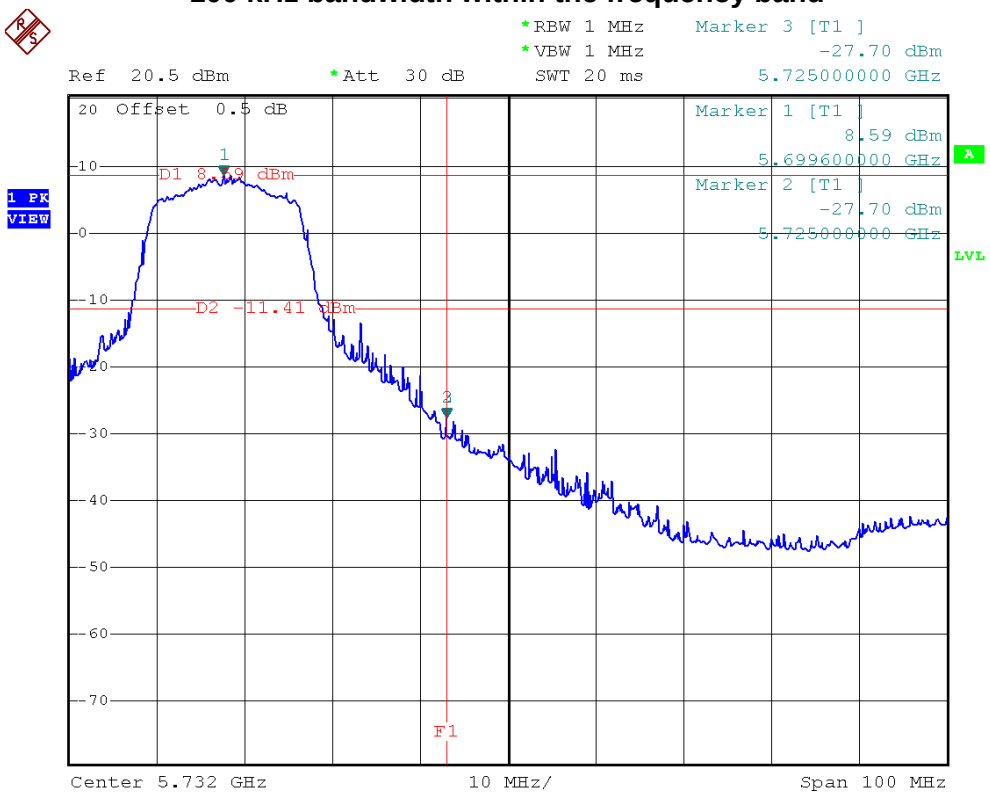
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)		

Channel of Worst Data			
The max. radio frequency power in any 100 kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
5468.40	-28.25	5725.00	-27.70
Result			
In any 100 kHz bandwidth outside the frequency band, the radio frequency power is at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest lever of the desired power.			

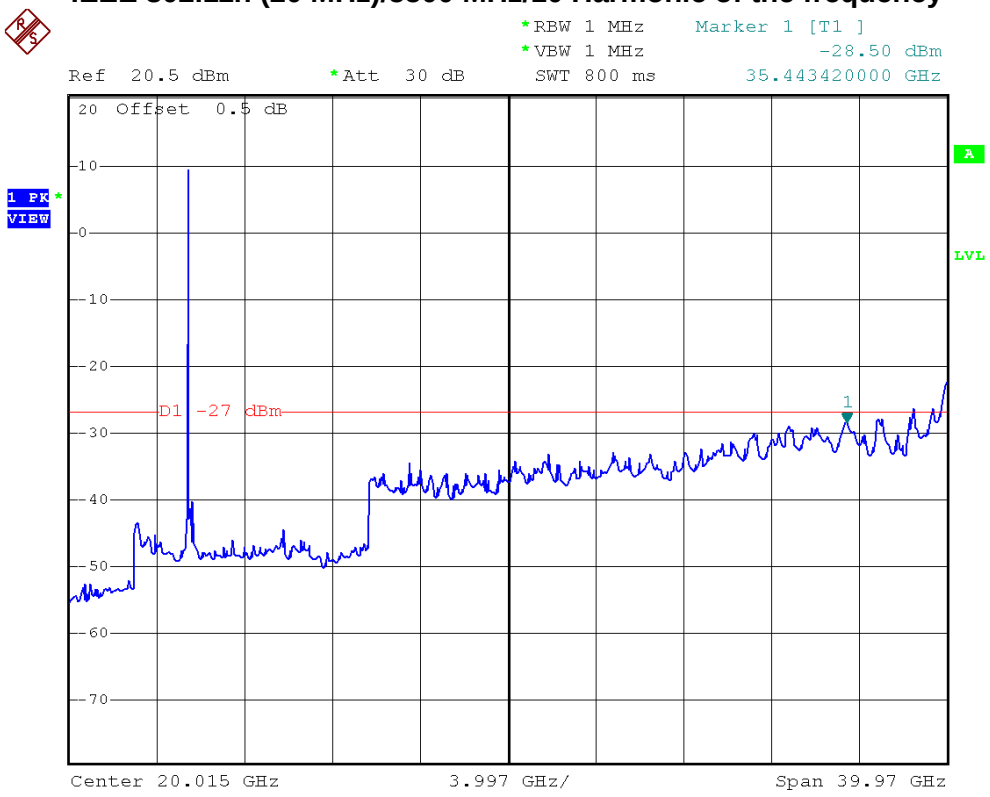
IEEE 802.11n (20 MHz)/The max. radio frequency power in any 100kHz bandwidth outside the frequency band



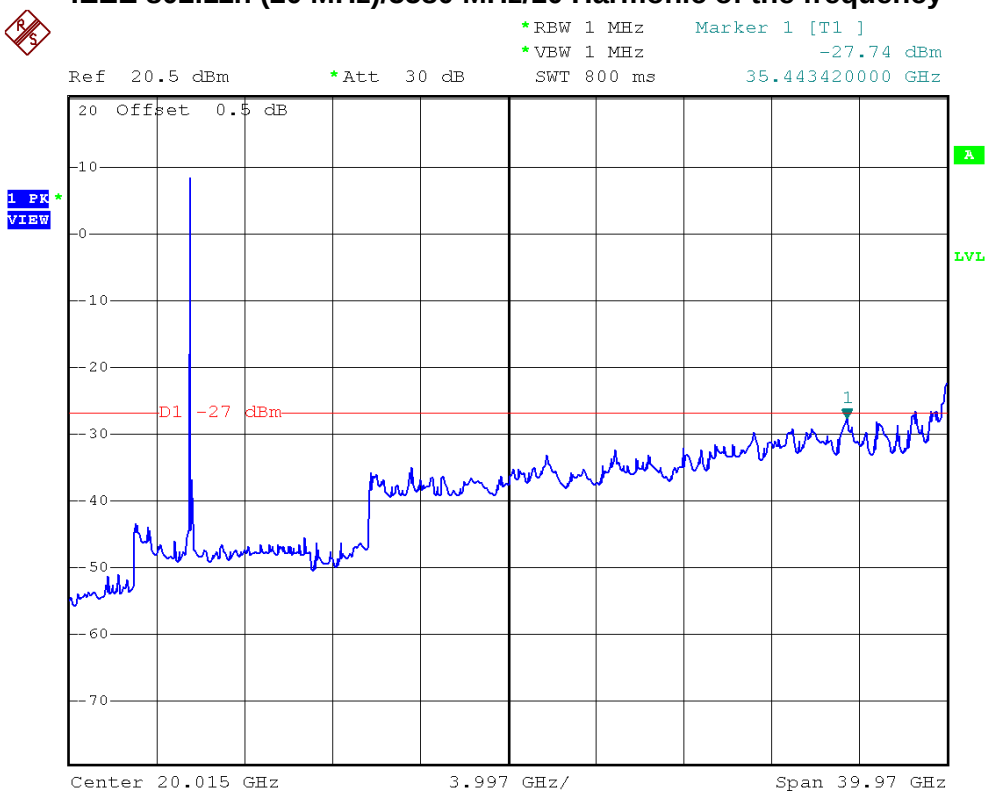
IEEE 802.11n (20 MHz)/The max. radio frequency power in any 100 kHz bandwidth within the frequency band



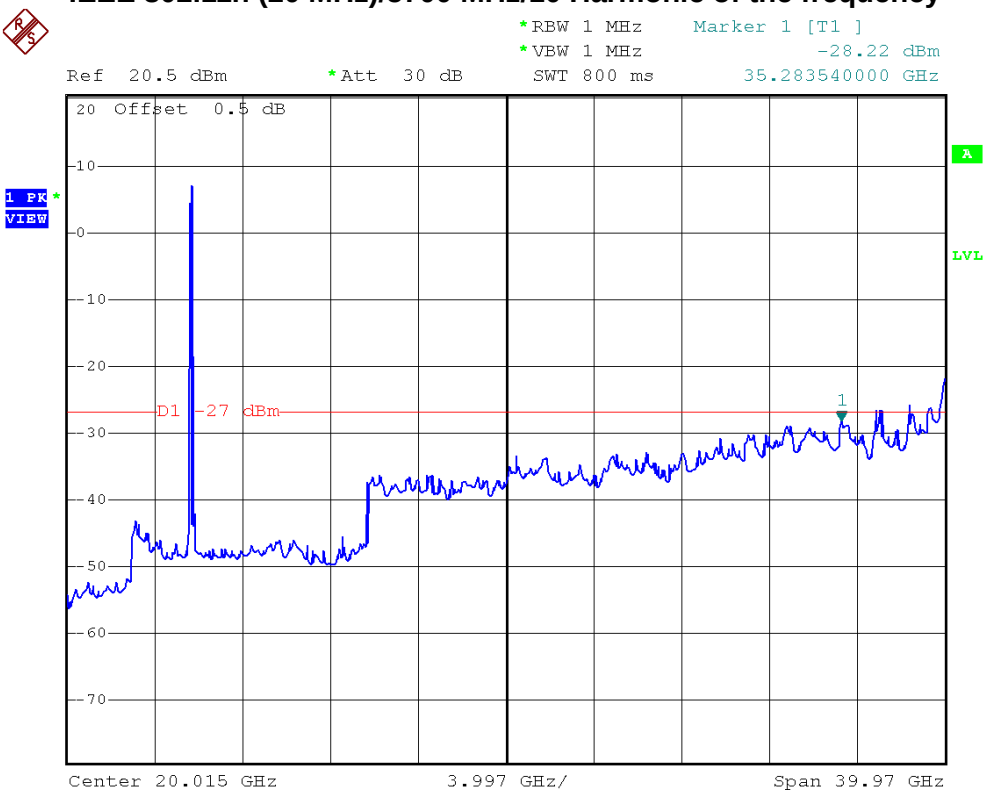
IEEE 802.11n (20 MHz)/5500 MHz/10 Harmonic of the frequency



IEEE 802.11n (20 MHz)/5580 MHz/10 Harmonic of the frequency



IEEE 802.11n (20 MHz)/5700 MHz/10 Harmonic of the frequency



6 26 DB BANDWIDTH

6.1 LIMIT

Test Item	Frequency Range (MHz)	Limit
26 dB Bandwidth	5150 - 5250 5250 - 5350 5470 - 5725 5725 - 5825	---

6.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

6.3 MEASURING INSTRUMENTS SETTING

Spectrum Analyzer	Parameter Setting
Attenuation	Auto
Span Frequency	> 26 dB Bandwidth
RB	300 kHz
VB	1000 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

6.4 TEST PROCEDURES

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Measured the spectrum width with power higher than 26 dB below carrier.

6.5 TEST SETUP LAYOUT

6.6 DEVIATION FROM TEST STANDARD

No deviation

6.7 EUT OPERATING CONDITIONS

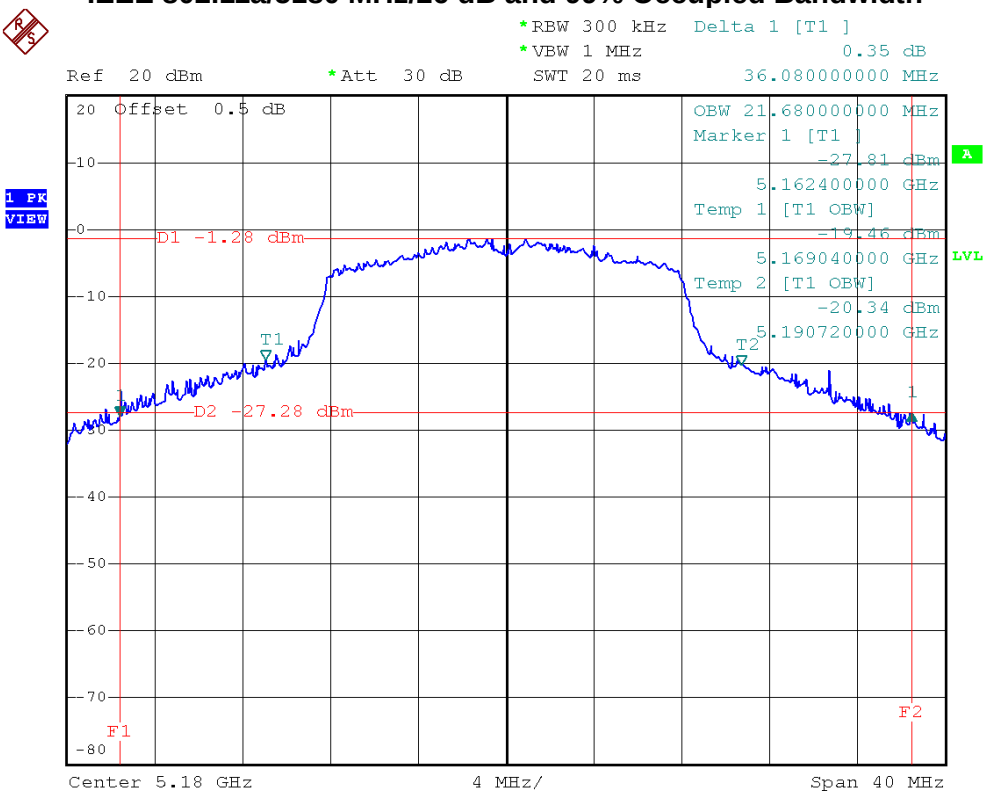
The EUT tested system was configured as the statements of 5.6 Unless otherwise a special operating condition is specified in the follows during the testing.

6.8 TEST RESULTS - 5180 MHZ TO 5240 MHZ BAND

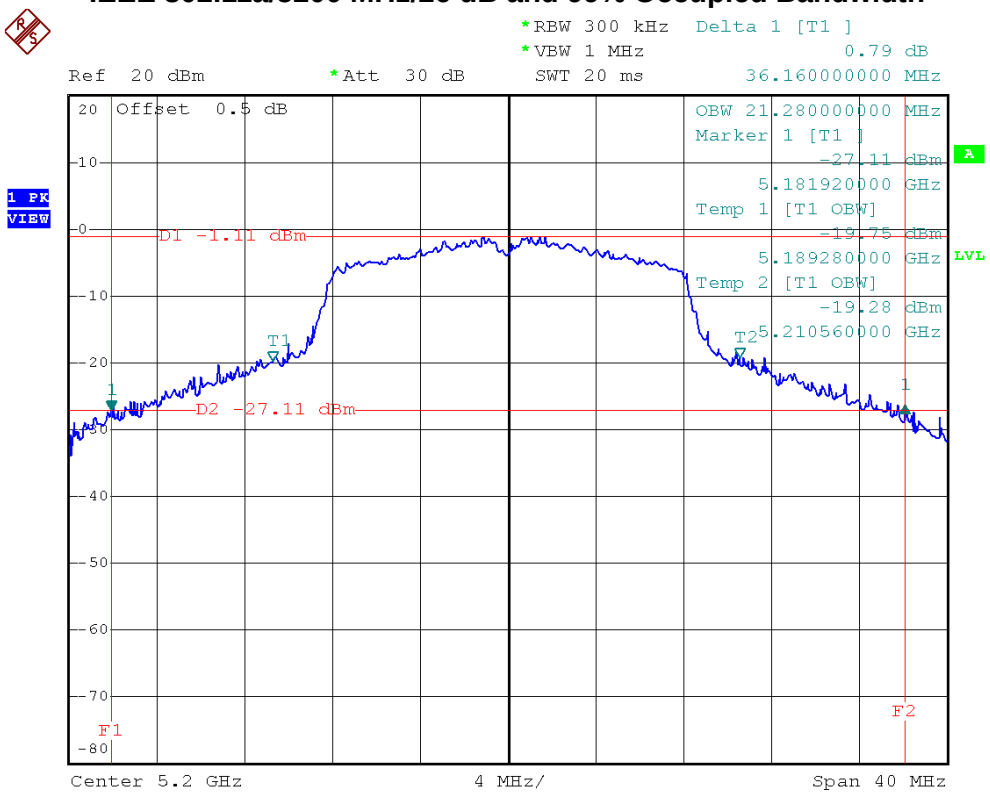
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5180 MHz, 5200 MHz, 5240 MHz		

Frequency	26 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
5180 MHz	36.08	21.68
5200 MHz	36.16	21.28
5240 MHz	38.40	22.40

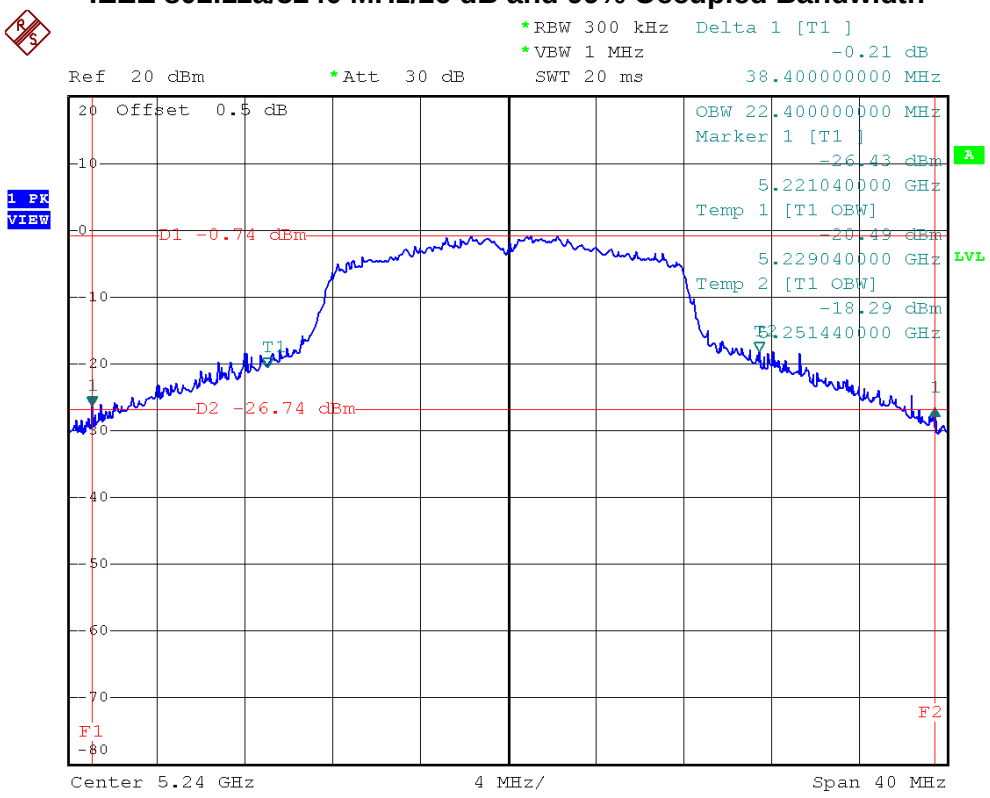
IEEE 802.11a/5180 MHz/26 dB and 99% Occupied Bandwidth



IEEE 802.11a/5200 MHz/26 dB and 99% Occupied Bandwidth



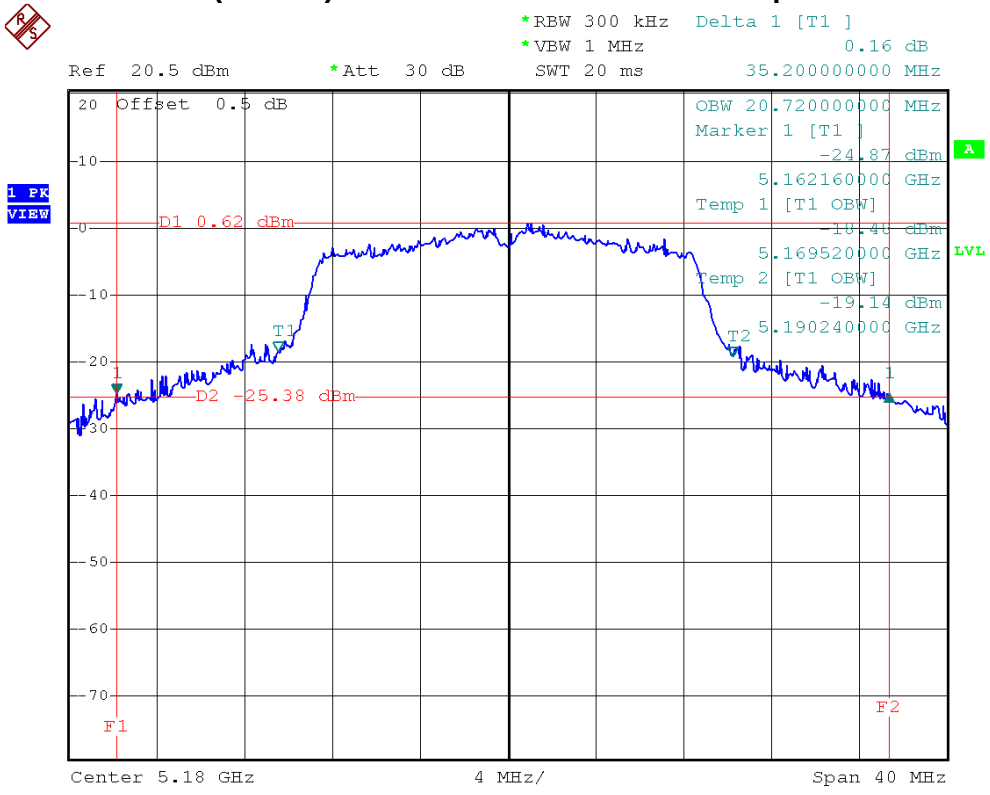
IEEE 802.11a/5240 MHz/26 dB and 99% Occupied Bandwidth



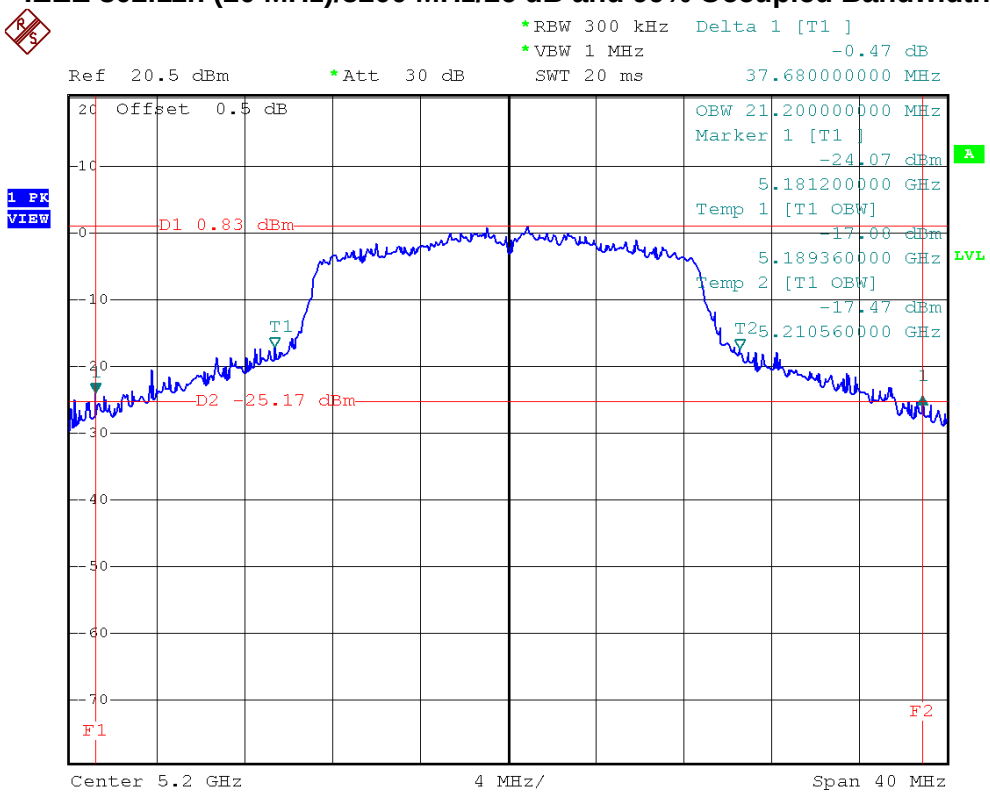
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5180 MHz, 5200 MHz, 5240 MHz		

Frequency	26 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
5180 MHz	35.20	20.72
5200 MHz	37.68	21.20
5240 MHz	37.44	21.44

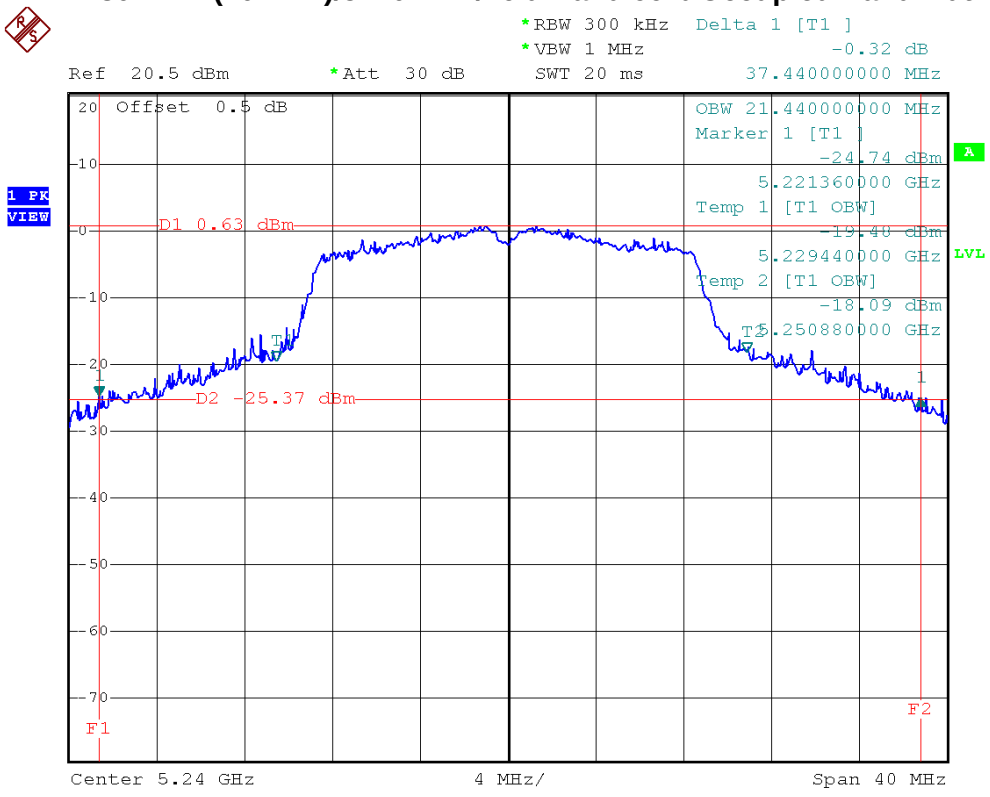
IEEE 802.11n (20 MHz)/5180 MHz/26 dB and 99% Occupied Bandwidth



IEEE 802.11n (20 MHz)/5200 MHz/26 dB and 99% Occupied Bandwidth



IEEE 802.11n (20 MHz)/5240 MHz/26 dB and 99% Occupied Bandwidth

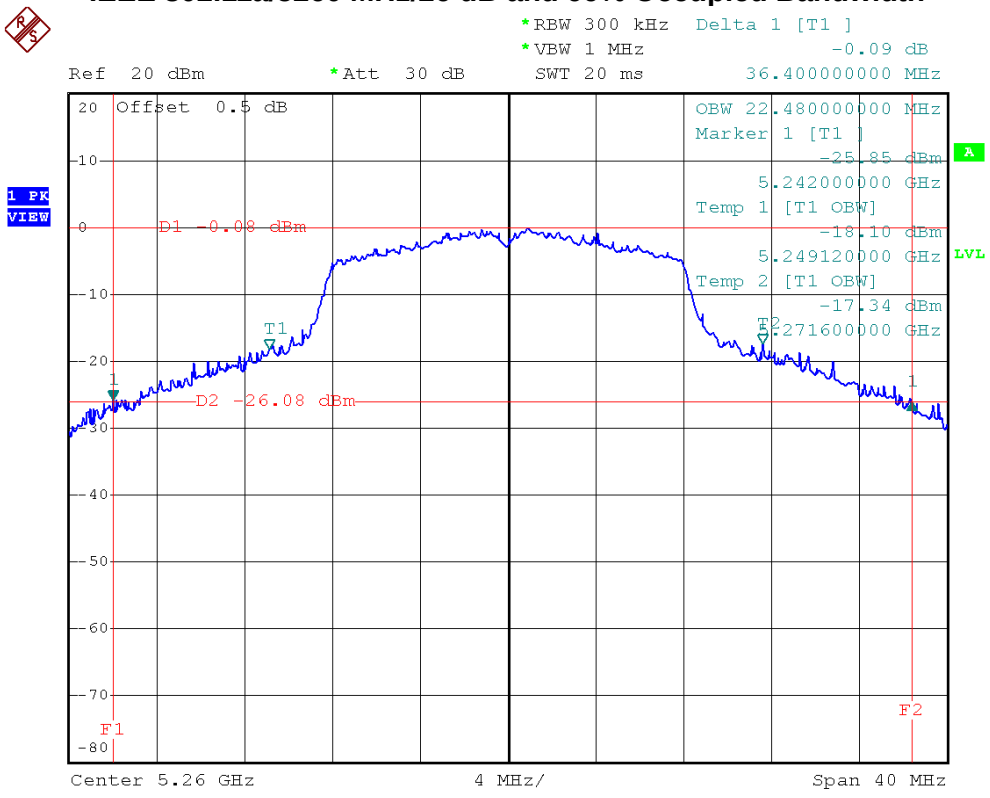


6.9 TEST RESULTS - 5260 MHZ TO 5320 MHZ BAND

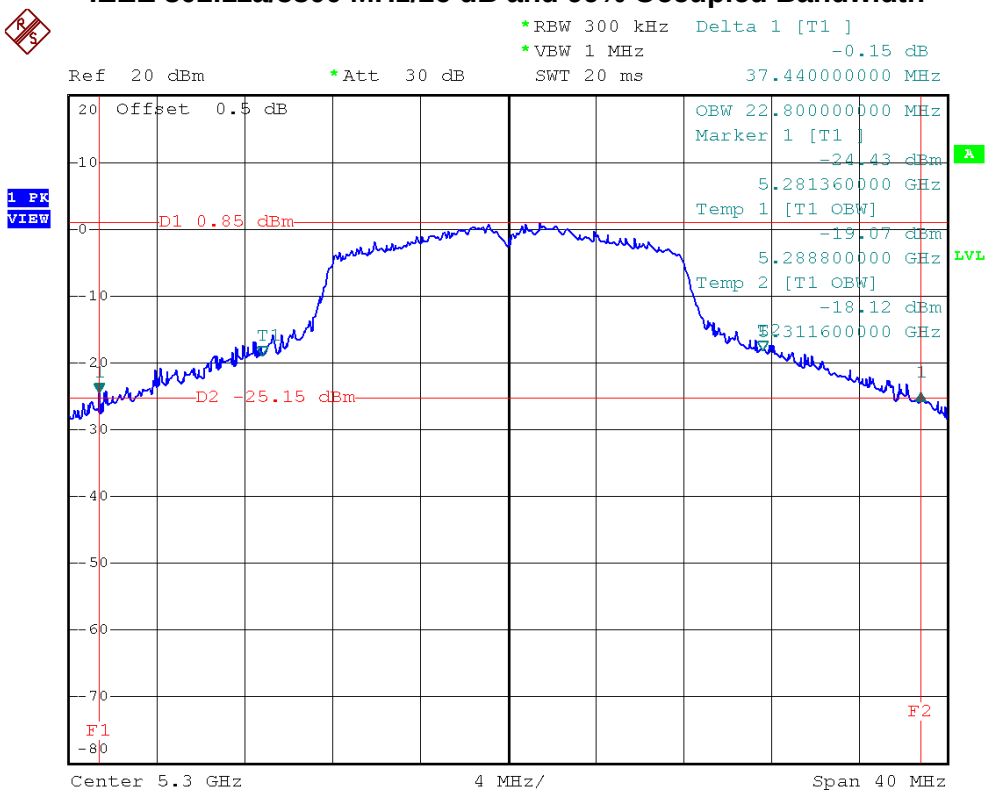
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5260 MHz, 5300 MHz, 5320 MHz		

Frequency	26 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
5260 MHz	36.40	22.48
5300 MHz	37.44	22.80
5320 MHz	36.56	22.32

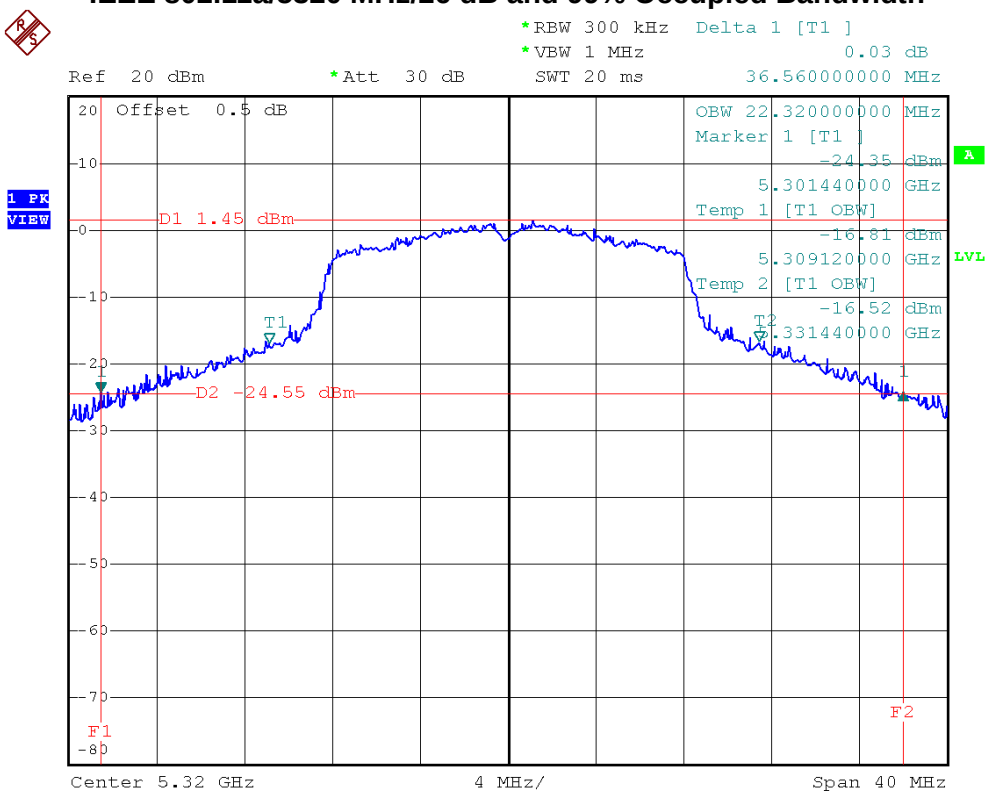
IEEE 802.11a/5260 MHz/26 dB and 99% Occupied Bandwidth



IEEE 802.11a/5300 MHz/26 dB and 99% Occupied Bandwidth



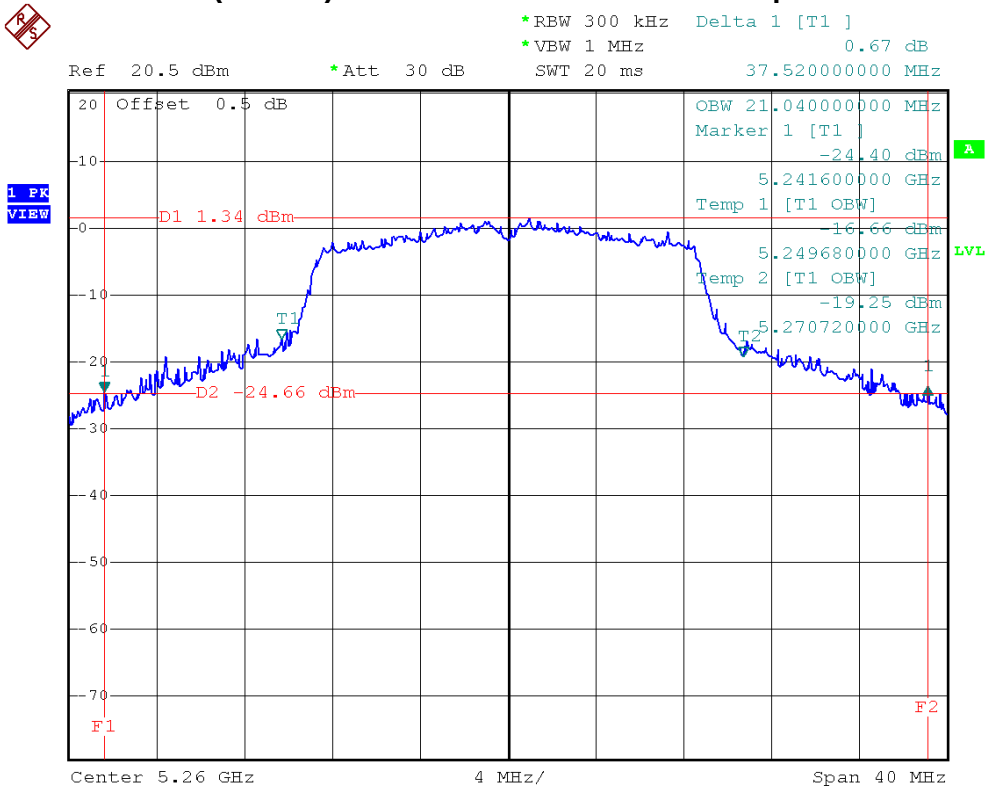
IEEE 802.11a/5320 MHz/26 dB and 99% Occupied Bandwidth



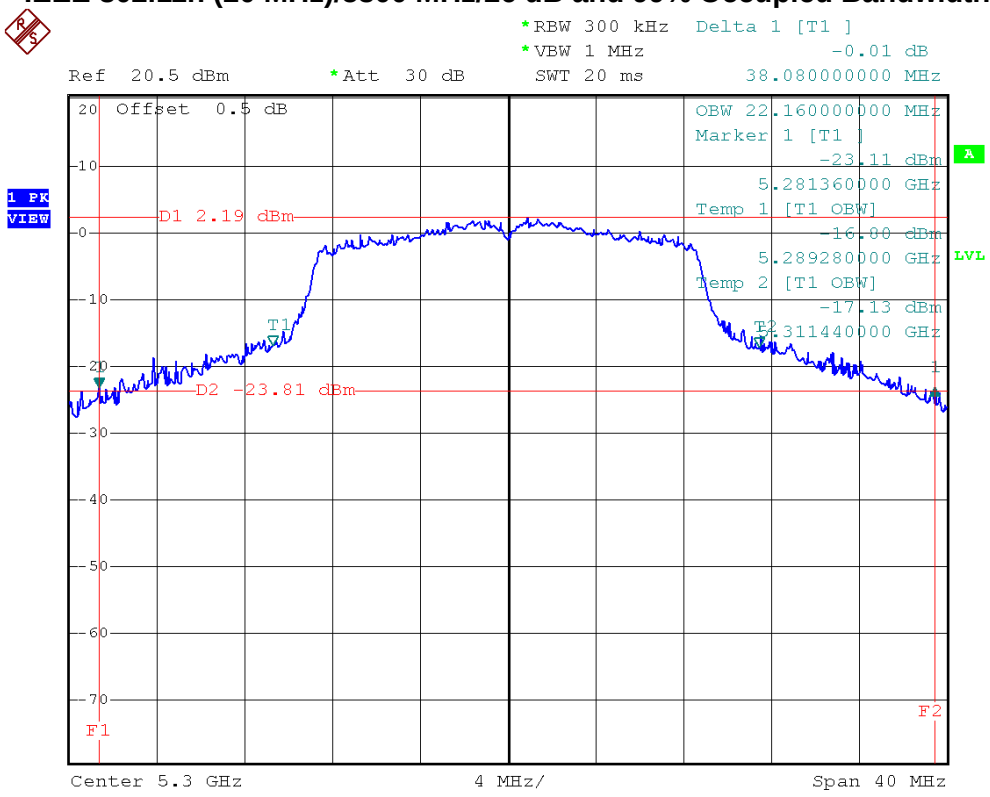
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5260 MHz, 5300 MHz, 5320 MHz		

Frequency	26 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
5260 MHz	37.52	21.04
5300 MHz	38.08	22.16
5320 MHz	35.60	22.56

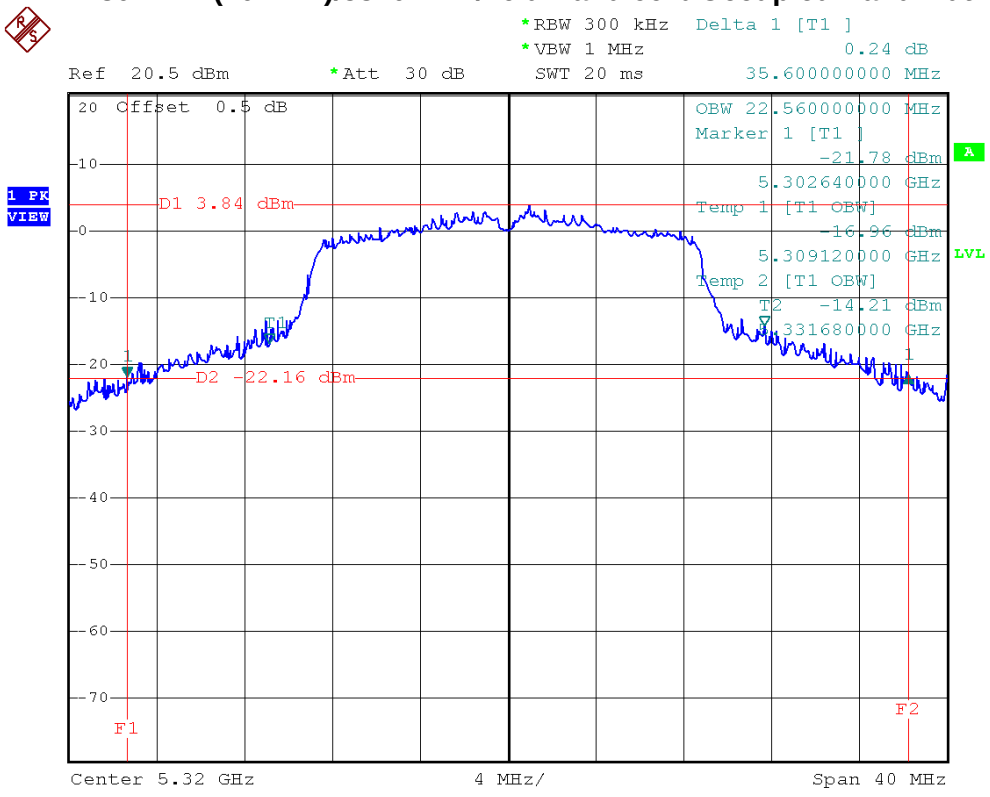
IEEE 802.11n (20 MHz)/5260 MHz/26 dB and 99% Occupied Bandwidth



IEEE 802.11n (20 MHz)/5300 MHz/26 dB and 99% Occupied Bandwidth



IEEE 802.11n (20 MHz)/5320 MHz/26 dB and 99% Occupied Bandwidth

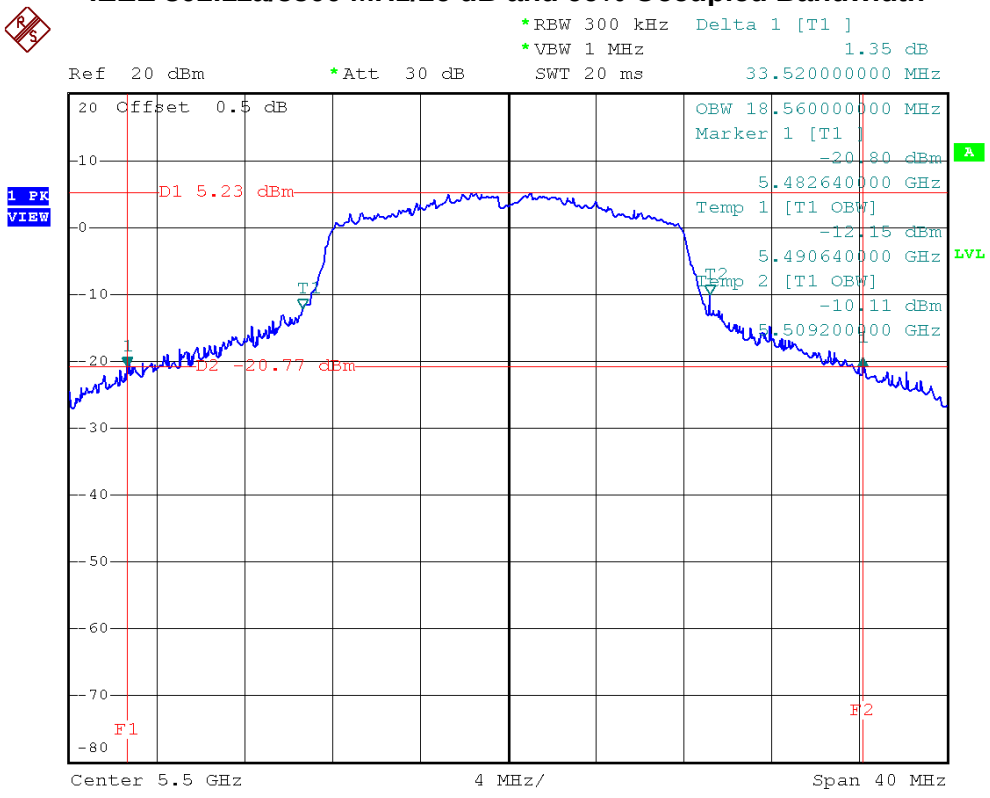


6.10 TEST RESULTS - 5500 MHZ TO 5700 MHZ BAND

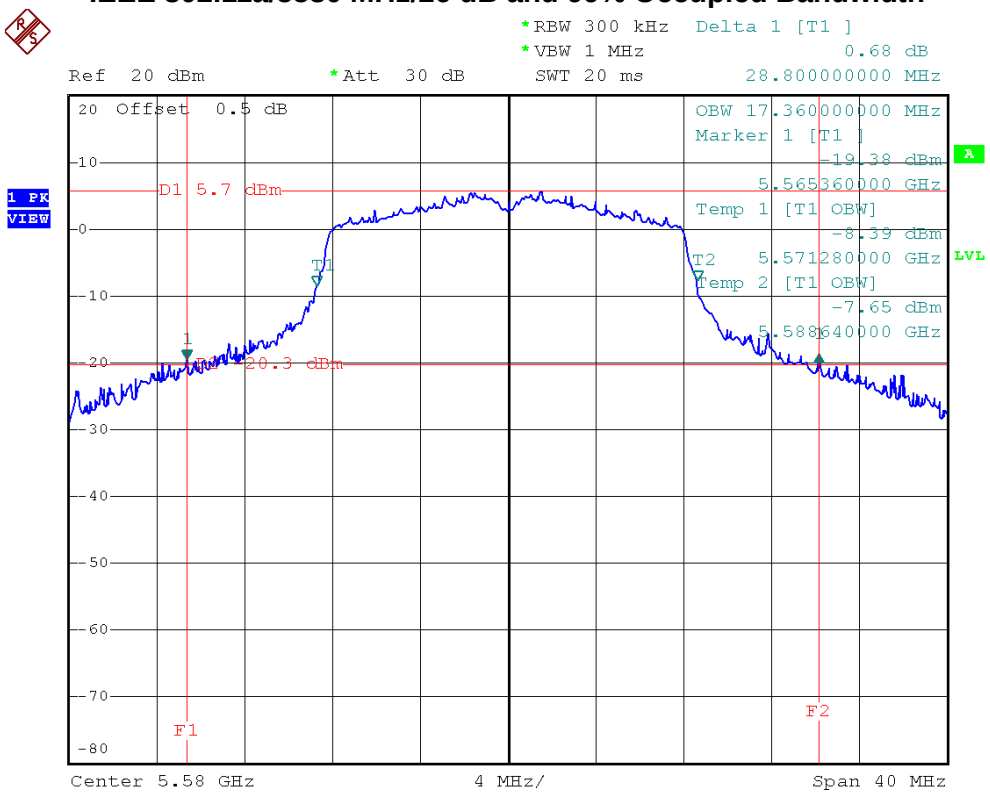
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5500 MHz, 5580 MHz, 5700 MHz		

Frequency	26 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
5500 MHz	33.52	18.56
5580 MHz	28.80	17.36
5700 MHz	26.64	17.04

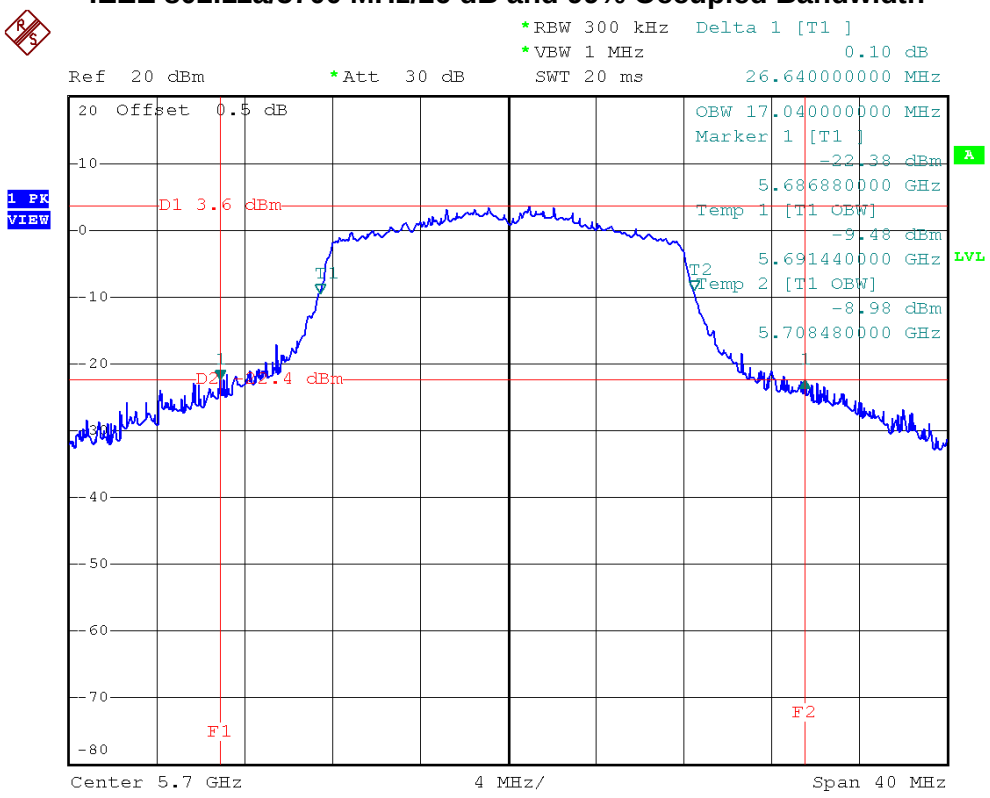
IEEE 802.11a/5500 MHz/26 dB and 99% Occupied Bandwidth



IEEE 802.11a/5580 MHz/26 dB and 99% Occupied Bandwidth



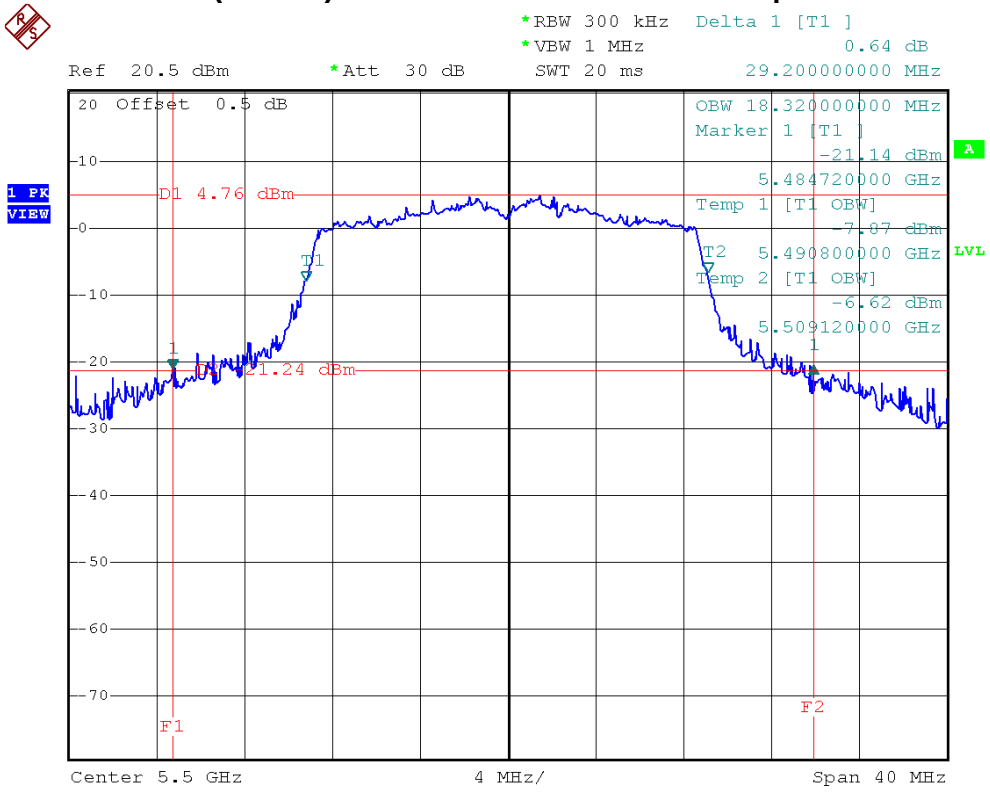
IEEE 802.11a/5700 MHz/26 dB and 99% Occupied Bandwidth



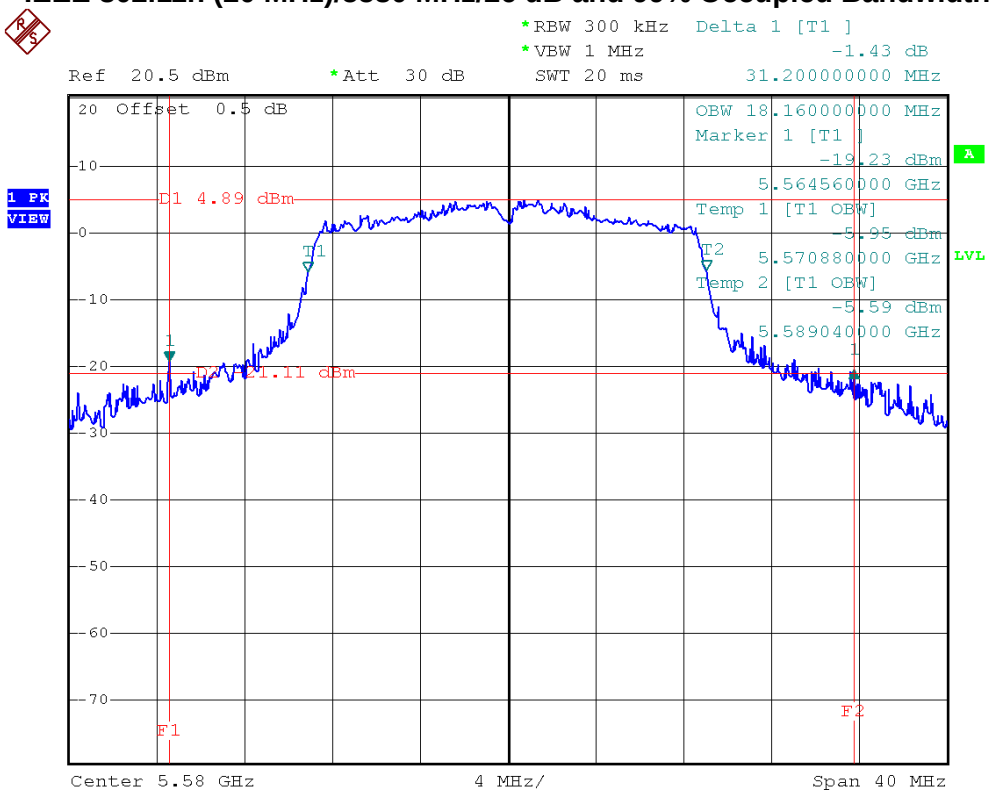
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5500 MHz, 5580 MHz, 5700 MHz		

Frequency	26 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
5500 MHz	29.20	18.32
5580 MHz	31.20	18.16
5700 MHz	26.40	18.08

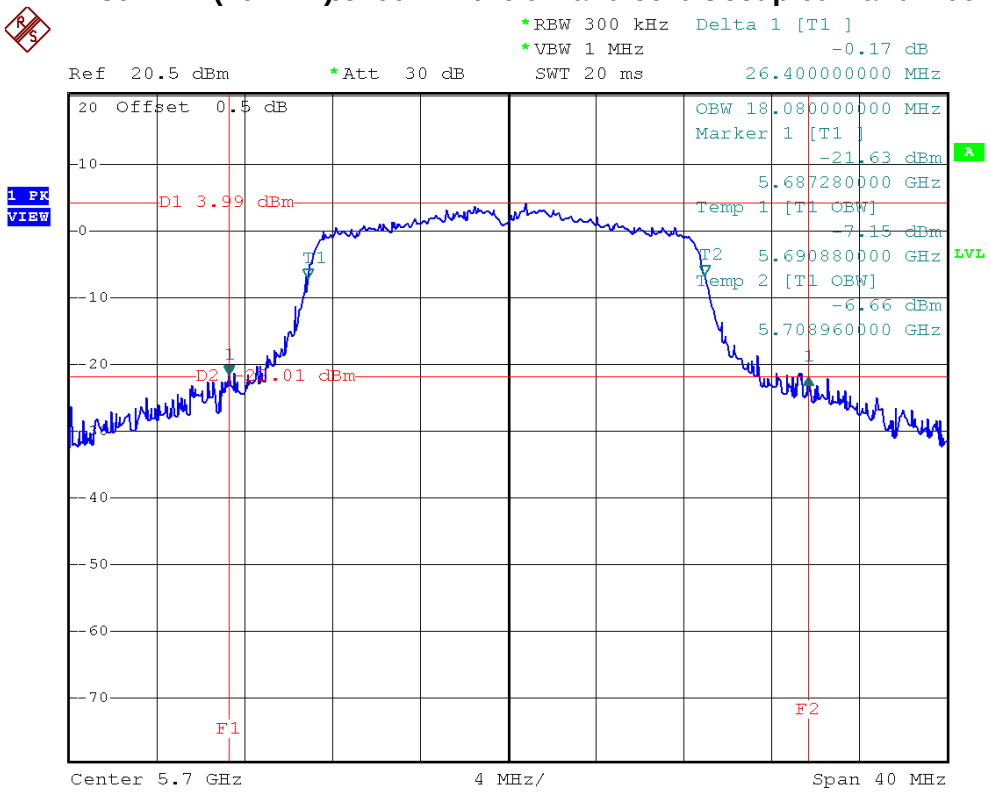
IEEE 802.11n (20 MHz)/5500 MHz/26 dB and 99% Occupied Bandwidth



IEEE 802.11n (20 MHz)/5580 MHz/26 dB and 99% Occupied Bandwidth



IEEE 802.11n (20 MHz)/5700 MHz/26 dB and 99% Occupied Bandwidth



7 MAXIMUM PEAK CONDUCTED OUTPUT POWER

7.1 LIMIT

Test Item	Frequency Range (MHz)	Limit
Maximum Peak Conducted Output Power	5150 - 5250	not exceed the lesser of 50 mW (17 dBm) or 4 dBm + 10log B
	5250 - 5350	not exceed the lesser of 250 mW (24 dBm) or 11 dBm + 10log B
	5470 - 5725	not exceed the lesser of 250 mW (24 dBm) or 11 dBm + 10log B
	5725 - 5825	not exceed the lesser of 1 W (30 dBm) or 17 dBm + 10log B.

7.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

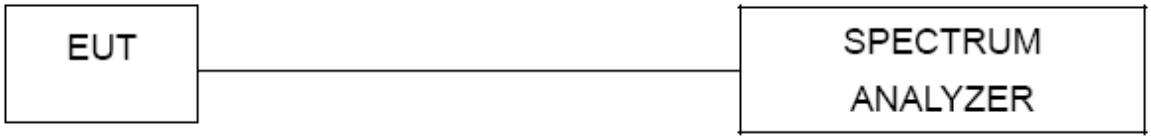
7.3 MEASURING INSTRUMENTS SETTING

Spectrum Analyzer	Parameter Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1000 kHz
VB	3000 kHz
Detector	RMS
Trace	Max Hold
Sweep Time	AUTO

7.4 TEST PROCEDURES

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Test was performed in accordance with Method SA-1 of FCC KDB 789033 D01 General UNII Test Procedures v01r03.

7.5 TEST SETUP LAYOUT



7.6 DEVIATION FROM TEST STANDARD

No deviation

7.7 EUT OPERATING CONDITIONS

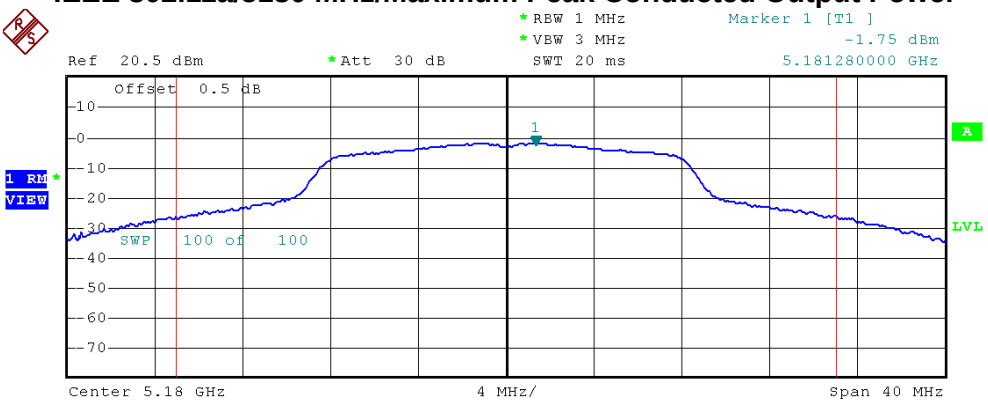
The EUT tested system was configured as the statements of 5.6 Unless otherwise a special operating condition is specified in the follows during the testing.

7.8 TEST RESULTS - 5180 MHZ TO 5240 MHZ BAND

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5180 MHz, 5200 MHz, 5240 MHz		

Frequency	Peak Output Power (dBm)	LIMIT (dBm)	Result
5180 MHz	8.03	17.00	PASS
5200 MHz	8.16	17.00	PASS
5240 MHz	8.39	17.00	PASS

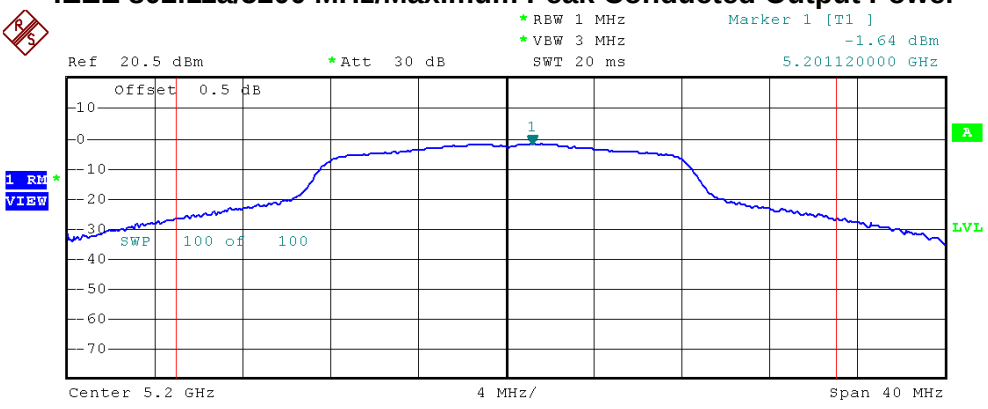
IEEE 802.11a/5180 MHz/Maximum Peak Conducted Output Power



Tx Channel

Bandwidth	30 MHz	Power	8.03 dBm

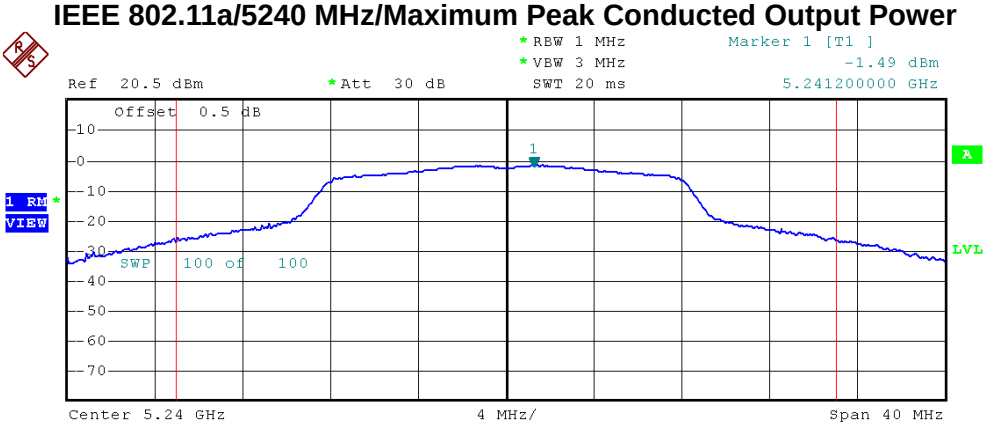
IEEE 802.11a/5200 MHz/Maximum Peak Conducted Output Power



Tx Channel

Bandwidth	30 MHz	Power	8.16 dBm

IEEE 802.11a/5240 MHz/Maximum Peak Conducted Output Power



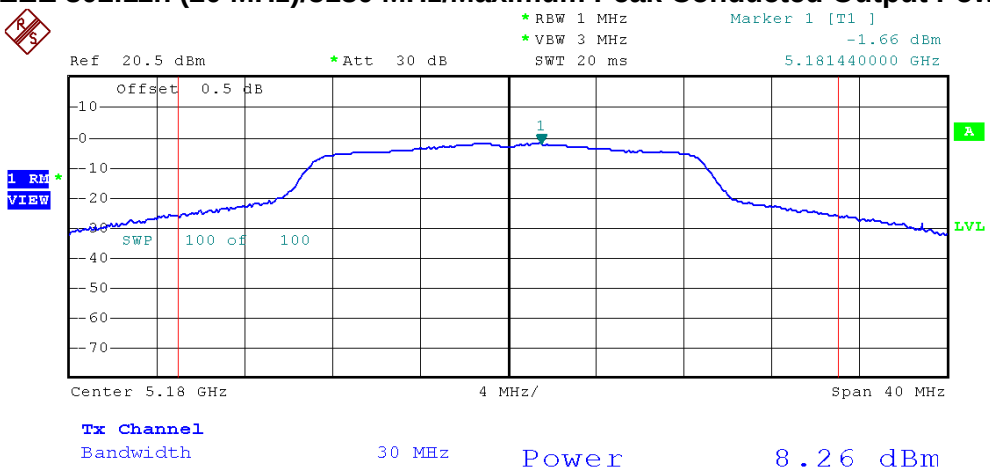
Tx Channel

Bandwidth	30 MHz	Power	8.39 dBm

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5180 MHz, 5200 MHz, 5240 MHz		

Frequency	Peak Output Power		LIMIT (dBm)	LIMIT (W)	Result
	(dBm)	(W)			
5180 MHz	8.26	0.0067	17.00	0.0501	PASS
5200 MHz	8.30	0.0068	17.00	0.0501	PASS
5240 MHz	8.66	0.0073	17.00	0.0501	PASS

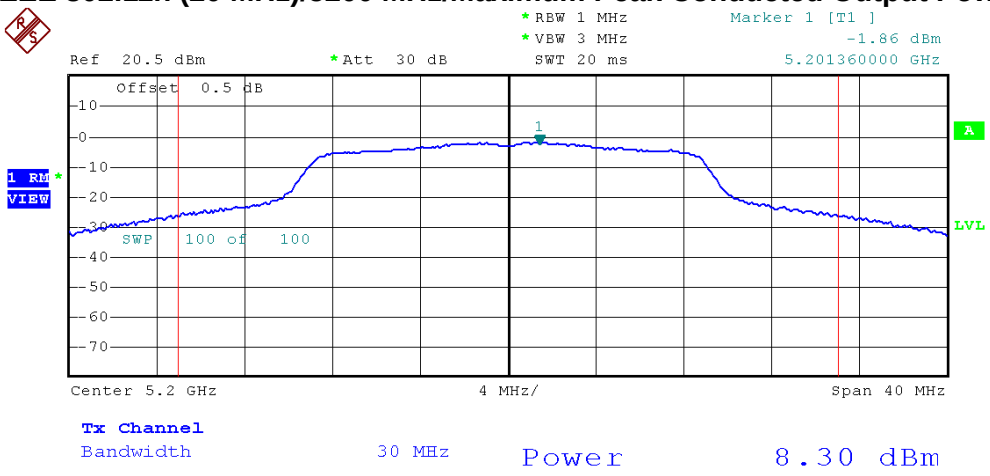
IEEE 802.11n (20 MHz)/5180 MHz/Maximum Peak Conducted Output Power



Tx Channel

Bandwidth	30 MHz	Power	8.26 dBm

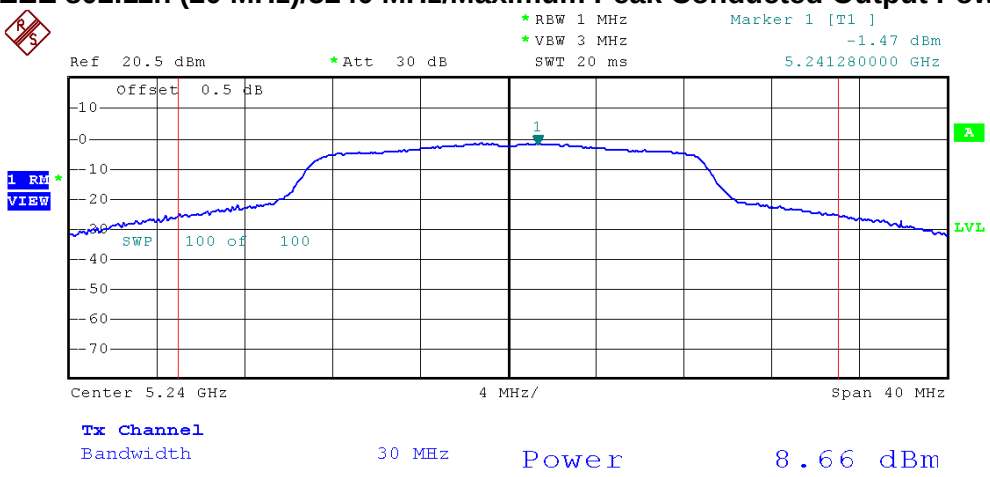
IEEE 802.11n (20 MHz)/5200 MHz/Maximum Peak Conducted Output Power



Tx Channel

Bandwidth	30 MHz	Power	8.30 dBm

IEEE 802.11n (20 MHz)/5240 MHz/Maximum Peak Conducted Output Power



Tx Channel

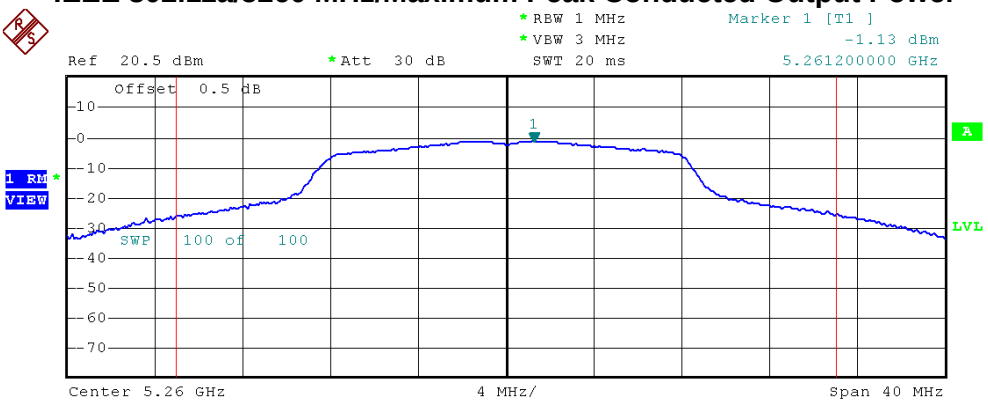
Bandwidth	30 MHz	Power	8.66 dBm

7.9 TEST RESULTS - 5260 MHZ TO 5320 MHZ BAND

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5260 MHz, 5300 MHz, 5320 MHz		

Frequency	Peak Output Power (dBm)	LIMIT (dBm)	Result
5260 MHz	8.74	24.00	PASS
5300 MHz	9.74	24.00	PASS
5320 MHz	10.39	24.00	PASS

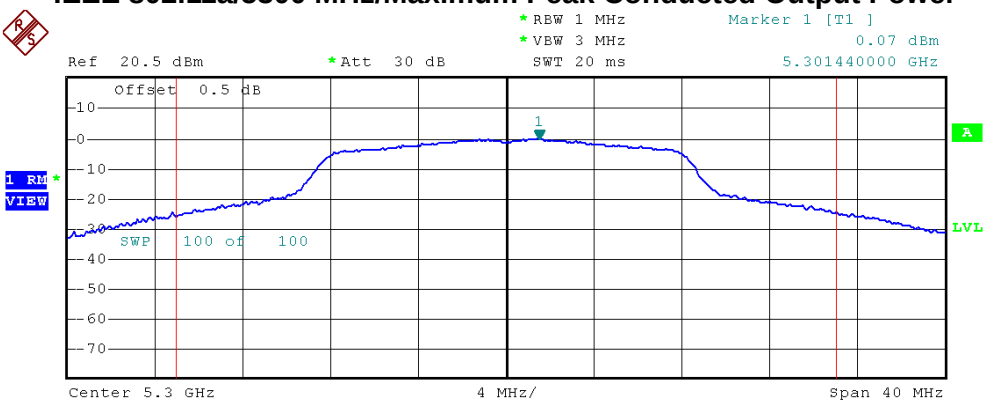
IEEE 802.11a/5260 MHz/Maximum Peak Conducted Output Power



Tx Channel

Bandwidth	30 MHz	Power	8.74 dBm

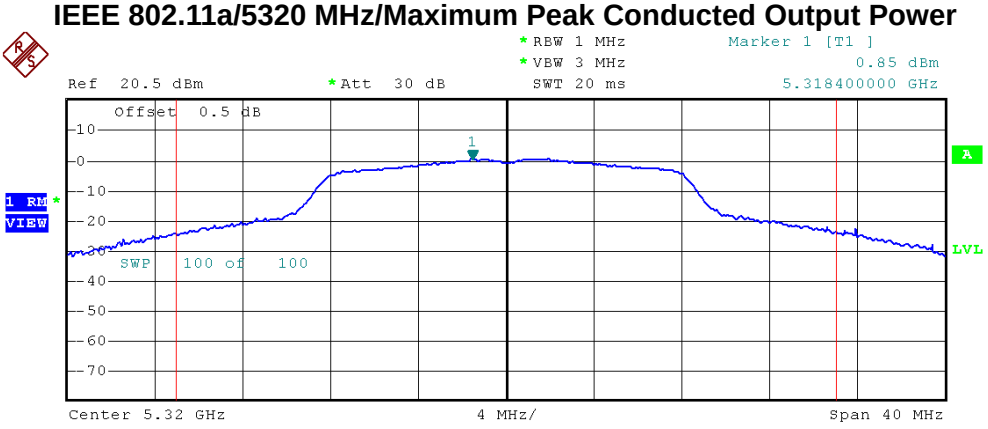
IEEE 802.11a/5300 MHz/Maximum Peak Conducted Output Power



Tx Channel

Bandwidth	30 MHz	Power	9.74 dBm

IEEE 802.11a/5320 MHz/Maximum Peak Conducted Output Power



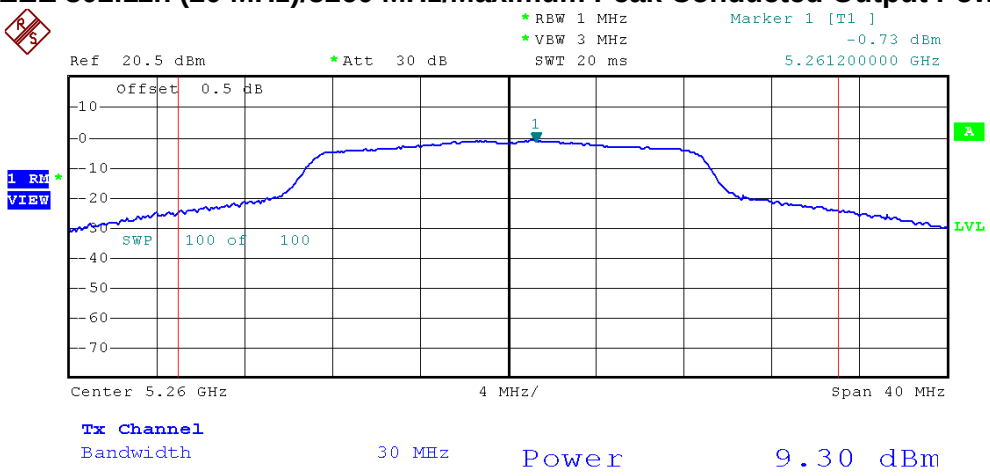
Tx Channel

Bandwidth	30 MHz	Power	10.39 dBm

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5260 MHz, 5300 MHz, 5320 MHz		

Frequency	Peak Output Power		LIMIT (dBm)	LIMIT (W)	Result
	(dBm)	(W)			
5260 MHz	9.30	0.0085	24.00	0.2512	PASS
5300 MHz	10.35	0.0108	24.00	0.2512	PASS
5320 MHz	10.92	0.0124	24.00	0.2512	PASS

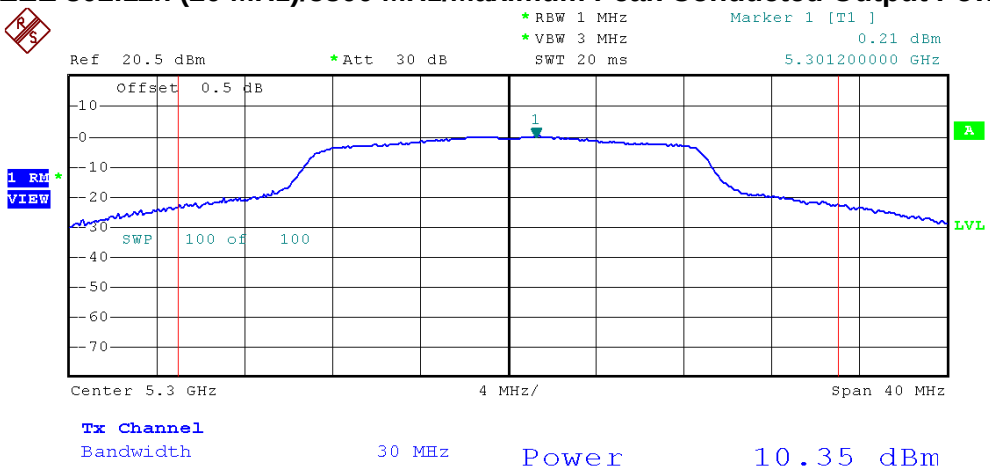
IEEE 802.11n (20 MHz)/5260 MHz/Maximum Peak Conducted Output Power



Tx Channel

Bandwidth	Power
30 MHz	9.30 dBm

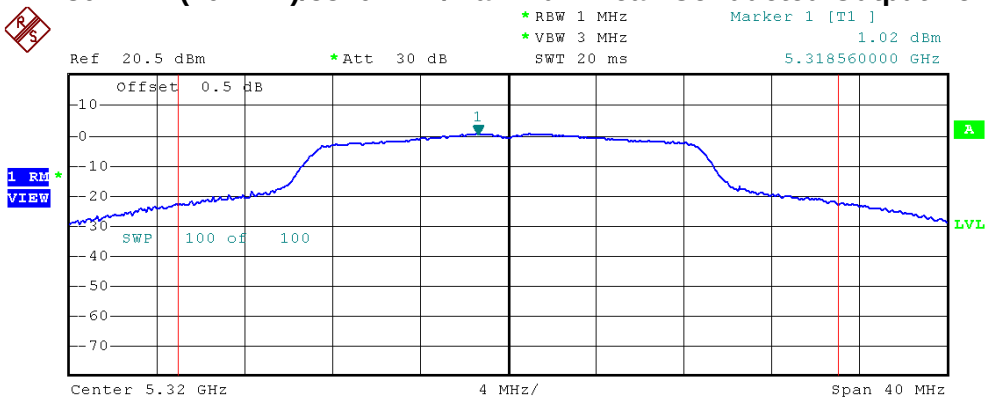
IEEE 802.11n (20 MHz)/5300 MHz/Maximum Peak Conducted Output Power



Tx Channel

Bandwidth	Power
30 MHz	10.35 dBm

IEEE 802.11n (20 MHz)/5320 MHz/Maximum Peak Conducted Output Power



Tx Channel

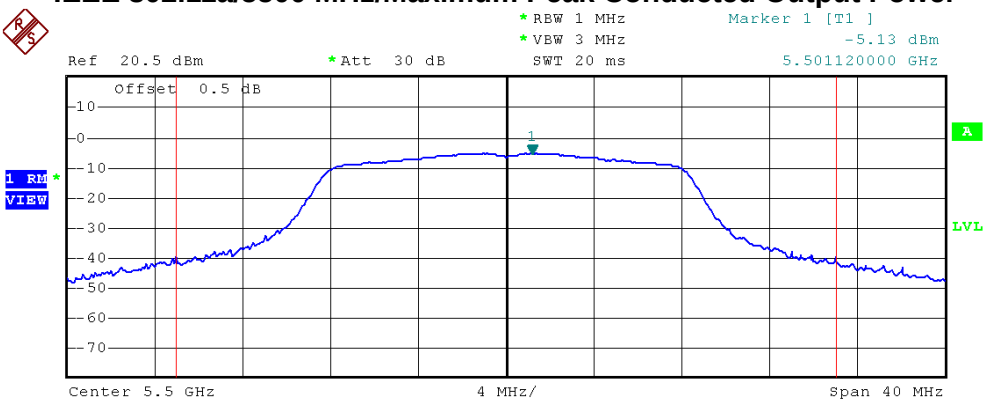
Bandwidth	Power
30 MHz	10.92 dBm

7.10 TEST RESULTS - 5500 MHZ TO 5700 MHZ BAND

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5500 MHz, 5580 MHz, 5700 MHz		

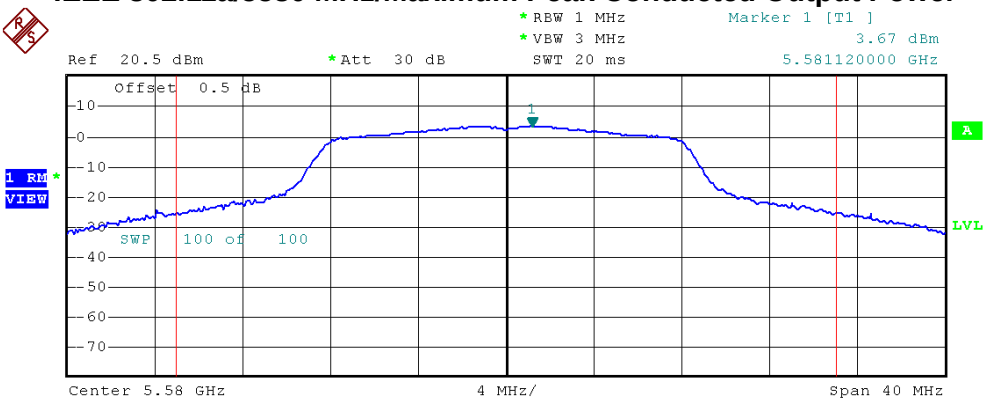
Frequency	Peak Output Power (dBm)	LIMIT (dBm)	Result
5500 MHz	4.71	24.00	PASS
5580 MHz	13.35	24.00	PASS
5700 MHz	-0.57	24.00	PASS

IEEE 802.11a/5500 MHz/Maximum Peak Conducted Output Power



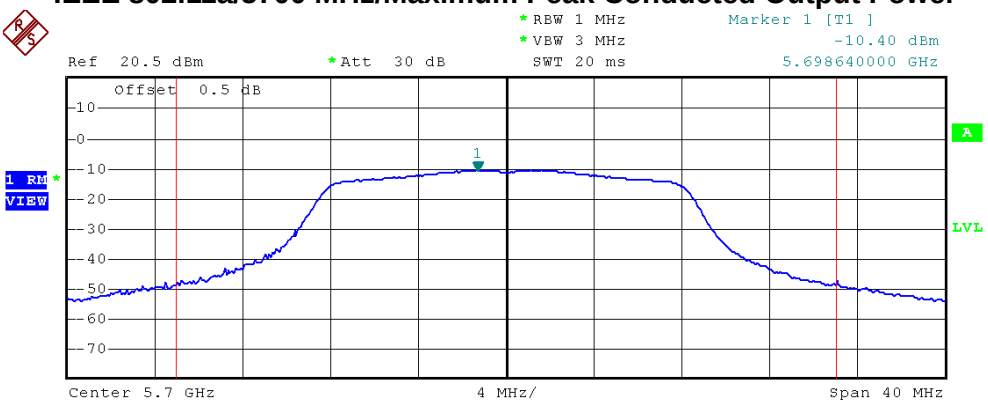
Tx Channel
Bandwidth 30 MHz Power 4.71 dBm

IEEE 802.11a/5580 MHz/Maximum Peak Conducted Output Power



Tx Channel
Bandwidth 30 MHz Power 13.35 dBm

IEEE 802.11a/5700 MHz/Maximum Peak Conducted Output Power

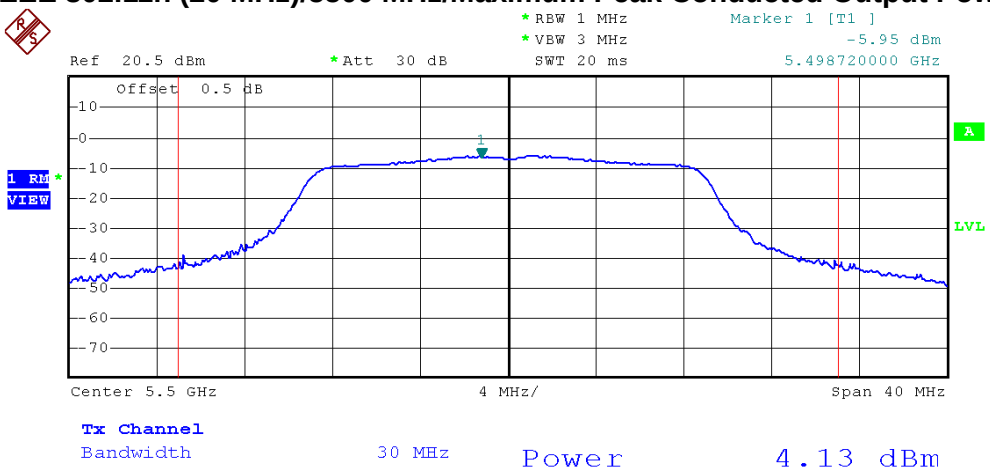


Tx Channel
Bandwidth 30 MHz Power -0.57 dBm

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	26°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5500 MHz, 5580 MHz, 5700 MHz		

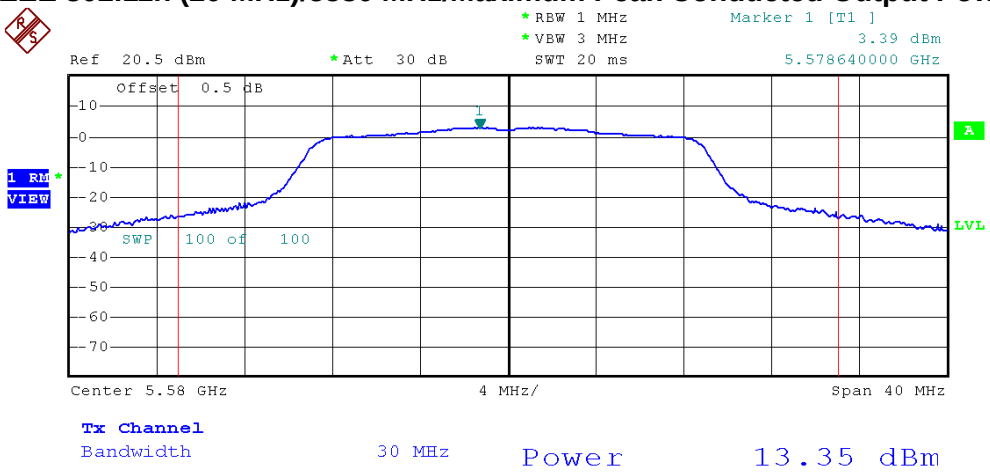
Frequency	Peak Output Power		LIMIT (dBm)	LIMIT (W)	Result
	(dBm)	(W)			
5500 MHz	4.13	0.0026	30.00	1.0000	PASS
5580 MHz	13.35	0.0216	30.00	1.0000	PASS
5700 MHz	-0.75	0.0008	30.00	1.0000	PASS

IEEE 802.11n (20 MHz)/5500 MHz/Maximum Peak Conducted Output Power



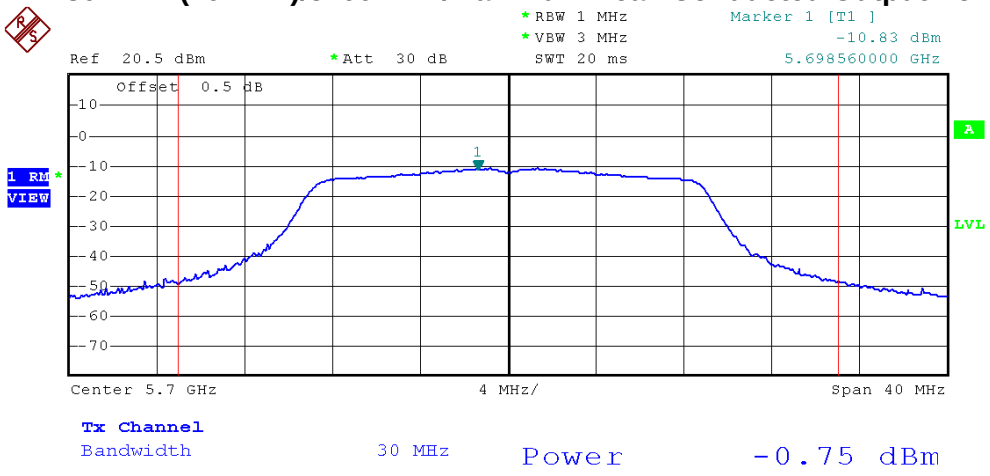
Tx Channel
Bandwidth 30 MHz Power 4.13 dBm

IEEE 802.11n (20 MHz)/5580 MHz/Maximum Peak Conducted Output Power



Tx Channel
Bandwidth 30 MHz Power 13.35 dBm

IEEE 802.11n (20 MHz)/5700 MHz/Maximum Peak Conducted Output Power



Tx Channel
Bandwidth 30 MHz Power -0.75 dBm

8 RADIATED SPURIOUS EMISSION (9 KHZ TO 1 GHZ)

8.1 LIMIT

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

Frequency Range: 9 kHz to 1 GHz		
FREQUENCY (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

Frequency Range: above 1 GHz				
FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
above 1 GHz	80	60	74	54

NOTE:

(1) The limit for radiated test was performed according to FCC PART 15B.
(2) The tighter limit applies at the band edges.
(3) Emission level (dBuV/m)=20log Emission level (uV/m).
(4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain(if use)
Margin Level = Measurement Value – Limit Value

8.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014
2	Horn Antenna	Schwarzbeck	BBHA 9120	D-325	Apr. 15, 2014
3	Microwave Pre_amplifier	Agilent	8449B	3008A01714	Apr. 16, 2014
4	Microflex Cable	Harbour industries	27478LL142	1m	May. 13, 2014
5	Microflex Cable	EMC	S104-SMA	8m	May. 13, 2014
6	Microflex Cable	Harbour industries	27478LL142	3m	May. 13, 2014
7	Test Cable	LMR	LMR-400	12m	May. 14, 2014
8	Test Cable	LMR	LMR-400	3m	May. 14, 2014
9	Pre-Amplifier	Anritsu	MH648A	M92649	Jun. 18, 2014
10	Log-Bicon Antenna	Schwarzbeck	VULB9168-352	9168-352	Jun. 11, 2014
11	Preamplifier With Adaptor	EMC	EMC2654045	980030	Feb. 18, 2014
12	Horn Antenna	Schwarzbeck	BBHA 9170	340	Nov. 14, 2014

Remark: “N/A” denotes No Model Name, No Serial No. or No Calibration specified.

8.3 MEASURING INSTRUMENTS SETTING

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

8.4 TEST PROCEDURES

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1 GHz. For frequencies above 1 GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m Semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.
g. The testing follows the guidelines in ANSI C63.4 and FCC KDB 789033 D01 General UNII Test Procedures v01r03 Measurement Guidelines. In case the emission is fail due to the used RBW/VBW is too wide, marker-delta method of FCC Public Notice DA 00-705 will be followed.

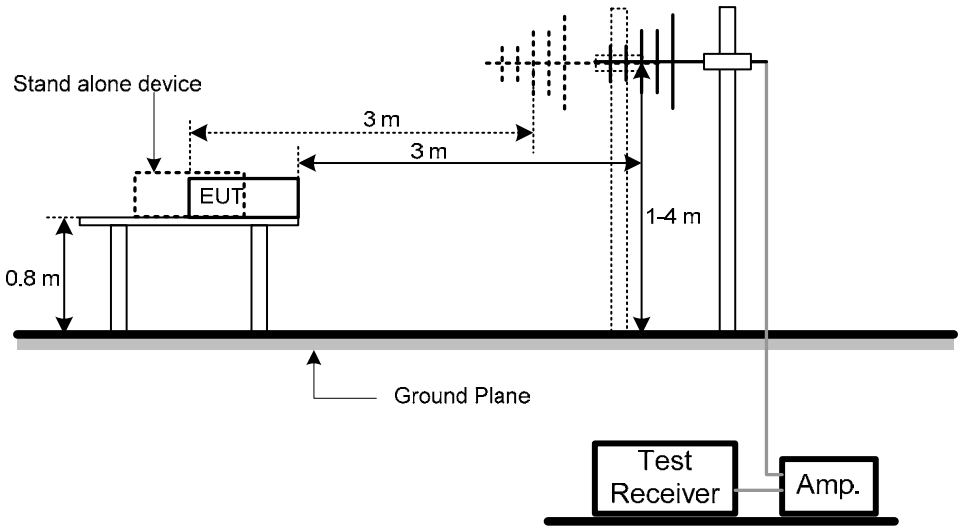
NOTE:

a. Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode with Detector BW=120 kHz; SPA setting in RBW=100 kHz, VBW =100 kHz, Swp. Time = 0.3 sec./ MHz.
b. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform.

8.5 DEVIATION FROM TEST STANDARD

No deviation

8.6 TEST SETUP LAYOUT



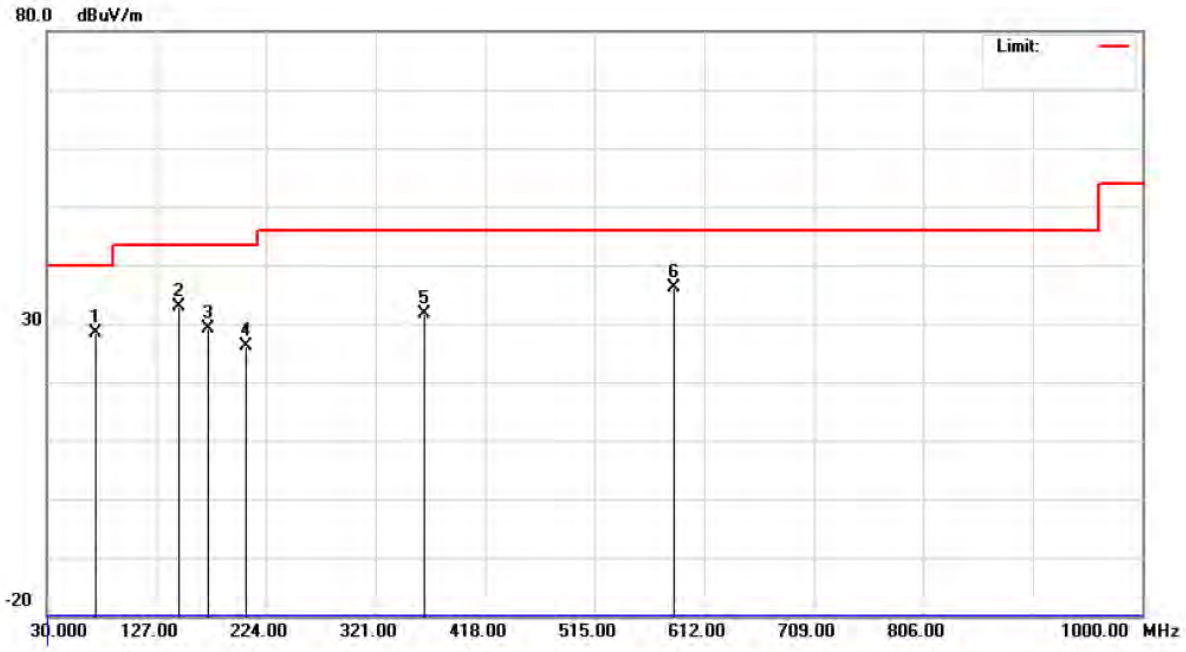
8.7 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 5.6 Unless otherwise a special operating condition is specified in the follows during the testing.

8.8 TEST RESULTS - 5180 MHZ TO 5320 MHZ BAND

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5240 MHz		

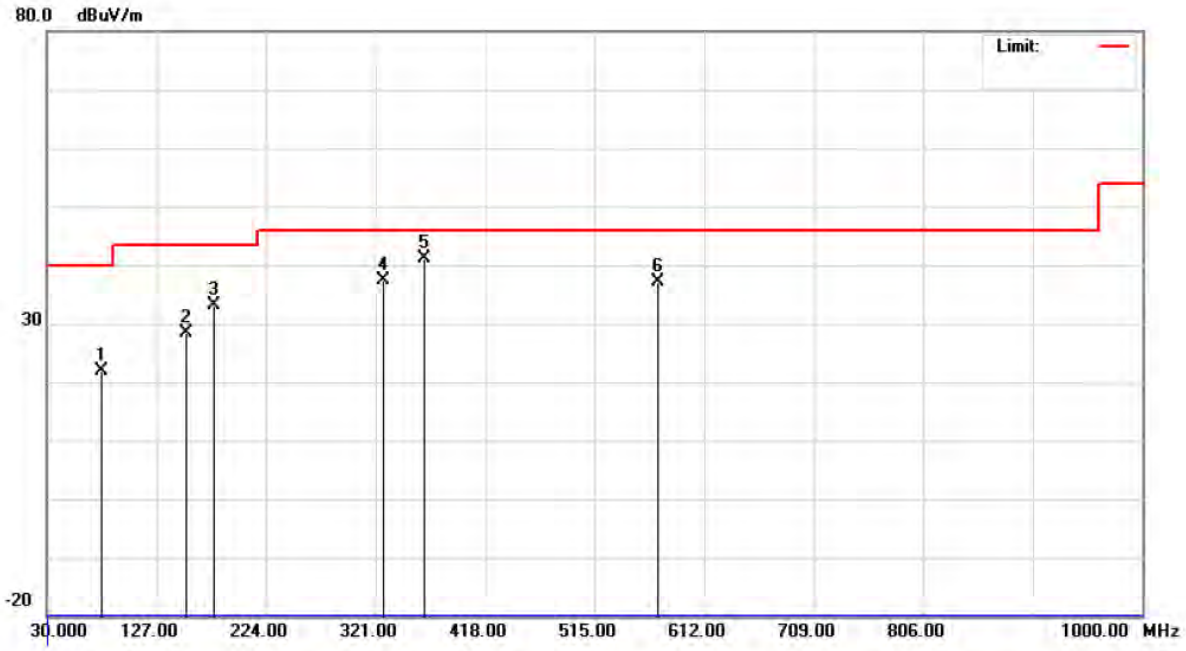
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		73.6500	45.60	-17.17	28.43	40.00	-11.57	peak	
2		146.3999	47.10	-14.30	32.80	43.50	-10.70	peak	
3		173.0749	44.16	-14.93	29.23	43.50	-14.27	peak	
4		207.0249	43.15	-16.98	26.17	43.50	-17.33	peak	
5		364.6499	43.97	-12.26	31.71	46.00	-14.29	peak	
6	*	585.3250	43.31	-7.19	36.12	46.00	-9.88	peak	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5240 MHz		

Polarization: Horizontal

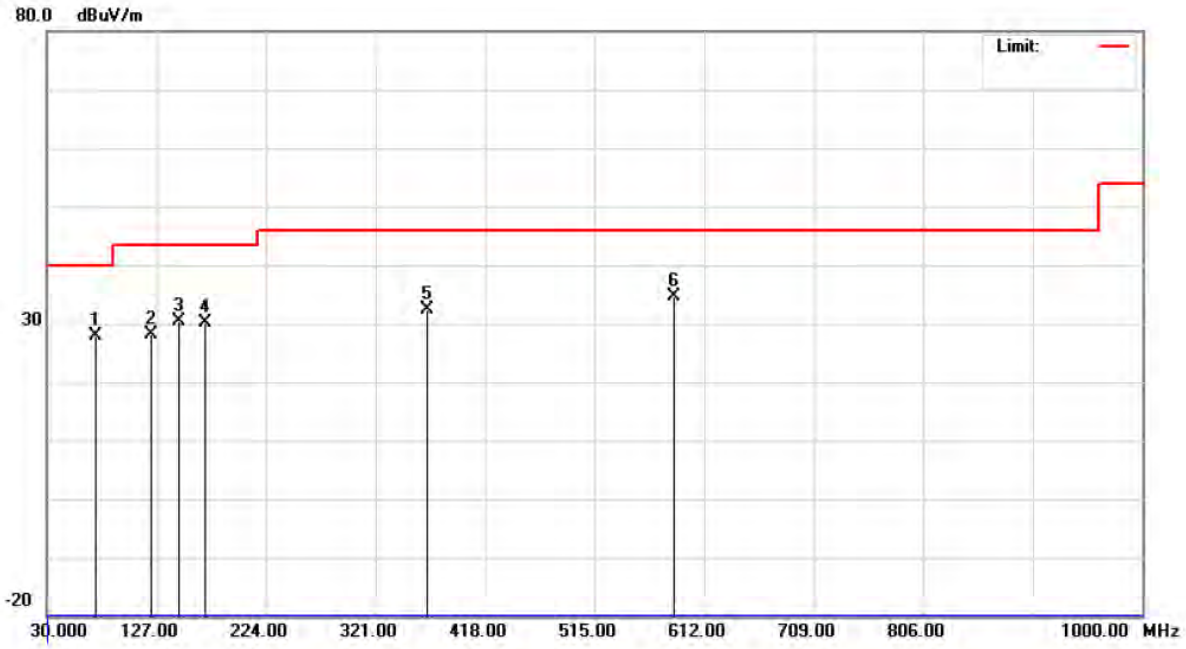


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		78.5000	40.17	-18.33	21.84	40.00	-18.16	peak	
2		153.6750	42.57	-14.21	28.36	43.50	-15.14	peak	
3		177.9250	48.68	-15.62	33.06	43.50	-10.44	peak	
4		328.2749	50.21	-12.91	37.30	46.00	-8.70	peak	
5	*	364.6499	53.29	-12.26	41.03	46.00	-4.97	peak	
6		570.7750	44.71	-7.61	37.10	46.00	-8.90	peak	

8.9 TEST RESULTS - 5500 MHZ TO 5700 MHZ BAND

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5580 MHz		

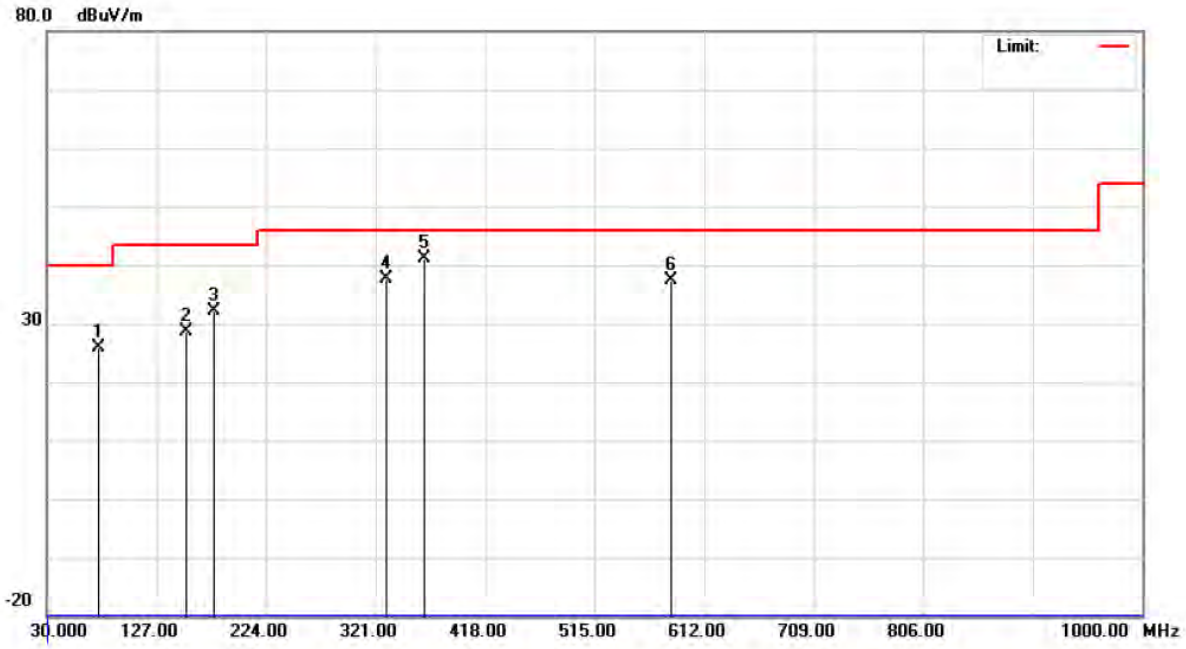
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		73.6500	45.01	-17.17	27.84	40.00	-12.16	peak	
2		122.1500	44.55	-16.54	28.01	43.50	-15.49	peak	
3		146.3999	44.80	-14.30	30.50	43.50	-13.00	peak	
4		170.6499	44.69	-14.58	30.11	43.50	-13.39	peak	
5		367.0750	44.57	-12.20	32.37	46.00	-13.63	peak	
6	*	585.3250	41.72	-7.19	34.53	46.00	-11.47	peak	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5580 MHz		

Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		76.0748	43.75	-17.75	26.00	40.00	-14.00	peak	
2		153.6750	42.95	-14.21	28.74	43.50	-14.76	peak	
3		177.9250	47.77	-15.62	32.15	43.50	-11.35	peak	
4		330.7000	50.58	-12.85	37.73	46.00	-8.27	peak	
5	*	364.6499	53.40	-12.26	41.14	46.00	-4.86	peak	
6		582.9000	44.55	-7.26	37.29	46.00	-8.71	peak	

9 RADIATED SPURIOUS EMISSION (ABOVE 1 GHZ)

9.1 LIMIT

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

Frequency Range: 9 kHz to 1 GHz		
FREQUENCY (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

Frequency Range: above 1 GHz				
FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
above 1 GHz	80	60	74	54

NOTE:

(1) The limit for radiated test was performed according to FCC PART 15B.
(2) The tighter limit applies at the band edges.
(3) Emission level (dBuV/m)=20log Emission level (uV/m).
(4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain(if use)
Margin Level = Measurement Value – Limit Value

9.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014
2	Horn Antenna	Schwarzbeck	BBHA 9120	D-325	Apr. 15, 2014
3	Microwave Pre_amplifier	Agilent	8449B	3008A01714	Apr. 16, 2014
4	Microflex Cable	Harbour industries	27478LL142	1m	May. 13, 2014
5	Microflex Cable	EMC	S104-SMA	8m	May. 13, 2014
6	Microflex Cable	Harbour industries	27478LL142	3m	May. 13, 2014
7	Test Cable	LMR	LMR-400	12m	May. 14, 2014
8	Test Cable	LMR	LMR-400	3m	May. 14, 2014
9	Pre-Amplifier	Anritsu	MH648A	M92649	Jun. 18, 2014
10	Log-Bicon Antenna	Schwarzbeck	VULB9168-352	9168-352	Jun. 11, 2014
11	Preamplifier With Adaptor	EMC	EMC2654045	980030	Feb. 18, 2014
12	Horn Antenna	Schwarzbeck	BBHA 9170	340	Nov. 14, 2014

Remark: “N/A” denotes No Model Name, No Serial No. or No Calibration specified.

9.3 MEASURING INSTRUMENTS SETTING

Spectrum Analyzer	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 / 10 Hz for Average
RB / VB (other emission)	1 MHz / 1 MHz for Peak, 1 MHz / 10 Hz for Average

9.4 TEST PROCEDURES

a. The measuring distance of at 1 m shall be used for measurements at frequency up to 1 GHz. For frequencies above 1 GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m Semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.
g. The testing follows the guidelines in ANSI C63.4 and FCC KDB 789033 D01 General UNII Test Procedures v01r03 Measurement Guidelines. In case the emission is fail due to the used RBW/VBW is too wide, marker-delta method of FCC Public Notice DA 00-705 will be followed.

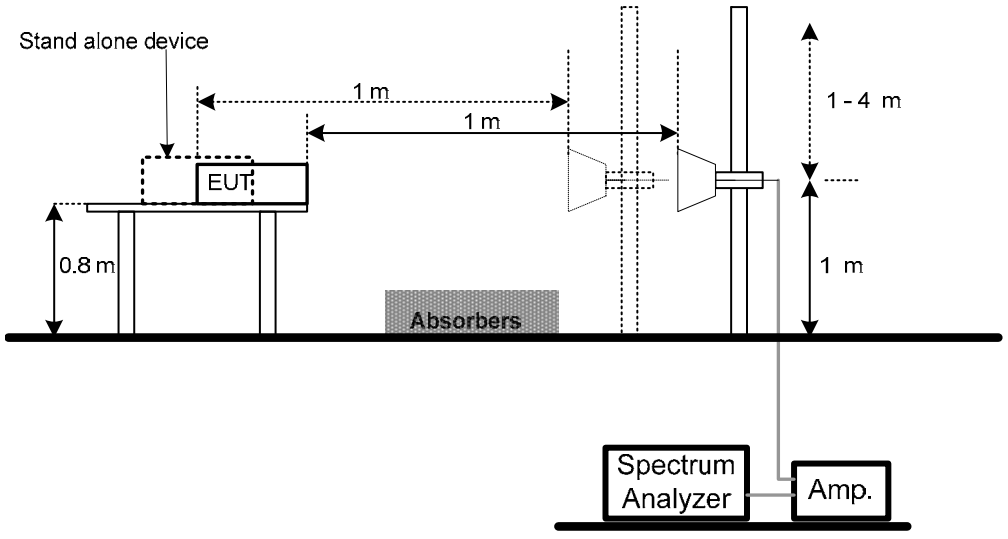
NOTE:

a. Reading in which marked as Peak means measurements by using are Peak Mode with instrument setting in RBW= 1 MHz, VBW= 1 MHz, Swp. Time = Auto.
Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW= 1 MHz, VBW= 10 Hz, Swp. Time = Auto.
b. All readings are Peak Mode value unless otherwise stated AVG in column of Note. If the Peak Mode Measured value compliance with the Peak Limits and lower than AVG Limits, the EUT shall be deemed to meet both Peak & AVG Limits and then only Peak Mode was measured, but AVG Mode didn't perform.

9.5 DEVIATION FROM TEST STANDARD

No deviation

9.6 TEST SETUP LAYOUT



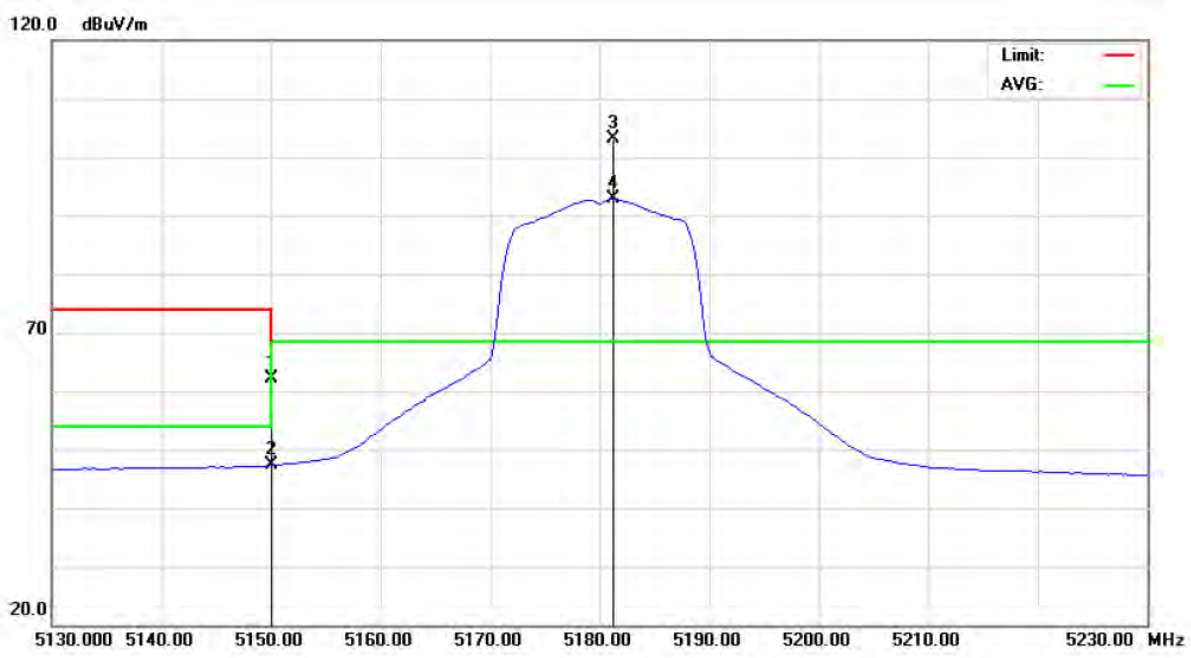
9.7 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 5.6 Unless otherwise a special operating condition is specified in the follows during the testing.

9.8 TEST RESULTS - 5180 MHZ TO 5350 MHZ BAND

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5180 MHz		

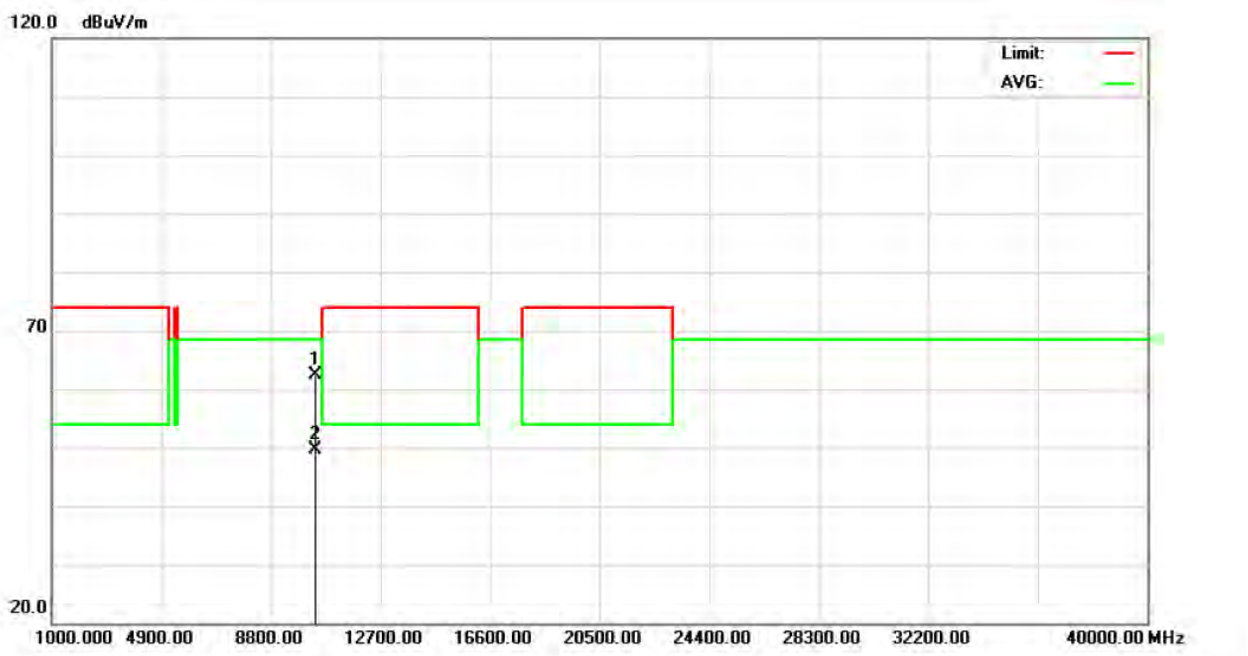
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5150.000	24.29	37.83	62.12	68.30	-6.18	peak	
2		5150.000	9.49	37.83	47.32	54.00	-6.68	AVG	
3	*	5181.250	65.28	37.88	103.16	68.30	34.86	peak	
4	X	5181.250	54.91	37.88	92.79	68.30	24.49	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5180 MHz		

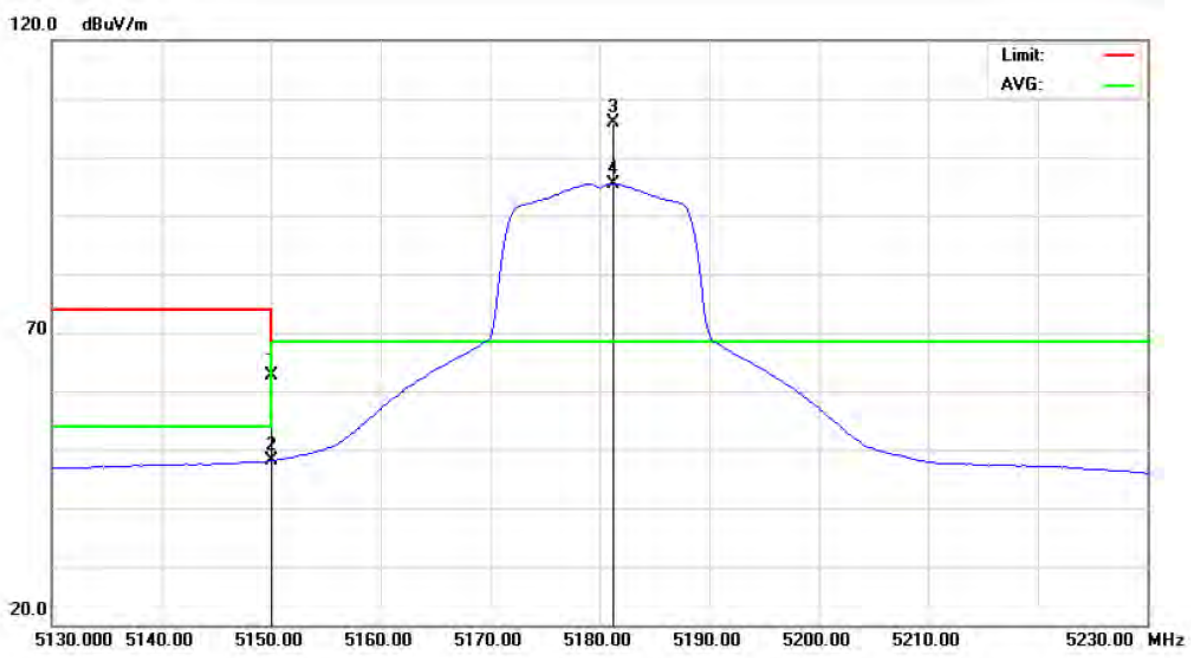
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10359.85	45.35	16.96	62.31	68.30	-5.99	peak	
2		10359.85	32.63	16.96	49.59	68.30	-18.71	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5180 MHz		

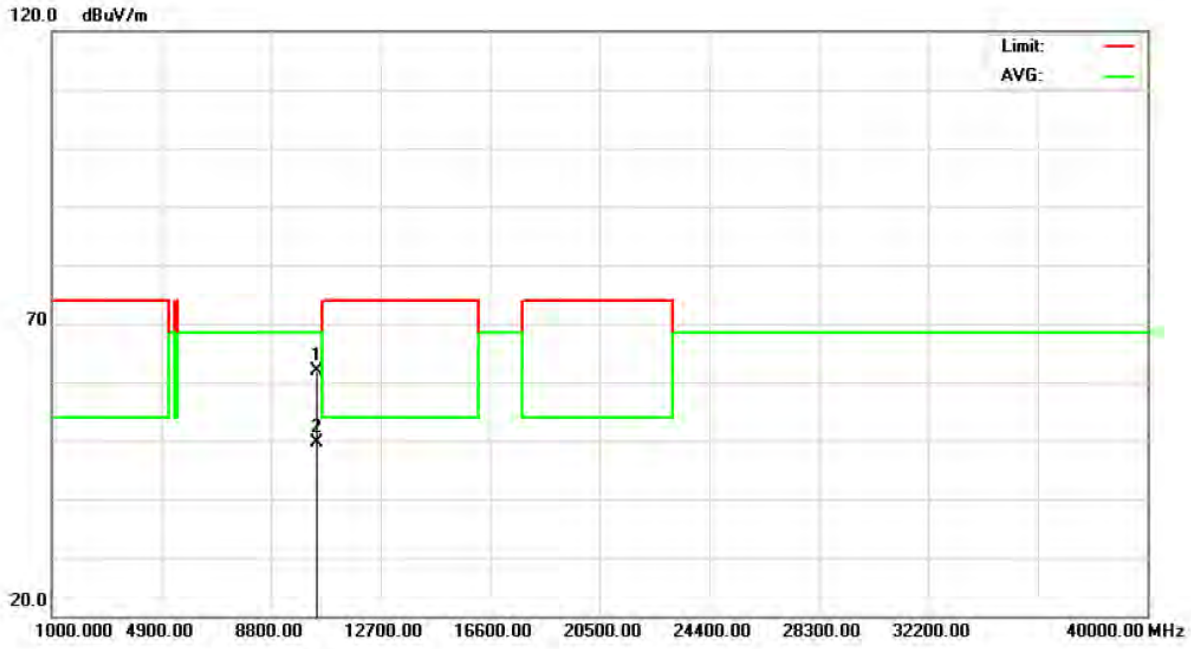
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5150.000	24.91	37.83	62.74	68.30	-5.56	peak	
2		5150.000	10.29	37.83	48.12	54.00	-5.88	AVG	
3	*	5181.250	68.10	37.88	105.98	68.30	37.68	peak	
4	X	5181.250	57.53	37.88	95.41	68.30	27.11	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5180 MHz		

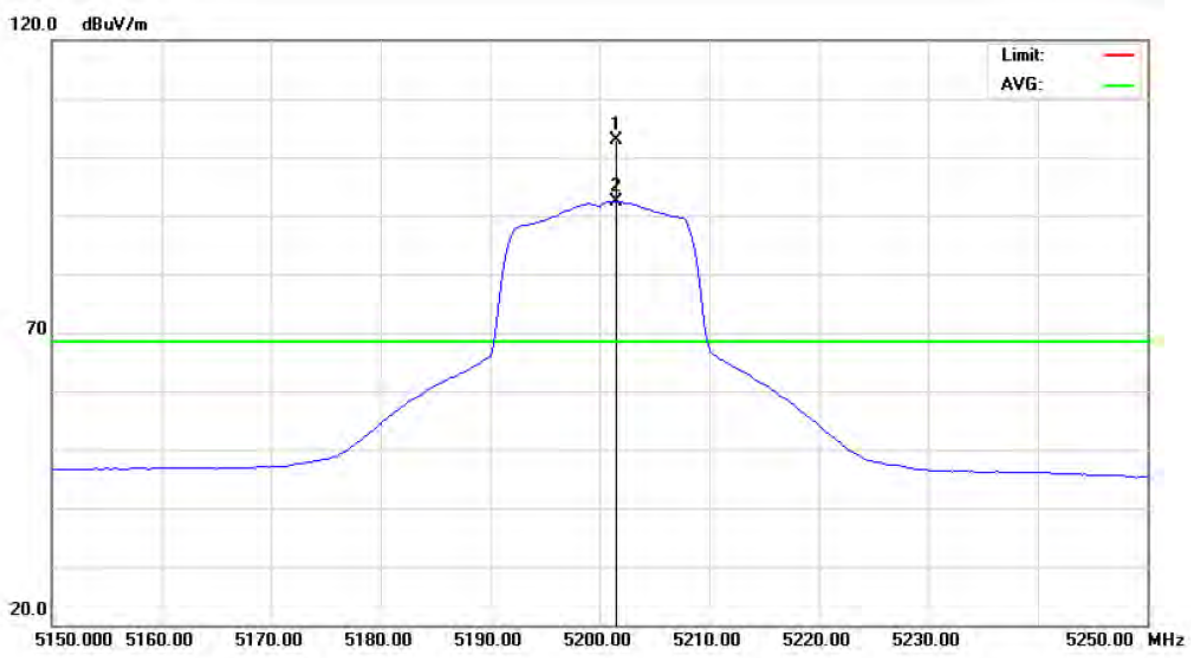
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10360.87	44.96	16.96	61.92	68.30	-6.38	peak	
2		10360.87	32.73	16.96	49.69	68.30	-18.61	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5200 MHz		

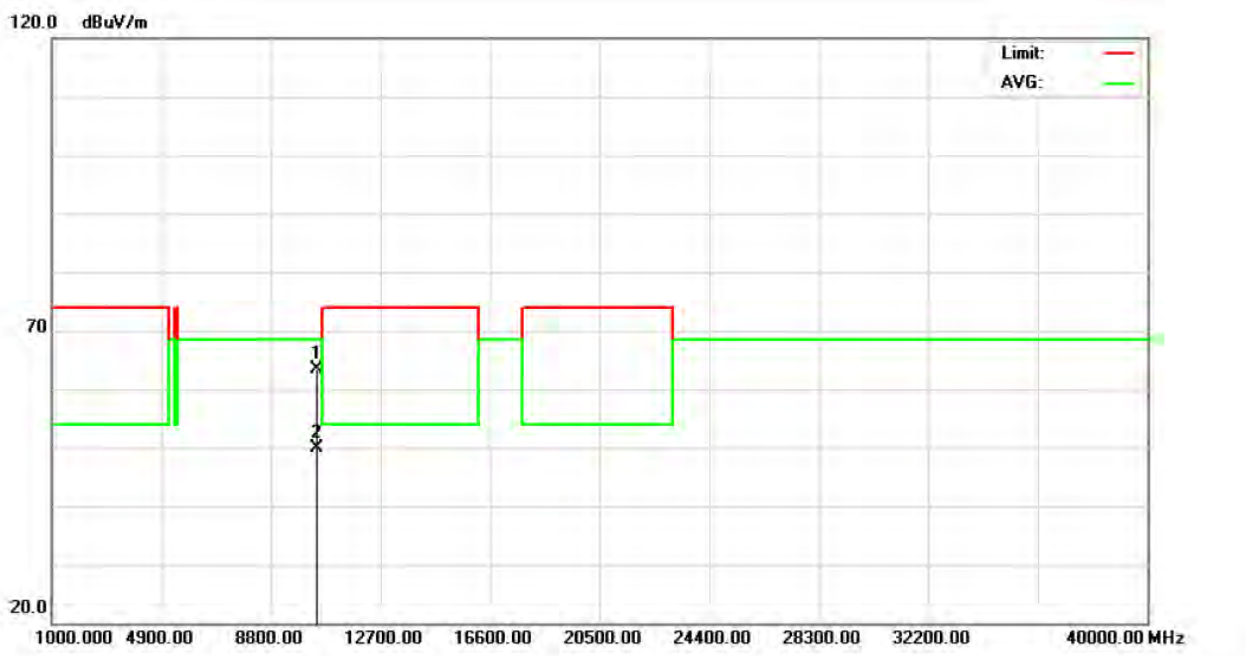
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5201.500	64.95	37.91	102.86	68.30	34.56	peak	
2	X	5201.500	54.53	37.91	92.44	68.30	24.14	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5200 MHz		

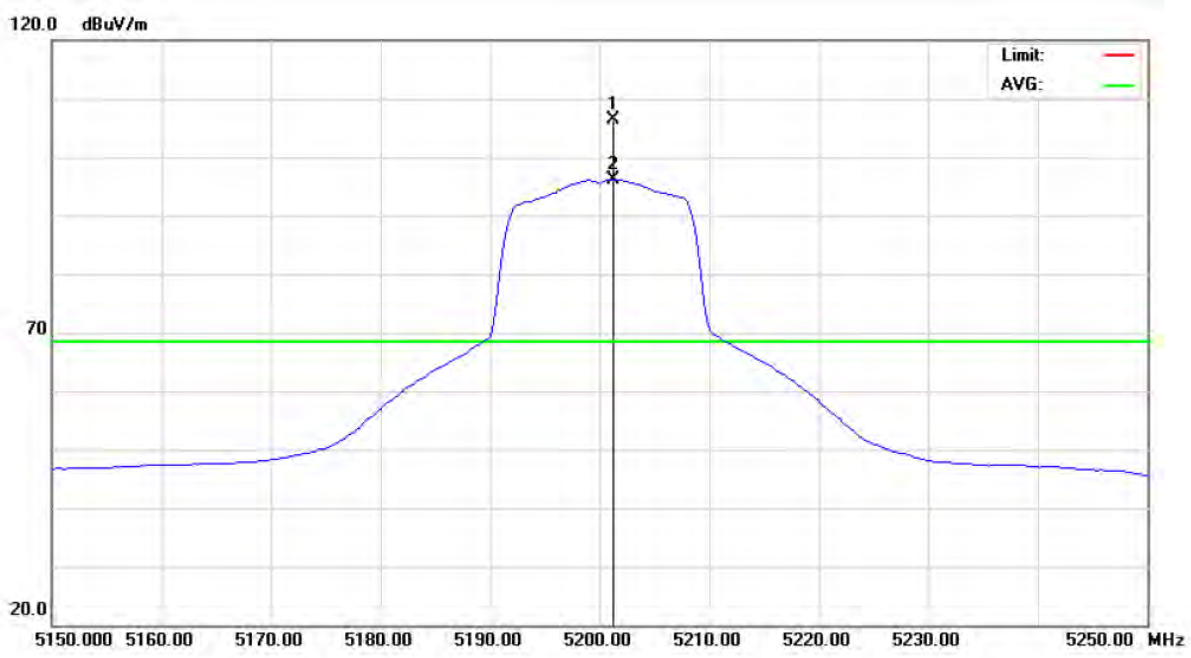
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10400.37	46.35	17.04	63.39	68.30	-4.91	peak	
2		10400.37	32.85	17.04	49.89	68.30	-18.41	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5200 MHz		

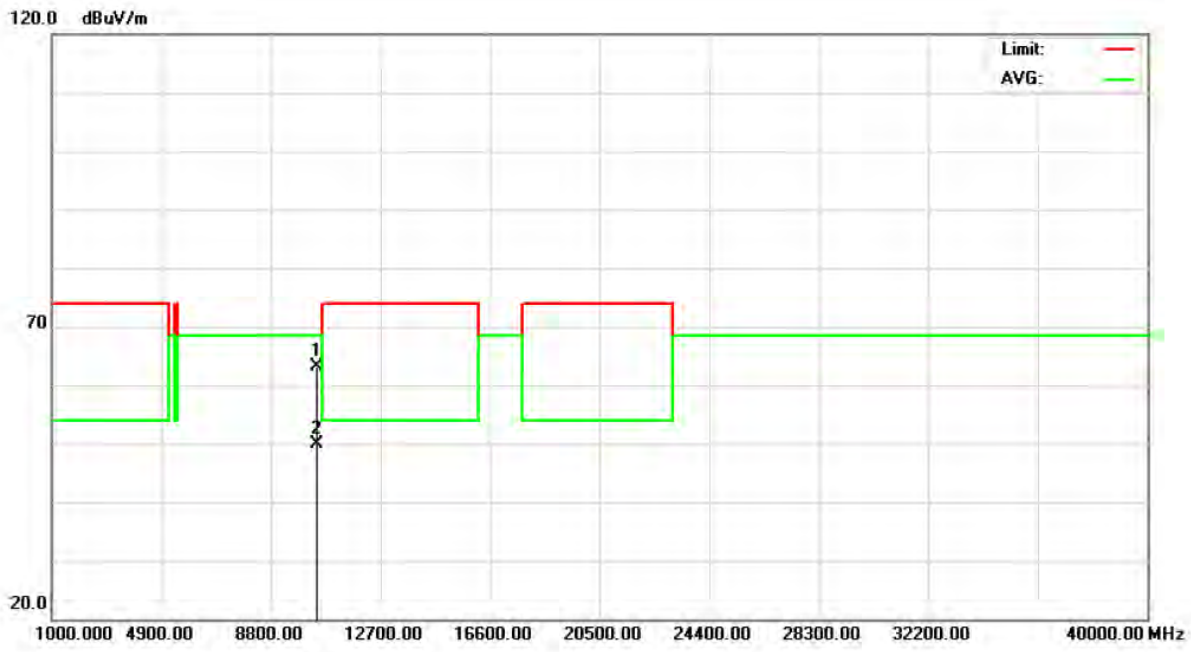
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5201.250	68.43	37.91	106.34	68.30	38.04	peak	
2	X	5201.250	58.33	37.91	96.24	68.30	27.94	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5200 MHz		

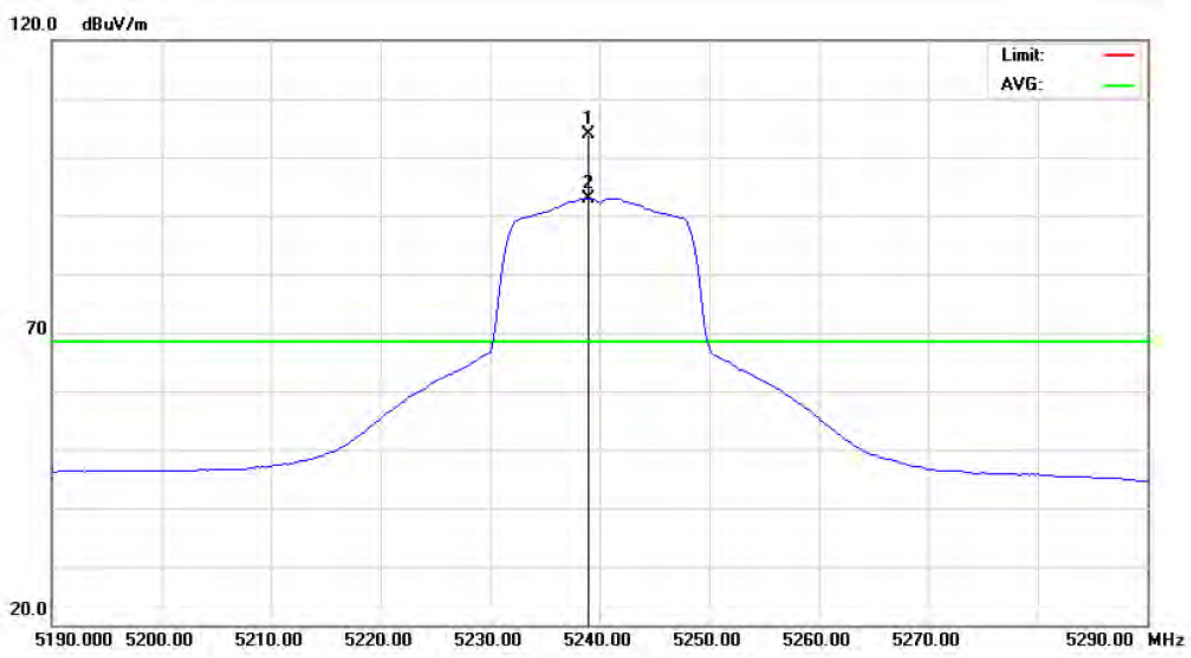
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10399.75	46.06	17.04	63.10	68.30	-5.20	peak	
2		10399.75	32.79	17.04	49.83	68.30	-18.47	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5240 MHz		

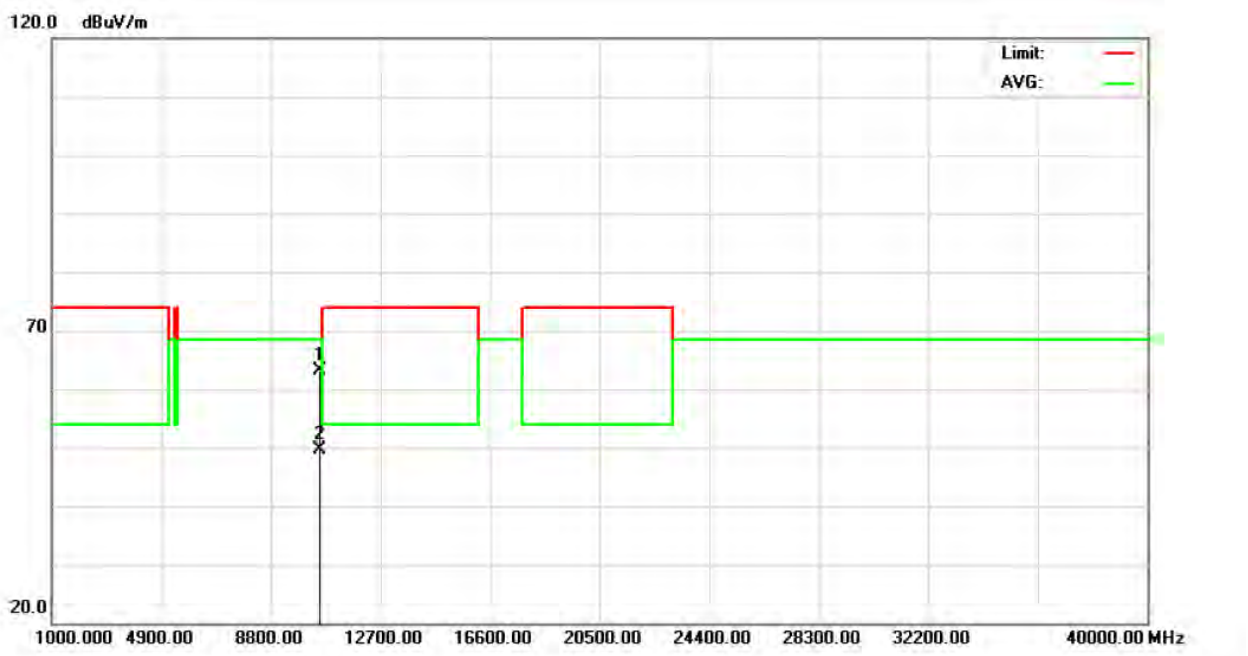
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5239.000	65.88	37.98	103.86	68.30	35.56	peak	
2	X	5239.000	54.99	37.98	92.97	68.30	24.67	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5240 MHz		

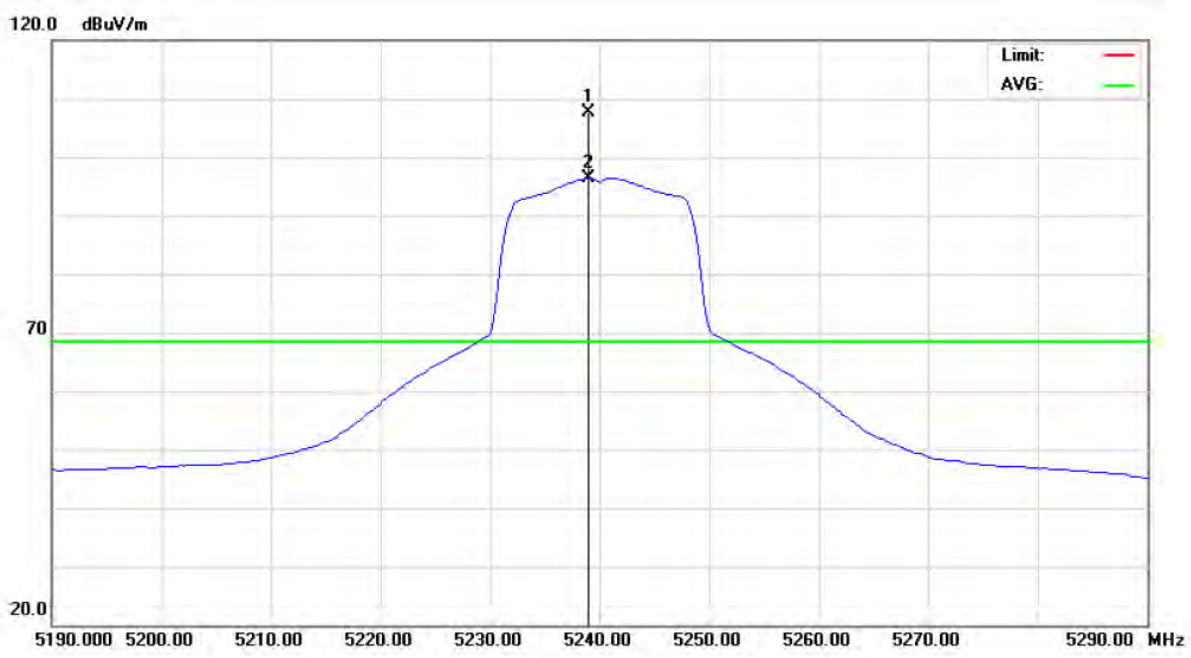
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10479.17	45.85	17.18	63.03	68.30	-5.27	peak	
2		10479.17	32.51	17.18	49.69	68.30	-18.61	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5240 MHz		

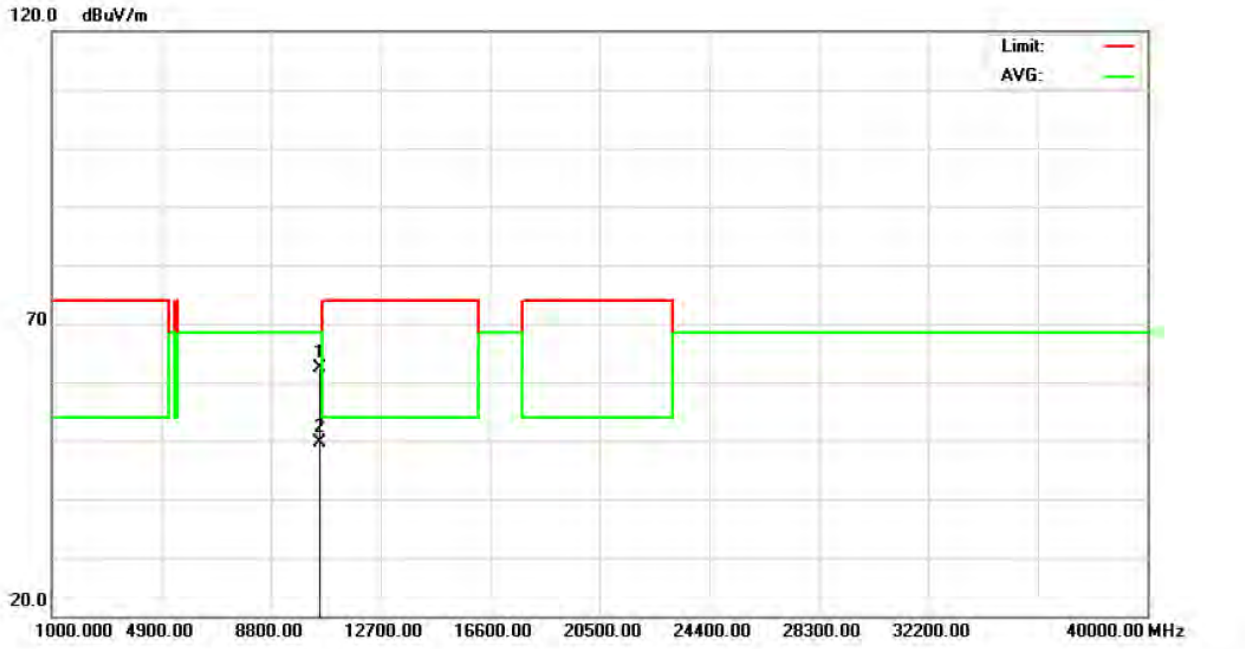
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5239.000	69.53	37.98	107.51	68.30	39.21	peak	
2	X	5239.000	58.43	37.98	96.41	68.30	28.11	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5240 MHz		

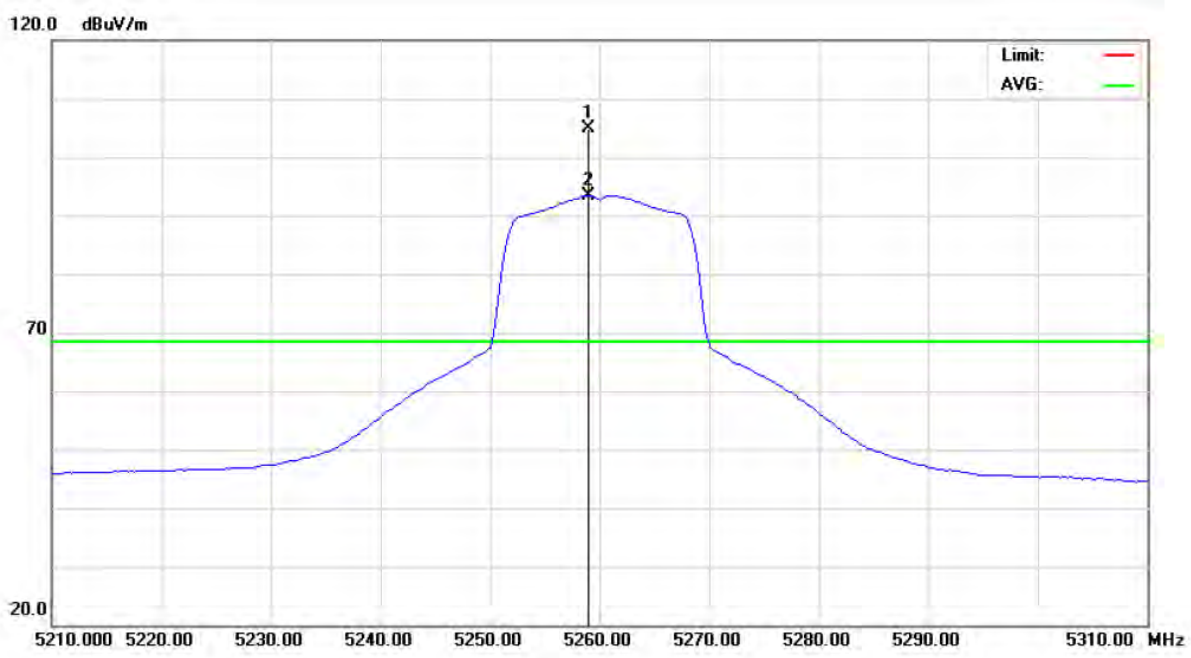
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10480.77	45.08	17.18	62.26	68.30	-6.04	peak	
2		10480.77	32.56	17.18	49.74	68.30	-18.56	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5260 MHz		

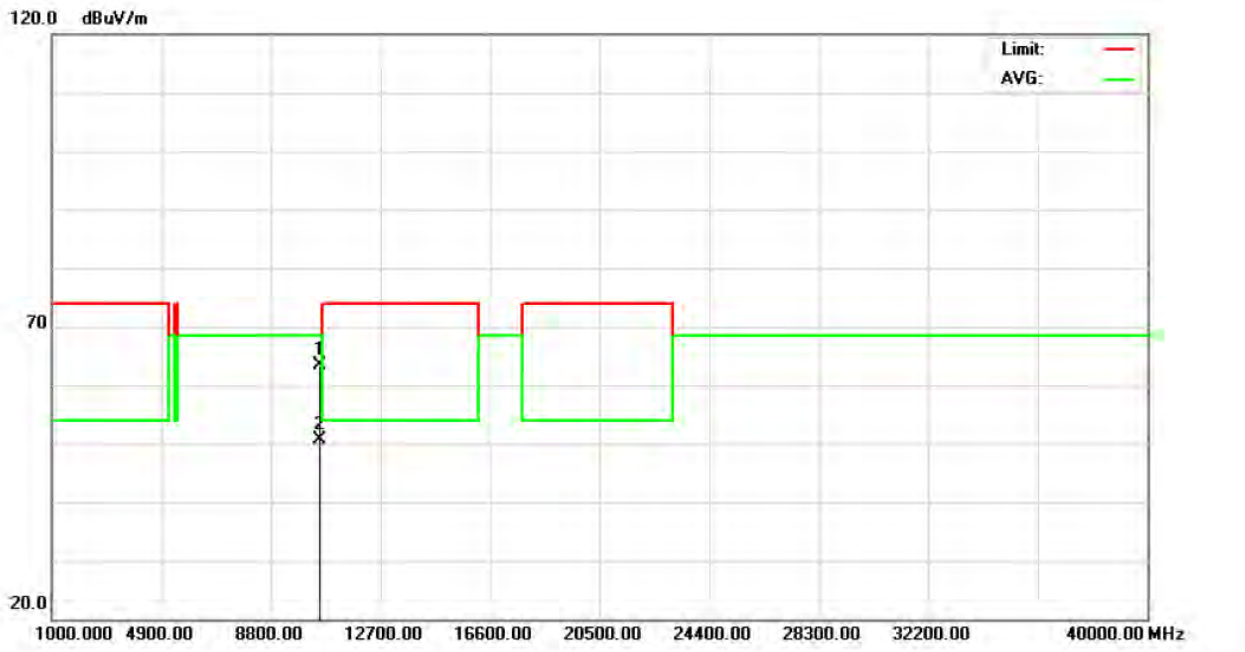
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5259.000	66.94	38.01	104.95	68.30	36.65	peak	
2	X	5259.000	55.36	38.01	93.37	68.30	25.07	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5260 MHz		

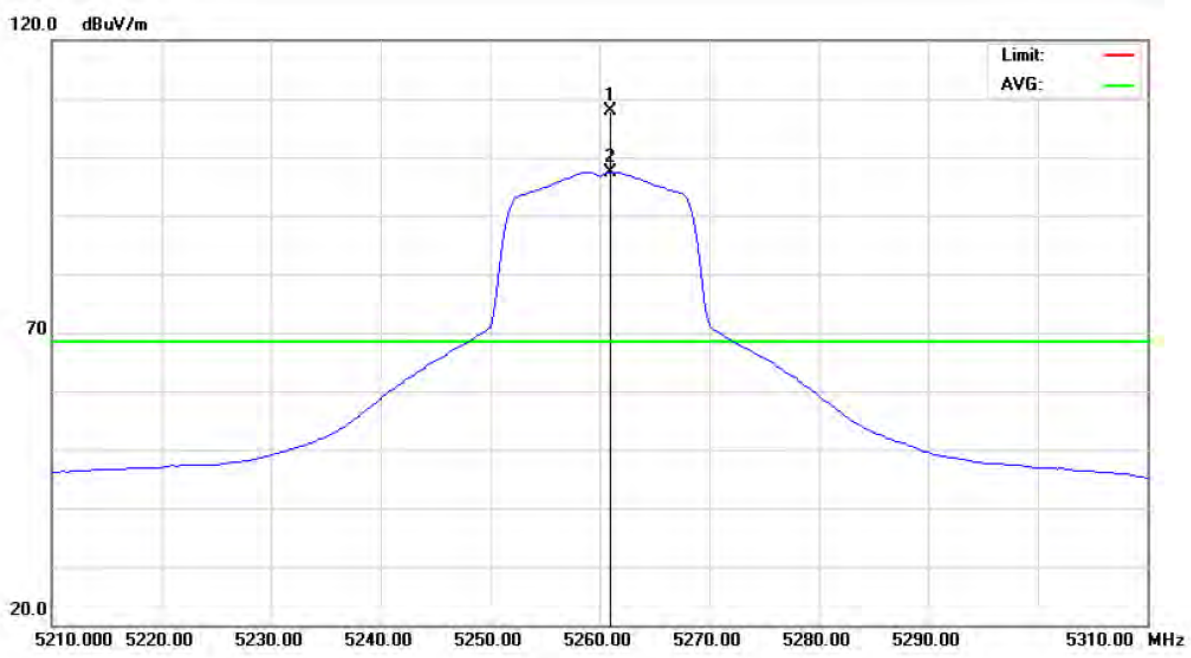
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10520.14	45.95	17.31	63.26	68.30	-5.04	peak	
2		10520.14	33.30	17.31	50.61	68.30	-17.69	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5260 MHz		

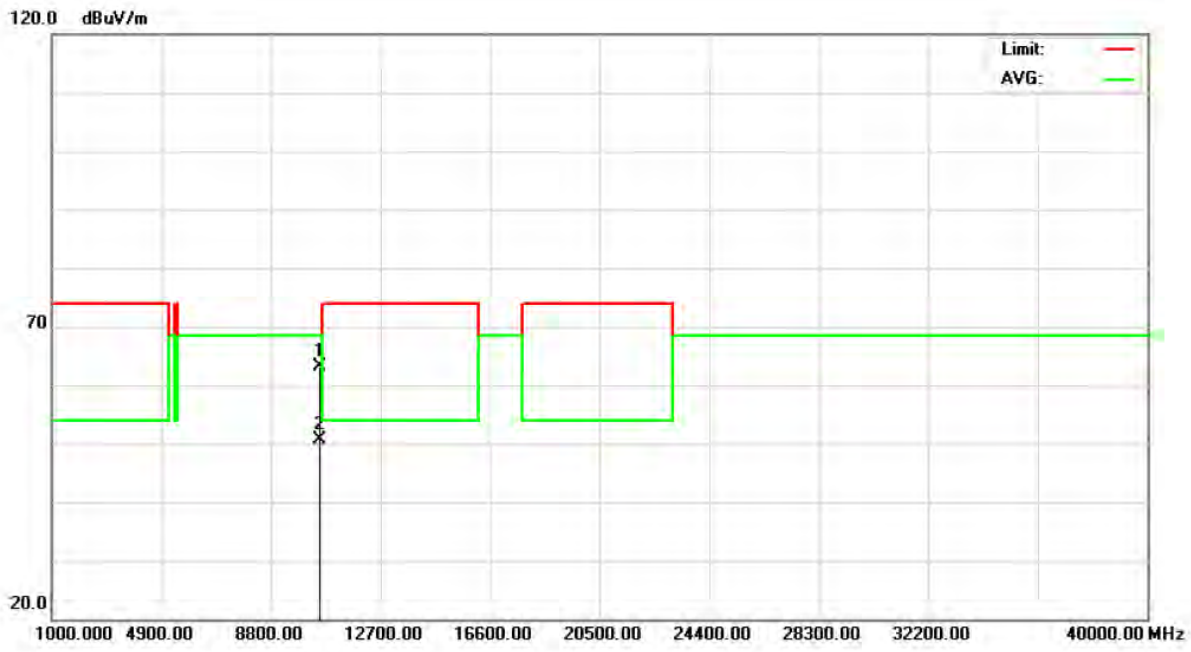
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5261.000	69.86	38.01	107.87	68.30	39.57	peak	
2	X	5261.000	59.42	38.01	97.43	68.30	29.13	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5260 MHz		

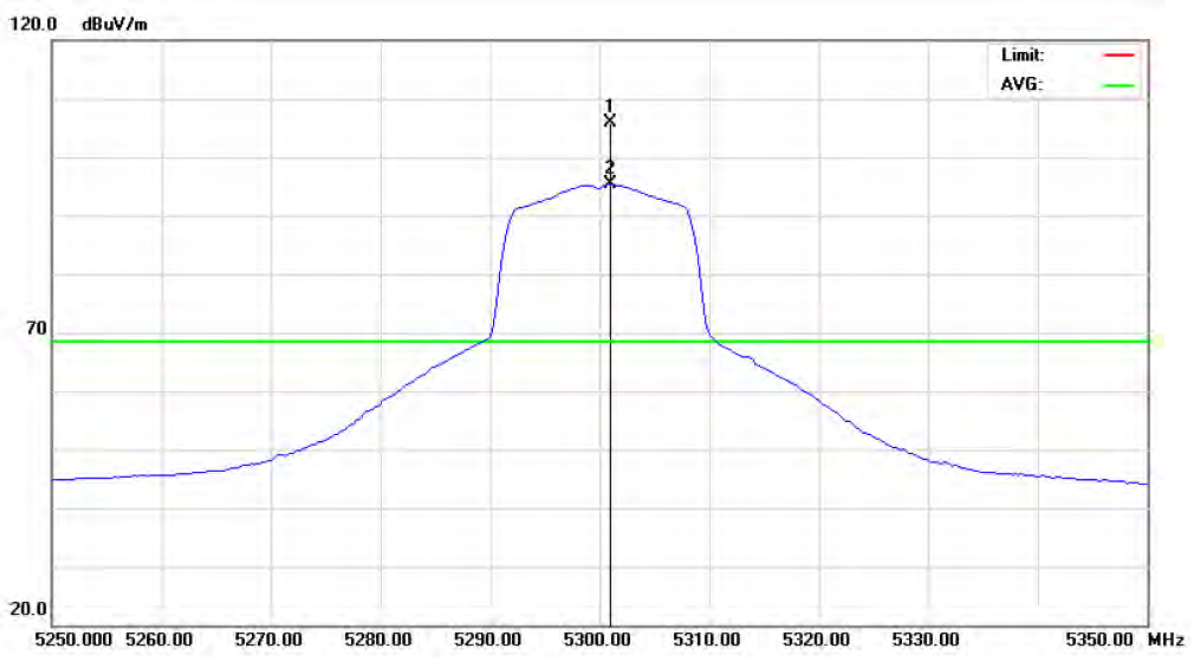
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10520.04	45.80	17.31	63.11	68.30	-5.19	peak	
2		10520.04	33.30	17.31	50.61	68.30	-17.69	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5300 MHz		

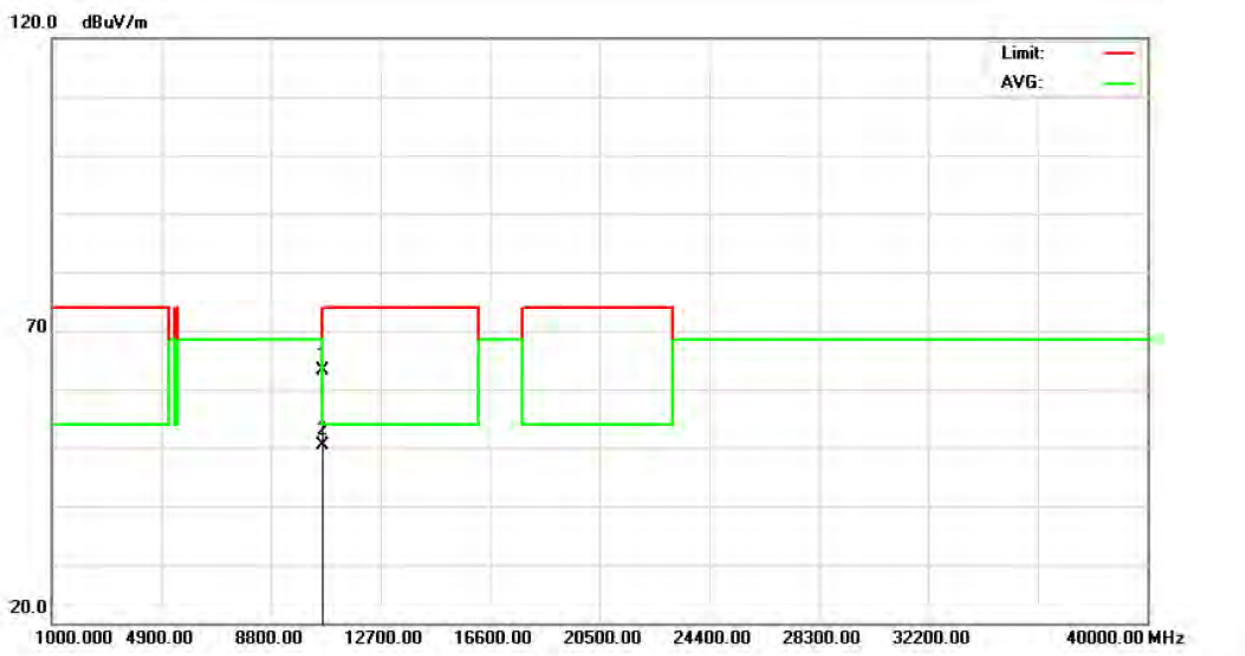
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5301.000	67.77	38.08	105.85	68.30	37.55	peak	
2	X	5301.000	57.21	38.08	95.29	68.30	26.99	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5300 MHz		

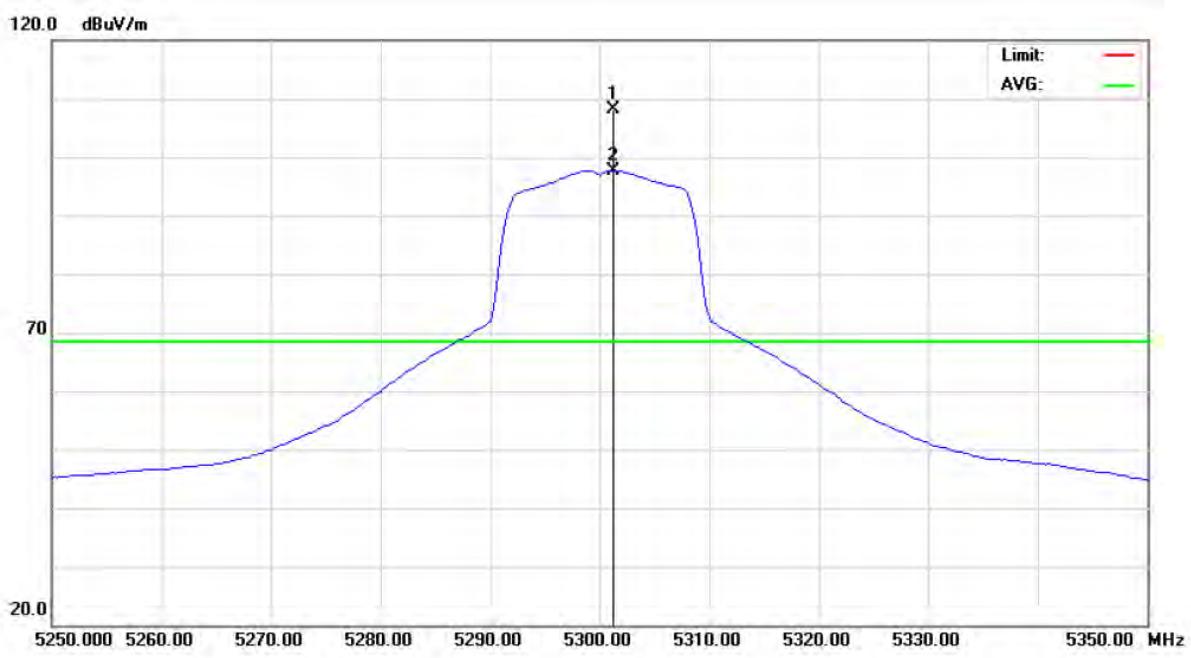
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10599.76	45.41	17.69	63.10	68.30	-5.20	peak	
2		10599.76	32.72	17.69	50.41	68.30	-17.89	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5300 MHz		

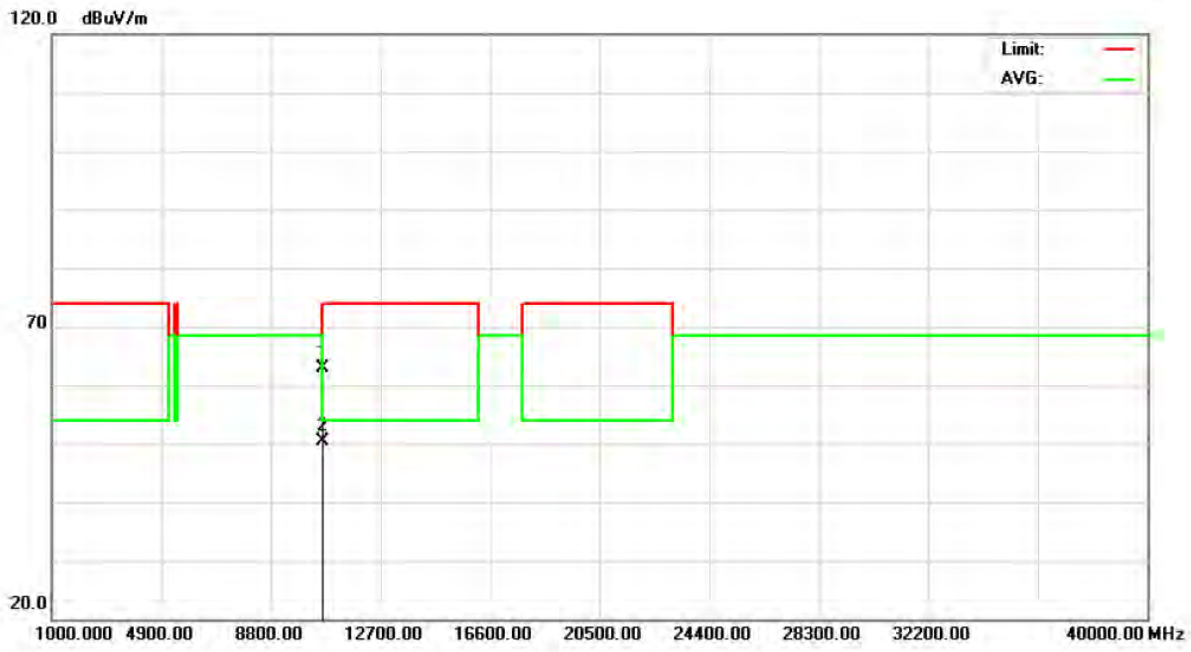
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5301.250	69.97	38.08	108.05	68.30	39.75	peak	
2	X	5301.250	59.67	38.08	97.75	68.30	29.45	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5300 MHz		

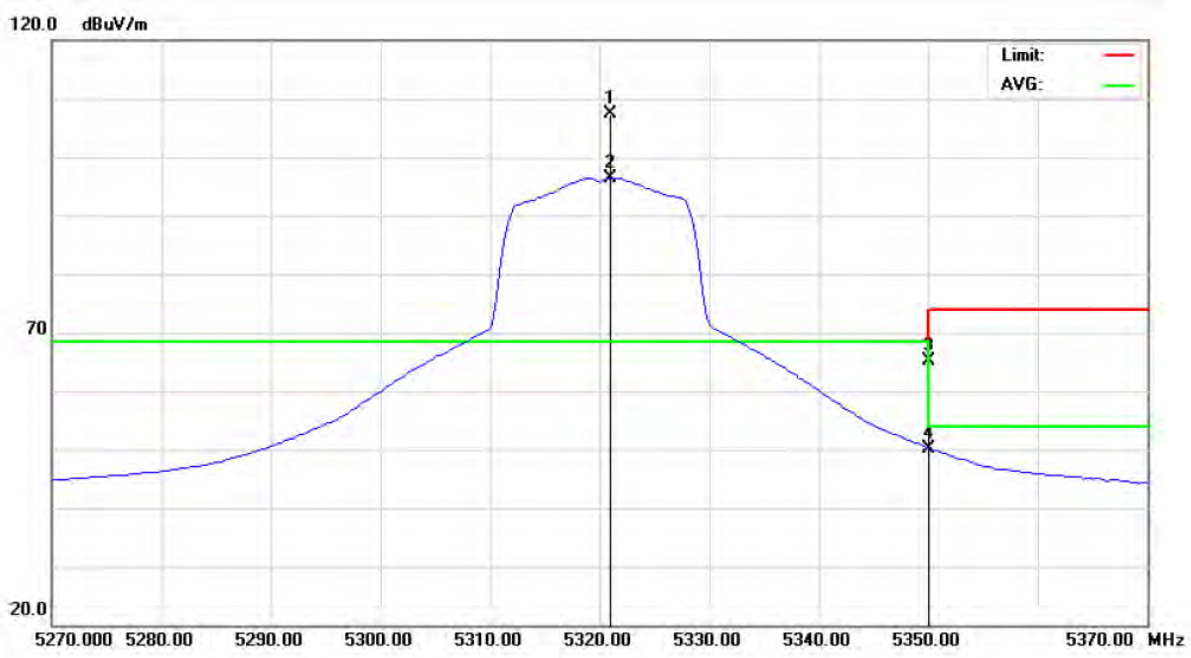
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		10600.38	45.28	17.69	62.97	74.00	-11.03	peak	
2	*	10600.38	32.76	17.69	50.45	54.00	-3.55	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5320 MHz		

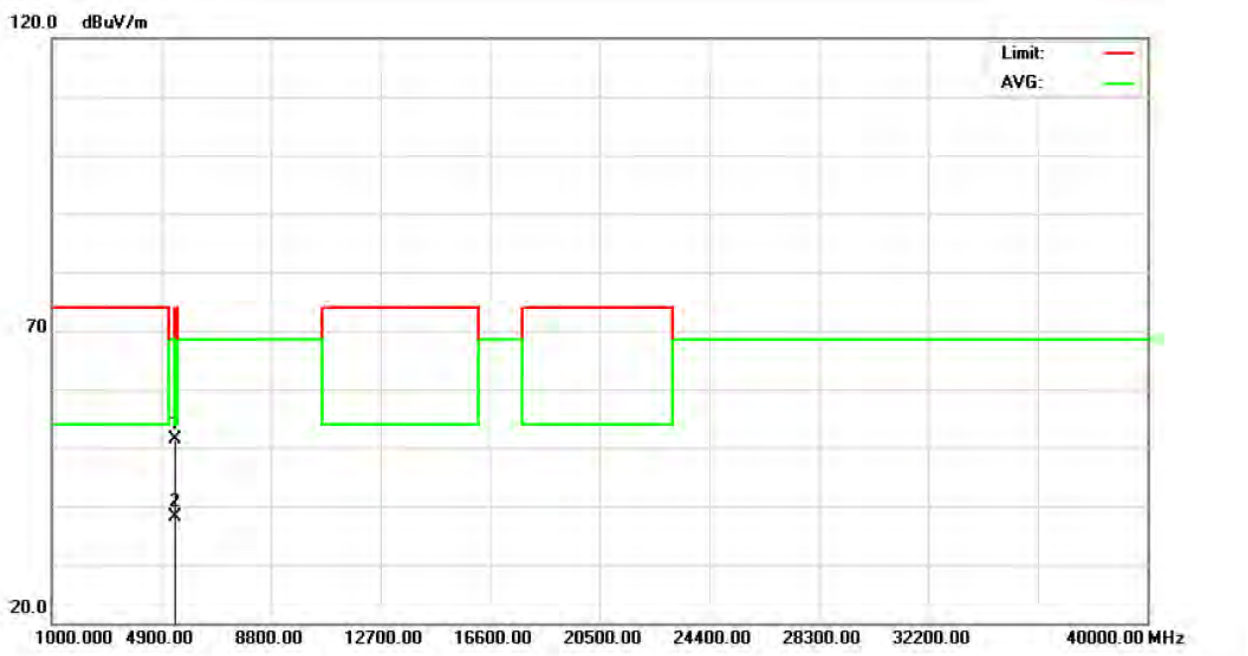
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5321.000	69.21	38.11	107.32	68.30	39.02	peak	
2	X	5321.000	58.39	38.11	96.50	68.30	28.20	AVG	
3		5350.000	26.90	38.16	65.06	68.30	-3.24	peak	
4		5350.000	12.05	38.16	50.21	54.00	-3.79	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5320 MHz		

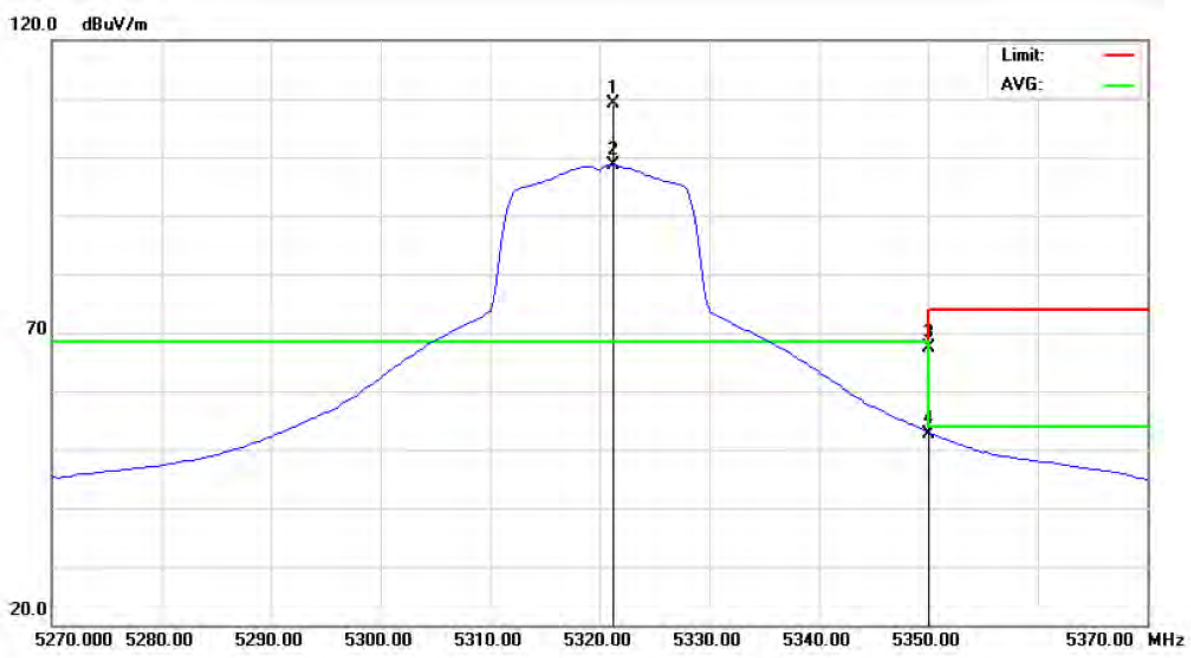
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5319.335	44.68	6.73	51.41	68.30	-16.89	peak	
2		5319.335	31.49	6.73	38.22	68.30	-30.08	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5320 MHz		

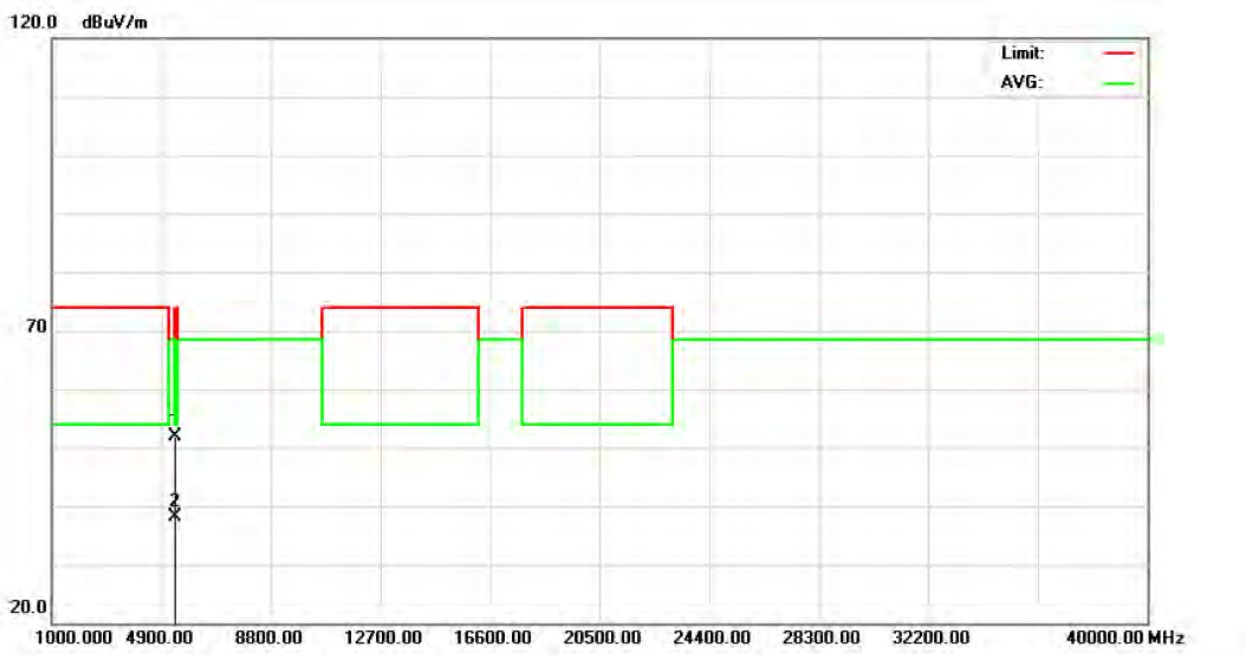
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5321.250	71.12	38.11	109.23	68.30	40.93	peak	
2	X	5321.250	60.46	38.11	98.57	68.30	30.27	AVG	
3		5350.000	29.11	38.16	67.27	68.30	-1.03	peak	
4		5350.000	14.59	38.16	52.75	54.00	-1.25	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5320 MHz		

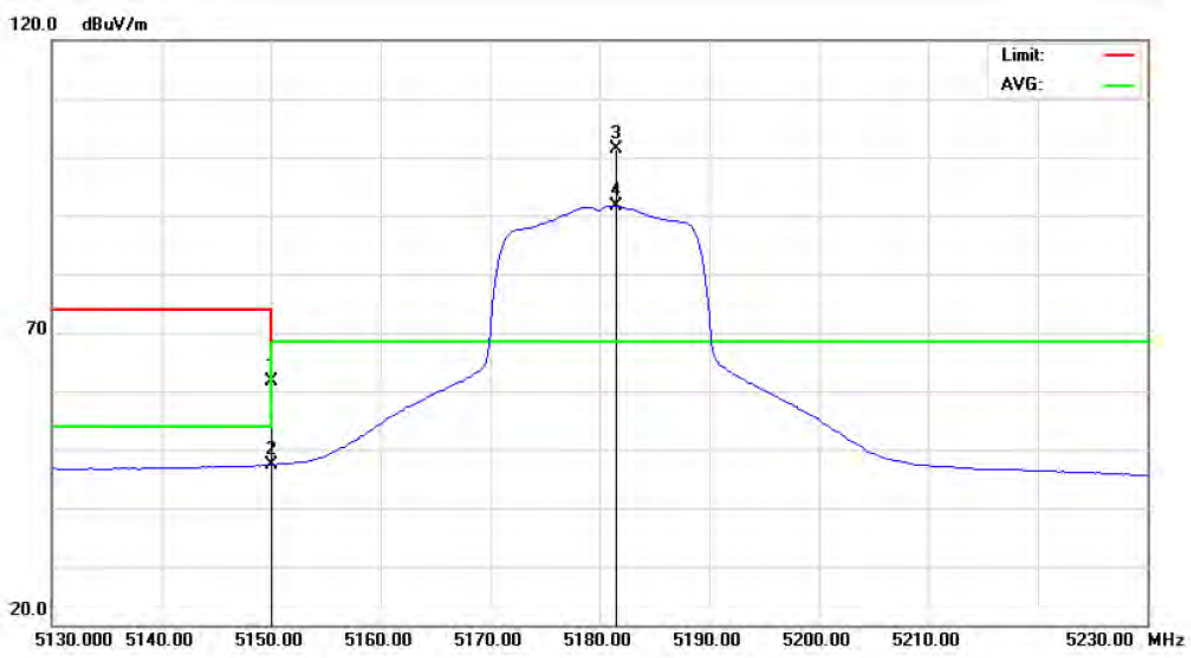
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5320.310	45.09	6.73	51.82	68.30	-16.48	peak	
2		5320.310	31.41	6.73	38.14	68.30	-30.16	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5180 MHz		

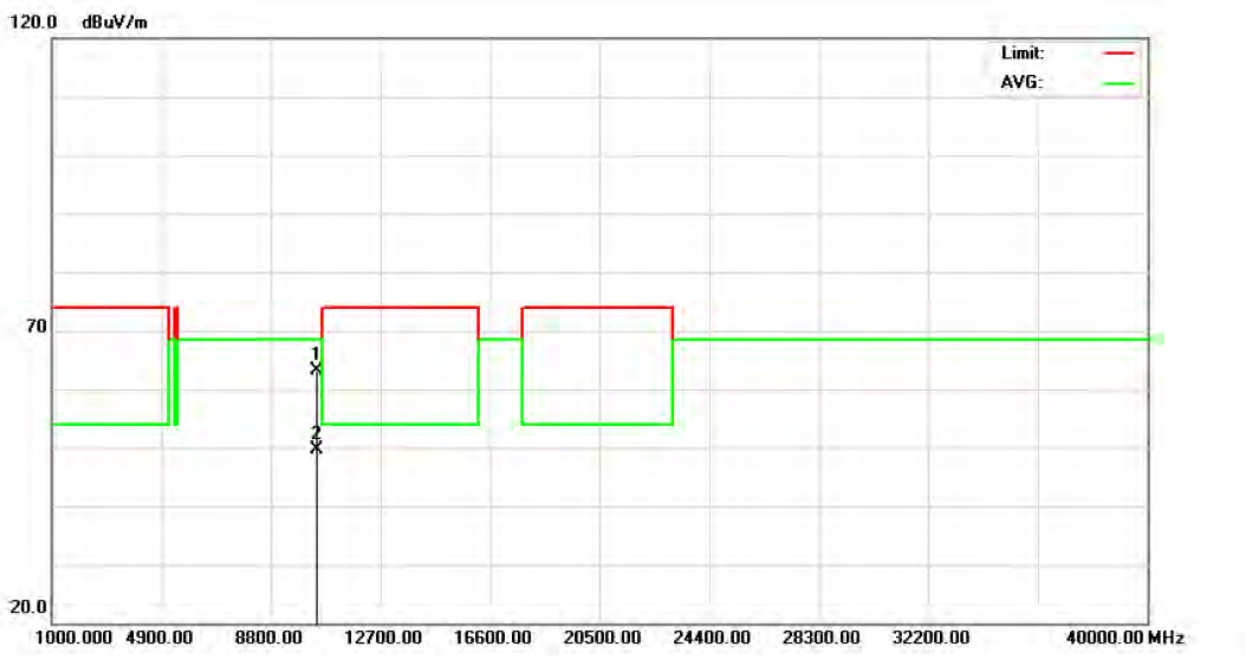
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5150.000	23.91	37.83	61.74	68.30	-6.56	peak	
2		5150.000	9.54	37.83	47.37	54.00	-6.63	AVG	
3	*	5181.500	63.47	37.88	101.35	68.30	33.05	peak	
4	X	5181.500	53.82	37.88	91.70	68.30	23.40	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5180 MHz		

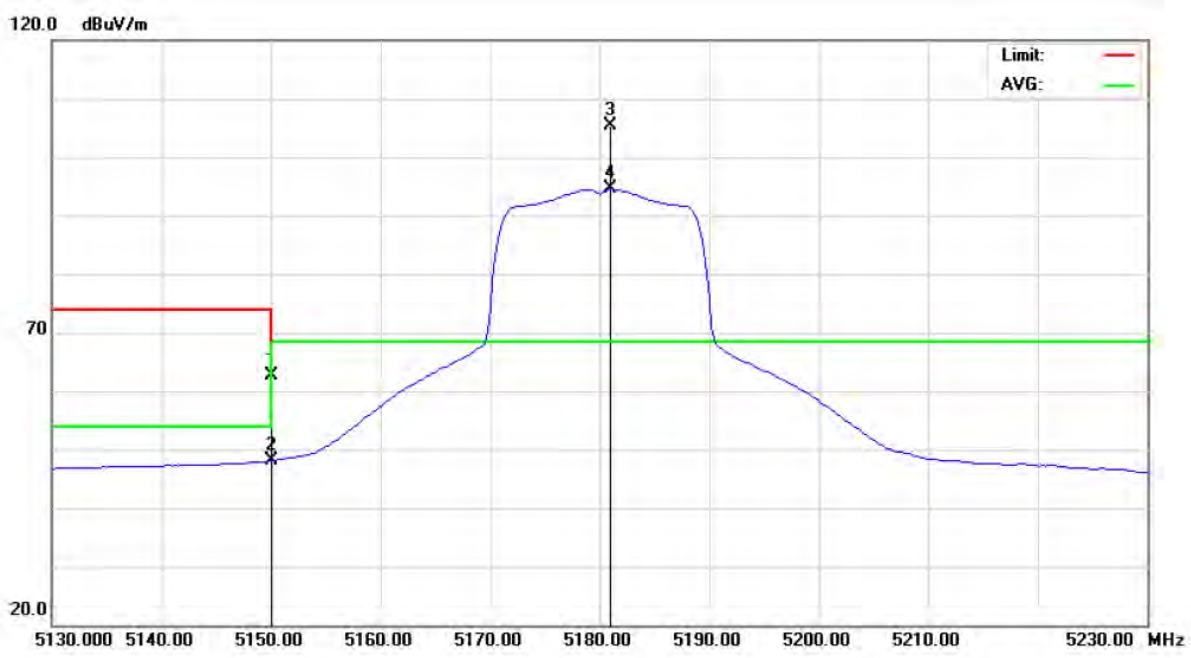
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10360.33	46.07	16.96	63.03	68.30	-5.27	peak	
2		10360.33	32.69	16.96	49.65	68.30	-18.65	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5180 MHz		

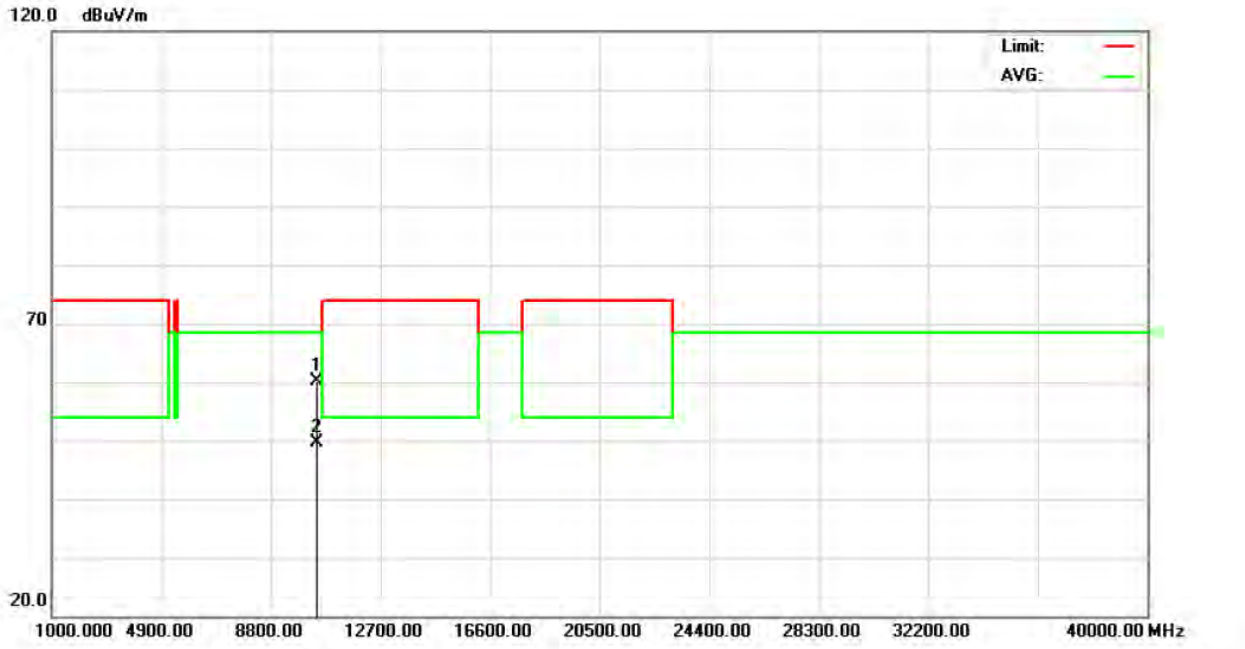
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5150.000	24.86	37.83	62.69	68.30	-5.61	peak	
2		5150.000	10.23	37.83	48.06	54.00	-5.94	AVG	
3	*	5181.000	67.47	37.88	105.35	68.30	37.05	peak	
4	X	5181.000	56.63	37.88	94.51	68.30	26.21	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5180 MHz		

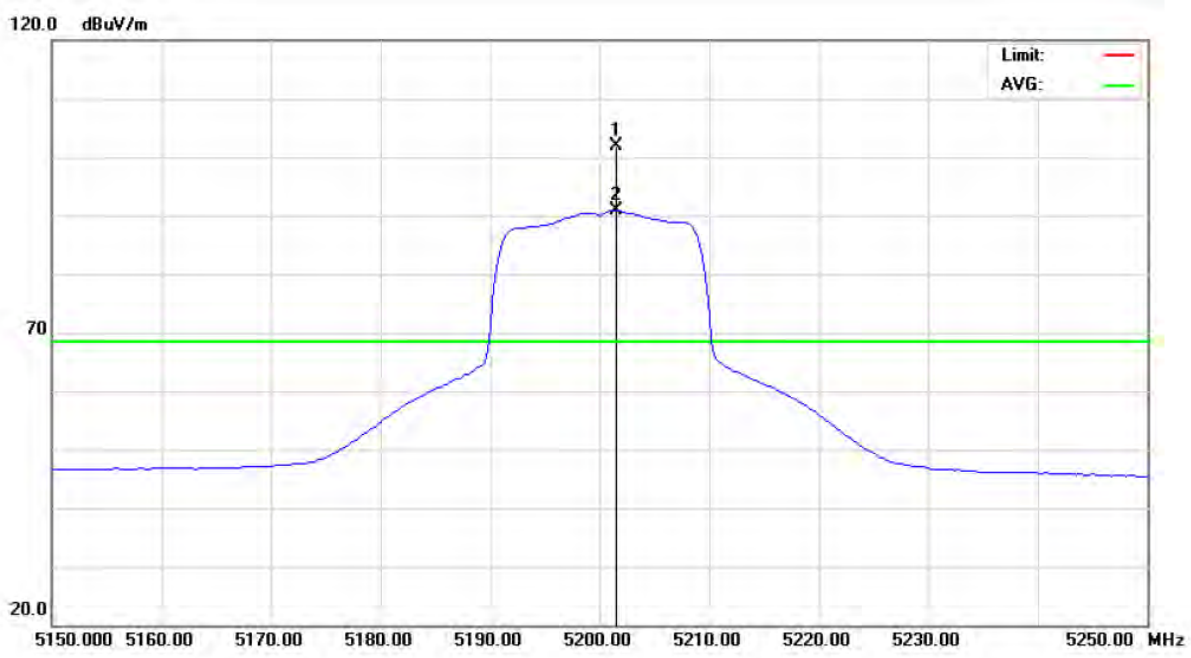
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10360.01	43.26	16.96	60.22	68.30	-8.08	peak	
2		10360.01	32.69	16.96	49.65	68.30	-18.65	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5200 MHz		

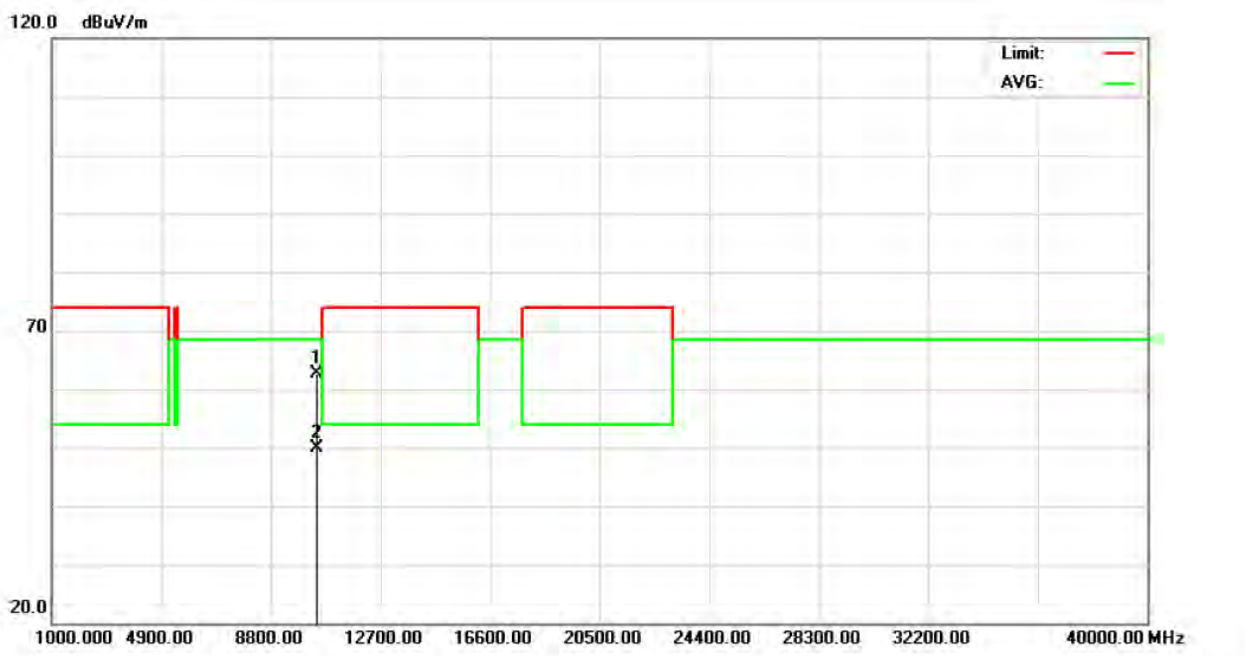
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5201.500	64.06	37.91	101.97	68.30	33.67	peak	
2	X	5201.500	52.90	37.91	90.81	68.30	22.51	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5200 MHz		

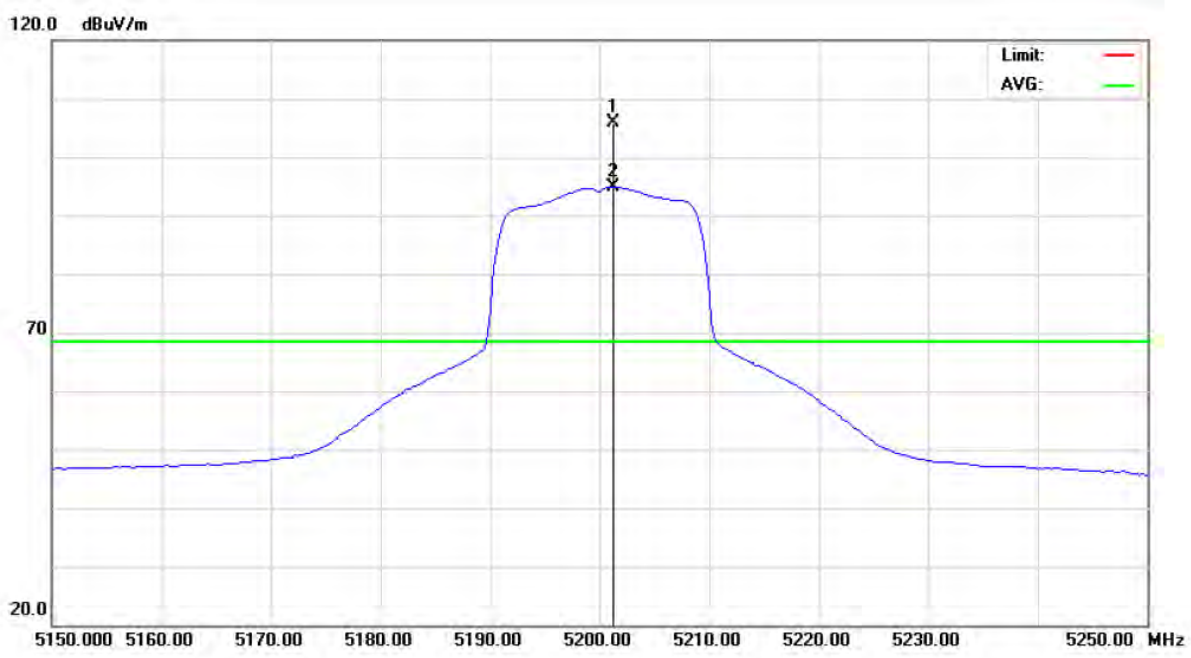
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10399.91	45.69	17.04	62.73	68.30	-5.57	peak	
2		10399.91	32.72	17.04	49.76	68.30	-18.54	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5200 MHz		

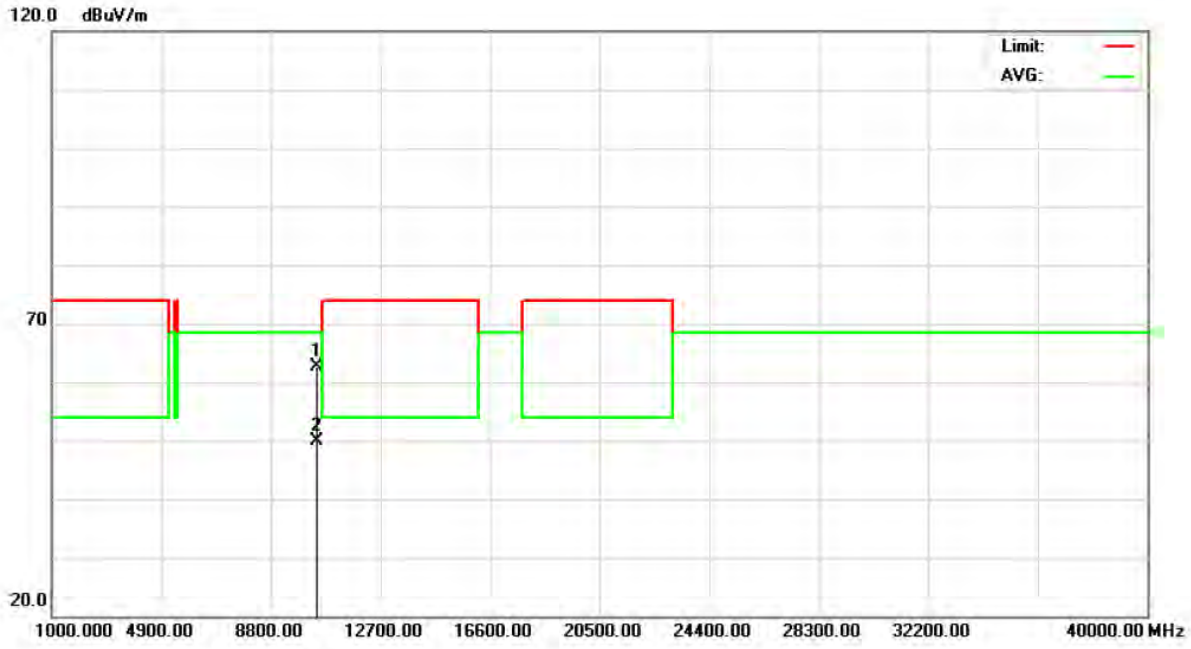
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5201.250	68.06	37.91	105.97	68.30	37.67	peak	
2	X	5201.250	56.99	37.91	94.90	68.30	26.60	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5200 MHz		

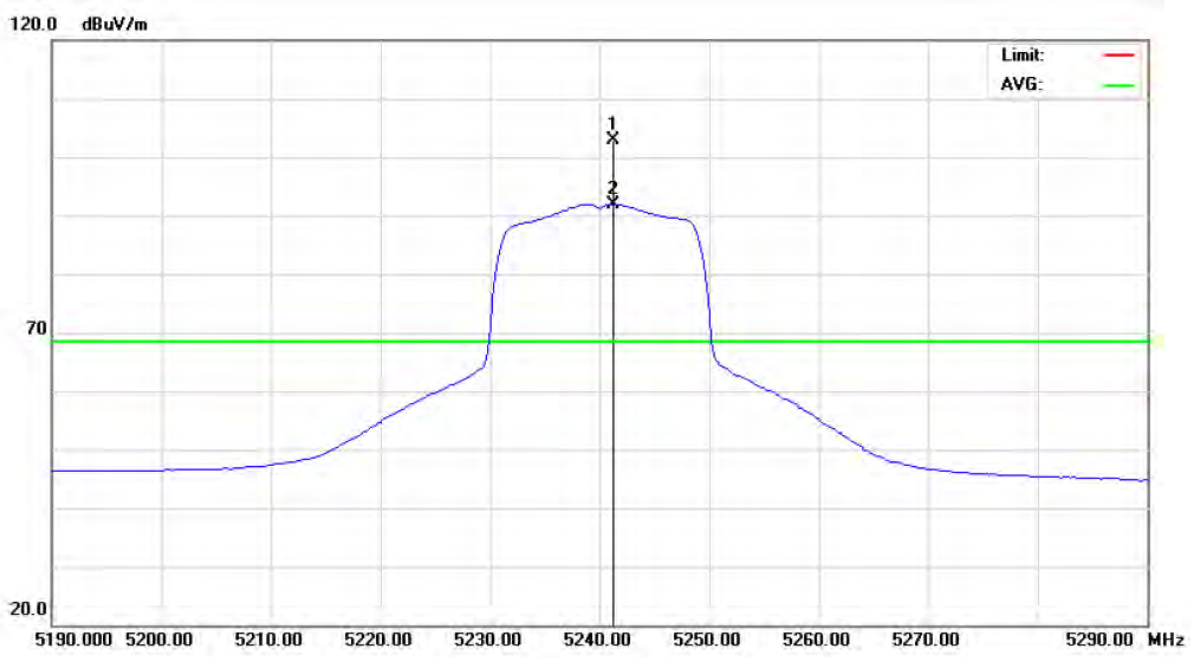
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10399.89	45.53	17.04	62.57	68.30	-5.73	peak	
2		10399.89	32.74	17.04	49.78	68.30	-18.52	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5240 MHz		

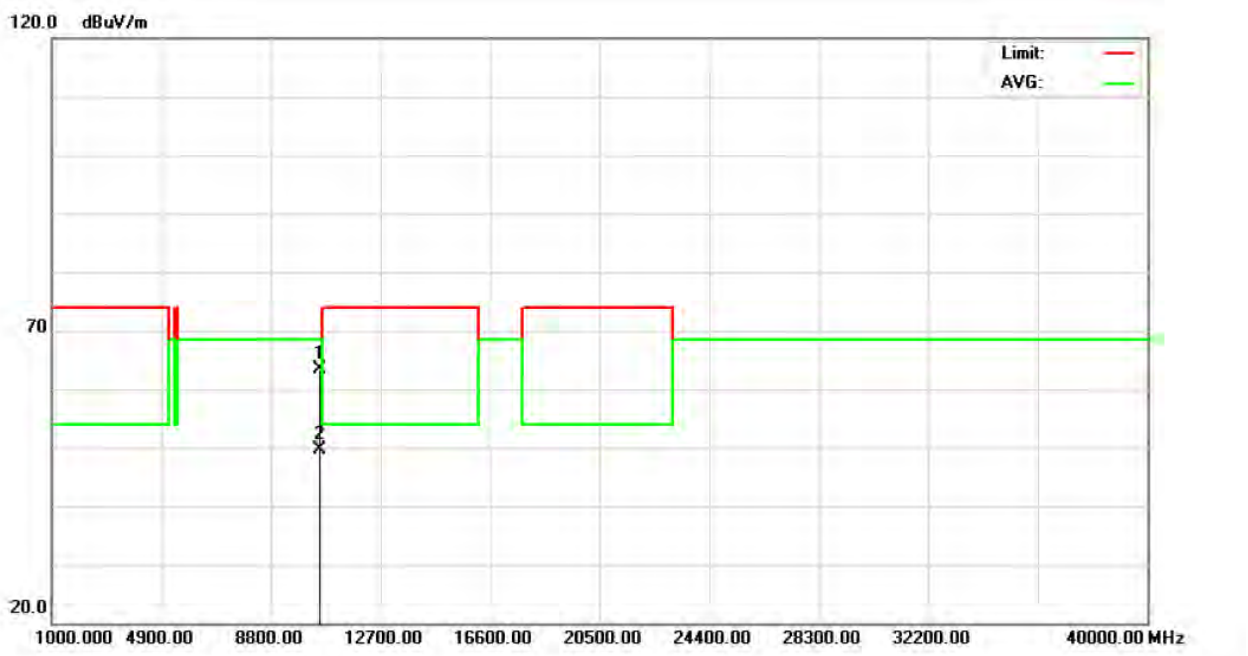
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5241.250	64.92	37.98	102.90	68.30	34.60	peak	
2	X	5241.250	54.00	37.98	91.98	68.30	23.68	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5240 MHz		

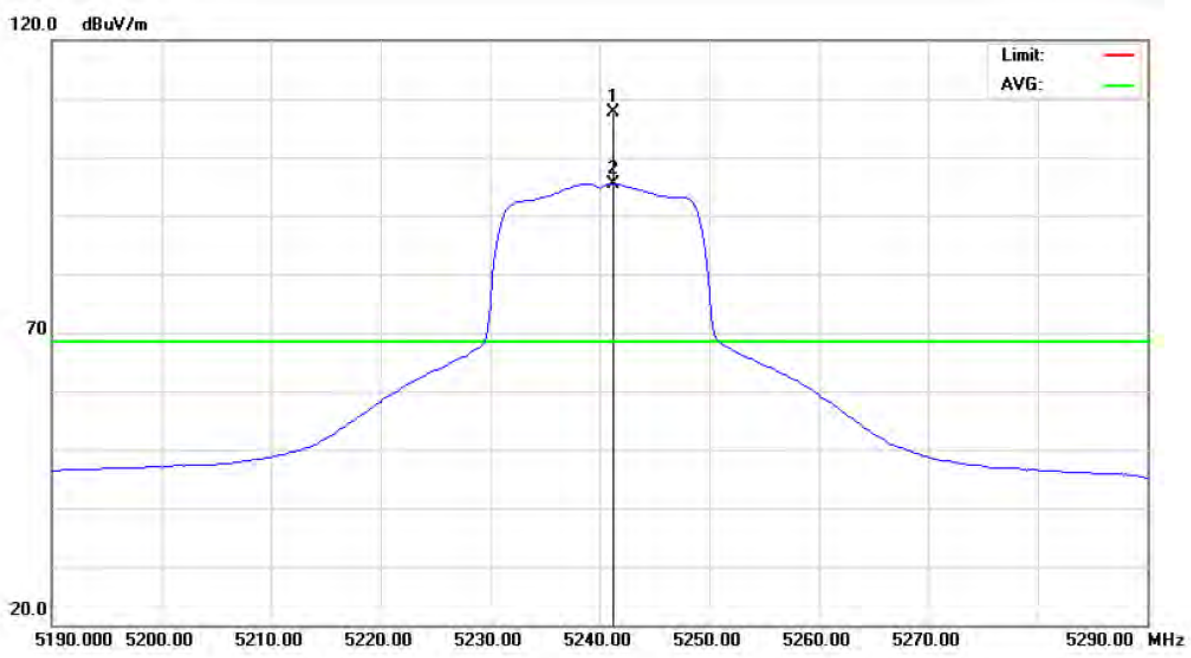
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10479.28	46.22	17.18	63.40	68.30	-4.90	peak	
2		10479.28	32.44	17.18	49.62	68.30	-18.68	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5240 MHz		

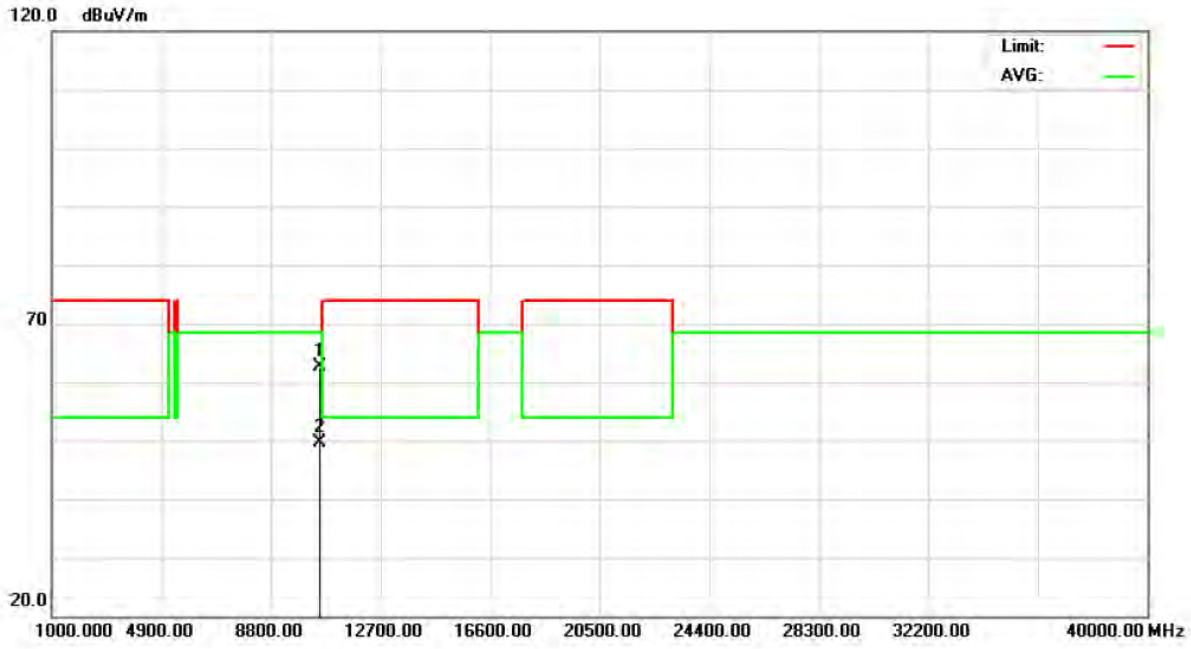
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5241.250	69.57	37.98	107.55	68.30	39.25	peak	
2	X	5241.250	57.51	37.98	95.49	68.30	27.19	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5240 MHz		

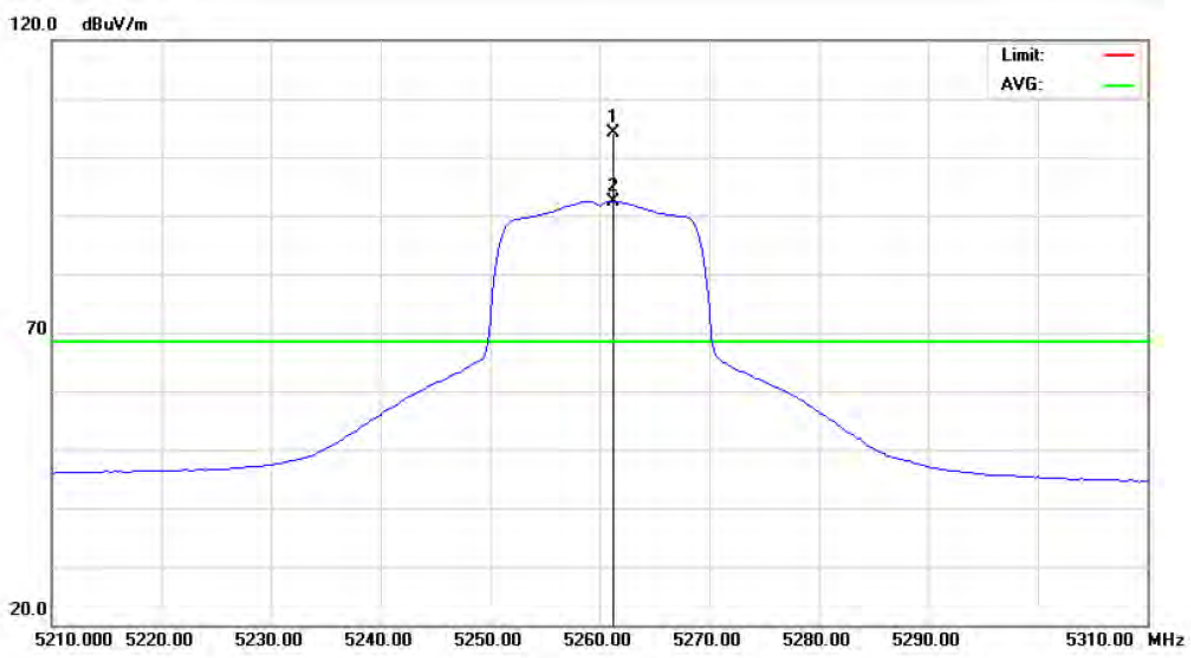
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10479.54	45.45	17.18	62.63	68.30	-5.67	peak	
2		10479.54	32.50	17.18	49.68	68.30	-18.62	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5260 MHz		

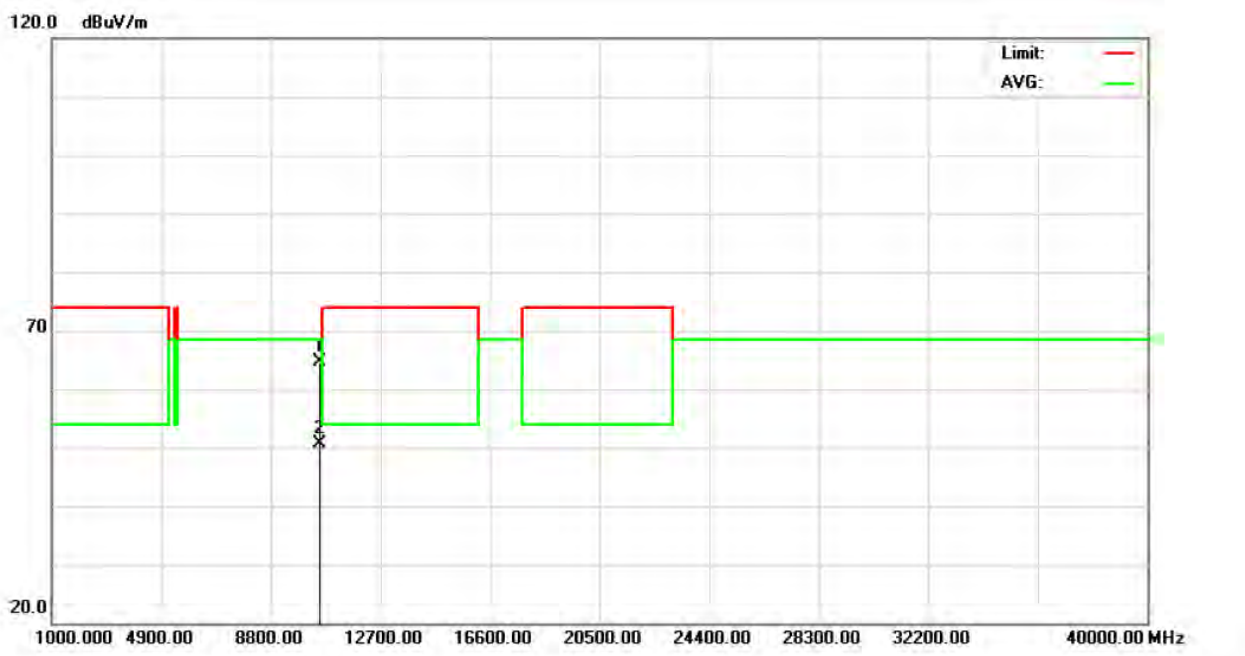
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5261.250	66.14	38.01	104.15	68.30	35.85	peak	
2	X	5261.250	54.44	38.01	92.45	68.30	24.15	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5260 MHz		

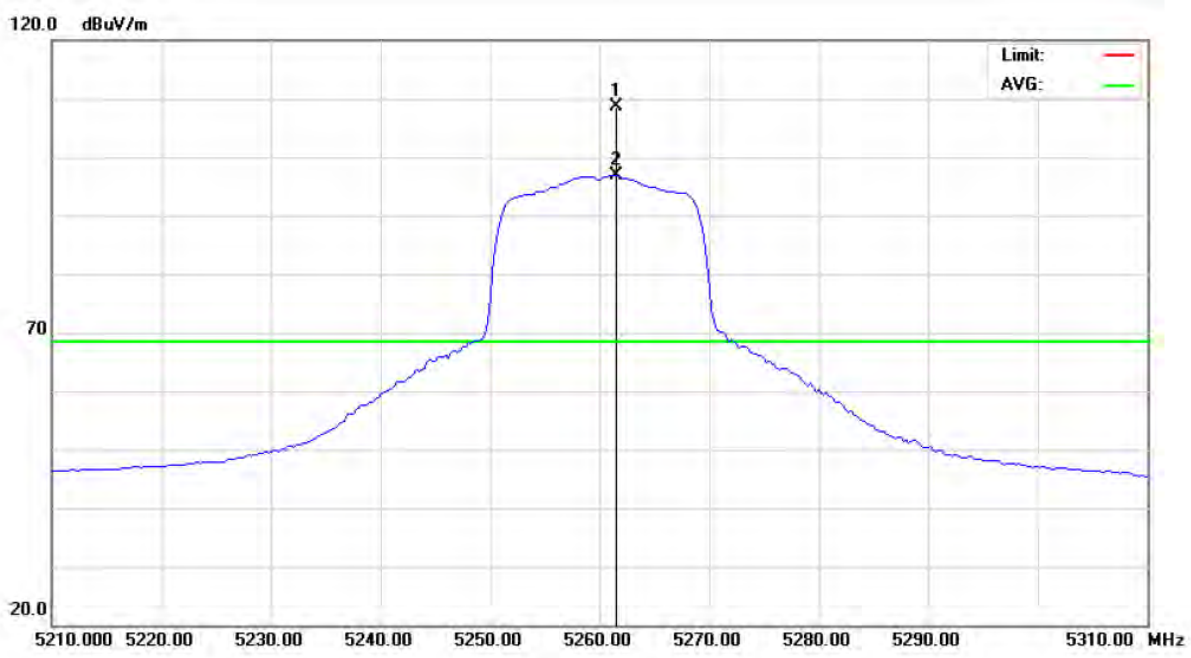
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10519.21	47.25	17.31	64.56	68.30	-3.74	peak	
2		10519.21	33.22	17.31	50.53	68.30	-17.77	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5260 MHz		

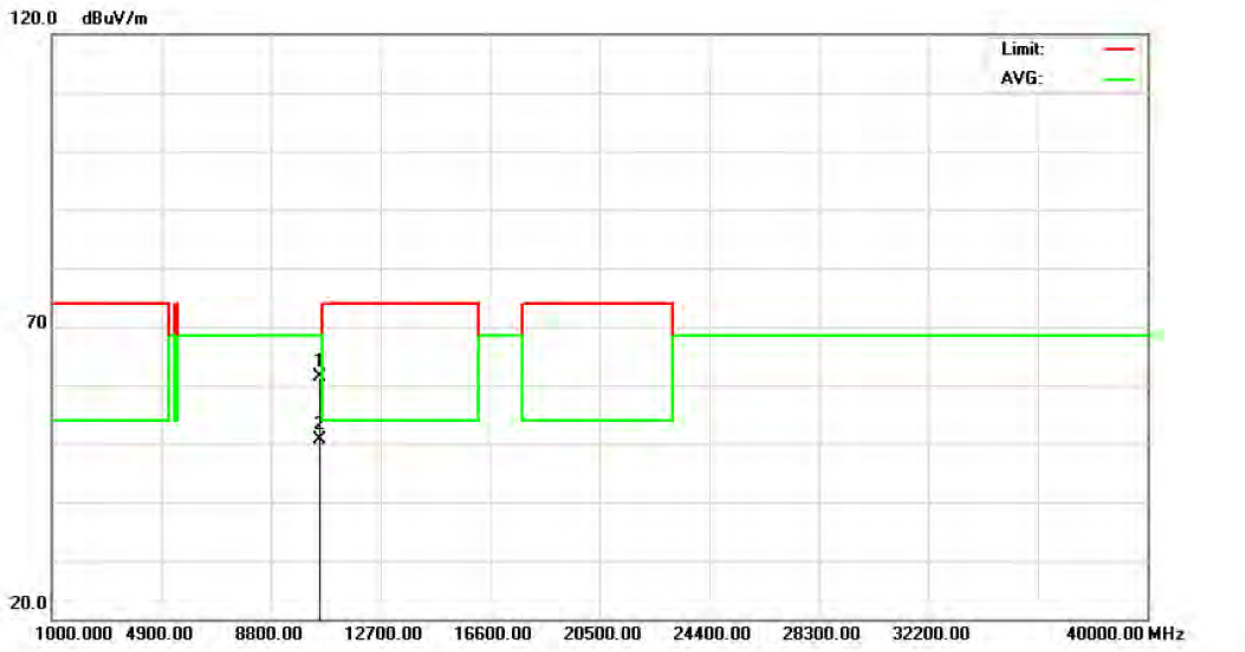
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5261.500	70.66	38.01	108.67	68.30	40.37	peak	
2	X	5261.500	58.88	38.01	96.89	68.30	28.59	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5260 MHz		

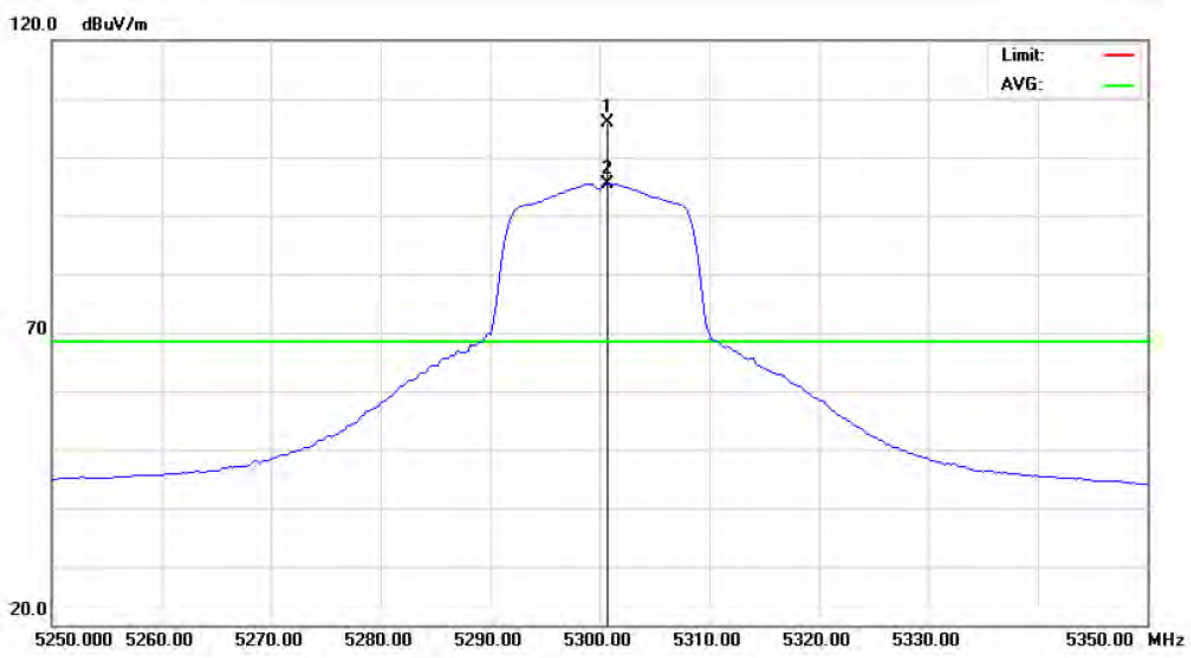
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	10520.33	44.01	17.31	61.32	68.30	-6.98	peak	
2		10520.33	33.30	17.31	50.61	68.30	-17.69	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5300 MHz		

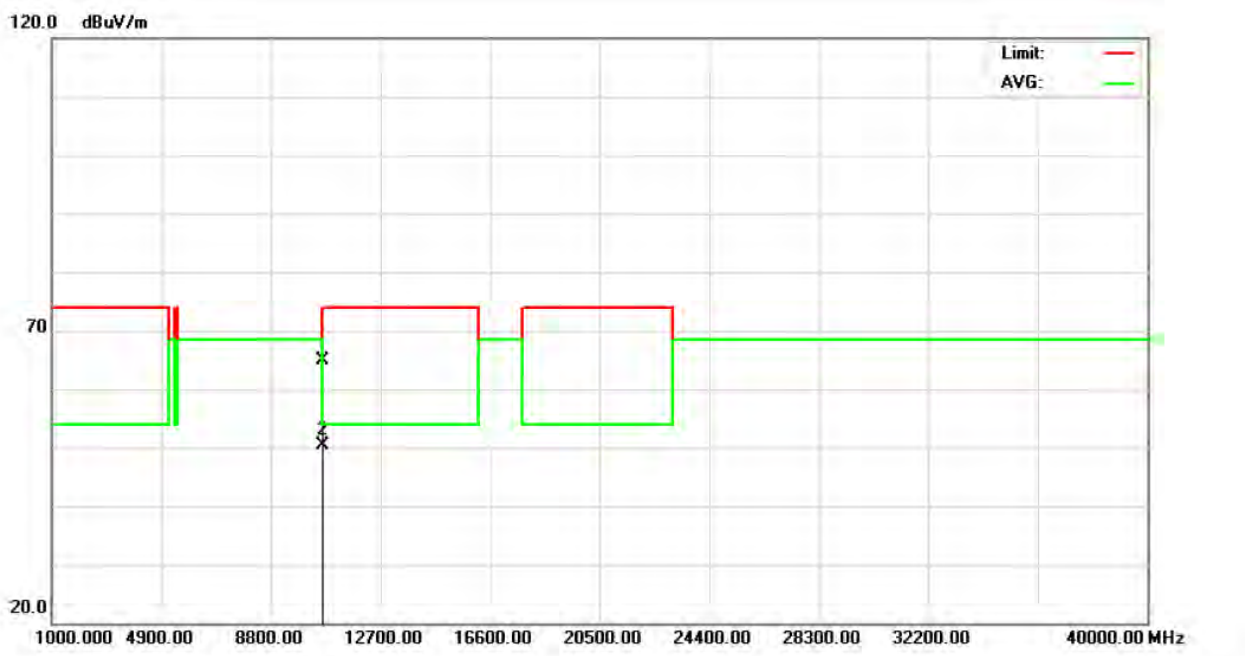
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5300.750	67.89	38.08	105.97	68.30	37.67	peak	
2	X	5300.750	57.38	38.08	95.46	68.30	27.16	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5300 MHz		

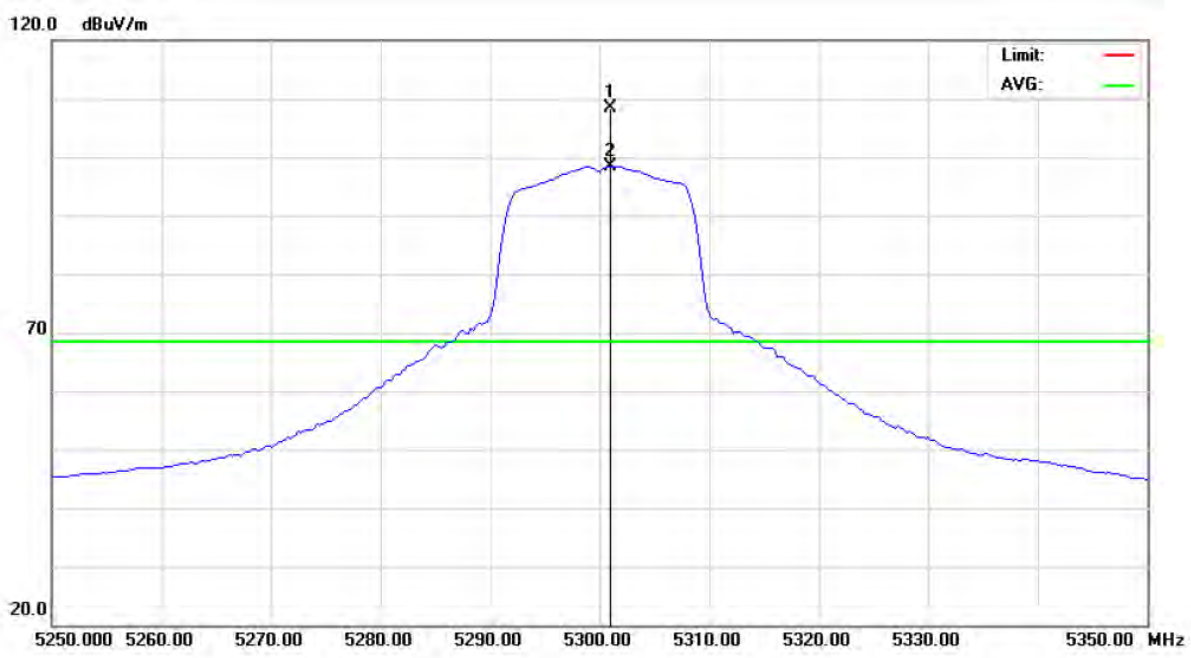
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		10600.56	47.09	17.69	64.78	74.00	-9.22	peak	
2	*	10600.56	32.72	17.69	50.41	54.00	-3.59	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5300 MHz		

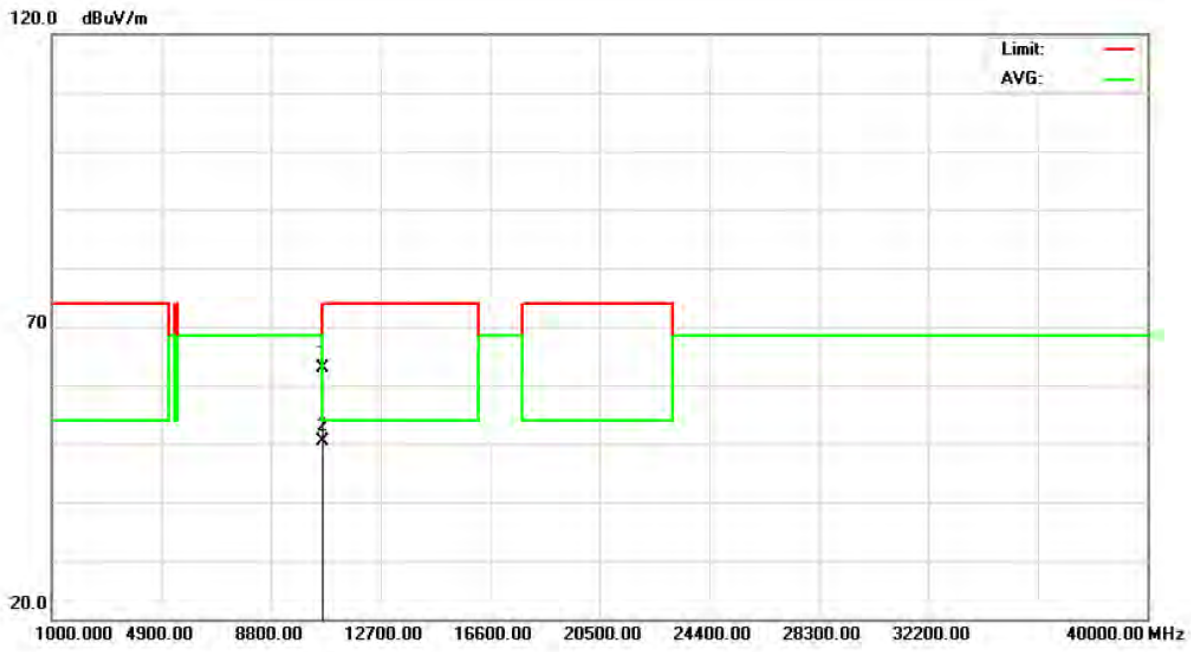
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5301.000	70.41	38.08	108.49	68.30	40.19	peak	
2	X	5301.000	60.40	38.08	98.48	68.30	30.18	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5300 MHz		

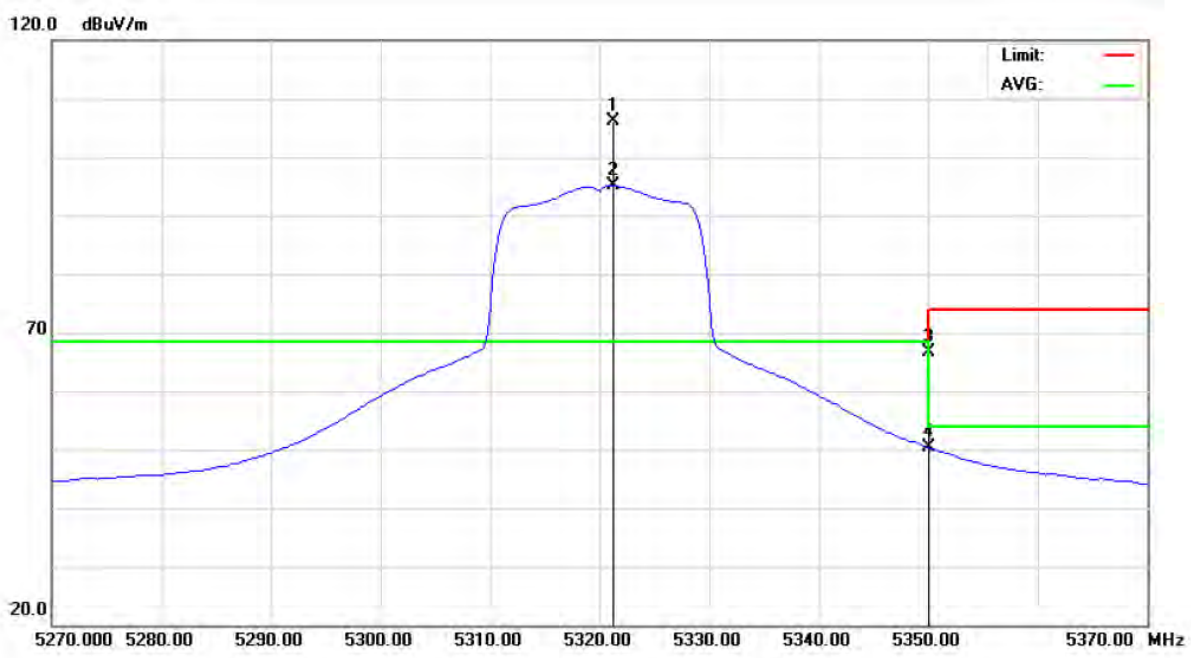
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		10600.05	45.28	17.69	62.97	74.00	-11.03	peak	
2	*	10600.05	32.73	17.69	50.42	54.00	-3.58	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5320 MHz		

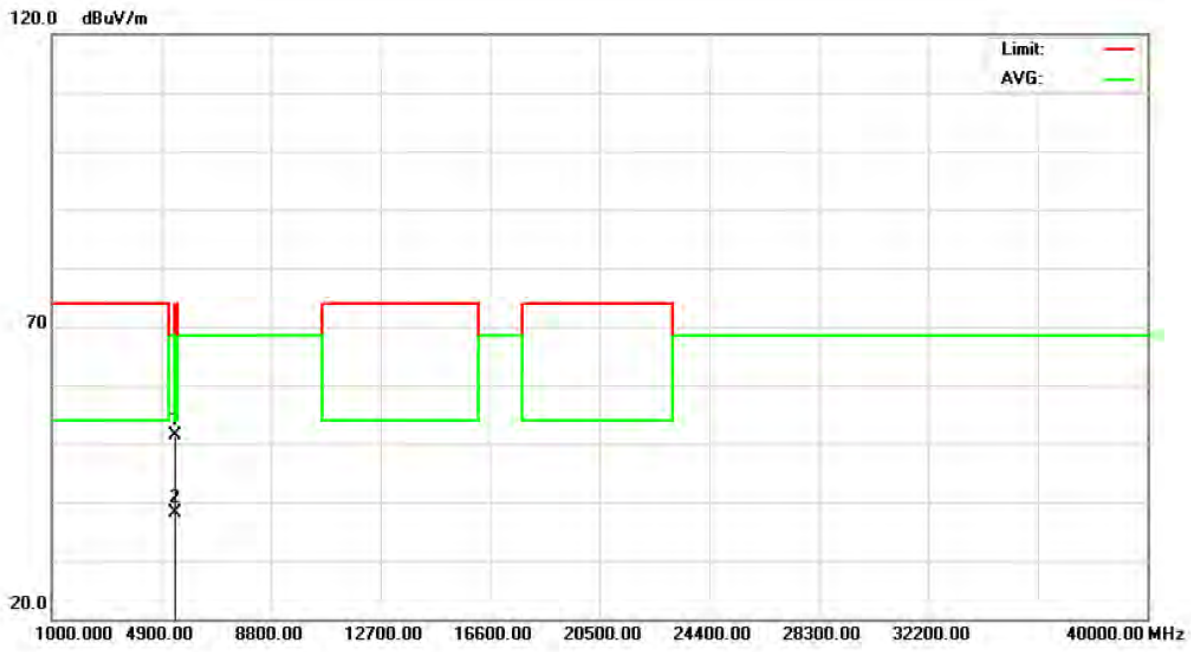
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5321.250	67.90	38.11	106.01	68.30	37.71	peak	
2	X	5321.250	57.02	38.11	95.13	68.30	26.83	AVG	
3		5350.000	28.50	38.16	66.66	68.30	-1.64	peak	
4		5350.000	12.12	38.16	50.28	54.00	-3.72	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5320 MHz		

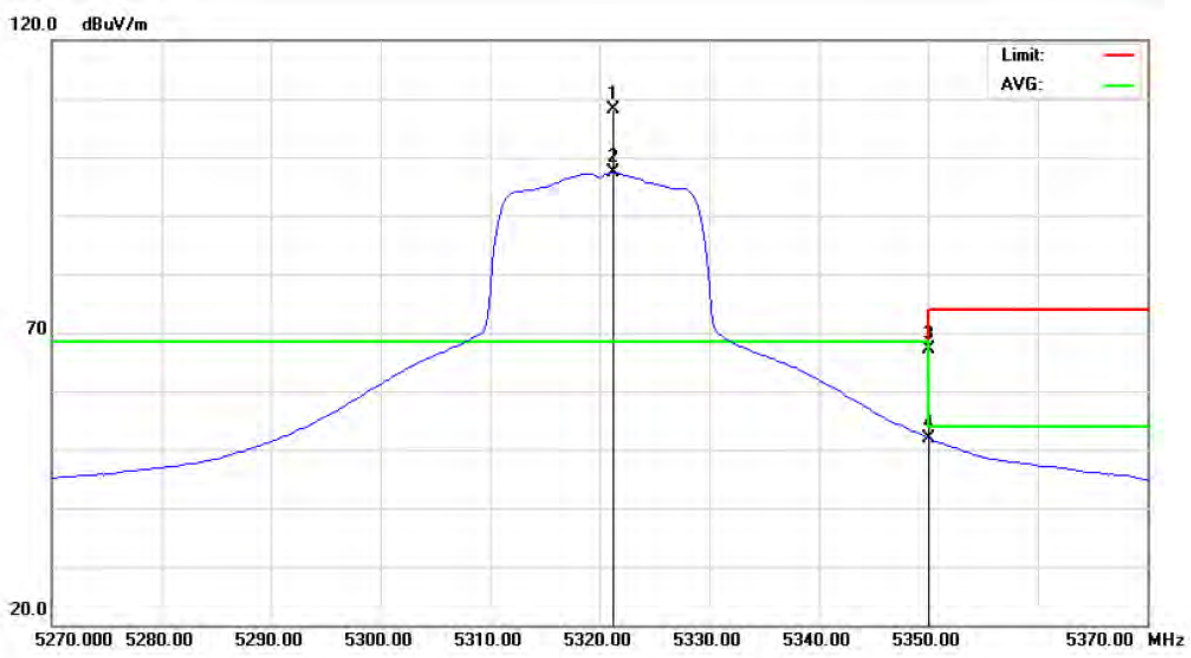
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5320.425	44.53	6.73	51.26	68.30	-17.04	peak	
2		5320.425	31.47	6.73	38.20	68.30	-30.10	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5320 MHz		

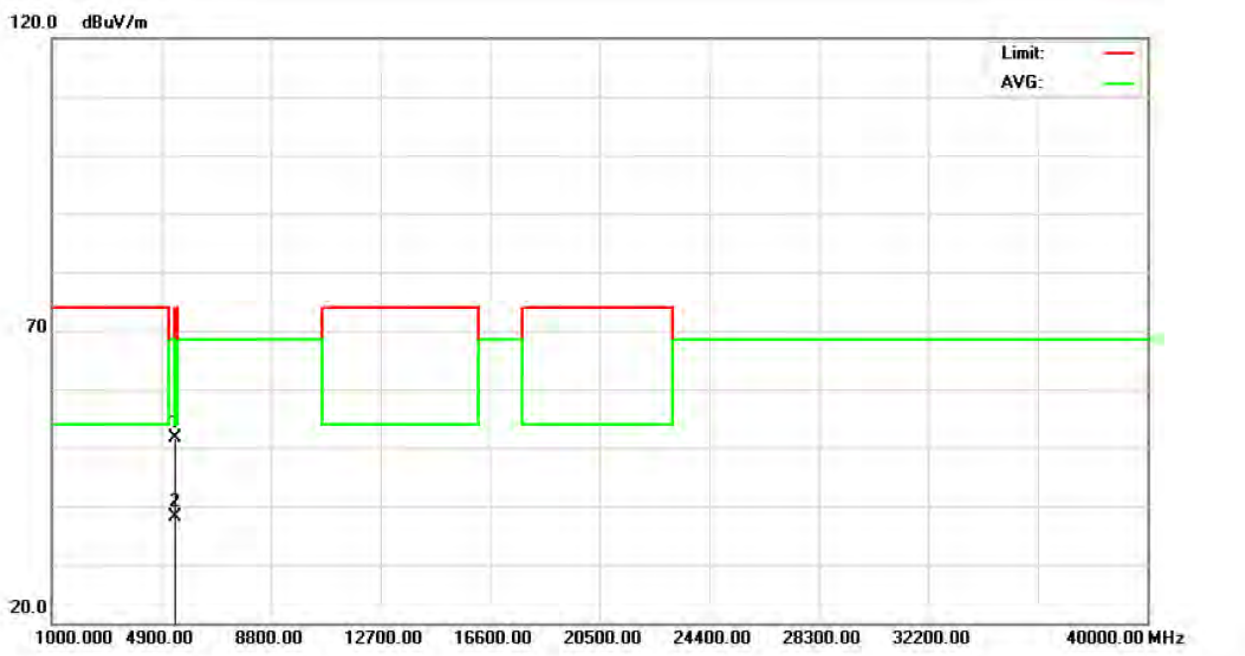
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5321.250	70.07	38.11	108.18	68.30	39.88	peak	
2	X	5321.250	59.22	38.11	97.33	68.30	29.03	AVG	
3		5350.000	29.09	38.16	67.25	68.30	-1.05	peak	
4		5350.000	13.82	38.16	51.98	54.00	-2.02	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5320 MHz		

Polarization: Horizontal

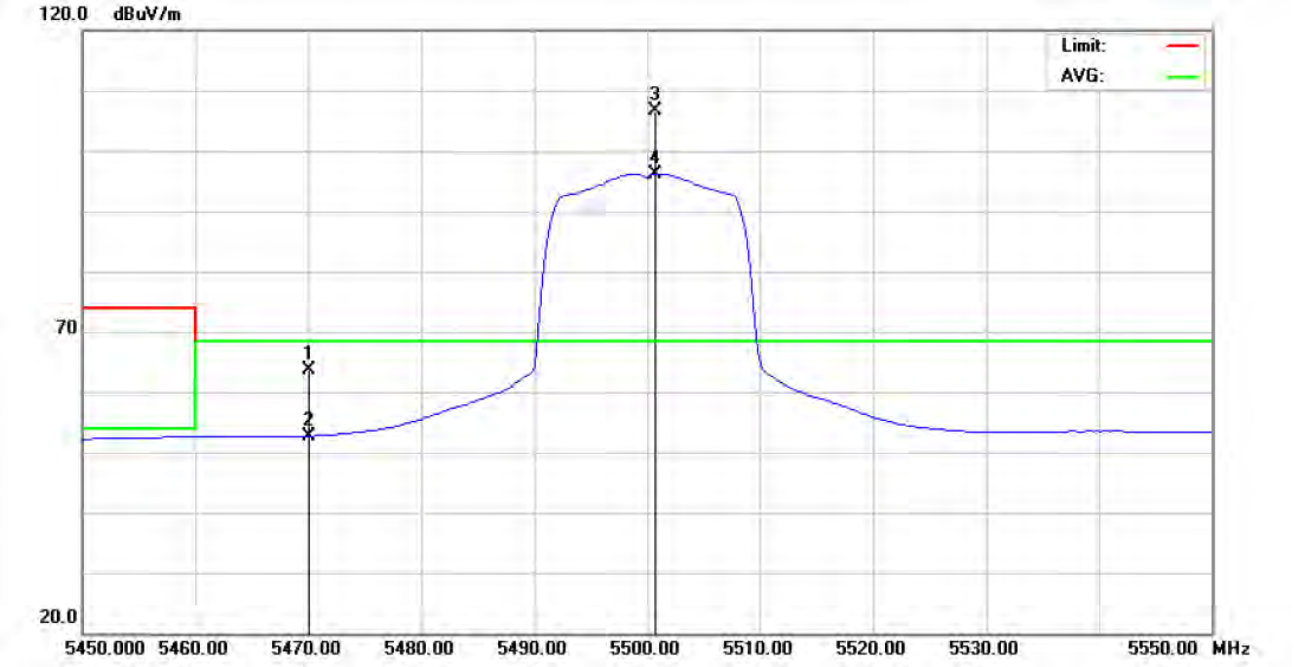


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5320.090	44.92	6.73	51.65	68.30	-16.65	peak	
2		5320.090	31.40	6.73	38.13	68.30	-30.17	AVG	

9.9 TEST RESULTS - 5500 MHZ TO 5700 MHZ BAND

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5500 MHz		

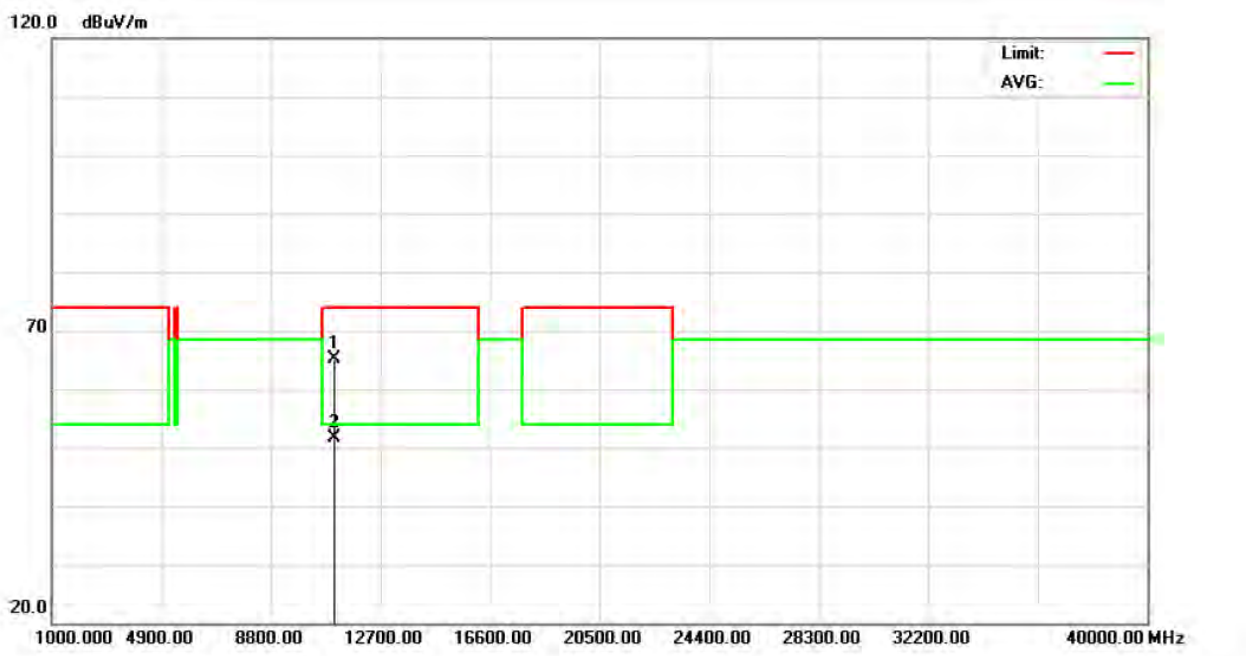
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5470.000	24.81	38.86	63.67	68.30	-4.63	peak	
2		5470.000	13.87	38.86	52.73	68.30	-15.57	AVG	
3	*	5500.750	67.84	38.91	106.75	68.30	38.45	peak	
4	X	5500.750	57.34	38.91	96.25	68.30	27.95	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5500 MHz		

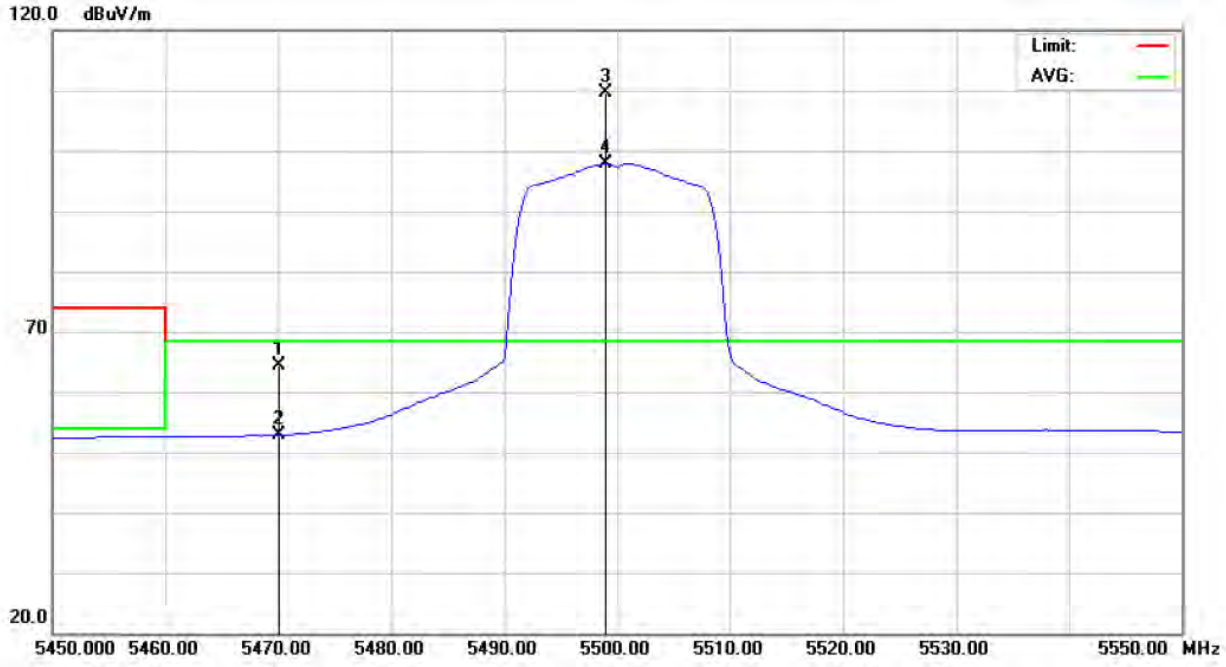
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		11000.30	45.45	19.56	65.01	74.00	-8.99	peak	
2	*	11000.30	32.04	19.56	51.60	54.00	-2.40	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5500 MHz		

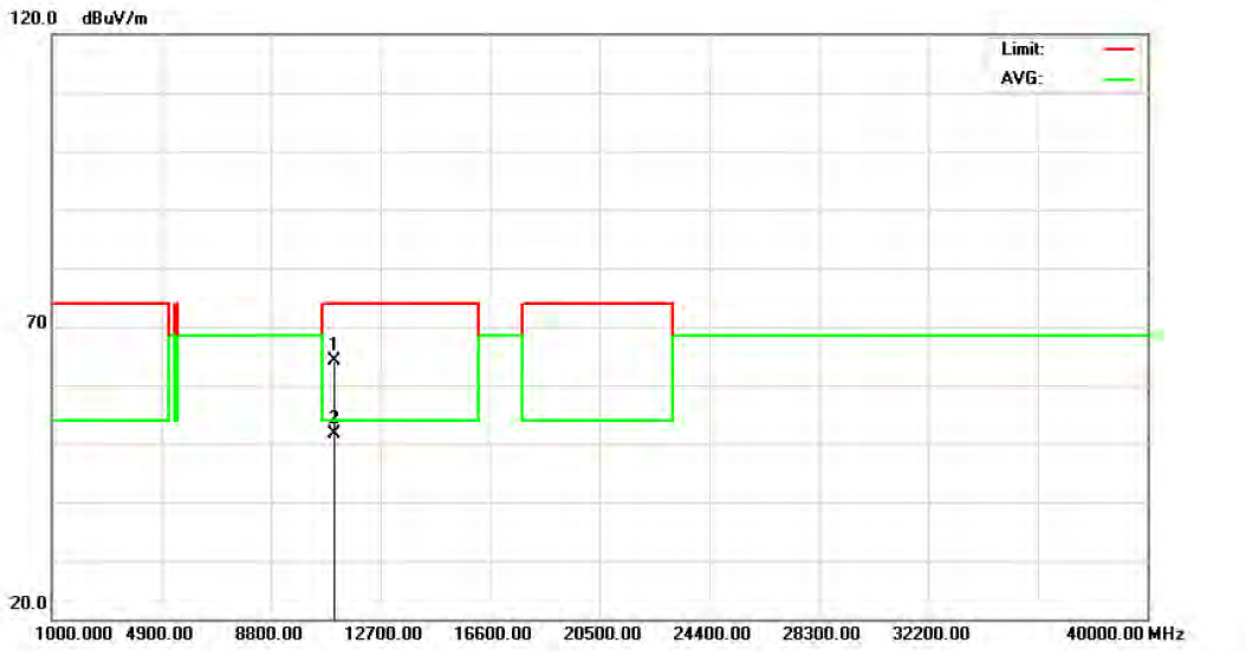
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5470.000	25.56	38.86	64.42	68.30	-3.88	peak	
2		5470.000	13.96	38.86	52.82	68.30	-15.48	AVG	
3	*	5499.000	70.68	38.91	109.59	68.30	41.29	peak	
4	X	5499.000	58.93	38.91	97.84	68.30	29.54	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5500 MHz		

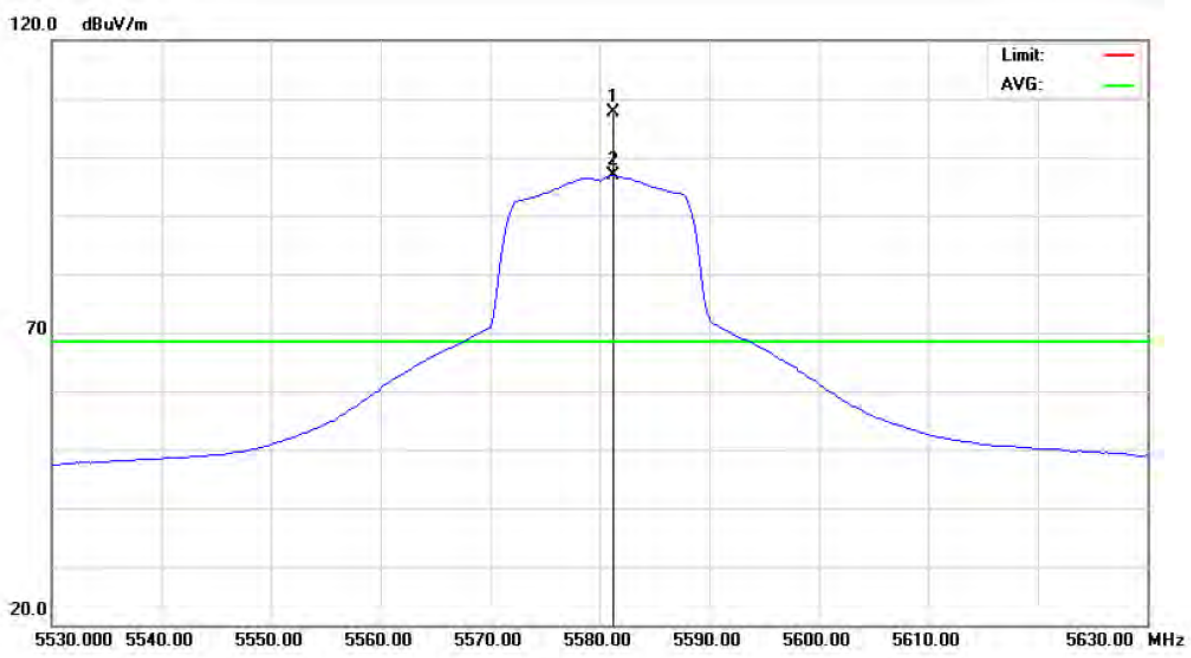
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		10999.63	44.63	19.56	64.19	74.00	-9.81	peak	
2	*	10999.63	32.00	19.56	51.56	54.00	-2.44	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5580 MHz		

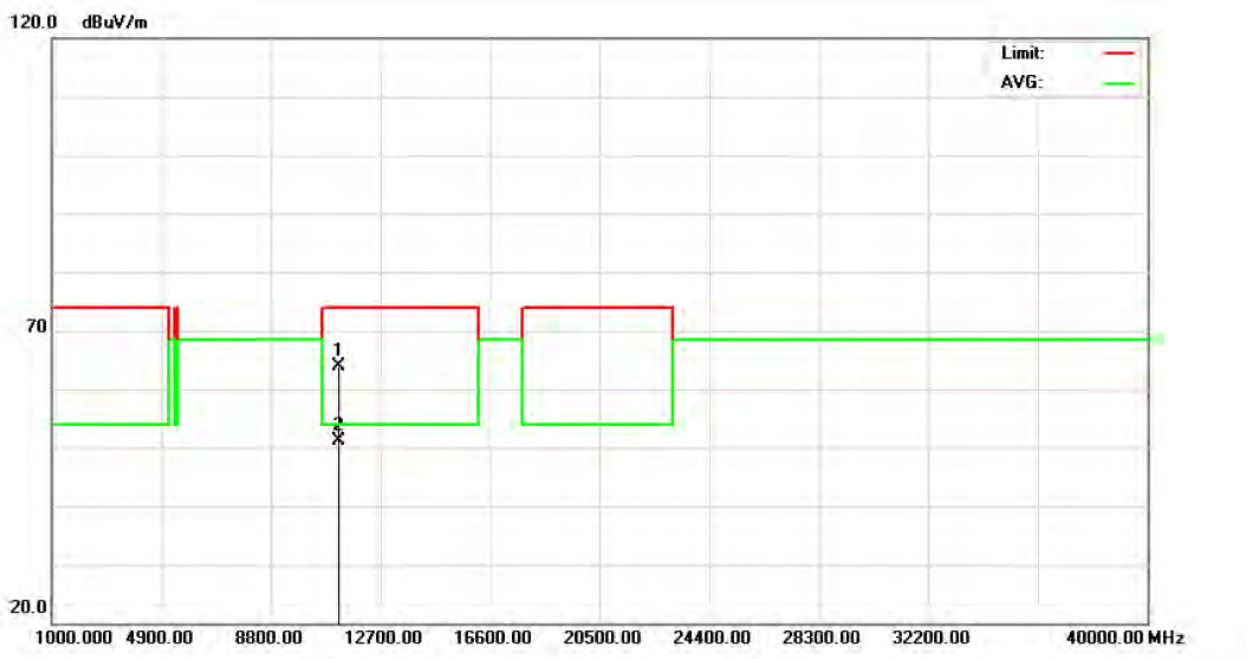
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5581.250	68.98	38.54	107.52	68.30	39.22	peak	
2	X	5581.250	58.27	38.54	96.81	68.30	28.51	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5580 MHz		

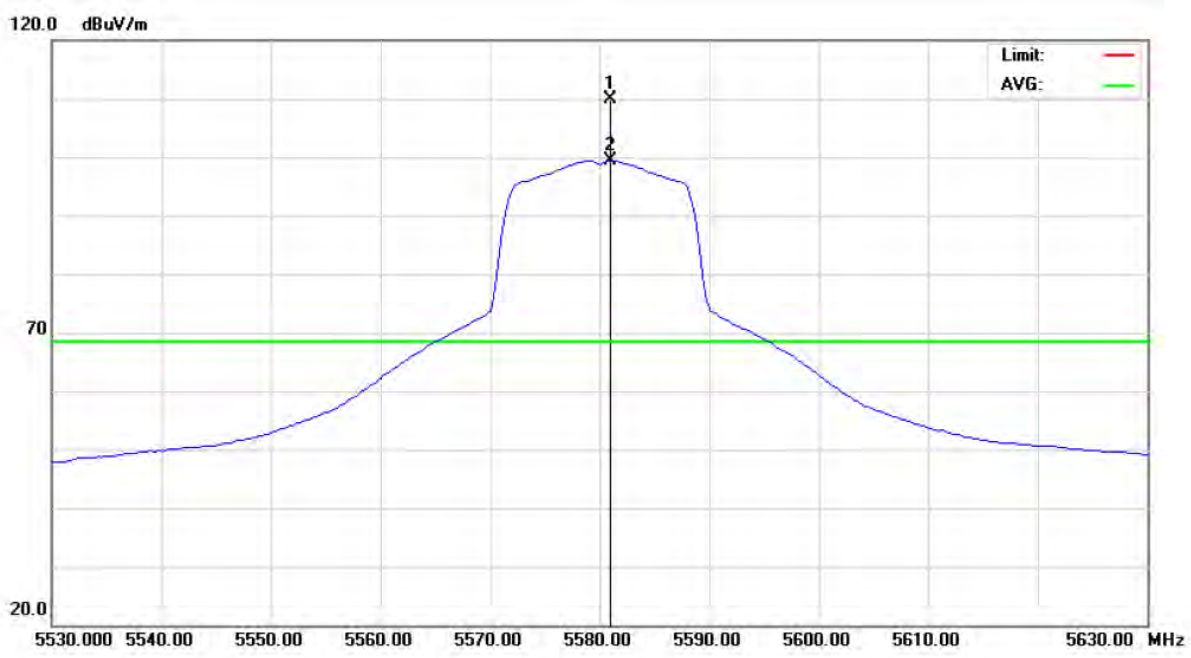
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		11160.12	44.52	19.31	63.83	74.00	-10.17	peak	
2	*	11160.12	31.86	19.31	51.17	54.00	-2.83	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5580 MHz		

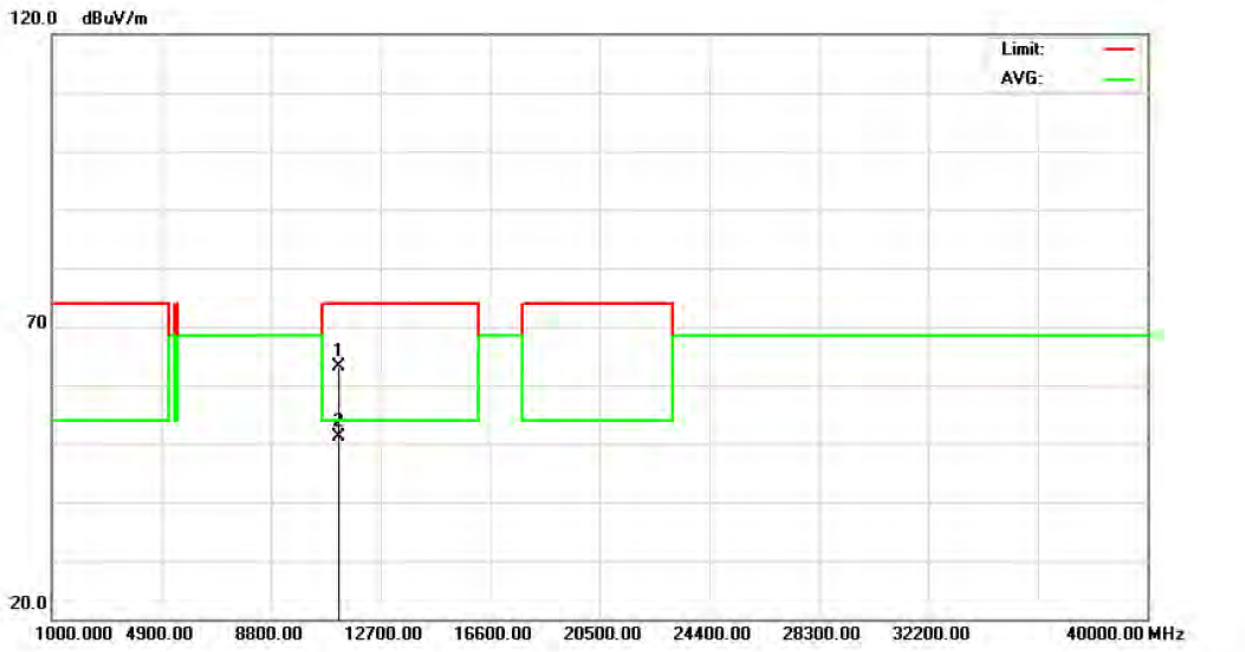
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5581.000	71.43	38.54	109.97	68.30	41.67	peak	
2	X	5581.000	60.82	38.54	99.36	68.30	31.06	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5580 MHz		

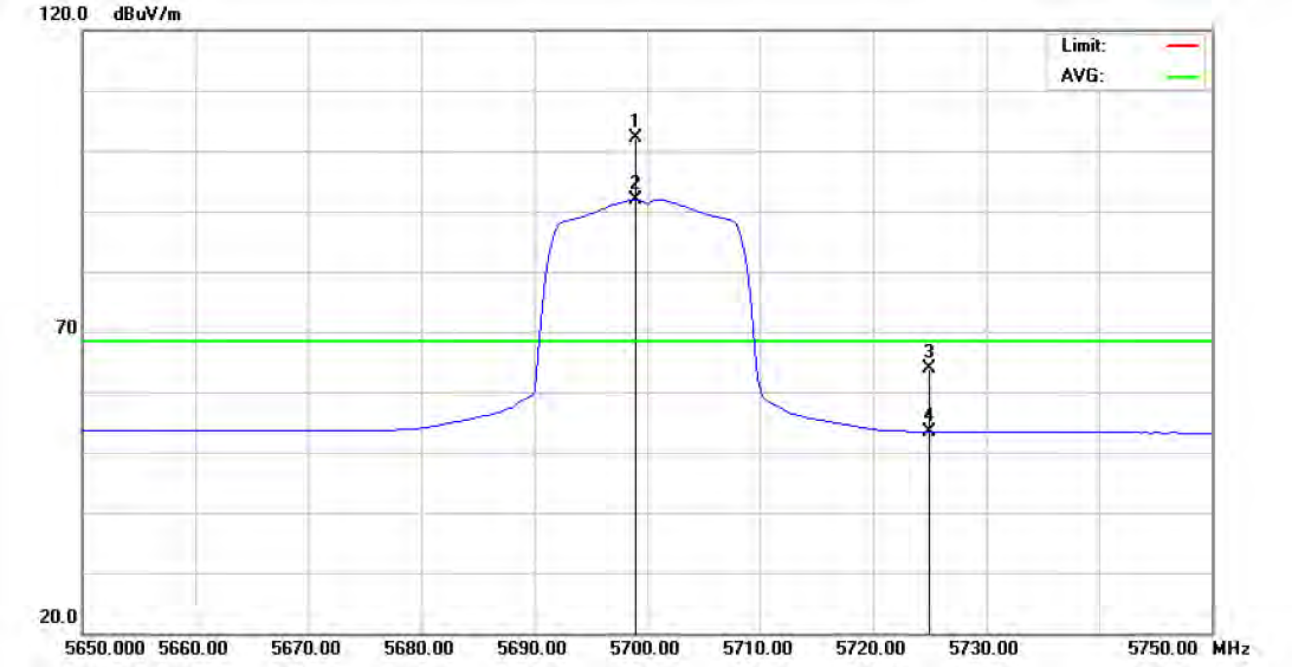
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		11160.76	43.89	19.31	63.20	74.00	-10.80	peak	
2	*	11160.76	31.87	19.31	51.18	54.00	-2.82	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5700 MHz		

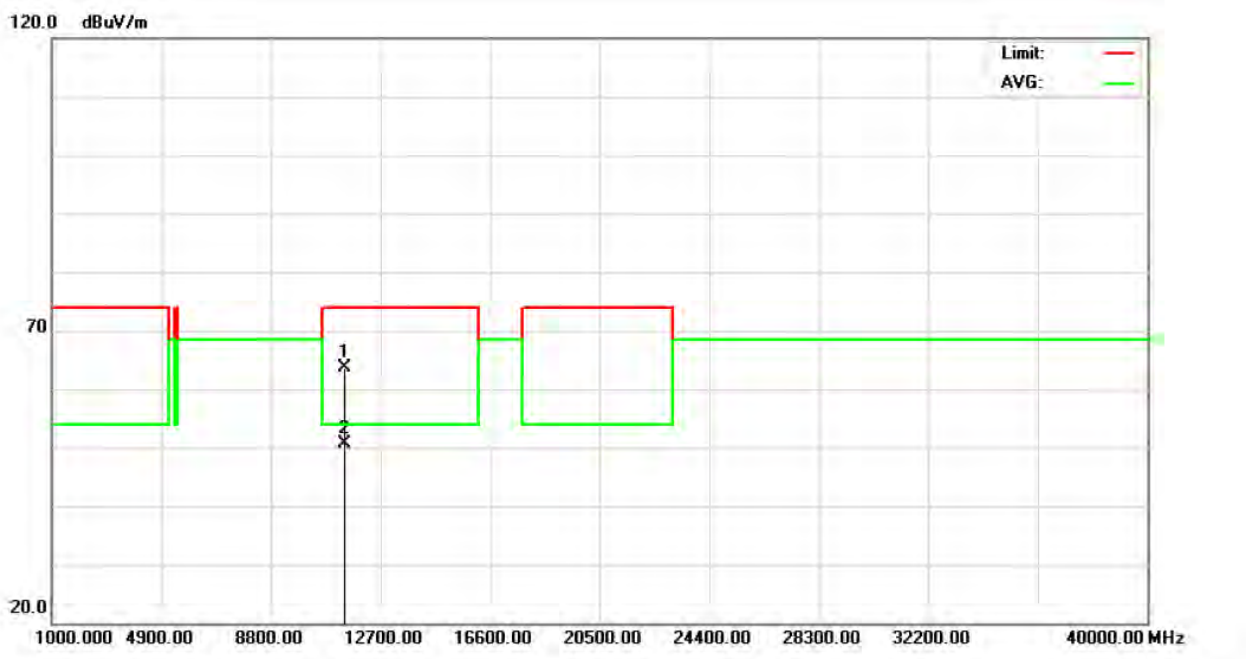
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5699.000	63.12	39.11	102.23	68.30	33.93	peak	
2	X	5699.000	52.78	39.11	91.89	68.30	23.59	AVG	
3		5725.000	24.85	39.14	63.99	68.30	-4.31	peak	
4		5725.000	14.25	39.14	53.39	68.30	-14.91	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5700 MHz		

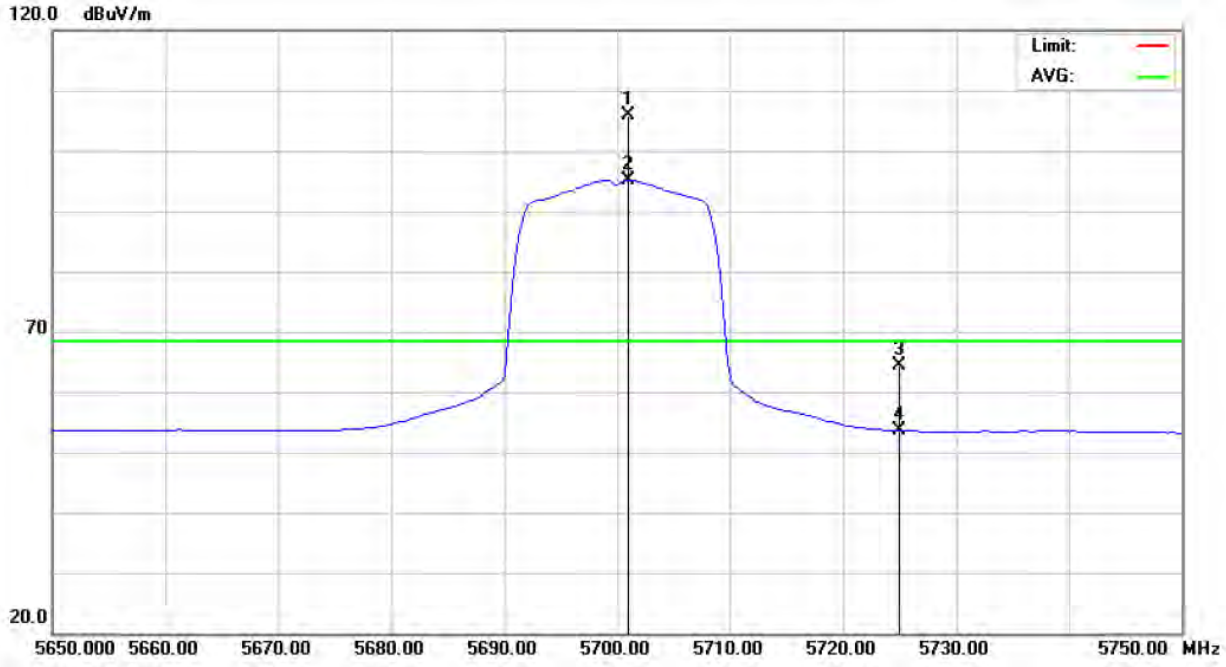
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		11400.12	44.68	18.94	63.62	74.00	-10.38	peak	
2	*	11400.12	31.65	18.94	50.59	54.00	-3.41	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5700 MHz		

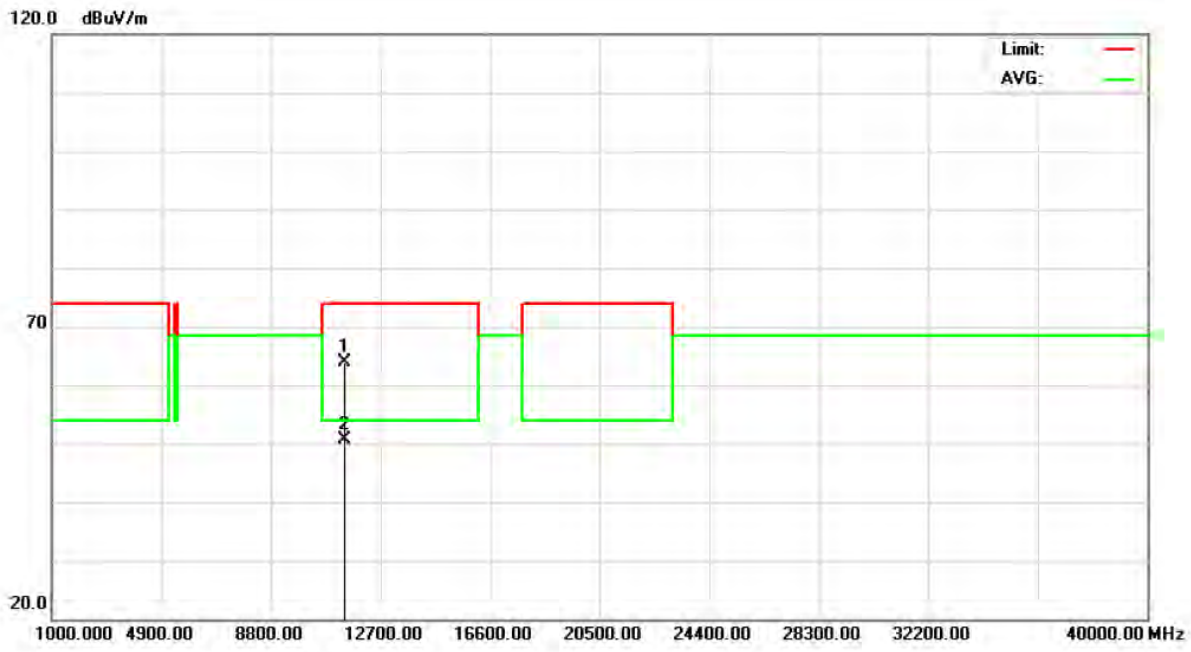
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5701.000	66.77	39.11	105.88	68.30	37.58	peak	
2	X	5701.000	55.98	39.11	95.09	68.30	26.79	AVG	
3		5725.000	25.24	39.14	64.38	68.30	-3.92	peak	
4		5725.000	14.46	39.14	53.60	68.30	-14.70	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5700 MHz		

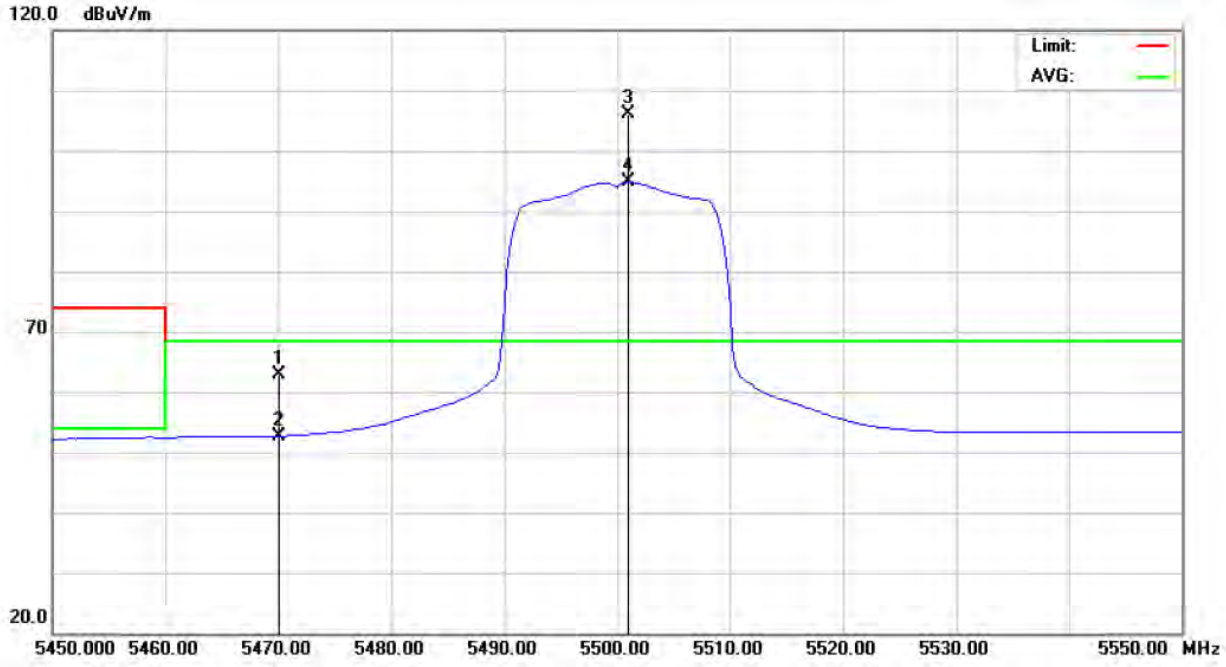
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		11399.95	45.04	18.94	63.98	74.00	-10.02	peak	
2	*	11399.95	31.71	18.94	50.65	54.00	-3.35	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5500 MHz		

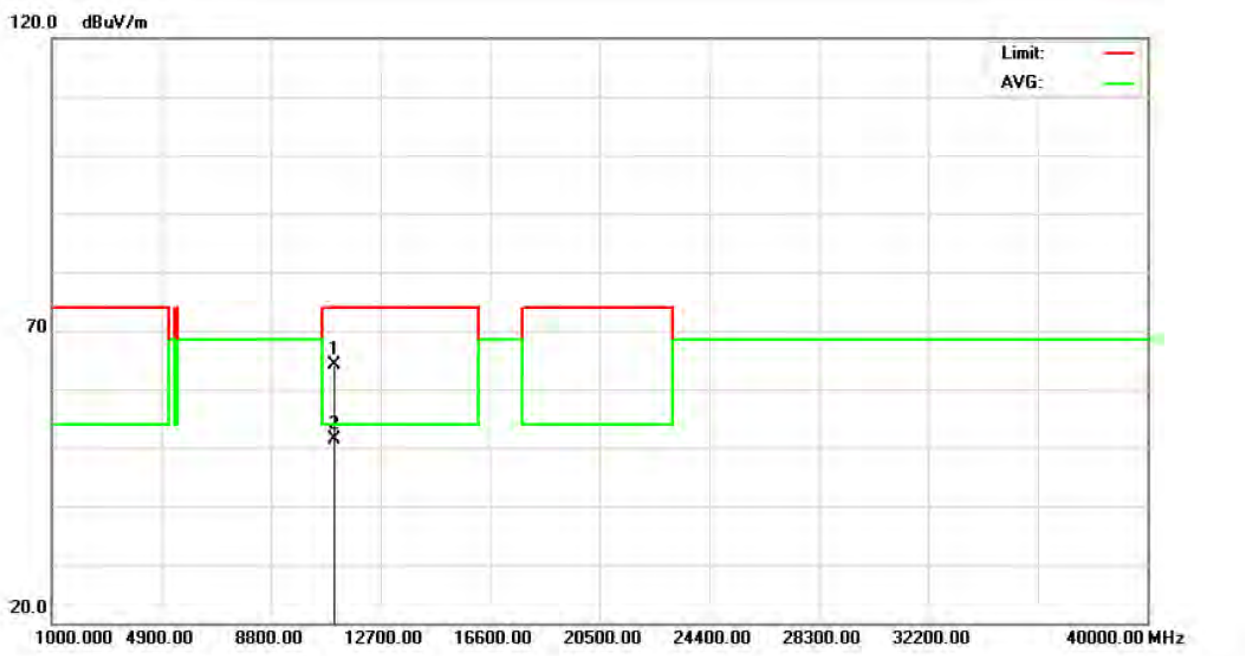
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5470.000	24.04	38.86	62.90	68.30	-5.40	peak	
2		5470.000	13.81	38.86	52.67	68.30	-15.63	AVG	
3	*	5501.000	67.10	38.91	106.01	68.30	37.71	peak	
4	X	5501.000	55.86	38.91	94.77	68.30	26.47	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5500 MHz		

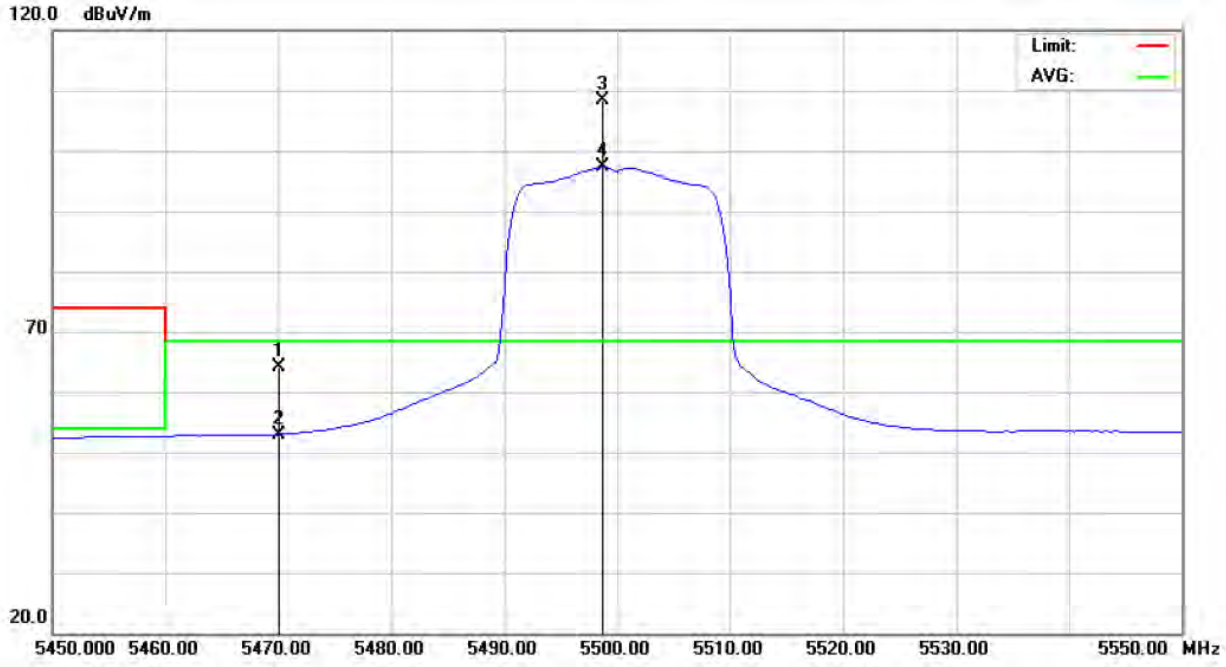
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		11000.51	44.69	19.56	64.25	74.00	-9.75	peak	
2	*	11000.51	31.83	19.56	51.39	54.00	-2.61	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5500 MHz		

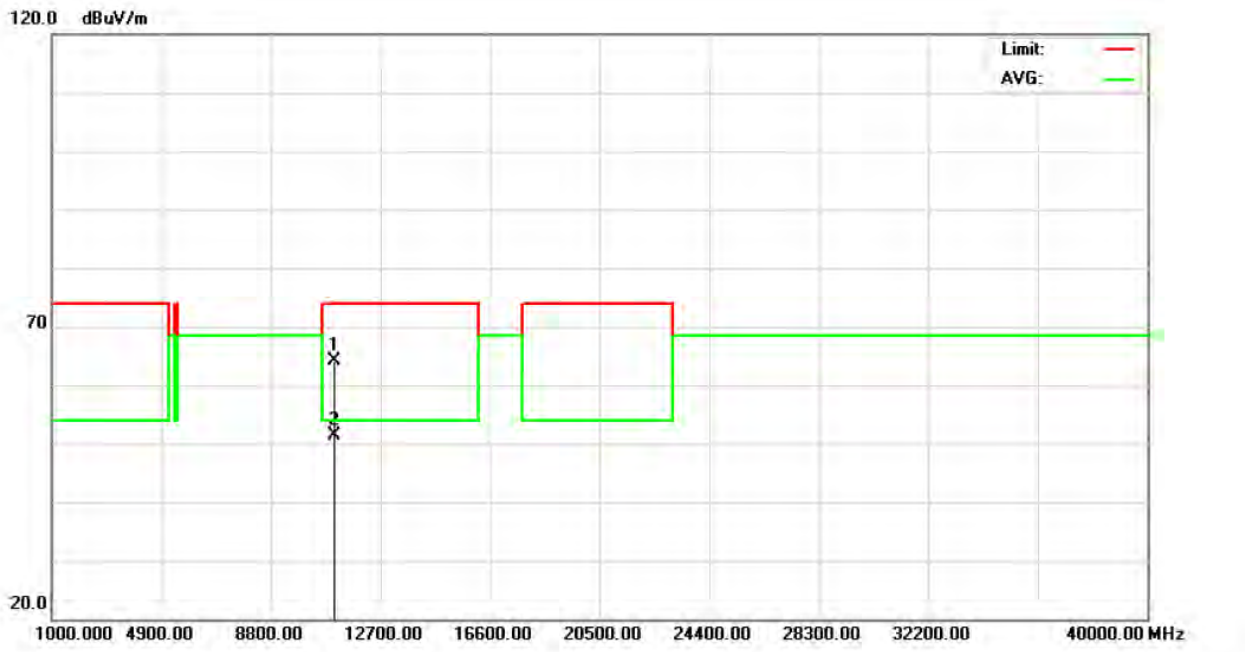
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		5470.000	25.39	38.86	64.25	68.30	-4.05	peak	
2		5470.000	14.11	38.86	52.97	68.30	-15.33	AVG	
3	*	5498.750	69.51	38.91	108.42	68.30	40.12	peak	
4	X	5498.750	58.39	38.91	97.30	68.30	29.00	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5500 MHz		

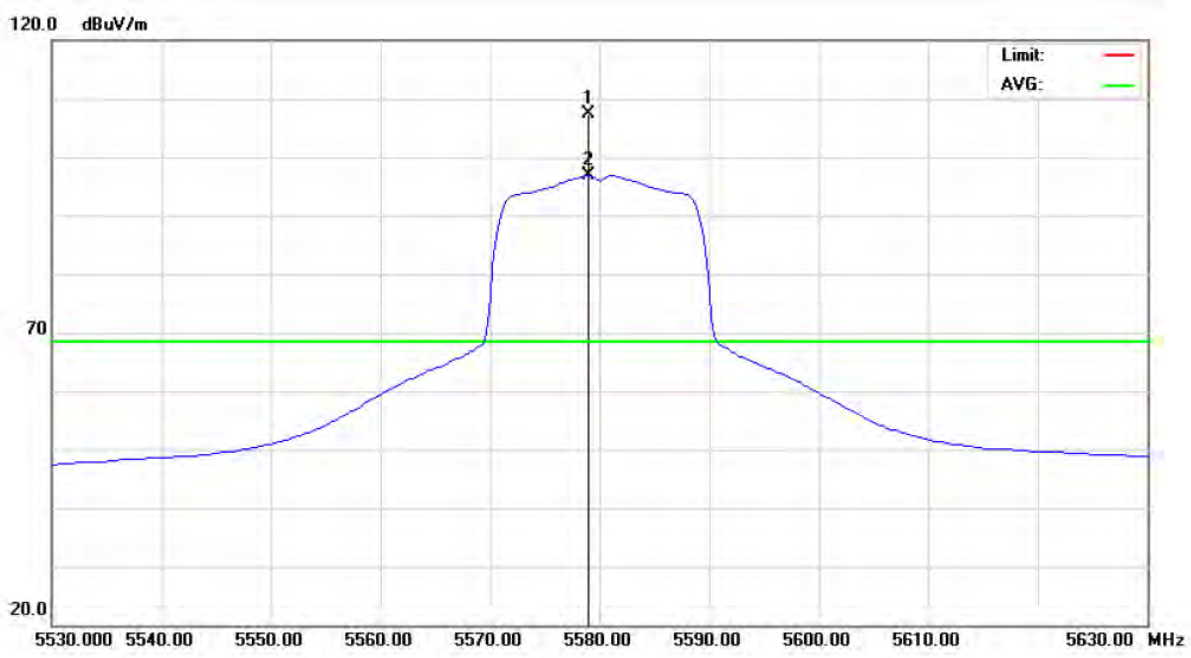
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		10999.77	44.69	19.56	64.25	74.00	-9.75	peak	
2	*	10999.77	31.76	19.56	51.32	54.00	-2.68	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5580 MHz		

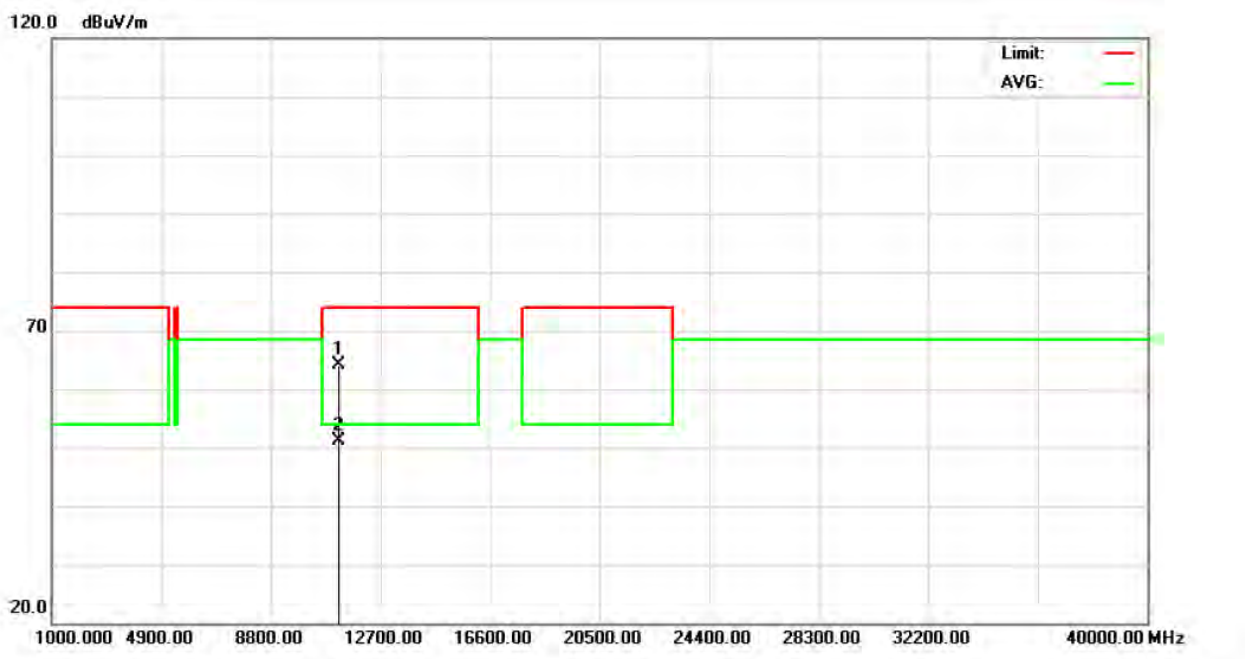
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5579.000	68.79	38.54	107.33	68.30	39.03	peak	
2	X	5579.000	58.27	38.54	96.81	68.30	28.51	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5580 MHz		

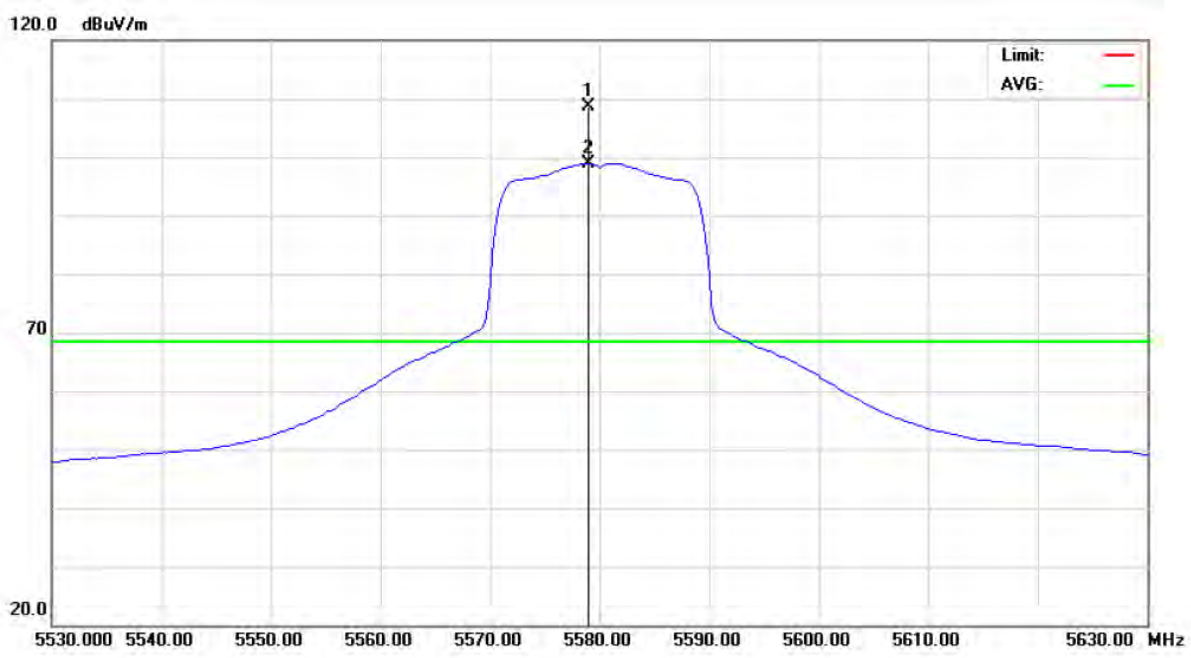
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		11160.09	44.90	19.31	64.21	74.00	-9.79	peak	
2	*	11160.09	31.92	19.31	51.23	54.00	-2.77	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5580 MHz		

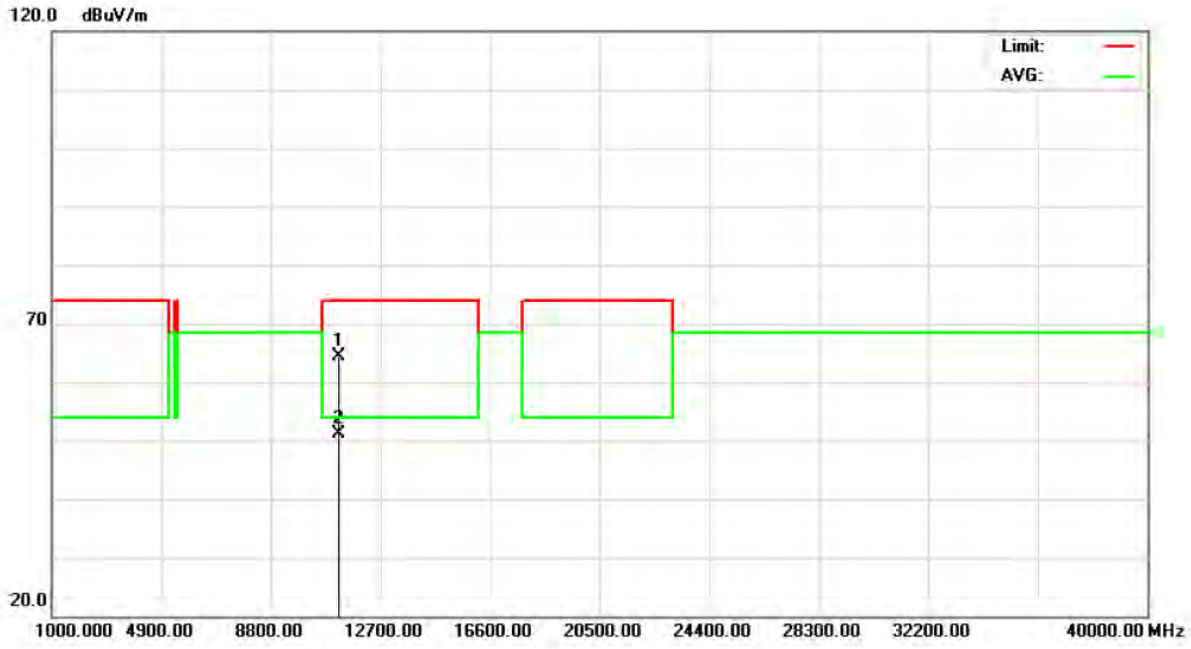
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5579.000	70.14	38.54	108.68	68.30	40.38	peak	
2	X	5579.000	60.45	38.54	98.99	68.30	30.69	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5580 MHz		

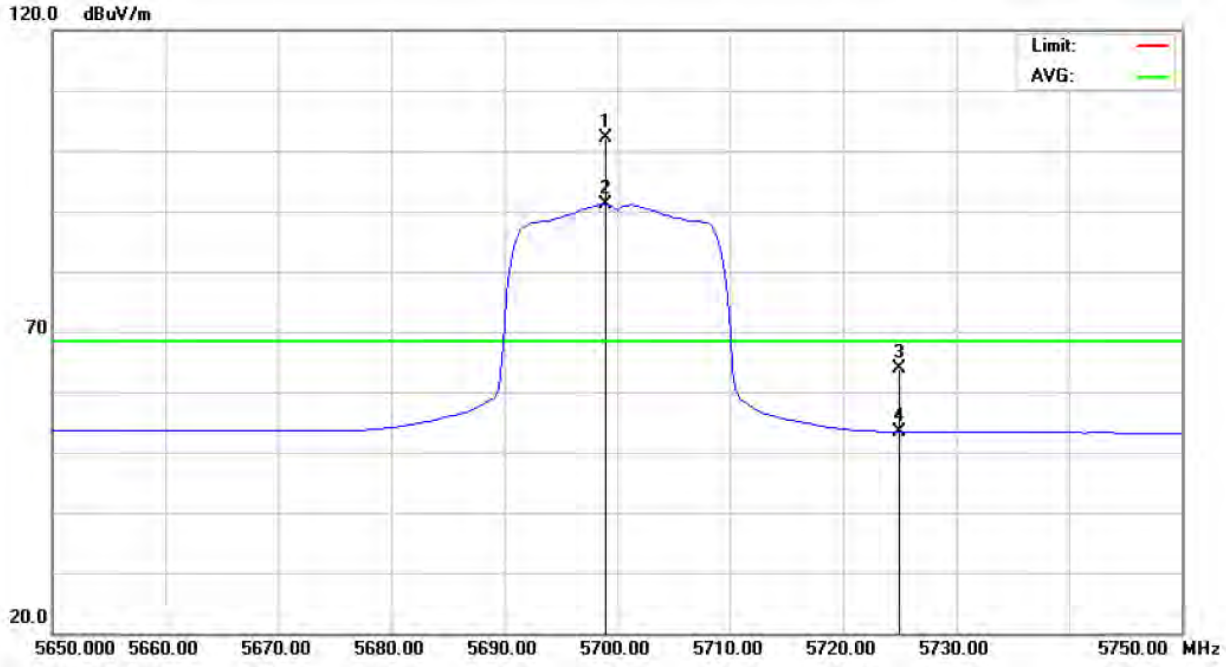
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		11159.41	45.15	19.31	64.46	74.00	-9.54	peak	
2	*	11159.41	31.91	19.31	51.22	54.00	-2.78	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5700 MHz		

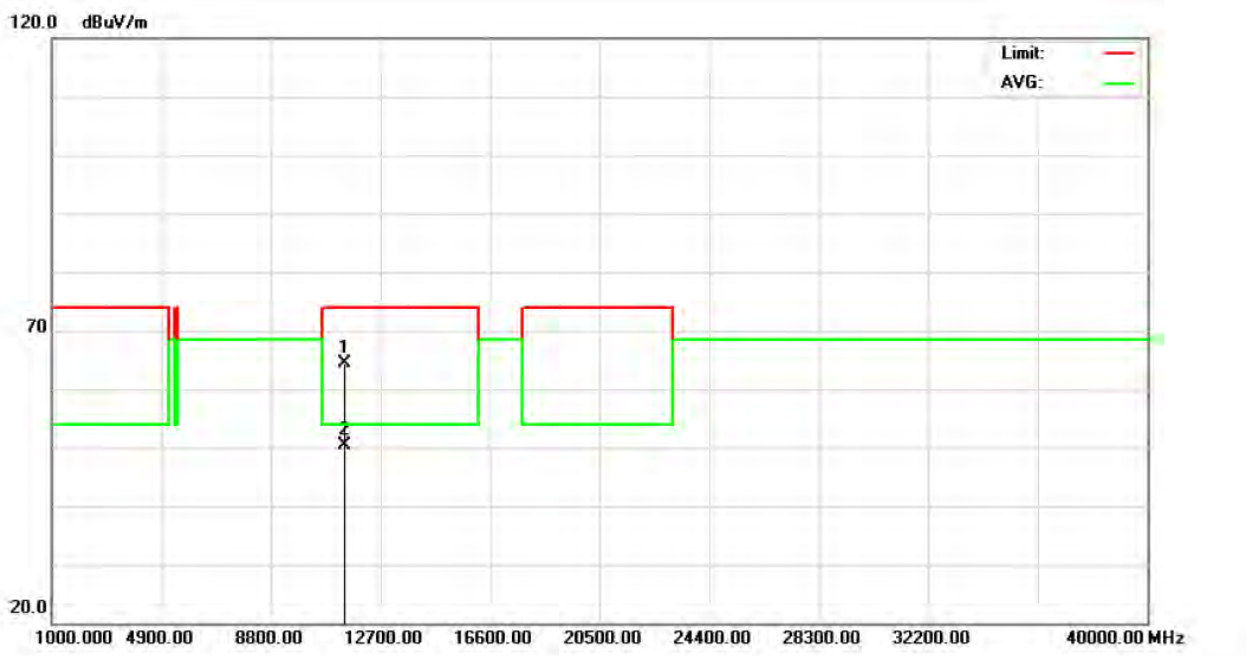
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5699.000	63.14	39.11	102.25	68.30	33.95	peak	
2	X	5699.000	51.94	39.11	91.05	68.30	22.75	AVG	
3		5725.000	24.64	39.14	63.78	68.30	-4.52	peak	
4		5725.000	14.23	39.14	53.37	68.30	-14.93	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5700 MHz		

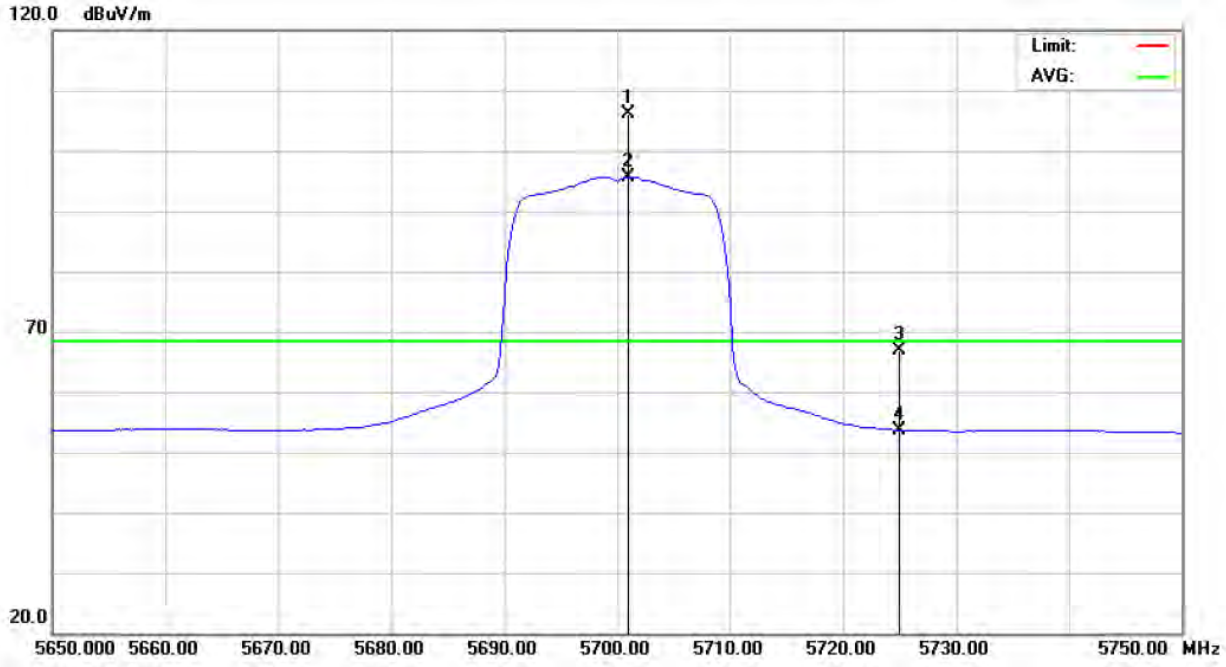
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		11399.49	45.37	18.94	64.31	74.00	-9.69	peak	
2	*	11399.49	31.54	18.94	50.48	54.00	-3.52	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5700 MHz		

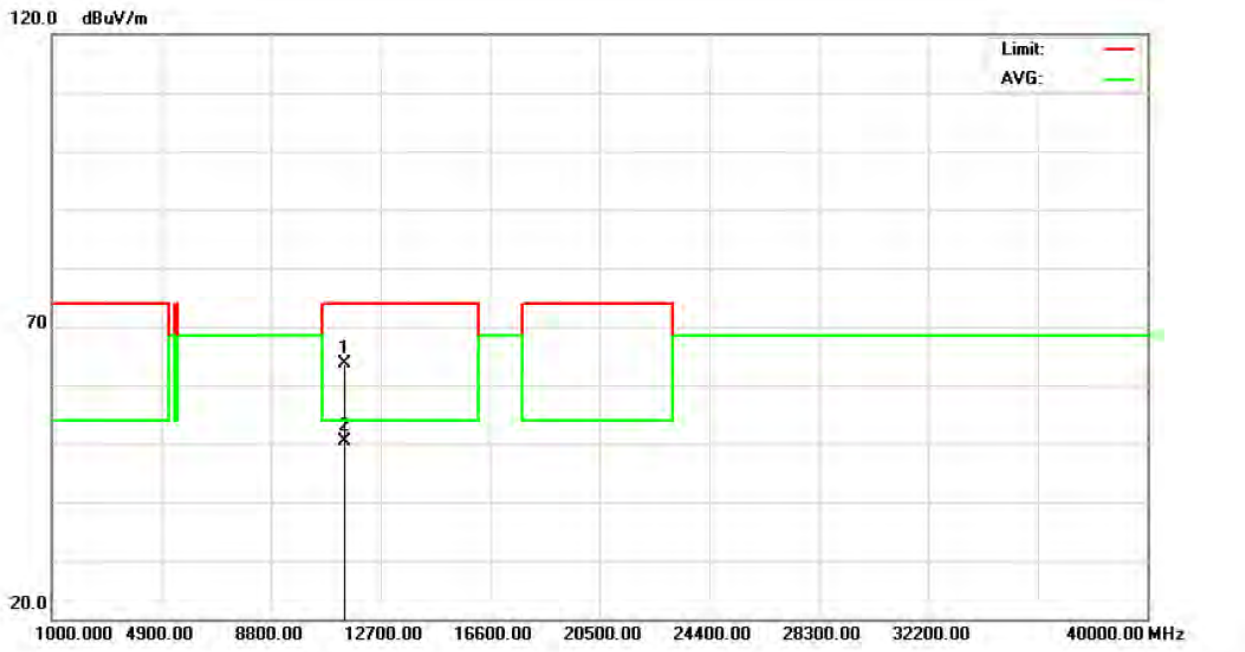
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5701.000	67.03	39.11	106.14	68.30	37.84	peak	
2	X	5701.000	56.61	39.11	95.72	68.30	27.42	AVG	
3		5725.000	27.85	39.14	66.99	68.30	-1.31	peak	
4		5725.000	14.58	39.14	53.72	68.30	-14.58	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5700 MHz		

Polarization: Horizontal

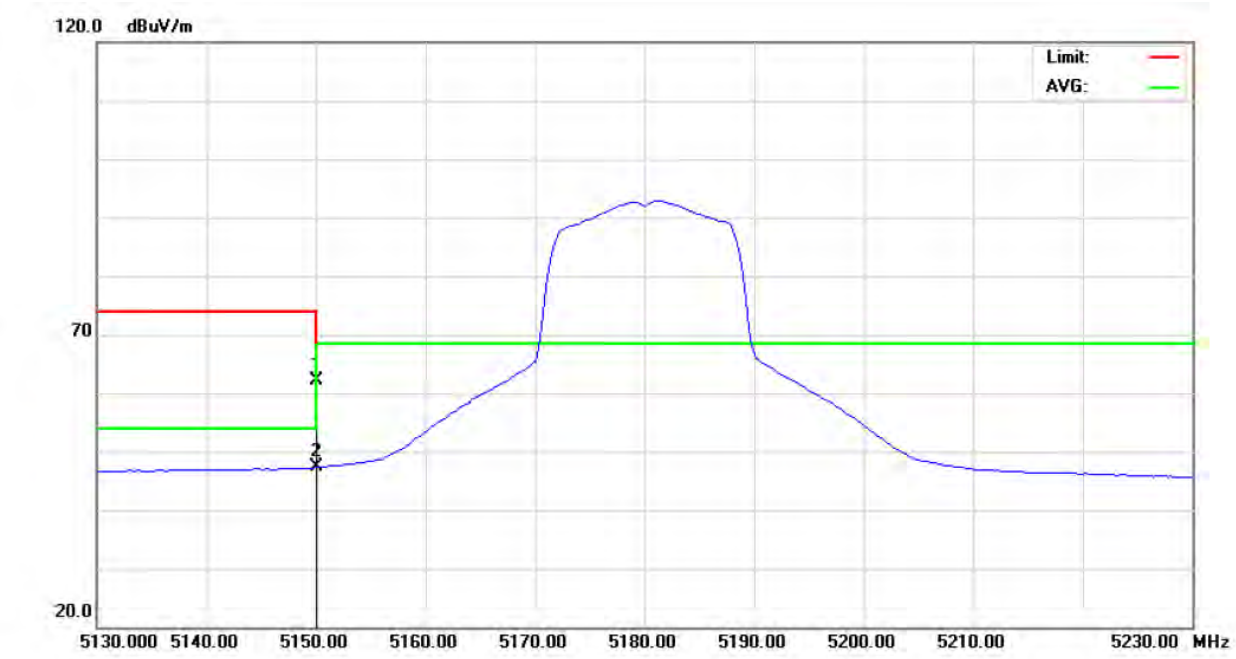


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		11399.56	44.60	18.94	63.54	74.00	-10.46	peak	
2	*	11399.56	31.54	18.94	50.48	54.00	-3.52	AVG	

9.10 TEST RESULTS (RESTRICTED BANDS) - 4500 MHZ TO 5150 MHZ

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5180 MHz		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 4500-5150 MHz.		

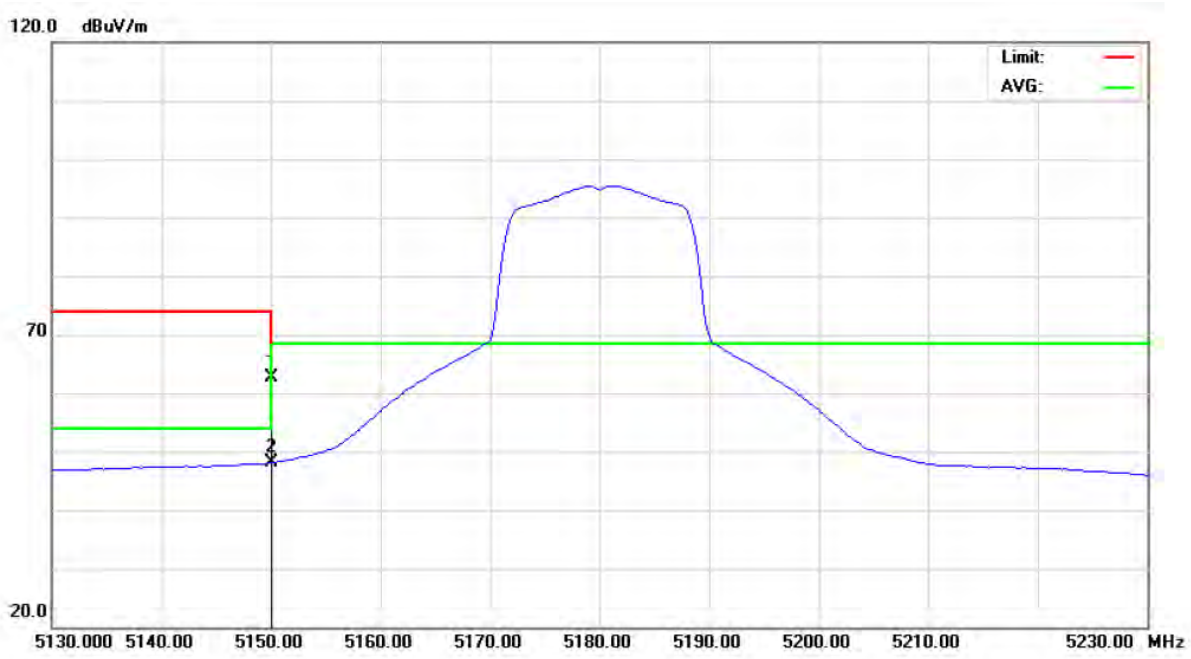
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5150.000	24.29	37.83	62.12	68.30	-6.18	peak	
2		5150.000	9.49	37.83	47.32	54.00	-6.68	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5180 MHz		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 4500-5150 MHz.		

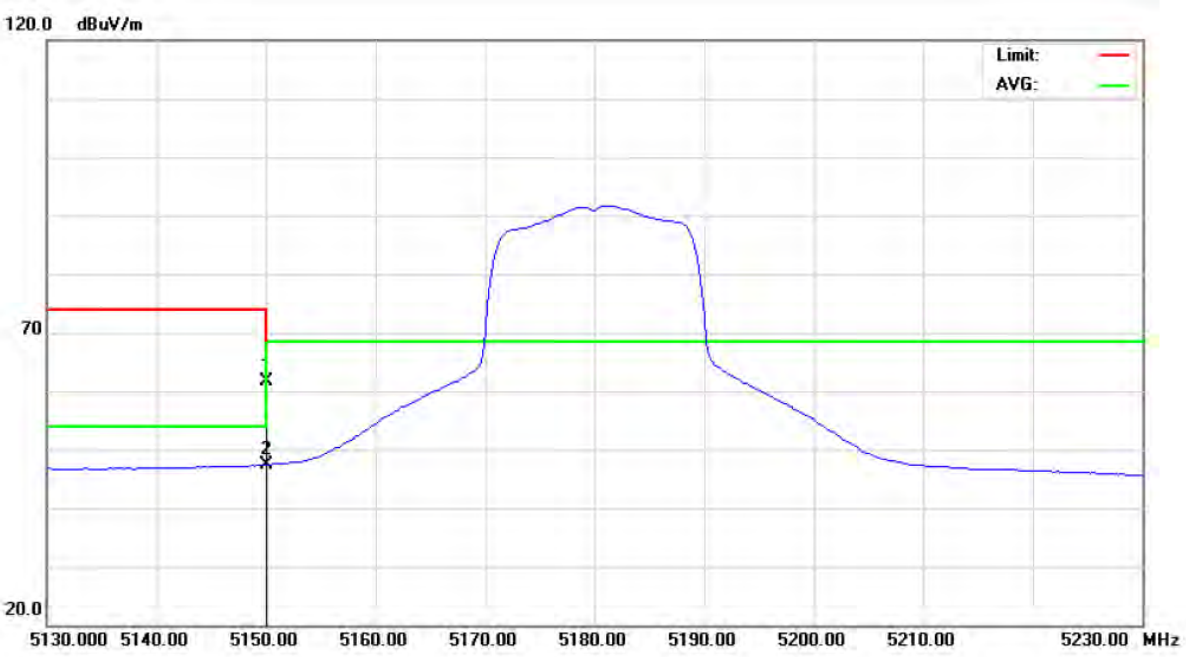
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5150.000	24.91	37.83	62.74	68.30	-5.56	peak	
2		5150.000	10.29	37.83	48.12	54.00	-5.88	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5180 MHz		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 4500-5150 MHz.		

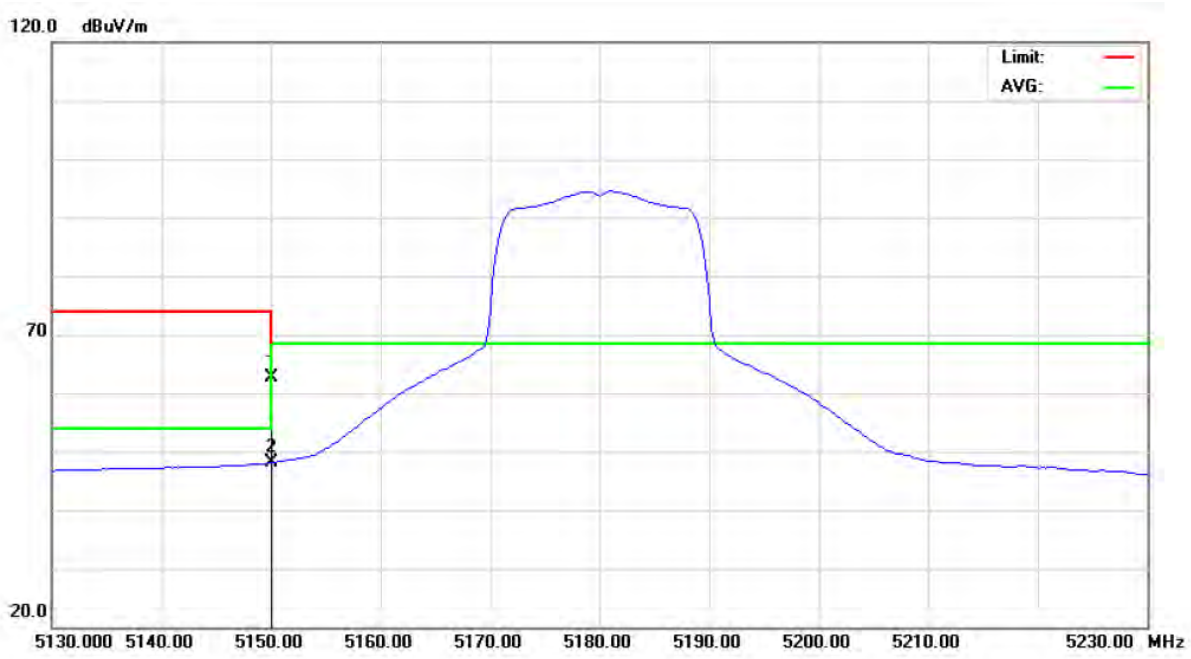
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5150.000	23.91	37.83	61.74	68.30	-6.56	peak	
2		5150.000	9.54	37.83	47.37	54.00	-6.63	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5180 MHz		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 4500-5150 MHz.		

Polarization: Horizontal

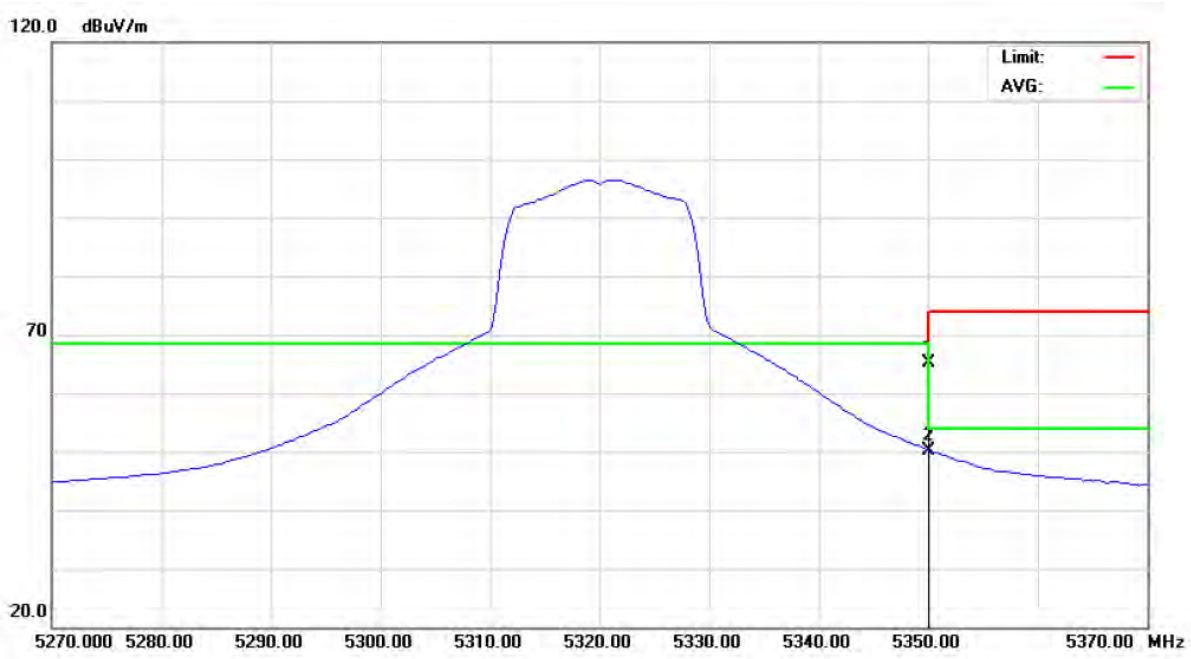


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5150.000	24.86	37.83	62.69	68.30	-5.61	peak	
2		5150.000	10.23	37.83	48.06	54.00	-5.94	AVG	

9.11 TEST RESULTS (RESTRICTED BANDS) - 5350 MHZ TO 5460 MHZ BAND

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5320 MHz		
NOTE	The transmitter was setup to transmit at the highest channel and the field strength was measured at 5350-5460 MHz.		

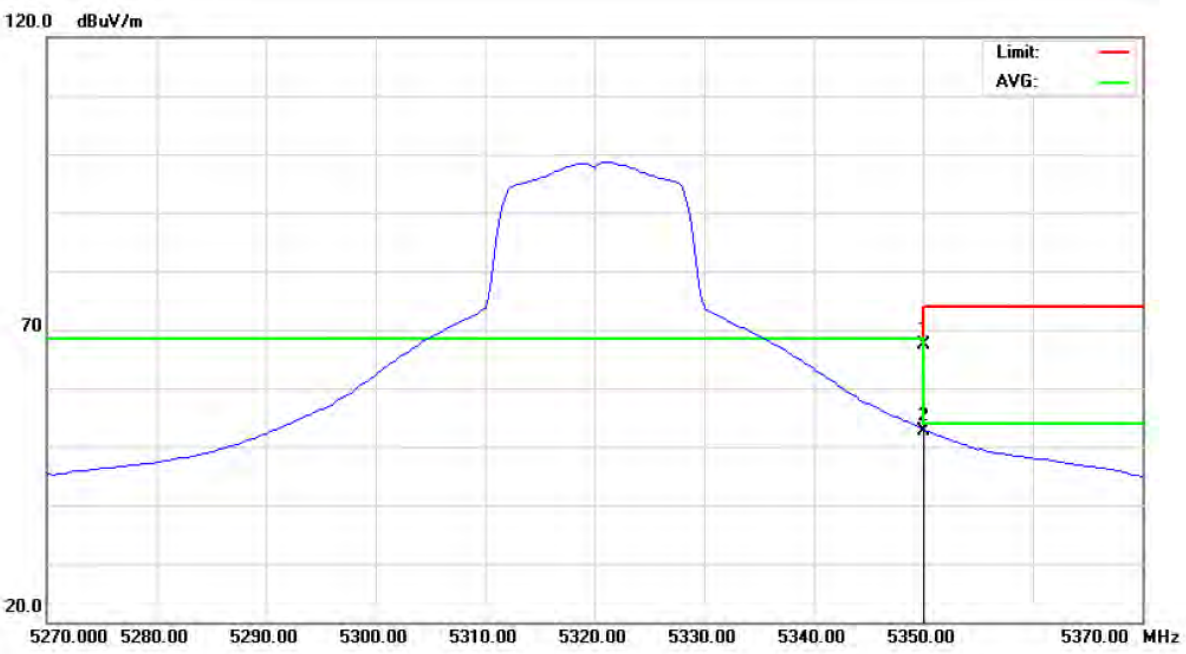
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5350.000	26.90	38.16	65.06	68.30	-3.24	peak	
2		5350.000	12.05	38.16	50.21	54.00	-3.79	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5320 MHz		
NOTE	The transmitter was setup to transmit at the highest channel and the field strength was measured at 5350-5460 MHz.		

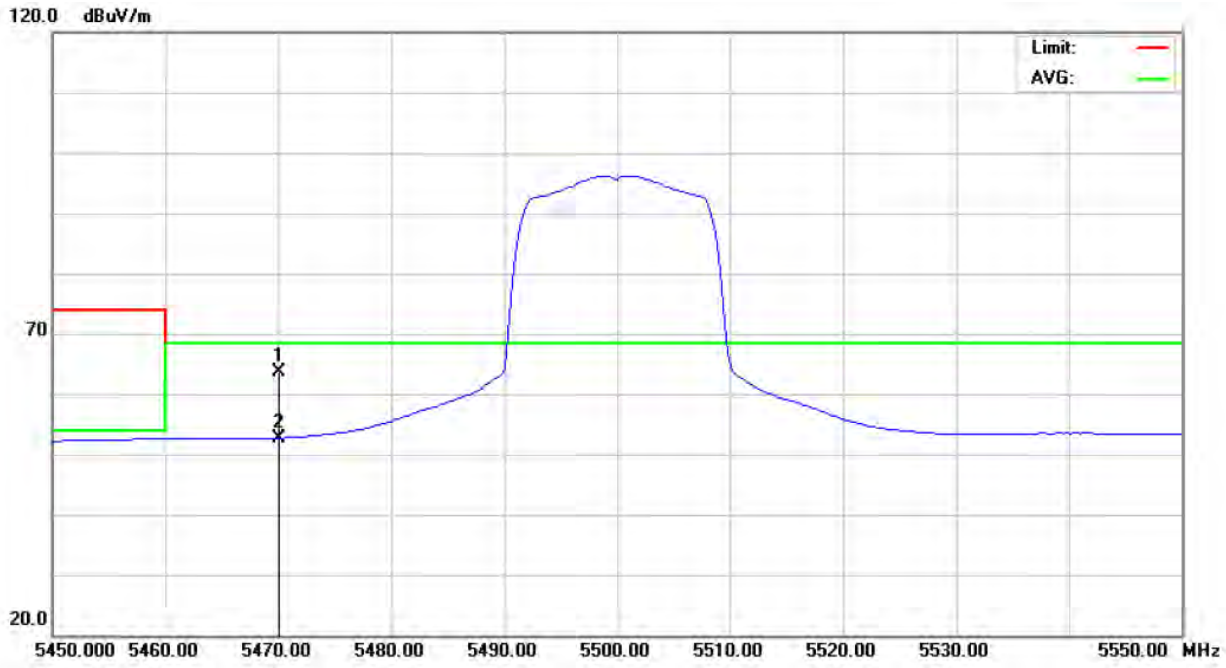
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5350.000	29.11	38.16	67.27	68.30	-1.03	peak	
2		5350.000	14.59	38.16	52.75	54.00	-1.25	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5500 MHz		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 5350-5460 MHz.		

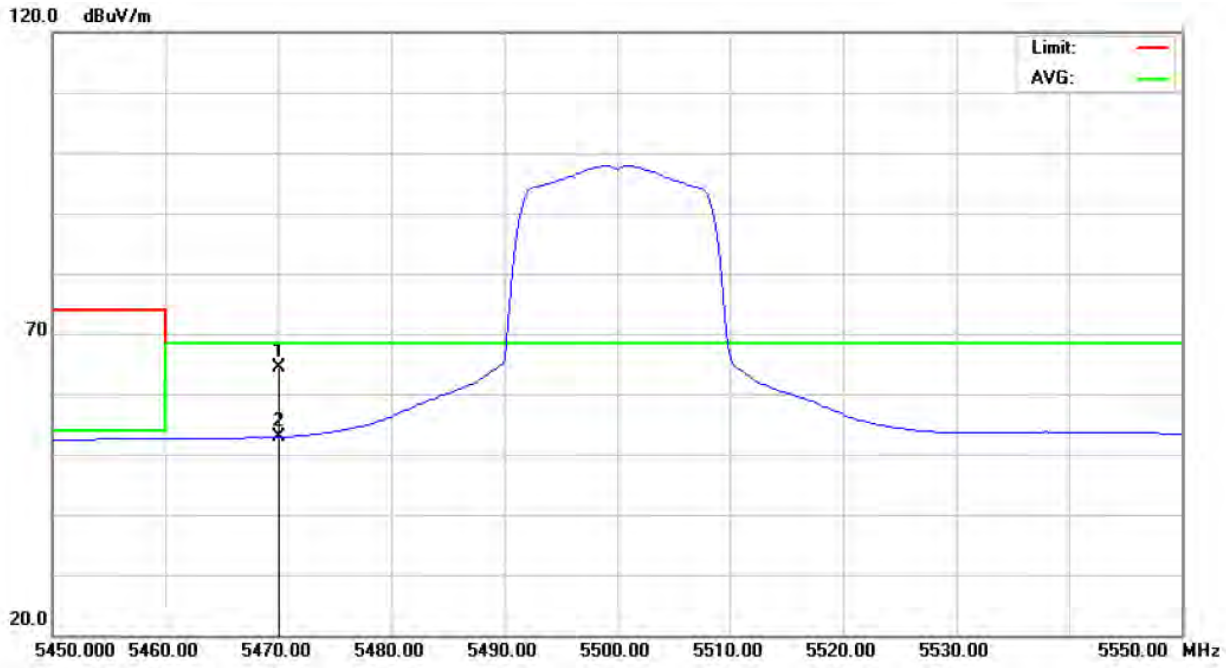
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5470.000	24.81	38.86	63.67	68.30	-4.63	peak	
2		5470.000	13.87	38.86	52.73	68.30	-15.57	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5500 MHz		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 5350-5460 MHz.		

Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5470.000	25.56	38.86	64.42	68.30	-3.88	peak	
2		5470.000	13.96	38.86	52.82	68.30	-15.48	AVG	

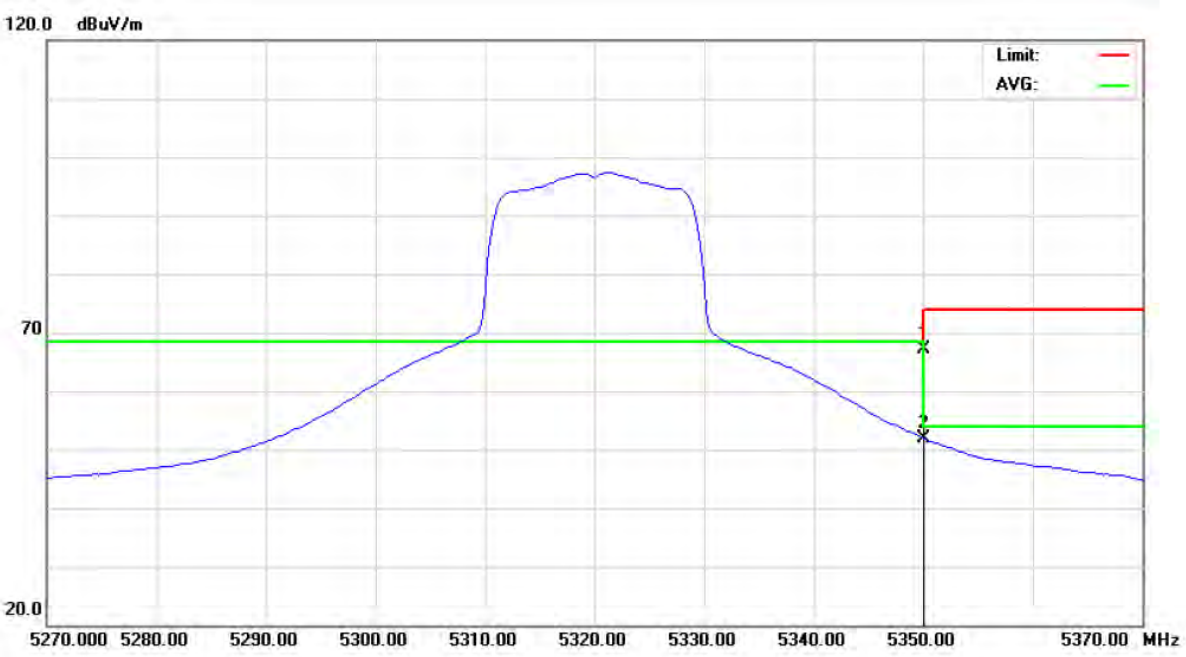
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5320 MHz		
NOTE	The transmitter was setup to transmit at the highest channel and the field strength was measured at 5350-5460 MHz.		

Polarization: Horizontal

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5350.000	28.50	38.16	66.66	68.30	-1.64	peak	
2		5350.000	12.12	38.16	50.28	54.00	-3.72	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5320 MHz		
NOTE	The transmitter was setup to transmit at the highest channel and the field strength was measured at 5350-5460 MHz.		

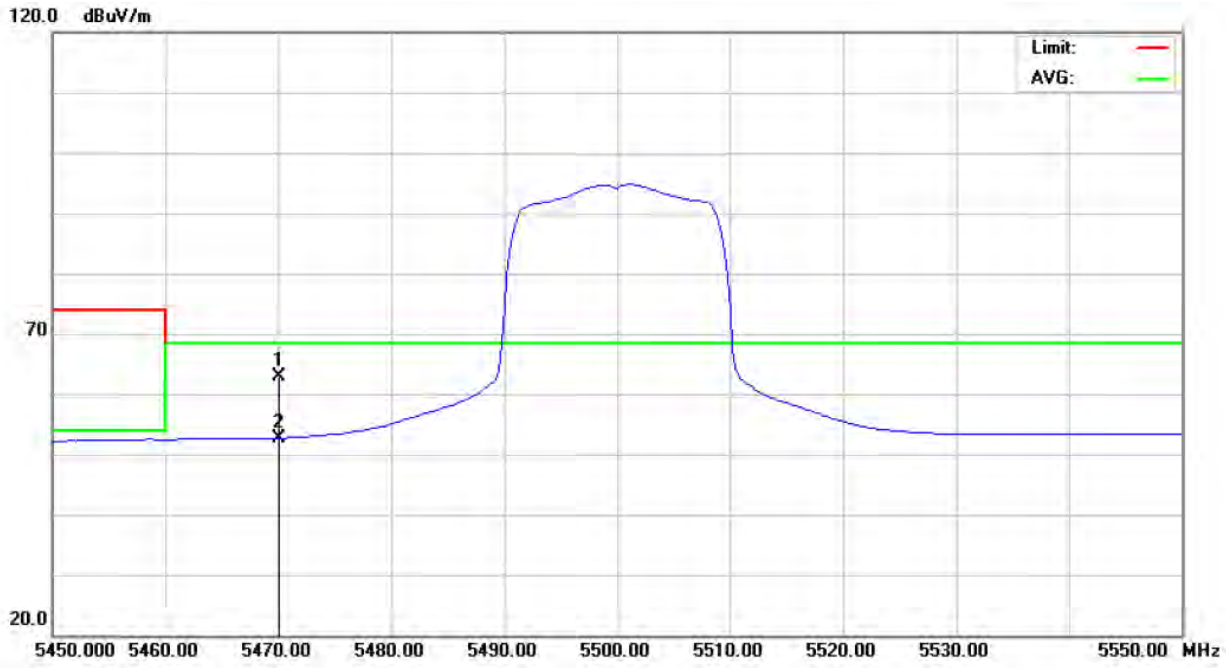
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5350.000	29.09	38.16	67.25	68.30	-1.05	peak	
2		5350.000	13.82	38.16	51.98	54.00	-2.02	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5500 MHz		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 5350-5460 MHz.		

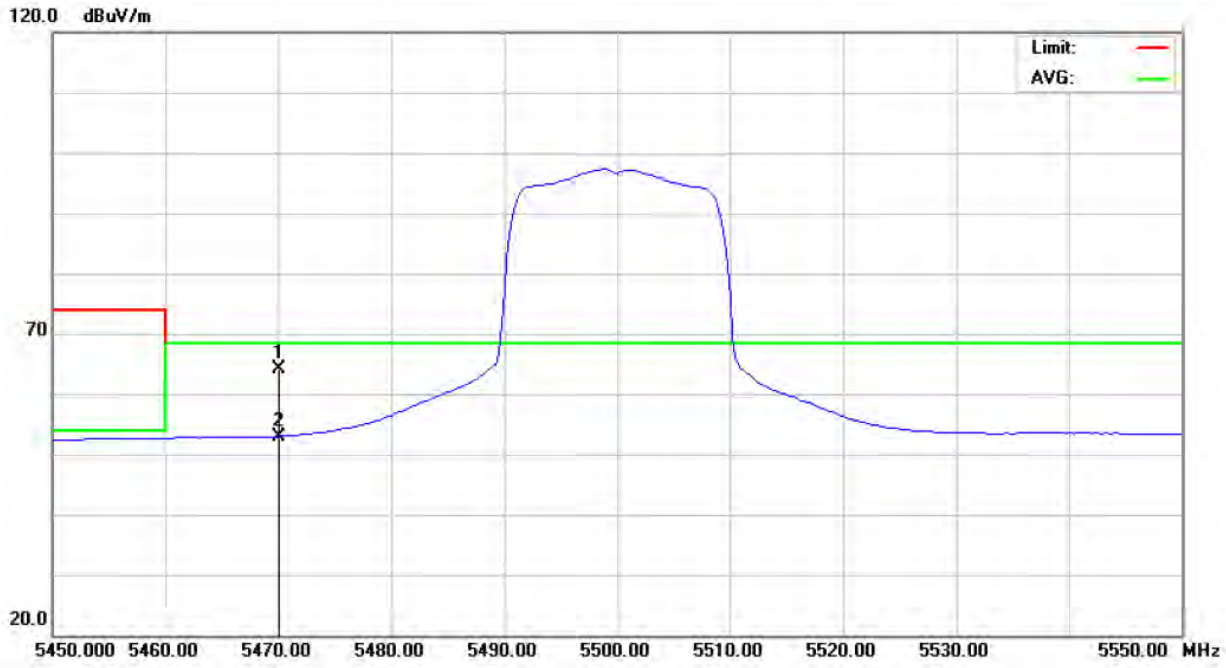
Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5470.000	24.04	38.86	62.90	68.30	-5.40	peak	
2		5470.000	13.81	38.86	52.67	68.30	-15.63	AVG	

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	24°C	Relative Humidity	46%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5500 MHz		
NOTE	The transmitter was setup to transmit at the lowest channel and the field strength was measured at 5350-5460 MHz.		

Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	5470.000	25.39	38.86	64.25	68.30	-4.05	peak	
2		5470.000	14.11	38.86	52.97	68.30	-15.33	AVG	

10 POWER SPECTRAL DENSITY

10.1 LIMIT

Test Item	Frequency Range (MHz)	Limit
Power Spectral Density	5150 - 5250	4 dBm
	5250 - 5350	11 dBm
	5470 - 5725	11 dBm
	5725 - 5825	17 dBm

10.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

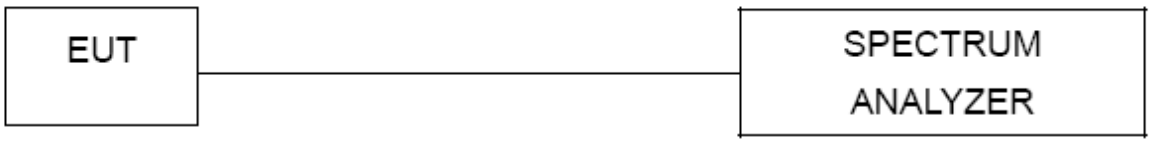
10.3 MEASURING INSTRUMENTS SETTING

Spectrum Analyzer	Parameter Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1000 kHz
VB	3000 kHz
Detector	RMS
Trace	Max Hold
Sweep Time	Auto

10.4 TEST PROCEDURES

The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.

10.5 TEST SETUP LAYOUT



10.6 DEVIATION FROM TEST STANDARD

No deviation

10.7 EUT OPERATING CONDITIONS

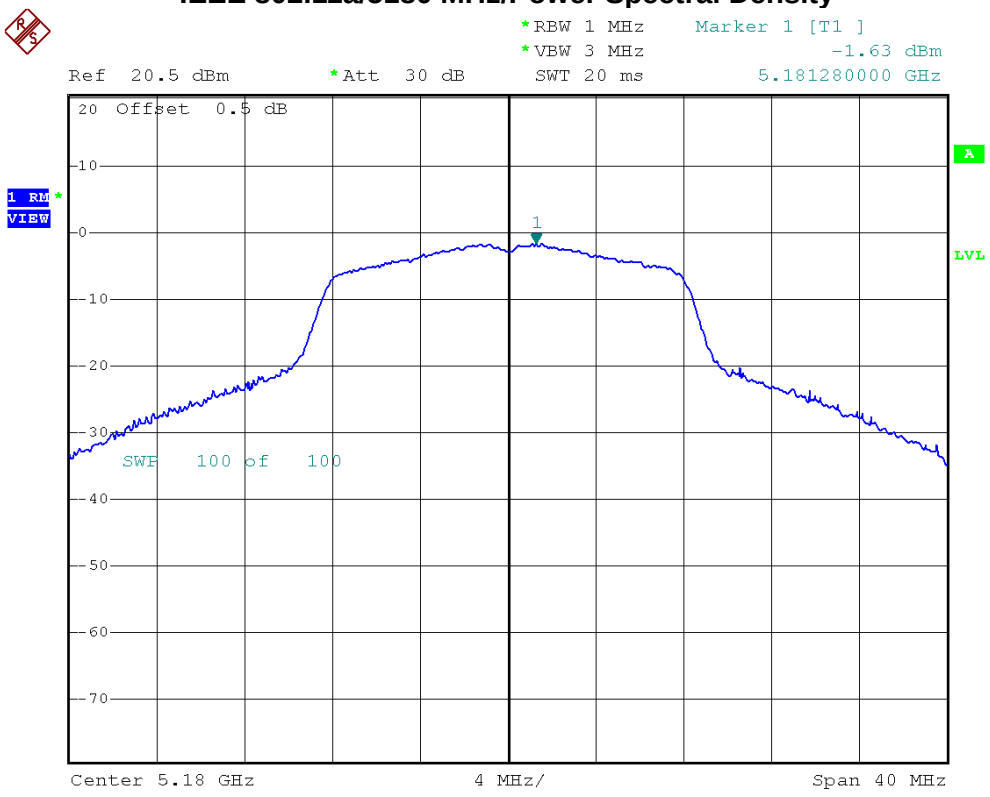
The EUT tested system was configured as the statements of 5.6 Unless otherwise a special operating condition is specified in the follows during the testing.

10.8TEST RESULTS - 5180 MHZ TO 5240 MHZ BAND

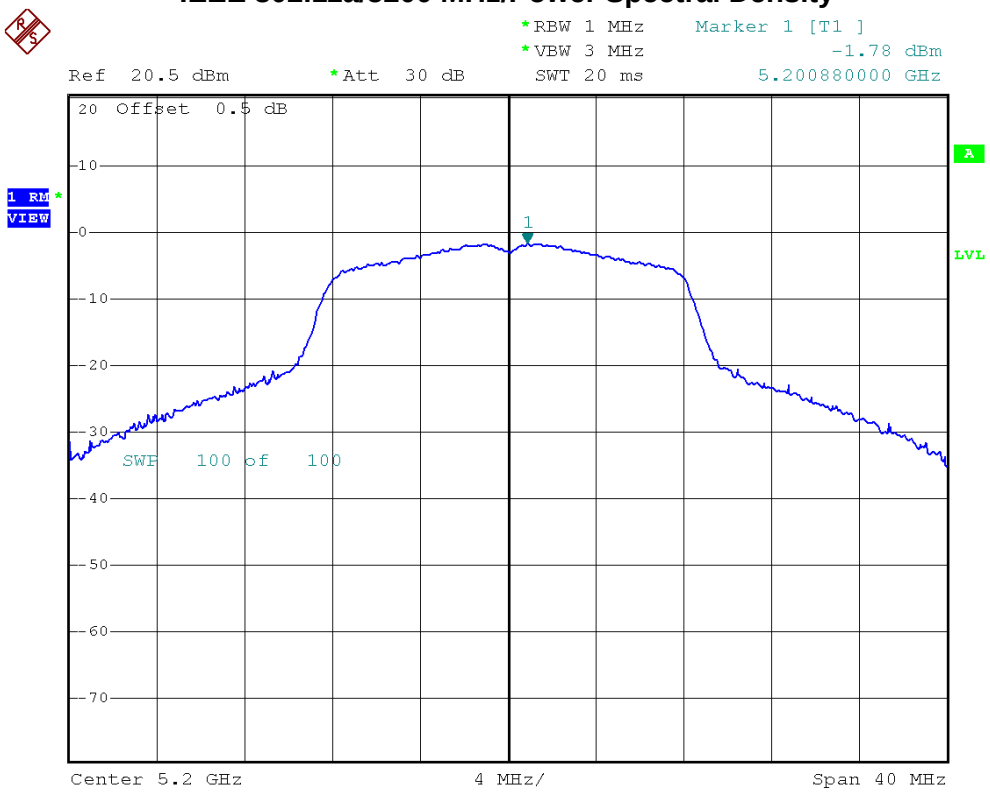
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5180 MHz, 5200 MHz, 5240 MHz		

Frequency	Power Spectral Density (dBm)	Limit (dBm)	Result
5180 MHz	-1.63	4.00	PASS
5200 MHz	-1.78	4.00	PASS
5240 MHz	-1.54	4.00	PASS

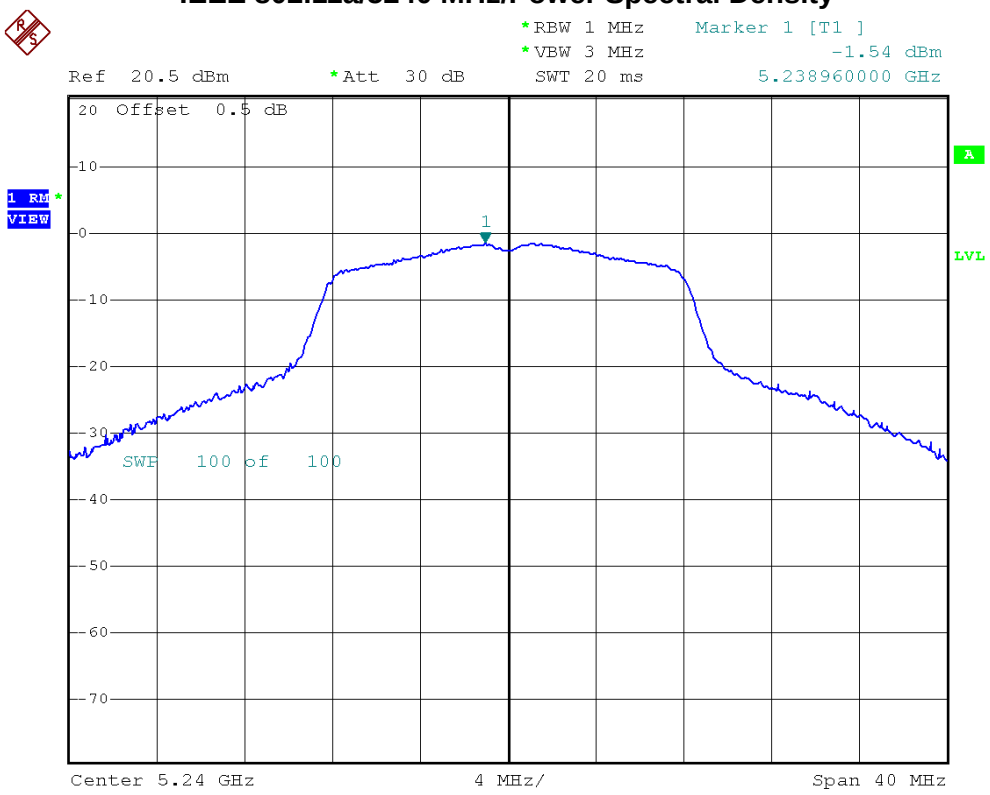
IEEE 802.11a/5180 MHz/Power Spectral Density



IEEE 802.11a/5200 MHz/Power Spectral Density



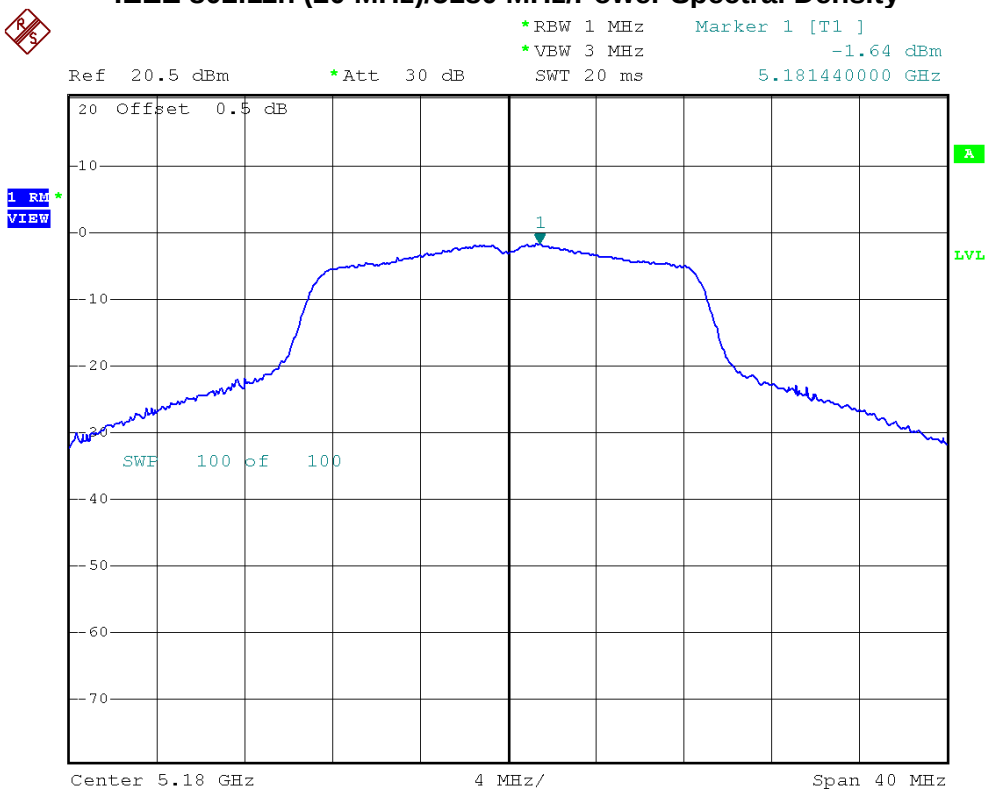
IEEE 802.11a/5240 MHz/Power Spectral Density



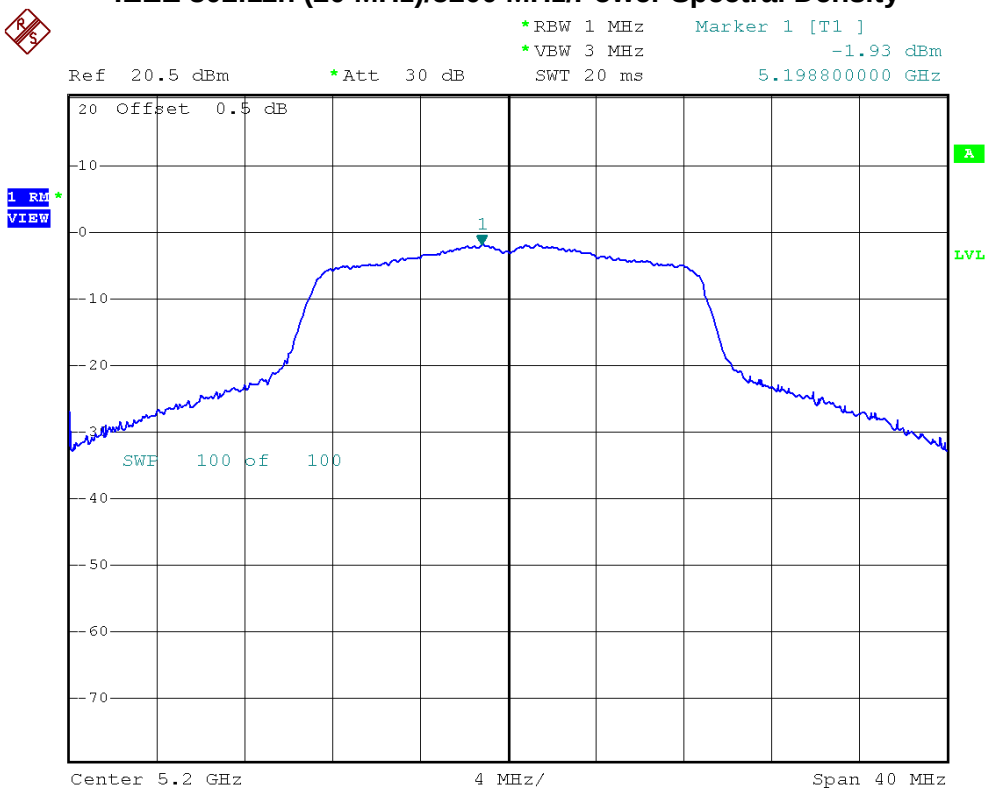
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5180 MHz, 5200 MHz, 5240 MHz		

Frequency	Power Spectral Density (dBm)	Limit (dBm)	Result
5180 MHz	-1.64	4.00	PASS
5200 MHz	-1.93	4.00	PASS
5240 MHz	-1.42	4.00	PASS

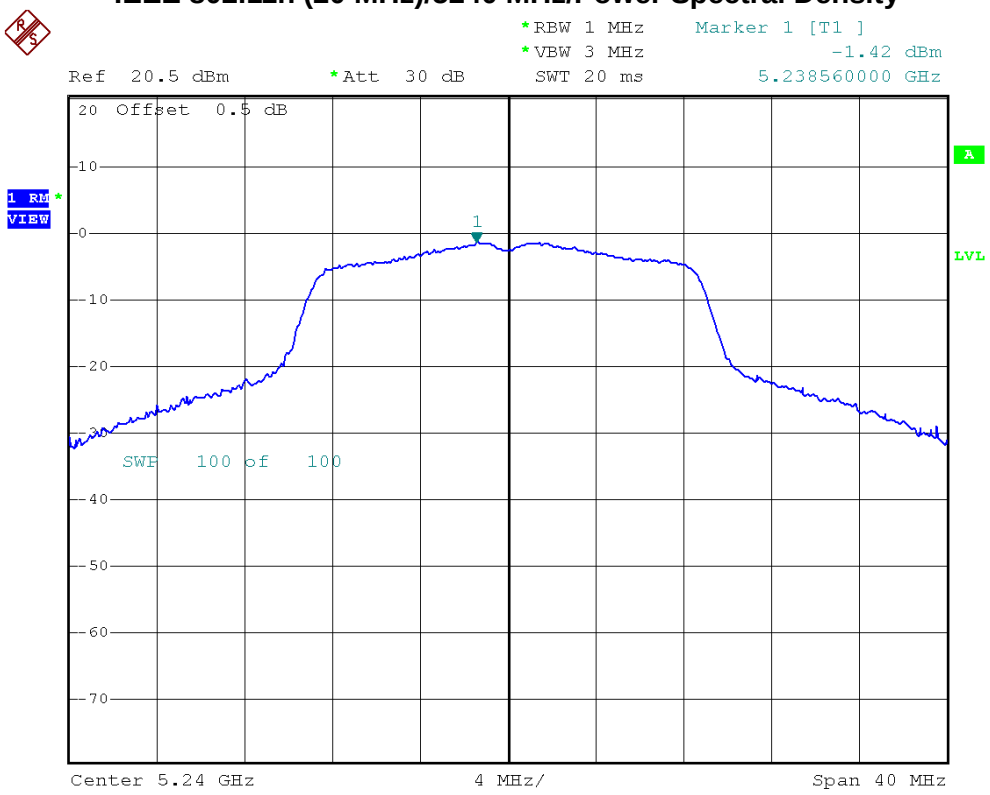
IEEE 802.11n (20 MHz)/5180 MHz/Power Spectral Density



IEEE 802.11n (20 MHz)/5200 MHz/Power Spectral Density



IEEE 802.11n (20 MHz)/5240 MHz/Power Spectral Density

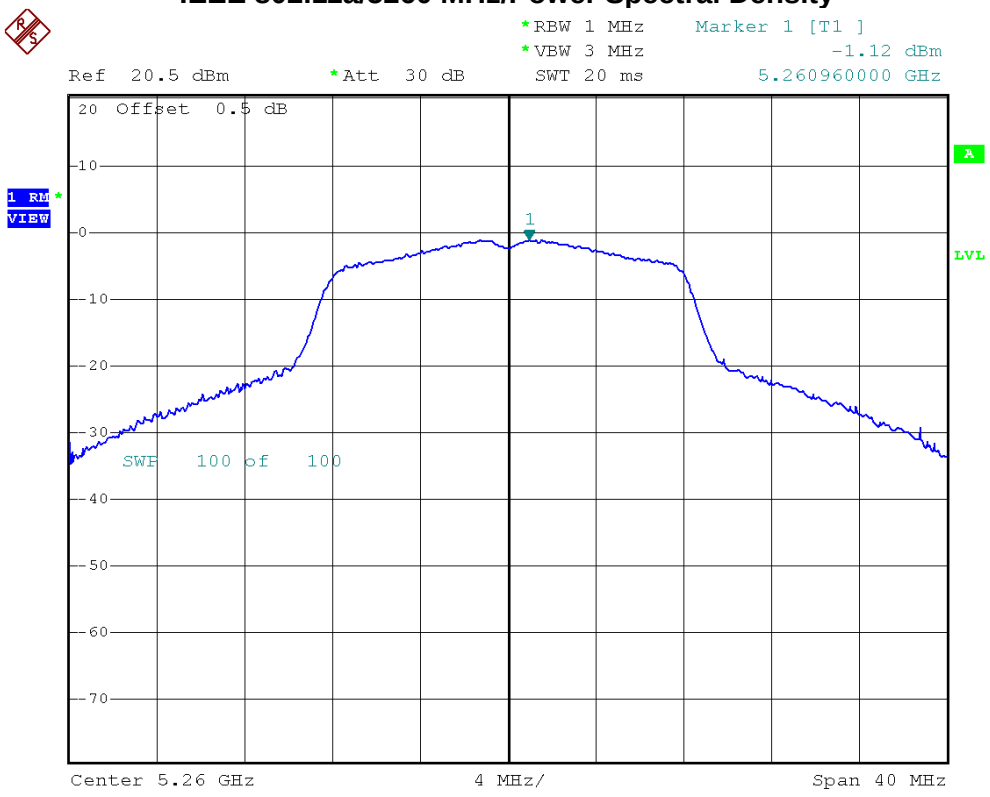


10.9TEST RESULTS - 5260 MHZ TO 5320 MHZ BAND

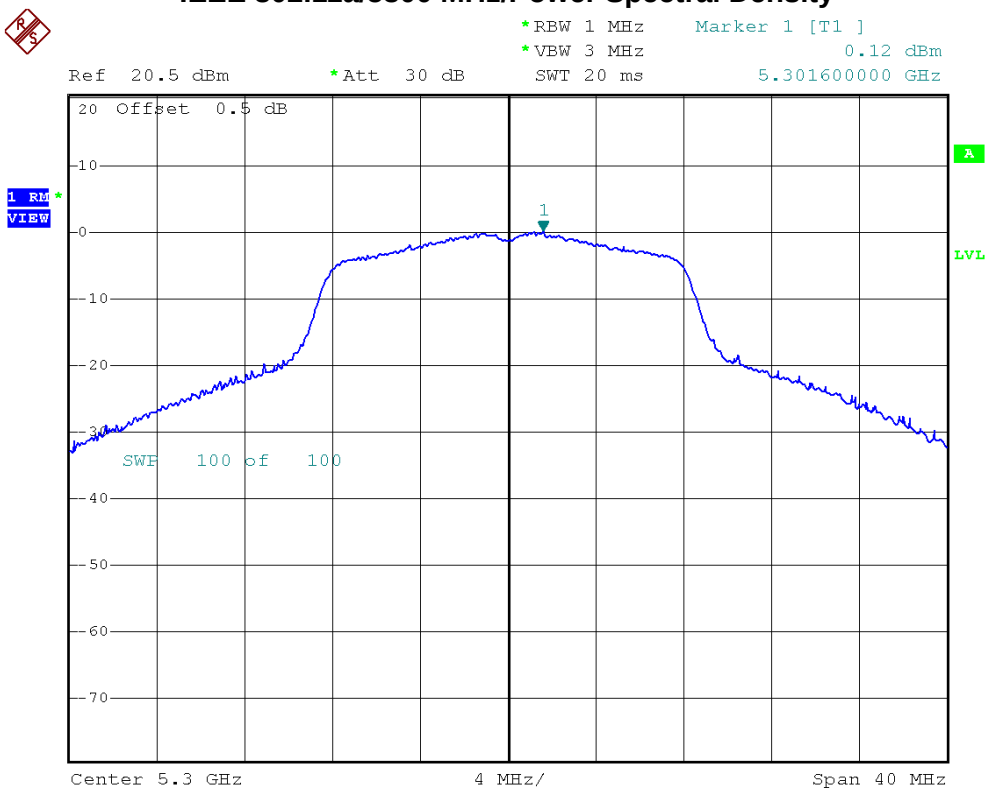
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5260 MHz, 5300 MHz, 5320 MHz		

Frequency	Power Spectral Density (dBm)	Limit (dBm)	Result
5260 MHz	-1.12	11.00	PASS
5300 MHz	0.12	11.00	PASS
5320 MHz	1.02	11.00	PASS

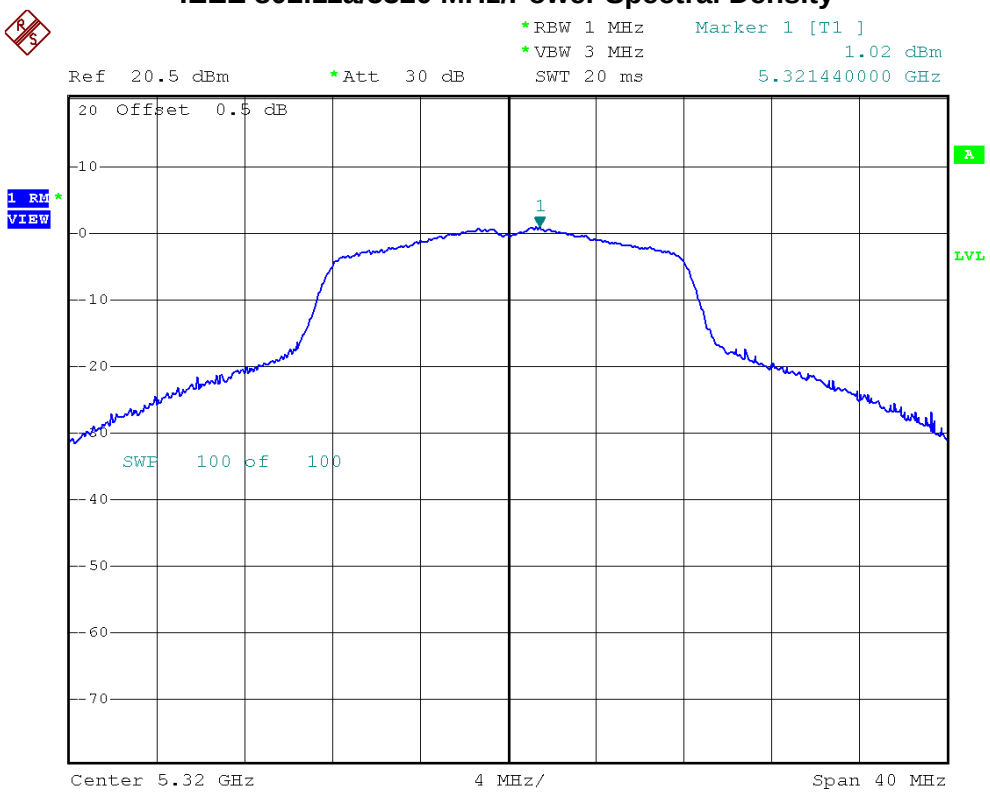
IEEE 802.11a/5260 MHz/Power Spectral Density



IEEE 802.11a/5300 MHz/Power Spectral Density



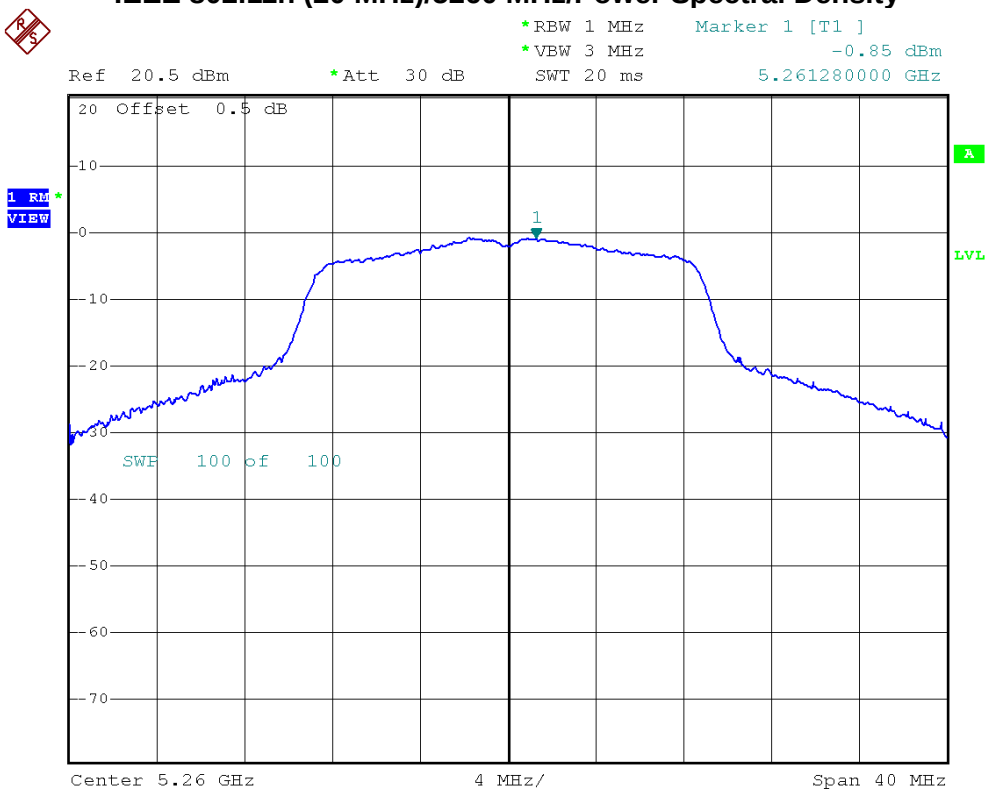
IEEE 802.11a/5320 MHz/Power Spectral Density



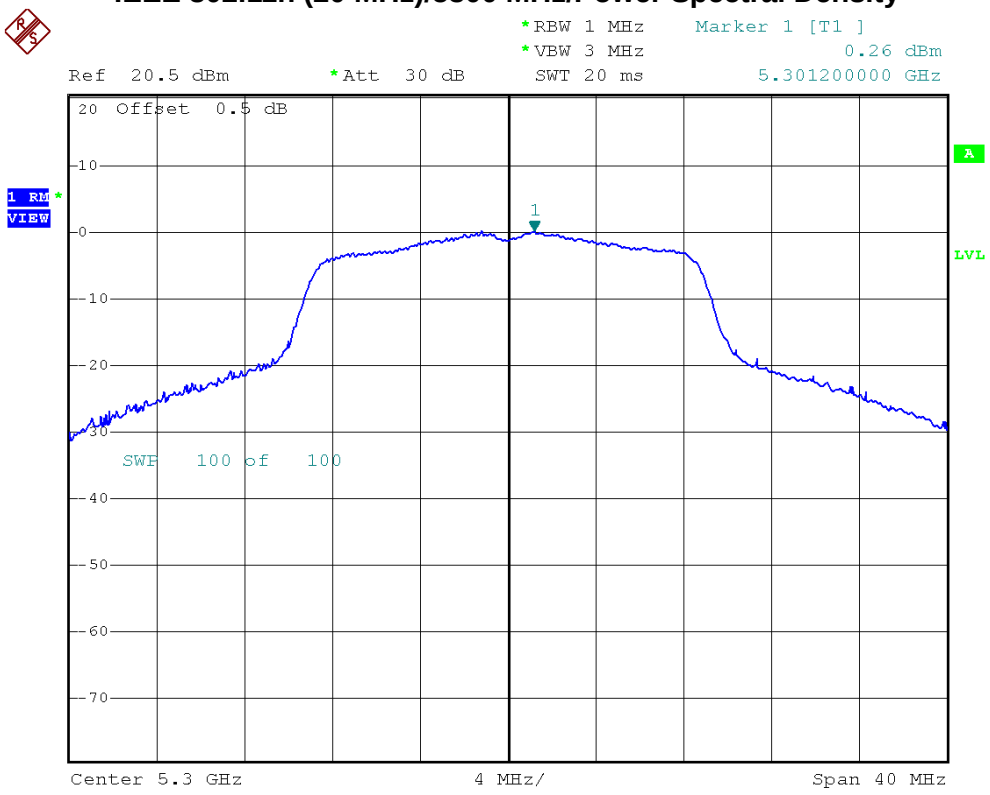
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5260 MHz, 5300 MHz, 5320 MHz		

Frequency	Power Spectral Density (dBm)	Limit (dBm)	Result
5260 MHz	-0.85	11.00	PASS
5300 MHz	0.26	11.00	PASS
5320 MHz	0.92	11.00	PASS

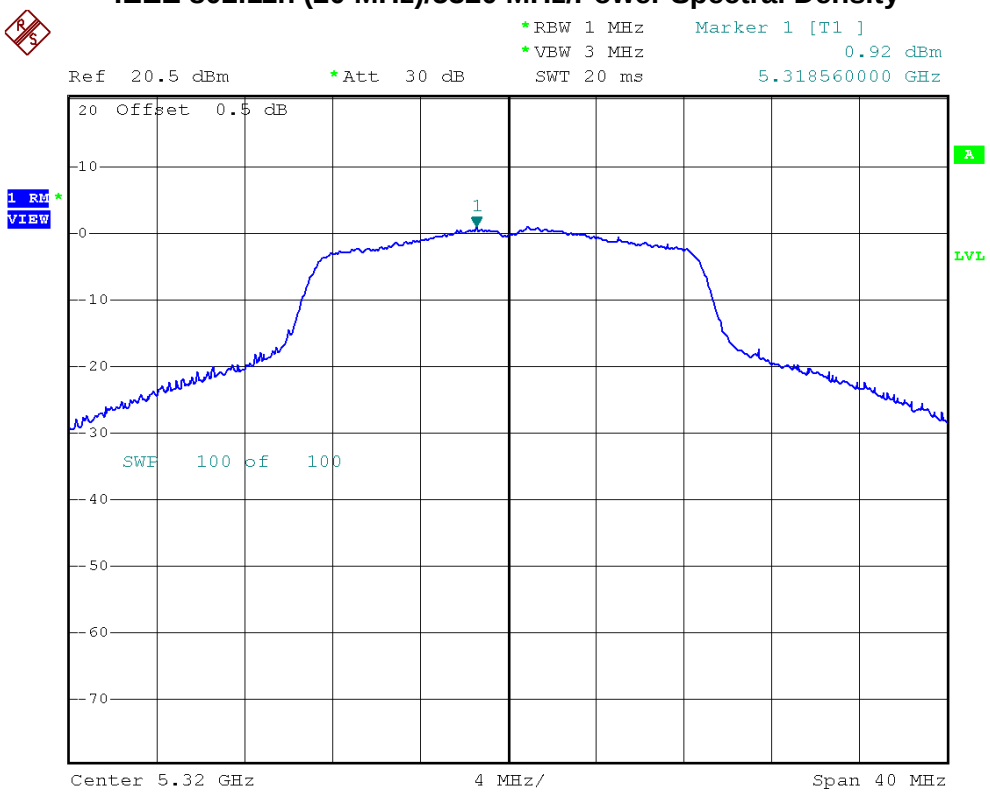
IEEE 802.11n (20 MHz)/5260 MHz/Power Spectral Density



IEEE 802.11n (20 MHz)/5300 MHz/Power Spectral Density



IEEE 802.11n (20 MHz)/5320 MHz/Power Spectral Density

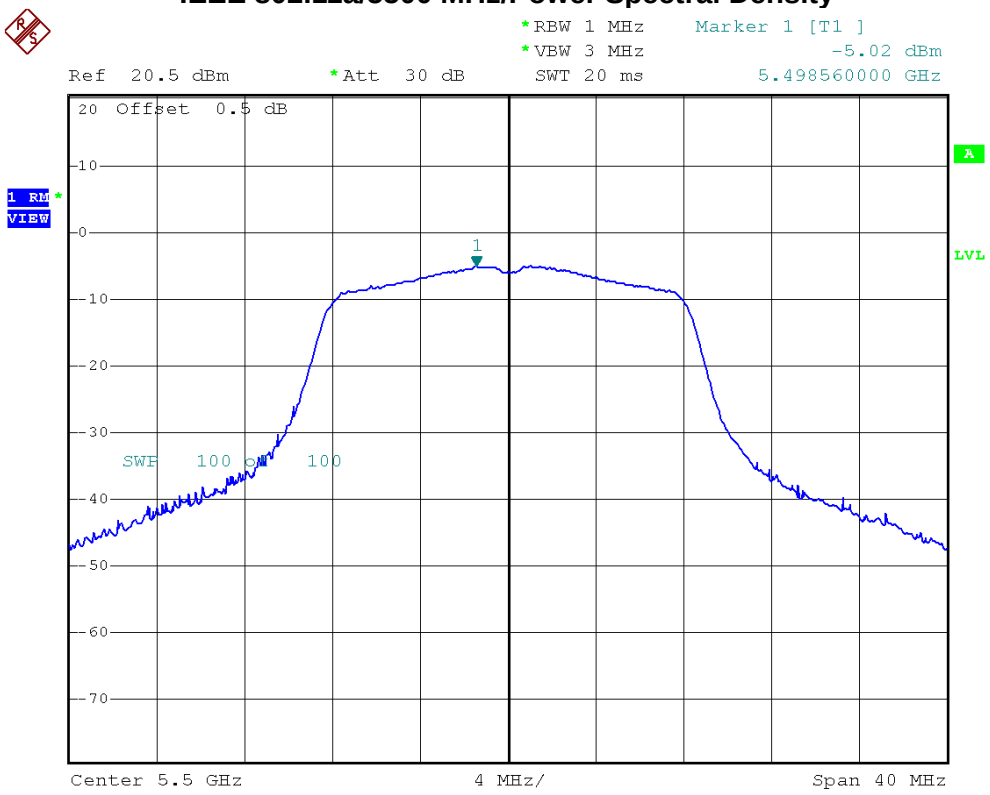


10.10 TEST RESULTS - 5500 MHZ TO 5700 MHZ BAND

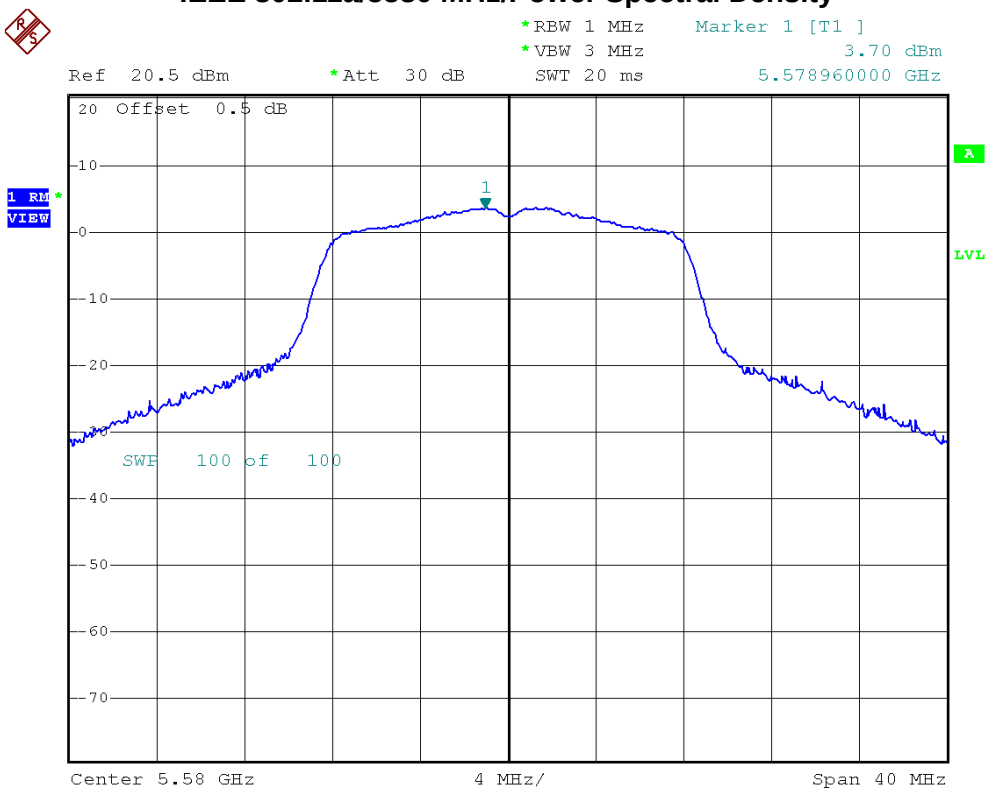
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5500 MHz, 5580 MHz, 5700 MHz		

Frequency	Power Spectral Density (dBm)	Limit (dBm)	Result
5500 MHz	-5.02	11.00	PASS
5580 MHz	3.70	11.00	PASS
5700 MHz	-10.35	11.00	PASS

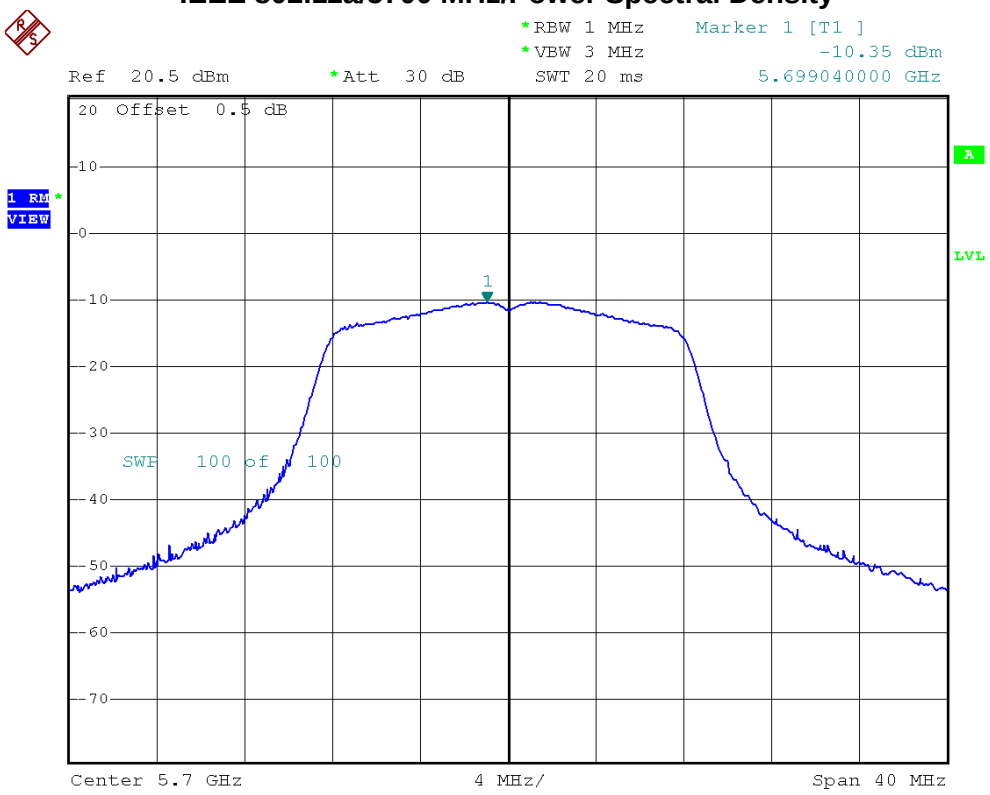
IEEE 802.11a/5500 MHz/Power Spectral Density



IEEE 802.11a/5580 MHz/Power Spectral Density



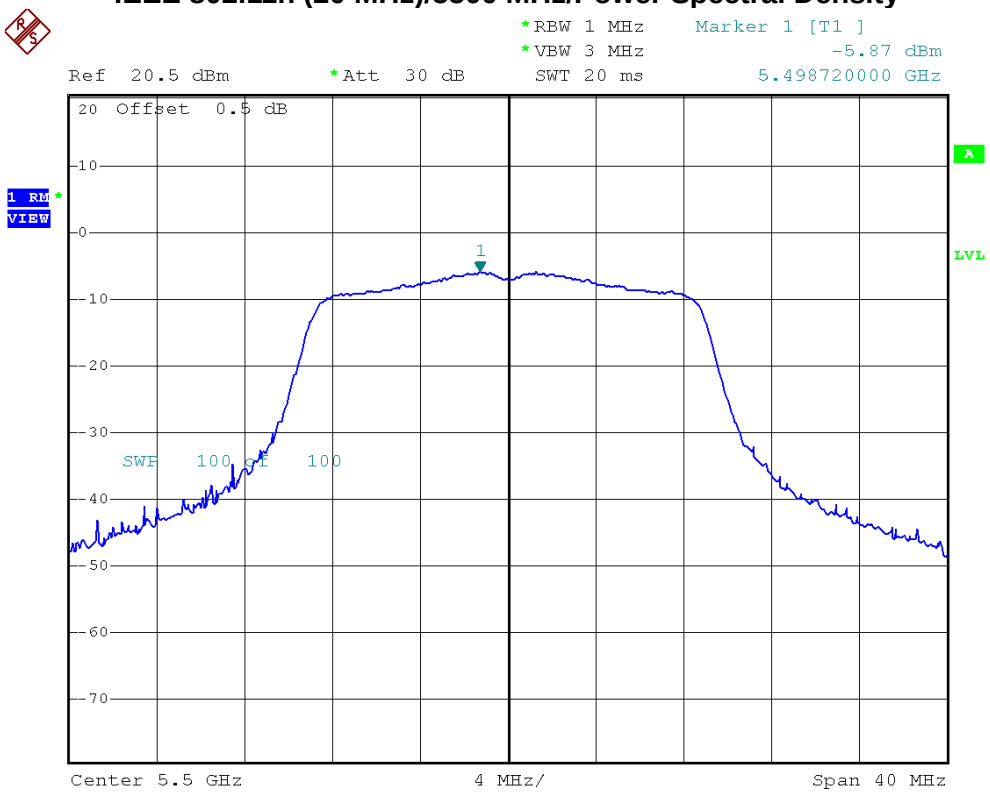
IEEE 802.11a/5700 MHz/Power Spectral Density



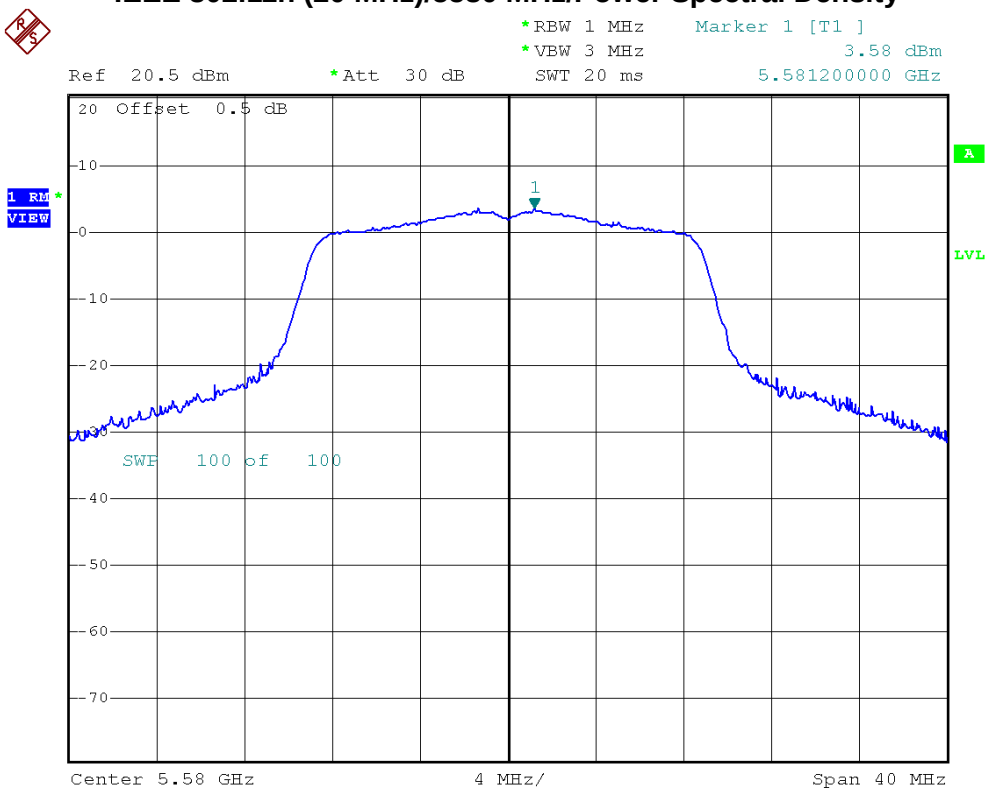
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5500 MHz, 5580 MHz, 5700 MHz		

Frequency	Power Spectral Density (dBm)	Limit (dBm)	Result
5500 MHz	-5.87	11.00	PASS
5580 MHz	3.58	11.00	PASS
5700 MHz	-10.58	11.00	PASS

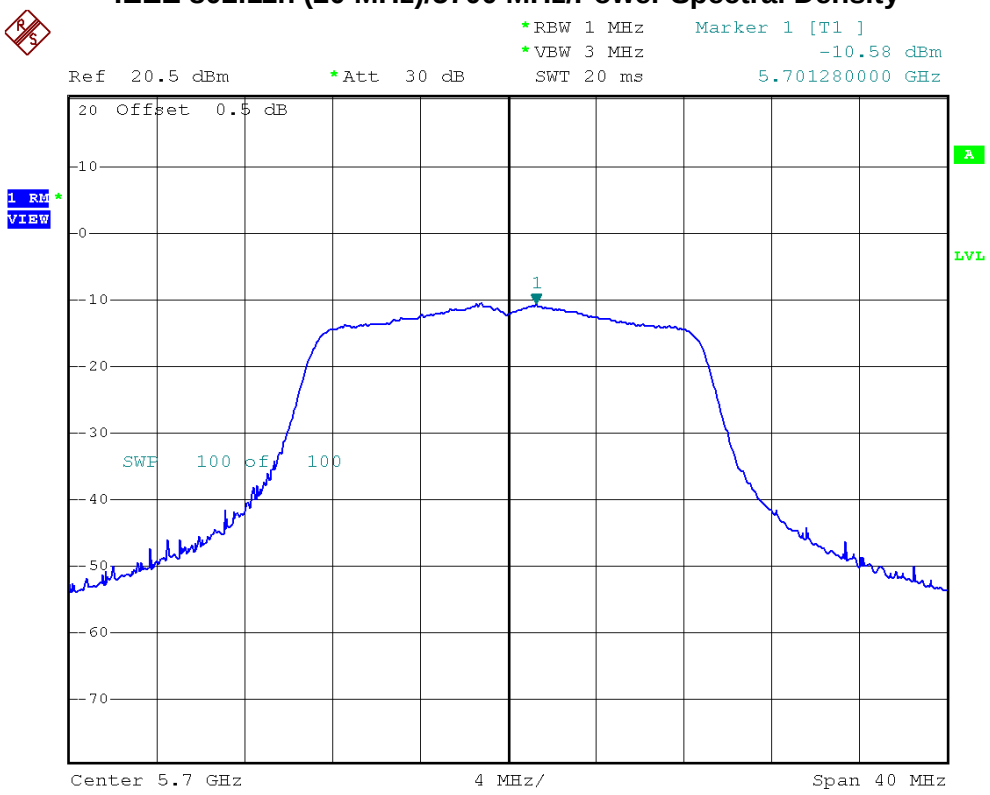
IEEE 802.11n (20 MHz)/5500 MHz/Power Spectral Density



IEEE 802.11n (20 MHz)/5580 MHz/Power Spectral Density



IEEE 802.11n (20 MHz)/5700 MHz/Power Spectral Density



11 PEAK EXCURSION

11.1LIMIT

Test Item	Frequency Range (MHz)	Limit
Peak Excursion	5150 - 5250	13 dB
	5250 - 5350	
	5470 - 5725	
	5725 - 5825	

11.2MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

11.3MEASURING INSTRUMENTS SETTING

Spectrum Analyzer	Parameter Setting
Attenuation	Auto
Span Frequency	Encompass the entire emissions bandwidth (EBW) of the signal
RB	1000 kHz (Peak Trace) / 1000 kHz (Average Trace)
VB	3000 kHz (Peak Trace) / 3000 kHz (Average Trace)
Detector	Peak (Peak Trace) / RMS (Average Trace)
Trace	Max Hold
Sweep Time	AUTO

11.4TEST PROCEDURES

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. Peak Trace: Set RBW = 1 MHz, VBW ≥ 3 MHz with peak detector and maxhold settings.
c. Average Trace: set RBW=1MHz,VBW=3MHz with RMS detector and trace average across 100 traces in power averaging mode.

11.5TEST SETUP LAYOUT

11.6 DEVIATION FROM TEST STANDARD

No deviation

11.7 EUT OPERATING CONDITIONS

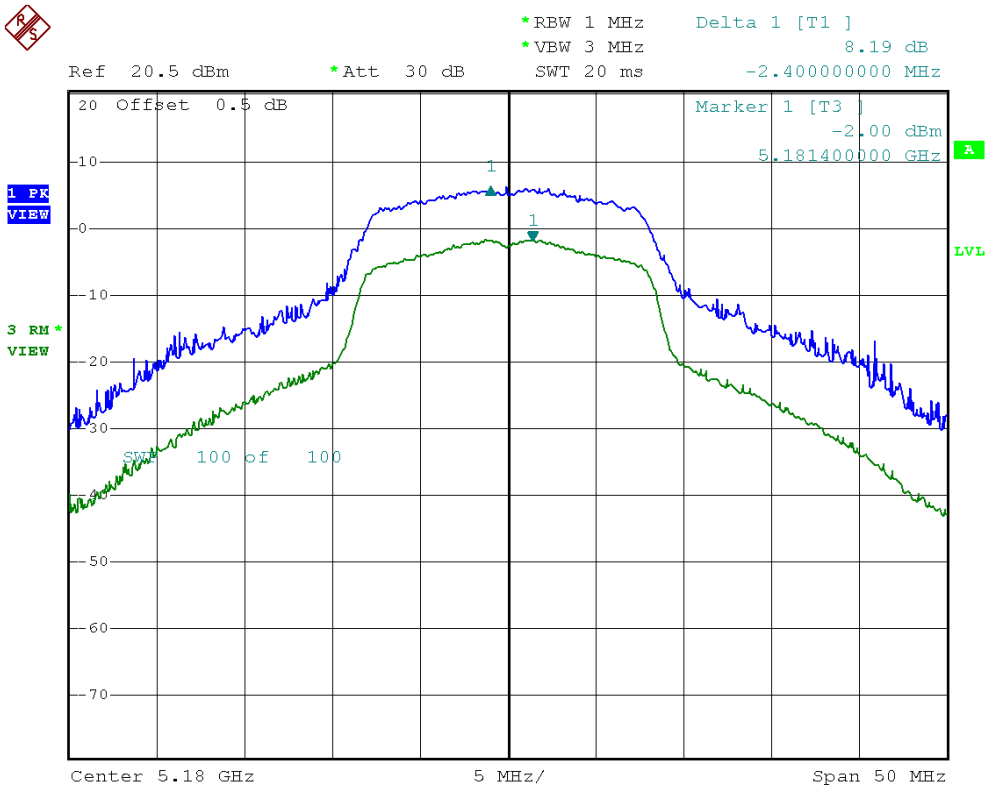
The EUT tested system was configured as the statements of 5.6 Unless otherwise a special operating condition is specified in the follows during the testing.

11.8TEST RESULTS - 5180 MHZ TO 5240 MHZ BAND

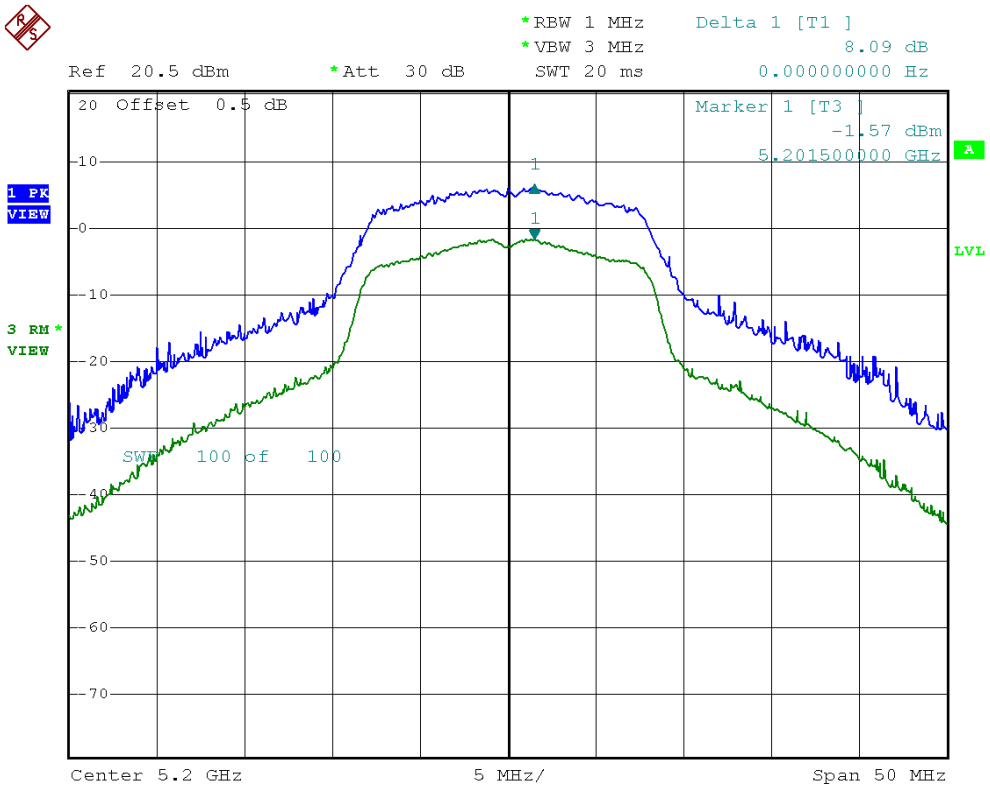
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5180 MHz, 5200 MHz, 5240 MHz		

Frequency	Peak Excursion (dB)	Limit (dB)	Result
5180 MHz	8.19	13	PASS
5200 MHz	8.09	13	PASS
5240 MHz	8.14	13	PASS

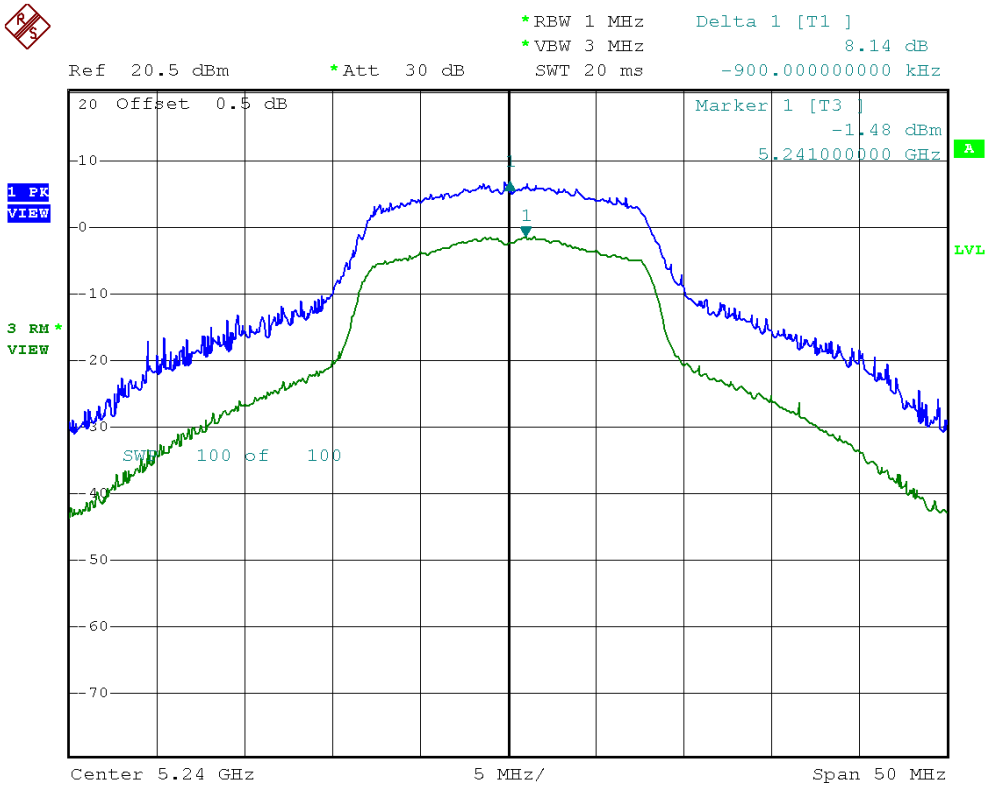
IEEE 802.11a/5180 MHz/Peak Excursion



IEEE 802.11a/5200 MHz/Peak Excursion



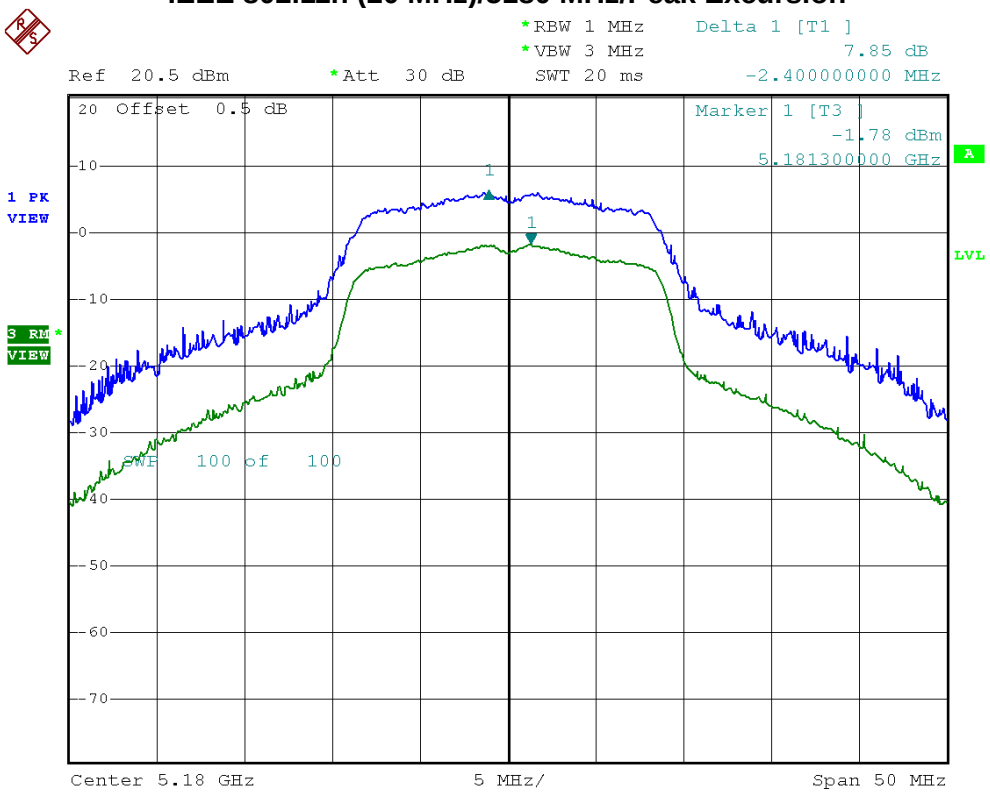
IEEE 802.11a/5240 MHz/Peak Excursion



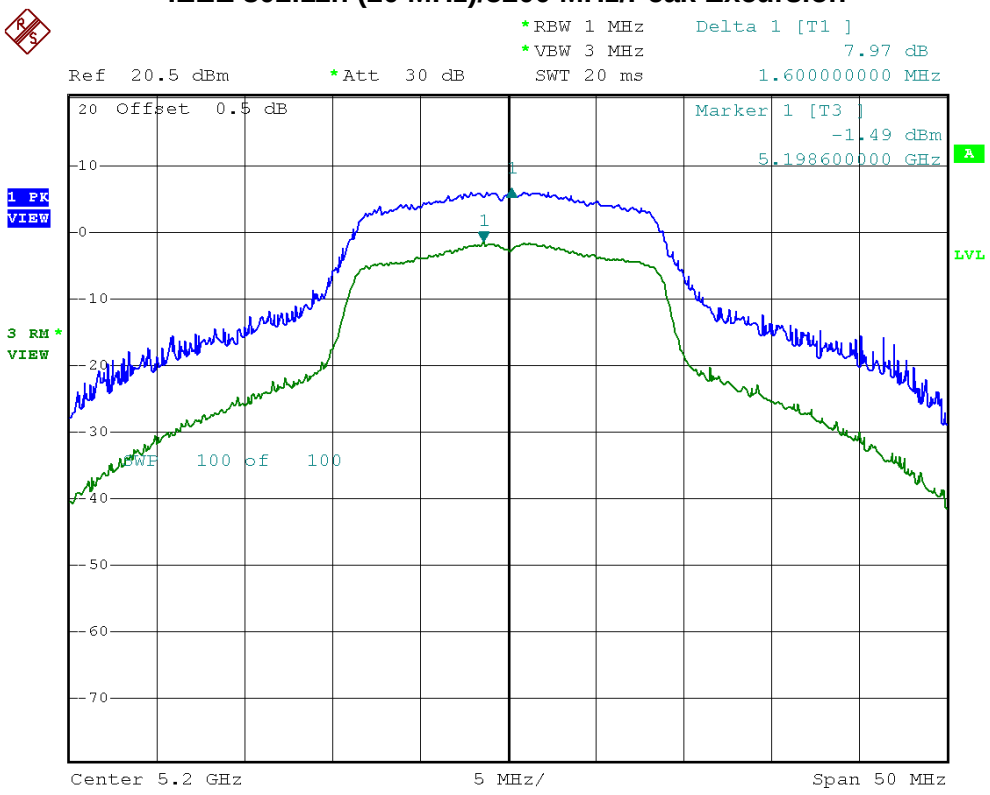
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5180 MHz, 5200 MHz, 5240 MHz		

Frequency	Peak Excursion (dB)	Limit (dB)	Result
5180 MHz	7.85	13	PASS
5200 MHz	7.97	13	PASS
5240 MHz	7.54	13	PASS

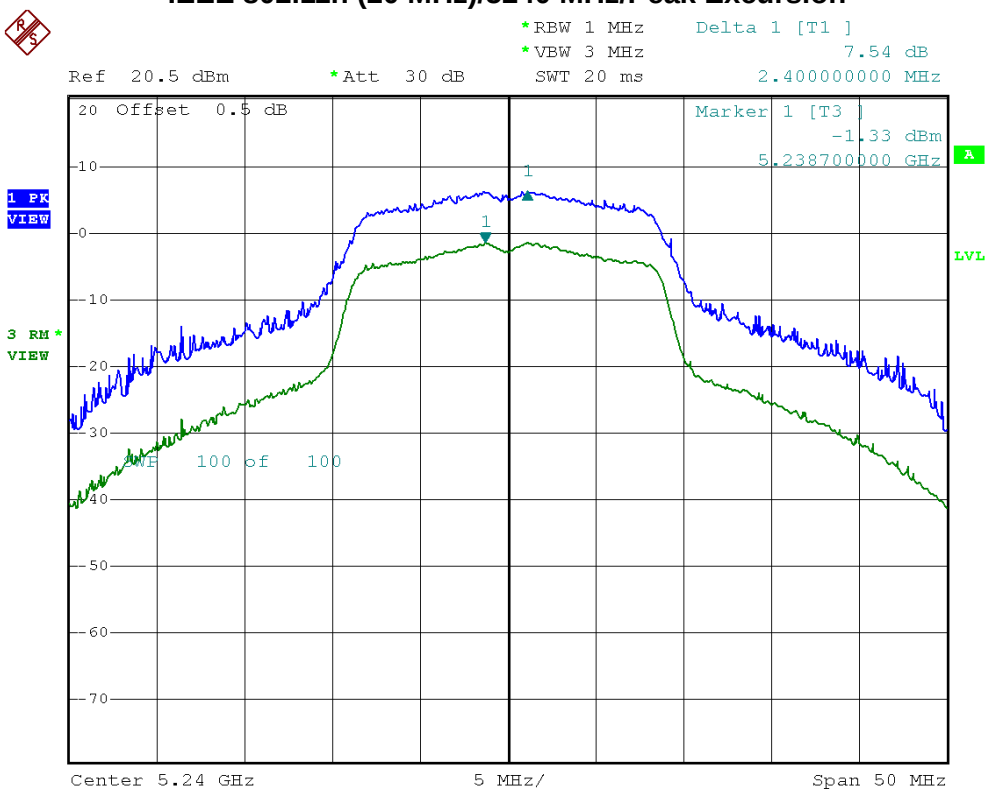
IEEE 802.11n (20 MHz)/5180 MHz/Peak Excursion



IEEE 802.11n (20 MHz)/5200 MHz/Peak Excursion



IEEE 802.11n (20 MHz)/5240 MHz/Peak Excursion

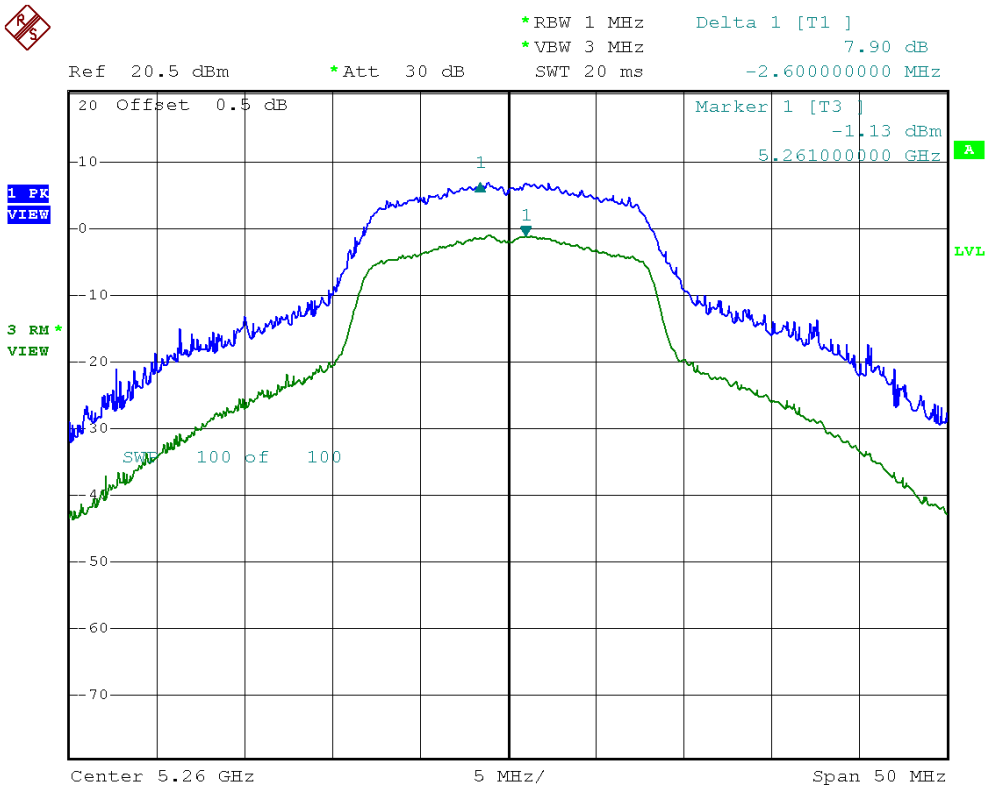


11.9TEST RESULTS - 5260 MHZ TO 5320 MHZ BAND

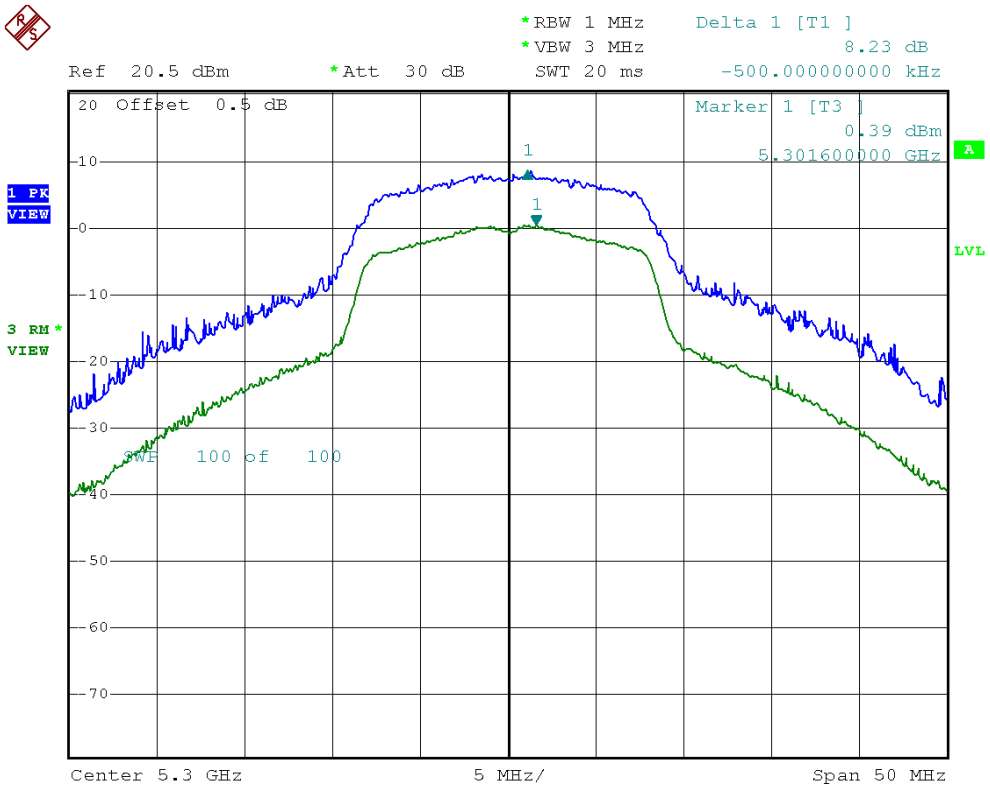
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5260 MHz, 5300 MHz, 5320 MHz		

Frequency	Peak Excursion (dB)	Limit (dB)	Result
5260 MHz	7.90	13	PASS
5300 MHz	8.23	13	PASS
5320 MHz	7.86	13	PASS

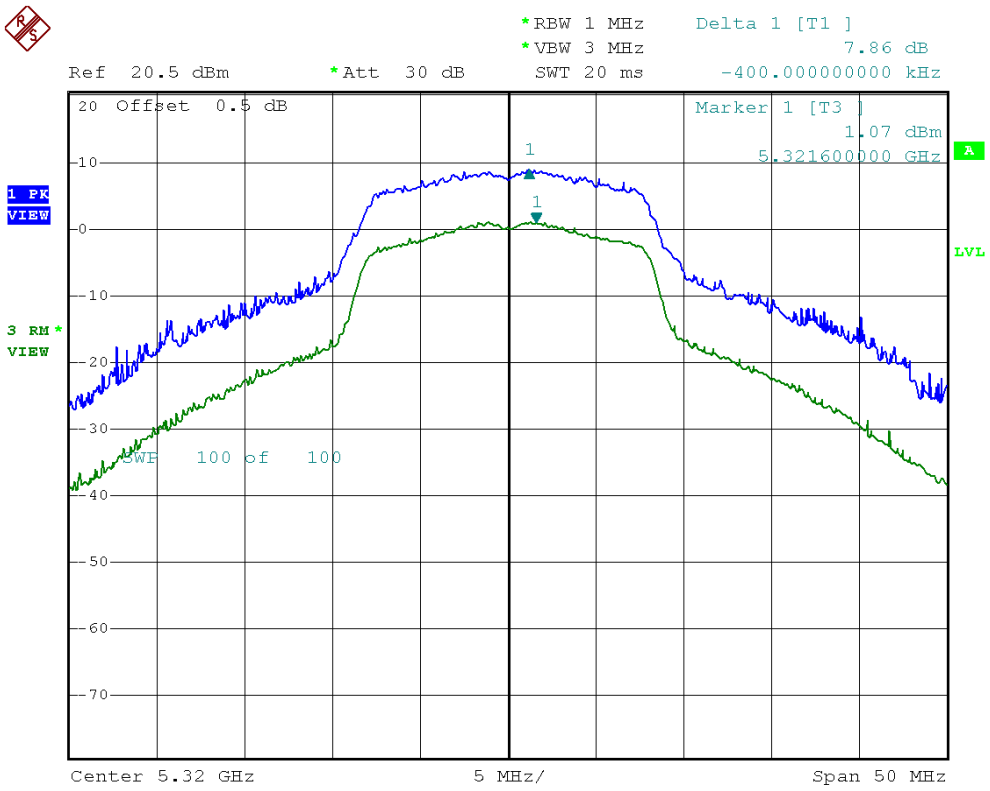
IEEE 802.11a/5260 MHz/Peak Excursion



IEEE 802.11a/5300 MHz/Peak Excursion



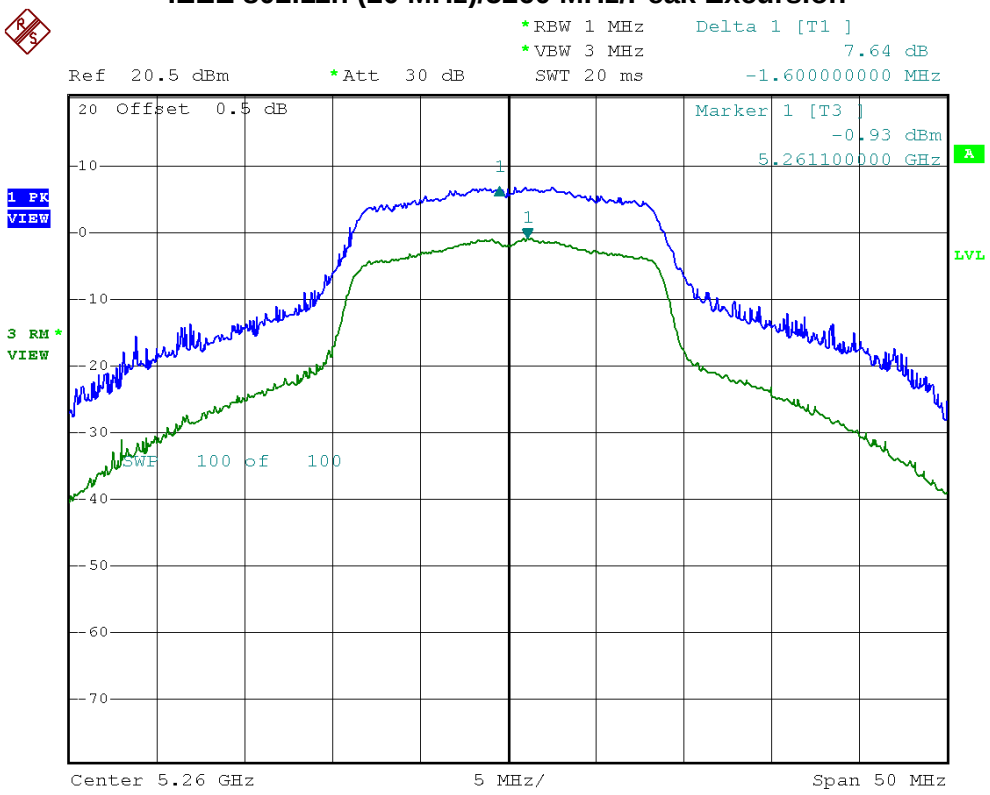
IEEE 802.11a/5320 MHz/Peak Excursion



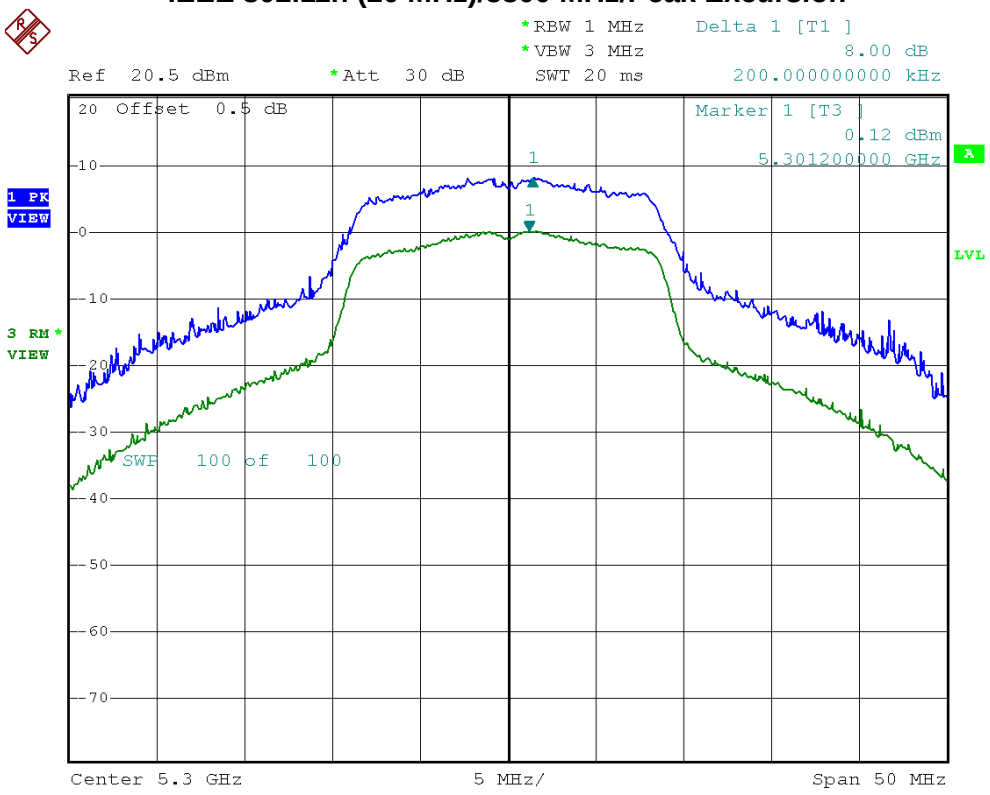
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5260 MHz, 5300 MHz, 5320 MHz		

Frequency	Peak Excursion (dB)	Limit (dB)	Result
5260 MHz	7.64	13	PASS
5300 MHz	8.00	13	PASS
5320 MHz	7.78	13	PASS

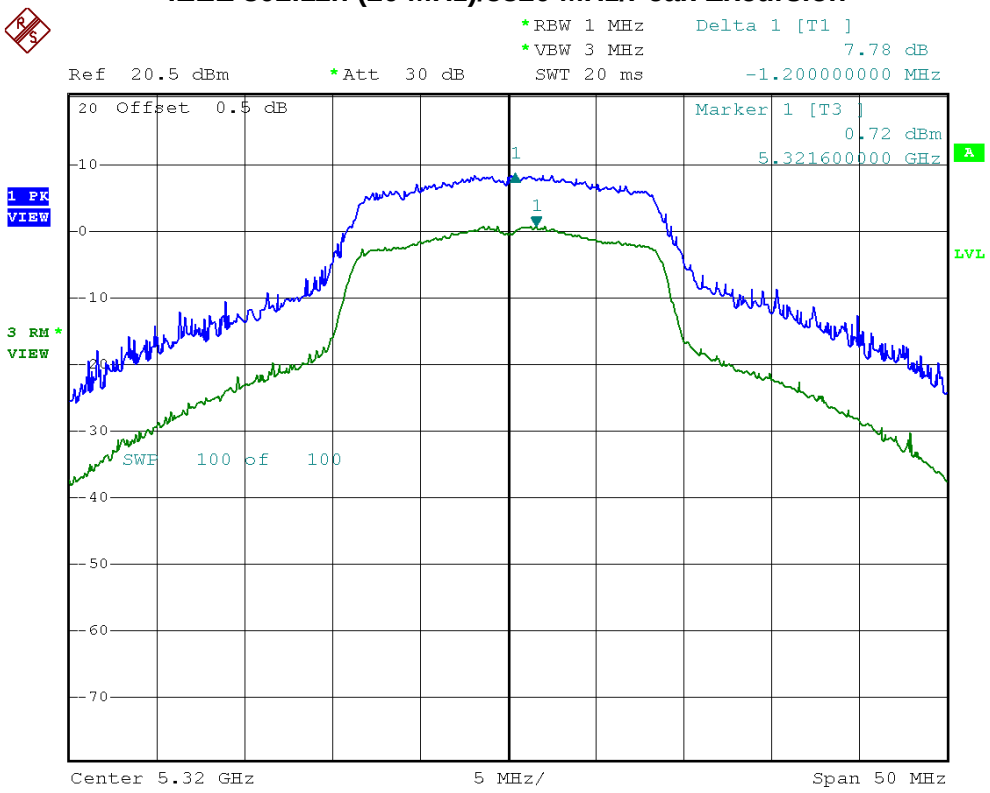
IEEE 802.11n (20 MHz)/5260 MHz/Peak Excursion



IEEE 802.11n (20 MHz)/5300 MHz/Peak Excursion



IEEE 802.11n (20 MHz)/5320 MHz/Peak Excursion

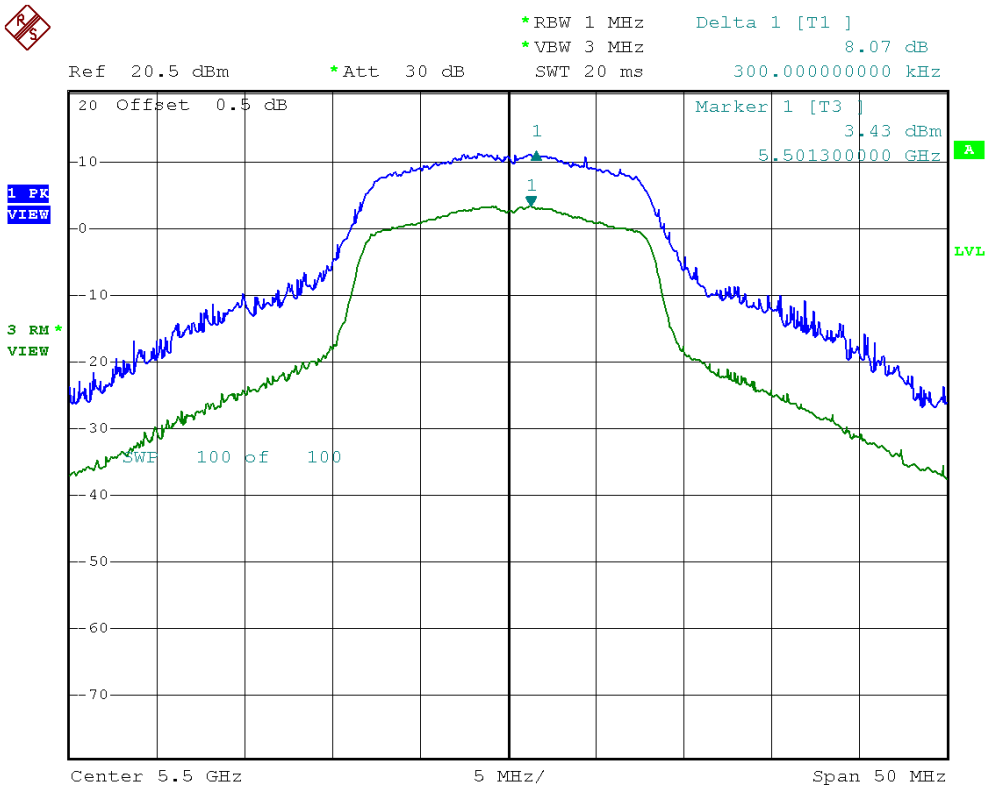


11.10 TEST RESULTS - 5500 MHZ TO 5700 MHZ BAND

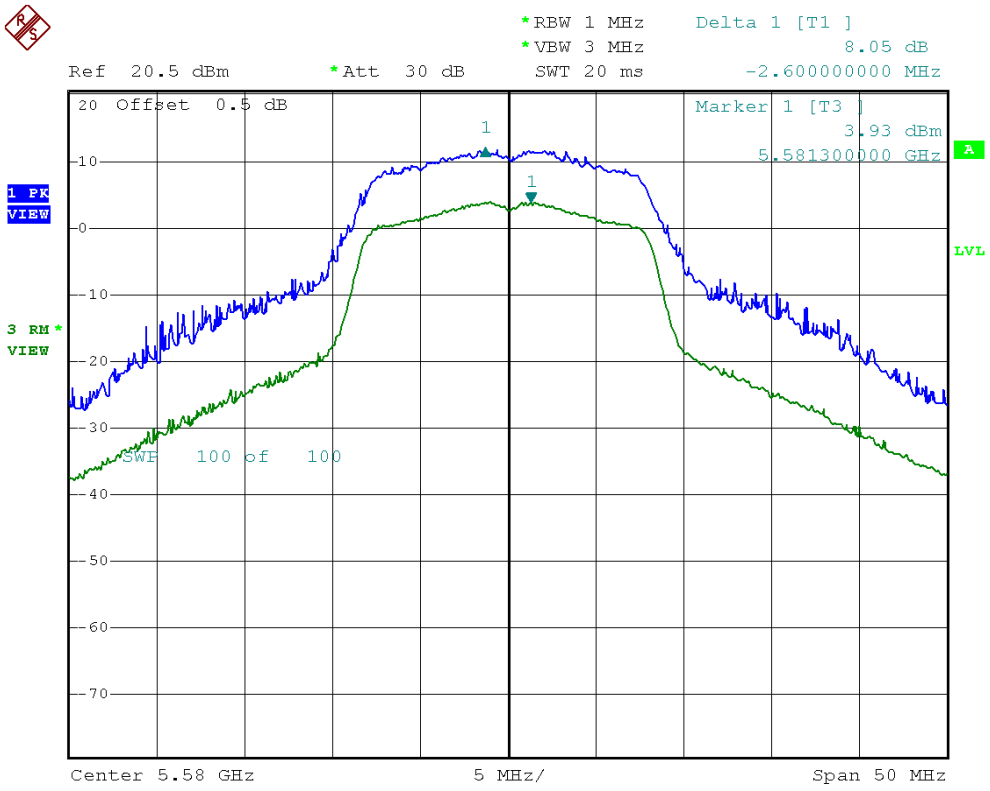
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5500 MHz, 5580 MHz, 5700 MHz		

Frequency	Peak Excursion (dB)	Limit (dB)	Result
5500 MHz	8.07	13	PASS
5580 MHz	8.05	13	PASS
5700 MHz	8.34	13	PASS

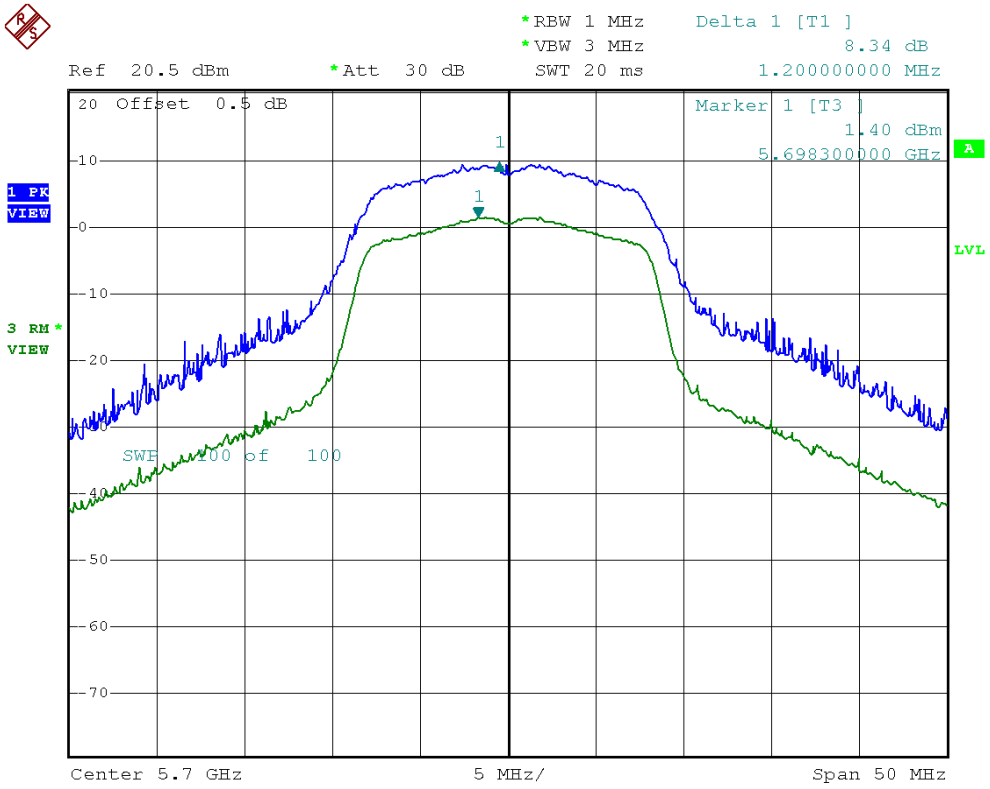
IEEE 802.11a/5500 MHz/Peak Excursion



IEEE 802.11a/5580 MHz/Peak Excursion



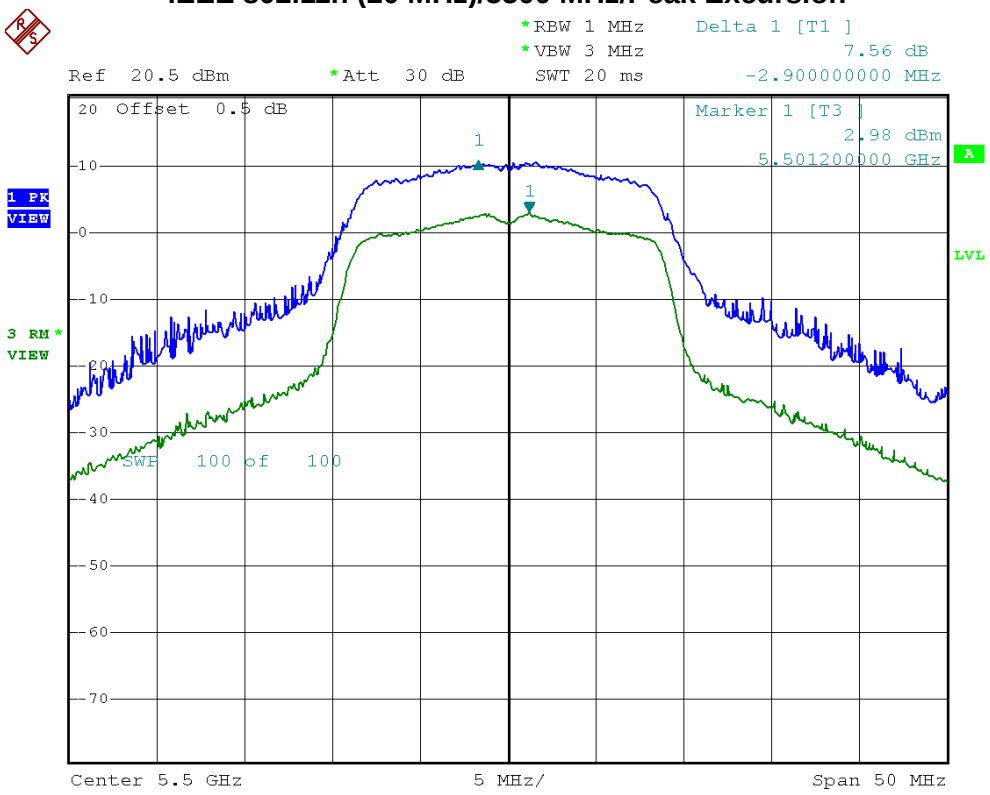
IEEE 802.11a/5700 MHz/Peak Excursion



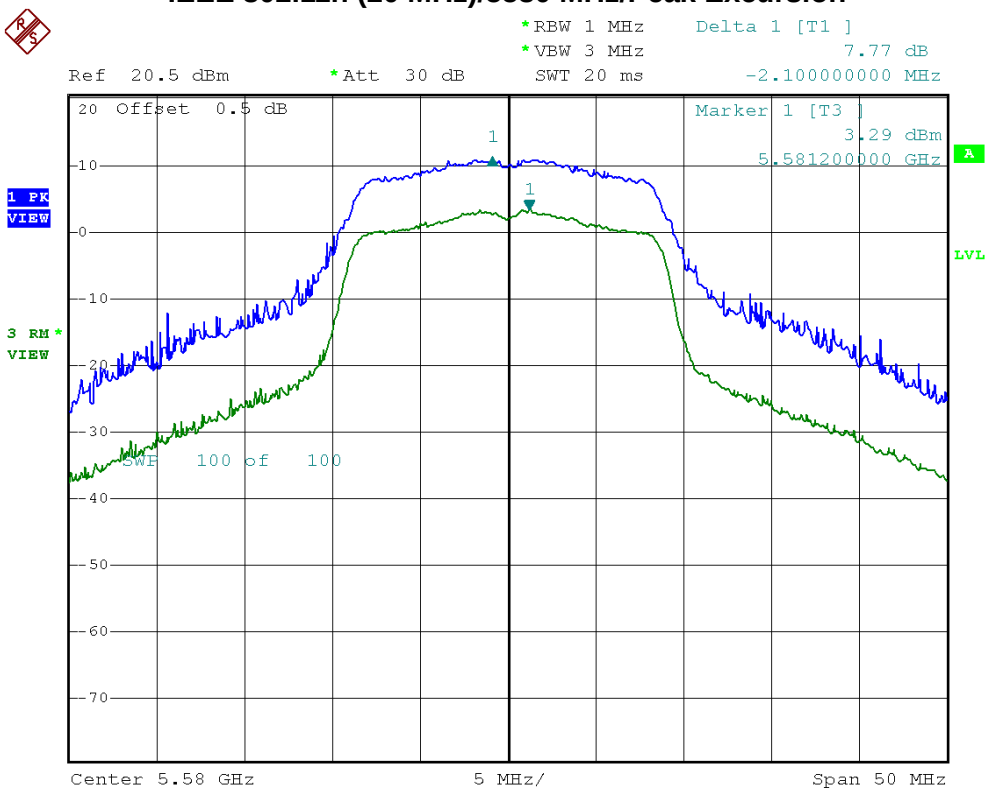
EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11n (20 MHz)/5500 MHz, 5580 MHz, 5700 MHz		

Frequency	Peak Excursion (dB)	Limit (dB)	Result
5500 MHz	7.56	13	PASS
5580 MHz	7.77	13	PASS
5700 MHz	8.19	13	PASS

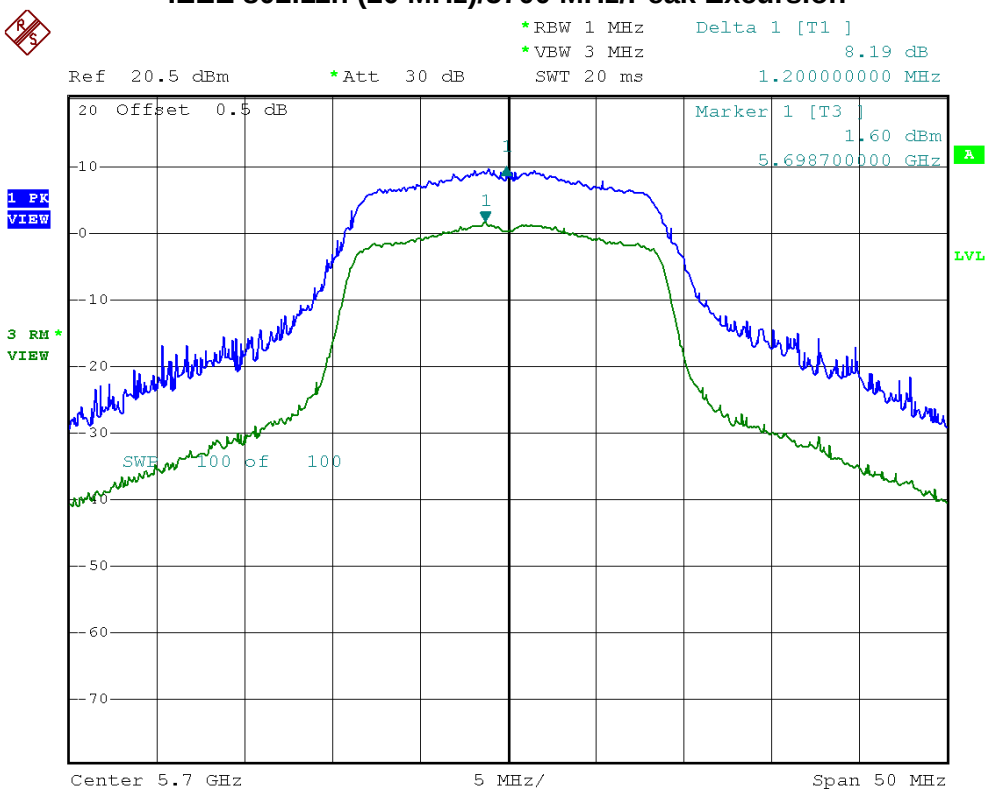
IEEE 802.11n (20 MHz)/5500 MHz/Peak Excursion



IEEE 802.11n (20 MHz)/5580 MHz/Peak Excursion



IEEE 802.11n (20 MHz)/5700 MHz/Peak Excursion



12 FREQUENCY STABILITY

12.1 LIMIT

Test Item	Frequency Range (MHz)	Limit
Frequency Stability	5150 - 5250	specified in the user's manual or ± 20 ppm (IEEE 802.11a specification)
	5250 - 5350	
	5470 – 5725	
	5725 - 5825	

12.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Sep. 08, 2014

NOTE: **N/A**: denotes No Model Name, No Serial No. or No Calibration specified.

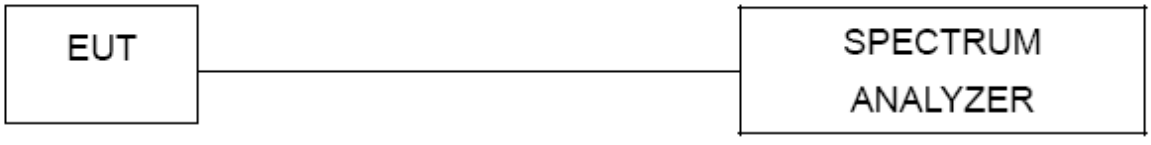
12.3 MEASURING INSTRUMENTS SETTING

Spectrum Analyzer	Parameter Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RB	10 kHz
VB	10 kHz
Sweep Time	Auto

12.4 TEST PROCEDURES

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value.
c. Extreme temperature rule is -30°C~50°C.

12.5 TEST SETUP LAYOUT



12.6 DEVIATION FROM TEST STANDARD

No deviation

12.7 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 5.6 Unless otherwise a special operating condition is specified in the follows during the testing.

12.8TEST RESULTS

EUT	Rugged Mobile Computer	Model Name	PA520
Temperature	25°C	Relative Humidity	62%
Test Voltage	AC 120V/60Hz		
Test Mode	IEEE 802.11a/5200 MHz		

Voltage vs. Frequency Stability		
Voltage	**Measurement Frequency (MHz)**	
(V)	5320	-
126.5	5319.947200	
110	5319.940800	
93.5	5319.950800	
Max. Deviation (MHz)	0.059200	
Max. Deviation (ppm)	11.13	

Temperature vs. Frequency Stability		
Temperature	**Measurement Frequency (MHz)**	
(˚C)	5320	-
-20	5319.850000	
-10	5319.850000	
0	5319.860000	
10	5319.880000	
20	5319.940000	
30	5319.940000	
40	5319.950000	
50	5319.960000	
Max. Deviation (MHz)	0.150000	
Max. Deviation (ppm)	28.20	

13 EUT TEST PHOTO

Conducted emission test photos

Radiated spurious emission test photos