


Produkte
Products

Prüfbericht - Nr.: 02423392 001		Seite 1 von 40	
<i>Test Report No.:</i>		<i>Page 1 of 40</i>	
Auftraggeber: <i>Client:</i>	Redpine Signals Inc. 2107 N.First Street, Suite 680 San Jose, CA 95131-2019 U.S.A		
Gegenstand der Prüfung: <i>Test item:</i>	802.11 abgn MODULE		
Bezeichnung: <i>Identification:</i>	RS9110-N-11-03	Serien-Nr.: <i>Serial No.</i>	Engineering Sample
Wareneingangs-Nr.: <i>Receipt No.:</i>	1403011050	Eingangsdatum: <i>Date of receipt:</i>	07.08.2010
Prüfart: <i>Testing location:</i>	Refer Page 4 of 40 for test facilities		
Prüfgrundlage: <i>Test specification:</i>	FCC Part 15, Subpart C		
Prüfergebnis: <i>Test Result:</i>	Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n). <i>The tests item passed the test specification(s).</i>		
Prüflaboratorium: <i>Testing Laboratory:</i>	TÜV Rheinland (India) Pvt. Ltd. Alpha Tower, Sigma Soft Tech Park, # 7, Whitefield Main Road, Varthur Kodi, Bangalore – 560066, India		
geprüft / tested by:		kontrolliert / reviewed by:	
10.06.2011	Vinay.N Engineer		13.06.2011
			Manager Kalyan Varm Manager
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>
			Name/Stellung <i>Name/Position</i>
			Unterschrift <i>Signature</i>
Sonstiges / Other Aspects:		FCC ID : XF6- RS9110N1103	
Abkürzungen:	P(ass) = entspricht Prüfgrundlage F(ail) = entspricht nicht Prüfgrundlage N/A = nicht anwendbar N/T = nicht getestet	Abbreviations:	P(ass) = passed F(ail) = failed N/A = not applicable N/T = not tested
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.</i>			

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Test Result Summary

Clause	Test Item	Result
FCC 15.247(b)(3)	Maximum Conducted Output Power	Pass
FCC 15.247(a)(2)	6dB Bandwidth	Pass
FCC 15.247(e)	Power Spectral Density	Pass
FCC 15.247(d)	Band-edge compliance	Pass
FCC 15.209	Radiated Emissions	Pass

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Conducted Peak Output Power	Section 15.407 (a)
Power Spectral Density	Section 15.407 (a)
Peak Excursion	Section 15.407 (a).. Error! Bookmark not
defined.	
Spurious Radiated Emissions	Section 15.209 /15.407 (b) (6).....
Restricted Bands of Operation	Section 15.205..... Error! Bookmark not
defined.	
Undesirable Emissions	Section 15.407 (b) Error! Bookmark not
defined.	
Appendix 1: Test Setup Photo	
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List of Test and Measurement Instruments

Wipro Technologies, Bangalore

List of Test and Measurements

Equipment	Manufacturer	Type	S/N	Calibration Due Date
EMI Test Receiver	Rohde & Schwarz	ESIB40	100306	24.03.2012
Hybrid Log Periodic Antenna	TDK	HLP3003C	130334	21.03.2012
Broadband Horn Antenna	Schwarzbeck Mess-Electronik	BBHA9170	9170-344	21.03.2012
Double Ridged Horn Antenna	Schwarzbeck Mess-Electronik	BBHA9120D	9120D-687	21.03.2012
Pre-Amplifier	TDK-RFSolution	PA-02	100008	15.02.2012
Spectrum Analyser	Agilent Technologies	E4407B	US41192772	27.01.2012

Testing Facilities

- 1) Wipro Technologies
Survey No. 70,77,78 / 8A, Dodda Kannelli,
Sarjapur Road, Bangalore – 560 035
India
- 2) HCL Technologies
73-74, Ground Floor,
South Phase, Ambattur Estate,
Ambattur, Chennai – 600058
India

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General Product Information

Product Function and Intended Use

The Product has many applications.viz.

- Multi-mode cellular phones, smart phones, and PDAs needing Wi-Fi capability
- VoWiFi handsets
- Personal Media Players
- Digital still cameras and camcorders

Ratings and System Details

Operating Frequency	5725 – 5850 MHz	
No. of channel	5	
Channel Spacing	20 MHz	
Transmitted Power	802.11a	7.44 dBm
	802.11n	8.00 dBm
Modulation	802.11a	OFDM with BPSK,QPSK, 16-QAM, 64-QAM
	802.11n	BPSK,QPSK,16-QAM,64-QAM
Data Rate	802.11n: 6.5, 13, 19.5, 26, 39, 52, 58.5, 65 Mbps 802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps	
Antenna Type	Chip	
Number of antenna	One	
Antenna Gain	0.5 dBi	
Supply Voltage	3.1-3.6 V DC	
Dimensions	104 mm x 34 mm x 12 mm (Board) 20 mm x 17.5 mm x 3.45 mm (Module)	
Environmental	-40°C to +85°C	

Test Conditions:

Voltage: 110V AC, 60Hz

Environmental conditions:

Temperature: +23 ° C

RH: 62%

Note: 2.4GHz test results are covered in Test Report : 02422602 001 and 5150 MHz – 5350 MHz, 5470MHz – 5725MHz test results are covered in Test Report :02422603 001

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Operation Descriptions

The RS9110-N-11-03 module is a complete IEEE802.11abgn Wi-Fi client device with an integrated MAC, baseband processor, and RF transceiver and power amplifier. Based on the Redpine's Lite-FiTM RS9110 MAC/baseband processor, the module provides a complete end-to-end solution for ultra low power WLAN applications. It conforms to the draft 802.11n standard in single-stream mode for handheld devices and includes an embedded processor with a rich set of peripherals offering minimal load on a host processor, to which it can connect through SDIO and SPI interfaces. In a small form factor of 20 x 17.5 sq mm and operation on a single power supply.

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Test Set-up and Operation Mode

Principle of Configuration Selection

Emission: The test was performed under continuous transmission to obtain the maximum emissions.

Test Operation and Test Software

- Redpine's Lite-Fi™ device driver which was installed in a Personal Digital Assistant (PDA) was used to control channels, data rates and power levels

Special Accessories and Auxiliary Equipment

The EUT was tested together with the following additional accessory:

- Personal Digital Assistant (PDA) for controlling different transmits channels, transmit profiles and power levels.

Countermeasures to achieve EMC Compliance

- None

Table of carrier frequencies

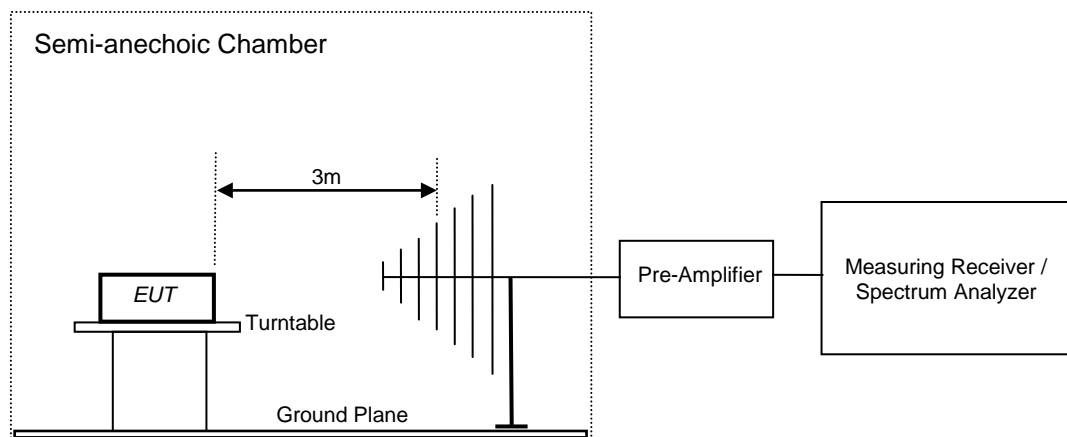
Frequency Band	Channel No.	Frequency (MHz)
5725 – 5825 MHz	149	5745
	153	5765
	157	5785
	161	5805
	165	5825

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Test Methodology

Radiated Emission Test

The radiated emission measurement was performed according to the procedures in ANSI C63.4-2003. The equipment under test (EUT) was placed at the middle of the 80 cm high turntable, and the EUT is 3 meters far from the measuring antenna. The turntable was rotated 360° for obtaining the maximum emission. The height of the measuring antennas was scanned between 1m and 4m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. Repeat the measurement steps until the maximum emissions were obtained. The measurement above 1000MHz was performed by horn antenna. The measurement below 30MHz was performed by loop antenna. The EUT was rotated around the X-, Y-, and Z-Axis and the results from worst case axis are recorded.



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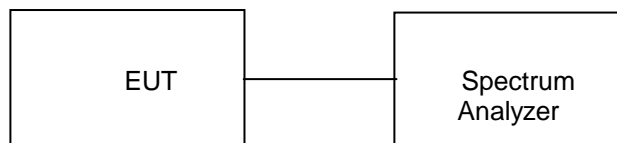
Test Results

99% Occupied Bandwidth

Section 2.1049

Test Specification FCC Part 15 Section 15.407(a)
 Measurement Bandwidth (RBW) 300 kHz

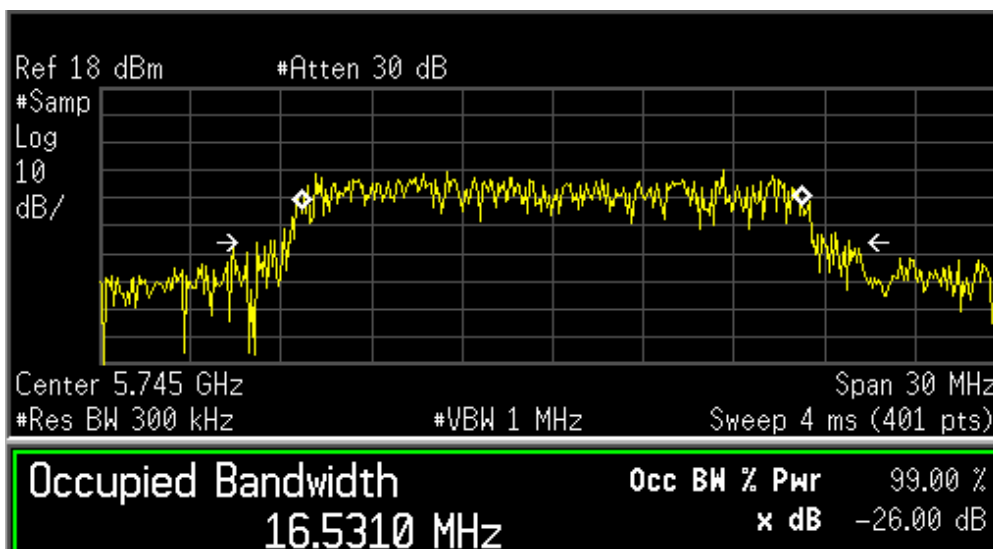
Test Method:



Test Result:

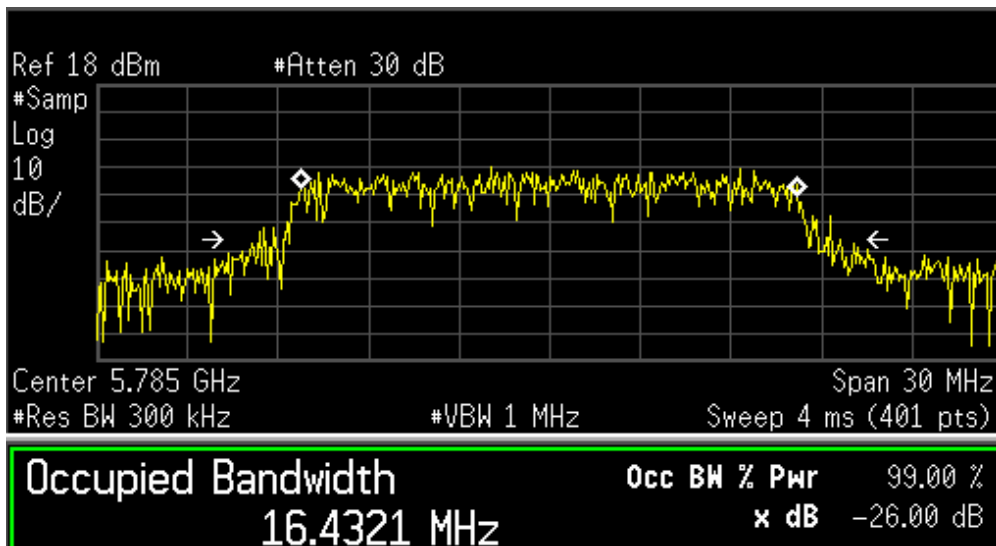
Modulation: 802.11a

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
149	5745	16.53
157	5785	16.43
165	5825	16.50



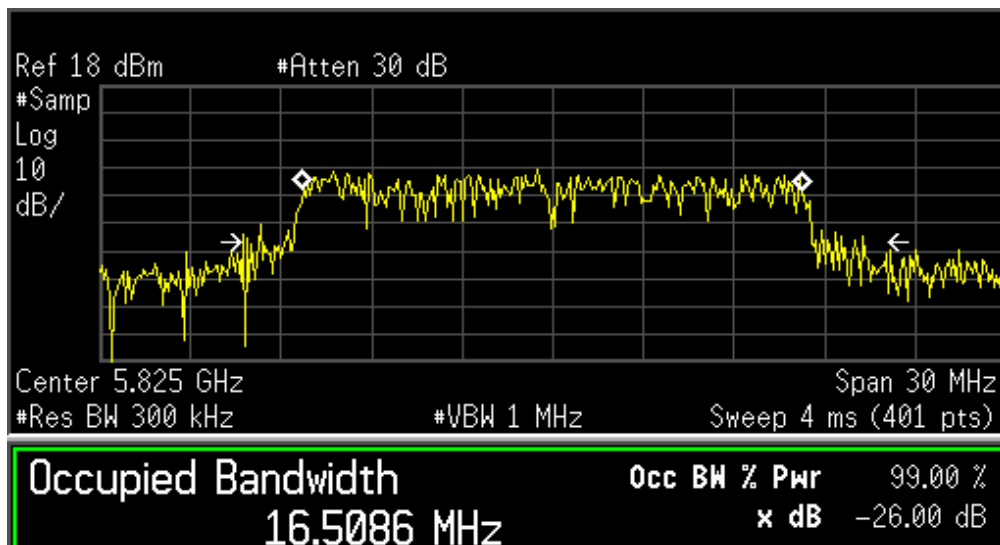
Occupied Bandwidth

Channel Frequency: 5745



Occupied Bandwidth

Channel Frequency: 5785



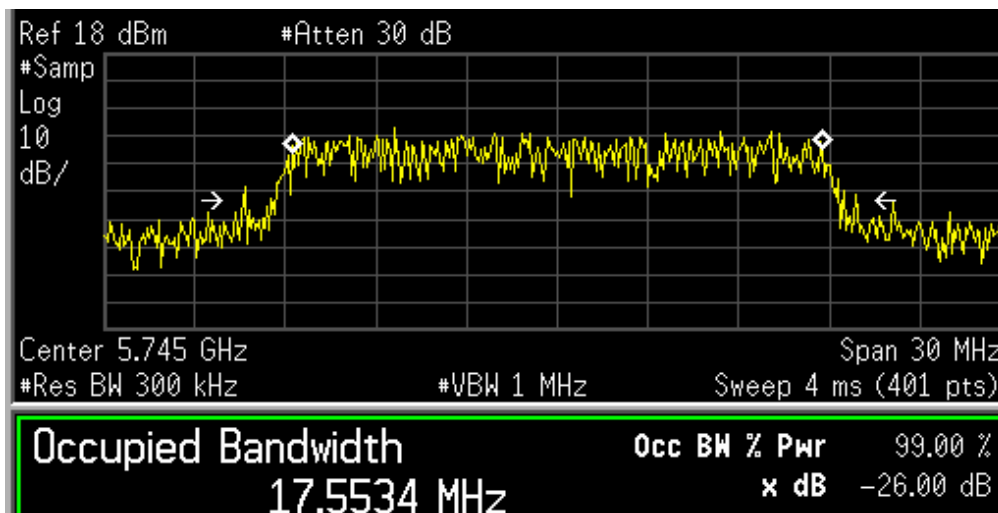
Occupied Bandwidth

Channel Frequency: 5825

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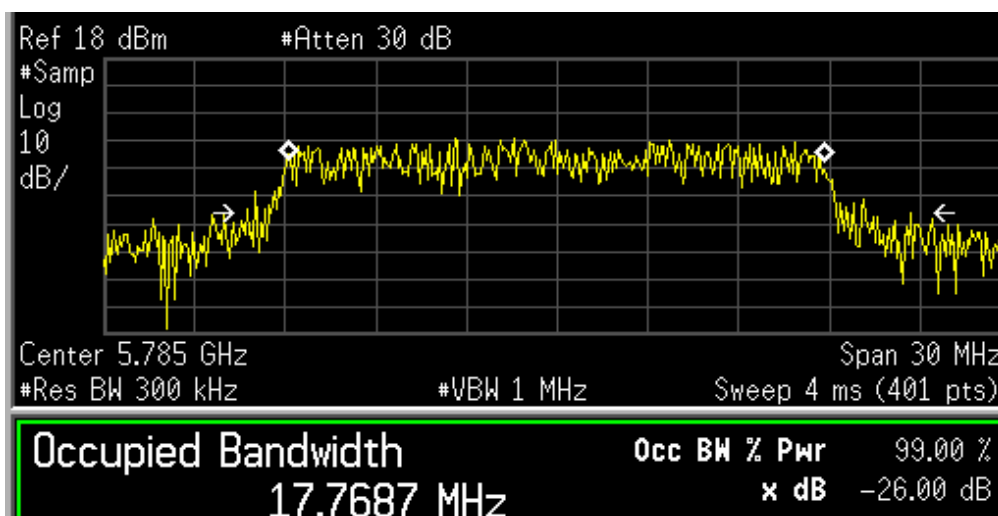
Modulation: 802.11n

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
149	5745	17.55
157	5785	17.76
165	5825	17.99



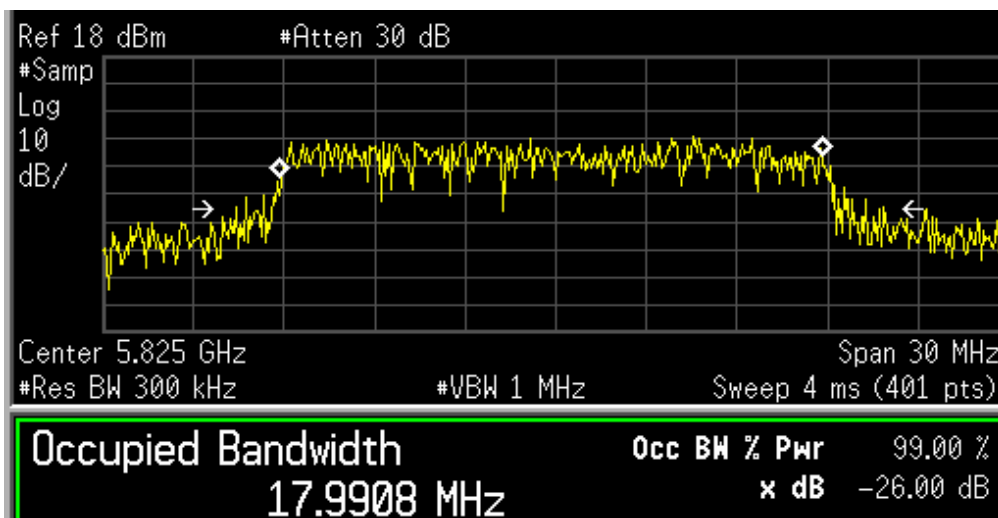
Occupied Bandwidth

Channel Frequency: 5745



Occupied Bandwidth

Channel Frequency: 5785



Occupied Bandwidth

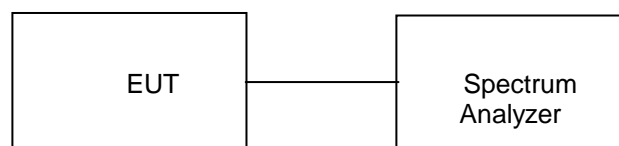
Channel Frequency: 5825

Conducted Peak Output Power Result

**Section 15.247(b) (3)
Pass**

Test Specification FCC Part 15 C
 Measurement Bandwidth (RBW) 1 MHz
 Requirement For systems using digital modulation in the 5725-5850 MHz bands: 1 Watt.(30dBm).

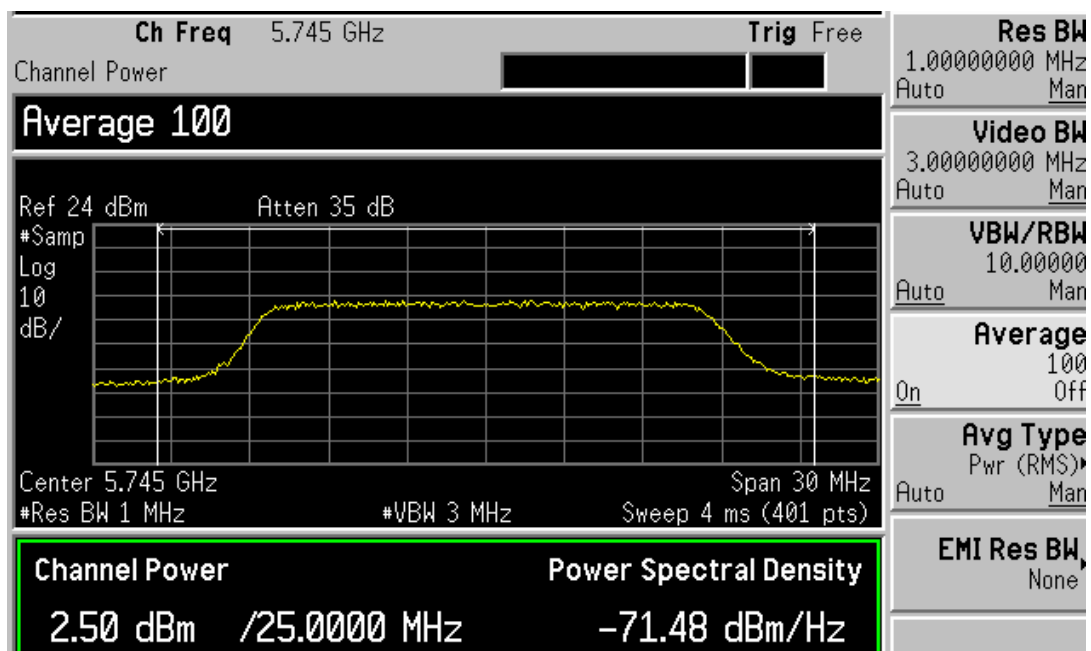
Test Method:



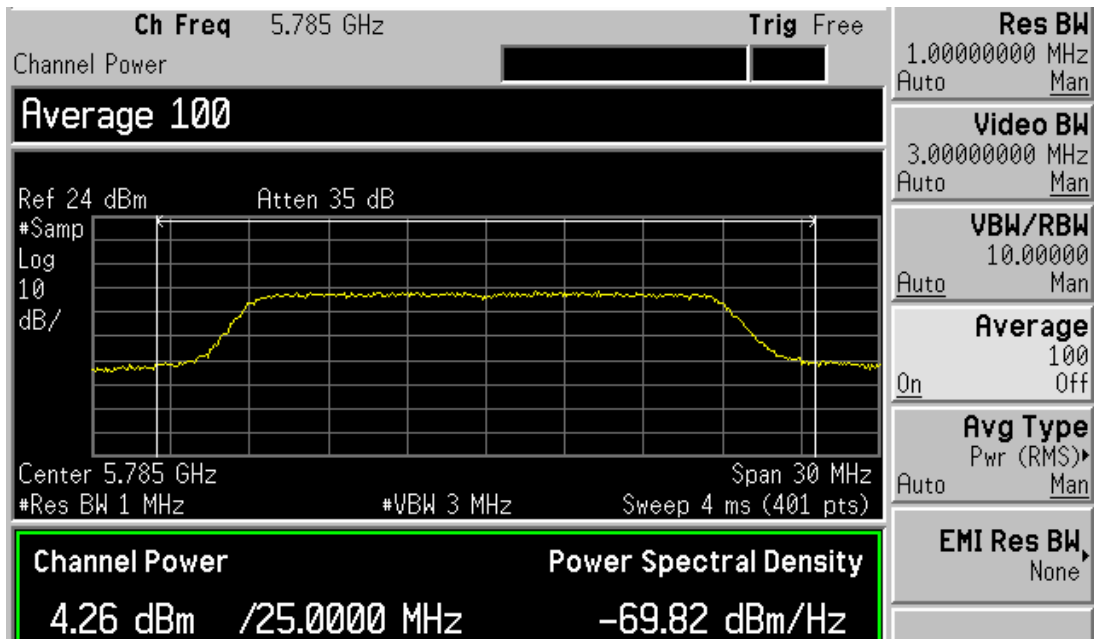
Test Result:

Modulation: 802.11a

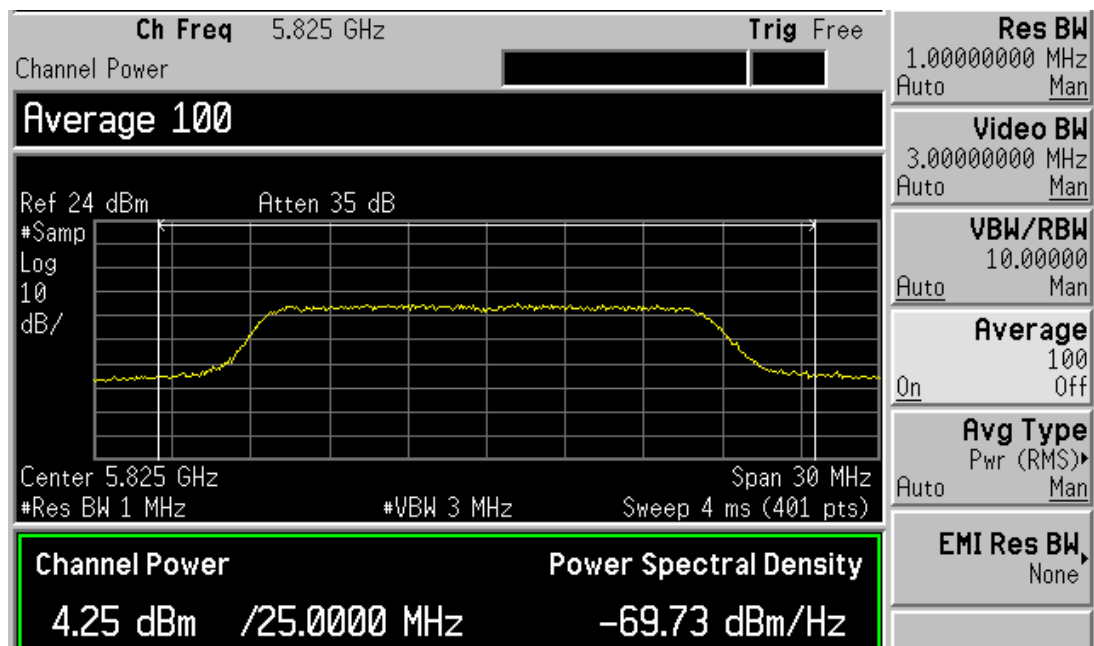
Channel No.	Frequency (MHz)	Measured RF Output power (dBm)	Cable Loss (dB)	Total Output power (dBm)	Limit (dBm)	Margin (dB)
149	5745	02.50	3.18	05.68	30.00	-24.32
157	5785	04.26	3.18	07.44	30.00	-22.56
165	5825	04.25	3.18	07.43	30.00	-22.57



Channel Frequency: 5745



Channel Frequency: 5785

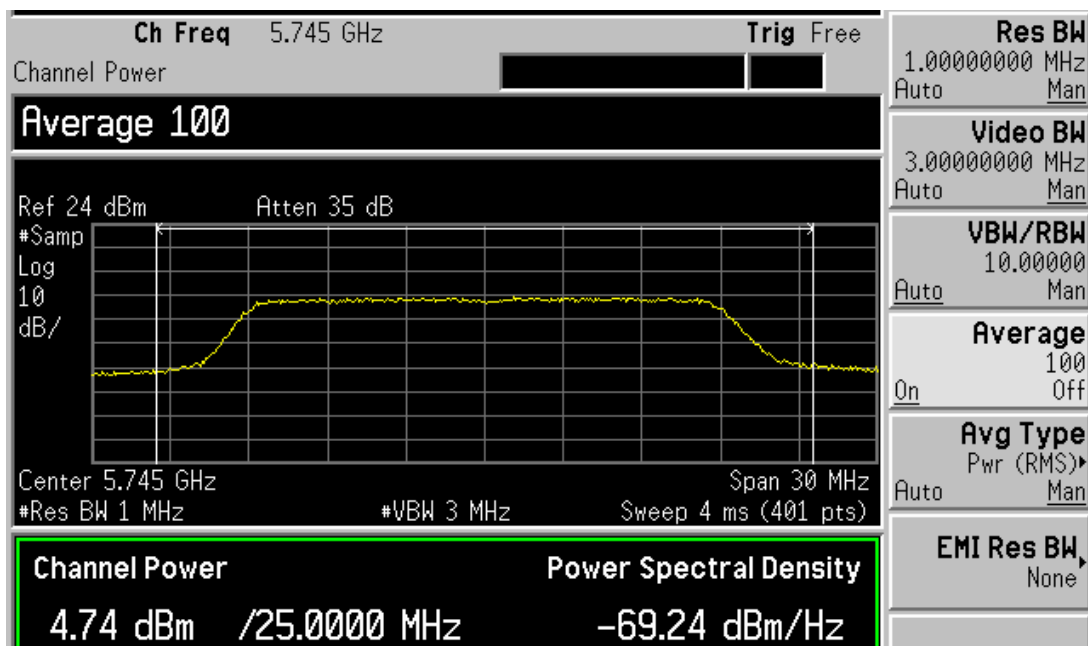


Channel Frequency: 5825

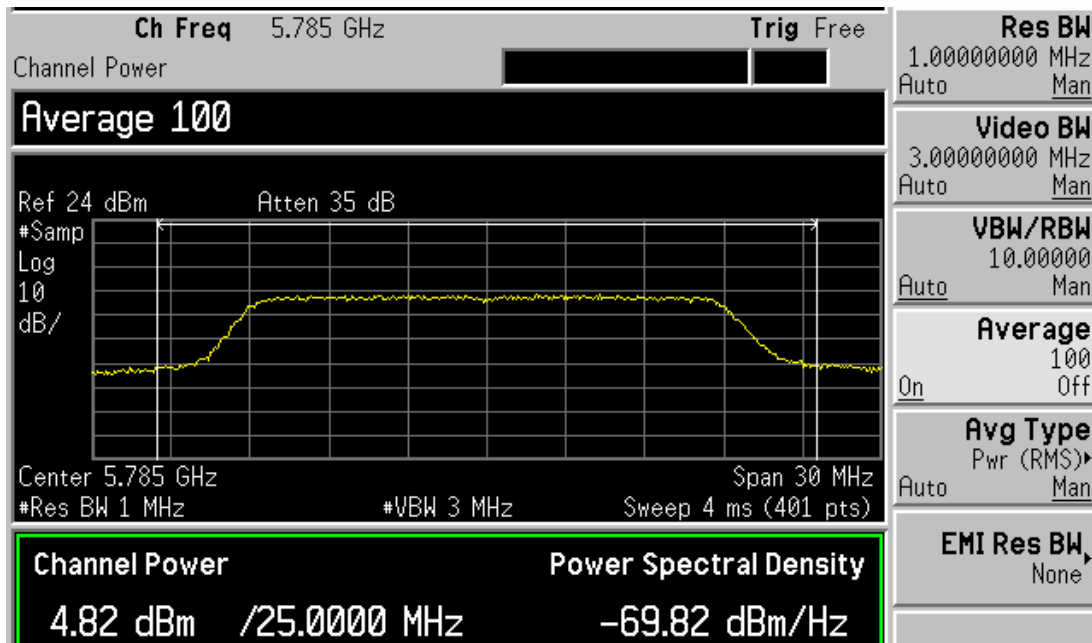
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Modulation: 802.11n

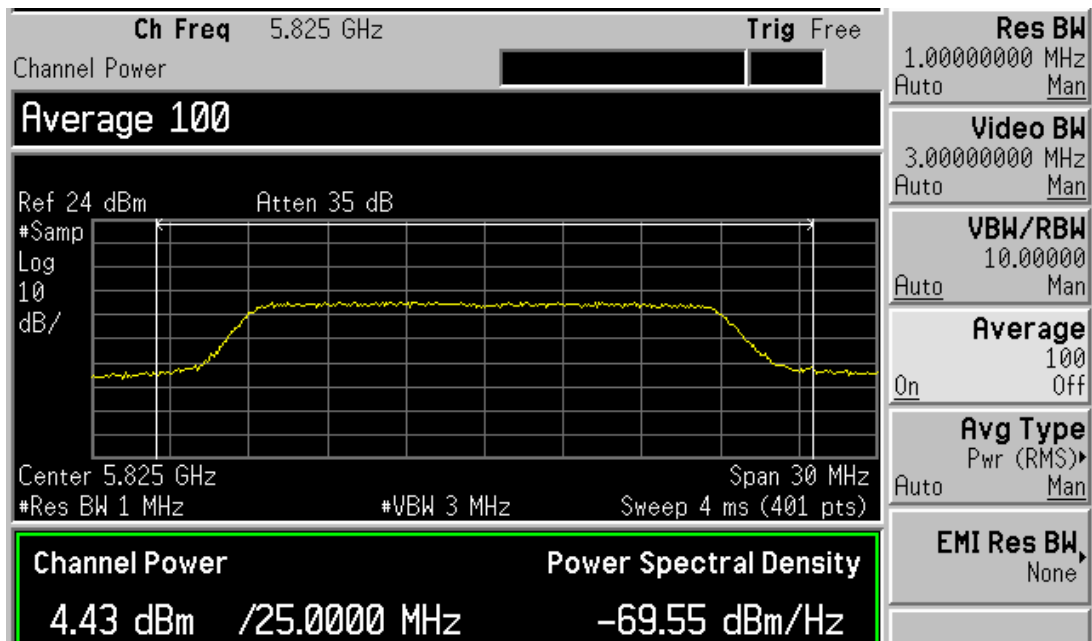
Channel	Frequency (MHz)	Measured RF Output power (dBm)	Cable Loss (dB)	Total Output power (dBm)	Limit (dBm)	Margin (dBm)
149	5745	04.74	3.18	07.92	30.00	-22.08
157	5785	04.82	3.18	08.00	30.00	-22.00
165	5825	04.43	3.18	07.61	30.00	-22.39



Channel Frequency: 5745



Channel Frequency: 5785



Channel Frequency: 5825

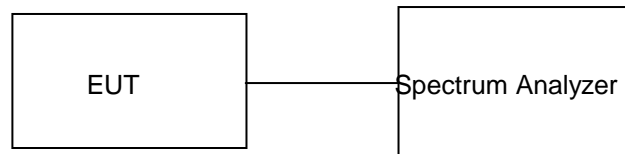
www.tuv.com

6 dB Bandwidth
Result

Section 15.247(a)(2)
Pass

Test Specification Requirement FCC Part 15 Section 15.247 (a) (2)
The minimum 6 dB bandwidth shall be at least 500 kHz.

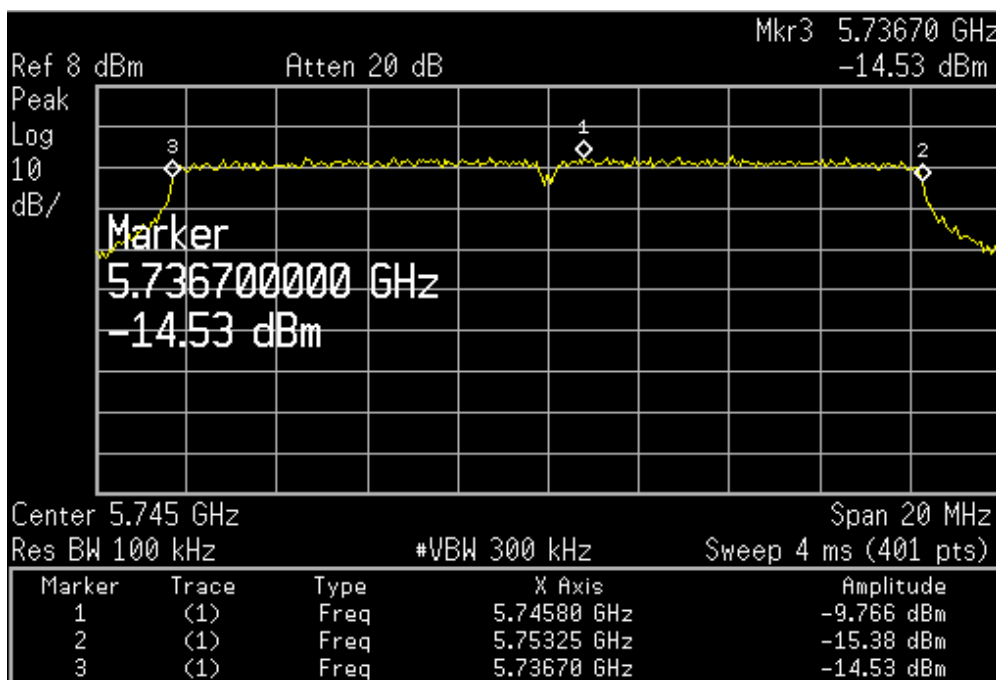
Test Method:



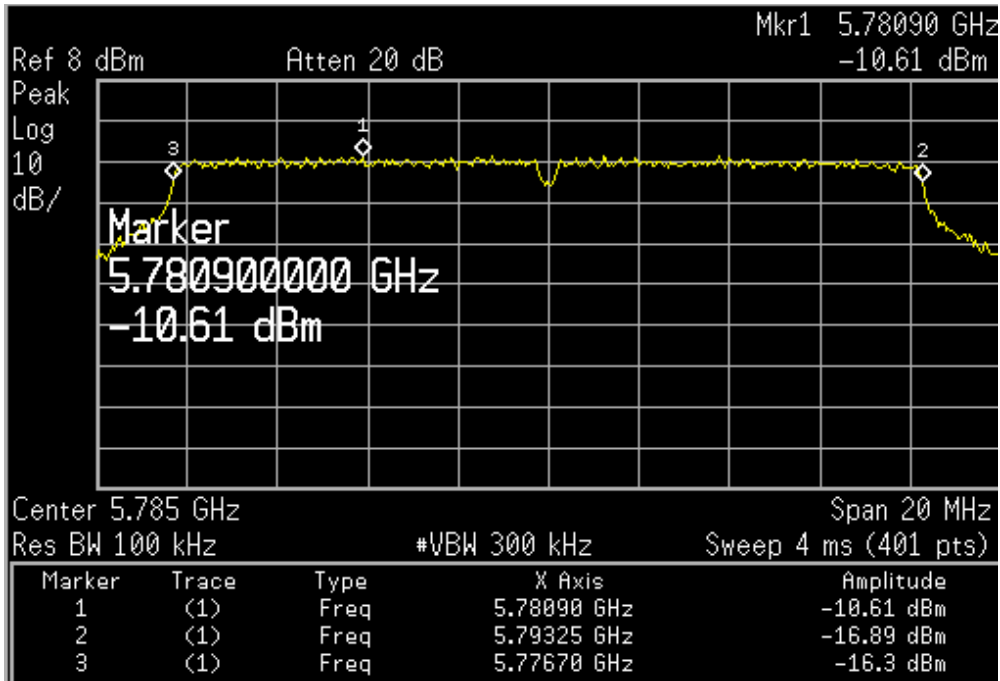
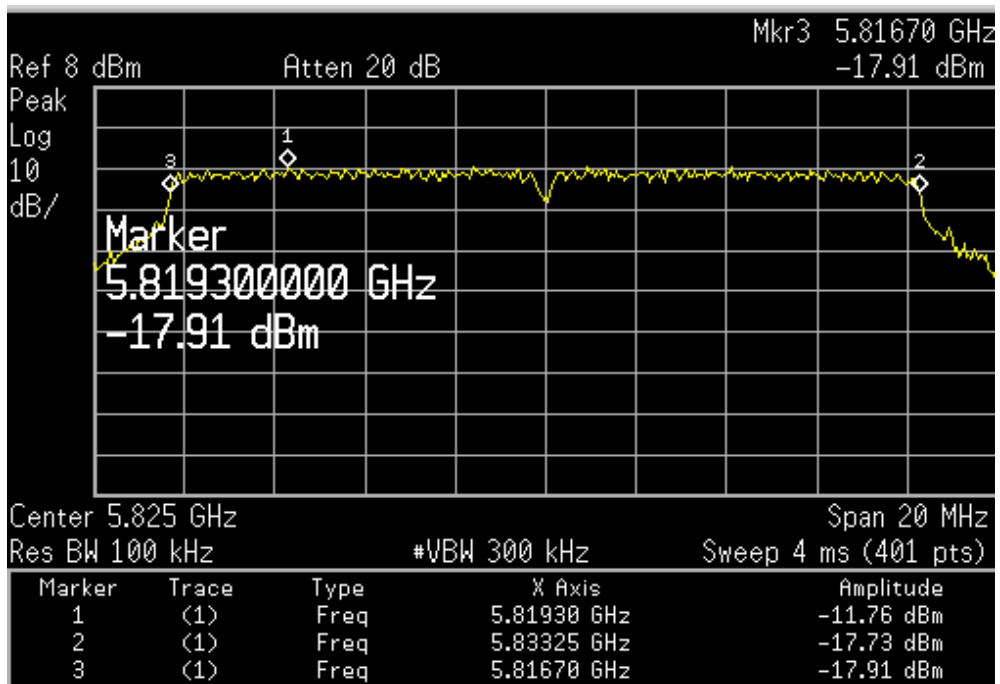
Test Result:

Modulation: 802.11a

Carrier Frequency (MHz)	Lower Frequency (MHz)	Upper Frequency (MHz)	6 dB Bandwidth (MHz)
5745	5735.70	5753.25	17.55
5785	5776.70	5793.25	16.55
5825	5816.70	5833.25	16.55



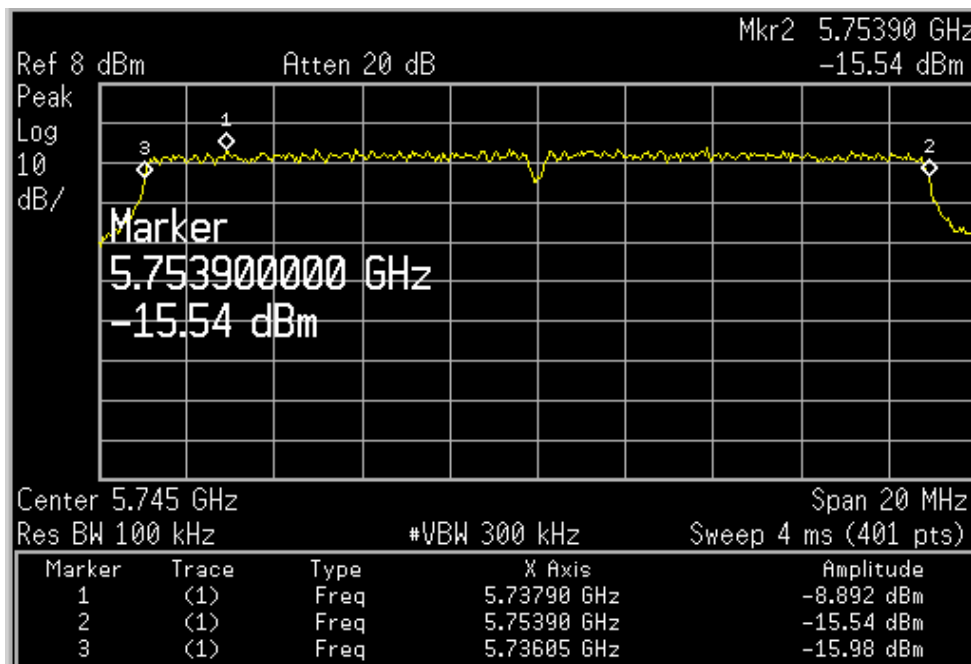
Channel Frequency: 5745MHz


Channel Frequency: 5785

Channel Frequency: 5825

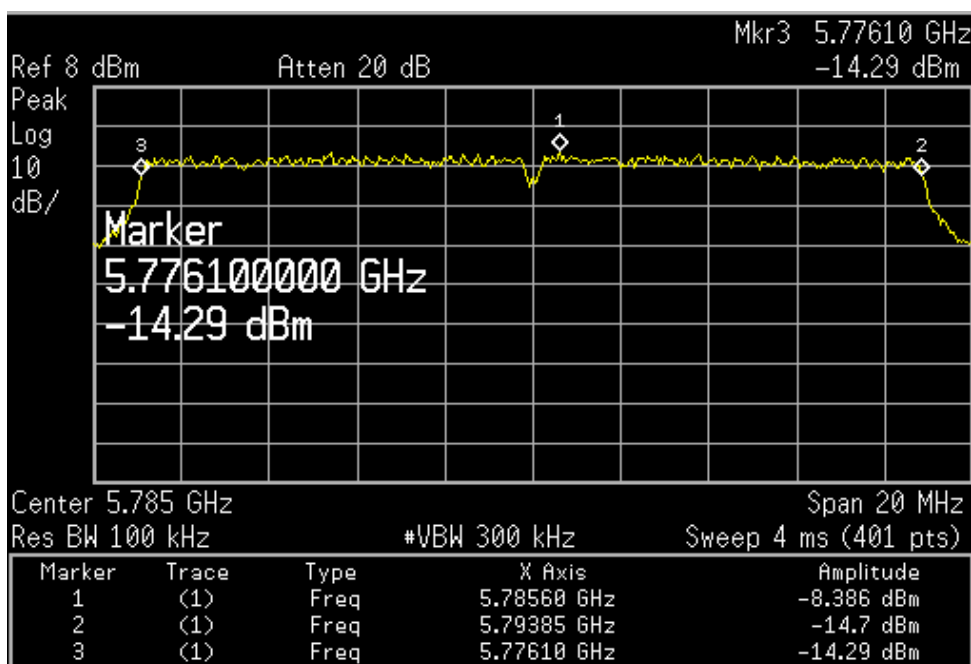
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Modulation: 802.11n

Carrier Frequency (MHz)	Lower Frequency (MHz)	Upper Frequency (MHz)	6 dB Bandwidth (MHz)
5745	5736.05	5753.90	17.85
5785	5776.10	5793.85	17.75
5825	5816.05	5833.85	17.80

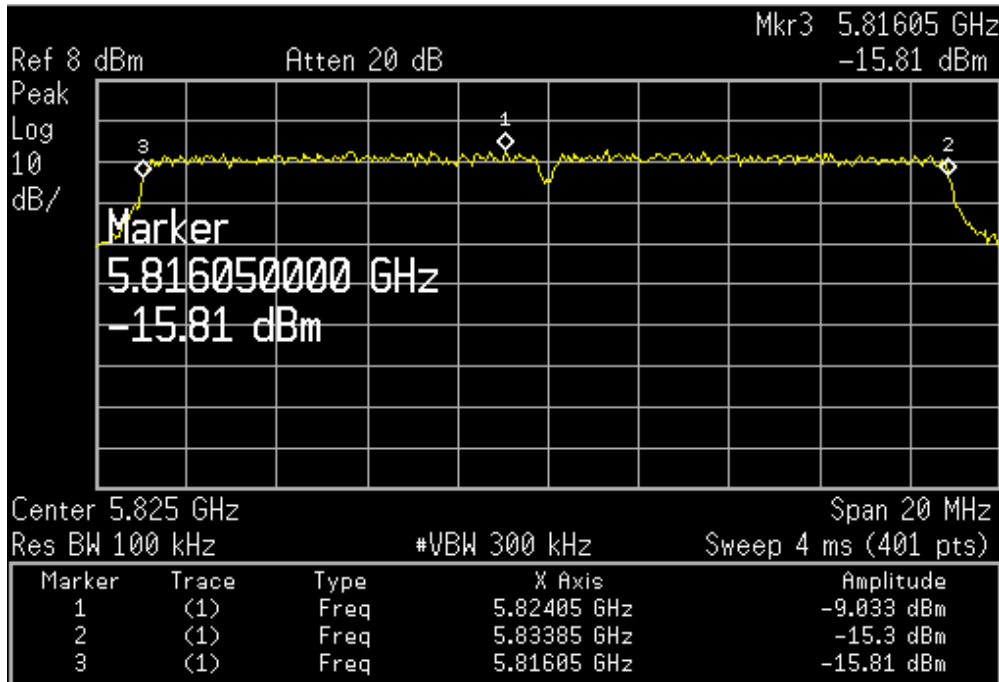


Channel Frequency: 5745MHz



Channel Frequency: 5785MHz

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Channel Frequency: 5825MHz

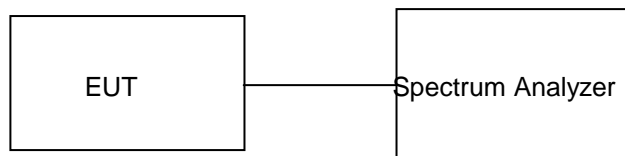
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**Power Spectral Density
Result**

**Section 15.247(e)
Pass**

Test Specification FCC Part 15 Section 15.247 (e)
 Detector Function Sample
 Requirement For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

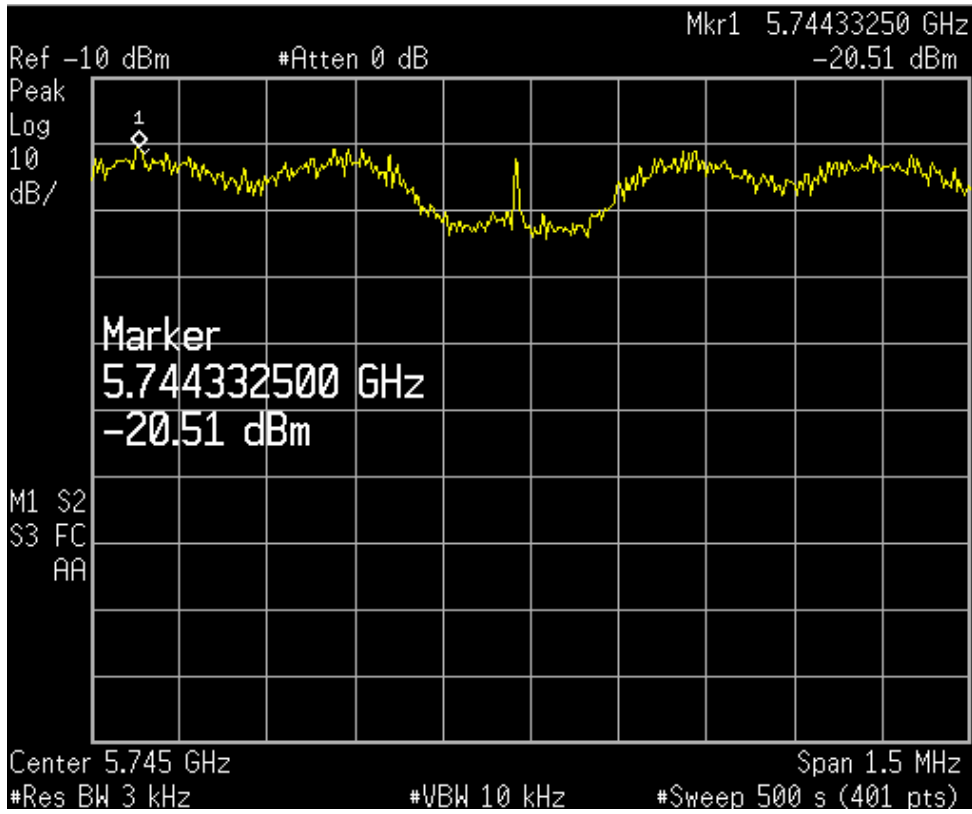
Test Method:



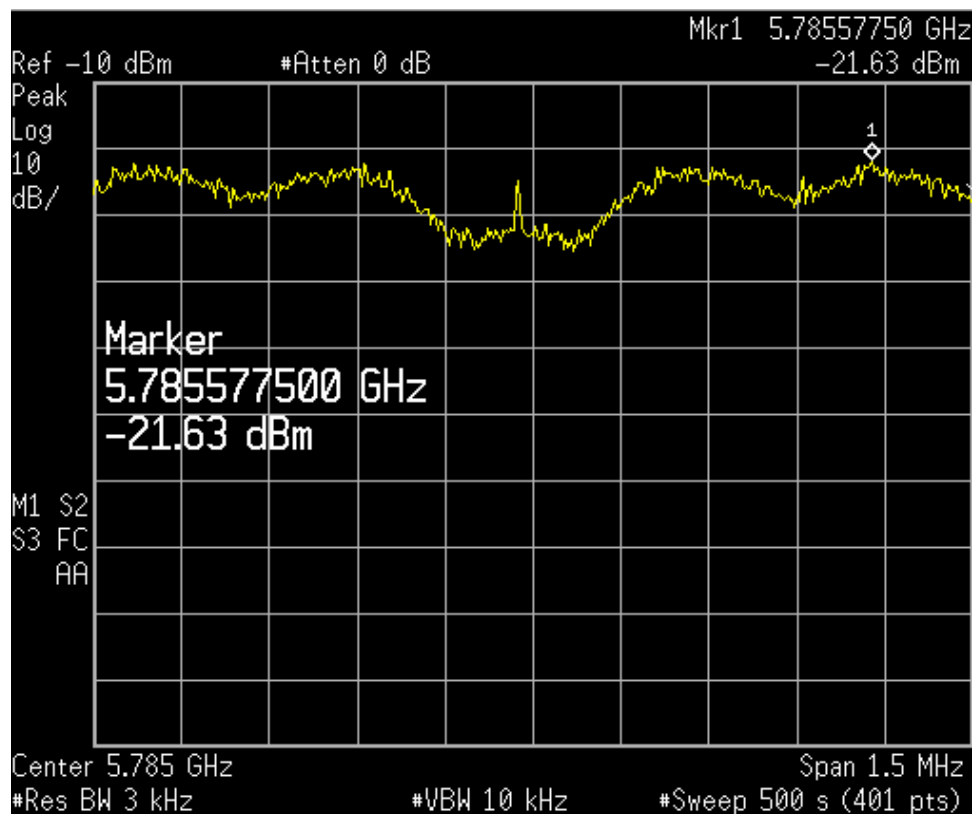
Test Result:

Modulation: 802.11a

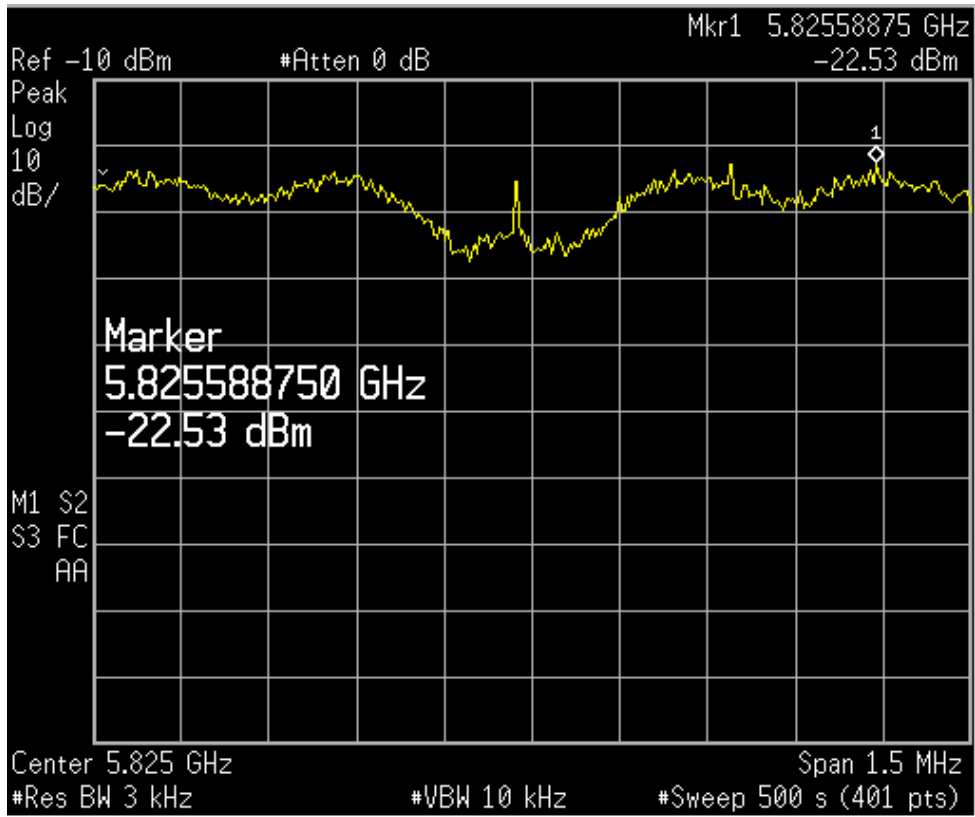
Channel No.	Frequency (MHz)	Measured RF Output power (dBm)	Cable Loss (dB)	Total Output power (dBm)	Limit (dBm)	Margin (dB)
149	5745	-20.51	3.18	-17.33	8.00	-25.33
157	5785	-21.63	3.18	-18.45	8.00	-26.45
165	5825	-22.53	3.18	-19.35	8.00	-27.35



Channel Frequency: 5745MHz



Channel Frequency: 5785MHz

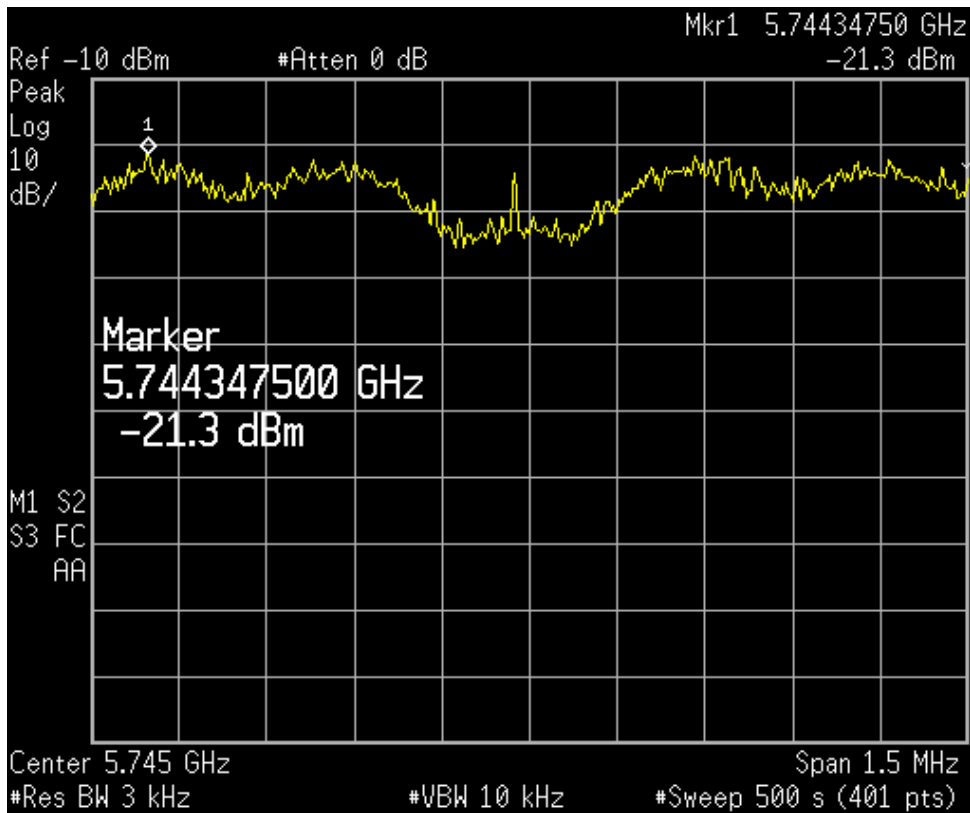


Channel Frequency: 5825MHz

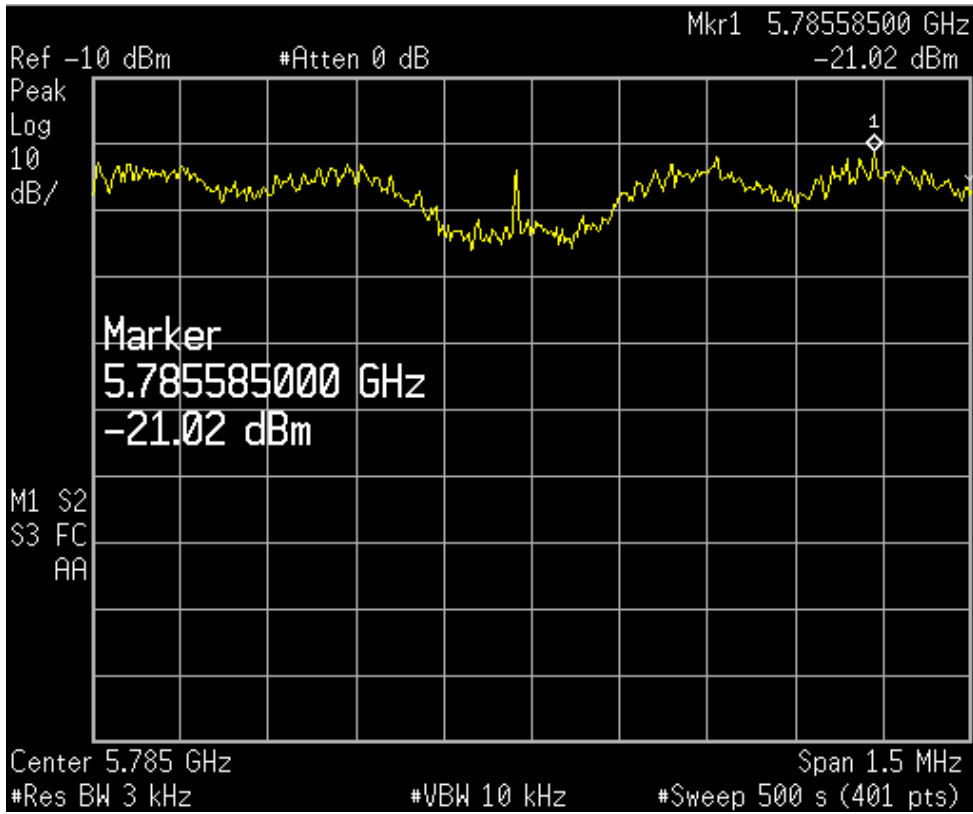
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Modulation: 802.11n

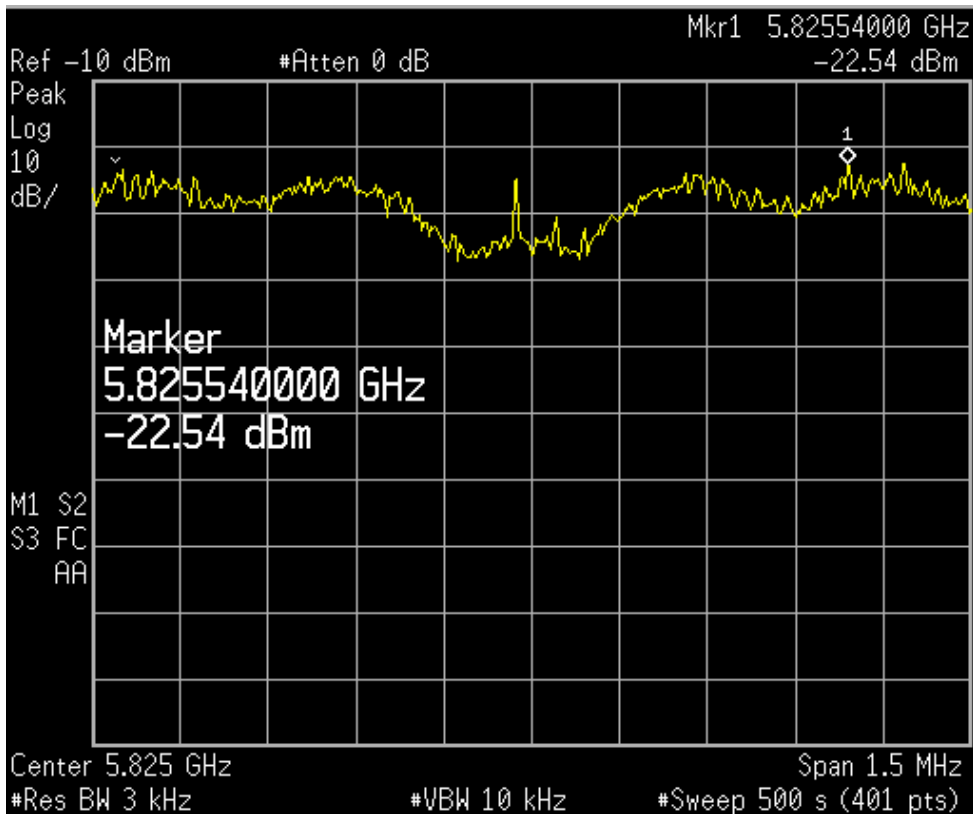
Channel No.	Frequency (MHz)	Measured RF Output power (dBm)	Cable Loss (dB)	Total Output power (dBm)	Limit (dBm)	Margin (dB)
149	5745	-21.30	3.18	-18.12	8.00	-26.12
157	5785	-21.02	3.18	-17.84	8.00	-25.84
165	5825	-22.54	3.18	-19.36	8.00	-27.36



Channel Frequency: 5745MHz



Channel Frequency: 5785MHz



Channel Frequency: 5825MHz

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Band-edge Compliance
Result

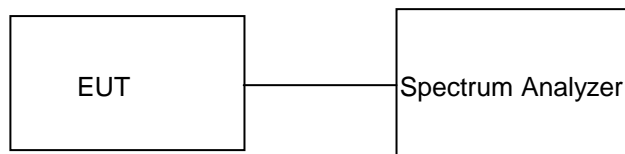
Section 15.247(d)
Pass

Test Specification
Detector Function
Requirement

FCC Part 15 C
Peak

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

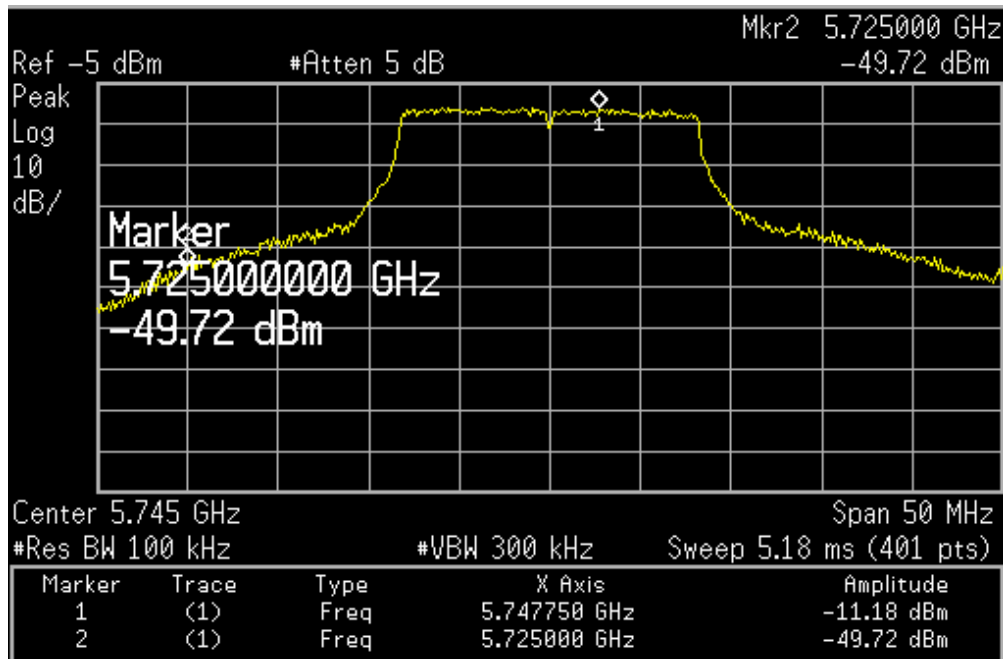
Test Method:



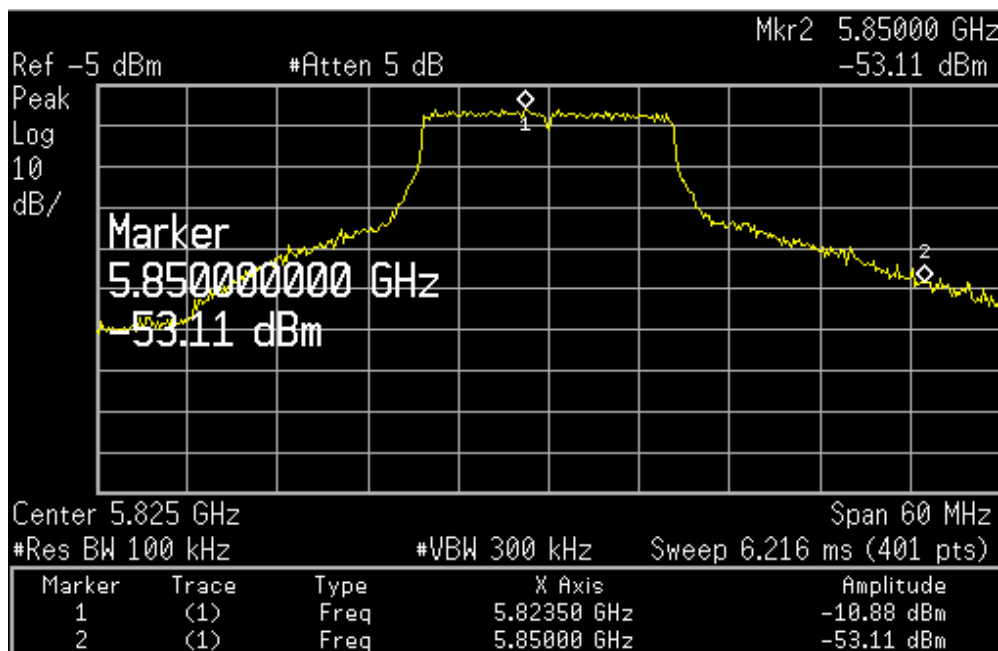
Test Result:

Modulation: 802.11a

Channel	Fundamental Frequency (MHz)	Value at Band Edge		Limit (dB)
		Frequency (MHz)	Value (dB)	
Low	5745	5725	-49.72	-20.00
High	5825	5850	-53.11	-20.00



Channel Frequency: 5745 MHz

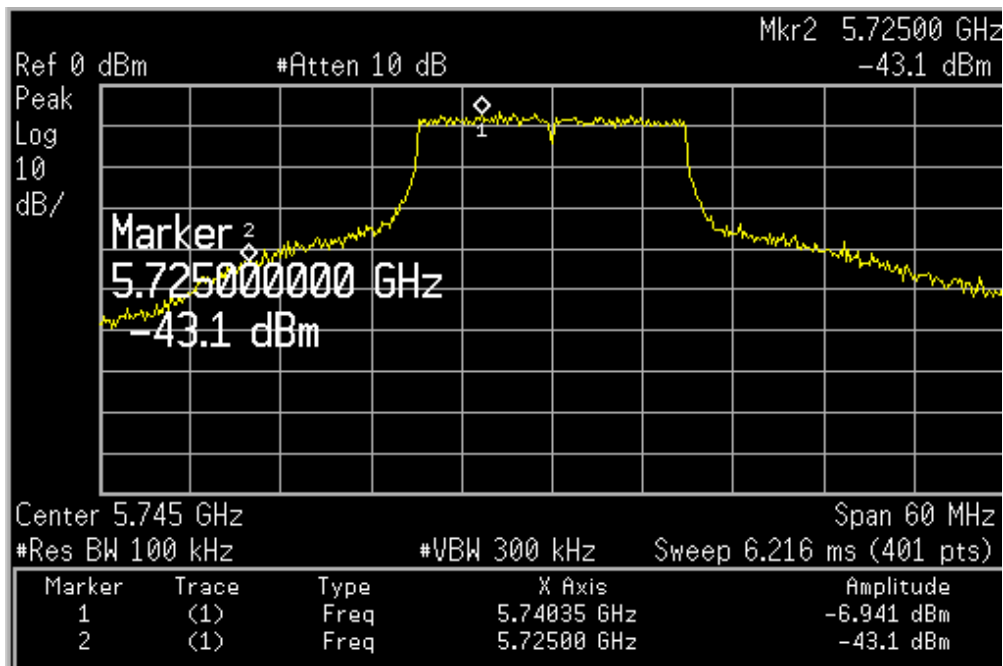


Channel Frequency: 5825 MHz

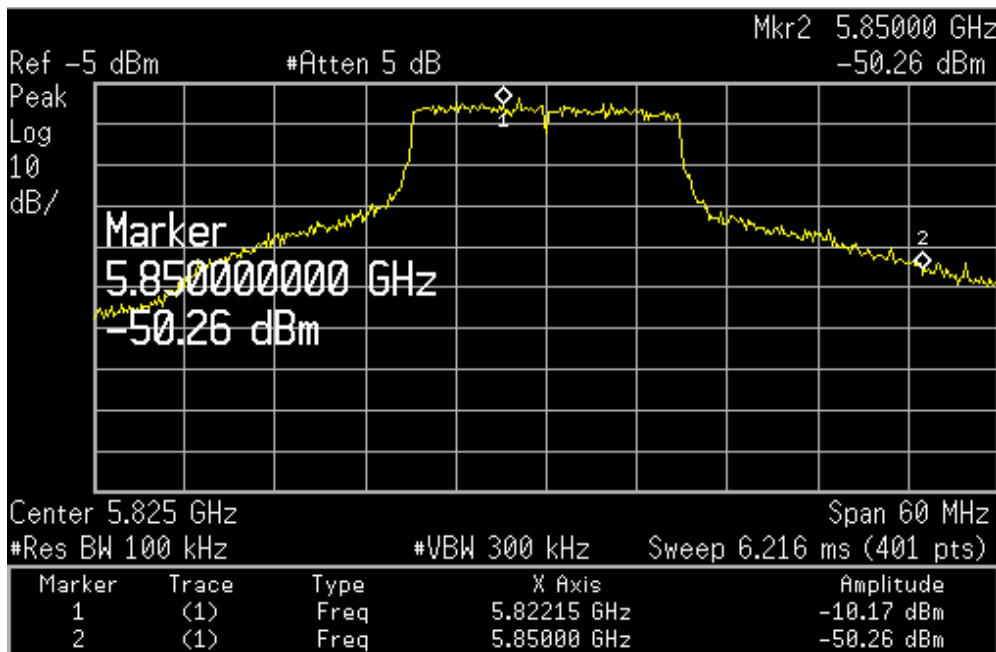
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Modulation: 802.11n

Channel	Fundamental Frequency (MHz)	Value at Band Edge		Limit (dB)
		Frequency (MHz)	Value (dB)	
Low	5745	5725	-43.10	-20.00
High	5825	5850	-50.26	-20.00



Channel Frequency: 5745 MHz

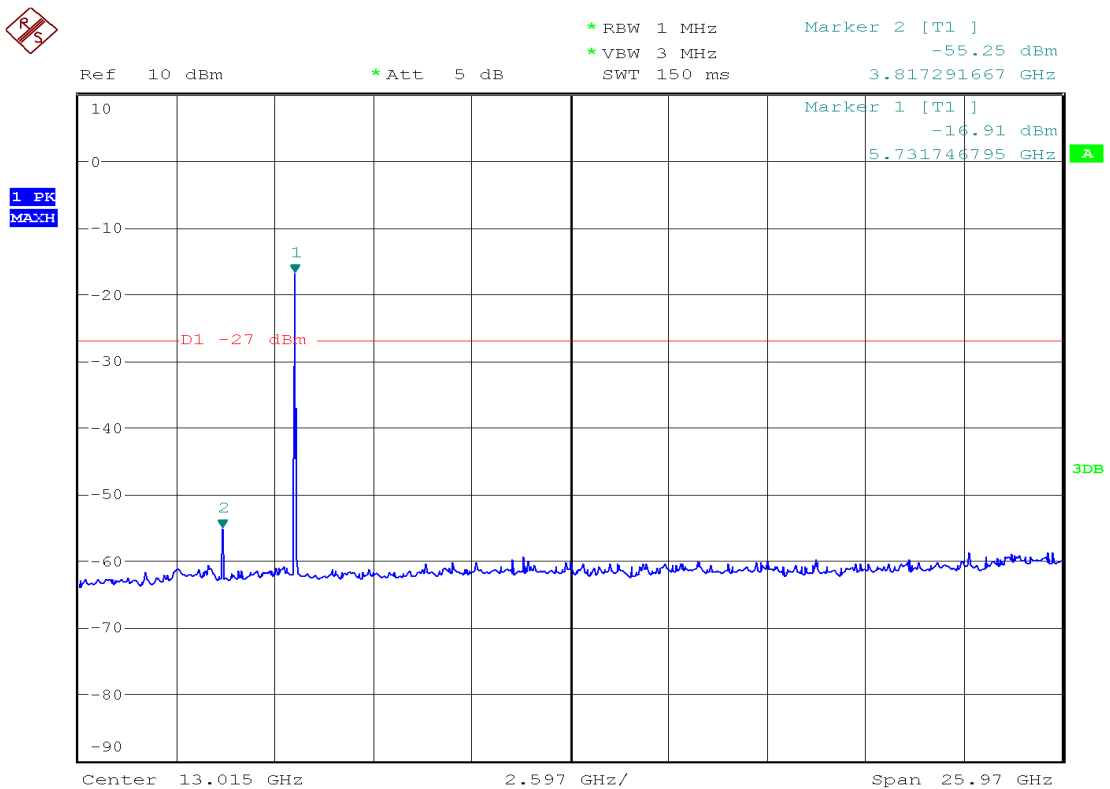
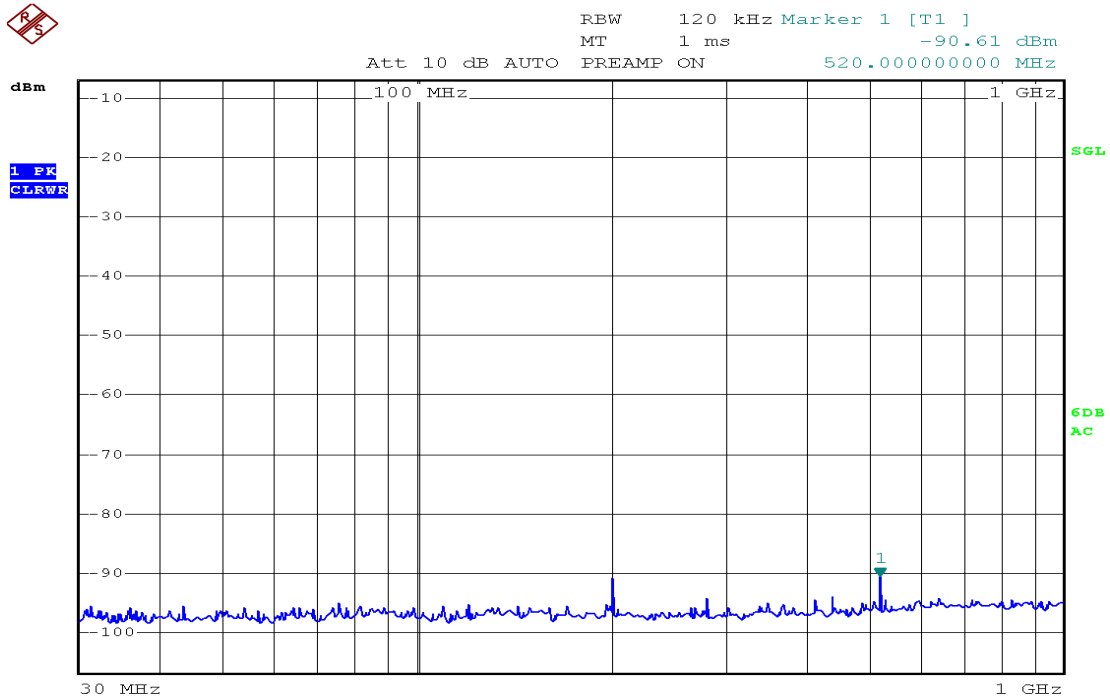


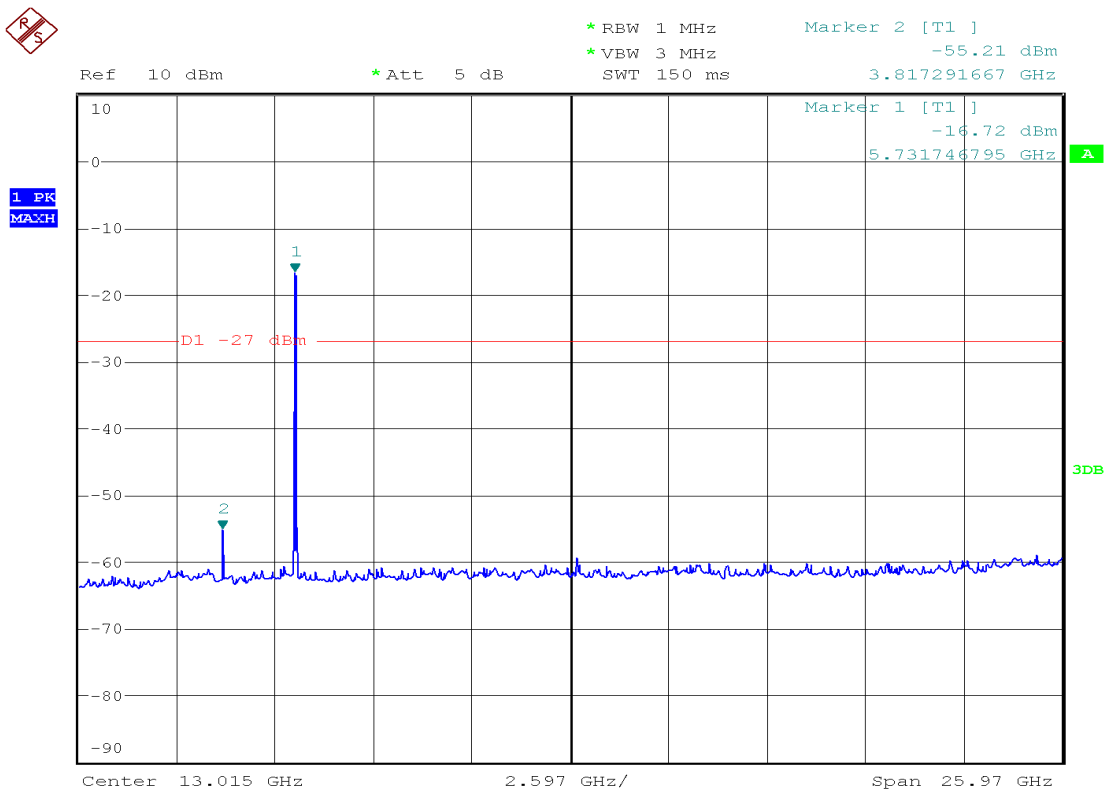
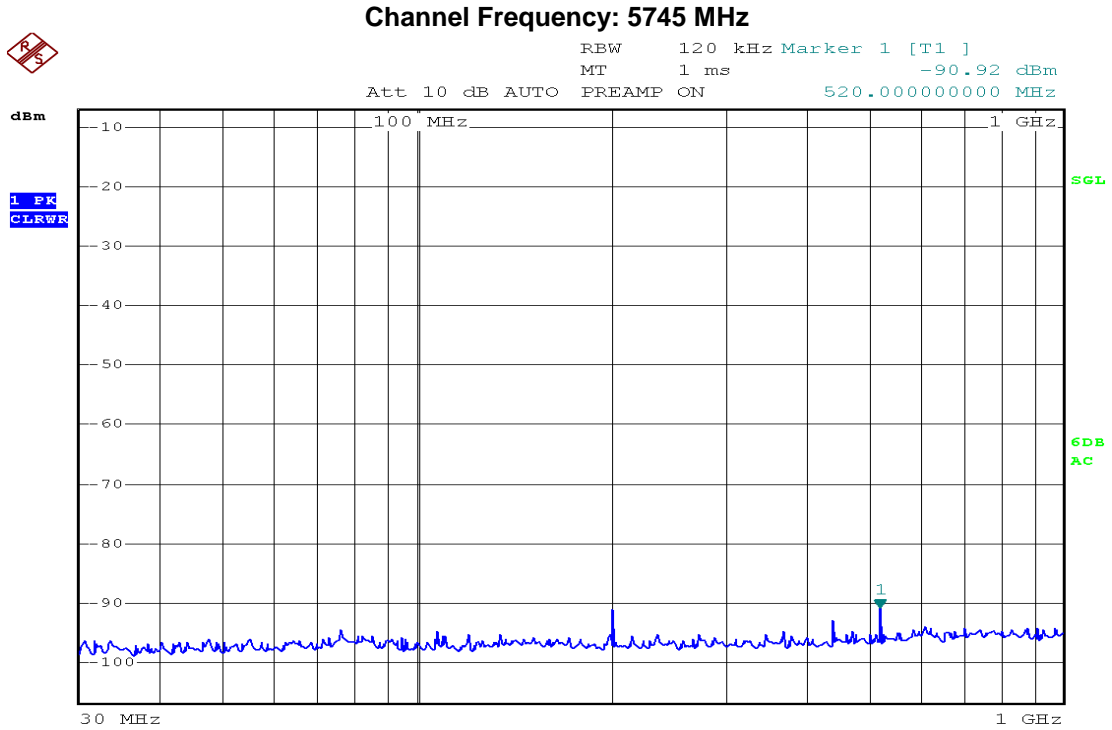
Channel Frequency: 5825 MHz

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Conducted Spurious Emission

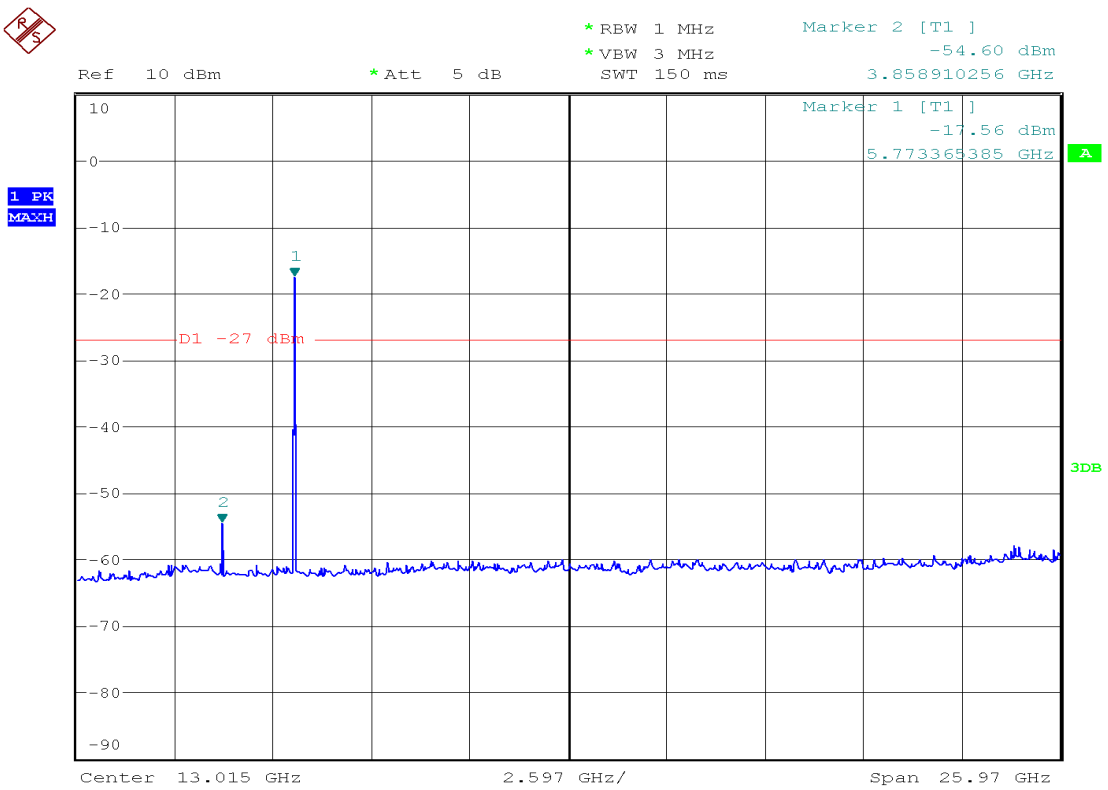
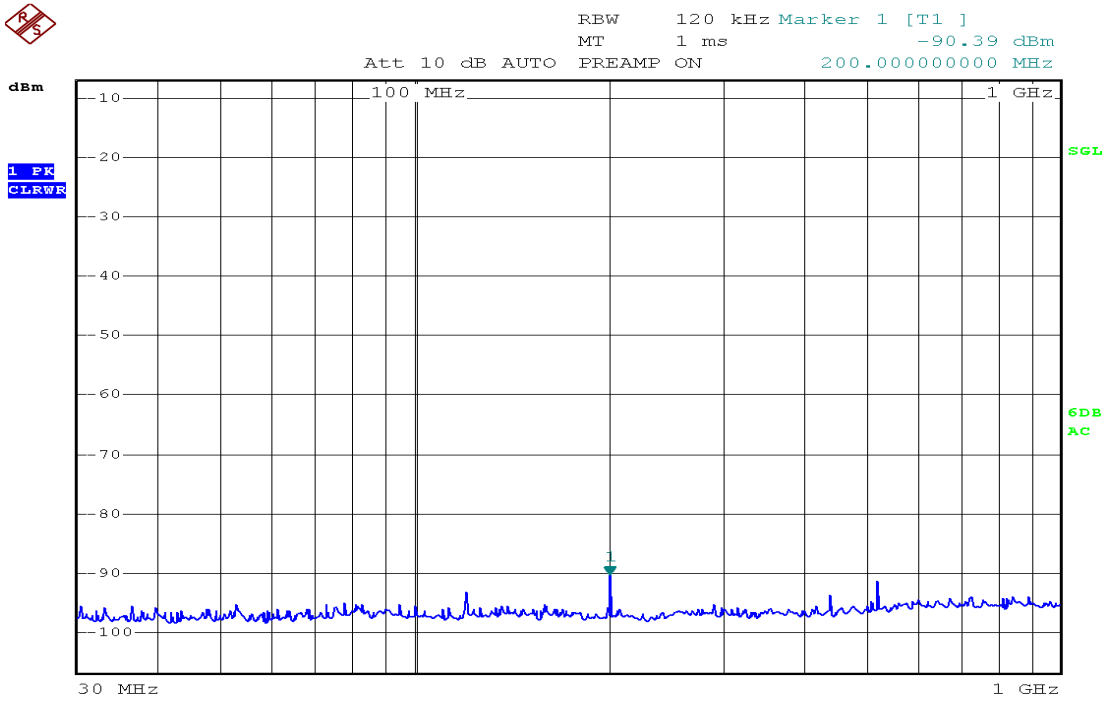
Modulation: 802.11a





Channel Frequency: 5785 MHz

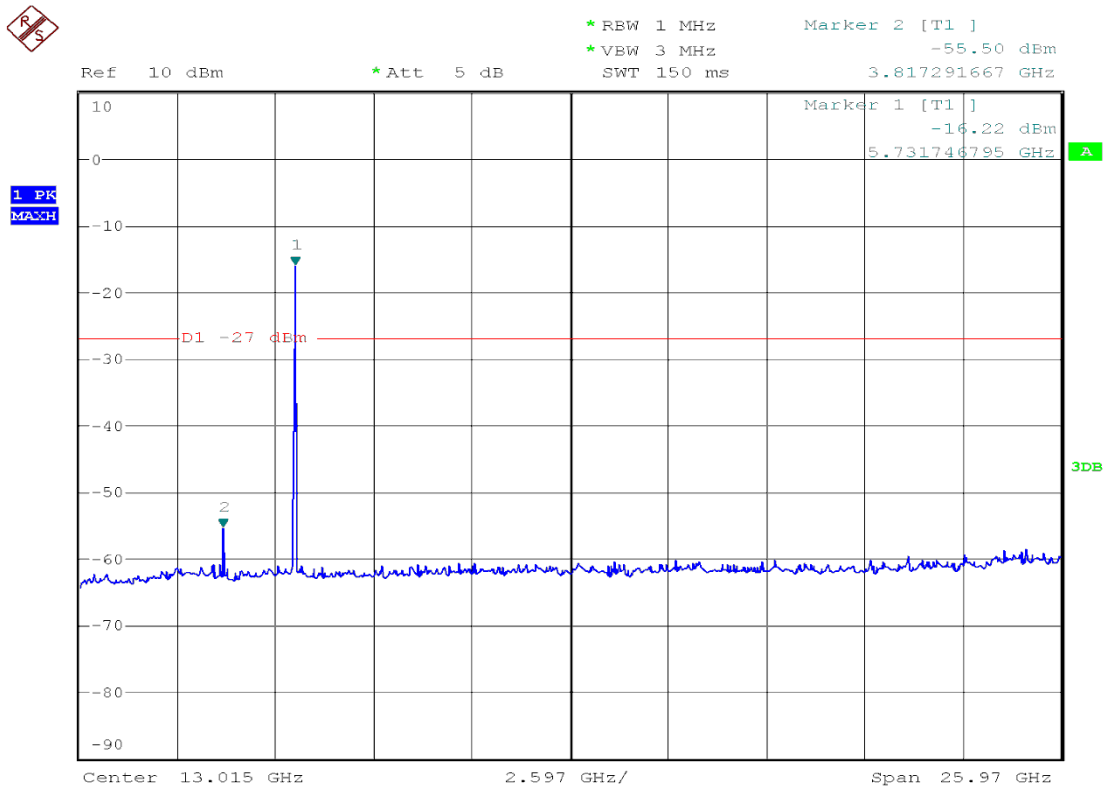
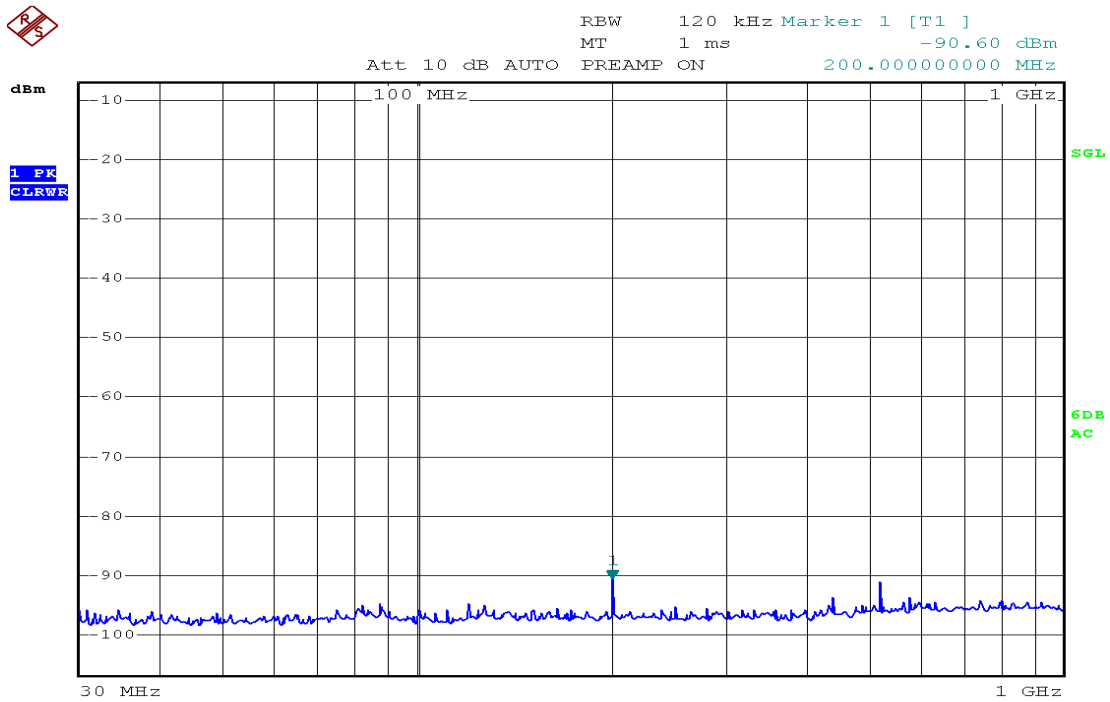
www.tuv.com

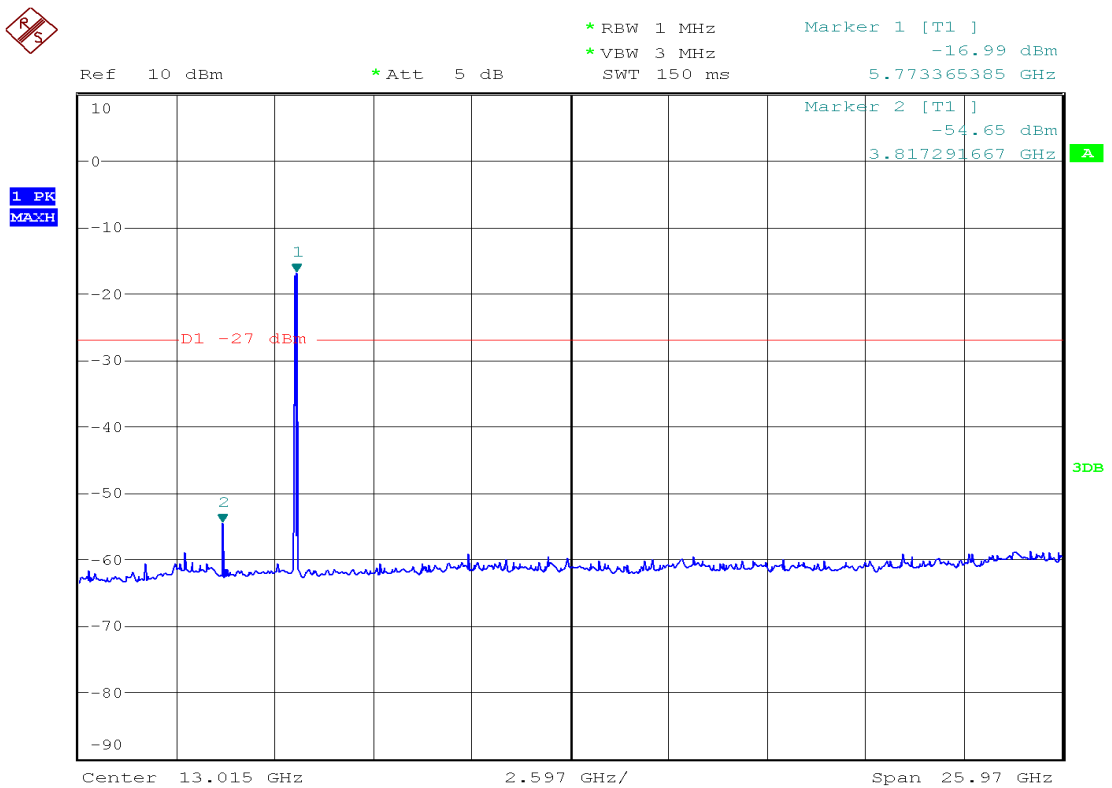
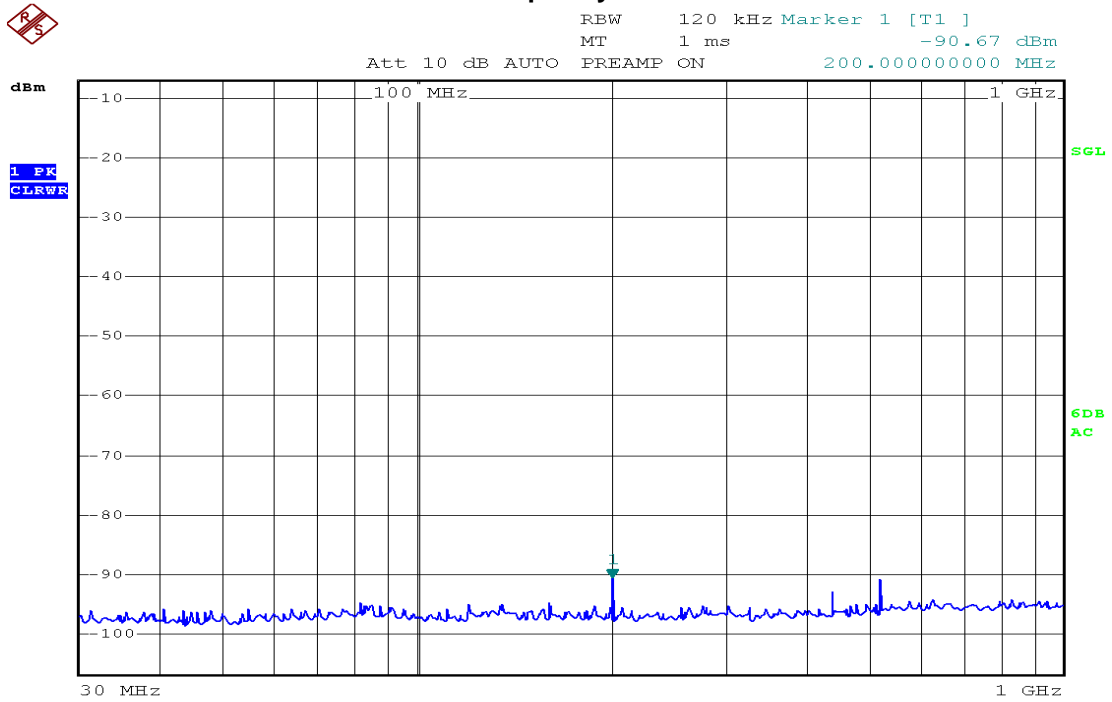


Channel Frequency: 5825 MHz

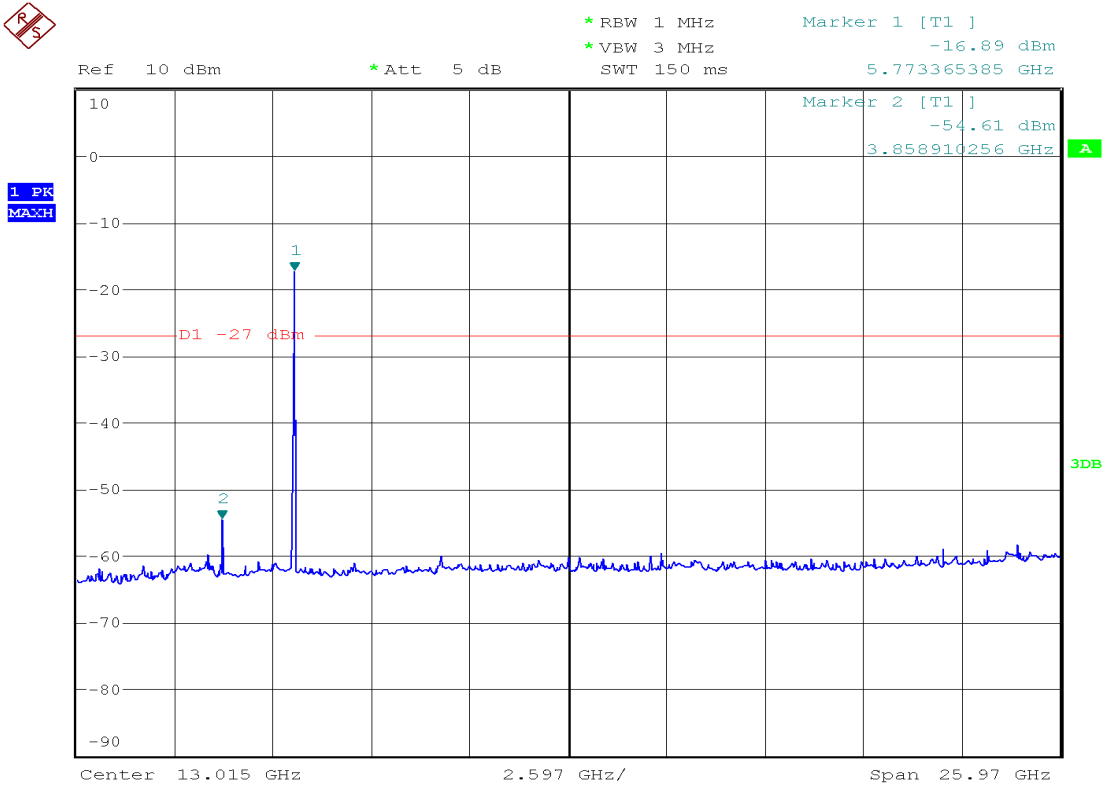
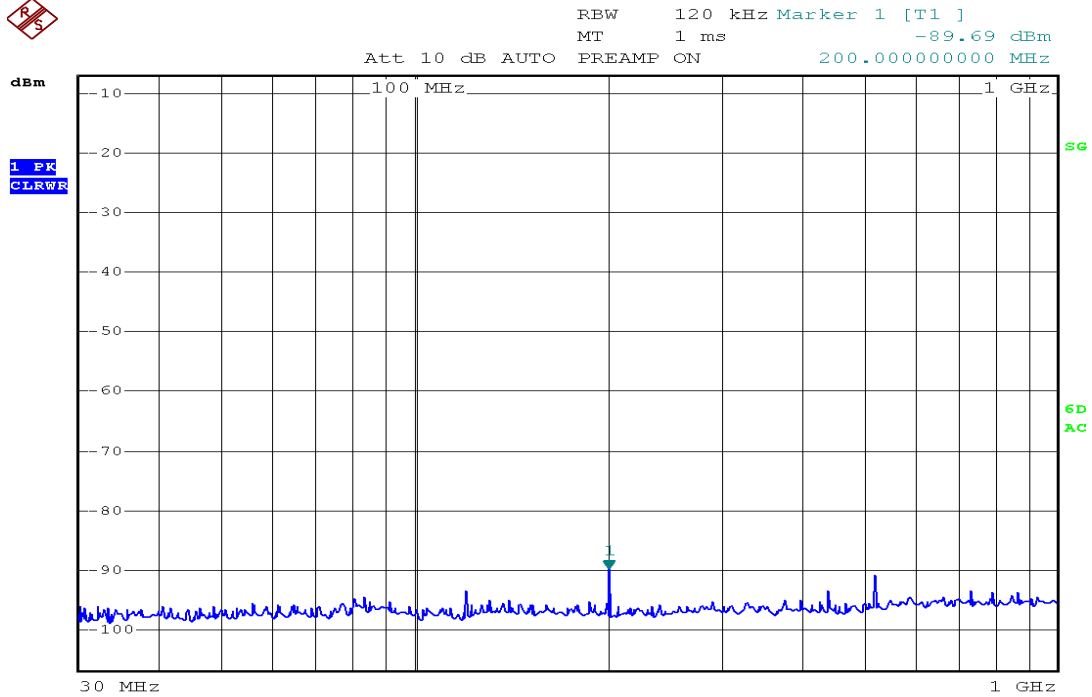
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Modulation: 802.11n



Channel Frequency: 5745 MHz

Channel Frequency: 5785 MHz

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Channel Frequency: 5825 MHz

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Spurious Radiated Emissions
Result

Section 15.209
Pass

Test Specification	FCC Part 15 Section 15.209
Test Method	ANSI C63.4-2003
Measurement Location	Semi Anechoic Chamber
Measuring Distance	3m
Detection	QP for frequency below 1GHz, Peak/Average for frequency above 1GHz
Requirement	Should Comply with the limits stated in the below table.

Limit for Radiated Emission of Section 15.209:

Frequency (MHz)	Field strength ($\mu\text{V/m}$)	Field strength ($\text{dB}\mu\text{V/m}$)	Distance of Measurement (m)
0.009 – 0.490	2400/F(kHz)	48.50 – 13.80	300*
0.490 – 1.705	24000/F(kHz)	33.80 – 23.00	30*
1.705 -30	30	29.54	30*
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Remark: * the limit shows in the table above of frequency range 0.009 – 0.490, 0.490 – 1.705 MHz and 1.705-30MHz is at 300 meter, 30 meter and 30 meter range respectively, which corresponds to 88,50 – 53.80, 53.80 – 43.00 and 49.5dB $\mu\text{V/m}$ at 3m range by extrapolation calculation and the measurement of loop antenna.

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.

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Test results:

Modulation: 802.11a

Fundamental Frequency (MHz)	Antenna Polarization	Spurious Emission (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
5745.00	V	33.96	22.90	40.00	-17.10
		35.96	26.80	40.00	-13.20
		40.00	29.40	40.00	-10.60
		44.20	20.50	40.00	-19.50
		77.96	21.50	40.00	-18.50
		87.44	25.90	40.00	-14.10
		147.12	24.10	43.50	-19.40
		162.48	24.30	43.50	-19.20
		200.00	30.50	43.50	-13.00
		399.98	39.80	46.00	-06.20
		400.00	41.20	46.00	-04.80
		600.02	39.60	46.00	-06.40
		680.00	38.40	46.00	-07.60
		5748.80(P)	75.00	-	*
		5750.00(AV)	64.30	-	*
		11495.65 (P)	55.42	68.23	-12.81
	11494.65 (Av)	41.25	54.00	-12.75	
	H	170.16	30.00	43.50	-13.50
		200.00	36.60	46.50	-06.90
		200.00	33.00	46.00	-10.50
279.98		37.50	46.00	-08.50	
440.00		39.70	46.00	-06.30	
680.00		36.90	46.00	-09.10	
5748.80(P)		72.40	-	*	
5750.40(AV)		61.80	-	*	
11495.65 (P)		54.20	68.23	-14.03	
11493.65 (Av)		41.58	54.00	-12.42	
5765.00	V	33.96	22.90	40.00	-17.10
		35.96	26.80	40.00	-13.20
		40.00	29.40	40.00	-10.60
		87.44	25.90	40.00	-14.10
		136.48	21.60	43.50	-21.90
		147.12	24.10	43.50	-19.40
		162.48	24.30	43.50	-19.20
		200.00	30.50	43.50	-13.00
		399.98	39.80	46.00	-06.20
		400.00	41.20	46.00	-04.80
		600.02	39.60	46.00	-06.40
		680.00	38.40	46.00	-07.60
		5762.00(P)	75.40	-	*

		5760.80(AV)	63.80	-	*
		11534.35(P)	51.34	68.23	-16.89
		11536.35(Av)	39.85	54.00	-14.15
	H	170.16	30.00	43.50	-13.50
		200.00	36.60	46.50	-06.90
		200.00	33.00	46.00	-10.50
		279.98	37.50	46.00	-08.50
		440.00	39.70	46.00	-06.30
		680.00	36.90	46.00	-09.10
		5760.80(P)	70.70	-	*
		5761.20(AV)	60.00	-	*
		11524.35(P)	54.62	68.23	-13.61
		11525.35(Av)	40.62	54.00	-13.38
5785.00	V	33.96	22.90	40.00	-17.10
		35.96	26.80	40.00	-13.20
		40.00	29.40	40.00	-10.60
		200.00	30.50	43.50	-13.00
		399.98	39.80	46.00	-06.20
		400.00	41.20	46.00	-04.80
		600.02	39.60	46.00	-06.40
		680.00	38.40	46.00	-07.60
		5788.80(P)	75.80	-	*
		5788.00(AV)	65.20	-	*
		11570.23(P)	53.65	68.23	-14.58
		11573.10(Av)	40.71	54.00	-13.29
	H	170.16	30.00	43.50	-13.50
		200.00	36.60	46.50	-06.90
		200.00	33.00	46.00	-10.50
		279.98	37.50	46.00	-08.50
		440.00	39.70	46.00	-06.30
		680.00	36.90	46.00	-09.10
		5788.80(P)	74.30	-	*
		5788.00(AV)	63.70	-	*
11570.23(P)	52.63	68.23	-15.60		
11572.10(Av)	41.74	54.00	-12.26		
5825.00	H	280.00	35.08	46.00	-10.92
		520.05	34.92	46.00	-11.08
		600.00	27.05	46.00	-18.95
		680.00	31.81	46.00	-14.19
		5825.00(P)	91.93	*	-
		5825.00 (Av)	88.46	*	-
		11650.00 (P)	53.53	68.23	-14.7
		11651.00(Av)	40.36	54.00	-13.64
	V	200.00	34.22	43.5	-09.28
		440.05	41.64	46.00	-04.36

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		520.00	42.04	46.00	-03.96
		520.05	42.29	46.00	-03.71
		600.00	40.81	46.00	-05.19
		5825.00 (P)	94.9	*	-
		5825.00 (Av)	91.46	*	-
		11650.00 (P)	56.43	68.23	-11.8
		11651.20 (Av)	41.86	54.00	-12.14

* Operation Band
P-->Peak
AV-->Average

Modulation: 802.11n

Fundamental Frequency (MHz)	Antenna Polarization	Spurious Emission (MHz)	Field Strength (dBµV/m)	Limit (dBµV/m)	Margin (dB)
5745.00	V	33.96	22.90	40.00	-17.10
		35.96	26.80	40.00	-13.20
		40.00	29.40	40.00	-10.60
		44.00	20.50	40.00	-19.50
		54.32	17.30	40.00	-22.70
		77.96	21.50	40.00	-18.50
		87.44	25.90	40.00	-14.10
		200.00	30.50	43.50	-13.00
		399.98	39.80	46.00	-06.20
		440.0	41.20	46.00	-04.80
		600.02	39.60	46.00	-06.40
		680.00	38.40	46.00	-07.60
		951.86	32.80	46.00	-13.20
		5748.40(P)	67.30	-	*
	5748.80(AV)	64.20	-	*	
	11488.23(P)	52.30	68.23	-15.93	
	11489.20(Av)	41.36	54.00	-12.64	
	H	32.00	11.60	40.00	-28.40
		170.16	30.00	43.50	-13.50
		200.00	36.60	43.50	-06.90
200.00		33.00	43.50	-10.50	
279.98		37.50	46.00	-08.50	
440.00		39.70	46.00	-06.30	
680.00		36.90	46.00	-09.10	
921.26		32.90	46.00	-13.10	
5748.00(P)		68.80	-	*	
5749.60(AV)		59.80	-	*	
5765.00	V	33.96	22.90	40.00	-17.10
		35.96	26.80	40.00	-13.20

		40.00	29.40	40.00	-10.60
		77.96	21.50	40.00	-18.50
		87.44	25.90	40.00	-14.10
		147.12	24.10	43.50	-19.40
		162.48	24.30	43.50	-19.20
		200.00	30.50	43.50	-13.00
		399.98	39.80	46.00	-06.20
		440.0	41.20	46.00	-04.80
		600.02	39.60	46.00	-06.40
		680.00	38.40	46.00	-07.60
		951.86	32.80	46.00	-13.20
		5759.60(P)	73.30	-	*
		5760.90(AV)	63.90	-	*
		11532.20(P)	52.65	68.23	-15.58
		11534.20(Av)	39.65	54.00	-14.35
	H	32.00	11.60	40.00	-28.40
		170.16	30.00	43.50	-13.50
		200.00	36.60	43.50	-06.90
		200.00	33.00	43.50	-10.50
		279.98	37.50	46.00	-08.50
		440.00	39.70	46.00	-06.30
		680.00	36.90	46.00	-09.10
		921.26	32.90	46.00	-13.10
		5767.60(P)	68.60	-	*
		5760.80(AV)	59.30	-	*
		11532.20(P)	52.30	68.23	-15.93
11534.20(Av)	41.85	54.00	-12.15		
5785.00	V	33.96	22.90	40.00	-17.10
		35.96	26.80	40.00	-13.20
		40.00	29.40	40.00	-10.60
		44.00	20.50	40.00	-19.50
		54.32	17.30	40.00	-22.70
		77.96	21.50	40.00	-18.50
		87.44	25.90	40.00	-14.10
		147.12	24.10	43.50	-19.40
		162.48	24.30	43.50	-19.20
		200.00	30.50	43.50	-13.00
		399.98	39.80	46.00	-06.20
		440.0	41.20	46.00	-04.80
		600.02	39.60	46.00	-06.40
		680.00	38.40	46.00	-07.60
		951.86	32.80	46.00	-13.20
		5788.00(P)	74.50	-	*
		5786.40(AV)	65.30	-	*
		11579.65(P)	51.50	68.23	-16.73
	11576.23(Av)	41.23	54.00	-12.77	
	H	32.00	11.60	40.00	-28.40
		170.16	30.00	43.50	-13.50
200.00		36.60	43.50	-06.90	
200.00		33.00	43.50	-10.50	

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		279.98	37.50	46.00	-08.50
		440.00	39.70	46.00	-06.30
		680.00	36.90	46.00	-09.10
		921.26	32.90	46.00	-13.10
		5789.60(P)	73.80	-	*
		5788.80(AV)	64.40	-	*
		11579.65(P)	52.32	68.23	-15.91
		11576.23(Av)	39.65	54.00	-14.35
5825.00	H	200.00	34.95	43.50	-08.55
		360.00	37.84	46.00	-08.16
		440.05	39.13	46.00	-06.87
		520.00	35.52	46.00	-10.48
		5825.00 (P)	89.80	*	-
		5825.00 (Av)	84.10	*	-
		11650.00 (P)	53.28	68.23	-14.95
		11650.00 (Av)	40.51	54.00	-13.49
	V	200.00	35.30	43.50	-08.20
		440.05	41.90	46.00	-04.10
		520.00	42.59	46.00	-03.41
		520.05	40.62	46.00	-05.38
		600.00	40.22	46.00	-05.78
		680.05	39.51	46.00	-06.49
		5825.00 (P)	94.38	*	-
		5825.00 (Av)	90.91	*	-
		11650.00 (P)	57.88	68.23	-10.35
		11650.00 (Av)	42.06	54.00	-11.94

* Operation Band
P-->Peak detector
AV-->Average