RF TEST REPORT

Applicant	ZTE Corporation
FCC ID	SRQ-MF928
Product	LTE ufi Hotspot
Model	MF928
Report No.	R2006A0416-R5
Issue Date	July 16, 2020

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 15E (2019)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Peng Tao

Performed by: Peng Tao

Kai Xu

Approved by: Kai Xu

TA Technology (Shanghai) Co., Ltd.

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TABLE OF CONTENT

Summary of measurement results

Number	Test Case	Clause in FCC rules	Verdict
1	Average conducted output power	15.407(a)	PASS
2	Occupied bandwidth	15.407(e)	PASS
3	Frequency stability	15.407(g)	PASS
4	Power spectral density	15.407(a)	PASS
5	Unwanted Emissions	15.407(b)	PASS
6	Conducted Emissions	15.207	PASS
Date of Testing: March 9, 2018 ~ March 27, 2018 and July 1, 2020 ~ July 14, 2020			
Note: All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

1. Test Laboratory

1.1. Notes of the test report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

1.3. Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong
City:	Shanghai
Post code:	201201
Country:	P. R. China
Contact:	Xu Kai
Telephone:	+86-021-50791141/2/3
Fax:	+86-021-50791141/2/3-8000
Website:	http://www.ta-shanghai.com
E-mail:	xukai@ta-shanghai.com

2. General Description of Equipment under Test

2.1. Applicant and Manufacturer Information

Applicant	ZTE Corporation
Applicant address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
Manufacturer	ZTE Corporation
Manufacturer address	ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

2.2. General information

EUT Description	
Model	MF928
IMEI	866987050000794
Hardware Version	MF928-1.0.0
Software Version	BD_RWMF928V0.0.0B02
Power Supply	Battery/AC adapter
Antenna Type	Internal Antenna
Antenna Gain	U-NII-1: 2.33 dBi U-NII-3: 2.39 dBi
Directional Gain	NA
Test Mode(s)	U-NII-1(5150MHz-5250MHz) U-NII-3(5725MHz-5850MHz)
Modulation Type	802.11a/n (HT20/HT40) : OFDM 802.11ac (VHT20/VHT40/VHT80): OFDM
Max. Conducted Power	15.97 dBm
Operating Frequency Range(s)	U-NII-1: 5150-5250MHz U-NII-3: 5725-5850MHz
Operating temperature range:	-10 ° C to 55° C
Operating voltage range:	3.4 V to 4.35V
State AC voltage:	3.8V
EUT Accessory	
Adapter 1	Manufacturer: DONGGUAN AOHAI POWER TECHNOLOGY CO., LTD. Model: STC-A51D-Z
Adapter 2	Manufacturer: SHENZHEN RUIJING INDUSTRIAL CO LTD Model: STC-A51D-Z

Battery	Manufacturer: HARBIN COSLIGHT POWER CO LTD Model: Li3820T43P3h715345
USB Cable 1	Manufacturer: LUXSHARE-ICT 100cm Cable, Shielded
USB Cable 2	Manufacturer: kingpower-tech 100cm Cable, Shielded
Note:1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant. 2. There is more than one USB cable and one Adapter, each one should be applied throughout the compliance test respectively, and however, only the worst case (USB cable 1/ Adapter 1) will be recorded in this report.	

3. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test standards:

FCC CFR47 Part 15E (2019) Unlicensed National Information Infrastructure Devices

ANSI C63.10 (2013)

Reference standard:

KDB 789033 D02 General UNII Test Procedures New Rules v02r01

4. Test Configuration

Test Mode

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application.

The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in lie-down position (X axis) and the worst case was recorded.

In order to find the worst case condition, Pre-tests are needed at the presence of different data rate. Preliminary tests have been done on all the configuration for confirming worst case. Data rate below means worst-case rate of each test item.

Worst-case data rates are shown as following table.

Band	**Data Rate**
802.11a	6 Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0

Wireless Technology and Frequency Range

Wireless Technology		Bandwidth	Channel	Frequency
Wi-Fi	U-NII-1	20 MHz	36	5180MHz
			40	5200MHz
			44	5220MHz
			48	5240MHz
		40 MHz	38	5190MHz
			46	5230MHz
		80 MHz	42	5210MHz
	U-NII-3	20 MHz	149	5745MHz
			153	5765MHz
			157	5785MHz
			161	5805MHz
			165	5825MHz
		40 MHz	151	5755MHz
			159	5795MHz
		80 MHz	155	5775MHz
Does this device support TPC Function? ☐Yes ☒No				
Does this device support TDWR Band? ☐Yes ☒No				

5. Test Case Results

5.1. Occupied Bandwidth

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable.

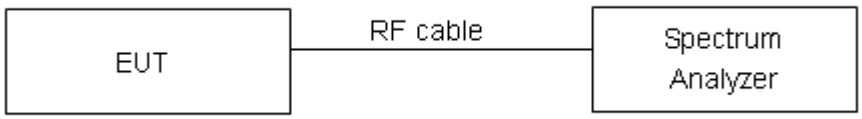
For U-NII-1/U-NII-2A/U-NII-2C, set RBW ≈1% OCB kHz, VBW ≥ 3 × RBW, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

For U-NII-3, Set RBW = 100 kHz, VBW ≥ 3 × RBW, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described above.

Use the 99 % power bandwidth function of the instrument

Test Setup



Limits

Rule FCC Part §15.407(e)

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

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 936 Hz.

Test Results:

U-NII-1

Network Standards	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 26 dB bandwidth (MHz)	Conclusion
802.11a	5180	16.236	19.85	PASS
	5200	16.232	19.87	PASS
	5240	16.224	19.68	PASS
802.11n HT20	5180	17.375	20.39	PASS
	5200	17.366	20.52	PASS
	5240	17.368	20.33	PASS
802.11n HT40	5190	35.774	40.59	PASS
	5230	35.750	40.52	PASS
802.11ac VHT20	5180	17.364	20.32	PASS
	5200	17.351	20.40	PASS
	5240	17.347	20.08	PASS
802.11ac VHT40	5190	35.752	40.36	PASS
	5230	35.723	40.34	PASS
802.11ac VHT80	5210	74.959	82.79	PASS

U-NII-3

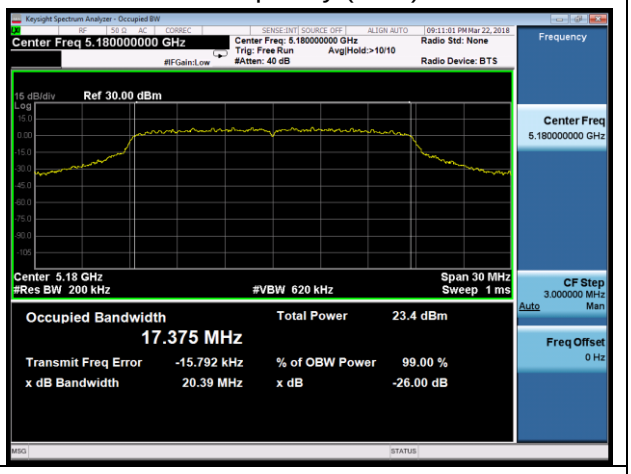
Network Standards	Carrier frequency (MHz)	99% bandwidth (MHz)	Minimum 6 dB bandwidth (MHz)	Limit (kHz)	Conclusion
802.11a	5745	16.269	15.33	500	PASS
	5785	16.290	15.35	500	PASS
	5825	16.289	15.16	500	PASS
802.11n HT20	5745	17.403	15.16	500	PASS
	5785	17.432	15.16	500	PASS
	5825	17.436	15.13	500	PASS
802.11n HT40	5755	35.838	35.15	500	PASS
	5795	35.801	35.15	500	PASS
802.11ac VHT20	5745	17.371	15.16	500	PASS
	5785	17.378	15.15	500	PASS
	5825	17.379	15.16	500	PASS
802.11ac VHT40	5755	35.762	35.15	500	PASS
	5795	35.771	35.14	500	PASS
802.11ac VHT80	5775	74.978	75.13	500	PASS

U-NII-1, 802.11a

Carrier frequency (MHz): 5180

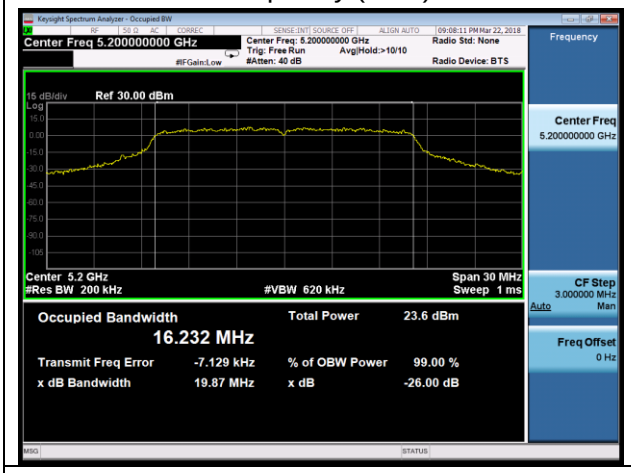
U-NII-1, 802.11n HT20

Carrier frequency (MHz): 5180



U-NII-1, 802.11a

Carrier frequency (MHz): 5200

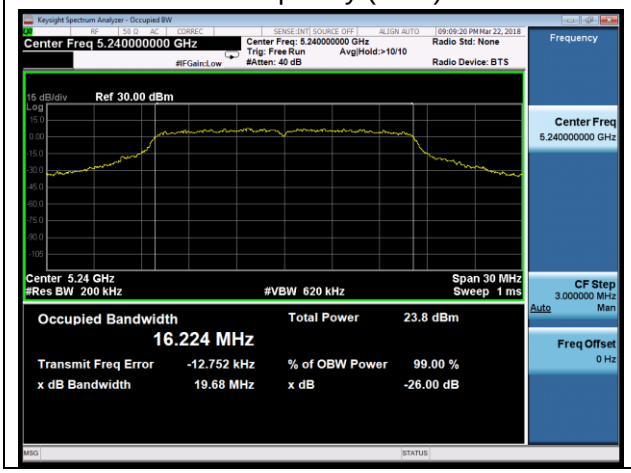


U-NII-1, 802.11n HT20

Carrier frequency (MHz): 5200

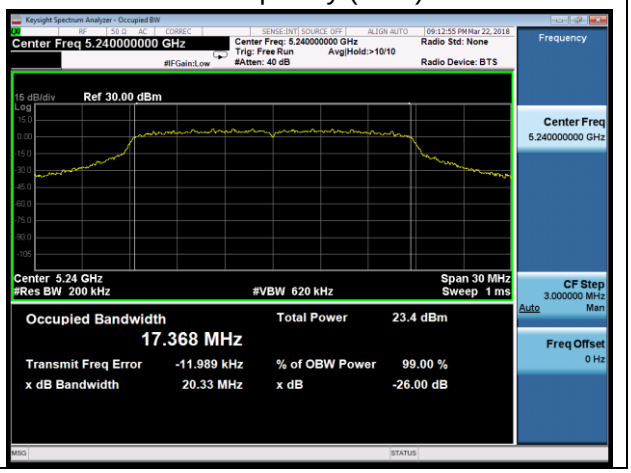
U-NII-1, 802.11a

Carrier frequency (MHz):5240



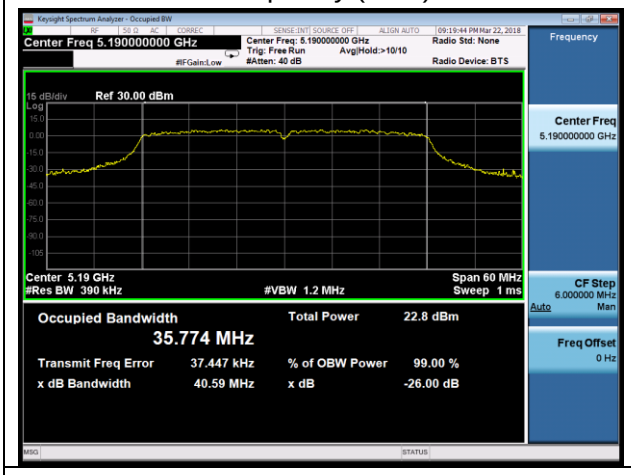
U-NII-1, 802.11n HT20

Carrier frequency (MHz):5240



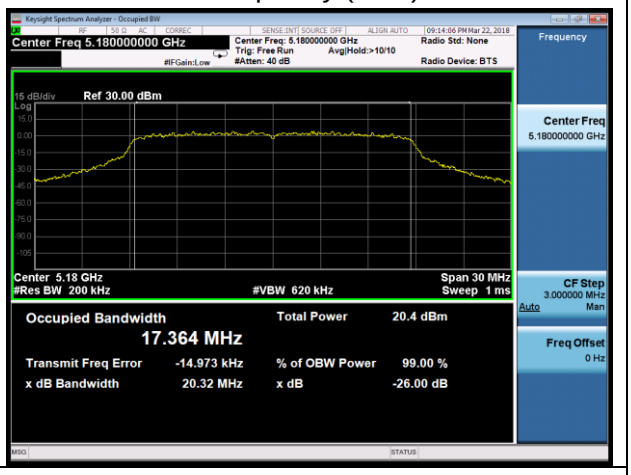
U-NII-1, 802.11n HT40

Carrier frequency (MHz): 5190



U-NII-1, 802.11ac VHT20

Carrier frequency (MHz): 5180

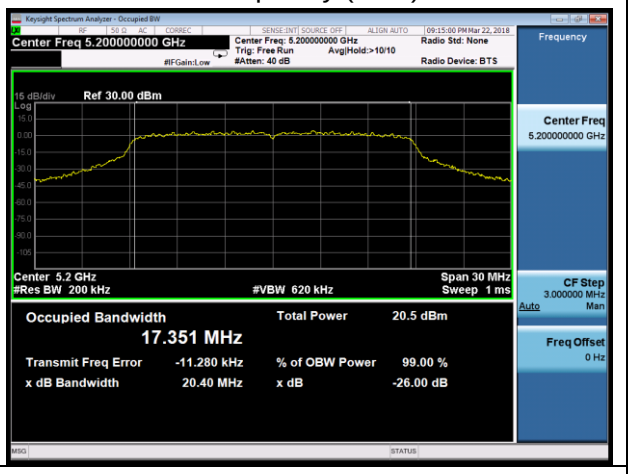


U-NII-1, 802.11n HT40

Carrier frequency (MHz): 5230

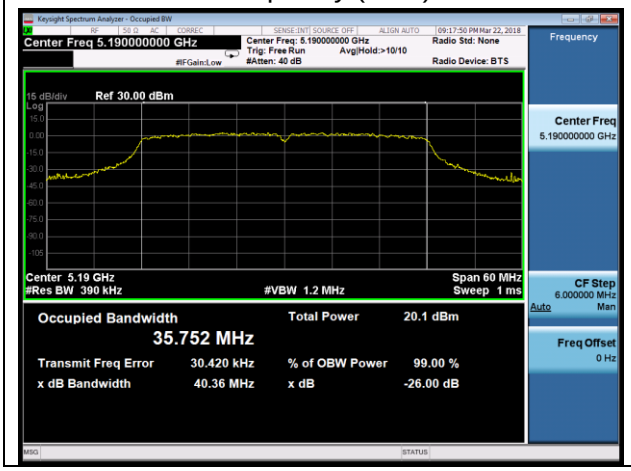
U-NII-1, 802.11ac VHT20

Carrier frequency (MHz): 5200



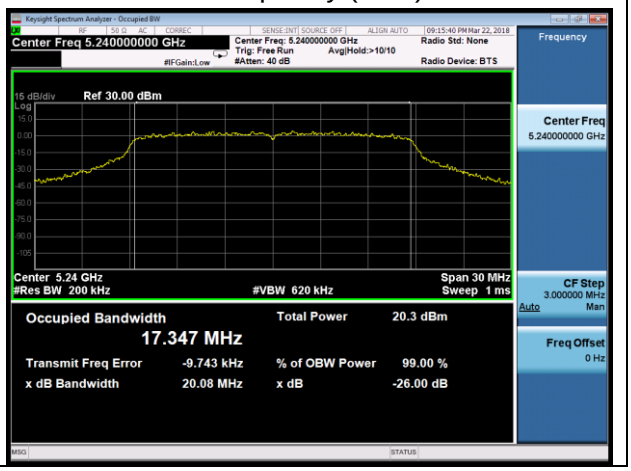
U-NII-1, 802.11ac VHT40

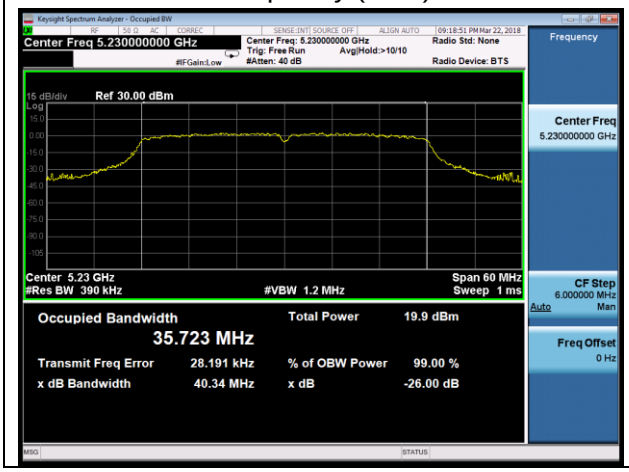
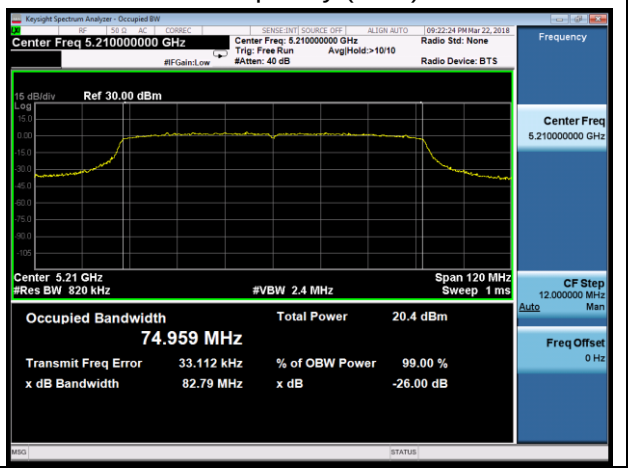
Carrier frequency (MHz): 5190



U-NII-1, 802.11ac VHT20

Carrier frequency (MHz):5240



U-NII-1, 802.11ac VHT40 Carrier frequency (MHz): 5230	U-NII-1, 802.11ac VHT80 Carrier frequency (MHz): 5210
	

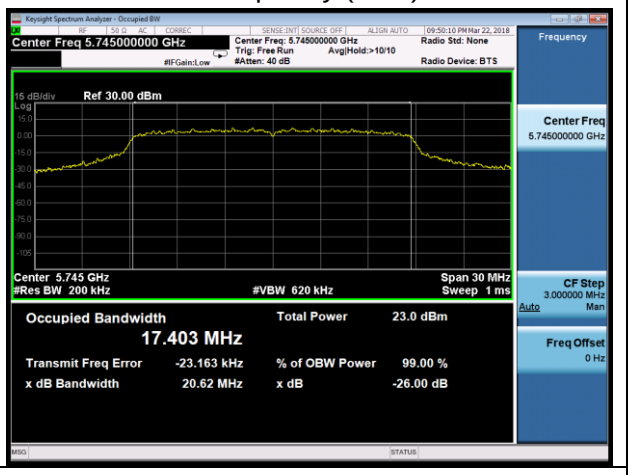
99% bandwidth

U-NII-3, 802.11a

Carrier frequency (MHz): 5745

U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5745



U-NII-3, 802.11a

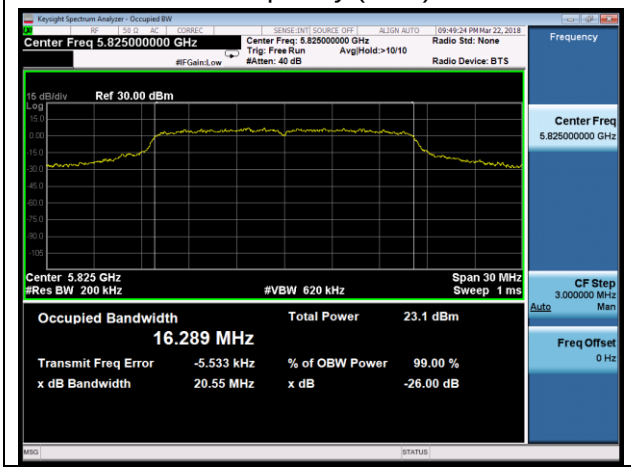
Carrier frequency (MHz): 5785

U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5785

U-NII-3, 802.11a

Carrier frequency (MHz): 5825



U-NII-3, 802.11n HT20

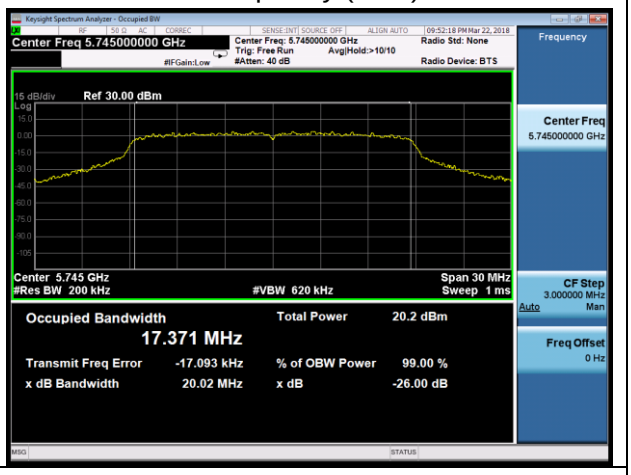
Carrier frequency (MHz): 5825

U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5755

U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5745

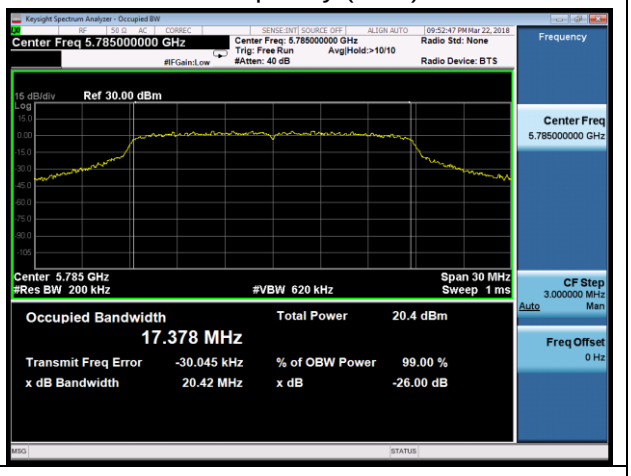


U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5795

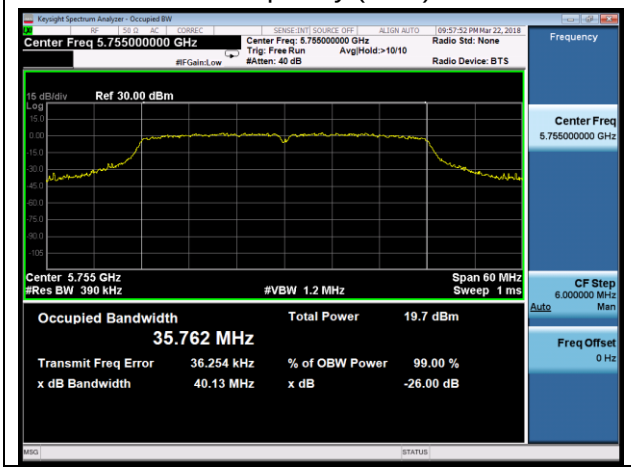
U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5785



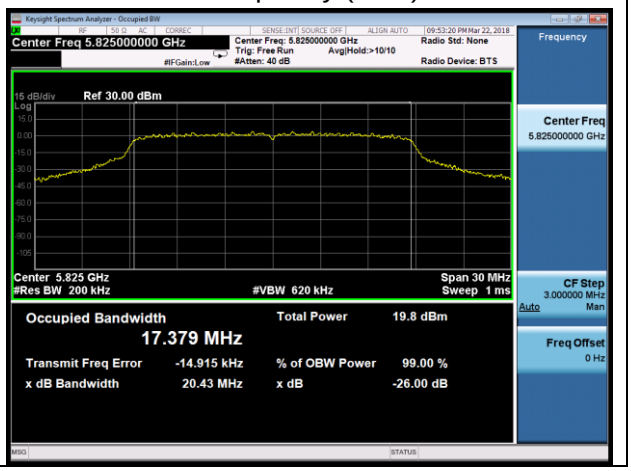
U-NII-3, 802.11ac VHT40

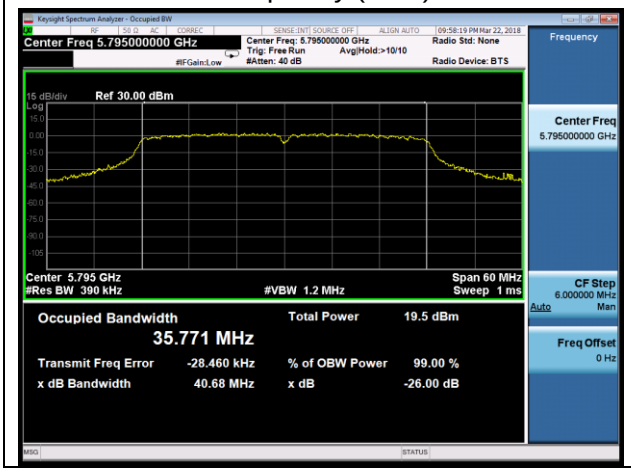
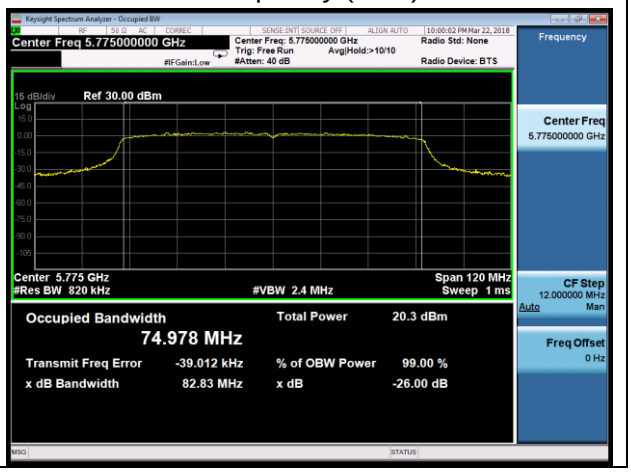
Carrier frequency (MHz): 5755



U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5825

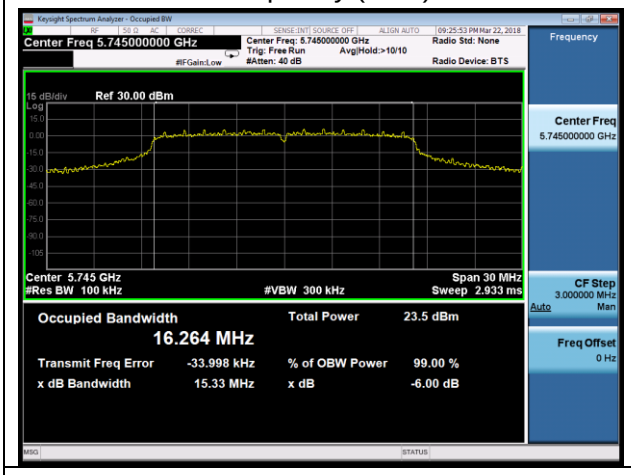


U-NII-3, 802.11ac VHT40 Carrier frequency (MHz): 5795	U-NII-3, 802.11ac VHT80 Carrier frequency (MHz): 5775
	

Minimum 6 dB bandwidth

U-NII-3, 802.11a

Carrier frequency (MHz): 5745

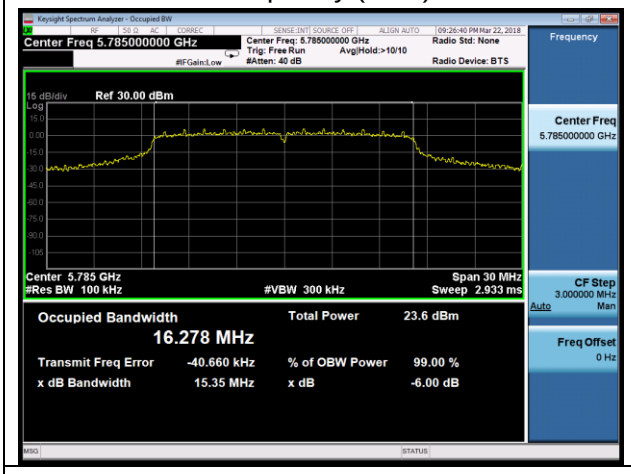


U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5745

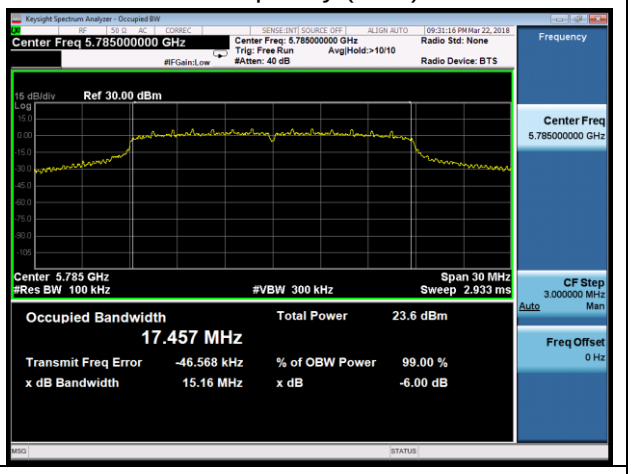
U-NII-3, 802.11a

Carrier frequency (MHz): 5785



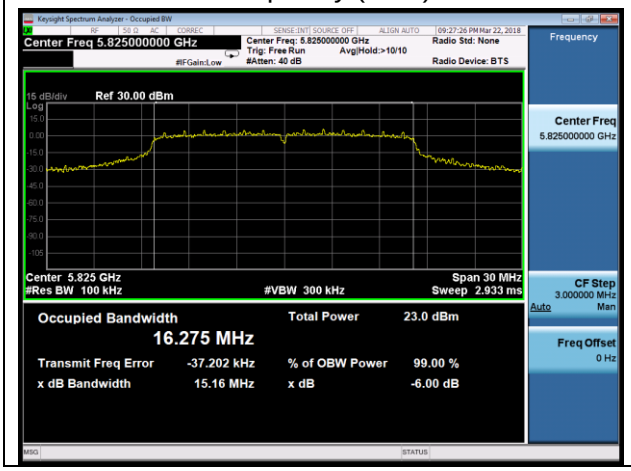
U-NII-3, 802.11n HT20

Carrier frequency (MHz): 5785



U-NII-3, 802.11a

Carrier frequency (MHz): 5825



U-NII-3, 802.11n HT20

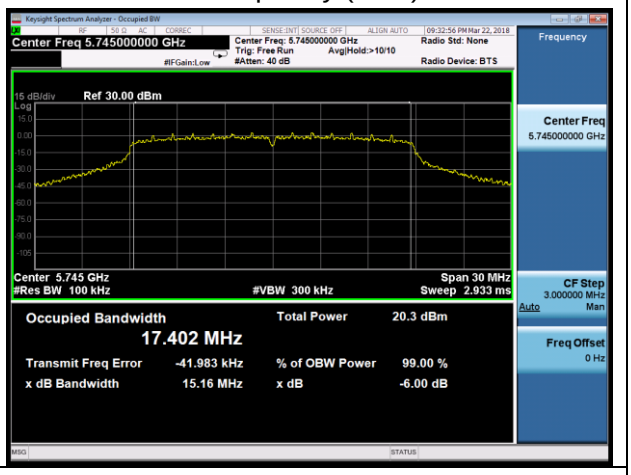
Carrier frequency (MHz): 5825

U-NII-3, 802.11n HT40

Carrier frequency (MHz): 5755

U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5745



U-NII-3, 802.11n HT40

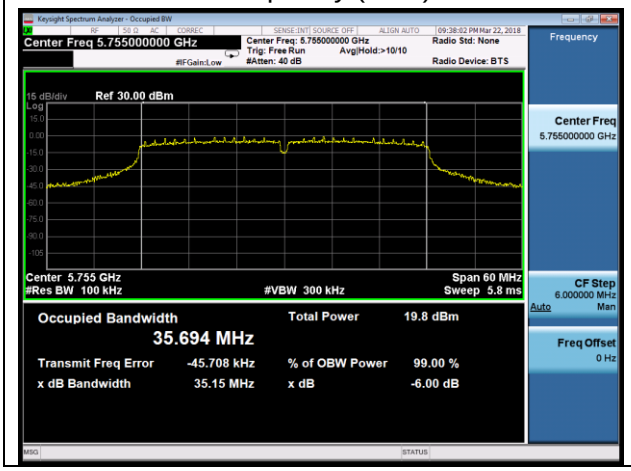
Carrier frequency (MHz): 5795

U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5785

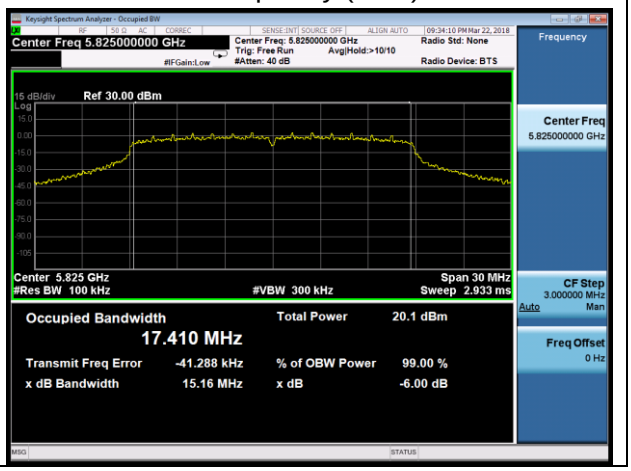
U-NII-3, 802.11ac VHT40

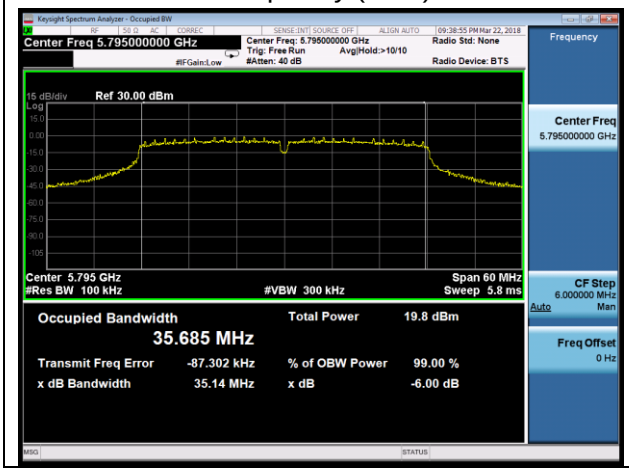
Carrier frequency (MHz): 5755



U-NII-3, 802.11ac VHT20

Carrier frequency (MHz): 5825



U-NII-3, 802.11ac VHT40 Carrier frequency (MHz): 5795	U-NII-3, 802.11ac VHT80 Carrier frequency (MHz): 5775
	

5.2. Average Power Output –Conducted

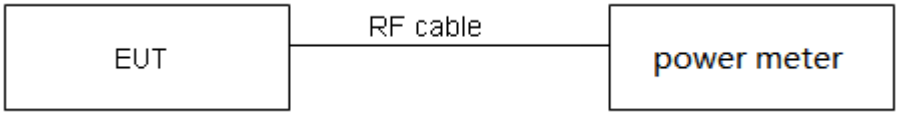
Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

During the process of the testing, The EUT was connected to the average power meter through an external attenuator and a known loss cable. The EUT is max power transmission with proper modulation. We use Maximum average Conducted Output Power Level Method in KDB789033 for this test

Test Setup



Limits

Rule FCC Part 15.407(a)(1)(2)(3)
(1) For the band 5.15-5.25 GHz.
(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).
(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude

the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

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

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3)For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.44 dB.

Test Results

Band	T_{on} (ms)	$T_{(on+off)}$ (ms)	Duty cycle	Duty cycle correction Factor(dB)
802.11a	2.06	2.24	0.92	0.36
802.11n HT20	1.92	2.02	0.95	0.23
802.11n HT40	0.95	1.06	0.89	0.50
802.11ac VHT20	1.94	2.04	0.95	0.23
802.11ac VHT40	0.95	1.07	0.89	0.50
802.11ac VHT80	0.46	0.60	0.78	1.09
Note: when Duty cycle>0.98, Duty cycle correction Factor not required.				

Single Antenna Power Index						
Packet Type	**CH36**	**CH40**	**CH48**	**CH149**	**CH157**	**CH165**
802.11a	17	17	17	19	19	19
802.11n HT20	17	17	17	19	19	19
802.11ac VHT20	15	15	15	18	18	18
Packet Type	**CH38**	**CH46**	**CH151**	**CH159**	**/**	**/**
802.11n HT40	16	16	19	18	/	/
802.11ac VHT40	14	14	17	16	/	/
Packet Type	**CH42**	**CH155**	**/**	**/**	**/**	**/**
802.11ac VHT80	14	16	/	/	/	/

Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor

U-NII-1

Network Standards	Channel/ Frequency (MHz)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11a	36/5180	15.23	15.59	30	PASS
	40/5200	15.38	15.74	30	PASS
	48/5240	14.75	15.11	30	PASS
802.11n HT20	36/5180	15.18	15.41	30	PASS
	40/5200	15.34	15.57	30	PASS
	48/5240	14.63	14.86	30	PASS
802.11n HT40	38/5190	14.96	15.46	30	PASS
	46/5230	14.88	15.38	30	PASS
802.11ac VHT20	36/5180	13.94	14.17	30	PASS
	40/5200	13.85	14.08	30	PASS
	48/5240	13.81	14.04	30	PASS
802.11ac VHT40	38/5190	13.13	13.63	30	PASS
	46/5230	13.16	13.66	30	PASS
802.11ac VHT80	42/5210	12.02	13.11	30	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor					

U-NII-3

Network Standards	Channel/ Frequency (MHz)	Average Power Measured (dBm)	Average Power with duty factor (dBm)	Limit (dBm)	Conclusion
802.11a	149/5745	14.96	15.32	30	PASS
	157/5785	15.61	15.97	30	PASS
	165/5825	15.43	15.79	30	PASS
802.11n HT20	149/5745	14.92	15.15	30	PASS
	157/5785	15.73	15.96	30	PASS
	165/5825	15.32	15.55	30	PASS
802.11n HT40	151/5755	15.09	15.59	30	PASS
	159/5795	15.23	15.73	30	PASS
802.11ac VHT20	149/5745	14.12	14.35	30	PASS
	157/5785	14.73	14.96	30	PASS
	165/5825	14.56	14.79	30	PASS
802.11ac VHT40	151/5755	13.31	13.81	30	PASS
	159/5795	13.43	13.93	30	PASS
802.11ac VHT80	155/5775	12.55	13.64	30	PASS
Note: Average Power with duty factor = Average Power Measured +Duty cycle correction factor					

5.3. Frequency Stability

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

1. Frequency stability with respect to ambient temperature

a) Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT. If possible, a dummy load shall be connected to the EUT because an antenna near the metallic walls of an environmental test chamber could affect the output frequency of the EUT. If the EUT is equipped with a permanently attached, adjustable-length antenna, then the EUT shall be placed in the center of the chamber with the antenna adjusted to the shortest length possible. Turn ON the EUT and tune it to one of the number of frequencies shown in 5.6.

b) Couple the unlicensed wireless device output to the measuring instrument by connecting an antenna to the measuring instrument with a suitable length of coaxial cable and placing the measuring antenna near the EUT (e.g., 15 cm away), or by connecting a dummy load to the measuring instrument, through an attenuator if necessary.

c) Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).

d) Turn the EUT OFF and place it inside the environmental temperature chamber. For devices that have oscillator heaters, energize only the heater circuit.

e) Set the temperature control on the chamber to the highest specified in the regulatory requirements for the type of device and allow the oscillator heater and the chamber temperature to stabilize.

f) While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.

g) Measure the frequency at each of frequencies specified in 5.6.

h) Switch OFF the EUT but do not switch OFF the oscillator heater.

i) Lower the chamber temperature by not more that 10°C, and allow the temperature inside the chamber to stabilize.

j) Repeat step f) through step i) down to the lowest specified temperature.

2. Frequency stability when varying supply voltage

Unless otherwise specified, these tests shall be made at ambient room temperature (+15°C to +25 °C). An antenna shall be connected to the antenna output terminals of the EUT if possible. If the EUT is equipped with or uses an adjustable-length antenna, then it shall be fully extended.

a) Supply the EUT with nominal voltage or install a new or fully charged battery in the EUT. Turn ON the EUT and couple its output to a frequency counter or other frequency-measuring instrument.

b) Tune the EUT to one of the number of frequencies required in 5.6. Adjust the location of the measurement antenna and the controls on the measurement instrument to obtain a suitable signal level (i.e., a level that will not overload the measurement instrument but is strong enough to allow measurement of the operating or fundamental frequency of the EUT).
c) Measure the frequency at each of the frequencies specified in 5.6.
d) Repeat the above procedure at 85% and 115% of the nominal supply voltage.

Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 936Hz

Test Results

Voltage (V)	Temperature (°C)	U-NII-1 Test Results			
		5200MHz			
		1min	2min	5min	10min
3.8	-20	5199.999763	5199.997534	5199.994224	5199.985851
3.8	-10	5199.994399	5199.995160	5199.989336	5199.976249
3.8	0	5199.992239	5199.990156	5199.987003	5199.969928
3.8	10	5199.988446	5199.984733	5199.984560	5199.967413
3.8	20	5199.980494	5199.979046	5199.982102	5199.966490
3.8	30	5199.980270	5199.977973	5199.974200	5199.957599
3.8	40	5199.973954	5199.973825	5199.966890	5199.956740
3.8	50	5199.968437	5199.970056	5199.959445	5199.949882
3.4	20	5199.967678	5199.969574	5199.958532	5199.949721
4.35	20	5199.958182	5199.967592	5199.954583	5199.946658
MHz		-0.041818	-0.032408	-0.045417	-0.053342
PPM		-8.041942	-6.232350	-8.733959	-10.258013

Voltage (V)	Temperature (°C)	U-NII-3 Test Results			
		5785MHz			
		1min	2min	5min	10min
3.8	-20	5785.002639	5784.995421	5784.993453	5784.987989
3.8	-10	5784.998419	5784.986364	5784.990044	5784.979650
3.8	0	5784.998326	5784.985841	5784.982130	5784.973853
3.8	10	5784.988435	5784.976761	5784.977592	5784.971444
3.8	20	5784.985728	5784.970132	5784.969312	5784.969273
3.8	30	5784.985279	5784.969019	5784.959668	5784.962730
3.8	40	5784.981274	5784.959863	5784.958677	5784.957238
3.8	50	5784.978832	5784.956970	5784.955147	5784.951304
3.4	20	5784.976255	5784.951835	5784.951807	5784.946195
4.35	20	5784.968600	5784.948655	5784.948929	5784.941623
MHz		-0.031400	-0.051345	-0.051071	-0.058377
PPM		-5.427892	-8.875520	-8.828220	-10.091098

5.4. Power Spectral Density

Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

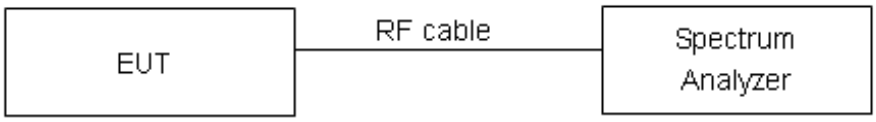
Method of Measurement

The EUT was connected to the spectrum analyzer through an external attenuator (20dB) and a known loss cable.

Set RBW = 1MHz, VBW =3MHz for the band 5.150-5.250GHz, 5.250-5.350GHz, 5.470-5.725GHz.
Set RBW = 510kHz, VBW =1.5MHz for the band 5.725-5.850GHz

The conducted PSD is measured at each antenna port. The measured results at the various antenna ports are then summed mathematically.

Test setup



Limits

Rule FCC Part 15.407(a)(1)/ Part 15.407(a)(2) / Part 15.407(a)(3)
For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmittingantennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Frequency Bands/MHz	Limits
5150-5250	17/MHz
5.25-5.35 GHz and 5.47-5.725 GHz	11dBm/MHz
5725-5850	30dBm/500kHz

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor k = 2, U= 0.75dB.

Test Results:

Note: Power Spectral Density =Read Value+Duty cycle correction factor

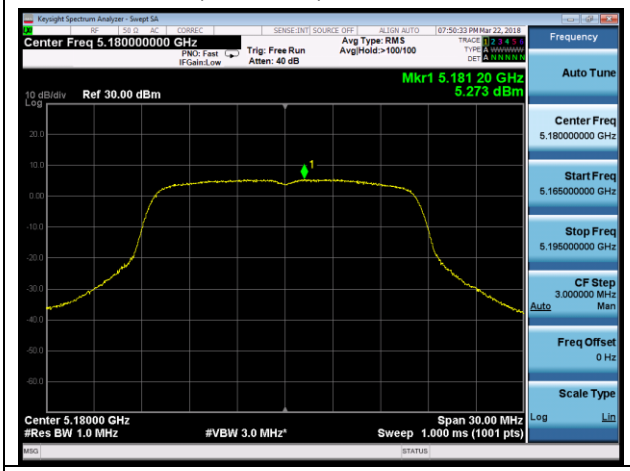
U-NII-1

Network Standards	Channel Number	Read Value (dBm /MHz)	Power Spectral Density (dBm /MHz)	Limit (dBm /MHz)	Conclusion
802.11a	36	5.27	5.63	17	PASS
	40	4.86	5.21	17	PASS
	48	4.80	5.15	17	PASS
802.11n HT20	36	4.48	4.71	17	PASS
	40	4.75	4.98	17	PASS
	48	5.08	5.31	17	PASS
802.11n HT40	38	0.65	1.15	17	PASS
	46	0.55	1.05	17	PASS
802.11ac VHT20	36	1.72	1.95	17	PASS
	40	1.39	1.62	17	PASS
	48	1.69	1.91	17	PASS
802.11ac VHT40	38	-2.13	-1.63	17	PASS
	46	-2.61	-2.11	17	PASS
802.11ac VHT80	42	-6.59	-5.50	17	PASS

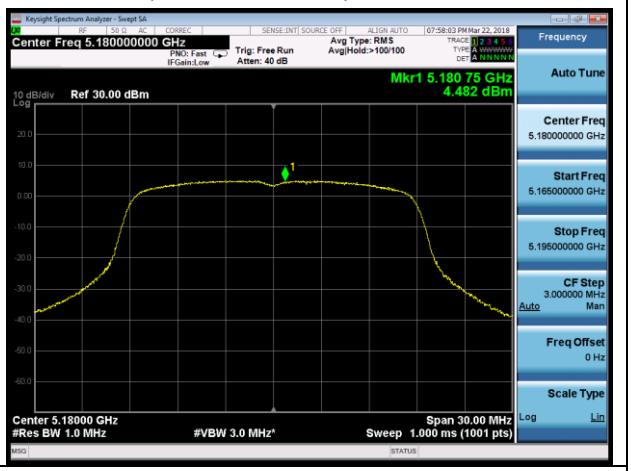
U-NII-3

Network Standards	Channel Number	Read Value (dBm/500kHz)	Power Spectral Density (dBm/500kHz)	Limit (dBm/500kHz)	Conclusion
802.11a	149	3.38	3.74	30	PASS
	157	3.56	3.92	30	PASS
	165	3.65	4.00	30	PASS
802.11n HT20	149	2.94	3.17	30	PASS
	157	3.25	3.48	30	PASS
	165	3.76	3.99	30	PASS
802.11n HT40	151	-0.51	-0.01	30	PASS
	159	-0.25	0.25	30	PASS
802.11ac VHT20	149	0.46	0.69	30	PASS
	157	1.28	1.51	30	PASS
	165	0.76	0.99	30	PASS
802.11ac VHT40	151	-3.20	-2.70	30	PASS
	159	-3.27	-2.77	30	PASS
802.11ac VHT80	155	-7.45	-6.36	30	PASS

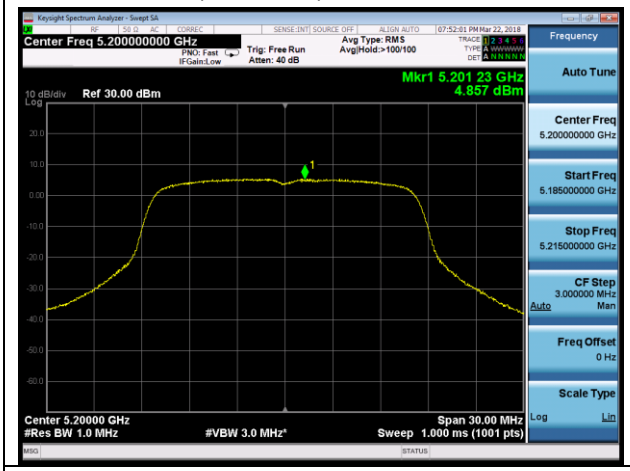
U-NII-1, 802.11a, Channel No.: 36



U-NII-1, 802.11n HT20, Channel No.: 36



U-NII-1, 802.11a, Channel No.: 40



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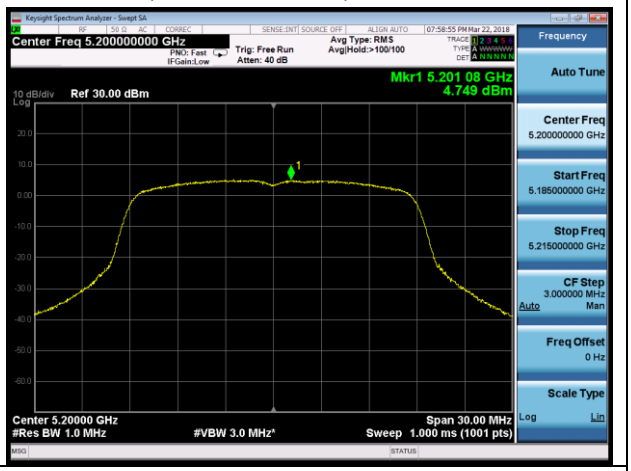
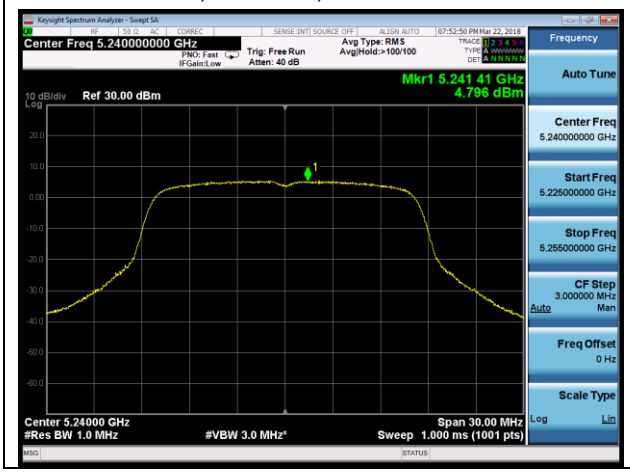
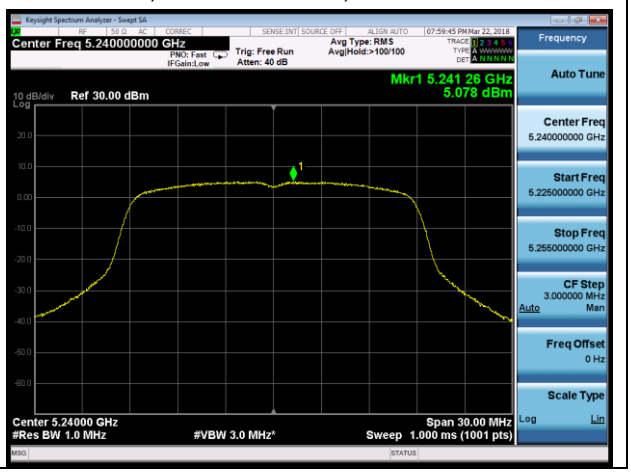


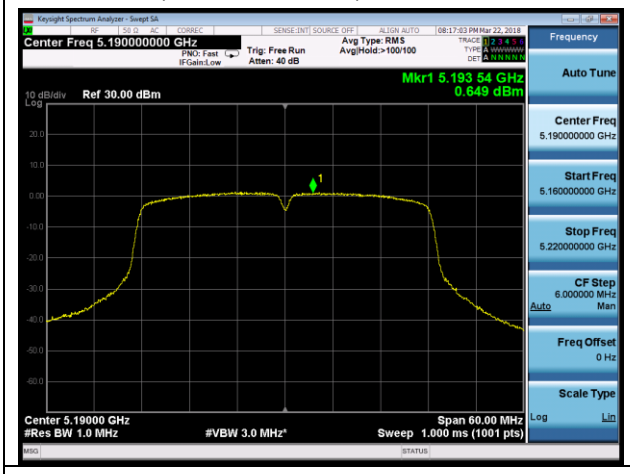
U-NII-1, 802.11a, Channel No.: 48



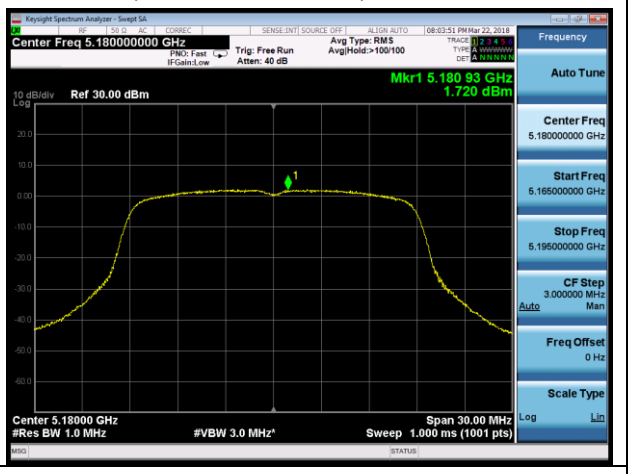
U-NII-1, 802.11n HT20, Channel No.: 48



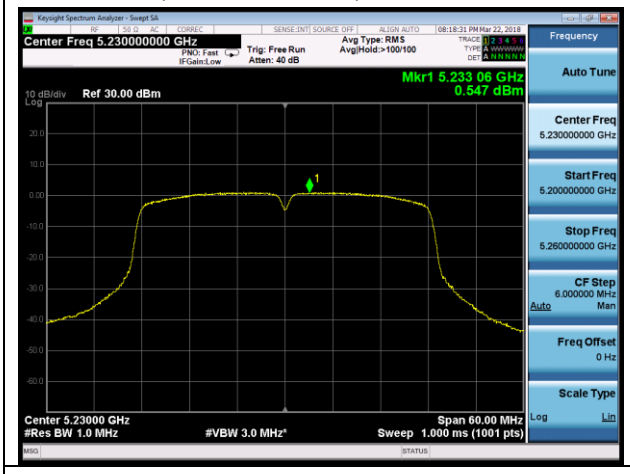
U-NII-1, 802.11n HT40, Channel No.: 38



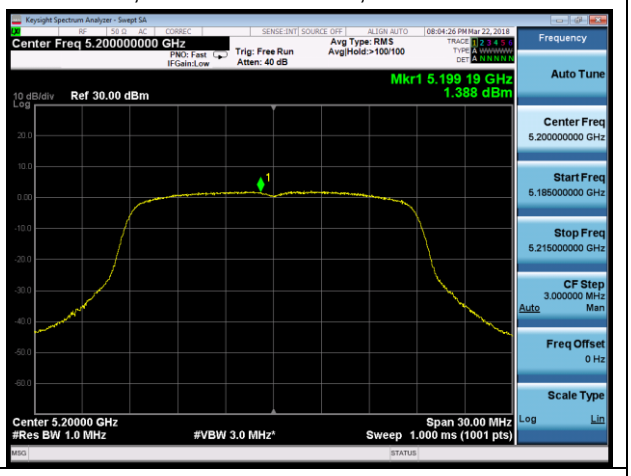
U-NII-1, 802.11ac VHT20, Channel No.: 36



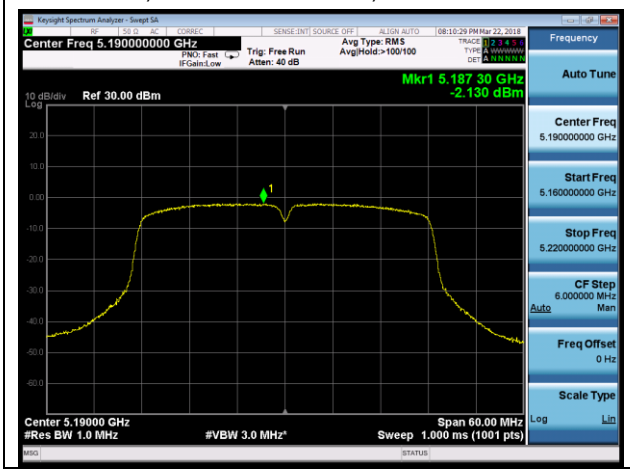
U-NII-1, 802.11n HT40, Channel No.: 46



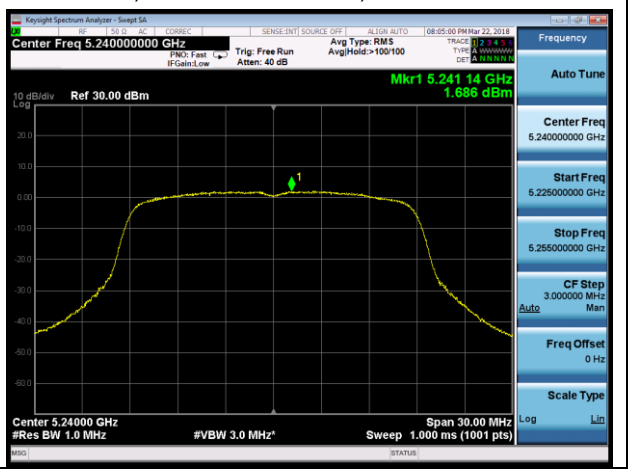
U-NII-1, 802.11ac VHT20, Channel No.: 40



U-NII-1, 802.11ac VHT40, Channel No.: 38



U-NII-1, 802.11ac VHT20, Channel No.: 48



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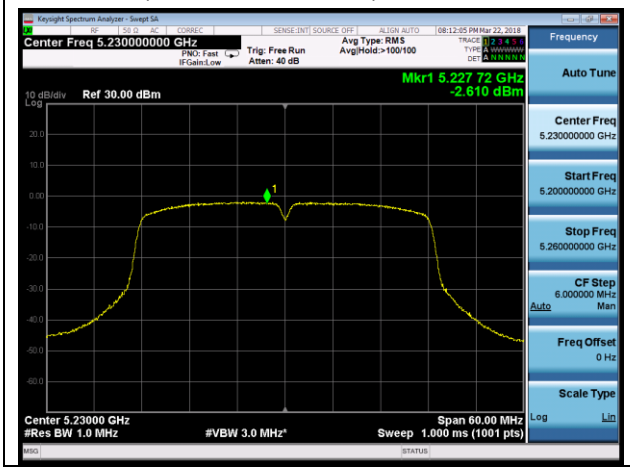
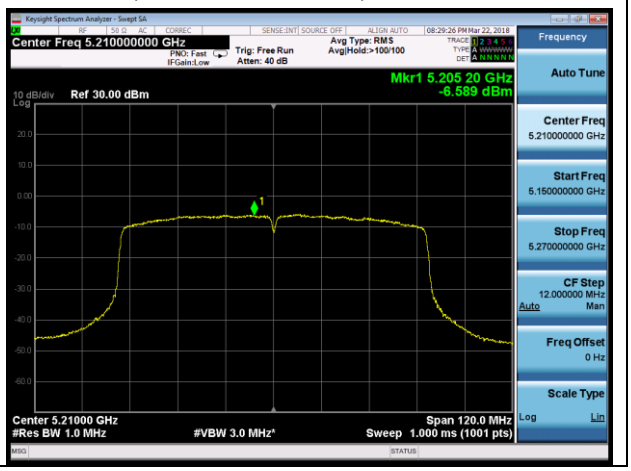
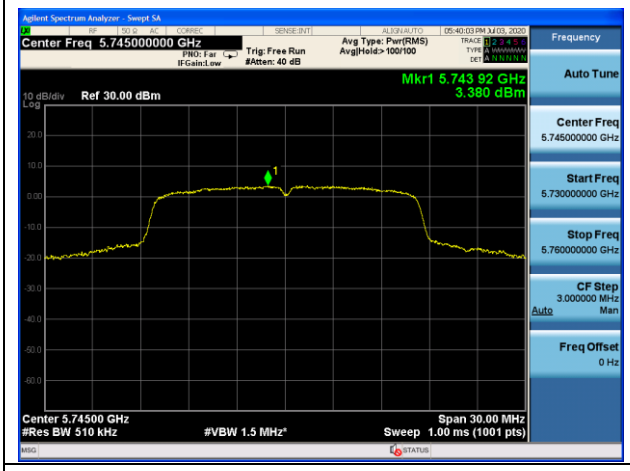


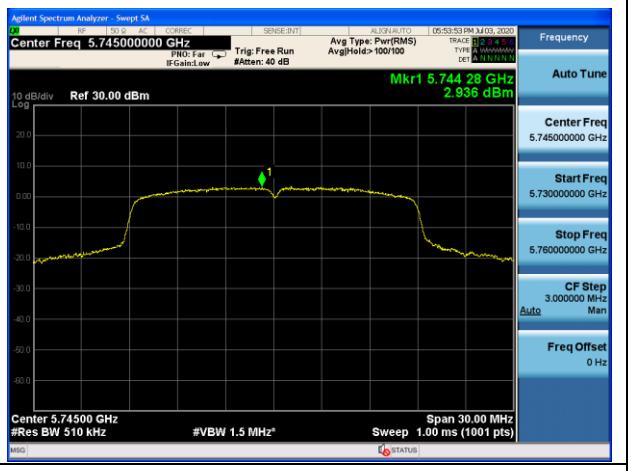
U-NII-1, 802.11ac VHT80, Channel No.: 42



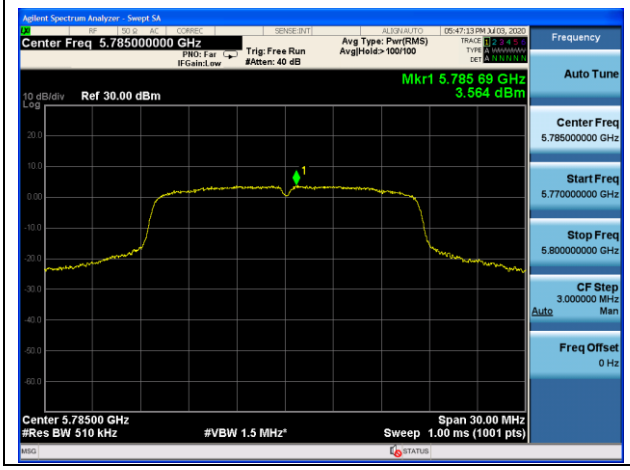
U-NII-3, 802.11a, Channel No.: 149



U-NII-3, 802.11n HT20, Channel No.: 149



U-NII-3, 802.11a, Channel No.: 157



U-NII-3, 802.11n HT20, Channel No.: 157