

TEST REPORT

Product Name	•	: Mi Smart Compact Projector				
Model Number	r	: M055MGN				
FCC ID		: 2AO2D-M055MGN				
Prepared for Address	::	Fengmi (Beijing) Technology Co., Ltd. 301,3F,Building 3,No.10,Barracks South Street,Renhe Town,Shunyi District,Beijing,China				
Prepared by : Address :		EMTEK (SHENZHEN) CO., LTD. Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China				
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Report Number Date(s) of Tests		ES191115017W04-1 November 16,2019 to November 29, 2019 June 02, 2021 to June 16, 2021				
Date of issue	:	June 22, 2021				



1 TEST RESULT CERTIFICATION

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Fengmi (Beijing) Technology Co., Ltd.
301,3F,Building 3,No.10,Barracks South Street,Renhe Town,Shunyi District, Beijing,China
Mi Smart Compact Projector
M055MGN
N/A

Measurement Procedure Used:

APPLICABLE STANDARDS				
STANDARD TEST RESULT				
FCC 47 CFR Part 2, Subpart J FCC 47 CFR Part 15, Subpart E	PASS			

The above equipment was tested by EMTEK (SHENZHEN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 2 and Part 15.407

The test results of this report relate only to the tested sample identified in this report.

Date of Test :

November 16,2019 to November 29, 2019 June 02, 2021 to June 16, 2021

Prepared by:

Reviewer:

ne 02, 2021 to June 16, 202 Sever Gue

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2 EUI IECHNI Characteristics	Description						
Product	Mi Smart Compact Projector	Mi Smart Compact Projector					
Model Number	M055MGN	M055MGN					
Wifi Type	UNII-2A: with 5250MHz-53	UNII-1: 5150MHz-5250MHz Band UNII-2A: with 5250MHz-5350MHz Band UNII-2C: with 5470MHz-5725MHz Band UNII-3 with 5725MHz-5850MHz Band					
WLAN Supported	\boxtimes 802.11n(40MHz channel b \boxtimes 802.11ac(20MHz channel \boxtimes 802.11ac(40MHz channel	 ⊠802.11a ⊠802.11n(20MHz channel bandwidth) ⊠802.11n(40MHz channel bandwidth) ⊠802.11ac(20MHz channel bandwidth) ⊠802.11ac(40MHz channel bandwidth) ⊠802.11ac(40MHz channel bandwidth) ⊠802.11ac(80MHz channel bandwidth) 					
Data Rate	802.11a:54/48/36/24/18/12/9/ 802.11n:up to 600 Mbps 802.11ac:up to 1.733Gbps	/6Mbps					
Modulation	OFDM with BPSK/QPSK/1 ⊠OFDM with BPSK/QPSK/1						
	UNII-1: 5150MHz-5250MHz Band						
	S180-5240MHz for 802.11 S180-5240MHz for 802.11 S180-5240MHz for 802.11 S180-5240MHz for 802.11	n(HT20);	 □ 5190-5230MHz for 802.11n(HT40); □ 5190-5230MHz for 802.11ac(HT40); □ 5210MHz for 802.11ac(HT80); 				
	UNII-2A: with 5250MHz-5350MHz Band						
Frequency Range	S260-5320MHz for 802.11 S260-5320MHz for 802.11 S260-5320MHz for 802.11 S5260-5320MHz for 802.11	n(HT20);	 □ 5270-5310MHz for 802.11n(HT40); □ 5270-5310MHz for 802.11ac(HT40); □ 5290MHz for 802.11ac(HT80); 				
	UNII-2C: with 5470MHz-5725MHz Band						
	⊠5500-5700MHz for 802.11a; ⊠5500-5700MHz for 802.11n(HT20); ⊠5500-5700MHz for 802.11ac(HT20);		 ⊠5510-5670MHz for 802.11n(HT40); ⊠5510-5670MHz for 802.11ac(HT40); ⊠5530-5610MHz for 802.11ac(HT80) 				
	UNII-3 with 5725MHz-5850MHz Band						
	⊠5745-5825MHz for 802.11 ⊠5745-5825MHz for 802.11 ⊠5745-5825MHz for 802.11	n(HT20);	 □ 5755-5795MHz for 802.11n(HT40); □ 5755-5795MHz for 802.11ac(HT40); □ 5775MHz for 802.11ac(HT80); 				
TPC Function	Applicable		Not Applicable				
Antenna Type	Internal Antenna						
Antenna Gain	Antenna1: 5.34 dBi Antenna2: 5.57 dBi						
Transmit Power	Output Power (Max.) for UNII-1 (1TX)		7.16dBm Γ 20 MHz): 17.09dBm Γ 40 MHz): 17.67dBm				

2 EUT TECHNICAL DESCRIPTION

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0					
		802.11ac (HT 20 MHz): 17.11dBm 802.11ac (HT 40 MHz): 17.70dBm 802.11ac (HT 80 MHz): 16.21dBm			
	Output Power (Max.) for UNII-2A (1TX)	802.11a: 17.74dBm 802.11n(HT 20 MHz): 17.47dBm 802.11n(HT 40 MHz): 17.59dBm 802.11ac (HT 20 MHz): 17.55dBm 802.11ac (HT 40 MHz): 17.69dBm 802.11ac (HT 80 MHz): 15.96dBm			
	Output Power (Max.) for UNII-2C (1TX)	802.11a: 15.12dBm 802.11n(HT 20 MHz): 14.79dBm 802.11n(HT 40 MHz): 15.63dBm 802.11ac (HT 20 MHz): 14.93dBm 802.11ac (HT 40 MHz): 15.66dBm 802.11ac (HT 80 MHz): 14.07dBm			
	Output Power (Max.) for UNII-3 (1TX)	802.11a: 13.43dBm 802.11n(HT 20 MHz): 13.45dBm 802.11n(HT 40 MHz): 14.02dBm 802.11ac (HT 20 MHz): 13.56dBm 802.11ac (HT 40 MHz): 14.05dBm 802.11ac (HT 80 MHz): 12.17dBm			
	Output Power (Max.) for UNII-1 (2TX)	802.11n(HT 20 MHz): 19.92dBm 802.11n(HT 40 MHz): 20.35dBm 802.11ac (HT 20 MHz): 19.97dBm 802.11ac (HT 40 MHz): 20.35dBm 802.11ac (HT 80 MHz): 18.75dBm			
	Output Power (Max.) for UNII-2A (2TX)	802.11n(HT 20 MHz): 19.43dBm 802.11n(HT 40 MHz): 19.75dBm 802.11ac (HT 20 MHz): 19.47dBm 802.11ac (HT 40 MHz): 19.73dBm 802.11ac (HT 80 MHz): 18.33dBm			
	Output Power (Max.) for UNII-2C (2TX)	802.11n(HT 20 MHz): 17.11dBm 802.11n(HT 40 MHz): 18.10dBm 802.11ac (HT 20 MHz): 17.40dBm 802.11ac (HT 40 MHz): 18.13dBm 802.11ac (HT 80 MHz): 15.97dBm			
	Output Power (Max.) for UNII-3 (2TX)	802.11n(HT 20 MHz): 16.35dBm 802.11n(HT 40 MHz): 16.99dBm 802.11ac (HT 20 MHz): 16.44dBm 802.11ac (HT 40 MHz): 17.05dBm 802.11ac (HT 80 MHz): 14.79dBm			
	DC 19V for adapter				
Power supply	⊠Adapter : Model: DSA-65PFG-19 FUS 190342 Input:AC100-240V,50/60Hz,2.0A Output:DC19V,3.42A				
Note:					

1) For more details, please refer to the User's manual of the EUT.

2) Update the TV board circuit on the basis of the original report (ES191115017W04); update the Radiated Spurious Emissions test, and other test data are quoted from the original report.

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3 SUMMARY OF TEST RESULT

FCC Part Clause	Test Parameter	Verdict	Remark
15.407 (a) 15.407 (e)	99% , 6dB and 26dB Bandwidth	PASS	NOTE3
15.407 (a)	Maximum Conducted Output Power	PASS	NOTE3
15.407 (a)	Peak Power Spectral Density	PASS	NOTE3
15.407 (b)	Radiated Spurious Emission	PASS	
15.407(g)	Frequency Stability	PASS	NOTE3
15.407 (b)(6) 15.207	Power Line Conducted Emission	PASS	NOTE3
15.407(a) 15.203	Antenna Application	PASS	NOTE3

NOTE1: N/A (Not Applicable)

NOTE2: According to FCC OET KDB 789033 D2 General UNII Test Procedures New Rules v02r01, In addition, the radiated test is also performed to ensure the emissions emanating from the device cabinet also comply with the applicable limits.

NOTE3: Update the TV board circuit on the basis of the original report (ES191115017W04); update the Radiated Spurious Emissions test, and other test data are quoted from the original report.

RELATED SUBMITTAL(S) / GRANT(S):

This submittal(s) (test report) is intended for FCC ID: 2AO2D-M055MGN filing to comply with Section 15.247 of the FCC Part 15, Subpart E Rules.



4 TEST METHODOLOGY

4.1 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to its specifications, the EUT must comply with the requirements of the following standards: FCC 47 CFR Part 2, Subpart J

FCC 47 CFR Part 15, Subpart E

FCC KDB 789033 D2 General UNII Test Procedures New Rules v02r01

4.2 MEASUREMENT EQUIPMENT USED

Conducted Emission Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Test Receiver	Rohde & Schwarz	ESCI	101384	May 18, 2019	1 Year
L.I.S.N.	Rohde & Schwarz	ENV216	5	May 18, 2019	1 Year
L.I.S.N.	Kyoritsu	KNW-407	8-1492-9	May 18, 2019	1 Year
Absorbing Clamp	Rohde & Schwarz	MDS-21	833711/025	July 5, 2019	1 Year
Loop antenna	Laplace	RF300	8006	July 1, 2019	1 Year
Van der Hoofden test-head	Schwarzbeck	VDHH 9502	9502-054	May 18, 2019	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100107	May 18, 2019	1 Year

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Test Receiver	Rohde & Schwarz	ESCI	101384	May 15, 2021	1 Year
L.I.S.N.	Rohde & Schwarz	ENV216	5	May 15, 2021	1 Year
L.I.S.N.	Kyoritsu	KNW-407	8-1492-9	May 16, 2021	1 Year
Absorbing Clamp	Rohde & Schwarz	MDS-21	833711/025	July 4, 2020	1 Year
Loop antenna	Laplace	RF300	8006	June 30, 2020	1 Year
Van der Hoofden test-head	Schwarzbeck	VDHH 9502	9502-054	May 15, 2021	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100107	May 15, 2021	1 Year

For Spurious Emissions Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	Rohde & Schwarz	ESU 26	100154	May 18, 2019	1 Year
Pre-Amplifie	Lunar EM	LNA30M3G-25	J1010000070	May 18, 2019	1 Year
Bilog Antenna	Schwarzbeck	VULB9163	659	Sep 22, 2019	2 Year
Horn antenna	Schwarzbeck	BBHA9120D	9120D-1177	July 5, 2018	2 Year
Pre-Amplifie	SKET	LNPA_0118G-45	SK2019051801	May 18, 2019	1 Year
Loop Antenna	Schwarzbeck	FMZB1519	1519-012	July 14, 2019	2 Year
Spectrum Analyzer	Rohde & Schwarz	FSV40	100967	May 18, 2019	1 Year
Horn antenna	Schwarzbeck	BBHA9120D	9120D-1198	May 17, 2019	2 Year
Bilog Antenna	Schwarzbeck	VULB9163	660	July 16, 2019	2 Year
Cable	H+B	NmSm-05-C15052	N/A	May 18, 2019	1 Year
Cable	H+B	NmSm-2-C15201	N/A	May 18, 2019	1 Year
Cable	H+B	NmNm-7-C15702	N/A	May 18, 2019	1 Year
Cable	H+B	SAC-40G-1	414	May 18, 2019	1 Year

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Cable	H+B	SUCOFLEX104	MY14871/4	May 18, 2019	
Cable	H+B	BLU18A-NmSm-650 0	D8501	May 18, 2019	1 Year
Band reject Filter(50dB)	WI/DE	WRCGV-2400(2400- 2485MHz)	2	May 18, 2019	1 Year

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	Rohde & Schwarz	ESU 26	100154	May 15, 2021	1 Year
Pre-Amplifie	Lunar EM	LNA30M3G-25	J1010000070	May 15, 2021	1 Year
Bilog Antenna	Schwarzbeck	VULB9163	659	Sep 22, 2019	2 Year
Horn antenna	Schwarzbeck	BBHA9120D	9120D-1177	July 4, 2020	2 Year
Pre-Amplifie	SKET	LNPA_0118G-45	SK2019051801	May 15, 2021	1 Year
Loop Antenna	Schwarzbeck	FMZB1519	1519-012	July 14, 2019	2 Year
Spectrum Analyzer	Rohde & Schwarz	FSV40	100967	May 15, 2021	1 Year
Horn antenna	Schwarzbeck	BBHA9120D	9120D-1198	May 15, 2021	2 Year
Bilog Antenna	Schwarzbeck	VULB9163	660	July 16, 2019	2 Year
Cable	H+B	NmSm-05-C15052	N/A	May 15, 2021	1 Year
Cable	H+B	NmSm-2-C15201	N/A	May 15, 2021	1 Year
Cable	H+B	NmNm-7-C15702	N/A	May 15, 2021	1 Year
Cable	H+B	SAC-40G-1	414	May 15, 2021	1 Year
Cable	H+B	SUCOFLEX104	MY14871/4	May 15, 2021	
Cable	H+B	BLU18A-NmSm-650 0	D8501	May 15, 2021	1 Year
Band reject Filter(50dB)	WI/DE	WRCGV-2400(2400- 2485MHz)	2	May 15, 2021	1 Year

For other test items:

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Vector Signal Generater	Agilent	N5182B My53050553		May 17, 2019	1 Year
Analog Signal Generator	Agilent	N5171B	My53050878	May 17, 2019	1 Year
Signal Analyzer	Agilent	N9010A	My53470879	May 17, 2019	1 Year
Power Analyzer	Agilent	PS-X10-200	N/A	May 17, 2019	1 Year
Wideband Radio Communication Tester	R&S CMW/		1201.0002K50- 140822zk	May 17, 2019	1 Year
Test Accessories	cessories Agilent PS-X10-100		N/A	May 17, 2019	1 Year
Temperature&Humidity test chamber ESPEC		EL-02KA	12107166	May 17, 2019	1 Year
Blocking Box	Agilent	AD211	N/A	May 17, 2019	1 Year

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Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Vector Signal Generater	Agilent	N5182B	My53050553	May 15, 2021	1 Year
Analog Signal Generator	Agilent	N5171B	My53050878	May 15, 2021	1 Year
Signal Analyzer	Agilent	N9010A	My53470879	May 15, 2021	1 Year
Power Analyzer	Agilent	PS-X10-200	N/A	May 15, 2021	1 Year
Wideband Radio Communication Tester	R&S	CMW500	1201.0002K50- 140822zk	May 15, 2021	1 Year
Test Accessories	Agilent	PS-X10-100	N/A	May 15, 2021	1 Year
Temperature&Humidity test chamber	ESPEC	EL-02KA	12107166	May 15, 2021	1 Year
Blocking Box	Agilent	AD211	N/A	May 15, 2021	1 Year

Remark: Each piece of equipment is scheduled for calibration once a year.



4.3 DESCRIPTION OF TEST MODES

The EUT has been tested under its typical operating condition.

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Wifi 5G with U-NII - 1

Frequency and Channel list for 802.11a/n (HT20)/802.11ac (HT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220		
40	5200	48	5240		

Frequency and Channel list for 802.11n (HT40)/ 802.11ac (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190				
46	5230				

Frequency and Channel list for 802.11ac Wave2 (HT80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210				

Test Frequency and Channel for 802.11a/n (HT20)/802.11ac (HT20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	40	5200	48	5240

Test Frequency and channel for 802.11n (HT40)/ 802.11ac (HT40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Channel Frequency (MHz)		Frequency (MHz)	Channel	Frequency (MHz)
38	5190	N/A	N/A	46	5230

Test Frequency and channel for 802.11ac Wave2 (HT80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	N/A	N/A	N/A	N/A

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Wifi 5G with U-NII -2A

Frequency and Channel list for 802.11a/n (HT20)/802.11ac (HT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	60	5300		
56	5280	64	5320		

Frequency and Channel list for 802.11n (HT40)/ 802.11ac (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
54	5270				
62	5310				

Frequency and Channel list for 802.11ac (HT80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
58	5290				

Test Frequency and Channel for 802.11a/n (HT20)/802.11ac (HT20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	56	5280	64	5320

Test Frequency and channel for 802.11n (HT40)/ 802.11ac (HT40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
54	5270	N/A	N/A	62	5310

Test Frequency and channel for 802.11ac (HT80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Channel Frequency (MHz)		Frequency (MHz)	Channel	Frequency (MHz)
58	(=)				



Wifi 5G with U-NII -2C

Frequency and Channel list for 802.11a/n (HT20)/802.11ac (HT20):

ſ	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)				
	100	5500	116	5580	132	5660				
	104	5520	120	5600	136	5680				
F	108	5540	124	5620	140	5700				
F	112	5560	128	5640						

Frequency and Channel list for 802.11n (HT40)/ 802.11ac (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
102	5510	118	5590	134	5670
110	5550	126	5630		

Frequency and Channel list for 802.11ac (HT80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
106	5530	122	5610		

Test Frequency and Channel for 802.11a/n (HT20)/802.11ac (HT20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Channel Frequency (MHz)		Frequency (MHz)	Channel	Frequency (MHz)
100	5500	116	5580	140	5700

Test Frequency and channel for 802.11n (HT40)/ 802.11ac (HT40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Channel Frequency (MHz)		Channel Frequency (MHz)		Frequency (MHz)
102	5510			134	5670

Test Frequency and channel for 802.11ac (HT80):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Channel Frequency (MHz)		Frequency (MHz)	Channel	Frequency (MHz)
106					



Wifi 5G with U-NII -3

Frequency and Channel list for 802.11a/n (HT20)/802.11ac (HT20):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785	165	5825
153	5765	161	5805		

Frequency and Channel list for 802.11n (HT40)/ 802.11ac (HT40):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755				
159	5795				

Frequency and Channel list for 802.11ac (HT80):

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
155	5775				

Test Frequency and Channel for 802.11a/n (HT20)/802.11ac (HT20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785	165	5825

Test Frequency and channel for 802.11n (HT40)/ 802.11ac (HT40):

Lowest Frequency		Middle F	Frequency	Highest Frequency		
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	
151	5755	N/A	N/A	159	5795	

Test Frequency and channel for 802.11ac (HT80):

Lowest F	Lowest Frequency		requency	Highest Frequency		
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	
155	5775					

The 5G WIFI has two antennas and support Multiple Outputs for 802.11n/ac mode for this report; Antenna 1 Gain is 5.34dBi; Antenna 2 Gain is 5.57dBi; for this function is belong to Correlated Categorization equipment

According to KDB 662911, for Unequal antenna gains,

Directional gain = 10 log $[(10^{5.34/20} + 10^{5.57/20})^2/2]$ dBi=8.47 dBi



5 FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

All measurement facilities used to collect the measurement data are located at:

EMTEK (Shenzhen) Co., Ltd.

Building 69, Majialong Industry Zone District, Nanshan District, Shenzhen, China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description	
EMC Lab.	 Accredited by CNAS The Certificate Registration Number is L2291. The Laboratory has been assessed and proved to be in compliance with CNAS-CL01 (identical to ISO/IEC 17025:2017)
	Accredited by FCC Designation Number: CN1204 Test Firm Registration Number: 882943
	Accredited by A2LA The Certificate Number is 4321.01.
	Accredited by Industry Canada The Conformity Assessment Body Identifier is CN0008
Name of Firm Site Location	 EMTEK (SHENZHEN) CO., LTD. Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

深圳信测标准技术服务股份有限公司地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn EMTEK (Shenzhen) Co., Ltd. Add: Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China Http://www.emtek.com.cn E-mail: cs.rep@emtek.com.cn

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6 TEST SYSTEM UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Radio Frequency	±1x10^-5
Maximum Peak Output Power Test	±1.0dB
Conducted Emissions Test	±2.0dB
Radiated Emission Test	±2.0dB
Power Density	±2.0dB
Occupied Bandwidth Test	±1.0dB
Band Edge Test	±3dB
All emission, radiated	±3dB
Antenna Port Emission	±3dB
Temperature	±0.5 °C
Humidity	±3%

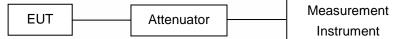
Measurement Uncertainty for a level of Confidence of 95%



7 SETUP OF EQUIPMENT UNDER TEST

7.1 RADIO FREQUENCY TEST SETUP

The WLAN component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



7.2 RADIO FREQUENCY TEST SETUP

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

Below 30MHz:

The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The Antenna should be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 1 m above the ground. For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT.

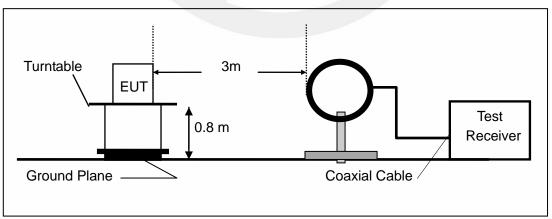
Above 30MHz:

The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Above 1GHz:

(Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

(a) Radiated Emission Test Set-Up, Frequency Below 30MHz

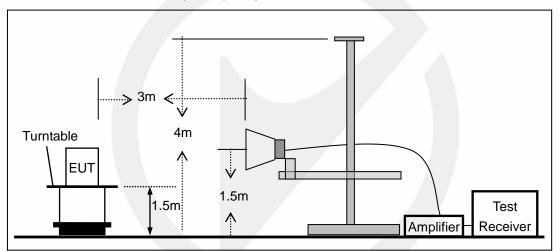


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- Turntable Turntable EUT Test Receiver Ground Plane Coaxial Cable
- (b) Radiated Emission Test Set-Up, Frequency Below 1000MHz

(c) Radiated Emission Test Set-Up, Frequency above 1000MHz



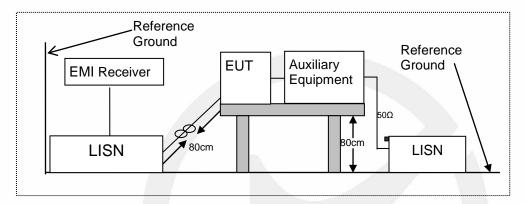


7.3 CONDUCTED EMISSION TEST SETUP

The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m from the LISN.

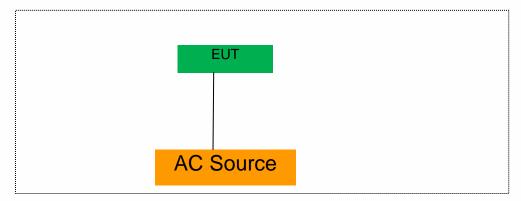
Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.1 m.

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.





7.4 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM



7.5 SUPPORT EQUIPMENT

EUT Cable List and Details					
Cable Description Length (m)		Shielded/Unshielded	With / Without Ferrite		
Adapter cable	1.5	Unshielded	Without Ferrite		

Auxiliary Cable List and Details					
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite		
HDMI cable	1.5	Shielded	With Ferrite		

Auxiliary Equipment List and Details					
Description	Manufacturer	Model	Serial Number		
Notebook	acer	ZR1	LXTECOCO76643158 372500		

Notes:

1.All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.



8 TEST REQUIREMENTS

8.1 BANDWIDTH MEASUREMENT

8.1.1 Applicable Standard

According to FCC Part 15.407(a)(1) for UNII Band I According to FCC Part 15.407(a)(2) for UNII Band II-A and UNII Band II-C According to FCC Part 15.407(a)(3) for UNII Band III According to FCC Part 15.407(e) for UNII Band III According to 789033 D02 Section II(C) According to 789033 D02 Section II(D)

8.1.2 Conformance Limit

(1) For the band 5.15-5.25 GHz.

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

(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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. 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.

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

8.1.3 Test Configuration

Test according to clause 6.1 radio frequency test setup

8.1.4 Test Procedure

According to 789033 D02 v02r01 section C&D, the following is the measurement procedure.

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

e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

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2. Minimum Emission Bandwidth for the band 5.725-5.85 GHz

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

a) Set RBW = 100 kHz.

b) Set the video bandwidth (VBW) \geq 3 \times RBW.

c) Detector = Peak.

d) Trace mode = max hold.

e) Sweep = auto couple.

f) Allow the trace to stabilize.

g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

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

D. 99 Percent Occupied Bandwidth

The 99-percent occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5 % of the total mean power of the given emission. Measurement of the 99-percent occupied bandwidth is required only as a condition for using the optional band-edge measurement techniques described in section II.G.3.d). Measurements of 99-percent occupied bandwidth may also optionally be used in lieu of the EBW to 789033 D02 v01r02 General UNII Test Procedures New Rules v01 define the minimum frequency range over which the spectrum is integrated when measuring maximum conducted output power as described in section II.E. However, the EBW must be measured to determine bandwidth dependent limits on maximum conducted output power in accordance with 15.407(a).

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

1. Set center frequency to the nominal EUT channel center frequency.

2. Set span = 1.5 times to 5.0 times the OBW.

3. Set RBW = 1 % to 5 % of the OBW

4. Set VBW \geq 3 • RBW

5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

6. Use the 99 % power bandwidth function of the instrument (if available).

7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

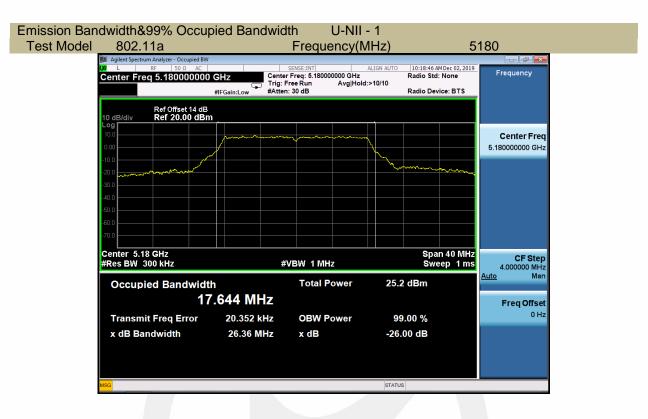


8.1.5 Test Results

5150-5250MHz

Test Mode	Test Channel MHz		26 dB Bandwidth MHz	99% Bandwidth MHz	Verdict
	CH36	5180	26.36	17.64	Pass
802.11a	CH40	5200	25.24	17.53	Pass
	CH48	5240	30.45	17.66	Pass
	CH36	5180	25.16	18.29	Pass
802.11n-HT20	CH40	5200	26.69	18.32	Pass
	CH48	5240	31.58	18.45	Pass
	CH36	5180	29.38	18.40	Pass
802.11ac(HT20)	CH40	5200	28.45	18.35	Pass
	CH48	5240	26.55	18.49	Pass
802 11 n HT 40	CH38	5190	80.00	38.82	Pass
802.11n-HT40	CH46	5230	80.00	39.55	Pass
902 11 co(UT 40)	CH38	5190	79.83	40.15	Pass
802.11ac(HT40)	CH46	5230	79.11	38.55	Pass
802.11ac(HT80)	CH42	5210	154.20	76.46	Pass

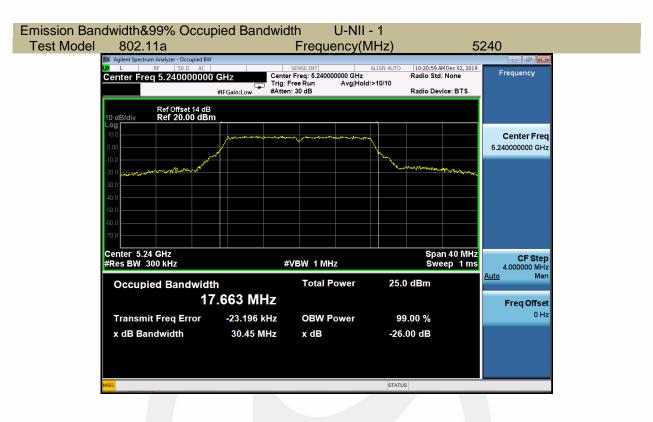




Emission Bandwidth&99% Occupied Bandwidth U-NII - 1 Test Model 802.11a Frequency(MH







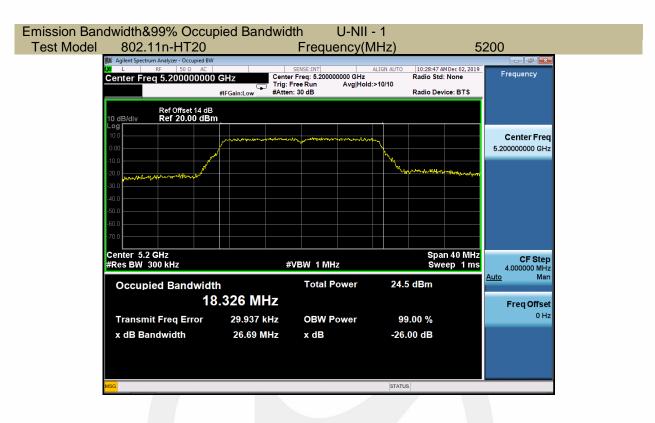
Emission Bandwidth&99% Occupied Bandwidth U-NII - 1 Test Model 802.11n-HT20 Frequency(MH



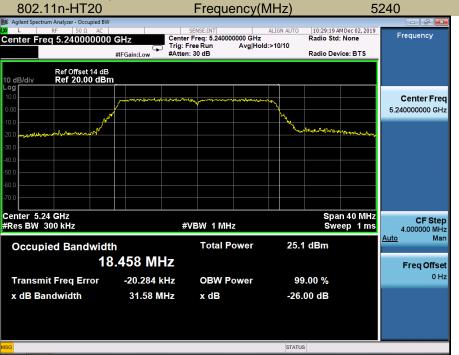
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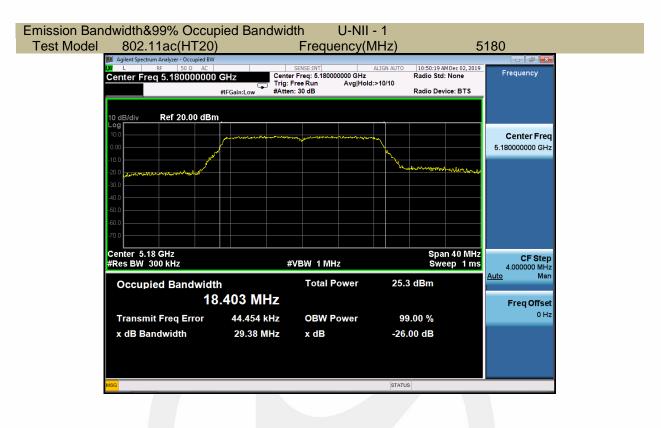


Emission Bandwidth&99% Occupied Bandwidth U-NII - 1 Test Model 802.11n-HT20 Frequency(MH





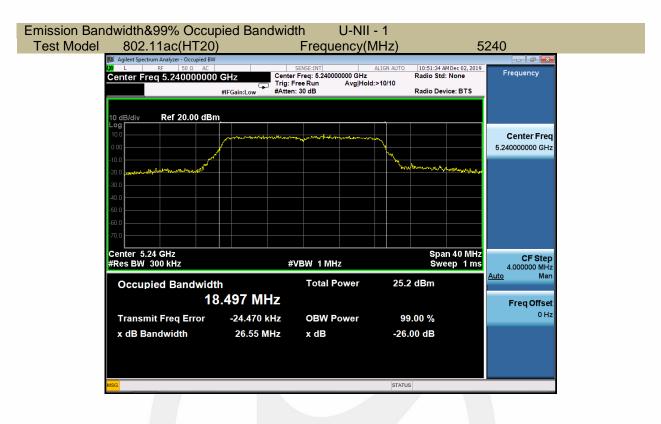
5200



Emission Bandwidth&99% Occupied Bandwidth U-NII - 1 Test Model 802.11ac(HT20) Frequency(MHz)

002.1140(11120)		Trequency	101112		5200
📕 Agilent Spectrum Analyzer - Occupied BW					- 6 -
L RF 50 Ω AC		SENSE:INT	ALIGN AUTO	10:50:59 AM Dec 02, 20	Frequency
Center Freq 5.20000000		er Freq: 5.200000000 GHz Free Run Avg Ho	ld:>10/10	Radio Std: None	Frequency
		n: 30 dB	010:>10/10	Radio Device: BTS	
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					Auto Ma
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Transmit Freq Error	30.748 kHz	OBW Power	00	.00 %	0 H
Hanshill Freq Ellor	30.740 KHZ	OBWFOWer	99	.00 /0	
x dB Bandwidth	28.45 MHz	x dB	-26.0)0 dB	
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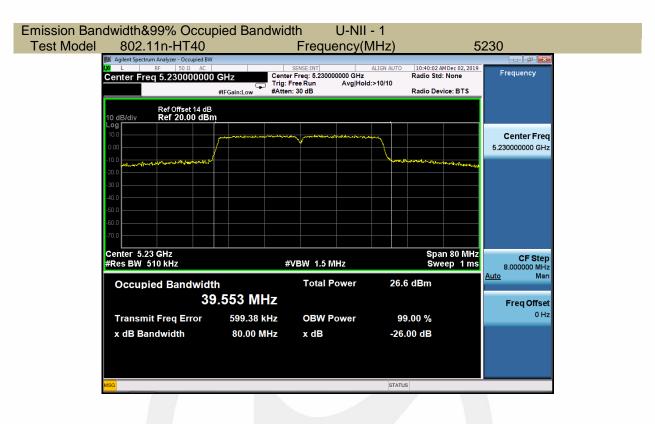


Ddel 802.11n- Agilent Spectrum Analyze Center Freq 5.1	r - Occupied BW 50 Ω AC 900000000 C	Trig: I		ALIGN AUTO	Radio Sto	M Dec 02, 2019 I: None	190 Frequency
10 dB/div Ref	# 0ffset 14 dB 20.00 dBm	#FGain:Low #Atter	1: 30 dB		Radio De	vice: BTS	
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Transmit Free		821 MHz 616.26 kHz	OBW Powe	r (9.00 %		Freq Offset 0 Hz
x dB Bandwid		80.00 MHz	x dB		5.00 dB		
MSG				STAT	US		

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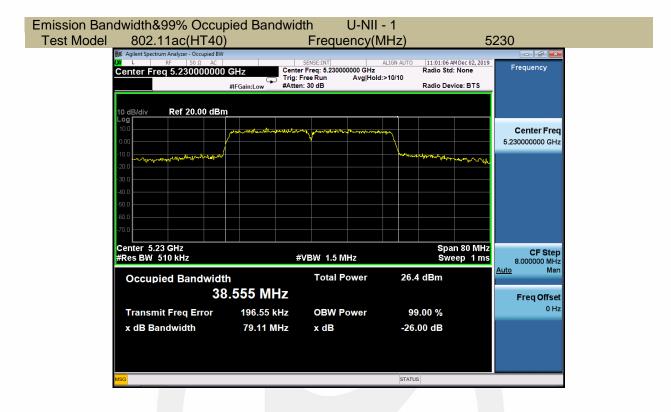


Emission Bandwidth&99% Occupied Bandwidth U-NII - 1 Test Model 802.11ac(HT40) Frequency(MH

802.11ac(HT40)		Frequency(MHz)	5190			
Agilent Spectrum Analyzer - Occupied BW							
Center Freq 5.190000000		SENSE:INT er Freq: 5.190000000 GHz Free Run Avg Hol	Radio	529 AM Dec 02, 2019 Std: None	Frequency		
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-20.0							
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40	.158 MHz				Freq Offset		
Transmit Freq Error	1.0187 MHz	OBW Power	99.00 %	6	0 Hz		
x dB Bandwidth	79.83 MHz	x dB	-26.00 dE	3			
MSG			STATUS				



5210



Emission Bandwidth&99% Occupied Bandwidth U-NII - 1 Test Model 802.11ac 80 Frequency(MHz)

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💓 Agilent Spectrum Analyzer - Occupied BW								x
L RF 50 Ω AC		SENSE:INT		IGN AUTO		M Dec 02, 2019	Frequency	
Center Freq 5.21000000		nter Freq: 5.21000 ig: Free Run	0000 GHz Avg Hold:>1	10/10	Radio Std	None	riequency	
		tten: 30 dB			Radio Dev	ice: BTS		
10 dB/div Ref 20.00 dBm								
Log								
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-20.0 Marmarian March March March March				habered	in strates are upon	monumm		
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-50.0				_				
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Center 5.21 GHz						160 MHz	CF S	to
#Res BW 1 MHz		#VBW 3 MHz			Swe	ep 1 ms	16.000000	
		Total P		00.7	dBm		Auto I	Ma
Occupied Bandwidt			ower	20.7	aBm			
76	.462 MHz						Freq Off	fee
							•	рΗ
Transmit Freq Error	60.009 kHz	OBW P	OBW Power		.00 %			
x dB Bandwidth	154.2 MHz	x dB		-26.0	00 dB			
MSG				STATUS				

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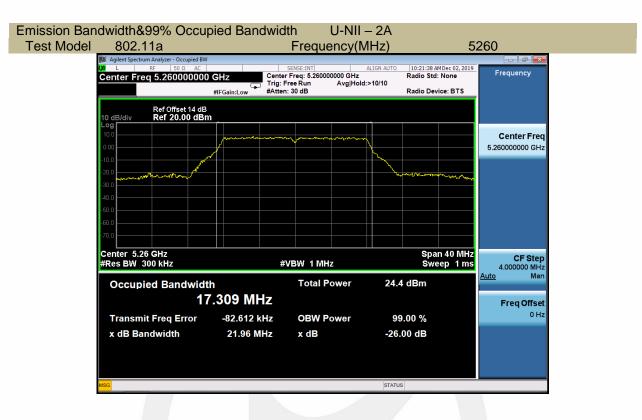
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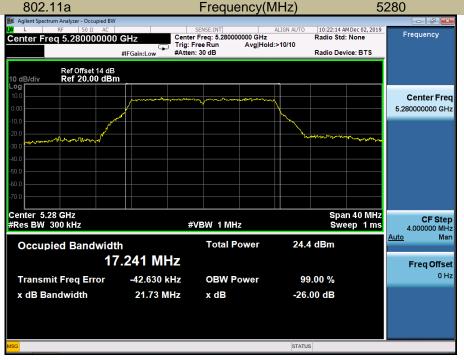
Test Mode	Test Channel MHz		26 dB Bandwidth MHz	99% Bandwidth MHz	Verdict	
	CH52	5260	21.96	17.30	Pass	
802.11a	CH56	5280	21.73	17.24	Pass	
	CH64	5320	21.82	17.29	Pass	
	CH52	5260	22.08	18.25	Pass	
802.11n-HT20	CH56	5280	22.14	18.25	Pass	
	CH64	5320	21.74	18.24	Pass	
	CH52	5260	22.09	18.25	Pass	
802.11ac(HT20)	CH56	5280	22.01	18.23	Pass	
	CH64	5320	21.86	18.20	Pass	
802.11n-HT40	CH54	5270	73.34	37.08	Pass	
	CH62	5310	74.43	36.86	Pass	
802.11ac(HT40)	CH54	5270	76.35	37.42	Pass	
	CH62	5310	66.12	36.79	Pass	
802.11ac(HT80)	CH58	5290	122.5	76.09	Pass	

5250-5350MHz

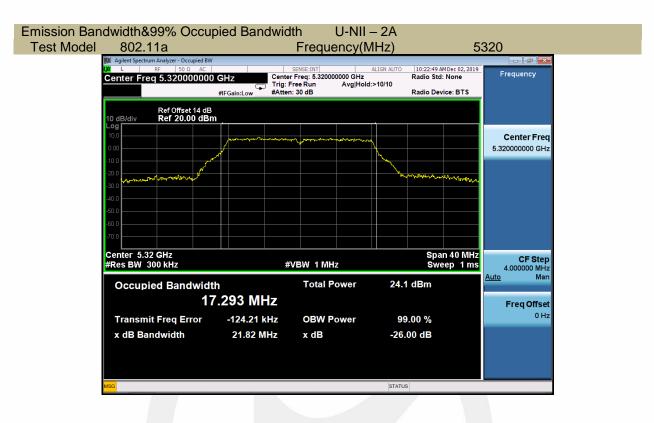




Emission Bandwidth&99% Occupied Bandwidth U-NII – 2A Test Model 802.11a Frequency(MHz)







Emission Bandwidth&99% Occupied Bandwidth U-NII – 2A Test Model 802.11n-HT20 Frequency(MHz)

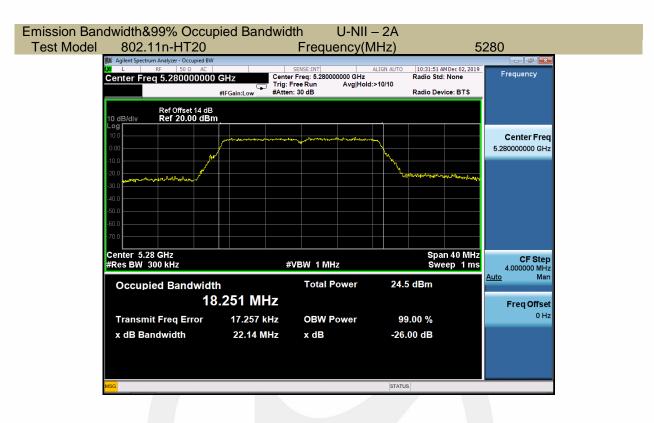


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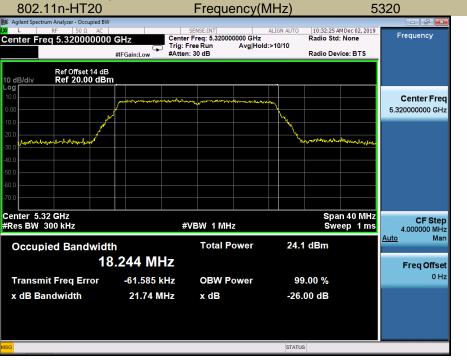
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Emission Bandwidth&99% Occupied Bandwidth U-NII – 2A Test Model 802.11n-HT20 Frequency(MHz)



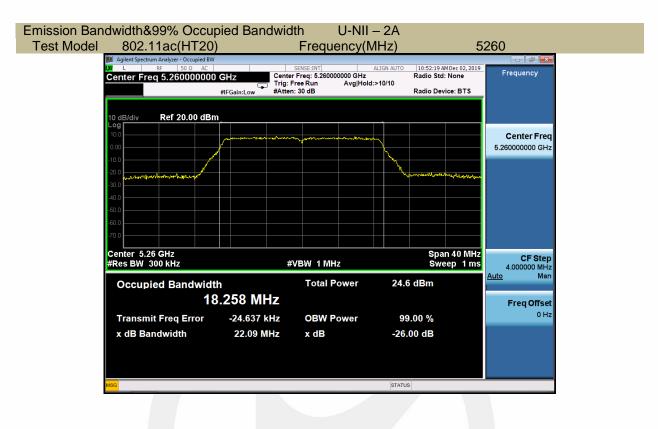
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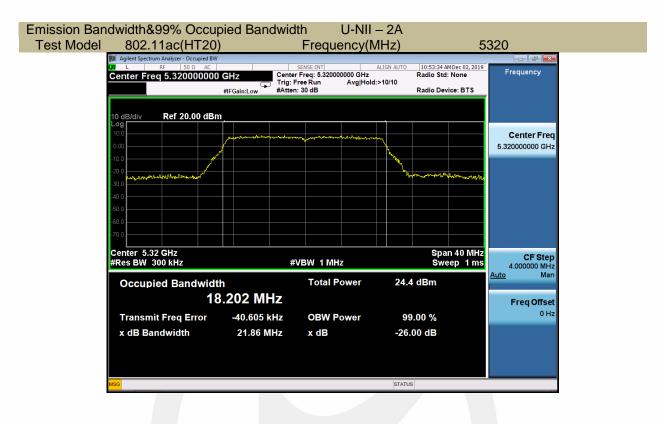
5280



Emission Bandwidth&99% Occupied Bandwidth U-NII – 2A Test Model 802.11ac(HT20) Frequency(MHz)

002.1180(1120					200	
Magilent Spectrum Analyzer - Occupied BW						
L RF 50 Ω AC		SENSE:INT ter Freg: 5.280000000 GHz		0:52:57 AM Dec 02, 2019 adio Std: None	Frequency	
Center Freq 5.28000000		: Free Run Avg Hol		adio Sta: None		
		en: 30 dB		adio Device: BTS		
10 dB/div Ref 20.00 dBn	n					
10.0		makes and manager and the second	1		Center Fre	
0.00					5.280000000 GH	
-10.0			No.			
			×-×			
m on Montermoline by Willow			No.	matherburger		
-30.0						
-40.0						
-50.0						
-60.0						
-70.0						
Center 5.28 GHz				Span 40 MHz	CF Ste	
#Res BW 300 kHz		#VBW 1 MHz		Sweep 1 ms	4.000000 MH	
		Total Power	24.4 d	Due	<u>Auto</u> Ma	
Occupied Bandwidt		rotar Power	24.4 0			
18	3.232 MHz				Freq Offse	
Transmit Freg Error	1.686 kHz	OBW Power	99.00) %	0 H	
x dB Bandwidth	22.01 MHz	x dB	-26.00	dВ		
MSG			STATUS			
			2111100			



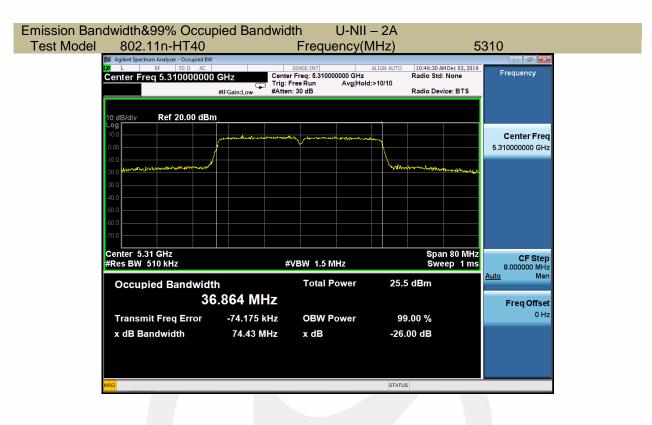


sion Ban	dwidth&9	99% Occup	ied Bandwid	dth U-	NII – 2A		
st Model	802.1	1n-HT40		Frequen	cy(MHz)	5	270
	LXI L	n Analyzer - Occupied BW RF 50 Ω AC 5.2700000000	CHz Cent	SENSE:INT	ALIGN AUTO	10:45:40 AM Dec 02, 2019 Radio Std: None	Frequency
		•	Trig:		rg Hold:>10/10	Radio Device: BTS	
	10 dB/div Log	Ref 20.00 dBm					
	10.0 0.00			my mohanda	mann		Center Freq 5.270000000 GHz
	-10.0 -20.0	مح محمدها ماله معهد ساعار المحالية العامد المساقعة بعامر			how	whether have been been and a second	
	-30.0 -40.0						
	-50.0 -60.0						
	-70.0 Center 5.27	GHz				Span 80 MHz	GE Oton
	#Res BW 51	10 kHz	#	≇VBW 1.5 MHz		Sweep 1 ms	CF Step 8.000000 MHz
	Occupie	ed Bandwidth		Total Pow	er 25.	5 dBm	<u>Auto</u> Man
	Transmit	. 37 Freq Error	.084 MHz -52.984 kHz	OBW Pow	er 9!	9.00 %	Freq Offset 0 Hz
	x dB Ban		73.34 MHz	x dB	-26	.00 dB	
	MSG				STATU	JS	

深圳信测标准技术服务股份有限公司地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn



E070



Emission Bandwidth&99% Occupied Bandwidth U-NII – 2A Test Model 802.11ac(HT40) Frequency(MHz)

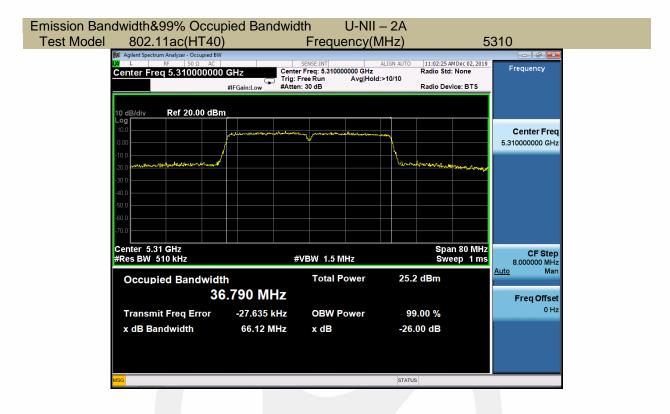
802.11ac(HT40)	Frequency(MHz)			5270		
Agilent Spectrum Analyzer - Occupied BW	V				- 5 💌		
L RF 50 Ω AC Center Freg 5.270000000		SENSE:INT nter Freg: 5.270000000 GH		1:01:41 AM Dec 02, 2019 dio Std: None	Frequency		
Center Freq 5.27000000	Trig	g:FreeRun Avg ⊦	lold:>10/10				
	#IFGain:Low #At	ten: 30 dB	Ra	dio Device: BTS			
10 dB/div Ref 20.00 dB	m						
Log 10.0							
	And a	when we wanted and the second	when		Center Fre		
0.00					5.270000000 GH		
-10.0			hermonst	manghagenre			
-20.0				· · · · · · · · · · · · · · · · · · ·			
-30.0							
-40.0							
-50.0							
-60.0							
-70.0							
Center 5.27 GHz				Span 80 MHz	CF Ster		
#Res BW 510 kHz		#VBW 1.5 MHz		Sweep 1 ms	8.000000 MH		
Occupied Bandwid	th	Total Power	25.6 dE	3m	<u>Auto</u> Ma		
3	7.422 MHz				Freq Offse		
Transmit Freq Error	-65.530 kHz	OBW Power	99.00	%	0 H		
-							
x dB Bandwidth	76.35 MHz	x dB	-26.00	4 1 -)			
MSG			STATUS				

深圳信测标准技术服务股份有限公司 地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn EMTEK (Shenzhen) Co., Ltd. Add: Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China Http://www.emtek.com.cn E-mail: cs.rep@emtek.com.cn

Report No. ES191115017W04-1



5290



Emission Bandwidth&99% Occupied Bandwidth U-NII – 2A Test Model 802.11ac 80 Frequency(MHz)

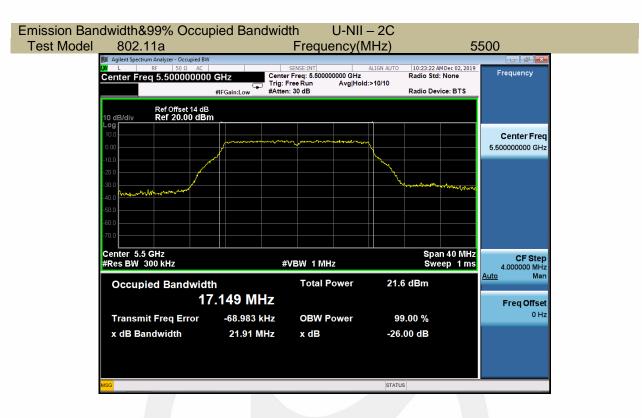
002.1180.00		Frequency(i	vii izj		5290
🎉 Agilent Spectrum Analyzer - Occupied BW	1				
L RF 50 Ω AC		SENSE:INT Freq: 5.290000000 GHz		11:08:46 AM Dec 02, 20 Radio Std: None	Frequency
Center Freq 5.29000000		Free Run Avg Hol		Radio Std: None	
	#IFGain:Low #Atte	n: 30 dB		Radio Device: BTS	
10 dB/div Ref 20.00 dBr	m				
Log					
10.0	moundmana	1944 Japan Manager			Center Freq
0.00					5.290000000 GHz
-10.0					
-20.0 march and the share and and			timeral	Aprox Burnet was been derlowed	
-30.0					
-40.0					
-50.0					
-60.0					
-70.0					
-70.0					
Center 5.29 GHz				Span 160 MF	Z CF Step
#Res BW 1 MHz	#	¢VBW 3 MHz		Sweep 1 m	
			05.0	18	Auto Man
Occupied Bandwid		Total Power	25.6	dBm	
70	6.094 MHz				Freq Offset
		0014/0	00.0	20.00	0 Hz
Transmit Freq Error	-109.66 kHz	OBW Power	99.0	00 %	
x dB Bandwidth	122.5 MHz	x dB	-26.0	0 dB	
MSG			STATUS		

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5470-5725MHz					
Test Mode		hannel Hz	26dB Bandwidth MHz	99% Bandwidth MHz	Verdict
	CH100	5500	21.91	17.14	Pass
802.11a	CH116	5580	21.76	17.19	Pass
	CH140	5700	21.69	17.17	Pass
	CH100	5500	21.97	18.16	Pass
802.11n-HT20	CH116	5580	22.01	18.16	Pass
	CH140	5700	21.97	18.21	Pass
	CH100	5500	21.76	18.21	Pass
802.11ac(HT20)	CH116	5580	22.01	18.20	Pass
	CH140	5700	21.80	18.18	Pass
902 11 n HT 40	CH102	5510	40.62	36.47	Pass
802.11n-HT40	CH134	5670	57.20	36.71	Pass
000 44 cc/UT 40)	CH102	5510	40.25	36.46	Pass
802.11ac(HT40)	CH134	5670	60.29	36.73	Pass
802.11ac(HT80)	CH106	5530	82.20	75.86	Pass

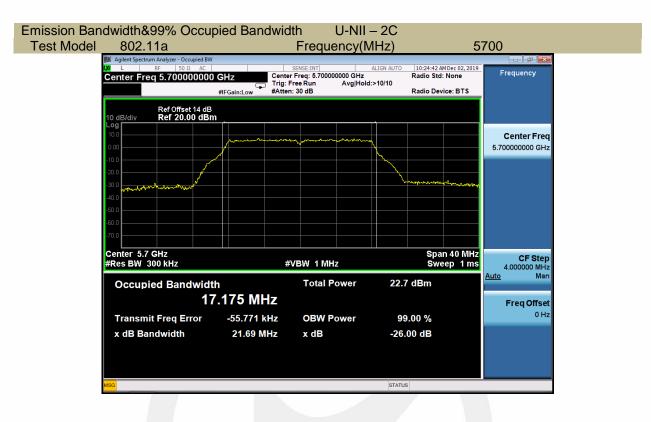




Emission Bandwidth&99% Occupied Bandwidth U-NII – 2C Test Model 802.11a Frequency(MHz)







Emission Bandwidth&99% Occupied Bandwidth U-NII – 2C Test Model 802.11n-HT20 Frequency(MHz)



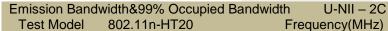
深圳信测标准技术服务股份有限公司 地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn EMTEK (Shenzhen) Co., Ltd. Add: Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China Http://www.emtek.com.cn E-mail: cs.rep@emtek.com.cn

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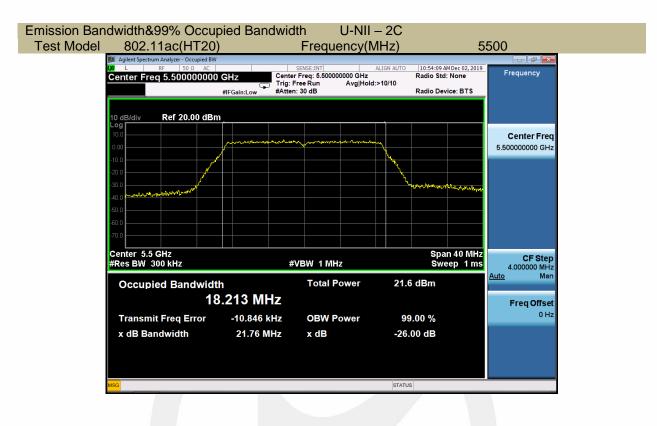




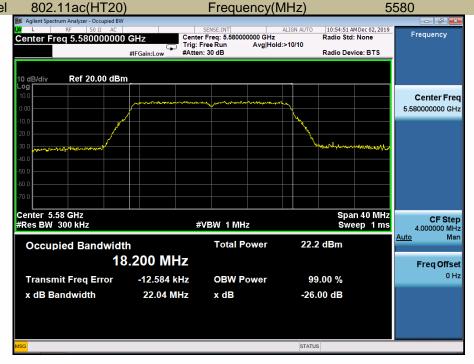




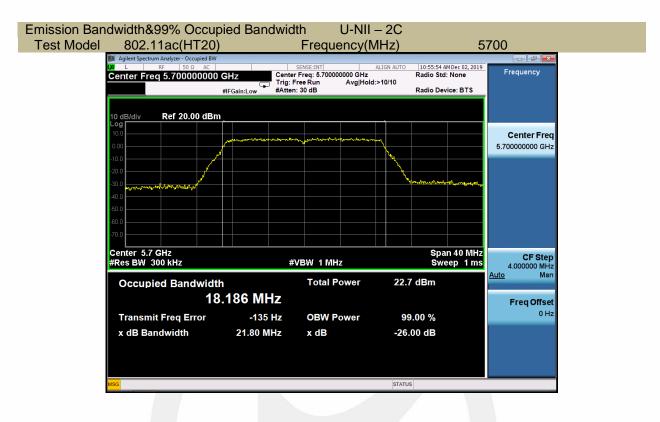




Emission Bandwidth&99% Occupied Bandwidth U-NII – 2C Test Model 802.11ac(HT20) Frequency(MHz)

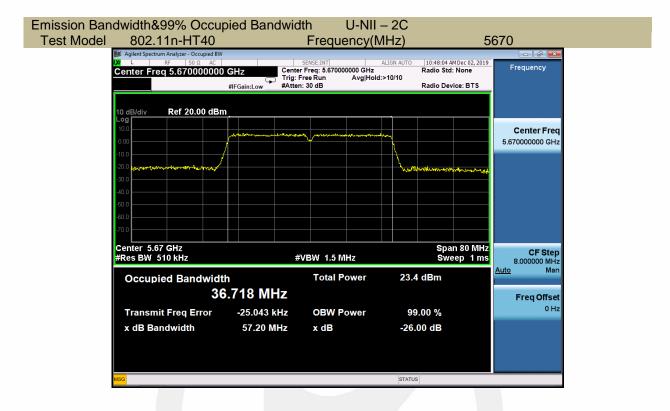






nission Band	width&99% Occu	pied Bandwidtl	h U-NII	– 2C		
est Model	802.11n-HT40		Frequency(I	MHz)	55	510
	Agilent Spectrum Analyzer - Occupied BW L RF 50 Ω AC		NSE:INT	ALIGN AUTO 1	0:47:01 AM Dec 02, 2019	- 6 💌
Ċ	enter Freq 5.51000000) GHz Center F	req: 5.510000000 GHz	Ra	adio Std: None	Frequency
		#IFGain:Low #Atten: 3			adio Device: BTS	
	0 dB/div Ref 20.00 dBr	n				
	10.0	general lances fragment and relationships	Maria Maria Maria Maria	whole .		Center Freq
	D.00					5.51000000 GHz
	20.0			\ \		
	30.0 www.m. www.www.www.			UN-wilden	en here service to the service of th	
	40.0					
	50.0					
	50.0					
	Center 5.51 GHz Res BW 510 kHz	#V	BW 1.5 MHz		Span 80 MHz Sweep 1 ms	CF Step 8.000000 MHz
		41-	Total Power	22.3 d	Pm	Auto Man
	Occupied Bandwidt		Total Power	22.3 ui	DIII	
		6.470 MHz				Freq Offset 0 Hz
	Transmit Freq Error	-11.238 kHz	OBW Power	99.00	0 %	0 Hz
	x dB Bandwidth	40.62 MHz	x dB	-26.00	dB	
M	5 <mark>G</mark>			STATUS		
-						

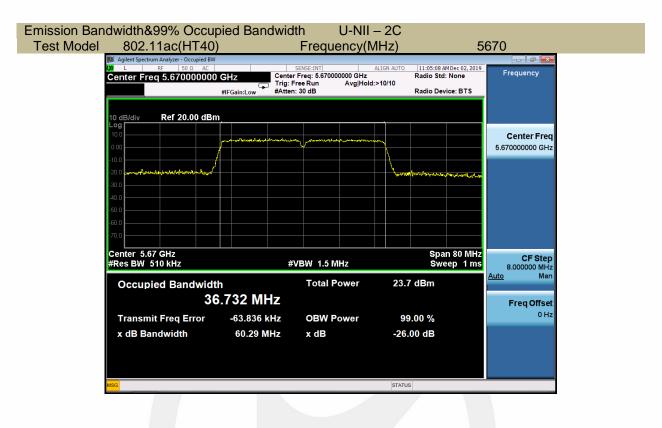




Test Model 802.11ac(HT40) Frequency(MHz) 5510 # Aglent Spectra WW Center Freq: 5.51000000 GHz Center Freq: 5.51000000 GHz Frequency Center Freq: 5.510000000 GHz Center Freq: 5.51000000 GHz Radio Device: BTS Frequency 0 dB/dtv Ref 20.00 dBm Center Freq: 5.51000000 GHz Frequency Center Freq: 5.51000000 GHz Frequency 0 dB/dtv Ref 20.00 dBm Center Freq: 5.51 GHz Span 80 MHz Span 80 MHz Span 80 MHz 0 db/dtv Stota Span 80 MHz Span 80 MHz Span 80 MHz Span 80 MHz 0 db/dtv Stota Span 80 MHz Span 80 MHz Span 80 MHz Center Freq 0 db/dtv Stota Span 80 MHz Span 80 MHz Span 80 MHz Span 80 MHz Stota 0 db/dtv Stota Stota Span 80 MHz Stota Stota Stota 0 db/dtv Stota Stota Stota Stota Stota Stota 0 db/dtv Stota Stota<	Emission Bandwidth&99% Occup	bied Bandwidth	U-NII – 2C		
With and the servest of the servest	Test Model 802.11ac(HT40)) Fr	equency(MHz)	5	510
Log Center Freq 100 Center Freq 100 Center Freq 100 Center State	LX/L RF 50 Ω AC	GHz Center Freq	: 5.510000000 GHz un Avg Hold:>10/10	Radio Std: None	
100 Center Freq 100 Center S.51 GHz #Res BW 510 kHz #VBW 1.5 MHz Span 80 MHz Ccupied Bandwidth Total Power 22.1 dBm 36.463 MHz Transmit Freq Error -29.330 kHz OBW Power 99.00 %		1			
200 300 4	0.00	and an analysis of the standing of the standin	un and a second s		
600 Image: Constraint of the second seco	-20.0		h h	.อฏิปีสรีสรีและสร้างหรูปปัญญาการสวัญญาสุ	
70.0 Center 5.51 GHz #VBW 1.5 MHz Span 80 MHz CF Step 8.00000 MHz #Res BW 510 kHz #VBW 1.5 MHz Span 80 MHz Auto Man Occupied Bandwidth Total Power 22.1 dBm Auto Man 36.463 MHz Transmit Freq Error -29.330 kHz OBW Power 99.00 % 0 Hz	-50.0				
#Res BW 510 kHz #VBW 1.5 MHz Sweep 1 ms Occupied Bandwidth Total Power 22.1 dBm 36.463 MHz Freq Offset Transmit Freq Error -29.330 kHz OBW Power 99.00 %	-70.0			Enon 90 Mila	
Occupied Bandwidth Total Power 22.1 dBm 36.463 MHz Freq Offset Transmit Freq Error -29.330 kHz OBW Power 99.00 %		#VBW	1.5 MHz		
Transmit Freq Error -29.330 kHz OBW Power 99.00 %			otal Power 22.	1 dBm	<u>Auto</u> Man
Transmit Freq Error -29.330 kHz OBW Power 99.00 %	36	6.463 MHz			
x dB Bandwidth 40.25 MHz x dB -26.00 dB					0 Hz
	x dB Bandwidth	40.25 MHz x	dB -26	.00 dB	
MSG STATUS	MSG		STATU	JS	



5530



Emission Bandwidth&99% Occupied Bandwidth U-NII – 2C Test Model 802.11ac 80 Frequency(MHz)

002.1140.00		псчи	ency(i	/11 12	-/		0	550	
Agilent Spectrum Analyzer - Occupied BV	/								E
Χ L RF 50 Ω AC		SENSE:INT		ALIGN			MDec 02, 2019	Frequ	ancy
Center Freq 5.53000000		Center Freq: 5.5300 Trig: Free Run	00000 GHz Avg Hold			Radio Std	: None	Frequ	ency
	#IFGain:Low	#Atten: 30 dB	Avginoid	1:>10/1		Radio Dev	ice: BTS		
	#IFGalli.LOW	#rtten: oo ub				Rualo Be	100.010		
10 dB/div Ref 20.00 dB	m								
Log									
10.0								Cent	ter Fre
0.00		And a state of the	· · · · · · · · · · · · · · · · · · ·					5.530000	000 GH
-10.0	<u> </u>			<u>N</u>					_
-20.0					۱. ۱				
					Lund	Henrice	and the marked		
-30.0 papertolugion descent									
-40.0									
-50.0									
-60.0									
-70.0									
						-	400 8411-		
Center 5.53 GHz			-				160 MHz		CF Ste
#Res BW 1 MHz		#VBW 3 MH	1Z			SW	eep 1 ms		000 M⊢
	41-	Total F	lower		22.5	dDm		<u>Auto</u>	Ma
Occupied Bandwid	th	Total	ower		22.5	aвm			
7	5.867 M⊦	z						Ero	q Offse
								Fiel	uonse ⊣0
Transmit Freq Error	5.848 k	Hz OBW F	ower		99.	00 %			01
x dB Bandwidth	82.20 M	Hz xdB			-26.0	0 dB			
	02.20 M				-20.0	o up			
MSG					STATUS				
MSG					STATUS				

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5725-5850MHz						
Test Mode		Channel IHz	6 dB Bandwidth MHz	26dB Bandwidth MHz	99% Bandwidth MHz	Limit kHz
	CH149	5745	16.38	21.80	17.16	≥500
802.11a	CH157	5785	16.38	21.69	17.16	≥500
	CH165	5825	16.39	21.72	17.17	≥500
	CH149	5745	17.61	21.94	18.14	≥500
802.11n-HT20	CH157	5785	17.64	21.86	18.14	≥500
	CH165	5825	17.61	21.90	18.19	≥500
	CH149	5745	17.61	22.06	18.20	≥500
802.11ac(HT20)	CH157	5785	17.63	22.00	18.13	≥500
	CH165	5825	17.60	21.92	18.16	≥500
000 44 n LIT 40	CH151	5755	35.81	40.43	36.57	≥500
802.11n-HT40	CH159	5795	36.38	40.43	36.41	≥500
902 11 co(UT 10)	CH151	5755	36.06	40.21	36.51	≥500
802.11ac(HT40)	CH159	5795	36.38	40.09	36.46	≥500
802.11ac(HT80)	CH155	5775	75.95	82.13	75.97	≥500

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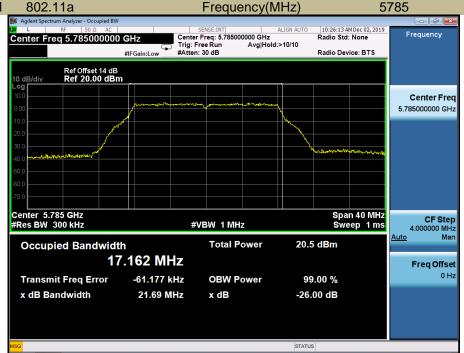


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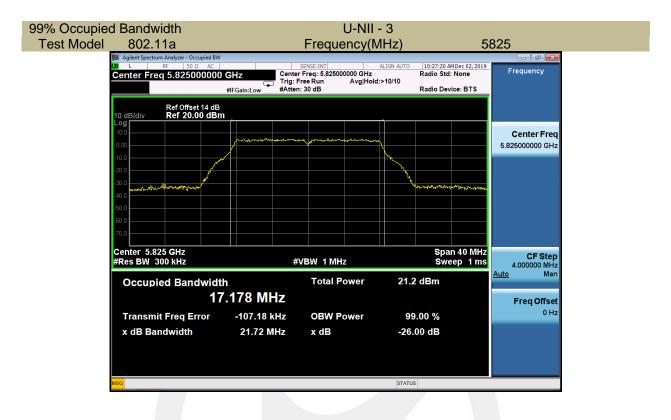


99% Occupied Bandwidth Test Model

U-NII - 3 Frequency(MHz)







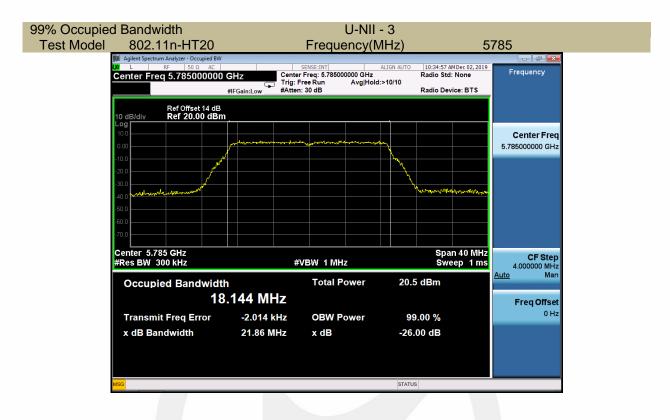
U-NII - 3 99% Occupied Bandwidth Test Model 802.11n-HT20 Frequency(MHz) 5745 GHz Center Freq: 5.745000000 GHz #IFGain:Low #Atten: 30 dB 10:34:29 AM Dec 02, 2019 Radio Std: None Frequency Center Freq 5.745000000 GHz Radio Device: BTS Ref Offset 14 dB Ref 20.00 dBm **Center Freq** 5.745000000 GHz Span 40 MHz Sweep 1 ms Center 5.745 GHz #Res BW 300 kHz CF Step 4.000000 MHz Man #VBW 1 MHz Auto Total Power 21.6 dBm **Occupied Bandwidth** 18.143 MHz Freq Offset 0 Hz -53.930 kHz Transmit Freq Error **OBW Power** 99.00 % x dB Bandwidth 21.94 MHz -26.00 dB x dB STATUS

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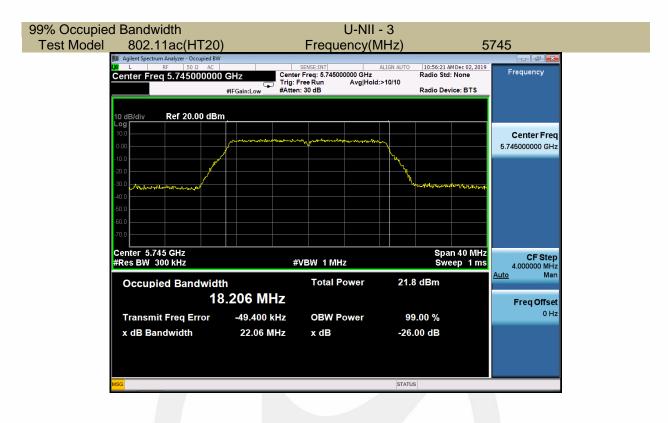
U-NII - 3 99% Occupied Bandwidth Test Model 802.11n-HT20 Frequency(MHz) 5825 oied B\ GHz Center Freq: 5.82500000 GHz #IFGain:Low #Atten: 30 dB 10:35:34 AM Dec 02, 2019 Radio Std: None Frequency Center Freq 5.825000000 GHz Radio Device: BTS Ref Offset 14 dB Ref 20.00 dBm **Center Freq** 5.825000000 GHz Span 40 MHz Sweep 1 ms Center 5.825 GHz #Res BW 300 kHz CF Step 4.000000 MHz Man #VBW 1 MHz Auto Total Power 21.6 dBm **Occupied Bandwidth** 18.190 MHz Freq Offset 0 Hz -29.251 kHz Transmit Freq Error **OBW Power** 99.00 % x dB Bandwidth 21.90 MHz -26.00 dB x dB STATUS

深圳信测标准技术服务股份有限公司地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn EMTEK (Shenzhen) Co., Ltd. Add: Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China Http://www.emtek.com.cn E-mail: cs.rep@emtek.com.cn

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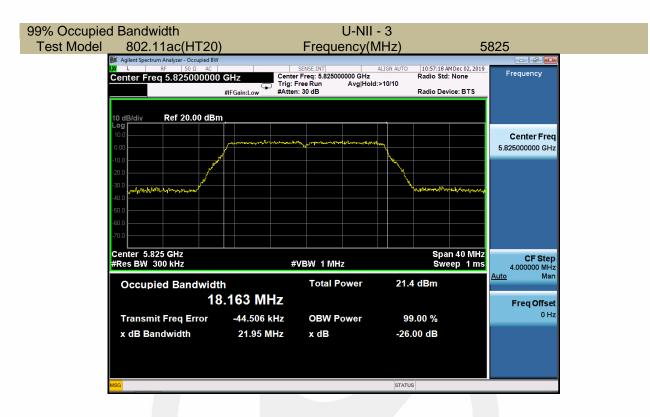
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Occupied Bandwidth		U-NII - 3	3	
st Model <u>802.11ac</u>		Frequency(MH	lz) 5	5785
M Agilent Spectrum Analyzer	50 Ω AC 35000000 GHz		SN AUTO 10:56:51 AM Dec 02, 2019 Radio Std: None	Frequency
	20.00 dBm			
Log 10.0 0.00		and the second and the		Center Freq 5.785000000 GHz
-10.0			William	
-30.0 -40.0	N.Rower P		Munasalationallisteree	
-50.0				
-70.0				
Center 5.785 GHz #Res BW 300 kHz		#VBW 1 MHz	Span 40 MHz Sweep 1 ms	4.000000 MHz
Occupied Ba	andwidth 18.133 MHz	Total Power	20.6 dBm	<u>Auto</u> Man Freq Offset
Transmit Freq			99.00 %	0 Hz
x dB Bandwid	ith 22.00 MH	z x dB	-26.00 dB	
MSG			STATUS	





Vodel 802.11n	yzer - Occupied BW		ncy(MHz)		755
Center Freq 5.	50 Ω AC 755000000 GHz #IFGain:Low	SENSE:INT Center Freq: 5.755000 Trig: Free Run #Atten: 30 dB	ALIGN AUTO 000 GHz Avg Hold:>10/10	10:48:32 AM Dec 02, 2019 Radio Std: None Radio Device: BTS	Frequency
10 dB/div Re	f 20.00 dBm				
10.0 0.00	jan de anteres anteres a	and an	1		Center Freq 5.755000000 GHz
-10.0 -20.0	Innurally 1		hall have been a second s	At Margary	
-40.0					
-60.0 -70.0					
Center 5.755 G #Res BW 510 k		#VBW 1.5 MH	Iz	Span 80 MHz Sweep 1 ms	CF Step 8.000000 MHz
Occupied	Bandwidth 36.579 M	Total Po H7	wer 22.0	dBm	<u>Auto</u> Man
Transmit Fr	eq Error -27.258	kHz OBW Po		.00 %	Freq Offset 0 Hz
x dB Bandw	idth 40.43 l	MHz xdB	-26.0	00 dB	
			STATUS		