

FCC RADIO TEST REPORT

Applicant..... : Yantai Trial Retailing Engineering CO.,LTD

Address..... : NO.161 CHANGJIANG ROAD, Pilot Free Trade Zone Yantai area, Shandong
China.

Manufacturer..... : SHENZHEN SHINDY TECHNOLOGY CO., LTD.

Address..... : NO.401, 1300018, DAFU INDUSTRIAL COMMUNITY, ZHANGGE COMMUNITY,
FUCHENG STREET, LONGHUA DISTRICT, SHENZHEN, GUANGDONG
PROVINCE, P.R.CHINA

Factory..... : SHENZHEN SHINDY TECHNOLOGY CO., LTD.

Address..... : NO.401, 1300018, DAFU INDUSTRIAL COMMUNITY, ZHANGGE COMMUNITY,
FUCHENG STREET, LONGHUA DISTRICT, SHENZHEN, GUANGDONG
PROVINCE, P.R.CHINA

Product Name..... : Retail AI Camera Z3

Brand Name..... : Retail Eye

Model No. : Retail Eye - Z3

FCC ID..... : 2A23I-AICAM-03

Measurement Standard..... : 47 CFR FCC PART 15 Subpart E (section 407)

Receipt Date of Samples.... : June 07, 2021

Date of Tested..... : June 07, 2021 to September 09, 2021

Date of Report..... : September 09, 2021

This report shows that above equipment is technically compliant with the requirements of the standards above. All test results in this report apply only to the tested sample(s). Without prior written approval of Dongguan Nore Testing Center Co., Ltd, this report shall not be reproduced except in full.



Prepared by

Alina Guo / Project Engineer



Approved by

Iori Fan / Authorized Signatory

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Revision History

Report Number	Description	Issued Date
NTC2106174FV00	Initial Issue	2021-09-09

1. Summary of Test Result

FCC Rules	Description of Test	Result	Remarks
§15.207 (a)	AC Power Conducted Emission	PASS	---
§15.407(a)	Max. Conducted Output Power	PASS	---
§15.407(a)	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	PASS	---
§15.407(e)	6dB Bandwidth	PASS	---
§15.407(a)	Power Spectral Density	PASS	---
§15.407(b) §15.205	Radiated Emissions	PASS	---
§15.407(b)	Band Edge Emissions	PASS	---
§15.407(g)	Frequency Stability	PASS	---
§15.203	Antenna Requirement	PASS	---

2. General Description of EUT

Product Information	
Product name:	Retail AI Camera Z3
Main Model Name:	Retail Eye - Z3
Additional Model Name:	N/A
Model Difference:	N/A
S/N:	00001-3K-Z3
Brand Name	Retail Eye
Hardware version:	Not Stated
Software version:	Not Stated
Rating:	DC 5V come from USB port
Classification:	Class A
Typical arrangement:	Table-top
I/O Port:	N/A
Accessories Information	
Adapter:	M/N: JHD-AP024J-050300BA-A Input: AC 100-240V 50/60Hz, 0.55A Output: DC 5V 3000mA
Cable:	DC Line: 1.5m
Other:	N/A
Additional Information	
Note:	N/A
Remark:	All the information above are provided by the manufacturer. More detailed feature of the EUT please refers to the user manual.

Technical Specification	
Frequency Range:	5180-5240MHz 5745-5825MHz
Modulation Technology:	DSSS, OFDM
Modulation Type:	CCK, DQPSK, DBPSK for 802.11a 64-QAM, 16-QAM, QPSK, BPSK for 802.11n
Number of Channel:	U-NII-1: 4 Channel for 802.11a/n(HT20) 2 Channel for 802.11n(HT40) /ac(VHT40) 1 Channel for 802.11 ac(VHT80) U-NII-3: 5 Channel for 802.11a/n(HT20) 2 Channel for 802.11n(HT40) /ac(VHT40) 1 Channel for 802.11 ac(VHT80)
Antenna Type:	PIFA antenna
Antenna Gain:	1.8 dBi (Declared by the manufacturer)

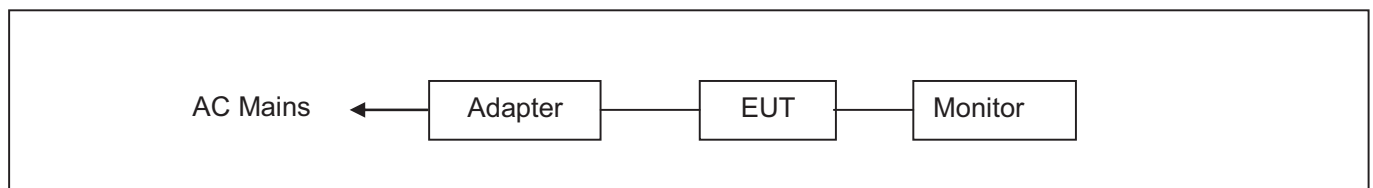
Channel List					
U-NII-1 Band 5180~5240MHz					
IEEE 802.11a/n(HT20)/ac(VHT20)		IEEE 802.11n(HT40)/ac(VHT40)		IEEE 802.11 ac (VHT80)	
Channel	Frequency MHz	Channel	Frequency MHz	Channel	Frequency MHz
36	5180	38	5190	42	5210
40	5200	46	5230	-	-
44	5220	-	-	-	-
48	5240	-	-	-	-
U-NII-3 Band 5745~5825MHz					
IEEE 802.11a/n(HT20)/ac(VHT20)		IEEE 802.11n(HT40)/ac(VHT40)		IEEE 802.11 ac (VHT80)	
Channel	Frequency MHz	Channel	Frequency MHz	Channel	Frequency MHz
149	5745	151	5755	155	5775
153	5765	159	5795	-	-
157	5785	-	-		
161	5805	-	-		
165	5825	-	-		

3. Test Channels and Modes Detail

No.	Mode	Channel	Frequency (MHz)	Remark
1	TX	36	5180	IEEE 802.11a/n(HT20)/ac(HT20)
		40	5200	IEEE 802.11a/n(HT20) /ac(HT20)
		48	5240	IEEE 802.11a/n(HT20) /ac(HT20)
		149	5745	IEEE 802.11a/n(HT20) /ac(HT20)
		157	5785	IEEE 802.11a/n(HT20) /ac(HT20)
		165	5825	IEEE 802.11a/n(HT20) /ac(HT20)
		38	5190	IEEE 802.11n(HT40) /ac(VHT40)
		46	5230	IEEE 802.11n(HT40) /ac(VHT40)
		151	5755	IEEE 802.11n(HT40) /ac(VHT40)
		159	5795	IEEE 802.11n(HT40) /ac(VHT40)
		42	5210	IEEE 802.11ac(VHT80)
		155	5775	IEEE 802.11ac(VHT80)
2.	Normal Mode	---	---	---

Note: TX mode means that the EUT was programmed to be in continuously transmitting mode.

4. Configuration of EUT



5. Modification of EUT

No modifications are made to the EUT during all test items.

6. Description of Support Device

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Equipment	Brand	M/N	S/N	Cable Specification	Remarks
1.	Monitor	DELL	S2240Tb	CN-0FP53 P-74261-3 AL-0CYU	AC Line: 1.15m unshielded DC Line: 1.21m unshielded with a core	Adapter: Manufacturer: CWT M/N: KPL-050F-VI I/P:AC100-240V50/60 Hz,1.7A O/P:12V4.17A 50W

Software	Power Setting
Engineering Mode (No need software)	13

7. Test Facility and Location

Test Site	:	Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.)
Accreditations and Authorizations	:	The Laboratory has been assessed and proved to be in compliance with CNAS/CL01 Listed by CNAS, August 13, 2018 The Certificate Registration Number is L5795. The Certificate is valid until August 13, 2024 The Laboratory has been assessed and proved to be in compliance with ISO17025 Listed by A2LA, November 01, 2017 The Certificate Registration Number is 4429.01 The Certificate is valid until December 31, 2021 Listed by FCC, November 06, 2017 Test Firm Registration Number is 907417 Listed by Industry Canada, June 08, 2017 The Certificate Registration Number is 46405-9743A
Test Site Location	:	Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong Province, China

8. Applicable Standards and References

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

Test Standards:

47 CFR Part 15, Subpart E, 15.407

ANSI C63.10-2013

References Test Guidance:

KDB 789033 D02 v02r01

9. Deviations and Abnormalities from Standard Conditions

No additions, deviations and exclusions from the standard.

10. Test Conditions

No.	Test Item	Test Mode	Test Voltage	Tested by	Remarks
1.	AC Power Conducted Emission	2	AC 120V 60Hz AC 240V 50Hz	Sean	See note 1
2.	Max. Conducted Output Power	1	AC 120V 60Hz	Sean	See note 1
3.	26dB Spectrum Bandwidth and 99% Occupied Bandwidth	1	AC 120V 60Hz	Sean	See note 1
4.	6dB Bandwidth	1	AC 120V 60Hz	Sean	See note 1
5.	Power Spectral Density	1	AC 120V 60Hz	Sean	See note 1
6.	Radiated Emissions	1, 2	AC 120V 60Hz AC 240V 50Hz	Sean	See note 1,3
7.	Band Edge Emissions	1	AC 120V 60Hz	Sean	See note 1
8.	Frequency Stability	1	AC 120V 60Hz	Sean	See note 1
9.	Antenna Requirement	---	---	---	See note 1

Note:

1. The testing climatic conditions for temperature, humidity, and atmospheric pressure are within: 15~35℃, 30~70%, 86~106kPa.
2. Only the worst voltage was recorded on the report.
3. As the EUT can be operated multiple positions, all X,Y, Z axis were considered during the test and only the worst case X was recorded.
4. Only the worst case was recorded in the report.

11. Measurement Uncertainty

No.	Test Item	Frequency	Uncertainty	Remarks
1.	Conducted Emission	150KHz ~ 30MHz	±2.52 dB	---
2.	Radiated Emission Test	9KHz ~ 30MHz	±2.60 dB	---
		30MHz ~ 1GHz	±4.68 dB	---
		1GHz ~ 18GHz	±5.14 dB	---
		18GHz ~ 40GHz	±5.14 dB	---
3.	RF Conducted Test	10Hz ~ 40GHz	±1.06 dB	---

Note:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The measurement uncertainty levels above are estimated and calculated according to CISPR 16-4-2.
3. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

12. Sample Calculations

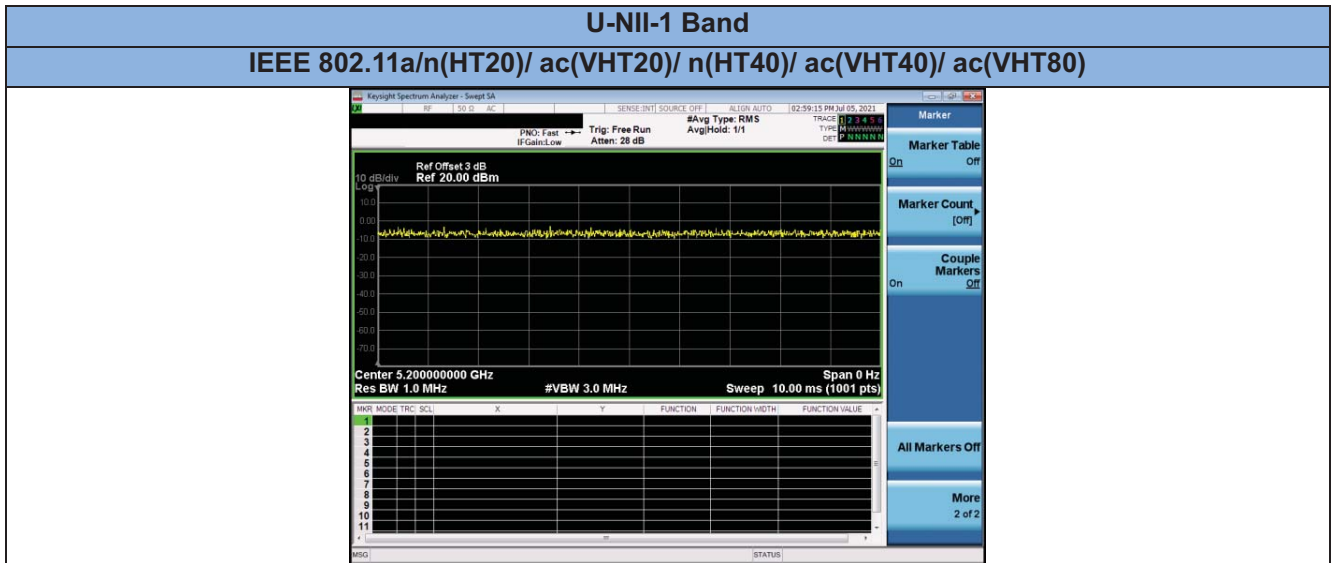
Conducted Emission						
Freq. (MHz)	Reading Level (dBuV)	Correct Factor (dB)	Measurement (dBuV)	Limit (dBuV)	Over (dB)	Detector
0.1900	30.10	10.60	40.70	79.00	-38.30	QP
Where, Freq. = Emission frequency in MHz Reading Level = Uncorrected Analyzer/Receiver reading Corrector Factor = Insertion loss of LISN + Cable Loss + RF Switching Unit attenuation Measurement = Reading + Corrector Factor Limit = Limit stated in standard Margin = Measurement - Limit Detector = Reading for Quasi-Peak / Average / Peak						

Radiated Spurious Emissions and Restricted Bands						
Freq. (MHz)	Reading Level (dBuV)	Correct Factor (dB/m)	Measurement (dBuV/m)	Limit (dBuV/m)	Over (dB)	Detector
60.0700	45.88	-18.38	27.50	49.00	-21.50	QP
Where, Freq. = Emission frequency in MHz Reading Level = Uncorrected Analyzer/Receiver reading Corrector Factor = Antenna Factor + Cable Loss - Pre-amplifier Measurement = Reading + Corrector Factor Limit = Limit stated in standard Over = Margin, which calculated by Measurement - Limit Detector = Reading for Quasi-Peak / Average / Peak						

Note: For all conducted test items, the spectrum analyzer offset or transducer is derived from RF cable loss and attenuator factor. The offset or transducer is equal to the RF cable loss plus attenuator factor.

13. Duty cycle

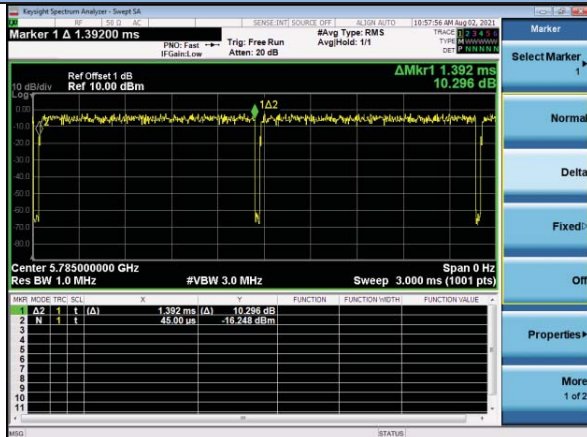
Operation Band (MHz)	Mode	Ton (ms)	Ton+off (ms)	Duty Cycle (%)	1/T minimum VBW (kHz)	Duty Cycle Factor (dB)
U-NII-1	802.11a	---	---	100%	---	---
	802.11n(HT20)	---	---	100%	---	---
	802.11n(HT40)	---	---	100%	---	---
	802.11ac(VHT20)	---	---	100%	---	---
	802.11ac(VHT40)	---	---	100%	---	---
	802.11ac(VHT80)	---	---	100%	---	---
U-NII-3	802.11a	1.392	1.428	97.48%	0.72	0.11
	802.11n(HT20)	1.302	1.335	97.53%	0.77	0.11
	802.11n(HT40)	0.648	0.684	94.74%	1.54	0.23
	802.11ac(VHT20)	1.314	1.350	97.33%	0.76	0.12
	802.11ac(VHT40)	0.654	0.688	95.06%	1.53	0.22
	802.11ac(VHT80)	0.326	0.360	90.56%	3.07	0.43
Remark: If Duty Cycle of test signal is $\geq 98\%$, Duty cycle factor is not required. Duty Cycle= (Ton/ Ton+off)*100% Duty Cycle factor=10*log(1/ Duty cycle)						



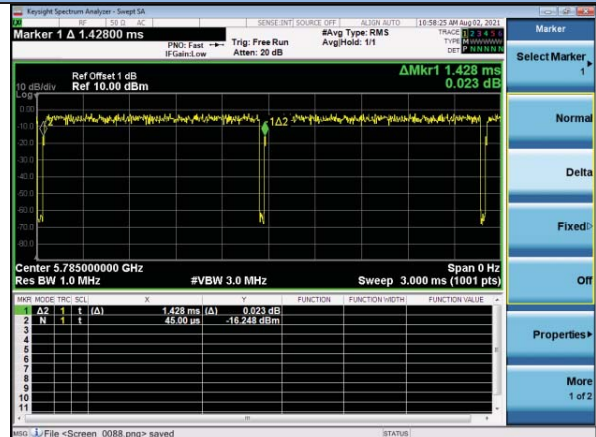
U-NII-3 Band

IEEE 802.11a

Ton

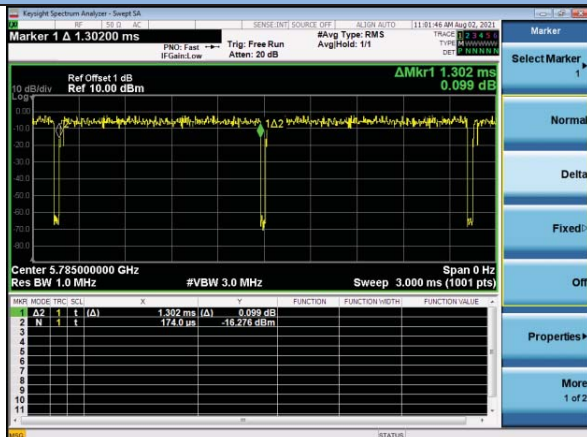


Ton+off

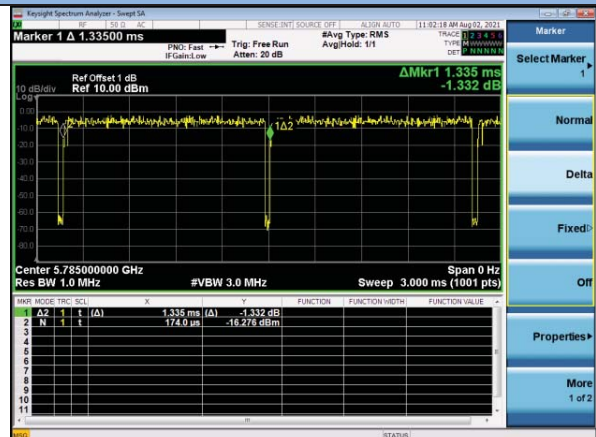


IEEE 802.11n(HT20)

Ton

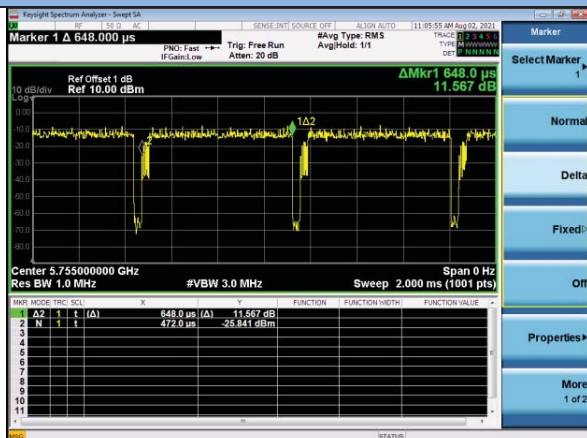


Ton+off

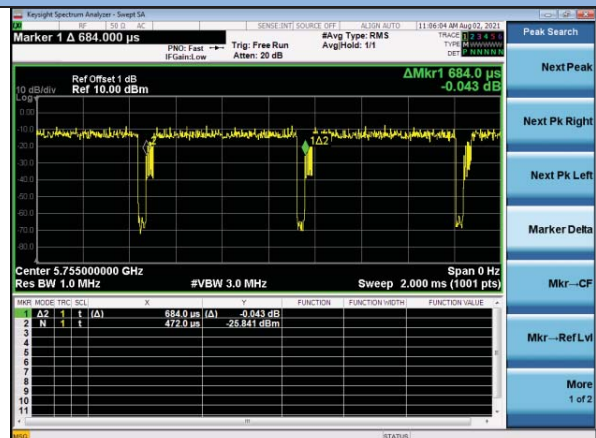


802.11n(HT40)

Ton

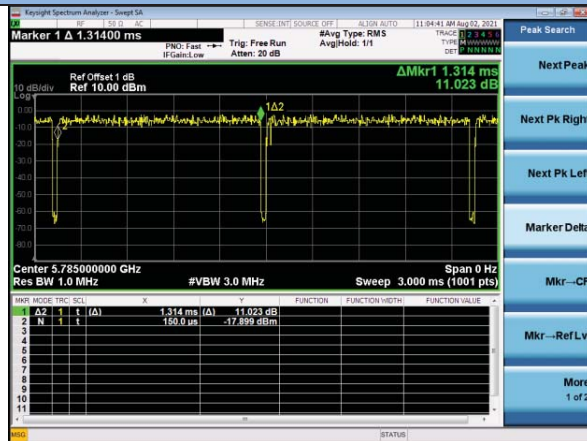


Ton+off

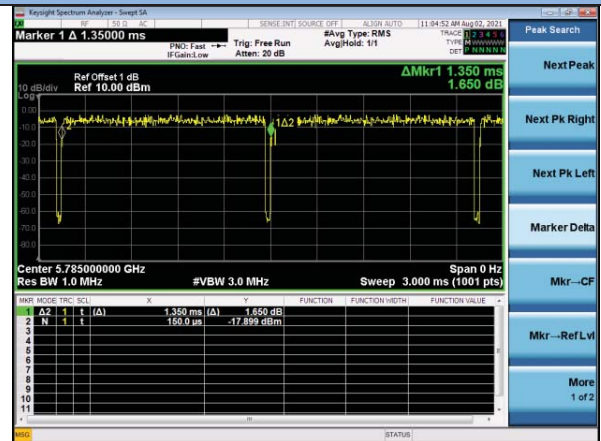


IEEE 802.11ac(VHT20)

Ton

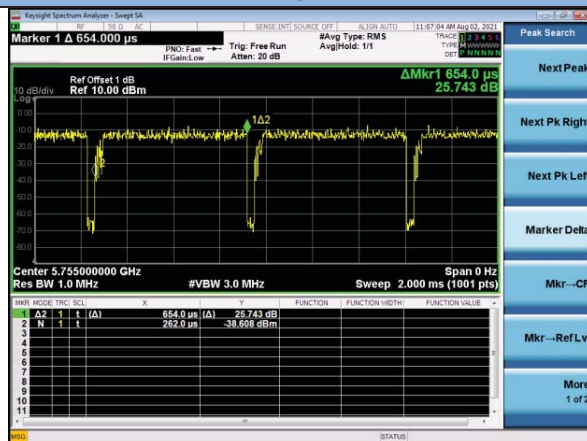


Ton+off

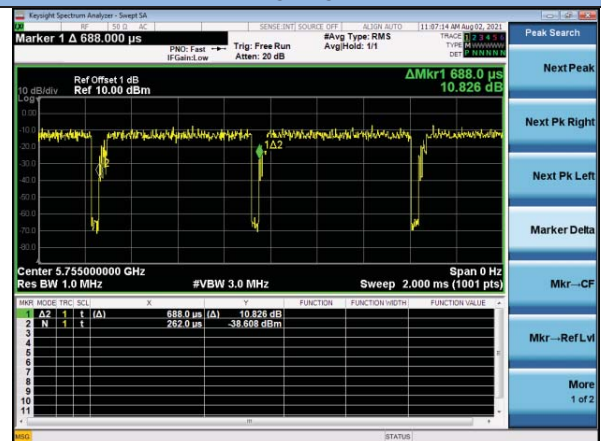


IEEE 802.11ac(VHT40)

Ton

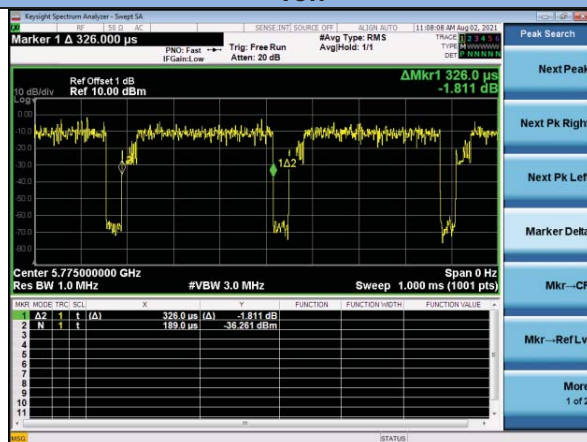


Ton+off



IEEE 802.11ac(VHT80)

Ton



Ton+off



14. Test Items and Results

14.1 Conducted Emissions Measurement

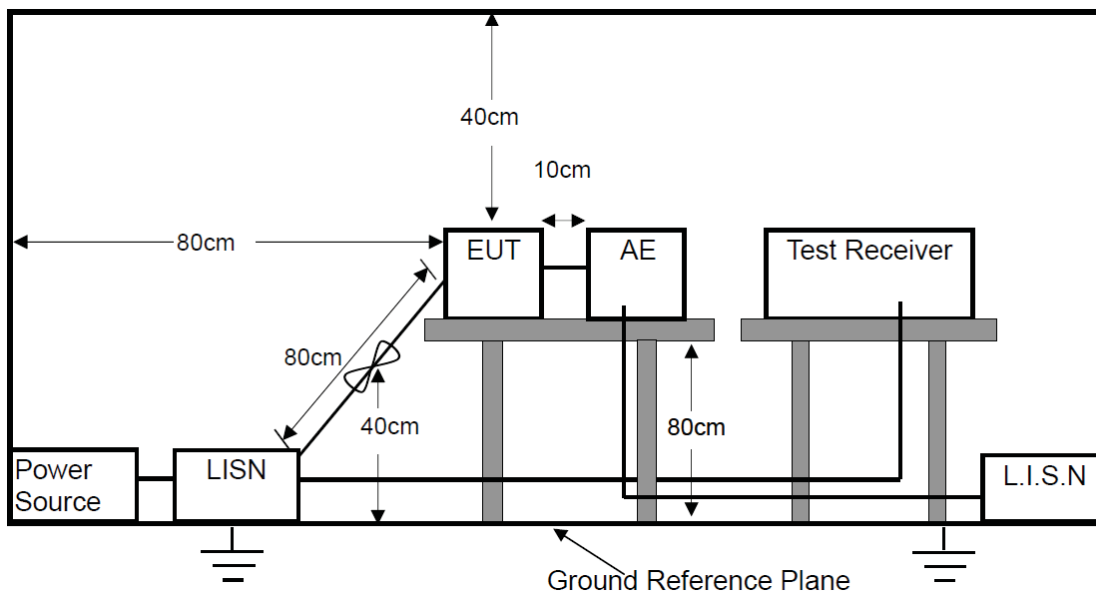
LIMITS

According to the requirements of FCC PART 15.207, the limits are as follows:

Frequency (MHz)	Quasi-peak	Average
0.15 to 0.5	66 to 56	56 to 46
0.5 to 5	56	46
5 to 30	60	50

- Note:
1. If the limits for the average detector are met when using the quasi-peak detector, then the limits for the measurements with the average detector are considered to be met.
 2. The lower limit shall apply at the transition frequencies.
 3. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5MHz.

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

- a. The EUT was placed on a wooden table 0.8m height from the metal ground plan and 0.4m from the conducting wall of the shielding room and it was kept at 0.8m from any other grounded conducting surface.
- b. All I/O cables and support devices were positioned as per ANSI C63.10.
- c. Connect mains power port of the EUT to a line impedance stabilization network (LISN).
- d. Connect all support devices to the other LISN and AAN, if needed.
- e. Scan the frequency range from 150KHz to 30MHz at both sides of AC line for maximum conducted interference checking and record the test data.

TEST RESULTS

PASS

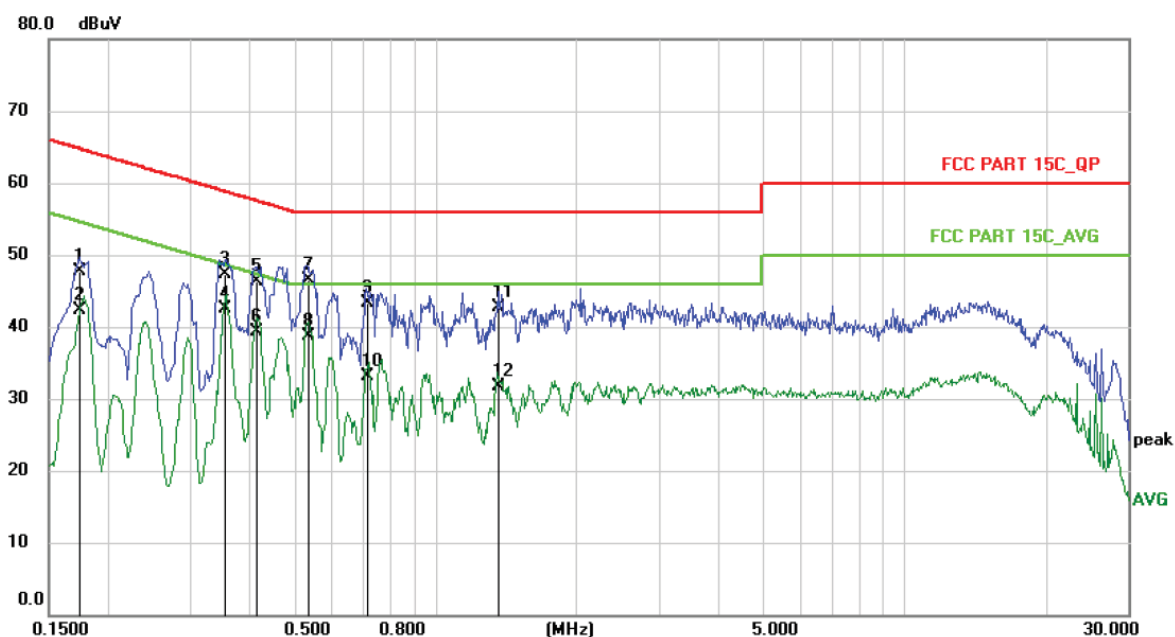
Please refer to the following pages.

M/N: Retail Eye - Z3	Testing Voltage: AC 120V 60Hz
Phase: L1	Detector: QP & AVG
Test Mode: 2 (U-NII-1)	

Conducted Emission Measurement

Date: 2021/7/30

Time: 12:08:15



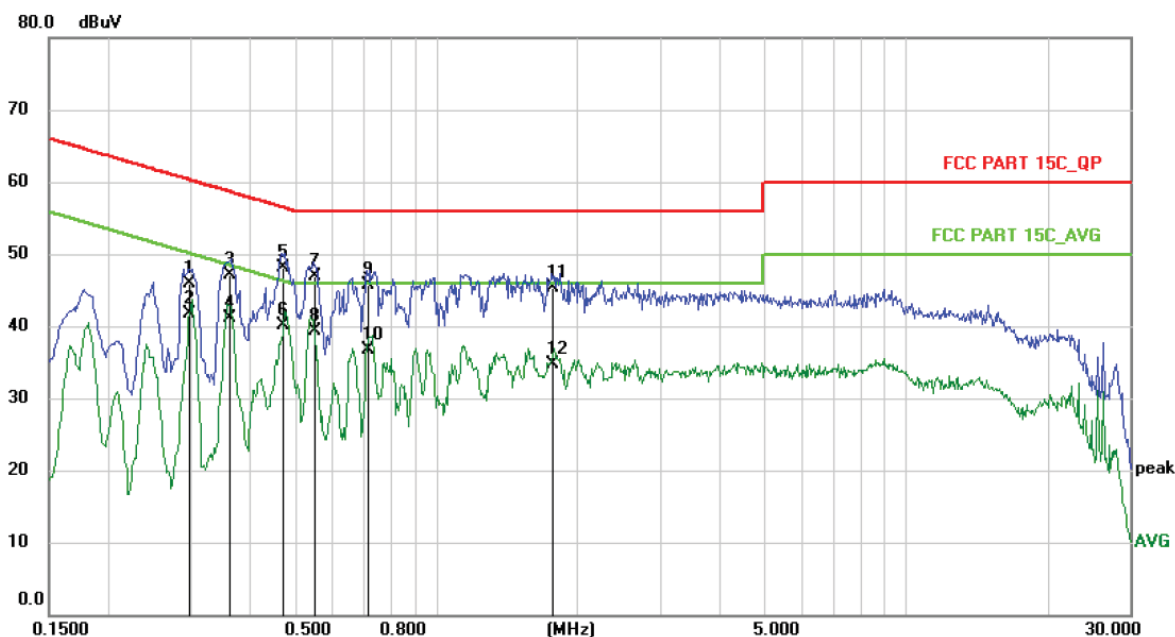
No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.1737	37.03	10.60	47.63	64.78	-17.15	QP	
2	0.1737	31.71	10.60	42.31	54.78	-12.47	AVG	
3	0.3557	36.78	10.61	47.39	58.83	-11.44	QP	
4 *	0.3557	31.95	10.61	42.56	48.83	-6.27	AVG	
5	0.4138	35.71	10.62	46.33	57.57	-11.24	QP	
6	0.4138	28.62	10.62	39.24	47.57	-8.33	AVG	
7	0.5340	35.87	10.63	46.50	56.00	-9.50	QP	
8	0.5340	28.05	10.63	38.68	46.00	-7.32	AVG	
9	0.7137	32.59	10.66	43.25	56.00	-12.75	QP	
10	0.7137	22.36	10.66	33.02	46.00	-12.98	AVG	
11	1.3619	32.05	10.70	42.75	56.00	-13.25	QP	
12	1.3619	21.05	10.70	31.75	46.00	-14.25	AVG	

M/N: Retail Eye - Z3	Testing Voltage: AC 120V 60Hz
Phase: N	Detector: QP & AVG
Test Mode: 2 (U-NII-1)	

Conducted Emission Measurement

Date: 2021/7/30

Time: 12:15:25



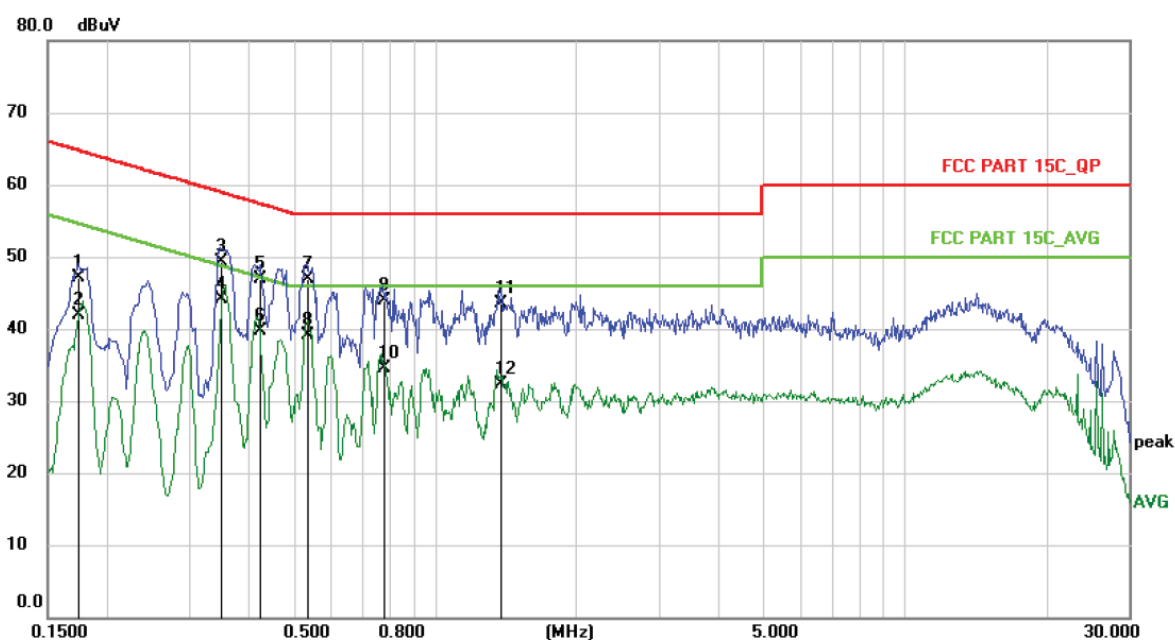
No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.2977	35.25	10.60	45.85	60.31	-14.46	QP	
2	0.2977	31.03	10.60	41.63	50.31	-8.68	AVG	
3	0.3633	36.52	10.61	47.13	58.65	-11.52	QP	
4	0.3633	30.51	10.61	41.12	48.65	-7.53	AVG	
5	0.4700	37.49	10.62	48.11	56.51	-8.40	QP	
6 *	0.4700	29.50	10.62	40.12	46.51	-6.39	AVG	
7	0.5500	36.33	10.64	46.97	56.00	-9.03	QP	
8	0.5500	28.75	10.64	39.39	46.00	-6.61	AVG	
9	0.7137	34.97	10.66	45.63	56.00	-10.37	QP	
10	0.7137	25.98	10.66	36.64	46.00	-9.36	AVG	
11	1.7660	34.61	10.70	45.31	56.00	-10.69	QP	
12	1.7660	24.10	10.70	34.80	46.00	-11.20	AVG	

M/N: Retail Eye - Z3	Testing Voltage: AC 120V 60Hz
Phase: L1	Detector: QP & AVG
Test Mode: 2 (U-NII-3)	

Conducted Emission Measurement

Date: 2021/7/30

Time: 12:23:44



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.1737	36.53	10.60	47.13	64.78	-17.65	QP	
2	0.1737	31.21	10.60	41.81	54.78	-12.97	AVG	
3	0.3500	38.65	10.61	49.26	58.96	-9.70	QP	
4 *	0.3500	33.46	10.61	44.07	48.96	-4.89	AVG	
5	0.4259	36.29	10.62	46.91	57.33	-10.42	QP	
6	0.4259	29.12	10.62	39.74	47.33	-7.59	AVG	
7	0.5340	36.37	10.63	47.00	56.00	-9.00	QP	
8	0.5340	28.55	10.63	39.18	46.00	-6.82	AVG	
9	0.7780	33.27	10.67	43.94	56.00	-12.06	QP	
10	0.7780	23.91	10.67	34.58	46.00	-11.42	AVG	
11	1.3810	32.73	10.70	43.43	56.00	-12.57	QP	
12	1.3810	21.52	10.70	32.22	46.00	-13.78	AVG	

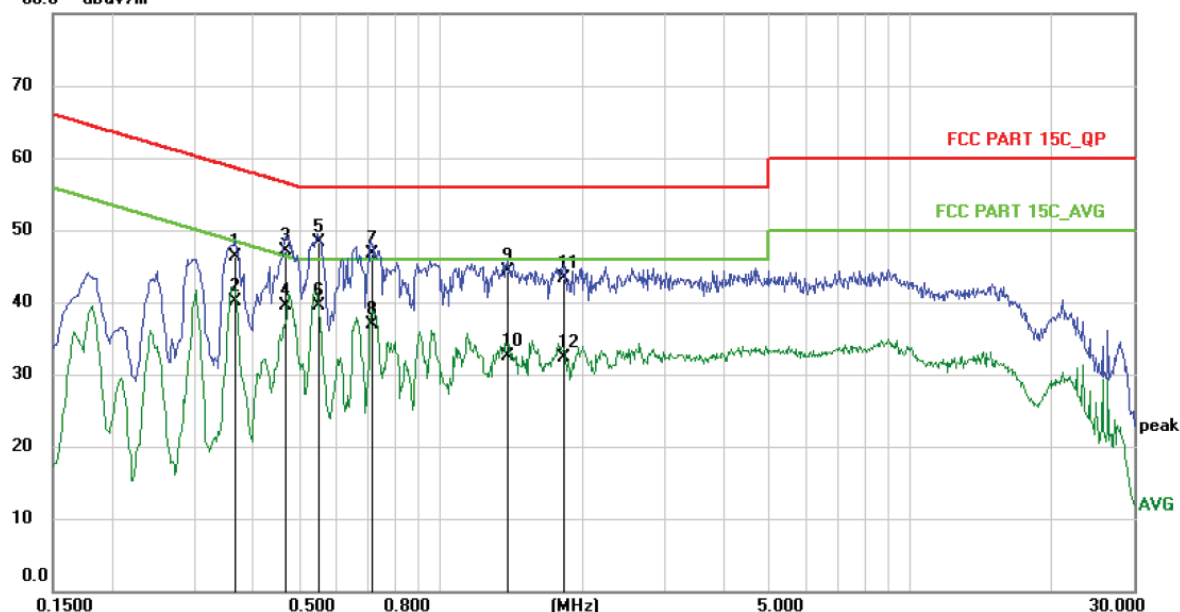
M/N: Retail Eye - Z3	Testing Voltage: AC 120V 60Hz
Phase: N	Detector: QP & AVG
Test Mode: 2 (U-NII-3)	

Conducted Emission Measurement

Date: 2021/7/30

Time: 12:30:47

80.0 dBuV/m



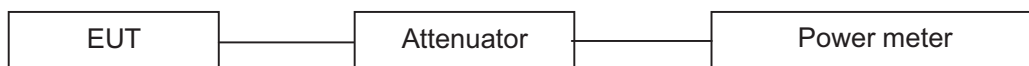
No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector	Comment
	MHz	dBuV/m	dB	dBuV/m	dBuV/m	dB		
1	0.3656	36.57	9.68	46.25	58.60	-12.35	QP	
2	0.3656	30.51	9.68	40.19	48.60	-8.41	AVG	
3	0.4691	37.49	9.67	47.16	56.53	-9.37	QP	
4	0.4691	29.80	9.67	39.47	46.53	-7.06	AVG	
5	0.5501	38.70	9.66	48.36	56.00	-7.64	QP	
6 *	0.5501	29.81	9.66	39.47	46.00	-6.53	AVG	
7	0.7133	36.97	9.68	46.65	56.00	-9.35	QP	
8	0.7133	27.14	9.68	36.82	46.00	-9.18	AVG	
9	1.3915	34.57	9.68	44.25	56.00	-11.75	QP	
10	1.3915	22.89	9.68	32.57	46.00	-13.43	AVG	
11	1.8334	33.56	9.68	43.24	56.00	-12.76	QP	
12	1.8334	22.59	9.68	32.27	46.00	-13.73	AVG	

14.2 Maximum Conducted Output Power Measurement

LIMITS

Operation Band	EUT category	Limit
☒5180~5240MHz	☐ Outdoor Access Point	1 Watt (30dBm) (Max. e.i.r.p ≤ 125mW(21dBm) at any elevation angle above 30 degrees as measured from the horizon)
	☐ Fixed point-to-point Access Point	1 Watt (30dBm)
	☐ Indoor Access Point	1 Watt (30dBm)
	☒Mobile and Portable client device	250mW (24dBm)
☐ 5260~5320MHz	-	250mW (24dBm)
☐ 5500~5700MHz	-	250mW (24dBm)
☒5745~5825MHz	-	1 Watt (30dBm)

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 v02r01 for compliance testing of Unlicensed National Information Infrastructure (U-NII) Device -section (E) Maximum conducted output power.
3. Measurement using a power meter (PM) =b Method PM-G (Measurement using a gated RF average power meter).

TEST RESULTS

PASS

Please refer to the following table.

U-NII-1			
Frequency MHz	Data Rate Mbps	Average Output Power dBm	Limit dBm
IEEE 802.11a Mode (OFDM, Antenna Gain=1.8dBi)			
Channel: 5180	6	6.02	24
Channel: 5200	6	9.69	24
Channel: 5240	6	8.48	24
IEEE 802.11n(HT20)Mode (OFDM, Antenna Gain=1.8dBi)			
Channel: 5180	MCS0	9.11	24
Channel: 5200	MCS0	9.23	24
Channel: 5240	MCS0	8.24	24
IEEE 802.11n(HT40) Mode (OFDM, Antenna Gain=1.8dBi)			
Channel: 5190	MCS0	10.13	24
Channel: 5230	MCS0	8.28	24
IEEE 802.11ac (VHT20) Mode (OFDM, Antenna Gain=1.8dBi)			
Channel: 5180	MCS0	9.13	24
Channel: 5200	MCS0	9.31	24
Channel: 5240	MCS0	8.04	24
IEEE 802.11ac (VHT40) Mode (OFDM, Antenna Gain=1.8dBi)			
Channel: 5190	MCS0	10.16	24
Channel: 5230	MCS0	8.36	24
IEEE 802.11ac (VHT80) Mode (OFDM, Antenna Gain=1.8dBi)			
Channel: 5210	MCS0	8.61	24

U-NII-3			
Frequency MHz	Data Rate Mbps	Average Output Power dBm	Limit dBm
IEEE 802.11a Mode (OFDM, Antenna Gain=1.8dBi)			
Channel: 5745	6	8.43	30
Channel: 5785	6	8.80	30
Channel: 5825	6	8.52	30
IEEE 802.11n(HT20)Mode (OFDM, Antenna Gain=1.8dBi)			
Channel: 5745	MCS0	9.61	30
Channel: 5785	MCS0	9.84	30
Channel: 5825	MCS0	8.62	30
IEEE 802.11n(HT40) Mode (OFDM, Antenna Gain=1.8Bi)			
Channel: 5755	MCS0	9.10	30
Channel: 5795	MCS0	9.34	30
IEEE 802.11ac (VHT20) Mode (OFDM, Antenna Gain=1.8dBi)			
Channel: 5745	MCS0	8.63	30
Channel: 5785	MCS0	8.84	30
Channel: 5825	MCS0	8.61	30
IEEE 802.11ac (VHT40) Mode (OFDM, Antenna Gain=1.8dBi)			
Channel: 5755	MCS0	8.93	30
Channel: 5795	MCS0	9.02	30
IEEE 802.11ac (VHT80) Mode (OFDM, Antenna Gain=1.8dBi)			
Channel: 5775	MCS0	8.14	30

14.3 6dB Bandwidth Measurement

LIMITS

The minimum 6dB bandwidth shall be at least 500 kHz

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer was set as below according to ANSI C63.10 clause 11.8.1:

- a. Set the RBW = 100KHz.
- b. Set the VBW $\geq 3 \times$ RBW
- c. Set the Detector = peak.
- d. Set the Sweep time = auto couple.
- e. Set the Trace mode = max hold.
- f. Allow trace to fully 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.

TEST RESULTS

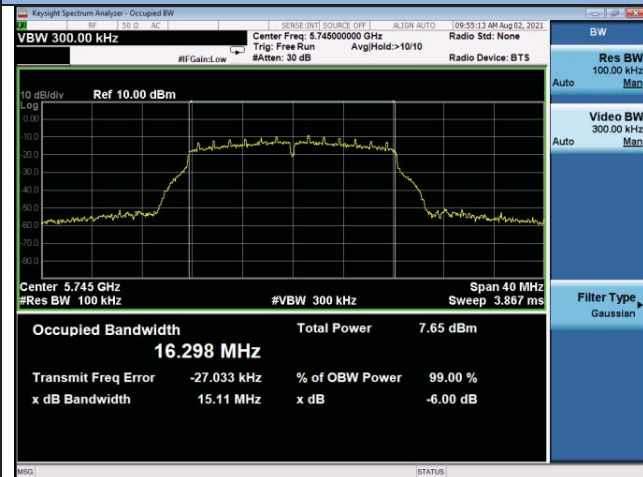
PASS

Please refer to the following tables.

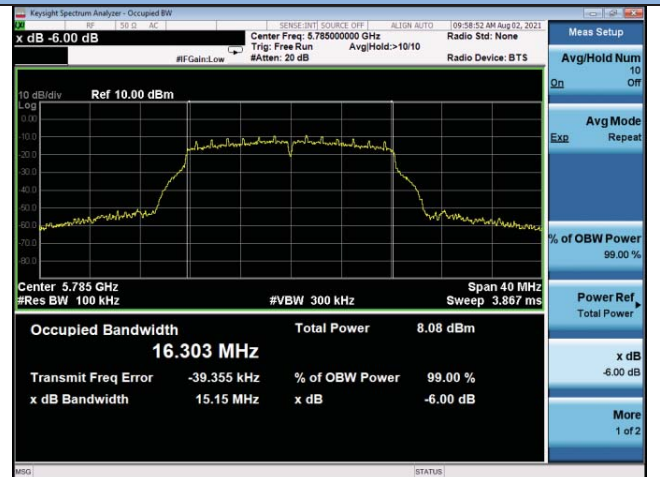
U-NII-3 Band			
Frequency MHz	Data Rate Mbps	6dB Bandwidth MHz	Limit
IEEE 802.11a Mode (OFDM)			
Channel: 5745	6	15.11	>500KHz
Channel: 5785	6	15.15	>500KHz
Channel: 5825	6	15.13	>500KHz
IEEE 802.11n(HT20) Mode (OFDM)			
Channel: 5745	MCS0	15.05	>500KHz
Channel: 5785	MCS0	15.14	>500KHz
Channel: 5825	MCS0	15.13	>500KHz
IEEE 802.11n(HT40) Mode (OFDM)			
Channel: 5755	MCS0	35.13	>500KHz
Channel: 5795	MCS0	35.15	>500KHz
IEEE 802.11ac (VHT20) Mode (OFDM)			
Channel: 5745	MCS0	13.93	>500KHz
Channel: 5785	MCS0	15.14	>500KHz
Channel: 5825	MCS0	15.10	>500KHz
IEEE 802.11ac (VHT40) Mode (OFDM)			
Channel: 5755	MCS0	35.15	>500KHz
Channel: 5795	MCS0	35.16	>500KHz
IEEE 802.11ac (VHT80) Mode (OFDM)			
Channel: 5775	MCS0	75.48	>500KHz

U-NII-3

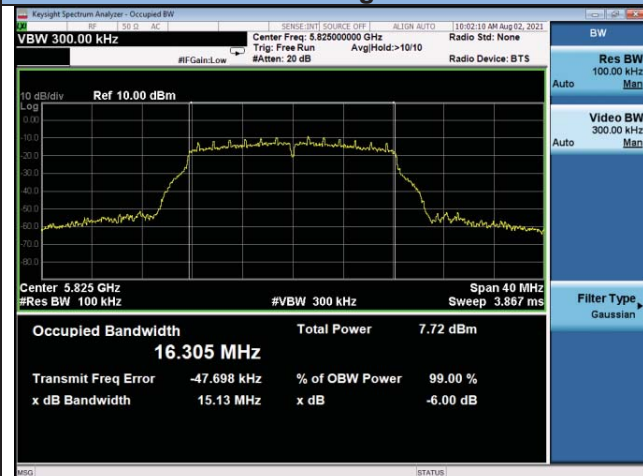
IEEE 802.11a Low Channel



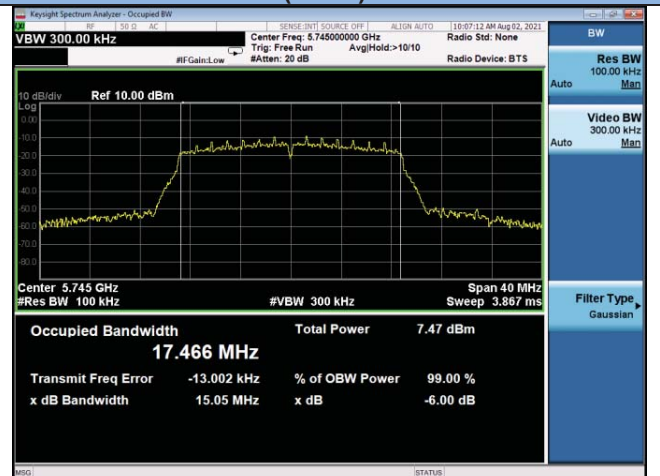
IEEE 802.11a Middle Channel



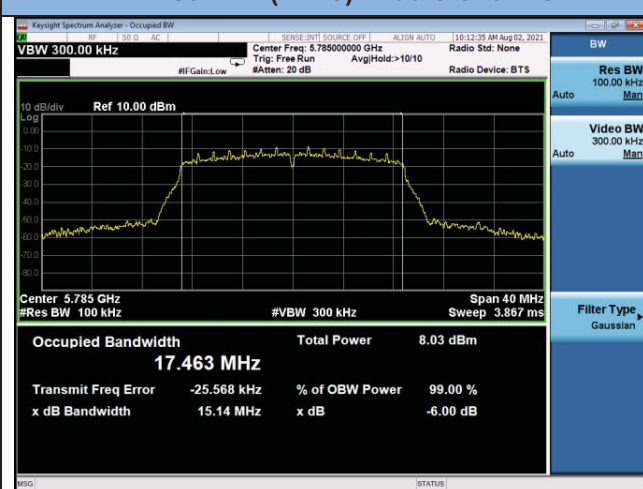
IEEE 802.11a High Channel



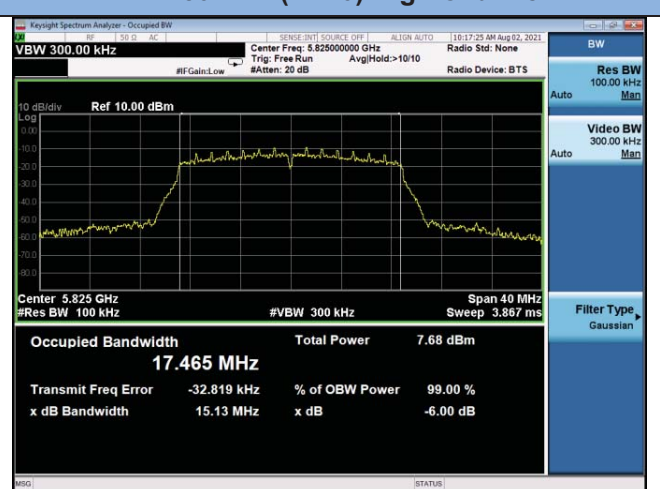
IEEE 802.11n(HT20) Low Channel



IEEE 802.11n(HT20) Middle Channel

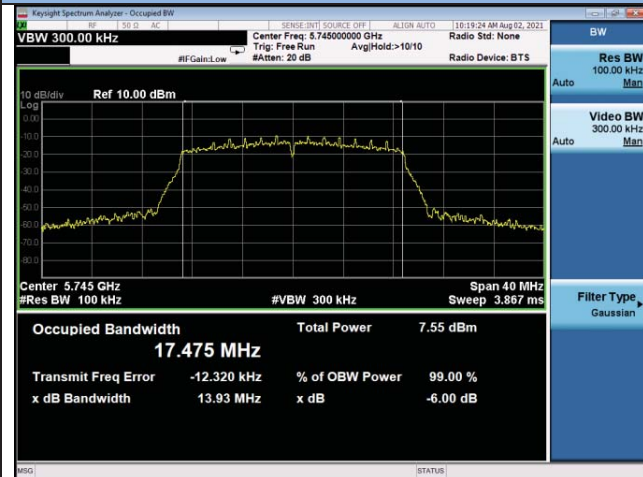


IEEE 802.11n(HT20) High Channel

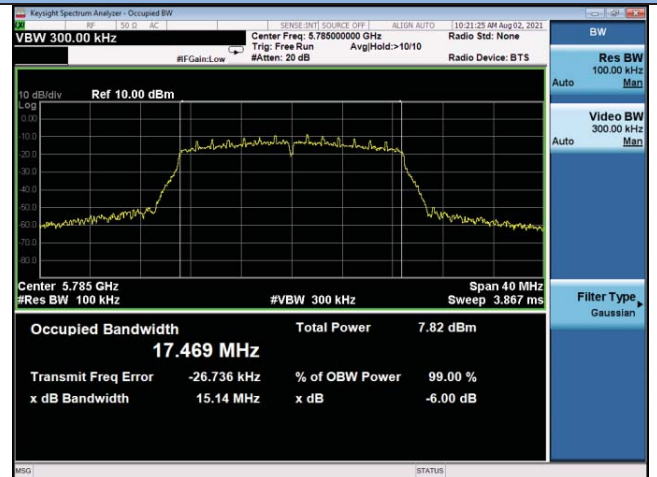


U-NII-3

IEEE 802.11ac(VHT20) Low Channel



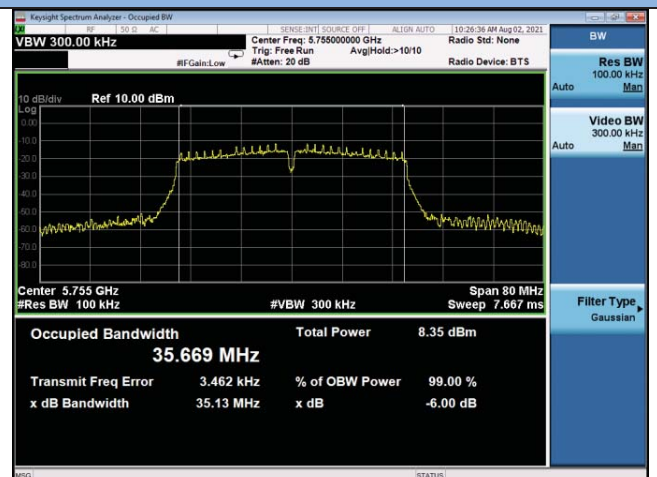
IEEE 802.11ac(VHT20) Middle Channel



IEEE 802.11ac(VHT20) High Channel



IEEE 802.11n(HT40) Low Channel



IEEE 802.11n(HT40) High Channel

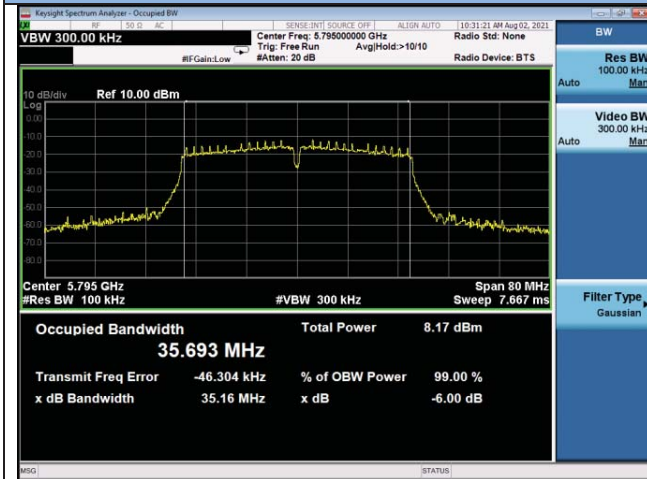


IEEE 802.11ac(VHT40) Low Channel

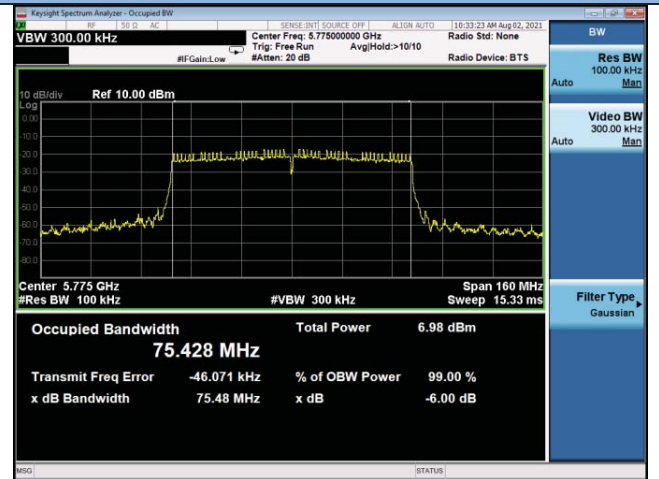


U-NII-3

IEEE 802.11ac(VHT40) High Channel



IEEE 802.11ac(VHT80)

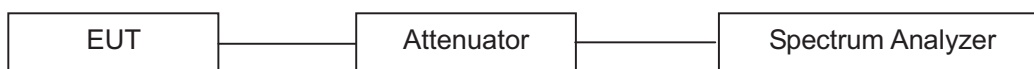


14.4 26dB Bandwidth & 99% Occupied Bandwidth

LIMITS

No restriction limits.

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

The antenna port of the EUT was connected to the input of a spectrum analyzer.

Analyzer was set as below according to FCC KDB789033(v02r01):

- a. For 26dB bandwidth, Set the RBW = Approximately 1% of the emission bandwidth
 - b. Set the VBW > RBW
 - c. Detector = peak.
 - d. Sweep time = auto couple.
 - e. Trace mode = max hold.
 - f. Allow trace to fully 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 26 dB relative to the maximum level measured in the fundamental emission.
-
1. For 99% occupied bandwidth, Set the RBW = 1% to 5% of the OBW
 2. Set the VBW $\geq 3 \times$ RBW
 3. Detector = peak.
 4. Span = 1.5 times to 5.0 times the OBW
 5. Sweep time = auto couple.
 6. Trace mode = max hold. Allow trace to fully stabilize.
 7. Use the 99% power bandwidth function of the spectrum analyzer measure the occupied bandwidth.

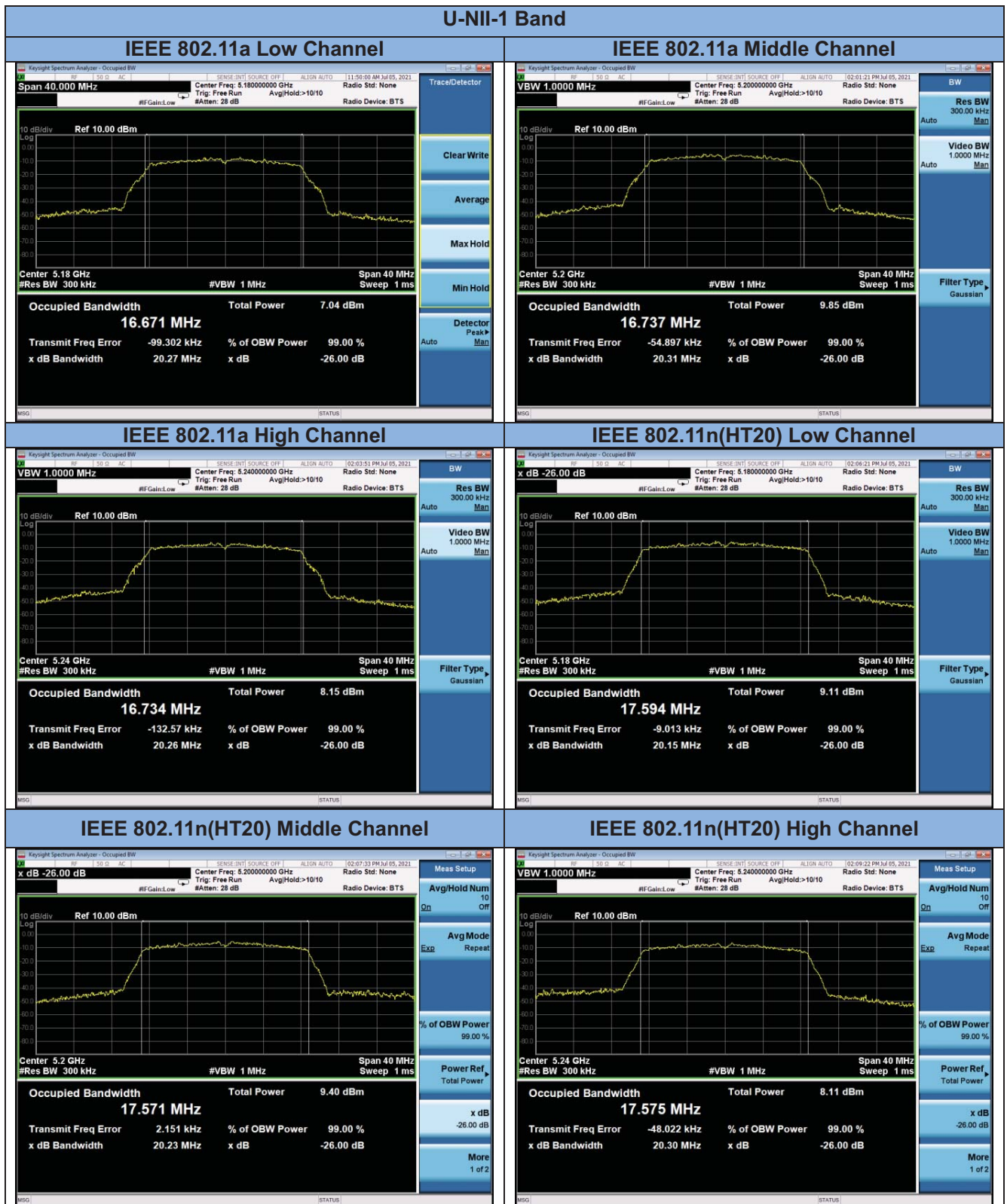
TEST RESULTS

PASS

Please refer to the following table.

U-NII-1 Band			
Frequency MHz	Data Rate Mbps	26dB Bandwidth MHz	99% Occupied Bandwidth MHz
IEEE 802.11a Mode (OFDM)			
Channel: 5180	6	20.27	16.671
Channel: 5200	6	20.31	16.737
Channel: 5240	6	20.26	16.734
IEEE 802.11n(HT20) Mode (OFDM)			
Channel: 5180	MCS0	20.15	17.594
Channel: 5200	MCS0	20.23	17.571
Channel: 5240	MCS0	20.30	17.575
IEEE 802.11n(HT40) Mode (OFDM)			
Channel: 5190	MCS0	41.64	36.198
Channel: 5230	MCS0	41.18	36.117
IEEE 802.11ac (VHT20) Mode (OFDM)			
Channel: 5180	MCS0	20.24	17.565
Channel: 5200	MCS0	20.27	17.569
Channel: 5240	MCS0	20.35	17.564
IEEE 802.11ac (VHT40) Mode (OFDM)			
Channel: 5190	MCS0	41.50	36.178
Channel: 5230	MCS0	41.11	36.035
IEEE 802.11ac (VHT80) Mode (OFDM)			
Channel: 5210	MCS0	81.99	75.896

U-NII-3 Band			
Frequency MHz	Data Rate Mbps	26dB Bandwidth MHz	99% Occupied Bandwidth MHz
IEEE 802.11a Mode (OFDM)			
Channel: 5745	6	20.27	16.744
Channel: 5785	6	20.29	16.726
Channel: 5825	6	20.31	16.755
IEEE 802.11n(HT20) Mode (OFDM)			
Channel: 5745	MCS0	20.34	17.588
Channel: 5785	MCS0	20.31	17.567
Channel: 5825	MCS0	20.35	17.588
IEEE 802.11n(HT40) Mode (OFDM)			
Channel: 5755	MCS0	41.09	36.514
Channel: 5795	MCS0	41.140	36.564
IEEE 802.11ac (VHT20) Mode (OFDM)			
Channel: 5745	MCS0	20.31	17.556
Channel: 5785	MCS0	20.16	17.560
Channel: 5825	MCS0	20.27	17.564
IEEE 802.11ac (VHT40) Mode (OFDM)			
Channel: 5755	MCS0	40.83	36.319
Channel: 5795	MCS0	40.80	36.337
IEEE 802.11ac (VHT80) Mode (OFDM)			
Channel: 5775	MCS0	80.26	75.809

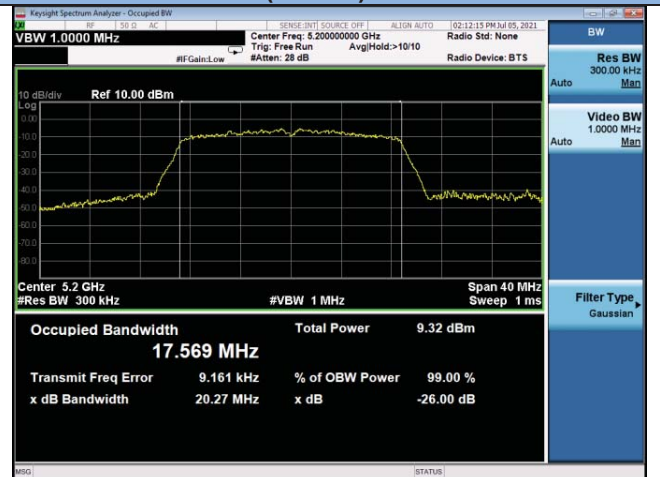


U-NII-1 Band

IEEE 802.11ac(VHT20) Low Channel



IEEE 802.11ac(VHT20) Middle Channel



IEEE 802.11ac(VHT20) High Channel



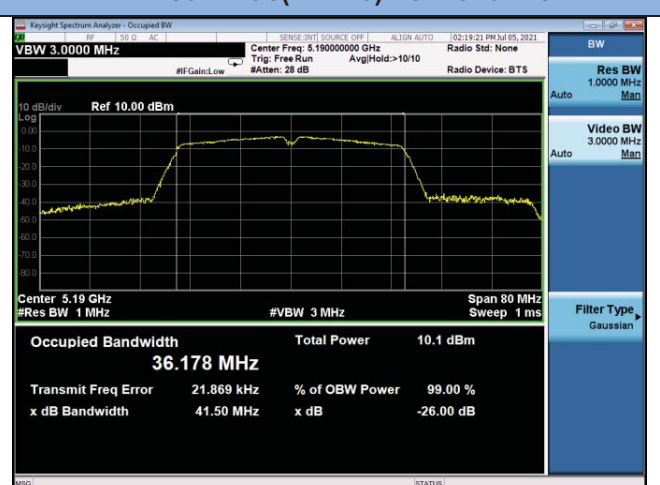
IEEE 802.11n(HT40) Low Channel

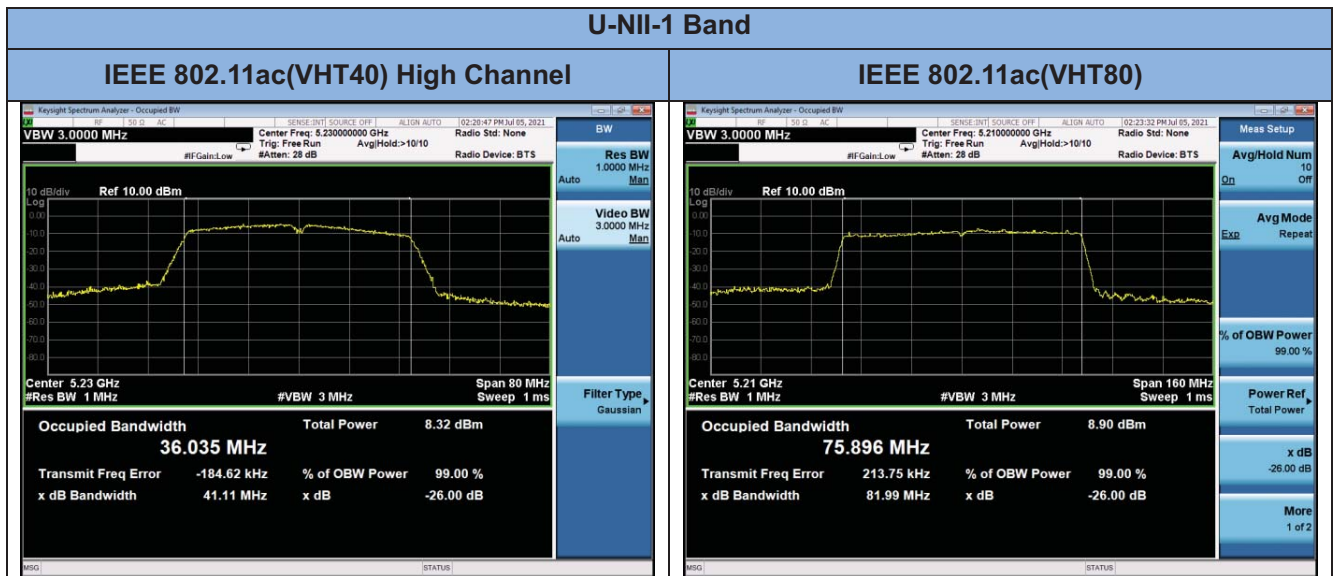


IEEE 802.11n(HT40) High Channel



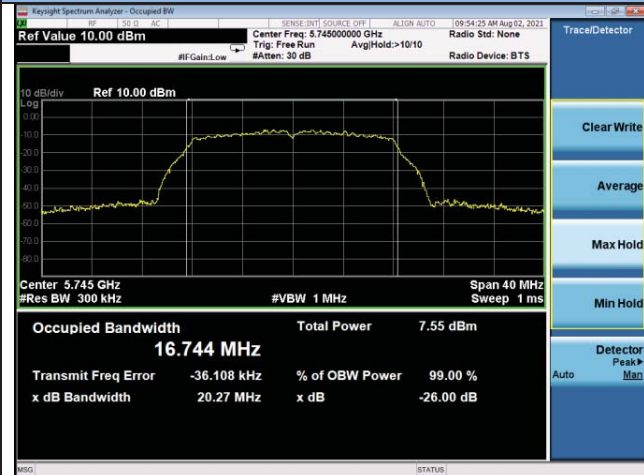
IEEE 802.11ac(VHT40) Low Channel



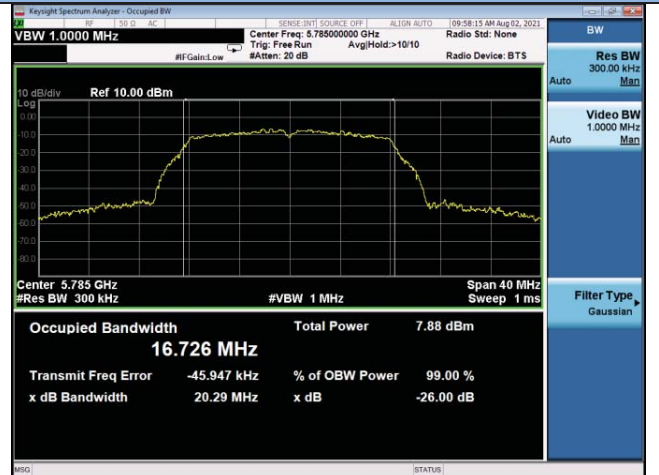


U-NII-3 Band

IEEE 802.11a Low Channel



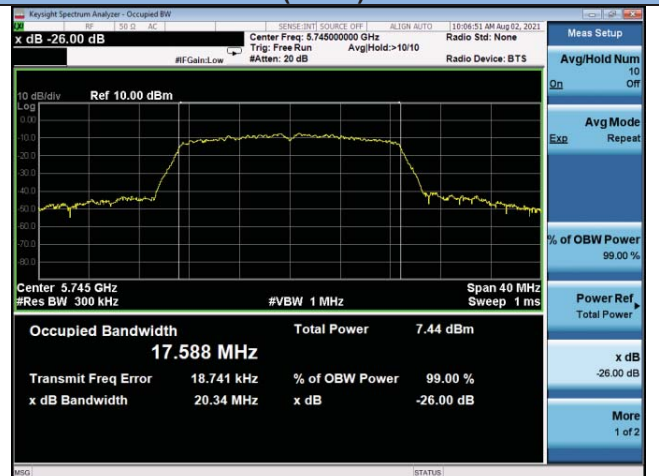
IEEE 802.11a Middle Channel



IEEE 802.11a High Channel



IEEE 802.11n(HT20) Low Channel



IEEE 802.11n(HT20) Middle Channel

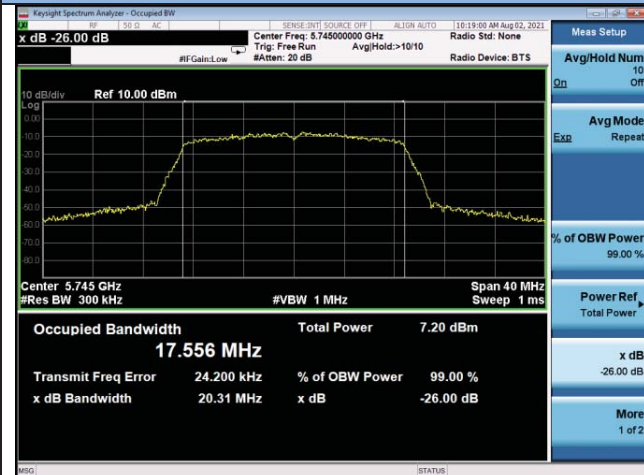


IEEE 802.11n(HT20) High Channel

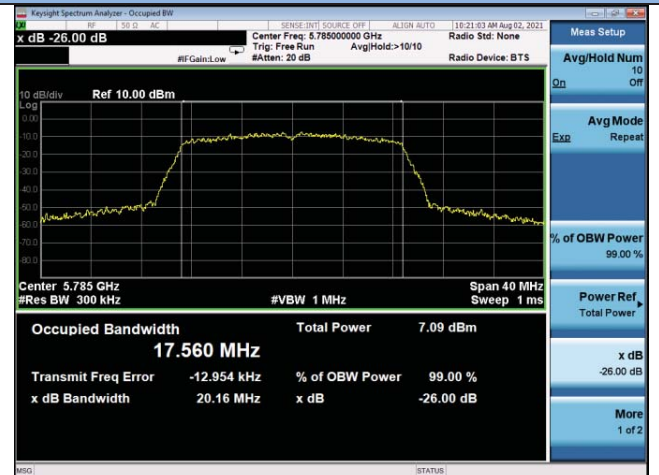


U-NII-3 Band

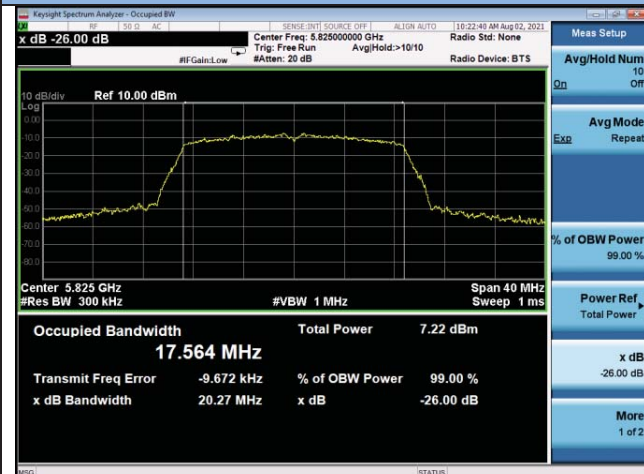
IEEE 802.11ac(VHT20) Low Channel



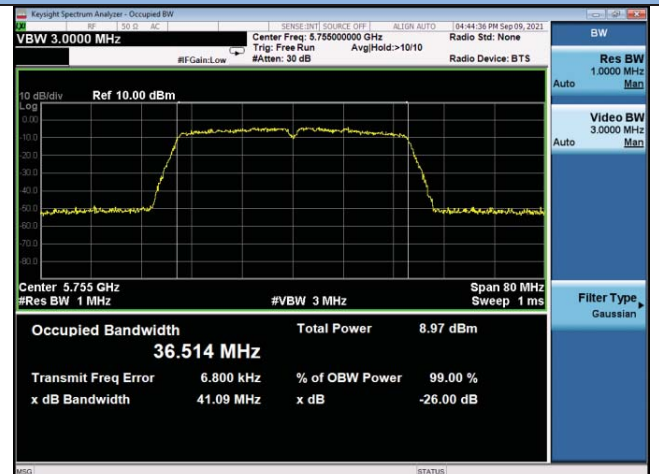
IEEE 802.11ac(VHT20) Middle Channel



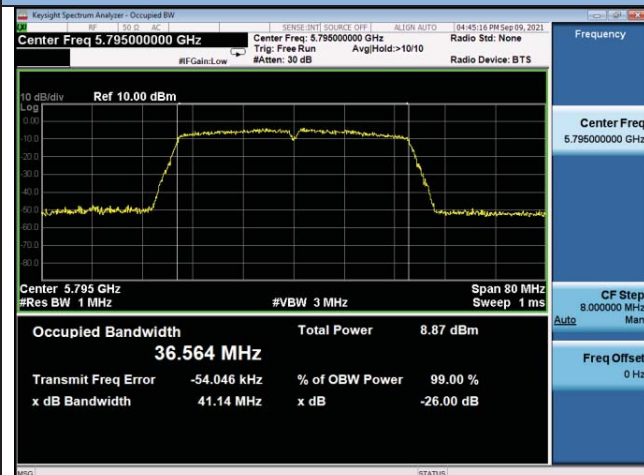
IEEE 802.11ac(VHT20) High Channel



IEEE 802.11n(HT40) Low Channel



IEEE 802.11n(HT40) High Channel



IEEE 802.11ac(VHT40) Low Channel

