



FCC TEST REPORT
FCC ID: 2ADD2TBGL1017A

On Behalf of
Tband srl
Android MiniPC Box
Model No.: TBGL1017A

Prepared for : Tband srl
Address : Via Battisti, 4, Mogliano Veneto (TV) TREVISO, 31021 Italy

Prepared By : Shenzhen Alpha Product Testing Co., Ltd.
Address : Building B, East Area of Nanchang Second Industrial Zone,
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China

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TEST REPORT DECLARATION

Applicant : Tband srl
Address : Via Battisti, 4, Mogliano Veneto (TV) TREVISO, 31021 Italy
Manufacturer : Artway Technology International Ltd.
Address : 621, B3 Block, NO.168, Baoyuan Road, Bao'an D., Shenzhen, Guangdong, China
EUT Description : Android MiniPC Box
(A) Model No. : TBGL1017A
(B) Trademark : N/A

Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart C 2016,
ANSI C63.4:2014, ANSI C63.10:2013

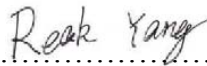
The device described above is tested by Shenzhen Alpha Product Testing Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits both conducted and radiated emissions. The test results are contained in this test report and Shenzhen Alpha Product Testing Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen Alpha Product Testing Co., Ltd.

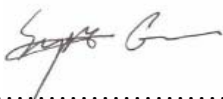
Tested by (name + signature).....:

Reak Yang
Project Engineer


.....

Approved by (name + signature).....:

Simple Guan
Project Manager


.....

Date of issue.....

July 10, 2017

Revision History

Revision	Issue Date	Revisions	Revised By
00	July 10, 2017	Initial released Issue	Simple Guan

1. General Information

1.1 Description of Device (EUT)

EUT	:	Android MiniPC Box
Model No.	:	TBGL1017A
DIFF.	:	N/A
Trade mark	:	N/A
Power supply	:	DC 5V From USB Port
Radio Technology	:	5G WiFi
Operation frequency	:	IEEE 802.11n HT20: 5180MHz-5240MHz, 5745MHz-5825MHz IEEE 802.11n HT40: 5190MHz-5230MHz, 5755MHz-5795MHz IEEE 802.11a: 5180MHz-5240MHz, 5.745GHz-5.825GHz IEEE 802.11ac: 5180MHz-5240MHz, 5.745GHz-5.825GHz
Channel number	:	IEEE 802.11n HT20 5.2GHz band: 4 Channels IEEE 802.11n HT20 5.8GHz band: 5 Channels IEEE 802.11n HT40 5.2GHz band: 2 Channels IEEE 802.11n HT40 5.8GHz band: 2 Channels IEEE 802.11a 5.2GHz band : 4 Channels IEEE 802.11a 5.8GHz band : 5 Channels IEEE 802.11ac: 1 channel for both band
Modulation	:	IEEE 802.11n : OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11a : OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM(256 QAM)
Antenna Type	:	PCB Antenna, max gain 4.1 dBi.

1.1 Accessories of device (EUT)

Accessories1 : Remote Control

Mode : N/A

1.2 Test Lab information

Shenzhen Alpha Product Testing Co., Ltd.

Building B, East Area of Nanchang Second Industrial Zone,
Gushu 2nd Road, Bao'an District, Shenzhen 518126, P.R. China

FCC Registered No.: 203110

2. Summary of Measurement

2.1. Summary of test result

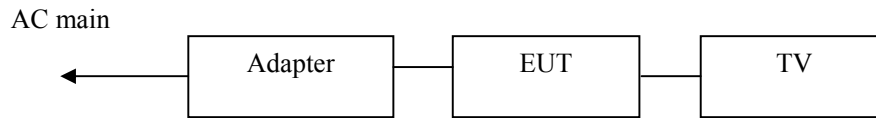
Test Item	Test Requirement	Standards Paragraph	Result
Spurious Emission	FCC PART 15 : 2016	Section 15.407(b)&15.209 Section 5.5	Compliance
Conduction Emission	FCC PART 15 : 2016	Section 15.207 Section 7.2.4	Compliance
Bandwidth Test	FCC PART 15 : 2016	Section 15.407(a) RSS-247 5.1(2)	Compliance
Peak Power	FCC PART 15 : 2016	Section 15.407(a) RSS-247 5.4(2)	Compliance
Power Density	FCC PART 15 : 2016	Section 15.407(a) Section 5.2(2)	Compliance
Undesirable emission	FCC PART 15 : 2016	Section 15.407(b) Section Section 5.5	Compliance
Antenna Requirement	FCC PART 15 : 2016	Section 15.203 Section 7.1.4	Compliance

Note: The EUT has been tested as an independent unit. And Continual Transmitting in maximum power (The adapter be used during Test)

2.2. Assistant equipment used for test

Description 1	:	TV
Manufacturer	:	TCL
Model No.	:	L32F1510BN
Serial No.	:	2400109888
Description 2	:	Adapter
Model No.	:	LS-A01
Input	:	AC 100-240V, 50/60Hz, 0.5A
Output	:	DC 5V, 1000mA

2.3.Block Diagram



2.4.Test mode

Tested mode, channel, and data rate information 5.2G			
Mode	Data rate (Mbps) see Note	Channel	Frequency (MHz)
IEEE 802.11n HT20	6.5	CH36	5180
	6.5	CH40	5200
	6.5	CH48	5240
IEEE 802.11n HT40	13.5	CH38	5190
	13.5	CH46	5230
IEEE 802.11a	6	CH36	5180
	6	CH40	5200
	6	CH48	5240
IEEE 802.11ac	433.3	CH42	5210

Note: According exploratory test and product specification EUT will have maximum output power in those data rate, so those data rate were used for all test.

Dutycycle :100% Keeping TX mode			
Mode	data rate (Mbps)(see Note)	Channel	Frequency (MHz)
IEEE 802.11 n/HT20 with 5.8G	6.5	CH149	5745
	6.5	CH157	5785
	6.5	CH165	5825
IEEE 802.11 n/HT40 with 5.8G	13.5	CH151	5755
	13.5	CH159	5795
IEEE 802.11a with 5.8G	6	CH149	5745
	6	CH157	5785
	6	CH165	5825
IEEE 802.11ac with 5.8G	433.3	CH155	5775

Note: According exploratory test, EUT will have maximum output power in those data rate. so those data rate were used for all test.

2.5.Channel list

For IEEE 802.11 a with 5.2G			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH36	5180	CH44	5220
CH40	5200	CH48	5240

For IEEE 802.11 n/HT20 with 5.2G			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH36	5180	CH44	5220
CH40	5200	CH48	5240

For IEEE 802.11 n/HT40 with 5.2G			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH38	5190	CH46	5230

For IEEE 802.11 ac with 5.2G			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH42	5210		

For IEEE 802.11 a with 5.8G					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH149	5745	CH157	5785	CH165	5825
CH153	5765	CH161	5805		

For IEEE 802.11n/HT20 with 5.8G					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH149	5745	CH157	5785	CH165	5825
CH153	5765	CH161	5805		

For IEEE 802.11n/HT40 with 5.8G					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH151	5755	CH159	5795		

For IEEE 802.11 ac with 5.8G					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
CH155	5775				

2.6. Test Conditions

Temperature range	21-25°C
Humidity range	40-75%
Pressure range	86-106kPa

2.7. Measurement Uncertainty (95% confidence levels, k=2)

Item	MU	Remark
Uncertainty for Power point Conducted Emissions Test	2.71dB	
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	2.13dB	Polarize: V
	2.57dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.90dB	Polarize: V
	3.92dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	4.28dB	Polarize: H
	4.26dB	Polarize: V
Uncertainty for radio frequency	1×10 ⁻⁹	
Uncertainty for conducted RF Power	0.16dB	
Uncertainty for temperature	0.2°C	
Uncertainty for humidity	1%	
Uncertainty for DC and low frequency voltages	0.06%	

3. EMC Equipment List

Equipment	Manufacture	Model No.	Serial No.	Last cal.	Cal Interval
3m Semi-Anechoic	ETS-LINDGREN	N/A	SEL0017	2016.09.29	1Year
Spectrum analyzer	Agilent	E4407B	MY46185649	2016.09.29	1Year
Receiver	R&S	ESCI	1166.5950K03-1 011	2016.09.29	1Year
Receiver	R&S	ESCI	101202	2016.09.29	1Year
Bilog Antenna	Schwarzbeck	VULB 9168	VULB9168-438	2016.09.30	2Year
Horn Antenna	EMCO	3115	640201028-06	2016.09.30	2Year
Active Loop Antenna	Beijing Daze	ZN30900A	SEL0097	2016.09.30	2Year
Cable	Resenberger	N/A	No.1	2016.09.29	1Year
Cable	SCHWARZBECK	N/A	No.2	2016.09.29	1Year
Cable	SCHWARZBECK	N/A	No.3	2016.09.29	1Year
Pre-amplifier	Schwarzbeck	BBV9743	9743-019	2016.09.29	1Year
Pre-amplifier	R&S	AFS33-18002650- 30-8P-44	SEL0080	2016.09.29	1Year
Base station	Agilent	E5515C	GB44300243	2016.09.29	1 Year
Temperature controller	Terchy	MHQ	120	2016.09.29	1Year
Power divider	Anritsu	K240C	020346	2016.09.29	1 Year
Signal Generator	HP	83732B	VS3449051	2016.09.29	1 Year
Power Meter	Anritsu	ML2487A	6K00001491	2016.09.29	1Year
Power sensor	Anritsu	ML2491A	32516	2016.09.29	1Year

L.I.S.N.#1	Schwarzbeck	NSLK8126	8126466	2016.09.29	1 Year
L.I.S.N.#2	ROHDE&SCHWA RZ	ENV216	101043	2016.09.29	1 Year
20db Attenuator	ICPROBING	IATS1	82347	2016.09.29	1 Year

4. Spurious Emission

4.1. Radiation Emission

4.2. Radiation Emission Limits(15.209)

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

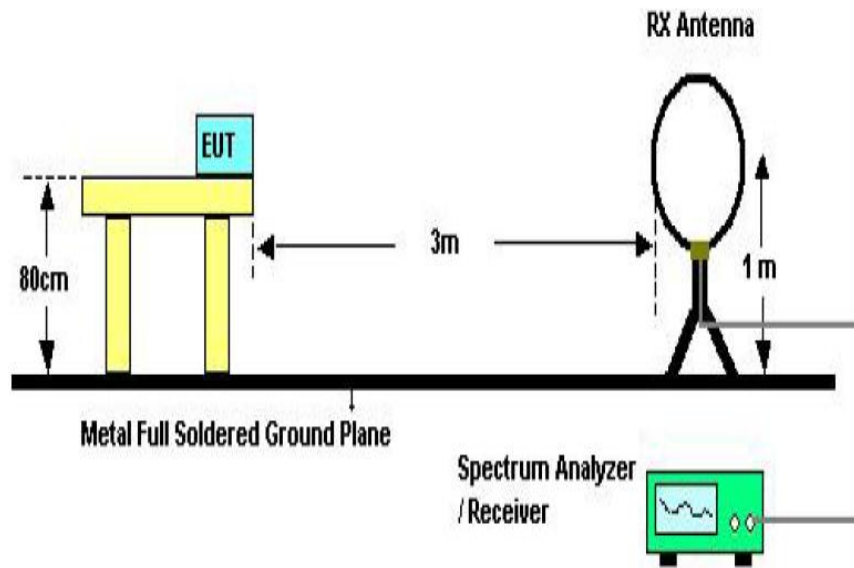
Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

NOTE:

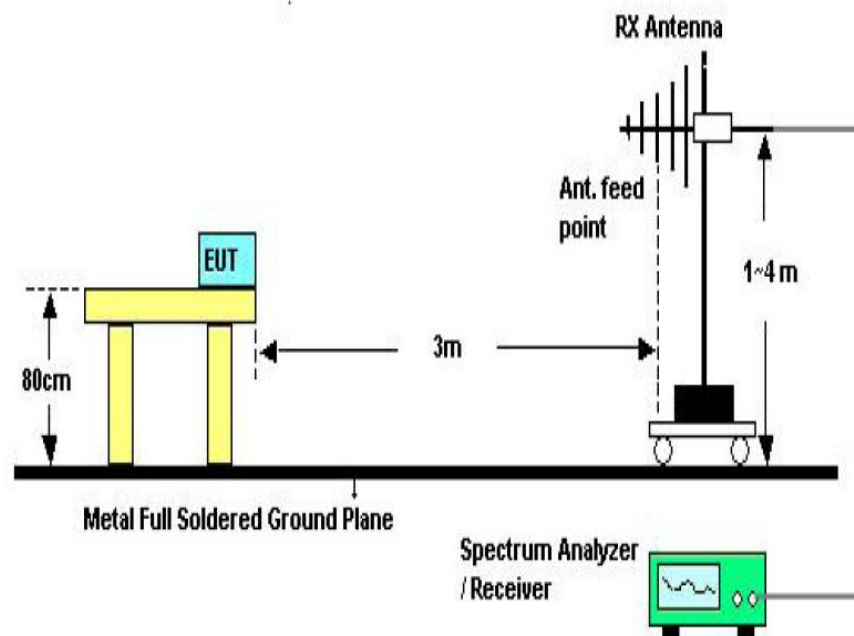
- a) The tighter limit applies at the band edges.
- b) Emission Level(dB uV/m)=20log Emission Level(Uv/m)

4.3. Test Setup

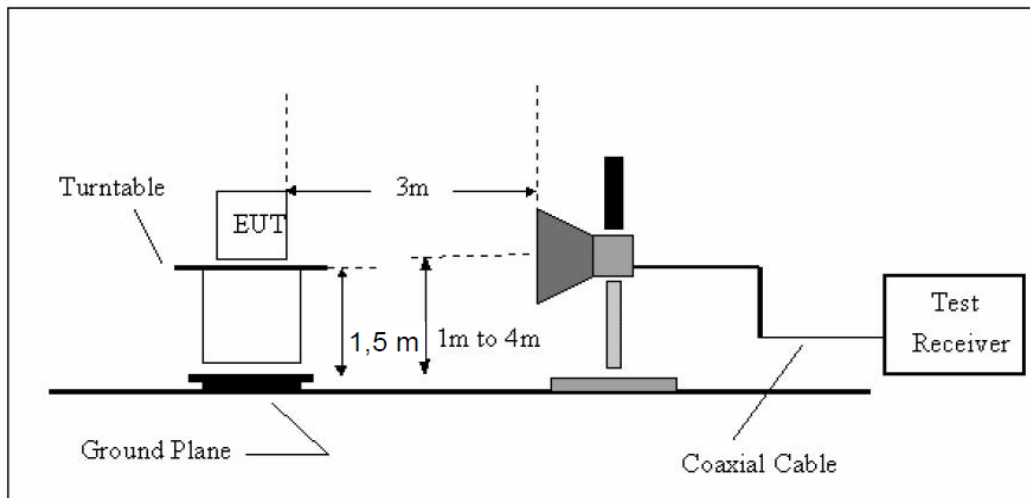
See the next page



Below 30MHz Test Setup



Above 30MHz Test Setup



Above 1GHz Test Setup

4.4. Test Procedure

- a) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1GHz, The EUT was placed on a rotating 0.8 m high above ground, The table was rotated 360 degrees to determine the position of the highest radiation
- b) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set of make measurement.
- c) The initial step in collecting conducted emission data is a spectrum analyzer Peak detector mode pre-scanning the measurement frequency range. Significant Peaks are then marked. and then Qusia Peak Detector mode premeasured
- d) If Peak value comply with QP limit Below 1GHz. The EUT deemed to comply with QP limit. But the Peak value and average value both need to comply with applicable limit above 1GHz.
- e) For the actual test configuration, please see the test setup photo.

4.5. Test Equipment Setting For emission test Result

9KHz~150KHz	RBW 200Hz	VBW 1KHz
150KHz~30MHz	RBW 9KHz	VBW 30KHz
30MHz~1GHz	RBW 120KHz	VBW 300KHz
Above 1GHz	RBW 1MHz	VBW 3MHz

4.6. Test Condition

MIMO Continual Transmitting in maximum power.

4.7. Test Result

We have scanned the 9KHz from 25GHz to the EUT.
Detailed information please see the following page.

From 9KHz to 30MHz: Conclusion: PASS

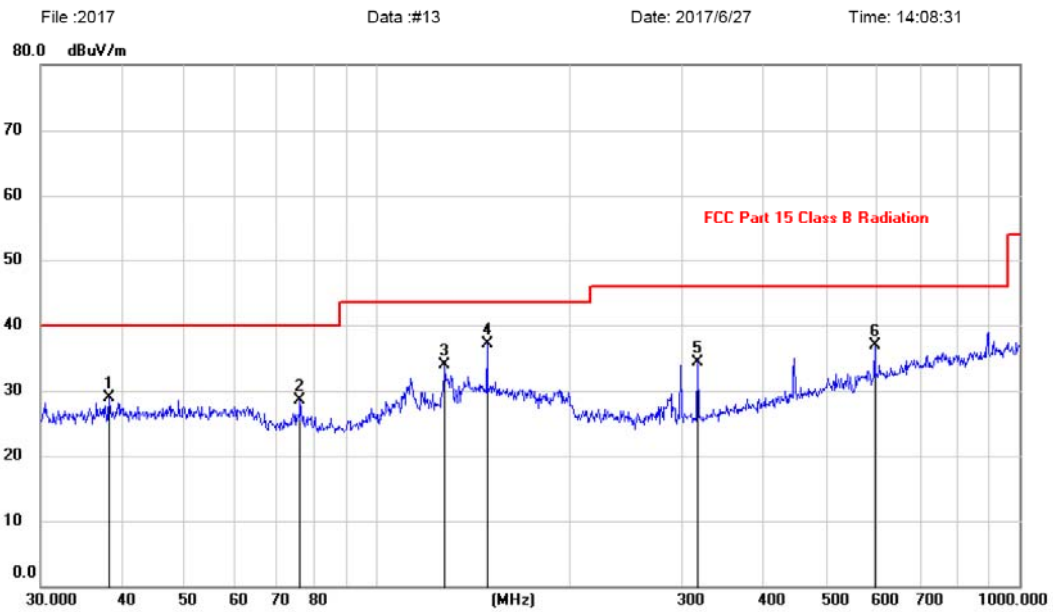
Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Site LAB 966-2 Chamber
 Limit: FCC Part 15 Class B Radiation
 EUT: Android MiniPC Box
 M/N: TBGL1017A
 Mode: WiFi 5G
 Note:
 Engineer Signature:

Polarization: **Horizontal**
 Power: AC 120V/60Hz
 Distance:

Temperature: 23.8
 Humidity: 56 %

Radiated Emission Measurement



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree
1		38.3462	14.95	13.95	28.90	40.00	-11.10	QP		
2		75.9772	18.39	10.15	28.54	40.00	-11.46	QP		
3		127.6645	20.90	13.08	33.98	43.50	-9.52	QP		
4	*	148.4410	22.66	14.44	37.10	43.50	-6.40	QP		
5		316.5889	20.61	13.79	34.40	46.00	-11.60	QP		
6		595.1327	17.66	19.17	36.83	46.00	-9.17	QP		

Note:1. *:Maximum data; x:Over limit; l:over margin.

2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

Site LAB 966-2 Chamber
 Limit: FCC Part 15 Class B Radiation
 EUT: Android MiniPC Box
 M/N: TBGL1017A
 Mode:WiFi 5G
 Note:
 Engineer Signature:

Polarization: **Vertical**
 Power: AC 120V/60Hz
 Distance:

Temperature: 23.8
 Humidity: 56 %

Radiated Emission Measurement



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Antenna Height cm	Table Degree	Comment
1	*	39.0243	19.82	14.20	34.02	40.00	-5.98	QP		
2		63.7588	19.57	12.21	31.78	40.00	-8.22	QP		
3		128.5629	23.24	13.14	36.38	43.50	-7.12	QP		
4		153.2004	22.28	14.56	36.84	43.50	-6.66	QP		
5		316.5889	19.32	13.79	33.11	46.00	-12.89	QP		
6		747.4824	15.00	21.27	36.27	46.00	-9.73	QP		

Note:1. *:Maximum data; x:Over limit; !:over margin.

2.Measurement=Reading Level+Correct Factor; Correct Factor=Antenna Factor+Cable Loss.

Remark1: All modes and channels have been tested and only worst data of 802.11a, 5180MHz are listed in this report.

From 1G-25GHz
IEEE 802.11a with 5.2G

EUT		Android MiniPC Box			Model Name		TBGL1017A			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 5V from USB Port			
Test Mode		TX Low								
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10360	V	45.82	---	2.36	48.18	---	74	/	25.82	Peak
15540	V	45.10	---	4.52	49.62	---	74	/	24.38	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10360	H	46.56	---	2.36	48.92	---	74	/	25.08	Peak
15540	H	45.13	---	4.52	49.65	---	74	/	24.35	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10400	V	47.19	---	2.36	49.55	---	74	/	24.45	Peak
15600	V	42.85	---	4.52	47.37	---	74	/	26.63	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10400	H	47.00	---	2.36	49.36	---	74	/	24.64	Peak
15600	H	47.60	---	4.52	52.12	---	74	/	21.88	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10480	V	45.84	---	2.36	48.20	---	74	/	25.80	Peak
15720	V	44.68	---	4.52	49.20	---	74	/	24.80	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10480	H	48.03	---	2.36	50.39	---	74	/	23.61	Peak
15720	H	36.62	---	4.52	41.14	---	74	/	32.86	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT20 with 5.2G

EUT		Android MiniPC Box			Model Name		TBGL1017A			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 5V from USB Port			
Test Mode		TX Low								
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remar k
					Peak (dBuV/m)	AV (dBuV/m)				
10360	V	48.06	---	2.36	50.42	---	74	/	23.58	Peak
15540	V	45.14	---	4.52	49.66	---	74	/	24.34	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10360	H	48.10	---	2.36	50.46	---	74	/	23.54	Peak
15540	H	46.47	---	4.52	50.99	---	74	/	23.01	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10400	V	48.42	---	2.36	50.78	---	74	/	23.22	Peak
15600	V	47.82	---	4.52	52.34	---	74	/	21.66	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10400	H	47.03	---	2.36	49.39	---	74	/	24.61	Peak
15600	H	48.25	---	4.52	52.77	---	74	/	21.23	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10480	V	49.38	---	2.36	51.74	---	74	/	22.26	Peak
15720	V	48.12	---	4.52	52.64	---	74	/	21.36	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10480	H	48.75	---	2.36	51.11	---	74	/	22.89	Peak
15720	H	47.82	---	4.52	52.34	---	74	/	21.66	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT40 with 5.2G

EUT		Android MiniPC Box			Model Name		TBGL1017A			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 5V from USB Port			
Test Mode		TX Low								
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remar k
					Peak (dBuV/m)	AV (dBuV/m)				
10380	V	49.14	---	2.36	51.50	---	74	/	22.50	Peak
15570	V	48.53	---	4.52	53.05	---	74	/	20.95	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10380	H	46.69	---	2.36	49.05	---	74	/	24.95	Peak
15570	H	48.73	---	4.52	53.25	---	74	/	20.75	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10460	V	47.79	---	2.36	50.15	---	74	/	23.85	Peak
15690	V	45.74	---	4.52	50.26	---	74	/	23.74	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10460	H	48.81	---	2.36	51.17	---	74	/	22.83	Peak
15690	H	48.96	---	4.52	53.48	---	74	/	20.52	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11ac with 5.2G

EUT		Android MiniPC Box			Model Name		TBGL1017A			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 5V from USB Port			
Test Mode		TX								
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remar k
					Peak (dBuV/m)	AV (dBuV/m)				
10460	V	46.00	---	2.42	48.42	---	74		25.58	Peak
15570	V	45.85	---	4.52	50.37	---	74		23.63	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	MIMO TX		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
10460	H	45.99	---	2.42	48.41	---	74	/	25.59	Peak
15570	H	46.09	---	4.52	50.61	---	74	/	23.39	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

From 1G-25GHz:
IEEE 802.11a with 5.8G

EUT		Android MiniPC Box			Model Name		TBGL1017A			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 5V from USB Port			
Test Mode		TX Low								
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11490	V	47.42	---	2.36	49.78	---	74	/	24.22	Peak
17235	V	47.03	---	4.52	51.55	---	74	/	22.45	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11490	H	47.04	---	2.36	49.40	---	74	/	24.60	Peak
17235	H	46.80	---	4.52	51.32	---	74	/	22.68	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11570	V	48.06	---	2.36	50.42	---	74	/	23.58	Peak
17355	V	47.58	---	4.52	52.10	---	74	/	21.90	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11570	H	47.88	---	2.36	50.24	---	74	/	23.76	Peak
17355	H	47.51	---	4.52	52.03	---	74	/	21.97	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11650	V	48.28	---	2.36	50.64	---	74	/	23.36	Peak
17475	V	48.66	---	4.52	53.18	---	74	/	20.82	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11650	H	49.01	---	2.36	51.37	---	74	/	22.63	Peak
17475	H	47.47	---	4.52	51.99	---	74	/	22.01	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT20 with 5.8G

EUT		Android MiniPC Box			Model Name		TBGL1017A			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 5V from USB Port			
Test Mode		TX Low								
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remar k
					Peak (dBuV/m)	AV (dBuV/m)				
11490	V	49.11	---	2.36	51.47	---	74	/	22.53	Peak
17235	V	48.76	---	4.52	53.28	---	74	/	20.72	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11490	H	49.66	---	2.36	52.02	---	74	/	21.98	Peak
17235	H	48.89	---	4.52	53.41	---	74	/	20.59	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11570	V	49.12	---	2.36	51.48	---	74	/	22.52	Peak
17355	V	48.34	---	4.52	52.86	---	74	/	21.14	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Mid		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11570	H	48.59	---	2.36	50.95	---	74	/	23.05	Peak
17355	H	47.41	---	4.52	51.93	---	74	/	22.07	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11650	V	48.42	---	2.36	50.78	---	74	/	23.22	Peak
17475	V	47.96	---	4.52	52.48	---	74	/	21.52	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11650	H	48.86	---	2.36	51.22	---	74	/	22.78	Peak
17475	H	49.16	---	4.52	53.68	---	74	/	20.32	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11n/HT40 with 5.8G

EUT		Android MiniPC Box			Model Name		TBGL1017A			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 5V from USB Port			
Test Mode		TX Low								
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11510	V	48.40	---	2.36	50.76	---	74	/	23.24	Peak
17265	V	48.71	---	4.52	53.23	---	74	/	20.77	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX Low		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11510	H	49.27	---	2.36	51.63	---	74	/	22.37	Peak
17265	H	49.63	---	4.52	54.15	---	74	/	19.85	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11590	V	49.11	---	2.36	51.47	---	74	/	22.53	Peak
17385	V	48.67	---	4.52	53.19	---	74	/	20.81	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX High		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/m)	AV Reading (dBuV/m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11590	H	49.94	---	2.36	52.30	---	74	/	21.70	Peak
17385	H	49.32	---	4.52	53.84	---	74	/	20.16	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.
Emissions attenuated more than 20 dB below the permissible value are not reported.

IEEE 802.11ac with 5.8G

EUT		Android MiniPC Box			Model Name		TBGL1017A			
Temperature		26°C			Relative Humidity		56%			
Pressure		960hPa			Test voltage		DC 5V from USB Port			
Test Mode		TX								
Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11550	V	48.76	---	2.38	51.14	---	74	/	22.86	Peak
17265	V	49.06	---	4.52	53.58	---	74	/	20.42	Peak
N/A										

EUT	Android MiniPC Box	Model Name	TBGL1017A
Temperature	26°C	Relative Humidity	56%
Pressure	960hPa	Test voltage	DC 5V from USB Port
Test Mode	TX		

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV/ m)	AV Reading (dBuV/ m)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
11550	H	48.65	---	2.38	51.03	---	74	/	22.97	Peak
17265	H	48.43	---	4.52	52.95	---	74	/	21.05	Peak
N/A										

Notes: AV Means AV detector test data, Peak Means Peak detector test data.

Emissions attenuated more than 20 dB below the permissible value are not reported.

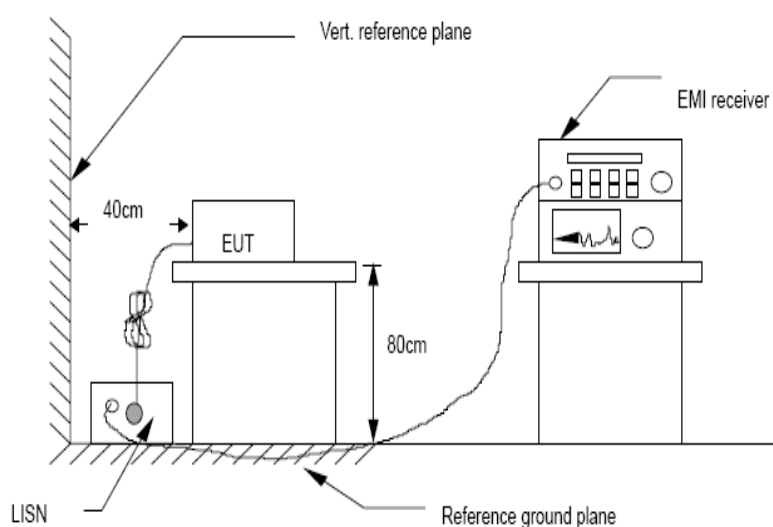
5. POWER LINE CONDUCTED EMISSION

5.1. Conducted Emission Limits(15.207)

Frequency MHz	Limits dB(μ V)	
	Quasi-peak Level	Average Level
0.15 -0.50	66 -56*	56 - 46*
0.50 -5.00	56	46
5.00 -30.00	60	50

- Notes: 1. *Decreasing linearly with logarithm of frequency.
 2. The lower limit shall apply at the transition frequencies.
 3. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

5.2. Test Setup



5.3. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4:2014 on Conducted Emission Measurement. The bandwidth of test receiver is set at 9 kHz.

5.4. Test Results

TX MODE

Worse case is reported only

PASS

Detailed information please see the following page.

Site LAB
 Limit: FCC Part 15 CLASS B QP
 EUT: Android MiniPC Box
 M/N: TBGL1017A
 Mode: WIFI 5G
 Note:
 Engineer Signature:

Phase: **L1**
 Power: AC 120V/60Hz

Temperature: 24.2
 Humidity: 53 %

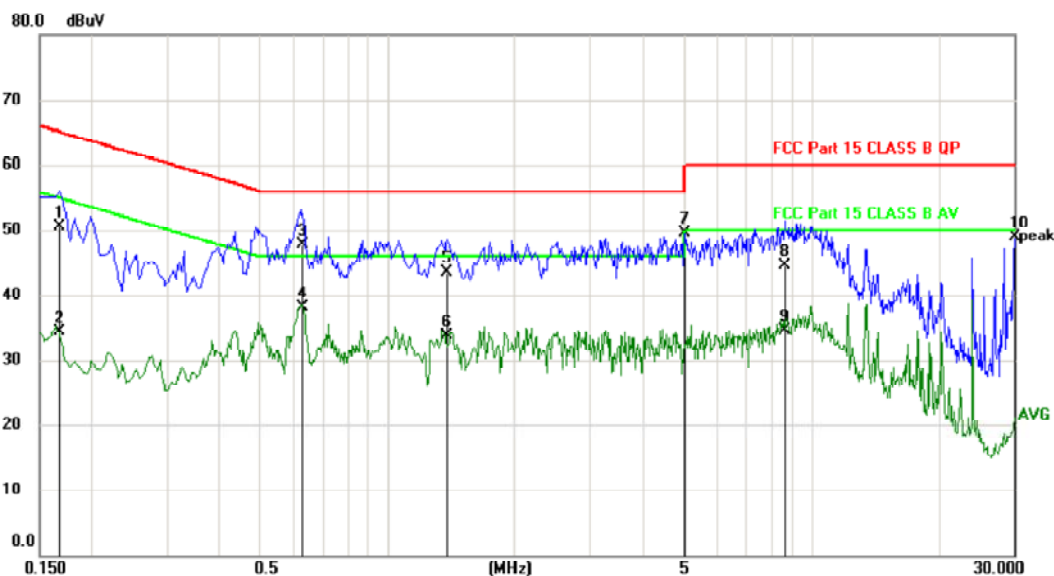
Conducted Emission Measurement

File :TBGL1017A

Data :#16

Date: 2017-6-26

Time: 13:56:09



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1680	50.30	0.20	50.50	65.06	-14.56	QP	
2		0.1680	34.03	0.20	34.23	55.06	-20.83	AVG	
3		0.6270	47.60	0.20	47.80	56.00	-8.20	QP	
4	*	0.6270	37.86	0.20	38.06	46.00	-7.94	AVG	
5		1.3805	43.40	0.20	43.60	56.00	-12.40	QP	
6		1.3805	33.54	0.20	33.74	46.00	-12.26	AVG	
7		5.0205	49.30	0.26	49.56	60.00	-10.44	peak	
8		8.6005	44.26	0.34	44.60	60.00	-15.40	QP	
9		8.6005	34.17	0.34	34.51	50.00	-15.49	AVG	
10		30.0000	47.58	1.36	48.94	60.00	-11.06	peak	

*:Maximum data x:Over limit !:over margin

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

Site LAB

Phase: **N**

Temperature: 24.2

Limit: FCC Part 15 CLASS B QP

Power: AC 120V/60Hz

Humidity: 53 %

EUT: Android MiniPC Box

M/N: TBGL1017A

Mode: WIFI 5G

Note:

Engineer Signature:

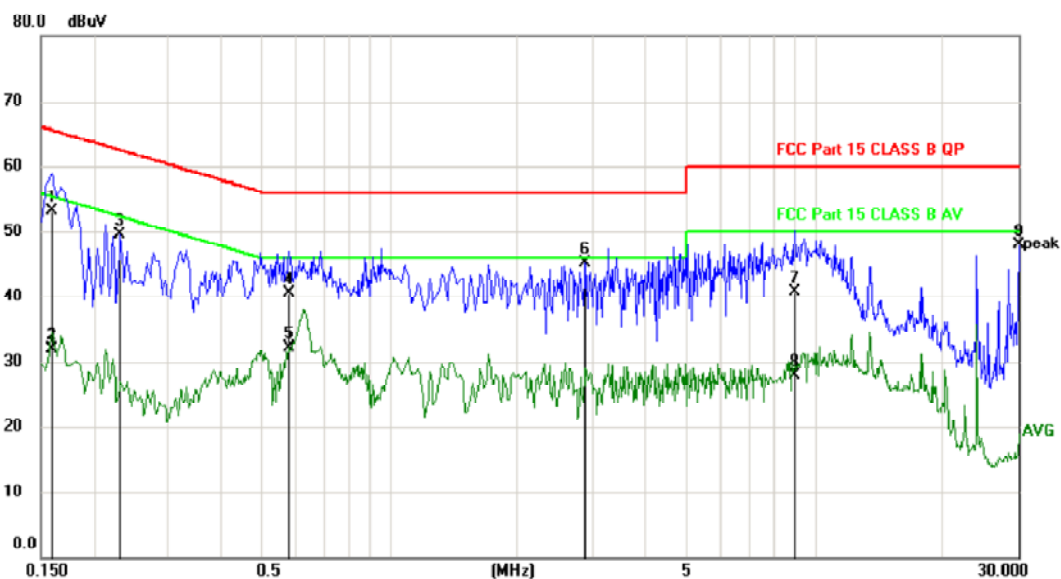
Conducted Emission Measurement

File :TBGL1017A

Data :#15

Date: 2017-6-26

Time: 13:51:30



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1590	53.00	0.20	53.20	65.52	-12.32	QP	
2		0.1590	31.63	0.20	31.83	55.52	-23.69	AVG	
3		0.2310	49.35	0.20	49.55	62.41	-12.86	peak	
4		0.5775	40.40	0.20	40.60	56.00	-15.40	QP	
5		0.5775	31.94	0.20	32.14	46.00	-13.86	AVG	
6	*	2.8804	44.92	0.24	45.16	56.00	-10.84	peak	
7		8.9604	40.44	0.36	40.80	60.00	-19.20	QP	
8		8.9604	27.52	0.36	27.88	50.00	-22.12	AVG	
9		30.0000	46.51	1.36	47.87	60.00	-12.13	peak	

*:Maximum data x:Over limit !:over margin

Note: Measurement=Reading Level+Correc Factor. Factor=(LISN or ISN or PLC or Current Probe)Factor+Cable

6. Conducted Maximum Output Power

6.1. Test limit

Band 5150-5250MHz

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Band 5725-5850MHz

The maximum conducted output power shall not exceed 1 W. The power spectral density shall not exceed 30 dBm in any 500 kHz band

6.2. Test Procedure

Details see the KDB558074 Meas Guidance V04

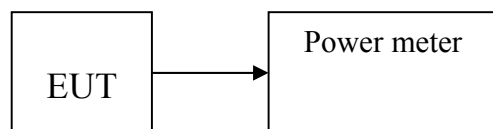
6.2.1. Place the EUT on the table and set it in transmitting mode.

6.2.2. Connected the EUT's antenna port to peak power meter by 20dB attenuator.

6.2.3. Measure out each mode and each bands peak output power of EUT.

Note: The cable loss and attenuator loss were offset into measure device as amplitude offset. Details see the KDB558074 DTS Meas Guidance V04

6.3. Test Setup



6.4. Test Results

PASS

Detailed information please see the following page.

5.2G Band

EUT: Android MiniPC Box M/N: TBGL1017A						
Test date: 2017-07-09		Test site: RF site		Tested by: Eric		
Mode	Frequency (MHz)	Ant Port	PK Output power(dBm)		Limit (dBm)	Result
IEEE 802.11 a with 5.2G	CH36:5180	0	13.69	13.69	24	Pass
		1	/			
	CH40:5200	0	14.08	14.08	24	Pass
		1	/			
	CH48:5240	0	14.32	14.32	24	Pass
		1	/			
IEEE 802.11 n/HT20 with 5.2G	CH36:5180	0	14.77	14.77	24	Pass
		1	/			
	CH40:5200	0	14.43	14.43	24	Pass
		1	/			
	CH48:5240	0	14.96	14.96	24	Pass
		1	/			
IEEE 802.11 n/HT40 with 5.2G	CH38:5190	0	12.47	12.47	24	Pass
		1	/			
	CH46:5230	0	13.27	13.27	24	Pass
		1	/			
IEEE 802.11 ac with 5.2G	CH42:5210	0	13.12	13.12	24	Pass
		1	/			
Conclusion: PASS						

5.8G Band

EUT: Android MiniPC Box		M/N: TBGL1017A				
Test date: 2017-07-09		Test site: RF site		Tested by: Eric		
Mode	Frequency (MHz)	Ant Port	PK Output powe(dBm)		Limit (dBm)	Result
IEEE 802.11 a with 5.8G	CH149:5745	0	13.12	13.12	30	Pass
		1	/			
	CH157:5785	0	13.98	13.98	30	Pass
		1	/			
	CH165:5825	0	14.03	14.03	30	Pass
		1	/			
IEEE 802.11 n/HT20 with 5.8G	CH149:5745	0	14.54	14.54	30	Pass
		1	/			
	CH157:5785	0	14.33	14.33	30	Pass
		1	/			
	CH165:5825	0	14.87	14.87	30	Pass
		1	/			
IEEE 802.11 n/HT40 with 5.8G	CH151:5755	0	12.25	12.25	30	Pass
		1	/			
	CH159:5795	0	13.01	13.01	30	Pass
		1	/			
IEEE 802.11 ac with 5.8G	CH155:5775	0	12.92	12.92	30	Pass
		1	/			
Conclusion: PASS						

7. PEAK POWER SPECTRAL DENSITY

7.1. Test limit

Band 5150-5250MHz

The maximum e.i.r.p. shall not exceed 200 mW or $10 + 10 \log_{10} B$, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Band 5725-5850MHz

The maximum conducted output power shall not exceed 1 W. The power spectral density shall not exceed 30 dBm in any 500 kHz band

7.2. Method of measurement

Details see the KDB558074 DTS Meas Guidance V04

7.2.1. Place the EUT on the table and set it in transmitting mode.

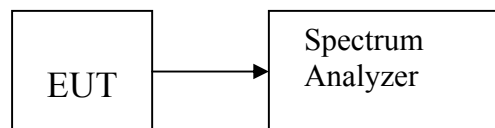
7.2.2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.

7.2.3. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, span=5-30%EBW, detail see the test plot.

7.2.4. Record the max reading.

7.2.4. Repeat the above procedure until the measurements for all frequencies are completed.

7.3. Test Setup



7.4. Test Results

PASS.

Detailed information please see the following page.

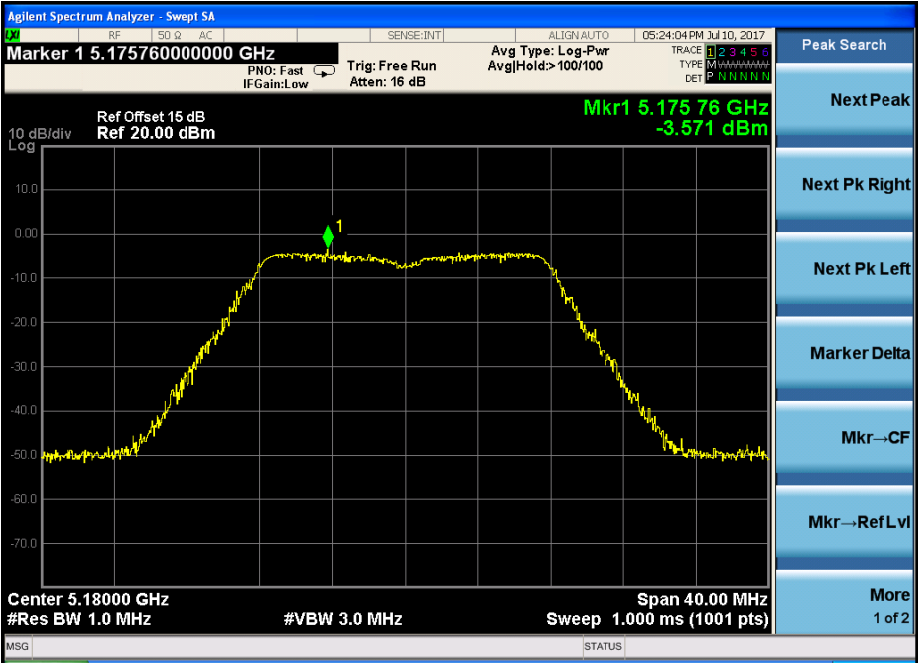
5.2G Band

EUT: Android MiniPC Box		M/N: TBGL1017A				
Test date: 2017-07-10		Test site: RF site		Tested by: Eric		
Mode	Frequency (MHz)	Ant Port	PK Output power(dBm)		Limit (dBm)	Result
IEEE 802.11 a with 5.2G	CH36:5180	0	-3.571	-3.571	11	Pass
		1	/			
	CH40:5200	0	-4.525	-4.525	11	Pass
		1	/			
	CH48:5240	0	-4.018	-4.018	11	Pass
		1	/			
IEEE 802.11 n/HT20 with 5.2G	CH36:5180	0	-4.065	-4.065	11	Pass
		1	/			
	CH40:5200	0	-4.912	-4.912	11	Pass
		1	/			
	CH48:5240	0	-4.874	-4.874	11	Pass
		1	/			
IEEE 802.11 n/HT40 with 5.2G	CH38:5190	0	-8.084	-8.084	11	Pass
		1	/			
	CH46:5230	0	-8.624	-8.624	11	Pass
		1	/			
IEEE 802.11 ac with 5.2G	CH42:5210	0	-9.637	-9.637	11	Pass
		1	/			
Conclusion: PASS						

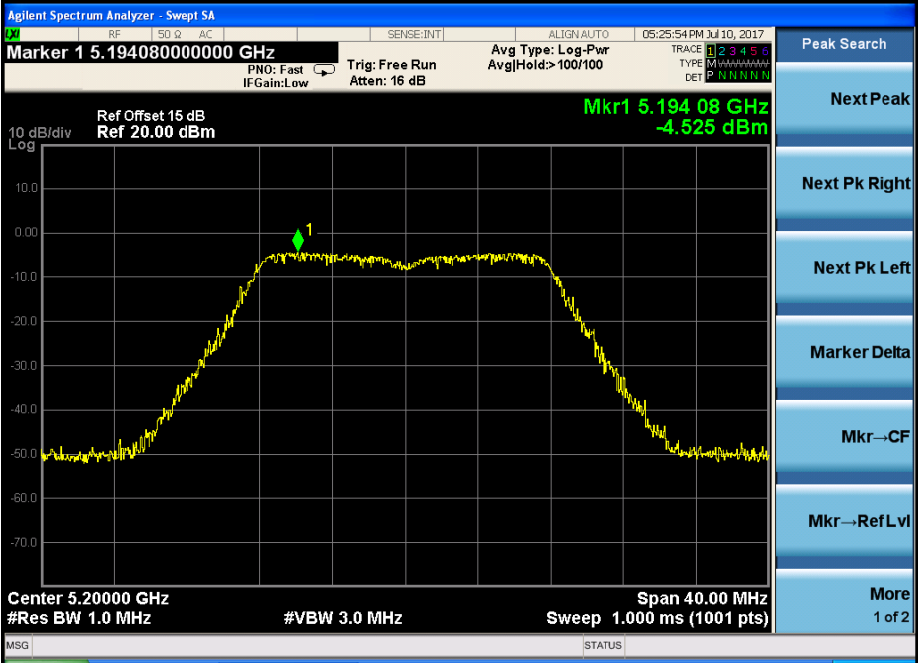
5.8G Band

EUT: Android MiniPC Box		M/N: TBGL1017A				
Test date: 2017-07-10		Test site: RF site		Tested by: Eric		
Mode	Frequency (MHz)	Ant Port	PK Output power(dBm)		Limit (dBm)	Result
IEEE 802.11 a with 5.8G	CH149:5745	0	-10.306	-10.306	30	Pass
		1	/			
	CH157:5785	0	-10.758	-10.758	30	Pass
		1	/			
	CH165:5825	0	-12.087	-12.087	30	Pass
		1	/			
IEEE 802.11 n/HT20 with 5.8G	CH149:5745	0	-11.410	-11.410	30	Pass
		1	/			
	CH157:5785	0	-11.516	-11.516	30	Pass
		1	/			
	CH165:5825	0	-12.270	-12.270	30	Pass
		1	/			
IEEE 802.11 n/HT40 with 5.8G	CH151:5755	0	-15.628	-15.628	30	Pass
		1	/			
	CH159:5795	0	-15.320	-15.320	30	Pass
		1	/			
IEEE 802.11 ac with 5.8G	CH155:5775	0	-15.784	-15.784	30	Pass
		1	/			
Conclusion: PASS						

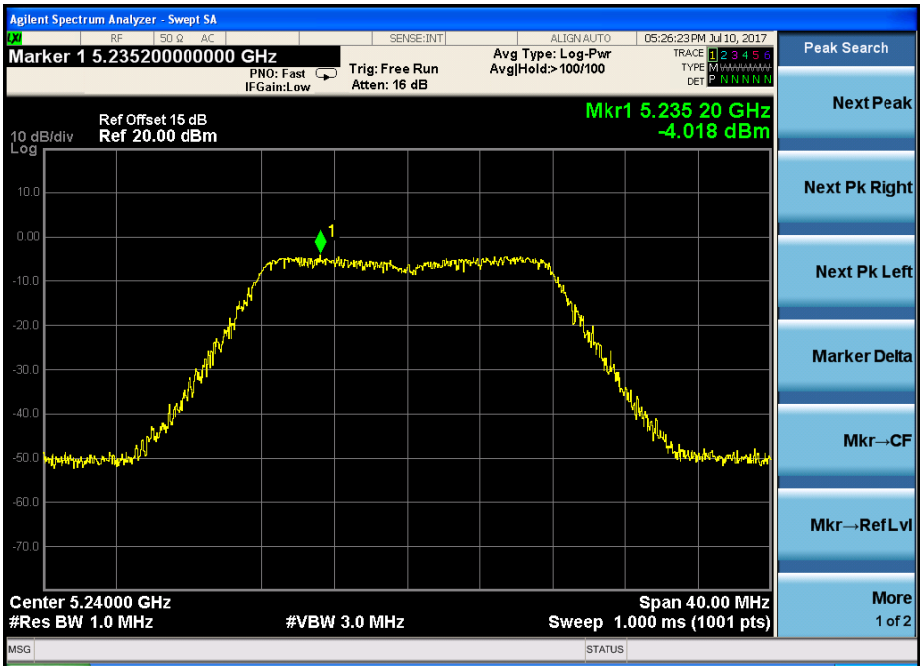
5.2G Band:
CH Low :



CH Mid:

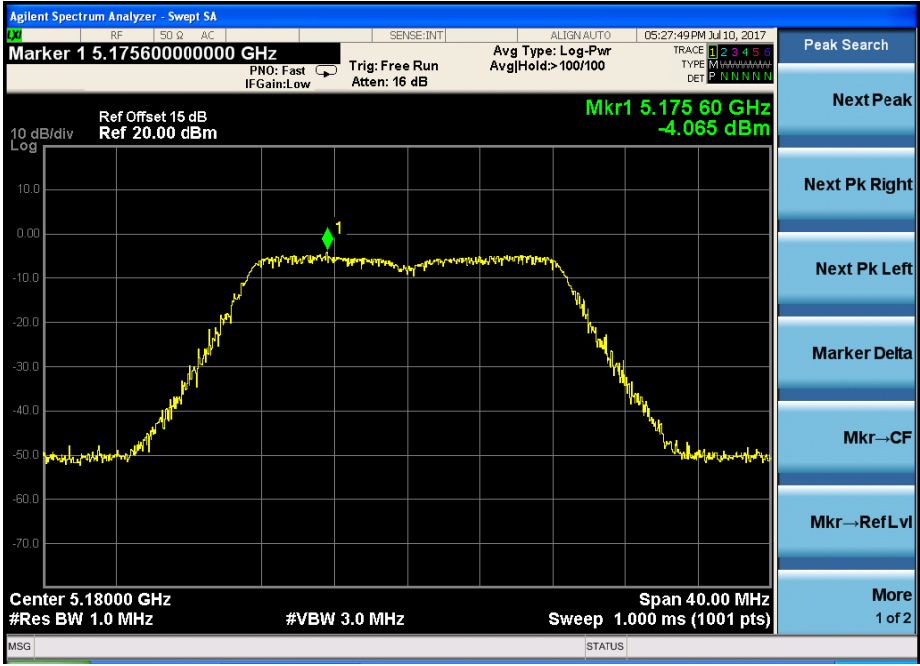


CH High:

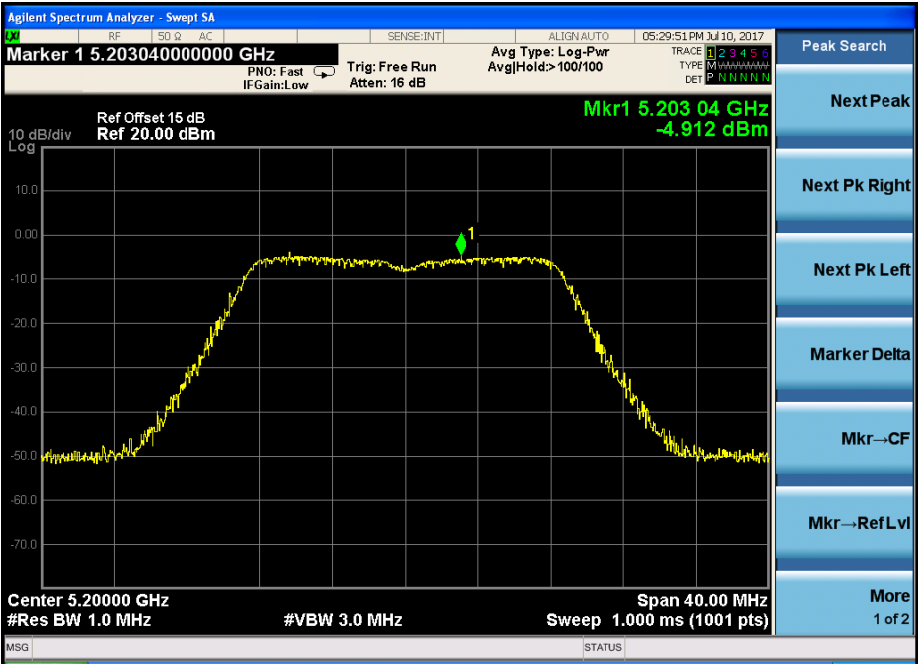


IEEE 802.11n HT20:

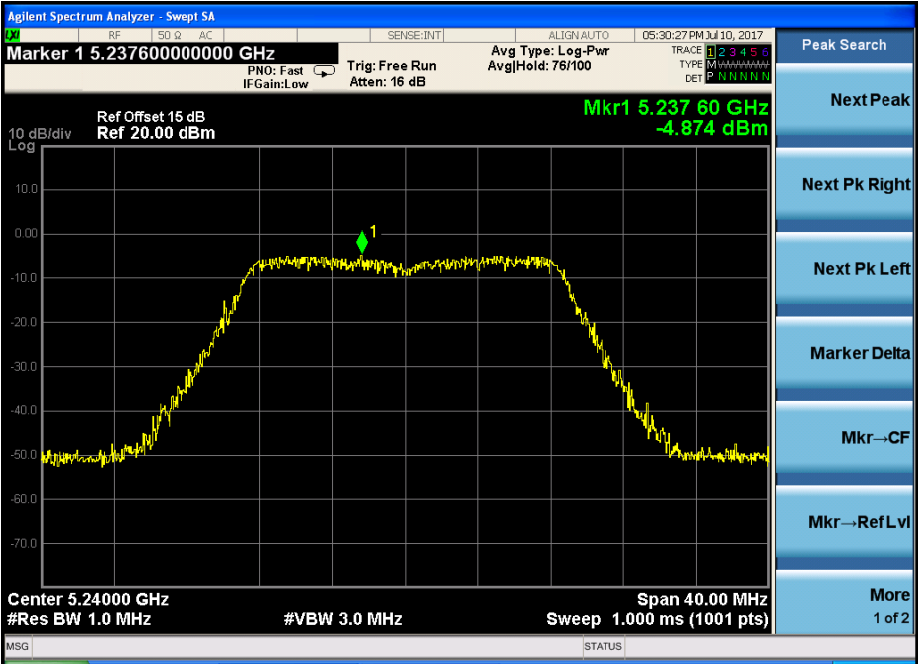
CH Low :



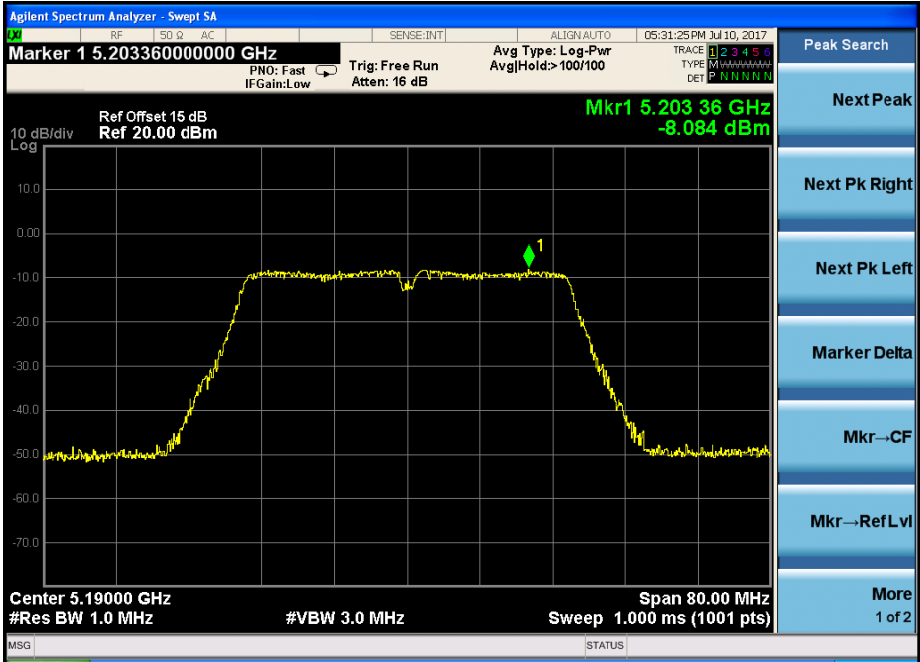
CH Mid:



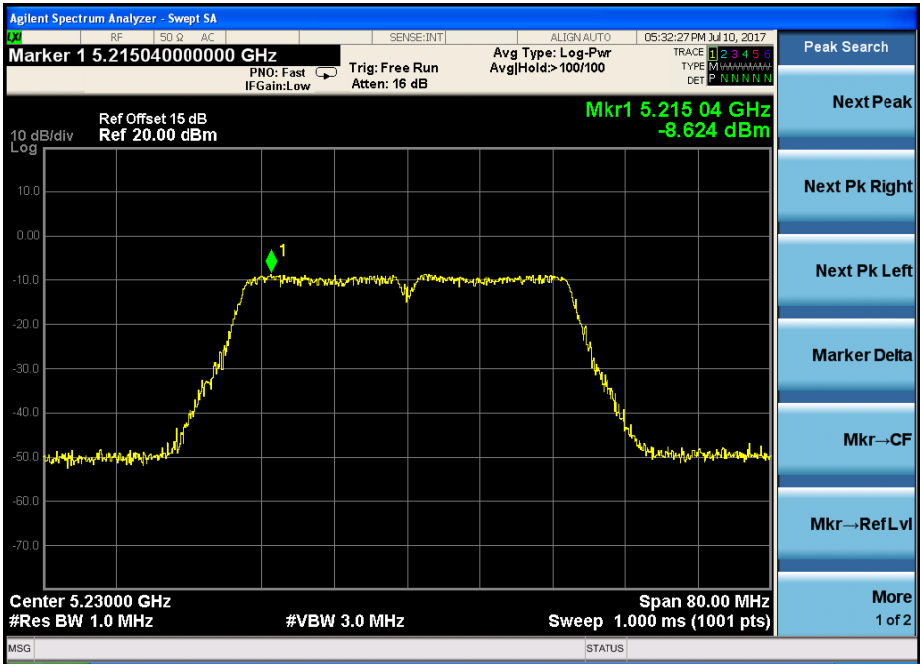
CH High:



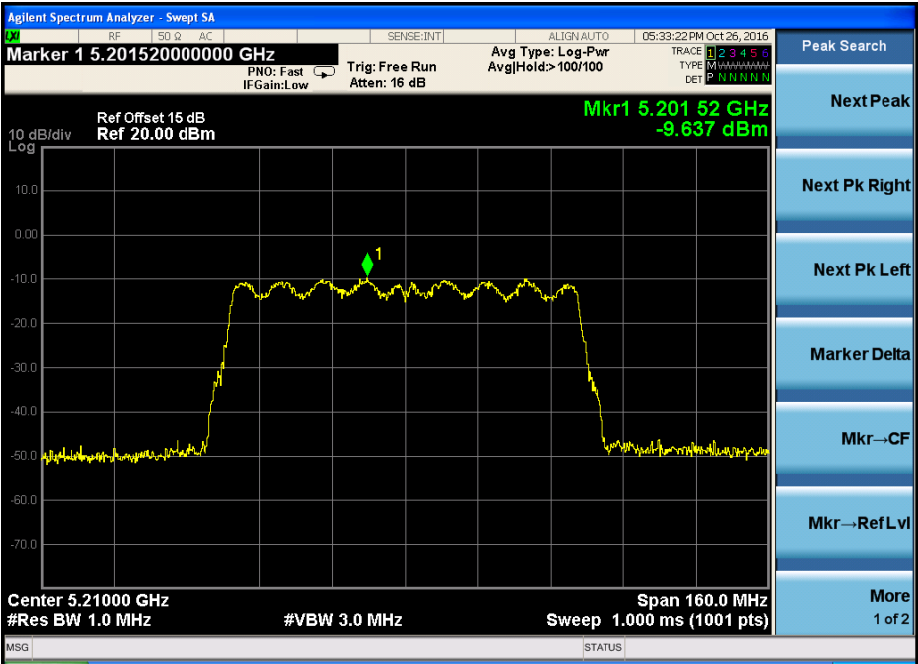
IEEE 802.11n HT40:
CH Low :



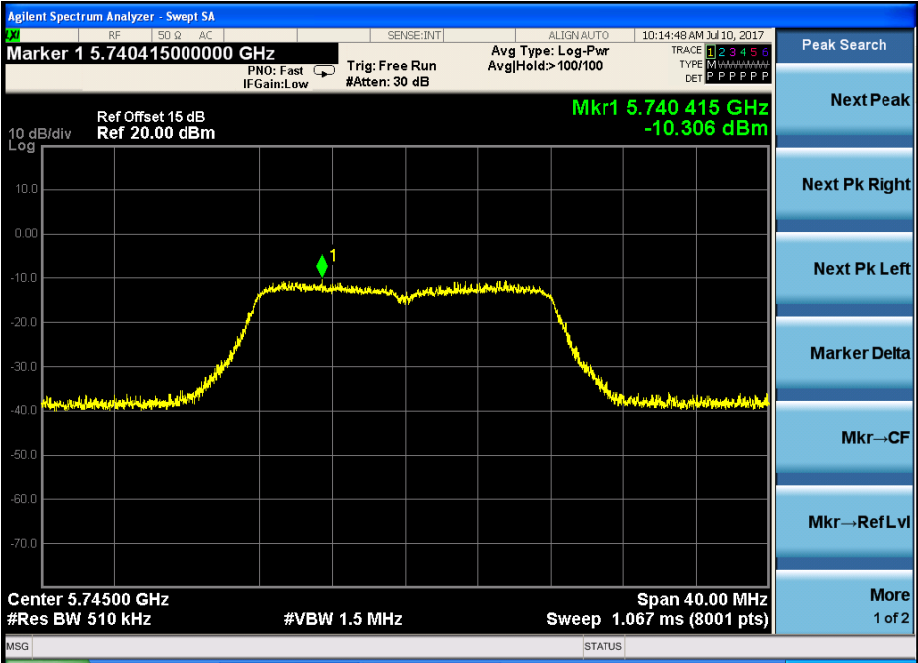
CH High:



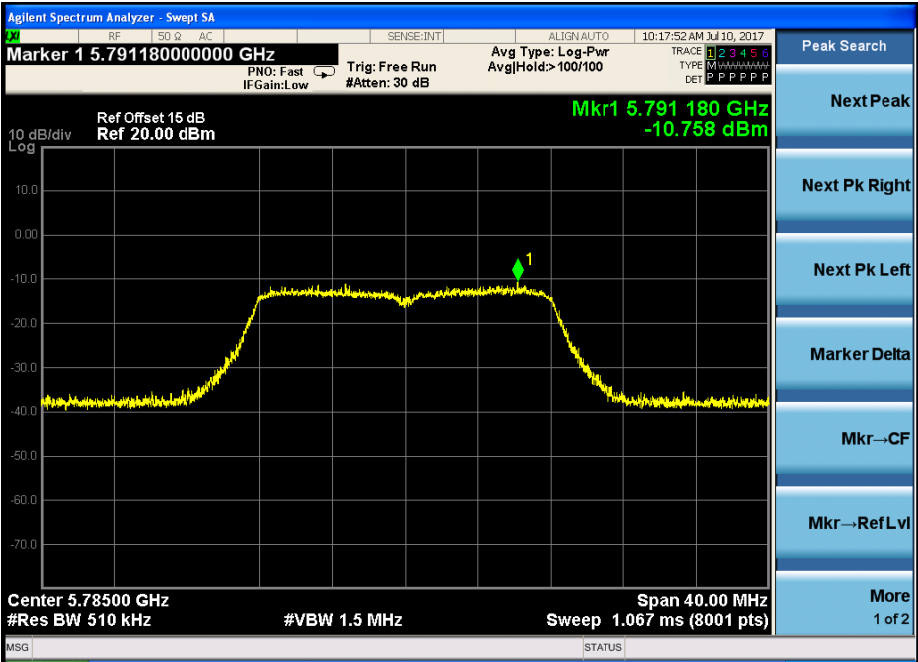
IEEE 802.11ac:



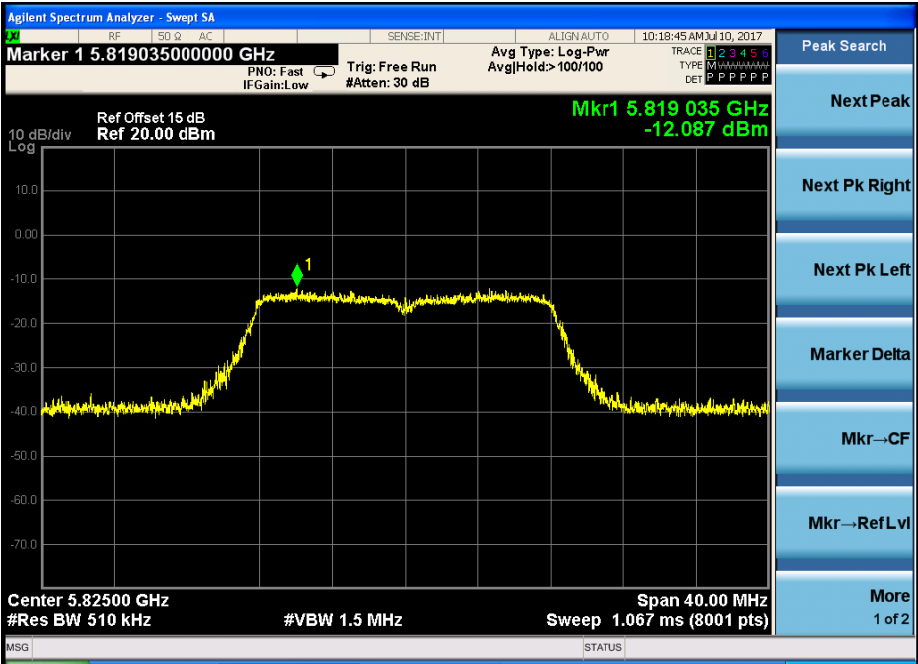
5.8G Band
IEEE 802.11a :
CH Low :



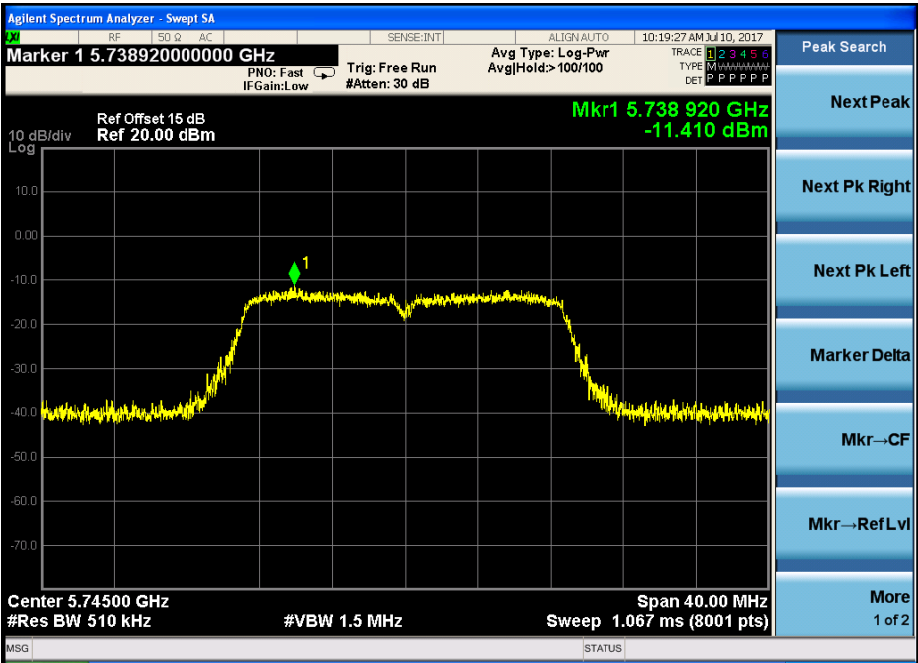
CH Mid:



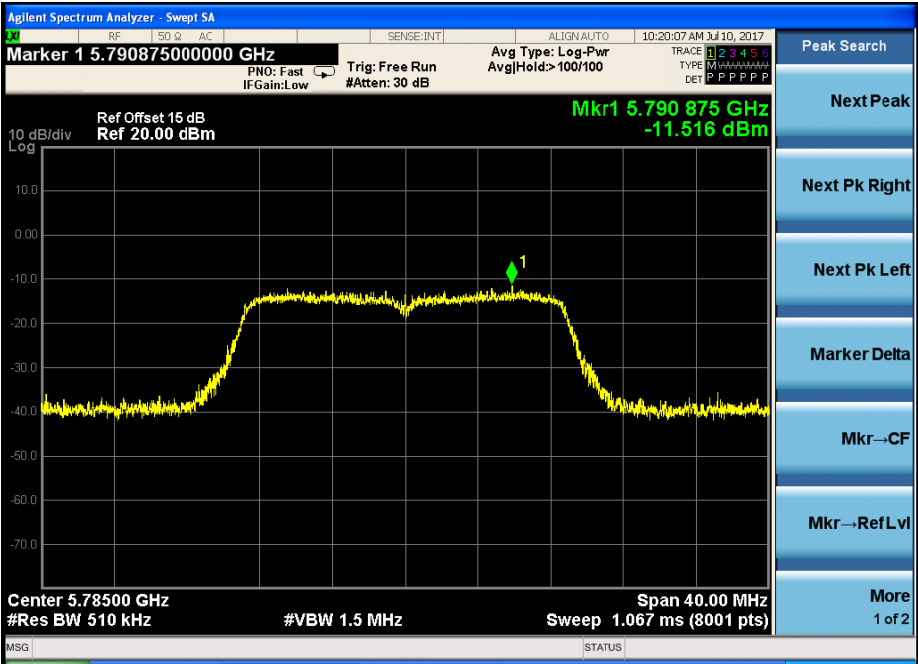
CH High:



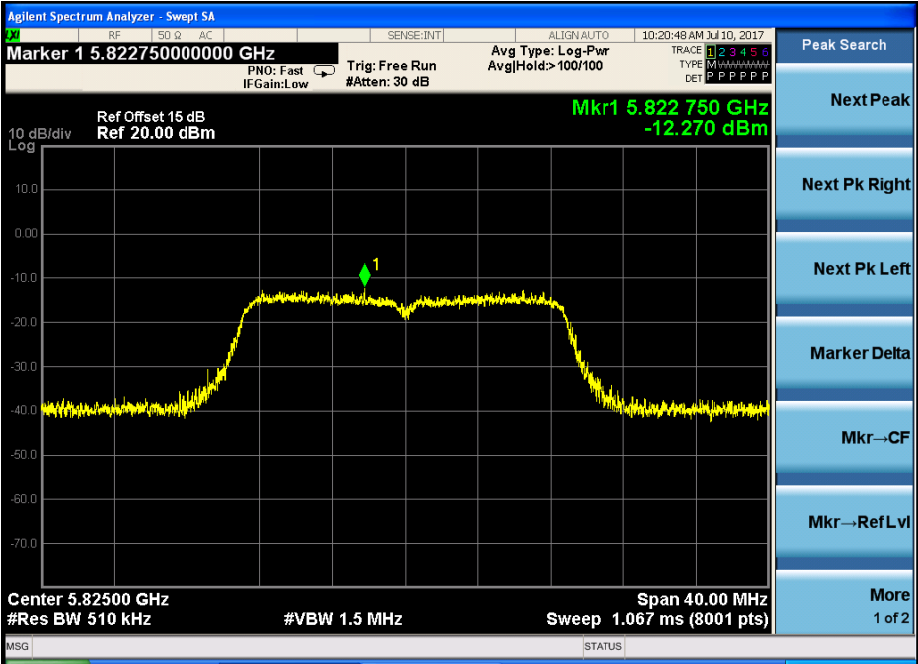
IEEE 802.11n HT20 :
CH Low :



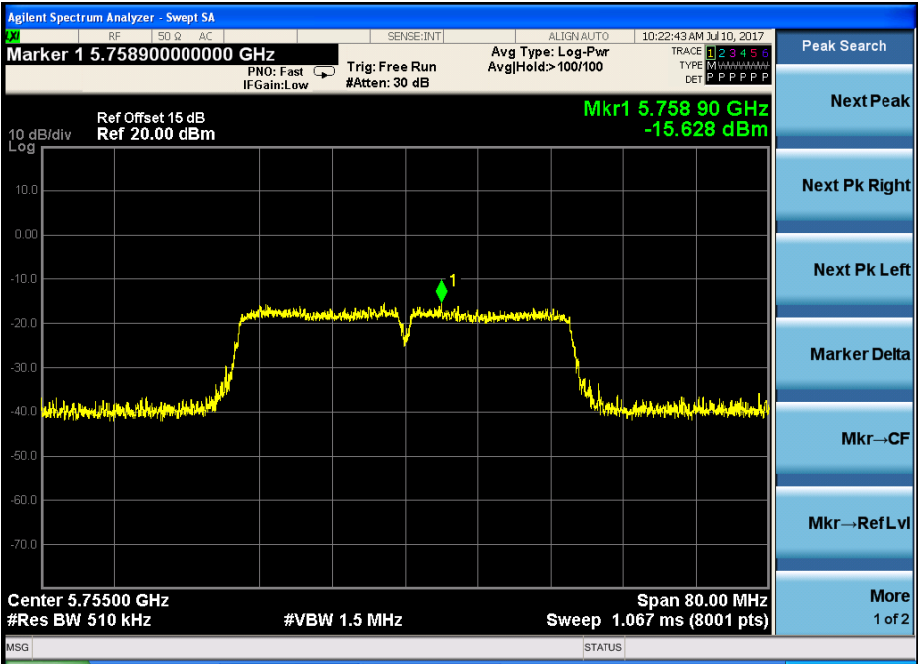
CH Mid:



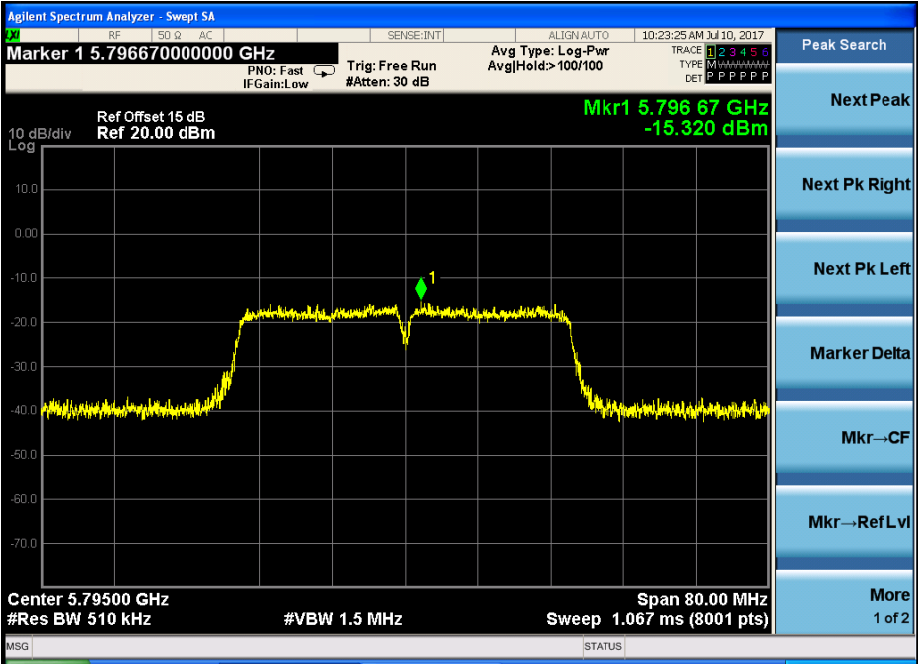
CH High:



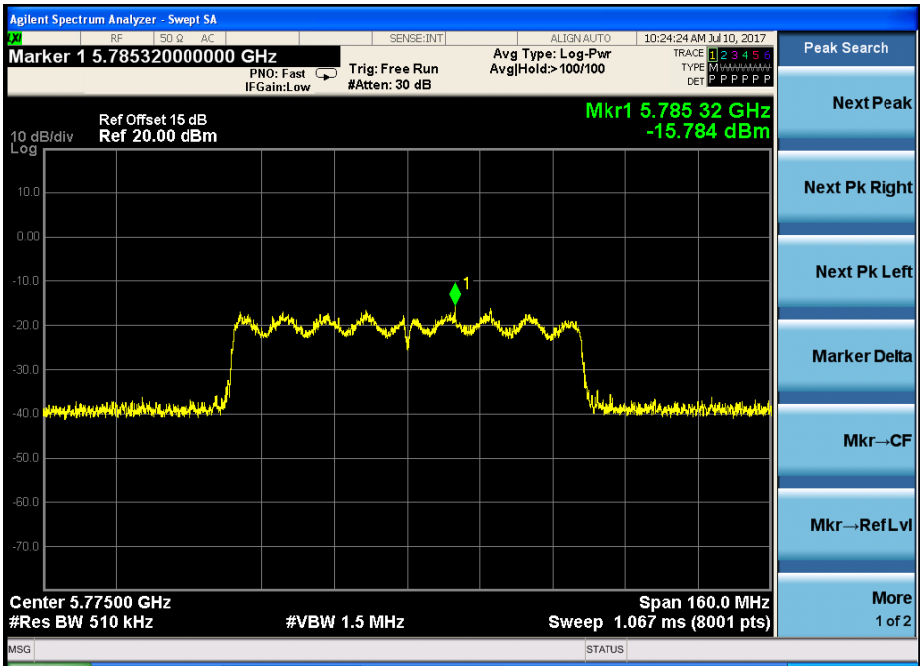
IEEE 802.11n HT40 :
CH Low :



CH High:



IEEE 802.11ac :



Remark: A RBW of 500KHz cannot be set for the Spectrum Analyzer, and the results of RBW 510KHz are worse than RBW of 500KHz, therefore, if results of the RBW 510KHz complies with limit, results of RBW 500KHz are deemed to comply with limit

8. Bandwidth

8.1. Test limit

Please refer section 15.407

For purposes of this subpart the emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that are 26 dB down relative to the maximum level of the modulated carrier

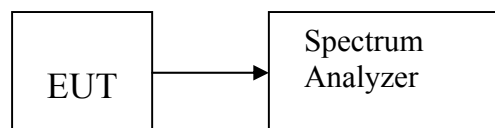
Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

8.2. Method of measurement

Details see the KDB558074 D01 Meas Guidance V04

- a) The bandwidth is measured at an amplitude level reduced 26dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst-case (i.e. the widest) bandwidth.
- b) The test receiver set $RBW = 1-5 \% EBW$, $VBW \geq 3RBW$, Sweep time set auto, detail see the test plot.

8.3. Test Setup



8.4. Test Results

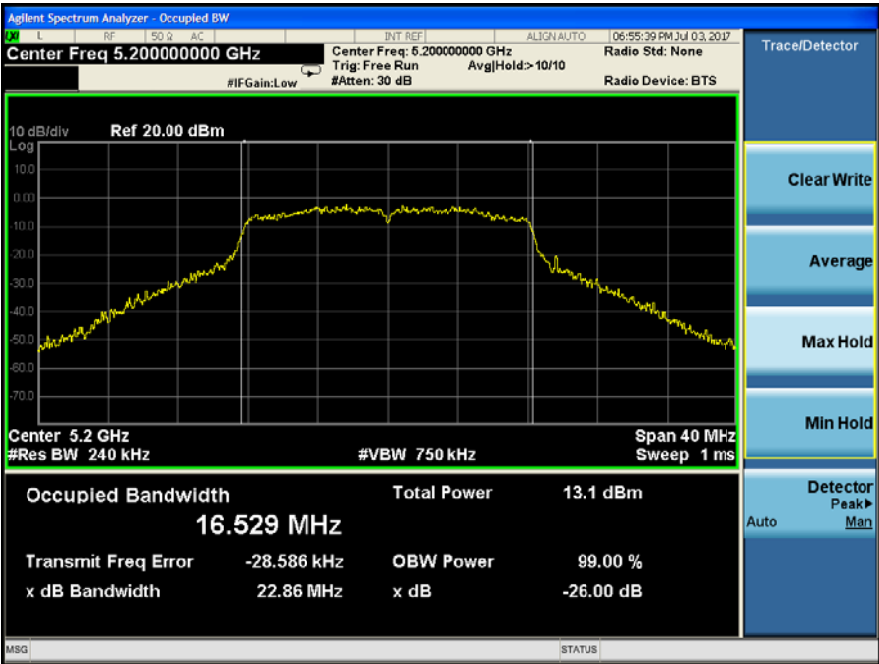
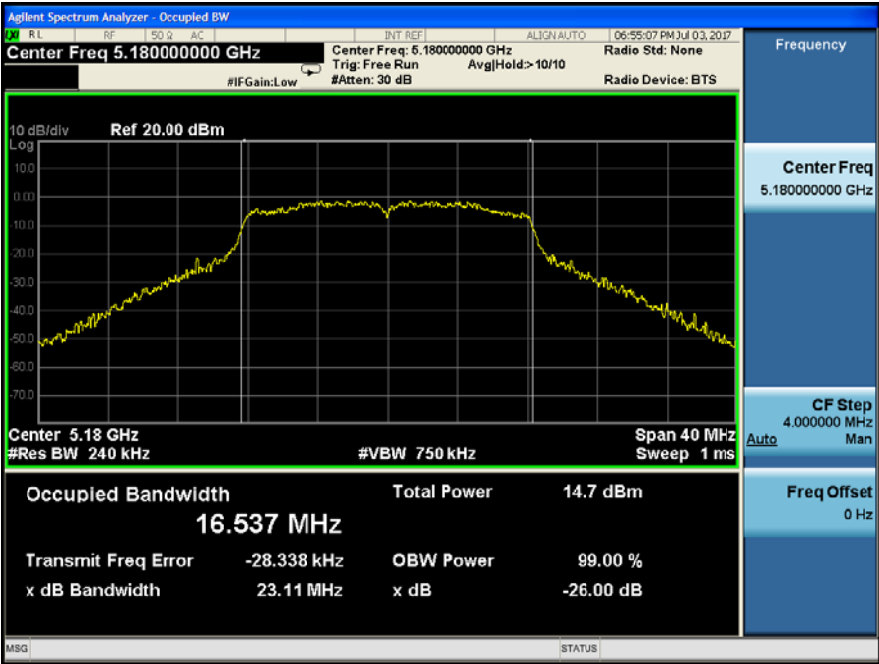
PASS.

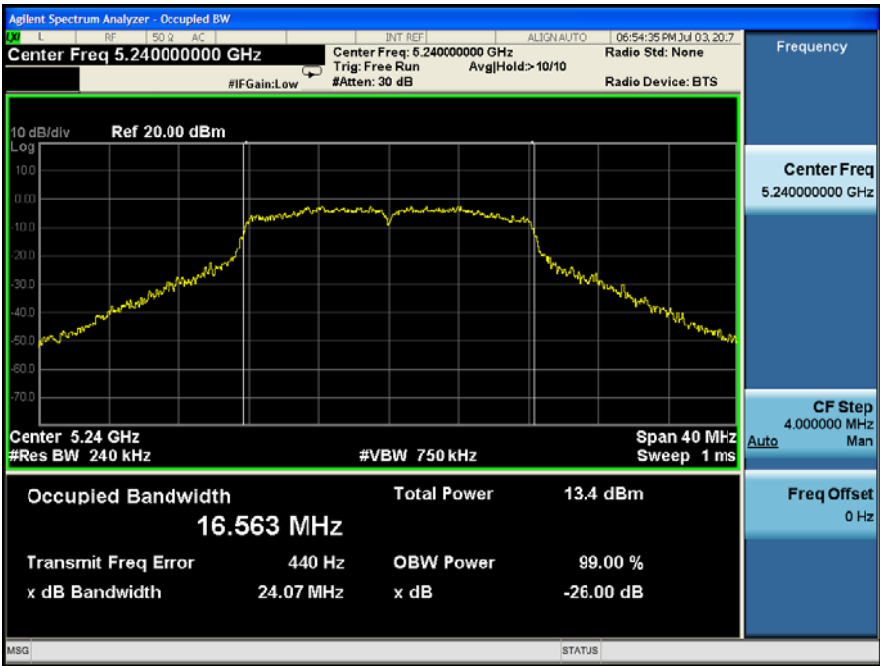
Detailed information please see the following page.

5.2G

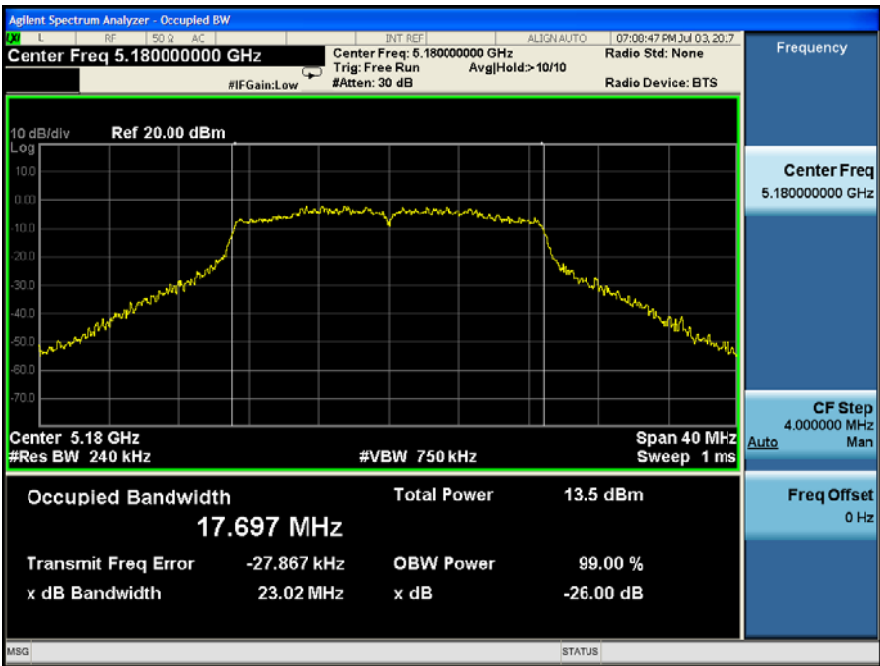
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11a:					
Low	5180	23.11	16.537	/	PASS
Mid	5200	22.86	16.529	/	PASS
High	5240	24.07	16.563	/	PASS
IEEE 802.11n/HT20:					
Low	5180	23.02	17.697	/	PASS
Mid	5200	23.06	17.737	/	PASS
High	5240	23.99	17.743	/	PASS
IEEE 802.11n/HT40:					
Low	5190	43.70	36.154	/	PASS
High	5230	42.79	36.151	/	PASS
IEEE 802.11ac:					
	5210	81.41	75.509	/	PASS

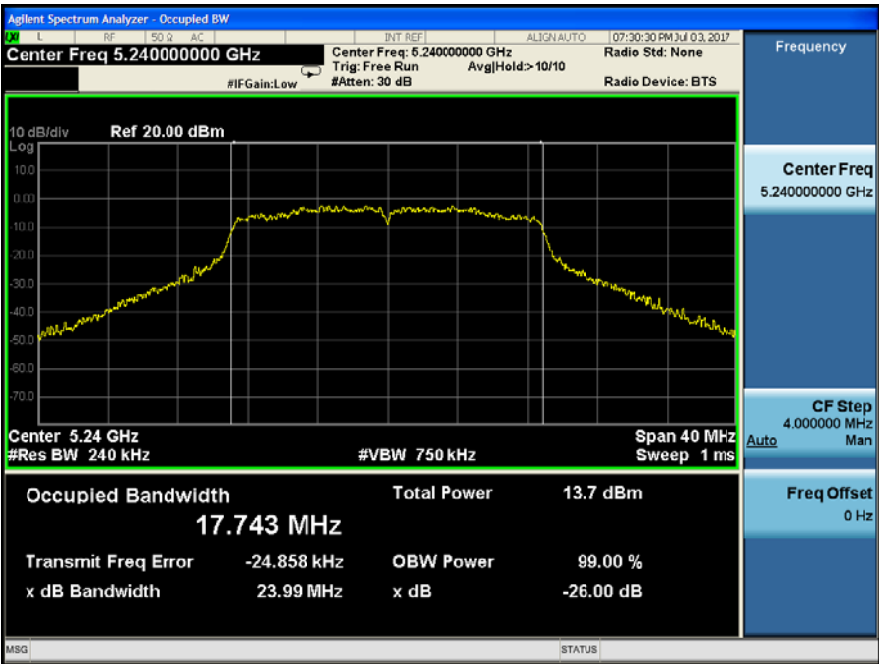
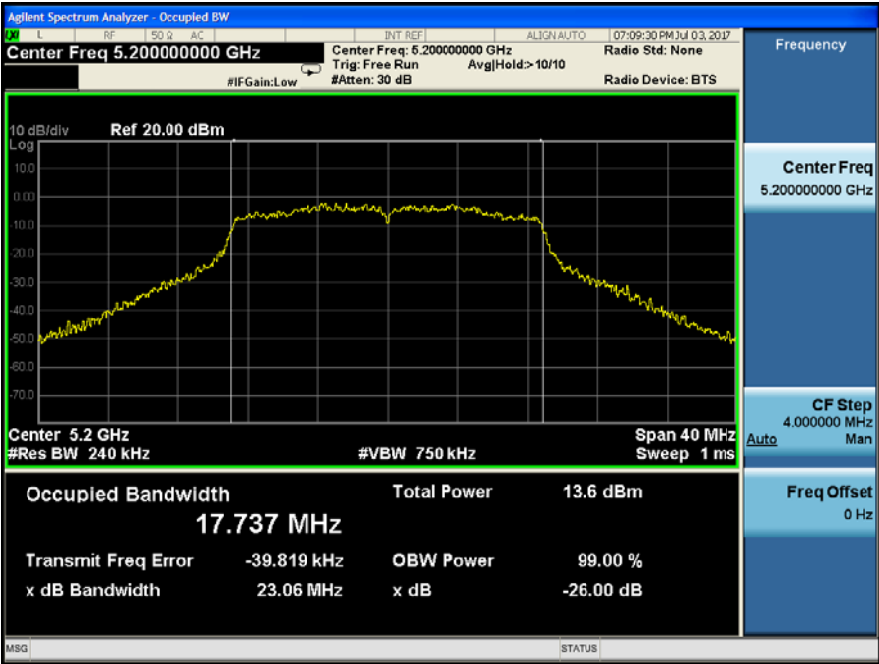
IEEE 802.11a



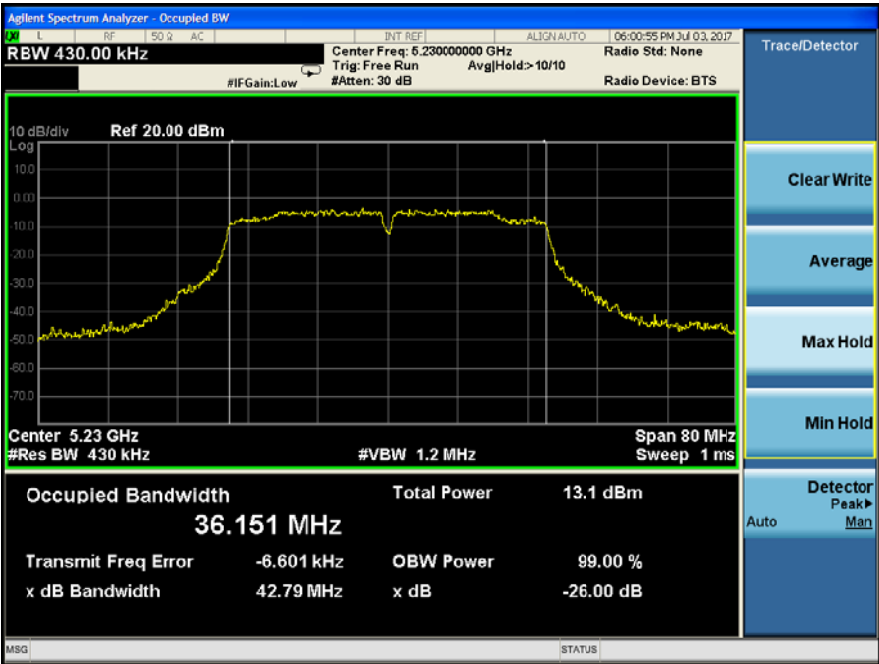
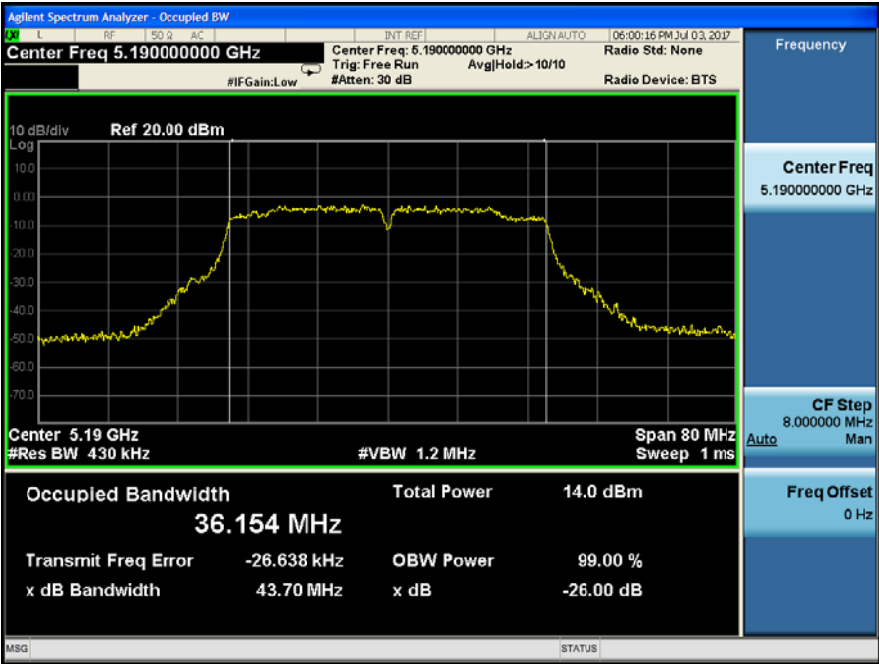


IEEE 802.11n HT20:

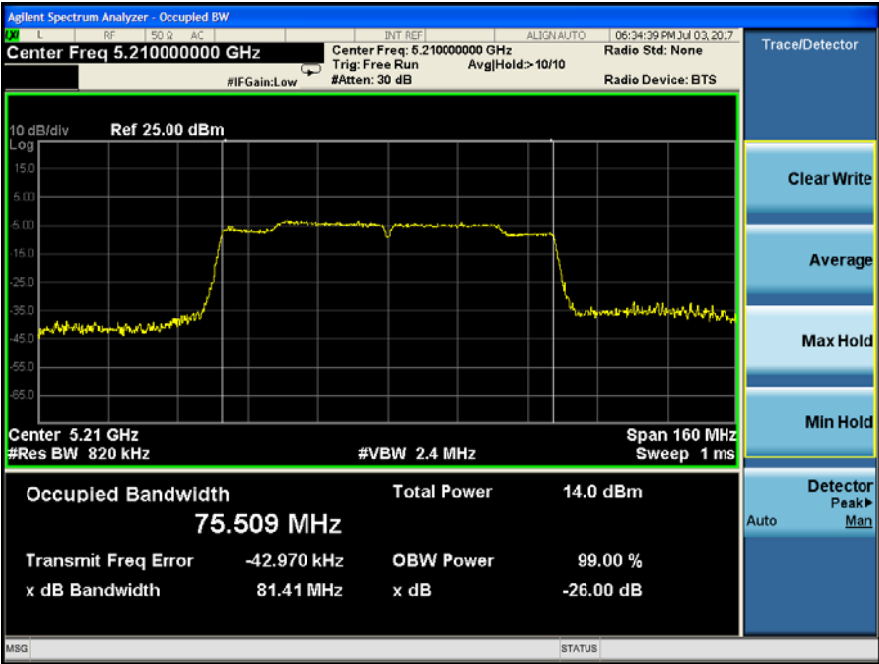




IEEE 802.11n HT40:



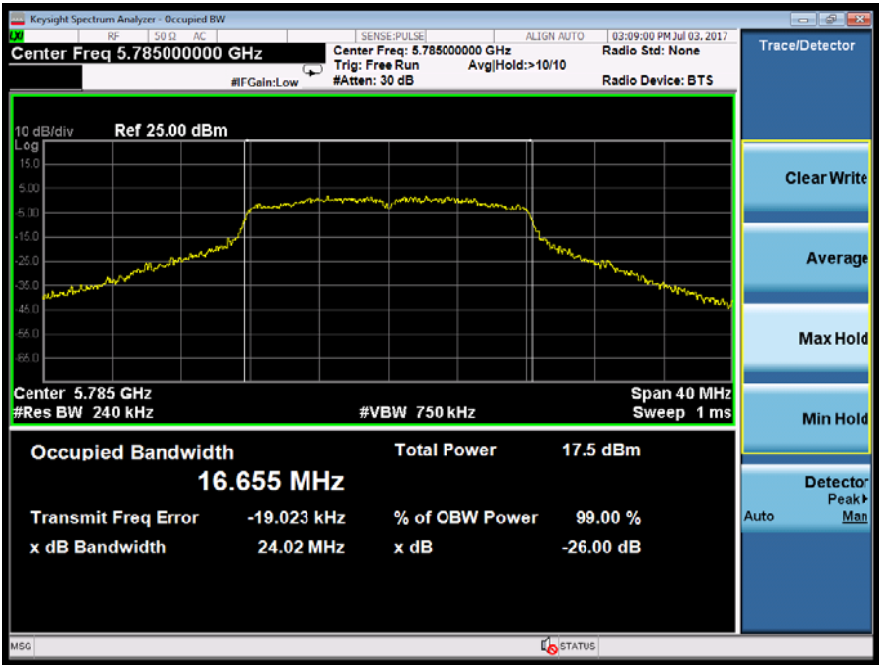
IEEE 802.11ac



5.8G

Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11a:					
Low	5745	25.67	16.889	/	PASS
Mid	5785	24.02	16.655	/	PASS
High	5825	23.83	16.604	/	PASS
IEEE 802.11n/HT20:					
Low	5745	24.82	17.884	/	PASS
Mid	5785	24.87	17.829	/	PASS
High	5825	23.16	17.694	/	PASS
IEEE 802.11n/HT40:					
Low	5755	45.75	36.203	/	PASS
High	5795	43.23	36.160	/	PASS
IEEE 802.11ac:					
	5775	81.47	75.499	/	PASS

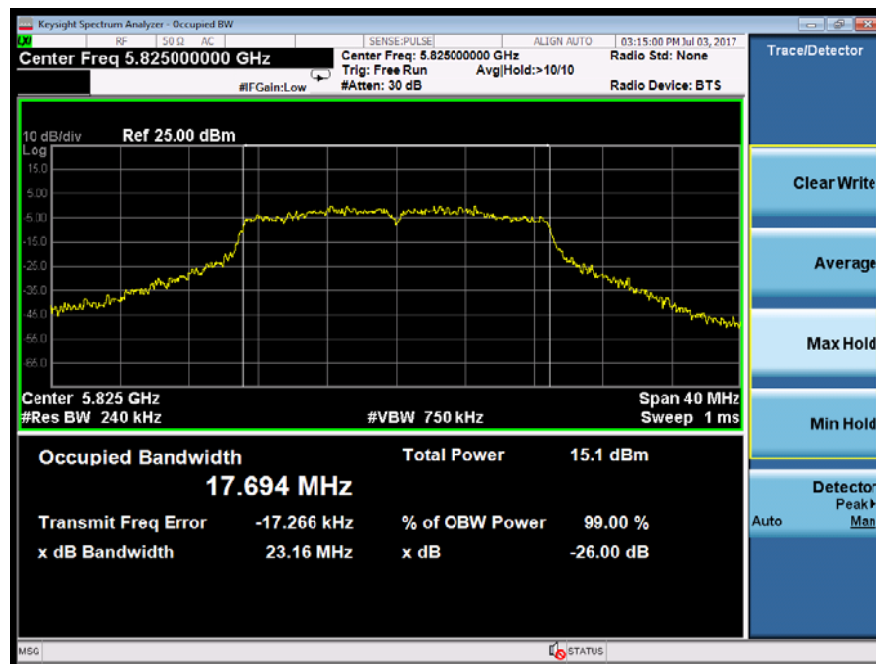
IEEE 802.11a



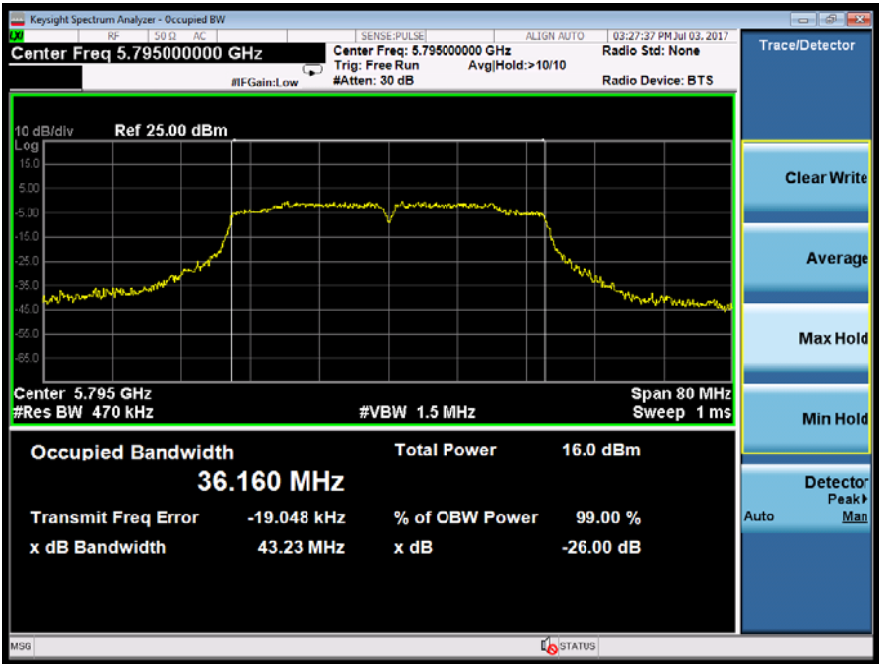
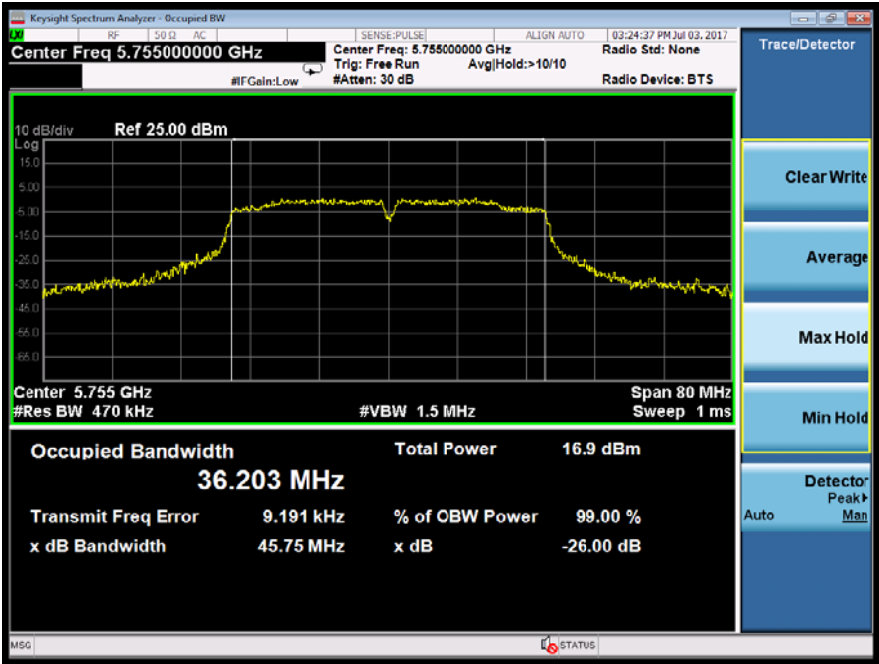


IEEE 802.11n HT20:





IEEE 802.11n HT40:



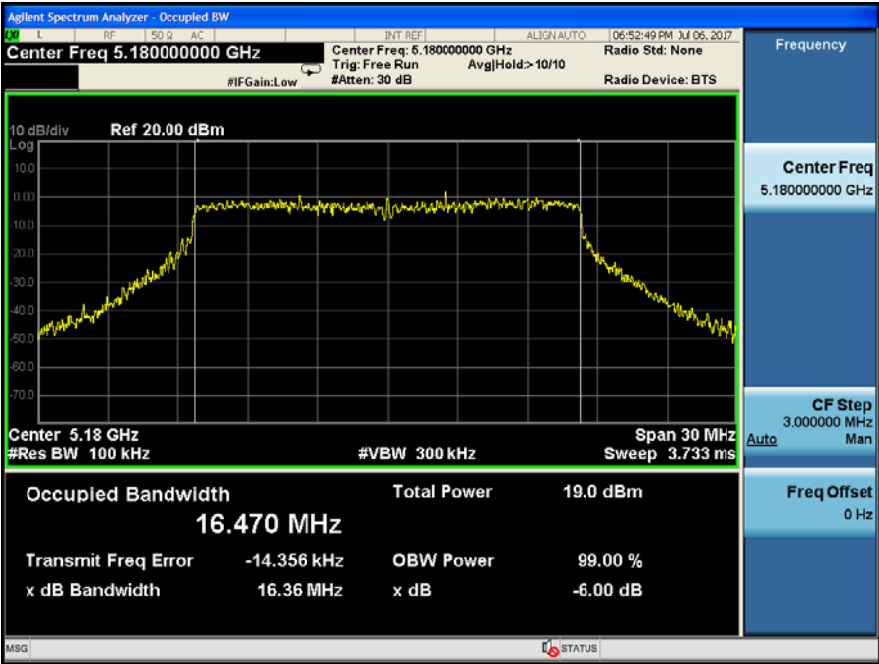
IEEE 802.11ac



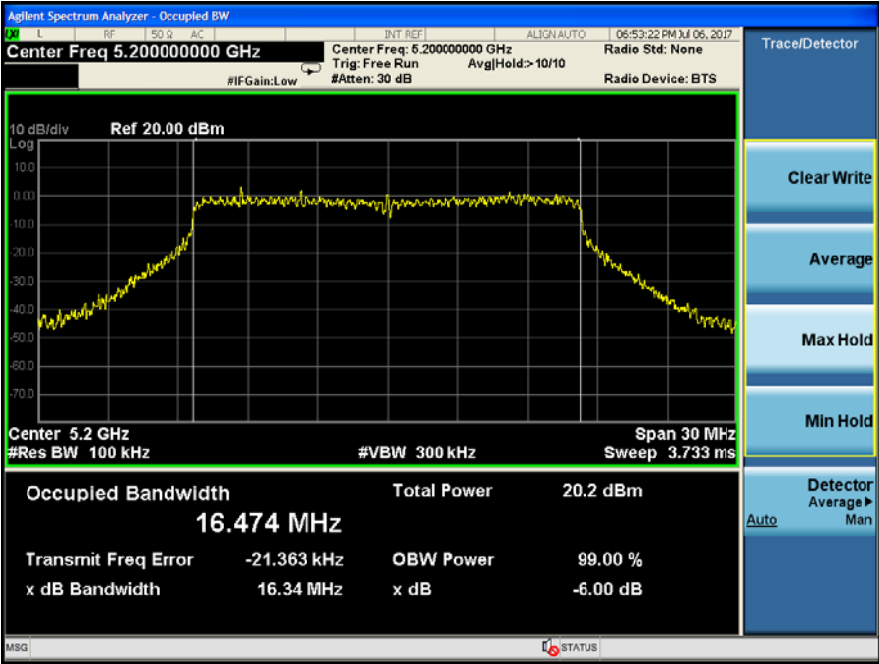
5.2G

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11a:					
Low	5180	16.36	16.470	0.5	PASS
Mid	5200	16.34	16.474	0.5	PASS
High	5240	16.35	16.453	0.5	PASS
IEEE 802.11n/HT20:					
Low	5180	17.57	17.641	0.5	PASS
Mid	5200	17.56	17.659	0.5	PASS
High	5240	17.56	17.638	0.5	PASS
IEEE 802.11n/HT40:					
Low	5190	36.04	36.156	0.5	PASS
High	5230	33.84	36.144	0.5	PASS
IEEE 802.11ac:					
	5210	75.33	79.331	0.5	PASS

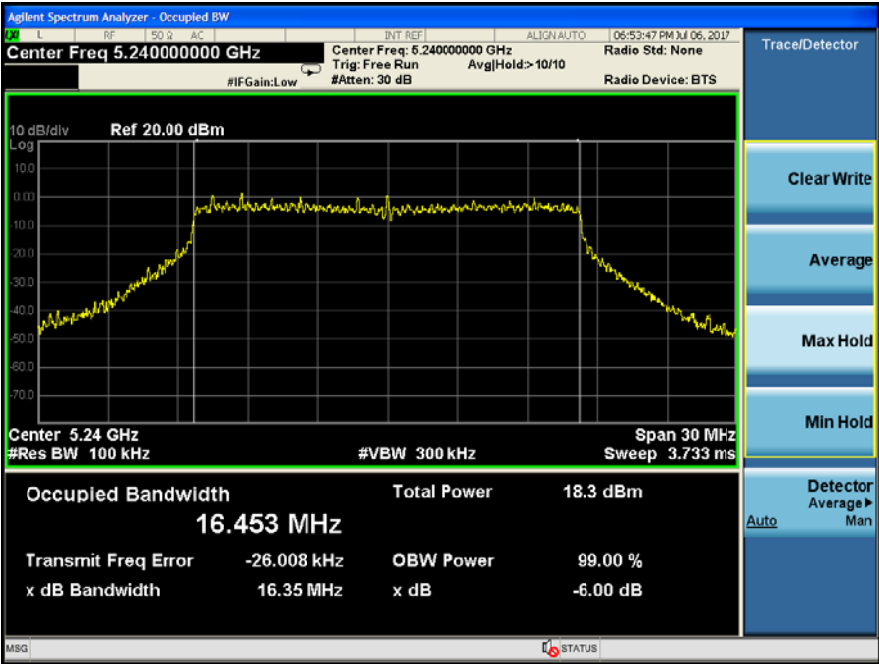
IEEE 802.11a:
CH Low :



CH Mid :

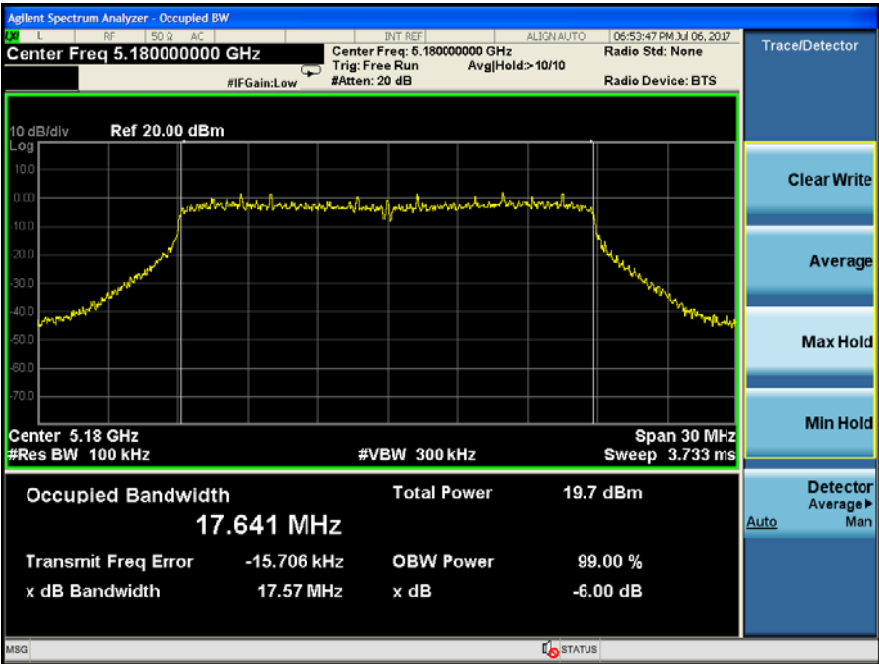


CH High :

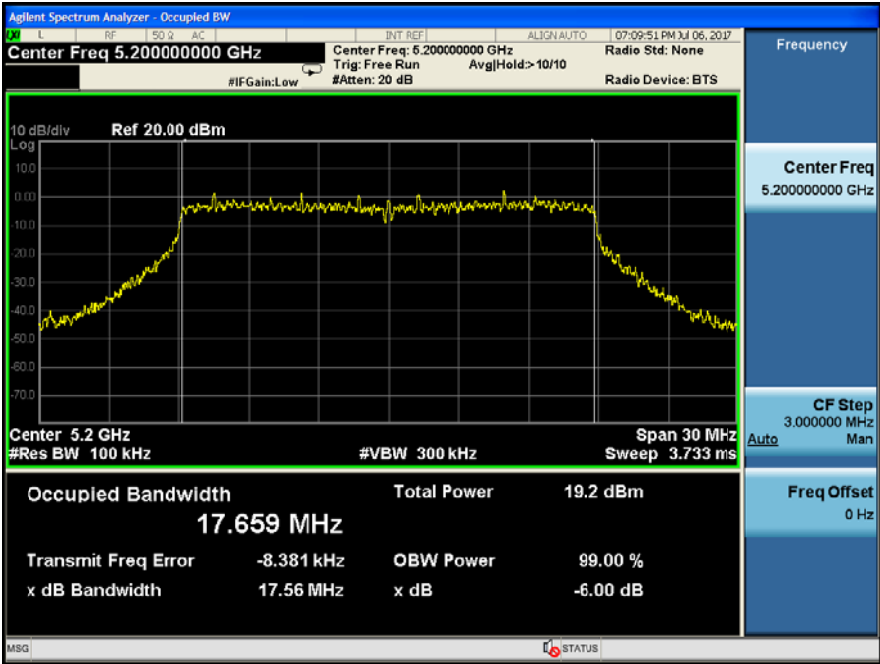


IEEE 802.11n HT20:

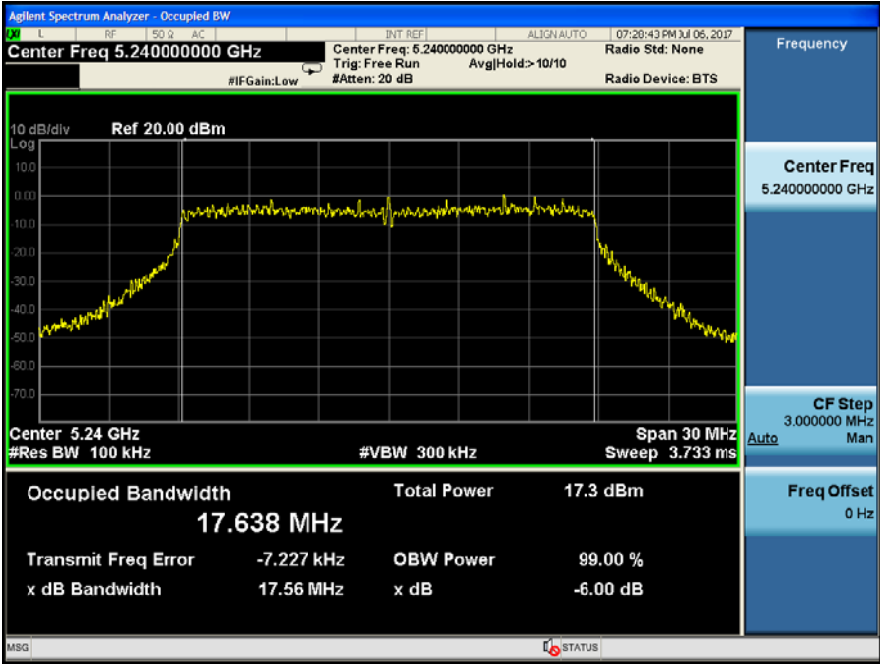
CH Low :



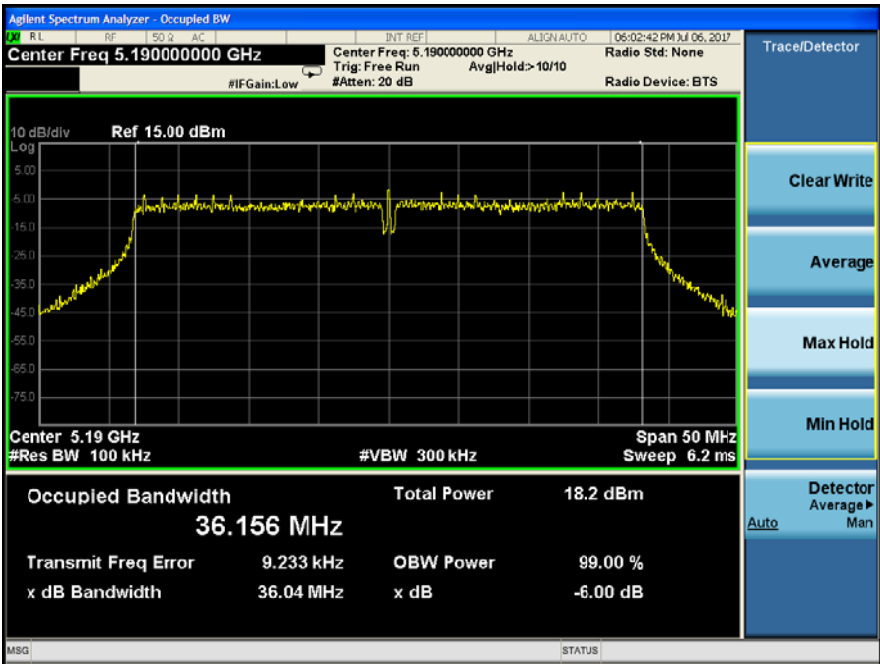
CH Mid :



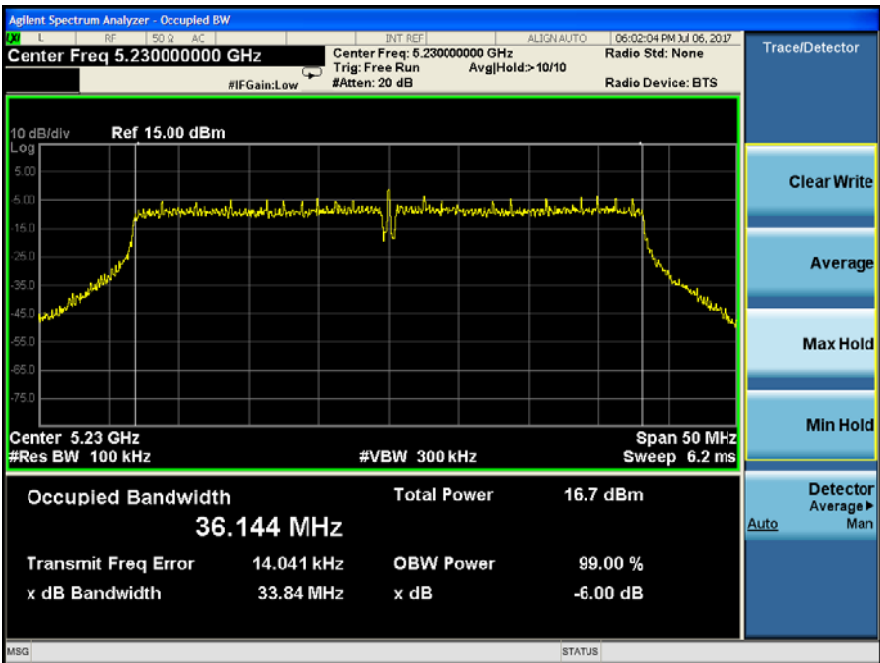
CH High :



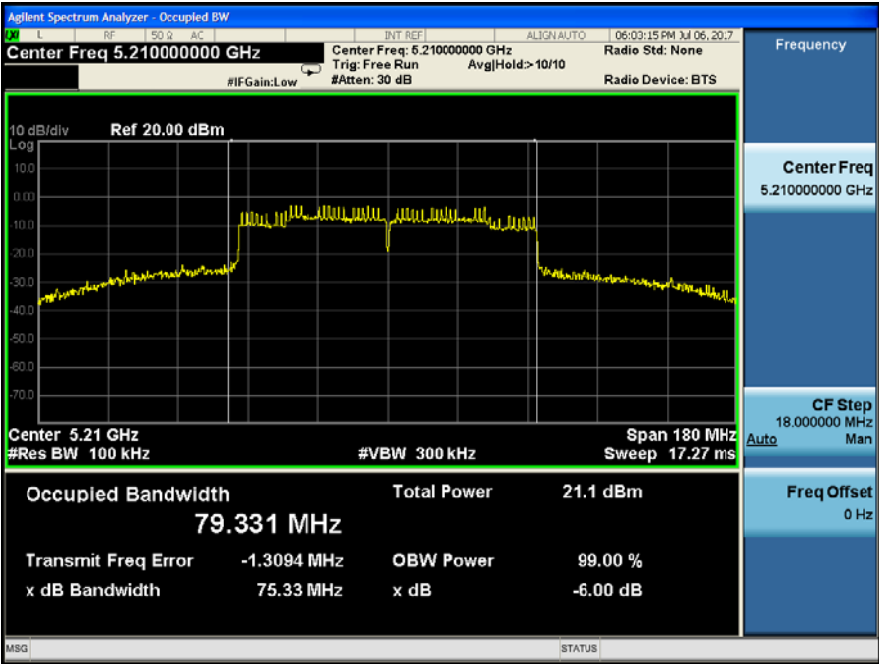
IEEE 802.11n/HT40:
CH Low :



CH High :



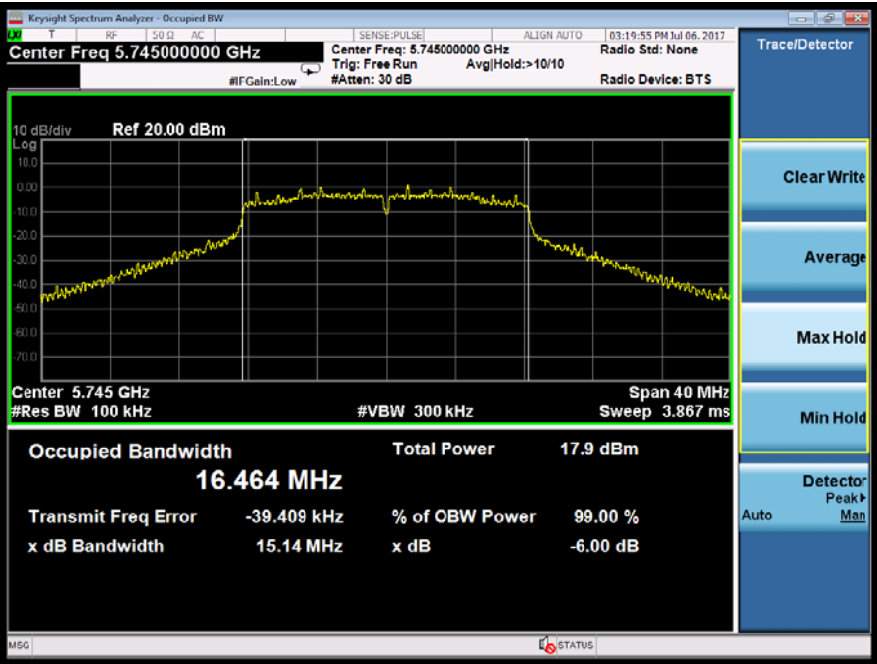
IEEE 802.11ac:



5.8G

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limit (MHz)	Result
IEEE 802.11a:					
Low	5745	15.14	16.464	0.5	PASS
Mid	5785	15.05	16.417	0.5	PASS
High	5825	15.17	16.538	0.5	PASS
IEEE 802.11n/HT20:					
Low	5745	15.17	17.629	0.5	PASS
Mid	5785	15.15	17.663	0.5	PASS
High	5825	15.11	17.617	0.5	PASS
IEEE 802.11n/HT40:					
Low	5755	35.20	35.958	0.5	PASS
High	5795	35.19	35.953	0.5	PASS
IEEE 802.11ac:					
	5775	75.31	75.308	0.5	PASS

IEEE 802.11a:
CH Low :



CH Mid :



CH High :



IEEE 802.11n HT20:

CH Low :



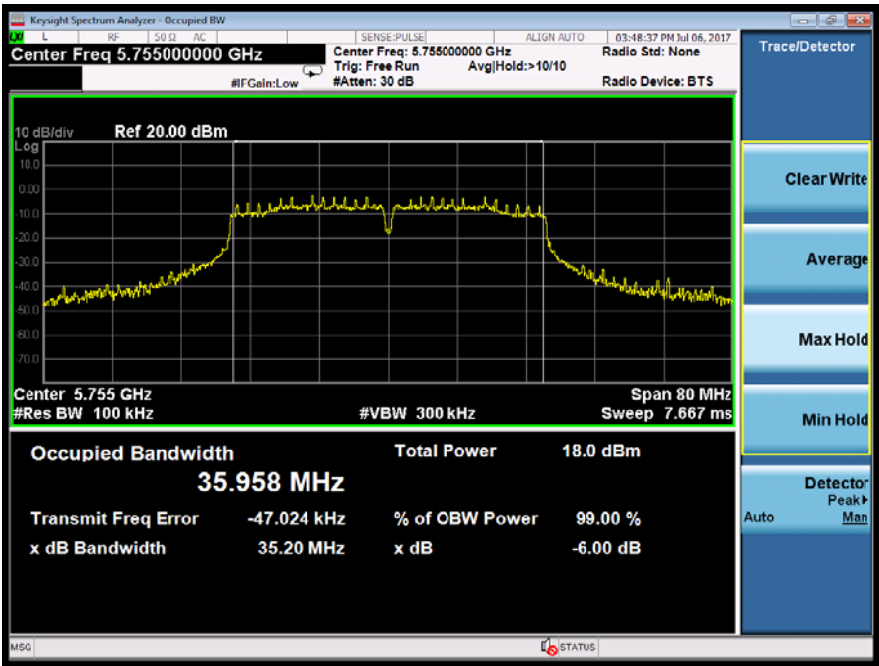
CH Mid :



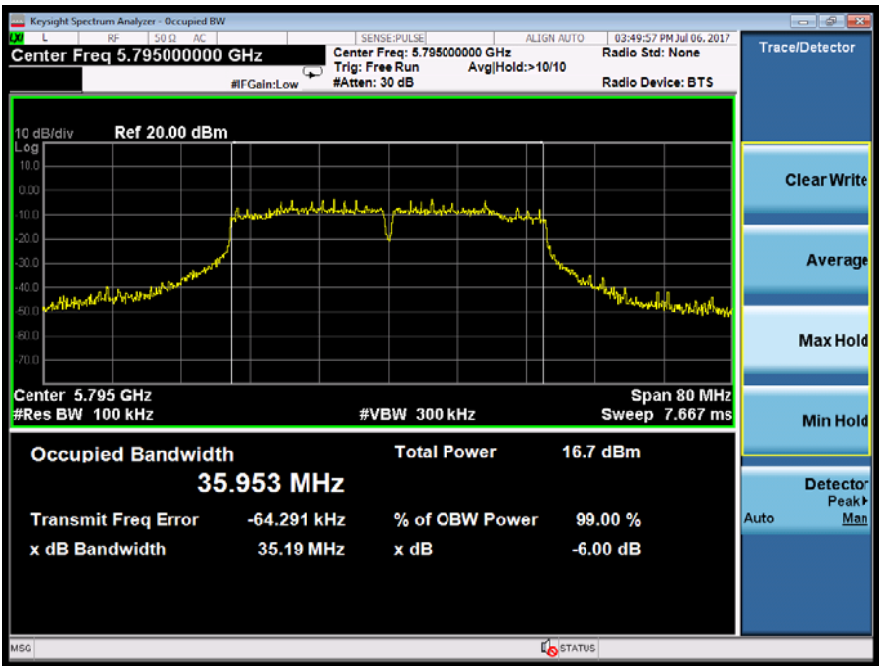
CH High :



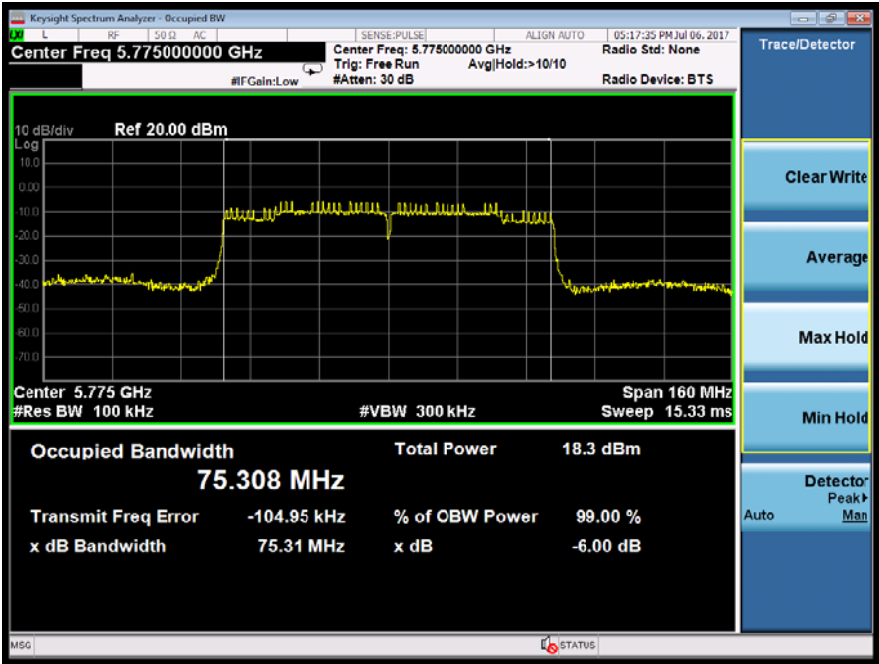
IEEE 802.11n/HT40:
CH Low :



CH High :



IEEE 802.11ac:



9. Undesirable emission

9.1. Test limit

Except as shown in paragraph (7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
- (6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.
- (7) The provisions of §15.205 apply to intentional radiators operating under this section.
- (8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits

9.2. Test Procedure

10.2.1 Put the EUT on a 0.8m high table, power on the EUT. Emissions were scanned and measured rotating the EUT to 360 degrees, Find the maximum Emission

10.2.2 Check the spurious emissions out of band.

10.2.3 RBW 1MHz ,VBW 3MHz ,peak detector for peak value , RBW 1MHz ,VBW 3MHz , RMS detector for AV value.

9.3. Test Setup

Same as 5.2.2.

9.4. Test Result

PASS.

Detailed information please see the following page.

5.2G Band

Radiated Method:

IEEE 802.11a CH LOW

Band Edge Test result								
EUT: Android MiniPC Box				M/N: TBGL1017A				
Power: DC 5V from USB Port								
Test date: 2017-06-27		Test site: 3m Chamber		Tested by: Eric				
Test mode: TX Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(dB)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150	43.69	31.65	5.92	33.9	47.36	68.2	20.84	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5150	43.38	31.65	5.92	33.9	47.05	68.2	21.15	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Result = Read level + Antenna factor + cable loss-Amp factor								
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Note: According to KDB 789033, EIRP 【dBm】 =E 【dBuV/m】 -95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

IEEE 802.11a CH High

Band Edge Test result								
EUT: Android MiniPC Box				M/N: TBGL1017A				
Power: DC 5V from USB Port								
Test date: 2017-06-27			Test site: 3m Chamber		Tested by: Eric			
Test mode: TX High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5350	41.49	31.73	6.05	33.73	45.54	68.2	22.66	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5350	46.70	31.73	6.05	33.73	50.75	68.2	17.45	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Result = Read level + Antenna factor + cable loss-Amp factor								
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Note: According to KDB 789033, EIRP 【dBm】 =E 【dBuV/m】 -95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

IEEE 802.11n HT20 CH Low

Band Edge Test result								
EUT: Android MiniPC Box				M/N: TBGL1017A				
Power: DC 5V from USB Port								
Test date: 2017-06-27			Test site: 3m Chamber		Tested by: Eric			
Test mode: TX Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150	44.36	31.65	5.92	33.9	48.03	68.2	20.17	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5150	43.20	31.65	5.92	33.9	46.87	68.2	21.33	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Result = Read level + Antenna factor + cable loss-Amp factor								
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Note: According to KDB 789033, EIRP 【dBm】 =E 【dBuV/m】 -95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

IEEE 802.11n HT20 CH High

Band Edge Test result								
EUT: Android MiniPC Box				M/N: TBGL1017A				
Power: DC 5V from USB Port								
Test date: 2017-06-27			Test site: 3m Chamber		Tested by: Eric			
Test mode: TX High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5350	44.06	31.73	6.05	33.73	48.11	68.2	20.09	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5350	43.22	31.73	6.05	33.73	47.27	68.2	20.93	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Result = Read level + Antenna factor + cable loss-Amp factor								
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Note: According to KDB 789033, EIRP 【dBm】 =E 【dBuV/m】 -95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

IEEE 802.11n HT40 CH Low

Band Edge Test result								
EUT: Android MiniPC Box				M/N: TBGL1017A				
Power: DC 5V from USB Port								
Test date: 2017-06-27			Test site: 3m Chamber		Tested by: Eric			
Test mode: TX Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150	44.35	31.65	5.92	33.9	48.02	68.2	20.18	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5150	43.54	31.65	5.92	33.9	47.21	68.2	20.99	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Result = Read level + Antenna factor + cable loss-Amp factor								
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Note: According to KDB 789033, EIRP 【dBm】 =E 【dBuV/m】 -95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

IEEE 802.11n HT40 CH High

Band Edge Test result								
EUT: Android MiniPC Box				M/N: TBGL1017A				
Power: DC 5V from USB Port								
Test date: 2017-06-27			Test site: 3m Chamber		Tested by: Eric			
Test mode: TX High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5350	45.42	31.73	6.05	33.73	49.47	68.2	18.73	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5350	42.61	31.73	6.05	33.73	46.66	68.2	21.54	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Result = Read level + Antenna factor + cable loss-Amp factor								
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Note: According to KDB 789033, EIRP 【dBm】 =E 【dBuV/m】 -95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

IEEE 802.11ac

Band Edge Test result								
EUT: Android MiniPC Box				M/N: TBGL1017A				
Power: DC 5V from USB Port								
Test date: 2017-06-27			Test site: 3m Chamber		Tested by: Eric			
Test mode: TX Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5150	44.99	31.65	5.92	33.9	48.66	68.2	19.54	PK
5350	42.73	31.73	6.05	33.73	46.78	68.2	21.42	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5150	43.47	31.65	5.92	33.9	47.14	68.2	21.06	PK
5350	42.04	31.73	6.05	33.73	46.09	68.2	22.11	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Result = Read level + Antenna factor + cable loss-Amp factor								
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Note: According to KDB 789033, EIRP 【dBm】 =E 【dBuV/m】 -95.2, thus, limit for 5150MHz band is -27+95.2=68.2 dBuV/m.

5.8G Band

Radiated Method:

IEEE 802.11a CH LOW

Band Edge Test result								
EUT: Android MiniPC Box				M/N: TBGL1017A				
Power: DC 5V from USB Port								
Test date: 2017-06-27			Test site: 3m Chamber		Tested by: Eric			
Test mode: TX Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460	44.80	31.81	6.11	33.68	49.04	68.2	19.16	PK
5725	43.32	32.17	6.26	33.58	48.17	78.2	30.03	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5460	41.80	31.81	6.11	33.68	46.04	68.2	22.16	PK
5725	43.02	32.17	6.26	33.58	47.87	78.2	30.33	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Result = Read level + Antenna factor + cable loss-Amp factor								
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Note: According to KDB 789033, EIRP 【dBm】=E 【dBuV/m】-95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11a CH High

Band Edge Test result								
EUT: Android MiniPC Box				M/N: TBGL1017A				
Power: DC 5V from USB Port								
Test date: 2017-06-27			Test site: 3m Chamber		Tested by: Eric			
Test mode: TX High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5850	42.65	32.5	6.33	33.64	47.84	78.2	30.36	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5850	42.72	32.5	6.33	33.64	47.91	78.2	30.29	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Result = Read level + Antenna factor + cable loss-Amp factor								
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Note: According to KDB 789033, EIRP 【dBm】=E 【dBuV/m】-95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11n HT20 CH Low

Band Edge Test result								
EUT: Android MiniPC Box				M/N: TBGL1017A				
Power: DC 5V from USB Port								
Test date: 2017-06-27			Test site: 3m Chamber		Tested by: Eric			
Test mode: TX Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460	41.88	31.81	6.11	33.68	46.12	68.2	22.08	PK
5725	42.91	32.17	6.26	33.58	47.76	78.2	30.44	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5460	41.82	31.81	6.11	33.68	46.06	68.2	22.14	PK
5725	42.83	32.17	6.26	33.58	47.68	78.2	30.52	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Result = Read level + Antenna factor + cable loss-Amp factor								
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Note: According to KDB 789033, EIRP 【dBm】=E 【dBuV/m】-95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11n HT20 CH High

Band Edge Test result								
EUT: Android MiniPC Box				M/N: TBGL1017A				
Power: DC 5V from USB Port								
Test date: 2017-06-27			Test site: 3m Chamber		Tested by: Eric			
Test mode: TX High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5850	43.93	32.5	6.33	33.64	49.12	78.2	29.08	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5850	42.47	32.5	6.33	33.64	47.66	78.2	30.54	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Result = Read level + Antenna factor + cable loss-Amp factor								
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Note: According to KDB 789033, EIRP 【dBm】=E 【dBuV/m】-95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11n HT40 CH Low

Band Edge Test result								
EUT: Android MiniPC Box				M/N: TBGL1017A				
Power: DC 5V from USB Port								
Test date: 2017-06-27			Test site: 3m Chamber		Tested by: Eric			
Test mode: TX Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460	42.50	31.81	6.11	33.68	46.74	68.2	21.46	PK
5725	44.14	32.17	6.26	33.58	48.99	78.2	29.21	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5460	42.37	31.81	6.11	33.68	46.61	68.2	21.59	PK
5725	44.11	32.17	6.26	33.58	48.96	78.2	29.24	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Result = Read level + Antenna factor + cable loss-Amp factor								
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Note: According to KDB 789033, EIRP 【dBm】=E 【dBuV/m】-95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11n HT40 CH High

Band Edge Test result								
EUT: Android MiniPC Box				M/N: TBGL1017A				
Power: DC 5V from USB Port								
Test date: 2017-06-27			Test site: 3m Chamber		Tested by: Eric			
Test mode: TX High								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5850	42.20	32.5	6.33	33.64	47.39	78.2	30.81	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5850	49.18	32.5	6.33	33.64	54.37	78.2	23.83	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Result = Read level + Antenna factor + cable loss-Amp factor								
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Note: According to KDB 789033, EIRP 【dBm】=E 【dBuV/m】-95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

IEEE 802.11ac

Band Edge Test result								
EUT: Android MiniPC Box				M/N: TBGL1017A				
Power: DC 5V from USB Port								
Test date: 2017-06-27		Test site: 3m Chamber		Tested by: Eric				
Test mode: TX Low								
Antenna polarity: Vertical								
Freq (MHz)	Read Level (dBuV/m)	Antenna Factor (dB/m)	Cable loss(d B)	Amp Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
5460	42.81	31.81	6.11	33.68	47.05	68.2	21.15	PK
5725	43.39	32.17	6.26	33.58	48.24	78.2	29.96	PK
5850	44.35	32.5	6.33	33.64	49.54	78.2	28.66	PK
--	--	--	--	--	--	--	--	--
Antenna Polarity: Horizontal								
5460	42.22	31.81	6.11	33.68	46.46	68.2	21.74	PK
5725	42.84	32.17	6.26	33.58	47.69	78.2	30.51	PK
5850	43.94	32.5	6.33	33.64	49.13	78.2	29.07	PK
--	--	--	--	--	--	--	--	--
Note:								
1, Spectrum Set for PK measure: RBW=1MHz, VBW=1MHz, Sweep time=Auto, Detector: PK								
2, Result = Read level + Antenna factor + cable loss-Amp factor								
3, All the other emissions not reported were too low to read and deemed to comply with FCC limit.								

Note: According to KDB 789033, EIRP 【dBm】=E 【dBuV/m】-95.2, thus, limit for 5460MHz is -27+95.2=68.2 dBuV/m. Limit for 5725MHz is -17+95.2=78.2 dBuV/m.

10.Frequency stability

10.1.Test 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 user's manual.

10.2.Result

EUT: Android MiniPC Box M/N: TBGL1017A					
Power: DC 5V from USB Port					
Ambient Temperature:23℃		Relative Humidity: 60%			
Test date: 2017-06-27		Test site: RF site		Tested by: Eric	
Conclusion: PASS					
Mode	Voltage (V)	FH _L (5180MHz)	Deviation (KHz)	FH _H (5240MHz)	Deviation (KHz)
5.2G Band	132 V	5179.990	10	5239.990	10
	120 V	5179.990	10	5239.990	10
	108 V	5179.990	10	5239.990	10
5.8G Band	Voltage (V)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
	132 V	5744.985	15	5824.985	15
	120 V	5744.985	15	5824.985	15
	108 V	5744.985	15	5824.985	15

Mode	Temperature (°C)	FH _L (5180MHz)	Deviation (KHz)	FH _H (5240MHz)	Deviation (KHz)
5.2G Band	-30	5179.947	53	5239.958	42
	-20	5179.952	48	5239.971	29
	-10	5179.949	51	5239.956	44
	0	5179.946	54	5239.967	33
	10	5179.969	31	5239.974	26
	20	5179.958	42	5239.962	38
	30	5179.960	40	5239.942	58
	40	5179.968	32	5239.941	59
	50	5179.967	33	5239.956	44
	Temperature (°C)	FHL (5745MHz)	Deviation (KHz)	FHH (5825MHz)	Deviation (KHz)
5.8G Band	-30	5744.958	42	5824.943	57
	-20	5744.951	49	5824.935	65
	-10	5744.947	53	5824.955	45
	0	5744.959	41	5824.944	56
	10	5744.950	50	5824.961	39
	20	5744.964	36	5824.958	42
	30	5744.959	41	5824.969	31
	40	5744.964	36	5824.956	44
	50	5744.952	48	5824.949	51

11. Antenna Requirement

11.1. Standard Requirement

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

11.2. Antenna Connected Construction

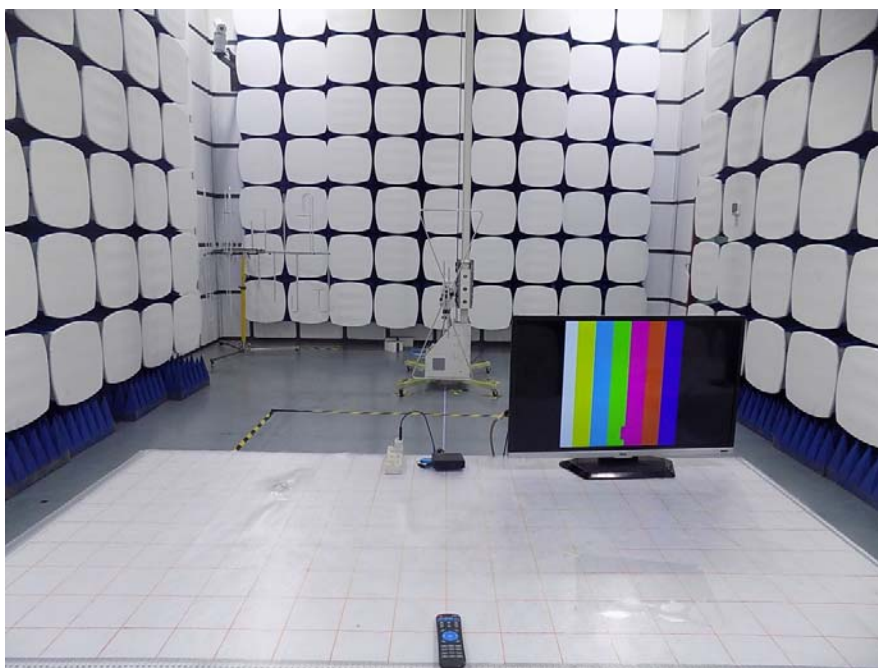
The antenna connector is PCB antenna and no consideration of replacement. Please see EUT photo for details.

11.3. Result

The EUT antenna is PCB Antenna. It comply with the standard requirement.

12. Test setup photo

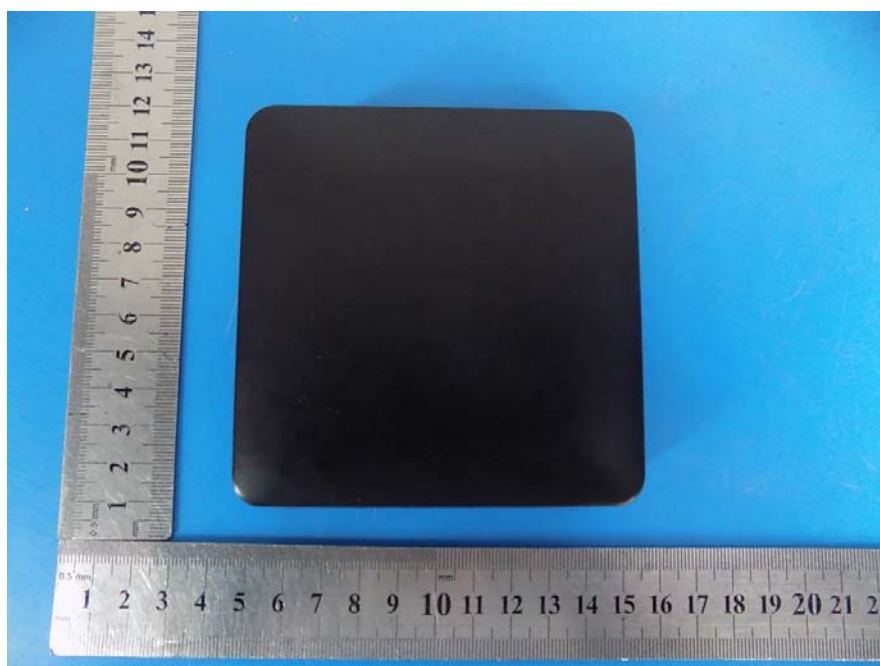
12.1. Photos of Radiated emission

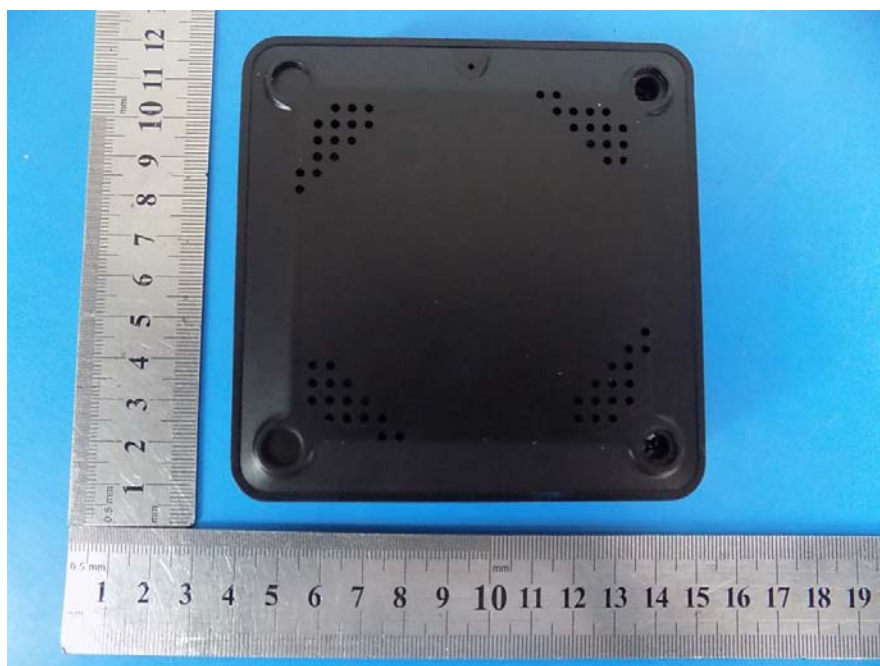


12.2.Photos of Conducted Emission test



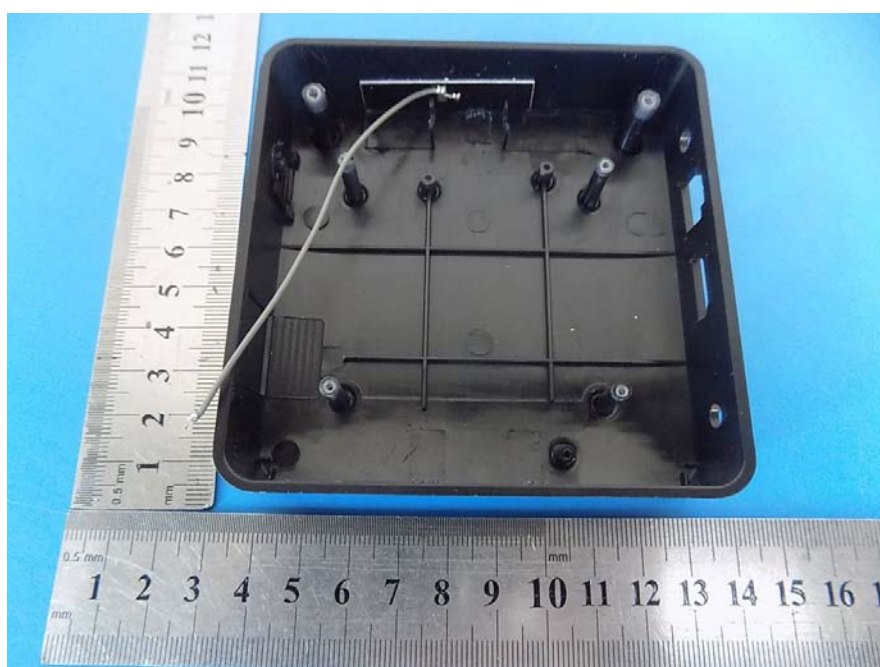
13. Photographs of EUT

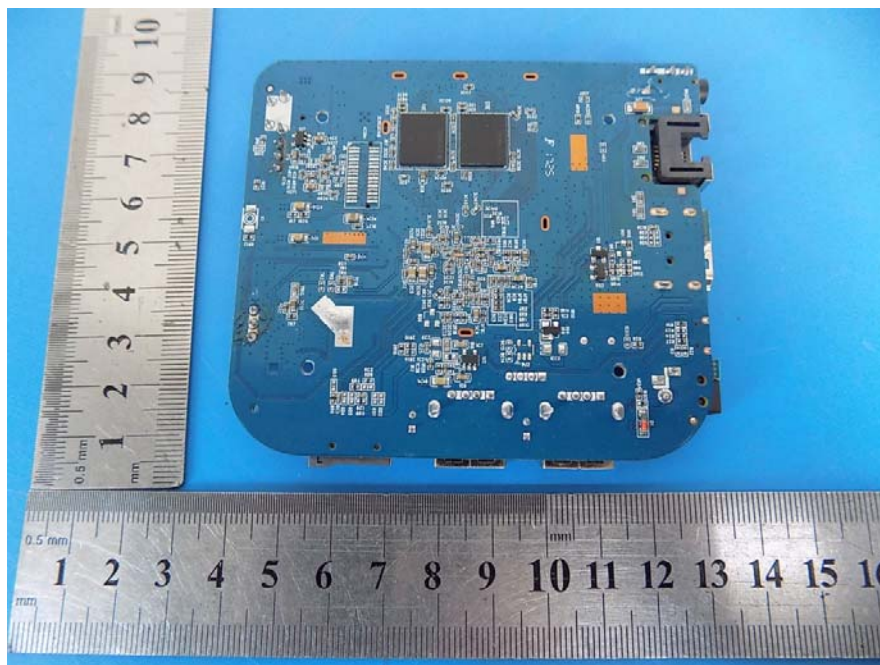
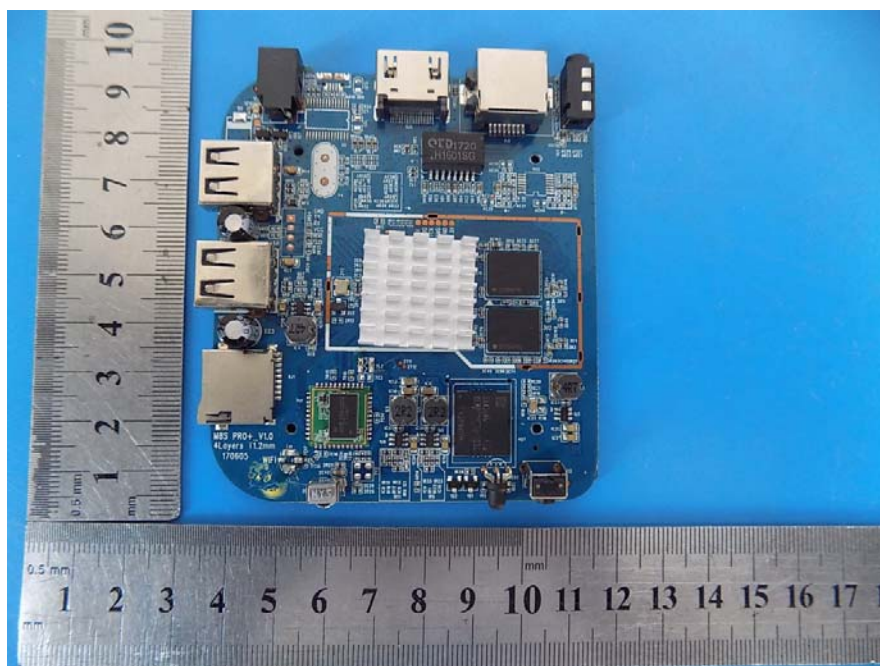


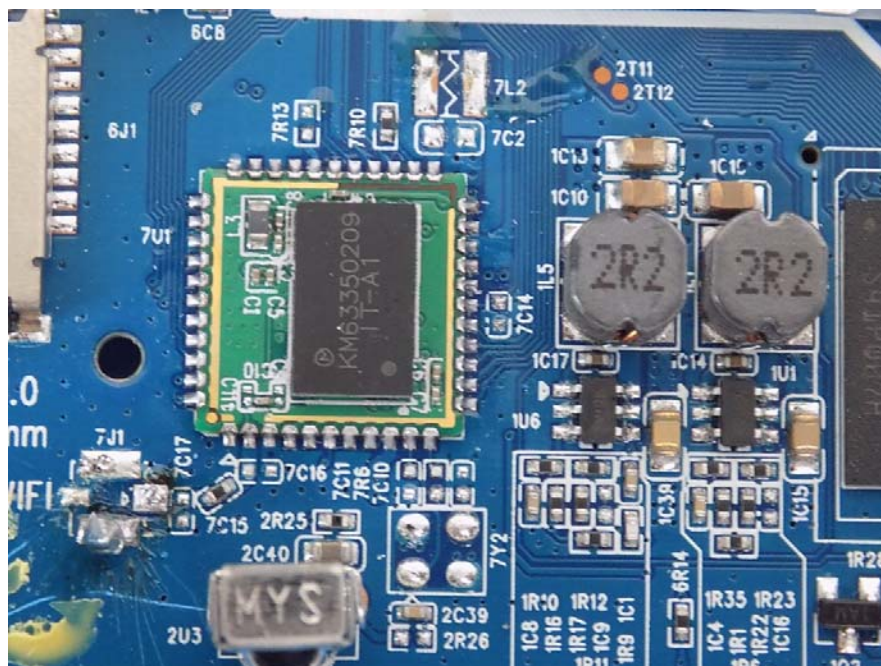












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