IC Partial Test Report

Product Name	：	Secure Smartphone
Trade Name	：	Bittium
Model No.	：	Tough Mobile 2
IC ID.	：	3282B-SD61

Applicant	：	BITTIUM WIRELESS OY
Address	：	Ritaharjuntie 1, 90590 Oulu, Finland

Test Date	：	Jan. 03, 2019
Issued Date	：	Dec. 16, 2019
Report No.	：	1910040R-RFCAP28V00
Report Version	：	V3.0

Test Report Certification

Issued Date : Dec. 16, 2019
Report No. : 1910040R-RFCAP28V00

Product Name	:	Secure Smartphone
Applicant	:	BITTIUM WIRELESS OY
Address	:	Ritaharjuntie 1, 90590 Oulu, Finland
Manufacturer	:	BITTIUM WIRELESS OY
Model No.	:	Tough Mobile 2
IC ID.	:	3282B-SD61
EUT Voltage	:	DC 3.8V
Testing Voltage	:	DC 3.8V
Trade Name	:	Bittium
Applicable Standard	:	RSS-247 Issue 2 (Feb. 2017) RSS-Gen Issue 5 (Apr. 2018) ANSI C63.10: 2013
Laboratory Name	:	Hsin Chu Laboratory
Address	:	No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 310, Taiwan, R.O.C. TEL: +886-3-582-8001 / FAX: +886-3-582-8958

Documented By : Lyla Yang

(Lyla Yang / Engineering Adm. Specialist)

Tested By : Clemens Fang

(Clemens Fang / Senior Engineer)

Approved By : Louis Hsu

(Louis Hsu / Deputy Manager)

Revision History

Report No.	Version	Description	Issued Date
1910040R-RFCAP28V00	V1.0	This is partial report. Only test items for 26 dB & 99% Bandwidth , Peak Transmit Output and Peak Power Spectrum Density test was performed in this report. For customers request.	Dec. 16, 2019
1910040R-RFCAP28V00	V2.0	Revise voltage to DC 3.8V.	Nov. 29, 2019
1910040R-RFCAP28V00	V3.0	Revise Antenna Gain to -1.1 dBi.	Dec. 16, 2019

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1. General Information

1.1. EUT Description

Product Name	Secure Smartphone	
Trade Name	Bittium	
Model No.	Tough Mobile 2	
Frequency Range/ Channel Number	IEEE 802.11a/ IEEE 802.11n (20MHz) /	5180~5240MHz / 4 Channels 5260~5320MHz / 4 Channels 5500~5700MHz / 8 Channels
	IEEE 802.11n (40MHz) / IEEE 802.11ac (40MHz)	5190~5230MHz / 2 Channels
	IEEE 802.11ac (80MHz)	5210~5210MHz / 1 Channel
	Without 5600~5650MHz (Channel of the weather radar)	
Type of Modulation	IEEE 802.11a/n/ac	Orthogonal Frequency Division Multiplexing (OFDM)
Data Speed	IEEE 802.11a	6, 9,12, 18, 24, 36, 48, 54Mbps
	IEEE 802.11n	Support a subset of the combination of GI, MCS 0~MCS15 and bandwidth defined in 802.11n
	IEEE 802.11ac	Support a subset of the combination of GI, MCS 0~MCS 9 and bandwidth defined in 802.11ac
Hw version	0302	
Sw version	40.1	

Antenna Information	
Antenna Type	monopole antenna
Antenna Gain	Antenna 0: -1.1 dBi Antenna 1: -1.1 dBi

ANT-TX / RX & Bandwidth

ANT-TX / RX	TX		
Mode/ Channel Bandwidth	20MHz	40MHz	80MHz
IEEE802.11a	✓		
IEEE802.11n	✓	✓	
IEEE802.11ac	✓	✓	✓

IEEE 802.11n

MCS Index	Modulation	R	N_{BPSCS}	N_{CBPS}		N_{DBPS}		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI	
								20MHz	40MHz	20MHz	40MHz
0	BPSK	1/2	1	52	108	26	54	6.5	13.5	7.2	15.0
1	QPSK	1/2	2	104	216	52	108	13.0	27.0	14.4	30.0
2	QPSK	3/4	2	104	216	78	162	19.5	40.5	21.7	45.0
3	16-QAM	1/2	4	208	432	104	216	26.0	54.0	28.9	60.0
4	16-QAM	3/4	4	208	432	156	324	39.0	81.0	43.3	90.0
5	64-QAM	2/3	6	312	648	208	432	52.0	108.0	57.8	120.0
6	64-QAM	3/4	6	312	648	234	486	58.5	121.5	65.0	135.0
7	64-QAM	5/6	6	312	648	260	540	65.0	135.0	72.2	150.0
Note 1: Support of 400ns GI is optional on transmit and receive.											

Table 1 – MCS parameters for TX Antenna number = 1

MCS Index	Modulation	R	N_{BPSCS}	N_{CBPS}		N_{DBPS}		Data Rate(Mb/s)			
				20MHz	40MHz	20MHz	40MHz	800ns GI		400ns GI	
								20MHz	40MHz	20MHz	40MHz
8	BPSK	1/2	1	104	216	52	108	13.0	27.0	14.4	30.0
9	QPSK	1/2	2	208	432	104	216	26.0	54.0	28.9	60.0
10	QPSK	3/4	2	208	432	156	324	39.0	81.0	43.3	90.0
11	16-QAM	1/2	4	416	864	208	432	52.0	108.0	57.8	120.0
12	16-QAM	3/4	4	416	864	312	648	78.0	162.0	86.7	180.0
13	64-QAM	2/3	6	624	1296	416	864	104.0	216.0	115.6	240.0
14	64-QAM	3/4	6	624	1296	468	972	117.0	243.0	130.0	270.0
15	64-QAM	5/6	6	624	1296	520	1080	130.0	270.0	144.4	300.0
Note 1: Support of 400ns GI is optional on transmit and receive.											

Table 2 – MCS parameters for TX Antenna number = 2

Symbol	Explanation
R	Code rate
N_{BPSC}	Number of coded bits per single carrier
N_{CBPS}	Number of coded bits per symbol
N_{DBPS}	Number of data bits per symbol
GI	guard interval

IEEE 802.11ac Data Rate

Spatial Streams (Note1)	MCS Index	Modulation type	Coding rate	Data Rate(Mb/s)					
				20 MHz		40 MHz		80 MHz	
				Guard Interval		Guard Interval		Guard Interval	
				800ns	400ns	800ns	400ns	800ns	400ns
1	0	BPSK	1/2	6.5	7.2	13.5	15	29.3	32.5
	1	QPSK	1/2	13	14.4	27	30	58.5	65
	2	QPSK	3/4	19.5	21.7	40.5	45	87.8	97.5
	3	16-QAM	1/2	26	28.9	54	60	117	130
	4	16-QAM	3/4	39	43.3	81	90	175.5	195
	5	64-QAM	2/3	52	57.8	108	120	234	260
	6	64-QAM	3/4	58.5	65	121.5	135	263.3	292.5
	7	64-QAM	5/6	65	72.2	135	150	292.5	325
	8	256-QAM	3/4	78	86.7	162	180	351	390
	9	256-QAM	5/6	N/A	N/A	180	200	390	433.3
2	0	BPSK	1/2	13	14.4	27	30	58.6	65
	1	QPSK	1/2	26	28.8	54	60	117	130
	2	QPSK	3/4	39	43.4	81	90	175.6	195
	3	16-QAM	1/2	52	57.8	108	120	234	260
	4	16-QAM	3/4	78	86.6	162	180	351	390
	5	64-QAM	2/3	104	115.6	216	240	468	520
	6	64-QAM	3/4	117	130	243	270	526.6	585
	7	64-QAM	5/6	130	144.4	270	300	585	650
	8	256-QAM	3/4	156	173.4	324	360	702	780
	9	256-QAM	5/6	N/A	N/A	360	400	780	866.6

IEEE 802.11a & IEEE 802.11n (20MHz) & IEEE 802.11ac (20MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180 MHz	40	5200 MHz	44	5220 MHz	48	5240 MHz
52	5260 MHz	56	5280 MHz	60	5300 MHz	64	5320 MHz
100	5500 MHz	104	5520 MHz	108	5540 MHz	112	5560 MHz
116	5580 MHz	132	5660 MHz	136	5680 MHz	140	5700 MHz

IEEE 802.11n (40MHz) & IEEE 802.11ac (40MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz				

IEEE 802.11ac (80MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210 MHz						

Note:

1. This device is a Secure Smartphone supports 5GHz a/n/ac transmitting functions.
2. Regards to the frequency band operation; the lowest、middle and highest frequency of channel were selected to perform the test, and then shown on this report.
3. These tests are conducted on a sample of the equipment for the purpose of demonstrating compliance with RSS-247 for spread spectrum devices.

1.2. Test Mode

DEKRA has verified the construction and function in typical operation. The preliminary tests were performed in different data rate, and to find the worst condition, which was shown in this test report. The following table is the final test mode.

Test Mode	Mode 1: Transmit Mode

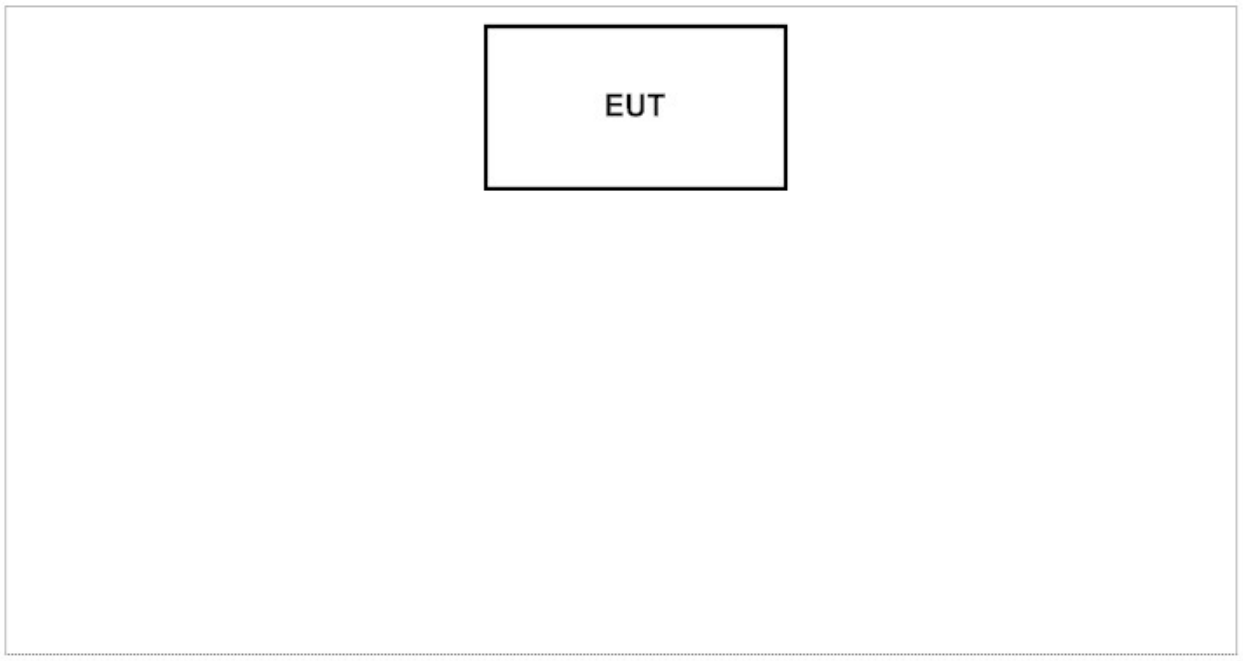
Test Items	Modulation	Channel	Antenna	Result
26dB & 99% Bandwidth	a	36/44/48/52/60/ 64/100/116/140	0/1	Complies
	11n/ac (20MHz)	36/44/48/52/60/ 64/100/116/140	0/1	Complies
	11n/ac (40MHz)	38/46	0/1	Complies
	11ac (80MHz)	42	0/1	Complies
Peak Transmit Output	a	36/44/48/52/60/ 64/100/116/140	0+1	Complies
	11n/ac (20MHz)	36/44/48/52/60/ 64/100/116/140	0+1	Complies
	11n/ac (40MHz)	38/46	0+1	Complies
	11ac (80MHz)	42	0+1	Complies
Peak Power Spectrum Density	a	36/44/48/52/60/ 64/100/116/140	0+1	Complies
	11n/ac (20MHz)	36/44/48/52/60/ 64/100/116/140	0+1	Complies
	11n/ac (40MHz)	38/46	0+1	Complies
	11ac (80MHz)	42	0+1	Complies

1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	N/A					

1.4. Configuration of tested System

Connection Diagram


1.5. EUT Exercise Software

1	Set the EUT as shown in Section 1.4.
2	Execute the "Wlan Test" on the EUT.
3	Configure test mode, test channel and data rate.
4	EUT start transmitting or receiving continuously.
5	Verify that the device is working properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual	Test Site
Temperature (°C)	RSS-247 26dB & 99% Bandwidth	15 - 35	25°C	3
Humidity (%RH)		25 - 75	45%RH	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	RSS-247 Peak Transmit Power	15 - 35	25°C	3
Humidity (%RH)		25 - 75	65%RH	
Barometric pressure (mbar)		860 - 1060	950-1000	
Temperature (°C)	RSS-247 Peak Power Spectrum Density	15 - 35	25°C	3
Humidity (%RH)		25 - 75	45%RH	
Barometric pressure (mbar)		860 - 1060	950-1000	

Note: Test Site information refers to Laboratory Information.

Laboratory Information

USA	:	**FCC Registration Number: TW3024**
Canada		**IC Registration Number: 22397-1 / 22397-2 / 22397-3**

The related certificate for our laboratories about the test site and management system can be downloaded from DEKRA Testing and Certification Co., Ltd. Web Site:
http://www.dekra.com.tw/english/about/certificates.aspx?bval=5
The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: http://www.dekra.com.tw/index_en.aspx

If you have any comments, Please don't hesitate to contact us. Our test sites as below:

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1.7. List of Test Equipment

26dB & 99% Bandwidth / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2018/06/26	2019/06/25
Spectrum Analyzer	Keysight	N9010B	MY57110159	2018/05/25	2019/05/24
Spectrum Analyzer	Agilent	N9010A	US47140172	2018/07/18	2019/07/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/12/21	2019/12/20

Peak Transmit Output / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
High Speed Peak Power Meter Dual Input	Anritsu	ML2496A	1602004	2018/12/17	2019/12/16
Pulse Power Sensor	Anritsu	MA2411B	1531043	2018/12/17	2019/12/16
Pulse Power Sensor	Anritsu	MA2411B	1531044	2018/12/17	2019/12/16
Power Meter	Keysight	8990B	MY51000248	2018/06/07	2019/06/06

Peak Power Spectrum Density / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Keysight	N9030B	MY57140404	2018/06/26	2019/06/25
Spectrum Analyzer	Keysight	N9010B	MY57110159	2018/05/25	2019/05/24
Spectrum Analyzer	Agilent	N9010A	US47140172	2018/07/18	2019/07/17
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/12/21	2019/12/20

1.8. Uncertainty

Test item	Uncertainty
26dB & 99% Bandwidth	± 50 Hz
Peak Transmit Output	± 1.27 dB
Peak Power Spectrum Density	± 1.27 dB

1.9. Duty Cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle (%)	Duty Factor(dB) linear voltage	Duty Factor(dB) Power	1/T Minimum VBW (kHz)
802.11a	1.400	1.437	97.43%	0.226575	0.11	0.714
802.11ac VHT20	2.588	2.625	98.59%	0.123301	0.06	0.010
802.11ac VHT40	1.272	1.308	97.25%	0.242413	0.12	0.786
802.11ac VHT80	0.612	0.648	94.36%	0.504671	0.25	1.635

Note:

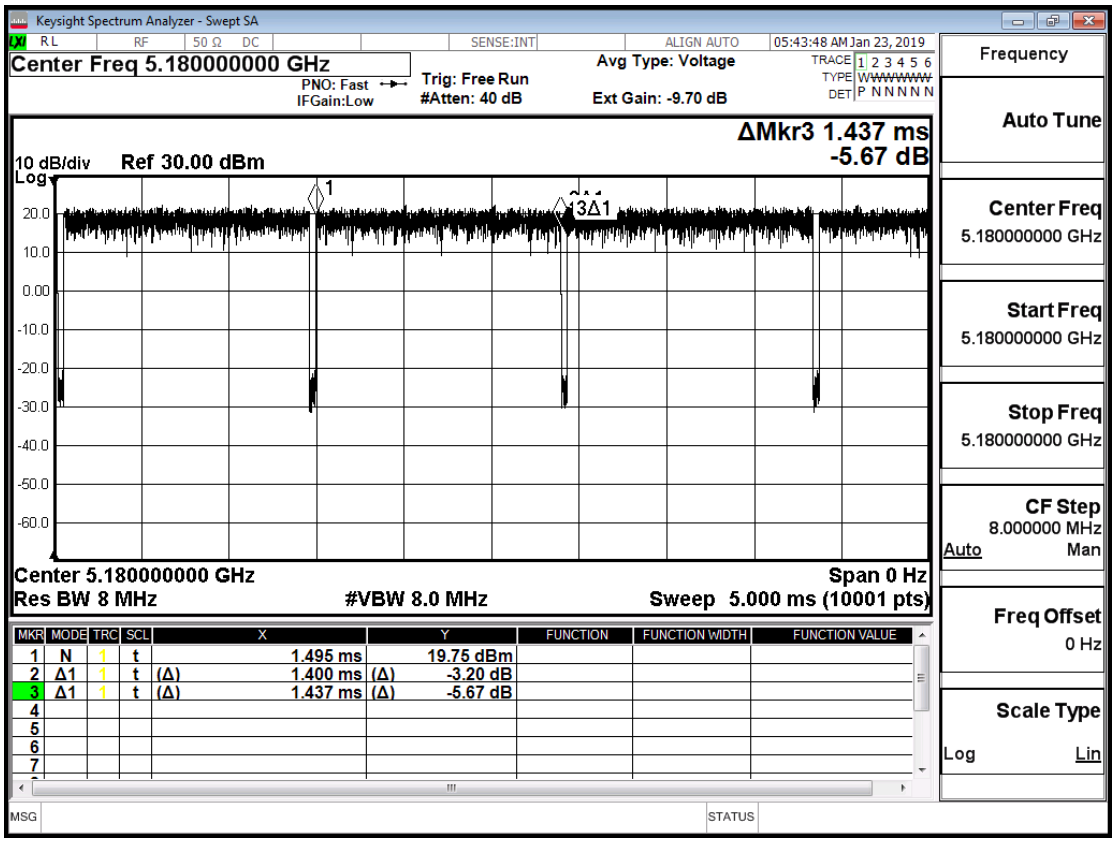
Offset = 20 log(1/duty cycle)

Accotding to KDB 789033

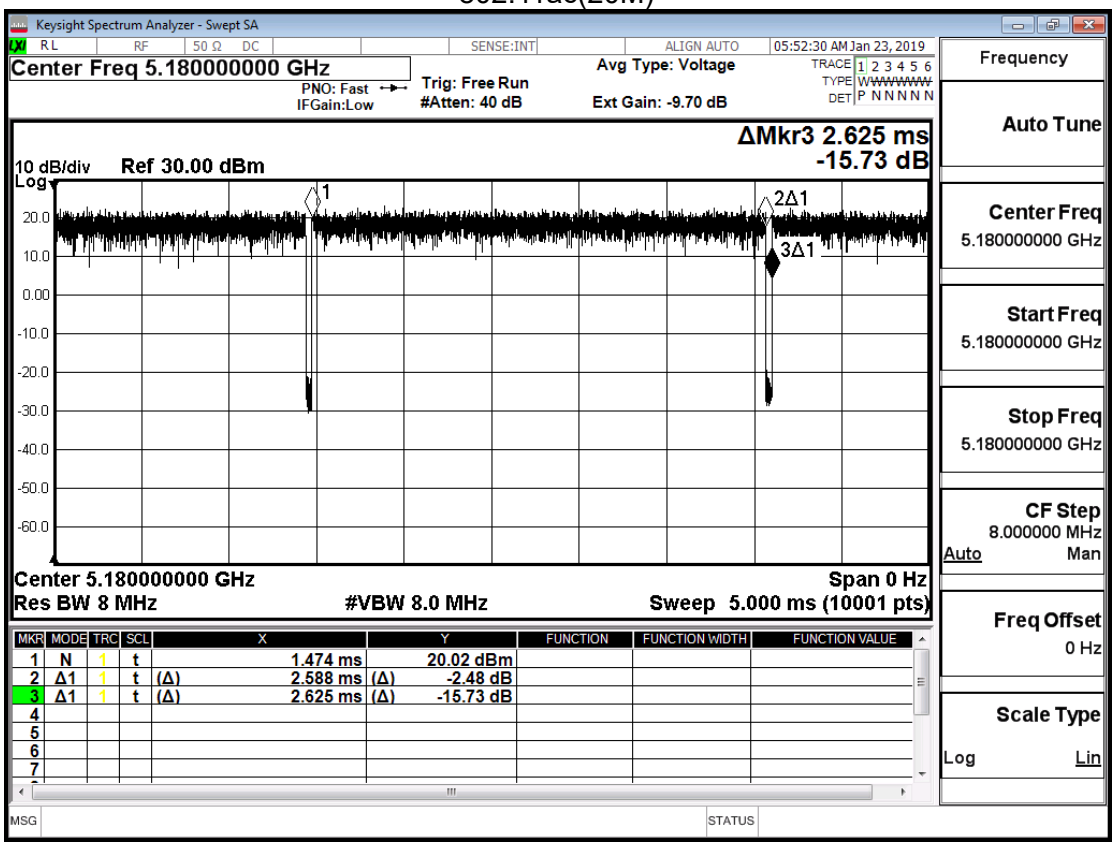
If power averaging (rms) mode was used in step (iv) above, the correction factor is 10 log (1/x), where x is the duty cycle. For example, if the transmit duty cycle was 50%, then 3 dB must be added to the measured emission levels.

If linear voltage averaging mode was used in step (iv) above, the correction factor is 20 log (1/x), where x is the duty cycle. For example, if the transmit duty cycle was 50%, then 6 dB must be added to the measured emission levels.

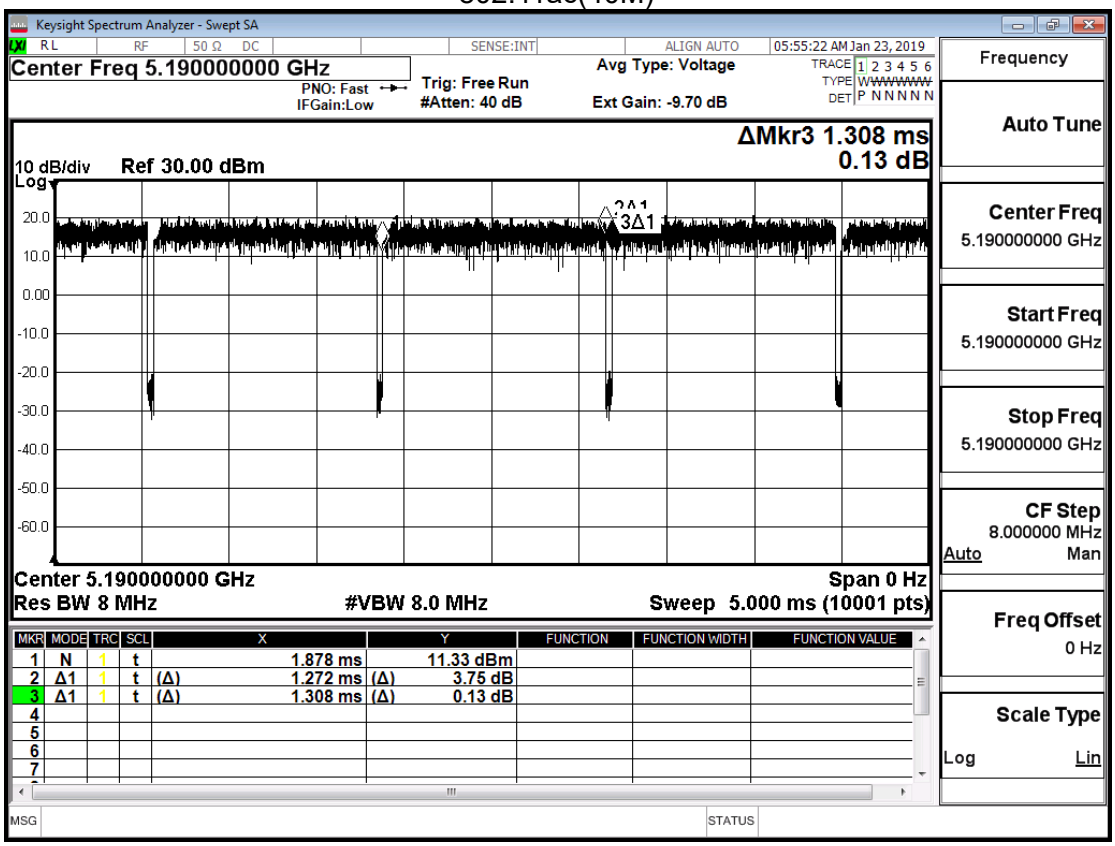
802.11a



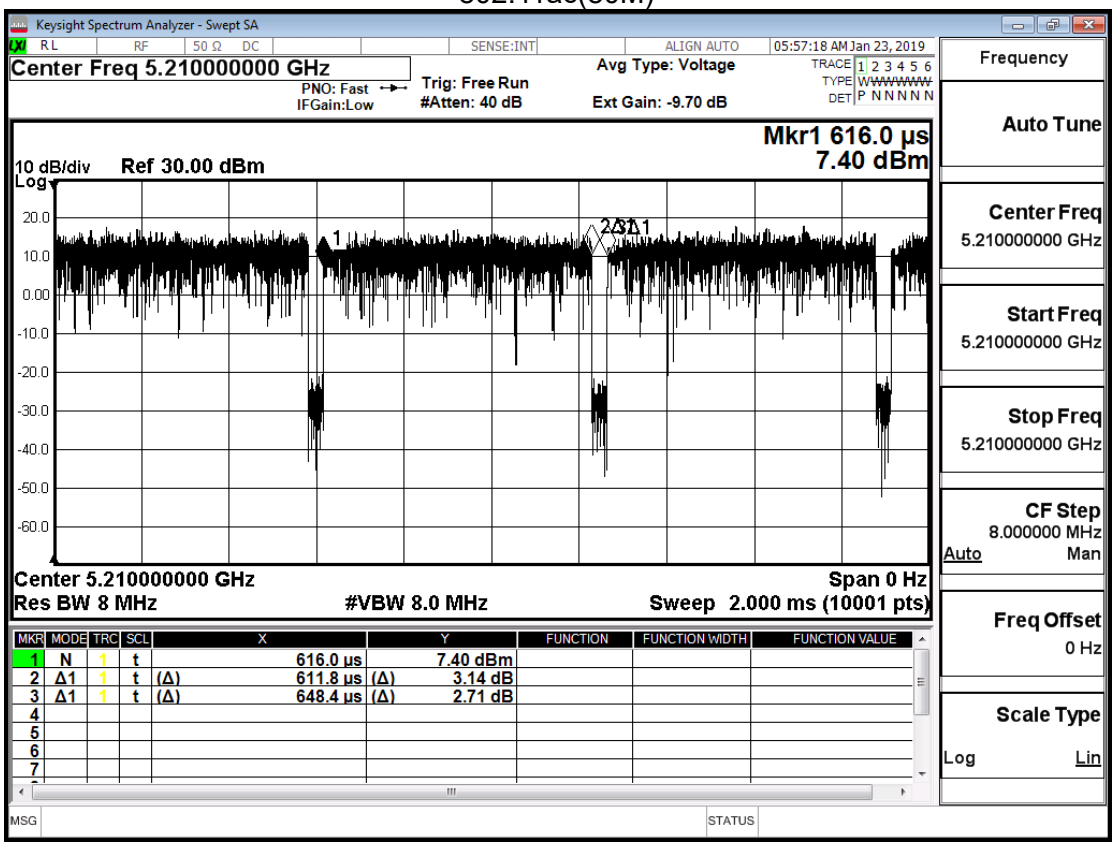
802.11ac(20M)



802.11ac(40M)

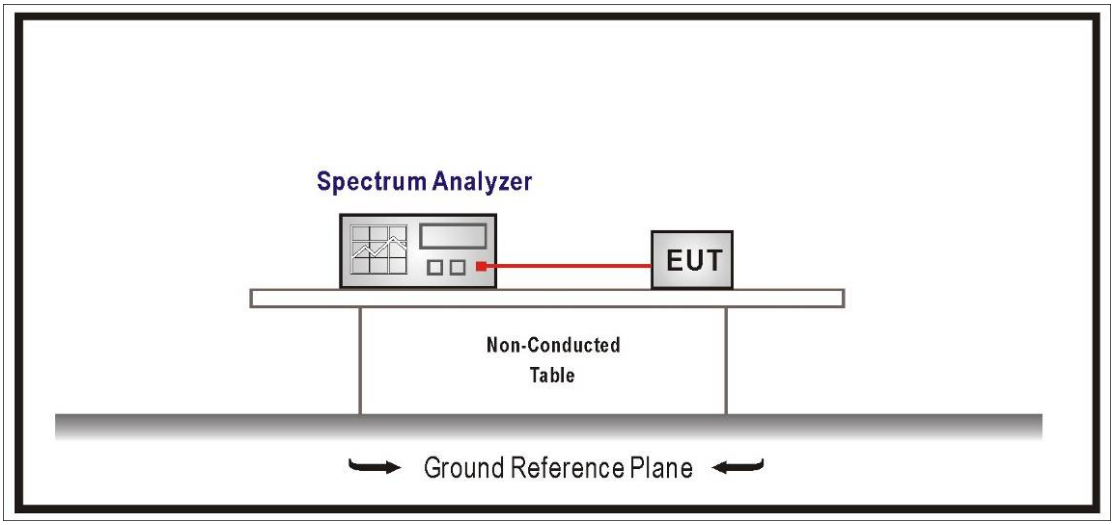


802.11ac(80M)



2. 26dB & 99% Bandwidth

2.1. Test Setup



2.2. Limits

99% & 26dB Bandwidth : No Required

2.3. Test Procedure

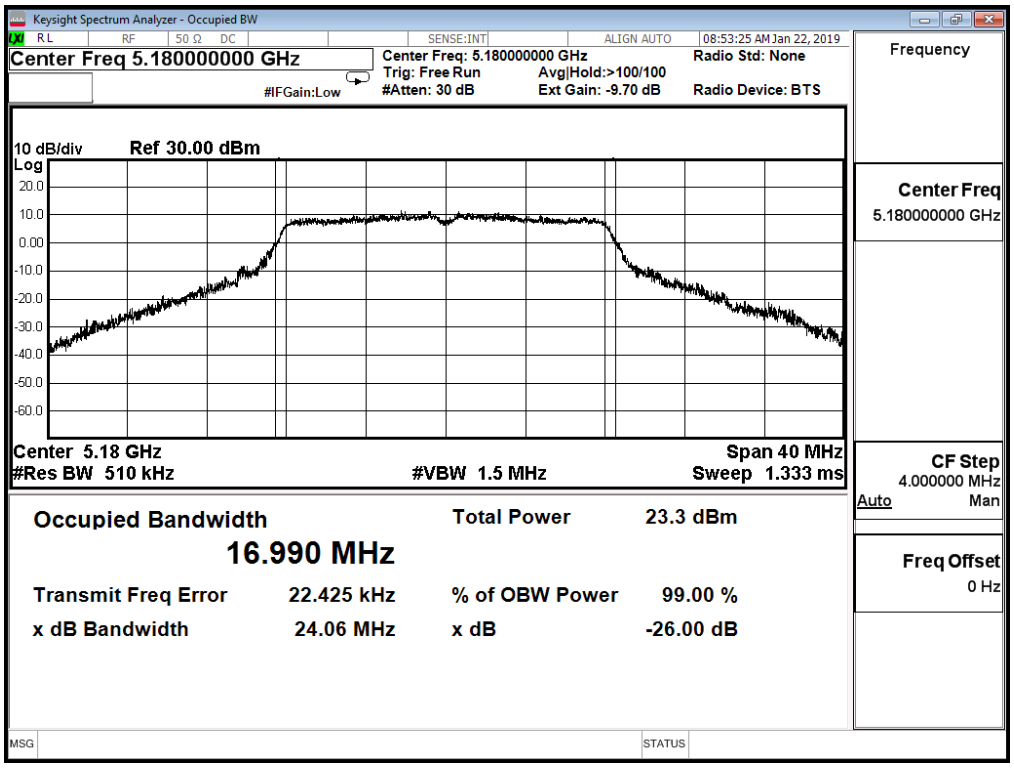
The EUT was tested according to U-NII test procedure of KDB 789033.
Set RBW 1% of the emission bandwidth, VBW equal to 3 times the RBW.

2.4. Test Result

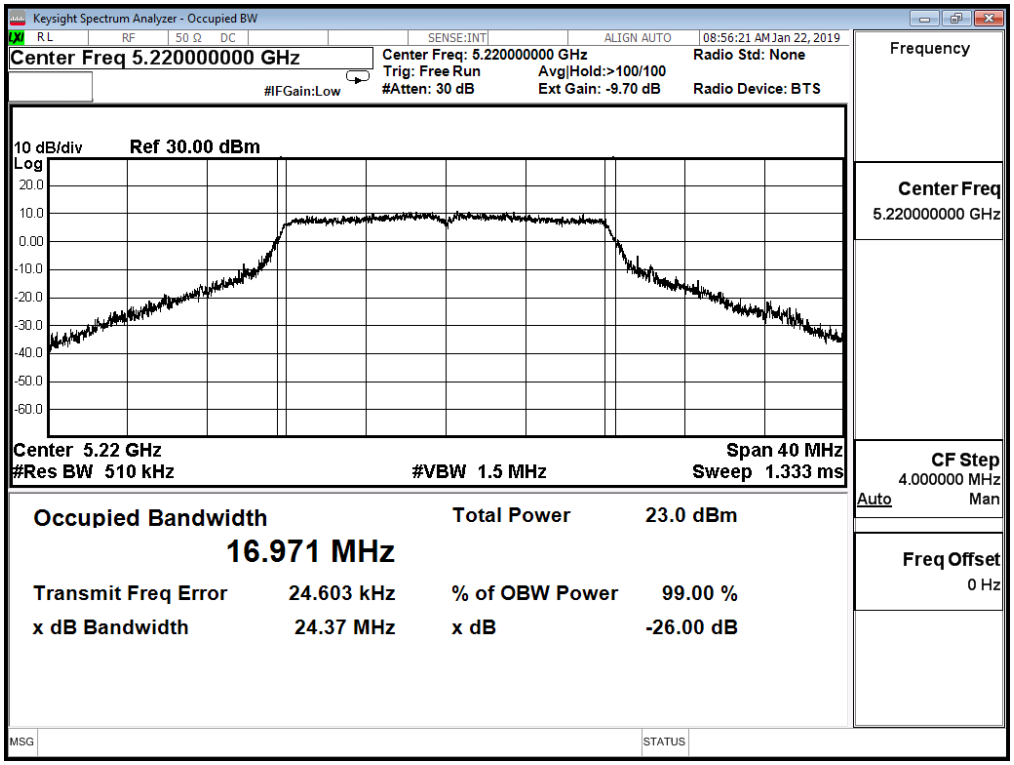
Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11a (ANT 0)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
36	5180	24.060	16.990	--	Pass
44	5220	24.370	16.971	--	Pass
48	5240	24.260	16.864	--	Pass

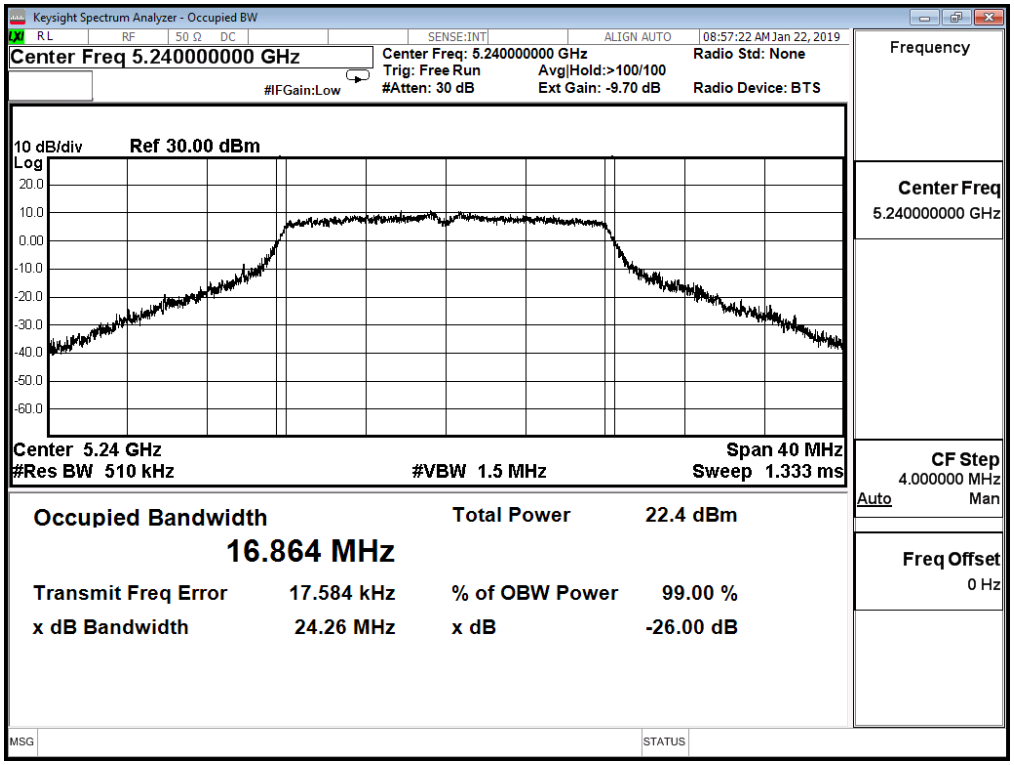
Channel 36 (5180MHz)



Channel 44 (5220MHz)



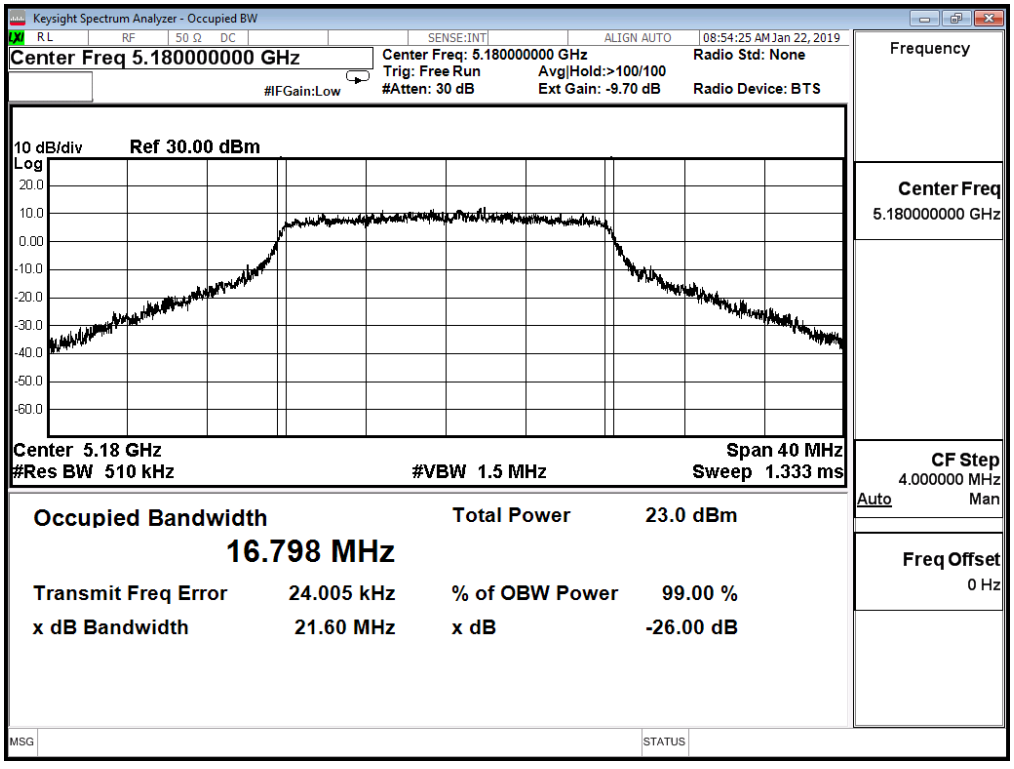
Channel 48 (5240MHz)



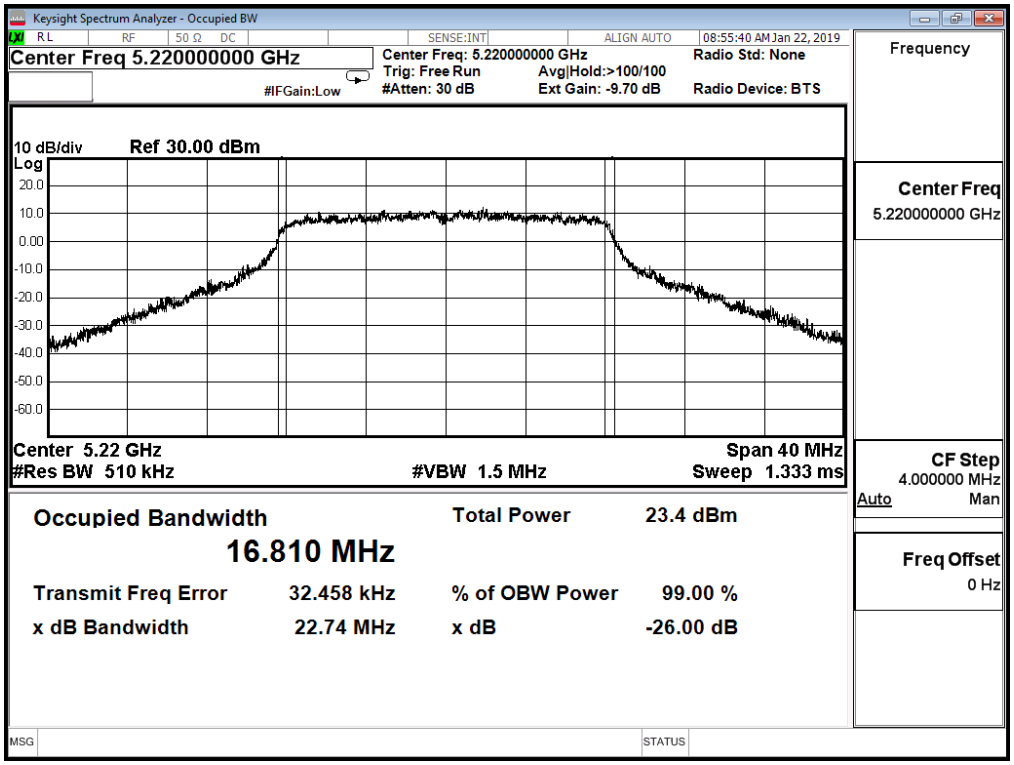
Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11a (ANT 1)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
36	5180	21.600	16.798	--	Pass
44	5220	22.740	16.810	--	Pass
48	5240	22.350	16.822	--	Pass

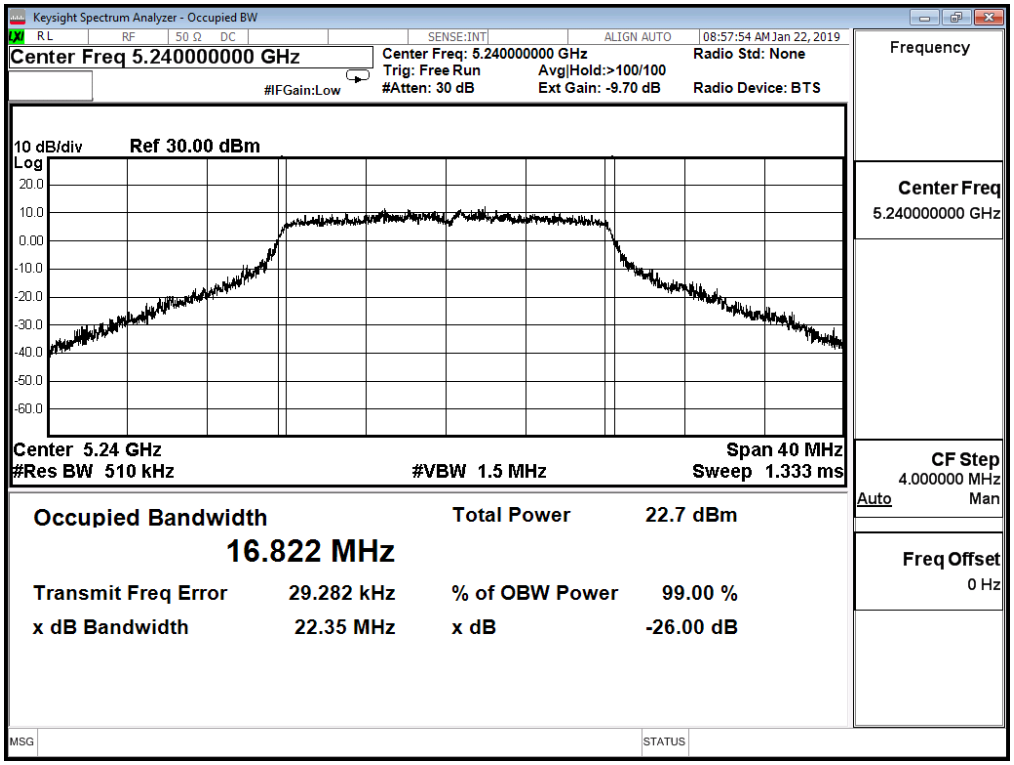
Channel 36 (5180MHz)



Channel 44 (5220MHz)



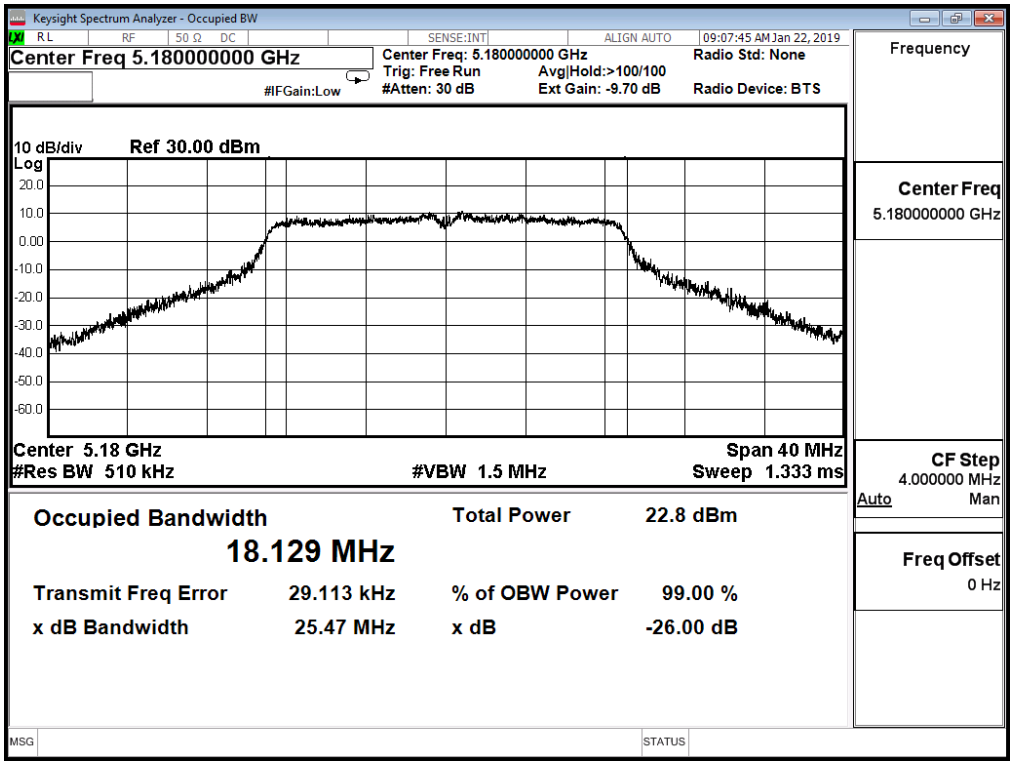
Channel 48 (5240MHz)



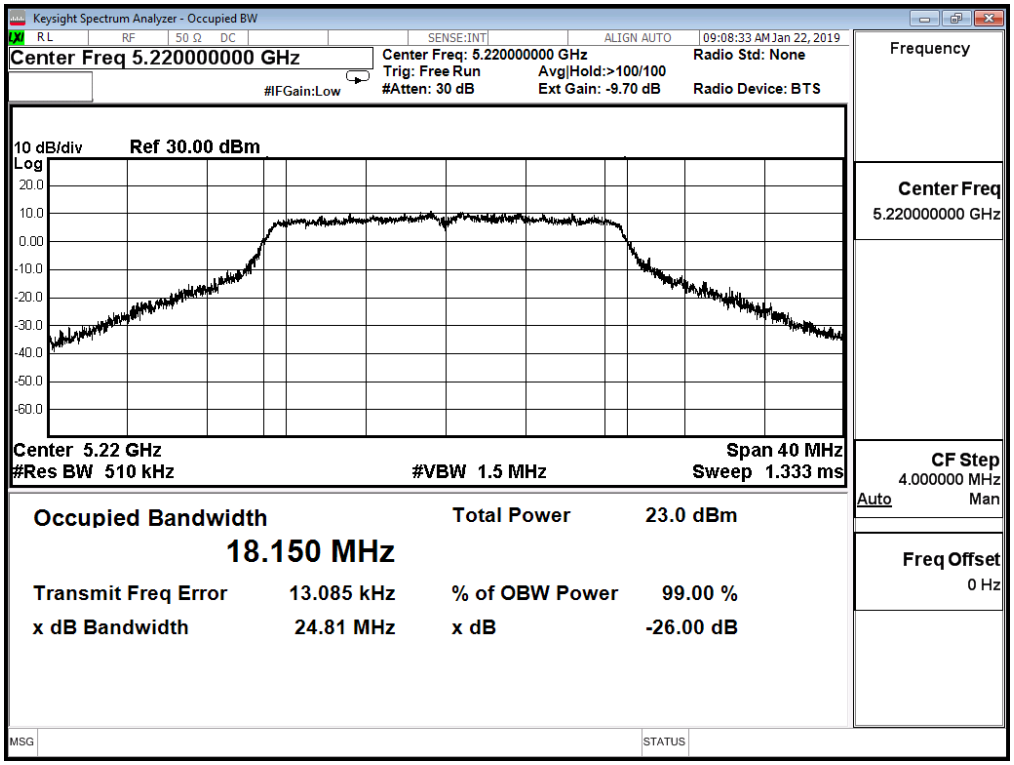
Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac_20M(ANT 0)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
36	5180	25.470	18.129	--	Pass
44	5220	24.810	18.150	--	Pass
48	5240	24.830	18.024	--	Pass

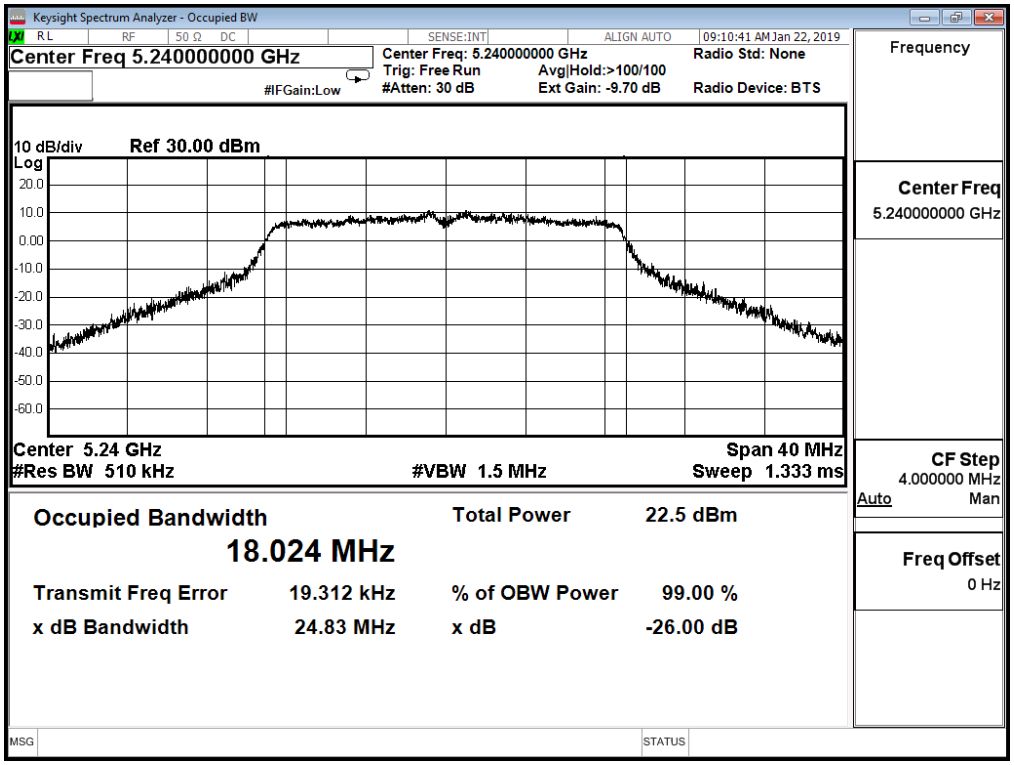
Channel 36 (5180MHz)



Channel 44 (5220MHz)



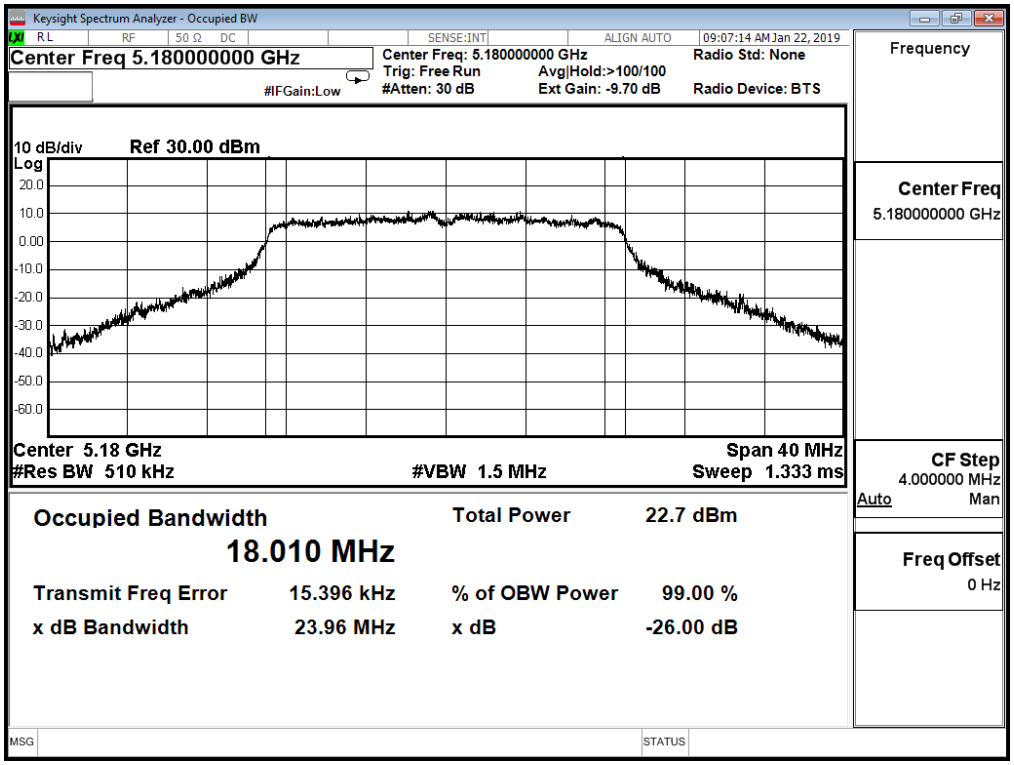
Channel 48 (5240MHz)



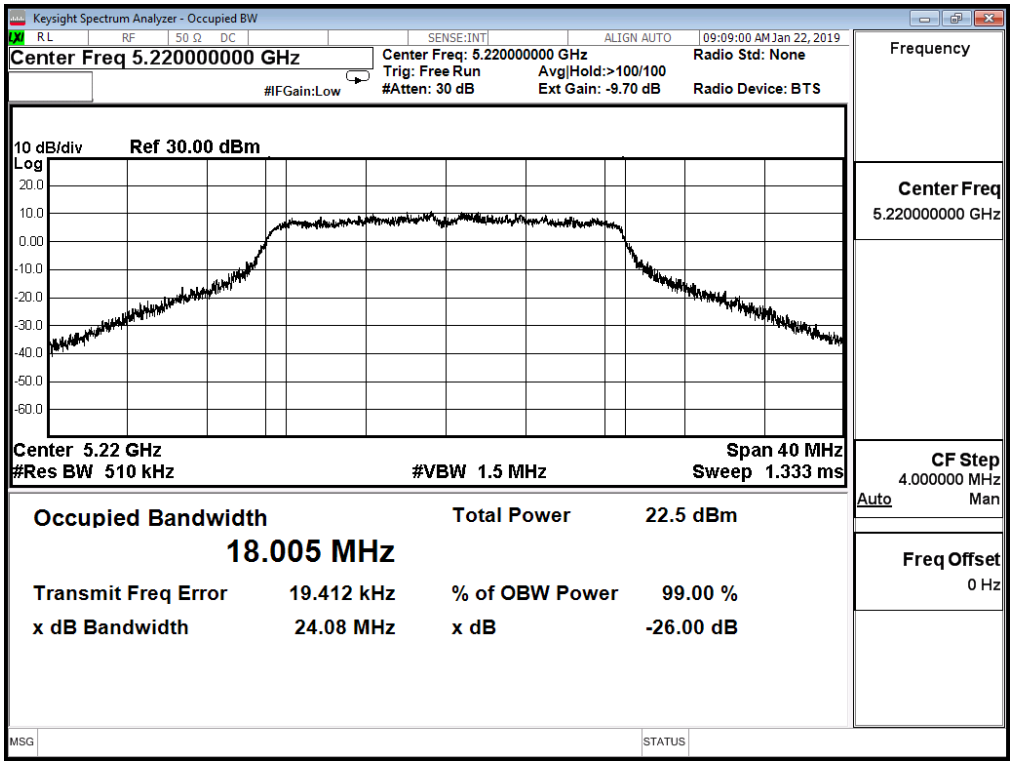
Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac_20M(ANT 1)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
36	5180	23.960	18.010	--	Pass
44	5220	24.080	18.005	--	Pass
48	5240	24.230	18.004	--	Pass

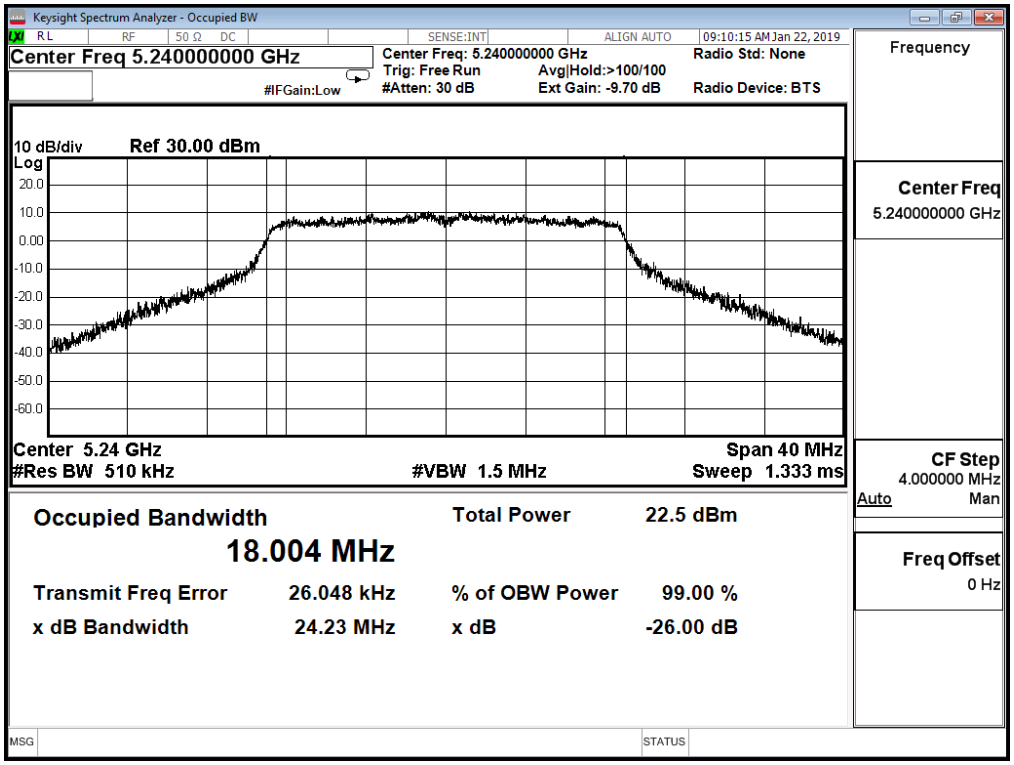
Channel 36 (5180MHz)



Channel 44 (5220MHz)



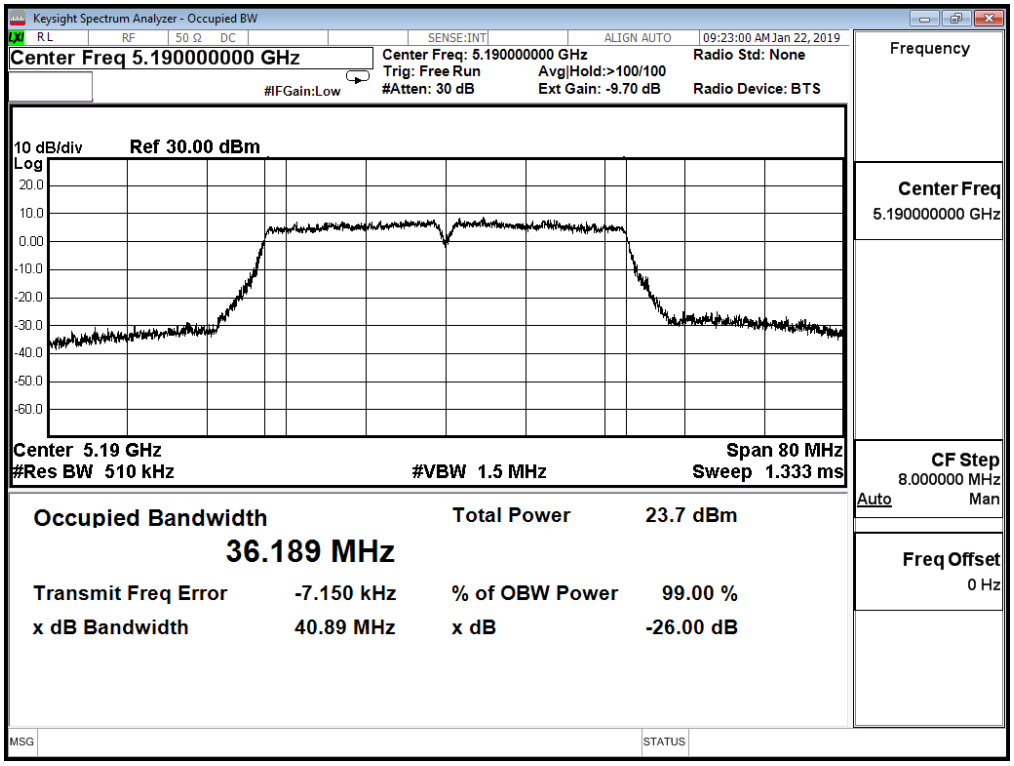
Channel 48 (5240MHz)



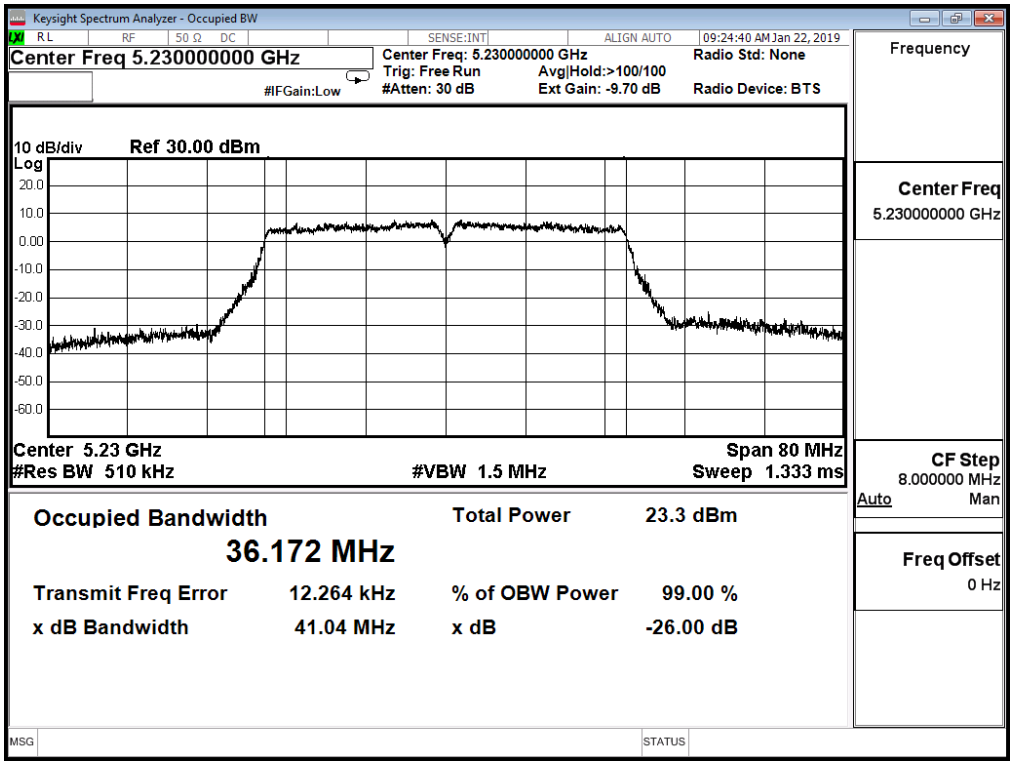
Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac_40M(ANT 0)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
38	5190	40.890	36.189	--	Pass
46	5230	41.040	36.172	--	Pass

Channel 38 (5190MHz)



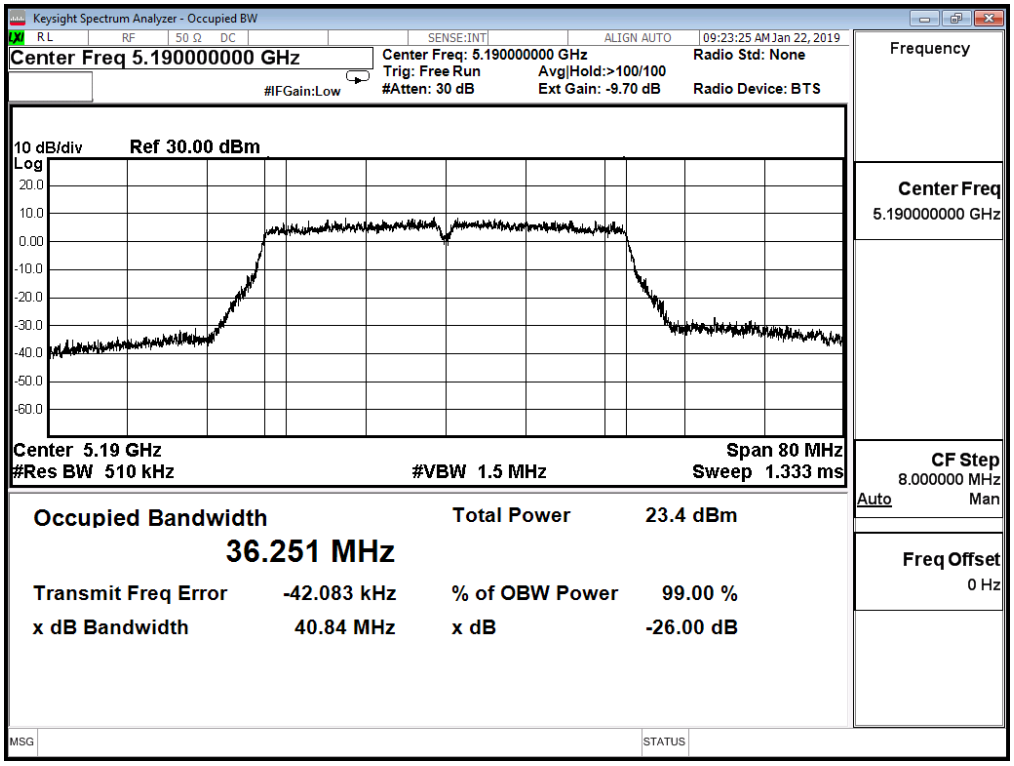
Channel 46 (5230MHz)



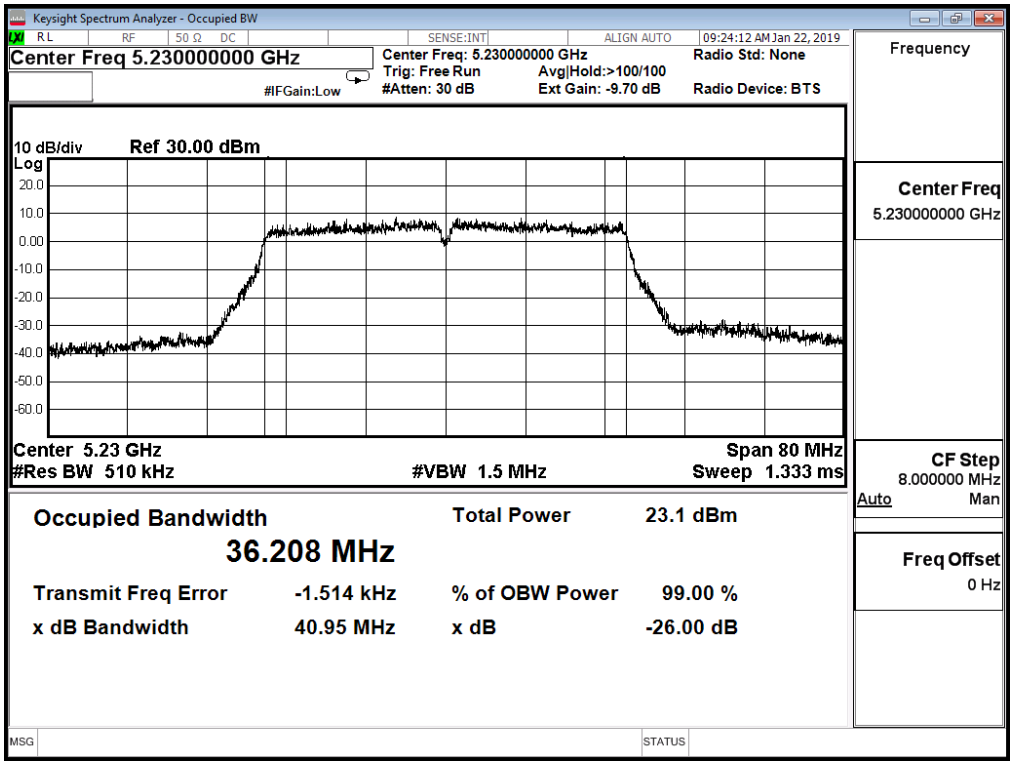
Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac_40M(ANT 1)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
38	5190	40.840	36.251	--	Pass
46	5230	40.950	36.208	--	Pass

Channel 38 (5190MHz)



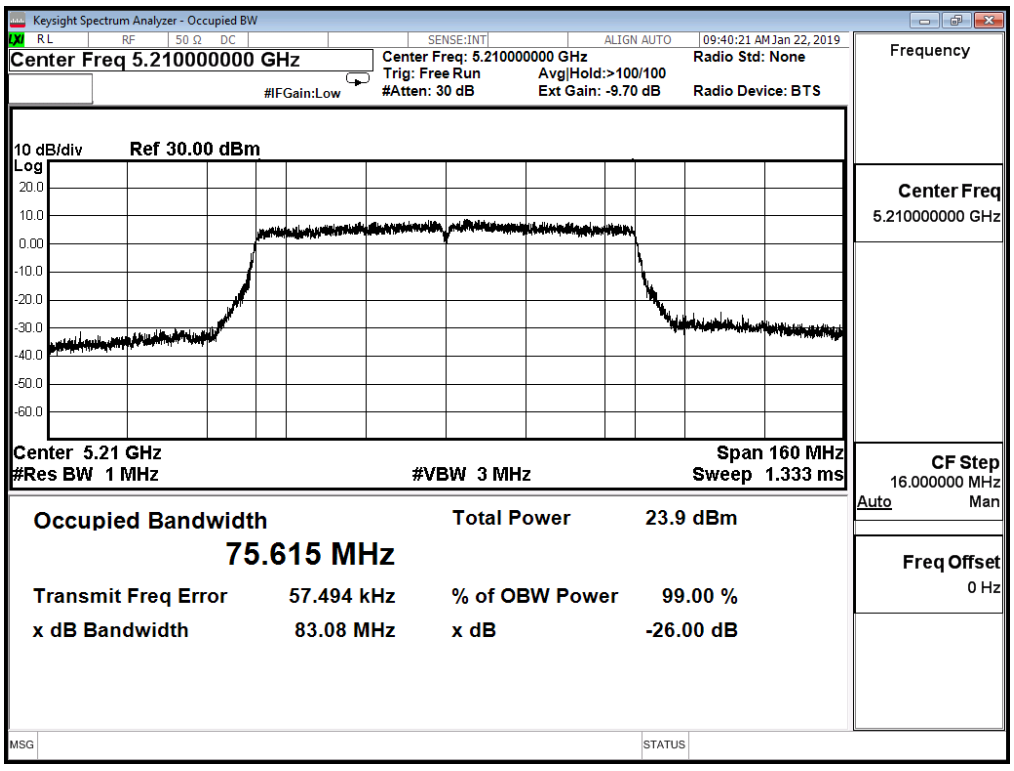
Channel 46 (5230MHz)



Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac_80M(ANT 0)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
42	5210	83.080	75.615	--	Pass

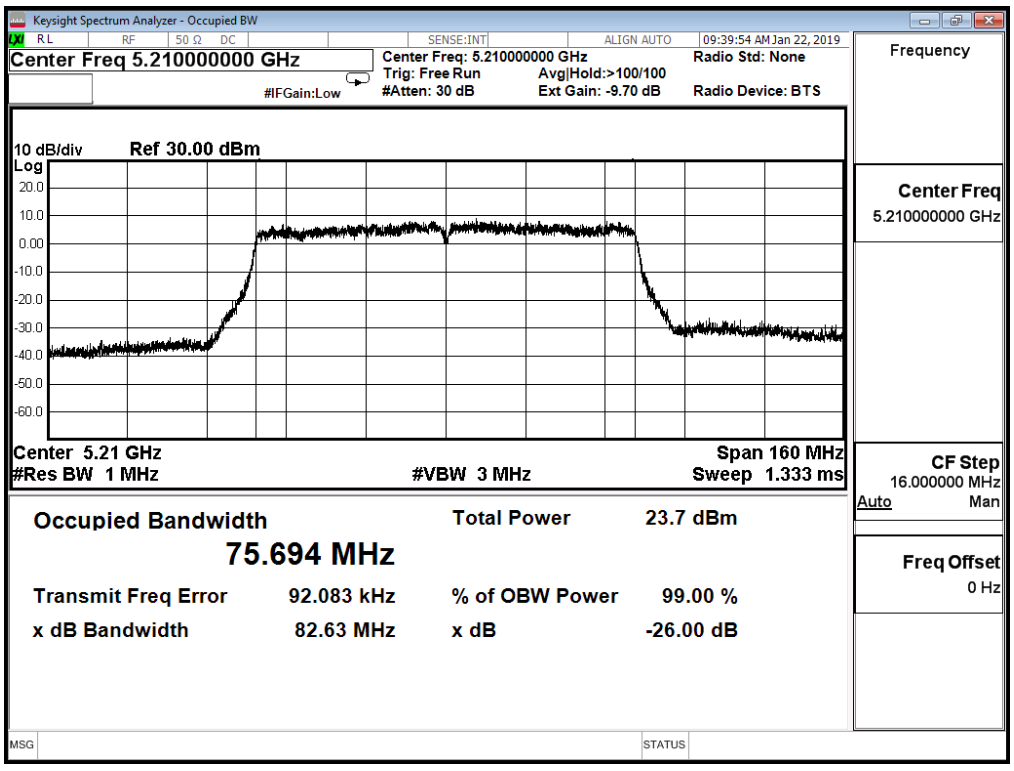
Channel 42 (5210MHz)



Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac_80M(ANT 1)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
42	5210	82.630	75.694	--	Pass

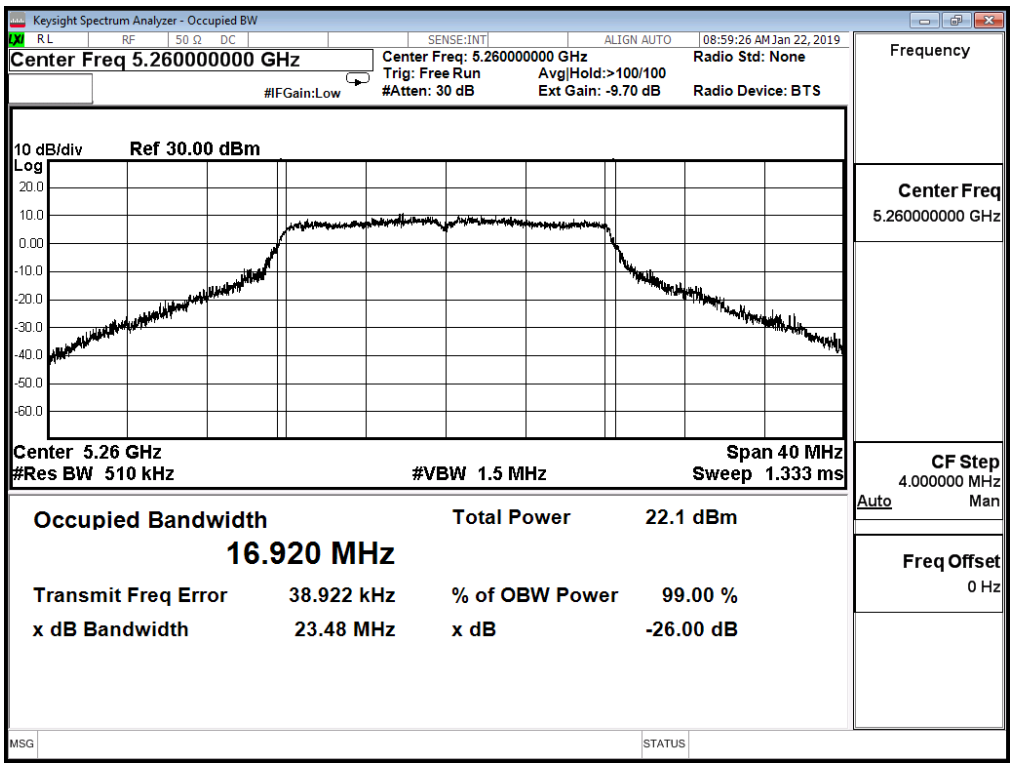
Channel 42 (5210MHz)



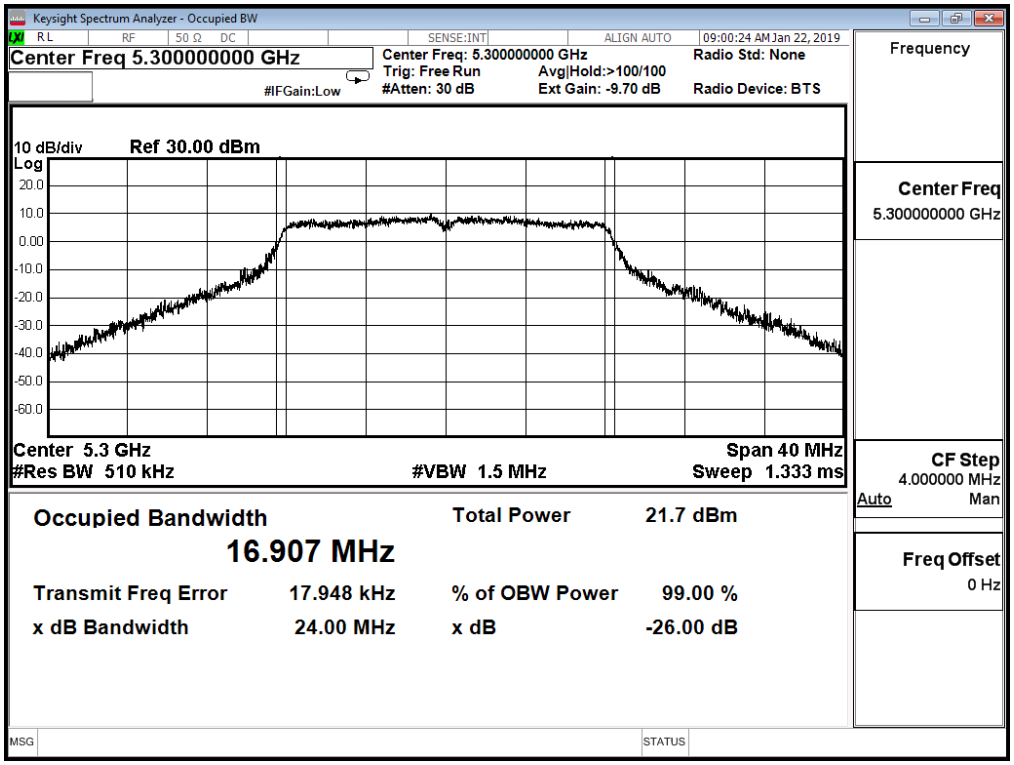
Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11a (ANT0)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
52	5260	23.480	16.920	--	Pass
60	5300	24.000	16.907	--	Pass
64	5320	24.400	16.873	--	Pass

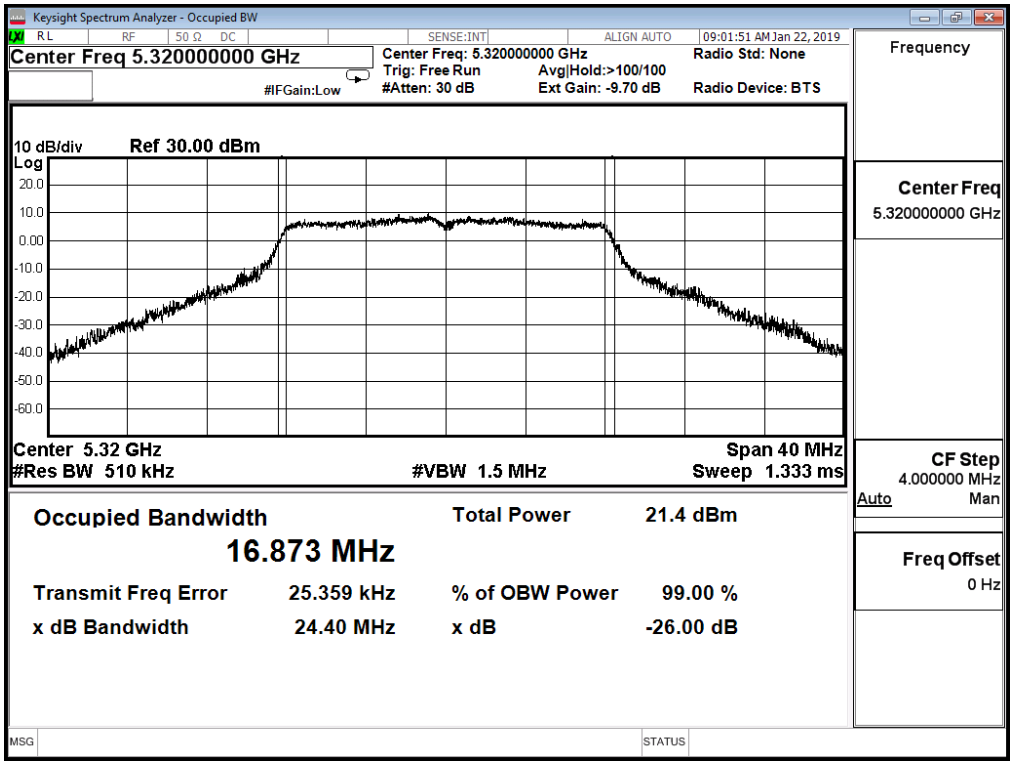
Channel 52 (5260MHz)



Channel 60 (5300MHz)



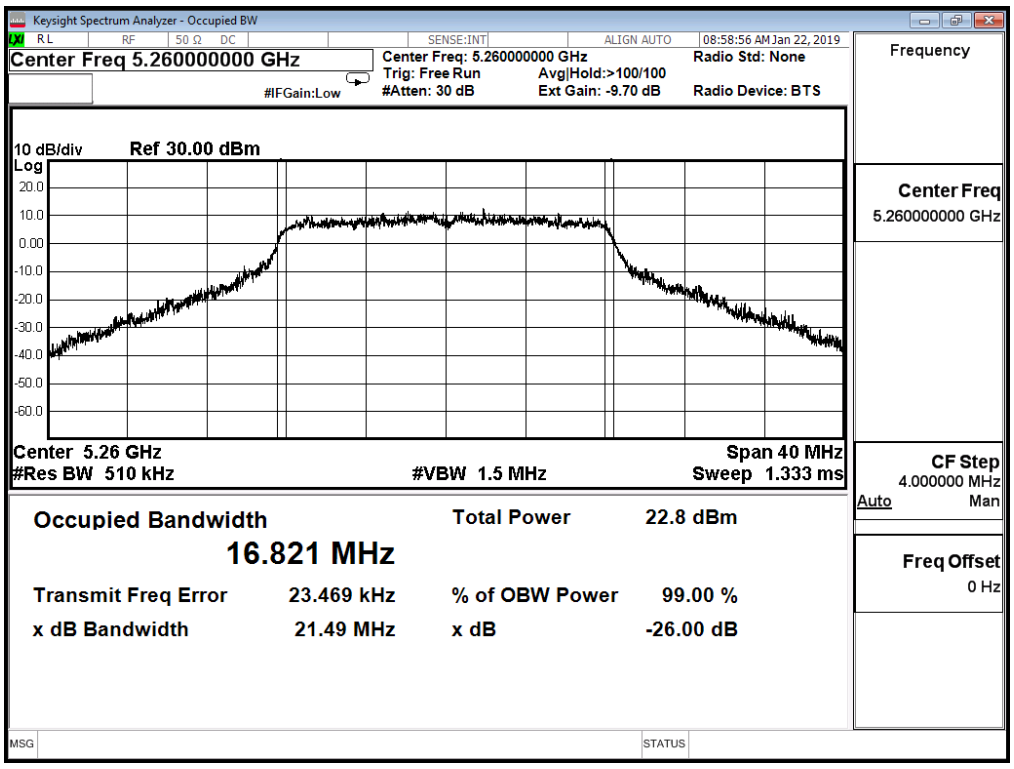
Channel 64 (5320MHz)



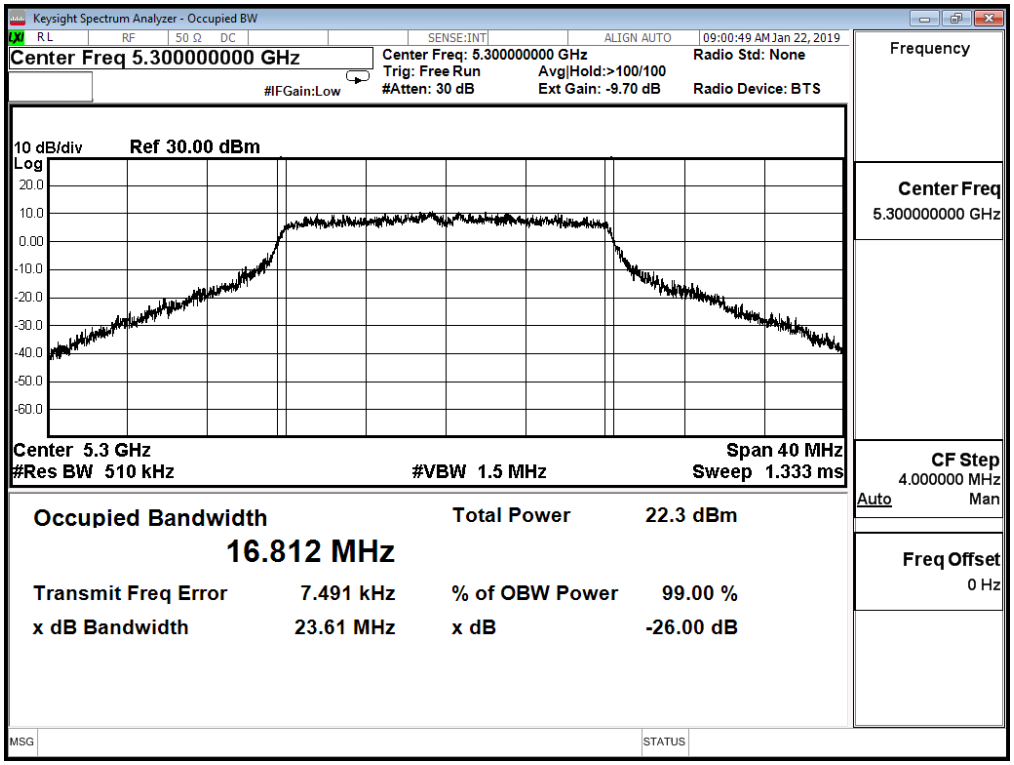
Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11a (ANT1)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
52	5260	21.490	16.821	--	Pass
60	5300	23.610	16.812	--	Pass
64	5320	23.000	16.824	--	Pass

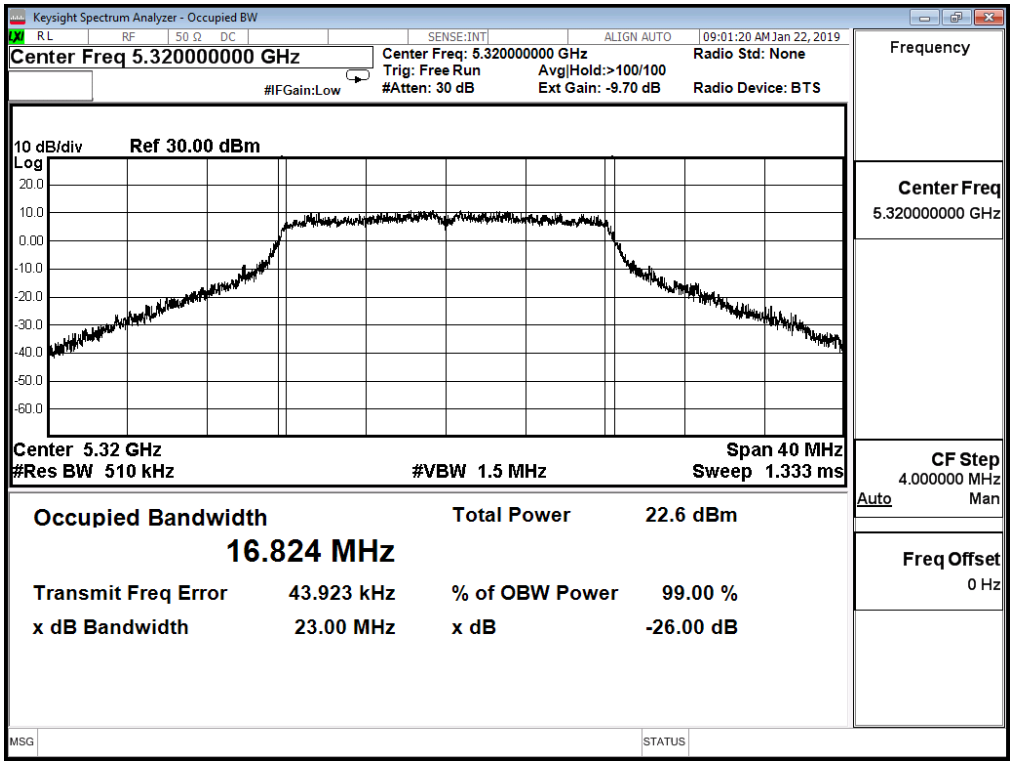
Channel 52 (5260MHz)



Channel 60 (5300MHz)



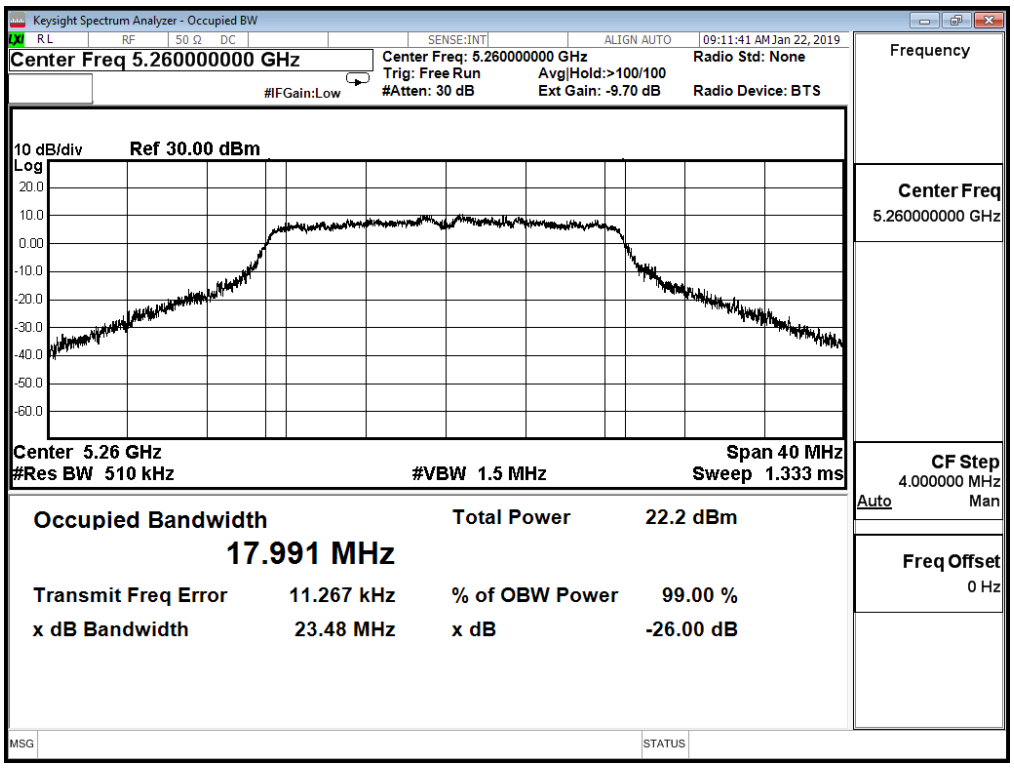
Channel 64 (5320MHz)



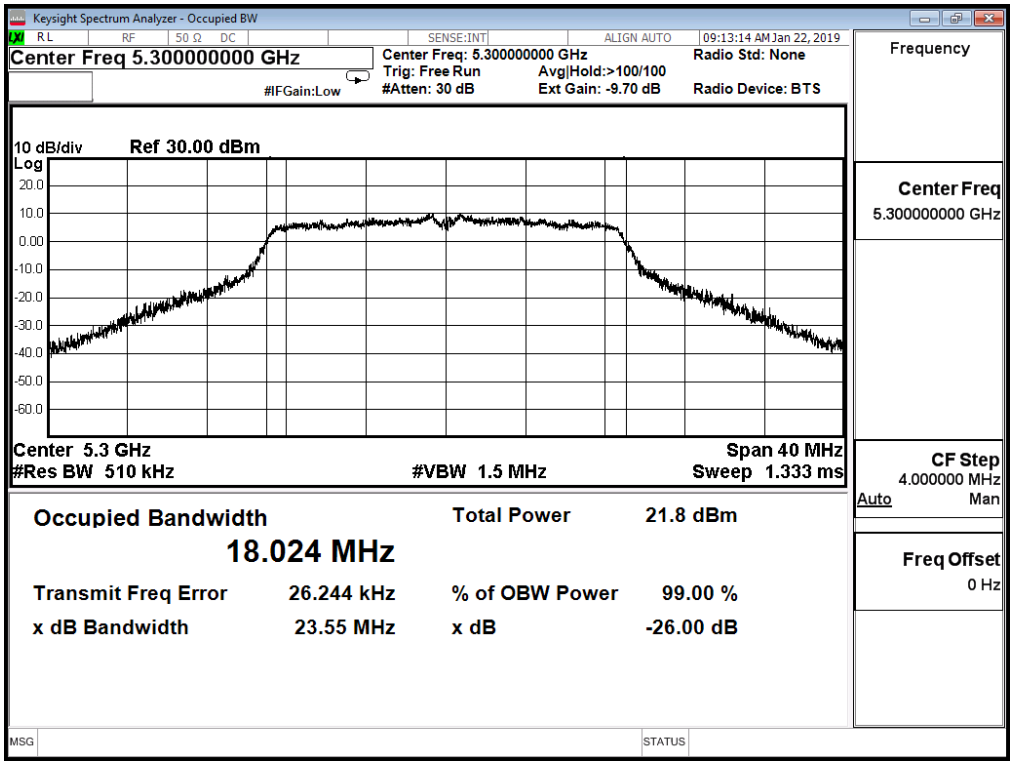
Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac_20M (ANT0)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
52	5260	23.480	17.991	--	Pass
60	5300	23.550	18.024	--	Pass
64	5320	23.220	18.041	--	Pass

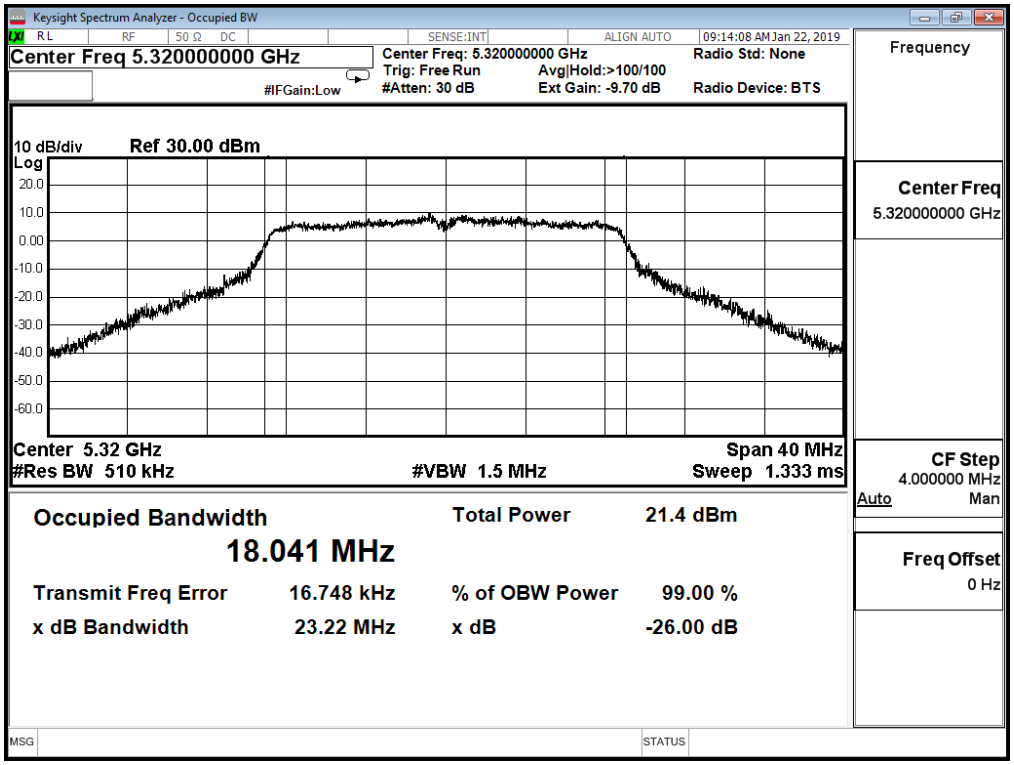
Channel 52 (5260MHz)



Channel 60 (5300MHz)



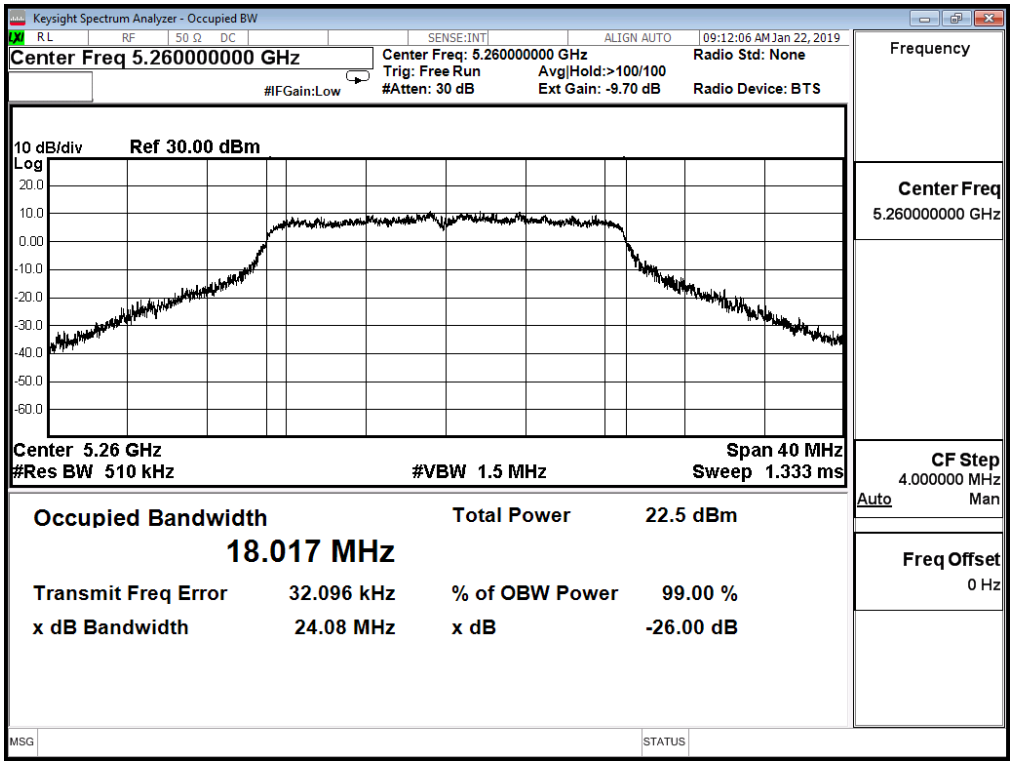
Channel 64 (5320MHz)



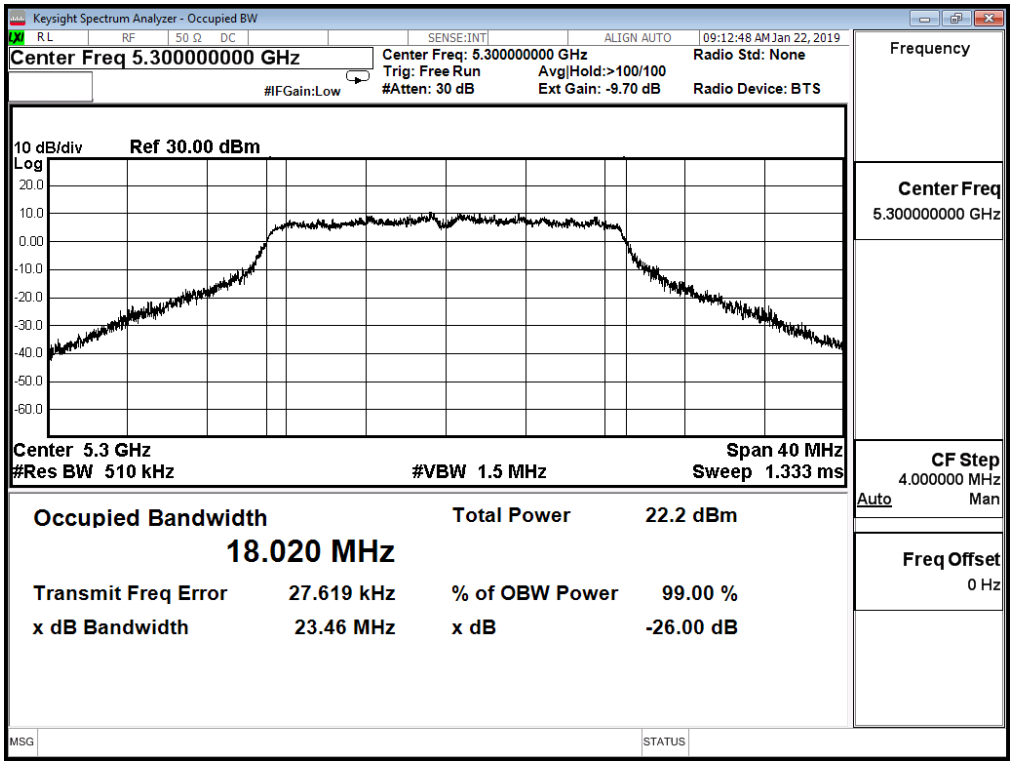
Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac_20M (ANT1)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
52	5260	24.080	18.017	--	Pass
60	5300	23.460	18.020	--	Pass
64	5320	23.780	18.005	--	Pass

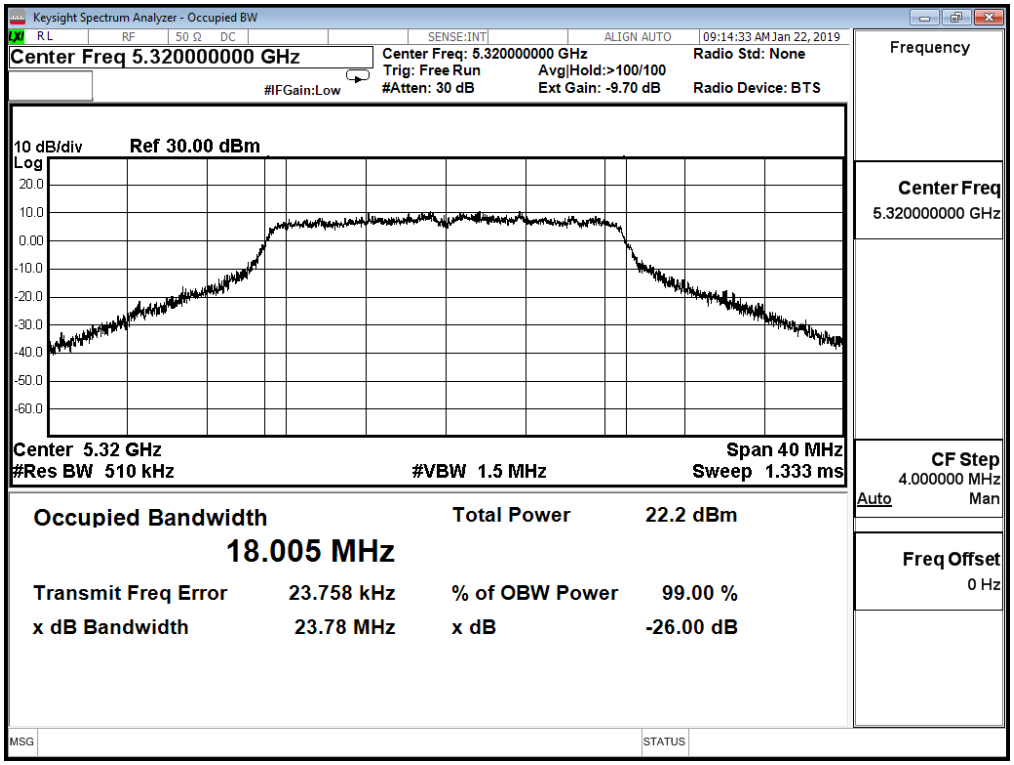
Channel 52 (5260MHz)



Channel 60 (5300MHz)



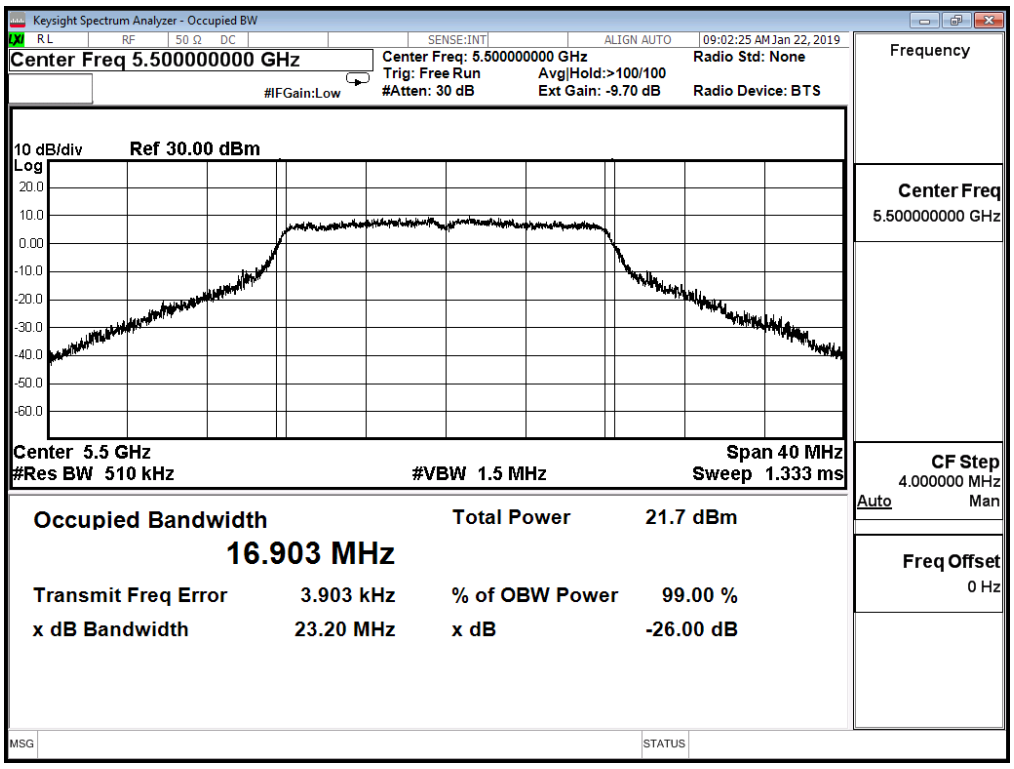
Channel 64 (5320MHz)



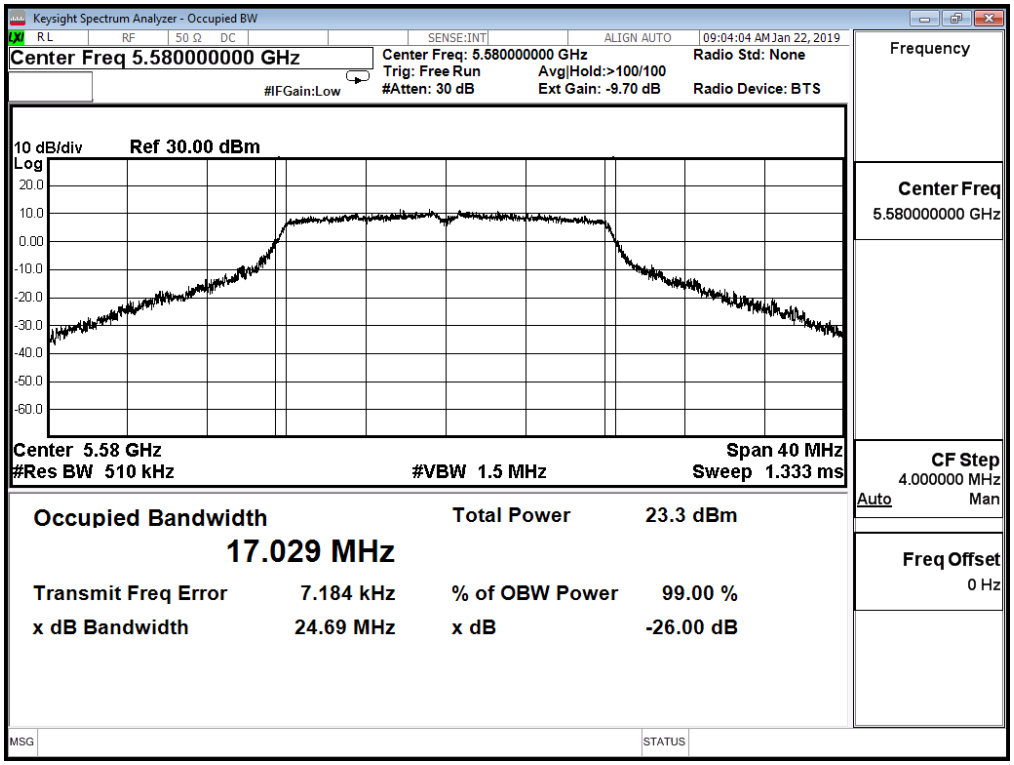
Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11a (ANT0)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
100	5500	23.200	16.903	--	Pass
116	5580	24.690	17.029	--	Pass
140	5700	24.950	17.036	--	Pass

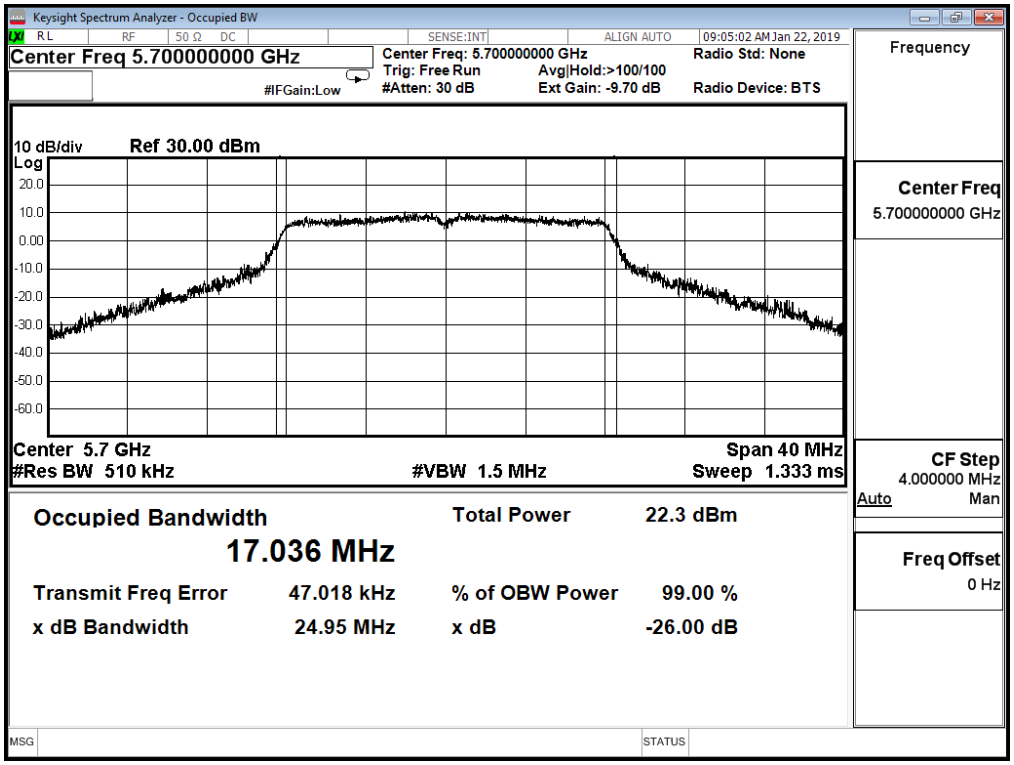
Channel 100 (5500MHz)



Channel 116 (5580MHz)



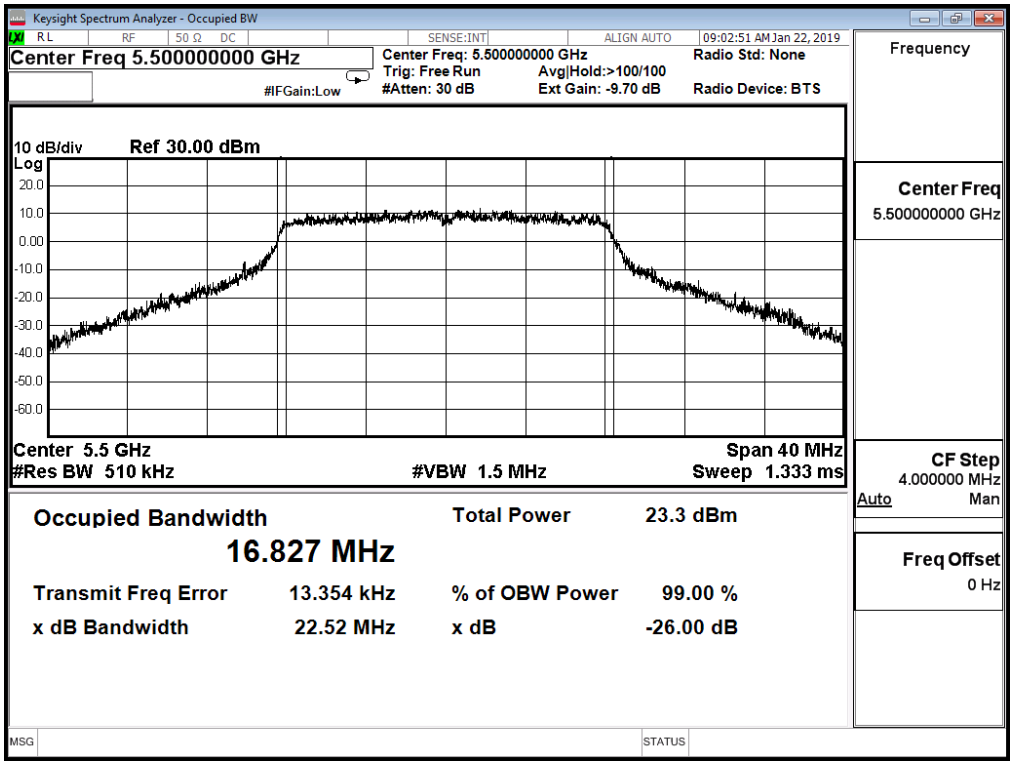
Channel 140 (5700MHz)



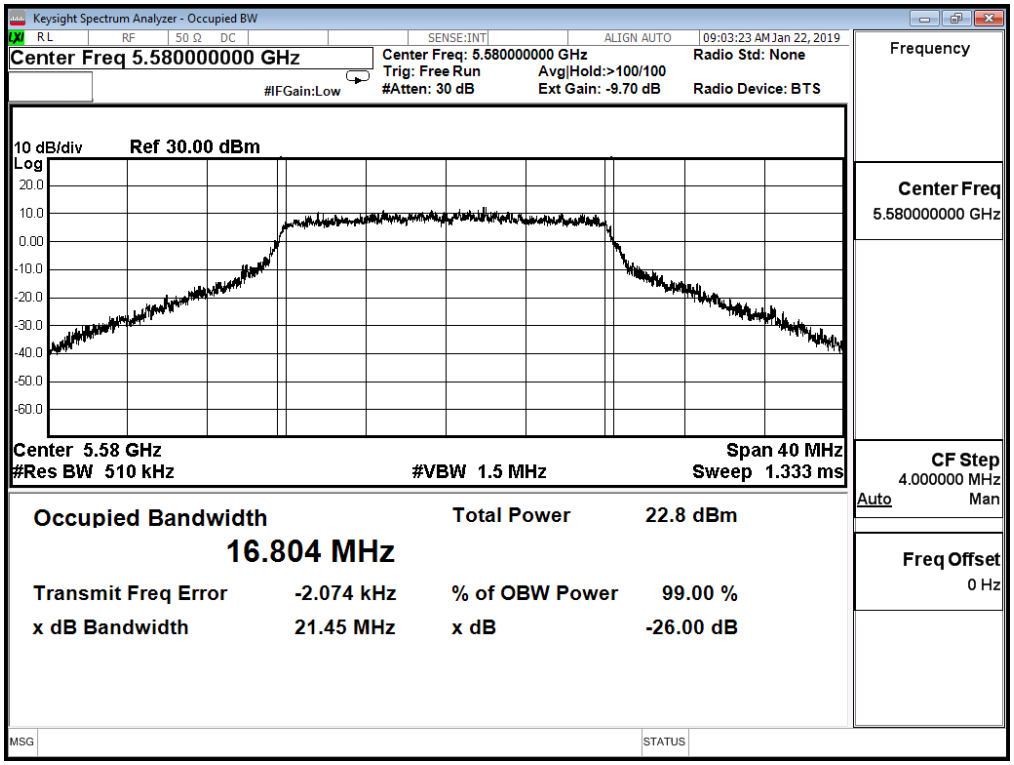
Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11a (ANT1)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
100	5500	22.520	16.827	--	Pass
116	5580	21.450	16.804	--	Pass
140	5700	22.550	16.855	--	Pass

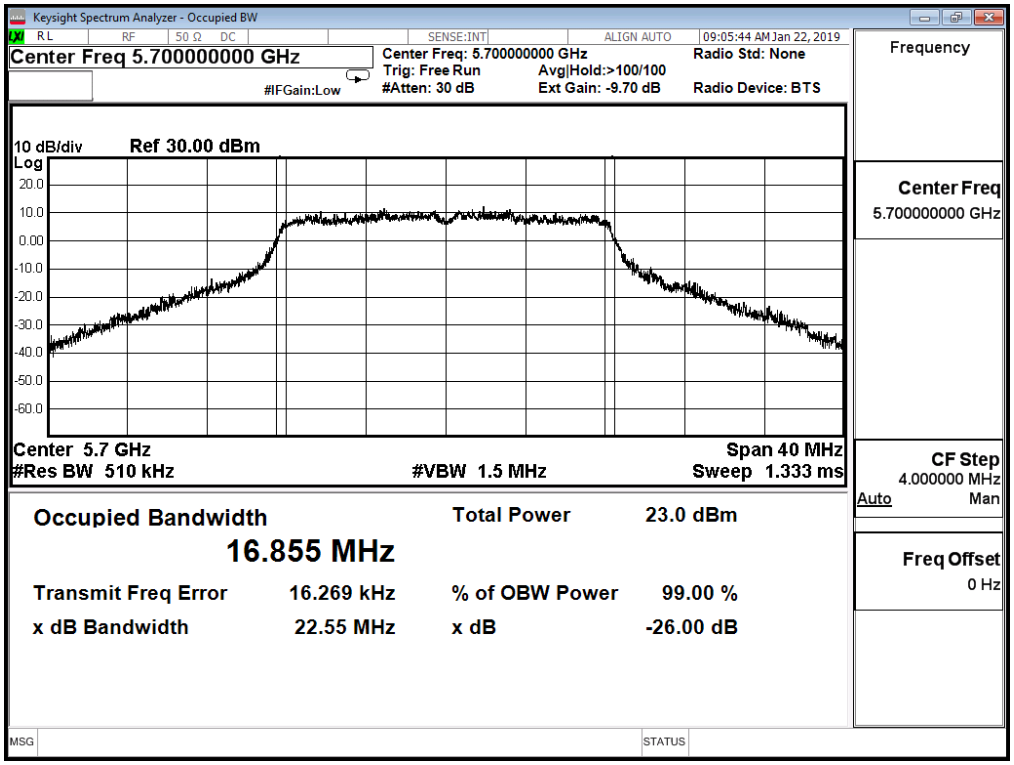
Channel 100 (5500MHz)



Channel 116 (5580MHz)



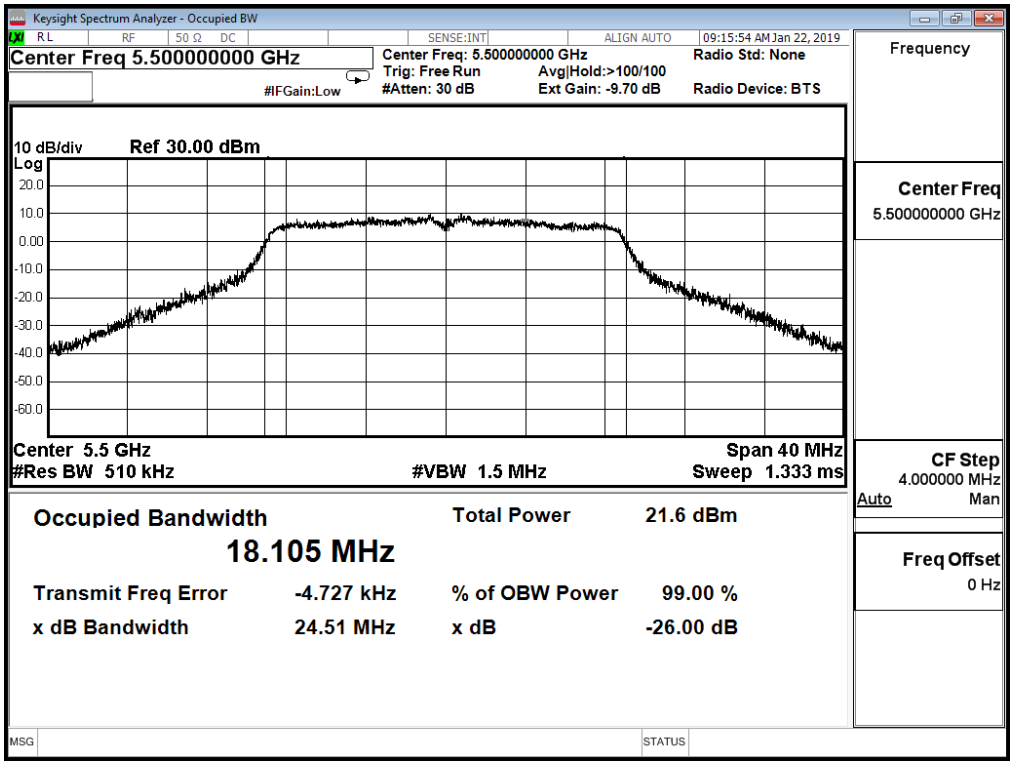
Channel 140 (5700MHz)



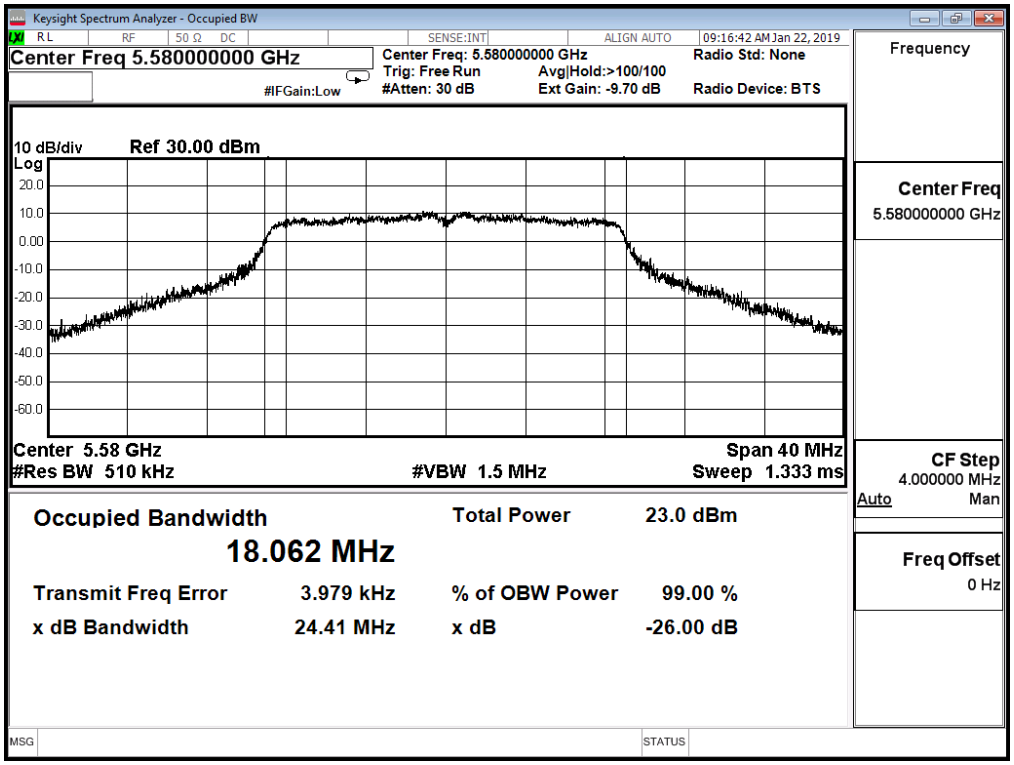
Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac_20M (ANT0)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
100	5500	24.510	18.105	--	Pass
116	5580	24.410	18.062	--	Pass
140	5700	26.350	18.263	--	Pass

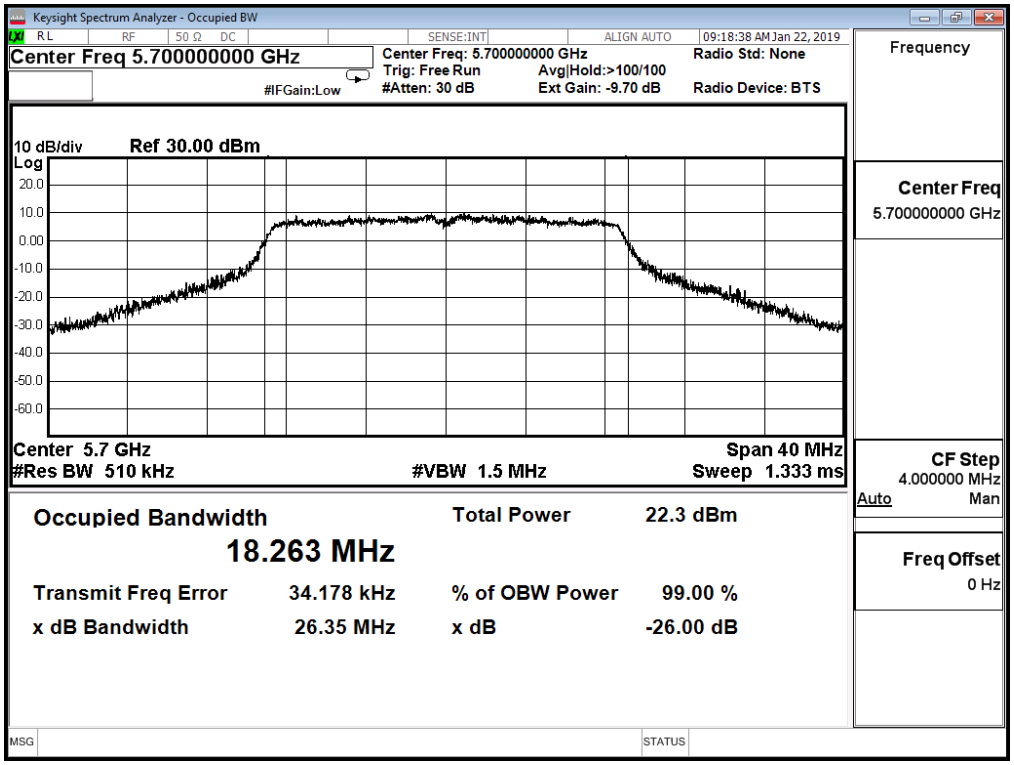
Channel 100 (5500MHz)



Channel 116 (5580MHz)



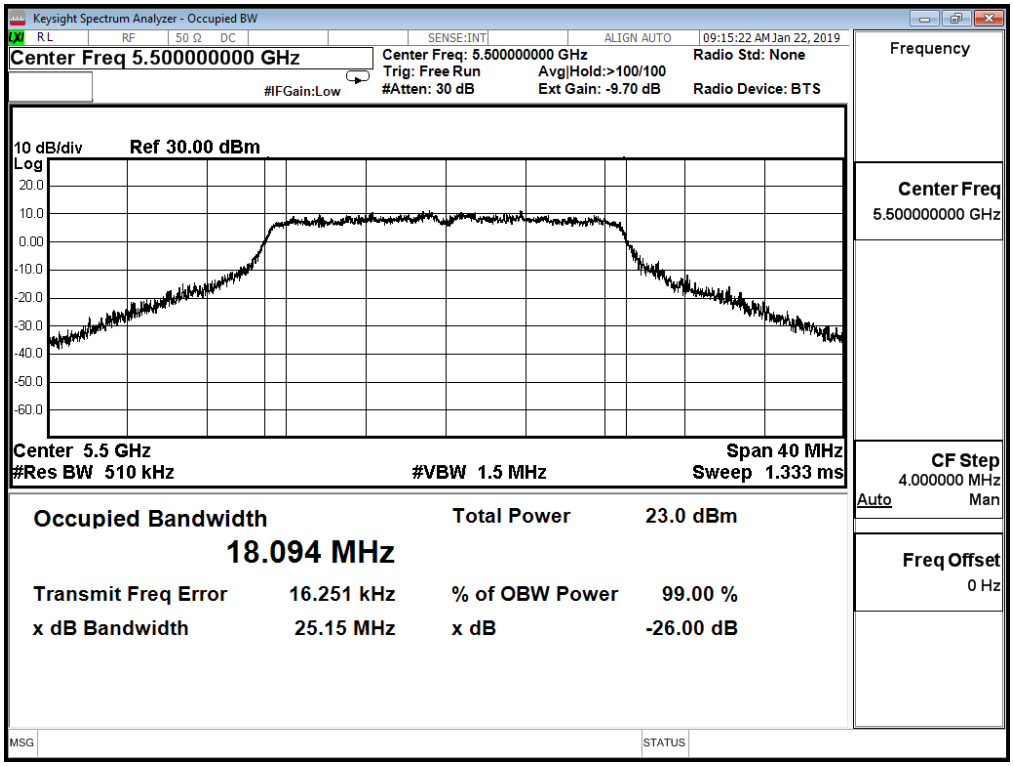
Channel 140 (5700MHz)



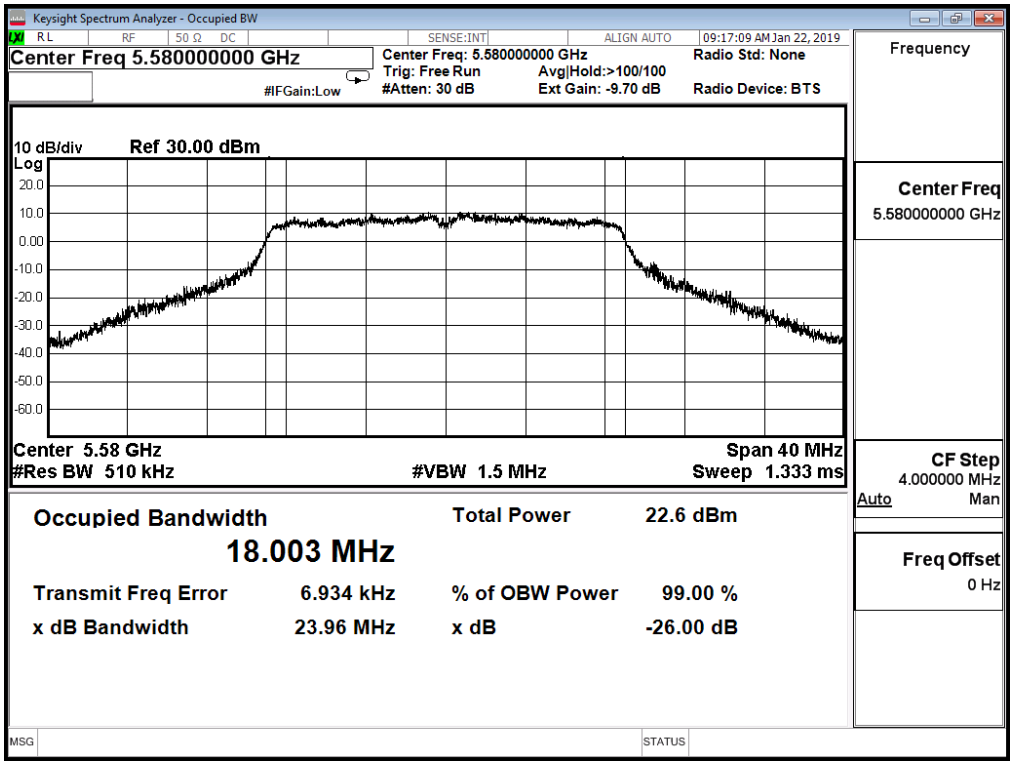
Product	Secure Smartphone		
Test Item	26dB & 99% Bandwidth		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac_20M (ANT1)					
Channel No.	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)	Limit (MHz)	Result
100	5500	25.150	18.094	--	Pass
116	5580	23.960	18.003	--	Pass
140	5700	24.130	18.070	--	Pass

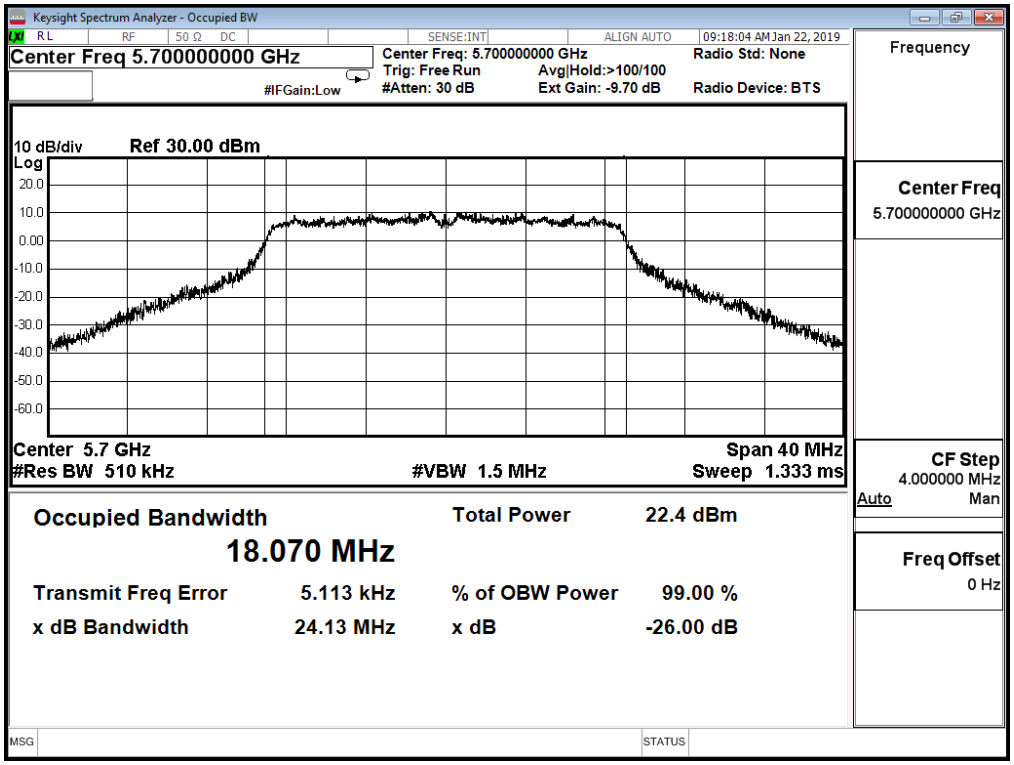
Channel 100 (5500MHz)



Channel 116 (5580MHz)

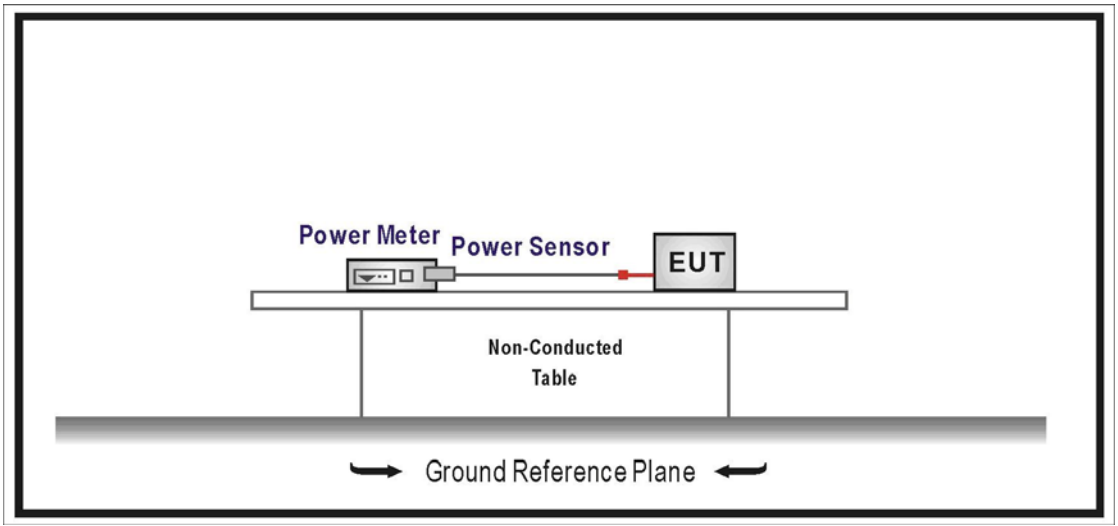


Channel 140 (5700MHz)



3. Peak Transmit Output

3.1. Test Setup



3.2. Limits

1. For the band 5150-5250MHz, the maximum equivalent isotropically radiated power (e.i.r.p.) shall not exceed 200 mW or 10 + 10 logB, dBm, whichever power is less. B is the 99% emission bandwidth in MHz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.
2. For the band 5.25-5.35 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 250 mW or 11 dBm + 10log B, where B is the 26-dB emission bandwidth in MHz. If transmitting antenna of directional gain greater than 6 dBi are used, the peak transmit power shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
3. For the band 5470-5600 MHz and 5650-5725 MHz, The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band. The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.
4. For the band 5725-5850 MHz, For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz. The maximum conducted output power shall not exceed 1 W. The power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed point-to-point operations exclude the use of point-to-multipoint3 systems, omni directional applications and multiple collocated transmitters transmitting the same information.

3.3. Test Procedure

The EUT was setup to ANSI C63.10: 2013; tested to tested to U-NII test procedure of KDB 789033 for compliance to RSS-247 Issue 2 (Feb. 2017) requirements. The Method SA-1 of the Maximum conducted output power was used.
Set RBW=1MHz, VBW=3MHz with RMS detector and trace average 100 traces in power averaging mode. Set span to encomPASS the entire emission bandwidth (EBW) of the signal. Compute power by integrating the spectrum across the 26 dB EBW of the signal.

3.4. Test Result

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/06/11	Test Site	SR10-H

IEEE 802.11a (ANT 0)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
36	5180	17.030	≦22.253
44	5220	17.170	≦22.256
48	5240	17.020	≦22.259

The worst emission of data rate is 6Mbps

Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate (Mbps)							Required Limit (dBm)
		6	12	18	24	36	48	54	
36	5180	17.030	--	--	--	--	--	--	≦22.253
44	5220	17.170	17.040	16.900	16.750	16.620	16.490	16.350	≦22.256
48	5240	17.020	--	--	--	--	--	--	≦22.259

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/06/11	Test Site	SR10-H

IEEE 802.11a (ANT 1)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
36	5180	17.280	≦22.253
44	5220	17.540	≦22.256
48	5240	17.420	≦22.259

The worst emission of data rate is 6Mbps

Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate (Mbps)							Required Limit (dBm)
		6	12	18	24	36	48	54	
36	5180	17.280	--	--	--	--	--	--	≦22.253
44	5220	17.540	17.390	17.260	17.110	16.960	16.810	16.680	≦22.256
48	5240	17.420	--	--	--	--	--	--	≦22.259

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/06/11	Test Site	SR10-H

IEEE 802.11a (ANT 0+1)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
36	5180	20.170	≦22.253
44	5220	20.370	≦22.256
48	5240	20.230	≦22.259

The worst emission of data rate is 6Mbps

Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate (Mbps)							Required Limit (dBm)
		6	12	18	24	36	48	54	
36	5180	20.170	--	--	--	--	--	--	≦22.253
44	5220	20.370	20.280	20.150	20.000	19.860	19.720	19.580	≦22.256
48	5240	20.230	--	--	--	--	--	--	≦22.259

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/06/11	Test Site	SR10-H

IEEE 802.11ac(20MHz)(ANT 0)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
36	5180	17.050	≦22.555
44	5220	17.240	≦22.554
48	5240	16.970	≦22.554

The worst emission of data rate is MCS 0

Channel No	Frequency (MHz)	MCS Index										Required Limit (dBm)
		0	1	2	3	4	5	6	7	8	9	
36	5180	17.050	--	--	--	--	--	--	--	--	--	≦22.555
44	5220	17.240	17.100	16.960	16.830	16.690	16.550	16.420	16.270	16.130	15.990	≦22.554
48	5240	16.970	--	--	--	--	--	--	--	--	--	≦22.554

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/06/11	Test Site	SR10-H

IEEE 802.11ac(20MHz)(ANT 1)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
36	5180	16.730	≦22.555
44	5220	16.920	≦22.554
48	5240	16.900	≦22.554

The worst emission of data rate is MCS 0

Channel No	Frequency (MHz)	MCS Index										Required Limit (dBm)
		0	1	2	3	4	5	6	7	8	9	
36	5180	16.730	--	--	--	--	--	--	--	--	--	≦22.555
44	5220	16.920	16.770	16.630	16.490	16.350	16.220	16.070	15.920	15.780	15.640	≦22.554
48	5240	16.900	--	--	--	--	--	--	--	--	--	≦22.554

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/06/11	Test Site	SR10-H

IEEE 802.11ac(20MHz)(ANT 0+1)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
36	5180	19.900	≦22.555
44	5220	20.090	≦22.554
48	5240	19.950	≦22.554

The worst emission of data rate is MCS 0

Channel No	Frequency (MHz)	MCS Index										Required Limit (dBm)
		0	1	2	3	4	5	6	7	8	9	
36	5180	19.900	--	--	--	--	--	--	--	--	--	≦22.555
44	5220	20.090	20.010	19.870	19.730	19.590	19.460	19.320	19.170	19.030	18.890	≦22.554
48	5240	19.950	--	--	--	--	--	--	--	--	--	≦22.554

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/06/11	Test Site	SR10-H

IEEE 802.11ac(40MHz)(ANT 0)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
38	5190	17.710	≦23.000
46	5230	17.850	≦23.000

The worst emission of data rate is MCS 0

Channel No	Frequency (MHz)	MCS Index										Required Limit (dBm)
		0	1	2	3	4	5	6	7	8	9	
38	5190	17.710	--	--	--	--	--	--	--	--	--	≦23.000
46	5230	17.850	17.720	17.590	17.450	17.320	17.170	17.040	16.900	16.760	16.610	≦23.000

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/06/11	Test Site	SR10-H

IEEE 802.11ac(40MHz)(ANT 1)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
38	5190	17.520	≦23.000
46	5230	17.660	≦23.000

The worst emission of data rate is MCS 0

Channel No	Frequency (MHz)	MCS Index										Required Limit (dBm)
		0	1	2	3	4	5	6	7	8	9	
38	5190	17.520	--	--	--	--	--	--	--	--	--	≦23.000
46	5230	17.660	17.510	17.380	17.240	17.100	16.970	16.830	16.680	16.530	16.390	≦23.000

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/06/11	Test Site	SR10-H

IEEE 802.11ac(40MHz)(ANT 0+1)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
38	5190	20.630	≦23.000
46	5230	20.770	≦23.000

The worst emission of data rate is MCS 0

Channel No	Frequency (MHz)	MCS Index										Required Limit (dBm)
		0	1	2	3	4	5	6	7	8	9	
38	5190	20.630	--	--	--	--	--	--	--	--	--	≦23.000
46	5230	20.770	20.680	20.550	20.410	20.270	20.130	20.000	19.850	19.710	19.560	≦23.000

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/06/11	Test Site	SR10-H

IEEE 802.11ac(80MHz) (ANT 0)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
42	5210	17.440	≦23.000

The worst emission of data rate is MCS 0

Channel No	Frequency (MHz)	MCS Index										Required Limit (dBm)
		0	1	2	3	4	5	6	7	8	9	
42	5210	17.440	17.300	17.160	17.020	16.870	16.720	16.590	16.460	16.330	16.190	≦23.000

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/06/11	Test Site	SR10-H

IEEE 802.11ac(80MHz) (ANT 1)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
42	5210	17.240	≦23.000

The worst emission of data rate is MCS 0

Channel No	Frequency (MHz)	MCS Index										Required Limit (dBm)
		0	1	2	3	4	5	6	7	8	9	
42	5210	17.240	17.110	16.980	16.840	16.700	16.560	16.430	16.290	16.160	16.020	≦23.000

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/06/11	Test Site	SR10-H

IEEE 802.11ac(80MHz) (ANT 0+1)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
42	5210	20.350	≦23.000

The worst emission of data rate is MCS 0

Channel No	Frequency (MHz)	MCS Index										Required Limit (dBm)
		0	1	2	3	4	5	6	7	8	9	
42	5210	20.350	20.270	20.140	20.000	19.850	19.710	19.580	19.440	19.310	19.170	≦23.000

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11a (ANT 0)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
52	5260	18.460	≦23.259
60	5300	18.040	≦23.256
64	5320	17.940	≦23.259

The worst emission of data rate is 6Mbps

Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate (Mbps)							Required Limit (dBm)
		6	12	18	24	36	48	54	
52	5260	18.460	--	--	--	--	--	--	≦23.259
60	5300	18.040	17.910	17.770	17.620	17.470	17.340	17.200	≦23.256
64	5320	17.940	--	--	--	--	--	--	≦23.259

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11a (ANT 1)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
52	5260	18.950	≦23.259
60	5300	18.790	≦23.256
64	5320	18.620	≦23.259

The worst emission of data rate is 6Mbps

Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate (Mbps)							Required Limit (dBm)
		6	12	18	24	36	48	54	
52	5260	18.950	--	--	--	--	--	--	≦23.259
60	5300	18.790	18.650	18.510	18.380	18.240	18.110	17.970	≦23.256
64	5320	18.620	--	--	--	--	--	--	≦23.259

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11a (ANT 0+1)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
52	5260	21.722	≦23.259
60	5300	21.441	≦23.256
64	5320	21.304	≦23.259

The worst emission of data rate is 6Mbps

Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate (Mbps)							Required Limit (dBm)
		6	12	18	24	36	48	54	
52	5260	21.722	--	--	--	--	--	--	≦23.259
60	5300	21.441	21.370	21.230	21.090	20.940	20.810	20.670	≦23.256
64	5320	21.304	--	--	--	--	--	--	≦23.259

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac(20MHz)(ANT 0)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
52	5260	18.380	≦23.551
60	5300	17.960	≦23.558
64	5320	17.850	≦23.554

The worst emission of data rate is MCS 0

Channel No	Frequency (MHz)	MCS Index										Required Limit (dBm)
		0	1	2	3	4	5	6	7	8	9	
52	5260	18.380	--	--	--	--	--	--	--	--	--	≦23.551
60	5300	17.960	17.820	17.680	17.540	17.400	17.260	17.130	16.990	16.850	16.720	≦23.558
64	5320	17.850	--	--	--	--	--	--	--	--	--	≦23.554

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac(20MHz)(ANT 1)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
52	5260	18.540	≦23.551
60	5300	18.310	≦23.558
64	5320	18.140	≦23.554

The worst emission of data rate is MCS 0

Channel No	Frequency (MHz)	MCS Index										Required Limit (dBm)
		0	1	2	3	4	5	6	7	8	9	
52	5260	18.540	--	--	--	--	--	--	--	--	--	≦23.551
60	5300	18.310	18.170	18.020	17.870	17.730	17.590	17.460	17.330	17.190	17.040	≦23.558
64	5320	18.140	--	--	--	--	--	--	--	--	--	≦23.554

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac(20MHz)(ANT 0+1)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
52	5260	21.471	≦23.551
60	5300	21.149	≦23.558
64	5320	21.008	≦23.554

The worst emission of data rate is MCS 0

Channel No	Frequency (MHz)	MCS Index										Required Limit (dBm)
		0	1	2	3	4	5	6	7	8	9	
52	5260	21.471	--	--	--	--	--	--	--	--	--	≦23.551
60	5300	21.149	21.070	20.930	20.780	20.640	20.500	20.370	20.240	20.100	19.960	≦23.558
64	5320	21.008	--	--	--	--	--	--	--	--	--	≦23.554

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11a (ANT 0)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
100	5500	17.610	≦23.260
116	5580	18.190	≦23.254
140	5700	17.570	≦23.267

The worst emission of data rate is 6Mbps

Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate (Mbps)							Required Limit (dBm)
		6	12	18	24	36	48	54	
100	5500	17.610	--	--	--	--	--	--	≦23.260
116	5580	18.190	18.050	17.920	17.770	17.620	17.480	17.330	≦23.254
140	5700	17.570	--	--	--	--	--	--	≦23.267

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11a (ANT 1)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
100	5500	18.730	≦23.260
116	5580	18.220	≦23.254
140	5700	18.660	≦23.267

The worst emission of data rate is 6Mbps

Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate (Mbps)							Required Limit (dBm)
		6	12	18	24	36	48	54	
100	5500	18.730	--	--	--	--	--	--	≦23.260
116	5580	18.220	18.080	17.950	17.800	17.660	17.520	17.370	≦23.254
140	5700	18.660	--	--	--	--	--	--	≦23.267

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11a (ANT 0+1)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
100	5500	21.216	≦23.260
116	5580	21.215	≦23.254
140	5700	21.159	≦23.267

The worst emission of data rate is 6Mbps

Peak Power Output (dBm)									
Channel No	Frequency (MHz)	Data Rate (Mbps)							Required Limit (dBm)
		6	12	18	24	36	48	54	
100	5500	21.216	--	--	--	--	--	--	≦23.260
116	5580	21.215	21.140	21.010	20.860	20.720	20.580	20.430	≦23.254
140	5700	21.159	--	--	--	--	--	--	≦23.267

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac 20MHz (ANT 0)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
100	5500	17.630	≦23.575
116	5580	18.120	≦23.553
140	5700	17.710	≦23.570

The worst emission of data rate is MCS 0

Channel No	Frequency (MHz)	MCS Index										Required Limit (dBm)
		0	1	2	3	4	5	6	7	8	9	
100	5500	17.630	--	--	--	--	--	--	--	--	--	≦23.575
116	5580	18.120	17.970	17.820	17.690	17.550	17.410	17.260	17.110	16.980	16.840	≦23.553
140	5700	17.710	--	--	--	--	--	--	--	--	--	≦23.570

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac 20MHz (ANT 1)

Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
100	5500	18.410	≦23.575
116	5580	18.240	≦23.553
140	5700	18.510	≦23.570

The worst emission of data rate is MCS 0

Channel No	Frequency (MHz)	MCS Index										Required Limit (dBm)
		0	1	2	3	4	5	6	7	8	9	
100	5500	18.410	--	--	--	--	--	--	--	--	--	≦23.575
116	5580	18.240	18.090	17.960	17.820	17.670	17.520	17.370	17.230	17.090	16.960	≦23.553
140	5700	18.510	--	--	--	--	--	--	--	--	--	≦23.570

Product	Secure Smartphone		
Test Item	Maximum conducted output power		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac 20MHz (ANT 0+1)

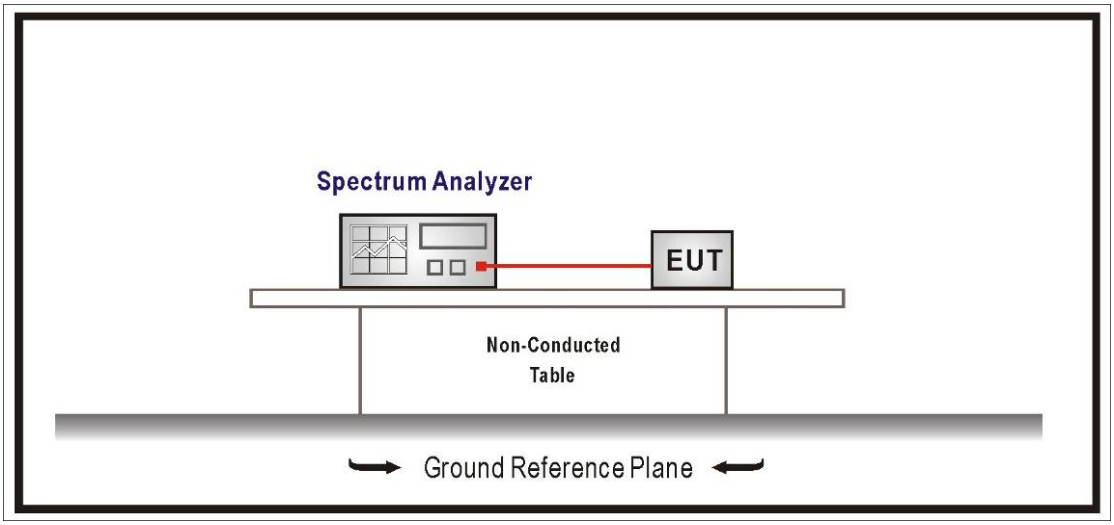
Channel No.	Frequency (MHz)	Output Power (dBm)	Required Limit (dBm)
100	5500	21.048	≦23.575
116	5580	21.191	≦23.553
140	5700	21.139	≦23.570

The worst emission of data rate is MCS 0

Channel No	Frequency (MHz)	MCS Index										Required Limit (dBm)
		0	1	2	3	4	5	6	7	8	9	
100	5500	21.048	--	--	--	--	--	--	--	--	--	≦23.575
116	5580	21.191	21.110	20.970	20.830	20.690	20.540	20.390	20.250	20.110	19.980	≦23.553
140	5700	21.139	--	--	--	--	--	--	--	--	--	≦23.570

4. Peak Power Spectrum Density

4.1. Test Setup



4.2. Limits

1. For the band 5.15-5.25 GHz, the e.i.r.p spectral density shall not exceed 10 dBm in any 1MHz band.
2. For the band 5.25-5.35 GHz,The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.
3. Frequency bands 5470-5600 MHz and 5650-5725 MHz The power spectral density shall not exceed 11 dBm in any 1.0 MHz band
4. For the band 5.725-5.850 GHz, the peak power spectral density shall not exceed 30 dBm in any 500kHz band. If transmitting antenna of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

4.3. Test Procedure

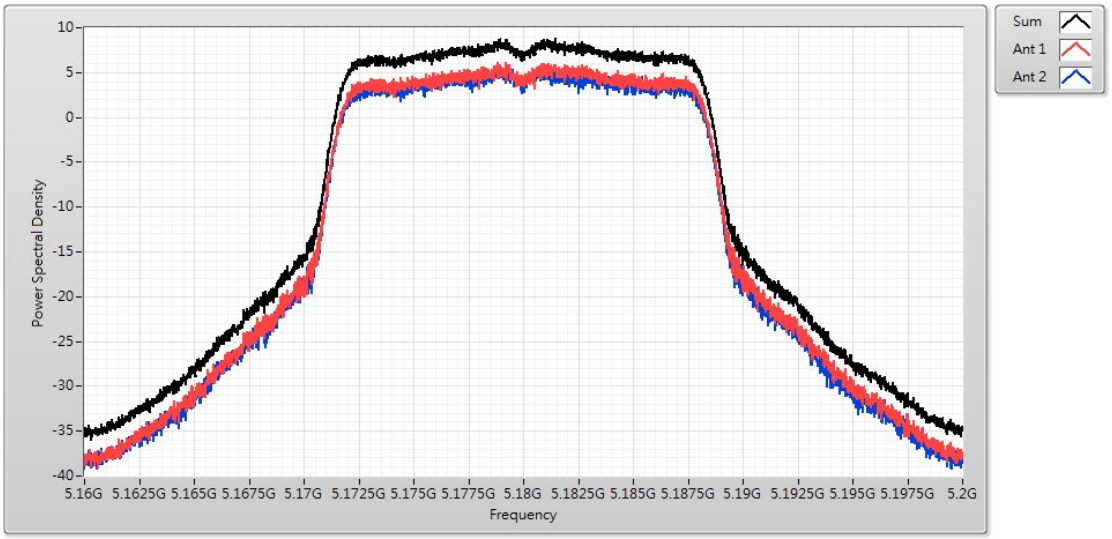
For Band1 : Set RBW=1MHz, VBW=3MHz with RMS detector. The PPSD is the highest level found across the emission in any 1-MHz band after 100 sweeps of averaging.
For Band4 : Set RBW=500kHz, VBW=1.5MHz with RMS detector. The PPSD is the highest level found across the emission in any 500kHz band after 100 sweeps of averaging.

4.4. Test Result

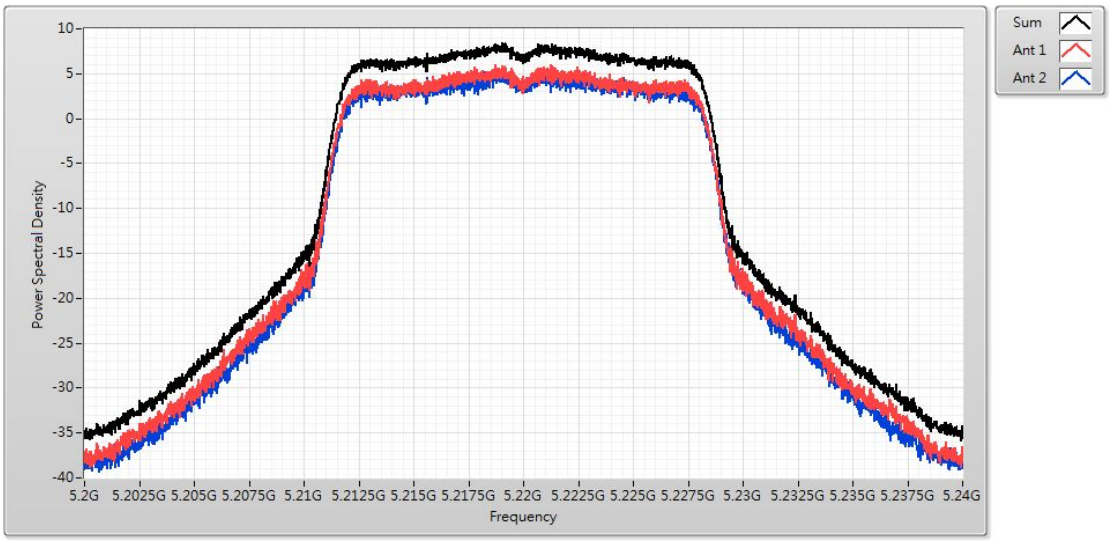
Product	Secure Smartphone		
Test Item	Maximum power spectral density		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11a (ANT0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
36	5180	7.424	10.000	Pass
44	5220	7.193	10.000	Pass
48	5240	6.745	10.000	Pass

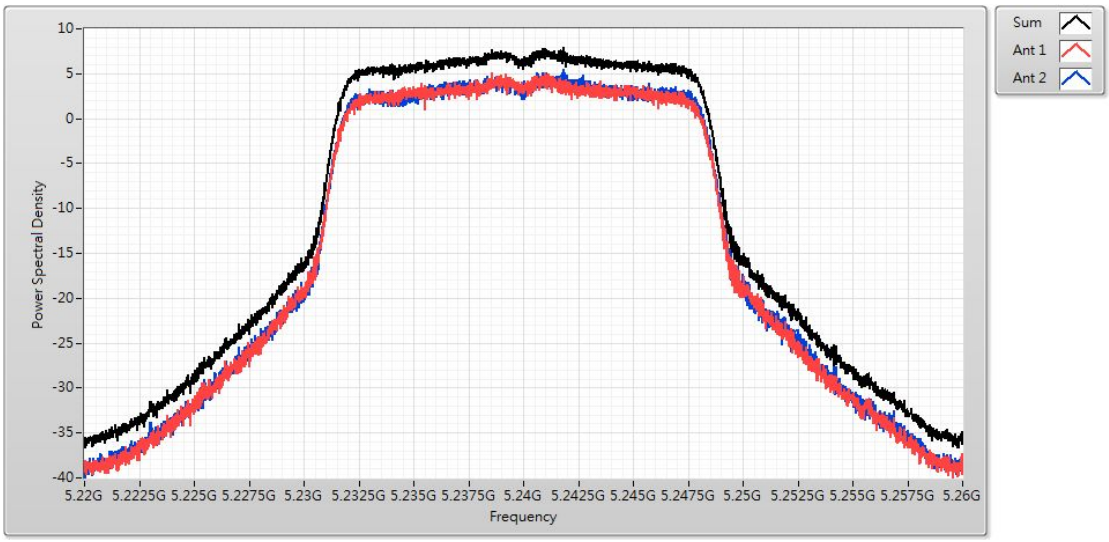
Channel 36



Channel 44



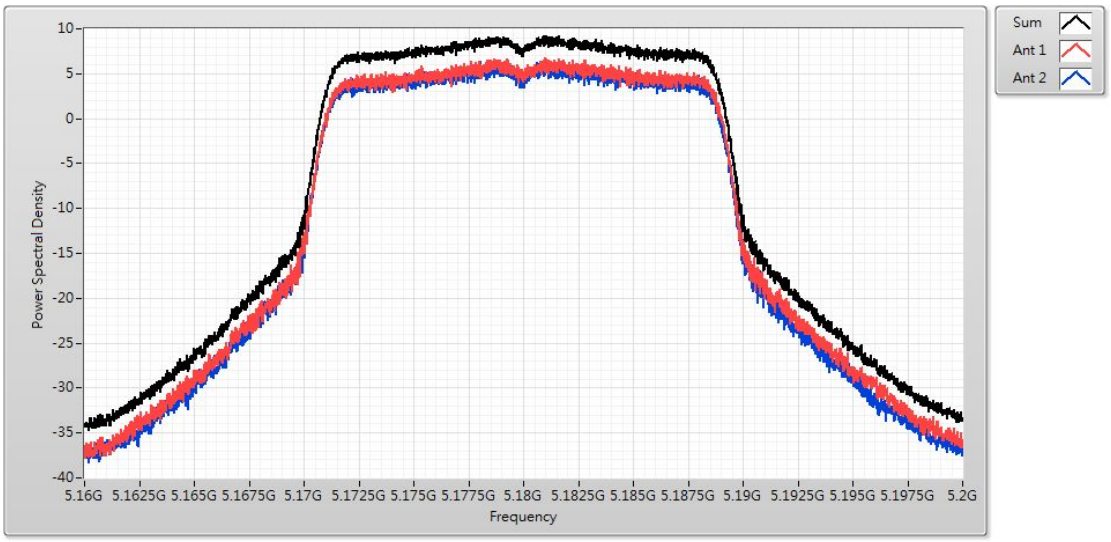
Channel 48



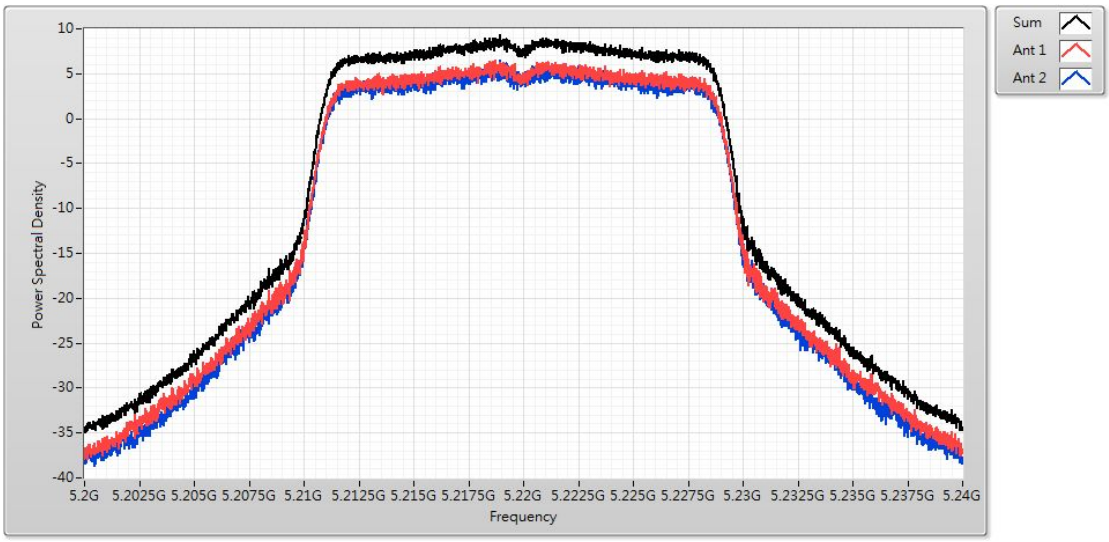
Product	Secure Smartphone		
Test Item	Maximum power spectral density		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac(20MHz)(ANT0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
36	5180	7.979	10.000	Pass
44	5220	7.965	10.000	Pass
48	5240	7.380	10.000	Pass

Channel 36



Channel 44

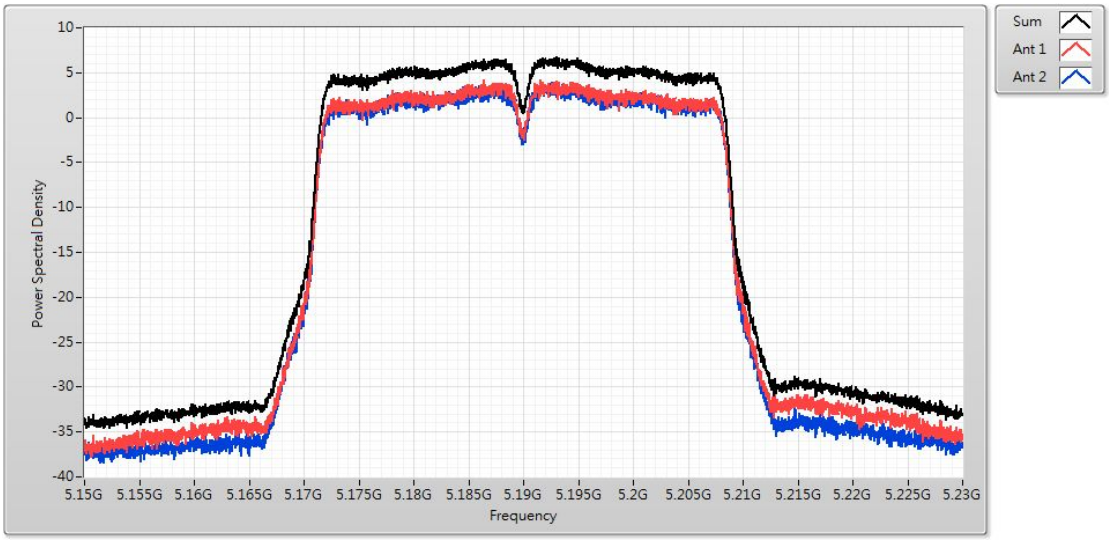


Channel 48

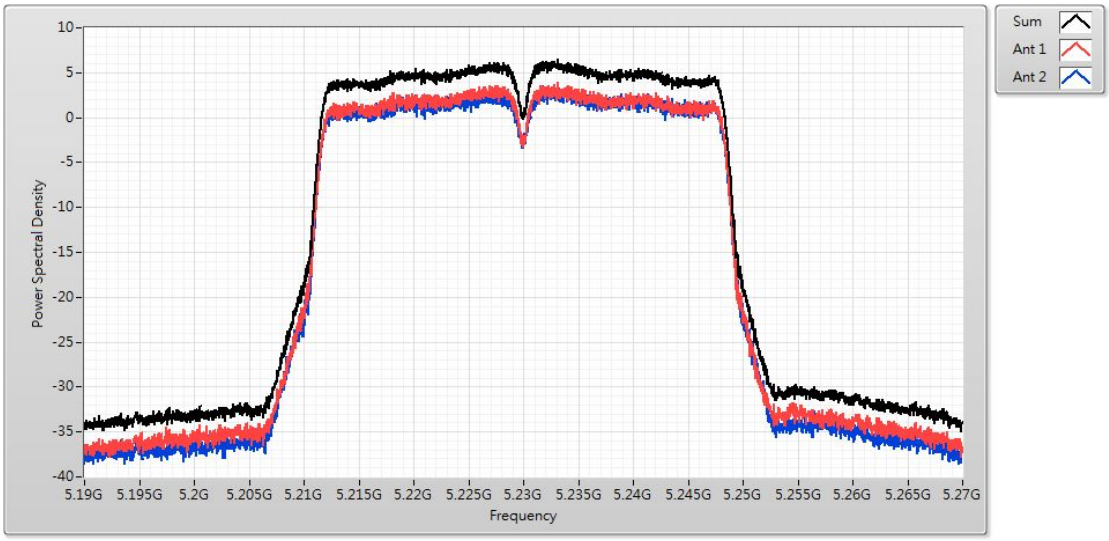
Product	Secure Smartphone		
Test Item	Maximum power spectral density		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac(40MHz)(ANT0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
38	5190	5.493	10.000	Pass
46	5230	5.178	10.000	Pass

Channel 38



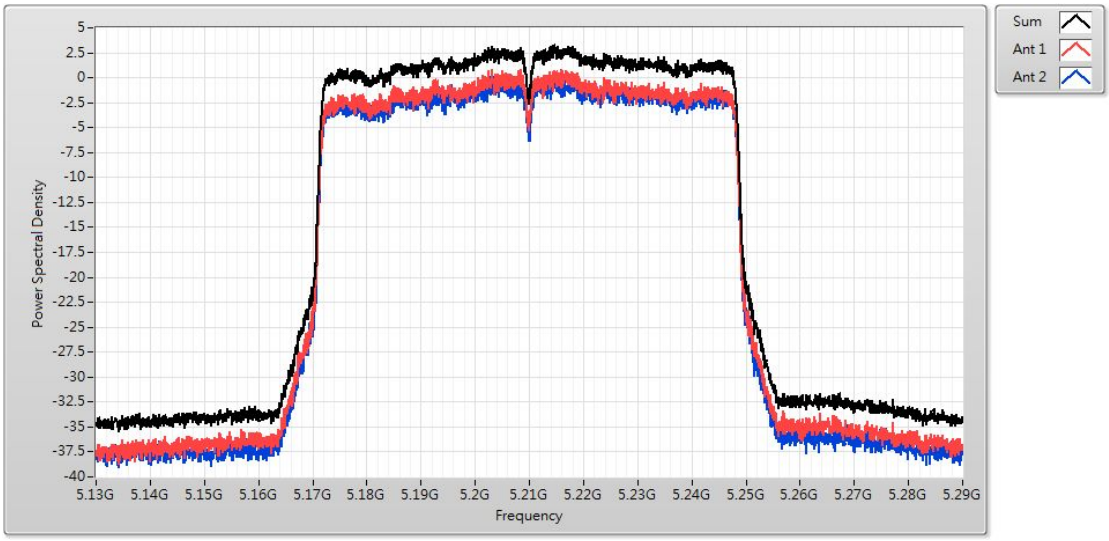
Channel 46


Sum
Ant 1
Ant 2
Power Spectral Density
10
5
0
-5
-10
-15
-20
-25
-30
-35
-40
5.19G
5.195G
5.2G
5.205G
5.21G
5.215G
5.22G
5.225G
5.23G
5.235G
5.24G
5.245G
5.25G
5.255G
5.26G
5.265G
5.27G
Frequency

Product	Secure Smartphone		
Test Item	Maximum power spectral density		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac(80MHz)(ANT0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
42	5210	1.949	10.000	Pass

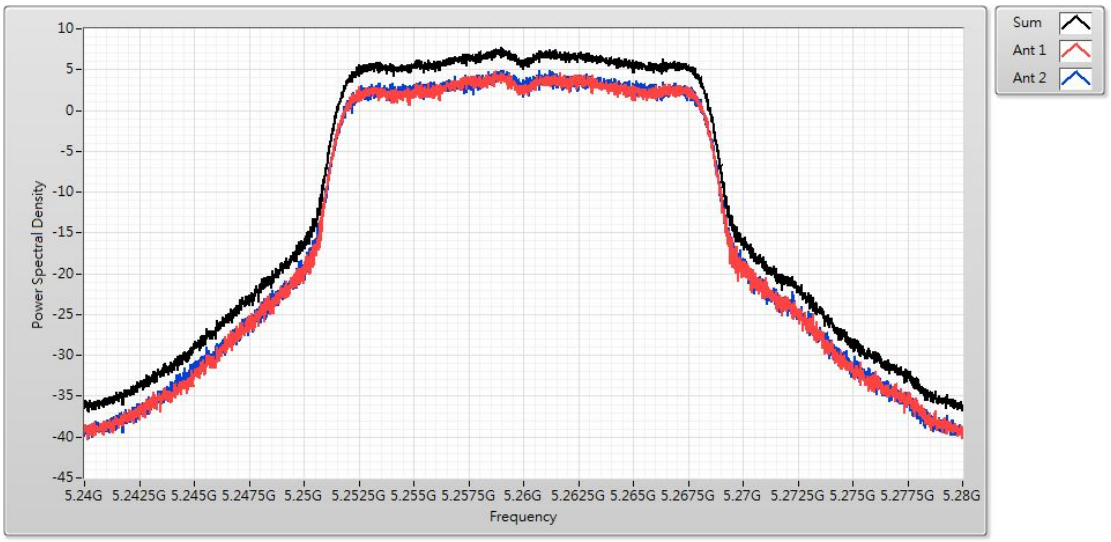
Channel 42



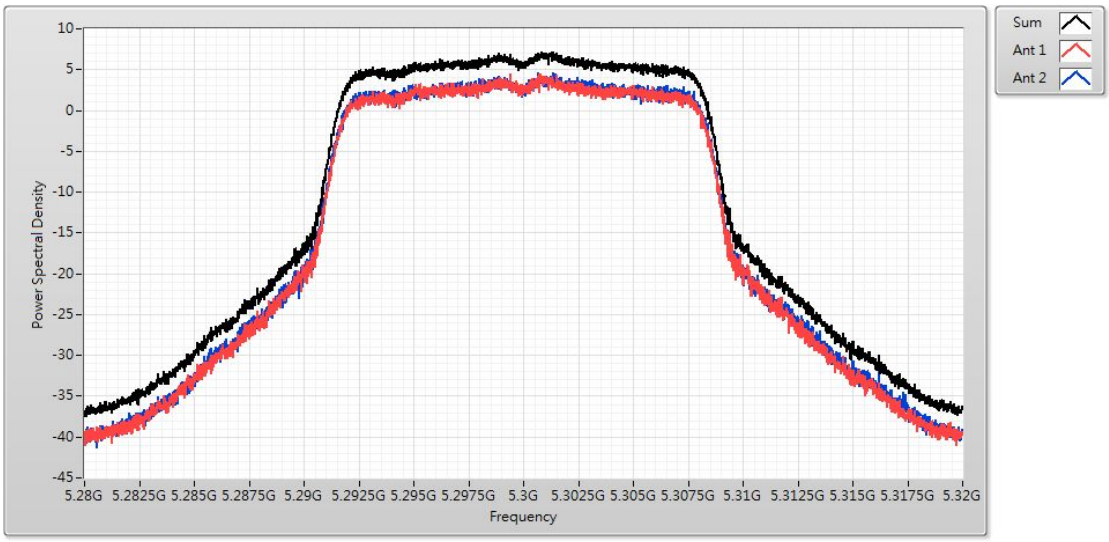
Product	Secure Smartphone		
Test Item	Maximum power spectral density		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11a (ANT0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
52	5260	7.790	11.000	Pass
60	5300	7.200	11.000	Pass
64	5320	7.220	11.000	Pass

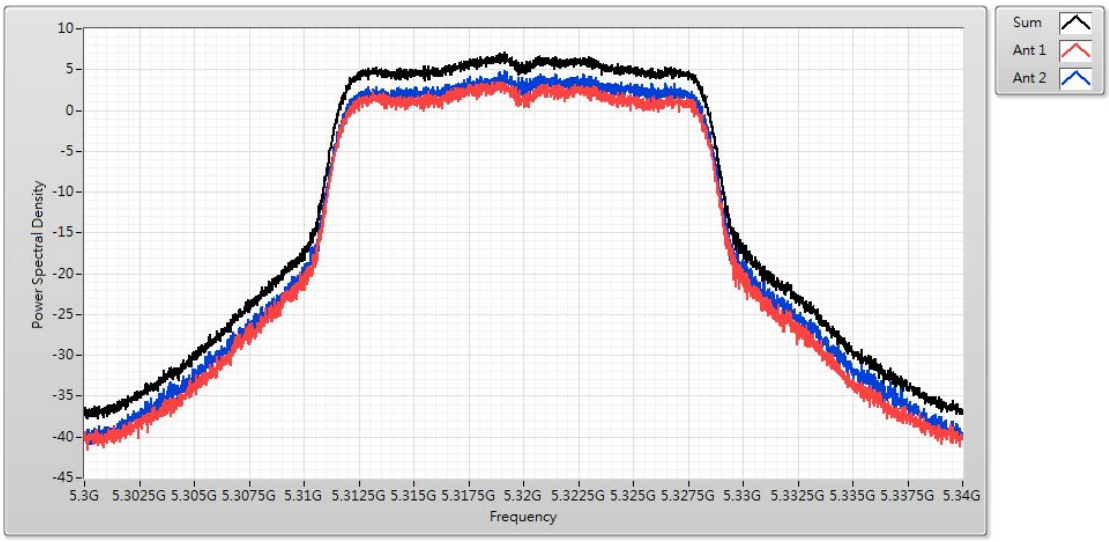
Channel 52



Channel 60



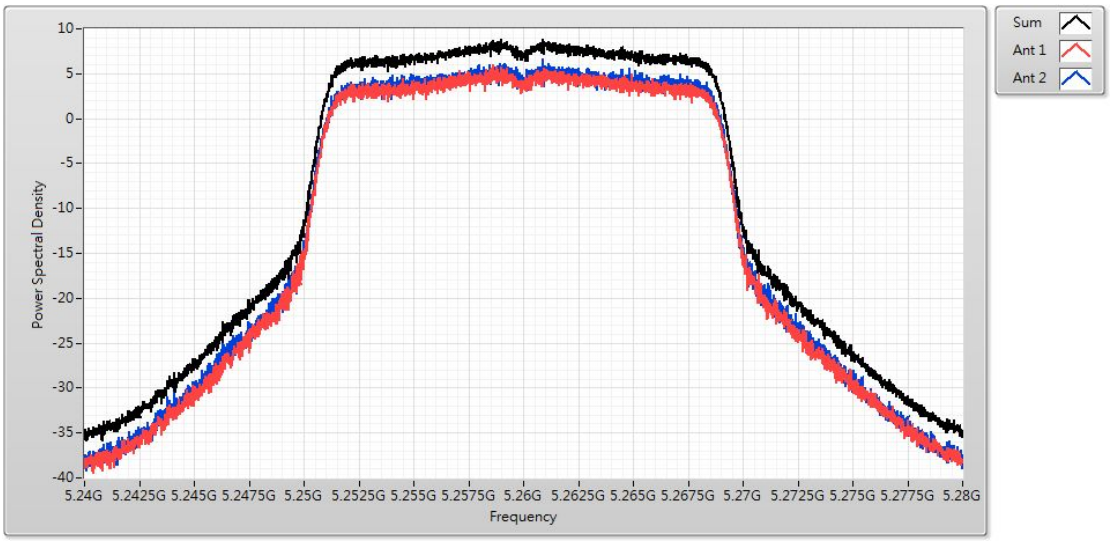
Channel 64



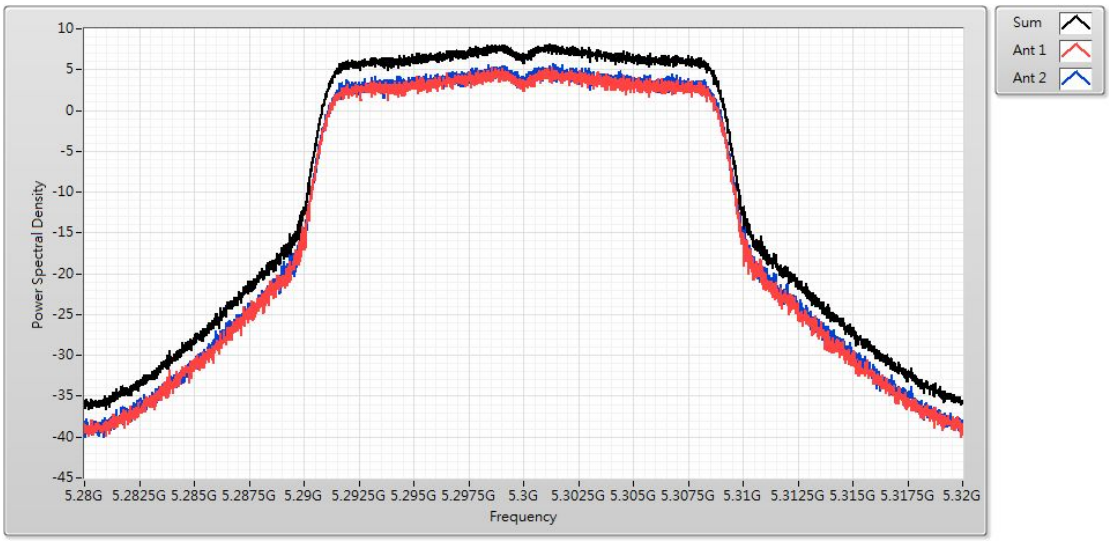
Product	Secure Smartphone		
Test Item	Maximum power spectral density		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac(20MHz)(ANT0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
52	5260	8.810	11.000	Pass
60	5300	8.160	11.000	Pass
64	5320	8.020	11.000	Pass

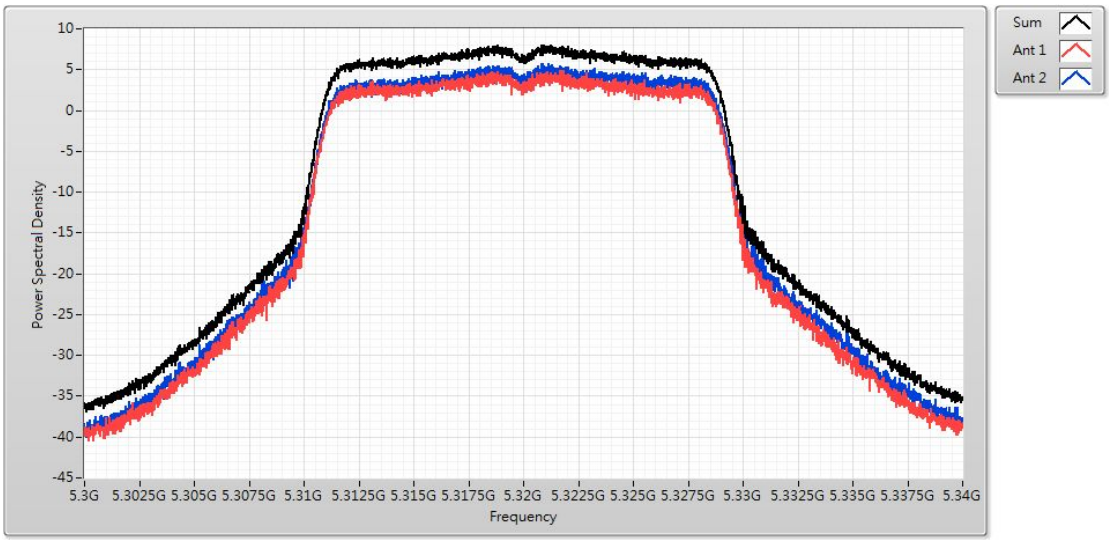
Channel 52



Channel 60



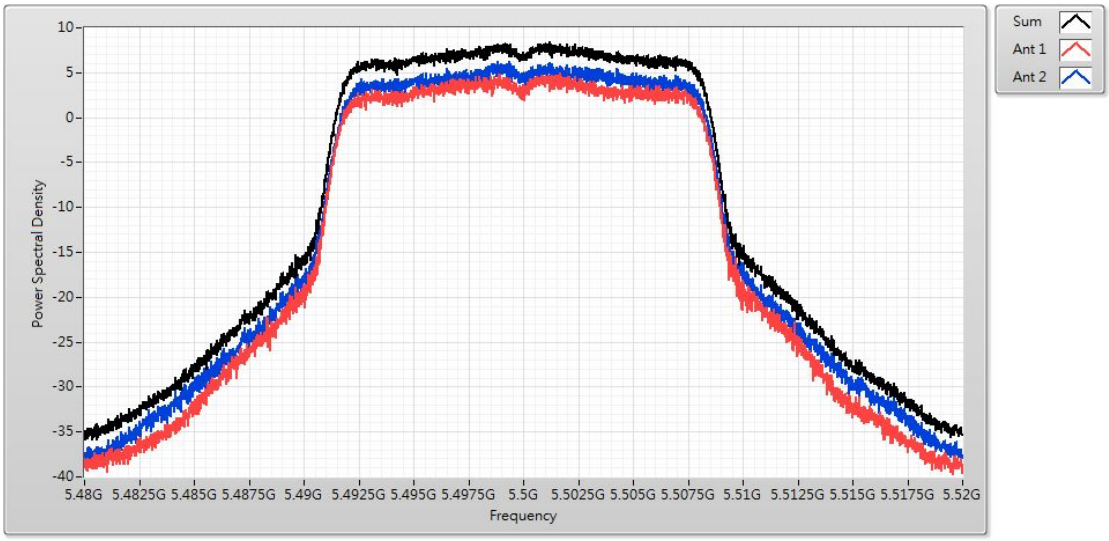
Channel 64



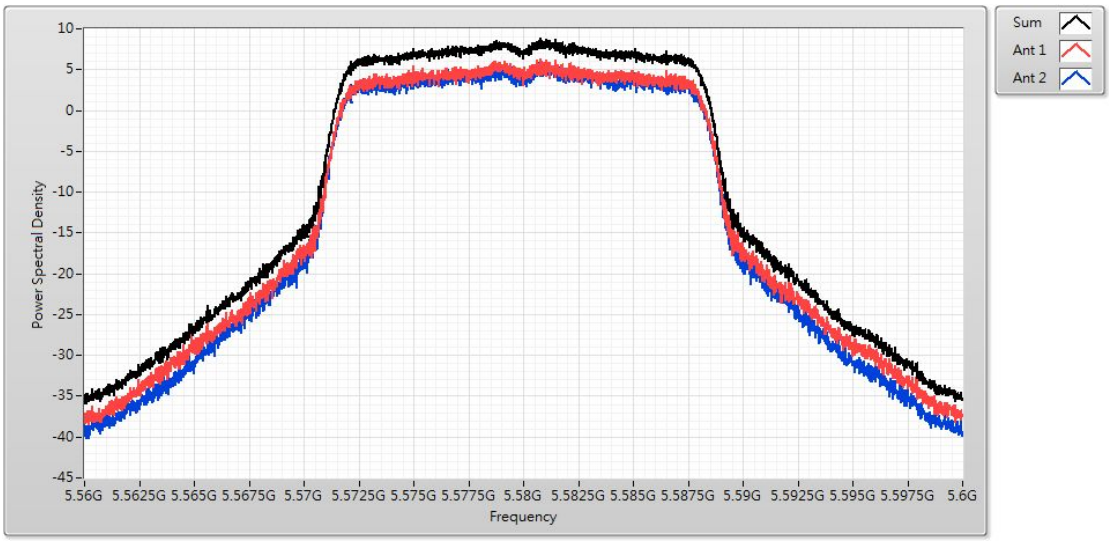
Product	Secure Smartphone		
Test Item	Maximum power spectral density		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11a (ANT0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
100	5500	8.420	11.000	Pass
116	5580	8.800	11.000	Pass
140	5700	7.690	11.000	Pass

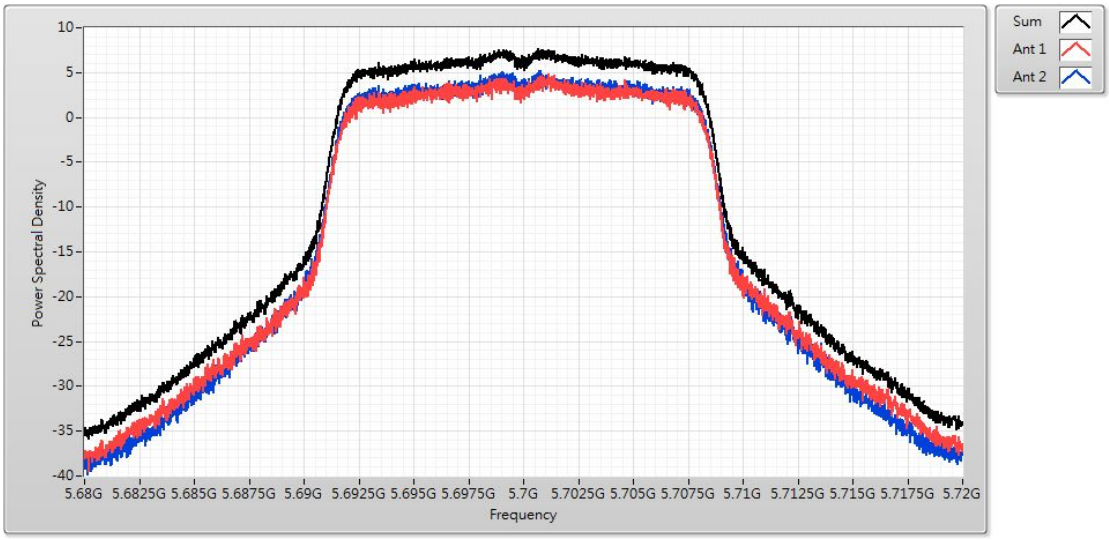
Channel 100



Channel 116



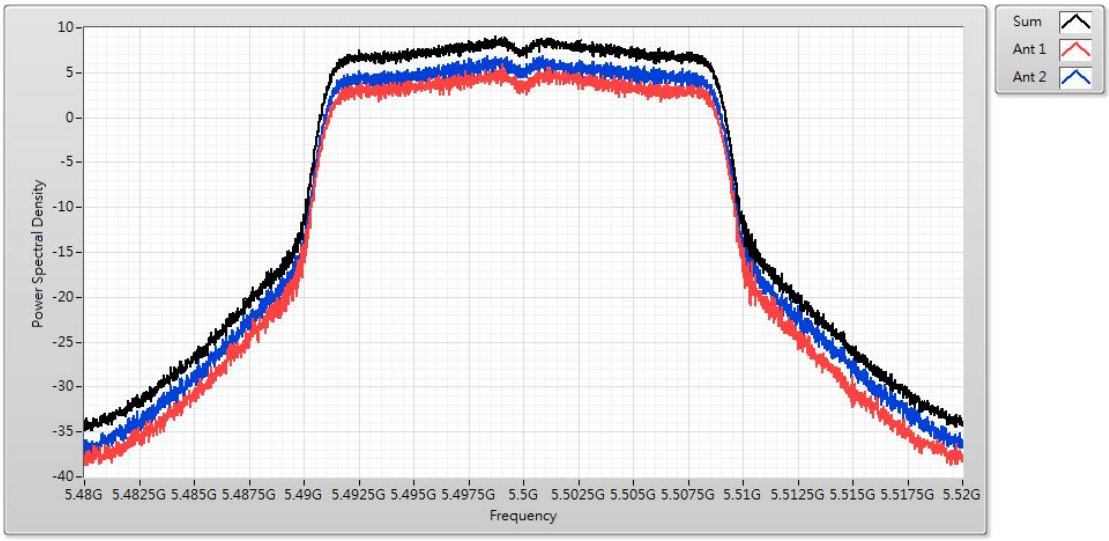
Channel 140



Product	Secure Smartphone		
Test Item	Maximum power spectral density		
Test Mode	Mode 1: Transmit Mode		
Date of Test	2019/01/22	Test Site	SR10-H

IEEE 802.11ac(20MHz)(ANT0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
100	5500	9.110	11.000	Pass
116	5580	9.140	11.000	Pass
140	5700	8.710	11.000	Pass

Channel 100



Channel 116

Channel 140