Report on the RF Testing of:

KYOCERA Corporation
Mobile Phone, Model: EB1055
FCC ID: JOYEB1055

In accordance with FCC Part15 Subpart E

Japan

**Add value.
Inspire trust.**

Prepared for: KYOCERA Corporation
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COMMERCIAL-IN-CONFIDENCE

Document Number: JPD-TR-20193-0

SIGNATURE			
NAME	**JOB TITLE**	**RESPONSIBLE FOR**	**ISSUE DATE**
Hiroaki Suzuki	Deputy Manager of RF Group	Approved Signatory	01 OCT 2020

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Japan Ltd. document control rules.

EXECUTIVE SUMMARY – Result: Complied
A sample of this product was tested and the result above was confirmed in accordance with FCC Part15 Subpart E.

Certificate #3686.03

Contents

1 Summary of Test

1.1 Modification history of the test report

Document Number	Modification History	Issue Date
JPD-TR-20193-0	First Issue	Refer to the cover page

1.2 Standards

CFR47 FCC Part 15 Subpart E

1.3 Test methods

ANSI C63.10-2013
KDB789033 D02 General U-NII Test Procedures New Rules v02r01

1.4 Deviation from standards

None

1.5 List of applied test(s) of the EUT

Test item section	Test item	Condition	Result	Remark
15.407(a)	26dB Bandwidth	Conducted	PASS	-
15.407(a)	Maximum Conducted Output Power	Conducted	PASS	-
15.407(a)	Peak Power Spectral Density	Conducted	PASS	-
15.407(b) 15.205 15.209	Radiated emissions (Restricted Bands of Operation)	Radiated	PASS	-
15.407(g)	Frequency Stability	Conducted	PASS	-
15.207	AC Power Line Conducted Emissions	Conducted	PASS	-

1.6 Test information

None

1.7 Test set up

Table-top

1.8 Test period

31-July-2020 - 2-September-2020

2 Equipment Under Test

2.1 EUT information

Applicant	KYOCERA Corporation Yokohama Office 2-1-1 Kagahara, Tsuzuki-ku Yokohama-shi, Kanagawa, Japan Phone: +81-45-943-6253 Fax: +81-45-943-6314
Equipment Under Test (EUT)	Mobile Phone
Model number	EB1055
Serial number	N/A
Trade name	Kyocera
Number of sample(s)	1
EUT condition	Pre-Production
Power rating	Battery: DC 3.85 V
Size	(W) 76.0 × (D) 8.7 × (H) 162.0 mm
Environment	Indoor and Outdoor use
Terminal limitation	-20°C to 60°C
Hardware version	DMT1
Software version	0.020SI.0020.a
Firmware version	Not applicable
RF Specification	
Protocol	IEEE802.11a, IEEE802.11n (HT20), IEEE802.11n (HT40) IEEE802.11ac (VHT20), IEEE802.11ac (VHT40), EEE802.11ac (VHT80)
Frequency range	IEEE802.11a/n (HT20) / IEEE802.11ac (VHT20): 5180 MHz-5320 MHz, 5500 MHz-5720 MHz IEEE802.11n (HT40) / IEEE802.11ac (VHT40): 5190 MHz-5310 MHz, 5510 MHz-5710 MHz IEEE802.11ac (VHT80): 5210 MHz, 5290 MHz, 5530 MHz, 5610 MHz,5690MHz
Number of RF Channels	IEEE802.11a/n (HT20) / IEEE802.11ac (VHT20): 20 Channels IEEE802.11n (HT40) / IEEE802.11ac (VHT40): 10 Channels IEEE802.11ac (VHT80): 5 Channels
Modulation type	IEEE802.11a/n/ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)

Data rate	IEEE802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE802.11n (HT20 LGI): 6.5, 13, 19.5, 26, 39, 52, 58.5, 65, 78, 86.5Mbps IEEE802.11n (HT20 SGI): 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65, 72.2, 86.7, 96.1Mbps IEEE802.11ac (VHT20 LGI): 6.5, 13, 19.5, 26, 39, 52, 58.5, 65, 78, 86.5Mbps IEEE802.11ac (VHT20 SGI): 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65, 72.2, 86.6, 96.1Mbps IEEE802.11n (HT40 LGI): 13.5, 27, 40.5, 54, 81, 108, 121.5, 135, 162, 180Mbps IEEE802.11n (HT40 SGI): 15, 30, 45, 60, 90, 120, 135, 150, 180, 200Mbps IEEE802.11ac (VHT40 LGI): 13.5, 27, 40.5, 54, 81, 108, 121.5, 135, 162, 180Mbps IEEE802.11ac (VHT40 SGI): 15, 30, 45, 60, 90, 120, 135, 150, 180, 200Mbps IEEE802.11ac (VHT80 LGI): 29.5, 58.5, 87.8, 117, 175.5, 234, 263.3, 292.5, 351, 390Mbps IEEE802.11ac (VHT80 SGI): 32.5, 65, 97.5, 130, 195, 260, 292.5, 325, 390, 433.3Mbps
Channel separation	IEEE802.11a/n (HT20) / IEEE802.11ac (VHT20): 20 MHz IEEE802.11n (HT40) / IEEE802.11ac (VHT40): 40 MHz IEEE802.11ac (VHT80): 80 MHz
Conducted power	19.822 mW (IEEE802.11a) 22.043 mW (IEEE802.11n: HT20) 19.696 mW (IEEE802.11n: HT40) 24.837 mW (IEEE802.11ac: VHT80)
Antenna type	Internal antenna
Antenna gain	5.15-5.25 GHz band: -2.0 dBi 5.25-5.35 GHz band: -2.0 dBi 5.47-5.725 GHz band: -1.9 dBi

2.2 Modification to the EUT

The table below details modifications made to the EUT during the test project.

Modification State	Description of Modification	Modification fitted by	Date of Modification
Model: EB1055, Serial Number: N/A			
0	As supplied by the applicant	Not Applicable	Not Applicable

2.3 Variation of family model(s)

2.3.1 List of family model(s)

Not applicable

2.3.2 Reason for selection of EUT

Not applicable

2.4 Operating channels and frequencies

[IEEE802.11a/n (HT20) / IEEE802.11ac (VHT20)]

Channel	Frequency [MHz]
36	5180
40	5200
44	5220
48	5240
52	5260
56	5280
60	5300
64	5320
100	5500
104	5520
108	5540
112	5560
116	5580
120	5600
124	5620
128	5640
132	5660
136	5680
140	5700
144	5720

[IEEE802.11n (HT40) / IEEE802.11ac (VHT40)]

Channel	Frequency [MHz]
38	5190
46	5230
54	5270
62	5310
102	5510
110	5550
118	5590
126	5630
134	5670
142	5710

[IEEE802.11ac (VHT80)]

Channel	Frequency [MHz]
42	5210
58	5290
106	5530
122	5610
138	5690

2.5 Description of test mode

The EUT had been tested under operating condition.
There are three channels have been tested as following:

Band	IEEE802.11a/n (HT20) IEEE802.11ac (VHT20)		IEEE802.11n (HT40) IEEE802.11ac (VHT40)		IEEE802.11ac (HT80)	
	Channel	Frequency [MHz]	Channel	Frequency [MHz]	Channel	Frequency [MHz]
5.2 GHz Band	36	5180	38	5190	42	5210
	40	5200	-	-	-	-
	48	5240	46	5230	-	-
5.3 GHz Band	52	5260	54	5270	58	5290
	56	5280	-	-	-	-
	64	5320	62	5310	-	-
5.6 GHz Band	100	5500	102	5510	106	5530
	116	5580	110	5550	122	5610
	140	5700	134	5670	138	5690
	144	5720	142	5690	-	-

The pre-test has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates.

Band	Modulation Type	Data Rate
5.2 GHz Band	IEEE802.11a: OFDM	6Mbps
	IEEE802.11n (HT20): OFDM	MCS0 (6.5Mbps)
	IEEE802.11n (HT40): OFDM	MCS0 (13.5Mbps)
	IEEE802.11ac (VHT80): OFDM	MCS0 (29.5Mbps)
5.3 GHz Band	IEEE802.11a: OFDM	6Mbps
	IEEE802.11n (HT20): OFDM	MCS0 (6.5Mbps)
	IEEE802.11n (HT40): OFDM	MCS0 (13.5Mbps)
	IEEE802.11ac (VHT80): OFDM	MCS0 (29.5Mbps)
5.6 GHz Band	IEEE802.11a: OFDM	6Mbps
	IEEE802.11n (HT20): OFDM	MCS0 (6.5Mbps)
	IEEE802.11n (HT40): OFDM	MCS0 (13.5Mbps)
	IEEE802.11ac (VHT80): OFDM	MCS0 (29.5Mbps)

The field strength of spurious emissions was measured at each position of all three axis X, Y and Z to compare the level, and the maximum noise.
The worst emission was found in Z axis and the worst case recorded.
Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports.

2.6 Operating flow

- Tx mode

i) Test program setup to the Software
ii) Select a Test mode
Operating frequency: 5.2GHz Band, 5.3GHz Band, 5.6GHz Band
iii) Start test mode

- Rx mode

i) Test program setup to the Software
ii) Select a Test mode
Operating frequency: 5.2GHz Band, 5.3GHz Band, 5.6GHz Band
iii) Start test mode

3 Configuration of Equipment

Numbers assigned to equipment on the diagram in “3.3 System configuration” correspond to the lists in “3.1 Equipment used” and “3.2 Cable(s) used”.
Cabling and setup(s) were taken into consideration and test data was taken under worse case condition.

3.1 Equipment used

No.	Equipment	Company	Model No.	Serial No.	FCC ID / DoC	Comment
1	Mobile Phone	KYOCERA	E B1055	N/A	JOYEB1055	EUT
2	AC Adapter	KDDI	0301PQA	N/A	N/A	*

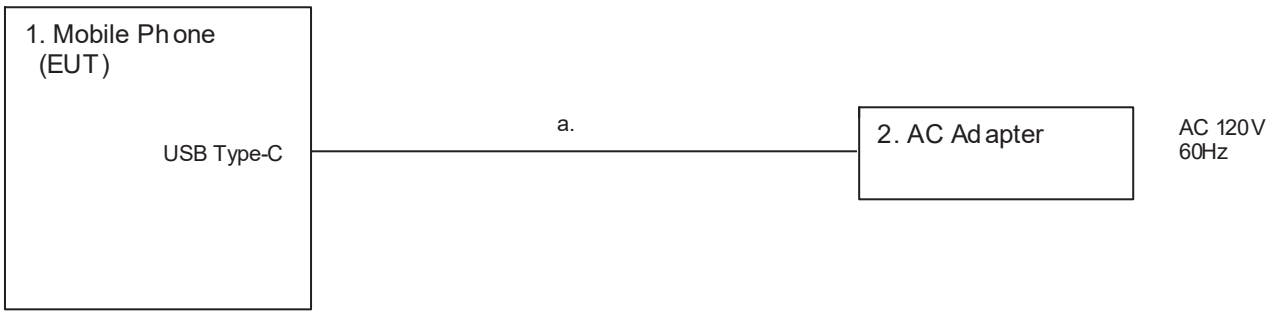
*: AC power line Conducted Emission Test.

3.2 Cable(s) used

No.	Cable	Length[m]	Shield	Connector	Comment
a	USB cable (for AC Adapter)	1.0	Yes	Metal	*

*: AC power line Conducted Emission Test.

3.3 System configuration



4 Test Result

4.1 26dB Bandwidth and 99% Occupied Bandwidth

4.1.1 Measurement procedure

[FCC 15.407(a), KDB 789033 D02, Section C, D]

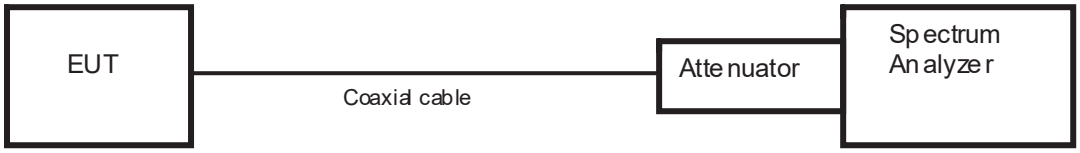
The 26dB bandwidth and 99% occupied bandwidth is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;
- RBW=200 kHz/430 kHz/820 kHz, VBW=620 kHz/1.3 MHz/2.4 MHz, Span=40 MHz/80 MHz/160 MHz
  Sweep=auto, Detector=Peak, Trace mode=Max hold

The EUT was set to operate with following conditions.
- 5.2 GHz Band, 5.3 GHz Band, 5.6 GHz Band

The test mode of EUT is as follows.
- Tx mode

- Test configuration



4.1.2 Limit

None

4.1.3 Measurement result

Date : 4-August-2020
Temperature : 24.2 [℃]
Humidity : 44.6 [%] Test engineer :
Test place : Shielded room No.4 Tadahiro Seino

Date : 31-August-2020
Temperature : 24.9 [℃]
Humidity : 60.5 [%] Test engineer :
Test place : Shielded room No.4 Tadahiro Seino

Mode	Band	Channel	Frequency (MHz)	26 dB bandwidth (MHz)	99% Occupied bandwidth (MHz)
802.11a	5.2 GHz Band	36	5180	19.913	16.4717
		40	5200	19.826	16.4742
		48	5240	19.900	16.4273
	5.3 GHz Band	52	5260	20.000	16.4628
		56	5280	19.934	16.4604
		64	5320	20.033	16.4689
	5.6 GHz Band	100	5500	20.001	16.4765
		116	5580	20.129	16.5001
		140	5700	19.804	16.4367
		144	5720	19.954	16.4414

Mode	Band	Channel	Frequency (MHz)	26 dB bandwidth (MHz)	99% Occupied bandwidth (MHz)
802.11n (20 MHz)	5.2 GHz Band	36	5180	20.344	17.5851
		40	5200	20.404	17.6677
		48	5240	20.286	17.6129
	5.3 GHz Band	52	5260	20.938	17.6535
		56	5280	20.388	17.6388
		64	5320	21.777	17.6294
	5.6 GHz Band	100	5500	20.347	17.6367
		116	5580	20.377	17.6216
		140	5700	20.230	17.5421
		144	5720	20.242	17.5697

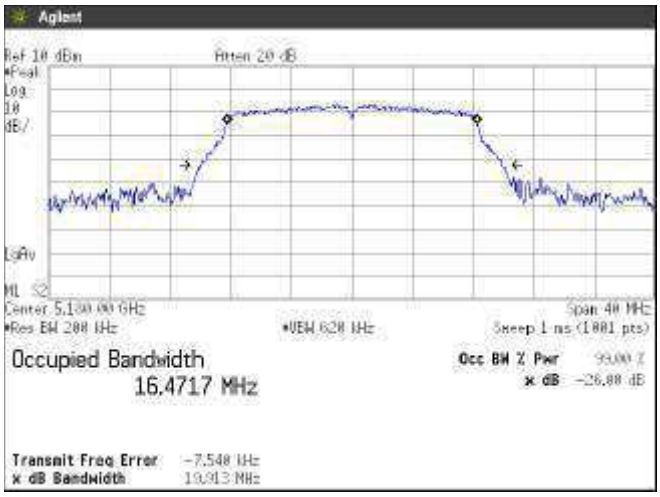
Mode	Band	Channel	Frequency (MHz)	26 dB bandwidth (MHz)	99% Occupied bandwidth (MHz)
802.11n (40 MHz)	5.2 GHz Band	38	5190	40.627	36.0195
		46	5230	40.486	36.0514
	5.3 GHz Band	54	5270	40.794	35.9913
		62	5310	40.515	36.0178
	5.6 GHz Band	102	5510	40.554	36.0278
		110	5550	40.454	36.0355
		134	5670	40.683	36.0680
		142	5710	40.416	35.9893

Mode	Band	Channel	Frequency (MHz)	26dB bandwidth (MHz)	99% Occupied bandwidth (MHz)
802.11ac (80 MHz)	5.2 GHz Band	42	5210	81.000	75.1003
	5.3 GHz Band	58	5290	81.084	75.1966
	5.6 GHz Band	106	5530	81.003	75.1415
		122	5610	81.291	75.1394
		138	5690	80.820	75.2128

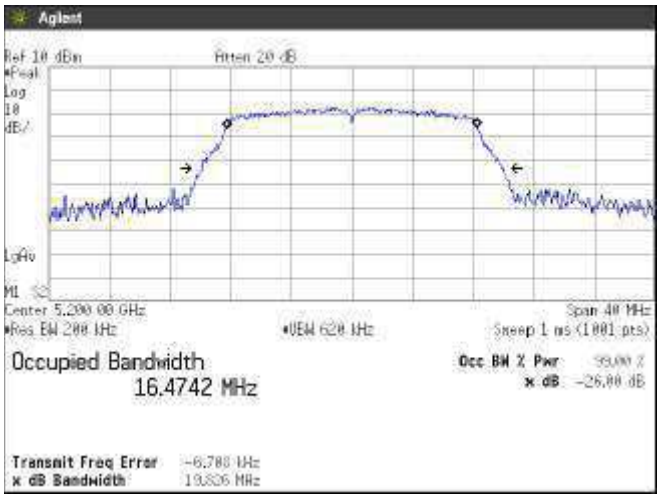
4.1.4 Trace data

[IEEE 802.11a]
(5.2 GHz Band)

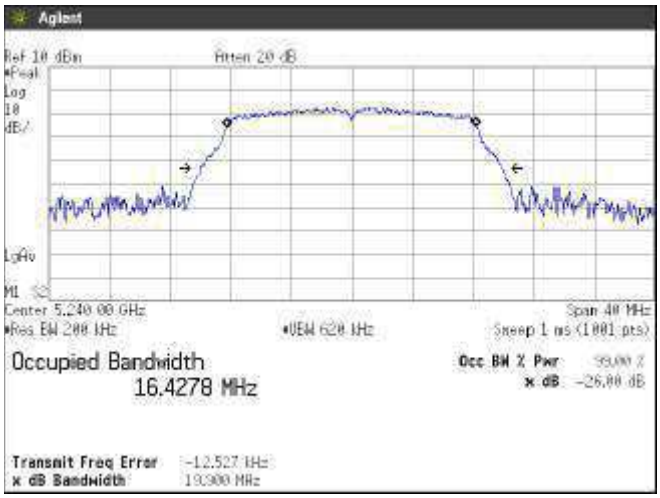
Channel: 36



Channel: 40

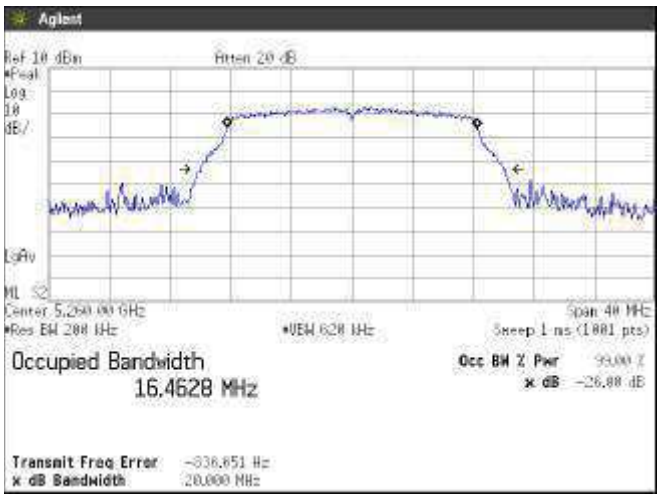


Channel: 48

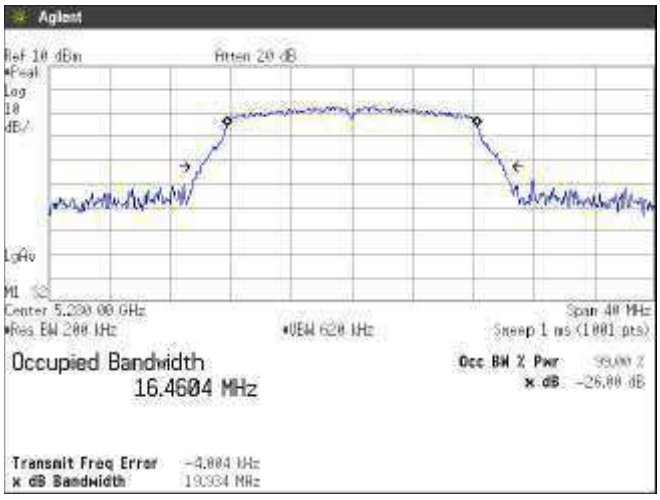


(5.3 GHz Band)

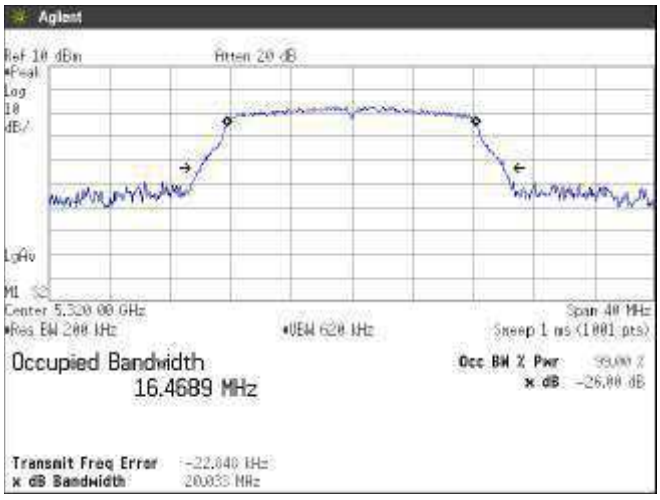
Channel: 52



Channel: 56

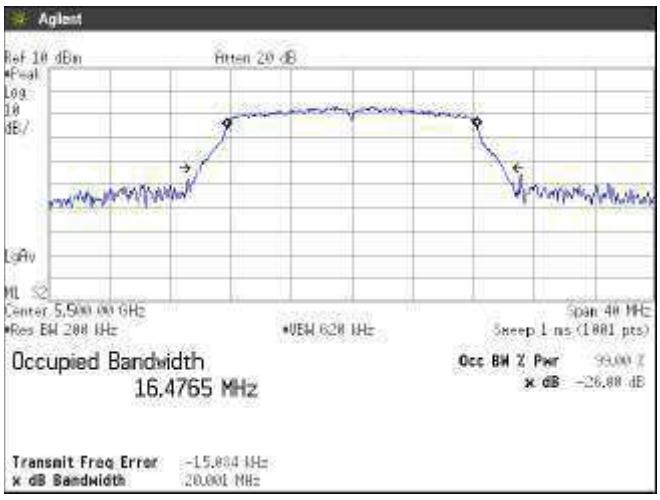


Channel: 64

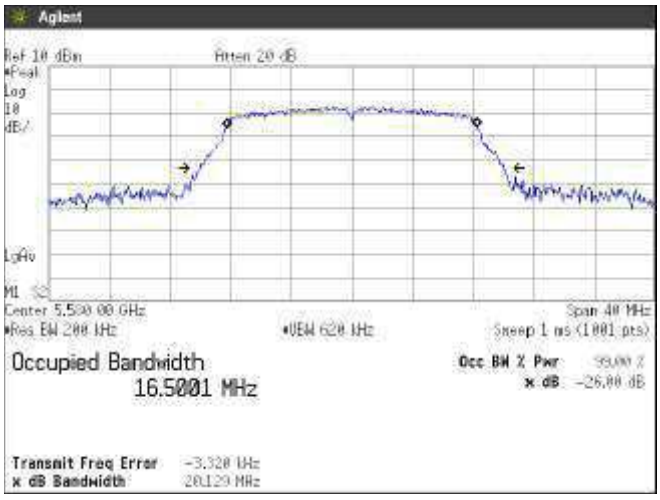


(5.6 GHz Band)

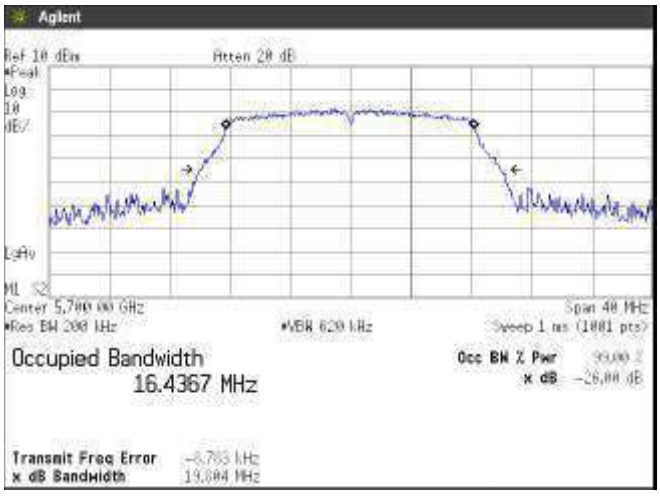
Channel: 100



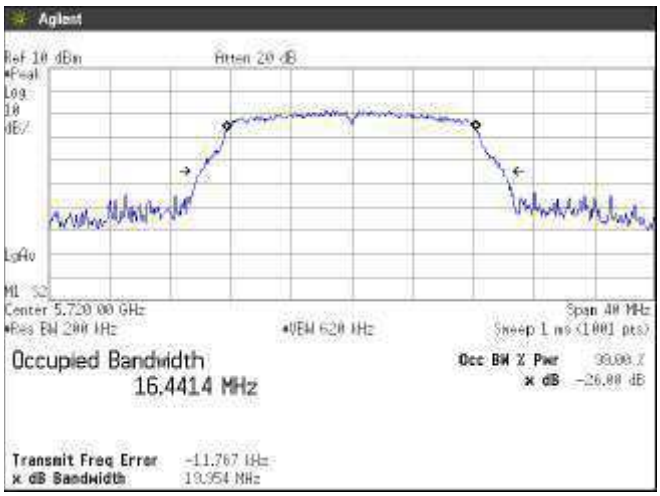
Channel: 116



Channel: 140

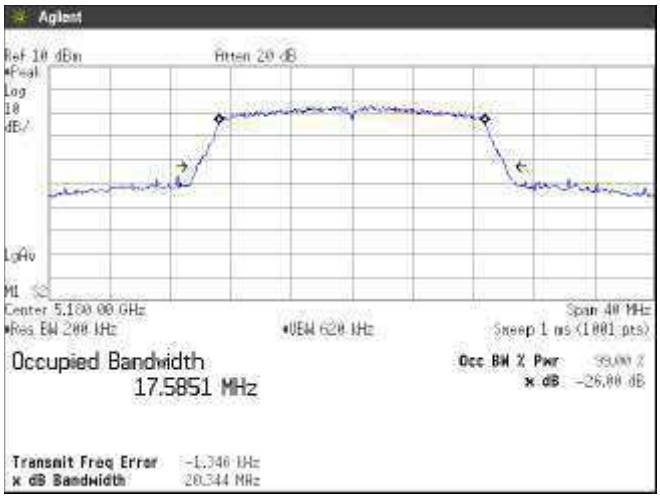


Channel: 144

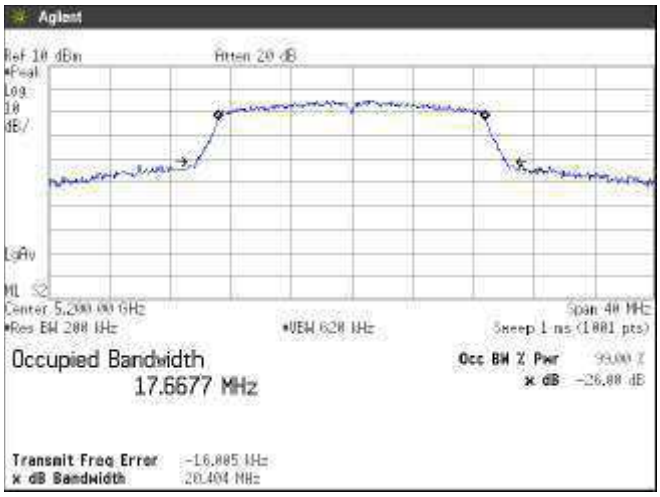

Agilent
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
LgAv
M1 S2
Center 5.720 00 GHz
#Res BW 200 kHz
#VBW 620 kHz
Span 40 MHz
Sweep 1 ms (1001 pts)
Occupied Bandwidth
16.4414 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -11.767 kHz
x dB Bandwidth 19.954 MHz

[IEEE 802.11n (HT20)]
(5.2 GHz Band)

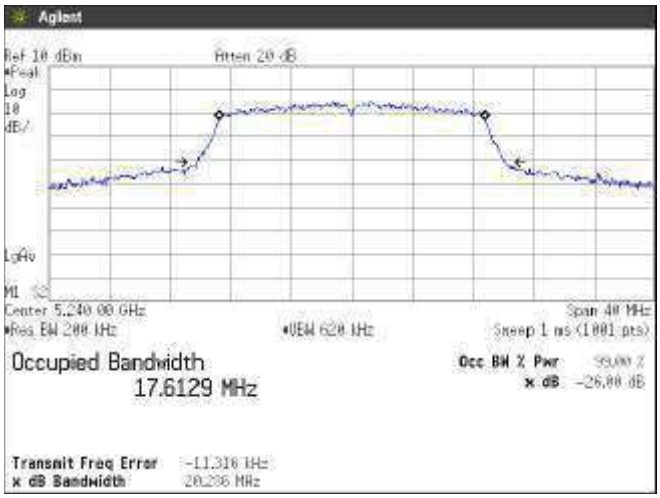
Channel: 36



Channel: 40

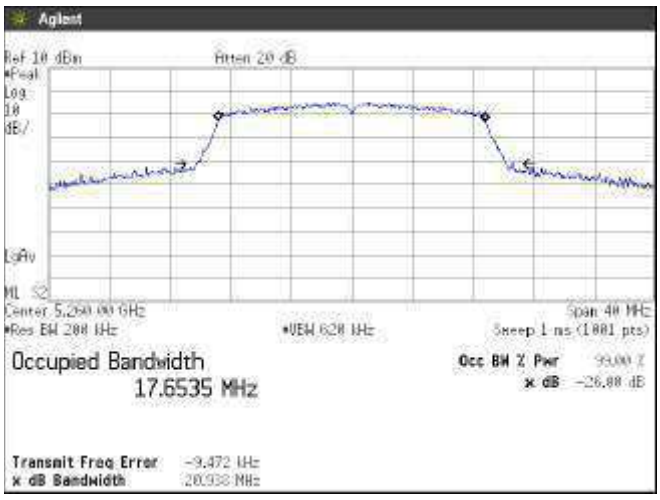


Channel: 48

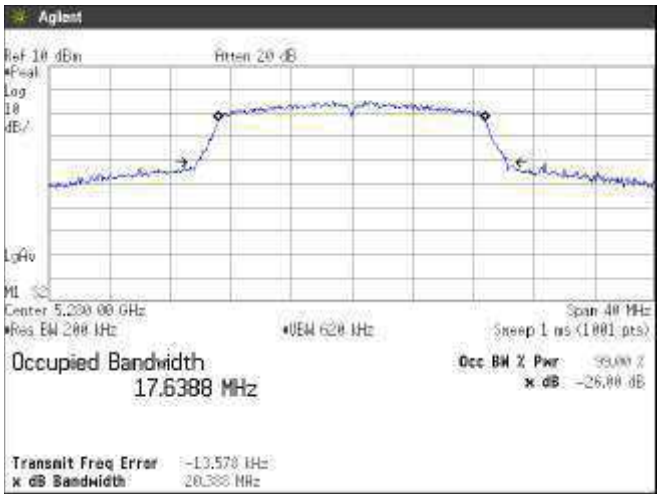


(5.3 GHz Band)

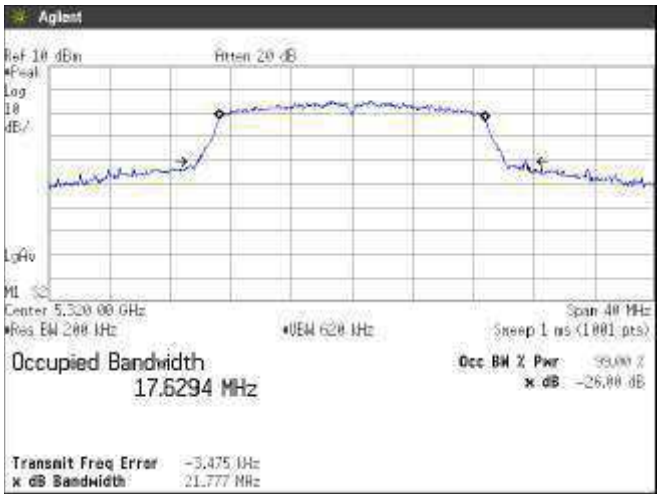
Channel: 52



Channel: 56

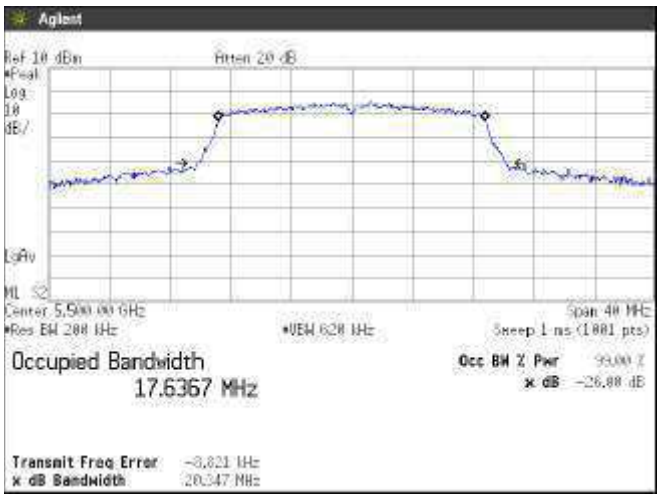


Channel: 64

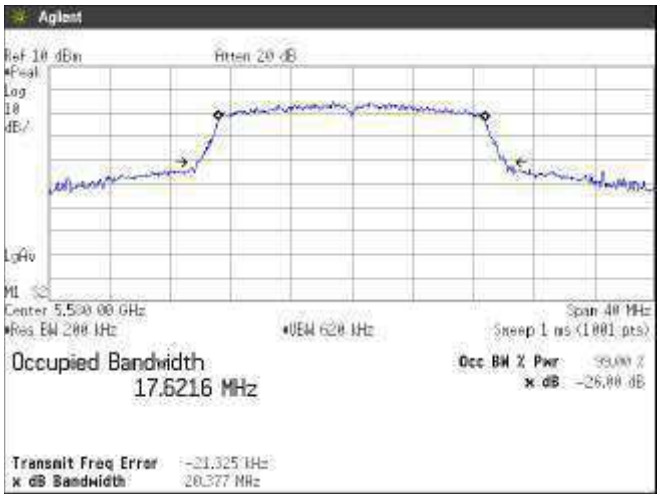


(5.6 GHz Band)

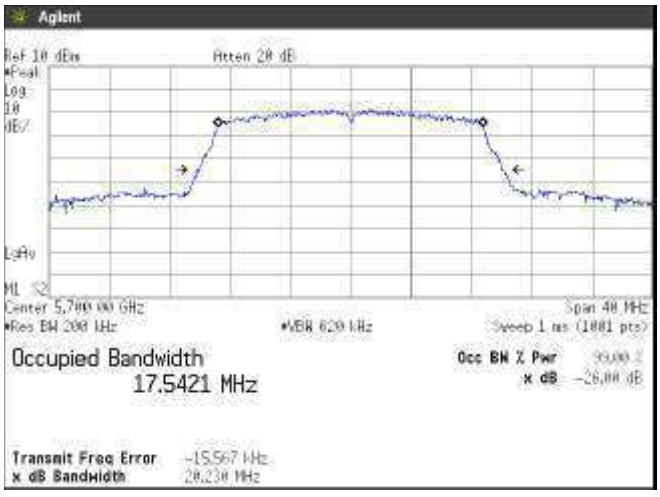
Channel: 100



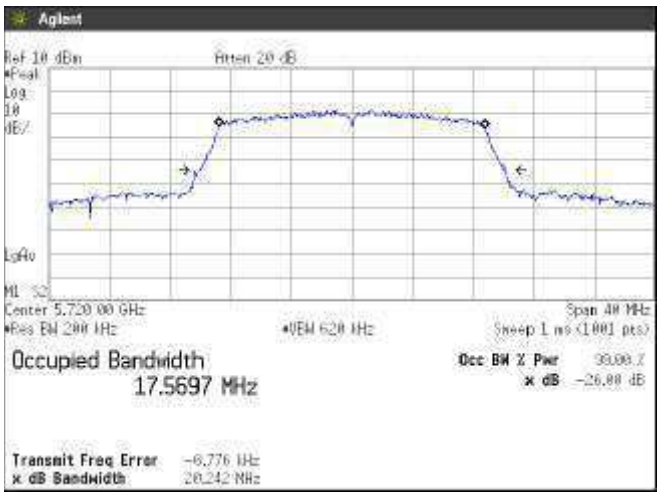
Channel: 116



Channel: 140

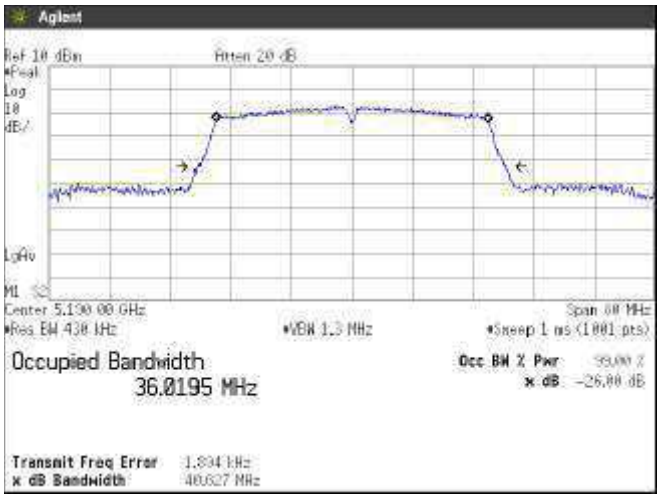


Channel: 144

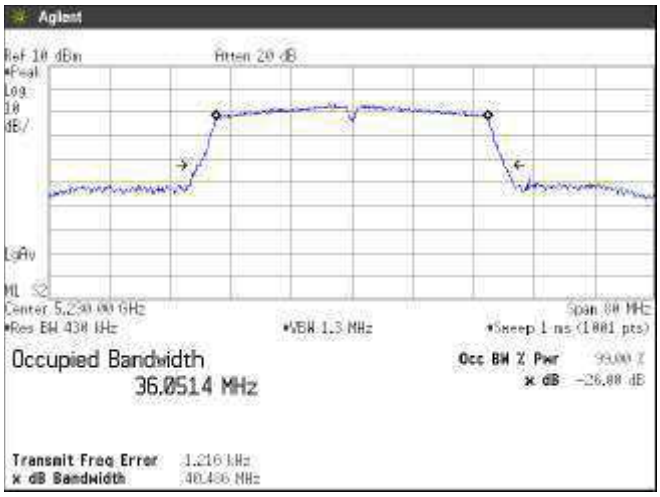

Agilent
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
LgAv
M1 S2
Center 5.720 00 GHz
#Res BW 200 kHz
#VBW 620 kHz
Span 40 MHz
Sweep 1 ms (1001 pts)
Occupied Bandwidth
17.5697 MHz
Occ BW % Pwr 99.00 %
x dB -26.00 dB
Transmit Freq Error -6.776 kHz
x dB Bandwidth 20.242 MHz

[IEEE 802.11n (HT40)]
(5.2 GHz Band)

Channel: 38

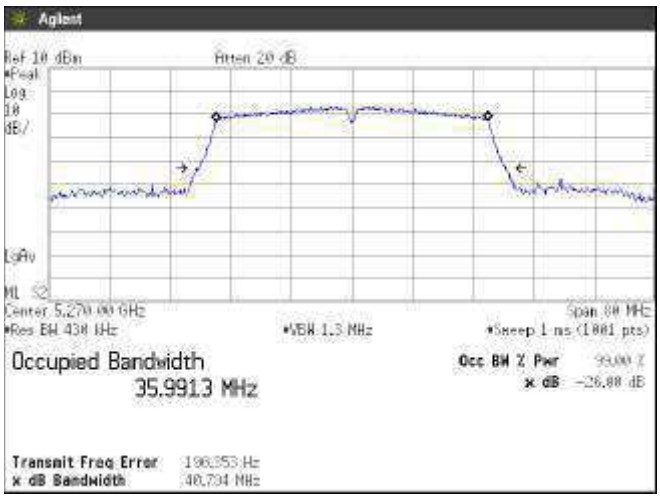


Channel: 46

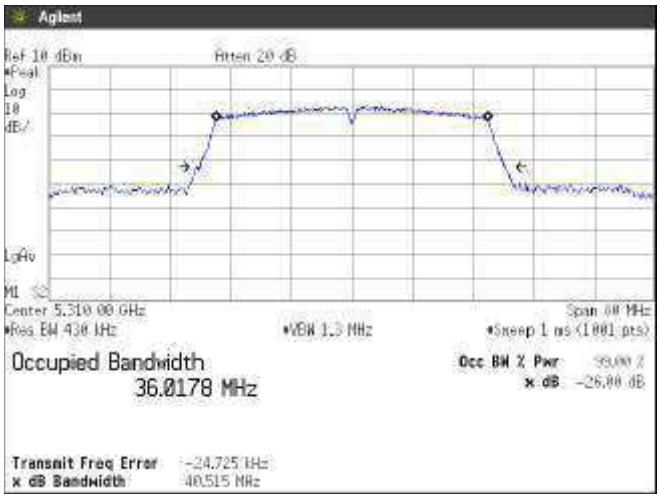


(5.3 GHz Band)

Channel: 54

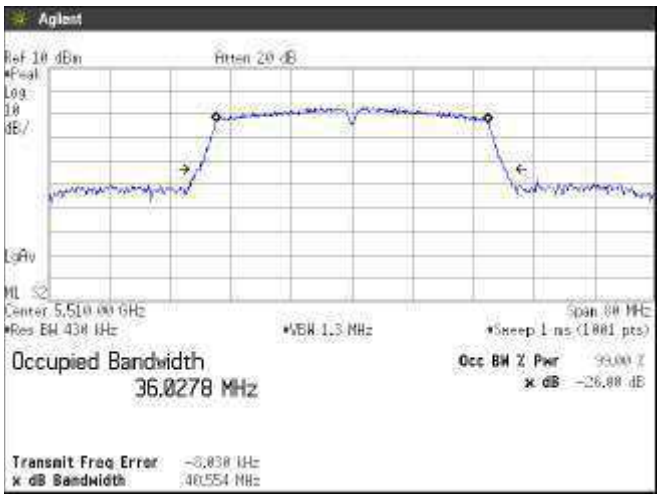


Channel: 62

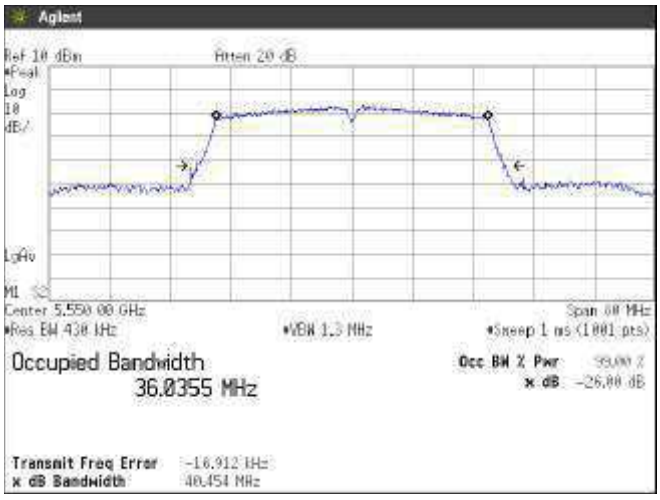


(5.6 GHz Band)

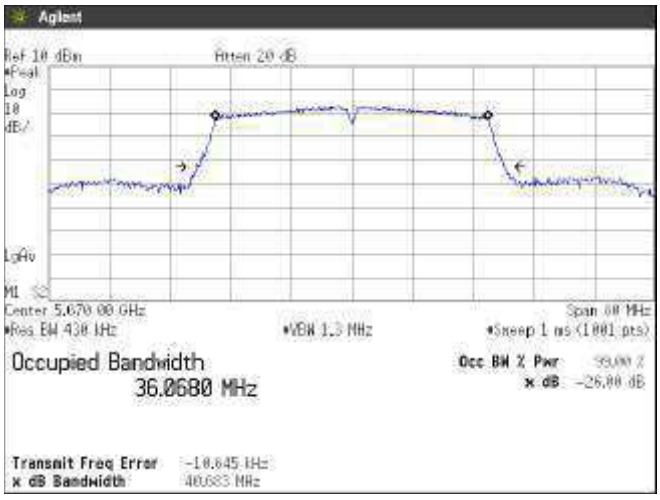
Channel: 102



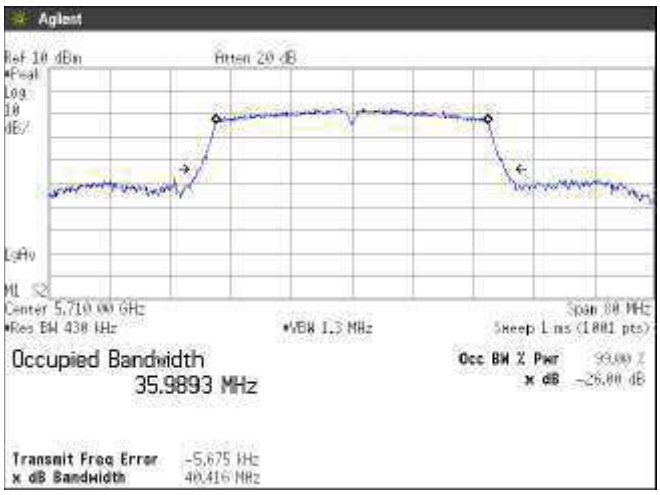
Channel: 110



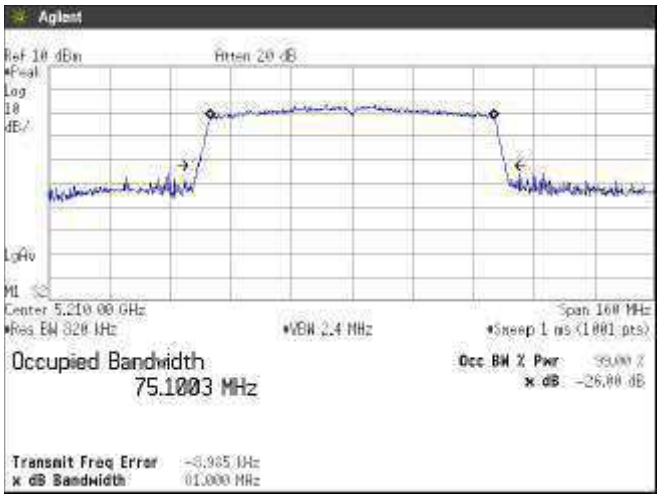
Channel: 134



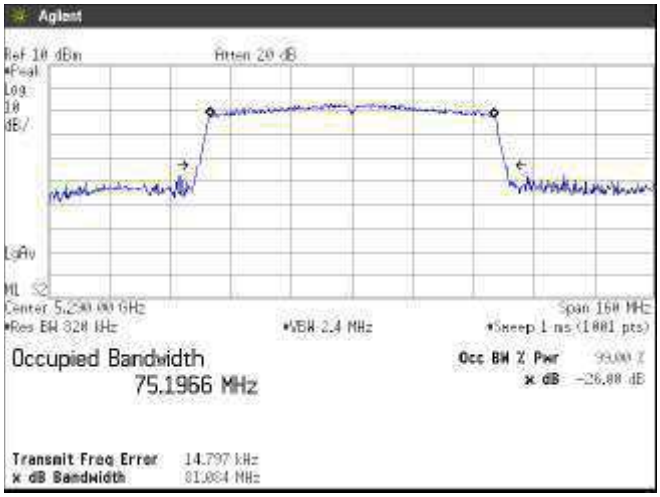
Channel: 142


Agilent
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
LgAv
Mkr1
Center 5.710 000 GHz
#Res BW 430 kHz
#VBW 1.3 MHz
Span 80 MHz
Sweep 1 ms (1001 pts)
Occupied Bandwidth
35.9893 MHz
Occ BW % Pwr
x dB
-26.00 dB
Transmit Freq Error
-5.675 kHz
x dB Bandwidth
40.416 MHz

[IEEE802.11ac (HT80)]
(5.2 GHz Band)
Channel: 42

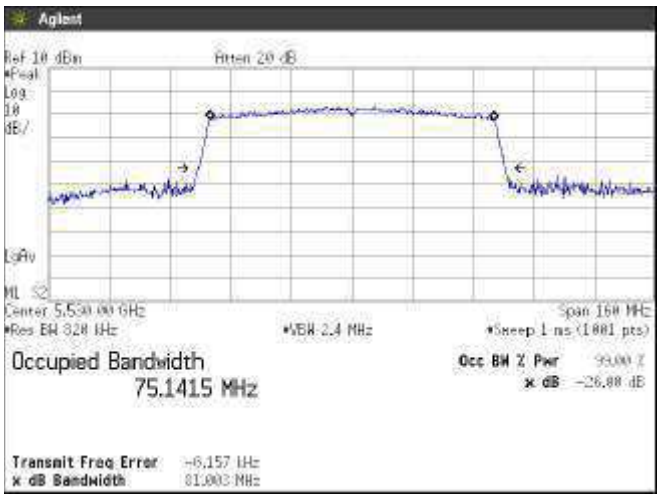


(5.3GHz Band)
Channel: 58

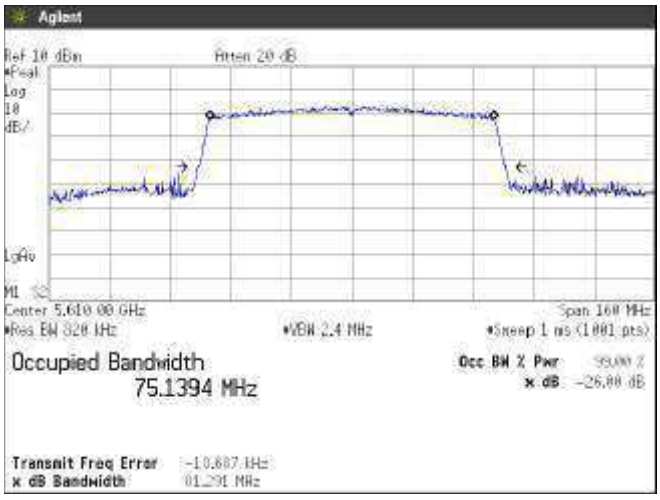


(5.6 GHz Band)

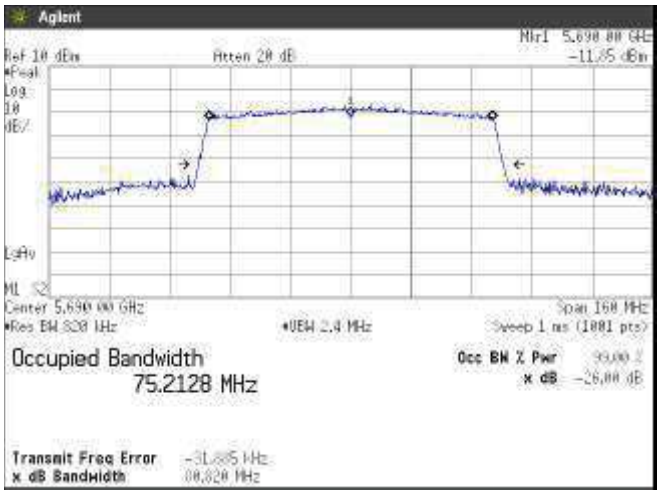
Channel: 106



Channel: 122



Channel: 138



4.2 Maximum Conducted Output Power

4.2.1 Measurement procedure

[FCC 15.407(a), KDB 789033 D02, Section E.2.b) Method SA-1, d) Method SA-2]

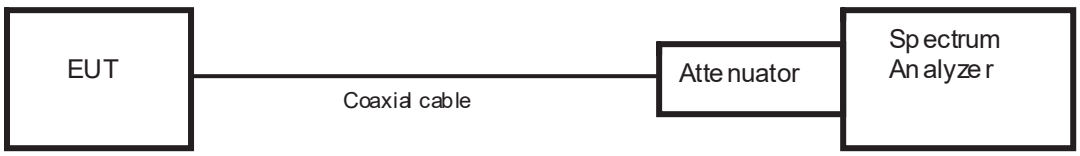
The peak power is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;
- RBW= 1MHz, VBW=3 MHz, Span=35MHz/70MHz/140 MHz, Sweep=auto,
  Detector=RMS, Trace mode=Averaging

The EUT was set to operate with following conditions.
- 5.2GHz Band, 5.3GHz Band, 5.6GHz Band

The test mode of EUT is as follows.
- Tx mode

- Test configuration



4.2.2 Limit

(1) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250mW provided the maximum antenna gain does not exceed 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250mW or 11dBm + 10logB, where B is the 26dB emission bandwidth in megahertz.

(3) For the 5.725-5.85 GHz bands, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

<Output Power Limit Calculation>

Band	Mode	Power Limit (mW)	Calculated Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
5.2GHz Band	802.11a	250	23.97	-2.0	23.97
	802.11n HT20				
	802.11n HT20				
	802.11ac HT80				

Band	Mode	Power Limit (mW) / Least 26dBc BW (MHz)	Calculated Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
5.3GHz Band	802.11a	250	23.97	-2.0	23.97
		19.934	24.00		
	802.11n HT20	250	23.97		23.97
		20.388	24.09		
	802.11n HT20	250	23.97		23.97
		40.515	27.08		
	802.11ac HT80	250	23.97		23.97
		81.084	30.09		

Band	Mode	Power Limit (mW) / Least 26dBc BW (MHz)	Calculated Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
5.6GHz Band	802.11a	250	23.97	-1.9	23.97
		19.804	23.97		
	802.11n HT20	250	23.97		23.97
		20.230	24.06		
	802.11n HT20	250	23.97		23.97
		40.454	27.07		
	802.11ac HT80	250	23.97		23.97
		81.003	30.09		

4.2.3 Measurement result

Date : 31-August-2020
Temperature : 24.9 [°C]
Humidity : 60.5 [%]
Test place : Shielded room No.4
Test engineer : Tadahiro Seino

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)	Test Result (mW)
				On Time(ms)	On+Off Time(ms)	X			
802.11a	36	5180	12.45	1.390	1.436	0.968	0.141	12.591	18.161
	40	5200	12.26					12.401	17.384
	58	5240	12.34					12.481	17.707
	52	5260	12.42	1.392	1.438	0.968	0.141	12.561	18.035
	56	5280	12.53					12.671	18.498
	64	5320	12.51					12.651	18.413
	100	5500	12.83	1.390	1.436	0.968	0.141	12.971	19.822
	116	5580	12.55					12.550	17.989
	140	5700	11.87					12.691	18.584
	144	5720	11.99					12.011	15.891

Note1: X = On time / (On + Off time), DCF=10log (1/x)
Note2: Test Result=Reading + DCF

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)	Test Result (mW)
				On Time(ms)	On+Off Time(ms)	X			
802.11n (20MHz)	36	5180	13.12	1.288	1.332	0.967	0.146	13.266	21.212
	40	5200	13.14					13.286	21.310
	58	5240	13.20					13.346	21.607
	52	5260	13.24	1.286	1.332	0.965	0.153	13.393	21.841
	56	5280	13.28					13.433	22.043
	64	5320	12.30					12.453	17.590
	100	5500	12.61	1.288	1.332	0.967	0.146	12.756	18.862
	116	5580	12.53					12.530	17.906
	140	5700	11.76					12.676	18.518
	144	5720	11.93					11.906	15.509

Note: X = On time / (On + Off time), DCF=10log (1/x)
Note2: Test Result=Reading + DCF

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)	Test Result (mW)
				On Time(ms)	On+Off Time(ms)	X			
802.11n (40MHz)	38	5190	12.09	0.636	0.680	0.935	0.291	12.381	17.300
	46	5230	12.17					12.461	17.622
	54	5270	12.13	0.636	0.680	0.935	0.291	12.421	17.460
	62	5310	12.38					12.671	18.495
	102	5510	12.40	0.635	0.681	0.932	0.304	12.704	18.637
	110	5550	12.64					12.640	18.365
	134	5670	12.42					12.944	19.696
	142	5710	12.74					12.724	18.723

Note: X = On time / (On + Off time), DCF=10log (1/x)
Note2: Test Result=Reading + DCF

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)	Test Result (mW)
				On Time(ms)	On+Off Time(ms)	X			
802.11a c (80MHz)	42	5210	11.95	0.323	0.458	0.706	1.514	13.464	22.203
	58	5290	12.01	0.324	0.447	0.725	1.400	13.410	21.926
	106	5530	12.43	0.322	0.458	0.705	1.521	13.951	24.837
	122	5610	12.16	0.323	0.452	0.714	1.465	13.895	24.516
	138	5690	12.41	0.323	0.452	0.714	1.465	13.625	23.039

Note: X = On time / (On + Off time), DCF=10log (1/x)
Note2: Test Result=Reading + DCF

4.2.4 Trace data

[IEEE 802.11a]
(5.2GHz Band)

Channel: 36

Channel: 40

Channel: 48

(5.3GHz Band)

Channel: 52

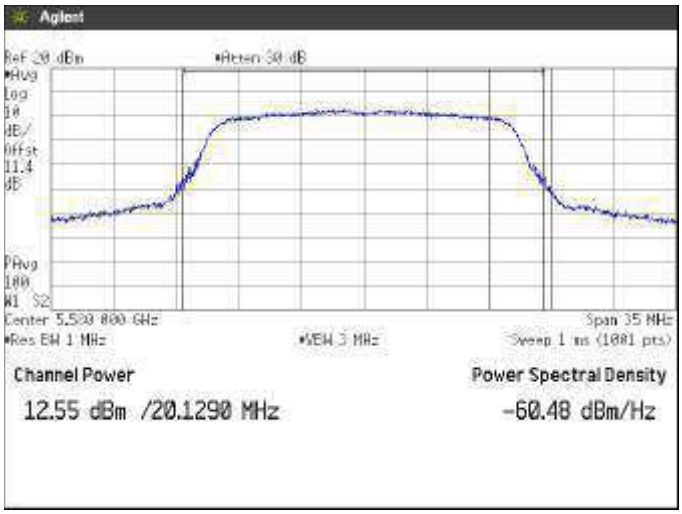
Channel: 56

Channel: 64

(5.6GHz Band)

Channel: 100

Channel: 116



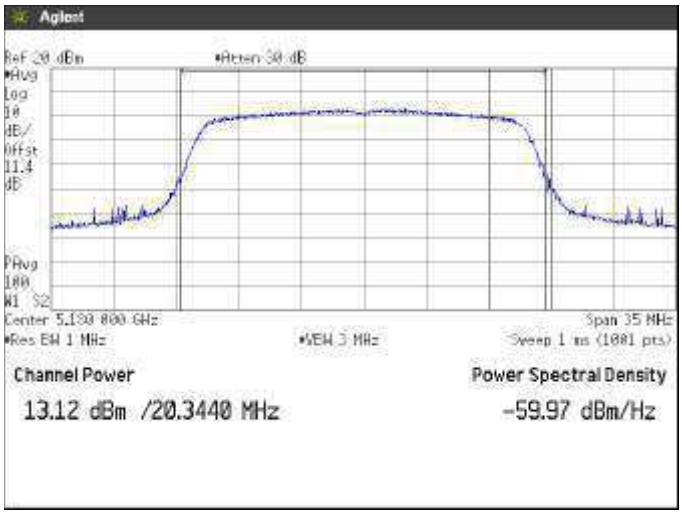
Channel: 140

Channel: 144


Agilent
Ref 20 dBm
#Atten 30 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
Center 5.720 000 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 35 MHz
Sweep 1 ms (1001 pts)
Channel Power
11.99 dBm /19.9540 MHz
Power Spectral Density
-61.01 dBm/Hz

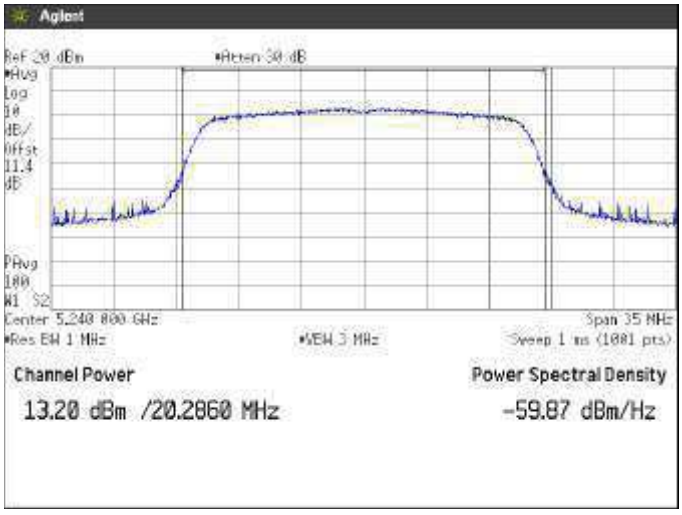
[IEEE 802.11n (HT20)]
(5.2 GHz Band)

Channel: 36



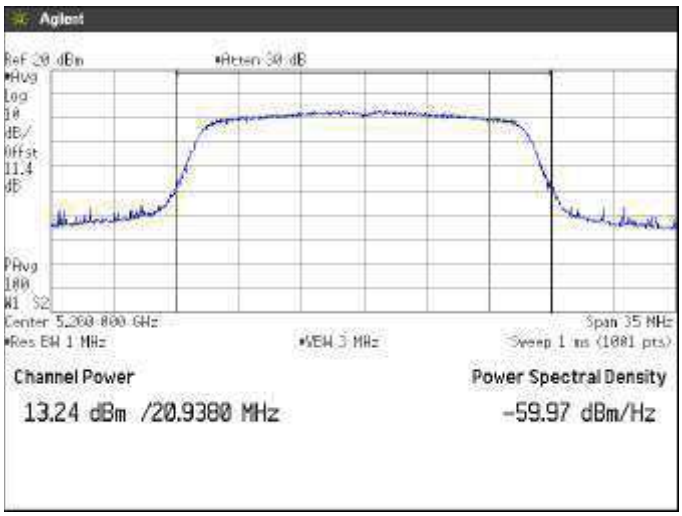
Channel: 40

Channel: 48

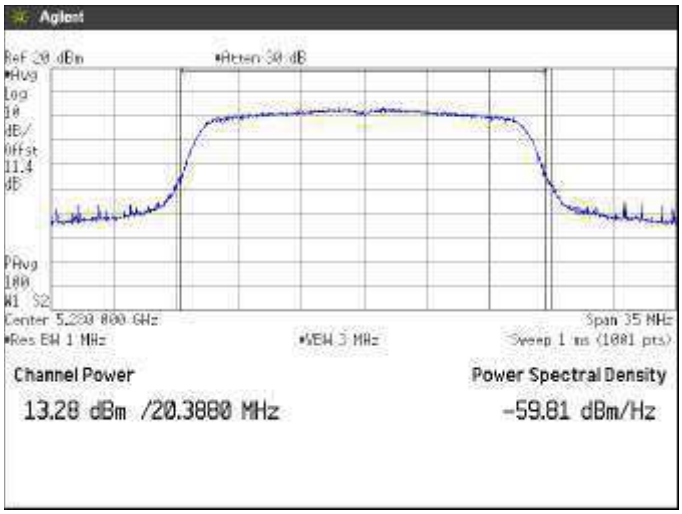


(5.3GHz Band)

Channel: 52



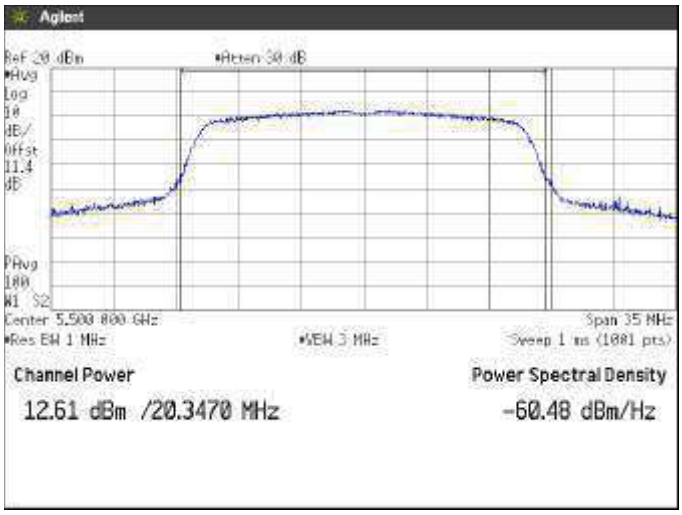
Channel: 56



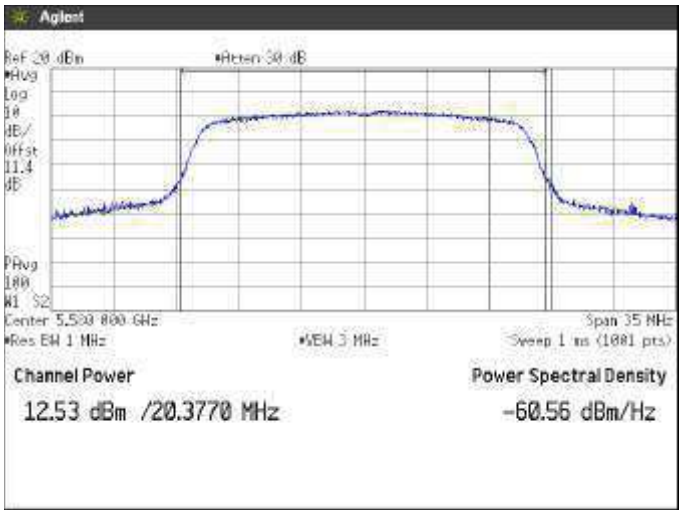
Channel: 64

(5.6GHz Band)

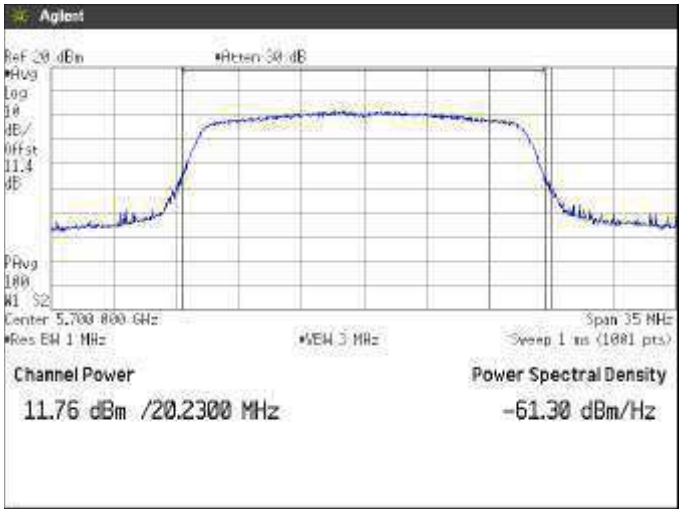
Channel: 100



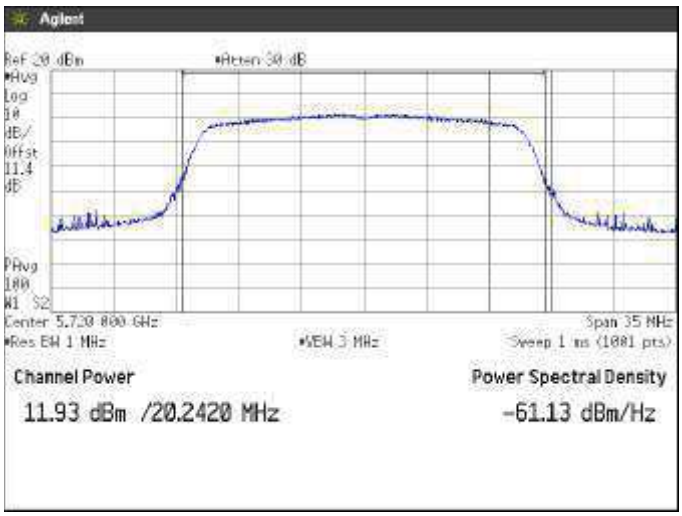
Channel: 116



Channel: 140



Channel: 144


Agilent
Ref 20 dBm
#Atten 30 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
Center 5.720 000 GHz
#Res BW 1 MHz
#VBW 3 MHz
Span 35 MHz
Sweep 1 ms (1001 pts)
Channel Power
11.93 dBm /20.2420 MHz
Power Spectral Density
-61.13 dBm/Hz

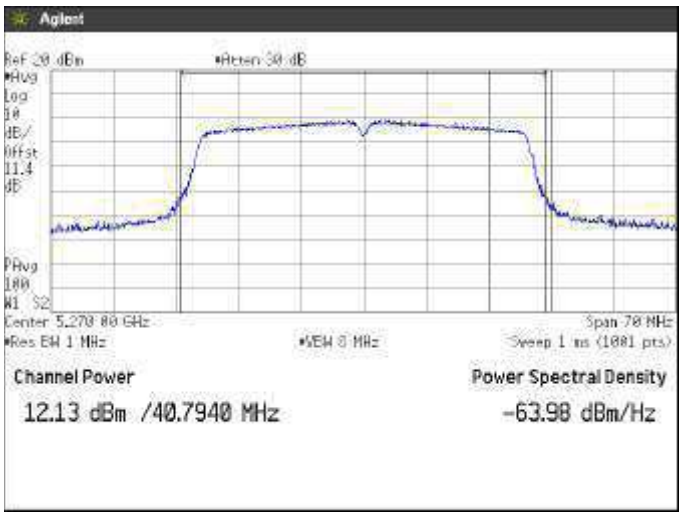
[IEEE 802.11n (HT40)]
(5.2 GHz Band)

Channel: 38

Channel: 46

(5.3GHz Band)

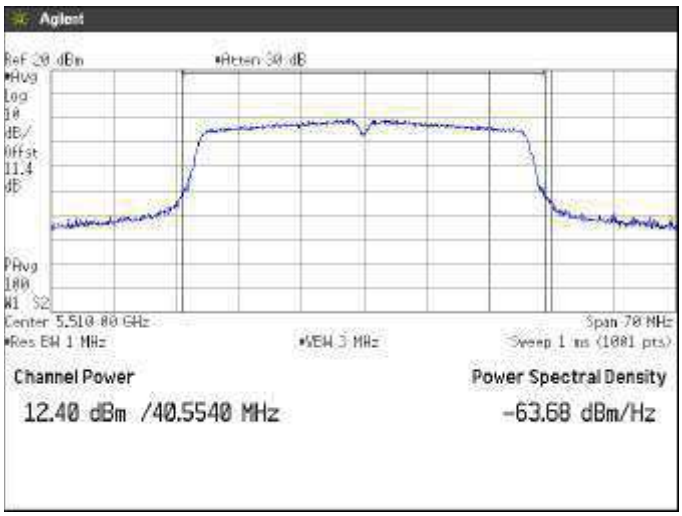
Channel: 54



Channel: 62

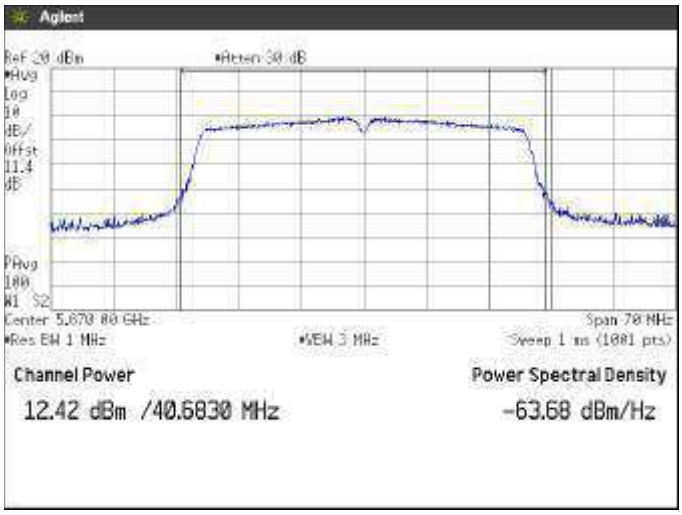
(5.6GHz Band)

Channel: 102



Channel: 110

Channel: 134

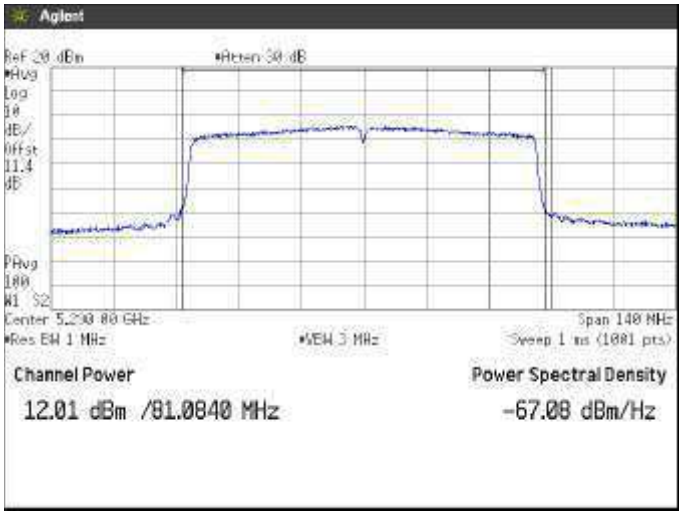


Channel: 142


Agilent
Ref 20 dBm
#Atten 30 dB
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
W1 S2
Center 5.670 00 GHz
Span 70 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (1001 pts)
Channel Power
12.42 dBm /40.6830 MHz
Power Spectral Density
-63.68 dBm/Hz

[IEEE802.11ac (HT80)]
(5.2 GHz Band)
Channel: 42

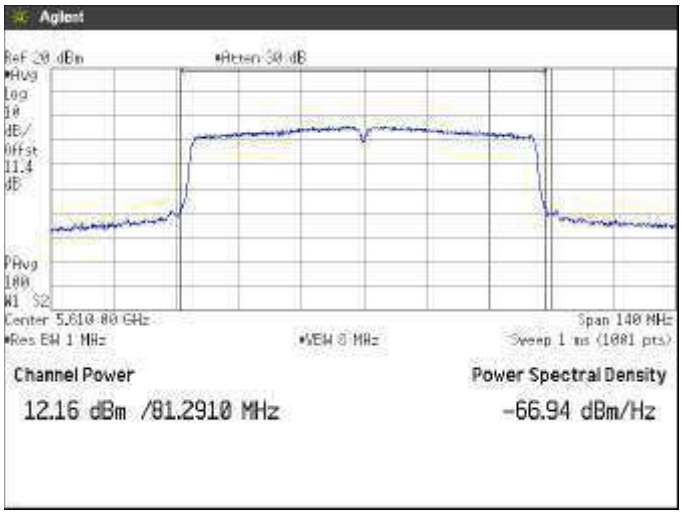
(5.3GHz Band)
Channel: 58



(5.6 GHz Band)

Channel: 106

Channel: 122



Channel: 138

4.3 Peak Power Spectral Density

4.3.1 Measurement procedure

[FCC 15.407(a), KDB 789033 D02, Section F]

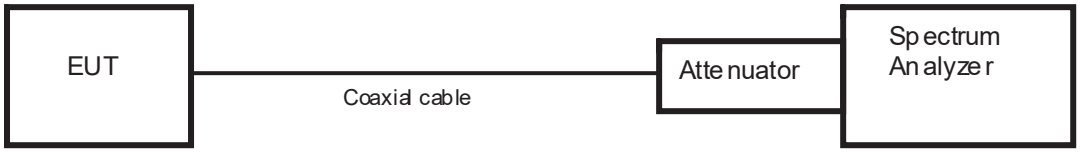
The peak power spectral density is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;
- RBW=1 MHz, VBW=3 MHz, Span=25 MHz/50 MHz/100 MHz, Sweep=Auto, Detector=RMS, Trace mode=Averaging

The EUT was set to operate with following conditions.
- 5.2 GHz Band, 5.3 GHz Band, 5.6 GHz Band

The test mode of EUT is as follows.
- Tx mode

- Test configuration



4.3.2 Limit

(1) For mobile and portable dient devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.

(3) For the 5.725-5.85 GHz bands, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6 dBi.
However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirection applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

<Peak Power Spectral Density Limit Calculation>

Band	Antenna Gain (dBi)	Limit
5.2 GHz Band	-2.0	10.8 dBm/MHz
5.3 GHz Band	-2.0	10.8 dBm/MHz
5.6 GHz Band	-1.9	13.0 dBm/MHz

4.3.3 Measurement result

Date : 31-August-2020
Temperature : 24.9 [°C]
Humidity : 60.5 [%]
Test place : Shielded room No.4
Test engineer : Tadahiro Seino

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)
				On Time (ms)	On+Off Time (ms)	X		
802.11a	36	5180	2.605	1.390	1.436	0.968	0.141	2.746
	40	5200	2.749					2.890
	48	5240	2.382					2.523
	52	5260	2.513	1.392	1.438	0.968	0.141	2.654
	56	5280	3.316					3.457
	64	5320	2.629					2.770
	100	5500	3.021	1.390	1.436	0.968	0.141	3.162
	116	5580	2.657					2.798
	140	5700	2.397					2.538
	144	5720	2.222					2.363

Note: X = On time / (On + Off time), DCF=10log (1/x)
Note 2: Test Result = Reading + DCF

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)
				On Time (ms)	On+Off Time (ms)	X		
802.11n (20MHz)	36	5180	2.329	1.288	1.332	0.967	0.146	2.475
	40	5200	2.152					2.298
	48	5240	2.244					2.390
	52	5260	2.572	1.286	1.332	0.965	0.153	2.725
	56	5280	2.554					2.707
	64	5320	2.299					2.452
	100	5500	2.675	1.288	1.332	0.967	0.146	2.821
	116	5580	2.744					2.890
	140	5700	1.833					1.979
	144	5720	1.913					2.059

Note: X = On time / (On + Off time), DCF=10log (1/x)
Note 2: Test Result = Reading + DCF

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)
				On Time (ms)	On+Off Time (ms)	X		
802.11n (40MHz)	38	5190	-0.878	0.636	0.680	0.935	0.291	-0.587
	46	5230	-0.636					-0.345
	54	5270	-0.752	0.636	0.680	0.935	0.291	-0.461
	62	5310	-0.476					-0.185
	102	5510	0.078	0.635	0.681	0.932	0.304	0.382
	110	5550	-0.139					0.165
	134	5670	-0.379					-0.075
	142	5710	0.018					0.322

Note: X = On time / (On + Off time), DCF=10log (1/x)
Note 2: Test Result = Reading + DCF

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)
				On Time (ms)	On+Off Time (ms)	X		
802.11ac (80MHz)	42	5210	-3.755	0.323	0.458	0.706	1.514	-2.241
	58	5290	-3.810	0.324	0.447	0.725	1.400	-2.410
	106	5530	-3.393	0.322	0.458	0.705	1.521	-1.872
	122	5610	-3.601	0.322	0.458	0.705	1.521	-2.080
	138	5690	-3.538	0.323	0.452	0.714	1.465	-2.073

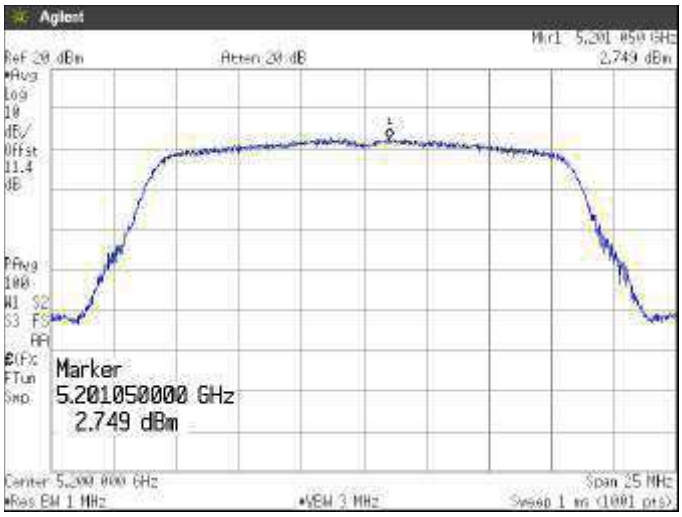
Note: X = On time / (On + Off time), DCF=10log (1/x)
Note 2: Test Result = Reading + DCF

4.3.4 Trace data

[IEEE 802.11a]
(5.2 GHz Band)

Channel: 36

Channel: 40



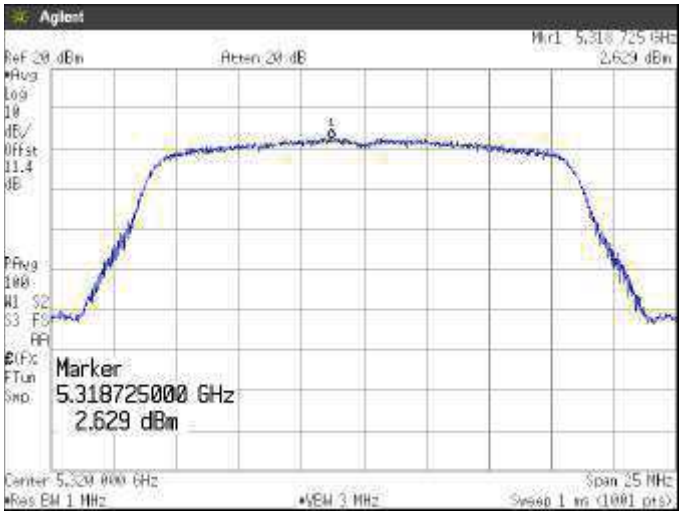
Channel: 48

(5.3 GHz Band)

Channel: 52

Channel: 56

Channel: 64



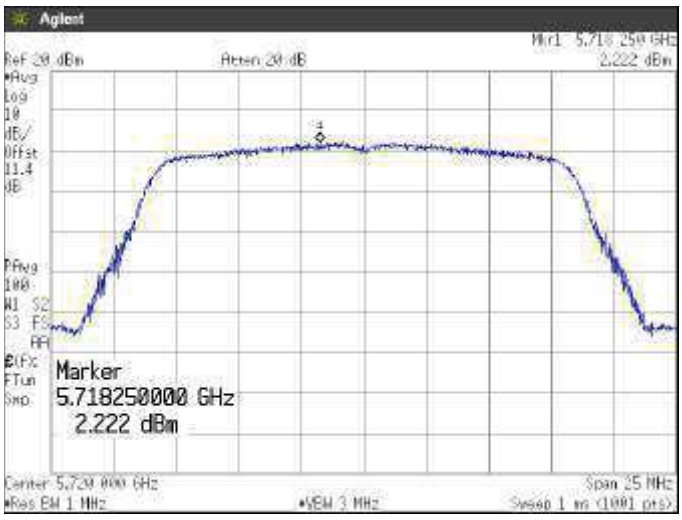
(5.6 GHz Band)

Channel: 100

Channel: 116

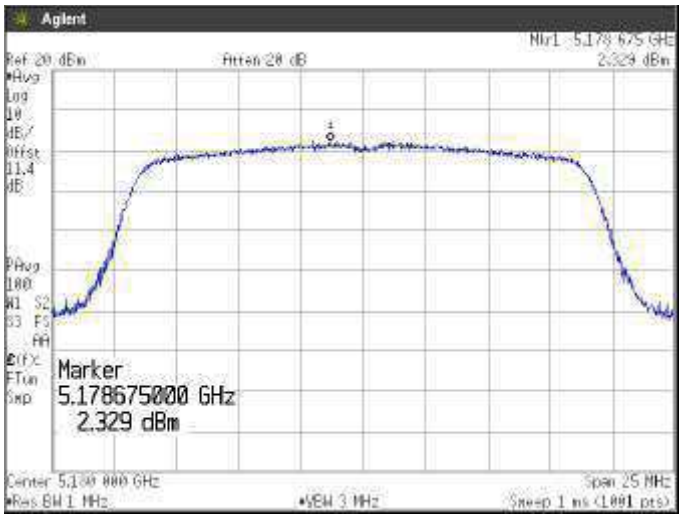
Channel: 140

Channel: 144


Agilent
Mkr1 5.718 250 GHz
Ref 20 dBm
Atten 20 dB
2.222 dBm
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
Marker
5.718250000 GHz
2.222 dBm
Center 5.720 000 GHz
Span 25 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 1 ms (1001 pts)

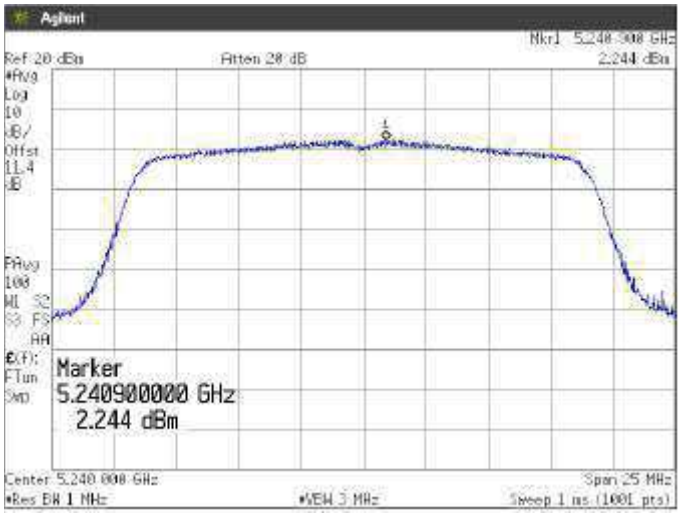
[IEEE 802.11n (HT20)]
(5.2 GHz Band)

Channel: 36



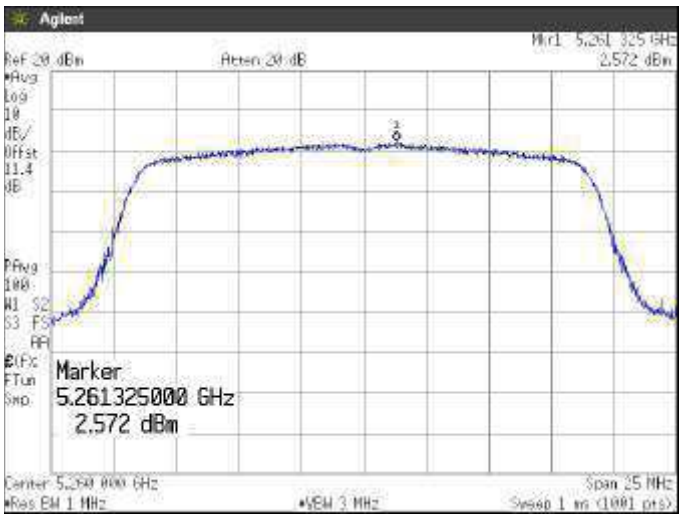
Channel: 40

Channel: 48

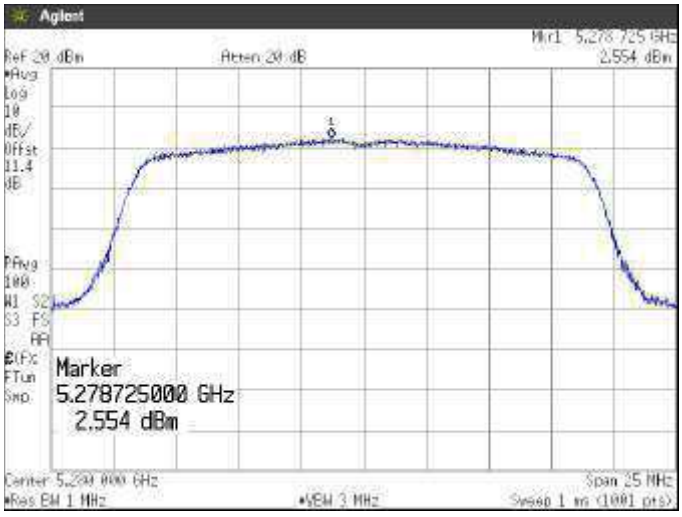


(5.3 GHz Band)

Channel: 52



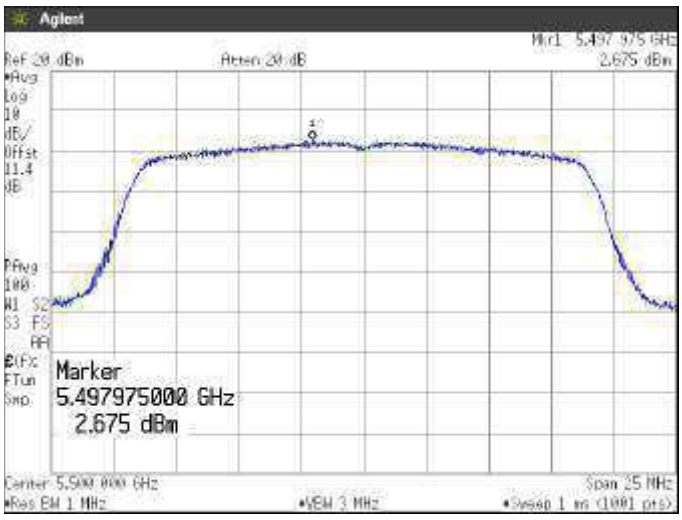
Channel: 56



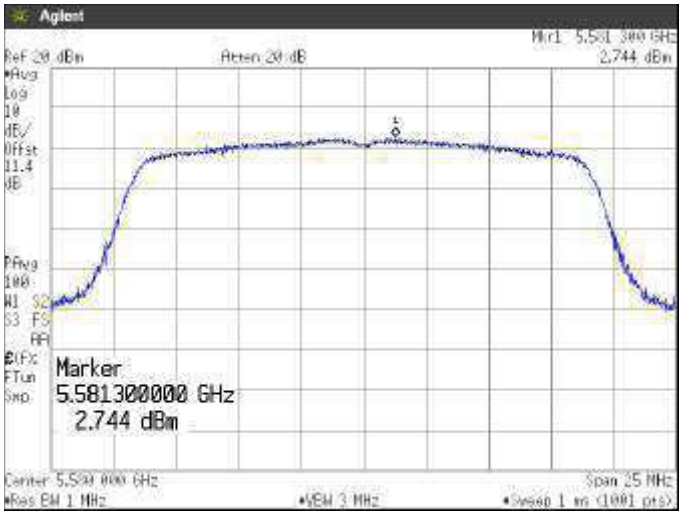
Channel: 64

(5.6 GHz Band)

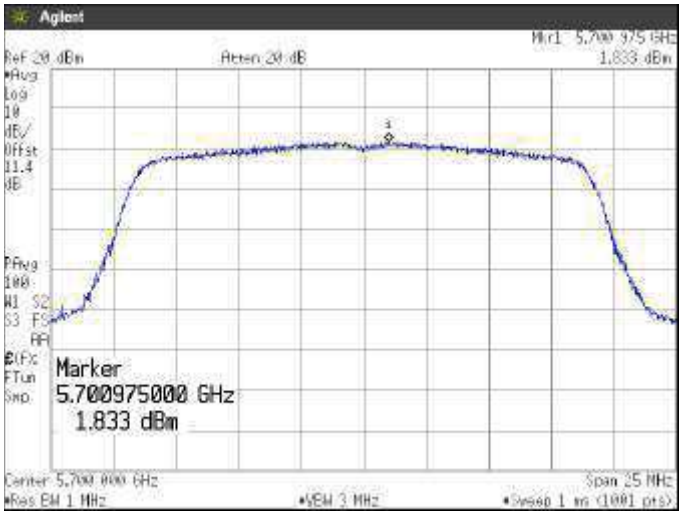
Channel: 100



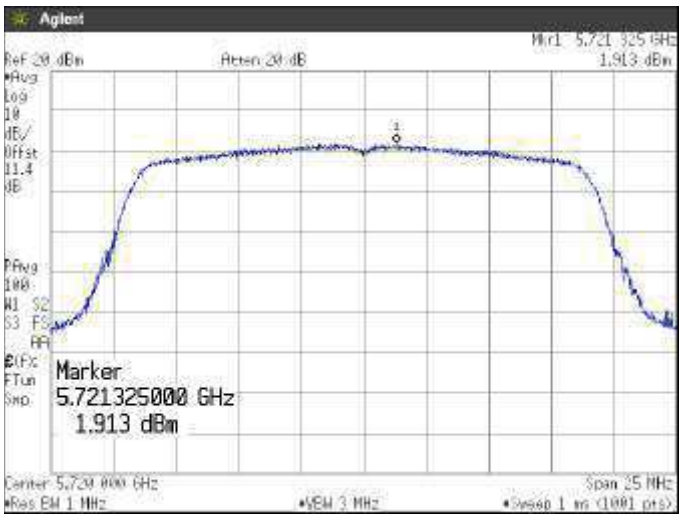
Channel: 116



Channel: 140

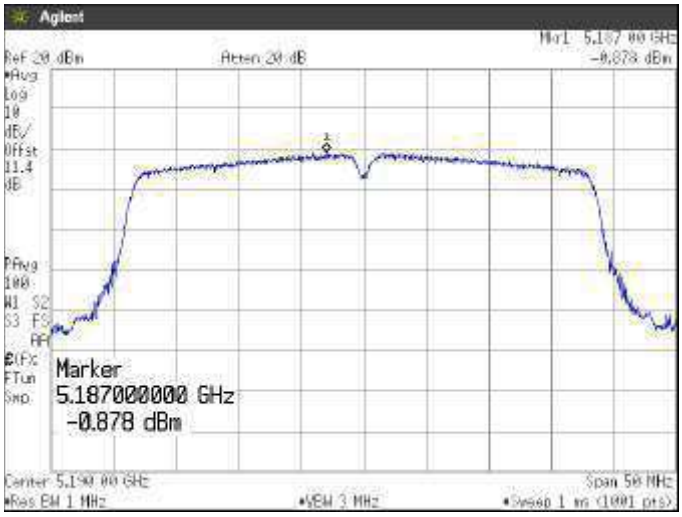


Channel: 144

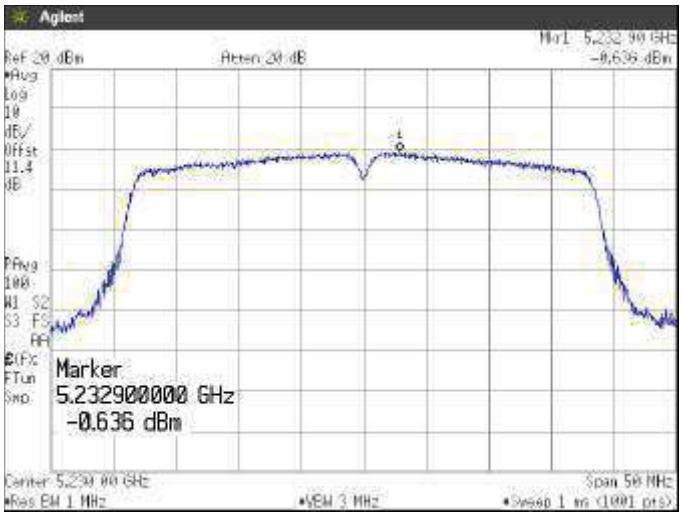

Agilent
Mkr1 5.721 325 GHz
Ref 20 dBm
Atten 20 dB
1.913 dBm
#Avg
Log
10
dB/
Offst
11.4
dB
PAvg
100
#Res BW 1 MHz
#VBW 3 MHz
Span 25 MHz
Marker
5.721325000 GHz
1.913 dBm

[IEEE 802.11n (HT40)]
(5.2 GHz Band)

Channel: 38

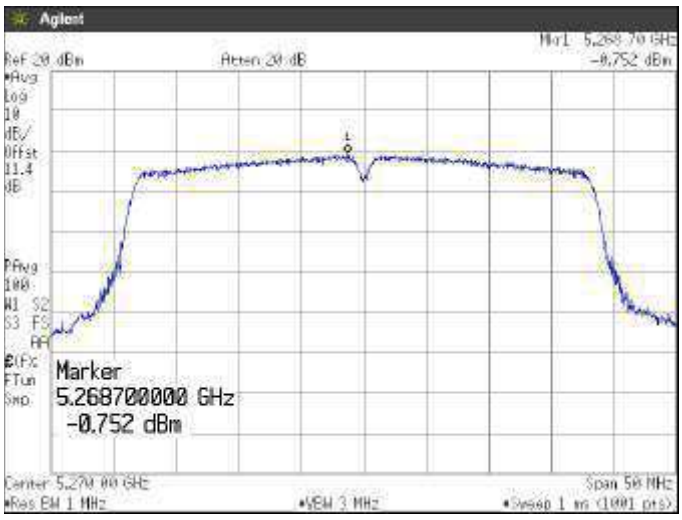


Channel: 46

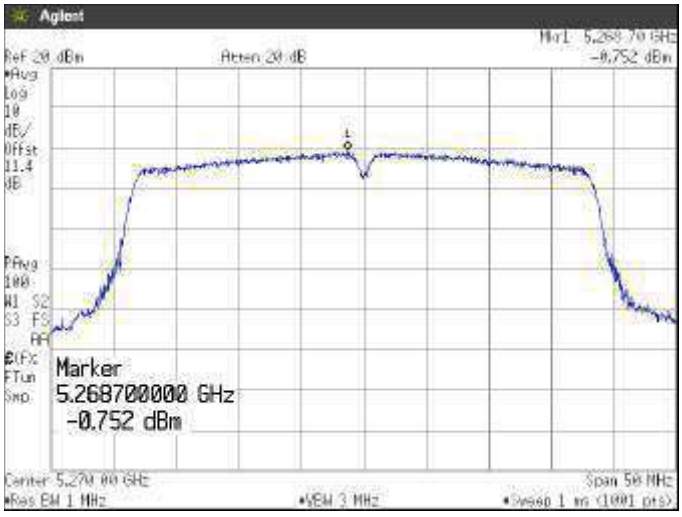


(5.3 GHz Band)

Channel: 54

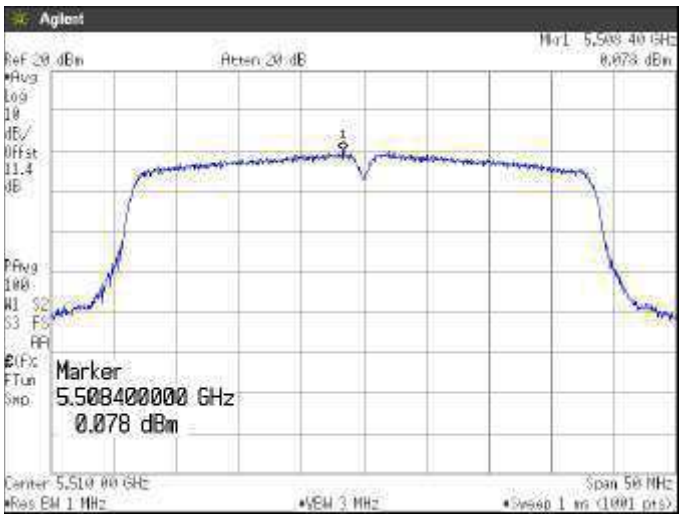


Channel: 62

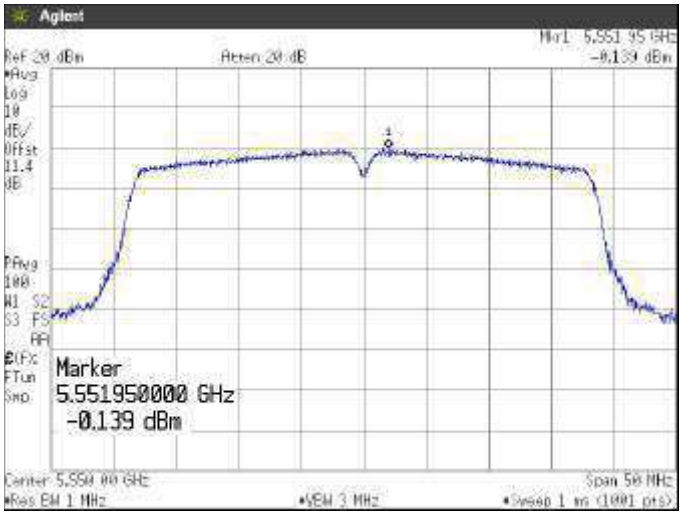


(5.6 GHz Band)

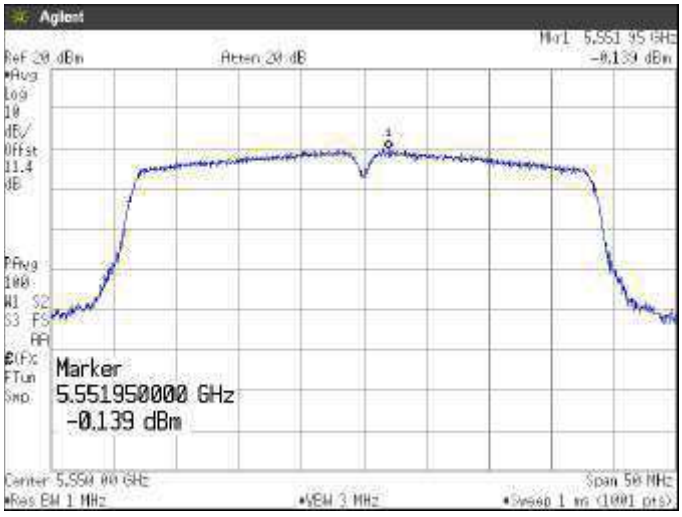
Channel: 102



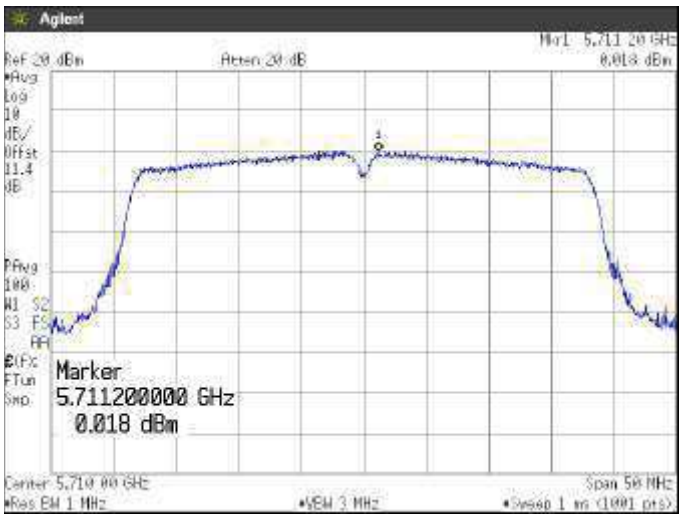
Channel: 110



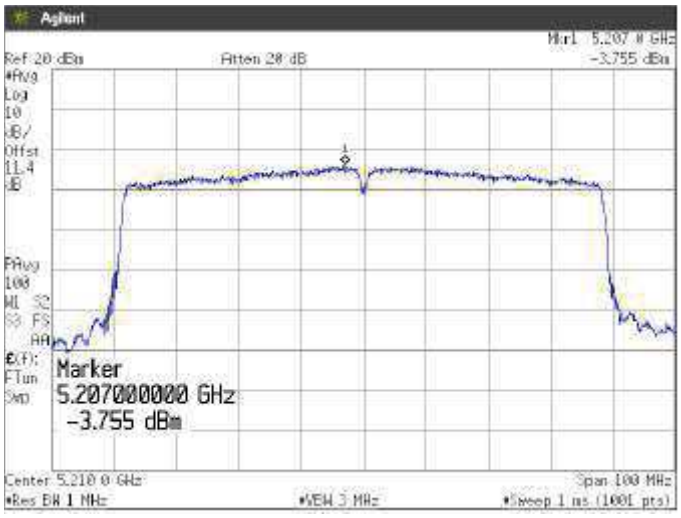
Channel: 134



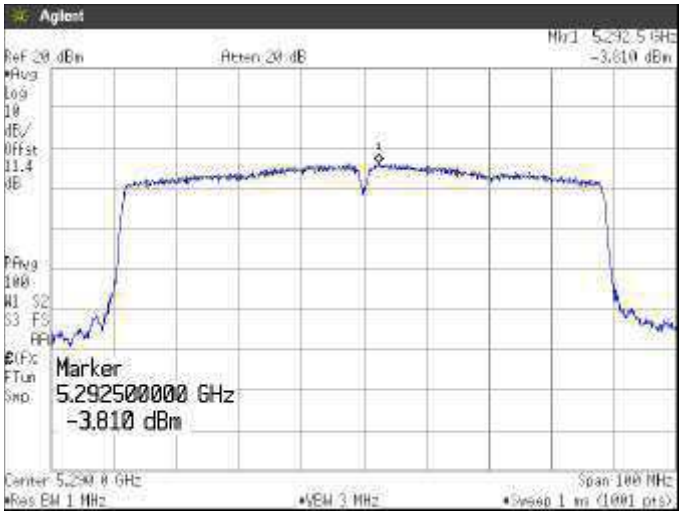
Channel: 142


Agilent
Mkr1 5.711 20 GHz
Ref 20 dBm
Atten 20 dB
0.018 dBm
#Avg
Log
10
dB/
Offst
11.4
dB
#Avg
100
Marker
5.711200000 GHz
0.018 dBm
Center 5.710 00 GHz
Span 50 MHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 1 ms (1001 pts)

[IEEE802.11ac (HT80)]
(5.2 GHz Band)
Channel: 42

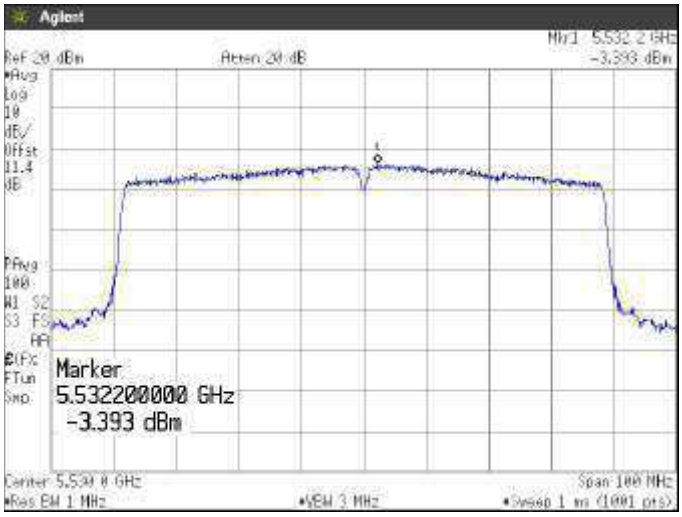


(5.3 GHz Band)
Channel: 58

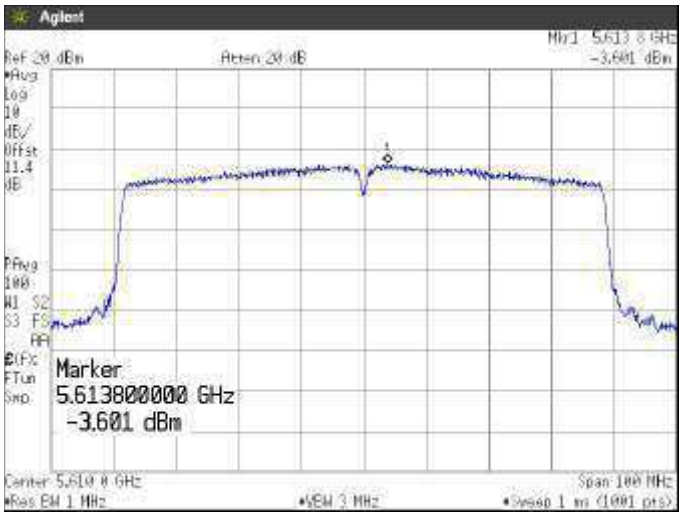


(5.6 GHz Band)

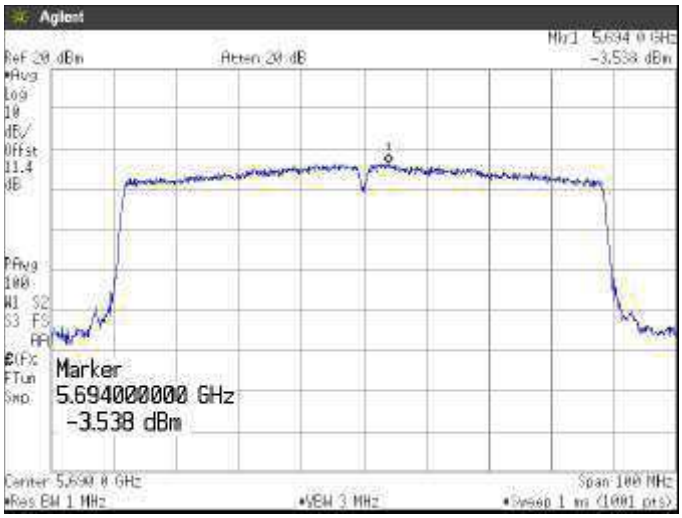
Channel: 106



Channel: 122



Channel: 138



4.4 Radiated Emissions (Restricted Bands of Operation)

4.4.1 Measurement procedure

[FCC 15.407(b), 15.205, 15.209, KDB 789033 D02, Section G.4, 5, 6.c)Method AD]

Test was applied by following conditions.

Test method	:	ANSI C63.10
Frequency range	:	9 kHz to 40 GHz
Test place	:	3m Semi-anechoic chamber
EUT was placed on	:	Styrofoam table / (W) 1.0 × (D) 1.0 ×(H) 0.8 m (below 1 GHz) Styrofoam table / (W) 0.6 × (D) 0.6 ×(H) 1.5 m (above 1 GHz)
Antenna distance	:	3m
Test receiver setting		Below 1 GHz
- Detector	:	Quasi-peak
- Bandwidth	:	120 kHz
Spectrum analyzer setting		Above 1 GHz
- Peak	:	RBW=1 MHz, VBW=3 MHz, Span=0 Hz, Sweep=auto, Detector=Peak Trace mode=Max hold
- Average	:	RBW=1 MHz, VBW=3 MHz, Span=0 Hz, Sweep=auto, Detector=RMS Trace mode=Averaging(300 counts)

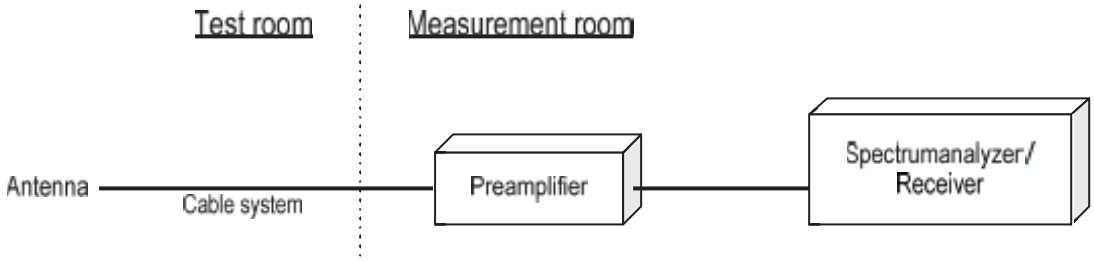
Radiated emission measurements are performed at 3m distance with the broadband antenna (Loop antenna, Biconical antenna, Log periodic antenna, Double ridged guide antenna and Bload-band horn Antenna). The antenna is positioned both the horizontal and vertical planes of polarization and height is varied 1m to 4m and stopped at height producing the maximum emission. As for the Loop antenna, it is positioned with its plane vertical, and the center of the Loop antenna is 1m above the ground plane.

The EUT is Placed on a turntable, which is 0.8m (below 1 GHz) and 1.5m (above 1 GHz) above ground plane. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. The test results represent the worst case emission for each emission with manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation. Sufficient time for the EUT, support equipment, and test equipment are allowed in order for them to warm up to their normal operating condition.

The EUT was set to operate with following conditions.
- 5.2 GHz Band, 5.3 GHz Band, 5.6 GHz Band

The test mode of EUT is as follows.
- Tx mode, Rx mode

- Test configuration



Duty cycle result

Mode	Band	On Time(ms)	On+Off Time(ms)	Duty Cycle (%)	DCF (dB)
802.11a	W52	1.390	1.436	96.80	0.141
	W53	1.392	1.438	96.80	0.141
	W56	1.390	1.436	96.80	0.141
802.11n (20MHz)	W52	1.288	1.332	96.70	0.146
	W53	1.286	1.332	96.55	0.153
	W56	1.288	1.332	96.70	0.146
802.11n (40MHz)	W52	0.636	0.680	93.53	0.291
	W53	0.636	0.680	93.53	0.291
	W56	0.635	0.681	93.25	0.304
802.11ac (80MHz)	W52	0.323	0.458	70.56	1.514
	W53	0.324	0.447	72.45	1.400
	W56	0.322	0.458	70.45	1.521

Note: DCF = 10log(1/x)

4.4.2 Calculation method

[150 kHz to 25 GHz]
Emission level = Reading + (Ant. factor + Cable system loss - Amp. Gain)
Margin = Limit - Emission level

Example:
Detector: Peak
Limit @ 5147.0 MHz: 74.0 dBuV/m (Peak Limit)
S.A Reading = 40.9 dBuV Cable system loss = 16.4 dB
Result = 40.9 + 16.4 = 57.3 dBuV/m
Margin = 74.0 - 57.3 = 16.7 dB

4.4.3 Limit

(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 EIRP 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 EIRP of -27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725GHz band: all emissions outside of the 5.47 5-5.725 GHz band shall not exceed an EIRP 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 EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.

Frequency [MHz]	Field strength		Distance [m]
	[uV/m]	[dBuV/m]	
0.009-0.490	2400 / F [kHz]	20logE [uV/m]	300
0.490-1.705	24000 / F [kHz]	20logE [uV/m]	30
1.705-30	30	29.5	30
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

Note:
1. The lower limit shall apply at the transition frequencies.
2. Emission level [dBuV/m] = 20log Emission [uV/m]
3. As shown in 15.35(b), for frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition modulation.

4.4.4 Test data

Date	:	21-August-2020			
Temperature	:	21.4 [℃]			
Humidity	:	69.5 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

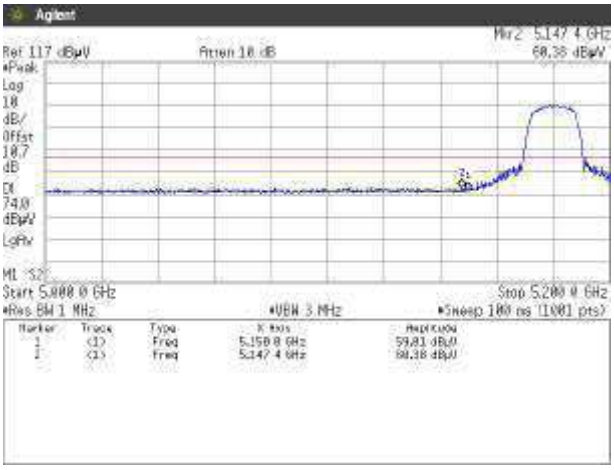
Date	:	26-August-2020			
Temperature	:	22.3 [℃]			
Humidity	:	68.8 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	1-September-2020			
Temperature	:	22.8 [℃]			
Humidity	:	66.4 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

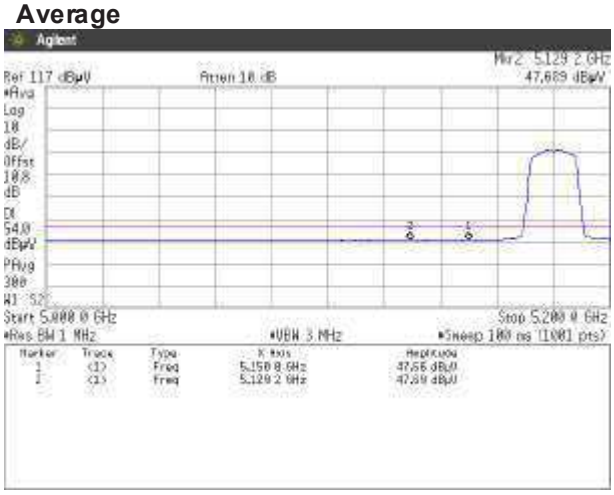
4.4.4.1 Restricted Bandedge

[IEEE802.11a]

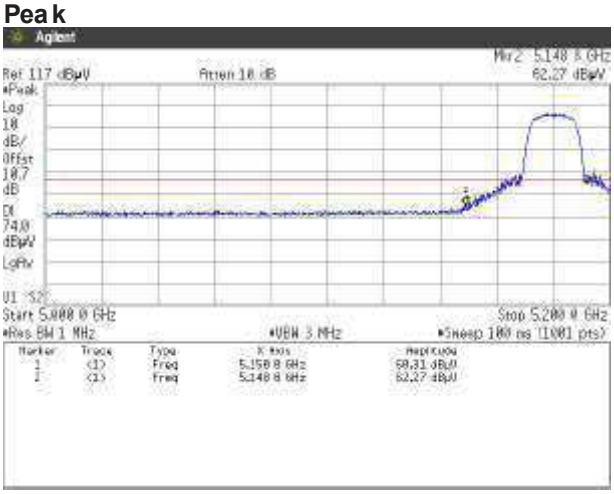
5.2 GHz Band, Channel Low
Horizontal
Peak



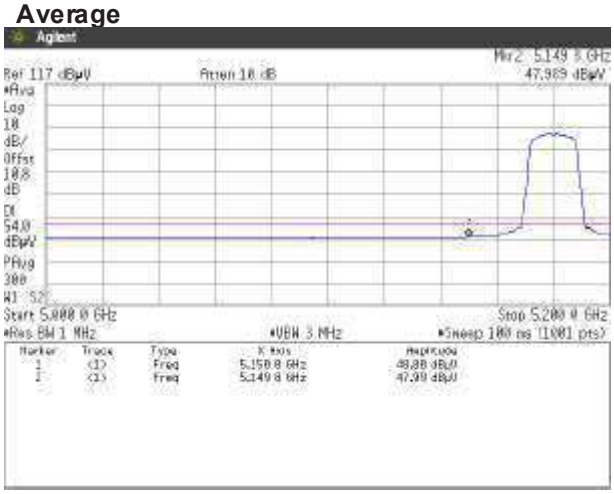
Average



Vertical
Peak

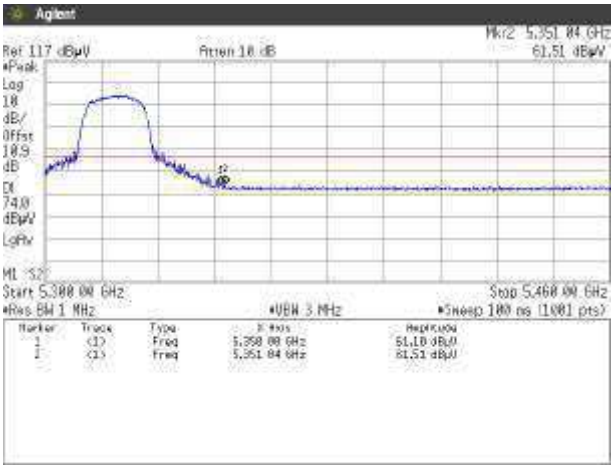


Average

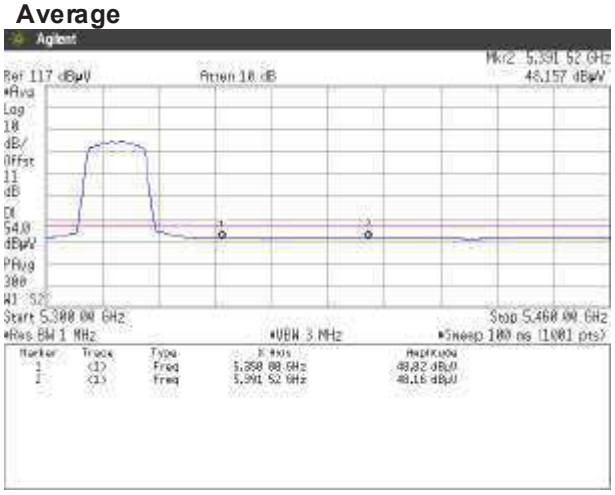


[IEEE 802.11a]

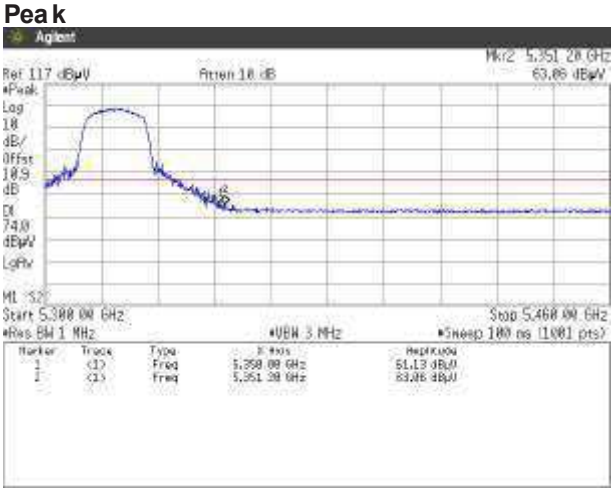
5.3 GHz Band, Channel High
Horizontal
Peak



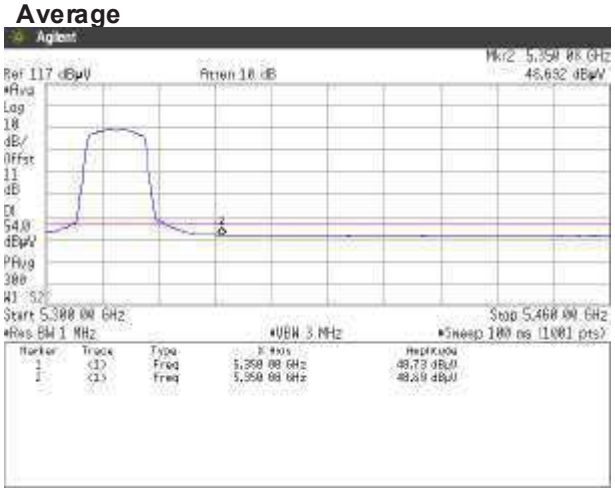
Average



Vertical
Peak

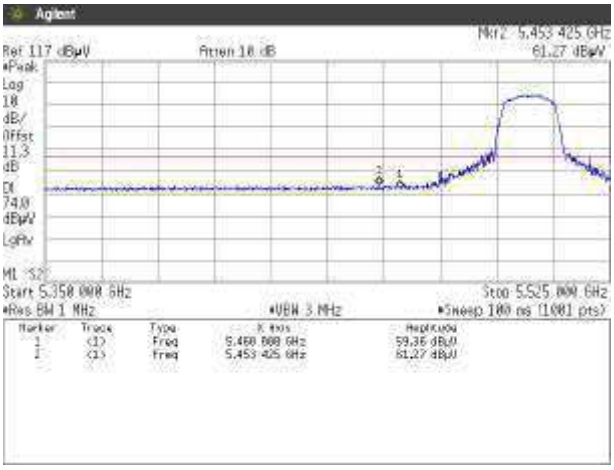


Average

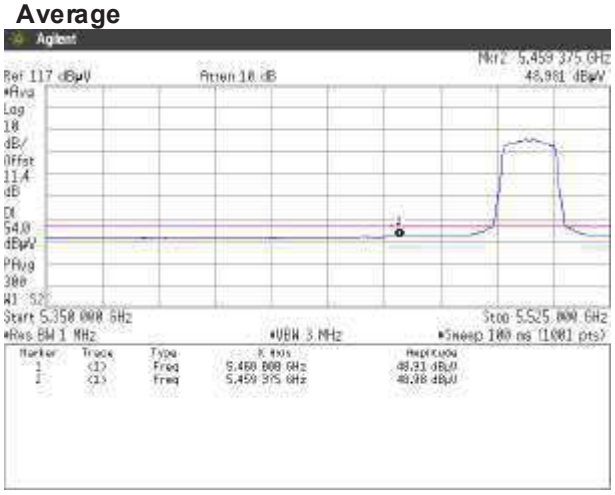


[IEEE 802.11a]

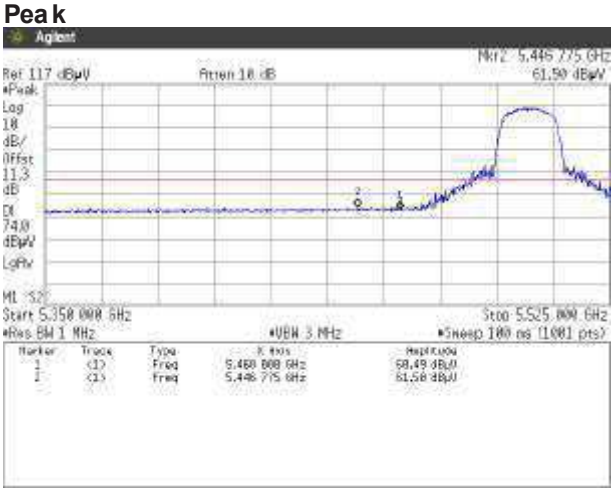
5.6 GHz Band, Channel Low
Horizontal
Peak



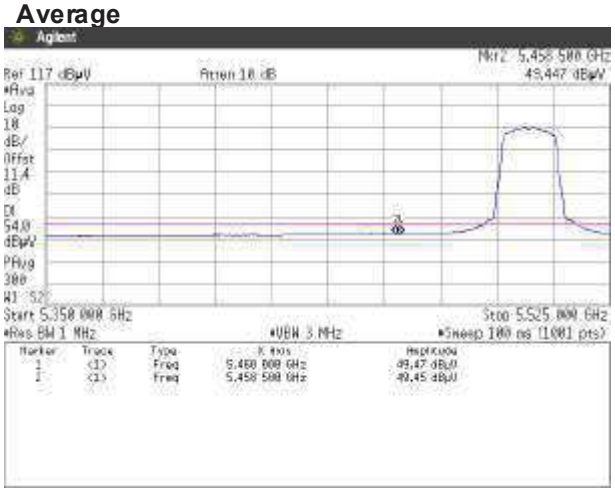
Average



Vertical
Peak

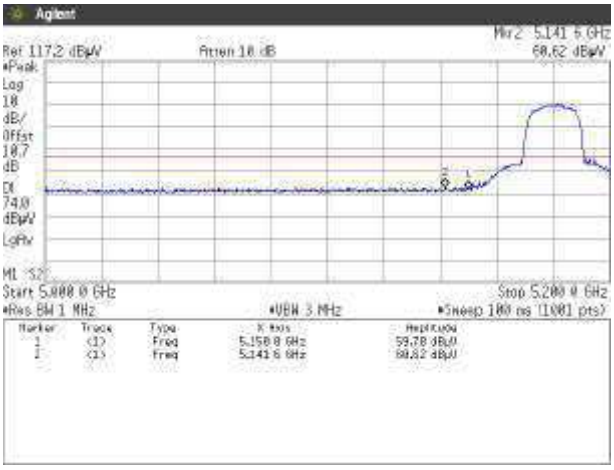


Average

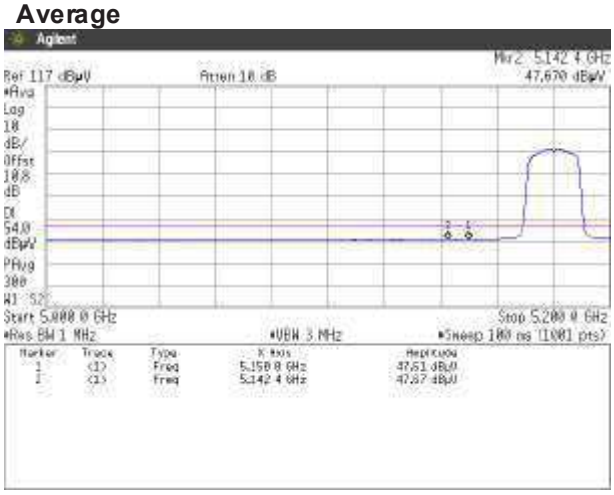


[IEEE 802.11n (HT20)]

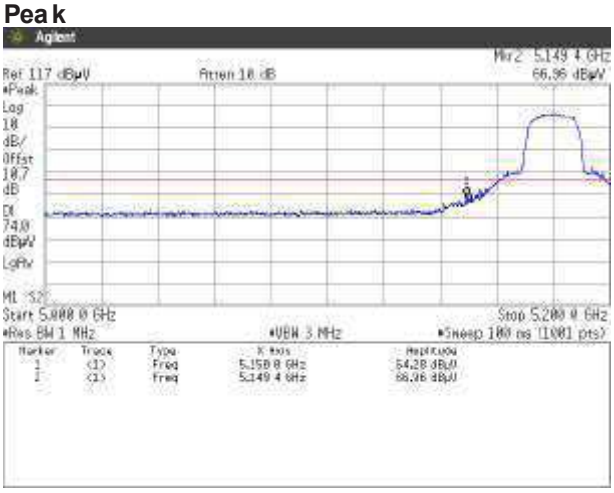
5.2 GHz Band, Channel Low
Horizontal
Peak



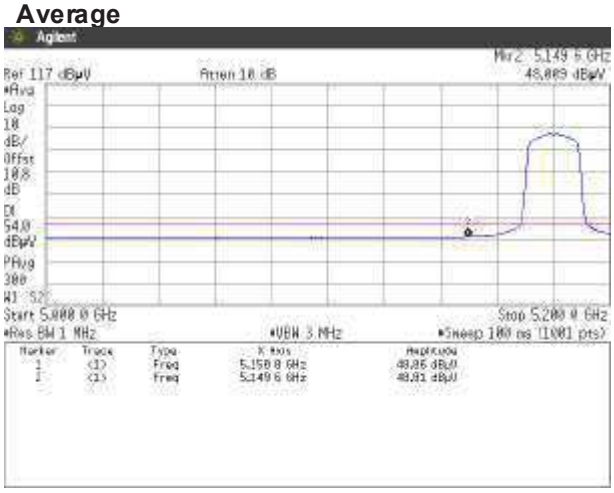
Average



Vertical
Peak

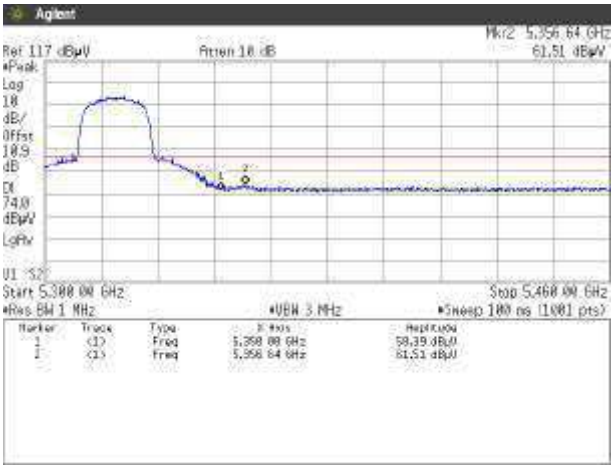


Average

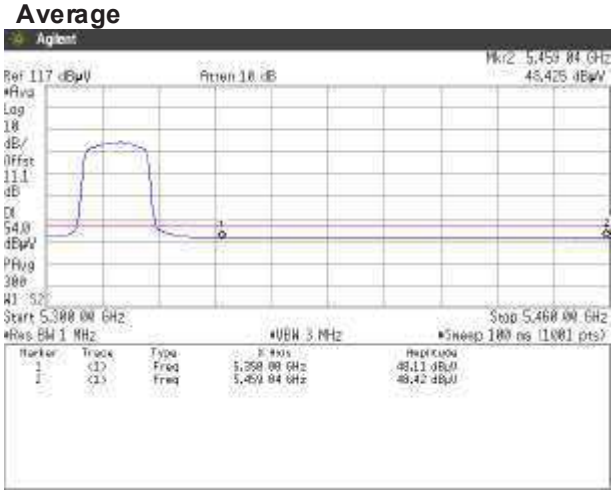


[IEEE 802.11n (HT20)]

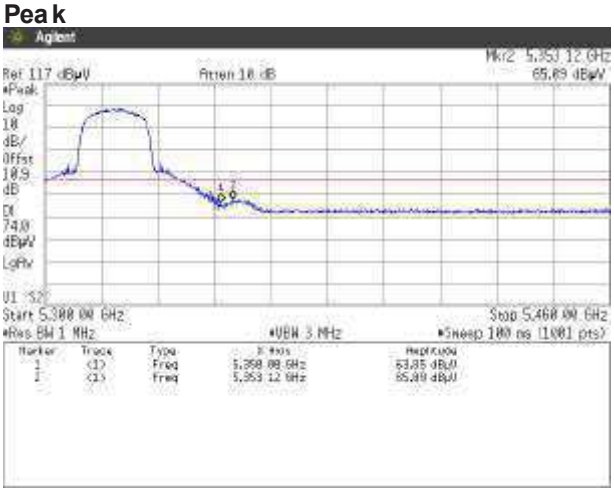
5.3 GHz Band, Channel High
Horizontal
Peak



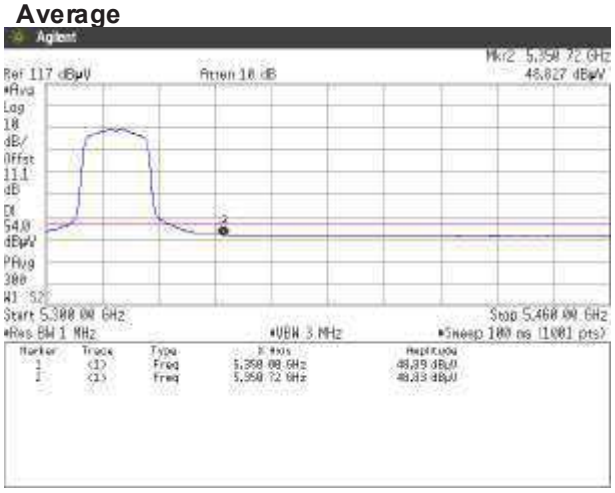
Average



Vertical
Peak

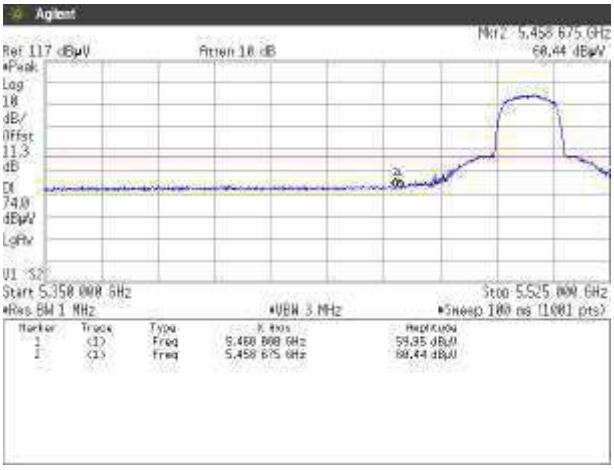


Average

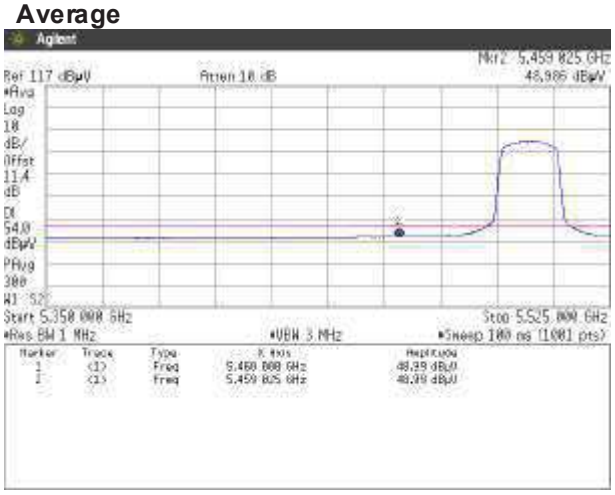


[IEEE 802.11n (HT20)]

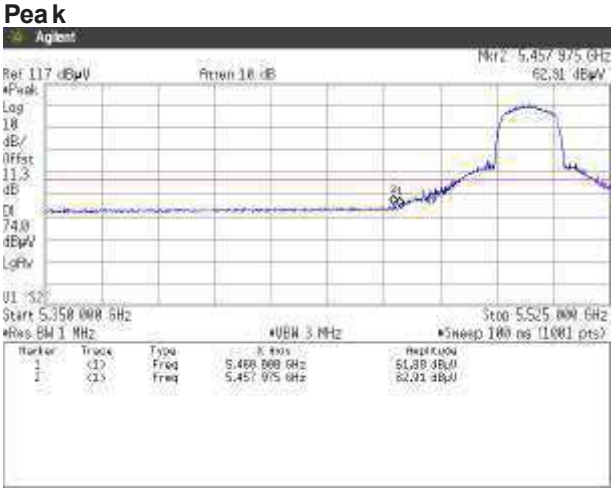
5.6 GHz Band, Channel Low
Horizontal
Peak



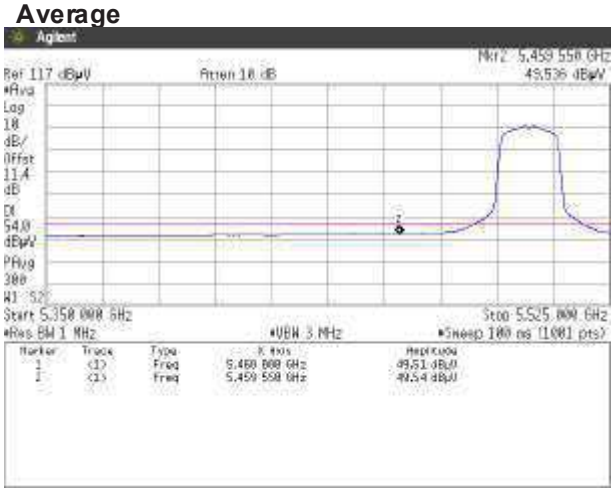
Average



Vertical
Peak

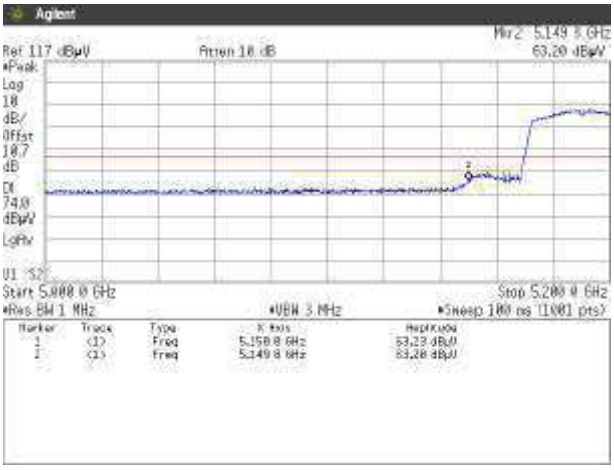


Average

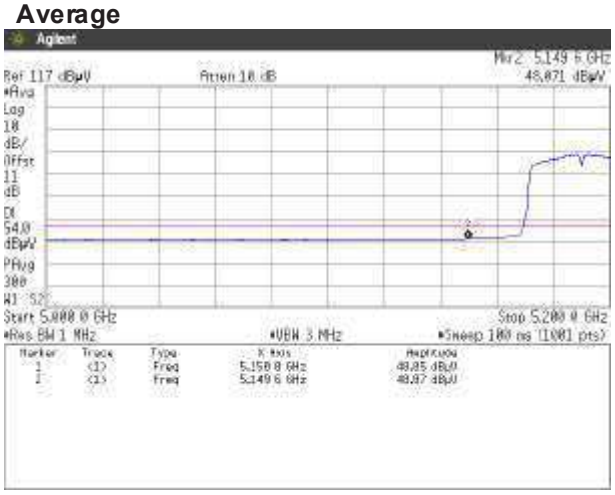


[IEEE802.11n (HT40)]

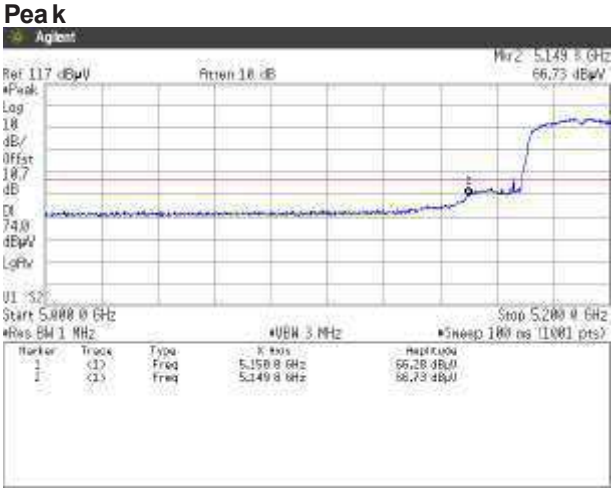
5.2 GHz Band, Channel Low
Horizontal
Peak



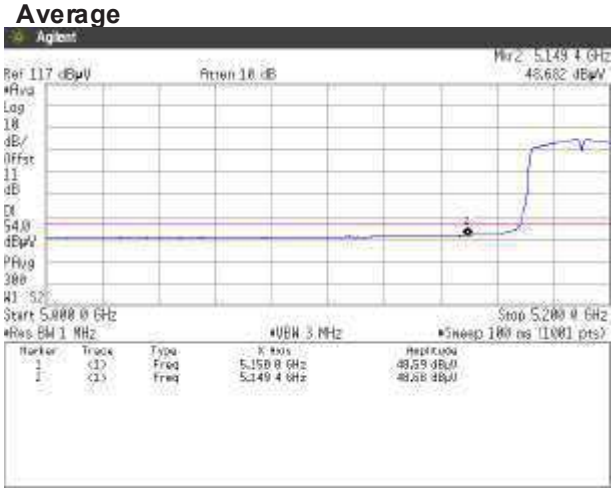
Average



Vertical
Peak

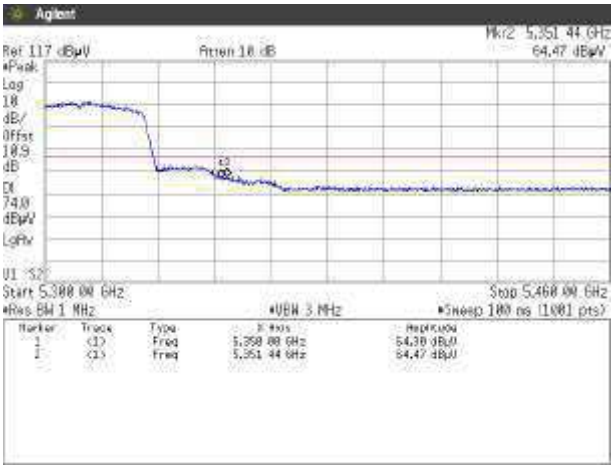


Average

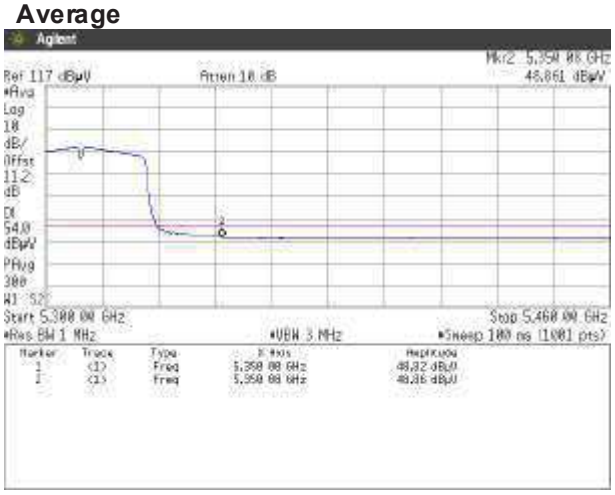


[IEEE802.11n (HT40)]

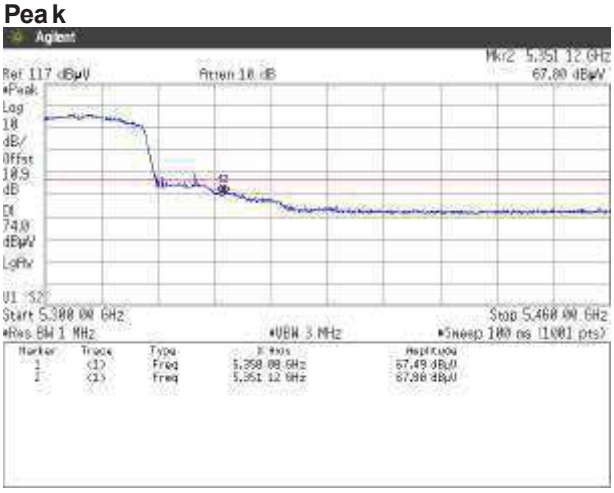
5.3 GHz Band, Channel High
Horizontal
Peak



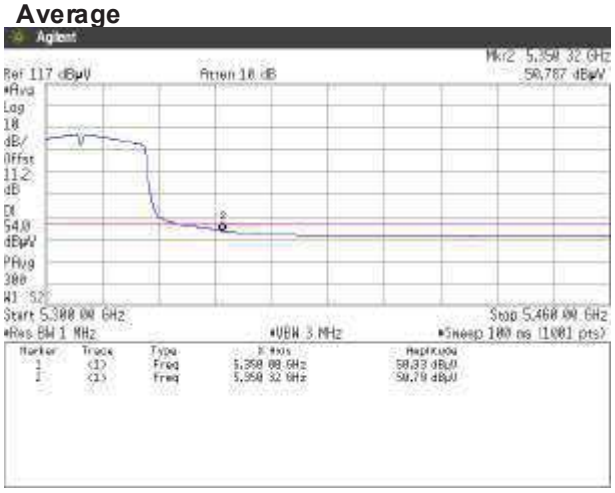
Average



Vertical
Peak

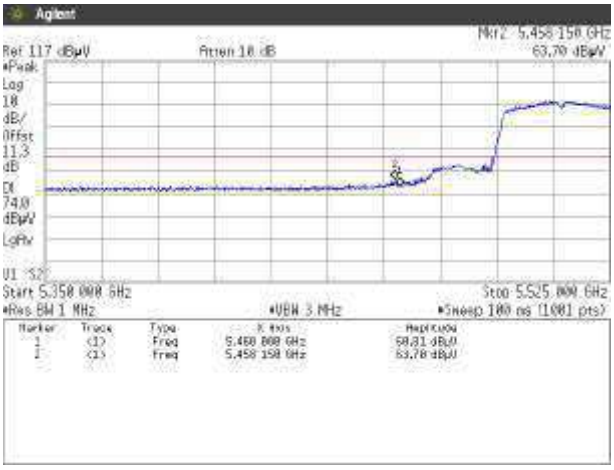


Average

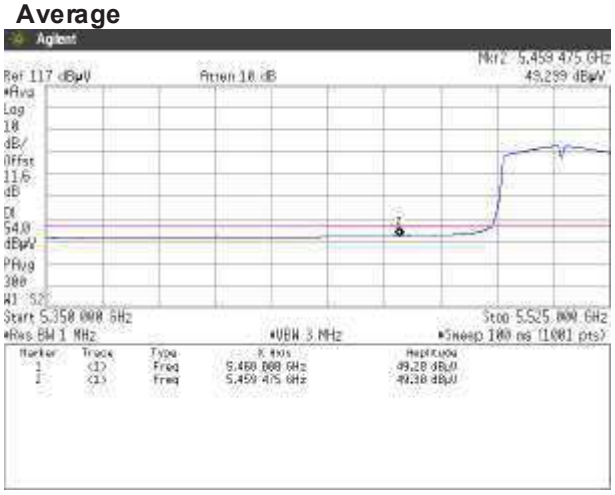


[IEEE802.11n (HT40)]

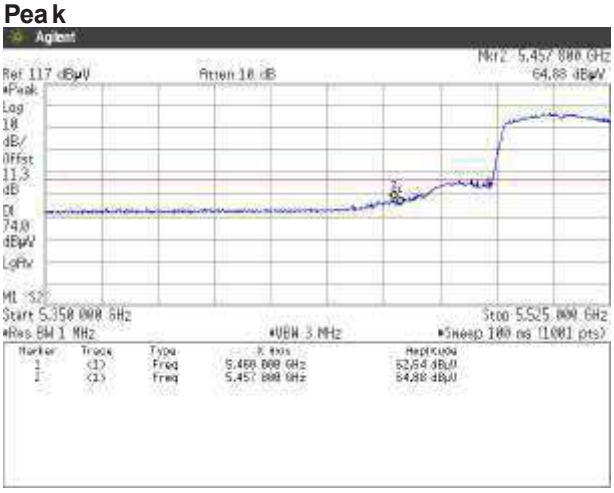
5.6 GHz Band, Channel Low
Horizontal
Peak



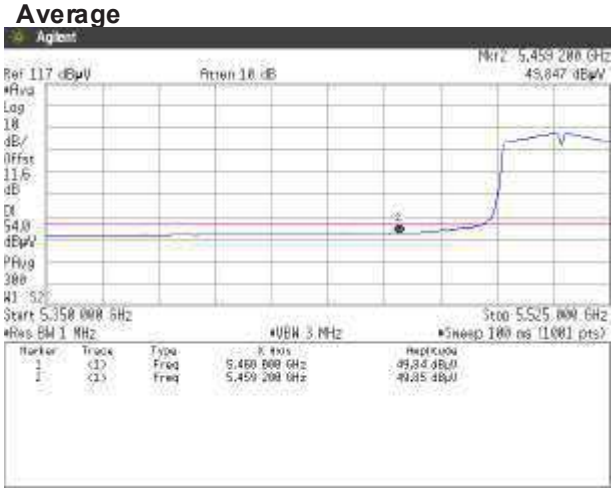
Average



Vertical
Peak

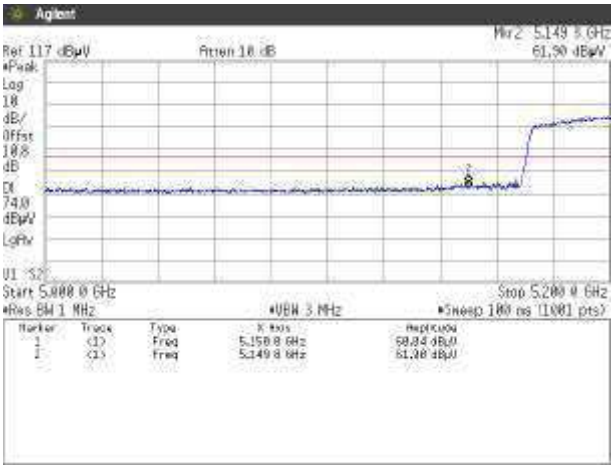


Average

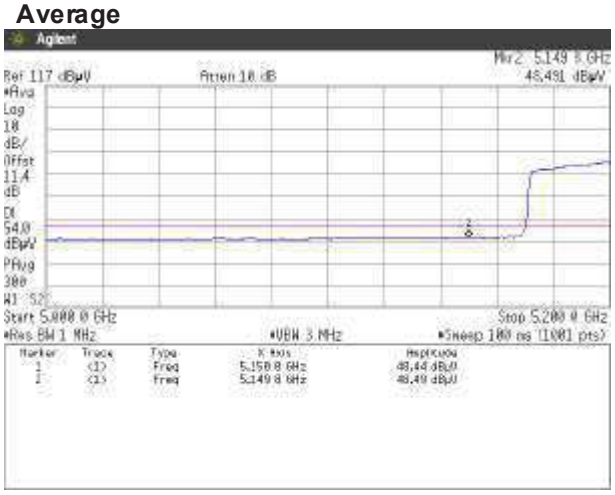


[IEEE802.11ac (VHT80)]

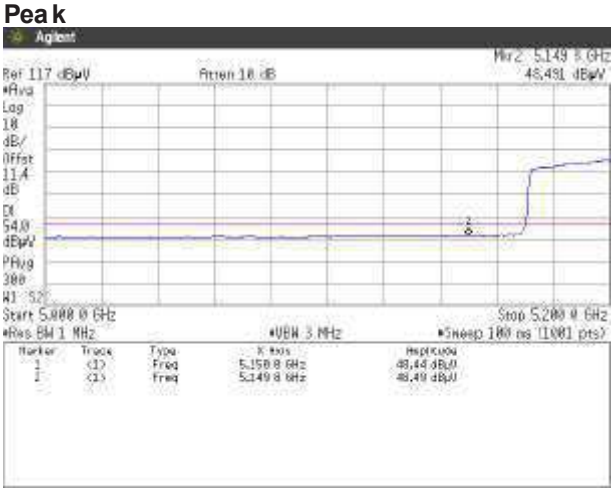
5.2 GHz Band, Channel Low
Horizontal
Peak



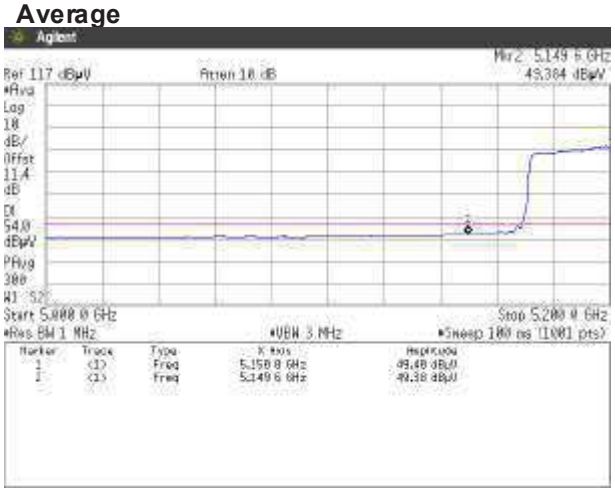
Average



Vertical
Peak

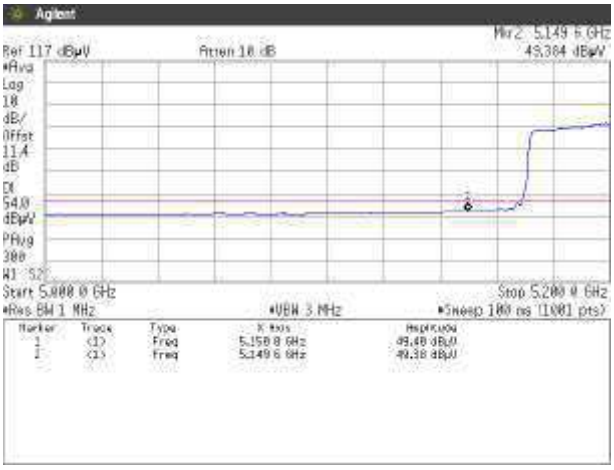


Average

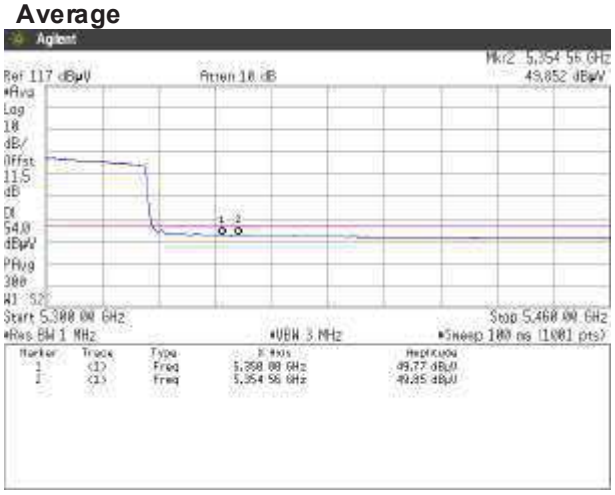


[IEEE802.11ac (VHT80)]

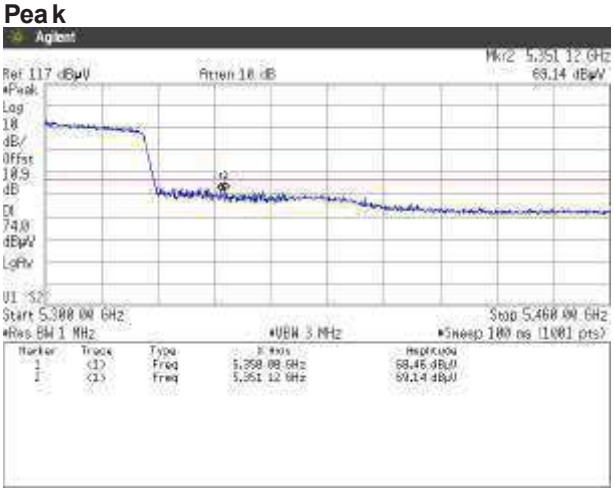
5.3 GHz Band, Channel High
Horizontal
Peak



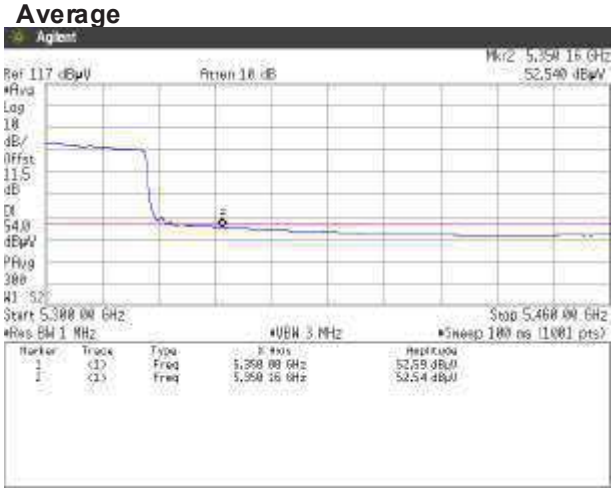
Average



Vertical
Peak

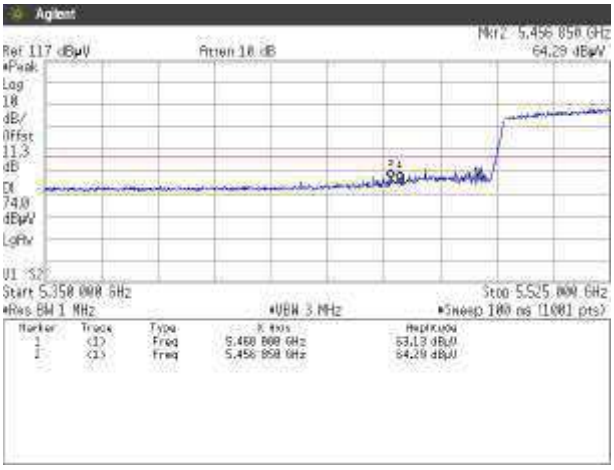


Average

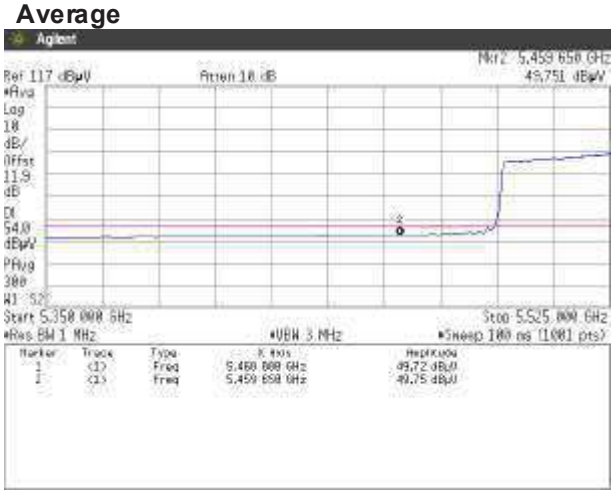


[IEEE802.11ac (VHT80)]

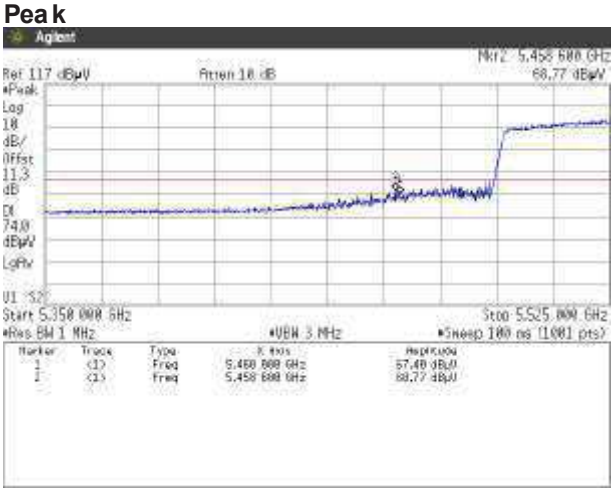
5.6 GHz Band, Channel Low
Horizontal
Peak



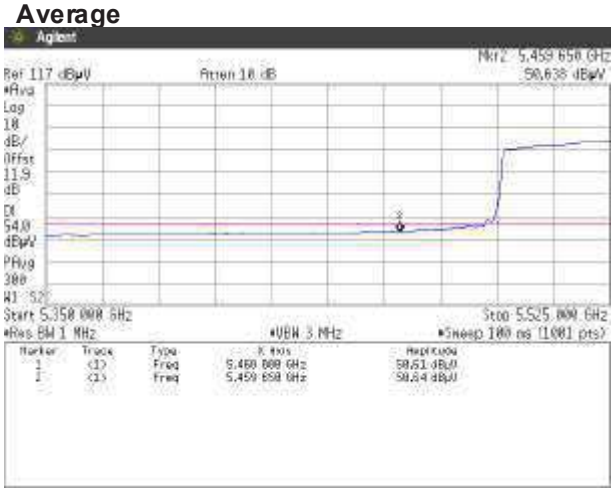
Average



Vertical
Peak



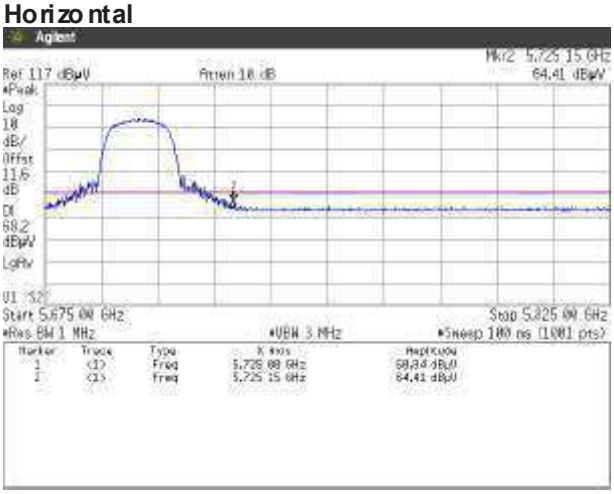
Average



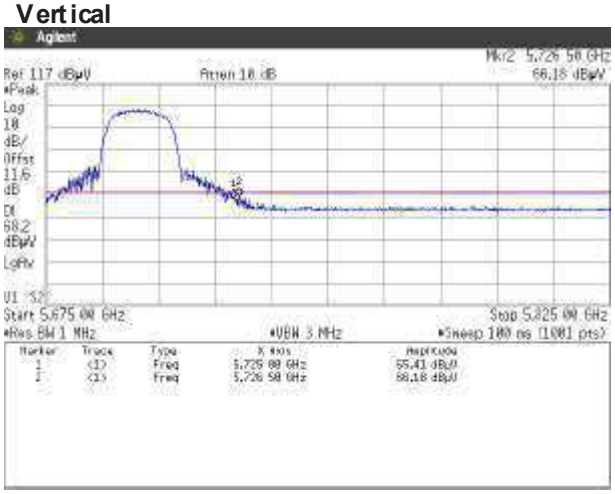
4.4.4.2 Non-Restricted Bandedge

[IEEE802.11a]

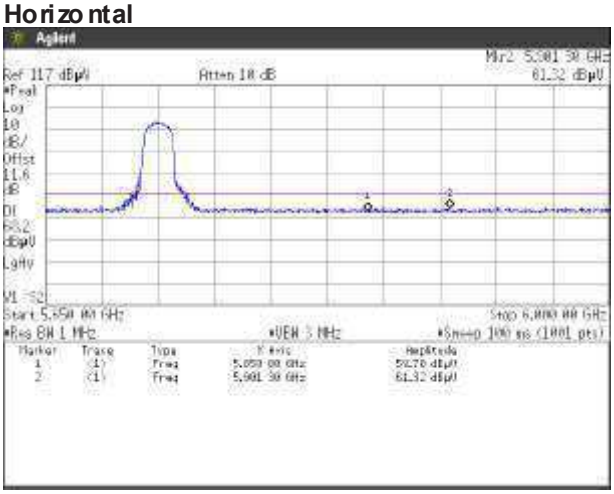
5.6 GHz Band, Channel High (140)
Peak
Horizontal



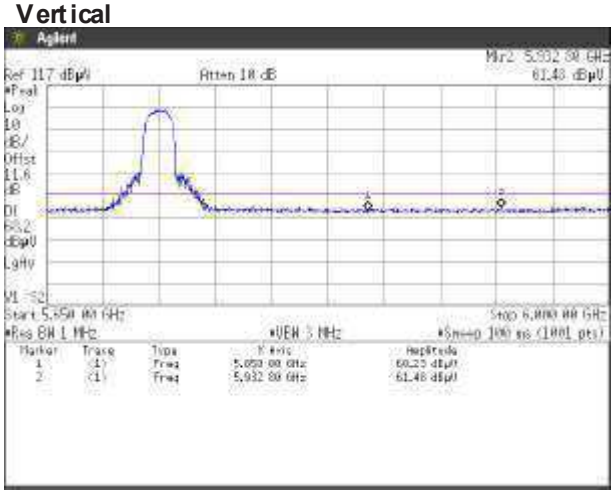
Vertical



5.6 GHz Band, Channel High (144)
Peak
Horizontal

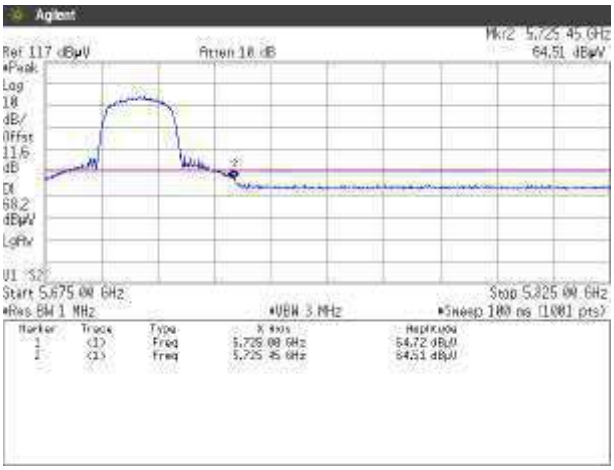


Vertical

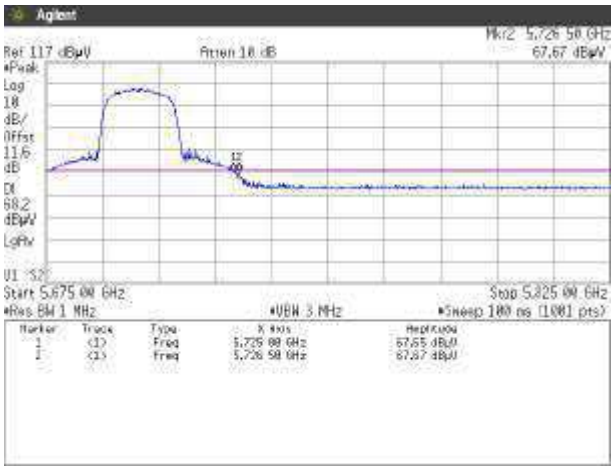


[IEEE 802.11n (HT20)]

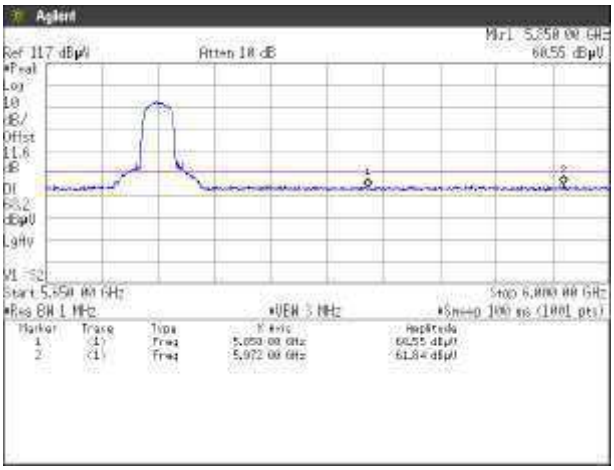
5.6GHz Band, Channel High (140)
Peak
Horizontal



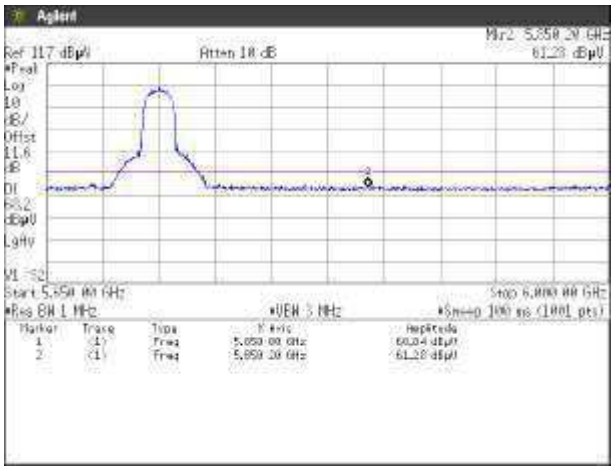
Vertical



5.6GHz Band, Channel High (144)
Peak
Horizontal

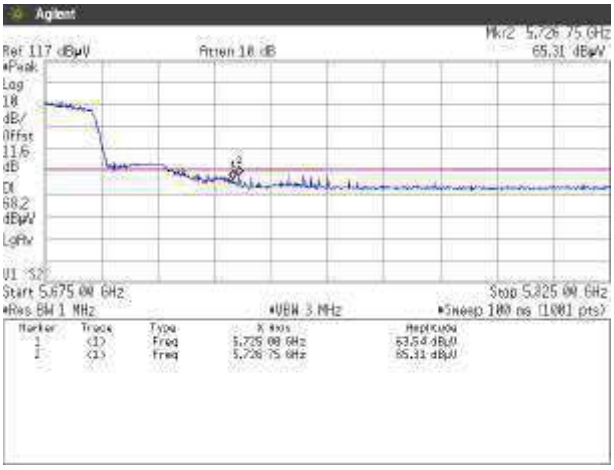


Vertical

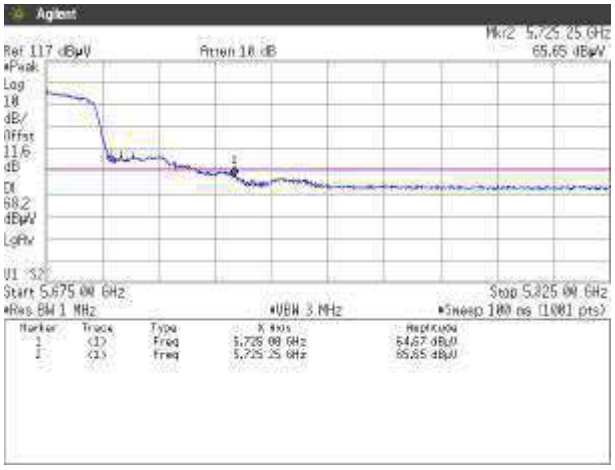


[IEEE802.11n (HT40)]

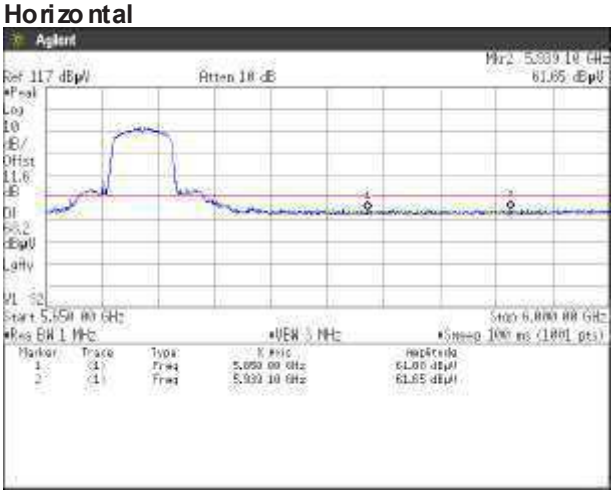
5.6GHz Band, Channel High (134)
Peak
Horizontal



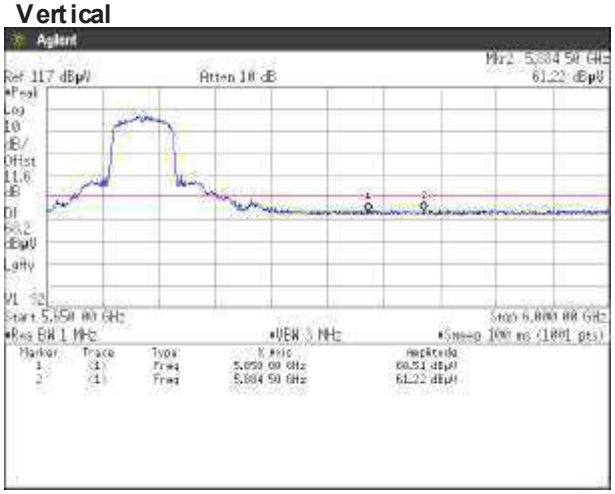
Vertical



5.6GHz Band, Channel High (142)
Peak
Horizontal

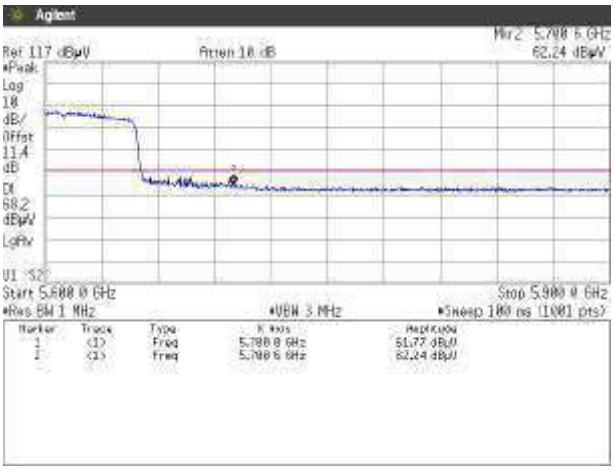


Vertical

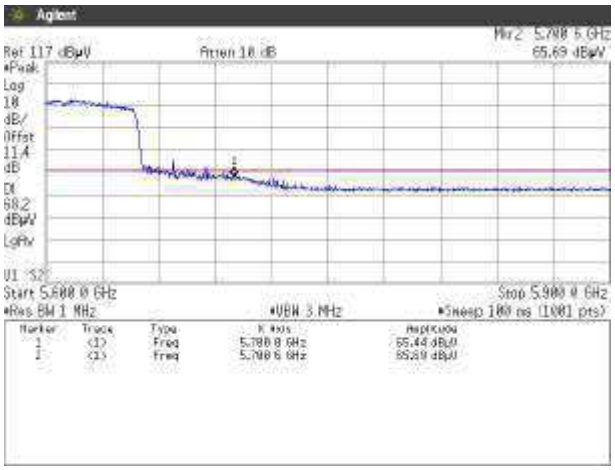


[IEEE802.11ac (VHT80)]

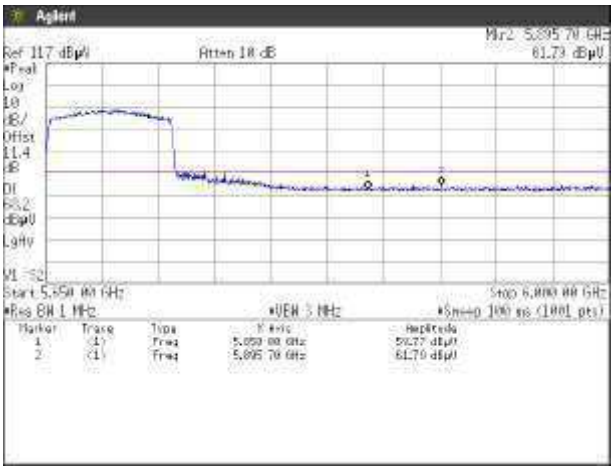
5.6GHz Band, Channel High (122)
Peak
Horizontal



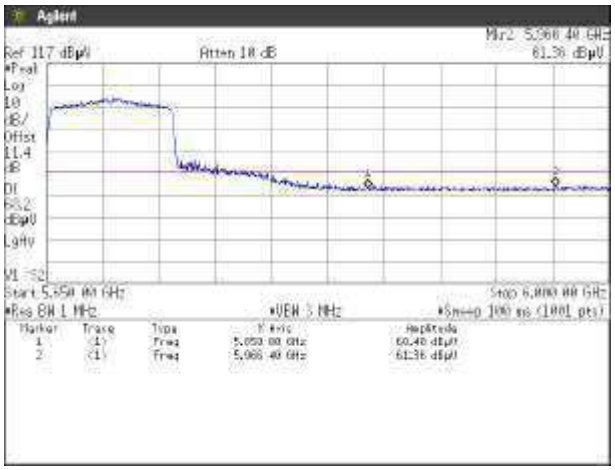
Vertical



5.6GHz Band, Channel High (138)
Peak
Horizontal



Vertical



4.4.4.3 Radiated Emissions

Date	:	7-August-2020			
Temperature	:	22.4 [℃]			
Humidity	:	64.7 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	11-August-2020			
Temperature	:	22.4 [℃]			
Humidity	:	64.7 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	12-August-2020			
Temperature	:	20.1 [℃]			
Humidity	:	68.1 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	17~18-August-2020			
Temperature	:	21.8 [℃]			
Humidity	:	68.8 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	21-August-2020			
Temperature	:	21.4 [℃]			
Humidity	:	69.5 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	26-August-2020			
Temperature	:	22.3 [℃]			
Humidity	:	64.9 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	27-August-2020			
Temperature	:	22.3 [℃]			
Humidity	:	68.8 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	27~28-June-2020			
Temperature	:	21.4 [℃]			
Humidity	:	69.5 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	28~29-June-2020			
Temperature	:	20.6 [℃]			
Humidity	:	69.7 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	1-September-2020			
Temperature	:	22.8 [℃]			
Humidity	:	66.4 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	2-September-2020			
Temperature	:	20.9 [℃]			
Humidity	:	69.1 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Japan

[IEEE 802.11a]
(5.2 GHz Band)

Mode	Channel	Frequency (MHz)	Frequency (MHz)	ANT H/V	Detector PK/AV	Reading (dBµV)	C.F (dB)	DCF (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
802.11a	36	5180	10360.00	V	PK	45.8	10.6		56.4	68.2	11.8
	40	5200	10400.00	V	PK	44.8	10.7		55.5	68.2	12.7
	48	5240	10480.00	V	PK	44.5	10.9		55.4	68.2	12.8

(5.3 GHz Band)

Mode	Channel	Frequency (MHz)	Frequency (MHz)	ANT H/V	Detector PK/AV	Reading (dBµV)	C.F (dB)	DCF (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
802.11a	52	5260	10520.00	V	PK	44.9	10.9		55.8	68.2	12.4
	56	5280	10560.00	V	PK	45.4	11.0		56.4	68.2	11.8
	64	5320	10640.00	V	PK	45.4	11.2		56.6	74.0	17.4
			10640.00	V	AV	32.8	11.2	0.141	44.1	54.0	9.9

(5.6 GHz Band)

Mode	Channel	Frequency (MHz)	Frequency (MHz)	ANT H/V	Detector PK/AV	Reading (dBµV)	C.F (dB)	DCF (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
802.11a	100	5500	5464.90	H	PK	49.7	11.3		61.0	68.2	7.2
			5468.50	V	PK	50.3	11.3		61.6	68.2	6.6
			11000.00	V	PK	45.1	11.9		57.0	74.0	17.0
			11000.00	V	AV	31.9	11.9	0.141	43.9	54.0	10.1
	116	5580	11160.00	V	PK	45.4	12.0		57.4	74.0	16.6
			11160.00	V	AV	32.3	12.0	0.141	44.4	54.0	9.6
	140	5700	11400.00	V	PK	45.0	12.1		57.1	74.0	16.9
			11400.00	V	AV	32.4	12.1	0.141	44.6	54.0	9.4
	144	5720	11440.00	V	PK	45.3	12.1		57.4	74.0	16.6
			11440.00	V	AV	32.5	12.1	0.141	44.7	54.0	9.3

Note:
1. Emission Level (Margin) = Limit - [Reading + C.F (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 30 MHz to 1000 MHz at the 3 meters distance.
3. No emission was detected in the receive mode.

[IEEE 802.11n (HT20)]
(5.2 GHz Band)

Mode	Channel	Frequency (MHz)	Frequency (MHz)	ANT H/V	Detector PK/AV	Reading (dBµV)	C.F (dB)	DCF (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
802.11n (20MHz)	36	5180	10360.00	V	PK	45.4	10.6		56.0	68.2	12.2
	40	5200	10400.00	V	PK	45.8	10.7		56.5	68.2	11.7
	48	5240	10480.00	V	PK	45.5	10.9		56.4	68.2	11.8

(5.3 GHz Band)

Mode	Channel	Frequency (MHz)	Frequency (MHz)	ANT H/V	Detector PK/AV	Reading (dBµV)	C.F (dB)	DCF (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
802.11n (20MHz)	52	5260	10520.00	V	PK	44.9	10.9		55.8	68.2	12.4
	56	5280	10560.00	V	PK	45.1	11.0		56.1	68.2	12.1
	64	5320	10640.00	V	PK	45.7	11.2		56.9	74.0	17.1
			10640.00	V	AV	32.8	11.2	0.153	44.2	54.0	9.8

(5.6 GHz Band)

Mode	Channel	Frequency (MHz)	Frequency (MHz)	ANT H/V	Detector PK/AV	Reading (dBµV)	C.F (dB)	DCF (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
802.11n (20MHz)	100	5500	5469.90	H	PK	52.2	11.3		63.5	68.2	4.7
			5484.70	V	PK	53.4	11.3		64.7	68.2	3.5
			11000.00	V	PK	44.7	11.9		56.6	74.0	17.4
			11000.00	V	AV	32.1	11.9	0.146	44.1	54.0	9.9
	116	5580	11160.00	V	PK	45.1	12.0		57.1	74.0	16.9
			11160.00	V	AV	32.3	12.0	0.146	44.4	54.0	9.6
	140	5700	11400.00	V	PK	45.2	12.1		57.3	74.0	16.7
			11400.00	V	AV	32.2	12.1	0.146	44.4	54.0	9.6
	144	5720	11440.00	V	PK	45.8	12.2		58.0	74.0	16.0
			11440.00	V	AV	32.5	12.2	0.146	44.8	54.0	9.2

Note:
1. Emission Level (Margin) = Limit - [Reading + C.F (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 30 MHz to 1000 MHz at the 3 meters distance.
3. No emission was detected in the receive mode.

Japan

[IEEE802.11n (HT40)]

(5.2 GHz Band)

Mode	Channel	Frequency (MHz)	Frequency (MHz)	ANT H/V	Detector PK/AV	Reading (dBµV)	C.F (dB)	DCF (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
802.11n (40MHz)	38	5190	10380.00	V	PK	45.6	10.7		56.3	68.2	11.9
	46	5230	10460.00	V	PK	44.7	10.8		55.5	68.2	12.7

(5.3 GHz Band)

Mode	Channel	Frequency (MHz)	Frequency (MHz)	ANT H/V	Detector PK/AV	Reading (dBµV)	C.F (dB)	DCF (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
802.11n (40MHz)	54	5270	10540.00	V	PK	45.2	11.0		56.2	68.2	12.0
	62	5310	10620.00	V	PK	45.2	11.2		56.4	74.0	17.6
			10620.00	V	AV	32.4	11.2	0.291	43.9	54.0	10.1

(5.6 GHz Band)

Mode	Channel	Frequency (MHz)	Frequency (MHz)	ANT H/V	Detector PK/AV	Reading (dBµV)	C.F (dB)	DCF (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
802.11n (40MHz)	102	5510	5467.90	H	PK	52.8	11.3		64.1	68.2	4.1
			5469.70	V	PK	55.9	11.3		67.2	68.2	1.0
			11020.00	V	PK	44.5	11.9		56.4	74.0	17.6
			11020.00	V	AV	32.1	11.9	0.304	44.3	54.0	9.7
	110	5550	11100.00	V	PK	45.1	11.9		57.0	74.0	17.0
			11100.00	V	AV	32.1	11.9	0.304	44.3	54.0	9.7
	134	5670	11340.00	V	PK	45.1	12.0		57.1	74.0	16.9
			11340.00	V	AV	32.4	12.0	0.304	44.7	54.0	9.3
	142	5710	11420.00	V	PK	44.9	12.2		57.1	74.0	16.9
			11420.00	V	AV	32.3	12.2	0.304	44.8	54.0	9.2

Note:
1. Emission Level (Margin) = Limit - [Reading + C.F (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 30 MHz to 1000 MHz at the 3 meters distance.
3. No emission was detected in the receive mode.

[IEEE802.11ac (VHT80)]

(5.2 GHz Band)

Mode	Channel	Frequency (MHz)	Frequency (MHz)	ANT H/V	Detector PK/AV	Reading (dBµV)	C.F (dB)	DCF (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
802.11ac (80MHz)	42	5210	10420.00	V	PK	45.2	10.7		55.9	68.2	12.3

(5.3 GHz Band)

Mode	Channel	Frequency (MHz)	Frequency (MHz)	ANT H/V	Detector PK/AV	Reading (dBµV)	C.F (dB)	DCF (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
802.11ac (80MHz)	58	5290	10580.00	V	PK	44.9	11.0		55.9	68.2	12.3

(5.6 GHz Band)

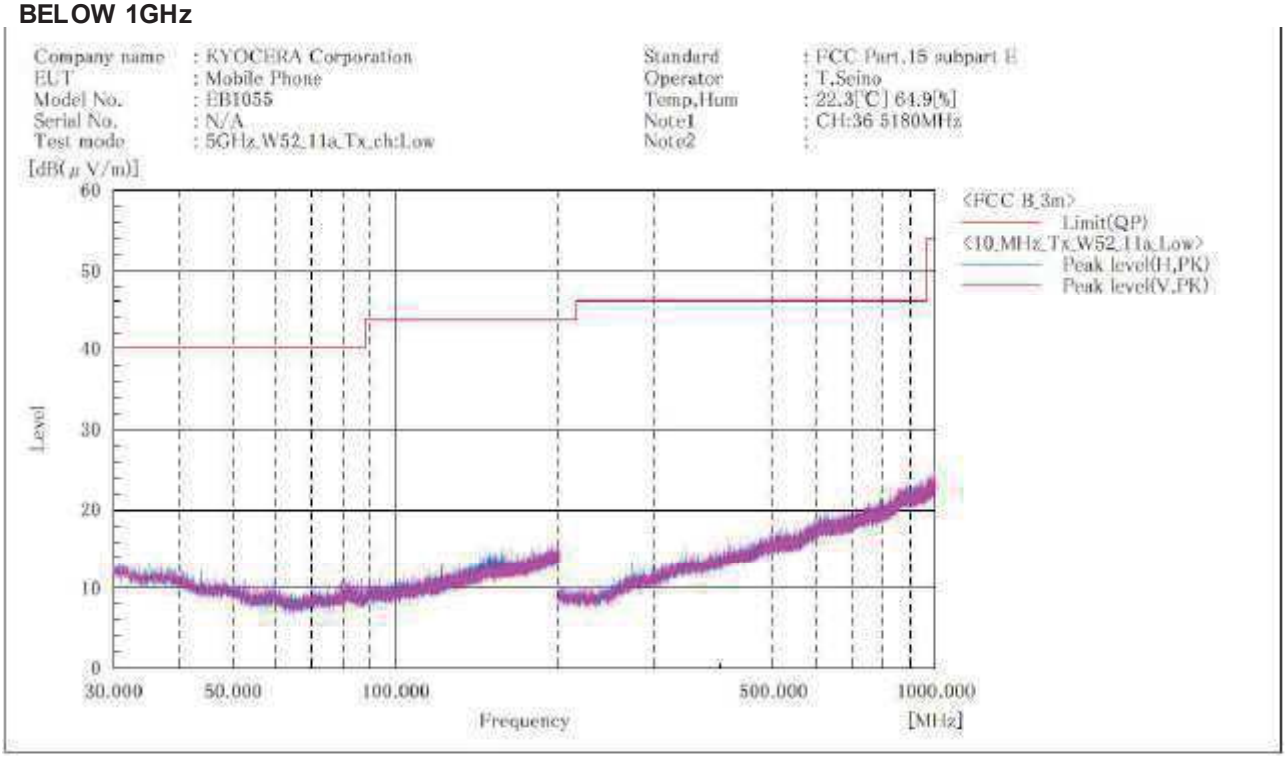
Mode	Channel	Frequency (MHz)	Frequency (MHz)	ANT H/V	Detector PK/AV	Reading (dBµV)	C.F (dB)	DCF (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
802.11ac (80MHz)	106	5530	5468.00	H	PK	49.6	11.3		60.9	68.2	7.3
			5461.70	V	PK	56.0	11.3		67.3	68.2	0.9
			11060.00	V	PK	45.5	11.9		57.4	74.0	16.6
			11060.00	V	AV	32.1	11.9	1.521	45.5	54.0	8.5
	122	5610	11220.00	V	PK	45.8	12.0		57.8	74.0	16.2
			11220.00	V	AV	32.8	12.0	1.465	46.3	54.0	7.7
	138	5690	11380.00	V	PK	45.8	12.2		58.0	74.0	16.0
			11380.00	V	AV	32.5	12.2	1.465	46.2	54.0	7.8

Note:
1. Emission Level (Margin) = Limit - [Reading + C.F (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 30 MHz to 1000 MHz at the 3 meters distance.
3. No emission was detected in the receive mode.

4.4.4.4 Measurement chart

Transmission mode

[11a]
W52 / Channel Low
BELOW 1GHz

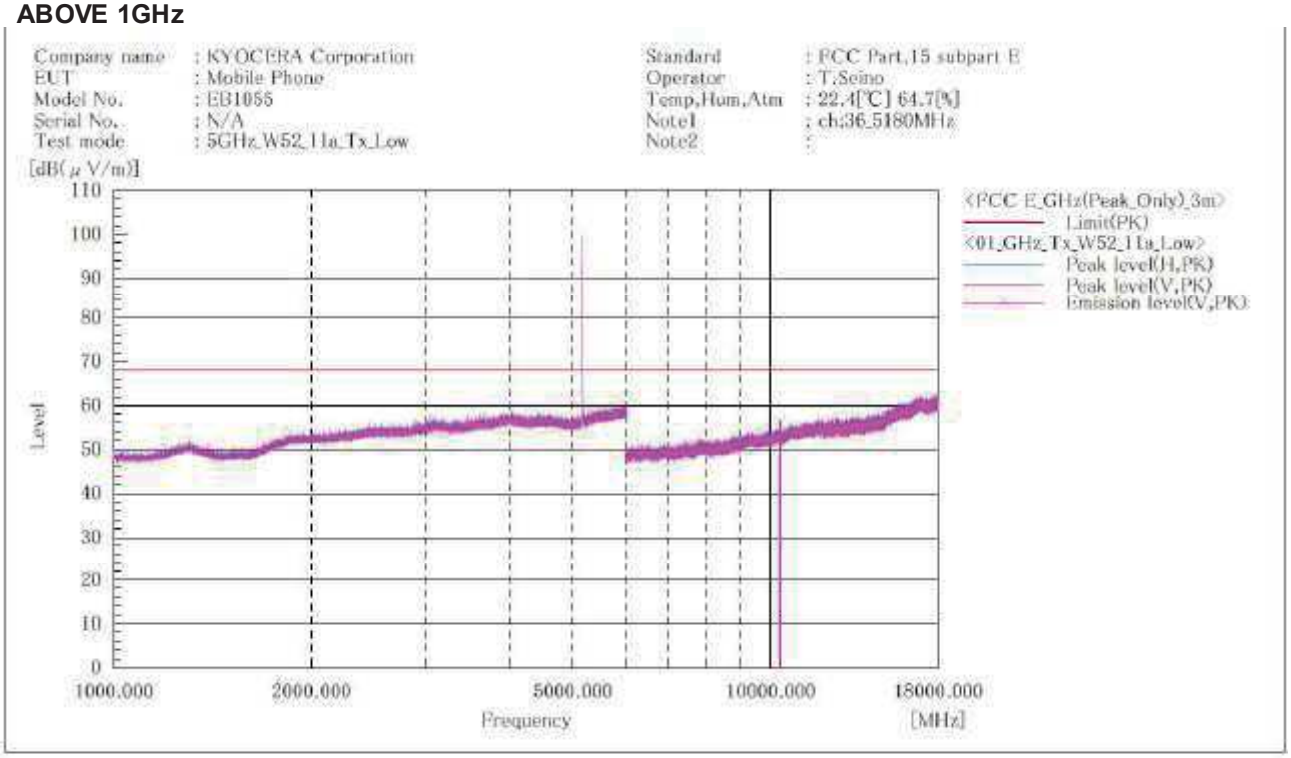


Final Result

No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.

[11a]
W52 / Channel Low
ABOVE 1GHz

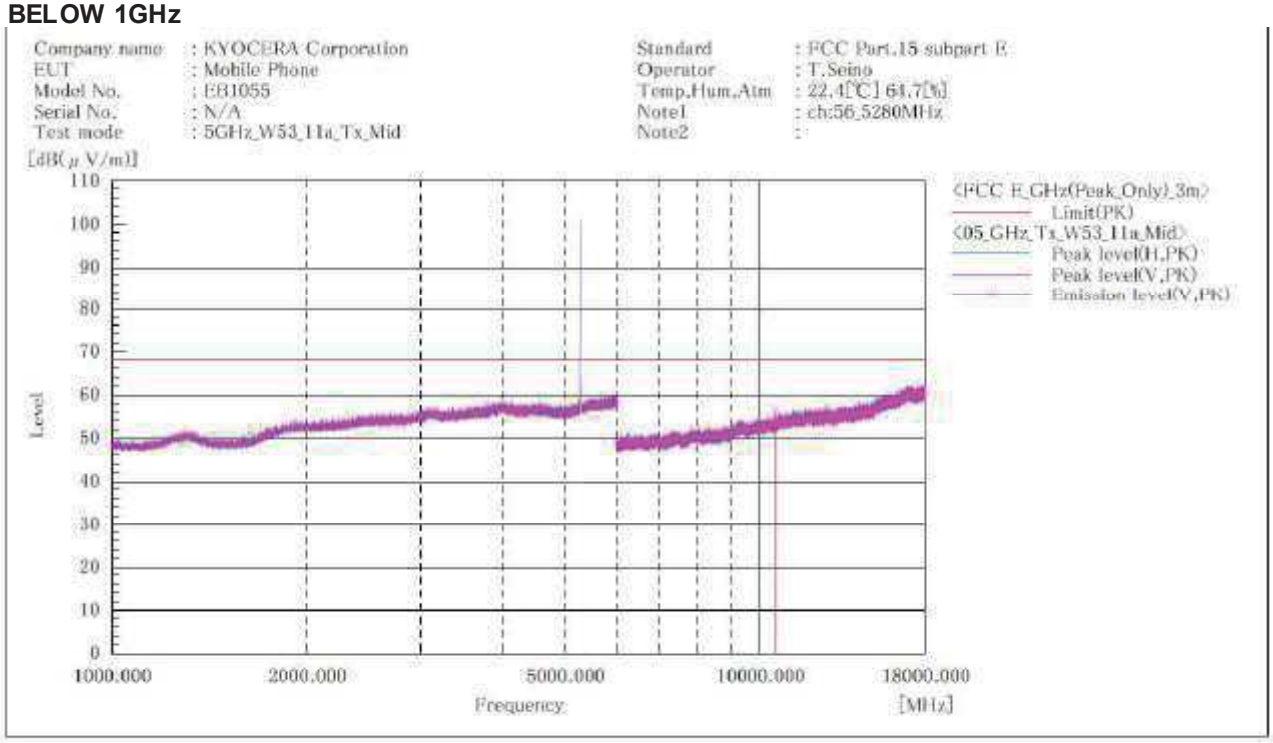


Final Result

No.	Frequency	(P)	Reading PK	c.f	Result PK	Limit PK	Margin PK	Height	Angle
	[MHz]		[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	10360.000	V	45.8	10.6	56.4	68.2	11.8	100.0	187.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.

[11a]
W52 / Channel Middle
BELOW 1GHz

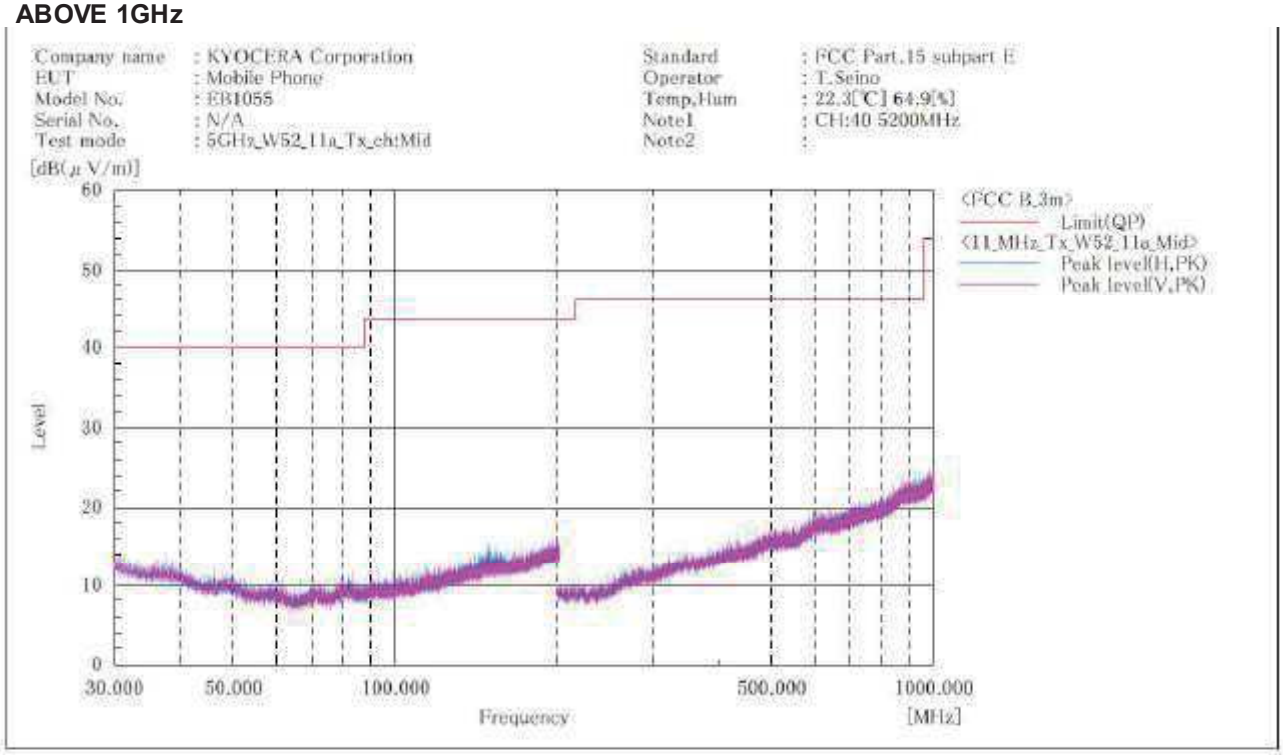


Final Result

No.	Frequency	(P)	Reading PK	c.f	Result PK	Limit PK	Margin PK	Height	Angle
	[MHz]		[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	10560.000	V	45.4	11.0	56.4	68.2	11.8	130.0	186.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.

[11a]
W52 / Channel Middle
ABOVE 1GHz

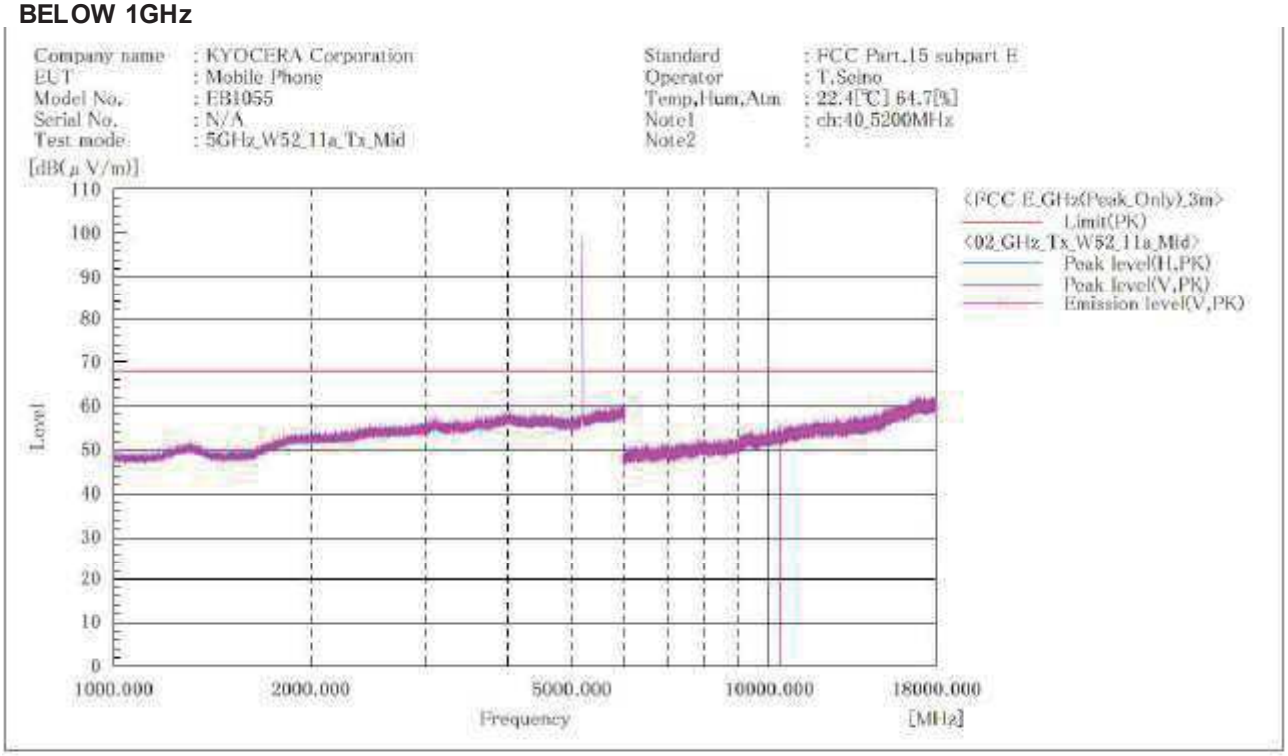


Final Result

No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.

[11a]
W52 / Channel High
BELOW 1GHz

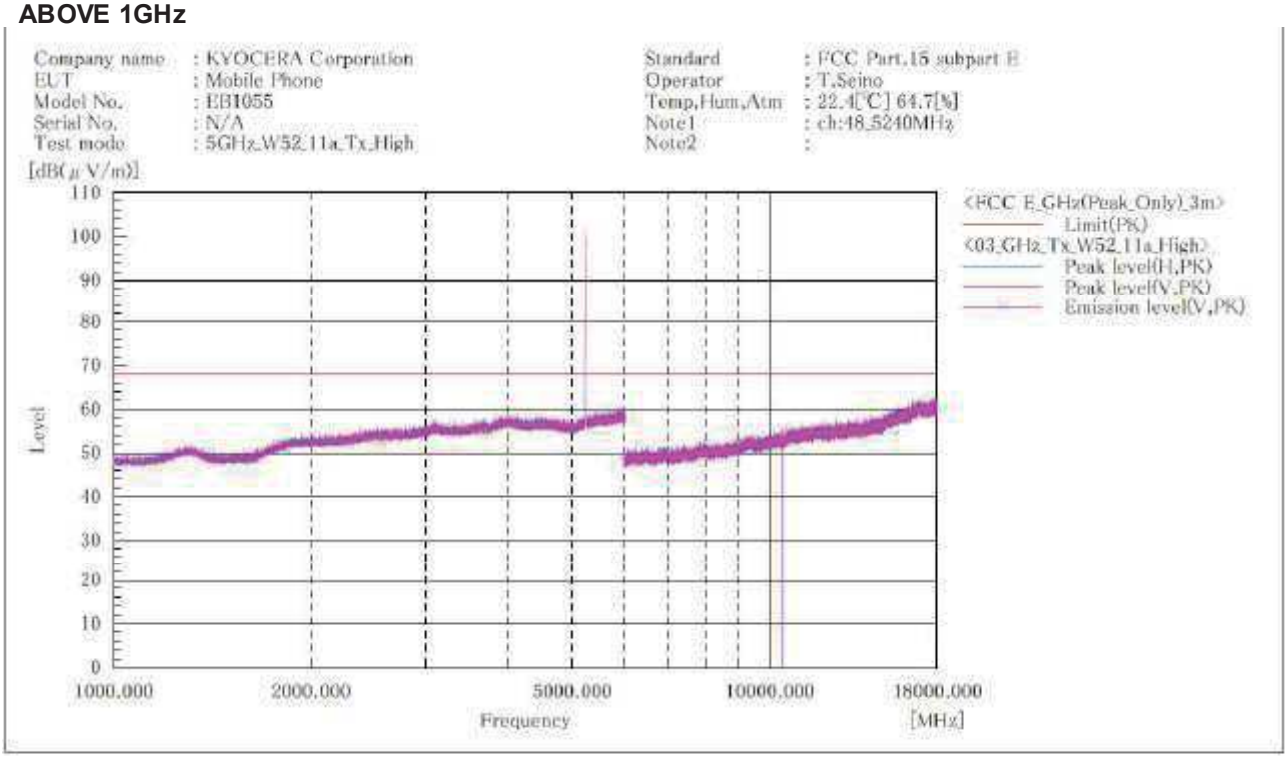


Final Result

No.	Frequency	(P)	Reading PK	c.f	Result PK	Limit PK	Margin PK	Height	Angle
	[MHz]		[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	10400.000	V	44.8	10.7	55.5	68.2	12.7	139.0	188.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.

[11a]
W52 / Channel High
ABOVE 1GHz

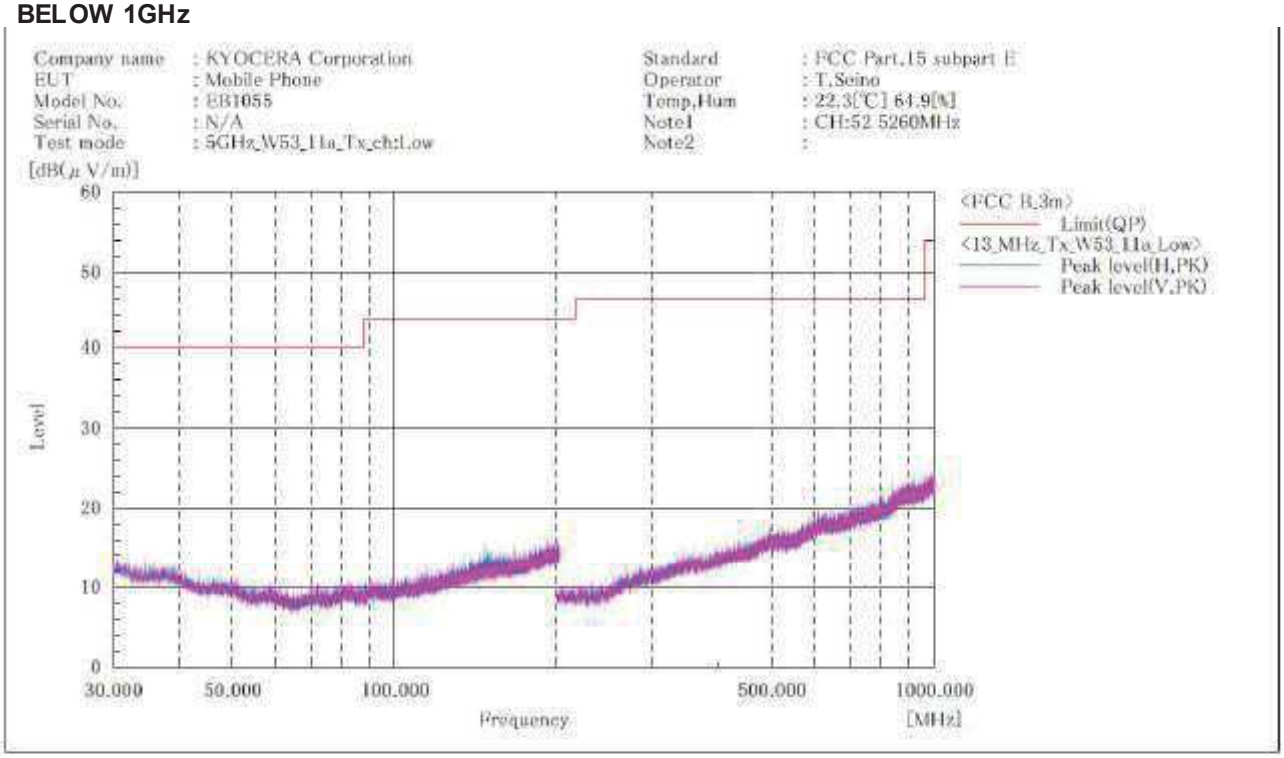


Final Result

No.	Frequency	(P)	Reading PK	c.f	Result PK	Limit PK	Margin PK	Height	Angle
	[MHz]		[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	10480.000	V	44.5	10.9	55.4	68.2	12.8	123.0	187.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.

[11a]
W53 / Channel Low
BELOW 1GHz

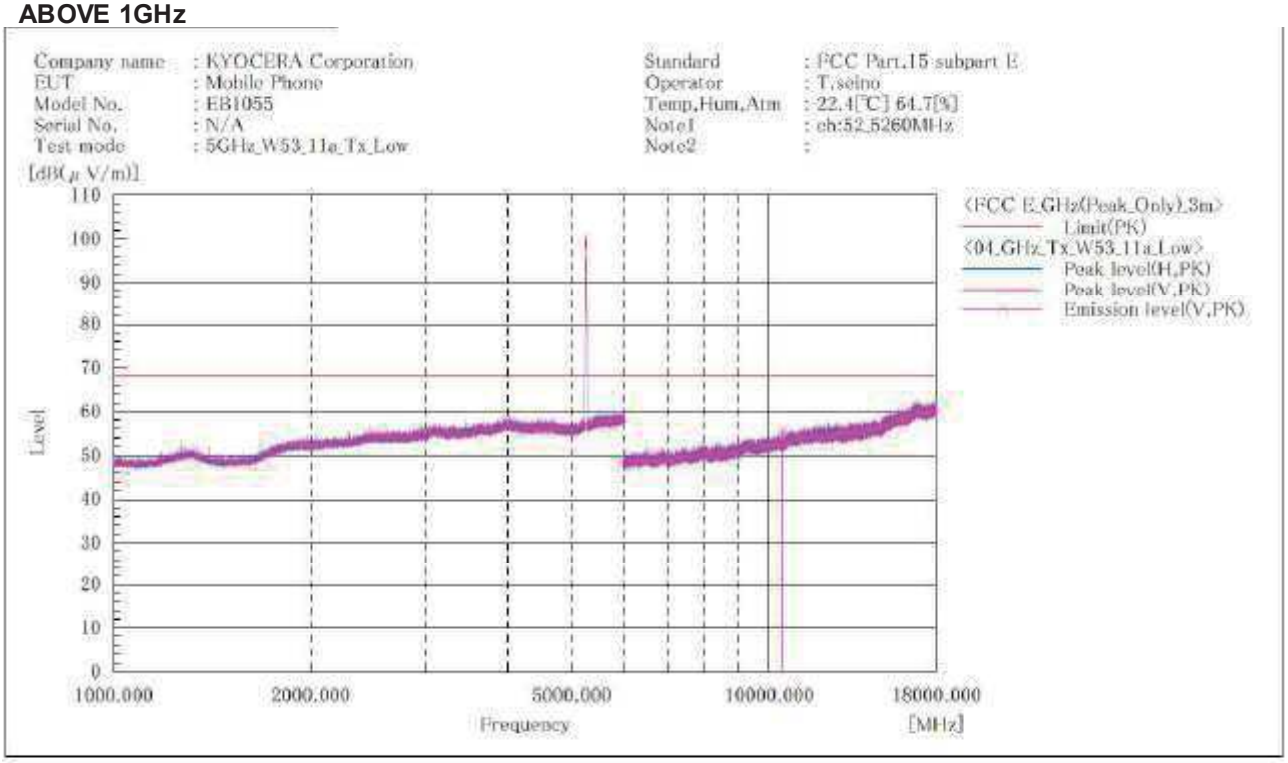


Final Result

No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.

[11a]
W53 / Channel Low
ABOVE 1GHz



Final Result

No.	Frequency	(P)	Reading PK	c.f	Result PK	Limit PK	Margin PK	Height	Angle
	[MHz]		[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]
1	10520.000	V	44.9	10.9	55.8	68.2	12.4	108.0	189.0

Note:
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 18GHz to 40GHz at the 3 meters distance.