



Zacta

TEST REPORT

Report number : JPD-TR-17260-0

Issue date : January 18, 2018

The device, as described herewith, was tested pursuant to applicable test procedure and complies with the requirements of;

FCC Part15 Subpart E

The test results are traceable to the international or national standards.

Applicant	: KYOCERA Corporation
Equipment under test (EUT)	: Mobile Phone
Model number	: HA43
FCC ID	: JOYHA43

Date of test : December 19, 20, 21, 22, 23, 25, 26, 2017
January 4, 5, 9, 10, 11, 12, 13, 2018
Test place : TÜV SÜD Zacta Ltd. Yonezawa Testing Center
5-4149-7, Hachimanpara, Yonezawa-shi,
Yamagata, 992-1128 Japan
Phone: +81-238-28-2881 Fax: +81-238-28-2888
Test results : Complied

The results in this report are applicable only to the equipment tested.

This report shall not be re-produced except in full without the written approval of TÜV SÜD Zacta Ltd.

This test report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, ILAC-MRA, or any agency of the federal government.

Tested by : Tadahiro Seino Chiaki Kanno
Tadahiro Seino Chiaki Kanno

Tested by : Taiki Watanabe
Taiki Watanabe

Approved by : Hiroaki Suzuki
Hiroaki Suzuki
Lab Manager of RF Lab



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1. Summary of Test

1.1 Purpose of test

It is the original test in order to verify conformance to FCC Part 15 Subpart E.

1.2 Standards

CFR47 FCC Part 15 Subpart E

1.2.1 Test Methods

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

1.2.2 Deviation from standards

None

1.3 List of applied test to the EUT

Test items Section	Test items	Condition	Result
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

1.3.1 Test set up

Table-Top

1.4 Modification to the EUT by laboratory

None

2. Equipment Under Test

2.1 General Description of equipment

EUT is the Mobile Phone.

2.2 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	: Mobile Phone
Trade name	: Kyocera
Model number	: HA43
Serial number	: N/A
EUT condition	: Pre-Production
Power ratings	: Battery: DC 3.8V
Size	: (W) 71.9mm × (D) 8.8mm × (H) 145.3mm
Environment	: Indoor and Outdoor use
Terminal limitation	: -20°C to 60°C
RF Specification Protocol	: IEEE802.11a, IEEE802.11n(HT20), IEEE802.11n(HT40) IEEE802.11ac(HT20), IEEE802.11ac(HT40), IEEE802.11ac(HT80)
Frequency range	: IEEE802.11a/n/ac(HT20): 5180MHz-5320MHz, 5500MHz-5700MHz IEEE802.11n/ac(HT40): 5190MHz-5310MHz, 5510MHz-5670MHz IEEE802.11ac(HT80): 5210MHz, 5290MHz, 5530MHz, 5610MHz
Number of RF Channels	: IEEE802.11a/n/ac(HT20): 19 Channels IEEE802.11n/ac(HT40): 9 Channels IEEE802.11ac(HT80): 4 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, 65Mbps IEEE802.11n (HT20 SGI): 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65, 72.2Mbps IEEE802.11ac (HT20 LGI): 6.5, 13, 19.5, 26, 39, 52, 58.5, 65, 78, 86.5Mbps IEEE802.11ac (HT20 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, 135Mbps IEEE802.11n (HT40 SGI): 15, 30, 45, 60, 90, 120, 135, 150Mbps IEEE802.11ac (HT40 LGI): 13.5, 27, 40.5, 54, 81, 108, 121.5, 135, 162, 180Mbps IEEE802.11ac (HT40 SGI): 15, 30, 45, 60, 90, 120, 135, 150, 180, 200Mbps IEEE802.11ac (HT80 LGI): 29.3, 58.5, 87.8, 117, 175.5, 234, 263.3, 292.6, 351, 390Mbps IEEE802.11ac (HT80 SGI): 32.5, 65, 97.5, 130, 195, 260, 292.5, 325, 390, 433.3Mbps

Channel separation : IEEE802.11a/n/ac (HT20): 20MHz
 IEEE802.11n/ac (HT40): 40MHz
 IEEE802.11ac (HT80): 80MHz

Output power : 11.927mW (IEEE802.11a)
 12.117mW (IEEE802.11n: HT20)
 12.156mW (IEEE802.11n: HT40)
 10.782mW (IEEE802.11ac: HT80)

Antenna type : Internal antenna

Antenna gain : 5.15-5.25GHz band: 2.0dBi
 5.25-5.35GHz band: 2.0dBi
 5.47-5.725GHz band: 1.2dBi

2.3 Variation of the family model(s)

Not applicable

2.4 Operating channels and frequencies

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

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

[IEEE802.11n/ac (HT40)]

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

[IEEE802.11ac (HT80)]

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

2.5 Operating mode

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

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

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
5.2GHz Band	IEEE802.11a: OFDM	6Mbps
	IEEE802.11n (HT20): OFDM	MCS0 (6.5Mbps)
	IEEE802.11n (HT40): OFDM	MCS0 (13.5Mbps)
	IEEE802.11ac (HT80): OFDM	MCS0 (29.3Mbps)
5.3GHz Band	IEEE802.11a: OFDM	6Mbps
	IEEE802.11n (HT20): OFDM	MCS0 (6.5Mbps)
	IEEE802.11n (HT40): OFDM	MCS0 (13.5Mbps)
	IEEE802.11ac (HT80): OFDM	MCS0 (29.3Mbps)
5.6GHz Band	IEEE802.11a: OFDM	6Mbps
	IEEE802.11n (HT20): OFDM	MCS0 (6.5Mbps)
	IEEE802.11n (HT40): OFDM	MCS0 (13.5Mbps)
	IEEE802.11ac (HT80): OFDM	MCS0 (29.3Mbps)

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.

2.6 Operating mode

[Tx mode]

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

3. Configuration of equipment

3.1 Equipment(s) used

No.	Equipment	Company	Model No.	Serial No.	FCC ID / DoC	Comment
1	Mobile Phone	KYOCERA	HA43	N/A	JOYHA43	EUT
2	AC Adapter	au	N/A	N/A	N/A	*
3	USB conversion connector	ANKER	N/A	N/A	N/A	*

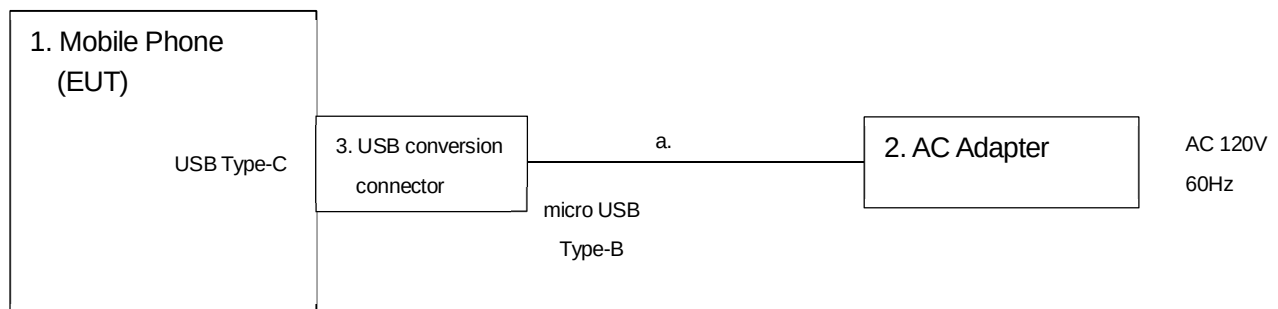
*: AC power line Conducted Emission Test.

3.2 Cable(s) used

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

*: AC power line Conducted Emission Test.

3.3 System configuration



Note1: Numbers assigned to equipment or cables on this diagram correspond to the list in "3.1 Equipment(s) used" and "3.2 Cable(s) used".

4. 26dB Bandwidth and 99% Occupied Bandwidth

4.1 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=200kHz/430kHz/820kHz, VBW=620kHz/1.3MHz/2.4MHz, Span=40MHz/80MHz/160MHz
- Sweep=auto, Detector=Peak, Trace mode=Max hold

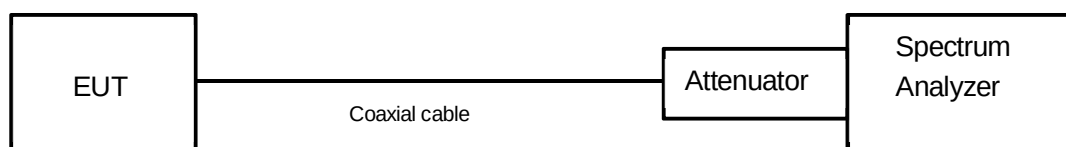
The EUT was set to operate with following conditions.

- 5.2GHz Band, 5.3GHz Band, 5.6GHz Band

The test mode of EUT is as follows.

- Tx mode

- Test configuration



4.2 Limit

None

4.3 Measurement result

Date : December 26, 2017
 Temperature : 21.9 [°C]
 Humidity : 34.3 [%]
 Test place : Shielded room No.4

Test engineer : Chiaki Kanno

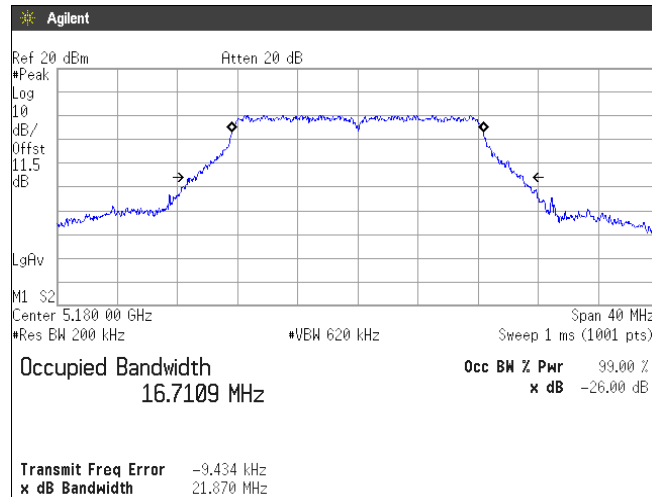
Mode	Band	Channel	Frequency (MHz)	26dB bandwidth (MHz)	99% Occupied bandwidth (MHz)
802.11a	5.2GHz Band	36	5180	21.870	16.7109
		40	5200	21.825	16.7401
		48	5240	21.803	16.7235
	5.3GHz Band	52	5260	21.710	16.6787
		56	5280	21.458	16.7190
		64	5320	21.720	16.6960
	5.6GHz Band	100	5500	21.612	16.7395
		116	5580	21.580	16.7269
		140	5700	21.622	16.7011

Mode	Band	Channel	Frequency (MHz)	26dB bandwidth (MHz)	99% Occupied bandwidth (MHz)
802.11n (20MHz)	5.2GHz Band	36	5180	21.728	17.7779
		40	5200	22.107	17.7761
		48	5240	21.469	17.7862
	5.3GHz Band	52	5260	22.295	17.8306
		56	5280	21.919	17.7877
		64	5320	21.806	17.7992
	5.6GHz Band	100	5500	22.075	17.8018
		116	5580	21.869	17.7982
		140	5700	22.007	17.8078

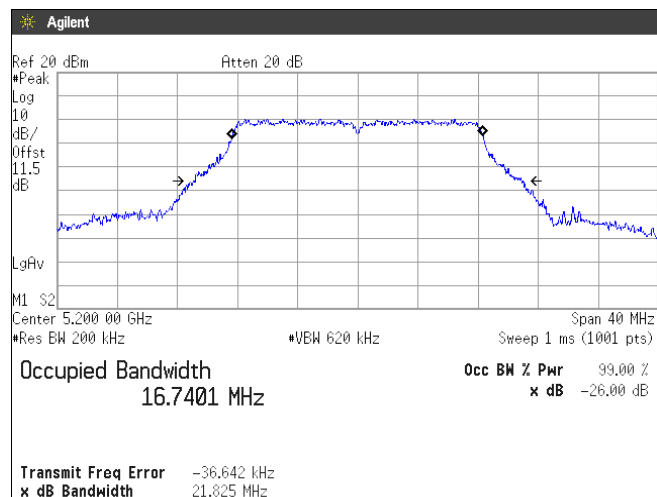
Mode	Band	Channel	Frequency (MHz)	26dB bandwidth (MHz)	99% Occupied bandwidth (MHz)
802.11n (40MHz)	5.2GHz Band	38	5190	42.704	36.0613
		46	5230	42.659	36.1377
	5.3GHz Band	54	5270	42.248	36.0745
		62	5310	42.544	36.0342
	5.6GHz Band	102	5510	43.216	36.1401
		110	5550	43.140	36.1077
		134	5670	42.909	36.0520

Mode	Band	Channel	Frequency (MHz)	26dB bandwidth (MHz)	99% Occupied bandwidth (MHz)
802.11ac (80MHz)	5.2GHz Band	42	5210	82.835	74.5254
	5.3GHz Band	58	5290	83.177	74.4880
	5.6GHz Band	106	5530	82.806	74.5134
		122	5610	82.764	74.4960

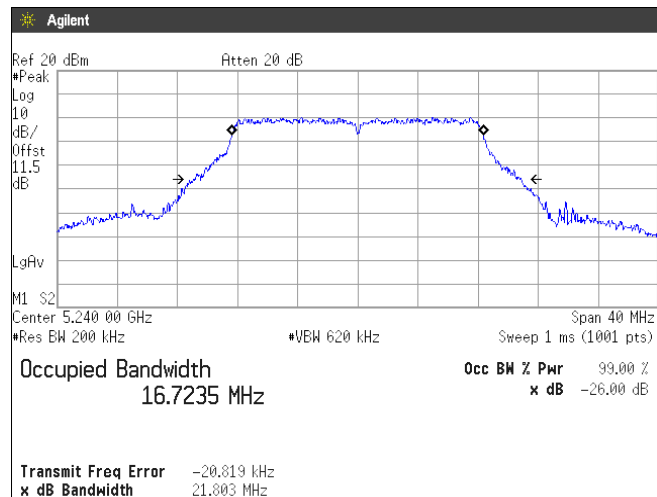
4.4 Trace data [IEEE802.11a] (5.2GHz Band) Channel: 36



Channel: 40

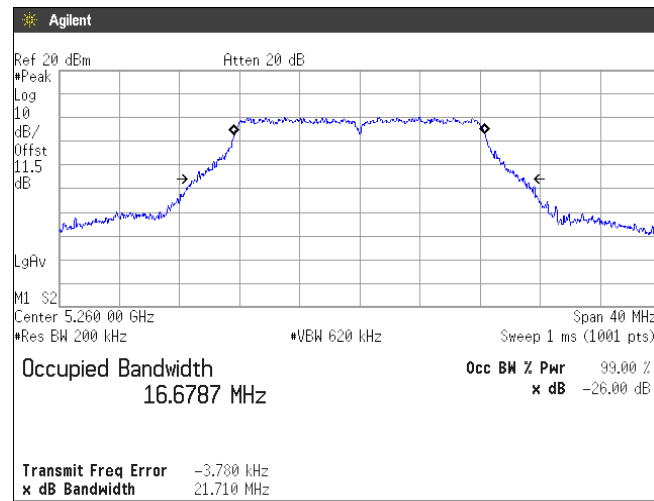


Channel: 48

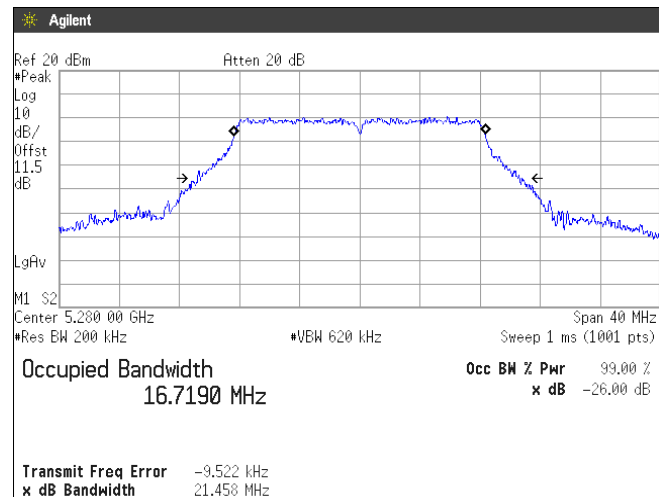


(5.3GHz Band)

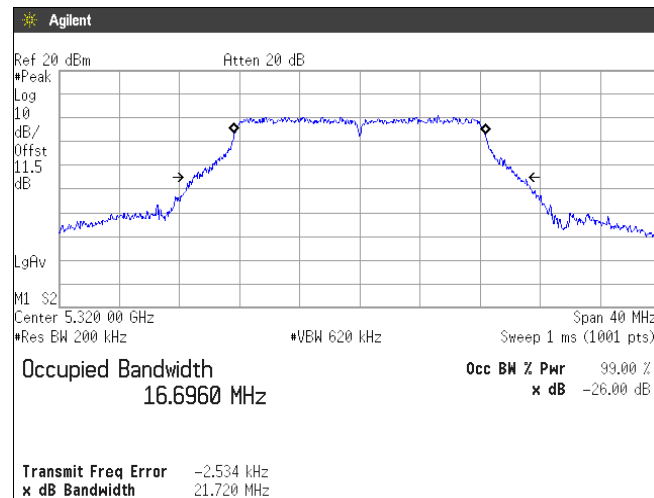
Channel: 52



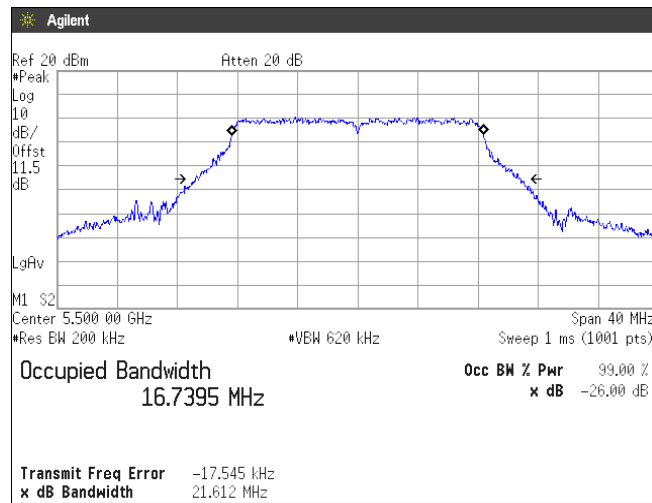
Channel: 56



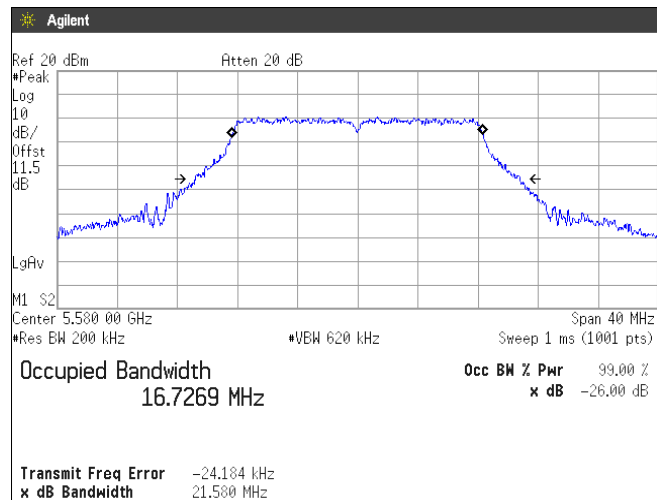
Channel: 64



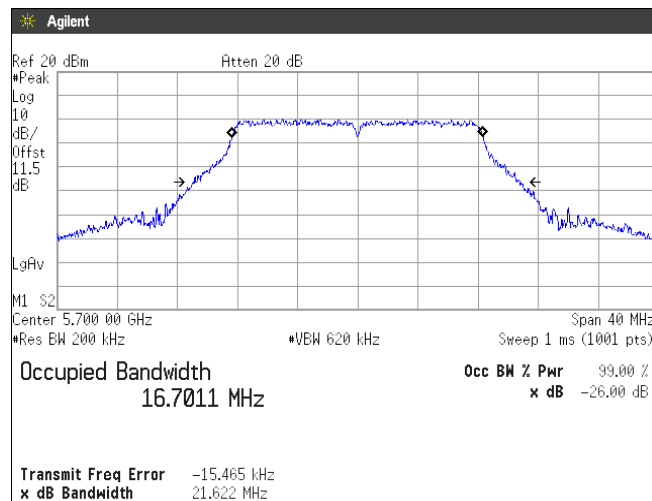
(5.6GHz Band)
Channel: 100



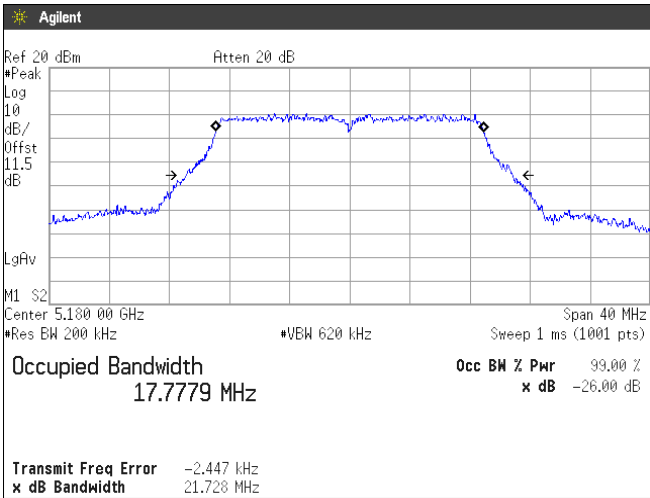
Channel: 116



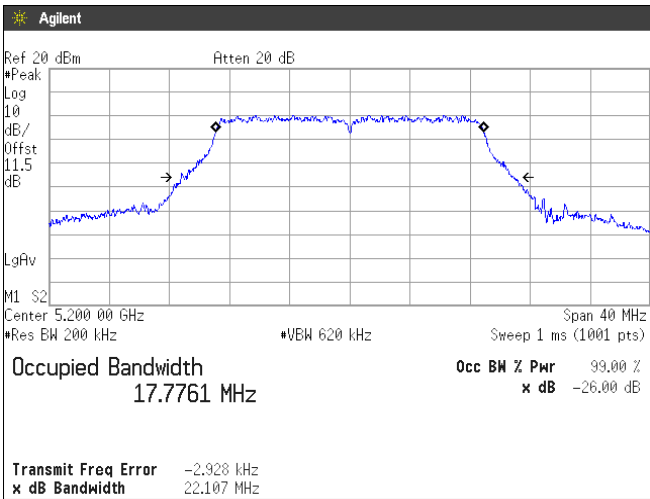
Channel: 140



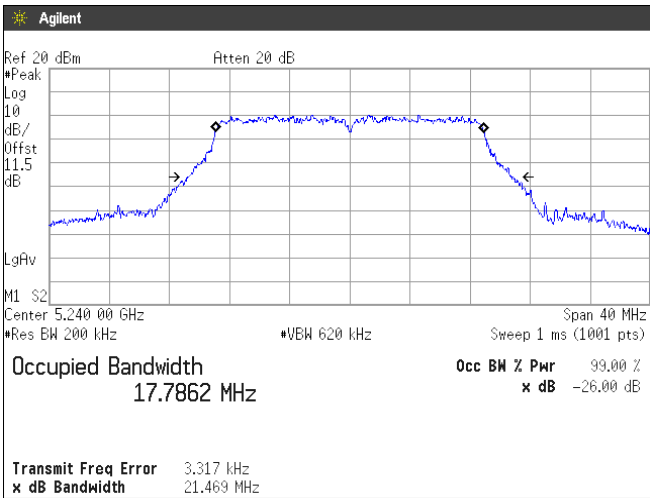
[IEEE802.11n (HT20)]
(5.2GHz Band)
Channel: 36



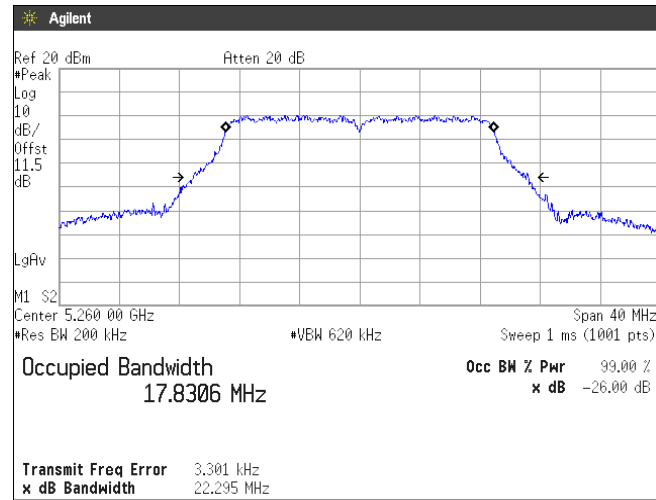
Channel: 40



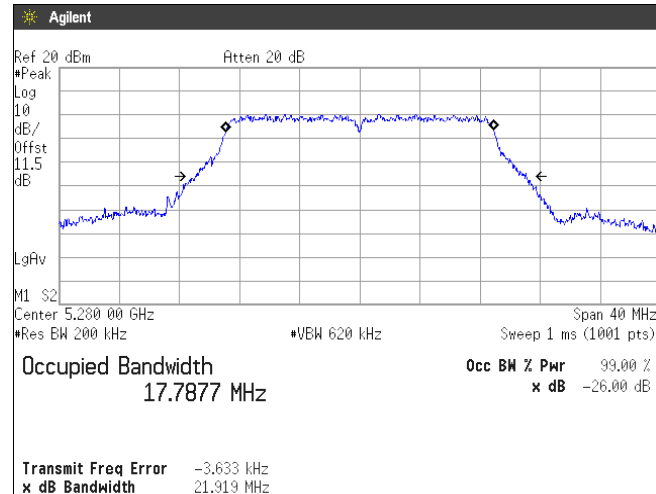
Channel: 48



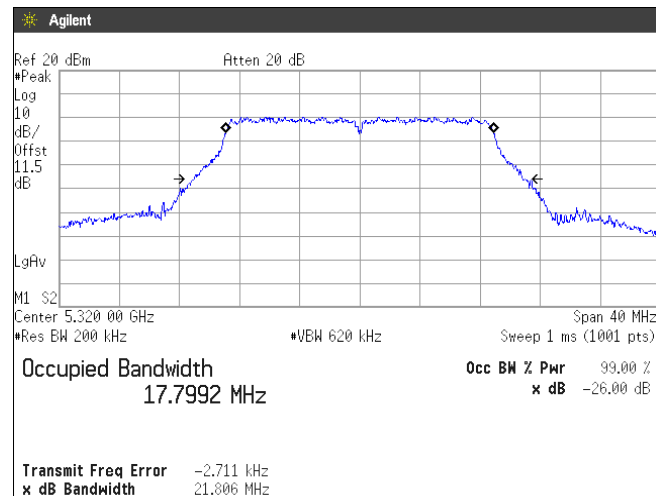
(5.3GHz Band)
Channel: 52



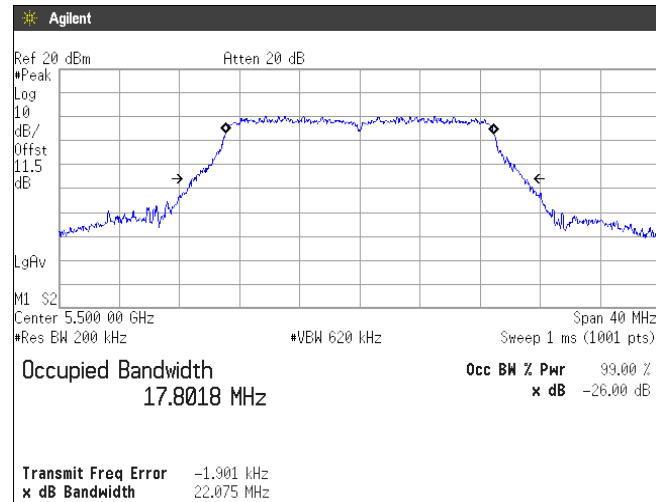
Channel: 56



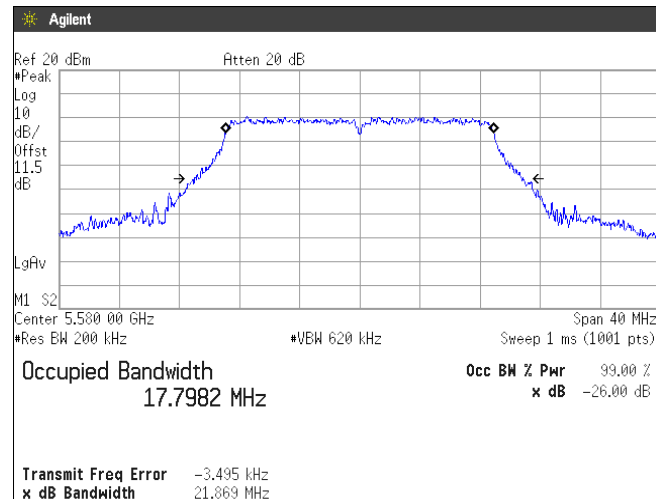
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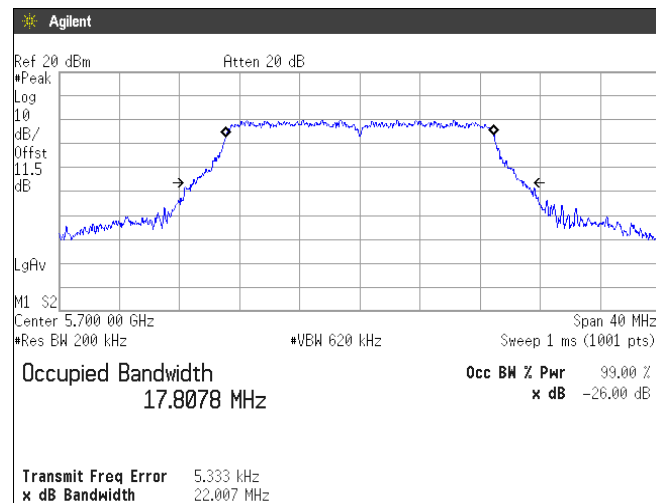
(5.6GHz Band)
Channel: 100



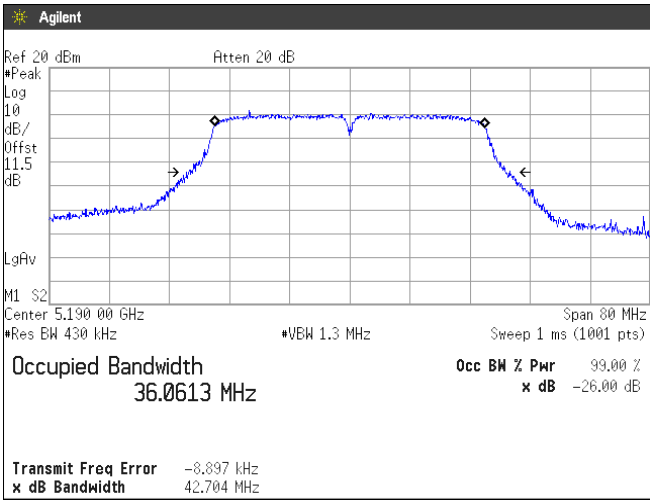
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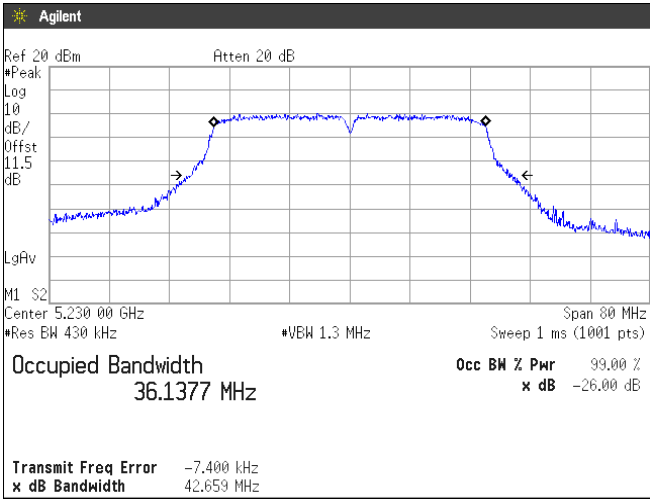
Channel: 140



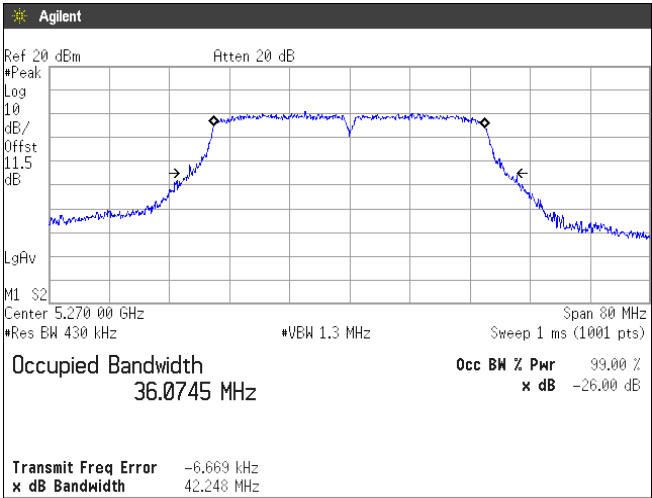
[IEEE802.11n (HT40)]
(5.2GHz Band)
Channel: 38



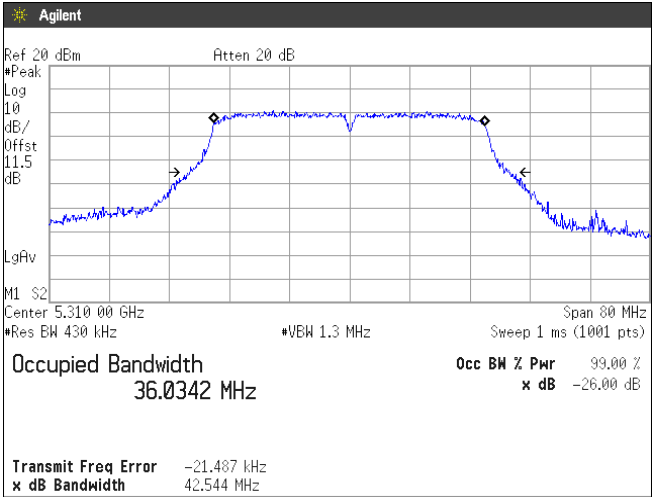
Channel: 46



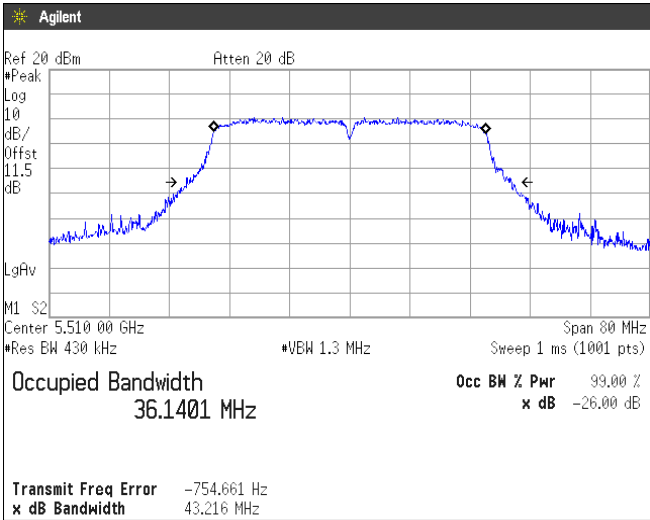
(5.3GHz Band)
Channel: 54



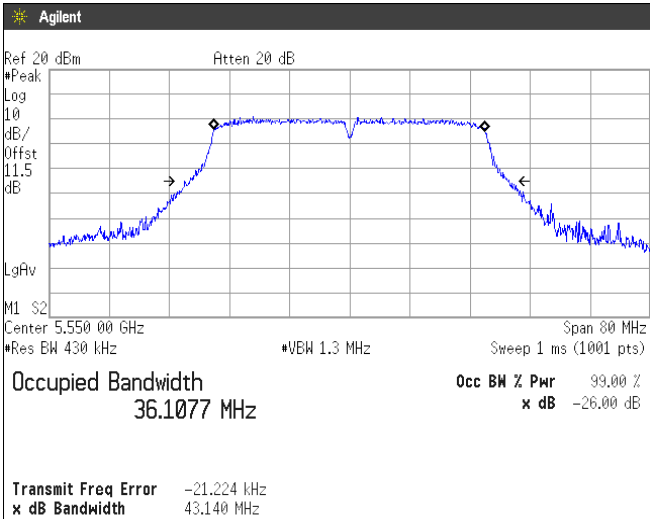
Channel: 62



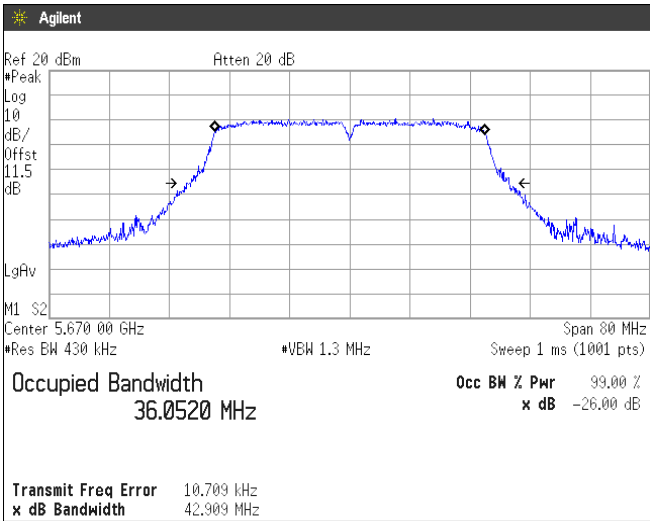
(5.6GHz Band)
Channel: 102



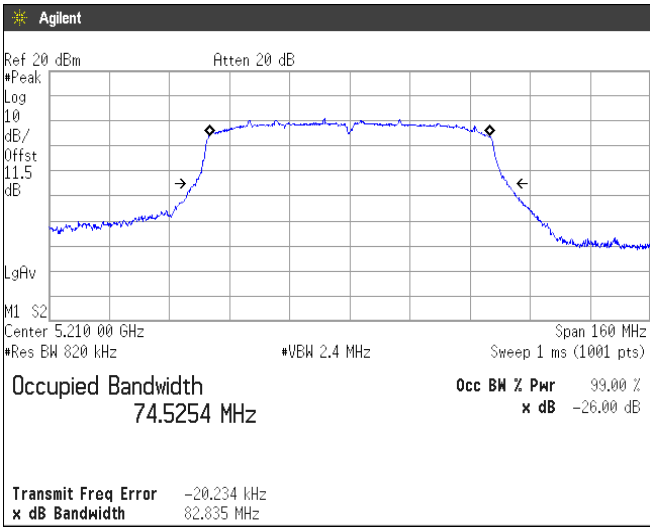
Channel: 110



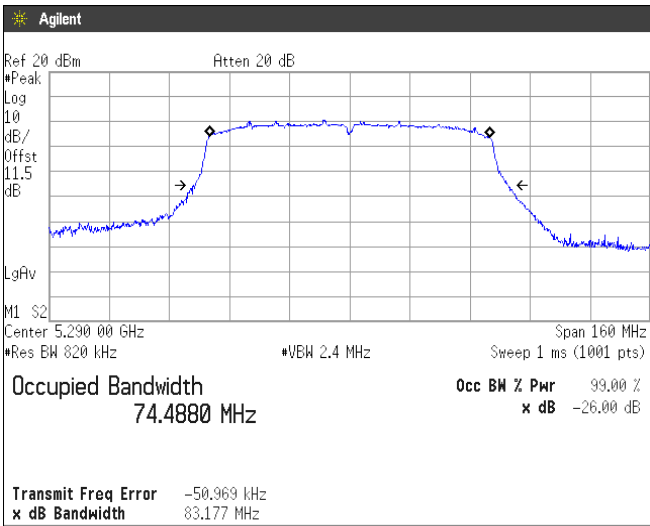
Channel: 134



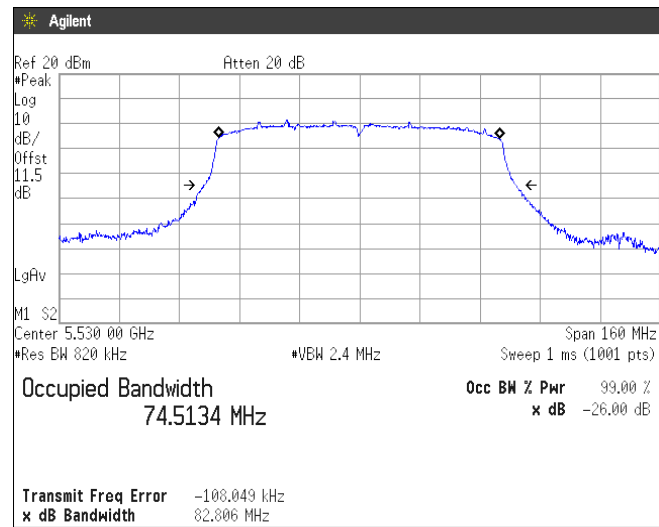
[IEEE802.11ac (HT80)]
(5.2GHz Band)
Channel: 42



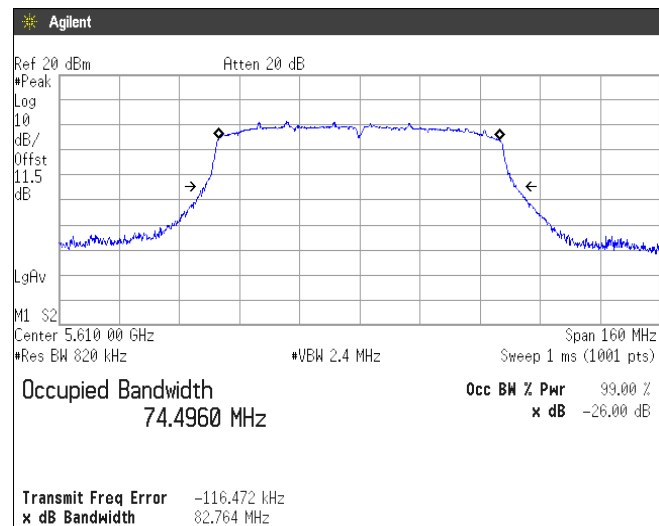
(5.3GHz Band)
Channel: 58



(5.6GHz Band)
Channel: 106



Channel: 122



5. Maximum Conducted Output Power

5.1 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=3MHz, Span=35MHz/70MHz/140MHz, Sweep=auto,
- Detector=RMS, Trace mode=Averaging

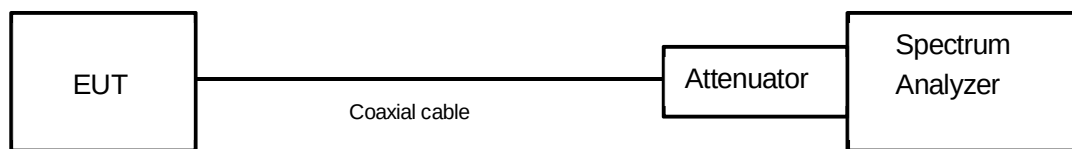
The EUT was set to operate with following conditions.

- 5.2GHz Band, 5.3GHz Band, 5.6GHz Band

The test mode of EUT is as follows.

- Tx mode

- Test configuration



5.2 Limit

- (1) For mobile and portable client devices in the 5.15-5.25GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250mW provided the maximum antenna gain does not exceed 6dBi.
- (2) For the 5.25-5.35GHz and 5.47-5.725GHz bands, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250mW or $11\text{dBm} + 10\log B$, where B is the 26dB emission bandwidth in megahertz.
- (3) For the 5.725-5.85GHz bands, the maximum conducted output power over the frequency band of operation shall not exceed 1W.

<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 HT40				
	802.11ac HT80				

Band	Mode	Power Limit (mW)	Calculated Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
		Least 26dBc BW (MHz)			
5.3GHz Band	802.11a	250	23.97	2.0	23.97
		21.458	24.32		
	802.11n HT20	250	23.97		23.97
		21.806	24.39		
	802.11n HT40	250	23.97		23.97
		42.248	27.26		
	802.11ac HT80	250	23.97		23.97
		83.177	30.20		

Band	Mode	Power Limit (mW)	Calculated Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
		Least 26dBc BW (MHz)			
5.6GHz Band	802.11a	250	23.97	1.2	23.97
		21.580	24.34		
	802.11n HT20	250	23.97		23.97
		21.869	24.40		
	802.11n HT40	250	23.97		23.97
		42.909	27.33		
	802.11ac HT80	250	23.97		23.97
		82.764	30.18		

5.3 Measurement result

Date : December 26, 2017
 Temperature : 21.9 [°C]
 Humidity : 34.3 [%]
 Test place : Shielded room No.4

Test engineer : Chiaki Kanno

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	10.67	1.364	1.372	0.994	0.025	10.695	11.737
	40	5200	10.60					10.625	11.549
	48	5240	10.38					10.405	10.978
	52	5260	10.54	1.364	1.372	0.994	0.025	10.565	11.390
	56	5280	10.61					10.635	11.575
	64	5320	10.69					10.715	11.791
	100	5500	10.53	1.364	1.372	0.994	0.025	10.555	11.364
	116	5580	10.74					10.765	11.927
	140	5700	10.31					10.335	10.803

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

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	10.80	1.274	1.284	0.992	0.034	10.834	12.117
	40	5200	10.66					10.694	11.733
	48	5240	10.45					10.484	11.179
	52	5260	10.61	1.276	1.284	0.994	0.027	10.637	11.580
	56	5280	10.64					10.667	11.660
	64	5320	10.74					10.767	11.932
	100	5500	10.56	1.274	1.282	0.994	0.027	10.587	11.448
	116	5580	10.76					10.787	11.987
	140	5700	10.34					10.367	10.882

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

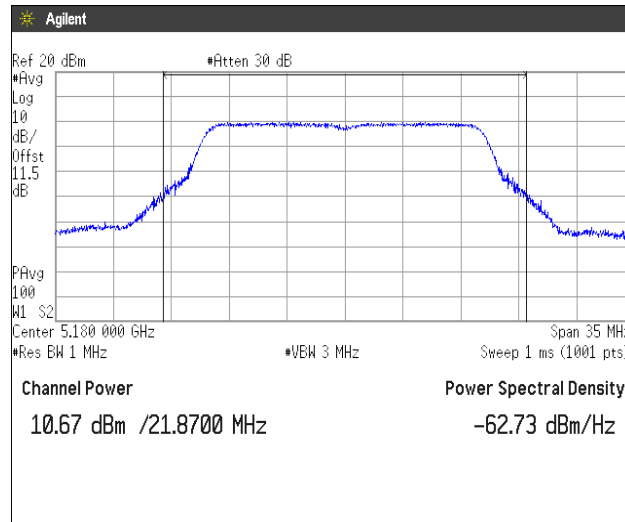
Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)	Test Result (mW)
				On Time(ms)	On+Off Time(ms)	X			
802.11n (40MHz)	38	5190	10.62	0.635	0.645	0.984	0.068	10.688	11.716
	46	5230	10.43					10.498	11.215
	54	5270	10.56	0.635	0.645	0.984	0.068	10.628	11.555
	62	5310	10.78					10.848	12.156
	102	5510	10.71	0.635	0.645	0.984	0.068	10.778	11.962
	110	5550	10.68					10.748	11.879
	134	5670	10.46					10.528	11.292

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

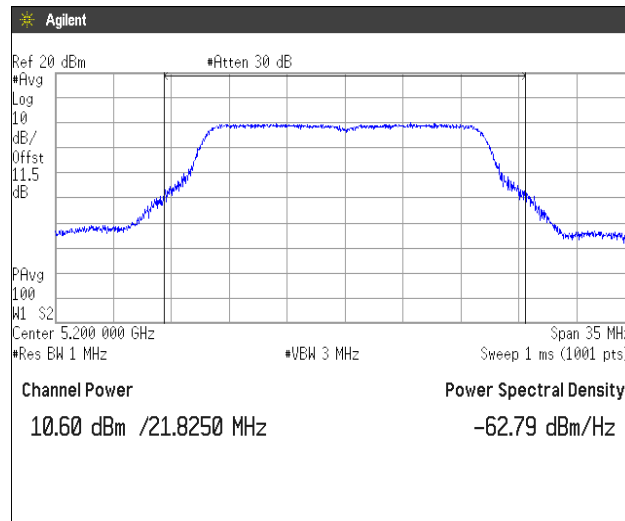
Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)	Test Result (mW)
				On Time(ms)	On+Off Time(ms)	X			
802.11ac (80MHz)	42	5210	9.81	0.2475	0.2579	0.960	0.179	9.989	9.974
	58	5290	10.07	0.2475	0.2579	0.960	0.179	10.249	10.590
	106	5530	10.08	0.2480	0.2584	0.960	0.178	10.258	10.613
	122	5610	10.14	0.2475	0.2584	0.958	0.187	10.327	10.782

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

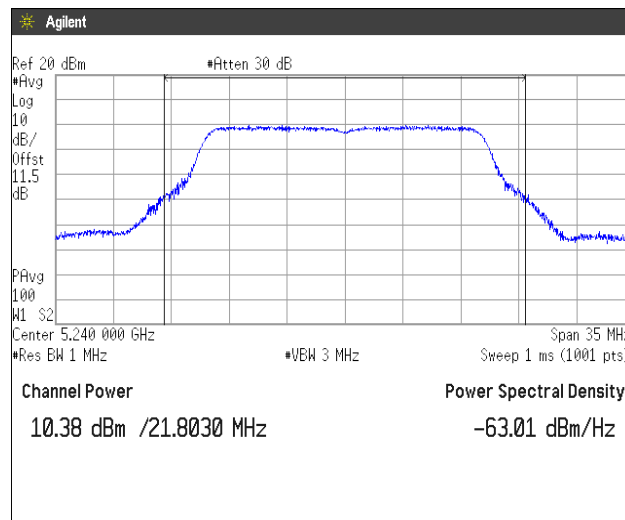
5.4 Trace data
[IEEE802.11a]
(5.2GHz Band)
Channel: 36



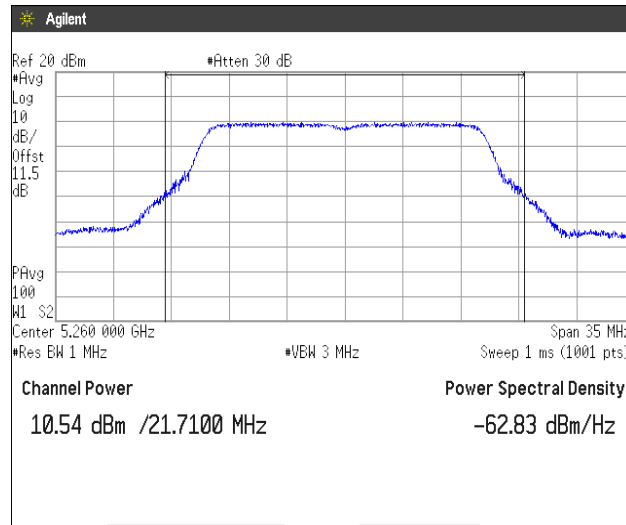
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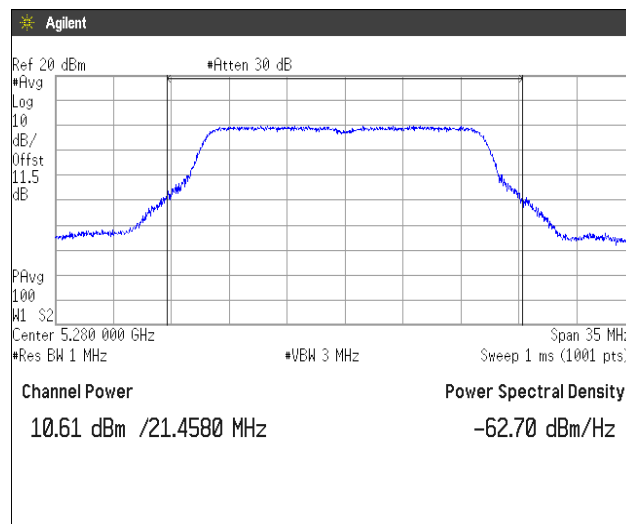
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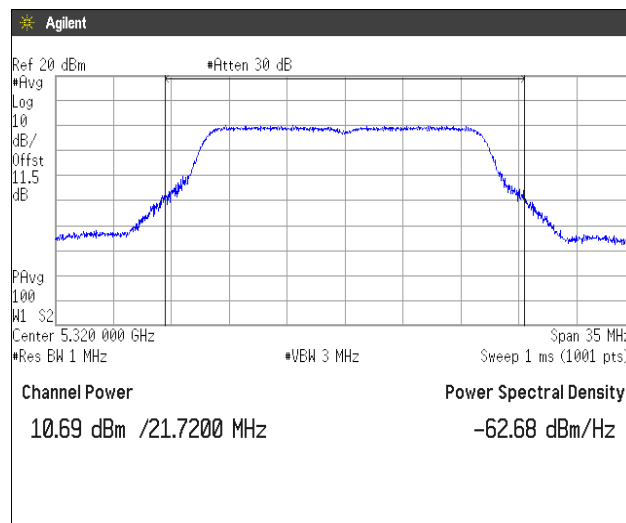
(5.3GHz Band)
Channel: 52



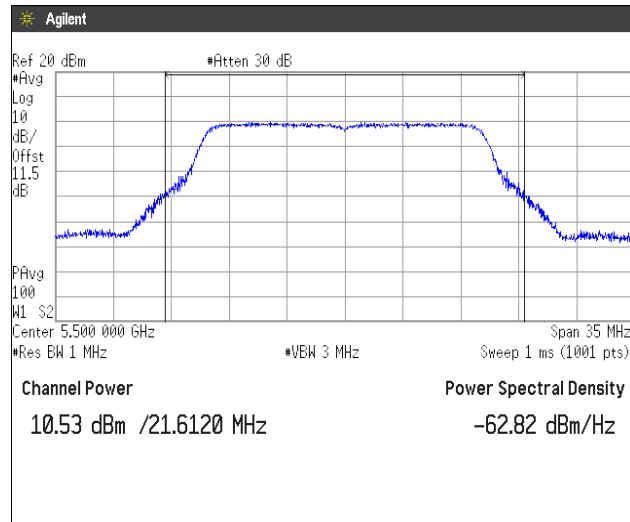
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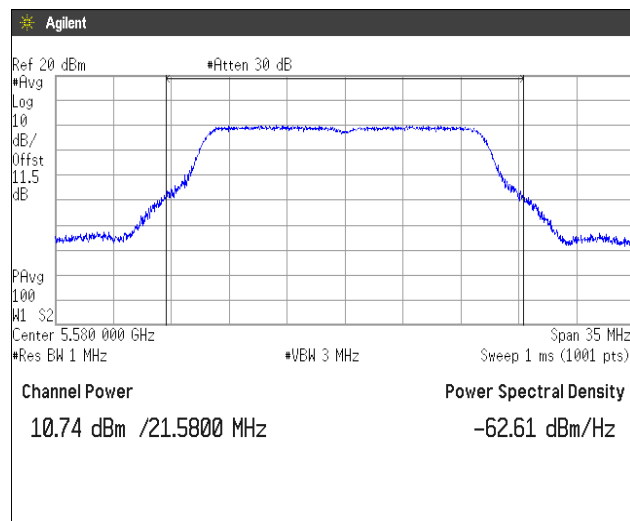
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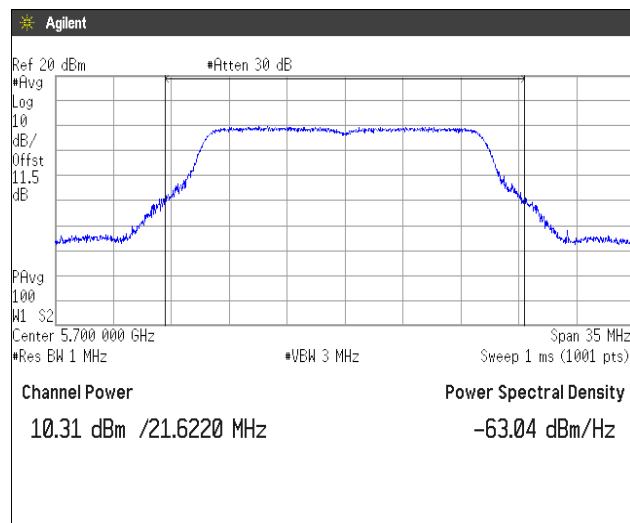
(5.6GHz Band)
Channel: 100



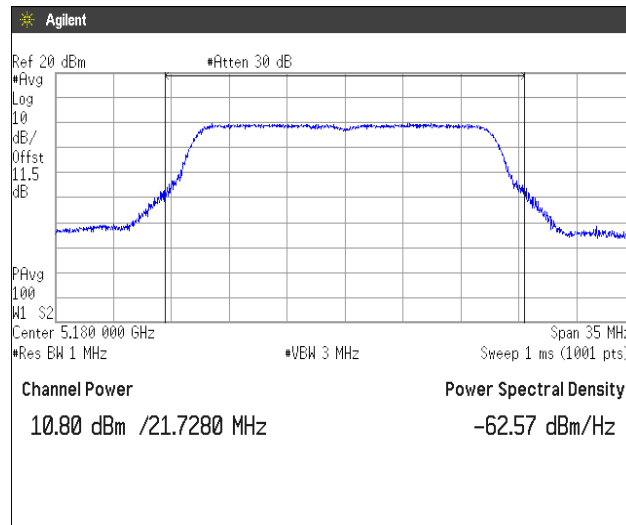
Channel: 116



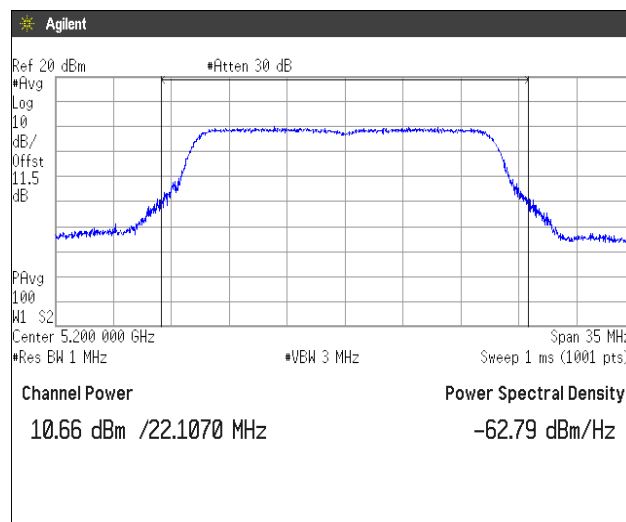
Channel: 140



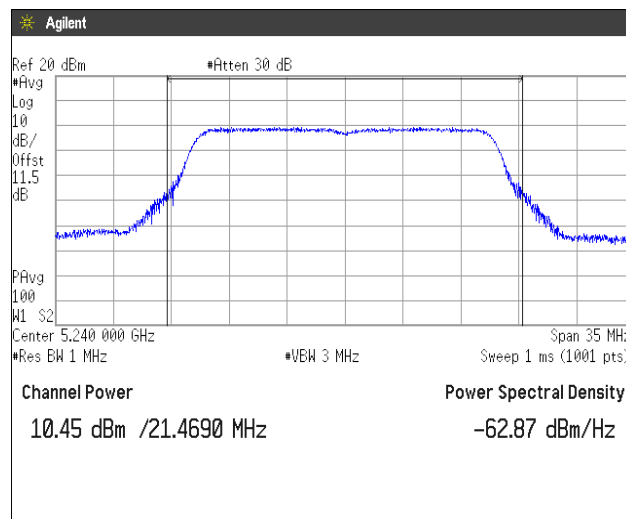
[IEEE802.11n (HT20)]
(5.2GHz Band)
Channel: 36



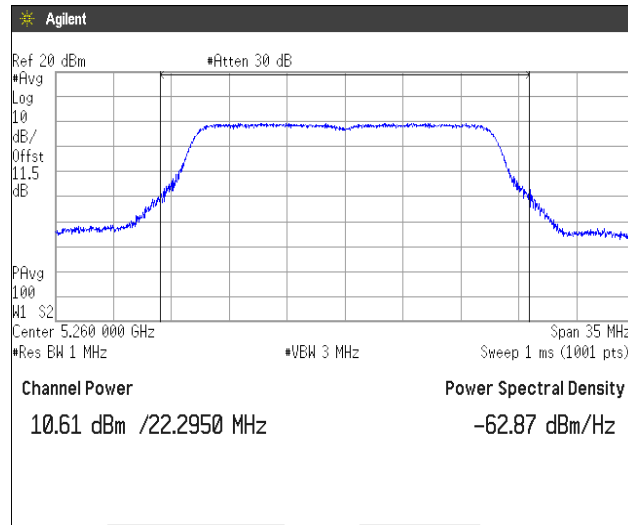
Channel: 40



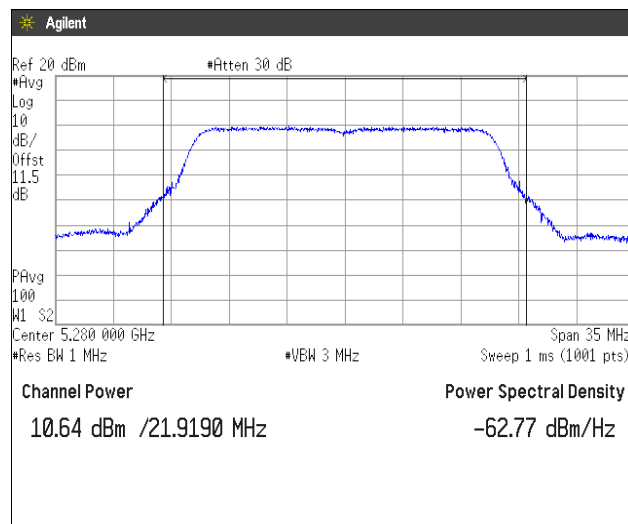
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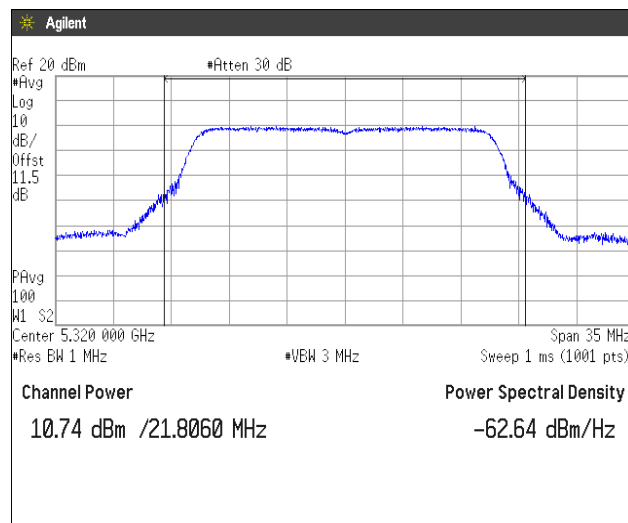
(5.3GHz Band)
Channel: 52



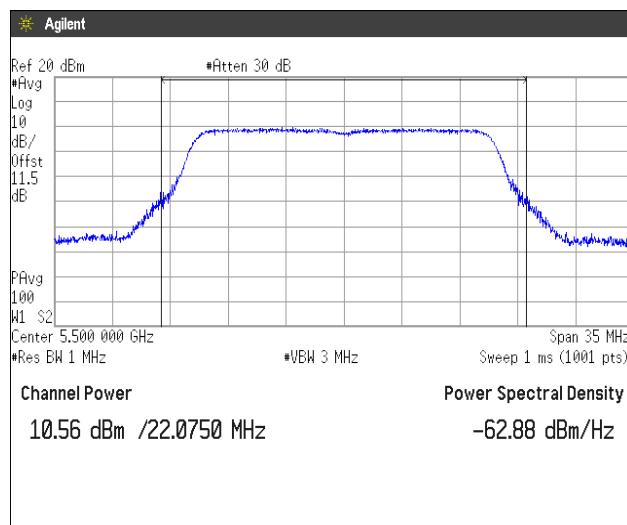
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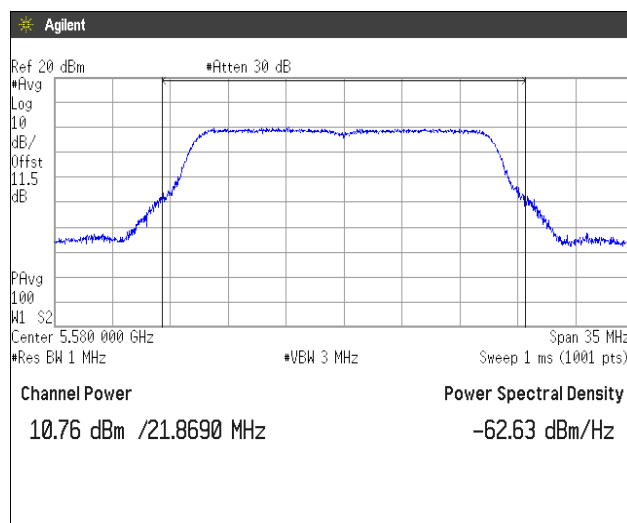
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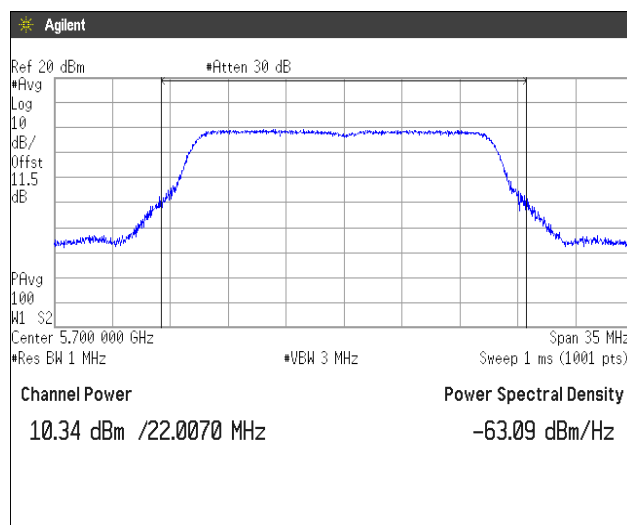
(5.6GHz Band)
Channel: 100



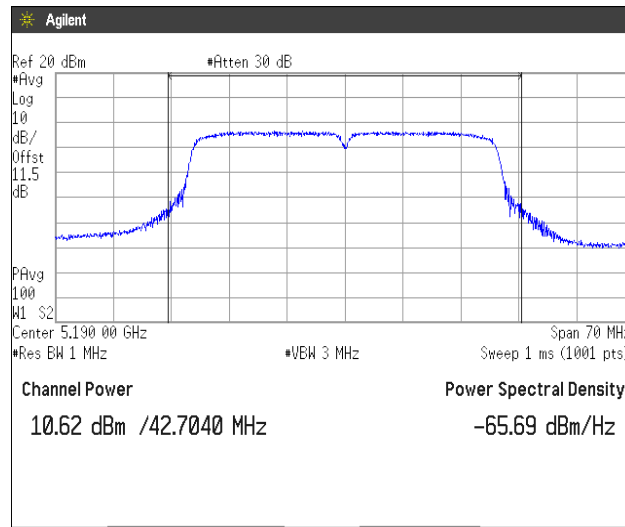
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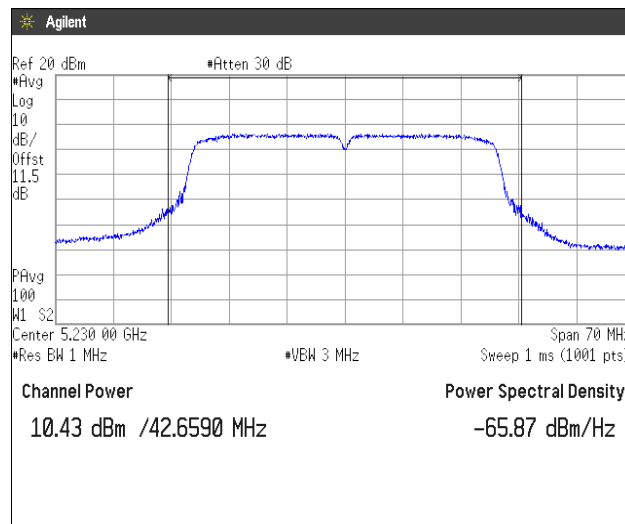
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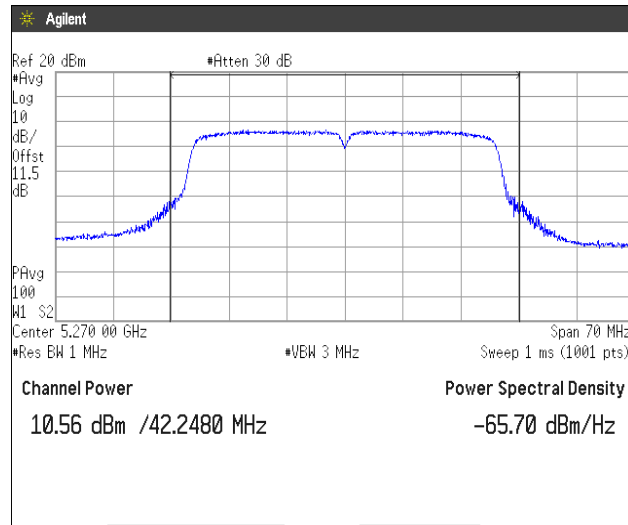
**[IEEE802.11n (HT40)]
(5.2GHz Band)
Channel: 38**



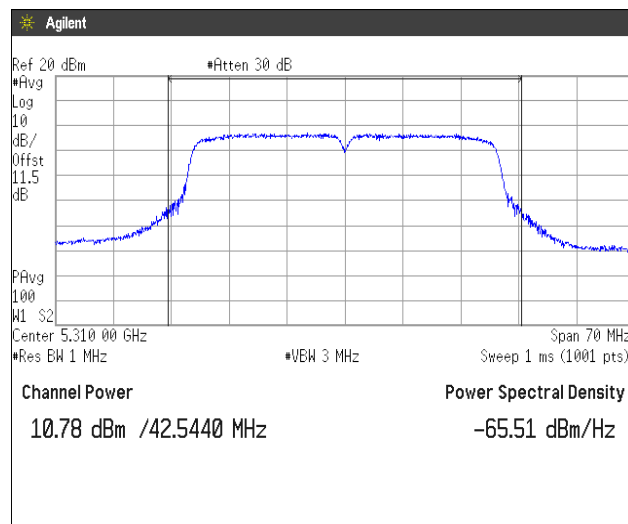
Channel: 46



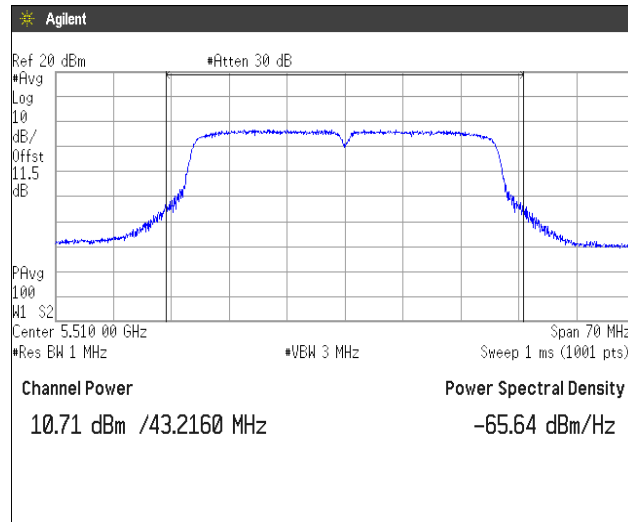
(5.3GHz Band)
Channel: 54



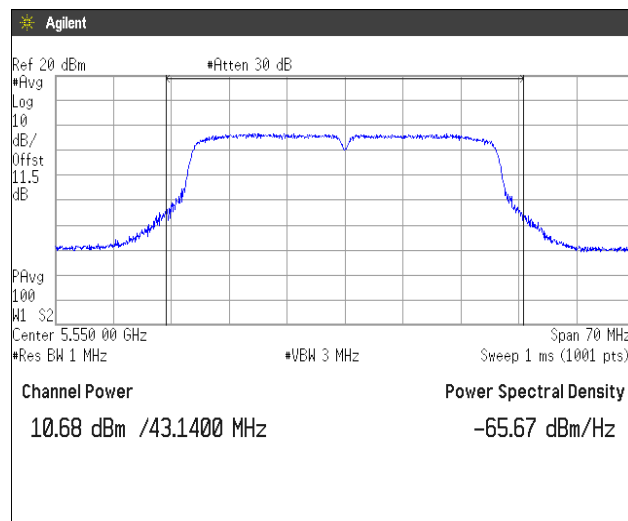
Channel: 62



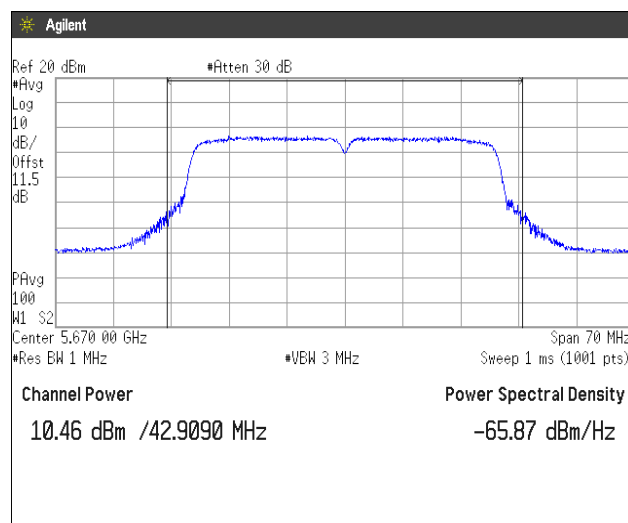
(5.6GHz Band)
Channel: 102



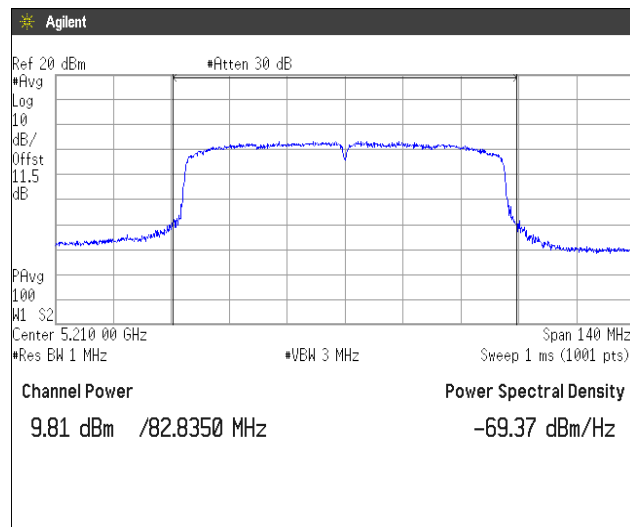
Channel: 110



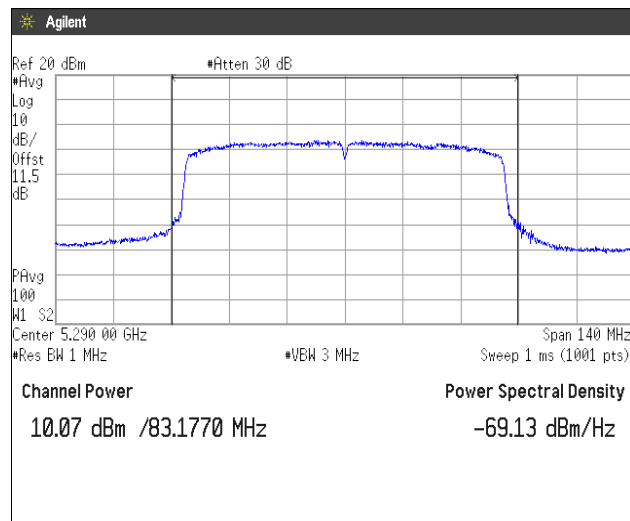
Channel: 134



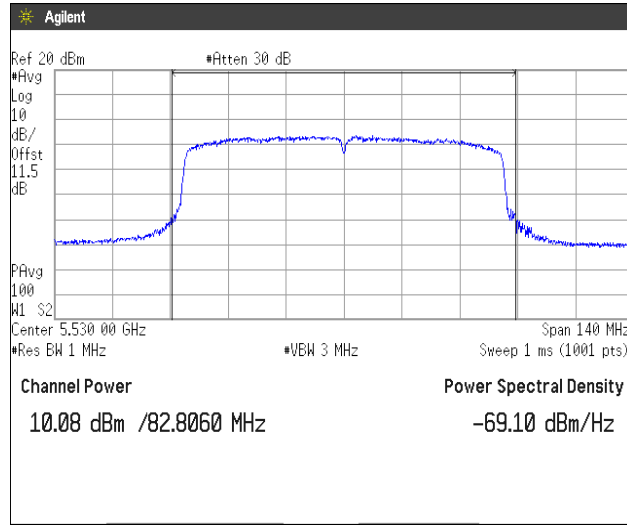
[IEEE802.11ac (HT80)]
(5.2GHz Band)
Channel: 42



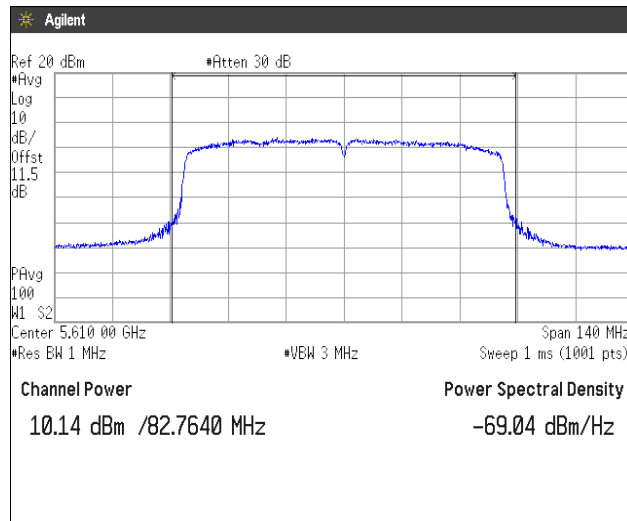
(5.3GHz Band)
Channel: 58



(5.6GHz Band)
Channel: 106



Channel: 122



6. Peak Power Spectral Density

6.1 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=1MHz, VBW=3MHz, Span=25MHz/50MHz/100MHz, Sweep=Auto,
- Detector=RMS, Trace mode=Averaging

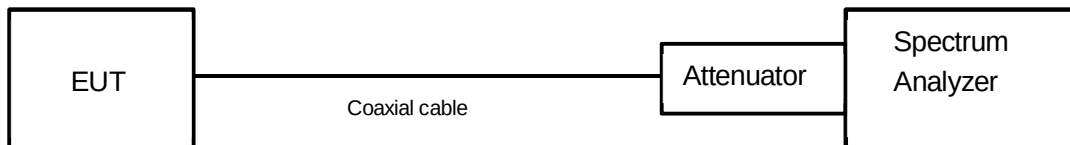
The EUT was set to operate with following conditions.

- 5.2GHz Band, 5.3GHz Band, 5.6GHz Band

The test mode of EUT is as follows.

- Tx mode

- Test configuration



6.2 Limit

(1) For mobile and portable client devices in the 5.15-5.25GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6dBi 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 5.25-5.35GHz and 5.47-5.725GHz bands, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6dBi are used, the peak power spectral density shall be reduced by the amount in dB that directional gain of the antenna exceeds 6dBi.

(3) For the 5.725-5.85GHz bands, the maximum power spectral density shall not exceed 30dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6dBi 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 6dBi.

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
5.2GHz Band	2.0	13.0 dBm/MHz
5.3GHz Band	2.0	13.0 dBm/MHz
5.6GHz Band	1.2	12.2 dBm/MHz

6.3 Measurement result

Date : December 26, 2017
 Temperature : 21.9 [°C]
 Humidity : 34.3 [%]
 Test place : Shielded room No.4

Test engineer : Chiaki Kanno

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	1.445	1.364	1.372	0.994	0.025	1.470
	40	5200	1.398					1.423
	48	5240	1.473					1.498
	52	5260	1.667	1.364	1.372	0.994	0.025	1.692
	56	5280	1.735					1.760
	64	5320	1.733					1.758
	100	5500	1.537	1.364	1.372	0.994	0.025	1.562
	116	5580	1.970					1.995
	140	5700	1.118					1.143

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

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	1.407	1.274	1.284	0.992	0.034	1.441
	40	5200	1.363					1.397
	48	5240	1.051					1.085
	52	5260	1.347	1.276	1.284	0.994	0.027	1.374
	56	5280	1.317					1.344
	64	5320	1.574					1.601
	100	5500	1.367	1.274	1.282	0.994	0.027	1.394
	116	5580	1.364					1.391
	140	5700	1.097					1.124

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

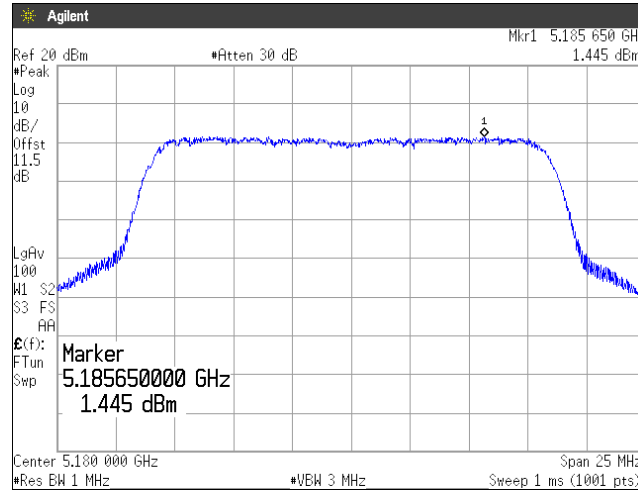
Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)
				On Time(ms)	On+Off Time(ms)	X		
802.11n (40MHz)	38	5190	-1.507	0.635	0.645	0.984	0.068	-1.439
	46	5230	-1.757					-1.689
	54	5270	-1.324	0.635	0.645	0.984	0.068	-1.256
	62	5310	-1.362					-1.294
	102	5510	-1.708	0.635	0.645	0.984	0.068	-1.640
	110	5550	-1.520					-1.452
	134	5670	-1.599					-1.531

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

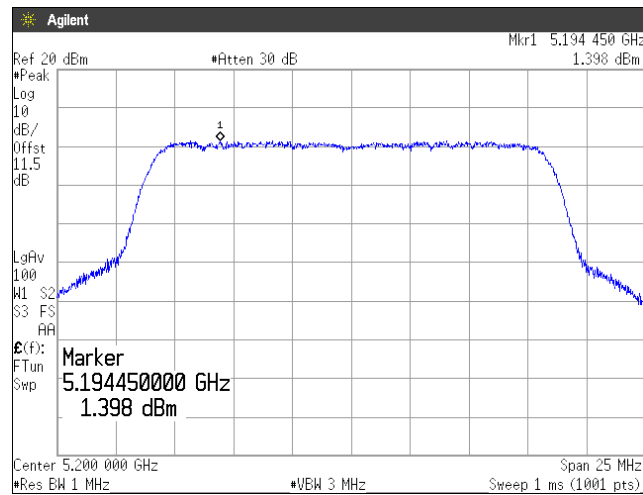
Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)
				On Time(ms)	On+Off Time(ms)	X		
802.11ac (80MHz)	42	5210	-5.228	0.2475	0.2579	0.960	0.179	-5.049
	58	5290	-5.487	0.2475	0.2579	0.960	0.179	-5.308
	106	5530	-5.142	0.2480	0.2584	0.960	0.178	-4.964
	122	5610	-4.844	0.2475	0.2584	0.958	0.187	-4.657

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

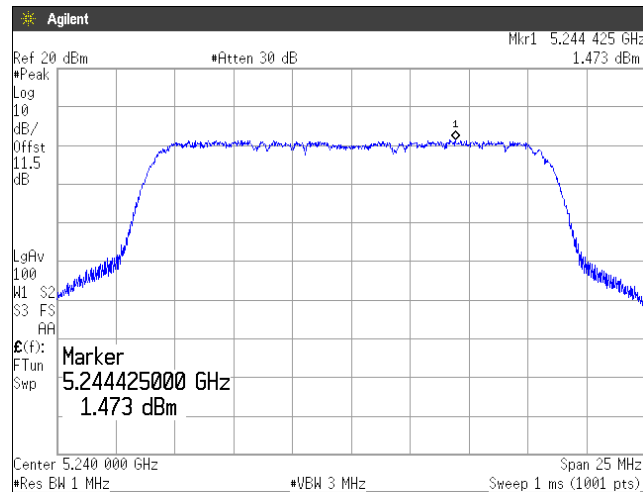
6.4 Trace data
[IEEE802.11a]
(5.2GHz Band)
Channel: 36



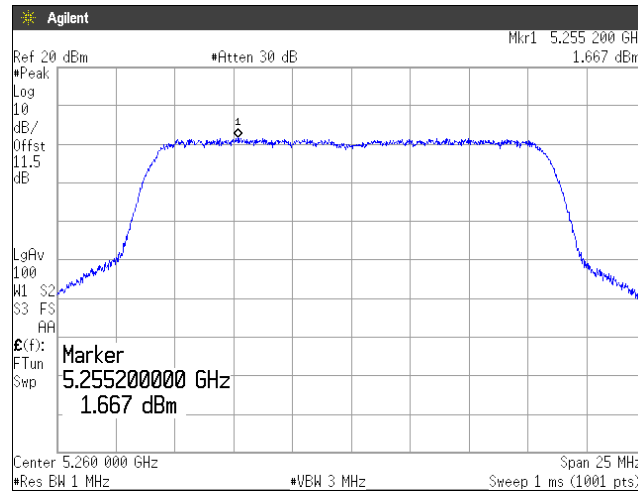
Channel: 40



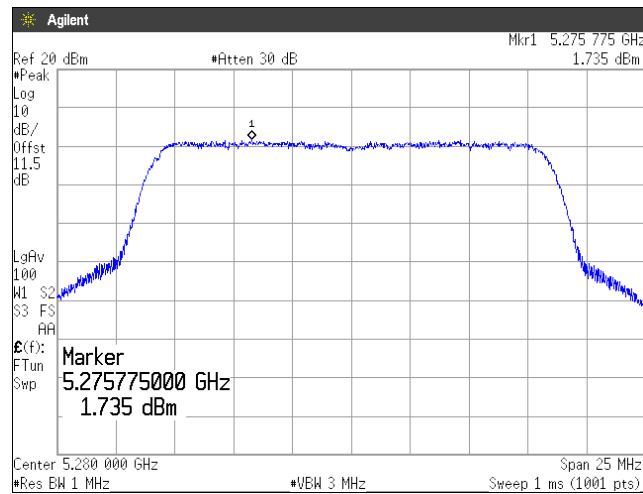
Channel: 48



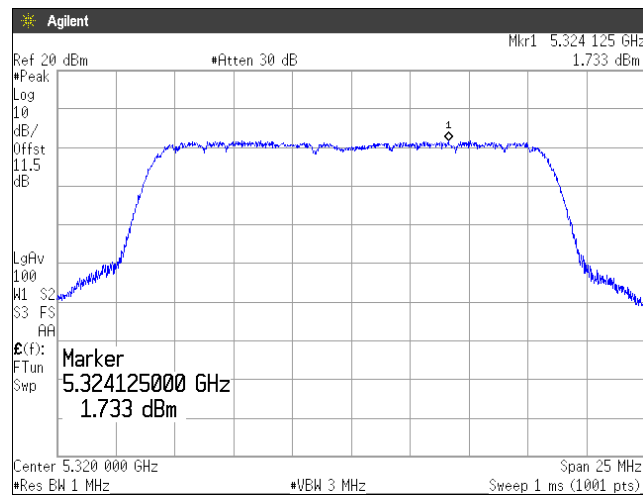
(5.3GHz Band)
Channel: 52



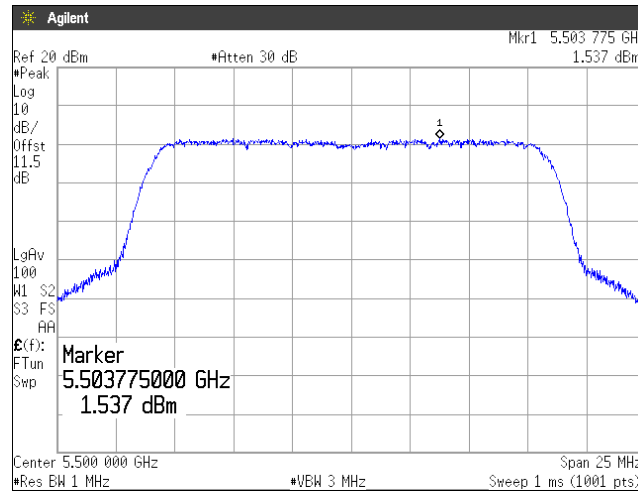
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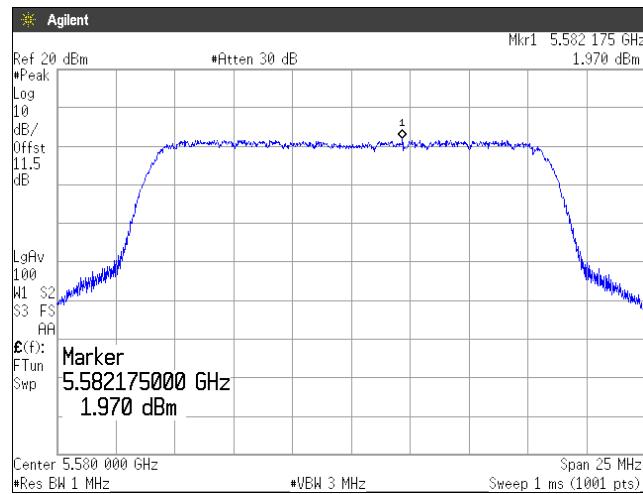
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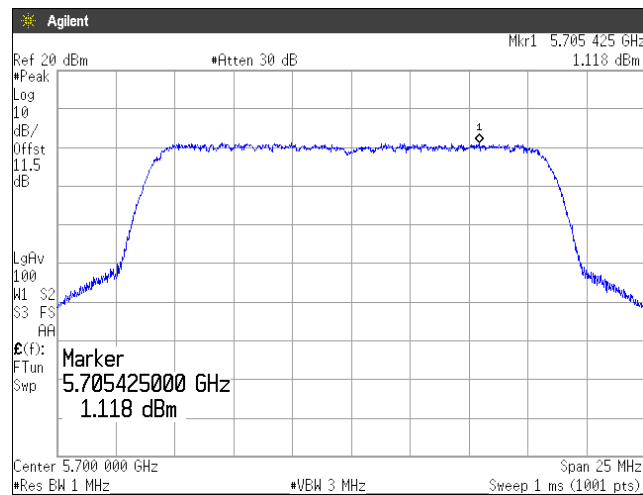
(5.6GHz Band)
Channel: 100



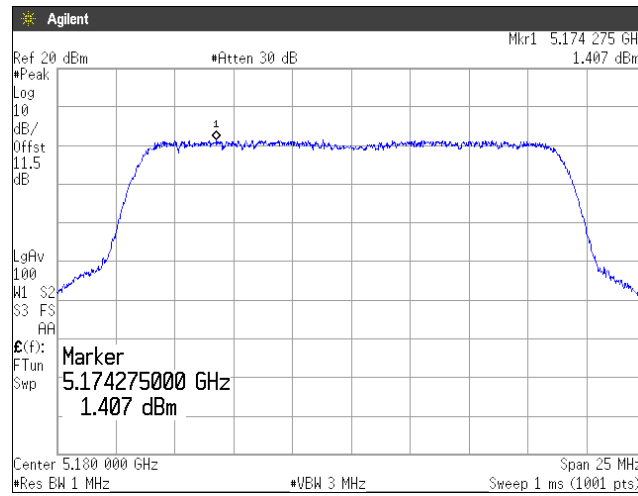
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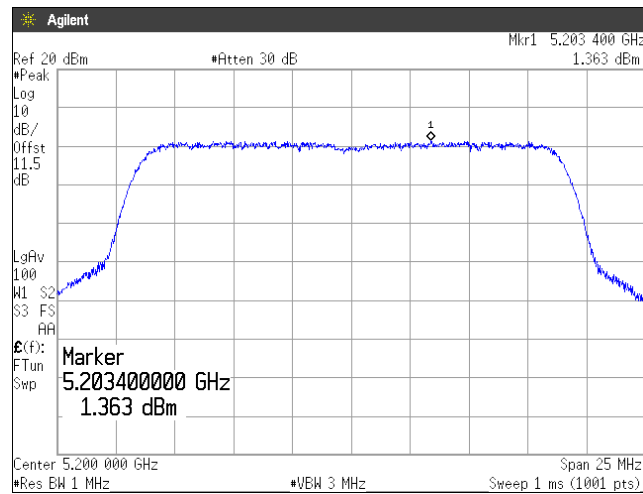
Channel: 140



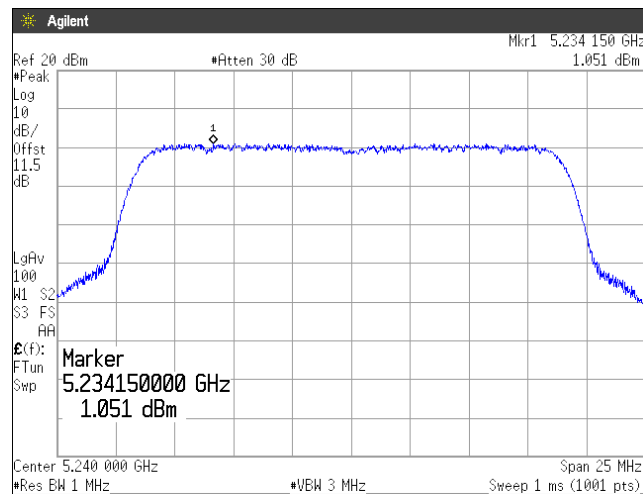
[IEEE802.11n (HT20)]
(5.2GHz Band)
Channel: 36



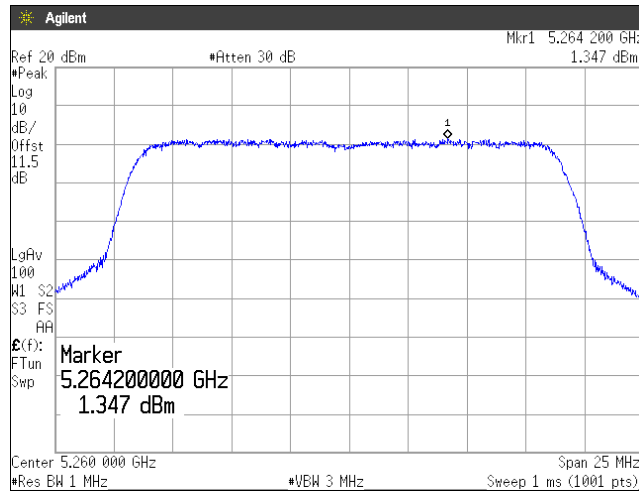
Channel: 40



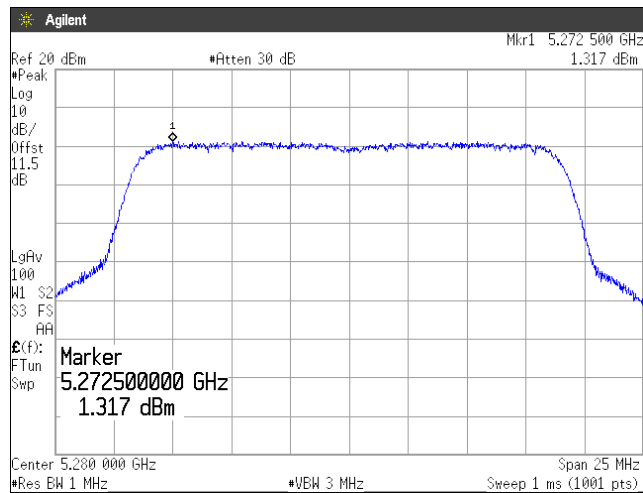
Channel: 48



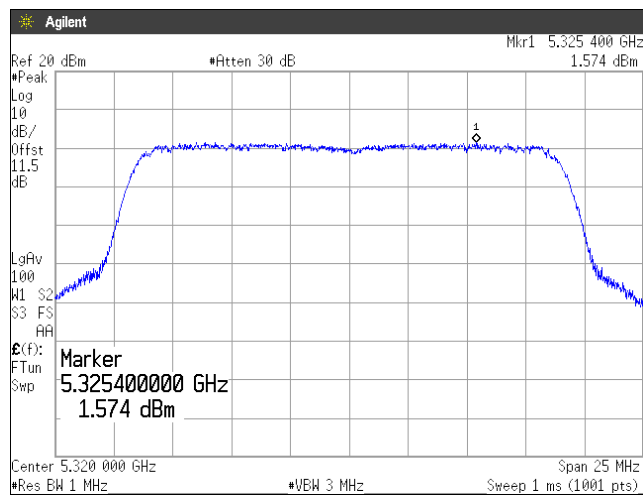
(5.3GHz Band)
Channel: 52



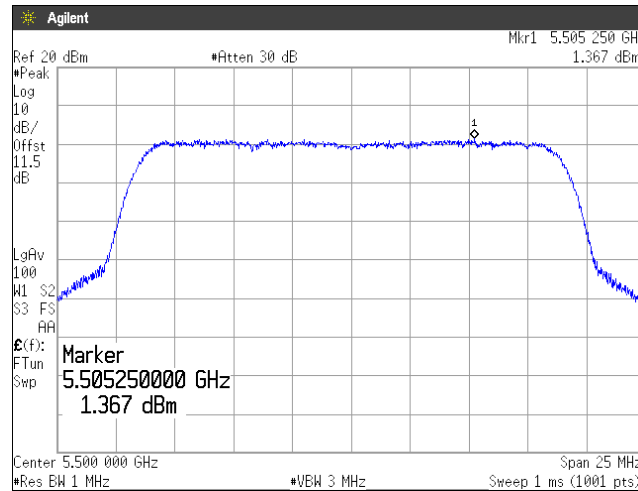
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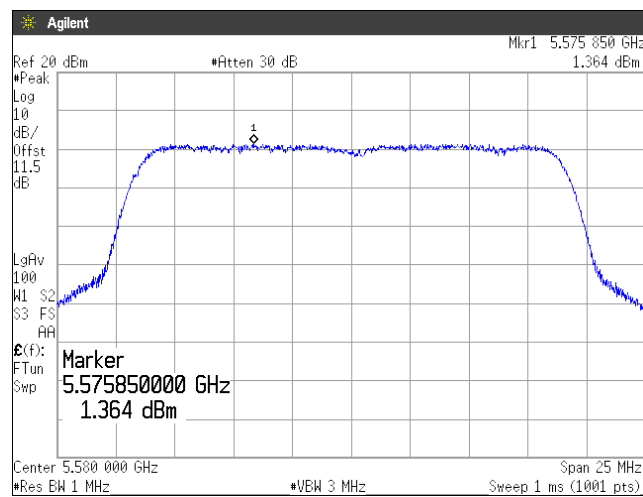
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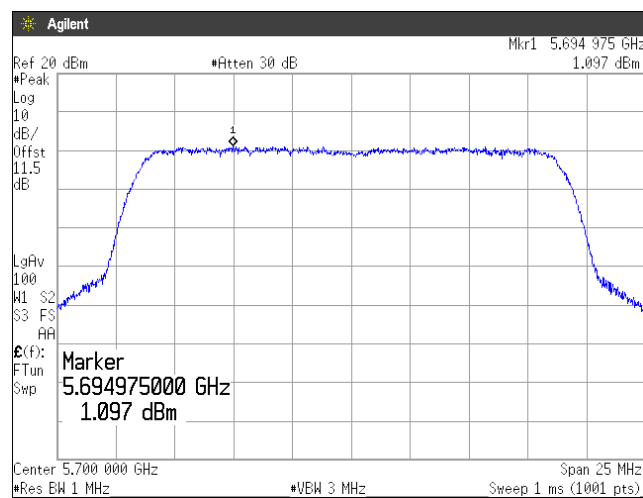
(5.6GHz Band)
Channel: 100



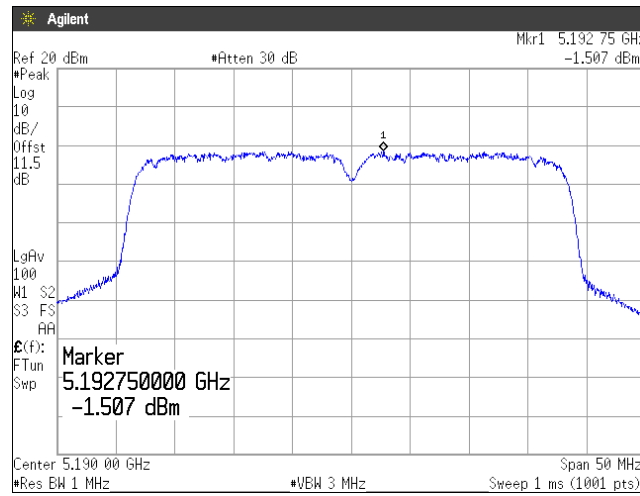
Channel: 116



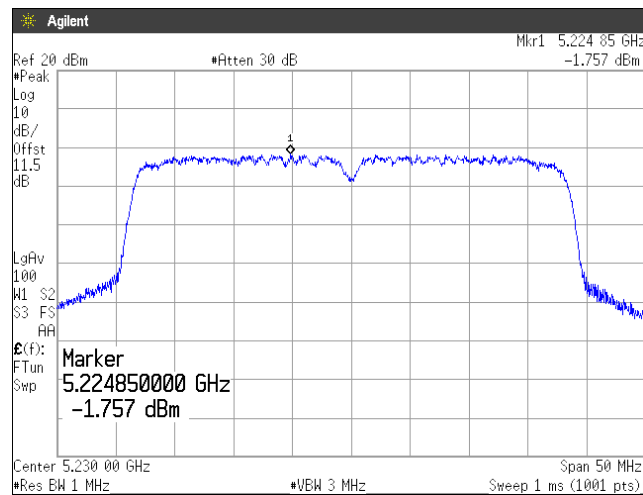
Channel: 140



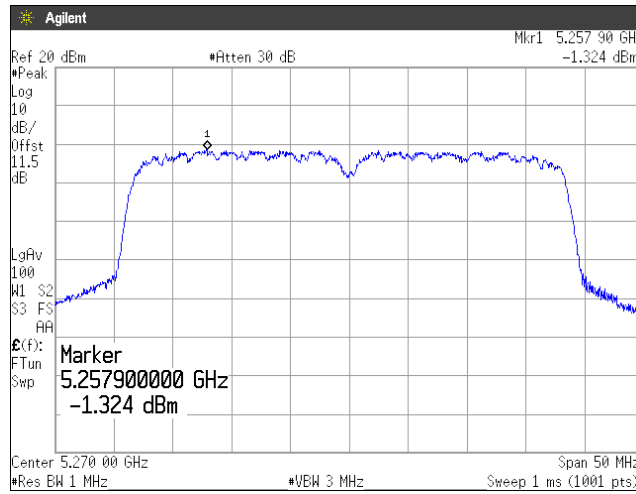
[IEEE802.11n (HT40)]
(5.2GHz Band)
Channel: 38



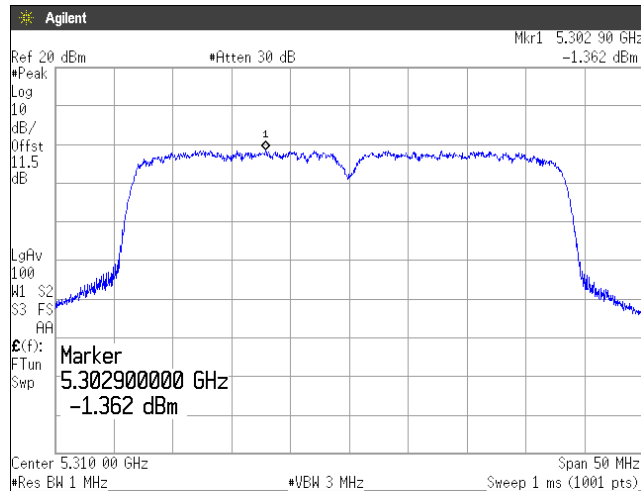
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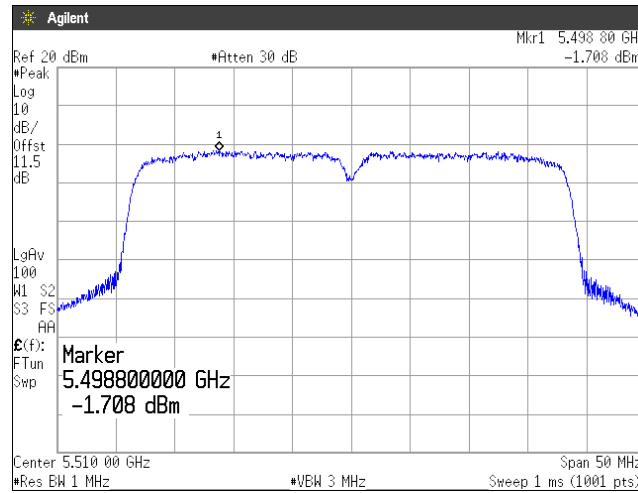
(5.3GHz Band)
Channel: 54



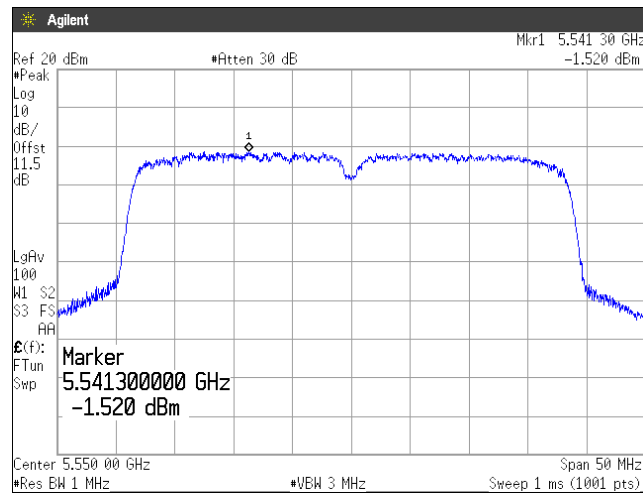
Channel: 62



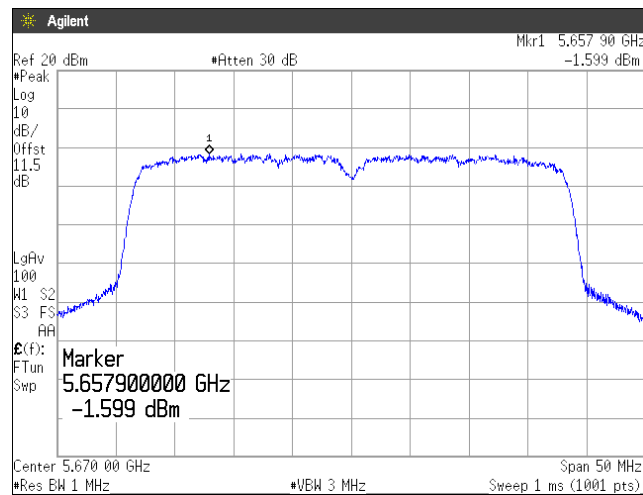
(5.6GHz Band)
Channel: 102



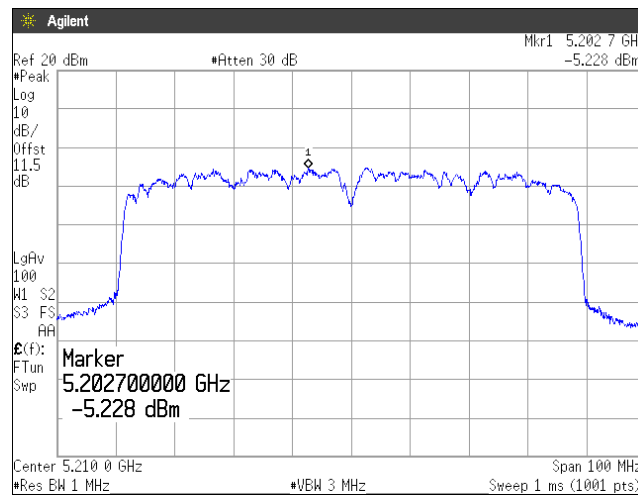
Channel: 110



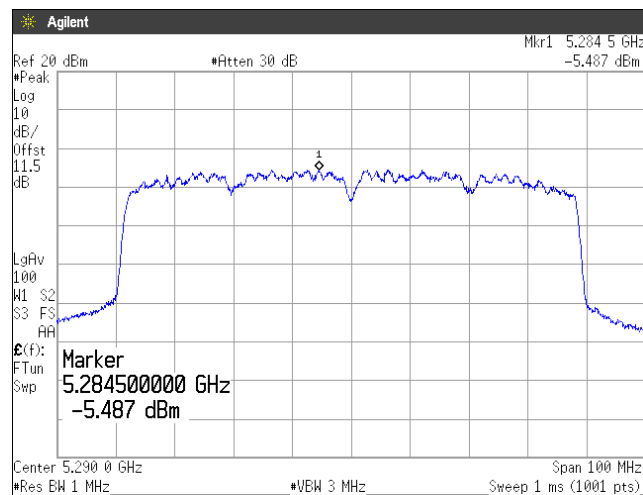
Channel: 134



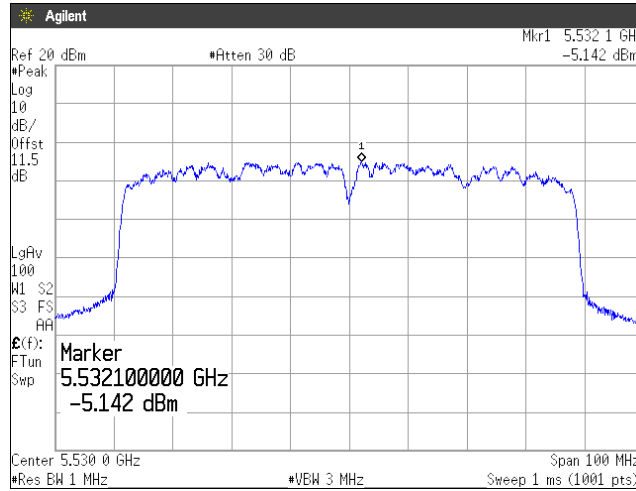
[IEEE802.11ac (HT80)]
(5.2GHz Band)
Channel: 42



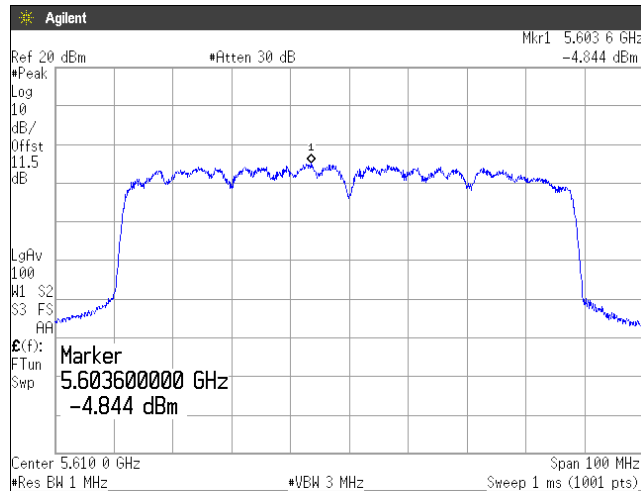
(5.3GHz Band)
Channel: 58



(5.6GHz Band)
Channel: 106



Channel: 122



7. Radiated Emissions (Restricted Bands of Operation)

7.1 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	: 9kHz to 40GHz
Test place	: 3m Semi-anechoic chamber No.1
EUT was placed on	: Styrofoam table / (W)1.0m × (D)1.0m × (H)0.8m (below 1GHz) Styrofoam table / (W)0.6m × (D)0.6m × (H)1.5m (above 1GHz)
Antenna distance	: 3m
Test receiver setting	Below 1GHz
- Detector	: Quasi-peak
- Bandwidth	: 120kHz
Spectrum analyzer setting	Above 1GHz
- Peak	: RBW=1MHz, VBW=3MHz, Span=0Hz, Sweep=auto, Detector=Peak Trace mode=Max hold
- Average	: RBW=1MHz, VBW=3MHz, Span=0Hz, 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 Broad-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 1GHz) and 1.5m (above 1GHz) 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.

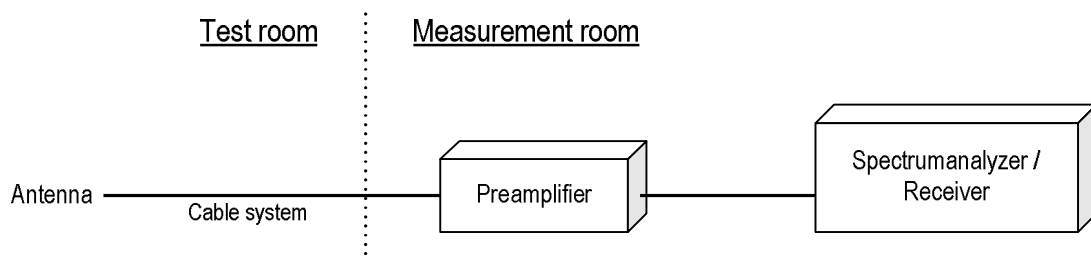
The EUT was set to operate with following conditions.

- 5.2GHz Band, 5.3GHz Band, 5.6GHz 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	1.364	1.372	99.417	0.025
	W53	1.364	1.372	99.417	0.025
	W56	1.364	1.372	99.417	0.025
802.11n (20MHz)	W52	1.274	1.284	99.221	0.034
	W53	1.276	1.284	99.377	0.027
	W56	1.274	1.282	99.376	0.027
802.11n (40MHz)	W52	0.635	0.645	98.450	0.068
	W53	0.635	0.645	98.450	0.068
	W56	0.635	0.645	98.450	0.068
802.11ac (80MHz)	W52	0.2475	0.2579	95.967	0.179
	W53	0.2475	0.2579	95.967	0.179
	W56	0.2480	0.2584	95.975	0.178

7.2 Calculation method

[150kHz to 25GHz]

Emission level = Reading + (Ant. factor + Cable system loss - Amp. Gain)

Margin = Limit - Emission level

Example:

Detector: Peak

Limit @ 5147.0MHz : 74.0dBuV/m (Peak Limit)

S.A Reading = 40.9dBuV Cable system loss = 16.4dB

Result = 40.9 + 16.4 = 57.3dBuV/m

Margin = 74.0 - 57.3 = 16.7dB

7.3 Limit

- (1) For transmitters operating in the 5.15-5.25GHz band: all emissions outside of the 5.15-5.35GHz band shall not exceed an EIRP of -27dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35GHz band: all emissions outside of the 5.15-5.35GHz band shall not exceed an EIRP of -27dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725GHz band: all emissions outside of the 5.47 5-5.725GHz band shall not exceed an EIRP of -27dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85GHz band: all emissions within the frequency range from the band edge to 10MHz above or below the band edge shall not exceed an EIRP of -17dBm/MHz; for frequencies 10MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27dBm/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 1000MHz, 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.

7.4 Test data

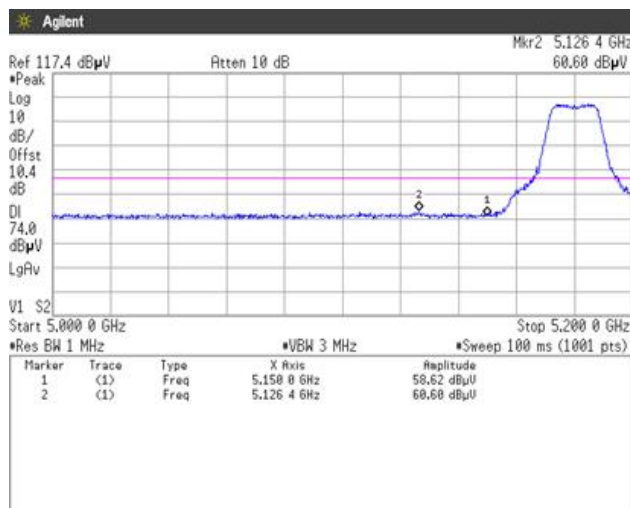
Date : January 9, 2018
 Temperature : 20.4 [°C]
 Humidity : 27.6 [%]
 Test place : 3m Semi-anechoic chamber

Test engineer : Taiki Watanabe

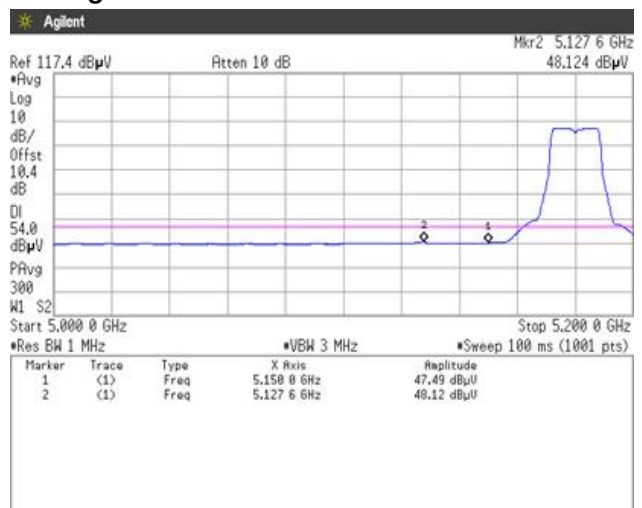
7.4.1 Restricted Bandedge

[IEEE802.11a]

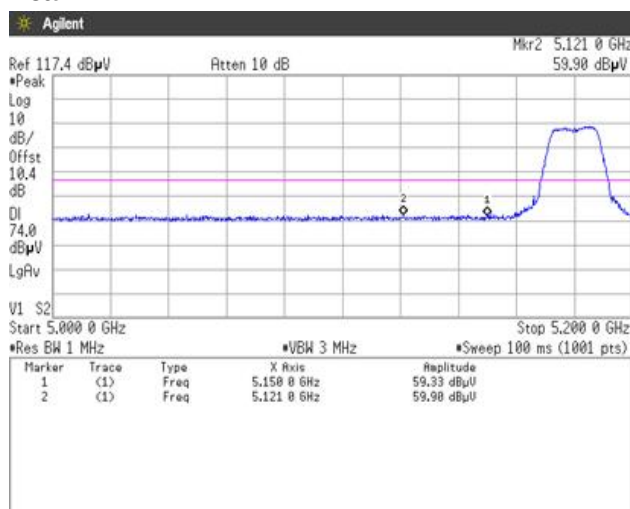
5.2GHz Band, Channel Low
 Horizontal
 Peak



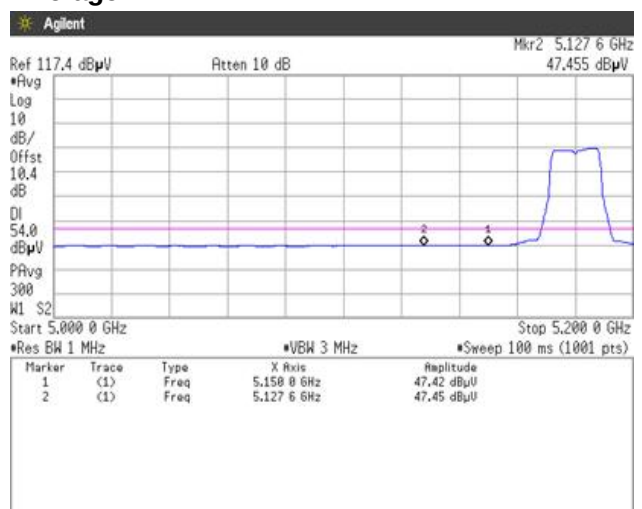
Average



Vertical
 Peak

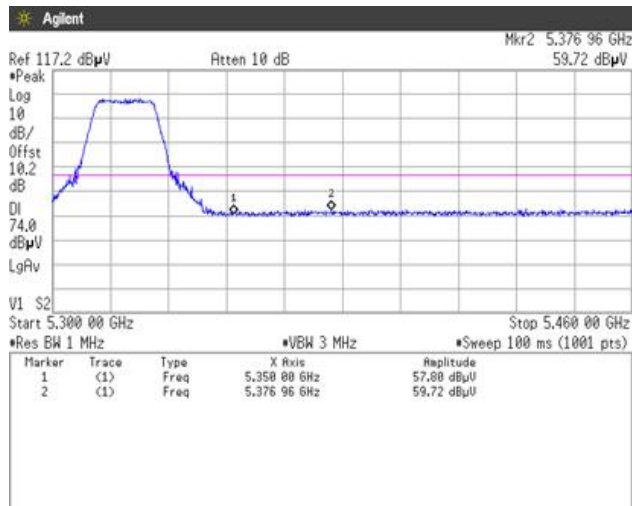


Average

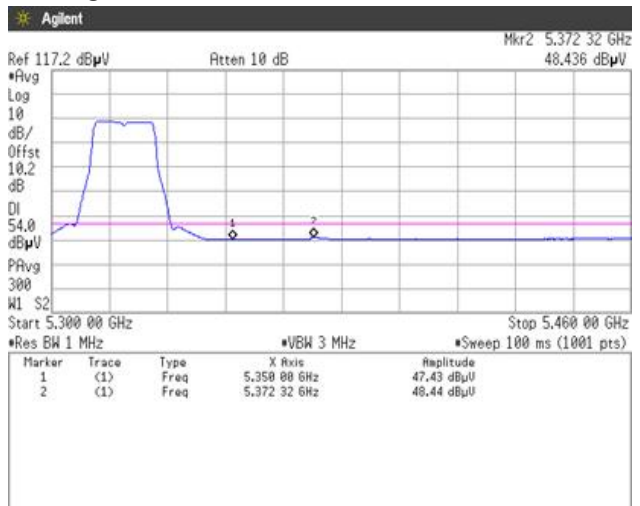


[IEEE802.11a]

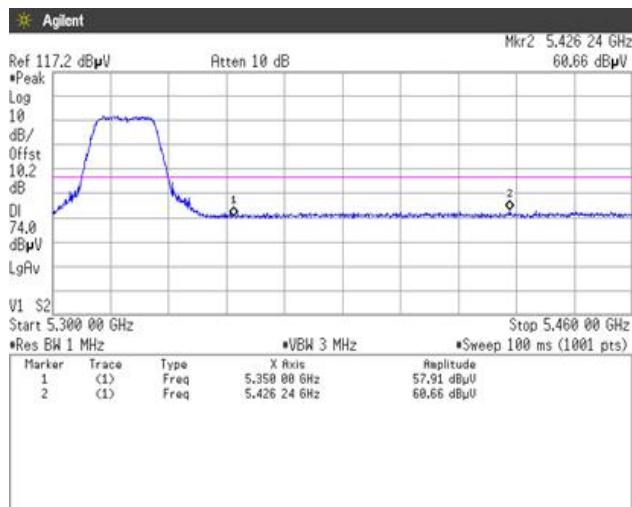
5.3GHz Band, Channel High Horizontal Peak



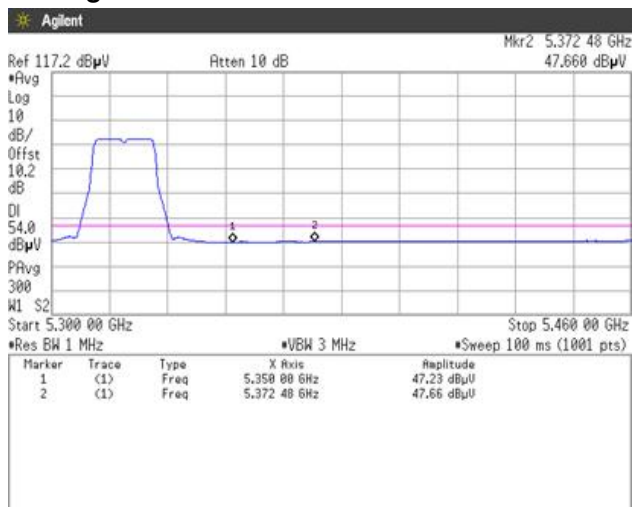
Average



Vertical Peak

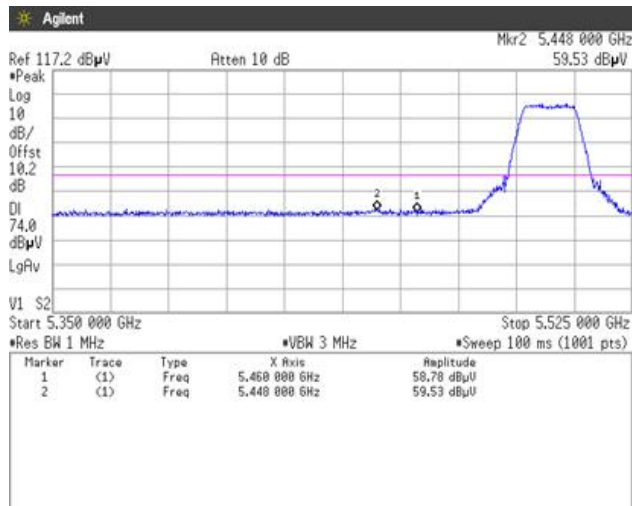


Average

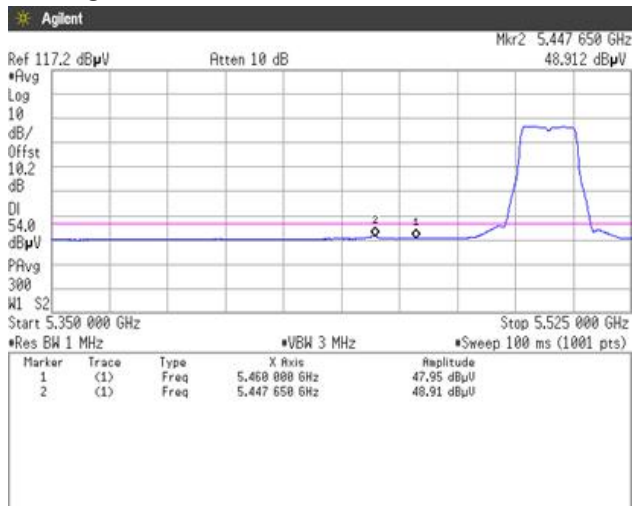


[IEEE802.11a]

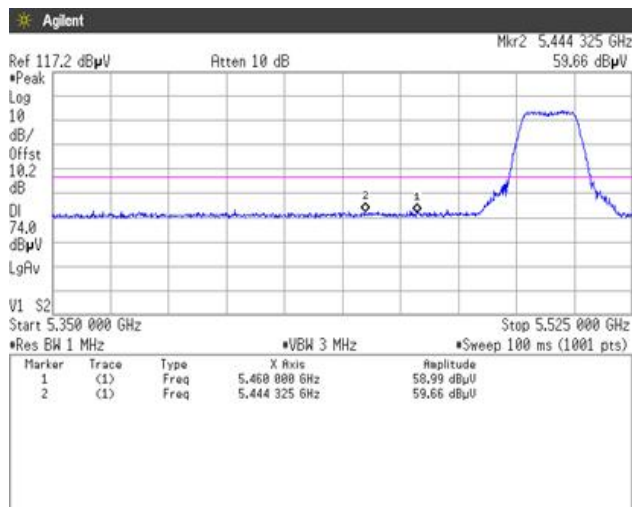
5.6GHz Band, Channel Low Horizontal Peak



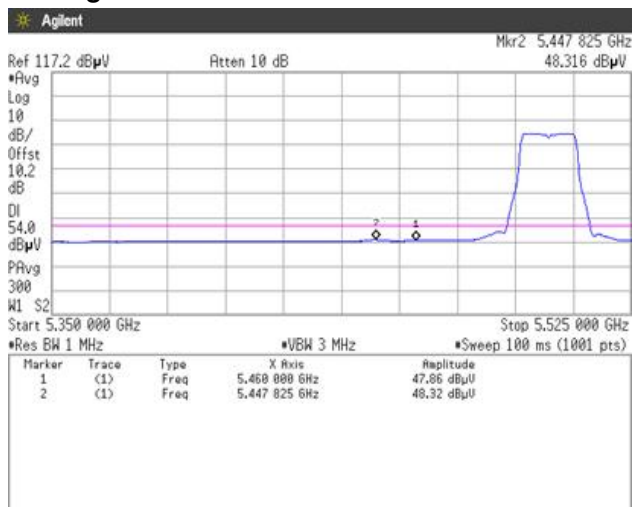
Average



Vertical Peak

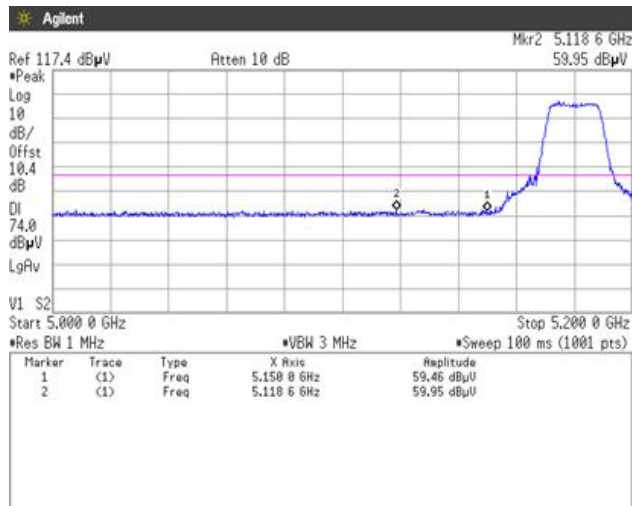


Average

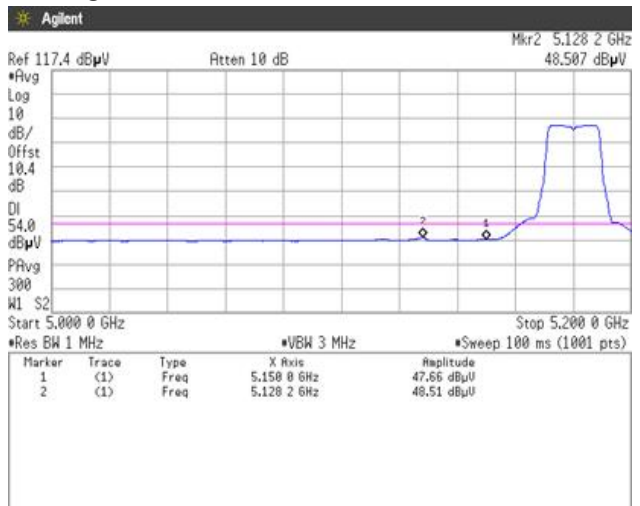


[IEEE802.11n (HT20)]

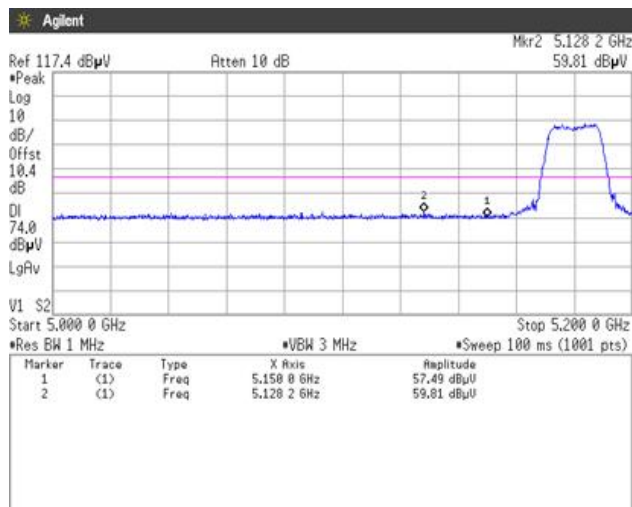
5.2GHz Band, Channel Low Horizontal Peak



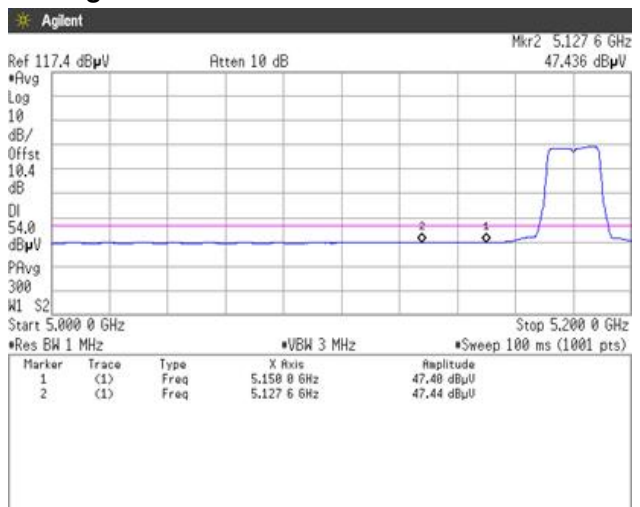
Average



Vertical Peak

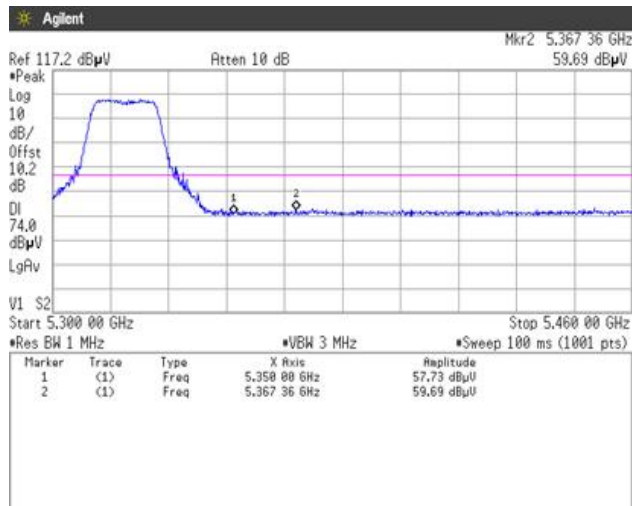


Average

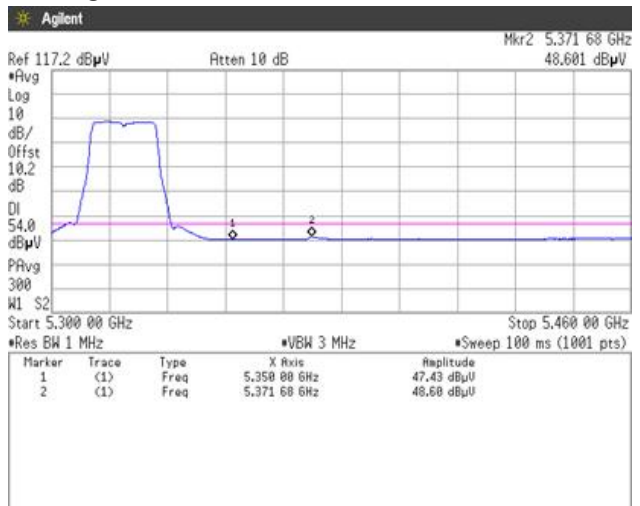


[IEEE802.11n (HT20)]

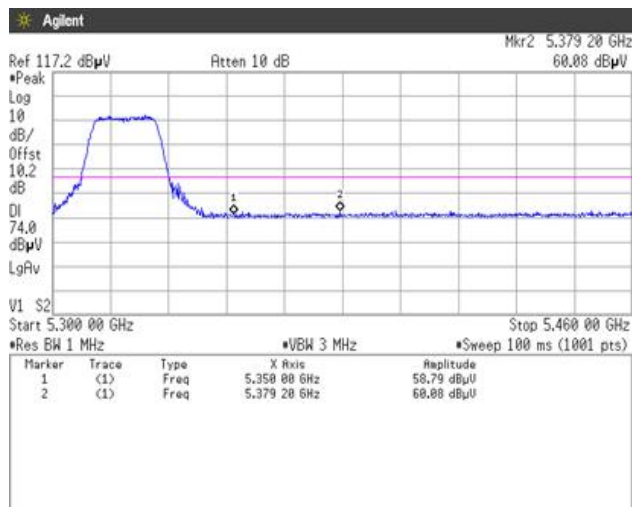
5.3GHz Band, Channel High Horizontal Peak



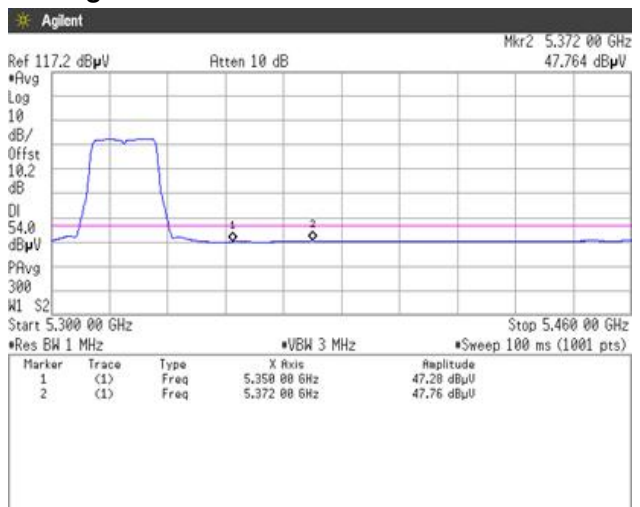
Average



Vertical Peak

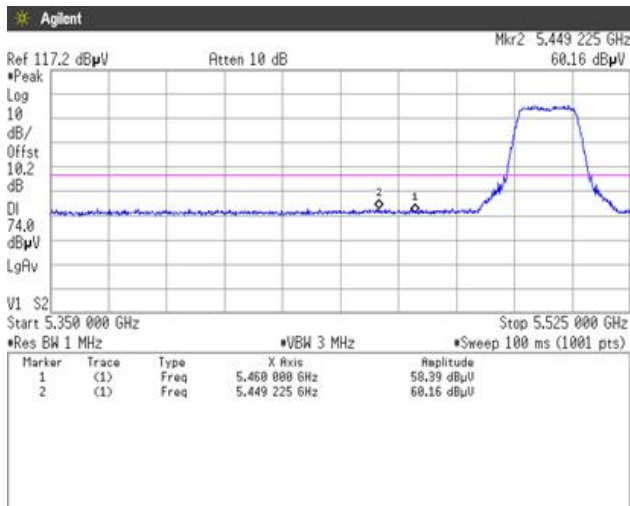


Average

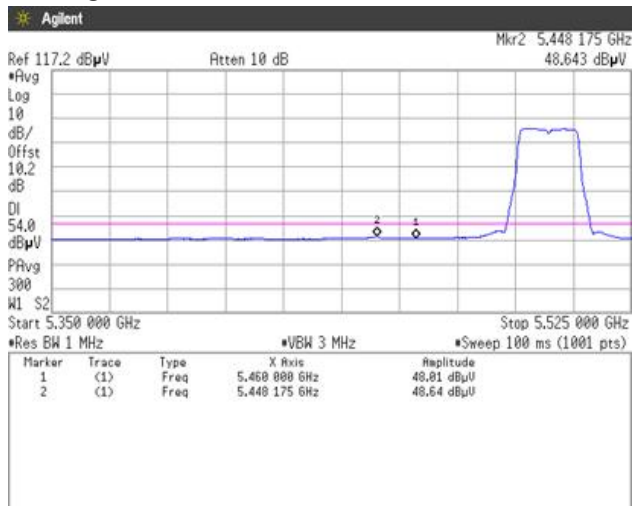


[IEEE802.11n (HT20)]

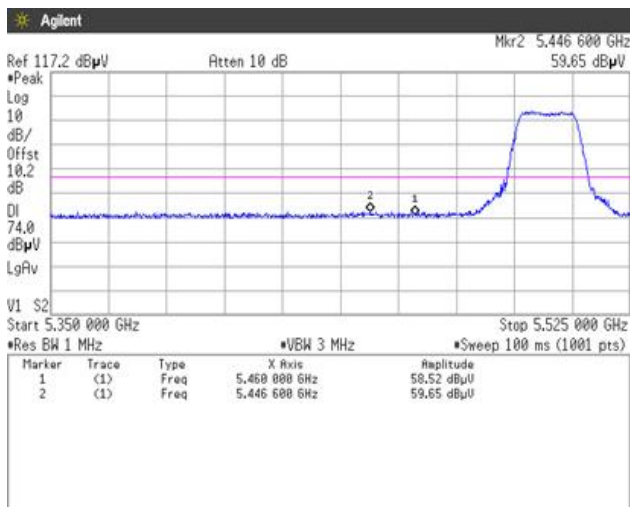
5.6GHz Band, Channel Low Horizontal Peak



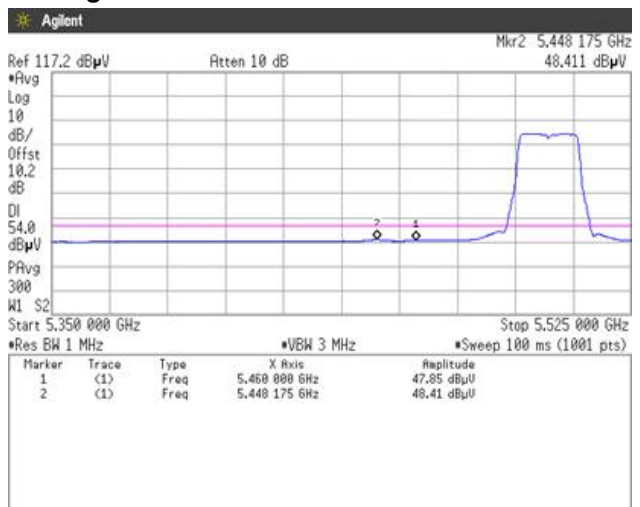
Average



Vertical Peak

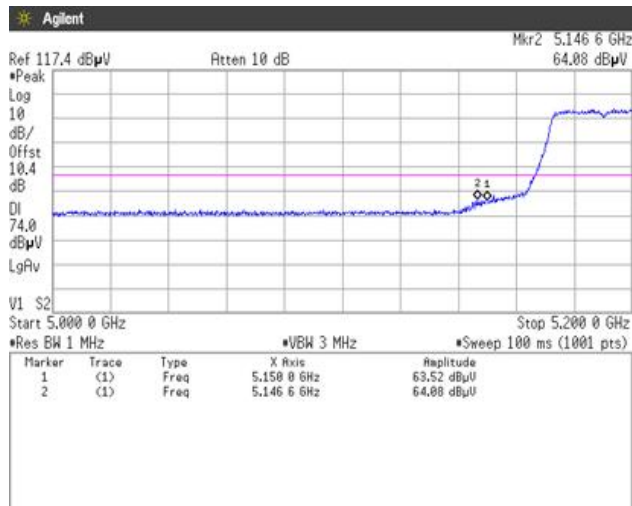


Average

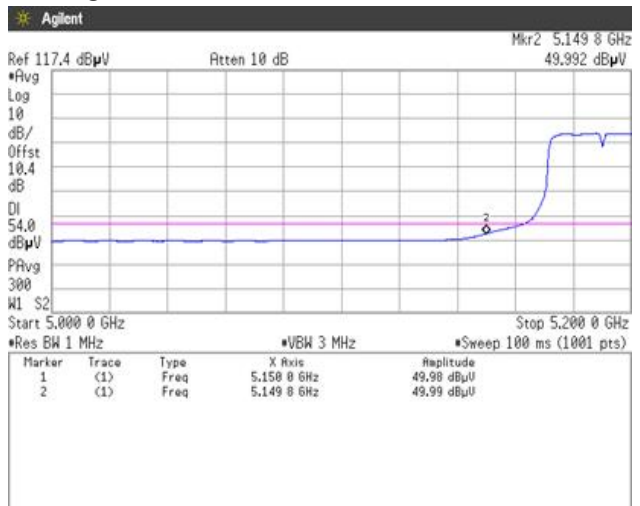


[IEEE802.11n (HT40)]

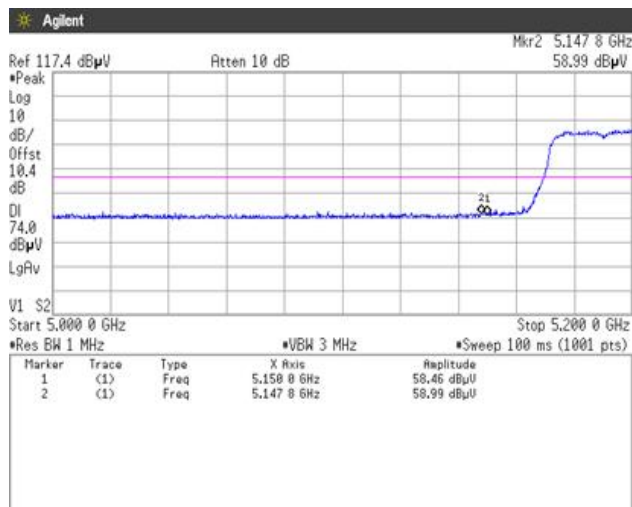
5.2GHz Band, Channel Low Horizontal Peak



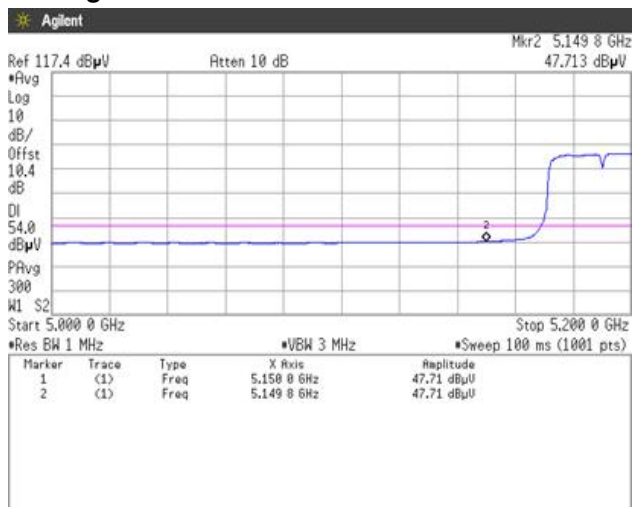
Average



Vertical Peak

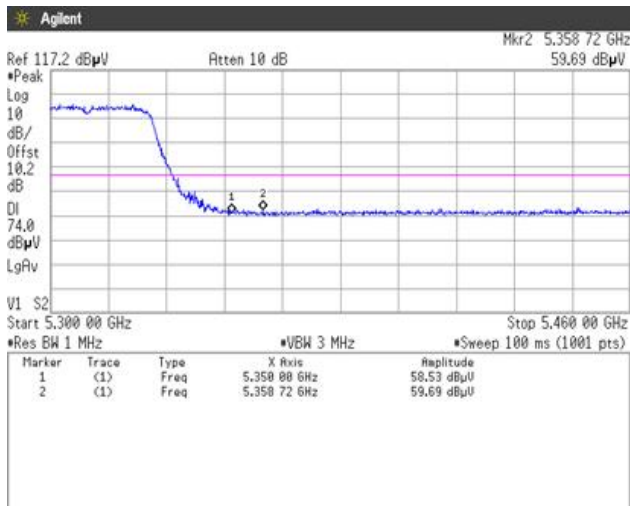


Average

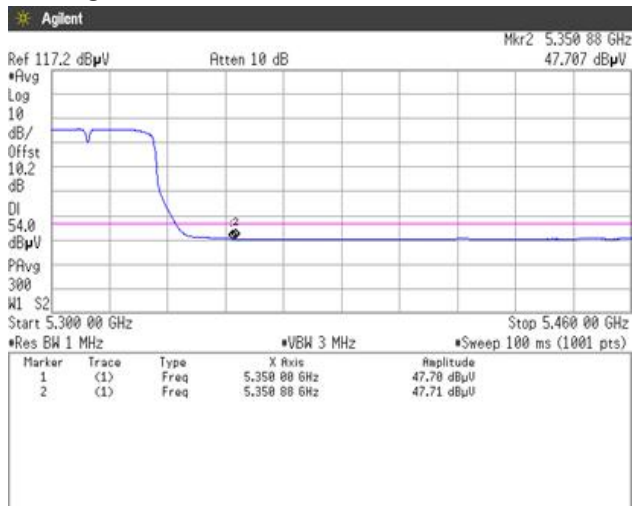


[IEEE802.11n (HT40)]

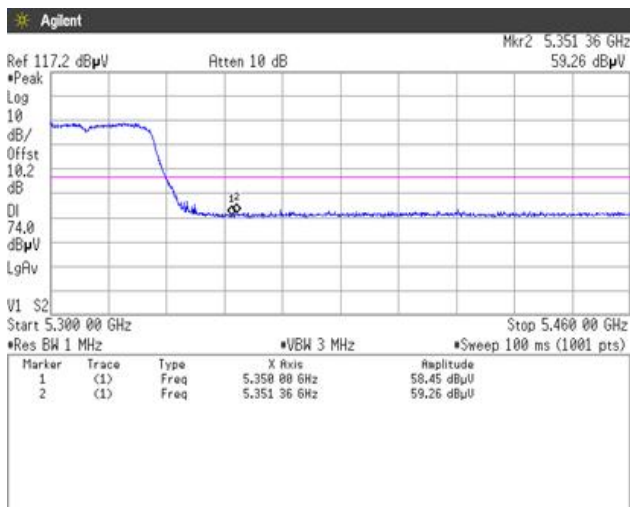
5.3GHz Band, Channel High Horizontal Peak



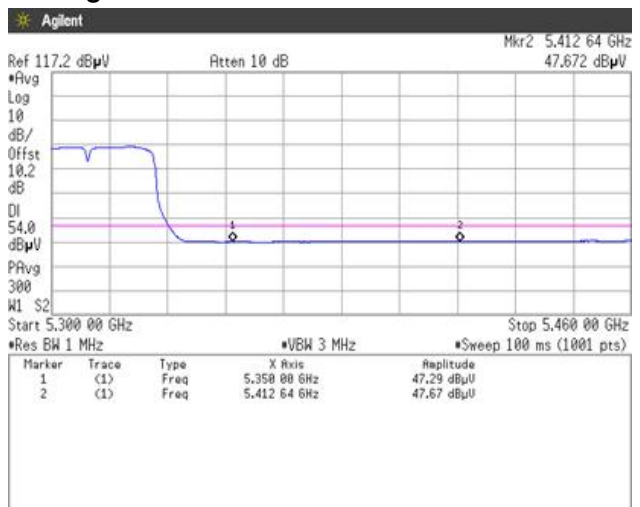
Average



Vertical Peak

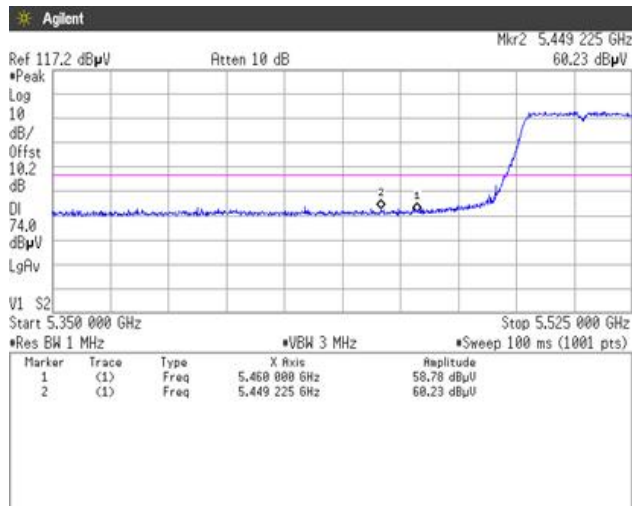


Average

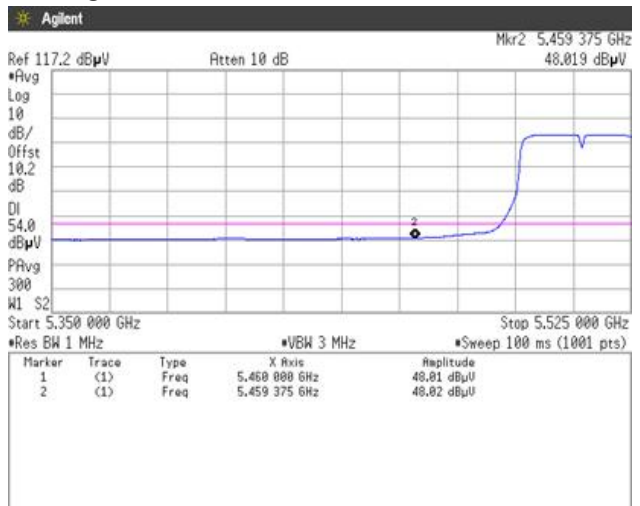


[IEEE802.11n (HT40)]

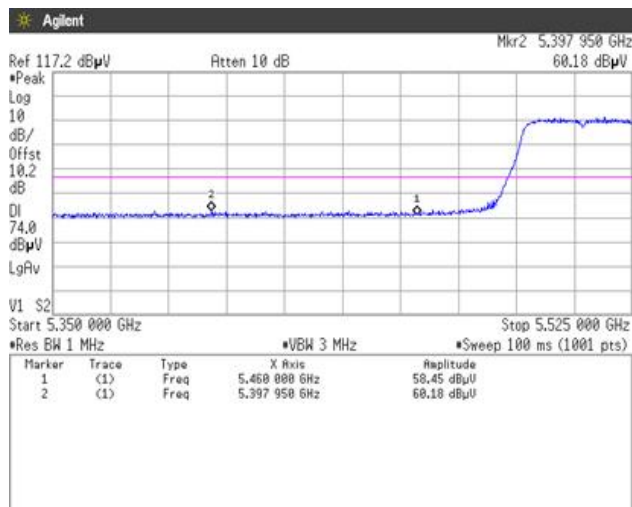
5.6GHz Band, Channel Low Horizontal Peak



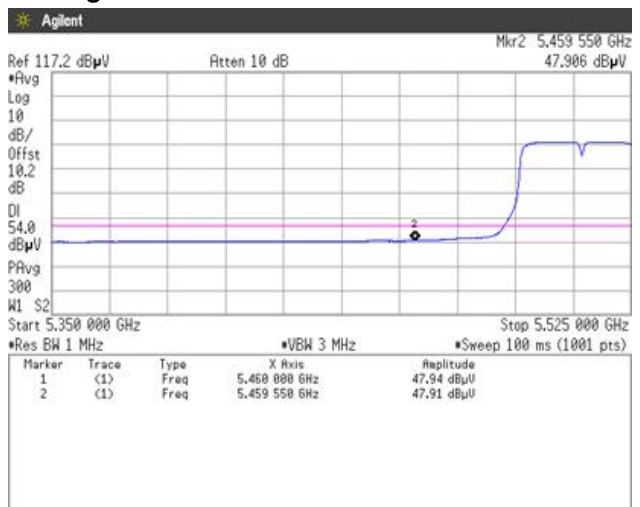
Average



Vertical Peak

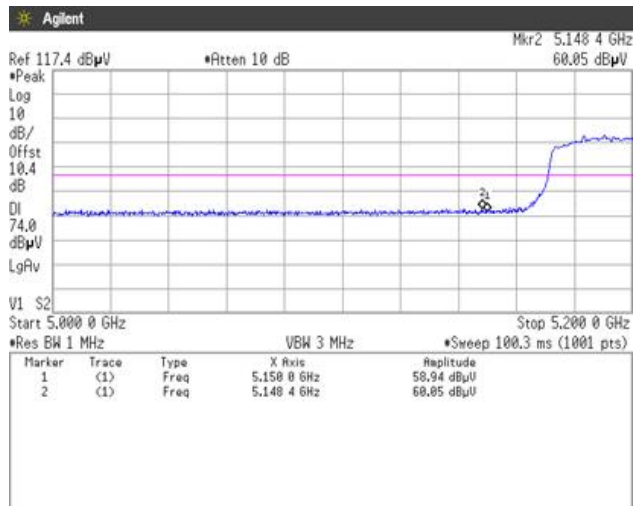


Average

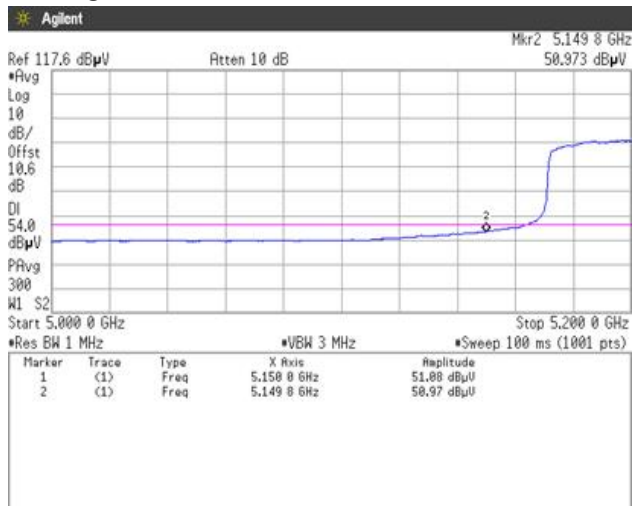


[IEEE802.11ac (HT80)]

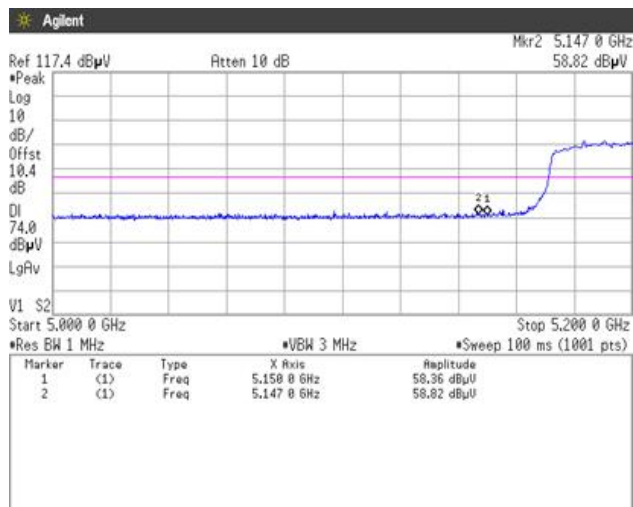
5.2GHz Band, Channel Low Horizontal Peak



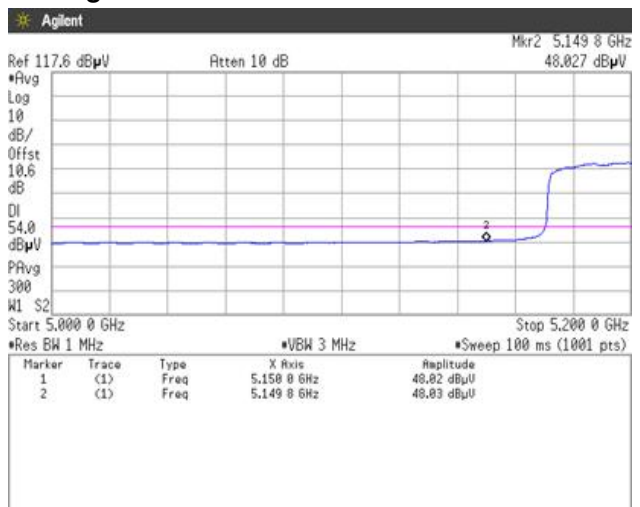
Average



Vertical Peak

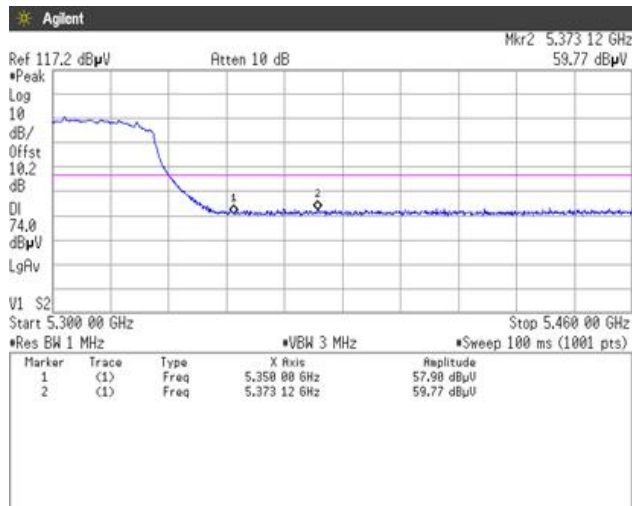


Average

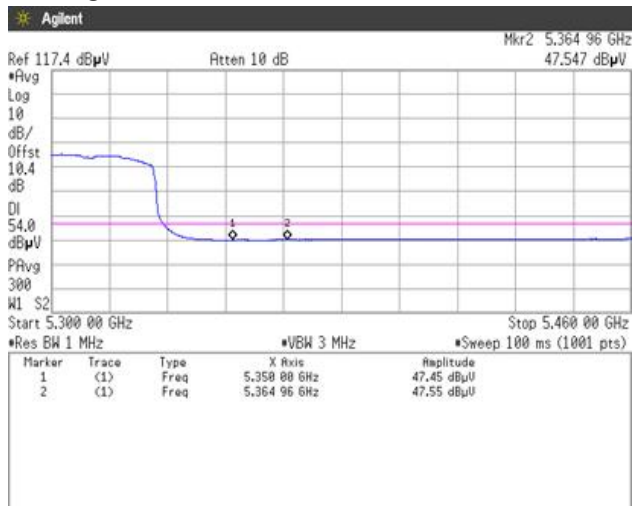


[IEEE802.11ac (HT80)]

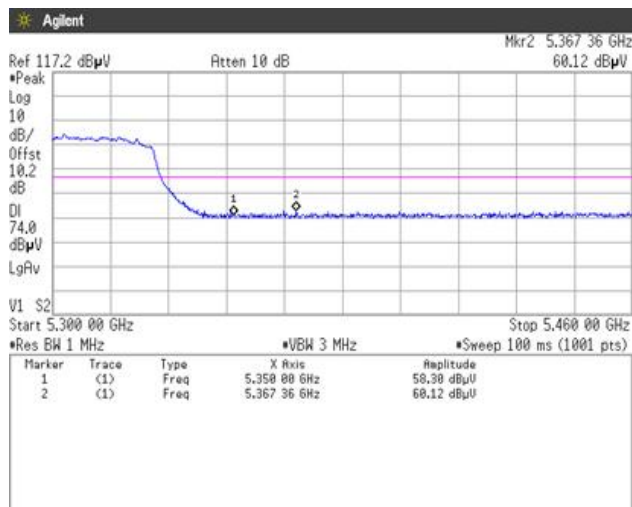
5.3GHz Band, Channel High Horizontal Peak



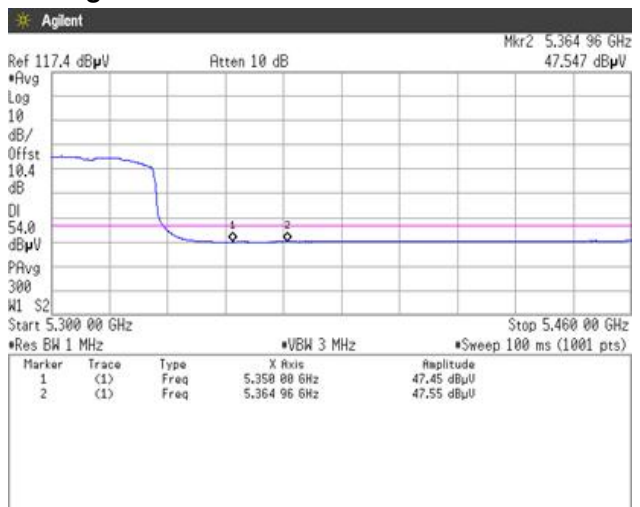
Average



Vertical Peak

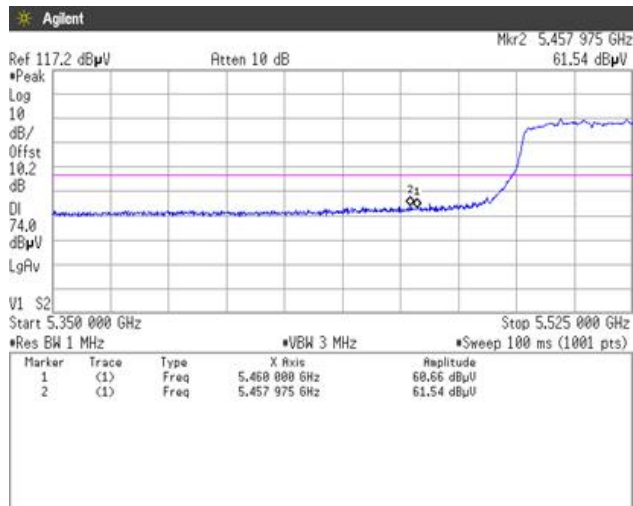


Average

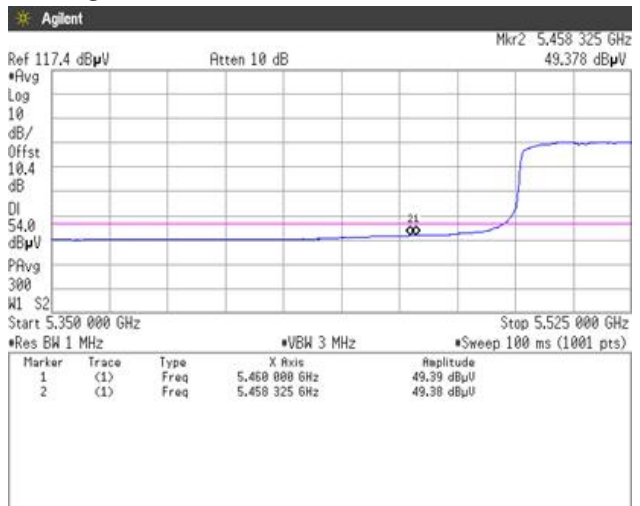


[IEEE802.11ac (HT80)]

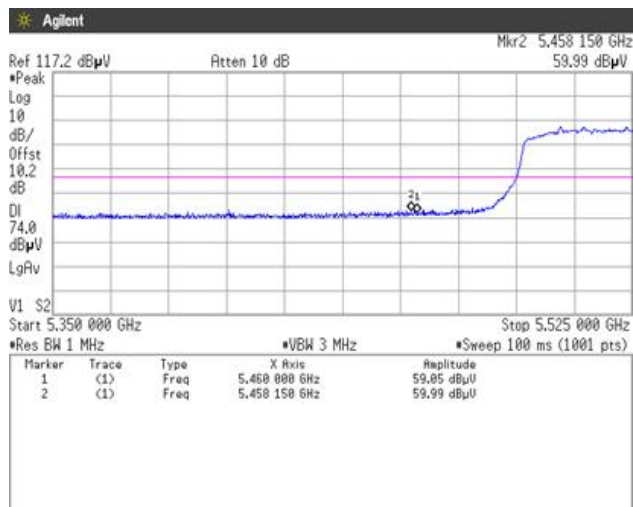
5.6GHz Band, Channel Low Horizontal Peak



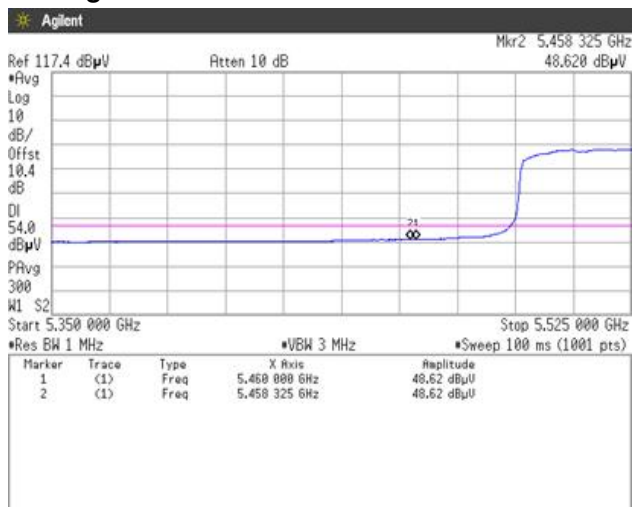
Average



Vertical Peak



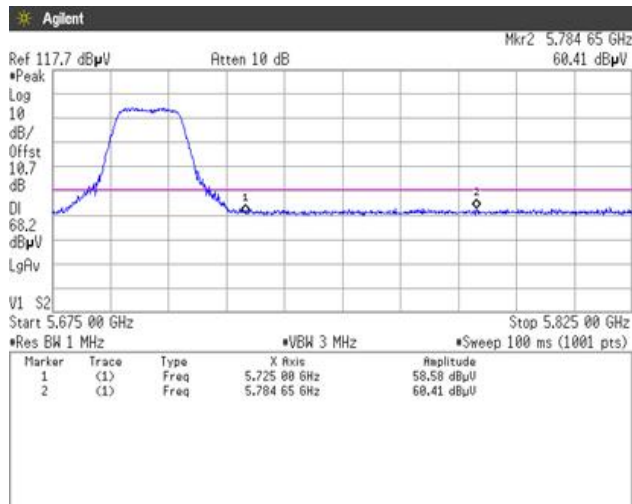
Average



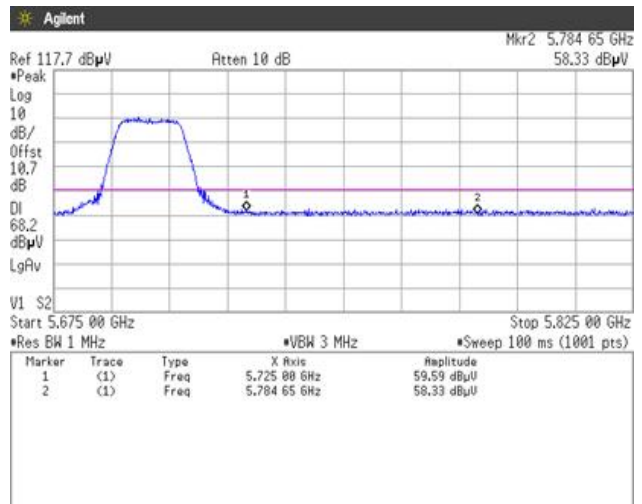
7.4.2 Non-Restricted Bandedge

[IEEE802.11a]

5.6GHz Band, Channel High Peak Horizontal

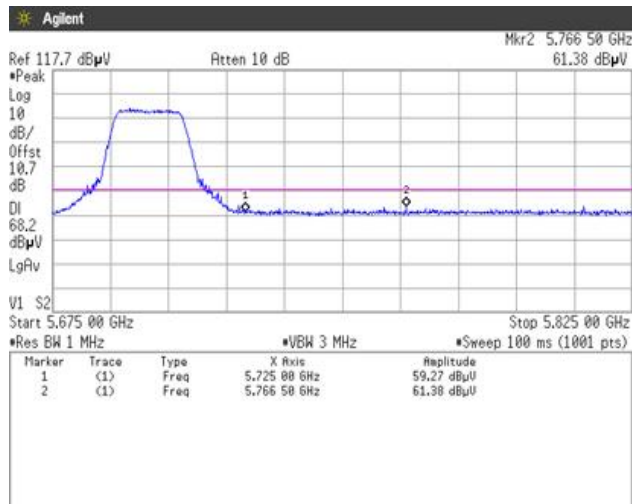


Vertical

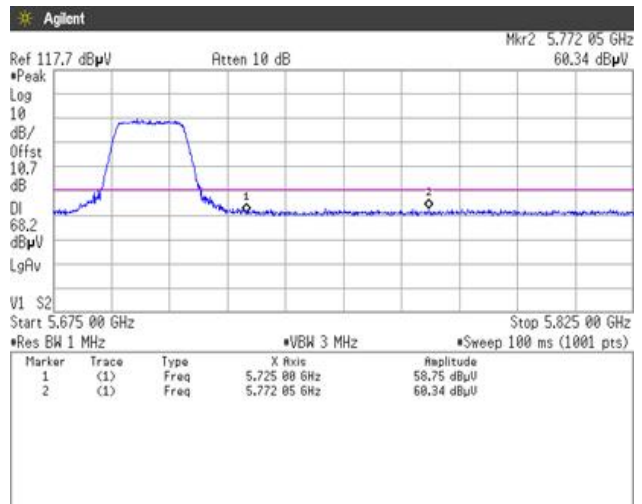


[IEEE802.11n (HT20)]

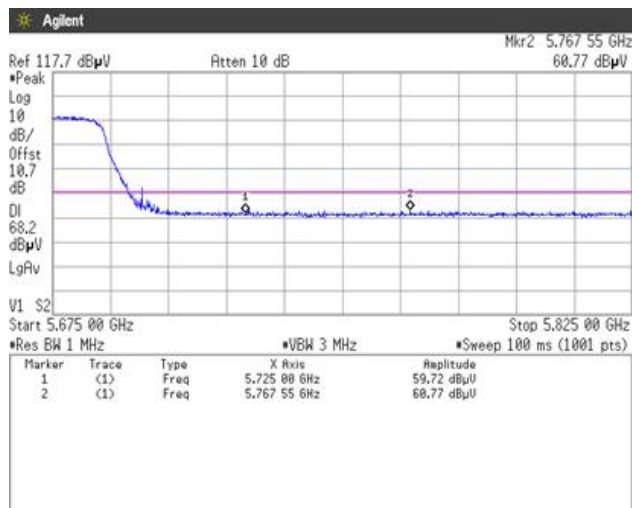
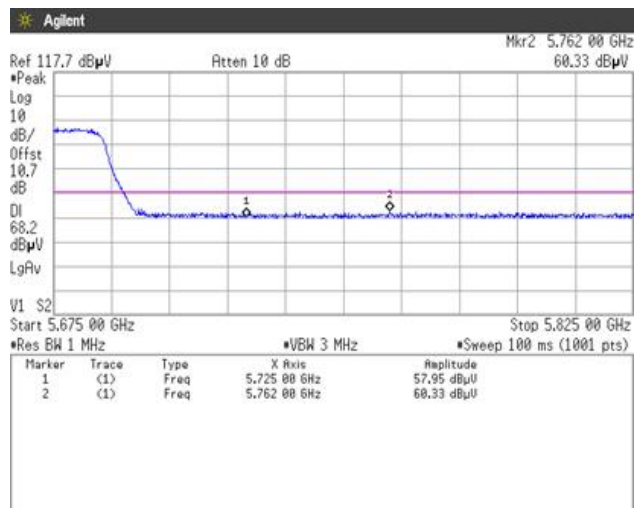
5.6GHz Band, Channel High Peak Horizontal



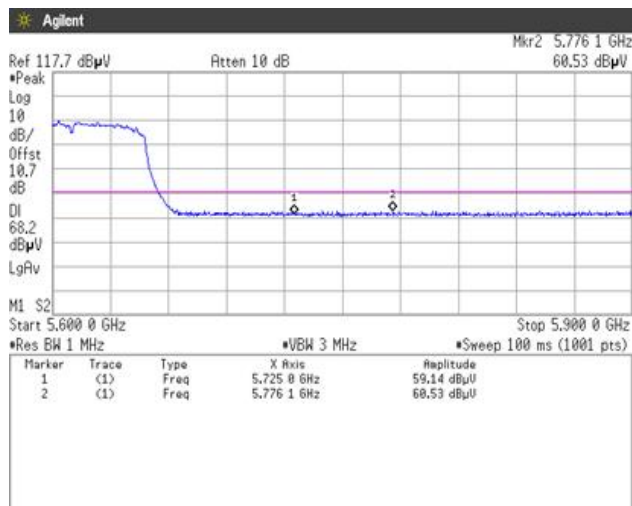
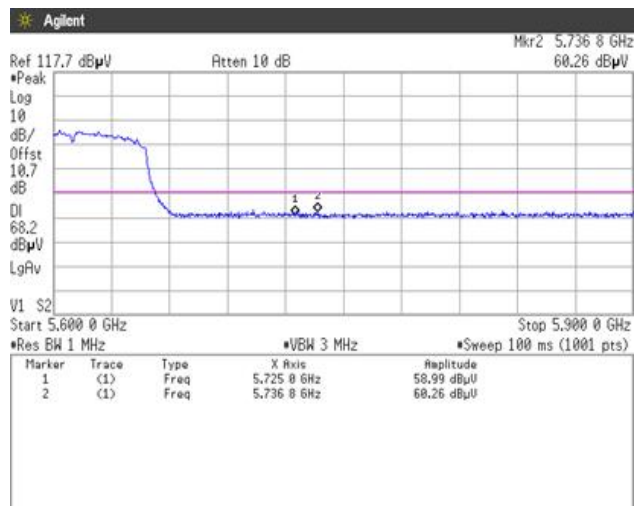
Vertical



[IEEE802.11n (HT40)]

5.6GHz Band, Channel High
Peak
Horizontal
**Vertical**

[IEEE802.11ac (HT80)]

5.6GHz Band, Channel High
Peak
Horizontal
**Vertical**

7.4.3 Radiated Emissions

Date	: December 18, 2017		
Temperature	: 25.8 [°C]		
Humidity	: 26.2 [%]	Test engineer	:
Test place	: 3m Semi-anechoic chamber		<u>Taiki Watanabe</u>
Date	: December 20, 2017		
Temperature	: 21.0 [°C]		
Humidity	: 26.1 [%]	Test engineer	:
Test place	: 3m Semi-anechoic chamber		<u>Taiki Watanabe</u>
Date	: December 21, 2017		
Temperature	: 22.0 [°C]		
Humidity	: 27.4 [%]	Test engineer	:
Test place	: 3m Semi-anechoic chamber		<u>Taiki Watanabe</u>
Date	: December 21~22, 2017		
Temperature	: 23.4 [°C]		
Humidity	: 26.1 [%]	Test engineer	:
Test place	: 3m Semi-anechoic chamber		<u>Taiki Watanabe</u>
Date	: December 22~23, 2017		
Temperature	: 20.6 [°C]		
Humidity	: 27.2 [%]	Test engineer	:
Test place	: 3m Semi-anechoic chamber		<u>Taiki Watanabe</u>
Date	: December 25, 2017		
Temperature	: 20.4 [°C]		
Humidity	: 27.8 [%]	Test engineer	:
Test place	: 3m Semi-anechoic chamber		<u>Taiki Watanabe</u>
Date	: January 4, 2018		
Temperature	: 22.1 [°C]		
Humidity	: 25.0 [%]	Test engineer	:
Test place	: 3m Semi-anechoic chamber		<u>Taiki Watanabe</u>
Date	: January 5, 2018		
Temperature	: 20.6 [°C]		
Humidity	: 27.0 [%]	Test engineer	:
Test place	: 3m Semi-anechoic chamber		<u>Taiki Watanabe</u>
Date	: January 10, 2018		
Temperature	: 20.4 [°C]		
Humidity	: 27.6 [%]	Test engineer	:
Test place	: 3m Semi-anechoic chamber		<u>Taiki Watanabe</u>
Date	: January 10~11, 2018		
Temperature	: 20.6 [°C]		
Humidity	: 25.3 [%]	Test engineer	:
Test place	: 3m Semi-anechoic chamber		<u>Taiki Watanabe</u>
Date	: January 11~12, 2018		
Temperature	: 20.3 [°C]		
Humidity	: 25.8 [%]	Test engineer	:
Test place	: 3m Semi-anechoic chamber		<u>Taiki Watanabe</u>

Date : January 12~13 2018
 Temperature : 20.7 [°C]
 Humidity : 25.1 [%]
 Test place : 3m Semi-anechoic chamber

Test engineer : Taiki Watanabe

[IEEE802.11a]
(5.2GHz 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	H	PK	46.0	9.9		55.9	68.2	12.3
	40	5200	10400.00	H	PK	45.9	9.9		55.8	68.2	12.4
	48	5240	10480.00	H	PK	46.1	10.0		56.1	68.2	12.1

(5.3GHz 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	H	PK	46.2	10.0		56.2	68.2	12.0
	56	5280	10560.00	H	PK	45.9	10.1		56.0	68.2	12.2
	64	5320	10640.00	H	PK	46.5	10.2		56.7	74.0	17.3
			10640.00	H	AV	34.3	10.2		44.5	54.0	9.5

(5.6GHz 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	5465.02	H	PK	50.8	10.2		61.0	68.2	7.2
			5461.25	V	PK	50.1	10.2		60.3	68.2	7.9
			11000.00	H	PK	45.0	10.6		55.6	74.0	18.4
			11000.00	H	AV	33.2	10.6		43.8	54.0	10.2
	116	5580	11160.00	H	PK	46.3	10.9		57.2	74.0	16.8
			11160.00	H	AV	33.7	10.9		44.6	54.0	9.4
	140	5700	11400.00	H	PK	46.3	11.2		57.5	74.0	16.5
			11400.00	H	AV	33.9	11.2		45.1	54.0	8.9

Note:

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

[IEEE802.11n (HT20)]**(5.2GHz 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	H	PK	46.4	10.3		56.7	68.2	11.5
	40	5200	10400.00	H	PK	45.8	9.9		55.7	68.2	12.5
	48	5240	10480.00	H	PK	45.4	10.0		55.4	68.2	12.8

(5.3GHz 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	H	PK	45.8	10.0		55.8	68.2	12.4
	56	5280	10560.00	H	PK	45.6	10.1		55.7	68.2	12.5
	64	5320	10640.00	H	PK	46.7	10.2		56.9	74.0	17.1
			10640.00	H	AV	34.0	10.2		44.2	54.0	9.8

(5.6GHz 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	5463.80	H	PK	50.1	10.2		60.3	68.2	7.9
			5466.50	V	PK	50.3	10.2		60.5	68.2	7.7
			11000.00	H	PK	45.1	10.6		55.7	74.0	18.3
			11000.00	H	AV	33.2	10.6		43.8	54.0	10.2
	116	5580	11160.00	H	PK	45.2	10.9		56.1	74.0	17.9
			11160.00	H	AV	33.7	10.9		44.6	54.0	9.4
	140	5700	11400.00	H	PK	45.9	11.2		57.1	74.0	16.9
			11400.00	H	AV	33.8	11.2		45.0	54.0	9.0

Note:

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

[IEEE802.11n (HT40)]
(5.2GHz 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	H	PK	46.2	9.9		56.1	68.2	12.1
	46	5230	10460.00	H	PK	45.4	10.0		55.4	68.2	12.8

(5.3GHz 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	H	PK	46.3	10.1		56.4	68.2	11.8
	62	5310	10620.00	H	PK	46.1	10.2		56.3	74.0	17.7
			10620.00	H	AV	34.0	10.2		44.2	54.0	9.8

(5.6GHz 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	5467.70	H	PK	51.6	10.2		61.8	68.2	6.4
			5465.30	V	PK	50.8	10.2		61.0	68.2	7.2
			11020.00	H	PK	45.5	10.6		56.1	74.0	17.9
			11020.00	H	AV	33.4	10.6		44.0	54.0	10.0
	110	5550	11100.00	H	PK	45.9	10.8		56.7	74.0	17.3
			11100.00	H	AV	33.7	10.8		44.5	54.0	9.5
	134	5670	11340.00	H	PK	46.0	11.1		57.1	74.0	16.9
			11340.00	H	AV	33.9	11.1		45.0	54.0	9.0

Note:

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

[IEEE802.11ac (HT80)]
(5.2GHz 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	H	PK	45.8	9.9		55.7	68.2	12.5

(5.3GHz 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	H	PK	46.1	10.1		56.2	68.2	12.0

(5.6GHz 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	5461.20	H	PK	51.7	10.2		61.9	68.2	6.3
			5468.50	V	PK	50.2	10.2		60.4	68.2	7.8
			11060.00	H	PK	45.9	10.7		56.6	74.0	17.4
			11060.00	H	AV	33.7	10.7	0.178	44.6	54.0	9.4
	122	5610	11220.00	H	PK	45.7	11.0		56.7	74.0	17.3
			11220.00	H	AV	33.7	11.0	0.187	44.9	54.0	9.1

Note:

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

7.4.4 Measurement chart

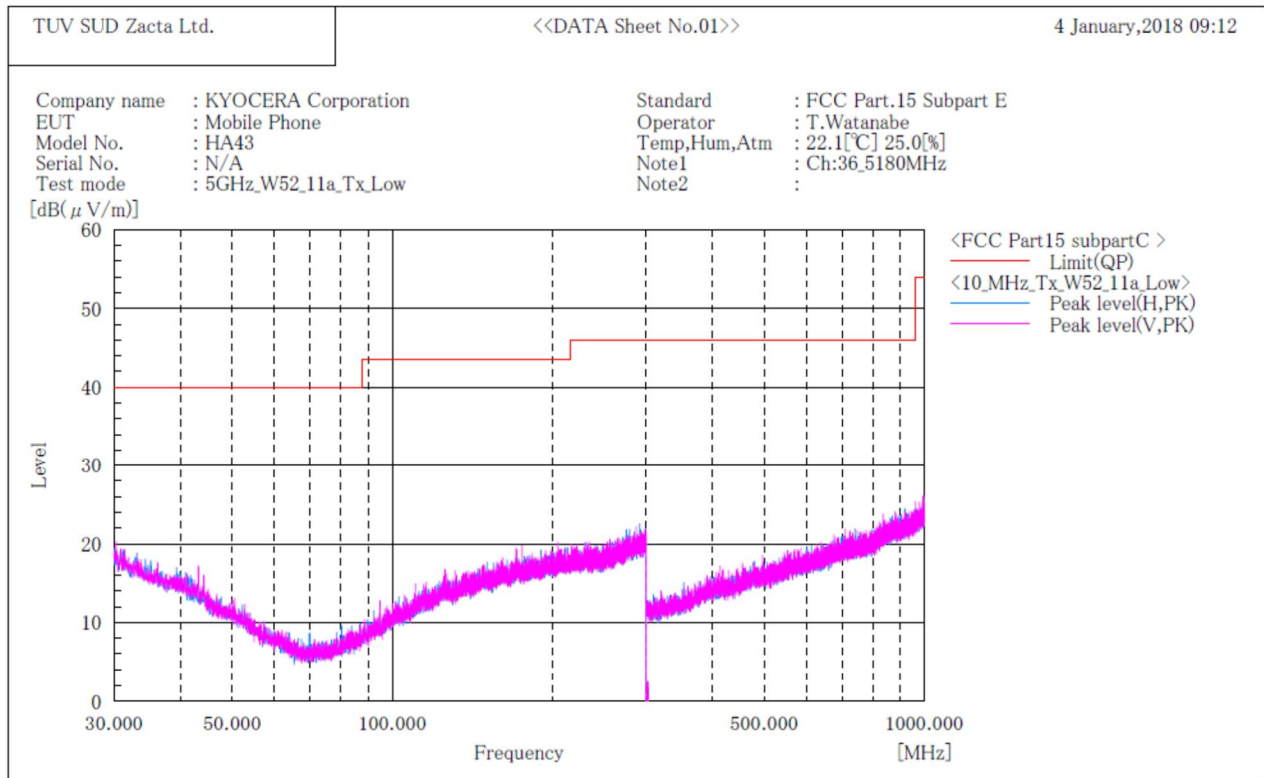
7.4.4.1 Transmission mode

[11a]

W52 / Channel Low

BELOW 1GHz

***** RADIATED EMISSION *****
[3m Semi-anechoic chamber]



Final Result

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

Note:

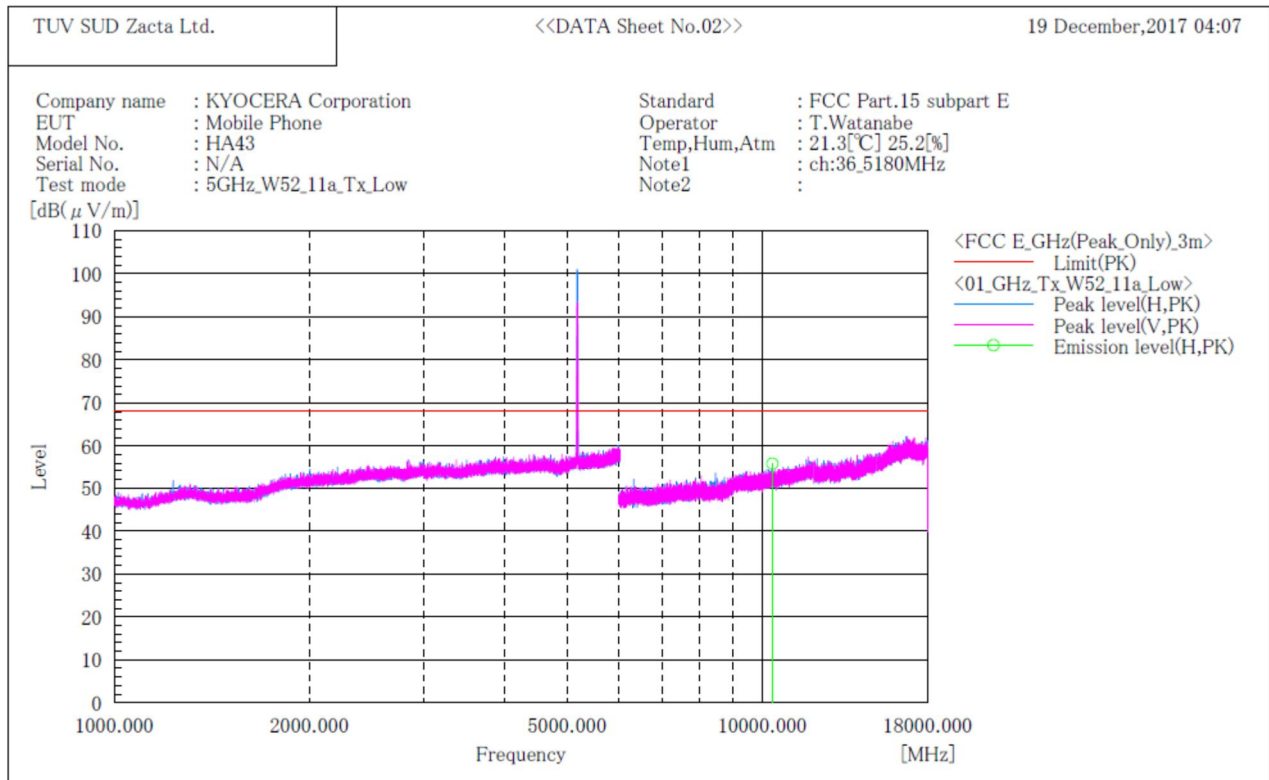
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.



Zacta

[11a]
W52 / Channel Low
ABOVE 1GHz

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

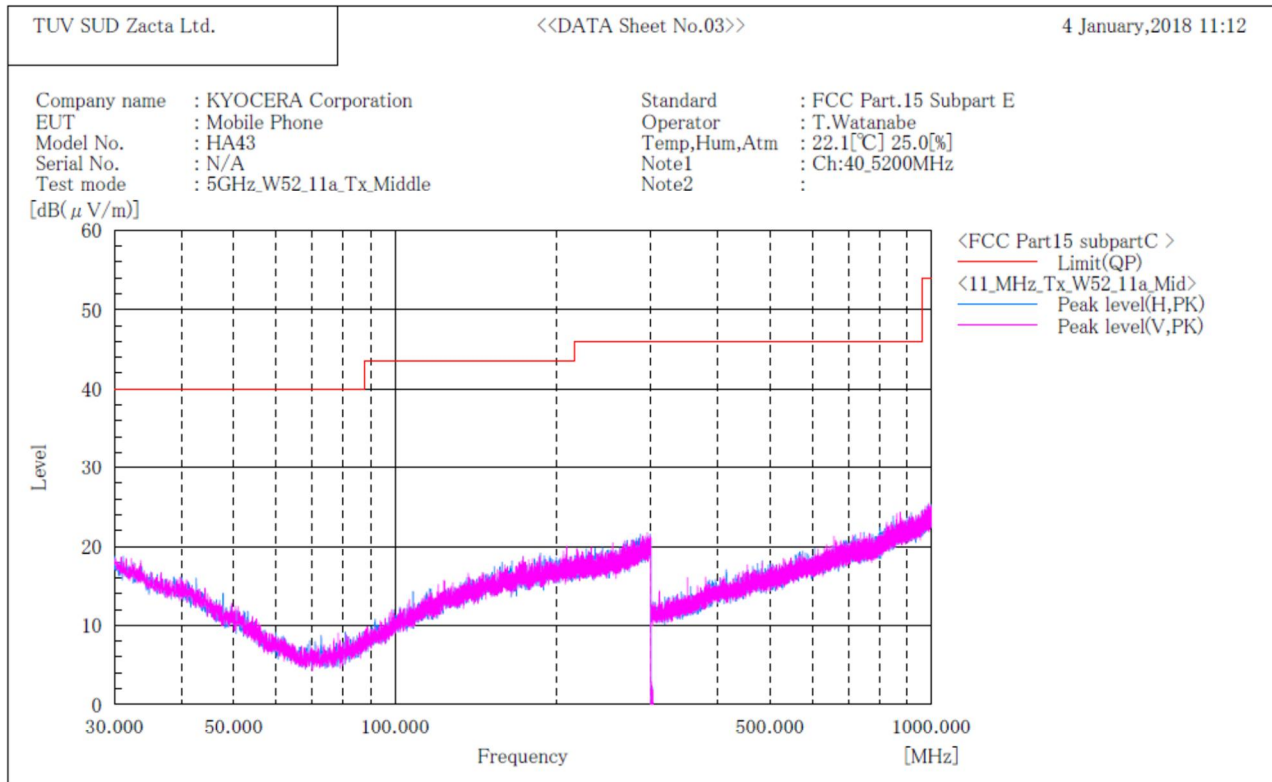
No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Height [cm]	Angle [°]	Remark
1	10360.000	H	46.0	9.9	55.9	68.2	12.3	185.0	248.0	

Note:

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

[11a]
W52 / Channel Middle
BELOW 1GHz

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

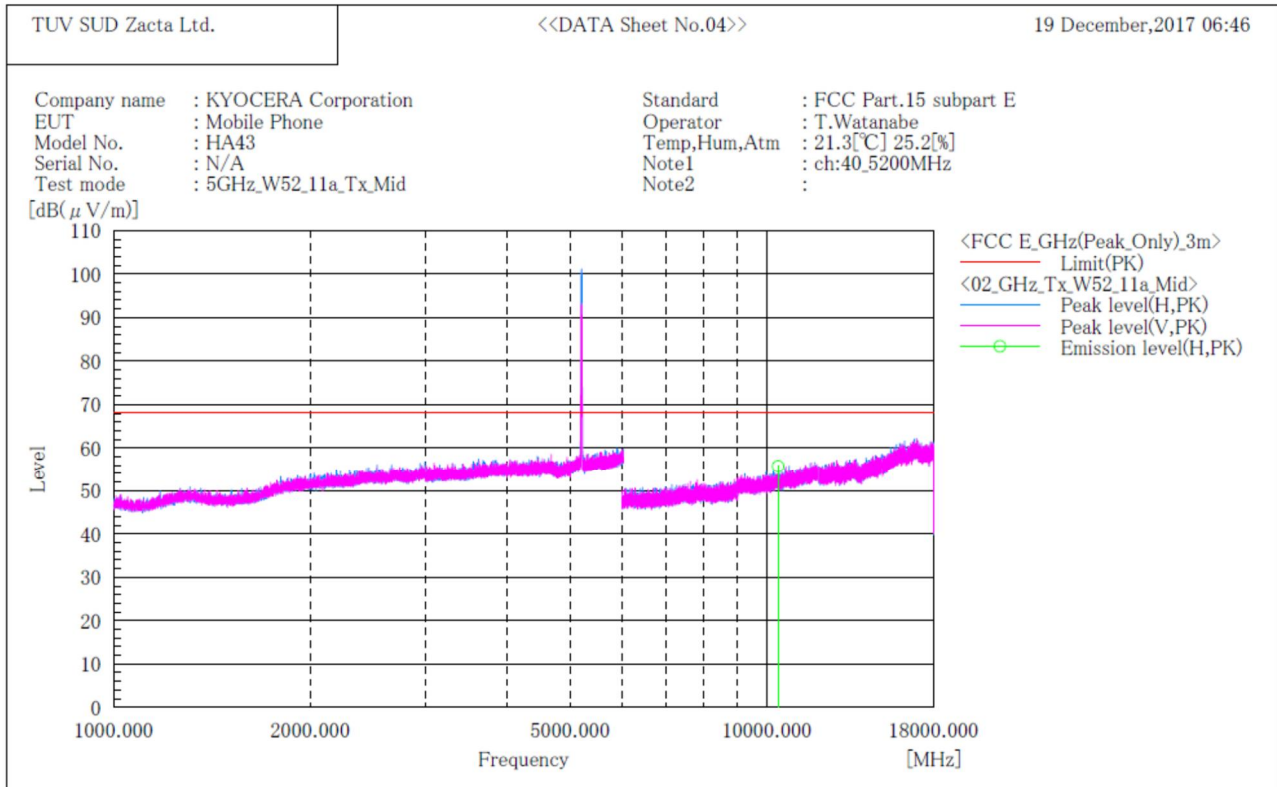
No.	Frequency (P)	c.f	Height	Angle	Remark
	[MHz]	[dB(1/m)]	[cm]	[°]	

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

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

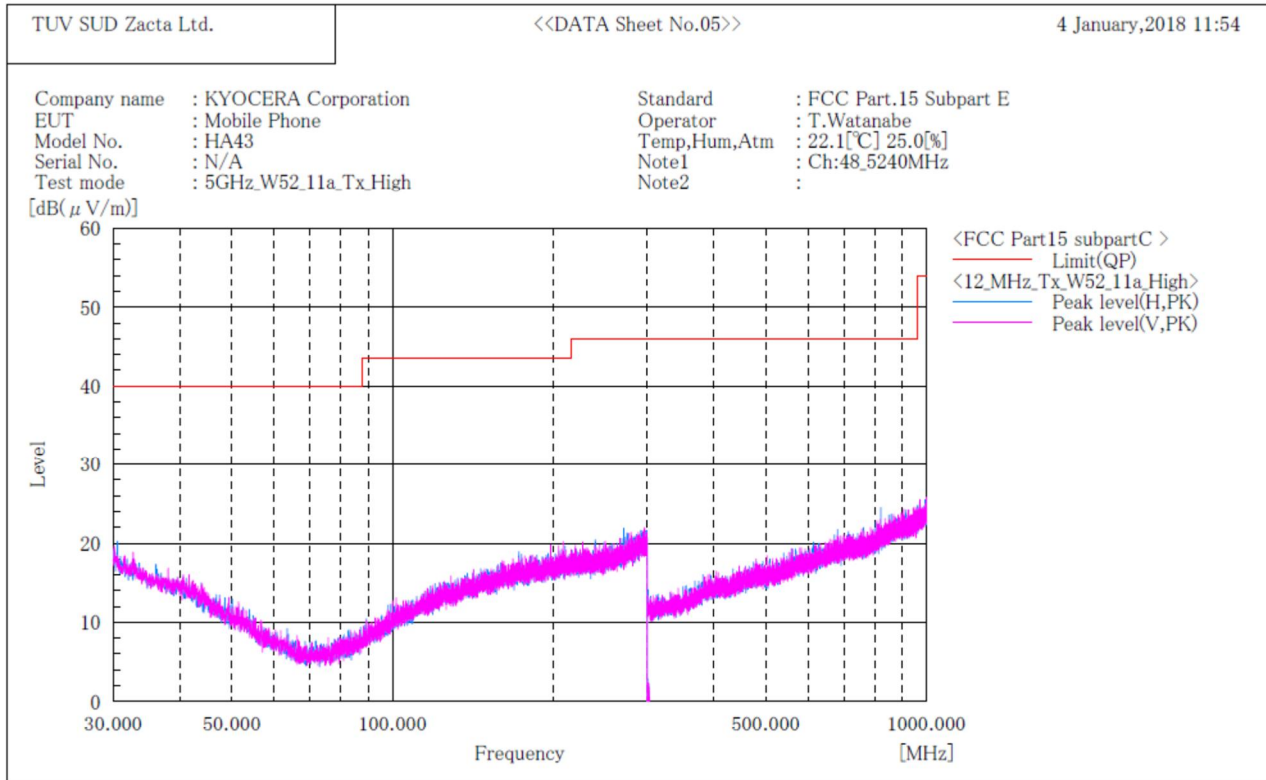
No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	c. f [dB(1/m)]	Result PK [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Height [cm]	Angle [°]	Remark
1	10400.000	H	45.9	9.9	55.8	68.2	12.4	184.0	94.0	

Note:

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

[11a]
W52 / Channel High
BELOW 1GHz

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

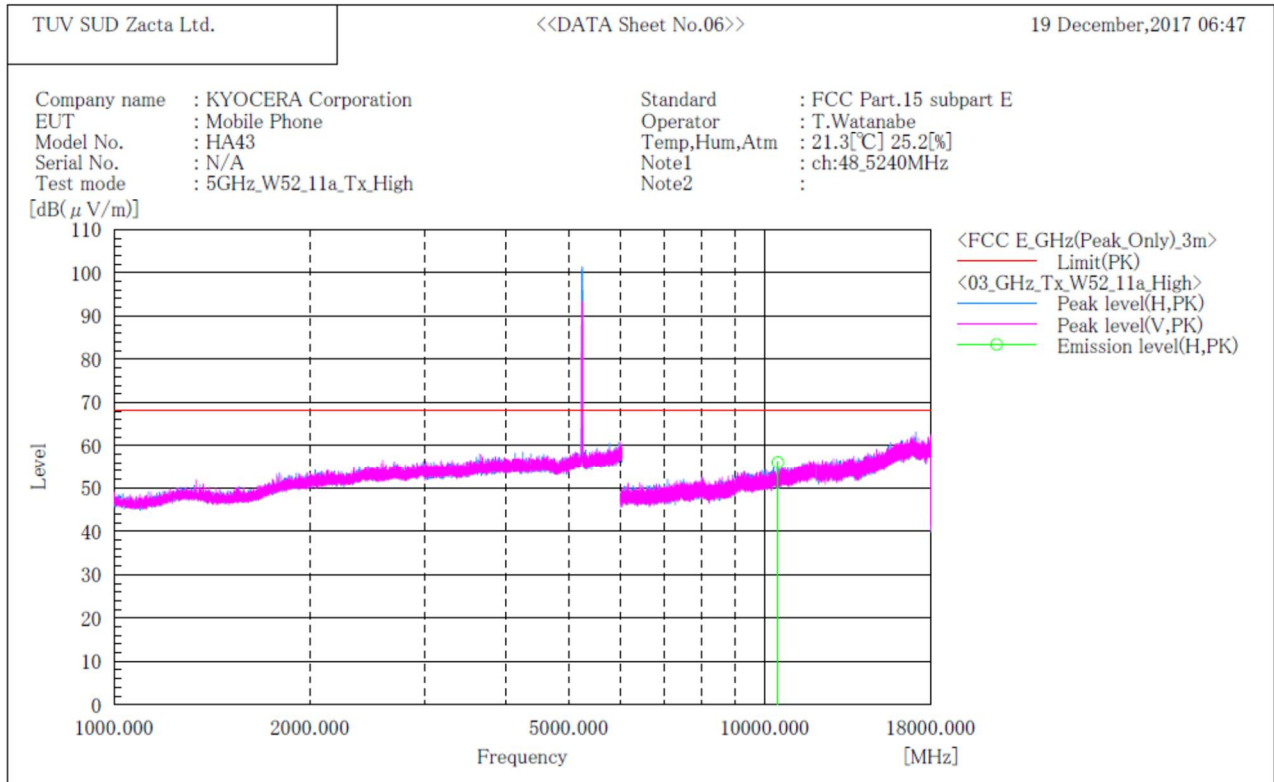
No.	Frequency (P)	c.f	Height	Angle	Remark
	[MHz]	[dB(1/m)]	[cm]	[°]	

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

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

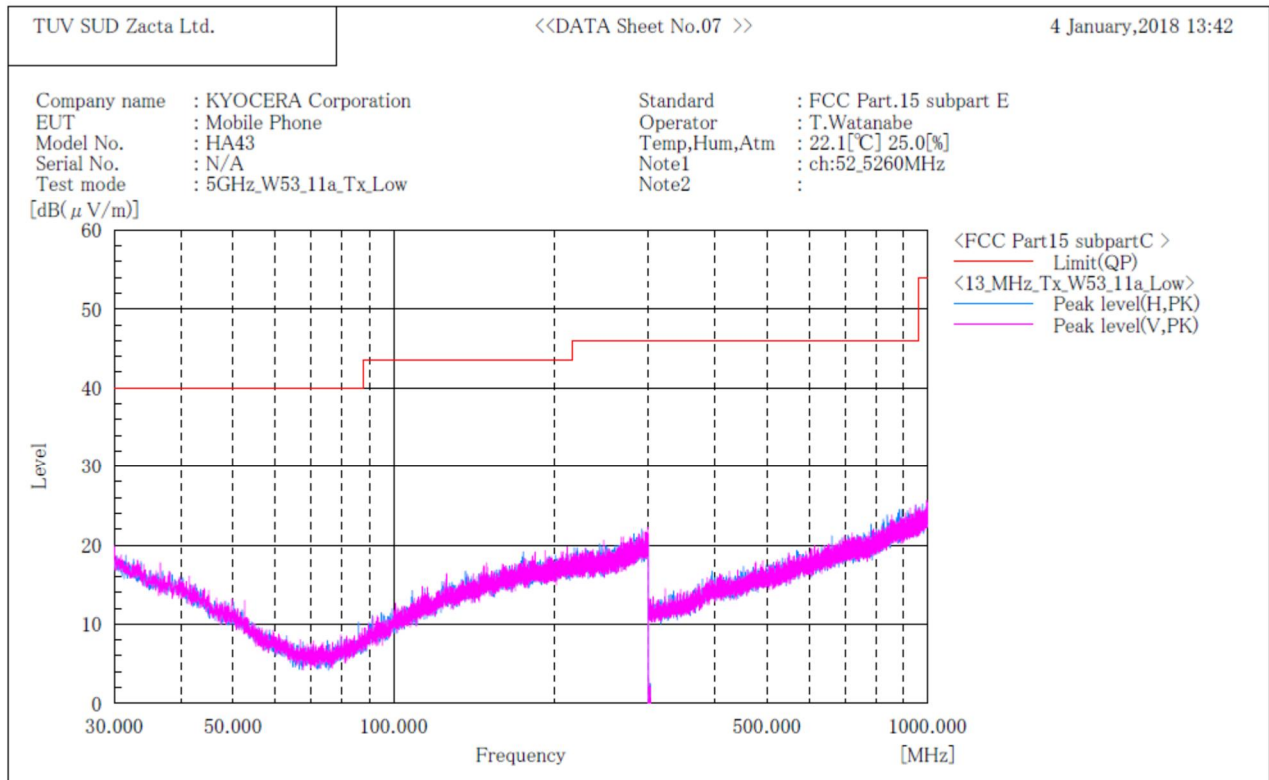
No.	Frequency	(P)	Reading	c.f	Result	Limit	Margin	Height	Angle	Remark
	[MHz]		PK [dB(μV)]	[dB(1/m)]	PK [dB(μV/m)]	PK [dB(μV/m)]	PK [dB]	[cm]	[°]	
1	10480.000	H	46.1	10.0	56.1	68.2	12.1	160.0	278.0	

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

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

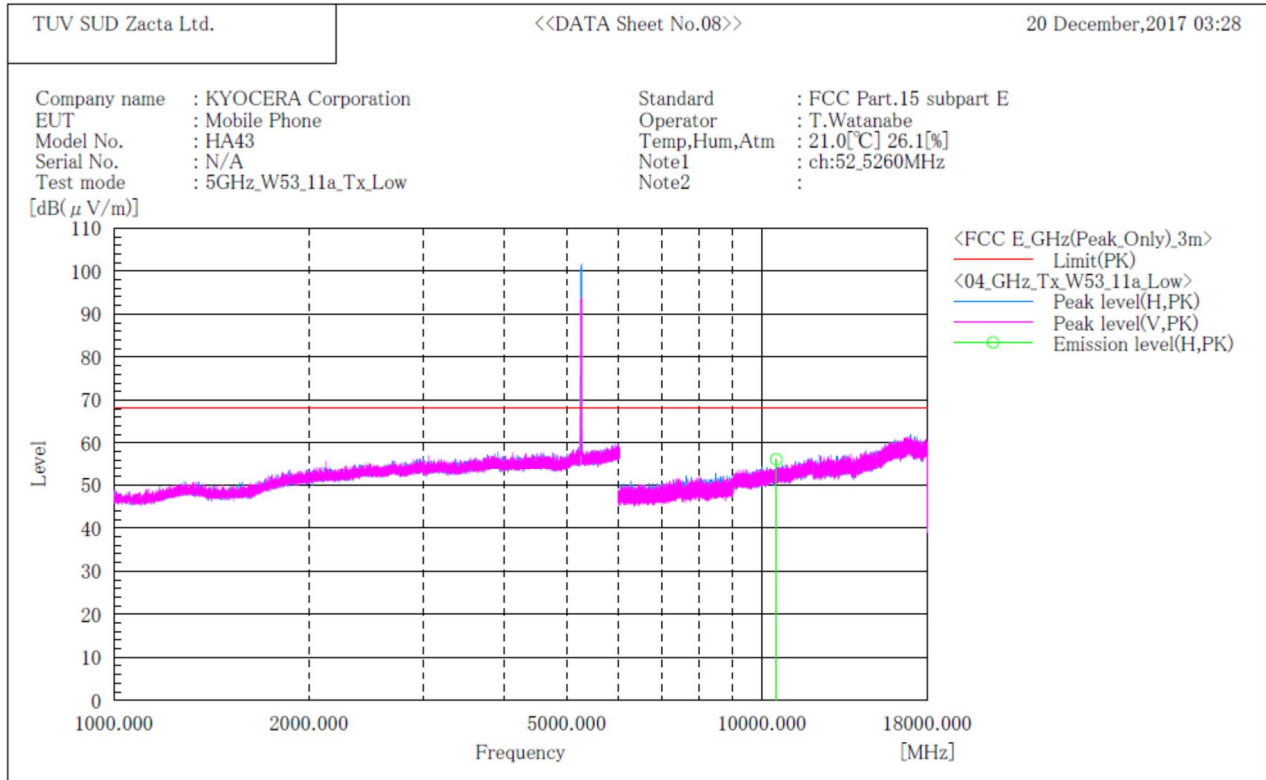
No.	Frequency (P)	c.f	Height	Angle	Remark
	[MHz]	[dB(1/m)]	[cm]	[°]	

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

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

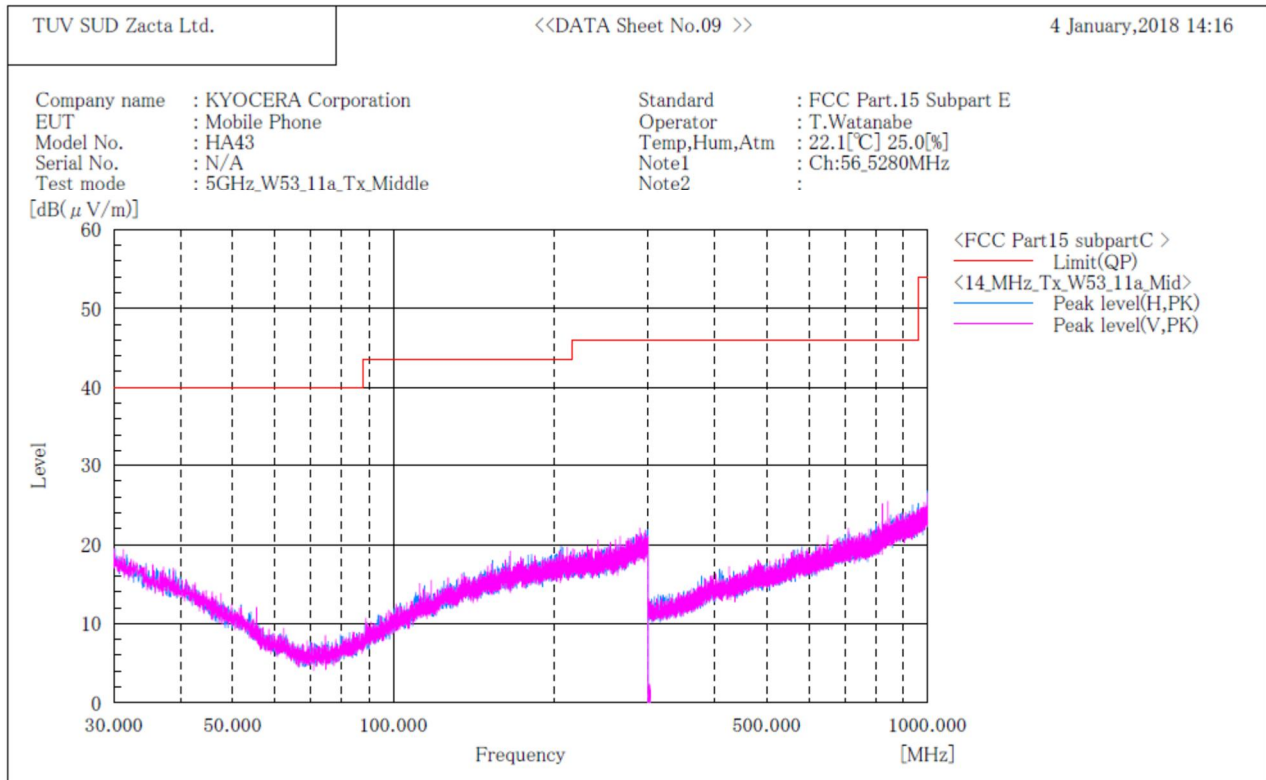
No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Height [cm]	Angle [°]
1	10520.000	H	46.2	10.0	56.2	68.2	12.0	142.0	251.0

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 Middle
BELOW 1GHz

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

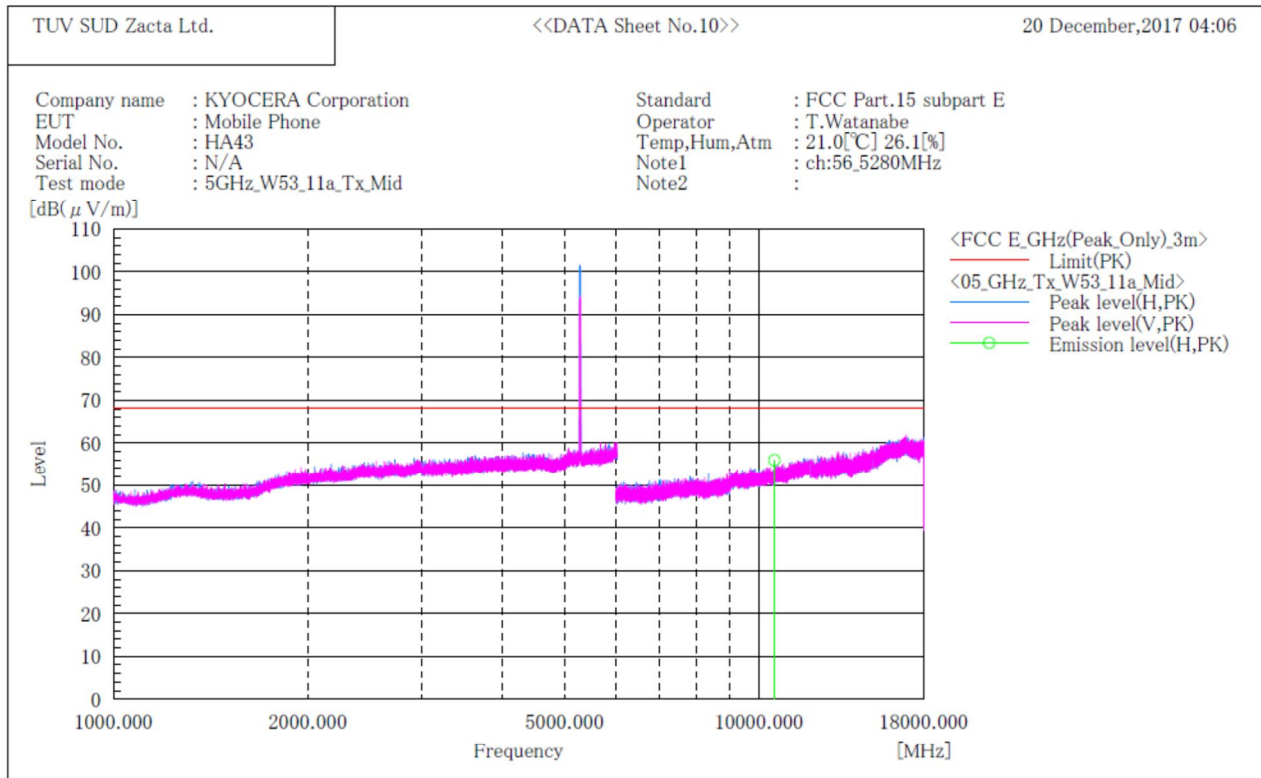
No.	Frequency (P)	c.f	Height	Angle	Remark
	[MHz]	[dB(1/m)]	[cm]	[°]	

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 Middle
ABOVE 1GHz

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

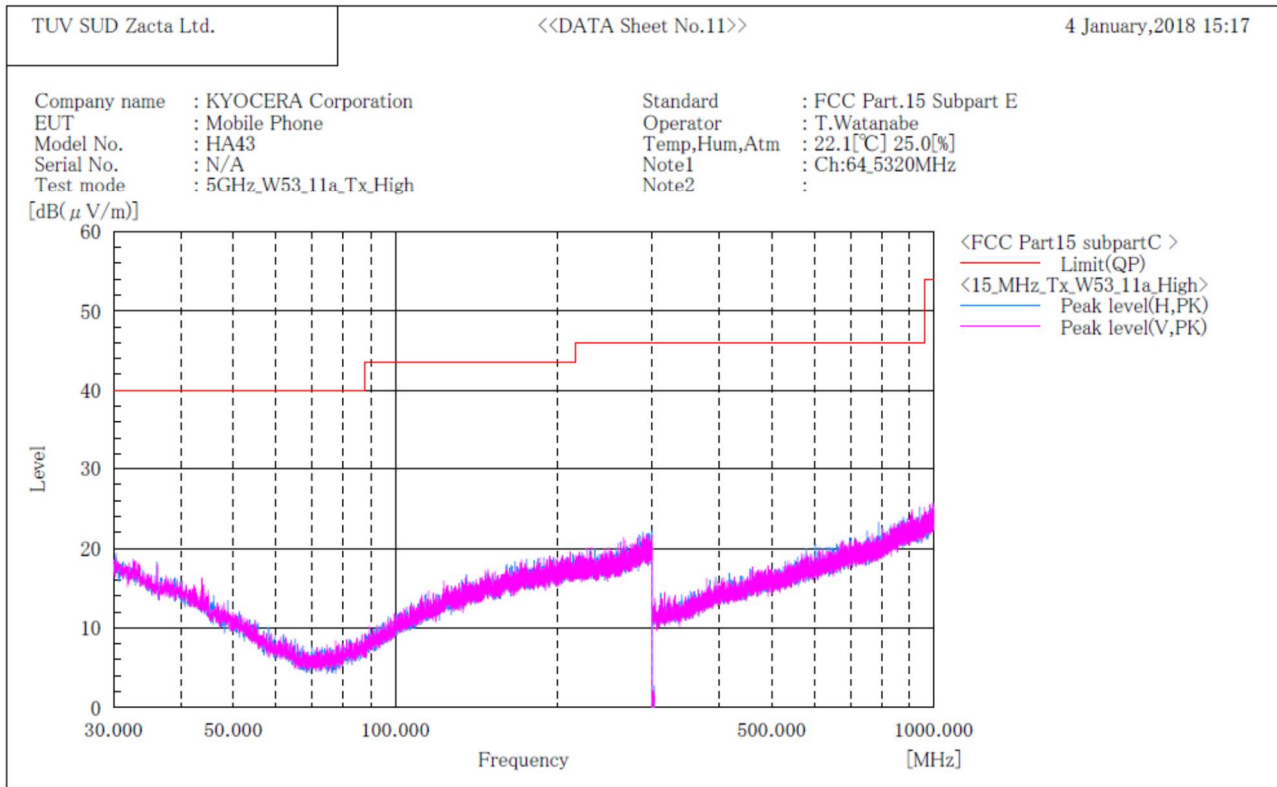
No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Height [cm]	Angle [°]
1	10560.000	H	45.9	10.1	56.0	68.2	12.2	147.0	111.0

Note:

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

[11a]
W53 / Channel High
BELOW 1GHz

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

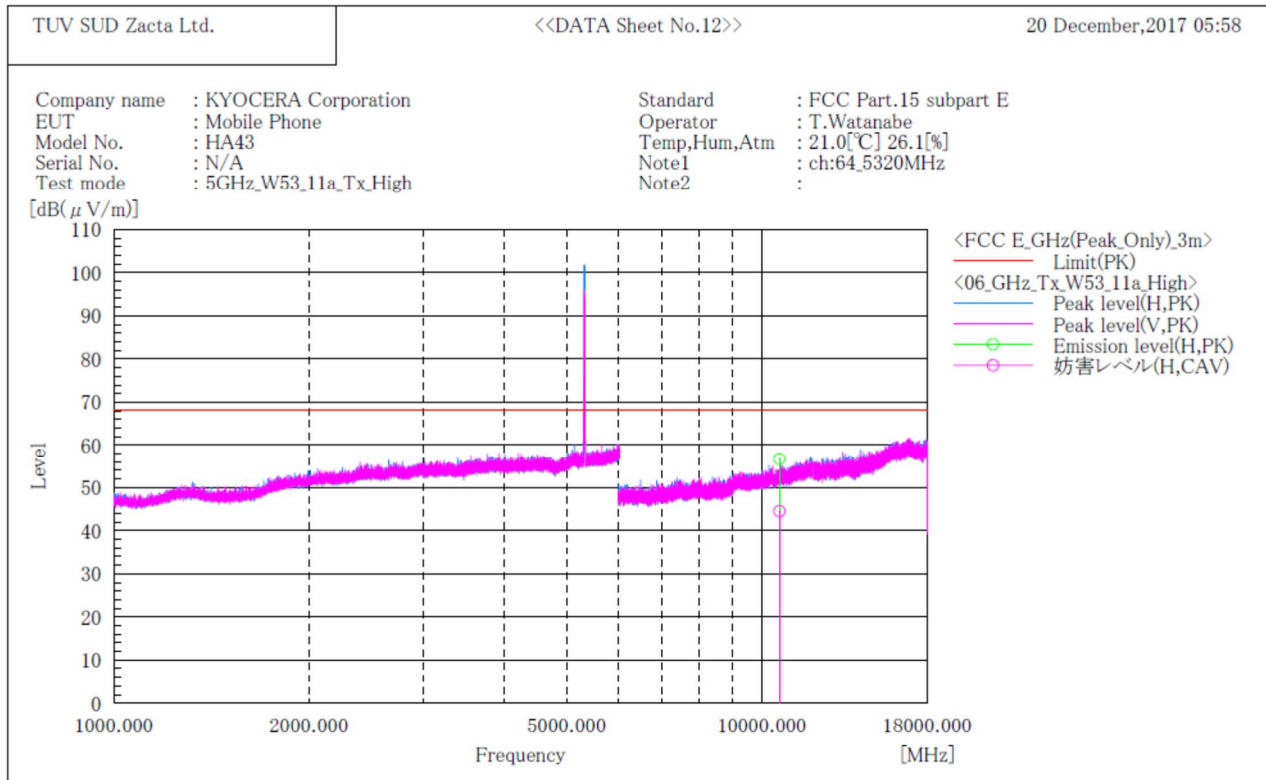
No.	Frequency (P)	c.f	Height	Angle	Remark
	[MHz]	[dB(1/m)]	[cm]	[°]	

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 High
ABOVE 1GHz

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

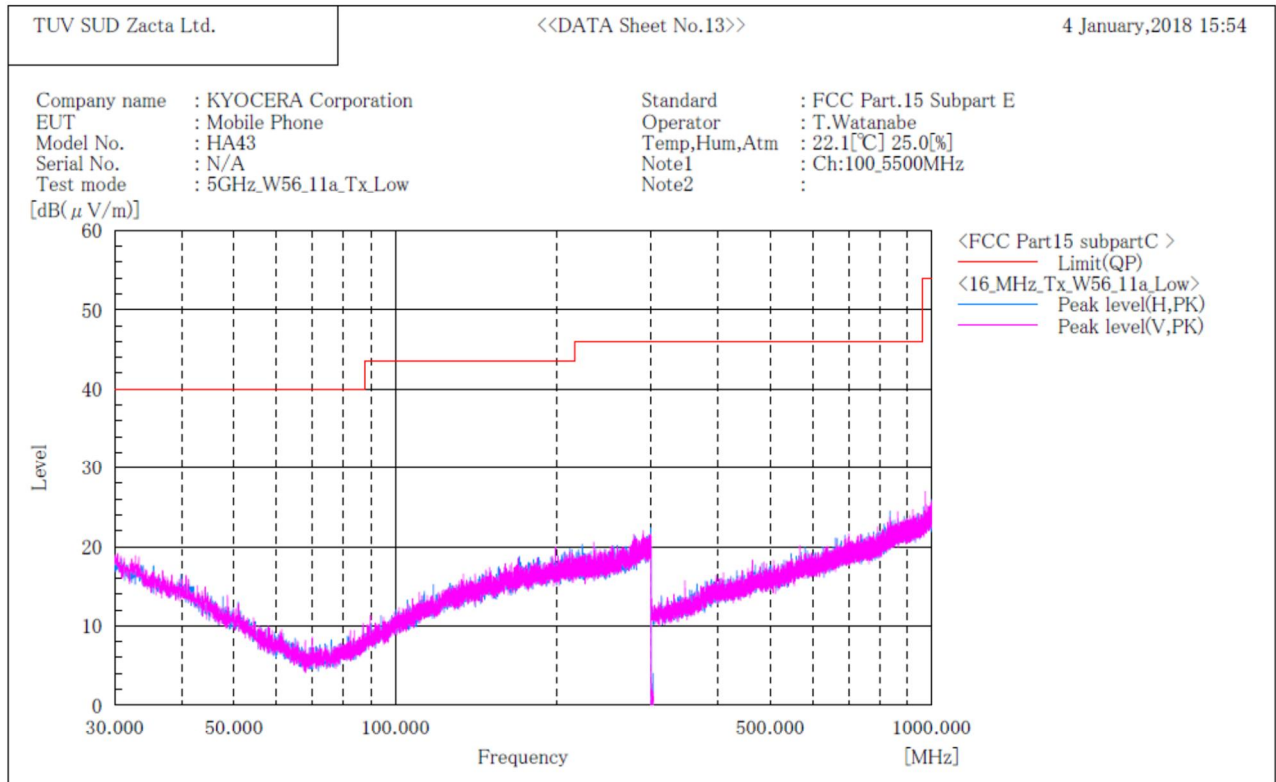
No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Result CAV [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [°]
1	10640.000	H	46.5	34.3	10.2	56.7	44.5	74.0	17.3	9.5	128.0	225.0

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]
W56 / Channel Low
BELOW 1GHz

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

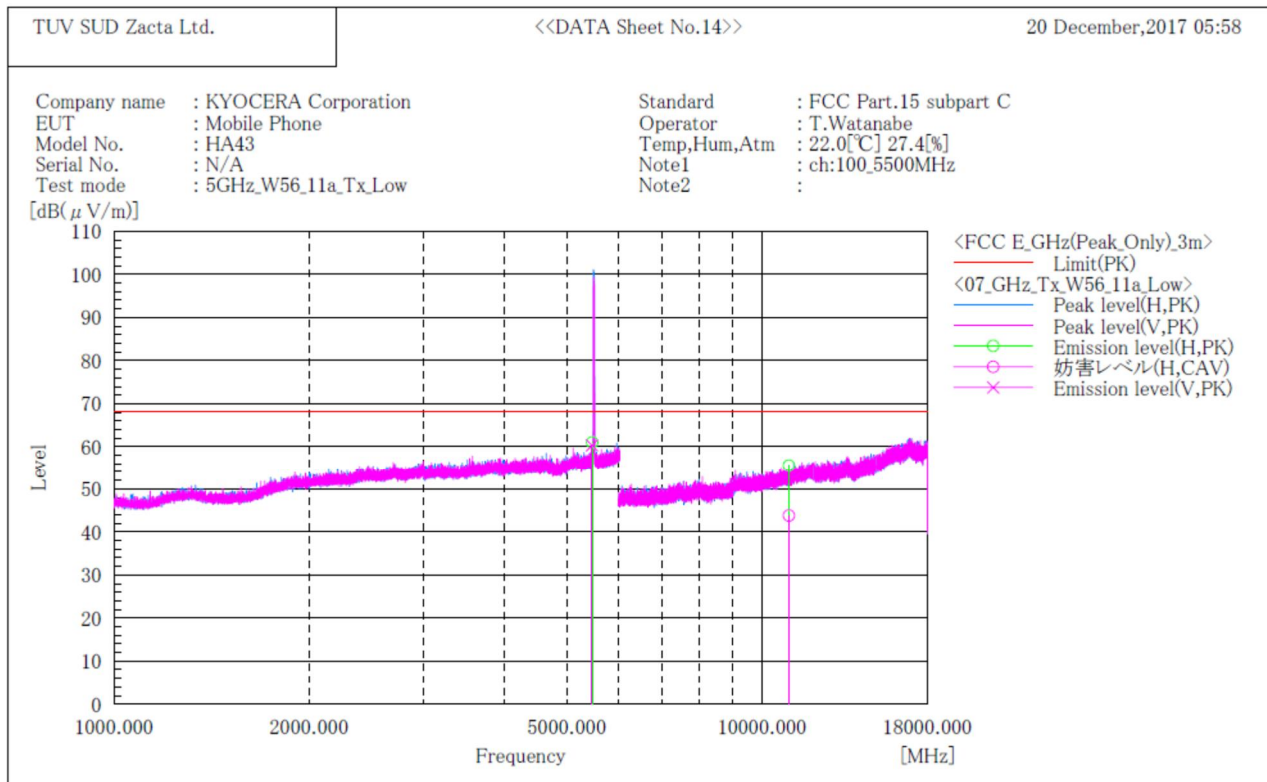
No.	Frequency (P)	c.f	Height	Angle	Remark
	[MHz]	[dB(1/m)]	[cm]	[°]	

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]
W56 / Channel Low
ABOVE 1GHz

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

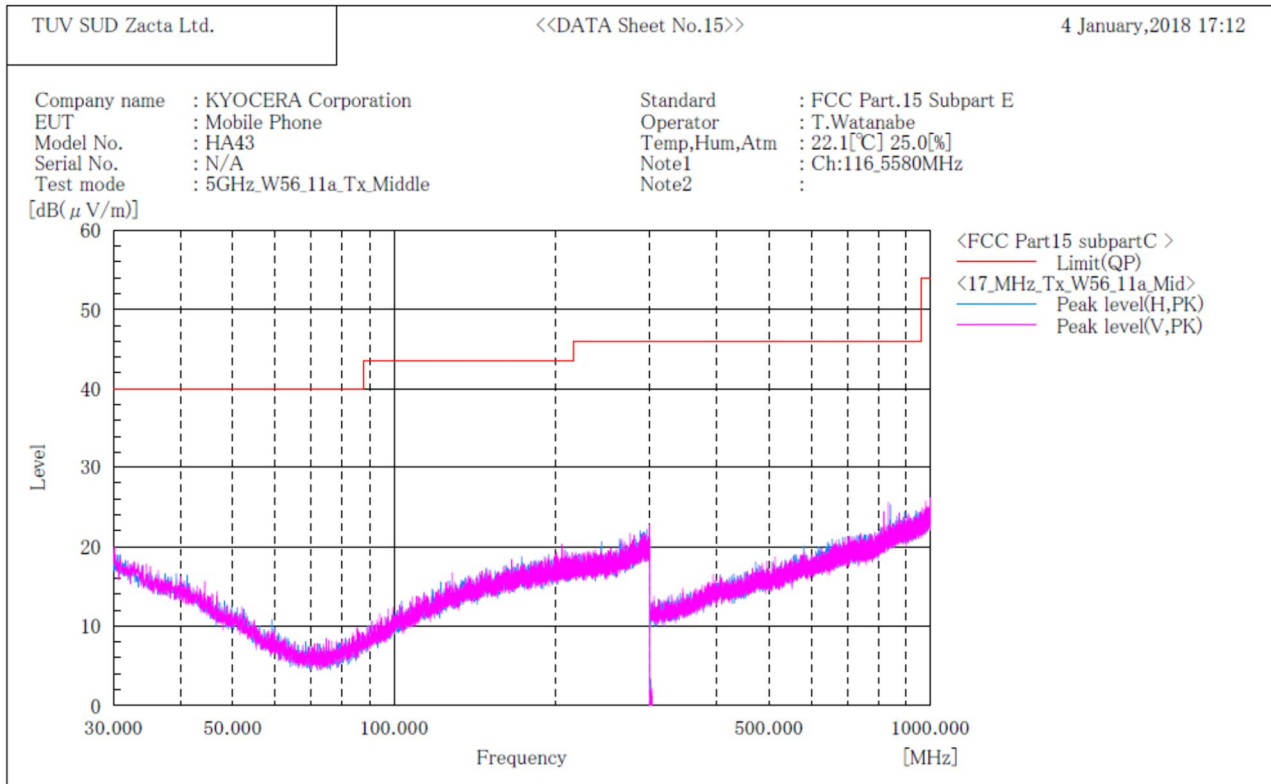
No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Result CAV [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [°]	Remark
1	5465.020	H	50.8	-----	10.2	61.0	-----	68.2	7.2	-----	148.0	141.0	
2	5461.250	V	50.1	-----	10.2	60.3	-----	68.2	7.9	-----	181.0	161.0	
3	11000.000	H	45.0	33.2	10.6	55.6	43.8	74.0	18.4	10.2	167.0	296.0	

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]
W56 / Channel Middle
BELOW 1GHz

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

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

Note:

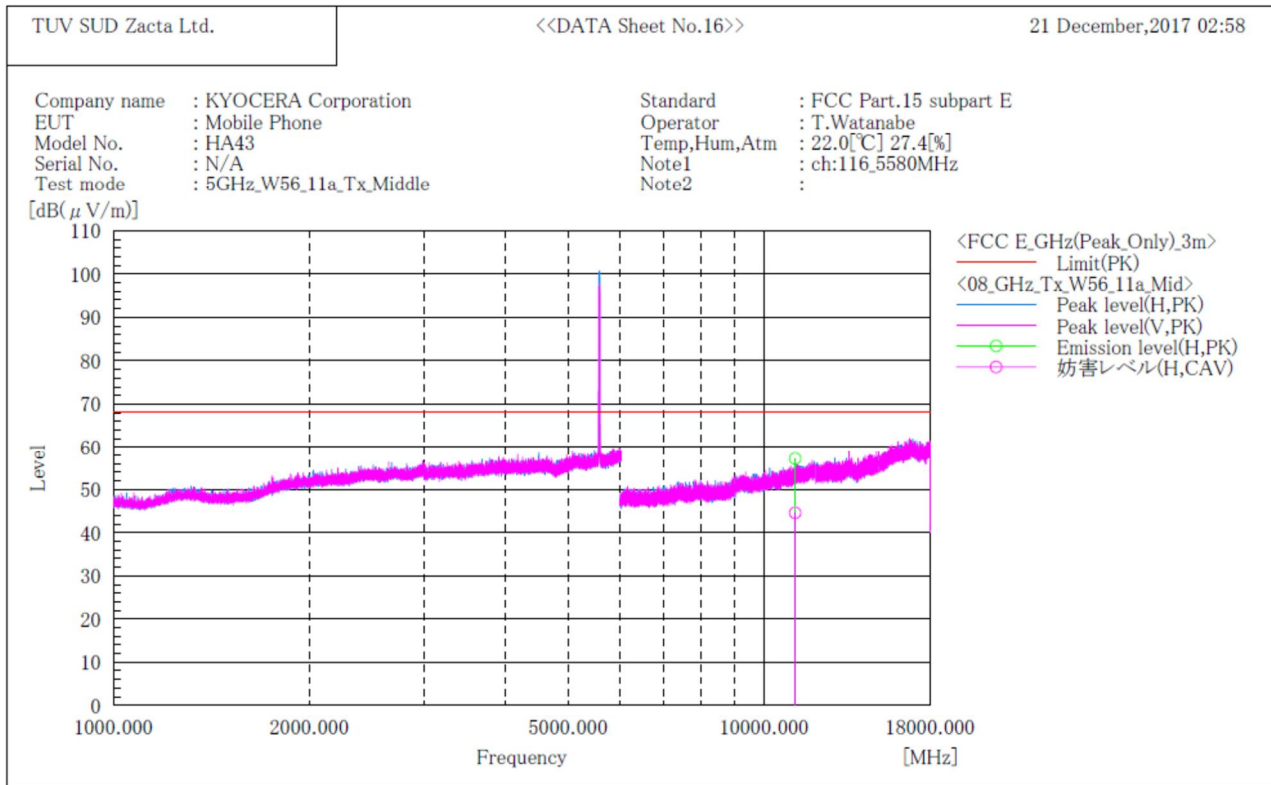
1. Emission Level (Margin) = Limit - [Reading + Factor (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 9kHz to 1000MHz at the 3 meters distance.



Zacta

[11a]
W56 / Channel Middle
ABOVE 1GHz

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

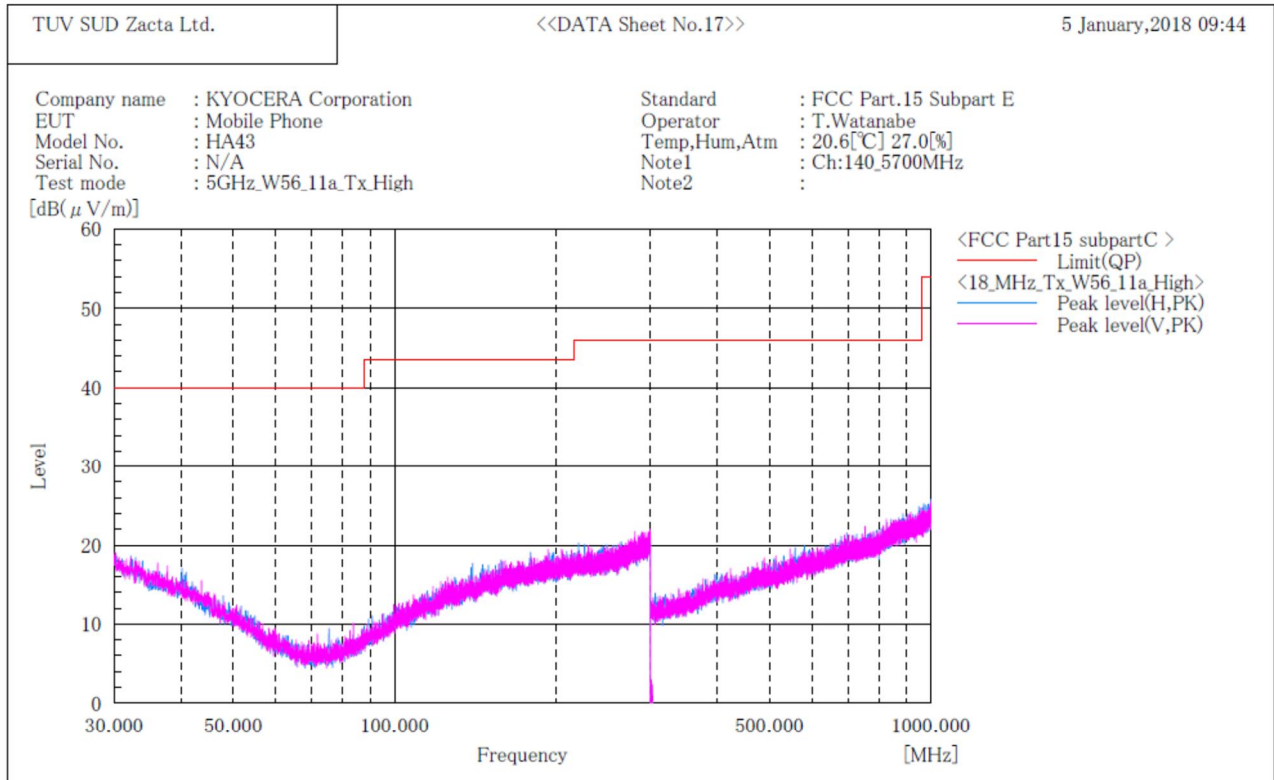
No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Result CAV [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [°]	Remark
1	11160.000	H	46.3	33.7	10.9	57.2	44.6	74.0	16.8	9.4	132.0	146.0	

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]
W56 / Channel High
BELOW 1GHz

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

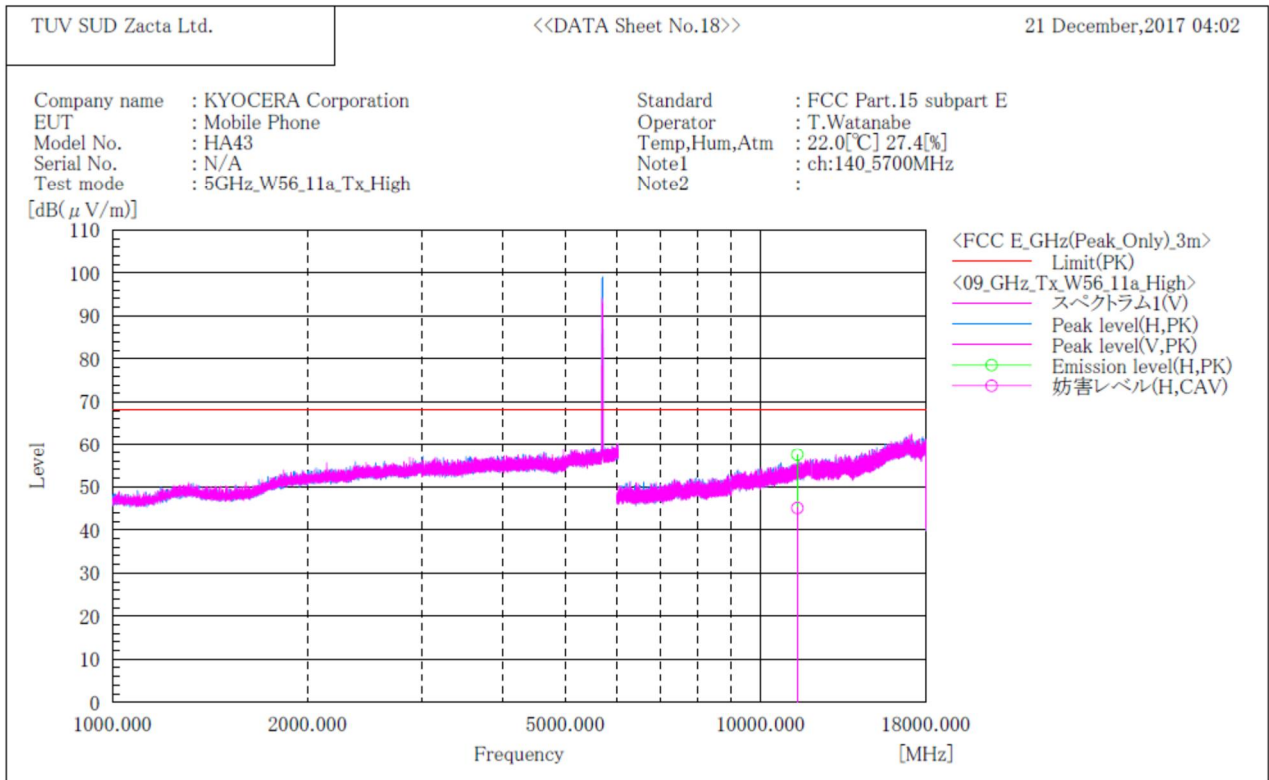
No.	Frequency (P)	c.f	Height	Angle	Remark
	[MHz]	[dB(1/m)]	[cm]	[°]	

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]
W56 / Channel High
ABOVE 1GHz

***** RADIATED EMISSION *****
 [3m Semi-anechoic chamber]



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Result CAV [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [°]	Remark
1	11400.000	H	46.3	33.9	11.2	57.5	45.1	74.0	16.5	8.9	160.0	115.0	

Note:

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