Report on the RF Testing of:

KYOCERA Corporation
Mobile Phone, Model: KB46
FCC ID: JOYKB46

In accordance with FCC Part15 Subpart E

TÜV SÜD Japan

Add value.
Inspire trust.

Prepared for: KYOCERA Corporation
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COMMERCIAL-IN-CONFIDENCE

Document Number: JPD-TR-19111-0

SIGNATURE			
Hiroaki Suzuki			
NAME	**JOB TITLE**	**RESPONSIBLE FOR**	**ISSUE DATE**
Hiroaki Suzuki	Deputy Manager of RF Group	Approved Signatory	08 JUL 2019

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

EXECUTIVE SUMMARY
A sample(s) of this product was tested and found to be compliant with FCC Part15 Subpart E.

NVLAP TESTING
NVLAP LAB CODE 200306-0

ilac-MRA

ACCREDIATION
This test report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

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Japan

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1 Summary of Test

1.1 Modification history of the test report

Document Number	Modification History	Issue Date
JPD-TR-19111-0	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

22-May--2019 - 01-July-2019

Japan

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	KB46
Serial number	N/A
Trade name	Kyocera
Number of sample(s)	1
EUT condition	Pre-Production
Power rating	Battery: DC 3.8 V
Size	(W) 78.2 × (D) 151.5 × (H) 17.4 mm
Environment	Indoor and Outdoor use
Terminal limitation	-20˚C to 60˚C
Hardware version	DMT2
Software version	V0.030PR
Firmware version	Not applicable
RF Specification	
Protocol	IEEE802.11a, IEEE802.11n (HT20), IEEE802.11n (HT40) IEEE802.11ac (HT20), IEEE802.11ac (HT40), EEE802.11ac (HT80)
Frequency range	IEEE802.11a/n/ac (HT20): 5180 MHz-5320 MHz, 5500 MHz-5700 MHz IEEE802.11n/ac (HT40): 5190 MHz-5310 MHz, 5510 MHz-5670 MHz IEEE802.11ac (HT80): 5210 MHz, 5290 MHz, 5530 MHz, 5610 MHz
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): 20 MHz IEEE802.11n/ac (HT40): 40 MHz IEEE802.11ac (HT80): 80 MHz
Output power	19.036 mW (IEEE802.11a) 13.914 mW (IEEE802.11n: HT20) 12.679 mW (IEEE802.11n: HT40) 13.176 mW (IEEE802.11ac: HT80)
Antenna type	Internal antenna
Antenna gain	5.15-5.25 GHz band: 0.9 dBi 5.25-5.35 GHz band: 1.2 dBi 5.47-5.725 GHz band: 1.2 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: KB46, 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

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2.4 Operating channels and frequencies

[IEEE802.11a/n (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 (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

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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/ac (HT20)		IEEE802.11n/ac (HT40)		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	-	-

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 (HT80): OFDM	MCS0 (29.3Mbps)
5.3 GHz 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)
5.6 GHz 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 Y 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 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

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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	KB46	N/A	JOYKB46	EUT
2	AC Adapter	KDDI	0301PQA	N/A	N/A	*

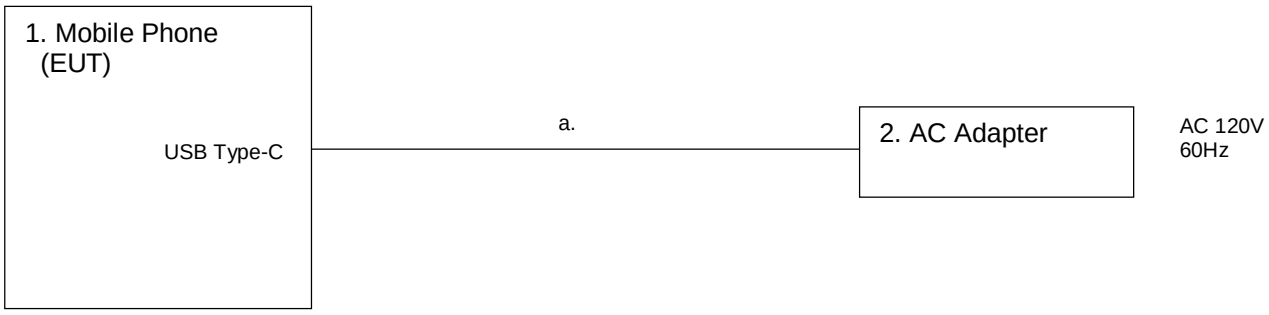
*: AC power line Conducted Emission Test.

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



Japan

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]

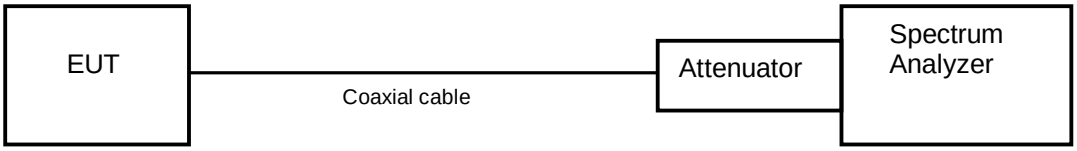
The 26dB bandwidth and 99% occupied bandwidth is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

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

Japan

4.1.3 Measurement result

Date : 31-May-2019
Temperature : 22.6 [˚C]
Humidity : 36.6 [%] 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	22.238	16.5626
		40	5200	22.220	16.5830
		48	5240	22.130	16.5839
	5.3 GHz Band	52	5260	22.695	16.6093
		56	5280	22.311	16.5811
		64	5320	22.212	16.6056
	5.6 GHz Band	100	5500	21.948	16.5544
		116	5580	22.416	16.5925
		140	5700	22.571	16.5733

Mode	Band	Channel	Frequency (MHz)	26 dB bandwidth (MHz)	99% Occupied bandwidth (MHz)
802.11n (20 MHz)	5.2 GHz Band	36	5180	22.740	17.7079
		40	5200	23.187	17.7314
		48	5240	22.866	17.7317
	5.3 GHz Band	52	5260	22.718	17.7279
		56	5280	22.550	17.7262
		64	5320	23.470	17.7477
	5.6 GHz Band	100	5500	22.836	17.7100
		116	5580	22.368	17.7206
		140	5700	22.950	17.7179

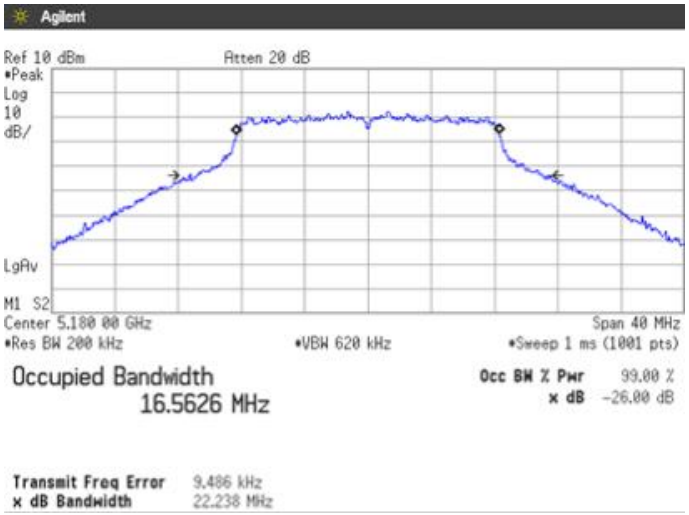
Mode	Band	Channel	Frequency (MHz)	26 dB bandwidth (MHz)	99% Occupied bandwidth (MHz)
802.11n (40 MHz)	5.2 GHz Band	38	5190	41.356	36.2221
		46	5230	41.470	36.2144
	5.3 GHz Band	54	5270	41.866	36.2275
		62	5310	41.557	36.2313
	5.6 GHz Band	102	5510	41.571	36.2178
		110	5550	41.795	36.2280
		134	5670	41.757	36.2378

Mode	Band	Channel	Frequency (MHz)	26dB bandwidth (MHz)	99% Occupied bandwidth (MHz)
802.11ac (80 MHz)	5.2 GHz Band	42	5210	83.501	75.5856
	5.3 GHz Band	58	5290	83.632	75.6356
	5.6 GHz Band	106	5530	83.349	75.5572
		122	5610	83.854	75.5983

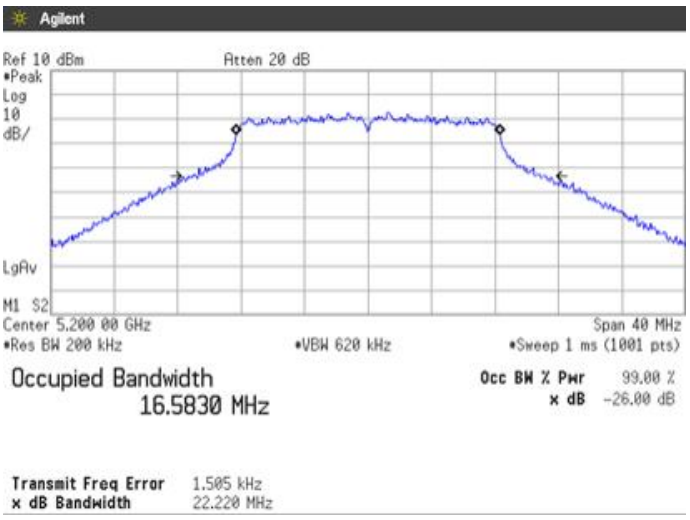
4.1.4 Trace data

[IEEE802.11a]
(5.2 GHz Band)

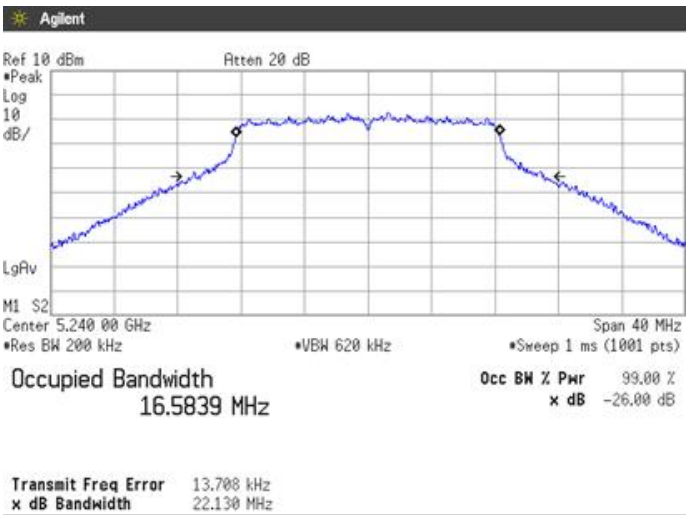
Channel: 36



Channel: 40

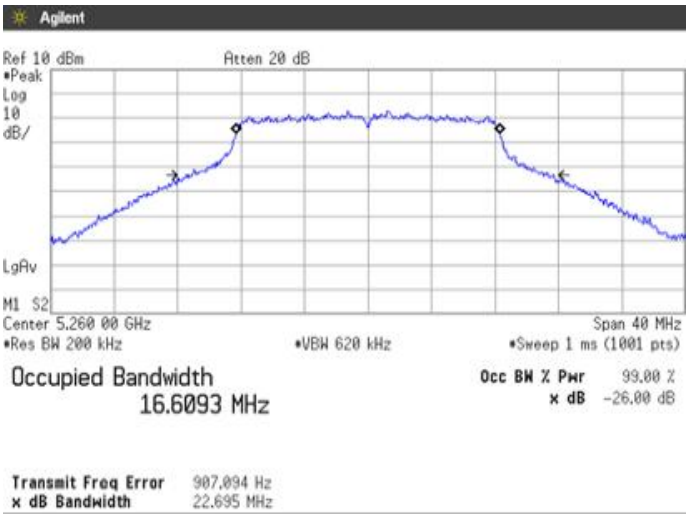


Channel: 48

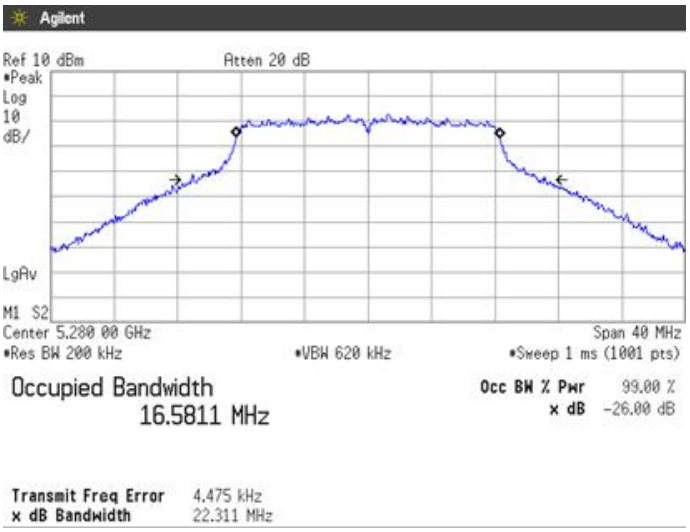


(5.3 GHz Band)

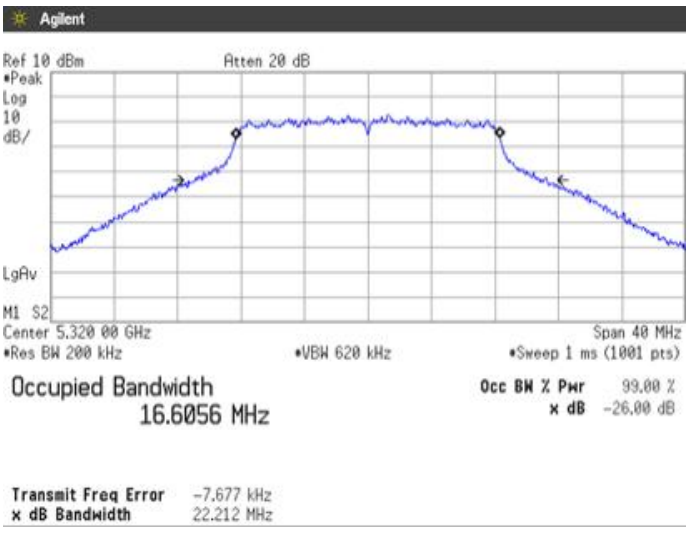
Channel: 52



Channel: 56



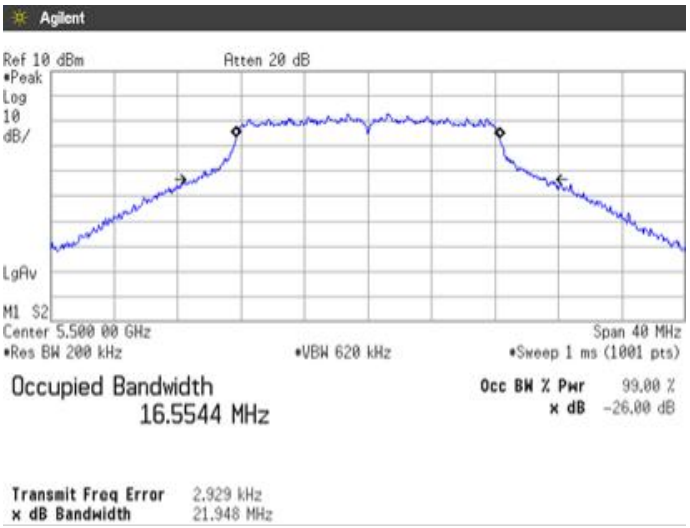
Channel: 64



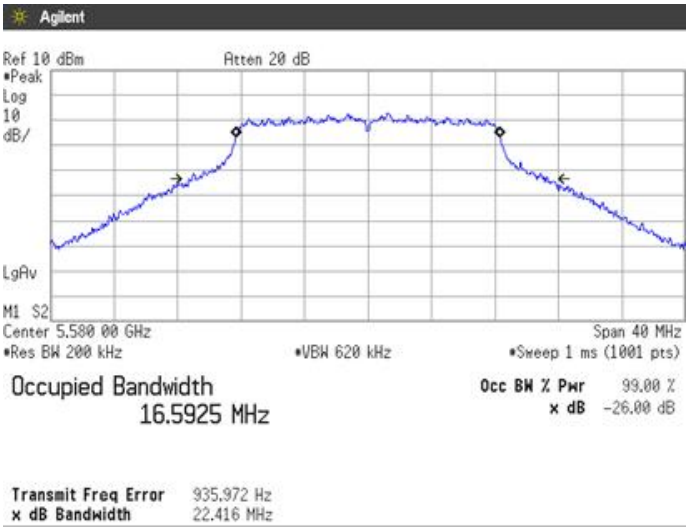
Japan

(5.6 GHz Band)

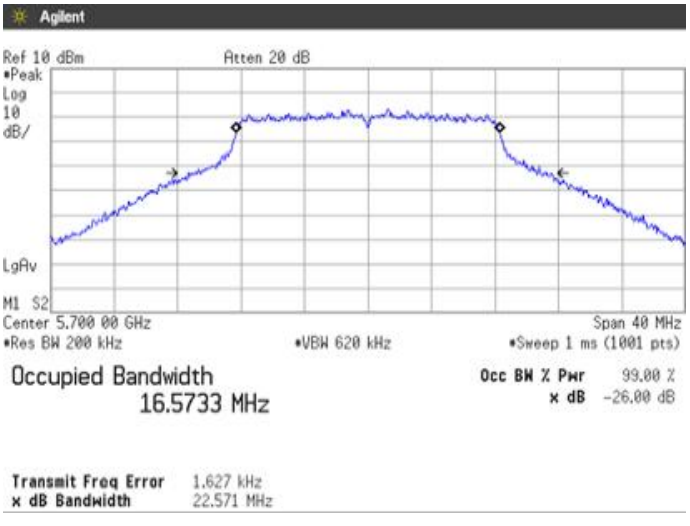
Channel: 100



Channel: 116



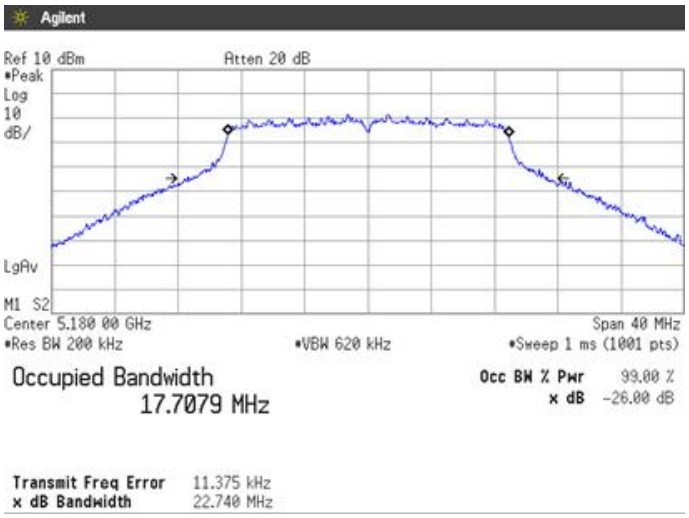
Channel: 140



Japan

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

Channel: 36



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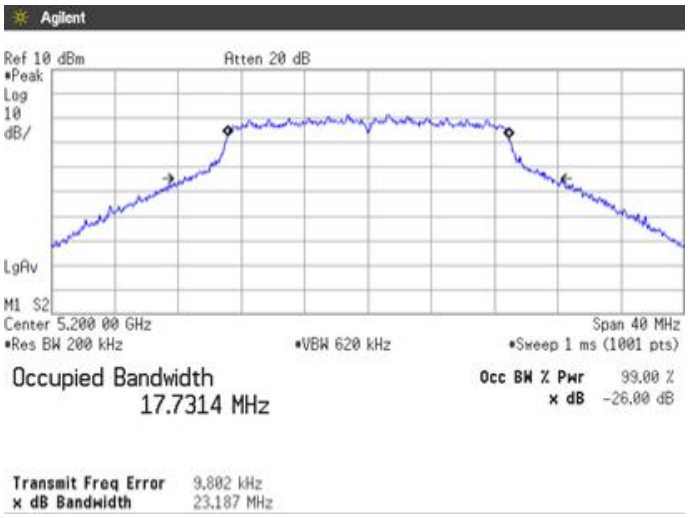

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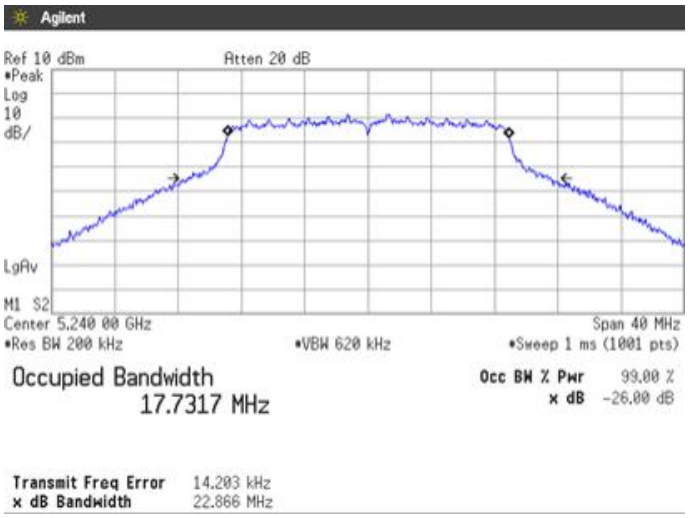
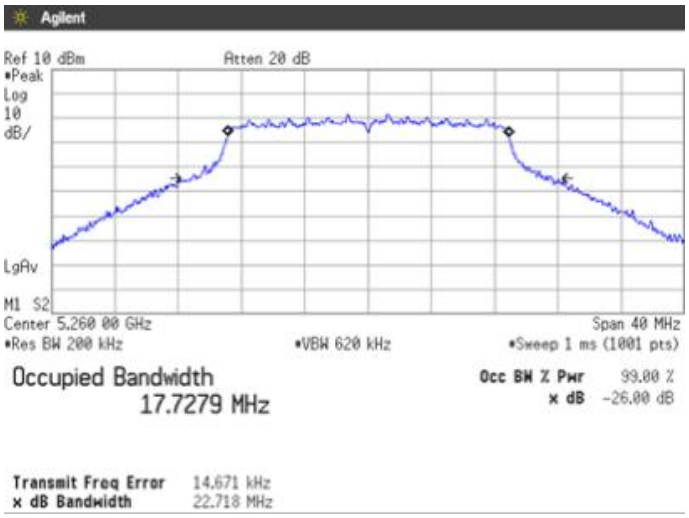


Japan

(5.3 GHz Band)

Channel: 52



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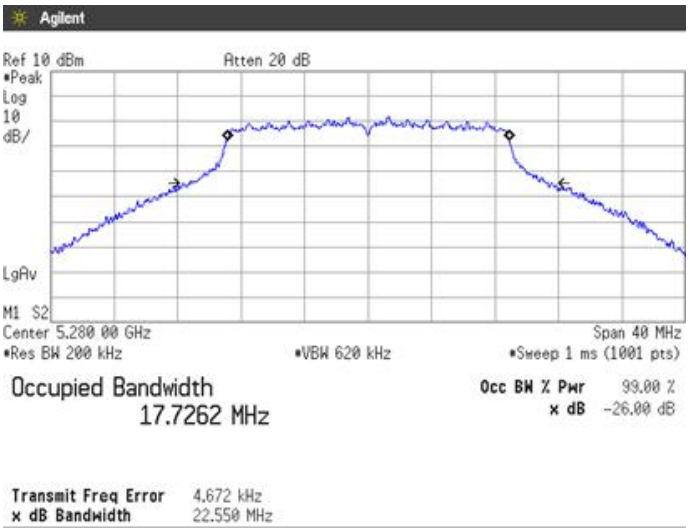

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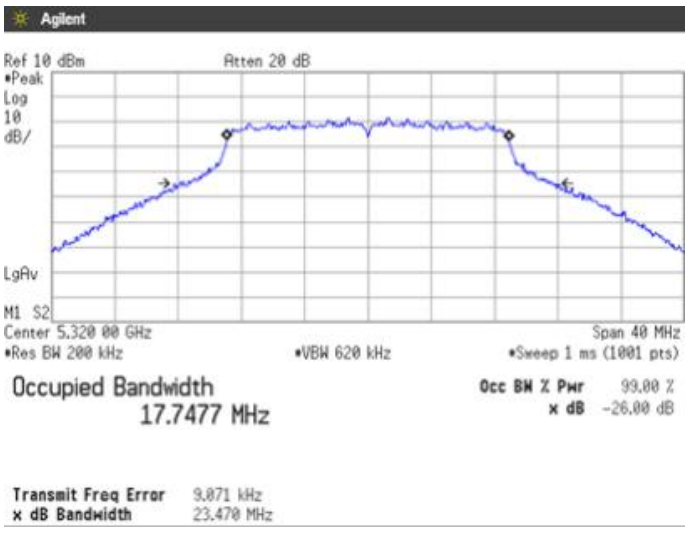
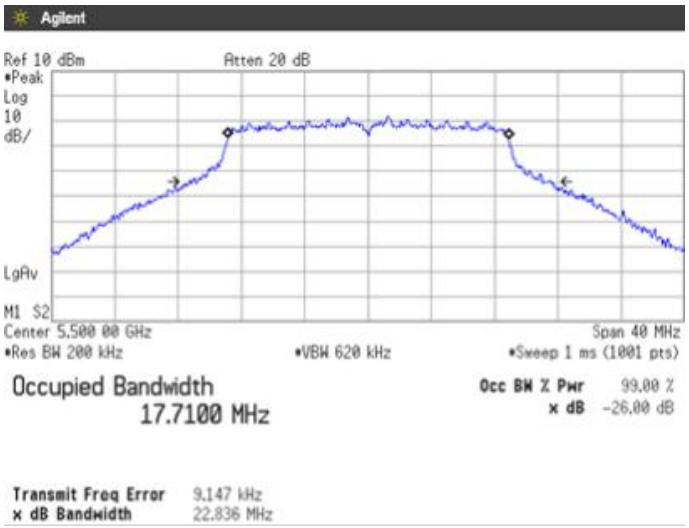


Japan

(5.6 GHz Band)

Channel: 100



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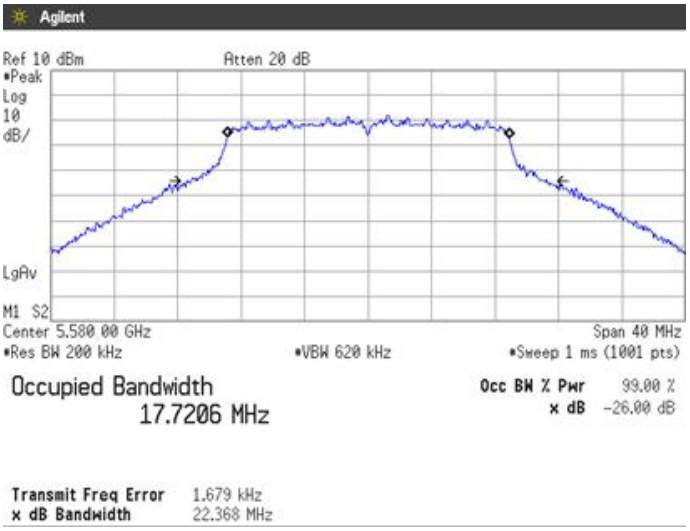

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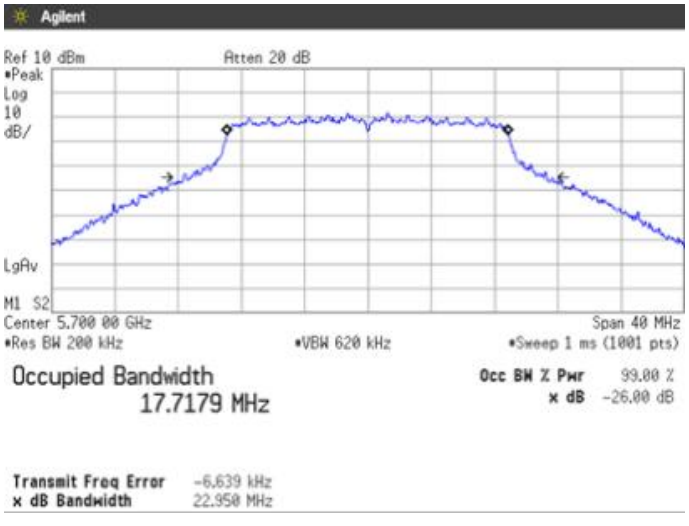
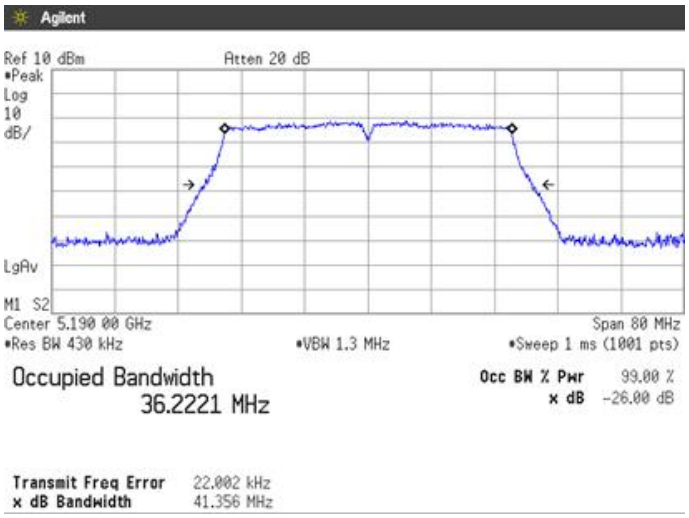


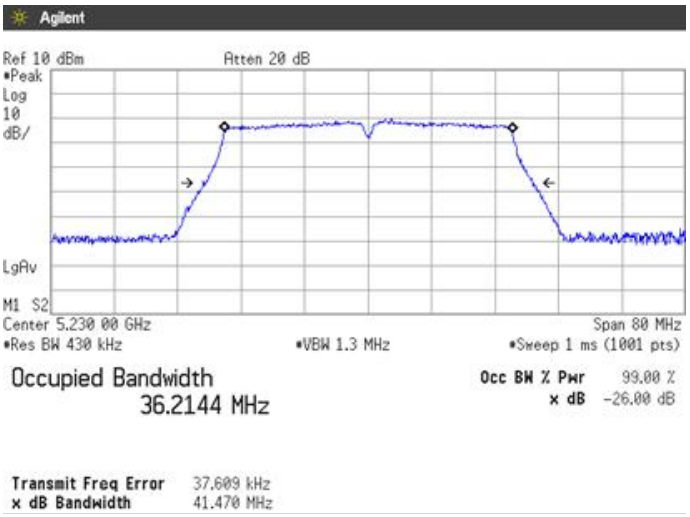
Japan

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

Channel: 38



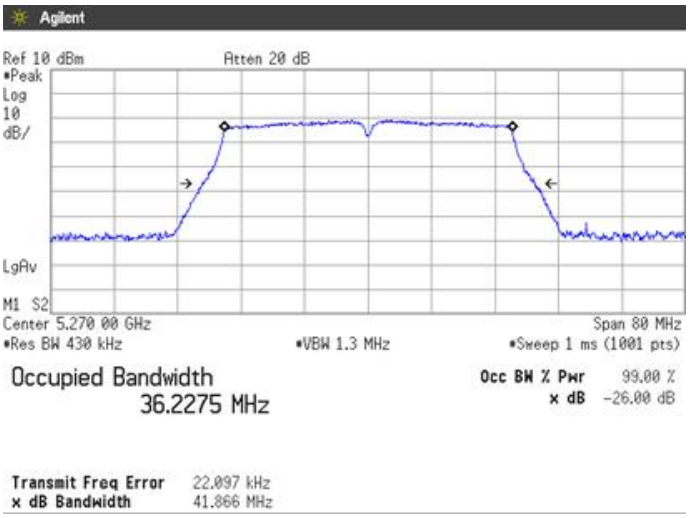
Channel: 46



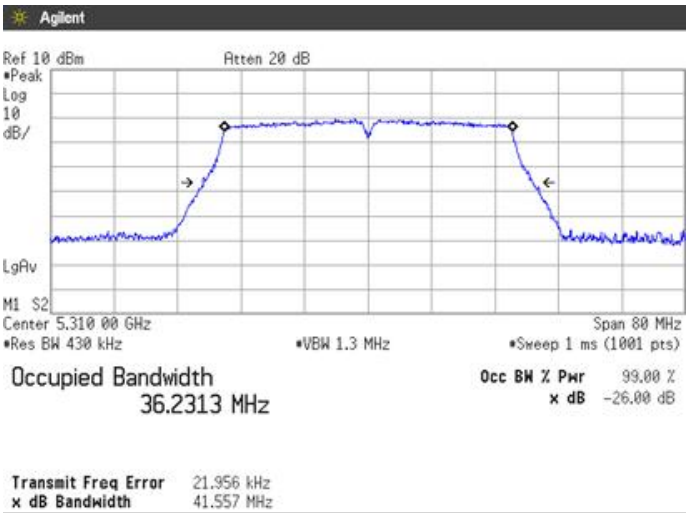
Japan

(5.3 GHz Band)

Channel: 54



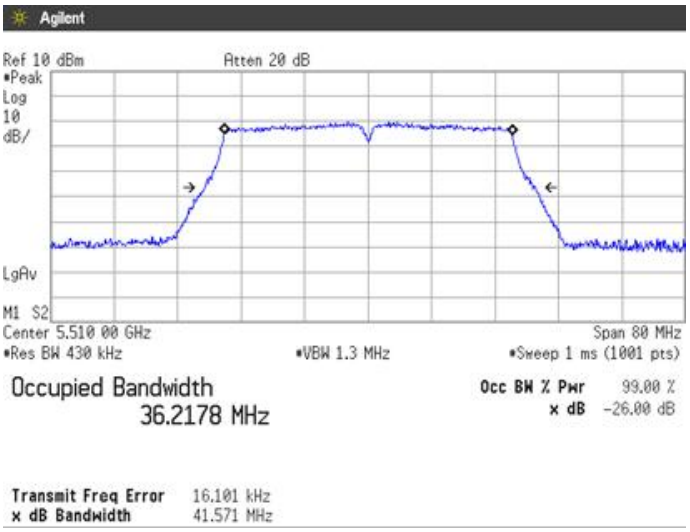
Channel: 62



Japan

(5.6 GHz Band)

Channel: 102



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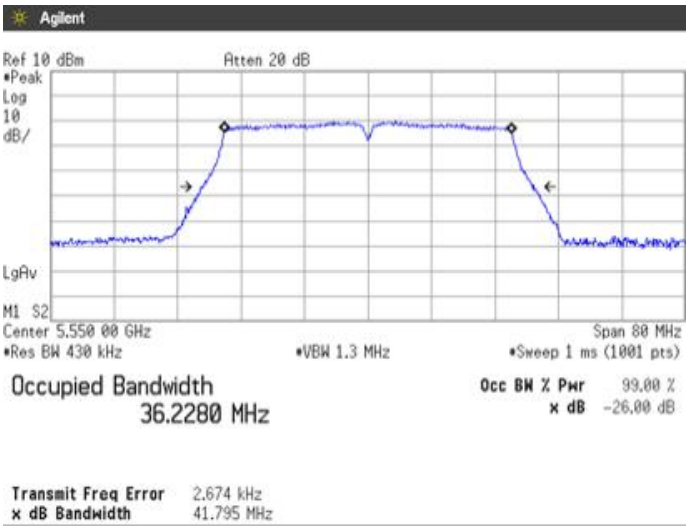

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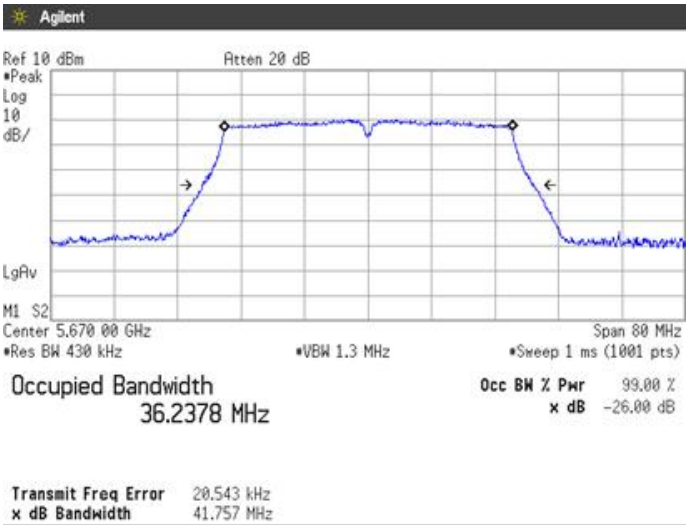
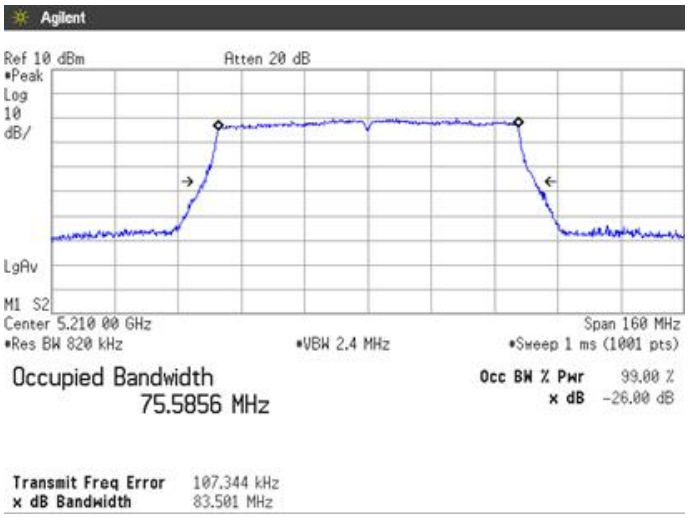
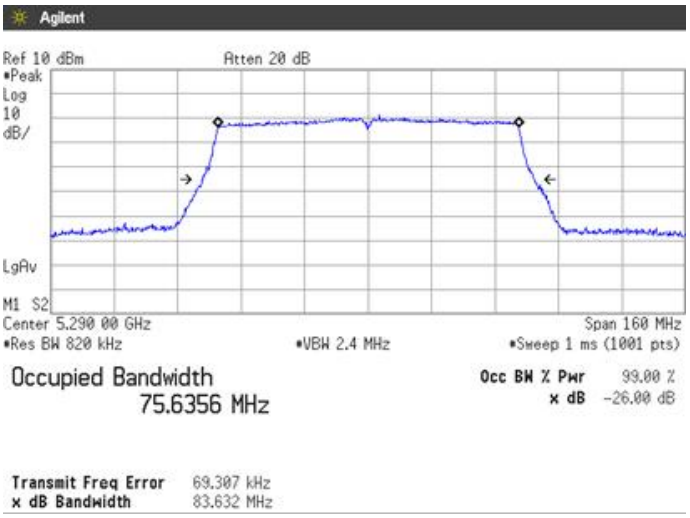


Japan

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

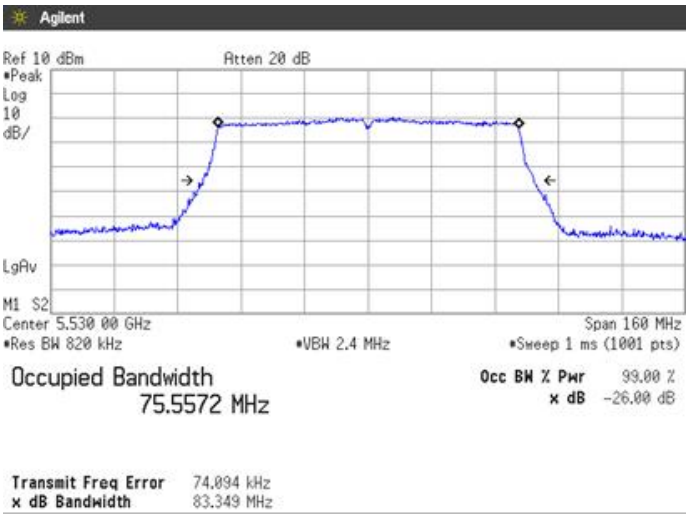


(5.3GHz Band)
Channel: 58

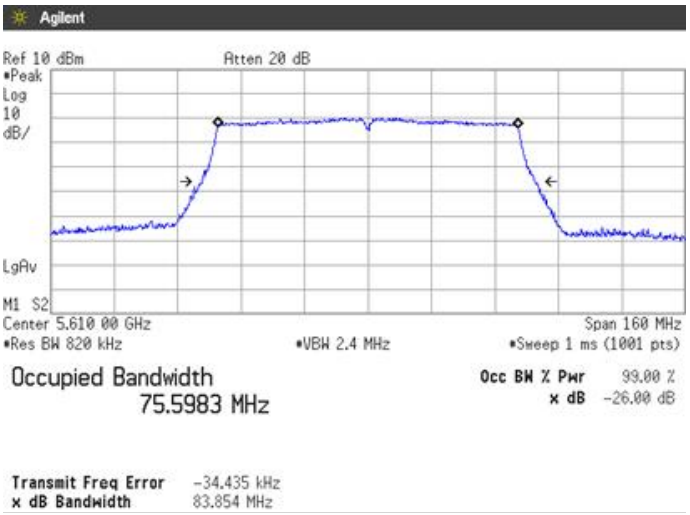


(5.6 GHz Band)

Channel: 106



Channel: 122



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]

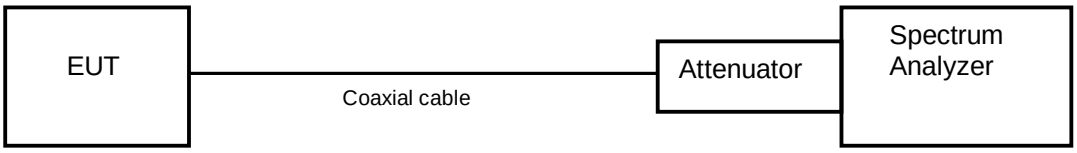
The peak power is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;
- RBW=1MHz, VBW=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



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 2 6dB 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	0.9	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	1.2	23.97
		22.212	24.47		
	802.11n HT20	250	23.97		23.97
		22.550	24.53		
	802.11n HT20	250	23.97		23.97
		41.557	27.19		
	802.11ac HT80	250	23.97		23.97
		83.632	30.22		

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	1.2	23.97
		21.948	24.41		
	802.11n HT20	250	23.97		23.97
		22.368	24.50		
	802.11n HT20	250	23.97		23.97
		41.571	27.19		
	802.11ac HT80	250	23.97		23.97
		83.349	30.21		

Japan

4.2.3 Measurement result

Date : 31-May-2019
Temperature : 22.6 [˚C]
Humidity : 36.6 [%] Test engineer :
Test place : Shielded room No.4 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	11.75	1.344	1.430	0.940	0.269	12.019	15.920
	40	5200	12.15					12.419	17.456
	48	5240	12.05					12.319	17.058
	52	5260	12.16	1.344	1.438	0.935	0.294	12.454	17.594
	56	5280	12.15					12.444	17.553
	64	5320	12.10					12.394	17.352
	100	5500	12.41	1.342	1.430	0.938	0.276	12.686	18.560
	116	5580	12.22					12.496	17.766
	140	5700	12.52					12.796	19.036

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	10.68	1.260	1.348	0.935	0.293	10.973	12.512
	40	5200	10.66					10.953	12.454
	48	5240	10.77					11.063	12.774
	52	5260	10.80	1.260	1.346	0.936	0.287	11.087	12.843
	56	5280	10.79					11.077	12.814
	64	5320	10.83					11.117	12.932
	100	5500	11.03	1.260	1.364	0.924	0.344	11.374	13.723
	116	5580	11.06					11.404	13.818
	140	5700	11.09					11.434	13.914

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	9.28	0.627	0.715	0.877	0.570	9.850	9.661
	46	5230	9.30					9.870	9.706
	54	5270	9.23	0.627	0.732	0.857	0.672	9.902	9.778
	62	5310	9.88					10.552	11.356
	102	5510	9.96	0.627	0.725	0.865	0.631	10.591	11.457
	110	5550	10.10					10.731	11.832
	134	5670	10.40					11.031	12.679

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			
802.11ac (80MHz)	42	5210	9.64	0.315	0.403	0.783	1.063	10.703	11.758
	58	5290	9.89	0.315	0.416	0.757	1.206	11.096	12.872
	106	5530	10.14	0.315	0.402	0.784	1.058	11.198	13.176
	122	5610	10.05	0.314	0.403	0.779	1.082	11.132	12.979

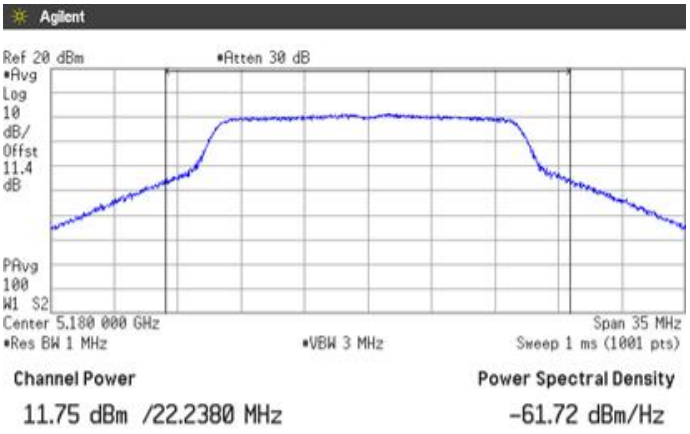
Note: X = On time / (On + Off time), DCF=10log (1/x)
Note2: Test Result=Reading + DCF

Japan

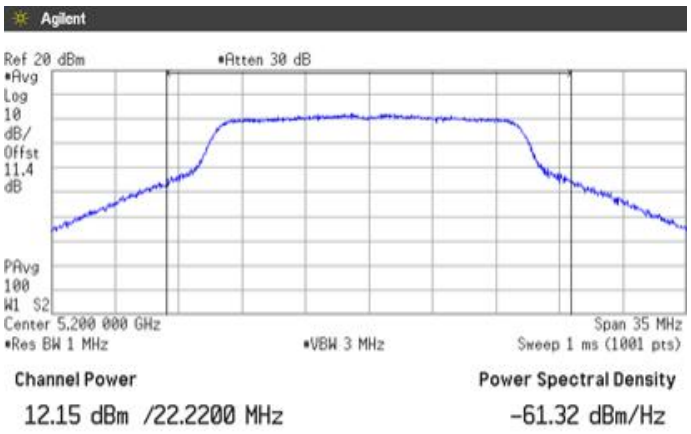
4.2.4 Trace data

[IEEE802.11a]
(5.2GHz Band)

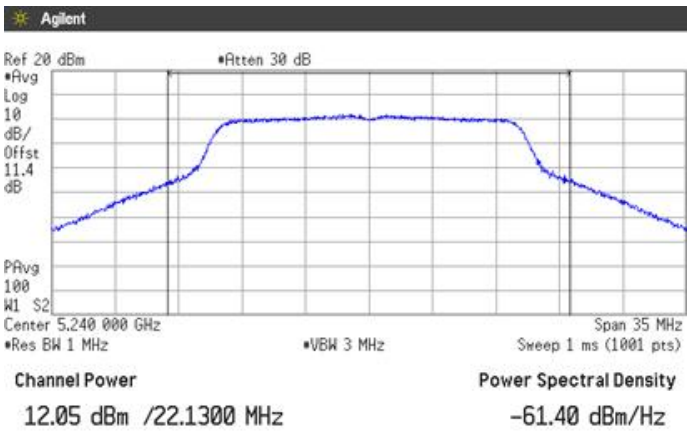
Channel: 36



Channel: 40

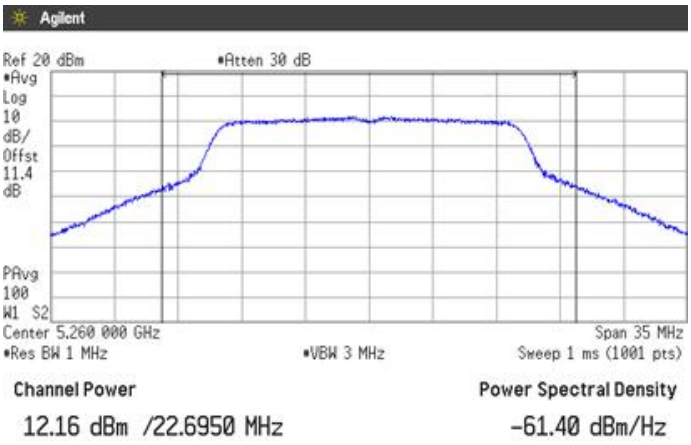


Channel: 48

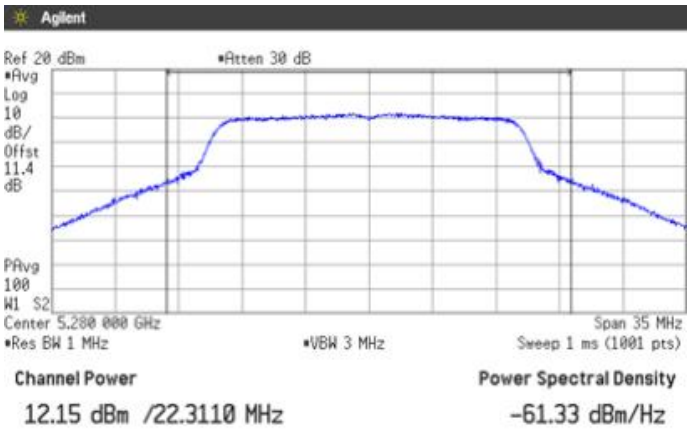


(5.3GHz Band)

Channel: 52



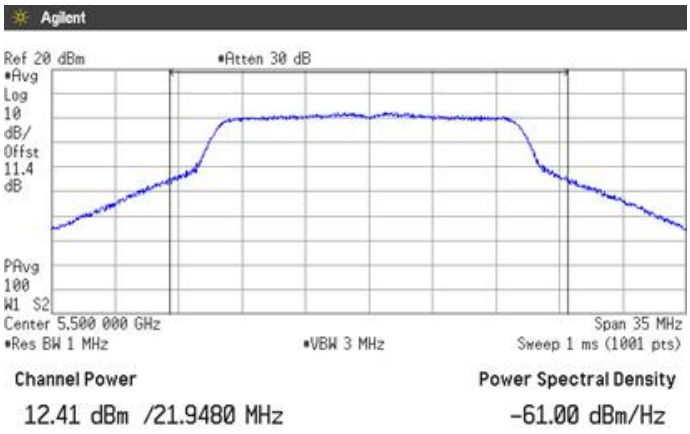
Channel: 56



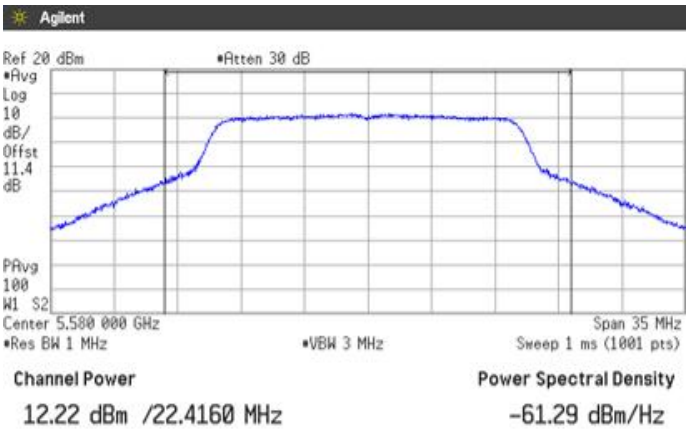
Channel: 64

(5.6GHz Band)

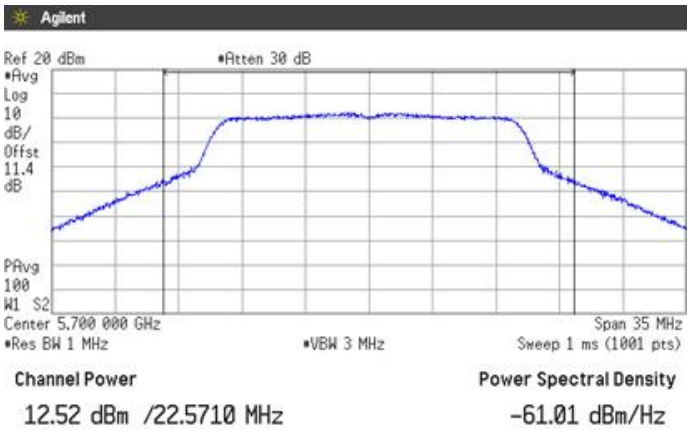
Channel: 100



Channel: 116



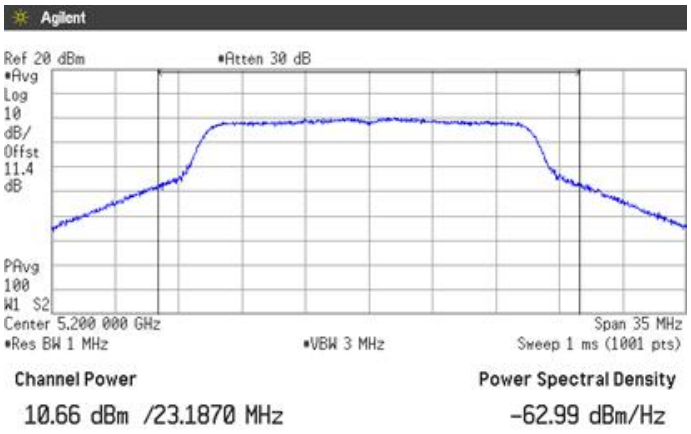
Channel: 140



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

Channel: 36

Channel: 40

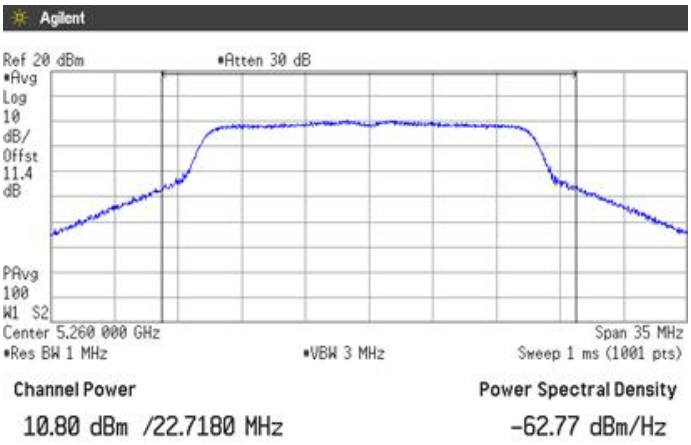


Channel: 48

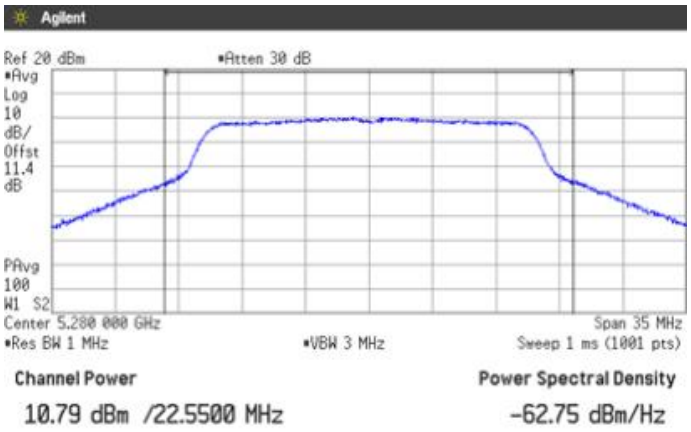
Japan

(5.3GHz Band)

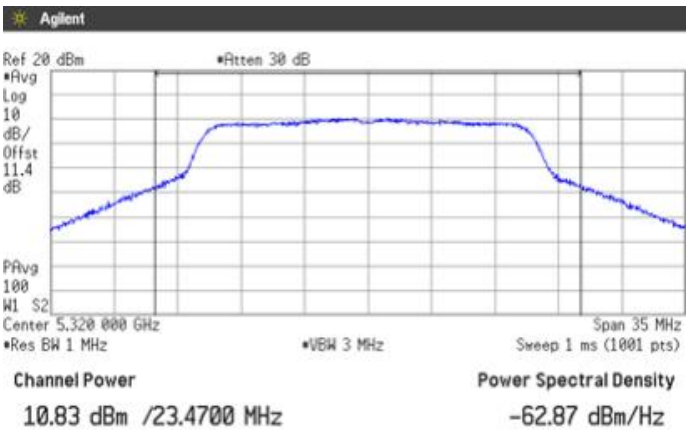
Channel: 52



Channel: 56



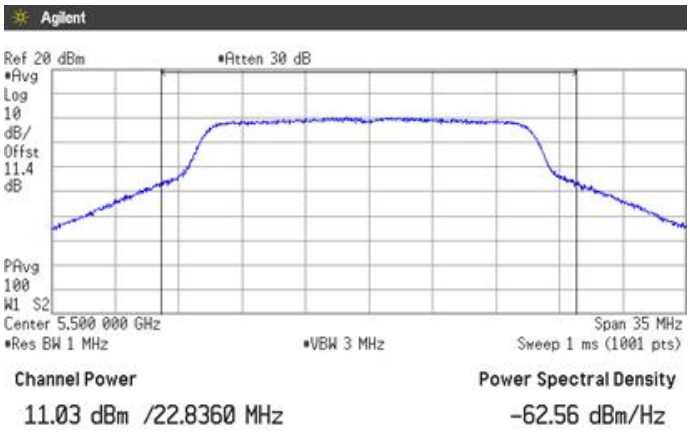
Channel: 64



Japan

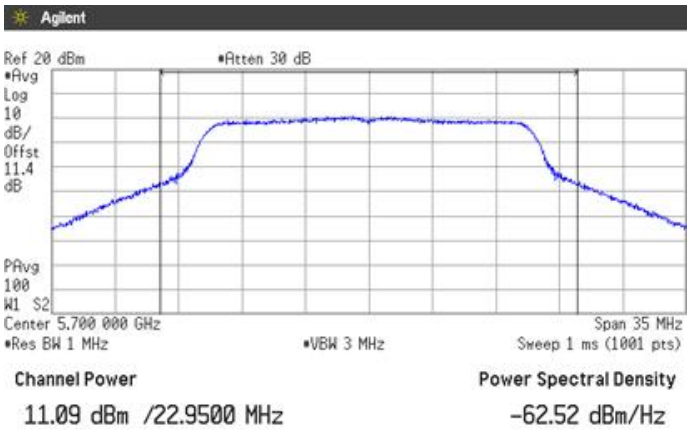
(5.6GHz Band)

Channel: 100



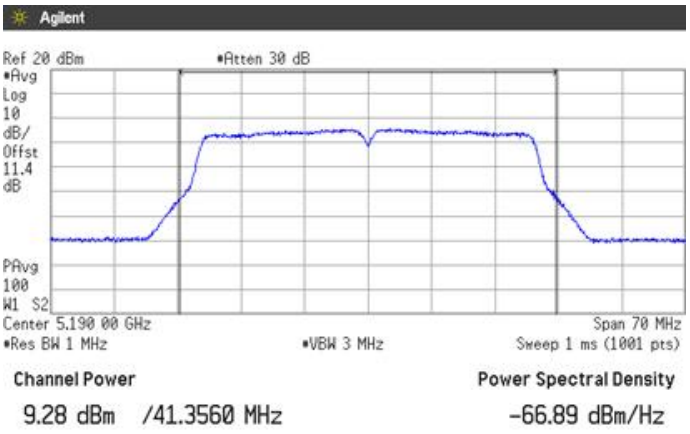
Channel: 116

Channel: 140

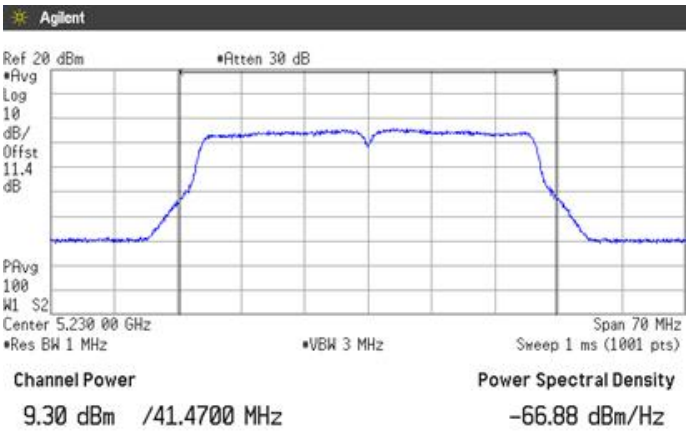


[IEEE802.11n (HT40)]
(5.2GHz Band)

Channel: 38



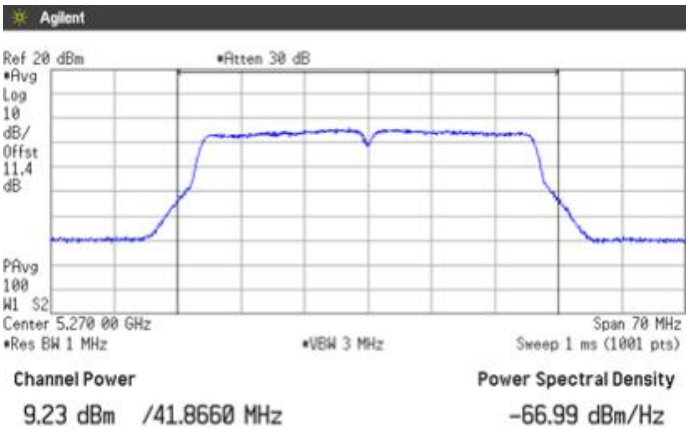
Channel: 46



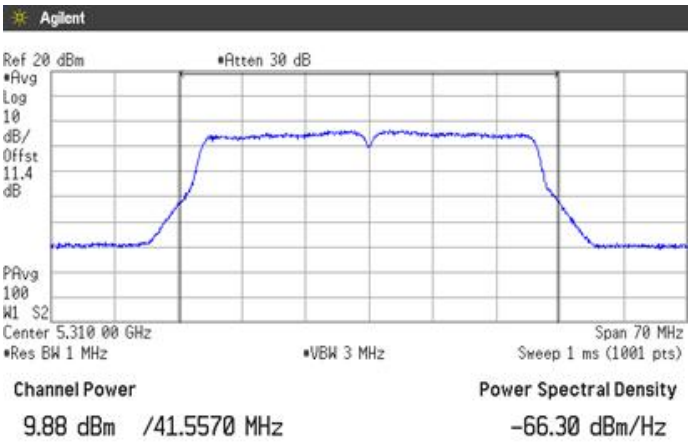
Japan

(5.3GHz Band)

Channel: 54



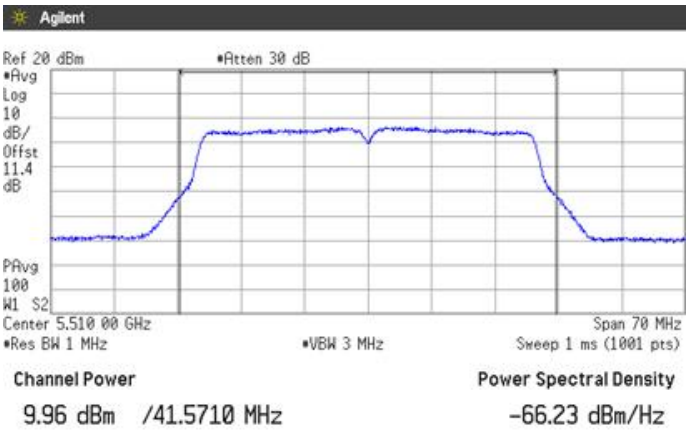
Channel: 62



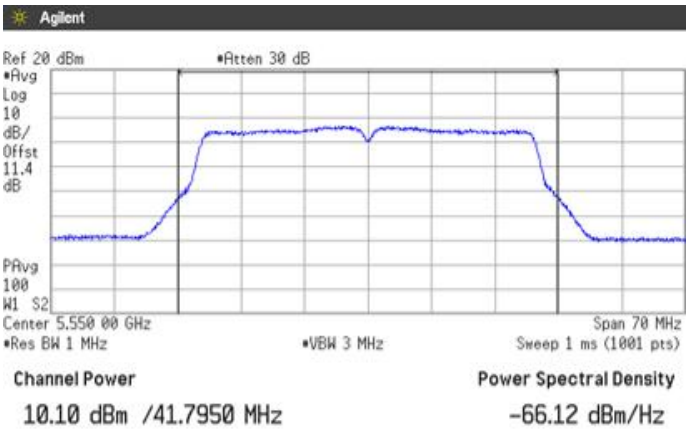
Japan

(5.6GHz Band)

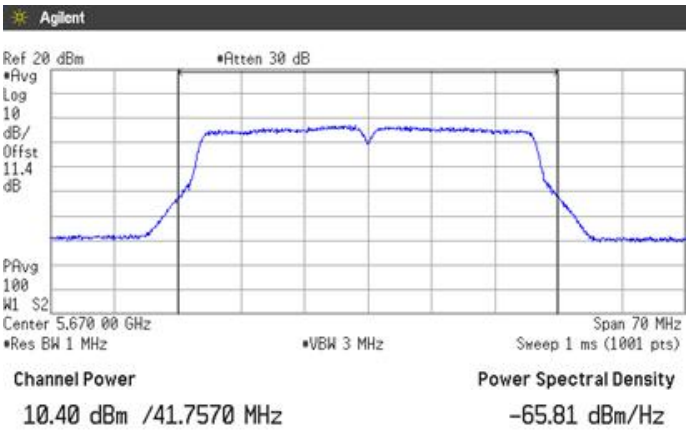
Channel: 102



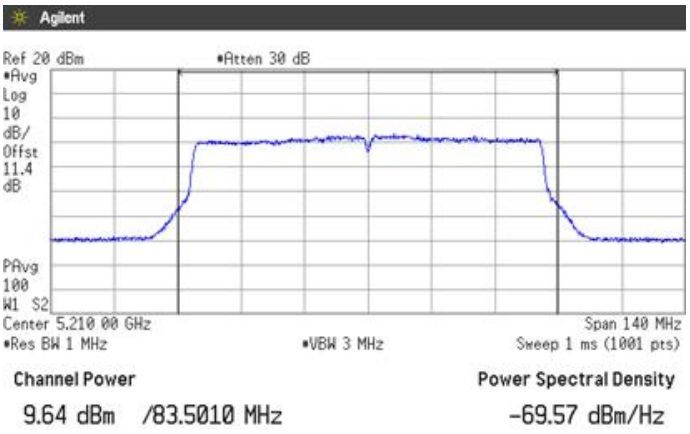
Channel: 110



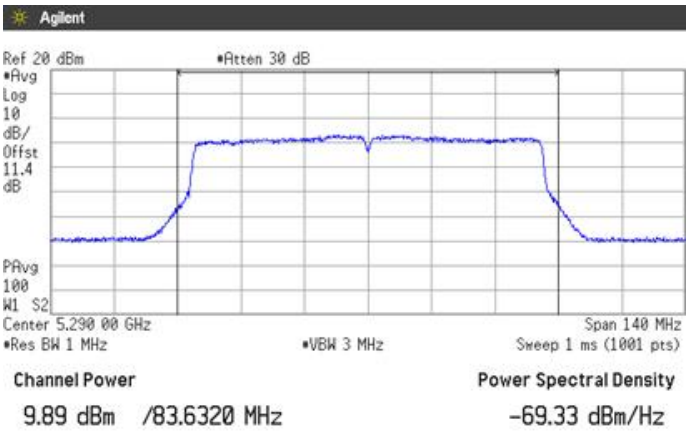
Channel: 134



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

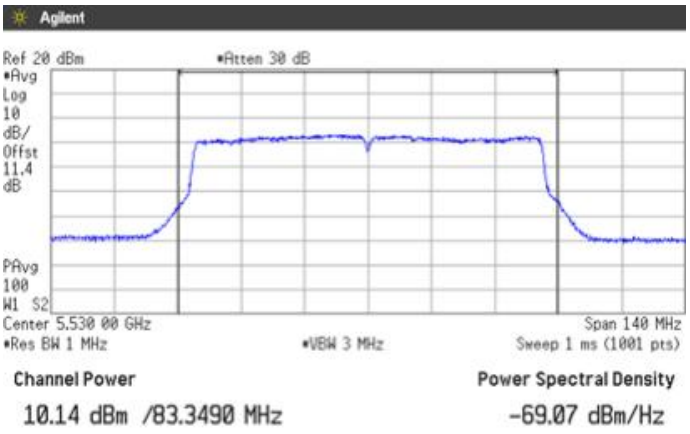


(5.3GHz Band)
Channel: 58

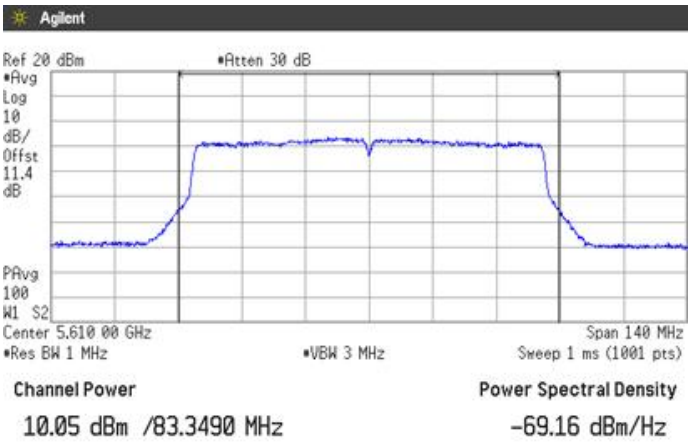


(5.6 GHz Band)

Channel: 106



Channel: 122



Japan

4.3 Peak Power Spectral Density

4.3.1 Measurement procedure

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

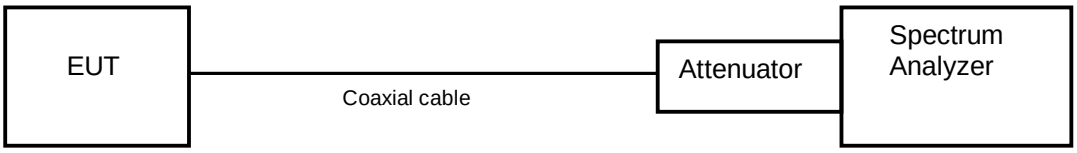
The peak power spectral density is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

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 client 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	0.9	11.9 dBm/MHz
5.3 GHz Band	1.2	12.2 dBm/MHz
5.6 GHz Band	1.2	12.2 dBm/MHz

Japan

4.3.3 Measurement result

Date : 3-June-2019
Temperature : 23.8 [˚C]
Humidity : 48.4 [%] Test engineer :
Test place : Shielded room No.4 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	1.970	1.344	1.430	0.940	0.269	2.239
	40	5200	2.161					2.430
	48	5240	1.883					2.152
	52	5260	1.918	1.344	1.438	0.935	0.294	2.212
	56	5280	1.992					2.286
	64	5320	1.931					2.225
	100	5500	2.168	1.342	1.430	0.938	0.276	2.444
	116	5580	1.953					2.229
	140	5700	2.383					2.659

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	0.311	1.260	1.348	0.935	0.293	0.604
	40	5200	0.609					0.902
	48	5240	0.674					0.967
	52	5260	0.437	1.260	1.346	0.936	0.287	0.724
	56	5280	0.276					0.563
	64	5320	0.750					1.037
	100	5500	0.706	1.260	1.364	0.924	0.344	1.050
	116	5580	1.037					1.381
	140	5700	0.804					1.148

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	-3.825	0.627	0.715	0.877	0.570	-3.255
	46	5230	-3.417					-2.847
	54	5270	-3.814	0.627	0.732	0.857	0.672	-3.142
	62	5310	-3.384					-2.712
	102	5510	-3.400	0.627	0.725	0.865	0.631	-2.769
	110	5550	-3.176					-2.545
	134	5670	-2.506					-1.875

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	-6.365	0.315	0.403	0.783	1.063	-5.302
	58	5290	-6.412	0.315	0.416	0.757	1.206	-5.206
	106	5530	-6.256	0.315	0.402	0.784	1.058	-5.198
	122	5610	-6.070	0.314	0.403	0.779	1.082	-4.988

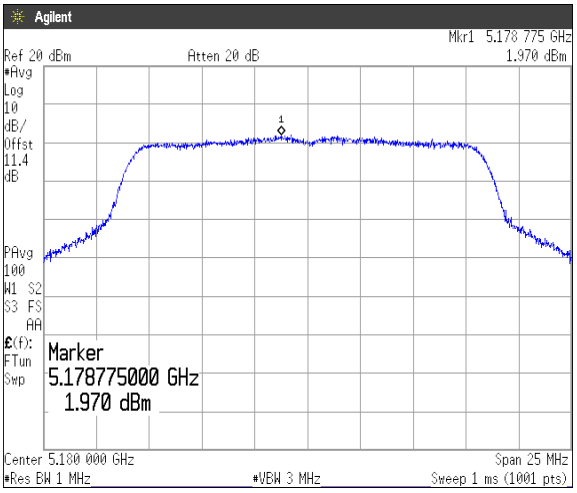
Note: X = On time / (On + Off time), DCF=10log (1/x)
Note 2: Test Result = Reading + DCF

Japan

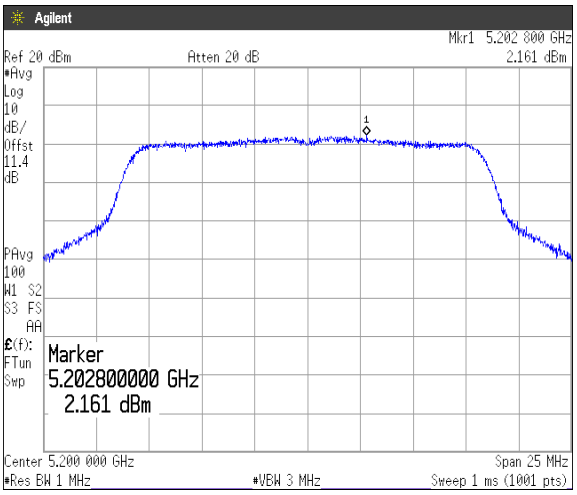
4.3.4 Trace data

[IEEE802.11a]
(5.2 GHz Band)

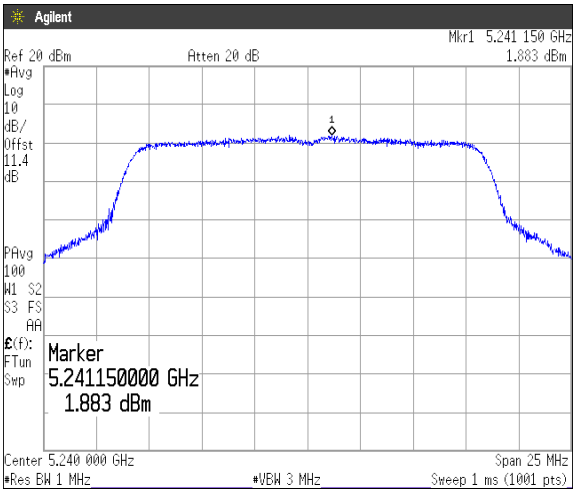
Channel: 36



Channel: 40



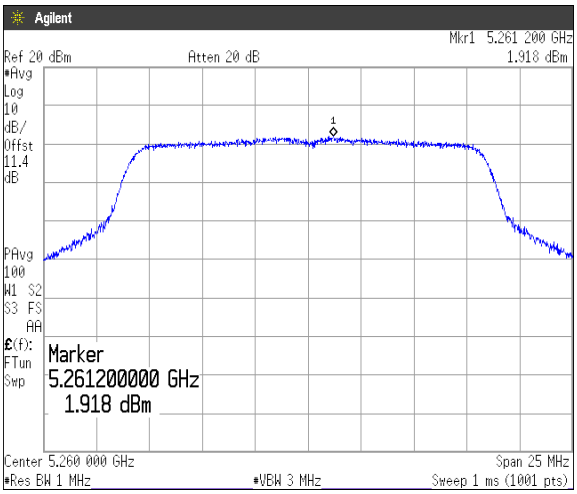
Channel: 48



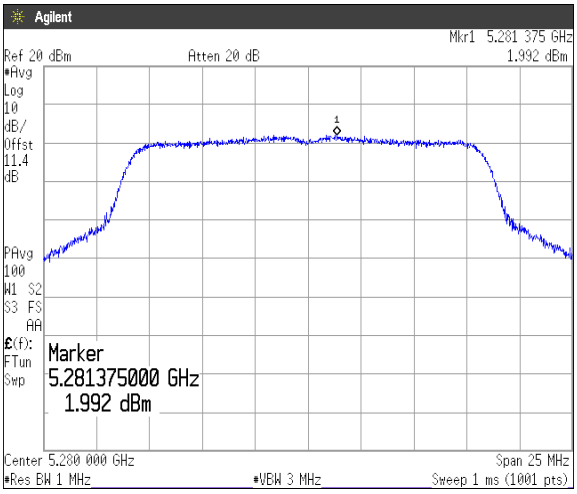
Japan

(5.3 GHz Band)

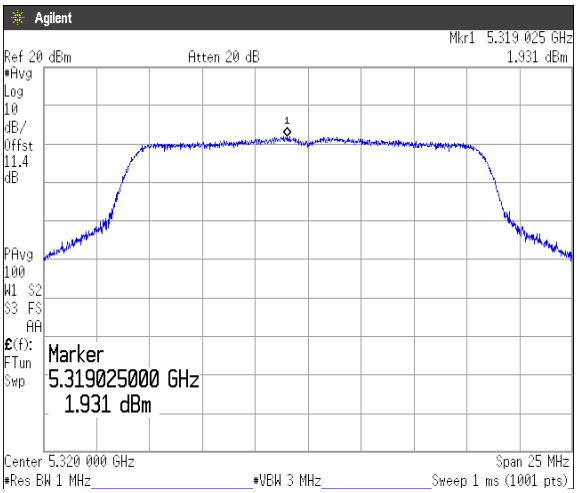
Channel: 52



Channel: 56



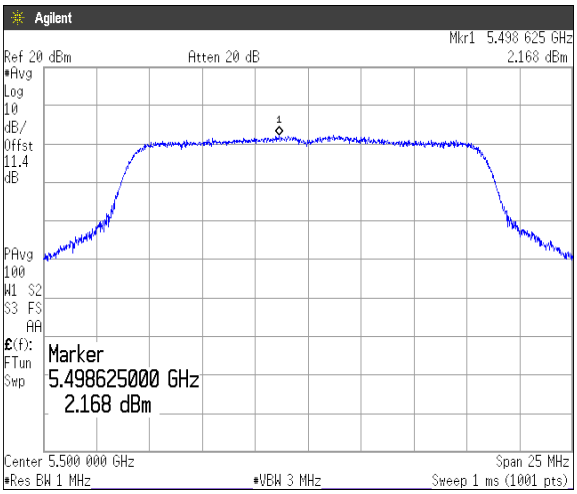
Channel: 64



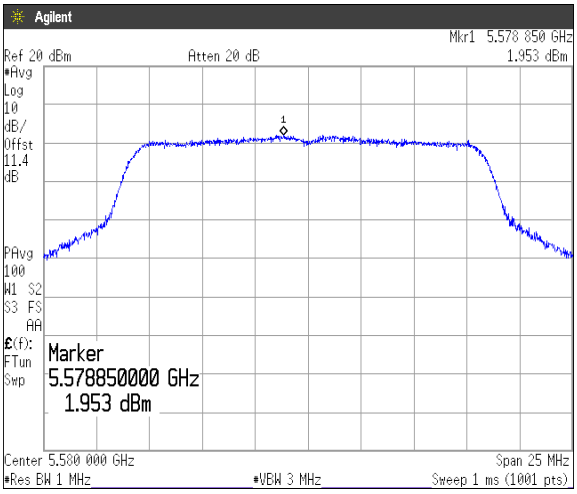
Japan

(5.6 GHz Band)

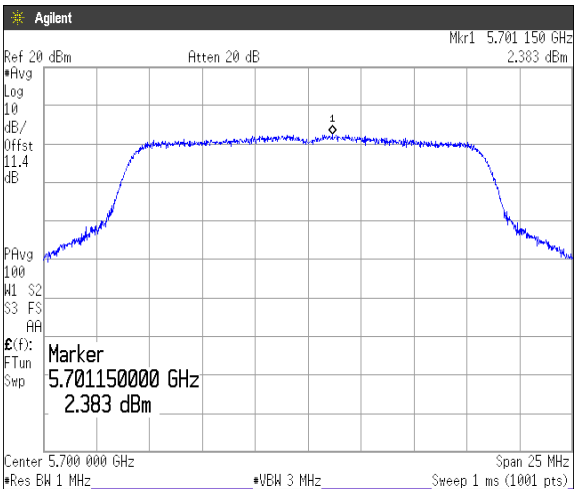
Channel: 100



Channel: 116



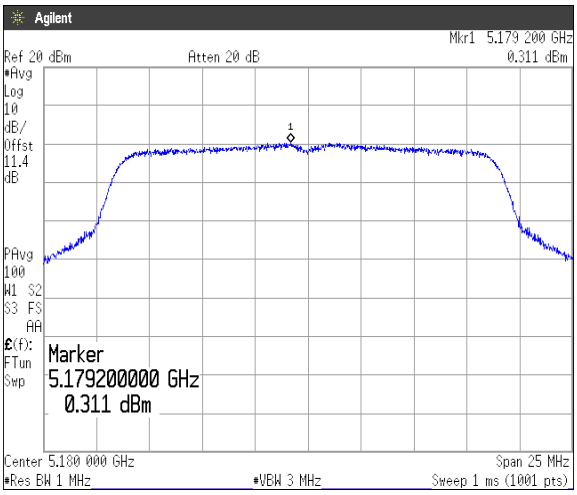
Channel: 140



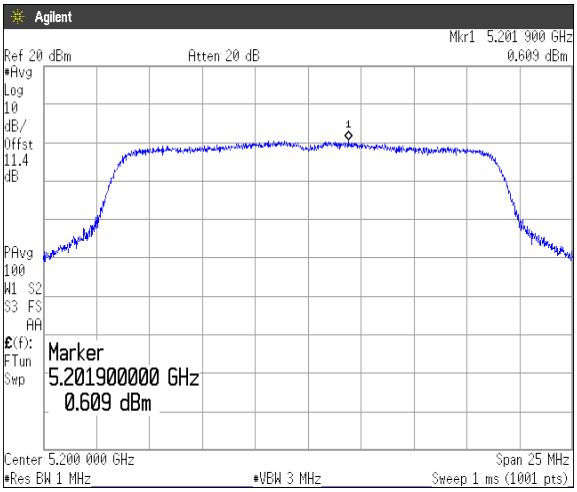
Japan

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

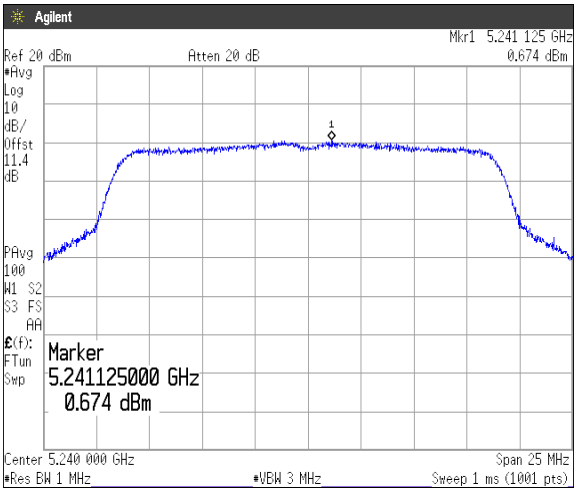
Channel: 36



Channel: 40



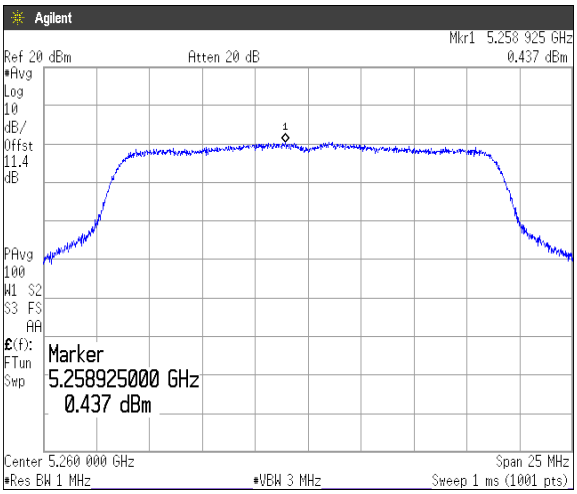
Channel: 48



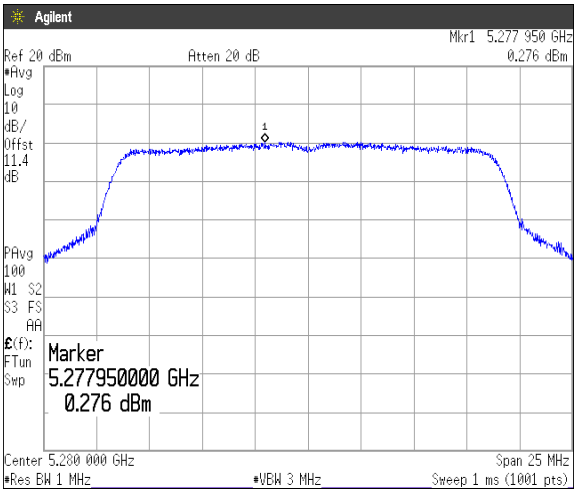
Japan

(5.3 GHz Band)

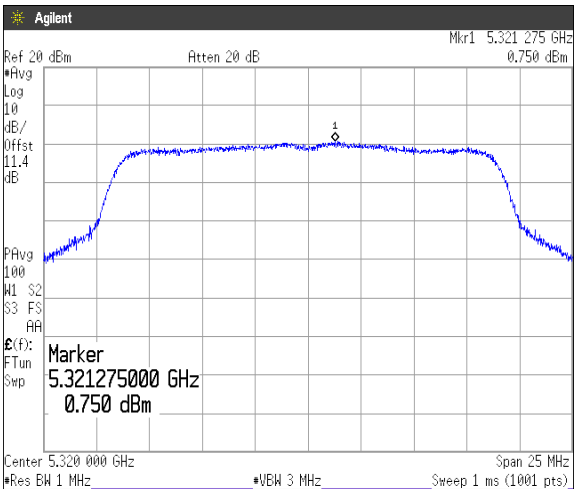
Channel: 52



Channel: 56



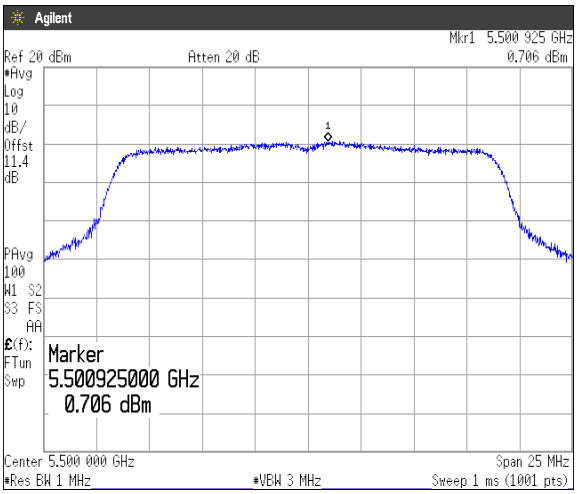
Channel: 64



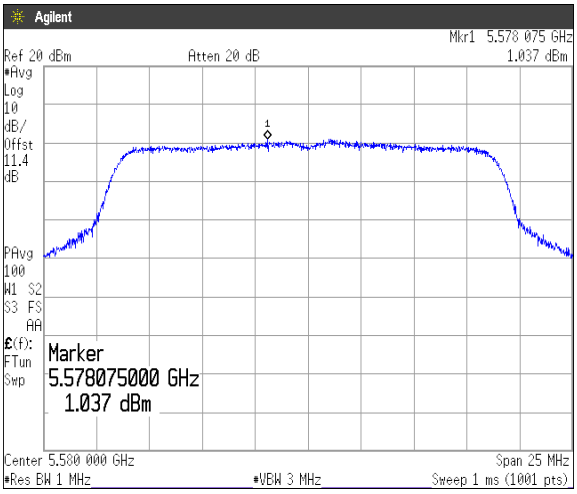
Japan

(5.6 GHz Band)

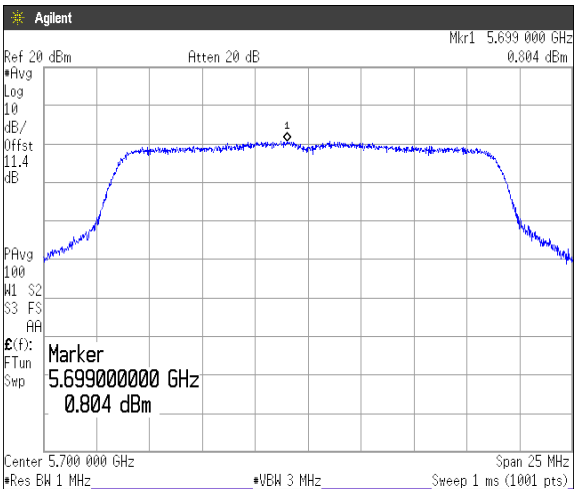
Channel: 100



Channel: 116



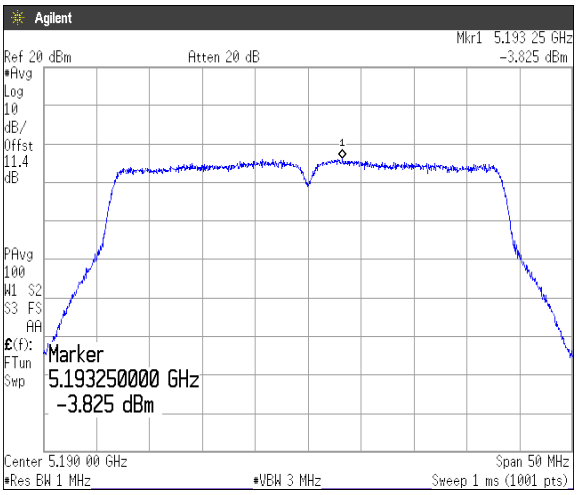
Channel: 140



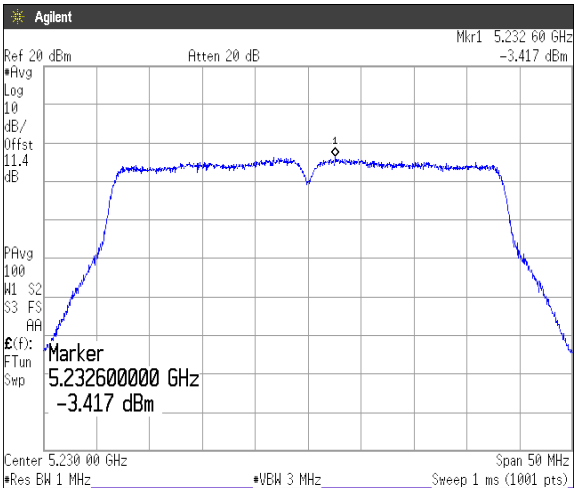
Japan

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

Channel: 38



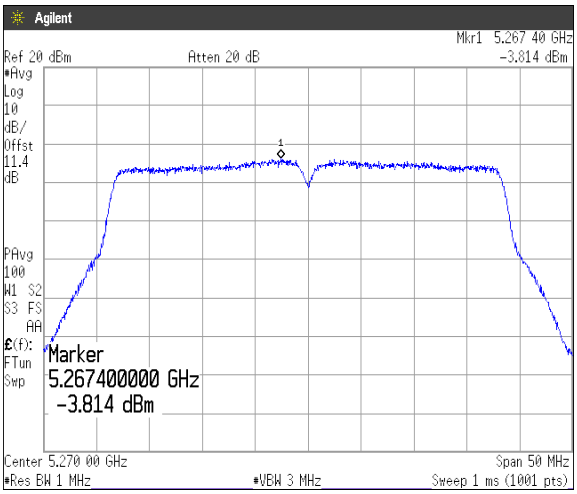
Channel: 46



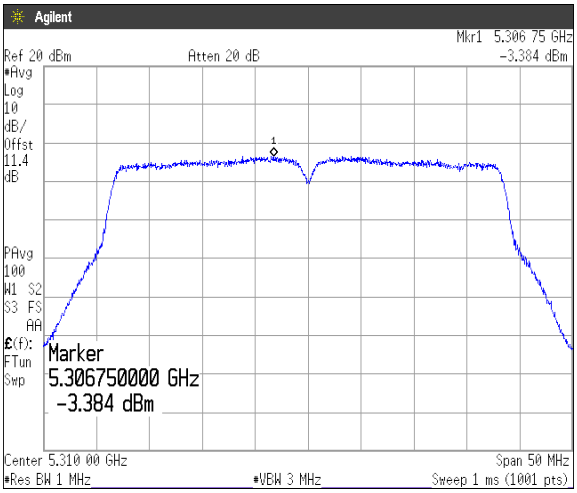
Japan

(5.3 GHz Band)

Channel: 54



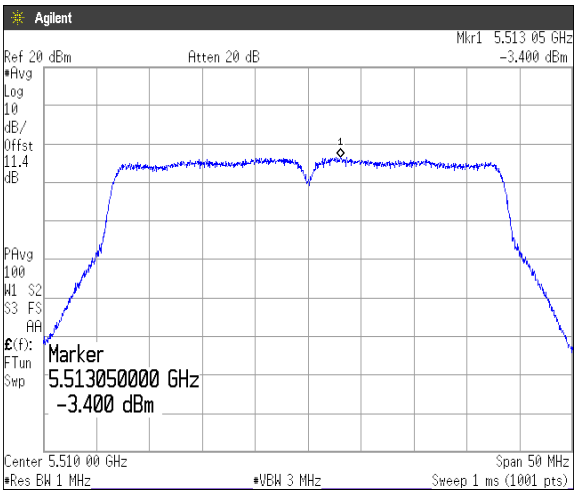
Channel: 62



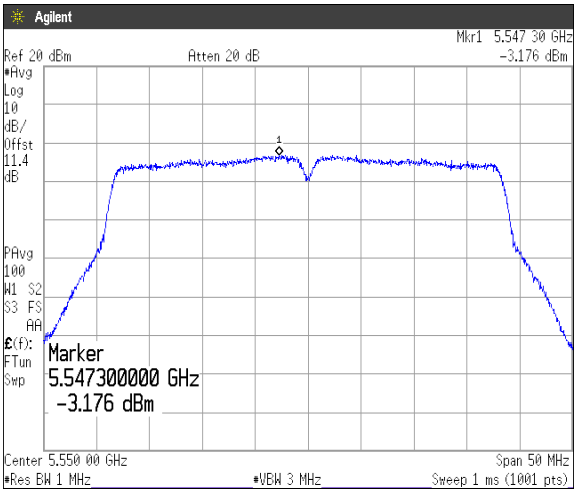
Japan

(5.6 GHz Band)

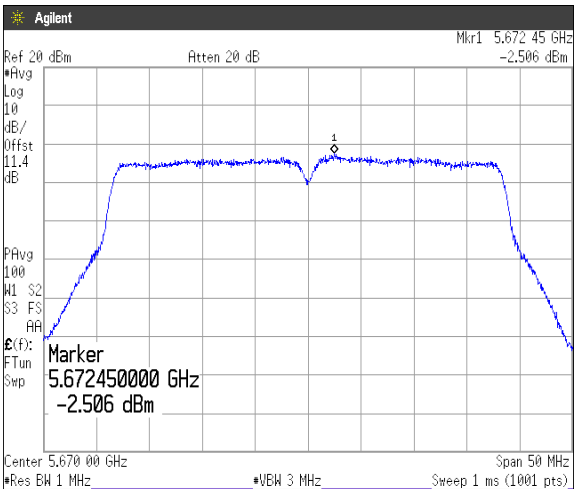
Channel: 102



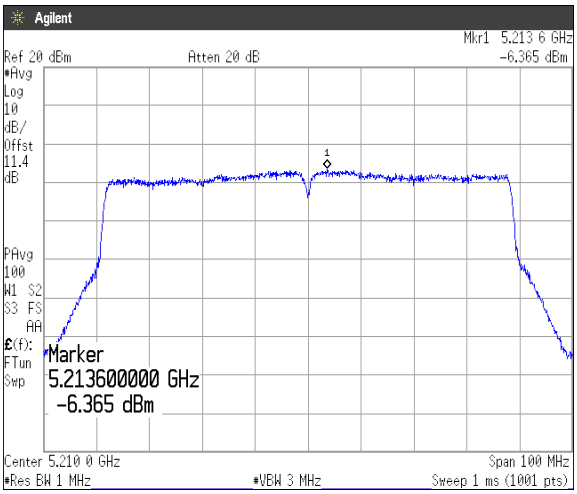
Channel: 110



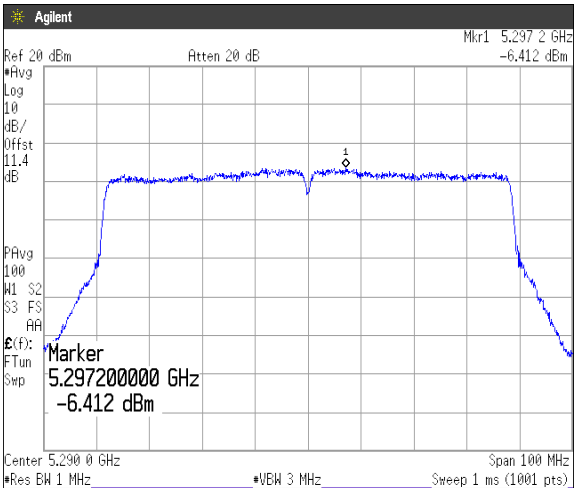
Channel: 134



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



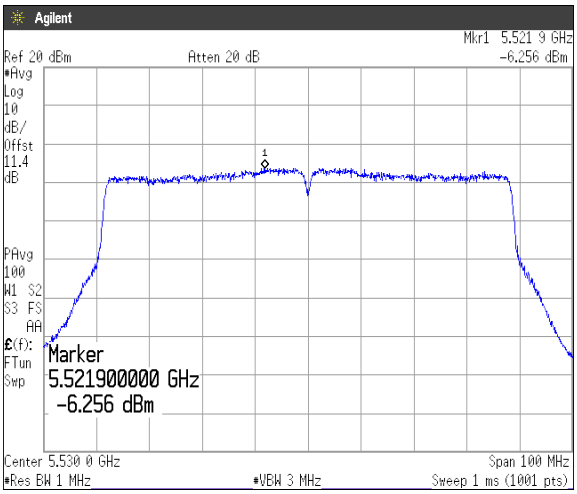
(5.3 GHz Band)
Channel: 58



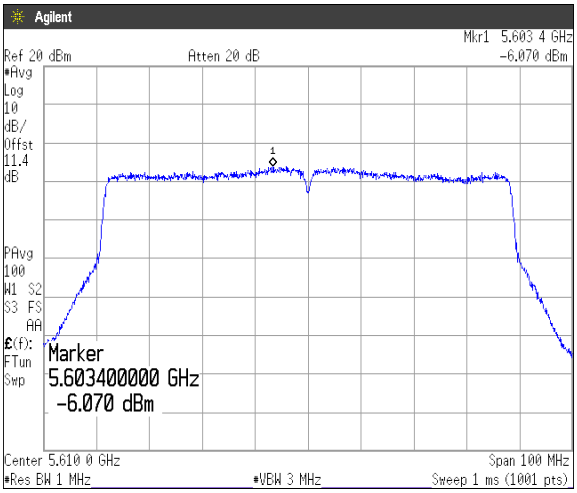
Japan

(5.6 GHz Band)

Channel: 106



Channel: 122



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)

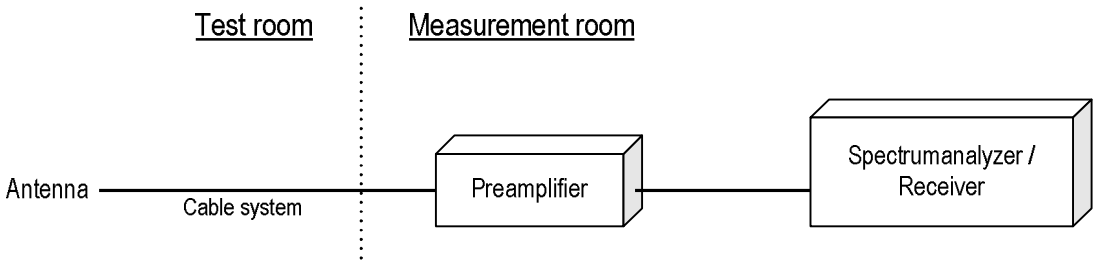
Radiated emission measurements are performed at 3m distance with the broadband antenna (Loop antenna, Biconical antenna, Log periodic antenna, Double ridged guide antenna and Bload-band horn Antenna). The antenna is positioned both the horizontal and vertical planes of polarization and height is varied 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	1.344	1.430	93.99	0.269
	W53	1.344	1.438	93.46	0.294
	W56	1.342	1.430	93.85	0.276
802.11n (20MHz)	W52	1.260	1.348	93.47	0.293
	W53	1.260	1.346	93.61	0.287
	W56	1.260	1.364	92.38	0.344
802.11n (40MHz)	W52	0.627	0.715	87.69	0.570
	W53	0.627	0.732	85.66	0.672
	W56	0.627	0.725	86.48	0.631
802.11ac (80MHz)	W52	0.315	0.403	78.29	1.063
	W53	0.315	0.416	75.75	1.206
	W56	0.315	0.402	78.38	1.058

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

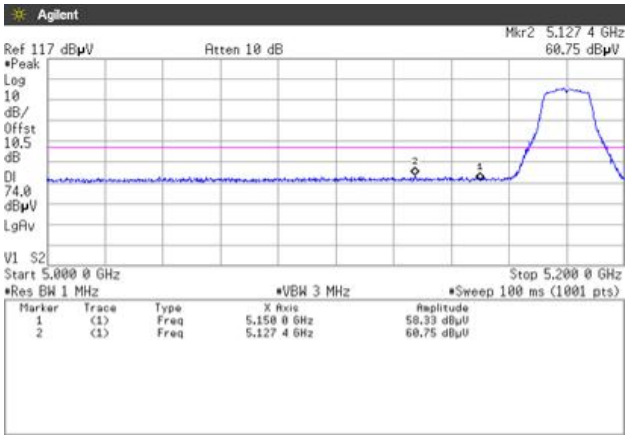
Date	:	12-June-2019			
Temperature	:	22.4 [˚C]			
Humidity	:	47.1 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	1-July-2019			
Temperature	:	22.4 [˚C]			
Humidity	:	66.3 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

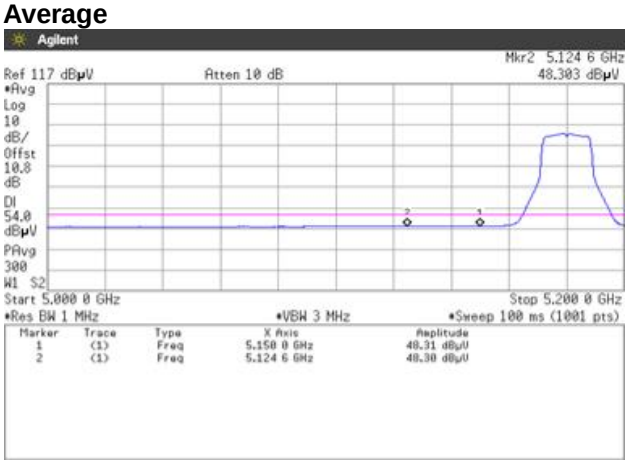
4.4.4.1 Restricted Bandedge

[IEEE802.11a]

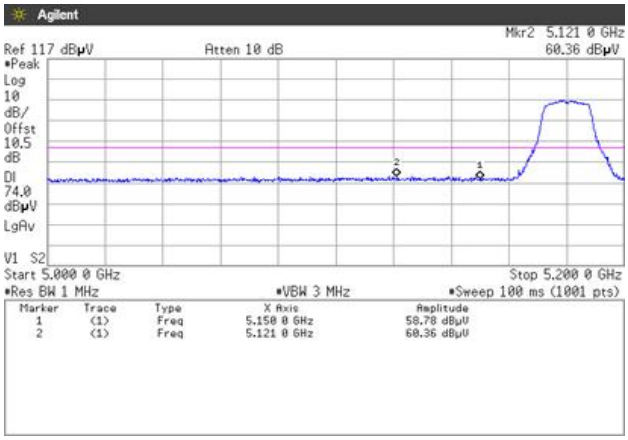
5.2 GHz Band, Channel Low
Horizontal
Peak



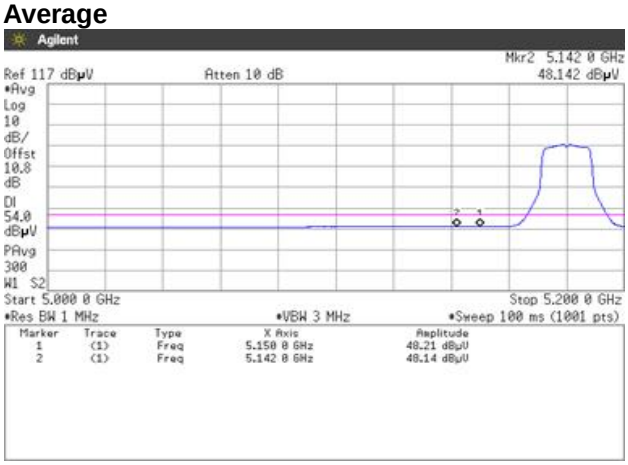
Average



Vertical
Peak

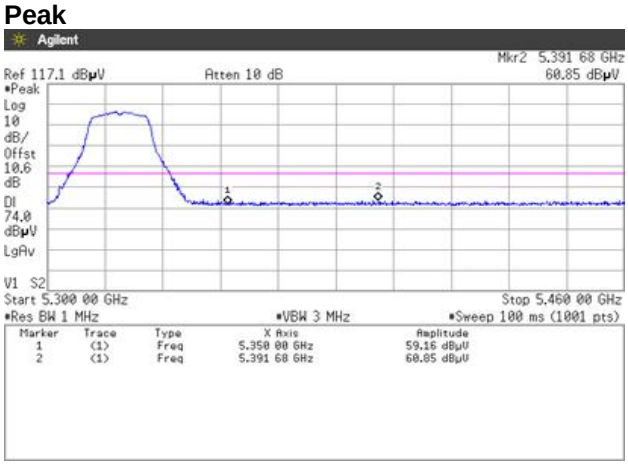


Average

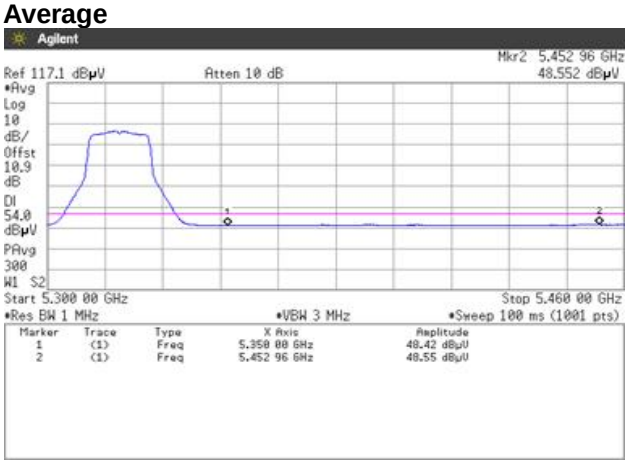


[IEEE802.11a]

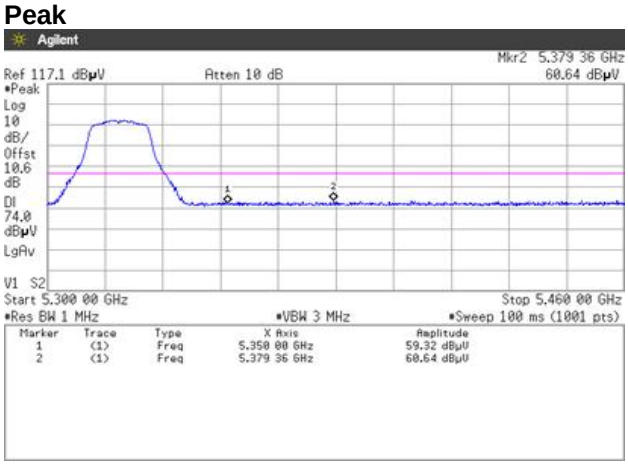
5.3 GHz Band, Channel High
Horizontal
Peak



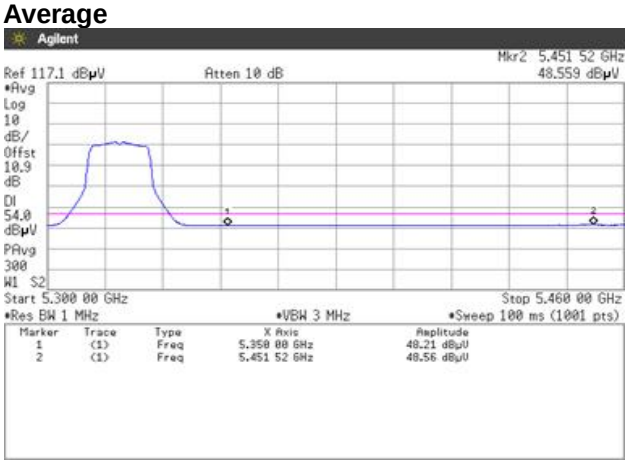
Average



Vertical
Peak

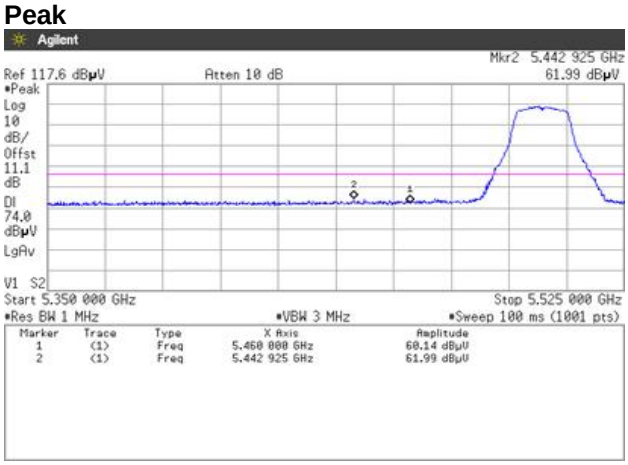


Average

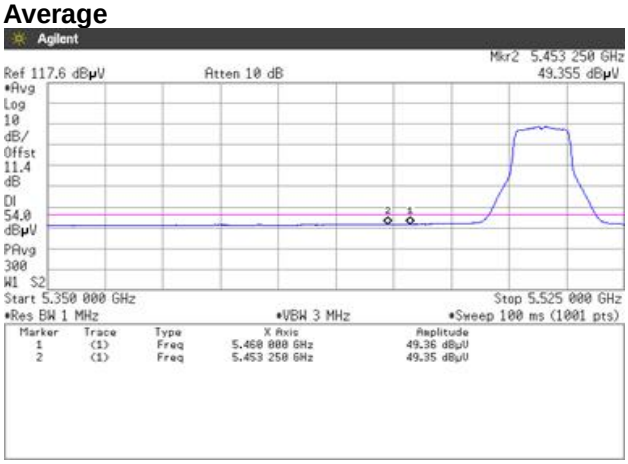


[IEEE802.11a]

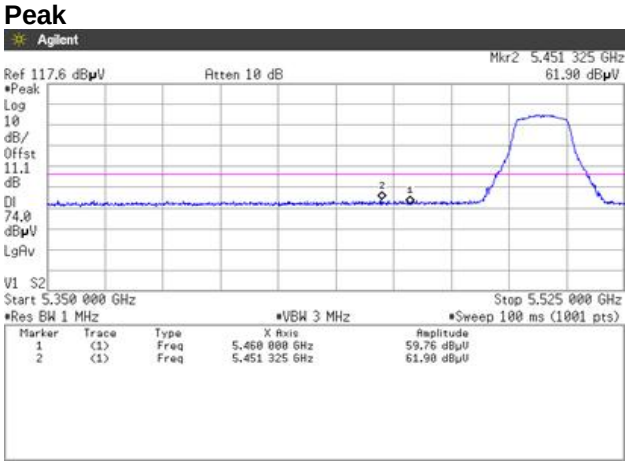
5.6 GHz Band, Channel Low
Horizontal
Peak



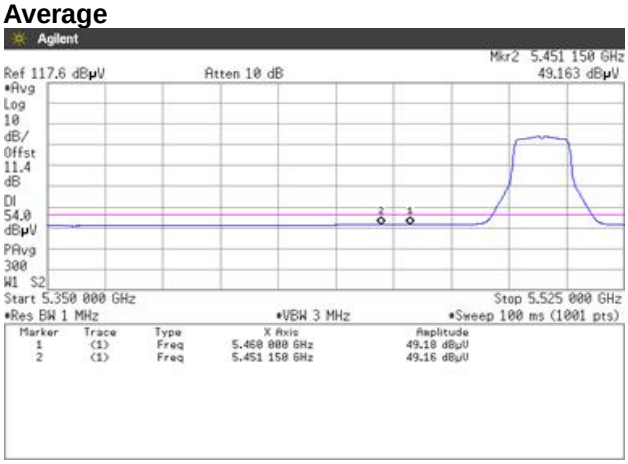
Average



Vertical
Peak

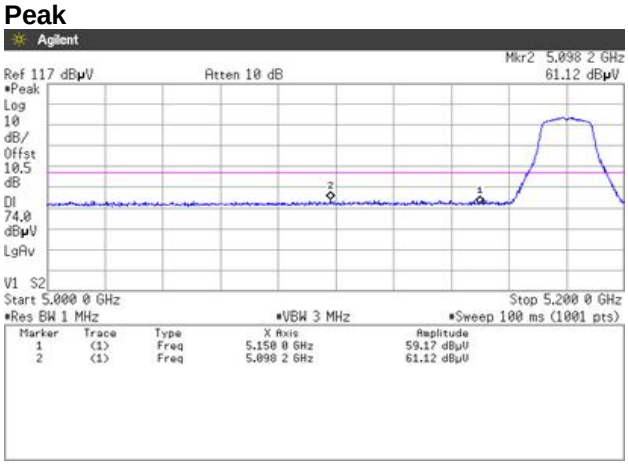


Average

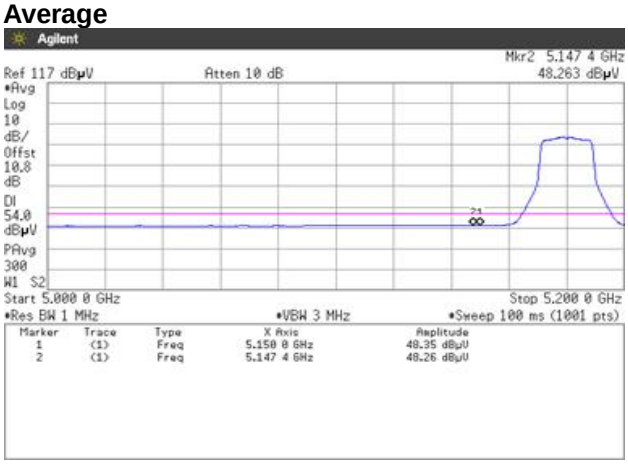


[IEEE802.11n (HT20)]

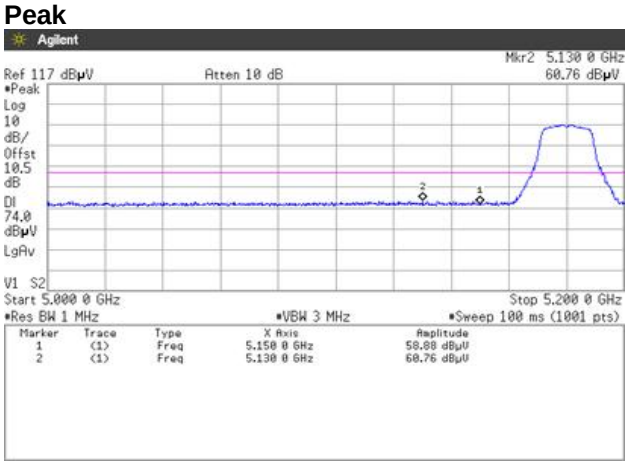
5.2 GHz Band, Channel Low
Horizontal
Peak



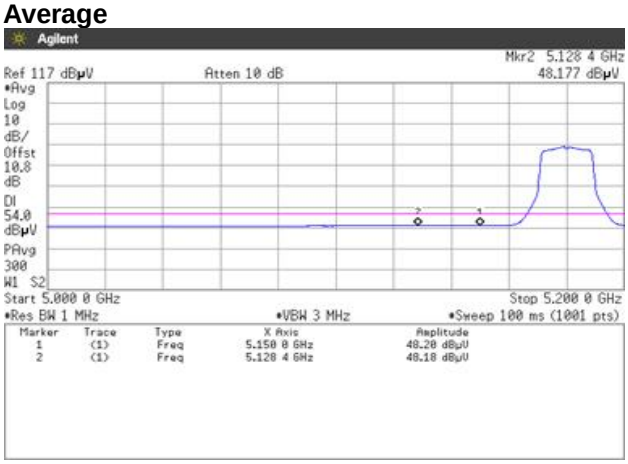
Average



Vertical
Peak

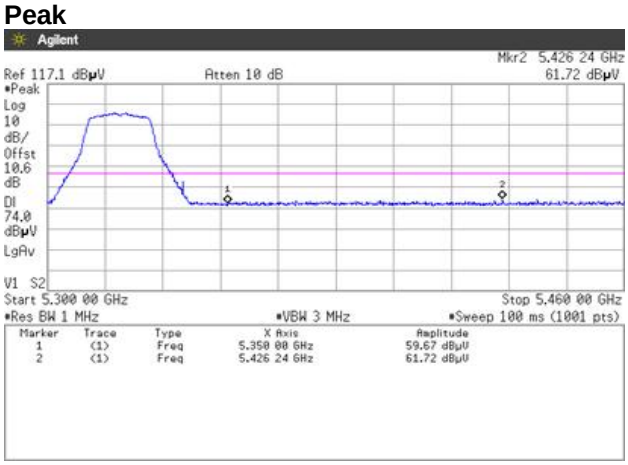


Average

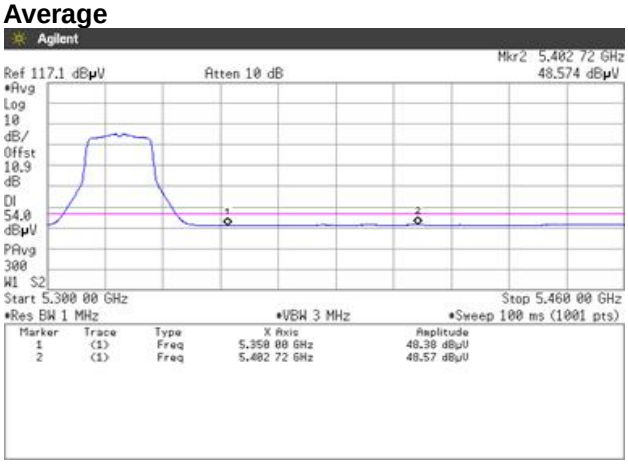


[IEEE802.11n (HT20)]

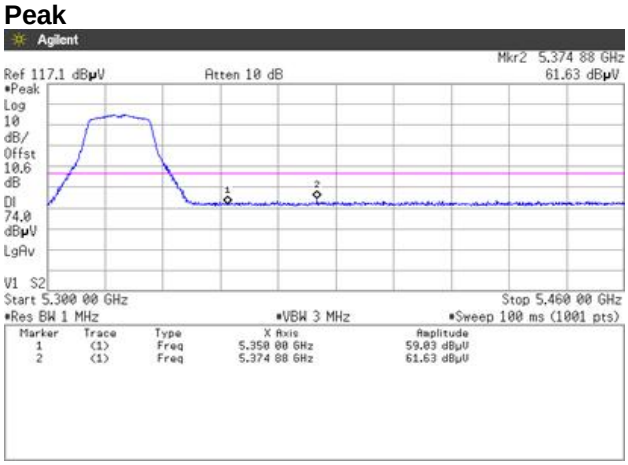
5.3 GHz Band, Channel High
Horizontal
Peak



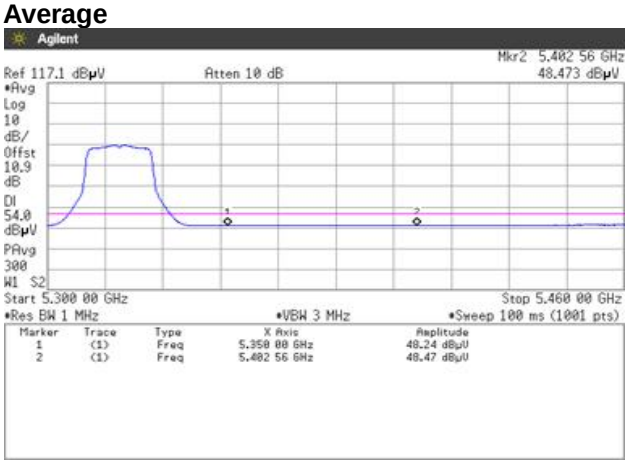
Average



Vertical
Peak

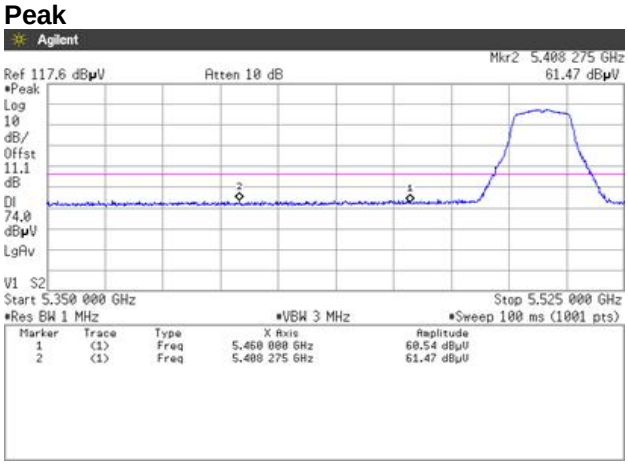


Average

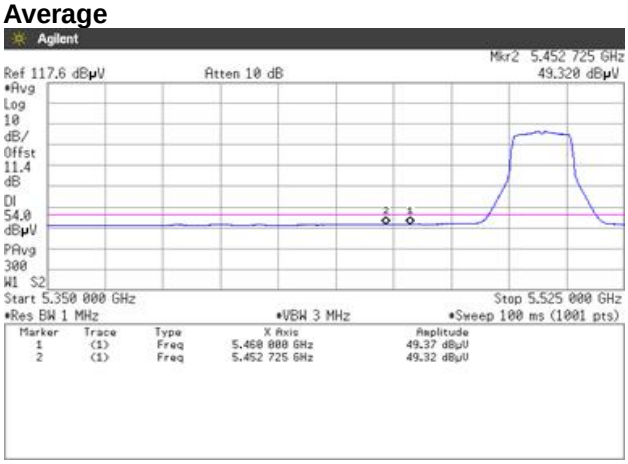


[IEEE802.11n (HT20)]

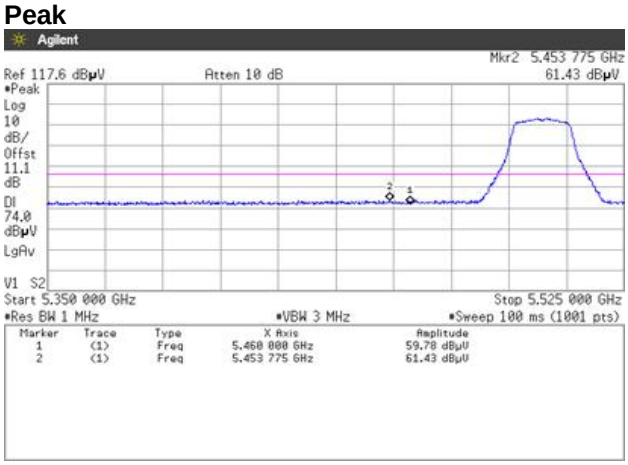
5.6 GHz Band, Channel Low
Horizontal
Peak



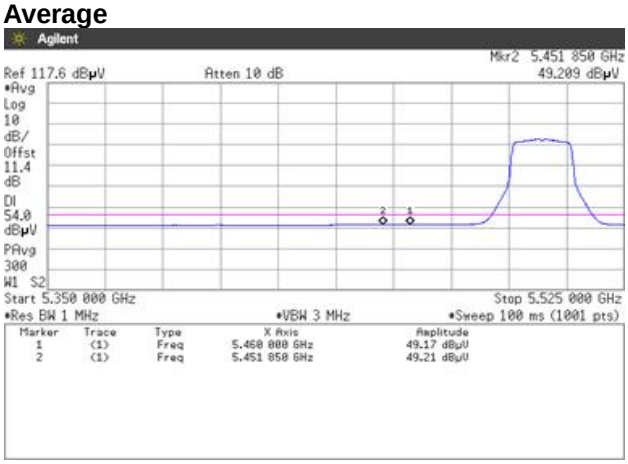
Average



Vertical
Peak

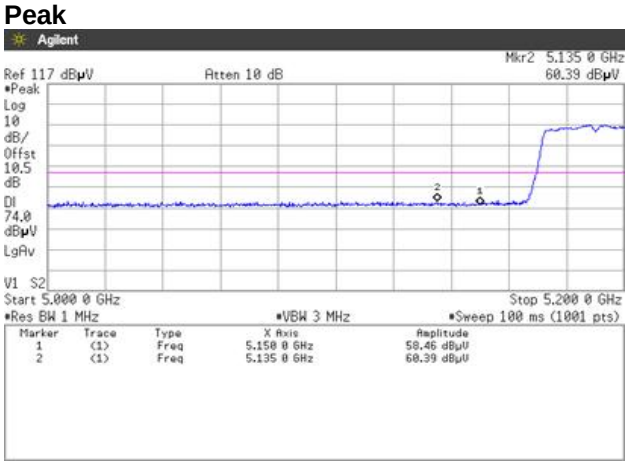


Average

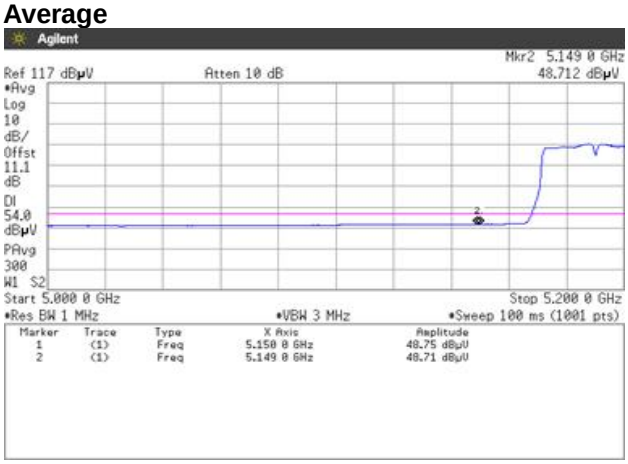


[IEEE802.11n (HT40)]

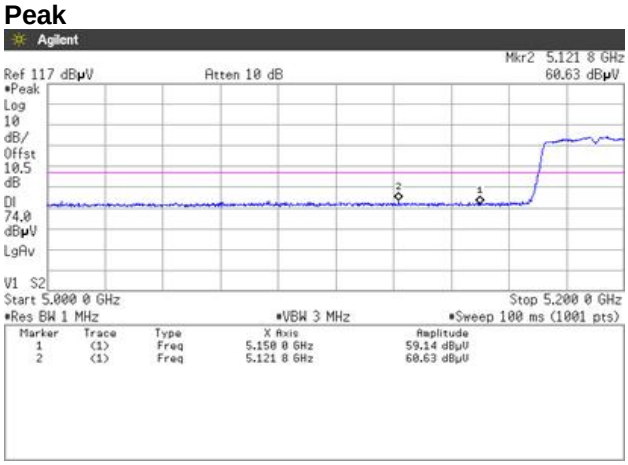
5.2 GHz Band, Channel Low
Horizontal
Peak



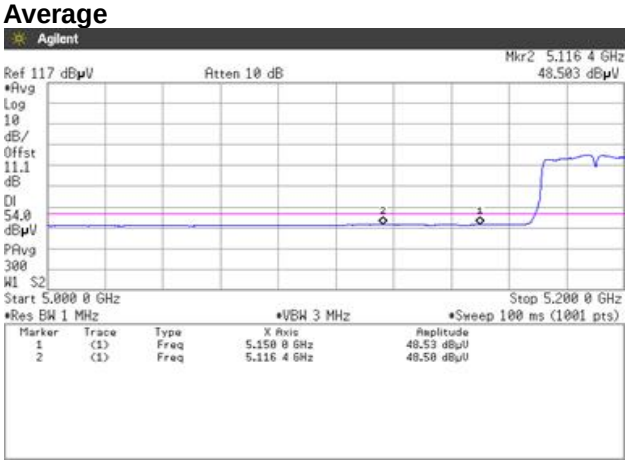
Average



Vertical
Peak

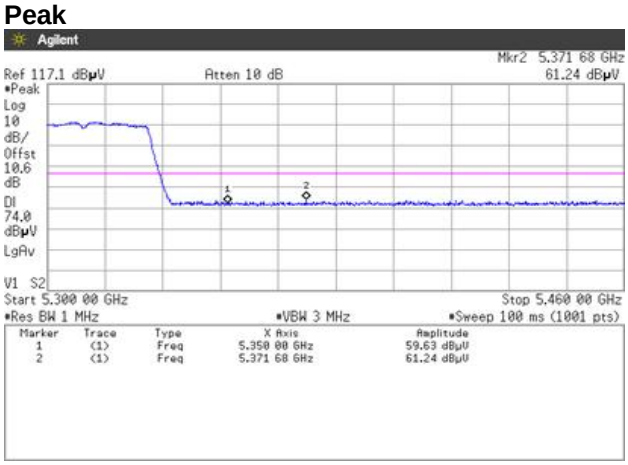


Average

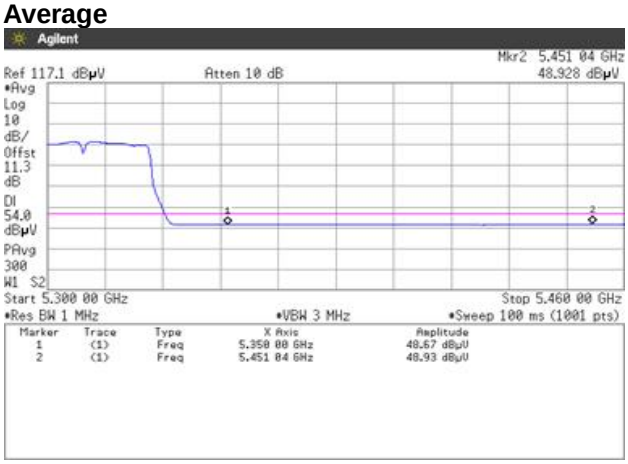


[IEEE802.11n (HT40)]

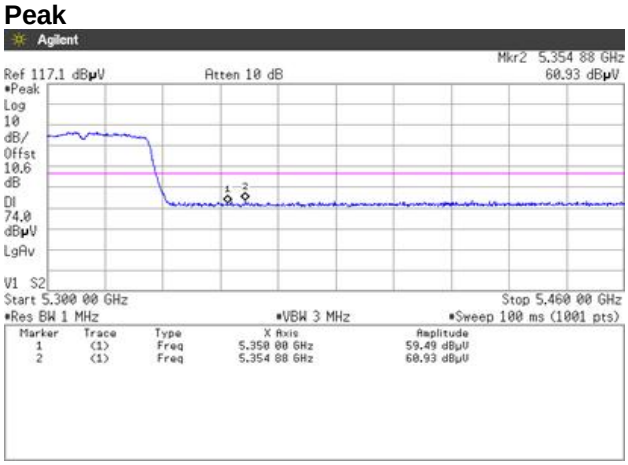
5.3 GHz Band, Channel High
Horizontal
Peak



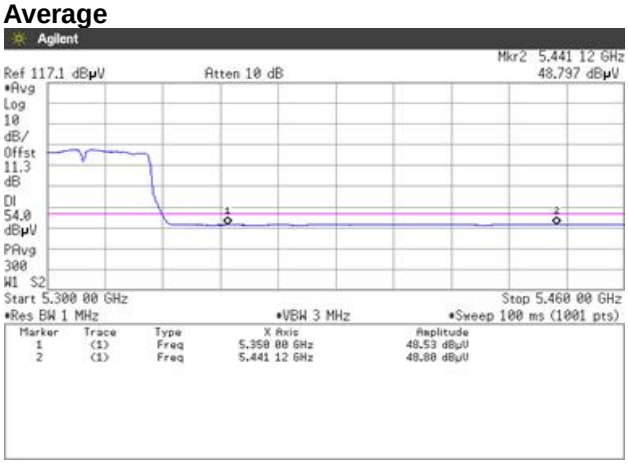
Average



Vertical
Peak

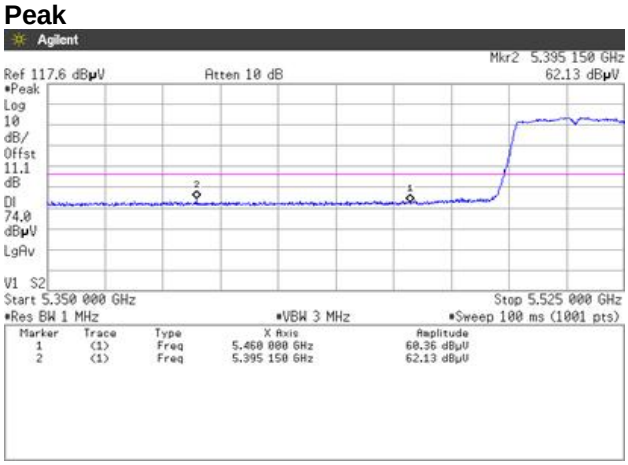


Average

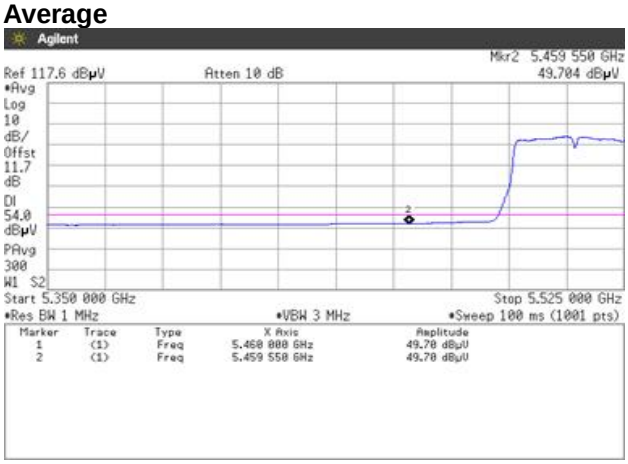


[IEEE802.11n (HT40)]

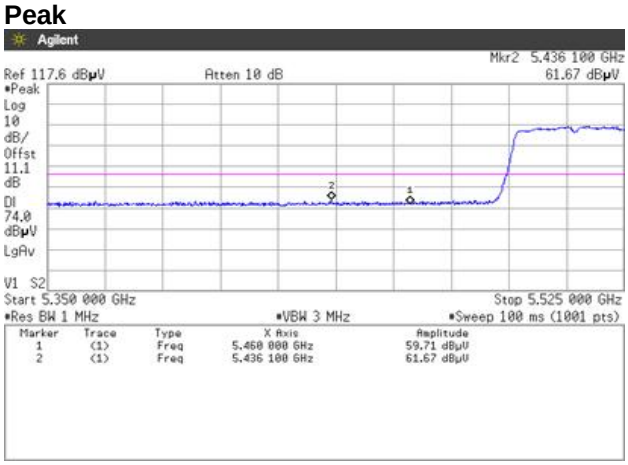
5.6 GHz Band, Channel Low
Horizontal
Peak



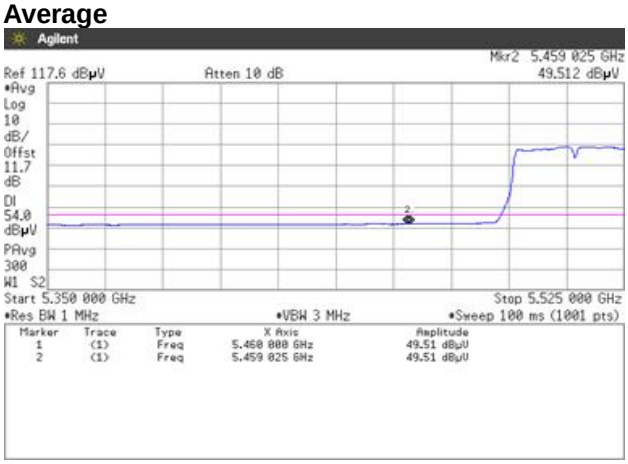
Average



Vertical
Peak



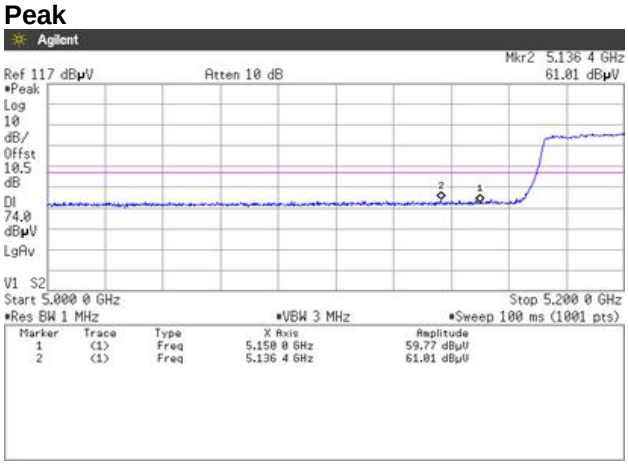
Average



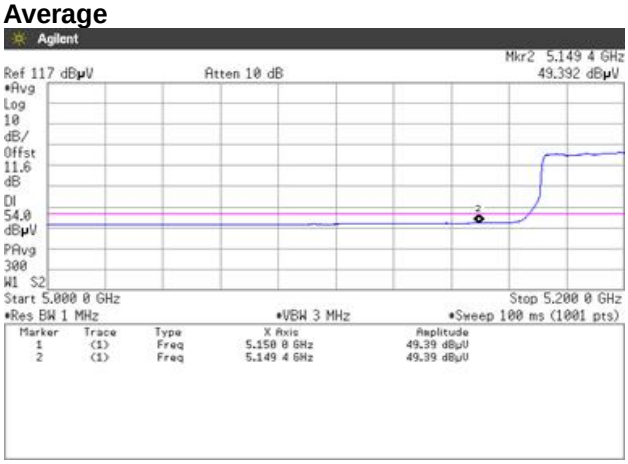
Japan

[IEEE802.11ac (HT80)]

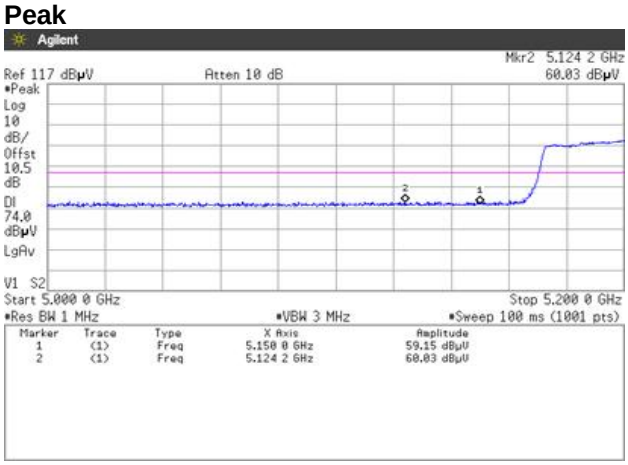
5.2 GHz Band, Channel Low
Horizontal
Peak



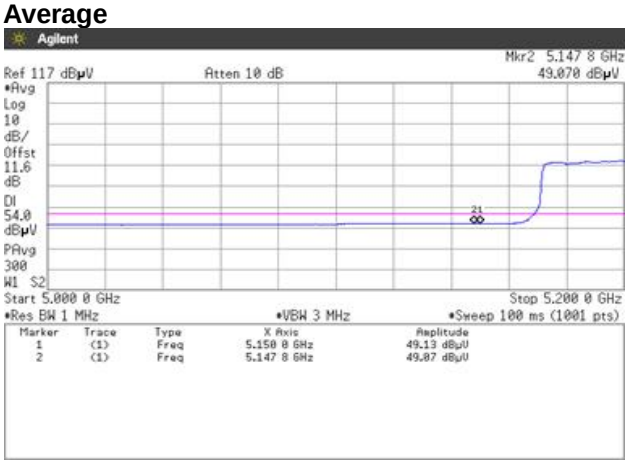
Average



Vertical
Peak

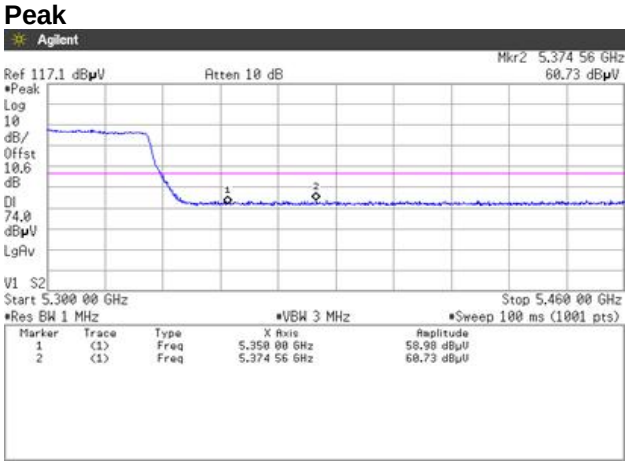


Average

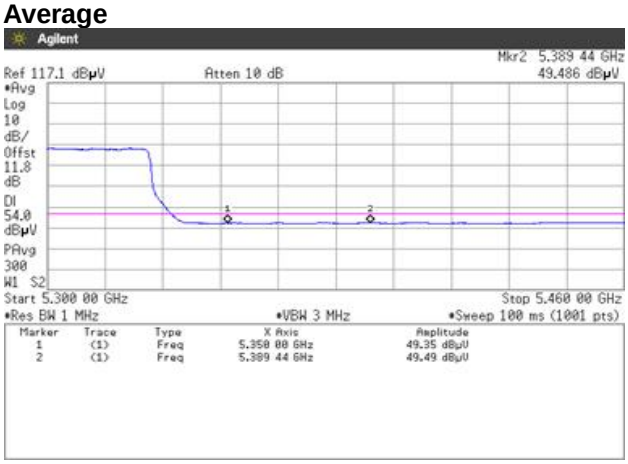


[IEEE802.11ac (HT80)]

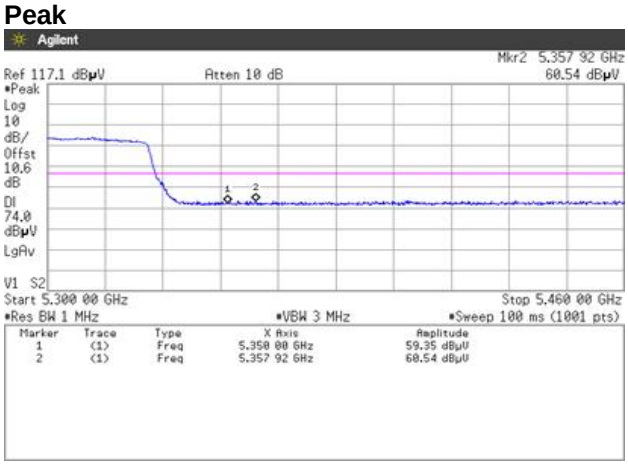
5.3 GHz Band, Channel High
Horizontal
Peak



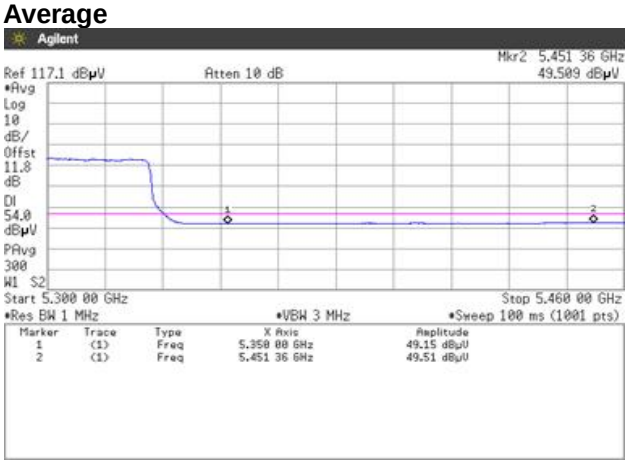
Average



Vertical
Peak

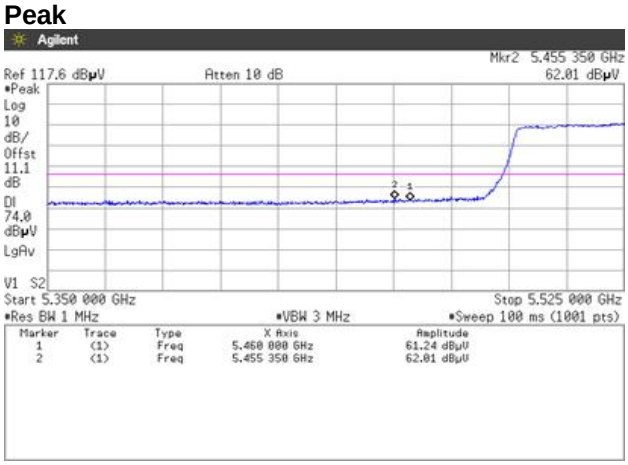


Average

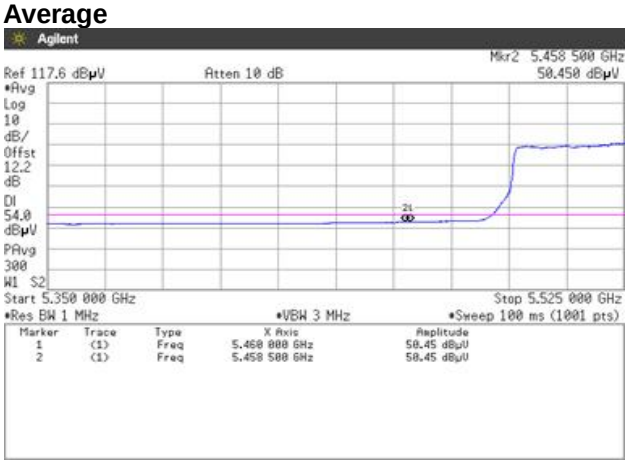


[IEEE802.11ac (HT80)]

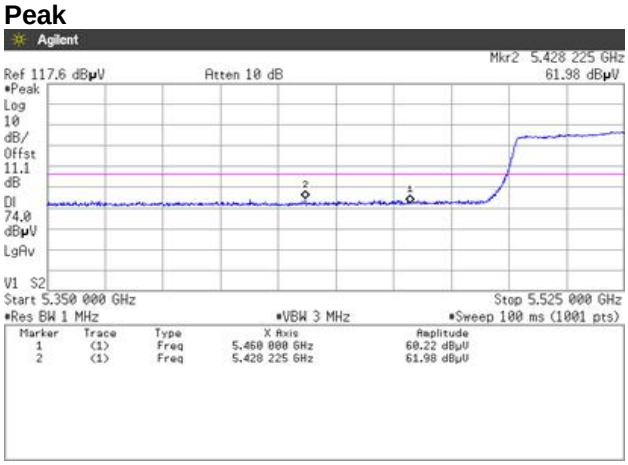
5.6 GHz Band, Channel Low
Horizontal
Peak



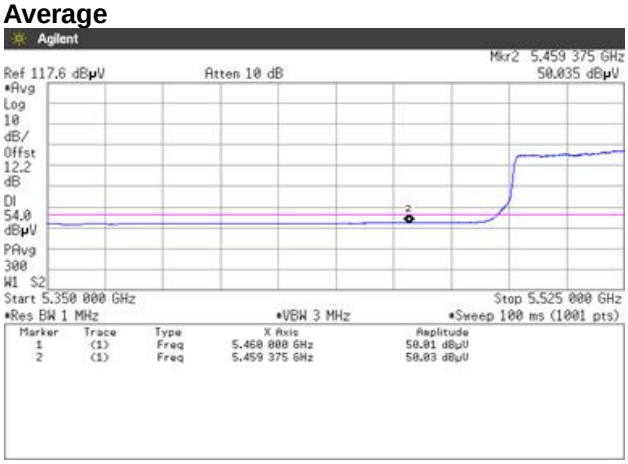
Average



Vertical
Peak



Average

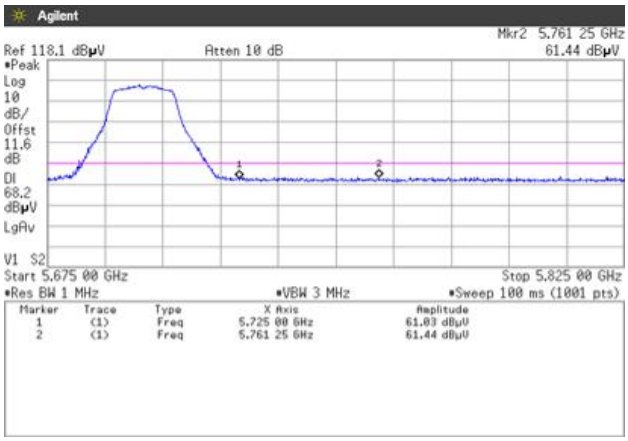


4.4.4.2 Non-Restricted Bandedge

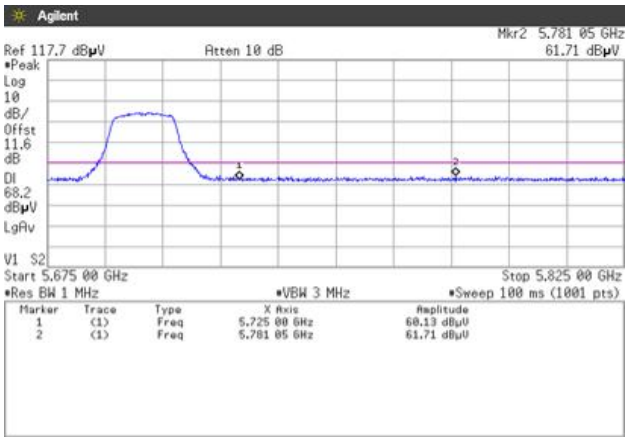
[IEEE802.11a]

5.6 GHz Band, Channel High
Peak

Horizontal



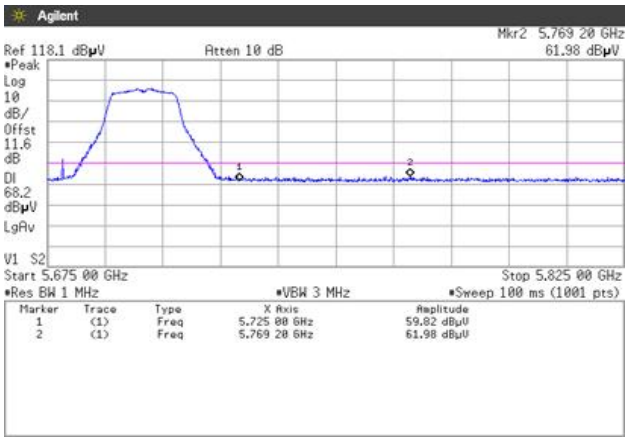
Vertical



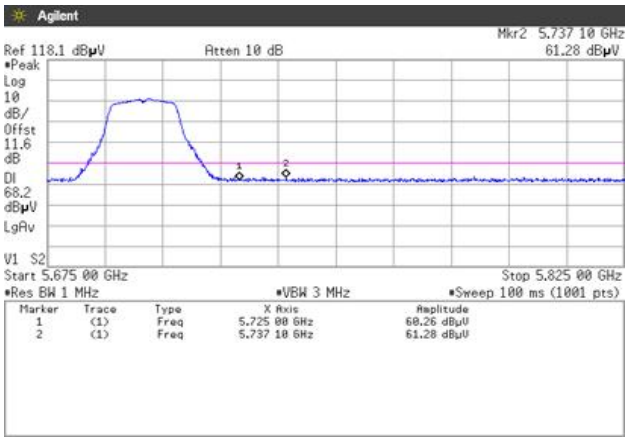
[IEEE802.11n (HT20)]

5.6GHz Band, Channel High
Peak

Horizontal

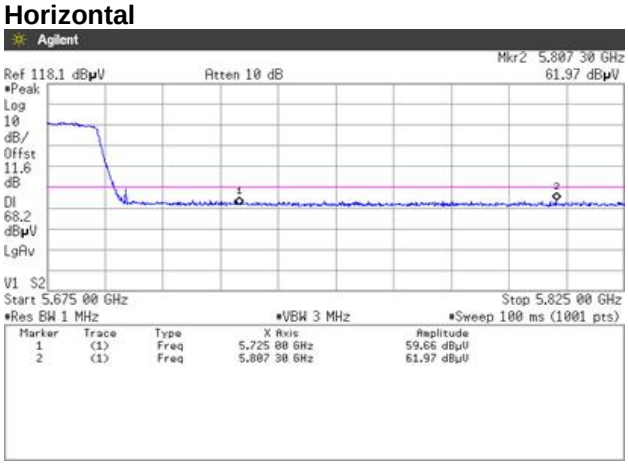


Vertical

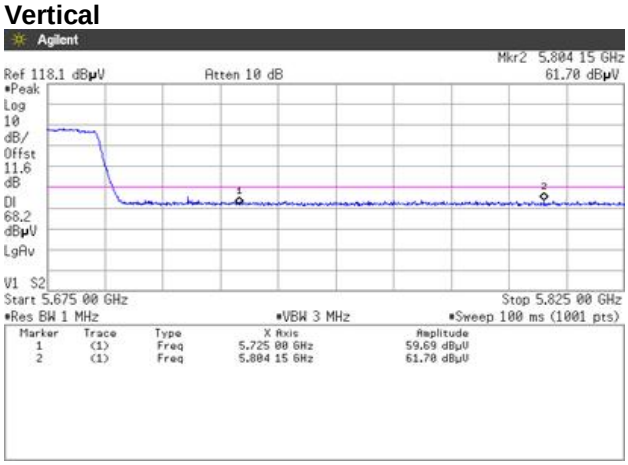


[IEEE802.11n (HT40)]

5.6GHz Band, Channel High
Peak
Horizontal

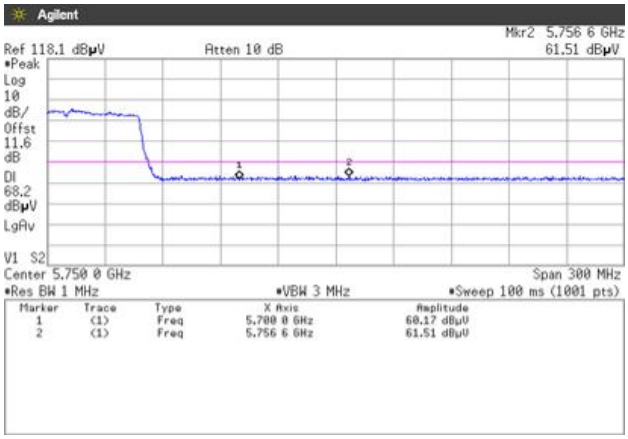


Vertical

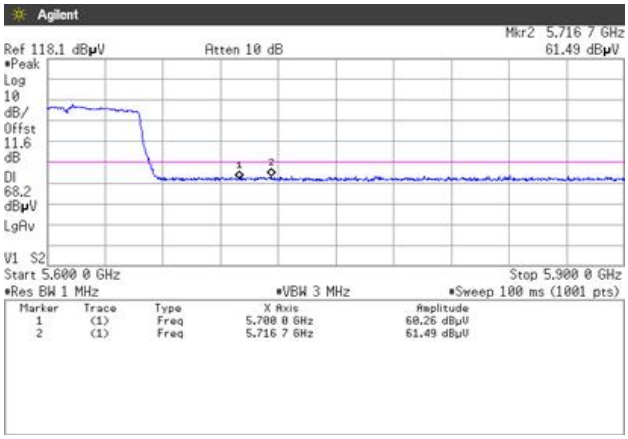


[IEEE802.11ac (HT80)]

5.6GHz Band, Channel High
Peak
Horizontal



Vertical



Japan

4.4.4.3 Radiated Emissions

Date	:	22-May-2019			
Temperature	:	20.2 [˚C]			
Humidity	:	50.2 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	4-June-2019			
Temperature	:	23.3 [˚C]			
Humidity	:	53.3 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Chiaki Kanno

Date	:	4~5-June-2019			
Temperature	:	23.0 [˚C]			
Humidity	:	50.5 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	5~6-June-2019			
Temperature	:	22.0 [˚C]			
Humidity	:	54.9 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	6~7-June-2019			
Temperature	:	21.6 [˚C]			
Humidity	:	52.6 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	17-June-2019			
Temperature	:	20.3 [˚C]			
Humidity	:	59.6 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Chiaki Kanno

Date	:	21-June-2019			
Temperature	:	20.8 [˚C]			
Humidity	:	55.8 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Date	:	24-June-2019			
Temperature	:	20.3 [˚C]			
Humidity	:	56.7 [%]	Test engineer	:	
Test place	:	3m Semi-anechoic chamber			Tadahiro Seino

Japan

[IEEE802.11a]
(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	H	PK	45.9	10.8		56.7	68.2	11.5
	40	5200	10400.00	H	PK	45.6	10.8		56.4	68.2	11.8
	48	5240	10480.00	H	PK	45.9	11.0		56.9	68.2	11.3

(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)
802.11a	52	5260	10520.00	H	PK	45.3	11.1		56.4	68.2	11.8
	56	5280	10560.00	H	PK	45.4	11.2		56.6	68.2	11.6
	64	5320	10640.00	H	PK	46.0	11.3		57.3	74.0	16.7
			10640.00	H	AV	34.0	11.3	0.294	45.6	54.0	8.4

(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	5465.70	H	PK	48.3	11.0		59.3	68.2	8.9
			5465.90	V	PK	47.5	11.0		58.5	68.2	9.7
			11000.00	H	PK	45.5	11.9		57.4	74.0	16.6
			11000.00	H	AV	33.1	11.9	0.276	45.3	54.0	8.7
	116	5580	11160.00	H	PK	46.1	12.0		58.1	74.0	15.9
			11160.00	H	AV	34.0	12.0	0.276	46.3	54.0	7.7
	140	5700	11400.00	H	PK	45.8	12.2		58.0	74.0	16.0
			11400.00	H	AV	35.5	12.2	0.276	48.0	54.0	6.0

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.

[IEEE802.11n (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	H	PK	45.8	10.8		56.6	68.2	11.6
	40	5200	10400.00	H	PK	45.8	10.8		56.6	68.2	11.6
	48	5240	10480.00	H	PK	46.8	11.0		57.8	68.2	10.4

(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	H	PK	45.8	11.1		56.9	68.2	11.3
	56	5280	10560.00	H	PK	46.1	11.2		57.3	68.2	10.9
	64	5320	10640.00	H	PK	46.7	11.3		58.0	74.0	16.0
			10640.00	H	AV	34.0	11.3	0.287	45.6	54.0	8.4

(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	5466.65	H	PK	50.6	11.0		61.6	68.2	6.6
			5463.00	V	PK	50.0	11.0		61.0	68.2	7.2
			11000.00	H	PK	45.9	11.9		57.8	74.0	16.2
			11000.00	H	AV	34.0	11.9	0.344	46.2	54.0	7.8
	116	5580	11160.00	H	PK	46.0	12.0		58.0	74.0	16.0
			11160.00	H	AV	33.6	12.0	0.344	45.9	54.0	8.1
	140	5700	11400.00	H	PK	46.1	12.2		58.3	74.0	15.7
			11400.00	H	AV	33.9	12.2	0.344	46.4	54.0	7.6

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	H	PK	46.1	10.8		56.9	68.2	11.3
	46	5230	10460.00	H	PK	45.3	11.0		56.3	68.2	11.9

(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	H	PK	45.7	11.1		56.8	68.2	11.4
	62	5310	10620.00	H	PK	46.5	11.3		57.8	74.0	16.2
			10620.00	H	AV	34.0	11.3	0.672	46.0	54.0	8.0

(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	5468.82	H	PK	51.1	11.0		62.1	68.2	6.1
			5462.30	V	PK	49.9	11.0		60.9	68.2	7.3
			11020.00	H	PK	45.8	11.9		57.7	74.0	16.3
			11020.00	H	AV	33.4	11.9	0.631	45.9	54.0	8.1
	110	5550	11100.00	H	PK	45.7	12.0		57.7	74.0	16.3
			11100.00	H	AV	33.4	12.0	0.631	46.0	54.0	8.0
	134	5670	11340.00	H	PK	46.4	12.2		58.6	74.0	15.4
			11340.00	H	AV	33.8	12.2	0.631	46.6	54.0	7.4

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 (HT80)]
(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	H	PK	45.9	10.9		56.8	68.2	11.4

(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	H	PK	46.3	11.2		57.5	68.2	10.7

(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	5463.36	H	PK	51.5	11.0		62.5	68.2	5.7
			5467.61	V	PK	50.7	11.0		61.7	68.2	6.5
			11060.00	H	PK	45.6	11.9		57.5	74.0	16.5
			11060.00	H	AV	33.4	11.9	1.058	46.4	54.0	7.6
	122	5610	11220.00	H	PK	45.9	12.1		58.0	74.0	16.0
			11220.00	H	AV	34.0	12.1	1.058	47.2	54.0	6.8

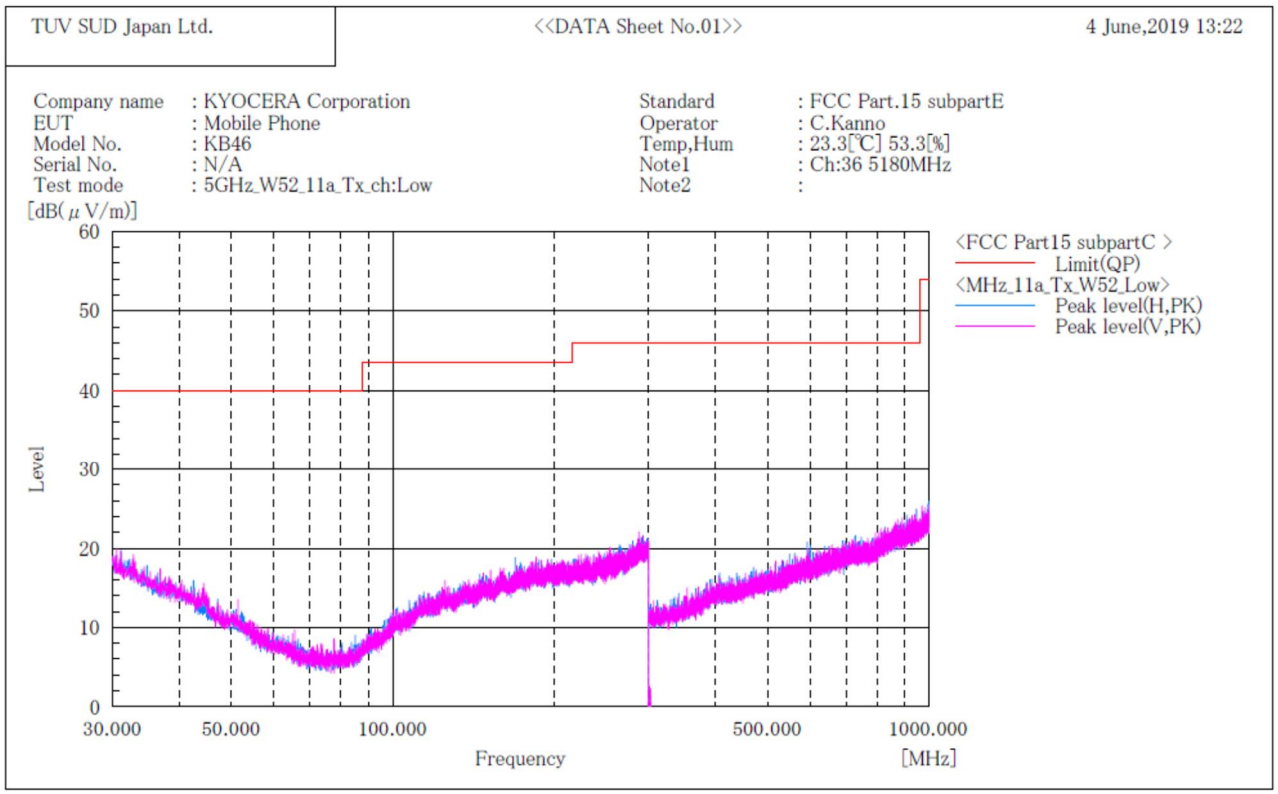
Note:
1. Emission Level (Margin) = Limit - [Reading + C.F (Antenna + Cable – Amp)]
2. No emission were detected in frequency range 30 MHz to 1000 MHz at the 3 meters distance.
3. No emission was detected in the receive mode.

4.4.4.4 Measurement chart

Transmission mode

[11a]
W52 / Channel Low
BELOW 1GHz

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



Final Result

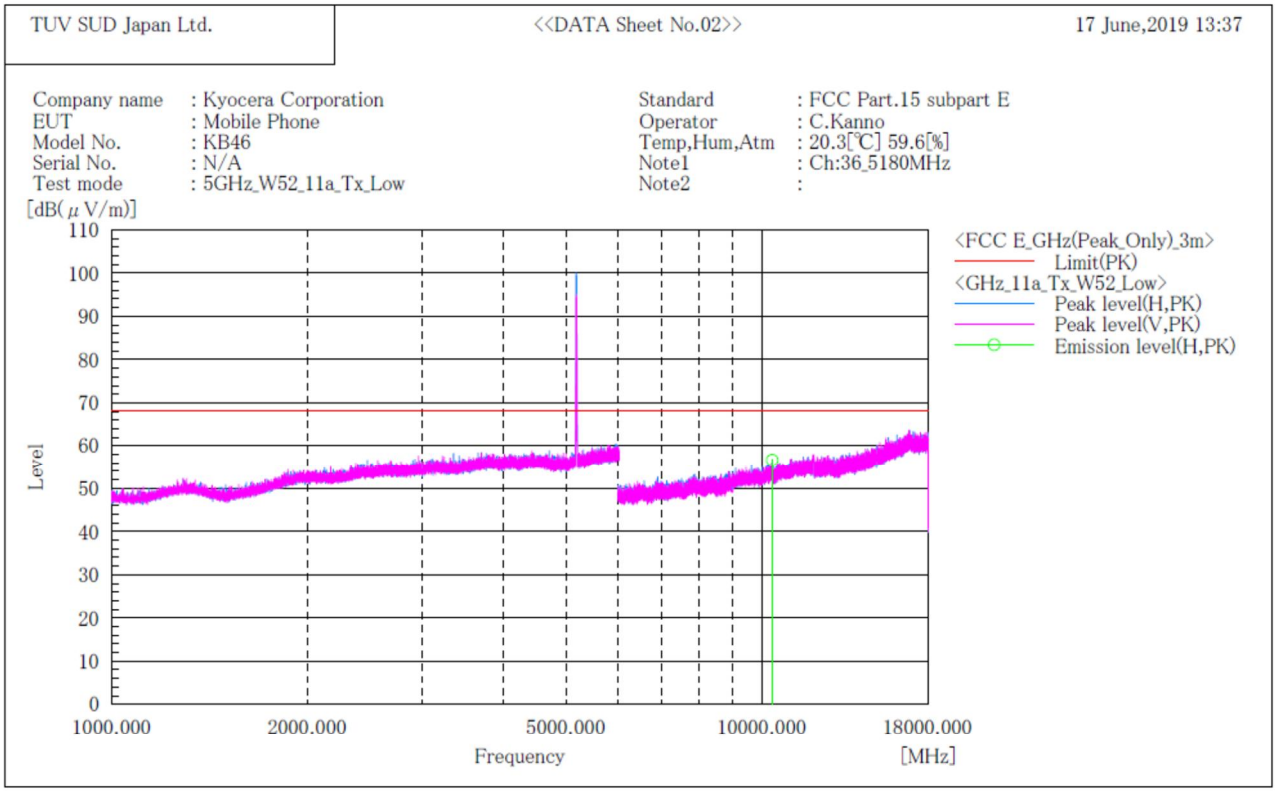
No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]	Remark

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.

Japan

[11a]
W52 / Channel Low
ABOVE 1GHz

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



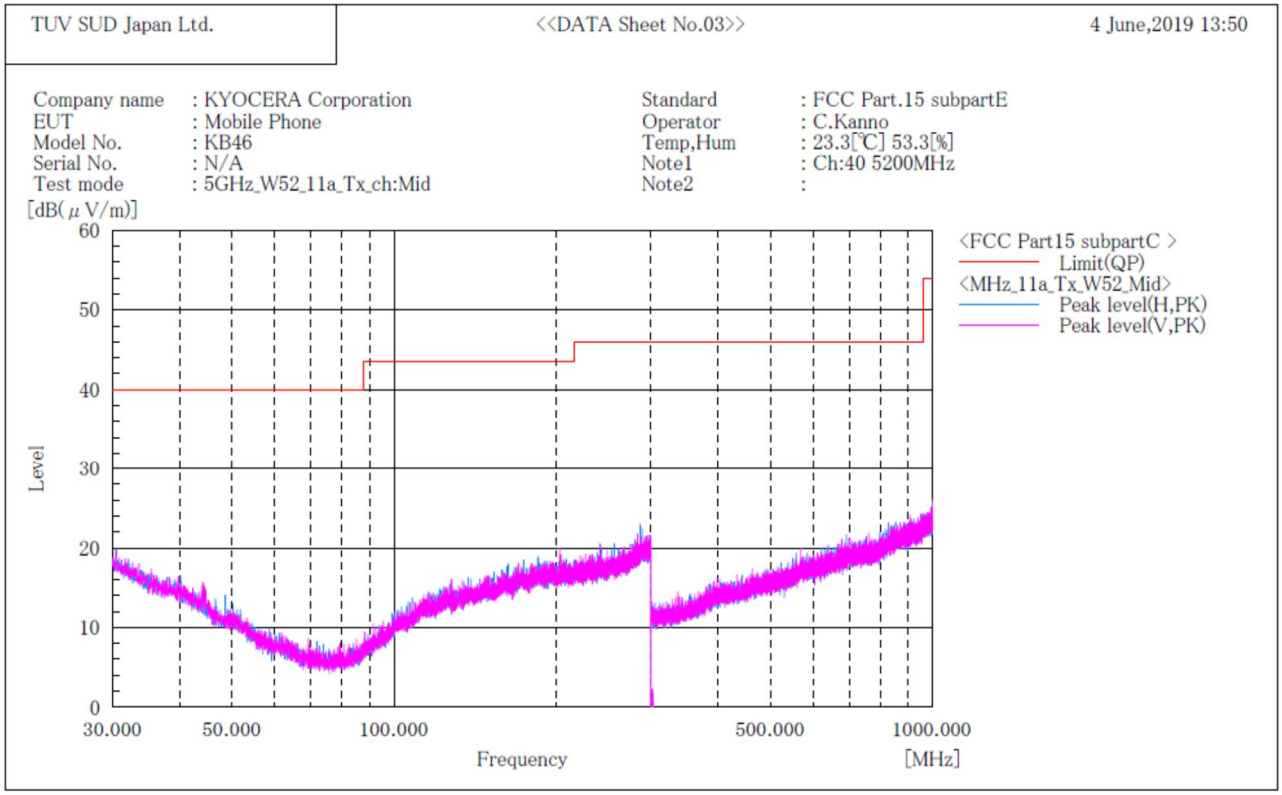
Final Result

No.	Frequency	(P)	Reading PK	c.f	Result PK	Limit PK	Margin PK	Height	Angle	Remark
	[MHz]		[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]	
1	10360.000	H	45.9	10.8	56.7	68.2	11.5	100.0	235.0	

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

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



Final Result

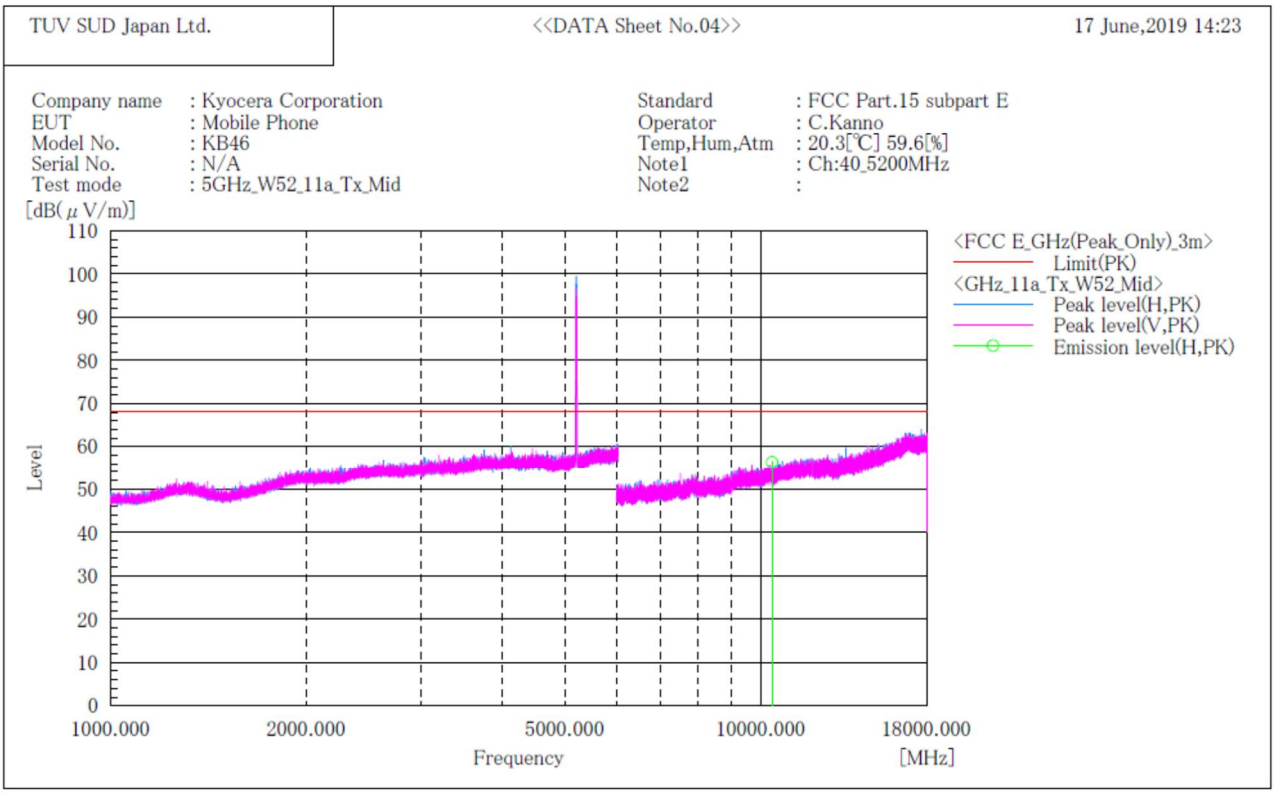
No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]	Remark

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.

Japan

[11a]
W52 / Channel Middle
ABOVE 1GHz

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



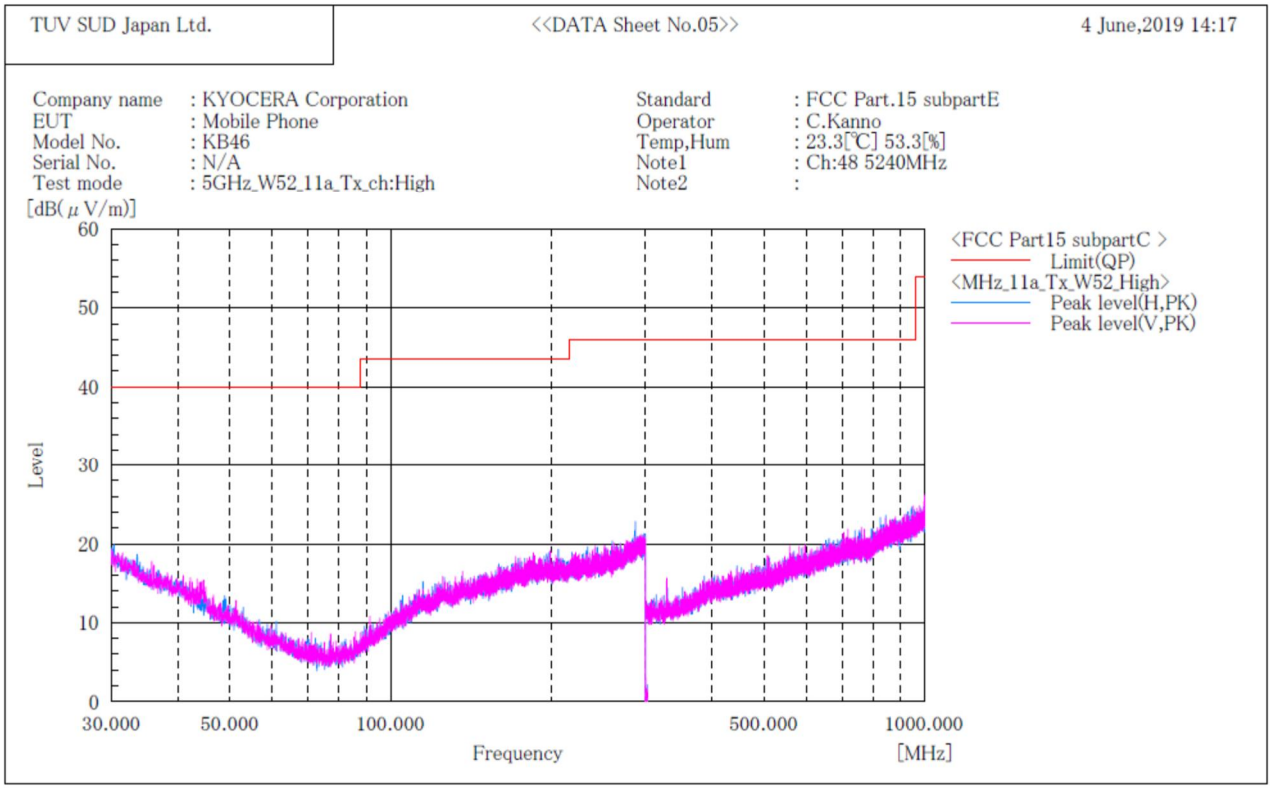
Final Result

No.	Frequency	(P)	Reading PK	c.f	Result PK	Limit PK	Margin PK	Height	Angle	Remark
	[MHz]		[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]	
1	10400.000	H	45.6	10.8	56.4	68.2	11.8	100.0	237.0	

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 High
BELOW 1GHz

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



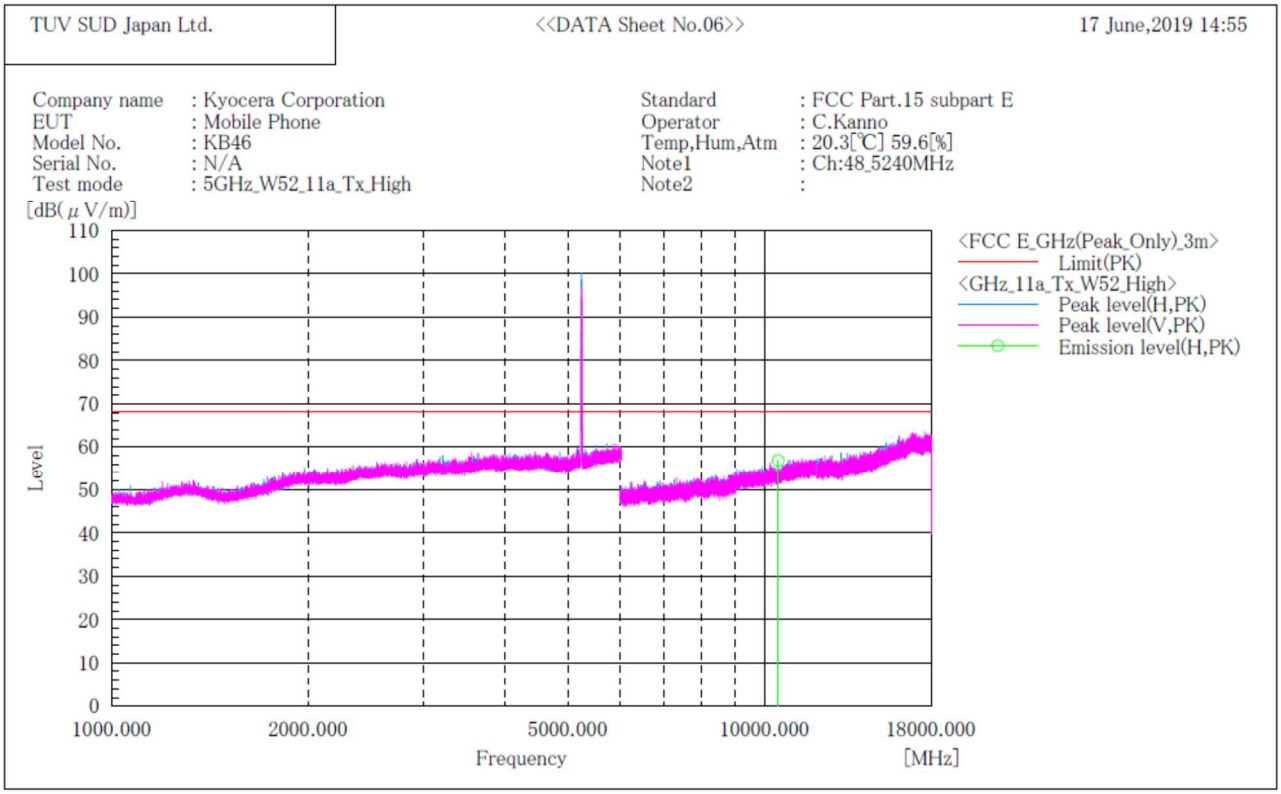
Final Result

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

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

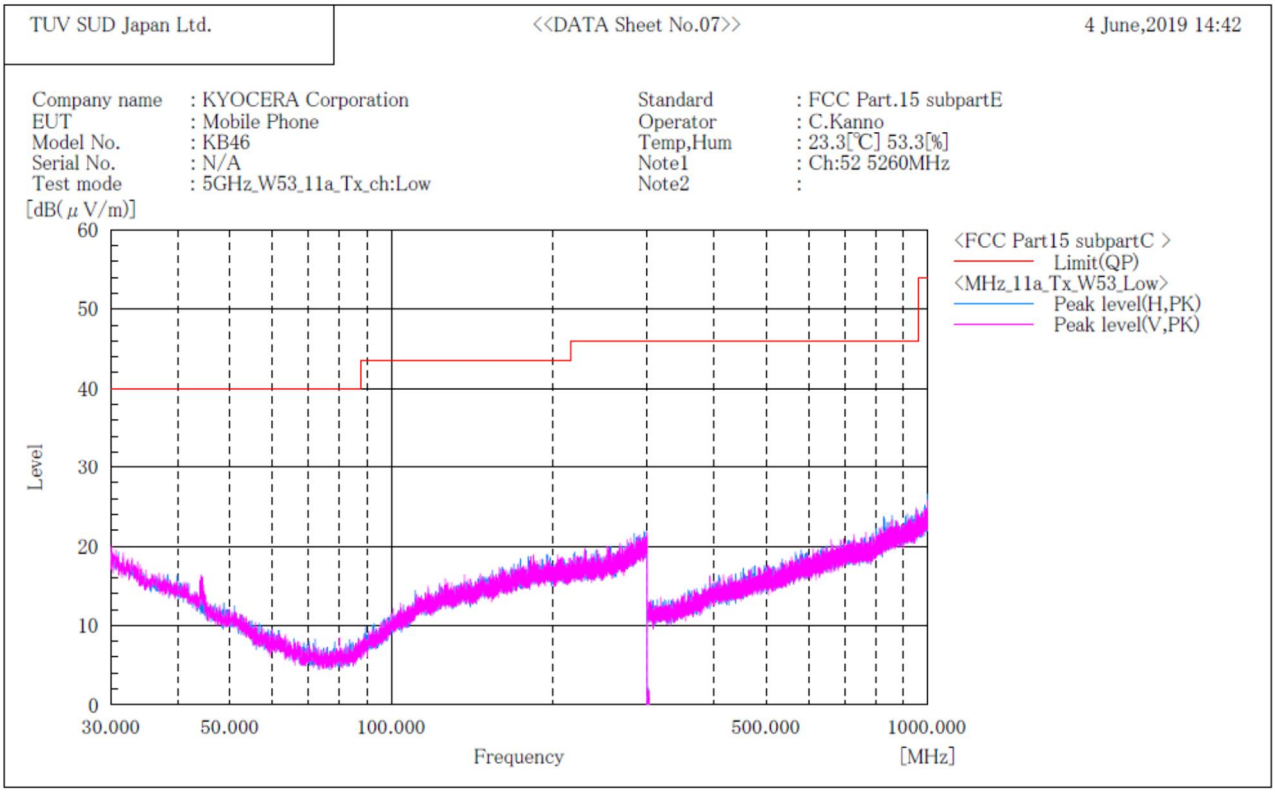
No.	Frequency	(P)	Reading PK	c.f	Result PK	Limit PK	Margin PK	Height	Angle	Remark
	[MHz]		[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]	
1	10480.000	H	45.9	11.0	56.9	68.2	11.3	100.0	237.0	

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.

Japan

[11a]
W53 / Channel Low
BELOW 1GHz

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



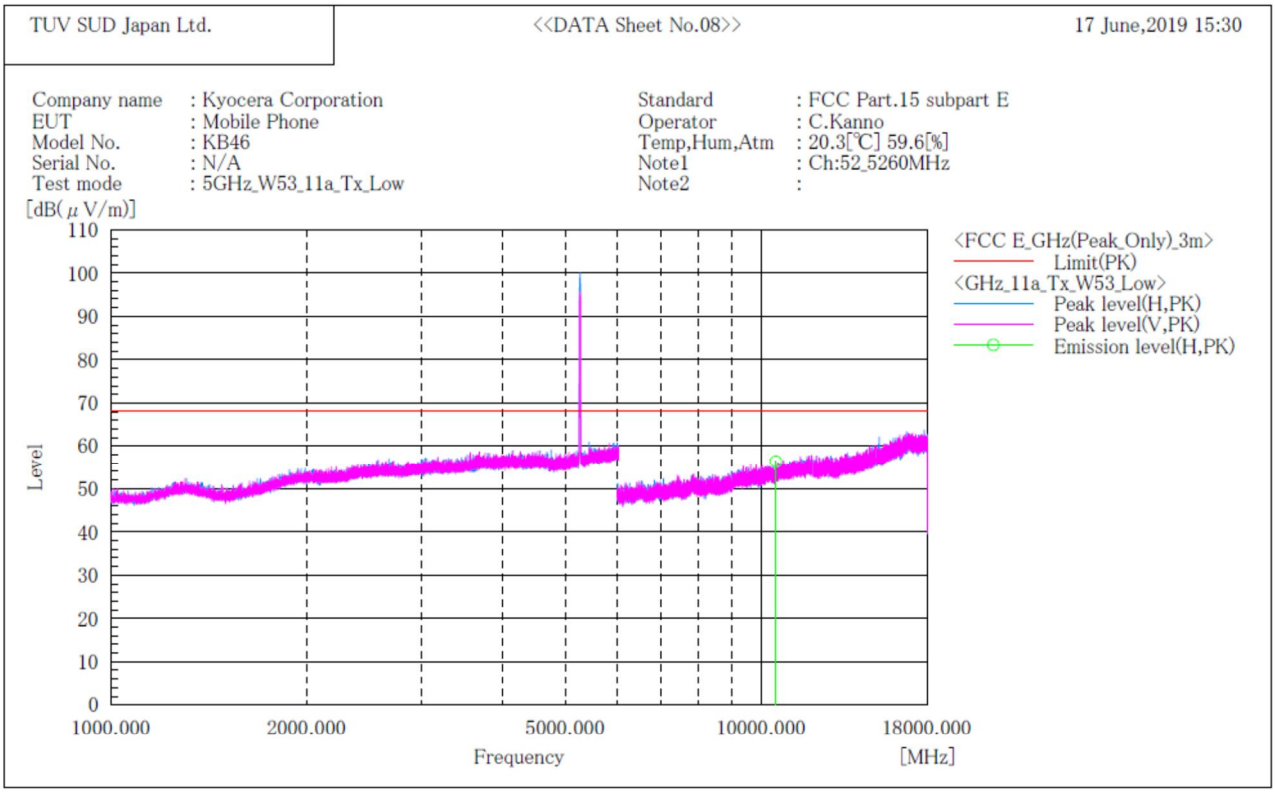
Final Result

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

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]



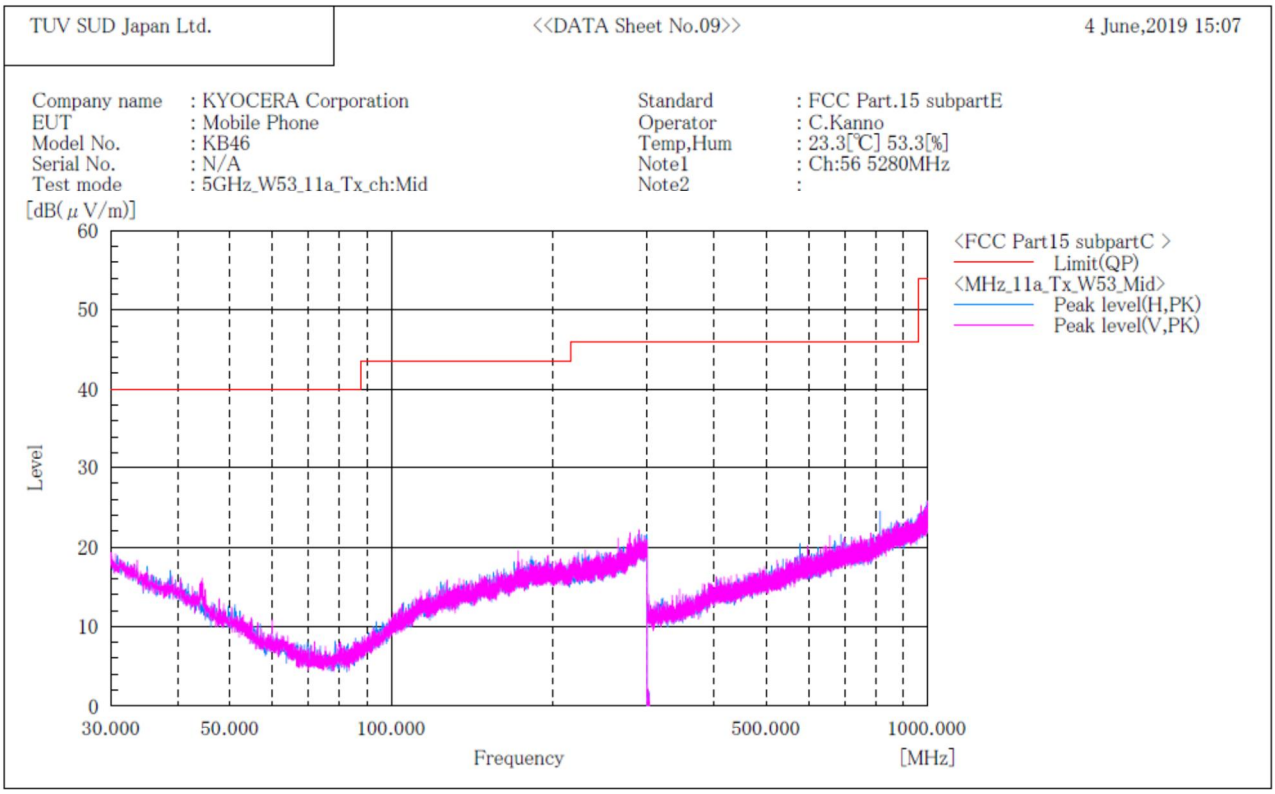
Final Result

No.	Frequency	(P)	Reading PK	c.f	Result PK	Limit PK	Margin PK	Height	Angle	Remark
	[MHz]		[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]	
1	10520.000	H	45.3	11.1	56.4	68.2	11.8	100.0	239.0	

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

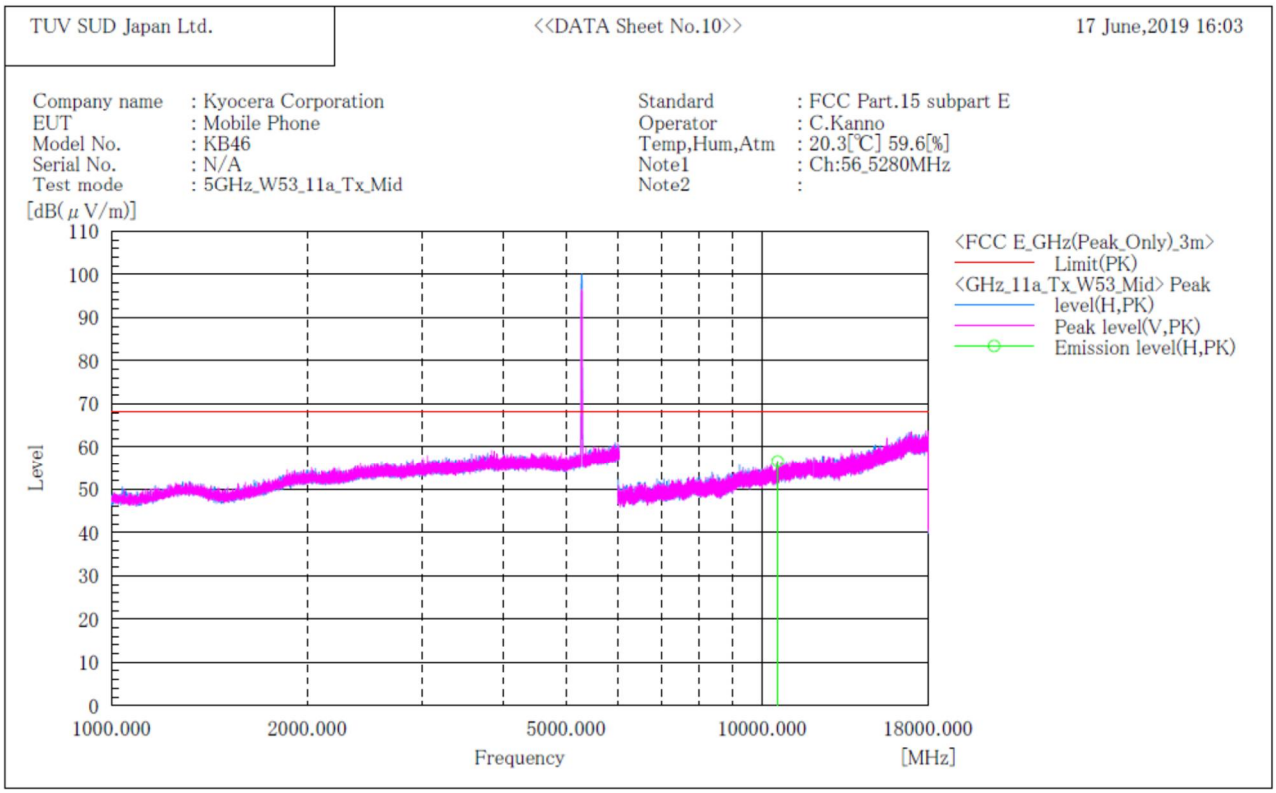
No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]	Remark

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.

Japan

[11a]
W53 / Channel Middle
ABOVE 1GHz

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



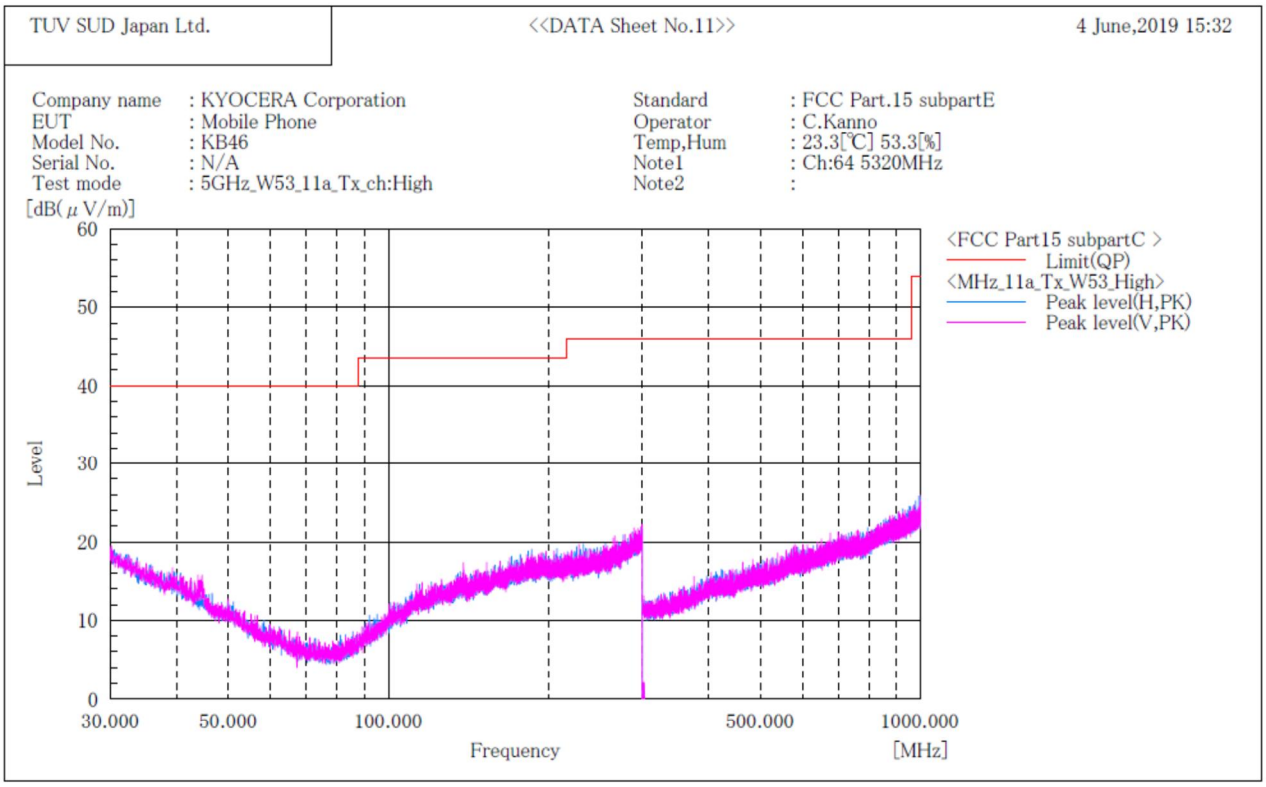
Final Result

No.	Frequency	(P)	Reading PK	c.f	Result PK	Limit PK	Margin PK	Height	Angle	Remark
	[MHz]		[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[cm]	[°]	
1	10560.000	H	45.4	11.2	56.6	68.2	11.6	100.0	239.0	

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 High
BELOW 1GHz

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



Final Result

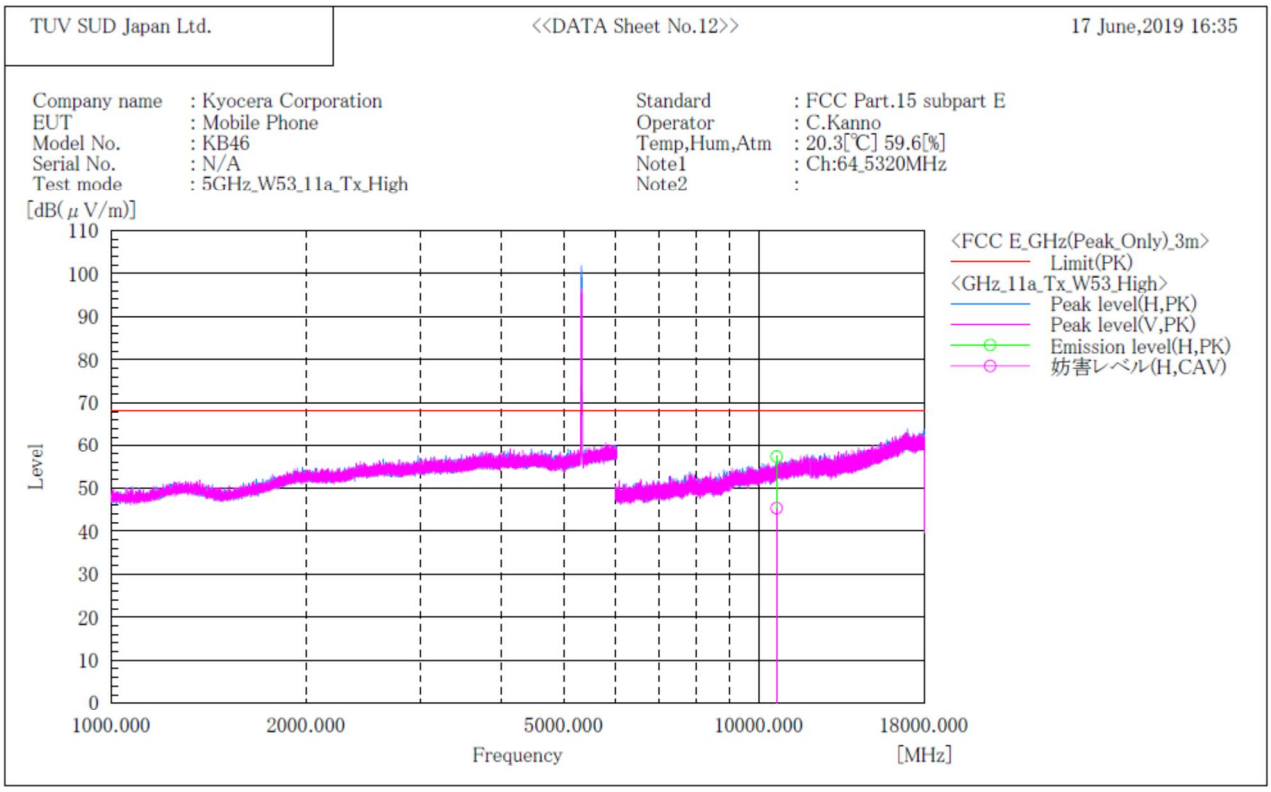
No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]	Remark

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.

Japan

[11a]
W53 / Channel High
ABOVE 1GHz

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



Final Result

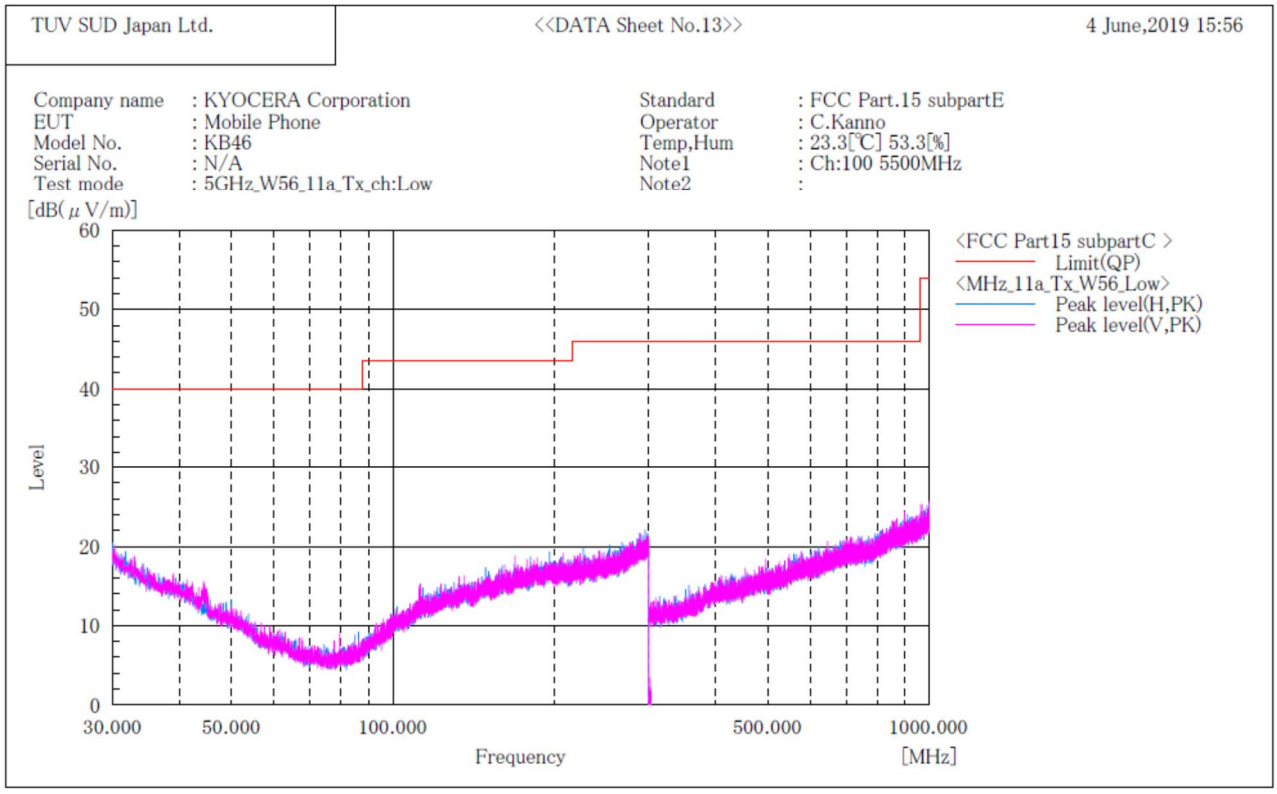
No.	Frequency	(P)	Reading PK	Reading CAV	c.f	Result PK	Result CAV	Limit PK	Margin PK	Margin CAV	Height	Angle	Remark
	[MHz]		[dB(μV)]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[dB]	[cm]	[°]	
1	10640.000	H	46.0	34.0	11.3	57.3	45.3	74.0	16.7	8.7	100.0	239.0	

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.

Japan

[11a]
W56 / Channel Low
BELOW 1GHz

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



Final Result

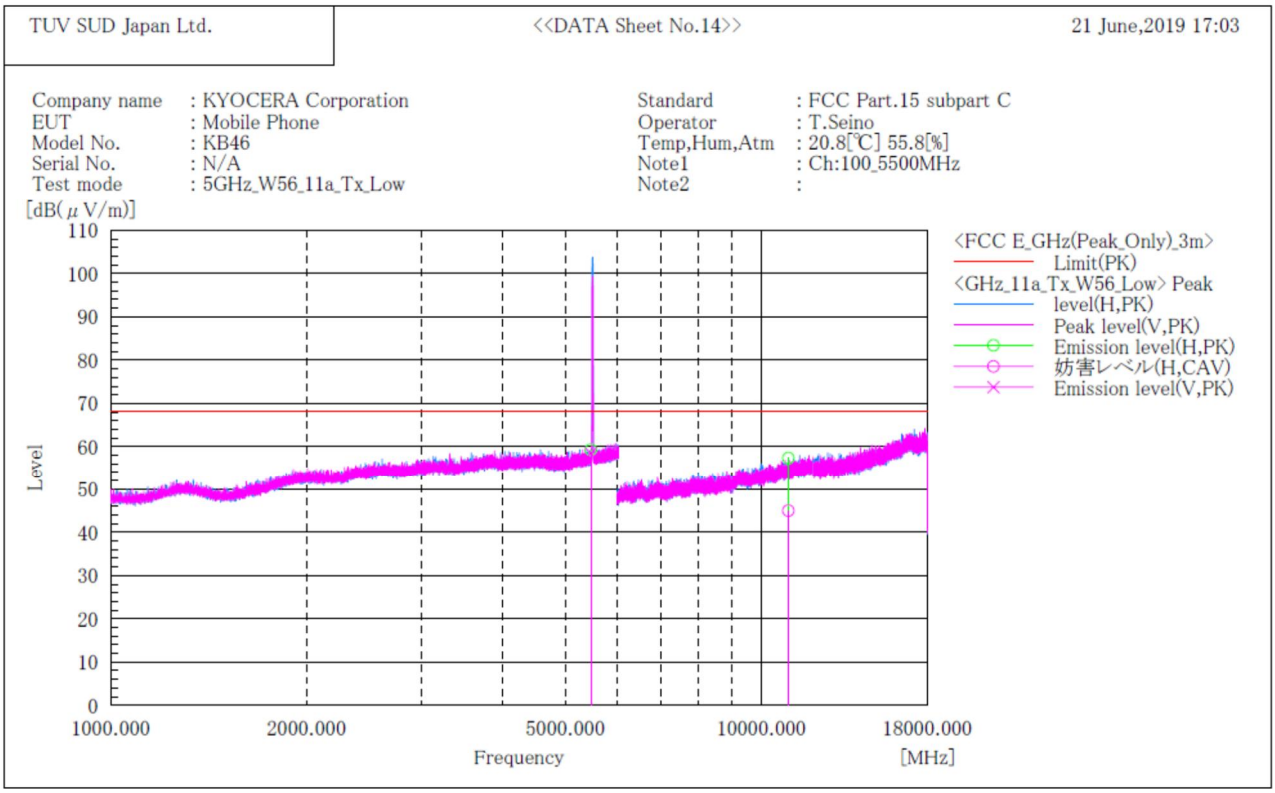
No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]	Remark

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.

Japan

[11a]
W56 / Channel Low
ABOVE 1GHz

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



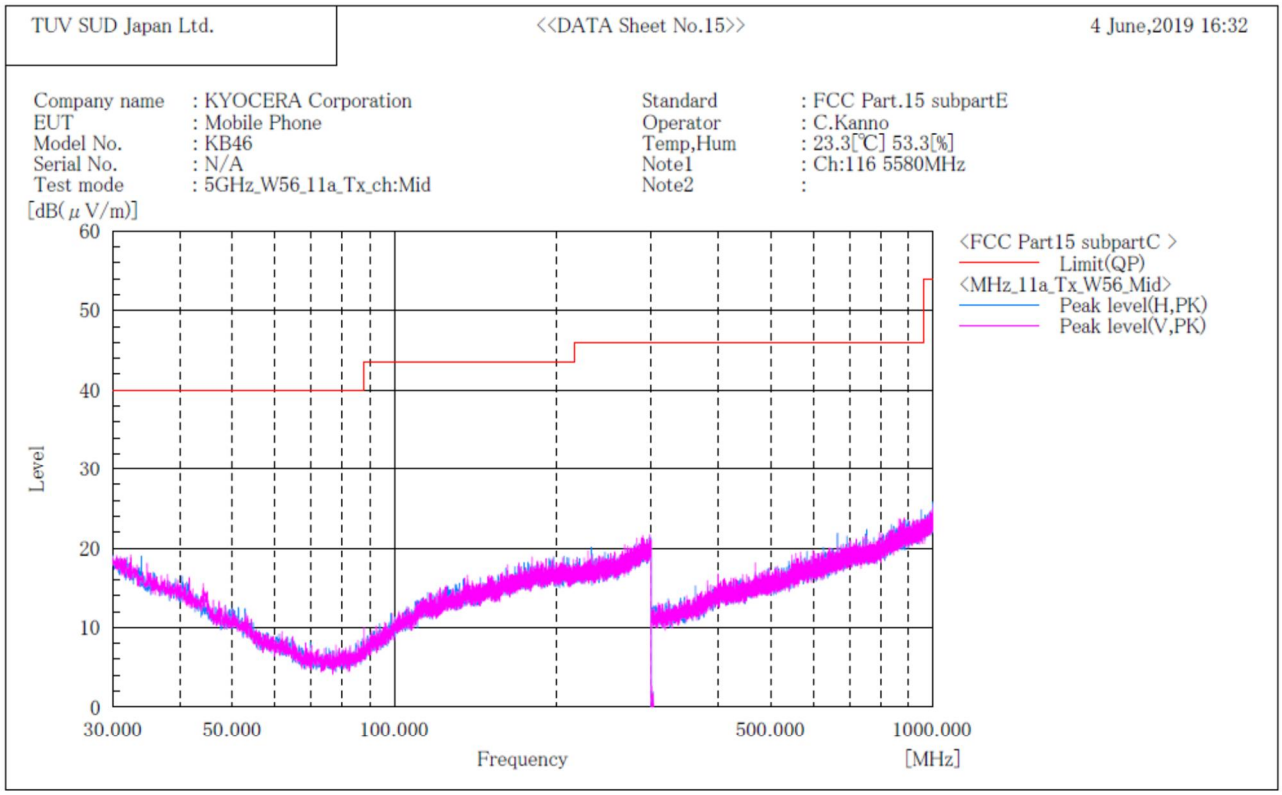
Final Result

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 [°]
1	5465.700	H	48.3	--------	11.0	59.3	--------	68.2	8.9	--------	100.0	291.0
2	5465.900	V	47.5	--------	11.0	58.5	--------	68.2	9.7	--------	100.0	63.0
3	11000.000	H	45.5	33.1	11.9	57.4	45.0	74.0	16.6	9.0	100.0	284.0

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]



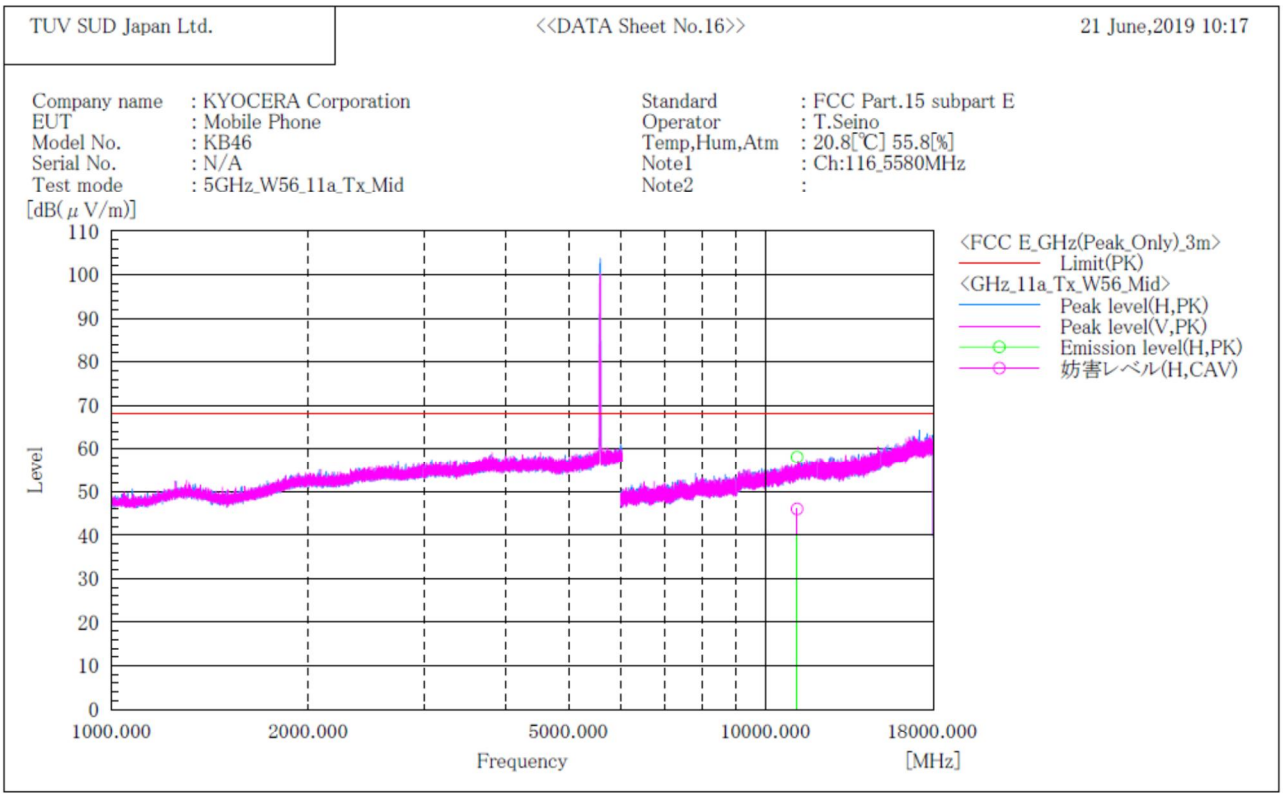
Final Result

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

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 Middle
ABOVE 1GHz

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



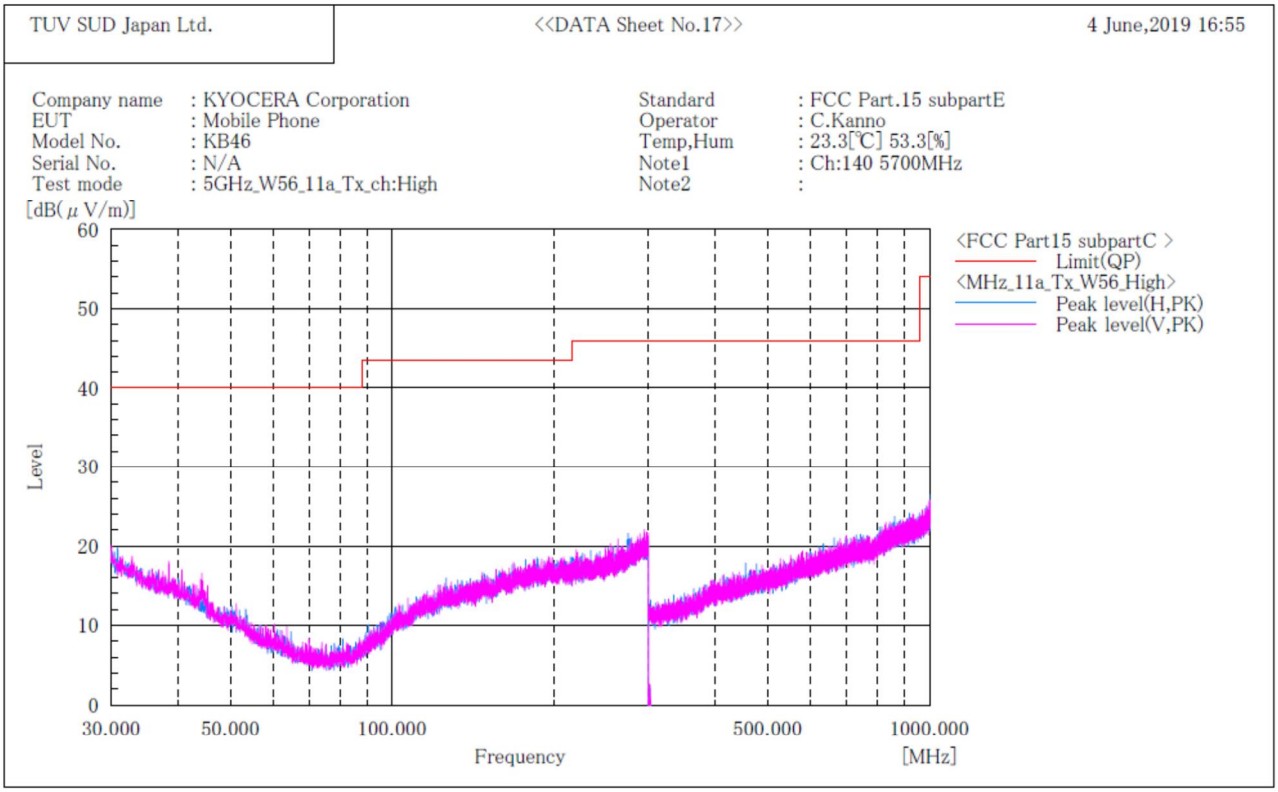
Final Result

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 [°]
1	11160.000	H	46.1	34.0	12.0	58.1	46.0	74.0	15.9	8.0	135.0	280.0

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

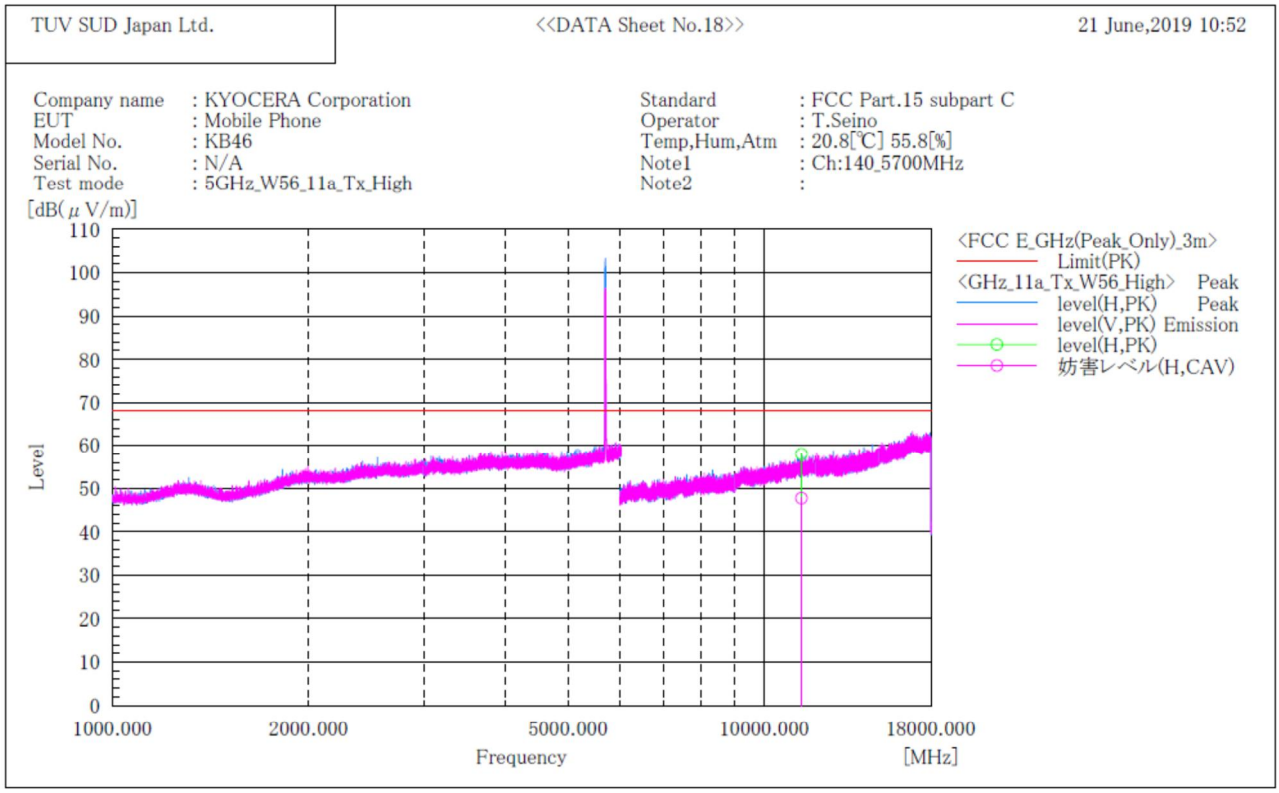
No.	Frequency [MHz]	(P)	c.f [dB(1/m)]	Height [cm]	Angle [°]	Remark

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.

Japan

[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 [°]
1	11400.000	H	45.8	35.5	12.2	58.0	47.7	74.0	16.0	6.3	105.0	292.0

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.