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TEST REPORT

Report number : Z101C-14018
Issue date : April 23, 2014

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	:	KYY23
FCC ID	:	JOYKYY23

Date of test : March 19, 20, 25, 28, 31, April 1, 3, 4, 5, 2014
Test place : TÜV SÜD Zacta Ltd. Yonezawa Testing Center
4149-7 Hachimanpara 5-chome
Yonezawa-shi Yamagata 992-1128 Japan
Phone: +81-238-28-2880 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 client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Tested by : Taiki Watanabe
Taiki Watanabe

Authorized by :
Eiji Akiba
Deputy General Manager of EMC Technical Department

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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 C63.4-2003, KDB789033

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(a)	Peak Excursion	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

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1.4 Modification to the EUT by laboratory

None

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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	:	KYY23
Serial number	:	N/A
EUT condition	:	Pre-Production
Power ratings	:	Battery: DC 3.8V
Size	:	Qi mounted type :(W) 70.3 × (D) 10.3 × (H) 140.3 mm Qi non-mounted type : (W) 70.3 × (D) 9.9 × (H) 140.3 mm
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
Number of RF Channels	:	IEEE802.11a/n/ac (HT20): 16 Channels IEEE802.11n/ac(HT40): 7 Channels IEEE802.11ac(HT80): 3 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	:	21.23mW (IEEE802.11a) 21.43mW (IEEE802.11n: HT20) 12.16mW (IEEE802.11n: HT40) 11.48mW (IEEE802.11ac: HT80)
Antenna type	:	Internal antenna
Antenna gain	:	0dBi

2.3 Variation of the family model(s)

KYY23 has Qi mounted type and Qi non-mounted type.

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
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
134	5670

[IEEE802.11ac (HT80)]

Channel	Frequency [MHz]
42	5210
58	5290
106	5530

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	-	-
	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.
Qi non-mounted type is tested only the worst mode at radiated test.

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

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3. Configuration of equipment

3.1 Equipment(s) used

No.	Equipment	Company	Model No.	Serial No.	FCC ID / DoC	Comment
1	Mobile Phone	KYOCERA	KYY23	N/A	JOYKYY23	EUT
2	AC Adapter	au	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)	1.1	Yes	Metal	*

*: AC power line Conducted Emission Test.

3.3 System configuration

: Un-detachable cable

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

4.1 Measurement procedure [FCC 15.407(a), KDB789033]

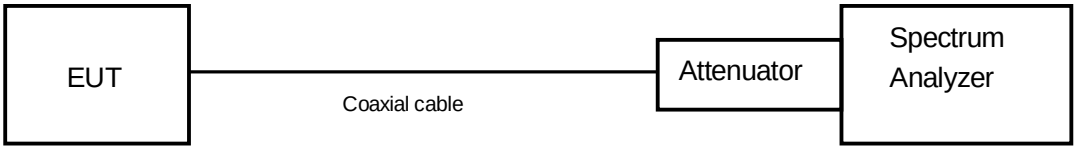
The bandwidth at 26dB down from the highest inband spectral density is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;
- RBW=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 : Apr. 4, 2014
Temperature : 20.3 [˚C]
Humidity : 45.4 [%]
Test place : Shielded room No.4

Tested by : Taiki Watanabe

Mode	Band	Channel	Frequency (MHz)	Test Result (MHz)
802.11a	5.2GHz Band	36	5180	21.113
		40	5200	21.136
		48	5240	21.479
	5.3GHz Band	52	5260	21.081
		56	5280	21.380
		64	5320	21.499
	5.6GHz Band	100	5500	21.376
		116	5580	21.886
		140	5700	21.063

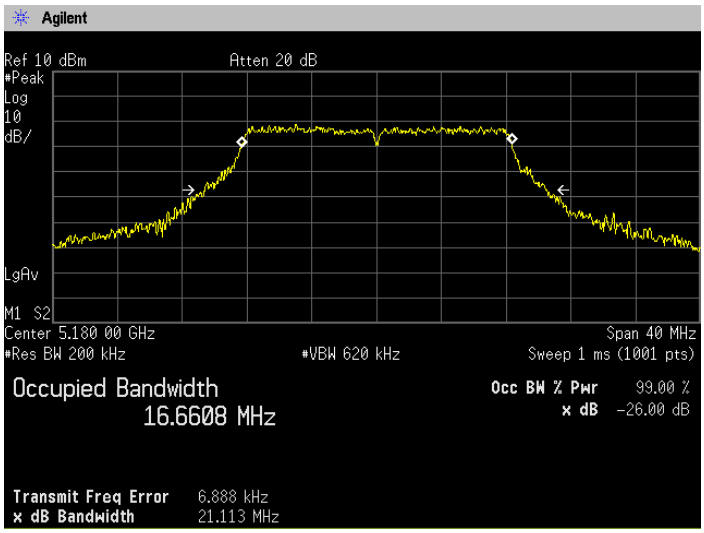
Mode	Band	Channel	Frequency (MHz)	Test Result (MHz)
802.11n (20MHz)	5.2GHz Band	36	5180	21.232
		40	5200	21.595
		48	5240	21.473
	5.3GHz Band	52	5260	21.517
		56	5280	21.550
		64	5320	22.016
	5.6GHz Band	100	5500	21.558
		116	5580	21.724
		140	5700	21.530

Mode	Band	Channel	Frequency (MHz)	Test Result (MHz)
802.11n (40MHz)	5.2GHz Band	38	5190	41.894
		46	5230	41.312
	5.3GHz Band	54	5270	42.871
		62	5310	41.551
	5.6GHz Band	102	5510	41.483
		110	5550	42.421
		134	5670	43.103

Mode	Band	Channel	Frequency (MHz)	Test Result (MHz)
802.11ac (80MHz)	5.2GHz Band	42	5210	84.113
	5.3GHz Band	58	5290	83.675
	5.6GHz Band	106	5530	83.678

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

Channel: 36



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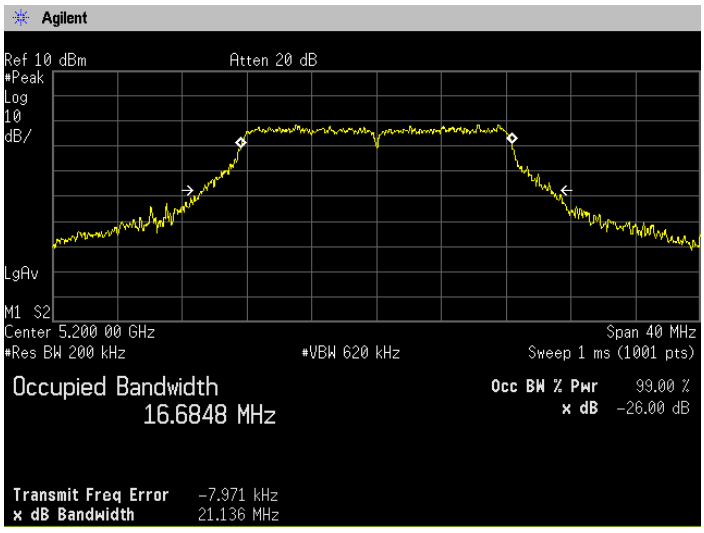

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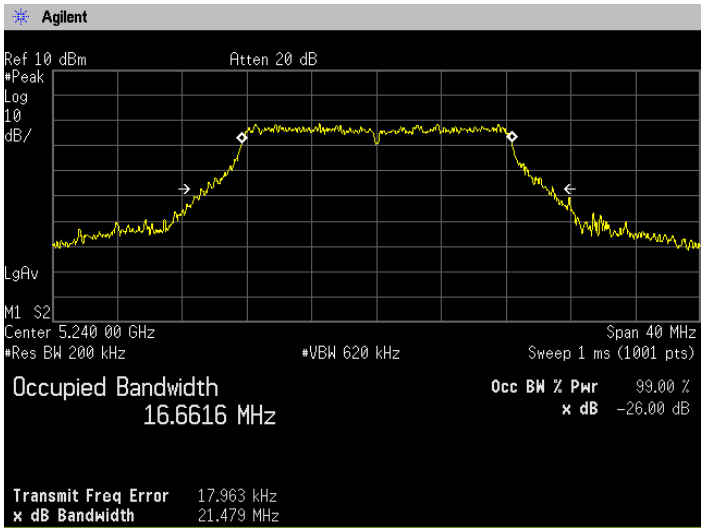
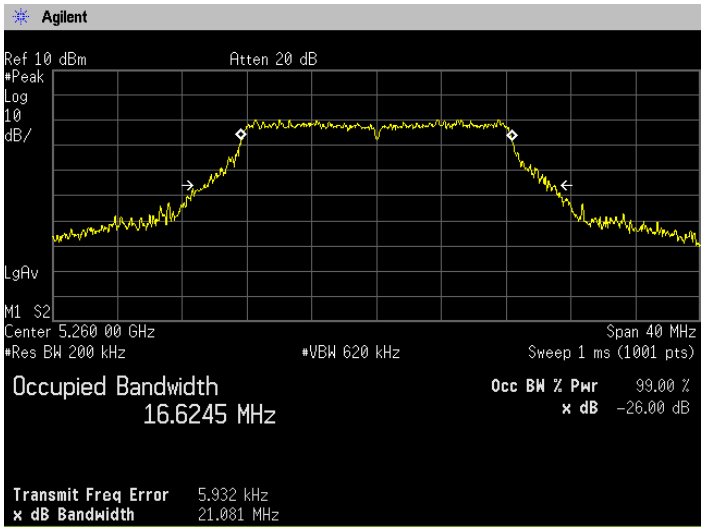
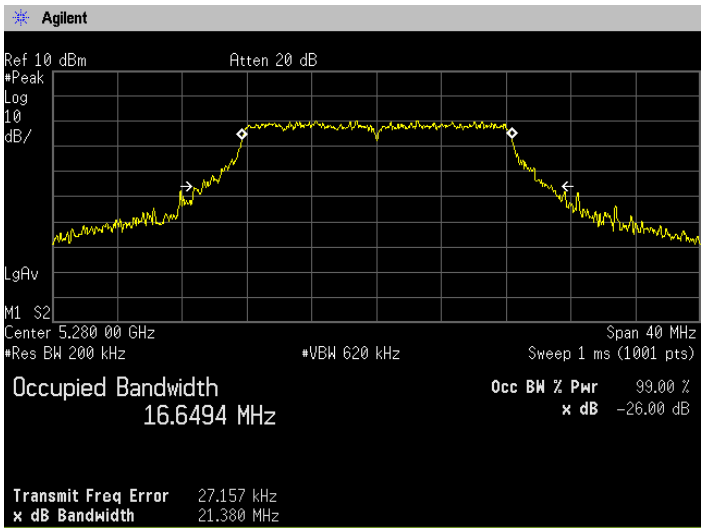


(5.3GHz Band)

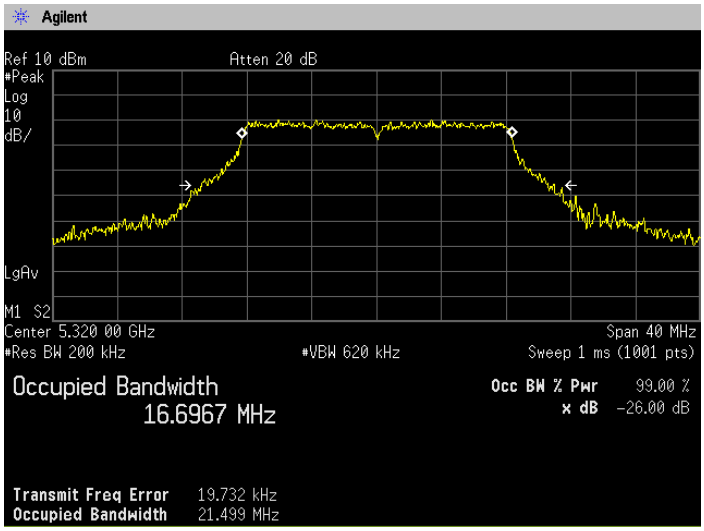
Channel: 52



Channel: 56

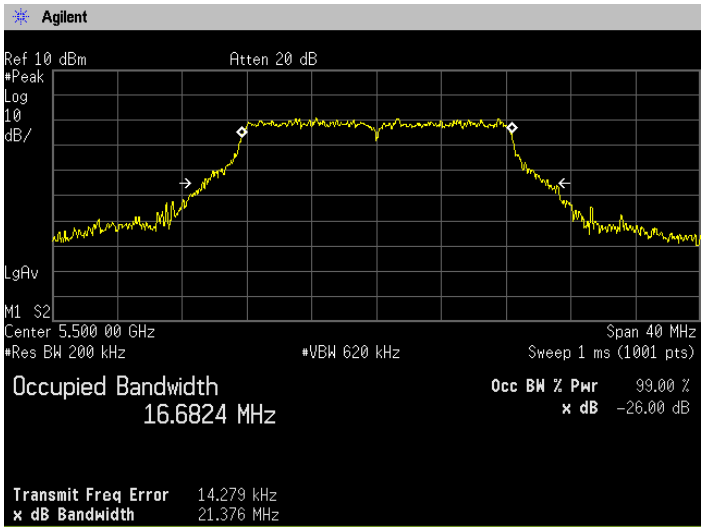


Channel: 64

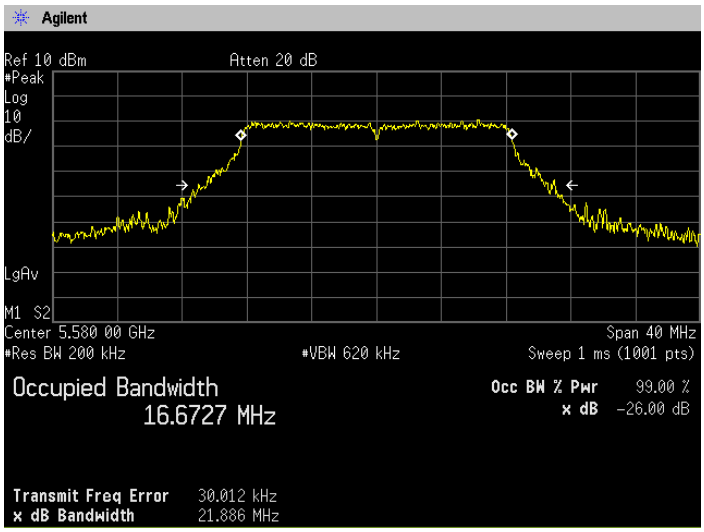


(5.6GHz Band)

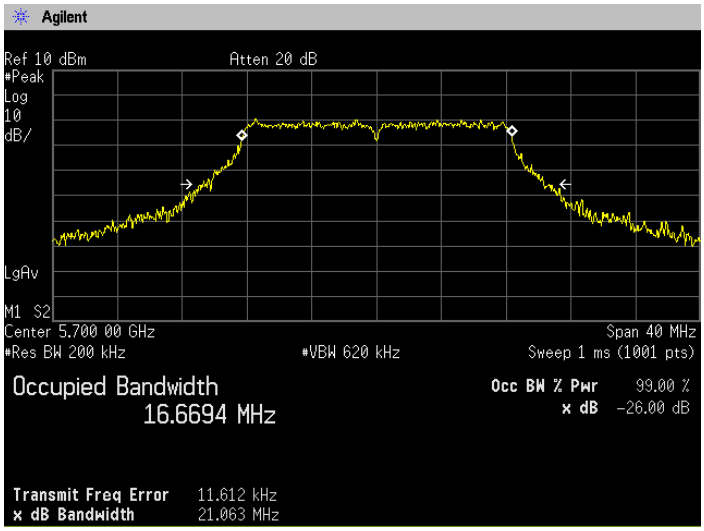
Channel: 100



Channel: 116

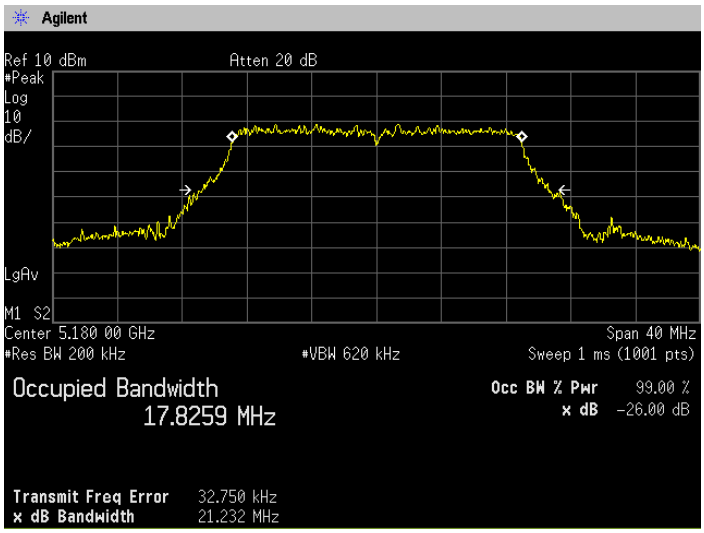


Channel: 140

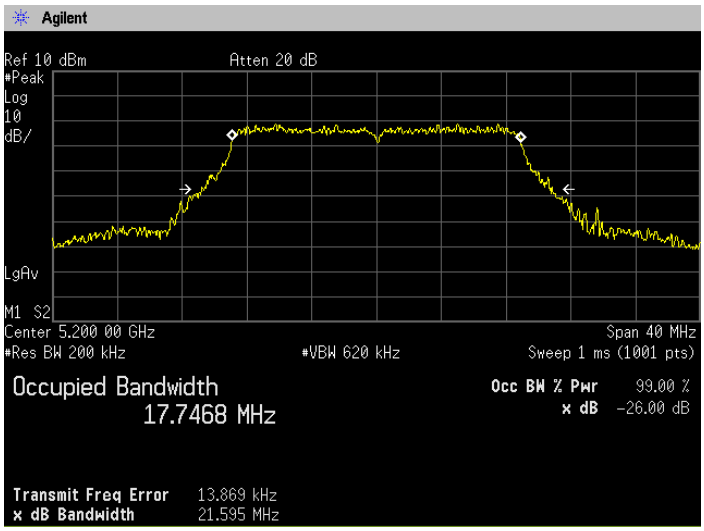


[IEEE802.11n (HT20)]
(5.2GHz Band)

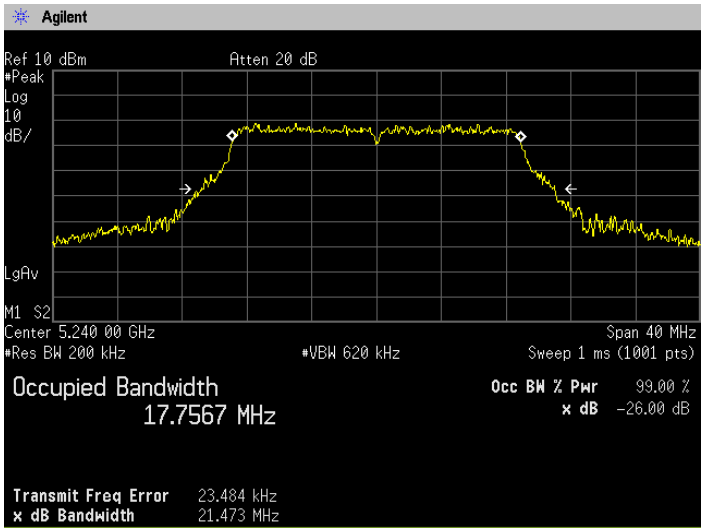
Channel: 36



Channel: 40

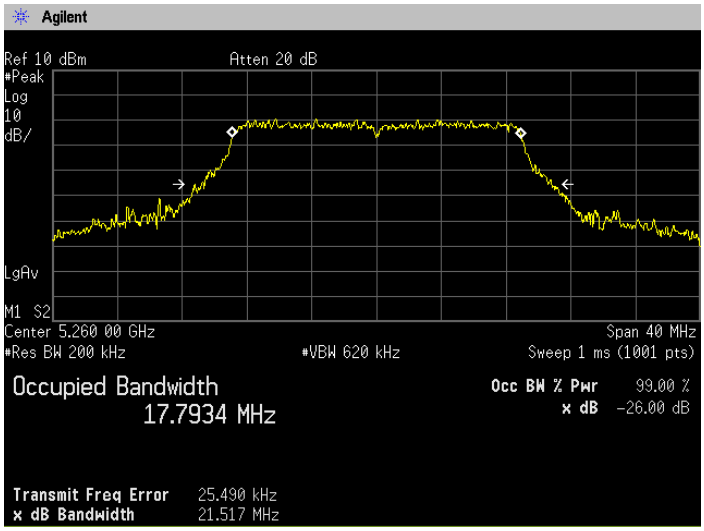


Channel: 48

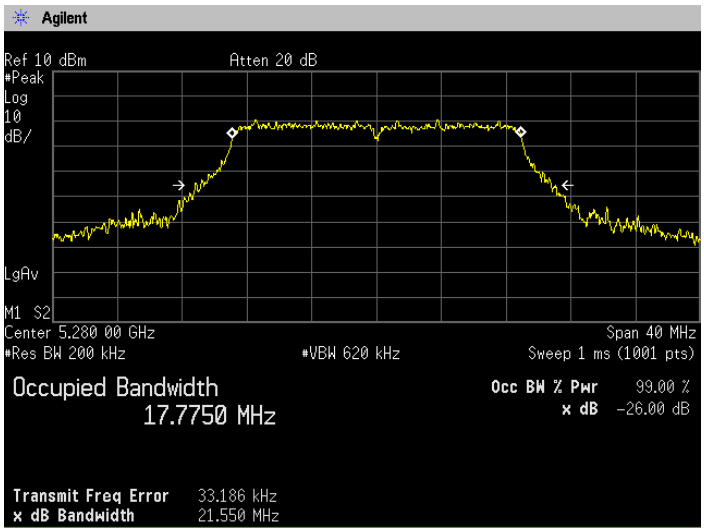


(5.3GHz Band)

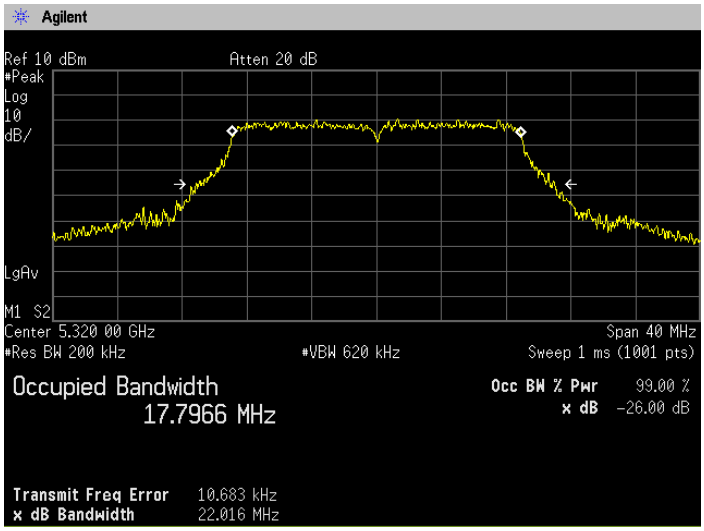
Channel: 52



Channel: 56

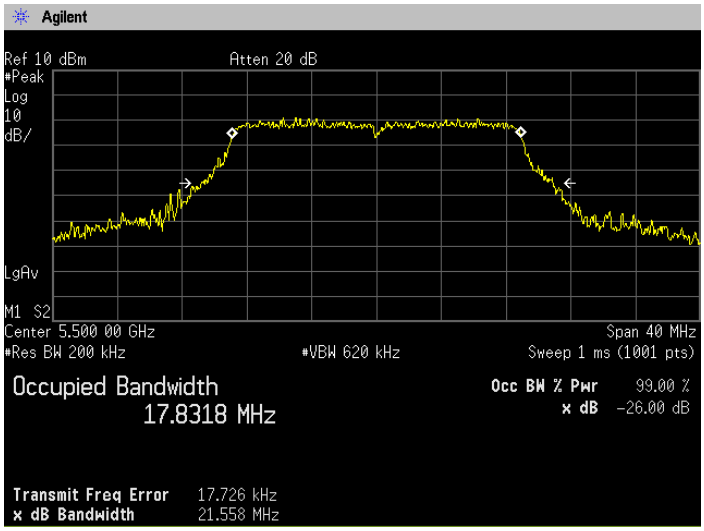


Channel: 64



(5.6GHz Band)

Channel: 100



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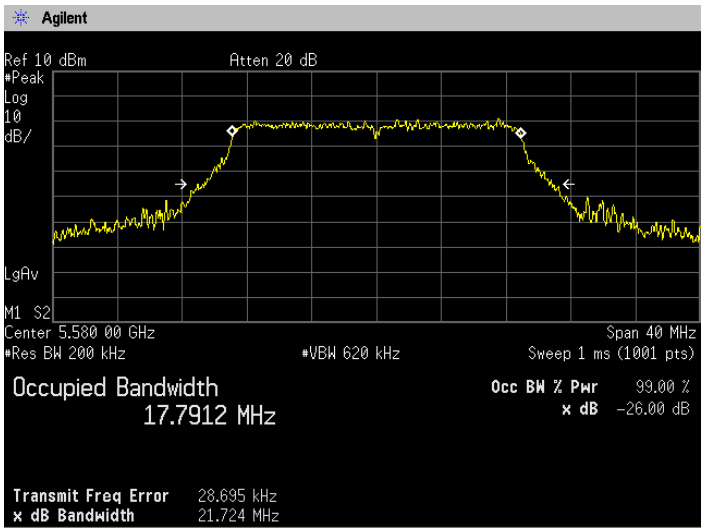

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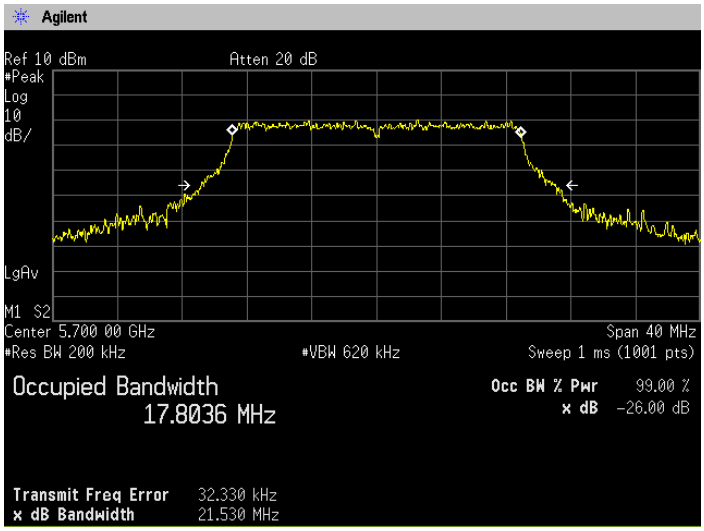
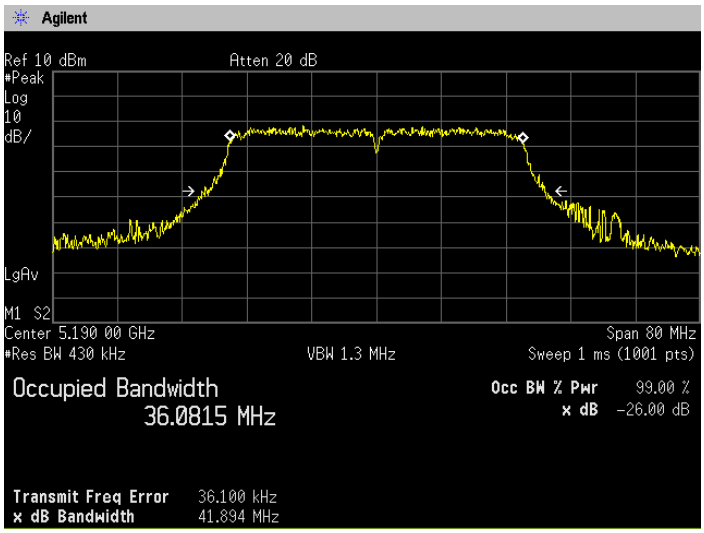
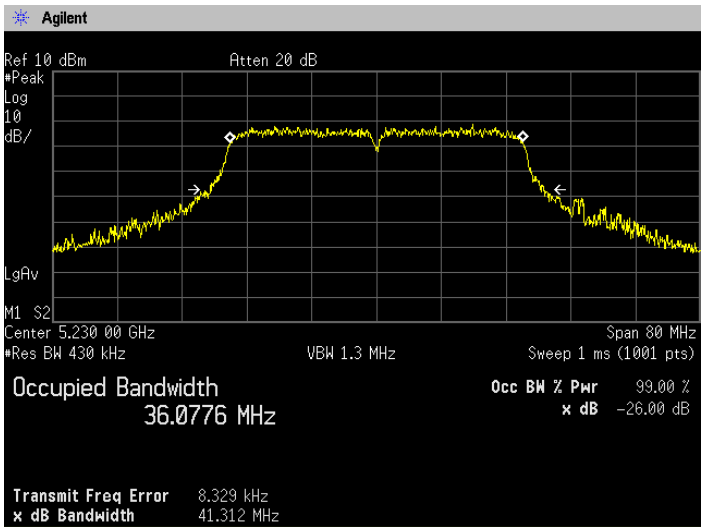


[IEEE802.11n (HT40)]
(5.2GHz Band)

Channel: 38



Channel: 46



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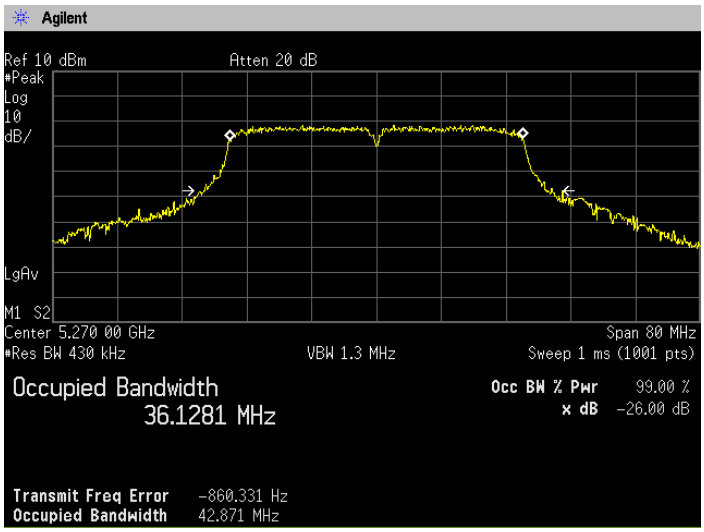
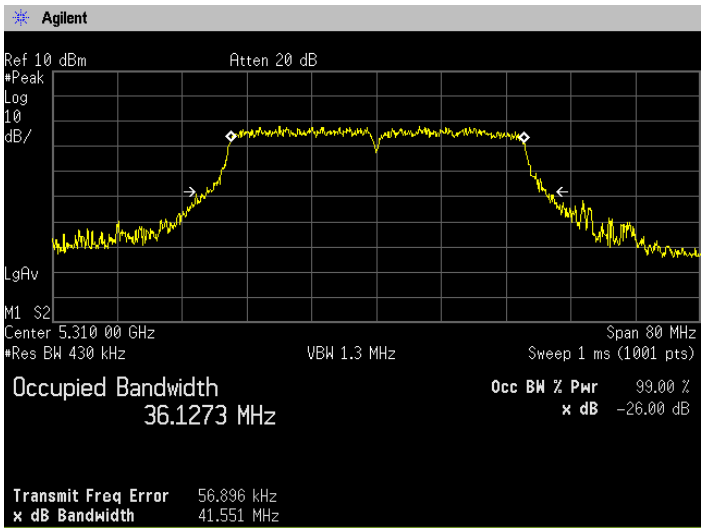
(5.3GHz Band)

Channel: 54

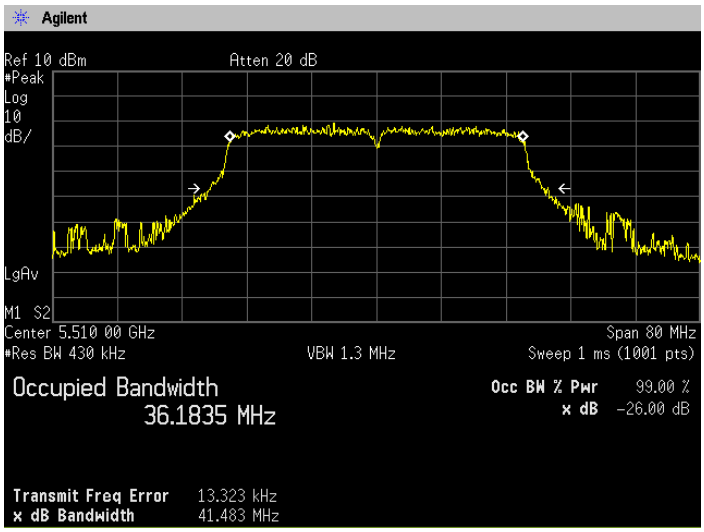


Channel: 62

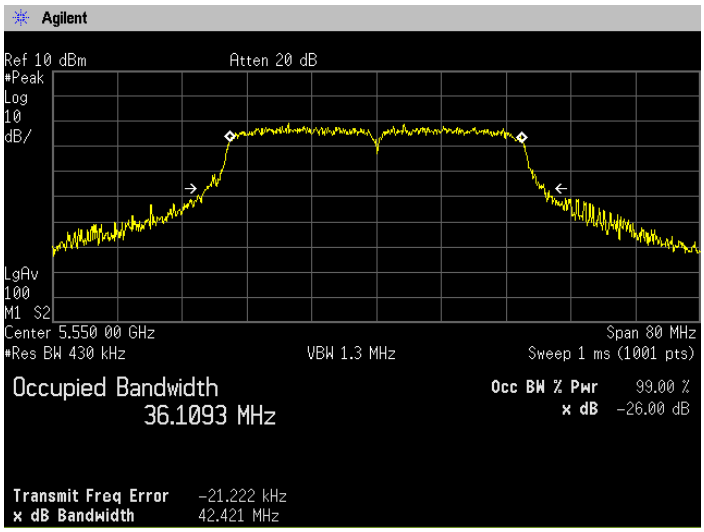


(5.6GHz Band)

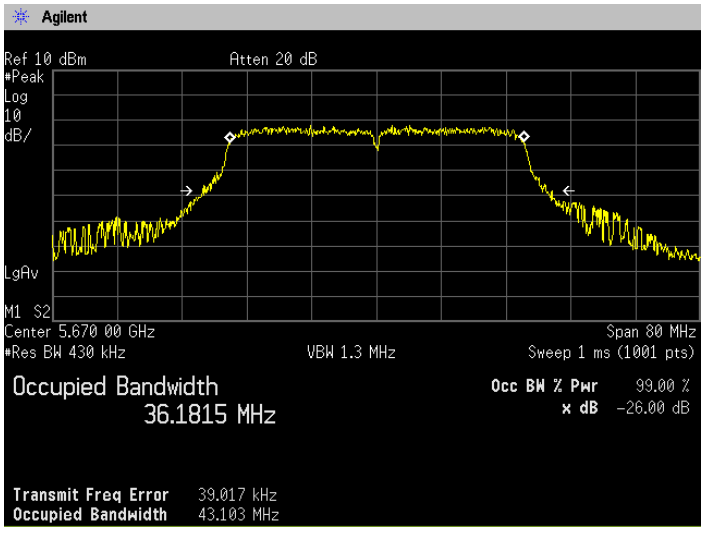
Channel: 102



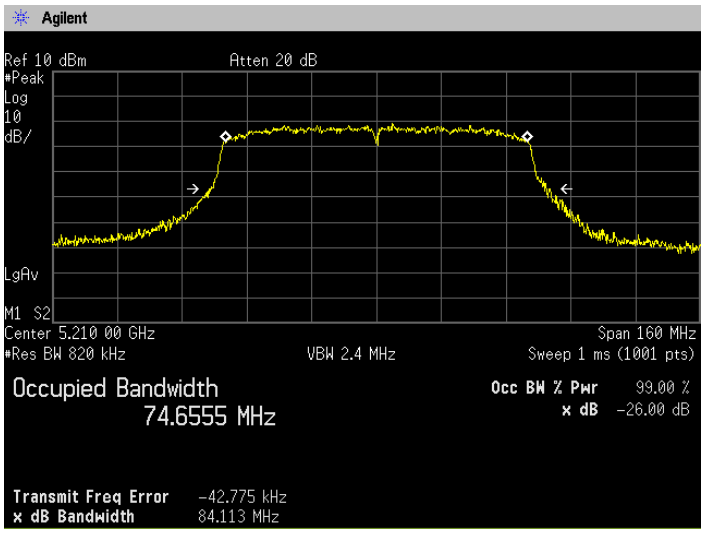
Channel: 110



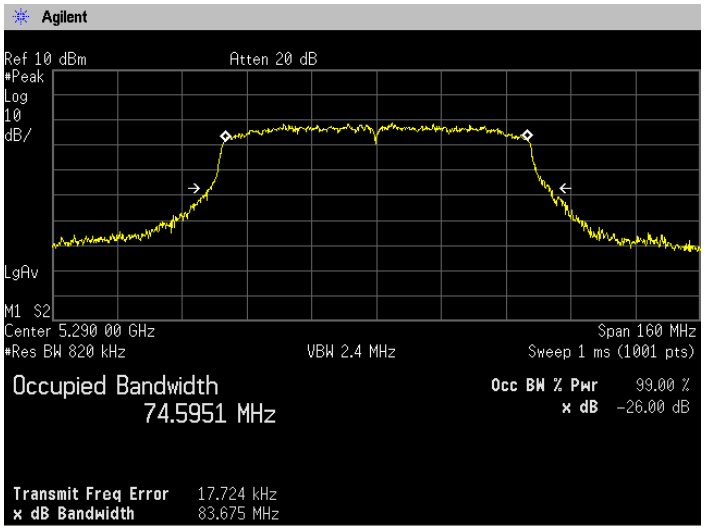
Channel: 134



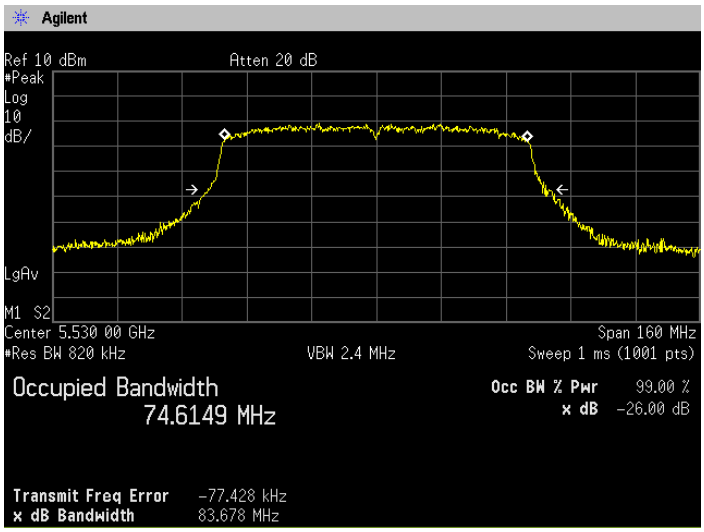
[IEEE802.11ac (HT80)]
(5.2GHz Band)
Channel: 42



(5.3GHz Band)
Channel: 58



(5.6GHz Band)
Channel: 106



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5. Maximum Conducted Output Power

5.1 Measurement procedure [FCC 15.407(a), KDB789033]

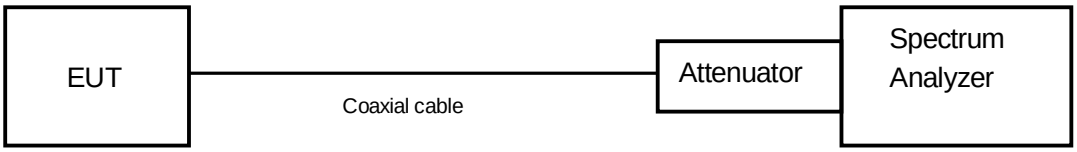
The peak power is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;
- RBW=1MHz, VBW=8MHz, 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



5.2 Limit

(1) For the band 5.15-5.25GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50mW or 4dBm + 10logB, where B is the 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

(2) For the band 5.25-5.35GHz, 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 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

(3) For the band 5.5-5.7GHz, 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 26-dB emission bandwidth in MHz. If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

<Output Power Limit Calculation>

Band	Mode	Power Limit (mW) / Least 26dBc BW (MHz)	Calculated Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
5.2GHz Band	802.11a	50	16.98	0	16.98
		21.479	17.32		
	802.11n HT20	50	16.98		16.98
		21.595	17.34		
	802.11n HT40	50	16.98		16.98
		41.894	20.22		
	802.11ac HT80	50	16.98		16.98
		84.113	23.25		

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	0	23.97
		21.499	24.32		
	802.11n HT20	250	23.97		23.97
		22.016	24.43		
	802.11n HT40	250	23.97		23.97
		42.871	27.32		
	802.11ac HT80	250	23.97		23.97
		83.675	30.23		

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	0	23.97
		21.886	24.40		
	802.11n HT20	250	23.97		23.97
		21.724	24.37		
	802.11n HT40	250	23.97		23.97
		43.103	27.35		
	802.11ac HT80	250	23.97		23.97
		83.678	30.23		

5.3 Measurement result

Date : Apr. 4, 2014
Temperature : 20.3 [˚C]
Humidity : 45.4 [%] Tested by :
Test place : Shielded room No.4 Taiki Watanabe

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	11.510	1.362	1.372	0.993	-	11.510	14.158
	40	5200	11.400					11.400	13.804
	48	5240	11.360					11.360	13.677
	52	5260	12.830	1.364	1.372	0.994	-	12.830	19.187
	56	5280	12.980					12.980	19.861
	64	5320	12.850					12.850	19.275
	100	5500	13.250	1.362	1.372	0.993	-	13.250	21.135
	116	5580	13.270					13.270	21.232
	140	5700	12.970					12.970	19.815

Note1: X = On time / (On + Off time), DCF=10log (1/x)
Note2: Test Result = Reading + DCF (If transmit duty cycle < 98 percent)

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	11.420	1.274	1.284	0.992	-	11.420	13.868
	40	5200	11.300					11.300	13.490
	48	5240	11.130					11.130	12.972
	52	5260	12.830	1.274	1.284	0.992	-	12.830	19.187
	56	5280	12.960					12.960	19.770
	64	5320	12.880					12.880	19.409
	100	5500	13.310	1.272	1.284	0.991	-	13.310	21.429
	116	5580	13.220					13.220	20.989
	140	5700	12.930					12.930	19.634

Note1: X = On time / (On + Off time), DCF=10log (1/x)
Note2: Test Result = Reading + DCF (If transmit duty cycle < 98 percent)

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	9.860	0.635	0.645	0.984	-	9.860	9.683
	46	5230	10.050					10.050	10.116
	54	5270	9.720	0.635	0.645	0.984	-	9.720	9.376
	62	5310	9.930					9.930	9.840
	102	5510	10.200	0.635	0.645	0.984	-	10.200	10.471
	110	5550	10.150					10.150	10.351
	134	5670	10.850					10.850	12.162

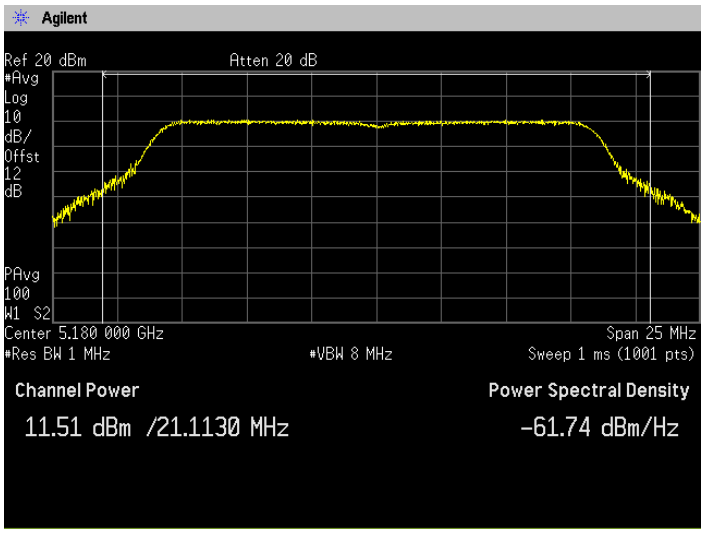
Note1: X = On time / (On + Off time), DCF=10log (1/x)
Note2: Test Result = Reading + DCF (If transmit duty cycle < 98 percent)

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	10.250	0.248	0.258	0.961	0.172	10.422	11.020
	58	5290	10.170	0.247	0.258	0.957	0.189	10.359	10.862
	106	5530	10.430	0.248	0.258	0.961	0.172	10.602	11.486

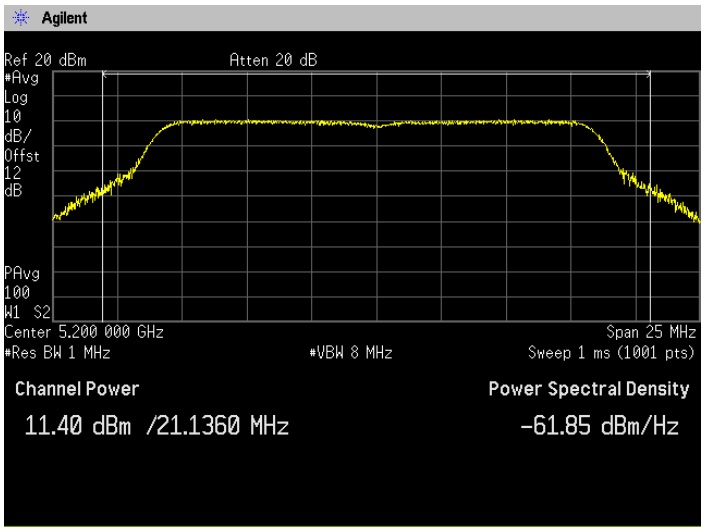
Note1: X = On time / (On + Off time), DCF=10log (1/x)
Note2: Test Result = Reading + DCF (If transmit duty cycle < 98 percent)

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

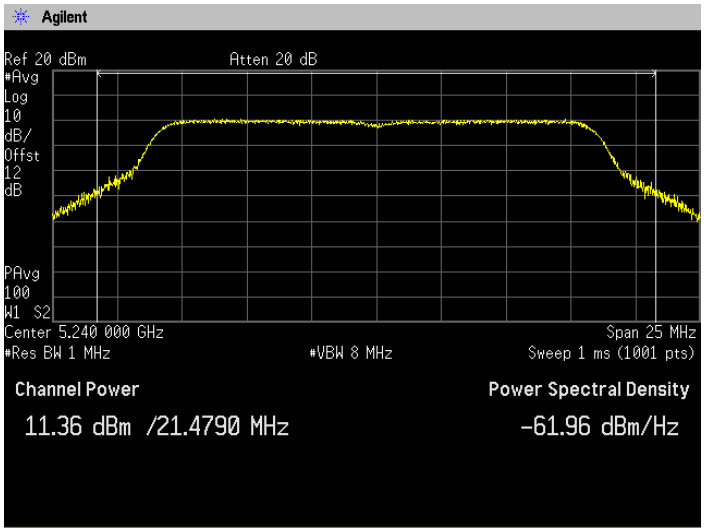
Channel: 36



Channel: 40

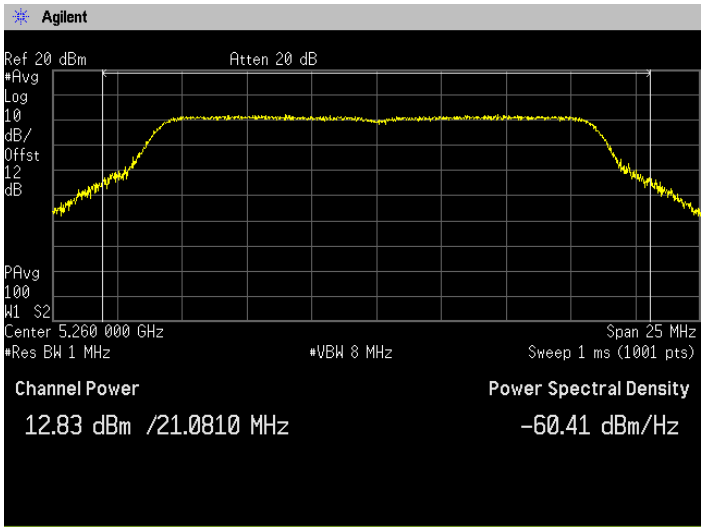


Channel: 48

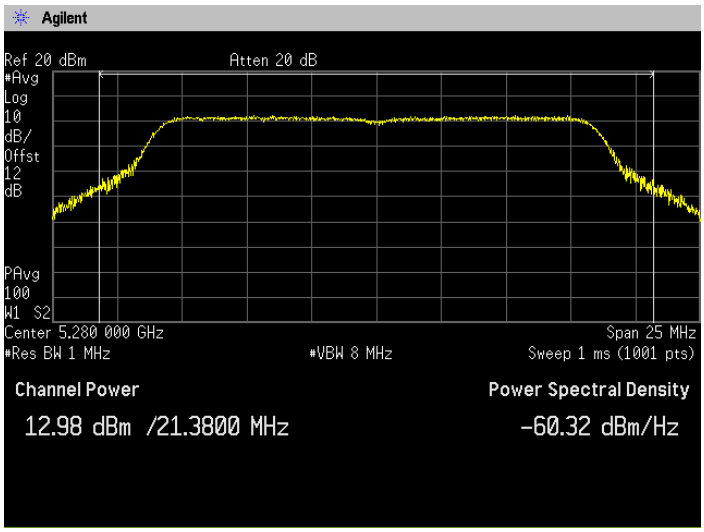


(5.3GHz Band)

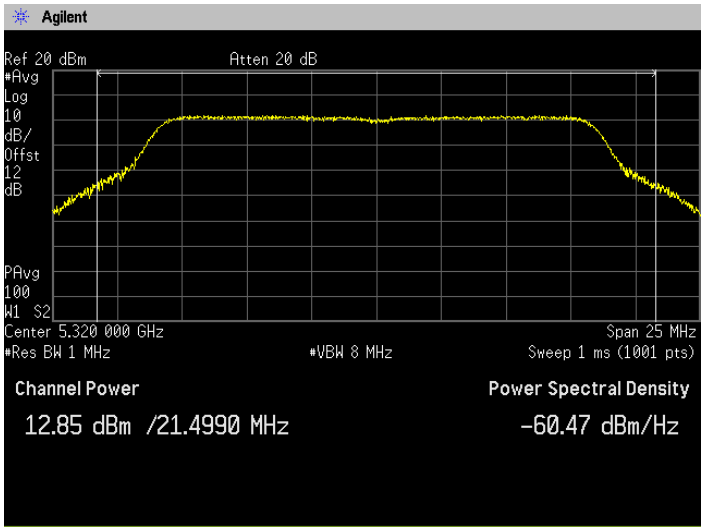
Channel: 52



Channel: 56

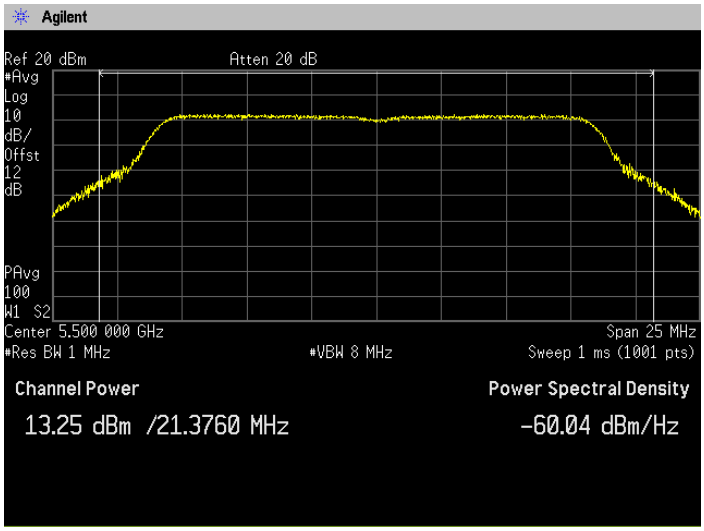


Channel: 64

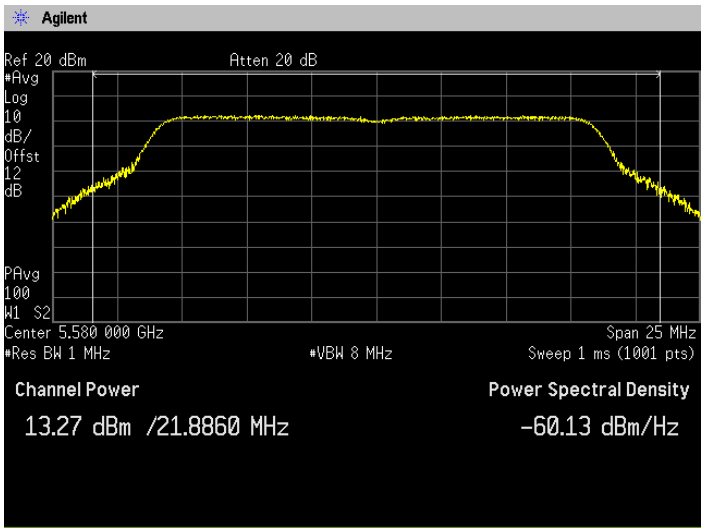


(5.6GHz Band)

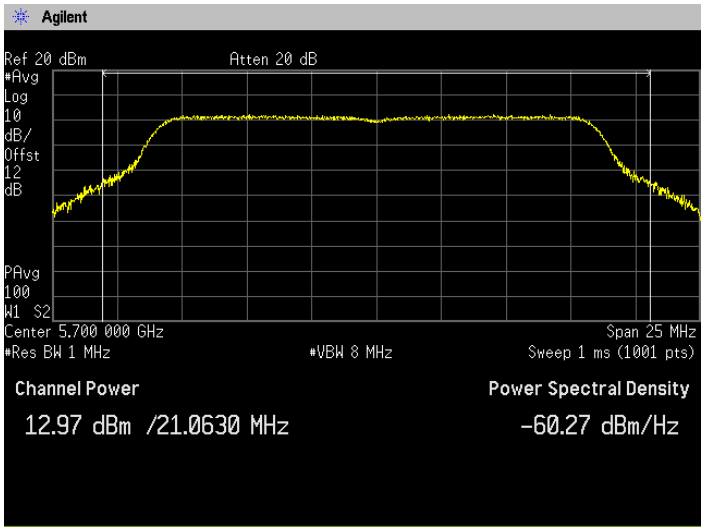
Channel: 100



Channel: 116

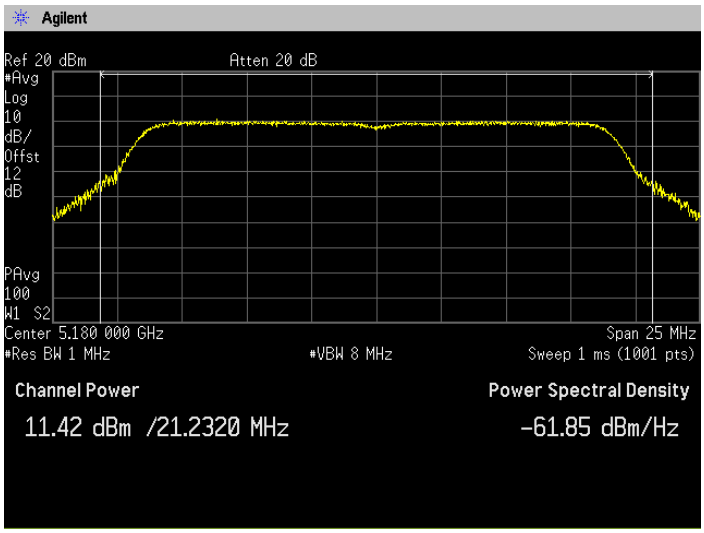


Channel: 140

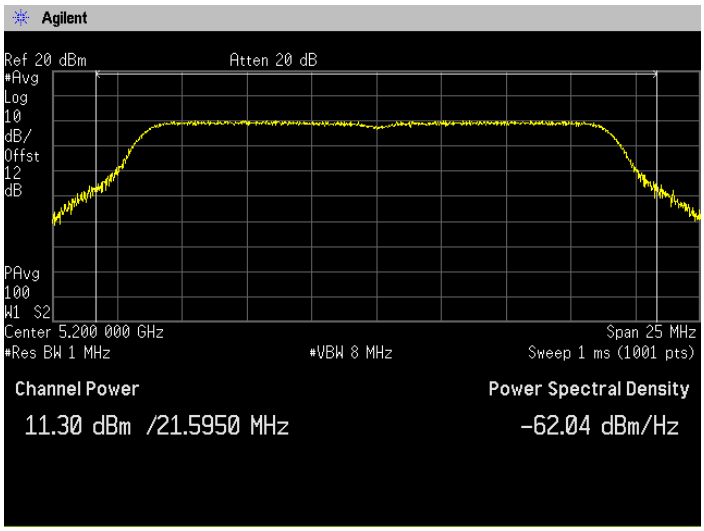


[IEEE802.11n (HT20)]
(5.2GHz Band)

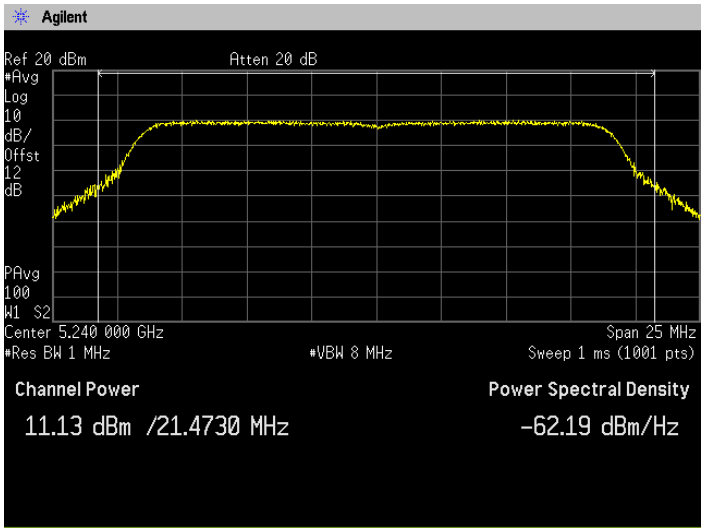
Channel: 36



Channel: 40

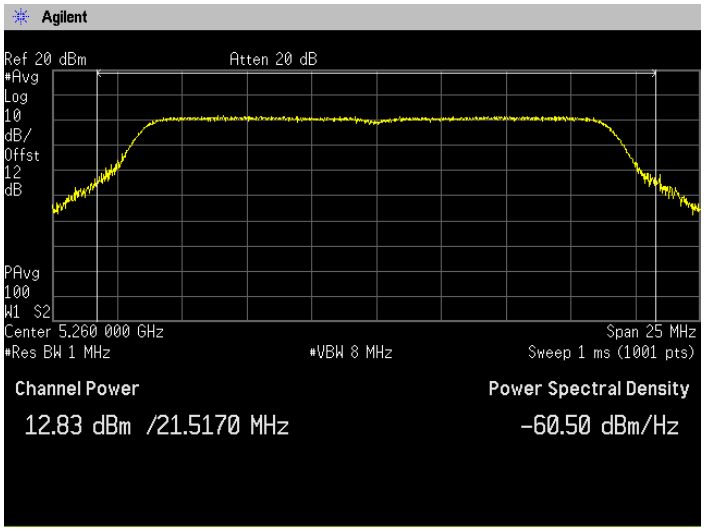


Channel: 48

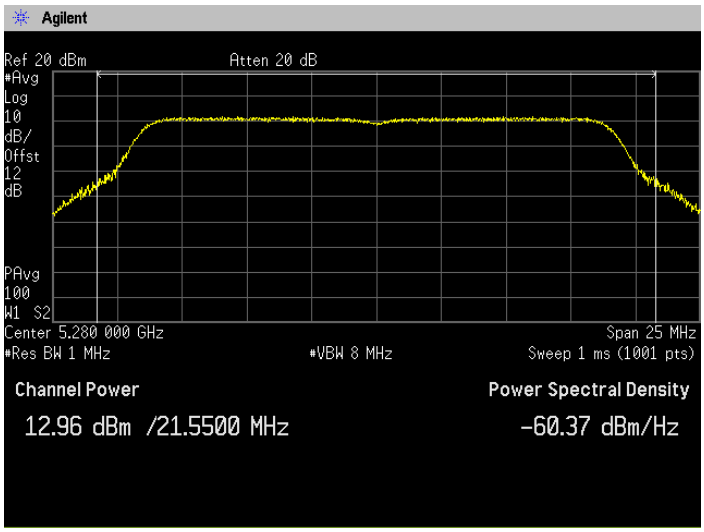


(5.3GHz Band)

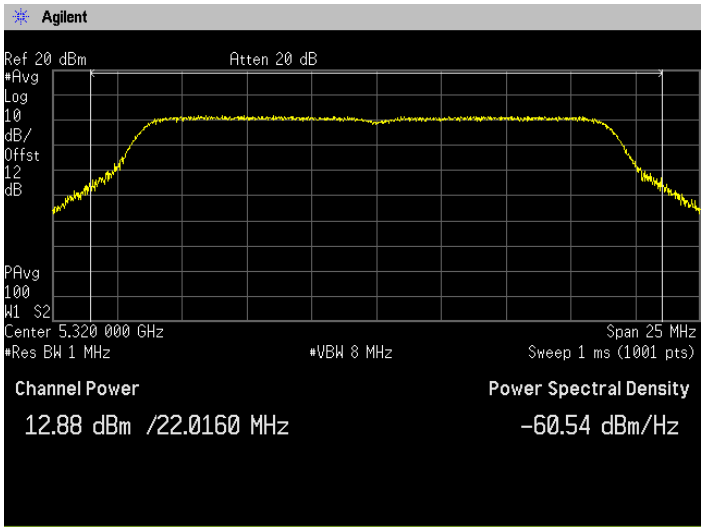
Channel: 52



Channel: 56

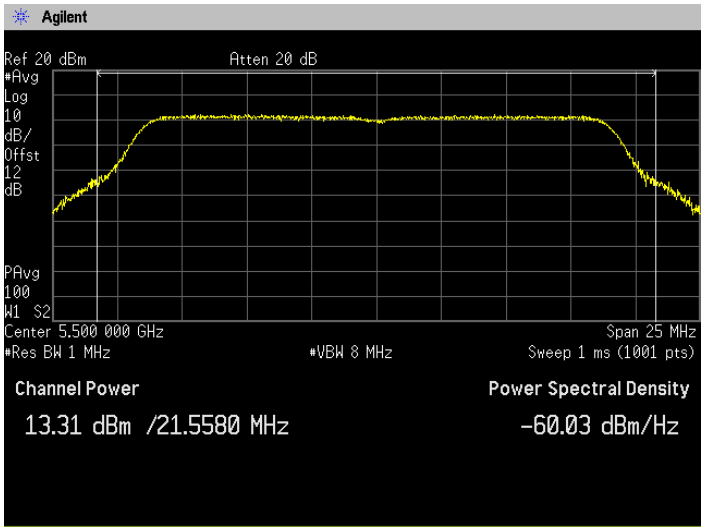


Channel: 64

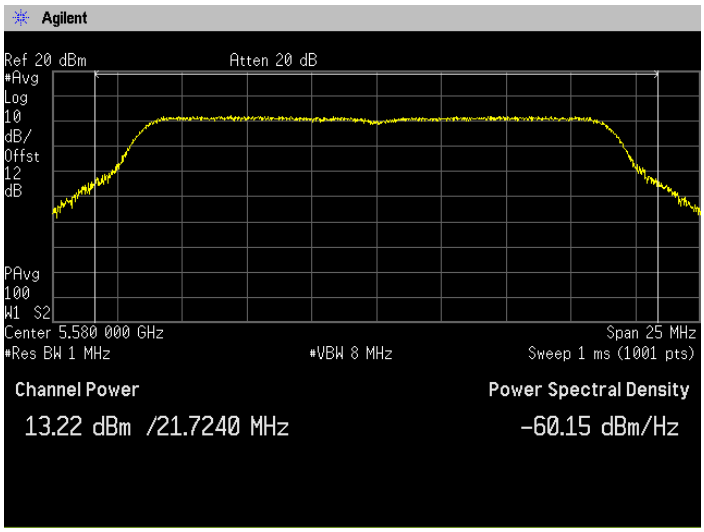


(5.6GHz Band)

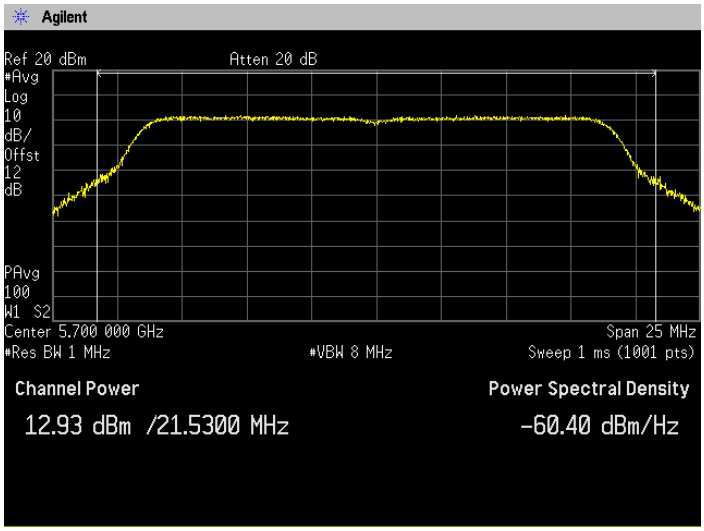
Channel: 100



Channel: 116

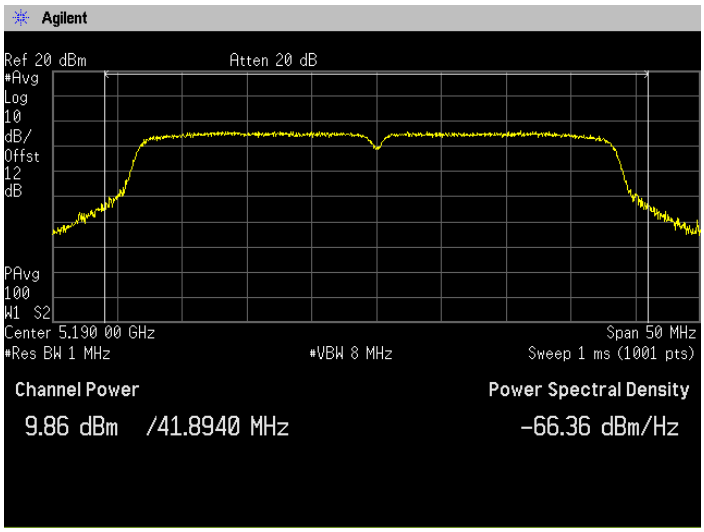


Channel: 140

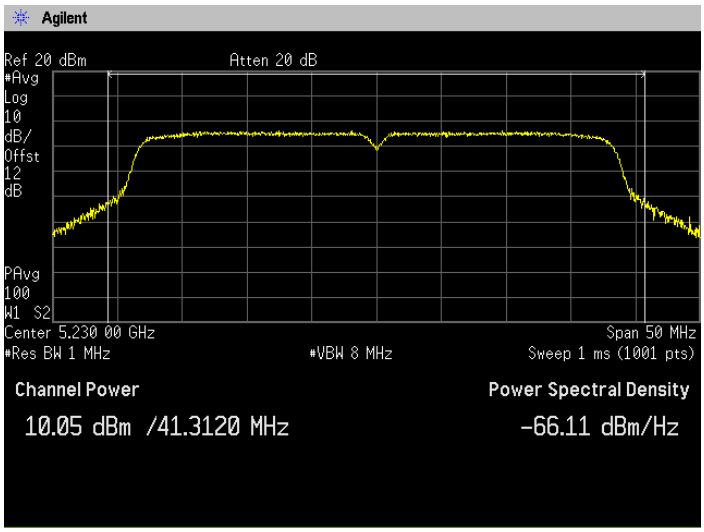


[IEEE802.11n (HT40)]
(5.2GHz Band)

Channel: 38

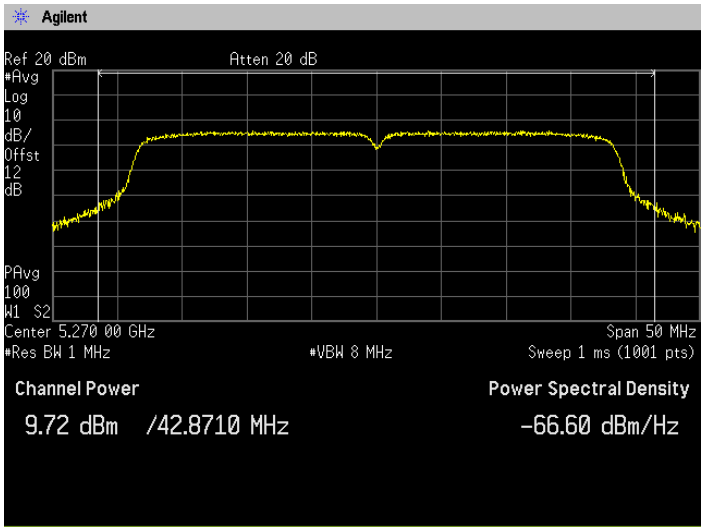


Channel: 46

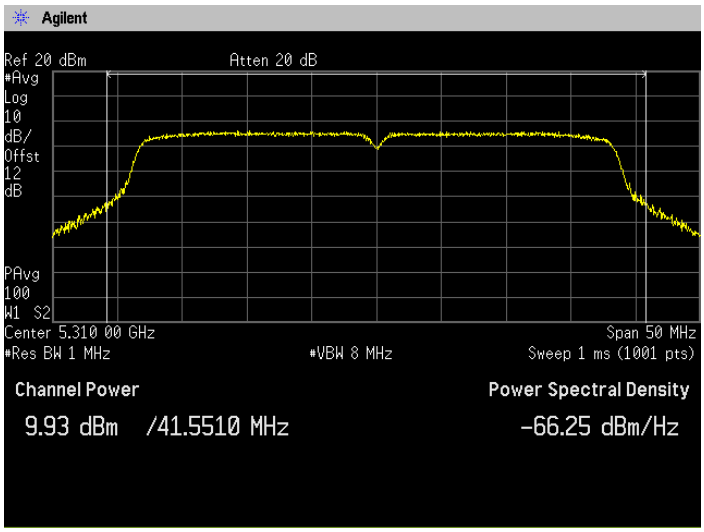


(5.3GHz Band)

Channel: 54

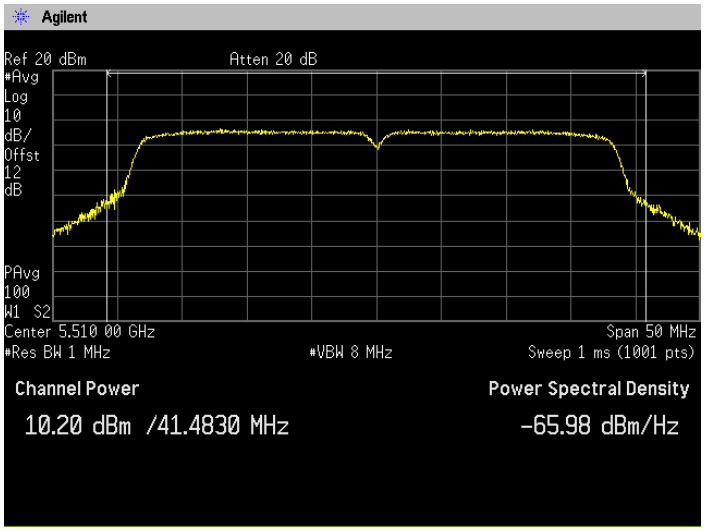


Channel: 62

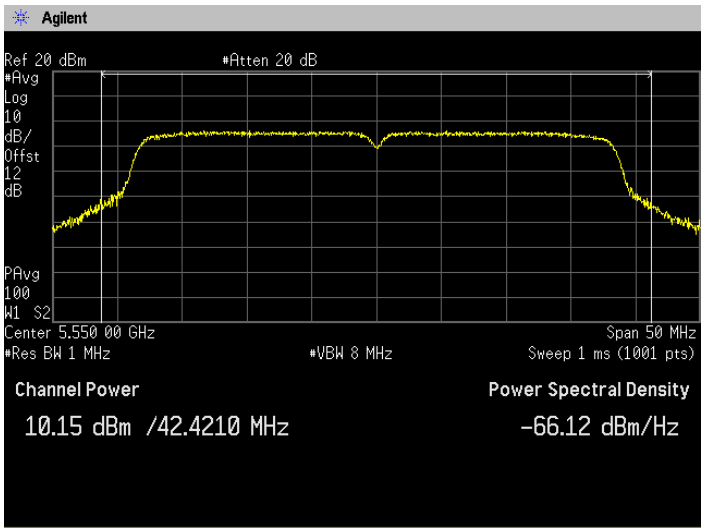


(5.6GHz Band)

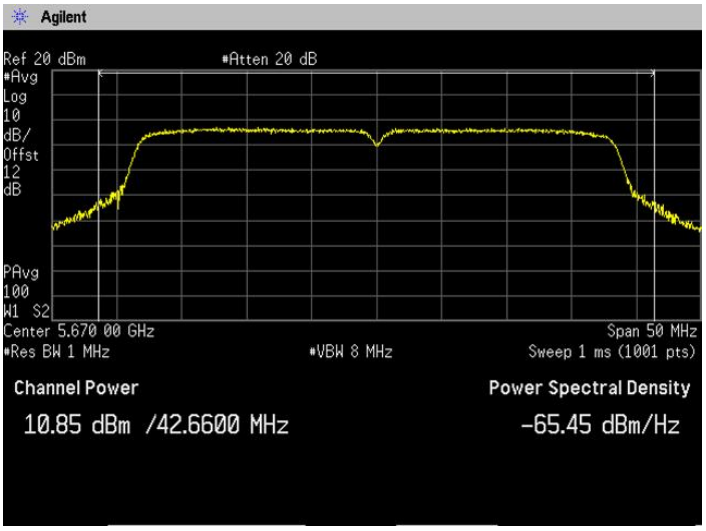
Channel: 102



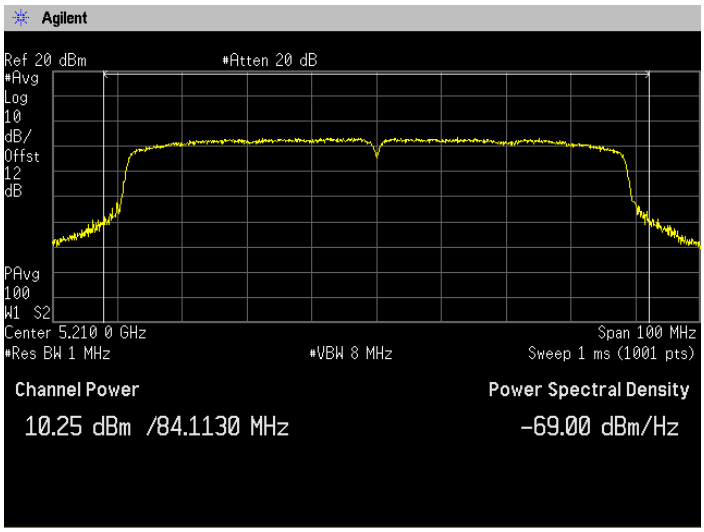
Channel: 110



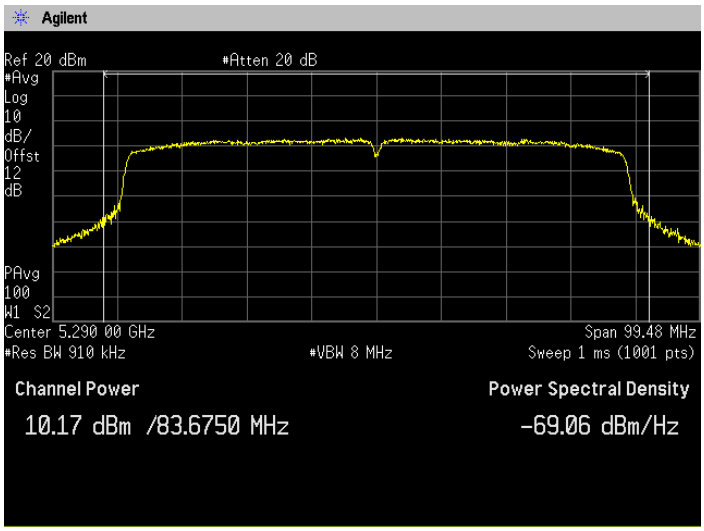
Channel: 134



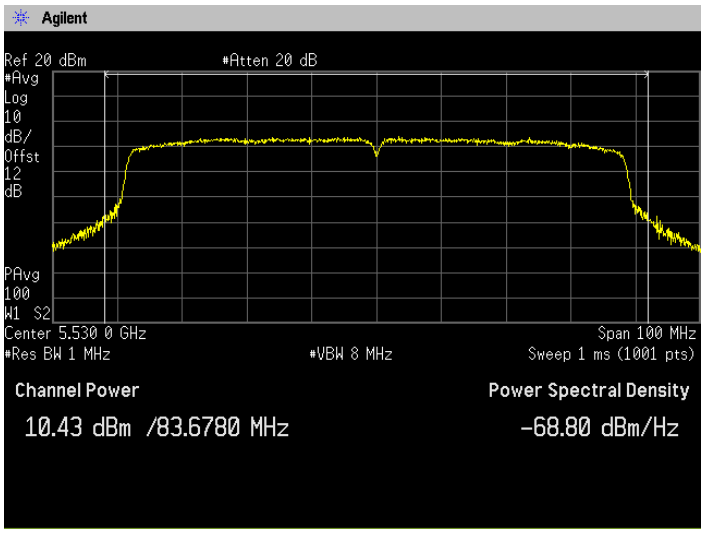
[IEEE802.11ac (HT80)]
(5.2GHz Band)
Channel: 42



(5.3GHz Band)
Channel: 58



(5.6GHz Band)
Channel: 106



Zacta

6. Peak Power Spectral Density

6.1 Measurement procedure [FCC 15.407(a), KDB789033]

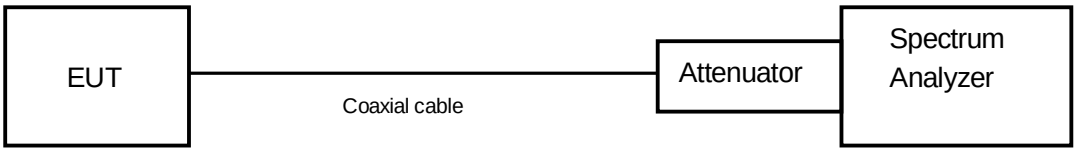
The peak power spectral density is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;
- RBW=1MHz, VBW=8MHz, 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 the band 5.15-5.25GHz, the peak power spectral density shall not exceed 4dBm in any 1-MHz band. If transmitting antenna 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 band 5.25-5.35GHz, the peak power spectral density shall not exceed 11dBm in any 1-MHz band. If transmitting antenna 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 band 5.5-5.7GHz, the peak power spectral density shall not exceed 11dBm in any 1-MHz band. If transmitting antenna 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.

<Peak Power Spectral Density Limit Calculation>

Band	Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
5.2GHz Band	4	0	4
5.3GHz Band	11	0	11
5.6GHz Band	11	0	11

Zacta

6.3 Measurement result

Date : Apr. 4, 2014
Temperature : 20.3 [˚C]
Humidity : 45.4 [%] Tested by :
Test place : Shielded room No.4 Taiki Watanabe

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	0.619	1.362	1.372	0.993	-	0.619
	40	5200	0.464					0.464
	48	5240	0.432					0.432
	52	5260	2.163	1.364	1.372	0.994	-	2.163
	56	5280	1.965					1.965
	64	5320	2.205					2.205
	100	5500	2.593	1.362	1.372	0.993	-	2.593
	116	5580	2.512					2.512
	140	5700	1.973					1.973

Note1: X = On time / (On + Off time), DCF=10log (1/x)
Note2: Test Result = Reading + DCF (If transmit duty cycle < 98 percent)

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	0.289	1.274	1.284	0.992	-	0.289
	40	5200	0.360					0.360
	48	5240	0.279					0.279
	52	5260	1.900	1.274	1.284	0.992	-	1.900
	56	5280	1.790					1.790
	64	5320	1.947					1.947
	100	5500	2.616	1.272	1.284	0.991	-	2.616
	116	5580	2.223					2.223
	140	5700	2.024					2.024

Note1: X = On time / (On + Off time), DCF=10log (1/x)
Note2: Test Result = Reading + DCF (If transmit duty cycle < 98 percent)

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	-3.895	0.635	0.645	0.984	-	-3.895
	46	5230	-4.117					-4.117
	54	5270	-3.776	0.635	0.645	0.984	-	-3.776
	62	5310	-4.104					-4.104
	102	5510	-3.674	0.635	0.645	0.984	-	-3.674
	110	5550	-3.663					-3.663
	134	5670	-4.382					-4.382

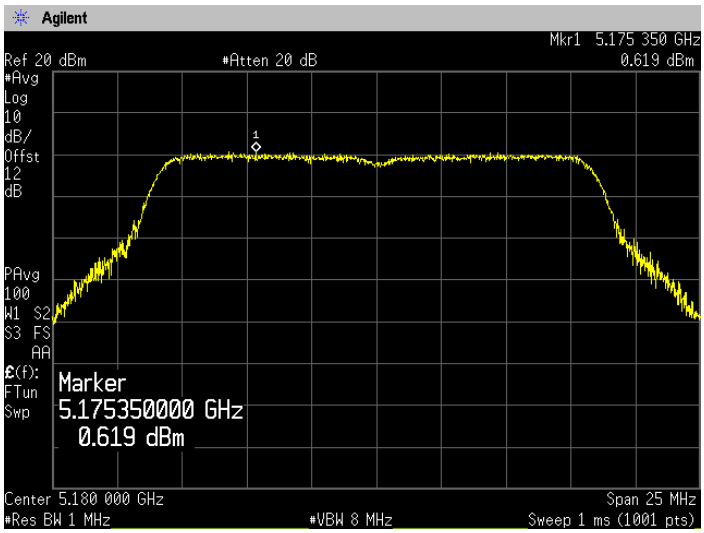
Note1: X = On time / (On + Off time), DCF=10log (1/x)
Note2: Test Result = Reading + DCF (If transmit duty cycle < 98 percent)

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	-6.420	0.248	0.258	0.961	0.172	-6.248
	58	5290	-6.671	0.247	0.258	0.957	0.189	-6.482
	106	5530	-5.904	0.248	0.258	0.961	0.172	-5.732

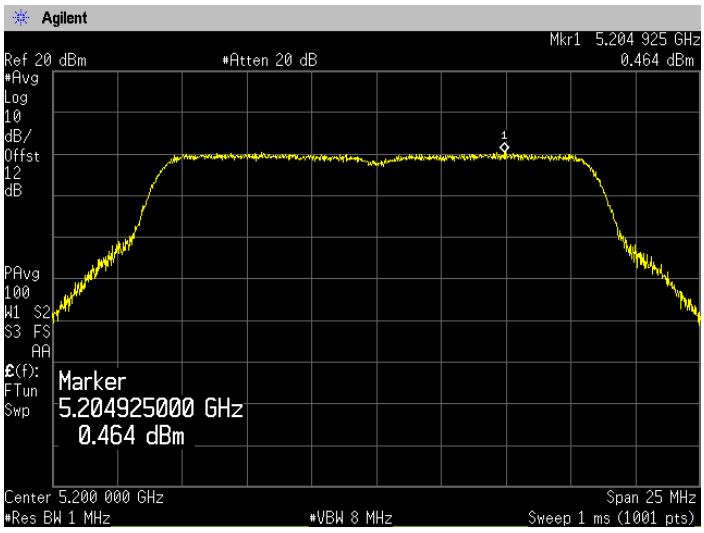
Note1: X = On time / (On + Off time), DCF=10log (1/x)
Note2: Test Result = Reading + DCF (If transmit duty cycle < 98 percent)

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

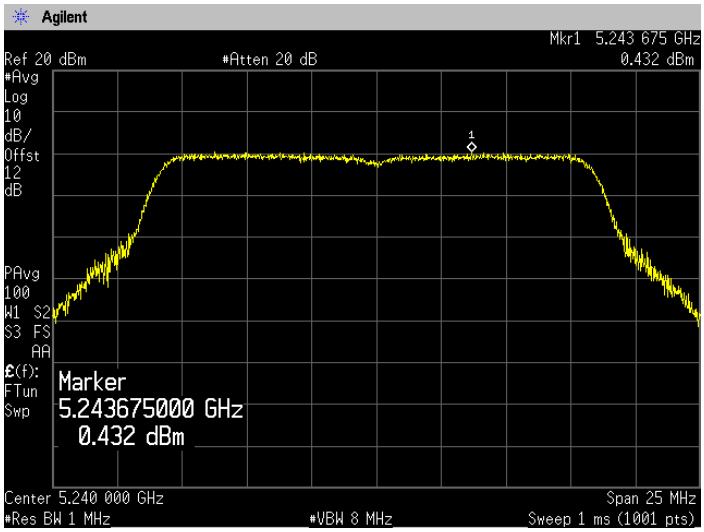
Channel: 36



Channel: 40



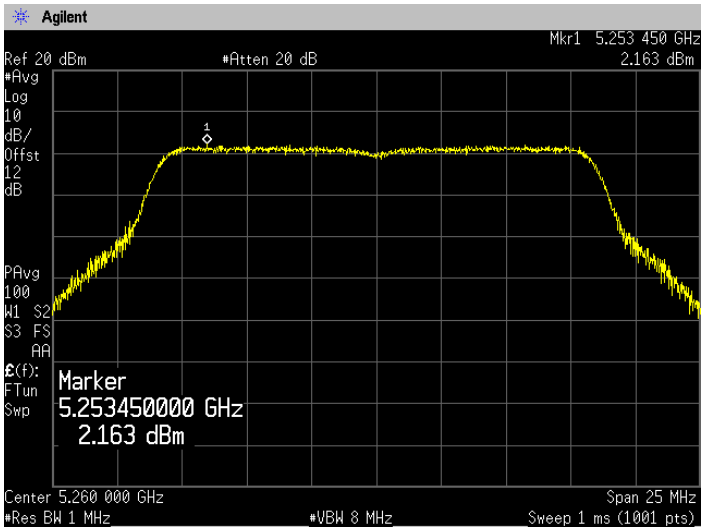
Channel: 48



Zacta

(5.3GHz Band)

Channel: 52



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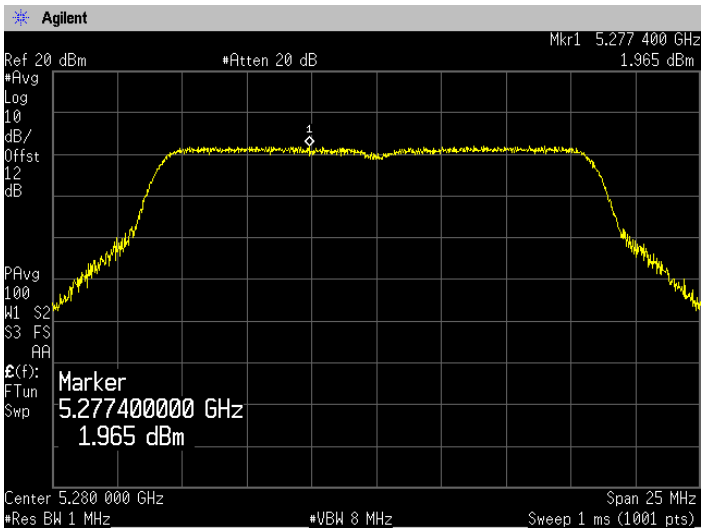
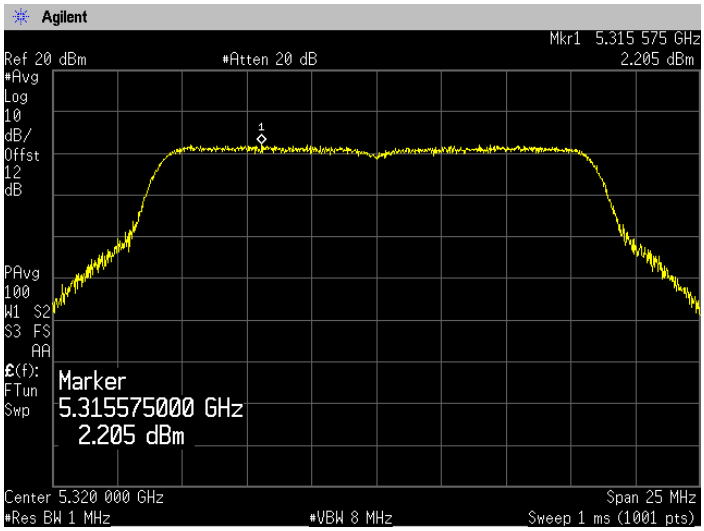
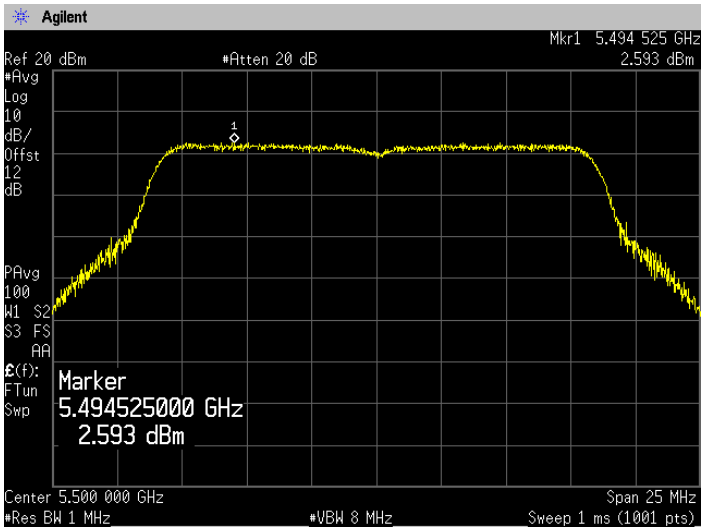


Channel: 64

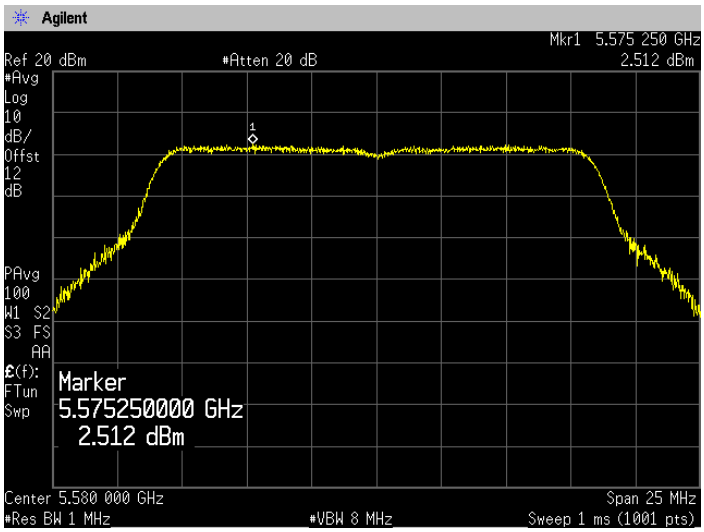


(5.6GHz Band)

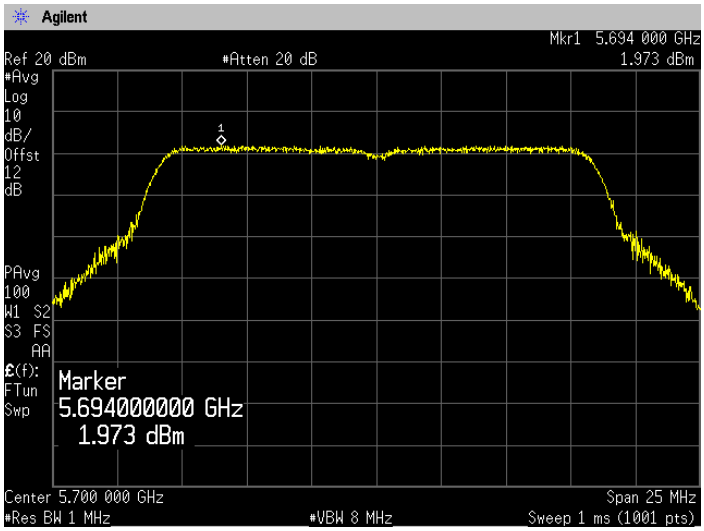
Channel: 100



Channel: 116



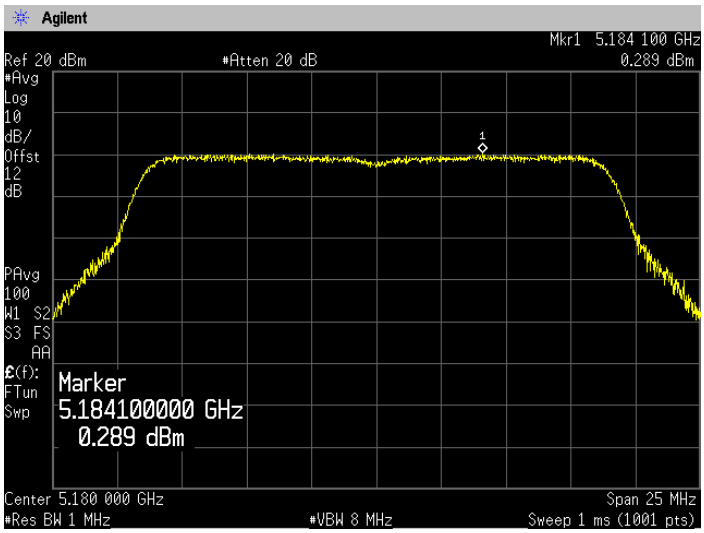
Channel: 140



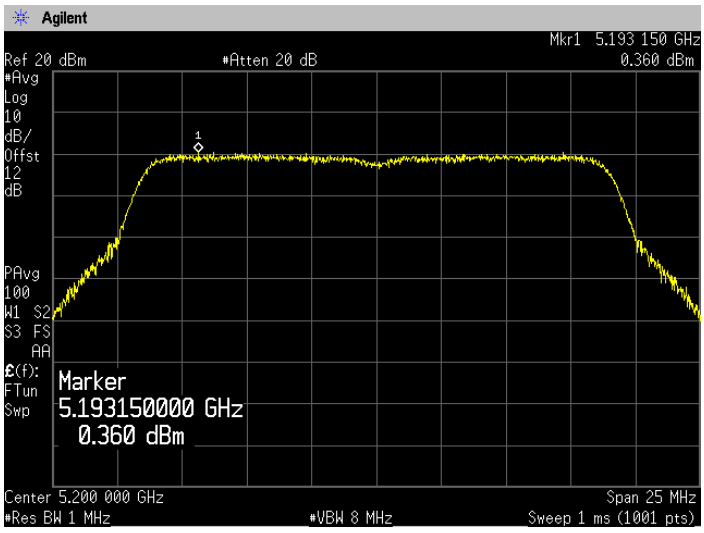
Zacta

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

Channel: 36



Channel: 40



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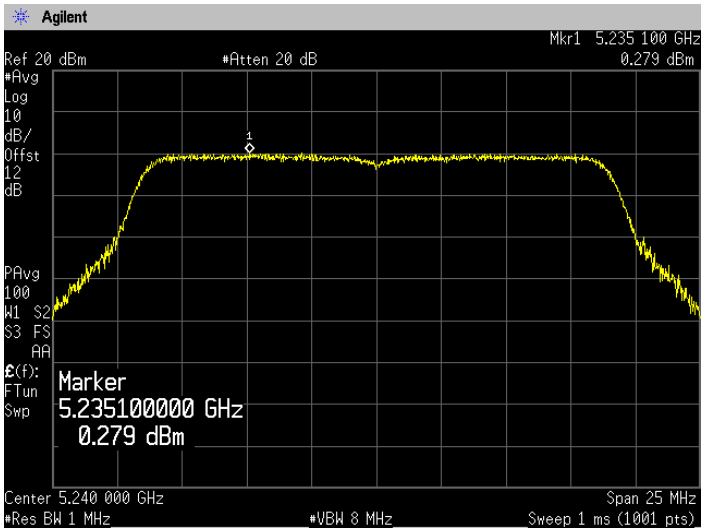
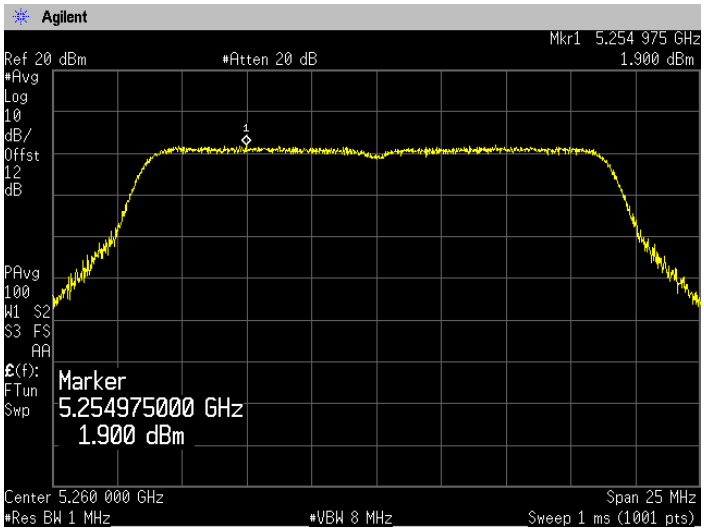
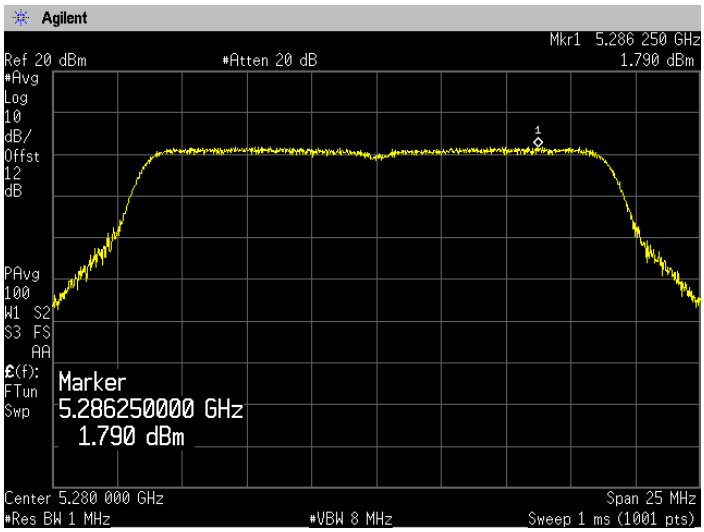


(5.3GHz Band)

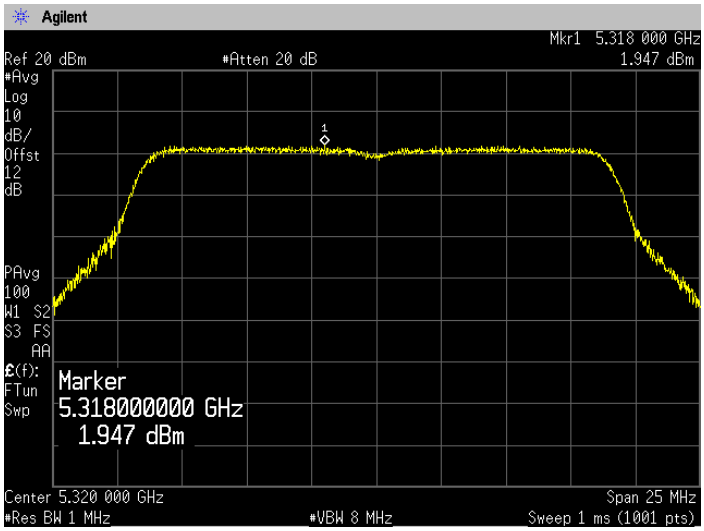
Channel: 52



Channel: 56

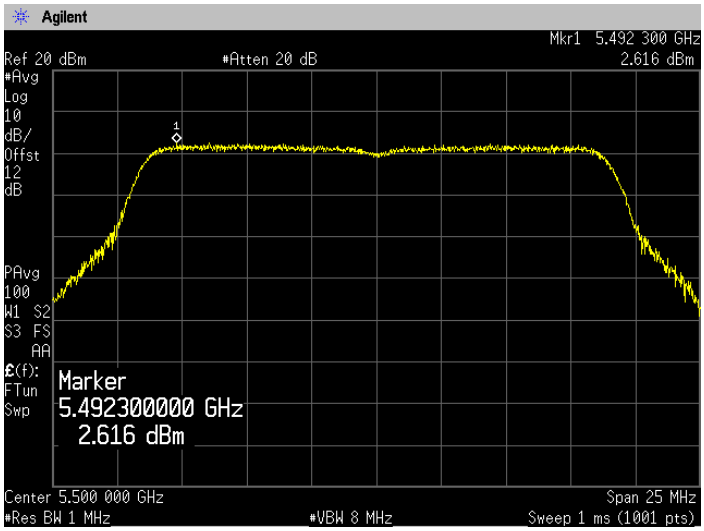


Channel: 64

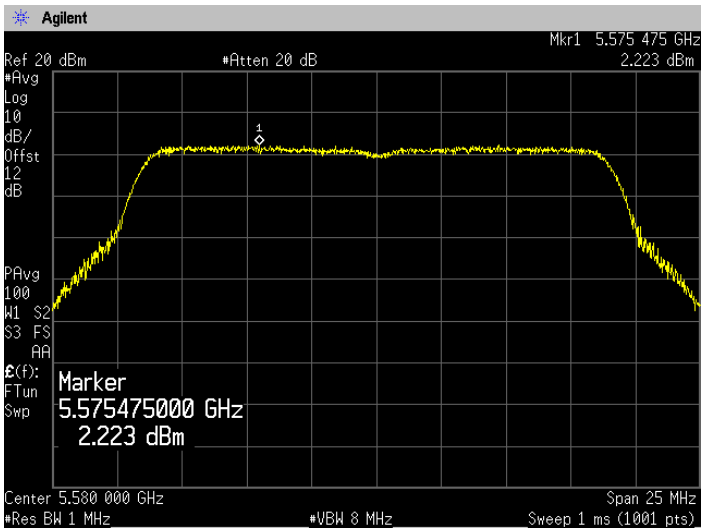


(5.6GHz Band)

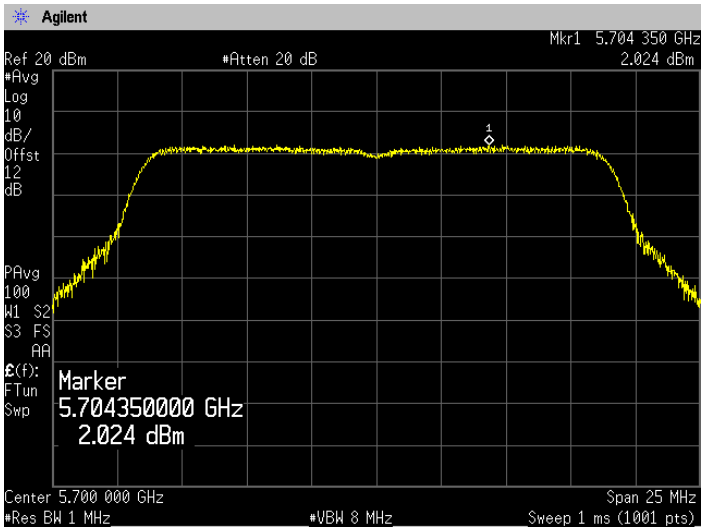
Channel: 100



Channel: 116

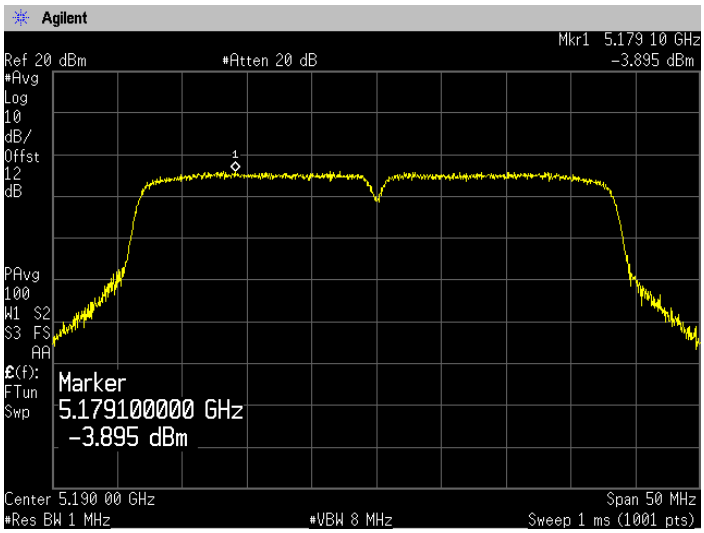


Channel: 140

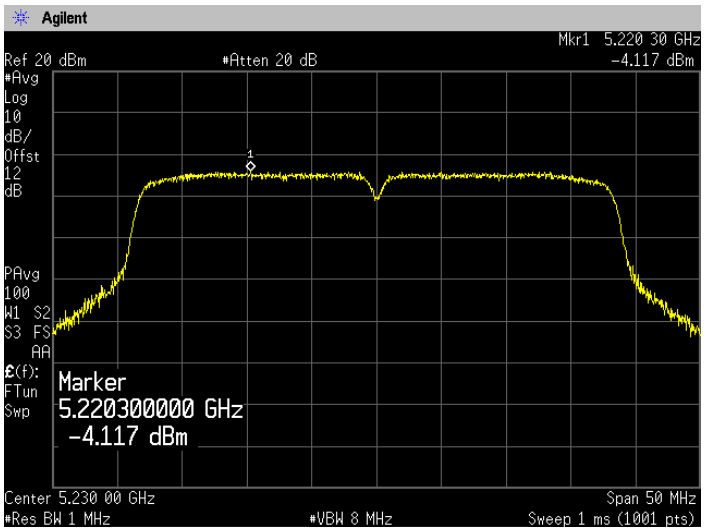


[IEEE802.11n (HT40)]
(5.2GHz Band)

Channel: 38



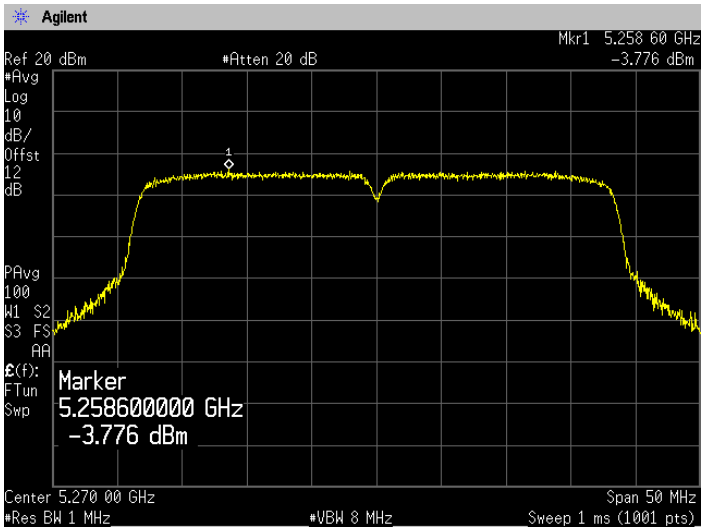
Channel: 46



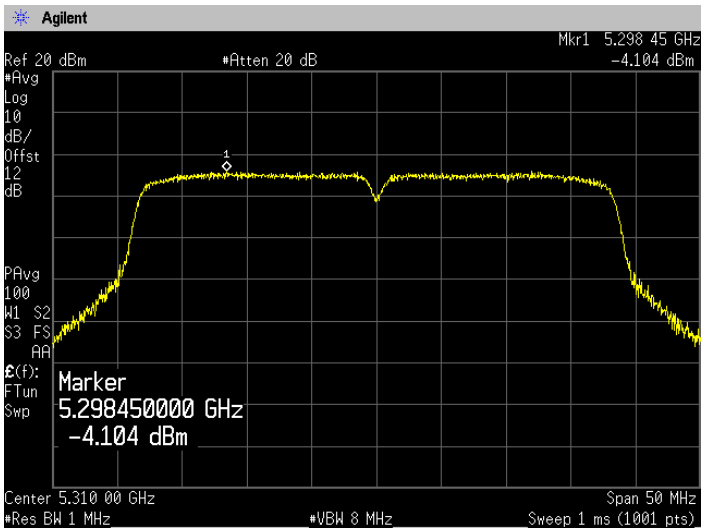
Zacta

(5.3GHz Band)

Channel: 54

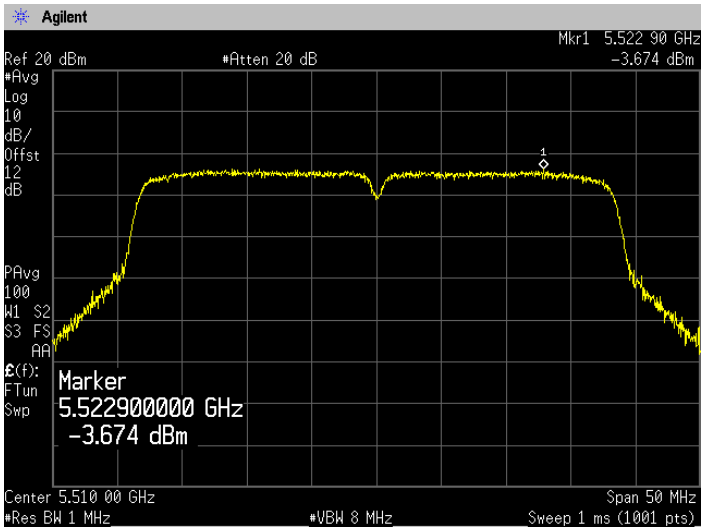


Channel: 62

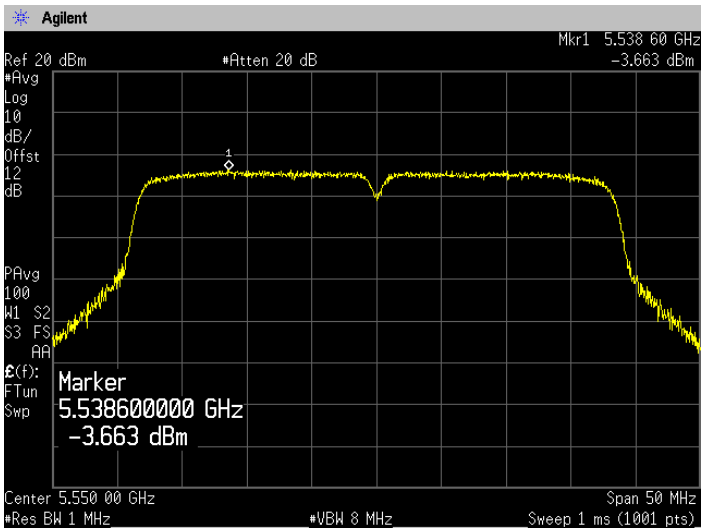


(5.6GHz Band)

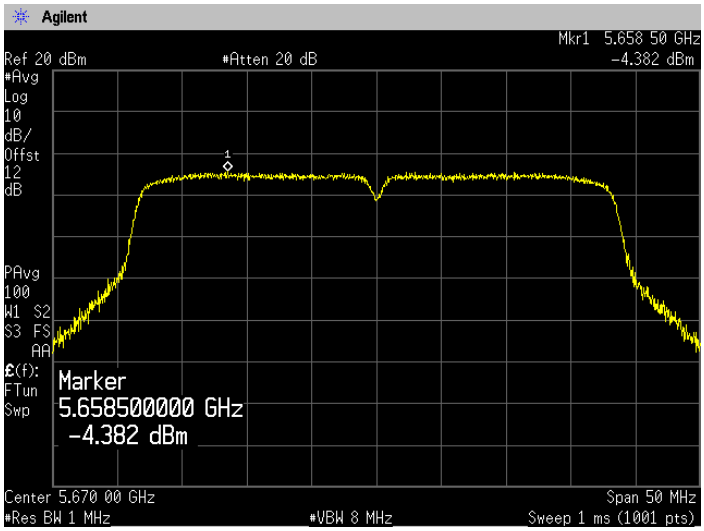
Channel: 102



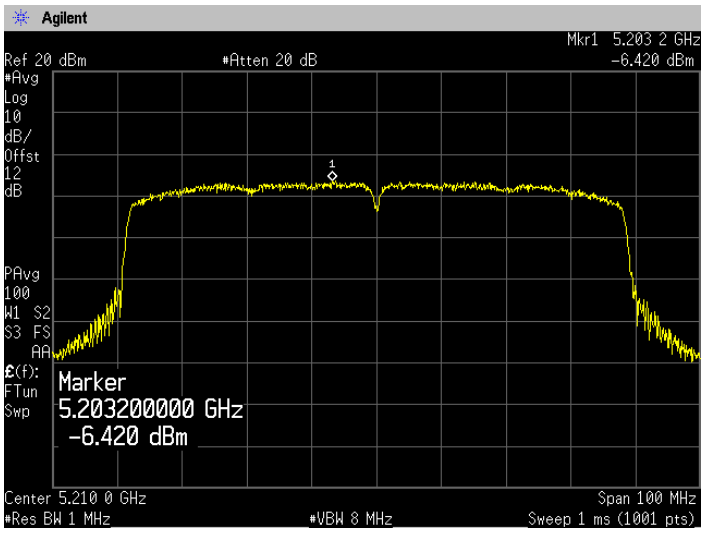
Channel: 110



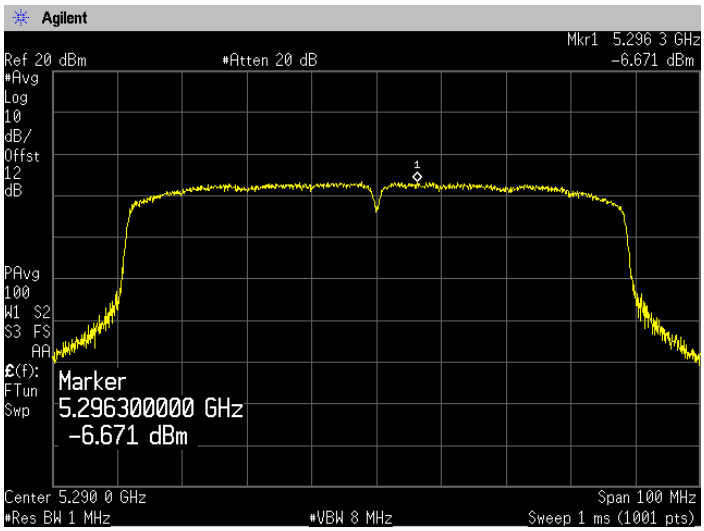
Channel: 134



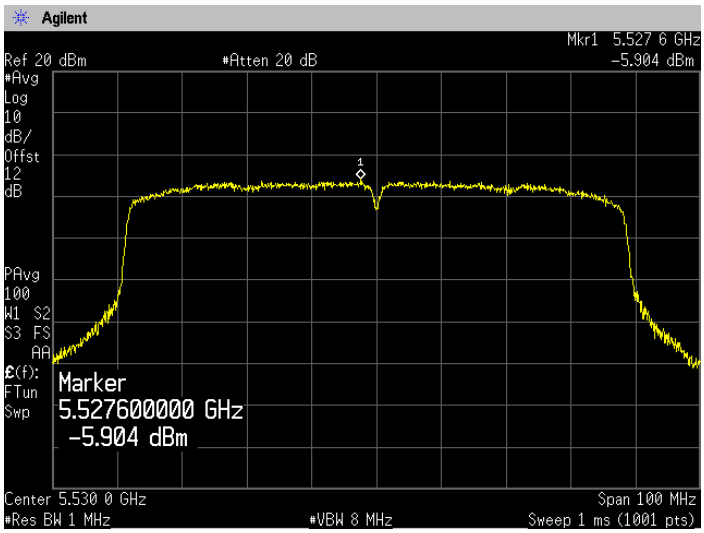
[IEEE802.11ac (HT80)]
(5.2GHz Band)
Channel: 42



(5.3GHz Band)
Channel: 58



(5.6GHz Band)
Channel: 106



7. Peak Excursion

7.1 Measurement procedure [FCC 15.407(a), KDB789033]

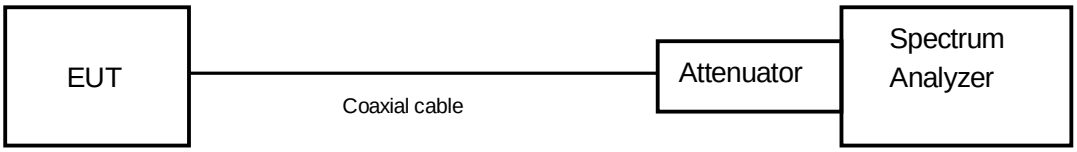
The peak excursion are measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;
- RBW=1MHz, VBW=8MHz, Span=25MHz/50MHz/100MHz, Sweep=auto, Detector=Peak/RMS, 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



7.2 Limit

The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the peak transmit power (measured as specified above) shall not exceed 13dB across any 1MHz bandwidth or the emission bandwidth whichever is less

7.3 Measurement result

Date : Apr. 4, 2014
Temperature : 20.3 [˚C]
Humidity : 45.4 [%] Tested by : Taiki Watanabe
Test place : Shielded room No.4

Mode	Band	Channel	Frequency (MHz)	Test Result (dB/MHz)	Limit (dB/MHz)
802.11a	5.2GHz Band	36	5180	7.53	13
		40	5200	9.36	
		48	5240	7.52	
	5.3GHz Band	52	5260	7.85	
		56	5280	8.21	
		64	5300	8.50	
	5.6GHz Band	100	5500	7.80	
		116	5580	7.43	
		140	5700	8.00	

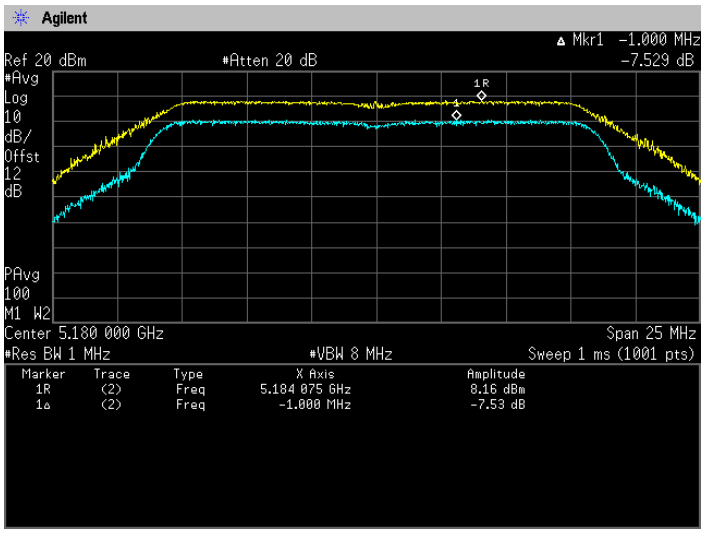
Mode	Band	Channel	Frequency (MHz)	Test Result (dB/MHz)	Limit (dB/MHz)
802.11n (20MHz)	5.2GHz Band	36	5180	8.43	13
		40	5200	9.00	
		48	5240	8.70	
	5.3GHz Band	52	5260	8.64	
		56	5280	7.72	
		64	5300	8.36	
	5.6GHz Band	100	5500	8.37	
		116	5580	7.87	
		140	5700	8.29	

Mode	Band	Channel	Frequency (MHz)	Test Result (dB/MHz)	Limit (dB/MHz)
802.11n (40MHz)	5.2GHz Band	38	5190	8.49	13
		46	5230	7.89	
	5.3GHz Band	54	5270	8.11	
		62	5310	7.72	
	5.6GHz Band	102	5510	9.00	
		110	5550	8.37	
		134	5670	8.79	

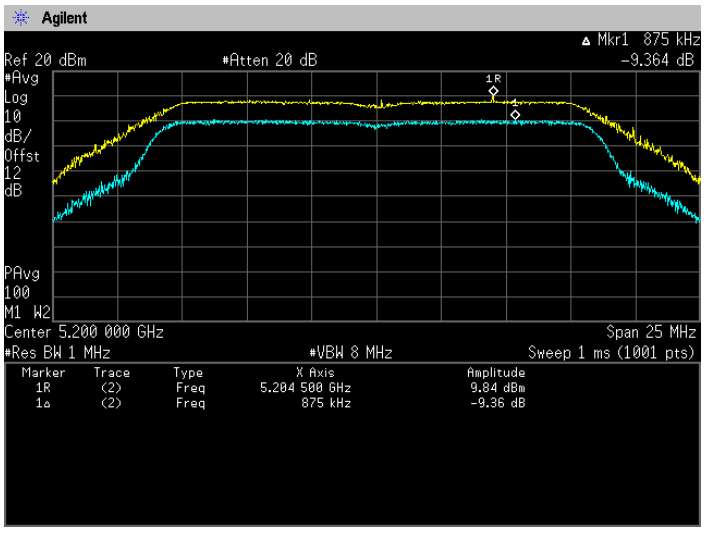
Mode	Band	Channel	Frequency (MHz)	Test Result (dB/MHz)	Limit (dB/MHz)
802.11ac (80MHz)	5.2GHz Band	42	5210	8.46	13
	5.3GHz Band	58	5290	8.23	
	5.6GHz Band	106	5530	8.62	

7.4 Trace data
[IEEE802.11a]
(5.2GHz Band)

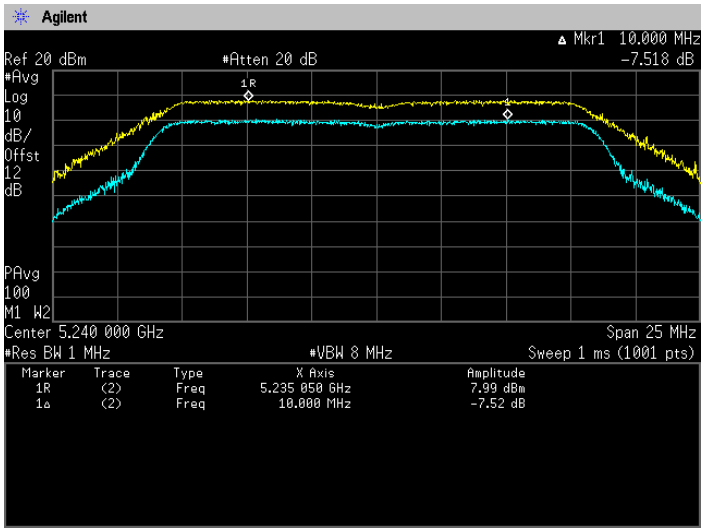
Channel: 36



Channel: 40

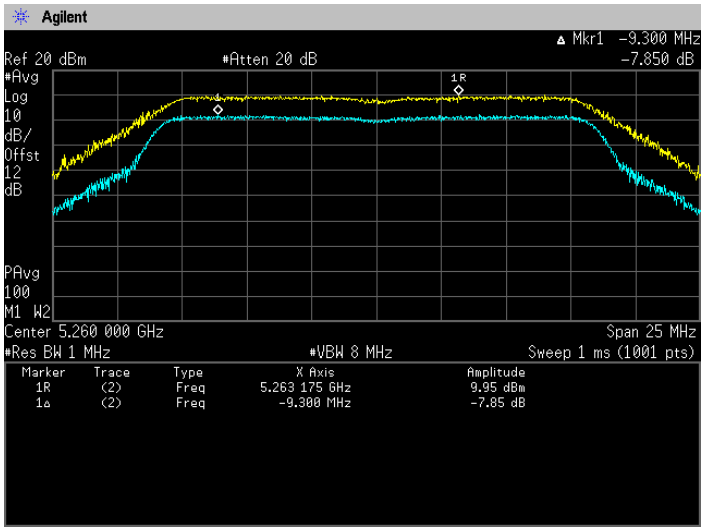


Channel: 48

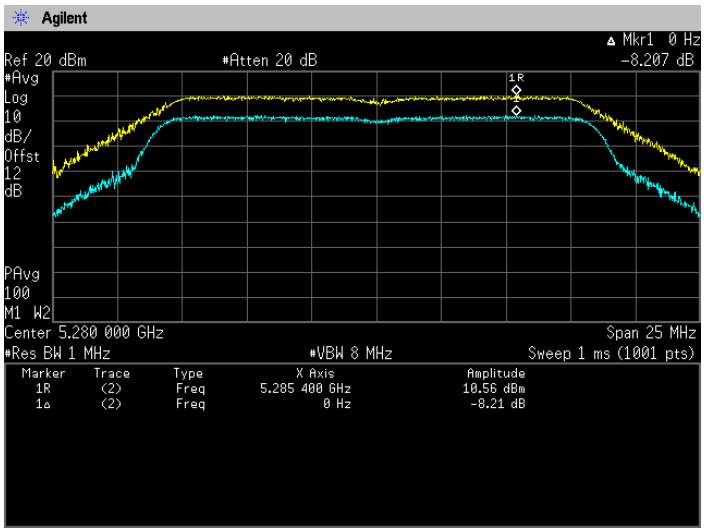


(5.3GHz Band)

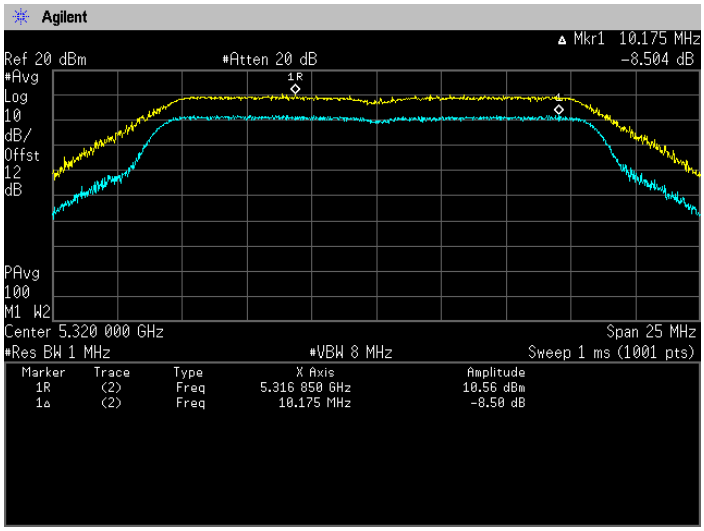
Channel: 52



Channel: 56

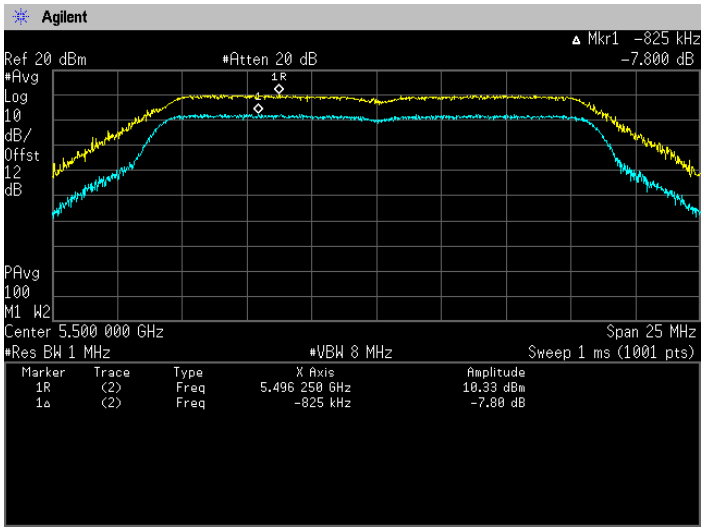


Channel: 64

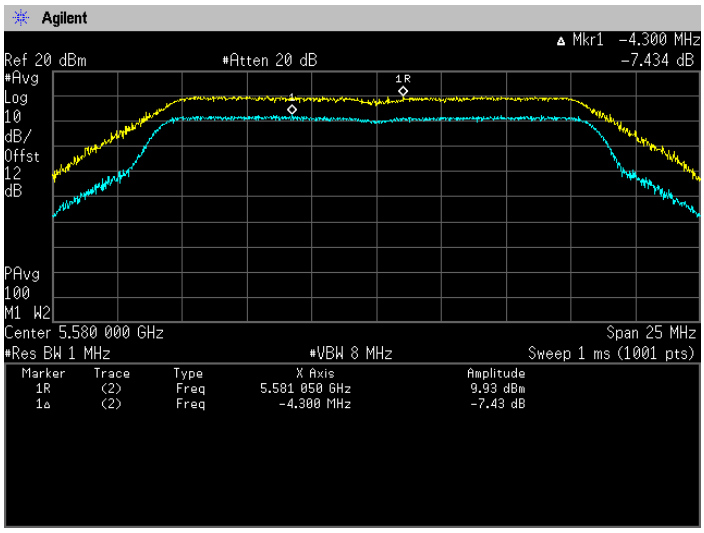


(5.6GHz Band)

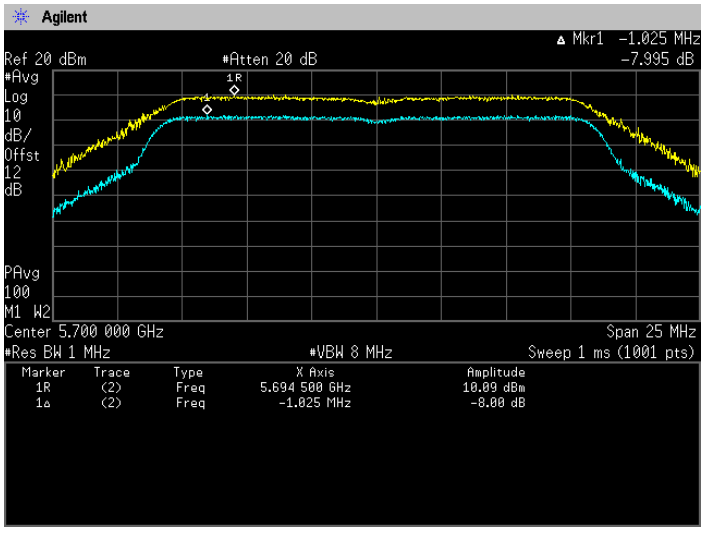
Channel: 100



Channel: 116

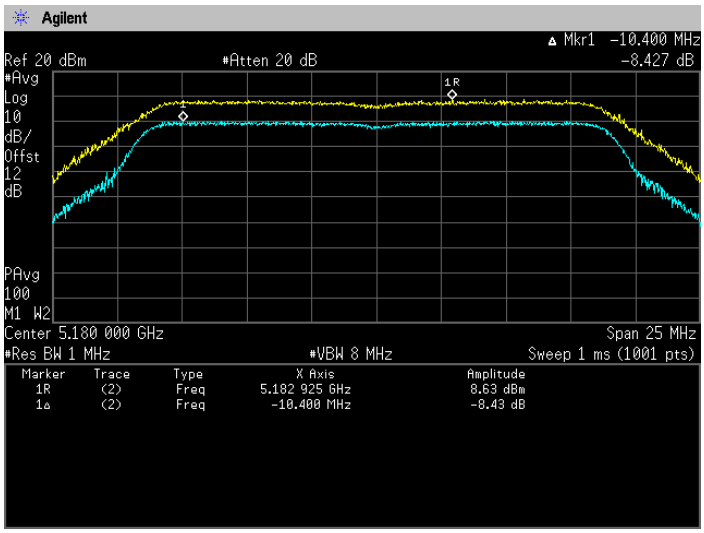


Channel: 140

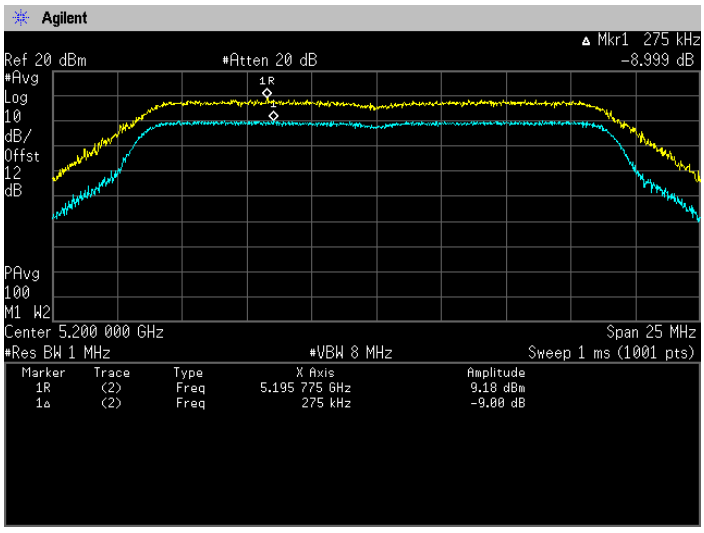


[IEEE802.11n (HT20)]
(5.2GHz Band)

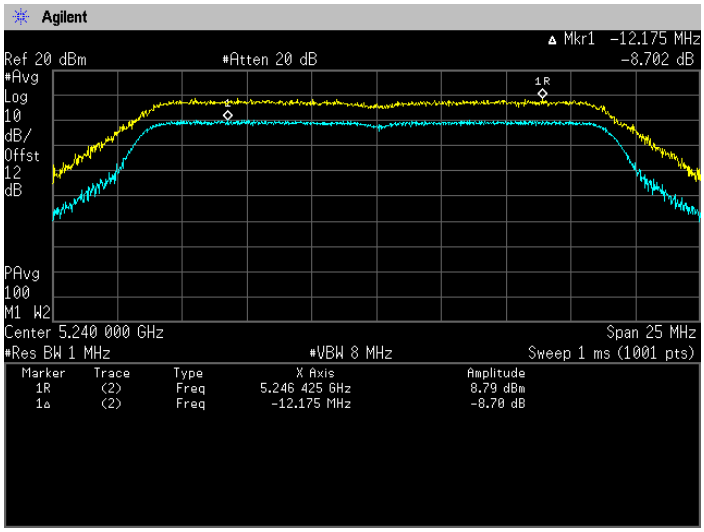
Channel: 36



Channel: 40

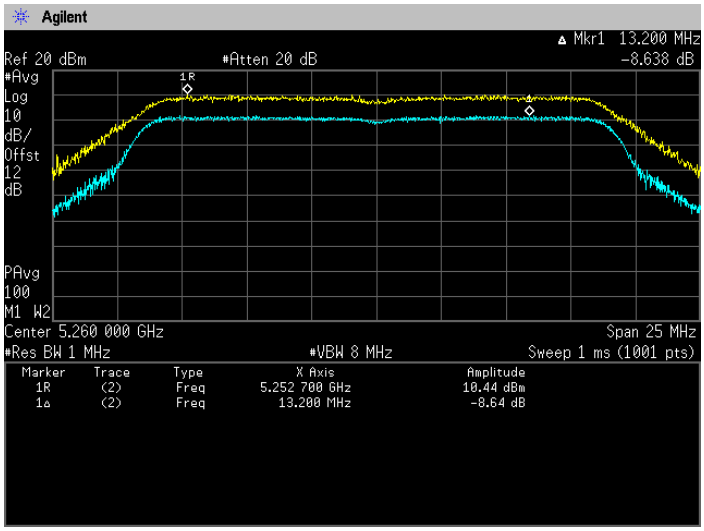


Channel: 48

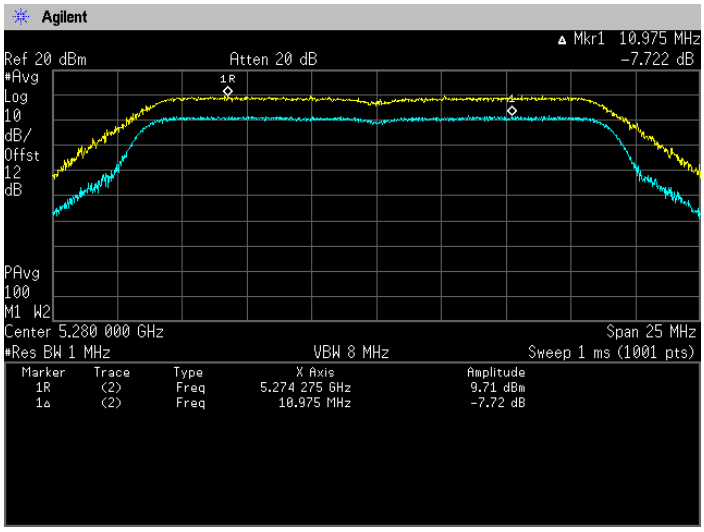


(5.3GHz Band)

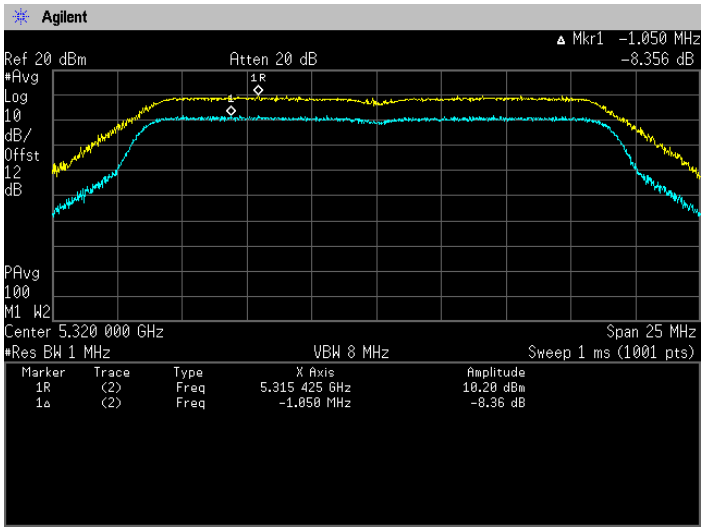
Channel: 52



Channel: 56

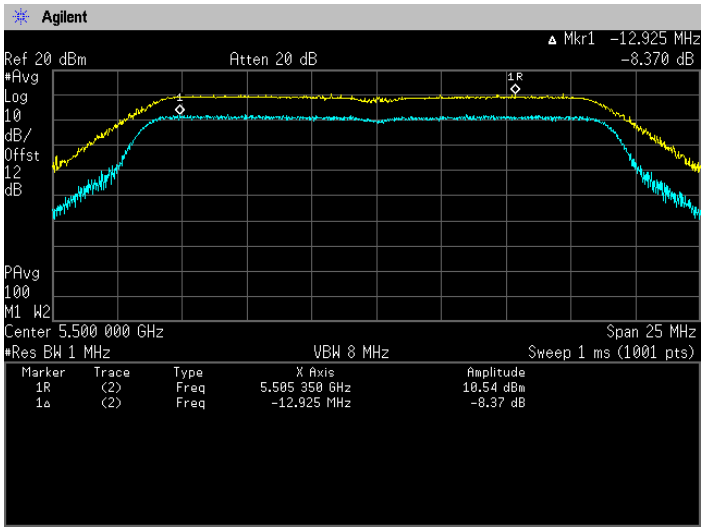


Channel: 64

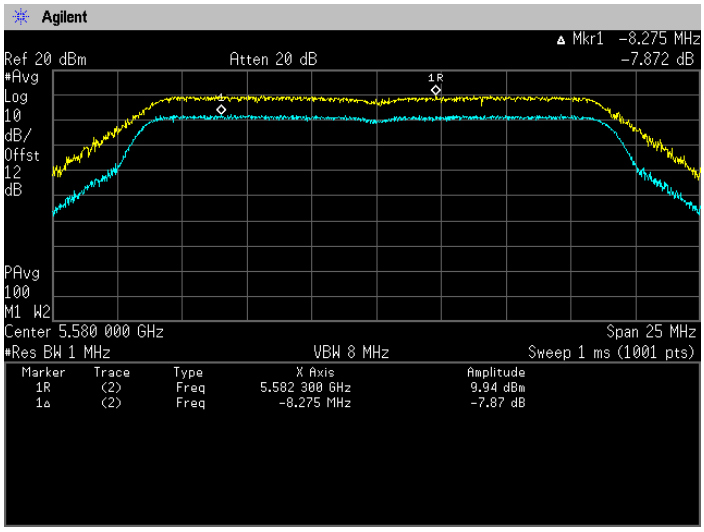


(5.6GHz Band)

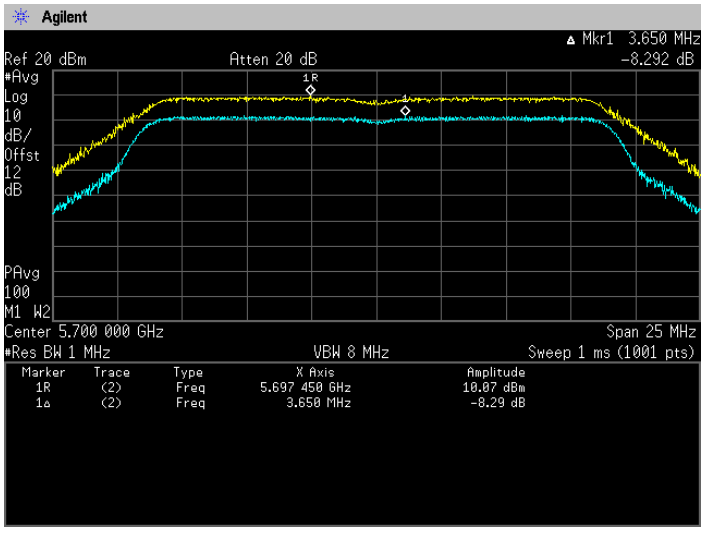
Channel: 100



Channel: 116

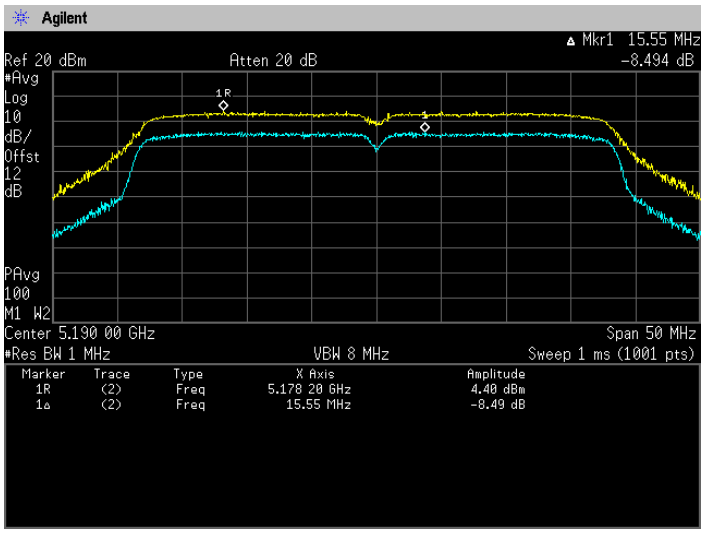


Channel: 140

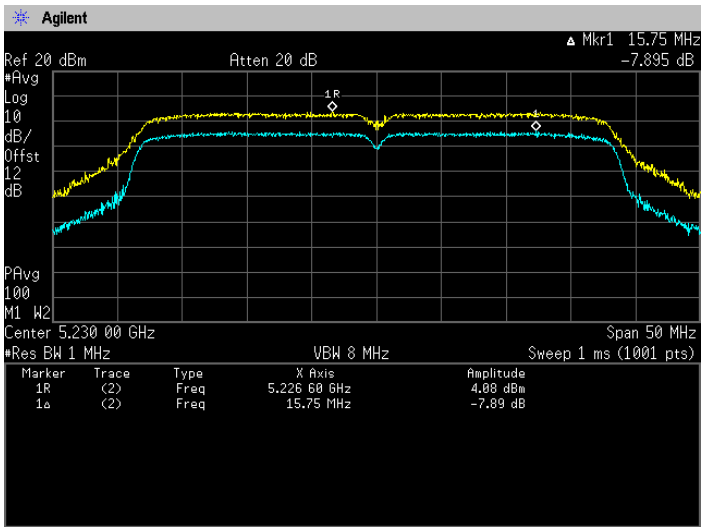


[IEEE802.11n (HT40)]
(5.2GHz Band)

Channel: 38

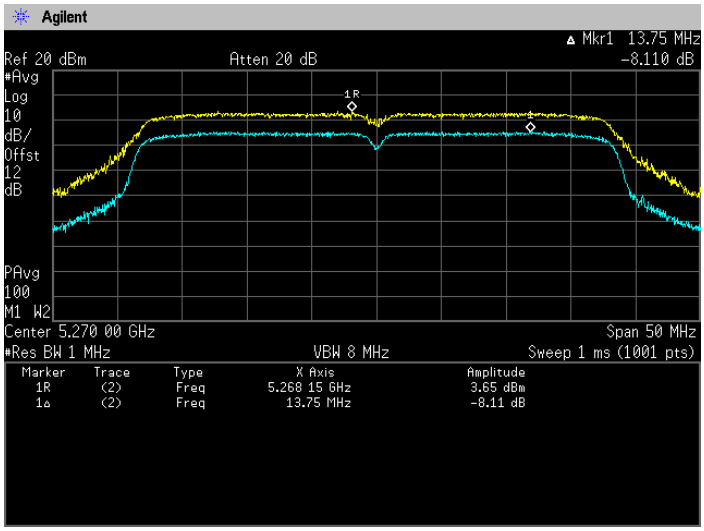


Channel: 46

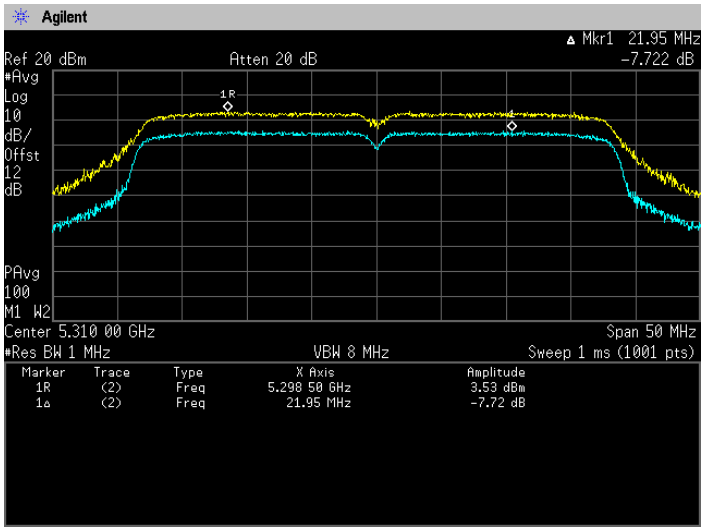


(5.3GHz Band)

Channel: 54

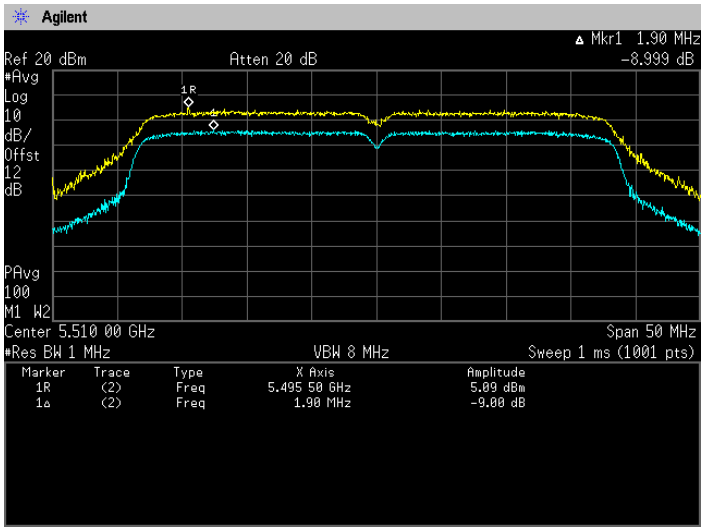


Channel: 62

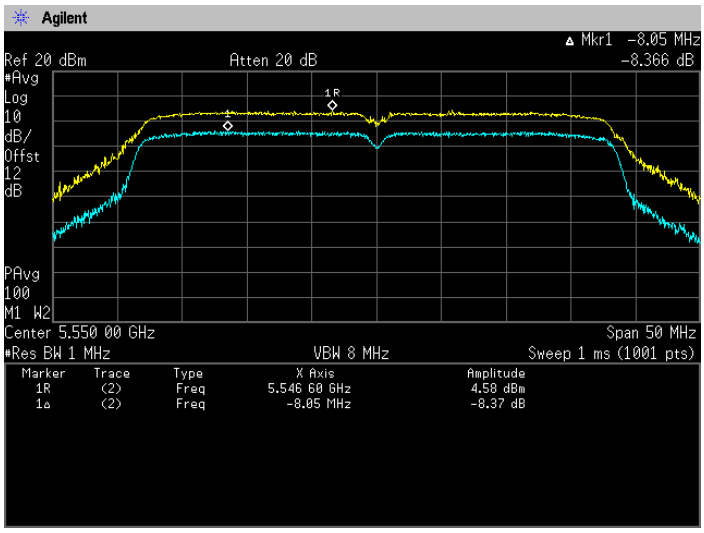


(5.6GHz Band)

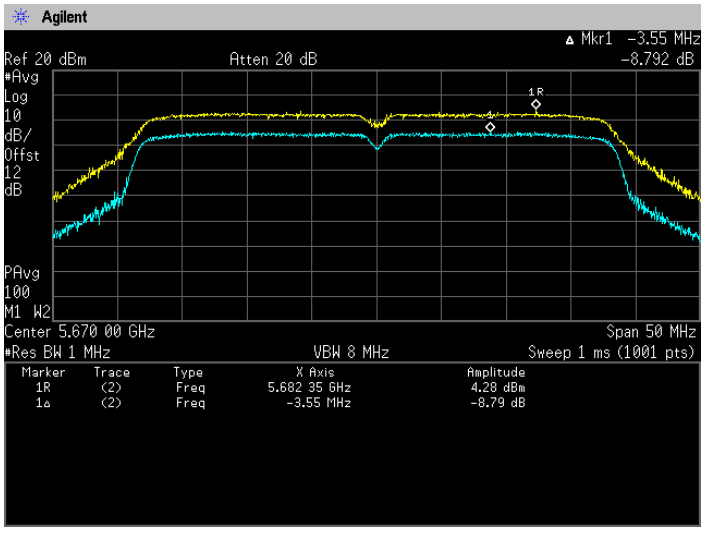
Channel: 102



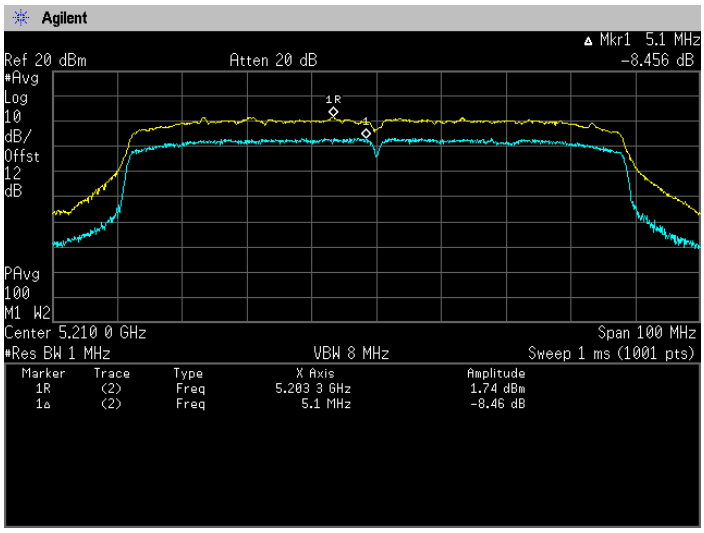
Channel: 110



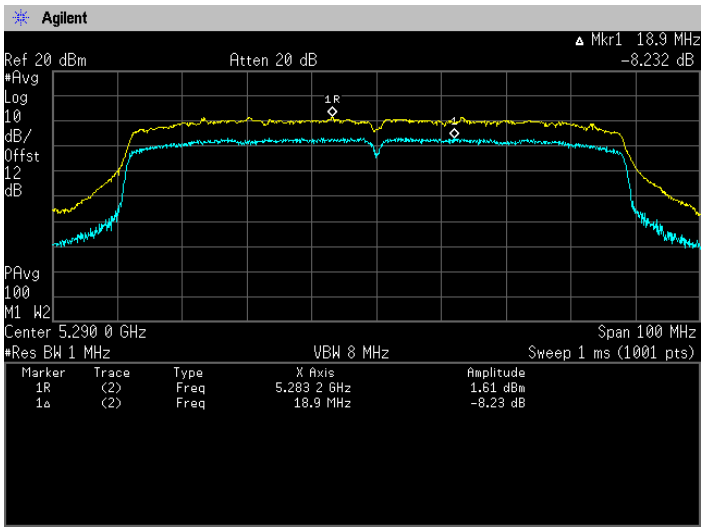
Channel: 134



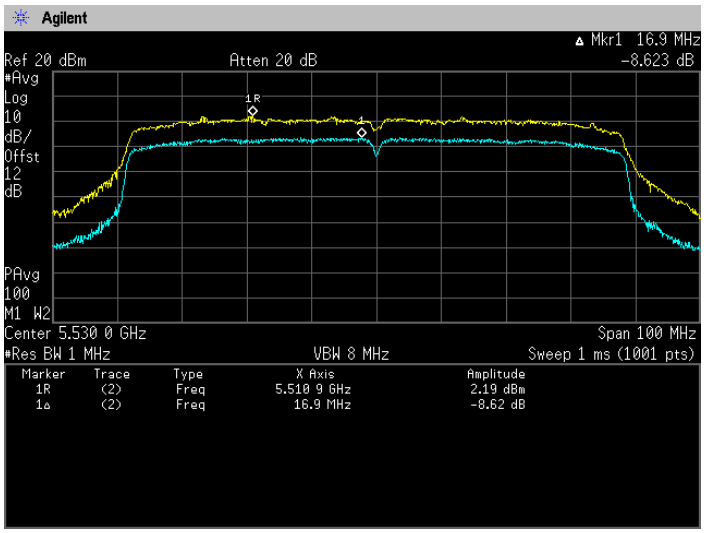
[IEEE802.11ac (HT80)]
(5.2GHz Band)
Channel: 42



(5.3GHz Band)
Channel: 58



(5.6GHz Band)
Channel: 106



8. Radiated Emissions (Restricted Bands of Operation)

8.1 Measurement procedure
[FCC 15.407(b), 15.205, 15.209, KDB789033]

Test was applied by following conditions.

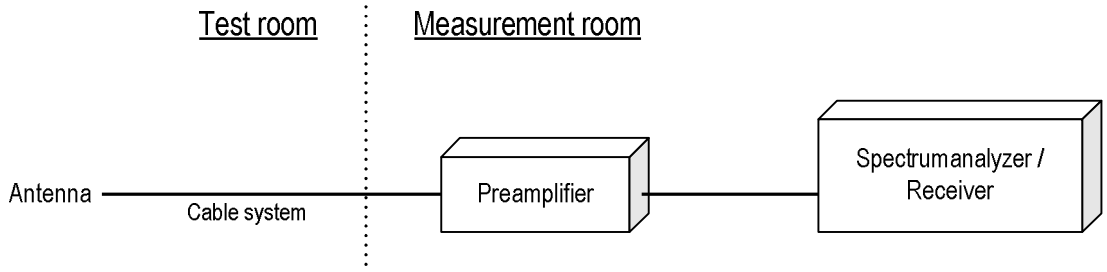
Frequency range	:	30MHz to 40GHz
Test place	:	3m Semi-anechoic chamber
EUT was placed on	:	FRP table / (W)2.0m × (D)1.0m × (H)0.8m
Antenna distance	:	3m
Test receiver setting		Below 1GHz
- Detector	:	Quasi-peak
- Bandwidth	:	120kHz
Spectrum analyzer setting		Above 1GHz
- Peak	:	RBW=1MHz, VBW=1MHz, Span=0Hz, Sweep=auto
- Average	:	RBW=1MHz, VBW=10Hz, Span=0Hz, Sweep=auto Display mode=Linear

Radiated emission measurements are performed at 3m distance with the broadband antenna (TRILOG antenna and Double ridged guide 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.
The EUT is Placed on a turntable, which is 0.8m 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



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8.2 Calculation method

Emission level = Reading + (Ant. factor + Cable system loss – Amp. Gain)
Margin = Limit – Emission level

8.3 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.
Devices operating in the 5.25-5.35GHz band that generate emissions in the 5.15-5.25GHz band must meet all applicable technical requirements for operation in the 5.15-5.25GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27dBm/MHz in the 5.15-5.25GHz band.

(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 5.725-5.825GHz 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.

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8.4 Test data

Date	:	Mar. 19, 2014			
Temperature	:	24.3 [˚C]			
Humidity	:	36.1 [%]	Tested by	:	
Test place	:	3m Semi-anechoic chamber			Taiki Watanabe

Date	:	Mar. 20, 2014			
Temperature	:	20.5 [˚C]			
Humidity	:	30.2 [%]	Tested by	:	
Test place	:	3m Semi-anechoic chamber			Taiki Watanabe

Date	:	Mar. 25, 2014			
Temperature	:	21.5 [˚C]			
Humidity	:	33.2 [%]	Tested by	:	
Test place	:	3m Semi-anechoic chamber			Taiki Watanabe

Date	:	Mar. 28, 2014			
Temperature	:	21.7 [˚C]			
Humidity	:	32.2 [%]	Tested by	:	
Test place	:	3m Semi-anechoic chamber			Taiki Watanabe

Date	:	Mar. 31, 2014			
Temperature	:	20.6 [˚C]			
Humidity	:	31.2 [%]	Tested by	:	
Test place	:	3m Semi-anechoic chamber			Taiki Watanabe

Date	:	Apr. 1, 2014			
Temperature	:	21.5 [˚C]			
Humidity	:	31.2 [%]	Tested by	:	
Test place	:	3m Semi-anechoic chamber			Taiki Watanabe

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【Qi mounted type】
[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	5127.50	V	PK	45.1	9.4		54.5	74.0	19.5
			5127.50	V	AV	31.8	9.4		41.2	54.0	12.8
			10360.00	V	PK	41.7	18.2		59.9	68.2	8.3
	40	5200	5147.50	V	PK	44.7	9.5		54.2	74.0	19.8
			5147.50	V	AV	32.7	9.5		42.2	54.0	11.8
			10400.00	V	PK	39.9	18.2		58.1	68.2	10.1
	48	5240	10480.00	V	PK	40.0	18.4		58.4	68.2	9.8

(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)
802.11a	52	5260	10520.00	V	PK	39.2	18.5		57.7	68.2	10.5
	56	5280	10560.00	V	PK	39.5	18.7		58.2	68.2	10.0
	64	5320	10640.00	V	PK	41.1	18.9		60.0	74.0	14.0

(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)
802.11a	100	5500	5448.00	V	PK	49.2	10.0		59.2	74.0	14.8
			5448.00	V	AV	36.1	10.0		46.1	54.0	7.9
			11000.00	V	PK	41.2	19.5		60.7	68.2	7.5
	116	5580	11160.00	V	PK	40.0	19.8		59.8	68.2	8.4
	140	5700	5727.30	H	PK	47.8	10.1		57.9	74.0	16.1
			5727.30	H	AV	29.9	10.1		40.0	54.0	14.0
			5726.40	V	PK	56.6	10.1		66.7	74.0	7.3
			5726.40	V	AV	35.7	10.1		45.8	54.0	8.2
			11400.00	V	PK	40.0	20.2		60.2	68.2	8.0

Note:
1. Emission Level (Margin) = Limit - [Reading + C.F (Antenna + Cable – Amp)] + DCF (If transmit duty cycle < 98 percent)
2. DCF = 20log (1/x) , x = On time / (On + Off time)
3. No emission were detected in frequency range 30MHz to 1000MHz at the 3 meters distance.
4. No emission was detected in the receive mode.

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【Qi mounted type】

[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	5127.50	V	PK	45.5	9.4		54.9	74.0	19.1
			5127.50	V	AV	33.2	9.4		42.6	54.0	11.4
			10360.00	V	PK	39.9	18.2		58.1	68.2	10.1
	40	5200	5147.50	V	PK	45.1	9.5		54.6	74.0	19.4
			5147.50	V	AV	32.2	9.5		41.7	54.0	12.3
			10400.00	V	PK	40.1	18.2		58.3	68.2	9.9
	48	5240	10480.00	V	PK	39.3	18.4		57.7	68.2	10.5

(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)
802.11n (20MHz)	52	5260	10520.00	V	PK	39.5	18.5		58.0	68.2	10.2
	56	5280	10560.00	V	PK	40.2	18.7		58.9	68.2	9.3
	64	5320	5371.87	V	PK	47.7	9.8		57.5	74.0	16.5
			5371.87	V	AV	35.7	9.8		45.5	54.0	8.5
			10640.00	V	PK	41.5	18.9		60.4	68.2	7.8

(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	5448.00	V	PK	50.0	10.0		60.0	74.0	14.0
			5448.00	V	AV	36.6	10.0		46.6	54.0	7.4
			11000.00	V	PK	41.0	19.5		60.5	68.2	7.7
	116	5580	11160.00	V	PK	40.0	19.8		59.8	68.2	8.4
	140	5700	5725.50	H	PK	53.0	10.1		63.1	74.0	10.9
			5725.50	H	AV	32.1	10.1		42.2	54.0	11.8
			5726.40	V	PK	59.5	10.1		69.6	74.0	4.4
			5726.40	V	AV	37.0	10.1		47.1	54.0	6.9
			11400.00	V	PK	39.1	20.2		59.3	68.2	8.9

Note:

1. Emission Level (Margin) = Limit - [Reading + C.F (Antenna + Cable – Amp)] + DCF (If transmit duty cycle < 98 percent)
2. DCF = 20log (1/x) , x = On time / (On + Off time)
3. No emission were detected in frequency range 30MHz to 1000MHz at the 3 meters distance.
4. No emission was detected in the receive mode.

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【Qi mounted type】
[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	5145.00	V	PK	50.7	9.5		60.2	74.0	13.8
			5145.00	V	AV	31.9	9.5		41.4	54.0	12.6
			10380.00	V	PK	40.0	18.2		58.2	68.2	10.0
	46	5230	10460.00	V	PK	39.9	18.4		58.3	68.2	9.9

(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	V	PK	40.7	18.6		59.3	68.2	8.9
	62	5310	5351.40	V	PK	51.5	9.8		61.3	74.0	12.7
			5351.40	V	AV	31.4	9.8		41.2	54.0	12.8
			10620.00	V	PK	39.9	18.8		58.7	68.2	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)
802.11n (40MHz)	102	5510	5457.00	V	PK	50.0	10.1		60.1	74.0	13.9
			5457.00	V	AV	29.6	10.1		39.7	54.0	14.3
			11020.00	V	PK	38.7	19.5		58.2	68.2	10.0
	110	5590	5443.68	V	PK	43.0	10.0		53.0	74.0	21.0
			5443.68	V	AV	31.2	10.0		41.2	54.0	12.8
			11100.00	V	PK	40.3	19.6		59.9	68.2	8.3
	134	5670	11340.00	V	PK	39.8	20.1		59.9	68.2	8.3

Note:
1. Emission Level (Margin) = Limit - [Reading + C.F (Antenna + Cable – Amp)] + DCF (If transmit duty cycle < 98 percent)
2. DCF = 20log (1/x) , x = On time / (On + Off time)
3. No emission were detected in frequency range 30MHz to 1000MHz at the 3 meters distance.
4. No emission was detected in the receive mode.

【Qi mounted type】
[IEEE802.11n (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	5140.50	V	PK	49.8	9.5		59.3	74.0	14.7
			5140.50	V	AV	32.9	9.5	0.343	42.7	54.0	11.3
			10420.00	V	PK	39.3	18.3		57.6	68.2	10.6

(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	5354.72	V	PK	48.3	9.8		58.1	74.0	15.9
			5354.72	V	AV	32.7	9.8	0.378	42.9	54.0	11.1
			10580.00	V	PK	39.0	18.7		57.7	68.2	10.5

(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)
802.11ac (80MHz)	106	5530	5468.12	H	PK	46.0	10.1		56.1	74.0	17.9
			5468.12	H	AV	29.3	10.1	0.343	39.7	54.0	14.3
			5460.89	V	PK	53.4	10.1		63.5	74.0	10.5
			5460.89	V	AV	33.7	10.1	0.343	44.1	54.0	9.9
			11060.00	V	PK	38.5	19.6		58.1	68.2	10.1

Note:
1. Emission Level (Margin) = Limit - [Reading + C.F (Antenna + Cable – Amp)] + DCF (If transmit duty cycle < 98 percent)
2. DCF = 20log (1/x) , x = On time / (On + Off time)
3. No emission were detected in frequency range 30MHz to 1000MHz at the 3 meters distance.
4. No emission was detected in the receive mode.

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【Qi non-mounted type (Worst Only)】
[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	5127.60	V	PK	44.0	9.4		53.4	74.0	20.6
			5127.60	V	AV	30.1	9.4		39.5	54.0	14.5
			10360.00	V	PK	41.5	18.2		59.7	68.2	8.5

(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)
802.11a	56	5280	10560.00	V	PK	39.4	18.7		58.1	68.2	10.1

(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	140	5700	5727.20	H	PK	46.4	10.1		56.5	74.0	17.5
			5727.20	H	AV	29.8	10.1		39.9	54.0	14.1
			5726.60	V	PK	54.6	10.1		64.7	74.0	9.3
			5726.60	V	AV	34.2	10.1		44.3	54.0	9.7
			11400.00	V	PK	39.2	20.2		59.4	68.2	8.8

Note:
1. Emission Level (Margin) = Limit - [Reading + C.F (Antenna + Cable – Amp)] + DCF (If transmit duty cycle < 98 percent)
2. DCF = 20log (1/x) , x = On time / (On + Off time)
3. No emission were detected in frequency range 30MHz to 1000MHz at the 3 meters distance.
4. No emission was detected in the receive mode.

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【Qi non-mounted type (Worst Only)】

[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)	40	5200	5147.50	V	PK	44.7	9.5		54.2	74.0	19.8
			5147.50	V	AV	31.8	9.5		41.3	54.0	12.7
			10400.00	V	PK	40.0	18.2		58.2	68.2	10.0

(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)	64	5320	5371.80	V	PK	46.9	9.8		56.7	74.0	17.3
			5371.80	V	AV	34.9	9.8		44.7	54.0	9.3
			10640.00	V	PK	41.5	18.9		60.4	68.2	7.8

(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)	140	5700	5725.60	H	PK	52.0	10.1		62.1	74.0	11.9
			5725.60	H	AV	31.0	10.1		41.1	54.0	12.9
			5726.40	V	PK	58.5	10.1		68.6	74.0	5.4
			5726.40	V	AV	36.0	10.1		46.1	54.0	7.9
			11400.00	V	PK	38.5	20.2		58.7	68.2	9.5

Note:

1. Emission Level (Margin) = Limit - [Reading + C.F (Antenna + Cable – Amp)] + DCF (If transmit duty cycle < 98 percent)
2. DCF = 20log (1/x) , x = On time / (On + Off time)
3. No emission were detected in frequency range 30MHz to 1000MHz at the 3 meters distance.
4. No emission was detected in the receive mode.

Zacta

【Qi non-mounted type (Worst Only)】
[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)	46	5230	10460.00	V	PK	38.0	18.4		56.4	68.2	11.8

(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	V	PK	40.0	18.6		58.6	68.2	9.6

(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)	110	5590	5443.70	V	PK	42.0	10.0		52.0	74.0	22.0
			5443.70	V	AV	30.0	10.0		40.0	54.0	14.0
			11100.00	V	PK	40.1	19.6		59.7	68.2	8.5

Note:
1. Emission Level (Margin) = Limit - [Reading + C.F (Antenna + Cable – Amp)] + DCF (If transmit duty cycle < 98 percent)
2. DCF = 20log (1/x) , x = On time / (On + Off time)
3. No emission were detected in frequency range 30MHz to 1000MHz at the 3 meters distance.
4. No emission was detected in the receive mode.

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【Qi non-mounted type (Worst Only)】
[IEEE802.11n (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	5140.40	V	PK	49.7	9.5		59.2	74.0	14.8
			5140.40	V	AV	32.6	9.5	0.343	42.4	54.0	11.6
			10420.00	V	PK	39.1	18.3		57.4	68.2	10.8

(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)
802.11ac (80MHz)	58	5290	5354.75	V	PK	47.5	9.8		57.3	74.0	16.7
			5354.75	V	AV	32.2	9.8	0.378	42.4	54.0	11.6
			10580.00	V	PK	38.4	18.7		57.1	68.2	11.1

(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	5468.17	H	PK	45.5	10.1		55.6	74.0	18.4
			5468.17	H	AV	29.0	10.1	0.343	39.4	54.0	14.6
			5460.84	V	PK	53.0	10.1		63.1	74.0	10.9
			5460.84	V	AV	33.0	10.1	0.343	43.4	54.0	10.6
			11060.00	V	PK	38.0	19.6		57.6	68.2	10.6

Note:
1. Emission Level (Margin) = Limit - [Reading + C.F (Antenna + Cable – Amp)] + DCF (If transmit duty cycle < 98 percent)
2. DCF = 20log (1/x) , x = On time / (On + Off time)
3. No emission were detected in frequency range 30MHz to 1000MHz at the 3 meters distance.
4. No emission was detected in the receive mode.

9. Frequency Stability

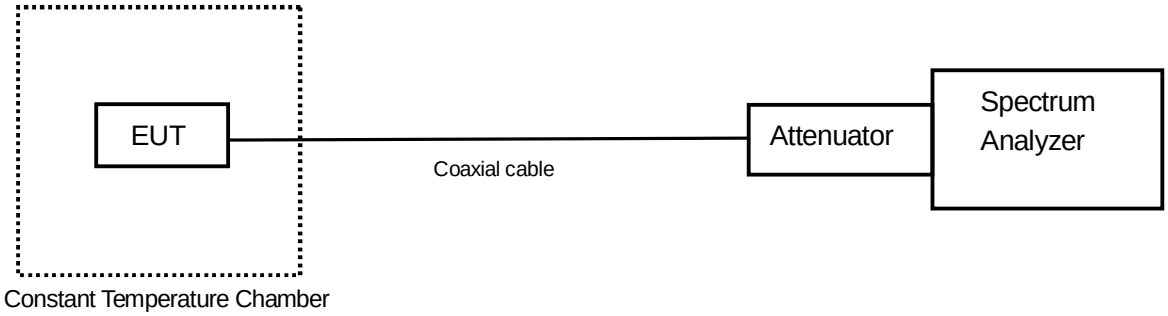
9.1 Measurement procedure [FCC 15.407(g)]

The EUT was placed of an inside of an constant temperature chamber as the temperature in the chamber was varied between -30˚C and +60˚C. The temperature was incremented by 10˚C intervals and the unit was allowed to stabilize at each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channels center frequency was recorded.

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



9.2 Limit

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified.

9.3 Measurement result

Date : Apr. 5, 2014
Temperature : 21.5 [˚C]
Humidity : 45.6 [%] Tested by :
Test place : Shielded room No.4 Taiki Watanabe

[Channel: 36 (5180MHz)]

Power Supply [V]	Temperature [ºC]	Measurements Frequency [Hz]	Frequency Tolerance [%]
3.80	25(Ref.)	5180015890	0.00000000
	60	5180021708	0.00011232
	50	5180022842	0.00013421
	40	5180009740	-0.00011873
	30	5180010163	-0.00011056
	20	5180007770	-0.00015676
	10	5180019500	0.00006969
	0	5180025123	0.00017824
	-10	5180050069	0.00065982
	-20	5180024358	0.00016347
	-30	5180038772	0.00044174
3.23	25	5180010158	-0.00011066
4.37	25	5180018683	0.00005392

[Channel: 64 (5320MHz)]

Power Supply [V]	Temperature [ºC]	Measurements Frequency [Hz]	Frequency Tolerance [%]
3.80	25(Ref.)	5319999400	0.00000000
	60	5320031204	0.00059782
	50	5320027617	0.00053039
	40	5320007428	0.00015090
	30	5320005806	0.00012041
	20	5320016352	0.00031865
	10	5320021230	0.00041034
	0	5320030520	0.00058496
	-10	5320031424	0.00060195
	-20	5320033512	0.00064120
	-30	5319994485	-0.00009239
3.23	25	5320000420	0.00001917
4.37	25	5320001404	0.00003767

[Channel: 140 (5700MHz)]

Power Supply [V]	Temperature [ºC]	Measurements Frequency [Hz]	Frequency Tolerance [ppm]
3.80	25(Ref.)	5700010028	0.00000000
	60	5700035810	4.52314994
	50	5700012572	0.44631500
	40	5700012223	0.38508704
	30	5700012833	0.49210440
	20	5700027280	3.02666134
	10	5700023823	2.42017118
	0	5700038401	4.97771054
	-10	5700040487	5.34367481
	-20	5700034853	4.35525550
	-30	5700013524	0.61333225
3.23	25	5700008489	-0.26999952
4.37	25	5700003544	-1.13754186

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10. AC Power Line Conducted Emissions

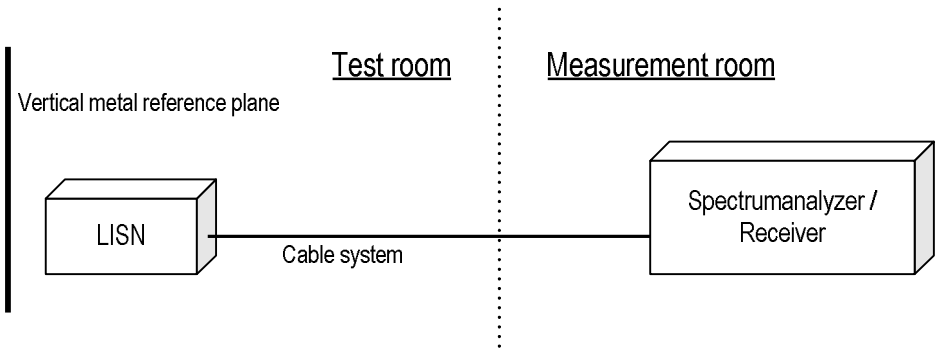
10.1 Measurement procedure [FCC 15.207]

Test was applied by following conditions.

Test method	:	ANSI C63.4
Frequency range	:	0.15MHz to 30MHz
Test place	:	10m Semi-anechoic chamber
EUT was placed on	:	FRP table / (W)2.0m × (D)1.0m × (H)0.8m
Vertical Metal Reference Plane	:	(W)2.0m × (H)2.0m 0.4m away from EUT
Test receiver setting		
- Detector	:	Quasi-peak, Average
- Bandwidth	:	9kHz

EUT and peripherals are connected to 50Ω/50μH Line Impedance Stabilization Network (LISN) which are connected to reference ground plane, and are placed 80cm away from EUT. Excess of AC power cable is bundled in center.
LISN for peripheral is terminated in 50Ω.
EUT operating mode is selected to emit the maximum noise. Overall frequency range is investigated with spectrum analyzer using peak detector. Maximum emission configuration is determined by manipulating the EUT, peripherals, interconnecting cables. Then, emission measurements are performed with test receiver in above setting to each current-carrying conductor of the mains port. Sufficient time for EUT, peripherals and test equipment is provided in order for them to warm up to their normal operating condition. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits.

- Test configuration



10.2 Calculation method

Emission level = Reading + (LISN. factor + Cable system loss)
Margin = Limit – Emission level

10.3 Limit

Frequency [MHz]	Limit	
	QP [dBuV]	AV [dBuV]
0.15-0.5	66-56*	56-46*
0.5-5	56	46
5-30	60	50

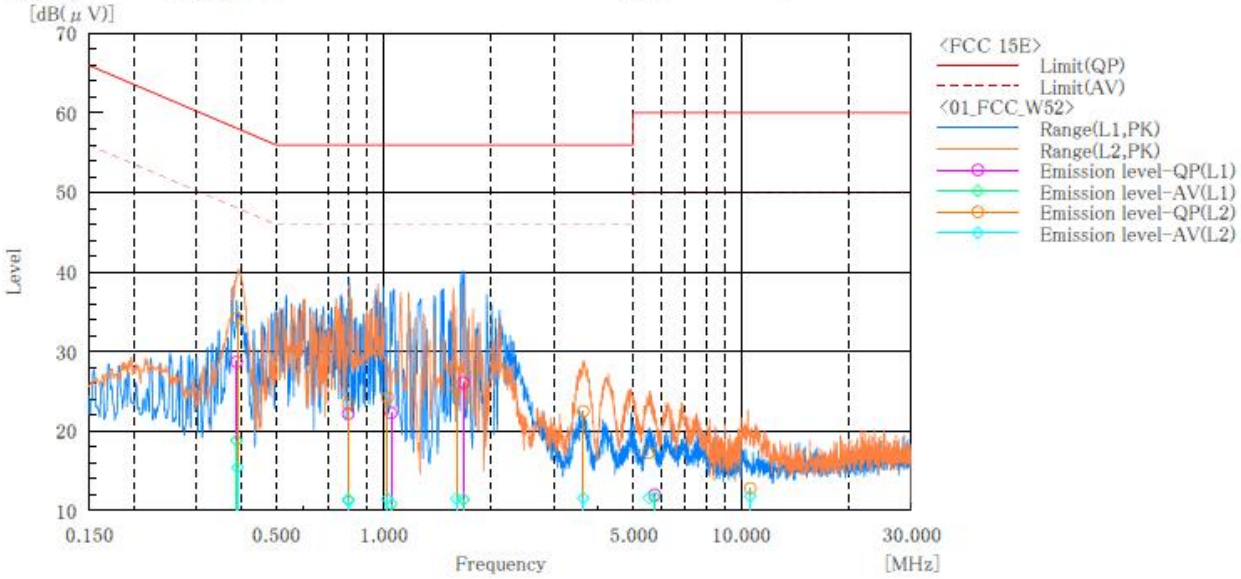
*: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

10.4 Test data

***** CONDUCTED EMISSION at MAINS PORT *****
≪ 3m Semi-anechoic chamber ≫

TUV SUD Zacta Ltd. <<Data Sheet No.01>> 3 April,2014 04:40

Company Name	: KYOCERA Corporation	Standard	: FCC 15E
EUT	: Mobile Phone	Operator	: T.Watanabe
Model No.	: KYY23	Temp.Hum.	: 25.1[℃] 33.1[%]
Serial No.	: N/A	Note1	:
Test mode	: 5GHz_W52	Note2	:



Final Result

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.389	18.4	8.5	10.3	28.7	18.8	58.1	48.1	29.4	29.3
2	0.798	11.9	1.0	10.3	22.2	11.3	56.0	46.0	33.8	34.7
3	1.052	12.0	0.5	10.3	22.3	10.8	56.0	46.0	33.7	35.2
4	1.675	15.7	1.0	10.4	26.1	11.4	56.0	46.0	29.9	34.6
5	5.738	1.4	1.0	10.6	12.0	11.6	60.0	50.0	48.0	38.4

--- L2 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.391	23.8	5.0	10.4	34.2	15.4	58.0	48.0	23.8	32.6
2	0.798	13.0	1.0	10.4	23.4	11.4	56.0	46.0	32.6	34.6
3	1.027	13.8	1.1	10.4	24.2	11.5	56.0	46.0	31.8	34.5
4	1.602	15.0	1.1	10.4	25.4	11.5	56.0	46.0	30.6	34.5
5	3.625	12.0	1.1	10.5	22.5	11.6	56.0	46.0	33.5	34.4
6	5.527	6.7	1.0	10.6	17.3	11.6	60.0	50.0	42.7	38.4
7	10.632	2.0	1.0	10.8	12.8	11.8	60.0	50.0	47.2	38.2

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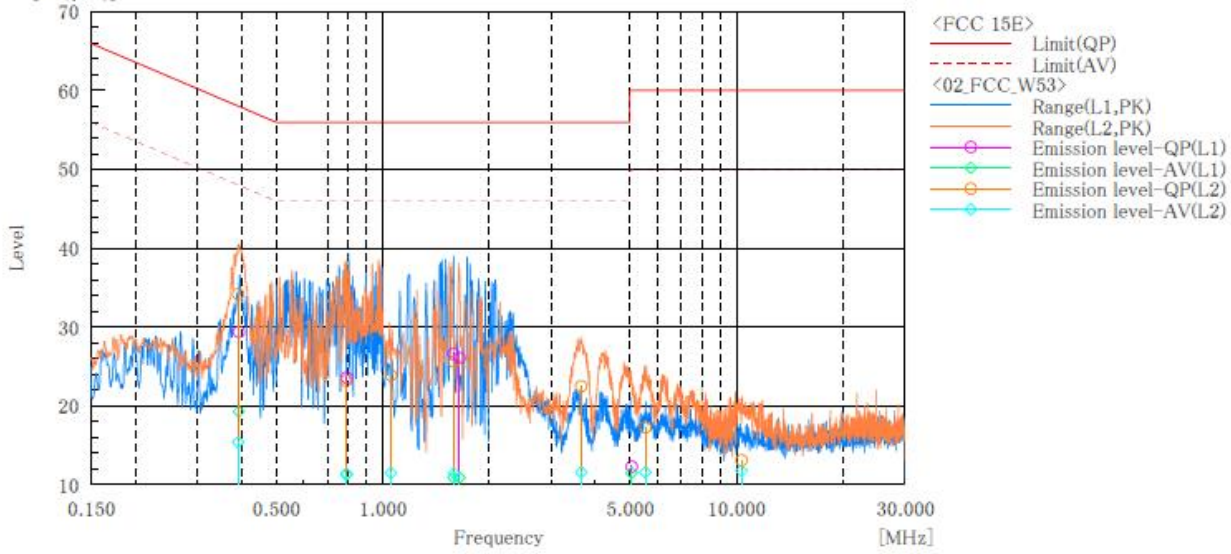
***** CONDUCTED EMISSION at MAINS PORT *****
≪ 3m Semi-anechoic chamber ≫

TUV SUD Zacta Ltd. <<Data Sheet No.02>> 3 April,2014 05:11

Company Name : KYOCERA Corporation
EUT : Mobile Phone
Model No. : KYY23
Serial No. : N/A
Test mode : 5GHz_W53

Standard : FCC 15E
Operator : T.Watanabe
Temp.Hum. : 25.1[℃] 33.1[%]
Note1 :
Note2 :



Final Result

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.393	19.1	9.0	10.3	29.4	19.3	58.0	48.0	28.6	28.7
2	0.793	13.3	1.0	10.3	23.6	11.3	56.0	46.0	32.4	34.7
3	1.589	16.2	0.5	10.4	26.6	10.9	56.0	46.0	29.4	35.1
4	1.651	15.7	0.5	10.4	26.1	10.9	56.0	46.0	29.9	35.1
5	5.066	1.8	1.0	10.5	12.3	11.5	60.0	50.0	47.7	38.5

--- L2 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]
1	0.391	23.8	5.0	10.4	34.2	15.4	58.0	48.0	23.8	32.6
2	0.791	12.8	1.0	10.4	23.2	11.4	56.0	46.0	32.8	34.6
3	1.057	13.5	1.1	10.4	23.9	11.5	56.0	46.0	32.1	34.5
4	1.595	15.2	1.1	10.4	25.6	11.5	56.0	46.0	30.4	34.5
5	3.646	12.0	1.1	10.5	22.5	11.6	56.0	46.0	33.5	34.4
6	5.535	6.7	1.0	10.6	17.3	11.6	60.0	50.0	42.7	38.4
7	10.351	2.3	1.0	10.8	13.1	11.8	60.0	50.0	46.9	38.2

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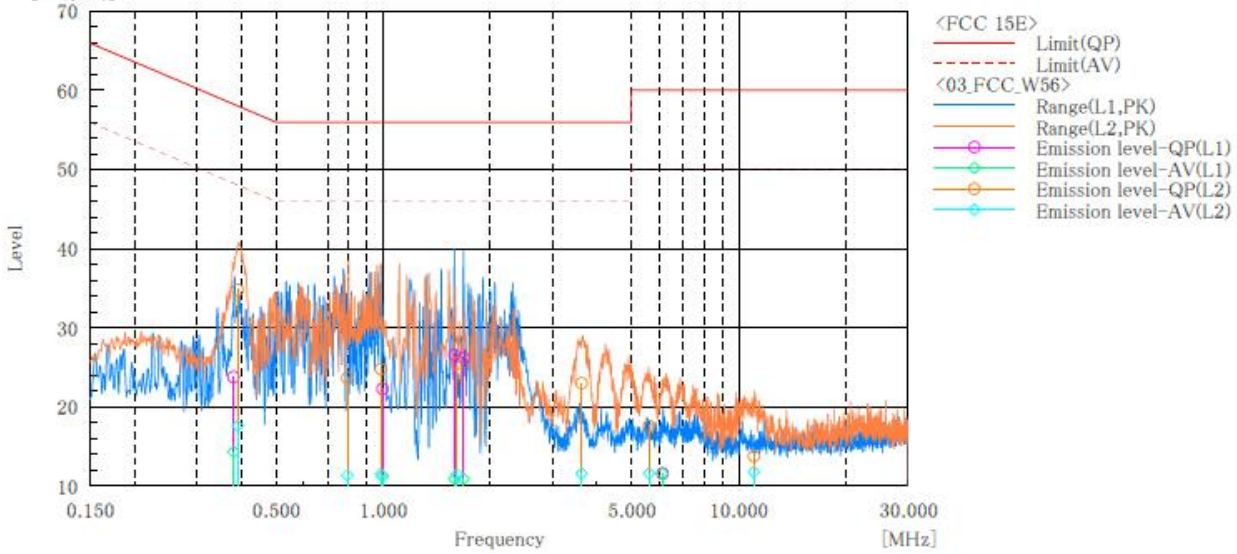
***** CONDUCTED EMISSION at MAINS PORT *****
≪ 3m Semi-anechoic chamber ≫

TUV SUD Zacta Ltd. <<Data Sheet No.03>> 3 April,2014 05:40

Company Name	: KYOCERA Corporation	Standard	: FCC 15E
EUT	: Mobile Phone	Operator	: T.Watanabe
Model No.	: KYY23	Temp.Hum.	: 25.1[℃] 33.1[%]
Serial No.	: N/A	Note1	:
Test mode	: 5GHz_W56	Note2	:



Final Result

--- L1 Phase ---

No.	Frequency	Reading QP	Reading AV	c.f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.380	13.5	4.0	10.3	23.8	14.3	58.3	48.3	34.5	34.0
2	0.999	12.0	1.0	10.3	22.3	11.3	56.0	46.0	33.7	34.7
3	1.589	16.2	0.5	10.4	26.6	10.9	56.0	46.0	29.4	35.1
4	1.687	15.8	0.5	10.4	26.2	10.9	56.0	46.0	29.8	35.1
5	6.114	1.0	1.0	10.6	11.6	11.6	60.0	50.0	48.4	38.4

--- L2 Phase ---

No.	Frequency	Reading QP	Reading AV	c.f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]
1	0.391	24.4	7.2	10.4	34.8	17.6	58.0	48.0	23.2	30.4
2	0.795	13.3	1.0	10.4	23.7	11.4	56.0	46.0	32.3	34.6
3	0.987	14.4	1.1	10.4	24.8	11.5	56.0	46.0	31.2	34.5
4	1.617	15.1	1.1	10.4	25.5	11.5	56.0	46.0	30.5	34.5
5	3.618	12.5	1.1	10.5	23.0	11.6	56.0	46.0	33.0	34.4
6	5.602	7.0	1.0	10.6	17.6	11.6	60.0	50.0	42.4	38.4
7	11.042	3.0	1.0	10.8	13.8	11.8	60.0	50.0	46.2	38.2

11. Duty Cycle

11.1 Measurement procedure [KDB789033]

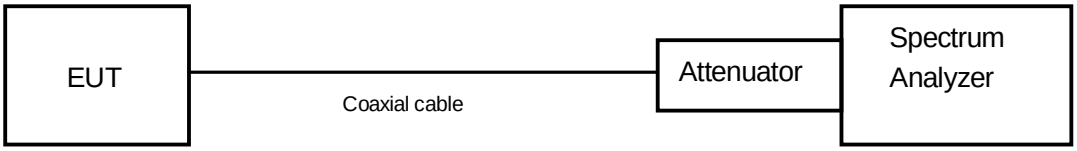
The duty cycle is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate center frequency.

The spectrum analyzer is set to;
- RBW=8MHz, VBW=8MHz, Span=0Hz, Sweep=Auto, Detector=Peak, Trace mode=Single

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



11.2 Limit

None

11.3 Measurement result

Date : Apr. 4, 2014
Temperature : 20.3 [˚C]
Humidity : 45.4 [%]
Test place : Shielded room No.4

Tested by : Taiki Watanabe

Mode	Channel	Frequency (MHz)	Duty Cycle			DCF (dB) 10log(1/x)	DCF (dB) 20log(1/x)
			On Time(ms)	On+Off Time(ms)	X		
802.11a	36	5180	1.362	1.372	0.993	0.032	0.064
	40	5200					
	58	5240					
	52	5260	1.364	1.372	0.994	0.025	0.051
	56	5280					
	64	5320					
	100	5500	1.362	1.372	0.993	0.032	0.064
	116	5580					
	140	5700					

Note: X = On time / (On + Off time)

Mode	Channel	Frequency (MHz)	Duty Cycle			DCF (dB) 10log(1/x)	DCF (dB) 20log(1/x)
			On Time(ms)	On+Off Time(ms)	X		
802.11n (20MHz)	36	5180	1.274	1.284	0.992	0.034	0.068
	40	5200					
	58	5240					
	52	5260	1.276	1.284	0.994	0.027	0.054
	56	5280					
	64	5320					
	100	5500	1.272	1.284	0.991	0.041	0.082
	116	5580					
	140	5700					

Note: X = On time / (On + Off time)

Mode	Channel	Frequency (MHz)	Duty Cycle			DCF (dB) 10log(1/x)	DCF (dB) 20log(1/x)
			On Time(ms)	On+Off Time(ms)	X		
802.11n (40MHz)	38	5190	0.635	0.645	0.984	0.068	0.136
	46	5230					
	54	5270	0.635	0.645	0.984	0.068	0.136
	62	5310					
	102	5510	0.635	0.645	0.984	0.068	0.136
	110	5550					
	134	5670					

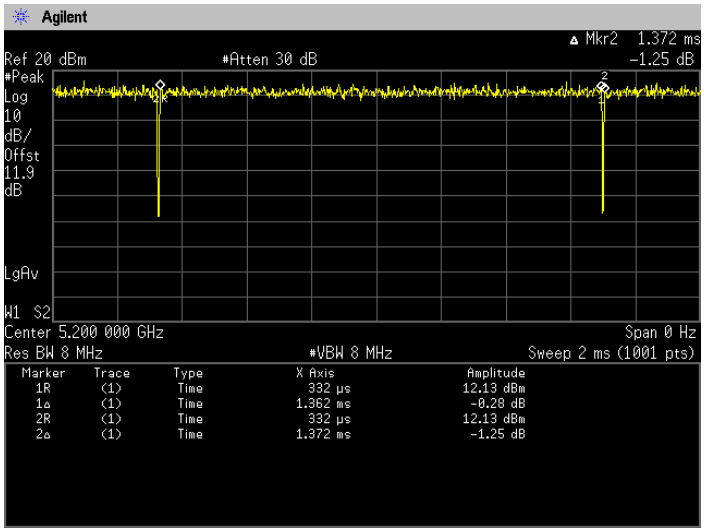
Note: X = On time / (On + Off time)

Mode	Channel	Frequency (MHz)	Duty Cycle			DCF (dB) 10log(1/x)	DCF (dB) 20log(1/x)
			On Time(ms)	On+Off Time(ms)	X		
802.11ac (80MHz)	42	5210	0.248	0.258	0.961	0.172	0.343
	58	5290	0.247	0.258	0.957	0.189	0.378
	106	5530	0.248	0.258	0.961	0.172	0.343

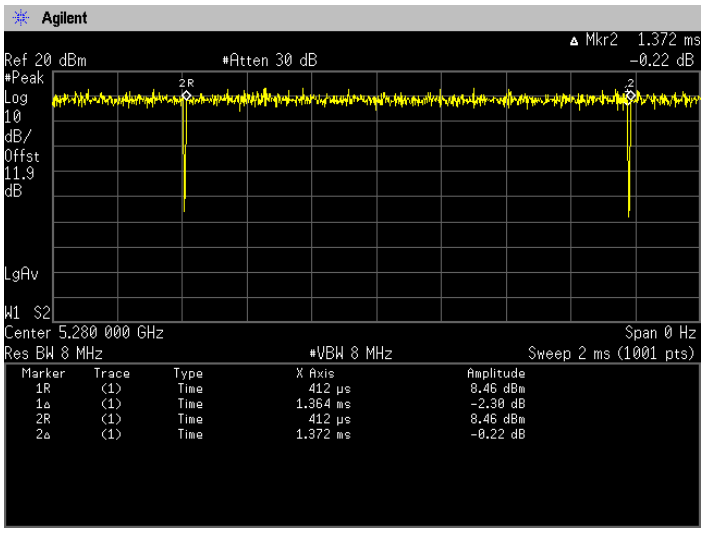
Note: X = On time / (On + Off time)

11.4 Trace data [IEEE802.11a]

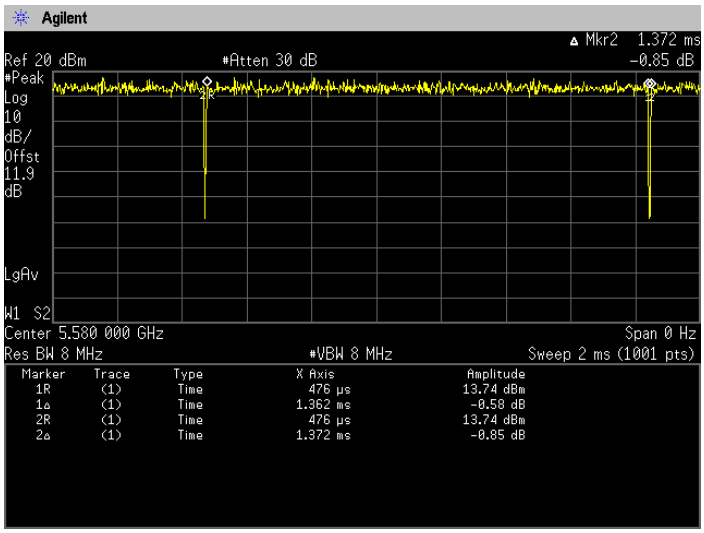
Channel: 40



Channel: 56

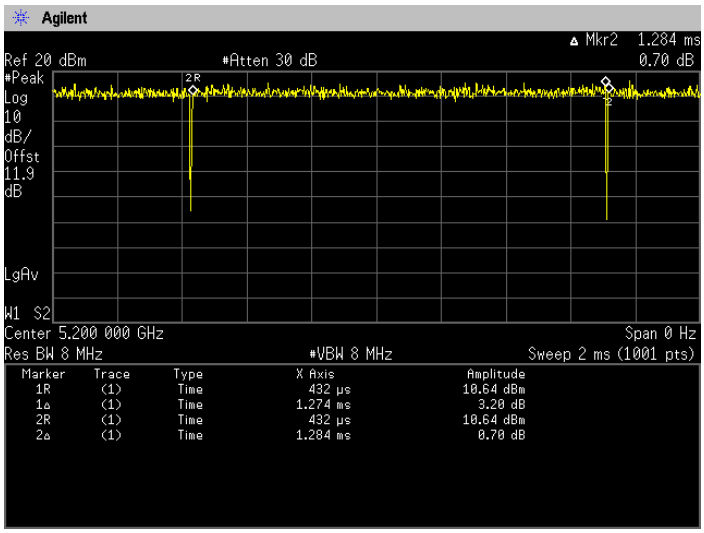


Channel: 116

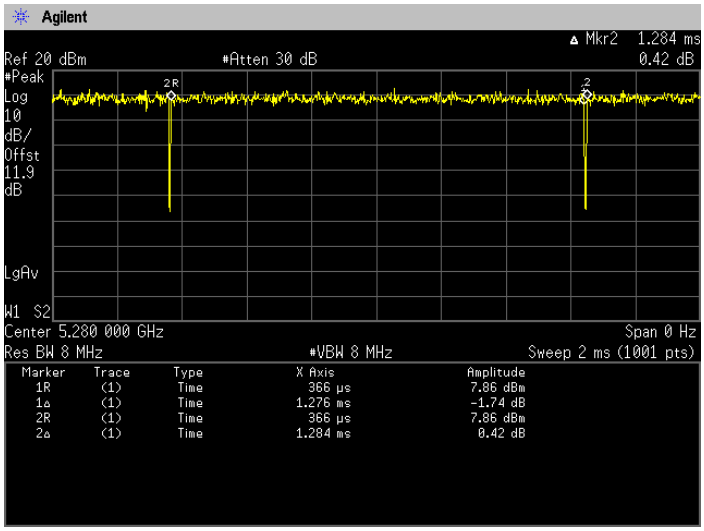


[IEEE802.11n (HT20)]

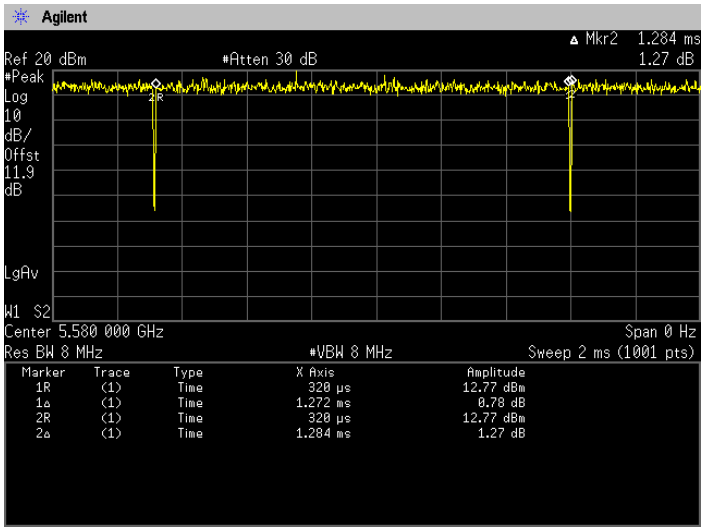
Channel: 40



Channel: 56

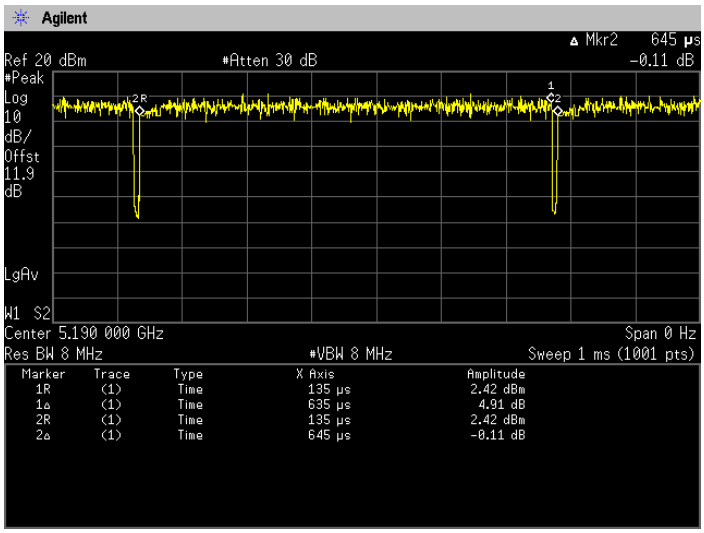


Channel: 116

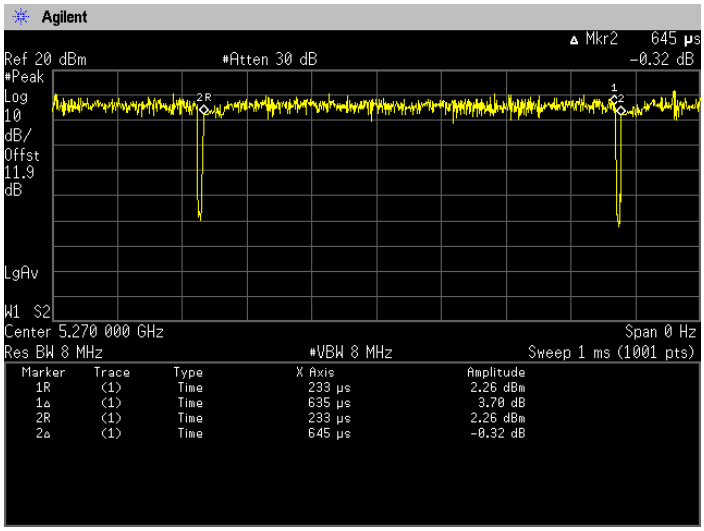


[IEEE802.11n (HT40)]

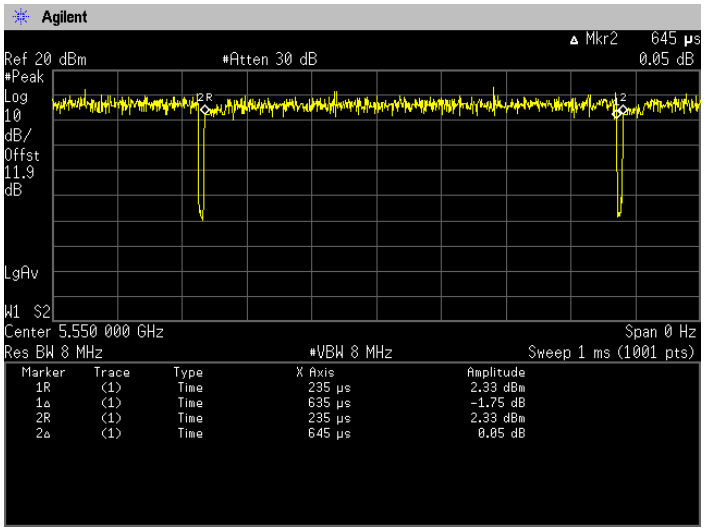
Channel: 38



Channel: 54

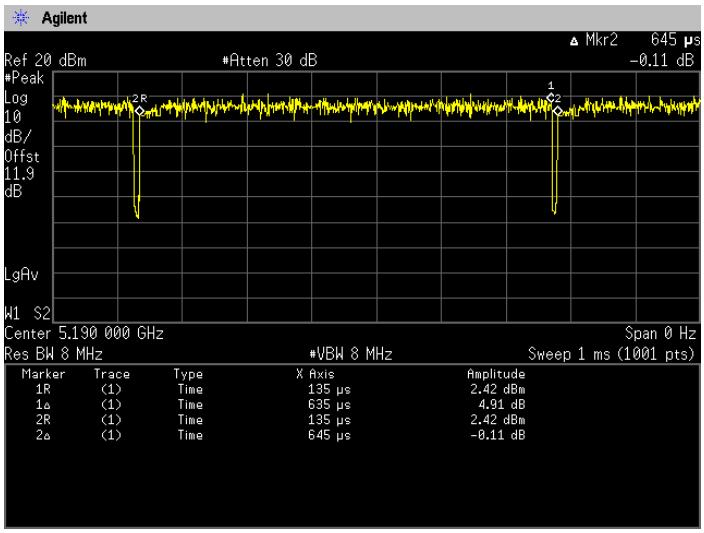


Channel: 110

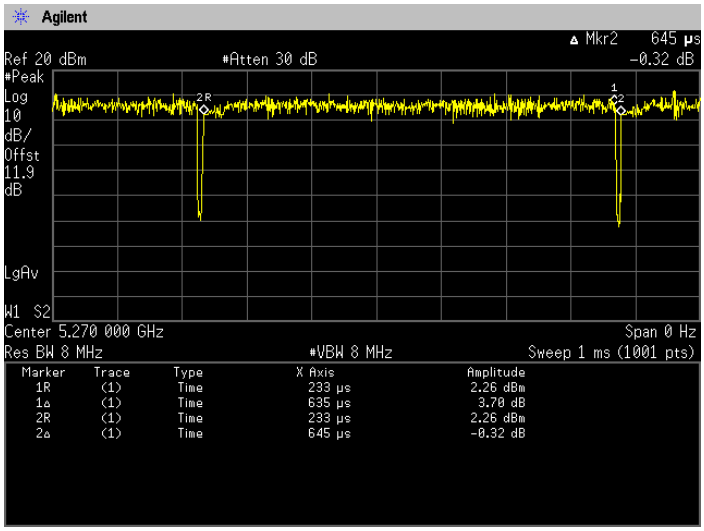


[IEEE802.11ac (HT80)]

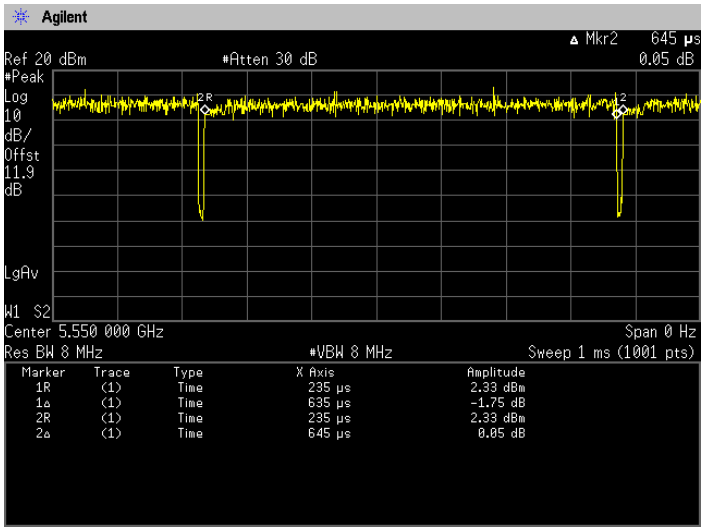
Channel: 42



Channel: 58



Channel: 106



12. Antenna requirement

According to FCC section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
The antenna is a special antenna mounted inside of the EUT. Therefore, the EUT complies with the antenna requirement of FCC section 15.203.

Zacta

13. Uncertainty of measurement

Expanded uncertainties stated are calculated with a coverage Factor k=2.
Please note that these results are not taken into account when determining compliance or non-compliance with test result.

Test item	Measurement uncertainty
Conducted emission at mains port	±3.0dB
Radiated emission (9kHz – 30MHz)	±4.4dB
Radiated emission (30MHz – 1000MHz)	±4.5dB
Radiated emission (1000MHz – 26GHz)	±3.9dB

Zacta

14. Laboratory description

1. Location:

TÜV SÜD Zacta Ltd. Yonezawa Testing Center
4149-7 Hachimanpara 5-chome Yonezawa-shi Yamagata 992-1128 Japan
Phone: +81-238-28-2880 Fax: +81-238-28-2888

2. Facility filing information:

1) NVLAP accreditation: NVLAP Lab. code: 200306-0

2) VLAC accreditation: Lab. code: VLAC-013

Site name	Radiated emission	Conducted emission for mains port	Conducted emission for telecom port	Radiated emission (CMAD)	Expiry Date
3m Semi-anechoic chamber	VLAC-013			-	Jul. 3, 2015
10m Semi-anechoic chamber No.1				VLAC-013	
10m Semi-anechoic chamber No.2					
Shielded room No.1	-	VLAC-013		-	

3) FCC filing:

Site name	Registration Number	Expiry Date
Site 3	91065	Oct.31, 2014
3m Semi-anechoic chamber	540072	Feb. 20, 2017
10m Semi-anechoic chamber No.1		
10m Semi-anechoic chamber No.2		
Shielded room No.1		

4) Industry Canada Oats site filing:

Site name	Sites on file: Oats 3m/10m	Expiry Date
Site 3	4224A-3	Jan. 23, 2015
3m Semi-anechoic chamber	4224A-4	
10m Semi-anechoic chamber No.1	4224A-5	
10m Semi-anechoic chamber No.2	4224A-6	Jan. 15, 2017

5) VCCI site filing:

Site name	Radiated emission	Conducted emission for mains port	Conducted emission for telecom port	Expiry Date
Site 3	R-138	C-134	T-1222	Nov. 16, 2014 Nov. 28, 2014* (*:Telecom port)
3m Semi-anechoic chamber	A-0166			Jul. 3, 2015
10m Semi-anechoic chamber No.1				
10m Semi-anechoic chamber No.2				
Shielded room No.1	-	A-0166		

6) TÜV SÜD PS authorization:
Authorized as an EMC test laboratory

7) TÜV Rheinland authorization:
Authorized as an EMC test laboratory

Appendix A. Test equipment

Antenna port conducted test

Equipment	Company	Model No.	Serial No.	Cal. due	Cal. date
Spectrum analyzer	Agilent Technologies	E4440A	US4432655	May 2014	May 14, 2013
Microwave cable	RS	YH_13S5	N/A (S403)	May 2014	May 10, 2013
Attenuator	Weinschel	56-10	J4180	Nov. 2014	Nov. 12, 2013
Low temperature and humidity chamber	Espec	PL1KP	14007261	Dec. 2014	Dec. 27, 2013

Radiated emission

Equipment	Company	Model No.	Serial No.	Cal. Due	Cal. Date
EMI Receiver	ROHDE&SCHWARZ	ECSI	100451	Nov. 2014	Nov. 16, 2013
Preamplifier	ANRITSU	MH648A	M96057	Jun. 2014	Jun. 12, 2013
Loop antenna	ROHDE&SCHWARZ	HFH2-Z2	892246/010	Oct. 2014	Oct. 5, 2013
Biconical Antenna	Schwarzbeck	VHA9103/BBA9106	2155	May 2014	May 1, 2013
Log periodic Antenna	Schwarzbeck	UHALP9108A	0560	May 2014	May 1, 2013
Attenuator	TME	CFA-01NPJ-6	N/A (S275)	Jun. 2014	Jun. 6, 2013
Attenuator	TME	CFA-01NPJ-3	N/A (S272)	Jun. 2014	Jun. 6, 2013
Spectrum analyzer	Agilent Technologies	E4440A	US4432655	May 2014	May 14, 2013
Preamplifier	Agilent Technologies	8449B	3008A1008	Dec. 2014	Dec. 9, 2013
Double ridged guide antenna	EMCO	3115	5205	Dec. 2014	Dec. 10, 2013
Attenuator	AEROFLEX	40A-03	081217-20	Feb. 2015	Feb. 23, 2014
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	BBHA9170189	May 2015	May 2, 2013
Preamplifier	TSJ	MLA-1840-B03-35	1240332	May 2015	May 2, 2013
Microwave cable	SUHNER	SUCOFLEX104/9m	346316/4	Oct. 2014	Oct. 6, 2013
		SUCOFLEX104/1m	322084/4	Oct. 2014	Oct. 6, 2013
		SUCOFLEX104/1.5m	317226/4	Oct. 2014	Oct. 6, 2013
		SUCOFLEX104/7m	41625/6	Oct. 2014	Oct. 6, 2013
PC	DELL	DIMENSION E521	75465BX	N/A	N/A
Software	TOYO Corporation	EP5/RE-AJ	0611193/V5.3.61	N/A	N/A
3m Semi-anechoic chamber	TOKIN	N/A	N/A (9002-NSA)	May 2014	May 19, 2013
3m Semi-anechoic chamber	TOKIN	N/A	N/A (9002-SVSWR)	May 2014	May 19, 2013

Conducted emission at mains port

Equipment	Company	Model No.	Serial No.	Cal. due	Cal. date
EMI Receiver	ROHDE&SCHWARZ	ECSI	100451	Nov. 2014	Nov. 16, 2013
Attenuator	HUBER+SUHNER	6810.01.A	N/A (S411)	Feb. 2015	Feb. 28, 2014
Line impedance stabilization network for EUT	Kyoritsu Electrical Works, Ltd.	KNW-407F	8-2003-1	Jul. 2014	Jul. 1, 2013
Coaxial cable	FUJIKURA	5D-2W/4m	N/A (S350)	Feb. 2015	Feb. 5, 2014
Coaxial cable	FUJIKURA	5D-2W/1m	N/A (S193)	Feb. 2015	Feb. 5, 2014
Coaxial cable	SUHNER	RG214/U/10m	N/A (S194)	Feb. 2015	Feb. 5, 2014
PC	DELL	DIMENSION	75465BX	N/A	N/A