

Report on the RF Testing of:

KYOCERA Corporation
Mobile Phone, Model: EB1073
FCC ID: JOYEB1073

In accordance with FCC Part15 Subpart E

Prepared for: KYOCERA Corporation
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Hiroaki Suzuki	Deputy Manager of RF Group	Approved Signatory	2021.10.20

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EXECUTIVE SUMMARY – Result: Complied

A sample of this product was tested and the result above was confirmed in accordance with FCC Part15 Subpart E.



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1 Summary of Test

1.1 Modification history of the test report

Document Number	Modification History	Issue Date
JPD-TR-21187-0	First Issue	Refer to the cover page

1.2 Standards

CFR47 FCC Part 15 Subpart E

1.3 Test methods

ANSI C63.10-2013
KDB662911 D01 Multiple Transmitter Output v02r01
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	Reporting Purposes only	-
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	-
ANSI C63.10, Section 12.2	Duty Cycle	Conducted	Reporting Purposes only	

1.6 Test information

None

1.7 Test set up

Table-top

1.8 Test period

7-September-2021 - 8-October-2021

2 Equipment Under Test

All information in this chapter was provided by the applicant.

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	EB1087
Serial number	352886910002746,352886910002860
Trade name	Kyocera
Number of sample(s)	2
EUT condition	Pre-Production
Power rating	Battery: DC 3.87 V
Size	(W) 69 × (D) 13.7 × (H) 123 mm
Environment	Indoor and Outdoor use
Terminal limitation	-20°C to 60°C
Hardware version	DMT
Software version	V0.101PO
Firmware version	Not applicable
RF Specification	
Protocol	IEEE802.11a, IEEE802.11n (HT20), IEEE802.11n (HT40) IEEE802.11ac (VHT20), IEEE802.11ac (VHT40), IEEE802.11ac (VHT80)
Frequency range	IEEE802.11a/n (HT20) / IEEE802.11ac (VHT20): 5180 MHz-5320 MHz, 5500 MHz-5720 MHz IEEE802.11n (HT40) / IEEE802.11ac (VHT40): 5190 MHz-5310 MHz, 5510 MHz-5710 MHz IEEE802.11ac (VHT80): 5210 MHz, 5290 MHz, 5530 MHz, 5610 MHz,5690MHz
Number of RF Channels	IEEE802.11a/n (HT20) / IEEE802.11ac (VHT20): 20 Channels IEEE802.11n (HT40) / IEEE802.11ac (VHT40): 10 Channels IEEE802.11ac (VHT80): 5 Channels
Modulation type	IEEE802.11a/n/ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Data rate	IEEE802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE802.11n (HT20 LGI): 6.5, 13, 19.5, 26, 39, 52, 58.5, 65, 78, 86.5Mbps IEEE802.11n (HT20 SGI): 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65, 72.2, 86.7, 96.1Mbps

	IEEE802.11ac (VHT20 LGI): 6.5, 13, 19.5, 26, 39, 52, 58.5, 65, 78, 86.5Mbps
	IEEE802.11ac (VHT20 SGI): 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65, 72.2, 86.6, 96.1Mbps
	IEEE802.11n (HT40 LGI): 13.5, 27, 40.5, 54, 81, 108, 121.5, 135, 162, 180Mbps
	IEEE802.11n (HT40 SGI): 15, 30, 45, 60, 90, 120, 135, 150, 180, 200Mbps
	IEEE802.11ac (VHT40 LGI): 13.5, 27, 40.5, 54, 81, 108, 121.5, 135, 162, 180Mbps
	IEEE802.11ac (VHT40 SGI): 15, 30, 45, 60, 90, 120, 135, 150, 180, 200Mbps
	IEEE802.11ac (VHT80 LGI): 29.5, 58.5, 87.8, 117, 175.5, 234, 263.3, 292.5, 351, 390Mbps
	IEEE802.11ac (VHT80 SGI): 32.5, 65, 97.5, 130, 195, 260, 292.5, 325, 390, 433.3Mbps
Channel separation	IEEE802.11a/n(HT20) / IEEE802.11ac (VHT20): 20 MHz IEEE802.11n (HT40) / IEEE802.11ac (VHT40): 40 MHz IEEE802.11ac (VHT80): 80 MHz
Conducted power	18.583 mW (IEEE802.11a) 33.765 mW (IEEE802.11n: HT20) 38.203 mW (IEEE802.11n: HT40) 37.026 mW (IEEE802.11ac: VHT80)
Antenna type	Internal antenna
Antenna gain	Tx01 5.15-5.25 GHz band: -1.3 dBi 5.25-5.35 GHz band: -1.3 dBi 5.47-5.725 GHz band: -2.8 dBi Tx02 5.15-5.25 GHz band: -1.2 dBi 5.25-5.35 GHz band: -1.2 dBi 5.47-5.725 GHz band: -1.4 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: EB1073, Serial Number: 352886910002746,352886910002860			
0	As supplied by the applicant	Not Applicable	Not Applicable

2.3 Variation of family model(s)

2.3.1 List of family model(s)

Not applicable

2.3.2 Reason for selection of EUT

Not applicable

2.4 Operating channels and frequencies

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

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

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

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

[IEEE802.11ac (VHT80)]

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

2.5 Description of test mode

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

Band	IEEE802.11a/n (HT20) IEEE802.11ac (VHT20)		IEEE802.11n (HT40) IEEE802.11ac (VHT40)		IEEE802.11ac (HT80)	
	Channel	Frequency [MHz]	Channel	Frequency [MHz]	Channel	Frequency [MHz]
5.2 GHz Band	36	5180	38	5190	42	5210
	40	5200	-	-	-	-
	48	5240	46	5230	-	-
5.3 GHz Band	52	5260	54	5270	58	5290
	56	5280	-	-	-	-
	64	5320	62	5310	-	-
5.6 GHz Band	100	5500	102	5510	106	5530
	116	5580	110	5550	122	5610
	140	5700	134	5670	138	5690
	144	5720	142	5710	-	-

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

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

The field strength of spurious emissions was measured at each position of all three axis X, Y and Z to compare the level, and the maximum noise.

The worst emission was found in Z axis and the worst case recorded.

Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports.

2.6 Operating flow

- Tx mode

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

- Rx mode

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

3 Configuration of Equipment

Numbers assigned to equipment on the diagram in “3.3 System configuration” correspond to the lists in “3.1 Equipment used” and “3.2 Cable(s) used”.

This test configuration is based on the manufacture’s instruction.

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	EB1073	352886910002746 352886910002860	JOYEB1073	EUT
2	AC Adapter	KDDI	0602PQA	N/A	N/A	*

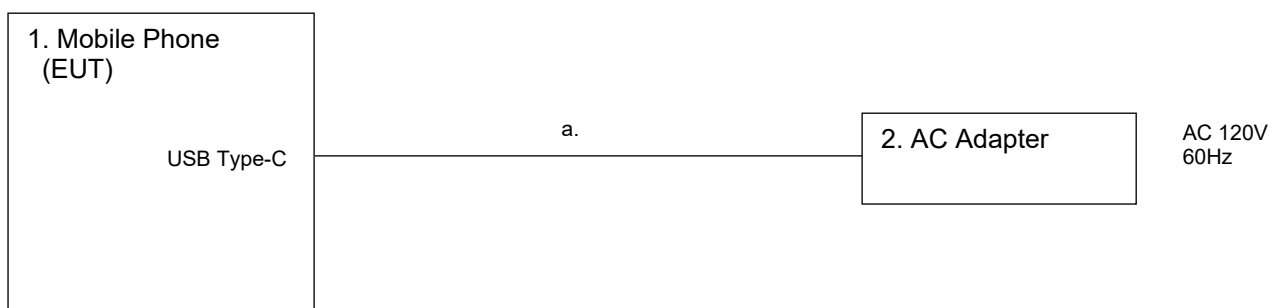
*: AC power line Conducted Emission Test.

3.2 Cable(s) used

No.	Cable	Length[m]	Shield	Connector	Comment
a	USB cable (for AC Adapter)	1.5	No	Plastic	*

*: AC power line Conducted Emission Test.

3.3 System configuration



4 Test Result

4.1 26dB Bandwidth and 99% Occupied Bandwidth

4.1.1 Measurement procedure

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

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

The spectrum analyzer is set to;

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

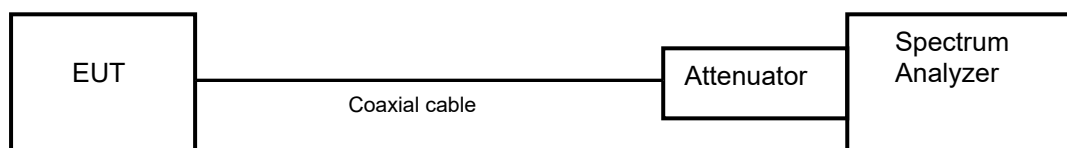
The EUT was set to operate with following conditions.

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

The test mode of EUT is as follows.

- Tx mode

- Test configuration



4.1.2 Limit

None

4.1.3 Measurement result

Date : 7-September-2020
 Temperature : 22.3 [°C]
 Humidity : 51.4 [%]
 Test place : Shielded room No.4

Test engineer : Tadahiro Seino

Mode	Band	Channel	Frequency (MHz)	26 dB bandwidth (MHz)		99% Occupied bandwidth (MHz)	
				Tx01	Tx02	Tx01	Tx02
802.11a	5.2 GHz Band	36	5180	22.841	22.406	16.6243	16.6201
		40	5200	23.034	22.264	16.6064	16.6123
		48	5240	23.250	23.229	16.6372	16.6809
	5.3 GHz Band	52	5260	23.193	22.801	16.6544	16.6593
		56	5280	22.973	23.142	16.6611	16.6508
		64	5320	23.137	22.579	16.6595	16.5765
	5.6 GHz Band	100	5500	23.297	22.517	16.6627	16.5880
		116	5580	23.419	22.851	16.6823	16.6102
		140	5700	23.484	22.865	16.7090	16.6036
		144	5720	22.962	22.575	16.6365	16.5944

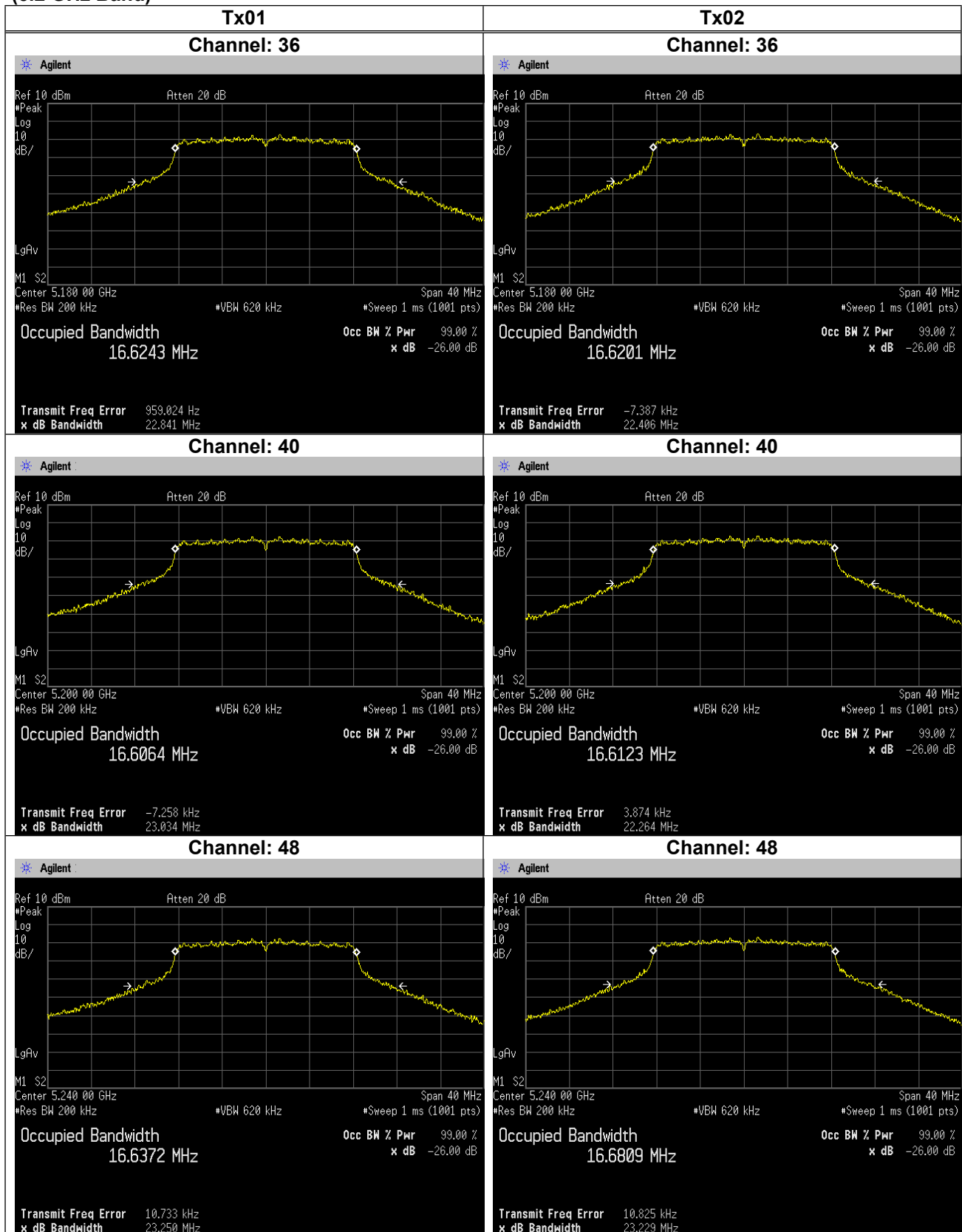
Mode	Band	Channel	Frequency (MHz)	26 dB bandwidth (MHz)		99% Occupied bandwidth (MHz)	
				Tx01	Tx02	Tx01	Tx02
802.11n (20 MHz)	5.2 GHz Band	36	5180	23.798	23.239	17.7847	17.7349
		40	5200	23.592	23.354	17.7763	17.7354
		48	5240	23.349	23.504	17.7827	17.7577
	5.3 GHz Band	52	5260	23.312	23.830	17.7549	17.7742
		56	5280	24.167	22.761	17.7676	17.7452
		64	5320	23.830	23.289	17.8058	17.7848
	5.6 GHz Band	100	5500	23.479	23.580	17.7908	17.7471
		116	5580	23.803	23.407	17.7701	17.7689
		140	5700	24.196	23.115	17.8141	17.7670
		144	5720	24.197	23.747	17.7698	17.7744

Mode	Band	Channel	Frequency (MHz)	26 dB bandwidth (MHz)		99% Occupied bandwidth (MHz)	
				Tx01	Tx02	Tx01	Tx02
802.11n (40 MHz)	5.2 GHz Band	38	5190	41.536	41.430	36.2426	36.2153
		46	5230	41.607	41.380	36.2390	36.2691
	5.3 GHz Band	54	5270	41.642	41.616	36.2189	36.2126
		62	5310	41.550	41.278	36.2267	36.2112
	5.6 GHz Band	102	5510	41.739	41.710	36.1898	36.2411
		110	5550	41.816	41.903	36.2547	36.2304
		134	5670	41.529	41.320	36.2447	36.1831
		142	5710	41.746	41.785	36.2455	36.1954

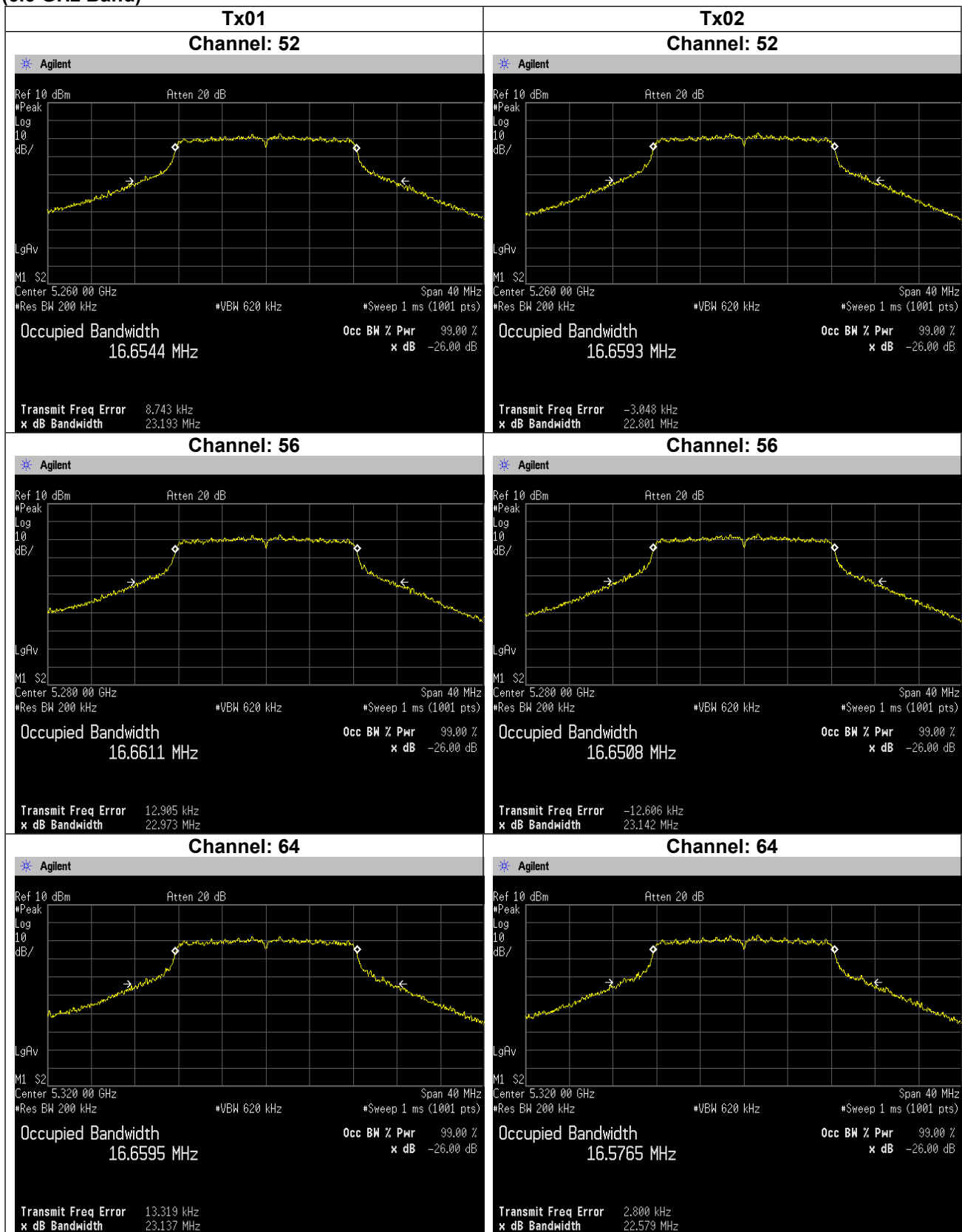
Mode	Band	Channel	Frequency (MHz)	26dB bandwidth (MHz)		99% Occupied bandwidth (MHz)	
				Tx01	Tx02	Tx01	Tx02
802.11ac (80 MHz)	5.2 GHz Band	42	5210	83.339	83.264	75.4966	75.5801
	5.3 GHz Band	58	5290	83.698	83.596	75.5665	75.5432
	5.6 GHz Band	106	530	83.566	83.397	75.5411	75.5086
		122	5610	83.445	83.609	75.5789	75.5424
		138	5690	84.237	83.322	75.5168	75.5321

4.1.4 Trace data

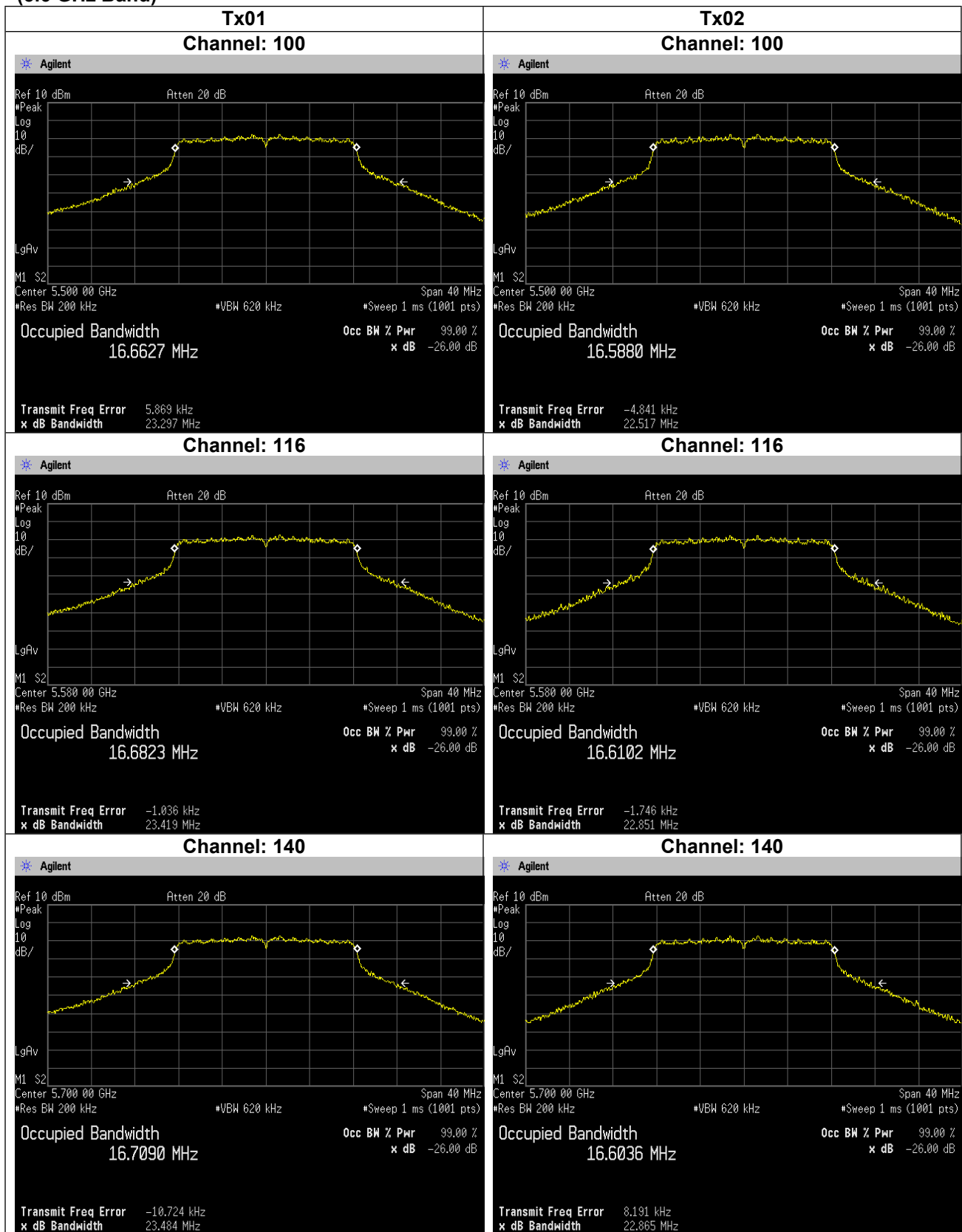
[IEEE802.11a]
(5.2 GHz Band)

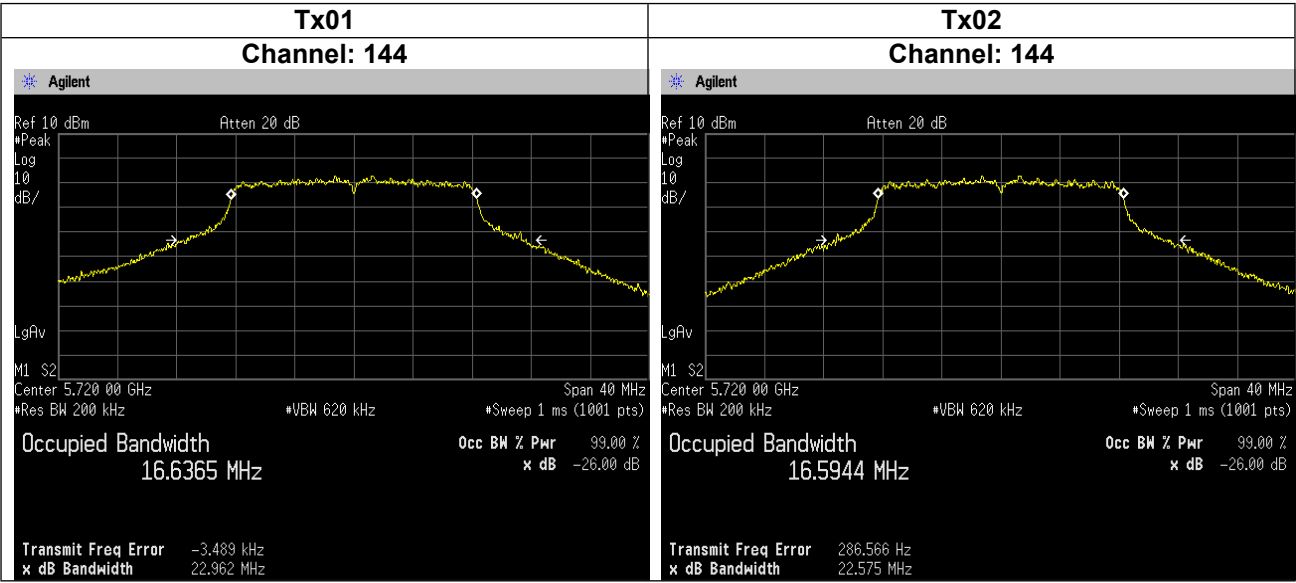


(5.3 GHz Band)

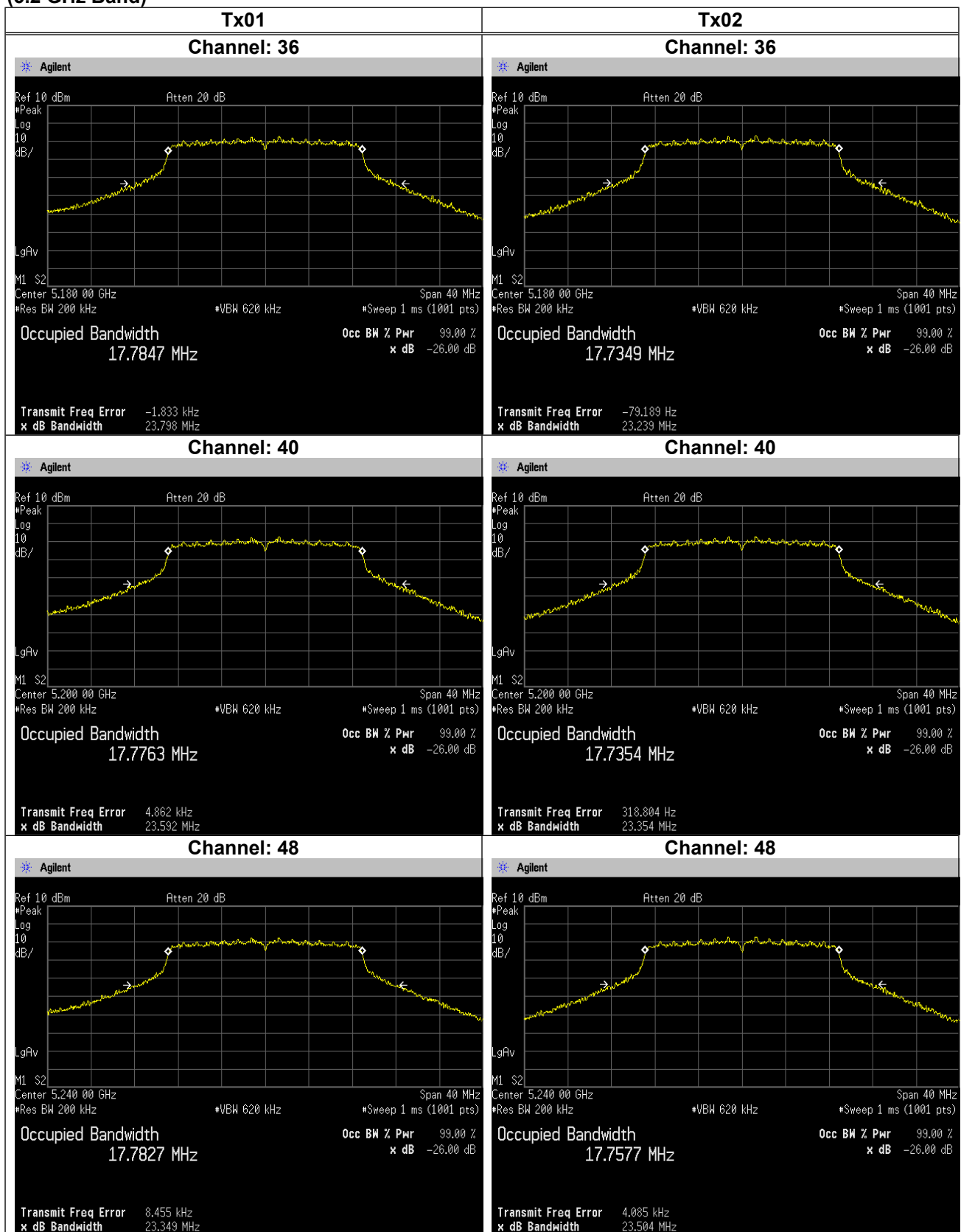


(5.6 GHz Band)

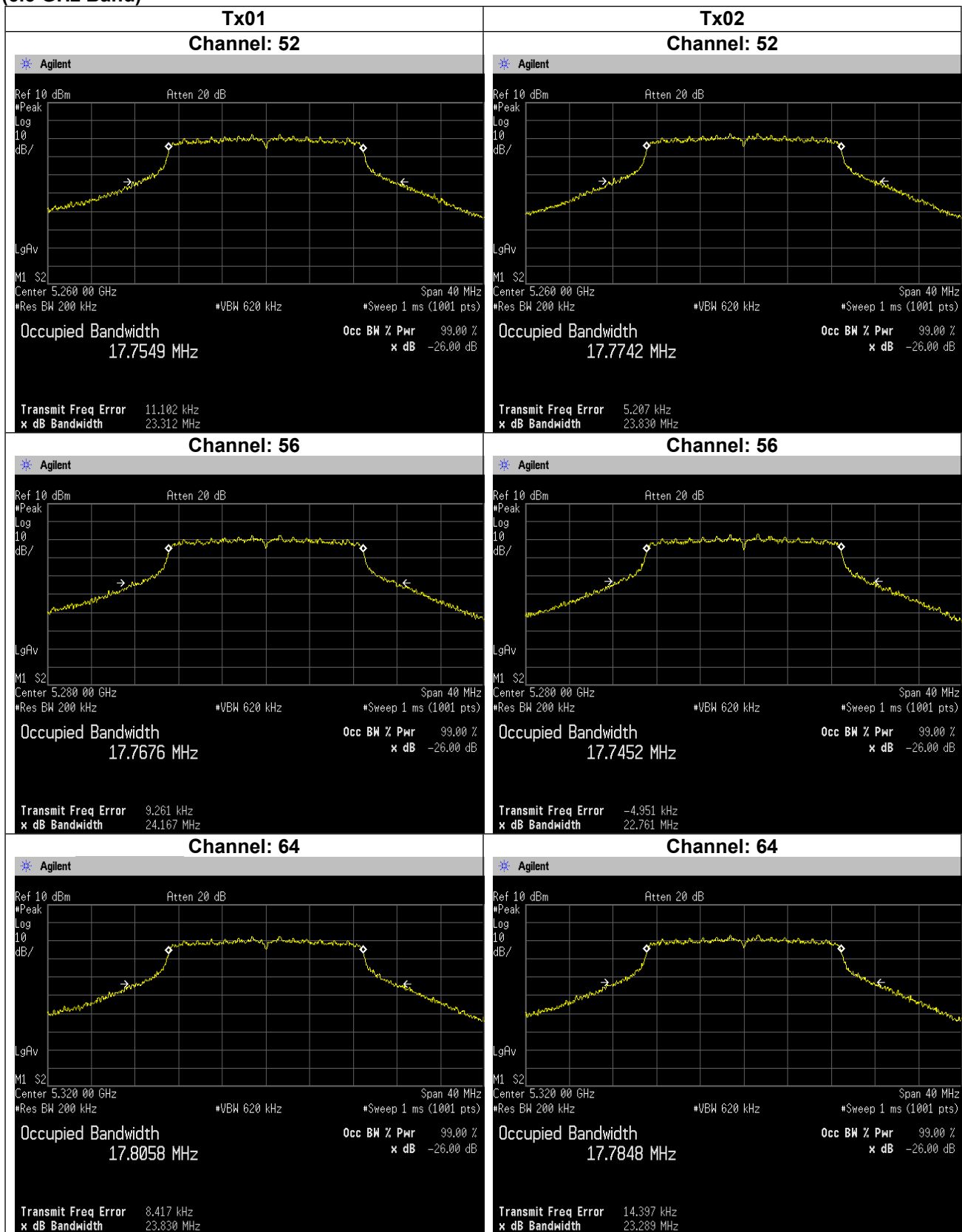




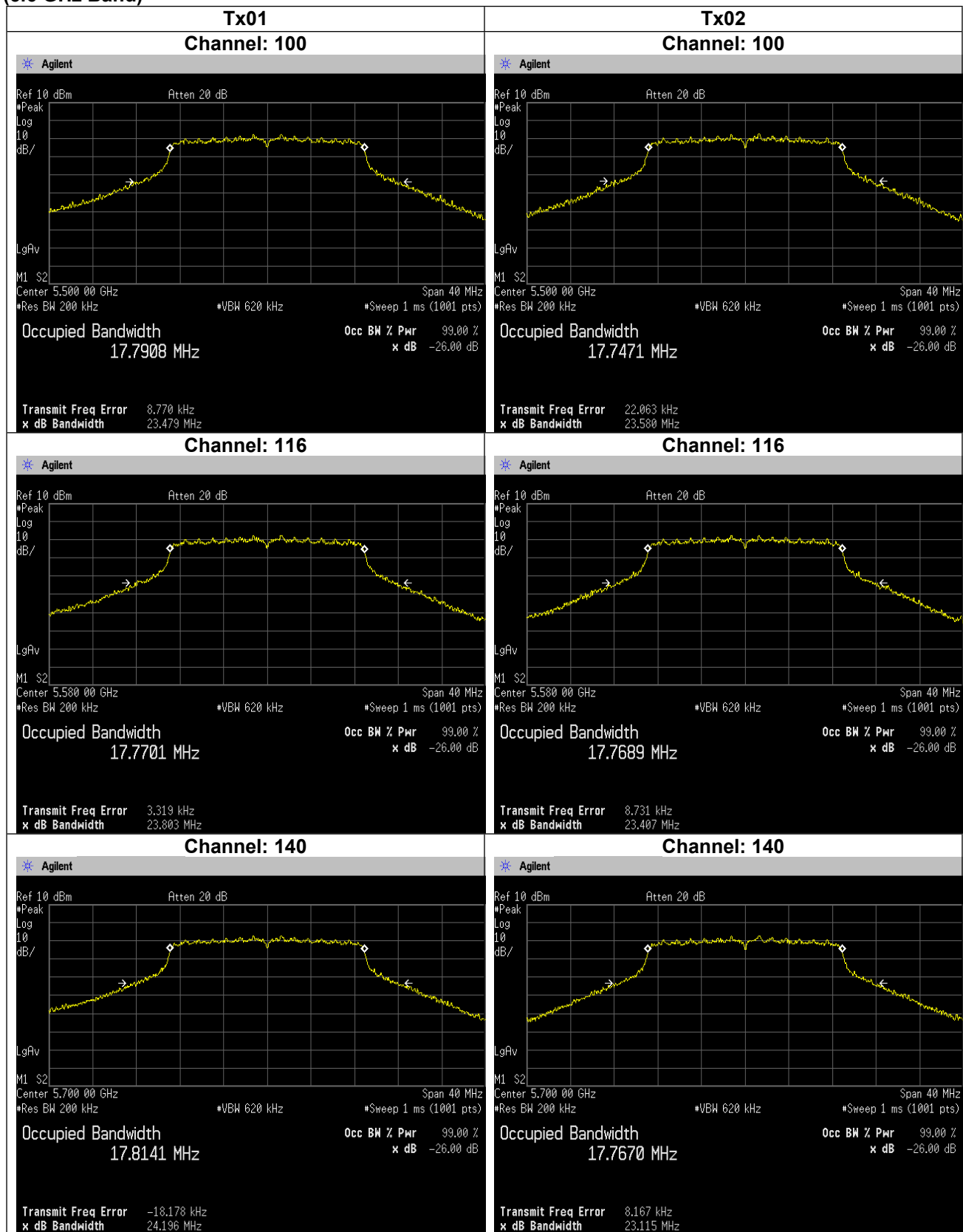
[IEEE802.11n (HT20)]
(5.2 GHz Band)

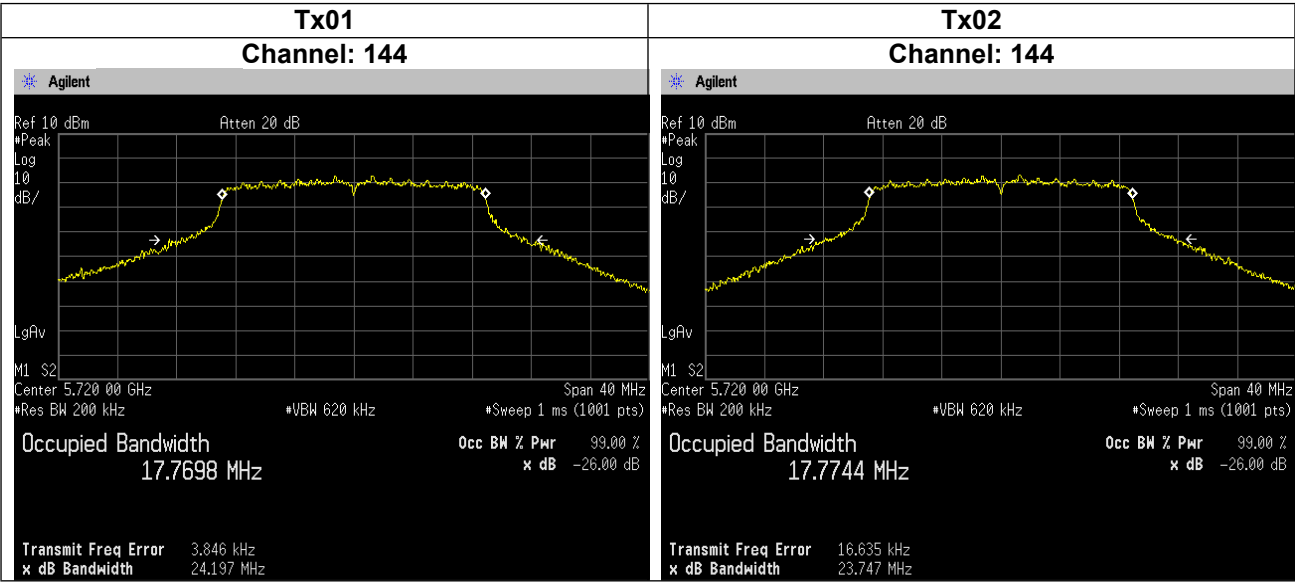


(5.3 GHz Band)

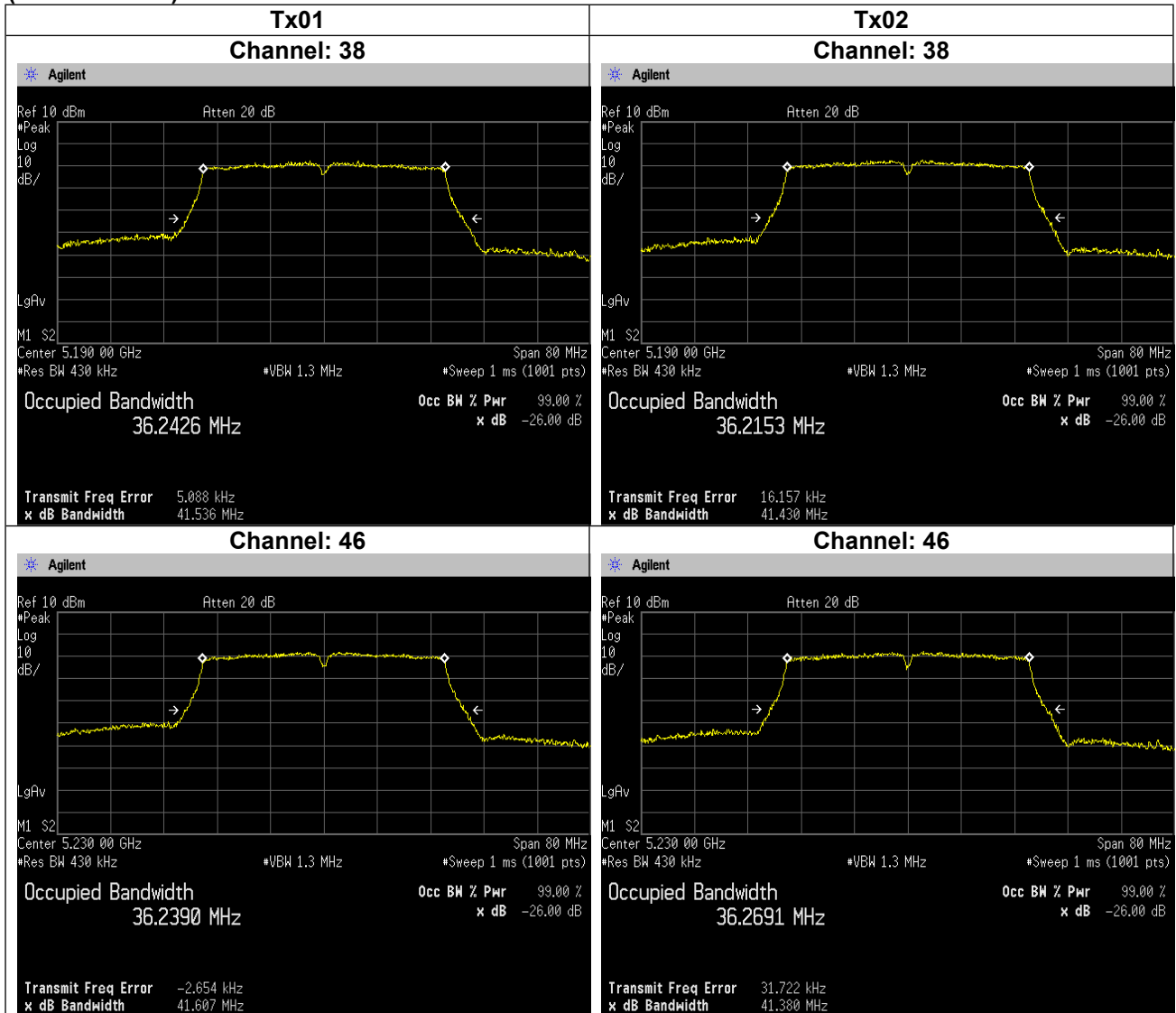


(5.6 GHz Band)

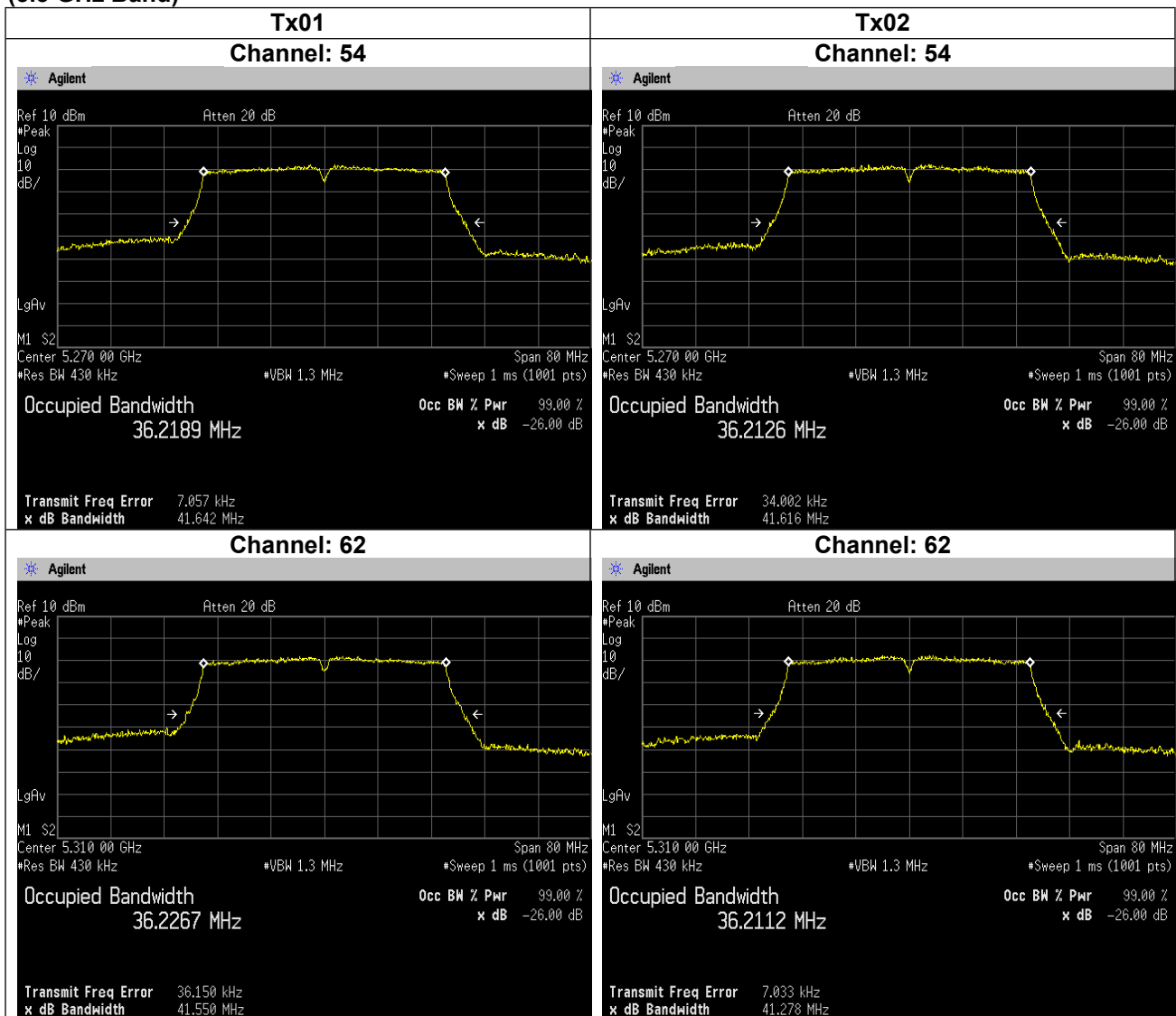




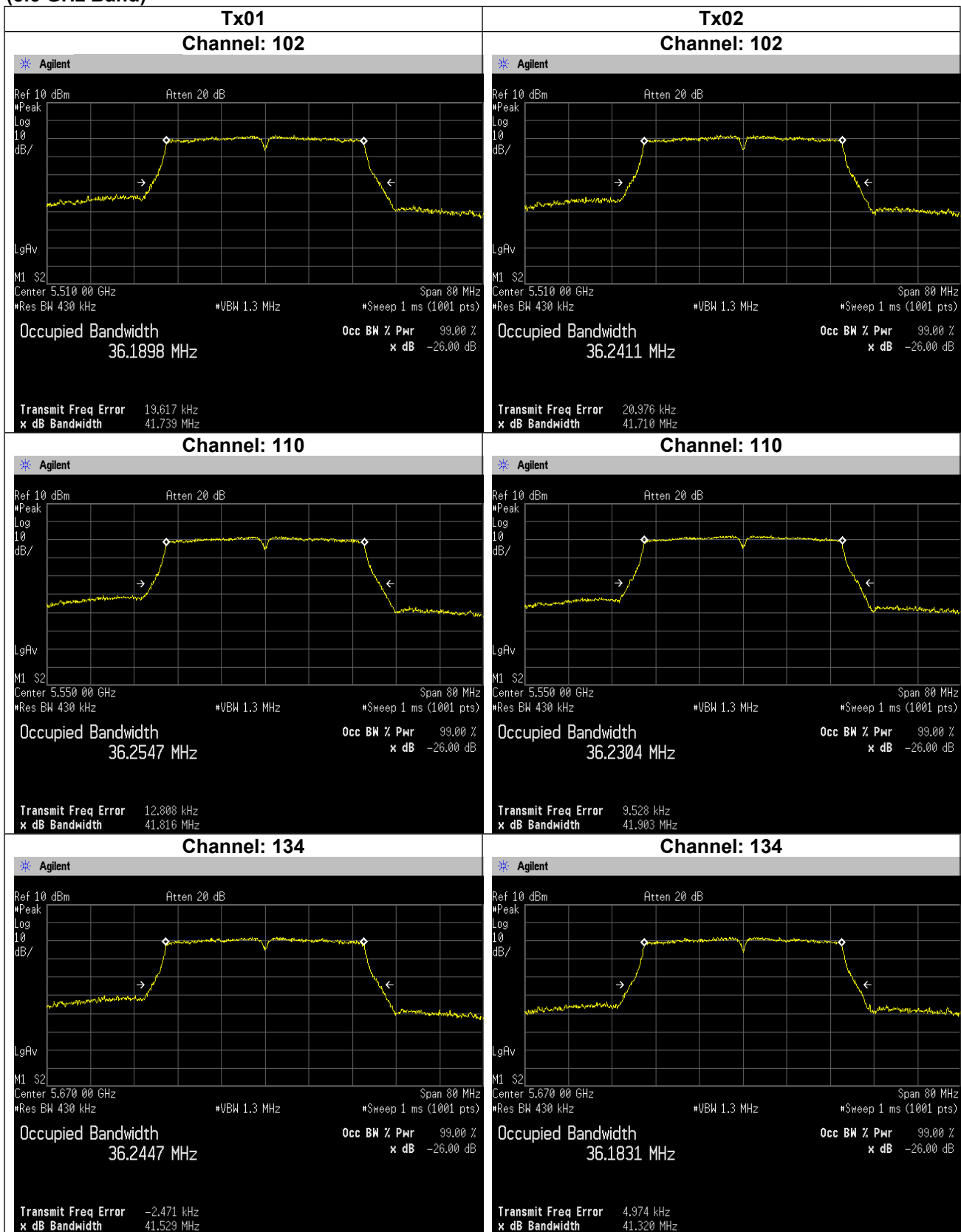
[IEEE802.11n (HT40)]
(5.2 GHz Band)



(5.3 GHz Band)

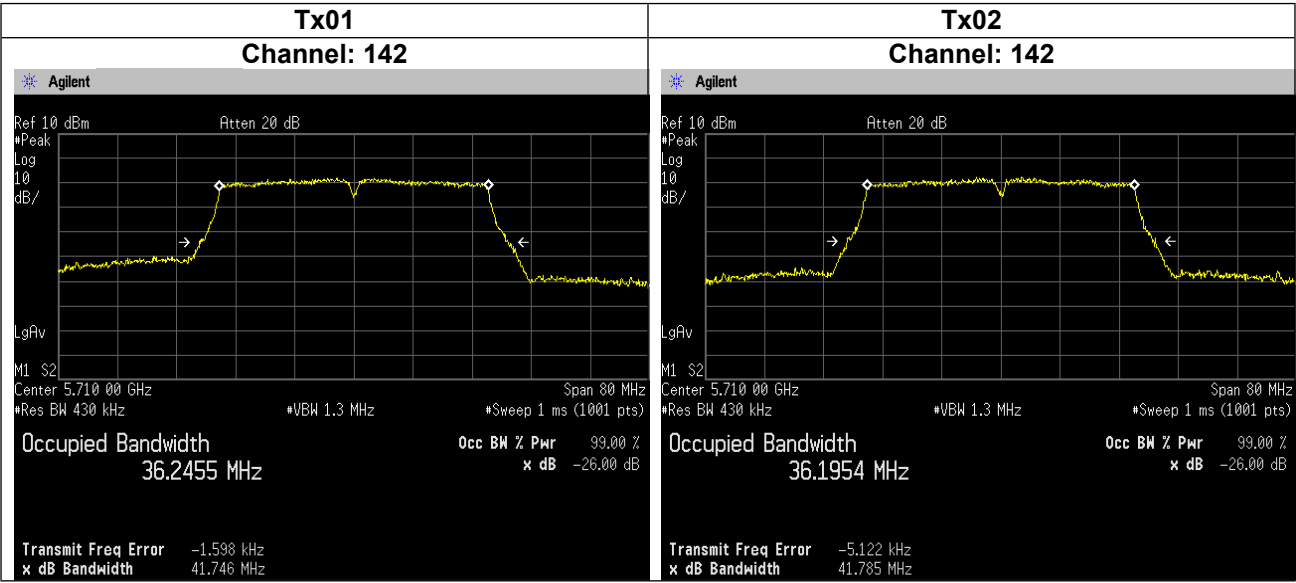


(5.6 GHz Band)

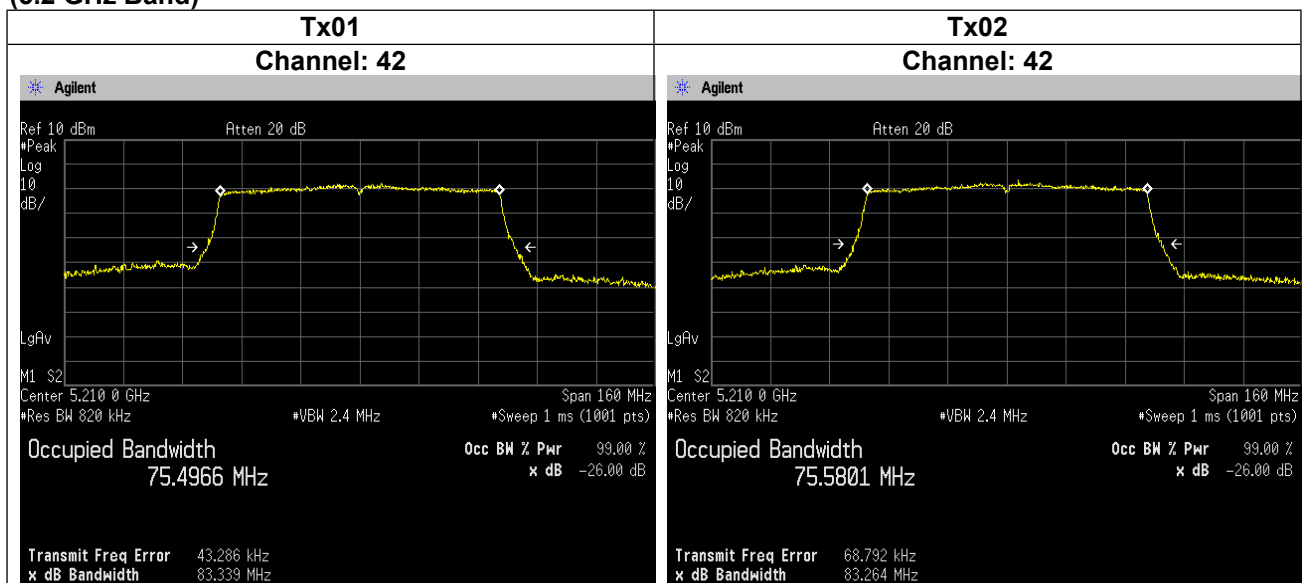




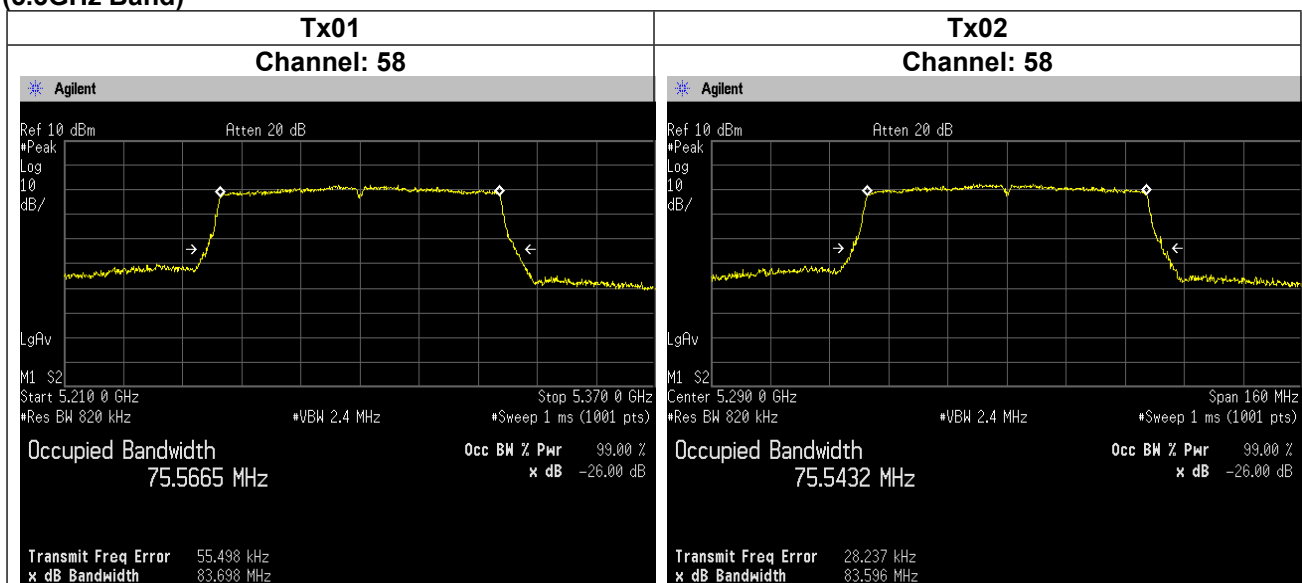
Japan



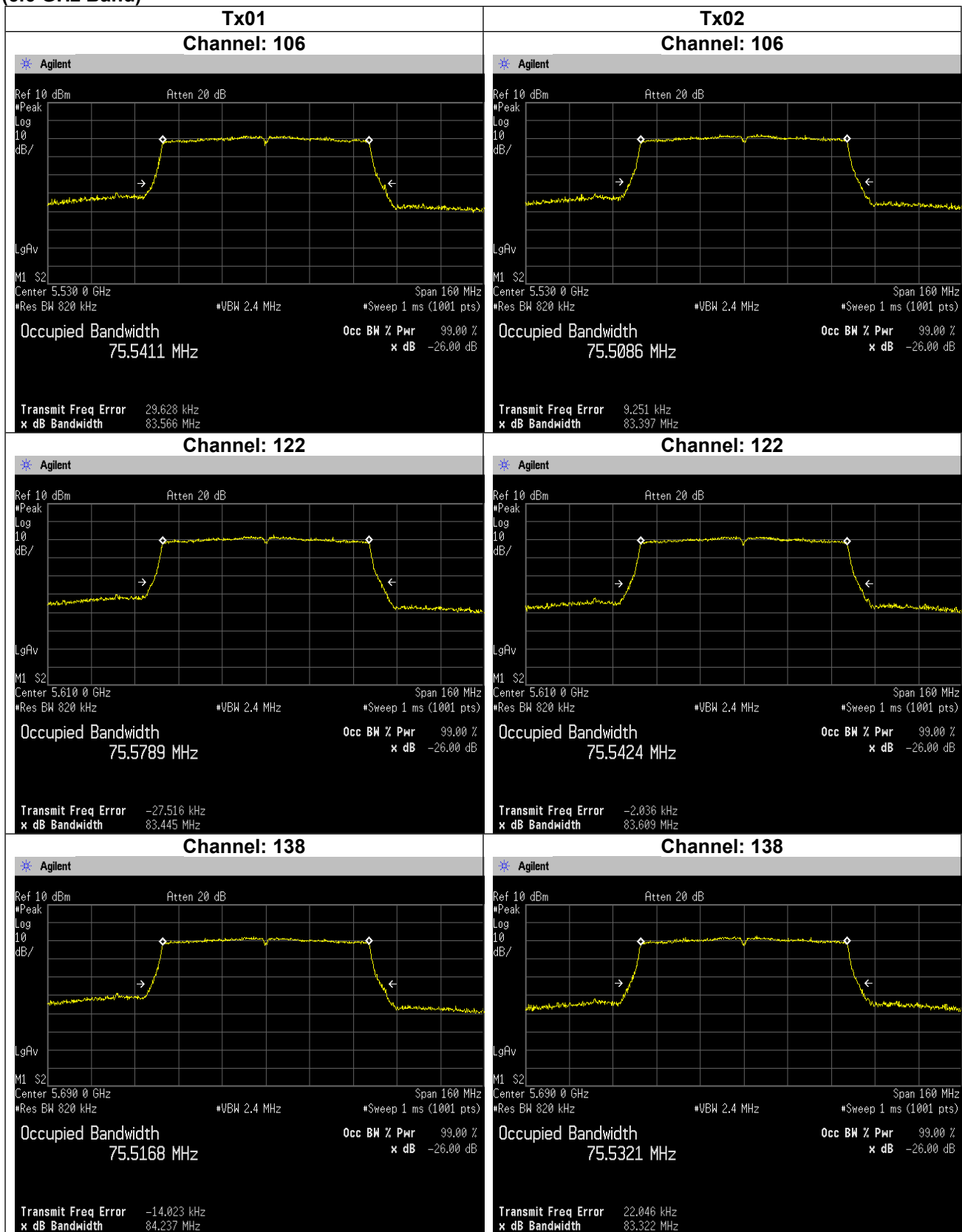
[IEEE802.11ac (HT80)]
(5.2 GHz Band)



(5.3GHz Band)



(5.6 GHz Band)



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;

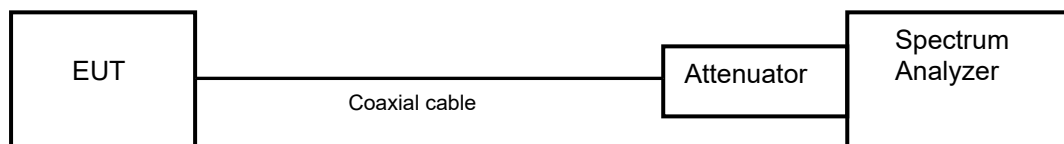
- RBW=1MHz, VBW=3MHz, Span=35MHz/70MHz/140MHz, Sweep=auto,
- Detector=RMS, Trace mode=Averaging

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 $11\text{dBm} + 10\log B$, 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.

4.2.3 DIRECTIONAL ANTENNA GAIN

Tx chains are uncorrelated for power and correlated for PSD due to the device supporting OFDMA in all MIMO modes. The directional gains are as follows:

Band	Tx01 Gain (dBi)	Tx02 Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
5.2 GHz Band	-1.3	-1.2	-1.25	1.76
5.3 GHz Band	-1.3	-1.2	-1.25	1.76
5.6 GHz Band	-2.8	-1.4	-2.04	0.94

Note: 802.11a does not support MIMO.

<Output Power Limit Calculation>

Tx01

Band	Mode	Power Limit (mW)	Calculated Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
5.2GHz Band	802.11a	250	23.97	-1.3	23.97
	802.11n HT20				
	802.11n HT20				
	802.11ac HT80				

Tx02

Band	Mode	Power Limit (mW)	Calculated Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
5.2GHz Band	802.11a	250	23.97	-1.2	23.97
	802.11n HT20				
	802.11n HT20				
	802.11ac HT80				

Tx01+Tx02

Band	Mode	Power Limit (mW)	Calculated Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
5.2GHz Band	802.11a	MIMO is not supported.			
	802.11n HT20	250	23.97	-1.25	23.97
	802.11n HT20				
	802.11ac HT80				

Tx01

Band	Mode	Power Limit (mW)	Calculated Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
		Least 26dBc BW (MHz)			
5.3GHz Band	802.11a	250	23.97	-1.3	23.97
		22.973	24.61		
	802.11n HT20	250	23.97		23.97
		23.312	24.68		
	802.11n HT20	250	23.97		23.97
		41.550	27.19		
	802.11ac HT80	250	23.97		23.97
		83.698	30.23		

Tx02

Band	Mode	Power Limit (mW)	Calculated Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
		Least 26dBc BW (MHz)			
5.3GHz Band	802.11a	250	23.97	-1.2	23.97
		22.579	24.54		
	802.11n HT20	250	23.97		23.97
		22.761	24.57		
	802.11n HT20	250	23.97		23.97
		41.278	27.16		
	802.11ac HT80	250	23.97		23.97
		83.596	30.22		

Tx01+Tx02

Band	Mode	Power Limit (mW)	Calculated Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
		Least 26dBc BW (MHz)			
5.3GHz Band	802.11a	MIMO is not supported.			
	802.11n HT20	250	23.97	-1.25	23.97
		22.761	24.57		
	802.11n HT20	250	23.97		23.97
		41.278	27.16		
	802.11ac HT80	250	23.97		23.97
		83.596	30.22		

Tx01

Band	Mode	Power Limit (mW)	Calculated Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
		Least 26dBc BW (MHz)			
5.6GHz Band	802.11a	250	23.97	-2.8	23.97
		23.297	24.67		
	802.11n HT20	250	23.97		23.97
		23.479	24.71		
	802.11n HT20	250	23.97		23.97
		41.529	27.18		
	802.11ac HT80	250	23.97		23.97
		83.445	30.21		

Tx02

Band	Mode	Power Limit (mW)	Calculated Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
		Least 26dBc BW (MHz)			
5.6GHz Band	802.11a	250	23.97	-1.4	23.97
		22.517	24.53		
	802.11n HT20	250	23.97		23.97
		23.115	24.64		
	802.11n HT20	250	23.97		23.97
		41.320	27.16		
	802.11ac HT80	250	23.97		23.97
		83.397	30.21		

Tx01+Tx02

Band	Mode	Power Limit (mW)	Calculated Limit (dBm)	Antenna Gain (dBi)	Determined Limit (dBm)
		Least 26dBc BW (MHz)			
5.6GHz Band	802.11a	MIMO is not supported.			
	802.11n HT20	250	23.97	-2.04	23.97
		23.115	24.64		
	802.11n HT20	250	23.97		23.97
		41.320	27.16		
	802.11ac HT80	250	23.97		23.97
		83.397	30.21		



Japan

4.2.4 Measurement result

Date : 7-September-2021
Temperature : 22.3 [°C]
Humidity : 51.4 [%]
Test place : Shielded room No.4

Test engineer : Tadahiro Seino

Date : 8-September-2020
Temperature : 24.1 [°C]
Humidity : 44.3 [%]
Test place : Shielded room No.4

Test engineer : Tadahiro Seino

Tx01

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	11.93	1.342	1.380	0.972	0.121	12.051	16.037
	40	5200	12.12					12.241	16.754
	58	5240	12.00					12.121	16.298
	52	5260	12.04	1.344	1.382	0.973	0.121	12.161	16.448
	56	5280	12.00					12.121	16.297
	64	5320	11.83					11.951	15.671
	100	5500	11.56	1.340	1.378	0.972	0.121	11.681	14.728
	116	5580	11.63					11.751	14.967
	140	5700	11.93					12.051	16.038
	144	5720	12.05					12.171	16.487

Tx02

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)	Test Result (mW)
				On Time(ms)	On+Off Time(ms)	X			
802.11a	36	5180	12.56	1.344	1.378	0.975	0.108	12.668	18.486
	40	5200	12.47					12.578	18.107
	58	5240	12.39					12.498	17.777
	52	5260	12.42	1.344	1.382	0.973	0.121	12.541	17.952
	56	5280	12.52					12.641	18.370
	64	5320	12.55					12.671	18.497
	100	5500	12.19	1.344	1.382	0.973	0.121	12.311	17.026
	116	5580	12.10					12.221	16.677
	140	5700	12.35					12.471	17.665
	144	5720	12.57					12.691	18.583

Note1: $X = \text{On time} / (\text{On} + \text{Off time})$, $\text{DCF} = 10 \log (1/x)$

Note2: $\text{Test Result} = \text{Reading} + \text{DCF}$

Tx01+Tx02

Note: 802.11a does not support MIMO.

Tx01

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	11.70	1.258	1.292	0.974	0.116	11.816	15.191
	40	5200	11.67					11.786	15.086
	58	5240	11.58					11.696	14.777
	52	5260	11.63	1.258	1.296	0.971	0.129	11.759	14.994
	56	5280	11.57					11.699	14.789
	64	5320	11.44					11.569	14.352
	100	5500	11.42	1.258	1.300	0.968	0.143	11.563	14.331
	116	5580	11.47					11.613	14.496
	140	5700	11.87					12.013	15.895
	144	5720	11.88					12.023	15.932

Tx02

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	12.42	1.260	1.296	0.972	0.122	12.542	17.957
	40	5200	12.31					12.432	17.508
	58	5240	12.20					12.322	17.070
	52	5260	12.25	1.260	1.298	0.971	0.129	12.379	17.294
	56	5280	12.40					12.529	17.902
	64	5320	12.37					12.499	17.779
	100	5500	12.04	1.260	1.296	0.972	0.122	12.162	16.453
	116	5580	11.97					12.092	16.190
	140	5700	12.21					12.332	17.109
	144	5720	12.39					12.512	17.833

Tx01+Tx02

Mode	Channel	Frequency (MHz)	Test Result (dBm)		Total Test Result (dBm)	Total Test Result (mW)
			Tx01	Tx02		
802.11n (20MHz)	36	5180	11.816	12.542	15.205	33.148
	40	5200	11.786	12.432	15.131	32.594
	58	5240	11.696	12.322	15.031	31.847
	52	5260	11.759	12.379	15.090	32.289
	56	5280	11.699	12.529	15.144	32.691
	64	5320	11.569	12.499	15.069	32.131
	100	5500	11.563	12.162	14.883	30.783
	116	5580	11.613	12.092	14.869	30.686
	140	5700	12.013	12.332	15.186	33.004
	144	5720	12.023	12.512	15.285	33.765

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

Note2: Test Result=Reading + DCF

Tx01

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)	Test Result (mW)
				On Time(ms)	On+Off Time(ms)	X			
802.11n (40MHz)	38	5190	12.15	0.627	0.663	0.946	0.242	12.392	17.348
	46	5230	12.00					12.242	16.759
	54	5270	12.09					12.352	17.187
	62	5310	12.06	0.628	0.666	0.941	0.262	12.322	17.069
	102	5510	11.87					12.119	16.288
	110	5550	11.85					12.099	16.213
	134	5670	12.09					12.339	17.134
	142	5710	12.23					12.479	17.695

Tx02

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)	Test Result (mW)
				On Time(ms)	On+Off Time(ms)	X			
802.11n (40MHz)	38	5190	12.95	0.628	0.664	0.946	0.242	13.192	20.855
	46	5230	12.76					13.002	19.962
	54	5270	12.74					12.989	19.900
	62	5310	12.76	0.628	0.665	0.944	0.249	13.009	19.992
	102	5510	12.44					12.675	18.515
	110	5550	12.42					12.655	18.430
	134	5670	12.73					12.965	19.793
	142	5710	12.71					12.945	19.702

Tx01+Tx02

Mode	Channel	Frequency (MHz)	Test Result (dBm)		Total Test Result (dBm)	Total Test Result (mW)
			Tx01	Tx02		
802.11n (40MHz)	38	5190	12.392	13.192	15.821	38.203
	46	5230	12.242	13.002	15.649	36.721
	54	5270	12.352	12.989	15.692	37.088
	62	5310	12.322	13.009	15.689	37.061
	102	5510	12.119	12.675	15.416	34.803
	110	5550	12.099	12.655	15.396	34.643
	134	5670	12.339	12.965	15.673	36.927
	142	5710	12.479	12.945	15.728	37.398

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

Note2: Test Result=Reading + DCF

Tx01

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	11.86	0.315	0.352	0.895	0.481	12.341	17.143
	58	5290	11.88	0.315	0.352	0.896	0.475	12.355	17.198
	106	5530	11.73	0.315	0.352	0.895	0.482	12.212	16.641
	122	5610	11.59	0.315	0.352	0.895	0.482	12.071	16.110
	138	5690	8.91	0.315	0.352	0.895	0.481	9.391	8.691

Tx02

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	12.51	0.315	0.352	0.896	0.475	12.985	19.883
	58	5290	12.49	0.315	0.352	0.895	0.481	12.971	19.820
	106	5530	12.18	0.316	0.352	0.897	0.474	12.654	18.425
	122	5610	12.46	0.316	0.352	0.897	0.474	12.941	19.682
	138	5690	13.05	0.315	0.352	0.895	0.481	13.531	22.546

Tx01+Tx02

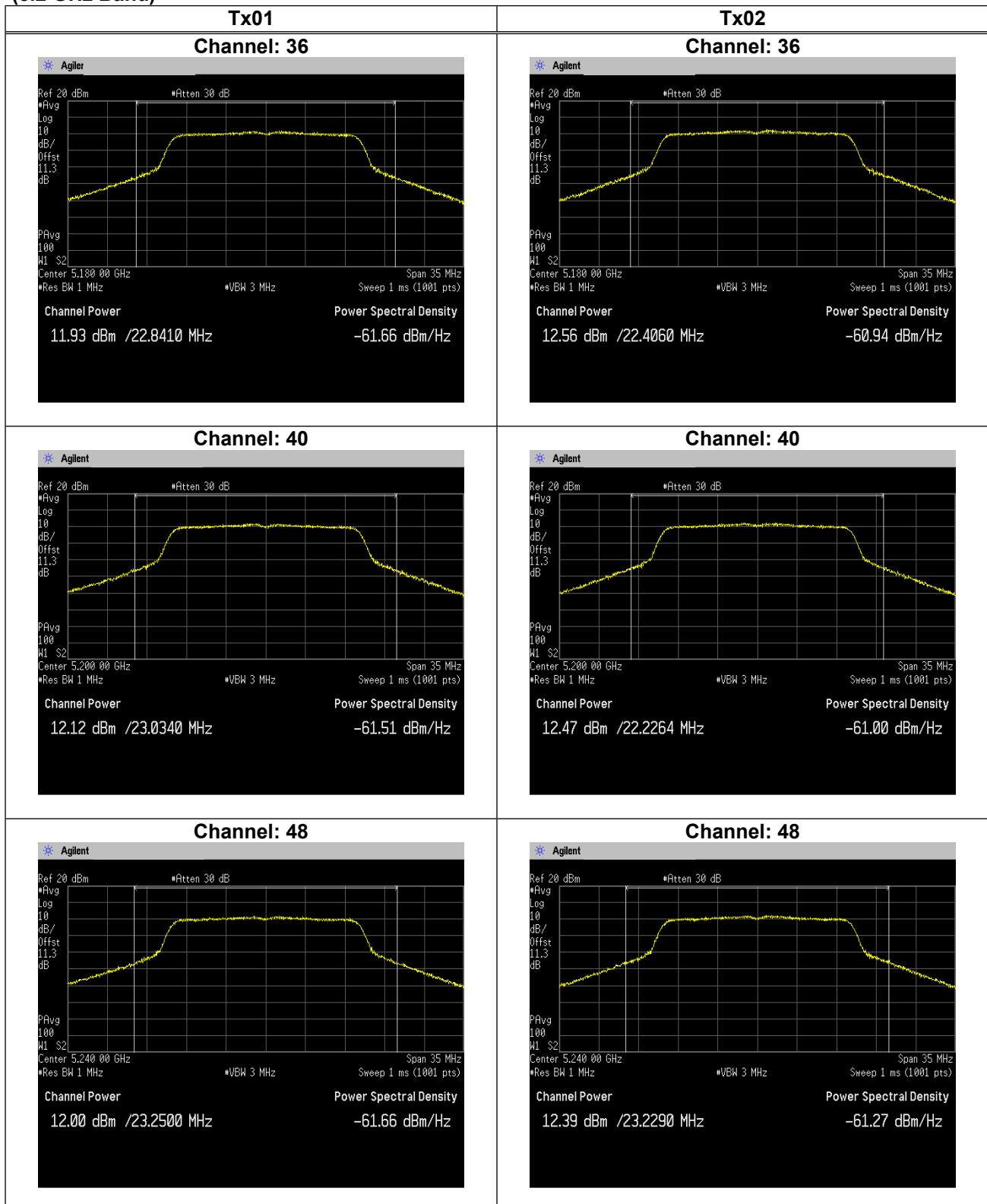
Mode	Channel	Frequency (MHz)	Test Result (dBm)		Total Test Result (dBm)	Total Test Result (mW)
			Tx01	Tx02		
802.11ac (80MHz)	42	5210	12.341	12.985	15.685	37.026
	58	5290	12.355	12.971	15.684	37.018
	106	5530	12.212	12.654	15.449	35.065
	122	5610	12.071	12.941	15.538	35.792
	138	5690	9.391	13.531	14.947	31.237

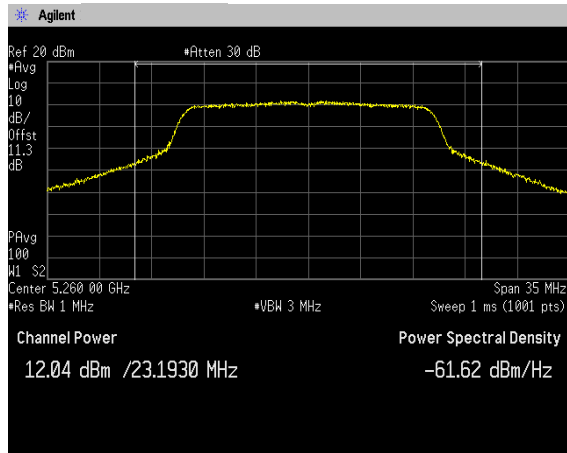
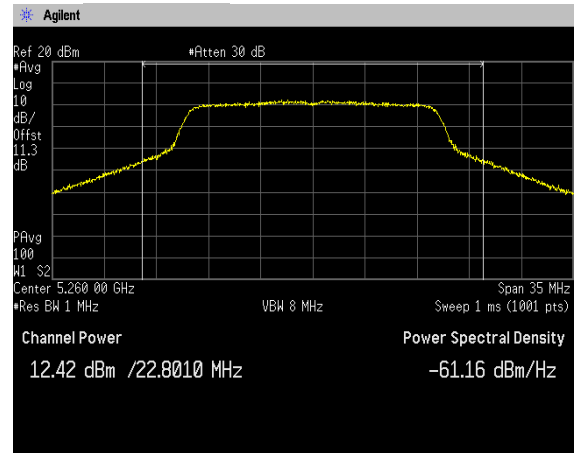
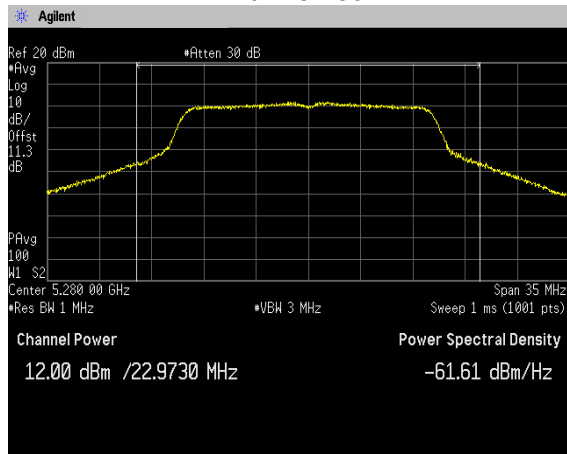
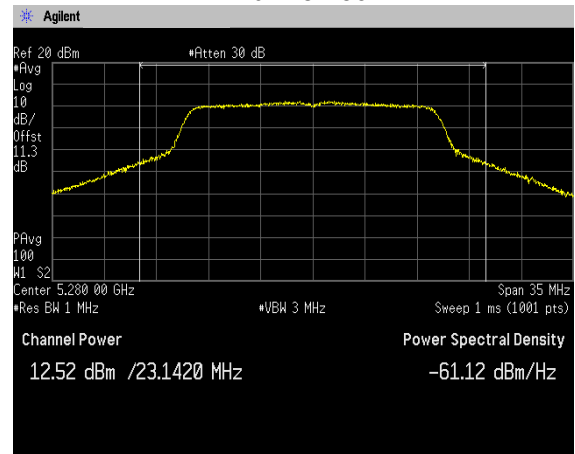
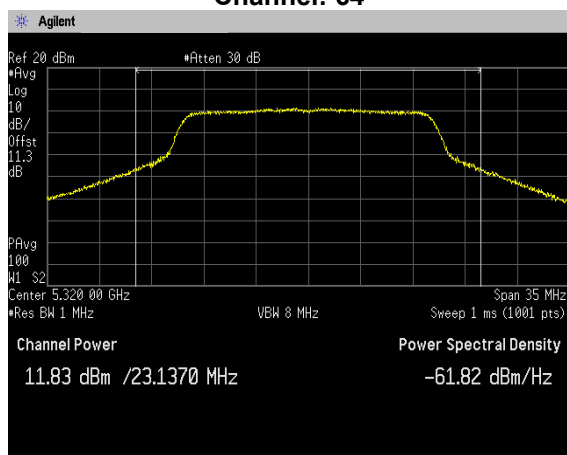
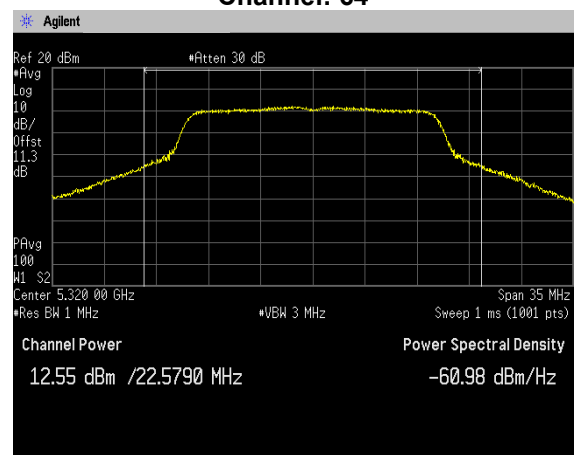
Note: X = On time / (On + Off time), DCF=10log (1/x)

Note2: Test Result=Reading + DCF

4.2.5 Trace data

[IEEE802.11a]
(5.2 GHz Band)

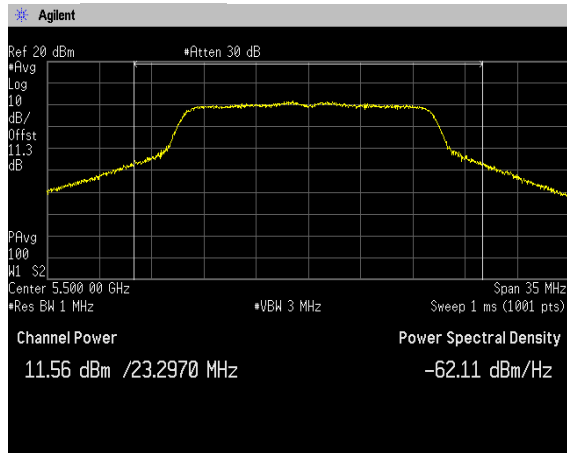


(5.3 GHz Band)**Tx01****Channel: 52****Tx02****Channel: 52****Channel: 56****Channel: 56****Channel: 64****Channel: 64**

(5.6 GHz Band)

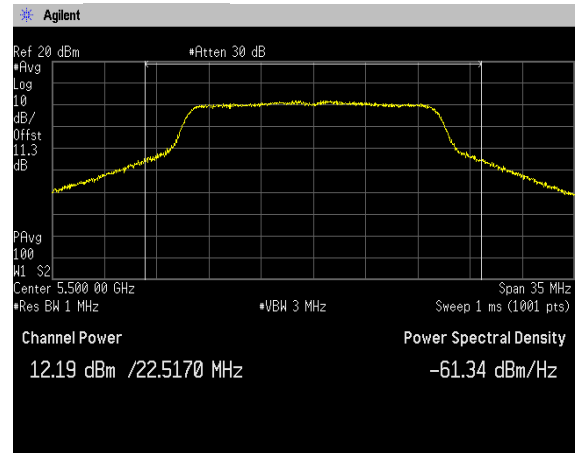
Tx01

Channel: 100

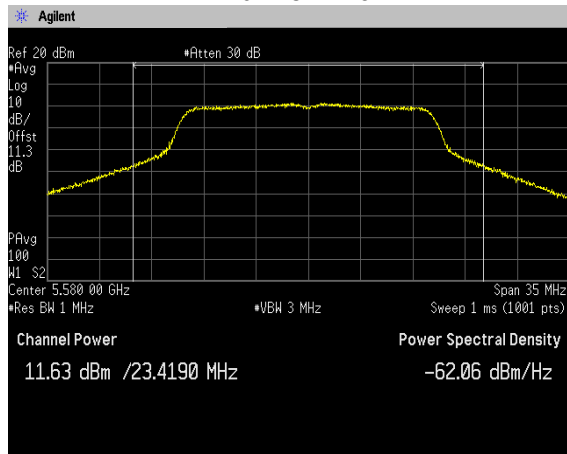


Tx02

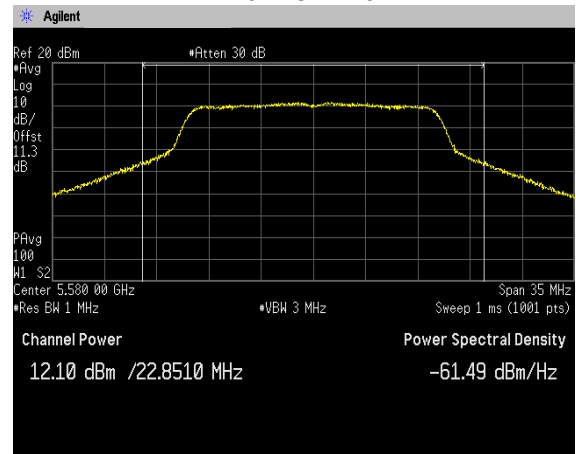
Channel: 100



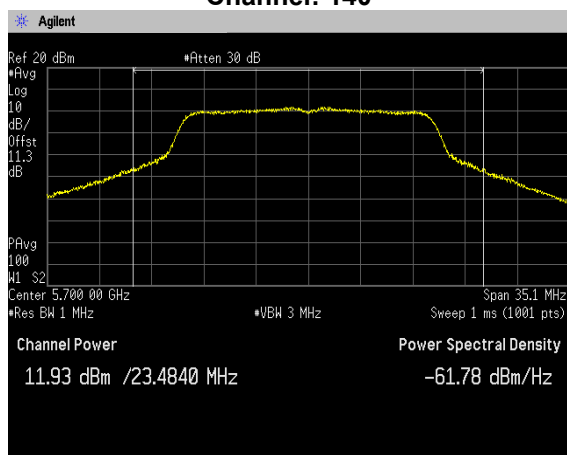
Channel: 116



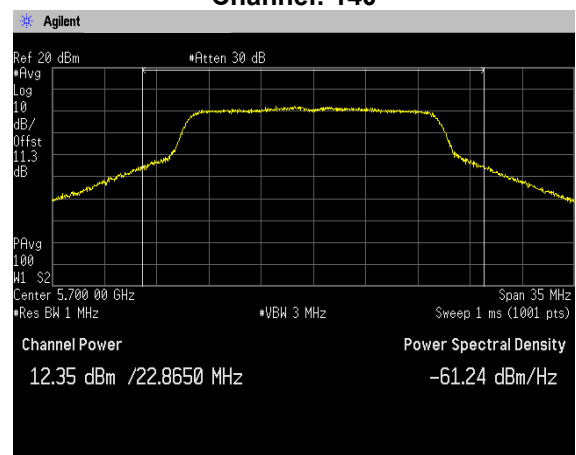
Channel: 116



Channel: 140

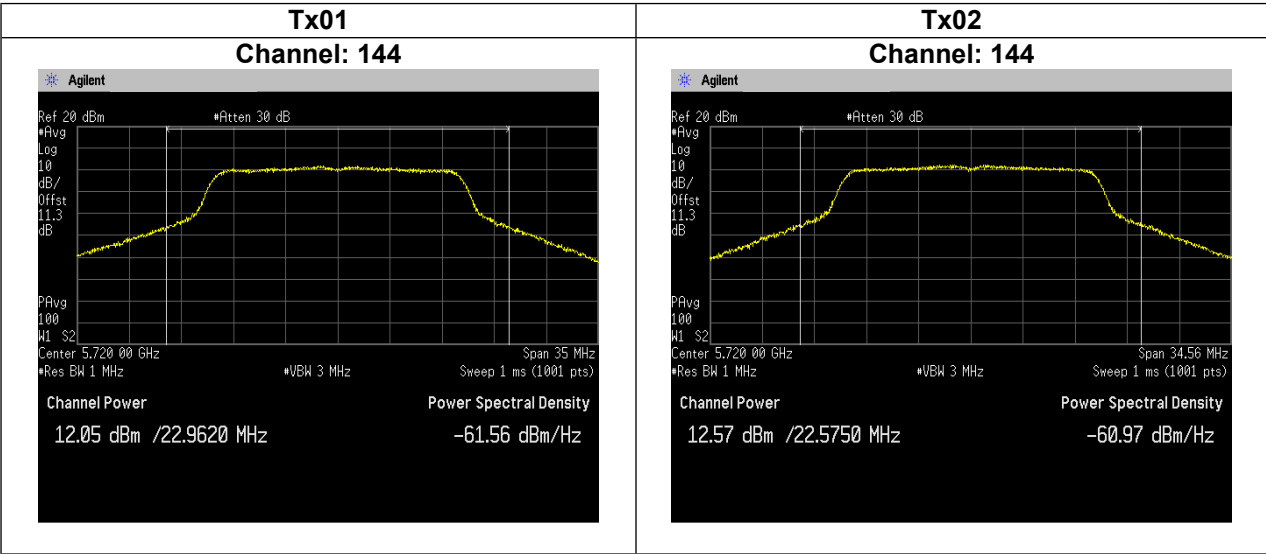


Channel: 140

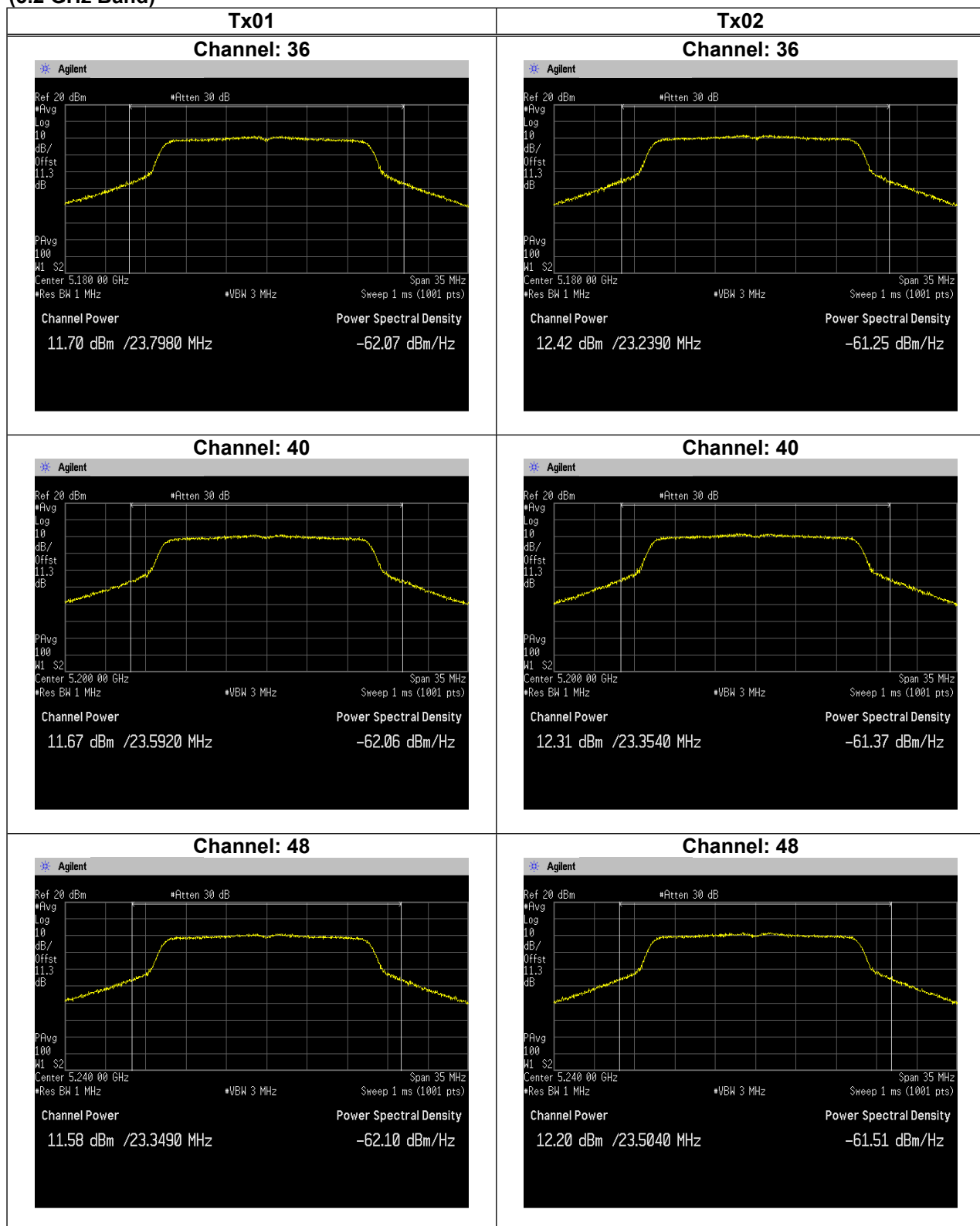




Japan



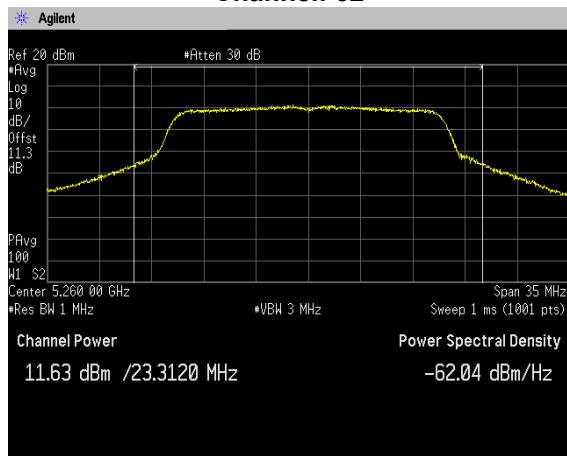
[IEEE802.11n (HT20)]
(5.2 GHz Band)



(5.3 GHz Band)

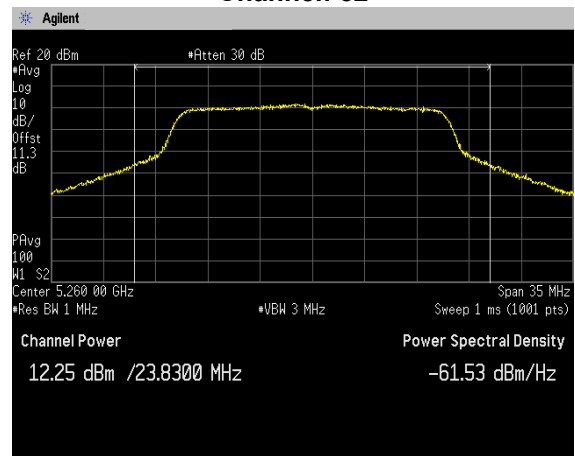
Tx01

Channel: 52

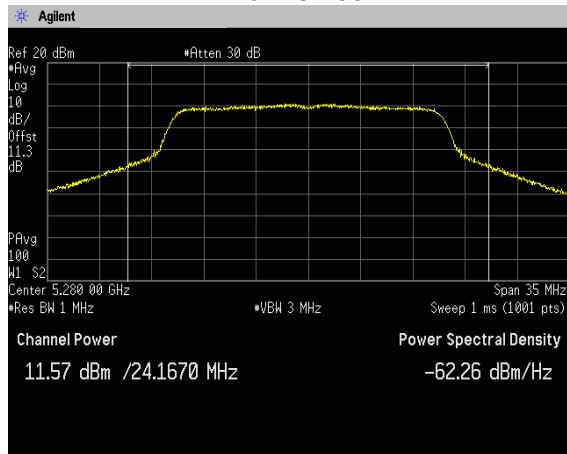


Tx02

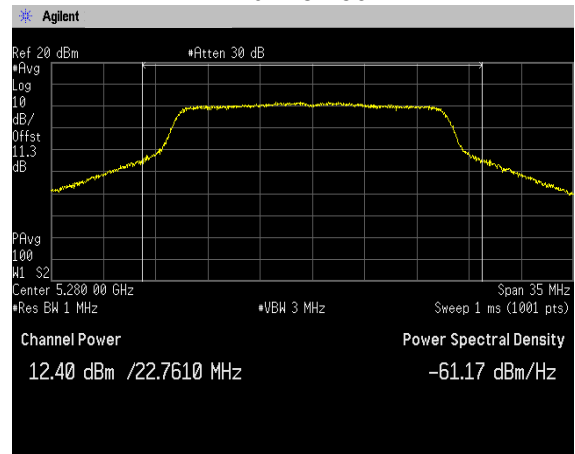
Channel: 52



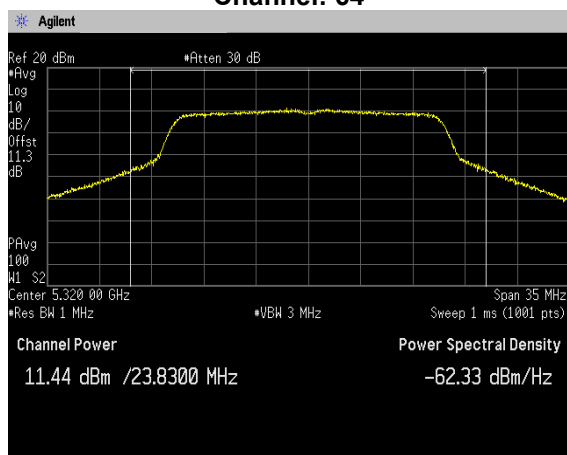
Channel: 56



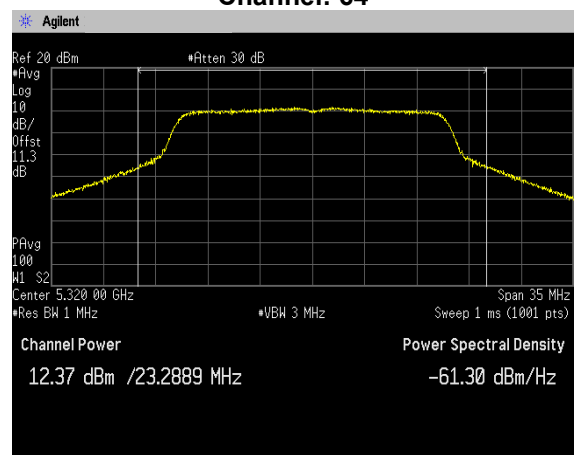
Channel: 56



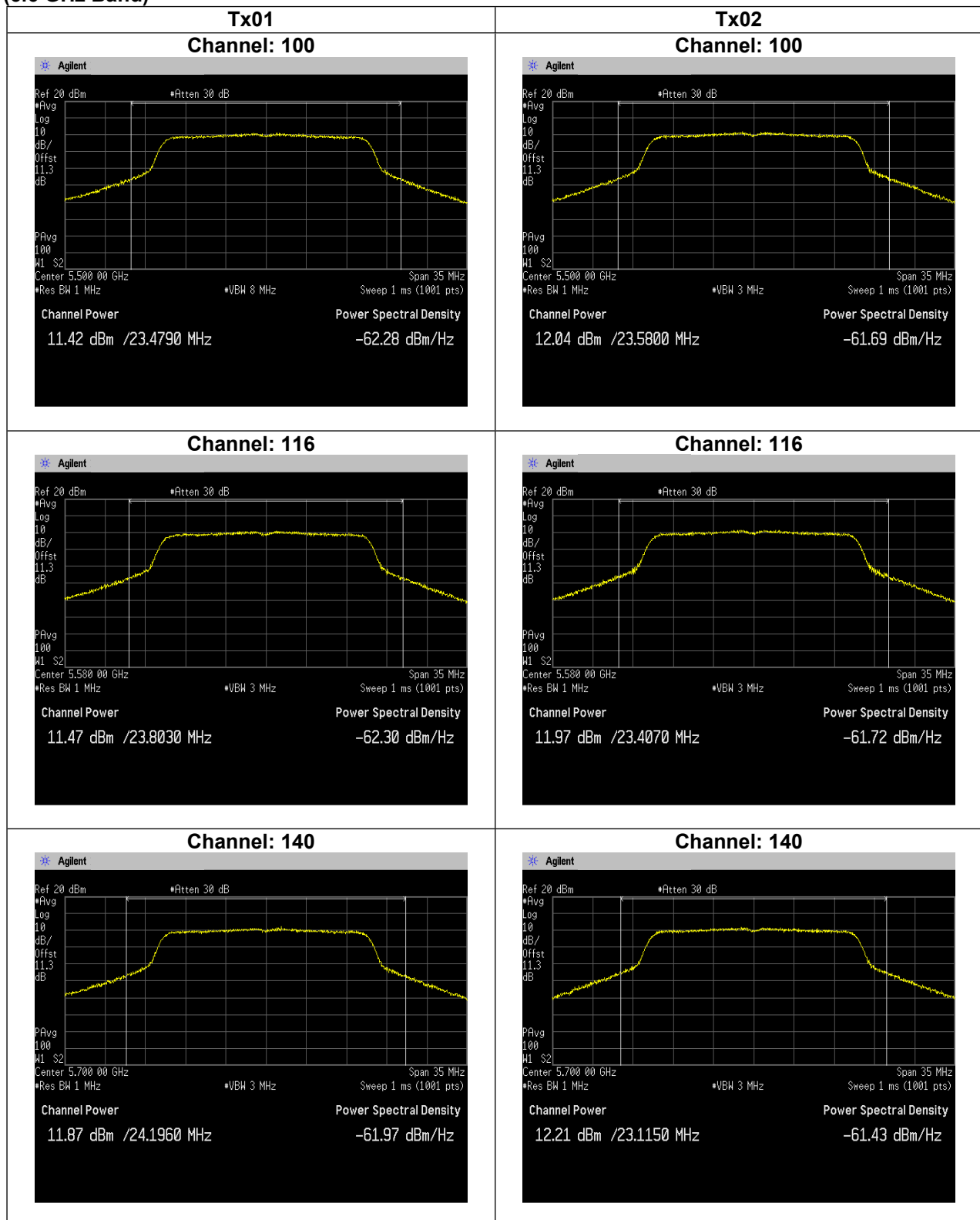
Channel: 64



Channel: 64

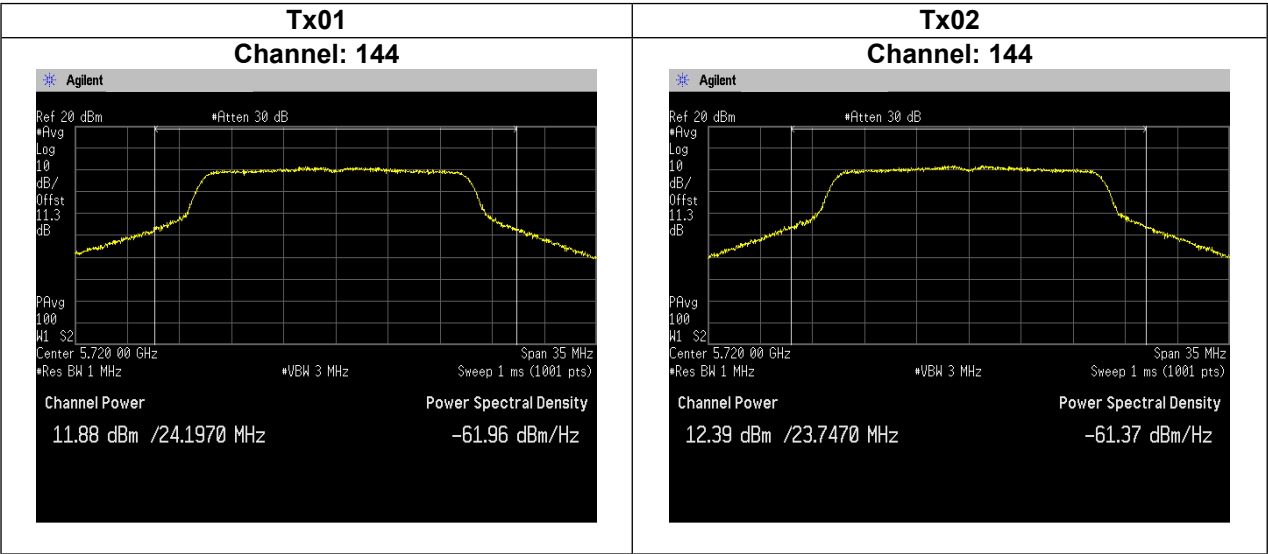


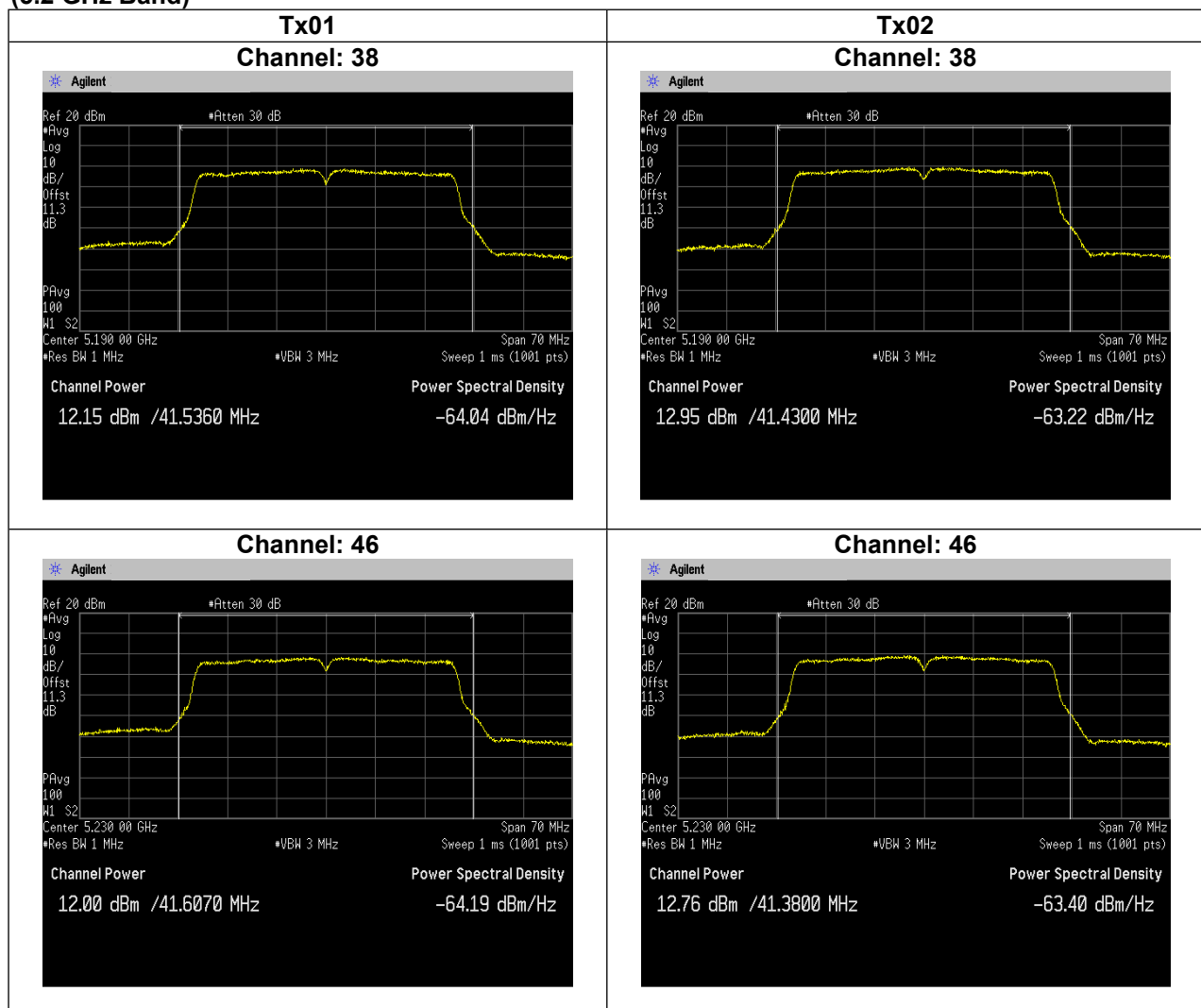
(5.6 GHz Band)



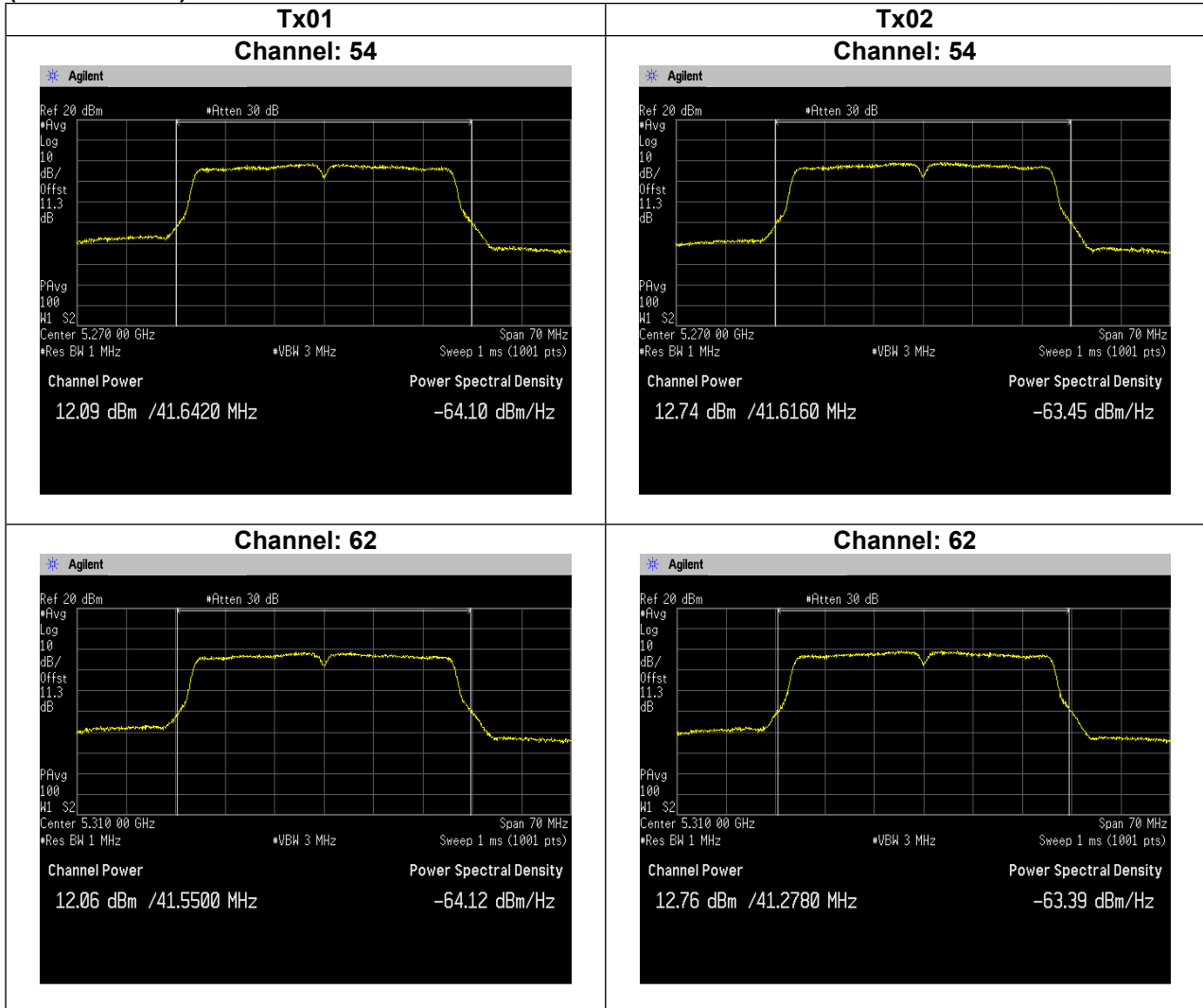


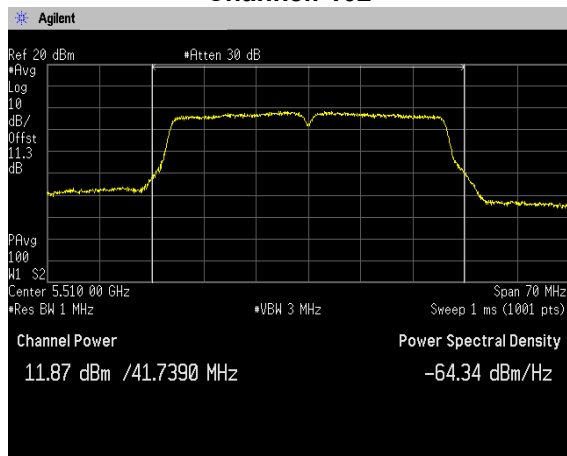
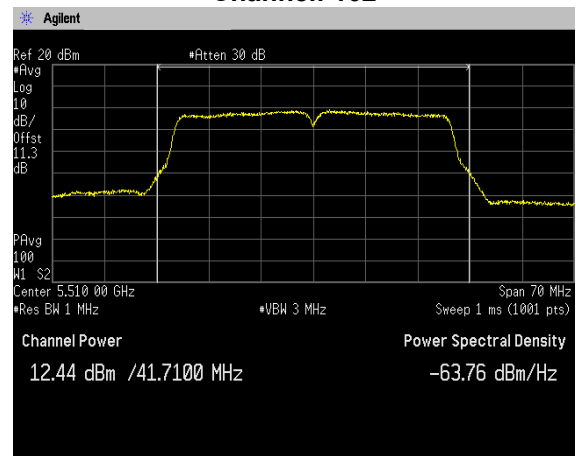
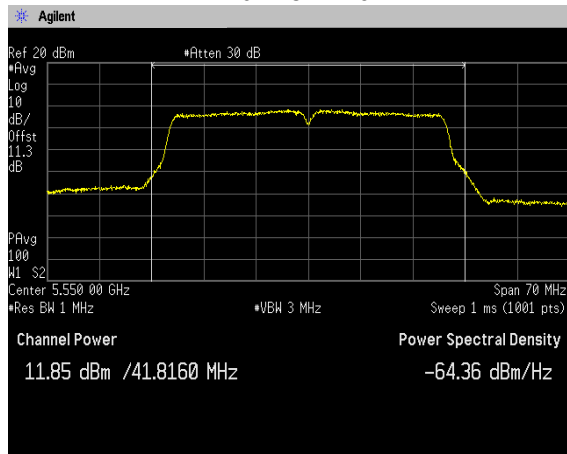
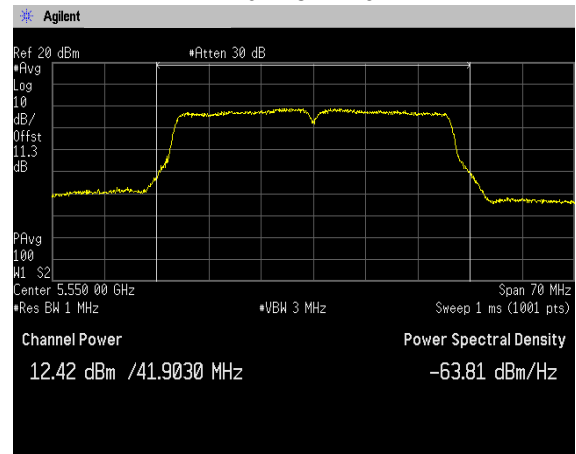
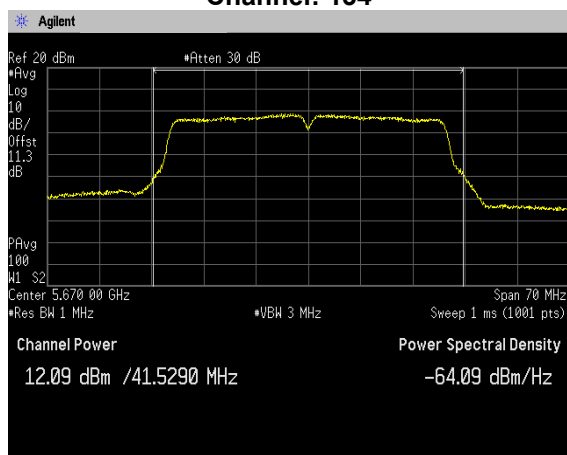
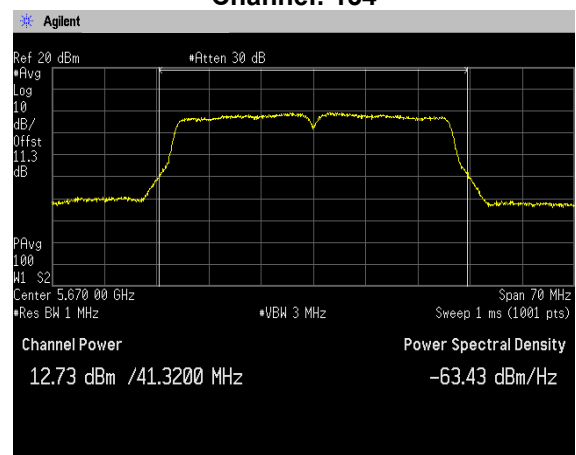
Japan



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

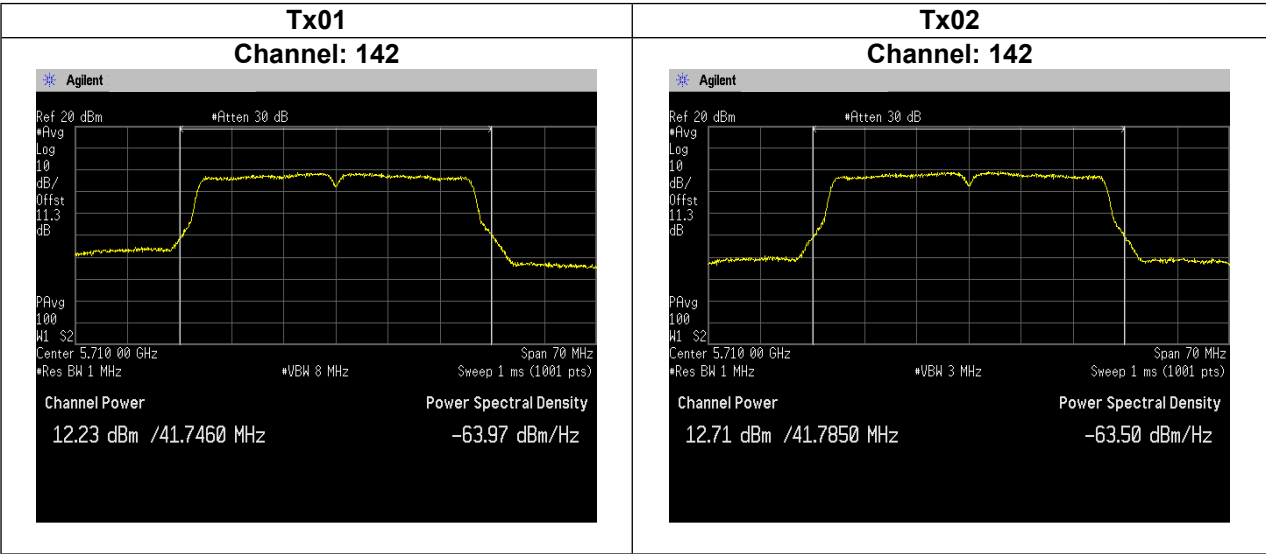
(5.3 GHz Band)



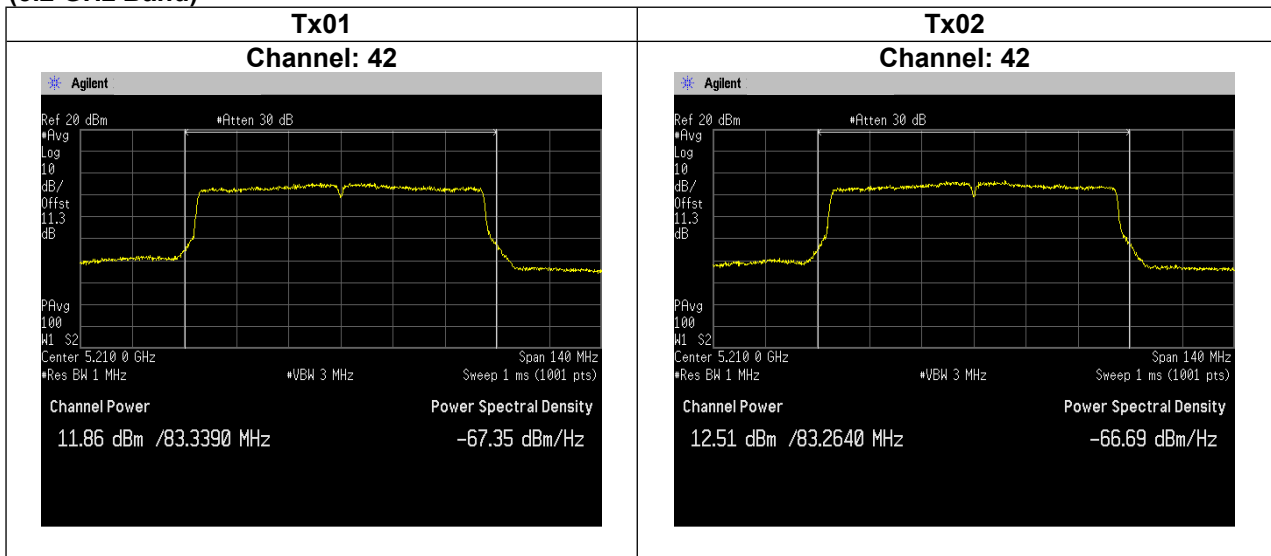
(5.6 GHz Band)**Tx01****Channel: 102****Tx02****Channel: 102****Channel: 110****Channel: 110****Channel: 134****Channel: 134**



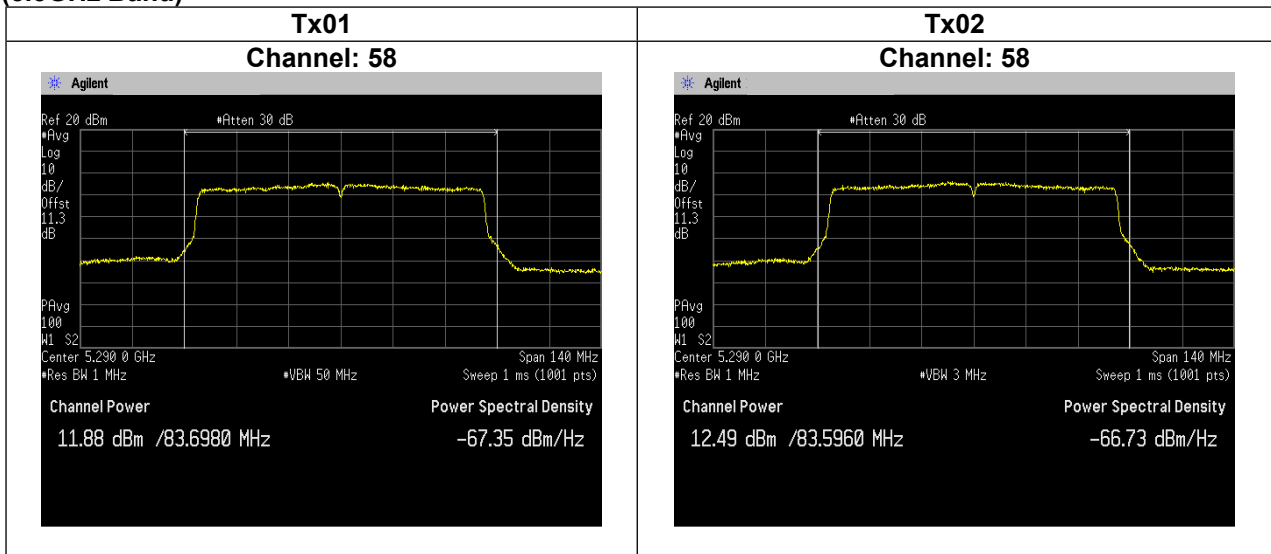
Japan



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



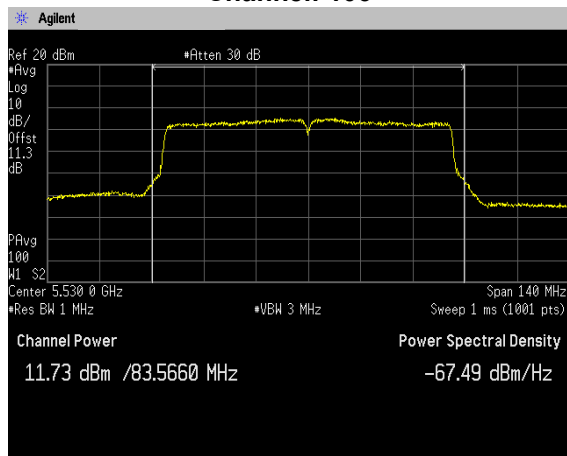
(5.3GHz Band)



(5.6 GHz Band)

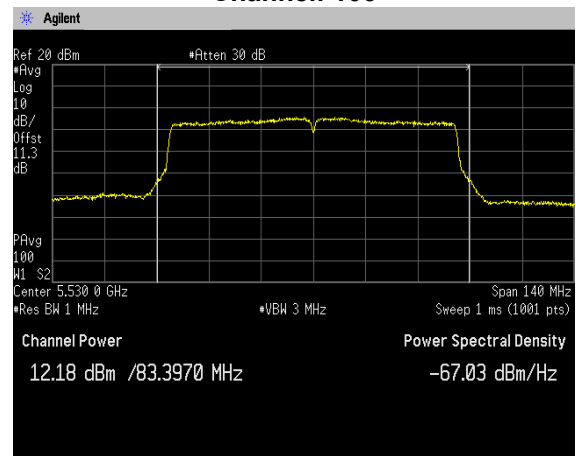
Tx01

Channel: 106

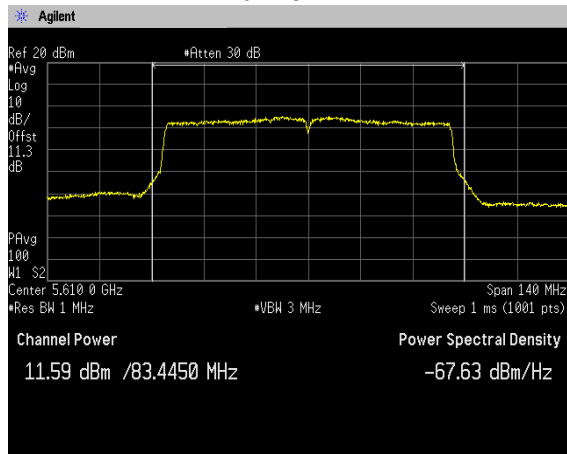


Tx02

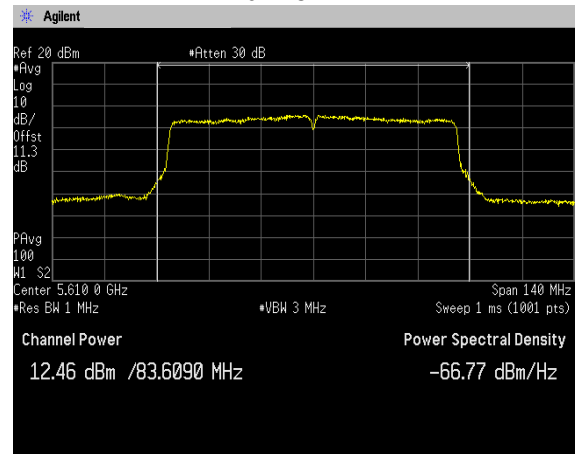
Channel: 106



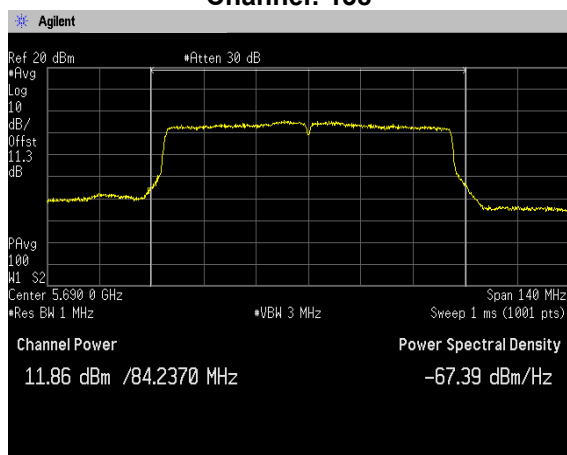
Channel: 122



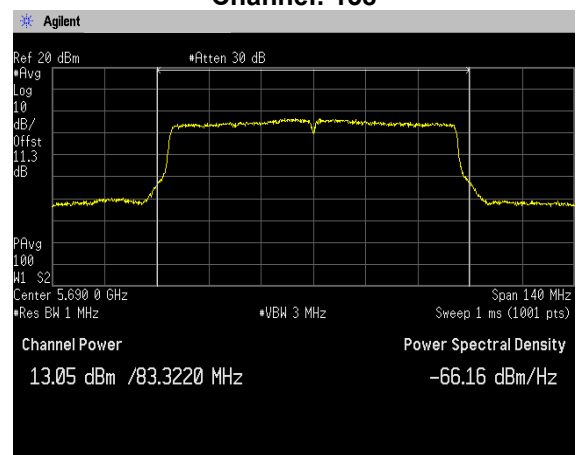
Channel: 122



Channel: 138



Channel: 138



4.3 Peak Power Spectral Density

4.3.1 Measurement procedure

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

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

The spectrum analyzer is set to;

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

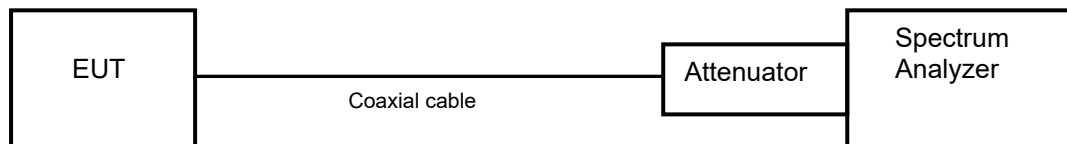
The EUT was set to operate with following conditions.

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

The test mode of EUT is as follows.

- Tx mode

- Test configuration



4.3.2 Limit

(1) For mobile and portable 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, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

4.3.3 DIRECTIONAL ANTENNA GAIN

Tx chains are uncorrelated for power and correlated for PSD due to the device supporting OFDMA in all MIMO modes. The directional gains are as follows:

Band	Tx01 Gain (dBi)	Tx02 Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
5.2 GHz Band	-1.3	-1.2	-1.25	1.76
5.3 GHz Band	-1.3	-1.2	-1.25	1.76
5.6 GHz Band	-2.8	-1.4	-2.04	0.94

Note: 802.11a does not support MIMO.

<Peak Power Spectral Density Limit Calculation>

Band	Tx01 Gain (dBi)	Limit
5.2 GHz Band	-1.3	9.7 dBm/MHz
5.3 GHz Band	-1.3	9.7 dBm/MHz
5.6 GHz Band	-2.8	8.2 dBm/MHz

Band	Tx02 Gain (dBi)	Limit
5.2 GHz Band	-1.2	9.8 dBm/MHz
5.3 GHz Band	-1.2	9.8 dBm/MHz
5.6 GHz Band	-1.4	9.6 dBm/MHz

Band	Tx01+Tx02 Gain (dBi)	Limit
5.2 GHz Band	1.76	12.76 dBm/MHz
5.3 GHz Band	1.76	12.76 dBm/MHz
5.6 GHz Band	0.94	11.94 dBm/MHz

4.3.4 Measurement result

Date : 7-September-2021
 Temperature : 22.3 [°C]
 Humidity : 51.4 [%]
 Test place : Shielded room No.4

Test engineer :
 Tadahiro Seino

Date : 8-September-2021
 Temperature : 24.1 [°C]
 Humidity : 44.3 [%]
 Test place : Shielded room No.4

Test engineer :
 Tadahiro Seino

Tx01

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	1.731	1.342	1.380	0.972	0.121	1.852
	40	5200	1.697					1.818
	48	5240	1.629					1.750
	52	5260	1.998	1.344	1.382	0.973	0.121	2.119
	56	5280	1.572					1.693
	64	5320	1.454					1.575
	100	5500	1.599	1.340	1.378	0.972	0.121	1.720
	116	5580	1.600					1.721
	140	5700	1.867					1.988
	144	5720	2.269					2.390

Tx02

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)
				On Time(ms)	On+Off Time(ms)	X		
802.11a	36	5180	2.581	1.344	1.378	0.975	0.108	2.689
	40	5200	2.413					2.521
	48	5240	2.392					2.500
	52	5260	2.379	1.344	1.382	0.973	0.121	2.500
	56	5280	2.836					2.957
	64	5320	2.621					2.742
	100	5500	2.313	1.344	1.382	0.973	0.121	2.434
	116	5580	2.422					2.543
	140	5700	2.751					2.872
	144	5720	2.517					2.638

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

Note 2: Test Result = Reading + DCF

Tx01+Tx02

Note: 802.11a does not support MIMO.

Tx01

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)
				On Time(ms)	On+Off Time(ms)	X		
802.11n (20MHz)	36	5180	1.563	1.258	1.292	0.974	0.116	1.679
	40	5200	1.466					1.582
	48	5240	1.436					1.552
	52	5260	1.403	1.258	1.296	0.971	0.129	1.532
	56	5280	1.031					1.160
	64	5320	0.818					0.947
	100	5500	1.754	1.258	1.300	0.968	0.143	1.897
	116	5580	1.241					1.384
	140	5700	1.238					1.381
	144	5720	1.322					1.465

Tx01

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)
				On Time(ms)	On+Off Time(ms)	X		
802.11n (20MHz)	36	5180	2.047	1.260	1.296	0.972	0.122	2.169
	40	5200	2.260					2.382
	48	5240	1.874					1.996
	52	5260	2.123	1.260	1.298	0.971	0.129	2.252
	56	5280	2.172					2.301
	64	5320	2.217					2.346
	100	5500	1.833	1.260	1.296	0.972	0.122	1.955
	116	5580	1.744					1.866
	140	5700	2.126					2.248
	144	5720	2.210					2.332

Tx01+Tx02

Mode	Channel	Frequency (MHz)	Test Result (dBm)		Total Test Result (dBm)
			Tx01	Tx02	
802.11n (20MHz)	36	5180	1.679	2.169	4.941
	40	5200	1.582	2.382	5.011
	58	5240	1.552	1.996	4.790
	52	5260	1.532	2.252	4.917
	56	5280	1.160	2.301	4.778
	64	5320	0.947	2.346	4.713
	100	5500	1.897	1.955	4.936
	116	5580	1.384	1.866	4.642
	140	5700	1.381	2.248	4.846
	144	5720	1.465	2.332	4.930

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

Note 2: Test Result = Reading + DCF

Tx01

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)
				On Time(ms)	On+Off Time(ms)	X		
802.11n (40MHz)	38	5190	-1.240	0.627	0.663	0.946	0.242	-0.998
	46	5230	-1.273					-1.031
	54	5270	-1.213					-0.951
	62	5310	-1.221	0.627	0.666	0.941	0.262	-0.959
	102	5510	-1.625					-1.376
	110	5550	-1.396	0.628	0.665	0.944	0.249	-1.147
	134	5670	-1.288					-1.039
	142	5710	-1.098					-0.849

Tx02

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)
				On Time(ms)	On+Off Time(ms)	X		
802.11n (40MHz)	38	5190	-0.157	0.628	0.664	0.946	0.242	0.085
	46	5230	-0.339					-0.097
	54	5270	-0.768					-0.519
	62	5310	-0.507	0.628	0.665	0.944	0.249	-0.258
	102	5510	-0.762					-0.527
	110	5550	-0.638	0.629	0.664	0.947	0.235	-0.403
	134	5670	-0.075					0.160
	142	5710	-0.252					-0.017

Tx01+Tx02

Mode	Channel	Frequency (MHz)	Test Result (dBm)		Total Test Result (dBm)
			Tx01	Tx02	
802.11n (40MHz)	38	5190	-0.998	0.085	2.588
	46	5230	-1.031	-0.097	2.472
	54	5270	-0.951	-0.519	2.281
	62	5310	-0.959	-0.258	2.416
	102	5510	-1.376	-0.527	2.079
	110	5550	-1.147	-0.403	2.251
	134	5670	-1.039	0.160	2.612
	142	5710	-0.849	-0.017	2.597

Note: $X = \text{On time} / (\text{On} + \text{Off time})$, $\text{DCF} = 10 \log(1/x)$

Note 2: Test Result = Reading + DCF

Tx01

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	-4.705	0.315	0.352	0.895	0.481	-4.224
	58	5290	-4.848	0.315	0.352	0.896	0.475	-4.373
	106	5530	-4.904	0.315	0.352	0.895	0.482	-4.422
	122	5610	-4.562	0.315	0.352	0.895	0.482	-4.080
	138	5690	-4.489	0.315	0.352	0.895	0.481	-4.008

Tx02

Mode	Channel	Frequency (MHz)	Reading (dBm)	Duty Cycle			DCF (dB)	Test Result (dBm)
				On Time(ms)	On+Off Time(ms)	X		
802.11ac (80MHz)	42	5210	-3.572	0.315	0.352	0.896	0.475	-3.097
	58	5290	-3.668	0.315	0.352	0.895	0.481	-3.187
	106	5530	-3.957	0.316	0.352	0.897	0.474	-3.483
	122	5610	-3.775	0.316	0.352	0.897	0.474	-3.301
	138	5690	-3.389	0.315	0.352	0.895	0.481	-2.908

Tx01+Tx02

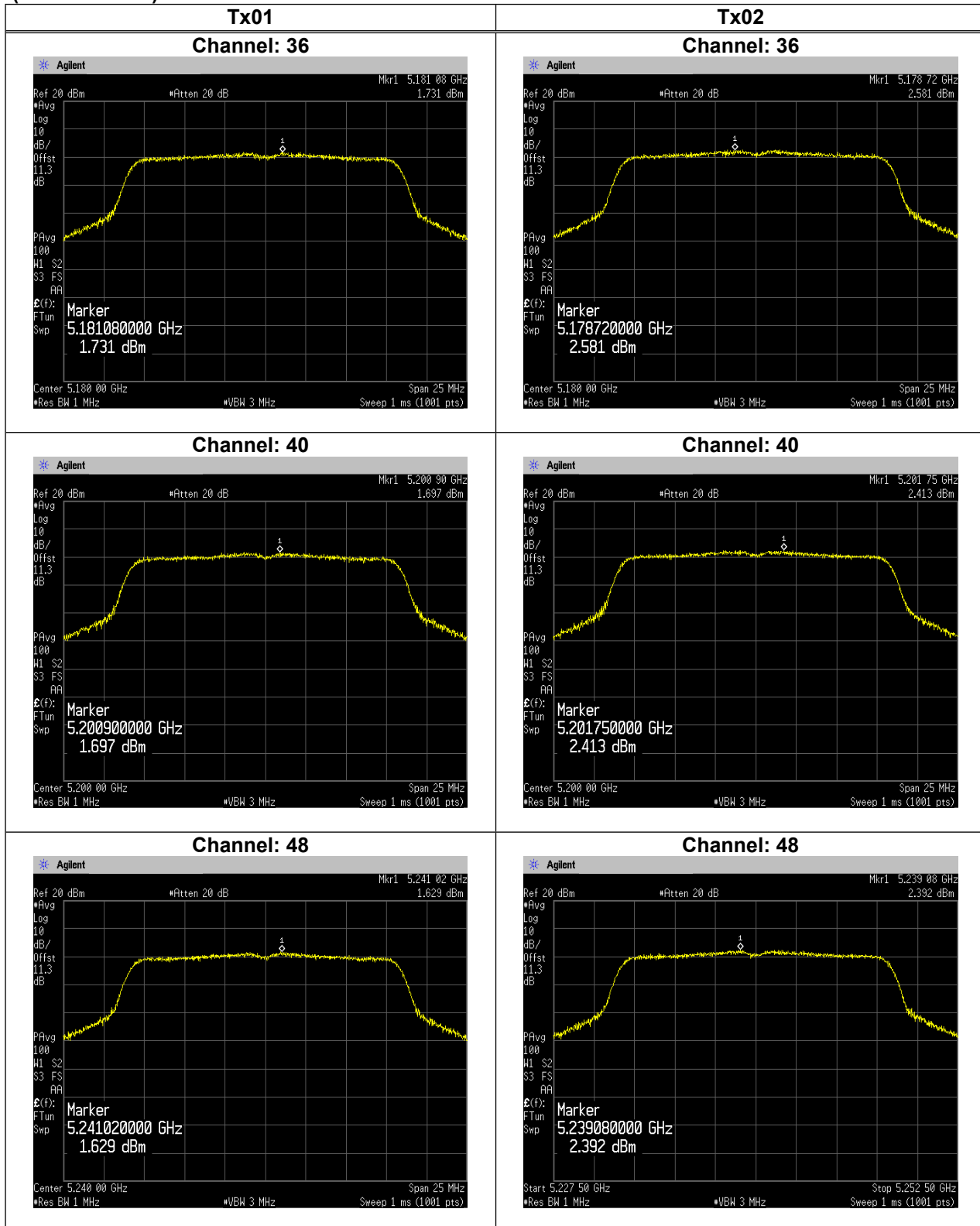
Mode	Channel	Frequency (MHz)	Test Result (dBm)		Total Test Result (dBm)
			Tx01	Tx02	
802.11ac (80MHz)	42	5210	-4.224	-3.097	-0.614
	58	5290	-4.373	-3.187	-0.729
	106	5530	-4.422	-3.483	-0.917
	122	5610	-4.080	-3.301	-0.663
	138	5690	-4.008	-2.908	-0.413

Note: $X = \text{On time} / (\text{On} + \text{Off time})$, $\text{DCF} = 10 \log (1/x)$

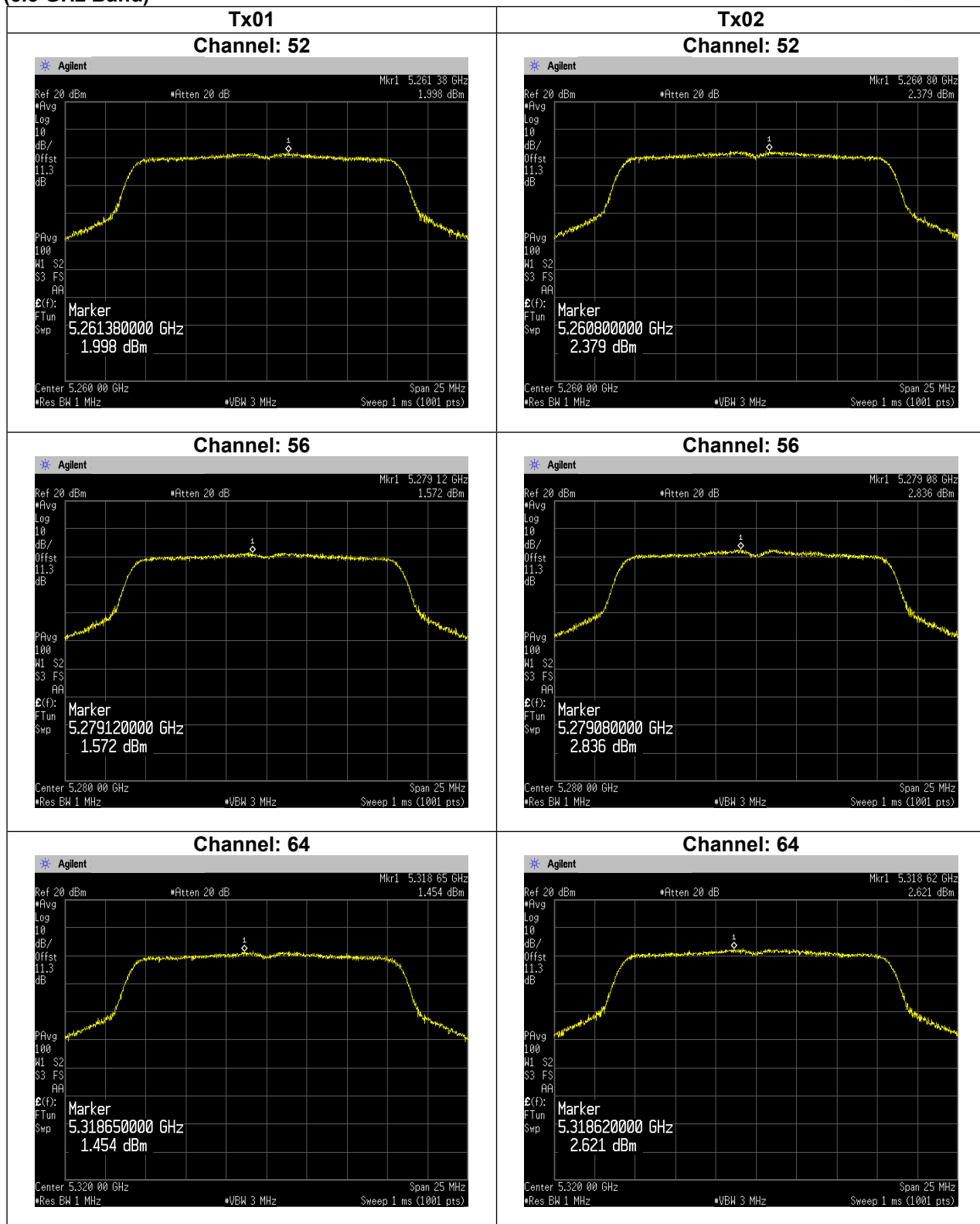
Note 2: $\text{Test Result} = \text{Reading} + \text{DCF}$

4.3.5 Trace data

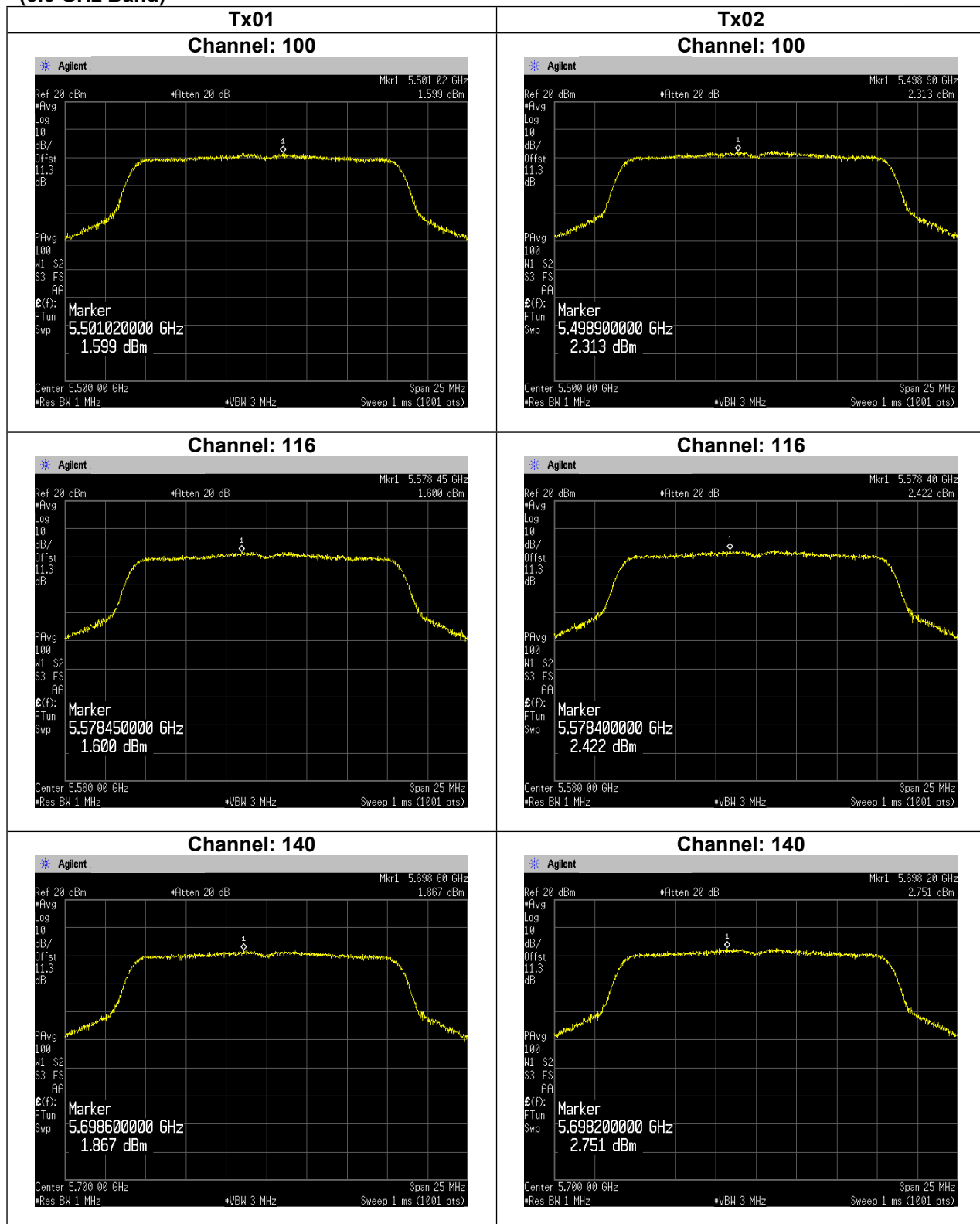
[IEEE802.11a]
(5.2 GHz Band)



(5.3 GHz Band)

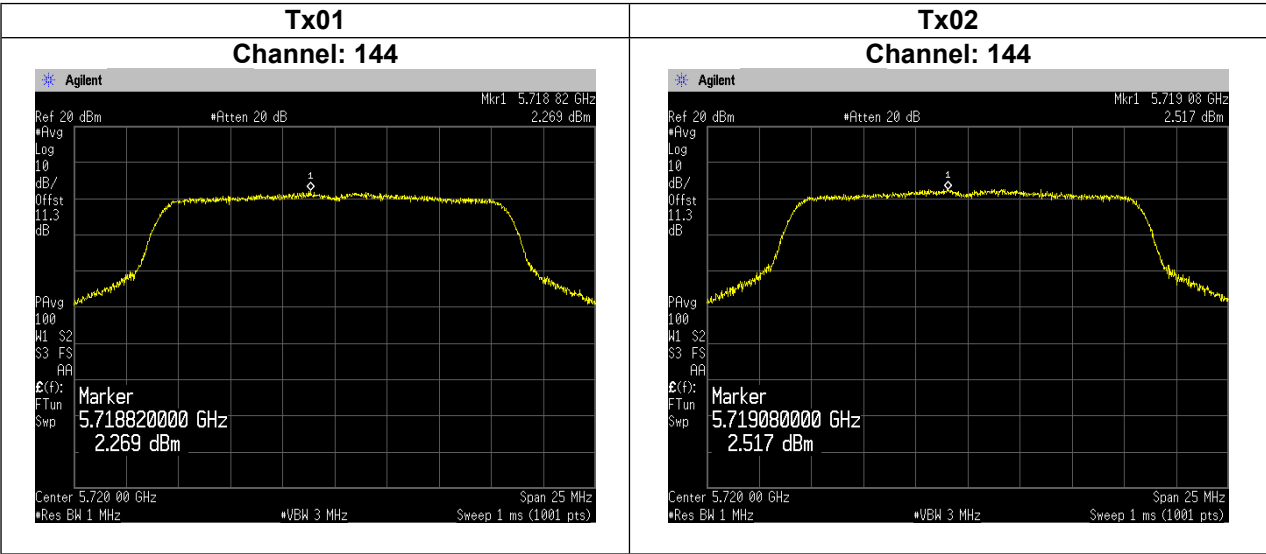


(5.6 GHz Band)

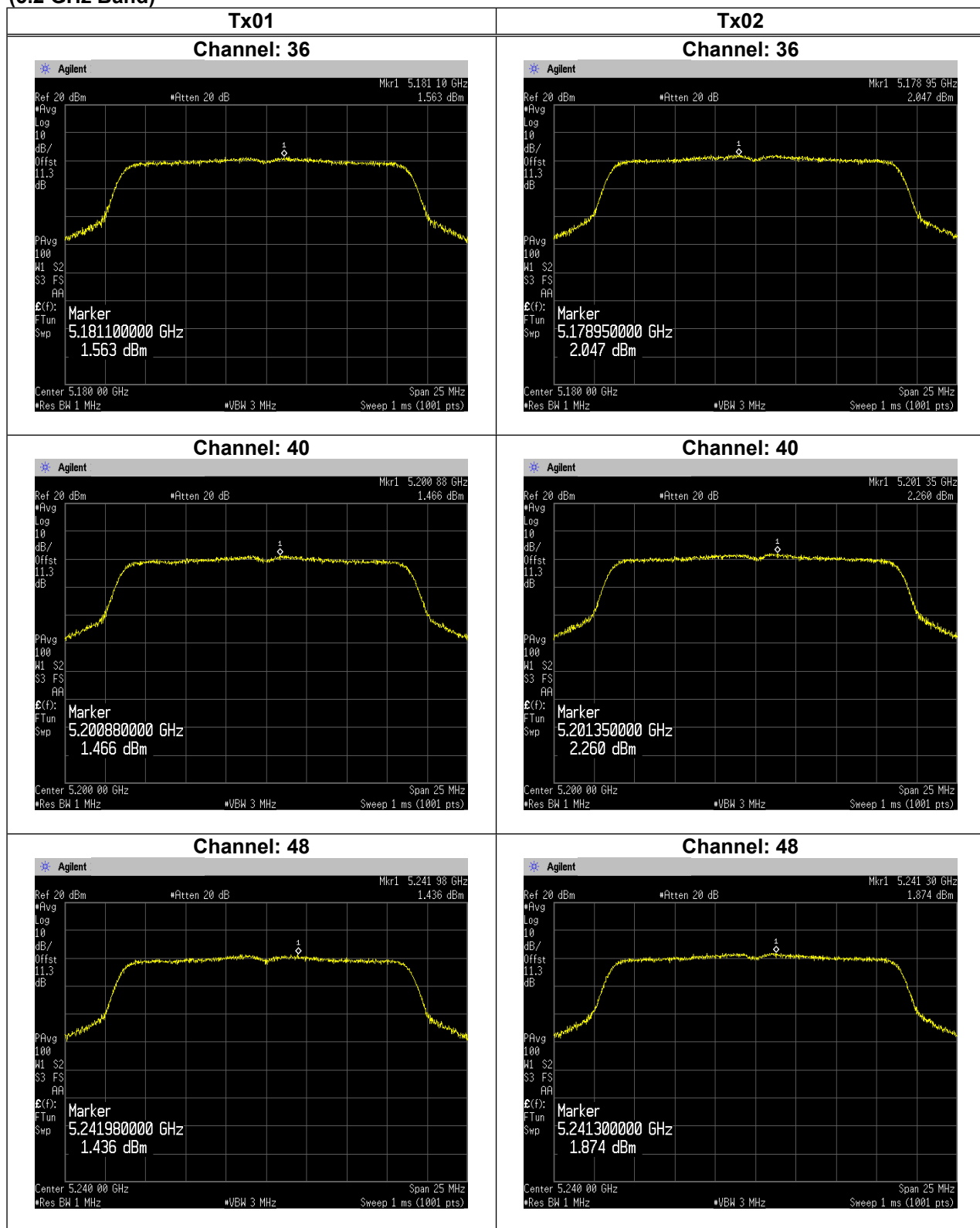




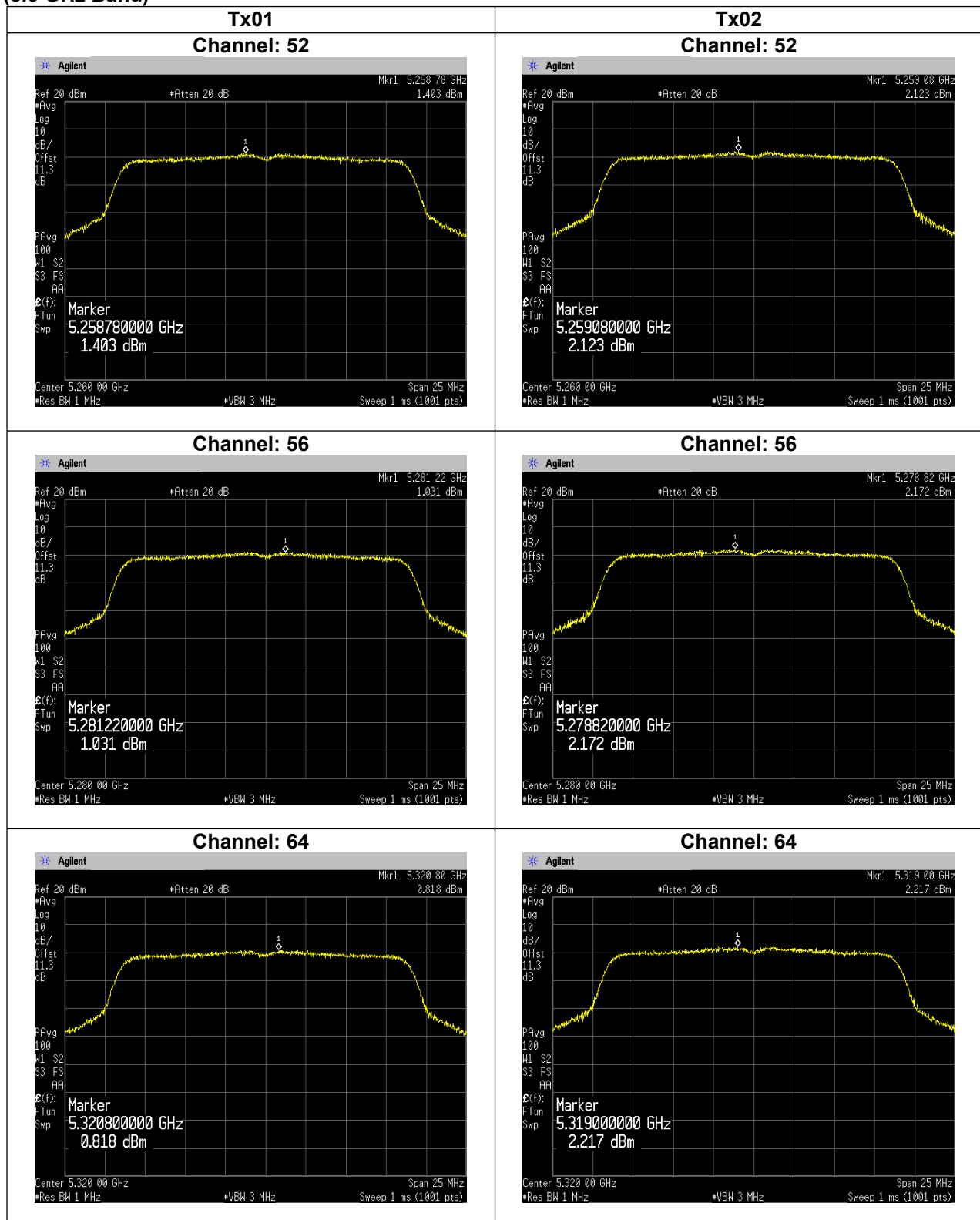
Japan



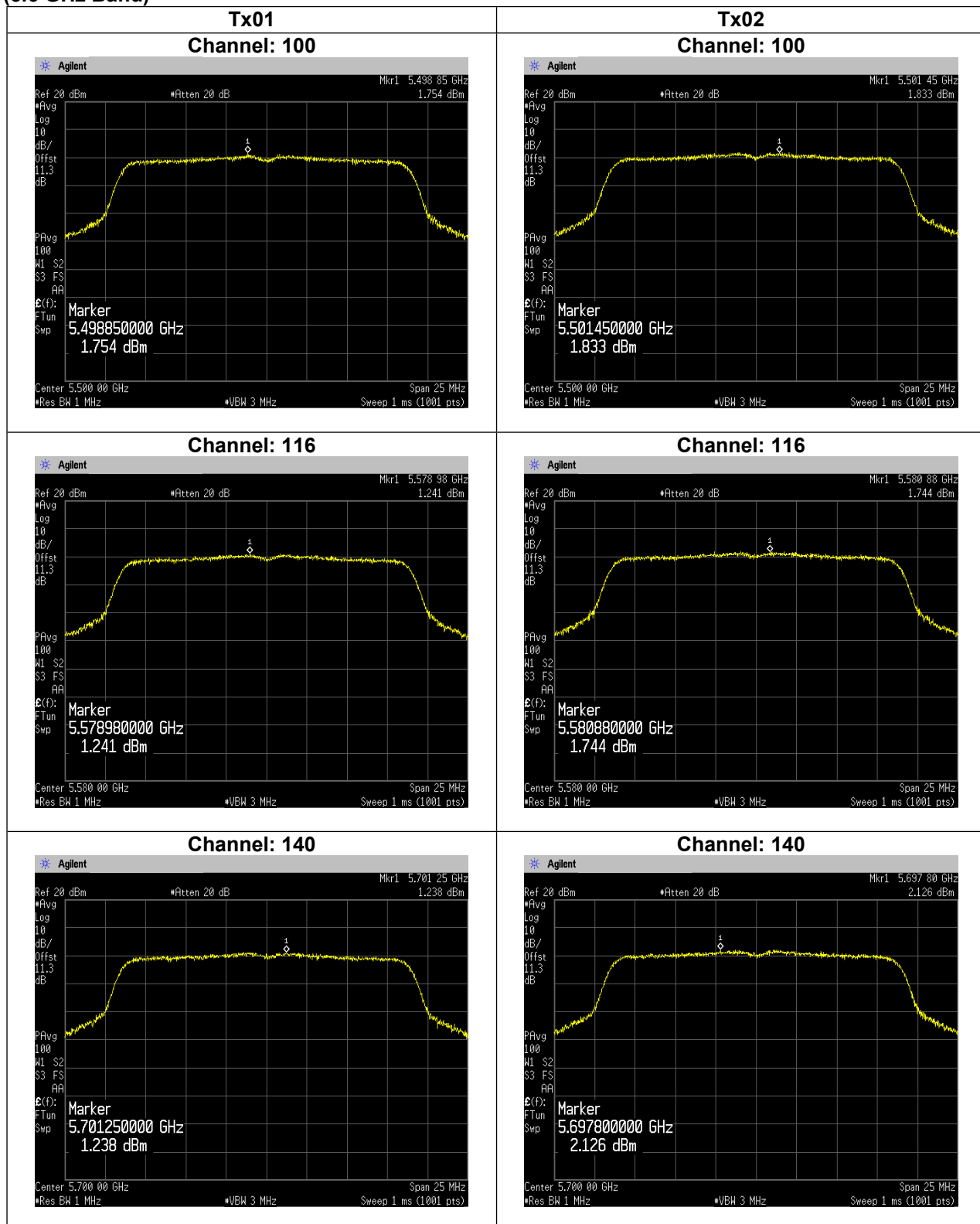
[IEEE802.11n (HT20)]
(5.2 GHz Band)



(5.3 GHz Band)

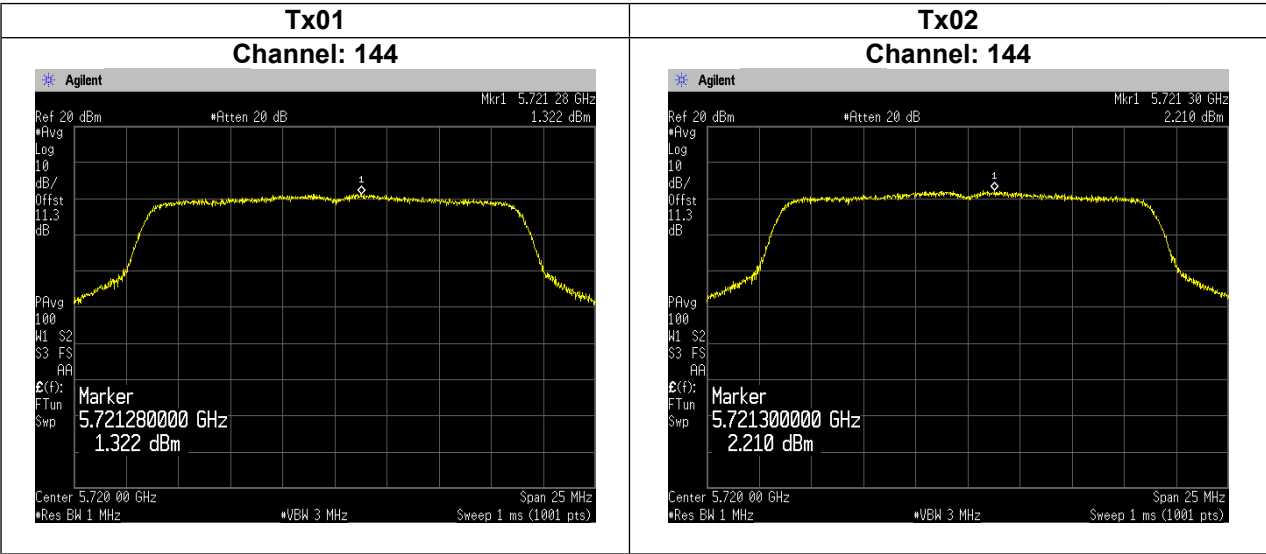


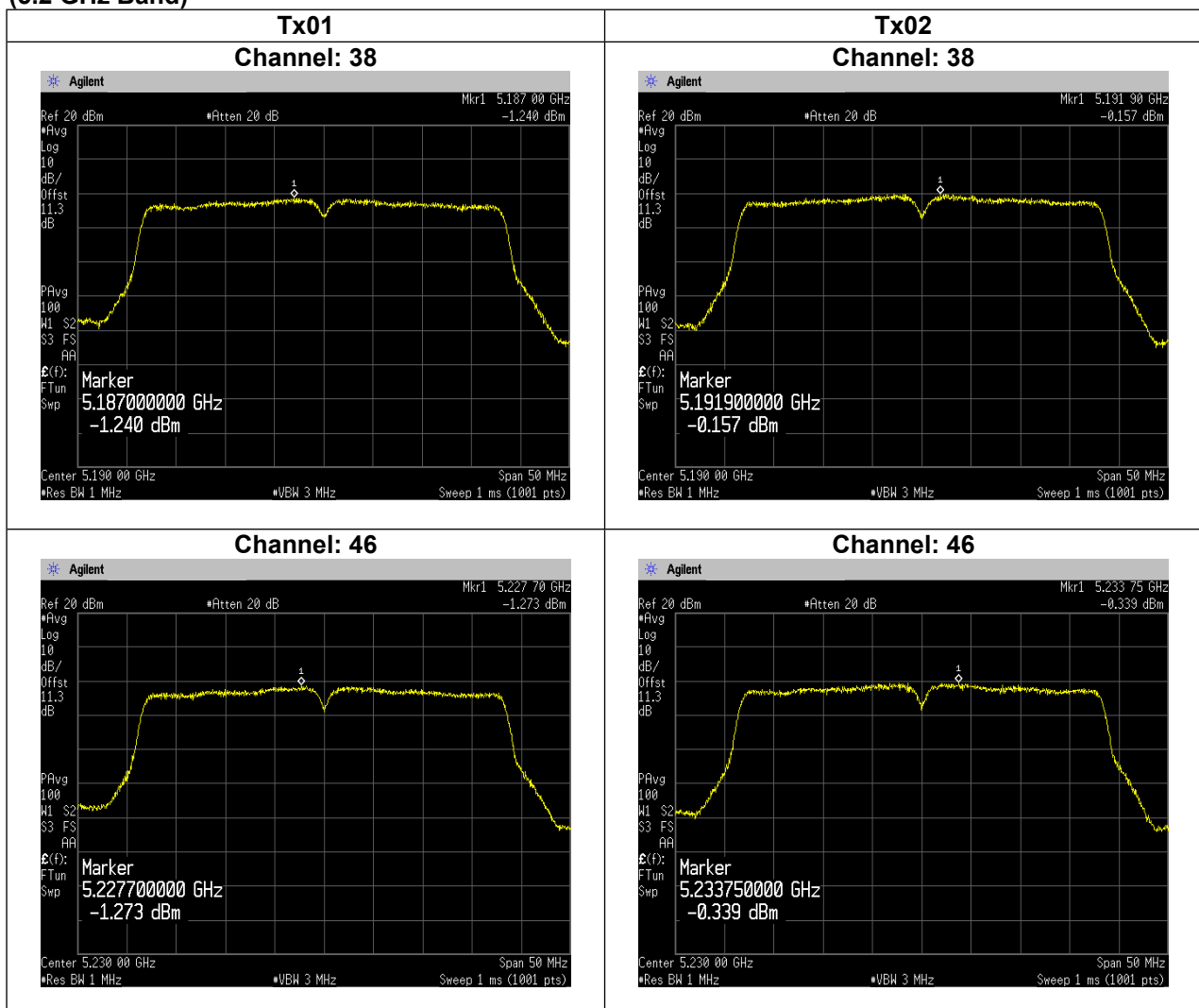
(5.6 GHz Band)



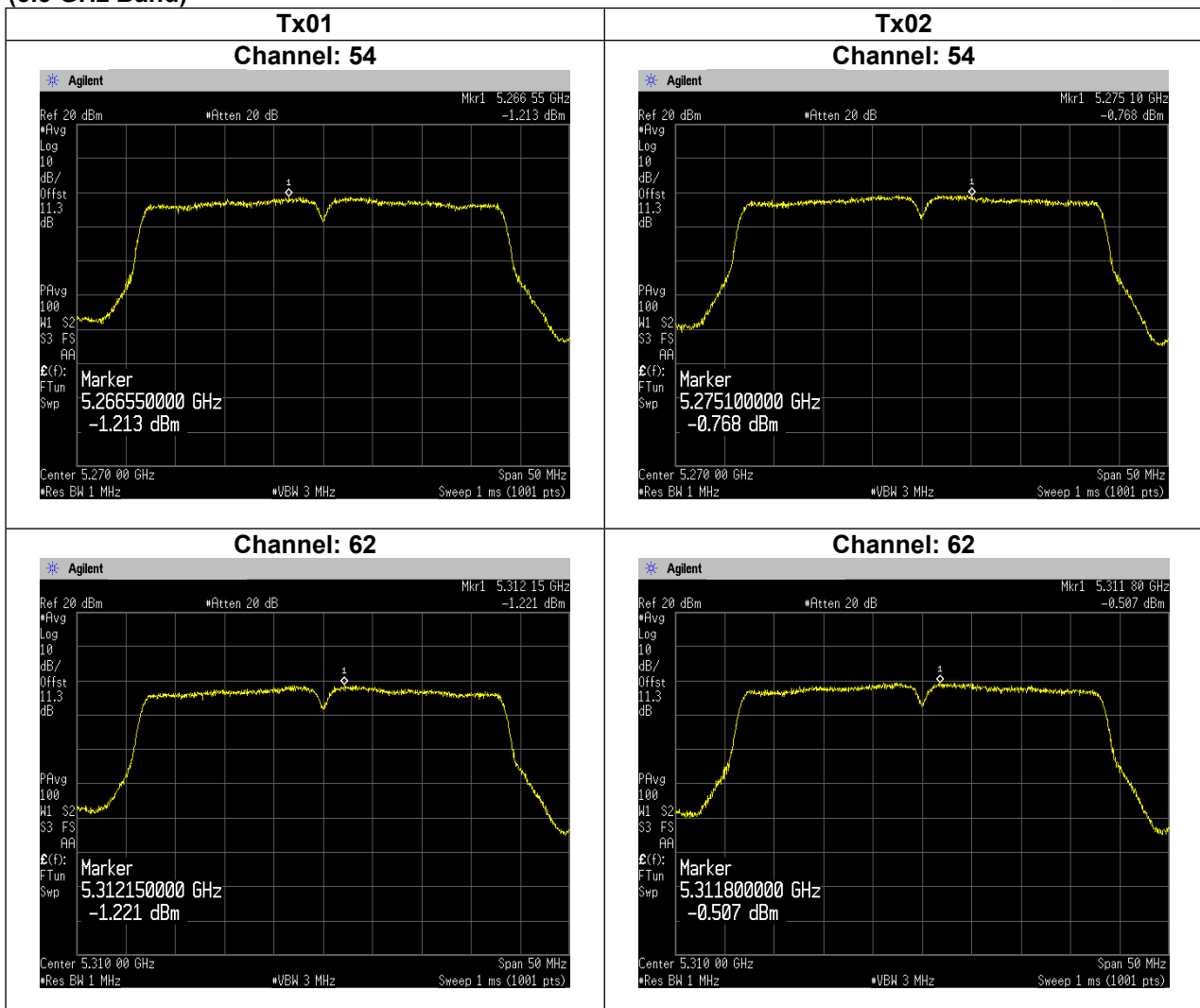


Japan

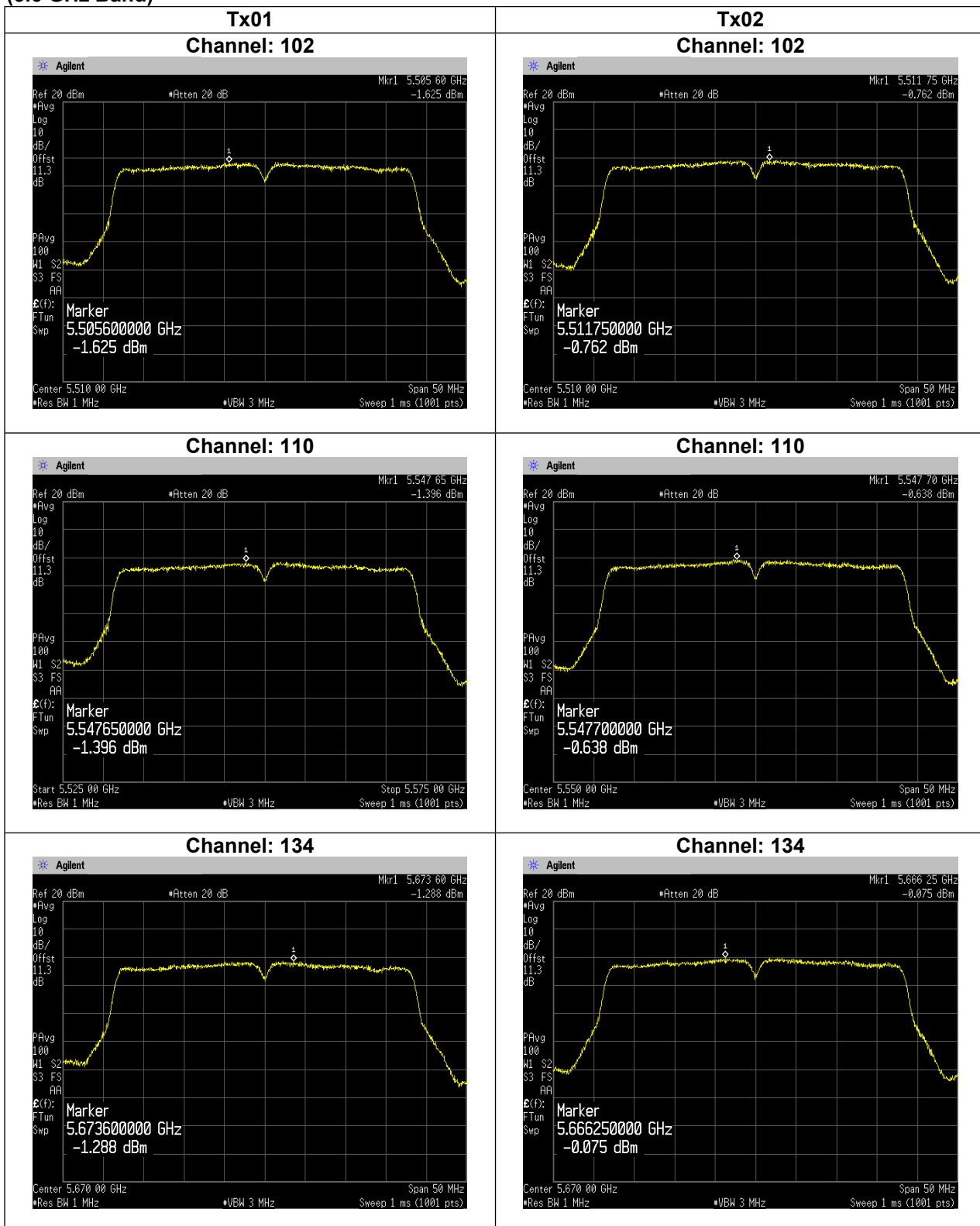


**[IEEE802.11n (HT40)]
(5.2 GHz Band)**

(5.3 GHz Band)

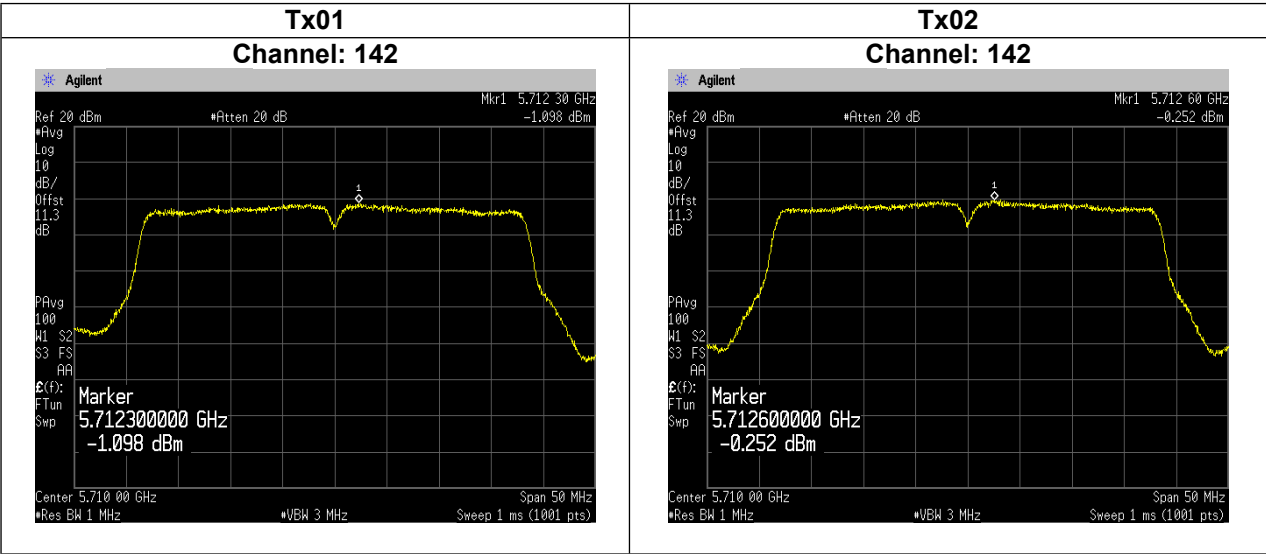


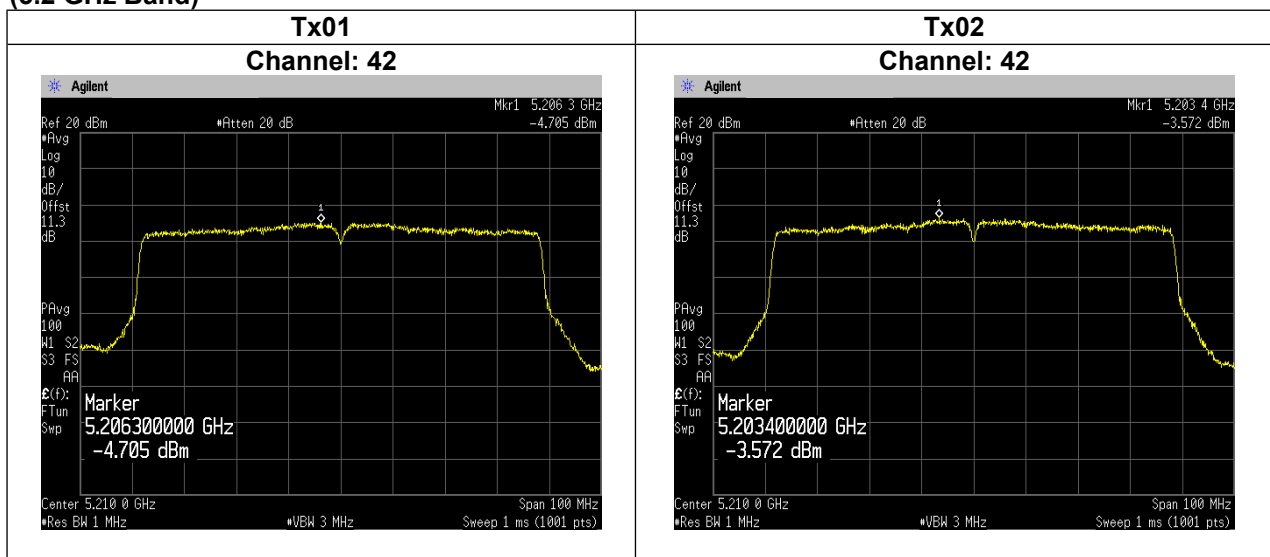
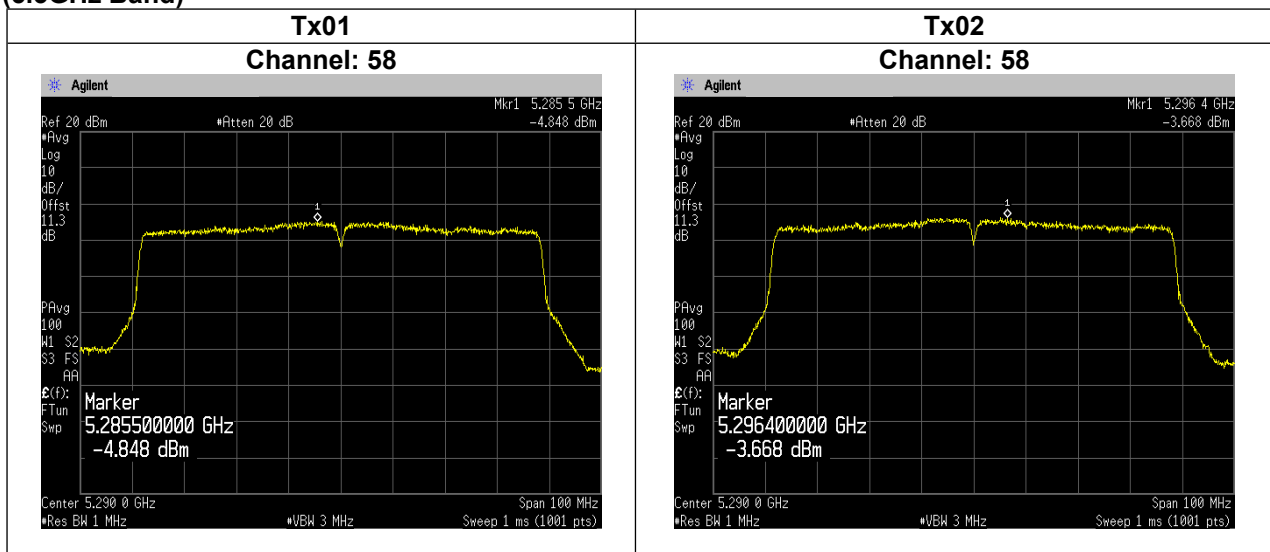
(5.6 GHz Band)



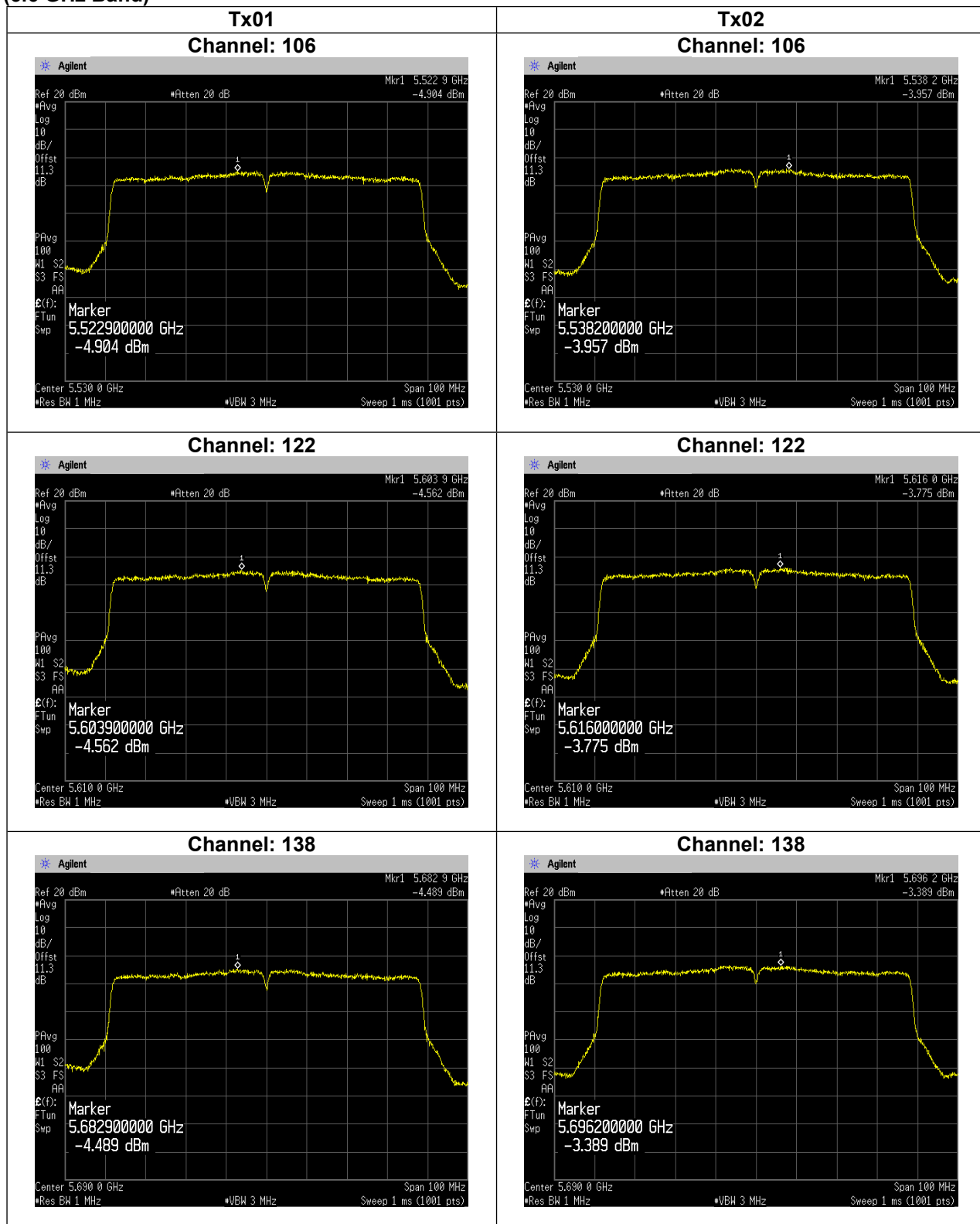


Japan



**[IEEE802.11ac (HT80)]
(5.2 GHz Band)****(5.3GHz Band)**

(5.6 GHz Band)



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 Broad-band horn Antenna). The antenna is positioned both the horizontal and vertical planes of polarization and height is varied 1m to 4m and stopped at height producing the maximum emission. As for the Loop antenna, it is positioned with its plane vertical, and the center of the Loop antenna is 1m above the ground plane.

The EUT is Placed on a turntable, which is 0.8m (below 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.

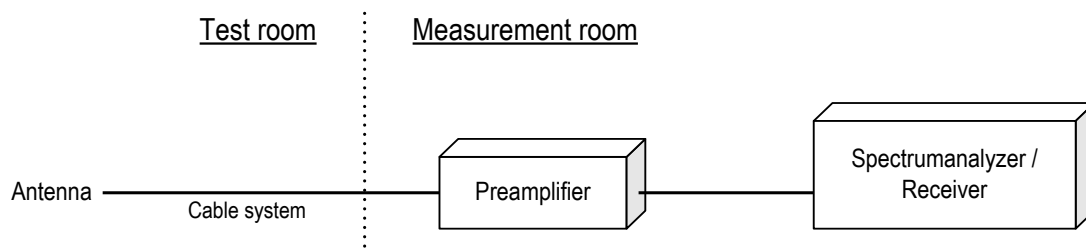
The EUT was set to operate with following conditions.

- 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	1.342	1.380	97.25	0.121
	W53	1.344	1.382	97.25	0.121
	W56	1.340	1.378	97.24	0.121
802.11n (20MHz)	W52	1.258	1.292	97.37	0.116
	W53	1.258	1.296	97.07	0.129
	W56	1.258	1.300	96.77	0.143
802.11n (40MHz)	W52	0.627	0.663	94.57	0.242
	W53	0.627	0.666	94.14	0.262
	W56	0.628	0.665	94.44	0.249
802.11ac (80MHz)	W52	0.315	0.352	89.52	0.481
	W53	0.315	0.352	89.64	0.475
	W56	0.315	0.352	89.50	0.482

Note: DCF = $10\log(1/x)$

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 Transmission mode

Modulation Type	Mode
IEEE802.11a	Simultaneous transmission (Tx01 + Tx02)
IEEE802.11n (HT20) IEEE802.11n (HT40) IEEE802.11ac (VHT80)	MIMO (Tx01 + Tx02)

4.4.5 Test data

Date : 23-September-2021
 Temperature : 23.0 [°C]
 Humidity : 71.0 [%]
 Test place : 3m Semi-anechoic chamber

Test engineer : Taiki Watanabe

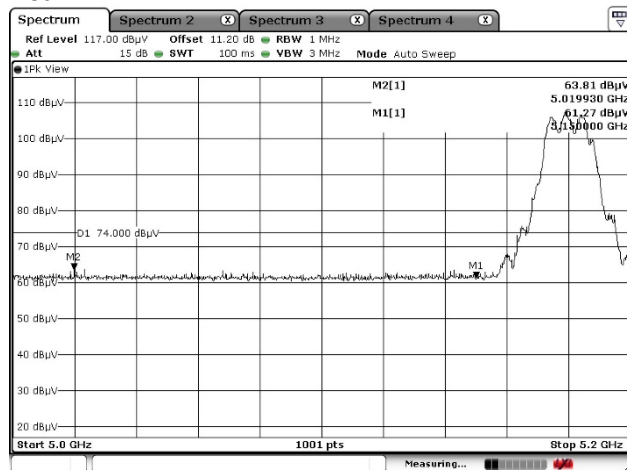
4.4.5.1 Restricted Bandedge

[IEEE802.11a]

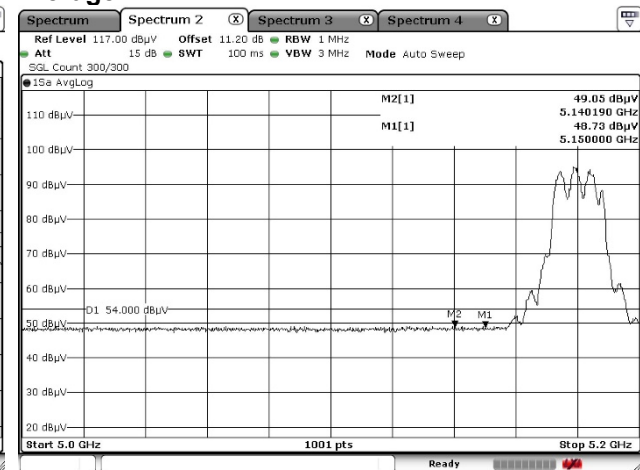
5.2 GHz Band, Channel Low

Horizontal

Peak

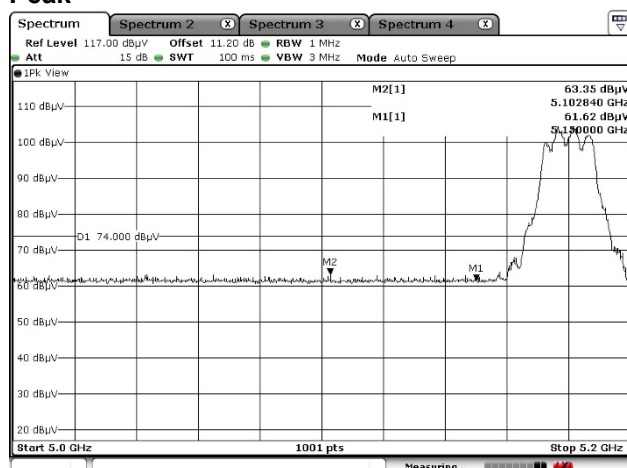


Average



Vertical

Peak

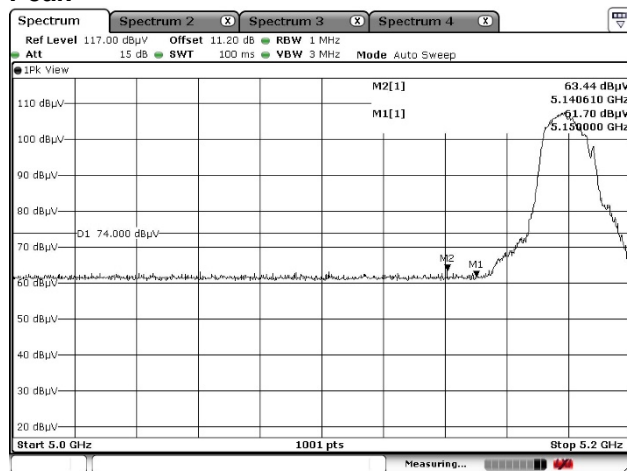


Average

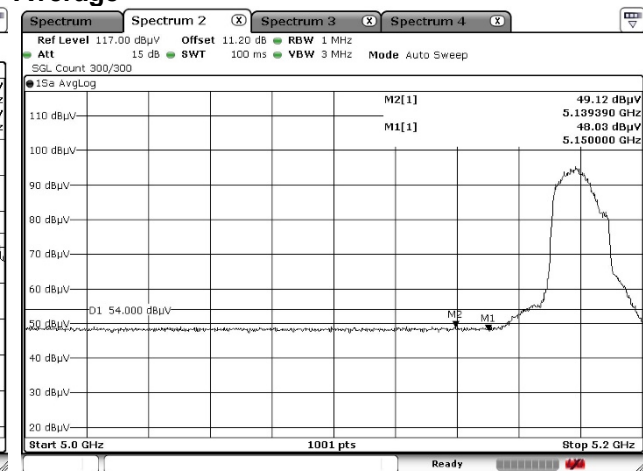


[IEEE802.11a]

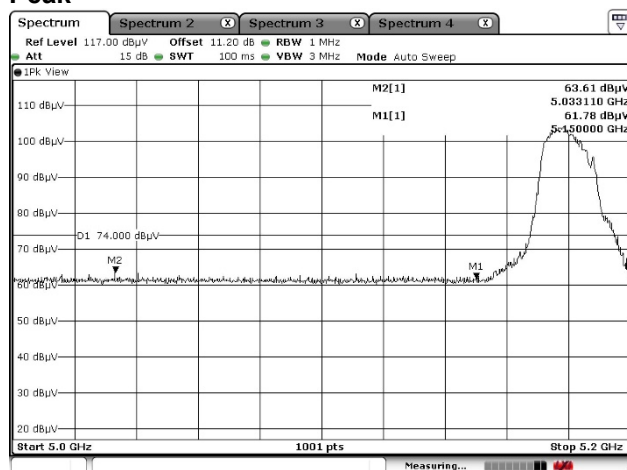
5.3 GHz Band, Channel High Horizontal Peak



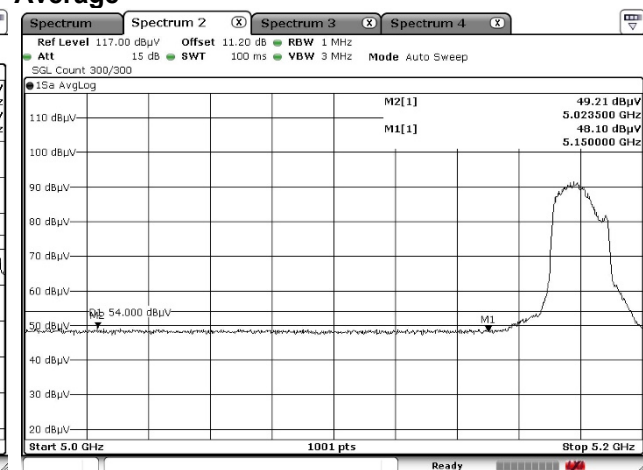
Average



Vertical Peak

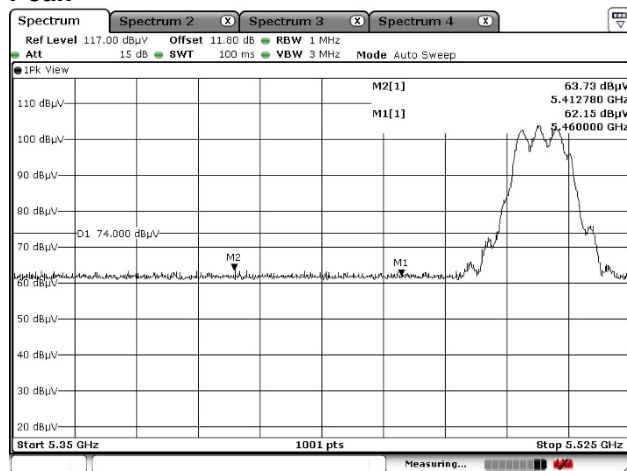


Average



[IEEE802.11a]

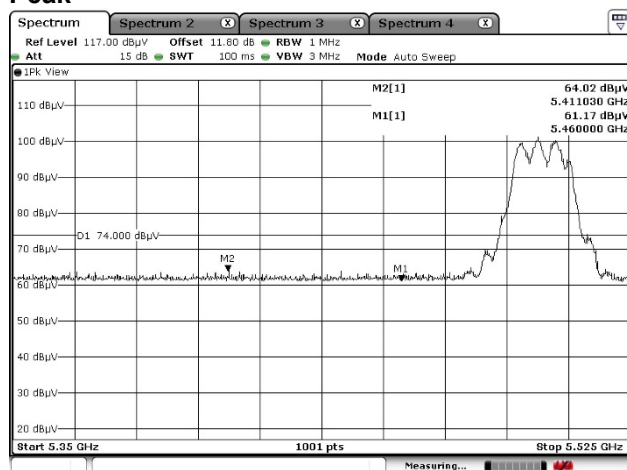
5.6 GHz Band, Channel Low Horizontal Peak



Average



Vertical Peak

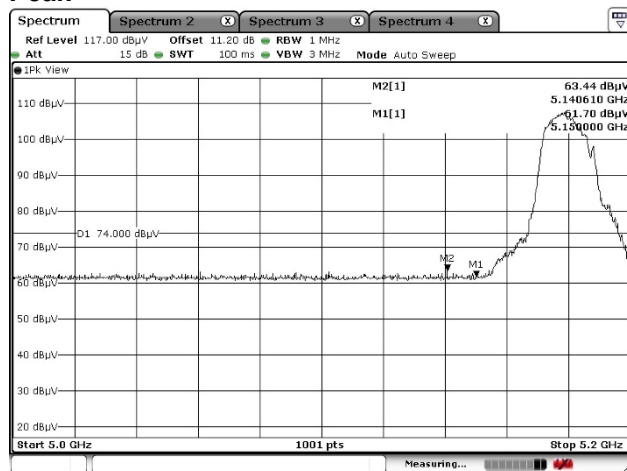


Average

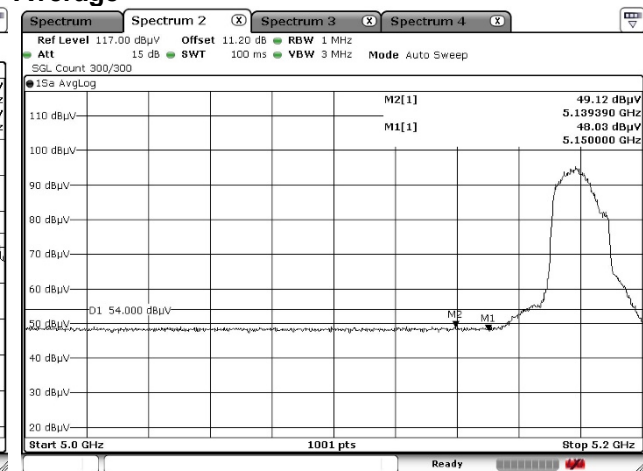


[IEEE802.11n (HT20)]

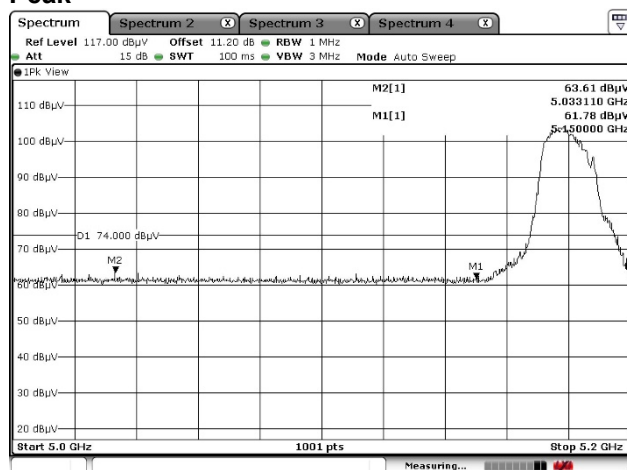
5.2 GHz Band, Channel Low Horizontal Peak



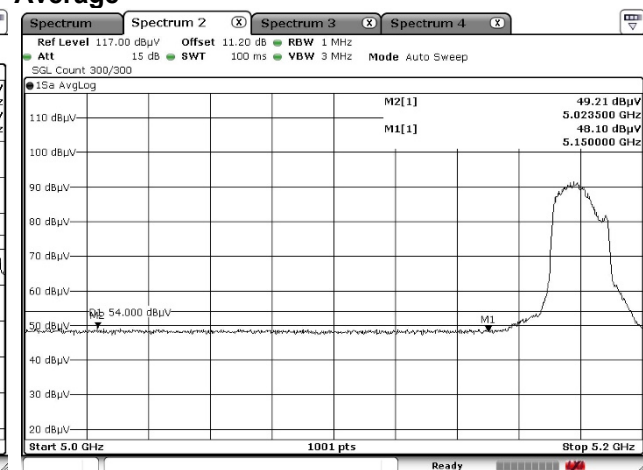
Average



Vertical Peak

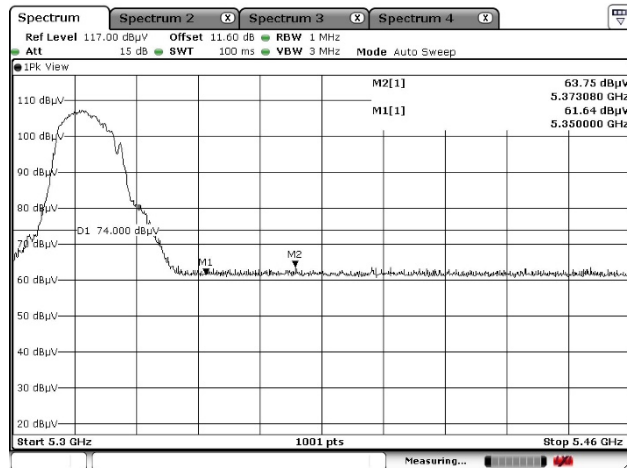


Average

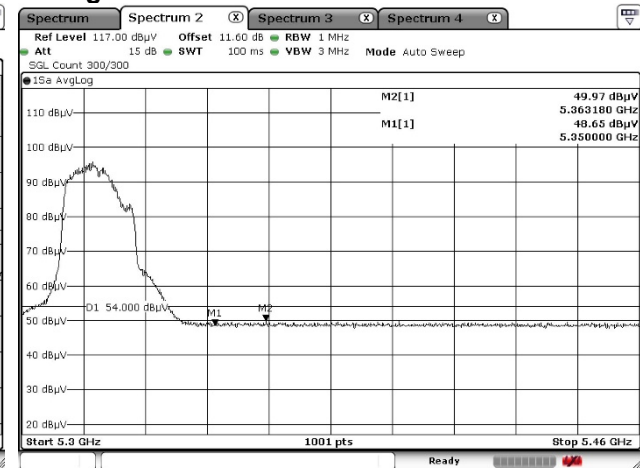


[IEEE802.11n (HT20)]

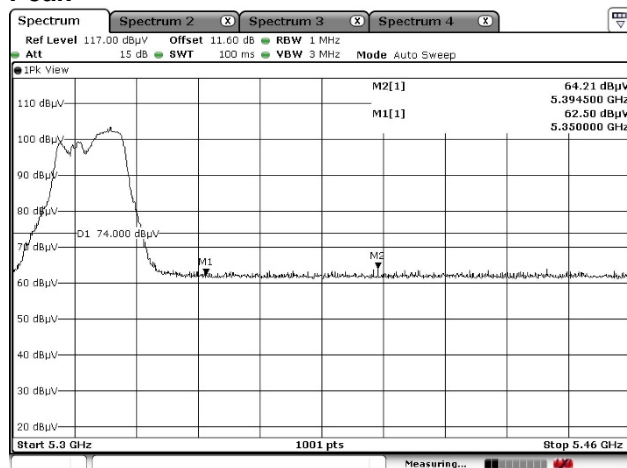
5.3 GHz Band, Channel High Horizontal Peak



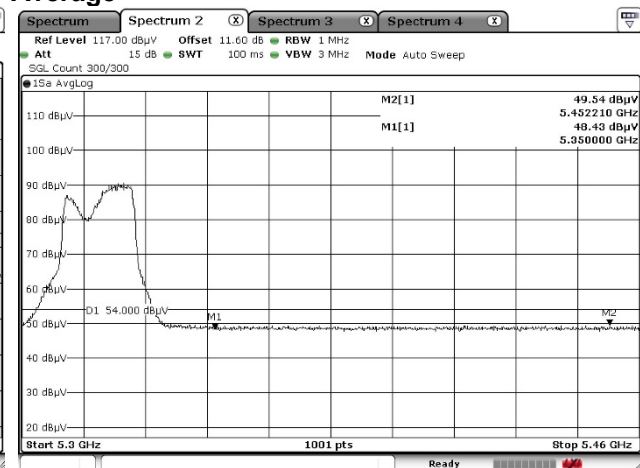
Average



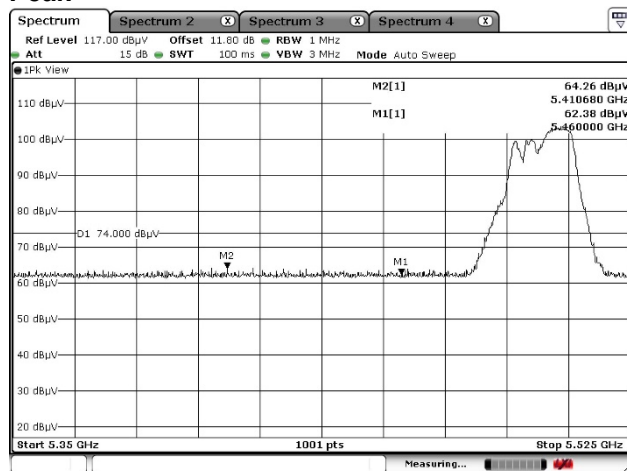
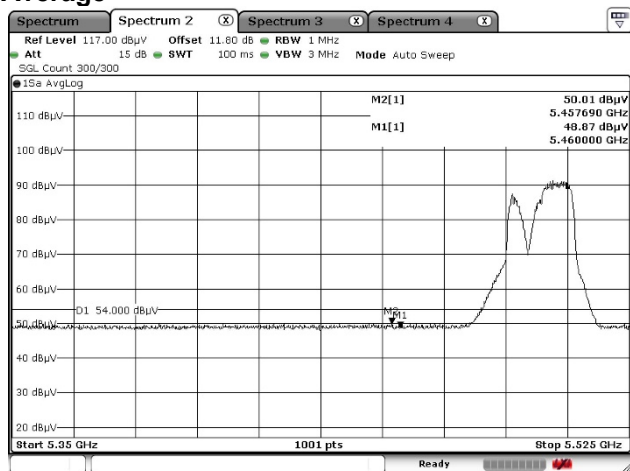
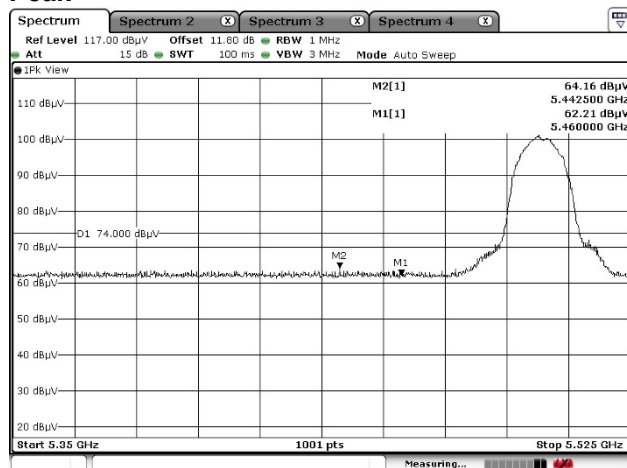
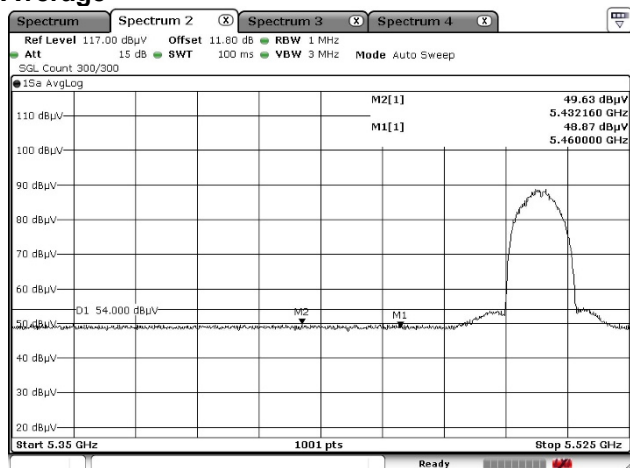
Vertical Peak



Average

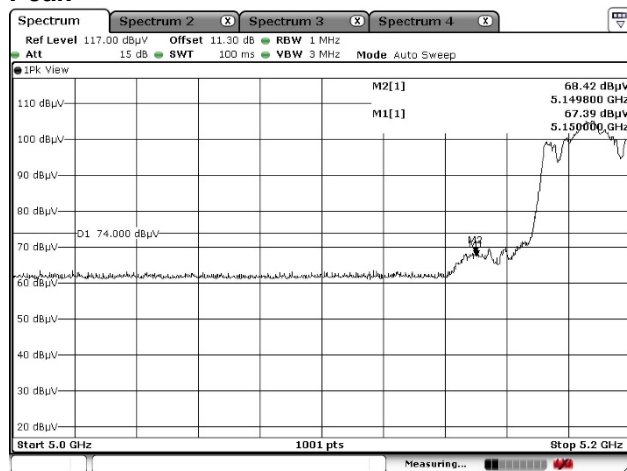


[IEEE802.11n (HT20)]

**5.6 GHz Band, Channel Low
Horizontal
Peak****Average****Vertical
Peak****Average**

[IEEE802.11n (HT40)]

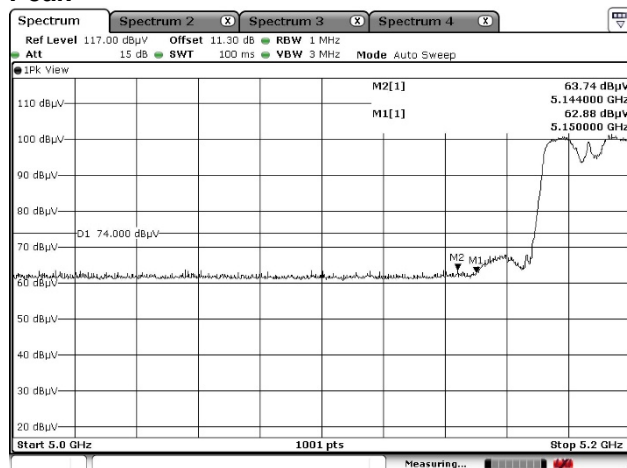
5.2 GHz Band, Channel Low Horizontal Peak



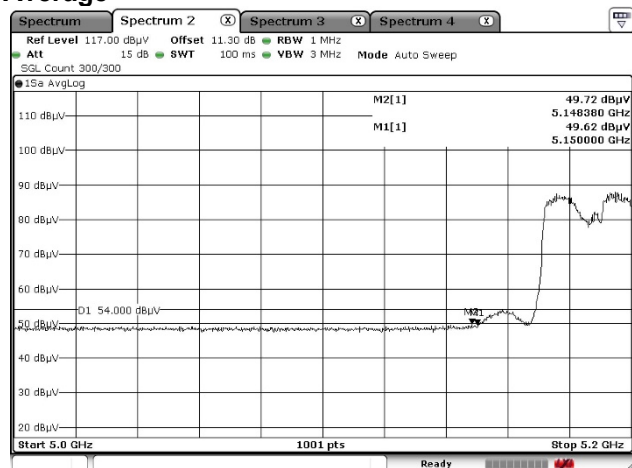
Average



Vertical Peak

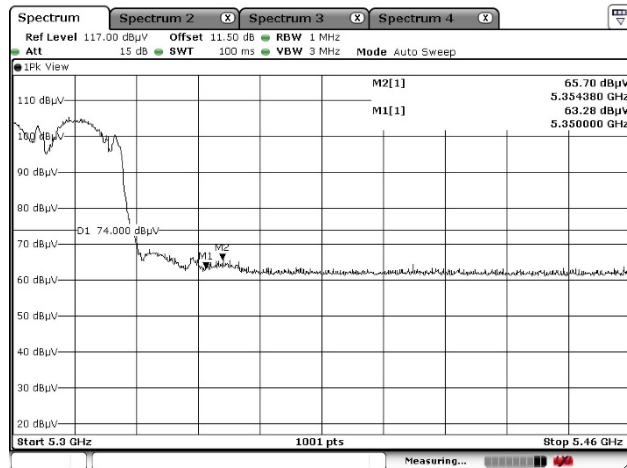


Average

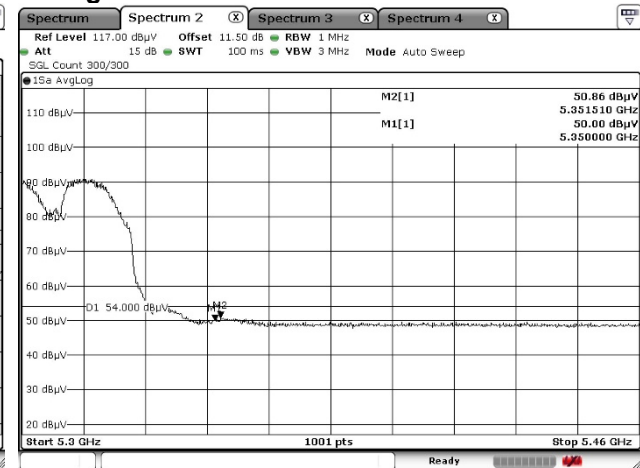


[IEEE802.11n (HT40)]

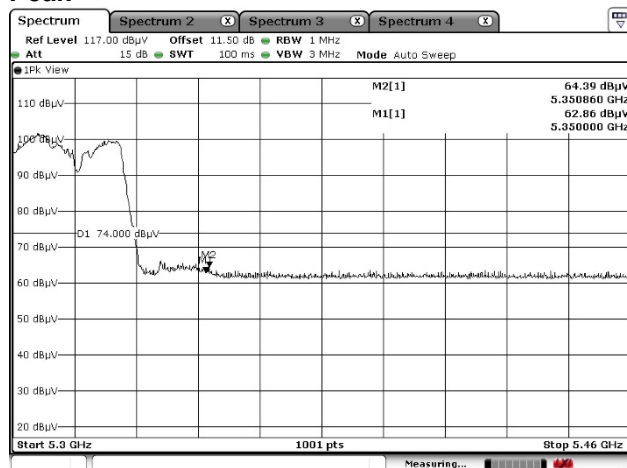
5.3 GHz Band, Channel High Horizontal Peak



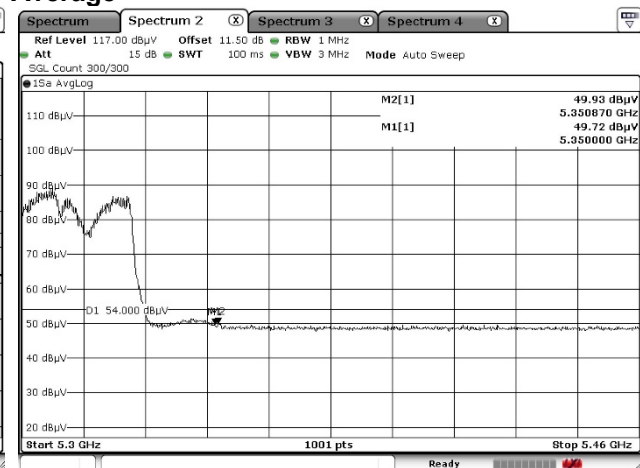
Average



Vertical Peak

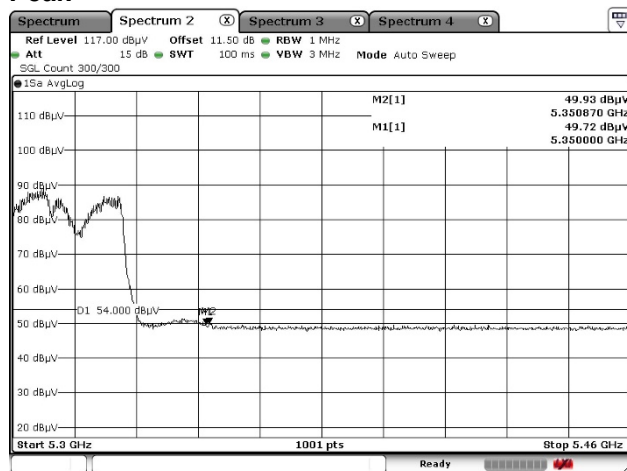


Average



[IEEE802.11n (HT40)]

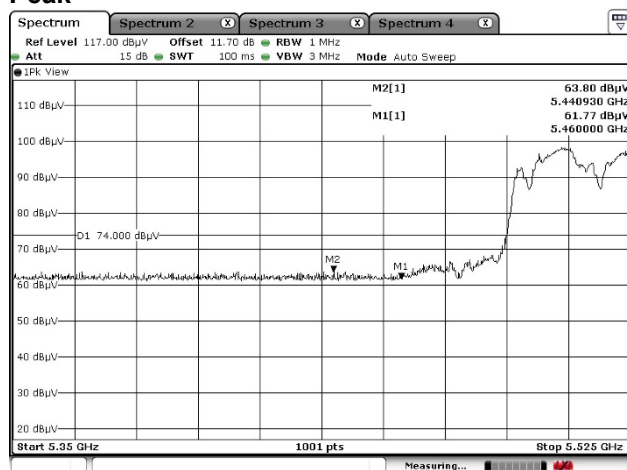
5.6 GHz Band, Channel Low Horizontal Peak



Average



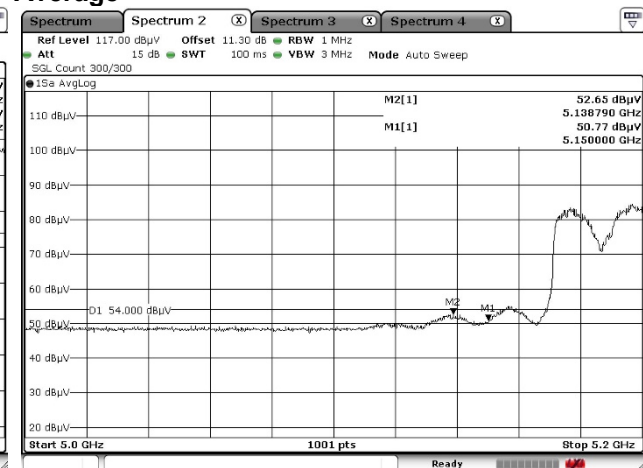
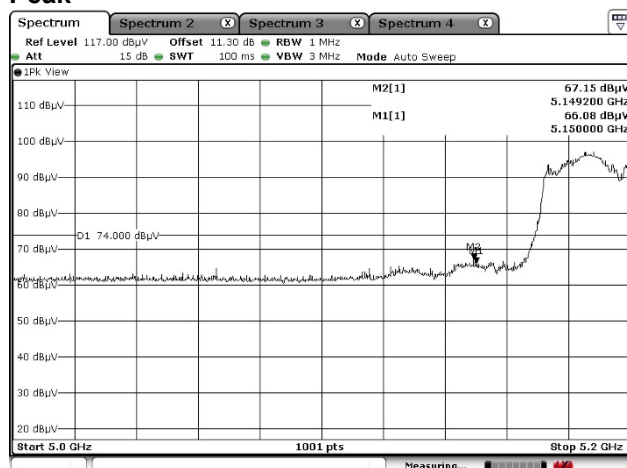
Vertical Peak



Average



[IEEE802.11ac (VHT80)]

**5.2 GHz Band, Channel Low
Horizontal
Peak****Average****Vertical
Peak****Average**